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Office

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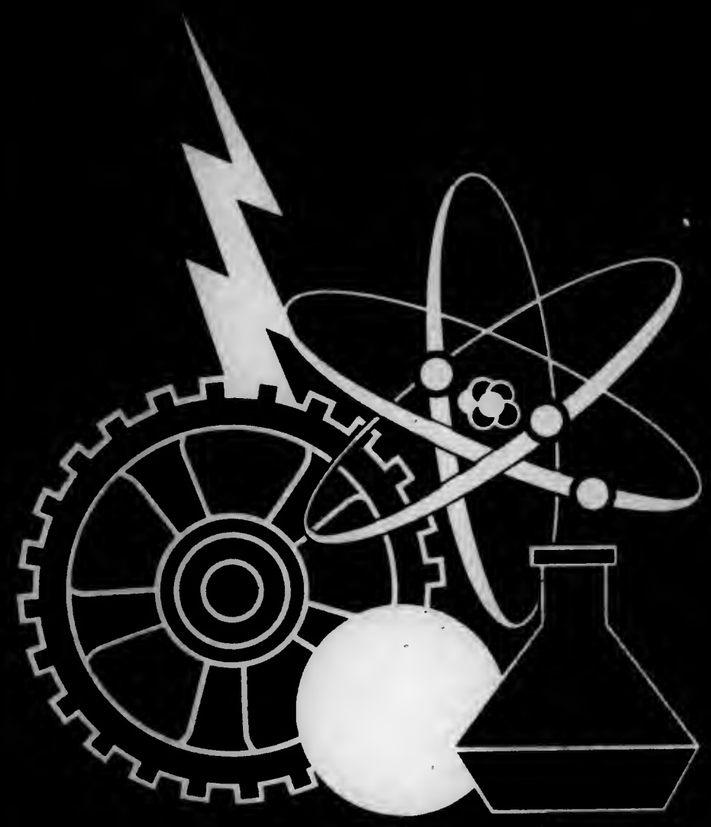
OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

May 4, 1993



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

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OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
May 4, 1993 Volume 1150 Number 1

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1149 O.G. 36, on Apr. 20, 1993.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed, effective May 1, 1993, due to changes in the exchange rate of the U.S. dollar to the German mark, and was announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

International fees were changed, effective on May 1, 1993, due to changes in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective Oct. 1, 1992, and were announced in the *Official Gazette* at 1141 O.G. 68, on Aug. 25, 1992.

The schedule of PCT fees (in U.S. dollars), effective May, 1, 1993, is as follows:

Transmittal fee:	200.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	620.00
—Corresponding prior U.S. national application filed	410.00
—Supplemental search fee, per additional invention	170.00
European Patent Office as ISA	1512.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	450.00
—Additional examination fee, per additional invention	140.00
—ISA not the USPTO	670.00
—Additional examination fee, per additional invention	230.00
International fees	
Basic fee	530.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	128.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	162.00

U.S. National Stage fees	Small Entity	Regular
USPTO was IPEA	320.00	640.00
USPTO was ISA but not IPEA	355.00	710.00
USPTO was neither ISA nor IPEA	475.00	950.00
Filing with an EPO or JPO search report	415.00	830.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	45.00	90.00
—For each independent claim in excess of 3	37.00	74.00
—For each claim in excess of 20	11.00	22.00
—For each application containing a multiple dependent claim	115.00	230.00
—Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Mar. 17, 1993

MICHAEL K. KIRK,
Acting Assistant Secretary and Acting Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d) provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on May 1, 1990 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,920,575 through 4,922,549
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on April 29, 1986 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,584,721 through 4,586,195
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after December 12, 1980, but before August 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months and eleven years

and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1992, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 , in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9f) $465.00
By other than a small entity $930.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9f) $935.00
By other than a small entity $1,870.00

(g) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity(§ 1.9(f)) $1,410.00
By other than a small entity $2,820.00

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(h), and (i), which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months , seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980

By a small entity (§ 1.9f) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been

(1) unavoidable $620.00
(2) unintentional $1,500.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED FEBRUARY 21, 1993 DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 32,614	06/930,683	3/01/88
(4,499,797)	(06/443,135)	(2/19/85)
4,499,619	06/478,336	2/19/85
4,499,623	06/572,715	2/19/85
4,499,628	06/502,700	2/19/85
4,499,634	06/485,967	2/19/85
4,499,635	06/473,455	2/19/85
4,499,638	06/430,288	2/19/85
4,499,639	06/372,132	2/19/85
4,499,643	06/510,119	2/19/85
4,499,645	06/495,110	2/19/85
4,499,646	06/511,438	2/19/85
4,499,647	06/415,282	2/19/85
4,499,653	06/548,547	2/19/85
4,499,659	06/435,004	2/19/85
4,499,669	06/430,940	2/19/85
4,499,675	06/458,677	2/19/85
4,499,678	06/505,825	2/19/85
4,499,682	06/420,036	2/19/85
4,499,683	06/535,499	2/19/85
4,499,684	06/587,186	2/19/85
4,499,688	06/336,517	2/19/85
4,499,694	06/504,725	2/19/85
4,499,699	06/480,400	2/19/85
4,499,702	06/334,716	2/19/85
4,499,704	06/542,921	2/19/85
4,499,706	06/496,168	2/19/85
4,499,708	06/326,087	2/19/85
4,499,711	06/585,674	2/19/85
4,499,718	06/509,244	2/19/85
4,499,725	06/509,191	2/19/85
4,499,726	06/558,478	2/19/85
4,499,727	06/479,469	2/19/85
4,499,735	06/578,304	2/19/85
4,499,741	06/379,642	2/19/85
4,499,745	06/229,499	2/19/85
4,499,747	06/457,287	2/19/85
4,499,751	06/481,148	2/19/85
4,499,753	06/501,313	2/19/85
4,499,758	06/447,577	2/19/85
4,499,760	06/466,724	2/19/85
4,499,762	06/514,374	2/19/85
4,499,764	06/416,698	2/19/85
4,499,769	06/481,973	2/19/85
4,499,770	06/400,571	2/19/85
4,499,776	06/472,130	2/19/85
4,499,777	06/471,769	2/19/85
4,499,782	06/426,127	2/19/85
4,499,784	06/323,640	2/19/85
4,499,788	06/402,297	2/19/85
4,499,795	06/535,321	2/19/85
4,499,800	06/481,548	2/19/85
4,449,802	06/426,866	2/19/85
4,499,803	06/539,807	2/19/85
4,499,809	06/512,219	2/19/85
4,499,810	06/506,218	2/19/85
4,499,811	06/540,237	2/19/85
4,499,813	06/437,448	2/19/85
4,499,817	06/473,347	2/19/85
4,499,824	06/531,150	2/19/85
4,499,828	06/500,112	2/19/85
4,499,829	06/473,177	2/19/85
4,499,830	06/280,585	2/19/85
4,499,833	06/451,516	2/19/85
4,499,835	06/493,989	2/19/85
4,499,843	06/298,133	2/19/85
4,499,848	06/562,935	2/19/85
4,499,859	06/495,584	2/19/85
4,499,861	06/551,264	2/19/85
4,499,862	06/551,265	2/19/85
4,499,863	06/439,154	2/19/85
4,499,867	06/610,109	2/19/85
4,499,870	06/488,688	2/19/85
4,499,872	06/456,612	2/19/85
4,499,874	06/586,573	2/19/85
4,499,875	06/433,911	2/19/85
4,499,879	06/489,696	2/19/85
4,499,883	06/564,408	2/19/85
4,499,885	06/527,874	2/19/85
4,499,893	06/426,370	2/19/85
4,499,894	06/406,504	2/19/85
4,499,897	06/472,934	2/19/85
4,499,901	06/509,500	2/19/85
4,499,904	06/469,036	2/19/85
4,499,910	06/324,031	2/19/85
4,499,923	06/592,217	2/19/85
4,499,925	06/442,751	2/19/85
4,499,926	06/549,729	2/19/85

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Patent No.	Serial Number	Issue Date
4,499,927	06/559,015	2/19/85
4,499,930	06/470,800	2/19/85
4,499,932	06/463,238	2/19/85
4,499,942	06/496,676	2/19/85
4,499,943	06/504,178	2/19/85
4,499,947	06/560,264	2/19/85
4,499,948	06/560,695	2/19/85
4,499,949	06/502,817	2/19/85
4,499,953	06/540,097	2/19/85
4,499,957	06/443,231	2/19/85
4,499,965	06/377,609	2/19/85
4,499,966	06/468,392	2/19/85
4,499,987	06/412,570	2/19/85
4,499,988	06/491,239	2/19/85
4,499,989	06/375,748	2/19/85
4,499,993	06/461,534	2/19/85
4,499,998	06/476,809	2/19/85
4,500,001	06/555,164	2/19/85
4,500,004	06/530,829	2/19/85
4,500,006	06/605,221	2/19/85
4,500,015	06/381,195	2/19/85
4,500,016	06/450,333	2/19/85
4,500,021	06/498,255	2/19/85
4,500,026	06/313,283	2/19/85
4,500,030	06/417,210	2/19/85
4,500,035	06/506,384	2/19/85
4,500,036	06/582,426	2/19/85
4,500,037	06/383,157	2/19/85
4,500,039	06/435,602	2/19/85
4,500,040	06/386,935	2/19/85
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4,500,080	06/407,732	2/19/85
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4,500,094	06/381,158	2/19/85
4,500,100	06/633,800	2/19/85
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4,500,129	06/473,797	2/19/85
4,500,130	06/455,566	2/19/85
4,500,134	06/404,693	2/19/85
4,500,137	06/341,542	2/19/85
4,500,140	06/545,682	2/19/85
4,500,142	06/503,626	2/19/85
4,500,145	06/459,768	2/19/85
4,500,148	06/462,580	2/19/85
4,500,150	06/391,114	2/19/85
4,500,163	06/288,085	2/19/85
4,500,165	06/364,649	2/19/85
4,500,166	06/398,640	2/19/85
4,500,169	06/397,819	2/19/85
4,500,173	06/490,621	2/19/85
4,500,175	06/431,472	2/19/85
4,500,182	06/453,481	2/19/85
4,500,183	06/456,103	2/19/85
4,500,194	06/365,391	2/19/85
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4,500,208	06/388,860	2/19/85
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4,500,212	06/627,128	2/19/85
4,500,219	06/409,050	2/19/85
4,500,224	06/516,453	2/19/85
4,500,231	06/426,446	2/19/85
4,500,237	06/520,286	2/19/85
4,500,240	06/488,832	2/19/85
4,500,242	06/455,106	2/19/85
4,500,246	06/471,056	2/19/85
4,500,247	06/581,423	2/19/85
4,500,253	06/433,136	2/19/85
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4,500,282	06/267,477	2/19/85
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4,500,287	06/441,905	2/19/85
4,500,289	06/405,427	2/19/85
4,500,290	06/502,762	2/19/85
4,500,295	06/498,337	2/19/85
4,500,296	06/504,936	2/19/85
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4,500,349	06/518,775	2/19/85
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4,500,437	06/422,276	2/19/85
4,500,440	06/628,536	2/19/85
4,500,448	06/541,275	2/19/85
4,500,450	06/522,204	2/19/85
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4,500,455	06/400,533	2/19/85
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4,500,491	06/533,913	2/19/85

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4,500,533	06/506,932	2/19/85
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4,500,548	06/358,407	2/19/85
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4,500,560	06/407,036	2/19/85
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4,500,573	06/442,033	2/19/85
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4,805,361	07/115,382	2/21/89
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4,806,623	07/087,224	2/21/89
4,806,635	07/222,319	2/21/89
4,806,637	06/840,505	2/21/89
4,806,647	07/156,674	2/21/89
4,806,648	06/943,663	2/21/89
4,806,653	06/920,345	2/21/89
4,806,660	07/211,116	2/21/89
4,806,661	07/146,551	2/21/89
4,806,662	06/828,682	2/21/89
4,806,663	07/035,049	2/21/89
4,806,667	06/937,759	2/21/89
4,806,674	06/821,324	2/21/89
4,806,691	06/905,170	2/21/89
4,806,693	07/104,147	2/21/89
4,806,704	07/059,030	2/21/89
4,806,705	07/088,913	2/21/89
4,806,710	07/095,280	2/21/89
4,806,711	07/195,716	2/21/89
4,806,719	07/068,449	2/21/89
4,806,723	07/062,629	2/21/89
4,806,729	07/141,408	2/21/89
4,806,736	07/104,659	2/21/89
4,806,746	07/039,214	2/21/89
4,806,749	07/102,424	2/21/89
4,806,760	07/022,061	2/21/89
4,806,765	06/916,822	2/21/89
4,806,767	07/068,834	2/21/89
4,806,770	07/010,183	2/21/89
4,806,776	06/762,635	2/21/89
4,806,777	07/119,975	2/21/89
4,806,782	07/132,216	2/21/89
4,806,783	07/160,256	2/21/89
4,806,808	07/096,164	2/21/89
4,806,814	07/121,127	2/21/89
4,806,827	06/914,848	2/21/89
4,806,836	07/143,784	2/21/89
4,806,837	07/142,139	2/21/89
4,806,848	07/024,490	2/21/89
4,806,858	07/076,039	2/21/89
4,806,862	06/895,192	2/21/89
4,806,888	06/851,726	2/21/89
4,806,889	07/187,430	2/21/89
4,806,898	07/194,269	2/21/89
4,806,907	06/892,422	2/21/89
4,806,908	07/049,371	2/21/89
4,806,909	07/158,784	2/21/89
4,806,914	07/046,812	2/21/89
4,806,915	07/092,484	2/21/89
4,806,925	07/042,441	2/21/89
4,806,931	07/147,900	2/21/89
4,806,934	07/040,399	2/21/89
4,806,938	07/094,060	2/21/89
4,806,941	07/048,192	2/21/89
4,806,954	07/075,421	2/21/89
4,806,972	07/088,688	2/21/89
4,806,984	07/154,235	2/21/89

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4,806,998	07/067,109	2/21/89
4,807,000	07/020,618	2/21/89
4,807,008	07/095,974	2/21/89
4,807,014	07/035,539	2/21/89
4,807,030	06/874,042	2/21/89
4,807,032	07/218,468	2/21/89
4,807,035	07/072,366	2/21/89
4,807,039	07/052,332	2/21/89
4,807,081	07/092,832	2/21/89
4,807,092	07/069,050	2/21/89
4,807,095	07/180,127	2/21/89
4,807,099	07/024,614	2/21/89
4,807,100	07/028,395	2/21/89
4,807,101	07/083,042	2/21/89
4,807,102	07/010,852	2/21/89
4,807,105	07/013,828	2/21/89
4,807,125	07/170,610	2/21/89
4,807,130	06/946,736	2/21/89
4,807,136	07/112,788	2/21/89
4,807,137	06/782,410	2/21/89
4,807,150	06/914,694	2/21/89
4,807,160	06/893,646	2/21/89
4,807,163	06/760,666	2/21/89
4,807,166	06/909,829	2/21/89
4,807,167	07/027,367	2/21/89
4,807,168	07/060,201	2/21/89
4,807,170	06/845,929	2/21/89
4,807,177	06/872,245	2/21/89
4,807,178	06/930,232	2/21/89
4,807,179	06/721,480	2/21/89
4,807,183	07/210,754	2/21/89
4,807,187	07/022,692	2/21/89
4,807,203	06/867,070	2/21/89
4,807,221	06/801,289	2/21/89
4,807,236	07/072,310	2/21/89
4,807,237	06/888,128	2/21/89
4,807,242	07/076,184	2/21/89
4,807,246	07/043,543	2/21/89
4,807,249	07/015,713	2/21/89
4,807,260	07/105,069	2/21/89
4,807,262	07/188,720	2/21/89
4,807,272	06/845,688	2/21/89
4,807,278	07/048,736	2/21/89
4,807,286	07/041,308	2/21/89
4,807,290	06/784,684	2/21/89
4,807,299	07/100,114	2/21/89

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,461,199, Re. S.N. 08/027,317, Filed Mar. 8, 1993, Cl. 084, ELECTRONIC MUSICAL INSTRUMENT, Teruo Hiyoshi, et. al., Owner of Record: *Yamaha Corp., Hamamatsu-Shi, Japan*, Attorney or Agent: David L. Fehrman, Ex. Gp.: 2107

4,689,380, Re. S.N. 07/925,492, Filed Aug. 5, 1992, Cl. 526/280, CYCLOOLEFIN COPOLYMERIZATION METHOD, FEED COMPOSITION AND PRODUCT, Steven H. Nahm, Owner of Record: *Hercules Inc., Wilmington, Del.*, Attorney or Agent: Neil F. Greenblum, Ex. Gp.: 1505

4,767,651, Re. S.N. 07/869,896, Filed Apr. 15, 1992, Cl. 428/34.1, MULTIPLE LAYER FILMS AND CONTAINERS MADE THEREFROM, John F. Starczewski, Owner of Record: *American National Can Co., Chicago, Ill.*, Attorney or Agent: Thomas J. Kowalski, Ex. Gp.: 1508

4,928,283, Re. S.N. 08/016,004, Filed Feb. 10, 1993, Cl. 378/20, X-RAY TOMOGRAPHY APPARATUS, Bernard M. Gordon, Owner of Record: *Analogic Corp., Peabody, Mass.*, Attorney or Agent: Toby H. Kusmer, Ex. Gp.: 2506

4,967,545, Re. S.N. 07/972,320, Filed Nov. 5, 1992, Cl. 56/12.9, HARVESTING APPARATUS FOR LEAFY VEGETABLES, Rich Fischer, et. al., Owner of Record: *Fresh Choice Produce Inc., Salinas, Calif.*, Attorney or Agent: Matthew L. Schneider, Ex. Gp.: 3506

4,982,285, Re. S.N. 07/997,238, Filed Dec. 28, 1992, Cl. 358/136, APPARATUS FOR ADAPTIVE INTER-FRAME PREDICTIVE ENCODING OF VIDEO SIGNAL, Kenji Sugiyama, Owner of Record: *Victor Company of Japan, Ltd., Yokohama, Japan*, Attorney or Agent: Abraham Kasdan, Ex. Gp.: 2602

4,982,908, Re. S.N. 07/995,147, Filed Dec. 22, 1992, Cl. 242/1.1, METHOD AND APPARATUS FOR WINDING TWO-POLE ELECTRIC MOTOR STATORS, Sabatino Luciani, Florence, Italy, Owner of Record: *Axis S.P.A., Firenze, Italy*, Attorney or Agent: David C. Radulesco, Ex. Gp.: 2405

4,989,805, Re. S.N. 08/033,660, Filed Feb. 4, 1993, Cl. 242/107.1, RETRACTABLE REEL ASSEMBLY FOR TELEPHONE EXTENSION CORD, Paul C. Burke, Owner of Record: *Inventor*, Attorney or Agent: Patrick D. Ertel, Ex. Gp.: 2405

4,996,221, Re. S.N. 08/023,891, Filed Feb. 26, 1993, Cl. 514/399, HISTAMINE DERIVATIVES AS IMMUNE MODULATORS, Kenneth L. Melman, et. al., Owner of Record: *The Board of Trustees of the Leland Stanford Jr. University, Stanford University, Stanford, Calif.*, Attorney or Agent: Barbara Rae-Ventor, Ex. Gp.: 1803

4,997,577, Re. S.N. 08/026,516, Filed Mar. 4, 1993, Cl. 210/767, SYSTEMS AND METHODS FOR REMOVING UNDESIRED MATTER FROM BLOOD CELLS, Mary A. Stewart, Owner of Record: *Baxter International Inc., Deerfield, Ill.*, Attorney or Agent: Daniel D. Ryan, Ex. Gp.: 1306

5,000,859, Re. S.N. 08/032,581, Filed Mar. 17, 1993, Cl. 210/713, PROCESS FOR SODIUM SULFIDE/FERROUS SULFATE TREATMENT OF HEXAVALENT CHROMIUM AND OTHER HEAVY METALS, Dan F. Suciu, et. al., Owner of Record: *United States of America as Represented by the Secretary of the Air Force, United States of America*, Attorney or Agent: Bobby D. Scearce, Ex. Gp.: 1306

5,026,118, Re. S.N. 08/027,701, Filed Mar. 8, 1993, Cl. 297/238, BUILT-IN INFANT'S SEAT FOR VEHICLES, Louis M. Vander Stel, et. al., Owner of Record: *Inventor*, Attorney or Agent: James E. Bartek, Ex. Gp.: 3507

5,036,210, Re. S.N. 08/029,373, Filed Mar. 8, 1993, Cl. 235/493, MAGNETICALLY DETECTABLE PLASTIC PIPE, William L. Goodman, Owner of Record: *Gas Research Institute, Chicago, Ill.*, Attorney or Agent: Neal J. Mosely, Ex. Gp.: 2309

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,393,203, Reexam. No. 90/002,939, Requested Jan. 28, 1993, Cl. 536/124, PROCESS OF PREPARING ALKYLPOLYSACCHARIDES, Mark H. K. Mao, et. al., Owner of Record: *The Proctor & Gamble Co., Cincinnati, Ohio*, Attorney or Agent: Robert B. Aylor, The Procter & Gamble Co., Cincinnati, Ohio, Ex. Gp.: 1803, Requester: Laura A. Bauer, New York, N.Y.

4,484,809, Reexam. No. 90/002,978, Requested Mar. 2, 1993, Cl. 355/3DR, GLOW DISCHARGE METHOD AND APPARATUS AND PHOTORECEPTOR DEVICES MADE THEREWITH, John H. Coleman, Owner of Record: *Plasma Physics Corp., Locust Valley, N.Y.*, Attorney or Agent: None, Ex. Gp.: 2105, Requester: Perry Palan, Barnes & Thornburg, Washington, D.C.

4,558,302, Reexam. No. 90/002,907, Requested Dec. 14, 1992, Cl. 340/347, HIGH SPEED DATA COMPRESSION AND DECOMPRESSION APPARATUS AND METHOD, Terry Welch, Owner of Record: *Sperry Corp., Great Neck, N.Y.*, Attorney or Agent: Unisys Corp., Blue Bell, Pa., Ex. Gp.: 2107, Requester: Klaus Holtz, San Francisco, Calif.

4,565,647, Reexam. No. 90/002,945, Requested Feb. 1, 1993, Cl. 252/354, FOAMING SURFACTANT COMPOSITIONS, Ramon A. Llenado, Owner of Record: *The Procter & Gamble Co., Cincinnati, Ohio*, Attorney or Agent: Robert B. Aylor, The Proctor & Gamble Co., Cincinnati, Ohio, Ex. Gp.: 2203, Requester: Laura A. Bauer, New York, N.Y.

4,845,027, Reexam. No. 90/003,001, Requested Mar. 8, 1993, Cl. 435/007, FLUOROMETRIC ASSAY OF ALLERGIC REACTIONS, Emanuel Calenoff, et. al., Owner of Record: *Biowittraker, Inc., Dover, Del.*, Attorney or Agent: Joseph M. Skerpon, Banner, Birch, McKie & Beckett, Washington, D.C., Ex. Gp.: 1815, Requester: Owner

5,037,753, Reexam. No. 90/002,906, Requested Dec. 9, 1992, Cl. 435/235.100, FELINE-T-LYMPHOTROPHIC LENTIRVIRUS, Niels Pederson, et. al., Owner of Record: *Regents of the California University, Berkley, Calif.*, Attorney or Agent: James M. Helsin, Townsend and Townsend, Palo Alto, Calif., Ex. Gp.: 1805, Requester: Symbiotics Corp., San Diego, Calif.

Notice of Expiration of Trademark Registrations Due to Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED APRIL 5, 1993 DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
38,546	07/038,546	7/01/1902
87,141	71/062,089	7/02/1912
87,302	71/058,945	7/02/1912
292,032	71/320,962	3/01/1932
295,262	71/311,366	6/28/1932
295,272	71/315,163	6/28/1932
295,276	71/316,509	6/28/1932
295,329	71/323,941	6/28/1932
295,344	71/324,405	6/28/1932
295,350	71/324,544	6/28/1932
295,367	71/324,732	6/28/1932
295,369	71/324,776	6/28/1932
295,373	71/324,842	6/28/1932
295,388	71/308,136	6/28/1932
295,412	71/324,845	6/28/1932
560,690	71/522,800	7/01/1952
560,691	71/527,661	7/01/1952
560,698	71/547,446	7/01/1952
560,701	71/554,045	7/01/1952
560,702	71/558,221	7/01/1952
560,708	71/564,994	7/01/1952
560,711	71/568,312	7/01/1952
560,712	71/568,341	7/01/1952
560,724	71/578,862	7/01/1952
560,725	71/579,133	7/01/1952
560,726	71/579,512	7/01/1952
560,729	71/580,551	7/01/1952
560,738	71/586,483	7/01/1952
560,742	71/587,885	7/01/1952
560,745	71/589,236	7/01/1952
560,746	71/589,501	7/01/1952
560,748	71/590,171	7/01/1952
560,754	71/592,295	7/01/1952
560,765	71/596,623	7/01/1952
560,770	71/598,276	7/01/1952
560,774	71/599,211	7/01/1952
560,781	71/600,568	7/01/1952
560,784	71/600,807	7/01/1952
560,797	71/602,092	7/01/1952
560,799	71/603,605	7/01/1952
560,827	71/607,459	7/01/1952
560,830	71/607,795	7/01/1952
560,833	71/607,933	7/01/1952
560,838	71/608,201	7/01/1952
560,844	71/608,689	7/01/1952
560,846	71/608,735	7/01/1952
560,855	71/610,380	7/01/1952
560,857	71/610,405	7/01/1952
560,858	71/610,446	7/01/1952
560,861	71/611,133	7/01/1952
560,864	71/611,292	7/01/1952
560,871	71/612,345	7/01/1952
560,873	71/612,639	7/01/1952
560,884	71/613,675	7/01/1952
560,887	71/613,909	7/01/1952
560,898	71/614,591	7/01/1952
560,901	71/614,705	7/01/1952
560,905	71/614,906	7/01/1952
560,912	71/615,362	7/01/1952
560,919	71/615,854	7/01/1952
560,921	71/615,909	7/01/1952
560,924	71/616,315	7/01/1952
560,927	71/616,455	7/01/1952
560,930	71/616,645	7/01/1952
560,932	71/616,776	7/01/1952
560,941	71/617,622	7/01/1952
560,948	71/617,950	7/01/1952
560,953	71/618,148	7/01/1952
560,955	71/618,188	7/01/1952
560,956	71/618,195	7/01/1952
560,959	71/618,305	7/01/1952
560,965	71/618,602	7/01/1952
560,968	71/618,776	7/01/1952
560,975	71/618,976	7/01/1952
560,981	71/619,146	7/01/1952
560,982	71/619,226	7/01/1952
560,983	71/619,421	7/01/1952
560,987	71/619,429	7/01/1952
560,991	71/619,913	7/01/1952
560,995	71/621,239	7/01/1952
560,997	71/621,451	7/01/1952
560,998	71/621,452	7/01/1952
561,010	71/588,981	7/01/1952
561,018	71/603,257	7/01/1952
917,039	72/376,925	7/27/1971
923,330	72/348,938	11/02/1971
926,817	72/393,260	1/11/1972
927,531	72/352,091	1/18/1972
931,870	72/373,441	4/04/1972
933,079	72/356,745	5/02/1972
936,345	72/345,889	6/27/1972
936,350	72/372,487	6/27/1972
936,353	72/387,164	6/27/1972
936,355	72/387,335	6/27/1972
936,356	72/387,336	6/27/1972
936,357	72/387,552	6/27/1972
936,359	72/388,088	6/27/1972
936,362	72/389,072	6/27/1972
936,363	72/389,157	6/27/1972
936,364	72/396,333	6/27/1972
936,365	72/369,850	6/27/1972
936,367	72/377,267	6/27/1972
936,368	72/389,114	6/27/1972
936,370	72/389,686	6/27/1972

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936,372	72/390,319	6/27/1972
936,376	72/381,803	6/27/1972
936,378	72/350,717	6/27/1972
936,383	72/367,023	6/27/1972
936,387	72/373,536	6/27/1972
936,388	72/374,943	6/27/1972
936,393	72/380,709	6/27/1972
936,394	72/380,935	6/27/1972
936,397	72/381,605	6/27/1972
936,402	72/382,559	6/27/1972
936,405	72/390,729	6/27/1972
936,407	72/397,290	6/27/1972
936,408	72/397,304	6/27/1972
936,409	72/397,649	6/27/1972
936,414	72/380,665	6/27/1972
936,415	72/390,579	6/27/1972
936,423	72/392,678	6/27/1972
936,425	72/384,373	6/27/1972
936,426	72/394,674	6/27/1972
936,427	72/402,942	6/27/1972
936,430	72/404,973	6/27/1972
936,431	72/405,147	6/27/1972
936,432	72/405,936	6/27/1972
936,437	72/407,992	6/27/1972
936,439	72/408,062	6/27/1972
936,445	72/390,236	6/27/1972
936,448	72/365,521	6/27/1972
936,449	72/383,485	6/27/1972
936,450	72/390,715	6/27/1972
936,453	72/339,207	6/27/1972
936,455	72/381,150	6/27/1972
936,457	72/389,015	6/27/1972
936,463	72/362,427	6/27/1972
936,468	72/371,730	6/27/1972
936,472	72/381,792	6/27/1972
936,476	72/385,515	6/27/1972
936,479	72/389,106	6/27/1972
936,480	72/357,020	6/27/1972
936,484	72/372,714	6/27/1972
936,485	72/372,742	6/27/1972
936,490	72/378,617	6/27/1972
936,491	72/384,886	6/27/1972
936,502	72/407,473	6/27/1972
936,507	72/409,221	6/27/1972
936,509	72/409,353	6/27/1972
936,512	72/358,445	6/27/1972
936,517	72/375,112	6/27/1972
936,525	72/385,714	6/27/1972
936,528	72/387,319	6/27/1972
936,531	72/387,426	6/27/1972
936,533	72/387,664	6/27/1972
936,535	72/387,873	6/27/1972
936,536	72/390,148	6/27/1972
936,543	72/387,972	6/27/1972
936,546	72/389,643	6/27/1972
936,549	72/391,168	6/27/1972
936,556	72/348,932	6/27/1972
936,559	72/367,835	6/27/1972
936,560	72/369,704	6/27/1972
936,561	72/371,399	6/27/1972
936,566	72/375,521	6/27/1972
936,567	72/376,072	6/27/1972
936,569	72/378,170	6/27/1972
936,570	72/378,776	6/27/1972
936,572	72/384,722	6/27/1972
936,579	72/389,842	6/27/1972
936,582	72/390,406	6/27/1972
936,585	72/395,318	6/27/1972
936,586	72/396,286	6/27/1972
936,587	72/396,516	6/27/1972
936,588	72/408,556	6/27/1972
936,593	72/349,371	6/27/1972
936,595	72/356,300	6/27/1972
936,598	72/368,584	6/27/1972
936,599	72/369,204	6/27/1972
936,600	72/371,732	6/27/1972
936,601	72/373,626	6/27/1972
936,605	72/385,715	6/27/1972
936,606	72/385,798	6/27/1972
936,607	72/387,648	6/27/1972
936,611	72/391,920	6/27/1972
936,612	72/394,888	6/27/1972
936,616	72/397,337	6/27/1972
936,617	72/397,338	6/27/1972
936,618	72/395,423	6/27/1972
936,619	72/365,205	6/27/1972
936,620	72/390,584	6/27/1972
936,621	72/390,585	6/27/1972
936,623	72/407,869	6/27/1972
936,634	72/397,013	6/27/1972
936,635	72/379,046	6/27/1972
936,636	72/379,047	6/27/1972
936,637	72/379,049	6/27/1972
936,638	72/379,050	6/27/1972
936,649	72/368,644	6/27/1972
936,652	72/385,371	6/27/1972
936,662	72/390,509	6/27/1972
936,665	72/390,958	6/27/1972
936,666	72/397,787	6/27/1972
936,670	72/344,566	6/27/1972
936,671	72/362,731	6/27/1972
936,672	72/367,993	6/27/1972
936,674	72/376,686	6/27/1972
936,676	72/378,769	6/27/1972
936,680	72/381,462	6/27/1972
936,686	72/390,769	6/27/1972
936,687	72/390,770	6/27/1972
936,689	72/391,593	6/27/1972
936,692	72/293,531	6/27/1972
936,695	72/364,943	6/27/1972
936,696	72/387,341	6/27/1972
936,697	72/387,342	6/27/1972
936,698	72/391,033	6/27/1972
936,702	72/378,377	6/27/1972
936,706	72/390,809	6/27/1972
936,710	72/279,777	6/27/1972
936,714	72/364,604	6/27/1972
936,717	72/366,669	6/27/1972
936,721	72/372,100	6/27/1972
936,722	72/372,188	6/27/1972
936,725	72/373,644	6/27/1972
936,730	72/381,835	6/27/1972
936,736	72/350,175	6/27/1972
936,737	72/330,161	6/27/1972
936,743	72/387,927	6/27/1972
936,745	72/391,183	6/27/1972
936,748	72/369,406	6/27/1972
936,749	72/379,441	6/27/1972
936,751	72/379,877	6/27/1972
936,752	72/380,103	6/27/1972
936,753	72,380,321	6/27/1972
936,755	72/380,350	6/27/1972
936,756	72/380,360	6/27/1972
936,759	72/382,494	6/27/1972
936,761	72/382,435	6/27/1972
936,762	72/382,498	6/27/1972
936,764	72/382,951	6/27/1972
936,765	72/383,997	6/27/1972
936,767	72/384,044	6/27/1972
936,768	72/384,313	6/27/1972
936,771	72/388,467	6/27/1972
936,773	72/346,847	6/27/1972
936,780	72/380,469	6/27/1972
936,781	72/382,245	6/27/1972
936,782	72/384,049	6/27/1972
936,785	72/386,335	6/27/1972
936,786	72/386,336	6/27/1972
936,791	72/254,528	6/27/1972
936,792	72/298,333	6/27/1972
936,804	72/383,213	6/27/1972
936,807	72/388,867	6/27/1972
936,808	72/389,939	6/27/1972
936,813	72/330,338	6/27/1972
936,814	72/336,963	6/27/1972
936,816	72/363,029	6/27/1972
936,822	72/348,294	6/27/1972

Reg. Number	Serial Number	Reg. Date
936,823	72/356,422	6/27/1972
936,828	72/390,994	6/27/1972
936,830	72/392,177	6/27/1972
936,835	72/356,688	6/27/1972
936,837	72/375,901	6/27/1972
936,838	72/378,071	6/27/1972
936,839	72/381,722	6/27/1972
936,842	72/393,860	6/27/1972
936,844	72/371,842	6/27/1972
936,845	72/381,162	6/27/1972
936,850	72/393,138	6/27/1972
936,851	72/321,745	6/27/1972
936,855	72/364,637	6/27/1972
936,856	72/365,441	6/27/1972
936,857	72/365,442	6/27/1972
936,858	72/371,900	6/27/1972
936,861	72/349,472	6/27/1972
936,862	72/384,960	6/27/1972
936,866	72/356,804	6/27/1972
936,867	72/357,723	6/27/1972
936,869	72/385,447	6/27/1972
936,870	72/350,349	6/27/1972
936,871	72/351,725	6/27/1972
936,873	72/375,752	6/27/1972
936,876	72/374,384	6/27/1972
936,877	72/390,237	6/27/1972
936,878	72/390,238	6/27/1972

Survey of Registered Practitioners in Patent Cases

Pursuant to 37 CFR 10.11(b), a survey letter was mailed on Jan. 15, 1993 from the Office of Enrollment and Discipline (OED) to all practitioners in patent cases whose last names began with E through J. Enclosed with the letter was a data sheet which should have been completed and returned to OED as soon as possible. All data sheets returned to OED were acknowledged.

If your last name begins with E through J and you did not receive a data sheet, or if you returned the data sheet to OED, and you have not received an acknowledgement from OED, please contact Shirley B. Rasheed at (703) 308-9617.

Apr. 6, 1993 CAMERON WEIFFENBACH, *Director*
Office of Enrollment and Discipline

Errata

"All reference to Patent No. 5,197,486 to James J. Frassica, Chelmsford, Mass., for DETACHABLE GUIDEWIRE EXTENSION appearing in the *Official Gazette* of Mar. 30, 1993 should be deleted since no patent was granted."

"All reference to Patent No. 5,200,466 to Taisaku Kano, Yokohama, Japan, et. al., for RESIN COMPOSITION FOR POWDER COATINGS appearing in the *Official Gazette* of Apr. 6, 1993 should be deleted since no patent was granted."

Service by Publication

A petition to cancel each of the registrations identified below having been filed, and the notice of such proceedings sent by certified mail to each registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days from the date of this publication, the cancellation will be proceeded with as in the case of default.

InterAmerican Publishing Co., Houston, Tex., Reg. No. 1,454,182, for the mark "PROSPERITY INTERNATIONAL" and Design, Canc. No. 20,163.

King Salad Avocado Co., Inc., Vista, Calif., Reg. No. 363,871, for the mark "SALAD TIME", Canc. No. 20.834.

The Biocentric Institute, Los Angeles, Calif., Reg. No. 1,108,240, for the mark "SELF-ESTEEM AND THE ART OF BEING", Canc. No. 21,009.

Jamin B. V., New York, N.Y., Reg. No. 1,093,917, for the mark "JAMIN", Canc. No. 21,083.

Rapicom Inc., Fairfield, N.J., Reg. No. 990,122, for the mark "FAXMODEM", Canc. No. 21,124.

Cargo Safe, Inc., South Gate, Calif., Reg. No. 1,000,413, for the mark "FLAMELESS", Canc. No. 21,276.

Rusco Hilite Building Products, Inc., Everett, Wash., Reg. No. 1,003,705, for the mark "CORONA", Canc. No. 21,339.

Release, Wayland, Mass., Reg. No. 1,606,816, for the mark "RELEASE" and Design, Canc. No. 21,349.

JEAN BROWN
Administrator, Trademark Trial and Appeal Board
For ROBERT M. ANDERSON
Acting Assistant Commissioner for Trademarks

Registration To Practice

The following list contains the names of persons who successfully passed the registration examination that was held Oct. 14, 1992. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the persons seeking registration are of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of any of the following applicants on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before June 18, 1993.

Anderson, Thomas Edward, 40-12 Dobrin Ct., #B, Fairlawn, N.J. 07410
Brandon, Richard A., 1960 N. Lincoln Park W., Chicago, Ill. 60614
Bright, Earl Alfred II, 115 E. Timberdell Rd., Norman, Okla. 73072
Brown, Robert C., 545 Pine Grove Ave., Rochester, N.Y. 14617
Chamberlain, Patricia Ellen, 2148 9th Ave., West, Seattle, Wash. 98119
Chin, Eugene Ting, 380 6th Ave., San Francisco, Calif. 94118
Ferraro, Joyce Maire, 4 Martine Ave., #1404, White Plains, N.Y. 10606
Gallagher, Thomas Christopher, 321 E. 83rd St., #1D, New York, N.Y. 10028
Gordon, Latonia Hatten, 1937 Kenilworth Cir., Hoffman Estates, Ill. 60195
Guffey, Larry J., 6 Bayou Pointe, Houston, Tex., 77063
Hagen, Beth A., 118 W. Buckeye St., Ada, Ohio 45810
Herberger, Robert John, 39 Callahan Rd., Canfield, Ohio 44406
Hynson, Johnnie Robert, P.O. Box 771, Richland, Wash. 99352
Johnson, Daniel Enoch, 3000 Aztec N.E., #244, Albuquerque, N. Mex. 87107
Lebovitz, Richard M., 3515 Washington Blvd., #317, Arlington, Va. 22201
Loran, Thomas Joseph, 38478 Boulder Canyon Dr., Boulder, Colo. 80302
Ombolt, Thomas E., 3 S. 540 Landeon Dr., Warrenville, Ill. 60555
Penfield, Leigh A. 940 Truro La., Crofton, Md. 21114
Rinne, Risto A., Jr., 53 Beverly Dr., Cody, Wyo. 82414

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Rosenberg, Frank Stewart, 505 E. Braddock Rd., #504, Alexandria, Va. 22314
Sereboff, Steven Charles, 27 Westminster St., #108, Venice, Calif., 90291
Tener, David M., 412 Bellows La., Feasterville, Pa. 19053
Walter, Brent Winfield, 1723 LaCrosse Dr., Virginia Beach, Va 23464
Witting, Gary F., 5834 E. Oak St., Scottsdale, Ariz. 85257

Apr. 6, 1993 CAMERON WEIFFENBACH, *Director*
Office of Enrollment and Discipline

Registration To Practice

The following list contains the names of a persons applying for registration to practice before the United States Patent and Trademark Office. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the person seeking registration is of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of any of the following applicants on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before June. 18, 1993.

Hienz, William M., III, 815 S. 18th St., #306, Arlington, Va. 22202
Raubvogel, Amir H., 590 Avocet Dr., #7306, Redwood City, Calif. 94065
Ryan, Jay P., 4010 Albertly Ave., Parma, Ohio 44134

Apr. 6, 1993 CAMERON WEIFFENBACH, *Director*
Office of Enrollment and Discipline

PATENT NOTICES

Certificates of Correction For Week of May 4, 1993

P. 7,627	4,994,056	5,041,858	5,063,480	5,079,009	5,085,807	5,089,288	5,093,768
Re. 33,847	4,995,073	5,042,019	5,063,697	5,079,010	5,086,066	5,089,559	5,093,814
Des. 319,260	4,999,345	5,043,044	5,064,338	5,079,303	5,086,095	5,089,704	5,093,992
Des. 320,738	5,001,960	5,043,599	5,064,919	5,080,062	5,086,542	5,089,800	5,093,994
Des. 322,448	5,004,182	5,043,617	5,064,939	5,080,086	5,086,820	5,089,860	5,094,078
Des. 322,937	5,007,799	5,044,335	5,064,973	5,080,874	5,086,928	5,090,047	5,094,081
Des. 323,718	5,009,045	5,044,394	5,065,053	5,080,966	5,087,023	5,090,106	5,094,332
Des. 324,475	5,010,428	5,044,657	5,065,333	5,081,002	5,087,195	5,090,445	5,094,512
4,507,194	5,010,581	5,044,663	5,065,416	5,081,330	5,087,245	5,090,750	5,094,739
4,577,274	5,010,765	5,044,886	5,065,469	5,081,835	5,087,288	5,090,822	5,094,823
4,680,209	5,011,850	5,045,224	5,065,726	5,082,492	5,087,325	5,091,020	5,094,853
4,766,200	5,013,605	5,045,353	5,065,842	5,082,494	5,088,034	5,091,560	5,094,876
4,787,938	5,013,614	5,045,372	5,065,941	5,082,532	5,088,060	5,091,680	5,095,080
4,792,564	5,013,734	5,045,801	5,066,026	5,082,933	5,088,151	5,091,864	5,095,496
4,797,926	5,014,083	5,045,943	5,066,141	5,083,129	5,088,272	5,092,152	5,096,478
4,798,717	5,017,274	5,047,787	5,066,229	5,083,163	5,088,314	5,092,384	5,096,934
4,809,078	5,017,318	5,048,338	5,066,274	5,083,211	5,088,345	5,092,446	5,096,951
4,824,421	5,017,734	5,048,725	5,066,553	5,083,219	5,088,525	5,092,550	5,097,387
4,826,833	5,017,844	5,049,236	5,066,677	5,083,892	5,088,543	5,092,570	5,098,399
4,851,501	5,018,104	5,049,334	5,067,064	5,084,218	5,088,822	5,092,677	5,141,641
4,853,054	5,019,843	5,049,360	5,067,066	5,084,606	5,088,823	5,092,816	5,142,838
4,856,642	5,020,059	5,049,676	5,067,123	5,085,129	5,089,073	5,092,949	5,143,418
4,859,310	5,020,097	5,049,986	5,067,665	5,085,144	5,089,095	5,092,980	5,163,714
4,859,352	5,020,124	5,050,560	5,067,811	5,085,404	5,089,200	5,093,083	5,177,130
4,864,373	5,021,438	5,050,919	5,068,053	5,085,427	5,089,232	5,093,287	5,187,224
4,876,491	5,021,444	5,051,192	5,068,158	5,085,777	5,089,281	5,093,631	
4,877,382	5,021,679	5,051,573	5,068,220				
4,879,911	5,021,694	5,051,831	5,068,422				
4,883,632	5,021,877	5,052,810	5,068,663				
4,886,784	5,024,667	5,053,215	5,068,764				
4,889,782	5,024,708	5,053,253	5,068,865				
4,891,057	5,024.797	5,053,311	5,069,285				
4,897,867	5,025,194	5,053,804	5,069,807				
4,902,435	5,025,916	5,054,265	5,069,840				
4,904,521	5,026,118	5,054,460	5,069,891				
4,905,182	5,026,710	5,054,805	5,070,366				
4,912,457	5,026,714	5,055,035	5,070,948				
4,913,180	5,027,350	5,055,128	5,071,172				
4,914,021	5,029,354	5,055,274	5,071,537				
4,914,461	5,030,291	5,055,480	5,071,568				
4,914,585	5,030,494	5,055,707	5,071,755				
4,916,165	5,030,636	5,055,746	5,072,618				
4,922,435	5,030,650	5,055,812	5,072,712				
4,922,803	5,031,115	5,056,121	5,072,727				
4,926,447	5,031,385	5,056,611	5,073,017				
4,929,171	5,031,559	5,057,392	5,073,221				
4,929,371	5,031,683	5,057,490	5,073,422				
4,932,549	5,031,833	5,057,514	5,073,635				
4,937,470	5,032,503	5,058,041	5,073,712				
4,938,025	5,032,534	5,058,593	5,074,031				
4,938,424	5,032,710	5,058,741	5,074,137				
4,938,961	5,033,187	5,058,799	5,074,220				
4,939,023	5,033,845	5,058,815	5,074,281				
4,948,227	5,034,235	5,059,174	5,074,614				
4,948,725	5,034,279	5,059,257	5,075,304				
4,952,763	5,034,406	5,059,328	5,075,340				
4,953,226	5,034,417	5,059,740	5,075,392				
4,959,425	5,034,772	5,059,910	5,075,901				
4,962,240	5,035,657	5,060,005	5,076,055				
4,963,204	5,036,535	5,060,594	5,076,106				
4,965,471	5,036,597	5,060,617	5,076,223				
4,969,381	5,036,749	5,061,171	5,076,370				
4,972,362	5,037,916	5,061,821	5,076,472				
4,973,513	5,038,140	5,061,850	5,077,296				
4,975,828	5,038,462	5,061,914	5,077,491				
4,982,211	5,038,539	5,061,946	5,077,554				
4,983,692	5,038,734	5,062,099	5,077,880				
4,985,680	5,039,263	5,062,261	5,078,033				
4,987,496	5,039,498	5,062,552	5,078,123				
4,988,306	5,040,412	5,062,666	5,078,267				
4,988,569	5,040,513	5,062,722	5,078,398				
4,988,712	5,040,514	5,062,811	5,078,475				
4,990,215	5,040,546	5,062,870	5,078,502				
4,990,252	5,041,534	5,062,956	5,078,659				
4,992,418	5,041,683	5,063,021	5,078,986				
4,992,761	5,041,845	5,063,291	5,078,997				

Disclaimers

4,444,799—*Fred Vanderveer,* Mahwah; *Aloysius J. Knipper,* Ringwood; *Robert Straka,* Pequannock; *Alex J. Squicciarini,* Fairlawn, all of N.J. METHOD AND COMPOSITION FOR PRODUCING SOFT EDIBLE BAKED PRODUCTS AND AN EDIBLE FIRM GEL FOR USE THEREIN. Patent dated Apr. 24, 1984. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco, Inc.

Hereby enters this disclaimer to the remaining term of said patent.

4,698,000—*Robert Thulin,* Wyckoff; *Robert E. Ross,* Wayne; *Nicholas Polifroni,* Cliffside Park, all of N.J. APPARATUS FOR CO-EXTRUSION OF A DOUGH MASS WITH PARTICULATE MATTER IN THE OUTER DOUGH. Patent dated Oct. 6, 1987. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining term of said patent.

4,719,117—*William J. Simelunas,* Glen Rock, N.J. HIGH PRODUCTION METHOD FOR FORMING FILLED EDIBLE PRODUCTS. Patent dated Jan. 12, 1988. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining terms of said patent.

4,796,777—*Russell D. Keller,* Portland, Oreg. VENTED FUEL TANK CAP AND VALVE ASSEMBLY. Patent dated Jan. 10, 1989. Disclaimer filed June 19, 1992, by the inventor.

Hereby enters this disclaimer to claims 1 and 8 of said patent.

4,828,853—*Lori J. Banks,* Hackensack; *Robert R. Thulin,* Wyckoff; *Robert E. Ross,* Wayne; *Walter E. Schaeder,*

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Bergenfield, all of N.J. LEAVENER-CONTAINING DOUGH COMPOSITIONS BAKEABLE TO A MOIST MATRIX. Patent dated May 9, 1989. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining term of said patent.

4,873,098—*Lori Banks,* Lincoln Park; *Grant C. Busk, Jr.,* Chester; *Bin Chiang,* Cedar Knolls; *Robert Thulin,* Wyckoff, all of N.J. METHOD FOR CONTROLLING THE SPREAD OF SOFT COOKIES. Patent dated Oct. 10, 1989. Disclaimer filed Feb. 11, 1993, by the asignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining term of said patent.

4,879,272—*Naoto Shimoda; Tsutomu Kawaguchi,* both of Saitama, Japan. METHOD AND COMPOSITION FOR PREVENTING THE ADSORPTION OF A MEDICINE. Patent dated Nov. 7, 1989. Disclaimer filed Nov. 20, 1992, by the assignee. Chugai Seiyaku Kabushiki Kaisha.

Hereby enters this disclaimer to all claims of said patent.

5,084,797—*Hiroyuki Ohta,* Yamagata, Japan. MAGNETIC HEAD WITH TWO CANTED GAPS AND THE MANUFACTURING METHOD THEREOF. Patent dated Jan. 28, 1992. Disclaimer filed Jan. 6, 1993, by the assignee, Pioneer Electronic Corp.

Hereby enters this disclaimer to claim 1 of said patent.

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Box Issue Fee	All Communications following the receipt of a PTOL-85, "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
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Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return postcard or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

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	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Engineering Library, University of Michigan	(313) 764-5298
	Big Rapids: Abigail S. Timme Library, Ferris State University	(616) 592-3602
	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library and Information Center	(612) 372-6570
Mississippi	Jackson: Mississippi Library Commission	(601) 359-1036
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	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
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	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Center for International Trade Development	(405) 744-7086
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Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Charleston: Medical University of South Carolina Library	(803) 792-2372
	Clemson University Libraries	Not Yet Operational
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8877
	Nashville: Stevenson Science Library,Vanderbilt University	(615) 322-2775
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-3826
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	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext.2587
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 367-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
West Virginia	Morgantown: Evansdale Library, West Virginia University	(304) 293-2510
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 278-3247

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PATENT EXAMINING CORPS

STEPHEN G. KUNIN, Acting Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 1100 — D. E. TALBERT, Director	308-0661	5/09/92
ORGANIC CHEMISTRY, GROUP 1200 — JOHN F. TERAPANE, JR., Director	308-1235	8/06/92
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300 — EDWARD E. KUBASIEWICZ, Director	308-0651	6/12/92
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 1500 — J. O. THOMAS, Director	308-2351	6/12/92
BIOTECHNOLOGY, GROUP 1800 — BARRY S. RICHMAN, Director	308-0196	10/03/91
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100 — D. G. KELLY, Director	308-1782	10/15/91
SPECIAL LAWS ADMINISTRATION, GROUP 2200 — ROBERT E. GARRETT, Director	308-0511	9/28/91
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 2300 — GERALD GOLDBERG, Director	308-0754	1/02/91
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 2400 — CARLTON CROYLE, Director	308-0771	4/24/92
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500 — JOSEPH J. ROLLA, Director	308-0956	9/03/91
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 2600 — BOBBY R. GRAY, Director	305-4700	9/21/91
DESIGN, GROUP 2900 — ROBERT E. GARRETT, Director	308-0511	12/16/90
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100 — F. R. SCHMIDT, Director	308-1113	3/14/92
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200 — N. GODICI, Director	308-1148	6/30/92
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 3300 — J. J. LOVE, Director	308-0858	6/02/92
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400 — JOHN KITTLE, Director	308-0861	7/10/92
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500 — A.L. SMITH, Director	308-1021	3/17/92

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during April 1993 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

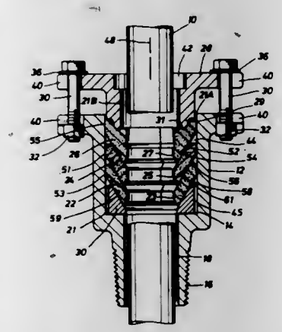
Patents ..... Numbers 3,947,896 to 3,953,891 inclusive
Plant Patents ..... 3,856 to 3,875

REEXAMINATIONS

MAY 4, 1993

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,560,176 (1993rd)
INVERTED CONE STUFFING BOX
H. Milton Hoff, Borger, Tex., assignor to J. M. Huber Corporation, Lucust, N.J.
Reexamination Request No. 90/002,646, Feb. 14, 1992.
Reexamination Certificate for Patent No. 4,560,176, issued Dec. 24, 1985, Ser. No. 517,484, Jul. 26, 1983.
Int. Cl.[5] F16J *15/24*
U.S. Cl. 277—105



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim **18** is confirmed.

Claims **15–17** and **21–29** are cancelled.

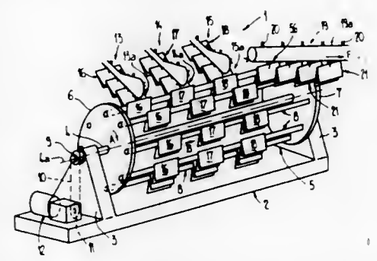
Claims **1, 2, 9, 11–14** and **19** are determined to be patentable as amended.

Claims **3–8, 10** and **20**, dependent on an amended claim, are determined to be patentable.

New claims **30–38** are added and determined to be patentable.

11. A stuffing box for use with a polished rod reciprocally disposable therethrough along a central axis, comprising:
a body having an inner wall defining a cavity;
a neck having a bore therethrough in fluid communication with said cavity;
a shoulder interconnecting said body and said neck;
a plurality of inverted *cone* gland sealing means disposed in said cavity for sealing between said rod and said inner wall, *one or more of said gland sealing means including an outer surfacesealingly engaging said inner cavity wall and defining a generally frustroconical shape, said outer surface sloping generally inward and downward relative to said central axis, one or more of said gland sealing means further including an inner surface sealingly engaging said rod, said inner surface defining a generally frustroconical shape, each inner surface sloping generally inward and downward relative to said central axis, said inner surface and said outer surface being in planar nested engagement;*
sealing seat means carried by said shoulder for supporting said *gland* sealing means, said sealing *seat* means having an upper surface including
a first ring-shaped surface lying in a first plane normal to said axis; and
a second ring-shaped surface lying in a second plane normal to said axis and between said first plane and said shoulder; and
means for exerting a downward force against said *gland* sealing means having a lower surface conforming to said upper surface of said *gland* sealing means.

B1 4,684,116 (1994th)
METHOD AND APPARATUS FOR COLLATING FOLDED PRINTED SIGNATURES USING CONVEYORS *[ROTATING]* REVOLVING ABOUT A CENTRAL AXIS
Egon Hänsch, Wetzikon, Switzerland, assignor to Ferag AG, Hinwil, Switzerland
Reexamination Request No. 90/002,788, Jul. 15, 1992.
Reexamination Certificate for Patent No. 4,684,116, issued Aug. 4, 1987, Ser. No. 877,359, Jun. 23, 1986.
Claims priority, application Switzerland, Jul. 1, 1985, 2828/85
Int. Cl.[5] B65H *39/02*
U.S. Cl. 270—54



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim **25** is confirmed.

Claims **1, 5, 7, 15, 22** are determined to be patentable as amended.

Claims **2–4, 6, 8–14, 16–21, 23–24**, dependent on an amended claim, are determined to be patentable.

1. A method for collating folded printed products, especially signatures, comprising the steps of:
conveying the folded printed products in an advancing conveying movement and in straddlingly superimposed relationship along a plurality of substantially straight and substantially parallel conveyor paths positioned radially around a common axis of revolution, *each of said conveyor paths having a respective axis of rotation*; and
revolving said plurality of substantially straight and substantially parallel conveyor paths about said common axis of revolution together with said folded printed products *while rotating said conveyor paths about the respective rotational axes* during said advancing conveying movement along respective conveyor paths of said plurality of substantially straight and substantially parallel conveyor paths.

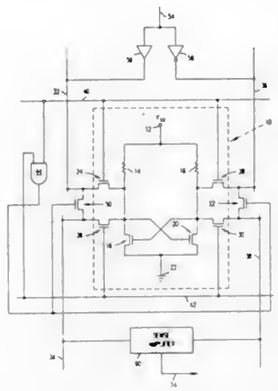
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B1 4,802,122 (1995th)

FAST FLUSH FOR A FIRST-IN FIRST-OUT MEMORY

Stuart T. Auvinen, Capitola, and Barry A. Hobermann, Mountain View, both of Calif., assignors to Monolithic Memories, Inc.

Reexamination Request No. 90/002,521, Nov. 25, 1991.
Reexamination Certificate for Patent No. 4,802,122, issued Jan. 31, 1989, Ser. No. 43,521, Apr. 28, 1987.
Int. Cl.[5] G11C *11/00*
U.S. Cl. 365—154



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1** to **4** is confirmed.

New claims **5** to **14** are added and determined to be patentable.

1. A circuit for reducing the fall-through delay of data in a memory cell comprising:
a write bit-line connected with the memory cell for communicating data to the cell;
a read bit-line connected with the memory cell for communicating data from the cell; and
means selectively connecting the write bit-line with the read bit-line independent of the memory cell so that data carried by the write bit-line can be communicated to the read bit-line independent of the memory cell.

B1 4,968,453 (1996th)

SYNTHETIC LUBRICATING OIL COMPOSITION

Sadao Wada, Shiki; Kenyu Akiyama, Toyota, and Michihide Tokashiki, Kawagoe, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota and TOA Nenryo Kogyo Kabushiki Kaisha, Tokyo, both of Japan

Reexamination Request No. 90/002,511, Nov. 18, 1991.
Reexamination Certificate for Patent No. 4,968,453, issued Nov. 6, 1990, Ser. No. 234,676, Aug. 22, 1988.
Int. Cl.[5] C10M *105/12, 105/18*
U.S. Cl. 252—56 S

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **13–15** is confirmed.

Claims **1–12** and **16** are cancelled.

13. A synthetic lubricating oil composition comprising
(A) a diester of an aliphatic dibasic acid having 4 to 14 carbon atoms and an alcohol having 4 to 14 carbon atoms, or a mixture thereof, of which viscosity at 100° C. is 2–7 mm^2/s;
(B) a polyoxyalkylene glycol ether or a polyoxyalkylene glycol ester having 2 to 5 carbon atoms in its alkylene group, or a mixture thereof, of which viscosity at 100° C. is not less than 30 mm^2/s; and
(C) an α-olefin oligomer having a kinematic viscosity at 100° C. of 3–6 mm^2/s.

B1 5,008,804 (1997th)

ROBOTIC TELEVISION-CAMERA DOLLY SYSTEM

Gary B. Gordon, Saratoga, Calif., and Robert R. Gosselli, Valley Cottage, N.Y., assignors to Total Spectrum Manufacturing Inc., Valley Cottage, N.Y.

Reexamination Request Nos. 90/002,475, Oct. 11, 1991 and 90/002,710, Apr. 27, 1992.
Reexamination Certificate for Patent No. 5,008,804, issued Apr. 16, 1991, Ser. No. 574,852, Aug. 30, 1990.
Continuation of Ser. No. 228,933, Jun. 23, 1988, Pat. No. 4,959,798
Int. Cl.[5] F16M *3/00*
U.S. Cl. 364—167.01



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **11–16** is confirmed.

Claims **1**, **3**, **10** and **17** are determined to be patentable as amended.

Claims **2** and **4–9**, dependent on an amended claim, are determined to be patentable.

1. A positioning system for moving a dolly member along a substantially planar surface, said dolly member having a rotation axis normal to said planar surface and a translation axis parallel to said planar surface, said system comprising:
a target means for defining a reference point and a reference direction on said planar surface;
driving means for moving said dolly member on said planar surface;
detection means affixed to said dolly member for detecting said target means; and
processor means coupling said detection means to said driving means, said processor means
controlling said driving means to move said dolly member on said planar surface by dead reckoning to a vicinity of said target means; and
in response to an output of said [detecting] *detection* means, controlling said driving means to move said dolly member to bring the translation axis thereof parallel to the reference direction defined by said target means, and to bring the rotation axis of said dolly member into coincidence with the reference point defined by said target means.

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STATUTORY INVENTION REGISTRATIONS

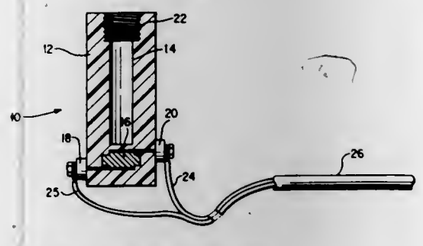
PUBLISHED MAY 4, 1993

A statutory invention registration is not a patent. It has the defensive attributes of a patent but does not have the enforceable attributes of a patent. No article or advertisement or the like may use the term patent, or any term suggestive of a patent, when referring to a statutory invention registration. For more specific information on the rights associated with a statutory invention registration see 35 U.S.C. 157.

H1178
ELECTRIC COUPLING

Alexey T. Zacharin, Denville, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 27, 1992, Ser. No. 888,994
Int. Cl.[5] F42C *11/02*
U.S. Cl. 102—210 **5 Claims**

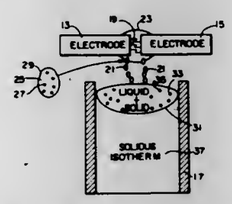


1. An electric coupling, comprising:
a housing;
electrical energy generation means encased within said housing;
an open-ended cylindrical well within said housing for accepting means for initiating said electrical energy generation means; and
first and second terminal posts attached to the outside of said housing and electrically connected to said electrical energy generation means.

H1179
VADER PLASMA ARC CASTING

William P. Keown, deceased, late of Bethlehem, Pa. by Evelyn Keown, executrix , and Ravi Batra, Rockaway, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation of Ser. No. 671,602, Mar. 18, 1991. This application Sep. 14, 1992, Ser. No. 944,606
Int. Cl.[5] B22D *27/02*
U.S. Cl. 164—495 **10 Claims**

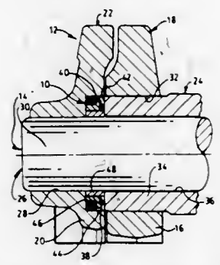


1. A method of casting high melting point metal ingots, comprising the steps of:
placing a quantity of high melting point metal in an arc area of a furnace having a "T" shaped vacuum chamber and a pair of opposing electrodes, and generating an arc to cause droplets of said metal to melt from the heat thereby generated, such that said droplets fall into a mold positioned to receive said droplets and shaped to form the desired ingot;
further heating the droplets as they fall into said mold with a plasma arc gun mounted inside said furnace and directed to impinge a heat source to control the rate of solidification such that the liquid phase and the solid phase of said metal are both molten; and
solidifying said molten metal in said ingot by controlling said plasma arc gun.

H1180
FACE SEAL WITH INCREASED TORQUE TRANSFER CAPACITY

Steve L. Arianoutsos, Peoria Heights; Alan P. Dremann, Chillicothe; Jerry A. Metz, Morton, and Harry B. Newman, Washington, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Dec. 23, 1991, Ser. No. 812,494
Int. Cl.[5] F16J *15/34*
U.S. Cl. 277—92 **13 Claims**



1. In a shear loaded face seal having a deformable rubber load ring and a rigid support ring, said load ring and support ring having mating surfaces contacting each other along an interface through which a varying torque is transmitted, the improvement comprising:
means for increasing the torque transfer capacity between the support ring and the load ring along said interface, said means comprising a surface texture on the mating surfaces of said support ring having a configuration sufficient to generate a projected area that is at least five percent of the surface area of a non-textured surface of equivalent dimensions.

H1181
METHOD FOR HIGH RESOLUTION RADAR IMAGERY AND ACCURATE DIMENSIONAL MEASUREMENTS

August W. Rihaczek, Rolling Hills, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

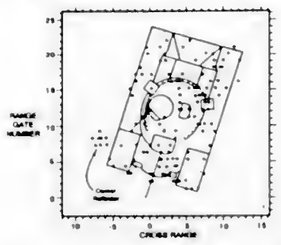
Continuation-in-part of Ser. No. 754,895, May 16, 1985, abandoned. This application Nov. 6, 1987, Ser. No. 120,216
Int. Cl.[5] G01S *13/89*
U.S. Cl. 342—25 **4 Claims**

1. A signal processing method for data collected by airborne radar apparatus, the signal processing method being used to form two-dimensional images of ground targets, in which resolution in one dimension is provided by resolution of range cells, and resolution in the other dimension is provided by resolution of Doppler cells;
said ground targets being of types which have scattering units which are large compared with the radar wavelength and therefor have a highly lobed backscattering pattern, so that over a given observation time comprising a range cell the scattering units produce responses which become stronger and weaker, alternately effectively appearing and disappearing, the response for each scattering

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unit having a phase function, each scattering unit being identified by the slope of the phase function during intervals in which there is a dominant response from only one scattering unit;

wherein the signal processing method includes the step of



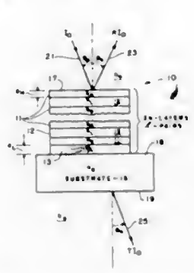
processing the responses over time intervals which are short compared to said given observation time, so that measurements of the positions of the scattering units are made with an accuracy to a small fraction of the cross-range width of the range cell being processed, the scattering units being identified by the slopes of the responses.

H1182

DIELECTRIC OPTICAL SWITCH

Robert J. Spry, Tipp City, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Apr. 8, 1986, Ser. No. 855,203
Int. Cl.[5] G02B *5/20*
U.S. Cl. 359—320 **6 Claims**



1. An optical filter structure for selectively block radiation of preselected wavelength, comprising:

(a) a substantially transparent substrate;

(b) a plurality of alternate substantially identical first layers and substantially identical second layers on said substrate, wherein said first layers comprise a transparent material of preselected first refractive index, and said second layers comprise a material having a substantially transparent ferroelectric phase of second refractive index below a characteristic transition temperature and a nonferroelectric phase of third refractive index different from said first refractive index and from said second refractive index above said characteristic transition temperature, said first layers having said first refractive index above and below said characteristic transition temperature; and

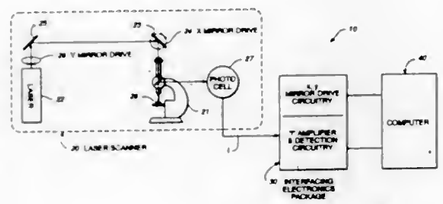
(c) wherein the thickness of each of said first layers is equal to one-fourth times the ratio of said preselected wavelength to said first refractive index and the thickness of each of said second layers is equal to one-fourth times the ratio of said preselected wavelength to said third refractive index.

H1183

LASER SCANNER METHOD FOR DETERMINING NUMBER AND SIZE OF PARTICLES

Frank Zitko, 210 Flynn Ave., Number 6, Mountain View, Calif. 94043; by Hana A. Chandler, conservator, 550 Oxford Ave., Number 3, Palo Alto, Calif. 94306; Jack S. Smith, 1388 River Rch. Cir., Saratoga, Calif. 95070, and Kevin W. R. Crispin, 133 Redwood Dr., Loma Mar, Calif. 94021

Filed Dec. 19, 1991, Ser. No. 811,210
Int. Cl.[5] G01V *9/04*
U.S. Cl. 382—1 **1 Claim**



1. A method for counting the total number of solid particles and for measuring the cross-sectional area of each solid particle contained in a sample of a solids-loaded plastic matrix material, utilizing an interfacing electronics package to place a laser scanner under the control of a computer, comprising the steps of:

gathering a first line of data points representing leading and trailing particle strip edge location data;

processing the data associated with the first line to determine the number of particle strips on the first line and the area of each strip;

storing the edge location data and areas of the particle strips on the first line by strip number and line number identification;

gathering a second line of data points representing leading and trailing particle strip edge location data;

processing the data associated with the second line to determine the number of particle strips on the second line and the area of each strip;

storing the edge location data and areas of the particle strips on the second line by strip number and line number identification;

testing for strip overlapping by comparing the edge location data of strips on the second line with strips on the first line;

gathering a next line of data points representing leading and trailing particle strip edge location data;

processing the data associated with the next line to determine the number of particle strips on the next line and the area of each strip;

storing the edge location data and areas of the particle strips on the next line by strip number and line number identification;

testing for strip overlapping by comparing the edge location data of strips on the next line with strips on the preceding line;

repeating the above sequence of gathering, processing, storing, and testing steps for each successive line of data until the data for all the lines have been gathered, processed, stored, and tested;

associating the data from sequentially overlapping particle strips with a particular whole particle;

calculating the cross-sectional area of each whole particle; and

counting the number of particles.

H1184

PRECIPITATION STRENGTHENED URANIUM TUNGSTEN ALLOY

Ravi Batra, Rockaway; Sheldon Cytron, Mountain Lakes, and Jerry C. LaSalle, Montclair, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 12, 1991, Ser. No. 744,041
Int. Cl.[5] C22C *43/00, 1/00*
U.S. Cl. 420—3 **7 Claims**

5. An alloy comprising uranium and from ½-5% tungsten in supersaturated solution.

H1185

PROCESS FOR ABSORPTION OF DIAMONDOIDS FROM NATURAL GAS

James K. Henderson, New Orleans, and John R. Sitzman, Mandeville, both of La., assignors to Exxon Production Research Company, Houston, Tex.

Filed Apr. 3, 1992, Ser. No. 862,877
Int. Cl.[5] C07C *7/10*
U.S. Cl. 423—245.2 **11 Claims**

1. A process for removing diamondoid compounds from natural gas comprising the steps of:

a) providing a natural gas stream containing a concentration of diamondoid compounds;

b) mixing the natural gas with a liquid diamondoid absorbing solvent in a cascading manner where diamondoid rich natural gas contacts the lean solvent so that the solvent absorbs the diamondoids from the natural gas; and

c) separating the diamondoid rich liquid solvent from the diamondoid lean natural gas.

H1186

SELF-ADHESIVE WATER PROOFING PRODUCT

Richard Gelles, 201 Wilcrest, Apt. 804, Houston, Tex. 77042

Filed Mar. 25, 1991, Ser. No. 674,268
Int. Cl.[5] B32B *7/12, 15/04*
U.S. Cl. 428—355 **10 Claims**

1. A self-adhesive water proofing product which comprises:

(a) a water proofing layer, and

(b) an adhesive layer comprising a mixture of from about 85% to about 99.5% of a bituminous component and from about 0.5% to about 15% of a block copolymer comprised of at least one vinyl aromatic hydrocarbon and at least one conjugated diene wherein the block copolymer contains at least 0.2% of at least one functional group selected from the group consisting of carboxylic and acid or anhydride groups or derivatives thereof including salts, esters, imides, amides and acid chlorides.

H1187

POLYMER BLENDS

Eric R. George, and William H. Korcz, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Aug. 28, 1989, Ser. No. 399,102
Int. Cl.[5] C08G *67/02*
U.S. Cl. 525—445 **19 Claims**

1. A polymer blend consisting essentially of a major proposition of a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon and from about 0.1% by weight to about 35% by weight, based on total blend, of a thermotropic liquid crystal polymer.

H1188

PROCESS FOR MAKING 1,1-DICHLORO-1,2-DIFLUOROETHANE

Mario J. Nappa, Newark, Del., and Allen C. Sievert, Elkton, Md., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 19, 1990, Ser. No. 587,153
Int. Cl.[5] C07C *17/00*
U.S. Cl. 570—169 **14 Claims**

1. A process for preparing 1,1-dichloro-1,2-difluoroethane comprising the steps of:

(a) contacting 1,1-dichloroethylene with lead dioxide and anhydrous hydrogen fluoride at an effective temperature and for a sufficient time to convert at least a portion of said 1,1-dichloroethylene to 1,1-dichloro-1,2-difluoroethane substantially free of dehydrohalogenation; and

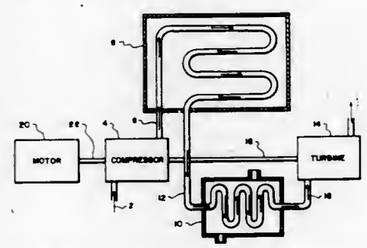
(b) recovering said 1,1-dichloro-1,2-difluoroethane substantially free of dehydrohalogenated products.

H1189

METHOD AND APPARATUS FOR DESTROYING CERTAIN CHEMICAL AND BIOLOGICAL WARFARE AGENTS

Richard E. Kirts, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 8, 1991, Ser. No. 726,487
Int. Cl.[5] B01D *47/00*
U.S. Cl. 588—200 **10 Claims**



1. A method for destroying chemical and biological warfare agents comprising the steps of:

(a) heating contaminated air in a compressor;

(b) cooling the hot, compressed air in an aftercooler;

(c) supplying power to the compressor by external power means.

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Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 34,238

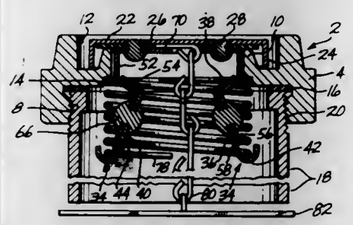
FUEL TANK CAP WITH PRESSURE/THERMAL RELIEF

Zdenek Gabrlik, Seattle; John M. Morris, Auburn; Timothy L. Oliphant, Federal Way; Charles J. Green, and Nelson O. Phillips, both of Vashon, all of Wash., assignors to GT Development Corporation, Tukwila, Wash.

Original No. 4,732,188, dated Mar. 22, 1988, Ser. No. 62,554, Jun. 15, 1987. Application for reissue Oct. 10, 1989, Ser. No. 420,008

Int. Cl.[5] F16K 15/04

U.S. Cl. 137—73 **37 Claims**



32. A pressure relief valve for a tank comprising:

a valve plug positioned outwardly of an opening in the tank defined by a tank body portion;

biasing means for biasing the valve plug axially inwardly into a position in which it closes the opening; said biasing means comprising a spring; and said spring having an inner end located axially inwardly of the valve plug and the opening, and an outer end that engages said body portion; and

a structure forming an interconnection between the valve plug and said inner end of said spring;

said structure including an abutment that abuts said inner end of said spring, and fusible material positioned to maintain said interconnection; said spring being resilient to allow said structure and the valve plug to move outwardly in response to increased pressure in the tank to relieve pressure in the tank; and said fusible material being located inwardly of the valve plug and being meltable at elevated temperatures exceeding a predetermined level, to release said interconnection to allow the valve plug to move outwardly away from the opening.

Re. 34,239

SEMI-PERMEABLE MEMBRANES

Xavier Marzze, Lyons, France, assignor to Hospal Ltd., Basel, Switzeriand

Original No. 4,545,910, dated Oct. 8, 1985, Ser. No. 212,829, Dec. 4, 1980. Continuation of Ser. No. 106,684, Oct. 8, 1987, abandoned, which is a continuation of Ser. No. 10,548, Feb. 8, 1979, abandoned, which is a continuation of Ser. No. 872,911, Jan. 27, 1978, abandoned, which is a continuation of Ser. No. 492,217, Jul. 26, 1974, abandoned, which is a continuation-in-part of Ser. No. 178,400, Sep. 7, 1971, abandoned. Application for reissue Jan. 18, 1990, Ser. No. 465,588

Claims priority, application France, Sep. 9, 1970, 70 32762

Int. Cl.[5] B01D 61/18

U.S. Cl. 210—651 **51 Claims**

50. A semi-permeable membrane material for use in an apparatus adapted for dialysis and ultrafiltration of blood, having the following characteristics:

(a) high ultrafiltration properties indicated by a permeability to water of from 230 to 8000 l/day m^2 at a relative pressure of 2 bars;

(b) a thickness of less than 100 microns and greater than 0.5 microns;

(c) a degree of rejection of salt as defined by

$$100 \times \left[1 - \frac{\text{NaCl concentration of a solution after permeation}}{\text{NaCl concentration of the solution subjected to permeation}} \right]$$

of less than 1%;

(d) a degree of rejection of macromolecules defined by

$$100 \times \left[1 - \frac{\text{concentration of macromolecules of a solution after permeation}}{\text{concentration of macromolecules of the solution subjected to permeation}} \right]$$

which is from 90% to 100% for cattle albumin of a molecular weight of 70,000, when an aqueous solution comprising 10 g/l of cattle albumin and 9 g/l of NaCl is subjected to a relative pressure of 2 bars;

(e) a high hemodialysis rate as represented by a reduction to a half the original concentration in 1.1 liters of human blood being reached after at most 1 hour 40 mn for urea, said blood circulated in a closed circuit at a rate of 12.5 cm3/mn over 625 cm2 of membrane, circulated dialysis bath having the same saline composition as the blood.

Re. 34,240

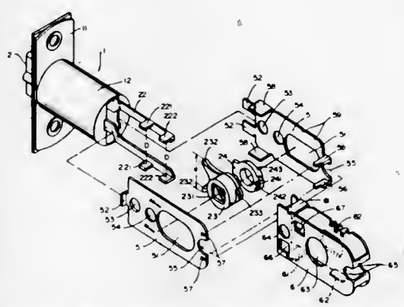
TUBULAR DOOR LOCK WITH AN ADJUSTABLE DEVICE FOR SETTING THE DEAD BOLT

Jui C. Lin, Kaohsiung, Taiwan, assignor to Taiwan Fu Hsing Industry Co., Ltd., Kaohsiung, Taiwan

Original No. 4,890,871, dated Jan. 2, 1990, Ser. No. 272,383, Nov. 17, 1988. Applicatioo for reissue Apr. 17, 1991, Ser. No. 686,513

Int. Cl.[5] E05C 1/16

U.S. Cl. 292—337 **6 Claims**



5. A tubular door lock with a cylinder having a face plate at one end thereof, a dead bolt mounted in the cylinder, an adjustable device for setting the dead bolt comprising a pulling plate having a forward pair of protrusions and a rearward pair of protrusions for meshing selectably with a gear with two teeth that is confined in a hole of a movable shell, the gear having a shaft aperture and able to move horizontally alang an elliptical hole in one of two assembling plates, said teeth having tip ends spaced apart at a distance which is shorter than the distance between inner surfaces of respective protrusions of each pair of said protrusions so that said gear can be moved horizontally by the moving of said movable

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shell to change the distance between the face plate and the shaft aperture of said gear and enabling said teeth to still mesh with said protrusions of said pulling plate for moving the dead bolt when the gear is rotated, and two holes being provided in said movable shell for corresponding with the holes of said assembling plates when said movably shell is moved to either of its positions so as to enable a foot post of the door lock to penetrate through.

Re. 34,241

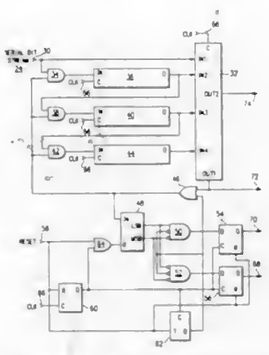
METHOD AND APPARATUS FOR EXTRACTING A PREDETERMINED PATTERN FROM A SERIAL BIT STREAM

Ching-Lin Jiang, Dallas, Tex., assignor to Dallas Semiconductor Corp., Dallas, Tex.

Original No. 4,730,346, dated Mar. 8, 1988, Ser. No. 13,911, Feb. 12, 1987. Application for reissue Mar. 8, 1990, Ser. No. 490,801

Int. Cl.[5] H04L *7/08*

U.S. Cl. 375—116 22 Claims



5. A method for acquiring the framing clock of a data stream, which is formatted in frames according to a protocol wherein a predetermined bit framing pattern is embedded in the data stream, comprising the steps of:

a) carrying successive bits of the data stream in serial memory;

b) successively comparing sets of plural bits, at separations within said serial memory such that each said set of bits corresponds to a single respective bit position with respect to said frame formatting of said predetermined protocol, to ascertain whether each said set constitutes a portion of said bit framing pattern, and accordingly, for each said set:

if the bits of said set could not constitute a portion of said bit framing pattern, overwriting said bits of said respective set with a pattern which assures that the next succeeding test of a bit set at said bit position will also not detect a portion of said framing pattern;

c) and repeating said step (b), until said comparing step has detected, at all but one of the bit positions which are possible within said protocol, that the bit set at said bit position is not part of said framing pattern.

6. A circuit for locating the position of framing bits embedded in a serial bit stream, which is formatted in frames according to a protocol wherein a predetermined bit framing pattern is embedded in the data stream, comprising:

at least three shift registers, having respective lengths corresponding to a separation of bits of said framing pattern within said bit stream;

a decoder, connected to receive and test the respective outputs of said shift registers, together with an incoming bit, to detect a match with said framing pattern;

a plurality of logic gates, wherein said shift registers are serially connected together through said logic gates, and said logic gates are controlled by the output of said decoder circuit so that;

if said decoder indicates that a match has been detected, then the incoming bit is loaded into the input of a first one of said shift registers by said logic gates, and

the output of said first one of said shift registers is connected to the input of a second one of said shift registers by said logic gates, and

the output of said second one of said shift registers is connected to the input of a third one of said shift registers by said logic gates; and

if said decoder indicates that a match has NOT been detected, then

a predetermined sequence of bit values, which is not a portion of said framing pattern, is loaded into said first, second, and third shift registers by said logic gates.

Re. 34,242

AMINO-OXAZOLE COMPOUNDS HAVING DOPAMINERGIC ACTIVITY

Duncan R. Rae, Lanark, and Samuel G. Gibson, Motherwell, both of Scotland, assignors to Akzo N.V., Arnhem, Netherlands

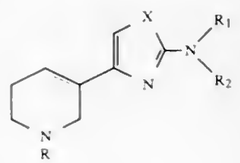
Original No. 4,904,676, dated Feb. 27, 1990, Ser. No. 228,856, Aug. 3, 1988. Continuation of Ser. No. 40,458, Apr. 20, 1987, abandoned. Application for reissue Feb. 27, 1992, Ser. No. 843,872

Claims priority, application United Kingdom, Apr. 29, 1986, 8610432

Int. Cl.[5] A61K *31/42*; C07D *417/04*

U.S. Cl. 514—340 4 Claims

1. Amino-oxazole derivatives of the formula.



I

wherein:

R represents hydrogen;

a lower alkyl group with 2–4 carbon atoms, a lower alkenyl group, a phenyl alkyl (2–4C), furanyl alkyl (1–4C) or thienyl alkyl (2–4C) group;

X represents oxygen;

R_1 and R_2 represent hydrogen or alkyl (1–4 C), and the dotted line represents an optional extra bond, as well as pharmaceutically acceptable acid addition salts thereof.

Re. 34,243

VALVE ASSEMBLY

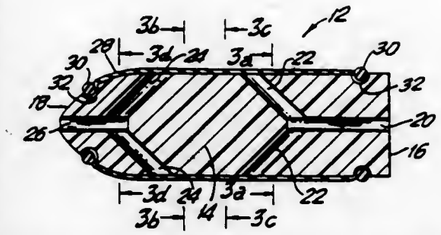
Bernard R. Gerber, Santa Cruz, Calif., assignor to ReSeal International Limited Partnership, New York, N.Y.

Original No. 4,846,810, dated Jul. 11, 1989, Ser. No. 72,534, Jul. 13, 1987. Application for reissue Jul. 11, 1991, Ser. No. 728,537

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—247 24 Claims

1 A fluid dispensing assembly including a container and a dispensing valve for dispensing fluid from the container and preventing any backflow of contaminants into the container during and following the dispensing of the fluid, said container having an outlet and being capable of discharging fluid from the container when a compressing force is applied to the fluid within the container, said dispensing valve including an elongated valve body having an inlet end and an outlet end spaced apart in the elongated direction and an outside surface extending in the elongated direction between the inlet end and the outlet end, said inlet end connected to the container outlet for receiving fluid flow therefrom, an inlet channel located within said valve body and having a first end at said inlet end of said valve body and a second end spaced from the first end toward the outlet end of said valve body with said inlet channel arranged for receiving fluid from the container, at least one *first* port in said valve body extending from the second end of said inlet channel through said valve body to the outside surface so that said first port opens through said outside surface, an outlet channel located within said valve body and having a first end located adjacent the outlet end of said valve body and a second end spaced from the first end in the direction toward the inlet end of said valve body, at least one second [portion] *port* in said valve body extending from said second end of said outlet channel to the outside surface of said valve body so that said second port opens through said outside surface and is spaced from said first port where said first port opens through said outside surface, an elastomeric sheath laterally enclosing said outside surface of said valve body and extending over said first and second ports and forming closures for said first and second ports, said elastomeric sheath prior to placement around said valve body has an inside diameter smaller than the diameter of the outside surface of said valve body so that the sheath is stretched and fits tightly around said valve body, said elastic sheath being elastically deformable between a first position forming the closure of the said first and second ports at the outside surface of said valve body and a second position spaced outwardly from said first and second ports so that flow through said inlet channel into said first port enters between said outside surface of said valve body and said sheath and flows therebetween to said second port and then through said second port to said outlet channel for discharge from the first end of said outlet channel, and said elastomeric sheath being in sealed engagement with said valve body in the direction of



flow through said valve body [upstream] *downstream* from said second port and [downstream] *upstream* from said first port in relation to the direction of flow through said valve body so that flow entering between the outside surface of said valve body and said sheath passes only through said first and second ports.

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PLANT PATENTS

GRANTED MAY 4, 1993

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

8,217
ROSE PLANT JACMIST
Jack E. Christensen, Ontario, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.
Filed Oct. 10, 1991, Ser. No. 774,267
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—11 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its unusual red and white flower color that is most evident on the reverse of the petal, its resistance to rust and susceptibility to powdery mildew, its vigorous upright growth habit and its dark green glossy foliage.

8,218
ROSE PLANT JACMAGI
Jack E. Christensen, Ontario, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.
Filed Oct. 10, 1991, Ser. No. 775,300
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—24 **1 Claim**

1. A new and distinct variety of rose plant of the Floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its very deep yellow formed buds and the buds' resistance to fading as the flower opens, by its upright habit of growth, its well-formed flower clusters and single flowers, and its dark green leathery foliage.

8,219
MANDARIN TREE NAMED 'WINOLA'
Aliza Vardi; Pinchas Spiegel-Roy, both of Ramat Gan, and Avraham Elchanati, Holon, all of Israel, assignors to State of Israel, Agricultural Research Organization, Bet Dagan, Israel
Filed Mar. 8, 1991, Ser. No. 666,283
Claims priority, application Israel, Mar. 8, 1990, 1557/90
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—45 **1 Claim**

1. A novel variety of mandarin citrus substantially as herein shown and described, characterized by a triploid chromosome number (3n=27), anthers bearing pollen with low viability and fruit which is seedless.

8,220
DOUBLE FLOWERING VARIEGATED IMPATIENS "ORANGE DELITE"
Daniel Simchock, 54 Green Meadow Ct., Deer Park, N.Y. 11729
Filed Nov. 15, 1991, Ser. No. 793,097
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—87.6 **1 Claim**

1. A new and distinct variety of impatiens plant, substantially as shown and described, characterized particularly as to novelty by the orange color of the flowers with the foliage having borders of leaves of yellowish white coloration which provide for variegation, the borders being of relatively varying widths from leaf to leaf, the primary distinction residing in the orange coloration as heretofore set forth in contrast to the much more red impatiens "Duet".

8,221
GUZMANIA PLANT NAMED ULTRA
Gerardus J. Bak, AA Assendelft; Nicolaas D. Steur, JL Oude Niedorp, and Elly Bak, ER Rijsenhout, all of Netherlands, assignors to Corn. Bak B.V., Assendelft, Netherlands
Filed Sep. 24, 1991, Ser. No. 765,005
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—88.8 **1 Claim**

1. A plant of a new and distinct cultivar of Guzmania plant named Ultra, as illustrated and described.

8,222
ASPARAGUS PLANT NAMED 'JERSEY JEWEL'
J. Howard Ellison, Milltown, and John J. Kinelski, Princeton, both of N.J., assignors to Rutgers University, New Brunswick, N.J.
Filed Nov. 15, 1991, Ser. No. 793,108
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—95 **1 Claim**

1. A new and distinct asparagus plant as shown and described herein, characterized particularly as to novelty by its ability to produce high quality asparagus spears for both commercial and fresh market use, also being suitable for good production of spears in home gardens, the hybrid being particularly well adapted to certain regions where climate is relatively dry and the growing season is long, the plant being moderately resistant to some of the known asparagus problems but producing unusually high yields of the quality aforesaid.

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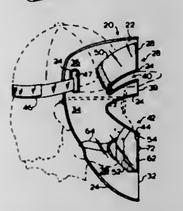
PATENTS

GRANTED MAY 4, 1993

GENERAL AND MECHANICAL

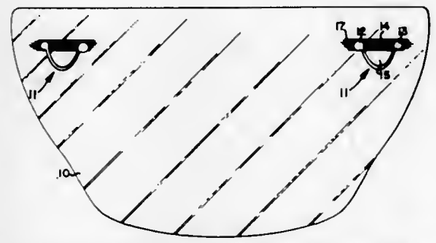
5,206,955
PROTECTIVE FACE GUARD
Norman O. Milligan, P.O. Box 70400, Richmond, Va. 23255
Filed Jun. 5, 1992, Ser. No. 893,787
Int. Cl.[5] A41D *13/00*
U.S. Cl. 2—9 **8 Claims**





1. A protective face guard for a game using a ball or the like struck play piece and to be worn on the head of a participating player who also wears a cap having a visor, comprising:
(a) an integrally molded mask piece formed from a light-weight sheet of molded thermoplastic material having:
(i) a front portion of generally outward curvature protective of the player's forehand, eyes, nose, mouth, chin and throat area including:
(aa) a visor aperture positioned in an upper region of the front portion such that when the protective face guard is worn, the visor aperture resides substantially opposite the player's forehead, said visor aperture extending across substantially the full width of the front portion and being of sufficient size to accept the insertion of a visor of a cap worn by the player; and
(bb) a vision aperture positioned below the visor aperture and extending across substantially the full width of the front portion and being of sufficient size to provide the player with substantially unobstructed forward and peripheral vision; and
(ii) side portions formed to provide unbroken exterior side surfaces forming continuations of the generally outward curvature of said front portion and located at respective opposite sides of and molded integral with the front portion and protective of the player's temple, cheek and lower jaw areas;
(b) a forehead pad secured to the inside surface of said front portion of the mask piece and positioned above said visor aperture, said forehead pad being of sufficient size to cushion a substantial portion of the player's forehead from impacts and being of sufficient thickness to prevent any portion of the player's face from protruding from the mask piece through said visor or vision apertures and such that the mask piece is spaced a sufficient distance outwardly from the player's face to avoid interference with a player's eyeglasses when worn;
(c) a mouth pad secured to the inside surface of said front portion of the mask piece and positioned below said vision aperture, said mouth pad being of sufficient size to cushion a substantial portion of the player's mouth and teeth area from impacts and being of sufficient thickness to prevent any portion of the player's face from protruding from the mask piece through said visor or vision aperture and such that the mask piece is spaced a sufficient distance outwardly from the player's face to avoid interference with a player's eyeglasses when worn;
(d) means operatively associated with said mask piece for releasably securing said mask piece to the head of the player wearing said face guard;
(e) a mouth guard insertable into the mouth of the player wearing the face guard between the player's top and bottom teeth, releasably secured to said mouth pad and extending inwardly therefrom and operative to stabilize said mask piece when in sue; and
(f) said mouth guard and mouth pad being formed with respective operatively associated cooperating means enabling the level of said mouth guard to be adjusted relative to said mouth pad.

5,206,956
PROTECTIVE FACE SHIELD
David V. Olson, 929 Medical Arts Bldg., Minneapolis, Minn. 55402
Filed Oct. 7, 1991, Ser. No. 772,347
Int. Cl.[5] A61F *9/00*
U.S. Cl. 2—13 **8 Claims**



1. A simple inexpensive disposable one-piece protective face shield to cover the eyeglass frame and face of the user thereof, said shield comprising:
A) a semi-rigid face-covering transparent sheet readily bendable into semi-cylindrical shape, said sheet having a body portion and a top edge with end portions, and front and back surfaces, and
B) a pair of integral mirror image bow-engaging clips formed in the body of the transparent sheet adjacent to the top end edge portions thereof, each of said clips including:
1) a pair of generally horizontally aligned spaced apart apertures formed in the transparent sheet;
2) a shallow channel extending between said apertures, said channel having upper and lower edges; and
3) a flat dependent bendable tab extending from the lower edge of said channel.

5,206,957
BODY CORE WARMING VEST
Betty Gulick, 2398 Forecastle Ct., Woodbridge, Va. 22192
Filed Jun. 3, 1992, Ser. No. 892,583
Int. Cl.[5] A41D *1/04*
U.S. Cl. 2—84 **17 Claims**

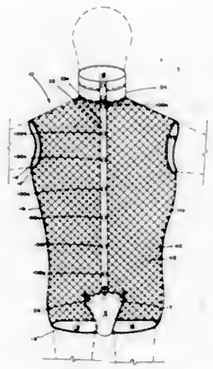
1. A one-piece, substantially sleeveless body core warming vest for wearing in direct contact with the skin of the torso of the wearer, comprising:
a multi-layered sheet sized and configured to be snugly worn in a form-fitting manner around the wearer's torso, said sheet comprising:

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at least one layer of breathable material and at least one insulative layer secured to said breathable material layer;

closure means, extending longitudinally of said sheet and having closed and opened positions, for securing said sheet to the wearer's torso to provide a snug body conforming fit when in said closed position and for permitting said multi-layered sheet to be opened into a substantially flat position when in said opened position;

arm opening means in said sheet for defining substantially sleeveless arm openings, said arm openings having an elastic facing extending substantially circumferentially there about to provide a gathered, adjustable snug fit;



a semi-rigid, upwardly extending collar integrally connected to said sheet so as to define a neck opening, said collar including an elastic facing so as to provide ease of movement and an adjustable fit for the wearer's neck;

a hood integrally connected to said collar for providing warmth to the wearer's head; and

a detachable crotch panel including first and second ends, said crotch panel being integrally attached to said sheet at said first end thereof and further including closure means disposed on said second end thereof for detachably attaching said crotch panel to said sheet.

5,206,958

PROTECTION SUIT COMPRISING A PONCHO-LIKE PART AND A PROTECTIVE HOOD JOINED THERETO AND A METHOD OF MANUFACTURING THE SAME

Ralph Widenback, Stenungsund, Sweden, assignor to New Pac Systems AB, Sweden

Filed Dec. 2, 1991, Ser. No. 800,998

Claims priority, application Sweden, Dec. 3, 1990, 9003847

Int. Cl.[5] A41D *3/08*

U.S. Cl. 2—88 **11 Claims**

1. A protection suit comprising a poncho-like part and a protective hood, wherein

the poncho-like part of the protection suit comprises front and back flat sheet portions of thermoplastic material, each sheet portion having an upper edge, the sheet portions being joined together along a connecting line located at the upper edges of the sheet portions, the front sheet portion being provided with an opening close to the connecting line,

the protective hood comprises front and back flat sheet portions of thermoplastic material joined together by means of a continuous peripheral weld seam, each hood sheet portion being provided with an opening, the opening in the back sheet portion of the protective hood having the same shape and dimension as the opening in the front sheet portion of the poncho-like part,

and the back sheet portion of the protective hood is joined to the front sheet portion of the poncho-like part by means of a continuous weld seam running along the edges of the



openings arranged in the back sheet portion of the protective hood ad in the front sheet portion of the poncho-like part.

5,206,959

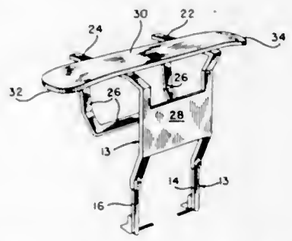
TOILET DEODORIZER

Joseph Provenzano, 1021 E. Gun Hill Rd., Bronx, N.Y. 10469

Filed Sep. 3, 1991, Ser. No. 754,443

Int. Cl.[5] E03D *9/02*

U.S. Cl. 4—231 **4 Claims**



1. A deodorizer comprising a deodorizing cake and a one-piece plastic framework having two leg portions with lower ends within said cake and extending upwardly therefrom to upper ends, horizontal portions merging with said upper ends of said leg portions and a U-shaped portion depending from said horizontal portions, said framework being somewhat springy such that said U-shaped portion can be resiliently flexed away from said leg portions to allow said framework to straddle a rim of a container with said U-shaped portion on one side of the rim and said leg portions on the other side of the rim, said framework being symmetrical with respect to a plane equidistant from said horizontal portions and parallel thereto, and said framework further having a strip member joining said horizontal portions and extending equally therebeyond to free ends.

5,206,960

DUAL FLUSH TOILET CONTROL MECHANISM

Robert L. Hooshley, 59 Lockton, Brampton, Ontario, Canada L6W 1C2 ; Paul T. Arato, Willowdale, Canada, and F. William Coffman, Toronto, Canada, assignors to Robert L. Hooshley, Brampton, Canada

Filed Oct. 11, 1991, Ser. No. 774,873

Int. Cl.[5] E03D *1/14*

U.S. Cl. 4—325 **7 Claims**

1. A dual flush control mechanism for a toilet having a main valve between the bowl and tank of the toilet, said valve being operable between a closed position, an intermediate position

and an open position wherein said valve remains open until said tank is substantially emptied, comprising:

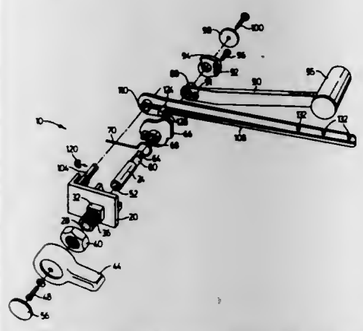
an operating handle movable to first and second extents;

a valve control arm operably connected to said valve;

a first cam follower operably connected to said valve control arm;

a control float arm movable with changes in the water level in said tank; and

an actuating cam operably connected to said handle and including first and second cam surface having different



throw heights with a detent formed at the intersection therebetween, wherein said first cam follower rides on said first cam surface to operate said valve control arm to move said valve to said open position when said handle is moved to said first extent and said first cam follower rides on said second cam surface to operate said valve control arm to move said valve to said intermediate position when said handle is moved to said second extent, said control float arm conditioning said valve control arm to release said valve from said intermediate position when the water level in said tank drops below a predetermined level.

5,206,961

WALL-MOUNTED URINAL

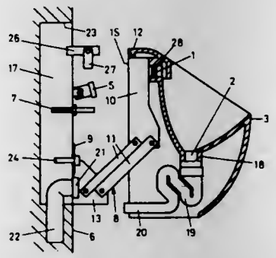
Urs Rüegg, Jona, Switzerland, assignor to Geberit AG, Jona, Switzerland

Filed Jul. 17, 1991, Ser. No. 731,495

Claims priority, application Switzerland, Jul. 20, 1990, 2420/90

Int. Cl.[5] E03D *11/14, 11/12*

U.S. Cl. 4—252.3 **8 Claims**



1. A wall-mounted urinal, comprising: a bowl element having a flushing water insert and a drain and with connections arranged behind the bowl element and with a device for controlling flushing; support means connected to a mounting wall and connected to the urinal for swinging the urinal away from the mounting wall by a limited amount after loosening a fastening device connecting said urinal to said mounting wall, said support means includes a mounting plate fastened to the mounting wall and a holding frame connected to said bowl element and at least one support member hinged to said mounting plate and connected to said holding frame, said holding frame being positioned behind said bowl.

5,206,962

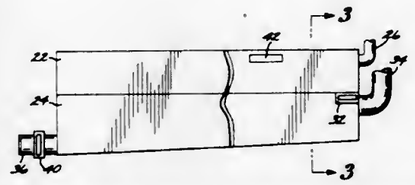
WASTE WATER DISPOSAL SYSTEM FOR RECREATIONAL VEHICLE

Waldemar S. Thorwaldson, 2332 S. Peck Rd., Room 268, Whittier, Calif. 90601

Filed May 21, 1991, Ser. No. 704,284

Int. Cl.[5] E03D *5/00*

U.S. Cl. 4—323 **11 Claims**



1. A waste disposal system for a recreational vehicle characterized by a grey water holding tank and a black water holding tank, wherein the grey water holding tank is positioned at a level above that of the black water tank, the system including means for flushing the contents of said black water tank, comprising:

grey water outlet means for emptying the contents of said grey water tank into said black water tank via gravity force without passing through a vehicle toilet, said outlet means comprising a valve controllable by the vehicle operator; and

an outlet from said black water holding tank for selectively emptying the contents of said black water holding tank, said contents including grey water admitted via said valve, thereby flushing the black water tank with said grey water as the contents of the black water holding tank are drained.

5,206,963

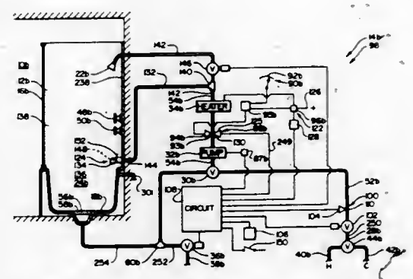
APPARATUS AND METHOD FOR A WATER-SAVING SHOWER BATH

Donald E. Wiens, 19475 Silver Hope Road, Hope, B.C., Canada V0X 1L0

Filed May 30, 1990, Ser. No. 530,825

Int. Cl.[5] A47K *3/22*

U.S. Cl. 4—603 **6 Claims**



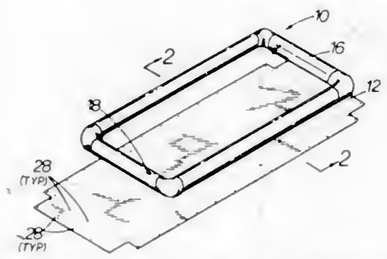
1. A shower system adapted to be operated to receive and deliver fresh water for a washing operation and also to recirculate water through the system operation washing, said system comprising:

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a. a shower head to discharge water to a washing area;
b. a basin to receive said water from the shower head;
c. a fresh water inlet adapted to be connected to a fresh water source;
d. a waste water outlet line having an upstream end to receive waste water from said basin and a downstream end adapted to carry water from said basin to a waste area;
e. a main valve having operative connections to said shower head, to said fresh water inlet, and to said waste water outlet line;
f. a waste water outlet control valve connected to said waste water outlet line at a waste water shutoff location to control flow of waste water through said waste water outlet line to said waste area;
g. a fresh water supply line connecting said fresh water inlet to said main valve;
h. a shower head supply line leading from said main valve to said shower head, said fresh water supply line forming with said shower head supply line a fresh water supply circuit;
i. a recirculating line having a first end connecting to said waste water outlet line at a location upstream of said shutoff location of the waste water outlet control valve and a second end connected to said main valve, said recirculating line forming with said shower head supply line a recycling circuit;
j. said main valve having at least two operating positions, namely:
i. a first operating position by which a flow connection is made between said fresh water supply line and said shower head supply line to supply fresh water to said shower head;
ii. a second operating position by which a connection is made from said recirculating line to said shower head supply line to recirculate waste water discharged from said shower head;
k. a pump means operatively connected in said recirculating circuit to pump water from said waste water outlet into said shower head;
l. a hot water/cold water mixing control valve connected to said fresh water supply line upstream of said main valve;

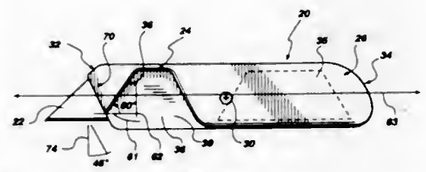
whereby with said main valve in its first operating position and said waste water outlet control valve being in its open position, fresh water can be delivered to said shower head to pass out said waste water line to said waste area, and with said main valve in its second operating position and said waste water control valve being in its closed position, said pump means is able to recirculate waste water from said basin to said shower head.

8,206,964
BEACH BLANKET STABILIZER
Jerry D. Wilson, Sr., P.O. Box 963, Carrier Mills, Ill. 62917
Continuation of Ser. No. 547,389, Jul. 3, 1990, abandoned. This application Feb. 22, 1991, Ser. No. 659,436
Int. Cl.[5] A47G *9/00*
U.S. Cl. 5—417 **20 Claims**



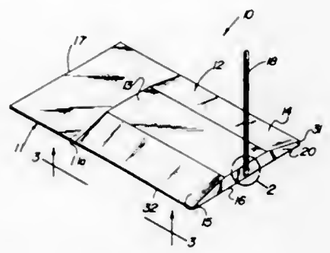
10. An inflatable stabilizer for use in combination with a fabric or plastic generally flexible member for providing a support member in combination therewith, comprising:
an inflatable member having a polygonal shape;
a generally flexible member having a polygonal shape with notches at the corners and means for securing the generally flexible member about the inflatable member, the corners of the inflatable member overlying the notches of the flexible member, the flexible member incorporated for detachably connecting to the inflatable member the flexible member by wrapping the flexible member from underneath and around the top of the inflatable member, and the attaching means secures the inflatable member to the flexible member; and
valve means for inflating and deflating the inflatable member.

5,206,965
UTILITY KNIFE
Mark Rowley, 1740 E. Shaleh Meadows Rd. #9B, Holladay, Utah 84117
Filed Nov. 22, 1991, Ser. No. 797,422
Int. Cl.[5] B25G *1/10*; **B26B** *1/08*
U.S. Cl. 7—119 **13 Claims**



1. Cutting structure comprising:
a housing having elongated sides, a forward end, and a rearward end;
a blade extendable from said forward end; and
thumb positioning structure associated with said elongated sides having an upstanding, flat planar surface structured to retain measurement means thereagainst, said upstanding flat planar surface being disposed at an acute angle from the longitudinal axis of said housing, and said thumb positioning structure being located from said blade a distance to prevent contact between a thumb and said blade.

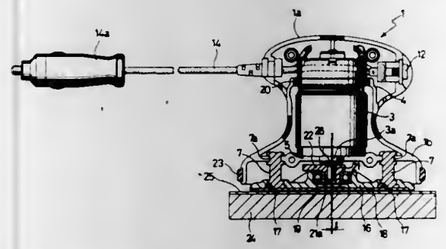
5,206,966
CARPENTRY TOOL
William D. Hoffman, 1440 Faires Rd., Rock Hill, S.C. 29730
Filed Jan. 8, 1992, Ser. No. 818,253
Int. Cl.[5] B66F *15/00*
U.S. Cl. 7—166 **6 Claims**



1. A carpentry tool, comprising,
a base plate, the base plate including a base plate first end spaced from a base plate second end, and

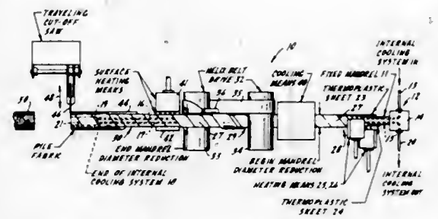
a base plate forward side edge spaced from and parallel a base plate rear side edge, and
the base plate extending from the first end to the second end a predetermined first length, and the base plate extending from the base plate forward side edge to the base plate rear side edge a predetermined width, and
housing means mounted to the base plate, wherein the housing means is integrally secured to a top surface of the base plate for providing a fulcrum surface, and
the housing means includes a housing top wall arranged parallel to and above the base plate, a housing forward wall extending from the top wall to the base plate forward side edge, and a housing rear wall extending from the top wall to the housing rear side edge, wherein the housing includes a housing first side wall orthogonally and coextensively mounted to the base plate first end and extending from the base plate first end a predetermined second length less that the predetermined first length.

5,206,967
ELECTRIC WAX APPLICATOR
Fusao Fushiya, Nagoya, and Hideki Ohkubo, Nishio, both of Japan, assignors to Makita Electric Works, Ltd., Anjo, Japan
Continuation of Ser. No. 579,803, Sep. 7, 1990, abandoned. This application Jun. 3, 1992, Ser. No. 893,607
Claims priority, application Japan, Dec. 27, 1989, 1-151235
Int. Cl.[5] B24B *29/00*
U.S. Cl. 15—97.1 **6 Claims**



1. In an electric wax applicator having
(a) a housing,
(b) a pad received in a bottom portion of the housing,
(c) a sponge removably and replaceably joined to a lower surface of the pad,
(d) an electric motor mounted in the housing and having a drive shaft,
(e) a crank member connected to the drive shaft and including a balancer portion and an eccentric shaft portion having a center deviated slightly from the axis of rotation of the drive shaft and rotatably received in a bearing of the pad,
the improvement comprising pad supporting means of resilient material secured between the housing and the pad, said pad supporting means including
A. first resilient supporting members joined both to the pad and to the housing for mountingly securing the pad to the housing, said first members being so joined by seating in apertures in the pad and in the housing, and
B. second resilient supporting members joined, by seating in apertures, to only one of the pad and the housing and in contact with the other, said second members being spaced from said first members and resisting movement of said pad relative to said housing along a direction parallel to said drive shaft.

5,206,968
PAINT ROLLER
Lawrence J. Bower, Milwaukee; Ronald R. Delo, Waukesha, and Gerald D. VanZeeland, New Berlin, all of Wis., assignors to EZ Paintr Corporation, Milwaukee, Wis.
Filed Jan. 9, 1991, Ser. No. 639,082
Int. Cl.[5] B05C *17/02*
U.S. Cl. 15—230.11 **4 Claims**



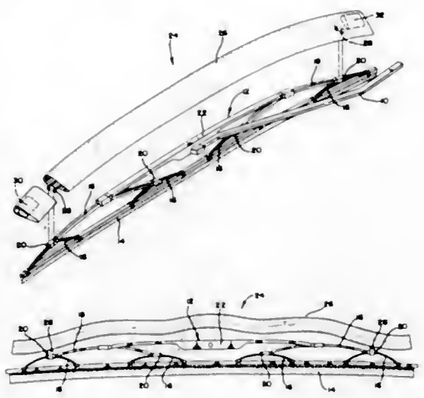
1. A paint roller, said paint roller including
a tubular core,
said core being formed of thermoplastic material,
said core further being formed from a multiplicity of spirally wound plies of said thermoplastic material,
said multiplicity of plies comprising an outer ply surrounding and in continuous contact with an inner ply,
each of said plies being layed up in general parallelism with one another,
said plies being fused to one another in the absence of adhesive,
said core being of a generally unitary construction having a radially innermost portion oriented in a given direction and a radially outermost portion which overlaps the innermost portion and is oriented in generally the same direction,
said core being composed of polypropylene, and
a fabric cover overlying said multi-ply core,
said fabric cover being heat fused to the underlying multi-ply core in the absence of adhesive.

5,206,969
WIPER WITH REDUCED CHATTER AND WIND LIFT
Douglas D. Patterson, Centerville; James E. Roberts, Huber Heights, and Scot A. Blommel, Yellow Springs, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed Jun. 29, 1992, Ser. No. 906,175
Int. Cl.[5] B60S *1/04*
U.S. Cl. 15—250.42 **2 Claims**

1. In a vehicle windshield wiper of the type having a wiper blade support carried by a wiper arm that swings about a pivot point at a predetermined velocity and supporting a wiper blade that engages said windshield with sufficient drag to tend to cause blade chatter, and in which said blade support is exposed to a high speed air stream tending to cause said blade to lift away from said windshield, the improvement comprising,
an airfoil on said wiper blade support oriented to said air stream so as to apply a downward lift suppressing force, said airfoil being formed from a material that is sufficiently resilient and massive to undulate under the influence of the blade chatter and which is fixed to and above said blade support independently of said wiper arm at widely spaced, discrete fixture points so as to extend parallel to a substantial portion of said blade,
whereby, the total mass and stiffness of said wiper blade

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support is increased by the addition of said airfoil, reducing chatter, while remaining chatter is damped out by



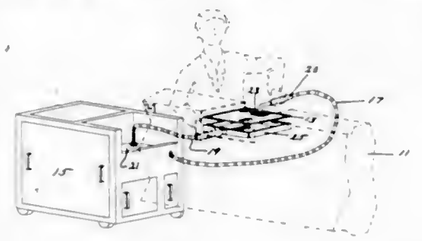
undulations set up between said widely spaced fixture points.

5,206,970

ON-SITE PORTABLE STENCIL CLEANER

Jay R. Johnson, Chalfont, Pa., assignor to EMC Global Technologies, Inc., Doylestown, Pa.

Filed May 11, 1992, Ser. No. 881,188
Int. Cl.[5] A47L *7/00*
U.S. Cl. 15—321 7 Claims



1. A vacuum-assisted cleaner for the stencil of a printing machine, comprising:

a hand-held cleaning wand having a brush head and a first vacuum air hose terminating within the brush head;

a solvent reservoir with a solvent supply hose connected to said cleaning brush head;

a blower connected to the first air hose for drawing a vacuum on said brush head through said first vacuum air hose for capturing air and solvent in the vicinity of said brush head;

a second vacuum air hose connected to said blower; and

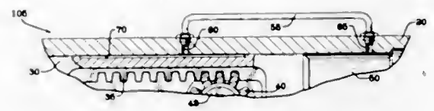
a hand-held drip pan having a handle and a plurality of fluid and air duct means connected to said second vacuum air hose, whereby said drip pan is held underneath the stencil mounted in said printing machine as said stencil is cleaned by the solvent and mechanical cleaning action of said brush head as said brush head is manually manipulated on the stencil and used solvent is collected in said pan through the second vacuum air hose.

5,206,971

APPARATUS AND METIIOD FOR INCREASING THE EFFICIENCY OF A DOOR CLOSER BY REDUCING FRICTION THEREIN

Lynn A. Schmelzer, and Thomas R. Lasier, both of Princeton, Ill., assignors to Schlage Lock Company, San Francisco, Calif.

Filed Dec. 13, 1991, Ser. No. 806,200
Int. Cl.[5] E05F *3/04, 3/22*
U.S. Cl. 16—62 11 Claims



1. In a door closer which has a piston within a cylinder with a gear rack formed on said piston and a gear pinion engaging said gear rack, said gear pinion being affixed to a shaft whose axis is perpendicular to said piston and said gear rack, the improvement, in combination with said piston, said cylinder, said gear rack, and said gear pinion, comprising:

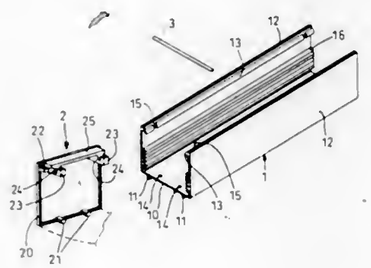
means for providing a variable biasing force to said gear rack in order to counteract a separating force between said gear rack and said gear pinion.

5,206,972

DEVICE FOR CLOSING THE END OF A SECTION

Jean C. Nudelmont, Neuilly sur Seine, and Amedee Gagliardi, Cravent, both of France, assignors to P.G.E.P., Professional General Electric Products, Coubevoie, France

Filed Jan. 23, 1992, Ser. No. 824,111
Claims priority, application France, Jan. 23, 1991, 9100725
Int. Cl.[5] E05D *13/00;* H02G *3/04*
U.S. Cl. 16—95 R 16 Claims



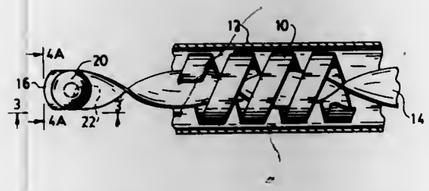
1. Device for closing the end of a section of U-shaped cross section having a bottom and two flanges provided near the open face of the section with a rail turned toward said bottom comprising: a ferrule carrying on its lower side two lugs and on its upper side two positioning nipples and two hooks having slots and a stop piece formed by a spindle that engages in said slots.

5,206,973

SOUND-DEADENER FOR WINDOW TORSION BALANCE

Edward L. Belcher, Rochester, N.Y., assignor to Caldwell Manufacturing Company, Rochester, N.Y.

Filed Mar. 16, 1992, Ser. No. 851,421
Int. Cl.[5] E05D *13/00;* E05F *1/00*
U.S. Cl. 16—197 14 Claims



1. A sound-deadened torsion balance for a window, sash movable relative to a cooperating window jamb, said balance having:

- a balance cover for attachment to one of said jamb and sash;
- a torsion spring cylindrically coiled within said cover, said spring having a predetermined internal diameter; and
- a twisted rod having a fixed end adapted for attachment to the other of said jamb and sash and having a free end positioned within said spring, the free end of said rod being constructed with a predetermined maximum cross-sectional dimension to permit movement relative to said spring;

said balance comprising:

a sound-deadening element secured to said twisted rod at a position proximate to the extremity of the free end thereof, said element being sized so that its maximum dimension measured radial to said spring is greater than said maximum cross-sectional dimension of said free end but less than said internal diameter of said spring to prevent contact between the free end of said rod and said spring without interfering with the movement of said twisted rod relative to said spring.

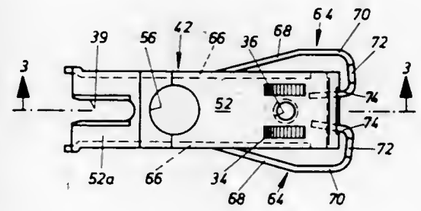
5,206,974

MOUNTING PLATE FOR FURNITURE HINGES AND METHOD FOR MANUFACTURING IT

Karl Lautenschläger, Reinheim, Fed. Rep. of Germany, assignor to Karl Lautenschläger GmbH & Co. KG Möbelbeschlagfabrik, Reinheim, Fed. Rep. of Germany

Filed Aug. 26, 1991, Ser. No. 749,871
Claims priority, application Fed. Rep. of Germany, Sep. 10, 1990, 4028653
Int. Cl.[5] E05D *7/06, 7/12;* B21D *53/40;* B21K *13/02*
U.S. Cl. 16—240 7 Claims

3. A mounting plate for an adjustable mounting of a supporting arm of a hinge on a wall of a furniture piece, said mounting plate includes an upper portion facing a supporting arm wherein at least said upper portion is made with an inverted U-shaped profile by punching and pressing from sheet metal, and has in a carcase-interior end area a tap for a mounting screw locking the supporting arm of the hinge, and on its end pointing out of the carcase-interior an open-ended longitudinal slot, said mounting plate includes a reduced-diameter neck section of a threaded spindle provided at a mounting-plate side bottom end of a threaded section screwed into a threaded bore in the supporting arm, on whose end facing away from the threaded section a holding head of increased diameter is set, said neck section extending from a bottom end of the threaded section of the threaded spindle to a top end of the holding head and the length of the neck section being greater than the thickness of the sheet metal starting material used for the making of the mounting plate, said reduced diameter neck section being



adapted for insertion into said open-ended longitudinal slot, comprising said mounting plate including a web (52) whose forward end is deformed over the length of the longitudinal slot to a plane running parallel to the rest of the web, and said web having margins wherein along the margins of the web (52) of the mounting plate (42) which define the longitudinal slot (39), ridges (100) are formed out of the plane of the web (52), so that a distance measured from one flat side of the undeformed web (52) to the opposite boundary surface of the outwardly formed ridges (100) is greater than the material thickness of the web (52) in the undeformed area.

5,206,975

Patent Not Issued For This Number

5,206,976

AUTOMATIC SHEDDING MECHANISM

Takatsugu Aihara, and Soichiro Hisano, both of Kiryu, Japan, assignors to Suzuki Warper Ltd., Kiryu, Japan

PCT No. PCT/JP90/00406, § 371 Date Apr. 17, 1991, § 102(e) Date Apr. 17, 1991, PCT Pub. No. WO91/14812, PCT Pub. Date Oct. 3, 1991
PCT Filed Mar. 27, 1990, Ser. No. 651,270
Int. Cl.[5] D02H *9/00;* D02M *13/34*
U.S. Cl. 28—198 6 Claims

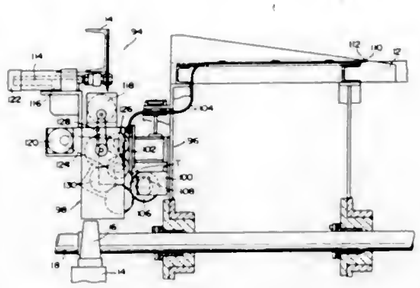
1. An automatic shedding mechanism comprising:

(a) a warping drum which is rotatably disposed on a bearing via a drum shaft and is rotated by driving means including an electronically controlled motor;

(b) a plurality of lease tapes which are conducted onto the surface of said warping drum via a lease tape guide and are moved between lease formed by warping yarns;

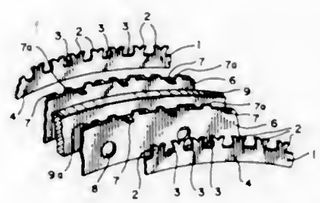
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(c) a reel which is disposed on a side of said warping drum and includes means for reeling said lease tapes; and
(d) a movable unit which is moved back and forth by said



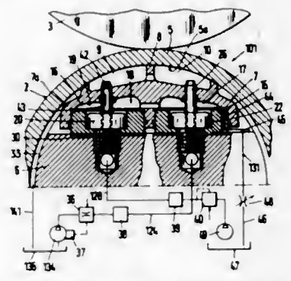
electronically controlled driving means so as to come into contact with and out of contact from said lease tapes and said means for reeling.

5,206,977
CONSTRUCTIVE ARRANGEMENT OF TIRE RASPING SEPARATOR AND SAW ASSEMBLY
Hector O. Larin, 354-km 63, Estr. Estado de Sao Paulo, Brazil
Filed May 31, 1991, Ser. No. 708,601
Claims priority, application Brazil, May 31, 1990, PI9002650
Int. Cl.[5] B23D *71/02*
U.S. Cl. 29—79 8 Claims



1. A saw blade mounting assembly for a tire rasping apparatus, the tire rasping apparatus comprising at least one rotatable cap and a plurality of pins extending orthogonally from the cap to receive said saw blade mounting assembly thereon, said saw blade mounting assembly comprising:
a) at least one saw blade having an inner smooth edge, an outer edge and a plurality of bores disposed along said saw blade in alignment to receive corresponding ones of the plurality of the pins, said outer edge having a plurality of cutouts evenly spaced therealong and extending towards said inner edge to form a plurality of teeth, each tooth formed between successive cutouts;
b) a spacing member having a plurality of bores disposed along said spacing member in alignment to receive corresponding ones of the plurality of the pins; and
c) at least one retaining blade having inner and outer edges, opposing side surfaces, a plurality of bores disposed along said retaining blade in alignment to receive corresponding ones of the plurality of the pins and a plurality of attachment pawls, said attachment pawls extending from said opposing side surfaces and spaced along said retaining blade in alignment with corresponding ones of said plurality of cutouts;
d) said retaining blade, said saw blade and said spacing member being assembled together such that said bores of said spacing member and said retaining blade are mounted on the pins, and one of said opposing side surfaces of said retaining blade abuts said saw blade and each of said plurality of attachment pawls extends through and engages a corresponding one of said plurality of cutouts, whereby said saw blade is secured to the rotatable cap.

5,206,978
HYDROSTATIC ROLL FOR USE IN CALENDERS
Josef Pav, Krefeld, Fed. Rep. of Germany, assignor to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany
Filed Sep. 20, 1991, Ser. No. 763,129
Claims priority, application Fed. Rep. of Germany, Sep. 27, 1990, 4030537
Int. Cl.[5] B21B *31/32, 13/02*
U.S. Cl. 492—7 21 Claims

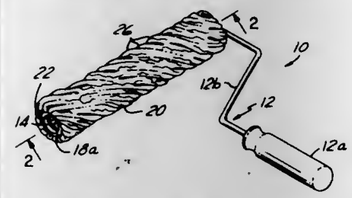


1. A roll comprising a carrier; a flexible rotary cylindrical shell spacedly surrounding said carrier and having an internal surface; and at least one hydrostatic displacing unit disposed between said carrier and said shell, said at least one unit comprising a bearing element having an external surface adjacent said internal surface and provided with at least one pocket, said element further having a second surface facing away from said external surface and said unit further comprising at least one plenum chamber at said second surface, a source of pressurized heated fluid, means for supplying heated fluid from said source to said at least one pocket, a source of compressed fluid, and means for effecting the flow of fluid through said at least one plenum chamber including means for conveying compressed fluid from the respective source to said at least one plenum chamber and a flow restrictor defining a path for evacuation of compressed fluid from said at least one plenum chamber.

5,206,979
ROLLER FOR SPECIALTY PAINT FINISHES
David W. Campbell, 52021 D.W. Seaton, New Baltimore, Mich. 48047
Filed Apr. 7, 1992, Ser. No. 864,503
Int. Cl.[5] B05C *1/08;* B21B *13/02*
U.S. Cl. 492—13 10 Claims

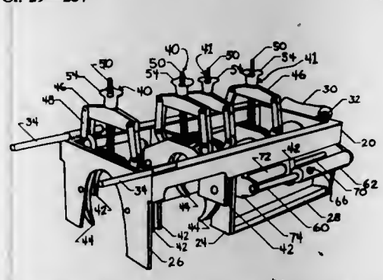
1. A specialty paint finish roller, comprising:
a roller handle assembly comprising a handle and a connector member connected with said handle;
an axle connected with said connector member;

a roller tube having a first open end and a second open end, said roller tube having an axial cavity located between said first and second open ends;
a rag component structured to cover said roller tube, said rag component covering said roller tube, said rag component being twisted about said roller tube by said rag component being rotated in a clockwise direction adjacent



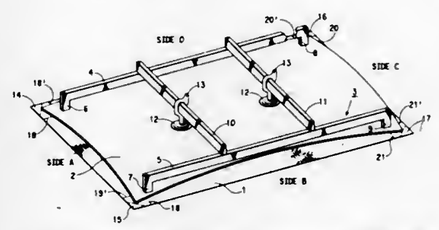
said first open end of said roller tube and relatively rotated in a counterclockwise direction adjacent said second open end of said roller tube;
means for connecting said rag component to said roller tube; and
bushing means for rotatably connecting said roller tube to said axle.

5,206,980
APPARATUS FOR ALIGNING ENDS OF PIPES
Johnny D. Chapman, 2469 Barrow Rd., Douglasville, Ga. 30134
Filed Apr. 7, 1992, Ser. No. 864,842
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—237 7 Claims



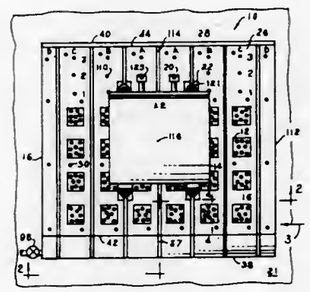
1. An apparatus for aligning the ends of two pipes comprising:
a frame having an open bottom and means for supporting said frame above a surface;
a first plurality of clamp means fixedly attached proximate a first end of said frame, each having upper jaw means proximate an upper portion of said frame, a pair of cooperating lower jaws respectively pivotally connected to said upper jaw means so that said lower jaws are selectively openable and closable proximate said open bottom of said frame and further having means for selectively opening and closing said lower jaws;
at least one guide rod coaxial to said first clamp means, attached to said frame proximate a second end of said frame distal said first end of said frame;
at least one cylinder corresponding to each said guide rod slidably mounted thereon;
a second plurality of clamp means attached to said at least one cylinder in axial alignment with said first plurality of clamp means, each having upper jaw means proximate an upper portion of said frame, a pair of lower jaws respectively pivotally connected to said upper jaw means so that said lower jaws are selectively openable and closable proximate said open bottom of said frame and means for selectively opening and closing said lower jaws;
means for selectively translating each said cylinder along a corresponding said guide rod; and
roller means for engaging a top of a pipe affixed at either end of said frame.

5,206,981
FABRIC TENSIONING FRAME
Franco L. Serafini, Leudelange, Luxembourg, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 25, 1991, Ser. No. 782,939
Int. Cl.[5] B23P *11/00*
U.S. Cl. 29—243.57 7 Claims



1. A frame for attaching and bi-directionally tensioning a porous fabric over a substantially flat, flexible, substantially rectangular form support, comprising:
(a) a rigid frame member having four legs extending therefrom, the legs extending in the same direction and substantially perpendicular to the frame member and positioned such that each leg corresponds with a corner of the form support so that the area formed between the four legs takes the shape of a rectangle; and
(b) means for attaching the frame member to the form support within the rectangular area formed between the four legs such that when each leg is placed in contact with its corresponding corner of the form support and attachment occurs between the frame member and the form support the form support is caused to evenly flex between adjacent legs of the frame member.

5,206,982
DIE TRANSFER STRUCTURE AND METHOD
Donald H. Brown, 19725 Somers, New Boston, Mich. 48164
Filed Aug. 27, 1990, Ser. No. 573,352
Int. Cl.[5] B30B *15/00*
U.S. Cl. 29—559 20 Claims



6. The method of transferring a die between a die transfer truck having a table top and a press bolster plate, comprising providing the truck table top and bolster plate with T-slots in the top thereof, providing bearing structures between the T-slots which facilitate universal movement of the die in two dimensions in the truck table top and the bolster plate, placing

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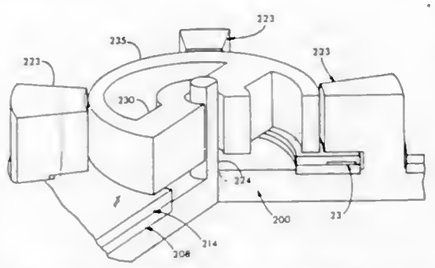
the truck next to the bolster plate, aligning the top of the truck table and the top of the bolster plate, activating the bearing structures in the truck and bolster plate to raise the bearing structures above the top of the truck table and bolster plate and facilitate two dimensional universal movement of the die from the truck to the bolster plate and centering of the die on the bolster plate, centering the die on the bolster plate, deactivating the bearing structures and clamping the die in its centered position on the bolster plate.

5,206,983

METHOD OF MANUFACTURING MICROMECHANICAL DEVICES

Henry Guckel; Todd R. Christenson, and Kenneth J. Skrobis, all of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 24, 1991, Ser. No. 718,536
Int. Cl.[5] H01K *15/02*
U.S. Cl. 29—598 8 Claims



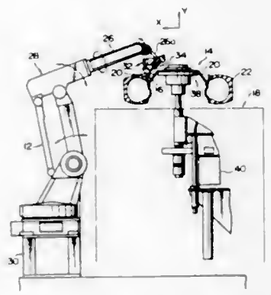
1. A method of making a micromachined magnetically actuated device comprising:
(a) forming a sacrificial release layer of material on the surface of a substrate, the material of the sacrificial release layer being dissolvable in a liquid which does not affect the substrate;
(b) applying a plating base at least over the sacrificial release layer, the plating base being formed of a metal;
(c) forming a layer of casting material over the plating base to at least the desired thickness of a rotor structure to be formed, the deposited casting material being susceptible to X-rays such that the casting material exposed to X-rays can be dissolved in a selected developer solvent;
(d) exposing the casting materials to X-rays in a pattern over the plating base, the pattern including a circular outer ring, a bar-section extending through the center of the ring and connecting the ring with no exposure being made of the casting material in openings between the bar and the outer ring;
(e) removing the casting material with the developer solvent in those areas which have been exposed to X-rays while leaving the remaining casting material to define a mold area over the plating base;
(f) depositing a solid metal into the mold area onto the plating base by electroplating to build up a rotor in the mold area;
(g) removing the remaining casting material;
(h) removing the plating base around the deposited metal rotor to allow access to the sacrificial release layer;
(i) removing the sacrificial release layer to free the deposited metal rotor from the substrate;
(j) applying the plating base onto the surface of another substrate, the plating base being formed of a metal;
(k) forming a layer of casting material over the plating base to at least the desired thickness of a stator structure to be formed, the deposited casting material being susceptible to X-rays such that the casting material exposed to X-rays can be dissolved in a selected developer solvent;
(l) exposing the casting material to X-rays in a pattern over the plating base, the pattern including areas surrounding a central region sized to accept the rotor;
(m) removing the casting material with the developer solvent in those areas which have been exposed to X-rays while leaving the remaining casting material to define a mold area over the plating base;
(n) depositing a solid metal into the mold area onto the plating base by electroplating to form stator pole pieces surrounding the region of the rotor, and removing the remaining casting material to leave the stator pole pieces isolated on the substrate; and
(o) assembling the rotor into the region between the stator pole pieces.

5,206,984

APPARATUS FOR MOUNTING A BALANCE WEIGHT ON A TIRE WHEEL

Sigeru Matumoto, and Nobuo Kotaki, both of Tokyo, Japan, assignors to Kokusai Keisokuki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 12, 1992, Ser. No. 849,947
Claims priority, application Japan, Jun. 20, 1991, 3-176140
Int. Cl.[5] B23P *21/00*; B23Q *7/10*
U.S. Cl. 29—705 11 Claims



1. A tire wheel balance weight mounting apparatus for mounting a balance weight on a rim of a tire wheel, said balance weight having a weight portion and a clip portion, said apparatus comprising:
weight holding means including a chucking unit having two end surfaces spaced apart along a direction in which said rim extends, said surfaces clamping therebetween said clip portion of said weight;
moving means for moving the weight holding means so that the balancing weight held by said weight holding means may be abutted against an outer edge of the rim; and
hammering means for hammering the clip portion of said balancing weight held by said weight holding means to a side of said rim.

5,206,985

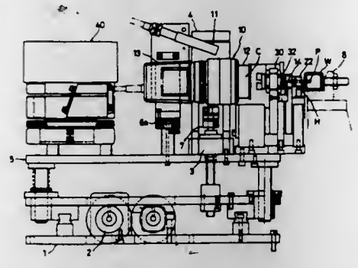
AUTOMATIC PIN INSERTING APPARATUS

Kazunobu Tsukihashi, Yokohama, and Yasuaki Shinomiya, Tokyo, both of Japan, assignors to Sumitomo Metal Mining Co., Ltd., Tokyo, Japan

Filed Oct. 8, 1991, Ser. No. 772,088
Claims priority, application Japan, Oct. 8, 1990, 2-268442
Int. Cl.[5] H05K *3/30*
U.S. Cl. 29—720 14 Claims

1. An automatic pin inserting apparatus, comprising:
a table freely movable in X and Y directions;
moving means for moving said table in the X and Y directions, which directions correspond to right-and-left directions as well as up-and-down directions;
an optical detecting means for detecting a hole location in a workpiece placed on said table;

a swing arm for moving a pin from a waiting position to an operating position on an optical axis of said optical detecting means;
a swing means for operating said swing arm;
a pin inserting means disposed to be moved from said waiting position to a pin inserting side of said swing arm on said optical axis;



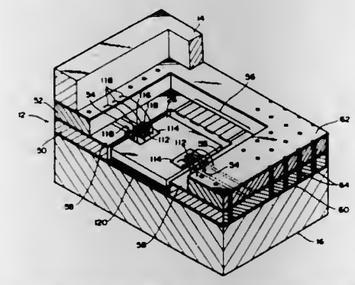
a transmitting means driven by said swing means, said pin inserting means being rotationally moved by said transmitting means;
a pin supply means for supplying a pin to said swing arm when said swing arm is in said waiting position; and
a control means for controlling said moving means in response to a signal generated by said optical detecting means, so as to align said optical axis with a center point of the hole location of said workpiece.

5,206,986

METHOD OF PRODUCING AN ELECTRONIC CIRCUIT PACKAGE

Yasunari Arai, Tokyo; Hiroshi Hamano, Kawasaki; Izumi Amemiya, Yokohama; Takuji Yamamoto, and Takeshi Ihara, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Division of Ser. No. 564,345, Aug. 8, 1990, Pat. No. 5,150,280.
This application Jun. 23, 1992, Ser. No. 902,884
Claims priority, application Japan, Aug. 11, 1989, 1-206634; Nov. 28, 1989, 1-306720; Jan. 17, 1990, 2-6417
Int. Cl.[5] H05K *3/34*
U.S. Cl. 29—840 9 Claims



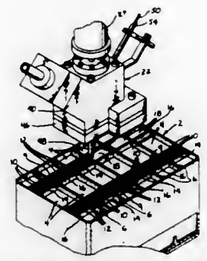
1. A process of producing an electronic circuit package, comprising:
a first step of applying, to the opposite faces of a circuit board having a cutout in which an IC chip is to be accommodated, a first metal member having an opening at a location thereof corresponding to said cutout and a second metal member having a space to which the IC chip is to be secured;
a second step of securing the IC chip and a metal block to which a ground port of said IC chip is to be connected to said second metal member in said cutout;
a third step of connecting said IC chip to said circuit board and metal block by means of wire bonding; and
a fourth step of covering over said opening of said first metal member with a lid member made of a metal;
said first to fourth steps being proceeded in this order.

5,206,987

BATTERY ASSEMBLY PROCESS

Renard E. Mix, Yorktown, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 10, 1992, Ser. No. 926,440
Int. Cl.[5] H01M *2/26*
U.S. Cl. 29—623.1 9 Claims



1. In a method of joining a first set of aligned, upstanding, like-polarity, lead-acid storage battery plate lugs to each other in a first cell element and to a second set of aligned, upstanding, opposite polarity, lead-acid storage battery plate lugs in a second cell element via first and second plate straps fused to said lugs and to each other, said lug sets each having a proximal lug adjacent said opening and a distal lug remote from said opening, said elements being positioned in adjacent cell compartments of a multi-cell container and on first and second sides of an intercell partition having an opening therethrough adapted to receive an intercell connector for electrically connecting said plate straps together, comprising the principle steps of forming a trough about each set of lugs in alignment with the opening and each other, and dispensing a stream of molten lead onto the lugs in each said trough from an arc-melting, molten lead dispensing means traversing the length of said aligned trough to form said straps and said intercell connector, the improvement comprising:
said opening being enclosed by, and lying beneath the upper edge of, said partition;
with said stream at a first predetermined temperature and commencing at the distal lug of said first set, traversing said first set of lugs with said dispensing means moving in a zig-zag route over the tops of the lugs at a first trough-filling speed which is commensurate with the flow rate of the stream, the mass of the lugs of said first set and the desired dimensions of said first plate strap;
at said proximal lugs, (1) causing said dispensing means to linger adjacent said opening to permit molten lead to flow from one side of said partition to the other side through said opening to fill said opening, (2) and changing the temperature of said stream to a second temperature which is commensurate with the mass of the lugs in the second set;
moving said dispensing means quickly from one side of said partition to the other side at a speed which is greater than said trough-filling speed and sufficiently rapid as to prevent thermal degradation of said upper edge of said thermoplastic partition overlying said opening by said stream of molten lead; and
with said stream at said second temperature traversing said second set of lugs with said dispensing means moving in a zig-zag route over the tops of said lugs at a trough-filling speed commensurate with the flow rate of the stream, the

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mass of the lugs of said second set and the desired dimensions of said second plate strap.

5,206,988

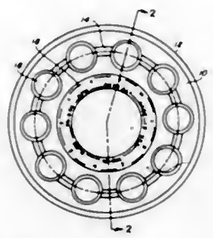
HYBRID ULTRA-CENTRIFUGE ROTOR WITH BALANCING RING AND METHOD OF MANUFACTURE

Alireza Piramoon, Santa Clara, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Continuation of Ser. No. 905,820, Sep. 10, 1986, abandoned. This application Jun. 22, 1988, Ser. No. 211,140

Int. Cl.[5] B04B *5/04*

U.S. Cl. 29—889 **10 Claims**



1. A centrifuge rotor having tube cavities formed therein with their centers located along a common radius and a balancing ring integrally formed in and extending above the upper surface of the rotor along said common radius whereby material may be removed from one or more locations along said ring to balance said rotor.

7. The method of manufacturing a hybrid centrifuge rotor having an inner isotropic core body and having tube cavities formed therein with the centers located along a common radius and an outer anisotropic reinforcing ring comprising the steps of:

integrally forming in the upper surface of said rotor core along said common radius a raised balancing ring; and

removing material from selected portions of said ring to balance to said rotor.

5,206,989

METHOD OF MAKING SOLID PROPELLANT CANISTER LOADED ROCKET MOTOR

Bradley W. Smith, Ogden, and Dean C. Youngkeit, Willard, both of Utah, assignors to Thiokol Corporation, Ogden, Utah

Continuation of Ser. No. 496,542, Mar. 20, 1990, Pat. No. 5,070,691, which is a division of Ser. No. 227,748, Aug. 3, 1988, Pat. No. 4,958,971. This application Mar. 22, 1991, Ser. No. 673,788

Int. Cl.[5] F02K *9/00*

U.S. Cl. 29—890.01 **12 Claims**



1. A method of making a rocket motor comprising the steps of:

a. providing a monolithic elongate generally cylindrical case;

b. providing at least two canisters each having an individual case and containing solid propellant material;

c. inserting each of the canisters in the monolithic case with the canister cases in engagement therewith;

d. attaching the individual canister cases to the monolithic case;

e. providing means within the monolithic case for igniting the solid propellant material; and

f. providing thrust nozzle means engaging the monolithic case.

5,206,990

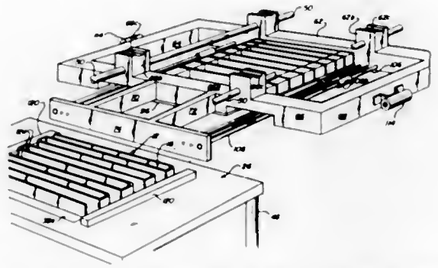
METHOD FOR ASSEMBLING SERPENTINE HEAT EXCHANGERS

William D. Wright, Lyndonville, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 29, 1991, Ser. No. 752,122

Int. Cl.[5] B23P *15/26*

U.S. Cl. 29—890.047 **9 Claims**



1. A method of installing fins in spaces between adjacent runs of a serpentine tube structure to form a heat exchanger comprising the steps of:

providing a plurality of variable width compartments proximate the tube structure;

aligning each compartment with a respective space between the runs including the step of adjusting the width of each compartment;

positioning a fin in each compartment; and

moving the fins out of the compartments and into the respective spaces.

5,206,991

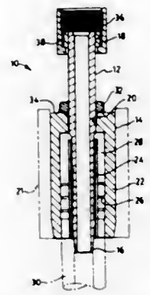
METHOD FOR PRODUCING HOSE COUPLINGS

Barry L. Barley, Hellam, Pa., assignor to Caterpillar Inc., Peoria, Ill.

Filed Dec. 9, 1991, Ser. No. 803,841

Int. Cl.[5] B21D *53/00;* **B21K** *29/00;* **B23P** *15/26*

U.S. Cl. 29—890.144 **34 Claims**



1. A method for producing a copper brazed steel hose coupling assembly from a plurality of component members, comprising the steps of:

assembling the members together, one of the members being electroplated with a coating of copper having a preselected thickness;

placing the hose coupling assembly in a furnace;

heating the hose coupling assembly in the furnace and copper brazing at least two of the members together; and

removing the copper brazed hose coupling assembly from the furnace.

5,206,992

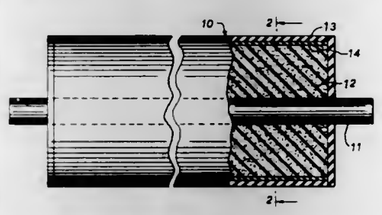
COMPRESSIBLE ROLLER

James R. Carlson, Franksville, Wis., and Gerald J. Landl, Antioch, Ill., assignors to American Roller Company, Union Grove, Wis.

Filed Jun. 12, 1992, Ser. No. 897,681

Int. Cl.[5] B21K *1/02;* **B21H** *1/14*

U.S. Cl. 29—895.32 **4 Claims**



1. A method of making a compressible roller comprises selecting a rigid roller core; gluing with an adhesive a foam layer about the core to form a foam and core assembly; wrapping a tape about the core and foam assembly to compress the foam and curing the adhesive to bond the core and the foam layer together; removing tape and grinding the foam layer to the desired dimensions; forming an elastomeric seal on the outer surface of the foam layer to prevent any gas contained therein from exiting; applying a coating of a compatible elastomer over the seal while rotating the core and foam assembly to obtain an outer coating of a desired thickness; curing the outer coating; and, then grinding the outer coating to obtain an outer layer of a desired smoothness.

5,206,993

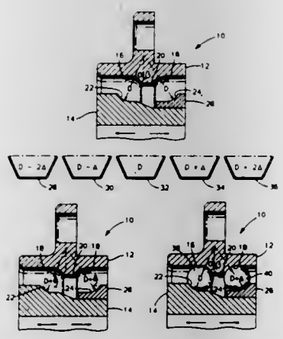
METHOD OF ASSEMBLING TWO ROW ANGULAR CONTACT BEARING WITH IMPROVED AXIAL END PLAY

Raymond B. Brough, Port Clinton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed May 26, 1992, Ser. No. 888,084

Int. Cl.[5] F16C *43/00*

U.S. Cl. 29—898.062 **1 Claim**



1. A method for choosing bearing balls with which to assemble a two row, angular contact bearing of the type having two axially spaced pairs of diagonally opposed pathways having an actual width that varies from bearing to bearing about an ideal ball diameter, comprising the steps of,

providing a supply of bearing balls divided up into a number of discrete classes, each class having a diameter substantially equal to said ideal ball diameter plus or minus an integer multiple of a predetermined increment,

gauging the actual width of said pathways for a bearing as measured between said diagonally opposed pathways,

determining whether said actual width is substantially equal to a midpoint value halfway between two of said discrete ball classes, said two discrete classes defining a ball class above and a ball class below said midpoint value, and, if so,

choosing bearing balls for one of said pathway pairs from the ball class below said midpoint value and for the other of said pathway pairs from the ball class above said midpoint value, thereby achieving an improved effective axial and play for said bearing when assembled.

5,206,994

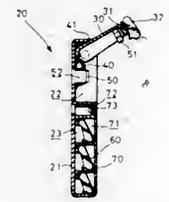
COLLAPSIBLE RAZOR

Catherine Lin, 5 F., No. 18-6, King Hua St., Taipei, Taiwan

Filed Jun. 4, 1992, Ser. No. 993,443

Int. Cl.[5] B26B *21/40, 21/14*

U.S. Cl. 30—47 **2 Claims**



1. A collapsible razor comprising:

a body having a first recess and a second recess thereon, the body having an outer end near the first recess;

a cartridge support pivotably mounted at an inner end thereof in the first recess and rotatable between a first position and a second position, the first position for storing the cartridge support within the first recess of the body, the second position for extending the cartridge support at the outer end of the body and away from the body for shaving;

cartridge holding means mounted to an outer end of the cartridge support for releasably holding a blade cartridge having at least one blade, the blade having at least one blade edge disposed for shaving with the cartridge support in the second position;

stopping means located within the first recess for engaging the cartridge support and stopping the cartridge support when the cartridge support is rotated to the second position;

a biasing means located within the first recess and connected to the cartridge support for biasing the cartridge support toward the second position and against the stopping means;

a retaining means located within the first recess for releasably engaging and securing the cartridge support within the first recess and in the first position, the retaining means receiving the cartridge support upon a force being applied to the cartridge support for rotating the cartridge support from the second position to the first position counteracting the biasing means, the blade cartridge being at least partially inserted into the first recess such that the blade edge is completely shielded within the first recess, the engagement of the cartridge support by the retaining means being releasable for allowing the cartridge support to be sprung out to the second position by the biasing means; and

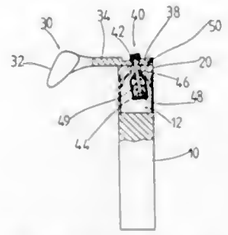
VOL 1150 ISS 1 MY 4 1993 UMI

a container releasably insertable into the second recess of the body, the container having at least one chamber thereon for storing a spare blade cartridge.

5,206,995
SAFETY RAZOR

Bosik Min, Rm. 102, Changhunvilla Na-Dong, 106-3, Munjong Dong, Songpa Gu Seoul, Rep. of Korea

Filed Sep. 14, 1992, Ser. No. 944,549
Claims priority, application Rep. of Korea, Sep. 19, 1991, 91-15396; Aug. 13, 1992, 92-15259
Int. Cl.[5] B26B *21/14*
U.S. Cl. 30—89 3 Claims



1. A safety razor carrying a blade which is pivotable to various angular positions with respect to a user's face, comprising:

an elongate shank having a blink bore at the top thereof;

a closure member removably secured to the elongate shank for closing off the bore o the shank, said closure member having an axial hole formed along an axis of the shank;

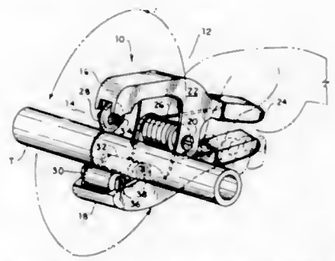
a blade carriage pivotably mounted on he closure member, said blade carriage including a blade carrying head and a lever extending rearwardly form the head over the axial hole of the closure member to its pivot point, said blade carriage pivotable between a first position in which the lever is substantially perpendicular to the axis o the shank and a second position which is angularly spaced a predetermined degree from the first position, said lever having an aperture formed in alignment with the axial hole of the closure member; and

means, mounted through the aperture of the lever and the axial hole o the closure member, for biasing the blade carriage toward the first position.

5,206,996
TUBING CUTTERS

William A. McDaniel, 1915 Loyd Cir., Pearl, Miss. 39208

Filed Apr. 1, 1992, Ser. No. 861,570
Int. Cl.[5] B26D *3/16*; B26B *27/00*
U.S. Cl. 30—101 9 Claims



1. A hand operated tool for use in cutting tubing and other cylindrical materials, said tool comprising:

a clamp portion having spaced apart first and second jaws extending therefrom and handles extending opposite said first and second jaws;

said first jaw including a cutting jaw having a cutting blade and said second jaw including a roller jaw having a forward and a rear roller with said cutting jaw and said roller jaw comprising a cutting portion;

roller bearing means providing relative movement between said clamp portion and said cutting portion;

said clamp portion including centrally located pivot means and providing a lateral opening between said cutting jaw and said roller jaw opposite said pivot means;

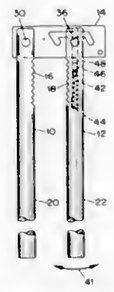
said clamp portion further including a spring urging said first jaw and said second jaw together, whereby

said handles are urged together to space apart said roller jaw and said cutting jaw, said cylindrical material is inserted between said spaced apart roller jaw and cutting jaw, said handles are released to allow said spring to urge said rollers and said cutting blade against said cylindrical material, and said tool is rotated about said cylindrical material to provide a circumferential cut by means of said cutting blade as said cutting blade is continually biased against said cylindrical material by means of said spring.

5,206,997
COMPRESSION-PRODUCING TOOL, USABLE AS A NUTCRACKER

Cecil Cunningham, 8 Cranford Ter., Cranford, N.J. 07016-3432

Filed Apr. 20, 1992, Ser. No. 871,038
Int. Cl.[5] B26B *17/02*
U.S. Cl. 30—120.4 1 Claim



1. A compression-producing tool, usable for cracking nuts of various sizes comprising:

first and second straight leg members,

hinge means hingedly connecting said leg members together at one end thereof,

said one end of each of said leg members being bifurcated to form a slot, the bifurcation of said second leg member being longer and wider than the bifurcation of said first leg member, and each of said leg members having mutually opposed roughened jaw sections thereon adjacent said hinge means and a grasping portion remote from said hinge means, toward the other end of said leg members,

said hinge means comprising a flat, generally rectangular metal plate having a straight smooth long edge and first and second shorter edges substantially perpendicular to said straight long edge and a thickness to be received with a press fit in the slot formed in said first leg member and with clearance in the slot formed in said second leg member, said plate having an opening therethrough defining a plurality of spaced substantially parallel slots of predetermined depth closed at one end and inclined toward said first shorter edge of said hinge plate, said inclined slots having open ends interconnected by an elongate slot of substantially the same width as said spaced inclined slots and which is disposed in spaced parallel relationship with said straight long edge of said plate,

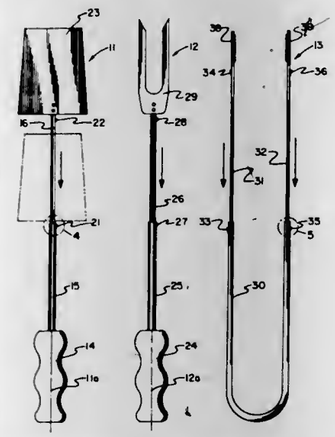
fastening means for rigidly securing said hinge plate in the slot formed in said one end of said first leg member at a location near said first shorter edge thereof, the longer bifurcation of said second leg member receiving said hinge plate at a location near said second shorter edge, and

means for pivotally connecting said one end of said second leg member to said hinge plate at an adjustable position with respect to said first leg member comprising a pivot pin extending diametrically through said second leg member perpendicularly to the slot formed therein at a location spaced inwardly a predetermined distance from said one end and through said opening in said hinge plate and adapted to be engageable with any of said inclined slots formed in said hinge plate, and means contained within said second leg member for retaining said pivot pin in engagement with a selected slot including a cavity formed within the upper end of said second leg member and extending downwardly from the bottom of said slot, a bearing member including a plunger slidably mounted within said cavity wherein said plunger comprises a cylinder having a concave surface at its upper end supporting a ball bearing, and a compression spring within said cavity acting on said plunger for urging the plunger upwardly and said ball bearing against said long smooth straight edge of said hinge plate whereby said pivot pin is maintained against the closed end of a selected slot and said second leg member is movable toward and away from said first leg member, and whereby said second leg member may be displaced axially, against the compression of said spring, a distance sufficient to permit said pivot pin to be disengaged from one slot and moved to another for adjusting the spacing between the location at which said second leg member is pivotally attached to said hinge plate and said first leg member so as to accommodate the tool to nuts of various sizes.

5,206,998
BARBEQUE UTENSIL KIT

Jack P. Oriente, and Joanie Oriente, both of 183 W. Crescent Ave., Allendale, N.J. 07401

Filed Mar. 30, 1992, Ser. No. 860,322
Int. Cl.[5] B26B *1/00, 3/00*; A47J *43/28*
U.S. Cl. 30—142 4 Claims



1. A barbeque utensil kit, comprising,

a spatula member, a fork member, and a tong member, the spatula member including a first handle mounting a first support tube, with the first handle and the first support tube coaxially aligned about a first axis, and the first support tube telescopingly receiving a first forward tube therewithin, and

the first forward tube having a spatula plate fixedly mounted to a forward distal end of the first forward tube spaced from the first handle, and

the first support tube including a first tube opening directed through the first support tube adjacent a first support tube free distal end, and

the first forward tube including an interior face positioned within the first support tube, and

spring means mounted between the first forward tube interior face and the first handle tube bias the first forward tube in an extended orientation relative to the first support tube, and

the first support tube including spaced first and second detent spheres mounted within the first forward tube cooperative with the first support tube opening to secure the first forward tube in a predetermined orientation relative to the first support tube, and

the fork member including a second handle, the second handle including a coaxially mounted second support tube, the second support tube mounting slidably a second forward tube telescopingly within the second support tube, and the second forward tube having a bifurcated fork head mounted to a forward distal end of the second forward tube, with the second forward tube including respective third and fourth detent spheres mounted from the second forward tube, and

the second support tube having a second support tube opening cooperative with the third and fourth detent spheres selectively, and

the tong member including a U-shaped tubular base having tong first and second legs telescopingly received within the U-shaped tubular base, and

the tong first leg and the tong second leg including respective first and second engaging heads for securement of a food component therebetween, and

the tong first leg including respective tong first leg first and second detent abutment flanges, and a tong second leg including tong second leg first and second detent abutment flanges cooperative with the U-shaped tubular base to permit selective extension and retraction of the tong first leg and tong second leg within the U-shaped tubular base. and

at least the first handle includes a first handle cavity directed coaxially into the first handle, with the first handle including a first handle rear wall having a first handle cavity directed into the first handle from the first handle rear wall, and a first handle cavity plug removably mounted relative to the first handle rear wall, and a halon gas cylinder complementarily received within the first handle cavity, and the first handle including a first handle conduit in pneumatic communication with the halon gas cylinder, and the first support tube including a first support tube conduit in pneumatic communication with the first handle conduit, and the first forward tube including a first forward tube conduit in pneumatic communication with the first support tube conduit.

5,206,999
SAW GUIDE AND SURFACE PROTECTOR

Tom Stone, 242 Dimmick Ave., Venice, Calif. 90291

Filed Mar. 17, 1992, Ser. No. 852,668
Int. Cl.[5] B23D *47/02, 55/02*; B26D *5/02*
U.S. Cl. 30—372 11 Claims

1. A saw guide apparatus for use in connection with an electrically powered circular was having a sole plate for cutting large sheets of materials, said apparatus comprising:

(a) first and second elongated guide assemblies each comprising:

(i) a base, having a first width and an aperture;

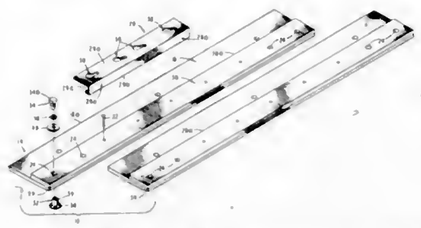
(ii) a guide affixed to said base in an overlaying relationship, said guide having a second width less than said

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first width and an aperture aligned with said aperture in said base and further including a guide surface engageable by the sole plate of the saw;

(b) connector means for releasably interconnecting said first and second guide assemblies so that said guide surfaces of said guide are maintained in alignment, said connector means comprising:

(i) a rigid connector member having first and second portions receivable over portions of said first and sec-



ond guide assemblies, said connector member having a top portion, an edge portion and a bottom portion, a portion of said base and said guide of each said guide assemblies being receivable intermediate said top and bottom portion of said connector member; and

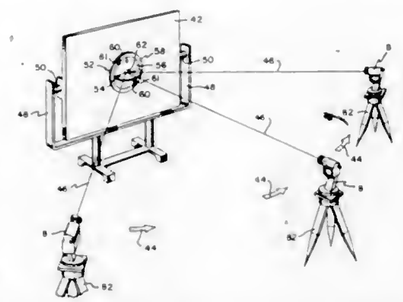
(ii) connector elements receivable within said aperture in said first and second guide assemblies for releasably connecting said connector member to said first and second guide assemblies.

5,207,000

METHOD AND APPARATUS USEFUL FOR DETERMINING AN ANGLE BETWEEN A VIRTUAL OPTICAL AXIS AND A PLANAR SURFACE

Yung-Sheng Chang, Taichung; Shing-Seng Wang, Tau-Yuan, and Ming-Daw Chen, Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Jun. 14, 1991, Ser. No. 715,830
Int. Cl.[5] G01C *1/00*
U.S. Cl. 33—1 N 34 Claims



1. A method useful for determining an angle between a virtual axis and a planar surface, the method comprising the steps of:

identifying a virtual optical axis between an objective lens and a planar surface of an object;

extending a visible line element between an objective lens and a planar surface;

coinciding the extended visible line element with the virtual optical axis; and

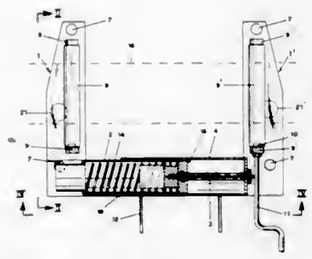
determining an angle between the extended visible line element and the planar surface with respect to azimuth and elevation, the angle being indicative of the angle between the virtual optical axis and the planar surface, the step of determining taking place after the step of coinciding.

5,207,001

DEVICE FOR SUPPORTING MOTOR VEHICLE WHEELS WHEN TAKING SUSPENSION GEOMETRY MEASUREMENTS

Eride Rossato, Via Galileo Galilei, Mirano, Italy

PCT No. PCT/EP89/01511, § 371 Date Jun. 14, 1991, § 102(e) Date Jun. 14, 1991, PCT Pub. No. WO90/07095, PCT Pub. Date Jun. 28, 1990
PCT Filed Dec. 11, 1989, Ser. No. 688,618
Claims priority, application Italy, Dec. 14, 1988, 84145 A/88; Dec. 14, 1988, 84147 A/88
Int. Cl.[5] G01B *5/25*
U.S. Cl. 33—203.12 23 Claims



1. Device for supporting motor vehicle wheel when taking suspension geometry measurements comprising a structure (1,1') provided with ball shaped supports (7) for its free resting on an underlying horizontal surface (15), characterized by further comprising:

a pair of rollers (8,8') with parallel axes, rotationally supported by said structure (1,1') and supporting a wheel (16) mounted on the vehicle (14),

means (11,26) causing rotations of one of the two rollers,

means (21,21',33,33') acting on said horizontal rest surface (15) to neutralize on command, the effect of said ball shaped supports (7) and to firmly bind said structure (1,1') to said surface (15) when the rotation of said one roller is caused,

the two rollers (8,8') of each pair being associated with members for being spaced apart to each other in a direction transverse to their axis between two end positions, in one of which the two rollers are on opposite sides of the zone of contact between said wheel and said resting surface (15), and in the other of which the two rollers are closer together to support said wheel (16) raised from said resting surface.

5,207,002

METHOD AND SYSTEM FOR VEHICLE FRAME ALIGNMENT

Steven V. Humblet, AV 1570, Marsha La., Woodruff, Wis. 54568

Filed Mar. 19, 1992, Ser. No. 853,931
Int. Cl.[5] G01B *5/255*
U.S. Cl. 33—288 11 Claims

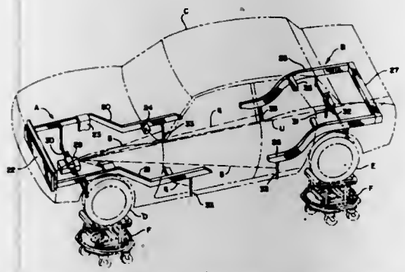
1. A method of checking and correcting vehicle body alignment comprising:

(a) positioning a means for generating one or more transmitted data reference laser beams or the like in equidistant relation with laterally spaced portions of a vehicle body to direct said beams along said body;

(b) positioning at least one centerline reference beam target in equidistant relation with said laterally spaced portions of said vehicle body in centerline defining relation with said beam generating means;

(c) positioning auxiliary reference beam targets on said vehicle body in spaced relation with said beam generating means; and

(d) operating said beam generating means to establish visually observable contact of a beam with said centerline target to create a continuous centerline in the form of an interruptably observable light extending longitudinally of said vehicle body to permit at least generally horizontally directed measurements from selected points of beam interruption to said laterally spaced portions, said horizontally



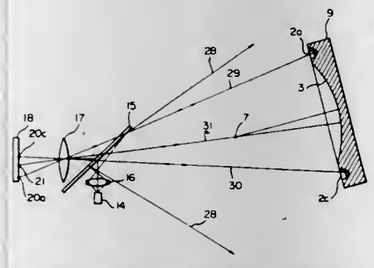
directed measurements occurring at or spaced from said centerline target, and to simultaneously establish a sequentially and continuously moving repetitive visually observable contact of a beam with said auxiliary targets to create a pattern of interruptably observable light sweeping said auxiliary targets to permit body measurements in a vertical direction at said auxiliary targets as well as from selected points of beam interruption spaced from said auxiliary targets.

5,207,003

TARGET AND SYSTEM FOR THREE-DIMENSIONALLY MEASURING POSITION AND ATTITUDE USING SAID TARGET

Naoshi Yamada, and Tomoaki Takeya, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 21, 1991, Ser. No. 673,195
Claims priority, application Japan, Mar. 29, 1990, 2-86123
Int. Cl.[5] G01C *15/02*
U.S. Cl. 33—293 42 Claims



33. A target for indicating a position and an attitude of an object to a measuring device remote from the object, the target comprising:

a body;

at least four distinct and all spacedly disposed means connected to the body, embedded in and not extending beyond a surface thereof, each of the at least four means for indicating a location to the measuring device, and the indicated locations defining a single common plane; and

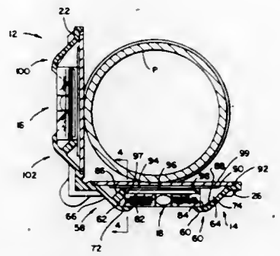
a concave spherical reflector connected to the body, embedded in and not extending beyond a surface thereof, and having a center of curvature disposed at a fixed location remote from the single common plane.

5,207,004

POST LEVEL

Richard J. Gruetzmacher, Menomonee Falls, Wis., assignor to Johnson Level & Tool Mfg. Co., Inc., Mequon, Wis.

Filed Nov. 19, 1991, Ser. No. 794,570
Int. Cl.[5] G01C *9/24*
U.S. Cl. 33—379 4 Claims



4. A level, comprising:

a member defining an inner surface and an outer surface;

a vial having a pair of end portions and containing a quantity of translucent liquid and a bubble;

structure defining an internal cavity formed integrally with the member, the internal cavity opening onto the inner surface and further defining an opening providing visual access to the internal cavity from the outer surface of the member, wherein the vial is placed within the internal cavity and wherein the central portion of the vial is visible through the opening when viewed from a direction looking toward the outer surface of the member, wherein at least the portions of the member adjacent the internal cavity defining structure are formed of a relatively dark material; and

a plate mounted over the opening of the internal cavity onto the inner surface to retain the vial within the internal cavity, the plate having a first surface located adjacent the vial to provide a background for the vial when the vial is viewed from a direction looking toward the outer surface of the member, wherein the first surface of the plate is relatively light in color to contrast with the relatively dark material of the member adjacent the internal cavity defining structure and to reflect light through the vial liquid to enhance visibility of the vial bubble.

5,207,005

FLOATING HEAD PROBE

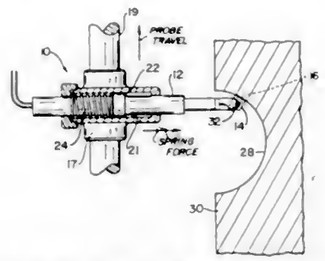
Jay M. Amos, Hobe Sound, and David A. Raulerson, Palm Beach Gardens, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jul. 20, 1992, Ser. No. 915,565
Int. Cl.[5] G01B *3/00*
U.S. Cl. 33—501.04 7 Claims

1. A probe for inspecting a contoured surface having a generally cylindrical hollow shaft having a distal end, a manipulator including a pivot for being pivotally mounted on said shaft at said distal end, and a sensor supported in a recess centrally formed in said manipulator and having a face adapted to engage a contoured surface intended to be inspected, a fixed support member for said hollow shaft for locating said probe in spatial relationship relative to said contoured surface, including means for permitting movement of said probe at a constant distance from a given point of contact with said contoured surface, spring means biasing said manipulator urging the outer face of said sensor in contact with said contoured surface, the distance from the outer end of said manipulator to said pivot

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being selected to permit said manipulator to rotate substantially equal to ±90 degrees while said sensor maintains its contact throughout its travel, and means for connecting said



probe through said hollow shaft and a central hole in said manipulator to a transmitter and receiver to transmit and receive signals indicative of the acceptability of the part being inspected.

5,207,006

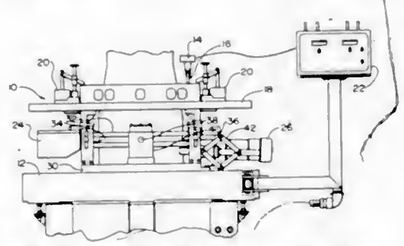
AUTO LEVEL CRADLE

Kim Sharpe, Rollingstone; Gerald Lawson, and Thomas A. Ryan, both of Winona, all of Minn., assignors to DCM Tech, Inc., Winona, Minn.

Division of Ser. No. 685,091, Apr. 12, 1991, Pat. No. 5,153,999. This application Jul. 22, 1992, Ser. No. 918,271

Int. Cl.[5] **B23Q** *16/00*; **G01B** *7/31*

U.S. Cl. 33—573 **6 Claims**



1. A system for orienting a workpiece comprising:

workpiece support means defining a working plane;

first rotation means operatively connected to the workpiece support means for rotating the working plane about a first predetermined rotation axis;

second rotation means operatively connected to the workpiece support means for rotating the working plane about a second predetermined rotation axis, orthogonal to the first predetermined rotation axis;

sensor means defining a longitudinal axis, for operative engagement to a workpiece to be secured to the workpiece support means, said axis extending outwardly from the workpiece, the sensor means being constructed and arranged to provide electronic positioning information about the sensor means longitudinal axis relative to a predetermined reference plane, and

means interconnecting the sensor means and the first and second rotation means for receiving the electronic positioning information and controlling the first and second rotation means such that the orientation of the working plane is manipulated about said first and second rotation axes until the axis defined by the sensor is perpendicular to the reference plane.

5,207,007

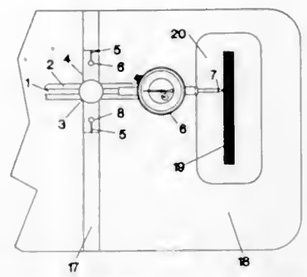
SET-UP TOOL

Anthony J. Cucinotta, 38 Sweetser St., Wakefield, Mass. 01880, and George A. Bond, 33 Pratt St., Billerica, Mass. 01821

Filed Nov. 25, 1991, Ser. No. 797,373

Int. Cl.[5] **B23Q** *17/22*; **B27G** *23/00*

U.S. Cl. 33—640 **8 Claims**



1. A set-up tool for use with a working tool that works near a surface having a miter slot, the set-up tool comprising:

a dial indicator;

mounting means for mounting the dial indicator in a measuring position above the surface, a first part of the mounting means fitting into the miter slot, the dial indicator being mounted on a second part of the mounting means which is moveable with respect to the first part of the mounting means that fits into the miter slot; and

locking means for selectively locking the second part of the mounting means to the first part of the mounting means to locate the dial indicator at a desired location relative to the first part of the mounting means.

5,207,008

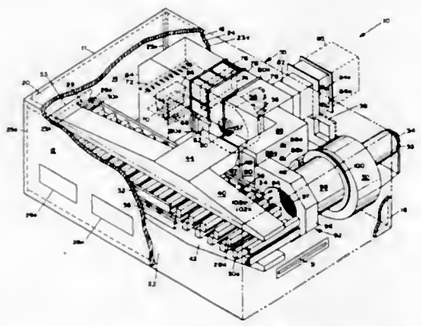
AIR FLOTATION DRYER WITH BUILT-IN AFTERBURNER

Richard J. Wimberger, DePere, and Richard A. Carman, Green Bay, both of Wis., assignors to W.R. Grace & Co.-Conn., New York, N.Y.

Continuation of Ser. No. 203,137, Jun. 7, 1988, abandoned. This application Oct. 31, 1990, Ser. No. 607,261

Int. Cl.[5] **F26B** *3/00*

U.S. Cl. 34—23 **7 Claims**



7. A process for drying a traveling web of material containing solvent, comprising:

a. feeding said traveling web into a dryer enclosure;

b. directing heated gas at said web through a plurality of opposed air bars disposed in said enclosure so as to vaporize said solvent while floating said web;

c. directing heated gas containing the vaporized solvent in the enclosure interior to a combustion chamber;

d. oxidizing said heated gas containing the vaporized solvent;

e. collecting said oxidized gas in a heat distribution chamber;

f. directing a first portion of said oxidized gas out of said enclosure;

g. returning a second portion of said oxidized gas to said enclosure interior;

h. recirculating said second portion of said oxidized gas to said plurality of air bars;

i. providing servo controlled return damper means to regulate the amount of said first portion of said oxidized gas that is directed out of said oxidized gas that is recirculated to said plurality of air bars, thereby controlling the temperature of said the gas directed at said web without the use of a heat exchanger.

5,207,009

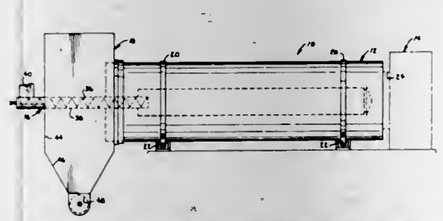
METHOD AND APPARATUS FOR INCREASING DEHYDRATOR EFFICIENCY

Stanley P. Thompson, 2718 Osborn Rd., Topeka, Kans. 66614, and Kenneth J. Zimmerman, 5948 SE. King Rd., Milwaukie, Oreg. 97222

Filed Aug. 30, 1991, Ser. No. 753,336

Int. Cl.[5] **F26B** *15/00, 21/00*

U.S. Cl. 34—135 **11 Claims**



1. Apparatus for drying a solid material, said apparatus comprising:

an elongated generally cylindrical drum disposed in a generally horizontal direction,

said drum having at least one open end presenting a material inlet and flighting located internally of said drum for directing material in the drum toward said open end;

an elongated open ended tubular member mounted internally of said drum and extending at least part way along the length thereof,

said tubular member presenting a material passageway through said drum;

means cooperative with said tubular member for conveying material through said passageway in a direction away from said material inlet and depositing said material into the open drum;

means coupled with the interior surface of said drum for moving the material deposited from said tubular member toward said open end; and

means for raising the temperature in said drum to substantially remove all of the water from said material.

5,207,010

PORTABLE AUTOMOBILE SNOW PLOW

David D. Grossman, 100 Prospect Dr., Chappaqua, N.Y. 10514

Filed Jun. 15, 1992, Ser. No. 898,412

Int. Cl.[5] **E01H** *5/00*

U.S. Cl. 37—231 **4 Claims**

1. A portable automobile snow plow comprising:

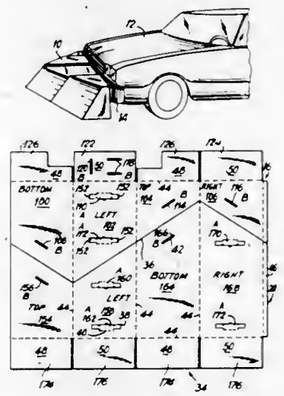
a first part having a bottom with a slot, a left side with tabs, a top with a slot, a right side with a slot, a first outer flap with slots, a second outer flap and two inner flaps and wherein said first part is folded into a box-like structure with said outer and inner flaps defining a closed end and said box-like structure having an open end;

a second part having a bottom with a slot, a left side with slots, a top with a slot, a right side with slots into which said tabs o said left side of said first part communicate, and inner and outer flaps, wherein said second part is folded into a box-like structure with said inner and outer flaps defining a closed end and said box having an open end;

a third part having a top with a slot, a left side with tabs, a bottom with a slot, a right side with tabs which communicate with said slots in said left side of said second part, and inner and outer flaps, wherein said third part is folded into a substantially box-like structure with said inner and outer flaps defining a closed end and said box-like structure having an open end;

a fourth part having a top with a slot, a left side with a slot, a bottom with a slot, a right side with slots communicating with said tabs on said left side of said third part, a first outer flap having slots, a second outer flap and inner flaps, wherein said fourth part is folded into a substantially box-like structure and said inner and outer flaps defining a closed end of said box-like structure and said box-like structure having an open end;

a fifth part having a front face overlying said open end of said first part and having a right side overlying a portion



of said right side of said first part and said right side of said fifth part having a tab that communicates with said slot on said right side of said first part, a top part of said fifth part overlying a portion of said top of said first part and said top of said fifth part having a tab that communicates with said slot in said top portion of said first part, and a bottom of said fifth part partially overlying a portion of said bottom of said first part and said bottom of said fifth part having a tab that communicates with said slot on said bottom of said first part;

a sixth part having a front face that overlies said open end of said fourth part, a top of said sixth part partially overlying said top of said fourth part and said top of said sixth part having a tab that communicates with said slot in said top of said fourth part, a left side of said sixth part partially overlying said left side of said fourth part and said left side of said sixth part having a tab that communicates with said slot in said left side of said fourth part, and a bottom of said sixth part partially overlying the bottom of said fourth part and said bottom of said sixth part having a tab that communicates with said slot in said bottom of said fourth part;

a seventh part having front faces that overly said open ends of said second and third parts, a right top portion which overlies a portion of said top of said second part and said right top portion of said seventh part having a tab that

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communicates with said slot in said top of said second part, a left top portion of said seventh part partially overlying the top of said third part and said left top portion of said seventh part having a tab that communicates with said slot on said top of said third part, a bottom left portion of said seventh part partially overlying the bottom of said third part and said bottom left portion of said seventh part having a tab that communicates with said slot on said bottom of said third part, and a bottom right portion of said seventh part partially overlying the bottom of said second part and said bottom right portion of said seventh part having a tab that communicates with said slot on said bottom of said second part;

an eighth part having tabs that communicate with said slots on said first outer flap of said first part; and

a ninth part having tabs that communicate with said slots on said first outer flap of said fourth part.

2. A portable automobile snowplow according to claim 1, wherein said second and third parts have slightly smaller cross section dimensions than said first and fourth parts, thereby permitting said second and third parts to be nested within said first and fourth parts.

5,207,011

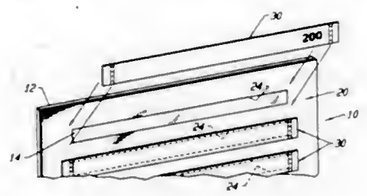
DISPLAY SYSTEM WITH CHANGEABLE DISPLAY ELEMENTS

Stephen G. Coulthard, Hayward, Calif., assignor to Nu-Age Directories, Penn Valley, Calif.

Continuation-in-part of Ser. No. 600,721, Oct. 22, 1990, abandoned. This application Sep. 27, 1991, Ser. No. 766,118

Int. Cl.[5] G09F *7/12, 13/04*

U.S. Cl. 40—594 **5 Claims**



1. Display apparatus comprising, in combination:

a translucent display panel having an outer display panel surface;

mat means connected to said translucent display panel, said mat means including a mat panel constructed of substantially light impervious material in at least partial registry with said outer display panel surface and disposed adjacent thereto, said mat panel defining a plurality of apertures spaced from one another and permitting the passage of light from said translucent display panel therethrough; and

a plurality of display strips providing information to a viewer, said display strips being releasably attachable over said apertures, each said display strip including an outer peripheral portion which is in registry with the mat panel about the periphery of one of said apertures when said display strip is releasably attached over one aperture and a central portion in registry with said one aperture, said central portion of said display strip including translucent indicia for transmitting light emitted from said translucent display panel through said one aperture, said display strips being elongated and including means for aligning said strips relative to said mat means, said aligning means comprising a line formed on each strip adjacent an end thereof where said outer peripheral portion and central portion meet.

5,207,012

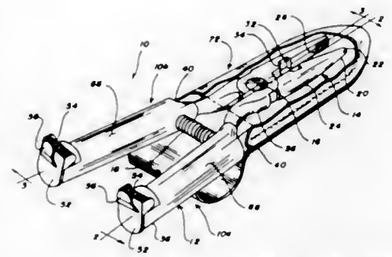
FISHERMAN'S PLIERS

Donald M. Lael, 138 Lake Valley, Warrenton, Mo. 63383

Filed Sep. 2, 1992, Ser. No. 939,087

Int. Cl.[5] A01K *97/00, 97/06*

U.S. Cl. 43—4 **7 Claims**



1. A pair of cross jaw fisherman's pliers, each member of which has a handle and a jaw at opposite ends thereof pivoted together about a pin between said handle and said jaw,

said jaws being relatively narrow and having a terminal end and a pivotal end, the terminal ends of each jaw being planar and having a recess, said recesses on the opposing jaws being aligned for seating and retaining a split shot sinker and crimping it closed on a fishing line,

said handles being relatively elongated and having a terminal end and a pivotal end, each of said handles having a relatively short bowed portion at its pivotal end joined to a relatively long straight hollow tube portion, each of said tube portions adapted to form a container for storing split shot sinkers and fishhooks, each of said tube portions being open at the terminal end of the handle and closed where the tube portion joins the bowed portion of the handle, a valve for closing the hollow tube portion at the terminal end of the handle and a resilient biasing means for urging the valve towards a closed position, each of said resilient biasing means for urging the valve closed adapted to be opened under finger pressure from a user's one hand while the split shot sinkers and fishhooks are gravity-fed into the user's other hand.

5,207,013

FREE FLOATING FISHING TOOL

David Bartok, 2417 1st St., and Kent Brewer, R.R. 1, Box 119B, both of Eldorado, Ill. 62930

Filed Apr. 23, 1992, Ser. No. 872,353

Int. Cl.[5] A01K *69/00*

U.S. Cl. 43—4 **4 Claims**



1. A free floating fishing device comprising an elongated hollow cylindrical body of buoyant material with a closed end and an open end opposite the closed end, said closed end having a larger diameter than said open end;

means for closing said open end;

a fishing line attached to said open end;

a swivel attached to said fishing line near said open end;

a sinker attached to said fishing line at a point further from said open end than said swivel; and

a hook attached to said fishing line at an end of said fishing line opposite said open end of said elongated hollow cylindrical body of buoyant material;

said elongated hollow cylindrical body of buoyant material being filled with a sufficient volume of air to continue floating after a fish has been hooked.

5,207,014

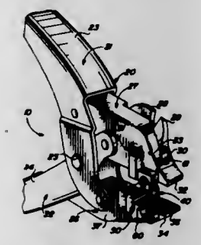
MULTI-PURPOSE FISHING TOOL

John Panella, 250 NE. 160 St., North Miami Beach, Fla. 33162

Filed Aug. 17, 1992, Ser. No. 930,368

Int. Cl.[5] A01K *97/00*

U.S. Cl. 43—4 **4 Claims**



1. A multi-purpose fishing tool comprising:

a pliers including a pair of arms pivotally attached to one another at corresponding central portions and each including a handle portion between said central portion and a proximal end, said pliers further including a pair of opposing clamp heads each extending from said central portion of a corresponding one of said arms, opposite said handle portions, such that pivotal movement of said arms causes said clamp heads to move between an open position and a closed, clamping position,

a pair of oppositely disposed, scissor-type cutting blades protruding from a top of one of said clamp heads,

each of said clamp heads further including an outer face, an inner face having a gripping surface, and a pair of opposite side faces,

a punch seat protruding from a first one of said side faces of a bottom one of said clamp heads, said punch seat including an upper surface adapted to receive an eyelet of a fishing hook supportably thereon, and a vertical bore extending therethrough,

a punch cone protruding from a first one of said side faces of an upper one of said clamp heads, said punch cone being generally conically shaped and including a maximum diameter larger than the diameter of the eyelet of the fishing hook and a distal punch top extending downwardly beyond said inner face of said upper clamp head such that when said clamp heads are drawn together to said closed position, said punch tip of said punch cone passes into said bore in said punch seat, thereby causing the fishing hook eyelet positioned on said upper surface of said punch seat, over said bore, to be enlarged as a result of said punch cone passing therethrough into said punch seat,

a first and a second shearing block, said first shearing block protruding from a second one of said side faces of said upper clamp head and including a main inner face and a bottom shearing edge, and said second shearing block protruding from a second one of said side faces on said bottom clamp head and including a main inner face and a top shearing edge, and

said first shearing block being disposed on said upper clamp head and said second shearing block being disposed on said bottom clamp head such that said main face of said first block and said main face of said second block are disposed in confronting, closely spaced relation to one another, so as to cut a segment of wire or the lip positioned therebetween when said clamp heads are drawn together causing said bottom edge of said first block and said top edge of said second block to pass in close, shearing relation to one another.

5,207,015

ACTIVE FLY-FISHING EQUIPMENT

Leif R. E. Kvarnström, Timmermansvägen 23, S-441 50 Alingsås, Sweden

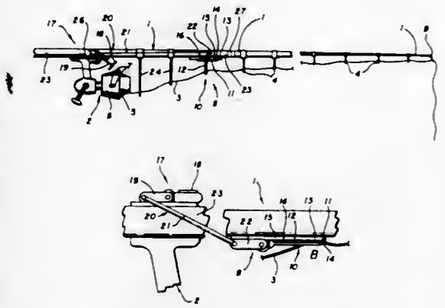
PCT No. PCT/SE90/00390, § 371 Date Dec. 6, 1991, § 102(e) Date Dec. 6, 1991, PCT Pub. No. WO90/14762, PCT Pub. Date Dec. 13, 1990

PCT Filed Jun. 6, 1990, Ser. No. 781,193

Claims priority, application Sweden, Jun. 8, 1989, 8902067

Int. Cl.[5] A01K *87/00*

U.S. Cl. 43—25 **14 Claims**



1. An arrangement for fly fishing, comprising:

a rod that has an inner end, an outer end, and a plurality of substantially aligned outer rod rings;

a reel that is mounted on the rod for unfurling fly line at a moment of casting and for winding up and furling the fly line after every cast, whereby the outer rod rings are located between the reel and the outer end of the rod;

a manually controllable line-blocking mechanism including a clamping member and a clamping surface, mounted on the rod outward from the reel, having a running position, in which the clamping member is substantially perpendicular to the rod to permit the line to run off of the rod freely and substantially without deflection, and a blocking position, in which the line is clamped between the clamping member and the clamping surface;

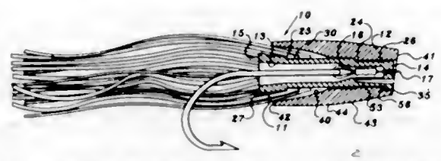
control means for switching the line-blocking mechanism between the running and blocking positions, located on the rod adjacent to the reel to allow actuation of the control means and thereby the line-blocking mechanism by using a finger of the head of the user's casting arm;

connection means for connecting the control means and the line-blocking mechanism; and

a plurality of intermediate rod rings located on the rod between the reel and the clamping member.

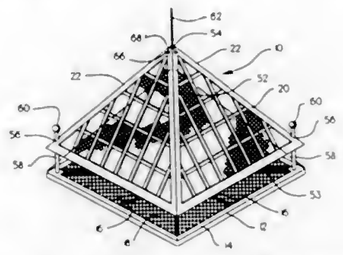
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,016
FISHING LURE
Wallace F. Pate, Arcadia Plantation, P.O. Drawer 458, Georgetown, S.C. 29440
Continuation-in-part of Ser. No. 456,527, Dec. 26, 1989, Pat. No. 5,113,607. This application Mar. 16, 1992, Ser. No. 851,496
Int. Cl.[5] A01K 85/00
U.S. Cl. 43—42.28 3 Claims



1. A two-piece fishing lure for use with a leader having a loop at one end attached to a fish hook at the rear of the lure and a loop at the other end for releasable attachment to a fishing line, said two-piece fishing lure comprising a core having a passageway extending therethrough for reception of the leader, at least one ring skirt encircling the core and extending rearwardly therefrom, a shell seated on the core in encircling relation to the core and the ring of the ring skirt, a latch on the core, a clasp on the latch, and a keeper on the shell, whereby the core and the shell may be mechanically connected by engaging the clasp with the keeper.

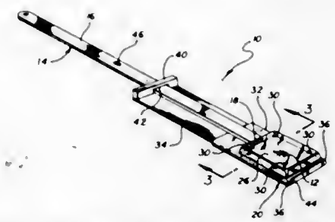
5,207,017
MARINE LIFE TRAPS
Biagio Litrico, P.O. Box 742, Fernandina Beach, Fla. 32034
Filed Jun. 25, 1992, Ser. No. 903,742
Int. Cl.[5] A01K 69/00
U.S. Cl. 43—100 24 Claims



1. A trap for catching marine life species comprising:
a bottom member;
a guide attached to said bottom member;
a top enclosure slideably received on said guide wherein said top enclosure is guided between a closed position in contact with said bottom member and an open position spaced form and above said bottom member, said top enclosure comprising a collapsible frame; and
a buoyancy member attached to a lower end of said top enclosure, whereby said buoyancy member maintains said top enclosure in the open position when said enclosure is placed in water.

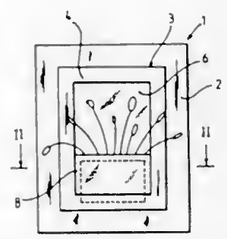
5,207,018
COMBINATION FLY SWATTER AND INSECT TRAP
Robert R. Reaver, and Carol Reaver, both of 1643 Avenida Loma Vista, San Dimas, Calif. 91773
Filed Feb. 3, 1992, Ser. No. 830,382
Int. Cl.[5] A01M 3/00, 3/02
U.S. Cl. 43—137 19 Claims

1. A hand held fly swatter apparatus capable of being configured to capture insects alive from given surfaces to allow their subsequent disposal, the apparatus comprising:
an elongate handle having a rear end intended to be grasped by a user, and a front end;
a rigid housing attached to the front end of the handle and defining an insect trap compartment having a large aperture through which an insect is placed within the insect trap compartment, the housing including an upper wall and interconnected side walls extending downwardly to define the compartment aperture, and a track positioned adjacent to an edge of the compartment aperture;



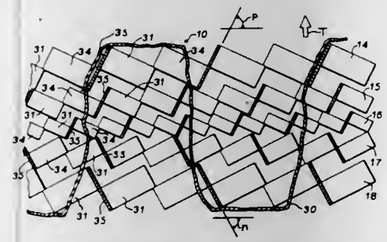
a planar mesh closure member supported within the track and slidable between a retracted position to permit access to the insect trap compartment through the compartment aperture, and an extended position wherein the mesh closure member covers the compartment aperture, wherein the housing and the mesh closure member, in its extended position, cooperatively provide a fly swatter; and
means for slidably supporting a rear end portion of the mesh closure member relative to the handle, including a rear slide clamp attached to the rear end portion of the mesh closure member, having a central notch through which the handle slidably extends.

5,207,019
DISPLAY DEVICE
Catherine C. Massey, and Roger C. Massey, both of Hill Farm House, Hittisleigh, Exerter, Devon EX6 6LQ, England
Filed Mar. 25, 1991, Ser. No. 674,121
Int. Cl.[5] A01G 5/00
U.S. Cl. 47—41.01 5 Claims



1. A display device comprising:
a) a backing sheet for mounting vertically on a wall, said backing sheet having a front face and a rear face,
b) a peripheral frame surrounding and attached to the backing sheet,
c) a cover panel located forwardly of and spaced from the lower portion of the backing sheet, said cover panel having a front face and a rear face,
d) a chamber defined between the rear face of the cover panel and said lower portion of the front face, which chamber is upwardly open, and
e) a removable water container located in said chamber in such manner that flowers can be placed in position within the display device with the stems of the flowers within the container and with the heads of the flowers located forwardly of the upper portion of the front face of the backing sheet.

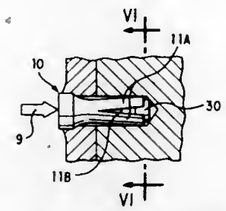
5,207,020
BIODEGRADABLE SLIT AND EXPANDED EROSION CONTROL COVER
M. Sohail Aslam, Madison, and James M. Buckler, Middleton, both of Wis., assignors to Research Products Corporation, Madison, Wis.
Filed Oct. 4, 1991, Ser. No. 771,198
Int. Cl.[5] A01G 1/00; E02D 5/00
U.S. Cl. 47—9 15 Claims



14. An erosion control blanket for controlling and limiting the erosion of soil after seeding and during revegetation, the blanket comprising:
a. a base layer of slit and expanded sheet material, said base sheet material being slit and expanded for defining a plurality of air spaces of a first predetermined size;
b. a second layer of slit and expanded sheet material, said second layer of sheet material being slit and expanded for defining a plurality of air spaces of a second predetermined size smaller than the air spaces of said first predetermined size;
c. means for securing the layers in overlying relationship with one another, wherein each sheet of said slit and expanded sheet material comprises a flat, planar sheet of pliable, non-stretchable material having a plurality of elongate parallel, through slits and wherein said slits define the perimeter of air spaces when the material is expanded in a direction generally orthogonal to the elongate slits, the sheet material, when expanded, defining an intersecting grid pattern having elongate runners intersecting at baffles defined by the portion of material disposed between adjacent slits, and wherein each of the runners intersects the plane of the sheet material at an acute angle defining a slope angle for the respective sheet, said base layer being of one slope and said second layer being of another slope.

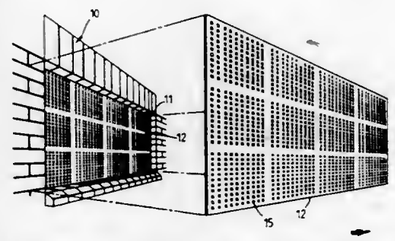
5,207,021
TREE TREATMENT CAPSULE
Hans A. K. Merving, August Stalbergsvag 10A, 644 00 Torshalla, Sweden
Continuation-in-part of Ser. No. 410,884, Sep. 22, 1989, Pat. No. 5,010,684, which is a continuation-in-part of Ser. No. 393,841, Aug. 7, 1989, Pat. No. 4,905,410, which is a continuation of Ser. No. 184,072, Apr. 20, 1988, abandoned. This application Jul. 23, 1990, Ser. No. 555,734
Int. Cl.[5] A01G 29/00
U.S. Cl. 47—57.5 9 Claims

1. A tree treatment capsule for insertion into a bore in a tree comprising:
a plastic container having a shank with an internal cavity having an end opening containing therein a chemical agent and a head element integrally formed with said shank remote from said end opening;
a plastic plug for sealingly closing said internal cavity, said plastic plug being tapered from an outer external diameter larger than the diameter of said end opening to an outer external diameter slightly smaller than the diameter of said end opening such that said plug is only partially insertable into said end opening in order to provide a tight fit between said plug and said end opening;
said shank having a plurality of recessed scorings which are formed in the exterior surface thereof at circumferentially



equal spacings, said scorings extending longitudinally along said shank from said end opening towards said head element and allowing said shank to be broken so that as an impact force applied to said head moves said shank towards said plastic plug, said plastic plug expands said end opening and breaks said shank element along said recessed scorings into a plurality of tongues to form slits between said tongues, thereby allowing said chemical agent to pass from said internal cavity through said slits.

5,207,022
SECURITY CLOSURE
Ronald W. Watt, Glasgow, Scotland, assignor to SPS (Holdings) Ltd., Glasgow, Scotland
Filed Jan. 23, 1992, Ser. No. 823,955
Claims priority, application United Kingdom, Jan. 24, 1991, 9101534
Int. Cl.[5] E06B 9/00
U.S. Cl. 49—50 18 Claims



1. A security closure for closing a door or window opening in a building, said closure comprising a panel of sheet metal having inner and outer faces and a plurality of apertures formed therein, extending through the panel between said faces, and at least two elongate pin members, each pin member having a blank head, the pin members each passing through a separate one of the apertures with the head thereof in individual abutting engagement with the outer face of the panel, a connecting member formed integrally with, the pin on the side thereof inside said inner face and cooperating directly or indirectly with the surround of the door or window opening, whereby tensioning of said connecting member will pull the panel against the opening.

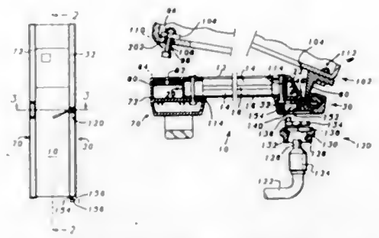
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,023

DOOR FOR AN ELECTRIC SWITCH CABINET

Leif Forsberg, Myrgatan; Gunnar Nihlén, Östermovägen, and Tore Nilsson, Ponnyvägen, all of Sweden, assignors to Kafak AB, Sundsvall, Sweden

Filed Feb. 25, 1991, Ser. No. 660,413
Claims priority, application Sweden, Mar. 5, 1990, 9000768
Int. Cl.[5] E05F *7/02*
U.S. Cl. 49—256 9 Claims



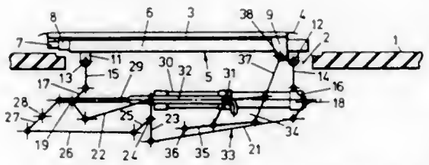
1. A door for an electric switch cabinet (100) having a frame (102), comprising a door leaf (10) having a pair of spaced apart vertical edges, said door leaf (10) being made of a material isolating from fire and arcs, a hinge construction (30) at one of said pair of vertical edges of said door leaf (10) and connectable to the cabinet frame 9102), and a locking device (70) cooperating with the cabinet frame (102) at the other of said pair of vertical edges of said door leaf (10), said hinge construction (30) comprising a hinge composed of slidably and pivotally interengaging profile elements (32, 60) extending over the full length of said one of said pair of vertical edges, latch means (162, 170) provided at the upper and lower edges of the door and adapted for engagement with complementary latch means (182, 192) provided at the door frame, a jacking mechanism (120) for vertical displacing the door via said profile elements (32, 60) between a locked, lowered closed position and a raised closed position to bring said latch means (162, 170) and said complementary latch means (182, 192) into and out of engagement, respectively, relative to each other, and said jacking mechanism (120) comprising a jacking leg (150) slidably guided along said hinge construction (30) and operable for engagement with a cabinet understructure for the vertical displacement of said door.

5,207,024

DOOR SYSTEM OF THE SWIVEL-SLIDING TYPE FOR USE IN AN VEHICLE

Sietse Epema, Wassenberghstraat; Bart van der Sloot, Skildijk, and Jelle Hooghiem, Veltmanwei, all of Netherlands, assignors to Tebel Pneumatiek B.V., Leeuwarden, Netherlands

Filed Dec. 27, 1991, Ser. No. 815,075
Claims priority, application Netherlands, Dec. 28, 1990, 9002885
Int. Cl.[5] E05F *11/00*
U.S. Cl. 49—360 38 Claims



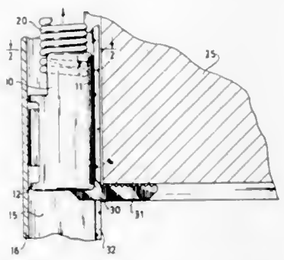
1. A door system of the swivel-sliding type for use in a vehicle, suitable in particular for a vehicle for public transport, said door system comprising at least one door panel; suspension means for said at least one door panel, which comprise a telescopic guide; and a drive system for said at least one door panel, wherein the drive system comprises at least one piston-cylinder assembly of which a first movable part is connected to the telescopic guide via a system of arms and rods so as to cause said telescopic guide in operation to perform a plugging movement, while a second part of the piston-cylinder assembly is provided with a projection extending into a track having a first section extending substantially transverse to said at least one door panel and an adjoining section extending substantially parallel to the telescopic guide, the projection forming a part of a pantograph construction mounted between a fixed pivot point and a point of attachment on said door panel, said pantograph construction transmitting the movement of the projection to the door.

5,207,025

AUTOMATIC FRICTION SHOE

Norman R. Westfall, Rochester, N.Y., assignor to Caldwell Manufacturing Company, Rochester, N.Y.

Filed Sep. 24, 1992, Ser. No. 950,937
Int. Cl.[5] E05F *1/00*
U.S. Cl. 49—445 31 Claims



1. In a window sash friction shoe connectable to a counterbalance element for running vertically in a jamb liner channel to support a sash on a platform having a connector portion mounted within a recess of said shoe and a sash support portion extending from said shoe through a slot in said jamb liner channel, the improvement comprising:

a. said connector portion of said platform having an arm curved around a point located on a sash side of said arm;
b. said shoe having an arm holder surface bordering said recess for engaging a radially inside surface of said curved arm; and
c. said shoe having an abutment surface engaging a side of said connector portion opposite to said arm holder surface.

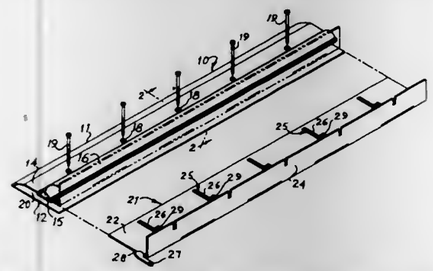
5,207,026

LOCKING THRESHOLD

William D. Bozeman, Jr., P.O. Box 310, Mansfield, Ga. 30255

Filed Dec. 16, 1991, Ser. No. 808,299
Int. Cl.[5] E06B *1/70*
U.S. Cl. 49—467 3 Claims

1. A locking threshold, for a doorway having an outside and an inside, and a door hingedly mounted within said doorway and openable towards said inside, said threshold including an outside edge towards said outside of said doorway and an inside edge towards said inside of said doorway, said threshold defining a chamber therein, and a locking member slidably received within said chamber, said locking member including a first flange, means for limiting motion of said first flange, and a second flange selectively pivotal to a first position parallel to said first flange and a second position perpendicular to said first flange, said second flange having sufficient width to engage said door when said second flange is in said second position.

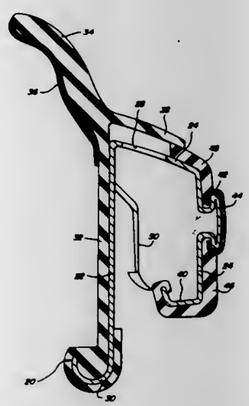


5,207,027

BELT WEATHERSTRIP WITH EXPANDABLE WIDTH AND METHOD

Douglas C. Larsen, Milford, Mich., assignor to Standard Products Company, Cleveland, Ohio

Filed Sep. 9, 1991, Ser. No. 756,443
Int. Cl.[5] E06B *7/16*
U.S. Cl. 49—482.1 13 Claims



5. A belt weatherstrip adapted for engagement over and end flange of a vehicle, said belt weatherstrip comprising:

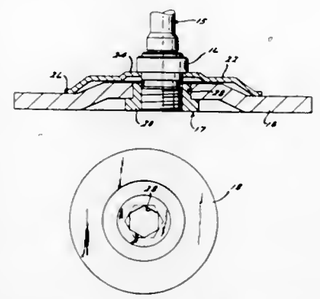
a one-piece core member including a backing leg, an intermediate leg and a show surface leg generally forming a U-shaped member having a width for fitting over the end flange;
an elastomeric coating extruded onto at least portions of the core member for providing at least one sealing lip extending from said core member;
a plurality of perforations formed in said intermediate leg whereby said perforations allow expansion in said width of said perforated leg such that said width may be varied during forming of the weatherstrip to provide a better final fit with respect to the vehicle.

5,207,028

TOOL ELEMENT SUBASSEMBLY AND METHOD OF MANUFACTURING SAME

Russell M. Timmons, Luthérville, Md., assignor to Black & Decker Inc., Newark, Del.

Continuation-in-part of Ser. No. 702,274, May 17, 1991, abandoned. This application Feb. 6, 1992, Ser. No. 832,147
Int. Cl.[5] B24D *13/20*
U.S. Cl. 51—168 14 Claims



1. An abrasive disc subassembly for a grinder having an externally threaded, motor-driven spindle, comprising:

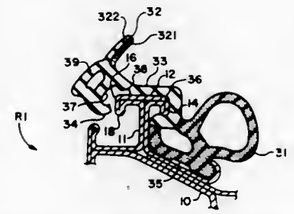
an abrasive disc having a centrally located hexagonally shaped bore formed therethrough; and
a collar nut having a hexagonally shaped hub portion adapted to fit into said hexagonally shaped bore in said abrasive disc so as to preclude relative rotation therebetween and an enlarged head portion, said collar nut having an internally threaded bore formed therethrough that is adapted for threadably engaging said spindle in a rotational direction opposite the direction of rotation of said motor-driven spindle, and further wherein said enlarged head portion is also hexagonally shaped for receiving a torque-applying tool for enabling the tightening of said subassembly onto said spindle and the subsequent removal of said tightened subassembly from said spindle, the hexagonal shape of said head portion being angularly offset thirty degrees relative to the hexagonal shape of said hub portion;
wherein driving torque is transferred from said spindle to said abrasive disc through said collar nut.

5,207,029

WEATHER STRIP

Masahiro Nozaki, and Masahiro Koide, both of Inazawa, Japan, assignors to Toyoda Gosei Co., Ltd., Nishikasugai, Japan

Filed Jul. 9, 1992, Ser. No. 910,871
Claims priority, application Japan, Jul. 10, 1991, 3-53526
Int. Cl.[5] E06B *7/16*
U.S. Cl. 49—495.1 11 Claims



1. A weather strip for engaging a flange, said flange having

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first and second engaging portions, said weather strip comprising:

a first seal having a first receiving portion;

a second seal having a second receiving portion;

a connecting portion connecting said first and second receiving portions; and

means for bending defined in said connecting portion and being disposed adjacent said second receiving portion, said second receiving portion including means for fastening defined on an end thereof, said first receiving portion engaging with said first engaging portion of the flange, pressure applied to said connecting portion permitting said second receiving portion to bend about said bending means permitting engagement of said second receiving portion and said fastening means with said second engaging portion of the flange so as to affix the weather strip to the flange.

5,207,030

DEVICE FOR HOLDING SMALL GLASS PIECES FOR GRINDING

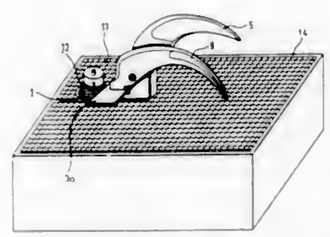
Heinz Herrmann, Leipziger Strasse 105, D-4154 Tönisvorst 1, Fed. Rep. of Germany

Continuation of Ser. No. 714,653, Jun. 13, 1991, abandoned. This application May 15, 1992, Ser. No. 885,060

Claims priority, application Fed. Rep. of Germany, Jan. 9, 1991, 9100199[U]

Int. Cl.[5] B24B *41/06*

U.S. Cl. 51—217 R **4 Claims**



1. A device for grinding small pieces of glass comprising:

a work table formed with a horizontal work surface;

a grinder projecting through said surface and rotatable about an axis perpendicular to said work surface; and

a pliers for gripping a small piece of glass riding on said work surface, said pliers comprising:

an L-shaped support foot having a flat support surface resting upon said work surface, and a resting surface parallel to said support surface,

a journaling projection extending upwardly from said support foot along one side of said resting surface, and formed with an upwardly convex curvilinear grip bent toward said work surface from said projection and terminating above said work surface and a pivot located above said flat support surface between ends thereof, and

a double-arm lever fulcrumed on said pivot and having:

a clamping jaw formed as one arm pivotally mounted on said projection and clamping said piece against said resting surface in a closed position of said pliers, and

a curvilinear other arm formed as a grip bent toward said work surface and having a free end spaced from said foot, said other arm being upwardly convex and downwardly concave, said free end being supported on said work surface in an open position of said pliers upon release of said grips and being substantially coplanar with said support surface of said foot in said open position.

5,207,031

APPARATUS FOR USE IN RENOVATION OF TUBE SYSTEMS, IN PARTICULAR SEWER TUBE SYSTEMS

Kresten Gammelgaard, Egevaenget 18, DK-7850 Stoholm, Denmark

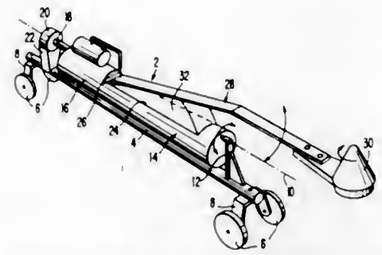
PCT No. PCT/DK90/00109, § 371 Date Oct. 28, 1991, § 102(e) Date Oct. 28, 1991, PCT Pub. No. WO90/12979, PCT Pub. Date Nov. 1, 1990

PCT Filed Apr. 26, 1990, Ser. No. 775,962

Claims priority, application Denmark, Apr. 26, 1989, 2013/89

Int. Cl.[5] B24B *5/40*; E21B *29/00*

U.S. Cl. 51—245 **8 Claims**



1. Apparatus for use in renovating tube systems, in particular sewer tubes of circular cross section, the apparatus comprising:

an apparatus body or a frame on wheels, said apparatus body or frame being adapted to be moved inside a tube in such a way that the position of the apparatus in the tube is known;

a motor-driven tool mounted on a carrier member and extending beyond an end part of a rotatable portion of the apparatus, said rotatable portion being journal led so as to be rotatable with respect to said apparatus body or said frame around a longitudinal axis of the apparatus; and

a lifting member arranged to move the motor-driven tool diametrally within the tube;

wherein said carrier member includes a carrier arm of springy material, for example spring steel, said carrier member is pivotally connected, opposite said motordriven tool, to said rotatable portion at a distance from said end part thereof, and

wherein said lifting member is interposed between said end part of the rotatable portion and the pivot axis of the carrier arm, said pivot axis extends in a direction perpendicular to said longitudinal rotation axis of the apparatus.

5,207,032

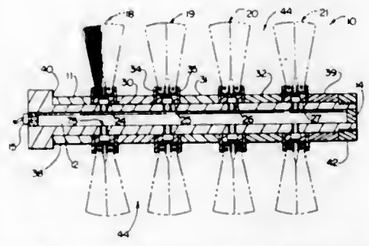
ROTARY FINISHING TOOL AND ADAPTER

Everett W. Frymier, Avon, and Alfred F. Scheider, Orange, both of Ohio, assignors to Jason, Inc., Cleveland, Ohio

Filed Mar. 23, 1992, Ser. No. 855,671

Int. Cl.[5] B24B *55/02*

U.S. Cl. 51—267 **14 Claims**



1. A rotary finishing tool comprising an annular ring in which the finishing material is secured and from which said finishing material projects radially outwardly, a drive lug projecting radially inwardly from said annular ring, an adapter hub having an outside diameter only slightly less than the inside diameter of said ring whereby said ring may be closely telescoped over said adapter hub, said adapter hub including a bayonet slot on the circumference thereof adapted to interfit with said lug whereby said ring may be telescoped over said adapter hub with said in lug alignment with said bayonet slot and then rotated with respect to said adapter hub to be properly positioned on said adapter hub and to be driven thereby through the driving engagement between said lug and an end of said slot, said slot being a T-slot with the stem of the T extending axially of the adapter hub and the head of the T extending circumferentially, said lug engaging at either end of the head of the T to provide a drive point between the adapter hub and ring depending on the direction of rotation of the tool, and wherein said adapter hub accommodates two rings side-by-side and has two such head of the T slots circumferentially parallel to each other accommodating the respective lugs of the side-by-side rings.

5,207,033

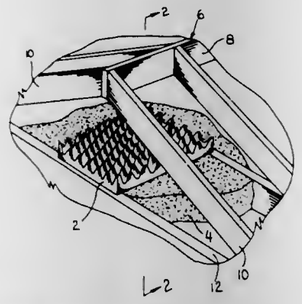
EVAPORATION TRAY

Gary L. Sells, 16250 Petro Dr., Mishawaka, Ind. 46544

Filed Jan. 23, 1992, Ser. No. 824,400

Int. Cl.[5] E04B *13/00*

U.S. Cl. 52—14 **11 Claims**



1. In combination a water collection device with a building structure having a roof, said roof having vent means for allowing air to flow into and out of area underneath said roof, said water collection device located adjacent said vent means within said area, said device having finger-like extensions projecting upwardly and defining convolution means for collecting and aiding in evaporating said water passing through said vent means into said area.

5,207,034

PLIANT MEDIA BLASTING DEVICE

William R. Lynn, 38 Prospect St., Dover, N.H. 03820

Continuation-in-part of Ser. No. 376,764, Jul. 7, 1990, abandoned. This application Jun. 25, 1990, Ser. No. 543,325

Int. Cl.[5] B24C *7/00, 9/00*

U.S. Cl. 51—425 **24 Claims**

1. A blasting device, suitable for discharging pliant particulate media against a surface to achieve a desired surface treatment, said blasting device comprising:

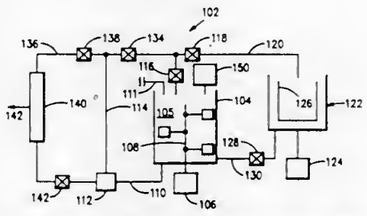
a) a storage container, adjacent having an outlet, for containing a supply of pliant particulate blasting media;

b) a discharge conduit having nozzle means connected to a first end thereof;

c) media feed means, connecting the outlet of said storage container to a second end of the discharge conduit remote from said nozzle means, for supplying a desired quantity of blasting media from said storage container to the second end of said discharge conduit, said media feed means facilitating positively conveyance of said blasting media into a flow of pressurized air in said discharge conduit to provide a continuous supply of blasting media to said nozzle means;

d) air supply means connected adjacent the second end of said discharge conduit for supplying the flow of pressurized air thereto;

e) means for substantially preventing back flow of pressurized air into said storage container;



f) means for washing a slurry formed from a cleaning liquid and the used blasting media to remove debris and other contaminants from the used blasting media;

g) means for centrifuging the slurry to separate the cleaned blasting media from the cleaning liquid, debris and other contaminants; and

h) means for filtering the cleaning liquid, debris and other contaminants to separate the debris and other contaminants from the cleaning liquid.

5,207,035

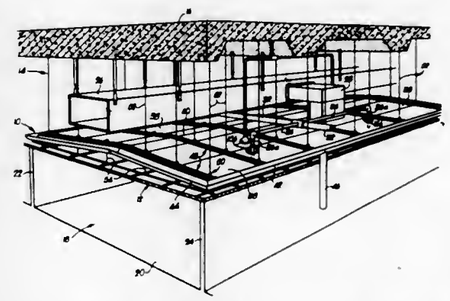
ABOVE-CEILING CONTAMINANT SHIELDING SYSTEM FOR SENSITIVE BUILDING AREAS

John L. Fowler, 5604 W. 79th St., Prairie Village, Kans.

Filed May 31, 1990, Ser. No. 531,464

Int. Cl.[5] E04B *9/00*

U.S. Cl. 52—22 **14 Claims**



1. In a building construction, the improvement comprising:

means defining a generally horizontally extending overhead boundary;

means defining a ceiling spaced below the boundary to present a utilities region above the ceiling and a use area below the ceiling;

a safety shield impervious to liquid penetration and located within said region between the ceiling and the overhead boundary for protecting the use area from intrusive liquids which enter the region above the shield.

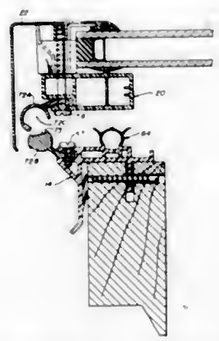
said shield including a plurality of interconnected panels secured within generally the same plane to present an imperforate, generally flat surface overlying the ceiling,

said shield further including a plurality of parallel, spaced rows of elongated supports for said panels,

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said supports of each row having a pair of opposite ends and being arranged in end-to-end relationship with one another,
the panels being disposed between proximal pairs of the rows of supports and secured thereto,
each of said supports including a pair of opposed, elongated clamping members,
said panels having marginal edge portions sealingly clamped between said members.

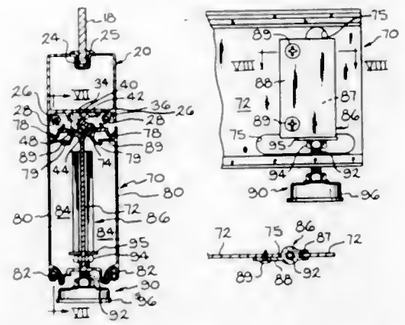
5,207,036
SKYLIGHT CONSTRUCTION
Robert Sampson, Sanford, and Sean Flanigan, Wells, both of Me., assignors to Wasco Products, Inc., Sanford, Me.
Continuation of Ser. No. 545,364, Jun. 28, 1990, abandoned. This application Feb. 19, 1992, Ser. No. 839,743
Int. Cl.[5] E04B *7/18*
U.S. Cl. 52—72 **18 Claims**



1. A skylight construction for an opening in a building or the like comprising: a base member extending about the opening and having means for securing thereof about the opening, a rigid plastic curb frame means, means for firmly securing said rigid plastic curb frame means to the top of said base member, transparent or translucent covering means, means for retaining the covering means on the rigid plastic curb frame means, said means for firmly securing said rigid plastic curb frame means including means for positively interlocking the rigid plastic curb frame means with said base member, said means for positively interlocking defined by said rigid plastic curb frame means having a downwardly depending leg adapted to be accommodated in a slot in said base member, said rigid plastic curb frame means comprising a base frame for engagement with said base member and an overlying sash frame, and further including hinge means between the base frame and the sash frame and including a gasket extending from the base frame and disposed between the base frame and the sash frame.

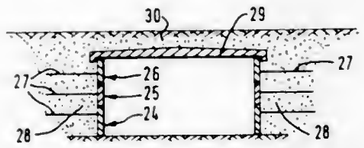
5,207,037
WALL PARTITION UNITS
Christopher D. Giles, and Steven E. McNeal, both of Grand Rapids, Mich., assignors to Lippert Holding Company, Zeeland, Mich.
Continuation of Ser. No. 539,337, Jun. 18, 1990, Pat. No. 5,138,814. This application Mar. 4, 1992, Ser. No. 845,715
Int. Cl.[5] E04B *2/82*; **E04F** *17/08*
U.S. Cl. 52—126.6 **5 Claims**

1. A wall partition unit (**10**) including a baseboard raceway (**70**) strip having a uniform I-shaped cross-section (**72**) having a web portion with an aperture (**75**) having an edge in the web portion, the improvement comprising:
1) a sleeve (**86**) having outer opposite sides and being seated in said aperture said sleeve having a groove (**87**) along one outer side of said sleeve and a flange (**88**) along the opposite outer side of said sleeve, said groove seating the edge of said aperture in said web portion and said flange overlapping said web portion,
2) means (**99**) for attaching said flange to said web portion,
3) a threaded bolt means (**92**) in said sleeve and extending downwardly through and beyond said baseboard strip,



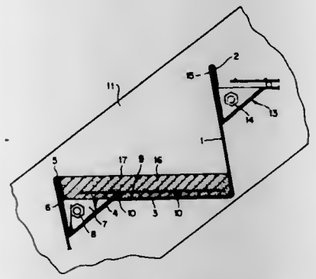
4) a foot means (**96**) on said threaded bolt means that extends beyond said baseboard strip, and
5) a nut (**94**) on said threaded bolt means in said aperture for axially adjusting the distance said foot means extends below said baseboard strip for levelling said partition.

5,207,038
REINFORCED EARTH STRUCTURES AND METHOD OF CONSTRUCTION THEREOF
Yermiyahu Negri, 4 Recanati Street, Tel Aviv, Israel
Continuation of Ser. No. 567,898, Aug. 15, 1990, abandoned. This application Jun. 5, 1992, Ser. No. 895,165
Claims priority, application Israel, Jun. 4, 1990, 94604
Int. Cl.[5] E02D *27/44, 29/04*
U.S. Cl. 52—169.6 **18 Claims**



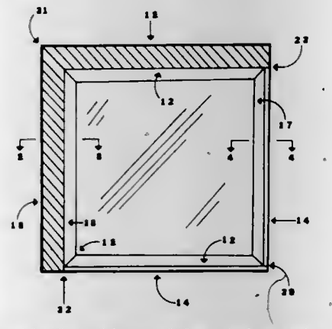
1. A structure comprising spaced support means defining an interior area, an external vertical load laterally spanning the defined area freely supported by said spaced support means, at least one of said spaced support means comprising a first wall substantially supporting the weight of said vertical load and including at least two tiers of vertically stacked concrete slabs, a reinforced earth fill structure generally coextensive with said wall exterior of said defined area and in bearing engagement with said wall, a plurality of flexible reinforcing strap means fixed to each of said slabs and extending laterally into frictional engagement within said earth fill structure said slabs having edge portions abutting corresponding edge portions of adjacent slabs so as to accommodate limited relative lateral displacement of at least some of said concrete slabs of said wall upon subjection of the said structure to lateral blast loading while substantially maintaining the integrity of said structure and supporting said vertical load.

5,207,039
FOOTBOARD FOR INDOOR STAIRCASE
Masafumi Nakatsubo, Tokyo, Japan, assignor to Tsuda Corporation, Osaka, Japan
Filed Nov. 18, 1991, Ser. No. 795,946
Claims priority, application Japan, Jul. 8, 1991, 3-192719
Int. Cl.[5] E04F *11/00*
U.S. Cl. 52—189 **3 Claims**



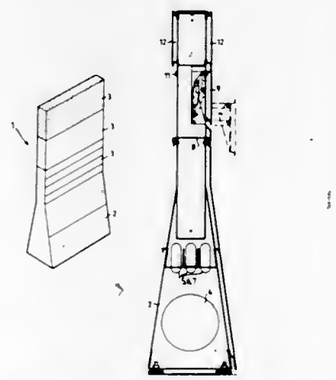
1. A footboard for an indoor staircase, said footboard being adapted to be fixed to notchboards, comprising:
a riser, a footstep portion which is formed integrally with said riser in an L-shaped and extends forwardly from said riser,
said riser having a hook portion at an upper end thereof,
said footstep portion having a forward end and a downwardly and forwardly inclined lower end portion at the forward end thereof opposite said riser, a rising portion extending upwardly from a lower edge of said inclined lower end portion, said rising portion extending above an upper surface of said footstep portion and defining an upstanding rim on a forward end of the upper surface of said footstep portion so that the hook portion of another similarly constructed footboard can be hooked on said rim of said footstep portion, said inclined lower end portion and a section of said rising portion that is below said footstep portion defining an upwardly opening cavity; and
fixing pieces which are welded between said inclined portion of said footstep portion and said rising portion in said cavity.

5,207,040
INTERIOR INSULATING WINDOW
William J. Lovell, P.O. Box 6905, St. Louis, Mo. 63123
Filed Aug. 5, 1991, Ser. No. 740,597
Int. Cl.[5] E04C *2/00*
U.S. Cl. 52—204.5 **9 Claims**



1. In combination with an existing window casing, an interior insulating window comprising:
a. a rigid frame extending around the perimeter of a window pane, said frame comprising a top rail, a bottom rail, a first side rail and a second side rail,
b. a distinct foam strip of a first thickness secured along the periphery of each of said top rail and said first side rail,
c. a distinct foam strip of a second thickness secured along the periphery of each of said bottom rail and said second side rail, said first thickness being greater than said second thickness,
d. said casing comprising dimensions greater than said frame such that when said foam strips of first thickness are compressed said frame may be inserted into said casing with said foam strips providing a friction fit as well as an insulating barrier extending from said casing to said frame when in an inserted position,
e. said foam strips of second thickness being of a thickness which would not hinder insertion of said frame into said casing when said foam strips of first thickness are compressed, and being of sufficient thickness as to prevent compression, due to the weight of the window and the frame, of said foam strips of second thickness to a point which would adversely affect the friction fit of said foam strips of said first thickness.

5,207,041
SERVICE WALL STRUCTURE
Tony Wills, London, England, assignor to Design Funktion Mobler AB, Atvidaberg, Sweden
Filed Oct. 18, 1991, Ser. No. 779,285
Claims priority, application Sweden, Oct. 19, 1990, 9003347
Int. Cl.[5] E04H *1/00*
U.S. Cl. 52—220 **7 Claims**



1. A free-standing wall section for a service wall of an indoor working area, comprising:
wall means providing a bottom wall, a top wall, two opposite side walls and two opposite end walls;
said end walls being substantially vertical, so that side wall section can be ranked end-to-end with like wall sections to provide a service wall, in which said wall section has a longitudinal direction which extends horizontally from one of said end walls to the other of said end walls;
said end walls being broadest adjacent said bottom walls, and tapering upwardly to a level which is intermediate said top wall and said bottom wall; said side walls being upwardly convergent from said bottom wall to said level, and being generally uniformly spaced from one another from said level up to said top wall;
means defining a longitudinally extending ventilation channel cavity within said wall section, communicating between said end walls below said level;
means defining at least two cable distribution channels

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within said wall section, communicating between said end walls below said level; said cable distribution channels being internally separated from one another and from said ventilation channel cavity;

said bottom wall being arranged to be supported on a floor of a building.

5,207,042

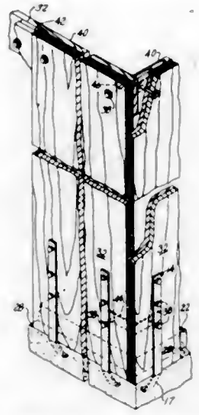
STUDLESS BUILDING STRUCTURE

Raoul G. Molinar, 279 N. Locust Ave., Agoura, Calif. 91301

Filed Jun. 7, 1991, Ser. No. 712,254

Int. Cl.[5] E04B *2/02*; E02D *27/00*

U.S. Cl. 52—293.1 **17 Claims**



1. A modular building structure system comprising:

(i) base means defining a plurality of intersecting, upstanding wall mounting surfaces, each of the mounting surfaces having a plurality of horizontally spaced fastener attachment points formed thereon;

(ii) a plurality of rigid panel members rigidly connected between pairs of the attachment points and extending upwardly therefrom, each panel member being formed of solid bonded plywood laminations and defining a spaced pair of panel surfaces, one of the panel surfaces being coplanar with a corresponding one of the mounting surfaces; and

(iii) an elongate plate member rigidly connecting adjacent coplanar pairs of the panel members, the plate member extending in line with top peripheral extremities of the panel members, the solid plywood panel members, in combination with the rigid connections between pairs of the attachment points and the elongate plate member, having sufficient strength that the system does not require studs.

5,207,043

MASONRY CONNECTOR

Brian P. McGee, 176 Wedgewood Drive, Willowdale, Ontario, Canada M2M 2H9 , and Frank Rocca, L16 Conc. 8 Doane Road, Box 334, Mt. Albert, Ontario, Canada L0H 1M0

Filed Nov. 7, 1988, Ser. No. 268,342

The portion of the term of this patent subsequent to Jul. 4, 2008, has been disclaimed.

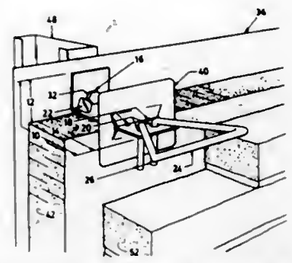
Int. Cl.[5] E04B *1/38*

U.S. Cl. 52—379 **9 Claims**

1. A masonry connector for connecting an internal wythe to an external wythe of masonry units thorugh interposed insulation, comprising:

a substantially "L"-shaped clip, having a vertical arm for connection to the internal wythe and a horizontal arm extending outwardly from the internal wythe substantially at right angles to the vertical arm, the vertical arm having a first opening for insertion of attachment means and the horizontal arm having a second opening outwardly of the insulation when the insulation is installed for insertion of a tie wire;

attachment means for insertion through the first opening to connect the vertical arm of the clip to the internal wythe;



a first washer for mounting on the horizontal arm outwardly of the insulation for positioning the insulation inwardly of the external wythe;

a tie wire having a first end for insertion through the second opening and a second end for lying in a course of the external wythe;

wherein the horizontal arm includes projections rising 30/1000" above the surface thereof.

5,207,044

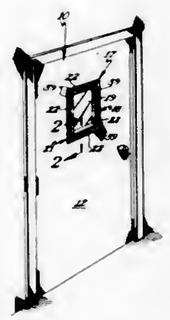
VISION PANEL ASSEMBLY FOR FIRE DOOR PANELS

Jack C. LaSee, 308 W. Cedar, Abbotsford, Wis. 54405

Filed Mar. 16, 1992, Ser. No. 851,502

Int. Cl.[5] E04B *9/00*

U.S. Cl. 52—476 **8 Claims**



1. In combination with a fire resistant door having rectangular shaped opening therein, the opening in the door presenting flat surfaces, each surface having an elongate groove therein,

a fire resistant vision panel assembly mounted in said opening and including a pair of similar rectangular frames formed of a metallic material, and a glass vision panel, each frame being comprised of a plurality of frame members rigidly secured together in right angular relation, each frame member being of C-shaped cross sectional configuration and having a panel engaging lip and a groove engaging lip, said groove engaging lip for each frame member being disposed in one of said grooves in one of said surfaces, said panel engaging lip for each frame member engaging said glass vision panel,

a plurality of elongate fastener bars each being positioned within one of said frame members of one frame, a plurality of threaded elements engaging the other frame and said fastener bars for clamping the frames together and against said glass vision panel,

and a plurality of panel support elements engaging said fastener bars and the frame members of said one frame and supporting said glass vision panel when the frames are clamped together.

5,207,045

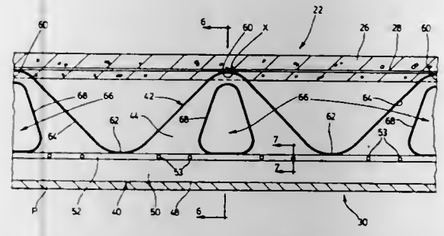
SHEET METAL STRUCTURAL MEMBER, CONSTRUCTION PANEL AND METHOD OF CONSTRUCTION

Ernest R. Bodnar, 2 Danrose Crescent, Don Mills, Ontario, Canada M3B 3N5

Filed Jun. 3, 1991, Ser. No. 710,524

Int. Cl.[5] E04B *1/14, 1/16*

U.S. Cl. 52—600 **23 Claims**



1. A sheet metal structural member for use in the formation of a construction panel formed of cast material which member, in turn, comprises:

a sheet metal web lying in a predetermined plane and defining a generally linear edge portion along one side, and a generally zig-zag edge portion along the other side, said zig-zag edge portion defining wider regions, and narrower regions between said wider regions, and said web extending in a generally zig-zag fashion from one said narrower region through said wider region to the next said narrower region;

edge flange formations formed around said zig-zag edge portions of said web and extending at an angle to said predetermined plane, and,

cast panel attachment means at the apex of each of said wider portions of said web, whereby said apex of each said web may be secured to a said cast construction panel with said structural member being free of attachment to said cast panel, between said apeces of said web.

5,207,046

WOODEN STRUCTURE, AND A ROLLER PRESS FOR PRODUCING THE STRUCTURE

Jouko Vekkeli, Heinola, Finland, assignor to Jatwood Oy, Finland

PCT No. PCT/FI89/00140, § 371 Date Jan. 25, 1991, § 102(e) Date Jan. 25, 1991, PCT Pub. No. WO90/01092, PCT Pub. Date Feb. 8, 1990

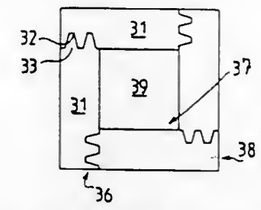
PCT Filed Jul. 25, 1989, Ser. No. 640,319

Claims priority, application Finland, Jul. 26, 1988, 883517

Int. Cl.[5] E04C *3/30*; B30B *3/00*

U.S. Cl. 52—730.7 **11 Claims**

1. An elongated wooden structural beam, consisting of four elongated generally rectangular pieces of wood each having a pair of ends and a pair of first sides extending between said ends and a pair of opposed second sides extending between said ends, each side having a length extending between the ends of the piece and having a transverse width normal to said length, said first sides having a greater width than said second sides, the length of each side being substantially greater than the width of each side, one of said first sides of each piece being provided with a groove extending between said ends and one of said second sides of each piece being provided with a tongue extending between said ends and disposed in mating relation with a groove of an adjacent piece whereby the pieces are



joined together to form a hollow tubular structure, and adhesive means disposed between the contacting surfaces of said pieces including the mating tongues and grooves to join the pieces together in the configuration of a hollow elongated beam.

5,207,047

METHOD AND APPARATUS FOR DISCHARGING A FOAMED MATERIAL MIXTURE, AND THE THERMAL INSULATION MATERIAL PRODUCED THEREBY

Herbert Prignitz, Papyrusweg 12, D-2000 Hamburg 74, Fed. Rep. of Germany

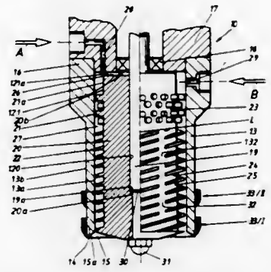
PCT No. PCT/EP89/00471, § 371 Date Nov. 13, 1990, § 102(e) Date Nov. 13, 1990, PCT Pub. No. WO89/10826, PCT Pub. Date Nov. 16, 1989

PCT Filed Apr. 28, 1989, Ser. No. 613,521

Claims priority, application Fed. Rep. of Germany, May 11, 1988, 8806267[U]

Int. Cl.[5] E04B *1/62*

U.S. Cl. 52—743 **20 Claims**



1. A method for discharging a foamed material, more particularly a heat insulating material, with the aid of a mixing head for mixing at least two reactive constituents in a low pressure process, which mixing head is comprised of a pipe in which an agitator rotates at a high speed of rotation and from which mixing head the mixture ready for reaction in discharged by gravity and distributed onto a substrate in order to fully react and foam up there, characterized in that

the ready mixture, in addition to being discharged by gravity, is discharged with the aid of centrifugal force, and in that only one (A) of said two reactive constituents, which one constituent (A) is comprised of materials which do not react on their own, is first introduced into a space within said mixing head located in the vicinity of an outer bearing of a floating shaft upon which said agitator is mounted and is then conveyed by the action of centrifugal force to another location within said mixing head at which it only then becomes intermixed with the other (B) of said two reactive constituents in order to prevent premature reac-

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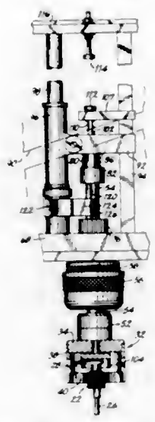
tions occurring in the vicinity of said bearing and so that said bearing does not come into contact with the interreacting constituents (A and B) and is thereby protected against contamination, heating or damage by said interreacting constituents.

5,207,048

CHUCK APPARATUS FOR ASSEMBLING A CAP HAVING A SPOUT ONTO A BOTTLE

Kazmier Wysocki, Hackensack, N.J., assignor to PMC Industries, Hackensack, N.J.

Filed Jun. 29, 1992, Ser. No. 905,336
Int. Cl.[5] B67B *3/20, 5/00;* B65B *7/28*
U.S. Cl. 53—133.2 23 Claims



1. A chuck apparatus for assembling a cap having a spout onto a bottle, comprising:
chuck means for gripping the cap;
rotating means for rotating the chuck means in order to thread the cap on the bottle when the cap is gripped by the chuck means;
raising and lowering means for raising the chuck means away from and out of engagement with the cap and for lowering the chuck means into engagement with the cap;
spout aligment means for maintaining the spout at a first predetermined orientation with respect to the bottle while the chuck means is rotated to thread the cap on the bottle; and
chuck aligning means for aligning the chuck means in a second predetermined orientation with respect to the spout after the chuck means has threaded the cap on the bottle and for locking the chuck means at the second predetermined orientation, such that the chuck means can be raised away from the cap without interference from the spout when the chuck means is locked at the second predetermined orientation.

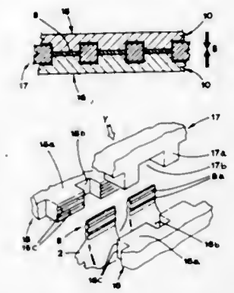
5,207,049

DEVICE FOR SEALING OPEN ENDS OF MONODOSE CONTAINERS ALREADY FILLED WITH LIQUID OR VISCOUS SOLUTIONS

Roberto Baruffato, San Lazzaro, and Gianfranco Salmi, Casalecchio di Reno, both of Italy, assignors to Farmomac S.r.l., Via Minghetti, Italy

Filed Jul. 24, 1991, Ser. No. 734,954
Claims priority, application Italy, Jul. 26, 1990, 3617A/90
Int. Cl.[5] B65B *51/14*
U.S. Cl. 53—373.7 8 Claims

1. Apparatus for sealing open ends of thermoplastic monodose containers by squeezing heat welding of said open ends comprising:
first and second rigid members having opposing teeth forming pairs of opposing surfaces between which the end of a container is placed and there being a recess between adjacent pairs of opposing teeth;
means for moving said members together to bring the opposing surfaces toward each other to clamp the container open end therebetween to form a sealed area on the container having sides and a top;
first means for blocking the flow of the container material at the sides of each pair of opposing surfaces of said first and second members to prevent the formation of flashing on the sides of the sealed area of each container; and



second means for blocking the flow of the container material at the top of each pair of opposing surfaces to prevent the formation of flashing on the top of the sealed area of each container,
said first and second means comprising a head having a projecting prong fitting into each recess between adjacent pairs of teeth of the first and second members to block the flow of container material at the sides of a pair of opposing teeth, and the portions of the head between the prongs blocking the flow of container material at the tops of the opposing surfaces of each pair of teeth of the two members.

5,207,050

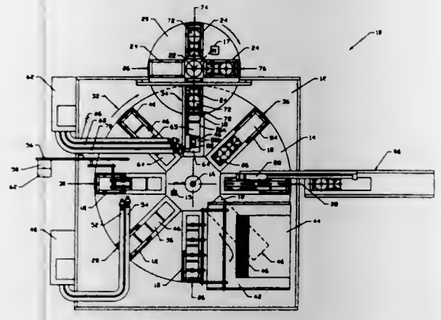
APPARATUS AND METHOD FOR ASSEMBLING COMPACT DISC OR MEDIA PACKAGE

Greg Fulkerson, Maple Plain; Peter N. Y. Pan, Minnetonka, and Stephen Kaye, Eden Prairie, all of Minn., assignors to Thiele Engineering Company, Minneapolis, Minn.

Filed Jan. 15, 1992, Ser. No. 820,846
Int. Cl.[5] B65B *61/20, 5/12*
U.S. Cl. 53—474 2 Claims

1. Process for assembling an ecologically compact disc or media package comprising the steps of:
a. rotating a table with a plurality of spaced trays through predetermined positions;
b. placing a cardboard with a plurality of panels into a tray at a first position;
c. rotating the table to a second position, in which the cardboard is properly aligned and positioned;
d. applying glue and placing a pamphlet on the cardboard at a third position;
e. rotating the table to a further position;

f. applying glue to the cardboard and placing a compact disc base with an end cap on the glue;
g. cutting the end cap from the compact disc base; and,



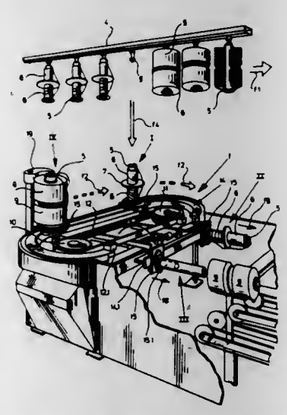
h. lifting the cardboard with the compact disc base and end cap off the table.

5,207,051

APPARATUS FOR TRANSFERRING FULL BOBBINS AND EMPTY BOBBINS BETWEEN A BOBBIN WINDING MACHINE AND A TRANSPORTING MECHANISM

Siegfried Inger, Tönisvorst, and Wolfgang Leupers, Mönchengladbach, both of Fed. Rep. of Germany, assignors to Palitex Project Company GmbH, Krefeld, Fed. Rep. of Germany

Continuation of Ser. No. 609,820, Nov. 6, 1990, abandoned. This application Aug. 4, 1992, Ser. No. 925,562
Claims priority, application European Pat. Off., Nov. 7, 1989, 89120539.5
Int. Cl.[5] D01H *9/14;* B65H *54/02*
U.S. Cl. 57—281 11 Claims



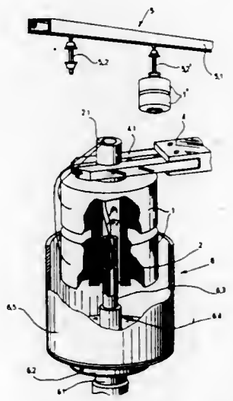
1. A bobbin transfer apparatus for simultaneously transferring consecutive fully wound bobbins of yarn and substantially empty bobbins of yarn between a yarn bobbin winding machine adjacent said transfer apparatus and a bobbin suspension transporting mechanism positioned over said transfer apparatus, said bobbin suspension transporting mechanism consecutively transporting full bobbins form said transfer apparatus to a yarn processing machine and returning substantially empty bobbins therefrom to said transfer apparatus, said transfer apparatus comprising:
conveying means for consecutively conveying individual adapters for receiving said fully wound bobbins of yarn and said substantially empty bobbins of yarn, in a generally vertical position in a predetermined direction along a closed path of travel and consecutively through a plurality of work stations comprising;
a first work station positioned adjacent the closed path of travel of said conveying means and including means for moving up and down between said conveying means and the bobbin suspension transporting mechanism and for consecutively receiving and carrying adapters with a full yarn bobbin thereon from said conveying means to the transporting mechanism during upward movement thereof and for consecutively receiving and carrying adapters with a substantially empty bobbin thereon from the transporting mechanism to said conveying means during downward movement thereof;
a second work station positioned adjacent the closed path of travel of said conveying means and including means for consecutively receiving the adapters with the substantially empty bobbin from said first work station and for removing the substantially empty bobbin form the adapters for return to the winding machine; and
a third work station positioned adjacent the closed path of travel of said conveying means and including means for consecutively receiving the empty adapters from said second work station and for mounting a fully wound bobbin of yarn from the winding machine onto the empty adapters, so that the adapters with the full bobbin thereon may be conveyed by said conveying means to said first work station for transfer to the transporting mechanism.

5,207,052

METHOD OF TRANSPORTING AND POSITIONING A SET OF YARN PACKAGES IN A SPINDLE ASSEMBLY OF A TWISTER YARN PROCESSING MACHINE AND AN ADAPTER DEVICE FOR USE THEREIN

Heinz Fink, Krefeld, and Heinz Stenmans, Grefrath, both of Fed. Rep. of Germany, assignors to Palitex Project Company GmbH, Krefeld, Fed. Rep. of Germany

Division of Ser. No. 465,769, Jan. 16, 1990, abandoned. This application Feb. 13, 1992, Ser. No. 834,942
Claims priority, application Fed. Rep. of Germany, Jan. 21, 1989, 3901771
Int. Cl.[5] D01H *9/18*
U.S. Cl. 57—279 10 Claims



1. Method of transporting to and positioning a set of at least two yarn packages in a spindle assembly of a twister textile yarn processing machine while maintaining the yarn ends of the packages in desired locations; said method comprising the steps of:
creeling at a preparatory station at least two yarn packages

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on a tubular adapter device having at its upper end a gripping head;

positioning the yarn ends of the packages in the interior of the adapter device at the preparatory station by introducing the yarn ends into a channel extending inwardly from an outside surface of the adapter device near the top thereof and through a wall of the adapter device;

conveying the adapter device and yarn packages by a conveyor mechanism to a desired spindle assembly of a twister;

gripping the adapter device with a gripper device, moving the adapter device and yarn packages from the conveyor mechanism and placing the adapter device and yarn packages on the spindle of the spindle assembly of the twister; and

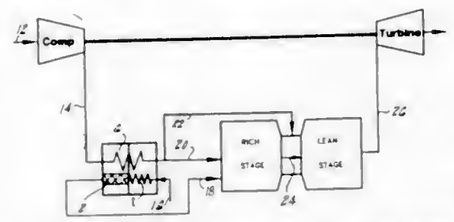
threading the yarn ends from the interior of the adapter device through the spindle assembly for processing the yarn as it is withdrawn from the packages on the adapter device.

5,207,053

METHOD AND SYSTEM FOR STAGED RICH/LEAN COMBUSTION

Louis J. Spadaccini, Manchester, and Thomas J. Rosfjord, South Windsor, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed May 15, 1991, Ser. No. 701,424
Int. Cl.[5] F23R 3/40; F02C 7/12
U.S. Cl. 60—39.02 15 Claims



1 A method of combusting an endothermic fuel in a staged rich/lean combustion system, comprising:

(a) transferring thermal energy from a heat source to an endothermic fuel decomposition catalyst, wherein the catalyst comprises platinum, rhenium, rhodium, iridium, ruthenium, palladium, mixtures thereof, or a zeolite, thereby cooling the heat source and heating the catalyst to a temperature between about 1000° F. and about 1500° F. to catalytically crack an endothermic fuel stream that comprises a mixture of hydrocarbons having boiling points between about 200° F. to about 700° F. and specific gravities at 60° F. between about 0.65 and about 0.85;

(b) contacting the heated catalyst with the endothermic fuel stream, thereby causing the fuel stream to catalytically crack into a reaction product stream that comprises hydrogen and unsaturated hydrocarbons to produce a total heat sink of at least about 2025 Btu/lb of fuel;

(c) mixing the reaction product stream with a first air stream to form a first fuel/air mixture having an equivalence ratio greater than 1;

(d) combusting the first fuel/air mixture in a rich combustion stage, thereby producing a combustion product stream;

(e) mixing the combustion product stream with a second air stream to form a second fuel/air mixture having an equivalence ratio less than 1; and

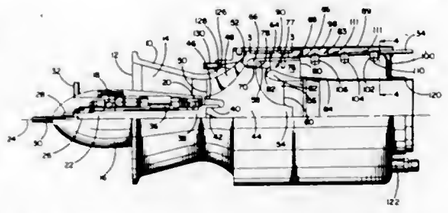
(f) combusting the second fuel/air mixture in a lean combustion stage, thereby producing an exhaust gas stream containing decreased amounts of NO_x.

5,207,054

SMALL DIAMETER GAS TURBINE ENGINE

Colin Rodgers; Jack R. Shekleton, and Anthony C. Jones, all of San Diego, Calif., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Apr. 24, 1991, Ser. No. 690,308
Int. Cl.[5] F02C 3/06, 3/08
U.S. Cl. 60—39.36 23 Claims



1. A gas turbine engine comprising:

a monorotor journaled for rotation and including opposed ends, one of said ends including compressor blades defining a mixed flow rotary compressor, the other of said ends including turbine blades defining a radial turbine wheel;

an axial diffuser just radially outward of said monorotor and in fluid communication with said mixed flow rotary compressor to receive compressed air therefrom;

a plenum containing said axial diffuser;

a reverse flow annular combustor concentric with said turbine wheel and within said plenum, said combustor having a dome height that is a minor fraction of its axial length, and an outlet adjacent said turbine wheel; and

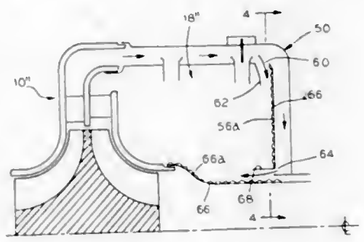
an annular turbine nozzle at said outlet and in proximity to said turbine blades, said turbine nozzle having axial nozzle blades.

5,207,055

VOLUME ENHANCED TURBINE ENGINE COMBUSTION ZONE

Jack R. Shekleton, and Colin Rodgers, both of San Diego, Calif., assignors to Sundstrand Corporation, Rockford, Ill.

Division of Ser. No. 615,048, Nov. 19, 1990, Pat. No. 5,172,546.
This application Oct. 5, 1992, Ser. No. 956,173
Int. Cl.[5] F02C 7/00
U.S. Cl. 60—39.360 14 Claims



1. A turbine engine, comprising:

a rotary compressor and a turbine wheel coupled to said rotary compressor for driven movement thereof;

an annular nozzle proximate said turbine wheel for directing gases of combustion at said turbine wheel;

an annular combustor about said turbine wheel defined by spaced inner and outer wall regions connected by a radially extending wall region, said annular combustor having a combustion zone upstream of said annular nozzle and a dilution air zone intermediate said annular nozzle and said combustion zone;

means for injecting air from said rotary compressor into said annular combustor; and

means for injecting fuel from a fuel source into said annular combustor;

said annular combustor being adapted to combust fuel from said fuel source and air from said rotary compressor to generate said gases of combustion, said gases of combustion being directed at said turbine wheel by said annular nozzle for driven movement of said turbine wheel and said rotary compressor;

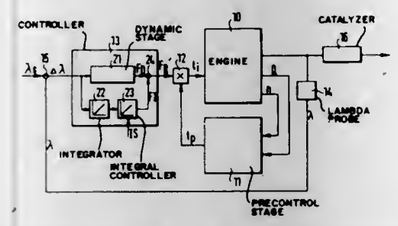
said inner wall region of said annular combustor defining a thrust nozzle axially adjacent said turbine wheel and radially inwardly of said annular combustor said combustion zone comprising a generally annular expanded space relative to said dilution zone.

5,207,056

METHOD AND ARRANGEMENT FOR CONTROLLING THE FUEL FOR AN INTERNAL COMBUSTION ENGINE HAVING A CATALYZER

Nikolaus Benninger, Vaihingen/Enz, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 22, 1991, Ser. No. 644,012
Claims priority, application Fed. Rep. of Germany, Jan. 20, 1990, 4001616
Int. Cl.[5] F01N 3/20
U.S. Cl. 60—274 11 Claims



1. A method for controlling the air/fuel ratio of an air/fuel mixture supplied to an internal combustion engine equipped with a catalyzer having a gas storage capability, the method comprising the steps of:

utilizing at least one lambda probe arranged in the exhaust gas system of the engine upstream of the catalyzer;

enriching and leaning the air/fuel ratio about a pregiven desired value λ_s by forming the difference $\Delta\lambda$ of the value λ measured by said lambda probe and the desired value λ_s integrating said difference to form a value of the integral function (FL) of said difference as a function of time; and,

controlling the value of the integral function (FL) of this difference to a pregiven value (IS) over the time for a pregiven time interval.

5,207,057

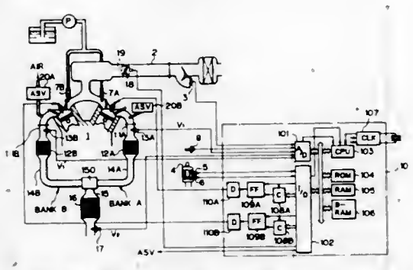
AIR-FUEL RATIO CONTROL DEVICE FOR AN ENGINE

Nobuaki Kayanuma, Gotenba, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed May 13, 1992, Ser. No. 882,014
Claims priority, application Japan, May 16, 1991, 3-111852
Int. Cl.[5] F01N 3/20
U.S. Cl. 60—276 20 Claims

1. An air-fuel ratio control device for an engine having a plurality of cylinders divided into cylinder groups, said engine comprising, exhaust passages connected to the respective cylinder groups, a common exhaust passage with which said individual exhaust passages are merged, first air-fuel ratio sensors disposed in said individual exhaust passages to detect an air-fuel ratio of the exhaust gas, a second air-fuel ratio sensor disposed in said common exhaust passage to detect an air-fuel ratio of the exhaust gas, and at least one catalyst converter disposed upstream of said second air-fuel ratio sensor and downstream of said first air-fuel ratio sensors, said air-fuel ratio control device comprising:

a first air-fuel ratio control means for individually controlling the air-fuel ratio of each cylinder group at least in accordance with the output of the first air-fuel ratio sensor corresponding to the respective cylinder group;



a second air-fuel ratio control means for controlling the air-fuel ratio of all cylinder groups simultaneously, when the engine is operated under a predetermined operating condition;

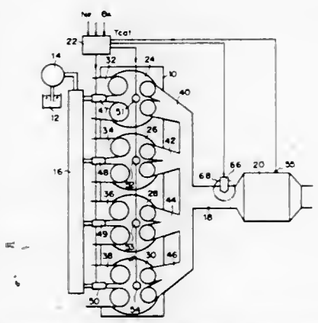
a deterioration detecting means for determining whether or not said catalyst converter has deteriorated, by comparing the outputs of said first and second air-fuel ratio sensors when the air-fuel ratio of the cylinder groups is controlled by said second air-fuel ratio control means.

5,207,058

INTERNAL COMBUSTION ENGINE

Shizuo Sasaki, and Takanori Ueda, both of Shizuoka, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 13, 1991, Ser. No. 791,886
Claims priority, application Japan, Nov. 16, 1990, 2-308627
Int. Cl.[5] F01N 3/36
U.S. Cl. 60—284 11 Claims



1. An internal combustion engine characterized by being provided with fuel injectors which enable high pressure fuel to be directly injected into combustion chambers of the engine, spark plugs which are provided in the combustion chambers, a catalytic converter provided in the middle of the exhaust pipe for purifying the exhaust, a temperature sensor for detecting the temperature of a catalyst of the catalytic converter and a control unit which receives as input the engine rotational speed, load, and the detection value of the catalyst temperature sensor for controlling the engine, where, when the temperature of the catalyst is lower than a predetermined target temperature, the fuel injectors inject additional fuel into the combustion chambers under the instruction of the control unit

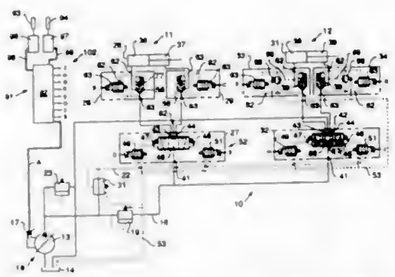
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during at least one of the expansion and the exhaust strokes to mix it with the exhaust and wherein the internal combustion engine includes means for reigniting and burning the mixture of exhaust and additional fuel upstream of the catalytic converter so as to heat the catalyst to the target temperature.

5,207,059
HYDRAULIC CONTROL SYSTEM HAVING POPPET AND SPOOL TYPE VALVES

Lawrence F. Schexnayder, Joliet, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Jan. 15, 1992, Ser. No. 821,098
Int. Cl.[5] F16D *31/02*
U.S. Cl. 60—465 20 Claims



1. A hydraulic control system for controllable actuation of a hydraulic motor having first and second actuating chambers comprising:

a spool type control valve having an inlet port, a tank port, and first and second motor ports, and an elongate valve spool, the control valve having a neutral position at which the motor ports communicate with the tank port and the inlet port is blocked from the tank and motor ports, the valve spool being movable in a first direction to communicate the inlet port with the first motor port and a second direction to communicate the inlet port with the second motor port, the valve spool being moved in one of the first and second directions a distance proportional to a first control signal received by the control valve;

means for outputting pressurized fluid to the inlet port of the control valve at a flow rate proportional to a second control signal received thereby; and

a remotely controlled flow amplifying poppet type valve serially disposed between the first motor port and one of the actuating chambers to normally block fluid flow from the actuating chamber to the first motor port and to permit substantially unrestricted fluid flow from the first motor port to the actuating chamber, the poppet valve being controllably moved to an open position proportional to a third control signal received thereby.

5,207,060
TANDEM HYDRAULIC MOTOR

James B. Sheets, Ames, Iowa, assignor to Sauer, Inc., Ames, Iowa

Filed Sep. 3, 1991, Ser. No. 753,800
Int. Cl.[5] F16D *31/02*
U.S. Cl. 60—483 1 Claim

1. In a four-wheel drive vehicle, a combination mechanical and closed-circuit hydrostatic drive train comprising: at least four wheels;

a prime mover for providing rotational power to said wheels whereby said vehicle is propelled;

a front axle extending transversely across said vehicle and having two ends drivingly connected to two of said wheels;

a rear axle extending parallel to said front axle and having two ends drivingly connected to the other two of said four wheels;

a pair of differential gearboxes, each intermediate of said axle ends on said front and rear axles, for transmitting and redirecting rotational power from said prime mover to said axles and wheels;

a closed-circuit hydrostatic transmission interconnected between said front and rear axles and said prime mover for reversibly driving said wheels, having

a source of control fluid;

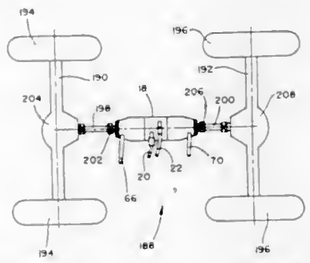
a hydraulic pump with infinite displacement control having an input shaft driven by said prime mover;

a dual-output, in-line tandem hydraulic motor drivingly connected to said differential gearboxes to form an integrated, generally horizontal, interaxle driveline extending between said axles and in closed-circuit reversible fluid communication with the hydraulic pump, the in-line tandem hydraulic motor having

a housing having a front section, a rear section, and a center section for joining said front and rear sections and for fluidly connecting said pump to said tandem motor;

a common output shaft having a pair of spaced ends extending coaxially through said housing in substantially perpendicular relation to said front and rear axles, said output shaft ends being synchronously connected through said differential gearboxes to drive said axles and prevent spinout should one of said axles lose traction;

a pair of first and second hydraulically parallel variable displacement motor units disposed in said front and rear



housing sections respectively and operatively associated with said common output shaft, each said motor unit having a rotatable cylinder block with reciprocable pistons communicating with said hydraulic pump, each said motor unit having an angularly positionable swashplate for prescribing the stroke of said reciprocable pistons, each said motor unit having a valve plate between said housing center section and said cylinder block for fluidly connecting said cylinder block with said center section;

servo means connected with said source of control fluid for generating a fluid force effective to actuate said servo means and modulate the position of said angularly positionable swashplates thereby varying the displacement of the first and the second motor units to control the power transmitted from the pump input shaft to the motor output shaft, such that

with said first and second swashplate in a maximum displacement position a first operating range for said tandem hydraulic motor is defined, and

with said first swashplate in a maximum displacement position and said second swashplate in a minimum displacement position a second operating range for said tandem hydraulic motor is defined, and

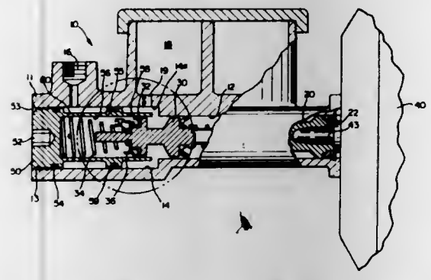
with said first swashplate in an intermediate displacement position and said second swashplate in a minimum position a third operating range for the hydraulic motor is defined, and

with the first swashplate at zero displacement and the second swashplate at a minimum displacement a fourth operating range for the hydraulic motor is defined.

5,207,061
MASTER CYLINDER WITH EXTERNALLY ADJUSTED SECONDARY COMPENSATION

Raymond Kosarski, Jr., Niles, Mich., assignor to Allied Signal Inc., Morristown, N.J.

Filed Feb. 27, 1992, Ser. No. 842,824
Int. Cl.[5] B60T *13/00, 11/26*
U.S. Cl. 60—547.1 10 Claims



1. A master cylinder with externally adjusted secondary compensation, comprising a body having a stepped bore therein, a primary piston and a secondary piston of primary and secondary pressure chambers, an end of said bore closed by an end member received fixedly at said end, the end member having a longitudinal portion extending longitudinally into said stepped bore, the longitudinal Portion having an interior opening receiving slidably said secondary piston, the secondary piston having seal means disposed thereabout and engaging a surface of the interior opening, resilient means located between said secondary piston and a bottom of said interior opening, at least one compensation opening disposed in said longitudinal portion and adjacent said seal means, and at least one outlet opening in said end member, the end member positioned laterally in said bore prior to the end member being fixed to the body so that said compensation opening is located closely adjacent a portion of said seal means in order to minimize compensation fluid loss and associated brake pedal travel.

9. A method for externally adjusting the secondary compensation of a master cylinder, comprising the steps of:

(a) disposing a primary and a secondary piston within a stepped bore of a master cylinder, the secondary piston including sealing means thereabout and resilient means connected therewith,

(b) inserting an end member into an open end of a body of said master cylinder, the end member having a longitudinal portion with a seal member thereabout engaging the bore, at least one compensation opening and one outlet opening in the longitudinal portion and an interior opening therein receiving said second piston and resilient means,

(c) connecting a member with said primary piston in order to position said primary piston and said secondary piston to preferred locations within the bore,

(d) transmitting a medium to an outlet port of said master cylinder so that said medium flows to the bore and through said outlet opening of the longitudinal portion, interior opening, compensation opening, back into the bore and through a communication hole with said reservoir,

(e) advancing said end member in the bore until said compensation opening is closed by said sealing means,

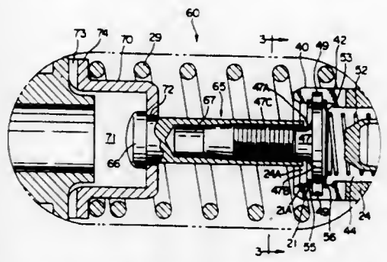
(f) retracting said end member by a predetermined amount equal to the diameter of the compensation opening such that communication between the interior opening and the reservoir via the compensation opening and communication hole is re-established, and

(g) positioning fixedly the end member relative to the body of the master cylinder.

5,207,062
CENTER VALVE MASTER CYLINDER WITH ADJUSTABLE CAGED PRIMARY SPRING

Robert K. Wilson, and Donald A. Crumb, both of Granger, Ind., assignors to Allied-Signal Inc., Morristown, N.J.

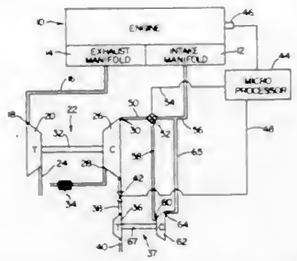
Filed Jul. 28, 1992, Ser. No. 920,965
Int. Cl.[5] B60T *11/20;* F15B *7/08*
U.S. Cl. 60—562 10 Claims



1. A tandem master cylinder, comprising a housing having therein an axial bore, first and second pistons located within the bore and defining therewith respective first and second pressure chambers, each piston including a head part having a valve member located within a through opening of the head part, and a diametral opening, a pair of axially spaced-apart pins extending into said bore and received within the diametral openings of the respective first and second pistons, each valve member engaging a respective pin in a rest position of the respective piston so that the valve member is open and permits fluid flow through the respective through opening, a first spring extending between the head part of the first piston and a rear portion of said second piston, and a second spring extending between the head part of the second piston and end of said bore, the improvement comprising the first spring being maintained by a caging mechanism which controls the extension of the first spring such that the location of the second piston in an at-rest position is accurately controlled, the caging mechanism comprising the head part of the first piston having a pair of longitudinal extensions defining diametrically opposed circumferential slots communicating with a central opening located between the longitudinal extensions, the extensions having shoulders adjacent the central opening, an end part having a radially extending end with at least a pair of radially extending tang members extending therefrom, the tang members received within the respective slots and the radially extending end received within the central opening such that the end part is non-rotatably coupled with the head part of the first piston, radially extendable resilient means located within the central opening and located between the radially extending part and the shoulders of the longitudinal extensions to capture said end part within the central opening, the end part coupled with a longitudinally adjustable member having a radially enlarged member, and a cage end member seated at a rear portion of said second piston and including an end opening communicating with an interior opening such that the radially enlarged member extends through the end opening and is received within the interior opening thereof, the radially enlarged member engaging said cage end member, the first spring being captured between the cage end member and the head part of the first piston, such that longitudinal adjustment of the longitudinally adjustable member relative to the end part adjusts the extension of said first spring and determines the at-rest position of the second piston.

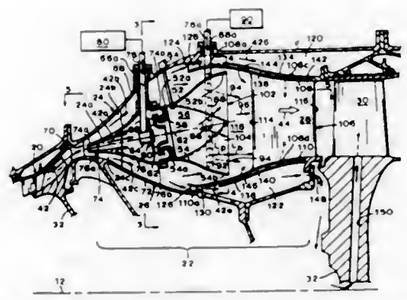
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5,207,063
TURBOCHARGER SYSTEM FOR INTERNAL COMBUSTION ENGINE AND METHOD OF OPERATION
James E. Blake, Rancho Palos Verdes, Calif., assignor to Allied-Signal Inc., Morristown, N.J.
Filed Oct. 21, 1991, Ser. No. 780,679
Int. Cl.[5] F02B 37/00
U.S. Cl. 60—612 19 Claims



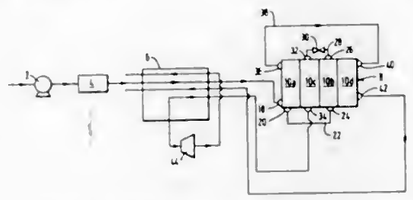
1. Method of providing charge air to the intake manifold of an internal combustion engine, comprising the steps of using exhaust gasses produced by said engine to operate a main turbocharger to compress air passed through the main turbocharger to generate compressed air, determining when a low exhaust gas flow condition of said engine exists, and using a portion of the compressed air generated by said main turbocharger during said low exhaust gas flow condition to power an auxiliary turbocharger, and using said auxiliary turbocharger to boost the pressure of the charge air delivered to said intake manifold under such low exhaust gas flow conditions.

5,207,064
STAGED, MIXED COMBUSTOR ASSEMBLY HAVING LOW EMISSIONS
John J. Ciokajlo, Cincinnati, and Willard J. Dodds, West Chester, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio
Filed Nov. 21, 1990, Ser. No. 617,236
Int. Cl.[5] F02C 3/00; F23R 3/20, 3/34
U.S. Cl. 60—737 28 Claims



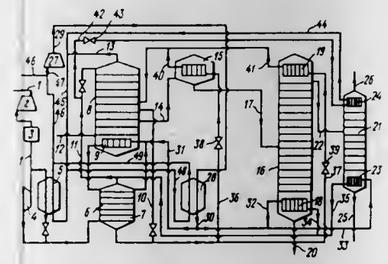
1. A combustion assembly for receiving compressed airflow from a compressor in a gas turbine engine, said assembly including a combustor comprising:
an outer pilot liner having an upstream end and a downstream end and including a serpentine circumference having spaced peaks and valleys;
an inner pilot liner having an upstream end and a downstream end and including a serpentine circumference having peaks and valleys, said inner pilot liner being spaced from said outer pilot liner to define a pilot combustion zone;
said outer and inner pilot liner downstream ends defining a mixer outlet wherein said outlet pilot liner valleys are radially aligned with an disposed adjacent to respective ones of said inner pilot liner peaks;
an annular dome joining together said inner and outer pilot liner upstream ends;
a plurality of carburetors joined to said dome and circumferentially spaced from each other for providing a pilot fuel/air mixture into said pilot combustion zone for generating pilot combustion gases;
each of said outer and inner pilot liners being in the form of a lobed mixer having outer and inner cold chutes, respectively, in flow communication with a main airflow portion of said compressed airflow, and outer and inner hot chutes, respectively, defining said pilot combustion zone for channeling said pilot combustion gases;
a plurality of circumferentially spaced fuel spraybars disposed downstream from said carburetors, each aligned radially with said cold chutes for selectively injecting main fuel into said main airflow for providing a main fuel/air mixture ignitable by said pilot combustion gases for generating main combustion gases, said main fuel/air mixture being mixable with said pilot combustion gases downstream of said mixer outlet for forming mixed combustion gases;
fuel control means for controlling pilot fuel channeled through said carburetors and said main fuel channeled through said fuel spraybars, said fuel control means being effective for channeling said main fuel to said fuel spraybars for generating a lean main fuel/air mixture; and
a turbine nozzle having:
a plurality of nozzle vanes extending radially between outer and inner bands, and being circumferentially spaced apart to define nozzle flow channels;
an annular inlet defined at leading edges of said vanes and disposed in flow communication with said pilot and main combustion gases;
an annular outlet defined at trailing edges of said vanes; and
said flow channels being converging in a downstream direction for quenching said pilot and main combustion gases channeled therethrough.

5,207,065
SEPARATION OF GAS MIXTURES
John T. Lavin, Guildford, and Thomas Rathbone, Farnham, both of England, assignors to The BOC Group, Inc., Windlesham, England
Filed Sep. 30, 1991, Ser. No. 768,138
Claims priority, application United Kingdom, Oct. 2, 1990, 9021435
Int. Cl.[5] F25J 3/00
U.S. Cl. 62—11 9 Claims



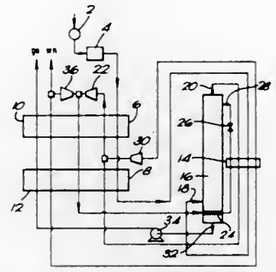
1. A method of separating air by dephlegmation comprising: rectifying the air in a first set of heat exchange passages through which vapour flows from bottom to top to thereby form oxygen-enriched liquid and nitrogen gas therein: simultaneously passing a heat exchange fluid through a second set of heat exchange passages and heat exchanging the air with the stream of heat exchange fluid in a direction countercurrent to that of the flow of said vapor so as to condense some of the gas mixture and thereby create a reflux flow for the rectification of the air; forming said stream of heat exchange fluid by taking a stream of said oxygen-enriched liquid from the bottom of the first set of passages and subcooling the stream of the oxygen-enriched liquid by passing it in a direction cocurrent with that of the flow of said vapour through a third set of heat exchange passages in heat exchange relationship with the second set; and withdrawing a stream of the nitrogen gas from the top of the first set of passages.

5,207,066
METHOD OF AIR SEPARATION
Vitaly I. Bova, ulitsa Frunze, 26, kv. 52; Ilya V. Gorenshtein, ulitsa Lenina, 48, kv. 14; Boris E. Kitsis, ulitsa Budennogo, 1, kv. 21; Anatoly E. Poberez-Kin, ulitsa Yaroslavskogo, 45, kv. 73, all of Odessa, and Evgeny V. Novikov, ulitsa Mogilevskaya, 6, kv. 78, Minsk, all of U.S.S.R.
Filed May 17, 1991, Ser. No. 701,806
Int. Cl.[5] F25J 3/04
U.S. Cl. 62—22 10 Claims



1. A method of air separation by low-temperature rectification comprising the following steps:
compressing said air;
purifying said compressed air;
cooling said purified air;
separating not less than 70% by volume of said cooled air in a high-pressure column of a double rectifier into liquid air enriched with oxygen, and liquid nitrogen;
separating at least one part of said liquid air enriched with oxygen and at least one part of said liquid nitrogen in a low-pressure column of said double rectifier into oxygen, nitrogen gas and a gaseous argon fraction containing not more than 0.5% by volume of nitrogen;
liquefying said gaseous argon fraction;
separating said liquid argon fraction in a rectifying column into at least one argon-nitrogen fraction and a liquid fraction of high-boiling components under a pressure exceeding a condensing pressure of said argon-nitrogen fraction by a value of from 0.01 to 0.06 MPa;
compressing cooling and separating a part of said nitrogen gas taken from said low-pressure column into a first flow and a second flow;
sending the first of said nitrogen gas flows into said high-pressure column;
feeding the second of said nitrogen gas flows in an amount not more than 40% of the volume of the air being processed into an evaporator of said rectifying column to deliver heat and forming a liquid nitrogen flow;
evaporating said liquid nitrogen flow to form a nitrogen gas flow;
heating said nitrogen gas flow and compressing it.

5,207,067
AIR SEPARATION
Divyanshu R. Acharya, Chiddingfold, England, assignor to The BOC Group plc, Windlesham, England
Filed Jan. 10, 1992, Ser. No. 819,045
Claims priority, application United Kingdom, Jan. 15, 1991, 9100814
Int. Cl.[5] F25J 3/02
U.S. Cl. 62—24 7 Claims



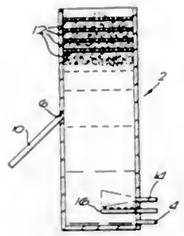
1. A method of separating air including: compressing and purifying the air; cooling the air within a main heat exchanger to reduce its temperature to a level suitable for its separation by rectification; separating the air into oxygen and nitrogen fractions by introducing the air into a rectification column comprising a single stage; taking a stream of liquid oxygen from the oxygen fraction and a stream of nitrogen vapor from the nitrogen fraction; warming the stream of nitrogen vapor within the main heat exchanger in countercurrent heat exchange with the air being cooled; dividing the stream of the nitrogen vapor into first and second subsidiary streams, withdrawing the first subsidiary stream from the main heat exchanger intermediate its cold and warm ends, and withdrawing the second subsidiary stream from the warm end of the main heat exchanger; expanding the first subsidiary stream with the performance of external work and countercurrently heat exchanging it within the main heat exchanger with the air passing to the rectification column; compressing the second subsidiary stream and then, pressurizing the liquid oxygen stream and raising its temperature by countercurrent heat exchange with the second subsidiary stream and the air being cooled within the main heat exchanger; condensing the second subsidiary stream to form a liquid nitrogen stream; sub-cooling the liquid nitrogen stream in a heat exchanger by heat exchange with at least part of the air, after compression, purification and cooling of the air; providing cooling for the heat exchanger with the first subsidiary stream; and introducing the liquid nitrogen stream, after having been sub-cooled, into the rectification column as reflux.

5,207,068
COOLING LIQUIDS
Terence E. Bridden, Sheffield, England, assignor to The BOC Group plc, Windlesham, England
Filed Oct. 11, 1990, Ser. No. 596,123
Claims priority, application United Kingdom, Oct. 16, 1989, 8923261
Int. Cl.[5] F25B 19/00
U.S. Cl. 62—51.1 13 Claims

1. Apparatus for cooling a liquid comprising a vessel for the liquid with means for liquid entry and exit having a first inlet for liquid cryogen in a lower region of the vessel whereby in use a violently turbulent mixture of liquid and vaporised cryogen is created, a second inlet for introducing pressurised gas into the liquid beneath the first inlet, whereby in use to create

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agitation of the liquid where the cryogen enters the liquid, means in an upper region of the vessel for damping the turbu-

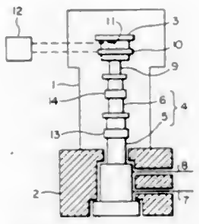


lence and disengaging vaporised cryogen from the liquid, and an outlet for the disengaged vaporised cryogen.

5,207,069
CRYOSTAT VACUUM CHAMBER

Koichiro Matsuda; Toshiya Itoh, both of Kyoto; Shoichiro Togitani, Kusatsu, and Etsuji Kawaguchi, Otsu, all of Japan, assignors to Horiba, Ltd., Kyoto and Iwatani International Corp., Osaka, both of Japan

Filed Aug. 8, 1991, Ser. No. 742,389
Claims priority, application Japan, Aug. 14, 1990, 2-215298
Int. Cl.[5] B01D *8/00*
U.S. Cl. 62—55.5 1 Claim



1. A method to avoid dewing during pressurization of a vacuum chamber having a sample table, at least one refrigeration stage supporting the table, and heaters for controlling temperature of the stage or table, each stage or table having its own respective heater, the method comprising the steps of:

selecting an appointed temperature at which the vacuum chamber may be opened without dewing being caused on the stages and table;

heating the table to the appointed temperature;

heating each stage to the appointed temperature;

making the heating of each stage and the table coincide with a predetermined speed of heating; and

opening the vacuum chamber only after the table and each stage has reached the appointed temperature.

5,207,070
AIR CONDITIONER

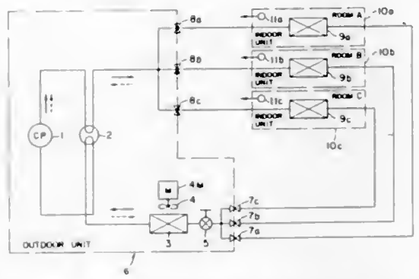
Koichi Miyazaki, Shizuoka, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 27, 1991, Ser. No. 722,225
Claims priority, application Japan, Jun. 28, 1990, 2-170689
Int. Cl.[5] F25B *13/00*
U.S. Cl. 62—160 8 Claims

1. An air conditioner having at least two indoor units and a single outdoor unit commonly used by at least two indoor units, said air conditioner comprising:

first means for comparing operation commands sent from said at least two indoor units with a predetermined operation priority order, determining an indoor unit group allowed to be operated, and an indoor unit group not allowed to be operated, and sending an operation permission signal to each indoor unit of said indoor unit group allowed to be operated, and an operation standby signal to each indoor unit of said indoor unit group not allowed to be operated;

second means for determining a new indoor unit allowed to be operated within an indoor group having received said operation standby signal by referring to said operation priority order, in the case when said operation command of at least one indoor unit of said indoor unit group having



received said operation permission signal sent from said first means is canceled, and sending a notice signal to said new indoor unit, said notice signal being used for confirming of the initial operation command of said new indoor unit is still effective or not;

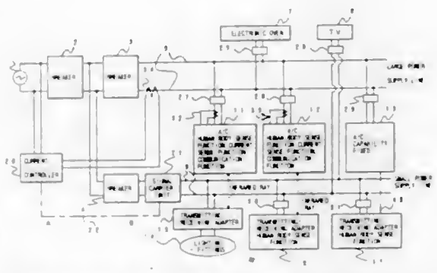
third means for detecting a response signal sent from said new indoor unit after sending said notice signal from said second means; and

fourth means for starting an operation of said new indoor unit when said response signal sent from said new indoor unit is detected by said third means.

5,207,071
CURRENT CONTROL APPARATUS FOR AIR-CONDITIONING SYSTEM

Masao Ozu; Harunobu Nukushina; Michika Uesugi; Atsuyuki Hiruma; Kazuo Mochizuki; Toru Kubo; Masao Isshiki; Oserujouin Watabiki, all of Fuji; Hiroyuki Ota, Numazu, and Kazuhito Ono, Fuji, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 24, 1992, Ser. No. 872,972
Claims priority, application Japan, Apr. 26, 1991, 3-96571; Jun. 28, 1991, 3-158990
Int. Cl.[5] F25B *1/00*
U.S. Cl. 62—175 9 Claims



1. A current control apparatus for an air-conditioning system in which a plurality of large capacity electric loads including at least two air-conditioners of the capability adjustable type are connected to a first power supply line, currents flowing in the air-conditioners being held down to individual current limit values, respectively, an overall or total current of a plurality of electric loads being held down to a value less than a predetermined overall or total current limit value,

said current control apparatus comprising:

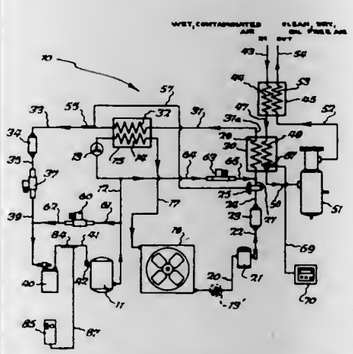
a first controller adapted for comparing a detected value of said overall current with said overall current limit value to calculate, when the former is smaller than the latter, a distribution value for distributing, to an air-conditioner being operated, a current margin taken as a difference between the detected value of said overall current and said overall current limit value; and

second controllers provided for every respective air-conditioners, and adapted to control a current flowing in a corresponding air-conditioner so that it is not above individual current limit value, and to carry out incremental correction of the individual current limit value in accordance with a distribution value calculated by said first controller.

5,207,072
UNLOADING STRUCTURE FOR COMPRESSOR OF REFRIGERATION SYSTEM

Raymond P. Arno, Amherst, and Scott C. Carnes, Buffalo, both of N.Y., assignors to Rayco Enterprises, Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 552,309, Feb. 6, 1991, abandoned, which is a continuation-in-part of Ser. No. 490,340, Mar. 8, 1990, abandoned. This application Sep. 27, 1991, Ser. No. 767,237
Int. Cl.[5] F25B *41/00*
U.S. Cl. 62—196.3 22 Claims

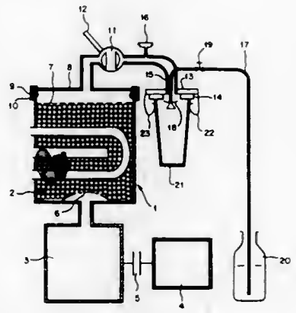


1. A refrigeration system comprising a compressor having a compressor outlet and an inlet, a condenser, first conduit means coupling said compressor outlet to said condenser, an evaporator, second conduit means coupling said condenser to said evaporator, refrigerant expansion means in said second conduit means, third conduit means coupling said evaporator to said inlet of said compressor, refrigerant and oil circulated through said system by said compressor, and unloading means for unloading said compressor without overheating while permitting it to continue running, said unloading means comprising fourth conduit means coupled between said first conduit means and said compressor inlet for passing hot gas from said compressor back to said compressor inlet, cooling means for cooling said hot gas in said fourth conduit means to thereby cool said hot gas passing into said compressor inlet from said fourth conduit means, and control means for selectively effecting passage of gases from said compressor through said fourth conduit means in response to the necessity for unloading said compressor to cause said refrigeration system to stop producing refrigeration, said cooling means comprising means for placing said hot gas in said fourth conduit means in heat exchange relationship with liquid refrigerant which also flows through said evaporator.

5,207,073
ICE MAKING SYSTEM AND METHOD UTILIZING THE SORPTION PRINCIPLE

Peter Maier-Laxhuber, and Reiner Engelhardt, both of Munich, Fed. Rep. of Germany, assignors to Zeo-Tech (Zeolith-Technologie GmbH, Munich, Fed. Rep. of Germany

Filed Feb. 1, 1991, Ser. No. 649,441
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1990, 4003107
Int. Cl.[5] F25B *19/00*
U.S. Cl. 62—269 15 Claims



1. An ice maker comprising:

an air tight sorption container enclosing sorption medium and having a suction opening,

a vacuum pump coupled to the sorption container and communicating with the interior thereof to a permit decrease of the vapor pressure in the sorption container,

an icing container separably coupled to the sorption container through the suction opening to provide a conduit for fluid flow between the icing container and the sorption container, and

a baffle being in communication with fluid contained within the icing container so as to prevent a flow of liquid from the icing container to the sorption medium.

5,207,074
REFRIGERANT COIL APPARATUS AND ASSOCIATED CONDENSATE DRAIN PAN STRUCTURE

Jimmy L. Cox, Greenwood; John B. Greenfield, and Kendall L. Ross, both of Fort Smith, all of Ark., assignors to Rheem Manufacturing Company, New York, N.Y.

Continuation-in-part of Ser. No. 638,825, Jan. 8, 1991, Pat. No. 5,121,613. This application Apr. 3, 1992, Ser. No. 863,438
Int. Cl.[5] F25D *21/14*
U.S. Cl. 62—285 26 Claims

1. An indoor air conditioning unit for receiving air from a conditioned indoor space, altering the temperature of the received air, and then discharging the air for return to the conditioned indoor space, said air conditioning unit comprising:

housing means having an inlet opening and an outlet opening, said housing means being operative to receive a throughflow of air from said inlet opening to said outlet opening;

blower means for flowing air through said housing from said inlet opening to said outlet opening;

a modular refrigerant coil assembly positioned in said housing means in the path of air flow therethrough between said inlet opening and said outlet opening, said modular refrigerant coil assembly comprising at least three substantially identically sized flat coil modules positioned in an accordion-pleated array having an inlet side collectively

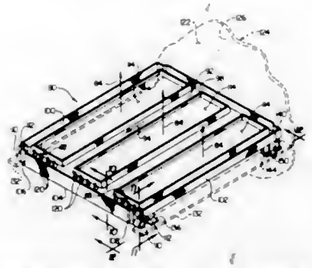
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defined by side surfaces of said at least three refrigerant coil modules, each of said at least three coil modules being defined by:

a single row of parallel, laterally spaced apart refrigerant heat exchange tubes serially interconnected to form a single refrigerant circuit in the coil module, said single refrigerant circuit having an inlet end for receiving refrigerant from a source thereof and an outlet end for discharging the received refrigerant, and

a longitudinally spaced series of heat exchange fins transversely connected to said heat exchange tubes, the fin spacing on the coil module being within the range of from about 16 fins/inch to about 22 fins/inch,

said blower means and said refrigerant coil being relatively sized in a manner such that, during operation of said



blower means, the face velocity of air flowing across said refrigerant coil is within the approximate range of from about 100 feet/minute to about 200 feet/minute, and the total air pressure drop across said refrigerant coil assembly is approximately 0.1" of less;

a drain pan structure positioned beneath said modular refrigerant coil to receive condensate dripping therefrom during cooling operation thereof;

first cooperating means formed on said modular refrigerant coil assembly and said drain pan structure for releasably securing said drain pan structure to the underside of said modular refrigerant coil assembly; and

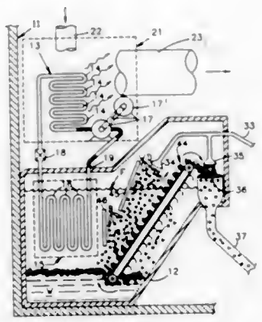
second cooperating means formed on said drain pan structure and said housing means for releasably securing said drain pan structure to said housing means.

5,207,075

METHOD AND MEANS FOR PRODUCING IMPROVED HEAT PUMP SYSTEM

Robert W. Gundlach, 2434 Turk Hill Rd., Victor, N.Y. 14564

Filed Sep. 19, 1991, Ser. No. 762,488
Int. Cl.[5] E03B *7/12*
U.S. Cl. 62—434 21 Claims



1. In the heat pump system having a compressor, a condenser, an expansion valve, and an evaporator operable to extract heat from a combined ice and cold water reservoir, the improvement comprising

a vessel containing a water immiscible fluid,

means for supporting said evaporator in said water immiscible fluid,

means for delivering droplets of water to said fluid in said vessel from said combined ice and cold water reservoir, said evaporator being operative upon operation thereof to cause said droplets to turn to beads of ice in said fluid,

means for separating said beads of ice from said fluid in said vessel and for conveying the separated beads of ice back to said reservoir, and

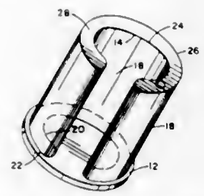
means for recirculating cold water form said reservoir through a natural heat source to be warmed thereby, and to return the warmed water back to said reservoir thereby continuously to melt at least part of the ice in said reservoir.

5,207,076

PITCHER COOLER

Gerald Sciarrillo, 2616 Aein Rd., Orlando, Fla. 32767

Filed Apr. 30, 1992, Ser. No. 876,038
Int. Cl.[5] F25D *3/08*
U.S. Cl. 62—457.4 6 Claims



1. Apparatus for cooling liquid held in a vessel having an externally extending handle, the apparatus comprising a double-walled container having an inner wall and an outer wall radially spaced apart, said inner wall and outer wall being sealingly attached to a generally flat base member, each of said inner and outer walls extending generally arcuately about said base member and defining a slot extending substantially perpendicularly from said base member, ends of said inner wall being sealingly connected to ends of said outer wall adjacent said slot and edges of said inner and outer walls distal from said base member being sealingly attached one to the other for defining a closed space between said inner and outer walls, a refrigerant coolant disposed in said closed space for maintaining said container at a predeterminately cool temperature for a determinable time interval, the vessel being removably positionable in said container with the handle extending through said slot.

5,207,077

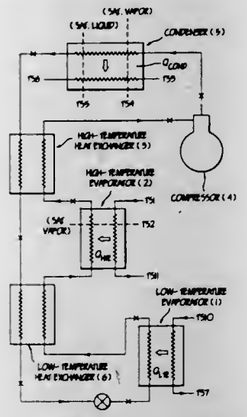
REFRIGERATION SYSTEM

Reinhard Radermacher, Silver Spring, and Dongsoo Jung, Ellicott City, both of Md., assignors to The University of Maryland, College Park, Md.

Filed Mar. 6, 1992, Ser. No. 846,917
Int. Cl.[5] F25B *1/00*
U.S. Cl. 62—502 4 Claims

1. In a refrigeration system comprising two evaporators, a heat exchanger, a compressor and a condenser all in fluid communication through which a working fluid is circulated, the improvement being wherein said working fluid consists

essentially of a mixture of environmentally safe working fluids, said mixture being selected from the group consisting of propa-



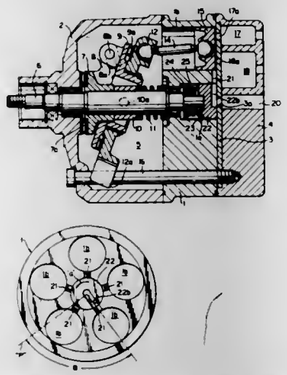
ne/R141b, propane/R123, R32/R152a/R141b, R32/R152a/R123, R32/R134a/R141b and R32/R134a/R123.

5,207,078

RECIPROCATORY PISTON TYPE COMPRESSOR FOR A REFRIGERATION SYSTEM

Kazuya Kimura, and Hiroaki Kayukawa, both of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki, Aichi, Japan

Filed Aug. 27, 1992, Ser. No. 936,616
Claims priority, application Japan, Sep. 2, 1991, 3-221820
Int. Cl.[5] F04B *1/14*
U.S. Cl. 62—509 4 Claims



1. A reciprocatory piston type refrigerant compressor to be incorporated in a refrigeration system provided with a condenser condensing a refrigerant, a first pressure reducer reducing a pressure level of the refrigerant condensed by the condenser, a liquid-gas divider diving the refrigerant depressurized by the first pressure reducer into a liquid refrigerant and a refrigerant gas, a second pressure reducer reducing a pressure level of the liquid refrigerant supplied from the liquid-gas divider, an evaporator for evaporating the refrigerant gas depressurized liquid refrigerant, and a refrigerant conduit line for supplying the refrigerant gas from the liquid-gas divider toward the compressor, comprising:

an axially extended cylinder block having a central axis thereof, a central bore extended coaxial with the central axis, and a plurality of axial cylinder bores arranged around the central axis parallel with the central axis of the cylinder block; each axial cylinder bore having first and second opposite ends thereof;

front and rear housings air-tightly connected to opposite axial ends of said axially extended cylinder block for defining a suction chamber for the refrigerant before compression, and a discharge chamber for the refrigerant after compression;

a rotatable drive shaft having axial ends thereof rotatably supported by bearings seated in said front housing and said central bore of said cylinder block;

a plurality of reciprocatory pistons fitted in said plurality of axial cylinder bores of said axially extended cylinder block; each piston being slid from the first to second end of one of said plurality of cylinder bores for drawing the refrigerant before compression, and from the second to first end of the same cylinder bore for compressing the drawn refrigerant gas;

a swash plate-operated piston drive mechanism arranged around the drive shaft so as to be cooperative with the drive shaft for reciprocating said plurality of reciprocatory pistons in said plurality of cylinder bores when said drive shaft is rotated;

first means for providing a constant refrigerant conduit introducing the refrigerant gas supplied from said liquid-gas divider of said refrigeration system into a definite part of said central bore of said cylinder block; and

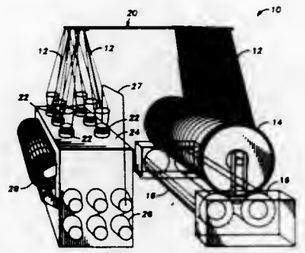
second means for successively creating a radial fluid communication passageway means between said definite part of said central bore of said cylinder block and each of said plurality of cylinder bores at a portion adjacent to the first end thereof in response to the rotation of said drive shaft; said radial fluid communication passageway means permitting an injection of the refrigerant gas from the definite part of the central bore into said portion of each cylinder bore adjacent to the first end thereof when said piston is at a compression stroke thereof.

5,207,079

HIGH SPEED YARN KNITTING APPARATUS

Donald I. Viney, Ripon, United Kingdom, assignor to Scobie & Junor Ltd., Glascow, Scotland

PCT No. PCT/GB88/01147, § 371 Date Aug. 24, 1990, § 102(e) Date Aug. 24, 1990, PCT Pub. No. WO89/05879, PCT Pub. Date Jun. 29, 1989
PCT Filed Dec. 23, 1988, Ser. No. 536,675
Claims priority, application United Kingdom, Dec. 23, 1987, 8729992
Int. Cl.[5] D04B *25/02*
U.S. Cl. 66—9 R 23 Claims



1. A knitting head for use with a knitting machine, said knitting head comprising:

a fixed hollow cylinder wall having an inside and an outside and with a plurality of circumferentially spaced grooves disposed in said wall, each groove having a needle with a hook at an upper end disposed therein,

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said hollow cylinder being disposed in a cam box having rotary cam means coupled to each needle so that rotation of said rotary cam means causes displacement of each needle along a respective one of said grooves,

stationary warp yarn delivery means disposed above said hollow cylinder for feeding a warp yarn from a remote location to each respective needle,

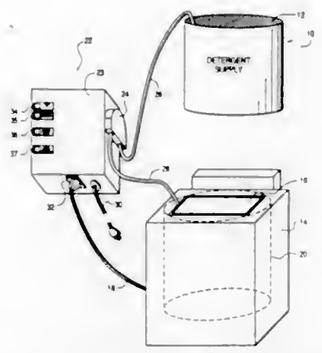
rotatable weft yarn delivery means disposed between said hollow cylinder and said stationary warp yarn delivery means and including a weft yarn guide extending from the inside of the cylinder wall to the outside of the wall for delivering a weft yarn from the inside to the outside of said cylinder wall to lay the weft yarn externally of each needle, said rotary cam means and said rotatable weft yarn delivery means being rotated in synchronization whereby, in use, upon rotation of said rotary cam means and said rotatable weft yarn delivery means displacement of said needles causes chain stitches to be made which are fed inside said cylinder, and said rotatable weft yarn delivery means delivers said weft yarn outside said needles as said needles rise and the tension in said weft yarn pulls the weft yarn over the top of the needle when the needle descends to trap the weft yarn in a subsequent stitch which falls behind the needle as the stitch is made.

5,207,080

AUTOMATIC DISPENSING APPARATUS

Roger A. Reinhard, Greensboro, N.C., assignor to Kay Chemical Company, Greensboro, N.C.

Filed Feb. 19, 1992, Ser. No. 836,831
Int. Cl.[5] D06F *39/02*
U.S. Cl. 68—12.18 **30 Claims**



1. An apparatus for automatically dispensing an additive into a machine, comprising:

means for conveying the additive to the machine;

means for detecting when a predetermined amount of electrical current is drawn by the machine and for transmitting a signal, in response to the detection of the predetermined amount of electrical current, indicating that the conveying means should commence conveyance of the additive;

means for delaying commencement of the conveyance of the additive; and

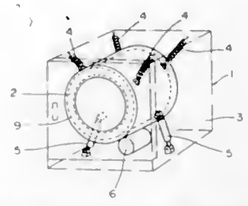
means for controlling the amount of additive that is conveyed by the conveying means to the machine.

5,207,081

VIBRATION DAMPER ASSEMBLY

Tomeo Fuse, Shizuoka, Japan, assignor to Kabushiki Kaisha Showa Seisakusho, Tokyo, Japan

Filed Nov. 19, 1991, Ser. No. 794,481
Claims priority, application Japan, Nov. 19, 1990, 2-121080[U]
Int. Cl.[5] D06F *37/22*
U.S. Cl. 68—23.1 **12 Claims**



1. A damper assembly for use between a frame and a container suspended in the frame and housing a rotatable drum as a source of vibration, said damper assembly comprising:

a cylinder adapted to be supported by either one of the frame and the container, said cylinder being filled with working oil;

a piston slidably disposed in said cylinder;

damping force generating means on said piston, for generating damping forces against vibration transmitted from the container;

a piston rod having an end coupled to said piston and an opposite end extending out of said cylinder and supported by the other of the frame and the container;

vibration transmission cutoff means activatable for disabling said damping force generating means to substantially cut off the transmission of vibration between the container and the frame;

detecting means for detecting the magnitude of the vibration of the container; and

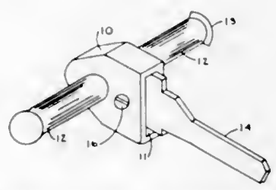
selective actuator means connected to said detecting means, for selectively activating and inactivating said vibration transmission cutoff means depending on the detected magnitude of the vibration of the container.

5,207,082

KEY HOLDING DEVICE

Thomas H. LeMaitre, 259 Butterworth La., Langhorne, Pa. 19047

Filed Apr. 8, 1992, Ser. No. 865,255
Int. Cl.[5] E05B *19/00*
U.S. Cl. 70—408 **8 Claims**



5. A key holder for holding a lock operating key having an attachment hole in the bow thereof, said holder comprising:

a body having a rectangular key receiving opening therein, said opening having its longer dimension substantially vertical in the operating position;

key retaining means within said opening for retaining said key in the holder;

key clamping means within said opening for securing said key in contact with said retaining means; and

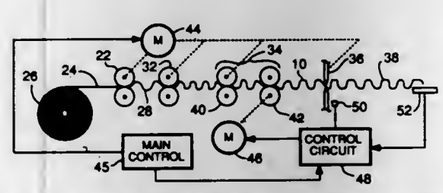
an elongated handle attached to said body, wherein said handle is slidably attached to said body in a handle mounting hole extending transversely through said body for free movement of said handle along its length, the long dimension of said handle being substantially transverse to the long dimension of said opening.

5,207,083

METHOD OF CONTROLLING THE LENGTH OF CORRUGATED FINS

Michael F. Bongiovanni, Amherst, and Samuel Cicatello, East Amherst, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 6, 1991, Ser. No. 802,962
Int. Cl.[5] B21D *13/04*
U.S. Cl. 72—9 **3 Claims**



1. A method of using a machine for forming corrugated ribbon parts from sheet stock, said machine having forming rolls for corrugating the sheet stock, stuffing rolls for compressing the corrugated ribbon to a pitch smaller than the desired product pitch, metering rolls for feeding the compressed ribbon followed by pullout rolls driven by a servomotor for stretching the ribbon out to a desired nominal pitch, and cutter means following the pullout rolls for severing the ribbon into discrete parts; the method of accurately controlling the part length to a target length comprising the steps of:

operating the servomotor to drive the pullout rolls in phase with the metering rolls to maintain the desired nominal pitch;

measuring with high resolution the length of the most recently cut part;

comparing the measured part length to the target part length to determine the amount of any error;

determining from the error amount of the servomotor adjustment required to attain the target part length by multiplying the amount of error by a proportional gain constant to create a servomotor adjustment that is at least in part proportional to the error amount and which can correct said error without overshoot to create an opposite error; and

correcting the error for subsequent parts by momentarily changing the servomotor speed according to the said motor adjustment to effect a phase change between the pullout rolls and the metering rolls.

5,207,084

SEVERING CONTINUOUS-LENGTH WIRE

H. William West, and Millard F. Vannoy, Jr., both of Cambridge, Md., assignors to Shanley and Baker, Washington, D.C.

Continuation of Ser. No. 529,147, May 25, 1990, abandoned.
This application Sep. 18, 1991, Ser. No. 762,542
Int. Cl.[5] B21G *3/16, 3/22*
U.S. Cl. 72—325 **8 Claims**

1. Method for severing continuous-length metal wire into segments of predetermined length while die-coining a pair of longitudinally-convex tapered configuration ends contiguous to the location at which severing occurs, comprising

supplying metal wire in continuous-length form, such wire having a leading longitudinal end and a central longitudinal axis;

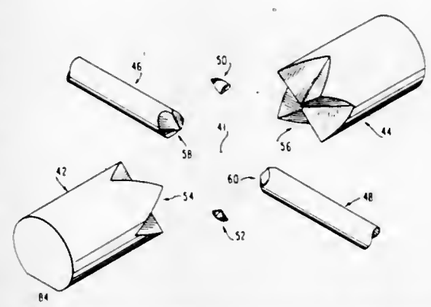
delivering such wire to move substantially in the direction of its central longitudinal axis;

measuring a predetermined length from the leading longitudinal end of such continuous-length wire for segmenting by simultaneously severing and die-coining metal at such measured length;

providing a pair of elongated tooling dies having a longitudinally extending central axis and peripheral outer surface with a working end located at one longitudinal end of each respective elongated tooling die,

each working end presenting four severing edges which are coplanar at the distal edge of the working end and separated by die-coining regions in the tooling which recess from such distal edges in the longitudinal direction of the elongated die with each severing edge being offset with respect to each other and the location of such central axis in such distal edge,

positioning the pair of tooling dies with the working end for one tooling die of such pair being oriented in confronting relationship to the working end of the remaining tooling die of such pair with severing edges of one die juxtaposed oppositely to corresponding severing edges of the remaining die in mirror-image confronting orientation for coaction of such working ends during relative movement of



such dies toward each other from opposite lateral sides of the metal wire;

orienting the metal wire to move between the confronting working ends of the pair of tooling dies so as to enable severing a metal wire segment with such severing occurring at the location of such measured predetermined length, and

moving the confronting working ends of the pair of tooling dies toward each other from opposite lateral sides of the metal wire,

such movement of the confronting working ends toward each other being in a direction transverse to the central longitudinal axis of the metal wire with severing edges simultaneously severing such wire as metal is coined in such intermediate die-coining regions,

such movement of the confronting working ends toward each other forming a pair of longitudinally contiguous die coined ends each having a substantially-identical longitudinally-convex four-sided tapered configuration on longitudinally opposite sides of the location at which such segment is severed, with

one of the pair of die-coined ends being on the trailing longitudinal end of the severed segment produced, and

the remaining die-coined end of such pair being on the leading longitudinal end of the metal wire for the next segment to be severed.

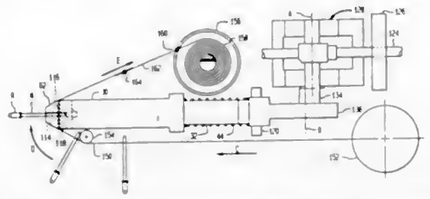
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,085

AUTOMATIC BLIND RIVET SETTING DEVICE

James L. Hopkins, Venice, Fla.; Stuart J. Sandhaus, and Daniel Hanlon, both of Pittsburgh, Pa., assignors to S.A.R.G. Research Associates, Ltd., Venice, Fla.

Continuation of Ser. No. 792,011, Nov. 13, 1991, Pat. No. 5,136,873. This application Mar. 6, 1992, Ser. No. 848,404
The portion of the term of this patent subsequent to Aug. 11, 2009, has been disclaimed.
Int. Cl.[5] B21J *15/26*
U.S. Cl. 72—391.6 2 Claims



1. A blind rivet feed device for an automatic rivet setting tool comprising:

an elongated strip of thin flexible material having a lead end and a plurality of blind rivets connected in spaced apart relation along the length of said flexible strip by having at least the distal portion of each mandrel pierced through and retained within said flexible strip;

said flexible strip slidably feeding through a transverse feed slot formed through a rivet table of the rivet setting tool, the feed slot orthogonally intersecting a longitudinal mandrel receiving slot extending laterally in one direction from a rivet table aperture to an outer surface of the rivet table;

biased means connected to said lead end for pulling said flexible strip through the transverse slot to draw each mandrel of each blind rivet held in said flexible strip and positioned immediately adjacent the rivet table one at a time into the rivet table aperture through the mandrel receiving slot.

5,207,086

PUNCH ANVILS FOR SHEET FASTENING SYSTEMS

Miroslav Kynl, deceased, late of Hamilton, Canada by Olga Kynl, executrix , assignor to BTM Corporation, Marysville, Mich.

Division of Ser. No. 730,357, Jul. 15, 1991, Pat. No. 5,131,258, which is a division of Ser. No. 518,250, May 4, 1990, Pat. No. 5,031,442, which is a continuation of Ser. No. 240,460, Sep. 6, 1988, abandoned, which is a continuation of Ser. No. 862,911, May 14, 1986, abandoned. This application Jun. 9, 1992, Ser. No. 895,808
Claims priority, application Canada, Jun. 3, 1985, 483079
The portion of the term of this patent subsequent to Jul. 16, 2008, has been disclaimed.
Int. Cl.[5] B21D *39/03*
U.S. Cl. 72—465 14 Claims

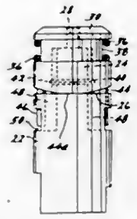
1. An apparatus for use in an operation for joining two or more sheet material items, the apparatus comprising:

punch means;

a die assembly including a number of die members defining an opening therebetween for receiving said punch means for forcibly deforming portions of said sheet material items when said punch means is moved relatively toward said die assembly generally along a longitudinal axis with said sheet material items disposed therebetween, said die members being movable in directions transverse to said longitudinal axis between closed and open positions;

said die assembly further including a body portion having transversely-extending surface portions thereon, said die members being supported on said transversely-extending surface portions of said body portion during said deformation of said sheet material portions, said die members each having a surface extending generally transversely relative to said longitudinal axis, said transversely-extending surfaces of said die members being engageable with said transversely-extending surface portions of said body portion;

anvil means located in said opening, said die members being movable transversely outwardly in response to at least a part of said sheet material portions being deformed transversely outwardly between said punch means and said anvil means, said transversely-extending surfaces of said



die members being non-coplanar with said transversely-extending surface portions of said body during at least a portion of said joining operation;

a generally annular lateral protrusion on one of said body portion and said die members, and a generally annular lateral recess on the other of said body portion and said die members, said annular protrusion being interferingly engageable with said annular recess to longitudinally limit the movement of said die members relative to said body portion; and

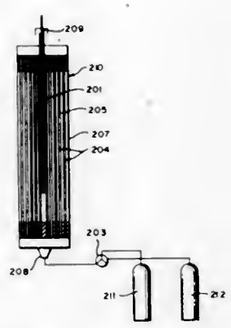
resilient biasing means for resiliently biasing said die members transversely inwardly.

5,207,087

SENSOR CALIBRATOR AND TEST APPARATUS

David J. Costello, Spring, Tex., assignor to Optex Biomedical, Inc., The Woodlands, Tex.

Filed Apr. 17, 1991, Ser. No. 688,463
Int. Cl.[5] G01D *18/00*
U.S. Cl. 73—1 G 3 Claims



1. A test container for a probe of a sensor for sensing chemical concentration of a chemical from a second fluid in a first fluid, the test container comprising

a body member having a cavity therein,

a permeable means disposed in the cavity between the first fluid and the second fluid, the permeable means comprising a plurality of microporous tubes,

an opening in the body through which the probe is insertable into the first fluid,

at least one inlet in the body member through which the second fluid is introducible into the cavity for passing through the permeable means into the first fluid, and

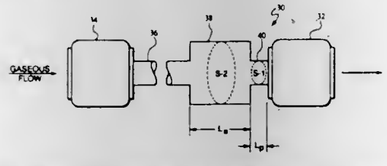
at least one outlet through which a portion of the second fluid which does not pass through the permeable means flows out from the cavity.

5,207,088

EXPANSION CHAMBER METHOD AND APPARATUS FOR ELIMINATING ACCURACY ERRORS WHEN TESTING GASEOUS FLOWMETERS

Paul W. Geery, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Apr. 11, 1991, Ser. No. 685,589
Int. Cl.[5] G01F *25/00*
U.S. Cl. 73—3 32 Claims



1. In a method for testing the metering accuracy of a gaseous flowmeter, the improvement comprising:

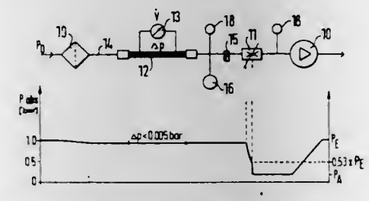
incorporating at least one expansion chamber in a testing configuration in order to eliminate accuracy errors caused by standing waves of sound and wherein the testing configuration includes a meter to be tested, a prover master meter, and a conduit providing fluid communication between said meters, and wherein said at least one expansion chamber comprises at least two expansion chambers, one being located adjacent an outlet of said meter being tested and the other being located near an inlet of said prover master meter.

5,207,089

METHOD FOR MEASURING THE CONTROL CROSS SECTION AREA OF A NOZZLE

Jürgen Abt, Gerlingen; Sybille Stumpf, Markgröningen; Ulrich Kuhn, Renningen-Malmsheim; Werner Banzhaf, Sindelfingen, all of Fed. Rep. of Germany; Gerhard Felten, Summerville, S.C.; Gerold Lemperle, Leinfelden, and Michael Specker, Blaichach, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE89/00733, § 371 Date Jul. 11, 1991, § 102(e) Date Jul. 11, 1991, PCT Pub. No. WO90/08299, PCT Pub. Date Jul. 26, 1990
PCT Filed Nov. 23, 1989, Ser. No. 720,841
Claims priority, application Fed. Rep. of Germany, Jan. 13, 1989, 3900836
Int. Cl.[5] G01B *13/008*
U.S. Cl. 73—37.5 10 Claims



1. A method for measuring a control cross-section area of a nozzle, comprising the steps of providing a pneumatic through-flow of a medium through a nozzle with supercritical pressure ratio of pressures in back and in front of the nozzle; measuring the flow passing through the nozzle as a volume flow (V_E) on an input side of the nozzle; and determining a control cross-section area of the nozzle as follows:

$$A = K' \cdot V_E (1 - 0.0017(\delta_E - 20^\circ\,C.))$$

wherein

K' is a constant variable for the medium and

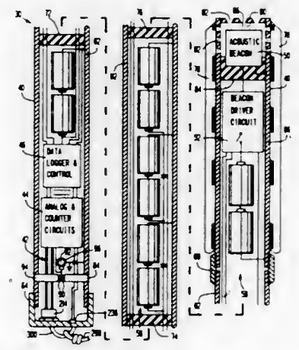
δ_E is the temperature (in °Celsius) of the test medium in front of the nozzle.

5,207,090

PARTICLE SENSOR FOR STREAM BED

John P. Downing, Jr., 260 Kala Heights Dr., Port Townsend, Wash. 98368

Filed Mar. 25, 1991, Ser. No. 674,606
Int. Cl.[5] G01N *15/06, 15/10*
U.S. Cl. 73—61.75 21 Claims



1. A particle sensor comprising:

a hollow sealed housing formed from a vibration-transmitting structural material which is resistant to mechanical failure from particle impingement and detrimental environmental conditions when anchored in a stream to a bed of the stream,

an electro-mechanical transducer contained within the sealed vibration-transmitting housing and mechanically coupled to the housing for converting vibrations of the housing to electrical signals, and

an electronic circuit contained in the sealed vibration-transmitting housing and electrically coupled to the electromechanical transducer for detecting oscillatory events in the electrical signals corresponding to particle impingement.

5,207,091

CONTROL SYSTEM WITH MALFUNCTION DETECTING DEVICE FOR USE IN MOTOR VEHICLE

Hiroshi Shibata, Kariya; Takaaki Baba, Anjo; Kazunobu Morimoto, Aichi, and Masao Ito, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 15, 1991, Ser. No. 669,852
Claims priority, application Japan, Mar. 16, 1990, 2-67795
Int. Cl.[5] G01M *19/00;* H03M *1/10*
U.S. Cl. 73—118.1 9 Claims

1. A control system for use in a motor vehicle comprising:

sensor means for sensing an operating state of said motor vehicle and outputting an analog sensor signal indicative thereof;

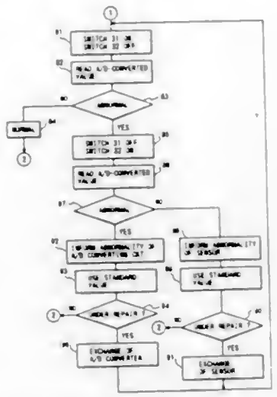
reference voltage generating means for generating a predetermined reference voltage signal;

analog-to-digital converting means for converting an inputted analog signal into a digital signal;

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switching means, connected to said sensor means, said analog-to-digital converting means and said reference voltage generating means, for switching between said analog sensor signal and said predetermined reference voltage signal and supplying said analog-to-digital converting means with one of said analog sensor signal and said predetermined reference voltage signal;

first decision means for deciding whether a first output signal represents an abnormal value, said first output signal being a signal obtained by said analog-to-digital converting means converting said analog sensor signal to a digital sensor signal; and



second decision means for activating said switching means, after said first decision means determines that said first output signal represents said abnormal value, so that said predetermined reference voltage signal is supplied from said reference voltage generating means to said analog-to-digital converting means and for determining whether a second output signal represents said predetermined reference voltage signal, said second output signal being a signal obtained by said analog-to-digital converting means converting said predetermined reference voltage signal to a digital reference voltage signal.

5,207,092

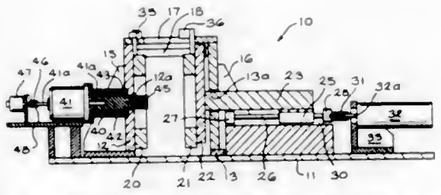
APPARATUS FOR SPIN CHECKING CLUTCH DRIVEN DISC ASSEMBLIES

Frank L. Bruno, Colorado Springs, Colo., assignor to Dana Corporation, Toledo, Ohio

Filed Apr. 10, 1991, Ser. No. 683,280

Int. Cl.[5] G01M *13/02*

U.S. Cl. 73—118.1 **16 Claims**



1. An apparatus for automatically spin checking a driven disc assembly for a clutch comprising:

an enclosure having a stationary ring mounted thereon and a movable ring slidably supported thereon;

means for supporting the drive disc assembly between said rings;

means for moving said movable ring toward said stationary ring so as to frictionally engage the driven disc assembly therebetween;

means responsive to the frictional engagement of the driven disc assembly for measuring a first distance separating said rings;

means for exerting a force to attempt to rotate the driven disc assembly the frictional force generated by said rings;

means for moving said movable ring away from said stationary ring after said first distance has been measured so as to reduce the frictional force exerted on the driven disc assembly;

means responsive to a predetermined amount of rotation of the driven disc assembly as the frictional force exerted thereon is reduced for measuring a second distance separating said rings when such rotation begins; and

means responsive to the difference between said first and second distances for determining if the driven disc assembly is excessively warped.

5,207,093

FAILURE DIAGNOSIS DEVICE FOR AN EGR CONTROL SYSTEM

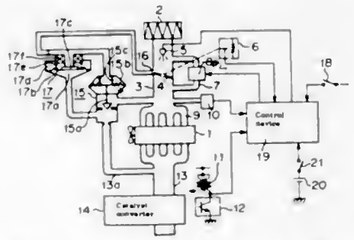
Mie Maeda, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 16, 1992, Ser. No. 821,063

Claims priority, application Japan, Feb. 26, 1991, 3-30608

Int. Cl.[5] G01M *15/00*

U.S. Cl. 73—118.1 **1 Claim**



1. A failure diagnosis device for an EGR control system, said device comprising:

a) an exhaust gas recirculation control means for opening and closing an exhaust gas recirculation pipe which recirculates exhaust gas at an exhaust pipe of an engine to an intake pipe thereof;

b) detecting means for detecting a predetermined running condition of the engine; and

c) control device which inputs values of predetermined parameters signifying the predetermined running condition of the engine at each of a plurality of recurring first predetermined times, said control device;

i) calculating differences between preceding input values and current input values,

ii) accumulating the differences,

iii) determining the exhaust gas recirculation control means to be normal when the accumulated value is equal to or greater than a predetermined value when a second predetermined time has elapsed from when the exhaust gas recirculation pipe is forcibly closed,

iv) enabling the exhaust gas recirculation control means in response to a normal determination,

v) determining the exhaust gas recirculation control means to be abnormal when the accumulated value is below the predetermined value when the second predetermined time has elapsed, and

vi) generating an alarm in response to an abnormal determination.

5,207,094

METHOD AND APPARATUS FOR CONTROLLING THE TEMPERATURE OF A HEATED MEASURING RESISTOR

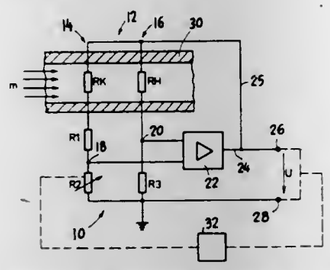
Karl Gmelin, Flein; Hans-Peter Stiefel, Ditzingen, and Wolfgang Ketterer, Ludwigsburg-Neckarweihingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 576,056, Aug. 31, 1990, abandoned. This application Oct. 7, 1991, Ser. No. 772,421

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1989, 3931308

Int. Cl.[5] G01M *15/00*

U.S. Cl. 73—118.2 **7 Claims**



1. An apparatus for measuring the mass flow rate of air entering an internal combustion engine, comprising:

a measuring resistor supported within the engine so that the intake air entering the engine flows over the measuring resistor, the operating temperature of the measuring resistor being adjustably by adjusting the level of electric current flowing therethrough;

means coupled to the measuring resistor for adjusting the operating temperature thereof by adjusting the level of electric current flowing therethrough based on the value of at least one reference variable, wherein changes in the value of the reference variable correspond to changes in the mass flow rate of air entering the engine for adjusting the measurement sensitivity of the apparatus based on the level of the air mass flow rate, wherein the means for adjusting changes the operating temperature of the measuring resistor in response to the value of the reference variable traversing at least one predetermined value, such that if the reference variable falls below the predetermined value, thus indicating a decrease in the mass flow rate, the operating temperature is increased to adjust the measurement sensitivity within a first range of air mass flow rates, and if the reference variable exceeds the predetermined value, thus indicating an increase in the mass flow rate, the operating temperature is decreased to adjust the measurement sensitivity within a second range of air mass flow rates;

the means for adjusting including a bridge circuit, the measuring resistor being coupled to a first arm of the bridge circuit and a temperature-dependent resistor being coupled to a second arm of the bridge circuit, the temperature-dependent resistor being supported within the engine so that the intake air flows over the temperature-dependent resistor, the resistance value of the temperature-dependent resistor thus being dependent on the intake air temperature, the second arm of the bridge circuit further including a rheostat coupled in series with the temperature-dependent resistor, the resistance value of the rheostat being adjustable to regulate the level of electric current flowing therethrough; and

an amplifier, a first input of the amplifier being coupled to the first arm of the bridge circuit and a second input of the amplifier being coupled to the second arm of the bridge circuit, the output of the amplifier being coupled to the measuring resistor and the temperature-dependent resistor to control the level of electric current flowing through the measuring resistor in response to the input from the first arm and second arm of the bridge circuit.

5,207,095

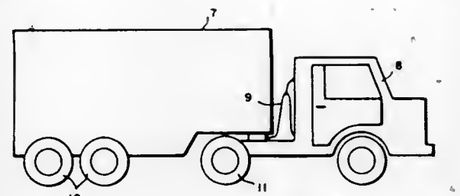
VEHICLE BRAKING TECHNIQUE EVALUATION APPARATUS

Peter R. Teare, Westborough, and William J. Hanson, Bolton, both of Mass., assignors to Liberty Mutual Insurance Company, Boston, Mass.

Filed Oct. 11, 1991, Ser. No. 775,715

Int. Cl.[5] G01M *19/00*

U.S. Cl. 73—121 **11 Claims**



1. Apparatus for measuring and quantifying a driver's performance as a vehicle is being driven over a road, to be used in training a vehicle driver in proper braking techniques, the vehicle having a pressurized fluid braking system and a brake controllable by the vehicle driver for applying a pressure to said fluid for slowing and stopping the vehicle at appropriate locations in the road in response to predetermined road conditions, said training apparatus comprising:

means responsive to said pressure for generating a signal representing a magnitude of said pressure;

means for converting said signal into a plurality of digital words, each of said plurality of digital words representing the magnitude of said pressure at a point in time;

means responsive to said digital words for temporarily storing a group of said words representing magnitude values of said pressure over a predetermined interval of time; and

means responsive to said stored digital words for printing a graphical representation of said pressure over the predetermined period of time.

5,207,096

ADVANCED METHOD AND DEVICE FOR IMPROVING THE PRODUCTION LOGS OF AN ACTIVATED NONFLOWING WELL

Yvon Castel, Croissy S/Seine, and Jacques Lessi, Maule, both of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jun. 11, 1991, Ser. No. 713,317

Claims priority, application France, Jun. 11, 1990, 90 07312

Int. Cl.[5] E21B *47/00, 49/08*

U.S. Cl. 73—155 **10 Claims**



1. A improved method for carrying out production logs in a nonflowing well crossing a subterranean zone producing efflu-

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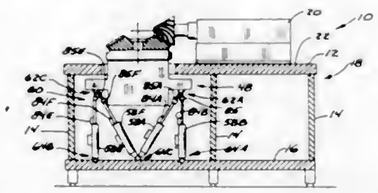
ents, this well being equipped for the production of these effluents by means of a pipe perforated in its part going through said subterranean zone, the method comprising the use of a flow string connected to a surface installation, means for closing the annular space between the pipe and the flow string, in order to isolate from one another the two parts of the pipe on either side, pumping means for activating the production of the well through said string and at least one set of measuring instruments operating on at least part of the produced effluents, arranged close to the lower end, the method also comprising the use of secondary pumping means to increase the pressure of the effluents before they are measured in order to take into account the pressure drop undergone by the effluents while they flow through each set of measuring instruments.

5,207,097

GEAR TESTER WITH ACTUATOR SUPPORTED PLATFORM

Yevsey Gutman, Minneapolis, Minn., assignor to GEI Systems, Inc., Minneapolis, Minn.

Filed Aug. 12, 1992, Ser. No. 928,808
Int. Cl.[5] G01M *13/02*; B23Q *3/04, 3/06, 1/04*
U.S. Cl. 73—162 11 Claims



1. An apparatus for testing and adjusting a position of a first gear with respect to a second gear relative to three substantially orthogonal axes, the first gear driving the second gear with the first gear driven by a rotational drive, the apparatus comprising:
- a frame on which the first gear and the rotational drive are mounted;
- a carriage for supporting the second gear for rotation about a central axis;
- actuator means connected to the frame for supporting the carriage relative to the first gear, the actuator means allowing movement of the second gear linearly along and rotationally about the three substantially orthogonal axes, wherein the actuator means is disposed on the frame to form three frame connection joints, and wherein the actuator means is disposed on the carriage to form three carriage connection joints; and
- sensing means to determine relative displacement of the second gear with respect to the first gear.

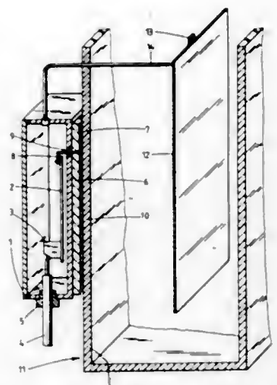
5,207,098

DEVICE TO MEASURE THE LEVEL OF MATERIAL WITHIN A CONTAINER

Berthold Koch, Pützstrasse 4, D-4040 Neuss 1, and Rainer Wärzelberger, Erkrath, both of Fed. Rep. of Germany, assignors to Berthold Koch, Neuss, Fed. Rep. of Germany

Filed Mar. 23, 1992, Ser. No. 855,305
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1991, 4111271
Int. Cl.[5] G01F *23/26*
U.S. Cl. 73—290 R 3 Claims

1. A device to measure the level of material within a container, in particular a container in which free-flowing material having different dielectric constants is collected, said device comprising a sensor which is arranged in an electrically nonconducting manner to an outer side of the container, said sensor forming a part of an electric capacitor, and an electrically conducting complementary plate, said complementary plate being located within the container opposite the sensor and spaced therefrom, said complementary plate forming another part of the electrical capacitor, wherein the sensor comprises a housing which is at least partially electrically conducting and an electrically conducting capacitor plate which is electrically nonconducting relative to the housing.

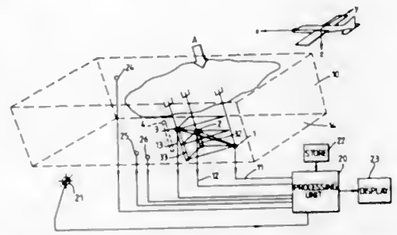


5,207,099

LIQUID QUANTITY GAUGING

Peter D. Baker, Basingstoke, England, assignor to Smiths Industries Public Limited Company, London, England

Filed Jan. 15, 1992, Ser. No. 820,771
Claims priority, application United Kingdom, Feb. 1, 1991, 9102195
Int. Cl.[5] G01F *23/14*
U.S. Cl. 73—292 7 Claims



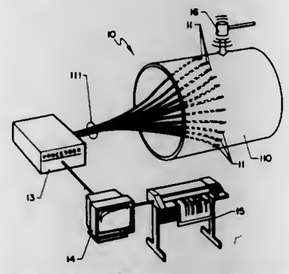
1. A liquid-gauging system for determining the quantity of liquid in a tank having a floor, comprising: at least three optical pressure sensors, each sensor being adapted to provide an optical output that varies in response to change of the mass of liquid in the tank above the sensor; means mounting the sensors in the tank for immersion in the liquid and for location on skew lines so that the sensors are normally not in the same horizontal plane with respect to the liquid surface, the sensors being displaced from one another in each of the x, y and z directions and at least two of the sensors being mounted above the floor of the tank; a store containing information representative of the shape of the tank; a processor; and means connecting the processor with the store and the sensors such that the processor determines the quantity of liquid in the tank from the outputs of the sensors and the stored information representing the shape of the tank.

5,207,100

METHOD AND DEVICE FOR MEASURING UNDERWATER VEHICLE HULL VIBRATION

Foster L. Striffler, East Lyme, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 25, 1991, Ser. No. 735,986
Int. Cl.[5] G01H *13/00*
U.S. Cl. 73—583 9 Claims



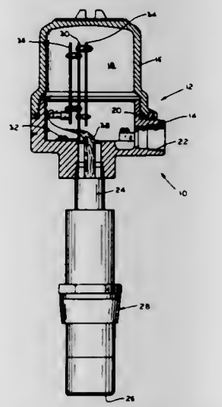
1. A device for measuring higher order vibrational modes on a cylindrical structure comprising:
- a plurality of sensors uniformly spaced around a circumference of said cylindrical structure;
- processing equipment, connected to and receiving signals from said plurality of sensors, for computing a temporal Fast Fourier Transform and a spatial Fast Fourier Transform, whereby said spatial Fast Fourier Transform is a double Fast Fourier Transform;
- means for controlling said processing equipment to provide a temporal Fast Fourier Transform and a spatial Fast Fourier Transform; and
- output display means, connected to said processing equipment, for displaying said temporal and spatial Fast Fourier Transforms, thereby providing a three-dimensional plot of amplitude versus frequency and mode number.

5,207,101

TWO-WIRE ULTRASONIC TRANSMITTER

Kevin M. Haynes, Northlake, Ill., assignor to Magnetrol International Inc., Downers Grove, Ill.

Filed Sep. 6, 1991, Ser. No. 755,813
Int. Cl.[5] G01N *9/24*
U.S. Cl. 73—597 20 Claims



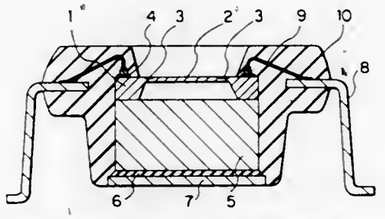
1. An instrument for sensing level of a material comprising:
- a transducer and means for mounting said transducer in proximity to a material, the level of which is being sensed;
- a drive circuit connected to said transducer and including means for periodically energizing said transducer to transmit an energy pulse to be reflected off of a surface of the sensed material;
- an amplifier circuit connected to said transducer and including amplifier means for developing an analog signal having a magnitude corresponding to reflected energy received by said transducer;
- a detector circuit connected to said amplifier circuit for determining if said analog signal has a level above a select threshold, representing receipt of a return echo pulse; and
- a control circuit operatively coupled to said drive circuit, said amplifier circuit and said detector circuit and including level determining means for determining a time difference between a first time when said drive circuit energizes said transducer and a second time when said analog signal is above said threshold, said time difference representing level, and amplifier control means for energizing said amplifier circuit for a select minimum time duration commencing subsequent to energization of said transducer and terminating after receipt of a return echo pulse.

5,207,102

SEMICONDUCTOR PRESSURE SENSOR

Yoshiharu Takahashi; Tetsuya Hirose, and Hideyuki Ichiyama, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Toyko, Japan

Filed Sep. 20, 1991, Ser. No. 763,217
Claims priority, application Japan, Feb. 12, 1991, 3-038902
Int. Cl.[5] G01L *7/08, 9/06*
U.S. Cl. 73—727 5 Claims



1. A semiconductor pressure sensor comprising:
- a semiconductor pressure sensor chip including a resistor and a diaphragm for sensing a pressure of a medium;
- a pedestal on which said semiconductor pressure sensor chip is disposed;
- a die pad on which said pedestal is mounted;
- leads;
- wires electrically connecting said leads to said semiconductor pressure sensor chip; and
- a resin package integrally encapsulating and contacting said pedestal, said leads, said wires, part of said die pad, and part of said semiconductor pressure sensor chip, said resin package including an opening exposing said diaphragm for directly contacting a medium, the pressure of which is to be sensed.

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5,207,103

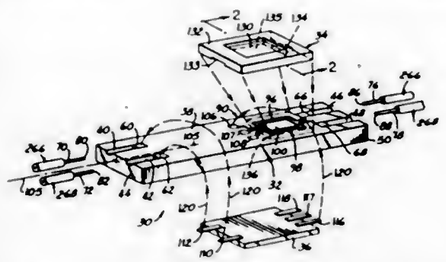
ULTRAMINIATURE SINGLE-CRYSTAL SENSOR WITH MOVABLE MEMBER

Kensall D. Wise, 3670 Charter Pl., Ann Arbor, Mich. 48105, and Hin-Leung Chau, 543 Church, Apt. 16, Ann Arbor, Mich. 48104

Division of Ser. No. 631,655, Dec. 21, 1990, Pat. No. 5,113,868, which is a division of Ser. No. 431,627, Nov. 3, 1989, Pat. No. 5,013,396, which is a division of Ser. No. 190,310, May 4, 1988, Pat. No. 4,881,410, which is a division of Ser. No. 57,884, Jun. 1, 1987, Pat. No. 4,815,472. This application May 18, 1992, Ser. No. 885,316

Int. Cl.[5] G01L *7/08, 9/12*

U.S. Cl. 73—724 **20 Claims**



16. A miniature force-sensing device having a capacitance which is adjusted by changes in a force to be sensed, comprising:

a support substrate; and

an integrally formed structure made at least primarily of single-crystal silicon material, the structure including (1) a first selected portion constituting a substantially rigid support structure bonded to the support substrate, the first selected portion being impregnated with a first material in a desired first concentration sufficient to alter an etching characteristic of the first selected portion relative to identical single-crystal silicon material containing substantially less of the first material, and (2) a second selected portion constituting a movable member supported by and capable of movement relative to the support structure, the second selected portion being impregnated with a second material in a desired second concentration sufficient to alter an etching characteristic of the second portion relative to identical single-crystal silicon material containing substantially less of the second material; and

a force-sensitive adjustable capacitor having first and second electrically conductive plates normally spaced apart from one another, the first electrically conductive member including a generally flat conductive plate supported by the support substrate, and the second electrically conductive plate being at least in part supported by and movable with the movable member, whereby the capacitance of the capacitor is adjustable in response to movement of the movable member by a force applied thereto.

5,207,104

METHOD FOR DETERMINATION OF THE IN SITU COMPRESSIVE STRENGTH OF FORMATIONS PENETRATED BY A WELL BOREHOLE

Milton B. Enderlin, Arlington, Tex., assignor to Halliburton Logging Services, Inc., Houston, Tex.

Division of Ser. No. 609,854, Nov. 7, 1990. This application Aug. 6, 1991, Ser. No. 700,972

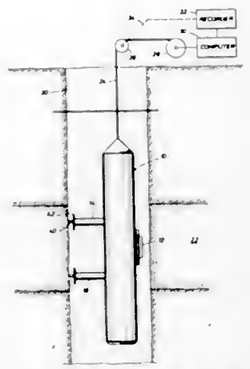
Int. Cl.[5] G01N *33/24*

U.S. Cl. 73—784 **3 Claims**

1. A hydraulically operated wireline formation tester tool for taking fluid samples in a well borehole and simultaneously measuring the compressive strength of rocks along the well borehole which comprises:

(a) a formation tester having a hydraulically extendible fluid sample taking snorkel;

(b) upper and lower longitudinally spaced back-up pistons located diametrically opposite said snorkel and which are adapted to hydraulically extend from the formation tester toward the sidewall defining a well borehole in which the formation tester is placed; and



(c) plural rock penetrating punches, at least one associated with each of said upper and lower back-up pistons and adjacent to shouldered back-up plates supported on said back-up pistons for punching and thereby engaging the formation sidewall, said punches being of generally circular cross section and each having a different diameter.

5,207,105

ELECTROMAGNETIC FLOW METER

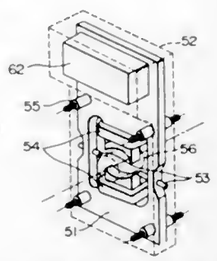
Masao Fukunaga; Ikuo Uematsu, both of Katsuta; Masahiro Ikegawa, and Masayuki Kaibo, both of Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 14, 1990, Ser. No. 538,092

Claims priority, application Japan, Jun. 16, 1989, 1-154043; Sep. 14, 1989, 1-238448

Int. Cl.[5] G01F *1/58*

U.S. Cl. 73—861.12 **18 Claims**



10. An electromagnetic flow meter comprising:

a conduit portion in which a fluid to be measured is made to flow, a magnetic circuit for exerting a magnetic field onto said conduit portion perpendicularly to an axial direction of said conduit portion, and a pair of electrodes are arranged in positions opposite to each other to perpendicularly intersect both a direction of flow of said fluid and a direction of said magnetic field, wherein said magnetic circuit comprises:

a core made up of a sheet of or a plurality of laminated sheets of magnetic material and disposed perpendicularly to said axial direction of said conduit portion;

projecting pole portions formed on said core at said conduit sides thereof; and

excitation coils wound around said projecting pole portions respectively;

wherein said electrodes are disposed in a position so as to perpendicularly intersect said projecting pole portions of said core and fixedly arranged on said core so as to penetrate said core through insulators.

5,207,106

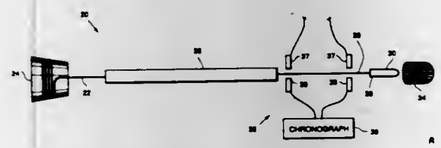
METHOD AND APPARATUS FOR TESTING OPTICAL FIBERS

Alfred M. Schwider, Bluejay, and Joseph A. Wysocki, Malibu, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Nov. 4, 1991, Ser. No. 787,173

Int. Cl.[5] G01N *3/10*

U.S. Cl. 73—828 **16 Claims**



1. A method of testing an optical fiber, comprising the steps of:

mounting the optical fiber on a payout support with an unsupported end extending from the support;

attaching the unsupported end of the optical fiber to a projectile; and

propelling the projectile by contacting an expanding volume of pressurized gas to the projectile, so that the supported portion of the optical fiber is separated from the payout support, wherein the step of propelling the projectile includes the steps of

establishing a gas pressure against an end of the projectile with the projectile held stationary, and thereafter

releasing the projectile.

5,207,107

NON-INTRUSIVE FLOW METER FOR THE LIQUID BASED ON SOLID, LIQUID OR GAS BORNE SOUND

Henry A. Wolf, Franklin Lakes; Richard E. Walter, Long Valley, both of N.J.; Linda Hofmann, Baton Rouge, La.; George D. Cody, Princeton, N.J., and Gerald V. Storch, Jr., Bridgewater, N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Jun. 20, 1991, Ser. No. 718,477

Int. Cl.[5] G01F *1/74*

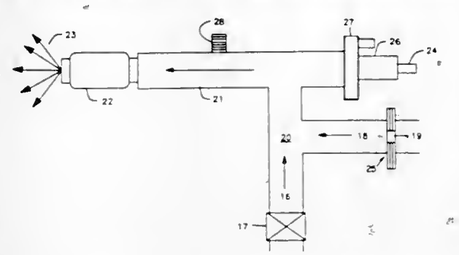
U.S. Cl. 73—861.04 **9 Claims**

1. A method for measuring the mass flow rate of liquid flow into a two-phase liquid/gas injection nozzle comprising:

(a) determining the power spectral density from a signal from a vibrational sensor in close proximity to said nozzle over a frequency band which includes a series of gas flow peaks, where the area of the power spectral density of said gas flow peaks has a monotonically decreasing relationship with respect to the liquid flow through said nozzle;

(b) determining the magnitude of the area of said power spectral density including at least one of said gas flow peaks;

(c) determining the mass of liquid flow through said nozzle from a correlation between different magnitudes of said



area of said power spectral density including said gas flow peaks and the mass flow rate of liquid flow for said nozzle.

5,207,108

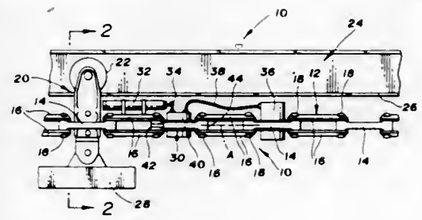
TRANSDUCER FOR SENSING TENSION LOADING OF A CONVEYOR CHAIN

William P. Tassic, 42036 Queen Anne Ct., Northville, Mich. 48167

Filed Jun. 7, 1991, Ser. No. 711,931

Int. Cl.[5] G01L *5/04*

U.S. Cl. 73—862.391 **17 Claims**



1. A transducer for sensing tension loading of a conveyor chain of the type including single and dual links pivotally connected in an alternating relationship along an axis thereof, the transducer comprising: a transducer link having opposite ends for connection along the chain between links thereof such that the transducer link extends along the axis of the chain; said transducer link having a clamping seat; a transducer member mounted by the transducer link between the ends thereof; said transducer member including an opening that extends transversely to the chain axis and also including at least one strain gauge mounted thereon; the transducer member also including a hole extending therethrough in opposite directions from the opening thereof along the axis of the chain; a clamp including a clamp member that opposes the clamping seat of the transducer link; said clamp including a connector that extends between the clamp member and one end of the transducer link with the transducer member clamped therebetween to sense tension loading of the chain; and the connector of the clamp including: (a) a connector end located adjacent said one end of the transducer link, (b) a shank that extends from the connector end through the hole in the transducer member, and (c) a clamp end that is connected to the clamp member such that the clamp compressed the transducer member as tension loading is applied between the opposite ends of the transducer link to provide a strain gauge indication of the extent of the tension loading to which the conveyor chain is subjected.

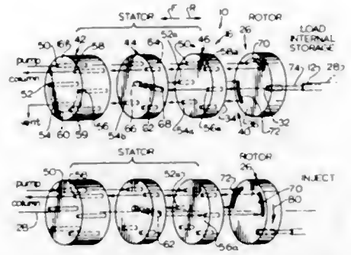
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,109

INTERNAL-EXTERNAL SAMPLE INJECTOR

Kristine Olsen, Richmond, Calif., assignor to Rheodyne, Inc., Cotati, Calif.

Filed Feb. 7, 1991, Ser. No. 652,083
Int. Cl.[5] G01N *1/00*
U.S. Cl. 73—863.73 8 Claims



1. In an injector apparatus which includes a housing having a pivot axis and a rotor pivotally mounted in the housing to pivot about said axis between load and inject positions, and wherein the injector is constructed to hold a first stator having pump, column, and vent ports and first and second sample loop locations, with the rotor having first and second interconnect channels at the rotor-stator interface, the first channel positioned to connect the pump and column ports at the load position and to connect the column port and first sample loop location at the inject position, and the second channel is positioned to connect the second sample loop location and the vent port in the load position and to connect the second sample location and the pump port in the inject position, the improvement wherein:

said first stator has at least one disc element with opposite faces and with a storage channel in at least one of said faces, said storage channel having opposite ends at the same rotational positions about said axis as said first and second sample loop locations, whereby to effectively hold a very small sample; and including

a second stator which is mountable in said housing in place of said first stator, said second stator having at least one second disc element with opposite faces and walls forming first and second sample loop passages lying at the same rotational positions about said axis as said first and second sample loop locations, each of said sample loop passages extending completely through said second disc element, and through said entire second stator, whereby to connect to the sample loop ports of the stator and through them to an external sample loop so as to effectively hold a larger sample.

5,207,110

SUSPENSION DEVICE FOR LOW-FREQUENCY STRUCTURES

Meng-Sang Chew, Virginia Beach; Jer-Nan Juang, Poquoson, both of Va., and Li-Farn Yang, Boulder, Colo., assignors to The United States of America as represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 28, 1991, Ser. No. 678,553
Int. Cl.[5] B64G *7/00*
U.S. Cl. 73—866.4 6 Claims

1. A suspension device for a test structure to simulate space conditions, said suspension device comprising:

a support cable connected at one end to the test structure;

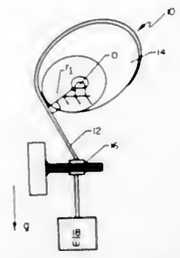
a cam having an opposite end of said support cable connected thereto, said cam having an outer circumference for supporting said support cable;

means for guiding said cable vertically downward;

a rotatably journalled drive axle passing through a center of rotation of said cam; and

a torsion spring located about said drive axle, said spring connected at a first end to said cam and at a second end to a fixed support;

wherein said cam is shaped and said torsion spring is selected to maintain the relationship $Wr_{(t)}=T_{s(t)}$, wherein W is the



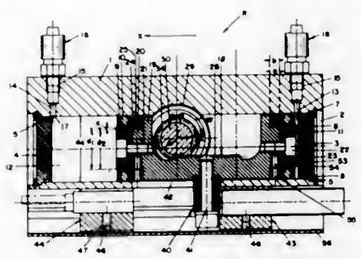
weight of the test structure, $r_{(t)}$ is the instantaneous moment arm defined as the perpendicular distance from the rotational center of said cam to said cable at time t, and $T_{s(t)}$ is the total spring torque exerted by said spring on said cam at time t, whereby the test structure is vertically suspended by said cable and the instantaneous moment arm will compensate for any increased spring torque arising from a vertical displacement of the test structure.

5,207,111

ROTARY UNIT

Albrecht Trenner, Langendorf, Switzerland, assignor to Montech AG, Derendingen, Switzerland

Filed Aug. 15, 1991, Ser. No. 745,535
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1990, 4026736
Int. Cl.[5] F16H *27/02*
U.S. Cl. 74—89.17 13 Claims



1. An apparatus for the rotation of workpieces to be machined, which comprises:

a housing enclosing a cylindrical bore between covers thereof;

a carrier for workpieces to be machined;

a pinion shaft in the housing having an axis and having toothed strips, said pinion shaft adapted to rotate said carrier via a rack, wherein the rack includes toothing and is arranged perpendicularly to the axis of the pinion shaft in the cylindrical bore of the housing slidably between the covers of the housing;

pistons provided on the rack at each end thereof forming with a respective cover a chamber which can be subjected to a pressure medium;

wherein there is a range where the toothed strips of the pinion shaft mesh with the toothing of the rack between the pistons at each end of the rack;

wherein said range is variable; and

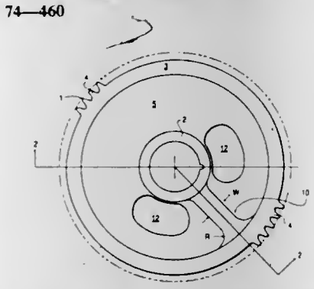
wherein the rack engages with a tenon in a recess of the piston, the tenon begin arranged with edge play to allow movement in the recess.

5,207,112

DUCTILE IRON GEAR AND CASTING PROCESS FOR THE PRODUCTION THEREOF

Roger D. Sweetland, and Kevin R. Beutler, both of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Feb. 28, 1992, Ser. No. 843,278
Int. Cl.[5] F16H *57/00*
U.S. Cl. 74—460 11 Claims



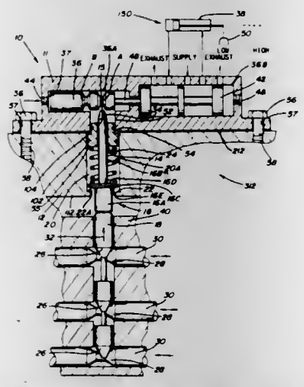
1. A cast ductile iron gear or wheel of the type having a web interconnecting a relatively thick hub to a relatively thick rim, the improvement for facilitating casting of the gear while substantially maintaining the weight and rotational balance thereof comprising said web being formed with only a single flow rib extending radially from the hub to the rim of the gear and with at least one opening through said web in a symmetrical arrangement on opposite sides of the flow rib.

5,207,113

SLEEVE FOR ALIGNING TWO DISCRETE STRUCTURES HAVING ADJOINING BORES

Thomas P. Desautels, Waterford, and Troy O. Culver, Pontiac, both of Mich., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Sep. 30, 1991, Ser. No. 768,149
Int. Cl.[5] F16H *63/36*; G05G *5/08*
U.S. Cl. 74—477 2 Claims



1. An apparatus for defining an aligned condition for orthogonally oriented first **16** and second **36** reciprocating members supported by discrete first **12** and second structures **11**, said first structure having a first face **112** and second face **212** and a first bore **20** defined therebetween, said first bore **20** having a first diameter portion **22** extending from said first face and a second diameter portion **20A** extending from said second face forming a first radially extending annular face **22A** intermediate said first and second face proximate said second face, said first reciprocating member having a first axially extending diametral portion **16A** joining a second axially extending diametral portion **16B** having a radially extending flange member **16C** disposed therebetween forming first **16D** and second **16E** opposed radially extending annular faces, said second annular face **16E** of said first reciprocating member **16** compliantly disposed in abutting relation with said radially extending annular face **22A** of said first bore **20**, said second structure **11** having a first bore **36A** disposed in orthogonal relation to said first bore **20** of first structure **12** and slidingly supporting said second reciprocating member **36**, said second reciprocating member **36** having a plurality of axially disposed indentations A,B defined therein, said second structure **11** having a second bore **52** which may be selectively disposed in axial alignment with a major axis defined through said first bore **20** of said first structure **12** and oriented orthogonal to said first bore **36A** of said second structure **11** and having a diameter different than said first diameter portion **20A** of said first bore **20** of said first structure **11** wherein the improvement comprises:

a sleeve **14** having a first axially extending diametral portion **14A** engaged with a second coaxial axially extending diametral portion **14B**;

said sleeve **14** defining a bore **15** coaxial with said first and second diametral portions in which said second axially extending diametral portion (**14C**) **16B** of said first (**14A**) reciprocating member **16** is slidingly carried so as to selectively engage one of said plurality of axially disposed indentations A,B;

said sleeve **14** defining a second radially extending annular face portion in the region joining said first and second diameter portions;

said first axially extending portion **14B** of said sleeve **14** disposed in said first bore **20** of said second structure **12** with said annular face portion **14C** disposed in abutting relation with said second structure **11**; and

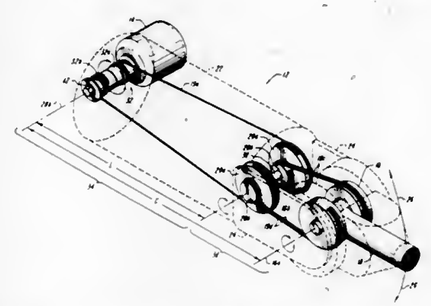
said second axially extending portion **14A** of said sleeve **14** disposed in said second bore **52** of said first structure **11**.

5,207,114

COMPACT CABLE TRANSMISSION WITH CABLE DIFFERENTIAL

J. Kenneth Salisbury, Jr., Cambridge, and William T. Townsend, Somerville, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 438,524, Nov. 17, 1989, Pat. No. 5,046,375, which is a division of Ser. No. 184,273, Apr. 21, 1988, Pat. No. 4,903,536. This application Apr. 8, 1991, Ser. No. 682,588
Int. Cl.[5] G05G *11/00*
U.S. Cl. 74—479 R 4 Claims



1. In a process for manipulating objects at a distance using a robot arm composed of at least one articulated link mounted in

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a support, an actuator for the link, and a transmission that transmits power from the actuator to the link to control movement of the link, the improvement comprising,

controlling the actuator through force control, and

engaging the objects anywhere along a side of the link.

5,207,115

X-Y DRIVE APPARATUS

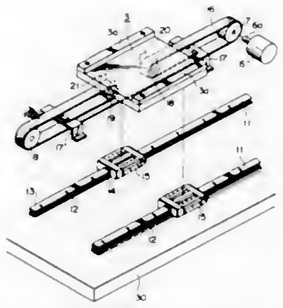
Seiji Takei, Yokohama, Japan, assignor to Nippon Thompson Co., Ltd., Tokyo, Japan

Filed Mar. 11, 1992, Ser. No. 849,726

Claims priority, application Japan, Mar. 15, 1991, 3-74382

Int. Cl.[5] F16H *19/06*

U.S. Cl. 74—479 R **9 Claims**



1. A two-axis drive apparatus, comprising:

a first table unit including an elongated first housing having a longitudinal axis which defines a first direction, a first table supported to be movable along said first direction back and forth and a first driving means operatively coupled to said first table for moving said first table back and forth along said first direction; and

a second table unit including an elongated second housing fixedly mounted on said first table and having a longitudinal axis which defines a second direction different from said first direction, a second table supported to be movable along said second direction back and forth and a second driving means operatively coupled to said second table for moving said second table back and forth along said second direction,

whereby each of said first and second driving means includes a pair of first guiding means fixedly attached to each of said first and second tables; a pair of second guiding means located away from said pair of first guiding means along the longitudinal axis and fixedly attached to each of said first and second housings; a pair of holding means located between said first and second guiding means and fixedly attached to said housing; and coupling means having one end fixedly attached to one of said pair of holding means and extending first around one of said first guiding means, then each of said second guiding means and then the remaining first guiding means to have its other end fixedly attached to the remaining holding means.

5,207,116

CABLE CORE LENGTH ADJUSTER MECHANISM

William F. Sultze, Oxford, Mich., assignor to General Motors Coporation, Detroit, Mich.

Continuation-in-part of Ser. No. 840,904, Feb. 25, 1992, Pat. No. 5,163,338. This application Aug. 14, 1992, Ser. No. 930,053

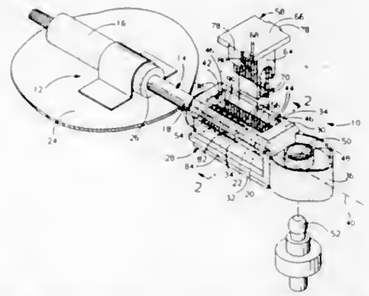
Int. Cl.[5] F16C *1/10*

U.S. Cl. 74—502.4 **9 Claims**

1. A manually operated core length adjuster mechanism for use with a cable system having a core and a conduit, an end of the conduit being fixed to a mounting surface, the core slidably disposed within the conduit, an end of the core being a rod extending beyond the end of the conduit, a distal end of the rod being a rod end made distinguishable from the rest of the rod by a circumferential groove in the rod, the adjuster mechanism comprising:

a body with an elongated generally parallelepiped shape being generally rectangular, with a top and a bottom, two sides, and a first end and a second end, having an axis passing through the body from the first end of the body to the second end of the body, the body being elongated in an axial direction parallel to the axis, a rectangular opening passing through the body from the top of the body to the bottom of the body, the opening having two sides and two ends within the body with the sides of the opening being parallel to the sides of the body, the first end of the body having means for swivelable attachment, the second end of the body having an aperture in the body passing from the second end of the body to the rectangular opening, the aperture being approximately coaxial with the axis, the rod slidably passing through the aperture with the circumferential groove disposed within the rectangular opening, one of the sides of the rectangular opening having a plurality of teeth transverse to the axis;

a clip, being located in the rectangular opening in the body, being manually movable relative to the body between an engaged position and an adjust position, having a cap portion on top of a block portion, the clip projecting



above the top of the body in the adjust position and the cap portion contacting the top of the body in the engaged position, the block portion having teeth complementary to the teeth of the body, the teeth of the body and the teeth of the clip being meshed and thereby axially fixing the clip to the body when the clip is in the engaged position, the teeth of the body and the teeth of the clip being disengaged when the clip is in the adjust position, the block portion being shorter than the sides of the opening thereby allowing the clip to translate axially in the opening when in the adjust position, the block portion having a pair of tines extending away from the cap portion, the tines being opposed across the rod from each other in both the engaged and adjust positions, the tines being partially disposed within the circumferential groove of the rod thereby axially fixing the clip to the rod, the tines being disposed in parallel relation and spaced approximately equal to a thickness of the rod at the circumferential groove, the tines having a pair of nubs near a tip of each tine, one closer to the tip than the other, the nubs on each tine being opposed to the nubs on the other tine, the opposing nubs being separated by less than the thickness of the rod at the circumferential groove, the nubs radially positioning the clip relative to the rod and thereby positioning the clip relative to the body in the adjust position, the tines elastically deflecting to allow the clip to be manually moved from the adjust position to the engaged position; and

spring means disposed between the body and the clip for axially biasing the body relative to the clip.

5,207,117

SLIDING REGULATOR WITH LAMELLAE SEALING MEANS

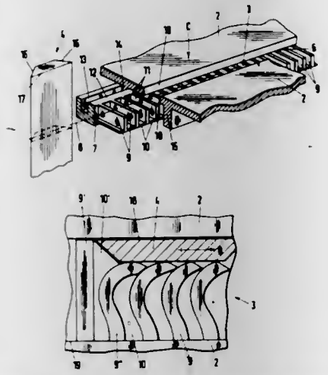
Karl-Heinz Bauer, Bad Neustadt/Saale, Fed. Rep. of Germany, assignor to Preh-Werke GmbH & Co. KG, Fed. Rep. of Germany

Filed Sep. 27, 1991, Ser. No. 767,062

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1990, 4030909

Int. Cl.[5] G05G *29/04, 1/02;* **F24F** *13/12*

U.S. Cl. 74—566 **11 Claims**



1. A sliding regulator in combination with an operating unit, comprising a sliding slot in said unit, and having mounted within said slot a rubbery-elastic sealing lip for preventing penetration of unwanted matter, and further comprising a regulating member projecting through the sliding slot and the lip, and being movable along said slot, characterized in that said sealing lip is a one piece element and consists of a string of lamellae which are normally spaced apart from one another by gaps and are arranged substantially at right angles to the longitudinal axis of said sliding slot, adjacent lamellae of said sealing lip being connected in a bridge-type manner by a wall which closes said gaps to prevent penetration of said unwanted matter through said sliding slot, and wherein said lamellae are thicker than said walls.

5,207,118

PEDAL SHAFT CORE

Chin-Ching Chen, 307, Chieh-Shou Village, Changhau City, Taiwan

Filed Sep. 20, 1991, Ser. No. 763,244

Int. Cl.[5] G05G *1/14*

U.S. Cl. 74—594.1 **3 Claims**

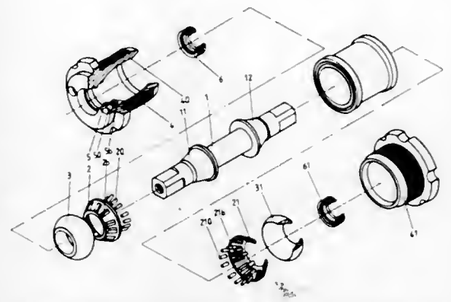
1. An improved pedal shaft core comprising:

a shaft core having a pair of opposed conical contact surfaces which taper inwardly in an axial direction towards two outer ends of the shaft core,

a conical shaft bearing surrounding each conical contact surface and having slots therein, and rollers positioned in said slots so as to contact their respective contact surfaces,

a casing having an interior shape surrounding each shaft bearing and contacting the rollers therein, each said casing having an exterior surface which is of circular, conical arcuate shape, viewed in an axial plane,

a toothed cup having an interior camber located immediately outside of each said casing, an oil and waterproof washer inside said camber for sealing the space between the outer end of each casing and the outer end of the shaft core passing therethrough, and



a grease filling port located at an axial end of at least one of said toothed cups

for filling an interior of the shaft core with grease.

5,207,119

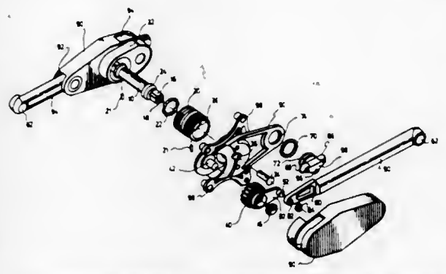
PEDAL MECHANISM FOR A HUMAN PROPULSION VEHICLE

Francois Garneau, 354 Emile, #3, Laval, Quebec, Canada H7N 4M2

Filed Feb. 6, 1992, Ser. No. 832,163

Int. Cl.[5] G05G *1/14;* **F16H** *1/28*

U.S. Cl. 74—594.3 **4 Claims**



1. A pedal mechanism for a human propulsion vehicle having a frame, said pedal mechanism comprising:

a power transmitting axle having two ends;

a case fixed at each end of said axle;

a sun gear rigidly attached to the frame adjacent each of said axle, said sun gears extending within the adjacent cases;

a planetary gear having a diameter identical to the one of the sun gears, each of said planetary gears being rotatably attached to one of the cases and meshed to the adjacent sun gear, each planetary gear having a radially projecting lever connected thereto, said lever having a free end on which is mounted a fixation pin extending parallel to said planetary gears;

two parallel pedal arms slidably mounted on said cases respectively, each pedal arms having two ends, a hole made in one of said ends, in which the fixation pin of the adjacent lever is rotatably inserted, and means to attach a pedal at the other of said ends, each pedal arm having a rotation cycle comprising two halves;

a guiding means pivotally attached to each case to guide and support the corresponding pedal arm when it is moved in and out from the case;

whereby, in use, forces applied onto said pedals brings in rotation said rotatable cases which themselves rotate said axle and force said planetary gears to rotate around said

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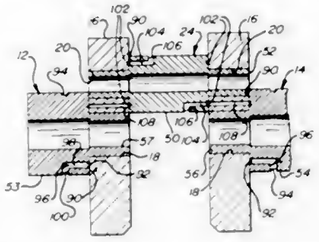
sun gears, said levers on said planetary gears being arranged so that each pedal arm slides away from said axle at a position in one of the halves of the cycle where said applied forces are to be maximum in order to have a maximum torque on said axle, said pedal arms also having an..angular displacement with respect to a radial centerline intersecting the sun gear and the guiding means wherein said one half of the cycle having said forces at maximum, is longer than the other half.

5,207,120

ASSEMBLED CRANKSHAFT

Philip D. Arnold, Mt. Clemens, and Roy G. Kaywood, Stockbridge, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation of Ser. No. 753,553, Sep. 3, 1991. This application Jun. 18, 1992, Ser. No. 902,439
Int. Cl.[5] F16C *3/00*
U.S. Cl. 74—595 15 Claims



1. A crankshaft assembled from individual preformed parts which are finish machined prior to assembly comprising:
a plurality of main journals aligned on a crankshaft axis of rotation;
a plurality of tubular crank pins between the main journals and radially spaced from the crankshaft axis, each crank pin having a surface hardened body portion and non-hardened end portions, the end portions each having a smaller inner diameter than the body portion;
a plurality of crank arms each having a center aperture aligned on the said crankshaft axis for receiving an end portion of a main journal, the crank arms being securely attached to end portions of respective main journals for torque transmission between the main journals and the crank arms;
an off-axis aperture in each crank arm adjoining a crank pin for receiving an end portion of a crank pin, each off-axis aperture having a lobular cross section with a plurality of lobes; and
each end portion of a crank pin tightly conforming with the respective off-axis aperture for secure attachment to the respective crank arm.

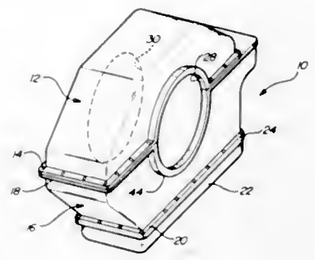
5,207,121

GEAR CASE FOR LOCOMOTIVE DRIVE SYSTEM

Paul R. Bien, Downers Grove, Ill., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 13, 1992, Ser. No. 834,745
Int. Cl.[5] F16H *57/02*
U.S. Cl. 74—606 R 9 Claims

1. In a locomotive drive system having an axle mounted rail engaging wheel and an axle hung traction motor and gears connecting the motor with the axle, a gear case enclosing the gears and having a lower part extending close to the rail level and subject to damage by impact to the lower part, the gear case comprising:
a rigid main housing open at its bottom;
a collapsible pan enclosing the open bottom of the main housing extending close to rail level and collapsible upon impact so that impact damage to the bottom of the gear



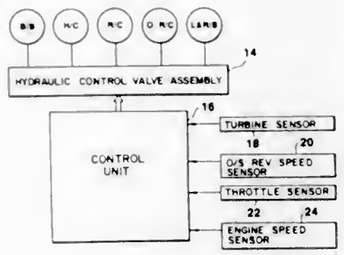
case is confined to the collapsible pan and such damage is not extended to the rigid main housing.

5,207,122

CLUTCH-TO-CLUTCH SHIFTING IN AUTOMATIC TRANSMISSION

Yusuke Minagawa, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 1, 1991, Ser. No. 694,313
Claims priority, application Japan, May 1, 1990, 2-111793; Jan. 25, 1991, 3-23903
Int. Cl.[5] B60K *41/06*
U.S. Cl. 74—866 8 Claims



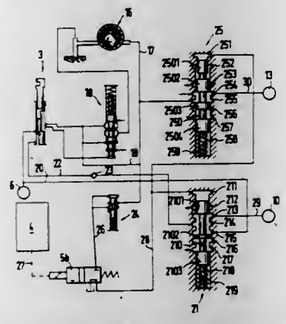
2. A method of a shift control in an automatic transmission drivingly coupled with an engine, the automatic transmission including an input shaft drivingly coupled with the engine, an apply element, and a release element, the automatic transmission effecting shifting by releasing the release element and engaging the apply element, the method comprising the steps of:
releasing the release element in such a manner as to allow an increase in the input shaft speed with a predetermined degree for a period of time;
engaging the apply element during said period of time, wherein the release element is released in such a manner as to reduce a deviation between an actual value of a derivative of the input shaft revolution speed, and a target value of the derivative toward zero.

5,207,123

ELECTROHYDRAULIC CONTROL FOR AN AUTOMATIC TRANSMISSION

Joseph Petersmann, Wimsheim, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany

Filed Feb. 13, 1992, Ser. No. 834,108
Claims priority, application Fed. Rep. of Germany, Feb. 13, 1991, 4104490
Int. Cl.[5] F16H *59/00*
U.S. Cl. 74—866 10 Claims



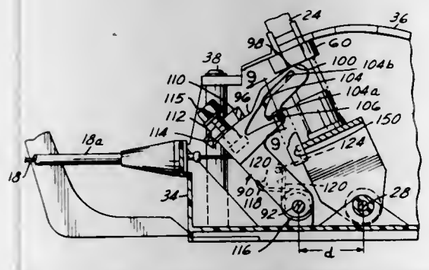
1. An arrangement for the electrohydraulic control of an automatic transmission of a motor vehicle having a selector lever, with gear positions P, N, D, 3, 2 and 1 being selected via the selector lever, the arrangement comprising:
solenoid valves which shift individual transmission gears together with one-way clutches as well as clutches and brakes which can be acted upon by pressure;
an electric control unit coupled to receive the selected gear positions from the selector lever, the control unit controlling said solenoid valves;
a hydraulic shift slide mechanically connected to the selector lever and with which a plurality of shift valves are connected, said plurality of shift valves hydraulically controlling the automatic transmission;
wherein a first one of said one-way clutches is assigned to the first gear, and a first one of said brakes is parallel to said first one-way clutch, and wherein for the shifted gear position D and a shifted first gear, the first one-way clutch is bridged by admission of pressure to the first brake.

5,207,124

SHIFT CONTROL MECHANISM

Arthur Anderson, 8925 Ortonville Rd., Clarkston, Mich. 48348, and Robert L. Heikkila, 3215 Clawson Ave., Royal Oak, Mich. 48073

Filed Dec. 16, 1991, Ser. No. 807,819
Int. Cl.[5] B60K *41/04*
U.S. Cl. 74—878 18 Claims



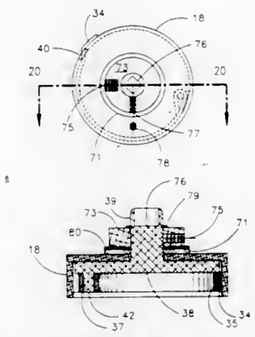
1. For use with a transmission and an ignition key cylinder having lock and accessory positions, and said transmission and said ignition key cylinder each having a cable extending therefrom, shift control mechanism comprising a housing having a box-like base and a cover mounted thereon, an opening formed in the cover, a shift lever pivotally mounted in the base and extending upwardly through the opening and adapted to be pivoted through park, reverse, neutral and forward shift positions therein, a spring-loaded member slidably mounted around said shift lever adapted to be manually moved through said shift positions within said opening, a plurality of indentations formed on the inner surface of the cover corresponding to said shift positions, a spring-loaded detent member movable with said shift lever from selective cooperation with said plurality of indentations for assuring definite selections of said shift positions, and interlock means operatively connected to the spring-loaded member and to the key cylinder via the cable extending therefrom for locking the shift lever int he park position when the key cylinder is in its lock or accessory position, wherein said interlock means and said shift lever are pivotally mounted a predetermined distance apart for attaining a mechanical advantage for immunizing cable loads and increasing the force that would be required to override the park condition.

5,207,125

OPENER FOR SCREWED CAP CONTAINERS

Webster Pierce, Jr., 215 W. 58th St., and Mack Cheramie, 2415 E. Main, both of Cut Off, La. 70345

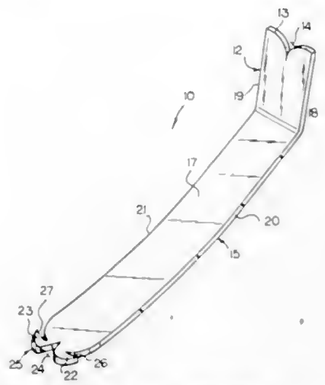
Filed Sep. 4, 1991, Ser. No. 754,628
Int. Cl.[5] B67B *7/18*
U.S. Cl. 81—3.43 13 Claims



1. A torque head for installing or removing threaded lids from containers or jars comprising:
a) a small disk, having a shaft portion extending therefrom;
b) a pivot pin, extending from the face of said small disk;
c) a larger disk, rotatable concentrically about said small disk shaft portion, having a raised cylindrical wall, for housing said small disk;
d) a flexible strap, attached at one end to said larger disk and looped at its opposite end around said pivot pin;
e) a lock collar, for securing said larger disk on said small disk shaft portion;
f) a friction washer, between said larger disk and said collar, for maintaining drag between said smaller and larger disk; and
g) a biasing means between said friction disk and said lock collar.

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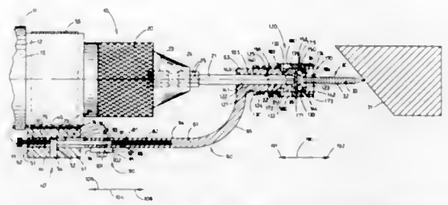
5,207,126
ROOF SHAKE REMOVAL TOOL
Bernard J. Schaben, 7795 Greenleaf Dr., Omaha, Nebr. 68128
Filed Dec. 16, 1991, Ser. No. 808,466
Int. Cl.[5] E04D *15/00*
U.S. Cl. 81—45 1 Claim



1. A roof shake removal tool, comprising,
an "L" shaped rigid tool member, including a first planar leg plate orthogonally mounted to a second arcuate leg plate at a connecting line, and
the first planar leg plate includes a bifurcated free end defining a first leg plate notch spaced remotely relative to the connecting line, and
the second arcuate leg plate defines a concave top surface arranged in confrontation relative to the first leg plate bifurcated free end, and wherein the second leg plate includes a second leg plate free end, and the second leg plate free end includes a first arcuate leg splayed relative to a second arcuate leg defining a second leg plate first notch therebetween, and
the first leg plate includes a first leg plate first side spaced from and parallel a first plate second side, and the second leg plate includes a second leg plate first side spaced from and parallel a second leg plate second side, wherein the first leg plate first side and the second leg plate first side are coplanar, and the first leg plate second side and the second leg plate second side are coplanar, and the second leg plate first arcuate leg defines a second leg plate second notch between the second leg plate first arcuate leg and the second leg plate first side, and a third notch is defined between the second leg plate second arcuate leg and the second leg plate second side, and
the second leg plate includes a second plate top surface cavity formed within the second leg plate protruding downwardly relative to the concave top surface, and the second leg plate top surface cavity includes a ferromagnetic floor for attraction of ferromagnetic components thereon.

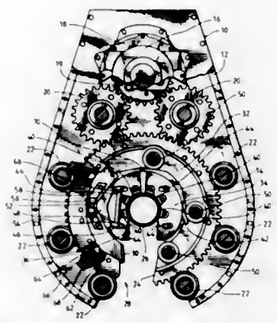
5,207,127
FASTENER SUPPORT APPARATUS
Edward V. Nick, 512 Lexington Ave., Fox River Grove, Ill. 60021
Filed Dec. 30, 1991, Ser. No. 814,758
Int. Cl.[5] B25B *13/00*
U.S. Cl. 81—54 16 Claims

1. A fastener support apparatus for facilitating the installation of individual screws into a work surface, the apparatus comprising:
means for driving the individual screws into the work surface;
a support member borne by the drive means and having a proximal end disposed on the drive means, and an opposite distal end;
a mounting assembly borne by the driving means and slideably supporting the support member for reciprocal movement along a predetermined path of travel;
a screw support assembly borne on the distal end of the support member and which includes a passageway defining a screw receiving station and which is operable to receive the head of a screw;
a locking assembly borne by the screw support assembly and operable for travel from a first, partially occluding position relative to the passageway, to a second, substantial nonoccluding position; and



an actuating assembly borne by the screw support assembly and which positions the locking assembly in the first or second positions, and wherein during operation, the locking assembly, when disposed in the first, partially occluding position retains the head of the screw in the screw receiving station, and when disposed in the second, substantial nonoccluding position releases the screw from the screw receiving station such that the screw may be driven into the work surface.

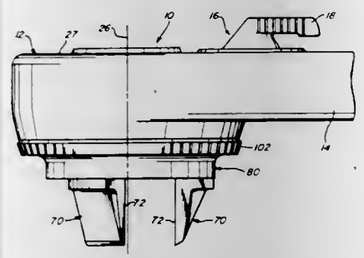
5,207,128
TONG WITH FLOATING JAWS
Stephen L. Albright, Houston, Tex., assignor to Weatherford-Petco, Inc., Houston, Tex.
Filed Mar. 23, 1992, Ser. No. 855,561
Int. Cl.[5] B25B *13/50*
U.S. Cl. 81—57.18 5 Claims



1. A tong for rotating a tubular member, the tong comprising
a tong case,
a rotary rotatably mounted in the tong case,
power means interconnected with the rotary for rotating the rotary,
an inner ring on the rotary and movable therewith,
at least one floating jaw within the rotary and the at least one floating jaw having top slot means therein for receiving and holding projection means and the at least one floating jaw having a cam surface,

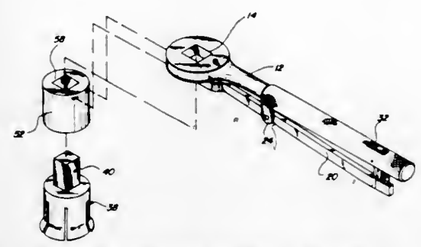
jaw roller means rotatably secured to and disposed within the rotary for co-action with the cam surface of the at least one floating jaw to move the jaw into and out of contact with the tubular member to be rotated,
brake means on the tong for inducing drag to initially prevent movement of the at least one floating jaw, and
jaw urging means interconnected between the inner ring and the at least one floating jaw for urging the at least one floating jaw against the jaw roller means, the jaw urging means comprising a holding member movably mounted to the inner ring, the holding member having projection means for removably projecting into the top slot means of the at least one floating jaw, the projection means removable from the top slot means by moving the holding member.

5,207,129
ADJUSTABLE WRENCH
Gregory Fossella, 97 Main St., P.O. Box 838, Osterville, Mass. 02655
Continuation of Ser. No. 638,828, Jan. 8, 1991, abandoned, which is a continuation-in-part of Ser. No. 387,220, Jul. 28, 1989, abandoned, and a continuation-in-part of Ser. No. 392,206, Aug. 10, 1989, Pat. No. 5,067,376, and a continuation-in-part of Ser. No. 567,290, Aug. 14, 1990, Pat. No. 5,090,273. This application Jun. 2, 1992, Ser. No. 893,600
The portion of the term of this patent subsequent to Nov. 26, 2008, has been disclaimed.
Int. Cl.[5] B25B *13/46*
U.S. Cl. 81—63.2 66 Claims



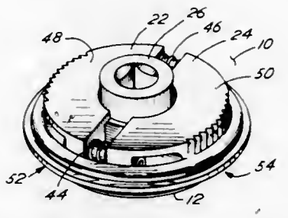
1. An adjustable wrench comprising
a housing and a handle secure to the housing,
said housing having a top and bottom and an axis and being open at the bottom, said open bottom being concentric with the axis,
a first annular disk concentrically mounted in the housing and rotatable about the axis,
a plurality of radial slots in the disk and a circular gear on its periphery,
a pawl on the handle for selectively engaging the circular gear to cause the first disk to rotate with the handle and housing,
a plurality of jaws extending out the bottom of the housing and each engaging one of the slots of the disk so that the jaws may move only radially with respect to the disk,
a second disk concentrically secured to the housing and rotatable therewith below the first disk,
and cam means formed in the second disk for simultaneously moving the jaws radially inwardly and outwardly as controlled by the slots when the second disk is rotated in the housing.

5,207,130
RATCHET LOCKING PLIER
Jerry A. Payne, Rte. 1, Box 384AA, Ripley, W. Va. 25271
Filed Mar. 19, 1992, Ser. No. 853,833
Int. Cl.[5] B25B *13/32*
U.S. Cl. 81—90.2 5 Claims



4. A wrenching apparatus for fasteners comprising:
wrenching means for applying a torque to a fastener about a first predetermined axis extending perpendicular to the longitudinal axis of said wrenching means,
socket means associated with said wrenching means, said socket means and said wrenching means being rotatable about said predetermined axis, said socket means having radially adjustable gripping means for fitting fasteners of differing size,
collet means operatively positionable between said wrenching means and said socket means and slidable with respect to said socket means along said predetermined axis for causing radial adjustment of said socket means, and
drive means on said wrenching means operable for causing relative slidable movement between said socket means and said collet means along said predetermined axis and said drive means engaging said collet means and being movable along said predetermined axis relative to both said wrenching means and said socket means.

5,207,131
OIL FILTER REMOVAL TOOL
James L. Pool, Clarinda, Iowa, and Woodson L. Stovall, Lincoln, Nebr., assignors to Lisle Corporation, Clarinda, Iowa
Filed Apr. 25, 1991, Ser. No. 691,536
Int. Cl.[5] B25B *23/00*
U.S. Cl. 81—443 2 Claims



1. An oil filter removal tool for removing an oil filter contained within the oil pan of an internal combustion engine, the tool comprising, in combination:
a pair of outwardly engaging jaws, a rotatable central socket drive element, means for connecting the outwardly engaging jaws to cooperatively engage the central socket drive element, and means for outwardly biasing the jaws;
the outwardly engaging jaws each having a substantially semicircular outer wall, the outer wall having means for engaging an oil pan filter cap so as to facilitate removal thereof from an oil pan, the outwardly engaging jaws each further having an inner wall having a central polygonal

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surface and retaining means for retaining the central socket drive element within the jaws;

the central socket drive element having an upper portion and a lower polygonal base, the upper portion having means for receiving a socket drive, the lower polygonal base having a plurality of drive walls;

whereby a socket drive is receivable into the central socket drive element, the element being thus rotatable, the drive walls being operatively associated with the inner wall central polygonal surfaces of the jaws, the jaws being outwardly moveable, thereby permitting the jaws to engage an oil pan filter cap by rotation of the central socket drive element;

whereby the central polygonal surfaces of the outwardly biased jaws are hexagonal, thereby defining an outer regular hexagon having a diameter Do, and the lower polygonal base of the central socket drive element is hexagonal, the lower polygonal base thereby having six drive walls and defining an inner regular hexagon having a diameter Di;

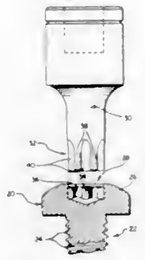
whereby the means for interconnecting the outwardly engaging jaws comprises a first rivet and a second rivet, each of said rivets comprising a head, a foot and a torso, the outwardly engaging jaws each having a pair of outer rivet apertures having outer rivet aperture bases, the rivets being received in the rivet apertures so that the rivet heads and the rivet feet are in contact with the outer rivet aperture bases.

5,207,132

ELLIPTICAL LOBED DRIVE SYSTEM

David Goss, and Richard Seidl, both of Rockford, Ill., assignors to Textron Inc., Providence, R.I.

Filed Oct. 16, 1991, Ser. No. 777,644
Int. Cl.[5] B25B *23/00*
U.S. Cl. 81—460 **32 Claims**



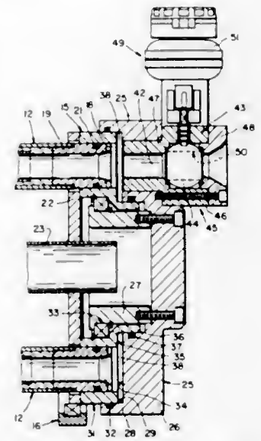
1. An article of manufacture for use in a torque transmitting system or the fabrication of components for such a system, comprising a body including an axis and a portion thereon being defined by a first series of elliptically curved surfaces and a second series of elliptically curved surfaces alternating with said first series of elliptically curved surfaces, said first series of elliptically curved surfaces being convexed, while the second series of elliptically curved surfaces alternating therewith being concaved, with the adjacent surfaces of said first and second series merging generally tangentially, each said elliptically curved surface of said first and second series being generated from a central point, with the central points of said first series and the central points of said second series conforming generally to the apexes of regular hexagons, and all of said elliptically curved surfaces of said first series being generated from ellipses of substantially the same dimension, and all of said elliptical curved surfaces of said second series being generated from ellipses of the same dimension, and wherein the centers of said first series of elliptically curved surfaces and the centers of said second series of elliptically curved surfaces fall substantially along the circumference of a common circle whose center is at the axis of said body.

5,207,133

APPARATUS FOR FEEDING DAMPING FLUID INTO GUIDE TUBES IN MULTIPLE-SPINDLE TURNING MACHINES AND THE LIKE.

Hans-Michael Weller, Marbach, Fed. Rep. of Germany, assignor to Hainbuch Praezisions-Spannwerkzeugfabrik GmbH, Marbach, Fed. Rep. of Germany

PCT No. PCT/EP90/01300, § 371 Date Feb. 19, 1992, § 102(e) Date Feb. 19, 1992, PCT Pub. No. WO91/02612, PCT Pub. Date Mar. 7, 1991
PCT Filed Aug. 8, 1990, Ser. No. 834,265
Claims priority, application Fed. Rep. of Germany, Aug. 21, 1989, 3927532
Int. Cl.[5] B23B *13/04, 13/08*
U.S. Cl. 82—126 **15 Claims**



1. A feed device for a turning machine, comprising:

a spindle drum having a central axis;

a plurality of guide tubes each having an opening therein and a first end which faces away from said spindle drum;

a holding plate having a plurality of axial passage bores therein, a front side facing toward said spindle drum, and a rear side facing away from said spindle drum, said first end of each of said plurality of guide tubes being fastened to and mounted in a corresponding one of said axial passage bores;

a supporting frame;

a bearing, disposed in said supporting frame, which supports said holding plate thereby allowing said holding plate to rotate about said central axis of said spindle drum;

a connecting line in communication with said plurality of guide tubes;

a common supply line connected to said connecting line for supplying damping fluid to said plurality of guide tubes;

a cover plate, disposed proximate said firs ends on said rear side of said holding plate, which covers said holding plate at least up to a diameter within which said plurality of guide tubes are disposed, said cover plate being coupled to said supporting frame so that it cannot rotate;

a seal disposed between said holding plate and said cover plate so that said rear side of said holding plate is sealed from the external environment;

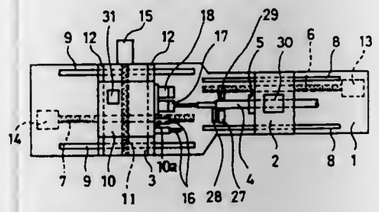
wherein said connecting line is disposed between said holding plate and said cover plate and serves as a distribution passage for supplying damping fluid to said openings of said plurality of guide tubes, and said cover plate has a first passage bore therein which connects said common supply line to said distribution passage.

5,207,134

AUTOMATIC PRECISION LATHE

Hidetsugu Wakatsuki, Nagaoka, Japan, assignor to Tsugami Corporation, Tokyo, Japan

Filed Jan. 21, 1992, Ser. No. 824,257
Claims priority, application Japan, Jan. 21, 1991, 3-19271
Int. Cl.[5] B23B *3/30*
U.S. Cl. 82—129 **8 Claims**



1. An automatic precision lathe comprising:

a bed;

a main spindle having an axis and movable in two opposed axial directions thereof, for holding a long workpiece having a tip portion, a rear end portion and an intermediate portion between said tip portion and said rear end portion, said intermediate portion having a larger diameter than said tip portion and said rear end portion after said tip portion, said rear end poriton and said intermediate portion have been machined;

first driving means for rotating said main spindle;

second driving means for moving said main spindle in said axial directions;

a cross slide movable in two opposed crosswise directions perpendicular to said axial directions of said main spindle, said cross slide having a surface facing said main spindle;

third driving means for moving said cross slide in said crosswise directions;

a first subspindle and a second subspindle having axes parallel with one another and parallel with the axis of said main spindle, said first subspindle and said second subspindle projecting from said surface of said cross slide and movable together with said cross slide in said crosswise directions so as to be alternately axially aligned with said main spindle;

a first chuck provided on said first subspindle, for holding said tip portion of said workpiece, when said first subspindle is axially aligned with said main spindle and the intermediate portion of said workpiece is being worked; and

a second chuck provided on said second subspindle, for holding said intermediate portion of said workpiece, when said second subspindle is axially aligned with said main spindle and the rear end portion of said workpiece is being worked.

5,207,135

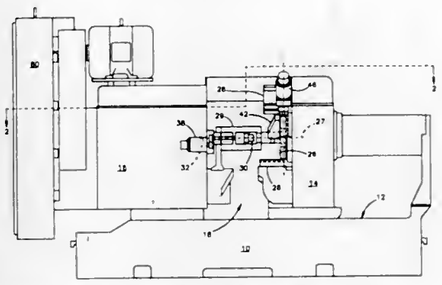
MULTISPINDLE LATHE AND METHOD FOR MACHINING WORKPIECES

Kirt M. Babuder, Euclid; Theodore Cioban, Parma, and Alan F. Primosch, Euclid, all of Ohio, assignors to The National Acme Company, Cleveland, Ohio

Filed Sep. 1, 1992, Ser. No. 938,950
Int. Cl.[5] B23B *9/04, 1/00*
U.S. Cl. 82—129 **11 Claims**

1. In a multispindle lathe including a frame having a bed and spaced apart first and second housings fixed to the bed, said first and second housings defining a workspace therebetween, an indexable drum mounted for rotation on said first housing; means for indexing said drum relative to said first housing about the axis of rotation of said drum; a plurality of driven main spindles carried by said drum, said main spindles having axes of rotation disposed parallel to and spaced about said drum axis; each said main spindle being positioned to carry a workpiece within said workspace; and a plurality of tool mechanisms carried by said frame and disposed about said drum axis for machining workpieces carried by said main spindles, the improvement which comprises:

a secondary spindle facing toward said main spindles and having a fixed axis of rotation coaxial with one of said main spindles when said main spindle is indexed in a position opposite said secondary spindle, said secondary spindle being equipped to grip a portion of a workpiece carried by one of said main spindles;



drive means for rotating said secondary spindle;

means for moving said secondary spindle linearly in an axial direction

a single-axis tool slide located in said workspace a secondary tool support carried by said slide; and

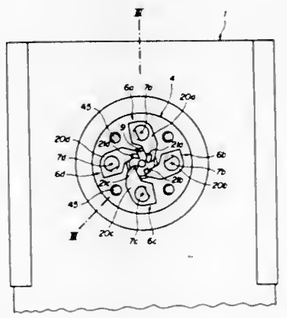
means for moving said secondary tool support on said slide transversely relative to said secondary spindle so that a secondary tool in said tool support can be moved transversely with respect to said axis of said secondary spindle to engage a workpiece carried by said secondary spindle.

5,207,136

MACHINING UNIT WITH ROTARY HEAD CARRYING PIVOTING TOOLS

Daniel Evard, Montmollin; Pierre-louis Piguet, La Chaux-de-Fonds, and Hubert Rossetti, Les Geneveys-sur-Coffrane, all of Switzerland, assignors to Esco S.A., Switzerland

PCT No. PCT/CH91/00070, § 371 Date Nov. 20, 1991, § 102(e) Date Nov. 20, 1991, PCT Pub. No. WO91/14527, PCT Pub. Date Oct. 3, 1991
PCT Filed Mar. 21, 1991, Ser. No. 776,286
Claims priority, application France, Mar. 26, 1990, 90 03993
Int. Cl.[5] B23B *5/12*
U.S. Cl. 82—130 **8 Claims**



1. Rotary head machining unit holding at least two pivoting

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tools for machining a non-rotating part centered on the axis of rotation of the head, comprising:

a frame to which is rotatably mounted a rotor comprising the rotary head and a spindle integral with the rotary head, the rotor having an axial conduit and being connected to rotary drive means;

axial means for guiding said part, said means being attached with bearings to the spindle or the rotary head;

means for maintaining and axially displacing the part;

at least two tool supports attached to the rotary head so as to pivot around respective axes parallel to the axis of rotation, each support having a transversely disposed control lever;

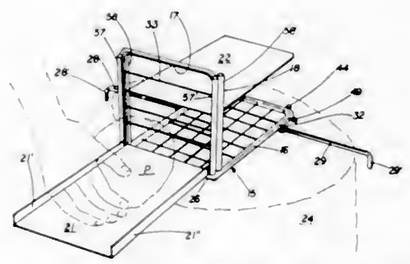
and means for separately controlling pivoting which cooperate with said levers and comprise at least one annular rotary control element which is movable in axial translation within the rotor and is connected to a translation control device, and at least two sliding contact means each of which is associated with a respective one of said control levers and comprises a pair of surfaces located on the respective control lever and on the respective annular rotary control element, said pair of surfaces comprising a guiding surface and a contact surface resting on the guiding surface in a position which varies as a function of translation of the annular rotary control element, characterized in that each guiding surface (26*a*-26*d*) corresponding to a pivoting tool support (6*a*-6*d*) is shaped as a portion of a helix, the axis of which corresponds with the pivoting axis (7*a*-7*d*) of said support.

5,207,137

POTATO DICING DEVICE

Gary G. Baril, 336 Westbrook St., S. Portland, Me. 04106

Filed Apr. 23, 1991, Ser. No. 689,633
Int. Cl.[5] B26D *1/553*
U.S. Cl. 83—167 5 Claims



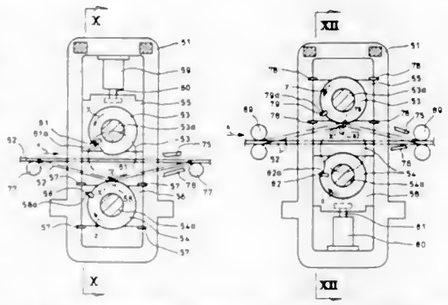
1. A potato dicing device comprising a wire-cutting assembly formed of a closed frame having a horizontal crossed-wire grating portion extending in a horizontal plane and a vertical grating portion bent upwardly therefrom to extend in a plane perpendicular to the horizontal plane said horizontal grating portion having a cross-connection extending between opposite frame sides thereof beneath the vertical grating portion, the opposite frame sides and the cross-connection and a forward end of the closed frame having cutting wire-threading holes, removable cutting wires threaded through the wire-threading holes to provide a crossed-wire grating, opposing sides of the vertical grating portion having thread holes and a cutting wire threaded between the thread holes in the sides of the vertical grating portion, whereby the potato on being pushed through the vertical grating portion is directly delivered to the horizontal grating portion for final dicing of the potato therethrough.

5,207,138

SHEAR

Hisashi Sato, Yokohama; Shigeki Narishima, Yokosuka, and Satoru Kumabe, Yokohama, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 3, 1991, Ser. No. 754,066
Claims priority, application Japan, Sep. 4, 1990, 2-234046; Nov. 30, 1990, 2-127979; Dec. 20, 1990, 2-412402
Int. Cl.[5] B26D *1/62*
U.S. Cl. 83—337 2 Claims



1. A shear comprising a housing, upper and lower drum chocks vertically movably mounted inside the housing for rotatably supporting upper and lower drums, column means extending upwardly from a connection with the lower drum chock and slideably passing through the upper drum chock to guide movement thereof, a lift plate fixed to the column means adjacent to a top of the column means so that the plate is movable in the housing together with the lower drum chock, an expansible and retractable lift drive between the upper drum chock and said lift plate, a first stop for stopping the upper drum chock at a strip cutting position upon expansion of said lift drive and a second stop for defining a lower limit position of the lower drum chock upon retraction of said lift drive.

2. A shear comprising first and second drums rotatably mounted in a housing, means for guiding strip material along a linear path through said housing, said first drum being rotatably fixed in said housing in a position clear of one side of said linear path, means for moving said second drum vertically between a first position clear of the other side of said linear path and a second position where at least a portion of said second drum extends into said linear path to deflect strip material traveling in said linear path into engagement with said first drum, a blade mounted on said vertically movable second drum with a blade edge being aligned with an outer periphery of said second drum and on a plane including an axis of the drum, a further blade mounted on said first drum with a blade edge protruding from an outer periphery of the drum and on a plane including an axis of the drum, said linear path being located in said housing that when said second drum is in its first position, a strip traveling in said linear path is entirely clear of both of said drums by distances such that said strip cannot be scratched by said drums or said blades.

5,207,139

ADJUSTING MECHANISM FOR A PIN HEADER CUTTING MACHINE

David W. Orphanos, Mohrsville, and David A. College, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 22, 1991, Ser. No. 797,499
Int. Cl.[5] B23D *33/02*
U.S. Cl. 83—417 5 Claims

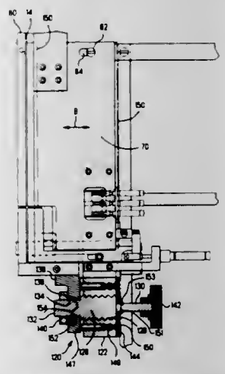
1. A machine for cutting a plurality of pin headers each of a specific length from a length of pin header stock comprising:

(a) a frame having a loading station and a cutting station, where said frame includes a projection for receiving a rotatable shaft journaled for rotation within said projection;

(b) cutting means movable into said cutting station for effecting said cutting of said pin header along a desired cut line and movable away therefrom;

(c) track means, secured to said frame and having a first end at said loading station, for receiving said pin header stock at said loading station and guiding it to said cutting station;

wherein said track means includes a stationary portion rigidly attached to said frame and a movable portion which is movable between a first position and a second position with respect thereto and arranged so that when said movable portion is in said first position said track means accommodates pin header stock of one size and when in said second position accommodates pin header stock of a different size, said movable portion being movable by manipulation of only a single control comprising said rotatable shaft received in said projection and coupled to said frame and to said movable portion of said track means so that upon rotation of said shaft, said movable portion will undergo movement between said first and second positions, where said shaft includes a threaded portion in threaded engagement with said movable portion, a shoulder in abutting engagement with a surface on one side of said projection and means for maintaining said abutting engagement, said movable portion of said track means includes a threaded bore and said rotatable shaft includes said threaded portion in threaded engagement with said bore, and said means for maintaining said abutting engagement is a collar attached to said rotatable shaft in abutting engagement with a surface on another side of said projection opposite said one side.



5,207,140

CLOTH CUTTER BED MADE FROM ELONGATE SUPPORT MEMBERS

Fredric K. Rosen, Weston, Conn., assignor to Gerber Garment Technol, Tolland, Conn.

Continuation of Ser. No. 757,448, Sep. 10, 1991, abandoned. This application Aug. 24, 1992, Ser. No. 932,725
Int. Cl.[5] B26D *7/20*
U.S. Cl. 83—451 17 Claims

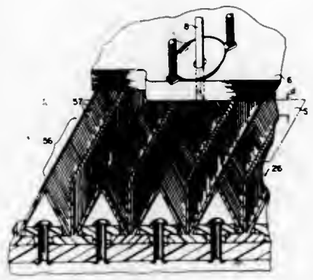
1. A cloth cutter permeable bed defining a support surface for supporting material in sheet form on a cutting machine having a cutterhead positioned above the bed and moveable relative thereto, said cutterhead being of the type having a reciprocating knife, the tip of which being capable of remaining in the bed with each stroke during a cutting operation, said bed comprising:

a work table;

a plurality of elongate support members arranged in rows on said table and each having a base portion and at least one web portion extending generally upwardly therefrom;

said web portions at the upper ends thereof ending in edges capable of collectively supporting a layup thereon in a generally horizontal plane;

said work table further including mounting means cooperating with the base portions of each of said support members to hold each support member on the table such that said



edges of said web portions are positioned adjacent to one another and form a workpiece support surface; and

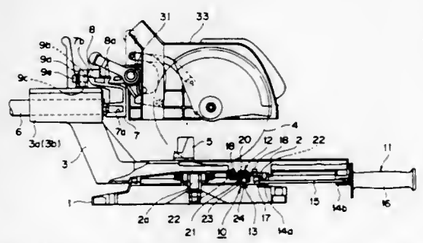
wherein each of said elongate support members has a given length, said given length being defined as running parallel to said generally horizontal plane, the web portion and the base portion of each elongate support member each having a length substantially equal to and continuous with the given length of the elongate support member when the elongate support members are assembled on the work table before the cutting operation by the reciprocating knife.

5,207,141

TURNTABLE POSITIONING DEVICE OF DESK TYPE CUTTING MACHINE

Tomoshige Dehari, Hiroshima, Japan, assignor to Ryobi Limited, Tokyo, Japan

Filed Jan. 28, 1992, Ser. No. 826,863
Claims priority, application Japan, Jan. 30, 1991, 3-2605[U]
Int. Cl.[5] B23D *45/04*; B27B *5/20*
U.S. Cl. 83—471.3 5 Claims



1. A turntable positioning device of a desk-top cutting machine comprising a base, a turntable mounted on the base to be rotatable, a work support fence mounted to the base for guiding a workpiece to be cut, a cutter means disposed swingably towards the workpiece put on the turntable, and a turntable positioning device for positioning the turntable to a predetermined position for a workpiece cutting operation, said turntable positioning device comprising:

a lock means secured to a side end of the turntable and adapted to be engageable with the base;

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a positioning engaging means disposed on either one of the turntable and the base; and

an engaging receive means formed on the other of the turntable and the base to be engageable with the positioning engaging means,

said positioning engaging means comprising an engaging base member secured to one of the turntable and the base to be detachable and adjustable in position, an elastic member disposed in association with the engaging base member, and an engaging member engaged with the engaging receive means by an urging force of the elastic member, said engaging base member comprising a substantially rectangular plate-like member connected to said lock means and having corner portions at which elongated holes are formed, respectively, and a recessed portion formed at a substantially central portion of the plate-like member.

5,207,142

DIAPHRAGM FOR A VACUUM BRAKE BOOSTER

Wayne A. Hewitt, LaPorte, Ind., assignor to Allied Signal Inc., Morristown, N.J.

Filed Jul. 23, 1992, Ser. No. 918,995
Int. Cl.[5] F15B *9/10*
U.S. Cl. 91—369.1 **6 Claims**

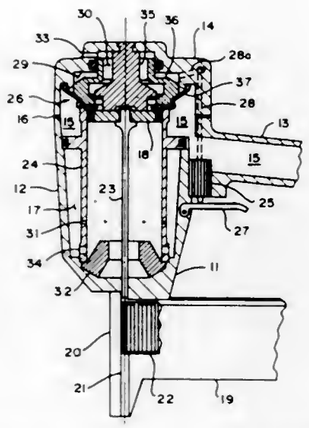
1. A diaphragm of a wall member of a vacuum brake booster which separates a first chamber from a second chamber, said diaphragm having a peripheral bead retained by flanges on first and second shells and an annular central bead located in a groove of the wall mem ber, said wall member responding to a first pressure differential resulting from a first pressure in said first chamber and a second pressure in said second chamber to provide an output member with a force in response to an input force for effecting a brake application, said annular central bead of said diaphragm being characterized by a first radial face, an annular apex and a second radial face, said second radial face having a plurality of indentations that extend to the center of said annular apex, said first pressure differential acting on said diaphragm to move said first radial face into engagement with said wall member to prevent communication between said first and second chambers, said input force in the absence of said first pressure moving said wall member to develop an operational pressure in said first chamber and a second pressure differential between said first and second chambers, said operational pressure acting on said diaphragm to rotate said annular bead about said annular apex and allow communication between said first chamber and second chamber through said plurality of indentations to attenuate said second pressure differential.

5,207,143

PNEUMATIC FASTENER DRIVING APPARATUS WITH AN IMPROVED VALVE

Umberto Monacelli, via Parini, 6, I-20052 Monza, Italy

Filed May 16, 1991, Ser. No. 701,175
Int. Cl.[5] F16D *31/02;* **B25C** *1/04*
U.S. Cl. 91—442 **19 Claims**



1. A pneumatic powered fastener driving apparatus, comprising:

a) a housing having a compressed air chamber and a cavity;

b) a trigger valve selectively coupling said cavity with said compressed air chamber;

c) a cylinder disposed within said housing;

d) a piston disposed within said cylinder to divide said cylinder into first and second portions and moveable therein between a first home position and a second position remote therefrom;

e) a main valve disposed adjacent said first cylinder portion and moveable between a third closed position, wherein said main valve blocks communication between said compressed air chamber and said first cylinder portion and establishes an exhaust path from said first cylinder portion to atmospheric pressure, and a fourth open position, wherein said main valve couples said first cylinder portion to said compressed air chamber and blocks communication between said first cylinder portion and atmospheric pressure;

f) a flexible membrane extending between said housing and said main valve and sealing said cavity from said compressed air chamber, said membrane having an outer peripheral portion, said housing holding said outer peripheral portion to permit said membrane to follow the movement of said main valve, said flexible membrane being disposed between said main valve and said cylinder forming an air tight seal therebetween whenever said main valve is in its third closed position, said flexible membrane blocking said exhaust path from said first cylinder portion whenever said main valve is disposed to its fourth open position;

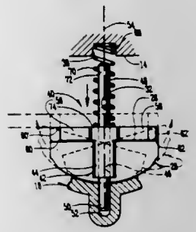
g) said trigger valve actuatable to permit the flow of the pressurized air from said cavity disposing said main valve towards its fourth open position whereby said main valve couples said compressed air to said first cylinder portion thus driving said piston towards its second remote position while said main valve supports said membrane to relieve deteriating stresses otherwise applied to said membrane.

5,207,144

SWASHPLATE LEVELING DEVICE

Ronald J. Sporrer, and Scott D. Meyer, both of Ames, Iowa, assignors to Sauer, Inc., Ames, Iowa

Filed Apr. 29, 1991, Ser. No. 693,160
Int.Cl.[5] F01B *3/00*
U.S. Cl. 92—12.2 **6 Claims**



1. A swashplate leveling device for a variable displacement hydraulic unit which has a housing, a cylinder block rotatable in the housing about a first axial centerline and having pistons axially movable therein, a swashplate tiltable about a transverse axis perpendicular to the first centerline and having a surface engageable by the pistons to control the stroke of the piston within the cylinder block, the leveling device comprising:

an elongated pin fixedly mounted on the housing and having a longitudinal axis defining a second axial centerline offset from and extending substantially parallel to the first axial centerline;

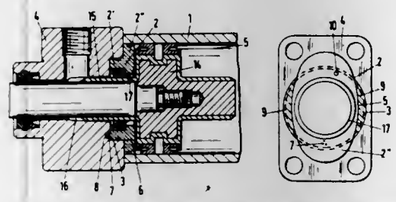
a reciprocal follower slidably mounted on the pin for movement between a first position for engaging the swashplate to maintain the swashplate in an orientation representative of a zero displacement of the hydraulic unit, and a second position wherein the swashplate tilted under the influence of an external force.

5,207,145

WORK CYLINDER, SUCH AS THE WORK CYLINDER OF A RODLESS PISTON CYLINDER

Axel Kemner, Isernhagen, Fed. Rep. of Germany, assignor to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Dec. 4, 1991, Ser. No. 803,286
Claims priority, application Fed. Rep. of Germany, Dec. 5, 1990, 4039172
Int. Cl.[5] F01B *11/02*
U.S. Cl. 92—85 B **5 Claims**



1. Work cylinder with limit position damping, the work cylinder comprising:

a cylinder chamber extending in a longitudinal direction, the cylinder chamber having a first end, a second end and an interior, the interior having a cross section contour;

a piston guided to move in the cylinder chamber in the longitudinal direction;

cylinder covers for being disposed at the ends of the cylinder chamber;

a damping stop for being located on the cylinder chamber side of each cylinder cover;

the cylinder covers, on the cylinder chamber side, having a recess extending in the longitudinal direction, the recess having a cross section contour;

the cross section contour of the recess projecting at least partly beyond the cross section contour of the cylinder interior;

the damping stop comprises one piece having two adjacent segments, wherein a first segment of the two adjacent segments has the cross section contour of the recess and is for being disposed within the recess, and a second segment of the two adjacent segments has the cross section contour of the cylinder interior and is for being disposed within the cylinder interior;

the cross section contour of the cylinder interior is oval, the oval contour having a minor axis and a major axis, and the cross section contour of the recess is circular, the circular contour having a diameter; and

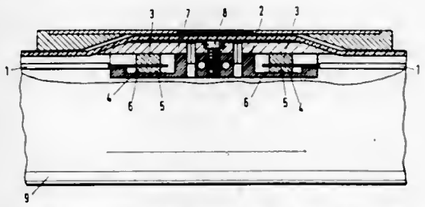
the diameter of the recess is larger than the minor axis and smaller than the major axis of the oval.

5,207,146

WORKING CYLINDER WITHOUT PISTON ROD

Norbert Fortmann, Hanover; Helmut Göttling, Isernhagen; Rudolf Möller, Gehrden; Gerhard Scharnowski, Gehrden, and Hans F. Meyer, Gehrden, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 703,921, May 22, 1991, Pat. No. 5,117,740. This application Dec. 18, 1991, Ser. No. 809,674
Claims priority, application Fed. Rep. of Germany, May 23, 1990, 4016567; Dec. 20, 1990, 4041368
Int. Cl.[5] F01B *29/00*
U.S. Cl. 92—88 **4 Claims**



1. An actuator cylinder operating without a piston rod, comprising:

a cylinder tube having a longitudinal axis;

a piston, axially displaceable in said cylinder tube;

a force transmitting element, which is guided axially along an axis generally parallel to said cylinder tube, having a toothed surface;

a pulling means for transmitting a force associated with a movement of said piston in said cylinder to a force transmission means, comprising a flexible tensile force transmitting element, said pulling means having an end;

a clamping piece, having a toothed surface corresponding to said toothed surface of said force transmitting element, said end of said pulling means being attached to said clamping piece; and

a pressing means for pressing said toothed surface of said force transmission element against said corresponding toothed surface of said clamping piece, so that there is no relative movement therebetween:

wherein said toothed surface of said force transmission element has a greater axial length than an axial length of said clamping piece.

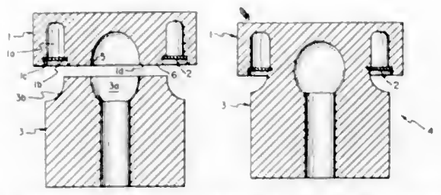
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,147

METHOD FOR THE MANUFACTURE OF A PISTON HEAD HAVING A COOLING CHAMBER AND PISTON HEAD OBTAINED FROM SAID METHOD

Jose M. M. Leites; Jose A. C. Mendes, and Andre Lippai, all of Sao Paulo, Brazil, assignors to Metal Leve S/A Industria E Comercio, Sao Paulo, Brazil

Filed Oct. 17, 1991, Ser. No. 779,728
Claims priority, application Brazil, Oct. 18, 1990, PI 9005371
Int. Cl.[5] F01B *15/10*; B23P *15/10*; F02F *7/00*
U.S. Cl. 92—176 10 Claims



1. Method for manufacture of a piston head having a cooling chamber of the closed type, comprising the steps of:
providing a first blank having a substantially cylindrical section;
forming on said first blank a peripheral circumferential groove surrounded by an outer wall and forming a central recess and a first circumferential rib therearound which is the inner wall of said groove;
providing a second blank;
forming on said second blank a central recess and a peripheral outer recess with a second circumferential rib therebetween;
placing a circumferential annular plate over the open end of said peripheral circumferential groove of said first blank; and
juxtaposing said first and second circumferential ribs and joining them to join said first blank to said second blank to form the rough piston head with said circumferential annular plate and outer wall of said first blank overhanging said peripheral outer recess of said second blank.

9. A piston head comprising:
a first circumferential blank having a cooling chamber defined by a peripheral circumferential groove, a central recess and a first rib between said groove and recess,
a second blank with an outer peripheral recess and a central peripheral recess defining a second rib therebetween,
said first and second ribs being juxtaposed and said first and second blanks joined together at said ribs, and
a circumferential annular plate closing off the first blank circumferential peripheral groove and overhanging the second blank outer peripheral recess.

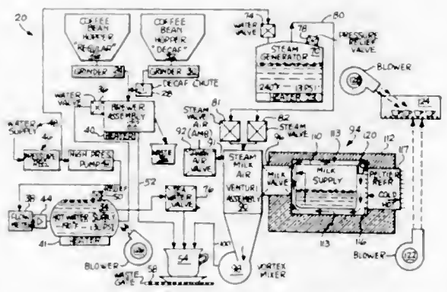
5,207,148

AUTOMATED MILK INCLUSIVE COFFEE APPARATUS

Kyle T. Anderson, Issaquah; Duke W. Goss, Kirkland, and Michael G Lee, Redmond, all of Wash., assignors to Caffe Acorto, Inc., Bellevue, Wash.

Filed Jun. 25, 1990, Ser. No. 543,157
Int. Cl.[5] A47J *31/42*, *31/44*
U.S. Cl. 99—281 15 Claims

1. An apparatus for automatically preparing and pouring steamed milk inclusive espresso beverages comprising:
beverage receiving and dispensing means;
bean grinding means of the character to receive and grind a predetermined quantity of coffee beans;
liquor brewing means coupled to said bean grinding means and to a supply of heated water for receiving the ground coffee beans and the heated water and for delivering to said beverage receiving and dispensing means a charge of liquor in response to electrical control signals:
air entrained steamed milk production means for mixing milk from a refrigerated supply with air to form a foamed, steamed milk mixture and for delivering a charge of said mixture to said beverage receiving and dispensing means, said air entrained steamed milk production means including
milk supply container means adapted for receiving a supply of liquid milk;
refrigeration means for maintaining said milk container means at a regulated refrigerated temperature;
steamed milk air venturi assembly means including a venturi injector throat;
electrically controlled milk valve means for selectively opening a valve to communicate said milk supply container means with said venturi injector throat;
electrically controlled steam valve means adapted to connect a supply of steam to an upstream end of said venturi injector throat, such that the operation of said



electrically controlled milk valve means causes steam to be forced through said steamed milk air venturi assembly means and to draw milk from said milk supply by venturi injection into said venturi injector throat for mixing steam and milk;
air entrainment means for injecting air into said steam and milk mixture in said venturi assembly means, said air entrainment means comprising an air port communicating with said venturi injector throat so that air is drawn into said venturi injector throat along with said milk by the venturi action of said steam for mixing therewith; and
controller means for selectively operating said electrically controlled milk valve means and said electrically controlled steam valve means to cause timed steam flow in said venturi assembly and independently timed milk injection for said mixing thereof.

5,207,149

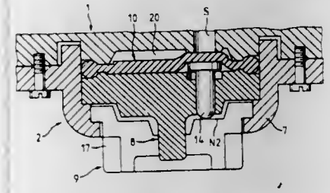
APPARATUS FOR THE PREPARATION OF HOT DRINKS

René Weber, Rnthrist, Switzerland, assignor to Eldom Rothrist AG, Rothrist, Switzerland

Filed Nov. 1, 1991, Ser. No. 786,375
Claims priority, application Switzerland, Nov. 2, 1990, 3485/90
Int. Cl.[5] A47J *31/46*
U.S. Cl. 99—293 19 Claims

1. Apparatus for the preparation of hot drinks and in particular for an espresso machine, said apparatus comprising:
a distributing block with a feed duct for feeding hot water or superheated steam and a plurality of distributing ducts for distributing said hot water or superheated steam to other parts of said apparatus, said feed duct ending with an opening at and said distributing ducts emanating with an opening from a common plane which is located at the outside of said distributing block; and
a multiway valve for selectably connecting said feed duct to

one of said distributing ducts, said multiway valve including a valve housing which is flanged to said distributing block, thereby covering said common plane and defining together with said common plane a valve chamber;
said multiway valve including a disk separate from said valve housing and located within said valve housing, said disk having a first main surface and a second main surface opposite to said first main surface, said disk having a thickness, a normal direction, and a plurality of through holes extending through said disk parallel to said normal direction, said disk being fixedly mounted within said valve housing at a distance from said common plane and with said normal direction extending perpendicular to said common plane, said first main surface of said disk and said common plane together defining a distribution chamber,



each of said through holes being in alignment with one of said emanating distributing ducts;
said multiway valve including a plurality of valve rods, each valve rod being slideably mounted within one of said through holes, each valve rod having a length which is greater than said disk thickness, said valve rod closing said opening of the respective one of said distributing ducts when said valve rod is slid in the respective one of said through holes towards said common plane;
said multiway valve including a plate cam located within said valve housing, said plate cam being rotatably mounted between said second main surface of said disk and said valve housing, said plate cam including a guide link for said valve rods, the position of each of said valve rods being determined by the rotary position of said plate cam.

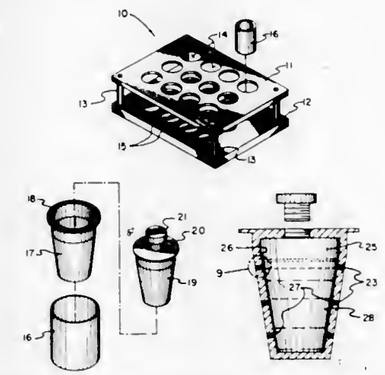
5,207,150

BAKING TRAY APPARATUS

Leo F. Wellman, and Dorothy L. Wellman, both of 4139 Walnuthaven Dr., Covina, Calif. 91722

Filed May 21, 1992, Ser. No. 886,598
Int. Cl.[5] A47J *37/01*
U.S. Cl. 99—439 1 Claim

1. A baking tray apparatus, comprising,
an upper plate of a planar construction spaced from, parallel to, and coextensive relative to a lower plate, and
a plurality of support posts orthogonally and integrally mounted between the upper plate and the lower plate to maintain the upper plate spaced from the lower plate at a predetermined first height, and
the upper plate including a matrix of upper plate bores, the lower plate including a plurality of lower plate cylindrical recesses directed into the lower plate, with the recesses arranged in confronting relationship relative to the upper plate, and
each of said upper plate bores coaxially aligned with a respective one of said lower plate cylindrical recesses, and
each upper plate bore and each lower plate recess is defined by a diameter equal to a predetermined diameter, and
a plurality of cylindrical baking containers are provided and each of said plurality of baking containers is defined by a second height greater than the first height and equal to an outer diameter substantially equal to the predetermined diameter, and each baking container is received within the predetermined upper plate bore and an associated lower plate recess coaxially aligned with said predetermined upper plate bore, and
a plurality of baking container first inserts defined by a container height equal to the second height, with each baking container first insert received within a respective one of said cylindrical baking containers, and each baking container first insert includes an upper flange defined by a flange diameter greater than the predetermined diameter to extend laterally beyond an upper terminal edge of said baking container receiving said baking container first insert, and
at least one baking container second insert directed into said baking container first insert, wherein said baking container second insert includes a top wall, and a top wall bore, the top wall bore removably mounting a handle within said bore projecting above said top wall to define a spacing between said baking container second insert and



said baking container first insert to direct a baking component between the baking container second insert and the baking container first insert, and
wherein the baking container second insert includes a second insert side wall and the second insert side wall includes a matrix of side wall apertures, each side wall aperture is directed through said second insert side wall into communication with an insert container cavity within said second insert, and the second insert side wall includes an interior wall surface within said insert container cavity, and each side wall aperture includes a bimetallic valve plate positioned over said side wall aperture on said interior wall surface, with a fluid contained within said insert container cavity for selective metering through said baking container side wall upon displacement of said bimetallic valve plate relative to a respective insert container side wall aperture upon heating of said baking container second insert.

5,207,151

APPARATUS FOR PASTEURIZING AND PRECOOKING PIZZA BASES

Toai Le Viet, Vevey, and Eberhard Raetz, Corseaux, both of Switzerland, assignors to Nestec S.A., Vevey, Switzerland

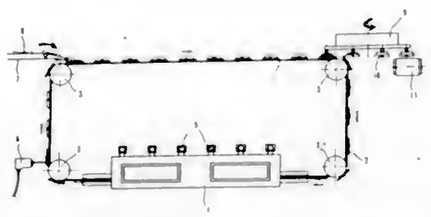
Division of Ser. No. 518,162, May 30, 1990, Pat. No. 5,149,556.
This application Aug. 31, 1992, Ser. No. 938,002
Claims priority, application Switzerland, May 22, 1989, 1920/89
Int. Cl.[5] A23L *3/01*; H05B *6/78*
U.S. Cl. 99—451 12 Claims

1. An apparatus for pasteurizing and precooking pizza bases comprising:
a conveyor belt having an upstream end and a downstream end;

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a plurality of vitroceramic plates attached to the conveyor belt;

a microwave tunnel positioned for heating vitroceramic plates conveyed through the microwave tunnel; and



means positioned downstream of the microwave tunnel for delivering a pizza base to a heated vitroceramic plate.

5,207,152

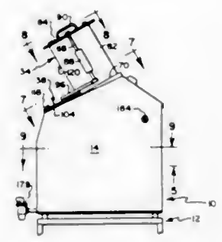
COMPACT JUICE MACHINE

Dale E. Wettlaufer, 7930 Clinton St., Elma, N.Y. 14059

Filed Oct. 28, 1991, Ser. No. 783,762

Int. Cl.[5] A23N *1/02*; B30B *9/06, 15/16*

U.S. Cl. 99—510 16 Claims



1. A compact juice machine capable of shredding fruits or vegetables, pressing the shred pulp to extract juice therefrom, and filtering the extracted juice, the apparatus comprising:

a hopper;

shredder means in communication with the hopper for shredding vegetable or fruit received from the hopper;

press means capable of continuously pressing the vegetable or fruit pulp received from the shredder means, the press means including

a press chamber having two spaced apart generally vertically extending platen walls, and a pair of fixed side walls extending between the platen walls,

a movable platen structure disposed within the press chamber between the fixed platens and the side walls, the movable platen structure including opposed side to side extending platen surfaces and an upper surface extending between the opposed platen surfaces,

platen moving means for reciprocating the movable platen structure towards and away from the platen walls of the press chamber, and

a filter bag assembly having first and second spaced apart pulp receiving pockets and an intermediate saddle portion capable of being supported by the upper surface of the movable platen, each pocket being disposable between a fixed platen surface of the press chamber and an associated platen surface of the movable platen structure; and

filter means disposed below the press means for filtering juice from any large size pieces of pulp which may have been discharged with the juice from the press means.

5,207,153

APPARATUS FOR APPLYING PRINTED MATTER TO OBJECTS

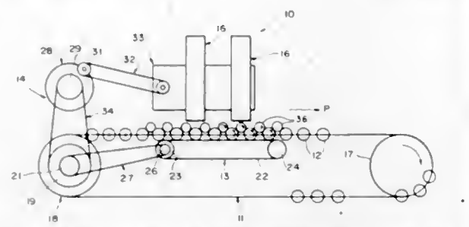
Harry Thomason, 14 Cleworth Close, Astley, Manchester M29 7JF, England

Filed Nov. 27, 1991, Ser. No. 799,100

Claims priority, application United Kingdom, Nov. 28, 1990, 9025900

Int. Cl.[5] B41F *17/18, 17/28*

U.S. Cl. 101—35 20 Claims



1. Apparatus for applying printed matter onto objects, said apparatus comprising conveying means on which objects to be printed are carried, object drive means operable to cause movement of said objects relative to said conveying means and printing means to apply printed matter to the objects, said object drive means and said printing means being operatively linked to said conveying means by a linkage whereby movement of said conveying means causes movement of said printing means and said objects relative to said conveying means, the rate of movement of the conveying means, and movement of the objects and printing means relative to the conveying means being matched whereby printed matter can be applied to the surface of the objects.

5,207,154

PROCESS FOR PRESSING AGRICULTURAL PRODUCTS TO EXTRACT JUICE AND DEVICE FOR USING PROCESS

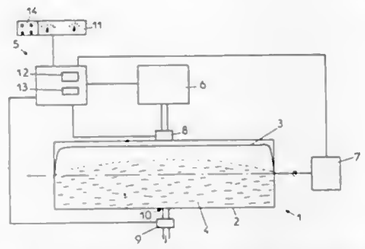
Jean Bonnet, Angers, France, assignor to Constructions Meca-Metalliques Chalonnaises S.A., Chalonnes sur Loire, France

Filed Nov. 15, 1991, Ser. No. 793,021

Claims priority, application France, Nov. 16, 1990, 90 14488

Int. Cl.[5] A23N *1/00*; B30B *9/06, 15/26*

U.S. Cl. 100—37 29 Claims



1. A process of juice extraction from grapes, berries, fruits, vegetables, and like agricultural products using a press having at least one pressure increase sequence to separate solids and liquids from such products and including control and adjustment of the press during juice extraction, the steps comprising supplying the products from which juice is to be extracted into a receptacle of a press and there being a pressing element in said receptacle, measuring one of the rate of extraction or the quantity of liquid extracted from the products to be pressed before, during or after pressing or the amount of partially pressed products remaining after pressing to obtain a first value

thereof, comparing the measured rate, quantity or partially pressed products with corresponding predetermined second values thereof to obtain a resulting value of the difference between the corresponding first and second values, beginning, continuing, interrupting, modifying or completing the pressing operation in response to a said resulting value, the pressing process being at least partially programmed.

5,207,155

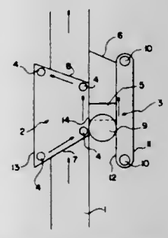
APPARATUS FOR PRINTING MATTER ONTO OBJECTS

Harry Thompson, 14 Cleworth Close, Astley, Manchester, M29 7JF, England

Continuation of Ser. No. 825,915, Jan. 27, 1992, abandoned, which is a continuation of Ser. No. 485,624, Feb. 27, 1990, abandoned. This application Jul. 8, 1992, Ser. No. 911,668

Int. Cl.[5] B41F *17/00*

U.S. Cl. 101—35 6 Claims



1. Apparatus for printing matter onto objects comprising a conveyor for transporting said objects, a support device arranged to receive said objects, and support same spaced from the conveyor, said objects having a bottom surface thereto, and a printing device for applying printed matter to said bottom surface of said supported objects, said apparatus including a first guide device operable to positively drive said objects sideways off said conveyor to said support device said support device being operable to drive said objects over said printing device, said apparatus further including a second guide device operable to positively drive said objects sideways from said support device back onto said conveyor, wherein said support device comprises opposed spaced apart drive belts between which said objects can be gripped so as to be supported stably, and a first said drive belt comprises a run extending across said conveyor so that such run forms the said first guide device.

5,207,156

PROCESS AND APPARATUS FOR PRINTING ON ARTICLES

Ralf Helling, Melle, Fed. Rep. of Germany, assignor to Werner Kammann Maschinenfabrik GmbH, Bunde, Fed. Rep. of Germany

Filed Oct. 30, 1990, Ser. No. 605,634

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1989, 3936157

Int. Cl.[5] B41F *17/18*

U.S. Cl. 101—38.1 20 Claims

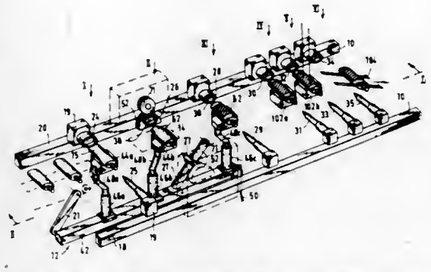
1. A screen printing process for printing on at least one portion of an article, which portion has a non-circular cross-section such that said portion has two mutually-perpendicular cross-sectional axes, one being longer than the other, said axes intersecting at a center point of said portion, comprising the steps of

(a) mounting said article at a printing station in printing relationship with screen printing means such that said article is rotatable about a rotational axis perpendicular to said cross-sectional axes and displaced from said center point of said portion,

(b) placing said article into a first position in space at the printing station in which the longer cross-sectional axis of said portion is substantially horizontal,

(c) rotating said article at the printing station in a first angular direction from said first position to a second position,

(d) rotating said article at the printing station in a second angular direction opposite to said first angular direction



from said second position past said first position to a third position while simultaneously printing on said article during at least a portion of rotation of said article from said second position to said third position, and

(e) rotating said article at the printing station in said first angular direction from said third position back to said first position in space.

5,207,157

CONTROL DEVICE FOR A STENCIL DUPLICATING MACHINE

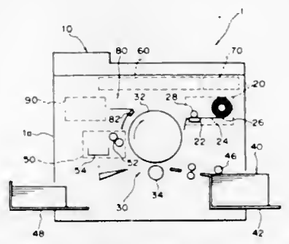
Masanobu Okazaki, Murata, and Kazuyuki Suzuki, Natori, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 633,222, Dec. 21, 1990, abandoned. This application Aug. 4, 1992, Ser. No. 924,513

Claims priority, application Japan, Dec. 22, 1989, 1-331151; Dec. 25, 1989, 1-332850

Int. Cl.[5] B41C *1/14*; B41L *13/06*

U.S. Cl. 101—116 2 Claims



1. A control device for a stencil dupliating machine for selectively executing, in response to a command entered on an operating section, a master making process in which a used master sheet wrapped around a drum in a printing section is removed and discharged by a discharging section and then a new master sheet produced by a master making section is wrapped around said drum, and a printing process in which said printing section prints out an image formed on said new master sheet wrapped around said drum on a paper sheet fed from a paper feeding section, said control device comprising:

master sheet detecting means for determining whether or not the used master sheet or the new master sheet is present on said drum; and

control means for controlling, in response to the command entered on said operating section, said printing section, said discharging section, said master making section and said paper feeding section such that when said master

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sheet detecting means detects the new master sheet on said drum, the printing process is executed while, when said master sheet detecting means does not detect said new master sheet, said printing process is inhibited, and such that when said master sheet detecting means detects a used master sheet on said drum, the master making process is not executed while, when said master sheet detecting means does not detect a used master sheet on said drum, the master making section is executed.

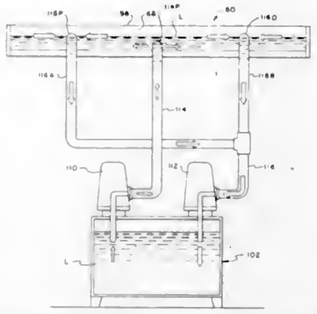
5,207,158
LONG LIVED, VARIABLE-DELIVERY INK METERING METHOD, SYSTEM AND ROLLER FOR KEYLESS LITHOGRAPHY
Thomas A. Fadner, and Lawrence J. Bain, both of La Grange, Ill., assignors to Rockwell International, El Segundo, Calif.
Filed Feb. 19, 1991, Ser. No. 656,646
Int. Cl.[5] A41F *31/26*
U.S. Cl. 101—348 **33 Claims**



1. A roller for use with a surface-scraping doctor blade to meter a fluid applied to an outer surface of the roller, comprising:
a substantially cylindrical core having a core surface;
a wearable coating of a polymer material on said core surface, said coating having a predetermined thickness and having a predetermined percent by volume of substantially hard wear-resistant particles, said coating also having a surface which is said outer surface of the roller;
a plurality of cells in said coating, each of said cells having at least one straight cell wall oriented substantially perpendicular to said outer surface of the roller and having an open end at said outer surface of the roller, said open end forming a substantially sharp corner where said cell wall meets said outer surface.

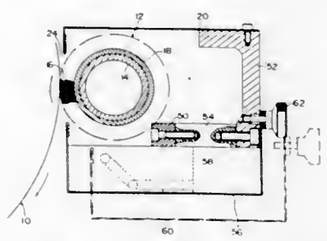
5,207,159
COATING APPARATUS FOR SHEET-FED, OFFSET ROTARY PRINTING PRESSES
Howard W. DeMoore, 10954 Shady Trail, Dallas, Tex. 75220, and Steven M. Person, Seagoville, Tex., assignors to Howard W. DeMoore, Plano, Tex.
Continuation-in-part of Ser. No. 752,778, Aug. 30, 1991. This application May 6, 1992, Ser. No. 879,841
Int. Cl.[5] B41F *31/00*
U.S. Cl. 101—350 **21 Claims**

1. Apparatus for applying liquid material from a supply to a pickup roller comprising in combination:
a doctor blade head having an elongated reservoir for receiving liquid material from the supply, said doctor blade head being adapted to extend in parallel with the pickup roller in an operative position with a portion of the peripheral surface of the pickup roller extending into said reservoir for wetting contact with liquid material contained therein, and two doctor blades attached to said doctor blade head for engagement against said peripheral surface in the operative position;
a supply conduit connecting said supply in flow communication with said reservoir;
a return conduit connecting said reservoir in flow communication with said supply; and,



a first pump coupled in series flow relation with said return conduit for inducing suction flow of liquid material from said reservoir through said return conduit into said supply.

5,207,160
METHOD AND APPARATUS FOR CLEANING PRINTING CYLINDER
Matsuo Harada, Tokyo, Japan, assignor to Nikka Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 20, 1991, Ser. No. 747,735
Claims priority, application Japan, Aug. 20, 1990, 2-218777
Int. Cl.[5] B41F *35/00*
U.S. Cl. 101—425 **6 Claims**

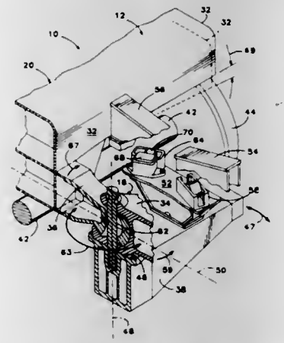


5. An apparatus for cleaning debris from the surface of a rotating printing cylinder in the absence of a cleaning liquid comprising
a) a cylindrical brush having multidirectionally oriented fibers, with the brush fibers bent to have a zigzag shape;
b) means for rotating the brush in a direction opposite to the direction of rotation of the printing cylinder;
c) means for contacting the fibers of the brush with the surface of the rotating printing cylinder; and
d) means for stroking the fibers against the surface of the rotating printing cylinder in a direction opposite to the direction of rotation.

5,207,161
SIDE BEARING ARRANGEMENT FOR MULTI-UNIT RAILROAD CARS WITH DIFFERENT SIDE BEARINGS ON ADJACENT CAR ENDS SHARING A COMMON TRUCK
James D. Pileggi, Beaverton, and Jon B. Zaerr, Portland, both of Oreg., assignors to Gunderson, Inc., Portland, Oreg.
Filed Jul. 24, 1992, Ser. No. 919,712
Int. Cl.[5] B61F *5/14*
U.S. Cl. 105—4.1 **10 Claims**

1. An articulated multi-unit railroad car including a plurality

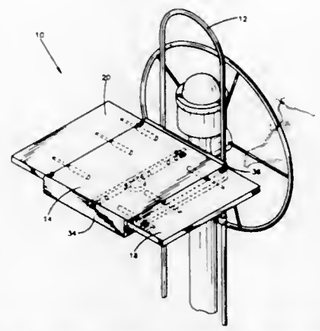
of car units for carrying cargo, each car unit having a weight and said car units being arranged end-to-end, at least one of the car units being interconnected with an adjacent one of the car units by an articulating coupling, the car comprising:
(a) first and second adjacent car units, each of said adjacent car units having a respective end;
(b) a shared truck supporting said respective ends of each of said first and second adjacent car units and defining a vertical truck turning axis;
(c) a first part of said articulating coupling being attached to said first adjacent car unit and being supported atop said shared truck in friction producing relationship thereto, said first part carrying a substantial part of the weight of said first car unit to said shared truck, and said shared truck being able to turn with respect to said first part of said articulating coupling about said truck turning axis;



(d) a second part of said articulating coupling being attached to said second adjacent car unit and being supported by said first part of said articulating coupling in friction-producing relationship thereto, said second part carrying a substantial part of the weight of said second car unit to said first part of said articulating coupling;
(e) a first side bearing, disposed between said shared truck and said first car unit, said first side bearing providing not more than a first amount of resistance to turning of said shared truck about said truck turning axis with respect to said first car unit; and
(f) a second side bearing, producing a resistance to turning between said shared truck and said second car unit and continuously providing a second amount of resistance to turning of said shared truck about said truck turning axis with respect to said second car unit, said second amount of resistance being greater than said first amount of resistance.

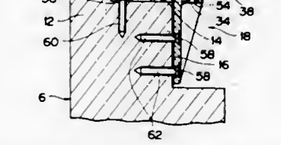
5,207,162
EXPANDABLE TABLE
Phillip Mismas, 7519 Hawk Ave., Mentor, Ohio 44060
Filed Apr. 16, 1992, Ser. No. 869,808
Int. Cl.[5] A47B *1/00*
U.S. Cl. 108—65 **1 Claim**

1. An expandable table comprising:
a planar top member having an upper surface for serving as a table top and a plurality of receptacles formed in its edge;
a plurality of planar leaves adapted to connect to said top member to optionally extend the surface area of said table, each of said leaves including:
a plurality of parallel rods extending from one edge, the axes of said rods being parallel to the surface of their associated leaf and adapted to fit into said top member receptacles when said leaf is connected to said top member;
a plurality of receptacles formed in said one edge, each being adapted to receive one of said rods;
a storage compartment located adjacent to said top member for storing said leaves, whereby said leaves are adapted to fit into said storage compartment with the rods of one leaf fitted into the receptacles of an adjacent stored leaf and



wherein a divider member is centrally located within and connected to said storage compartment, said divider member having holes formed therein for receiving said rods when said leaves are so stored, said storage compartment being adapted to store at least one leaf on each side of said divider.

5,207,163
LEG ATTACHING TOOL
Toshio Kojima, 5-5-2, Chyu-ou, Kasukabe-shi, Saitama-ken, Japan
Filed Jul. 19, 1991, Ser. No. 732,808
Claims priority, application Japan, Jul. 31, 1990, 2-81471[U]
Int. Cl.[5] A47B *3/06*
U.S. Cl. 108—157 **10 Claims**

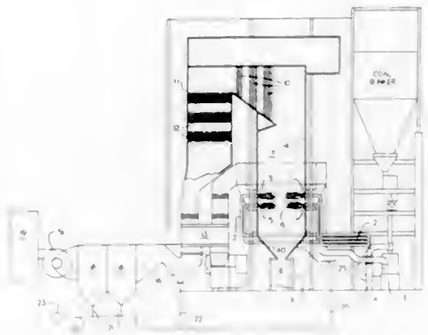


1. A tool for attaching a leg to a top plate, comprising a top plate attaching member which is attachable to the top plate and a leg attaching member which is attachable to the leg, said top plate attaching member having a main body, said main body of said top plate attaching member having an engaging hole therethrough and said hole has an upwardly and outwardly inclined contact surface, said main body of said top plate attaching member having a fixing hole therein for receiving a threaded fixing member, said leg attaching member having a main body and a side body, said main body of said leg attaching member having a guide projection extending therefrom and removably received in said engaging hole of said top plate attaching member, said guide projection having an upwardly and outwardly inclined contact surface which is removably engaged with said contact surface of said engaging hole, said leg attaching member having a fixing hole alignable with said fixing hole of said top plate attaching member so that when said fixing holes are aligned, the threaded fixing member is

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threaded into said holes to clamp said top plate attaching member to said leg attaching member and thereby clamp the leg to the top plate.

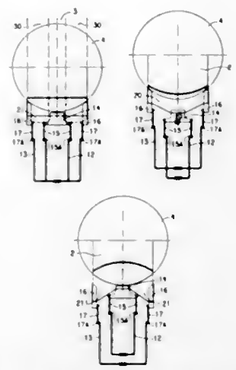
5,207,164
PROCESS TO LIMIT THE PRODUCTION OF FLYASH BY DRY BOTTOM BOILERS
Bernard P. Breen, Pittsburgh, Pa.; James E. Gabrielson, Plymouth, Minn., and Robert A. Schrecengost, Brooklyn, N.Y., assignors to Consolidated Natural Gas Service Company, Inc., Pittsburgh, Pa.
Filed Apr. 15, 1992, Ser. No. 868,702
Int. Cl.[5] F23J *15/00*
U.S. Cl. 110—345 26 Claims



1 A process for the reduction of flyash production from a dry bottom boiler of the type firing pulverized coal, the process comprising the steps of:
(a) collecting the flyash from a collector selected from the group comprising an of an electrostatic precipitator, a baghouse, a cyclone collector, a multiclone collector, a gravity separator and a sharply curved duct;
(b) removing the flyash in a stream of carrier gas;
(c) adding a fuel to the stream of carrier gas and flyash; and
(d) introducing the carrier gas, flyash and fuel into the boiler in a manner so that heat from burning the fuel and the heat from at least one of surrounding gas and slag provide energy to heat and soften the flyash so that the softened flyash is agglomerated and falls into a bottom ash pit.

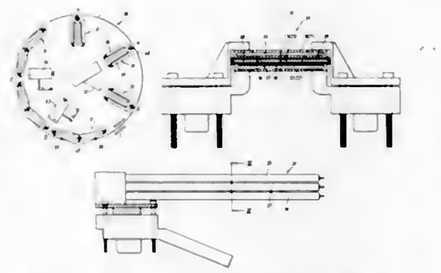
5,207,165
METHOD FOR VARYING THE CURVATURE OF THE SEWN TIP OF STOCKINGS WITH A SEWING MACHINE AND DEVICE FOR CARRYING OUT SAID METHOD
Vinicio Gazzarrini, Impruneta, Italy, assignor to Solis S.r.l., Florence, Italy
Filed Feb. 26, 1992, Ser. No. 842,064
Claims priority, application Italy, Feb. 26, 1991, 000039 A/91
Int. Cl.[5] D05B *21/00*
U.S. Cl. 112—262.2 11 Claims

1. Method for varying the curvature of the sewn tip of stockings utilizing means for supporting the stocking and for positioning the tip in a flattened order on a circular, rotating sewing plane in correspondence with the sewing position, the method comprising the steps of:
(a) gripping a free end of the stocking, in a center of the stocking, outside and beyond said rotating sewing plane;
(b) elastically stretching, in the longitudinal direction of the stocking, a central area of the flattened tip of the stocking thus gripped with respect to a side area thereof to obtain a curvilinear seam with a radius greater than the radius of the rotating sewing plane;
(c) arranging the flattened tip of the stocking thus elastically stretched on the rotating sewing plane;
(d) releasing the free end of the tip of the stocking thus arranged;



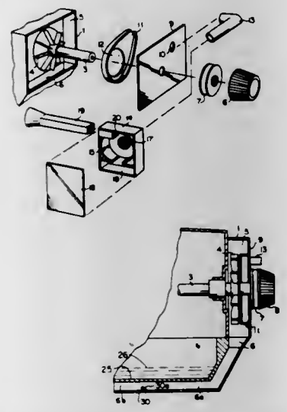
(e) carrying out the sewing, progressively rotating the sewing plane and at the same time cutting the excess fabric with respect to a seam line;
(f) releasing the tip of the stocking thus sewn.

5,207,166
METHOD AND APPARATUS FOR MAKING PANTYHOSE WITH A COMFORT GUSSET
Rudolf Eichhorn, Altkrautheim, Fed. Rep. of Germany, assignor to Detexomat Machinery Limited, Buckinghamshire, England
Continuation of Ser. No. 615,892, Nov. 20, 1990, abandoned.
This application Dec. 2, 1991, Ser. No. 801,650
Claims priority, application Fed. Rep. of Germany, Nov. 23, 1989, 3938768
Int. Cl.[5] D05B *97/00*
U.S. Cl. 112—262.2 9 Claims



1. A method for the machine sewing of a pair of tights having a comfort gusset extending at least from the crotch over the seat portion and to the waistband of said tights, comprising the following successive steps:
a) prefabricating a comfort gusset in the form of a tubular knitted part having an end band portion;
b) closing the end of the tubular knitted part remote from said end band portion by means of a closing seam;
c) pulling the tubular comfort gusset onto a form disposed between two other forms each of said two other forms receiving a stocking portion of the pair of tights in such a manner that said closing seam extends partially in a plane perpendicular to the longitudinal planes of said forms which are parallel to one another; and
d) subsequently seaming the stocking portions to the comfort gusset after a previous partial cutting of each of said gusset and said stocking portion.

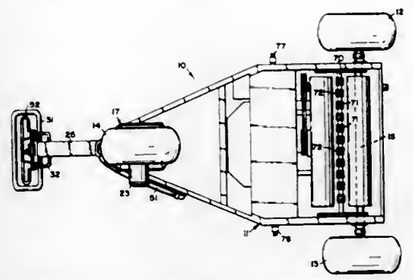
5,207,167
COOLING AND WASTE COLLECTION SYSTEM FOR A SEWING MACHINE
Katsuyoshi Inomata, Chofu, Japan, assignor to Juki Corporation, Tokyo, Japan
Filed Apr. 25, 1991, Ser. No. 691,343
Claims priority, application Japan, Apr. 25, 1990, 2-44313[U]; Sep. 25, 1990, 2-100058[U]
Int. Cl.[5] D05B *71/00, 81/00;* F28F *13/12*
U.S. Cl. 112—280 12 Claims



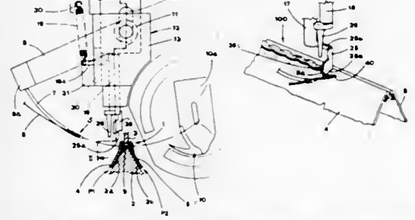
1. A cooling system for a sewing machine comprising:
a fan rotatably driven by a main shaft of the sewing machine;
an air blowing chamber partially enclosing said fan;
an air passage having a suction passage for feeding air from the outside atmosphere to said air blowing chamber and a cooling passage for feeding air from said air blowing chamber to an oil pan of the sewing machine, said suction passage having one end connected to said air blowing chamber and another end opening at the sewing area of the sewing machine, and said cooling passage having one end connected to said air blowing chamber and another end connected to said oil pan;
an air intake port mounted within said cooling passage; and
pressure decreasing means mounted within the cooling passage for lowering the air pressure at said air intake port and to draw air through said air intake port.

5,207,168
METHOD AND APPARATUS FOR TREATING TURF
Robert C. Comer, Hopkins, Minn., assignor to The Toro Company, Minneapolis, Minn.
Continuation of Ser. No. 806,657, Dec. 13, 1991, abandoned, which is a division of Ser. No. 434,758, Nov. 13, 1989, Pat. No. 5,119,744. This application Aug. 17, 1992, Ser. No. 930,974
Int. Cl.[5] A01B *45/00*
U.S. Cl. 111—200 6 Claims

1. A turf treating method comprising:
(a) creating a source of relatively high pressure incompressible liquid,
(b) periodically injecting jets of said incompressible liquid from above said turf through the turf into soil below the turf at a pressure that will cause a lateral dispersion of the liquid within said soil,
(c) moving said source of incompressible liquid over the surface of said turf in a pattern such that the lateral dispersion from adjacent jets coact with one another to lift and fracture the soil and reduce the general soil density.



5,207,169
AUTOMATIC MACHINE FOR STITCHING OF VARIOUS ARTICLES, IN PARTICULAR LEATHER ARTICLES
Ciucani Mario, Via S. Girolamo, Fermo (A.P.), Italy
Filed Aug. 17, 1992, Ser. No. 931,256
Claims priority, application Italy, Aug. 28, 1991, 000309/91[U]
Int. Cl.[5] D05B *15/00, 27/20*
U.S. Cl. 112—49 7 Claims



1. In an automatic machine for sewing articles made of leather and comprising:
a longitudinal guide that forms two sloping flat surfaces converging at the top and forming first and second working surfaces respectively, with articles to be sewn arranged on top of said working surfaces;
a first shaft oriented longitudinally and rotatably supported over said guide, this first shaft being made to reciprocate axially and to move with to-and-fro movement in time relation with its reciprocating motion; an arm keyed onto said first shaft;
a needle extending in an arc and provided with a thread, this needle being tangentially secured to the free end of said arm and alternatively situated, as a result of the reciprocating motion of the first shaft, at a raised position, located aside of said first working surface, and at a lowered position in which the needle passes through a transverse hole made in said guide while piercing upper edges of said articles;
a rotary hook device located aside of said second working surface and adapted for cooperating with said needle to make stitches;
means moved longitudinally with a to-and-fro motion in time relation with with the oscillatory motion of said needle and designed to feed said articles in a preset direc-

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tion and in synchrony with the motion of said shaft in the same direction,

a wrinkling device moved longitudinally in synchrony with the axial translation of said first shaft;

an inner presser foot and an outer presser foot with respect to said underlying first working surface, these presser feet being connected with said wrinkling device and moved independently of each other between a raised idle position and a lowered operative position, said inner presser foot being adapted to make, when at its operative position, a wrinkle arranged along a region of said upper edge of said article situated on top of said first working surface, while said outer presser foot holds, when at the operative position, a thread portion that is external with respect to said wrinkle;

means connected to said wrinkling device for moving vertically said presser feet in time relation with the oscillatory motion of said needle, so that the raising of said outer presser foot, that occurs in time relation with the raising of said needle and before the raising of said inner presser foot, causes said thread portion to be released from said outer presser foot and to be subsequently temporarily held by said inner presser foot, from which it is lastly released so as to press the outer surface of the said region to fix said wrinkle.

5,207,170

MARINE PROPULSION UNIT CONTROL SYSTEM

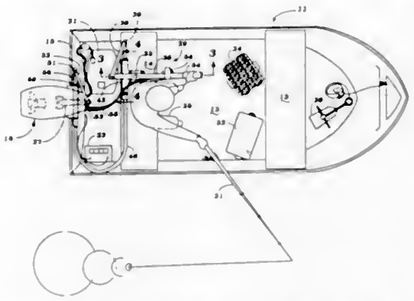
Ryoji Nakahama, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed May 28, 1991, Ser. No. 705,773

Claims priority, application Japan, May 30, 1990, 2-138584

Int. Cl.[5] B63H *25/22*

U.S. Cl. 114—150 **18 Claims**



1. A watercraft control for use in a hull having a transom and a marine propulsion unit mounted to the rear of said transom for steering movement about a generally vertically extending axis for steering of said hull, means providing an operator's area within said hull and spaced forwardly of said transom, the improvement comprising a steering control adapted to be mounted as a unit within said hull only in an area contiguous to said operator's area other than forwardly thereof to be operated by an operator's hand and moveable in a horizontal plane, and transmitting means for attachment only to said steering control and said marine propulsion unit for transmitting movement of said steering control into steering movement of said propulsion unit without requiring any other connection with the hull.

5,207,171

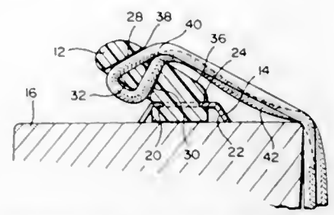
ADJUSTABLE ROPE LOCK

Samuel M. Westwood, 111, 2005 Linden St., Bethlehem, Pa. 18017

Filed Nov. 14, 1991, Ser. No. 791,852

Int. Cl.[5] B63B *21/04*

U.S. Cl. 114—218 **14 Claims**



10. An adjustable rope lock comprising a body having a pair of angularly disposed passageways therethrough, a rope extending through the passageways, one end of the passageways merging into a single elongate opening at one surface of the body and including spaced ends at another surface of the body and means supporting said body whereby the angle of a taut rope segment of the rope approaches the line of resistance provided by the body to the force exerted on the taut rope segment, to frictionally lock the rope segments when the taut rope segment approaches said line of resistance.

5,207,172

BOAT DECK COVERING AND METHOD FOR APPLYING SAME

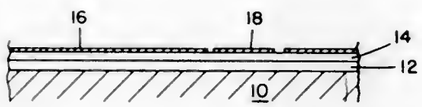
Luitgard Wolter, Gartenweg 1, D-6114 Gros Umstat/Riehen, Fed. Rep. of Germany

Filed Nov. 19, 1991, Ser. No. 794,468

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1990, 4038181

Int. Cl.[5] B63B *5/24*

U.S. Cl. 114—357 **19 Claims**



1. A boat deck surface covering comprising at least two layers, applied one over the other, each said layer comprising a slow hardened elastic resin composition containing a hardener for the resin, and a solid particulate filler material of low density, the upper layer containing filler material which imparts to said layer the appearance of wood, and the underlayer containing coloring agent which imparts to said layer the appearance of gap material, narrow spaced portions of the upper layer being removed to expose portions of the underlayer and produce a deck covering simulating wood planking spaced by gap material.

5,207,173

LOW PRESSURE TIRE ALARM INDICATOR

Frederick F. Sadri, 2222 Beverly Dr., Charlotte, N.C. 28207

Filed Oct. 27, 1992, Ser. No. 967,180

Int. Cl.[5] B60C *23/06*

U.S. Cl. 116—34 B **9 Claims**

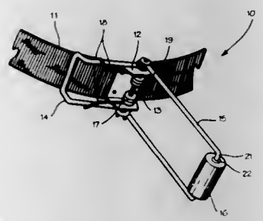
1. A low pressure tire indicator comprising:

(a) a mounting means for being mounted on a wheel hub;

(b) a rocker arm mounted on the mounting means and extending away from said wheel hub towards the inside tread wall of a pneumatic tire mounted on said wheel hub, said rocker arm including a roller on a free end for engaging the inside tread wall of the tire during a low pressure condition;

(c) a hammer mounted on the mounting means and moving in unison with said rocker arm; and

(d) a biasing means mounted on the mounting means in cooperation with said rocker arm and said hammer and, during proper tire inflation, normally urging said hammer into contact with said wheel hub, and positioning the roller on the free end of said rocker arm between said wheel hub and the inside tread wall of the tire;



(e) whereby a predetermined low pressure within the tire causes momentary engagement between the roller and the inside tread wall of the tire once during each revolution of the tire as the portion of the tire adjacent the low pressure tire indicator engages a road surface, followed by abrupt disengagement of the roller from the inside tread wall and an abrupt impact between the hammer and the wheel hub as the rocker arm and the hammer return to their normal positions, producing an audible warning of low tire pressure.

5,207,174

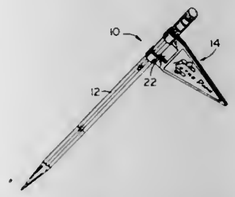
PENCIL EMBLEM COMBINATION

Howard M. Fabbrini, 735 Holly Rd., Cadillac, Mich. 49601

Filed Jan. 13, 1992, Ser. No. 819,815

Int. Cl.[5] G09F *17/00*

U.S. Cl. 116—173 **4 Claims**



3. A combination pencil and pencil attachment comprising:

an elongated pencil having a writing element at one end, and a second end;

an elongated flexible decorative element at said second end;

said decorative element having a central portion and a pair of end portions, all said portions having an outer surface and an inner surface;

said outer surfaces of said end portions having decorative indicia thereon;

said decorative indicia comprising institutional or franchise emblems;

said central portion comprising spaced strips separated by a cutout;

said inner surfaces having an adhesive over the full surface thereof;

said central portion strips extending around and adhered to said second end of said pencil and extending therefrom to resemble ribbons, and said end portion inner surfaces being in engagement with and adhered to each other, whereby said elongated decorative element extends transversely to said pencil in a fashion simulating a flag on a pole.

5,207,175

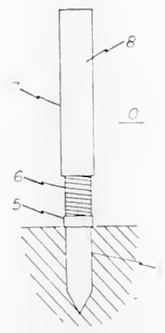
MARKER POST

Garbis Andonian, 138 Grant St., Lexington, Mass. 02173

Filed Mar. 17, 1992, Ser. No. 852,672

Int. Cl.[5] E01F *9/00*; **G09F** *7/22*

U.S. Cl. 116—209 **11 Claims**



1. A marker post for identifying a location comprising:

a base having a bottom portion fixed to a surface and an upper portion having a means for connection;

flexing means having a first internal diameter and a first external diameter, said flexing means further having a bottom end axially coupled to said means for connection and responsive to an external force for deflecting a predetermined amount;

a pipe axially coupled to a top end of said flexing means for receiving said external force, said pipe having a second internal diameter smaller than said first external diameter, said pipe being axially forced over said upper end of said flexing means.

5,207,176

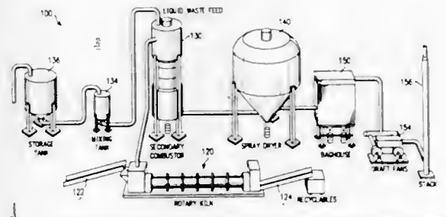
HAZARDOUS WASTE INCINERATOR AND CONTROL SYSTEM

Robert C. Morhard, Wylie, Tex.; Peter J. Astrauskas; Michael E. Weber, both of Joplin, Mo.; Irving H. Tyler, Greensboro, N.C.; Donald R. Beltz, Allentown, Pa.; Mark M. Zaugg, Bountiful, Utah; Stanley E. Hill, Corona; Charles J. Trom, Costa Mesa, both of Calif.; Johnny R. Isbell, El Dorado, Ark., and Thomas E. Berty, Tustin, Calif., assignors to ICI Explosives USA Inc, Wilmington, Del.

Filed Nov. 20, 1990, Ser. No. 616,192

Int. Cl.[5] A47J *36/00, 36/24*

U.S. Cl. 110—246 **83 Claims**



1. An incinerator for use in destroying hazardous waste, said

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destruction producing exhaust gases and destroyed waste, comprising:

(a) a kiln with a waste entrance, a waste exit, an air entrance and an air exit;

(b) means to heat said kiln;

(c) means to feed waste into the waste entrance;

(d) means to withdraw destroyed waste from the waste exit;

(e) pollution control means in communication with said air exit; and

(f) means to pull combustion air through the kiln and the pollution control means; and

(g) primary, secondary, and tertiary, means to contain fugitive exhaust gases from the kiln.

5,207,177

PULSATOR

Magnus Lidman, Tumba, Sweden, assignor to AB Manus, Tumba, Sweden

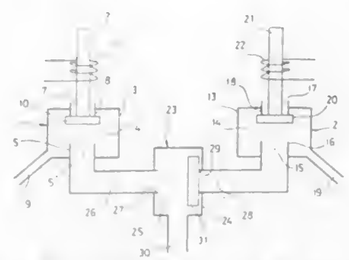
PCT No. PCT/SE91/00342, § 371 Date Jan. 7, 1992, § 102(e) Date Jan. 7, 1992, PCT Pub. No. WO91/17651, PCT Pub. Date Nov. 28, 1991

PCT Filed May 15, 1991, Ser. No. 781,239

Claims priority, application Sweden, May 18, 1990, 9001825

Int. Cl.[5] A01J *5/14*

U.S. Cl. 119—14.28 4 Claims



1. In a pulsator comprising first and second valve devices, each of said first and second valve devices having a pulsation outlet, a pressure inlet to be connected to a first source of pressure for generating a first pressure, and a pressure outlet to be connected to a second source of pressure for generating a second pressure, said second pressure being lower than said first pressure, said pulsator further comprising means for adjusting each of said first and second valve devices for alternately connecting the pulsation outlet of each said valve device to said first source of pressure via the respective inlet of the valve device and to said second source of pressure via the respective pressure outlet of the valve device, wherein the improvement comprises a third valve device having a valve housing forming a chamber, a first inlet to said chamber connected to the pressure outlet of the first valve device, a second inlet to said chamber connected to the pressure outlet of the second valve device, first and second valve seats extending around respective openings of the first and second inlets in said chamber, an outlet from said chamber connected to said second source of pressure, and a valve member which is displaceable in the chamber between a first position at which the valve member abuts sealingly against the first valve seat, and second position, at which the valve member abuts sealingly against the second valve seat.

5,207,178

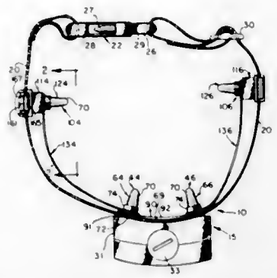
ELECTRODE DEVICE FOR AN ELECTRIC SHOCK GENERATOR CARRIED ON AN ANIMAL COLLAR

Robert McDade; Steven Pancheri, both of Downingtown, and Vincent A. Juliana, Chester Springs, all of Pa., assignors to Invisible Fence Company, Inc., Berwyn, Pa.

Filed Jan. 31, 1992, Ser. No. 830,401

Int. Cl.[5] A01K *15/00*; G08B *23/00*

U.S. Cl. 119—29 50 Claims



1. An electrode device for use with an electric shock generator carried on a collar of an animal, the electric shock generator having at least one output terminal for producing an electrical shock for output to the animal under predetermined conditions to control movement of the animal, said electrode device comprising:

A. an electrically insulative electrode casing removably mountable on the collar remote from the shock generator, the electrode casing having a slide for mounting the electrode casing on the collar to permit the electrode casing to slidably move along the collar;

B. an electrode supported on the electrode casing in position to engage the animal to transmit the electrical shock produced at the output terminal of the shock generator to said animal under said predetermined conditions, the electrode being moveable with the electrode casing on the collar; and

C. a flexible electrical connector for electrically connecting the output terminal of the shock generator with said electrode, the electrical connector providing an electrically conductive path between the output terminal of the shock generator and the electrode so that the electrical shock produced at the output terminal of the shock generator is passed through the conductive path of the electrical connector to the electrode for transmission to the animal under the predetermined conditions, said flexible electrical connector maintaining electrical connection between the output terminal of the shock generator and the electrode during slidable movement of the electrode casing on the collar.

5,207,179

PET CONFINEMENT SYSTEM

David L. Arthur, 12456D Scalane Dr., Florissant, Mo. 63033, and David S. Pohlman, 208 Carlyle Lake Dr., Creve Coeur, Mo. 63141

Filed May 13, 1992, Ser. No. 882,483

Int. Cl.[5] A01K *3/00*; G08B *23/00*

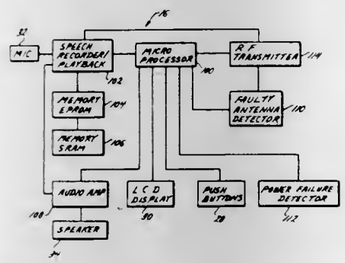
U.S. Cl. 119—29 26 Claims

1. A pet confinement system, the system including:

means for emitting a voice encoded RF signal;

means connected to said emitting means for generating said voice encoded RF signal from a prerecorded spoken command and broadcasting same over said emitting means; and

a battery operated RF receiver adapted for attachment to said pet, said RF receiver having means for decoding said voice encoded RF signal and announcing said prerecorded command to said pet as said pet approaches within



a predetermined distance to a boundary, thereby to encourage said pet to withdraw from said boundary.

5,207,180

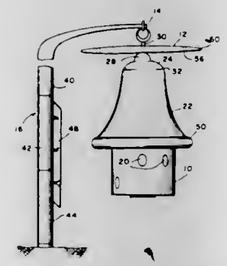
SQUIRREL PROOF SHAPED BIRD FEEDER WITH DUNG SHIELD

Shirly L. Graham, 9891 Baltimore National Pke., Ellicott City, Md. 21043

Filed Feb. 27, 1991, Ser. No. 661,223

Int. Cl.[5] A01K *39/014*

U.S. Cl. 119—52.3 4 Claims



1. In an above the ground supported bird feeder system having a support and a bird feeder suspended therefrom, the improvement comprising;

the bird feeder having an upper, generally bell shaped portion and a lower feeding portion; said upper portion having a knobbed roof with a slightly enlarged roof shoulder thereunder and a wall portion extending downwardly from the roof shoulder and terminating in an outwardly projecting flared section; said lower feeding portion extending beneath the flared section and having a diameter substantially smaller than that of said flared section, said lower feeding portion further having feed presenting means therein for allowing birds access to the feed contained in the feeder; and a dung shield disposed above the feeder between a free arm of the support and the knobbed roof of said feeder, the dung shield having a plurality of arcuate slots therein, said slots being positioned about the periphery of said dung shield such that the innermost edge of each slot is located outwardly beyond the flared section of said feeder.

5,207,181

BIRD FEEDER

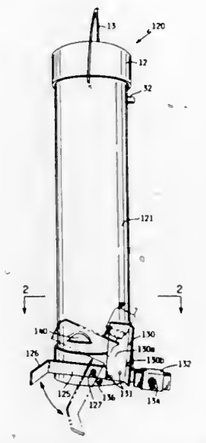
Selmer M. Loken, 1270 Wild Ridge Trail, Newport, Minn. 55055

Continuation-in-part of Ser. No. 780,152, Oct. 21, 1991, which is a continuation-in-part of Ser. No. 718,963, Jun. 21, 1991, Pat. No. 5,105,765. This application May 19, 1992, Ser. No. 886,038

The portion of the term of this patent subsequent to Apr. 21, 2009, has been disclaimed.

Int. Cl.[5] A01K *39/00*

U.S. Cl. 119—57.9 3 Claims



1. A hanging bird feeder for selectively allowing a bird to feed thereon, comprising:

a cylindrical rigid tubing having an inside and an outside, said tubing having a first end and a second end;

a first cap located on said first end to provide a cover to one end of said tubing; a second cap located on the other end of said tubing to provide a bottom to hold bird seed in said tubing, said tubing having a curved opening with said opening being sufficiently small so that only one bird can feed at a time, said curved opening having an inward protruding upper lip and an inward protruding lower lip to direct rainwater over said curved opening;

a tiltable perch having a feeding position and a non-feeding position, said tiltable perch having a feeding region for a bird to sit on when eating bird seed from said curved opening, said perch having a cantilevered member extending therefrom, said perch having an edge sufficiently narrow to prevent snow and ice build-up;

a pivot rod extending through said tubing said second cap and said tiltable perch to permit said perch to tilt from the feeding position to the non-feeding position;

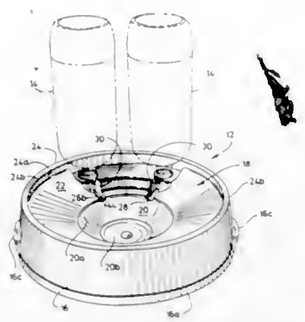
a positionable weight located on said cantilevered member, said positionable weight allowing a person to limit the size of the bird which can feed from said tiltable perch without tipping said perch from the feeding position to the non-feeding position;

a stop to hold said perch in the feeding position; and

a bird seed level indicator, said level indicator moves in response to the level of bird seed, said bird seed level indicator including a float that remains on top of the bird seed, a string extending through an opening in said tubing, said string having a first end and a second end, said float connected to one end of the string and a visual indicator located on the outside of said tubing and attached to the other end of the string so that as the level of the bird seed falls in said tubing the visual indicator alerts a person to the need to replenish the bird seed.

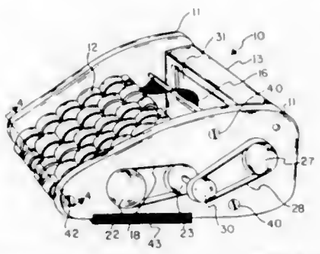
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,182
ANIMAL WATERING APPARATUS
Moises B. Lorenzana, 601 Lake Hinsdale Dr., Willowbrook, Ill. 60514
Filed Jun. 29, 1992, Ser. No. 905,674
Int. Cl.[5] A01K *7/00*
U.S. Cl. 119—77 20 Claims



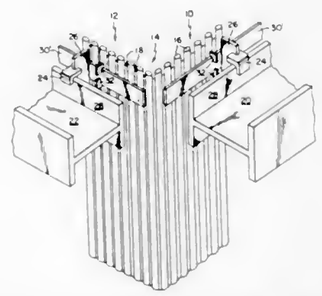
1. An animal watering apparatus comprising an open topped receptacle from which an animal may drink liquid, said receptacle being supported by an upstanding peripheral outer wall which is formed with a lower edge for engagement with a supporting surface, said receptacle being connected at its periphery to an upper edge of said outer wall, said receptacle having a first portion which is cup-shaped and disposed inwardly and downwardly from said upper edge of said outer wall, said receptacle having a second portion which is funnel-shaped and extends downwardly between said upper edge of said outer wall and said first portion to drain liquid into said cup-shaped first portion, said receptacle being formed with at least one recess which detachably receives the mouth of a first reservoir bottle which is mounted in an inverted position to supply liquid to said receptacle, said first reservoir bottle being supported with the mouth level with lowermost extension of said funnel-shaped second portion of said receptacle, a passageway extending between said recess and said first portion of said receptacle to transfer liquid from said recess to said receptacle.

5,207,183
FLEA-RID AND GROOMING APPARATUS AND METHODS
Martha Praschnik, 2340 NW. 41 St., Boca Raton, Fla. 33431; Marina Wasserman, Obligado 1563 6th Floor (1426), and Ariel Lerer, Olleros 2344, 19th Floor Apt. C. (1426), both of Buenos Aires, Argentina
Filed Dec. 6, 1991, Ser. No. 802,896
Int. Cl.[5] A01K *13/00*; A01M *5/04*
U.S. Cl. 119—87 14 Claims



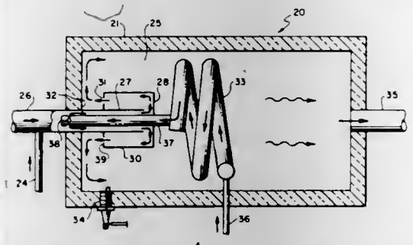
1. Apparatus for grooming and removing fleas from the hair and skin of an animal comprising:
a housing,
first and second axles mounted to said housing with a space between said axles,
a motor drivingly connected to said first axle,
a belt extending around said first and second axles, said belt being driven there around by said motor, said belt comprising means for capturing a flea, debris, or other like items therewithin.
said means for capturing a flea, debris, or other like items therewithin comprising a plurality of semi-flexible hooks each of said hooks substantially comprising an inverted "U" member with the ends thereof being attached to a base member, said "U" member having an opening along the length thereof.

5,207,184
BOILER BUCKSTAY SYSTEM FOR MEMBRANDED TUBE WALL END CONNECTION
Edward W. Kreider, Wadsworth, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.
Filed Apr. 3, 1992, Ser. No. 862,866
Int. Cl.[5] F22B *37/24*
U.S. Cl. 122—510 13 Claims



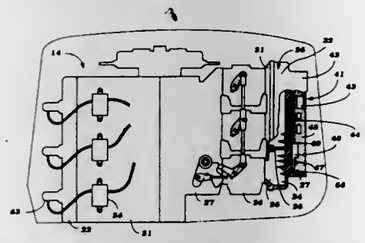
1. A buckstay system for a membraned-tube wall of a steam generator having a first wall section which meets a second wall section at an angle to form a corner, and which utilizes the natural load carrying ability of membraned tube wall construction, alone, to facilitate distribution of combustion gas pressure loads from one wall section to the other, the system comprising:
at least one buckstay extending across at least part of each wall section;
standoff means engaged with each buckstay and extending toward each respective wall section;
a support bar connected to the standoff means of each buckstay, each support bar being engaged against and along at least part of the length of each respective wall section, each support bar having an end adjacent the corner which is spaced from the corner so that the support bar of the first wall section is spaced from the support bar of the second wall section;
engagement means fixed to each wall section and engaged with each respective support bar for allowing lateral shifting between each wall section and each support bar, and for transmitting bending forces which tend to bend each wall section, to each respective buckstay which resists such bending forces, and for transmitting the weight of each buckstay to a respective wall section for supporting each buckstay on its respective wall section.

5,207,185
EMISSIONS REDUCTION SYSTEM FOR INTERNAL COMBUSTION ENGINES
Leonard Greiner, 1310 Logan Ave., #E, Costa Mesa, Calif. 92626, and David M. Moard, 1545 S. El Molino, Pasadena, Calif. 91106
Filed Mar. 27, 1992, Ser. No. 858,840
Int. Cl.[5] F02B *43/08*
U.S. Cl. 123—3 10 Claims



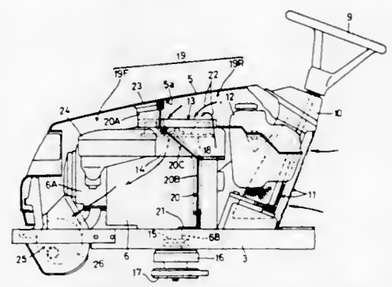
1. In an internal combustion apparatus, the improvement which comprises:
a burner means for combusting air and hydrocarbons at fuel-rich stoichiometric air/fuel ratios from 0.3 to 1 to provide air/fuel vapors; and
said burner means includes a mixer means intimately combining said air/fuel vapors for injection into said internal combustion apparatus;
means for preventing flame flash back into said air/fuel mixer means;
said burner includes a combustion chamber having an inlet means for receiving separate supply of fuel and air; and
said mixer means includes a baffle assembly disposed in said burner means combustion chamber for receiving said combined air/fuel supply in forced impingement relationship to create a mixed vapor;
said baffle assembly includes a cup-like member having a wall adapted to interfere with flow of said combined air/fuel mixture to blend said mixture and redirect the flow; and
said burner means having a back wall for receiving said redirected mixture flow adapted to further blend said air/fuel mixture.

5,207,186
ARRANGEMENT FOR MOUNTING AN ELECTRONIC CONTROL UNIT ON AN ENGINE
Ryozo Okita, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan
Filed Dec. 9, 1991, Ser. No. 804,790
Claims priority, application Japan, Jan. 28, 1991, 3-25005
Int. Cl.[5] F01P *1/06*
U.S. Cl. 123—41.31 11 Claims



1. An electronic control unit for an internal combustion engine having an induction system and an air inlet device defining a plurality of air intake passages through which air is supplied to the induction system and comprising at least one fin fixed in parallel with the flow of air through the air intake passages and at least one partition wall which cooperates in defining the air intake passages and which cooperates in dividing adjacent air intake passages on either side of the partition wall, said electronic control unit comprising an outer casing mounted in proximity to the air intake passage and a plurality of electronic parts mounted in said outer casing.

5,207,187
AIR COOLING SYSTEM FOR A VERTICAL ENGINE
Kazuaki Kurohara; Nobuyuki Yamashita, and Masatake Murakawa, all of Sakai, Japan, assignors to Kubota Corporation, Osaka, Japan
Continuation-in-part of Ser. No. 668,028, Mar. 12, 1991, Pat. No. 5,113,819. This application Oct. 29, 1991, Ser. No. 784,549
Claims priority, application Japan, Oct. 30, 1990, 2-294031
Int. Cl.[5] F01P *1/02*
U.S. Cl. 123—41.7 9 Claims



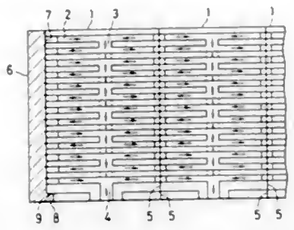
1. In a vehicle having a vertical engine, an air cooling system for the engine, a steering box disposed rearwardly of the engine, and a hood extending from the steering box and over the engine, the engine being mounted on a body frame with a cylinder head projecting forwardly, said air cooling system comprising:
a cooling fan disposed above said engine,
an air intake opening defined in said steering box, and
shield means for dividing an engine room formed forwardly of said steering box and under said hood into a front chamber for accommodating said cylinder head, and a rear chamber for accommodating said cooling fan, said shield means including:
a first shield member extending from an upper position of said engine to a lower surface of said hood, and
second shield members connected to opposite ends of said first shield member and extending downwardly between side walls of said engine and side surfaces of said hood, respectively.

5,207,188
CYLINDER FOR MULTI-CYLINDER TYPE ENGINE
Fujio Hama, and Kenichi Harashina, both of Nagano, Japan, assignors to Teikoku Piston Ring Co., Ltd., Tokyo, Japan
Filed Nov. 27, 1991, Ser. No. 799,532
Claims priority, application Japan, Nov. 29, 1990, 2-332337
Int. Cl.[5] F02F *1/14*
U.S. Cl. 123—41.79 8 Claims

1. Cylinders for a multi-cylinder type engine comprising a plurality of cylinder liners, each liner having cooling liquid grooves at an outer circumferential surface and having a flat surface at a part of the outer circumferential surface, said cooling liquid grooves comprising a plurality of annular grooves and a plurality of axial grooves providing communication between the annular grooves, said axial grooves being arranged one by one between the adjoining annular grooves and alternately arranged along an axial direction at locations spaced apart by 180° in a circumferential direction, and a

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cylinder block having bores for receiving said plurality of cylinder lines, said plurality of cylinder liners being inserted



into said bores and being arranged with said flat surfaces abutting each other, so that the cooling liquid grooves at said flat surfaces are coincident with each other

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5,207,189

COOLING SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

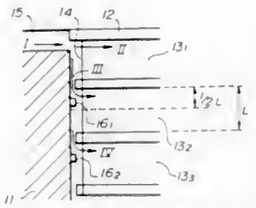
Masato Kawauchi, Mishima; Masayoshi Tokoro, Susono, and Shizuo Abe, Mishima, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Jun. 30, 1992, Ser. No. 906,499

Claims priority, application Japan, Jul. 8, 1991, 3-166975; Jul. 10, 1991, 3-170152; Jul. 18, 1991, 3-178498; Jul. 18, 1991, 3-178499

Int. Cl.[5] F02F *1/10*

U.S. Cl. 123—41.84 15 Claims



1. A cooling system for an internal combustion engine comprising:

a supply source of a coolant for cooling a cylinder liner;

a plurality of annular passages formed between a cylinder block and said cylinder liner fitted in the cylinder block, the passages extending along a circumference of an outer surface of said cylinder liner, said passages being spaced apart from each other in an axial direction of said cylinder liner;

an inflow and an outflow passage for a coolant, connecting said plurality of annular passages, extending in a direction of an axis of said cylinder liner, and provided at diametrically opposite sides of said cylinder liner;

an inlet passage for supplying a coolant to said inflow passage;

introducing means for directing a flow of coolant into said annular passages and for preventing stagnation of the coolant when the coolant is introduced to said annular passages; and

wherein said introducing means comprises guiding members for guiding the flow of a portion of the coolant entering into each of said annular grooves by diverting a portion of the coolant flowing therein to a direction perpendicular to a longitudinal direction of said inflow passage.

5,207,190

V-TYPE FUEL INJECTION TWO CYCLE ENGINE

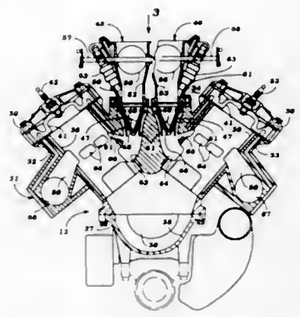
Katsumi Torigai, and Masanori Takahashi, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Jul. 1, 1992, Ser. No. 907,388

Claims priority, application Japan, Aug. 28, 1991, 3-240277

Int. Cl.[5] F02M *35/10*

U.S. Cl. 123—55 VS 20 Claims



1. A fuel injector and induction system for a two cycle, crankcase compression, V-type internal combustion engine comprising a crankcase, a pair of cylinders extending from said crankcase at an angle to each other to define a valley therebetween, a pair of intake ports, one for each of said cylinders, disposed in said valley, a pair of intake pipes disposed in said valley, each serving a respective one of said intake ports for supplying a charge thereto, and a pair of fuel injectors disposed in said valley, each supplying fuel to a respective one of said intake ports.

5,207,191

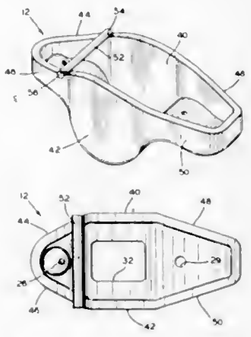
BOAT-TYPE ROCKER ARM WITH STIFFENING MEMBER

Stanley J. Pryba, Toledo; Terry R. Shook, Sylvania, and Arshad I. Suri, Maumee, all of Ohio, assignors to Henley Manufacturing Holding Company, Inc., Hampton, N.H.

Filed Aug. 31, 1992, Ser. No. 937,562

Int. Cl.[5] F01L *1/18*

U.S. Cl. 123—90.39 17 Claims



1. A rocker arm comprising an elongate, one-piece metal body having a push rod engaging end and a valve stem engaging end, said body having two generally parallel side walls and a connecting bottom wall therebetween, said body having angular side walls extending inwardly toward both ends of said

body from said parallel side walls, said rocker arm body having means for receiving a pivotal support, and an elongate stiffening member affixed to upper edges of said angular side walls extending toward said push rod end, said elongate stiffening member being positioned above said bottom wall in a vertical plane between said push rod end and said receiving means, when said body is in a horizontal position.

5,207,192

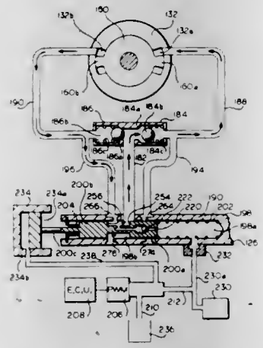
VARIABLE CAMSHAFT TIMING SYSTEM UTILIZING SQUARE-EDGED SPOOL VALVE

Franklin R. Smith, Slaterville Springs, N.Y., assignor to Borg-Warner Automotive Transmission & Engine Components Corporation, Sterling Heights, Mich.

Filed May 15, 1992, Ser. No. 883,096

Int. Cl.[5] F01L *1/34*

U.S. Cl. 123—90.17 14 Claims



1. In an internal combustion engine having a rotatable crankshaft and a rotatable camshaft, said camshaft being position variable in a circumferential direction relative to said crankshaft, means for varying the position of said camshaft relative to said crankshaft, said means for varying comprising a source of hydraulic fluid under pressure, a first hydraulic operator, the operation of said first hydraulic operator being effective to vary the position of said camshaft relative to said crankshaft in a given circumferential direction, first conduit means for delivering hydraulic fluid from said source to said first hydraulic operator to operate said first hydraulic operator, a second hydraulic operator, the operation of said second hydraulic operator being effective to vary the position of said camshaft relative to said crankshaft in an opposed circumferential direction, second conduit means for exhausting hydraulic fluid from said first hydraulic operator, third conduit means for delivering hydraulic fluid from said source to said second hydraulic operator to operate the second hydraulic operator, fourth conduit means for exhausting hydraulic fluid from the second hydraulic operator and control means for controlling the exhausting of hydraulic fluid from said first hydraulic operator and said second hydraulic operator to selectively permit hydraulic fluid from said source to operate one or another of said first hydraulic operator and said second hydraulic operator, said control means comprising:

a spool valve in communication with said second conduit means and said fourth conduit means, said spool valve comprising:

a housing having a first primary orifice and a first secondary orifice, both in communication with said second conduit means, said first primary orifice and said first secondary orifice defining a first primary flow area and a first secondary flow area, respectively, said housing also having a second primary orifice and a second secondary orifice, both in communication with said fourth conduit means, said second primary orifice and said second secondary orifice defining a second primary flow area and a second secondary flow area, respectively, and

a valve member, said valve member being reciprocable within said housing and comprising first and second opposed ends and first and second spaced apart lands between said opposed ends, said first land being capable of blocking flow through said first primary orifice in first, third and fifth positions of said valve member and permitting flow through said first primary orifice in second and fourth positions of said valve member,

said first land also being capable of blocking flow through said first secondary orifice in first, second, third and fifth positions of said valve member and permitting flow through said first secondary orifice in a fourth position of said valve member,

said second land being capable of blocking flow through said second primary orifice in first, second and fourth positions of said valve member and permitting flow through said second primary orifice in third and fifth positions of said valve member,

said second land also being capable of blocking flow through said second secondary orifice in first, second, third and fourth positions of said valve member and permitting flow through said second secondary orifice in a fifth position of said valve member;

force imposing means imposing a load on a first surface of said valve member to urge said valve member in a given direction;

fifth conduit means for transmitting hydraulic pressure from the source to act on a second surface of said valve member to urge said valve member in an opposed direction, said fifth conduit means comprising a control member therein to controllably increase or reduce the pressure of the source that acts on said second surface of said valve member; and

centering means for centering said valve member in a fixed position relative to said housing when the opposed forces acting on said valve member are in balance.

5,207,193

VALVE OPERATING SYSTEM IN INTERNAL COMBUSTION ENGINE

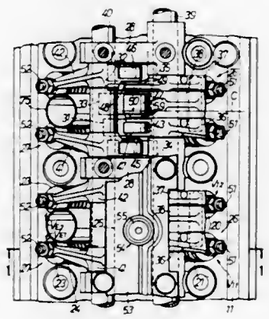
Chihaya Sugimoto, and Yoshibito Tsuji, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 2, 1992, Ser. No. 939,059

Claims priority, application Japan, Sep. 4, 1991, 3-224384

Int. Cl.[5] F01L *1/04, 1/34*

U.S. Cl. 123—90.27 9 Claims



1. A valve operating system in an internal combustion engine, comprising

first, second and third intake-side cams and first and second

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exhaust-side cams all provided on a single cam shaft for correspondence to a cylinder of the engine,

first and second intake-side rocker arms operatively connected independently to a pair of intake valves for the cylinder and a third intake-side rocker arm disposed between the first and second intake-side rocker arms, which arms are swingably carried on an intake-side rocker shaft for engagement with said first, second and third intake-side cams, respectively,

first and second exhaust-side rocker arms operatively connected independently to a pair of exhaust valves for the cylinder and swingably carried on an exhaust-side rocker shaft for engagement with said first and second exhaust-side cams, respectively, and

a connection switchover mechanism provided on the intake-side rocker arms and capable of switching-over the connection and disconnection of the adjacent intake-side rocker arms, wherein

said first to third intake-side cams are provided adjacent one another in an axial direction on said cam shaft, said first, second and third intake-side rocker arms are disposed between said first and second exhaust-side rocker arms, and at least two of said first, second and third intake-side rocker arms, as well as said first and second exhaust-side rocker arms, are in rolling contact with the corresponding cams through rollers, said first and second exhaust-side rocker arms being provided with notches for accommodating portions of said first and second intake-side rocker arms, respectively.

5,207,194

SYSTEM FOR STARTING AN INTERNAL COMBUSTION ENGINE FOR MOTOR VEHICLES

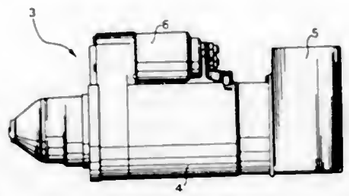
Guido Clerici, Milano, Italy, assignor to Industrie Magneti Marelli SPA, Milano, Italy

Filed Oct. 24, 1991, Ser. No. 781,872

Claims priority, application Italy, Oct. 25, 1990, 67822 A/90

Int. Cl.[5] F02N *11/00*

U.S. Cl. 123—179.1 **4 Claims**



1. A system for starting an internal combustion engine for motor vehicles, including:

a storage battery,

an electric starter motor operable to rotate the internal combustion engine,

capacitive means of high-capacitance arranged immediately adjacent the electric motor and adapted to store enough electrical energy to supply the electric motor during the starting of the internal combustion engine, and

connection means adapted, in a first condition, to connect the capacitive means to the battery to enable the capacitive means to be recharged and, in a second condition, to connect the capacitive means to the electric motor to enable electrical energy to be transferred from the capacitive means to the electric motor;

wherein housing means for said capacitive means and said starter motor are connected to define a unitary assembly.

5,207,195

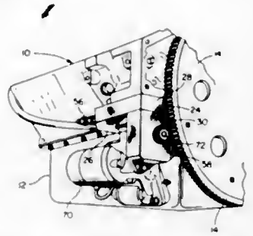
COMBINED STARTER CONVERSION AND OIL FILTER ADAPTER

John W. McClintic, Albuquerque, N. Mex., assignor to McClintic RDM, Inc., Albuquerque, N. Mex.

Filed Jul. 29, 1992, Ser. No. 921,202

Int. Cl.[5] F01M *11/03*; **F02N** *15/00*

U.S. Cl. 123—179.25 **7 Claims**



1. In combination with a motor block having a rear oil filter mounting pad location on one side and a rear starter motor mounting location on the opposite side, a starter mounting conversion adapter including first and second mounting portions rigidly positioned relative to each other, first means removably rigidly mounting said first mounting portion to said oil filter mounting pad location, an engine starter motor, second means removably mounting said engine starter motor to said second mounting portion, said motor block including a toothed flywheel spanning between said mounting locations, said starter motor, when removably mounted to said second mounting portion, being mounted in operative association with said flywheel for turning the latter when said starter motor is actuated.

5,207,196

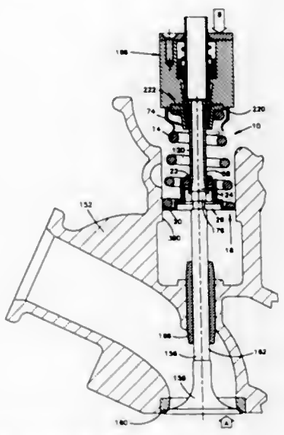
PRE-ASSEMBLED UNIT FOR ENGINE VALVE SYSTEM

Frederick L. Kuonen, Mentor, and Ronald J. Rich, Wickliffe, both of Ohio, assignors to TRW Inc., Lyndhurst, Ohio

Filed Jul. 31, 1992, Ser. No. 923,370

Int. Cl.[5] F01L *3/00*; **B23P** *19/04*

U.S. Cl. 123—188.17 **8 Claims**



1. A pre-assembled unit for utilization in assembly of an engine valve system in an engine, said pre-assembled unit comprising:

a spring for providing a force for urging an engine valve in a first direction;

a spring seat engaged with said spring;

a spring retainer for maintaining said spring in a concentric position around the valve, said spring retainer being engaged with said spring;

lock means for lockingly engaging said spring retainer and the valve, said spring retainer and said lock means transmitting the force for urging between said spring and the valve; and

a retention member for maintaining said spring, said spring seat, said spring retainer, and said lock means together prior to installation in an engine, said retention member having a portion engageable with the valve, said retention member being removable from the pre-assembled unit upon relative movement of the valve and the pre-assembled unit during assembly of the engine valve system in an engine.

5,207,197

CYLINDER HEAD FOR A MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

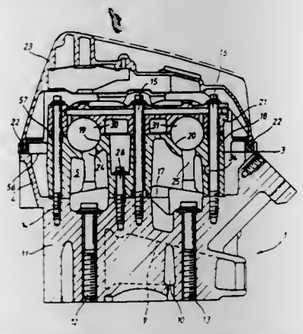
Rolf Klingmann, Plüderhausen, and Christoph Spengel, Stuttgart, both of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed May 26, 1992, Ser. No. 888,118

Claims priority, application Fed. Rep. of Germany, May 24, 1991, 4116944

Int. Cl.[5] F02F *7/00*

U.S. Cl. 123—195 R **1 Claim**



1. A cylinder head for a multi-cylinder internal-combustion engine, comprising a cylinder head block having therein a cooling water space, a bearing pedestal operatively arranged at said cylinder head block, and a cylinder head cover plate closing the cylinder head block toward a top thereof, said cylinder head block having tubular chambers extending in a direction of the cylinder axis to accommodate a spark plug in each of said chambers, wherein a split plane is formed between said cylinder head block and said bearing pedestal, the split plane extending at a level of an upper edge of said chamber, side and end walls bounding aid cylinder head block extend beyond the split plane as far as to a plane underneath a second split plane formed between said bearing pedestal and a bearing cover operatively arranged with respect to said bearing pedestal, and screws operatively fasten said bearing pedestal, together with said bearing covers associated with each two camshafts to said cylinder head block.

5,207,198

SYSTEM FOR CONTROLLING THE FUEL QUANTITY OF INTERNAL COMBUSTION ENGINES

Hermann Eisele, Vaihingen/Enz, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

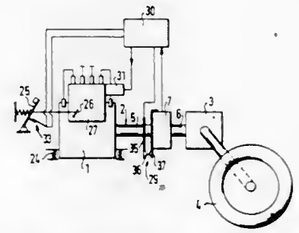
PCT No. PCT/DE90/00489, § 371 Date Mar. 20, 1991, § 102(e) Date Mar. 20, 1991, PCT Pub. No. WO91/01441, PCT Pub. Date Feb. 7, 1991

PCT Filed Jun. 29, 1990, Ser. No. 671,907

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1989, 3924077

Int. Cl.[5] F02D *31/00*

U.S. Cl. 123—357 **32 Claims**



1. A system for controlling the quantity of fuel brought to combustion per combustion event in the combustion chambers of an internal combustion engine serving in particular to drive motor vehicles via a drive shaft comprising first and second drive shaft parts, including a transducer for producing a signal due to a rotation of said first and second drive shaft parts (**5, 6**) toward one another in a rotational direction, said transducer produces a control signal for varying the fuel quantity, said transducer is embodied as a proximity switch (**29**), which detects the approach of a first rotating coupling part (**11**) of said first drive shaft part (**5**) of said two-part drive shaft (**2**) of the engine to a second rotating coupling part (**9**) on said second drive shaft part (**6**) of the drive shaft (**2**) between the engine and a gearing system following the engine, wherein the coupling parts are adjustable counter to a restoring force (**21**) biasing between one another until mutually form-fitting contact on one another takes place, and for an existing distance between the two coupling parts the fuel quantity or the increase in fuel quantity is controlled such that a predetermined differential speed as the two coupling parts come to contact one another is not exceeded, and that after the coupling parts are in contact with one another this control of the fuel quantity is cancelled and the fuel quantity is controlled by other operating parameters of the engine.

5,207,199

ELECTRONIC FUEL-INJECTION DEVICE HAVING READ/WRITE MEMORY FOR STORING ACTUATOR CORRECTION VALUE

Akira Sekiguchi, Konan, Japan, assignor to Zexel Corporation, Tokyo, Japan

Filed Oct. 8, 1992, Ser. No. 957,789

Claims priority, application Japan, Oct. 9, 1991, 3-290893

Int. Cl.[5] F02D *31/00*

U.S. Cl. 123—357 **15 Claims**

1. An electronic fuel-injection device comprising:

a fuel-injection pump having an adjusting member, a fuel-injection level of said fuel-injection pump being established by a position of said adjusting member;

an actuator drivable to position said adjusting member to control the fuel-injection level of said fuel injection pump;

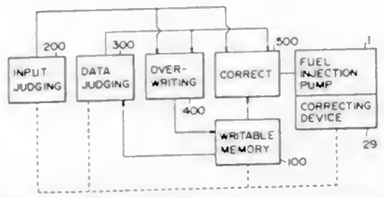
a correcting device having a physical quantity indicative of a correction value;

a readable and writable memory for storing an actuator correction value, the actuator correction value indicative

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of a difference between an actual fuel-injection level and a reference fuel injection level of said fuel injection pump; and,

control means for (a) detecting the physical quantity of said correcting device, (b) determining whether the thus detected physical quantity is within normal parameters, (c) comparing a first correction value indicated by the detected physical quantity with a second correction value previously stored in said memory as the actuator correction value, (d) overwriting said second correction value with said first correction value in said memory when both the detected physical quantity is within normal parameters and the first correction value is different than the second correction value, whereby the first correction value becomes the actuator correction value stored in said memory, (e) reading the actuator correction value from said memory, and (f) driving said actuator to compensate for the difference in the actual and reference fuel injection levels using the thus read actuator correction value.



5,207,200

MISFIRING SENSING APPARATUS FOR AN INTERNAL COMBUSTION ENGINE

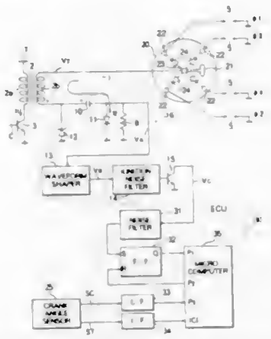
Toshio Iwata, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 16, 1992, Ser. No. 913,814

Claims priority, application Japan, Jul. 17, 1991, 3-176865; Jul. 19, 1991, 3-179700; Jul. 19, 1991, 3-179701; Jul. 19, 1991, 3-179702; Jul. 19, 1991, 3-179703; Jul. 19, 1991, 3-179704

Int. Cl.[5] **F02P** *5/14*

U.S. Cl. 123—425 **11 Claims**



1. A misfiring sensing apparatus for an internal combustion engine comprising:

ionic current sensing means for sensing an ionic current generated upon combustion of fuel in said engine and generating a corresponding output signal;

ionic current determining means for determining whether an ionic current is present in each ignition cycle of each cylinder of the engine based on an output of said ionic current sensing means and generating a corresponding output signal;

misfiring determining means for determining misfiring in said engine based on the output of said ionic current determining means;

cylinder identifying means for identifying each cylinder; misfiring cylinder identifying means for identifying a misfiring cylinder based on the outputs of said misfiring determining means and said cylinder identifying means; and

failure determining means for determining a failure in said ionic current sensing means if an ionic current has not been successively sensed for a predetermined number of ignitions corresponding to the number of cylinders.

5,207,201

FUEL DISTRIBUTION INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES

Walter Schlagmüller, Schwieberdingen; Helmut Rembold, Stuttgart, and Gottlob Haag, Markgröningen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

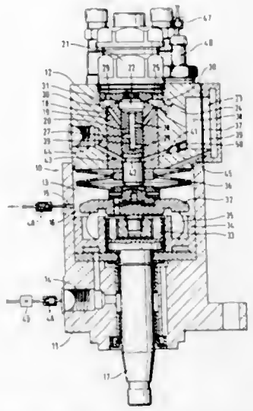
PCT No. PCT/DE90/00576, § 371 Date Feb. 28, 1992, § 102(e) Date Feb. 28, 1992, PCT Pub. No. WO91/03639, PCT Pub. Date Mar. 21, 1991

PCT Filed Jul. 26, 1990, Ser. No. 836,262

Claims priority, application Fed. Rep. of Germany, Aug. 30, 1989, 3928612

Int. Cl.[5] **F02M** *39/00*

U.S. Cl. 123—447 **22 Claims**



1. A fuel distribution injection pump for internal combustion engines comprising a pump plunger guided within a pump cylinder with one end projecting into a driving gear area which is filled with lubricant via a lubricant infeed and drain; a driving gear arranged in said driving gear area, which converts a rotation of a drive shaft into a reciprocating and simultaneous rotational movement of the pump plunger; a pump chamber formed by said pump plunger and said pump cylinder, a distribution hole arranged radially in the pump plunger, said distribution hole is linked to the pump chamber via an axial hole in the pump plunger and which, during a compression stroke of the pump plunger and as a consequence of a rotational motion of the pump plunger, said distribution hole links up with distribution channels in the pump cylinder, one channel at a time, which lead to injection valves; a magnetically operated valve which is linked to a fuel feed line and to the pump chamber, for a control of a fuel injection quantity as delivered by the pump plunger to the injection valves, a fuel reservoir **38**, limited by a membrane **37**, of a membrane reservoir (**23**) is arranged in a fuel flow link (**24**, **25**) between the magnetically operated valve (**21**) and the fuel feed line (**40**); at least one relief hole (**28**) is provided within the pump plunger (**20**) diametrically thereof, the distribution hole (**27**) terminates in the axial hole (**26**) and during rotation of the pump plunger (**20**) links up with filling holes (**30**) in the pump cylinder (**19**), and the filling holes (**30**) are linked to the fuel reservoir (**38**) of the membrane reservoir (**23**) and are arranged within the pump cylinder (**19**) in such a way that a link to the relief hole (**28**) is established during every intake stroke of the pump plunger (**20**) and is interrupted during the compression stroke thereof.

5,207,202

FUEL PUMPING APPARATUS

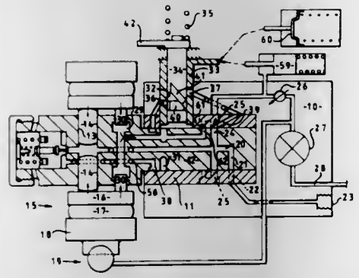
Peter A. G. Collingborn, Kent, England, assignor to Lucas Industries Public Limited Company, England

Filed Apr. 17, 1991, Ser. No. 686,786

Claims priority, application United Kingdom, Apr. 17, 1990, 9008566

Int. Cl.[5] **F02M** *41/00*

U.S. Cl. 123—450 **5 Claims**



1. A liquid fuel injection pumping apparatus comprising a rotary distributor member mounted in a body, a radial plunger bore in the distributor member and a pumping plunger in the bore, a cam follower located at the outer end of the plunger and engageable in turn with a plurality of cam lobes formed on the internal peripheral surface of an annular cam ring, the cam lobes having leading flanks which impart inward movement to the pumping plunger as the distributor member rotates and trailing flanks which allow outward movement of the pumping plunger, a plurality of outlet ports formed in the body, passage means in the distributor member which connect the bore to the outlet ports in turn during successive inward movements of the pumping plunger, fuel supply means for feeding fuel to the bore in the intervals between inward movements of the pumping plunger thereby to move the pumping plunger outwardly its maximum extent and adjustable valve means operable to spill fuel from the bore during the inward movement of the pumping plunger to terminate delivery of fuel, thereby to control the quantity of fuel delivered through the outlet ports, a piston slidable in a cylinder formed in a part associated and rotatable with the distributor member, resilient means biasing the piston towards one end of the cylinder, a passage in the distributor member which connects the one end of the cylinder with the bore and a stop to limit the movement of the piston, the piston acting to absorb the fuel expelled from the bore during the initial inward movement of the pumping plunger.

5,207,203

FUEL SYSTEM

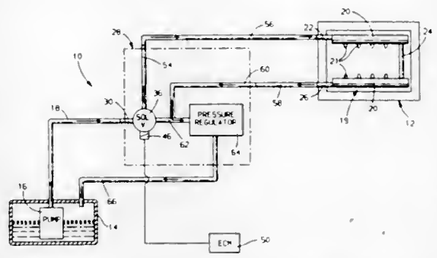
Richard W. Wagner, Albion, and Michael R. Raney, Rochester, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 23, 1992, Ser. No. 855,968

Int. Cl.[5] **F02M** *37/04*

U.S. Cl. 123—514 **2 Claims**

1. A system for circulating fuel between a supply and a fuel distributor of an internal combustion engine, said fuel distributor having an inlet and an outlet, to which a fuel injector is operably connected and upon which a fuel pressure regulator acts to maintain a predetermined fuel pressure therein, said system comprising a valve assembly disposed within a valve chamber to which fuel from said supply is conducted, said valve operable in a first position to supply fuel through a supply conduit to the inlet of the fuel distributor for circulation therethrough, said valve assembly further comprising a return conduit operable in conjunction with the fuel distributor outlet to receive fuel from the distributor for return to the supply, and wherein said valve is operable in a second position in which said supply conduit is closed by said valve and fuel is supplied to said return conduit for transfer to the outlet of the fuel distributor for circulation to said injector, said valve operable in said second position to prevent circulation of said fuel through the distributor and to said supply.



5,207,204

METHOD OF AND AN APPARATUS FOR SUPPLYING ASSIST AIR INTO A COMBUSTION CHAMBER DIRECT INJECTING FUEL INJECTION VALVE

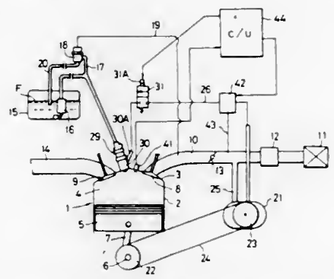
Katsuyoshi Kawachi, and Kazumitsu Kobayashi, both of Isesaki, Japan, assignors to Japan Electronic Control Co., Ltd., Isesaki, Japan

Filed Sep. 10, 1992, Ser. No. 942,839

Claims priority, application Japan, Sep. 10, 1991, 3-258515

Int. Cl.[5] **F02M** *23/00*

U.S. Cl. 123—533 **8 Claims**



3. An apparatus of supplying assist air into a combustion chamber direct injecting fuel injection valve of an engine, comprising the fuel injection valve disposed on the engine, for directly injecting a fuel into a combustion chamber of the engine, an air introduction member disposed on the fuel injection valve, for introducing assist air from an assist air supply source to micronize the injected fuel, an air pipe for connecting the air introduction member with the assist air supply source, and pressure control means for controlling assist air supply pressure according to pressure in the combustion chamber.

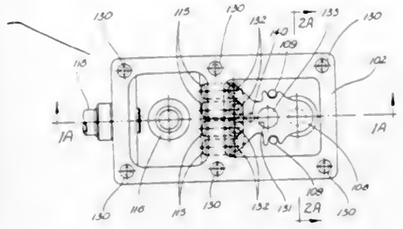
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5,207,205

FUEL INJECTION DEVICE WITH AIR-ASSISTED FUEL DIFFUSION

Gerhard Mesenich, Witten, Fed. Rep. of Germany, assignor to Siemens Automotive L.P., Auburn Hills, Mich.

PCT No. PCT/US89/05511, § 371 Date Oct. 10, 1991, § 102(e) Date Oct. 10, 1991
PCT Filed Dec. 6, 1989, Ser. No. 679,068
Int. Cl.[5] F02M *69/08, 51/02*
U.S. Cl. 123—533 21 Claims



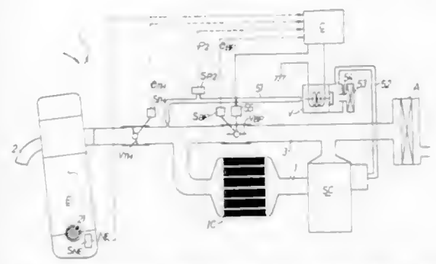
1. A fuel injection device for the injection of fuel into an induction tube of a combustion motor, consisting of several electromagnetic injection valves, a fuel distribution manifold, and a fuel pressure regulator, characterized by the fact that the injection valves (604) are completely surrounded by the fuel distribution manifold (601), and that the injection valves, without any valve housing, are directly built into said fuel distribution manifold (601) and are completely immersed in fuel.

5,207,206

METHOD FOR CONTROLLING THE SUPERCHARGE PRESSURE IN INTERNAL COMBUSTION ENGINE

Nobu Takahashi, and Yasuyuki Sandou, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 6, 1991, Ser. No. 788,553
Claims priority, application Japan, Nov. 6, 1990, 2-300229
Int. Cl.[5] F02B *33/36*
U.S. Cl. 123—564 9 Claims



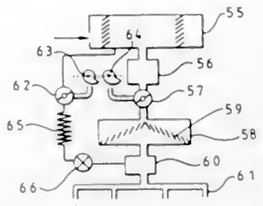
1. A method for controlling the supercharge pressure in an internal combustion engine having a mechanical supercharger which is connected to a crankshaft in the engine, which supercharger is of a type having means for selectively varying an internal compression ratio of the supercharger, wherein the method includes the step of controlling a variation of the internal compression ratio of the mechanical supercharger on the basis of at least a preset supercharge pressure and an engine revolution rate.

5,207,207

CARBURETOR METERING AND HOT AIR DILUTION SYSTEM

John R. C. Pedersen, No. 3 Priors Road, Cheltenham, England GL525AB

Filed Sep. 8, 1989, Ser. No. 404,839
Int. Cl.[5] F02M *23/03, 23/10*
U.S. Cl. 123—586 3 Claims



1. A fuel carburetor metering system for use in a fuel combustion engine having loads ranging from part load to full load, comprising:

means for vaporizing liquid fuel into an air flow at a relatively constant mixture strength suitable for a full load condition;

means for introducing hot dilution air into said air flow comprising a vortex chamber for introducing hot dilution air tangentially and directly to the air flow;

thermostatic valve means for introducing hot dilution air into said airflow only in response to the temperature of the dilution air being greater than a predetermined temperature; and

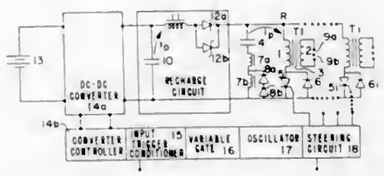
means for controlling the amount of hot dilution air introduced into said air flow in response to load conditions of said engine, that is, in dependence on accelerator pedal position, to provide a relatively leaner mixture at part load conditions and a relatively richer mixture at full load conditions.

5,207,208

INTEGRATED CONVERTER HIGH POWER CD IGNITION

Michael A. V. Ward, Arlington, Mass., assignor to Combustinn Electromagnetics Inc., Arlington, Mass.

Continuation-in-part of Ser. No. 755,795, Sep. 6, 1991, abandoned. This application Jun. 16, 1992, Ser. No. 900,068
Int. Cl.[5] F02P *3/06*
U.S. Cl. 123—596 25 Claims



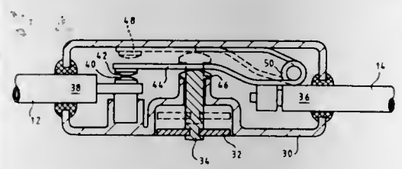
1. A capacitive discharge, CD, ignition system including a CD circuit defined by at least one energy storage and discharge capacitor of capacitance C, at least one separate resonating inductor of inductance Le, one or more ignition coils Ti where i = 1,2,3, . . . , of turns ratio N defined by the secondary coil winding turns Ns divided by the primary turns Np, and coil primary current switch means SCi, said CD circuit having a spark pulse firing discharge period T and being further defined by the series connection of: 1) the resonating inductor Le with one of its ends connected to ground, 2) the said capacitor C, 3) the primary winding of a coil Ti, and 4) said switch SCi with one of its ends connected to ground, the CD ignition system including an essentially DC power source means for supplying power to the ignition system to charge up said capacitor C, and in which the high voltage side of said power source means is connected through switch means S to the intersection of said inductor Le and capacitor C defined as the "feed point", the low voltage side of the power means is connected to ground, and a shunt switch SS is connected across the primary windings of said coils Ti and switches Si, the system being constructed and arranged such that: a) upon the ignition system operation said switch S is off for the spark discharge cycle of the spark pulses comprising a train of spark pulses per ignition firing, and at subsequent times is turned-on to conduct current through said inductor from said power source until a predetermined peak current IO is reached which stores energy E1 equal to ½*Le*(IO)**2 in said inductor, whereupon switch S is turned off and switch SS, which was off, is turned-on, and said current IO flows in a complete circuit including said capacitor C to deposit the charge on the positive plate of the capacitor to help restore its charge, and b) during the period following the ignition firing the switches S and SS are turned on and off sequentially to store energy E1 in inductor Le in time Ton when S is on (Son) and SS is off (SSoff) and to deliver the energy E1 to the capacitor in the time Toff when S is off (Soff) and SS is on (SSon), said sequential operation continuing until the capacitor is fully charged.

5,207,209

ARRANGEMENT FOR IMPROVING STARTER BEHAVIOR

Herbert Brockhaus, Wettstetten, Fed. Rep. of Germany, assignor to Audi AG, Ingolstadt, Fed. Rep. of Germany

PCT No. PCT/EP90/01328, § 371 Date Mar. 12, 1992, § 102(e) Date Mar. 12, 1992, PCT Pub. No. WO91/05389, PCT Pub. Date Apr. 18, 1991
PCT Filed Aug. 11, 1990, Ser. No. 838,742
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1989, 3932564
Int. Cl.[5] F02P *15/12*
U.S. Cl. 123—627 4 Claims



1. A motor vehicle comprising:

a spark ignition internal combustion engine having a plurality of cylinders, an ignition coil, and at least one spark plug for each of said cylinders,

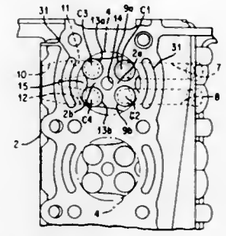
a means for improving the starting behavior of said engine comprising a spark gap located between said ignition coil and said spark plug, a first electrical terminal connected to said ignition coil, a second electrical terminal connected to said spark plug, a housing surrounding said spark gap and having a first contact connected to said first electrical terminal and a second contact selectively spaced from said first contact to form said spark gap and connected to said second electrical terminal, said housing having a pushbutton switch including a plunger contacting said second contact, said pushbutton switch being actuatable from outside said housing between an open and closed position, said pushbutton switch bridging said spark gap when in said closed position, said pushbutton switch moving said second contact away from said first contact along a predetermined path to achieve a predetermined contact spacing when in said open position.

5,207,210

CYLINDER HEAD STRUCTURE OF AN INTERNAL COMBUSTION ENGINE

Naoyuki Yamagata; Noriyuki Iwata; Kenji Kashiyama, all of Hirosbima, and Kazumasa Nomura, Higashihiroshima, all of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Mar. 18, 1992, Ser. No. 853,592
Claims priority, application Japan, Mar. 18, 1991, 3-052433
Int. Cl.[5] F02B *23/00*
U.S. Cl. 123—661 5 Claims



1. An internal combustion engine with a plurality of cylinders arranged in a row and having two intake valves and two exhaust valves for each cylinder, each cylinder having a combustion chamber formed therein by a cylinder head and a piston, said engine comprising:

a pair of intake ports for each cylinder arranged adjacent to each other and on one side of a center line of said row of said cylinders, said intake ports arranged side by side and in a direction parallel to said row of said cylinders;

a pair of exhaust ports for each cylinder arranged adjacent to each other on another side of said center line, said exhaust ports arranged side by side in said direction and being separated so that their centers are at a distance apart which is larger than a distance at which centers of said intake ports are separated; and

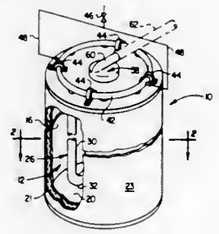
squish means, provided between said exhaust ports in each cylinder, for reducing a cylinder volume between said cylinder head and said piston and causing a squish flow of air-fuel mixture on a side of said combustion chamber near said exhaust ports.

5,207,211

MULTIPLE U-TUBE DOWN FIRED WATER HEATER

David M. Hanning, and Gordon W. Stretch, both of Montgomery, Ala., assignors to Rheem Manufacturing Company, New York, N.Y.

Continuation-in-part of Ser. No. 862,292, Apr. 2, 1992. This application May 11, 1992, Ser. No. 881,161
Int. Cl.[5] F24H *1/20*
U.S. Cl. 126—360 R 14 Claims



1. A down fired water heater comprising:

a tank for storing water, said tank extending a vertical axis and including a top end wall having a first plurality of

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openings circumferentially spaced about said axis, a second plurality of openings circumferentially spaced about said axis horizontally outwardly of said first plurality of openings, and a bottom end wall spaced downwardly apart from said top end wall along said axis;

a plurality of U-tube immersion heating members disposed within the interior of said tank and circumferentially spaced around said axis, each of said plurality of U-tube immersion heating members having:

a curved lower end spaced upwardly apart from said bottom end wall,

a first leg portion extending upwardly from said curved lower end and having an open upper end connected to one of said first plurality of openings in said top end wall of said tank, and

a second leg portion extending upwardly from said curved lower end and having an open upper end connected to one of said second plurality of openings in said top end wall of said tank;

a spaced series of fuel burner means disposed at the top of said tank and operative to receive air and fuel from sources thereof and responsively direct flames, and resulting hot combustion gases, downwardly into said open upper ends of one of the pluralities of first and second leg portions of said U-tube immersion heating members;

first plenum means positioned above said top end wall of said tank and operative to receive gaseous fuel from a source thereof and deliver the received gaseous fuel to said spaced series of fuel burner means;

second plenum means positioned above said top end wall of said tank and operative to receive combustion gases discharged from said open upper ends of the other of the pluralities of first and second leg portions of said U-tube immersion heating members, said second plenum means having an outlet opening; and

forced draft means for forcibly flowing said combustion gases from said burner means sequentially through said U-tube immersion heating members, into said second plenum means, and outwardly through said outlet opening of said second plenum means.

5,207,212

SUBMERSIBLE HIGH-EFFICIENCY COMBUSTION CHAMBER FOR A WATER HEATER

Donald E. Woollen, Jr., 11610 104th La., North, Largo, Fla. 34643

Filed Oct. 30, 1991, Ser. No. 785,004

Int. Cl.[5] A47J *27/00*

U.S. Cl. 126—391 **7 Claims**

1. An apparatus for heating water in a water tank comprising:

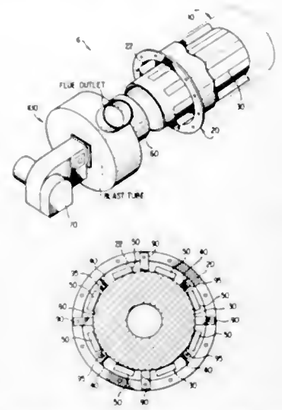
a first tubular member having a closed back end;

a second tubular member having a longitudinal axis, an input end and an exhaust end, said second tubular member disposed and supported at least in part within said first tubular member to form an annular clearance space therebetween, said exhaust end spaced apart from said closed end of said first tubular member;

a plurality of longitudinally extending fins supporting said second tubular member within said first tubular member, said fins disposed circumferentially about the exterior surface of the second tubular member, said fins each having a length substantially parallel to the longitudinal axis;

a plurality of baffles for turbulating combustion gases, each of said baffles being slidably positioned between a pair of adjacent fins and spaced therefrom, said baffles defining with said fins and the interior surface of the first tubular member a series of axially extending passageways that can be traversed by the combustion gases, and wherein said baffles are not permanently attached to said first tubular member;

a burner coupled to the input end of the second tubular member for supplying the combustion gases to the interior of the second tubular member; and



means for collecting the combustion gases after the combustion gases traverse said annular clearance space.

5,207,213

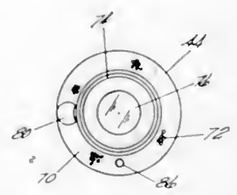
LAPAROSCOPE HAVING MEANS FOR REMOVING IMAGE IMPEDING MATERIAL FROM A DISTAL LENS

Richard A. Auhll, Santa Barbara, Calif.; Richard J. O'Hare, Wilton, Conn., and Richard R. Muller, Bronx, N.Y., assignors to Circon Corporation, Santa Barbara, Calif.

Filed Feb. 1, 1991, Ser. No. 649,544

Int. Cl.[5] A61B *1/00*

U.S. Cl. 128—6 **57 Claims**



1. An instrument comprising

a rigid elongated sheath tube having interior side walls, a selected length and a distal end, said distal end including means for passing an image, said image passing means having an exterior surface located at said distal end;

means located within said rigid elongated sheath tube for defining at said distal end means for directing a fluid flow across the exterior surface of said image passing means to remove therefrom image impending means;

said image passing means and fluid directing means being positioned within said rigid elongated sheath tube to define spaces between said interior side walls, said image passing means and said fluid directing means; and

means located within said rigid elongated sheath tube for defining fiber optic elements which are distributed within said spaces and around the exterior surface for forming a light guide to illuminate an operative site.

5,207,214

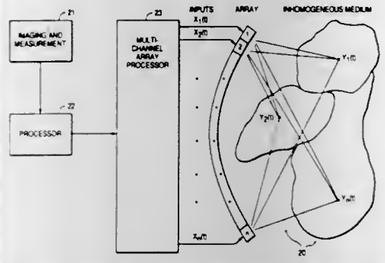
SYNTHESIZING ARRAY FOR THREE-DIMENSIONAL SOUND FIELD SPECIFICATION

Anthony J. Romano, 521 E St., NE., Washington, D.C. 20002

Filed Mar. 19, 1991, Ser. No. 671,464

Int. Cl.[5] A61B *17/22*

U.S. Cl. 128—24 AA **50 Claims**



1. A sound wave generating apparatus for destroying or vaporizing undesired objects in a body comprising:

sound wave generating means for generating sound waves, said sound wave generating means comprising a plurality of transducers; and

drive means for independently driving each of said plurality of transducers according to a plurality of predetermined inputs to simultaneously effect N desired field point responses at N specified field points, where $N>1$.

5,207,215

ACOUSTIC PRESSURE PULSE GENERATOR

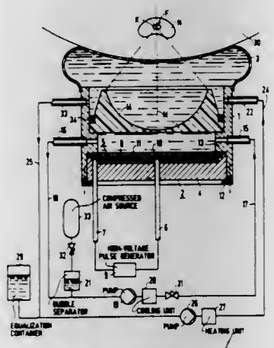
Manfred Rattner, Grossenseebach; Gerhard Buchholtz, and Matthias Mahler, both of Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 18, 1991, Ser. No. 761,392

Claims priority, application European Pat. Off., Oct. 29, 1990, 90120740.7

Int. Cl.[5] A61B *17/22*

U.S. Cl. 128—24 EL **14 Claims**



1. A pressure pulse generator comprising:

a housing;

electrodynamic means, including a membrane, for generating acoustic pressure pulses by rapid displacement of said membrane in a first liquid acoustic propagation medium disposed adjacent said membrane;

a rigid wall in said housing spaced from said membrane and defining with said membrane and said housing a first non-expandable space in which said first liquid acoustic propagation medium is contained;

a second acoustic propagation medium contained in a second space on an opposite side of said wall and said wall maintaining said first and second acoustic propagation media separated;

means for cooling said first liquid acoustic propagation medium disposed outside of said first space; and

means in fluid communication with said first space for circulating and pressurizing said first liquid acoustic propagation medium at a static pressure for returning said membrane to an initial position after generation of an acoustic pressure pulse, and for simultaneously conducting said first liquid acoustic propagation medium through said means for cooling said first liquid acoustic propagation medium.

5,207,216

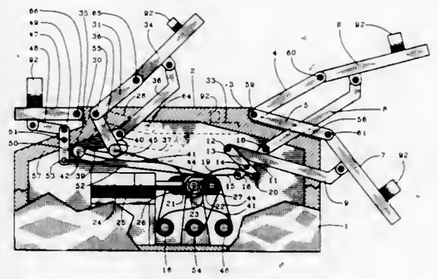
PHYSICAL THERAPY MACHINE

David R. Sweeny, 4950 Woodruff Springs Rd., Sanford, Fla. 32771

Filed Oct. 5, 1992, Ser. No. 957,360

Int. Cl.[5] A61H *1/02*

U.S. Cl. 128—25 R **28 Claims**



1. A physical-therapy machine comprising:

a body platform on a top of a machine frame;

an upper-left-leg support member pivotally attachable to a foot end of the machine frame at a left-leg joint;

a lower-left-leg support member pivotally attachable to the upper-left-leg support member at a left-knee joint;

an upper-right-leg support member pivotally attachable to a foot end of the machine frame at a right-leg joint;

a lower-right-leg support member pivotally attachable to the upper-right-leg support member at a right-knee joint;

a left-leg connecting rod pivotally attachable to a bottom side of the lower-left-leg support member and extended into a foot end of the machine frame;

a left-leg lever to which the left-leg connecting rod is pivotally attached at a rod end of the left-leg lever;

a left-leg cable having a lever end of the left-leg cable attached to a cable end of the left-leg lever;

a left-leg-lever axle to which the left-leg lever is attached pivotally at a fulcrum position between the rod end of the left-leg lever and the cable end of the left-leg lever;

the left-leg-lever axle being attached to the machine frame and extended perpendicularly to the upper-left-leg support member and the lower-left-leg support member within the machine frame;

a left-leg-cable reel attached pivotally to a left-leg-reel axle attached to the machine frame and extended parallel to the left-leg-lever axle;

a reel end of the left-leg cable attached to the left-leg cable reel;

a left-side cable crank having a left-side crank axle parallel to the left-leg-reel axle and attached pivotally to the machine frame;

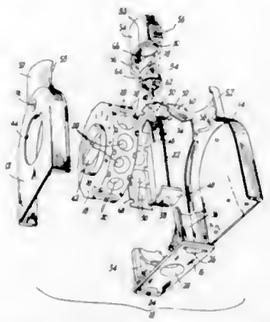
a left-leg-crank pulley wheel attached pivotally to a crank end of the left-side cable crank;

the left-leg cable being in selective contact with the left-leg-

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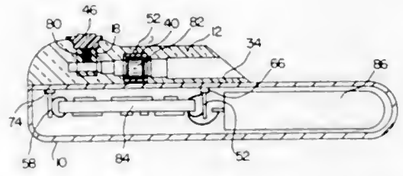
crank pulley wheel during portions of rotation of the left-side cable crank as determined by a portion of the left-leg cable reeled onto the left-leg-cable reel;
a right-leg connecting rod pivotally attachable to a bottom side of the lower-right-leg support member and extended into the foot end of the machine frame;
a right-leg lever to which the right-leg connecting rod is pivotally attached at a rod end of the right-leg lever;
a right-leg cable having a lever end of the right-leg cable attached to a cable end of the right-leg lever;
a right-leg-lever axle to which the right-leg lever is attached pivotally at a fulcrum position between the rod end of the right-leg lever and the cable end of the right-leg lever;
the right-leg-lever axle being attached to the machine frame and extended perpendicularly to the upper-right-leg support member and the lower-right-leg support member within the machine frame;
a right-leg cable reel attached pivotally to a right-leg-reel axle attached to the machine frame and extended parallel to the right-leg-lever axle;
a reel end of the right-leg cable attached to the right-leg cable reel;
a right-side cable crank having a right-side-crank axle parallel to the right-leg-reel axle and attached pivotally to the machine frame;
a right-leg-crank pulley wheel attached pivotally to a crank end of the right-side cable crank;
the right-leg cable being in selective contact with the right-leg-crank pulley wheel during portions of rotation of the right-side cable crank as determined by a portion of the right-leg cable reeled onto the right-leg-cable reel; and
a rotational motor having a rotational gear in rotation-imparting relationship to the left-side-crank axle and to the right-side-crank axle selectively.

5,207,217
MULTIPLE SINGLE-DOSE INHALER FOR MEDICAMENTS IN POWDER FORM
Salvatore Cocozza, Milan; Gianfranco Citterio, and Maurizio Rusconi, both of Merate, all of Italy, assignors to Promo Pack SA, Switzerland
Filed Jun. 28, 1991, Ser. No. 722,873
Claims priority, application Italy, Jul. 16, 1990, 20947 A/90
Int. Cl.[5] A61M *15/00*
U.S. Cl. 128—203.21 9 Claims



1. A multiple-dose inhaler (**10**) for administering doses of medicament to a patient in very fine or micronized powder form, each of said doses being contained in an individual blister (**30**) in a blister sheet (**60**), the inhaler comprising means (**18**) for bringing the individual blisters (**30**) of the blister sheet (**60**) one after another into a piercing position, means (**62**) for piercing the individual blister (**30**) when in the piercing position, a delivery channel (**82**) through which the patient exerts an inhalation action, and an air intake (**28**) which communicates with said delivery channel when a blister has been pierced, a released dose of medicament being removable by an air stream generated by the inhalation action, said blister sheet (**60**) being in the form of a strip with the blisters (**30**) aligned, a connection channel (**22**) of rectilinear axis is provided coaxial with said delivery channel (**82**), said connection channel (**22**) connecting said delivery channel (**82**) to said air intake (**28**), the individual blister (**30**) when in its piercing position being arranged between said delivery channel (**82**) and said connection channel (**22**), within said connection channel (**22**) in proximity to an end (**40**) thereof adjacent to the blister when in its piercing position there being provided a cup (**46**) coaxial with said connection channel (**22**), the concavity of said cup facing said blister, said cup (**46**) having smaller dimensions than the dimensions of said connection channel (**22**) at the position occupied by said cup.

5,207,218
IMPLANTABLE PULSE GENERATOR
Alain Carpentier, Paris, France; Antoine Camps, Eys, and Robert Leinders, Gubbecoven, both of Netherlands, assignors to Medtronic, Inc., Minneapolis, Minn.
Filed Feb. 27, 1991, Ser. No. 661,786
Int. Cl.[5] A61N *1/05*
U.S. Cl. 128—419 PG 9 Claims

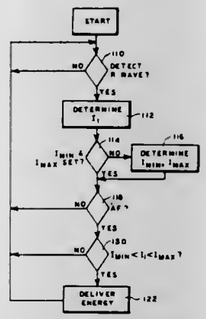


7. An implantable pulse generator, comprising:
a hermetically sealed housing containing an electrical circuit and a battery, said housing defining two generally planar opposed major surfaces connected to one another by means of a circumferential edge surface, such that said housing displays a generally flattened configuration, said electrical circuit located generally parallel to said major surfaces of said housing;
a connector module mounted to one of said major surfaces of said housing, said connector module comprising a plurality of connector bores arranged parallel to said major surfaces each having opening to an exterior surface of said connector module and a first and a second electrical connector associated with each said connector bore, said first electrical connectors located closer to the openings of said connector bores than said second electrical connectors; and
a plurality of feedthroughs, mounted to said one of said major surfaces of said housing, each of said feedthroughs coupled to one of said electrical connectors and to said electrical circuit, said feedthroughs being arranged generally along parallel first and second lines located adjacent opposite edges of said electrical circuit.

5,207,219
ATRIAL DEFIBRILLATOR AND METHOD FOR PROVIDING INTERVAL TIMING PRIOR TO CARDIOVERSION
John M. Adams, Issaquah; Clifton A. Alferness; Kenneth R. Infinger, both of Redmond, and Joseph M. Bocek, Seattle, all of Wash., assignors to InControl, Inc., Redmond, Wash.
Filed Oct. 23, 1992, Ser. No. 965,195
Int. Cl.[5] A61N *1/39*
U.S. Cl. 128—419 D 13 Claims

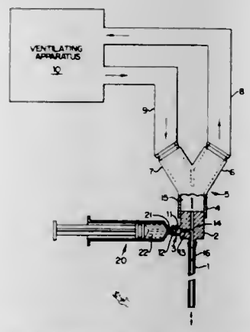
13. An atrial defibrillator for providing cardioverting electrical energy to the atria of a human heart, said atrial defibrillator comprising:

detecting means for detecting ventricular activations of the heart; and
cardioverting means for applying said cardioverting electri-



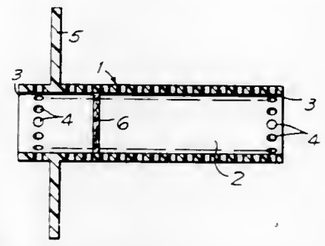
cal energy to the atria of the heart when the time between immediately successive ventricular activations detected by said detecting means is greater than a preselected minimum time interval.

5,207,220
METHOD FOR ADMINISTERING PHARMACEUTICALS, INCLUDING LIQUID SURFACTANT, TO THE LUNGS
Walker A. Long, Chapel Hill, N.C., assignor to Burroughs Wellcome Co., Research Triangle Park, N.C. and The Wellcome Foundation Ltd., London, Great Britain
Continuation of Ser. No. 742,148, Aug. 1, 1991, abandoned, which is a continuation of Ser. No. 448,887, Dec. 12, 1989, abandoned. This application Mar. 26, 1992, Ser. No. 860,200
Int. Cl.[5] A61M *16/10, 31/00, 11/00;* A62B *9/06*
U.S. Cl. 128—207.14 11 Claims



1. A method of administering a liquid stream of surfactant formulation to at least one lung of an infant subject in need of such treatment, the method comprising the steps of:
providing a breathing tube extending through the subject's mouth and larynx;
ventilating at least one lung of the subject through the breathing tube with an oxygen-rich air steam;
providing introducing means formed in a wall of the breathing tube for introducing a liquid stream of surfactant formulation into said breathing tube;
delivering said liquid stream such that said liquid stream is in contact with said breathing tube and separate from but in contact with said air stream; and
administering the liquid stream of surfactant formulation through the introducing means, down the breathing tube, and into at least one lung of the subject while simultaneously ventilating at least one lung of the subject through the breathing tube.

5,207,221
AERATED RESPIRATORY MOUTHPIECE (ORAL GUM SEPARATOR)
Nathan H. Stulbach, 40 Brighton First Rd., Brooklyn, N.Y. 11235
Continuation of Ser. No. 382,174, Jun. 26, 1989, abandoned. This application Jun. 13, 1991, Ser. No. 715,021
Int. Cl.[5] A62B *18/08*
U.S. Cl. 128—206.29 16 Claims



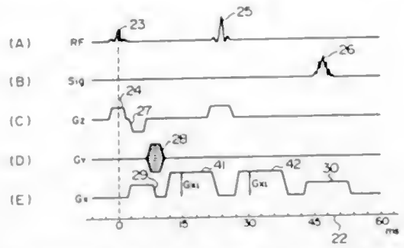
1. A respiratory mouthpiece for directly extending into the oral cavity of a toothless person comprising:
(A) a conduit having an outside open end and an inside open end and adapted to pass untreated atmospheric air from the outside open end to the inside open end; and
(B) a shield connected to said conduit adjacent the outside open end of said conduit having a size which prevents said shield from passing between the lips of a toothless person when said conduit is inserted between the gums of the toothless person;
(C) said conduit having a length such that the distance between said shield and said inside open end is sufficient so that said conduit can directly pass between the gums of the toothless person and directly extend into the oral cavity of the toothless person;
(D) wherein the wall of said conduit comprises a plurality of perforations to pass untreated atmospheric air to the inside of said conduit.

5,207,222
METHOD AND APPARATUS FOR MEASURING TEMPERATURE OF SUBJECT
Hideaki Koizumi, Katsuta; Ryuzaburo Takeda, Mito; Koichi Sano, Yokohama, and Tetsuo Yokoyama, Tokyo, all of Japan, assignors to Hitachi, Ltd., Chiyoda, Japan
Filed Jun. 11, 1991, Ser. No. 713,316
Claims priority, application Japan, Jun. 15, 1990, 2-157262
Int. Cl.[5] A61B *5/055*
U.S. Cl. 128—653.2 20 Claims

1. A method of measuring a temperature of a subject comprising:
a step of applying a static field to said subject;
a step of applying a first field to said subject so as to excite a nuclear spin of a portion of said subject to be measured;
a step of applying a second field to said subject so as to generate NMR signals from said portion to be measured;
a step of applying a third field to said subject so as to change coherence of said nuclear spin in accordance with a temperature distribution of said portion to be measured; and

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a step of reading said NMR signals and obtaining the temperature state of said portion to be measured from the change



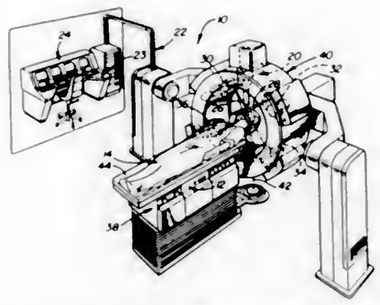
of intensity of said NMR signals corresponding to the change of coherence of said nuclear spin.

5,207,223

APPARATUS FOR AND METHOD OF PERFORMING STEREOTAXIC SURGERY

John R. Adler, Stanford, Calif., assignor to Accuray, Inc., Santa Clara, Calif.

Filed Oct. 19, 1990, Ser. No. 600,501
Int. Cl.[5] A61B *5/05*
U.S. Cl. 128—653.1 **51 Claims**



1. A method for carrying out radiosurgery by selectively irradiating a target region within a living organism, comprising:

preparing a 3-dimensional mapping of at least a portion of the living organism, the mapping covering a mapping region which includes and is larger than the target region;

storing the mapping as reference data in digital form;

positioning the organism with the mapping region within the target region of a radio-surgical beaming apparatus which, when activated, emits a collimated radiosurgical beam via a path through a mass of healthy tissue of a strength sufficient to cause the target region to become necrotic;

passing first and second diagnostic beams, which are separate and distinct from the radiosurgical beam, through the mapping region substantially simultaneously, the first and second diagnostic beams being at a known non-zero angle relative to one another, to produce respective first and second images of respective first and second projections within the mapping region;

producing first and second digital electronic images representative of the first and second images;

digitally comparing the first and second electronic images with the reference data in digital form to provide position data representative of relative spatial locations of the collimated beam and of the target region, said first and second images being compared with said reference data sufficiently close in time after said images are produced by said first and second diagnostic beams such that said position data substantially represents real time spatial locations of the collimated beam and the target region relative to one another;

in response to said real time spatial locations of said collimated beam and target region, adjusting the relative positions of the beaming apparatus and the living organism in such a manner that the collimated beam is focused onto the target region;

activating the beaming apparatus and thereafter maintaining it in its activated state for the time necessary to provide a desired amount of irradiation;

as radiosurgery is carried out, periodically repeating the comparing step at small time intervals using newly produced first and second images such that any movement of the target region relative to the focus of the collimated beam is detected in substantially real time; and

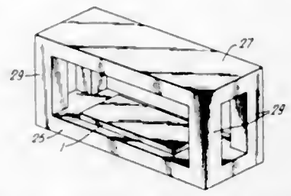
repeating the adjusting step, as needed, to maintain the focus of the collimated beam on the target region.

5,207,224

MAGNETIC RESONANCE APPARATUS

Robert J. Dickinson, Wealdstone, and Christopher P. Randell, Uxbridge, both of England, assignors to Picker International, Ltd., Wembley, United Kingdom

Continuation of Ser. No. 441,637, Nov. 27, 1989, abandoned. This application Mar. 18, 1992, Ser. No. 855,116
Claims priority, application United Kingdom, Dec. 9, 1988, 8828810
Int. Cl.[5] A61B *5/055*
U.S. Cl. 128—653.5 **13 Claims**



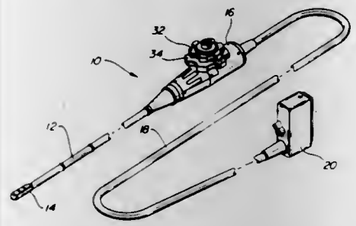
1. A whole body magnetic resonance apparatus including a magnet system comprising a magnetic core arrangement having a pair of spaced apart and opposed planar surfaces separated by at least one magnetically susceptible yoke defining an established gap therebetween; means for producing a static magnetic field between said surfaces and in a direction across said gap; said field defining an equilibrium axis of magnetic alignment of nuclei within an object placed in the gap for examination in the apparatus; means for superimposing a gradient magnetic field on said static magnetic field in at least one of three orthogonal directions; means for applying a radio frequency field to said object in said gap; means for detecting a radio frequency field emanating from said object in said gap; means for controlling said static, gradient and applied radio frequency fields in said gap; and an object handling equipment including an object support member of elongated form adapted to support the object for examination and translating means for providing translational movement of the support member into and out of said gap in a plane transverse to the magnetic field direction and in a first direction transverse to the longitudinal axis of said support member, and of an extent sufficient to allow the object on said support member to be moved between a position within said gap and a position wholly outside of said gap such as to avoid interference between the object and the magnetic core arrangement as the object is placed on and removed from said support member.

5,207,225

TRANSESOPHAGEAL ULTRASONIC SCANHEAD

Frank B. Oaks, Kent; Perry W. Kaminski, Seattle, and Eugene A. Larson, Kirkland, all of Wash., assignors to Advanced Technology Laboratories, Inc., Bothell, Wash.

Continuation-in-part of Ser. No. 613,338, Nov. 14, 1990, Pat. No. 5,050,610. This application Sep. 20, 1991, Ser. No. 762,975
Int. Cl.[5] A61B *8/12*
U.S. Cl. 128—660.1 **29 Claims**



1. An ultrasonic diagnostic system for providing ultrasonic diagnostic information from the interior of a body comprising:

a transesophageal scanhead comprising:

probe means for insertion into the body for scanning in one of a plurality of selectable scanning plane orientations in relation to an axis of said scanhead;

means adapted to be located external to the body during use of the transesophageal scanhead for manipulating said probe means; and

means, coupled to said probe means, and actuated by a user, for selecting a desired scanning plane orientation; and

an operating and control system comprising:

means for operatively connecting said transesophageal scanhead to said operating and control system;

means, responsive to said probe means, for displaying an ultrasonic image in a selected scanning plane orientation; and

means, responsive to the selection of a scanning plane orientation by said desired scanning plane orientation selecting means, and coupled to said displaying means, for simultaneously displaying on a common display a) an indication of the selected scanning plane orientation in relation to a predetermined reference orientation and b) said ultrasonic image.

5,207,226

DEVICE AND METHOD FOR MEASUREMENT OF BLOOD FLOW

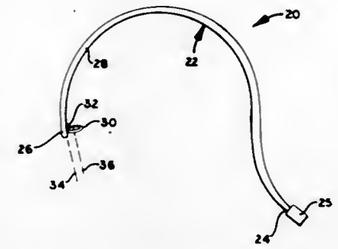
Steven J. Bailin, West St. Paul, and Robert F. Wilson, Shoreview, both of Minn., assignors to Regents of the University of Minnesota, St. Paul, Minn.

Filed Jan. 25, 1991, Ser. No. 646,110
Int. Cl.[5] A61B *5/027*
U.S. Cl. 128—661.08 **23 Claims**

1. A device, suitable for measuring fluid flow within a vessel characterized by generally tubular segments or elastic wall, each of the wall segments having an internal circumference which is normally fluctuating and defining a variable cross-section for the segment, the device comprising:

a catheter having a distal end suitable for insertion into the

means, carried by the catheter adjacent the distal end, for internally stabilizing by engaging the entire internal circumference of one of the segments in order to maintain a constant cross-sectional area of the segment; and



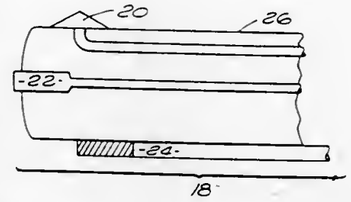
means, carried by the catheter adjacent the distal end, for detecting fluid velocity within the engaged segment.

5,207,227

MULTIPROBES WITH THERMAL DIFFUSION FLOW MONITOR

Alexandros D. Powers, 2607A S. Walter Reed Dr., Arlington, Va. 22206

Continuation of Ser. No. 488,153, Mar. 2, 1990, abandoned. This application May 10, 1991, Ser. No. 701,353
Int. Cl.[5] A61B *5/026; G01F 1/68*
U.S. Cl. 128—691 **26 Claims**



1. A single probe system useful for monitoring blood flow in a tissue comprises:

a support structure having a first side surface and a second side surface opposite to said first side surface,

an anterior and a posterior surface connected to said first and second side surfaces;

thermal diffusion means to measure blood flow housed in said support structure near said first side surface,

said thermal diffusion means further comprises a conical hot film probe with a sensor tip adapted to contact the tissue, wherein said sensor tip comprises a thin metal layer;

a backing material onto which said thin metal layer is deposited;

a protective coating deposited over said thin metal layer;

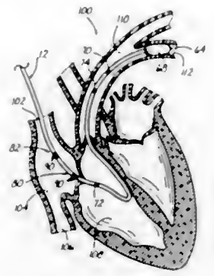
control means to heat said sensor tip as a heat source while simultaneously measuring a temperature correlating to the blood flow in the tissue;

pressure monitor means housed in said support structure near said anterior surface and adjacent to said thermal diffusion means to monitor pressure in the tissue; and

multiple parameter means housed in said support structure near said second surface and adjacent to said pressure monitor means to monitor oxygen content, temperature and potential of the tissue.

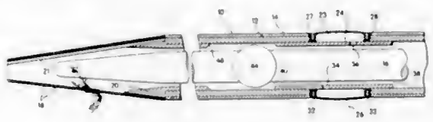
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5,207,228
DUAL PORT THERMODILUTION CATHETER
Robert Roelandt, Affligem, Belgium; Miriam Taimisto, Sierra Madre, and Clement E. Lieber, Yorba Linda, both of Calif., assignors to Baxter International Inc., Deerfield, Ill.
Filed Jan. 21, 1992, Ser. No. 823,092
Int. Cl.[5] A61B *5/02*
U.S. Cl. 128—713 4 Claims



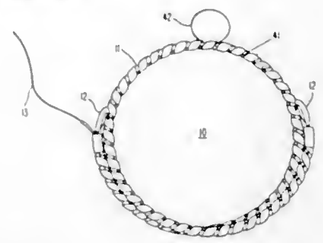
1. A method of using a thermodilution catheter having a plurality of injectate ports comprising:
a. inserting said thermodilution catheter into the heart of a patient;
b. positioning at least a first of said plural injectate ports in said catheter proximal to the tricuspid valve of the heart;
c. positioning at least a second of said plural injectate ports upstream from said first injectate port with respect to the direction of blood flow;
d. discharging fluid through only said first injectate port.

5,207,229
FLEXIBILITY STEERABLE GUIDEWIRE WITH INFLATABLE BALLOON
R. Edward Winters, Andover, Mass., assignor to Advanced Biomedical Devices, Inc., Lawrence, Mass.
Continuation-in-part of Ser. No. 454,411, Dec. 21, 1989, Pat. No. 5,059,176. This application Oct. 1, 1990, Ser. No. 591,469
The portion of the term of this patent subsequent to Oct. 22, 2008, has been disclaimed.
Int. Cl.[5] A61M *25/00*
U.S. Cl. 168—772 6 Claims



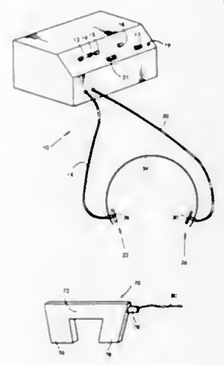
1. A guidewire comprising:
a length of flexible tubing having proximal and distal ends and interior and exterior walls and providing torsional, axial and radial rigidity;
a radial element disposed within said flexible tubing at said distal end;
a movable core; and
an axially movable element retained by said movable core and axially slideable thereon within said flexible tubing distal of said radial element to be selectively seated on said radial element by applying a force toward the proximal end of said flexible tubing.

5,207,230
SPIRAL SENSOR
David L. Bowers, 9385 La Suvida Dr., La Mesa, Calif. 92041
Filed Feb. 6, 1992, Ser. No. 831,983
Int. Cl.[5] A61B *5/103*
U.S. Cl. 128—780 22 Claims



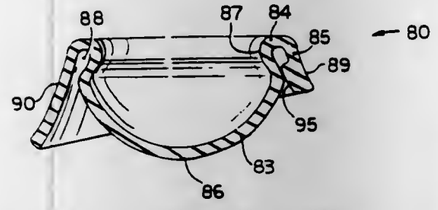
7. A sensor comprising:
a) a spiral tube having a predetermined length and width;
b) a transducer having an inner and outer surface, said inner surface attached substantially along said spiral tube length and within said spiral tube width;
c) terminal means connected to said transducer for reading signals generated by said transducer; and
d) conductive means attached along a substantial length of said outer surface of said transducer for maintaining conductive integrity along said transducer.

5,207,231
ELECTRO-THERAPY APPARATUS AND METHOD OF TREATING DENTAL DISEASE
Omar Fakhri, 115 Broadley Street, London NW8, Great Britain
PCT No. PCT/GB89/01356, § 371 Date Jun. 13, 1991, § 102(e) Date Jun. 13, 1991, PCT Pub. No. WO90/05561, PCT Pub. Date May 31, 1990
PCT Filed Nov. 16, 1989, Ser. No. 689,808
Claims priority, application United Kingdom, Nov. 17, 1988, 8826903; Jun. 15, 1989, 8913774
Int. Cl.[5] A61N *1/32*
U.S. Cl. 128—787 6 Claims



1. A method of treating dental disease by electrotherapy, comprising applying to a human tooth affected with such a disease electrode means shaped to provide a substantial area of engagement with the tooth, and passing a direct electric current through the tooth via said electrode means for a predetermined period of time, wherein said disease is pulpitis and wherein said electric current is applied for 10 minutes and then gradually reduced.

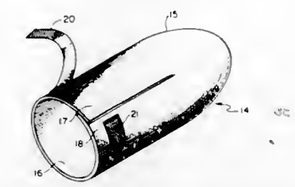
5,207,232
DEVICE AND METHOD FOR INTRAVAGINAL, BARRIER-TYPE PREVENTION OF CONCEPTION AND INFECTION
Alfred A. Shihata, 13565 Mira Montana Dr., Del Mar, Calif. 92014, assignor to Alfred A. Shihata, San Diego, Calif.
Continuation-in-part of Ser. No. 593,687, Oct. 5, 1990, abandoned, which is a continuation of Ser. No. 386,882, Jul. 31, 1989, Pat. No. 4,989,618, which is a continuation of Ser. No. 159,846, Feb. 24, 1988, Pat. No. 4,858,624. This application Jun. 17, 1991, Ser. No. 716,644
Int. Cl.[5] A61F *6/06*
U.S. Cl. 128—837 30 Claims



1. A kit for intravaginal, barrier-type prevention of conception and sexually-transmitted infection, comprising:
a barrier-type device including:
a cervical dome fabricated from a flexible material, said dome having an upwardly facing opening and a curved surface extending from said opening to a downwardly facing dome peak, and
a continuous fornical rim on said dome, said rim defining said opening and transitioning therefrom into a continuous, annular vaginal brim which circumscribes said cervical dome and extends both outwardly and downwardly, and wherein said brim is made from said flexible material including an area of increased material wall thickness which defines a thickened grip portion extending inwardly toward said dome; and an inserter including:
an elongated handle having at is proximal end arcuate support means for supporting said barrier-type device, and gripping means for releasably holding said device upon said support means during intravaginal positionment of said device; and
wherein said rim is folded from said dome inwardly, upwardly, and outwardly before transitioning into said brim, wherein said brim has an outer edge, and wherein the vertical dimension between said rim and the outer edge of said brim increases with circumferential symmetry from an anterior vaginal location on said brim to a posterior vaginal location on said brim which is opposite said anterior vaginal location.

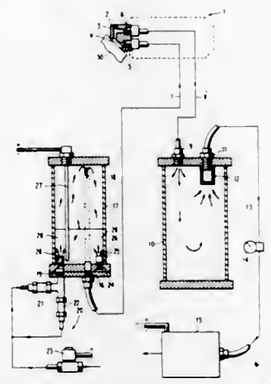
5,207,233
ULTRA-VIOLET RAY SHIELD
Bradley L. Barnes, 7131 Owensmouth, A 96, Canoga Park, Calif. 91303
Filed Apr. 13, 1992, Ser. No. 867,386
Int. Cl.[5] A61F *6/02, 5/37*
U.S. Cl. 128—842 1 Claim

1. A shield effective against ultra-violet radiation comprising:
a shield of three-layered material carried together as an integral construction;
said three-layered construction including an interlayer composed of a vinyl material impregnated with lead particles, an outer material layer composed of a cloth fabric and an inner layer composed of a cushion material;
said shield is an open-ended pouch having a hook and pile fastener for releasably retaining said pouch opening in a closed position;
said pouch includes an adjustable slit separating adjacent overlapping edge marginal regions and disposed at said open end to permit overlap edge marginal regions of said pouch for sizing and convenience;



adjustable strap means attached to said pouch for accommodating waist and leg wearing of said pouch;
said interlayer of vinyl/lead composed material provides a barrier to ultra-violet radiation; and
said cloth fabric outer material layer characterized as being liquid-permeable so as to be liquid absorbent.

5,207,234
METHOD FOR MAKING MICRO-ABRASIONS ON HUMAN TISSUE
Luciano Rosso, Caselette, Italy, assignor to L.I.C.A. di Rosso & C.S. n.c., Turin, Italy
Continuation of Ser. No. 694,571, May 2, 1991, abandoned, which is a division of Ser. No. 411,452, Sep. 11, 1989, Pat. No. 5,100,412. This application Mar. 5, 1992, Ser. No. 845,353
Claims priority, application Italy, Jan. 11, 1988, 67006 A/88
Int. Cl.[5] A61B *17/50*
U.S. Cl. 128—898 1 Claim

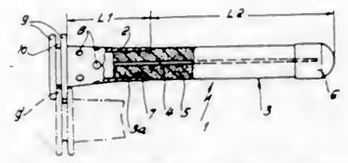


1. A method for making micro-abrasions on human tissue comprising:
placing a handle having an open chamber thereon on human tissue to close said chamber;
applying suction to said chamber to sealingly engage the periphery of the chamber with the human tissue and to apply a suction force to the human tissue toward said chamber;
inducing the flow of air into the chamber only by the removal of air from the chamber by suction while restricting entry of ambient air from the surrounding atmosphere into the chamber around the periphery of the chamber;
entraining a reducing substance in said flow of air prior to entry of the flow of air into the chamber;
directing substantially all the reducing substance entering

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the chamber directly against the human tissue at an angle of substantially 45°;
entraining used reducing substances and abraded tissue in the flow of air being removed from the chamber by suction; and
collecting used reducing substances and abraded tissue in a manner to prevent reuse of the reducing substances during continued application of a vacuum to the chamber.

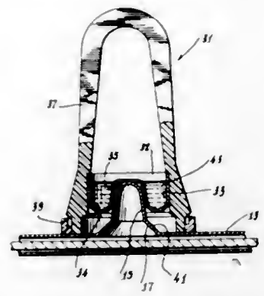
5,207,235
PROCESS AND ROLLER FOR APPLYING A PERM TO PREVIOUSLY PERMED HAIR
Siegfried Müller, Bauschengasse 14, D-7737 Bad Dürrheim, and Fritz Storz, Ringstrasse 47, D-7057 Winnenden, both of Fed. Rep. of Germany
PCT No. PCT/DE89/00736, § 371 Date May 29, 1991, § 102(e) Date May 29, 1991, PCT Pub. No. WO90/06071, PCT Pub. Date Jun. 14, 1990
PCT Filed Nov. 29, 1989, Ser. No. 687,862
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1988, 3840149; Mar. 17, 1989, 3908733
Int. Cl.[5] A45D *7/04*
U.S. Cl. 132—207 22 Claims



1. In a process for applying a perm or water wave to previously permed or water-waved hair using rollers, the roller members of which, being adjacent on both sides to a center flexible longitudinal section capable of remaining in a respective bent position, each have an outer longitudinal section, including the steps of rolling a hair strand on ahead onto the roller member starting with the tips of the hairs, then securing the roller member relative to the head and thereafter applying a perm or waterwave liquid onto the rolled-up hair, the improvement comprising the steps of spirally rolling previously permed or water-waved sections of the strand of hair, starting with the tips of the hair, first onto a first of said outer longitudinal sections, and then progressively also onto the center longitudinal section, and finally spirally rolling the untreated section of hair substantially onto a second of said outer longitudinal sections, then bending the roller member until said first outer longitudinal section extends approximately at a right angle relative to said second outer longitudinal section such that said first outer longitudinal section and a portion of the center longitudinal section with the rolled-up previously treated hair sections project substantially perpendicularly outwardly from the head, and then applying intensive-action perm or waterwave liquid to the previously untreated hair section which is rolled up substantially onto said second outer longitudinal section.

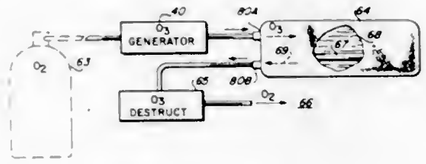
5,207,236
WATER RESERVOIR TO PROVIDE MIST FOR A HAIRSETTER
Daniel Santhouse, Wilton, Conn., assignor to Conair Corporation, Stamford, Conn.
Filed Aug. 8, 1991, Ser. No. 742,005
Int. Cl.[5] A45D *1/02*
U.S. Cl. 132—227 5 Claims

5. A reservoir unit for use in a hairsetter having upwardly-extending heating posts, said reservoir unit including
a cup shaped to hold liquid, said cup having a base and sides and being open at the top, said base having an upwardly-extending concave heating post recess therein, said recess being integral with said base, said recess having a shape complementary to that of said heating posts, and a handle extending upwardly from said cup,



whereby said reservoir unit may be filled with water and placed upon one of said heating posts to heat the water therein.

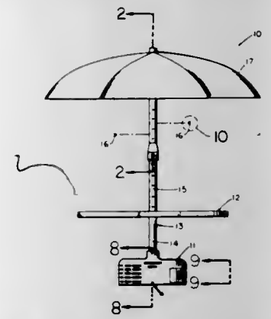
5,207,237
OZONEATED LIQUID SYSTEM
Terrence R. Langford, Tucson, Ariz., assignor to Kew Import-/Export Inc., Tucson, Ariz.
Continuation-in-part of Ser. No. 774,047, Oct. 8, 1991, Pat. No. 5,184,633, which is a continuation-in-part of Ser. No. 556,570, Jul. 20, 1990, abandoned. This application Sep. 30, 1992, Ser. No. 954,978
Int. Cl.[5] B08B *3/10*
U.S. Cl. 134—102.1 28 Claims



1. An ozonenating system comprising:
a) a pressure vessel having a selected liquid therein;
b) means for injecting pressurized ozone gas into the liquid within said pressure vessel;
c) a container having an article therein;
d) means for communicating a mixture of liquid and ozone gas from said pressure vessel to said container such that said mixture contacts said article;
e) means for removing excess mixture from said container; and,
f) means for chilling said container and aid pressure vessel.

5,207,238
AIR FLOW LOUNGE UMBRELLA APPARATUS
Rose F. Rivera, and Robert A. Rivera, both of 706 N. Padre Ave., Weslaco, Tex. 78596
Filed Nov. 12, 1991, Ser. No. 790,827
Int. Cl.[5] A45B *3/00*
U.S. Cl. 135—16 4 Claims

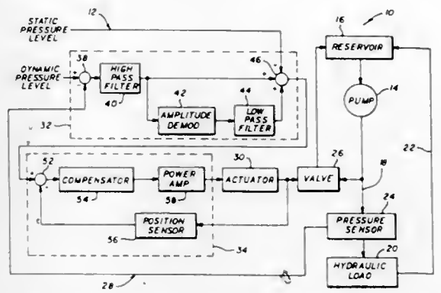
1. An air flow lounge umbrella apparatus, comprising,
a support base housing, the support base housing including a support base housing top wall, the top wall including an umbrella tubular post member received therethrough coaxially aligned with the support base housing and extending upwardly thereof, and including a table platform fixedly mounted to the tubular post member in a surrounding coaxially aligned relationship spaced above the support base housing, and
an umbrella canopy mounted to the tubular post member above the table platform, and
the tubular post member including a first conduit portion extending from the table platform into the support base housing, and
the tubular post member defining a second conduit portion extending from the table platform to a manifold block fixedly mounted to the tubular post member within the umbrella canopy, and
a third conduit portion extending from the manifold block medially and coaxially of the umbrella canopy, and
the second conduit portion including a matrix of apertures directed therethrough, and
the first conduit portion and the second conduit portion in pneumatic communication with air means mounted within



the support base housing for directing pressurized air through the first conduit portion and the second conduit portion and through the apertures, and
the air means includes a compressor mounted within the support base housing, the support base housing including a base housing floor, with the compressor mounted to the base housing floor, and the base housing floor further including a hollow support cone mounted coaxially of the floor, wherein the cone is received within the lower distal end of the first conduit portion, and a compressor output hose in pneumatic communication between the compressor and the lower distal end of the first conduit portion, with the compressor output hose directed through the hollow support cone in pneumatic communication with the lower distal end of the first conduit portion, wherein the hollow support cone includes a hollow support cone opening arranged for reception within the lower distal end of the first conduit portion.

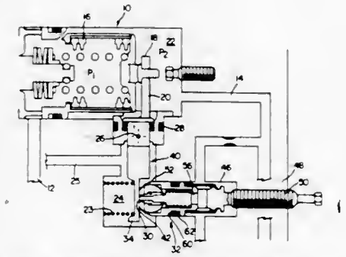
5,207,239
VARIABLE GAIN SERVO ASSIST
J. David Schwitalla, Hermosa Beach, Calif., assignor to Aura Systems, Inc., El Segundo, Calif.
Continuation-in-part of Ser. No. 738,193, Jul. 30, 1991, Pat. No. 5,135,070. This application Jul. 29, 1992, Ser. No. 921,932
Int. Cl.[5] B62D *5/08*
U.S. Cl. 137—115 17 Claims

1. A variable assist gain control apparatus for a servo assist system comprising:
a valve having an actuated member and a variable flow orifice wherein the position of said actuated member determines the cross sectional area of said orifice, said orifice to communicate hydraulic fluid between a high pressure side of said servo assist system an a low pressure side of said servo assist system, said high pressure side having an operating pressure determined as a function of said area; and
an actuator responsive to a present state of variable conditions in the environment of said servo assist system to actuate said movable member to a position at which said area of said variable orifice has a dimension to establish



said operating pressure substantially at a value preselected to exist upon the occurrence of said present state of said variable conditions.

5,207,240
SELF ALIGNING NOZZLE FOR A FLAPPER VALVE
Jonathan C. Burrell, Olathe, Kans., assignor to Allied Signal Inc., Morristown, N.J.
Filed Sep. 16, 1992, Ser. No. 946,265
Int. Cl.[5] G05D *16/18*
U.S. Cl. 137—82 7 Claims

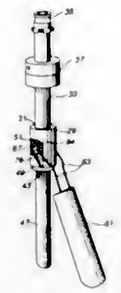


1. In a servo system having a flapper valve with a lever which rotates about a pivot from a shut off position as a function of movement of a bellow member responding to a pressure differential between a first pressure and a second pressure to define a space relationship with a nozzle to control the flow of fluid from a source, the improvement in the nozzle comprising:
a stem member located in a passageway of a housing, said stem having a cylindrical body with a first end and a second end, said cylindrical body having a blind axial bore extending from said second end and radial holes for connecting said blind axial bore with said source of fluid, said cylindrical body having an annular inwardly projecting rib located adjacent said second end;
a semi-spherical member retained in said blind axial bore of said stem member by said rib, said semi-spherical member having an axial bore extending perpendicular therethrough from a base, said semi-spherical member having a plurality of radial slots extending in a plane perpendicular to said axial bore along said base; and
resilient means located in said blind axial bore for urging said semi-spherical member into engagement with said rib, said fluid from said source flowing through said blind axial bore and axial bore toward said lever, said bellows moving said lever into engagement with said base of said semi-spherical to terminate flow of fluid through said blind axial bore, said rib allowing said semi-spherical

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member to rotate such that the radial slots are maintained in a plane parallel with the lever to assure that said lever is seated on said base and the no fluid leakage occurs through said blind axial bore in a shut off position.

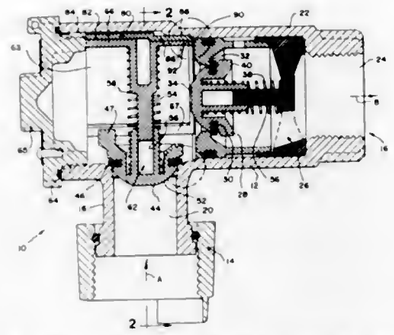
5,207,241
LIQUID SHUT-OFF VALVE
Matthew T. Babb, 1666 S. Santa Fe Ave., Vista, Calif. 92084
Filed Aug. 7, 1992, Ser. No. 925,875
Int. Cl.[5] F16K *31/32, 33/00*
U.S. Cl. 137—447 21 Claims



1. A float-actuated valve for shutting off high flow rates of liquid fed into a tank comprising, in combination:
a) a valve body having an inlet and an outlet joined by a first bore aligned co-axially with the feed pipe through which the liquid is fed to the tank; and,
b) a valve spool rotatably mounted in a cross-bore formed in said valve body, between said inlet and said outlet, and attached to a float spaced outward from said valve body that is responsive to the level of liquid in the tank;
c) said spool having formed therethrough a second bore terminated by an inlet and an outlet, creating an upstream second bore first wall and a downstream second bore second wall on the respective sides of said second bore in said spool for containing the flow of liquid passing therethrough, for rotation by said float from a first position in general alignment with said first bore, to allow passage of large volumes of liquid therethrough, through a series of intermediate positions, where the flow is progressively reduced by the respective leading edges of said second bore first and second walls moving into the path of the flowing liquid, to a second position where said second bore is in full non-alignment with said first bore to totally shut off the flow of liquid;
d) said valve including relief means associated with said downstream second bore second wall of said spool to reduce the pressure of the flow, during rotation of said spool through said series of intermediate positions, to counteract the hydraulic turning moment developed by the large flow of liquid tending to hold the valve open against the action of said float when said spool is rotated to said second position.

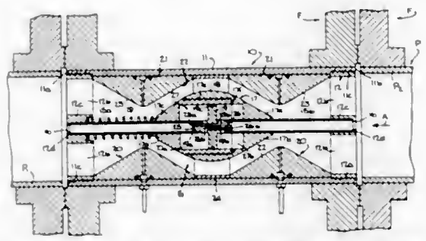
5,207,242
ANGLE DUAL CHECK VALVE
Joseph L. Daghe, and Steven R. Tefft, both of Dubuque, Iowa, assignors to A. Y. McDonald Mgf. Co., Dubuque, Iowa
Filed Jul. 9, 1992, Ser. No. 911,150
Int. Cl.[5] F16K *15/02*
U.S. Cl. 137—454.6 19 Claims

1. A check valve comprising:
a valve housing;
inlet means for admitting fluid flow into the housing in a first direction;
outlet means for discharging fluid flow from the housing in a second direction generally perpendicular to said first direction;
an inlet check assembly in the housing for preventing the inlet means from discharging a flow from the housing, the inlet check assembly having an inlet valve member guided for movement in the first direction between a closed position and an open position;
an outlet check assembly in the housing for preventing the outlet means from admitting fluid flow into the housing,



the outlet check assembly having an outlet valve member guided for movement in the second direction between a closed position and an open position; and
means associated with the housing for providing access to the housing interior to facilitate assembly and service of the check valve, the means comprising an opening in the housing through which the inlet check assembly and the outlet check assembly are assembled into and removed from the housing in the second direction.

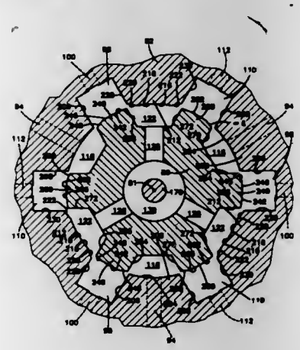
5,207,243
TWO-WAY PISTON CHECK VALVE
Claude A. Sarro, 119 Northumberland Gate, Lynbrook, N.Y. 11563
Filed Jul. 6, 1992, Ser. No. 909,002
Int. Cl.[5] F16K *17/26*
U.S. Cl. 137—498 9 Claims



1. A fluid flow check valve comprising a housing having opposite open ends, an annular valve seat within said housing adjacent to one of its said open ends, a valve plug member reciprocally movable within said housing between a valve-closed position against said valve seat and a valve-open position spaced away from said valve seat permitting flow of said fluid therepast between said housing open ends, said valve plug member having an interior chamber for receiving said fluid therein, and means mounting said valve plug member for said reciprocal movement alternately between said valve-closed and said valve-open positions, said mounting means comprising a fluid-tight partition mounted in fixed position transversely of said housing and within said valve plug member chamber to

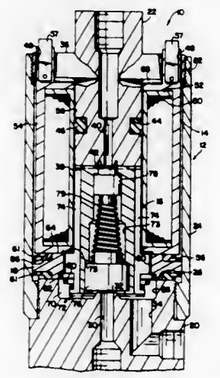
provide respective chamber portions on the opposite sides thereof when said valve plug member is in its said valve-open position, and respective fluid conduits each extending, respectively, between one of said valve plug member chamber portions and that one of said housing open ends which is on the opposite side of said partition from the chamber portion from which the conduit extends, each of said fluid conduits remaining open when said valve plug member is in its said valve-open and valve-closed positions, said valve plug member being mounted for said reciprocal movement on said fluid-tight partition from its said valve-open position to its said valve-closed position responsive to reduced fluid pressure adjacent to said one open end of said housing as compared with the pressure of said fluid adjacent to the other of said housing open ends and from its said valve-closed position to its said valve-open position responsive to substantially equal fluid pressures adjacent to both of said housing open ends.

5,207,244
STEERING CONTROL VALVE WITH CONTOURED CONTROL SURFACES
Hermann W. Behrens, Rancho Palos Verdes; George M. Harpole, San Pedro; Jane M. Lin, Rancho Palos Verdes, and Michael F. Wolff, Torrance, all of Calif., assignors to TRW Inc., Lyndhurst, Ohio
Filed Sep. 21, 1992, Ser. No. 948,025
Int. Cl.[5] F15B *9/10*
U.S. Cl. 137—625.24 10 Claims



1. A valve for controlling flow of pressurized hydraulic fluid, said valve comprising:
a valve sleeve having a longitudinal axis and a cylindrical bore, said sleeve defining first and second axially extending grooves connected to opposite ends of a hydraulic motor, said sleeve having an axially extending land disposed between said first and second grooves; and
a valve core having a longitudinal axis common with the axis of said valve sleeve and being disposed within the bore in said sleeve, said valve core having a third axially extending groove connected to a fluid supply and a fourth axially extending groove connected to a fluid reservoir, said core and sleeve being relatively rotatable about the common axis;
said core and sleeve having surfaces defining a first fluid passage connecting said first and fourth grooves and having surfaces defining a second fluid passage connecting said second and third grooves upon relative rotation of said core and sleeve in one direction;
said surfaces defining the first fluid passage including a first axially extending surface segment on said land of said sleeve which tapers radially inwardly from said first groove and a second axially extending surface segment on said core which terminates at an edge adjacent said fourth groove, said first surface segment and said edge of said second surface segment defining a minimum cross-sectional flow area of the first fluid passage located immediately adjacent said fourth groove to reduce noise of flowing hydraulic fluid, the minimum cross-sectional area of the first fluid passage constantly varying as said core and sleeve relatively rotate.

5,207,245
SOLENOID VALVE AND VALVE CALIBRATING METHOD
Miguel F. Maranzano, Bristol, Conn., assignor to KIP Corporation, Farmington, Conn.
Filed Jul. 31, 1991, Ser. No. 738,804
Int. Cl.[5] F16K *31/06;* F15B *13/044*
U.S. Cl. 137—625.65 16 Claims



1. In a solenoid-actuated fluid control valve having means for defining a valve chamber and a plurality of fluid passageways communicating with the valve chamber, at least one of the passageways terminating at a valve seat within the valve chamber, an axially elongate solenoid plunger supported within the valve chamber for axially reciprocal movement toward and away from the valve seat between first and second positions, the plunger in its first position preventing fluid flow through the one fluid passageway and in its second position permitting fluid flow through the one passageway, biasing means for urging the plunger assembly to and maintaining it in one of its positions, and means for moving the plunger from its one position to the other of its positions and including a solenoid coil defining an axially extending first bore coaxially receiving therein an associated portion of the plunger, the improvement comprising said plunger including a radially enlarged portion having a radial dimension substantially greater than the major radial dimension of said first bore, a flux plate defining an axially extending second bore having a major radial dimension substantially greater than the major radial dimension of said first bore, said second bore receiving at least a part of said radially enlarged portion when said plunger is in said other of its positions, and adjusting means for regulating the distance between said plunger and said valve seat when said plunger is in its second position to calibrate said valve.

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5,207,246

FLUID VALVE, IN PARTICULAR AN AIR PRESSURE VALVE

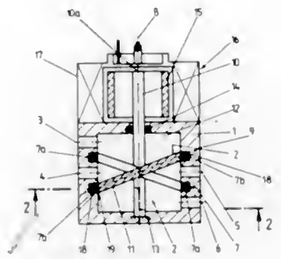
Ernst-August Meyer, Wennigsen, Fed. Rep. of Germany, assignor to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Dec. 17, 1991, Ser. No. 808,653

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1990, 4040797

Int. Cl.[5] F16K *11/06*

U.S. Cl. 137—625.65 23 Claims



1. A valve for fluids comprising

a valve casing having a valve casing bore;

a plurality of connection ports furnished at the valve casing for providing connections of the valve casing bore to operational lines, pressure lines, vent lines;

a rotary drive having a rotation axis;

a first disk supported in the valve casing, connected to the rotary drive, disposed in a first disk plane located at a first angle relative to the rotation axis, and movable into a first plurality of switching positions;

a cross-shaped sealing ring formed by a first sealing ring and by a second sealing ring, penetrating each other like a cross, and wherein the cross-shaped sealing ring is fixedly embedded in a cross groove formed by two grooves intersecting each other like a cross and disposed in the valve casing bore and providing two seats to the first disk, wherein the first disk is positionable to be disposed in two respective single sealing planes each associated with one of the two sealing rings, and wherein the first disk and the two sealing rings together with the valve casing bore form two respective valve seats in two respective predetermined rotary positions of the rotary drive.

5,207,247

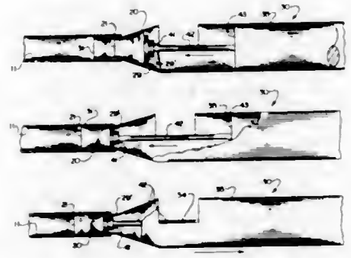
METHOD OF TUBE PLUGGING

Joy S. Hood, P.O. Box 3758, Plant City, Fla. 33564-3758

Continuation-in-part of Ser. No. 411,299, Sep. 22, 1989, abandoned. This application May 6, 1991, Ser. No. 696,048

Int. Cl.[5] F16L *55/128*

U.S. Cl. 138—89 3 Claims



1. Method of plugging a bore—bounded by an inelastic inside wall of a conduit—with a resilient stopper normally larger in transverse section than the bore but compressible to lesser size, comprising the steps of

compressing the stopper transversely to such lesser size, by pushing the resilient stopper through a rigid tool member tapering from an inlet portion larger than the normal transverse section of the stopper to an open-ended cylindrical portion of the rigid tool member smaller than the defined bore and as long as the stopper;

inserting the stopper substantially its entire length into the bore while at such lesser size and out of contact with the wall, by sliding the cylindrical portion of the rigid tool member thereinto, with the resilient stopper compressed to smaller size in the tool;

releasing the stopper in progressive manner from its leading end to its trailing end within the bore to expand progressively and plug the bore, by pushing the compressed resilient stopper progressively out from the cylindrical portion of the tool to expand into non-sliding contact with the conduit wall and by continued pushing simultaneously backing the cylindrical portion progressively but out of the bore.

5,207,248

PIPE COATED WITH A RESIN LAYER ON THE INNER SURFACE THEREOF

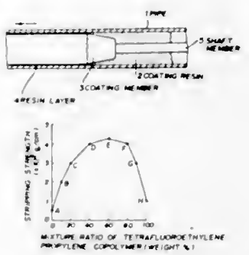
Kuniaki Seki; Shinichi Nishiyama; Hajime Abe, and Noboru Hagiwara, all of Ibaraki, Japan, assignors to Hitachi Cable, Ltd., Tokyo, Japan

Continuation of Ser. No. 572,515, Aug. 24, 1990, abandoned, which is a continuation of Ser. No. 453,208, Dec. 26, 1989, abandoned, which is a continuation of Ser. No. 218,221, Jul. 13, 1988, abandoned. This application Jan. 15, 1992, Ser. No. 821,919

Claims priority, application Japan, Jul. 14, 1987, 62-175750

Int. Cl.[5] F16L *9/16*

U.S. Cl. 138—145 5 Claims



1. A pipe coated with a resin layer on the inner surface thereof comprising,

a pipe member, and

a resin layer provided on the inner surface of said pipe member,

wherein said resin layer is a mixture which includes a thermal melting fluoro resin and tetrafluoroethylene-propylene copolymer formed into a linked structure by combining said tetrafluoroethylene-propylene copolymer, dissolved in a solvent, with said thermal melting fluoro resin, in a powdered form, and heating said mixture to melt said thermal melting fluoro resin and thus form said linked structure.

5,207,249

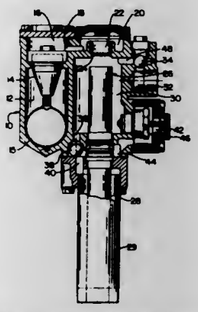
VAPOR RECOVERY SYSTEM AND PUMP

James W. Healy, Hollis, N.H., assignor to Healy Systems, Inc., Hudson, N.H.

Filed Aug. 7, 1991, Ser. No. 741,328

Int. Cl.[5] B67D *5/06*

U.S. Cl. 141—59 13 Claims



1. In a high capacity liquid jet gas pump having a housing and means for connecting the pump housing (a) directly in a liquid supply line, (b) to a vapor return line adapted to be connected to at least one liquid dispensing station and (c) to a liquid supply chamber, said jet pump creating a vacuum to draw vapor from the dispensing stations through the return line; the improvement wherein the jet pump has a multi-jet orifice plate and a diffuser tube is positioned in the housing and is coaxially aligned with the orifices in the plate for receiving a multiplicity of jets from the orifice plate, a passage through which liquid is pumped from said liquid supply chamber to said liquid dispensing stations, a vapor chamber that surrounds the diffuser tube and valve means for controlling the vacuum created by the jet pump by connecting the vapor chamber to the liquid supply chamber.

5,207,250

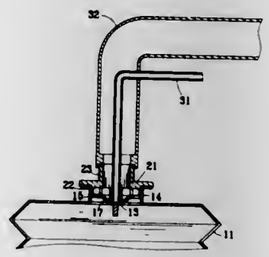
POLLUTANT-PROOF CONTRACTIBLE CONTAINER

Ye-Ming Tsao, Rm No. 6-11, 6/F., No. 782 Ting Chou Rd., Taipei, Taiwan

Filed Oct. 8, 1991, Ser. No. 772,960

Int. Cl.[5] B65B *47/00*

U.S. Cl. 141—65 4 Claims



1. A pollutant-proof container comprising:

a) an annular contractible container body including a neck portion defining an outlet;

b) a nonreturn valve disposed in the neck portion for closing and opening the outlet, the valve including a displaceable convex portion having a plurality of outwardly protruding flaps therearound, a plurality of elastic plates for urging the convex portion into sealing engagement against the outlet, a plurality of fixed bars for restricting the displacement of the convex portion when liquid is dispensed from the outlet, and a cylindrical sucker tube carried by the convex portion for engagement with a vacuum pump tube for removing air and opening the valve during filling of the container with liquid.

5,207,251

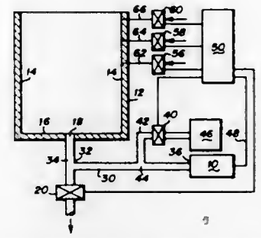
LIQUID LEVEL SENSING METHOD AND APPARATUS

Richard Cooks, San Jose, Calif., assignor to Dipiero, Inc., Santa Clara, Calif.

Filed Dec. 5, 1990, Ser. No. 622,763

Int. Cl.[5] B65B *3/10*

U.S. Cl. 41—83 2 Claims



1. An automated liquid holding tank, comprising:

a tank for holding liquids;

fill means for dispensing one or more liquids into said tank;

liquid level measurement means being engaged to said tank and functioning to provide an output signal indicative of the level of liquid within said tank, said liquid level measurement means comprising a pressure sensitive device that is engaged proximate a bottom surface of said tank to measure the hydrostatic pressure of the liquid within said tank as a measure of the liquid level within said tank, said pressure sensitive detector being engaged to said tank utilizing a length of hollow tubing, and wherein a gas bubble is disposed within portions of said hollow tubing proximate said pressure detector;

controller means operative to initiate and terminate said dispensing of said one or more liquid components into said tank, said controller means having a memory storage and a comparison means, said memory storage being adapted for storing a liquid level set point value for each said liquid dispensed into said tank, said comparison means being provided to compare said output signal to said liquid level set point values;

control means being engaged to said fill means and functioning to control said fill means in response to a signal from said controller means;

said controller means providing a signal to said control means when said output signal is approximately equal to a liquid level set point value stored in said memory storage.

5,207,252

APPARATUS FOR CLAMPING A WORKPIECE IN WHICH A MORTISE IS FORMED

Timothy J. Risse, 9014 W. Auer Ave., Milwaukee, Wis. 53222

Filed Apr. 7, 1992, Ser. No. 864,580

Int. Cl.[5] B27F *5/00*

U.S. Cl. 144—84 17 Claims

6. An apparatus for holding a workpiece while a mortise is formed in the workpiece by a mortising machine, said apparatus comprising:

a frame having a longitudinal axis and first and second longitudinal members, wherein said longitudinal members lie generally parallel with said longitudinal axis, each on an opposite side of said longitudinal axis;

a first and second clamp support connected to said frame and disposed between said first and second longitudinal members, said first clamp support being disposed proximate a

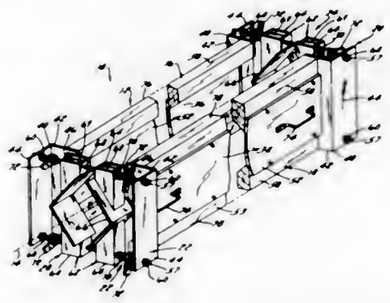
VOL 1150 ISS 1 MY 4 1993 UMI

longitudinal end of said frame and said second clamp support being disposed proximate the longitudinal end of said frame opposite said first clamp support;

a first clamping member, disposed between said first and second longitudinal members and supported on said first clamp support, said clamping member being configured to hold the workpiece in which a mortise is to be formed;

a second clamping member, disposed between said first and second longitudinal members and supported on said second clamp support, said second clamping member being configured to hold the workpiece in which a mortise is to be formed; and

means for adjusting the position of said first and second clamping members on said clamp supports, wherein said first clamping member and said second clamping member each comprise a pair of workpiece gripping members



configured to receive a workpiece extending longitudinally between each pair of workpiece gripping members, said workpiece gripping members being adjustably mounted on said clamp supports to facilitate adjustment of the position of each workpiece gripping member on its respective clamp support and to facilitate the tightening of each workpiece gripping member against the workpiece, further wherein said first clamp support and said second clamp support each comprise a first rod and a second rod each of said rods extending between said first longitudinal member and said second longitudinal member, and further wherein said first longitudinal member and said second longitudinal member each comprises an edge configured for receiving and supporting the mortising machine in a position straddling said first and second longitudinal members.

5,207,253

PLUNGE ROUTER

Kiyo Hoshino, Phoenix, Ariz., and Ronald C. McCurry, West Union, S.C., assignors to Ryobi Motor Products, Corp, Pickens, S.C.

Filed Mar. 20, 1992, Ser. No. 855,836

Int. Cl.[5] B25F *5/00*

U.S. Cl. 144—136 C **11 Claims**

4. A portable electric router comprising:

an electric motor;

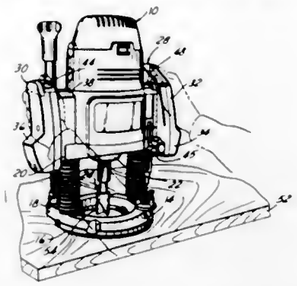
housing means for receiving said motor, said housing means including a base having a work engaging surface and having means for controlling operation of the router;

a pair of elongated handles disposed at spaced locations on the housing;

a bridging portion connecting each of said handles to said housing means across a substantial portion of the length of the handles;

hand rest lobe portions formed on an end of each handle closest to the base of the housing means, the hand rest lobes extending outwardly away from an elongated portion of the handles with a gradual transition between the hand rest lobes and the elongated portion of the handles; and

a plurality of control switches disposed on said handles;



means extending through said bridging portions for electrically connecting said control switches to the means for controlling operation of the router.

5,207,254

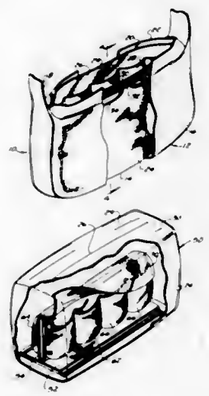
CONVERTIBLE HANDBAG

Thelma J. Fromm, 624 Sunrise Blvd., Prescott, Ariz. 86301

Filed Nov. 25, 1991, Ser. No. 797,363

Int. Cl.[5] A45C *3/08, 13/02*

U.S. Cl. 150—104 **8 Claims**



1. A handbag assembly comprising:

a) an outer envelope having inner and outer surfaces and a top opening;

b) closure means secured to said outer envelope for closing said top opening;

c) an inner lining pouch removably carried in said outer envelope, said inner liner lining pouch having an open top and a pair of flexible top edge walls formed along opposite sides of said open top;

d) mating elements of a first detachable interconnection provided along said top edge walls of said inner pouch, said mating elements including

i) a first fastener extending along one of said top edge walls, and

ii) a second fastener extending along the other of said top edge walls; and

e) mating elements of a second detachable interconnection provided on said inner surface of said outer envelope along opposite sides of said top opening, said mating elements including

i) a third fastener, and

ii) a fourth fastener,

wherein said top edge walls of said inner lining pouch are foldable from

a first position in which said first and second fasteners face outwardly for mating with said third and fourth fasteners, respectively, to secure said inner lining pouch to the inner surface or said outer envelope, to

a second position in which said first and second fasteners face inwardly for mating with one another to seal said open top of said inner lining pouch.

5,207,255

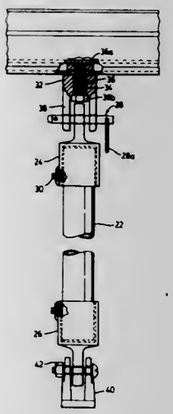
AWNING SUPPORT BRACE

John R. Shannon, 12 Gres Ct., Bradford, Canada L3Z 2S4

Filed Feb. 6, 1992, Ser. No. 833,451

Int. Cl.[5] E04F *10/00*

U.S. Cl. 160—65 **5 Claims**



1. A retractable awning installation comprising a remote edge member supported by a plurality of retractable arms extending outwardly from a base; a support brace including a frame member having a pair of ends with a first pivot means on one end and a second pivot means on the other end, said first pivot means being attachable to said remote edge member and said second pivot means being attachable to a secure location beneath said remote edge member, said brace being arranged to minimize deflections caused by wind that would otherwise damage said base while permitting said arms to deflect in a manner to absorb wind forces, said first pivot means being attached to said remote edge member by way of a coupling arrangement, said coupling arrangement including a fastener with two threaded elements, which have the tendency to loosen and thereby be displaced along a path by the action of wind forces, said path having a first limit and a second limit, said first limit being formed by said remote edge member and said second limit being formed by said support brace.

5,207,256

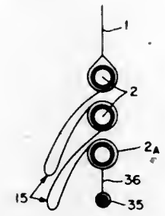
SAFETY DEVICE FOR A RAISABLE CURTAIN DOOR

Bernard Kraeutler, Dunieres, France, assignor to Nergeco (SA), France

Continuation of Ser. No. 748,972, Aug. 23, 1991, abandoned, which is a continuation-in-part of Ser. No. 566,623, Aug. 10, 1990, Pat. No. 5,072,767. This application Nov. 3, 1992, Ser. No. 970,952

Int. Cl.[5] A47H *5/00*

U.S. Cl. 160—84.1 **6 Claims**



1. A goods-handling door comprising:

two vertical lateral uprights, each of them having a vertical slideway;

a raisable flexible curtain having a bottom edge;

curtain lifting means including an electric motor for lifting said curtain in order to leave way to a person or a goods-handling vehicle;

a plurality of horizontal reinforcing bars, each of said bars being fixed to said curtain,

each of said reinforcing bar having two ends which slide in said slideways, said plurality of reinforcing bars including intermediate reinforcing bars and a lowermost reinforcing bar disposed at a distance above said bottom edge of said curtain; and an additional, flexible bar, disposed at said bottom edge of said curtain, said flexible bar being flexible and deformable so that a shock received at the bottom edge of the curtain will not injure a person or damage a goods-handling vehicle.

5,207,257

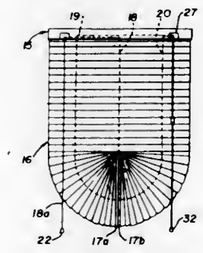
ADJUSTABLE EXPANDABLE AND COLLAPSIBLE SHADE

John D. Rupel, Verona, and Judy M. Bergman, Madison, both of Wis., assignors to Springs Window Fashions Division, Inc., Middleton, Wis.

Filed Sep. 25, 1992, Ser. No. 951,151

Int. Cl.[5] E06B *9/06*

U.S. Cl. 160—84.1 **13 Claims**



1. An adjustable shade comprising: upper headrail means and lower rail means and a transversely pleated expandable and collapsible shade member, means attaching an upper portion of the shade member of the upper headrail means, the lower rail means including two stiff lower rail sections, means attaching a lower portion of the shade member to the lower

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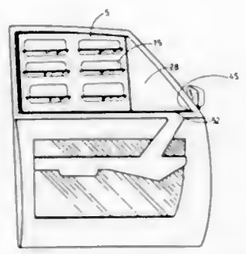
rail sections with the rail sections having proximate ends disposed approximately midway between side edges of the shade member, means interconnecting the lower rail sections for relative movement between a position in which the lower rail sections extend in opposite directions from the proximate ends thereof generally parallel to the upper headrail means and a position in which the lower rail sections extend downwardly from the proximate ends thereof, the shade member having a first row of aligned cord guide openings therein, first lift cord means attached to the interconnecting means and extending upwardly through the first row of cord guide openings to the upper headrail means, and first shade operating means connected to the first lift cord means for raising the proximate ends of the lower rail sections while allowing distal ends of the lower rail sections to swing downwardly and draw lower portions of the pleated shade member into an inverted fan configuration.

5,207,258

LOUVERED SUNSHADE WITH CONTROLLABLE APERTURES

Paul M. Lennard, 3139 E. Almond Ave., Orange, Calif. 92669

Division of Ser. No. 475,758, Feb. 6, 1990, Pat. No. 5,121,784. This application Jun. 15, 1992, Ser. No. 898,292
Int. Cl.[5] E06B *3/48*
U.S. Cl. 160—130 **8 Claims**



1. An improved automotive sunshade in combination with a motor vehicle window having an upper and lower margin and upper and lower seals, the improved automotive sunshade comprising:

a rigid but flexible substantially flat panel having a left side, a right side, an upper-most portion, a central portion and a lower-most portion;

a plurality of substantially rectangular flaps being defined in the central portion of said panel by a plurality of substantially rectangular U-shaped incisions, that portion of each panel that lies between the open ends of each U-shaped incision being scored so as to form a hinge line whereby each flap is individually positionable about the hinge line;

two or more horizontal strengthening ribs being defined by sections of the panel located above and below each flap;

two or more vertical strengthening ribs being defined by sections of the panel located on the left and right sides of each flap; and

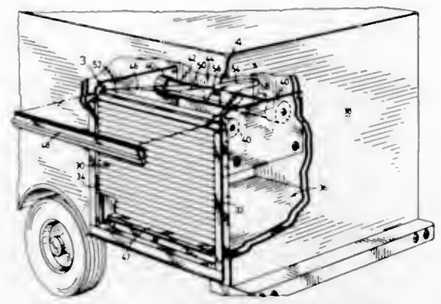
means for attaching the upper-most portion and the lower-most portion of the panel between the respective upper and lower margins of said motor vehicle window.

5,207,259

FASTENING ASSEMBLY

Charles G. Shepherd, 1008 Westdale Road, Oakville, Ontario, Canada L6L 5A2 ; D. Bruce Whitehouse, 304 Steeles Avenue East, Milton, Ontario, Canada L9T 1Y4 , and Philip W. Davis, 195 Waldencroft Crescent, Burlington, Ontario, Canada L7L 3A6

Filed May 13, 1992, Ser. No. 882,389
Int. Cl.[5] E06B *9/08*
U.S. Cl. 160—133 **9 Claims**



1. In a roll-up door assembly for sliding in tracks and having a pre-tensioned balancer and a fastening apparatus to couple the door to the balancer, the fastening apparatus comprising:

a cable having two ends, the ends being fastenable to the door at first and second positions;

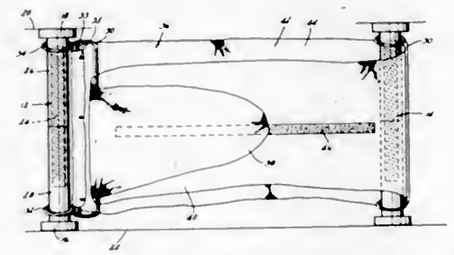
clip means in which the cable is slidably engageable, the clip means being coupled to the pre-tensioned balancer and substantially equally spaced from said first and second positions so that as tension is applied to the cable via the door during installation the cable will adjust in the clip means to maintain the spacing between the clip and said first and second positions.

5,207,260

ADJUSTABLE RESTRAIN SYSTEM FOR ARTICLES

Domenic V. Commesso, 327 Atwood Ave., Waterbury, Conn. 06705

Filed Nov. 29, 1991, Ser. No. 800,235
Int. Cl.[5] A47G *5/00*
U.S. Cl. 160—135 **13 Claims**



1. An adjustable restraint system for confining articles within a desired spaced within a storage compartment, said system comprising:

at least two posts to be positioned within said storage compartment;

each said post being wedged between two spaced apart surfaces of said storage compartment;

a piece of fabric material secured to a first one of said posts, said piece of fabric material being used to define said space in which said articles are placed and to restrain said articles;

a first substantially C-shaped guide rod attached to a second one of said posts; and

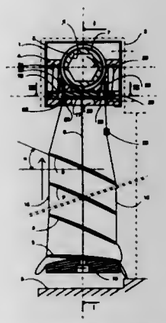
said piece of fabric material being at least partially wrapped about said second one of said posts and being threaded through a space defined by said first substantially C-shaped guide rod and a surface of said second one of said posts.

5,207,261

VENETIAN BLIND

Marc. J. A. C. Quezel, Passy, France, assignor to Somfy, France

Filed Feb. 10, 1992, Ser. No. 832,969
Claims priority, application France, Feb. 22, 1991, 91 02160
Int. Cl.[5] E06B *9/26*
U.S. Cl. 160—176.1 **11 Claims**



1. A venetian blind comprising a plurality of slats, a winding drum having a longitudinal axis, said winding drum mounted on a stationary frame, a cord wound on said winding drum, said cord passing through said stationary frame and said plurality of slats and fastened to a lower most slat, said drum having a pully means thereon drivingly connected to a flexible ladder, said flexible ladder having two bands connected to edges of said slats to tilt said slats, a movable member mounted below said drum and mounted to move transverse to said drum longitudinal axis, said movable member having band passages and a cord passage, said bands passing through said band passages and said cord passing through said cord passage, a first stop means attached to one of said bands above an uppermost slat, a second stop means attached to another of said bands above said uppermost slat, said band passages having a size to allow passage therethrough of said stop means, said cord being positioned relative to said movable member to move said movable member to at least a stop position and a non-blocking position, means associated with said movable member in said stop position to block passage of said stop means through said band passages.

5,207,262

TONNEAU COVER SYSTEM

Steven J. Rushford, Northridge, Calif., assignor to Covercraft Industries, Inc., Chatsworth, Calif.

Filed Nov. 14, 1991, Ser. No. 791,521
Int. Cl.[5] A47H *23/00*
U.S. Cl. 160—354 **17 Claims**

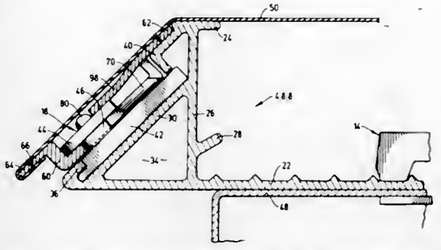
1. In a system for covering an opening in a structure, the opening having a periphery, the structure having sidewalls surrounding the opening and extending along the periphery of the opening, and the system including means defining a frame mountable on the sidewall so as to surround the opening, a flexible sheet for covering the opening, and connecting means for securing the sheet to the frame, the improvement wherein said connecting means comprise:

a plurality of button members retained by said frame so as to be movable in the direction of the periphery of the opening and to be inseparable from said frame, each button member having a button protruding from said frame;

a plurality of receptacle members each secured to the sheet and having a receptacle in the form of a pocket for securely but detachably retaining said button of a respective button member;

each said button member comprising a base part held in said frame;

said button of each said button member comprising an enlarged head part retainable in a respective receptacle, and a post supporting said head part on said base part;



each said receptacle member having an opening disposed adjacent said pocket and dimensioned to receive said post of the respective button member;

said frame having a channel for receiving said base parts of said button members in a manner such that said button members face outwardly from the opening;

said enlarged head part of each said button having an exterior surface which faces away from said base part; and

each said receptacle member comprising an elastically deformable retaining element arranged to engage said exterior surface of said enlarged head part of a respective button when said head part is in said receptacle of said receptacle member.

5,207,263

VLS SILICON CARBIDE WHISKER REINFORCED METAL MATRIX COMPOSITES

R. D. Maier, Broadview Heights, and T. W. Krucek, Rocky River, both of Ohio, assignors to BP America Inc., Cleveland, Ohio

Filed Dec. 26, 1989, Ser. No. 457,020
Int. Cl.[5] B22D *19/16, 27/11*
U.S. Cl. 164—97 **16 Claims**

1. A process for preparing a whisker reinforced metal matrix composite material comprising:

1) providing VLS silicon carbide whiskers in a mold cavity;

2) introducing a molten metal into the mold cavity;

3) subjecting the molten metal and VLS silicon carbide whiskers in the cavity to a primary pressure of about 100 psi to about 2000 psi to infiltrate the whiskers with the molten metal;

4) subsequently subjecting the VLS silicon carbide whiskers infiltrated with the molten metal to a hydrostatic pressure at about 10,000 psi to about 25,000 psi to produce a fully dense mass; and

5) solidifying the composite to form a composite.

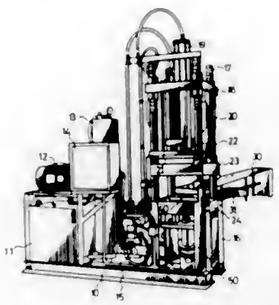
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5,207,264

VERTICAL DIE CASTING MACHINE

Ching-Tsorng You, Sanchung, Taiwan, assignor to Jih-Lee You, Taipei Hsien, Taiwan

Filed Aug. 28, 1991, Ser. No. 751,102
Int. Cl.[5] B22D *17/12, 17/20*
U.S. Cl. 164—312 3 Claims



1. A vertical die casting machine having a machine base including an oil tank, an oil pump control motor, an accumulator, an electric control box, a control valve set and a supporting frame, said supporting frame having tie bars located in four corners thereof for securement of an upper platen, a lower platen, and an intermediate platen, said upper platen having a clamp-cylinder for displaceably driving said upper platen vertically along said tie bars and a crank mounted in a lower section to secure a backing plate for holding a die, characterized in that said lower platen includes a shot chamber formed therein for receiving molten metal, a main pressure cylinder located below said shot chamber for displacing a plunger tip into said shot chamber for filling said die, and a lower secondary pressure cylinder fluidly coupled to said main pressure cylinder to provide increased pressure to said plunger tip; said upper platen having an upper secondary pressure cylinder mounted thereon above said shot chamber to give an added pressure to said die from above.

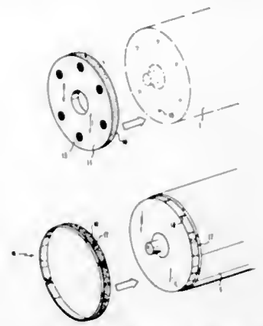
5,207,265

APPARATUS FOR CONTINUOUS CASTING OF METAL STRIP

Morihiro Hasegawa, Tokuyama, and Takashi Yamauchi, Kudamatsu, both of Japan, assignors to Nisshin Steel Co., Ltd., Tokyo, Japan

PCT No. PCT/JP89/00751, § 371 Date Mar. 26, 1990, § 102(e) Date Mar. 26, 1990, PCT Pub. No. WO90/00948, PCT Pub. Date Feb. 8, 1990
PCT Filed Jul. 27, 1989, Ser. No. 474,755
Claims priority, application Japan, Jul. 28, 1988, 63-186785
Int. Cl.[5] B22D *11/06*
U.S. Cl. 164—428 3 Claims

1. An apparatus for continuously casting a metal strip comprising a pair of internally cooled rolls rotating in the opposite direction to each other and disposed parallel to each other with their axes held horizontal, a pair of side dams for forming a pool of molten metal on the circumferential surfaces of the pair of rolls, said side dams being disposed with a space approximately corresponding to the width of a metal strip to be cast and so that at least a portion of the bottom of each dam may contact the circumferential surfaces of the rolls so as to allow at least a portion of the thickness of each side dam to be located on the circumferential surfaces of the rolls, at least those portions of said side dams which come in contact with the circumferential surfaces of the rolls being composed of a refractory material capable of being well abraded, and mechanisms for forcibly feeding said side dams in the casting direction at a predetermined speed, thereby continuously casting the molten metal in the pool into a metal strip through a gap between the pair of rolls while abrasively wearing said side dams at said portions contacting the circumferential surfaces of the rolls, characterized in that portions of the circumferential surfaces of



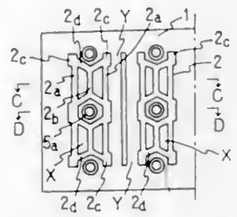
the rolls contacting the side dams are formed into rough surfaces having an abrading ability; and each of said portions having rough surfaces comprises a member removably fixed to the entity of the roll.

5,207,266

WATER-COOLED COPPER CASTING MOLD

Kunio Nakashima; Ryoichi Ishigane; Takayuki Tanaka, and Kenzo Yamamoto, all of Toyama, Japan, assignors to Chuetsu Metal Works Co., Ltd., Toyama, Japan

Filed Jan. 3, 1992, Ser. No. 816,820
Int. Cl.[5] B22D *11/124*
U.S. Cl. 164—348 2 Claims



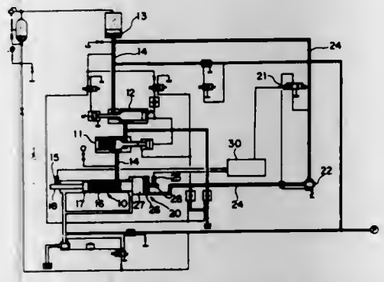
1. A water-cooled copper casting mold comprising a copper plate having slits thereon and a back frame fastened to the copper plate at a bolt fastening region to thereby form cooling channels, said cooling channels comprising main channels, increased channels, branching portions and branch channels, said main channels being provided at opposite sides of said bolt fastening region and said increased channels being provided between said main channels and bolt holes contained in said bolt fastening region, said branching portions being provided at ends of said main channels and in flow communication with said increased channels through said branch channels, at least one of the branching portions and branch channels having a larger cross-sectional area than the cross-sectional areas of said main and increased channels.

5,207,267

INJECTION CONTROL METHOD OF DIE CAST MACHINE

Norihiro Iwamoto; Masayuki Takamura, and Toshihiko Kaneko, all of Zama, Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 9, 1991, Ser. No. 743,253
Claims priority, application Japan, Aug. 9, 1990, 2-212606; Nov. 7, 1990, 2-301634
Int. Cl.[5] B22D *17/32*
U.S. Cl. 164—457 12 Claims



1. An injection control method of a die cast machine for injecting a molten metal into a mold cavity by advancement of an injection cylinder and then boosting the molten metal by advancement of an oil-pressure intensifier comprising the steps of:

detecting a stroke-end position of the injection cylinder when injection of the molten metal into the mold cavity is completed;

determining a boost-start position at a distance equal to a predetermined standard boost stroke backward from the stroke-end position, the boost-start position identifying when a boosting-signal is to be provided;

advancing the injection cylinder to inject the molten metal into the mold cavity; and

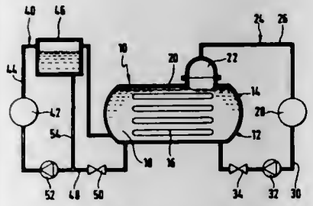
providing the boosting-signal to control the advancement of the oil-pressure intensifier when the stroke of the injection cylinder reaches the boost-start position.

5,207,268

HIGH-TEMPERATURE HEAT STORAGE SYSTEM

Siegfried Krause, Ostelsheim, and Friedrich Lindner, Leinfelden-Echterdingen, both of Fed. Rep. of Germany, assignors to Deutsche Forschungsanstalt fuer Luft- und Raumfahrt e.V., Bonn, Fed. Rep. of Germany

Filed Jun. 23, 1992, Ser. No. 902,658
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1991, 4121462
Int. Cl.[5] F28D *15/00;* F01K *1/04*
U.S. Cl. 165—104.11 22 Claims



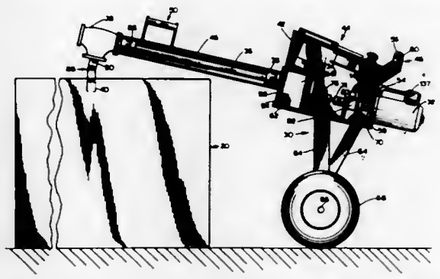
1. Heat storage system [illegible] a heat source, a heat storage device and a heat sink between which heat is transported by a heat transporting medium, said heat storage device being designed as a Ruths storage device, a bath of liquid required as heat transporting medium for said Ruths storage device being provided in a storage volume, said storage volume containing in addition to said bath of liquid a latent heat storage material, the storage temperature being selected so as to lie in the range of the critical temperature of said heat transporting medium and below it, and said heat storage system being operable in such a way that during the discharging of said heat storage device via said heat sink, said bath of liquid heat transporting medium constantly surrounds said latent heat storage material essentially with thermal contact.

5,207,269

PORTABLE DEVICE AND METHOD FOR ADJUSTING SLAB CASTERS

Kenneth W. Heestand, Salem, Ohio, and Ronald S. Cretella, Cranberry Twp., Butler County, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 26, 1991, Ser. No. 749,792
Int. Cl.[5] B22D *11/16*
U.S. Cl. 164—491 17 Claims



11. A portable mold adjusting device for adjusting the mold cavity size of a slab casting mold comprising:

an electric motor having an output shaft;

a driveshaft;

first coupling means for coupling said driveshaft to said output shaft;

means for adjusting said mold cavity size;

second coupling means for coupling said adjusting means to said driveshaft;

means for carrying said electric motor, said driveshaft, said adjusting means and said first and second coupling means;

means for providing rolling support for said carrying means;

control means for said electric motor comprising means for speed control and means for operating the motor in a desired direction of rotation in order to increase or decrease mold size cavity size; and

means for indicating the mold size cavity change whereby operation of the control means and observance of the means for

a driveshaft rotatably mounted, coupled to said transmitting means;

means coupled to said driveshaft for fitting on and rotating a fastener whose rotation adjusts the cavity size of a mold;

means for carrying said supplying means, said transmitting means, said driveshaft and said rotating means which includes means for transporting said carrying means; and

means for measuring the rotation of said driveshaft and monitoring change in mold cavity size resulting from the rotation.

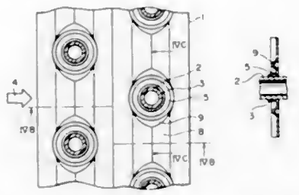
17. A method of adjusting mold cavity size of casting molds using a portable mold adjusting device in accordance with claim 11 and comprising:

moving the mold adjusting device to a location proximate a casting mold having a movable mold wall and means for causing displacement of the mold wall;

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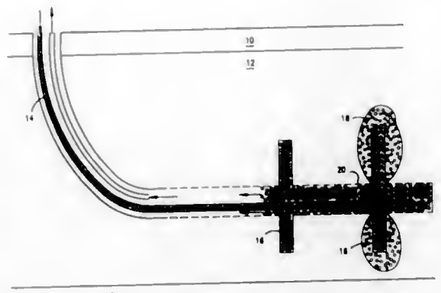
coupling the means for adjusting mold cavity size of the portable mold adjusting device to the means for causing displacement of the mold wall of the casting wall;
energizing the electric motor and control means of the portable mold adjusting device for operation at a desired motor speed and direction of rotation;
observing the means for indicating the mold cavity size until the desired mold cavity size is observed.

5,207,270
FIN-TUBE HEAT EXCHANGER
Shoichi Yokoyama, Otsu; Hitoshi Motegi, Kusatsu; Osamu Aoyagi, and Toshiaki Andoh, both of Otsu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Oct. 17, 1991, Ser. No. 776,776
Claims priority, application Japan, Oct. 22, 1990, 2-285034
Int. Cl.[5] F28F *1/32*
U.S. Cl. 165—151 5 Claims



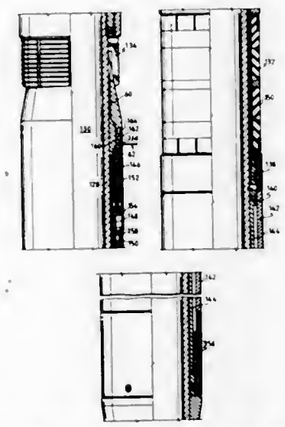
1. A fin-tube heat exchanger comprising:
a plurality of fins arranged parallel to one another at predetermined intervals, wherein an air flow passes between any two adjacent ones of said fins, said air flow having a direction that defines windward and leeward directions;
a plurality of cylindrical fin collars formed on each of said fins in columns and rows at a predetermined column pitch and a predetermined row pitch;
a plurality of heat transfer tubes extending through said fin collars on said fins and secured to said fin collars in intimate contact with said fin collars, respectively, wherein a fluid flows through each of said heat transfer tubes;
a plurality of seat portions formed on each of said fins to encircle concentrically said fin collars, respectively;
a plurality of straight protuberances of a generally angular cross-section formed on each of said fins between any two adjacent rows of said fin collars, each of said straight protuberances having a ridge and having a leeward side located in said leeward direction from said ridge; and
a plurality of curved protuberances of a generally angular cross-section formed on each of said fins adjacent to said seat portions, wherein each of said seat portions corresponds to one of said curved protuberances in one-to-one correspondence, each of said curved protuberances including at least two sections, said at least two sections each having an arcuate ridge substantially equal in height to said ridges of said straight protuberances, said at least two sections comprising two sections disposed on opposite sides of a corresponding one of said seat portions and together extending at least partially around the corresponding one of said seat portions between two straight protuberances that are adjacent to said one of said seat portions.

5,207,271
FOAM/STEAM INJECTION INTO A HORIZONTAL WELLBORE FOR MULTIPLE FRACTURE CREATION
J. Michael Sanchez, and Bassem R. Alameddine, both of Carrollton, Tex., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Oct. 30, 1991, Ser. No. 784,956
Int. Cl.[5] E21B *43/24, 43/267*
U.S. Cl. 166—281 9 Claims



1. A foam and steam injection method for forming a fracture in a formation or reservoir penetrated by a horizontal wellbore comprising:
a) injecting steam into said wellbore at a pressure sufficient to fracture said formation where water used to form said steam contains a foamable composition in an amount sufficient to make a foam upon contact with said steam; and
b) fracturing said formation with said steam and foam thereby causing a fracture to form whereupon the foam enters said fracture thereby precluding further steam entry into said fracture.

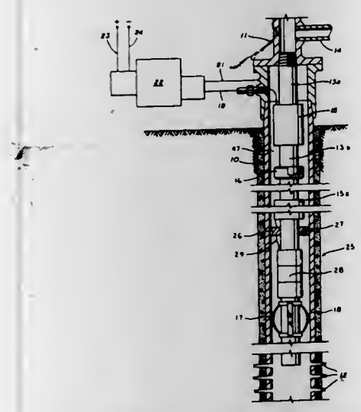
5,207,272
ELECTRICALLY ACTUATED WELL PACKER
Ronald E. Pringle, Houston, and Arthur J. Morris, Magnolia, both of Tex., assignors to Cameo International Inc., Houston, Tex.
Division of Ser. No. 772,828, Oct. 7, 1991. This application Sep. 29, 1992, Ser. No. 953,401
Int. Cl.[5] E21B *23/04, 23/06, 33/128*
U.S. Cl. 166—66 4 Claims



1. An electrically actuated well packer for use in a well for

sealing between a production string and well casing comprising,
a body having a bore therethrough,
initially retracted packer seal means surrounding said body,
initially retracted slip means surrounding said body,
fluid actuated piston means connected to the body for expanding and setting the slip means and the packer seal means,
an initially closed fluid chamber in the body containing a pressurized fluid source,
a frangible member initially blocking communication between the piston means and the fluid chamber, and
an electrical motor in the body connected to the frangible member for breaking the member and allowing fluid source in the chamber to actuate the piston means.

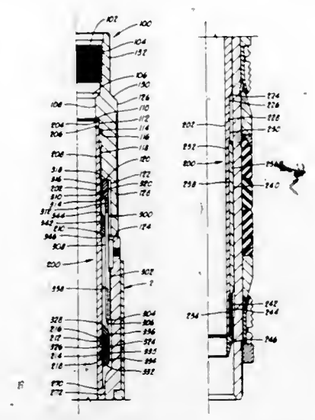
5,207,273
METHOD AND APPARATUS FOR PUMPING WELLS
Gordon O. Cates; Ronald M. Bass, both of Houston, and Kenneth J. Schmitt, Spring, all of Tex., assignors to Production Technologies International Inc., Houston, Tex.
Filed Sep. 17, 1990, Ser. No. 583,828
Int. Cl.[5] E21B *43/00*
U.S. Cl. 166—369 10 Claims



2. An improved method for pumping fluid from a well having a casing to the surface, comprising in combination:
lowering into the well on an electrical conductor means a three-phase electrical motor and centrifugal pump assembly;
providing single-phase electrical power down the conductor means, and
converting at said assembly the single-phase electrical power to three-phase electrical power and powering the motor with the three-phase electrical power, causing the pump to rotate and pump the fluid to the surface.

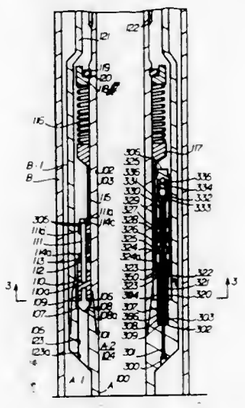
5,207,274
APPARATUS AND METHOD OF ANCHORING AND RELEASING FROM A PACKER
Steven G. Streich, and Kevin T. Berscheidt, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Filed Aug. 12, 1991, Ser. No. 744,192
Int. Cl.[5] E21B *23/00*
U.S. Cl. 166—382 20 Claims

1. An apparatus for releasing a downhole device having thread means in the upper end, said apparatus comprising:
an elongated stinger member;
means for threadily mating said stinger;
with the upper thread means of the downhole device;
a top adapter sub extending from said elongated stinger member, said top adapter sub defining a shoulder therein;
a load ring disposed on said elongated stinger member and



adapted for applying a load to said shoulder when removing the apparatus from the downhole device; and
means for releasing said means for threadily mating when removing the apparatus.

5,207,275
ANNULUS SAFETY VALVE
Scott C. Strattan, 3805 E. 33rd St., Tulsa, Okla. 74135, and Thomas M. Deaton, 4328 E. 66th St., #Q, Tulsa, Okla. 74136
Filed Aug. 27, 1990, Ser. No. 573,528
Int. Cl.[5] E21B *34/10*
U.S. Cl. 166—386 36 Claims

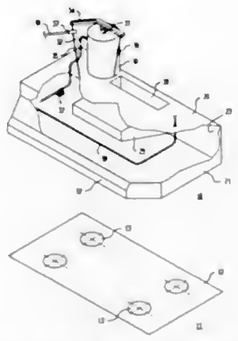


1. A subterranean well annular safety valve for control of fluid flow between outer and inner tubular conduits concentrically disposed within said well, said conduits extending from the first end of said safety valve to a point in said well, said annular safety valve comprising:
(1) a cylindrical central housing securable to the inner of said tubular conduits;
(2) a fluid flow passageway defined through said central housing and in fluid flow communication with the interior of the inner of said tubular conduits, the internal diameter

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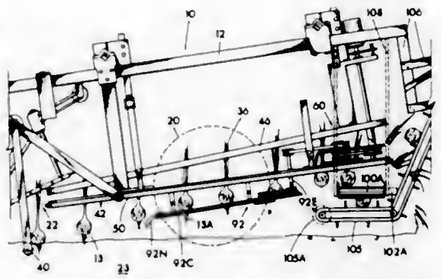
of said inner tubular conduit and the internal diameter of said central housing being substantially equal;
(3) a ported second housing circumferentially extending around the exterior of and carried by said central housing, said second housing being in fluid flow communication at one end thereof with fluid between said outer and inner tubular conduits within said well; and
(4) control valve means including valve head and seat members disposed in said second housing, said head and seat members being in normally closed position to prevent fluid between said outer and inner tubular conduits from flowing through said central valve means, said head and seat members being movable relative to one another to permit fluid flow through said control means
(5) pressure equalization valve means, including a valve head and a valve seat which mate in a closed position and separate in an open position, for equalizing pressure between said outer and inner tubular conduits;
(6) control valve actuator means for moving said control valve means between said normally closed position and an open position;
(7) pressure equalization actuator means for moving said pressure equalization valve means between a normally closed position and an open position;
(8) bias means for mechanically biasing said control valve means and said pressure equalization valve means into normally closed positions; and
(9) wherein said control valve actuator means and said pressure equalization actuator means are mechanically linked solely through said bias means.

5,207,276
WIRE-SENSORED FIRE EXTINGUISHER WITH FAULT-MONITORING CONTROL SYSTEM
William A. Scofield, Clifton, N.J., assignor to Pem All Fire Extinguisher Corp., Cranford, N.J.
Continuation-in-part of Ser. No. 691,316, Apr. 25, 1991. This application Feb. 4, 1992, Ser. No. 831,266
Int. Cl.[5] A62C *37/40*
U.S. Cl. 169—61 **19 Claims**



1. A system for protecting a predetermined region from a fire which may occur therein, the system comprising:
fire suppressant supply means for containing a quantity of pressurized fire suppressant material;
actuatable discharge means for releasing said quantity of pressurized fire suppressant material upon actuation of said actuatable discharge means;
sensor means arranged in the vicinity of the predetermined region, said sensor means having an electrical characteristic which changes in response to heat in the protected region, said sensor means having:
first and second conductors; a supervisory electrical current flowing through said first and second conductors;
conductor separation means having a predetermined heat response characteristic whereby said first and second conductors are maintained electrically insulated from one another below a predetermined temperature, and are brought into electrical communication with one another when said predetermined temperature is exceeded to produce a reduced electrical impedance characteristic across said first and second conductors and a corresponding increase in the magnitude of said supervisory electrical current;
sensor monitor means for monitoring said supervisory electrical current, and for signalling an increase in the magnitude thereof; and
trigger means responsive to said signalling of said sensor monitor means for actuating said actuatable discharge means.

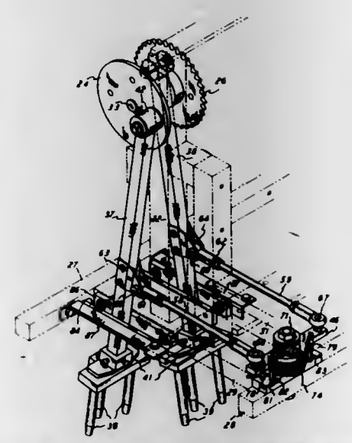
5,207,277
AGRICULTURAL HARVESTER
Harold G. Medlock, Box 7514 U.S. Hwy. 85, Fort Lupton, Colo. 80621-8824
Filed Mar. 30, 1992, Ser. No. 860,791
Int. Cl.[5] A01D *23/04, 27/00*
U.S. Cl. 171—38 **20 Claims**



1. An agricultural harvester having a support frame, and having means to allow for movement of said harvester along a ground surface, and further having means to harvest bulbs while moving along the ground,
said means to harvest bulbs while moving along the ground including foliage lifting means affixed to said harvester toward a front end of said harvester with said foliage lifting means providing means for lifting foliage attached to bulbs within the ground so as to position the foliage generally vertically oriented above the bulbs and ground for presentation to
an elongated rotatable first belt and an elongated rotatable second belt of an upper set of rotatably supported belts affixed to said harvester in juxtaposed relationship to one another so as to define a first receiving crack between said belts, said first receiving crack positioned to receive vertically oriented foliage from said foliage lifting means, said upper set of rotatably supported belts extending from adjacent said foliage lifting means toward a rear end of said harvester, said upper set of rotatably supported belts further being positioned at a divergent angle relative to the ground surface so as to position a rear end of said upper set of rotatably supported belts elevated relative to a front end of said upper set of rotatably supported belts positioned adjacent said foliage lifting means,
said first receiving crack being a narrow crack so as to provide means for tightly gripping foliage attached to a bulb which has been received from said foliage lifting means, whereby with rotation of said upper set of rotatably supported belts, gripped foliage with an attached bulb is transported toward said rear end of said harvester with the transporting causing upward drawing of the bulb

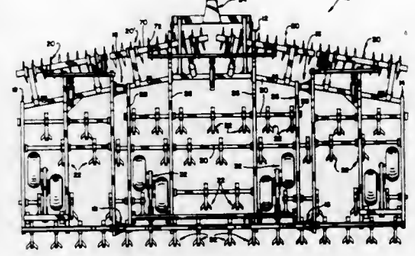
out of the ground due to said divergent angle of said upper set of rotatably supported belts to the ground,
an elongated first member and an elongated second member of a lower set of elongated members affixed to said harvester in juxtaposed relationship to one another so as to define a second receiving crack between said elongated members, said second receiving crack positioned to receive vertically oriented foliage from said foliage lifting means, said lower set of elongated members extending from adjacent said foliage lifting means toward said rear end of said harvester,
said lower set of elongated members positioned below said upper set of rotatably supported belts with said first and second receiving cracks positioned generally one above the other so as to allow said first and second receiving cracks to simultaneously possess the foliage of a bulb with the bulb positioned below a bottom plane of said lower set of elongated members,
said upper set of rotatably supported belts further being placed at a divergent angle relative to said lower set of elongated members so as to place said upper set of rotatably supported belts closer to said lower set of elongated members near said foliage lifting means and further apart from said lower set of elongated members toward said rear end of said harvester,
said bottom plane of said lower set of elongated members providing an abutment surface for a bulb to abut against when drawn upward from the ground by said divergent angle of said upper set of rotatably supported belts so as to position the bulb prior to the bulb with attached foliage being presented to
a cutting means affixed to said harvester for cutting foliage from a bulb, said cutting means affixed toward said rear end of said harvester and positioned in close proximity to said lower set of elongated members, said cutting means further positioned to span at least in-part across said second receiving crack so as to be able to cut the foliage from a bulb when the foliage is gripped in said first receiving crack and the bulb is abutted against said bottom plane of said lower set of elongated members.

5,207,278
TURF AERATOR
Richard P. Hatlen, Racine, Wis., assignor to Textron Inc., Providence, R.I.
Filed Apr. 13, 1992, Ser. No. 867,486
Int. Cl.[5] A01B *45/02*
U.S. Cl. 172—22 **12 Claims**



1. A turf aerator comprising a ground-mobile support, two aerator tines movably mounted on said support for penetrating the turf, a mechanism mounted on said support and connected to said tines for vertically simultaneously reciprocating said tines in opposite vertical directions, mounting post means mounted on said support and presenting a vertical axis, a rocker arm mounted on said mounting post means for rocking motion from a centered position and about said vertical axis and including two ends extending to opposite sides of said axis, a link connected between each respective one of said tines and a respective one of said ends of said rocker arm to thereby produce a walking action in response to movement of said support over the ground and alternate penetration of the turf by said tines whereby each said end of said rocker arm alternately moves with one of said tines forward and rearward during the walking action, coiled torsion spring means coincident with said mounting post means, said torsion spring means having opposite ends which respectively force against and move with said ends of said rocker arm for yieldingly urging said rocker arm to a centered position relative to the aforesaid forward and rearward action of said ends of said rocker arm, to thereby center said rocker arm and said tines when the latter are free of the turf, and including a stop on said support in the respective path of movement of each of said spring ends for restraining said spring ends from moving beyond said stops, and thereby accommodate the application of torque to said spring in response to the aforesaid forward and rearward action of said ends of said rocker arm.

5,207,279
AGRICULTURAL APPARATUS HAVING VERTICALLY ADJUSTABLE DISC GANG ASSEMBLIES
Marvin L. Nelson, Downers Grove, and Jimmy R. Kreftmeyer, Minooka, both of Ill., assignors to Case Corporation, Racine, Wis.
Filed Feb. 25, 1992, Ser. No. 841,372
Int. Cl.[5] A01B *35/18*
U.S. Cl. 172—140 **2 Claims**



1. An agricultural frame apparatus comprising:
a wheeled frame assembly adapted to be towed across a field, said frame assembly including at least two laterally spaced arms extending generally parallel to each other on opposite sides of the longitudinal centerline of and rearwardly from a hitch mechanism provided at a forward end of the frame assembly, and a series of laterally extending fore-and-aft spaced tool bars connected to each arm;
a plurality of agricultural ground engaging tools mounted to said tool bars to form generally lateral rows of ground engaging tools;
a first disc gang assembly connected toward a front end of and for generally vertical movement relative to the frame assembly, said first disc gang assembly being connected on one side of a longitudinal centerline of the frame assembly such that the assembly extends rearwardly and angularly away from the hitch mechanism;
a second disc gang assembly connected toward the front end of and for generally vertical movement relative to the frame assembly, said second disc assembly being con-

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nected on a second side of the longitudinal centerline of the frame assembly such that the assembly extends rearwardly and angularly away from the hitch mechanism;

disc gang assembly lifting assembly including a rock shaft extending generally parallel to said tool bars and having a fixed lateral axis of rotation extending to each side of the longitudinal centerline of the frame assembly, a plurality of crank arms extending radially from said rock shaft in angularly offset relation relative to each other and connected to said first and second disc gang assemblies, and a driver connected to one of said crank arms for rotating said shaft about said axis thereby conjointly elevating and positioning the first and second disc gang assembly relative to the frame assembly.

5,207,280

DEVICE IN HAMMER MACHINES

Jörgen Rodert, Saltsjö-boo, and Kurt Andersson, Tyresö, both of Sweden, assignors to Uniroc AB, Fagersta, Sweden

Filed May 8, 1992, Ser. No. 879,937
Claims priority, application Sweden, May 30, 1991, 9101639
Int. Cl.[5] E21B *1/02, 21/10*
U.S. Cl. 173—105 2 Claims



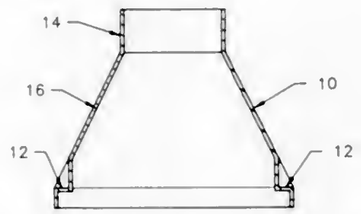
1. Device in hammer machines comprising a machine housing (1), a hammer piston (2) mounted for reciprocal movement in the machine housing and arranged to deliver impacts against a tool, and a rotation device (10) for rotating the tool, the tool comprising a drill bit (5) provided with an axial flushing channel (6), a central set of rods (3) for transferring impact energy from the hammer piston to the drill bit, a set of tubes (4) about the set of rods for transferring rotation from the rotation device to the drill bit, and a rod (11) adjacent to the drill bit and provided with an axial channel (7) and a further channel (8) connecting said axial channel with the external surface of said rod, said device being arranged such that the distance (S) between an end (9) of the drill bit (5) remote from the machine housing (1) and said further channel (8) is greater than the length (L) of the hammer piston.

5,207,281

DRILL RATE CALCULATOR

Deborah G. Wells, 802 B Harbourtown Ct., Noblesville, Ind. 46060, and Ted L. Salsbery, Rte. 1, Box 181, Sharpsville, Ind. 46068

Filed Mar. 9, 1992, Ser. No. 826,917
Int. Cl.[5] E12B *17/00*
U.S. Cl. 175—27 1 Claim



1. A grain drill seeding rate indicator comprised of:

a base having a cone shape measuring four inches at the bottom, with two detents measuring one half inch in diameter located three sixteenths inch up from the bottom of said base one hundred eighty degrees apart

a clear propionate tube one and seven eighth inches in diameter by seven inches tall positioned on said base

a line on said tube using a silk screen process indicating the starting point for seed measurement

seed size measuring numbers printed on said tube using a silk screen process

a funnel placed on top of said tube

a pair of detent positioning springs with a closed loop on an outer end for drill attachment.

5,207,282

METHOD FOR INHIBITING THE INITIATION AND PROPAGATION OF FORMATION FRACTURES WHILE DRILLING AND CASING A WELL

Giin-Fa Fuh; Nobuo Morita; Donald L. Whitfill, and David A. Strah, all of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Continuation-in-part of Ser. No. 785,647, Oct. 31, 1991. This application Oct. 5, 1992, Ser. No. 956,919
Int. Cl.[5] E21B *21/06, 33/14, 33/138, 41/00*
U.S. Cl. 175—72 10 Claims

1. A method of increasing fracture initiation pressure and fracture propagation pressure during well drilling with a circulating drilling fluid comprising adding to said drilling fluid, prior to encountering formation breakdown, a solid particulate loss prevention material having a size range of from 250 to 600 microns in an amount sufficient to prevent fracture initiation and fracture propagation.

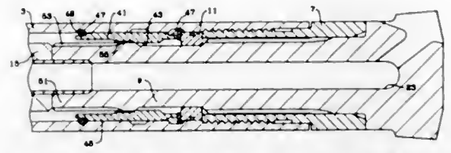
9. In a method of running a casing string into a wellbore wherein the wellbore is filled with a well fluid and the casing string has a casing shoe at its lower end, the improvement wherein prior to running said casing string into said wellbore a solid particulate loss prevention material having a size range of from 250 to 600 microns is added to said well fluid in an amount effective to prevent fracture initiation and fracture propagation in said wellbore from pressure surges generated during lowering of said casing string through said wellbore.

5,207,283

REVERSIBLE BIT BEARING

Warren T. Lay, Roanoke, Va., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Mar. 2, 1992, Ser. No. 844,046
Int. Cl.[5] E21B *4/14*
U.S. Cl. 175—296 11 Claims



1. In a fluid-activated, percussive, down-the-hole drill, having a hollow cylindrical drill casing; a chuck connected to a bottom end of the drill casing; a drill bit connected to the chuck; a back head assembly fluidly connecting the drill to a drill string; a piston slidably mounted within the drill casing for reciprocating between an impact position in contact with the drill bit and a return position not in contact with the drill bit; drive chamber fluid passageway means for providing a first reservoir of percussive fluid for reciprocating the piston between the return position and the impact position; return chamber fluid passageway means for providing a second reservoir of percussive fluid when the piston is in the return position, for exhausting from the drill; and exhaust fluid passageway means for conducting the percussive fluid from the return chamber fluid passageway means through the drill to an exhaust port, to lift debris up a drillhole, the improvement comprising:

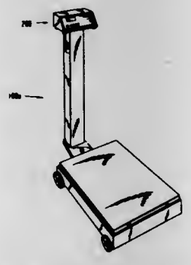
(a) reversible bearing means between the drill casing and the drill bit, for varying the volume of said return chamber reservoir between a larger preselected amount, for deep drilling, and a smaller preselected amount, for shallow drilling.

5,207,284

MECHANICAL SCALE CONVERSION SYSTEM

Alec T. Douglas, and Harry J. Keen, both of St. Johnsbury, Vt., assignors to Fairbanks, Inc., Kansas City, Kans.

Filed Nov. 22, 1991, Ser. No. 797,426
Int. Cl.[5] G01G *21/28*
U.S. Cl. 177—241 23 Claims.



1. A mechanical scale conversion system for converting a scale having a mechanical measuring system into a scale having an electronic measuring system, said scale mechanical measuring system comprising mechanical load receiving means for receiving an applied load, a pillar comprising a beam load rod and means for mechanically transferring a load received by said mechanical load receiving means to said beam load rod means, said load indicator conversion system comprising:

a transducer means responsive to an applied load for providing an electrical output in response to said applied load, said electrical output varying with the magnitude of said applied load;

variable tension means for attaching said beam load rod to said transducer means at a desired variable tension level, for directly converting the load transferred to said beam load rod from said mechanical load receiving means into said applied load to said attached transducer means, said applied load being equivalent to said load transferred to said beam load rod;

electronic display means operatively connected to said transducer means electrical output for providing an electronic display corresponding to said magnitude of said applied load;

and a housing containing said transducer means and said electronic display means, said housing being mountable on said pillar means for enabling said beam load rod to be mechanically connected to said transducer means;

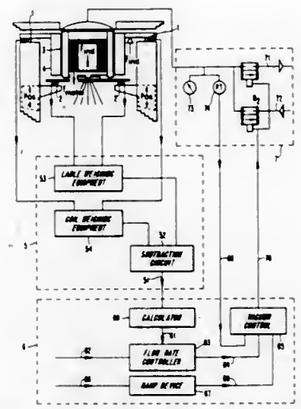
whereby said load applied to said mechanical load receiving means is convertible into said electronic display from said electrical output of said transducer means contained within said pillar mounted housing.

5,207,285

METHOD OF AND APPARATUS FOR CONTROLLING THE FLOW RATE OF OUTSTREAMING LIQUID METAL FROM AN INDUCTIVELY HEATED LADLE

Kenneth Josefsson, Sandviken, Sweden, assignor to Sandvik AB, Sandviken, Sweden

Filed Jun. 3, 1991, Ser. No. 709,291
Claims priority, application Sweden, Jun. 1, 1990, 9001983
Int. Cl.[5] G01G *19/00*
U.S. Cl. 177—245 2 Claims



1. A method of accurately weighing a metal content of a vessel, the vessel being associated with a power supplying device for heating/stirring by inductively supplied power, the method comprising the steps of:

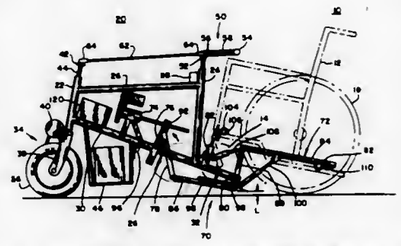
performing simultaneous weighing of the vessel including the metal content and the power supplying device from which emanates a magnetic disturbance force, wherein the vessel including the metal content is weighed on a first weighing equipment and the power supplying device is weighed on a second weighing equipment and a signal generated by the second weighing equipment is subtracted from a signal generated by the first weighing equipment so that the influence of the magnetic disturbance force on the weighing result is eliminated and a correct weight of the vessel is obtained.

5,207,286

STEERABLE WHEELCHAIR ATTACHMENT WITH POWERED COUPLING MEANS

George P. McKelvey, 405 Monmouth Rd., Freehold, N.J. 07728

Filed Apr. 23, 1992, Ser. No. 872,929
Int. Cl.[5] B60K *1/00*
U.S. Cl. 180—13 19 Claims



1. A steerable and powered wheelchair attachment with powered coupling means, said coupling means providing for

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the simultaneous attachment to and lifting of a front portion of a wheelchair, said attachment comprising:

(a) an auxiliary frame including a tubular wheel support, a steering handle support, an upper tie member, and a lower tie member;

(b) a wheel assembly being pivotally received in said tubular wheel support, said wheel assembly including a drive wheel rotatably carried in a fork member, a powered drive means adapted for selectively driving said drive wheel, and a first steering arm removably fastened to the fork member near an end distal said drive wheel;

(c) a steering assembly being pivotally received in an upper portion of said steering handle support, said steering handle assembly including a second steering arm, and a steering handle, said steering handle being pivotally attached to said second steering arm for adjustably positioning said steering handle as and when needed;

(d) at least one tie rod member connecting said first steering arm with said second steering arm, said tie rod member transmitting steering control from said steering handle to said wheel assembly;

(e) a coupling assembly being pivotally mounted to said lower tie member, said coupling assembly including:

e1) a first lever having a substantially Z-shape, said first lever including an upper extending portion and, a lower extending portion, said first lever sharing a pivotal mounting being pivotally attached to an extending end of said lower tie member;

e2) a linear actuator having reversing capabilities, said linear actuator being pivotally carried on said lower tie member at a point intermediate said tubular wheel support and said steering handle support;

e3) a second lever having one end pivotally mounted to said lower tie member, an other end of said second lever having a pivotal attachment pivotally attached to a shaft of said linear actuator,

e4) a link member adapted for connecting said second lever with said lower extending portion of said first lever;

e5) a pair of wheel ramps, each wheel ramp being adjustably fixed on a plurality of arms transversely extending from said lower extending portion of said first lever, each of said wheel ramps adapted for guiding and locating wheelchair wheels moved thereon;

e6) a third lever member pivotally mounted at one end to said lower tie member intermediate said steering handle support and said pivotal mounting for said first lever, a second end of said third lever being adapted for grasping a first wheelchair crossbar; and

(f) wherein selective activation of said linear actuator rotates said second lever, said rotation of said second lever raising the lower extending portion of said first lever while simultaneously moving said third lever into said grasping arrangement with said first wheelchair crossbar while bringing said upper extending portion of said first lever into engagement with a second wheelchair crossbar to provide lifting of said wheelchair wheels and then a subsequent reverse activation of said linear actuator reverses said grasping and said lifting.

5,207,287

FOUR-WHEEL STEERING APPARATUS

Osamu Sano; Hideo Matsubara, both of Nara; Hirofumi Matsuoka, Kyoto, and Yoshikazu Ikegi, Osaka, all of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan

Filed May 31, 1991, Ser. No. 708,499

Claims priority, application Japan, Jun. 6, 1990, 2-147784; Jul. 6, 1990, 2-179862; Nov. 9, 1990, 2-117787[U]

Int. Cl.[5] B62D *7/14*

U.S. Cl. 180—140 **7 Claims**

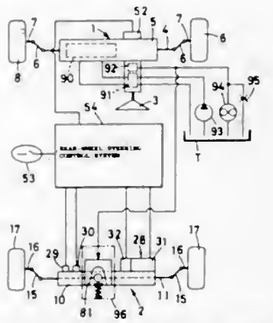
1. A four-wheel steering apparatus for a vehicle having a rotatable steering wheel, front wheels, and rear wheels, the steering wheel when rotated having a rotational torque, said apparatus comprising:

(a) a front-wheel steering device comprising a hydraulic power steering mechanism for steering the front wheels in response to rotation of the steering wheel and oil pressure in proportion to the rotational torque of the steering wheel, said power steering mechanism including a movable front-wheel steering bar and a vehicle speed sensor pump for producing a working oil pressure corresponding to variations in and in proportion to the vehicle speed, said vehicle speed sensor pump including a hydraulic circuit; and

(b) a rear-wheel steering device including:

(i) a rear-wheel steering bar mechanically separated from said front-wheel steering device and movable for steering the rear wheels;

(ii) a rear-wheel steering bar drive assembly for moving said rear-wheel steering bar;



(iii) a maximum steering amount regulating assembly having a variably regulating member for mechanically restricting the maximum amount of movement of said rear-wheel steering bar and for adjusting the maximum amount of movement of said rear-wheel steering bar to decrease as the vehicle speed increases, said maximum steering amount regulating assembly being connected to said hydraulic circuit of said vehicle speed sensor pump to decrease the maximum amount of movement of said rear-wheel steering bar which is mechanically restricted by said variably regulating member as the working oil pressure of said sensor pump increases; and

(iv) a rear-wheel steering control system for controlling said rear-wheel steering bar drive assembly in accordance with the steering amount of the front wheels to thereby control the amount of movement of said rear-wheel steering bar and control the steering amount of the rear wheels.

5,207,288

SCOOTER BODY AND FRONT-WHEEL DRIVE TYPE ELECTROMOTIVE SCOOTER

Masao Ono, Yokohama, Japan, assignor to Tokyo R&D Co., Ltd., Tokyo, Japan

Filed Jan. 24, 1991, Ser. No. 645,582

Claims priority, application Japan, Jan. 29, 1990, 2-18717

Int. Cl.[5] B62M *7/12*

U.S. Cl. 180—220 **6 Claims**

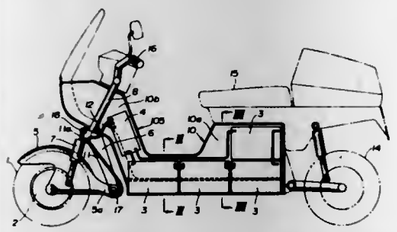
3. An electromotive scooter comprising:

a front wheel,

rear wheel means for engaging the ground and comprising at least one rear wheel,

a direct drive electric motor incorporated in the front wheel,

a scooter body made of fiber reinforced synthetic plastic and composed of an upper part that is connected to the front wheel and the rear wheel means for supporting the scooter body and a lower part that is releasably connected to the upper part at a substantially horizontal parting line, said upper part having a horizontal portion extending between the front wheel and the rear wheel means, a frame neck that extends upwardly from the forward region of said horizontal portion, and an upsurge portion toward the rear of said horizontal portion, and at least the horizontal portion of the scooter body defining a cavity,



a plurality of batteries contained in the cavity and resting on said lower part of the scooter body,

a control device mounted in the frame neck,

a steering shaft that extends through the frame neck to the front wheel, and

a power cable connecting the control device to the motor, the power cable extending through an opening in the frame neck near the steering shaft.

5,207,289

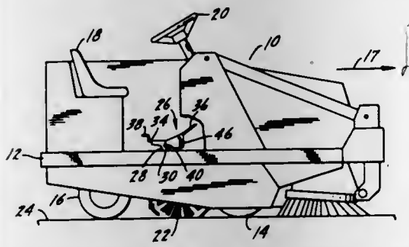
FOOT PEDAL WITH ANGULAR ADJUSTMENT

Michael S. Wilmo, Crystal, Minn., assignor to Tennant ompany, Minneapolis, Minn.

Filed Jul. 2, 1992, Ser. No. 907,859

Int. Cl.[5] B60K *17/00*

U.S. Cl. 180—307 **9 Claims**



1. In a vehicle having a hydrostatic transmission, a seated drive on the vehicle when it is in operation, a foot pedal for said driver's use in controlling said hydrostatic transmission, said foot pedal being mounted so that those surface areas on the foot pedal which are contacted by the heel and toe of a foot or shoe of said driver are at a give inclination relative to each other, means whereby said angle of inclination between said heel and toe surface areas may be quickly and easily changed.

5,207,290

HINGE FOR FOLDING SAWHORSE

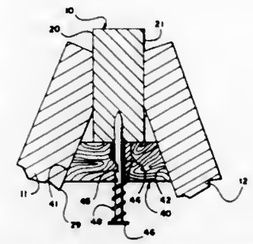
Andy J. Torok, P.O. Box 1166, Stone Mountain, Ga. 30086

Filed Feb. 3, 1992, Ser. No. 829,246

Int. Cl.[5] B27B *21/00*

U.S. Cl. 182—153 **1 Claim**

1. In a sawhorse including a beam extending longitudinally of said sawhorse, and at least two opposed legs, hinge means for hingedly fixing said legs to said beam, said opposed legs being movable towards each other for disposing said sawhorse in a folded condition and away from each other for disposing said sawhorse in an open condition, the improvement wherein said hinge means comprises a shaft extending laterally through said beam, and stop means on the ends of said shaft for defining a fixed length for said shaft, each leg of said at least two legs defining an opening therein for receiving an end of said shaft between said beam and said stop means, said opening having an upper wall that is contiguous with said shaft when said legs are moved away from each other, and a lower wall that is contiguous with said shaft when said legs are moved towards each other, said legs including upper ends engaged with the sides of said beam when said legs are moved away from each other, and wherein said upper ends of said legs include flat faces contiguous with the sides of said beam when said legs are



moved away from each other, said upper walls of said openings being perpendicular to said flat faces, said lower walls of said openings being perpendicular to the inner faces of said legs, the arrangement being such that said legs pivot generally at said stop means in moving from said open condition to said closed condition, latching means for selectively preventing said opposed legs from moving towards each other, said latching means comprises a block extending laterally of said beam and located between said at least two legs, and a pin for movably fixing said block to said beam, said block being selectively rotatable on said pin for selectively causing and preventing engagement of said block with said legs, the improvement wherein said latching means includes spring means for urging said block into engagement with said beam.

5,207,291

BARRIER SYSTEM FOR THE LUBRICATING OIL FOR THE BEARINGS OF A CENTRIFUGAL COMPRESSOR WITH LABYRINTH SEALS INSTALLED IN A CONFINED ENVIRONMENT

Vasco Mezzedimi, Poggibonsi, and Giampietro F. Aggradi, Florence, both of Italy, assignors to Nuovopignone-Industrie Meccaniche e Fonderia S.p.A., Florence, Italy

Filed Apr. 2, 1992, Ser. No. 862,229

Claims priority, application Italy, Apr. 11, 1991, MI91 A/000991

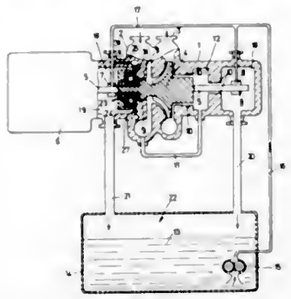
Int. Cl.[5] F01M *1/00*

U.S. Cl. 184—6.16 **1 Claim**

1. A barrier system for lubricating oil for bearings of a centrifugal compressor comprising a compressor having a suction side and delivery side, labyrinth seals defining a compression zone therebetween for at least one impeller, said impeller being mounted on a shaft for rotation at high speed on bearings, a pump which withdraws the lubricating oil for said bearings from a sealed collection vessel and feeds it under pressure through a feed pipe respectively to a first chamber containing one of said bearings and to a second chamber containing another of said bearings, said labyrinth seals, impeller and compression zone being located between said first and second chambers, with said first chamber being on the suction side, and said second chamber being on the delivery side, separate pipes respectively connecting said first and second chambers to a roof of said sealed collection vessel to discharge oil by gravity from said first and second chamber, a disc having an inverted U-shaped rim housing a stator ring rigid with a wall of said first chamber and arranged concentric with said shaft, said

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disc being concentrically rigid with respect to said shaft, said rotating disc and said stator forming a small passage continuously fed through sized holes in said ring, and kept filled by the centrifugal effect of said rotating disc, with barrier oil bled from a branch pipe of said feed pipe through which lubricating



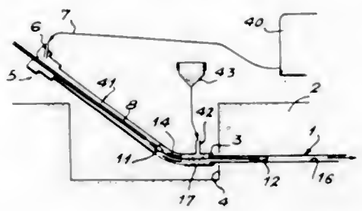
oil is fed under pressure to said first chamber, said stator ring being provided, on a side facing said rotating disc, with a wedge which is inserted into a corresponding cavity in said disc, and with an annular deflector tooth projecting beyond an outer edge of said disc cavity.

5,207,292

PROCESS AND APPARATUS FOR LUBRICATING THE INSIDE OF A BURIED CONDUIT SIMULTANEOUSLY WITH THE FORCING THERE-THROUGH OF A CABLE BY COMPRESSED AIR

Alain Pecot, and Yvon Beaumanoir, both of Lannion, France, assignors to France Telecom Etablissement autonome de droit public, Paris, France

Filed Jan. 28, 1992, Ser. No. 827,162
Claims priority, application France, Jan. 29, 1991, 91 00989
Int. Cl.[5] F16N *7/30*
U.S. Cl. 184—15.1 7 Claims



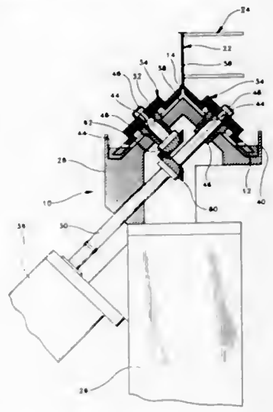
1. An apparatus for laying down a cable in a conduit comprising a first puller (**11**) to be connected (**9**) to the cable, and having a transverse dimension with an external diameter just slightly less than an internal diameter of the conduit (**1**), and a second puller (**12**) positioned at a predetermined distance from the first puller, and in front thereof in the direction of the movement of the cable in the conduit, and joined to the first puller by a flexible connection (**14**), said flexible connection (**14**) between the first puller (**11**) and the second puller (**12**) is formed of a flexible cable adopted to accommodate a change of the distance between the two pullers as said distance changes due to squeezing out of lubricant from a reservoir (**17**) between said two pullers and the laying down of the cable (**8**) along the length of the conduit (**1**), said second puller having an external diameter substantially equal to the internal diameter of the conduit, the volume formed between the two pullers and the inside wall of the conduit forming said reservoir for a volume of lubricant which is determine as a function of the total length of the conduit where the cable is to be placed, and the amount of lubricant which is to be spread out behind the first puller and the periphery thereof.

5,207,293

METHOD AND APPARATUS FOR LUBRICATING STOPPERS FOR SYRINGE BARRELS

Robert Eden, Holdrege; Roger Hoeck, Loomis, and Merlyn Urbom, Holdrege, all of Nebr., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation of Ser. No. 406,622, Sep. 13, 1989, Pat. No. 5,158,154. This application Jun. 23, 1992, Ser. No. 902,610
The portion of the term of this patent subsequent to Oct. 27, 2009, has been disclaimed.
Int. Cl.[5] F16N *25/04*
U.S. Cl. 184—101 16 Claims



1. An apparatus for lubricating stoppers for use within syringe barrels, comprising:
a first lubricating wheel comprising a stopper contact surface which is defined by an annular edge;
means for applying a lubricant to said first lubricating wheel;
means for rotating said first lubricating wheel; and
means for moving said stopper into contact with said stopper contact surface of said first lubricating wheel.

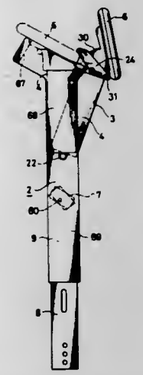
5,207,294

APPARATUS FOR INPUTTING COMMODITY DATA

Yukuo Kurimoto; Nobubiko Fujii; Mitunori Kohno, and Takao Umebara, all of Shizuoka, Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 378,773, Jul. 12, 1989, Pat. No. 5,083,637. This application Aug. 21, 1991, Ser. No. 747,953
Claims priority, application Japan, Jul. 12, 1988, 63-172895; Jul. 12, 1988, 63-172897; Jul. 12, 1988, 63-172898; Jul. 12, 1988, 63-172899; Jul. 12, 1988, 63-172900
The portion of the term of this patent subsequent to Oct. 16, 2007, has been disclaimed.
Int. Cl.[5] G06K *7/10*
U.S. Cl. 186—61 7 Claims

1. An apparatus for inputting commodity data, comprising:
a bar code scanner having a reading window on a front surface thereof from which a scanning beam is projected;
a keyboard for inputting the commodity data, said keyboard being supported at an upper portion of said bar code scanner; and
a frame comprising a shaft for rotatably supporting said bar code scanner in such a manner that said bar code scanner can be rotated about a horizontal pivotal axis;
wherein:
said bar code scanner is rotatable from a substantially vertical position in which the reading window of the bar code scanner is vertically positioned for projecting the scanning beam from the reading window in a first direction selected from a horizontal direction and a direction downward from the horizontal direction, to a downward inclined position in which the reading window of the bar code scanner faces downward for projecting the scanning beam from the reading window in a second direction downward from the first direction.

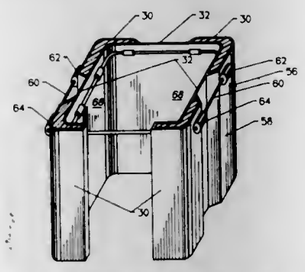


5,207,295

LIGHTWEIGHT PREFABRICATED ELEVATOR CAB

Louis Bialy, Simsbury, and Eric G. Olsen, Woodbury, both of Conn., assignors to Otis Elevator Company, Farmington, Conn.

Filed Oct. 1, 1991, Ser. No. 771,020
Int. Cl.[5] B66B *9/00*
U.S. Cl. 187—1 R 12 Claims



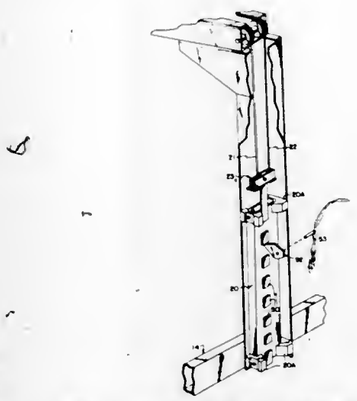
1. A method for assembling an elevator car having a platform, in a hoistway having a door opening, comprising:
forming a wall structure from a homogeneous material, said wall structure comprising a plurality of panel sections and an integrally formed flexible hinge seam formed from said homogeneous material, said hinge seam positioned in between said panel sections;
bending said wall structure about said hinge seam to minimize the dimensions of said structure, thereby allowing said structure to pass through the door opening of the elevator hoistway; and
unbending and attaching said wall structure to the platform of the elevator car positioned within the hoistway of the elevator.

5,207,296

SAFETY LOCK SYSTEM

John M. Beattie, and Jimmie D. Sinden, both of Greeley, Colo., assignors to TRLI, Inc., Greeley, Colo.

Filed Dec. 4, 1991, Ser. No. 802,248
Int. Cl.[5] B60S *13/00*
U.S. Cl. 187—8.5 12 Claims



1. In lifting apparatus of the type having spaced-apart first and second tool bar members and lifting means for lifting said tool bar members, wherein the improvement comprises a safety lock system associated with said tool bar members, wherein said safety lock system comprises:
(a) first and second vertical rack means connected to said first and second tool bar members, respectively,
(b) first and second locking members which are movable between locked and released positions and are normally biased to said locked position; wherein said first and second locking members are adapted to engage said first and second rack means, respectively;
(c) first and second spaced-apart upright support members, wherein said first tool bar member is disposed adjacent said first upright support member and said second tool bar member is disposed adjacent said second upright support member; and wherein said lifting means is supported by said upright support members;
(d) lock release means operably connected to said locking members and being adapted to simultaneously move said locking members from said locked position to said released position; wherein said lock release means comprises:
(1) first and second rod members vertically disposed, respectively, in said first and second upright support members and being connected to said first and second locking members, and
(2) a horizontal rod member connected between said first and second rod members;
wherein upward movement of said first rod member causes upward movement of said second rod member, whereby said first and second locking members are simultaneously moved to said released position.

5,207,297

HIGH LIFT WARNING SYSTEM

John M. Beattie, and Jimmie D. Sinden, both of Greeley, Colo., assignors to TRLI, Inc., Greeley, Colo.

Filed Dec. 4, 1991, Ser. No. 802,247
Int. Cl.[5] B60S *13/00*
U.S. Cl. 187—8.41 5 Claims

1. In lifting apparatus of the type having spaced-apart first and second tool bar members and lifting means for lifting said

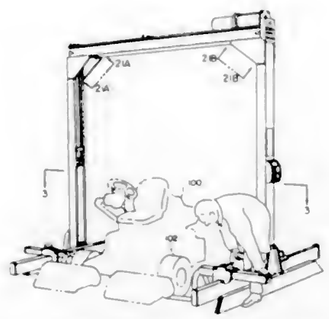
VOL 1150 ISS 1 MY 4 1993 UMI

tool bar members in order to raise an object to an elevated position, wherein the improvement comprises a high lift warning system comprising:

(a) a light source for emitting a beam of electromagnetic energy;

(b) photodetector means for detecting said beam; and

(c) alarm means actuated by said photodetector means for signalling a high lift condition when said object is elevated



to a position where it interferes with the detection of said beam by said photodetector means;

(d) first and second spaced-apart upright support members, wherein said first tool bar member is disposed adjacent said first upright support member and said second tool bar member is disposed adjacent said second upright support member; wherein said light source is carried by said first upright support member and said photodetector means is carried by one of said upright support members.

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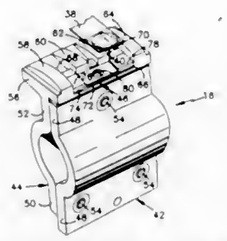
ELEVATOR ROTARY DOOR INTERLOCK

Michael P. Donohoe, Simsbury; Richard E. Kulak, Bristol, both of Conn., and Christian G. Tonna, Sao Paulo, Brazil, assignors to Otis Elevator Company, Farmington, Conn.

Filed Feb. 24, 1992, Ser. No. 840,424

Int. Cl.[5] B66B *1/00*

U.S. Cl. 187—31 **6 Claims**



1. An elevator door interlock which bridges a lead of an electrical circuit to indicate that the elevator door is locked, said interlock comprising:

a rotatable camming surface contacting said lead, and

a bridge disposed upon said surface, said camming surface rotating the bridge into contact with the lead if said door is locked and out of contact with the lead if the door is not locked.

5,207,299

BRAKE SLACK ADJUSTER WITH ELECTRONIC CONTROL AND DISTANCE SENSORS

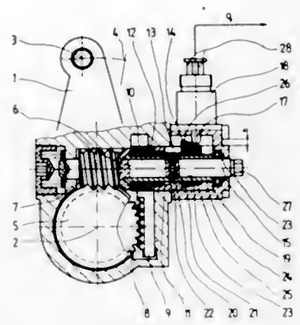
Joachim Feldmann, Neustadt, Fed. Rep. of Germany, assignor to WABCO Westinghouse Fahrzeugbremsen GmbH, Hannover, Fed. Rep. of Germany

Filed Jun. 5, 1991, Ser. No. 710,814

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1990, 4017950

Int. Cl.[5] F16D *65/52*; G01D *5/12*; B60T *17/18*; B61H *15/00*

U.S. Cl. 188—79.55 **21 Claims**



1. A brake actuating device comprising

a brake shaft having a rotation axis;

a worm wheel, disposed fixed against rotation on the brake shaft;

a brake lever performing together with the brake shaft a pivoting motion around the rotation axis of the brake shaft, where the pivoting motion of the brake lever serves for actuation of a brake in the sense of overcoming a brake release gap for the purpose of bringing a brake lining closer to a brake drum;

a slack readjustment device connected to and between the brake lever and the brake shaft, where the brake shaft is adjustable relative to the brake lever around the rotation axis of the brake shaft by means of the slack readjustment device, in the sense of a maintaining of the brake release gap upon wear of the brake lining, and including a worm engaging the worm wheel thereby forming the slack readjustment device in a kind of a worm drive;

a regulating member connected to the slack readjustment device and actuatable depending on the pivoting motion of the brake lever for generating a first measurement distance corresponding to an overcoming of a brake release gap, and said regulating member further actuatable depending on the adjustment motion of the slack readjustment device for generation of a second measurement distance, corresponding to the brake lining wear, and said regulating member adapted for superpositioning the first measurement distance and the second measurement distance to generate a regulating distance from a superpositioning of the first measurement distance and of the second measurement distance;

a distance sensor engaged by the regulating member;

a signal generator connected to the distance sensor and serving for scanning the regulating distance and for generating a signal corresponding to the regulating distance;

an evaluation device connected to the signal generator for comparing the characteristics of the first measurement distance and of the second measurement distance and for decomposing a signal corresponding to the regulating distance into a first signal corresponding to the first measurement distance, and into a second signal corresponding to the second measurement distance.

5,207,300

HYDRAULIC, ADJUSTABLE VIBRATION DAMPER FOR MOTOR VEHICLES

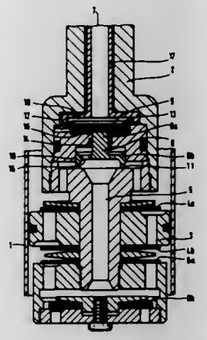
Walter Engel, Windeck, and Werner Sczepanski, Hennef, both of Fed. Rep. of Germany, assignors to BOGE Aktiengesellschaft, Eitorf, Fed. Rep. of Germany

Filed Jun. 28, 1991, Ser. No. 724,550

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1990, 4020822

Int. Cl.[5] F16F *9/44*; B60G *17/08*

U.S. Cl. 188—299 **20 Claims**



1. A hydraulic vibration damper with adjustable damping with a hydraulic cylinder filled with damping fluid, said vibration damper comprising:

piston means comprising a piston fastened to a piston rod, said piston means being disposed in said hydraulic cylinder, said piston having valves, said piston dividing said cylinder into two chambers, said piston rod having a longitudinal axis;

bypass means disposed to bypass damping fluid about said valves of said piston means, said bypass means having valve means, said valve means being disposed parallel to said valves of said piston, said valve means comprising at least one valve which is pressure controlled by a pressure medium originating externally of the vibration damper;

means for providing said external pressure medium to said valve means;

said at least one externally pressure-controlled valve comprising an orifice and a movable body, said movable body being disposed for opening and closing said orifice for bypassing damping fluid during adjusting operation of said vibration damper;

said movable body being movable by said external pressure medium, said external pressure medium for being controlled by external pressure adjustment means;

means for transmitting pressure disposed between said external pressure medium providing means and said movable body, said means for transmitting pressure being movable in said piston means;

said movable body having an outermost circumferential surface;

said outermost circumferential surface having a first outer cylindrical portion and a second outer cylindrical portion;

said first outer cylindrical portion having a first diameter;

said second outer cylindrical portion having a second diameter;

said second diameter being smaller than said first diameter;

said first outer cylindrical portion and second outer cylindrical portion being coaxial;

at least a portion of said second outer cylindrical portion not being overlapped by any portion of said first outer cylindrical portion;

said first outer cylindrical portion being disposed between said means for transmitting pressure and said at least a portion of said second outer cylindrical portion;

said second outer cylindrical portion being configured to be selectively disposable to open and close said orifice;

said outermost circumferential surface having a third outer portion;

said third outer portion joining said first outer cylindrical portion and said second outer cylindrical portion;

said third outer portion being configured to be acted upon by pressure from the damping fluid to assist in opening said orifice; and

means for guiding said first outer cylindrical portion by said first outer cylindrical portion slidably moving within said means for guiding to thereby permit opening and closing of said orifice.

5,207,301

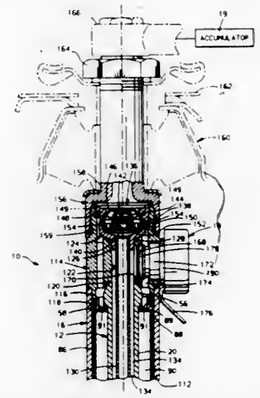
ACTIVE SUSPENSION ACTUATOR WITH REAL TIME DAMPING

William C. Kruckemeyer; Michael L. Oliver, both of Xenia, and James L. Lopez, Jr., Dayton, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 22, 1991, Ser. No. 748,593

Int. Cl.[5] F16F *9/46*

U.S. Cl. 188—299 **9 Claims**



1. A hydraulic actuator for use with a pressurized fluid source of a vehicular suspension system, the actuator comprising:

(a) piston rod means mounting at one end a fluid-controlling piston;

(b) transfer means concentrically mounted in the piston rod means in fluid communication with the pressurized fluid source;

(c) valve means for controlling fluid flow between the interior of the transfer means and the pressurized fluid source;

(d) tube means for reciprocally mounting the piston rod means and piston so that the piston divides the interior of the tube means into first and second chambers;

(e) bypass channel means providing fluid communication between the pressurized fluid source and the tube means; and

(f) an end cap, receiving the piston rod means, mounting a solenoid valve assembly for controlling fluid flow in the bypass channel means.

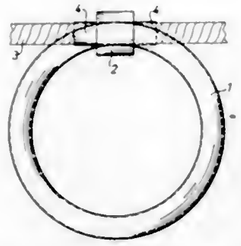
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,302

SHOCK ABSORBING STRUCTURE FOR A STRETCHED CABLE, PARTICULARLY FOR CABLE RETAINING ROCK WALL FENCES, ROCK FILL RETAINING GRIDS OR FENCES, SNOW FENCES, AND THE LIKE

Xaver Popp, Lömmenschwil, and Theo Loepfe, Häggenschwil, both of Switzerland, assignors to Fatzer AG, Romanshorn, Switzerland

Filed Dec. 16, 1991, Ser. No. 807,986
Claims priority, application Switzerland, Dec. 31, 1990, 04140/90
Int. Cl.[5] F16F *7/12*; E01F *7/02*; B64F *1/02*
U.S. Cl. 188—372 18 Claims



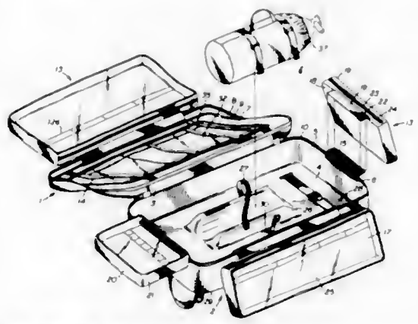
1. For combination with a stretched cable (3),
a shock absorbing device is dampen sudden overloads and sudden shocks,
comprising, in accordance with the invention,
a tube (1) formed in a loop or ring having at least one turn or convolution, the end portions of which overlap, said cable (3) being passed through said tube; and
a coupling element (2) surrounding said overlapping end portions (4) of the tube and retaining said overlapping end portions (4) of the tube together, and coupling the end portions (4) of said tube against each other for frictional engagement of the tube end portions against each other,
to permit, upon overload applied to the cable, plastic deformation of said tube and reduction of the diameter of the loop or ring formed thereby.

5,207,303

MEDICAL EMERGENCY CARRYING CASE

Brenda K. Oswalt, and Robert A. Beeley, both of P.O. Box 55549, Houston, Tex. 77255

Filed Jul. 15, 1991, Ser. No. 730,206
Int. Cl.[5] A45G *3/00*; B65D *30/00*
U.S. Cl. 190—108 1 Claim



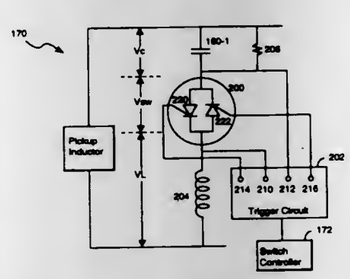
1. A carrying case comprising:
a rectangular top compartment having a panel with four sides extending therefrom with each of the four sides terminating in a rim;
a rectangular bottom compartment having a panel with four sides extending therefrom with each of the four sides terminating in a rim, with one side of the top compartment hingedly joined to the corresponding side of the bottom compartment so that the case may be opened and closed;
a zipper for fastening the top compartment to the bottom compartment when the case is closed;
a first fastener attached internally along the rim of the side of the top compartment opposite the side of the top compartment hingedly joined to the bottom compartment, said first fastener being a four edged strip of VELCRO stitched as a flap to said rim with the coarse side of the VELCRO facing said side;
a second fastener attached internally along the rim of the side of the bottom compartment opposite the side of the bottom compartment hingedly joined to the top compartment, said second fastener being a four edged strip of VELCRO stitched as a flap to said rim with the coarse side of the VELCRO facing said side;
a third fastener attached internally along the rim of the side of the bottom compartment adjacent to the side on which is located the second fastener, said third fastener being a four edged strip of VELCRO stitched as a flap to said rim with the coarse side of the VELCRO facing said side;
a fourth fastener attached internally along the rim of the side of the bottom compartment opposite the side on which is located the third fastener, said fourth fastener being a four edged strip of VELCRO stitched as a flap to said rim with the coarse side of the VELCRO facing said side;
a first storage pouch having a plurality of sides, a zippered aperture, an elastic tab inside the pouch, and a transparent window through which the contents of the storage pouch are readily visible;
a fifth fastener attached to a seam of the first storage pouch, said fastener being a four edged strip of VELCRO corresponding in length to the first fastener and stitched as a flap to said pouch with the coarse side of the VELCRO facing away from the transparent window of said pouch;
a second storage pouch having a plurality of sides, a zippered aperture, an elastic tab inside the pouch, and a transparent window through which the contents of the storage pouch are readily visible;
a sixth fastener attached to a seam of the second storage pouch, said fastener being a four edged strip of VELCRO corresponding in length to the second fastener and stitched as a flap to said pouch with the coarse side of the VELCRO facing away from the transparent window of said pouch;
a third storage pouch having a plurality of sides, a zippered aperture, an elastic tab inside the pouch, and a transparent window through which the contents of the storage pouch are readily visible;
a seventh fastener attached to a seam of the third storage pouch, said fastener being a four edged strip of VELCRO corresponding in length to the third fastener and stitched as a flap to said pouch with the coarse side of the VELCRO facing away from the transparent window of said pouch;
a fourth storage pouch having a plurality of sides, a zippered aperture, an elastic tab inside the pouch, and a transparent window through which the contents of the storage pouch are readily visible;
an eighth fastener attached to a seam of the fourth storage pouch, said fastener being a four edged strip of VELCRO corresponding in length to the fourth fastener and stitched as a flap to said pouch with the coarse side of the VELCRO facing away from the transparent window of said pouch;
a liner interiorly covering the panel of the bottom compartment, said liner being composed of rigid plastic and having a molded configuration for storing an oxygen canister, and having a strap for securing an oxygen canister to the liner;
a removable sleeve in which an oxygen canister may be positioned;
a storage unit in the top compartment, said unit having pockets, a plurality of elastic tabs, a flexible transparent rectangular cover permanently attached to the interior of the top compartment near the midline of the cover forming two flaps and having a VELCRO strip attached along the perimeter of the cover for releasably attaching the two flaps of the cover to the interior of the top compartment, and a VELCRO strip attached to the interior of the top compartment for mating to the VELCRO strip of the cover;
a backpack harness attached exteriorly to the bottom compartment, said harness being convertible to a shoulder strap; and
two exterior carry handles.

5,207,304

INDUCTIVE ENERGIZATION SYSTEM AND METHOD FOR VEHICLES

Edward H. Lechner, Sunnyvale; Steven E. Shladover, Palo Alto; Khosrow Lashkari, Fremont, and Daniel M. Empey, Palo Alto, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Dec. 3, 1991, Ser. No. 801,743
Int. Cl.[5] B60L *9/00*
U.S. Cl. 191—10 11 Claims



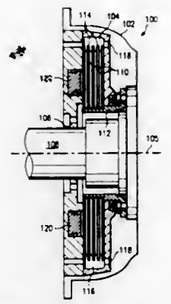
1. A power pickup system for an electrically powered vehicle, comprising:
a pickup inductor connected to first and second nodes;
a power receiving circuit coupled to said first and second nodes;
a multiplicity of tuning capacitors;
branch selection means for selecting ones of said multiplicity of tuning capacitors to be coupled to said first and second nodes and for generating a selected signal for each selected tuning capacitor; and
a multiplicity of switching circuits, each switching circuit selectively coupling a corresponding tuning capacitor to said first and second nodes;
each switching circuit including
a solid state switch, and
a trigger circuit coupled to said branch selection means and said solid state switch, said trigger circuit sensing the voltage across said solid state switch and, after receiving one said selection signal from said branch selection means that corresponds to said switching circuit, triggering closure of said solid state switch when said sensed voltage across said solid state switch is approximately zero.

5,207,305

METHOD AND APPARATUS FOR INCORPORATING HYDRODYNAMIC FILM TO TRANSFER OR RETARD MOTION AND DISSIPATE HEAT

Roger A. Iverson, Fayetteville, Ak., assignor to Advanced Brake & Clutch Co., Inc., Fayetteville, Ak.

Continuation of Ser. No. 299,070, Jan. 19, 1989, abandoned. This application Aug. 26, 1991, Ser. No. 749,660
Int. Cl.[5] F16D *35/00, 57/02*
U.S. Cl. 192—58 C 18 Claims



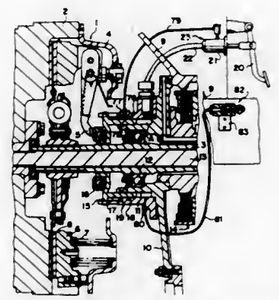
18. A friction coupling, comprising:
a housing having a cavity; at least two opposing surfaces located in the cavity;
a means to drive one surface relative to the opposing surface;
a means for bringing said surfaces adjacent to each other; and
said surfaces located in a specific amount of viscous fluid entrained with air wherein said amount of fluid is directly related to the ratio of the area of the opposing surfaces to the cross-sectional area of the cavity.

5,207,306

DEVICE FOR OPERATING CLUTCH OF VEHICLE

Kenichi Sato; Eisaku Shinohara; Takeshi Imamura, and Masaru Nakata, all of Sakai, Japan, assignors to Kabushiki Kaisha Kubota, Osaka, Japan

Filed Mar. 4, 1991, Ser. No. 651,381
Claims priority, application Japan, Jul. 4, 1989, 1-172802; Oct. 18, 1989, 1-122650[U]
Int. Cl.[5] F16D *25/08, 25/12*; F02N *11/10, 15/10*
U.S. Cl. 192—0.084 15 Claims



5. A clutch operating device for use in vehicles for pushing the clutch disengaging members of a dry disk clutch which is disposed between a flywheel mounted on the output shaft of an engine and a propeller shaft rotatably supported by a support wall of a transmission case, the device being characterized in that the device comprises:

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an annular cylinder chamber provided on the support wall concentrically with the propeller shaft;

an annular piston axially slidably fitted in the cylinder chamber;

a release bearing mounted on the forward end of the piston and engageable with the clutch disengaging members by contact therewith; and

means for supplying an oil pressure to the cylinder chamber by depressing a clutch pedal to push out the piston toward the clutch disengaging members;

said cylinder chamber includes an annular space formed between a tubular portion surrounding the propeller shaft and projecting from the support wall toward the clutch and a hollow cylinder provided around the tubular portion, said hollow cylinder is formed with an oil pressure relief port communicating with the cylinder chamber only when the piston has reached a position immediately before a projection limit.

5,207,307

COIN TESTING APPARATUS

Timothy P. Waite, Esher, England, assignor to Mars Incorporated, McLean, Va.

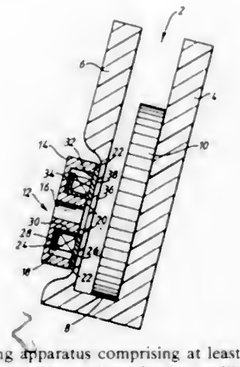
PCT No. PCT/GB90/00956, § 371 Date Jan. 6, 1992, § 102(e) Date Jan. 6, 1992, PCT Pub. No. WO91/01029, PCT Pub. Date Jan. 24, 1991

PCT Filed Jun. 21, 1990, Ser. No. 778,978

Claims priority, application United Kingdom, Jul. 7, 1989, 8915640

Int. Cl.[5] G07D 5/08

U.S. Cl. 194—317 2 Claims



1. Coin testing apparatus comprising at least one magnetic inductor for generating or detecting an oscillating magnetic field with which a coin to be tested interacts, wherein said inductor comprises a core of high magnetic permeability material having a recess in its front face for receiving an inductive coil, and an inductive coil which is carried on a former, has a front face, and is located within the recess, the inductor being mounted such that the front faces of the core and the coil face a structural part of the passageway along which coins to be tested pass, wherein the former is provided with radially extending abutment means fixedly located relative to the coil and extending between, and contacting both of, the front face of the core and said structural part, so as to determine the position of the front face of the coil relative to the front face of the core and relative to said structural part.

5,207,308

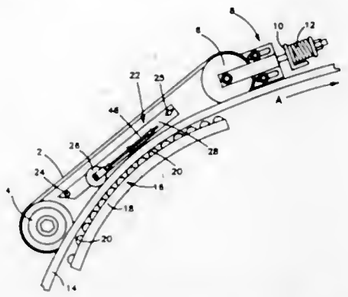
MOVING HANDRAIL DRIVE BELT TENSIONING DEVICE

George E. Sheffield, Cooper City, and Albert E. Moniz, Miami, both of Fla., assignors to Otis Elevator Company, Farmington, Conn.

Filed May 18, 1992, Ser. No. 885,325

Int. Cl.[5] B66B 23/16

U.S. Cl. 198—336 8 Claims



1. In combination with an escalator or moving walkway, a drive assembly for a moving handrail, said drive assembly comprising:

a) an endless drive belt engaging one surface of said handrail, said drive belt being reeved about a power roller and a spaced tension roller spaced apart from said power roller, said power roller and tension roller being operable to impart a loop configuration to said drive belt;

b) a support roller bow assembly engaging the surface of said handbelt opposite said one surface thereof, said roller bow assembly being operable to urge said handrail against said drive belt to provide said handrail with a curved path of travel between said power roller and said tension roller; and

c) an auxiliary tension roller assembly mounted inside of said drive belt loop, said auxiliary tension roller assembly including an auxiliary tension roller which is positioned within said drive belt loop closer to one of said power roller and said tension roller than the other, and said auxiliary tension roller assembly further including means for urging said auxiliary tension roller against said drive belt to provide enhanced tensioning of said drive belt.

5,207,309

CONCOMITANT MOTION CONTROL DEVICE

Steven W. Simpkin, 2308 Crossgate Trail, Birmingham, Ala. 35216; C. Michael Jones, 3529 William & Mary Rd., Hoover, Ala. 35216, and David W. McNair, Rte. 13, Box 267F, Jasper, Ala. 35501

Filed Aug. 18, 1992, Ser. No. 931,861

Int. Cl.[5] B65G 43/00

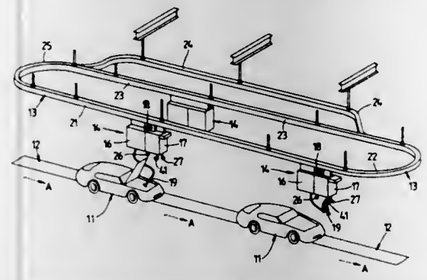
U.S. Cl. 198—341 11 Claims

1. Apparatus for coordinating the movement of a first device along a closed loop path with the movement of an object along a second path parallel to a portion of said closed loop path, comprising:

(a) endless loop track means for supporting said first device;

(b) variable speed drive means supported on said track means for moving said first device therealong;

(c) means for remotely sensing the proximity of said object along said portion of said closed loop path mounted for concomitant movement with said drive means and operably connected to vary the speed generated by said drive means responsive to the proximity of said object; and



(d) sensing means for detecting divergence of said object and said device operably connected to provide control input thereto subsequent to said divergence.

5,207,310

VIBRATORY CONVEYOR

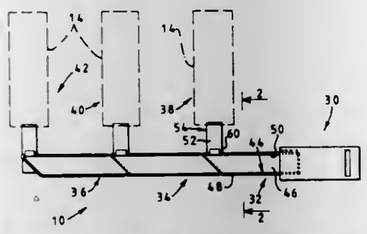
Keith L. Maddocks, Cambridge, United Kingdom, assignor to K.M.G. Systems Ltd., United Kingdom

Filed Jun. 17, 1992, Ser. No. 899,775

Claims priority, application United Kingdom, Jun. 18, 1991, 9113093

Int. Cl.[5] B65G 25/00, 47/46

U.S. Cl. 198—370 12 Claims



1. A distribution system for conveying flowable material from a source downstream to a user location, comprising:

conveyor means having at least one elongate vibratable primary conveyor section for conveying the material towards the user location, the primary conveyor section having a product carrying surface, side walls upstanding on the product carrying surface, and an opening in one side wall proximate a downstream end of the primary conveyor section;

first electromagnetic drive means for vibrating the primary conveyor section longitudinally; and

second electromagnetic drive means for vibrating the downstream end of the conveyor section laterally of its longitudinal axis.

5,207,311

METHOD AND APPARATUS FOR AUTOMATICALLY FEEDING ARTICLES IN ALIGNED CONDITION TO PACKAGING MACHINE

Masao Terai, Wakayama, Japan, assignor to Ryowa Ltd., Japan

Filed May 18, 1992, Ser. No. 884,402

Claims priority, application Japan, Jun. 12, 1991, 3-168946

Int. Cl.[5] B65G 47/26

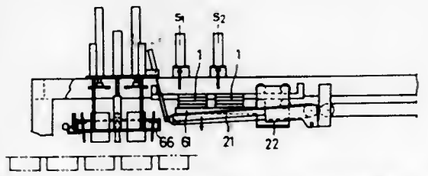
U.S. Cl. 198—419.1 6 Claims

1. A method for automatically feeding articles in aligned condition to a packaging machine wherein plural lines of articles, as they are fed onto a parallel transport conveyor in laterally spaced relationship that corresponds to article delivery positions at the packaging machine, are aligned on the parallel transport conveyor in longitudinally spaced parallel relation, the thus aligned articles being then moved toward the delivery positions at the packaging machine by units of a required number each, said method comprising the steps of:

(a) feeding each required number of articles delivered while held in parallel from said parallel transport conveyor onto a positioning belt conveyor having comb-like interteeth clearances, said positioning conveyor comprising a comb-like frame having a plurality of projecting frames extending in a comb teeth-like fashion from a base frame in the direction of transport of the articles, and belts trained between a driving roller at the rear end of the comb-like frame and driven rollers at respective forward ends of the projecting frames, said comb-like frame being supported for upward and downward movement relative to the frame of article transfer means;

(b) causing the articles being conveyed by said positioning conveyor to dwell for a while on the positioning conveyor at longitudinally and laterally spaced positions corresponding to the delivery positions at the packaging machine, then stopping the movement of said positioning conveyor;

(c) descending said positioning conveyor slightly to cause



holding bars of a slide conveyor to be exposed above the transport plane of said positioning conveyor through said comb-like interteeth clearances thereof, thereby to cause articles on the positioning conveyor to be transferred onto said holding bars at predetermined positions, said slide conveyor including a slider body horizontally movably supported by said frame of the article transfer means, said holding bars being arranged in pairs such that they extend in a fork-like fashion from said slider body in the direction of transport of the articles;

(d) then advancing the slide conveyor a predetermined distance thereby to move the articles on said holding bars to a location immediately above the delivery positions at the packaging machine as they are kept resting on said bars at the predetermined positions;

(e) elevating an elevating frame vertically movably supported by said frame of the article transfer means to a position at which the upper surface of pivot shutters mounted to said elevating frame is positioned slightly above the upper surface of said holding bars, thereby to cause the articles on said holding bars to be transferred onto said pivot shutters; and

(f) moving the slide conveyor backward to its original position, then descending the elevating frame and opening the pivot shutters to allow the articles thereon to drop toward the delivery positions at the packaging machine.

5,207,312

METHOD OF AND APPARATUS FOR CRAMMING ELECTRONIC COMPONENTS INTO STORAGE MEANS

Kuniaki Takahashi, and Manabu Uesugi, both of Tokyo, Japan, assignors to TDK Corporation, Tokyo, Japan

Filed Jun. 24, 1992, Ser. No. 903,105

Claims priority, application Japan, Jun. 24, 1991, 3-180127

Int. Cl.[5] B65G 47/66

U.S. Cl. 198—600 42 Claims

1. A method of automatically and successively cramming

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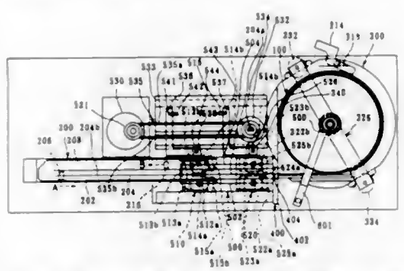
electronic components into storage means, comprising the steps of:

a. preparing storage means comprising a substantially plate-like body, said plate-like body having a substantially spiral passageway formed in its interior, an opening formed therein as a continuation of said spiral passageway to communicate with the exterior of said plate-like body, and a plurality of vents communicating with said spiral passageway;

b. preparing a plurality of electronic components;

c. successively sending said electronic components to vibration-free zone while applying vibration to said electronic components to line up said electronic components;

d. feeding the foremost one of said electronic components, forwarded to said vibration-free zone, into said spiral passageway of said storage means through said opening of said storage means by the push of subsequent electronic components against said foremost electronic component;



e. causing said foremost electronic component to be moved toward an inside terminal portion of said spiral passageway of said storage means, while applying vibration to said storage means in a manner to cause the vibration, applied to said storage means to extend from an outside terminal portion of said spiral passageway to said inside terminal portion of said spiral passageway and permitting air contained in said spiral passageway of said storage means to escape through the vents;

f. successively feeding said subsequent electronic components into said spiral passageway of said storage means from said vibration-free zone in the same manner as the feeding of said foremost electronic component from said vibration-free zone into said spiral passageway of said storage means is performed; and

g. causing said subsequent electronic components to be successively moved toward said inside terminal portion of said spiral passageway in the same manner as the moving of said foremost electronic component toward said inside terminal portion of said spiral passageway is carried out.

5,207,313

KIT FOR REFITTING RETARDING ROLLER

Elfriede J. Gebhardt, Sinsheim, Fed. Rep. of Germany, assignor to Gebhardt Fordertechnik GmbH, Fed. Rep. of Germany

Continuation of Ser. No. 517,705, May 2, 1990, abandoned. This application Feb. 6, 1992, Ser. No. 830,468

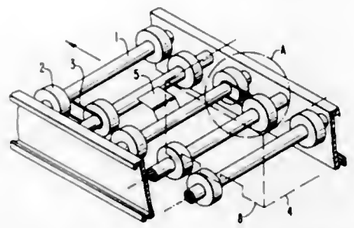
Claims priority, application Fed. Rep. of Germany, May 3, 1989, 8905555[U]

Int. Cl.[5] B65G *13/02*

U.S. Cl. 198—780 **5 Claims**

1. A kit for retrofitting retarding roller conveyors having a plurality of retarding rollers, each having an outer cylindrical surface of a given diameter, the retarding rollers being arranged parallel to each other, transversely between opposite horizontal frame members of a frame, each retarding roller being rotatable about a rotation axis and spaced apart from each other by a distance measured between the outer cylindrical surfaces of adjacent ones of the rotating rollers, the kit comprising:

a plurality of roller support elements, two roller support elements being adapted to be fitted on each retarding roller, each roller support element having an outer cylindrical surface of a diameter greater than the diameter of the outer cylindrical surface of each of the retarding rollers whereby the space between adjacent retarding rollers is decreased so as to prevent articles being conveyed from jamming between adjacent retarding rollers; and



a plurality of timing belts adapted to be disposed between the opposite horizontal frame members, each timing belt being further adapted to extend between and thus interconnect a pair of adjacent retarding rollers to form a plurality of independently coupled pairs of retarding rollers.

5,207,314

DEVICE FOR HORIZONTALLY HOLDING LOADING BASES MOVING CIRCULATIVELY IN VERTICAL PLANE

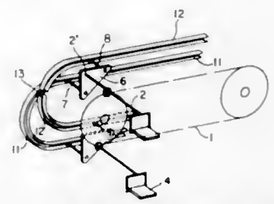
Satoshi Ueda, Itami, and Kiyoshi Fukuyama, Moriyama, both of Japan, assignors to Tsubakimoto Chain Co., Osaka, Japan

Filed Sep. 11, 1992, Ser. No. 944,180

Claims priority, application Japan, Oct. 18, 1991, 3-092954[U]

Int. Cl.[5] B65G *17/18*

U.S. Cl. 198—800 **1 Claim**



1. In a conveyor having loading bases for moving articles circulatively in a vertical plane while holding the articles in a horizontal position, the improvement comprising a single endless chain which is adapted to move circulatively in a vertical plane;

a plurality of bearings mounted on said chain;

a plurality of guide rods mounted to said chain, each guide rod being rotatable through a bearing about a horizontal axis orthogonal to said chain;

a loading base fixed to one end of each of said guide rods and a guide plate having its inside face fixed to the opposite end of each guide rod;

an outer roller mounting rod and an inner roller mounting rod having a shorter length than the length of the outer roller mounting rod projecting from an outer face of the guide plate in parallel with the guide rod in a vertically spaced position and in a horizontally spaced position, respectively, relative to the point of fixation of said guide rod to said guide plate;

an annular outer guide rail along which an outer roller is rotatably mounted and an inner annular guide rail along which an inner roller is rotatably mounted disposed side by side in parallel with said chain in a vertical plane with a horizontal spaced distance between the opposite end of the guide rod and the inner roller mounting rod being a phase difference in a longitudinal direction, and a vertically downward spaced distance between the opposite end of the guide rod and the outer roller mounting rod being a phase difference in a vertical direction,

said annular inner guide rail having a passageway in each of both end reversing positions to allow passage therethrough of the outer roller mounting rod, whereby each loading base circulates in a vertical plane while maintaining a horizontal position.

5,207,315

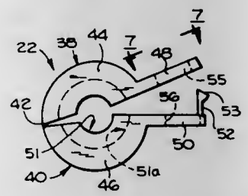
CIRCUIT BREAKER BLOCK OUT

Steven J. Benda, P.O. Box 782, Cokato, Minn. 55321

Filed Oct. 15, 1991, Ser. No. 776,184

Int. Cl.[5] H01H *27/10*

U.S. Cl. 200—43.11 **13 Claims**



1. A block out device for use with a circuit breaker having a body presented to a user, and having an actuating element extending through the body and thereby accessible for actuation by the user, and movable between opposite positions, said block out device comprising,

a one-piece member having a pair of opposed main parts connected together by hinge means having an axis, said pair of main parts having swinging ends movable toward each other to a locking position wherein they are substantially in interengagement, and away from each other to a non-locking position,

the main parts, when the device is applied to a circuit breaker and the main parts are in locking position, are adapted to engage said actuating element and prevent movement of said element between said opposite positions,

the main parts having cooperating apertures located at their swinging ends adapted to receive a locking element of predetermined dimensions, said cooperating apertures having a common axis when in said locking position, such that said apertures are in alignment and said axis is perpendicular to an axis extending parallel with the axis of the hinge means, and

a first of the main parts including a latching element extending through the aperture of a second of the main parts and engaging the second main part in a latching position, for holding the main parts in locking position, said second main part having a key way located in a surface of the aperture therein, and the latching element being positioned within said key way when in said latching position,

the apertures being of such size that when the locking element is in said apertures, the latching element is effectively engaged by the locking element and held in said key way and thereby held in latching position,

the block out device having locking connection with the actuating element and is operable for locking the actuating element, only by locking engagement therewith.

5,207,316

LIMIT SWITCH

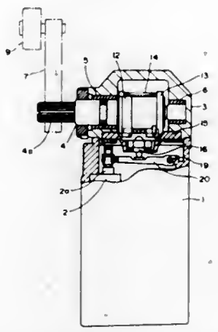
Kunio Sakamoto, Kurayoshi, Japan, assignor to Omron Corporation, Kyoto, Japan

Filed Oct. 30, 1991, Ser. No. 785,573

Claims priority, application Japan, Nov. 1, 1990, 2-297550

Int. Cl.[5] H01H *3/16*

U.S. Cl. 200—47 **1 Claim**



1. A limit switch having a plurality of modes of operation, comprising a switch head having an annular boss with grooves disposed on an inner circumferential surface of said annular boss, an operating lever, a rotary shaft extending through said switch head and being connected to and driven by said operating lever, a first cam and a second cam, each cam having a cam projection, said cams being mounted on said rotary shaft with said switch head for transforming rotary motion into linear motion for acutating a basic switch located within a switch case, wherein said switch head is mounted to said switch case, a return spring means position within said switch head and disposed around a portion of said rotary shaft for applying a returning force to said operating lever through said rotary shaft, a plunger disposed in said switch head and operatively associated with said cams for actuating said basic switch positioned within said switch case and a plunger holder for holding said plunger such that said plunger is capable of linear movement for actuating said basic switch, said plunger having a plurality of integral projections aligned with said cam projections on said cams, said plunger holder being arranged in said switch head such that it is capable of rotation about an axis such that said plunger can be rotated about the axis thereby changing the alignment of said plurality of integral projections with said cam projections thereby changing the mode of operation of said limit switch said plunger holder including a circumferentially extending engaging member having a forward projection, said forward projection being disposed in said annular boss for selectively engaging said grooves for controlling rotation of the holder.

5,207,317

SNAP-ACTION SWITCH ACTUATOR

Gary W. Bryde, Catasauqua; James E. Swain, III, Bethelem, and John R. Woodman, Cooperburg, all of Pa., assignors to Lutron Electronics Co., Inc., Coopersburg, Pa.

Filed Mar. 31, 1992, Ser. No. 860,922

Int. Cl.[5] H01H *5/06*

U.S. Cl. 200—457 **16 Claims**

1. A switch actuator for actuating a switch means comprising

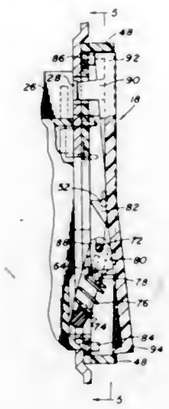
a bezel having pivot means thereon defining a first pivot axis, said bezel having an outer surface defining a plane,

a paddle having an outer surface for operating said paddle and an inner surface facing in a direction opposite said outer surface, said inner surface having means thereon for

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causing a switch means to be actuated in response to actuation of said paddle, said paddle being pivotably supported in said bezel for limited pivoting movement about said first pivot axis between a first position and a second position,

lever means pivotably mounted on said bezel and disposed at an acute angle not greater than 45° to said plane, said lever means being pivotable with respect to said bezel and said paddle about a second pivot axis as said paddle is pivoted about said first pivot axis, said second pivot axis being spaced from and substantially parallel to said first pivot axis, and



spring means disposed at an acute angle not greater than 45° to said plane, a first end of said spring being received by spring receiving means disposed on said paddle inner surface and a second end of said spring being received by spring receiving means disposed on said lever means, said spring means being spaced a distance from said second pivot axis and positioned between said second pivot axis and said spring receiving means on said lever means for biasing said paddle means to said first position as said paddle means is operated toward said second position until approximately a midpoint of said pivoting movement of said paddle and thereafter biasing said paddle means to said second position.

5,207,318

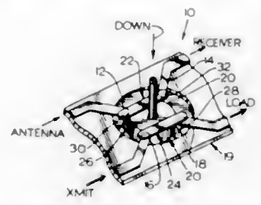
PLUNGER SWITCH

Leonard A. Roland, Burbank; David T. Ko, Thousand Oaks, and Michael T. Long, Rancho Palos Verdes, all of Calif., assignors to Dynatech Microwave Technology, Inc., Calabasas, Calif.

Filed Jul. 29, 1991, Ser. No. 737,201

Int. Cl.[5] H01H *13/14*

U.S. Cl. 200—534 **8 Claims**



1. A double pole, double throw switch comprising:

a frame;

a plunger moveable between up and down positions relative to said frame;

first, second, third, and fourth contacts mounted on said plunger, each contact having first and second opposite ends with the ends of each contact being at least partially horizontally spaced, with the ends of said first and third contacts lying at a higher level than the ends of said second and fourth contacts;

first, second, third, and fourth separate terminals mounted on said frame, with said terminals positioned so that in said plunger down position the opposite ends of said first contact respectively engage said first and second terminals, and the opposite ends of said third contact respectively engage said third and fourth terminals, and in said plunger up position the opposite ends of said second contact respectively engage said first and fourth terminals, and the opposite ends of said fourth contact respectively engage said second and third terminals.

5,207,319

CONTAINER FOR FLOPPY DISK, COMPACT DISK OR OTHER MEMBERS OF SIMILAR CONFIGURATION

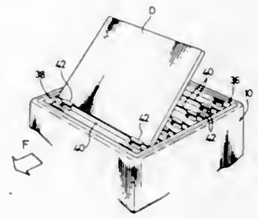
Katsutoshi Hamada, 15-26-1025, Uriwarinishi 1-chome, Hirano-ku, Osaka-shi, Japan

Filed Dec. 11, 1991, Ser. No. 805,068

Claims priority, application Japan, Jan. 11, 1991, 3-485[U]

Int. Cl.[5] B65D *77/00, 43/04, 43/08*

U.S. Cl. 206—216 **10 Claims**



1. A container for containing plate-like articles comprising:

a main body for containing the plate-like articles, the main body including:

a plurality of support members arranged in parallel with one another in a predetermined direction inside of the main body and adapted for supporting the plate-like articles; and

an insertion opening formed in a front portion of the main body and adapted for alternatively placing the plate-like articles on the support member and withdrawing the plate-like articles from the support member;

a top member attached on a top portion of the main body and adapted for temporarily storing one of the plate-like articles, the top member including:

a recessed portion;

a plurality of spaced upright members provided in the recessed portion, the upright members extending in substantially parallel relationship with one another, said upright members constituting means for holding the plate-like article in a standing position.

5,207,320

COMPARTMENTED MIXING DEVICE WITH BEAD

Nicholas J. Allen, Flat 2, 23 Hampsted Lane, Highgate, London N6, United Kingdom

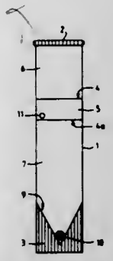
PCT No. PCT/GB90/00777, § 371 Date Jan. 22, 1992, § 102(e) Date Jan. 22, 1992, PCT Pub. No. WO90/14293, PCT Pub. Date Nov. 29, 1990

PCT Filed May 17, 1990, Ser. No. 776,401

Claims priority, application United Kingdom, May 24, 1989, 8911878

Int. Cl.[5] B65D *25/08;* **B67B** *5/60*

U.S. Cl. 206—220 **30 Claims**



1. A device which comprises a generally cylindrical plastics container at its ends having temporary seals therein to thereby divide the container into three compartments, one at each end and one intermediate those at each end, wherein that compartment of said container adjacent to one end thereof contains a first material and that compartment of said container adjacent to the other end thereof contains a second material in which the first material is to be dispersed or dissolved prior to use, characterized in that (a) said intermediate compartment contains a bed but neither said first material nor said second material, and (b) said temporary seals are arranged so that they can be broken by finger pressure to permit communication between the compartments, thereby permitting mixing of said first material and said second material.

5,207,321

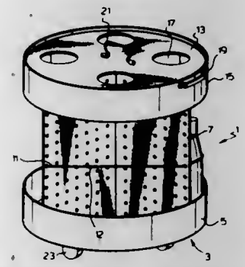
PORTABLE STORAGE DEVICE

Errol Jones, 45 Carolbreen Sq., Scarborough, Canada M1V 1J1

Filed Apr. 7, 1992, Ser. No. 864,689

Int. Cl.[5] B65D *69/00*

U.S. Cl. 206—223 **3 Claims**



1. An article storage device comprising a base, a top, a plurality of upright panels at divergent angles from one another between said base and said top, each panel being provided with a series of openings located at different positions on each panel, and a single elasticized support fitted through one of the openings in each panel and diagonally traversing all of said panels, said elasticized support having opposite ends connected to one another by a releasable connection allowing refitting of said support in a different one of the openings in each panel for different positionings of said elasticized support on said storage device.

5,207,322

HINGE-LID PACK FOR CIGARETTES OR THE LIKE

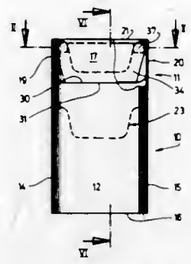
Heinz Focke, and Helmut Granz, both of Verden, Fed. Rep. of Germany, assignors to Focke & Co (GmbH & Co.), Verden, Fed. Rep. of Germany

Filed Feb. 7, 1992, Ser. No. 832,309

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1991, 4103612

Int. Cl.[5] B65D *85/10*

U.S. Cl. 206—268 **4 Claims**



1. A hinge-lid pack, with rounded or bevelled longitudinal edges (**27, 28**), comprising a pack part (**10**) and a lid (**11**) articulated on a rear panel (**13**) of the pack part (**10**), and including a collar (**23**) which is arranged in the pack part (**10**) and partially projects therefrom and which is surrounded, in a closed position, in the region of a collar front panel (**24**) and collar side panels (**25, 26**) by a lid front panel (**17**) and lid side panels (**19, 20**) characterized in that the lid front panel (**17**) is provided at its inner side with at least one material thickening which, in the closed position of the lid (**11**), abuts the collar front panel (**24**) and creates an increased closing pressure;

wherein the thickening at the inner side of the lid front panel (**17**) is located at a distance from a free lid edge (**30**) of said lid front panel (**17**), directly adjacent to a lid top panel (**21**);

wherein the thickening abuts the collar front panel (**24**) in the region of lateral legs or webs (**33, 34**) of the collar front panel (**24**);

wherein the thickening is formed from an inner lid tab (**35**) at the inner side of the lid front panel (**17**), by means of a local two-ply design of the inner lid tab (**35**); and

wherein folding tabs (**36, 37**) which are attached to the inner lid tab (**35**) are folded between the inner lid tab (**35**) and the lid front panel (**17**) in order to form the thickenings.

5,207,323

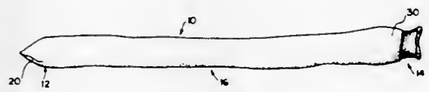
SKI SOCK

Hardison G. McConnell, 3841 Sandlewood Rd., High Point, N.C. 27625

Filed Sep. 20, 1991, Ser. No. 763,429

Int. Cl.[5] A63G *11/00;* **B65D** *85/20*

U.S. Cl. 206—315.1 **7 Claims**

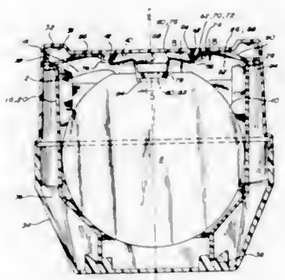


1. A ski sock snugly covering and protecting a ski having a curved tip end, a main portion, and a trailing end portion, comprising:

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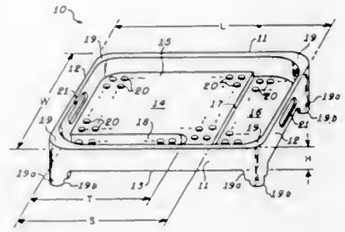
(a) ski sock means for receiving, holding and protecting a ski;
(b) the ski sock means including a sock constructed of a relatively soft, stretchable fabric material that snugly fits around and conforms to the ski;
(c) the sock having interior and exterior surfaces, a ski inlet end, an elongated main body portion, and a V-shaped closed tip end for receiving and conforming to the tip end of the ski; and
(d) a silicon film formed about the interior surface of the ski sock to facilitate the insertion and removal of the ski as well as to provide an appropriate environment for protecting the ski during storage.

5,207,324
WAFER CUSHION FOR SHIPPERS
Robert D. Kos, Victoria, Minn., assignor to Fluoroware, Inc., Chaska, Minn.
Filed Mar. 8, 1991, Ser. No. 666,357
Int. Cl.[5] B65D *85/42*
U.S. Cl. 206—334 11 Claims



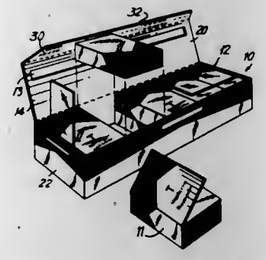
1. A semiconductor wafer shipping and storage container to engage such wafers only at their edge portions, comprising
an elongate bottom receptacle portion with engaging means engaging and supporting such wafers at their edge portions and maintaining the wafers in spaced and confronting relation with each other, and said engaging means orienting the wafers transversely of the elongate bottom receptacle,
an elongate cover portion for the receptacle portion and removably secured thereto, the cover portion comprising an inner side facing the bottom receptacle portion,
an elongate frame portion demountably secured on the inner side of the cover portion,
a plurality of stiff and elongate wafer engaging cushioning segments arranged in side-by-side relation to each other and also arranged in adjacent and spaced relation to the inner side of the cover portion and opposite the bottom receptacle portion, each of said elongate cushioning segments extending transversely of the elongate bottom receptacle portion and transversely of the elongate frame and each of said cushioning segments comprising an engaging face to bear against the edge portion of one of such wafers, each of said elongate cushioning segments having opposite end portions and each of the said elongate cushioning segments being movable toward and away from the inner side of the cover portion,
a plurality of pairs of resiliently flexible mounting arms mounting the cushioning segments on the frame, the mounting arms in each pair of mounting arms being secured to and respectively extending from said opposite end portions of a cushioning segment, and said mounting arms also extending to and being secured to said frame portion, the mounting arms resiliently flexing as the cushioning segments engage the edge portions of the wafers to accommodate movement of the cushioning segments toward the inner side of the cover portion and to continuously and resiliently urge the cushioning segments against the edge portions of the wafers.

5,207,325
INSTRUMENT STORAGE TRAY
Patricia B. Kennedy, Box 810 Emerson Dr., Charlottesville, Va. 22901
Continuation of Ser. No. 728,340, Jul. 11, 1991, abandoned. This application May 1, 1992, Ser. No. 879,091
Int. Cl.[5] B65D *81/18*
U.S. Cl. 206—370 6 Claims



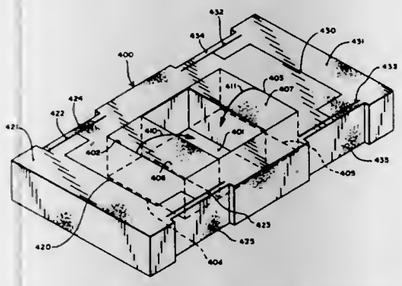
1. A tray for storing and sterilizing surgical instruments comprising:
first and second pairs of parallel walls each having a top and a bottom and a height H between said top and bottom, said first pair of parallel walls having a length L and said second pair of parallel walls extending between said first pair of parallel walls and having a width W therebetween, said first and second pairs of parallel walls establishing an instrument storage area;
an instrument storage shelf within said storage area having said width W, a length S extending from one wall of said second pair of parallel walls to an end plate extending down from said instrument storage shelf to a depth P, said length S being less than said length L, and positioned a distance h below aid top of said first and second paris of parallel walls said distance h being less than said height H;
a trough, having a base at a depth D below said instrument storage shelf, extending into said instrument storage self from one wall of said first pair of parallel walls to an edge at a width W from said one wall of said first pair of parallel walls, said width w being less than said width W, and extending from said one wall of said second pair of parallel walls to an end plate at a distance T, said distance T being less than said distance S;
a recessed instrument storage area extending between said first pair of parallel walls and from said end plate of said instrument storage shelf to a wall of said second pair of parallel walls other than said one wall of said second pair of parallel walls and having a base at said distance P below said instrument storage shelf; said depth D and said distance P being less than said height H;
said first and second pairs of parallel walls, said instrument storage shelf and end plate, said trough base, edge and end plate, and said recessed instrument storage area base constructed of a high temperature resistant thermoplastic material; and
said instrument storage self, said base of said recessed instrument storage area, and said base of said trough having perforations for allowing steam to pass therethrough, such that instruments stored on said instrument storage shelf, in said recessed instrument storage area, and in said trough may be sterilized.

5,207,326
BOOK HOLDER
Jose M. Benach, c/o Ganduxer, 15-1° 4a, 08021 Barcelona, Spain
Continuation of Ser. No. 712,130, Jun. 6, 1991. This application Sep. 14, 1992, Ser. No. 944,814
Claims priority, application Spain, Jun. 15, 1990, 8902966
Int. Cl.[5] A45F *5/12*
U.S. Cl. 206—424 14 Claims



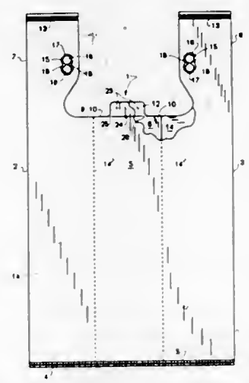
1. A book holder and books, comprising a container having a cover, a base, two side panels extending between the base and the cover and two end panels connected to the base and the side panels and also having an outer surface provided with patterns; a plurality of books accommodated in said container; means for viewing at least a portion of said books, said means for viewing including at least one slot formed in said container; and means for facilitating removal of said books from said container, said means for facilitating removal including a strip having ends and passing underneath said books and extending over an inner surface of said base between said end panels and passing between said books and said end panels from said base, said ends of said strip extending beyond said end panels; and wherein the cover includes a plurality of perforation means for dilineating a plurality of removable pieces, each of said pieces being detachable from said cover to form a bookmark for the books held in the container.

5,207,327
FOLDABLE PACKAGING CUSHION FOR PROTECTING ITEMS
Theodore A. Brondos, Santa Cruz, Calif., assignor to Maxtor Corporation, San Jose, Calif.
Continuation of Ser. No. 630,283, Dec. 19, 1990, abandoned. This application Aug. 3, 1992, Ser. No. 792,232
Int. Cl.[5] B65D *81/02*
U.S. Cl. 206—523 13 Claims



1. An apparatus for completely enclosing and packaging an item, said apparatus having a single sheet of material, said single sheet of material comprising opposed ends and opposed sides, and a top and a bottom, the distance between said top and bottom being approximately equal to the depth of said item, the distance between said ends being greater than the distance between said opposed sides, said single sheet of material further comprising:
a. two first cuts from the top of said sheet of material in a central portion of the sheet of material aligned parallel with said opposed ends, said first cuts being partially through the depth of the material to create first hinges parallel with said opposed ends, said first hinges attaching first members to said sheet of material and allowing said first members to rotate to a first position on the bottom side of said material, said first position of said first members creating a first pad on a bottom side of said item;
b. a void created in the central portion of the sheet of material caused by the rotation of said first members to the first position, said void allowing the insertion of the item such that the remaining portion of the sheet of material holds the item snugly and forms a pad around the item in the lateral directions; and
c. two pairs of second cuts from said top aligned parallel and adjacent with said opposed sides, and third cuts perpendicular to and connecting each of said pairs of second cuts, said second and third cuts creating second members at the opposed ends of the sheet of material and second hinges which allow said second members to rotate to the top side of said sheet of material creating a pad on a top side of the item when said item is inserted into said void.

5,207,328
THERMOPLASTIC BAG AND BAG PACK
Ajit K. Bose, Lawrenceville, N.J.; Daniel F. Hamman, La-Grange, Ga., and Paul L. Vest, Crestwood, Ky., assignors to Union Camp Corporation, Princeton, N.J.
Filed Dec. 23, 1991, Ser. No. 812,612
Int. Cl.[5] B65D *33/14*
U.S. Cl. 206—554 25 Claims

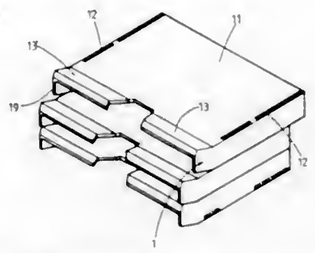


1. In a bag of thermoplastic material having opposite sides, bottom, front wall, back wall, open mouth and handles extending upwardly from said front and back walls on the opposite sides to define said mouth therebetween, each of said handles being comprised of multiple layers of said material and having aligned apertures therethrough for removably mounting said bag on a bag loading rack, the improvement wherein:
each of said apertures is defined by an S-shaped slit with the opposite ends of the slit terminating immediately adjacent an intermediate section of the slit;
each of said slits defines a two-part inner slit material bounded by said slit and outer slit material surrounding said slit; and
the two-part inner slit material is comprised of separate layers of material, the inner slit material of each layer being integrally and flexibly connected to the outer slit

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material of the same layer at two separate locations for loose interengagement with at least some of the other layers of said inner and outer slit materials.

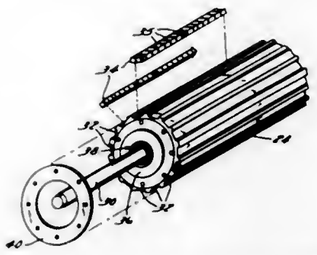
5,207,329
QUICK STACKING FILING TRAYS
Shih-Ming Hwang, No. 11, Alley 12, Lane 7, Ching Tyan Street, Taiwan, Taiwan
Filed Mar. 30, 1992, Ser. No. 860,011
Int. Cl.[5] B65D *21/02*
U.S. Cl. 206—555 3 Claims



1. A filing tray comprising:
a substantially rectangular main body having a top surface and a bottom surface defining a plane, first and second longitudinally spaced ends, a front lateral side portion and a rear lateral side portion, said top surface being formed with first and second laterally spaced, elongated grooves adjacent each of said first and second longitudinally spaced ends, said bottom surface being integrally formed with a plurality of longitudinal and lateral ribs;
first and second end walls laterally from said first and second longitudinally spaced ends extending substantially perpendicular to said bottom surface, each of said first and second end walls including a lateral edge portion spaced from said bottom surface and being integrally formed with first and second, laterally spaced, upstanding rails;
a back wall extending longitudinally from said rear lateral side portion substantially perpendicular to said bottom surface, said longitudinal back wall being interconnected with said first and second lateral end walls; and
first and second longitudinally spaced side flanges extending from said front lateral side portion oblique to the plane defined by said bottom surface of said main body, said first and second side flanges being longitudinally separated by an opening, whereby the rails of the filing tray can be respectively inserted into the elongated grooves of another filing tray constructed in the same manner so as to permit a plurality of the filing trays to be stacked together.

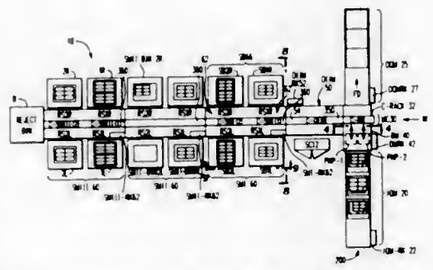
5,207,330
MAGNETIC PULLEY
Leonard E. Siesco, Jr., Fredonia, Wis., assignor to Miller Compressing Company, Milwaukee, Wis.
Filed Nov. 1, 1991, Ser. No. 786,773
Int. Cl.[5] B03C *1/00*
U.S. Cl. 209—219 5 Claims

1. A magnetic pulley comprising a hollow magnetic rotor having a plurality of axially extending notches, a number of magnets mounted in abutting relation in each of said notches on said rotor, the outer end of each alternate row of permanent magnets being of opposite polarity to the outer ends of the adjacent rows of permanent magnets, whereby the magnet fields from said alternate rows of permanent magnets to said adjacent rows of permanent magnets extend radially outwardly from said magnets, a cap on each end of said rotor for supporting said rotor on a shaft and a nonmagnetic side plate mounted on each of said end caps in abutting relation to the ends of each row of said magnets whereby said magnets in each row will be maintained in abutting relation with each other and



the magnetic flux at each end of each row of magnets is directed straight up.

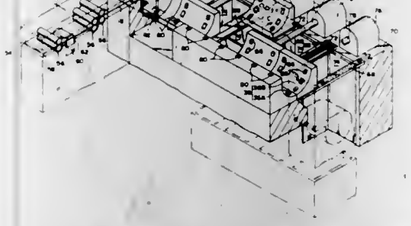
5,207,331
AUTOMATIC SYSTEM AND METHOD FOR SORTING AND STACKING REUSABLE CARTONS
Daniel J. Teegarden, Ellicott City, and Andrew J. Gorman, Jr., Reisterstown, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Aug. 28, 1991, Ser. No. 750,600
Int. Cl.[5] B07C *5/02, 5/34, 5/36*
U.S. Cl. 209—556 29 Claims



1. A system for automatically processing a supply of cartons, in flattened form, in accordance with a selectable number of plural, different and separately identifiable carton types, the supply including plural, unsorted cartons of random different types, comprising:
means for receiving unsorted cartons from the supply thereof and for transporting the received, unsorted cartons in a continuing, serial succession in a transport direction along a transport path, the transport direction thereby defining a leading edge and a trailing edge of each transported carton and said transporting means establishing and maintaining at least a minimum spacing between the trailing edge of a given carton and the leading edge of a next successive carton as received and transported thereby;
means for storing identification data respectively corresponding to the selectively designated different carton types, each carton type having respective, specific length and height dimensions and, relatively thereto, a specified and required orientation in the transport path;
means, disposed at a carton orienting position disposed along said transport path, for detecting the initial orientation of each carton, relative to the length and height dimensions thereof and as received on and transported by said receiving and transporting means, and for automatically establishing a required orientation of the carton for subsequent transport of the carton along the transport path;

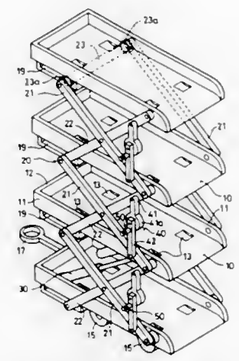
means, disposed at a carton identifying position along said transport path, for sensing identifying data from each carton and for comparing the sensed identifying data with the stored identification data to determine a match therebetween and, for each carton having such matching data, for thereby identifying the carton as a specific one of the separately identifiable carton types;
sorting means, disposed at a sorting position subsequent to said first and second positions along said transport path, for sorting said identified cartons by type and including respectively associated routing and stacking means, said routing means being selectively operable for routing a carton from the serial succession thereof being transported along the transport path and into, and for receipt by, the associated stacking means and the associated stacking means being selectively operable for stacking the received cartons in successive, plural carton layers;
means for selectively designating each stacking means in accordance with a respective and separately identifiable carton type to be received therein and stacked thereby; and
control means, responsive to said carton type designations of said selectively designating means, for tracking the identified cartons of the serial succession thereof during transport thereof along the transport path and for selectively actuating the associated routing means of a stacking means designated to receive a carton of a given, identifiable carton type, when an identified carton of that given type is at the corresponding sorting position in the transport path, to route the carton from the transport path into, and for receipt by, the associated stacking means.

5,207,332
APPARATUS FOR CLASSIFYING PHOTOGRAPHIC FILMS
Katsuhiko Tanaka, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Sep. 24, 1991, Ser. No. 764,740
Claims priority, application Japan, Oct. 4, 1990, 2-267047
Int. Cl.[5] B07C *5/344, 5/36*
U.S. Cl. 209—569 20 Claims



1. Apparatus for classifying photographic films in which cartridges are classified according to a customer's order information, each cartridge storing a photographic film provided with a recording portion on which the customer's order information is magnetically recorded, said apparatus comprising:
a plurality of classifying portions;
a driving means, for driving said photographic film, which delivers said photographic film out of a corresponding said cartridge;
a read means for reading said order information from said recording portion of the delivered photographic film, said driving means being operative for winding and storing said delivered photographic film into said cartridge after said order information is read by said read means;
a selector means for selecting one of said plurality of classifying portions based on said order information read by said read means; and
a transfer means for transferring said cartridge in a predetermined direction into the selected classifying portion.

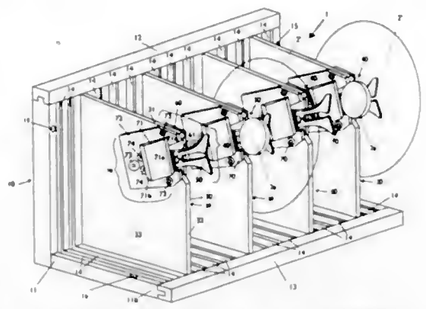
5,207,333
MULTI-STORIED PARKING/DISPLAYING RACK
Luke S. Peng, 7F, No. 32, hsin-yi Rd., Sec. 6, Taipei, Taiwan
Filed Jul. 17, 1990, Ser. No. 553,312
Int. Cl.[5] A47F *7/00*
U.S. Cl. 211—13 8 Claims



1. A collapsible multi-storied parking and/or displaying rack comprising:
at least two vertically spaced parking/displaying members each of which includes a first end, two opposite sides and a second end;
at least one vertically moving mechanism mounted between said two parking/displaying members for moving in parallel said two members apart from or toward each other; and
at least one positioning mechanism mounted on said moving mechanism and capable of maintaining said two members in a vertically spaced relationship, said positioning mechanism including a first piece having a first end pivotally fixed to a first point of said moving mechanism and a second end having a positioning hole, a second piece connected to said first piece having a first end pivotally fixed to a second point of said moving mechanism, an intermediate positioning hole on said second piece capable of being aligned with said positioning hole of said first piece, and a second end of said second piece being pivotally connected to said second end of said first piece; and
a positioning pin device capable of being inserted into said positioning holes of said first and second pieces;
wherein said moving mechanism includes:
an oil cylinder enabling said two members to be moved apart from or toward each other,
a pair of first linking pieces respectively disposed on said two sides of said each member and each of which includes a first end pivotally and slidably attached to an upper one of said members near said first end of said upper member, and a second end pivotally fixed to a most adjacent lower one of said members near said second end of said adjacent lower member; and
a pair of second linking pieces respectively disposed on said two sides of said each member and each of which includes a first end pivotally and slidably attached to said adjacent lower member near said first end of said lower member, and a second end pivotally fixed to said upper member near said second end of said upper member.

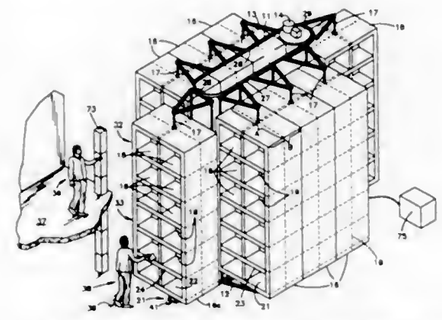
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,334
POT LID ORGANIZER AND STORAGE DEVICE
John E. Lear, 624 Sharon Ct., Woodbridge, N.J. 07095
Filed Sep. 26, 1991, Ser. No. 766,139
Int. Cl.[5] A47G *19/08*
U.S. Cl. 211—41 16 Claims



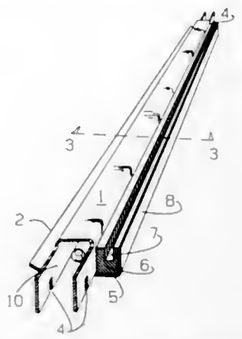
1. A pot lid organizer and storage device comprising
a base member including an elongated central body having an L-shaped lateral cross section, and first and second locking bars selectively and respectively attachable to a vertical leg of said central body and a horizontal leg of said central body, said central body having a series of lateral slots formed therein; and
a pot lid holder module selectively receivable in a lateral slot of said base member.

5,207,335
CAROUSEL CONVEYOR WITH ROTATABLE STORAGE RACKS
Dale Voelz, St. Charles, Ill., assignor to White Consolidated Industries, Inc., Cleveland, Ohio
Filed May 29, 1992, Ser. No. 889,811
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—122 18 Claims



1 An article storage and access system comprising a plurality of storage units for storing a plurality of different articles, each unit providing at least first and second sides with a first storage portion accessible from said first side and a second storage portion accessible from said second side, a transporter supporting said units for movement from a storage zone to an access location, said transporter supporting said units at said access location for rotation, said storage units at said access location being rotatable to a first operated position to position said first side for access to said first portion and being rotatable to a second operated position to position a second side for access to said second portion.

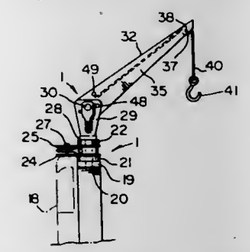
5,207,336
SUPPORT BAR FOR STORAGE RACK
Thomas C. Tyler, Hopkins, Minn., assignor to Core Technologies, Inc., Minneapolis, Minn.
Filed May 20, 1992, Ser. No. 886,430
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—183 1 Claim



1. A support bar of unitary construction for use in a rack storage system for storing either tape reels or multipacks containing a plurality of cartridges, the multipacks including first and second flanges on opposite sides of the open end thereof, wherein the bars are used in pairs and each supported parallel to the ground with one positioned above and in parallel with the other, the one being spaced apart from the other a predetermined distance generally corresponding to the diameter of a tape reel and the height of a multi-pack, comprising, as oriented in its operative position:
a first downwardly facing u-shaped channel forming two sidewalls each having a lower edge at the open side of the first channel;
a second upwardly facing u-shaped channel facing the opposite direction of the first channel, and formed as an extension of the lower edge of one of the sidewalls so that the two channels form an s-shape;
a low friction material disposed in the second channel, the material having a channel formed therein;
a flange formed as an extension of the lower edge of the other of the sidewalls, the flange extending upwardly away from the lower edge; and
whereby the flange provides an edge to hang tape reels from, and the multipacks can be mounted in the rack by placing a first one of their flanges in the channel formed in low friction material, with the other flange resting inside the downwardly facing channel with the multipack in a tipped-back position, the channel of the low friction material allowing the multipacks to be slid freely back and forth along the length of the bars.

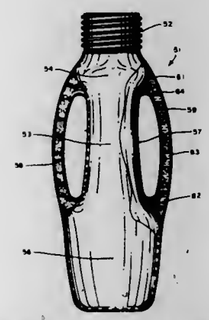
5,207,337
SWING CONTROLLED CRANE
Navarre A. Massey, Box 1299 Spring Point Rd., Fort Macleod, Alberta T0L 0Z0, Canada
Filed Sep. 21, 1992, Ser. No. 948,246
Int. Cl.[5] B66C *23/18*
U.S. Cl. 212—249 5 Claims

1. A portable crane comprising bracket means; post means carrying said bracket means for rotatably mounting the bracket means on a support; boom means on said bracket means; spool means rotatable in said bracket means for carrying a cable; first slack adjuster means on said post means for rotating the post means and consequently the bracket means and boom means between use and non-use positions; and second slack adjuster



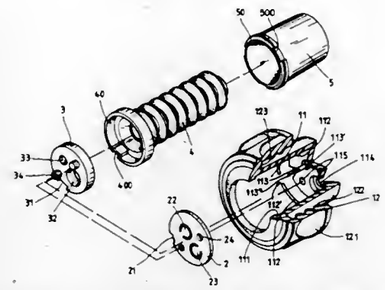
means for rotating said spool means to wind the cable on said spool means.

5,207,338
INFANT NURSING BOTTLE
Rajdeep S. Sandhu, 1540 Maurice La., #49, San Jose, Calif. 95129
Filed Mar. 4, 1992, Ser. No. 847,605
Int. Cl.[5] A61J *9/00*; B65D *23/10*
U.S. Cl. 215—11.1 4 Claims



1. An infant nursing bottle having a predetermined maximum volumetric capacity adapted to contain liquid nourishment for an infant and adapted to detachably receive a nipple assembly thereon through which an infant may draw liquid nourishment from the bottle, said bottle comprising:
a) an elongated hollow body having side walls symmetrical about a longitudinal axis and having a hollow closed end portion, a hollow open end portion, means for connecting said hollow open end portion with said nipple assembly, and a hollow central portion intermediate said hollow closed and open end portions and communicating therebetween; and
b) a pair of handles molded unitarily in one piece with said bottle, said handles each merging at a first end with said hollow open end portion and side wall, and merging at a second end with said hollow closed end portion and a side wall, and said handles, intermediate their ends, spaced from diametrically opposite side walls of said hollow central portion to provide openings between said handles and the associated side walls of the hollow central portion through which openings an infant may insert its fingers to grasp said handles to hold said nursing bottle in feeding position;
c) said handles possessing hollow interiors sealed from the hollow interior of said elongated hollow body and therefore do not contribute to the volumetric capacity of said hollow body.

5,207,339
BOTTLE CAP ASSEMBLY
Wen-Ben Shyu, 2F, No. 331, Sec. 2, Ne Hu Rd., Taipei, Taiwan
Filed May 8, 1992, Ser. No. 880,372
Int. Cl.[5] B65D *51/16*
U.S. Cl. 215—228 1 Claim



1. A bottled cap assembly for a soda water container having an open top with at least one outer thread surrounding said opening comprising:
a body, said body comprised of a hollow cylinder having an open and a closed end covered with an outer shell, said hollow cylinder having an inward circular flange surrounding the inside surface adjacent the open end thereof, a locating flange surrounding said inside surface adjacent the closed end thereof, an elongated groove on an inside surface of said closed bottom end, said elongated groove having one end formed into a circular recess and an opposite end formed into a triangular sector, an outlet hole formed through said closed bottom end, and two opposite locating holes on the inside surface of said closed bottom end, said outer shell having a plurality of raised portions around the outside surface thereof for comfortable and positive grip, an inner thread spaced from said outside surface of said hollow cylinder and a recessed locating groove, said inner thread being adapted to engage an outer thread on a soda water container to be sealed, said recessed locating groove being adapted to receive the top opening and thread of the soda water container to be sealed;
a valve seat received in said hollow cylinder and retained between said locating flange and the closed end thereof, said valve seat having two holes in alignment with the two opposite locating holes on the closed end of said hollow cylinder, an intake check valve adapted to seal the elongated groove on the closed bottom and of said hollow cylinder, and outlet check valve to seal the outlet hole on the closed bottom end of said hollow cylinder, and a side notch aligned with said triangular sector of said groove;
an upper division board received in said hollow cylinder between said locating flange and said valve seat, said upper division board having two bottom pins respectively inserted through the two holes on said valve seat and into the two opposite location holes in the closed end of said hollow cylinder, an intake hole aligned with said intake check valve and an outlet hole aligned with said outlet check valve, and a side notch aligned with the side notch on said valve seat;
a bellows received in said hollow cylinder, said bellows having an expanded circular bottom flange, which receives said upper division board and is disposed between said locating flange and valve seat, said expanded circular bottom flange of said bellows having a recessed portion received in the inside notch on said upper board;
a cap slidably secured in the open end of said hollow cylinder and receiving said bellows, said cap having a circular flange retained by the inward circular flange adjacent the

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open end of said hollow cylinder, the circular flange of said press cap having spaced air holes therethrough;

whereby pressing said cap causes an outside current of air to be compressed into the soda water container onto which the cap assembly is seated, so as to prohibit the soda water, which is contained in said soda water container, from releasing carbon dioxide.

5,207,340

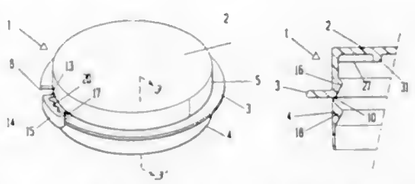
SNAP-ON CLOSURE WITH DISCONTINUOUS ANNULAR LIP

Benjamin A. Cochrane, P.O. Box 835, Danville, Calif. 94526

Continuation-in-part of Ser. No. 368,250, Jun. 19, 1989, abandoned, which is a continuation of Ser. No. 335,767, Apr. 10, 1989, Pat. No. 4,951,830, which is a continuation-in-part of Ser. No. 947,043, Dec. 29, 1986, Pat. No. 4,819,906, which is a continuation-in-part of Ser. No. 709,534, Mar. 8, 1985, Pat. No. 4,632,265, which is a continuation-in-part of Ser. No. 507,342, Jun. 24, 1983, abandoned. This application May 17, 1991, Ser. No. 702,064

Int. Cl.[5] **B65D** *41/32*

U.S. Cl. 215—256 **13 Claims**



1. In a snap on closure to be received over the neck of a bottle, and having a body formed by a top disc and a downwardly dependent cylindrical peripheral skirt, at least one annular bead on the inner wall of said skirt and sealing means on the undersurface of said disc for engagement against the neck of said bottle received in said closure, the improvement comprising:

a. an annular lip integral with said body, of a greater diameter than said cylindrical skirt and extending exteriorly about said skirt, and located beneath said top disc, intermediate the height of said skirt;

b. at least one score line extending circumferentially about said skirt, beneath said annular lip, to provide a weakened tear line in said skirt to form a tear line permitting complete severing of the closure into a top reclosure portion and a lower portion;

c. a tab having a leg portion extending from said skirt beneath said score line and projecting outwardly from said skirt, and an arcuate trailing portion having a diameter substantial the same as the diameter of said annular lip, and located immediately beneath said score line; and

d. a single discontinuous area in said lip located only in the area immediately above said tear tab.

5,207,341

TAMPER EVIDENT WIDE MOUTH CONTAINER AND LID

Don F. Yeager, 2532 Brentwood Cir., Lenoir, N.C. 28645

Filed Apr. 30, 1992, Ser. No. 876,158

Int. Cl.[5] **B65D** *41/04*

U.S. Cl. 215—334 **7 Claims**

1. A bottle for packaging beverages for individual use, comprising:

a wide mouth container;

a closure lid;

said container and said closure lid having corresponding fastening means for opening and closing said container;

said container having a neck with a circular opening;

said neck having a first outer wall extending up vertically from said container over a length to a rim curving inward into said circular opening from an upper end of said first outer wall;

said closure lid having a top, an inner skirt and an outer skirt;

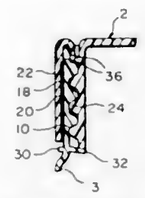
said inner skirt and said outer skirt being concentric;

said outer skirt having a first inner wall extending down vertically from said top substantially over a length equal to said length of said first outer wall of said neck;

said corresponding fastening means respectively located on a second inner wall of said circular opening of said neck and on a second outer wall of said inner skirt;

an outer diameter of said neck being the same and substantially equal to an inner diameter of said outer skirt over said length of said first inner wall of said outer skirt;

wherein said first inner wall of said outer skirt covers and protects said first outer wall of said neck when said closure lid is fastened to said container from the environment



outside the bottle and said first outer wall of said neck provides a smooth drinking surface;

a first sealing means located on said neck near a juncture between said neck and said container for increasing sealing contact between said closure lid and said container;

a second and third sealing means located near a juncture between said inner skirt and said outer skirt for further increasing sealing contact between said closure lid and said container;

said first sealing means comprising a first resilient integral flange formed below said fastening means on said second inner wall of said circular opening of said neck, said first resilient integral flange frictionally engaged to said inner skirt when said bottle is closed; and

said second and third sealing means comprising a free end of said neck frictionally engaged between said first inner wall and said second outer wall when said bottle is closed.

5,207,342

HOUSING FOR ELECTRONIC DEVICE

Kiyoaki Tsuji, and Hitoshi Saito, both of Kanagawa, Japan, assignors to Sony Corporation, Japan

Filed Jul. 17, 1992, Ser. No. 913,937

Claims priority, application Japan, Jul. 25, 1991, 3-186354

Int. Cl.[5] **B65D** *6/00*

U.S. Cl. 220—4.02 **6 Claims**

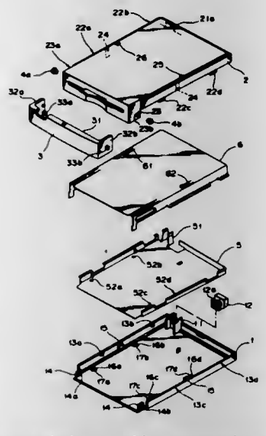
1. A housing for accommodating a device therein, comprising:

a first cabinet having a pair of spaced side walls and a pair of spaced ends, at least a pair of first engaging teeth attached to the side walls, respectively, and a pair of spaced lugs mounted on respective side edges of said spaced ends thereof, said lugs having respective holes defined therein;

a second cabinet having a pair of spaced side and a pair of spaced ends walls at least a pair of second engaging teeth attached to the side walls, respectively, and a pair of spaced side flaps mounted on respective side edges of said spaced ends thereof, said side flaps having respective holes defined therein;

said first and second cabinets being superposed on each other with said first engaging teeth slidingly engaging said second engaging teeth, respectively, said holes in the lugs being held in registry with said holes in the side flaps, respectively;

a pair of bushings inserted in said holes in the lugs and said holes in the side flaps; and



a door flap angularly movably supported on said first and second cabinets by said bushings.

5,207,343

PRESENT INVENTION REFERS TO A NEW SYSTEM OF MODULAR KNOCK-DOWN PACKAGING

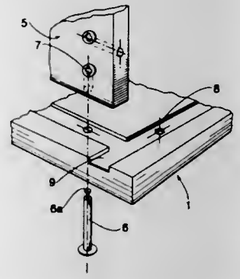
Cesar Bogadi, 301 W. 110th St., New York, N.Y. 10026

Filed Jul. 22, 1991, Ser. No. 734,212

Claims priority, application Spain, May 29, 1991, 9101300

Int. Cl.[5] **B65D** *7/24*

U.S. Cl. 220—4.28 **24 Claims**



1. An improved system of knock-down packing, comprising a plurality of modular components, each of said components made of rectangular panels, each panel joinable to one or more of said panels, which said panels each include assembly channel means and padded locking joining means in said panels, said padded joining means being disposed within said channel means, said padded joining means sealing a plurality of said panels together at straight joints thereof; means for maintaining said panel components stable, said means including connectors, said connectors comprising a rod, acting as male part, and a circular part incorporated in each of said panels, each of said circular parts, acting as a female part, said female part being pivotable a half-turn between a functional position, and a nonfunctional position for facilitating the disassembly of said panels comprising packing boxes of a straight rectangular prism configuration, said boxes including one or more upper top panels and one or more lower base panels, a plurality of lateral longitudinal panels and one or more front and back panels.

5,207,344

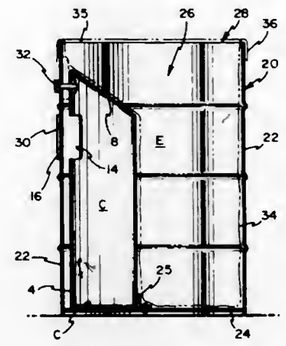
TRASH AND CONTAINER WASTE RECEPTACLE

John C. Davies, 1166 East 12 Avenue, Vancouver, B.C. V5T 2J9, Canada, and Henry J. Davies, RR 1, Bowen Island, B.C., V0N 1G0, Canada

Continuation-in-part of Ser. No. 585,514, Sep. 20, 1990, abandoned. This application Sep. 16, 1991, Ser. No. 760,325

Int. Cl.[5] **B65D** *21/02*

U.S. Cl. 220—23.83 **13 Claims**



1. A trash receptacle comprising:

a) a segregated trash receiving unit;

b) said trash receiving unit including a front wall, rear wall, first end and second end;

c) said front wall and rear wall each having upper, lower, left and right side edges;

d) said front wall having a generally convex surface curved about a substantially vertical axis;

e) said rear wall having a generally planar surface;

f) said front wall left side edge being connected to said rear wall left side edge;

g) said front wall right side edge being connected to said rear wall right side edge;

h) one of said first and second ends extending from one of said upper and lower front wall edges to the corresponding other of said upper and lower rear wall edges;

i) the other of said first and second ends extending from the other of said upper and lower front wall edges to its corresponding other of said upper and lower rear wall edges;

j) said front wall including a waste opening;

k) an exterior housing surrounding said segregated trash receiving unit;

l) said exterior housing including a side and a bottom defining inner and outer surfaces, a receiving area with a top opening thereto and a segregated waste opening extending through said side;

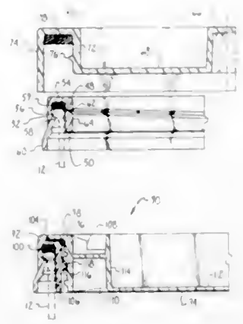
m) said trash receiving unit front wall substantially conforming to at least a portion of said exterior housing side inner surface; said trash receiving unit front wall waste opening having a greater size than said exterior housing segregated waste opening,

n) said exterior housing segregated waste opening being centrally aligned with said trash receiving unit front wall waste opening; and

o) said exterior housing cooperating with said trash receiving unit to provide a first area to receive said trash receiving unit and a second area whereby said second area defining a general waste material receiving area and said trash receiving unit receiving a separate segregated waste through both said aligned exterior housing segregated waste opening and said trash receiving unit front wall waste opening.

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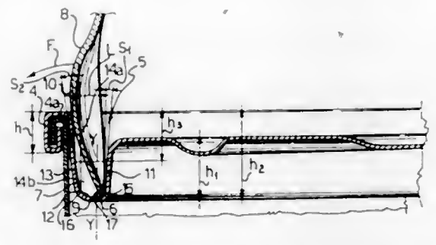
5,207,345
LID ADAPTER FOR BUCKET
Gene L. Stewart, 4335 Niagra Ave., San Diego, Calif. 92107, and Gary S. Breed, 15220 Segovia Ct., San Diego, Calif. 92129
Filed Jul. 10, 1992, Ser. No. 911,773
Int. Cl.[5] B65D *51/18*
U.S. Cl. 220—254 17 Claims



1. A device providing an airtight seal for a bottom, a lip and a rim defining an opening, said device comprising:
an adapter comprising an inner skirt, an outer skirt, and a crown portion connecting said skirts, said skirts and said crown portion defining a recess for releasably engaging said rim of said bucket, said adapter defining an opening substantially as large as said opening of said bucket, said outer skirt forming an outwardly extending portion, said outwardly extending portion allowing entry between said bucket and said outwardly extending portion to facilitate removal of said adapter from said bucket, said outer skirt forming an inner ridge engageable with said lip of said bucket to prevent unintentional disengagement of said adapter from said bucket;
a lid threadably attachable to said inner skirt, said lid establishing a closed configuration for said device when said lid is attached to said inner skirt, said lid comprising a handle portion, a main portion and a substantially L-shaped annulus, said annulus having an inner side and an outer side, said inner side being fixedly attached to said main portion, said outer side of said annulus having threads formed therein; and
a first airtight sealing member between said adapter and said lid.

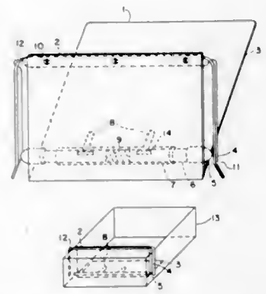
5,207,346
EASY-OPENING CLOSURE FOR THE SHEET METAL LIDS OF CANS AND THE LIKE
Egidio Tiveron, Silea - Treviso, Italy, assignor to Quarker, Chiari & Forti S.p.A., Parma, Italy
Continuation of Ser. No. 410,485, Sep. 21, 1989, Pat. No. 5,048,713. This application Oct. 23, 1990, Ser. No. 605,980
Int. Cl.[5] B65D *17/42*
U.S. Cl. 220—277 9 Claims

1. A sheet metal closure secured by a seam (4) to a container body for a can having an axis (x), the closure comprising: a lid (3) having a circular peripheral groove (7) therein extending around the axis, the groove having a substantially U-shaped cross-sectional configuration with an annular inboard wall (11), a flat bottom (12), and an annular outboard wall (13) located next to the seam, the groove containing a circular line of weakening (6) and intended for engagement by a teaspoon in order to pry the can open by breaking the line of weakening, said outboard wall (13) having a cylindrical section (14a) at said seam, said cylindrical section forming a shoulder providing enhanced bearing for the teaspoon, the line of weakening being provided on the bottom of the groove, the inboard wall of the groove being at a small finite rake angle (S1) to the axis, a first fillet formed between the inboard wall and the bottom of the groove, the first fillet having a first short fillet radius (R1) between the inboard wall and the bottom of the groove lying within the range of 0.3 to 0.4 mm, and the line of weakening being provided at a predetermined short distance (d) from the inboard wall of the groove, said short distance lying within the range of 0.35 to 0.55 mm, the line of weakening being embodied by a substantially V-shaped nick (17) formed in the sheet metal of the lid from an outboard face (18) thereof to leave a bridging portion (19) of predetermined thickness (s) on an inboard face (20) of the lid, the nick having a cross-sectional shape configured as an isosceles trapezoid having a minor base



(a) of predetermined short length and opposed sides (22) flaring out at a predetermined short angle (A), the length of said minor base being 0.007 to 0.020 mm, and the thickness (s) of the bridging portion being 0.060 to 0.075 mm where the sheet metal is steel, and 0.100 to 0.130 mm where the sheet metal is aluminum, a second fillet having a second short radius (R2) formed between the outboard wall and the bottom of the groove, the second short radius between the outboard wall and the bottom of the groove being 0.5 to 0.7 mm, the outboard wall of the groove having a height (h2) measured from the flat bottom to the top of the seam, which is 4.10 to 5.25 mm, the groove having a width (L) measured between vertical lines through points on the outboard wall and inboard wall at the edge and the bottom, respectively, lying within the range of 1.70 to 2.30 mm.

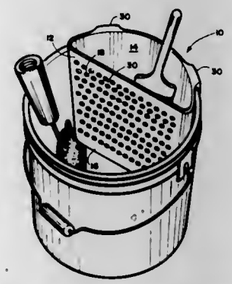
5,207,347
POSTAL TRAY ADJUSTABLE ORGANIZER
James R. Wilkey, 6328 Farris Dr., Lakeland, Fla. 33811
Filed Apr. 6, 1992, Ser. No. 864,033
Int. Cl.[5] B65D *1/24*
U.S. Cl. 220—541 5 Claims



4. An adjustable organizer for insertion into a tray comprising;
a divider member of a size for sliding movement within a tray,

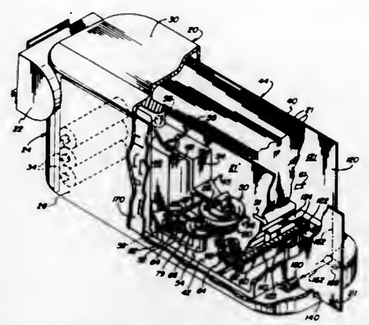
a retaining sleeve, affixed to said divider member, having an open end and a slot formed on said sleeve, an elongated shaft having a projection extending outward from said shaft, compression means for applying a force, said compression means encapsulated by said sleeve and in engagement with an end of said shaft such that said shaft is received within said sleeve and said projection extends through said slot, wherein said projection controls axial sliding movement of said shaft within said sleeve and said compression means urges said shaft beyond the open end of said sleeve to thereby fasten said divider member to a tray.

5,207,348
AUXILIARY PAINT BRUSH BUCKET
Eric S. Fischer, 818 B Ave., Coronado, Calif. 92118, and Rory T. Fischer, 568 Hana Hwy., Paia Maui, Hi. 96779
Filed Jun. 15, 1992, Ser. No. 897,945
Int. Cl.[5] B01D *35/28*
U.S. Cl. 220—697 5 Claims



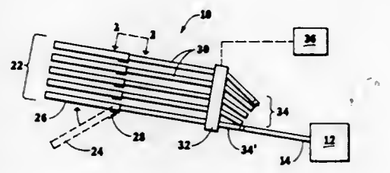
1. An auxiliary paint brush bucket having a paint roller squeeze surface, said device to be removably installed along the inner surface of a two gallon or five gallon paint bucket, said device comprising:
an upright oriented solid front wall having no holes or openings having a left edge, a right edge, a top edge, a bottom edge and a front surface;
an upright oriented solid rear wall having no holes or openings having a left edge, a right edge, a top edge and a bottom edge, said rear wall having an arcuate curvature so that its left edge is connected to the left edge of said front wall and its right edge is connected to the right edge of said front wall;
a solid bottom wall having no holes or openings having edges around its periphery that are connected to the respective bottom edges of said front wall and said rear wall to form an open top container;
means for detachably mounting said container on the top edge of the side walls of either a two gallon or five gallon paint bucket; and
means on the front surface of said front wall for pressing a paint roller thereagainst to remove excess paint comprising a plurality of raised bumps that protrude from said front wall and channels are formed between the respective bumps to provide a path for the paint to travel along when a paint roller has been pressed or rolled against the protruding bumps.

5,207,349
COUPON DISPENSER
George N. Kringel, Westport, Conn., assignor to Actmedia, Inc., Norwalk, Conn.
Division of Ser. No. 556,906, Jul. 20, 1990, Pat. No. 5,083,765. This application Nov. 14, 1991, Ser. No. 791,556
Int. Cl.[5] B65B *59/00*
U.S. Cl. 221—15 8 Claims



1. A coupon dispenser, comprising:
a housing having a coupon hopper to store a stack of coupons and a discharge slit from which dispensed coupons are presented;
coupon remover means for dispensing coupons from one side of the stack of coupons along a discharge path towards the discharge slit;
stack advancing means for moving said stack of coupons towards said coupon remover means;
motor means for actuating said coupon remover means and said stack advancing means;
a clutch interposed between the stack advancer means and the motor means for disengaging said motor means from said stack advancer means when it applies excessive pressure against said coupon remover means;
means for detecting an edge of a coupon as it is being dispensed and producing an edge signal indicative thereof; and
means responsive to the edge signal for deactivating the motor means after it has dispensed a coupon a desired distance from the discharge slit.

5,207,350
SYSTEM FOR LOADING SEMICONDUCTOR PACKAGE TESTER
Lawrence E. Spanton, San Jose, Callf., assignor to VLSI Technology, Inc., San Jose, Calif.
Filed Oct. 31, 1991, Ser. No. 786,192
Int. Cl.[5] G07F *11/12*
U.S. Cl. 221—105 13 Claims



1. An apparatus for use with a semiconductor tester which inspects a plurality of devices, said tester having an input track for accepting the devices, said apparatus loading devices onto the input track, said apparatus comprising:

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a plurality of elongated holding tracks being adapted to hold a plurality of semiconductor devices along said tracks, said plurality of semiconductor devices being contained in a plurality of tubes, with each tube adjacent to and aligned with one of said plurality of elongated holding tracks, said holding tracks including stop hinges, said stop hinges connecting and securing said tubes to said tracks;

means for loading said devices onto said holding tracks;

means for depositing the devices from the holding tracks onto the input track of the tester; and

control means for controlling said depositing means to permit the devices to move from said elongated holding tracks onto the input track of the tester.

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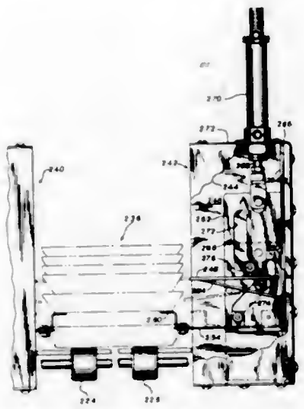
TRAY DISPENSING APPARATUS AND METHOD

Nick J. Lesar, Palmyra, Wis., assignor to Weiler and Company, Inc., Whitewater, Wis.

Division of Ser. No. 472,622, Jan. 30, 1990, abandoned. This application Sep. 13, 1991, Ser. No. 759,889

Int. Cl.[5] G07F *11/24*

U.S. Cl. 221—223 **6 Claims**



1. A mechanism for depositing an article by gravity onto a surface, comprising:

a receptacle adapted to receive a stack of said articles; and

dispensing means disposed toward the lower end of said receptacle for depositing said articles one-by-one onto a surface therebelow from the bottom of said stack of articles by allowing the lowermost article in said stack to fall onto said surface while supporting the articles above said lowermost article, said dispensing means comprising:

first movable stack supporting means movable into and out of engagement with the lowermost article in said stack;

second movable stack supporting means movable into and out of engagement with the article immediately above the lowermost article in said stack;

wherein movement of said second stack supporting means into engagement with the article above the lowermost article supports said article and the stack thereabove, and movement of said first stack supporting means out of engagement with said lowermost article allows said article to fall onto said surface by gravity, while said stack is retained by said second movable stack supporting means; and

means for assisting in the separation of the lowermost article from said stack and for forcing said lowermost article downwardly onto said surface, wherein said means for assisting is associated with said second movable stack supporting means.

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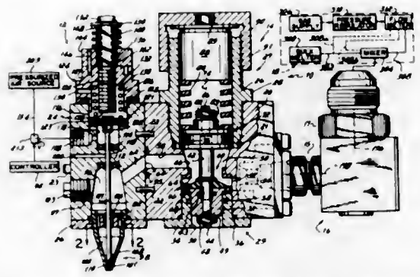
METHOD AND APPARATUS FOR DISPENSING HIGH VISCOSITY FLUID MATERIALS

George O. Porter, Amherst; Scott Hoover, Elyria, and Mihail Popesco, Fairview Park, all of Ohio, assignors to Nordson Corporation, Westlake, Ohio

Filed Apr. 19, 1991, Ser. No. 688,905

Int. Cl.[5] B67D *5/06*

U.S. Cl. 222—1 **26 Claims**



1. Apparatus for dispensing a polymer foam, comprising:

dispenser means for discharging a polymer foam;

regulator means, connected to said dispenser means, for introducing a pressurized solution of intermixed, highly viscous polymeric material and gas into said dispenser means and for maintaining the pressurized solution introduced into said dispenser means at a pressure which is slightly above the pressure at which the gas comes out of solution so that upon discharge of the pressurized solution from the dispenser means a substantially homogeneous polymer foam is formed.

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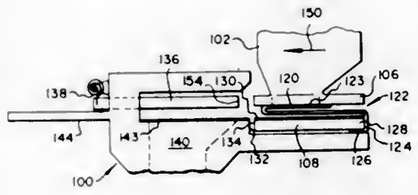
METHODS OF AND APPARATUS FOR REPLENISHING TONER IN ELECTROSTATOGRAPHIC DEVELOPMENT STATIONS

Kenneth D. Corby, and Victoria L. Decker, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 8, 1992, Ser. No. 894,977

Int. Cl.[5] G03G *15/06*

U.S. Cl. 222—1 **14 Claims**



1. Toner dispensing apparatus for dispensing toner to an electrostatic reproducing machine, the apparatus comprising:

a toner container having a mouth with a flange extending therearound;

a flexible cover covering the mouth and having a portion releasably adhered to the flange by a layer of adhesive, the flexible cover having first and second ends, the first end being fixed to the flange;

a slide cover overlying the flexible cover and being slidably received on the flange, the slide cover having first and second ends with the second end of the flexible cover being fixed to the slide cover proximate one end thereof;

a sump lid having first and second stations for receiving the toner container, the second station having an opening through which toner from the container pours, and means for engaging the slide cover to retain the slide cover at the first station when the toner container is moved to the second station, wherein the flexible cover is peeled from the flange to open the container as the toner container is moved, and

means for frictionally engaging the flexible cover to create drag thereon when the toner container is moved from the second station back to the first station wherein the flexible cover readheres to the flange covering the mouth of the container and the flange is slidably received in the slide cover.

5,207,354

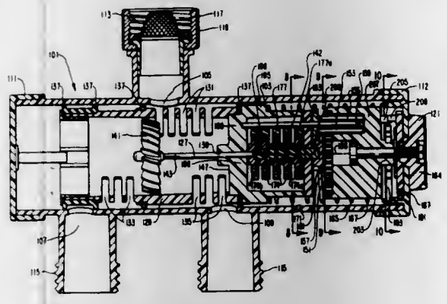
METERED FLUID VALVE WITH SWITCHABLE OUTLETS

Shih-Kai Hsu, 2059 E. 2700 South, Salt Lake City, Utah 84109, and Chih-Min Lin, 5 Fl., 20, Aly, 3, Ln. 524, Sec. 5, Taipei, Taiwan

Filed Nov. 4, 1991, Ser. No. 787,602

Int. Cl.[5] B67D *5/30*

U.S. Cl. 222—16 **15 Claims**



1. A fluid control valve comprising;

a housing having a fluid inlet, a first fluid outlet and a second fluid outlet,

a fluid switching means having a default state and an active state, which switching means in the default state directs fluid flowing through the housing from the inlet out through the first outlet and in the active state from the inlet out through the second outlet,

a pressure surface operatively connected to the switching means adapted to allow the pressure of fluid flowing through the housing to exert a force on the switching means sufficient to bias movement of the switching means from the default state to the active state,

a flat surface that is rotatable within its place with an aperture in the flat surface,

a rod operatively connected to the fluid switching means and perpendicularly aligned with the flat surface such that the aperture can be aligned with the rod upon rotation of the flat surface, such that when the aperture is not aligned the force causes the rod to bear against the flat surface to prevent the force from moving the switching means from the default state into the active state and when the aperture is aligned the force moves the rod into the aperture to allow the force to move the switching means from the default state to the active state,

a means for rotating the flat surface, such that the flat surface is rotated from an alignment where the aperture is not aligned with the rod to an alignment where the aperture is aligned with the rod after a predetermined amount of fluid has passed through the housing out through the first outlet, and

a resetting means that resets the switching means from the active state to the default state when fluid has ceased to exert sufficient pressure on the pressure surface to provide the force biasing movement toward the active state.

5,207,355

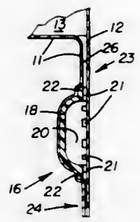
HIGH VISCOSITY PUMP SYSTEM FOR DISPENSER POUCH

Peter N. Thomsen, 100 North Hill Dr., No. 28, Brisbane, Calif. 94005

Filed Dec. 30, 1991, Ser. No. 814,763

Int. Cl.[5] B65D *35/28*

U.S. Cl. 222—95 **13 Claims**



1. A pump system in combination with a dispenser pouch comprising a pair of overlying panels defining a reservoir adapted to contain a liquid therein and a spout on a lower end of said pouch, said pump system comprising pump means entirely disposed in said spout, including a separate button-like insert having a bulbous portion disposed in a like-shaped recess defined in one of said panels of said spout, for dispensing said liquid from said pouch in response to the application of pumping pressure thereto, charging chamber means, defined within said insert for retaining a pre-measured charge of said liquid therein, inlet passage means within said spout for communicating liquid from said reservoir to automatically recharge said charging chamber means with said pre-measured charge of liquid in response to release of pumping pressure from said pump means, outlet means for dispensing said pre-measured charge of liquid from said charging chamber means in response to said application of pumping pressure to said pump means, and normally closed valve means, defined by and between said panels at said outlet means, for opening automatically in response to said application of said pumping pressure to said pump means.

5,207,356

SELF-DRAINING CONTAINER

Thomas J. Krall, Toledo, Ohio, assignor to Owens-Illinois Plastic Products Inc., Toledo, Ohio

Division of Ser. No. 533,632, Jun. 5, 1990, Pat. No. 5,114,659, which is a continuation-in-part of Ser. No. 314,312, Feb. 22, 1989, abandoned, which is a continuation of Ser. No. 160,478, Feb. 25, 1988, abandoned. This application Feb. 10, 1992, Ser. No. 834,069

Int. Cl.[5] B67D *1/16*

U.S. Cl. 222—109 **15 Claims**

1. A one-piece plastic container formed by a process in which

(a) there is formed by injection molding

(i) an upwardly extending dispensing spout;

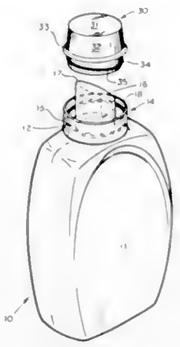
(ii) a web extending radially outwardly from the lower end of said dispensing spout; and,

(iii) a cylindrical wall spaced radially outwardly of and encircling said dispensing spout formed in situ and cooperating with said dispensing spout and said web to define a channel into which liquid draining down the outside of said dispensing spout may be captured, said cylindrical wall having a predetermined diameter determining a cross-sectional size and having integrally

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molded closure retention means on the interior surface thereof; and,

(b) there is formed by blow molding as part of the same process a body portion integral and in situ with and de-



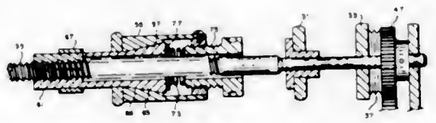
pending from the lower portion of said cylindrical wall, said body portion flaring outwardly from the lower end of said cylindrical wall to an area of enlarged cross-sectional size, means providing communication between the interior of said body portion and said channel.

5,207,357

EPOXY EJECTION GUN

Alan B. Aronie, Concord, Mass., and Joel Aronie, West Hartford, Conn., assignors to Quikpoint, Inc., Concord, Mass.

Filed Feb. 13, 1992, Ser. No. 835,295
Int. Cl.[5] B67D *5/60*
U.S. Cl. 222—134 **11 Claims**



1. Apparatus for simultaneously ejecting a pair of mixture components from respective dispensing tubes, the tubes being provided with respective plungers, said apparatus comprising:

frame means for holding a pair of dispensing tubes in side by side relationship;

a pair of parallel push rods axially slidable in said frame means and having distal portions adapted for driving the plungers of dispensing tubes held in said frame;

between said push rods and parallel thereto, a lead screw journaled in said frame;

bridge means linking the proximal ends of said push rods and providing, between the push rods, a forward facing slip clutch seat;

means for rotating said lead screw;

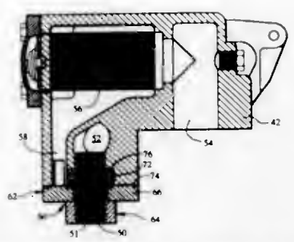
nut means for engaging said lead screw, said nut means having a rearward facing slip clutch surface adapted to frictionally engage said seat; and spring means for applying a biasing force pushing said slip clutch surface against said seat whereby rotation of said lead screw will advance said nut means with said bridge means and push rods to apply a pressure to said plungers which is controlled by the amount of said biasing force, any excessive force being operative to unload said slip clutch surface and to allow said nut means to rotate with said lead screw.

5,207,358

ISOLATION APPARATUS FOR A DISPENSER DELIVERY SYSTEM

Richard G. Bisker, Salisbury, Md., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Apr. 1, 1991, Ser. No. 677,920
Int. Cl.[5] B01D *27/10*
U.S. Cl. 222—189 **6 Claims**



1. An apparatus for isolating fuel from a fuel dispenser of a fuel dispensing system having a fuel reservoir; pump means disposed in communication with said reservoir for pumping fuel out of said reservoir; a fuel dispenser located remote from said reservoir, including fuel delivery means; conduit means connecting said pump means and delivery means in fluid communication; a filter assembly connected to said conduit means between said fuel reservoir and said fuel dispenser, wherein said conduit means is constructed and arranged so that fuel from said fuel reservoir enters an outlet, passes through said filter assembly before exiting through an inlet to said delivery means, the isolation apparatus comprises:

A. a seal member having a first seal and a second seal on a top portion of said seal member for replacing said filter assembly to block said inlet to said delivery means; and

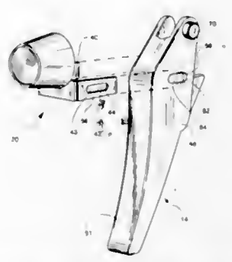
B. means for securing said seal member to said inlet of said dispenser.

5,207,359

TAMPER EVIDENT COVER FOR SPRAYER NOZZLE

Emile B. Steijns, Lierop, Netherlands, assignor to AFA Products, Inc., Forest City, N.C.

Filed Feb. 24, 1992, Ser. No. 840,764
Int. Cl.[5] B67D *5/32*
U.S. Cl. 222—383 **11 Claims**



1. A tamper evident cover assembly for a sprayer nozzle of a trigger sprayer of the type including a body, a trigger movably mounted to the body for operating a pumping mechanism upon actuation thereof and a sprayer nozzle at the front end of the body, said tamper evident cover assembly comprising:

a cover for the nozzle;

at least one flange extending rearwardly from said cover and having first coupling means thereon for coupling to the trigger,

a frangible connection between said flange and said cover, and,

second coupling means on the trigger for coupling with said first coupling means upon said flange,

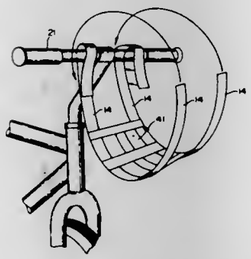
whereby actuation of the trigger will cause said cover to be pulled against the nozzle to cause tensioning and breaking of said frangible connection between said flange and said cover, such breaking of said frangible connection being evidence of tampering with the trigger sprayer.

5,207,360

TENACIOUS BALL BAG

Chod Stine, 1119 N. 20th St., Boise, Id. 83702

Filed Sep. 19, 1991, Ser. No. 762,895
Int. Cl.[5] B62J *11/00*
U.S. Cl. 224—30 A **7 Claims**



1. A device for carrying a ball, said device being adapted to be mounted to a handle bar assembly of a bicycle, said device comprising:

a symmetric network of fastened strapping adapted to substantially surround the ball, said network including a centerpiece and three cross pieces having first and second ends and centers, said cross pieces being attached at their centers to said center piece and being disposed at right angles with respect to said center piece,

two angled end pieces each of said angled end pieces having a pair of ends, a center and an angle, such that one of said angled end pieces is attached at its ends and center to the first ends of said cross piece and the other angled end piece is attached at its ends and center to the second ends of said cross pieces wherein a junction is formed at each end of said angled end piece which is connected to an end of said cross pieces, said angled end pieces being angled away from the centerpiece, and

four attachment straps, each strap having a pair of ends and being attached at one end to a junction such that an attachment strap extends from each junction, each of said attachment straps having attachment means positioned near the other end, wherein two of said attachment straps are adapted to be secured to said handlebars and the other two of said attachment straps are adapted to be secured to said two attachment straps such that said symmetric network and said end pieces form a cradle adapted for receiving said ball.

5,207,361

EASILY DETACHABLE CARRIER ATTACHMENT FOR A VEHICLE

Walter F. Slifka, P.O. Box 212, Minersville, Pa. 17954

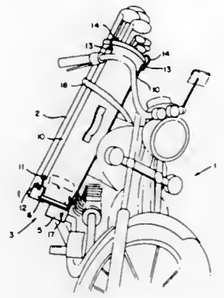
Filed Feb. 12, 1992, Ser. No. 834,079
Int. Cl.[5] B62J *9/00, 11/00*
U.S. Cl. 224—39 **16 Claims**

1. A carrier device for a vehicle comprising:

a planar support member;

an attachment element fixed to the planar support member, wherein the attachment element is adapted to detachable connect the planar support member to the vehicle without the necessity of altering the vehicle or removing parts from the vehicle, wherein the attachment element comprises a tubular member, said tubular member being adapted to ensheathe a horizontally-extending foot peg to thereby hold said planar support member to said foot peg in a generally horizontal position;

a securement element, said securement element comprising at least one flange extending from the planar support



member and a hole passing through said at least one flange;

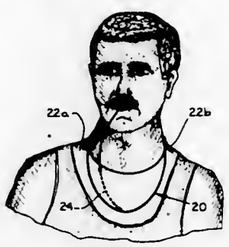
and an adjustable securement device having one end removably attachable to said securement element and having another end removably attachable to an object to be carried by said easily detachable carrier device, to thereby restrain the object against vertical movement.

5,207,362

JOGGERS AID

Ronald E. Janus, Deerfield Beach, Fla., and Dean A. Monco, Chicago, Ill., assignors to Ji-Sco-Ni Enterprises, Inc., Chicago, Ill.

Continuation of Ser. No. 850,970, Nov. 26, 1986, abandoned, which is a continuation-in-part of Ser. No. 927,159, Nov. 5, 1986, abandoned, which is a continuation of Ser. No. 798,406, Nov. 15, 1985, abandoned. This application Mar. 2, 1990, Ser. No. 487,426
The portion of the term of this patent subsequent to May 4, 2010, has been disclaimed.
Int. Cl.[5] A45F *5/00*
U.S. Cl. 224—148 **34 Claims**



1. A container for holding a carbonated or non-carbonated beverage around a user's neck so as to be disposed on or adjacent the user's upper torso, comprising:

means defining an integral, generally flat, thin, hollow, arcuate-shaped container having a pair of front and rear walls which are substantially symmetrical to one another on either side of an imaginary plane extending through the center line of said front and rear walls, said front and rear walls joined peripherally at the edges and comprised substantially of polymeric material which are substantially

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liquid and gas impermeable, with said rear wall generally contoured in a substantially flat shape for disposition adjacent the user's front;

aperture means formed on an upper arcuate-shaped portion and intermediate the end portions of said arcuate shaped container for delivering liquid through the intermediately disposed aperture means upwardly during use into the user's mouth; and

strap means for continuously securing and supporting the container around the user's neck during use.

5,207,363

LANYARD

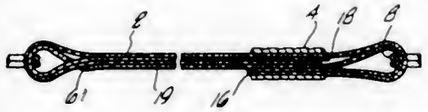
Anthony L. Duchi, Jr., Fallbrook, and Fred R. McAlister, Sr., Chino, both of Calif., assignors to MAG Instrument, Inc., Ontario, Calif.

Division of Ser. No. 436,899, Nov. 15, 1989, Pat. No. 5,052,602, which is a continuation of Ser. No. 188,369, Apr. 29, 1988, abandoned. This application Aug. 8, 1991, Ser. No. 742,050

The portion of the term of this patent subsequent to Oct. 1, 2008, has been disclaimed.

Int. Cl.[5] A45F *5/00*

U.S. Cl. 224—255 5 Claims



1. A key ring comprising

a lanyard including a hollow cord of predetermined length, a sleeve tightly positioned about said cord, a first loop at a first end of said cord defined by said cord turned back upon itself and secured with said sleeve and a second loop at a second end of said cord being defined by said cord having been turned back upon itself and inserted into said cord;

a first ring through said first loop;

a second ring through said second loop,

a miniature flashlight, one of said first and second rings being coupled to said flashlight, said predetermined length being sufficient to allow illumination by said flashlight of the other ring of said first and second rings.

5,207,364

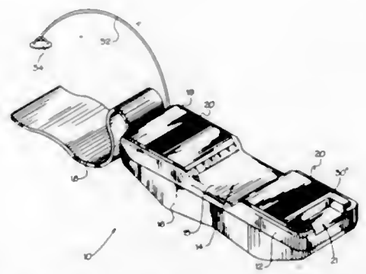
SHOULDER PROTECTION DEVICE FOR LADDER TRANSPORT

Douglas W. Johnson, 1241 Oceanview Rd., Charleston, S.C. 29412

Filed Aug. 12, 1992, Ser. No. 928,792

Int. Cl.[5] B65G *7/00*

U.S. Cl. 224—264 17 Claims



1. A shoulder protection device for mounting to a ladder having legs formed of generally U-shaped channels to provide support during shoulder supported transportation thereof, said shoulder protection device comprising a body configured for mounting insertion within the U-shaped channel, said body having a first surface for mounting contact with the U-shaped channel, a second surface projecting beyond the edges of the U-shaped channel for contact with the shoulder of a user; mounting means affixed to said first surface for releasably mounting said device within the U-shaped channel; and recess means formed in said first surface extending transversely across the width of the U-shaped channel when said device is mounted therein for mounting said device in ladders having pivoted cross-brace construction, said recess means being of sufficient depth to accommodate said cross-brace and associated hardware.

5,207,365

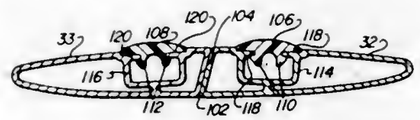
ARTICLE CARRIER

John A. Bott, 931 Lakeshore Dr., Grosse Pointe Shores, Mich. 48236

Continuation of Ser. No. 591,622, Oct. 2, 1990, abandoned, which is a division of Ser. No. 246,770, Sep. 20, 1988, Pat. No. 4,972,983. This application Oct. 1, 1991, Ser. No. 769,867

Int. Cl.[5] B60R *9/00*

U.S. Cl. 224—316 5 Claims



1. An article carrier for an automobile comprising:

a plurality of slats fixedly secured on a generally horizontally extending exterior automobile;

said slats extending generally longitudinally of the automobile;

certain of said slot having an upper article supporting surface;

said supporting surfaces being located between the body surface and the lower side of articles on said carrier;

a plurality of bracket members disposed upon said certain of said slats;

a plurality of restraining bars, each of said restraining bars extending laterally between and secured adjacent its opposite ends to a pair of said bracket members;

means on at least one of said pair of said bracket members and cooperable with one of said certain of said slats for detachably securing and longitudinally adjusting said pair of said bracket members and restraining bars along said certain of said slats;

each of said restraining bars being operable to enable a pair of said restraining bars to nest together and define an airfoil; and

each of said restraining bars including an elliptical outer end portion, upper and lower surfaces, said upper and lower surfaces terminating at a smooth, inclined planar portion, said smooth, inclined planar portions of said restraining bars being inclined at mating angles relative to each other, said mating angles being operable to enable said pair of restraining bars to nest abuttingly together to form an overall elliptical cross-sectional shape, said mating angles further forming an angle when said restraining bars are abuttingly engaged which is not perpendicular to a longitudinal plane extending between said elliptical outer end portions, said nesting abuttingly together of said inclined planar portions being operable to help prevent movement of each of said restraining bars relative to the other when said automobile is in motion.

5,207,366

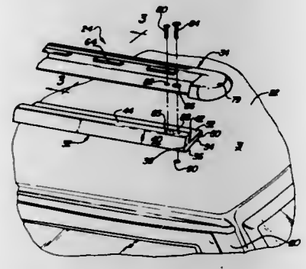
SLAT ASSEMBLY FOR VEHICLE ARTICLE CARRIERS

John S. Cucheran, Lake Orion, Mich., assignor to John A. Bott, Grosse Pointe Farms, Mich.

Continuation of Ser. No. 609,823, Nov. 6, 1990, abandoned. This application Mar. 16, 1992, Ser. No. 852,732

Int. Cl.[5] B60R *9/00*

U.S. Cl. 224—326 14 Claims



1. A vehicle article carrier adapted to be mounted to a surface portion of a vehicle, comprising:

a pair of slat assemblies each including inner and outer rail members extending generally longitudinally along the surface portion and adapted to be fixedly secured on the surface portion of the vehicle; and

a cross bar disposed perpendicular to said slat assemblies and generally parallel to said surface portion of said vehicle for supporting articles elevationally above the surface portion;

a pair of bracket members secured to opposite ends of said cross bar and adapted to be adjustably secured to said slat assemblies at a plurality of positions along said slat assemblies;

said inner and outer rail members of each slat assembly each including means for cooperating with each other in an overlapping manner to vary the transverse width of each said slat assembly to thereby enable said inner and outer rail members to form a channel of a desired width, wherein said channel accommodates one of said bracket members therein.

5,207,367

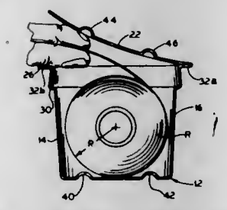
DISPENSING CONTAINER

Martin T. Dunn, Hartsville; Dennis R. Taylor, Florence, and Troy W. Johnson, Jr., Hartsville, all of S.C., assignors to Sonoco Products Company, Hartsville, S.C.

Filed Mar. 7, 1991, Ser. No. 665,675

Int. Cl.[5] B65D *13/00;* B26F *3/02*

U.S. Cl. 225—49 25 Claims



1. A dispensing container for containing a roll of sheet material and dispensing sheets from the roll comprising:

a thermoplastic container body having integrally formed front, rear, bottom and side walls and an open top;

a thermoplastic top cover flexibly connected to the rear wall of the container body and movable between an opened and a substantially closed position, the cover being resiliently biased in the substantially closed position adjacent the top of the container body such that the top cover returns from the opened position to the substantially closed position in the absence of external force for maintaining the roll of sheet material in the container body; and

cutting means integrally formed in the container body adjacent the top of the front wall and for cutting sheet material dispensed from the container.

5,207,368

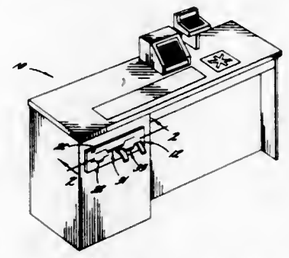
DISPENSING APPARATUS FOR PLASTIC BAGS

Harry B. Wilfong, Jr., Hartsville, and Richard A. Brown, Florence, both of S.C., assignors to Sonoco Products Company, Hartsville, S.C.

Filed Aug. 16, 1991, Ser. No. 746,316

Int. Cl.[5] B26F *3/02*

U.S. Cl. 225—106 14 Claims



1. A dispensing apparatus for serially dispensing flexible plastic bags from a wound package of bags joined along perforated severance lines, and comprising

a panel,

at least one elongate dispensing slot extending through said panel, said slot including relatively narrow outer end portions and a central slot portion extending between said outer end portions, said central slot portion having a medial portion relatively wider than said outer end portions and defining a thread-up opening through said panel, said medial portion of said central slot portion being laterally offset from said outer end portions and defining a laterally extending tongue between said outer end portions for separating the serially joined bags.

5,207,369

INNER LEAD BONDING APPARATUS

Hiroshi Haji, Kasuga, and Kiyoshi Arita, Fukuoka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 20, 1991, Ser. No. 795,218

Claims priority, application Japan, Nov. 29, 1990, 2-333918; Feb. 13, 1991, 3-19803

Int. Cl.[5] H01L *21/60;* B23K *101/40*

U.S. Cl. 228—4.5 6 Claims

1. An inner lead bonding apparatus, comprising:

a feeding reel, having a film carrier wound thereon:

a coiling reel for coiling the film carrier, said film carrier having leads thereon:

pitch feeding means for pitch-feeding the film carrier;

a horn driven by a fist X-Y table to move above the film carrier in the X-Y directions;

a capillary tool replaceably and selectively mounted to the horn;

wire feeding means for feeding a wire to the capillary tool;

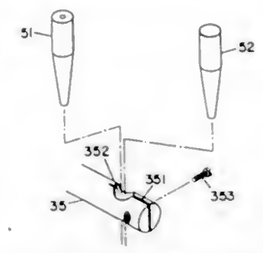
a pressing tool replaceably and selectively mounted to the horn;

a chip feeding unit;

a pickup head for mounting chips furnished on the chip feeding unit to a chip stage; and

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a moving table for moving the chip stage; whereby said capillary tool forms bumps on said chips, and subsequently



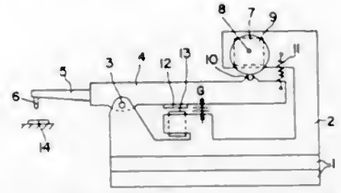
said pressing tool presses said film carrier leads to said bumps thereby bonding the chip to the film carrier.

5,207,370

WIRE BONDING METHOD AND APPARATUS

Tooru Mochida; Yoshimitsu Terakado, and Akihiro Hirayanagi, all of Tokyo, Japan, assignors to Kabushiki Kaisha Shinkawa, Tokyo, Japan

Filed May 29, 1992, Ser. No. 890,953
Claims priority, application Japan, May 29, 1991, 3-153916
Int. Cl.[5] H01L *21/607*
U.S. Cl. 228—102 8 Claims



1. A wire bonding method in which an arm holder that has a capillary is moved up and down so that a bonding wire which passes through said capillary is bonded to a bonding surface, said method comprising (a) successively detecting a displacement of said arm holder in said up and down movement by a linear sensor, (b) determining whether a change in output data supplied from said linear sensor based upon said detected displacement in a predetermined read-in range are within a predetermined permissible range or not, so that if said change is within said predetermined permissible range, said capillary is judged to have contacted said a bonding surface.

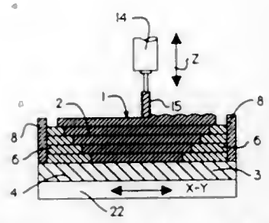
5,207,371

METHOD AND APPARATUS FOR FABRICATION OF THREE-DIMENSIONAL METAL ARTICLES BY WELD DEPOSITION

Fritz B. Prinz, 5801 Northumberland St., and Lee E. Weiss, 6558 Darlington Rd., both of Pittsburgh, Pa. 15217

Filed Jul. 29, 1991, Ser. No. 737,229
The portion of the term of this patent subsequent to Jun. 30, 2009, has been disclaimed.
Int. Cl.[5] B23K *28/02;* B23P *15/00*
U.S. Cl. 228—125 21 Claims

1. A method for fabrication of a three dimensional metal article comprising the steps of
a) positioning a substrate in a work area;
b) welding successive layers of metal onto the substrate each layer corresponding to a cross section through the article;
c) placing successive layers of a complementary material so that the complementary material is adjacent to each layer of metal;



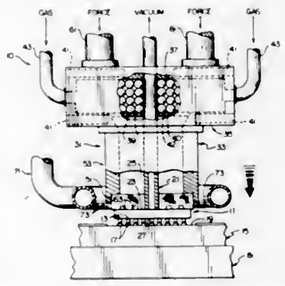
d) removing the complementary material; and
e) removing the substrate.

5,207,372

METHOD FOR SOLDERING A SEMICONDUCTOR DEVICE TO A CIRCUITIZED SUBSTRATE

Joseph Funari, Vestal, and Ronald J. Moore, Binghamton, both of N.Y., assignors to International Business Machines, Armonk, N.Y.

Filed Sep. 23, 1991, Ser. No. 763,734
Int. Cl.[5] B23K *31/00;* H05K *3/00*
U.S. Cl. 228—180.2 17 Claims



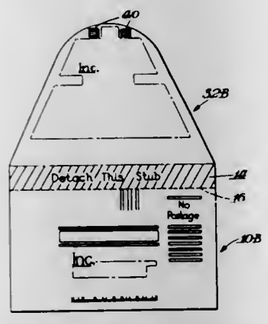
1. A method of soldering a semiconductor device having a plurality of solder elements located along a first surface thereof to a substrate having a plurality of circuit members thereon, said method comprising:
aligning said semiconductor device relative to said substrate such that selected ones of said solder elements are aligned with respective ones of said circuit members on said substrate;
engaging a second surface of said semiconductor device to apply force onto said second surface sufficient to cause said selected solder elements to engage said aligned respective circuit elements; applying heat directly onto only said second surface of said semiconductor device, said semiconductor device conducting said heat to said selected solder elements, said solder elements heated by primarily conductor heat during said application of force to cause at least partial reflow of said selected solder elements engaging said respective circuit elements;
cooling said selected solder elements to cause at least partial solidification thereof during said application of said force; and
removing said force from said semiconductor device.

5,207,373

REMAILABLE POSTCARD CARD

John F. Tighe, Rabbit Hill, Drawer 1086, Truro, Mass. 02666

Continuation-in-part of Ser. No. 701,797, May 17, 1991, Pat. No. 5,118,031. This application May 28, 1992, Ser. No. 889,855
Int. Cl.[5] B65D *27/06;* B42D *15/04*
U.S. Cl. 229—92.8 12 Claims



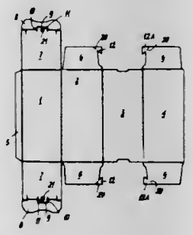
1. A remailable postcard having a front side and a back side, said front side including outbound postage indicia in one corner thereof, a detachable strip along an edge of said card, said outbound postage indicia being located at least partially on said detachable strip, an original recipient's address on said front side, at least a portion of one of said front side and said back side containing information directed to the original recipient, said back side of said card containing postage indicia along a portion of said card distinct from said detachable strip, a portion of said back side including the sender's address, and a removable flap secured to said detachable strip and at least partially covering said sender's address and at least partially covering said postage indicia whereby said card may be remailed by removing said flap and said detachable strip.

5,207,374

BOX WITH A BREAKABLE SEAL WHICH IS BROKEN AS THE BOX IS OPENED

Carmelo Lo Duca, Milan, Italy, assignor to GI.BI.EFFE S.r.L., Milan, Italy

Filed Jun. 18, 1992, Ser. No. 900,730
Claims priority, application Italy, Jun. 21, 1991, 001708 A/91
Int. Cl.[5] B65D *5/42, 5/54*
U.S. Cl. 229—102 5 Claims



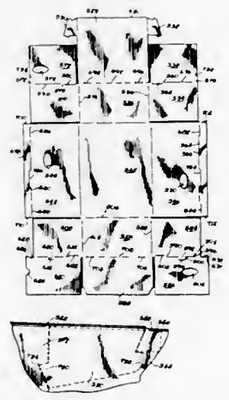
1. A box comprising:
at least three adjoining main panels defining a box body and separated from each other by first folding lines formed on a die cut flexible material sheet;
at least one closure panel for said box, said closure panel projecting from one of said main panels and including a tongue which projects from said closure panel, said closure panel being separated from said tongue and from said one main panel by second folding lines, such that said tongue can be introduced into said box under at least a second one of said main panels;
at least one elongated window provided through said tongue, said elongated window being defined by a substantially C-shaped cut made through said tongue, a central proton of said C-shaped cut being substantially parallel to one of said second folding lines which separates said tongue from said closure panel, said cut having two end portions which are slanted with respect to said central potion thereof and extend at least up to said one of said second folding lines for defining a lug projecting from said closure panel and coplanar therewith;
at least one rotary flap projecting from at least a third one of said main panels, said rotary flap being adapted to turn about a third folding line which is between said flap and said third one of said main panels and being further adapted to be arranged under said closure panel; and
at least one hook shaped tooth projecting from said flap, said hook shaped tooth having a side which faces said third folding line and is slanted such that said tooth has a free end portion with a largest width, said largest width of said tooth being smaller than a length of said window for permitting the tooth to extend through and project from said window when said closure panel is closed;
wherein:
at least a hole is formed though said lug of said closure panel, said hole being arranged above said tooth when said closure panel is closed; and
a preset breakage line is formed on said flap for facilitating a separation of said tooth from said flap.

5,207,375

CONTAINER MADE FROM ONE-PIECE BLANK

Jack A. McClure, Garden City, Kans., assignor to Inland Container Corporation, Indianapolis, Ind.

Continuation-in-part of Ser. No. 615,703, Nov. 20, 1990. This application Mar. 31, 1992, Ser. No. 861,424
Int. Cl.[5] B65D *5/22*
U.S. Cl. 229—151 14 Claims



1. Carton apparatus formed from a one-piece blank, comprising:
a floor;
a first panel;
a plurality of wall members coupled end-to-end, at least one wall member comprising a wall panel having a generally planar portion with a side edge extending between a pair of said wall members and the wall panel hingedly connected to the first panel along a wall-panel-fold-line;
a lid panel;
a locking flap comprising a stem portion depending from the

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lid panel and at least one ear member spaced from the lid panel and laterally extending from the stem portion, the ear member including a locking-flap-locking-edge generally facing toward the lid panel;

hinge means hingedly connecting the lid panel to one of the wall members so as to mount the lid panel for movement toward and away from the wall-panel-fold-line to thereby move the locking flap toward and away from the wall panel;

a retention tab having a free corner, struck out from the wall panel with cut line so as to be hingedly joined thereto and so as to have a retention-tab-locking-edge adjacent the free corner, a portion of the retention tab which includes at least the free corner being biased by folding of the first panel about the wall-panel-fold-line, for movement away from the plane of the wall panel planar portion to bring the retention-tab-locking-edge away from the wall panel for engagement with the locking-flap-locking-edge; and

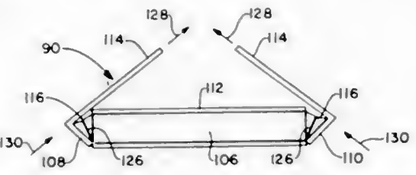
the locking-flap-locking-edge moved into engagement with the retention-tab-locking-edge as the lid panel is moved toward the wall-panel-fold-line.

5,207,376

FOLDABLE CONTAINER AND METHOD FOR MAKING THE SAME

Laura L. Cohen, Akron, and Roy M. Kay, Montville, both of Ohio, assignors to Flatwrap, Inc., Akron, Ohio

Continuation-in-part of Ser. No. 357,033, May 25, 1989, Pat. No. 5,033,668. This application Mar. 15, 1991, Ser. No. 670,055
Int. Cl.[5] B65D *5/24*
U.S. Cl. 229—186 **15 Claims**



1. A container assembly which is constructed from a pre-folded blank of material comprising;

a blank of material having fold lines formed therein which define a bottom wall, four side walls coupled to said bottom wall by means of said fold lines, bellows-type coupling members adapted to couple adjacent ones of said side walls to one another by means of said fold lines, and four top walls coupled to said side walls by means of said fold lines, wherein each of said bellows-type coupling members having fold lines formed therein which separate said bellows-type coupling members into at least two portions;

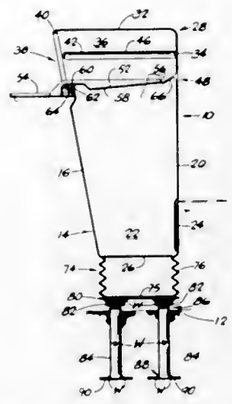
wherein said blank of material is prefolded to form a partially assembled container, said pre-folding comprising folding two opposed side walls, said bellows-type coupling members, and said top walls associated therewith onto said bottom wall by means of aid fold lines coupling said side and bottom walls, and folding the top walls associated with the remaining two side walls into a position adjacent said bottom wall, wherein said container assembly is constructed from said pre-folded blank by drawing said side walls to an upstanding position relative to said bottom wall, with said fold lines separating said bellows-type coupling members into at least two portions enabling said bellows-type coupling members to be inwardly folded to the interior of said container assembly, and said top walls being folded into substantially parallel relationship with said bottom wall.

5,207,377

DEFLECTABLE MAILBOX

Frederick R. Brecht, 562-A Trenton Ave., Pittsburgh, Pa. 15221

Continuation of Ser. No. 749,725, Aug. 26, 1991, abandoned. This application Jun. 8, 1992, Ser. No. 894,866
Int. Cl.[5] B65D *91/00*
U.S. Cl. 232—17 **21 Claims**



1. An upright mailbox having a lower bellows member which allows the mailbox to laterally deflect when struck by a physical object, the upright mailbox comprising:

a lower mailbox portion having an inclined front wall, a pair of oppositely-disposed, vertically-upright side walls, and a vertically-extending back wall, the lower mailbox portion further defining an inner storage compartment wherein material can be deposited;

a rectangular-shaped upper mailbox portion attached to the lower mailbox portion, the upper mailbox portion having a mailbox opening which allows material to be passed therethrough for depositing into the inner storage compartment;

a generally flat upper mail shelf attached to, and located within, the upper mailbox portion and extending substantially the full horizontal length of the upper mailbox portion;

a substantially flat mail drop shelf hingeably attached to the side walls adjacent the mailbox opening and extending substantially within the inner storage compartment, the mail drop shelf adapted to pivot upward toward the upper mailbox portion and downward into the inner storage compartment;

a mailbox lid attached to the mail drop shelf for pivoting in tandem therewith, the mailbox lid adapted for sealably closing the mailbox opening;

a collapsibly-extensible, laterally deformable lower bellows member attached subjacent to the lower mailbox portion and adapted to laterally deform when the upright mailbox is struck by a physical object, the lower bellows member adapted to maintain the laterally deflected position of the mailbox until the mailbox is returned to an upright position by an external force;

a mail access door hingeably attached to the back wall of the lower mailbox portion and adapted to selectively open and close in order to contain material within the inner storage compartment and permit removal of material therefrom; and

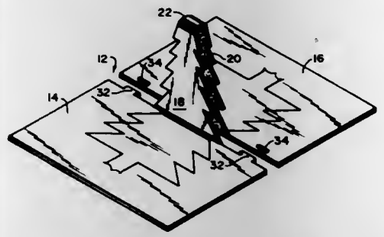
a mounting means for securing the upright mailbox into the ground, the mounting means located beneath the lower bellows member and attached thereto.

5,207,378

MAILBOX DECORATIVE ATTACHMENT

Susan L. M. Detchon, Motherload Products Development Corp., P.O. Box 7664, Greenwich, Conn. 06836

Filed Dec. 19, 1991, Ser. No. 810,282
Int. Cl.[5] A47G *29/12*
U.S. Cl. 232—38 **9 Claims**



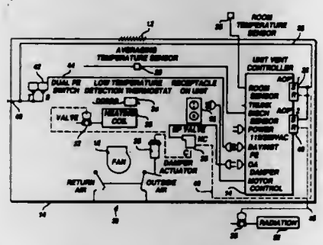
6. A decorative attachment cover for a mailbox comprising a bendable cover for the sides and top thereof having an adhesive surface on an inside surface thereof, said bendable cover being in two substantially identical parts that are connected at a common point, one of said parts having at least one slot therein and the other part having a tab for insertion in said slot when said cover is bent to conform to the outer surfaces of said mailbox, and the portions of said cover adjacent to said common point when the cover is secured by adhesive to said outside surfaces of a said mailbox forming a pictorial two-sided or a non-pictorial substrate being displaced from said mailbox, and secured together by means of back to back adhesive surfaces.

5,207,379

CASCADED CONTROL APPARATUS FOR CONTROLLING UNIT VENTILATORS

Darryl G. Hurmi, Elk Grove Village; Paul R. Bontrager, Woodstock, and Amy L. Ikenn, Lake Zurich, all of Ill., assignors to Landis & Gyr Powers, Inc., Buffalo Grove, Ill.

Filed Jun. 11, 1991, Ser. No. 713,655
Int. Cl.[5] G05D *15/00*
U.S. Cl. 236—9 R **91 Claims**



1. Apparatus for controlling the operation of a heating and ventilating unit for controlling the temperature of an indoor area, the unit being of the type which contains at least a main heating means, a damper, and a fan for moving air from the unit to the enclosed area, each heating means being capable of being modulated to control the amount of heat produced as a function of the pressure level within a pneumatic control line, said apparatus comprising:

processing means including memory means for storing instructions and data relating to the operation of said apparatus, said processing means being adapted to receive electrical signals that are indicative of temperature, said processing means generating electrical control signals for controlling at least one valve means operatively connected to the pneumatic control line;

valve means being adapted to be operatively connected to a pneumatic supply line and to an exhaust and having said pneumatic control line, said valve means controlling the pressure in said pneumatic control line in response to said electrical valve control signals being applied to said valve means, said controlled pressure being within the range defined by the pressures that exist in said supply line and in said exhaust;

means for generating an indoor area temperature set point, generating a signal indicative thereof and applying the same to said processing means;

means for sensing the indoor area temperature, generating a signal indicative thereof and applying the same to said processing means;

means for sensing the temperature of air discharging from the unit, generating a signal indicative thereof and applying the same to said processing means;

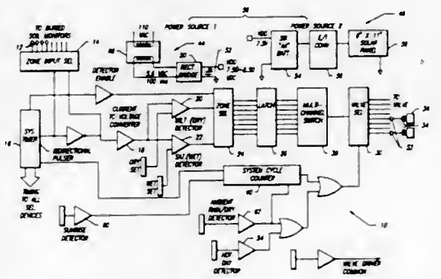
said processing means operating during successive cycles to determine the difference between said area set point temperature and said measured area temperature and provide a discharge temperature set point as a function of such difference, said processing means determining the difference between said discharge temperature set point and the measured discharge temperature and generating a control signal as a function of said difference determination, which control signal is applied to said valve means for controlling the pressure in said control line.

5,207,380

IRRIGATION CONTROL SYSTEM

Frank Harryman, 2131 Midvale Ave., Westwood, Calif. 90025

Filed Feb. 26, 1992, Ser. No. 841,427
Int. Cl.[5] A01G *25/16*
U.S. Cl. 239—64 **19 Claims**



1. An irrigation control device comprising:

at least one sprinkler valve;

at least one soil moisture sensor for measuring the level of moisture in the soil surrounding the sensor, the sensor being inserted into the soil in close proximity to the sprinkler valve; and

circuit means responsive to the sensor for initiating at least one pulsed sprinkler cycle when the soil moisture sensor detects a low soil moisture level, and repeating the cycle until the sensor detects a saturated soil condition, and further wherein the pulsed sprinkler cycle is comprised of the activation of the sprinkler valve for a first predetermined time period, and a subsequent deactivation of the sprinkler valve for a second predetermined period of time;

said circuit means further comprising means for applying current to the soil moisture sensor, means for measuring a resultant current from the moisture sensor, a current to voltage converter for converting the measured resultant current to a converted voltage, a dry threshold voltage comparator for comparing the converted voltage to a predetermined high voltage level, and producing a dry

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soil signal when the converted voltage is higher than the predetermined high voltage level, a saturated threshold voltage comparator for comparing the converted voltage to a predetermined low voltage level, and producing a saturated soil signal when the converted voltage is lower than the predetermined low voltage, and means for initiating the pulsed sprinkler cycle in response to the dry soil signal, and for terminating the pulsed sprinkler cycle in response to the saturated soil signal.

5,207,381

CALIBRATION OF FLUID DELIVERY EQUIPMENT

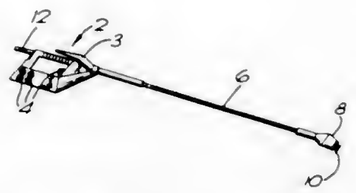
David C. Gill, Keynsham, Great Britain, assignor to Nomix Manufacturing Company Limited, Bristol, United Kingdom

Filed Aug. 20, 1990, Ser. No. 569,957

Claims priority, application European Pat. Off., Aug. 21, 1989, 89308454; United Kingdom, Feb. 20, 1990, 9003775

Int. Cl.[5] B67D *5/08*; B05B *3/10*

U.S. Cl. 239—72 **31 Claims**



1. Fluid delivery equipment comprising a handset, adapted for connection to a supply of a fluid; a distribution head, connected to the handset by a tube through which the fluid can flow from the handset to the distribution head; and a manually operable trigger, incorporated in the handset, by operation of which the flow of the fluid to the distribution head can be allowed or prevented; the equipment further comprising calibration circuitry which, in a calibration mode of operation, detects a time at which the trigger is operated such that the fluid is first caused to flow in the equipment, and provides an output signal a predetermined time thereafter.

5,207,382

AUTOGENOUS FLAME SPRAYING APPARATUS FOR THE FLAME SPRAYING OF POWDER-FORM MATERIALS OR SPRAY POWDER

Wolfgang Simm, Ecublens; Hans-Theo Steine, Cugy, and Peter Sommer, Prévérenges, all of Fed. Rep. of Germany, assignors to Eutectic Corporation, Flusbing, N.Y.

PCT No. PCT/EP90/00885, § 371 Date Nov. 27, 1991, § 102(e) Date Nov. 27, 1991, PCT Pub. No. WO90/14895, PCT Pub. Date Dec. 13, 1990

PCT Filed Jun. 5, 1990, Ser. No. 777,252

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1989, 8908954[U]

Int. Cl.[5] B05B *7/04, 7/20*

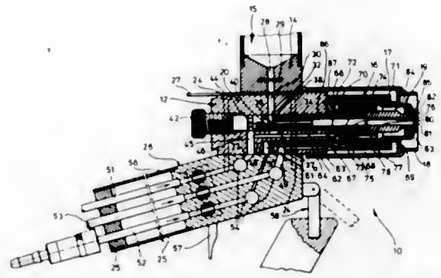
U.S. Cl. 239—79 **30 Claims**

1. An autogenous flame spraying apparatus, comprising:

a supply line housing having a combustion gas supply line, a carrier gas supply line and an acceleration gas supply line;

a main housing connected to said supply line housing and having a spray powder supply line and ducts communicating with said combustion gas supply line, said carrier gas supply line and said acceleration gas supply line, said housing having a first injector, communication with said spray powder supply line and said carrier gas supply line, for mixing said spray powder and a portion of said carrier gas to form a first mixture;

an interchangeable nozzle carrier for carrying a releasable torch nozzle, said nozzle carrier being releasably attached to said main housing and having a second injector, communicating with said combustion gas supply line and said carrier gas supply line, for mixing said combustion gas and a remainder of said carrier gas to form a second mixture,



said nozzle carrier also having ducts for conveying said first mixture and said second mixture to said torch nozzle, whereby said nozzle carrier can be replaced so as to alter both flame power and feed of spray powder.

5,207,383

DEVICE FOR INJECTING A FUEL/AIR MIXTURE INTO AN INTERNAL COMBUSTION SYSTEM

Waldemar Hans, Bamberg, and Ingo Kirsche, Hallstadt, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

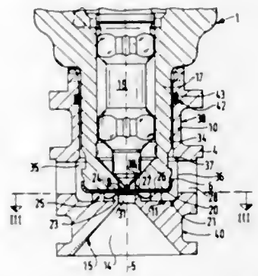
PCT No. PCT/DE91/00048, § 371 Date Oct. 9, 1991, § 102(e) Date Oct. 9, 1991, PCT Pub. No. WO91/12427, PCT Pub. Date Aug. 22, 1991

PCT Filed Jan. 21, 1991, Ser. No. 768,961

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1990, 4004897

Int. Cl.[5] B05B *7/12*; F02M *61/16*

U.S. Cl. 239—409 **26 Claims**



1. A device for injecting a fuel/air mixture into an engine, which comprises a fuel injection valve in a valve housing, a valve closing body interacting with a valve seating surface and, downstream of the valve seating surface, at least one fuel injection opening in an injection end (**6, 20**) of the fuel injection valve (**1**), a pot-shaped air envelope bush, which surrounds the injection end of the fuel injection valve, at least partially in the axial direction by means of a cylindrical part and at least partially in the radial direction by means of a bottom part, a mixture spray opening in said bottom part extending concentrically with the valve longitudinal axis, said bottom part (**11**) includes an inside wall (**21**), facing towards the injection end (**6, 20**) of the fuel injection valve (**1**), said bottom part (**11**) of the air envelope bush (**4**) has a radial annular surface (**24**) extending as far as the mixture spray opening (**31**) in said bush and at least two stop surfaces (**26**) protrude by a predetermined distance above the annular surface (**24**) in the axial direction

towards the injection end (**6, 20**) and are in contact with the injection end so that a defined air gap (**27**) is formed between the injection end (**6, 20**) and the annular surface (**24**), said annular surface (**24**) is formed by an inner annular protrusion (**23**) which has a predetermined axial distance from the injection end (**6, 20**) that forms the air gap (**27**) through which air supplied between the injection end (**6, 20**) and the inner annular protrusion (**23**) flows, this air flow meeting a fuel sprayed via the at least one fuel injection opening (**8**) toward said mixture spray opening (**31**).

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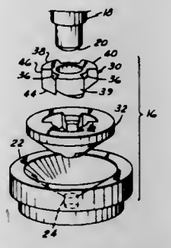
SWIRL GENERATOR FOR AN INJECTOR

John J. Horsting, Grafton, Va., assignor to Siemens Automotive L.P., Auburn Hills, Mich.

Filed Sep. 18, 1991, Ser. No. 761,593

Int. Cl.[5] B05B *1/34, 15/02*

U.S. Cl. 239—463 **6 Claims**



1. A swirl generator for a fuel injector with a needle member reciprocally moving between a closed position and one of a plurality of open positions, a valve seat member having a seating area around an orifice, and the needle operable to cooperate with the seating area to close the orifice; the swirl generator comprising

a fixed guide means having a plurality of equally and angularly spaced openings is attached to the valve seat member forming a swirl flow path; and

a lobe means having a plurality of equally and angularly spaced lobes is coupled to the needle member and moveable therewith for defining in cooperation with said openings in said guide means for forming a swirl flow volume having an axial flow path portion and a variable volume spiral flow path portion; said spiral flow path portion beginning at the end of the axial flow path and ending at the orifice.

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FUEL INJECTION NOZZLE

Ronald F. Turner, London, United Kingdom, assignor to Lucas Industries Public Limited Company, Lolihull

Continuation of Ser. No. 599,302, Oct. 17, 1990, abandoned. This application May 29, 1992, Ser. No. 891,401

Claims priority, application United Kingdom, Oct. 26, 1989, 8924118.6

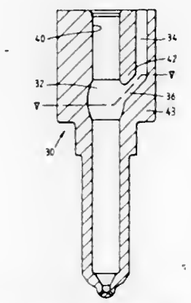
Int. Cl.[5] F02M *47/06, 55/00*

U.S. Cl. 239—533.3 **10 Claims**

3. A fuel injection nozzle for an internal combustion engine, comprising:

an elongated, generally tubular, one-piece monolithic nozzle body having a substantially flat end face at one end thereof and having means defining a spray hole at the other end thereof, a central bore extending through said nozzle body from said flat end face to said spray hole, said bore including a first bore portion adjacent said end face, a second bore portion adjacent the spray hole, and an undercut bore portion connecting said first and second bore portions, each of said bore portions being generally coaxial with and symmetrical about a longitudinal axis of said bore, said second bore portion being significantly longer than said first and undercut bore portions, said nozzle body including a large diameter portion, a small diameter portion, and an intermediate diameter portion connecting said large and small diameter portions, said first and undercut bore portions being provided in said large diameter portion, said second bore portion extending through said intermediate and small diameter portions, said first and second bore portions having approximately equal diameters, said undercut bore portion being larger in diameter than said first and second bore portions, said second bore portion having a tapered part adjacent said spray hole, said tapered part having a gradually increasing diameter as it extends away from said spray hole;

said large diameter portion having a fuel supply passage provided therein and connecting said end face with said undercut bore portion, said fuel supply passage including a first passage portion which extends from said end face substantially parallel to the longitudinal axis of said central bore, said first passage portion extending alongside said first bore portion and being spaced radially outwardly therefrom, said fuel supply passage further including a second, elongated passage portion which extends between and intersects both said undercut bore portion and said first passage portion, the intersection of said first and second passage portions being closer to said end face than the intersection of said second passage portion and said undercut bore portion, said first passage portion and said first bore portion being approximately equal in length, said



second passage portion being inclined relative to said first passage portion and extending from said undercut bore portion radially outwardly and axially towards said end face, said second passage portion having a diameter which is substantially smaller than the axial length of said undercut bore portion, said first passage portion having a diameter which is approximately equal to the diameter of said second passage portion;

said nozzle body further including a web disposed radially between said central bore and said fuel supply passage, said web extending axially from said end face and terminating in a free end adjacent the intersection of said second passage portion and said undercut bore portion, said web having a generally uniform radial thickness as it extends from said end face to the intersection of said first and second passage portions, said web having a progressively and continuously decreasing radial thickness as it extends from the intersection of said first and second passage portions to said free end; and

an elongate and generally cylindrical valve member slidably disposed in said central bore of said nozzle body, said valve member including a large diameter portion which is snugly but slidably fitted in said first bore portion, a reduced diameter portion adjoining said large diameter portion and disposed in said second bore portion, said reduced diameter portion being longer than said large diameter portion, said large diameter portion and said reduced diameter portion having respective outer periph-

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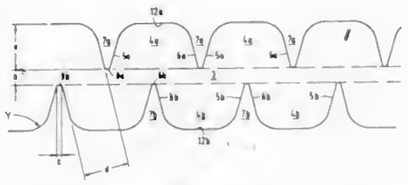
eral surfaces which are radially offset from each other, said valve member including an annular face defined radially between said radially offset outer peripheral surfaces of said adjoining large and reduced diameter portions, said reduced diameter portion extending from said annular face and terminating in a valve tip, said valve tip including a pair of adjoining frusto-conical surfaces, the junction of said adjoining frusto-conical surfaces being adapted to seat on a seating surface defined by a part of said nozzle body surrounding said tapered part of said second bore portion.

5,207,386

FLOW EMITTER UNITS MOULDS FOR USE IN THE MANUFACTURE THEREOF

Raphael Mehoudar, Tel-Aviv, Israel, assignor to Hydro-Plan Engineering Ltd., Tel-Aviv, Israel

Filed Oct. 1, 1991, Ser. No. 771,003
Int. Cl.[5] B05B *1/02*
U.S. Cl. 239—542 24 Claims



1. An emitter unit having wall means for defining an elongated flowduct having a flowduct inlet and a flowduct outlet and a unit inlet and a unit outlet respectively coupled to the flowduct inlet and the flowduct outlet; said flowduct comprising a central elongated control duct of substantially rectangular cross-sectional shape having a width a and two sets of successive like flow pockets located respectively on either side of the control duct and opening into the control duct; each flow pocket of said sets being defined between a pair of adjacent side walls of a pair of successive baffles of a corresponding set of baffles, between first and second opposite flowduct walls and a flowduct side wall; the baffle side walls terminating in a baffle edge of width c and of height b, the baffles of one set being respectively directed substantially towards the midpoints of the inter-baffle regions of the opposite set; the baffle edges of each set of baffles being substantially aligned and defining one pair of opposite longitudinal sides of the control duct, the other pair of longitudinal sides of said control duct being defined by first and second opposite control duct walls, the aligned edges of one set of baffles being substantially parallel to the aligned edges of the opposite set of baffles; the dimensions of a and c relative to d where d is the minimum through-flow spacing in said flowduct between successive oppositely directed baffles being such that c lies substantially in the range 0–0.25 d and a lies substantially in the range 0.2 d–0.4 d.

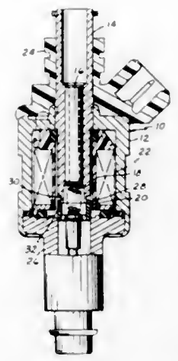
5,207,387

MEANS FOR ATTENUATING AUDIBLE NOISE FROM A SOLENOID-OPERATED FUEL INJECTOR

John S. Bergstrom, Williamsburg, Va., assignor to Siemens Automotive L.P., Auburn Hills, Mich.

Filed Jul. 29, 1991, Ser. No. 736,990
Int. Cl.[5] F16K *31/06*
U.S. Cl. 239—585.4 12 Claims

1. A solenoid-operated fuel injector comprising a housing forming an enclosure which contains a solenoid coil that is selectively energized by electric current to operate the fuel injector, an inlet connector tube that extends into said solenoid coil to convey liquid fuel into said enclosure, an outlet via which fuel is injected from said enclosure, a valve mechanism that is disposed within said enclosure between said inlet connector tube and said outlet and that is operated by said solenoid coil acting through a spring-biased armature to open and close a flow path through said enclosure between said inlet connector tube and said outlet, said inlet connector tube forming a portion of a magnetic circuit path that directs magnetic flux across a working gap that is disposed within said enclosure between an end of said inlet connector tube and an end of said armature wherein said end of said armature causes impact forces to be exerted axially on said inlet connector tube end during the opening and closing of said flow path by said valve



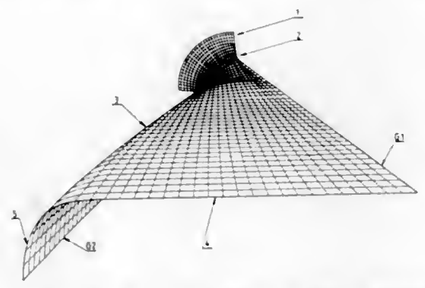
mechanism, characterized in that: impact-attenuating means are provided to attenuate the effect of such impact forces, and said impact-attenuating means comprises on said inlet connector tube end a circumferential flange that receives said impact forces, said flange being defined by a circumferential slot around said inlet connector tube end proximate said flange, and said slot being unoccupied, said impact-attenuating means attenuating the effect of such impact forces in comparison to the effect of such impact forces in the absence of said flange and unoccupied slot.

5,207,388

INNER PROFILE NOZZLE ADAPTED FOR THE HIGH TEMPERATURE TESTING OF SPECIMENS OR SIMILAR OF THE "PLANE BOARD" TYPE

René G. G. M. Leroux, Merignac, and Gilles P. Taquin, Orgeval, both of France, assignors to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed May 21, 1992, Ser. No. 886,394
Claims priority, application France, May 23, 1991, 91 06423
Int. Cl.[5] B05B *1/00*
U.S. Cl. 239—598 20 Claims



1. An inner profile nozzle adapted for high temperature testing of specimens of the "plane board" type, comprising:
(a) an axisymmetric convergent;

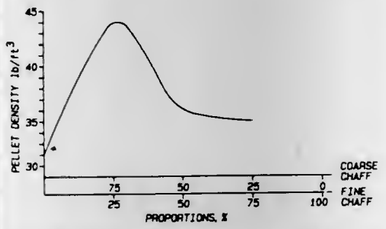
(b) a throat region;
(c) a divergent super-elliptic lying on two rectilinear generating lines taken along two perpendicular planes, one of said two rectilinear generating lines comprising a small axis generating line having a slope of about 1°, and the other of said two rectilinear generating lines comprising a long axis generating line having a slope of about 10°; and
(d) said throat region comprising corresponding circular generating lines having downstream ends coupled with said small axis generating line and said long axis generating line by a curve obtained from an equation whose first and second derivatives are continuous, and whose third derivative is monotonic, so as to eliminate or reduce recompression problems and possible formation of shocks.

5,207,389

CELLULOSIC CARRIER

Glenn E. Hall, Maumee, and Daniel R. Kory, Toledo, both of Ohio, assignors to The Andersons, Maumee, Ohio

Filed Jul. 6, 1992, Ser. No. 908,055
Int. Cl.[5] B02C *19/12*
U.S. Cl. 241—3 18 Claims



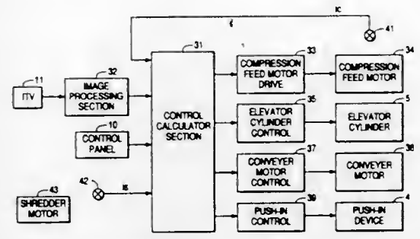
1. A process for producing a biodegradable carrier comprising the following steps:
a) reducing a naturally occurring cellulose material to an intermediate pulverulent product;
b) compressing the intermediate pulverulent product under conditions to yield an intermediate product of compressed bodies having a maximum density, which conditions include:
1) adding moisture to said intermediate pulverulent product to raise the moisture content thereof to between 16.0 and 18% water;
2) adding a binder to said intermediate pulverulent product in the amount of 0 to 2% binder;
3) compressing the intermediate pulverulent product after steps b) 1) and 2) to produce an intermediate product of compressed bodies having a nominal diameter of at least 3/16";
c) fragmenting said intermediate product of compressed bodies under conditions to yield a maximum percentage of granules within a desired size range, said fragmenting being accomplished by a shearing process, wherein the moisture control in step b) 1) yields an intermediate product of compressed bodies having minimum friableness in step b) 3) so that the shearing process of this step c) yields a minimum of undersized fines; and
d) classifying said granules from step c) to produce a granular product of granules having a given screen size range.

5,207,390

OPERATION CONTROL SYSTEM FOR A SHREDDER

Yoshitaka Ikeda; Noriyuki Akasaka, both of Nagoya; Hisataka Yonezawa; Wataru Matsubara, both of Yokohama; Etsuko Kinoshita, Kobe, and Hidetaka Ono, Yokohama, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 16, 1991, Ser. No. 746,408
Claims priority, application Japan, Aug. 30, 1990, 2-228667; Feb. 18, 1991, 3-023042; Jun. 12, 1991, 3-140273
Int. Cl.[5] B02C *25/00*
U.S. Cl. 241—34 4 Claims



1. An operation control system for a shredder composed of a refuse feeding section and a refuse shredding section, comprising:
image pickup means for picking up an image of a refuse inlet of said shredding section;
image processing means for image-processing an image signal generated by said image pickup means to obtain a characteristic quantity of said refuse; and
control calculator means for calculating and outputting a control signal for controlling a feed conveyor and a feeder provided in said refuse feeding section and said refuse shredding section on the basis of said characteristic quantity of the refuse obtained by said image processing means;
wherein said image processing means determines as the characteristic quantity an area of the refuse or length dimensions of a circumscribing rectangle of the refuse using a binary-coded image of the refuse picked up by said image pick up means, and said control calculator means calculates and outputs a control signal for instructing a feed of refuse if the area of the refuse or a length in the throw-in direction of the shredder of the circumscribing rectangle of the refuse is equal to or smaller than a first threshold value, and said control calculator means calculates and outputs a control signal for instructing feed stoppage of the refuse if said area of said length is equal to or larger than a second threshold value which is larger than said first threshold.

5,207,391

TUB GRINDER

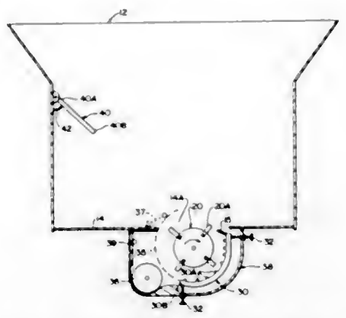
Robert R. Anderson, 29774 Hwy. 257, Windsor, Colo. 80550

Continuation-in-part of Ser. No. 727,069, Jul. 9, 1991, abandoned. This application Jul. 21, 1992, Ser. No. 917,771
Int. Cl.[5] B02C *13/06*
U.S. Cl. 241—186.4 17 Claims

1. Tub grinding apparatus for grinding bulk materials, the apparatus being of the type including a rotatable tub having a stationary floor, and an elongated rotor member with radially extending hammer elements, wherein said rotor member is rotatably mounted in a manner such that the hammer elements extend at least partially through the floor and into the tub, wherein the improvement comprises:
(a) elongated auger means positioned adjacent to and extending substantially along the length of said rotor member below said floor; wherein said auger means has a length at least as long as said rotor member and is laterally spaced from the axis of said rotor member;

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(b) concave restricter means adjacent to and extending substantially along the length of said rotor member, wherein the position of said restricter means relative to said rotor member is adjustable; wherein the length of said restricter means is at least equal to the length of said rotor member;



wherein bulk material is reduced in particle size by said rotor member and is conveyed away from said rotor member by said auger means; wherein said auger means includes a lower edge which does not extend below said restricter means by more than six inches.

5,207,392

CUTTING MECHANISM FOR A DOCUMENT SHREDDER

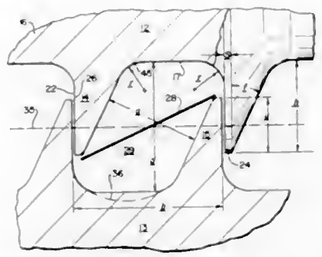
Hartmut Stangenberg, Owingen, and Rolf Gasteier, Markdorf, both of Fed. Rep. of Germany, assignors to Schleicher & Co. International Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 15, 1991, Ser. No. 670,054

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1990, 4008659

Int. Cl.[5] **B02C** *18/06*

U.S. Cl. 241—236 **26 Claims**



1. A cutting mechanism for a document shredder with two cutting rollers rotatable around axes, which have cutting disks arranged with an axial spacing from one another and projecting from the roller surface, each of said cutting disks comprising a substantially radial cutting face terminating in a continuous circumferential cutting edge and a bevelled back face, each cutting edge of a cutting disk of one of said cutting rollers overlapping an oppositely directed cutting edge of a cutting disk of the other of said cutting rollers and cooperating therewith for cutting a flat material introduced between the cutting rollers into strips; a passage for each of said strips being bounded by the cutting face and the back face of adjacent cutting disks and the roller surfaces of both cutting rollers, said passage having a compact shape wherein a first perpendicular distance between opposing back faces and a second perpendicular distance between centers of the roller surfaces being approximately equal.

5,207,393

ELECTRIC-MOTOR DRIVE FOR A BOWDEN-CABLE WINDOW LIFTER

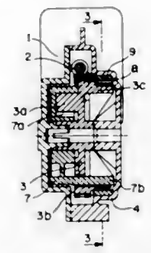
Klaus Marscholl, Kreisstrasse 5, D-6332 Ehrinhshausen-Breitenbach, Fed. Rep. of Germany

Filed Aug. 19, 1991, Ser. No. 747,328

Claims priority, application Fed. Rep. of Germany, Aug. 30, 1990, 4027444

Int. Cl.[5] **B65H** *75/38*; **E05F** *15/16, 11/48*

U.S. Cl. 242—54 R **5 Claims**



1. A drive system, powered by an electric motor, for a bowdencable window pane lifter comprising:

a housing;

an electric motor mounted on said housing and driving a worm gear;

a cable reel mounted for rotation in said housing about an axis, and including a first tab element extending therefrom;

a worm wheel also mounted for rotation in said housing about said axis adjacent to said cable reel and driven by the motor through said worm gear, said worm wheel comprising on a side of said worm wheel facing said cable reel at least one axially projecting element entering a complementary recess in an opposite surface of said cable reel and driving the latter into rotation, said worm wheel also including a second tab element projecting therefrom;

a helical spring serving as a braking spring for said worm wheel, said spring being wrapped circumferentially in said housing in the region of said worm wheel and cable reel, said spring including two end portions each bent so as to engage either of said first or second tab elements; wherein,

when said worm gear drives said worm wheel, said second tab element engages an end portion of said spring and causes said spring to rotate along with said worm wheel, and when said cable reel is rotated, said first tab element engages an end portion of said spring and causes said spring to contact said housing and brake rotation of said worm wheel.

5,207,394

STORAGE AND SUPPLY REEL MECHANISM FOR ELONGATED STRIP MATERIAL

Paul J. La Fleur, Jr., Wilbraham, Mass., assignor to Package Machinery Company, Stafford Springs, Conn.

Continuation of Ser. No. 564,044, Aug. 7, 1990, abandoned. This application Jun. 4, 1992, Ser. No. 893,941

Int. Cl.[5] **B65H** *23/06, 19/10*

U.S. Cl. 242—58.6 **4 Claims**

1. A storage and supply reel mechanism for use in a gum stick wrapping machine requiring the storage and supply of a large quantity of elongated strip material and delivery of the same with minimal downtime interruption; said mechanism comprising a pair of similar storage and supply reels for the strip material arranged for alternate operation so that one reel is in an operational position while the other is in an inoperative position and available for reloading or replacement with a loaded reel, a reel support means for mounting the reels in horizontally spaced apart relationship for pivotal movement about a vertical axis through at least 180° between said operational and inoperative positions, manually operable locking means for selectively and releasably securing said reels in said two positions, and a brake means supported on said support means and selectively engageable with a reel in the operational position to control the rate of delivery of strip material from said reel, said brake means comprising first and second reel gears respectively associated with said storage and supply reels a brake gear operatively associated with said brake, and an intermediate gear driven by said brake gear, said intermediate gear selectively associated with and drivingly rotatable with a reel gear with its reel located at the operational position, said brake and intermediate gears being mounted on a pivotally supported mounting plate, said intermediate gear being pivotable toward and away from said reel gear by said mounting

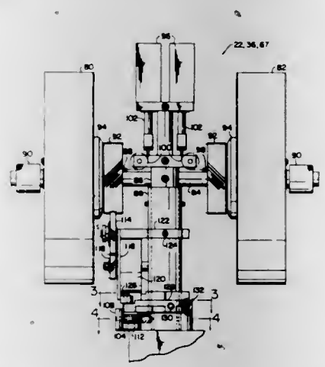


plate respectively for engagement with and disengagement therefrom, and wherein a manually operable means is provided for engaging said intermediate gear with said reel gear to control the rate of delivery of strip material from a reel at the operational position, and for disengaging said intermediate gear to accommodate movement of the reels between said operational and inoperative positions, said manually operable means taking the form of a handle moveable between first and second positions and which carries a small roller engageable with said mounting plate, said roller being engageable with said plate in a first position whereby to cause said plate to pivot slightly and to cause said reel and intermediate gears to engage, and said roller being disengaged from said plate in a second position of said handle whereby to allow said reel and intermediate gears to disengage.

5,207,395

TETHER BAND AND INTERCONNECTOR FOR VIDEOTAPE CARTRIDGE ADAPTOR

Jerrold K. Weeks, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 24, 1991, Ser. No. 690,638

Int. Cl.[5] **G11B** *15/67, 25/06*; **B65H** *23/30*

U.S. Cl. 242—199 **5 Claims**

1. A two-piece videocassette comprising:

a cartridge for insertion into a cartridge adaptor, said cartridge and said cartridge adaptor together forming said two-piece videocassette;

said cartridge having a rotatably mounted tape supply reel for storing a length of magnetic tape, said supply reel having a supply reel hub;

said length of magnetic tape having a first tape end and having a second tape end, said first tape end being attached ultimately to said supply reel, said second tape end being attached ultimately to a tape connector;

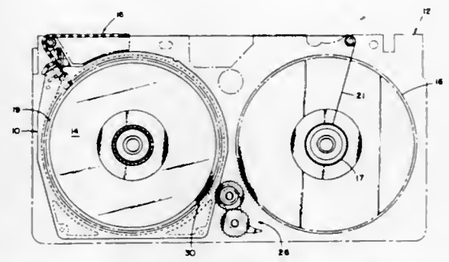
said cartridge adaptor having a cartridge receiving cavity adapted to receive said cartridge;

said cartridge adaptor having a tape path channel defining a tape path;

said cartridge adaptor having a take-up reel located within said cartridge adaptor and mounted for rotation within said cartridge adaptor, said take-up reel having a take-up reel hub;

said cartridge adaptor having a tether assembly, said tether assembly including a tether band, and a tether;

said tether having a first tether end and having a second tether end, said first tether end coupled to said tether band, and said second tether end connected to said take-up reel hub;



said tether band having a first tether band end and having a second tether band end, said first tether band end being coupled to a tether connector and said second tether band end being coupled to said tether;

said tether connector and said tape connector together adapted for mating engagement forming an interconnection;

whereby said tether band guides and supports said interconnection along said tape path channel;

said tether band being flexible in a first plane defined by the plane of said tape path channel and being inflexible in a plane orthogonal to said first plane and wherein said tether band comprises a plurality of articulated links hinged together forming a self supporting cantilever assembly.

5,207,396

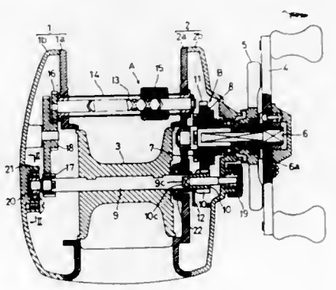
FISHING REEL

Yoshiyuki Furomoto, Osaka, Japan, assignor to Shimano, Inc., Osaka, Japan

Filed Dec. 28, 1990, Ser. No. 635,649

Int. Cl.[5] **A01K** *89/015*

U.S. Cl. 242—321 **12 Claims**



1. A fishing reel comprising:

a reel body;

a spool (3);

a support shaft (9) for supporting said spool (3) and rotating in unison therewith;

a sleeve (20) which is separate from said support shaft, said

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sleeve being loosely fitted on said support shaft (9) so as to be slidably rotatable with respect to said support shaft (9); and

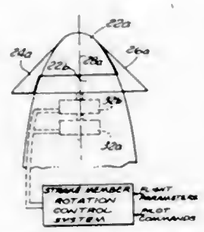
a bearing (21) having an inner race fitted on said sleeve (20); wherein said support shaft (9) is supported by said reel body through said bearing (21).

5,207,397

ROTATABLE NOSE AND NOSE BOOM STRAKES AND METHODS FOR AIRCRAFT STABILITY AND CONTROL

Tsun-Ming T. Ng, San Pedro, and Bert F. Ayers, Torrance, both of Calif., assignors to Eidetics International, Inc., Torrance, Calif.

Filed Jun. 8, 1990, Ser. No. 535,736
Int. Cl.[5] F42B *10/00*; B64C *39/12, 23/02*
U.S. Cl. 244—45 A 41 Claims



1. A method of providing or enhancing control of an aircraft at high angles of attack by controlling the aircraft forebody vortices comprising the steps of:

(a) providing a pair of strakes on the nose of the aircraft forebody, both strakes being rotatable about a common axis that is approximately aligned with the longitudinal axis of the aircraft forebody, and

(b) controlling the angles of rotation of the strakes about said axis, whereby the asymmetry of the forebody vortices and the forebody forces resulting therefrom may be controlled.

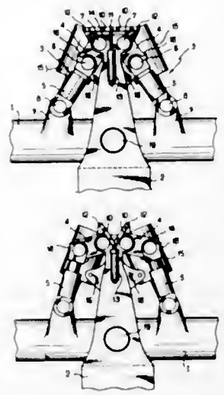
5,207,398

DEVICE FOR LOCKING A SUPPORT FOR STEERABLE WHEELS

Jacques Veaux, Chatillon, and Michel Derrien, Versailles, both of France, assignors to Messier-Bugatti, 78140 Velizy Villacoublay, France

Filed Oct. 31, 1991, Ser. No. 785,815
Claims priority, application France, Nov. 30, 1990, 90 15079
Int. Cl.[5] B64C *25/00*
U.S. Cl. 244—100 R 9 Claims

1. A device for locking an axle mounted to swivel relative to a beam, wherein the device comprises locking means including two hinged assemblies disposed on either side of the beam, each hinged assembly comprising a lever hinged to a telescopic connecting rod, one end of each hinged assembly being hinged to the beam, and an opposite end being hinged to the axle, and control means disposed to fix the direction of the levers relative to the telescopic connecting rods, whereby the axle is



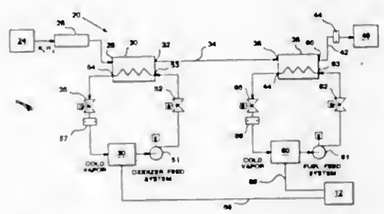
locked when the telescopic connecting rod of each hinged assembly is in a fully compressed position.

5,207,399

VAPOR PRESSURIZATION SYSTEM FOR OUTER SPACE

Jay A. Risberg, and Luciano M. J. Sedillo, both of San Diego, Calif., assignors to General Dynamics Corporation, Space Systems Division, San Diego, Calif.

Filed Mar. 20, 1992, Ser. No. 854,198
Int. Cl.[5] B64G *1/40*
U.S. Cl. 244—172 3 Claims



1. A cold vapor pressurization system for outer space vehicles that is used prior to engine start to pressurize its fuel tank and oxidizer tank to produce the required engine net positive suction pressure comprising:

an outer space vehicle having an engine, a propellant tank, an oxidizer tank, and a source of hydrazine;

a first heat exchanger having hot side inlet and outlet ports and cod side inlet and outlet ports; means connecting said source of hydrazine to the hot side inlet port of said first heat exchanger;

a first fluid circuit having its one end connected to the cold side inlet port and its other end connected to the cold side output port of said first heat exchanger, said fluid circuit comprising an oxidizer tank and a pump for pumping the oxidizer through said first heat exchanger;

a second heat exchanger having a hot side inlet and outlet ports;

means connecting the hot side outlet port of said first heat exchanger to the hot side inlet port of said second heat exchanger;

a second fluid circuit having its one end connected to the cold side inlet port and its other end connected to the cold side outlet port of said second heat exchanger, said second fluid circuit comprising a fuel tank and a pump for pumping the fuel through said second heat exchanger; and

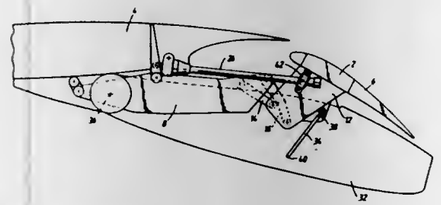
means for expelling the cooled hydrazine by-product from the hot side outlet port of said second heat exchanger whereby oxidizer from said oxidizer tank is vaporized by said first heat exchanger elevating is pressure relative to said oxidizer in said oxidizer tank thereby pressurizing said oxidizer in said oxidizer tank and fuel from said fuel tank is heated by said second heat exchanger elevating its pressure relative to said fuel in said fuel tank thereby pressurizing said fuel in said fuel tank.

5,207,400

FLAP ASSEMBLY

Robert L. Jennings, Belfast, Northern Ireland, assignor to Short Brothers PLC, Belfast, Northern Ireland

PCT No. PCT/GB90/01031, § 371 Date May 6, 1991, § 102(e) Date May 6, 1991, PCT Pub. No. WO91/00824, PCT Pub. Date Jan. 24, 1991
PCT Filed Jul. 4, 1990, Ser. No. 663,871
Claims priority, application United Kingdom, Jul. 6, 1989, 8915487
Int. Cl.[5] B64C *9/16*
U.S. Cl. 244—216 14 Claims



8. In combination,

an aircraft wing;—

a mounting arm secured to and extending from a lower surface of said wing;

a flap assembly including a flap member and a fin shaped bracket depending from said flap member;

a linkage mechanism connecting said bracket to said mounting arm, said linkage including a pair of link arms, each arm being pivotally connected at an upper end to said mounting arm and at a lower end to said bracket, said upper end of one of said link arms having rotational freedom only about its pivotal axis, and the lower end of this link arm, and both ends of the other of said link arms having complete rotational freedom; and

an actuating mechanism for moving said flap member between a stowed position within said wing and a downwardly extended position spaced from said wing, said actuator mechanism being connected to and between said wing and said bracket to effect pivoting of said link arms on said mounting arm and movement of said flap from said wing first with a downward and rearward movement to clear said wing and then with a rotation movement.

5,207,401

SWITCH FOR A GROOVED GUIDE TRACK

Gérard F. Testart, Niederbronn-les-Bains, France, assignor to Cogifer-Compagnie Generale d'Installations Ferroviaires, Croissy-Sur-Seine, France

Filed May 23, 1991, Ser. No. 704,968
Claims priority, application France, May 23, 1990, 90 06463
Int. Cl.[5] E01B *7/02*
U.S. Cl. 246—442 23 Claims

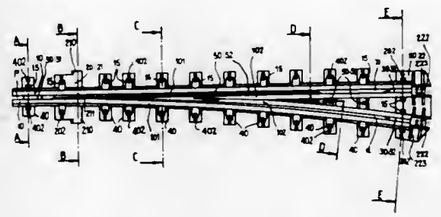
1. A switch for a grooved guide track including principle route, a direct route and a deviated route, each including a groove defined between facing flanks of a pair of spaced rails and for receipt of a roller of a vehicle to guide the direction of travel of the vehicle, said switch being operable to selectively align the principle route of the guide track with either of the direct or deviated routes thereof, said switch comprising:

two fixed stock rails having first ends to be aligned with the spaced rails of the principle route and second ends to be aligned with respective rails of the direct route and the deviated route;

two partially movable switchblades positioned between said two stock rails and having respective heel ends to be fixed in alignment with respective rails of the direct route and the deviated route and respective point ends directed toward said first ends of said two stock rails and capable of simultaneous movement due to flexure of said switchblades toward alternate of said stock rails, thereby defining alternate switch grooves extending from between said first ends of said stock rails to between respective pairs of said second ends of said stock rails and said heel ends of said switchblades;

a single end plate having mounted thereon said first ends of said stock rails for support thereof in a position to be aligned with the spaced rails of the principle route;

a double end plate having mounted thereon said second ends of said stock rails and said heel ends of said switchblades



for support of said pairs thereof in respective positions to be aligned with the spaced rails of the direct route and the deviated route;

respective spacers mounted between said first ends of said stock rails and between said second end of said stock rail and said heel end of said switchblade of each of said pairs thereof for maintaining spacings therebetween to ensure that said switch grooves correspond to the grooves of the principle, direct and deviated routes;

sole plates for supporting said stock rails and said switchblades at positions thereof other than said single and double end plates;

at least one inner stop mounted on a said sole plate and positioned between said switchblades adjacent said heel ends thereof;

outer stops mounted on respective said stock rails at positions to be abutted by said switchblades adjacent said point ends thereof; and

said two stock rails, said two switchblades, said single end plate, said double end plate, said spacers, said sole plates, said at least one inner stop and said outer stops comprising separately produced and formed elements assembled together in operative relationship.

5,207,402

SUPPORT FRAME FOR A SIGN

Pamela Berry-Tremmel, and Victoria Wallerius, both of 14351 Torrey Chase #E, Houston, Tex. 77014

Filed Sep. 16, 1991, Ser. No. 760,179
Int. Cl.[5] A45F *3/44*
U.S. Cl. 248—156 16 Claims

1. A support frame for a sign comprising:

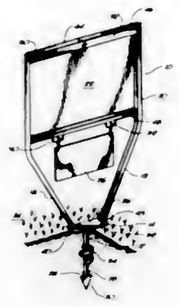
a cylindrical member having a generally pointed end, said cylindrical member having a triangular shaped member affixed to said cylindrical member, said triangular shaped member being said generally pointed end;

VOL 1150 ISS 1 MY 4 1993 UMI

a flat plate affixed to an end of said cylindrical member opposite said pointed end;

a generally spiralled surface affixed to an exterior of said cylindrical member;

a first sign support member extending angularly upwardly and outwardly from the side of said plate opposite said cylindrical member, said first sign support member connected to an end of said plate; and



a second sign support member extending angularly upwardly and outwardly from said said side of said plate, said second sign support member connected to an end of said plate opposite said first sign support member, said first and second sign support members extending outwardly in different directions.

5,207,403

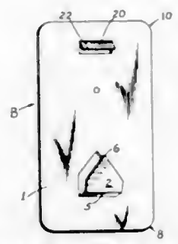
DEVICE AND METHOD TO SUPPORT POLYETHYLENE OR OTHER SHEETING

David T. Penniman, Roaring Brook Rd., Prospect, Conn. 06712

Continuation-in-part of Ser. No. 619,042, Nov. 28, 1990, abandoned, which is a continuation-in-part of Ser. No. 432,532, Nov. 7, 1989, abandoned. This application Jan. 13, 1992, Ser. No. 818,778

Int. Cl.[5] A47B *96/06*

U.S. Cl. 248—215 **3 Claims**



1. A method for a single worker to install two layers of presized sheeting at the ceiling/wall juncture and at the wall/-floor juncture around the perimeter of a room or other area to be isolated for asbestos removal comprising the slideable installation of improved hangers of this invention on or behind ceiling molding in contact with said walls at intervals around the perimeter of the area to be isolated, installing said first layer of sheeting on said improved hangers by piercing said sheeting on the prong of pushing sheeting to rest on the land of said prong, so that the upper edge of said sheeting extends upward to said ceiling, said sheeting being fully supported without tearing, sealing said sheeting to said ceiling molding with duct tape then sealing said lower edge of said sheeting to the juncture of the wall and floor with said duct tape.

5,207,404

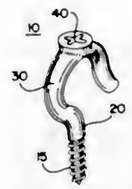
DRIVE SCREW EYE OR HOOK

Timothy Reinhard, 5231 S. Ingleside, Chicago, Ill. 60615

Continuatinn-in-part of Ser. No. 369,747, Jun. 22, 1989, Pat. No. 4,964,602. This application Oct. 18, 1990, Ser. No. 599,615 The portion of the term of this patent subsequent to Oct. 23, 2007, has been disclaimed.

Int. Cl.[5] F16B *23/00*

U.S. Cl. 248—217.4 **10 Claims**



1. A support device, for supporting an associated device, comprising:

a shank having first and second ends, said first end being threadably adaptable to be driven into a member for securing said shank therewithin;

support means for supporting an associated device, said support means extending away from and integral with said second end of said shank, defining a juncture between said support means and said shank; and

a torquing cavity on said support means and spaced away from said juncture and aligned with the longitudinal axis of said shank.

5,207,405

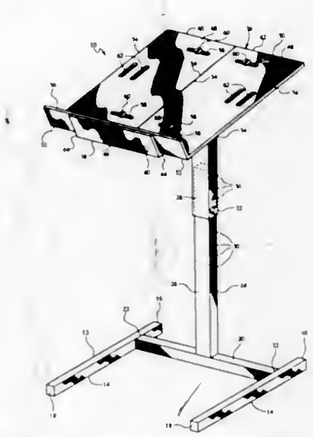
TELEVISION STAND

Richard J. Cobb, 108 Ridge Oak Dr., Red Oak, Tex. 75154

Filed Jul. 29, 1991, Ser. No. 737,060

Int. Cl.[5] F16M *11/00*

U.S. Cl. 248—411 **9 Claims**



1. Support for receiving and supporting a TV comprising:

a base;

a vertically extending shaft attached to said base;

a tray attached to said shaft for receiving and supporting a TV and having three flat plates with each having a front, a back and two side edges with a lip extending along the front edge of all three plates with two of the plates slidably connected to and supported on the third plate with the side edges of the two plates extending parallel to one another over the third plate and with said shaft of the said support apparatus attached to said tray at a center point on the back edge of the third plate; and

means for adjusting the width of said tray to accommodate various size TV sets.

5,207,406

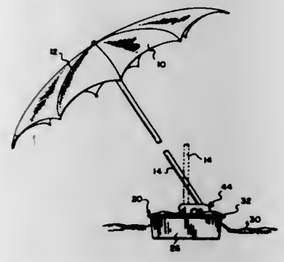
UMBRELLA STAND

Janice M. Stine, 3425 Radcliffe Rd., Thousand Oaks, Calif. 91360, and Karen J. Soleri, 1734 Drumcliff Ct., Westlake Village, Calif. 91361

Filed Mar. 9, 1992, Ser. No. 848,037

Int. Cl.[5] F16M *13/00*

U.S. Cl. 248—514 **4 Claims**



1. An umbrella stand comprising:

a base formed into a container, said container having a bottom to which is attached a peripheral edge at the periphery of said bottom, said bottom having a center point, an enclosing sidewall attached to said peripheral edge, said enclosing sidewall defining an interior chamber, said container having an open top located at the free edge of said enclosing sidewall, said container being capable of retaining a quantity of a separate weighty substance such as sand; and

a socket arrangement mounted on said bottom and located within said interior chamber, said socket arrangement including an upright socket and an inclined socket, said upright socket having a first elongated recess adapted to receive an umbrella shaft, said inclined socket having a second elongated recess adapted to receive an umbrella shaft, said first elongated recess having a first longitudinal center axis, said second elongated recess having a second longitudinal center axis, said second longitudinal center axis intersecting said first longitudinal center axis at a point located above said open top, said first longitudinal center axis coinciding with said center point, said second longitudinal recess terminating in a bottom end, said bottom end being located directly adjacent said enclosing sidewall, said inclined socket being located between said enclosing sidewall and said first longitudinal center axis.

5,207,407

PORTABLE BASE FOR BASKETBALL BACKBOARD SUPPORT POLE

James N. Fitzsimmons; Michael A. Niver, both of Waukesha, and David A. Allen, Pewaukee, all of Wis., assignors to Huffy Corporation, Waukesha, Wis.

Filed Jun. 26, 1991, Ser. No. 721,187

Int. Cl.[5] F16M *13/00*

U.S. Cl. 248—519 **12 Claims**

1. A base for a basketball support pole comprising, in combination,

a plurality of walls arranged at an angle to each other and forming a tetrahedron shaped body having a triangular base and three triangular sidewalls,

said tetrahedron body including two separable sections, each section including plural walls arranged at an angle to each other,

means for joining said two separable sections together to form said tetrahedron body,

support means within said tetrahedron body defining an elongated opening extending into said body for receiving a support pole,

said support means including a first portion attached to one of said separable sections and a second portion attached to the other of said separable sections, said first and second portions cooperating when said two separable sections are joined to provide secure connection of said pole in said base,

means for securing said pole in said elongated opening against rotation about the elongated axis of said pole and against withdrawal from said opening,

means within said body defining a ballast receiving enclosure, and

ballast within said ballast receiving enclosure.



5,207,408

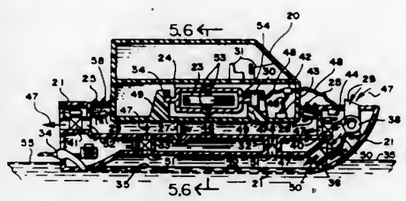
STABILIZED AIR SUPPORTED STRUCTURE

Donald E. Burg, 15840 W.W. 84 Ave., Miami, Fla. 33157

Continuation-in-part of Ser. No. 180,246, Apr. 11, 1988, abandoned, and a continuation-in-part of Ser. No. 514,123, Apr. 25, 1990, abandoned. This application Dec. 5, 1991, Ser. No. 804,235

Int. Cl.[5] B63B *17/00*

U.S. Cl. 248—550 **96 Claims**



1. Apparatus to provide support for and stabilization of a secondary structure relative to a parent structure comprising:

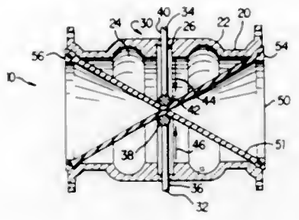
a secondary structure supporting gas cushion disposed, at least in part, between the secondary and parent structures, said secondary structure supporting gas cushion in communication with the secondary and the parent structures, and an upper surface area of said secondary structure supporting gas cushion equals a majority of a secondary structure lower surface area; and

a gyrostabilizer in communication with the secondary structure wherein said gyrostabilizer stabilizes, at least partially, said secondary structure when said secondary structure is, at least in part, supported by said secondary struc-

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ture supporting gas cushion and wherein orientation of said gyrostabilizer is directed by outputs from a controller based, at least in part, on inputs of secondary structure orientation to the controller.

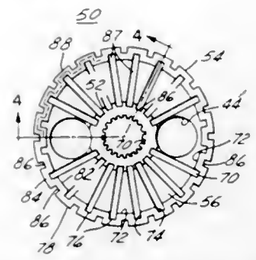
5,207,409
INTERCHANGEABLE PINCH VALVE SYSTEM
Esko A. Riikonen, 10441 Waterfowl Ter., Columbia, Md. 21044
Filed Jun. 9, 1992, Ser. No. 895,691
Int. Cl.[5] F16K *7/06*; G01R *27/00*
U.S. Cl. 251—7 14 Claims



1. A interchangeable pinch valve system, comprising:
a. a valve body having a flow axis defined by a longitudinally directed through passage formed by an interior wall thereof;
b. a tubular sleeve member being formed by a flexible tubular wall and being disposed within said valve body through passage coaxial said flow axis, said tubular sleeve member being coupled to said valve body on opposing ends thereof to define an interruptable fluid flow path therebetween, and,
c. means for pinching an intermediate portion of said tubular sleeve member to interrupt said fluid flow path, said tubular sleeve member being in contiguous contact with said interior wall of said valve body and having a pair of outwardly extending transverse folds formed in said flexible wall on opposing longitudinal ends of said intermediate portion of said tubular sleeve member, whereby said fluid flow path can be pinched closed without substantial stretch of said tubular sleeve member flexible wall, said valve body including a pair of first recess openings formed in parallel spaced relation in said interior wall transverse said flow axis for respectively receiving said outwardly directed folds of said tubular sleeve member to thereby substantially maximize a cross-sectional area of said fluid flow path within said valve body through passage, each of said pair of first recess openings having a semicircular cross-sectional contour in a direction of said flow axis for maximizing a length dimension of each of said pair of outwardly directed folds of said tubular sleeve, thereby minimizing an overall length dimension of said tubular sleeve.

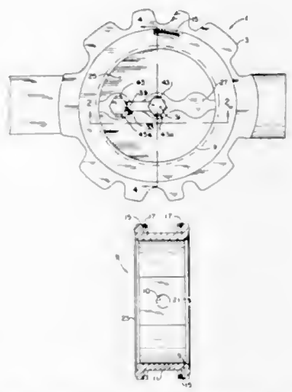
5,207,410
MEANS FOR IMPROVING THE OPENING RESPONSE OF A SOLENOID OPERATED FUEL VALVE
Russell J. Wakeman, Newport New, Va., assignor to Siemens Automotive L.P., Auburn Hills, Mich.
Filed Jun. 3, 1992, Ser. No. 892,847
Int. Cl.[5] F16K *31/06*; H01F *3/00*
U.S. Cl. 251—129.15 14 Claims

12. A valve comprising an inlet port, an outlet port, a flow path between said ports, a valve means controlling flow between said ports, a solenoid for operating said valve means, said solenoid comprising a magnetic circuit composed of magnetically conductive material forming a stator that has an associated electric coil and an armature, that is operatively coupled to said valve means for operating said valve means in accordance with the energization and de-energization of said coil, characterized in that said magnetically conductive material comprises a series of slots extending lengthwise of the direction of the magnetic lines of flux that are generated in the



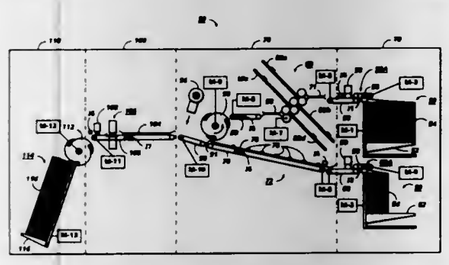
magnetic circuit where the coil is energized, said slots being disposed in an exterior surface of the magnetically conductive material and extending lengthwise from a working gap separating said stator from said armature.

5,207,411
BUTTERFLY VALVE ASSEMBLY
David E. Sisk, Rte. 1, Box 246 E, Bonne Terre, Mo. 63628
Filed Sep. 30, 1992, Ser. No. 954,019
Int. Cl.[5] F16K *1/22*
U.S. Cl. 251—306 15 Claims



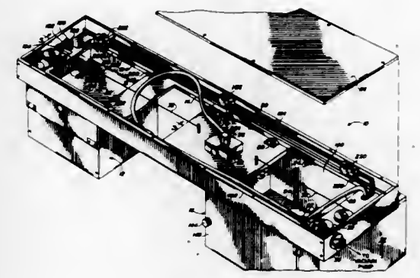
1. A butterfly valve for insertion between a pair of spaced flanges in a fluid passageway wherein said valve attains flush alignment with said flanges to maintain continuity and uninterrupted flow of material therethrough, said valve including a tubular body having a fluid flow chamber therethrough for communication with the fluid flow passage;
said valve including a disc element pivotally mounted within said tubular body to open and close the fluid flow chamber in said tubular body for open and closed communication with the fluid flow passageway;
a resilient seat surrounding the fluid flow chamber of said tubular body and including an inner wall having integrally connected spaced and opposed outer walls, the inner wall of said resilient seat being configured and dimension to engage and seal the disc element along its outer periphery when the disc element closes the fluid flow chamber in said tubular body;
said spaced and opposed outer wall of said resilient seat having inner surface walls directed towards each other and disposed for complimentary engagement and retention by a dove tail extension projecting from an inner portion of said tubular body, said dove tail extension forming entrant angles for reception of said inner wall surfaces of the seat; and
said inner surface walls of the opposed outer walls of said resilient seat having biasing means formed therein to prevent distortion of said resllient seat upon assembly or disassembly of said valve assembly, said biasing means also disposed so as to prevent compression of said inner surface walls preventing accumulation of any material within said compressions.

5,207,412
MULTI-FUNCTION DOCUMENT INTEGRATER WITH CONTROL INDICIA ON SHEETS
Robert A. Coons, Jr., Bloomfield; Charles E. Conrad, Scottsville; James B. Myers, Fairport, and Susan W. Baxter, Rochester, all of N.Y. assignors to Xerox Corporation, Stamford, Conn.
Filed Nov. 22, 1991, Ser. No. 796,524
Int. Cl.[5] B65H *5/30*; G06F *15/20*
U.S. Cl. 270—1.1 33 Claims



1. A method of inserting insert sheets into a collated stream of regular sheets which defines plural partial sets of a document so as to form a plurality of collated complete sets of said document, said insert sheets being supplied from two or more insert sheet feeder units containing a plurality of copies of each insert sheet in the document, at least a last regular sheet in a continuous collated section of said document in the collated stream having machine readable indicia printed thereon indicating that an insert sheet needs to be inserted into said collated stream after said last regular sheet, at least a last insert sheet in each continuous section of insert sheets to be inserted from each insert sheet feeder unit having machine readable indicia printed thereon indicating either that regular sheet feeding should resume or that a section of insert sheets from another insert sheet feeder unit should be inserted into said collated stream, said method comprising:
a) feeding said collated stream of regular sheets in order from an inlet toward a final destination while scanning said regular sheets with a regular sheet scanning device, located downstream of said inlet, capable of reading said machine readable indicia from said regular sheets;
b) stopping the feeding of regular sheets from said inlet when the machine readable indicia on a last regular sheet in a continuous section of the document in said stream is read, said last regular sheet in the continuous section of the document being fed toward said final destination, and starting to feed insert sheets from an insert sheet feeder unit indicated by said last regular sheet unless the machine readable indicia on said last regular sheet contains a machine readable STOP command in which case all sheet feeding stops;
c) stopping the feeding of insert sheets from the insert sheet feeder unit indicated in step (b) when the last insert sheet in a continuous section of insert sheets located in said insert sheet feeder unit is detected by an insert sheet scanning device located downstream of said insert feeder unit, said last insert sheet in the continuous section of insert sheets being fed toward said final destination;
d) returning to step (a) if instructed to do so by the last insert sheet fed, otherwise;
e) feeding insert sheets from another insert sheet feeder unit indicated by the last insert sheet fed, until a last insert sheet in a continuous stream of insert sheets located in said another insert sheet feeder unit is detected by another insert sheet scanning device located downstream of said another insert sheet feeder unit, said last insert sheet in the continuous stream of insert sheets being fed toward said final destination; and
f) repeating step (d) unless a sheet is fed containing a machine readable STOP command in which case all sheet feeding stops.

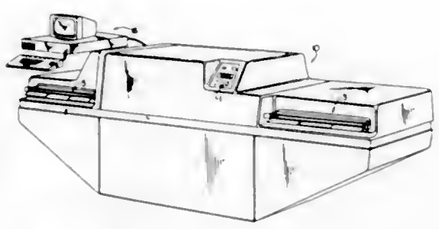
5,207,413
VACUUM SHEET FILM TRANSPORT AND METHOD
Stanislav Maron, 7801 N. 54th St., Paradise Valley, Ariz. 85253
Filed Feb. 19, 1992, Ser. No. 838,597
Int. Cl.[5] B65H *5/00*
U.S. Cl. 271—5 33 Claims



1. Apparatus for transporting sheet film from a stack of unexposed sheet film past a location for exposing the sheet film and to a location for receiving the sheet film, said apparatus comprising in combination:
a) a vacuum platen having a plenum and an apertured panel interconnecting said plenum with the ambient atmosphere;
b) means for transporting said vacuum platen from a location in proximity to the stack of unexposed sheet film, to the location for exposing the sheet film, to the location for receiving the exposed sheet film and return;
c) means for establishing a below ambient pressure environment within said plenum to draw a sheet of the sheet film off the stack of unexposed sheet film and against said panel and to retain the sheet of film against said panel during transport of said vacuum platen from the stack of unexposed sheet film, to the location for exposing the sheet film and to the location for receiving the exposed sheet of film; and
d) a receiving bin disposed at the location for receiving the exposed sheet film; and
e) means for depositing the exposed sheet of film in said receiving bin.

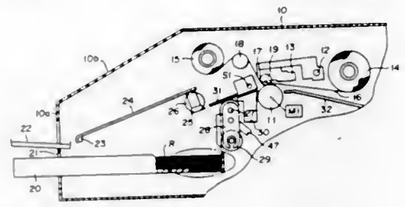
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,414
MEDIA HANDLING SYSTEM FOR PHOTOPLOTTER AND METHOD OF USE
Freddie G. Schimanski, Madison; Jerome A. Majesty; Dana W. Seniff, both of South Glastonbury, and Alan W. Menard, Bolton, all of Conn., assignors to Gerber Systems Corporation, South Windsor, Conn.
Filed Feb. 22, 1991, Ser. No. 660,280
Int. Cl.[5] B65H 3/08
U.S. Cl. 271—5 71 Claims



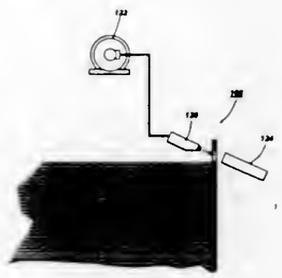
1. An article handling system for use in a photoplotter for moving an article along a path of travel from an initial position corresponding to the location of a supply of such articles to a final position corresponding to a location where articles are collected, said system comprising:
a base;
a support surface supported by said base:
said support surface having registration means associated with it for orienting one of said plurality of articles in registration with two orthogonally oriented axes;
loading means associated with one side of said support surface and including means for pulling an article from a supply of such articles located at an initial position and including means supported for movement above said support surface for automatically advancing the one of the plurality of articles onto said support surface from the initial position located generally adjacent said one side of said surface and for advancing the involved one of said plurality of articles onto said support surface so as to position it thereon in a preselected orientation in registration with said two orthogonally oriented axes;
off-loading means associated with the other side of said support surface and with the location where articles are collected for advancing said one of said plurality of articles from the support surface and to a final position located on the other side of the of the support surface;
said automatic advancing means including means for yieldably holding the one of said plurality of articles to said loading means and for cooperating with said registration means associated with said support surface such that one of said plurality of articles being handled by said advancing means becomes automatically aligned in a given orientation relative to each of said two orthogonally disposed axes as the loading means advances one of said plurality of articles onto the support surface and into engagement with said registration means from the initial position located generally adjacent said one side of said support surface; and
control means for coordinating the movements of said loading means and said off-loading means relative to one another to successively advance articles onto and off said support surface and for automatically effecting registration of an article being advanced in said given orientation on said support surface.

5,207,415
PAPER FEEDING DEVICE
Junichi Yamamoto, Hadano; Iwao Fujii, Sagamihara, and Yutaka Maeda, Kanagawa, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Jan. 11, 1991, Ser. No. 640,078
Claims priority, application Japan, Jan. 17, 1990, 2-9269; Feb. 5, 1990, 2-10455[U]; Jun. 6, 1990, 2-146101
Int. Cl.[5] B65H 3/08
U.S. Cl. 271—11 15 Claims



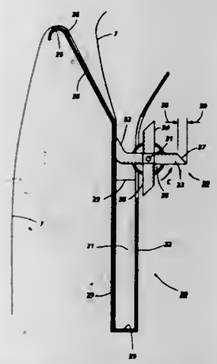
1. A paper feeding device, comprising:
a sheet holding part for accommodating sheets;
an attracting member for attracting the uppermost sheet of said accommodated sheets;
a first supporting member for supporting said attracting member so as to allow motion thereof to an attracting position and a feeding position, said attracting position representing a position at which said attracting member contacts with the uppermost of the sheets accommodated in said sheet holding part and said feeding position representing a position which lies above said attracting position;
a rotary member capable of moving between a first position at which said rotary member contacts with the leading end of said sheet attracted by said attracting member while the attracted sheets are moving from said attracting position to said feeding position by the first supporting member and a second position at which said rotary member contacts with the lower surface of said sheet having been moved to said feeding position by the first supporting member; and
a second supporting member for rotatably supporting said rotary member and for moving the rotary member from the first position to the second position.

5,207,416
STACK HEIGHT SENSING SYSTEM
Jose J. Soler, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Mar. 27, 1992, Ser. No. 858,459
Int. Cl.[5] B65H 7/02
U.S. Cl. 271—31 4 Claims



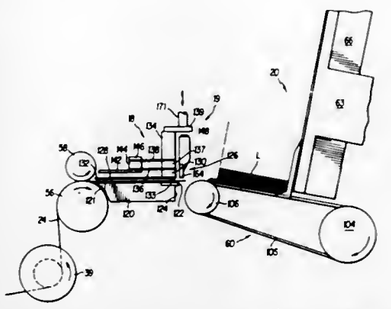
1. An electrophotographic printing machine of the type in which a latent image is developed on a photoconductive member and the developed image is transferred to a copy sheet with successive copy sheets being supplied from a stack thereof, wherein the improvement includes:
a sheet feeder;
a tray arranged to have a stack of copy sheets disposed thereon, said tray being adapted to move between a first position with an outermost copy sheet of a stack being adjacent the sheet feeder and a second position remote therefrom, said sheet feeder being adapted to advance successive outermost copy sheets from the stack thereof with said tray being in the first position;
means for moving the tray to control the position thereof;
means for generating a flow of air; and
means for receiving the flow of air from said generating means, said receiving means being enabled to transmit a signal indicative of the absence of the stack of copy sheet at the first position in response to receiving the flow of air and being inhibited from transmitting the signal in response to the stack of copy sheets blocking the flow of air to indicate the presence of the outermost copy sheet of the stack of sheets being at the first position adjacent said sheet feeder, said moving means, in response to the signal from said receiving means, moving said tray to position the outermost copy sheet of the stack at the first position adjacent said sheet feeder.

5,207,417
ACTIVE COPY SHEET CATCH AND STACKING DEVICE
Conrad J. Bell, and Ronald G. Buckner, both of Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Apr. 1, 1992, Ser. No. 861,666
Int. Cl.[5] B65H 29/54
U.S. Cl. 271—175 16 Claims



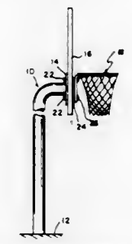
1. An active copy sheet catch tray for a copier/printer, comprising:
upstanding stationary front and rear walls with upper portions thereof forming a funnel like entrance to the catch tray that is wider than the remaining portions of said upstanding walls;
side walls connected to said front and rear walls;
a copy sheet support surface connected to said front, rear and side walls; and
paddle wheel means positioned at a predetermined location within said front and rear walls and adapted for driving copy sheets exiting the copier/printer onto said copy sheet support surface, while simultaneously holding the copy sheets and allowing trail edges of the copy sheet to fall due to gravity over said front wall and hang downward.

5,207,418
LABEL STACKING APPARATUS
Johnathan P. Oakes, Winchester; Jeffery B. Brooks, and David A. Kearney, both of Keene, all of N.H., assignors to Markem Corporation, Keene, N.H.
Division of Ser. No. 583,971, Sep. 18, 1990, Pat. No. 5,079,980.
This application Sep. 3, 1991, Ser. No. 754,022
Int. Cl.[5] B65H 31/08, 31/04
U.S. Cl. 271—212 12 Claims



1. A stacking device for receiving a plurality of generally flexible pieces which have been cut from a web of elongate material, the device comprising:
a stacking chute for receiving the web pieces following their cutting from the material web;
a conveyor for transporting the web pieces to the bottom of the stacking chute; and
a label stop positioned at the bottom of the stacking chute, said label stop comprising first and second legs connected to one another so as to provide the label stop with a generally L-shaped configuration, with said first leg being angularly inclined toward the top of the stacking chute, said label stop being operable to support a plurality of generally flexible web pieces in said stacking chute;
and further wherein said stacking device is operable to receive and stack said plurality of generally flexible web pieces in the absence of any auxiliary web piece lifting apparatus.

5,207,419
DIRECT MOUNT FOR BASKETBALL BACKBOARD AND RIM
Edward A. Schroeder, 630 Oceola Dr., Algonquin, Ill. 60102
Filed Jul. 16, 1990, Ser. No. 552,466
Int. Cl.[5] A63B 63/08
U.S. Cl. 273—1.5 R 8 Claims



1. A combined basketball backboard and rim direct mounting system comprising:
a basketball backboard;
a support means for mounting the basketball backboard and rim to a fixed structure and including a flat member attached to said fixed structure;

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aligned sets of mounting holes in said flat member, basketball backboard and rim;

screw and nut means for each of said sets of holes for adjustably mounting the basketball backboard to the flat member in a fixed proper orientation with respect to the flat member; and

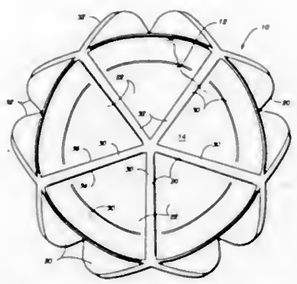
securement means cooperating with an extension on each of said screw means to subsequently and independently mount said basketball rim to said flat member while maintaining the said proper orientation of said backboard member.

5,207,420

ANIMAL PLAY BALL

Douglas M. Crawford, and Barbara D. Crawford, both of 3187 Lucas Dr., Lafayette, Calif. 94549

Filed Feb. 24, 1992, Ser. No. 840,124
Int. Cl.[5] A63B *39/06*; A01K *29/00*
U.S. Cl. 273—58 K 2 Claims



1. A play ball of unitary construction for use by a horse, said play ball including a generally spherical body portion having an outer surface and a plurality of elongated, narrow ribs affixed to and projecting outwardly from said outer surface a distance in the order of from about 1 inch to about 4 inches, said elongated, narrow ribs being of substantially uniform thickness in the range of from about ¾ inch to about 1 inch and including side walls radiating outwardly from said outer surface at substantially right angles thereto with the side walls of each rib in substantially parallel relationship, with said elongated, narrow ribs being interconnected and defining a plurality of spaced recesses, all of said recesses configured in the shape of an equilateral triangle and surrounded by three interconnected rib segments of the same length and the rib segment length being in the range of from about 4 inches to about 12 inches, said ribs having outer arcuate surfaces disposed along an imaginary sphere spaced from said outer surface, each of said rib segments for selective biting by a horse whereby said horse may lift and carry said play ball while the horse's muzzle is in an adjacent recess, and said elongated, narrow ribs being so configured as to allow rolling of said play ball on said rib outer arcuate surfaces when the play ball is on the ground.

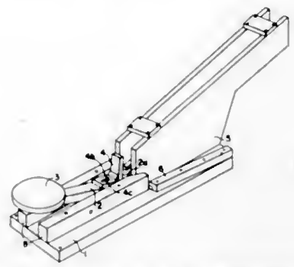
5,207,421

BALL TOSSING DEVICE WITH MAGAZINE

Frank A. Gorvin, 1 Lytton Road, Bournemouth, Dorset, United Kingdom BH1 4SH

Continuation of Ser. No. 602,237, Nov. 9, 1990, abandoned. This application Apr. 8, 1992, Ser. No. 865,695
Claims priority, application United Kingdom, May 14, 1988, 8811494
Int. Cl.[5] A63B *69/40*
U.S. Cl. 273—26 R 6 Claims

1. A game ball projecting device for batting practice comprising a base, and a ball striker unit, means for mounting said ball striker unit on said base for alternative use by left-hand and right-hand batters, said striker unit includes a pivotable arm having a first end adapted to be struck by a bat and a second end for imparting upward motion to a ball, a magazine capable of holding a plurality of balls having a predetermined, said balls being arranged in said magazine in a predetermined order



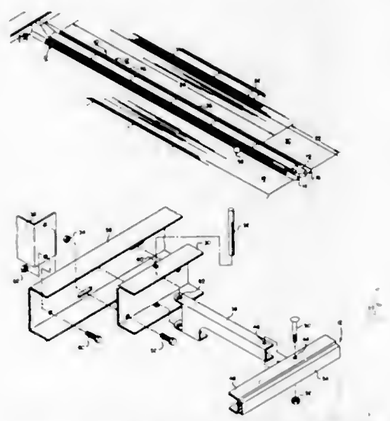
for positioning a lowermost ball in the magazine above said second end of the pivoted arm, and insert means for the magazine for dispensing balls of a different diameter than said predetermined diameter.

5,207,422

BOWLING ALLEY BUMPER SYSTEM

Bobby R. Beene, 9919 Ila Dr., Dallas, Tex. 75220

Filed Feb. 25, 1992, Ser. No. 842,005
Int. Cl.[5] A63D *5/00*
U.S. Cl. 273—37 9 Claims



1. In a bumper system for selectively guarding a gutter of a bowling alley in which said gutter is adjacent to said alley and extends from a ball delivery entrance location to a discharge exit location, said bumper system being operative when selectively set to prevent entry of a thrown ball delivery onto said alley from entering said gutter and including displaceable longitudinal bumper members collectively extending substantially the length of said gutter, support means secured to a support surface of said bowling alley alongside of the gutter for the substantial length thereof to support said bumper members for displacement between a first relation in which said gutter is exposed to permit entry of a ball delivered onto the alley and a second relation in which said gutter is guarded against entry of a ball delivered onto the alley; the improvement in which said support means is comprised of a plurality of individual sections collectively extending longitudinally end-to-end parallel and substantially the length of the gutter from said entrance location to said exit location with a significant number

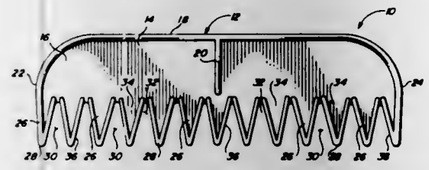
of said sections being comprised of a common modular unit each containing an elongated length of channel shaped support, a correlated length of bumper member and at least one mounting member pivotally securing said bumper member to said channel shaped support, wherein each of said channel shaped supports are adapted to be fastened to said alley support surface in said end-to-end arrangement.

5,207,423

TENNIS RACKET STRING STRAIGHTENER

David Short, 11623 La Maida St., North Hollywood, Calif. 91601

Filed Jul. 29, 1991, Ser. No. 737,292
Int. Cl.[5] A63B *51/00*
U.S. Cl. 273—73 R 8 Claims



1. An improved tennis racket string straightener for straightening misaligned strings on a tennis racket, said straightener comprising a unitary structure having:

a) an elongated body having a straight bottom end; and,

b) a plurality of spaced teeth unitary and integral with said body and depending from said bottom end along the length of said body, each said tooth being generally triangular in both front and rear elevation and side elevation, the apices of said teeth being pointed downwardly, the spacings between said teeth being generally triangular in side elevation with the apices of said spaces between said teeth being pointed upwardly, wherein each of said teeth are of approximately the same length;

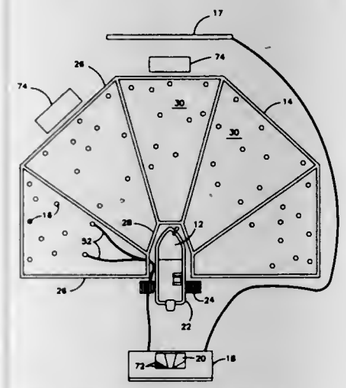
c) wherein said teeth are introduced between the strings of a tennis racket to realign the strings on a tennis racket.

5,207,424

CASTING GAME

Richard J. Bleam, and Rene Wade, both of Springfield, Mo., assignors to Bass Pro Shops, Inc., Springfield, Mo.

Filed Jun. 12, 1992, Ser. No. 897,833
Int. Cl.[5] A63F *9/00*
U.S. Cl. 273—140 15 Claims



1. A casting game, comprising the steps of:

a) providing a casting platform and a pool area adjacent said platform, and a plurality of targets at spaced locations within said pool area, each of said targets having an associated score value;

b) allowing a player to cast, using a fishing rod and associated line, a plug fastened to said line into said pool area toward player-chosen ones of said targets in an attempt to contact said ones of said targets;

c) repeating step b) for a predetermined period of time;

d) summing the score values of those targets which said plug contacts as a result of said cast; and

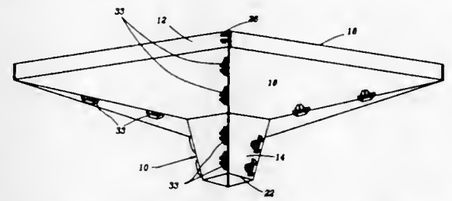
e) repeating steps b) through d) for a plurality of players, and comparing the sums of step d) to determine the player with the greatest score value sum.

5,207,425

DEVICE FOR HANDLING GAME PIECES

Kenneth O. Cohrs, 155 Branford Rd., North Branford, Conn. 06471

Continuation-in-part of Ser. No. 532,867, Jun. 4, 1990, abandoned. This application Feb. 28, 1991, Ser. No. 663,080
Int. Cl.[5] A63F *9/00*
U.S. Cl. 273—148 R 7 Claims



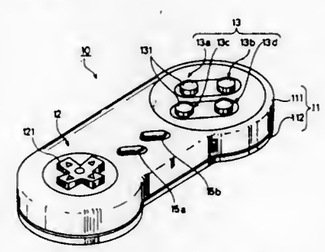
1. A unitary device for handling game pieces comprising four uniform one piece elements, each of said four elements having rectangular base portion, an obtuse trapezoidal central portion and an acute trapezoidal chimney portion, each of said elements having at one side a number of locking clips and at the other side a number of clipways, said locking clips being spaced to interrelate and interlock with said clipways of the other of said uniform elements; when said four elements are interrelated and interlocked with each other said unitary device for handling game pieces is formed.

5,207,426

CONTROLLER FOR A GAME MACHINE

Yoshihiro Inoue, Kyoto, and Kenichiro Ashida, Amagasaki, both of Japan, assignors to Nintendo Co. Ltd., Kyoto, Japan

Filed Aug. 6, 1991, Ser. No. 742,678
Claims priority, application Japan, Aug. 9, 1990, 2-85019[U]
Int. Cl.[5] A63F *9/22*
U.S. Cl. 273—148 B 37 Claims



1. A controller for a game machine, said controller being held in use by a use between left and right palms, comprising:

a flat-shaped, elongate housing having an upper surface, a

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lower surface and a side surface spatially separating the upper and lower surfaces;

upper surface user operating means for generating electrical signals formed at a position on the upper surface of said housing reachable by a thumb of a hand holding the housing; and

side surface user operating means for generating electrical signals formed at a position on the side surface of said housing reachable by an index finger or a middle finger of a hand holding the housing;

wherein said side surface user operating means includes;

an elongate key member having one end supported and pivotable in said housing approximately a the center of said housing in the longitudinal direction and another movable end extending longitudinally along the side surface of the housing toward an end portion of said housing and positioned to have the movable end of the key member exposed,

switch means contained in said housing for outputting an electrical signal when depressed by pivoting of said key member, and

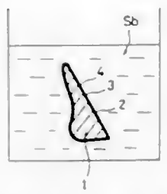
holding means for holding said switch means in said housing at a position where said switch means can be depressed by said key member.

5,207,427

GOLF CLUB HEAD AND MANUFACTURING METHOD THEREOF

Minoru Saeki, Higashi-osaka, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan

Filed Apr. 24, 1992, Ser. No. 872,812
Claims priority, application Japan, May 9, 1991, 3-135491
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—167 R 9 Claims



1. A golf club head comprising: a head body coated with an electrolytic foundation layer on a partial or entire outer surface thereof, the foundation layer being covered with a non-electrolytic nickel-boron plating, said non-electrolytic nickel-boron plating being covered with a chromate film.

5,207,428

GOLF CLUB HEAD

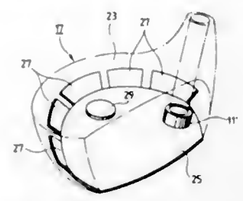
Yuichi Aizawa, Tokyo, Japan, assignor to Daiwa Golf Co., Ltd., Tokyo, Japan

Filed Dec. 19, 1991, Ser. No. 810,285
Claims priority, application Japan, Jan. 21, 1991, 3-1345[U]
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—174 14 Claims

1. A golf club head comprising:

a head body comprising a core member and a fiber-reinforced resin layer, said core member being coated with said fiber-reinforced resin layer, said head body having a sole portion, heel portion, toe portion, a back side portion, and a face side portion; and

a sole plate attached to the sole portion of said head body, said sole plate lying in a plane and bounded in said plane by a peripheral edge, said sole plate having a protruded



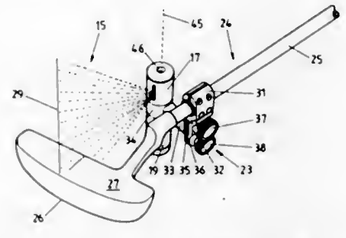
member being encapsulated in said head body and projecting radially beyond said peripheral edge of said sole plate.

5,207,429

CLUB AIMING UNIT

Richard G. Walmsley, and Keith R. Degenhardt, both of Unley, Australia, assignors to Taracan PTY Ltd., Unley, Australia

Filed Aug. 22, 1992, Ser. No. 901,726
Claims priority, application Australia, Jun. 21, 1991, PK6787
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—186.2 17 Claims



1. A club aiming unit for attachment to a club providing a means for enabling the orientation of the impact surface of the club head with respect to the target to be monitored during the swinging of the club, said club aiming unit comprising

a first light source producing a first planar beam of light having a narrow and substantially linear cross-section that projects a line of light onto a surface, and

attachment means for mounting said first light source to said club such that said first beam is projected over the preferred impact point of said impact surface with the plane of said first beam perpendicular to said impact surface causing a line of light to be projected onto any surface immediately below said club head, said projected line of light providing a reference mark which can be viewed during the swing of the club.

5,207,430

HINGED GOLF TRAINING AID

Gary Goins, 6161 Sundown Dr., St. Peterburg, Fla. 33709

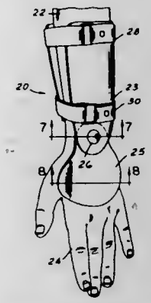
Filed Jun. 26, 1991, Ser. No. 721,152
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—189 R 2 Claims

1. A golf training apparatus comprising:

an arm guide adapted to be secured to the arm of a golfer, said arm guide being generally C-shaped in cross-section, and extending over more than 180 degrees about a central axis of said arm guide, at least one strap for securing said arm guide to the arm of a golfer;

a wrist guide adapted to be aligned with the hand of a golfer, with no provision for securing same thereto; and

said wrist guide being pivotally attached to said arm guide such that said wrist guide may pivot relative to said arm guide, the pivotal connection of said arm guide and said



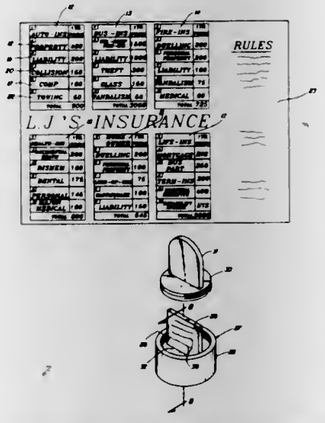
wrist guide being at a pivot axis roughly aligned with a golfer's wrist.

5,207,431

INSURANCE POLICY GAME APPARATUS

Neamor L. Joseph, 2323 N. Eastwood St., Santa Anna, Calif. 92701

Filed Mar. 16, 1992, Ser. No. 852,402
Int. Cl.[5] A63F *3/00*
U.S. Cl. 273—278 1 Claim



1. An insurance policy game apparatus, comprising,

a game board, the game board including a predetermined number of category columns, the columns arranged in a parallel relationship relative to each other, wherein each category column of said category columns includes a further predetermined number of premium spaces, wherein each premium space indicates a contrasting numerical total relative to the other premium spaces of that column, and

the game board includes a rule space arranged for accommodating game rules thereon, and

a first multi-sided die member, wherein the die member includes a number of first die member sides equal to the predetermined number, and

a second multi-sided die member, wherein the second multi-sided die member includes a number of second die member sides equal to the predetermined number, and

a plurality of indicator markers, wherein each player receives a plurality of the plurality of indicator markers, and

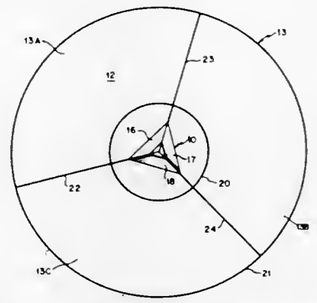
at least one of the indicator markers afforded each player includes a cylindrical base housing, the cylindrical base housing includes an internally threaded cavity directed from an upper distal end of the cylindrical base housing, wherein the internally threaded cavity includes a cavity floor, and a lid arranged for securement to the internally threaded cavity, wherein the lid includes a lid flange extending upwardly relative to the lid, and the cavity floor includes a floor slot diametrically directed through the cavity floor, and the housing second cavity that is coaxially aligned within the cylindrical base housing extending from the slot downwardly into the base housing, and a spring mounted within the second cavity, and a directional flange projecting from the slot, wherein the directional flange includes a flange base plate positioned within the second cavity mounted to an upper distal end of the spring, and the directional flange includes further directions imparted thereon to selectively add or deduct a total from an indicated value of the respective insurance premium spaces.

5,207,432

APPARATUS FOR PLAYING REBOUNDING BALL GAMES

Mark Miller, 2625 E. 13th St. Apt. 5F, Brooklyn, N.Y. 11235

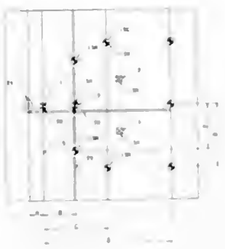
Filed Oct. 21, 1991, Ser. No. 780,720
Int. Cl.[5] A63B *67/00*
U.S. Cl. 273—411 18 Claims



1. Apparatus for playing rebounding ball games comprising, a pyramid-shaped structure having at least three essentially flat sides defining playing surfaces, each playing surface constituting a solid surface on which a game is playable by throwing a reboundable ball on to the playing surface and rebounding the ball therefrom, the pyramid-shaped structure being disposed in use resting on a substantially flat playing area, demarking means for demarking the playing area into a plurality of playing courts comprising means for defining a circle circumferentially of the structure defining an outer boundary of the playing courts and means for dividing the playing area into a number of playing courts corresponding to the number of playing surfaces and corresponding to the number of said sides of said pyramid-shaped structure, each of said playing courts being defined along one side thereof by a base of a corresponding playing surface, said demarking means comprising means for defining sides of each court diverging radially from a corner of a base of a corresponding playing surface and terminating at said outer boundary, and means defining a circle internally of the outer circle of the playing courts circumferentially of the pyramid-shaped structure thereby defining an inner boundary of the individual courts.

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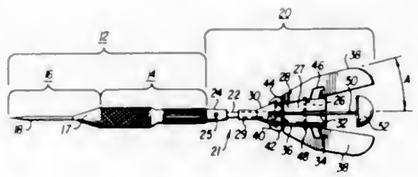
5,207,433
FOOTBALL GAME, APPARATUS AND METHOD OF PLAY
Robert A. Moore, 3605 Briardale Dr., NW., Massillon, Ohio 44646
Filed Oct. 25, 1991, Ser. No. 782,125
Int. Cl.[5] A63B *67/00*
U.S. Cl. 273—411 35 Claims





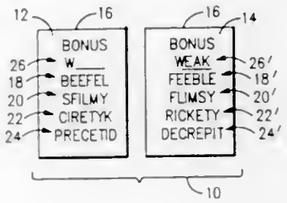
1. Combined apparatus for playing a football passing game to be played by 3 to 5 players including one quarterback offensive player and the remainder defensive players comprising
a) a field area of substantially rectangular configuration having dimensions of at least about 30 by 40 yards,
b) a football,
c) an upright platform positioned behind the line of scrimmage from which the quarterback player obtains the football to initiate a given play,
d) a plurality of movable upright football-receiving net members equal to the number of defensive players to be positioned downfield at five, ten or twenty yard intervals from the line of scrimmage at the option of the quarterback player, and
e) a plurality of markings of fixed defensive player positions marked on said field at prescribed spaced distances from said net members for initial positioning of the said defensive players upon initiation of a given play to prevent the quarterback player from advancing said football by successfully passing said football into one of said net members

5,207,434
THROWING DART WITH COLLAPSIBLE TAIL PORTION
Timothy K. Oudekerk, 8022 Kelly Rd., Winnebago, Ill. 61088
Filed Jul. 6, 1992, Ser. No. 909,043
Int. Cl.[5] A63B *65/02*
U.S. Cl. 273—423 20 Claims



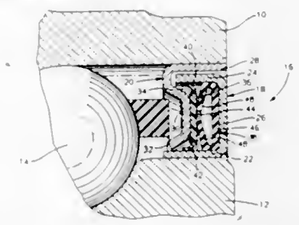
5. A throwing dart comprising a dart body having a longitudinal axis and a tail portion, said tail portion comprising a stem portion and a sleeve axially movable along said stem portion, a plurality of flights mounted to said sleeve for radial movement relative to the axis of the dart body and cam means cooperating between said stem portion and said flights for moving said flights from retracted positions to radially outwardly extended positions in response to axial movement of said sleeve along said stem portion in a direction away from said dart body, said stem portion including a shaft, said cam means comprising a cam member mounted to said shaft and a recess in each of said flights, said cam member being engagable with each recess.

5,207,435
WORD GAME
Scott Tanner, 1621 Bennett St., Utica, N.Y. 13502
Filed Apr. 27, 1992, Ser. No. 874,407
Int. Cl.[5] A63F *9/18*
U.S. Cl. 273—429 10 Claims



1. A word-solving game played between two or more players/teams comprising:
a) a first deck of clue cards each having front and back surfaces, said front surface having at least one scrambled word and an unsolved main word imprinted thereon, said unsolved main word being represented by at least the first letter of said main word followed by a number of space marks, said number of space marks equaling the number of letters of said main word following said at least first letter, said back surface including the solutions to said at least one scrambled word and said main word imprinted thereon; and
b) means selectively hiding substantially all of said front and back surfaces of said first deck of clue cards from the view of said players.

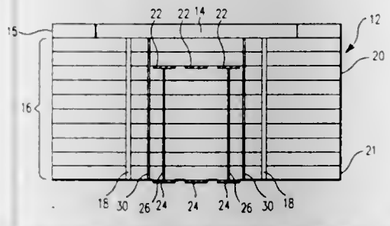
5,207,436
LOW FRICTION UNITIZED SEAL
Frederick E. Lederman, Sandusky, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Jul. 13, 1992, Ser. No. 912,381
Int. Cl.[5] F16J *15/32*
U.S. Cl. 277—38 2 Claims



1. A unitized seal for installation in an annular space between a pair of relatively rotatable, generally coaxial members that are subject to dynamic running forces that rapidly vary the relative axial and radial positions thereof, said seal comprising,

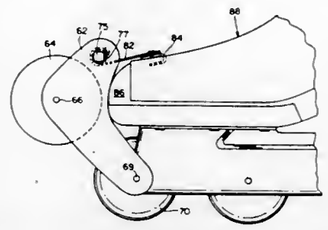
a first casing of rigid material joined to one of said rotatable members within said annular space and having a pair of radially spaced cylindrical sealing walls joined by an annular web,
a second casing joined to the other of said rotatable members,
an annular disk of relatively stiff, low friction plastic material having a flat central section and a radial width measured between inner and outer edges thereof that is slightly greater than the radial spacing of said sealing walls, said disk being secured to said first casing so as to be coaxial to said second casing and axially spaced from said annular web with said inner and outer edges contacting said sealing walls, thereby providing two low friction lines of sealing contact, and,
a resilient elastomer seal joined to said second casing and located in the axial space between said annular disk and annular web, said elastomer seal having at least one flexible seal lip resiliently engaged with said disk central section, thereby providing an additional low friction sealing barrier that responds quickly to said dynamic forces to maintain sealing contact,
whereby multiple low friction sealing barriers are created within said annular space, each involving contact of compatible sealing materials.

5,207,437
CERAMIC ELECTROSTATIC WAFER CHUCK
Michael S. Barnes, Mahopac; Dennis K. Coultas, Hopewell Junction; John C. Forster, Poughkeepsie, and John H. Keller, Newburgh, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 29, 1991, Ser. No. 784,291
Int. Cl.[5] H01F *13/02*
U.S. Cl. 279—128 7 Claims



1. An electrostatic chuck for holding semiconductor wafers against a top surface of said chuck, comprising in combination:
a plurality of laminates fused together to form a support body, one of said laminates disposed adjacent said top surface having a back-side-metal electrode pattern for generating an electrostatic force to hold said semiconductor wafer to said top surface, and another of said laminates having a back-side-metal pattern on an exterior surface of said support body for connection to a power source;
a plurality of vias formed in said laminates electrically connecting said pattern for generating an electrostatic force to said pattern for connection to a power source; and
a plurality of apertures formed in said laminates and aligned in said fused support body to form a passage for a fluid coolant, said passage extending from said exterior surface to said top surface.

5,207,438
BRAKE FOR IN LINE SKATE
Gary Landers, 97 Grovers Ave., Winthrop, Mass. 02152
Division of Ser. No. 803,528, Dec. 9, 1991, abandoned. This application Aug. 3, 1992, Ser. No. 923,522
Int. Cl.[5] A63C *17/14*
U.S. Cl. 280—11.2 3 Claims



1. Braking system for an in line skate having a boot, a support member fixed to the boot and a plurality of wheels mounted on the support member via axles, the system comprising
a pair of parallel, spaced brackets having a lower end pivotably mounted to a forward end of the support member, each of the brackets having a generally planar configuration with opposed inner and outer flat surfaces,
a disc-shaped braking member extending transversely between forward portions of the pair of brackets and having substantially flat end surfaces for engaging respective flat inner surfaces of the pair of brackets,
means for rotatably mounting the braking member to the brackets and for maintaining frictional contact between the end surfaces of the braking member and the inner surfaces of the brackets, so as to generate a braking force when the braking member is rotated by being placed in ground contact during movement of the skate,
an axle extending transversely between upper portions of the brackets, and
strap means having a forward end secured to the axle and a rearward end secured to a forward portion of the boot for securing the brackets against a toe portion of the boot, and adjustment means for adjusting the length of the strap means.

5,207,439
IMPROVEMENTS IN HAND TRUCKS WITH PIVOTALLY CONNECTED, SPREADABLE, WHEEL-SUPPORTED, AUXILIARY SUPPORT FRAMES
Carl N. Mortenson, Midland, Mich., assignor to Magline, Inc., Pinconning, Mich.
Filed Feb. 21, 1992, Ser. No. 839,857
Int. Cl.[5] B62B *3/02*
U.S. Cl. 280—47.2 11 Claims

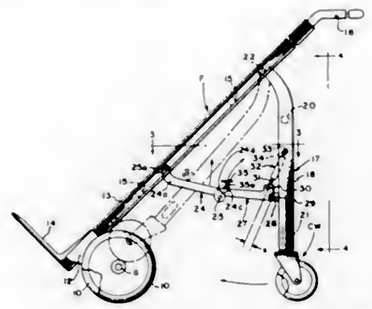
1. In a hand propelled, load carrying hand truck:
a. an upright main frame, including brace-connected side rails, with a handle part at its upper end and a wheel and axle assembly at its lower end to support it for travel;
b. a forwardly extending nose platform for the lower end of the main frame for supporting a load thereon which rests back against the main frame when the main frame is in vertically rearwardly tilted position;
c. an attachment frame, having at least one ground engaging member at its lower end, pivotally connected near its upper end to an upper portion of said main frame for movement out away from the general plane of said main frame to a spread divergent position with respect thereto;
d. a rearwardly extendible first link structure having a pivot pivotally connecting said first link to said main frame at a location spaced downwardly from the pivotal connection of the attachment frame to the main frame;

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e. forwardly extendible second link structure having a pivot pivotally connecting said second link structure to said attachment frame;

f. a swingable link pivot, in a first position in front to rear alignment with both said pivots in an alignment plane, pivotally connecting said first link structure to said second link structure for movement from a position in which said link pivot is in a second position on one side of said alignment plane when the attachment frame is folded to said main frame through said alignment plane to an over-center third position in which said link pivot is on the opposite side of said alignment plane; and

g. force exerting, compressible spring means, having first spring pivot connecting said spring means to one of said



main frame and attachment frame at a first point and a second spring pivot connecting said spring means to one of said link structures at a second point lying inboard in a front to rear direction of the pivot of said one of said main frame and attachment frame when the link pivot is in said third position and said attachment frame is in spread position for exerting a moment arm form moving said link pivot through said alignment plane, to said third over-center position and positively resisting inadvertent movement of said link pivot out of said third position, while positively forcing said link pivot to said second position and said link structures and attachment arm to folded position once said link pivot has been moved back from said third over-center position through said plane of alignment.

5,207,440

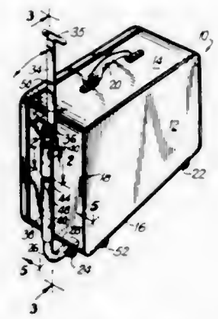
ARTICLE OF WHEELED, STEERABLE LUGGAGE

Joseph Liang, P.O. Box 1060, Alpine, N.J. 07620

Filed Oct. 5, 1992, Ser. No. 956,603

Int. Cl.[5] B62B *3/02*

U.S. Cl. 280—47.11 11 Claims



1. An article of wheeled luggage selectively movable on and along an underlying support surface in a user-controllable direction of movement, comprising:

a plurality of walls bounding an interior, closeable compartment for containing articles within said compartment, said plurality of walls including a substantially horizontal bottom wall and a substantially vertical front wall;

a pair of freely rotatable rear wheels mounted to and projecting from said bottom wall for rolling engagement with the support surface;

a tubular member having an elongated substantially vertical portion disposed proximate said front wall and a substantially horizontal portion depending from one end of said substantially vertical portion and disposed proximate said bottom wall;

a freely rotatable front wheel carried on said substantially horizontal portion for rolling engagement with the support surface and having a fixed orientation relative to said substantially horizontal portion;

a supporting member mounted in fixed relation to said front wall and captively supporting said tubular member for axial rotation of said substantially vertical portion relative to said supporting member and said front wall so that axial rotation of said substantially vertical portion carries said substantially horizontal portion through a corresponding pivotal motion and said front wheel through a corresponding angular reorientation; and

pull handle means pivotally attached to said tubular member at a second end of said substantially vertical portion opposite said one end and graspable by a user for transferring user-applied, selectively-directed pull forces to the article of luggage for moving the article along the support surface and for selectively changing the direction of movement of the article of luggage along the support surface by pull-handle means-imparted rotational movement of said tubular member to angularly reorient said front wheel for movement of the article of luggage in a newly selected direction.

5,207,441

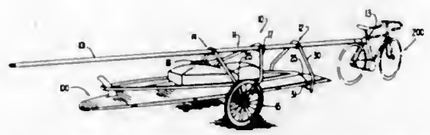
SAILBOARD TRAILER APPARATUS

Carleton A. Granbery, Creampot Rd., Hartland Four Corners, Vt. 05049

Filed Sep. 13, 1991, Ser. No. 759,356

Int. Cl.[5] B62B *1/10*

U.S. Cl. 280—204 17 Claims



1. A trailer apparatus for use with a bicycle to transport a sailboard including a hull and a mast having a coupling provided at the base of the mast; wherein, the trailer apparatus comprises

a primary wheeled support unit having an upper portion provided with means for releasably securing the primary support unit to said mast;

a coupling unit including means for operatively attaching the base of said mast to said bicycle: and,

a secondary support unit provided with means for releasably securing the secondary support unit to said mast; wherein, both said primary and secondary support units are provided with means for supporting said hull at spaced locations; wherein said means for releasably securing said primary and secondary support units to said mast comprise a plurality of tether members.

5,207,442

TOY VEHICLE WITH TRACK AND ROLLER DRIVE TRAIN

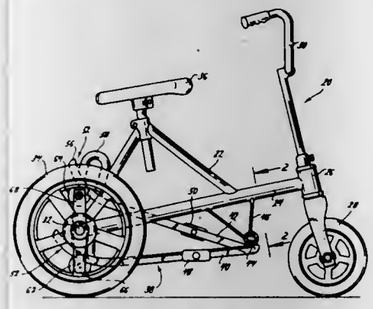
Frank Gray, St. Louis, and LeRoy Stienbarger, Licking, both of Mo., assignors to Champion Toy Company, St. Louis, Mo.

Continuation of Ser. No. 435,336, Nov. 13, 1989, abandoned.

This application Mar. 22, 1991, Ser. No. 677,351

Int. Cl.[5] B62M *1/04*

U.S. Cl. 280—256 25 Claims



1. In a self-propelled vehicle, the vehicle being adapted to support a rider thereon as it is propelled, the vehicle having a drive axle rotatably mounted to a supporting framework, the axle having a pair of wheels rotatably mounted thereto, each of said wheels being mounted generally at an outboard end of said axle and said axle extending substantially in a straight line between said wheels, the improvement comprising a track and roller drive linkage including at least one roller and one track interconnected between the drive axle and the framework and mounted inboard of said wheels, each roller being mounted to the axle and each track being mounted to the framework, and means for propelling the vehicle by imparting relative movement between said track and said roller.

5,207,443

MULTIPLE AXLE TRAILERS

George W. Mitchell, Foss Farm, Wilberfoss, York, North Yorkshire, United Kingdom YO4 5NY

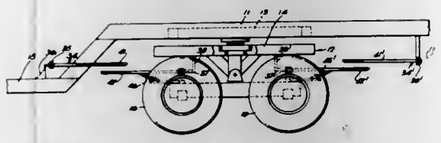
PCT No. PCT/GB89/00465, § 371 Date Nov. 8, 1990, § 102(e) Date Nov. 8, 1990, PCT Pub. No. WO89/10866, PCT Pub. Date Nov. 16, 1989

PCT Filed Mar. 5, 1989, Ser. No. 602,268

Claims priority, application United Kingdom, May 12, 1988, 8811247; Jul. 23, 1988, 8817612

Int. Cl.[5] B62D *13/02, 13/06*

U.S. Cl. 280—426 14 Claims



1. A multiple axle trailer comprising

a sub-chassis fitted with at least first and second axles, a chassis supported on the sub-chassis to pivot relative to the sub-chassis and provided with means at its forward end to enable the trailer to be pivotally mounted to a towing vehicle, a pair of wheels on each of said at least first and second axles, the pair of wheels on the first axle able to turn with respect to the first axle about respective pivot points,

said trailer including

a steering arm pivotally connected to the sub-chassis at a first pivot, and to the chassis at a second pivot, and connected to pivot relative to the sub-chassis when the chassis is caused to pivot relative to the sub-chassis, the length of the steering arm being adjustable to compensate for changes in the distance between the first and second pivots during operation;

a mounting point movable with the steering arm, a respective pivot point associated with each of the wheels of said first axle,

and a system of linkages connected between the pivot point of each wheel of said first axle and the mounting point, the linkages being connected to steer the wheels of the first axle in response to the pivotal position of the steering arm relative to the sub-chassis.

5,207,444

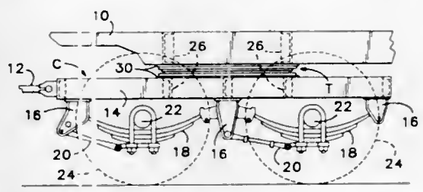
TURNTABLE FOR STEERABLE TRAILERS

Robert E. Tydeman, 7878 SW. Peters Rd., Tigard, Oreg. 97224

Filed Aug. 23, 1991, Ser. No. 749,345

Int. Cl.[5] B62D *53/08*

U.S. Cl. 280—441.1 8 Claims



1. A turntable apparatus comprising:

a) a first turntable ring member having an outwardly facing annular groove,

b) a plastic bearing ring captured in the annular groove of said first turntable ring member and having an outwardly facing annular groove, and

c) a second turntable ring member having an inwardly extending, peripheral locking section captured within the annular groove of said bearing ring for securing said first and second ring members together for relative rotation.

5,207,445

SHOCK ABSORBER SECUREMENT FOR A SKI BINDING

Klaus Hoelzl, Vienna, Austria, assignor to HTM Sport- und Freizeitgeraete Gesellschaft m.b.H., Schwechat, Austria

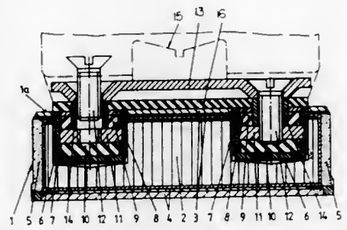
PCT No. PCT/EP91/00504, § 371 Date Dec. 11, 1991, § 102(e) Date Dec. 11, 1991, PCT Pub. No. WO91/16112, PCT Pub. Date Oct. 31, 1991

PCT Filed Mar. 16, 1991, Ser. No. 776,327

Claims priority, application Austria, Apr. 12, 1990, 884/90

Int. Cl.[5] A63C *5/04*

U.S. Cl. 280—607 22 Claims



1. A shock absorber for effecting a fastening of a ski binding to a ski having an upper belt, an internal core and a lower belt, said ski binding having a base plate means adapted to be se-

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cured to said ski, comprising an insert means adapted to be inserted through an opening through said upper belt and into said internal core of said ski for effecting a securement of said ski binding to said ski, said insert means including:

an elongated hollow sleeve member fixedly anchored in said internal core of said ski so that a central axis thereof is oriented generally perpendicular to an upper surface of said upper belt, an end of said hollow sleeve member adjacent said upper belt being open, said hollow sleeve member having a smooth inner wall surface defining a first cross sectional area in a first plane perpendicular to said central axis larger than a second cross sectional area of said open end of said hollow sleeve in a second plane perpendicular to said central axis;

a high strength layer member reciprocally received in said hollow sleeve member, said high strength layer member having a third cross sectional area in a third plane perpendicular to said central axis conforming in size to said first cross sectional area as well as a first part of a two part fastening means thereon; and

an elastomer material member oriented between said high strength layer member and said open end of said hollow sleeve member so that said elastomer material member will be compressed as said high strength layer member moves toward said open end, said first part of said two part fastening means being connected to a second part to facilitate a securing of said ski binding to said ski, said connected first and second parts effectively uniting said base plate members to said high strength layer member.

5,207,446

CROSS COUNTRY SKI BINDING

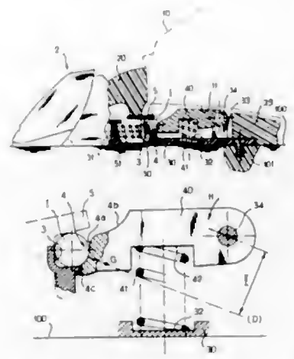
Paul Arnulf, Alby sur Cheran, and Emmanuel Jacquet, La Balme de Sillingy, both of France, assignors to Salomon S.A., Annecy Cedex, France

Filed May 20, 1991, Ser. No. 702,380

Claims priority, application France, May 21, 1990, 90 06506

Int. Cl.[5] A63C *9/18*

U.S. Cl. 280—615 **19 Claims**



15. A binding for retaining at least a part of a ski shoe on a cross country ski, said binding comprising:

a base adapted to be affixed to an upper ski surface;

a first member fixed to said base and having a portion defining a forward limit of a generally transverse channel;

a second member having a portion for defining a rearward limit of the generally transverse channel;

a device for mounting the second member on the base for movement of the rearward limit of the channel away from the forward limit of the channel;

a return biasing device connected for opposing the movement of the rearward limit of the channel away from the forward limit of the channel; and

a latch movably connected to the base and being positioned relative to the channel to obstruct movement of the part of the ski shoe from the transverse channel of the binding.

5,207,447

SKI BINDING

Roland Erdei, Weigelsdorf; Henry Freisinger, Vienna; Heinz Wittmann, Vienna, and Johann Zotter, Vienna, all of Austria, assignors to HTM Sport- und Freizeitgeraete Gesellschaft m.b.H., Schwechat, Austria

PCT No. PCT/EP91/00240, § 371 Date Sep. 30, 1991, § 102(e) Date Sep. 30, 1991, PCT Pub. No. WO91/12058, PCT Pub. Date Aug. 22, 1991

PCT Filed Feb. 8, 1991, Ser. No. 768,669

Claims priority, application Austria, Feb. 16, 1990, 368/90

Int. Cl.[5] A63C *9/00*

U.S. Cl. 280—617 **9 Claims**



1. In a ski binding comprising a front jaw and a heel holder and a connecting element which extends between the front jaw and the heel holder, the heel holder being arranged at a rear end of the connecting element and the front jaw being arranged at a front end of the connecting element, the heel holder in the mounted state of the ski binding being guided with slip motion in a guide rail fastened on the ski by means of screws, the front jaw being in the mounted state fastened by means of screws directly to an upper side of the ski, and the connecting element being provided with a coating of plastic material between the front jaw and the heel holder, the improvement wherein the connecting element is comprised of first and second partial sections, wherein the first partial section is connected to the front jaw and has a recess extending in a longitudinal direction of the connecting element, wherein the second partial section is connected at one end to the heel holder and at the other end is received in the recess, the first partial section associated with the front jaw having at least one bolt with a head thereon, said bolt being located in the recess, the other end of the second partial section having a portion with at least one keyhole-like recess therein, said portion being received in said recess, said at least one keyhole-like recess receiving said at least one bolt therein to effect a securement of said first and second partial sections together at a location between the front jaw and the heel holder, and wherein a stop means is provided in said recess and extends transversely of the longitudinal direction of the connecting element, said second partial section having abutting means thereon for engaging said stop means so that relative movement of said front jaw and said heel holder toward one another is prevented by one of said at least one bolt and said stop means.

5,207,448

INERTIA COMPENSATED STEP-IN SKI BINDING

Duane J. Bonvallet, 3248 W. Huron River Dr., Ann Arbor, Mich. 48103

Filed Mar. 27, 1992, Ser. No. 858,121

Int. Cl.[5] A63C *9/085*

U.S. Cl. 280—625 **1 Claim**

1. An inertia compensated ski boot release device for a safety ski binding comprising:

a support plate fixable mounted to a ski;

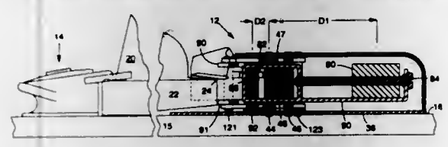
a toe-cup assembly pivotably carried by the support plate on a first pair of vertical pivots; said toe cup assembly including a pair of laterally spaced toe cups which engage the boot toe;

a two-link parallel motion mechanism, each link pivotably attached to the toe-cup assembly and to one of the first pair of pivots to allow lateral motion of the toe-cup assembly in an arc about the first pair of pivots without rotation of the toe-cup assembly;

a balance member pivotally mounted on a vertical pivot attached to the support plate, and extending longitudinally of the ski between the links of the two-link parallel motion mechanism,

spring means extending laterally between each link and the balance member and cooperating to center the balance member on the support plate and prevent movement of the toe-cup assembly until the moment generated by lateral boot force exceeds a spring preload;

means for releasing the toe cups, allowing them to rotate outward, releasing the ski boot when the toe-cup assembly



has reached the design limit of travel, said releasing means including:

a stop on the forward end of the balance member,

a set of links, pivotably attached to the toe cups, said links normally abutting against said stop on the balance member and preventing the toe cup from pivoting, said stop moving out of contact with the links at the limit of travel of the toe-cup assembly, to enable pivoting of the toe cup,

a mass;

means for slidably attaching the mass to the balance member on the opposite side of the second pivot from the toe-cup assembly to generate a moment about the second pivot, under the influence of lateral acceleration, that is equal and opposite to the moment generated by the boot mass to cancel the internal acceleration force generated by the boot mass.

5,207,449

SKI SAFETY BINDING

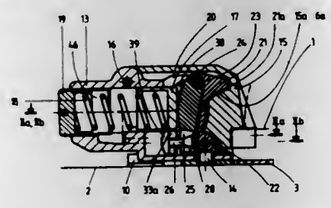
Hans Horn, Bern, Switzerland, assignor to Skis Rossignol S.A., Voiron, France

Continuation of Ser. No. 479,363, Feb. 13, 1990, abandoned. This application Dec. 13, 1991, Ser. No. 808,943

Claims priority, application France, Feb. 27, 1989, 89 02518

Int. Cl.[5] A63C *9/084*

U.S. Cl. 280—628 **9 Claims**



1. A ski safety binding able to release horizontally and vertically intended to hold in place the end of a boot, comprising:

a body;

a grip articulated on this body about a horizontal pin defining an articulation axis;

a lateral-retention means for retaining said boot;

elastic return means, for returning the lateral-retention means and the grip to a closed position of the binding, said return means comprising at least one spring acting via at least one piston on a transmission mechanism for performing a rotational and translational movement;

said spring being set between the piston and the grip and the lateral-retention means;

wherein said transmission mechanism comprises a first part including a rocking lever rocking in a plane perpendicular to said articulation axis, said rocking lever bearing permanently against the piston and bearing against the grip and the lateral-retention means in such a way that the position of said rocking lever is determined at each instant by first and second forces acting on opposed ends of the rocking lever, said first and second forces corresponding to different releasing directions, and by a third force acting between the first and second forces and in a direction opposed to said first and second forces via the piston; and

wherein on of the rocking levers and the piston have a convex bearing surface positioned such that when the rocking lever is rocking, the bearing zone is moved in one of an upward and downward direction relatively to the piston thereby modifying gradually the lever arms of the forces acting on the rocker ends and wherein the body is mounted pivotally on a vertical pivot and the lateral-retention means comprise at least one fixed stop and wherein all the moving parts of the transmission mechanism are in permanent linear contact with the piston, the grip and the stop respectively and wherein the two moving parts consist of two levers, namely a first lever articulated about an axis parallel to the axis of articulation of the grip and provided with a nose bearing against an incline of the grip and a second moving part articulated in the upper part of the first moving part about an axis parallel to the axis of articulation of the grip, extending downwards and the end of which bears at least indirectly against the stop or stops respectively for returning the body under torsion and wherein the axis of the articulation of the first lever is secant to the axis of pivoting of the body and the lower end of the second lever bears against at least one lever, one arm of which bears against the fixed stop and wherein the rocking lever bears, via a transmission rod, against a first and second lever pivoted about two vertical axes symmetrically on each side of the longitudinal axis of the binding, and one arm of which bears respectively against two fixed stops arranged symmetrically on either side of the said longitudinal axis.

5,207,450

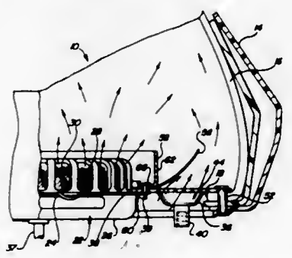
ASPIRATED AIR CUSHION RESTRAINT SYSTEM

Wesley D. Pack, Jr., Clarkston; Richard J. Achtenberg, Williamston, and Michael E. Wysocki, Warren, all of Mich., assignors to Takata, Inc., Auburn Hills, Mich.

Filed Dec. 12, 1991, Ser. No. 806,037

Int. Cl.[5] B60R *21/30*

U.S. Cl. 280—738 **11 Claims**



1. An air cushion restraint system for a motor vehicle driver and mounted to the vehicle steering wheel comprising:

an inflator for generating an inflation gas having a generally disk shaped configuration defining a perimeter mounting flange and having an inflation gas nozzle,

an air bag formed from a flexible membrane and defining a mounting opening,

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a generally planar base plate having an inflator aperture for receiving said inflator, and said base plate having an outer perimeter generally outlining said air bag mounting opening, said base plate having at least one aspiration aperture through said base plate located on said base plate displaced from aid inflator aperture between said inflator aperture and said outer perimeter, said base plate further having means for mounting said base plate to said motor vehicle steering wheel,

inflator mounting means engaging said base plate and said inflator mounting flange for affixing said inflator to said base plate whereby said inflator passes partially through said inflator aperture with a portion of said inflator on one side of said base plate and said inflator apertures on the opposite side of said base plate, and

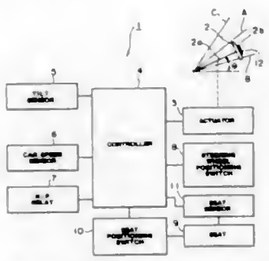
air bag attachment means for affixing said air bag mounting opening to said base plate.

5,207,451

STEERING WHEEL POSITIONER FOR AUTOMATIC DRIVING POSITION SYSTEM

Takahisa Furuse; Mitsuo Yokoyama, and Eisaku Hori, all of Yokohama, Japan, assignors to Jidosha Denki Kogyo Kabushiki Kaisha, Yokohama, Japan

Filed Jun. 3, 1991, Ser. No. 709,560
Claims priority, application Japan, Jun. 4, 1990, 2-145790
Int. Cl.[5] B62D *1/18*
U.S. Cl. 280—775 7 Claims



1. A steering wheel positioner for an automatic driving position system for a vehicle with a tiltable steering wheel comprising:

an actuator for driving a steering wheel shaft of the tiltable steering wheel of the vehicle and for adjusting an inclination angle of the steering wheel shaft of the tiltable steering wheel of the vehicle;

a tilt sensor for detecting the inclination angle of the steering wheel shaft of the tiltable steering wheel of the vehicle and for generating a position signal of the tiltable steering wheel of the vehicle;

a speed sensor provided on the vehicle for detecting the traveling speed of the vehicle for generating a traveling speed signal of the vehicle when the vehicle is traveling;

vehicle condition detecting means for detecting whether the vehicle is traveling for generating a traveling signal of the vehicle;

switching means having a setting switch and a memory switch;

control means connected with said actuator, said tilt sensor, said speed sensor, said vehicle condition detecting means and switching means;

said control means including:

memory means for memorizing the inclination angle of the steering wheel shaft of the tiltable steering wheel of the vehicle detected by said tilt sensor in response to the operation of the setting switch of said switching means;

first driving means for driving the steering wheel shaft of the tiltable steering wheel of the vehicle to the inclination angle memorized in the memory means through said actuator in response to the operation of the memory switch of said switching means;

judgement means for detecting an abnormal state of said tilt sensor and for generating a signal indicating the abnormal state of said tilt sensor;

second driving means for driving the steering wheel shaft of the tiltable steering wheel of the vehicle downwardly through said actuator in response to the signal indicating the abnormal state of said tilt sensor; and

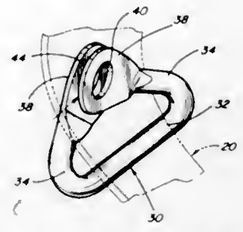
prohibiting means responsive to the travelling speed signal from the speed sensor or the travelling signal from the vehicle condition detecting means when the travelling speed signal from the speed sensor is not output for generating a preventing signal preventing said second driving means from driving downwardly the steering wheel shaft of the tiltable steering wheel of the vehicle.

5,207,452

REMOVABLE SEAT BELT GUIDE RING

Cecil A. Collins, Shelby Township, Oceana County, Mich., assignor to General Safety Corporation, St. Clair Shores, Mich.

Filed Feb. 13, 1992, Ser. No. 837,630
Int. Cl.[5] B60R *22/18*
U.S. Cl. 280—801 R 21 Claims



1. A guide ring assembly for a seat belt assembly including webbing that is anchored to the vehicle at one end and connected to a retractor assembly at its other end so as to define an intermediate webbing portion therebetween and a tongue plate mounted on the webbing and adapted to be releasably joined to a seat belt buckle, the guide ring assembly comprising:

a guide member defining a guideway and formed to allow insertion of said intermediate webbing portion into said guideway for supporting said intermediate webbing portion and permitting said intermediate webbing portion to slide freely therethrough, said guide ring comprising an elongated base portion, a pair of support arms attached to said base portion, and a pair of tab portions attached to said support arms, said tab portions being oriented in an overlapping manner and offset with respect to each other;

a spacer inserted between said offset tab portions; and

means for affixing said guide member to the frame of the vehicle.

5,207,453

ADD-ON STRUCTURE FOR VEHICLE SHOULDER BELT

Dennis F. Stedman, 1610 N. Hadley Rd., Ortonville, Mich. 48462; Stuart A. Ehrhardt, 9963 Walnut Hill Dr., Davisburg, Mich. 48350; Roy A. Carlstrom, 20280 S.W. 93rd Lane Rd., Dunnellon, Fla. 32630; Robert A. Choinard, 8738 Shannon, Sterling Heights, Mich. 48314; Gerald H. Gillett, 8351 Pamela St., Utica, Mich. 48316; Raymond N. Kreucher, Jr., 15051 Elrond Dr., Sterling Heights, Mich. 48313, and John S. Latimer, II, 5053 Bantry Dr., West Bloomfield, Mich. 48322

Filed Apr. 2, 1992, Ser. No. 862,477
Int. Cl.[5] B60R *22/18*
U.S. Cl. 280—808 6 Claims

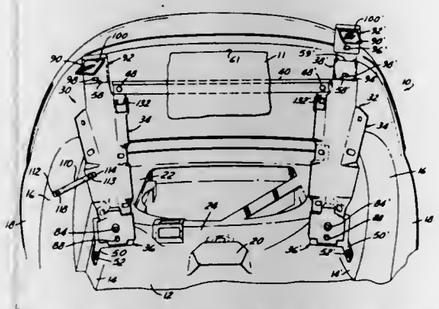
1. An add-on shoulder belt restraint support arrangement for installation in a convertible-type vehicle wherein the vehicle having a body enclosing a rear passenger compartment adapted for supporting a seat cushion and seat back for a pair of occupants, said compartment defined in part by a body floor pan and a pair of side wheelhouse inner panels extending along an aft portion of the passenger compartment, said add-on shoulder belt restraint support arrangement comprising:

a pair of mirror image composite pillars each rigidly affixed adjacent respective aft corners of the passenger compartment, each said composite pillar projecting upwardly from a lower end thereof adjacent the floor pan to an upper end thereof located adjacent an upper horizontal edge of the rear seat back;

each said composite pillar comprising three vertically elongated substantially coextensive sheet metal members affixed in a flatwise manner defining a forward seat support member, an intermediate anchor member, and an aft member, said aft member, in a cross-sectional view, defining a shoulder belt guide channel having a forward flat web and aft inturned side webs;

a transversely extending horizontal disposed tie bar interconnecting each upper end thereof of said pair of composite pillars;

a shoulder belt retractor rigidly mounted on each said composite pillar adjacent a lower rearwardly facing end portion of an aft channel member;



each said pillar anchor member having, in a cross-sectional view, a U-shape defining aft-turned mirror image side flanges, each said side flange provided with an integral attachment ear extending rearwardly therefrom adjacent the midpoint of an associated anchor member;

an obliquely projecting apertured tail portion formed on a lower outboard end of each said anchor member and adapted for fixed engagement with an associated upstanding side portion of the floor pan;

each said pillar having a generally V-shaped downwardly and rearwardly angled trailing brace, each said brace comprising a pair of inboard and outboard rearwardly convergent sheet metal straps terminating in an aft flatwise merged portion, each said inboard and outboard strap having a forward end secured by fastener means to a respective anchor member ear portion and an aft merged portion secured by fastener means to an associated rear wheelhouse inner panel; and

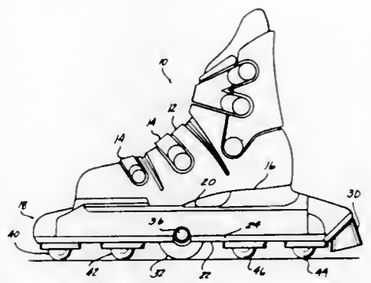
closure trim means received on the upper end of each said composite pillar, each said closure trim means providing belt passage means permitting each said retractor shoulder belt to be fed upwardly for passage through the associated aft member guide channel, the associated closure trim means and over the relevant shoulder of an occupant and being secured to the vehicle body thereby providing a shoulder belt for the occupant.

5,207,454

IN-LINE ROLLER SKATE WITH BALL ROLLERS

Karl Blankenburg, 32131 Claeys Dr., Warren, Mich. 48093, and Karl Van Blankemburg, 61830 Lantern Cover, Washington, both of Mich. 48094

Filed Mar. 20, 1992, Ser. No. 854,482
Int. Cl.[5] A63C *17/24*
U.S. Cl. 280—843 15 Claims



1. An in -line roller skate comprising:

a frame having a top, an open bottom and a pair of parallel, spaced side rails extending forward and rearwardly between opposed front and rear ends;

means for attaching the frame to a boot;

an axle mounted in and extending between the side rails and between the opposed front and rear ends of the side rails;

a wheel rotatably mounted to the axle for rotation about the axis of the axle;

a pair of longitudinally spaced front mounted ball rollers disposed forwardly of the wheel and mounted in the frame for unidirectional movement;

a pair of longitudinally spaced rear mounted ball rollers disposed rearwardly of the wheel and mounted in the frame for unidirectional movement;

the pair of front mounted ball rollers, the pair of rear mounted ball rollers, and the wheel being mounted in the frame such that a surface contacting portion of each is co-planarly arranged along the frame; and

ball mounting means for rotatably mounting each ball roller of the pairs of front and rear mounted ball rollers to the frame, the ball mounting means including:

a base attached to the frame and having a concave bed formed therein;

a plurality of bearings rotatably disposed on the bed and covering substantially the entire surface of the bed; and

a cap removably mountable over the base, the cap having an aperture formed in an end wall;

each ball roller of the pairs of front and rear mounted ball rollers rotatably engaging the bearings in the bed and having a portion thereof extending outward through the aperture in the cap.

5,207,455

SPLASHED WATER COLLECTING AND DISCHARGING DEVICE FOR A MOTOR VEHICLE

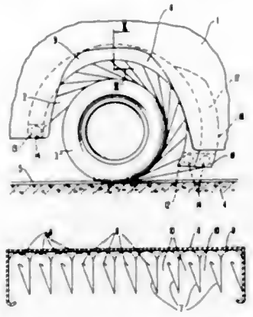
Hans Götz, Böblingen, and Klaus Müller, Nagold, both of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Nov. 8, 1991, Ser. No. 789,845
Claims priority, application Fed. Rep. of Germany, Nov. 10, 1990, 4035854
Int. Cl.[5] B62B *9/16*
U.S. Cl. 280—848 12 Claims

1. A device for collecting and discharging splashed water thrown up by a vehicle wheel, comprising a plurality of recessed rebound walls in the form of curved guide vanes spaced apart side by side and mounted at a vehicle wheel arch in a position such that openings to the guide vanes face a wheel tire

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tread, and a plurality of collection channels joined to a wall of the guide vanes such that access openings to the channels face an associated concave surface of the guide vanes so that a portion of impinging splashed water is thrown back from the guide vanes into the associated collection channel defined by a freely projecting boundary wall extending at an angle inwardly toward the rebound wall and having at a free end thereof a deflector edge portion extending toward the access opening of the associated collection channel, the collection



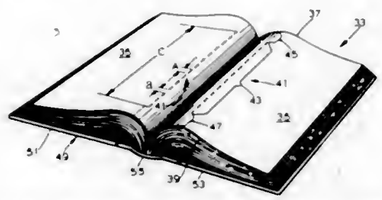
channels being inclined downwards in a longitudinal direction, wherein the rebound walls are arranged to cover over the access openings of the collection channels and are each, viewed in cross-section transverse to the longitudinal direction of the vehicle, in the form of arcuately curved guide vanes whose concave surfaces face the vehicle wheel and the access openings of the associated collection channel such that a major part of the impinging splashed water from the curved guide vanes is deflected by return flushing into the collection channel access openings.

5,207,456

LAY FLAT HINGE BINDING

Ronald S. Danhoff, Plymouth, Ohio, assignor to R.R. Donnelley & Sons Company, Lisle, Ill.

Filed Apr. 10, 1992, Ser. No. 866,485
Int. Cl.[5] B42D *5/00*
U.S. Cl. 281—40 **14 Claims**



1. A lay flat hinge for a page to be bound in a book, said page having a head edge, a foot edge, and first and second side edges between said head edge and said foot edge, said first side edge adapted to be bound in said book, said lay flat hinge comprising:

a weakened portion between said head edge and said foot edge of said page, said weakened portion facilitating a book in lying flat when the book is opened, said weakened portion including a plurality of slits each having a slit length which is substantially parallel to said first side edge of the page;

a first non-weakened portion between said weakened portion and said head edge of said page; and,

a second non-weakened portion between said weakened portion and said foot edge of said page;

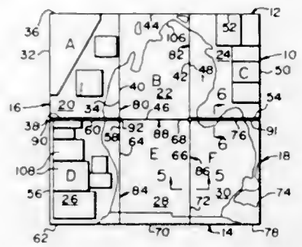
wherein said weakened portion and said first and second non-weakened portions prevent said page from being easily torn from said book and prevent said weakened portion from being visible along said head edge and said foot edge of said page.

5,207,457

LAMINATED FOLDING MAP

Richard J. Haynes, 1991 Catalina Dr., Jackson, Mich. 49201

Filed Apr. 3, 1992, Ser. No. 863,028
Int. Cl.[5] G09B *29/00*
U.S. Cl. 283—34 **4 Claims**



1. A laminated folding indicia carrier comprising, in combination, at least first, second, third, fourth, fifth and sixth substantially flat relatively stiff panels of a substantially identical rectangular configuration, each panel including first and second faces located on opposite sides of the plane of the associated panel, first and second substantially parallel lateral edges of equal length and first and second substantially parallel end edges of equal length, each panel comprising a central indicia sheet having indicia defined thereon and said faces comprising transparent sheets of film laminated to the associated indicia sheet, a first hinged connection connecting said first panel second lateral edge to said second panel first lateral edge, a second hinged connection connecting said second panel second lateral edge to said third panel first lateral edge, a third hinged connection connecting said fourth panel second lateral edge to said fifth panel first lateral edge, a fourth hinged connection connecting said fifth panel second lateral edge to said sixth panel first lateral edge, a fifth hinged connection connecting said second panel second end edge to said fifth panel first end edge, said first lateral edges and said first and second end edges of said first and fourth panels being free, said second lateral edges and said first and second end edges of said third and sixth panels being free, and said hinged connections being pivotal through approximately 360° whereby either face of said first and third panels may be folded over either face of said second panel, either face of said fourth and sixth panel may be folded over either face of said fifth panel and either face of said fifth panel may be folded over either face of said second panel.

5,207,458

MULTI-LAYERED LABEL

Heinz Treichel, Dormagen; Norbert Schiffer, Rommerskirchen, both of Fed. Rep. of Germany, and Franz P. Schüller, Cascais, Portugal, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

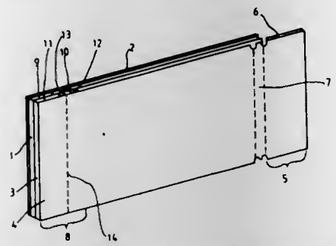
Filed Jun. 5, 1992, Ser. No. 894,701
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1991, 9108020[U]; Sep. 18, 1991, 4131002
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—81 **5 Claims**

1. Multi-layered label for adhesively affixing to containers comprising a base sheet (1) having a left-hand edge region (8), at least one intermediate sheet (3) having a left-hand edge region (8) and a right-hand edge region (5), and a top sheet (4) having a left-hand edge region (8), a right-hand edge region (5), and a tear-open perforated strip (7) wherein

the intermediate sheet is between the base sheet and the top sheet;

the base sheet has a layer of glue (2) on the side opposite the intermediate and top sheets;

the base sheet, intermediate sheet and top sheet are glued to one another in their respective left-hand edge regions by at least one edge line of glue (9, 11) and optionally at least one second line of glue (10, 12), each line being parallel to the left-hand edge of said sheets and being the only points



on the top sheet and the intermediate sheet that are glued to one another;

the top sheet (4) and the intermediate sheet (3) have tear-off perforations (13, 14) to the right of the edge line of glue (9, 11); and

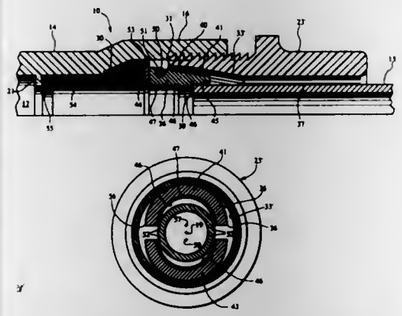
the right-hand edge (5) of the top sheet extends beyond the intermediate sheet and has a layer of glue (67) to the right of the tear-open perforated strip (7) on a side of the right-hand edge region that faces the container.

5,207,459

TRANSITION COUPLING FOR PIPES

Charles J. Glover, Bradford, Pa., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jul. 11, 1991, Ser. No. 728,450
Int. Cl.[5] F16L *55/00, 21/06*
U.S. Cl. 285—23 **24 Claims**



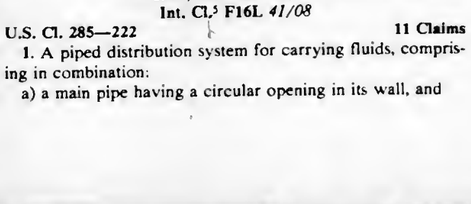
16. A connection having a tubular body with opposite end portions and a passage extending therebetween along a central axis, a gasket mounted in one of said end portions including means for encircling the outside surface of a metallic pipe of specified diameter inserted into said one end portion, a squeezing mechanism connectable with said body and including means for compressing said gasket to seal within said passage between the inside of said body and outside surface of the metallic pipe, a metallic gripper including means engageable by said squeezing mechanism for gripping against the outside of the metallic pipe, said metallic gripper comprising first and second wedge segments, each of said segments including a thicker inner end, a thinner outer end, an outer wedge surface and an inner surface extending between said inner and outer ends in a direction generally parallel to said central axis of said to the curvature of the outside of the metallic pipe and including a means portion thereof for extending around a substantial portion of the circumference of said pipe and having an original radius of curvature less than or equal to the radius of curvature of said specified diameter of the metallic pipe prior to gripping engagement with said pipe.

5,207,460

HOSE CONNECTION WITH COMPRESSED SLEEVE AND EXPANDED NIPPLE

Hans Oetiker, Oberdorfstrasse 21, CH-8812, Horgen, Switzerland

Division of Ser. No. 409,721, Sep. 20, 1989, Pat. No. 5,127,157, which is a continuation-in-part of Ser. No. 306,763, Feb. 6, 1989, Pat. No. 5,096,234. This application Feb. 28, 1992, Ser. No. 843,227
Int. Cl.[5] F16L *33/20*
U.S. Cl. 285—258 **28 Claims**



1. A high pressure hose connection for connecting a hose with a nipple structure, comprising a main portion, a connecting portion fixed to said main portion and a nipple portion connected to the main portion by way of a conical portion axially spaced from the main portion and of reduced external diametric dimension relative to said main portion, said nipple portion being provided with axially spaced, externally projecting rib means whose external surfaces are rounded off to avoid any sharp edges, a tubular sleeve-like member provided with radially inwardly extending grooves provided in the originally cylindrical configuration of the sleeve-like member which is of substantially constant thickness over its axial length, said sleeve-like member being so located as to be substantially coextensive with the axially spaced rib means, said sleeve-like member being fixed to said nipple portion and, in its original cylindrical configuration, being of such inner diametric dimension relative to the normal outer diameter of the hose that the hose disposed in the space between the external surfaces of the nipple portion and the internal surfaces of the sleeve-like member is held fast against axial movement under the pressure of a fluid medium flowing therethrough by the cooperating anchoring forces of the rib means and of the grooves as a result of radial expansion of the nipple portion together with a part of the conical portion along its inner diameter and as a result of the subsequent forming of the annular grooves into the outer surface of the sleeve-like member.

5,207,461

FLUID DISTRIBUTION APPARATUS

John A. Lasko, Box 737, 52 Notch Hill Rd., North Branford, Conn. 06471

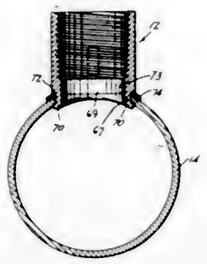
Continuation-in-part of Ser. No. 531,046, May 31, 1990, Pat. No. 5,088,194, which is a continuation-in-part of Ser. No. 335,950, Apr. 10, 1989, abandoned. This application Sep. 30, 1991, Ser. No. 768,991
Int. Cl.[5] F16L *41/08*
U.S. Cl. 285—222 **11 Claims**

1. A piped distribution system for carrying fluids, comprising in combination:

a) a main pipe having a circular opening in its wall, and

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b) a deformable cylindrical cast-metal branch fitting member having a bore for the passage of liquids, said member terminating in a fishmouth-shaped edge at one of its ends, said one end being disposed in the opening of said main pipe, and having securing means comprising a continuous circumferential bead disposed on said fishmouth-shaped edge and located within said main pipe, said continuous circumferential bead comprising stretched and radially



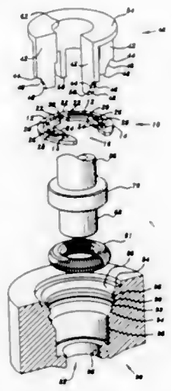
expanded cast metal which clamps against the edges of the opening in said main pipe to retain the fitting member therein in sealing relation, said bead at its innermost points which are disposed inside said main pipe having a thicker wall than at other points which are located in the opening of the main pipe, and said fitting member at the location of said fishmouth shaped-edge comprising outwardly flowed cast metal.

5,207,462

APPARATUS AND METHOD FOR A PUSH ASSEMBLE RETAINING RING

Donald D. Bartholomew, Mt. Clemens, Mich., assignor to Proprietary Technology, Inc., Southfield, Mich.

Filed Nov. 2, 1990, Ser. No. 608,551
Int. Cl.[5] F16L *37/14*
U.S. Cl. 285—321 25 Claims



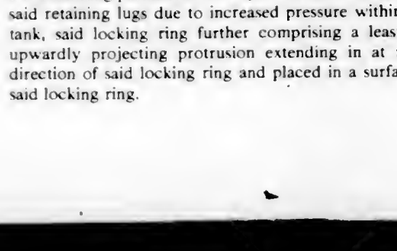
1. A fastener assembly for securing a generally cylindrically shaped member within an associated support structure having an axial bore, said assembly including an annular retaining ring adapted to be secured to an outer diameter portion of the member and have an outer peripheral portion thereof adapted for engagement with an annular recessed portion formed in an inner wall of said bore of the support structure, said retaining ring comprising a pair of inner arm portions, a pair of outer arm portions, and connecting means for integrally connecting the arm portions together such that said inner and outer arm portions are concentrically arranged, said outer arm portions forming said outer peripheral portion and being removably receivable within said recessed portion of said bore of said support structure, and said inner arm portions defining a pair of radially deflectable free first ends which are engageable with the outer periphery of said member whereby to resist said member from being disassembled from said structure.

5,207,463

FUEL SENDER LOCKING RING

Robert D. Seizert, Brooklyn, and James R. Osborne, Pontiac, both of Mich., assignors to Solvay Automotive, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 668,144, Mar. 11, 1991, Pat. No. 5,102,172, which is a continuation of Ser. No. 419,486, Oct. 10, 1989, Pat. No. 4,998,639. This application Dec. 9, 1991, Ser. No. 803,973
Int. Cl.[5] B65D *41/06*
U.S. Cl. 292—256.6 48 Claims



1. A fuel tank assembly comprising:

(A) a hollow pressurizable tank for storing liquid fuel and having an aperture extending through a generally planar external surface;

(B) a fuel sender unit at least partially disposed within said aperture and having a radially extending shoulder having generally parallel planar first and second surfaces, said second surface adapted for mating contact with said planar external surface of said tank, so as to enclose said aperture;

(C) a sealing means disposed between said second surface of said fuel sender unit and said planar, external surface of said tank for producing a fluid-tight seal therebetween;

(D) a plurality of retaining lugs having a first leg member extending substantially perpendicularly from said planar, external surface of said tank, said first leg member having a first and second surface, and a second leg member continuous with and extending generally orthogonally from an end of said first leg member, said retaining lugs located around the periphery of said aperture and radially outward of said shoulder of said fuel sender unit; and

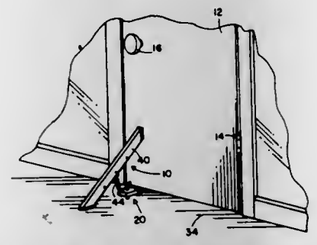
(E) a locking ring comprising an engaging means for lockingly engaging said second leg member of said retaining lugs, said engaging means adapted to coact with said second leg member of said retaining lugs to bias said shoulder of said fuel sender unit against said external tank surface and said sealing means for locking said fuel sender unit to said tank at a position radially inward of said first surface of said first leg member, said locking ring further comprising one or more tabs for surrounding said second surface of said first leg member of said retaining lugs, said tabs inhibiting permanent radially outward deformation of said retaining lugs due to increased pressure within said tank, said locking ring further comprising a least one upwardly projecting protrusion extending in at radial direction of said locking ring and placed in a surface of said locking ring.

5,207,464

TWO PIECE DOOR STOP DEVICE FOR PREVENTING UNAUTHORIZED ENTRY

Lewis W. Reeves, Jr., 7421 Belle River Ct., Winter Park, Fla. 32792

Filed Jul. 22, 1992, Ser. No. 919,745
Int. Cl.[5] E05C *17/54*
U.S. Cl. 292—339 6 Claims



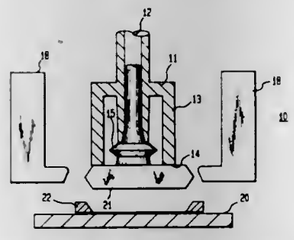
1. A door stop for temporary installation at the base of a door, for preventing an intruder from pushing the door open, said door stop comprising a generally wedge-shaped device having first and second ends, said first end of said wedge-shaped device having a narrow thickness dimension suitable for insertion under the door at a location remote from the door hinge, and said second end of said wedge-shaped device having a substantially larger thickness dimension, adjustment means operatively disposed adjacent said second end of said wedge-shaped device, said adjustment means enabling the effective height of said wedge-shaped device to be selectively increased by the user, such that a substantial upward force can be applied under the door, thus to effectively anchor said wedge-shaped device to the underside of the door, and an elongate, rigid member operatively associated with said wedge-shaped device, said elongate, rigid member having angled ends enabling it to extend in an angularly disposed, door-blocking relationship between the floor and a lower portion of the door, and means serving to attach a mid portion of said elongate, rigid member to said wedge-shaped device, to prevent displacement of said elongate, rigid member from a door-blocking relationship.

5,207,465

SELF-REALIGNING VACUUM PICKUP ARRANGEMENT

Donald S. Rich, 15 Buttonwood Dr., Long Valley, N.J. 07853

Filed Oct. 24, 1991, Ser. No. 781,310
Int. Cl.[5] B66C *1/02*; H05K *3/32*
U.S. Cl. 294—2 4 Claims



1. A vacuum pickup arrangement for engaging a specimen having a top surface and located at a pickup location and for holding the specimen upon the application of a reduced pressure to the top surface of the specimen during transportation of the specimen to a first deposit location, and during return of the specimen to the pickup location, the arrangement comprising:

angular alignment means having a communication surface for communicating with the specimen and ensuring that the specimen is held by the vacuum pickup arrangement in a predetermined plane of alignment, said communication surface defining said predetermined plane of alignment and being arranged to permit the specimen to be translated along said communication surface in a direction parallel thereto;

axially retractable vacuum engagement means having a laterally stationary vacuum input for receiving a reduced air pressure and an axially retractable portion for communicating with and engaging the specimen, said axially retractable portion having a collapsible bellows portion coupled to said vacuum input and formed of a resilient material with a resilient communication portion for forming an air-tight engagement with the top surface of the specimen, said resilient communication portion being resiliently deformable with respect to said angular alignment means and extendable axially beyond said communication surface of said angular alignment means for a predetermined distance so as to communicate with and engage said top surface of said specimen, and being retractable by at least the predetermined distance, until the top of the specimen communicates with said communication surface of said angular alignment means; and

lateral alignment means having engaged and unengaged states, said lateral alignment means entering said engaged state for communicating laterally with the specimen and translating same from an untranslated position to a laterally translated position with respect to said communication surface in the plane of alignment while said axially retractable vacuum engagement means is retracted and said communication surface is engaged with the specimen, said collapsible bellows portion being resiliently deformed in response to said translation, and retaining the specimen in said translated position during transportation of the specimen to the first deposit location, said lateral alignment means entering said unengaged state during return of the specimen to said pick-up location for releasing the specimen, whereby the specimen is returned to said untranslated position in response to a lateral restoration force responsive to said resilient deformation of said collapsible bellows portion.

5,207,466

PRONG-EQUIPPED GARDEN TOOL

Paul W. Ohlson, 3143 Elder La., Franklin Park, Ill. 60131-2512

Filed May 26, 1992, Ser. No. 887,845
Int. Cl.[5] A01B *1/16*
U.S. Cl. 294—61 12 Claims



1. A garden tool to be used in a generally upright position and having an elongate shaft, and comprising:

a handle on an upper end of said shaft;

a lower end of said shaft having secured thereabout a bushing providing an outer elongate tubular surface;

a plurality of circumferentially spaced generally axially

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downwardly extending cultivating and weeding prongs projecting from said bushing;

said prongs having elongate upper end finger portions extending along the length of and engaging against said bushing tubular outer surface; and

brazing or welding securing said finger portions to said tubular bushing outer surface;

said shaft and handle permitting a gardener to use the tool in a generally upright position, for soil loosening, for cultivating and weeding by rotary and rocking maneuvers of said handle and shaft and agitating said prongs, and for optionally spearing trash with said prongs or aerating sod by thrusting said prongs into the sod for making sod aerating holes in the sod.

5,207,467

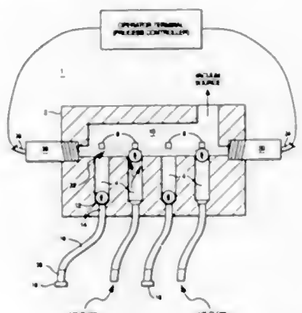
MONITOR FOR DETECTING THE ABSENCE OF AN ELECTRONIC COMPONENT ON A VACUUM PICKUP

Ted M. Smith, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 576,293, Aug. 31, 1990, abandoned. This application Sep. 16, 1992, Ser. No. 945,831

Int. Cl.[5] B25J *15/06, 19/02*

U.S. Cl. 294—64.1 **5 Claims**



1. An apparatus for sensing the absence of a component on at least one of a plurality of vacuum pickup devices, comprising:

a vacuum source;

a body including a transparent portion having a plurality of cavities, each in communication with said vacuum source and a corresponding one of said vacuum pickup devices;

means included within each of said cavities, for indicating the absence or presence of said component on one of said vacuum pickup devices;

means for correlating said means for indicating with one of said plurality of vacuum pickup devices to determine which ones of said vacuum pickup devices do not have a component thereon; and

means for optically sensing a position of said indicating means when said component is absent from any of said plurality of vacuum pickup devices, and for generating an output signal based thereon.

5,207,468

SELF-ADJUSTING TRANSFORMER SLING

Georges Saulnier, 240 Rosaire Street, St-Gabriel-de-Brandon, Quebec G0K 2N0, and Mario Saulnier, C.P. 358 Mandeville, Quebec City J0K 1L0, both of Canada

Filed May 27, 1992, Ser. No. 888,796

Int. Cl.[5] B66C *1/62*

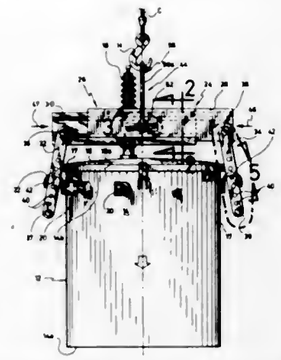
U.S. Cl. 294—67.31 **7 Claims**

1. A sling for use in lifting a transformer with a hoisting gear cable, said transformer of the type having a cylindrical housing with transverse, arcuate sling securing hooks mounted radially outwardly of the top end portion thereof, said sling consisting of:

(a) a telescopic, elongated compensation bar member, of adjustable overall length and extendable spacedly transversely over the top end of said cylindrical transformer, the pulling bias of said hoisting gear to be applied transversely of said compensation bar member;

(b) means for releasably suspending said compensation bar member to said hoist cable;

(c) first and second, rigid, lever members, pivotally carried at the two opposite ends of said compensation bar member, and for use in pivotally engaging said sling securing hooks on the transformer; and



(d) an automatic adjusting means, cooperating with said suspending means and responsive to the pulling force applied by said hoisting gear cable, for automatically adjusting the length of said telescopic compensation bar member in proportion to the width of said transformer;

wherein said sling self-tightens against transformers of various widths, under the bias of said automatic adjusting means, by continuous lever action engagement of said lever members against the top end of said transformer cylindrical housing, under a tightening force in proportion to the weight of said transformer.

5,207,469

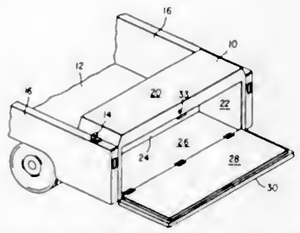
TRUCK BED STORAGE UNIT

Marc A. Rossi, 43473 Golden Meadow Cir., Ashburn, Va. 22011

Continuation of Ser. No. 824,082, Jan. 22, 1992, abandoned. This application Sep. 24, 1992, Ser. No. 951,044

Int. Cl.[5] B60R *9/06*

U.S. Cl. 296—37.6 **2 Claims**



1. A truck bed storage unit for use with a truck having a bed and bed side panels connected to the bed, the truck bed storage unit including:

a top panel coupled to first and second side panels and a rear panel, wherein portions of the top panel extend over each of the bed side panels when the truck bed storage unit is located in the bed; a bottom panel coupled to the first and second side panels and the rear panel; mean for releasably connecting the storage unit to the bed side panels of the truck at a fixed location adjacent a rear edge of the bed of the truck;

wherein the means for releasably connecting the storage unit to the bed side panels of the truck includes removable pins that fit into holes located in the portions of the top panel that extend over the bed side panels which are aligned with holes located in the bed side panels.

5,207,470

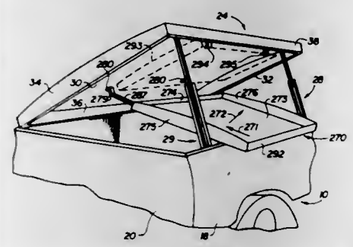
TRUCK BED COVER ASSEMBLY WITH DESK

Hassan Rafi-Zadeh, 5301 E. Mockingbird La., Paradise Valley, Ariz. 85253

Filed Mar. 16, 1992, Ser. No. 851,936

Int. Cl.[5] B60J *7/10*

U.S. Cl. 296—37.7 **1 Claim**



1. A vertically extendible cover assembly for use on the bed of a pickup truck, said bed having upper ledge means comprising, in combination:

(a) a rigid cover having an underside;

(b) a plurality of folding arms each having a lower base leg and an upper extending leg, said legs each including an upper end and a lower end, said upper end of each of said base legs being pivotally attached to said lower end of one of said extending legs;

(c) bracket means fixedly secured to said upper ledge means and attached to each of said lower ends of said base legs to attach said lower ends to said upper ledge means of said pickup truck bed;

(d) mounting means for pivotally securing each of said upper ends of said upper extending legs to said cover;

(e) a desk pivotally attached to said underside of said cover in a storage position;

each of said folding arms being movable between first and second operative positions,

(f) said first operative position with said cover in a lowered position on said pickup bed and with said legs extending from said ledge means inwardly into said pickup truck bed, and

(g) said second operative unfolded extended position with said cover raised from said pickup truck bed and said legs extending from said ledge means upwardly to said cover, said desk being pivotally deployable from said storage position to rest on said upper ledge means of said truck bed when said folding arms are in said second operative position.

5,207,471

VEHICLE VDU WORKSTATION

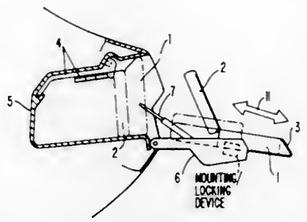
Jürgen Mutschler, Au am Rhein; Gerd Seidenfaden, Leonberg, and Johann Tomforde, Sindelfingen, all of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Mar. 23, 1992, Ser. No. 855,748

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1991, 4109497

Int. Cl.[5] B60R *7/00*

U.S. Cl. 296—37.12 **9 Claims**



1. A VDU workstation in a vehicle, comprising a working unit having at least a keyboard and a flat screen configured and operatively connected with the keyboard so as to be pivotable out of a stowed position in which the screen lays on the keyboard into an upright reading position, wherein the operatively connected keyboard and screen are dimensioned and configured to be, when in a folded-together state in a position which is essentially parallel with a closed door of a correspondingly-shaped glove compartment of the vehicle, lowerable into the glove compartment, and means operatively connected with the keyboard and the glove compartment door for, on one hand, permitting the keyboard to be at least one of mounted and locked on the inner face of the door and, on the other hand, diminishing vibrations of the door.

5,207,472

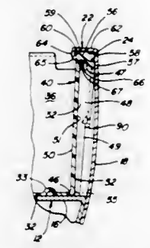
TRUCK BED LINER

Jerald Gower, Beaverton, Mich., assignor to Durakon Industries, Inc., Lapeer, Mich.

Filed Nov. 15, 1991, Ser. No. 794,713

Int. Cl.[5] B60P *1/64*

U.S. Cl. 296—39.2 **24 Claims**



1. In a truck bed liner of having a floor, first and second side walls, and a front wall constructed to fit within a cargo bed of a truck, said cargo bed having a floor, a pair of opposing side rails laterally spaced from a central longitudinal axis, and a front rail, each side rail having an inner edge with a flange downwardly extending therefrom to define a channel under said side rail, said truck bed liner characterized by:

said side walls having a top edge positionable at a height below a lower edge of said flange and having at least one anchor pillar extendable upwardly into said channel and engagable with a respective flange of a respective side rail;

said pillar including a vertically disposed first pillar wall

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section that has a laterally positioned outer edge that is connected to said side wall;

said wall section extending inwardly from said side wall toward said central longitudinal axis, and having an inner distal portion and a top portion that extends into said channel such that said inner distal portion in proximity to said top edge is abuttable to said downwardly depending flange inside said channel whereby said liner may be securely mounted in place within said truck bed.

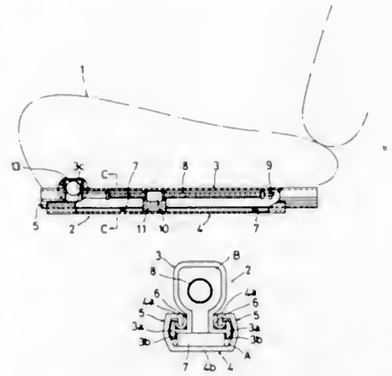


5,207,473

VEHICLE SEAT SLIDING DEVICE

Hiroshi Nawa, Kariya, and Sadao Ito, Anjo, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Japan

Filed Mar. 19, 1992, Ser. No. 854,026
Claims priority, application Japan, Mar. 20, 1991, 3-57244
Int. Cl.[5] B60N 2/02
U.S. Cl. 296—65.1 4 Claims



1. A sliding device for moving a seat in the lengthwise direction of a vehicle body comprising:

an upper rail for supporting the seat and having downwardly depending first side portions spaced a first distance apart, narrowing to a neck portion having downwardly depending second side portions spaced a second distance apart which is less than said first distance, said second side portions ending in first distal end portions, said first side portions and said neck portion defining a first space;

a lower rail to be secured to a floor of the vehicle body, said lower rail including upwardly projecting side portions ending in second distal ends, said neck portion of said upper rail extending between said second distal ends, said first distal ends being interlocked with said second distal ends at an interlocked portion for slidable movement of said upper rail with respect to said lower rail, a second space being defined between said side portions of said lower rail and said interlocked portion, with said first space positioned above said interlocked portion;

a screw shaft rotatably supported by the upper rail and located within said first space;

a nut threadably mounted on the screw shaft in said first space, and including connecting means for connecting said nut to the lower rail; and

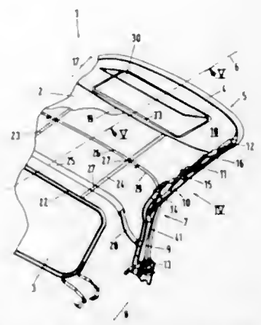
a motor for rotating the screw shaft.

5,207,474

FOLDING TOP FOR A PASSENGER CAR WITH FOLDING ROOF

Siegfried Licher, Georgsmarienhütte, and Wolfgang Richter, Wallenhorst, both of Fed. Rep. of Germany, assignors to Wilhelm Karmann GmbH, Osnabrueck, Fed. Rep. of Germany

Filed Jun. 29, 1992, Ser. No. 906,064
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1991, 9108242[U]; May 20, 1992, 9206807[U]
Int. Cl.[5] B60J 7/12
U.S. Cl. 296—107 20 Claims



1. A folding top for a motor vehicle comprising foldable linkage means mountable on said motor vehicle and foldable between an up position and a folded position, said linkage means having a front portion connectable to a front part of said motor vehicle when said linkage means is in said up position, said linkage means having a rear portion connected to a rear part of said motor vehicle, a rigid roof part mounted on said front portion, a flexible material means carried by said rear portion, said flexible material means being in an unfolded disposition when said linkage means is in said up position and a folded disposition when said linkage means is in said folded position, said linkage means when in said up position disposing said rigid roof part as a continuation of said unfolded flexible material means such that said rigid roof part and said unfolded flexible material means together form a roof for said motor vehicle, said linkage means when in said folded position disposing said flexible material means in said folded disposition with said rigid roof part overlying said folded flexible material means.

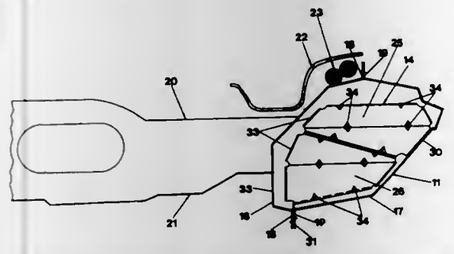
5,207,475

DEVICE AT HOLLOW BEAMS FORMING A PART OF A CAR BODY

Michael Hellström, Mölndal, Sweden, assignor to AB Volvo, Gothenburg, Sweden

PCT No. PCT/SE90/00279, § 371 Date Oct. 23, 1991, § 102(e) Date Oct. 23, 1991, PCT Pub. No. WO90/13467, PCT Pub. Date Nov. 15, 1990
PCT Filed Apr. 26, 1990, Ser. No. 768,875
Claims priority, application Sweden, Apr. 28, 1989, 8901550
Int. Cl.[5] B60R 27/00
U.S. Cl. 296—188 5 Claims

1. A low weight stiffening tubular cross frame for reinforcing the interior of a hollow sill beam which is located longitudinally along the exterior of an automobile body, the hollow sill beam being formed by an inner sill half and an outer sill half, said tubular cross frame comprising at least two members and having a first and second end arranged transversely to the longitudinal axis of the sill beam, said members including side flanges attached proximate to said first end of said cross frame, said side flanges fixedly connected to one of said sill halves, said tubular cross frame being shorter in length than the distance between the inner sill half and the outer sill half, whereby



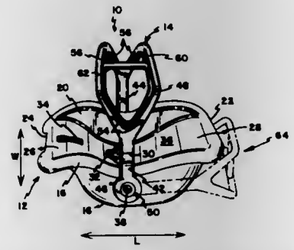
a free space exists between said second end of said tubular cross frame and the opposite of said sill halves.

5,207,476

INFANT SEAT WITH LONGITUDINALLY-ORIENTED HANDLE

Timothy J. Payne, Santa Ana, Calif., assignor to North States Industries, Inc., Minneapolis, Minn.

Continuation of Ser. No. 830,762, Feb. 3, 1992, abandoned, which is a continuation of Ser. No. 714,339, Jun. 12, 1991, abandoned, which is a continuation of Ser. No. 426,406, Oct. 24, 1989, abandoned. This application Sep. 17, 1992, Ser. No. 947,096
Int. Cl.[5] A47D 13/02
U.S. Cl. 297—183 10 Claims



1. An apparatus for use in carrying an infant seat or the like, comprising:

a) first and second leg portions, each of said leg portions having a terminating end which is adapted for pivotal attachment to an infant seat and an opposing end, each of said opposing ends being bifurcated into a first support portion and a second support portion;

b) a first bar member connected to said first support portion of said first leg at a first end and to said first support portion of said second leg at a second end;

c) a second bar member connected to said second support portion of said first leg at a first end and to said second support portion of said second leg at a second end; and

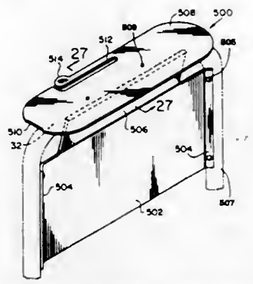
d) handle means for connecting said first bar to said second bar, said handle means extending in a direction which is substantially perpendicular to directions in which said first and second bars extend.

5,207,477

STORAGE COMPARTMENT FOR WHEELCHAIR

Len Maxwell, One Lincoln Plz., New York, N.Y. 10023

Division of Ser. No. 189,523, May 3, 1988, Pat. No. 5,074,617.
This application Oct. 15, 1991, Ser. No. 776,982
Int. Cl.[5] A47C 7/54
U.S. Cl. 297—194 3 Claims



1. In a wheelchair having an arm rest and an arm rest supporting structure, the improvement comprising:

an elongated lower tray means defining a storage compartment of substantial height for holding at least one item, said lower tray means having an upper opening for permitting access to the interior of said storage compartment;

an elongated cover means mounted on said elongated lower tray means for covering said upper opening of said lower tray means when said cover means is in a closed position, and for opening said upper opening to permit access to the interior of said storage compartment when said cover means is in an open position, said cover mans having an upper surface which provides an arm rest for a user of the wheelchair when said cover means is in said closed position;

said arm rest supporting structure having an inverted generally U-shaped configuration with downwardly extending legs and an upper substantially horizontal member extending between said legs;

means for connecting said elongated lower tray means to said upper substantially horizontal member of said arm rest supporting structure;

said arm rest supporting structure having a height in the vertical direction such that said upper surface of said cover means, when in said closed position provides said arm rest at a given arm rest height; and

vertical panel means coupled between said downwardly extending legs and also coupled to said lower tray means at a position different from where said lower tray means is connected by said connecting means to said horizontal member for further connecting said lower tray means to said arm rest supporting structure to increase the strength of the connection between said arm rest supporting structure and said lower tray means, said vertical panel means extending between said lower tray means and a seat of the wheelchair so as to serve as a clothing protector and splash guard for a user;

said vertical panel means including: a vertical panel lying in a vertical plane extending through the upper horizontal member of the wheelchair; and an angularly outwardly extending support portion extending outwardly from said vertical panel toward the exterior of said wheelchair, said angularly outwardly extending support portion being connected to said lower tray means at a position of said lower tray means which is horizontally spaced from said horizontal member of said arm rest supporting structure, to thereby provide two horizontally spaced apart mounting members for said lower tray means, and to thereby positively prevent rotation of said lower tray means rela-

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tive to said horizontal member when a user exerts downward pressure on said arm rest.

5,207,478

COLLAPSIBLE INFANT SEAT

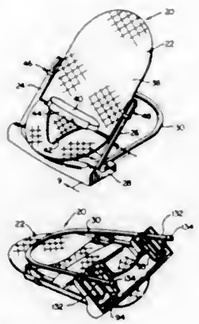
Theodore B. Freese, Westminster; Robert M. Parker, Aurora, and Gregg W. Harvey, Boulder, all of Colo., assignors to Gerry Baby Products Company, Denver, Colo.

Filed Feb. 28, 1991, Ser. No. 662,163

The portion of the term of this patent subsequent to Dec. 22, 2009, has been disclaimed.

Int. Cl.[5] A47D *13/10*

U.S. Cl. 297—296 **19 Claims**



1. An infant seat comprising;
a base;
a seat shaped to hold an infant;
a pair of support arms extending upwardly from said base for supporting said seat;
said base including a pair of torsion springs each pivotally connecting a different one of said support arms to said base, thereby permitting a bouncing movement of said seat and said support arms relative to said base; and
a rear support member attached to and extending rearwardly from said base beneath said seat, said rear support member being positionable between a support position, wherein said rear support member is substantially coplanar with said base, and a collapsed position, wherein said rear support member is adjacent to said seat.

5,207,479

CHAIR CONTROL MECHANISM

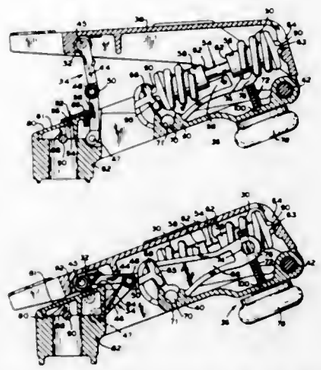
Dennis J. Wickman; Dennis R. Motz, both of Jasper, and Steven F. Trinkel, Rockport, all of Ind., assignors to Kimball International, Inc., Jasper, Ind.

Filed Jun. 6, 1990, Ser. No. 534,034

Int. Cl.[5] A47C *1/00*

U.S. Cl. 297—302 **18 Claims**

12. A chair comprising:
a base including a vertically extending support column having an upper end;
a seat including a back portion and a bottom portion having a front edge, said seat capable of being positioned in an upright position and a plurality of tilted positions including a maximum tilted position;
a tilt control assembly including a main pivot, a base plate, and a seat plate, said base plate and said seat plate being operatively connected by said main pivot, said main pivot being generally horizontally disposed in the vicinity of said front edge and below an upper planar surface of said base plate, said base plate attached to said column, and said seat plate attached to said seat and having a generally planar lower surface;
spring means for resisting tilting by said seat, said spring means operatively connected between said base plate and said seat plate;
cover means for limiting the tilting movement of said seat, said cover means located at said upper end of said column, said cover means including a spindle cover with a generally planar angled upper surface disposed under said seat plate such that said spindle cover stops movement of said



seat at said maximum tilted position and said angled upper surface and said seat plate lower surface are substantially parallel in said maximum tilted position; and
toggle means operatively connecting said seat plate and said base plate for resisting tilting of said seat, said spindle cover positioned to stop movement of said toggle means at said upright position.

5,207,480

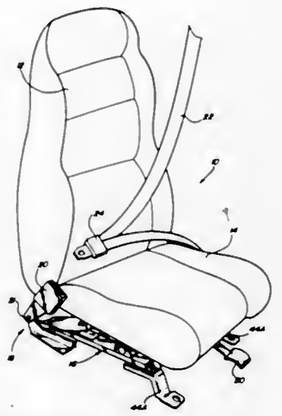
SIX-WAY MANUAL SEAT ADJUSTMENT MECHANISM

Richard F. Johnson, Bloomfield Hills, and Ashok K. Sahi, Farmington Hills, both of Mich., assignors to Douglas & Lomason Company, Farmington Hills, Mich.

Filed Dec. 18, 1991, Ser. No. 809,928

Int. Cl.[5] A47C *1/02*

U.S. Cl. 297—344 **23 Claims**



1. A manually operable six-way seat adjustment mechanism for a motor vehicle comprising:
a pair of stationary tracks;
elongated carriages longitudinally movable on said tracks;

horizontal adjustment means operatively interconnecting said carriages to said tracks for permitting a seat occupant to selectively adjust the fore and aft position of said carriages with respect to said tracks;
a seat frame adapted to be fastened to the vehicle seat and having front and rear portions pivotably coupled to said elongated carriages;
first vertical adjustment means for vertically adjusting said front portion of said seat frame with respect to said rear portion thereof including:
a first quadrant and a first lift link fixably secured at opposite ends of a first torsion bar, said first torsion bar being journalled for rotation to said seat frame; and
manually-operable means for permitting said seat occupant to selectively actuate said first vertical adjustment means, said manually-operable means including first camming means movable between a first position for releasably engaging said first quadrant to releasably lock said front portion of said seat frame at a selected vertical position, and a second position disengaged from said first quadrant for permitting vertical adjustment of said front portion of said seat frame;
second vertical adjustment means for vertically adjusting said rear portion of said seat frame with respect to said front portion thereof including:
a second quadrant supported from said seat frame for pivotable movement about a pivot point;
a second torsion bar journally supported for rotation from said carriages;
a second lift link having a first end fixably secured to said second torsion bar and a second end pivotably coupled to said second quadrant about said pivot point;
biasing means for normally biasing said second torsion bar and said second lift link such that said rear portion of said seat frame is biased toward an upper vertical position;
said manually-operable means also permitting said seat occupant to selectively actuate said second vertical adjustment means and including second camming means movable between a third position for releasably engaging said second quadrant to releasably lock said rear portion of said seat frame at a selected vertical position, and a fourth position disengaged from said second quadrant for permitting vertical adjustment of said rear portion of said seat frame; and
a traveling seat belt buckle anchorage arrangement operably associated with one of said slidably interconnected tracks and carriages and said horizontal adjustment means to permit selective longitudinally movement of a seat belt buckle anchor with said seat frame along said track while inhibiting vertical and horizontal separation therebetween.

5,207,481

BUMPER APPARATUS FOR HIGH CHAIRS

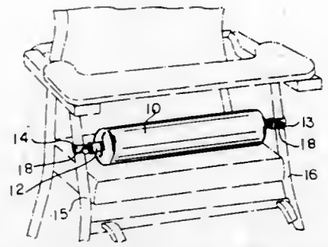
Raymond J. Ayala, Jr., and Sam W. Gainer, both of Houston, Tex., assignors to Lil Tot's Safe Care Products Inc., Houston, Tex.

Continuation-in-part of Ser. No. 574,776, Aug. 30, 1990, Pat. No. 5,141,286. This application Mar. 25, 1992, Ser. No. 858,325

Int. Cl.[5] A47D *15/00*

U.S. Cl. 297—464 **3 Claims**

1. Apparatus for securing infants securely within a high chair having opposed side posts extending upwardly from the high chair seat comprising:
an elongate bumper for positioning on the high chair seat between opposed side posts of the chair,
said bumper having a hole extending through its elongate dimension,
a non-elastic strap having an intermediate section extending through said hole and end sections on opposite sides of said intermediate section,
two attachment means on said strap intermediate section positioned one on each side of said bumper and closely adjacent thereto limiting relative movement between said intermediate strap section and said bumper while in use,
each attachment means provided by a pair of D-rings attached to the intermediate strap section and adapted to



engage one of said end sections at any of various selected positions along its length after it has been wrapped about high chair posts on opposite sides of a high chair and hold said strap intermediate section in tension and prevent movement of said bumper fore and aft of said chair.

5,207,482

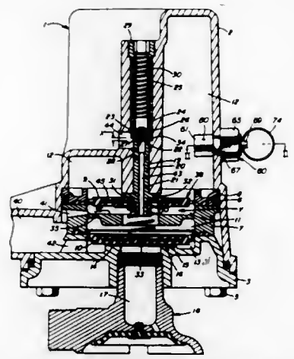
VENT VALVE DEVICE HAVING DISABLING MEANS

James E. Hart, Trafford, and Williard P. Spalding, Pittsburgh, both of Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Jul. 29, 1991, Ser. No. 737,103

Int. Cl.[5] B60T *11/34*

U.S. Cl. 303—33 **16 Claims**



1. A vent valve device for locally venting a railway car brake pipe when an emergency rate of reduction of the fluid pressure carried in said brake pipe is initiated, comprising:
(a) a housing having an inlet port to which said brake pipe is connected, a vent port, a first chamber communicated with said inlet port, and a second chamber;
(b) flow restrictor means between said first and second chambers for controlling the rate at which fluid pressure is released from said second chamber in response to a reduction of said brake pipe pressure to thereby establish a predetermined pressure differential between said first and second chambers when said brake pipe pressure is reduced at an emergency rate;
(c) piston valve means for establishing fluid pressure communication between said inlet port and said vent port in accordance with said predetermined pressure differential being established between said first and second chambers; and
(d) disabling means selectively operable to an actuated posi-

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tion for releasing fluid under pressure from said second chamber to prevent said predetermined pressure differential from being established between said first and second chamber, said disabling means being automatically resettable, from said actuated position to a de-actuated position in which the release of fluid pressure from said second chamber is cut-off, when fluid pressure in said second chamber is reduced below a predetermined value.

5,207,483

ANTI-SKID CONTROL SYSTEM FOR AUTOMOTIVE VEHICLE

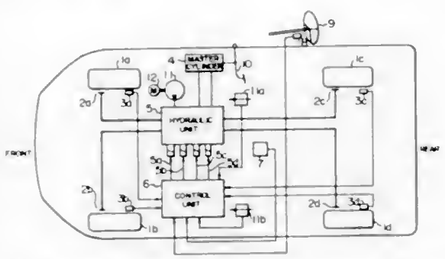
Kousaku Shimada, Katsuta; Shigeru Horikoshi, Mito; Tatsuhiko Monji, and Hayato Sugawara, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo and Hitachi Automotive Engineering Co., Ltd., Ibaraki, both of Japan

Filed Mar. 20, 1992, Ser. No. 854,831

Claims priority, application Japan, Mar. 20, 1991, 3-056294

Int. Cl.[5] B60T *8/32*

U.S. Cl. 303—100 **21 Claims**



1. An anti skid control system for an automotive vehicle comprising:

means provided independently for each wheel of the vehicle, for controlling brake fluid pressure on each wheel in response to a control signal;

means for detecting a vehicle speed and a rotation speed of said wheel and deriving slip ratio of said wheel on the basis of the detected values;

means for detecting actual yawing angular acceleration on the vehicle;

setting means for setting a target value of the slip ratio on the wheel based on said yawing angular acceleration for each wheel independently of the other; and

control signal means for providing said control signal to said brake fluid pressure controlling means so as to adjust the derived slip ratio toward said target value.

5,207,484

METHOD AND CIRCUIT CONFIGURATION FOR CONTROLLING A BRAKE SYSTEM WITH (ANTI-LOCK CONTROL AND/OR TRACTION) SLIP CONTROL

Hans W. Bleckmann, Karlstrasse 17, 6350 Obermoerlen; Helmut Fennel, Schubertstrasse 9, 6232 Bad Soden; Hans Wupper, Eichaeckerstrasse 10A, 6382 Friedrichsdorf; Michael Latarnik, Roemerstrasse 11, 6382 Friedrichsdorf-Seulberg, and Alexander Kolbe, Taunusstrasse 38, 6101 Rossdorf, all of Fed. Rep. of Germany

PCT No. PCT/EP89/00038, § 371 Date Sep. 13, 1990, § 102(e) Date Sep. 13, 1990, PCT Pub. No. WO89/08574, PCT Pub. Date Sep. 21, 1989

PCT Filed Jan. 26, 1989, Ser. No. 549,010

Claims priority, application Fed. Rep. of Germany, Mar. 18, 1988, 3809100

Int. Cl.[5] B60T *8/50, 8/64*

U.S. Cl. 303—110 **3 Claims**

1. A vehicle brake system with anti-lock control or traction slip control comprising:

a plurality of brakes;

a pressure fluid reservoir;

fluid lines through which pressure fluid is conducted between said reservoir and said brakes;

inlet and outlet valves in said fluid lines which are selectively opened and closed to regulate the flow of pressure fluid to and from said brakes;

sensor means for sensing the rotational behavior of a plurality of wheels individually associated with said brakes and for producing sensor signals representative of said rotational behavior of said wheels;

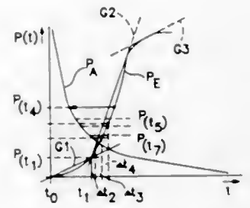
circuit means responsive to said sensor signals for:

(a) assessing and processing said sensor signals,

(b) developing valve control signals representative of the time intervals during which said inlet and outlet valves are opened and closed,

(c) supplying normal driving signals representative of the pressure of said pressure fluid during normal driving of the vehicle, and

(d) supplying normal braking signals representative of the change in vehicle deceleration during normal braking of the vehicle to establish the initial pressure upon the commencement of a control action;



means for conducting said valve control signals to said inlet and outlet vales to selectively open and close said inlet and outlet valves and regulate pressure fluid conducted to and from said brakes;

first differentiator means for storing the derivative of a pressure increase characteristic curve determined from selected parameters of the vehicle;

second differentiator means for storing the derivative of a pressure decrease characteristic curve determined from said selected parameters of the vehicle; and

integrator means selectively connected to said first differentiator means, said second differentiator means and said circuit means and responsive to:

(a) said valve control signals during time periods when said inlet and outlet valves are open,

(b) said normal driving signals, and

(c) said normal braking signals, for:

(a) developing a pressure control signal,

(b) supplying said pressure control signal to said first differentiator means and said second differentiator means to differentiate said pressure control signal, and

(c) supplying said pressure control signal to said circuit means to control the timing and duration of said valve control signals.

5,207,485

ROAD VEHICLE DRIVE-SLIP CONTROL DEVICE AND ANTI-LOCK SYSTEM

Harry Tröster, Tamm, Fed. Rep. of Germany, assignor to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Mar. 25, 1991, Ser. No. 674,114

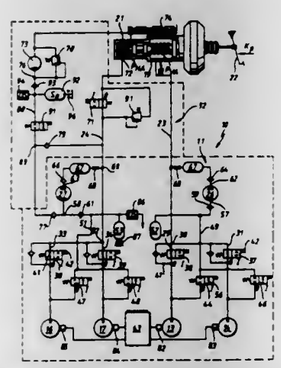
Claims priority, application Fed. Rep. of Germany, Mar. 26, 1990, 4009640

Int. Cl.[5] B60T *8/48*

U.S. Cl. 303—113.2 **21 Claims**

1. A drive-slip control device and anti-lock system in a road vehicle, comprising a hydraulic multi-circuit brake system, in

which wheel brakes of driven vehicle wheels are combined in a static brake circuit which is connected to an outlet-pressure space of a brake unit and in which anti-lock control is operative on the return-flow principle and drive-slip control is operative on the principle of decelerating again a driven vehicle wheel tending to spin by actuating an associated wheel brake, brake-pressure regulating valves assigned individually to the wheel brakes of the driven vehicle wheels and utilized in both the anti-lock mode and the drive-slip control mode for controlling brake-pressure build-up, holding and reduction phases, in the course of which the wheel brakes are at least individually connected to a main brake line of the brake system, being one of shut off therefrom and connected to a system return line, a buffer accumulator operatively connected therein, a high-pressure return flow pump operatively connected on an inlet side thereof to the system return line and the buffer accumulator and to a brake-fluid reservoir of the brake system, and on an outlet side thereof to the main brake line of the brake circuit of the driven vehicle wheels and which, in this course of control phases of the anti-lock control, conveys a quantity of brake fluid corresponding to a quantity of brake fluid bled in pressure-reduction phases of the anti-lock control into the return line and the buffer accumulator from a wheel brake subjected to the control, back into an outlet-pressure space of the brake unit and is utilized for the drive-slip control as an auxiliary pressure source which conveys brake fluid from at least one of



the brake-fluid reservoir of the brake system and the return line and from the buffer accumulator into the main brake line of the brake circuit of the driven vehicle wheels, a drive-slip control solenoid valve which, for the drive-slip control, can be moved out of a basic position assigned to a normal braking mode and to a braking mode subjected to an anti-lock control and in which the outlet-pressure space of the brake unit assigned to the brake circuit of the driven vehicle wheels is connected to the main brake line of the brake system, into a functional position in which the main brake line and the outlet of the return-flow pump are shut off from the outlet-pressure space of the brake unit, a pressure relief valve connected in parallel with the drive-slip control valve and via which, even when the drive-slip control valve is in the closing position, brake fluid can be conveyed back towards the brake unit by the return-flow pump and an electronic control unit for generating control signals necessary for actuating the brake-pressure regulating valves, the return-flow pump and the drive-slip control valve in one of the anti-lock mode and drive-slip control mode, as a result of a processing of output signals from wheel-speed sensors assigned to the vehicle wheels and emitting electrical output signals which in terms of at least one of level and frequency contain the information on the dynamic behavior of the vehicle wheels, wherein, after termination of a situation requiring the drive-slip control and in the event of an interruption of a drive-slip control cycle as a result of the actuation of the brake system, the electronic control unit generates control signals, by way of which for a delay time, the return-flow pump continues to operate and the drive-slip control valve is maintained in a closing position assigned to the drive-slip control mode, the duration of this delay time being sufficient to ensure that a quantity of brake fluid corresponding to a quantity previously received by the buffer accumulator of the brake circuit of the driven vehicle wheels is conveyed out of the brake circuit back into the outlet-pressure space of the brake unit assigned thereto.

5,207,486

BRAKING SYSTEM FOR VEHICLE

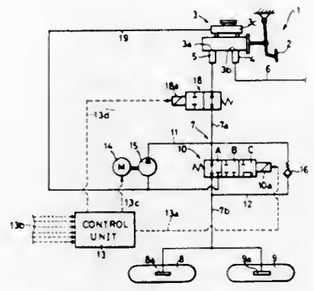
Ryuichi Tanaka, Kanagawa, Japan, assignor to Nippon Air Brake Co., Ltd., Kobe, Japan

Filed Mar. 3, 1992, Ser. No. 846,292

Claims priority, application Japan, Mar. 11, 1991, 3-070634

Int. Cl.[5] B60T *8/32*

U.S. Cl. 303—113.2 **9 Claims**



1. In a braking system for a vehicle including:

(A) a brake fluid pressure generating source;

(B) a brake-applying apparatus for braking a wheel or wheels with brake fluid pressure supplied from said brake fluid pressure generating source; and

(C) a pulsating-pressure absorbing apparatus arranged between said brake fluid pressure generating source and said brake-applying apparatus, said pulsating-pressure absorbing apparatus including:

(a) a main body,

(b) an inlet formed in said main body and connected to said brake fluid pressure generating source,

(c) an outlet formed in said main body and connected to a side of said brake-applying apparatus,

(d) a stepped hole formed in communication with said inlet and outlet, the diameter of said stepped hole being larger at said inlet than at said outlet,

(e) a stepped plunger slidably fitted into said stepped hole, the diameter of said stepped plunger being larger adjacent said inlet than adjacent said outlet,

(f) a path defined by said plunger communicating said inlet with said outlet,

(g) check valve means arranged in said path for permitting brake fluid to flow from said inlet towards said outlet and for inhibiting brake fluid from flowing from said outlet towards said inlet, and

(h) throttle means arranged in said path for limiting brake fluid flow from said outlet towards said inlet whereby, when said stepped plunger is located at a first position adjacent said outlet, said throttle means is operative, and when said stepped plunger is located at a second position toward said inlet, said throttle means is inoperative with said check valve means being opened for permitting brake fluid to flow freely between said inlet and outlet, and spring means for urging said stepped plunger towards said second position adjacent said inlet.

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5,207,487

HYDRAULIC MULTI-CIRCUIT BRAKE SYSTEM IN PARTICULAR FOR MOTOR VEHICLES

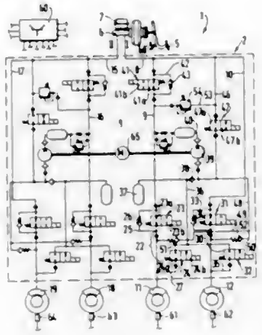
Roland Holzmann, Stuttgart, and Karl-Heinz Willmann, Freiberg/N, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 8, 1992, Ser. No. 895,062

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1991, 4118719

Int. Cl.[5] B60T *8/34*

U.S. Cl. 303—113.2 1 Claim



1. A hydraulic multi-circuit brake system (**1**), for motor vehicles, having an anti-lock and traction control system (**2**) for driven and non-driven wheels, which includes:

a master brake cylinder (**6**), first and second brake circuits (I, II) which originate at said master brake cylinder, said first main brake circuit (I) includes a main brake line (**8**) and a branch line (**9**) which connect with a wheel brake (**11**) of said driven vehicle wheels;

a valve assembly (**22**), assigned to the wheel brake (**11**), for brake pressure modulation which includes phases for pressure buildup, pressure holding and pressure reduction, the valve assembly comprises an inlet valve (**23**), disposed in the branch line (**9**), and having an open position (**23***a*) and shutoff position (**23***b*), and an outlet valve (**24**), having a shutoff position (**24***a*) and an open position (**24***b*), wherein the outlet valve (**24**) is disposed in a return line (**27**, **36**) for pressure fluid that begins at the branch line (**9**) between the inlet valve (**23**) and the wheel brake (**11**);

a bypass line (**25** that bypasses the inlet valve (**23**), said bypass line (**25**) includes a first check valve (**26**) which allows a flow from the wheel brake (**11**) to the master brake cylinder (**6**);

a storage chamber (**37**), connected to the return line (**36**), for receiving pressure fluid drawn from the wheel brake (**11**) in the anti-lock control mode;

a high-pressure pump (**39**), which communicates on an intake side with the return line (**36**) and a suction line (**46**) for pressure fluid and on a pressure side with a feed line (**40**) for pressure fluid, which feed line (**40**) discharges into the branch line (**9**) between the main brake line (**8**) connected to the master brake cylinder (**6**) and the valve assembly (**22**);

a second check valve (**38**), disposed in the return line (**36**) between a connection of the storage chamber (**37**) and a connection of the suction line (**46**), said second check valve permits a fluid flow from the outlet valve (**24**) to the high-pressure pump (**39**);

a shutoff valve (**41**), disposed in the branch line (**9**) between the main line (**8**) and the master brake cylinder (**6**) and a connection of the feed line (**40**) and having an opening position (**41***a*) and a shutoff position (**41***b*);

a charging valve (**47**), having a shutoff position (**47***a*) and an open position (**47***b*), disposed in the suction line (**46**), which communicates with the main brake line (**8**) between the shutoff valve (**41**) and the master brake cylinder (**6**);

and an overflow line (**53**), at least indirectly bypassing the shutoff valve (**41**), having a pressure limiting valve (**54**) that diverts pressure fluid toward the master brake cylinder (**6**);

in the traction control mode, the high-pressure pump (**39**) is driven continuously;

in the traction control mode,

a) in a pressure buildup phase in the wheel brake (**11**), the shutoff valve (**41**) assumes the shutoff position (**41***b*) and the charging valve (**47**) and the inlet valve (**23**) assume the open positions (**47***b*, **23***a*);

b) in a phase for pressure holding, the shutoff valve (**41**) and the inlet valve (**23**) assume the shutoff position (**41***b*, **23***b*) and the charging valve (**47**) assumes the open position (**47***b*), and

c) in the phase for pressure reduction, the shutoff valve (**41**) and the charging valve (**47**) assume the open position (**41***a*, **47***b*) and the inlet valve (**23**) assumes an arbitrary position, while in all three phases, the first outlet valve (**24**) assumes its shutoff position (**24***a*).

5,207,488

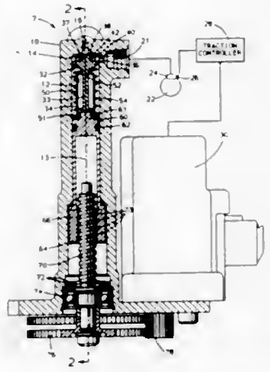
TRACTION CONTROL MODULATOR

Jerry L. Newton, Richmond, Ind.; Donald L. Parker, Middletown, Ohio; Donald M. Flory, Arcanum, Ohio, and Timothy A. Haerr, Enon, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 6, 1992, Ser. No. 864,261

Int. Cl.[5] B60T *8/58*

U.S. Cl. 303—115.2 5 Claims



1. A vehicle wheel traction control system for an automotive vehicle which includes a master cylinder for supplying pressurized fluid to a fluid actuated wheel brake, and a controller cognizant to a rotative condition of a vehicle wheel, the system in combination comprising:

a frame with a longitudinal bore with an axis with means of fluid communication with the master cylinder intersecting the bore adjacent a first end of the bore and means of fluid communication with the wheel brake intersecting the bore spaced from the means of fluid communications with the master cylinder;

a plunger slidably mounted within the bore with a sealing head for fluidify isolating the bore from the means of fluid communication with the master cylinder by axial movement of the plunger in a first direction toward the bore first end;

spring means biasing the plunger in the first direction;

a piston sealably slidably mounted within the bore for creating a variable control volume in the bore and fluid communication with the wheel brake, the piston being separated from the plunger by the spring means;

means for mounting the spring means between the plunger and the piston;

relative translational displacement limiting means to limit the relative displacement of the plunger away from the piston in the first direction;

nut means with a threaded bore fixably connected with the piston on a side of the piston opposite the means of fluid communication with the master cylinder;

means preventing rotation of the nut means;

a drive screw threadably engaged with the nut means mounted for rotation for translating the nut means the piston;

reversible motor means responsive to signals given by the controller and torsionally associated with the drive screw whereby a movement of the piston in the first direction isolates the bore from the master cylinder and further movement of the piston allows the traction control system to modulate the pressure within the wheel brake.

5,207,489

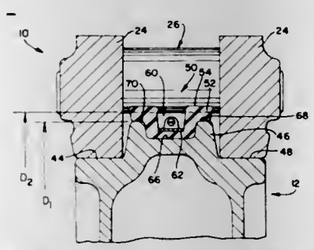
NOISE REDUCTION APPARATUS FOR A TRACK SYSTEM OF AN OFF-HIGHWAY IMPLEMENT

Larry E. Miller, Wausau, Wis., assignor to Case Corporation, Racine, Wis.

Filed Mar. 19, 1992, Ser. No. 853,929

Int. Cl.[5] B62D *55/12*

U.S. Cl. 305—56 7 Claims



1. An idler wheel mounted for rotational movement on a track assembly including an articulated chain comprised of a plurality of links which are pivotally interconnected by a series of pin and bushing means, said idler wheel having first and second annular rims of substantially equal diameters arranged on opposite sides of the idler wheel for engaging and guiding the chain links thereabout and a third central annular rim sized with a diameter greater than the diameter of said first and second rims, and a split elastomeric ring extending circumferentially about said central annular rim, said ring including an annular central section of a predetermined diameter and two laterally spaced annular outer sections joined to the central section, with each outer section of said ring having a diameter greater than the predetermined diameter of the central section and defining laterally spaced circumferential surfaces which engage said bushing means so that contact noise between the bushing means and the idler wheel is reduced thereby reducing noise generation as the chain moves about the idler wheel and dampening impact loads applied to the idler wheel mount.

5,207,490

SAFETY LATCH FOR THE LID OF A LIFT-TOP CABINET

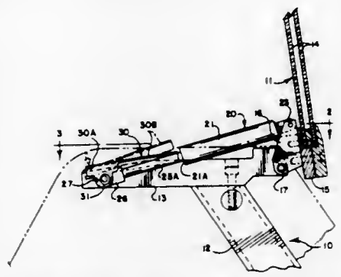
Melvin C. Kaspar, LaGrange Park, Ill., and David Robinson, Valparaiso, Ind., assignors to Ardco, Inc., Chicago, Ill.

Filed Aug. 16, 1991, Ser. No. 746,322

Int. Cl.[5] A47F *3/04*; E05F *3/22*

U.S. Cl. 312—139 12 Claims

1. A cabinet having a top lid hinged thereto to swing upwardly to a fully open position and downwardly to a fully closed position, a gas spring connected between said cabinet and said lid and normally operable to releasably hold said lid upwardly in said fully open position, said gas spring comprising a cylinder member and a rod member slidable within said cylinder member, said members extending relative to one another during movement of said lid toward said open position and retracting relative to one another during movement of said lid toward said closed position, said cylinder member containing fluid which is pressurized during retraction of said members relative to one another thereby to resist movement of said lid toward said closed position, a latch, means supporting said latch for pivotal movement about a horizontal axis, said latch having an engagement and resting idly on one of said members when said lid is in said closed position, said engagement end having an inverted U-shaped cross section with depending legs



of said engagement end being spaced a distance greater than the width of said one member such that no portion of said engagement end extends under said one member in a manner that would restrict free upward movement of said engagement end relative to said one member upon pivoting of said latch, said latch engagement end being downwardly moveable under the force of gravity into latching relation with said one member as said members extend relative to one another as said lid approaches said fully open position to prevent retraction of said members relative to each other to thereby positively hold said lid upwardly, and said latch being freely pivotable about said horizontal axis for raising said engagement end upwardly relative to said one member to permit retraction of said members and downward movement of said lid to said closed position.

5,207,491

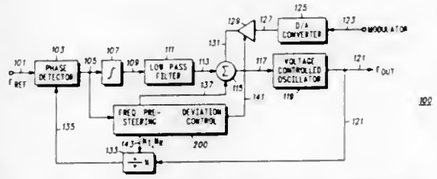
FAST-SWITCHING FREQUENCY SYNTHESIZER

Alan P. Rottinghaus, Lake Zurich, Ill., assignor to Motorola Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 648,705, Jan. 31, 1991, abandoned. This application Apr. 7, 1992, Ser. No. 864,705

Int. Cl.[5] H03L *7/187*, *7/189*

U.S. Cl. 331—16 20 Claims



1. A synthesizer for generating a frequency, comprising:

a voltage controlled oscillator ("VCO") having a voltage control line and an output,

a phase detector having a frequency reference, an input and an output,

a frequency divider having an input and an output,

the VCO output coupled to the frequency divider input, the

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frequency divider output coupled to the phase detector input, the phase detector output coupled to the voltage control line, and

means for controlling the synthesizer frequency, comprising:

changing means for changing the frequency divider to a first divisor value;

injecting means for injecting a first waveform to the voltage control line at a fixed time with respect to changing to the first divisor value;

sampling means for detecting and sampling the phase detector output responsive to changing to the first divisor value thereby forming a first sample signal;

adjusting means for adjusting the first waveform based on the first sample signal.

5,207,492

MIRROR ASSEMBLY

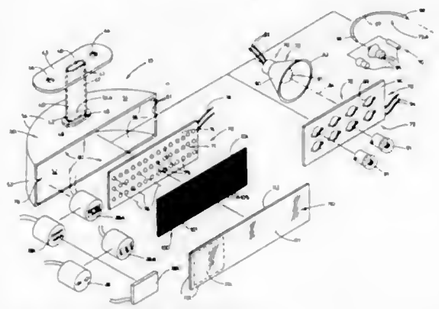
John K. Roberts, Sheboygan, Wis., assignor to K. W. Muth Company, Inc., Sheboygan, Wis.

Continuation-in-part of Ser. No. 482,254, Feb. 20, 1990, Pat. No. 5,014,167. This application May 2, 1991, Ser. No. 694,884

The portion of the term of this patent subsequent to May 7, 2008, has been disclaimed.

Int. Cl.[5] B60Q *1/00*

U.S. Cl. 362—30 **25 Claims**



1. A mirror assembly comprising:

an enclosure having an aperture;

a dichroic mirror borne by the enclosure and substantially occluding the aperture and operable to pass a predetermined narrow spectral band of light, and reflect a broad spectral band of visible light; and

means borne by the enclosure for emitting light in the predetermined narrow spectral band of light passed by the dichroic mirror, and wherein the dichroic mirror is both an excellent reflector of visible light and an excellent transmitter of the predetermined narrow band of light.

5,207,493

EDGE LIGHT PANEL DEVICE

Shinzo Murase, and Hirokazu Matsui, both of Ohtsu, Japan, assignors to Kabushiki Kaisha Meitaku Shisutemu, Ohtsu, Japan

Filed Jul. 3, 1991, Ser. No. 725,661

Claims priority, application Japan, Jul. 3, 1990, 2-176546; Jul. 31, 1990, 2-204480

Int. Cl.[5] F21V *8/00*

U.S. Cl. 362—31 **19 Claims**

1. An edge light panel device for use with at least one primary light source, comprising:

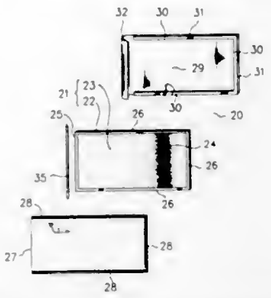
an edge light panel formed of a transparent substrate having a means for irregular reflection and a plurality of peripheral edges, at least one of said plurality of peripheral edges being adapted to be juxtaposed with the at least one primary light source;

a front surface diffusion layer arranged along a front surface of said edge light panel to substantially cover said front surface;

a rear surface reflection layer arranged along a rear surface of said edge light panel to substantially cover said rear surface;

a pair of peripheral edge reflection layers respectively arranged along a first opposite pair of said peripheral edges which extend away from said at least one of said peripheral edges which is adapted to be juxtaposed with the at least one primary light source;

a pair of margin reflection layers respectively arranged



along said first opposite pair of said peripheral edges in covering relation to marginal portions of said front surface of said edge light panel;

wherein said margin reflection layers and aid peripheral edge reflection layers are respectively formed together in the form of channels which surround the peripheral edges and marginal portions of said edge light panel;

wherein said front surface diffusion layer is bonded to said channels; and

wherein a screen printed ink layer or resin layer is interposed between said front surface diffusion layer and each of said channels.

5,207,494

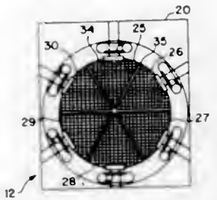
DIMMER FOR FIBER OPTIC SYSTEMS

Eric M. Jones, Los Angeles, Calif., assignor to Karl Storz Endoscopy-America, Inc., Culver City, Calif.

Filed Feb. 4, 1991, Ser. No. 644,793

Int. Cl.[5] F21V *7/04*

U.S. Cl. 362—32 **6 Claims**



1. A dimmer for variably adjusting light transmitted through it to a fiber optic bundles from a light source whose own intensity is not to be adjusted, said light source providing a beam to said dimmer along a central optical axis, said dimmer comprising:

a body having an axially-extending passage therethrough;

a plurality of vanes in said passage arranged symmetrically in said passage, each said vane comprising an opaque body having a pair of boundary edges meeting at an apex, said apex being disposed at said central optical axis, each vane being mounted for rotation around an axis of rotation which axis of rotation lies in a plane normal to the central optical axis, and extends radially from said central optical axis, said plurality of vanes when lying in said plane occluding at least the major portion of the beam, and when lying parallel to said central optical axis, extending into said passage, but occluding a lesser portion; and

coordinating means rotating all said plurality of vanes simultaneously to vary the portion of the beam which is to be occluded.

5,207,495

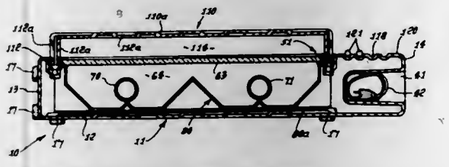
GRAPHIC ARTS LIGHT BOX

Arthur G. Ahlstone, Ventura, Calif., assignor to Vemco Corporation, San Dimas, Calif.

Filed Jul. 8, 1991, Ser. No. 727,002

Int. Cl.[5] F21V *13/00*

U.S. Cl. 362—33 **22 Claims**



1. A graphic arts work center comprising

a) a box having a bottom wall, upright side walls, and an associated frame,

b) a light diffuser plate carried by the frame to overlie the bottom wall and define therewith an illumination space,

c) illumination means in said space to illuminate the underside of the diffuser plate,

d) and a cover retained by the box to overlie said plate and to be upwardly removable to expose said plate for transmitting light to work placed over the plate,

e) the box having auxiliary receptacle means for storage of equipment usable in conjunction with use of said work placed over the plate,

f) and wherein said frame has associated grooving,

g) the edge of the cover being held in said grooving by retaining means.

5,207,496

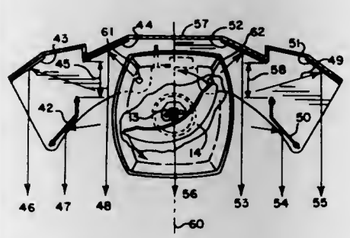
WARNING LIGHT WITH ACCESSORY MIRROR

Edward S. Stanuch, and Edward J. Stanuch, both of Oak Forest, Ill., assignors to Federal Signal Corporation, University Park, Ill.

Filed Oct. 4, 1990, Ser. No. 592,670

Int. Cl.[5] B60Q *1/52*

U.S. Cl. 362—35 **26 Claims**



1. A mirror assembly for use with a warning light contained in a domed housing and having a reflector rotatable about a focal point of the reflector for rotating a beam of light emanating from a lamp at the focal point, the assembly comprising:

an attachment for mounting to the domed housing, including a surface for intercepting the beam of light over a portion of a full rotation;

a first set of first, second and third mirrors mounted to the attachment for reflecting the intercepted light in a predetermined direction, where each of the mirrors is positioned to reflect light at a different angle in the rotation of the beam such that the reflections occur first from the first mirror, then from the second mirror and finally from the third mirror; and

a port between the first and third mirrors for passing light to the second mirror such that the reflected beam from the second mirror is further from the focal point than the reflected beams from the first and third mirrors.

5,207,497

VENTING CONSTRUCTION FOR VEHICLE LIGHT FIXTURE

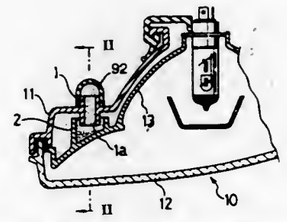
Hiroshi Kamishina, and Noritaka Yamaguchi, both of Hadano, Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan

Filed Apr. 20, 1992, Ser. No. 871,235

Claims priority, application Japan, Apr. 24, 1991, 3-036900[U]

Int. Cl.[5] B60Q *1/00*

U.S. Cl. 362—61 **4 Claims**



1. A vehicle lighting fixture having a housing formed with a venting structure including a venting hole, wherein:

said venting hole is in the form of a pipe means which extends through said housing for passing venting air into the interior of said housing;

said pipe means having an opening on an interior portion of said housing that confronts a solid wall-like structure within said housing, said solid wall-like structure facing said opening with a spacing therebetween; and

said venting structure further comprising an enclosure extending from said solid wall-like structure in an interior portion of said housing, said enclosure encircling at least a portion of said pipe means with a lateral spacing therebetween, and said enclosure having an opening portion in direct communication with the interior of said housing.

5,207,498

VACUUM CLEANER HEADLIGHT

Randall K. Lawrence, Bristol, Tenn.; Timothy W. Jackson, Bristol, Va., and Ronald L. Sltzema, Jr., Ellsworth, Micb., assignors to Electrolux Corporation, Marietta, Ga.

Filed Aug. 27, 1991, Ser. No. 750,304

Int. Cl.[5] F21V *7/04*; A47L *9/30*

U.S. Cl. 362—91 **122 Claims**

69. For use in a vacuum cleaner assembly including a housing having a front wall, a headlight aperture in said front wall, and a light source within said housing remote from said headlight aperture, for disposition between said light source and said headlight aperture for propagating light therebetween, a substantially planar light pipe, said light pipe comprising:

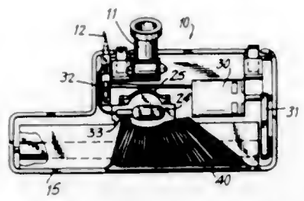
an index of refraction;

a rear face adjacent said light source for receiving light from said light source,

a front face disposed substantially in said headlight aperture through which light is emitted, and

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an upper surface and a lower surface, at least one of said upper and lower surfaces having primary reflex optical elements thereon for distributing light entering said rear



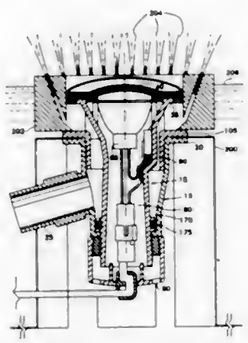
face in a desired distribution to said front face, said reflex optical elements being optical elements that direct light transmitted therethrough by substantially total internal reflection of said light.

5,207,499

INTEGRAL LIGHT AND LIQUID CIRCULATION FITTING

Jason Vajda, Scranton, Pa.; Laurence E. Thrasher; Kenneth M. Kowal, both of Simi Valley, Calif., and Lucjan Berezynski, Glendale, Calif., assignors to KDI American Products, Inc., Moorpark, Calif.

Filed Jun. 4, 1991, Ser. No. 710,178
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—96 **28 Claims**



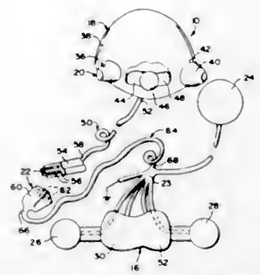
1. For use in conjunction with a water circulation system in a pool, tub or spa, a combination comprising:
a light assembly for installation beneath water level in a pool, tub or spa; and
a return water inlet fitting for connection to a water circulation system, to return circulating water to the pool, wherein the light assembly and the return water inlet fitting form a unitary structure for attachment to a single opening in a wall of the pool, tube or spa;
a water line fitting for coupling the circulation system to an opening in the return water inlet fitting; and
a directionally adjustable port surrounding the light assembly on the inside of the pool, tube or spa;
whereby the circulating water emerges from the port in any desired direction.

5,207,500

MOTORCYCLE HELMET WITH HEADLIGHTS

Obdulio Rios, 14 Bogardus Pl., New York, N.Y. 10040, and George Spector, 233 Broadway Rm. 3815, New York, N.Y. 10007

Filed Aug. 26, 1991, Ser. No. 749,968
Int. Cl.[5] F21V *33/00*; F21L *15/14*
U.S. Cl. 362—105 **1 Claim**



1. An illuminated motorcycle helmet for an operator of a motorcycle having a lighting system, which comprises:
a) a head covering of hard material, worn to protect the head of an operator of the motorcycle;
b) an auxiliary lighting system built into said head covering; and
c) means for detachably connecting an electric circuit from the lighting system in the motorcycle to said auxiliary lighting system, so that when the operator activates the lighting system in the motorcycle, said auxiliary lighting system will simultaneously be activated on said head covering, which will be more visually seen from all angles about the motorcycle for added safety; wherein the lighting system of the motorcycle has a headlight, a front left turn signal light, a front right turn signal light, a tail light and a stop light, wherein said auxiliary lighting system further includes:
d) an auxiliary headlight located at a front portion of said head covering;
e) an auxiliary front left turn signal light extending from a front left side portion of said head covering;
f) an auxiliary front right turn signal light extending from a front right side portion of said head covering;
g) an auxiliary tail light located at a rear portion of said head covering; and
h) an auxiliary stop light located at the rear portion of said head covering, whereby said detachably connecting means will electrically connect through the electric circuit, the headlight to said auxiliary headlight, the front left turn signal light to said auxiliary front left turn signal light, the right turn signal light to said auxiliary front right turn signal light, the tail light to said auxiliary tail light and the stop light to said auxiliary stop light; wherein said detachably connecting means includes:
i) a first power cord electrically connected at a first end to said auxiliary lighting system;
j) a male plug having a plurality of contact blades electrically connected to a second end of said first power cord;
k) a female socket having a plurality of contact slots engagable with said plurality of contact blades in said male plug;
l) a second power cord electrically connected at a first end to said plurality of contact slots of said female socket and at a second end to the lighting system in the motoreycle; and
m) aligning means insuring proper alignment of said plurality of contact blades and slots; wherein said aligning means comprises:
n) said female socket having a shallow continuous track about the plurality of contact slots and a pair of oppositely

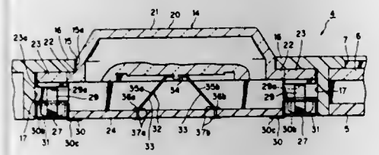
spaced apart bores extending inwardly in the shallow continuous track, with one of the bores having a small aperture extending further inwardly therefrom; and
o) said male plug having a pair of non-conductive prongs which are longer than said plurality of contact blades and are oppositely spaced apart with respect to said plurality of contact blades, with one of said non-conducting prongs having a small pin extending therefrom, so that said pair of non-conducting prongs can slide within said shallow continuous track until said small pin is properly positioned into the bore with the small aperture so as to insure that said plurality of contact blades are in the right position with respect to the said plurality of contact slots in said female socket.

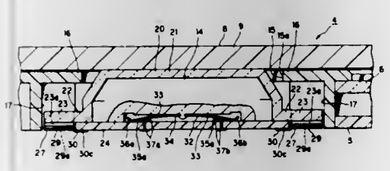
5,207,501

VANITY MIRROR

Toranosuke Sakuma, and Atsushi Yamada, both of Shimizu, Japan, assignors to Kolto Manufacturing Co., Ltd., Tokyo, Japan

Filed Oct. 1, 1991, Ser. No. 770,018
Claims priority, application Japan, Oct. 8, 1990, 2-269971
Int. Cl.[5] B60Q *3/02*
U.S. Cl. 362—137 **4 Claims**





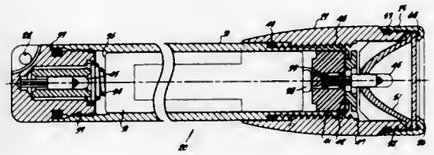
1. A vanity mirror of the type including a mirror, an illuminating portion having a lamp, and a cover for covering and exposing a front surface of the mirror with the lamp being turned on and off in response to the opening and closing of the cover, wherein a lens covering a front side of the lamp is displaceable in fore and aft directions, there is provided means for biasing forward the lens and means for displacing the lens in response to the closing of the cover, whereby the lens is displaced forward in response to the opening of the cover and by the biasing means, and there is provided on the lens a pressing portion for actuating and deactivating a switch which controls the on-off of the lamp.

5,207,502

MINIATURE FLASHLIGHT

Anthony Maglica, Anaheim, Calif., assignor to MAG Instrument, Inc., Ontario, Calif.

Continuation of Ser. No. 719,156, Jun. 21, 1991, Pat. No. 5,113,326, which is a continuation-in-part of Ser. No. 553,977, Jul. 16, 1990, abandoned, which is a continuation of Ser. No. 356,361, May 23, 1989, Pat. No. 4,942,505, which is a continuation of Ser. No. 222,378, Jul. 19, 1988, Pat. No. 4,899,265, which is a continuation of Ser. No. 34,918, Apr. 6, 1987, abandoned, which is a continuation of Ser. No. 828,729, Feb. 11, 1986, Pat. No. 4,658,336, which is a continuation of Ser. No. 648,032, Sep. 6, 1984, Pat. No. 4,577,263. This application Apr. 10, 1992, Ser. No. 866,422
The portion of the term of this patent subsequent to May 12, 2009, has been disclaimed.
Int. Cl.[5] F21L *7/00*
U.S. Cl. 362—158 **2 Claims**



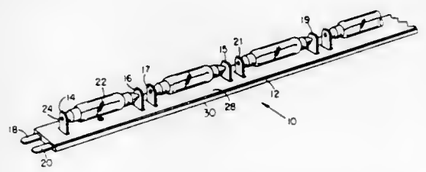
1. A flashlight comprising
a battery housing forming a closed internal volume having a passage extending to atmosphere from said closed internal volume;
a lamp bulb;
an electrical circuit extending form said battery housing to said lamp bulb;
a one-way valve in said passage oriented to permit gas flow from said closed internal volume to atmosphere.

5,207,503

XENON FESTOON STYLE LAMP

Donald D. McLaughlin, Austin, Tex., assignor to Lucifer Lighting Company, San Antonio, Tex.

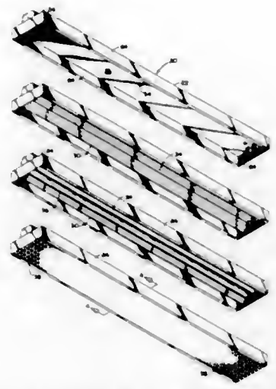
Filed Feb. 5, 1992, Ser. No. 831,416
Int. Cl.[5] F21S *3/00*
U.S. Cl. 362—219 **3 Claims**



1. An improved festoon style lamp having an elongated, cylindrical, tubular bulb, said bulb and having a filament extending therethrough, the removed ends of the filament being attached to a first end cap and a second end cap, the bulb in gas sealed relation with the filament and the end caps in electrical conductive association with the ends of the filament, the improvement comprising:
providing the bulb of the lamp with a filling gas made up of xenon.

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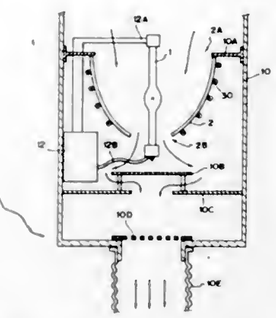
5,207,504
METHOD AND APPARATUS FOR TUNING STRIP FLOURESCENT LIGHT FIXTURES
Gerald R. Swift, and Todd Snyder, both of 1006 Third Ave., Yakima, Wash. 98902
Filed Jul. 3, 1991, Ser. No. 725,202
Int. Cl.[5] F21S *3/00*
U.S. Cl. 362—260 12 Claims



1. A method for tuning an existing strip fluorescent light fixture, with said existing strip fluorescent light fixture having a strip fluorescent housing, a ballast, a reflector, at least two fluorescent light sockets, and at least one fluorescent light tube, to obtain lighting with desired characteristics in a specific area, wherein said tuning method comprises the steps of:
- determining said desired lighting characteristics;
- determining a combination of a high output ballast, a light enclosure box, an elongated shaped reflector, high output fluorescent light tube, and a lens for achieving said desired lighting characteristics;
- removing all said fluorescent light tubes and said reflector from said existing strip fluorescent light fixture, leaving said strip fluorescent housing;
- attaching said light enclosure box to said strip fluorescent housing;
- installing said elongated shaped reflector within said light enclosure box;
- plugging at least one said high output fluorescent light tube into said strip fluorescent housing inside said light enclosure box below said elongated shaped reflector; and
- attaching said lens to said light enclosure box to enclose said high output fluorescent light tubes.

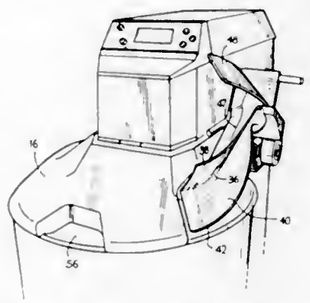
5,207,505
ILLUMINATION LIGHT SOURCE DEVICE
Tsuyoshi Naraki; Haruo Ozawa, both of Tokyo; Takashi Mori, Kawasaki, and Jun Nagatsuka, Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan
Filed Sep. 3, 1991, Ser. No. 754,028
Claims priority, application Japan, Sep. 19, 1990, 2-249294
Int. Cl.[5] F21V *29/00*
U.S. Cl. 362—373 20 Claims

1. A light source device for irradiating an object, comprising:
- a lamp operable for emitting light, said lamp creating heat during the emission of light;
- an optical member disposed near said lamp for directing light from said lamp toward said object;
- means for supplying cooling gas to a space between said lamp and said optical member for cooling said lamp; and
- means for controlling the temperature of said optical member,
- said optical member, in the absence of said temperature controlling means, being subject to a reduction in its ability to direct light from said lamp toward said object, due to deposition of a contaminant on said optical member,



said contaminant having a decomposition temperature at which deposition of said contaminant on said optical member is prevented and below which such deposition occurs, said temperature controlling means setting the temperature of said optical member, during the operation of said lamp, at a temperature level that is at least as high as said decomposition temperature.

5,207,506
DEVICE FOR EXTRACTING PASTE IN PARTICULAR FROM A KNEADING MACHINE HAVING A CYLINDRICAL VESSEL
Joel Musseau; Bruno Paturel, and Claude Rochez, all of Aubusson, France, assignors to Dito-Sama, Aubusson, France
Filed Feb. 27, 1991, Ser. No. 661,540
Claims priority, application France, Mar. 14, 1990, 90 03250
Int. Cl.[5] B28C *1/16;* B01F *15/02, 13/04*
U.S. Cl. 366—095 26 Claims



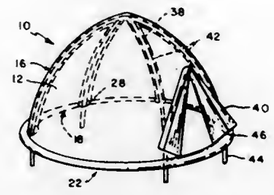
1. A device for use with a kneading machine having a housing, a cylindrical vessel rotatable relative to the housing about a first vertical axis, a spiral kneading tool rotatable about a second vertical axis offset from the first vertical axis, and driving means mounted to the housing for rotating the kneading tool, said device comprising:
- a main cover having an edge with a first predetermined configuration;
- main cover pivot means for pivotably mounting said main cover to the housing for movement between a covering position in which said main cover is adapted to cover a major portion of the cylindrical vessel, and an access position spaced from said covering position wherein said main cover is adapted to allow access to the cylindrical vessel;
- an extractor arm having an edge with a second predetermined configuration complementary to said first predetermined configuration;
- extractor arm pivot means for pivotably mounting said extractor arm to the housing for movement between a working position in which said extractor arm is adjacent to said main cover when said main cover is in said covering position such that said edges of said main cover and said extractor arm are in a complementary relationship with on another, and a withdrawn position;
- paste extractor means, fixed to and extending from said extractor arm, for extracting paste from the cylindrical vessel when said extractor arm is in said working position;
- a working position cover means for covering, when said extractor arm is in said working position, a portion of the cylindrical vessel not covered by said main cover when said main cover is in said covering position; and
- wherein said main cover pivot means and said extractor arm pivot means are respectively operable to mount said main cover and said extractor arm to the housing such that said main cover and said extractor arm are pivotable independently of one another and wherein said first predetermined configuration of said edge of said main cover and said second predetermined configuration of said edge of said extractor arm are such as to allow said extractor arm and said main cover to pass by one another when pivoted relative to one another.

5,207,507
METHOD FOR CONTINUOUS THERMOGRAVIMETRIC ANALYSIS OF COAL
Hiroshi Kimoto, Sakai; Mikindo Saiga, Ikoma; Sekio Uemura, Kishiwada; Shoji Seike; Yoshihiko Ishida, both of Nagoya, and Toshibiko Nakagawa, Hekinan, all of Japan, assignors to The Kansai Electric Power Co., Ltd. and NGK Insulators, Ltd., both of Japan
Filed Mar. 9, 1992, Ser. No. 848,680
Claims priority, application Japan, Mar. 15, 1991, 3-76830
Int. Cl.[5] G01N *25/00, 5/00*
U.S. Cl. 374—14 9 Claims

1. A method for continuous thermogravimetric analysis of coal for volatile matter and ash content, said method comprising the steps of:
- exposing a predetermined known weight of coal sample to an atmosphere consisting essentially of about 1 to 5% by volume of oxygen and the remainder being nitrogen and inevitable impurities at a first specified temperature for a first given time;
- weighing the coal sample to determine a first weight loss during the first given time, said first weight loss corresponding to the amount of volatile matter in the coal sample;
- buring the coal sample under an oxygen atmosphere having a higher than normal oxygen concentration for a second given time at a temperature sufficient to burn carbon containing materials in the coal sample; and
- weighing the coal sample to determine a second weight loss during the first given time and the second given time, said second weight loss corresponding to the amount of volatile matter and the amount of ash content in the coal sample.

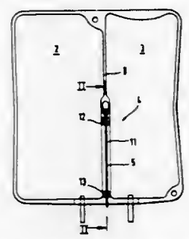
5,207,508
CONVERTIBLE SACK
Philip Koutsis, Jr., 112 Highland Ave., Eastchester, N.Y. 10707
Filed Oct. 31, 1991, Ser. No. 786,064
Int. Cl.[5] B65D *33/10*
U.S. Cl. 383—4 9 Claims

1. A convertible sack, comprising, a sheet formed from a generally flat material and having an inner surface, an outer surface, a circular hollow section formed in said sheet and extending about an outer portion thereof, and a plurality of access openings formed in said section;
- a fastener cord secured in said hollow section and reachable at said access openings, the sheet being converted from a flat surface to a sack configuration by pulling said fastener cord through said access openings;



- hollow tracks formed in the sheet, said hollow tracks extending across the sheet between non-adjacent access openings; and
- supports upon which the sheet can be disposed by inserting the supports through the access openings and into the hollow tracks, to form a structure that can shield an individual, the supports including ends extending beyond the access openings for securing the sack to the ground.

5,207,509
MULTICHAMBER BAG
Reinhold Herbert, Weilrod, Fed. Rep. of Germany, assignor to Fresenius AG, Bad Homburg, Fed. Rep. of Germany
Filed Mar. 5, 1992, Ser. No. 847,601
Claims priority, application Fed. Rep. of Germany, Mar. 7, 1991, 4107223
Int. Cl.[5] B65D *30/22;* A61B *19/00*
U.S. Cl. 383—38 6 Claims

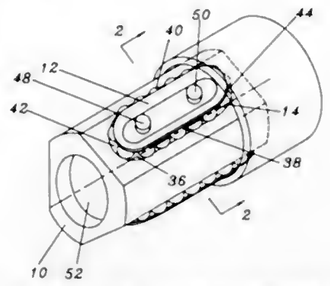


1. A package for separately storing and subsequently mixing a plurality of ingredients comprising
- a) a multichamber bag having a plurality of bag chambers, each of said chambers having first and second opposed bag walls of flexible material joined to each other by a seam around the periphery of said bag and
- b) openable separating means to define the bag chambers within said bag comprising
  - i) a strip of elastic sheeting arranged between said first and said second bag walls and
  - ii) an external clamping means to fit over said bag walls proximate the location of said strip,

whereby the deformation of said strip by application of said clamping means temporarily seals the thus formed chambers from each other.

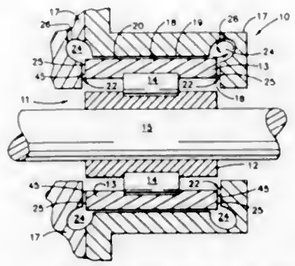
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,510
LINEAR BALL BEARING ASSEMBLY
Alexander Polyak, 320 Auburn Way #3, San Jose, Calif. 95129
Filed Aug. 28, 1991, Ser. No. 750,954
Int. Cl.[5] F16C *29/06*
U.S. Cl. 384—43 **9 Claims**



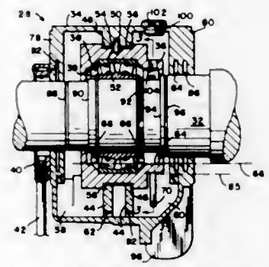
1. A linear ball bearing assembly for longitudinal movement inside a hollow housing, comprising:
(a) a cylindrical body having a plurality of longitudinal flat portions formed on the peripheral surface thereof on at least a portion of its length;
(b) at least one closed raceway formed on each of said flat portions, said raceway having a working portion and a returning portion, said working portion being straight and said returning portion consisting of a straight portion and a pair of adjoining curved portions;
(c) a plurality of balls for providing said cylindrical body with frictionless linear motion within said hollow housing, said balls substantially filling said closed raceways; and
(d) retaining means for holding said balls within said closed raceways, said retaining means comprising, for each raceway, a flat plate with an upwardly bent peripheral edge, said plate in a plan view having a configuration corresponding to the shape of said closed raceway, a portion of said edge, which is located over said working portion, and said hollow housing having a clearance therebetween, said prismatic body and said hollow housing having a clearance therebetween.

5,207,511
SQUEEZE FILM DAMPER OIL CONTROL
Melvin Bobo, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio
Filed Jul. 22, 1991, Ser. No. 733,897
Int. Cl.[5] F16C *27/00*
U.S. Cl. 384—99 **10 Claims**



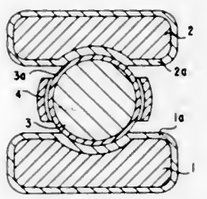
1. A damper bearing assembly for use in a gas turbine engine, the bearing assembly comprising:
(a) a bearing support member disposed for rotation in a housing, the support member and housing defining a fluid annular squeeze film space there between;
(b) the squeeze film space enclosed by a pair of opposed, circumferentially extending channels disposed in the housing, each channel open to direct flow from the annular squeeze film space;
(c) each channel in flow communication with an associated clearance gap formed between a support member sidewall and a housing sidewall, and wherein each channel radially and axially spaces the squeeze film space from the channel's associated clearance gap;
(d) each channel including a circumferentially extending surface portion which is inclined with respect to flow exiting the squeeze film space to direct flow away from the channel's associated clearance gap.

5,207,512
SPHERICAL ROLLER BEARING ASSEMBLY
Jerome D. Grant; Wayne M. Svegal, both of Brooklyn Park, and James J. McClurg, Vadnais Heights, all of Minn., assignors to Dresser-Rand Company, Corning, N.Y.
Filed May 6, 1992, Ser. No. 880,150
Int. Cl.[5] F16C *19/38*
U.S. Cl. 384—464 **16 Claims**



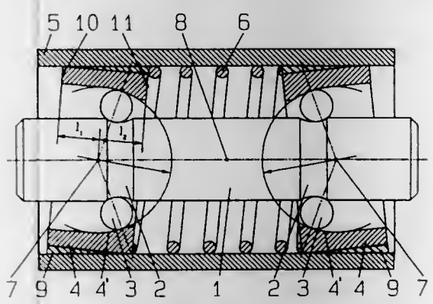
1. A spherical roller bearing assembly, comprising:
a split bearing housing; and
a split bearing ring; wherein
said ring is confined within said housing;
said housing has a saddle for supporting said ring thereupon; and further including
a pin, engaged with both said housing and said ring, for inhibiting rotation of said ring within said housing;
means interposed between said housing and said ring for electrically isolating said ring from said housing; and
a spherical roller bearing confined within said ring.

5,207,513
ROLLING BEARING WITH SOLID LUBRICANT
Hiromitsu Kondo; Takahiro Mizutani, both of Kuwana; Norihide Sato, and Tasuku Sato, both of Mie, all of Japan, assignors to NTN Corporation, Osaka, Japan
Filed Nov. 27, 1991, Ser. No. 799,254
Claims priority, application Japan, Nov. 30, 1990, 3-196310; Jun. 7, 1991, 3-136084; Jul. 30, 1991, 3-190150
Int. Cl.[5] F16C *19/02*
U.S. Cl. 384—492 **7 Claims**



1. A rolling bearing with solid lubricant wherein at least a bearing part among bearing parts composing of said rolling bearing has a lubricating film formed on a surface of said bearing part being subjected to rolling friction or sliding friction, said lubricating film being formed of polytetrafluoroethylene having average molecular weight of not more than 5000.

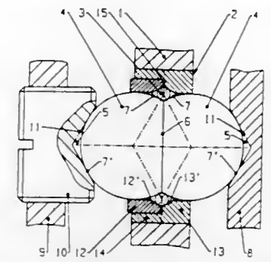
5,207,514
MOUNTING, IN PARTICULAR FOR DISK SPINDLES
Alois Weissgerber, Schweinfurt, Fed. Rep. of Germany, assignor to Fag Kugelfischer Georg Schafer KGAA, Fed. Rep. of Germany
PCT No. PCT/DE91/00625, § 371 Date May 6, 1992, § 102(e) Date May 6, 1992, PCT Pub. No. WO92/04550, PCT Pub. Date Mar. 19, 1992
PCT Filed Jul. 31, 1991, Ser. No. 855,050
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1990, 4028273
Int. Cl.[5] F16C *35/06*
U.S. Cl. 384—497 **7 Claims**



1. A mounting for a disk spindle, comprising a shaft, two axially spaced apart angular ball bearings on the shaft, means clamping the ball bearings axially apart on the shaft;
each ball bearing comprising a row of bearing balls around the shaft, an inner race defined in the shaft for the balls in a row and an outer ring including an outer face around the row of balls; each outer race being shaped along a longitudinal section thereof to have a radius which lies approximately on the axis of rotation of the shaft and the outer races being free to tilt around the center point of the surface of the race under the influence of the clamping means.

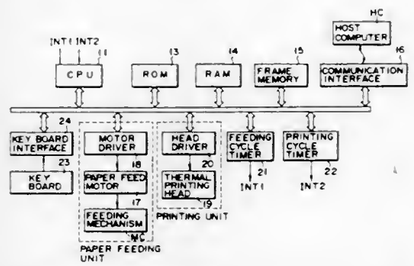
5,207,515
BALL BEARING WITH SPHERICAL SEGMENT INNER RING AND DIVIDED OUTER RING
Alois Weissgerber, Schweinfurt; Reinhard Hock, Dittelbrunn, and Stefan Wessel, Geldersheim, all of Fed. Rep. of Germany, assignors to FAG Kugelfischer Georg Schäfer KGaA, Fed. Rep. of Germany
Filed Feb. 6, 1992, Ser. No. 831,910
Claims priority, application Fed. Rep. of Germany, Mar. 13, 1991, 4107830
Int. Cl.[5] F16C *33/58*
U.S. Cl. 384—516 **17 Claims**

1. A bearing comprising
an outer ring having an outer race for contacting bearing rolling elements,
an inner ring radially inside the outer ring and having an inner race with two annular lines of contact for contacting a row of bearing rolling elements, and
a row of bearing rolling elements between and contacting the outer race and the inner race;
the inner ring comprising two partial spherical segments which are connected to at each other at a connection place, the spherical segments and the bearing rolling elements being respectively so shaped that each inner race annular line of contact for the row of rolling elements is defined on a respective one of the spherical ring segments and is in the axial region of the connection place;



at least a first of the spherical segments of the inner ring including an extended part extending axially away from the connection place and away from the row of rolling elements; a housing including a first part with a housing depression therein for receiving the extended part of the first spherical segment in a manner which enables rotation of the inner ring with respect to the housing.

5,207,516
THERMAL PRINTER THAT ADJUSTS PAPER FEED TO MATCH PRINT PITCH
Michio Suzuki, Shizuoka, Japan, assignor to Tokyo Electric Co., Ltd., Tokyo, Japan
Filed Oct. 9, 1990, Ser. No. 595,266
Claims priority, application Japan, Oct. 13, 1989, 1-265238
Int. Cl.[5] B41J *2/345*
U.S. Cl. 400—120 **4 Claims**



1. A thermal printer comprising:
memory means for storing printing patterns;
a printer unit on which a thermal printing head having one line of dot print elements is replaceably mounted, said printer unit driving said printing head to print a printing pattern stored in said memory means in a unit of one line;
a paper feed unit for feeding paper in a direction perpendicular to a direction of a print element line of the printing head mounted on the printer unit;
first timer means for setting a print cycle for the printing head mounted on said printer unit;
second timer means for setting a feed cycle for feeding paper to said printing head at a selected speed; and
control means for concurrently driving said printer unit in the print cycle and said paper feed unit in the feed cycle, said control means driving said printer unit to cause said printing head to print in the print cycle while the paper feed unit is driven to continuously feed paper to said printer unit at said selected speed determined by the feed cycle set by said second timer means;

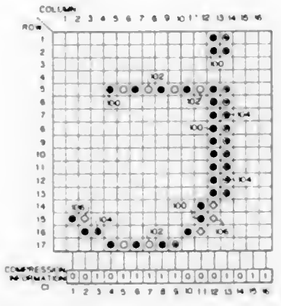
VOL 1150 ISS 1 MY 4 1993 UMI

wherein said control means includes adjusting means for adjusting at least one of said first and second timer means, to thereby adjust at least one of the print cycle and feed cycle, in such a manner that a length of the paper feed per printing line is equal to a print element pitch of said printing head, according to the print element pitch of said printing head.

5,207,517
METHODS OF COMPRESSION AND EXPANSION OF DOT PATTERN

Toshikazu Ito, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Mar. 22, 1991, Ser. No. 674,511
Claims priority, application Japan, Mar. 23, 1990, 2-72146
Int. Cl.[5] B44J *2/485*
U.S. Cl. 400—121 7 Claims



1. A method of compressing a dot pattern having no two printing dots adjacent to each other in a main scanning direction and storing data representative of the dot pattern in compressed form in a memory, from which the data can be subsequently read out in expansion processing to obtain the original dot pattern for use in printing, comprising the steps of:

inserting dummy printing dots into positions within rows of the dot pattern so that each dummy printing dot immediately precedes and immediately follows original printing dots, wherein columns of dot positions are arranged in a subscanning direction substantially perpendicular to the main scanning direction;

for each printing dot, inserting a respective provisional dummy printing dot provided that the next row position following the provisional dummy printing dot does not contain a printing dot;

comparing a first column with a second column that immediately precedes the first column to determine whether the respective dot pattern of the first column being compared is identical to the original dot pattern in the second column and keeping the provisional dummy printing dots in the column when the dot patterns coincide and removing selected ones of the provisional dummy printing dots in the first column when the dot patterns do not coincide; and

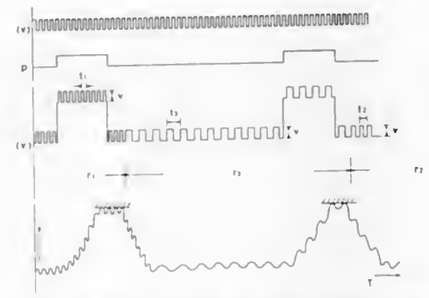
compressing the dot pattern based on the comparison of the columns of the printing dots and associated information indicating repetition of columns; and

storing the compressed dot pattern in said memory.

5,207,518
PIEZOELECTRIC PRINTER

Mikio Hayashi, Tokyo, Japan, assignor to Seikosha Co., Ltd., Tokyo, Japan

Filed Mar. 28, 1991, Ser. No. 678,565
Claims priority, application Japan, Mar. 30, 1990, 2-86871; Mar. 30, 1990, 2-86872
Int. Cl.[5] B41J *2/30*
U.S. Cl. 400—124 16 Claims

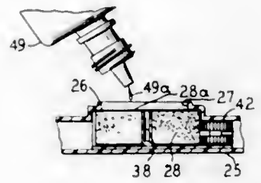


1. In a piezoelectric printer having a piezoelectric actuator including a plurality of piezoelectric elements for driving printing elements and a source of pulses for controlling said piezoelectric elements to drive said printing elements during printing operations, the improvement comprising a source of gradation signals and drive means including a source of high frequency oscillations of predetermined frequency and amplitude, said drive means being responsive to said control pulses for outputting drive pules with said high frequency oscillations superimposed thereon for application to said piezoelectric elements, whereby said piezoelectric elements vibrate during said printing operations, said high frequency oscillations superimposed on said drive pulses having amplitudes substantially smaller than said drive pulses, said drive means comprising means responsive to said gradation signals for varying the frequency of said high frequency oscillations.

5,207,519
RE-INKABLE METHOD AND ARRANGEMENT FOR PRINTER RIBBONS

Frank M. Debreczenyi, 9145 Kopping La., Hickory Hills, Ill. 60457

Filed Jan. 14, 1991, Ser. No. 640,641
Int. Cl.[5] B41J *27/12*
U.S. Cl. 400—202.4 21 Claims



1. An apparatus for re-inking a ribbon for a printer comprising:

a housing having a top wall, said housing mounted to said printer;

an ink pad residing inside said housing, beneath said top wall, said ink pad having a top surface area, said ink pad for holding a capacity of ink;

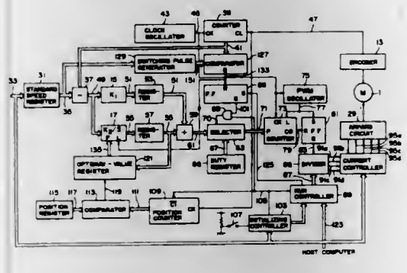
roller means for continuously removing an amount of ink from said ink pad and applying said amount of ink onto said ribbon;

said housing provides at least one opening through said top wall, arranged above said top surface area, said at least one opening comprising an aggregate open area at least 50% of said top surface area of said ink pad, said at least one opening for applying incremental amounts of ink therethrough, onto said ink pad to replenish the pad.

5,207,520
PRINTER CARRIAGE ACCELERATION CONTROL DEVICE

Hirotomo Tanaka, Suwa, Japan, assignor to Seiko Epson Corp., Tokyo, Japan

PCT No. PCT/JP90/01275, § 371 Date Jul. 19, 1991, § 102(e) Date Jul. 19, 1991, PCT Pub. No. WO91/04866, PCT Pub. Date Apr. 18, 1991
PCT Filed Oct. 3, 1990, Ser. No. 689,906
Claims priority, application Japan, Oct. 3, 1989, 1-258208; Jan. 23, 1990, 2-13241; Apr. 5, 1990, 2-90726; Apr. 11, 1990, 2-96017
Int. Cl.[5] B41J *19/30*
U.S. Cl. 400—279 6 Claims



1. A device for controlling the revolution speed of a printer carriage motor, comprising:

means for detecting a revolution speed of said carriage motor;

means for generating a standard speed;

means for integrating a difference between the revolution speed as detected and the standard speed;

means responsive to an output value of said integration means for generating a first control signal for controlling the revolution speed;

means for holding, as an optimum integration value, an output value of said integration means at the time when the revolution speed is regulated to the standard speed;

means for generating a second control signal having a predetermined value independent of motor speed;

means for selecting either one of the first control signal and the second control signal;

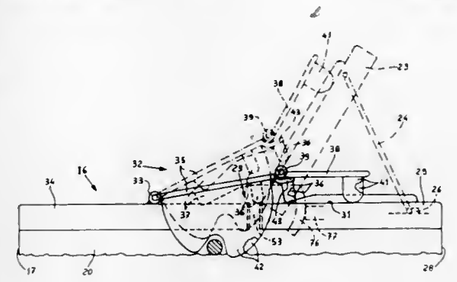
means for controlling said selecting means during the accelerating time of said carriage motor, so that the second control signal is selected until the detected revolution speed reaches a predetermined transfer speed less than said standard speed, and that the first control signal is selected after the transfer speed is reached;

means for loading the held optimum integration value into said integration means so that the output value of said integration means the moment when the detected revolution speed has reached the transfer speed during the carriage motor accelerating time agrees with the held optimum integrated value; and means for driving said carriage motor according to one of the first and second control signals selected by said selecting means.

5,207,521
GUIDE AND COVER ARRANGEMENT FOR PRINTERS

Aldo Ricca, Via Montello 7, 10086 Rivarolo Canavese (To), and Renato Marangon, Via Pozzo 60, 10013 Borgofranco d'Ivrea (To), both of Italy

Division of Ser. No. 547,303, Jul. 3, 1990, Pat. No. 5,106,220.
This application Oct. 23, 1991, Ser. No. 781,733
Claims priority, application Italy, Aug. 21, 1989, 67711 A/89
Int. Cl.[5] B41J *13/10, 29/02*
U.S. Cl. 400—647.1 11 Claims



1. In a printer of the type comprising a body structure capable of accommodating a platen roller, a typing device and advance means for advancing individual or continuous forms, a guide and cover arrangement for said printer, said body structure comprising a front cover and said arrangement comprising:

a rear cover movable from a first operating position in which it is substantially parallel to and supported on the body structure to a second operating position in which it is substantially inclined with respect to the body structure, and wherein the forms are supported on and guided by an outside surface of the rear cover in both the operating positions; and

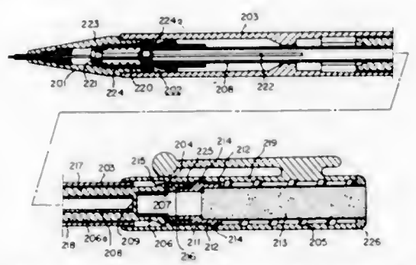
a hinge element of plastic material having a first portion fixed to the body structure, a second portion fixed to the front cover of the body structure and an intermediate portion integral with the first and second portions, said intermediate portion being bendable for defining one pivot element to permit said front cover to rotate from a first position in which it is substantially parallel to and supported on the body structure to a second operating position in which it is substantially turned over onto the rear cover to permit access to said platen roller and to said typing device;

in which said hinge element comprises a third portion removably fixed to said rear cover and a second intermediate portion integral with the first portion and with the third portion;

in which said second intermediate portion is bendable for defining another pivot element to permit said rear cover to rotate from the first operating position to the second operating position and to a third operating position in which said rear cover is substantially turned over onto said front cover to permit access to said advance means.

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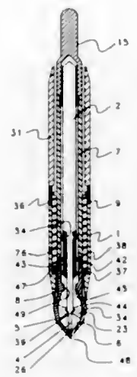
5,207,522
KNOCK TYPE MECHANICAL PENCIL WITH RETRACTABLE ERASER
Shuhei Kageyama; Toshihiko Kageyama; Youichi Nakazato, and Yoshihide Mitsuya, all of Kawagoeshi, Japan, assignors to Kotobuki & Co., Ltd., Kyoto, Japan
Division of Ser. No. 274,297, Nov. 21, 1988, Pat. No. 5,062,727, which is a division of Ser. No. 255,101, Oct. 7, 1988, Pat. No. 5,022,774. This application May 6, 1991, Ser. No. 696,197
Claims priority, application Japan, Oct. 9, 1987, 62-155300; Oct. 9, 1987, 62-155301; Oct. 9, 1987, 62-155302; Nov. 6, 1987, 62-170189; Nov. 6, 1987, 62-170190; May 18, 1988, 63-66197
Int. Cl.[5] B43K 29/02
U.S. Cl. 401—52 3 Claims



1. A writing tool comprising; a writing shaft having a head member; an outer sleeve; said head member connected to said outer sleeve with said head member projecting out one end thereof; a tubular cap; a spiral groove formed on an interior surface of said tubular cap; a tubular body; a projection on a forward interior surface of said cap; retainer means formed on said tubular body for receiving said projection to retain said tubular cap on said tubular body; a bearing surface on the inside of a forward portion of said tubular body; said bearing surface contacting a lead tank inserted in said forward portion of said tubular body; said bearing surface being forward of said retainer means so that said tubular body and forward portion are movable in an axial direction; locking means comprised of a polygonal surface formed on an inner rearward surface of said outer sleeve and a mating polygonal surface formed on an outer surface of said forward portion of said tubular body, said locking means locking said tubular body against rotation relative to said outer sleeve; a longitudinal slit in said tubular body; and an eraser holder slidably inserted in said tubular slit.

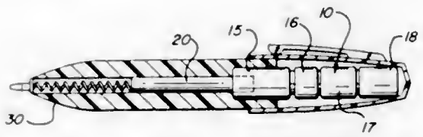
5,207,523
WRITING IMPLEMENT WITH FORWARD AND REARWARD SEALS
Götz-Ulrich Wittek, Munich, Fed. Rep. of Germany, assignor to Intergraph Office Innovation N.V., Netherlands
Continuation of Ser. No. 159,449, Feb. 18, 1988, abandoned, which is a continuation of Ser. No. 762,196, Jul. 18, 1985, abandoned. This application Feb. 13, 1990, Ser. No. 479,202
Claims priority, application Fed. Rep. of Germany, Nov. 18, 1983, 3341759; Oct. 17, 1984, 3438074
Int. Cl.[5] B43K 9/00
U.S. Cl. 401—107 13 Claims

1. A writing implement comprising:
(a) a housing;
(b) an elongated writing member comprising a writing nib assembly having a writing tip, and an ink reservoir rearward of said tip, said ink reservoir being filled with evaporatable ink, and said ink reservoir being fluidically coupled to said writing nib assembly;
(c) a plurality of sealing members supported on said housing and together forming a segmented sealing assembly, said sealing assembly comprising:
(i) a plurality of rearward sealing segment portions, said rearward sealing segment portions being configured and dimensioned in a first position to sealingly engage said cartridge; and
(ii) a plurality of tipward sealing segment portions, said tipward sealing segment portions, each being configured and dimensioned in said first position to sealingly engage others of said tipward sealing segment portions; said tipward sealing segment portions and said rearward sealing segment portions together in said first position



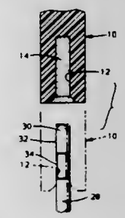
forming a sealed chamber disposed around said writing tip; and
(d) a sealing spring under mechanical bias in said first position and coupled to said segmented sealing assembly and exerting a sealing mechanical force closing said sealing assembly by forcing said rearward and tipward sealing segments against each other and against said writing member to form said chamber.

5,207,524
BALL POINT PEN REFILL ADAPTER
Remmie L. Arnold III, Chester, Va., assignor to Arnold Pen Company, Petersburg, Va.
Filed Oct. 19, 1989, Ser. No. 424,192
Int. Cl.[5] B43K 7/00
U.S. Cl. 401—210 10 Claims



1. An adapter for a cylindrical pen refill cartridge having proximal and distal ends for use in different pen housings, comprising,
said cylindrical pen refill cartridge having proximal and distal ends;
a substantially tubular barrel fabricated of a flexible, resilient material and having proximal and distal ends;
said barrel further comprising
a central passage formed therein along its longitudinal axis communicating between said proximal and distal ends for admitting air to the pen refill cartridge and for exposing the pen refill cartridge to atmospheric pressure at said distal end of said barrel to enable ink to flow within the pen refill cartridge;
means for providing a frictional coupling of said passage with said cylindrical pen refill cartridge to enable said barrel to cooperate securely with said cylindrical pen refill cartridge;
a plurality of easily detachable sections for modifying the length of the adapter;
said proximal end of said barrel being adapted to mate with and slide over said distal end of the cylindrical pen refill cartridge to couple the adapter to the refill cartridge and maintain said barrel relative to said cylindrical pen refill cartridge;
said detachable sections having a first circumference and said barrel between said detachable sections having a second circumference wherein the circumference of the pen refill cartridge is greater than said second circumference, and said first circumference is greater than said circumference of the pen refill cartridge;
said first circumference, when cooperating with said distal end of said cylindrical pen refill cartridge, will fit over said cylindrical pen refill cartridge to closer approximate the circumference of said cylindrical pen refill cartridge to an interior circumference of a generic pen housing;
said second circumference for adapting said proximal end of said barrel to cooperate with the distal end of said pen refill cartridge and for adapting the sections to be detachable.

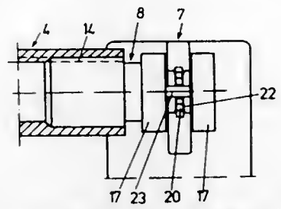
5,207,525
INSTRUMENT SPINDLE WITH RELIEF DESIGN
David A. Ross, Columbiaville, and Arnold R. Eick, Grand Blanc, both of Mich., assignors to Delco Electronics Corporation, Kokomo, Ind.
Filed Apr. 27, 1992, Ser. No. 874,456
Int. Cl.[5] B25G 3/00
U.S. Cl. 403—11 11 Claims



1. A spindle for use in an instrumentation apparatus comprising:
on an end of the spindle inserted into a cavity defined by a pointer shaft, (i) a surface for engagement to the pointer shaft; and (ii) a recessed surface proximal to the engagement surface and inserted into the cavity without engaging the pointer shaft.

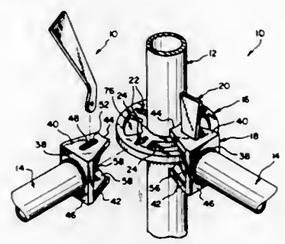
5,207,526
CONNECTING FITTING
Klaus Brüstle, Höchst, and Andreas Töfferl, Hard, both of Austria, assignors to Julius Blum Gesellschaft m.b.H., Höchst, Austria
Filed May 2, 1991, Ser. No. 694,945
Claims priority, application Austria, May 7, 1990, 1021/90
Int. Cl.[5] F16B 12/26
U.S. Cl. 403—199 11 Claims

1. A connecting fitting for fastening a rear end of a rail of a drawer to a rear wall or side wall of the drawer, said fitting comprising:
a supporting member to be fastened to the rear wall or side wall of the drawer, said supporting member having therethrough a receiving opening and an open-ended slot, said slot opening into said receiving opening and having a width smaller than the size of said receiving opening, such that said slot widens into said receiving opening;
a securing element for connecting the rear end of the rail to said supporting member, said securing element including a first portion to be fastened to the rear end of the rail and a second portion dimensioned to fit in said slot, such that said second portion may be inserted through said slot into said receiving opening to thereby suspend said securing element from said supporting member; and



means, at least partially operable internally of said receiving opening, for releasably retaining said second portion of said securing element within said receiving opening, said retaining means comprising a substantially C-shaped spring fitted within said receiving opening and receiving and retaining said second portion of said securing element.

5,207,527
SYSTEM SCAFFOLD WEDGING ARRANGEMENT
Warren Duncan, 2725 Fremont La., Costa Mesa, Calif. 92626, and Dwight Allenbaugh, 7520 Monroe St., Paramount, Calif. 90723
Filed Apr. 13, 1992, Ser. No. 867,964
Int. Cl.[5] B25G 3/00
U.S. Cl. 403—246 12 Claims



1. Scaffold support connecting apparatus for use in connecting lateral scaffolding supports to upright scaffolding standards comprising:
an annular latching ring disposed concentrically about an upright standard and permanently secured thereto and formed with a plurality of orthogonally arranged primary latching openings therein, each of which has a central region with radially opposite elongations extending therefrom to define radial inner and outer end surfaces and side surfaces with convex transitions between said central region and said radial elongations and wherein said radial elongations are narrower in transverse width then said central region,
a bracket permanently secured to an elongated lateral support and including upper and lower horizontally disposed flanges vertically spaced from each other and each having a longitudinally directed exposed end extremity with a contact edge, said flanges being formed with longitudinally elongated apertures the leading ends of said apertures closest to said contact edges being vertically aligned with each other and the width of the elongated aperture in said upper flange being uniform throughout and equal to said transverse width of said radial elongations of said primary latching openings,
a wedge having a uniform thickness in a transverse direction

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to span the transverse width of said radial elongations in said primary latching openings and an upper portion that decreases in thickness in a longitudinal direction from the top to bottom and the front of which is linear, and a lower portion that forms an obtuse angle with the front of said upper portion, and wherein said wedge is captured in said bracket and is movable in a vertical plane between a disengaged position resting upon said upper flange with said front of said upper wedge portion inclined relative thereto and with said lower wedge portion located between said upper and lower flanges, and a fully engaged position when said latching ring resides between said upper and lower flanges and said bracket is in radial alignment with the radial elongations of a selected primary latching opening, wherein said wedge passes through said apertures in said flanges and through said selected latching opening in said latching ring, whereby said wedge bears against said leading ends of said elongated apertures in said flanges and against said radial outer end surface of said selected primary latching opening, and

means on said bracket for limiting movement of said wedge such that the top of said upper portion of said wedge can never rest in a position closer to said upright standard then the bottom of said upper portion.

5,207,528

RETAINING DEVICE FOR AN ANGLED DRIVE

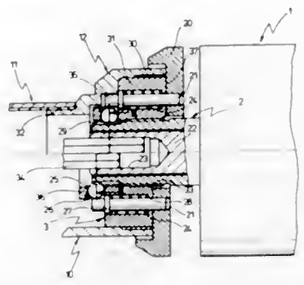
Manfred Ludwig, Stuttgart, Fed. Rep. of Germany, assignor to C. & E. Fein GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Apr. 15, 1992, Ser. No. 869,314

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1991, 4113951

Int. Cl.[5] B25G *3/18*

U.S. Cl. 403—325 **13 Claims**



1. Retaining device for an angled drive which is releasably connected to a central drive unit, said retaining device comprising:

a socket for receiving said angled drive;

a receiving connector for receiving said socket which is rotatably mounted on said receiving connector, said receiving connector being rigidly connected to said central drive unit;

locking means provided between said receiving connector and said socket for locking said socket against rotation on said receiving connector in fixed angular positions, said locking means including a plurality of ball elements; and

an actuation ring being engagingly connected to said ball elements of said locking means to actuate said ball elements for moving said ball elements between a locking position in which said socket is locked on said receiving means against rotation and between a releasing position in which said socket is released for rotation on said receiving means.

5,207,529

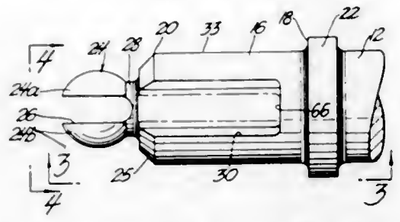
FASTENING DEVICE

Norman R. Bailey, Lockport, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 29, 1992, Ser. No. 906,188

Int. Cl.[5] B25G *3/28*

U.S. Cl. 403—354 **3 Claims**



1. A fastener assembly for securing a first member to a second member, said assembly comprising:

a cylindrical body adapted to be fixedly secured to the first member having a longitudinal length extending between first and second ends, and including an external surface and a recess extending longitudinally within said external surface from said second end toward said first end, said second end including a spherical member extending longitudinally outwardly therefrom having a slot therethrough forming two portions connected to said second end, and

a sheath adapted to be fixedly secured to the second member having an outer surface and including a cylindrical bore formed longitudinally therethrough with a rib extending therein for receiving said cylindrical body within said bore said recess alignable with said rib for arcuate orientation between said cylindrical body and said sheath and said spherical member engageable with said outer surface for retaining said cylindrical body within said sheath to prevent rotation therebetween.

5,207,530

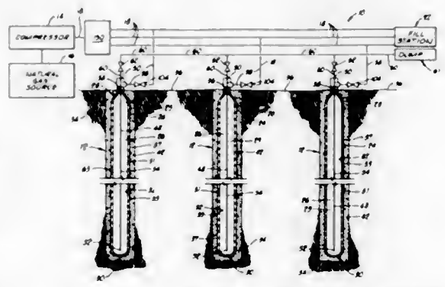
UNDERGROUND COMPRESSED NATURAL GAS STORAGE AND SERVICE SYSTEM

Gregory L. Brooks, Oklahoma City; Larry W. Zimmer; Allan B. Fullerton, both of Norman, and Raymond L. Morris, Oklahoma City, all of Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Jul. 29, 1992, Ser. No. 922,060

Int. Cl.[5] B65G *5/00*

U.S. Cl. 405—53 **18 Claims**



15. A method of installing an underground compressed natural gas storage apparatus having a predetermined gas volume capacity comprising:

determining the desired gas volume capacity of the storage apparatus;

drilling a borehole into the earth, said borehole having a depth and diameter sufficient to accommodate the desired gas volume capacity of the storage apparatus;

selecting a unit of oil field casing having a cylindrical outside surface, an inner cavity, an open upper end, an open lower end, a body portion connecting said upper end and said lower end together, and a length and diameter sufficient to accommodate the desired gas volume capacity of the storage apparatus;

sealing said lower end of said unit of casing to prevent compressed natural gas from leaking therethrough;

running said unit of casing into said borehole to a depth such that said sealed lower end and at least a substantial portion of said body portion of said unit are positioned underground;

injecting hydraulic cement into said borehole to form a cement sheath between said outside surface of said unit of casing and the wall of said borehole;

positioning a siphon line having a top end, a bottom end and a body section connecting said top end and bottom end of said siphon line together in said inner cavity of said unit of casing with said bottom end of said siphon line being positioned adjacent to said sealed lower end of said unit of casing and said top end of said siphon line extending through said upper end of said unit of casing; and

sealing said upper end of said unit of casing to prevent compressed natural gas from leaking therethrough.

5,207,531

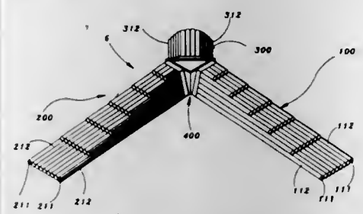
ARTIFICIAL SURFING REEF

Gary Ross, 140 Oxnard Ave., Oxnard, Calif. 93035

Filed Sep. 3, 1991, Ser. No. 754,390

Int. Cl.[5] E02B *3/06*

U.S. Cl. 405—79 **27 Claims**



25. An artificial surfing reef for modifying a near shore ocean floor bottom to create surfing waves comprising a generally Y-shaped structure having a leading leg and two main legs joined at a joint, where the leading leg extends from the joint away from the shore direction, and the two main legs being substantially longer than the leading leg, whereby as a swell moves toward the shore, the bottom of the swell is resisted by the leading leg, and the top of the swell topples over the joint and is tapered by the two main legs to thereby form surfing waves.

5,207,532

PROCESS FOR CONDITIONING MATERIAL FOR DISPOSAL

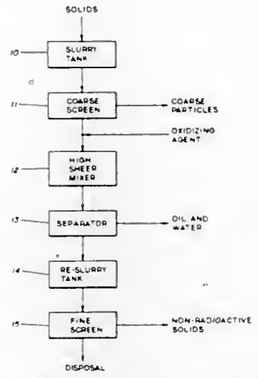
John Y. Mason, Plymouth, Calif.; Randall J. Block, Lafayette, La.; Randall K. Tyler, Lafayette, La., and John D. Milliken, Lafayette, La., assignors to Exxon Chemical Patents Inc., Linden, N.J. and Rio Linda Chemical Company Inc., Sacramento, Calif.

Filed Jan. 9, 1991, Ser. No. 639,022

Int. Cl.[5] B09B *3/00*

U.S. Cl. 405—128 **31 Claims**

1. A method for separation and disposal of solids produced as a result of mining and oil field operations containing therein radioactive material and non-radioactive material comprising the steps of (a) deaglomerating the solids; (b) oxidizing the solids with an oxidizing agent; (c) separating the solids to form solids with non-radioactive material and solids with radioactive material; and (d) introducing the solids with radioactive material into a disposal site.



5,207,533

PROCESS AND DEVICE FOR REPLACING AN UNDERGROUND PIPE

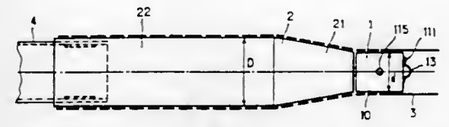
Eric Federspiel, Saint-Gratien, and Richard Godefroy, Bondy, both of France, assignors to Gaz de France, Paris, France

Filed Jan. 24, 1991, Ser. No. 645,207

Claims priority, application France, Feb. 1, 1990, 90 01199; Jun. 19, 1990, 90 07673

Int. Cl.[5] E02D *29/10*

U.S. Cl. 405—156 **17 Claims**



1. A process for replacing a first underground pipe with a second pipe whose mean diameter is substantially equal to that of said first pipe, comprising the steps of:

providing cutting means for displacement inside the first pipe, said cutting means including localized projection means for localized projection of a flow of matter; and

cutting said first pipe over at least a part of its thickness, using the localized projection of the flow of matter onto said first pipe, with the localized projection means which are displaced inside the first pipe, in order to longitudinally divide said first pipe into at least two cut segments.

5,207,534

METHOD FOR CONDUCTING OFFSHORE WELL OPERATIONS

Lee K. Brasted, Kingwood; David A. Huete, Spring, and George Rodenbush, Houston, all of Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 624,867, Dec. 10, 1990, abandoned. This application Jul. 23, 1992, Ser. No. 918,914

Int. Cl.[5] E02D *5/34*

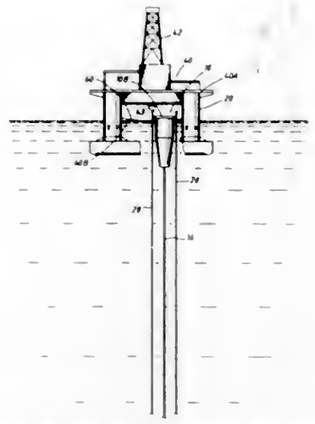
U.S. Cl. 405—209 **44 Claims**

39. A method for conducting well operations in support of a compliant platform, comprising:

positioning a derrick supported on an offshore drilling vessel

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substantially over a laterally accessible well bay presented by the compliant platform in substantially vertical alignment with a well pattern on the ocean floor;



restraining the offshore drilling vessel with respect to the compliant platform; and

conducting well operations from the offshore drilling vessel through a substantially vertical drilling riser.

5,207,535

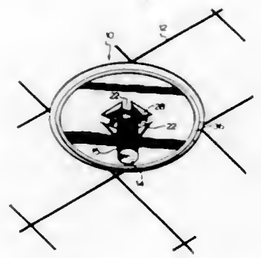
PUSH-ON GRIPPER PLATE FOR USE WITH ROCK BOLTS

Thomas L. Saab, 1390 Hazelton Blvd., Burlington, Ontario, Canada L7P 4V3

Filed Oct. 30, 1991, Ser. No. 785,115

Int. Cl.[5] E21D *11/00, 21/00*

U.S. Cl. 405—269.1 **11 Claims**



1. A push-on gripper plate for use in securement of a mesh screening means on the protruding, threaded, end portion of a rock bolt inserted into a rock face, said gripper plate comprising:

a generally planar base portion adapted to overlie the mesh screening means;

a central opening in the base portion having two or more leg portions positioned on the perimeter of said opening and inclined downwardly, inwardly toward the centre of said opening below the plane of the base portion;

a plurality of tab portions positioned on the perimeter of said opening in alternating arrangement with said leg portions, the tab portions being inclined downwardly, inwardly toward the centre of said opening below the plane defined by the base portion;

wherein the leg portions are dimensioned and otherwise adapted to frictionally engage therebetween the threaded end of the rock bolt to hold the gripper plate on the end of the rock bolt over the mesh screening means.

5,207,536

PIPE SWITCH WITH EXTERNALLY ARRANGED DRIVE UNIT

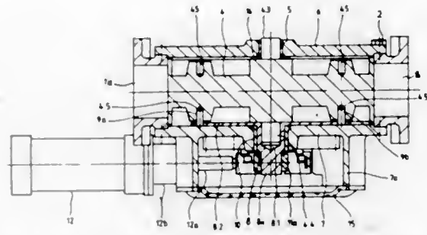
Walter Beirle; Martin Siodermann, and Martin Frank, all of Ravensburg, Fed. Rep. of Germany, assignors to Wäschle Maschinenfabrik GmbH, Ravensburg, Fed. Rep. of Germany

Filed Apr. 13, 1992, Ser. No. 867,974

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1991, 9104817[U]

Int. Cl.[5] B65G *53/56*

U.S. Cl. 406—182 **11 Claims**



11. A pipe switch for pneumatically conveying a material such as bulk material, comprising:

a housing having opposing side covers and defining a first port, a second port and a third port;

an outer wall mounted to said housing at one of said side covers for defining an external compartment;

regulating means including a cock with a journal and accommodated in said housing and movable between two positions for selectively controlling the flow of material from said first port to said second port via a first passageway and from said first port to said third port via a second passageway;

engaging means fixedly secured to said regulating means and projecting beyond said one side cover into said compartment, said engaging means including a pivot pin receiving said journal and a driver plate connected in one piece with said pivot pin and sandwiched between said one side cover and a facing side of said cock, said driver plate including at least one pin engaging a complementary bore in said cock for attaining a force-locking connection of said driver plate and said cock; and

a drive unit operatively connected to said engaging means for actuating said regulating means, said drive unit including a lever having one end fixedly secured to said engaging means and another end, a working cylinder connected to said one side cover and a piston rod reciprocating in said working cylinder and having one end articulated to said other end of said lever so as to move said lever and said regulating means being said two positions, with said one end of said piston rod and said lever being housed within said compartment.

5,207,537

CUTTING TOOL

Kjell Englund, Valbo, Sweden, assignor to Sandvik AB, Sandviken, Sweden

Filed Dec. 11, 1991, Ser. No. 804,687

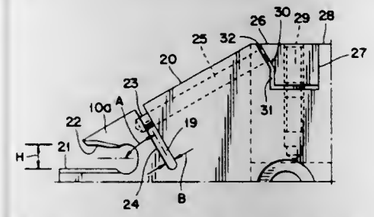
Claims priority, application Sweden, Dec. 18, 1990, 9004032

Int. Cl.[5] B23B *29/04*

U.S. Cl. 407—110 **5 Claims**

1. A metal cutting tool comprising a holder including a narrow support blade having a front end defined by upper and lower jaw portions spaced apart by an insert-receiving recess,

said upper jaw portion being elastically flexible in cantilever fashion to impart a clamping force to an insert disposed in said recess, a slot formed in said blade in spaced relationship to said recess and forming an oblique angle relative to a longitudinal axis of said recess, an actuating pin mounted in said blade substantially coplanar with said recess and said slot and movable in a direction substantially perpendicular to said slot, said actuating pin intersecting said slot and being engageable with a wall of said slot, means for pushing said actuating pin against



said wall of said slot for elastically bending said upper jaw portion to impose said clamping force against an insert in said recess, said pin-pushing means engageable with an end of said actuating pin opposite an end thereof which engages said wall of said slot, for displacing said actuating pin against said wall, said pin-pushing means comprising a wedge member insertable in a bore of said holder rearwardly of said slot, and a threaded screw for displacing said wedge member into said bore for pushing against said pin.

5,207,538

MILLING CUTTING INSERT

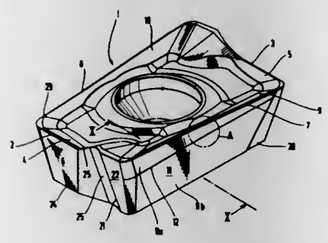
Amir Satran, Kfar Havradim, Israel, assignor to Iscar Ltd., Tefen, Israel

Continuation of Ser. No. 699,975, May 13, 1991, Pat. No. 5,145,295. This application Jul. 13, 1992, Ser. No. 912,346

Claims priority, application United Kingdom, May 14, 1990, 9010769

Int. Cl.[5] B23C *5/20*

U.S. Cl. 407—113 **16 Claims**



1. An insert for use in a peripheral rotary milling cutter having a cylindrical holder and at least one replaceable, peripherally disposed cutting insert, the cutting insert being formed with at least one cutting edge defined between a cutting rake surface and a relief flank surface of the insert wherein the relief flank surface comprises a first portion defined between said cutting edge and an intermediate portion of said relief flank surface and a second portion defined between said intermediate portion and a base of the insert, said first portion presenting a first relief flank angle, said second portion presenting a second relief flank angle, said first relief flank angle being significantly greater than said second relief flank angle, said intermediate portion bridging said first and second portions and being directed transversely with respect to said first and second portions and defining an angle, external to said insert, with respect to said first portion which is less than 180°.

5,207,539

POWER FEED MECHANISM FOR ROTARY CUTTING TOOL

Gerald E. Mueller, Frankenmuth, Mich., assignor to Hougen, Everett Douglas, Flint, Mich.

Filed Oct. 9, 1990, Ser. No. 594,251

Int. Cl.[5] B23B *47/18*

U.S. Cl. 408—10 **20 Claims**



1. A rotary driven tool comprising:

a rotary tool for performing work on a workpiece and a first means for rotating said rotary tool about an axis;

a second means for moving said rotary tool axially along said axis towards the workpiece;

a clutch selectively transmitting drive from said second means to said rotary tool to move said rotary tool along said axis, said clutch consisting of at least first and second members that are selectively movable between a disengaged position and an engaged position at which said members transmit drive to move said rotary tool along said axis, a bias force moving said members towards each other when in the engaged position by a predetermined force to limit the drive force between said members, and said first and second members moving away from each other such that said first and second members no longer transmit drive in the event that a drive force between said first and said second members exceed said predetermined force, said bias force automatically returning said first and second members back towards each other after they have initially moved away from each other and

a handle is actuated between engaged and disengaged positions to move said first and second members between said engaged, and disengaged positions, said handle being locked when in said disengaged position.

5,207,540

APPARATUS FOR FORMING DIAMOND-SHAPED EDGES ON ORNAMENTAL CHAINS

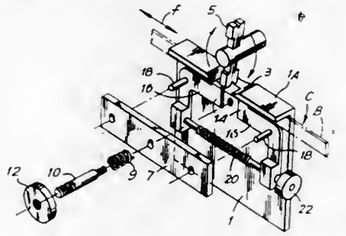
Mariano Baldini, Arezzo, Italy, assignor to Uno A Erre Italia S.p.A., Arezzo

Filed Mar. 17, 1992, Ser. No. 852,679

Claims priority, application Italy, Mar. 28, 1991, FI91 A 000067

Int. Cl.[5] B23C *3/00*

U.S. Cl. 409—163 **7 Claims**

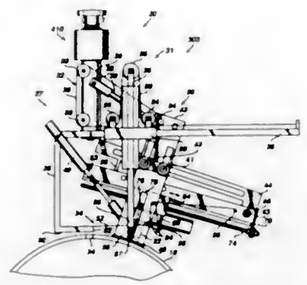


1. An apparatus for forming a diamond shape on ornamental chains, comprising a support having a slide guide flange with an intermediate gap for the space required for the diamond-shaping tool, a shoe for lateral pressure against the support,

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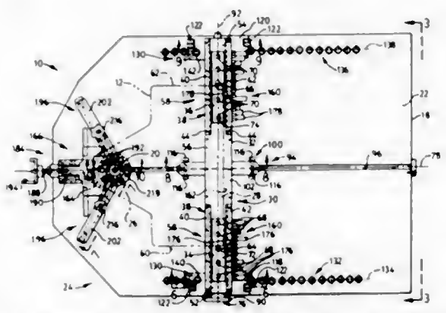
and guide means acting along the edge opposite the edge which is to be given a diamond-shape, wherein, for the machining of ornamental chains having a variable width between the edges, said guide means acting along the edge opposite the edge to be machined comprise two pressers acting independently on said edge adjacently to said gap zone.

5,207,541
SCARFING APPARATUS
Everett A. Westerman, Auburn, and Phillip E. Roll, Kent, both of Wash., assignors to The Boeing Company, Seattle, Wash.
Continuation-in-part of Ser. No. 284,137, Dec. 13, 1988, Pat. No. 4,987,700. This application Jan. 28, 1991, Ser. No. 646,941
Int. Cl.[5] B23C *3/16*
U.S. Cl. 409—179 **18 Claims**



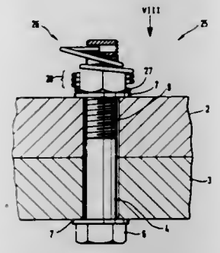
18. A method for producing a controlled taper cut on a workpiece for preparing a damaged area for repair, comprising the following steps:
providing a cutting tool;
selecting a taper angle and positioning said cutting tool at the selected taper angle with respect to a tangent to the surface of said workpiece;
maintaining said cutting tool in a position where said cutting tool machines said workpiece along a taper plane;
revolving said cutting tool around said damaged area at a predetermined maximum radius; and
incrementally reducing said radius after each revolution such that said cutting tool machines said surface along said taper plane until the entire damaged area of said workpiece has been machined by said cutting tool.

5,207,542
ADJUSTABLE FIXTURE ARRANGEMENT
John B. Baldwin, Warrenville, Ill., assignor to Caterpillar Inc., Peoria, Ill.
Filed Aug. 30, 1991, Ser. No. 752,373
Int. Cl.[5] B23Q *3/06*
U.S. Cl. 409—226 **20 Claims**



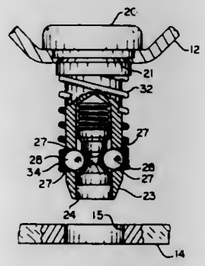
15. A metal working machine for machining a steel plate having first and second spaced sides, first and second spaced ends, and first and second spaced end portions, said metal working machine having a metal working tool, a source of rotary power connected to said metal working tool, said metal working tool being rotatable about an axis, comprising:
a table having a surface, said surface being oriented transverse the axis of rotation of said metal working tool;
clamping means for engaging the plate first end portion and supporting the plate first end portion at a preselected location relative to the axis of rotation of said metal working tool and on the table,
an equalizing device having a frame and first and second movable members slidably connected to the frame, said frame being elongated and said first and second movable members being slidably movable on said frame in directions of elongation of said frame, said elongated frame having first and second spaced end portions and a middle portion, said equalizing device being supported on said table surface and supporting the second end portion of the plate;
abutment means for engaging first and second sides of the plate, said abutment means being connected to said first and second movable members;
drive means for moving said first and second movable members an equal distance in directions toward each other and urging said abutment means into engagement with the first and second sides of the plate and the plate second end portion to a preselected location on the table, said drive means being connected to the frame and first and second movable members;
guide means for guiding movement of said equalizing device on the surface of said table along a path oriented transverse to the direction of elongation of said equalizing device, said guide means including a guideway disposed in the table, extending in said transverse direction and opening at said table surface, a carriage having a plurality of rollers and a guide, said carriage being connected to the middle portion of the elongated frame, said rollers being rollingly engaged with the table surface, said guide being slidably disposed in the guideway and guiding said equalizing device along said guideway, a first carriage having a plurality of rollers, said first carriage being connected to the first end portion of the elongated frame, said first carriage rollers being rollingly engaged with the table surface, a second carriage having a plurality of rollers, said second carriage being connected to the second end portion of the elongated frame, said second carriage rollers being rollingly engaged with the table surface, said carriages supporting the equalizing device on the surface of the table and said rollers providing smooth transverse rolling motion of the equalizing device on said table surface;
latch means for engaging said table at a selected one of a plurality of preselected locations on the table and maintaining said frame of the equalizing device from movement along the transverse path of movement of the equalizing device on the table surface, said latch means being connected to the elongated frame;
stop means for engaging the second end of said plate and maintaining said plate from movement in a direction toward said stop means, said stop means being connected to said equalizing device.

5,207,543
CONNECTING DEVICE WITH A NUT AND BOLT TO PREVENT LOOSENING AND LOSING THE NUT
Safa Kirma, Wedel/Holstein, Fed. Rep. of Germany, assignor to Deutsche Aerospace Airbus GmbH, Hamburg, Fed. Rep. of Germany
Filed Jun. 26, 1992, Ser. No. 905,244
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1991, 4121524
Int. Cl.[5] F16B *39/10, 39/30, 39/284*
U.S. Cl. 411—121 **11 Claims**



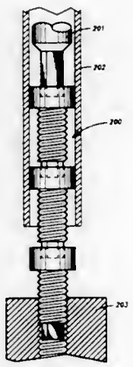
1. A screw connector for securing components to each other, comprising a screw bolt with a cotter pin hole and a nut, spring locking means for engaging said bolt and said nut, said spring locking means comprising at least one configured spring member having a first spring portion for engaging said cotter pin hole and a second spring portion for engaging said nut, said configured spring member further comprising between said first and second spring portions an intermediate spring section shaped for exerting a nut tightening torque moment on said nut while simultaneously exerting an axial compression force when said first and second spring portions are engaged, and wherein said configured spring member comprises a first plurality of windings and a second plurality of windings, and a polygonal section between said first and second windings, and wherein said windings are provided with end projections forming said first spring portion for insertion into said cotter pin hole, said polygonal section forming said second spring portion for engaging said nut.

5,207,544
FASTENER ASSEMBLY
Albert K. Yamamoto, Huntington Beach; Frank J. Cosenza, Santa Barbara, both of Calif., and James R. Potter, Bay Village, Ohio, assignors to VSI Corporation, Chantilly, Va.
Filed Mar. 4, 1992, Ser. No. 845,985
Int. Cl.[5] F16B *21/00*
U.S. Cl. 411—348 **18 Claims**



1. A push button type fastener comprising:
an elongated shank having a first end terminating in a second end spaced from said first end;
means defining an aperture extending inwardly from said second end of said elongated shank along the longitudinal axis of said elongated shank;
means defining an opening in said elongated shank that connects said aperture to the outside surface of said elongated shank;
a retention member, having first and second surface portion, positioned in said opening;
a first spring positioned about the outside surface of said elongated shank, wherein said first spring has a first portion positioned in contact with said first surface portion of said retention member;
a pin positioned within said aperture;
a second spring applying a compressive force to said pin, wherein said pin has an end facing said second end of said elongated shank and is in contact with said second surface portion of said retention member.

5,207,545
THREADED FASTENER
Ronald P. Kochanski, Arlington Heights, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Mar. 30, 1992, Ser. No. 860,612
Int. Cl.[5] F16B *23/00, 35/02*
U.S. Cl. 411—383 **5 Claims**



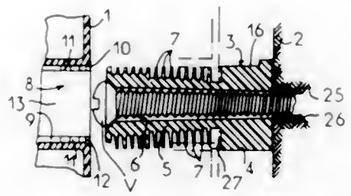
1. An improved threaded fastener that includes a drive head that has a recessed region and a threaded shaft mechanically axially attached to the drive head, the improvement comprises a drive portion mechanically attached to the opposite end of the threaded shaft as the drive head, wherein the drive portion has a geometric shape that is a mating image of the recessed portion of the drive head and is on the same axis as the drive head, such that the drive portion of one improved threaded fastener is mechanically mated to the recessed region of another improved threaded fastener in a stacked fashioned and the one improved threaded fastener is used to drive the another improved threaded fastener into a threaded receptacle.

5,207,546
SECUREMENT DEVICE ADAPTED TO RETAIN IN A PREDETERMINED POSITION A FIRST MEMBER ON A SECOND MEMBER
Alain P. C. Bouverie, Cerisy-La-Foret, France, assignor to Moulinex (Societe Anonyme), Bagnolet, France
Filed Apr. 2, 1992, Ser. No. 862,367
Claims priority, application France, Apr. 11, 1991, 91 04450
Int. Cl.[5] A44B *17/00;* **F16B** *21/00*
U.S. Cl. 411—553 **6 Claims**

1. In a securement device adapted to retain in a predetermined position a first member (1) on a second member (2), and comprising respectively a securement member (3-18) having a

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relatively rigid foot (4-25) adapted to be secured to a first member and prolonged by a body (5-19) having on at least one region of its lateral surface a protruding elastic hooking means (7-20), and a seat (8-23) provided in the second member of which the internal side wall (9-24') has a shape of revolution, and adapted to receive with friction the body (5-19) and the hooking means (7-20); the improvement wherein the securement member (3-18) and the seat (8-23) comprise mutual unlocking means (13-22-24) permitting, by a movement of rotation between the securement member (3-18) and the seat (8-23),



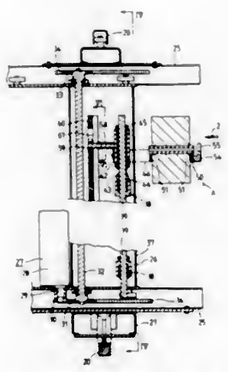
the escape of the hooking means (7-20) from the side wall (9-24') of the seat (8-23), the body (19) of the securement member (18) having the general shape of a cylindrical barrel, the hooking means being formed by a plurality of small annular collars (20) each having the general shape of a truncated cone whose summits (21) are turned toward the free end of the body, the mutual unlocking means comprising on each small collar (20) a flat (22) provided on its peripheral edge and in the seat (23) a longitudinal flat (24) provided in its internal side wall (24').

5,207,547

PACKAGE REPLACING APPARATUS

Shuzo Kawamura, Joyo, Japan, assignor to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

Filed Apr. 23, 1990, Ser. No. 512,962
Claims priority, application Japan, Aug. 2, 1989, 1-904436[U]; Aug. 16, 1989, 1-95534[U]; Aug. 25, 1989, 1-49330[U]
Int. Cl.[5] B65H *67/00*
U.S. Cl. 414—331 4 Claims



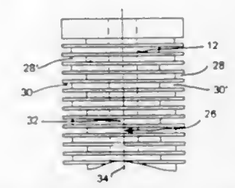
1. A package replacing apparatus comprising:
a plurality of support frames for supporting a plurality of pegs, fitting at least one package onto at least one of the plurality of pegs, the at least one package including a bobbin having a substantially cylindrical core and the at least one peg defining a substantially cylindrical axis,
means for positioning the fitting means in spaced relationship with the support frame,
pull-off means for removing bobbins from the plurality of pegs,
means for positioning the pull-off means relative to the support frame,
the fitting means comprising axis alignment means for moving the at least one package toward the at least one peg and for guiding the at least one peg toward the substantially cylindrical core of the bobbin to thereby align the substantially cylindrical core of the bobbin with the axis of the at least one peg,
a first carriage for movably supporting the fitting means and the axis alignment means, the first carriage including moving means for moving the first carriage between at least first and second support frames of the plurality of support frames, wherein the fitting means includes a vertically movable rod supported on the first carriage, a sleeve vertically movable and rotatably disposed on the vertically movable rod, a package support member supported by the sleeve and having a pair of opposing support arms having recesses formed in respective upper surfaces thereof for receiving and supporting the at least one package.

5,207,548

WAFER TRANSFER APPARATUS

Siegfried Suffel, Sindelfingen, Fed. Rep. of Germany, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 12, 1991, Ser. No. 790,854
Claims priority, application European Pat. Off. Jan. 19, 1991, 91100635
Int. Cl.[5] B65G *65/00*
U.S. Cl. 414—404 5 Claims



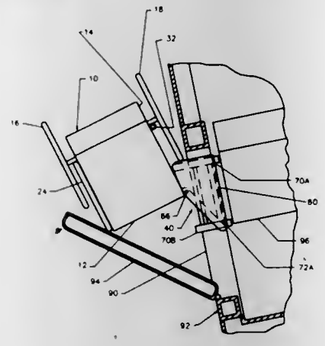
1. Apparatus for transferring wafers of at least one carrier into at least one second carrier, comprising;
a loading station,
an unloading station;
lifting means for raising the wafers to be transferred;
support means movable between said stations; and
a wafer handling assembly secured to the support means and being able to take several positions for handling said wafers;
said wafer handling assembly comprising a pair of rotatable parallel shafts maintained a fixed distance apart, each shaft being rotatable through 360° and having at its free end, rollers with slots for holding and guiding wafers, said shafts being able to take four different positions, each of said positions being 90° from any adjacent ones of said other positions wherein,
in said first position said lifting means can pass a first set of wafers between said rollers,
in said second position while holding the first set of wafers, a second set of wafers may be lifted between said rollers and interdigitated with said first set of wafers,
in said third position said first and said second set of wafers may be held, and
in said fourth position and said first and said second set of wafers may be released from said rollers.

5,207,549

TRANSFER SEAT TO BE USED BETWEEN A WHEELCHAIR AND AN AUTOMOBILE SEAT

Matthew Riva, 581 Bluebird La., Largo, Fla. 34640

Filed Feb. 28, 1991, Ser. No. 662,451
Int. Cl.[5] A61G *3/00*
U.S. Cl. 414—340 1 Claim



1. A transfer seat to be used between an automobile having a seat, a door, and a door frame, and a wheelchair having a seat and having first and second upwardly extending tubes on one side thereof for removably retaining an arm, the first upwardly extending tube positioned forwardly on the wheelchair relative to the second upwardly extending tube, the transfer seat comprising:
a frame having first and second ends,
a foot on the first end of the frame adapted to support the frame on the door frame of the automobile,
a downwardly extending peg on the second end of the frame adapted to be slidably fitted into the first upwardly extending tube for attaching the frame thereto and for rotation of the frame around the first upwardly extending tube,
a seating surface above the frame which extends horizontally from one side of the wheelchair and extends angularly forwardly and outwardly from one side of the seat of the wheelchair when the peg is fitted into the first upwardly extending tube, and
the seat surface having a generally trapezium shape and having a first side adapted to be positioned adjacent the seat of the wheelchair and a second opposing side, the second opposing side having a length longer than a length of the first side and extending forward of the seat of the wheel chair, the second side adapted to be positioned over the door frame and adjacent the seat of the automobile.

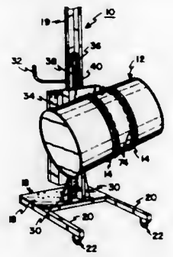
5,207,550

DRUM HANDLER

Marcus S. Lehman, Lake City, Minn., assignor to Valley Craft, Lake City, Minn.

Continuation of Ser. No. 669,039, Mar. 14, 1991, abandoned.
This application Oct. 7, 1992, Ser. No. 957,741
Int. Cl.[5] B65G *65/24*
U.S. Cl. 414—420 5 Claims

1. A drum handler for manipulating drums, said handler comprising:
a manually engagable frame member (18) having roller means for said frame to be manually moved about a surface and having manually engagable handles for an operator to engage and urge said member about said surface;
a carriage (48);
attachment means for attaching said carriage to said frame for said carriage to move along a vertical line of travel;
lift drive means connected to said frame for moving said carriage along said line of travel;
a source (44) of pressurized hydraulic fluid including a first hydraulic motor, said source (44) connected to said frame member (18), for movement therewith, electrical power means carried on said frame for powering said first hydraulic motor; said electrical power means including electrical power storage means and means for releasably connecting said storage means to an external power source to recharge said storage means;
a modular drum engagement member (54) releasably connected to said carriage (48), said drum engagement member including gripping means for gripping a drum;



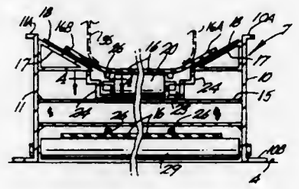
said drum engagement member (54) including hydraulic actuator means carried on said drum engagement member (54) to rotate said gripping means about a generally horizontal axis, said rotary actuator means including a second hydraulic motor (60) connected to said drum engagement member (54) and removable from said carriage (48) with said drum engagement member;
hydraulic fluid coupling means (66) for releasably connecting said second hydraulic motor (60) to said source (44) of pressurized hydraulic fluid throughout movement of said carriage through said line of travel.

5,207,551

REMOVABLE CONVEYOR BELT ASSEMBLY WITH ADJUSTABLE BARRIERS FOR CONCRETE TRUCKS

James E. Yelton, P.O. Box 5613, Eugene, Oreg. 97405

Filed Sep. 16, 1991, Ser. No. 760,183
Int. Cl.[5] B60P *1/38*
U.S. Cl. 414—528 2 Claims



1. In combination,
a truck chassis including multiple bins for carrying sand, gravel and cement,
an endless belt conveyor assembly for removable installation on the chassis below the bins for conveying discharged material from the bins during unloading of the truck, said conveyor assembly comprising:
rail members having a head roll and a tail roll, a motor coupled to said tail roll,
spacer tubes joining said rail members at spaced intervals,
guide means attaching said rail members to the truck chassis in a manner permitting removal of the rail members from the truck chassis in a lengthwise direction,

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a series of upper rollers and on said rail members intermediate the head roll and the tail roll, each of said upper rollers including a shaft, lower rollers on said rail members,

roller mounts on each of said rail members each having a series of recesses to receive the shaft of each of said upper rollers, said roller mounts supported by said spacer tubes, an endless belt on said head roll and said tail roll and having side margins and an upper run partially supported by said upper rollers,

an inclined surface extending lengthwise along each of said rail members and each supporting a side margin of said belt in an upwardly and outwardly inclined manner,

flexible barriers having lower portions in sliding contact with the margins of said belt to confine the granular material on said belt and

barrier support means clamping said flexible barriers in an adjustable manner against surfaces of the bins to permit periodic downward repositioning of said barriers toward said belt to compensate for wear of the barriers,

said barriers embodied in flexible strips, said barrier support means including quick release over center type clamps and plates biased by said clamps and clamping said barriers in place on said bin surfaces in a manner facilitating barrier repositioning relative to the endless belt.

5,207,552

CONTROL MECHANISM FOR SELECTIVE ENGAGEMENT AND DISENGAGEMENT OF A MOTOR DEVICE

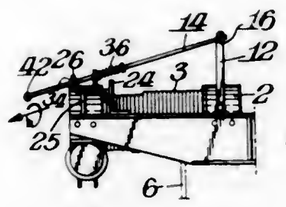
Craig Mummert, 2 Teakwood La., Wilmington, Del. 19810

Continuation of Ser. No. 623,085, Dec. 6, 1990, Pat. No. 5,120,185. This application May 28, 1992, Ser. No. 889,674

The portion of the term of this patent subsequent to Jun. 9, 2009, has been disclaimed.

Int. Cl.[5] B60P *3/12*

U.S. Cl. 414—563 **18 Claims**



1. A control mechanism for the selective engagement and disengagement of a motor drive having a control arm which is pivotally movable in a plane to a first engaging position and a second disengaging position, said mechanism comprising an elongated handle, said handle having a free end which may be grasped by a user, said handle having an opposite end pivotally connected to the pivotally movable control arm, said handle being selectively slidably movably mounted in a longitudinal direction in the plane of control arm movement to a first position and a second position corresponding to the engaging and disengaging positions of the pivotally movable control arm, lock means for selectively holding said handle in each of said two positions, said lock means including at least one abutment, said one abutment having a slot, said handle having a projection dimensioned to pass through said slot and be disposed on a side of said one abutment remote from the control arm, said handle being movably mounted through said slot for selective contact of said projection with said remote side of said one abutment to lock the control arm in one of its positions, and resilient means for selectively maintaining said handle in at least one of its positions.

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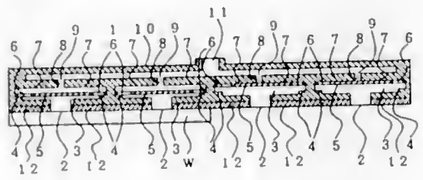
SUCTION LIFTING DEVICE FOR FLAT WORKPIECES

Haruo Konagai, 19-3, Akiyama-cho, Shizuoka-shi, Shizuoka 420, Japan

Filed Feb. 26, 1992, Ser. No. 841,983

Int. Cl.[5] B25J *15/06*

U.S. Cl. 414—737 **11 Claims**



1. A device for suction lifting and holding flat workpieces, the device comprising

a body defining a lifting head, the lifting head having a suction face including at least one outer suction port at said suction face, said lifting head further having

at least one inner suction port and a valve chamber intervening said at least one inner and outer suction ports and communicatively connected therewith, the valve chamber including a valve seat proximal the at least one inner suction port,

a port at a body part remote from said suction face for connecting the lifting head with a source of vacuum, said connecting port being in communication with said at least one inner suction port for establishing vacuum condition at said one inner suction port, and

a valve disk in said valve chamber, said valve disk having multiple through holes therein at a circumferential region thereof, said valve disk being sized such and the through holes such positioned therein as to lie outside a circumferential expanse of said at least one outer suction port, said valve disk being drawn against said valve seat by a differential of pressure represented by the vacuum condition at said at least one inner port present at one valve disk face, and a communication of said at least one outer suction port with ambient atmosphere present at an opposite valve disk face, said valve chamber having

stepped structure therein proximal said at least one outer suction port, said valve disk moving to a position wherein its circumferential region is supported on said stepped structure with at least portions of the through holes unobstructed by such stepped structure whenever a workpiece is in contact with the suction face and covers said at least one outer suction port to exclude communication thereof with ambient atmosphere, the condition of vacuum present at said one valve disk face communicating to the opposite valve disk face by way of the disk hole unobstructed portions so that with the said at least one outer suction port covered, workpiece holding condition of vacuum is sustained at said one outer suction port.

5,207,554

SUPPORTING DEVICE

Kazuo Asakawa; Fumiaki Akiya, both of Kawasaki, and Fumio Tabata, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

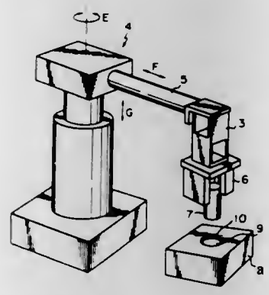
Continuation of Ser. No. 353,085, May 17, 1989, abandoned, which is a continuation of Ser. No. 158,041, Feb. 16, 1988, Pat. No. 4,921,396, which is a continuation of Ser. No. 876,663, Jun. 20, 1986, abandoned, which is a continuation of Ser. No. 533,976, Sep. 20, 1983, abandoned. This application Jul. 3, 1990, Ser. No. 546,661

Claims priority, application Japan, Sep. 21, 1982, 57-163067; Sep. 21, 1982, 57-163074; Sep. 24, 1982, 57-164854; Sep. 28, 1982, 57-167509

The portion of the term of this patent subsequent to May 1, 2007, has been disclaimed.

Int. Cl.[5] B25J *17/02*

U.S. Cl. 414—744.6 **9 Claims**



1. A robot comprising:

a hand for holding an article;

an arm for moving said hand; and

a wrist, supported by said arm, for supporting said hand, said wrist including a compliance means comprising:

first and second pairs of parallel leaf springs, said first pair of parallel leaf springs having a first end supported by said arm and having a second end, said second pair of parallel leaf springs having a first end secured to the second end of said first pair of parallel leaf springs and having a second end for supporting said hand, so that said first and second pairs of parallel leaf springs can move perpendicularly with respect to each other; and

detection means, positioned on said first and second pairs of parallel leaf springs, respectively, for detecting the displacement of each pair of parallel leaf springs with respect to each other, and for generating a biasing signal having a value corresponding to the detected displacements, the biasing signal having a predetermined value for a displacement of the parallel leaf springs at which a strain exerted on the parallel leaf springs is substantially zero; and

means, connected to said detection means, for shifting said arm to a position at which the value of the biasing signal is the predetermined value.

5,207,555

RUNNING FORK TYPE LOAD TRANSFER APPARATUS

Yoji Shirai, Suita, Japan, assignor to Daifuku Co., Ltd., Osaka, Japan

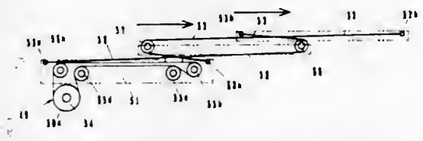
Filed Nov. 13, 1991, Ser. No. 791,972

Claims priority, application Japan, May 13, 1991, 3-138242

Int. Cl.[5] B65G *1/00*

U.S. Cl. 414—749 **3 Claims**

1. A running fork type load transfer device comprising a fixed fork, a secondary fork, and a primary fork, each of said forks having a front end and a rear end, said secondary fork having an idler each at its front and rear ends, said forks being disposed horizontally movably one above another, means for moving said secondary fork and said primary fork, said secondary fork being adapted to telescope in and out of the fixed fork and said primary fork being adapted to telescope in and out of said secondary fork, first and second motion transmitting flexible means for telescoping said primary fork in and out relative to said secondary fork, each of said first and said second flexible means connecting said forks to each other with the respective ends of said flexible means being connected from a respective given end of said fixed fork and of said primary fork which is a same respective given end, a part of each of said flexible



means intermediate its ends passing around a respective idler on said secondary fork which respective idler is disposed in each case at an opposite end to said given end, wherein said secondary fork is an aluminum extrusion having therein integral right and left portions each including an outward guide groove, right and left inward guide groove, and upper and lower cavities, a first pair of guide rollers attached to said to fixed fork and arranged to roll within said outward guide grooves, and a second pair of guide rollers attached to said primary fork and arranged to roll within said inward guide grooves, said motion transmitting flexible means being disposed for passing within said upper and lower cavities.

5,207,556

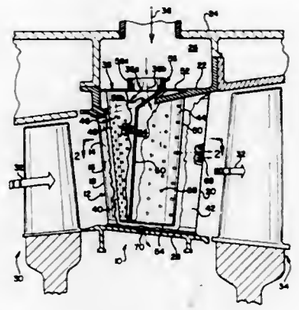
AIRFOIL HAVING MULTI-PASSAGE BAFFLE

Robert A. Frederick, and Mark S. Honkomp, both of Cincinnati, Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Apr. 27, 1992, Ser. No. 873,858

Int. Cl.[5] F01D *5/08*

U.S. Cl. 415—115 **9 Claims**



1. An apparatus comprising:

a hollow baffle having first and second sides joined together at a forward edge and at an aft edge, a top, and a bottom;

a septum extending between said baffle bottom and top and spaced between said forward and aft edges to define a forward manifold extending from said septum to said forward edge, and an aft manifold extending from said septum to said aft edge;

an inlet disposed at said top for channeling compressed air into said baffle, said inlet including a forward portion disposed in flow communication with said forward manifold for channeling a first portion of said compressed air directly into said forward manifold, and an aft portion

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disposed in flow communication with said aft manifold for channeling a second portion of said compressed air directly into said aft manifold, said inlet aft portion being sized for providing a predetermined pressure drop in said compressed air second portion so that said compressed air second portion inside said aft manifold is at a pressure less than that of said compressed air first portion inside said forward manifold; and

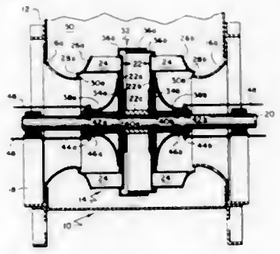
said baffle first and second sides include impingement holes for discharging said compressed air from said forward and aft manifolds.

5,207,557

CENTRIFUGAL FAN HAVING VARIABLE WIDTH BLADES

William A. Smiley, III, La Crosse, and George T. Brockman, Stoddard, both of Wis., assignors to American Standard Inc., New York, N.Y.

Filed May 8, 1992, Ser. No. 880,726
Int. Cl.[5] F04D *29/46*, F01D *7/00*
U.S. Cl. 415—157 14 Claims



1. A fan comprising:

a housing defining an inlet;

a fan wheel disposed for rotation in said housing, said fan wheel having a plurality of fan blades and a back plate;

means, including a baffle member penetrated by and movable with respect to said fan blades, for modulating airflow through said housing, said baffle member rotating with said fan wheel and cooperating therewith to define effective and ineffective portions of said fan blades, said means for modulating airflow having a block off portion extending from said baffle member in a direction toward said back plate, said block off portion being a circumferential shroudlike member which is unattached to said back plate, said baffle member, said back plate and said shroud like member cooperating to isolate said ineffective portions of said fan blades from air flowing through said housing;

means for supporting said modulating means for rotation with said fan wheel and for movement relative to said fan blades while said fan wheel is rotating; and

means for causing the movement of said modulating means with respect to said fan blades while said fan wheel is rotating.
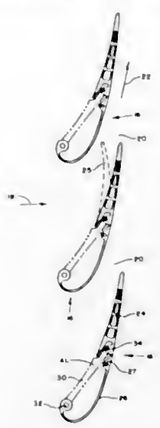
5,207,558

THERMALLY ACTUATED VANE FLOW CONTROL

Michael P. Hagle, Mason, and Paul S. Wilson, Fairfield, both of Ohio Stephen E. Colby, Grand Ledge, Mich., Charles A. Snyder, Oxford, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 30, 1991, Ser. No. 785,584
Int. Cl.[5] F03B *3/18*
U.S. Cl. 415—161 11 Claims

1. Thermally actuated flow diverters for gas turbine engines comprising, an array of vanes which direct coolant flow to engine components, said vanes each having a leading foil positioned on the suction side of said vane, a trailing foil pivotably mounted to said leading foil at a first pivot axis and a third foil positioned on the pressure side of said vane connecting said leading foil and said trailing foil at second and third pivot axes, said third foil or said leading foil being fixedly mounted to engine walls of the same material, the other of these two foils defining an actuation link that is movable relative to said walls, said third foil having a coefficient of thermal expansion greater



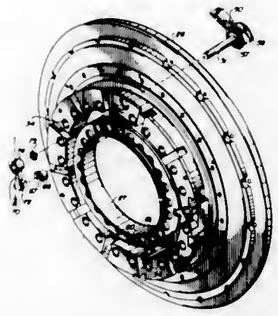
than that of said leading foil, said vanes being positioned so that said trailing foil can pivot into proximity with or away from a neighboring engine component, so that upon temperature change, said third foil contracts or expands relative to said leading foil and pivots said trailing foil toward or away from said neighboring engine component, controlling the flow of engine coolant therebetween.

5,207,559

VARIABLE GEOMETRY DIFFUSER ASSEMBLY

Lloyd L. Clevenger, and John D. Sullivan, both of Phoenix, Ariz., assignors to Allied-Signal Inc., Morris Township, N.J.

Filed Jul. 25, 1991, Ser. No. 735,500
Int. Cl.[5] F01D *17/16*
U.S. Cl. 415—166 9 Claims



4. A variable geometry diffuser assembly for a compressor having, mounted for rotation therein, a radial impeller with an air inlet and an air outlet, said assembly comprising:

a housing having a first annular wall circumscribing said impeller and a second annular wall spaced apart from said first annular wall and defining therebetween a diffuser passageway downstream of said impeller and in fluid communication with said air outlet;

a plurality of circumferentially spaced diffuser vanes, each of said vanes cantilevered to said first annular wall via a shaft secured to said vane and extending therefrom and through said first annular wall, and extending from a leading edge to a trailing edge and having disposed therebetween, a pressure side portion, a suction side portion and a first and second endwall, said endwalls being substantially perpendicular to said suction side portion and said pressure side portion, each of said vanes disposed in said diffuser passageway so that said leading edges face said air outlet, and said first and second endwalls face said first and second annular walls respectively;

means for sealing disposed between said endwalls and said annular walls;

a unison ring mounted for rotation to said first annular wall; and

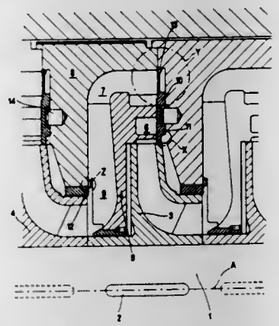
a plurality of arm members, each of said arm members secured for rotation at a first end to said unison ring and secured at a second end to one of said shafts, whereby in response to the rotation of said unison ring, each of said arms, shafts, and vanes are simultaneously rotated.

5,207,560

FLUID FLOW MACHINE WITH VARIABLE CLEARANCES BETWEEN THE CASING AND A FLUID FLOW GUIDING INSERT IN THE CASING

Jörg Urban, Ludwigshafen, Fed. Rep. of Germany, assignor to KSB Aktiengesellschaft, Frankenthal, Fed. Rep. of Germany

Filed Sep. 4, 1991, Ser. No. 754,560
Claims priority, application Fed. Rep. of Germany, Oct. 9, 1990, 4031936
Int. Cl.[5] F01D *9/02*
U.S. Cl. 415—199.1 17 Claims



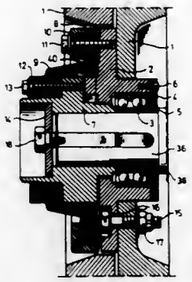
1. A fluid flow machine comprising a casing consisting of a first material having a first thermal expansion coefficient; at least one impeller rotatable in said casing about a predetermined axis; and at least one fluid guiding insert disposed in said casing adjacent said at least one impeller and consisting of a second material having a second thermal expansion coefficient higher than said first coefficient, said casing and said at least one insert having first surfaces disposed at a first radial distance from said axis and defining a first annular clearance, and second surfaces disposed at a greater second radial distance from said axis and defining a second annular clearance, one of said clearances having a width which is zero or slightly above zero when the temperature at the respective surfaces is within a first range and the other of said clearances having a width which is zero or slightly above zero when the temperature at the respective surfaces is within a higher second range.

5,207,561

DEVICE FOR ASSEMBLING AN IMPELLER ON A DRIVING SHAFT

Alain Godichon, Saint-Remy, France, assignor to Abb Flakt AB, Stockholm, Sweden

PCT No. PCT/SE89/00048, § 371 Date Aug. 5, 1991, § 102(e) Date Aug. 5, 1991, PCT Pub. No. WO90/09522, PCT Pub. Date Aug. 23, 1990
PCT Filed Feb. 7, 1989, Ser. No. 730,903
Int. Cl.[5] F04D *29/20*, *29/66*
U.S. Cl. 416—134 R 4 Claims



I. A device for assembling an impeller on a driving shaft comprising:

bearing means for supporting an impeller on a driving shaft and for allowing relative rotary motion between said impeller and said driving shaft, said bearing means having a small radial clearance thereby limiting relative radial movement between said driving shaft and said impeller; and

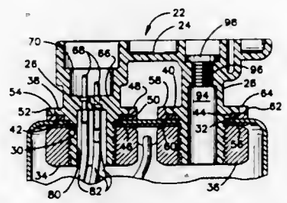
at least one resilient element mounted between said shaft and said impeller, wherein torque is transmitted from said driving shaft to said at least one resilient element such that torque pulsations are avoided while said bearing means provides a support between said impeller and shaft with substantially no torque transferred through said bearing means such that the bearing means and resilient element simultaneously control relative radial movement and transmission of torque pulsation between the driving shaft and impeller.

5,207,562

SUBMERSIBLE PUMP WITH HANDLE PROVIDING ELECTRICAL CONNECTION AND OIL PORT

Dennis W. Neibrook, Kansas City, Mo., and Tom F. Kruzel, Maple Grove, Minn., assignors to The Marley Company, Mission Woods, Kans.

Filed Apr. 30, 1992, Ser. No. 876,955
Int. Cl.[5] F04B *21/00*
U.S. Cl. 417—234 13 Claims



1. In a pump having a pump casing, an electric motor in the casing for driving the pump, and lead wires for the motor, the improvement comprising:

a handle adapted to be grasped by the hand, said handle presenting a socket for receiving a plug on a power cord

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which is adapted for connection with an electrical power source;

a plurality of electrical terminal pins secured to said handle and projecting into said socket at locations to electrically connect with the plug upon application of the plug to said socket; and

means for connecting said handle to said casing with the handle accessible for grasping to lift and carry the pump and with the lead wires electrically connected to said terminal pins.

5,207,563

SWASH PLATE TYPE COMPRESSOR WITH A CENTRAL DISCHARGE PASSAGE

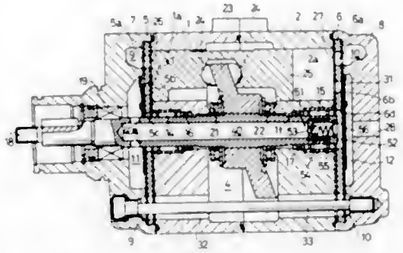
Hayato Ikeda; Toshiro Fujii; Kazuo Murakami; Kazuaki Iwama; Hideo Mori; Shoji Takemoto; Katsunori Kawai; Masaki Nomura, and Tetsuya Takashima, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Continuation-in-part of Ser. No. 880,574, May 8, 1992, and a continuation-in-part of Ser. No. 863,814, Apr. 6, 1992. This application May 18, 1992, Ser. No. 884,721

Claims priority, application Japan, May 20, 1991, 3-114737; May 20, 1991, 3-114739

Int. Cl.[5] F04B *27/08*

U.S. Cl. 417—269 7 Claims



1. In a swash plate type compressor of the type having a drive shaft, a plurality of discharge chambers which form a part of a discharge passage, the improvement comprising:

said drive shaft having a hollow section for allowing fluid to pass therethrough, and for forming a part of the discharge passage; and

valve means disposed along the discharge passage for controlling the flow of fluid therethrough as a function of the pressure difference of the fluid in the discharge chambers.

5,207,564

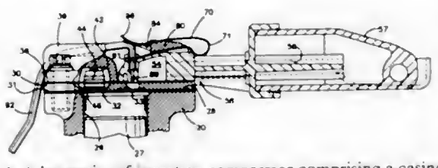
COMPRESSOR HEAD AND SUCTION MUFFLER FOR HERMETIC COMPRESSOR

Jack F. Fritchman, deceased, late of Cullman, Ala. by Catherine Fritchman executrix , assignor to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Apr. 21, 1992, Ser. No. 871,392

Int. Cl.[5] F04B *39/00*

U.S. Cl. 417—312 8 Claims



1. A hermetic refrigeration compressor comprising a casing, a motor compressor unit mounted inside said casing and including a cylinder block having a cylinder with an open end and a piston in said cylinder, electric motor means to reciprocate said piston in said cylinder, a valve plate secured to said cylinder block and extending across said open cylinder end, said valve plate having a suction port and a discharge port spaced from each other, a first cylinder head secured to said cylinder block and covering said discharge port, said first cylinder head extending over a major portion of said valve plate and defining a recess around said suction port, said first cylinder head including a bridge portion extending over a portion of said recess a spaced distance from said valve plate, and a second cylinder head in said recess extending over said suction port, said second cylinder head being secured by a spring clip to said bridge to hold said second cylinder head in place on said valve plate, said spring clip having a first portion extending between the inner surface of said bridge and said second cylinder head to bias said second cylinder head toward said valve plate, said spring clip having a second portion extending over the outer surface of said bridge.

5,207,565

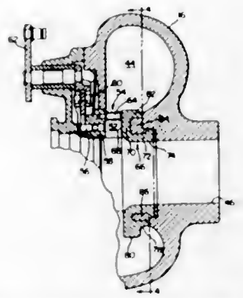
VARIABLE GEOMETRY TURBOCHARGER WITH HIGH TEMPERATURE INSERT IN TURBINE THROAT

Manfred Roessler, Manhattan Beach, Calif., assignor to Allied-Signal Inc., Morristown, N.J.

Filed Feb. 18, 1992, Ser. No. 838,636

Int. Cl.[5] F04B *17/00*

U.S. Cl. 417—407 9 Claims



1. Turbocharger comprising a center housing, a compressor housing on one end of the center housing, a turbine housing on the other end of the center housing, a shaft rotatably mounted in said center housing, said shaft having a pair of ends, one end of the shaft extending into the compressor housing, a compressor wheel mounted on said one end of the shaft and within said compressor housing for rotation with the shaft, the other end of the shaft extending into the turbine housing, a turbine wheel mounted on said other end of the shaft within the turbine housing for rotation with the shaft, said turbine housing including a circumferentially extending volute for carrying motive gasses to said turbine wheel, said volute extending around said turbine wheel, a pair of walls extending circumferentially and spaced apart axially with respect to said shaft and defining a circumferentially extending throat for communicating the volute with the turbine wheel, a set of circumferentially spaced vanes within said throat and pivotally mounted on one of said walls for regulating flow of motive gasses into said turbine wheel, and a circumferentially extending insert carried by said turbine housing and having a portion defining the other wall, said insert being made of a material having enhanced corrosion resistant properties as compared to the material from which the turbine housing is made, said insert defining a circumferentially extending cavity within said insert, said cavity having an opening, said turbine housing extending through said opening into said cavity to thereby retain said insert on the turbine housing.

5,207,566

EXHAUST GAS TURBOCHARGER BEARING

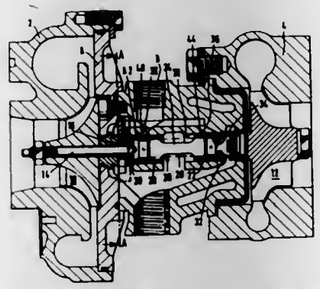
Uwe Münkel, Frankenthal; Thomas Dücker, Bobenheim-Roxheim, and Gerhard Oberholz, Freinsheim, all of Fed. Rep. of Germany, assignors to Aktiengesellschaft Kuehnle, Kopp & Kausch, Frankenthal, Fed. Rep. of Germany

Filed Jan. 22, 1991, Ser. No. 643,266

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1990, 4002583; European Pat. Off., Dec. 6, 1990, 90123403.9

Int. Cl.[5] F04B *17/00*

U.S. Cl. 417—407 23 Claims



1. A turbocharger bearing arranged in a bearing case for radially mounting a shaft, said bearing comprising a sleeve which is floatingly disposed in a bore in said bearing case and is secured against axial displacement, and a retaining ring disposed in a ring chamber of the bearing case for securing said sleeve against rotation, wherein said sleeve is provided with a groove and said bearing case is provided with a recess adjacent said ring chamber, and said retaining ring has a tongue which engages in said recess and also has at least one boss that projects toward an axial end face of said sleeve and has an outside surface which contacts at least one surface of said groove.

5,207,567

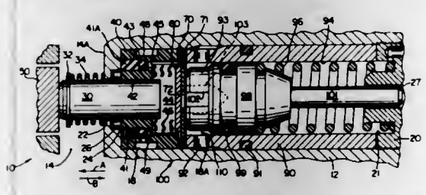
PUMP WITH INTEGRAL SUMP

Theodore J. Joy, Mishawaka, Ind., assignor to Allied-Signal Inc., Morristown, N.J.

Filed Sep. 14, 1992, Ser. No. 944,614

Int. Cl.[5] F04B *11/00, 39/10;* B60T *8/40*

U.S. Cl. 417—540 21 Claims



1. In a pump assembly, a bore having an end opening receiving slidably therein a pump piston, the pump piston biased by spring means for reciprocating movement relative to the end opening and extending into an outlet member disposed adjacent the end opening, the outlet member including at least one outlet valve opening containing therein resilient means biasing outlet valve means against an outlet valve seat, a spring member disposed within the bore and biasing an inlet valve against an inlet seat plate, the inlet seat plate having a through opening, a sump sleeve disposed within said bore and capturing said inlet seat plate between the sump sleeve and said outlet member, the sump sleeve having a longitudinal opening receiving slidably therein a sump piston and defining a sump chamber with the sump piston and inlet seat plate, a sump spring in the bore and biasing said sump piston toward said inlet seat plate, and an inlet opening in said sump sleeve, so that reciprocating movement of the pump piston causes fluid to be sucked through the inlet opening and into the sump chamber, through the through opening and around the inlet valve, and pumped through the outlet valve opening via the valve seat and outlet valve means.

5,207,568

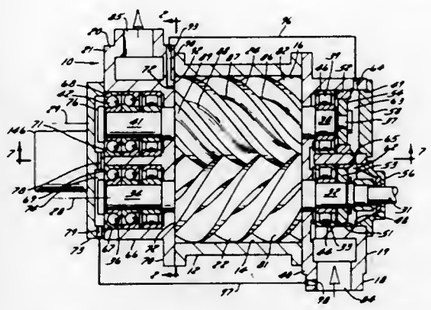
ROTARY SCREW COMPRESSOR AND METHOD FOR PROVIDING THRUST BEARING FORCE COMPENSATION

Paul G. Szymaszek, Waukesha, Wis., assignor to Vilter Manufacturing Corporation, Milwaukee, Wis.

Continuation-in-part of Ser. No. 700,243, May 15, 1991, abandoned. This application Mar. 13, 1992, Ser. No. 850,504

Int. Cl.[5] F01C *1/16*

U.S. Cl. 418—203 25 Claims



1. A rotary screw compressor comprising:

a rotor housing including a bore means, a bearing means, a low pressure end having a low pressure inlet and a high pressure end having a high pressure outlet;

rotor means rotatably mounted by said bearing means in said bore means, and having a high pressure end face subject to a variable axial thrust force induced by high pressure at said high pressure end;

a compression chamber means on said rotor means which successively progressively diminishes in volume during operation to provide a low pressure corresponding to said low pressure at said inlet, a high pressure corresponding to said high pressure at said outlet and a series of intermediate pressures between said high and low pressures throughout a range of the compressor outputs;

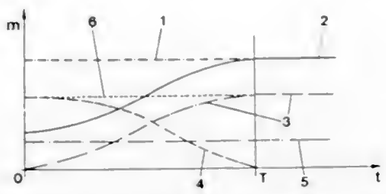
a pressure applying means for exerting a counterbalancing force on said rotor means in opposition to said variable axial thrust force existing on said rotor means end face at said high pressure end during operation;

an intermediate pressure port means in equalized pressure communication with said compression chamber means at one of said series of intermediate pressures; and

a conduit means in equalized pressure communication between said pressure applying means and said intermediate pressure port means to supply said one of said series of intermediate pressures to said pressure applying means and cause application of a variable counterbalancing force on said rotor means which varies through said output range of the compressor.

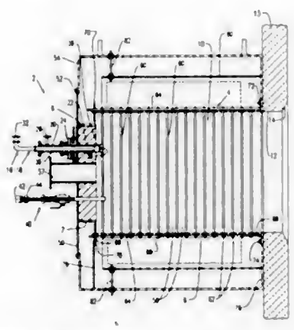
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,569
METHOD FOR ADJUSTING A BURNER DURING THE START-UP PHASE IN A FURNACE OPERATED BY MEANS OF FLUE GAS RECIRCULATION
Hans P. Knöpfel, Besenbüren; Claude Pelet, Lonay, and Hans Peter, Urdorf, all of Switzerland, assignors to Asea Brown Boveri Ltd., Baden, Switzerland
Filed Apr. 15, 1992, Ser. No. 868,429
Claims priority, application Fed. Rep. of Germany, Apr. 29, 1991, 4113983
Int. Cl.[5] F23N *5/20*
U.S. Cl. 431—6 6 Claims



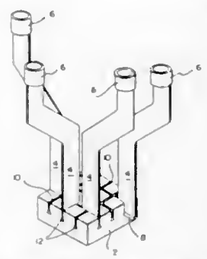
1. A method for operating a burner during the start-up phase of a furnace wherein the flue gas is recirculated and the furnace is flushed with air prior to start-up, the method comprising:
(a) supplying fuel to the burner at a constant rate;
(b) supplying outside air at an increasing rate to the burner during the start-up phase;
(c) supplying air from flushing the furnace to the burner at a decreasing rate during the start-up phase;
(d) maintaining during the start-up phase a substantially stoichiometric total amount-of combustion air composed of said outside air and said flushing air during the start-up phase.

5,207,570
BLUFF BODY BAND REGISTER AND BLUFF BODY BAND PILOT
James T. Voorheis, Essex Fells, N.J., assignor to Voorheis Industries, Inc., West Caldwell, N.J.
Filed Feb. 26, 1992, Ser. No. 843,993
Int. Cl.[5] F23M *9/00*
U.S. Cl. 431—188 13 Claims



1. A burner assembly comprising:
a register including an annular wall defining a chamber, said annular wall including a plurality of coaxial substantially paralled axially spaced annular bands and a plurality of parallel, axially spaced, circumferentially extending slots which separate said bands and through which air is supplied to said chamber, said annular bands forming a plurality of bluff body elements to said air;
means for supplying a combustible material to said chamber; and
ignition means for igniting a mixture of said combustible material and said air in said chamber.

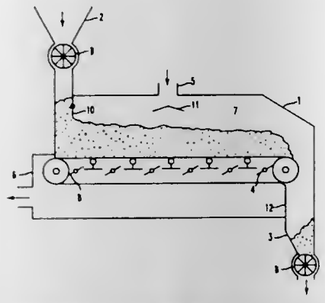
5,207,571
CANDELABRUM
Yaakov Greenvurcel, Houtzot Hayotzer, Studio 28, Jerusalem, Israel
Filed Aug. 9, 1991, Ser. No. 742,865
Claims priority, application Israel, Aug. 20, 1990, 95433
Int. Cl.[5] F21V *35/00*
U.S. Cl. 431—295 7 Claims



1. A variable-configuration candelabrum comprising:
a base provided with a plurality of constraining means of a first type defining a grid-like pattern of linear slots cut in an upper surface of the base and extending to at least one side of said base, said slots further having an undercut and
a plurality of stems, each of which has a first end provided with constraining means of a second type defining an anchoring member matching said undercut and fixedly attached to each of said stems, a second end of said stems being provided with means for holding candles, said constraining means of the first type being cooperatively engageable by said constraining means of the second type from at least on side of the base for selective displacement of said stems into a plurality of positions on said base and for preventing vertical and tilting movement of said stems relative to said base.

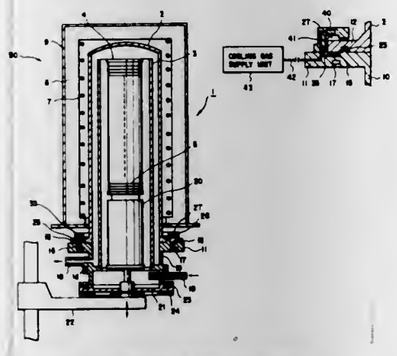
5,207,572
METHOD AND APPARATUS FOR THE TREATMENT AND RECOVERY OF MINERAL FIBER OR GLASS WASTE
Roger Deblock, Brussels, Belgium, and Petrus J. H. D. Bakx, Etten-Leur, Netherlands, assignors to Isover Saint-Gobain, Aubervilliers Cedex, France
Division of Ser. No. 557,776, Jul. 26, 1990, Pat. No. 5,156,545.
This application May 22, 1992, Ser. No. 886,836
Claims priority, application France, Jul. 26, 1989, 89 10043
Int. Cl.[5] F27B *9/28*
U.S. Cl. 432—58 6 Claims

1. A pyrolysis furnace for the treatment of a mineral fiber substrate contaminated with at least one organic substance, comprising:
(1) an elongate chamber having a top and a bottom,
(2) an inlet hopper at the top of said chamber provided with an air lock system for regulating the inlet delivery of mineral fiber substrate and for controlling the atmosphere of the furnace,
(3) an outlet hopper at the bottom of said chamber provided with an air lock system for regulating the outlet delivery of mineral fiber substrate and for controlling the atmosphere of the furnace,
(4) a conveyor belt for conveying said substrate from below said inlet hopper to above said outlet hopper, said belt provided with perforations and having a plurality of adjustable flaps on the inside thereof in order to allow gas to flow through said substrate and said conveyor belt and to control the pressure of said gas,
(5) a pipe at the top of said chamber for the introduction of a gaseous mixture heated to a temperature less than the melting temperature of said substrate, said gaseous mixture comprising a neutral gas and from 0 to 10% by volume of oxygen,



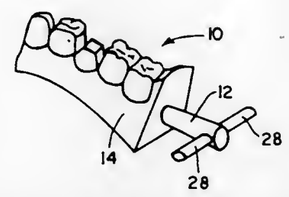
(6) a deflector disposed opposite to the aperture of the pipe at the top of said chamber for distribution of the gaseous mixture entering the chamber, and
(7) a pipe at the bottom of said chamber for the removal of gas passed through said substrate and said conveyor belt.

5,207,573
HEAT PROCESSING APPARATUS
Katsushin Miyagi, and Tomio Kimishima, both of Sagamihara, Japan, assignors to Tokyo Electron Sagami Limited, Kanagawa, Japan
Filed Jan. 22, 1992, Ser. No. 824,094
Claims priority, application Japan, Feb. 19, 1991, 3-046043
Int. Cl.[5] F27B *9/04*
U.S. Cl. 432—152 15 Claims



13. A heat processing apparatus comprising:
a heating furnace;
a process tube located in the heating furnace and having an open bottom;
a manifold connected to the open bottom of the process tube;
a sealing member sandwiched between the process tube and the manifold to air-tightly seal the process tube;
fixing means for fixing the process tube to the manifold; and
light radiation shielding means located inside and adjacent to the sealing member and projected upward from the top of the manifold to shield light radiated from the heating furnace to the sealing member.

5,207,574
DENTAL MODEL AND PROCESS OF MAKING SAME
James K. Garland, 3255 E. Seven Springs Dr., Sandy, Utah 84092
Filed Dec. 3, 1990, Ser. No. 620,706
Int. Cl.[5] A61C *19/00, 11/00*
U.S. Cl. 433—74 18 Claims



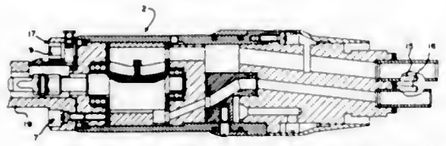
1. A dental model of a patient's teeth for use in preparing a dental prosthetic for the patient's teeth, said dental model comprising
an elongate, tapered pin;
a mold material cast around the longitudinal side of said pin to encapsulate at least the central portion of said elongate pin;
an impression of at least two adjacent teeth of a person formed integrally in the exterior surface of the cast mold material;
cuts formed partially through said cast mold material transverse of the longitudinal side of said pin; and
breaks formed through the cast mold material at the cuts to separate the cast mold material into at least three distinct, isolated sections that are aligned in sequence with each other in a direction along the longitudinal side of said pin; and
breaks formed through the cast mold material at the cuts to separate the cast mold material into at least three distinct, isolated sections that are aligned in sequence with each other in a direction along the longitudinal side of said pin, whereby the pin can be pulled longitudinally from the cast mold material to separate and isolates sections of the cast mold material from each other, and whereby the isolated sections can be reassembled by stacking the sections side-by-side in sequence on the pin to recreate the dental mode having teeth situated adjacent each other in true relationship of the dental model prior to removal of the pin and separation of the cast mold material into sections.

5,207,575
DEVICE FOR CONNECTING A DENTISTRY HANDPIECE OR CONTRA-ANGLE ON A SUPPORT
Jean-Paul Jacoulet, Besancon, and Jacques Pernot, Geneuille, both of France, assignors to Micro Mega SA, Besancon, France
Filed Nov. 20, 1990, Ser. No. 616,223
Claims priority, application France, Nov. 27, 1989, 89 15760
Int. Cl.[5] A61C *1/08*
U.S. Cl. 433—126 10 Claims

1. A device connecting a support for a dentistry handpiece or contra-angle to a dental unit, wherein the dental unit includes means for supplying water and air for spraying a working point, and means for supplying lighting to head portions of the handpiece or contra-angle, and wherein the connecting device comprises:
a ring formed of an insulating material and projecting from rear face portions of the support;
an annular hollow formed in the dental unit for receiving the ring when the support is mounted to the dental unit;

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a notch formed in the ring and a lug projecting from the dental unit, for interlocking engagement to establish and maintain a relative angular positioning of the support relative to the dental unit;
water and air channels longitudinally emerging from the ring, for engaging water and air tubes longitudinally ex-



tending from the dental unit, for supplying the water and air for spraying the working point; and
female contacts radially positioned on the support, for engaging male contacts axially extending from the dental unit, for supplying the lighting to the head portions of the handpiece or contra-angle.

5,207,576

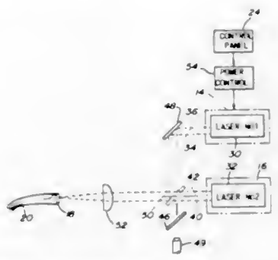
DENTAL LASER ASSEMBLY WITH DUAL LASERS

Arthur Vassiliadis, Mountain View; David R. Hennings, Newcastle; Joseph W. Shaffer, Mountain View, all of Calif., and Terry D. Myers, Farmington Hills, Mich., assignors to American Dental Laser, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 335,215, Apr. 7, 1989, abandoned. This application Apr. 25, 1989, Ser. No. 343,401

Int. Cl.[5] A61C *5/00*; A61B *17/36*

U.S. Cl. 433—215 **11 Claims**



1. A dental laser comprising:
a housing having a first laser cavity and a second laser cavity,
said housing having at least one optical output port,
a dental optical delivery system connected to said port,
a first laser contained in said first cavity which, when activated, generates a first laser beam,
a second laser contained in said second laser cavity which, when activated, generates a second laser beam,
means for selectively activating only one of said lasers at a given time, and
means for directing the laser beam from the activated laser to said at least one port,
wherein said first laser beam has optical qualities sufficient to perform any of a first set of dental treatment therapeutic procedures in a mouth,
wherein said second laser beam has optical qualities sufficient to perform any of a second set of dental treatment therapeutic procedures in a mouth,
wherein said first set of dental treatment procedures is substantially mutually exclusive from said second set of dental procedures,
wherein said first laser is a pulse laser and has a wave length of between 0.2 and 2.0 micrometers, a beam diameter at a target site of 10–5000 microns and a pulse duration of between several picoseconds and several milliseconds, and an energy of between 0.1 millijoules and 1 joules per pulse,
wherein said second laser is a pulse laser and has a wave length of 2.0 to 5.0 micrometers, a beam diameter of 10 to 5000 microns at a target site, a pulse duration of several picoseconds to several milliseconds, and an energy of 0.1 millijoules to 5 joules per pulse.

5,207,577

(METH)ACRYLOYLAMINOALKYL CARBOXYLATES FOR TREATMENT OF COLLAGEN-CONTAINING MATERIALS

Michael Müller, Bergisch Gladbach, and Wolfgang Podszun, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

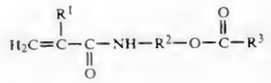
Filed Jan. 25, 1991, Ser. No. 646,562

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1990, 4003435

Int. Cl.[5] A61C *6/083*

U.S. Cl. 433—217.1 **19 Claims**

1. A dental adhesive consisting of the following ingredients:
(1) at least one (meth)acryloylaminoalkyl carboxylate of the formula:



(I)

in which
R^1 represents hydrogen or methyl;
R^2 represents methylene or ethylene; and
R^3 represents hydrogen, methyl or ethyl;
and at least one of the following ingredients:
(2) about 0.01 to 2 parts by weight initiator relative to 100 parts by weight of polymerizable compounds in the dental adhesive;
(3) a non-toxic solvent; or
(4) a filler;
and optionally at least one of the following ingredients:
(5) a polymerization reaction accelerator;
(6) a cross-linkable (meth)acrylic acid ester compound containing two or more polymerizable (meth)acryl groups; or
(7) an aliphatic mono- or dialdehyde.

5,207,578

HEAT PROCESSING APPARATUS OF VERTICAL TYPE

Kazunari Sakata, Tokyo, Japan, assignor to Toyko Electron Sagami Limited, Kanawaga, Japan

Filed Feb. 6, 1992, Ser. No. 831,940

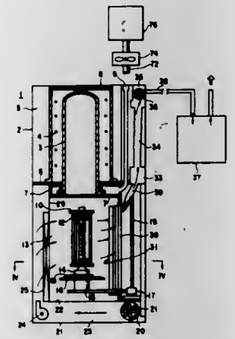
Claims priority, application Japan, Feb. 26, 1991, 3-103693

Int. Cl.[5] F27D *3/12*

U.S. Cl. 432—241 **19 Claims**

1. A heat processing apparatus of the vertical type comprising:
an apparatus box having at the lower end portion thereof an opening through which an object to be processed are carried in and out of the box;
door for opening and hermetically closing the opening of the box;
a process tube having an open bottom and located in the upper half of the box;
heaters enclosing the process tube;
a space formed in the lower half of the box and under the process tube, and connected to the opening of the box;
a cap for closing the open bottom of the process tube and supporting the object at the time of heat process;
an elevator arranged in the box and serving to move the cap up and down between a position where the open bottom of the process tube is closed and another position in the space where the open bottom is opened;

drive means for driving the elevator;
supply means for supplying a clean gas into the space and provided with a first port by which the supply means is connected to the space;
exhausting means for exhausting outside the box the clean



gas which has passed through the space, and provided with a second port communicated with the space, said second port being located on that side of the cap which is opposed to the first port of the supply means; and
collecting means for drawing and collecting the gas introduced by the exhausting means.

5,207,579

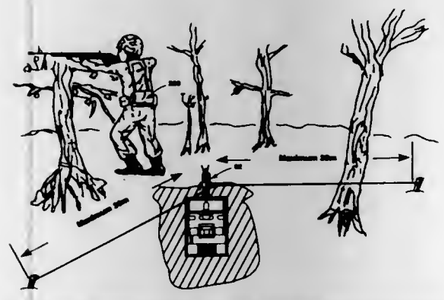
ANTIPERSONNEL TRAINING MINE

Carl J. Campagnuolo, Potomac, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 22, 1991, Ser. No. 708,253

Int. Cl.[5] F41A *33/00*

U.S. Cl. 434—11 **4 Claims**



1. A mine simulator system comprising an inground component for emitting an acoustic signal, a means in said inground component for activating said acoustic signal, a target component comprising a means for detecting an acoustic signal, a means responsive to said detecting means for identifying said acoustic signal, and a means responsive to said identifying means for activating a pre-existing multiple integrated laser engagement systems (MILES) audible alarm system upon identification of said acoustic signal wherein said inground component comprises:
an outer housing,
an inner housing movable with respect to said outer housing,
means for moving said inner housing in relation to said outer housing,
a release mechanism to control movement of said inner housing with respect to said outer housing, and
a means to produce said acoustic signal upon activation of said release mechanism.

5,207,580

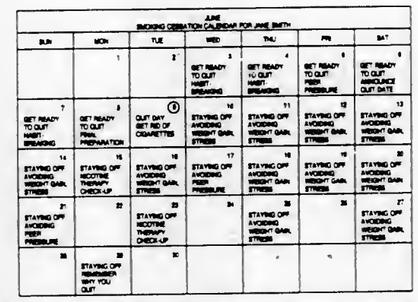
TAILORED HEALTH-RELATED BEHAVIOR CHANGE AND ADHERENCE AID SYSTEM

Victor J. Strecher, 1609 Hollywood St., Durham, N.C. 27701

Filed Jun. 12, 1992, Ser. No. 897,895

Int. Cl.[5] G09B *19/00*

U.S. Cl. 434—238 **10 Claims**



8. A method of tailoring aid to an individual desiring to change behavior, comprising:
(a) collecting behavior data from said individual utilizing intake questions and placing said data on a computer;
(b) processing said data on the computer and producing specific behavioral change messages for specific days, said messages tailored to said behavioral data; and
(c) printing said specific messages on dated pages.

5,207,581

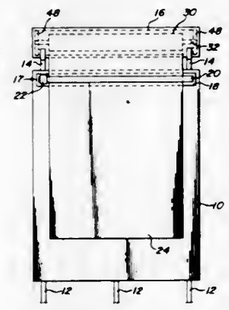
WRITING APPARATUS INCLUDING ELECTRET FILM

Steven L. Boyd, P.O. Box 1525, Corrales, N. Mex. 87048

Filed Jul. 19, 1990, Ser. No. 555,255

Int. Cl.[5] B43L *1/00*; G09F *11/18*

U.S. Cl. 434—412 **3 Claims**



1. A method of providing a writing surface suitable for presentation and display application comprising the steps of:
disposing a roll of flexible electret film material, which is capable of being erasably written upon with dry erase markers, adjacent a generally vertical surface;
withdrawing a portion of said material from said roll;
adhering said withdrawn portion of said material to said generally vertical surface by means of electrostatic attraction; and,

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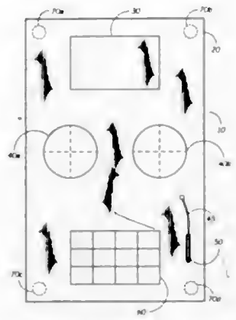
separating said withdrawn portion of said material from the remainder of said material while said withdrawn portion adheres to said generally vertical surface.

5,207,582

BREAST SELF-EXAMINATION FACILITATOR

Jeffrey A. Michelson, Stuart, Fla., assignor to B.S.E.-1.2.3., Inc., Miami, Fla.

Filed Feb. 3, 1992, Ser. No. 829,693
Int. Cl.[5] B43L 1/00
U.S. Cl. 434—416 **8 Claims**



6. A device for facilitating breast self-examinations, comprising:

an information panel affixed to a first face of said device and including a first part comprising a set of instructions and a second part onto which results of said examinations may be recorded, said second part including a diagram of at least one breast;

means for recording said results, comprising at least one grease pencil attached to said information panel by a flexible cord; and

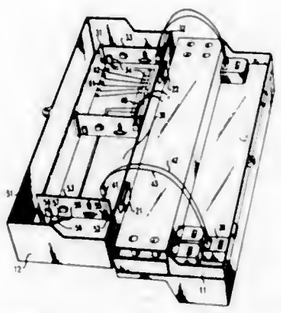
means for affixing said device to a surface.

5,207,583

NETWORK INTERFACE UNIT

George A. DeBalko, Washington Township, Morris County, N.J.; Thomas A. Dellinger, North Richland Hills, Tex., and Philip Hughes, Randolph, N.J., assignors to Siecor Corporation, Hickory, N.C. and AT&T Bell Laboratories, Murray Hill, N.J.

Filed Feb. 28, 1992, Ser. No. 843,136
Int. Cl.[5] H04M 9/00
U.S. Cl. 439—49 **5 Claims**



1. Apparatus for connection to a telecommunications network comprising:

a housing;

a printed circuit mother board mounted within the housing and adapted for connection to the telecommunications network;

an array of printed circuit boards mounted essentially perpendicular to said mother board, each circuit board including first and second electrical connectors;

a third electrical connector coupled to the second connector on the board, said third connector including a wire pair extending therefrom and coupled to one of an array of jacks mounted in the housing; and

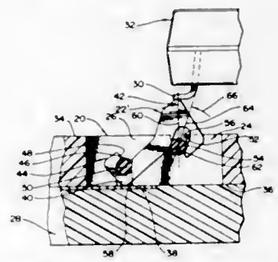
a fourth connector on the mother board to which the first connector is coupled, the third and fourth connectors being capable of electrically coupling together when the circuit board is removed from the housing.

5,207,584

ELECTRICAL INTERCONNECT CONTACT SYSTEM

David A. Johnson, 5600 W. 25 ½ St., St. Louis Park, Minn. 55416

Continuation of Ser. No. 639,126, Jan. 9, 1991, Pat. No. 5,069,629. This application Dec. 2, 1991, Ser. No. 801,694
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—66 **4 Claims**



1. Apparatus for electrically interconnecting a lead of a device to a terminal spaced at a distance from the lead, comprising:

(a) a housing interposed between the lead and the spaced terminal, said housing having at least one contact receiving slot formed therein, said slot extending substantially parallel to an axis extending between a corresponding lead and spaced terminal, said housing further having oppositely facing first and second surfaces, said first surface having a trough formed therein proximate the lead, and said second surface having a trough formed therein proximate the spaced terminal;

(b) a first elastomeric element received in said trough formed in said first surface, said first elastomeric element having a measure of compressibility and tensile extendability;

(c) a second elastomeric element received in said trough formed in said second surface, said second elastomeric element having a measure of compressibility and tensile extendability; and

(d) a generally planar contact received within said slot, said contact having a protrusion extending outward from said first surface for engagement by a lead, a nub extending outward from said second surface for engagement of the spaced terminal, a first hook portion, proximate said protrusion, encircling said first elastomeric element to hold said contact to said first elastomeric element, and a second hook portion, proximate said nub, encircling said second elastomeric element to hold said contact to said second elastomeric element;

(e) wherein, as said protrusion is engaged by a lead, said first and second elastomeric elements deform to permit movement of said contact in directions along two mutually-perpendicular axes, wherein wiping action of said protrusion

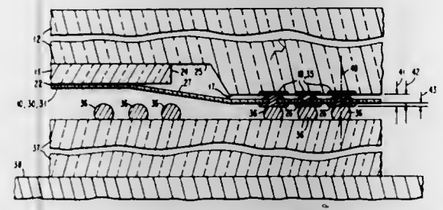
across the lead and said nub across the spaced terminal occurs.

5,207,585

THIN INTERFACE PELLICLE FOR DENSE ARRAYS OF ELECTRICAL INTERCONNECTS

Herbert P. Byrnes, Poughkeepsie; Jean-Marc Halbout, Larchmont; Michael R. Scheuermann, Katonah, all of N.Y., and Eugene Shapiro, Stamford, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 1990, Ser. No. 606,413
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—66 **12 Claims**



1. An apparatus for providing electrical contact between an array of first contacts forming a first rigid probe adapted to transfer force and a corresponding array of raised conductive bumps on an electrical device supported to withstand said force, said array of raised conductive bumps being substantially deformed under said transfer force, comprising:

a flexible membrane having an upper surface and a lower surface, and

an array of electrodes formed in said flexible membrane and extending above said upper surface and below said lower surface along respective longitudinal axes of said electrodes,

each said electrode having a first end extending above said upper surface and a second end extending below said lower surface and a first predetermined length along said respective longitudinal axis,

said first end of said electrode having a plurality of first raised portions for penetrating the surface of said conductive bump to create a plurality of non-contiguous sidewalls having a maximum predetermined depth,

said first end of said electrode having a second recessed portion adjacent and between said first raised portions to limit the penetration of any of said plurality of said first raised portions into the surface of said conductive bump,

said flexible membrane having a thickness to form at times a curved upper and lower surface having a minimum radius of curvature in localized regions and an elasticity to provide for a predetermined elastic deformation of said flexible membrane in localized regions to permit said electrodes to move independently.

5,207,586

INTEGRAL CONNECTOR SYSTEM FOR CREDIT CARD SIZE I/O CARD EXTERNAL CONNECTOR

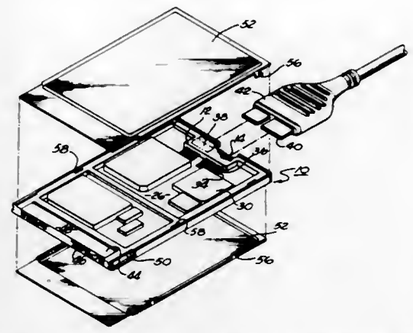
Duncan D. MacGregor, Shingle Springs, and Carl Perkins, Irvine, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 782,210, Oct. 24, 1991, abandoned. This application Sep. 4, 1992, Ser. No. 941,766
Int. Cl.[5] H01R 13/00
U.S. Cl. 439—76 **5 Claims**

1. An electronic card assembly, comprising;

a printed circuit board having a first end, a second end and a pair of edges between said ends, said printed circuit board having a first surface and a second surface;

a frame having a first end section adjacent to said first end of said printed circuit board and a pair of edge sections extending from said first end section and adjacent to said edges of said printed circuit board, said frame further having an integral first electrical connector within said first end section, said first electrical connector being coupled to said printed circuit board;



a second electrical connector attached to said second end of said printed circuit board;

a first cover detachably connected to said frame to enclose said first surface of said printed circuit board; and,

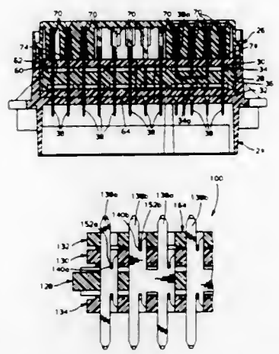
a second cover detachably connected to said frame to enclose said second surface of said printed circuit board.

5,207,587

ELECTRICAL DISTRIBUTION CENTER

Brian D. Hamill, Warren; Theodore R. Schmidt, Kinsman; Aaron D. Monroe, Cortland; Patrick S. Kiraly, Youngstown, and Jay H. Garretson, Warren, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed May 27, 1992, Ser. No. 888,760
Int. Cl.[5] H05K 7/06
U.S. Cl. 439—76 **3 Claims**



1. An electrical distribution center for providing electrical interconnections between electrical and electronic devices and electrical connectors of wiring harnesses comprising:

a main bus plate that includes a plurality of stamped metal circuit components and an insulation board for fixing the stamped metal circuit components in a predetermined pattern, at least one of said stamped metal circuit components being connected to a relatively high current source and having a first plurality of male blade terminals that project outwardly of the insulation board,

others of the stamped metal circuit components having

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second pluralities of male blade terminals that project outwardly of the insulation board and that include wire receiving slots, and

a second bus plate that includes a plurality of wire circuit components of relatively low current carrying capacity and an insulated routing board for fixing the wire circuit components in a predetermined pattern,

the second bus plate having first and second slots that extend through the insulated routing board, said wire circuit components extending across selected ones of said second slots,

said first plurality of male blade terminals of said one of said stamped metal circuit components extending through said first slots of the second bus plate for connection with selected ones of said electrical and electronic components that are located on the opposite side of the second bus plate from the main bus plate, and

the wire receiving slots of selected second male blade terminals receiving the wire circuit components of the second bus plate as the selected male blade terminals pass through said second slots of the second bus plate.

5,207,588

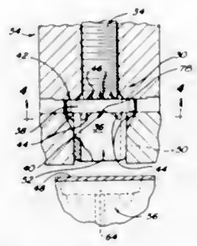
ELECTRICAL GROUNDING STUD

Harold A. Ladouceur, Livonia, Mich., and Rudolf R. M. Mulier, Frankfurt, Fed. Rep. of Germany, assignors to Multifastener Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 491,925, Mar. 12, 1990, Pat. No. 5,092,724, which is a division of Ser. No. 196,209, May 19, 1988, Pat. No. 4,915,558, which is a division of Ser. No. 892,017, Aug. 1, 1986, Pat. No. 4,765,057, which is a division of Ser. No. 773,387, Sep. 6, 1985, Pat. No. 4,633,560, which is a division of Ser. No. 563,833, Dec. 21, 1983, Pat. No. 4,555,838, which is a continuation-in-part of Ser. No. 485,099, Mar. 28, 1983, Pat. No. 4,459,073, which is a division of Ser. No. 229,274, Jan. 28, 1991, abandoned, and a continuation-in-part of Ser. No. 504,074, Jun. 14, 1983, Pat. No. 4,543,701, which is a continuation of Ser. No. 229,274, Jan. 28, 1981. This application Oct. 31, 1991, Ser. No. 786,243

Int. Cl.[5] H01R *4/06, 4/26*

U.S. Cl. 439—84 **28 Claims**



1. An electrical grounding connector for attachment to an electrically conductive panel, said electrical grounding connector of the type having a body portion disposed between, and integrally joining, a stud portion and a riveting portion, said body portion including a flange portion extending generally radially from said body portion, said flange portion having a panel engaging surface and a lug engaging surface, said electrical grounding connector comprising:

a first barb, disposed on at least one of said riveting portion and said panel engaging surface of said flange portion, for conducting electrical current between said electrical grounding connector and said conductive panel when said electrical grounding conductor is forced against said electrically conductive panel;

a second barb, integral with and extending between both said stud portion and said lug engaging surface of said flange portion, for conducting electrical current between said electrical grounding connector and a conductive lug when said conductive lug is forced against said electrical grounding connector.

5,207,589

CURRENT CONDUCTING SYSTEM

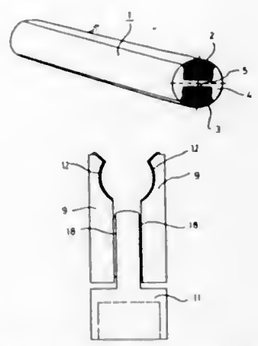
Horst Lettenmayer, Korbinianstrasse 2, Muenchen, Fed. Rep. of Germany

Continuation of Ser. No. 460,901, Sep. 21, 1989, abandoned. This application Oct. 23, 1991, Ser. No. 780,831

Claims priority, application Fed. Rep. of Germany, Jan. 20, 1987, 3701449; Jan. 8, 1988, 3800358

Int. Cl.[5] H01R *25/14*

U.S. Cl. 439—112 **12 Claims**



1. A support and current conductor for an electrical appliance in the form of a current conductor rod, comprising at least two metallic current conductors, the conductors being freely accessible for contacting, and insulated with an insulating material, at least 50% of the cross sectional area of the rod being material of the current conductors, the insulating material and the material of the current conductors forming a surface of the current conductor rod of a uniform circular cross section, the current conductors having freely accessible peripheral surfaces each subtending a peripheral angle which is smaller than a respective peripheral angle of the insulating peripheral surfaces, and at least one retainer clamp for applying an electrical appliance to the current conductor, the retainer clamp having internal contact surfaces for both establishing electrical contact with the current conductors of the rod and for mechanically securing said retainer clamp to said conductor rod and preventing the electrical appliance from moving relative to the rod.

5,207,590

FUSE LOCK OUT

Steven J. Benda, Box 782, Cokato, Minn. 55321

Filed Dec. 2, 1991, Ser. No. 801,030

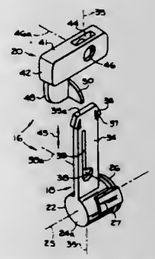
Int. Cl.[5] H01R *13/44*

U.S. Cl. 439—148 **10 Claims**

1. A fuse lock out device for use with a fuse block having a space for mounting a fuse therein, and a clip in the space having fingers biased toward each other for yieldably holding the fuse therebetween, comprising,

a blocking member having a blocking element and an arm extending from the blocking element,

the blocking element being capable of being positioned in said clip and the arm being thereby in a position with the arm extending out of said space, and



a slide slideably positionable on said arm to a locking position in which it engages the clip and thereby locks the blocking element in the clip.

5,207,591

BRANCH JUNCTION BOX AND BUSBARS FOR BRANCH CONNECTION

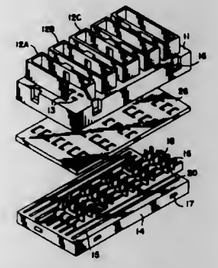
Keiichi Ozaki; Katsuaki Terada, and Shinobu Tahara, all of Kosai, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Division of Ser. No. 841,778, Mar. 2, 1992, Pat. No. 5,160,274, which is a division of Ser. No. 641,423, Jan. 15, 1991, abandoned. This application Jul. 15, 1992, Ser. No. 913,424

Claims priority, application Japan, Jan. 16, 1990, 2-1628[U]; May 2, 1990, 2-46660[U]; Oct. 1, 1990, 2-102253[U]; Oct. 1, 1990, 2-102255[U]; Nov. 6, 1990, 2-115935[U]

Int. Cl.[5] H01R *9/24*

U.S. Cl. 439—212 **1 Claim**



1. A branch junction box comprising:

an upper case and a lower case;

a plurality of connector insertion portions provided on the upper case;

a plurality of parallel busbar accommodating grooves formed in the lower case at equal intervals;

a plurality of busbars each having a first lateral edge thereof installed in a respective said busbar accommodating groove and, at the second lateral edge, having branched tabs projected upwardly therefrom via tab connecting portions into the connector insertion portions;

said tab connecting portions each consisting of: a rising piece extending upwardly from the second lateral edge of the busbar; and a tab connecting piece extending laterally on one side or both sides of the rising piece; said tab connecting pieces are bent at right angles to the plane of the busbar so that the branched tabs on said connecting pieces will protrude sideways from the busbar, the tab connecting pieces being formed with the upwardly projecting branched tabs; and

an insulating plate formed with a plurality of insertion slits at positions corresponding to the tab connecting portions of the busbars to pass and project the branch tabs and tab connecting portions through the insertion slits of the insulating plate, and whereby the insulating plate is then slid laterally relative to the branched tabs to a position where it is securely held between the busbars and the tab connecting portions.

5,207,592

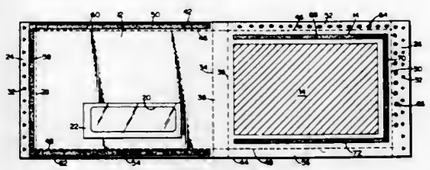
MULTIPLE PART BUSINESS FORM AND RELATED PROCESS

Mark Loch, Whitehall, Pa., assignor to Moore Business Forms, Inc., Grand Island, N.Y.

Division of Ser. No. 780,201, Oct. 22, 1991, Pat. No. 5,154,344. This application May 12, 1992, Ser. No. 881,864

Int. Cl.[5] B31B *41/74*

U.S. Cl. 493—216 **11 Claims**



1. A method of manufacturing a business form product comprising the steps of:

(a) advancing an elongated web along a predetermined path, said web divided longitudinally with first and second side-by-side plies, said plies having longitudinally and transversely extending margins;

(b) applying first adhesive lines along three sides of said second ply and providing a third ply overlying said second ply and in registry with said adhesive lines to thereby form a return envelope comprising said second and third plies; and

(c) applying second adhesive lines along two sides of said second ply, outside said first adhesive lines and providing a fourth ply overlying said second and third plies and in registry with said second adhesive lines to thereby form a removable insert for said business form product.

5,207,593

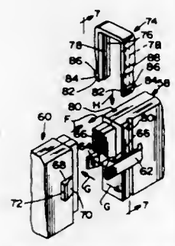
LATCH RELEASE MECHANISM FOR MATING ELECTRICAL CONNECTORS

Steven B. Bogiel, Schaumburg, Ill., assignor to Molex Incorporated, Lisle, Ill.

Continuation of Ser. No. 792,538, Nov. 13, 1991, abandoned. This application Aug. 18, 1992, Ser. No. 931,885

Int. Cl.[5] H01R *13/629*

U.S. Cl. 439—352 **2 Claims**



1. In a latch-release mechanism for a pair of electrical connectors movable toward each other in a mating direction into a mated condition, including a latching device on one of the electrical connectors for latchingly engaging latch means on the other electrical connector in response to movement of the connectors into said mated condition, the improvement com-

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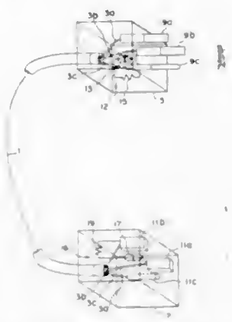
prising a latching device comprising a spring arm biased into latching engagement with the latch means, release means separate from the connector movable between a locking and unlocking position for releasing the latching device from latching engagement with the latch means in response to movement of the latching device generally perpendicular to said mating direction to the unlocking position, said release means held in the locking position by a ramp on the release means in contact with the spring arm, said release means movable generally perpendicular to said mating direction and comprising a releasing device slidably mounted on the one electrical connector whereby moving the release means to the unlocking position will move the spring arm out of latching engagement with the latch means in response to movement of the latching device generally perpendicular to said mating direction.

5,207,594

ELECTRICAL POWER EXTENSION CORD

Thomas R. Olson, 2109 I St., Laporte, Ind. 46350

Filed Sep. 18, 1991, Ser. No. 761,482
Int. Cl.[5] H01R *13/717*
U.S. Cl. 439—490 23 Claims



1 An elongated electrical power extension cord comprising:
a translucent first body having a plurality of conductive prongs projecting from said first body;
a translucent second body having a plurality of conductive receptacles extending into said second body;
said prongs and said receptacles are arranged in a corresponding pattern such that said first body is adapted to be mated with said second body;
an elongated flexible cable means for extending between and electrically connecting corresponding ones of said prongs and said receptacles, said elongated cable means having a plurality of conductors, and
illumination means for indicating the presence of a desirable electrical condition, said illumination means are embedded within both said first and second bodies.

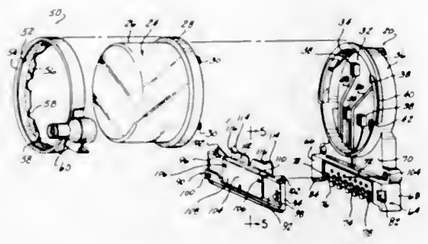
5,207,595

WATTHOUR METER SOCKET ADAPTER WITH LOCKABLE TERMINAL COVER AND SEALING RING

Robert O. Learmont, Walled Lake; Darrell A. Robinson, Highland; Albert K. Langdon, Rochester Hills; Allen V. Pruchs, Howell, and Robert Goozen, St. Clair, all of Mich., assignors to Ekstrom Industries, Inc., Farmington Hills, Mich.

Filed Jan. 28, 1992, Ser. No. 826,804
Int. Cl.[5] H02B *1/00*
U.S. Cl. 439—517 19 Claims

1 A watthour meter socket adapter for use with a watthour meter having terminals and an annular mounting flange, the socket adapter comprising:
a housing, the housing including
a base;
a watthour meter receiving portion having a peripheral side wall extending from the base and terminating in an outwardly extending, annular rim;
a plurality of electrical contacts mounted on the base within the watthour meter receiving portion, each electrical contact receiving a terminal of the watthour meter in a snap-in connection;
a terminal portion connected to and spaced from the watthour meter receiving portion;
a plurality of electrical terminals mounted on the terminal portion;
electrical conductors connected between the contacts in the watthour meter receiving portion and the terminals in the terminal portion;
the terminals providing electrical connections between external electrical conductors extending into the terminal portion and the electrical conductors connected to the contacts;
a sealing ring lockingly mountable over the annular rim on the housing and the annular flange on the watthour meter to lock the watthour meter to the housing;
a single, unitary terminal cover removably attachable to the terminal portion of the housing for continuously covering the electrical connections of the terminals in the housing to the electrical conductors; and
means, mounted on the terminal cover and extending therefrom into proximity with the peripheral side wall of the watthour meter receiving portion and the sealing ring when the terminal cover is mounted on the terminal portion of the housing, for non-removably retaining the terminal cover on the housing when the sealing ring is lockingly mounted on the housing and the watthour meter

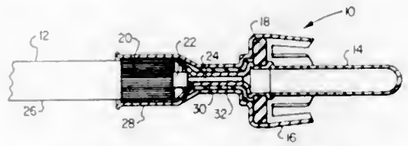


5,207,596

SOLDERLESS COAXIAL WIRE CONNECTOR AND METHOD FOR ATTACHMENT

Nam D. Tran, Fort Worth, Tex., assignor to Tandy Corporation, Fort Worth, Tex.

Filed Mar. 19, 1992, Ser. No. 853,666
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—585 23 Claims



1 An improved solderless coaxial cable connector for attaching to a coaxial cable having a center wire, a center wire insulating barrier, an outer conductive shielding wire, and an outer insulative jacket, the cable connector comprising at a first end a center conductor pin for providing an electrically conductive path for said center wire, at a middle section an outer conductor shell for providing an electrically conductive path for said shielding wire, and an annular dielectric mounted

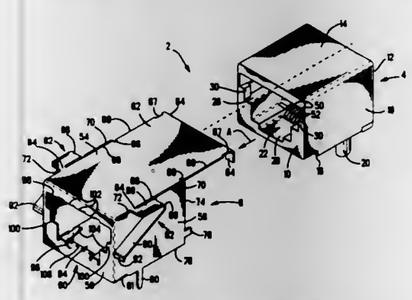
to said center conductor pin to insulate said conductor pin from said outer conductor shell, the improvement comprising:
at a second end, an inner wire receptor, electrically coupled to said center conductor pin, having a guide portion for receiving and guiding said center wire, said guide portion having a tapered first end and a second end wider than said first end, and a holding portion for mechanically and electrically securing said center wire, said first end of said guide portion connected to said holding portion;
at said second end, an outer wire receptor, electrically coupled to said outer conductor shell, for mechanically and electrically securing said shielding wire; and
at said second end, an insulator receptor for electrically insulating said center wire and said inner wire receptor from said shielding wire and said outer wire receptor.

5,207,597

SHIELDED CONNECTOR WITH DUAL CANTILEVER PANEL GROUNDING BEAM

Richard S. Kline, Harrisburg, and James Pritulsky, Hummelstown, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 21, 1991, Ser. No. 719,279
Int. Cl.[5] H01R *13/648*
U.S. Cl. 439—607 23 Claims



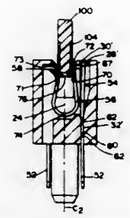
1. A shielded electrical connector, comprising:
an insulating housing having a mating end, a rearward end, upper and lower side walls, and oppositely facing end walls, connecting said mating end with said rearward end, the housing defining an internal cavity opening onto said mating end for receiving a mating electrical connector;
electrical contacts secured in said housing and having mating portions projecting into said cavity and connecting portions projecting from said lower side walls; and
a one piece metal shield having an upper side wall covering the upper side wall of the housing, opposite end walls each covering a respective end wall of the housing, a front wall covering the mating face of said housing and having an opening therethrough providing access to said cavity for said mating connector, a lower side wall projecting beneath part of the lower side wall of the housing, and a rear wall flap hingedly connected to the rear end of the upper side wall of the shield and covering the rearward end of the housing,
said shield including a pair of cantilever arms each connected to a respective lateral edge of the upper side wall and each having a contact surface proximate to the front wall of the shield, and
each said cantilever arm has a first rectilinear portion connected by way of a neck to the lateral edge of the respective upper side wall of the shield and extending rearwardly thereof alongside said lateral edge, and a second rectilinear portion connected to said first portion by way of a bight and extending forwardly of the shield and beneath said first portion, the contact surface of the arm being formed on a free end of said second portion.

5,207,598

EDGE CARD CONNECTOR

Shoji Yamada, Machida, and Yoshihisa Yamamoto, Yokohama, both of Japan, assignors to Molex Incorporated, Lisle, Ill.

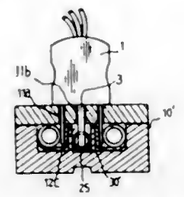
Filed Feb. 24, 1992, Ser. No. 840,421
Int. Cl.[5] H01R *23/70*
U.S. Cl. 439—636 26 Claims



1. A push/pull edge card connector for providing an electrical connection between a first plurality of contacts on a primary circuit member and a second plurality of contacts on a printed circuit card, the circuit card having a plurality of contacts disposed on an edge thereof, the circuit card edge being insertable into and removable from the connector, said circuit card being generally planar in nature and having first and second circuit faces, each of the first and second circuit faces having a row of circuit card contacts generally parallel to and adjacent an edge of said circuit card, one card contact of each row being laterally aligned with and electrically connected to a card contact of the other row to establish a pair of aligned contact pads, and wherein said connector includes means for mounting said connector to the primary circuit member, said connector comprising:
a generally elongated connector housing formed from an electrically insulative material, the connector housing having a lower face adapted for positioning adjacent said primary circuit member and an upper face spaced-apart therefrom having an elongated card slot disposed therein and extending between two opposing end portions of said connector, the card slot being adapted to receive said circuit card edge therein in an electrically operative manner, the connector housing further including a plurality of contact-receiving cavities spaced apart along said card slot and at least partially in communication therewith, said card slot having a predetermined longitudinal centerline;
a stamped and formed resilient contact terminal disposed in each of said contact-receiving cavities, each contact terminal including a tail for electrically and mechanically interconnecting said contact terminal to one of said first plurality of contacts on said primary circuit member, a positioning portion integrally joined to the tail portion at one end of said positioning portion and a generally U-shaped circuit card-receiving portion integrally joined to the positioning portion at a second end of said positioning portion, the positioning portion including a cantilevered member extending within said contact cavity and being deflectable within said contact cavity, the card-receiving portion including first and second spring arms, contact portions of the first and second spring arms protruding into said card slot for slidingly engaging said contact pads upon insertion of said circuit card into said elongated slot, each said contact terminal having a width in a direction parallel to the longitudinal centerline of said card slot substantially greater than the thickness of the material from which it is formed; and
said housing being configured and said contact terminals being positioned in said contact-receiving cavities such that said tail portions of adjacent contact elements are positioned on opposite sides of said longitudinal centerline of said elongated slot to define a staggered pattern.

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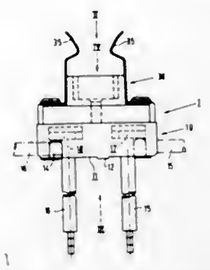
5,207,599
STRUCTURE OF AN ELECTRIC SOCKET
Chieo-Lin Chung, Suite 1, 11F, No. 95-8 Chang Ping Rd. Sec. 1, Taichung, Taiwan
Filed Jun. 26, 1992, Ser. No. 904,691
Int. Cl.[5] H01R 25/00
U.S. Cl. 439—650 6 Claims



1. An electric socket for engagement with an electric plug comprising:
an insulative housing having at least two cavities formed therein, said housing having apertures for the passage of a plurality of prongs of said electrical plug formed at predetermined positions thereon, each aperture being in communication with a respective cavity;
a terminal plate disposed in each said cavity, said terminal plate having a vertical portion substantially aligned with a direction of insertion of a prong in an associated cavity of said housing and a transverse portion adjoined with said vertical portion of said terminal plate and disposed in a lower portion of the associated cavity;
a conductive helical spring element positioned against each said terminal plate in an associated cavity of said housing, and being in electrical communication with said terminal plate, with the axis of said spring element being substantially perpendicularly oriented with respect to the direction of insertion of one said prong, said spring element having its turns in abutment with the vertical portion of said terminal plate; and said terminal plate generally pantile shaped with the vertical portion thereof having an inflected terminal edge for guiding the insertion of a prong, and the transverse portion being of arcuate section of a curvature substantially equal with that of said spring element in abutment with said transverse portion of said terminal plate;
whereby, upon an insertion of a prong of said plug into a corresponding cavity through an associated aperture of said housing, the prong is firmly wedged between said spring element and the vertical portion of said terminal plate for an electrical connection between said prong and said terminal plate.

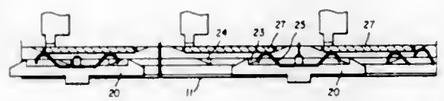
5,207,600
LAMPHOLDER FOR A HIGH-PRESSURE GAS DISCHARGE LAMP
Hendrikus A. M. Van Dulmen, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Sep. 6, 1991, Ser. No. 755,928
Claims priority, application Netherlands, Sep. 28, 1990, 9002123
Int. Cl.[5] H01R 13/10
U.S. Cl. 439—682 8 Claims

1. A lampholder for a high-pressure gas discharge lamp comprising
a housing of electrically insulator material in which a first contact member and a second contact member are enclosed,
which housing comprises a base part having a mounting surface, and a cover part which is provided with contact openings for affording access to respective contact members, the base part having cable openings for guiding electric cables to respective contact members, and
which housing comprises a partition wall which extends inside and outside the housing between the contact openings and divides a space in the housing into chambers for the respective contact members, characterized in that
the cover part and the base part form a curved channel for each of the cables to a respective contact member, and



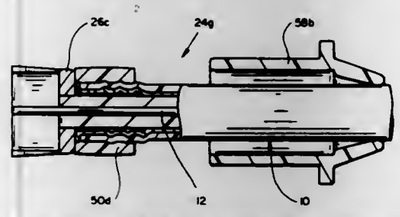
the cover part is integral with the partition wall, while the base part has a recess which is opposite to the cover part and into which the partition wall projects, and characterized in that
the partition wall forms a raised edge around each of the contact openings outside the housing.

5,207,601
DEVICE FOR MECHANICAL AND ELECTRICAL ASSEMBLY OF MINIATURE MOLDED CASES
André Vasseur, Soignies; Claude Maton, Charleroi, and Alain De Myttenaere, Brussels, all of Belgium, assignors to Merlin Gerin, Meylan, France
Filed May 5, 1992, Ser. No. 878,458
Claims priority, application France, May 16, 1991, 91 05995
Int. Cl.[5] H01R 9/22
U.S. Cl. 439—715 5 Claims



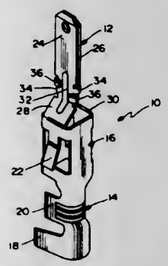
1. A device for assembling two adjacent mold cases, each case housing a miniature electrical switchgear having a circuit, notably a control circuit, and two external connection terminals connected to the circuit, said device comprising:
a fast-fixing connecting runner having protruding parts which overlap an interface of the two cases in an active position, and whose protruding parts on both sides of said interface are each secured to one of the cases to mechanically assemble the two cases;
wherein said runner includes a slide member made of insulating material and an electrical contact bridge, and each of said cases includes contact pads, which face said protruding parts of said runner, are connected to said external connection terminals, and cooperate with said electrical contact bridge to achieve an electrical connection between said contacts pads in said active position, and slides, arranged in said cases on narrow side faces thereof, in which said runner is slidingly mounted; and
wherein said slides include protrusions for clip-fastening of said protruding parts of said runner.

5,207,602
FEEDTHROUGH COAXIAL CABLE CONNECTOR
Corey McMills, Los Altos; John Mattis, Sunnyvale; John A. Ross, Fremont, and Jeff Sampson, Redwood City, all of Calif., assignors to Raychem Corporation, Menlo Park, Calif.
Continuation of Ser. No. 509,669, Apr. 19, 1990, Pat. No. 5,127,853, which is a continuation-in-part of Ser. No. 434,068, Nov. 8, 1989, abandoned, which is a continuation-in-part of Ser. No. 364,717, Jun. 9, 1989, abandoned. This application Jun. 11, 1992, Ser. No. 897,621
Int. Cl.[5] H01R 4/52
U.S. Cl. 439—836 9 Claims



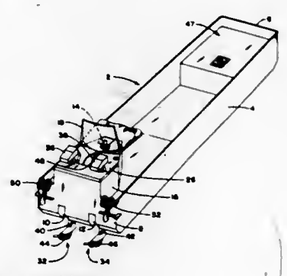
1. A feedthrough coaxial cable connector for connecting to a prepared end of a coaxial cable having an exposed solid-wire center conductor and a cable splice or tap port jack receptacle, the connector comprising: a split tubular radial walled portion forming a receptacle engagement member which surrounds the cable splice or tap port receptacle and is coaxially disposed about the exposed center conductor and dimension to slide onto and contact in close fitting friction engagement an outer surface of the cable splice or tap port receptacle with which the connector mates in use, and a resiliently deformable elastomeric radial compression member to snugly fit over the split tubular wall portion and provide compression on the split tubular member and hoop strength thereto and to protect the split tubular radial walled portion while holding the split tubular radial walled portion on the cable splice or tap port receptacle, the resiliently deformable elastomeric radial compression member sliding along the cable to fit over the split tubular radial wall portion, the radial compression member also assisting in retaining the cable on the cable connector.

5,207,603
DUAL THICKNESS BLADE TYPE ELECTRICAL TERMINAL
Kirk B. Peloza, Wheaton, Ill., assignor to Molex Incorporated, Lisle, Ill.
Filed Jun. 2, 1992, Ser. No. 892,087
Int. Cl.[5] H01R 13/02
U.S. Cl. 439—884 17 Claims



1. In a stamped and formed metal electrical terminal which includes a male contract blade at one end for being received in a complementary female contact member, a conductor terminating portion at an opposite end, and an intermediate section between the male contact blade and the conductor terminating portion, wherein the improvement comprises said male contact blade including a pair of juxtaposed flat blade portions each interconnected directly to the intermediate section by a respective connecting wall to establish direct electrical continuity between the blade portions and the intermediate section and, at least one tab extending from an edge of at least one flat blade portion and bent over the other flat blade portion to prevent the blade portions from separating.

5,207,604
BOAT AND STEERING ASSEMBLY
David A. McMillin, 9674 W. Coronado, Baton Rouge, La. 70815
Filed Apr. 21, 1992, Ser. No. 871,818
Int. Cl.[5] B63H 21/26
U.S. Cl. 440—62 7 Claims



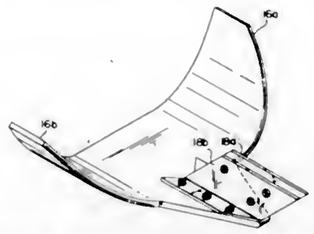
7. A boat, comprising:
a hull;
a seat mounted within said hull;
steering means, operably connected to said seat, for steering said hull including a first and second circular member;
motor means, operably connected to said steering means, for providing propulsion to said hull, said motor means containing thereon a shaft, with said shaft being disposed within said second circular member;
cable means, interconnecting said first and second circular member, for imparting rotative movement from said first circular member to said second circular member; wherein said first circular member comprises a disc with a bored aperture contained therein, said disc having a first side, a second side, and a rimmed periphery, said rimmed periphery containing said cable means, said first side being rotatively connected to the hull of the boat, and said second side containing a squared removed portion being in communication with the aperture; and
an insertion member having a first end and a second end, said first end being operably associated with said seat and said second end having disposed thereon an octagon base sized so that four sides of the octagon base are in contact with the four sides of the squared removed portion of the second side of said disc.

5,207,605
OUTBOARD PROPELLER GUARD
Kenneth Kroeber, 157 Flamingo Rd., Edgewater, Fla. 32141
Filed Mar. 6, 1992, Ser. No. 847,825
Int. Cl.[5] B63H 5/16
U.S. Cl. 440—71 4 Claims

1. In combination with an outboard motor or the out drive of an inboard/outboard motor wherein said motor has a generally vertically oriented housing supporting a propeller on a generally horizontally oriented axis of rotation, and wherein the housing further includes a depending skeg provided in a vertical plane below and forward of the propeller, which skeg has a downwardly and rearwardly inclined leading edge, the improvement comprising a propeller guard arranged below the rotating propeller, said guard including left and right wing-like projections extending outwardly from the skeg, said left and right wing-like projections having a center wing segment

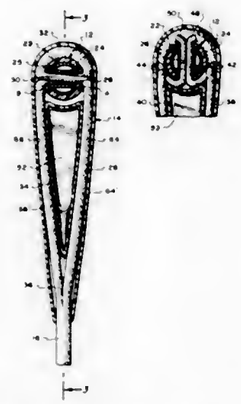
VOL 1150 ISS 1 MY 4 1993 UMI

oriented generally horizontally, which horizontal center wing segment has a severely swept leading edge, said left and right wing-like projections having upturned outer wing segments that cooperate with said wing center segment to define a generally U-shaped wing panel provided generally circumaxially of the lower portion of the rotating propeller, said upturned wing outer wing segments being less severely swept providing concave leading edges thereof, which concave leading edges



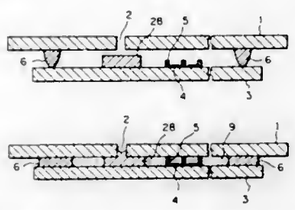
are rounded so as to be deflected by any foreign object coming in contact therewith, said center and outer wing segments being fabricated from a thermoplastic material of flexible and resilient characteristics so as to assure that following any such deflection the wing-like projections tend to assume their original shape, and bracket means comprising two L-shaped members, each L-shaped member having a first flange abutting said skeg and secured thereto, and said bracket means further including second flanges secured to said center wing segment.

5,207,606
ANTI-ROLL SKI TOW LINE
Alan K. Pittman, 6644 Smoketree Ave., Agoura, Calif. 91301
Continuation of Ser. No. 441,909, Nov. 28, 1989, Pat. No. 5,052,964. This application Jul. 2, 1991, Ser. No. 724,829
The portion of the term of this patent subsequent to Oct. 1, 2008, has been disclaimed.
Int. Cl.[5] B63B *21/56*
U.S. Cl. 441—69 **13 Claims**



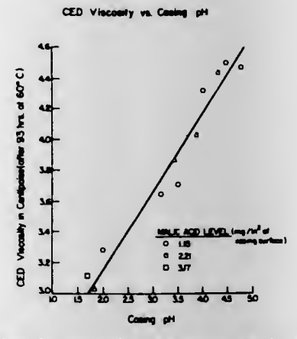
1. A water ski tow line comprising;
a handle having an axis, said handle having holes through each end, said holes being oriented in a plane through the axis of said handle;
a tow line tied to each end of said handle by being threaded through each of said holes to form a connection at each end of the handle of two lines extending away from tangent points on the opposite sides of said handle;
said tow line being tied to the handle by being looped around the back of the handle, the respective ends of the line being threaded parallel to each other through said holes and extending from tangent points on opposite sides of the handle;
said two lines being joined at a splice a substantial distance from said handle forming a loop;
whereby said two lines provide anti-roll torque on opposite sides of said handle to prevent rotation.

5,207,607
PLASMA DISPLAY PANEL AND A PROCESS FOR PRODUCING THE SAME
Shinichirou Nagano; Takashi Yamanaka, and Osamu Uchiyama, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 14, 1990, Ser. No. 627,466
Claims priority, application Japan, Apr. 11, 1990, 2-9558I; Aug. 29, 1990, 2-227395
Int. Cl.[5] H01J *9/26*
U.S. Cl. 445—25 **1 Claim**



1. A process for producing a plasma display panel comprising the steps of:
preparing a first panel member and a transparent second panel member, one of said panel members carrying a sealing material along its edge, one of said panel members having at least one port formed therethrough, while the other of said panel members carries at least one blocking member positioned to register with said port when said first and second panel members are brought adjacent to each other and having a height which is smaller than said sealing material, and which is larger than the prospective final distance between said two panel members;
placing said first and second panel members in a parallel and spaced apart relation to each other, so that said sealing material contacts the other of said panel members to define an enclosure between said panel members while said blocking member faces said port and stays within said enclosure;
evacuating said enclosure;
filling said enclosure with a discharge gas;
heating the whole structure defined by said first and second panel members and said blocking member to soften said sealing material so that said softened material joins said panel members along the edges and forms a gas-tight seal therebetween;
while softening said blocking member so that said softened member forms a gas-tight closure of said port in the first of a solidified product which has been solidified in sealing engagement with the interior surface of said one panel member surrounding said port and with the interior surface of the other of said panel members opposite the location of said port, whereby the interior surface of said one panel member surrounding said port is sealingly attached to the interior surface of the other of said panel members through said blocking member around said port.

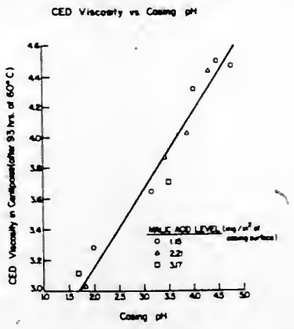
5,207,608
BUFFERED ACID-TREATED FOOD CASING
Jeffery A. Oxley, Naperville; Jerome J. M. Rasmussen, Burbank, both of Ill.; James E. Draper, Midvale, Utah; Thomas J. Maan, Bolingbrook, and Brian R. Samuels, Frankfurt, both of Ill., assignors to Viskase Corporation, Chicago, Ill.
Division of Ser. No. 420,854, Oct. 13, 1989, Pat. No. 5,108,804. This application Mar. 12, 1992, Ser. No. 851,385
Int. Cl.[5] A22C *13/00*
U.S. Cl. 452—27 **18 Claims**



1. A method for producing raw unprocessed pork-containing product with a denatured frozen outer skin, comprising the steps of:
a) providing a cellulosic food casing having pH of at least about 5;
b) uniformly impregnating the casing wall with an aqueous completely dissolved mixture of an acid and a buffer for said acid in quantity sufficient to reduce the casing pH to the range of between about 3.5 and about 4.8, said mixture comprising the casing sole peeling aid;
c) shirring the acid-buffer mixture impregnated casing;
d) deshirring and stuffing raw pork-containing emulsion in said acid-buffer mixture impregnated casing in direct contact with the casing inner surface;
e) denaturing the outer surface of the raw pork-containing emulsion to form a denatured outer skin by contact with said acid-buffer mixture in the casing wall;
f) cooling the raw pork-stuffed casing so as to freeze at least the denatured outer skin of the raw pork-containing emulsion; and
g) peeling the casing from the raw pork-containing emulsion frozen and denatured outer skin without further acid treatment.

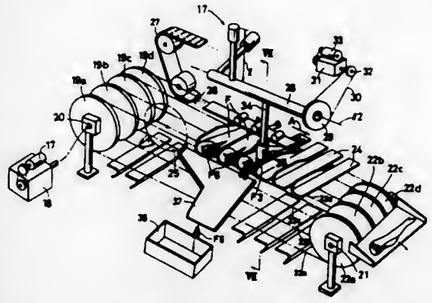
5,207,609
BUFFERED ACID-TREATED FOOD CASING
Jeffery A. Oxley, Naperville; Jerome J. M. Rasmussen, Burbank, both of Ill.; James E. Draper, Midvale, Utah; Thomas J. Mann, Bolingbrook, and Brian R. Samuels, Frankfurt, both of Ill., assignors to Viskase Corporation, Chicago, Ill.
Division of Ser. No. 420,854, Oct. 13, 1989, Pat. No. 5,108,804. This application Mar. 12, 1992, Ser. No. 851,383
Int. Cl.[5] A22C *13/00*
U.S. Cl. 452—27 **16 Claims**

1. A raw unprocessed pork-containing product having a denatured outer skin comprising a moisture-containing cellulosic casing uniformly impregnated in its wall with a mixture of an acid and buffer for said acid, which mixture is completely dissolved in the casing moisture and present in sufficient quantity to maintain the casing pH in the range of between about 3.5 and about 4.8 with said mixture comprising the casing sole peeling aid in said wall, said casing being stuffed with raw unprocessed pork-containing mass with the outer skin of said mass thereafter being denatured by contact with the acid-buffer mixture in the casing wall and at least said outer skin of said mass being frozen, said casing being peelable from the



denatured pork-containing mass frozen outer skin without further acid treatment or thermal processing.

5,207,610
APPARATUS FOR REMOVING ROE
Yutaka Ogawa, Ibaraki, Japan, assignor to Nippon Fillestar Co., Ltd., Osaka, Japan
Filed Mar. 3, 1992, Ser. No. 845,249
Int. Cl.[5] A22C *25/00*
U.S. Cl. 452—110 **9 Claims**



1. A roe removing apparatus comprising:
means for conveying decapitated fish bodies in a downstream conveying direction; and
means for elastically pressing an abdomen area of each fish body on said conveying means, from a tail end thereof to a neck end thereof, and thereby for forcing roe outwardly of the fish body through the neck end thereof, said pressing means comprising:
a rotary shaft rotatably mounted to be driven about a horizontal rotary axis inclined to said conveying direction and diverging therefrom in a direction downstream thereof and from tail ends to neck ends of fish bodies on said conveying means;
a cylindrical base element having therethrough a central passage through which extends said rotary shaft, said base element being fixed to said rotary shaft;
a plurality of pressing members fixed to an outer circumference of said base element and extending radially outwardly thereof; and
a cover member formed of flexible and elastic material and mounted to surround said plurality of pressing members.

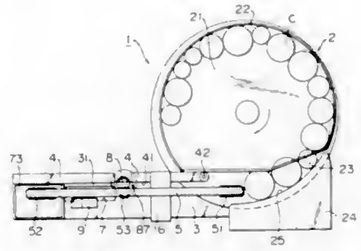
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,611

COIN SORTING APPARATUS

Nobuo Ueda, Sakae; Tatsuo Okita, Itami; Mikio Suzuki, Waizumi; Yasunori Ikemoto, and Hiroyuki Shibao, both of Osaka, all of Japan, assignors to Laurel Bank Machines Co., Ltd., Tokyo, Japan

Filed Jul. 16, 1991, Ser. No. 730,997
Claims priority, application Japan, Jul. 16, 1990, 2-187491
Int. Cl.[5] G07D *3/14*
U.S. Cl. 453—011 12 Claims



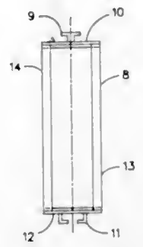
1. A coin sorting apparatus comprising:
coin sending out means for receiving a plurality of various kinds of coins and sending out the coins one by one therefrom;
a coin guideway extending from the coin sending out means;
a guide rail having a guiding edge extending in the direction along which the coins are fed and disposed normal to the guideway;
a coin feeding belt for pressing the coins sent out from the coin sending out means against the guideway to feed the coins with a portion thereof kept in contact with the guiding edge;
coin identifying means for grouping the coins fed by the feeding belt into a first and a second group in accordance with the face values of the coins;
separating means having a sort-out opening disposed on the guideway apart from the guiding edge and extending in the coin feeding direction, said means separating the coins into the first and the second groups by dropping the coins belonging to the first group into the sort-out opening and feeding the coins belonging to the second group by the feeding belt, said second group coins straddling over the sort-out opening when being fed, in accordance with the determination by the coin identifying means;
a semicircular member having a planar surface and an arc surface, said semicircular member capable of rotating between a first position wherein said planar surface is disposed substantially in the plane defined by the guiding edge and the arc surface is disposed within the guide rail and a second position wherein said planar surface is disposed normal to the guiding edge and said arc surface faces upstream of the coin feeding direction, said semicircular member rotating from the first position to the second position when the first coin group is fed to collide with said semicircular member so as to diverge the coin away from the guiding edge so that the circumferential end of the coin closest to the guiding edge is disposed on the sort-out opening, said semicircular member returning to the first position when the coin passes the semicircular member;
said sort-out opening being arranged so that the sum length of the length measured from the guiding edge to an edge of the sort-out opening and the width of the sort-out opening is smaller than the smallest diameter among the coins to be sorted by the coin sorting apparatus,
the sort-out opening extending from upstream of the semicircular member.

5,207,612

COIN BANDER

Graham Wollaston, 2415 Tangly #20, Houston, Tex. 77005

Filed Sep. 5, 1991, Ser. No. 755,089
Int. Cl.[5] G07D *9/06*; B65D *65/04*
U.S. Cl. 453—61 11 Claims



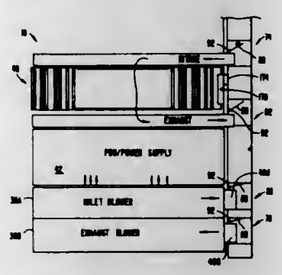
1. A coin bander for holding and storing coins of a predetermined specific number and a specific denomination of coins of a specific national currency wherein one said coin bander may be slidably attached to another coin bander comprising
a round rigid first end with a specific diameter;
a round rigid second end with the same specific diameter as said round rigid first end;
a T slide latch wherein said T slide latch is essentially in the shape of a T and wherein said T is suitably fixed to said round rigid second end;
a U slide larch wherein said U slide latch is essentially in the shape of a U and wherein said U slide latch is suitably fixed to said second rigid end;
a first flexible band having a specific length with a first end and a second end and further having a specific width and wherein said specific width is shaped to the same said diameter as said round rigid first end and said round rigid second end;
a second flexible band having the same specific length as said first flexible band and wherein said second flexible band has a first end and a second end and the same specific width as the said first flexible band and wherein specific width is shaped to the same said specific diameter as said round rigid first end and said round rigid second end;
wherein said first end of said first flexible band is suitably fixed to said round rigid first end at the outermost diameter of said round rigid first end and said second end of said first flexible band is further fixed to said round rigid second end at the outermost diameter of said round rigid second end, and wherein said first end of said second flexible band is fixed to said round rigid first end directly opposite of said first flexible band at the outermost diameter of said round rigid first end, and said second end of said second flexible band is fixed to said round rigid second end, wherein said specific coins of a specific denomination and currency are placed between and perpendicular to said first flexible band and said second flexible band and wherein said coins are further placed between said round rigid first end and said round rigid second end and wherein when the predetermined specific number of coins are placed between the first rigid end and the second rigid end and the first flexible band and the second flexible band, the said coins are further pressed together forming a rigid shaft of said coins banded together by said coin bander and where one said rigid shaft of said coins is further suitably attached to another rigid shaft of said coins by sliding said T slide latch into said U slide latch thus fixing one said rigid shaft of coins banded together in a said coin bander to another said rigid shaft of coins banded together in a coin bander.

5,207,613

METHOD AND APPARATUS FOR MOUNTING, COOLING, INTERCONNECTING, AND PROVIDING POWER AND DATA TO A PLURALITY OF ELECTRONIC MODULES

Joerg Ferchau, Morgan Hill, and Victor Trujillo, Fremont, both of Calif., assignors to Tandem Computers Incorporated, Cupertino, Calif.

Filed Jul. 8, 1991, Ser. No. 726,616
Int. Cl.[5] H05K *7/20*
U.S. Cl. 454—184 17 Claims



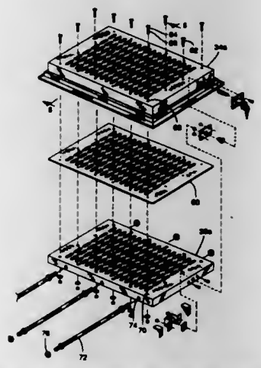
1. An apparatus for cooling an electronic module comprising:
a housing defining a chamber, the housing having a first cooling fluid opening in fluid communication with the chamber for communicating cooling fluid between the chamber and the electronic module and a plurality of second cooling fluid openings in fluid communication with the chamber, each second cooling fluid opening being adapted for communicating cooling fluid between the chamber and a cooling module; and
cooling module valve means, disposed at each second cooling fluid opening, for allowing the flow of cooling fluid through the second cooling fluid opening when a cooling module is disposed at the second cooling fluid opening and for preventing the flow of cooling fluid through the second cooling fluid opening when the cooling module is not disposed at the second cooling fluid opening.

5,207,614

CLEAN ROOM AIR SYSTEM

Albert M. Passadore, Aloha, Oreg., assignor to Brod & McClung - Pace Company, Portland, Oreg.

Filed Nov. 7, 1991, Ser. No. 789,091
Int. Cl.[5] F24F *13/12*
U.S. Cl. 454—298 8 Claims



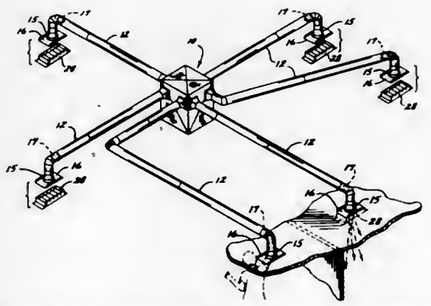
1. A damper for a clean room ventilation system comprising:
a first plate provided with a plurality of perforations;
a second plate provided with a plurality of perforations, the second plate mounted to the first plate and movable between a first positions in which the perforations of the first plate are aligned with the perforations of the second plate and a second position in which the perforations of the first plate are not aligned with the perforations of the second plate; and
a gasket plate provided with a plurality of perforation, the gasket plate interposed between the first and second plates to restrict the flow of air between the first and second plates.

5,207,615

DAMPER ASSEMBLY FOR AIR PLENUM SYSTEM

John H. Edmisten, P.O. Box 2028, Boone, N.C. 28607

Filed Oct. 28, 1991, Ser. No. 783,132
Int. Cl.[5] F24F *13/06*
U.S. Cl. 454—322 9 Claims



1. An air plenum system adapted to provide a predetermined air flow through each of several outlets, and comprising
a central air plenum,
a plurality of air duct lines running outwardly from said central air plenum, which each of said air duct lines including a peripheral wall and an outlet end, and
an air damper assembly positioned in each of said air duct lines for controlling the rate of air flow therethrough from each said central air plenum, each of said air damper assemblies comprising a plate positioned in the air duct line and having an outline which generally conforms to the outline of the peripheral wall of the air duct line, a pair of rods mounted coaxially to opposite sides of the plate and defining a pivot axis, with said rods extending through aligned openings in the peripheral wall of the air duct line so as to permit pivotal movement of said plate about said pivot axis between a closed position substantially transverse to the air duct line and an open position substantially aligned with the air duct line, and pivotal resistance means mounted on at least one of aid rods for restraining pivotal movement of the plate and so as to permit such movement only upon the application of a predetermined external force thereto, said pivotal resistance means comprising external threads on said one rod, at least one first wave washer positioned on said one rod outside of said air duct line, a collar fixed to said one rod between the plate and the peripheral wall, and at least one second wave washer positioned on said rod between said collar and the peripheral wall, and means for pressing said wave washers against the peripheral wall comprising a nut threadedly mounted on said washer, and wherein said plate is located a predetermined distance spaced from said outlet end of the air duct line and so as to permit a person to manually reach through said outlet end and physically pivot the plate to a desired rotational setting.

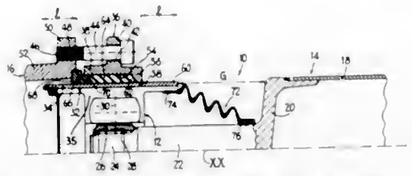
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,616

TRANSMISSION JOINT, PART OF A TRANSMISSION LINE EQUIPPED WITH SUCH A JOINT AND PROCESS FOR INSTALLING A JOINT

Francois Moulinet, Triel sur Seine, France, assignor to Glaenzer Spicer, Poissy, France

Filed Apr. 26, 1991, Ser. No. 692,446
Claims priority, application France, Apr. 27, 1990, 90 05436
Int. Cl.[5] F16D *3/202, 3/84*
U.S. Cl. 464—111 12 Claims



1 A part of a motor-vehicle transmission line comprising a transmission shaft equipped at each of its ends with a transmission joint, said joint including a first element connected to a first shaft and mounted in an articulated manner in a second element forming a housing and fastened to a transmission member, said housing including a radial fastening flange mounted axially slidably relative to an outer casing of the housing and means for immobilizing the fastening flange axially relative to the outer casing of the housing when the second element is in the fixed position on the transmission member.

11. A process for installing a transmission joint comprising:

a) providing a transmission joint including a first element connected to a first shaft and mounted in an articulated manner in a second element forming a housing and fastened to a transmission member, said housing including a radial fastening flange mounted axially slidably relative to an outer casing of the housing and means for immobilizing the fastening flange axially relative to the outer casing of the housing when the second element is in the fixed position on the transmission member;

b) temporarily immobilizing the housing relative to the first element in a predetermined axial position;

c) allowing the housing to position itself freely relative to the fastening flange;

d) immobilizing the fastening flange axially relative to the housing; and

d) freeing the housing relative to the first element.

5,207,617

HYDRAULIC CONTROL APPARATUS FOR CONTINUOUSLY VARIABLE POWER TRANSMITTING SYSTEM INCLUDING REVERSING GEAR DEVICE AND AUXILIARY TRANSMISSION

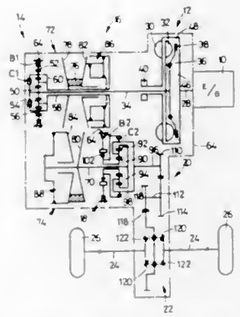
Nobuyuki Kato; Yuji Hattori, and Masami Sugaya, all of Susono, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed May 14, 1992, Ser. No. 883,252
Claims priority, application Japan, Jun. 27, 1991, 3-182979; Jun. 27, 1991, 3-182981; Jun. 27, 1991, 3-182982
Int. Cl.[5] F16H *61/00*
U.S. Cl. 474—28 13 Claims

1 A hydraulic control apparatus for a power transmitting system of a motor vehicle which includes: a continuously variable transmission whose speed ratio is continuously variable; a reversing gear device which is rotated in opposite directions to permit forward and reverse runs of the vehicle, said reversing gear device having a forward frictionally coupling device and a reverse frictionally coupling device which are hydraulically operated to select the corresponding forward or reverse run of the vehicle, depending upon a currently selected position of a shift lever of the vehicle; and an auxiliary transmission having a low-gear frictionally coupling device and a one-way clutch which are disposed in series, and a high-gear frictionally coupling device, said auxiliary transmission being placed in a selected one of a low-gear position by engagement of said low-gear frictionally coupling device and said one-way clutch, and a high-gear position by engagement of said high-gear frictionally coupling device, said hydraulically control apparatus comprising:

a solenoid-operated valve for generating a pilot pressure in response to a command signal for placing said auxiliary transmission in one of said low-gear position and said high-gear position;

a high-gear control valve for controlling said high-gear frictionally coupling device, said high-gear control valve including a first valve spool which is operable based on



said pilot pressure between an engaging position and a releasing position for engaging and releasing said high-gear frictionally coupling device, respectively; and

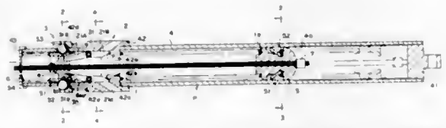
a low-gear control valve for controlling said low-gear frictionally coupling device, said low-gear control valve including a second valve spool which is operable based on said pilot pressure between an engaging position and a releasing position for engaging and releasing said low-gear frictionally coupling device, respectively, said second valve spool being placed in said engaging position irrespective of said pilot pressure when said low-gear control valve receives a pressure applied to said forward frictionally coupling device for engagement thereof, which pressure is higher than a predetermined level.

5,207,618

PRETENSIONER FOR VEHICLE SEAT BELT SYSTEMS

Muneo Nishizawa, Shiga, Japan, assignor to Takata Corporation, Tokyo, Japan

Filed Jun. 18, 1991, Ser. No. 717,348
Claims priority, application Japan, Jun. 18, 1990, 2-159476
Int. Cl.[5] F16H *7/08*
U.S. Cl. 474—101 1 Claim



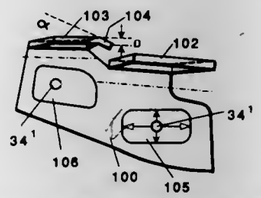
1 A pretensioner for a vehicle seat belt system comprising a casing, drive means including a spring having an operating end and an output member coupled to the operating end, trigger means for restraining the drive means in a preloaded state and including a pair of toggle linkages positioned in opposite sides of the drive means output member and normally engaged between the casing and the drive means in a position ahead of dead-center, and sensor means responsive to acceleration in excess of a predetermined value and having a tubular output member coaxial with the drive means output member for releasing the rigger means by moving axially of the drive means output member to cause articulation of each toggle linkage about a pivot axis past dead-center such that it ceases to be engaged between the drive means and the casing and thereby releases the drive means from the preloaded state.

5,207,619

ADJUSTABLE, COMPACT ANTI-CHAIN WRAP DEVICE

Gary G. Klein; Darrell Voss, both of Chehalis, and Chan K. Fong, Centralia, all of Wash., assignors to Klein Bicycle Corporation, Chehalis, Wash.

Filed Apr. 9, 1992, Ser. No. 865,516
Int. Cl.[5] F16H *7/00*
U.S. Cl. 474—101 8 Claims



1. In an anti-chain wrap device having a base plate with fastener holes therethrough, and a plurality of finger blade chain lifter members extending downwardly such that when mounted on a bicycle front drive sprocket assembly with plural chain rings thereon and adjacent the path of a chainring on said front drive sprocket assembly, respectively, when the chain is stuck on a given chainring of said front drive sprocket assembly, and is carried beyond where it should have released, the associated chain lifter contacts the chain and lifts it away from the given chainring as the front drive sprocket assembly rotates in the normal forward direction; the improvement comprising, said front drive sprocket assembly having at least one ring intermediate a smaller and a larger ring, and the chain finger lifter member has an end portion thereof bent out of the plane thereof sufficient to avoid interference with any extra teeth on its associated chainring.

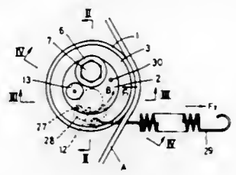
5,207,620

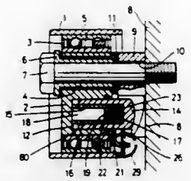
AUTOTENSIONER

Ken Yamamoto, and Katsumi Furutani, both of Iwata, Japan, assignors to NTN Corporation, Osaka, Japan

Filed Mar. 2, 1992, Ser. No. 844,047
Claims priority, application Japan, Jul. 11, 1991, 3-53826[U]
Int. Cl.[5] F16H *7/08*
U.S. Cl. 474—135 8 Claims

1. An autotensioner comprising a pulley, a fixing shaft, a pulley support member eccentrically supported on said fixing shaft so as to be pivotable, a tension adjusting spring coupled to said support member for applying torque to said support member in such a direction as to increase the tension of a belt, a fixed member provided opposite to said support member, a damper provided between said support member and said fixed member for damping the pivoting speed of said support member, characterized in that said damper comprises a cylinder provided in one of said support member and said fixed member, a piston mounted in said cylinder and an elastic member for urging said piston to protrude outwards from said cylinder, the other of said support member and said fixing member being provided with a cam surface abutting said piston, said cam





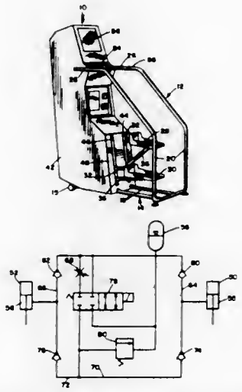
surface being tapered downwards in such a direction that said support member pivots to increase the belt tension.

5,207,621

STAIR CLIMBING EXERCISE MACHINE

Steven L. Koch, Encinitas, and William Kousens, Santee, both of Calif., assignors to Integral Products, Las Vegas, Nev.

Filed Feb. 7, 1991, Ser. No. 652,013
Int. Cl.[5] A63B *22/04, 23/04, 21/008*
U.S. Cl. 482—53 13 Claims



1. A stair climbing exercise machine, comprising:

an upright frame;

a pair of articulation, left and right foot pedals pivotally mounted on the frame for movement up and down between raised and lowered positions;

fluid-operated biassing means connected to each pedal for resisting downward movement of the pedal independent of movement of the other pedal and for biassing each lowered pedal to a raised position on removal of weight from that pedal; and

said biassing means comprising a pair of piston and cylinder actuators connected to said respective pedals and moveable between extended and retracted positions to operate the pedals, a fluid-filled reservoir at a predetermined pressure, first and second connecting passages between said respective cylinder actuators and said reservoir, and a one-way valve in each connecting passage for allowing

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fluid flow in one direction only from the respective actuator to the reservoir.

13. A stair climbing exercise machine, comprising:

an upright frame;

a pair of articulating left and right foot pedals pivotally mounted on the frame for movement between raised and lowered positions;

a pair of fluid-operated piston and cylinder actuators, each actuator being connected to a respective one of said foot pedals for resisting downward movement of the respective pedal independent of movement of the other pedal and biassing the pedal towards the raised position on removal of an operator's weight from that pedal,

a fluid communication circuit connected to said actuators and a fluid-filled reservoir, said circuit including variable valve means having a variable valve opening for controlling the fluid flow rate from each of said actuators and said reservoir to control the pedal speed;

control means connected to said variable valve means for controlling the size of the valve opening;

operator input means connected to said control means for operator input of data including the operator's weight; and

said control means including means for setting the valve opening in response to the data input by the operator.

5,207,622

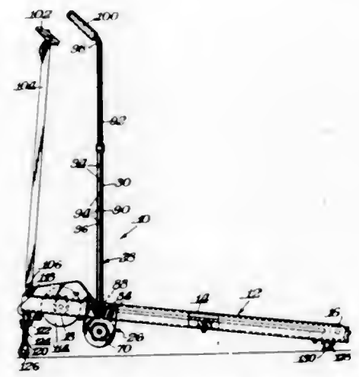
UNIVERSALLY ADAPTABLE ADJUSTABLE ARM EXERCISE DEVICE TO SUPPLEMENT LEG EXERCISING

William T. Wilkinson, 300 Kyle Rd., Crownsville, Md. 21032-0572, and John J. Nelson, Levitown, Pa., assignors to William T. Wilkinson, Crownsville, Md.

Filed Sep. 16, 1992, Ser. No. 945,373

Int. Cl.[5] A63B *22/02, 21/015*

U.S. Cl. 482—54 24 Claims



1. A universally adaptable adjustable arm exercise device to supplement leg exercising comprising a leg exercise unit having a foot contact surface, a pair of poles, each of said poles being mounted adjacent said foot contact surface with said foot contact surface being between said poles, each of said poles having a mounting bracket, each of said mounting brackets being detachably mounted to said leg exercise unit, a hinge shaft extending from each of said mounting brackets, each of said poles being pivotally mounted to a respective one of said hinge shafts, adjustable resistance means on each of said hinge shafts, and a resistance setting member on each said hinge shafts for controlling the resistance force of said resistance means to thereby control the force required by a user to pivot said poles back and forth to provide for an arm exercise simultaneously with the use of said leg exercise unit.

5,207,623

ERGOMETRIC DEVICE

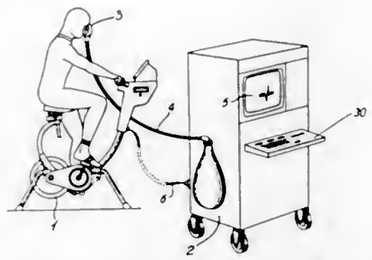
Elena N. Tkatchouk; Tatiana N. Tsyganova, both of Moscow, U.S.S.R., and Regula Staebler, Vernier S, Switzerland, assignors to Tradotec S.A., Geneva, Switzerland

Filed Jun. 12, 1992, Ser. No. 898,072

Claims priority, application European Pat. Off., Jun. 12, 1991, 91810445.6

Int. Cl.[5] A63B *69/16;* A61B *5/08*

U.S. Cl. 482—61 6 Claims



1. An ergometric device comprising exercising apparatus enabling a person to perform physical exercise and hypoxic gas generator means for supplying a hypoxic gas mixture to a person while exercising on said exercise apparatus,

a mask to be worn by said person and a flexible hose connecting said hypoxic gas generator means with said mask,

said hypoxic gas generator means comprising a cylindrical case having a side discharge opening connected by said flexible hose to said mask, a central tube extending axially of said case and having one closed end and one open end and having a plurality of openings in its side between said ends, a bundle of hollow permeable fibers in said case, said fibers extending lengthwise of said case and extending the full length of said case, said hollow fibers having the characteristics of being more permeable to one constituent gas of air than to another, closure means at opposite ends of said case for sealing spaces between said hollow fibers while leaving interiors of said hollow fibers open to the atmosphere,

means for supplying air under pressure to said open end of said tube, said air flowing out of said openings in the side of said tube into said bundle of hollow fibers, a portion of a constituent gas of said air permeating walls of said hollow fibers to interiors of said hollow fibers and out through open ends of said hollow fibers while remaining constituent gases of said air flowing out through said side discharge opening of said case and through said flexible hose to said mask.

5,207,624

PIVOTED WEIGHT-LIFTING APPARATUS

Michael Paskovich, 5A Stillwell Rd., Kendall Park, N.J. 08824

Filed Jan. 10, 1992, Ser. No. 818,837

Int. Cl.[5] A63B *21/06*

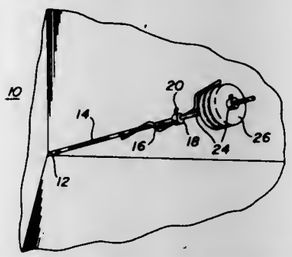
U.S. Cl. 482—93 5 Claims

1. A body exercising apparatus comprising:

a lever arm having a first free end and a second opposite end capable of being anchored;

at least one weight disc having a central aperture therein, said at least one weight disc mounted on said lever arm through said aperture so that said at least one weight disc is carried by and movable with said lever arm;

handle means detachably secured to said lever arm toward said free end of said lever arm between said at least one weight disc and said second end for engagement by the hands of a user of said body exercising apparatus said lever arm being free of structures proximate said second end such that a user may anchor the second end and attempt to lift the lever arm pivotally with respect to its anchor point against said at least one weight disc said handle means extending perpendicularly to said lever arm and having a pair of straight gripping portion on opposite sides of said lever arm, said straight gripping portions defining a single line offset from said lever arm, said handle means further



being manually adjustable so that the height of said handle means is adjustable so that the height of said handle means is adjustably positionable relative to said ever arm; and

weight retaining means on said lever arm for removably retaining said at least one weight disc said weight retaining means and said at least one weight located between said handle means and the free end of said lever arm.

5,207,625

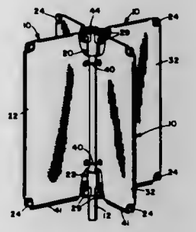
COLLAPSIBLE SWING MOTION DEVICE

Philip R. White, 3435 Channel Way, San Diego, Calif. 92110-5104

Filed Mar. 9, 1992, Ser. No. 848,522

Int. Cl.[5] A63B *21/008*

U.S. Cl. 482—111 18 Claims



1. A swing device for providing air resistance to swinging motion, comprising:

a shaft; and

a plurality of collapsible vanes, each connected to said shaft, each having a collapsed and extended position, each lying in a plane parallel to said shaft and radially extending from said shaft in said extended position, and each restrained against movement outside said plane during movement of said vane between said extended and collapsed positions.

5,207,626

RESISTANCE EXERCISE APPARATUS FOR THE MUSCLES ASSOCIATED WITH THE SCAPULA

Andrew R. Einhorn, 7311 Coho Dr. #103, Huntington Beach, Calif. 92648, and Michael Sawyer, 1005 Mar Vista Ave., Seal Beach, Calif. 90740

Filed May 24, 1992, Ser. No. 889,478

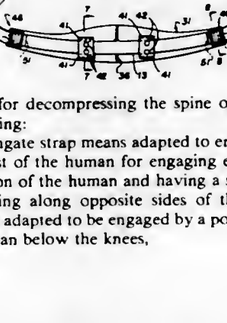
Int. Cl.[5] A63B *21/04*

U.S. Cl. 482—123 9 Claims

1. An apparatus for therapeutic exercising of the scapula related muscles of a body comprising:

a scapula harness, the harness fitting tightly over a shoulder and an upper arm of the body and extending over a breast and an opposing scapula area of the body, the harness having affixed thereon a plurality of attachment straps, each of the straps having a downwardly extending attachment end;

a plurality of urging means, each one of the urging means being connected to one of the attachment ends and being extensible therefrom to establish a variable tension bias condition for applying a tensile force to one of the attachment straps, the force being transferred by the attachment strap to the harness and therefrom to the scapular muscles to provide resistance to upward, forward and rearward motion of the scapula muscles during exercising;



a plurality of tensioning straps, each of the tensioning straps having one end connected to one of the urging means so that a force applied to any one of the tensioning straps causes one of the urging means to extend thereby applying a biasing force to one of the attachment ends;

a seating means having a horizontal, upward facing surface for supporting the body in a seated position, a peripheral edge, and a holding means for engaging the tensioning straps to hold the straps in fixed positions and under a desired tension to exercise the scapula related muscles by moving the harness upwardly and posteriorly, upwardly and anteriorly, and upwardly and neutrally.

5,207,627

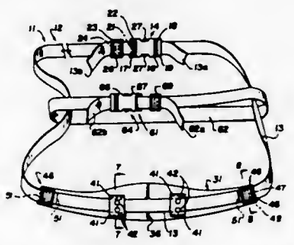
DEVICE FOR DECOMPRESSING THE SPINE AND METHOD

Guy R. Doran, 299 California Ave., Ste. 200, Palo Alto, Calif. 94306

Filed Jul. 25, 1991, Ser. No. 735,820

Int. Cl.[5] A63B *21/02*

U.S. Cl. 482—124 7 Claims



1. A device for decompressing the spine of the body of a human comprising:

a flexible elongate strap means adapted to encircle a portion of the waist of the human for engaging either a front or back portion of the human and having a sufficient length for extending along opposite sides of the body of the human and adapted to be engaged by a portion of the legs of the human below the knees,

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a flexible pad assembly positioned on said strap means to be disposed on either said front or back portion and conform to the shape of said either said front or back portion of the human when in use, and

a flexible strap cross member adapted to be slidably disposed on the front or back side of the human opposite said pad assembly and for contact with the body of the human above the knees, which functions to engage opposite extending portions of said flexible elongated strap means to vary the relative distance between them,

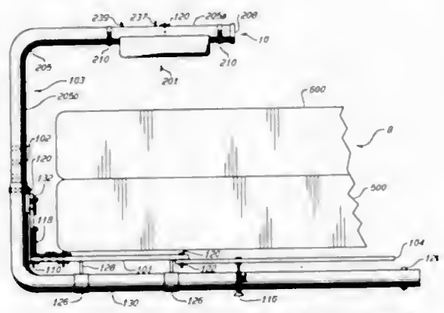
said elongate strap means and said cross member being adjustable in length, whereby with said elongate strap means and said cross member encircling the body of the human and with a force applied by a portion of the legs of the human under the knees, traction is placed upon the spine of the body of the human for decompressing the spine.

5,207,628

SUSPENDING FOLD-AWAY BED EXERCISING DEVICE

Otha O. Graham, 111 Maine St., P.O. Box 386, Maysville, N.C. 28555

Filed Nov. 18, 1991, Ser. No. 793,624
Int. Cl.[5] A63B *26/00*
U.S. Cl. 482—140 **11 Claims**



1. An exercise device for exercising in bed comprising

a rigid base with clamp means for attaching the base to the side of a bed;

a telescoping U-shaped suspension member which is rotatably and slidably attached at one end thereof to the base, and which extends upwardly over the bed during use;

user support means mounted on the other end of said suspension member;

said U-shaped suspension member being rotatable from a nonuse storage position under the bed to a use position over the bed.

5,207,629

APPARATUS FOR ATTACHING INSERT PANELS TO CARTON BLANKS

Joseph C. Walsh, Longmont, Colo., assignor to Graphic Packaging Corporation, Paoli, Pa.

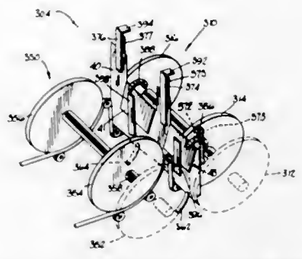
Continuation-in-part of Ser. No. 579,854, Sep. 7, 1990, Pat. No. 5,108,355. This application Oct. 31, 1991, Ser. No. 785,410
Int. Cl.[5] B32B *1/04, 7/02, 17/54, 17/04*
U.S. Cl. 493—29 **17 Claims**

1. An apparatus for operating on a carton blank of the type having a first face surface, a second face surface opposite said first face surface, a first end portion having a plurality of foldable end flaps and terminating in a first edge surface, and a second end portion opposite said first end portion and terminating in a second edge surface comprising:

carton blank conveying means for moving carton blanks along a predetermined displacement path;

flipping path means for reorienting said carbon blank during displacement therealong comprising a first path portion having a first end and a second end, a second path portion extending generally transversely of said first path portion and having a first end and a second end, a first transition portion connecting said second end of said first path portion to said first end of said second path portion, a third path portion extending generally parallel to said first path portion and having a first end proximal said first path portion and a second end distal said first path portion, and a second transition portion connecting said first end of said second path portion to said first end of said third path portion;

first nip means for initially nippingly engaging at least one of said plurality of foldable end flaps of said first end portion and for continuously nippingly moving said carton blank along said first path portion in a direction from said first end toward said second end thereof with said first face



surface of said carton blank facing upwardly and thereafter along said second path portion in a direction from said first end toward said second end thereof;

flap folding means positioned along said flipping path means for folding at least another of said plurality of foldable end flaps in a direction toward said second face surface;

second nip means positioned adjacent said first nip means for initially nippingly engaging said carton blank at said second end portion thereof after said carton blank is disengaged by said first nip means and for continuously moving said carton blank along said second displacement path in a direction from said second end towards said first end thereof and thereafter along said third path portion in a direction from said first end towards said second end thereof with said first face surface of said carton blank facing downwardly.

5,207,630

CASE OPENING APPARATUS

Dennis Decker; Melvin Salwasser, and Leslie Salwasser, all of P.O. Box 548, Reedley, Calif. 93654

Filed Aug. 13, 1991, Ser. No. 744,698
Int. Cl.[5] B31B *1/80*
U.S. Cl. 493—313 **4 Claims**

1. A case opening apparatus comprising:

a. a movable overhead suction cup connected to a means for imparting vacuum suction thereto positioned for attachment to the upper surface of a single flattened container blank;

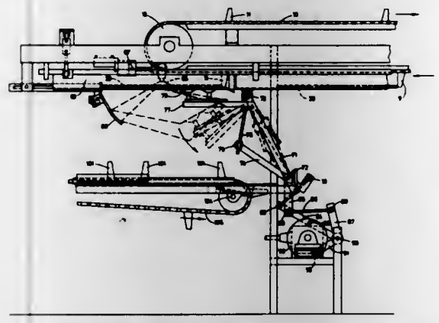
b. a plurality of suction cups adjustably attached to a first pair of pivotally mounted swingable arms and connected to a means for imparting vacuum suction thereto whereby said suction cups may attach to the lower surface of a flattened container blank when said first arms are in their uppermost swingable position;

c. an upper pivot around which said first arms may rotate from an upper horizontal position downward between approximately 30 and 60 degrees to a lower angled position;

d. a second pair of arms attached at one end to said upper pivot and to one end of said first pair of arms, the opposite

ends of said second pair of arms defining a second pivot around which said second arms may rotate from an upper nearly-vertical position downward between approximately 30 and 60 degrees to a lower angled position, whereby said first arms are correspondingly brought downward to a vertical position;

e. a means for imparting motion in a continuous cycle that first lowers said first arms from a horizontal position to a downward angle, then lowers said second arms from a



nearly vertical position to a different downward angle which has the effect of also lowering said first arms to a vertical position, then reverses direction to raise said second arms which has the effect of also raising said first arms, and then finally raises said first arms back to their original horizontal position at which point the cycle repeats;

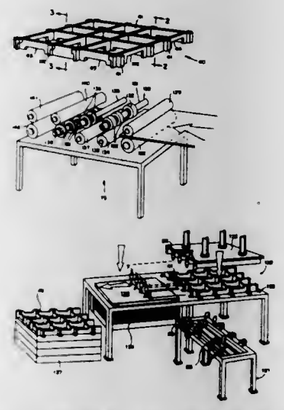
whereby a flattened container blank may be fully opened and erected as a result of the suction of said cups and the motion of said arms.

5,207,631

METHOD AND APPARATUS FOR FOLDING OF SHEET MATERIAL

Thomas J. Schmidtke, and Joachim G. Schmidtke, both of Ortonville, Mich., assignors to Fabmation, Inc., Flint, Mich.

Filed Jun. 26, 1991, Ser. No. 721,866
Int. Cl.[5] B31B *1/25;* **B31D** *5/00*
U.S. Cl. 493—334 **13 Claims**



1. A method of making an object including at least one part formed of a folded sheet material, said method including the steps of:

(a) manufacturing said at least one part formed of a folded sheet material using a continuous process including the steps of:

i) scoring a blank of sheet material at a number of predetermined positions to provide a predetermined series of fold lines in said blank,

ii) crushing the blank of sheet material at a number of predetermined positions to provide a predetermined series of crushed panels in said blank,

iii) folding said blank at said fold lines by moving said blank past a plurality of multi-function folding means, and

(b) assembling said at least one part formed of a folded sheet material to said object.

5,207,632

METHOD OF OBTAINING BEND LINES ON PACKAGING MATERIAL

John-Erik Brunlid, Lund, Sweden, assignor to Tetra Alfa Holdings, Pully, Switzerland

Filed Sep. 11, 1991, Ser. No. 757,527
Claims priority, application Sweden, Oct. 5, 1990, 9003192
Int. Cl.[5] B31B *1/25, 3/25;* **B31F** *7/00*
U.S. Cl. 493—355 **17 Claims**



1. A method of achieving crease lines on packaging material comprising the steps of:

passing the material between a pair of forming rollers to form a desired pattern of raised parts on a first side of the material:

moving the material on which the raised parts are formed from contact with both of the rollers forming the pair; and

subsequently processing the material on which the raised parts are formed to at least partially remove that portion of the material forming the raised parts.

5,207,633

APPARATUS TO DISPENSE DISCRETE PORTIONS OF CORRUGATED WIPING MATERIALS

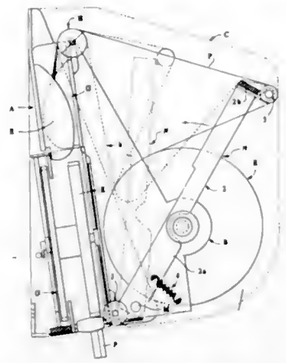
Maurice Granger, 17 Rue Marcel Pagnol, 42270 Saint Priest en Jarez, France

Continuation of Ser. No. 487,198, Mar. 1, 1990, abandoned. This application May 22, 1992, Ser. No. 888,381
Claims priority, application France, Mar. 3, 1989, 89 03417
Int. Cl.[5] B31F *1/00*
U.S. Cl. 493—357 **4 Claims**

1. An apparatus for manually dispensing web wiping material in the form of elongated discrete strips, comprising a support base means for attaching to a surface, a hood means, said support base means and said hood means defining a housing means, a support mounted internally of said housing means having spaced interleaved projection guide means adapted and constructed to corrugate said web wiping material when it is payed therebetween, supply means for said wiping material, web wiping material spring loaded carrying means hingedly mounted at one end thereof to said support base means, first roller means mounted at the opposite end of said web wiping material carrying means whereby the web wiping material is payed from said supply means over said first roller means, second roller means mounted intermediate said first roller means and said spaced interleaved projection guide means whereby said first roller means moves arcuately in the direction of said second roller means when said web wiping material is manually dispensed and is spring urged arcuately in an opposite direction when said web wiping material has been freed,

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said second roller means having a barrel configuration and having guide ramps at each end thereof whereby the web material being payed over it defines an arc, a cartridge means

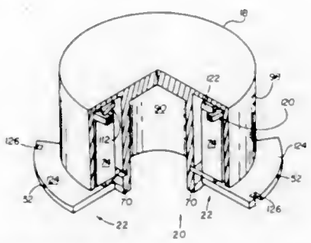


mounted on said support base means internally of said housing means adapted and constructed to guide and cut discrete portions of said corrugated web wiping material.

5,207,634
SELF-BALANCING APPARATUS AND METHOD FOR A CENTRIFUGE DEVICE

Alan P. Greenstein, Seattle, Wash., assignor to Biotope, Inc., Redmond, Wash.

Filed Jan. 23, 1991, Ser. No. 645,106
Int. Cl.[5] B04B *9/14*
U.S. Cl. 494—10 **13 Claims**

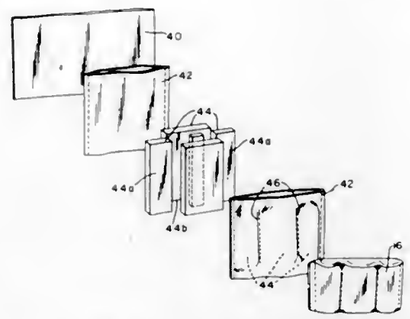


11. A self-balancing apparatus for a centrifuge, comprising:
a rotatable platter having a plurality of receptacles for receiving assay cartridges;
a frame member for supporting the platter;
platter locating means for determining the angular position of the platter with respect to the frame;
two counterweights of substantially equal mass connected to and arcuately moveable with respect to the platter;
counterweight moving means for moving the counterweights with respect to the platter;
cassette locating and counting means for determining the number and location of assay cartridges received in the receptacles; and
processor means, operatively associated with the platter locating means, counterweight moving means, and cassette locating and counting means for calculating a desired, counter balanced position for the counterweights with respect to the platter based upon the number and location of any received cassettes, and for directing relative movement of the counterweights and platter to the desired, counter balanced position.

5,207,635
ORTHOPEDIC DEVICE FOR PROVIDING LOWER BACK SUPPORT

Ronald G. Richards, and Joseph J. Dillon, both of 175 Wicks La., Malverne, N.Y. 11565

Continuation of Ser. No. 594,123, Oct. 9, 1990, abandoned, which is a continuation of Ser. No. 396,365, Aug. 21, 1989, abandoned. This application Feb. 27, 1992, Ser. No. 842,797
Int. Cl.[5] A61F *5/37, 5/30*
U.S. Cl. 602—19 **17 Claims**



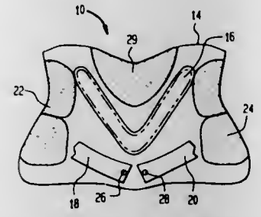
1. An orthopedic device to provide lower back support for a wearer during active movement of the wearer, comprising:
(A) a flexible flat body;
(B) a resilient contoured lumbar support pad of varying thickness secured to said body; said pad comprising a plurality of articulated sections including a center section of at least a first thickness adapted to be positioned over the spine of the wearer and wide enough to fill the gap at the spine between the erector muscles of the wearer, and at least one side section of a second thickness disposed on each side of said center section and adapted to be positioned adjacent the erector muscles of the wearer, said first thickness being substantially greater than said second thickness in order to apply pressure directly to the spine rather than only indirectly through the erector muscles; and
(C) a flexible belt traversing said pad and secured to said body at points beyond said pad, said belt being configured and dimensioned to extend substantially completely about the waist of the wearer and be secured thereabout for positioning said pad on the lumbar region of the wearer to fill the concave area formed by the spine and the erector muscles.

5,207,636
LUMBAR SPINE SUPPORT

James S. Striano, 475 Tuckahoe Rd., Ste. 201, Yonkers, N.Y. 10701

Filed May 7, 1992, Ser. No. 879,590
Int. Cl.[5] A61F *5/02*
U.S. Cl. 602—19 **4 Claims**

1. A lumbar spine support comprising:
a substantially rigid, body contoured, anterior section having lateral edges which terminate in the right and left anterolateral regions of the torso;
a substantially rigid, body contoured, posterior section having lateral edges which terminate in the right and left posterolateral regions of the torso;
flexible side panels connectable between corresponding said lateral edges of said anterior and posterior sections structured for holding said anterior and posterior sections in opposing relationship against the corresponding anterior and posterior areas, respectively, of the torso;
strap means connectable between corresponding said lateral edges of said anterior and posterior sections for adjustably tightening said anterior and posterior sections together against the torso;
said anterior section including a central V-shaped indentation positioned and structured to hydrostatically lift the lower abdominal musculature of the torso inwardly and upwardly;

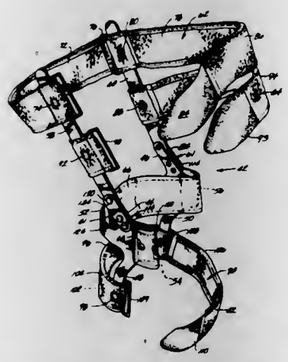


said posterior section including an elongated central upright indentation having a laterally extending portion at the lower end thereof and positioned and structured to center and secure said posterior section over the lumbosacral area of the spine.

5,207,637
HINGED CAGE-TYPE KNEE BRACE

Wayne R. Janke, Pasadena, and Dan J. Edwards, Sunland, both of Calif., assignors to United States Manufacturing Company, Pasadena, Calif.

Filed Jun. 24, 1992, Ser. No. 903,780
Int. Cl.[5] A61F *5/00*
U.S. Cl. 602—26 **9 Claims**

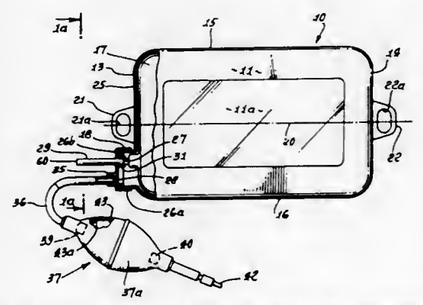


1. A cage-type knee brace comprising a rigid cage for fitting around opposite sides of the knee joint and having a generally U-shaped posterior brace portion for extending around the sides of and behind the knee joint, a pair of short upper lateral and medial uprights rigidly joined with opposite front portions of the U-shaped posterior brace for extending upwardly a short distance along lateral and medial sides of the upper leg above the knee joint, and a pair of lower lateral and medial uprights rigidly joined with opposite front portions of the U-shaped brace for extending downwardly along lateral and medial sides of the lower leg below the knee joint, the lower pair of uprights being longer in length than the short upper lateral and medial uprights;
a pair of elongated rigid lateral and medial pivot arms pivotally affixed to end portions of the short upper lateral and medial uprights at pivot points spaced above the U-shaped posterior brace portion of the cage;
means for pivotally securing the lower ends of the pivot arms to the pivot points on the short uprights of the cage so the pivot arms can each rotate independently of each other relative to the cage, the pivot arms extending along lateral and medial sides of the upper leg above the knee joint when the cage is positioned around the knee joint;
separate stop means rigidly affixed to the short upper lateral and medial uprights for engaging lower portions of corresponding pivot arms to restrict forward rotation of each pivot arm relative to the cage and to allow independent rotation of each pivot arm in a rear direction relative to the cage;
a flexible lower leg strap secured to the lower lateral and medial uprights for releasably securing a lower portion of the cage to the lower leg below the knee joint;
a flexible U-shaped posterior strap affixed to the front portions of the U-shaped posterior brace and extending inside the U-shaped posterior brace for contacting a posterior portion of the knee joint when the cage is positioned around the knee joint; and
one or more flexible U-shaped upper leg straps secured to the long pivot arms for releasably securing the pivot arms to the lateral and medial sides of the upper leg, the pivot arms being independently rotatable about their axes of rotation through the pivot points on the cage and extending for a distance of at least about one half the length of the thigh region of the leg to function by distributing thigh forces during a walking gait while the U-shaped posterior strap is held in a fixed position behind the knee joint to restrict hyperextension of the knee joint.

5,207,638
BLOOD TRANSFER APPARATUS

Pradip V. Choksi, Northridge; Thomas R. Thornbury, Granada Hills, and Julie A. Ryan, Westlake, all of Calif., assignors to Hemotrans, Inc., Chatsworth, Calif.

Continuation of Ser. No. 397,877, Aug. 24, 1989, Pat. No. 5,074,839. This application Dec. 2, 1991, Ser. No. 801,357
The portion of the term of this patent subsequent to Dec. 24, 2008, has been disclaimed.
Int. Cl.[5] A61M *37/00*
U.S. Cl. 604—4 **7 Claims**



1. In a blood and gas transfer apparatus, the combination comprising:
a) a substantially rigid receptacle,
b) a collapsible bag in the receptacle, there being space formed between the bag and receptacle,
c) structure on the receptacle forming first porting communicating with the bag and via which blood may be transferred into the bag, and second porting communicating with said space between the bag and receptacle for selectively transferring gas into and out of said space,
d) whereby in a first mode of operation blood may be drained into the bag via said first porting, and gas may be removed from said space via said second porting, and in a second mode of operation, blood may be drained from the

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bag as gas is introduced into said space via said second porting,

e) said structure including neck means on the receptacle and cap means received on the neck means and forming said first and second porting,

f) and including manually manipulable pump means operatively connected with said second porting, for pumping gas out of said space via tubing connected to the second porting, and the pump means having a manually collapsible body with a port for connection to said tubing,

g) said cap means including structure and having at least one rigid end wall, a rigid skirt integral with said cap end wall, and projecting exteriorly of cap means structure, said second porting formed at least in part by said skirt.

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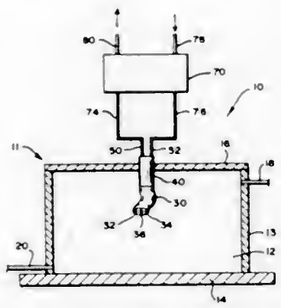
FETAL LUNG APPARATUS

William I. Cooper, 300 N. Fourteenth St., Easton, Pa. 18042

Filed Feb. 21, 1991, Ser. No. 658,697

Int. Cl.[5] A61M *37/00*; A61G *10/00, 10/02, 11/00*

U.S. Cl. 604—4 **3 Claims**



1. Apparatus for oxygenating oxygen-deficient blood of a non-breathing premature baby still attached to an umbilical cord and separated from a placenta, the umbilical cord having arterial blood vessels and a venous blood vessel, said apparatus comprising, in combination:

a) a lung machine comprising a housing forming an oxygenator chamber, said chamber having oxygen-deficient blood inlet means, means for oxygenating said blood, and oxygenated blood outlet means;

b) adapter means configured for fitting the umbilical cord comprising an elongated housing having first and second end portions and first and second passage means extending between said first and second end portions, said first passage means configured to be in fluid communication at said first end portion with said blood outlet means of said lung machine and at said second end portion with the venous blood vessel, and said second passage means configured to be in fluid communication at said first end portion with said blood inlet means of said lung machine and at said second end portion with the arterial blood vessels; and,

c) a tank operatively connected to said adapter means for suspending the baby and the umbilical cord in a physiological fluid while said blood is being oxygenated in said lung machine, said tank having fluid inlet means for introducing physiological fluid therein, and fluid outlet means for removing physiological fluid from said tank.

5,207,640

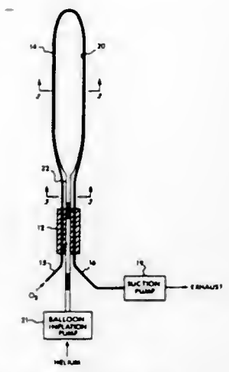
METHOD OF ANESTHETIZING A PATIENT

Brack G. Hattler, 5226 Westminster Pl., Pittsburgh, Pa. 15232

Continuation-in-part of Ser. No. 676,262, Mar. 27, 1991, Pat. No. 5,122,113. This application Jun. 15, 1992, Ser. No. 898,473

Int. Cl.[5] A61M *1/00*

U.S. Cl. 604—28 **7 Claims**



1. A method of anesthetizing a patient comprising the steps of:

providing a plurality of gas permeable tubes,

providing means for injecting an anesthetizing gas into the tubes,

inserting the tubes within a blood vessel, and

injecting an anesthetizing gas into the tubes so that the gas can diffuse through the tubes into the blood stream to anesthetize the patient.

5,207,641

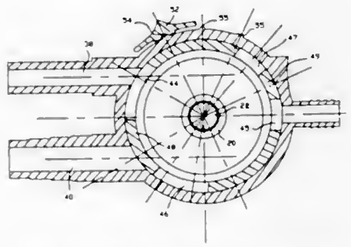
MEDICAL ROTARY VALVE HAVING ASPIRATION, INSUFFLATION AND AN INTERMEDIATE FLUSHING POSITIONS

Robert A. Allton, Mississauga, Canada, assignor to Bird Medical International Inc., Mississauga, Canada

Continuation-in-part of Ser. No. 351,594, May 15, 1989, abandoned. This application Jun. 18, 1991, Ser. No. 717,053

Int. Cl.[5] A61M *1/00*

U.S. Cl. 604—32 **9 Claims**



1. A single-use, disposable input and extraction catheter valve for the respective input or extraction of fluid into or out of a body cavity, comprising:

a valve housing including a first housing piece having an outer cylindrical wall through which, in spaced relationship therearound, there are at least a fluid input port, an extraction port and a catheter port; and a second housing piece having an inner cylindrical wall in fluid tight relationship and concentric with said outer cylindrical wall; said first and second housing pieces forming said valve housing so as to have a generally hollow interior and being rotatable with respect to each other about the axis of the inner and outer cylindrical walls;

wherein said inner cylindrical wall has a first pair of ports therethrough, and a first shut-off portion of its cylindrical wall, whereby said catheter port and said fluid input port are in fluid communication with the interior of the housing, and said extraction port is covered and shut off, when said first and second housing pieces are in a first rotated position, relative to each other;

and wherein said inner cylindrical wall further has a second pair of ports therethrough, with the second pair of ports comprising ports that are different from the first pair of ports, and a second shut-off portion of its cylindrical wall, whereby said catheter port and said extraction port are in fluid communication with the interior of the housing, and said fluid intake port is covered and shut off, when said first and second housing pieces are in a second rotated position, relative to each other;

said inner cylindrical wall further having a third shut-off portion to shut off said catheter port when said first and second housing pieces are in a third rotated position, relative to each other, which is intermediate said first and second positions;

and manually operable means to rotate said first and second housing pieces relative to one another between said first, second and third positions;

wherein said first and second housing pieces can be moved from said first rotated position relative to each other to said second rotated portion relative to each other by being moved substantially less than 90°, wherein said manually operable means is moved only a short distance to obtain said movement of substantially less than 90°; and

wherein said catheter valve can be held in one hand, with the thumb of that hand causing said short distance movement between said first and second rotated positions.

5,207,642

CLOSED MULTI-FLUID DELIVERY SYSTEM AND METHOD

Fredric I. Orkin, Deerfield; Theodore Liber, Highland Park; Charles R. Smith, Libertyville; Kimball J. Knowlton, Lindenhurst, all of Ill., and Albin Huntley, Martinez, Calif., assignors to Baxter International Inc., Deerfield, Ill.

Continuation-in-part of Ser. No. 83,843, Aug. 7, 1987, Pat. No. 4,925,444. This application Apr. 28, 1989, Ser. No. 345,064

Int. Cl.[5] A61M *31/00, 37/00*

U.S. Cl. 604—65 **22 Claims**

1. A multi-fluid delivery system for delivering one or a plurality of fluids, said system comprising:

a mobile base having a standard mounted thereon;

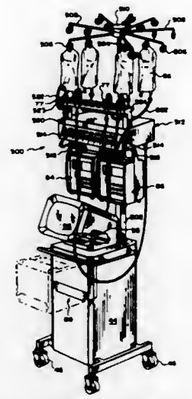
said standard having mounted thereon, fluid container mounting means, drip detection means, an array of occluder means, a fluid junction having a plurality of input ports and one output port and at least one pumping means;

a primary tubing set comprising a plurality of tubing segments;

at least one fluid container mounted on said fluid container mounting means, said fluid container coupled to one of said fluid junction input ports by said primary tubing set;

said primary tubing set including a drip chamber coupled to said drip detection means and coupled to said fluid junction by a primary tubing set segment coupled through one of said occluder means;

said fluid junction formed as a rigid body including an elongated housing having an internal fluid flow passageway therein opening at both ends defining input and output ports, at least one reusable port communicating with said passageway adapted to have a cannula of a secondary tubing segment of a secondary fluid container and tubing set coupled thereto, said at least one reusable port including septum means and including a plurality of grooves about the inner periphery, of the passageway therein adjacent said septum means to assist in removing air from said fluid junction, and means for mounting said housing to said standard;



said fluid junction coupled through said pumping means to a patient delivery means by a tubing segment connected to said fluid junction output port.

5,207,643

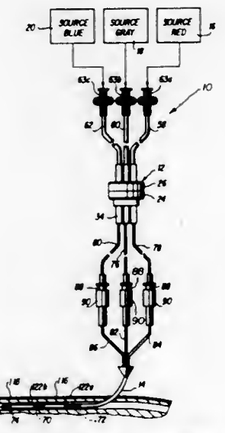
MULTI-LUMEN-CATHETER FLOW VALVE SYSTEM

Richard C. Davis, Palm Harbor, Fla., assignor to Ballard Medical Products, Draper, Utah

Filed May 8, 1991, Ser. No. 696,928

Int. Cl.[5] A61M *5/14, 5/00*

U.S. Cl. 604—80 **9 Claims**



1. A medical multi-lumen-catheter patency maintaining system comprising:

at least two sources of medical liquid;

at least two liquid communicating tubes, each liquid communicating tube connected at a proximal end to one of the at least two sources of medical liquid;

a valve comprising at least two inlet ports, each inlet port being in liquid communication with one of said tubes, said valve further comprising at least two outlet ports;

a patient insertable catheter comprising at least two lumens

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and means for connecting a proximal end of the catheter to said outlet ports such that each lumen of said catheter communicates with one outlet port;

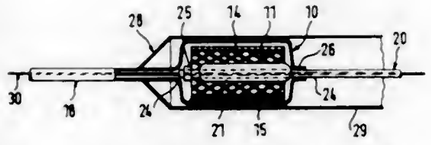
said valve further comprising a single rotary switching element interposed between the inlet ports and the outlet ports for switching pathways of liquid through the valve at at least two switchable positions whereat at a first position each inlet port and therefore each source is only fluidly connected to a different outlet port and therethrough to an individual lumen of said catheter and at a second position one inlet port only is fluidly connected to at least two outlet ports and therethrough to at least two lumens of the catheter thereby providing liquid from one source to at least two lumens of said catheter and liquid from at least one source is supplied to each lumen of the catheter in every switch position.

5,207,644

DEVICE WITH IMPLANTABLE INFUSION CHAMBER AND A CATHETER EXTENDING THEREFROM

Ernst P. Strecker, Vierordtstrasse 7a, D-7500, Karlsruhe 41, Fed. Rep. of Germany

PCT No. PCT/DE89/00295, § 371 Date Mar. 4, 1991, § 102(e) Date Mar. 4, 1991
PCT Filed May 11, 1989, Ser. No. 646,763
Int. Cl.[5] A61M *11/00*
U.S. Cl. 604—93 **19 Claims**



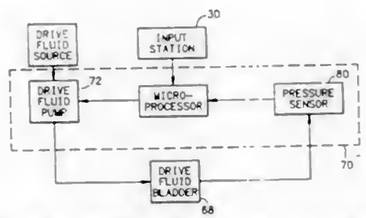
1. A device comprising an infusion chamber which is implantable into the subcutaneous fatty tissue of a patient and which has region of elastic material, which can be pierced by means of an injection needle, and comprising a catheter which extends away from the infusion chamber and which can be introduced into a blood vessel, for example an artery, or another body cavity, characterised by the configuration in the form of a system which is implantable percutaneously with an insertion tube through a skin puncture opening.

5,207,645

INFUSION PUMP, TREATMENT FLUID BAG THEREFOR, AND METHOD FOR THE USE THEREOF

Stephen O. Ross, Vista, and Mark D. McWilliams, San Diego, both of Calif., assignors to Medication Delivery Devices, San Diego, Calif.

Filed Jun. 25, 1991, Ser. No. 720,658
Int. Cl.[5] A61M *31/00*
U.S. Cl. 604—141 **12 Claims**



1. A pump for infusing intravenous treatment fluid to a patient, said infusion pump comprising:

a collapsible treatment fluid bag;

an inflatable bladder juxtaposed with said treatment fluid bag;

means to vent said bladder;

means for impinging said bladder against said treatment fluid bag as said bladder is inflated;

means for electronically controlling the pressure of said bladder so as to collapse said treatment fluid bag and controllably expel treatment fluid therefrom; and

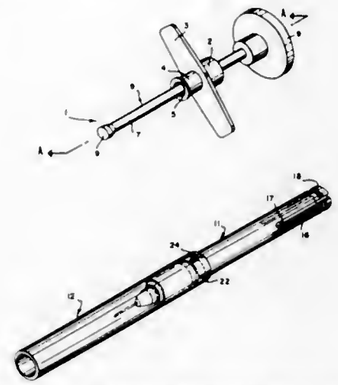
an outlet tube in fluid communication with said treatment fluid bag and said patient.

5,207,646

SINGLE USE SHIELDABLE HYPODERMIC SYRINGE WITH A REUSABLE HANDLE

Marc Brunel, 64 Allees de Barcelone, 31000 Toulouse, France

Filed Nov. 29, 1990, Ser. No. 709,661
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—110 **27 Claims**



1. Syringe of the type with an injection needle (**15**) for single use, notably for dentistry and comprising:

a syringe handle (**1**) having a plunger (**6**) and a support piece (**2, 3**) traversed by said plunger and movable along the plunger,

a syringe body (**11**) provided at one of its ends with a base (**14**) carrying the injection needle (**15**) so as to define an active injection portion,

a removable attachment means (**4, 5, 16, 19**) for attaching the syringe body (**11**) to the syringe handle (**1**),

and a protective case (**12**) of a form adapted to shield the needle (**15**) and its base (**14**), said syringe being characterized in that:

the means for removable attachment comprises:

a tubular adapter (**16**) engagable to the syringe body (**11**) opposite the base (**14**), and provided with a fitting structure (**19**),

a sleeve (**4**) integral with the support piece (**2, 3**) of the handle (**1**) so as to be traversed by the plunger (**6**), and provided with a fitting structure (**5**) matching that of the tubular adapter (**16**) of the syringe body (**11**), said tubular adapter (**16**) and sleeve (**4**) being of forms adapted to be able to penetrate one into the other so as to come into a fitted position where their fitting structures (**5, 19**) cooperate,

the protective case (**12**) is tubular and has a diameter adapted to be able to slide externally along the syringe body (**11**), with a locking section (**22**) able to cap the tubular adapter (**16**) and the sleeve (**4**) of the syringe body (**11**) and handle (**1**), and to lock them in their fitted position,

the protective case (**12**) and the syringe body (**11**) are provided with stop means (**18, 21, 23**) adapted to define two end positions; a forward position where the case (**12**) completely covers the needle (**15**) and the base (**14**), and a rear position where at least the active portion of the needle (**15**) is exposed and where the locking section (**22**) of the case (**12**) caps the fitted tubular adapter (**16**) and sleeve (**4**) of the syringe body (**11**) and handle (**1**) so as to ensure a locking of the syringe body/syringe handle union.

5,207,647

NEEDLE DEVICE

David Y. Phelps, 640 Worcester Rd. #204, Framingham, Mass. 01701

Filed Nov. 5, 1991, Ser. No. 788,253
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—158 **26 Claims**



1. A needle device for the delivery of medicaments, comprising:

an elongated housing;

a reciprocable hollow needle having a proximal end and a distal end with a lumen there between, said proximal end secured within said housing;

a catheter disposed about said hollow needle, said catheter having a distal end and a proximal end, said proximal end of said catheter being attached to said housing;

an arrangement of compressable and releasable springs disposed within said housing and attached to said hollow needle so as to bias said hollow needle therefrom; and

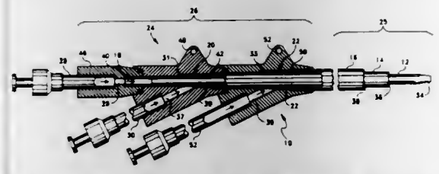
a detent assembly to actuate retraction of said hollow needle within said catheter upon a decrease in pressure upon said hollow needle as it is being advanced into a space or potential space.

5,207,648

MULTILUMEN CATHETER

James R. Gross, Wareham, Mass., assignor to The Kendall Company, Mansfield, Mass.

Filed Aug. 19, 1992, Ser. No. 932,120
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—164 **18 Claims**



1. A triple lumen venous catheter comprising:

an inner venous catheter tube defining a first lumen having a proximal end, and a distal end with the inner catheter tube having a first opening to the first lumen at the proximal end and a second opening to the first lumen at the distal end;

a middle venous catheter tube defining a second lumen and having a proximal end, a distal end and a cross-section which is greater than the cross-section of the inner tube, the middle tube being disposed concentrically and coaxially with the inner tube, and the distal end of the inner tube extending longitudinally outward from the distal end of the middle tube with the middle catheter tube having a first opening to the second lumen at the proximal end and a second opening to the lumen at the distal end;

an outer venous catheter tube defining a third lumen and having a proximal end, a distal end and a cross-section which is greater than the cross-section of the middle tube, the outer tube being disposed concentrically and coaxially with the middle tube and the inner tube, and the distal end of the middle tube extending longitudinally outward from the distal end of the outer tube; the outer tube having an outer diameter corresponding to the inner diameter of a patient's vein in which the outer catheter tube is to be inserted and the outer catheter tube having a first opening to the third lumen at the proximal end and a second opening to the third lumen at the distal end;

a manifold securing and encapsulating each of the proximal ends of the inner, middle and outer venous catheter tubes to provide separate and noncommunicating passages to each of the inner, middle and outer tubes; and

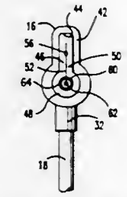
a plurality of extension tubes coupled to the manifold, each separately coupled to a respective one of the lumens.

5,207,649

INTRODUCER SHEATH HAVING A HEMOSTATIC CLOSURE

John E. Aruny, Arlington, Mass., assignor to Brigham and Women's Hospital, Boston, Mass.

Filed Dec. 13, 1991, Ser. No. 806,308
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—167 **19 Claims**



1. A hemostatic closure for an introducer sheath, comprising:

(a) a support means, said support means defining an opening, wherein said opening includes a first region having a first width and a second region having a second width greater than said first width; and

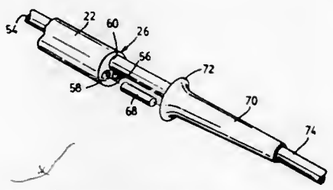
(b) conforming means disposed within said opening, said conforming means comprising an elastomeric material defining a passage through said elastomeric material, wherein said elastomeric material is capable of conforming to the exterior shape of adjacent tubular members passed through said passage.

5,207,650

INFUSION CATHETERS

Geoffrey S. Martin, Mississauga, Canada, assignor to Med-Pro Design, Inc., Mississauga, Canada

Filed Mar. 19, 1992, Ser. No. 854,023
Claims priority, application Canada, Mar. 20, 1991, 2038676
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—173 **6 Claims**



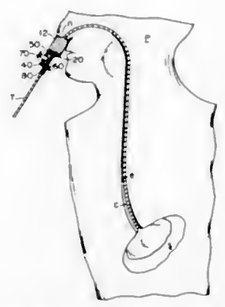
1. An infusion catheter comprising:

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a main body having a continuous generally round cross-section about a longitudinal axis and having proximal and distal ends;
a tip section having a round cross-section and being smaller in cross-section than the main body and ending in a tip;
a transition portion connecting the tip section to said distal end and tapering smoothly from the main body to the tip section;
the main body and tip section defining a primary lumen extending from said proximal end to the tip, the lumen being continuous where the main body meets the tip section and having a longitudinal axis offset from that of the main body;
the main body further including a pair of side-by-side secondary lumens terminating at respective side openings in the main body, a first of these openings being adjacent the transition portion and the second being spaced from the transition portion;
plug material in the main body between said second opening and the transition portion; and
a junction at said proximal end and three flexible tubes connected for fluid flow to the respective lumens by the junction.

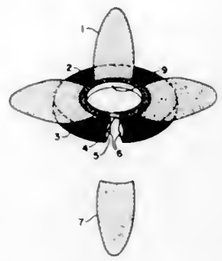


5,207,651
TRACTION TUBE HOLDER AND METHOD
Nancy Snyder, 910 Old Hills Rd., Boston, Pa. 15135
Filed Nov. 25, 1991, Ser. No. 797,042
Int. Cl.[5] A61M 5/32
U.S. Cl. 604—174 18 Claims



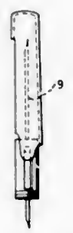
1. In a device for slidably mounting a tube against an orifice of a medical patient, said device including a polygonal section of sponge foam, a bore extending through the sponge foam section, and a slot for enabling the sponge foam to be slid over and onto the tube, an improvement which comprises a rigid backing plate fixedly attached to the sponge foam section in an area of the device apart from where the sponge foam section contacts with the patient's orifice, said backing plate having a bore corresponding to the position of the bore in the sponge foam section and a slot corresponding to the position of the slot in the sponge foam section, the bore in said backing plate being sized to fit tightly against the tube extending through the bore's entire length and the bore through the sponge foam section being sized slightly smaller than the backing plate bore, said backing plate enabling the device to be placed in substantially permanent traction against the patient's orifice.

5,207,652
MEDICAL APPARATUS FIXATION AND INFECTION CONTROL DEVICE
Dennis M. Kay, Tampa, Fla., assignor to Bioderm, Tampa, Fla.
Filed Oct. 23, 1991, Ser. No. 779,729
Int. Cl.[5] A61M 25/02
U.S. Cl. 604—180 43 Claims



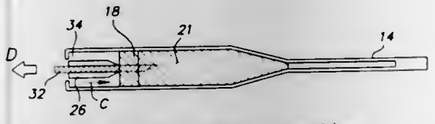
1. A fixation and infection control device for use with invasive medical apparatus, comprising
(a) a flexible barrier body being a pre-determined shape which is impregnated with at least one medically active substance and has
(i) an aperture configured for sealably surrounding said invasive medical apparatus,
(ii) a first mating surface for joining said barrier body to skin and
(iii) a second mating surface for joining said barrier body to said invasive medical apparatus; and
(b) means for sealably attaching said barrier body to said invasive medical apparatus and said skin so that a microbe-impermeable seal is formed.

5,207,653
SAFETY NEEDLE AND CAP COMBINATION DEVICE
Sabiha Janjua, 643 Charlotte St, Sudbury, Ontario, Canada, and Danyl M. Stotland, 273 C Craig Henry Drive, Nepean, Ontario, Canada K2G 4C7
Division of Ser. No. 570,154, Aug. 17, 1990, abandoned. This application Sep. 30, 1991, Ser. No. 768,387
Claims priority, application Canada, Aug. 18, 1989, 608730
Int. Cl.[5] A61M 5/32
U.S. Cl. 604—192 16 Claims



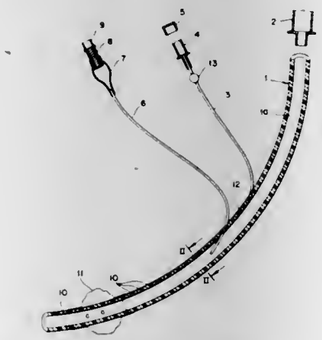
1. A safety needle and closure cap device consisting essentially of in combination
(i) a hub including a substantially axial flow channel;
(ii) a needle attached to the hub and in fluid flow communication with the channel;
(iii) a needle cap closure moveable by rotation between a first closed position covering the needle and a second open position exposing the needle; and
(iv) pivot means comprising two pivot protrusions and two cooperating sots, whereby the cap is slidably attached to the hub, moving from a first safety position to a second pivot position, and having an axis of rotation substantially perpendicular to the axis of the needle;
wherein the needle cap includes a longitudinal slit on one side thereof through which the needle passes on rotation of the cap either from the first closed position to the second open position, or from the second open position to the first closed position.

5,207,654
STORAGE DEVICE WITH POSITIVE DISPLACEMENT DISPENSER BY MEANS OF EGRESS THROUGH A PIERCED SEPTUM
Mark S. Schlosser, Seattle, Wash., and Lionel S. Goldring, Irvine, Calif., assignors to SpaceLabs Medical, Inc., Redmond, Wash.
Filed Jun. 11, 1990, Ser. No. 535,903
Int. Cl.[5] A61B 5/00
U.S. Cl. 604—203 34 Claims



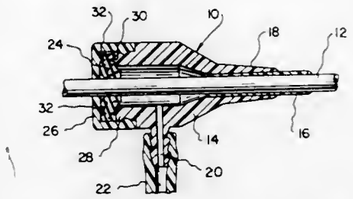
1. A positive displacement ampule, comprising:
an elongate vessel storing a fluid therein;
piston means disposed in one end of said vessel for forcing said fluid from said vessel, said fluid being disposed between said piston means and the other end of said vessel;
fracture means for fracturing said one end of said vessel; and
a needle insertable in said one end of said vessel in the area where said vessel has been fractured, said needle piercing said piston means such that one end of said needle protrudes outwardly from said vessel and the other end of said needle communicates with said fluid, wherein when said piston means is moved in the direction of said other end, said fluid is pumped from said vessel through said needle.

5,207,655
MEDICO-SURGICAL TUBE INCLUDING IMPROVED MEANS FOR ADMINISTERING LIQUID OR GAS TREATMENT
David S. Sheridan, Argyle, N.Y., assignor to Sheridan Catheter Corp., Argyle, N.Y.
Filed May 15, 1991, Ser. No. 700,411
Int. Cl.[5] A61M 25/00
U.S. Cl. 604—247 22 Claims



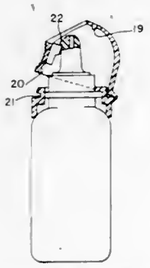
1. A medical-surgical tube comprising:
a tube having a major lumen defined by an inner periphery of a wall of the tube;
an injection lumen within the wall of the tube; and
at least one one-way valve means in the wall for allowing fluid to flow from the injection lumen in one direction through the wall of the tube, the valve means preventing the passage of fluid in an opposite direction through the wall and back into the injection lumen, the valve means comprising a piercing in the wall of the tube, the piercing being inclined at an angle other than 90° with respect to a direction of flow of fluid passing through the injection lumen.

5,207,656
MEDICAL INSTRUMENT VALVE HAVING FOAM PARTITION MEMBER
Rudy J. Kranys, Coconut Grove, Fla., assignor to Cordis Corporation, Miami Lakes, Fla.
Filed Apr. 19, 1990, Ser. No. 510,946
Int. Cl.[5] A61M 5/00
U.S. Cl. 604—256 10 Claims



1. An arterial catheter introducer which comprises a cannula portion and a proximally positioned, tubular housing, said housing comprising a valve for receiving and sealing an elongated member which penetrates said valve, said valve comprising an elastomeric partition member, the improvement comprising, in combination:
said partition member comprising a closed-cell foam; hydrophobic elastomer material, the closed cells of said foam carrying a liquid agent within said cells to facilitate penetration of said elongated member therethrough and sealing of said valve, said partition member being initially aperture-free prior to use.

5,207,657
RECESSED TIP FLUID DISPENSER
Kenneth J. Gibilisco, Coopersburg, Pa., assignor to Merck & Co., Inc., Rahway, N.J.
Filed Sep. 18, 1991, Ser. No. 761,554
Int. Cl.[5] A61M 35/00; B65D 55/02, 51/18; B67D 5/06
U.S. Cl. 604—295 16 Claims



1. A container for storing and dispensing a liquid comprising a body having a neck and a liquid dispensing tip having an opening, a cap having an upper sidewall and an interior surface, fastened to the body and said cup being pivotable away

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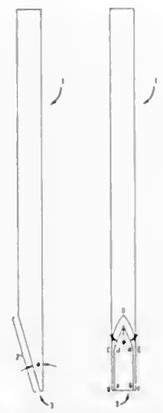
from the body, the cap having an aperture in its upper sidewall through which liquid is dispensed, the apertures in the cap exposing the dispensing tip in both open and closed positions, the cap being pivoted away from the body thereby aligning the aperture of the cap with the opening of the dispensing tip when the container is in the open position, the cap being pivoted toward the body, thereby moving the aperature of the cap out of alignment with the opening of the dispensing tip to close the container.

5,207,658

PRICK RESISTANT MEDICAL NEEDLE FOR INTRAVENOUS INJECTIONS

Howard J. Rosen, 6622 Horseshoe La., Huntington Beach, Calif. 92648, and Mark A. Rosen, 11871 Reagen St., Los Alamitos, Calif. 90720

Filed Nov. 14, 1991, Ser. No. 792,253
Int. Cl.[5] A61M *5/32*
U.S. Cl. 604—272 **15 Claims**



1. A syringe needle for administering injections directly into an IV tubing comprising:
a tube with a throughgoing bore, having a tapered tip formed on a first end thereof, said bore connecting an opening formed on said tapered tip of said tube, with an opening at a second end of said tube,
said tapered tip having a contact surface area along which said needle may contact said IV tubing, said contact surface area of said tapered tip extending in two orthogonal directions perpendicular to a longitudinal axis of said tube, and said needle tip contact surface area being sharp enough to pierce said IV tubing but not sharp enough to pierce human skin.

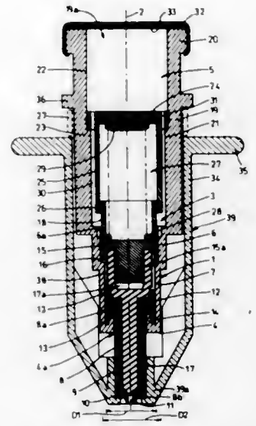
5,207,659

DEVICE FOR DISPENSING DROPS OF SMALL VOLUME, IN PARTICULAR FOR OPHTHALMOLOGICAL CARE

Hervé Pennaneac'h; Michel Theot, both of Verneuil-sur-Avre, and Claude Jouillat, Montigny-sur-Avre, all of France, assignors to Société Technique de Pulvérisation - S.T.E.P., Verneuil-sur-Avre, France

Filed Apr. 1, 1992, Ser. No. 861,579
Claims priority, application France, Apr. 5, 1991, 91 04178
Int. Cl.[5] A61M *35/00*
U.S. Cl. 604—298 **7 Claims**

1. A device for dispensing drops of small volume, the device comprising a pump and a container of substance to be dispensed, said pump comprising:
a hollow pump body extending between a first end close to the container and a second end closed by an end wall which is pierced by a central opening, said pump body including a passage between its inside and the container; and
a piston sliding inside said pump body in sealing contact with said pump body around a circular periphery having a first diameter D2, thereby isolating the container from a pump chamber inside the pump body, said piston being slidable towards the container to a position in which it puts said pump chamber into communication with the container via said passage;
wherein the pump further includes:
a push rod including a central channel in which a valve seat is formed, said push rod sliding through said central open-



ing in the end wall of the pump body, and said push rod being in contact with the pump body around a circular periphery having a second diameter D1 that is smaller than said first diameter D2; pusher means for displacing said push rod within said pump body toward said container;
a punch secured to the piston and extending along said central channel of the push rod and being suitable for bearing in sealed manner against the valve seat;
a support secured to the pump body and disposed at the end thereof adjacent to the container; and
resilient bearing against the support means and urging the piston towards the end wall of the pump body.

5,207,660

METHOD FOR THE DELIVERY OF COMPOSITIONS TO THE OCULAR TISSUES

Harvey A. Lincoff, New York, N.Y., assignor to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Apr. 26, 1991, Ser. No. 691,836
Int. Cl.[5] A61M *35/00*
U.S. Cl. 604—300 **12 Claims**

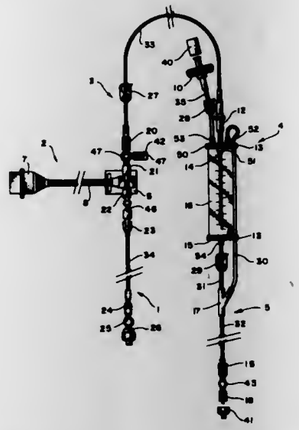
1. A method for administering a composition to the ocular tissues, comprising:
positioning a balloon catheter in the retrobulbar space by expanding the balloon to maintain the position of the catheter in the retrobulbar space; and
sequentially injecting through the catheter a predetermined amount of the composition at predetermined intervals.

5,207,661

BODY FLUID DRAINAGE ASSEMBLY

Frank Repschlager, Burgdorf, Fed. Rep. of Germany, assignor to Smiths Industries Public Limited Company, London, England

Filed Jun. 7, 1991, Ser. No. 711,995
Int. Cl.[5] A61M *1/00;* **A61B** *5/00*
U.S. Cl. 604—317 **1 Claim**



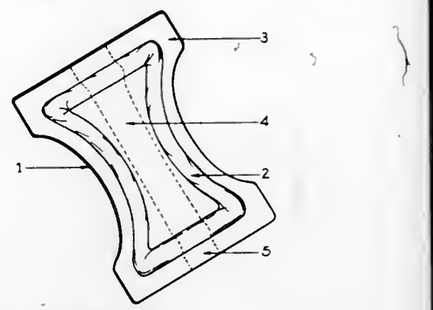
1. An assembly for draining cerebro-spinal fluid from a human body comprising:
(a) a graduated drip chamber having a top wall, a bottom wall, a peripheral wall extending between said top and bottom walls, cerebro-spinal fluid inlet means including a one-way valve for introducing cerebro-spinal fluid into said drip chamber, yet preventing cerebro-spinal fluid from flowing from said drip chamber toward said human body, said one-way valve positioned within said drip chamber below the top wall fluid overflow outlet means including a fluid passageway in said top wall for passing fluid upwardly through said top wall to remove overflow fluid from said drip chamber, when the level of said cerebro-spinal fluid within said drip chamber reaches the top wall and cerebro-spinal fluid outlet means operatively connected to said bottom wall for draining cerebro-spinal fluid from said drip chamber;
(b) an elongated flexible tubular member operatively connected to said fluid inlet means for introducing cerebro-spinal fluid from said human body into said drip chamber;
(c) cerebrospinal fluid pressure monitoring means operatively connected to said elongated flexible tubular member;
(d) tubular drainage means operatively connected to said fluid outlet means at said bottom wall for draining cerebro-spinal fluid from said drip chamber;
(e) fluid overflow bypass tube means operatively connecting said fluid overflow outlet means in said top wall with said tubular drainage means for transferring overflow fluid from said fluid overflow outlet means to said tubular drainage means; and,
(f) gas venting means comprising a flexible, compressible gas outlet tube operatively connected to said top wall for releasing gas from said chamber, a biological filter operatively connected to said gas outlet tube and spaced apart from said top wall, and tube clamping means operatively connected to said gas outlet tube between said filter and said top wall for compressing said gas outlet tube and preventing the flow of fluid between said chamber and said filter when activated.

5,207,662

FLUSHABLE OR DISPOSABLE DIAPER PAD WITH REUSABLE WRAP

Annett James, 755 Yale Rd., Boulder, Colo. 80303

Continuation-in-part of Ser. No. 783,135, Oct. 28, 1991, abandoned. This application Aug. 17, 1992, Ser. No. 931,569
Int. Cl.[5] A61F *13/62, 13/76*
U.S. Cl. 604—385.2 **5 Claims**



1. A diaper comprising:
a. an exterior washable and reusable wrap having a front waist, a rear waist, a center portion disposed therebetween and a periphery defined by side edges, said wrap including an inner waterproof layer and an outer layer comprising cotton;
b. an interior liner having a front waist portion, a rear waist portion, a center portion disposed therebetween, and a periphery defined by side edges, said liner being disposable and flushable and having a moisture absorbent filler therein;
c. said wrap including means for attaching said liner to said wrap, said means for attaching said liner comprising an upstanding fence having a top, a base and a height, said fence being space along the length of the side edges of said wrap, the base of said fence being stitched to said inner layer of said wrap slightly inwardly of the side edges of said wrap, the top of said fence being elasticized by dual parallel lines of elastic threads and being spaced in a direction towards said wearer approximately one inch from said inner layer, said fence forming a pocket for housing the side edges of said liner;
d. said absorbent liner including an upstanding dam containing absorbent material, said dam being spaced inside the side edges of said liner to prevent moisture from migrating outwardly to the side edges of said liner; and
e. said absorbent liner including a plurality of spaced perforated lines defining areas of weakness, said perforated lines intersecting said absorbent dam.

5,207,663

URINARY AND BOWEL INCONTINENCY CONTROL UNDERGARMENT

Janet McQueen, Trenton, N.J., assignor to McNeil-PPC, Inc., Milltown, N.J.

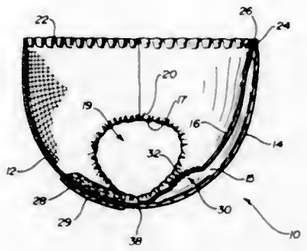
Continuation of Ser. No. 695,166, May 3, 1991, abandoned. This application Feb. 18, 1992, Ser. No. 839,051
Int. Cl.[5] A61F *13/15, 13/20;* **A41B** *9/00, 9/08*
U.S. Cl. 604—385.1 **27 Claims**

1. A reusable protective incontinence undergarment comprising:
a front fabric panel having a top, a bottom, and two sides, the bottom of said front panel separated from each of the two sides by front panel elasticized leg panel portions;
a rear feces-impervious panel having a top, a bottom, and two sides, the bottom of the rear panel separated from each of the two sides of the rear panel by rear panel elasti-

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cized leg panel portions and wherein the bottom of the rear impervious panel is permanently attached to the bottom of the front panel and the two sides of the rear impervious panel are permanently attached to the two sides of the front panel so as to form a panty having two leg openings surrounded by said elasticized leg panel portions of the rear panel;

an inner feces-impervious panel having a top, a bottom, and two sides, the bottom of the inner panel separated from each of the two sides of the inner panel by leg panel portions and wherein the inner panel has a substantially similar shape to said rear impervious panel and wherein said



inner panel sides, leg panel portions and bottom are substantially sealed to said rear impervious panel at said rear panel sides, leg panel portions and bottom, respectively, so as to create a feces-impervious pouch therebetween as an integral part of the panty;

a slit in the inner panel oriented perpendicularly to the top of the inner panel and located such that the slit is approximately adjacent to an anus of an individual when said undergarment is worn; and

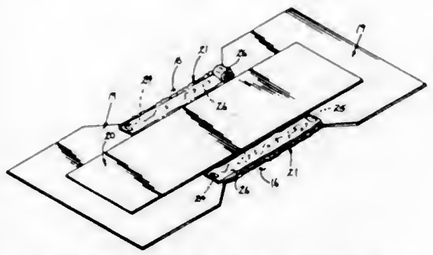
means for releasably attaching and detaching the tops of the rear panel and inner panel from each other so as to allow access to said pouch when said tops are detached and so as to seal said pouch when said tops are attached.

5,207,664

DISPOSABLE DIAPER CONSTRUCTION

Deborah M. Blanco, 11400 NE. 132nd St. Apt. J106, Kirkland, Wash. 98034

Filed Jun. 13, 1991, Ser. No. 714,506
Int. Cl.[5] A61F *13/15, 13/20*
U.S. Cl. 604—385.2 1 Claim



1. A disposable diaper construction, comprising,

an outer fabric sheet, with a fibrous sheet member coextensively mounted to the outer fabric sheet utilizing a heat activated adhesive therebetween to define a composite outer sheet, and

the composite outer sheet defined by a predetermined length and a predetermined width, and including spaced side edges, and

the spaced side edges each include a side edge recess directed medially within the composite outer sheet along each side edge, and

a fluid absorbing fabric matrix web defined by a further predetermined length and a further predetermined width less than the predetermined length and predetermined width of the composite outer sheet is adhesively mounted medially on a top surface of the composite outer sheet between the side edge recesses, and

the fabric matrix web is adhesively secured to an inner porous sheet, wherein the fabric matrix web and the inner porous sheet are coextensive relative to one another and define a composite inner sheet, the composite inner sheet defines a predetermined spacing between the composite inner sheet and the side edge recesses of the composite outer sheet, and

the composite outer sheet includes a plurality of heat shrinkable elastomeric threads directed through the composite outer sheet between the side edge recesses and the composite inner sheet to define ruffled side wall portions between the side edge recesses and the composite inner sheet, and

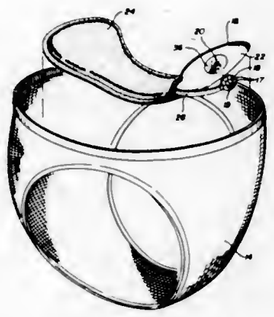
a plurality of protective pads, each protective pad formed of a fibrous material and includes a first and second terminal end and a bottom surface, and each bottom surface including a respective first and second adhesive member mounted adjacent each respective first and second terminal end of each protective pad, and each protective pad is defined by a pad length substantially equal to a recess length defined by each side edge recess, each said protective pad is adherably mounted to the top surface of the composite outer sheet between each side recess and the composite inner sheet to overlie the ruffled side wall portion adjacent each side edge recess, with the first and second adhesive members of each protective pad mounted to the top surface of the composite outer sheet.

5,207,665

ABSORBENT PRODUCT HAVING MECHANICAL ATTACHMENT MECHANISM

Martha Davis, New York, N.Y.; Daniel Formosa, Montvale, N.J.; Jeannie Gerth, Brooklyn, N.Y.; Patricia A. Moore, Montvale, N.J.; Stephen Russak, Hoboken, N.J.; Tamara Thomsen, and Tucker Viemeister, both of New York, N.Y., assignors to McNeil-PPC, Inc., Milltown, N.J.

Filed Jul. 6, 1990, Ser. No. 549,336
The portion of the term of this patent subsequent to Mar. 24, 2009, has been disclaimed.
Int. Cl.[5] A61F *13/15, 13/20*
U.S. Cl. 604—399 25 Claims



1. A sanitary napkin comprising a central absorbent element having longitudinally extending sides, transverse ends, a body-facing side and an undergarment-facing side, said central absorbent element including mechanical attachment means for directly securing said sanitary napkin to an undergarment,

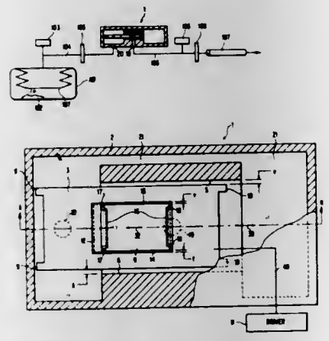
thereby minimizing shifting of said sanitary napkin during movements by a wearer, said mechanical attachment means comprising (i) first and second fastening elements which engage to capture a portion of said undergarment therebetween and (ii) means for affixing said first fastening element directly to said central absorbent element.

5,207,666

PASSIVE SHUTTLE METERING DEVICE FOR IMPLANTABLE DRUG DELIVERY SYSTEM

Samir F. Idriss, Hyde Park, Mass., and Joshua Makower, Nanuet, N.Y., assignors to Infusaid, Inc., Norwood, Mass.

Filed Aug. 30, 1991, Ser. No. 752,798
Int. Cl.[5] A61M *31/00*
U.S. Cl. 604—891.1 23 Claims



1. An implantable delivery device comprising;

a source of fluid under pressure,

a conduit for fluid delivery,

a metering element receiving fluid from said fluid source and delivering discrete fluid pulses to said conduit, said metering element comprising a housing having an inlet in fluid communication with said source, an outlet in fluid communication with said conduit and a cavity in said housing in fluid communication with said inlet and outlet, first movable means mounted in said cavity for movement relative to said inlet and said outlet and second movable means retained by said first movable means and movable relative to said outlet, said second movable means responsive to a pressure difference in said cavity for expelling fluid from said cavity into said outlet, and means to move said first movable means.

5,207,667

ONE HAND IV NEEDLE INJECTION SITE CONNECTOR

George T. Walker, San Diego, and James M. Verespej, Carlsbad, both of Calif., assignors to Block Medical, Inc., Carlsbad, Calif.

Filed Sep. 27, 1991, Ser. No. 768,374
Int. Cl.[5] A61M *25/00*
U.S. Cl. 604—905 16 Claims

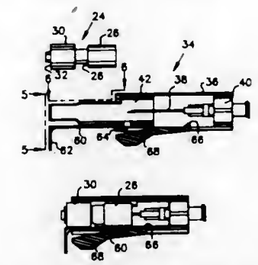
1. A protected IV injection site coupling for one hand connection to an IV injection port comprising:

an elongated tubular housing having a proximal end and an open distal end;

needle mounting means in said proximal end for mounting a conventional needle in a protected coaxial position within said housing and extending toward said distal end;

connecting means at said proximal end for connection to an IV source; and

telescoping means reciprocally mounted in said housing and having spaced apart opposed finger means extendable from said distal end of said housing for engaging an IV injection port therebetween for pulling said injection port into said housing upon movement of said telescoping



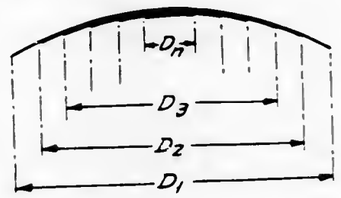
means into said housing for coupling engagement with said needle therein.

5,207,668

METHOD FOR OPTHALMOLOGICAL SURGERY

Francis A. L'Esperance, Jr., Englewood, N.J., assignor to VISX Incorporated, Santa Clara, Calif.

Continuation of Ser. No. 493,337, Mar. 14, 1990, abandoned, which is a continuation of Ser. No. 891,169, Jul. 31, 1986, abandoned, which is a continuation-in-part of Ser. No. 780,335, Sep. 26, 1985, abandoned, which is a continuation-in-part of Ser. No. 740,276, Jun. 3, 1985, abandoned, which is a continuation-in-part of Ser. No. 552,983, Nov. 17, 1983, abandoned. This application May 31, 1991, Ser. No. 708,744
Int. Cl.[5] A61B *5/06*
U.S. Cl. 606—5 6 Claims



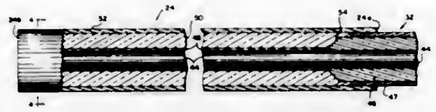
1. The method of effecting without mechanical contact an optically correcting change within a predetermined optically used central circular anterior surface area of the cornea of an eye, from an initial curvature requiring mypio correction to a subsequent curvature having improved optical properties, which method comprises predetermining the number of diopeters of needed optically correcting curvature change, using ultraviolet laser radiation in a program of selective ablation of the optically used portion of the anterior surface of the cornea by photodecomposition, with penetration into stroma tissue and volumetric sculpturing removal of corneal tissue to such penetration depth and profile as to characterize the anterior surface with said subsequent curvature, said sculpturing removal being via laser radiation which is characterized by a circular spot having a single density-distribution profile wherein flux density decreases radially outward at least to the perimeter of said predetermined area, determining from said predetermined number of diopters a predetermined maximum ablation depth into the stroma, adjusting laser-beam projection to a limited intensity level at which resultant corneal-tissue ablation per unit time is to an ascertained elemental depth which is but a fraction of said predetermined maximum ablation depth into the stroma, determining from said elemental depth per unit time and from said predetermined maximum ablation depth the amount of exposure time needed to accomplish said predetermined maximum ablation depth and thus

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said predetermined number of diopters of curvature change, and proceeding with said program for said exposure time predetermined to achieve the predetermined number of diopters of myopia-correcting change.

5,207,669
OPTICAL FIBER DIFFUSION TIP FOR UNIFORM ILLUMINATION

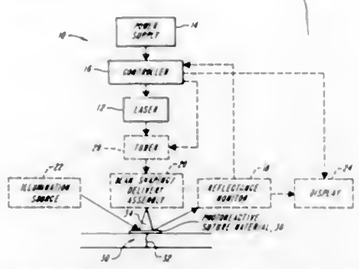
Glenn S. Baker, Wakefield, and Edward L. Sinofsky, Peabody, both of Mass., assignors to C. R. Bard, Inc., Murray Hill, N.J.
Division of Ser. No. 358,443, May 26, 1989. This application Jan. 18, 1991, Ser. No. 643,764
Int. Cl.[5] A61B 17/36
U.S. Cl. 606—7 9 Claims



1. A laser transmission and diffusion assembly comprising:
an optical fiber having one end adapted for coupling to a source of laser radiation; and
a tip assembly connected to the other end of said optical fiber for directing laser radiation outwardly, said tip assembly including a core, a cladding around the core and a protective jacket adhered to the cladding, said cladding having an index of refraction that is lower than that of the core and having a thickness selected to transmit outwardly through the cladding and the jacket a portion of the laser radiation that is carried through said optical fiber, the selected thickness providing a predetermined axial distribution of laser radiation, the thickness of said cladding being varied over the length of said tip assembly to provide said predetermined axial distribution of laser radiation.

5,207,670
PHOTOREACTIVE SUTURING OF BIOLOGICAL MATERIALS

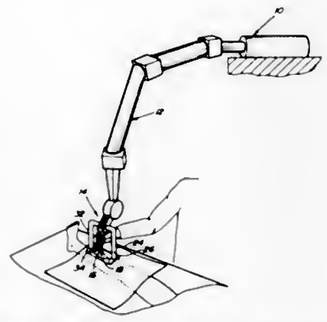
Edward L. Sinofsky, Dennis, Mass., assignor to Rare Earth Medical, Inc., Dennis, Mass.
Continuation-in-part of Ser. No. 538,977, Jun. 15, 1990, Pat. No. 5,071,417. This application Dec. 9, 1991, Ser. No. 804,791
Int. Cl.[5] A61N 5/06
U.S. Cl. 606—8 8 Claims



1. An apparatus for joining biological materials comprising:
a suture means for delivering a photoreactive suture material to an anastomotic site, the suture material comprising a structure with at least a portion of the structure formed by a crosslinking agent such that upon irradiation of said suture means the crosslinking agent adheres to the biological material and thereby provides closure at said anastomotic site;
laser means for delivering laser radiation to said anastomotic site to activate the crosslinking agent; and
a surgical tool, housing at least a portion of both said suture means and said laser means.

5,207,671
LASER DEBRIDEMENT OF WOUNDS

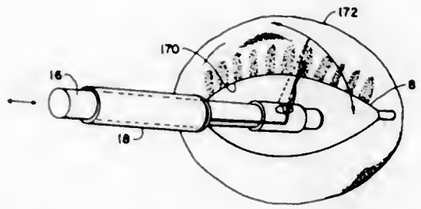
Peter A. Franken, 2105 E. 4th St., Tucson, Ariz. 85721, and Alan E. Hill, 17 ElArco Rd., Albuquerque, N. Mex. 87123
Filed Apr. 2, 1991, Ser. No. 679,421
Int. Cl.[5] A61B 5/00
U.S. Cl. 606—9 11 Claims



1. The method of debridement of eschar from a burn wound comprising the steps of:
producing a pulsed laser beam with individual pulses sufficiently energetic to ablate a layer of eschar, said laser beam having an average power of at least one hundred joules per second, each pulse having a time duration short enough to avoid deleterious heat penetration and long enough so that it does not cause breakdown of the atmosphere,
and causing said beam to impinge perpendicularly upon said layer of eschar.

5,207,672
INSTRUMENT AND METHOD FOR INTRALUMINALLY RELIEVING STENOSIS

Robert A. Roth, Brookline, and Michael A. Martinelli, Winchester, both of Mass., assignors to Intra-Sonix, Inc., Burlington, Mass.
Continuation-in-part of Ser. No. 346,790, May 3, 1989, abandoned. This application Jan. 14, 1991, Ser. No. 641,457
Int. Cl.[5] A61N 5/06; A61B 8/12
U.S. Cl. 606—10 17 Claims

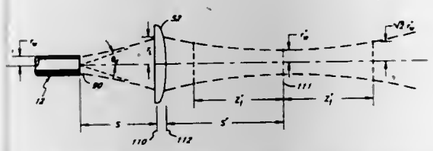


1. An instrument for use in effectively removing anatomical constrictions of the prostatic urethra, the instrument comprising:
a catheter casing sufficiently long so that a portion of the casing can be inserted into the prostatic urethra within the anatomical constrictions;

an inflatable balloon, substantially transparent to selected laser radiation and supported on the portion of the catheter casing so that the balloon is insertable into the prostatic urethra within said anatomical constrictions, the balloon being size so that when inflated within the prostatic urethra the balloon assumes a substantially fixed and uniform cross-sectional dimension so as to reconfigure at least a selected part of the tissue of the urethra into a smooth uniform cylindrical shape having an axial direction such that a corresponding portion of the prostate is squeezed from within the urethra and balloon excluding means for comprising the tissue and associated blood vessels of the corresponding portion of the prostate so as to decrease blood flow and promote hemostasis in the tissue, and means for providing for uniformity and increased depth of penetration of said selected laser radiation in the corresponding portion of the prostate;
a probe axially and rotatably movable within the casing and the balloon;
means, fixed relative to said probe, for transmitting a beam of said selected laser radiation in a direction transverse to said axial direction through the balloon into at least a volumetric portion of the tissue compressed by the balloon where an anatomical constriction exists;
a control unit, coupled to said catheter casing and said probe, including means for setting a rotational position of said probe so as to set the transverse direction of the beam of laser radiation relative to said balloon when compressed tissue is exposed to said beam of radiation, and means for moving the probe within and relative to the casing and balloon along the prostatic urethra so as to move said means for transmitting said beam of laser radiation relative to said balloon while transmitting said beam of said selected laser radiation through the balloon directly into at least a portion of the tissue compressed by the balloon; and
means, fixed relative to said probe and movable relative to said casing and balloon, for ultrasonically observing said volumetric portion of said tissue as the tissue is exposed to the beam of laser radiation.

5,207,673
FIBER OPTIC APPARATUS FOR USE WITH MEDICAL LASERS

Wendell V. Ebling, El Toro; John F. Forkner, South Laguna; Robert J. Freiberg, Mission Viejo, and Robert E. Woodard, El Toro, all of Calif., assignors to Premier Laser Systems, Inc., Irvine, Calif.
Continuation of Ser. No. 364,703, Jun. 9, 1989, abandoned. This application Dec. 6, 1991, Ser. No. 803,919
Int. Cl.[5] A61N 5/06
U.S. Cl. 606—16 58 Claims



1. An apparatus, comprising:
an optical waveguide for emitting light having a minimum waist and a minimum waist radius r_w, said light being relatively incoherent and having a coherence factor K_c of no less than about 2.0; and
a lens for focusing said light, said lens being of substantially uniform composition and having (i) a diameter of no more than 4 millimeters, (ii) a focal length F, (iii) a beam intercept radius r_L, and (iv) a front principal plane which is spaced from said minimum waist by a dimension S, said light source and said lens being positioned relative to each other to satisfy the relationships.

$$1.5 \leqq R \leqq X$$

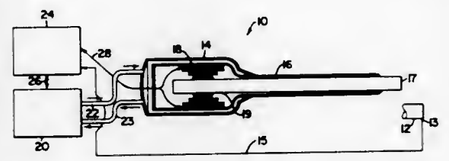
and

$$0.25 \leqq F/S \leqq 0.95$$

wherein R is equal to r_L/r_w, and X is no greater than 4 divided by twice the minimum waist radius r_w in millimeters.

5,207,674
ELECTRONIC CRYOGENIC SURGICAL PROBE APPARATUS AND METHOD

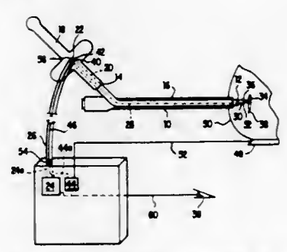
Archie C. Hamilton, 3422 Rolling Hills Dr., Eagan, Minn. 55121
Filed May 13, 1991, Ser. No. 699,994
Int. Cl.[5] A61B 17/36
U.S. Cl. 606—20 31 Claims



1. An electronic cryoprobe for treating tissue comprising:
a) a thermoelectric cooling module;
b) a heat pipe coupled to said thermoelectric cooling module wherein heat is transferred from said heat pipe to said cooling module;
c) an application tip coupled to said heat pipe wherein heat is transferred from a tissue treatment site to said heat pipe;
d) an electric power means for supplying power to said thermoelectric cooling module;
e) a control means connected to said thermoelectric cooling module for regulating the rate of heat transferred by said cooling module; and
f) a sensing means connected to said control means for detecting the heat loss transferred from said treatment site to said electronic cryoprobe, wherein said sensing means relays temperature information to said control means, and wherein said control means processes said information to generate a multiple freeze-thaw cycle to be delivered by said electronic cryoprobe to said treatment site.

5,207,675
SURGICAL COAGULATION DEVICE

Jerome Canady, 4000 16th St., N.W., Washington, D.C. 20011
Filed Jul. 15, 1991, Ser. No. 730,049
Int. Cl.[5] A61B 17/36
U.S. Cl. 606—40 16 Claims



1. A surgical tissue coagulator comprising an elongate, bi-

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ocampatible, flexible tube having an open distal end and a proximal end, the tube having an external diameter of less than about 5 mm and being insertable into and maneuverable within a surgical endoscope;

means for connecting the proximal end of said tube with a source of an inert, ionizable gas so that a stream of said gas can flow through said tube and exit the distal end of said tube;

a flexible wire within said tube for conducting radiofrequency current, the wire having a distal end for positioning adjacent the distal end of said tube, and means at the distal end of said wire fir discharging an arc of radiofrequency energy away from the distal end of said wire within said stream of inert gas exiting the distal end of said tube so as to form an ionized gas stream which is capable of coagulating tissue during endoscopic surgery within a patient, the wire having a proximal end opposite the distal end of the wire, and means for connecting the proximal end of the wire with a source of radiofrequency energy; and

a handle attached to said tube adjacent the proximal end of the tube for maneuvering said tube within said endoscope while said handle is outside said endoscope

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5,207,676

EXTERNAL FIXATOR WITH CONTROLLABLE DAMPING

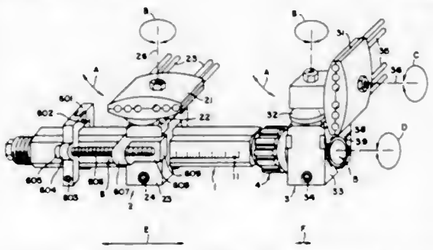
José Canadell, Pamplona, Spain; Marcel H. Wagenknecht, Le Lignon, Switzerland, and Juan Lazo de Zbikowski, Sevilla, Spain, assignors to Jaquet Ortbopédie S.A., Geneva, Switzerland

Continuation of Ser. No. 485,095, Feb. 26, 1990, abandoned. This application Apr. 23, 1991, Ser. No. 689,654

Claims priority, application Switzerland, Feb. 27, 1989, 698/89-3

Int. Cl.[5] A61F *5/04*

U.S. Cl. 606—54 25 Claims



1. An external fixator for correcting and reducing fragments of a bone comprising in operable communication:

a bar (**1**, **100**, **200**) to be disposed substantially parallel to the bone and having a longitudinal axis therethrough;

a casing operatively connected to said bar for longitudinal movement with respect thereto;

at least a first support (**3**) coupled to said casing and a second support (**2**) coupled to said bar for orienting pins to be inserted into said bone fragments;

a displacement member (**6**, **201**) acting between said bar and said second support for adjusting the distance between said first support and said second support and for preventing rotation between said first support and said second support;

said casing is adapted to move relative to a sliding block (**70**, **270**) fixed to said bar so as to obtain a longitudinal reciprocating movement of said casing with respect to said bar and so as to avoid angular displacement of said casing with respect to said bar;

a damping member (**90**, **290**) acting between said bar and said casing for damping the longitudinal displacement of said first and second supports;

an adjustable stop mounted between said bar and said casing to limit the longitudinal movement of said first and second supports towards one another;

said second support (**2**) is displaceable longitudinally relative to said first support by means of said displacement member (**6**, **201**); and

means for adjusting the damping action of said damping member.

5,207,677

Patent Not Issued For This Number

5,207,678

PEDICLE SCREW AND RECEIVER MEMBER THEREFORE

Jürgen Harms, Waldbronn Reichenbach, and Lutz Biedermann, Schwenninger, both of Fed. Rep. of Germany, assignors to Prufer, Munich, Fed. Rep. of Germany

Filed Jan. 7, 1992, Ser. No. 817,659

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1989, 3923996

Int. Cl.[5] A61B *17/56*

U.S. Cl. 606—61 7 Claims



1. Device for stabilizing spinal column segments, comprising a pedicle screw (**1**) having a threaded shaft portion (**3**) and a spherically-shaped head (**4**) at the end of said threaded shaft portion, a receiver member (**5**) flexibly connected to said head (**4**), said receiver member being provided with two holes for receiving a rod **916**), a receiver chamber (**7**) being provided within said receiver member (**5**), the receiver chamber (**7**) having at one end thereof a bore (**8**) for passing the threaded shaft portion (**3**) therethrough and an inner hollow spherically-shaped portion (**9**) for receiving the head (**4**) of said screw (**1**), an opening (**10**) being provided opposite said bore (**8**) for inserting said screw (**1**), said device further comprising a compression member (**18**) for exerting a force onto said head (**4**) such that said head is pressed against the hollow spherically-shaped portion (**9**).

5,207,679

SUTURE ANCHOR AND INSTALLATION TOOL

Lehmann K. Li, Wellesley, Mass., assignor to Mitek Surgical Products, Inc., Norwood, Mass.

Continuation of Ser. No. 766,025, Sep. 26, 1991, abandoned. This application Jun. 22, 1992, Ser. No. 902,513

Int. Cl.[5] A61B *17/00*

U.S. Cl. 606—72 37 Claims

1. Apparatus for attaching an object to a workpiece comprising:

an anchor assembly comprising a body and at least two barbs;

said body having a longitudinal axis, a first portion having a first end and a second end and a first maximum cross-section transverse to said longitudinal axis, a second portion centered on said longitudinal axis having a first end and a second end and a second cross-section transverse to said longitudinal axis smaller than said maximum cross-section of said first portion, and a middle portion having a first end and a second end, said second end of said first portion being joined to said first end of said middle portion, and said first end of said second portion being joined to said second end of said middle portion,

said middle portion defining at least two equally-circumferentially-spaced channels extending inwardly from an axial projection of said maximum transverse cross-section of said first portion to a base adjacent said longitudinal axis, and said channels extending longitudinally between said second end of said first portion and said second end of said middle portion, said channels being separated by longitudinal walls extending radially of said longitudinal axis to an outer surface located on said axial projection of the periphery of said maximum transverse cross-section, and



said middle portion defining at least two axial grooves extending from said second end of said middle portion towards said first end of said middle portion;

one of said barbs extending axially and radially outwardly from said second end of said first portion adjacent the base of each said channel to an outer end located radially outwardly of said axial projection of said first maximum transverse cross-section of said first portion, each said barb being curved in its normal unrestrained state but capable of being elastically deformed into a substantially straight configuration with its outer end located radially within said axial projection of said first maximum transverse cross-section of said first portion; and

attachment means associated with said second portion for connecting an object to said anchor assembly.

5,207,680

FRONT MILLING GUIDE FOR USE IN ORTHOPAEDIC SURGERY

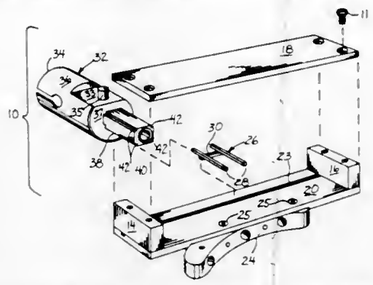
Terry L. Dietz, Columbia City, and Richard D. Vanlaningham, Leesburg, both of Ind., assignors to Zimmer, Inc., Warsaw, Ind.

Filed May 11, 1992, Ser. No. 881,285

Int. Cl.[5] A61F *5/00, 2/32*

U.S. Cl. 606—86 7 Claims

1. A milling guide for connection to an exposed portion of a bone to guide a milling device longitudinally across an upper surface f the bone, said milling guide comprising, a base having attachment means for connecting the guide to the bone, said base being adapted to extend laterally adjacent the bone, said base including a track means extending longitudinally along the base member, a slide means carried by the base in sliding engagement with said track means for accommodating a portion of a milling device, wherein with a milling device connected to said guide the milling device is slidable relative to said base in a predetermined pattern within the track means, said slide means being positionable with the track means and



being substantially smaller than said track means such that said milling device is movable laterally across the exposed bone form one end of the track means toward an other end of the track means.

5,207,681

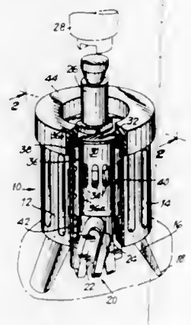
DRILL GUIDE APPARATUS FOR PERPENDICULAR PERFORATION OF THE CRANIUM

Fathali G. Ghadjar; Jamshid B. G. Ghajar, and Robert J. Hariri, all of New York, N.Y., assignors to Neurodynamics, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 113,580, Oct. 26, 1987, abandoned. This application Oct. 19, 1989, Ser. No. 424,034

Int. Cl.[5] A61B *17/16*

U.S. Cl. 606—96 12 Claims



1. An apparatus for accurately and reproducibly guiding drill means during the formation of an orifice in a human cranium, wherein said orifice extends at an angle of substantially 90° to an imaginary plane defined by a tangent to said cranium at said orifice, said apparatus comprising:

(a) ring means comprising a retaining member configured and adapted for engagement with a terminal portion of a spring means and a sleeve member, insertable within said retaining member and operatively associated therewith, said sleeve member comprising an open tubular body portion having a first end and a second end and an integrally formed circular flange member located along an outer peripheral portion of said first end, said ring means capable of a restricted degree of vertical, slideable movement within tubular means and fabricated from a self-lubricating thermoplastic composition to facilitate the movement thereof;

(b) tubular means adjacent and external to said ring means, adapted to guide and support said ring means, said tubular

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means having means for directing said vertical, slideable movement of said ring means, said directing means comprising channel means formed integral with a base portion of said tubular member entirely around an inner surface thereof and extending into a central bore defined by said tubular member, said channel means configured and adapted for supporting a lower portion of said spring means and having an inner wall portion adjacent said central bore separated from an outer wall portion formed by an inner surface of said tubular member by a base portion positioned substantially perpendicularly to and formed integral with both said inner and said outer wall portions, wherein said inner wall portion extends a sufficient distance within said bore so as to terminate beyond said second end of said open tubular body portion of said sleeve member to prevent any interference between said second end and said inner wall during said vertical slideable movement of said ring means within said tubular means;

(c) spring means located adjacent said body portion of said sleeve member and capable of resisting vertical movement of said ring means toward said base portion of said tubular means caused due to downward pressure exerted by said drill means during the formation of said orifice, said spring means encased within said tubular means

(d) a collar member surrounding to an upper surface of a bit portion of said drill means so as to facilitate rotation of said bit portion within said ring means, said collar member having grooved portions extending substantially therethrough to facilitate insertion of said bit portion within said collar member, each said grooved portion comprising, along an inner surface thereof, at least one tang configured and adapted for engaging an outer surface of said bit portion; and

(e) a plurality of leg members extending from and formed integrally with a lower surface of said base portion of said tubular means, said leg members adapted to rest unsecured upon an arcuate portion of said cranium, said tubular means, said ring means and said leg members being related to each other and to said cranium so as to guide said drill means through said arcuate portion in a direction perpendicular to an imaginary plane defined by a tangent to said cranium at said arcuate portion.

5,207,682

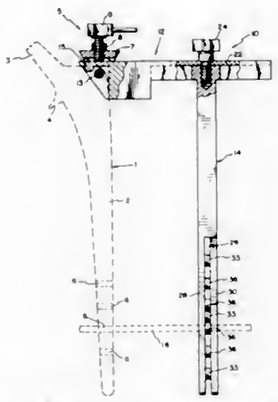
ADJUSTABLE DRILL GUIDE

Philip H. Cripe, 1112 Brubaker St., Warsaw, Ind. 46580

Filed Feb. 4, 1992, Ser. No. 830,589

Int. Cl.[5] A61F *2/32*

U.S. Cl. 606—96 **8 Claims**



1. A guide for drilling into a patient's bone in alignment with an opening in a prosthetic implant, said drill guide including a body adapted for connection to said prosthetic implant, a leg extending from said body along said implant, guide means being carried by said leg for accommodating a drill bit therethrough,. and adjustment means carried by said leg in operative association with said guide means for shiftable movement of said guide means relative to said leg, thereby permitting alignment of said guide means with the opening prior to drilling, wherein said leg includes a longitudinal slot defining first and second distal leg portions, said guide means including a sleeve member carried by a ring member, said sleeve aligning with openings in said first and second digital leg portions.

5,207,683

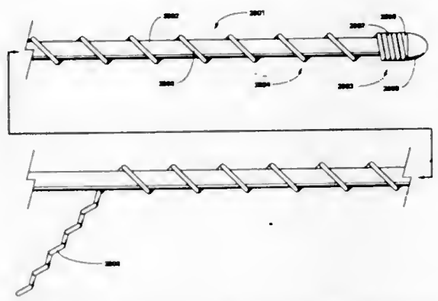
APPARATUS FOR REMOVING AN ELONGATED STRUCTURE IMPLANTED IN BIOLOGICAL TISSUE

Louis Goode, Evans City, and Frederick J. Shipko, Spring Church, both of Pa., assignors to Cook Pacemaker Corporation, Leechburg, Pa.

Continuation-in-part of Ser. No. 347,217, May 3, 1989, Pat. No. 5,011,482, which is a continuation-in-part of Ser. No. 298,100, Jan. 17, 1989, Pat. No. 5,013,310, which is a continuation-in-part of Ser. No. 269,771, Nov. 9, 1988, Pat. No. 4,988,347. This application Apr. 26, 1991, Ser. No. 691,706

Int. Cl.[5] A61B *17/50*

U.S. Cl. 606—108 **20 Claims**



1. Apparatus for removing a pacemaker lead implanted in a heart, comprising:

stylet means for inserting into a longitudinal passageway of said implanted lead;

first coil means attached about a distal end of said stylet means for radially expanding about said stylet means and securing said stylet means to said lead when said stylet means is inserted in said passageway; and

second coil means extending proximally from said first coil means and laterally from said stylet means for engaging with said lead and radially expanding said first coil means about said stylet means.

5,207,684

SHEATH FOR SHUNT PLACEMENT FOR HYDROCEPHALUS

Anthony A. Nobles, Fountain Valley, Calif., assignor to Neuro Navigational Corporation, Costa Mesa, Calif.

Filed Apr. 13, 1992, Ser. No. 867,826

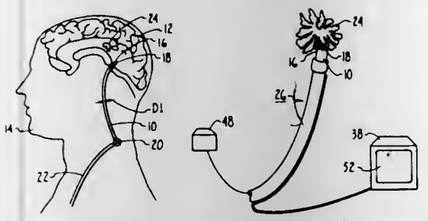
Int. Cl.[5] A61M *25/00;* **A61B** *17/00*

U.S. Cl. 606—108 **17 Claims**

1. A device, comprising:

a shunt for relieving hydrocephalus in the brain of a patient;

a tubular member slidably engageable with the shunt in a surrounding relationship therewith, the tubular member having a distal end segment; and



a cutting element positioned on the distal end segment for selectively cutting tissue adjacent the cutting element as the tubular member is advanced over the shunt.

5,207,685

TYMPANIC VENTILATION TUBE AND RELATED TECHNIQUE

James Z. Cinberg, 167 N. Ridgewood Rd., South Orange, N.J. 07079, and Peter J. Wilk, 185 W. End Ave., New York, N.Y. 10023

Continuation-in-part of Ser. No. 833,511, Feb. 11, 1992. This application Jul. 28, 1992, Ser. No. 921,308

Int. Cl.[5] A61F *17/00*

U.S. Cl. 606—109 **21 Claims**

10. A tympanic ventilation tube for releasing fluid from the middle ear, comprising:

a tubular member;

a first flange connected to one end of said tubular member, said first flange being provided with a cutting edge and with a tongue extension angularly spaced from said cutting edge; and

a second flange connected to an opposite end of said tubular member, said cutting edge facilitating the incising of the tympanic membrane during the insertion of the tubular member, wherein said first flange and said second flange seat against opposite sides of the membrane following the insertion.

5,207,686

SURGICAL SNARE

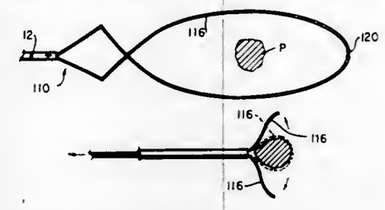
Stuart Dolgin, 95 Belvedere Dr., Syosset, N.Y. 11791

Filed Apr. 15, 1992, Ser. No. 869,522

Int. Cl.[5] A61B *17/00, 19/00*

U.S. Cl. 606—113 **2 Claims**

1. In a surgical snare of the type including a sheath and a wire assembly slidably mounted within the sheath, the wire assembly being moved within the sheath as a result of its being manipulated by a user at a near end thereof, the wire assembly being formed into a loop at a distal end thereof, the improvement comprising means responsive to the manipulation of the near end by the user for causing said loop to become discontinuous, whereby the snare may be removed from a patient when the loop becomes caught on a polyp, said wire loop being formed by doubling an end of the wire back on itself, said means for causing said loop to become discontinuous comprising releasable connecting means for providing an electrical and mechanical connection between said wire loop end and another portion of said wire assembly, including means for releasing said connection in response to said wire assembly being manipulated to slide within said sheath so as to expand out of said sheath beyond a predetermined distance.



5,207,687

APPARATUS FOR EXTRACTING A FETUS THROUGH THE NATURAL GENITAL TRACT OF THE MOTHER

Gilles Bernon, 24, rue Pierre-Mendes-France, F-77200 Torcy, France

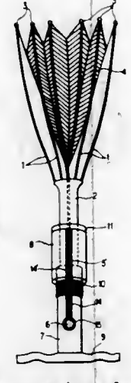
PCT No. PCT/FR89/00252, § 371 Date Jan. 16, 1991, § 102(e) Date Jan. 16, 1991, PCT Pub. No. WO89/11253, PCT Pub. Date Nov. 30, 1989

PCT Filed May 26, 1989, Ser. No. 635,538

Claims priority, application France, May 26, 1988, 88 07004

Int. Cl.[5] A61B *17/42*

U.S. Cl. 606—122 **6 Claims**



1. An apparatus for extracting a fetus through the natural genital tract of the mother, which comprises: a tubular sleeve and a body having a plurality of flexible rods arranged substantially as a corolla, said rods being connected at one of their ends with said tubular hollow sleeve and at a free opposite end with a crosslinked structure made of flexible material, extending inside said corolla; and

a base connected with a traction member, wherein said crosslinked structure comprises two networks imbricated one in the other, of which one is a closed-mesh network and the other is a free-mesh network having braids, said braids including at ends thereof which extend inside said corolla, wherein traction strands are fixed to said ends, and wherein said traction strands terminate at an opposite end fixed to the crosslinked structure in an anchoring core positioned in said traction member.

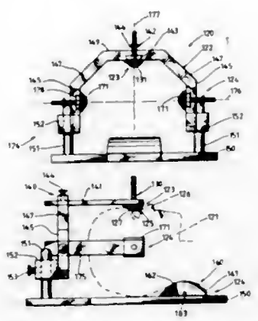
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,688

NONINVASIVE HEAD FIXATION METHOD AND APPARATUS

Mark P. Carol, Milford, N.Y., assignor to Medco, Inc., Cinnaminson, N.J.

Filed Oct. 31, 1991, Ser. No. 785,827
Int. Cl.[5] A61B *19/00*
U.S. Cl. 606—130 32 Claims



1. A noninvasive head fixation device for use in medical procedures to immobilize a head of a patient having a nasion, comprising:

a frame, adapted to be disposed adjacent the patient's head;

a first deformable housing attached to the frame and means for positioning the first deformable housing to overlie and contact the patient's nasion, whereby its deformable housing may deform and conform to the shape of the patient's nasion, the first deformable housing including means for retaining the shape imparted to the first deformable housing by the patient's nasion; and

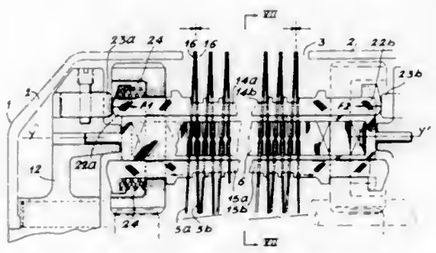
means for restraining rotational movement of the patient's head, the restraining means being associated with the frame.

5,207,689

DEPILATING APPLIANCE

Jacques Demeester, Croissy sur Seine, France, assignor to Braun Aktiengesellschaft, Kronberg im Taunus, Fed. Rep. of Germany

Continuation of Ser. No. 566,292, Aug. 9, 1990, abandoned, which is a division of Ser. No. 297,435, Jan. 17, 1989, Pat. No. 4,960,422. This application Dec. 12, 1991, Ser. No. 804,711
Claims priority, application France, Feb. 9, 1988, 88 01499
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—133 3 Claims



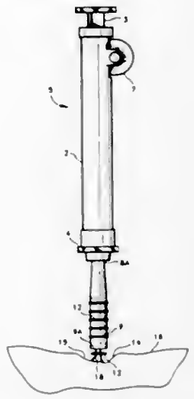
1. A depilating appliance for plucking out hairs to be removed, comprising a rotatable roller (4) comprised by a series of pinching blades (5*a*, 5*b*–5*c*, 5*d*) disposed side by side, a rotatable central shaft (6, 6*c*) on which the blades (5*a*, 5*b*–5*c*, 5*d*) are carried and by which the blades are driven in rotation, means mounting said blades (5*a*, 5*b*–5*c*, 5*d*) on said shaft (6, 6*c*) for pivoting at least some of said blades about separate stationary axes (X—X') perpendicular to said shaft (6, 6*c*), a small casing (1) which can be held in one hand and within which said blades are disposed, said casing having an opening (3) therethrough through which gripping portions (16) of said blades project, and means for pivoting at least some of said blades about said separate axes (X—X') mechanically responsive to rotation of said roller (4) such that adjacent said gripping portions (16) of a plurality of pairs of said pivoting blades projecting through said opening contact each other simultaneously, so as to pinch hairs between the blades to pluck them out, said pivoting means comprising a pair of bars on opposite longitudinal sides of and parallel to said shaft with the shaft disposed between the bars of said pair, one said bar contacting a plurality of said blades on one side of said shaft, the other said bar contacting the same plurality of blades on the opposite side of said shaft, and means for simultaneously moving said bars in directions opposite to each other and parallel to said shaft.

5,207,690

ARRANGEMENT FOR STABILIZING THE HORMONAL EFFECTS PRODUCED BY THE OVARIES OF A SMALL FEMALE MAMMALIAN CREATURE

Cliff Rohrabacher, Hampton, N.J., and Scott Mendelson, Champaign, Ill., assignors to Bel-Art Products, Inc., Pequannock, N.J.

Filed Sep. 2, 1992, Ser. No. 939,148
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—135 4 Claims



1. Arrangement for stabilizing the hormonal effects produced by the ovaries of a small female mammalian creature, comprising:

a ligating ring application member;

a plurality of elastic ligating rings disposed on the ligating ring application member;

a pipette member having first and second ends;

the ligating ring application member having a recess for removably receiving the first end of the pipette member, whereupon the plurality of elastic ligating rings can be user-transferred from the ligating ring application member to the pipette member;

vacuum pump means including a chuck member for coupling the pipette member at the first end thereof to the vacuum pump means;

the second end of the pipette member disposed adjacent an exposed ovarian sack in the uterine cavity of a small female mammalian creature;

the vacuum pump means being user-actuated to create a vacuum through the pipette member for capturing the ovarian sack and for drawing said sack out of the uterine cavity, whereupon a ligating ring is user-maneuvered off of the pipette member and over the ovarian sack to ligate said sack at its base; and

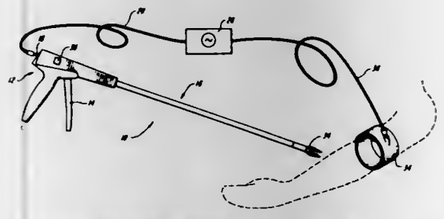
the vacuum pump means being user-actuated to release the vacuum on the ligated ovarian sack, whereupon said sack is user-urged into the uterine cavity for being resorped into the creature so that the creature's hormonal effects are stabilized.

5,207,691

ELECTROSURGICAL CLIP APPLICATOR

Paul C. Nardella, North Easton, Mass., assignor to Medical Scientific, Inc., Taunton, Mass.

Filed Nov. 1, 1991, Ser. No. 786,574
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—142 20 Claims



1. An electrosurgical clipping device, comprising:

a handle portion adjacent and connected to an elongate member, the handle portion having a triggering means for deploying at least one surgical clip;

a means for housing a supply of surgical clips within the device;

a surgical clip delivery means for deploying at least one clip from the device to desired tissue, the clip delivery means extending from a distal end of the elongate member;

actuating means for effecting the deployment of one or more surgical clips through the delivery means in response to activation of the triggering means, the actuating means connecting between the triggering means and the delivery means;

supply means associated with the clipping device for delivering electrical current through the clipping device from a source remote from the clipping device to the delivery means for discharge through a clip to tissue contacted by the clip; and

control means for selectively activating and regulating the electrosurgical energy delivered through the energy supply means to the delivery means.

5,207,692

SURGICAL CLIP APPLIER WITH RECIPROCATING CLIP SLEEVE AND DUAL RATCHET MECHANISM

Robert G. Kraus, Attleboro; Philip C. Walker, Cambridge; Herbert H. Loeffler, Arlington; Frederick W. Faller, Burlington; Richard C. Schneider, Framingham; Charles B. Worrick, III, Hanson, and Raphael F. Meloul, Brockton, all of Mass., assignors to Codman & Shurtleff, Inc., Randolph, Mass.

Filed Jul. 30, 1990, Ser. No. 559,751
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—143 24 Claims

1. A surgical clip applier, comprising:

a housing comprising a pair of housing sections mounted together for pivotal movement about a pivot axis;

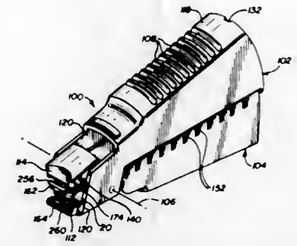
an elongated clip sleeve adapted to receive a plurality of surgical clips arranged front to back in a row, said clip sleeve being mounted for longitudinal reciprocating movement relative to said housing;

a pair of clip retaining jaws mounted on said clip sleeve and located adjacent to an open front end of said clip sleeve;

a pusher mounted on said clip sleeve for engaging the rearmost clip in the row, said pusher being movable one step at a time along said clip sleeve to advance the row of clips toward said open front end of said clip sleeve;

ratchet means operable each time said clip sleeve is reciprocated for advancing said pusher and the row of clips by one-step along said clip sleeve, each step corresponding to the length of one clip in the row; and

cam means operable when said housing sections are pivoted together for reciprocating said clip sleeve longitudinally to retract and advance said clip sleeve relative to said housing, said clip retaining jaws engaging the frontmost clip in the row as said clip sleeve is retracted and advancing the frontmost clip from said housing as said clip sleeve is advanced.

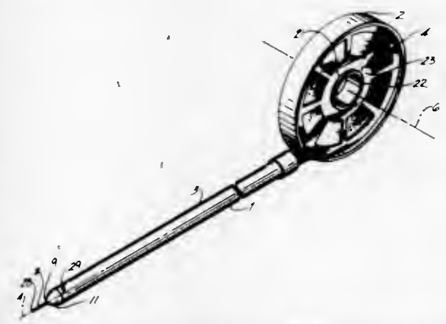


5,207,693

ENDOSCOPIC SUTURE DISPENSING TOOL

Edward H. Phillips, 712 N. Roxbury, Beverly Hills, Calif. 90210

Filed Oct. 23, 1991, Ser. No. 780,486
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—146 9 Claims



1. A suture tool for transporting the free-end of a reel of suture through a sheath to the operative region of a patient and for withdrawing the free-end through said sheath in the process of endoscopically forming a loop of suture or bight around a body structure in said region around which a ligature is to be formed, compromising:

a) a holder having a central axis and a cavity therein defining a holding region for holding a reel of suture having a central aperture where said holder contains an orifice radially spaced from said central axis and communicating with said holding region for guiding the passage of a suture having a free end, from said holding region,

b) a hub having a hub-axis coincident with said central axis carried by said holder and extending axially into aid holding region for accepting said reel of suture where said hub is positioned within said holding region to accept said

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central aperture of said reel of suture such that said reel of suture may be releasably and rotationally mounted to said hub to permit rotation of said reel about said hub-axis relative to said holder; and

c) an extension member carried by said holder having a longitudinal axis and an axially extending lumen therethrough where said longitudinal axis extends in a direction lateral to said hub-axis and is radially spaced therefrom, said extension member having a distal end and a proximate end where said distal end has a distal opening therein communicating with said lumen and where said proximate end has a proximate opening therein communicating with said lumen and said orifice to permit the passage of said suture through said extension member; and

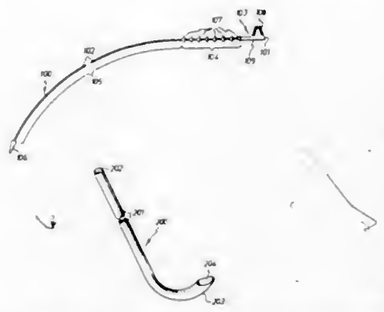
d) retaining means, disposed in the external surface of said extension member and located adjacent to and proximately spaced from said distal opening, for releasably holding said free-end of said suture at a fixed distance from said distal end during passage of said suture through said distal opening while said suture tool is withdrawn through a sheath, whereby upon withdrawal of said extension member through said sheath, said reel of suture may be rotated relative to said holder to permit said free-end to be withdrawn through said sheath while being held by said retaining means at said fixed distance from said distal end during passage of said suture through said distal opening.

5,207,694

METHOD FOR PERFORMING A SURGICAL OCCLUSION, AND KIT AND APPLICATOR FOR CARRYING OUT THE METHOD

Albert Broomé, Helsingborg, Sweden, assignor to Surgical Invent AB, Helsingborg, Sweden

Filed Jun. 18, 1992, Ser. No. 900,425
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—148 **22 Claims**



9. A kit for performing a surgical occlusion on human tissue during laparotomy or thoracotomy, said kit comprising in combination:

a) at least one elongated and flexible, bundle-strap type, occlusion ties, each tie having an apertured retaining head and a tongue which extends from said head and is formed integrally therewith; and

b) a tubular, substantially J-shaped applicator having a long leg with an open applicator end, and a short leg with an open applicator end;

said long leg being adapted to receive at least one of said ties, and said short leg being adapted to be passed around the tissue by manual handling of said long leg; and

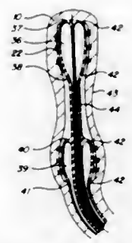
said applicator being dimensioned so as to allow the whole tie to be passed through the applicator and out therefrom at the short leg end in order to position the tie in its proper place around the tissue when the applicator is withdrawn, whereupon the tie can be closed into a locked occlusion loop around the tissue by passing the tongue through the retaining head.

5,207,695

AORTIC GRAFT, IMPLANTATION DEVICE, AND METHOD FOR REPAIRING AORTIC ANEURYSM

Hugh H. Trout, III, 3037 Ordway St., NW., Washington, D.C. 20008

Continuation of Ser. No. 367,716, Jun. 19, 1989, abandoned. This application Nov. 4, 1991, Ser. No. 787,731
Int. Cl.[5] A61F *2/06, 2/04*; A61B *17/08*
U.S. Cl. 606—153 **17 Claims**



1. An aortic graft for performing an aortic anastomosis on a section of aorta, comprising,

flexible aortic graft means, having cephalic and caudal ends, and having axial axis and radial direction,

a plurality of attachment means attached to said cephalic and caudal ends of said aortic graft means for securing said aortic graft means to the aorta, each of said attachment means having

base means, oriented in substantially parallel relation to said axis of said aortic graft means, and attached to said aortic graft means,

post means, attached to said base means, extending radially away from said aortic graft means, and orientated in substantially perpendicular relation to said axis,

hook means oriented in substantially parallel relation to said axis, mounted to the distal end of said post means for penetrating the aorta and securing said graft means to the aorta,

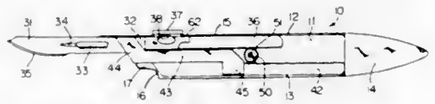
wherein said attachment means places said aortic graft means in circumferential apposition to the aorta to prevent substantial leakage between said aortic graft means and the aorta.

5,207,696

SURGICAL SCALPEL

Robert J. Matwijcow, Salem, N.Y., assignor to Medical Sterile Products, Inc., Rincon, P.R.

Filed Apr. 30, 1992, Ser. No. 876,266
Int. Cl.[5] A61B *17/32*; B26B *5/00*
U.S. Cl. 606—167 **13 Claims**



1. A surgical scalpel comprising:

an elongated housing having proximal and distal ends;

a substantially planar surgical blade disposed at the distal end of said housing, said blade having a cutting edge extending generally along the length of the housing;

actuating means secured in said housing and extending outwardly therefrom, said actuating means disposed in a position to be engaged by a finger of a user when holding said housing in a position of normal use and mounted for movement generally longitudinally of said housing;

a blade shield disposed in said housing and constructed to cover at least said cutting edge, said blade shield mounted for movement between a blade-guarded position in which said cutting edge is protected and a blade-exposed position in which said blade may be used for cutting;

linkage means disposed in said housing for coupling the movement of said actuating means to said blade shield relative to said blade so as to move said blade shield between the bladeguarded and blade-exposed positions, said linkage means including means for causing the distance of movement of said blade shield relative to said blade to be substantially greater than the distance of movement of said actuating means; and

a blade carrier for supporting said cutting blade and disposed in said housing for longitudinal movement between an extended position wherein said cutting edge of said blade projects forwardly of said housing for use in a cutting procedure, and a retracted position wherein said cutting edge of said blade is at least partially retracted into said housing;

wherein said actuating means comprises an actuable member fixedly secured to one of said blade carrier and blade shield for longitudinal movement therewith relative to said housing;

wherein said linkage means comprises means cooperatively engaged with both said blade carrier and said blade shield for moving said blade carrier and blade shield in opposite longitudinal directions in response to longitudinal movement of said actuable member; and

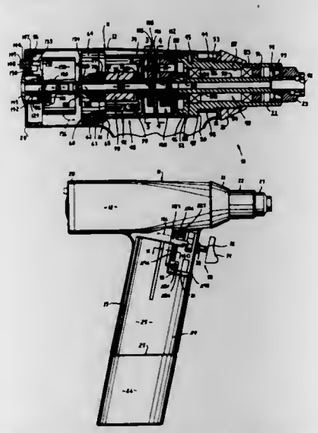
wherein said blade-guarded position of said blade shield corresponds to said retracted position of said blade carrier, and wherein said blade-exposed position of said blade shield corresponds to said extended position of said blade carrier.

5,207,697

BATTERY POWERED SURGICAL HANDPIECE

Steven J. Carusillo, Kalamazoo, and David H. Grulke, Battle Creek, both of Mich., assignors to Stryker Corporation, Kalamazoo, Mich.

Filed Jun. 27, 1991, Ser. No. 722,011
Int. Cl.[5] A61B *17/32*
U.S. Cl. 606—167 **22 Claims**



1. A pistol-shaped surgical handpiece, comprising:

a pistol-shaped housing including a forward/rearward extending barrel and a handle depending from said barrel;

a motor supported in said barrel and having a rotatable motor shaft extending substantially axially forward along said barrel;

a tool carrier located at the front end of said barrel and driven by a hollow output shaft;

speed changer means for driving said output shaft and tool carrier from said motor shaft at a speed different from said motor shaft, said motor and speed changer means and tool carrier being aligned in said barrel, said motor and speed changer means having a continuous central passage therethrough extending to said tool carrier and defined by extension of said hollow output shaft axially through said motor and speed changer means.

5,207,698

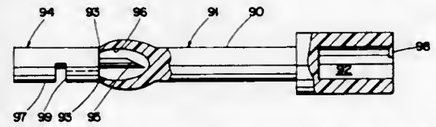
Patent Not Issued For This Number

5,207,699

LANCET HANDLING AND DISPOSAL ASSEMBLY

Frederick L. Coe, 526 Alameda Padre Serra, Santa Barbara, Calif. 93103

Continuation of Ser. No. 684,442, Apr. 11, 1991, abandoned, which is a continuation of Ser. No. 428,634, Oct. 30, 1989, abandoned. This application Nov. 8, 1991, Ser. No. 789,762
Int. Cl.[5] A61B *17/32*
U.S. Cl. 606—182 **4 Claims**



1. A blood lancet assembly comprising, in combination, a blood lancet and a protective cap; said blood lancet having a sharp tip suitable for puncturing the skin and a substantially cylindrical hub dimensioned to removably attach to the pivotal arm of an automatic lancet device, said protective cap further comprising:

(a) a first cavity for receiving and protectively enveloping the sharp tip of said blood lancet prior to use of said blood lancet;

(b) means for releasably securing said lancet to said cap when said sharp tip is protectively enclosed within said first cavity;

(c) a second cavity for receiving and protectively enveloping the sharp tip of said blood lancet after said blood lancet has been used to puncture the skin; and

(d) means within said second cavity for non-releasably securing said lancet to said cap when the sharp tip of said lancet is enclosed within said second cavity.

5,207,700

POLYIMIDE BALLOON CATHETER AND METHOD OF FORMING A BALLOON THEREFOR

Charles L. Euteneuer, St. Michael, Minn., assignor to SciMed Life Systems, Inc., Minneapolis, Minn.

Continuation of Ser. No. 617,430, Nov. 26, 1990, abandoned, which is a continuation of Ser. No. 364,116, Jun. 12, 1989, abandoned, which is a division of Ser. No. 229,313, Aug. 8, 1988, Pat. No. 4,952,357. This application Nov. 18, 1991, Ser. No. 798,851
Int. Cl.[5] A61M *29/02*
U.S. Cl. 606—194 **26 Claims**

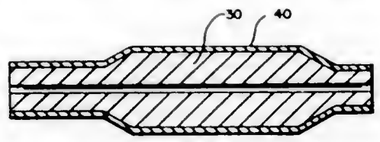
12. A dilatation balloon catheter for angioplasty, the catheter comprising:

an elongated flexible shaft having an inflation lumen extending from a proximal end to a distal end;

an inflatable balloon, a substantial portion of which is formed by a plurality of layers of polyimide, the balloon having a proximal section connected to the distal end of the shaft, an intermediate inflatable balloon section, and a

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distal section; the intermediate section defining a balloon interior which is in fluid communication with the inflation lumen, the intermediate section being inflatable from an uninflated to an inflated state in response to fluid pressure supplied through the inflation lumen to the balloon interior so that the intermediate section has an outer diameter, when inflated, which is greater than the proximal section and the distal section; the balloon having an essentially uniform wall thickness of about 0.0003 inches throughout its proximal, intermediate and distal sections.

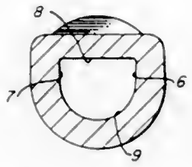


5,207,701

SURGICAL NEEDLE-SUTURE COMBINATION, AND APPARATUS AND METHOD FOR ATTACHING THE SAME

John L. West, Wolcott, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Dec. 24, 1990, Ser. No. 632,553
Int. Cl.[5] A61B 17/00
U.S. Cl. 606—226 10 Claims



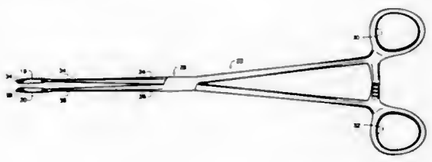
1. A surgical needle having a butt, the butt having a proximal and a distal end;
a blind hole in the butt, the hole originating at the proximal end and terminating at about the distal end of said butt; and
a crimp adjacent to said butt, the improvement to the crimp comprising a first and a second side that are essentially parallel, a third side that is essentially perpendicular to the first and second side, and a fourth side that is curvilinear, wherein the length of the curvilinear fourth side is at least about 1.1 times greater than the length of the third side.

5,207,702

METHOD AND APPARATUS FOR HANDLING HYGROSCOPIC DILATORS

Michael L. Pearl, 810 Sunrise Ct., Ann Arbor, Mich. 48103

Filed Aug. 14, 1991, Ser. No. 745,019
Int. Cl.[5] A61B 17/28
U.S. Cl. 606—207 13 Claims



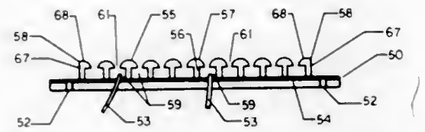
1. Forceps for manipulating hygroscopic dilators having an elongated configuration with a rounded eyelet forming a hole at one end thereof, the forceps comprising scissors-like members having opposed tips respectively mounted thereon, the tips forming together a rounded recess and at least one of the tips forming pin means generally centered within the rounded recess and adapted for closing between the tips and extending through the hole of the rounded eyelet in order to positively engage the elongated dilator within the tips, the tips further forming an axially extending opening allowing the elongated dilator to extend from the tips.

5,207,703

SUTURE ORGANIZER

Krishna M. Jain, 8405 Plover, Kalamazoo, Mich. 49002

Continuation-in-part of Ser. No. 424,620, Oct. 20, 1989, abandoned. This application Nov. 21, 1990, Ser. No. 616,900
Int. Cl.[5] A61B 17/04
U.S. Cl. 606—232 13 Claims



1. A suture organizer for facilitating the orderly retention of sutures extending from an incision in a patient during surgery, said organizer comprising:
a base member having a substantially planar surface defined by an edge;
a plurality of spaced-apart retaining members integrally formed with said base member and defining a plurality of spatial areas between adjacent retaining members, said retaining members each comprising a stem portion extending normally from said planar surface and disposed away from said edge and a cap portion at one end of said stem portion, said cap portion having a laterally extending shoulder, wherein cap portions on adjacent stems define a restricted entrance to a spatial area defined between adjacent stems; and
rounded corners on said stem portions and said cap portions, the entire surface of said stem portions and said cap portions being smooth and substantially free of discontinuities whereby each spatial area provides for loosely retaining a suture therein so that the organizer can be moved relative to the suture without damaging the suture, and the suture can be removed from the spatial area without damage, and said shoulders tend to prevent unintentional removal of said sutures from said spatial areas.

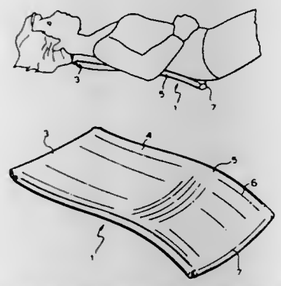
5,207,704

POSTURE BOARD

Mary Shields, 9 East Drive, Toronto, Ontario, M6N 2N8, Canada

Filed Nov. 12, 1991, Ser. No. 790,527
Int. Cl.[5] A61F 5/00
U.S. Cl. 606—240 2 Claims

1. A posture board contoured to a spinal mating shape comprising an upper back supporting portion having a leading edge and a lower back supporting portion terminating in a trailing edge, said board having a longitudinally extending sine wave configuration with an up curve at said lower back supporting portion and a side to side concave curvature defining a center region with upwardly turned outside edges, said enter region, along at least part of said upper back supporting portion and at said trailing edge being in contact with a supporting surface on which said posture board is used, said up curve defining a gap between said center region along said lower back supporting portion and such supporting surface, said outside edges being relatively flexible to allow downward bending of said edges, said center region being less flexible than said edges and preventing lengthwise flattening of said board under weight of a user such that said board provides vibratory feedback responsive to body vibrations given off by the user, said posture board having a lesser side to side concave curvature at said leading edge than at said trailing edge of said board.

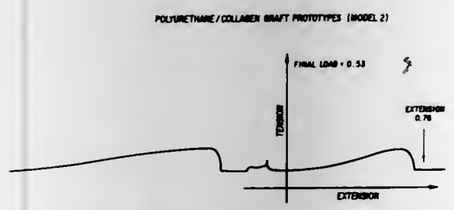


5,207,705

PROSTHESIS OF FOAM POLYURETHANE AND COLLAGEN AND USES THEREOF

Leonard A. Trudell, East Grenwich, R.I., and Anthony D. Whittemore, Sherborn, Mass., assignors to Brigham and Women's Hospital, Boston, Mass.

PCT No. PCT/US89/05481, § 371 Date Jun. 28, 1991, § 102(e) Date Jun. 28, 1991
Continuation-in-part of Ser. No. 281,364, Dec. 8, 1988, abandoned. This PCT application Dec. 8, 1989, Ser. No. 721,461
Int. Cl.[5] A61F 2/06
U.S. Cl. 623—1 15 Claims



1. A prosthesis useful for implantation in an animal, wherein said prosthesis comprises:
at least one layer of a uniform mixture of closed-cell foam polyurethane and collagen in the shape of
an elongated hollow body tube, said hollow body tube being open at both ends and defining a confined-flow passageway.

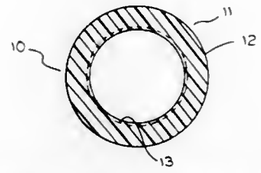
5,207,706

METHOD AND MEANS FOR GOLD-COATING IMPLANTABLE INTRAVASCULAR DEVICES

Gerald Menaker, M.D., 990 N. Lake Shore Dr., Chicago, Ill. 60611

Continuation-in-part of Ser. No. 417,798, Oct. 4, 1989, abandoned, which is a continuation-in-part of Ser. No. 254,359, Oct. 5, 1988, abandoned. This application Jan. 7, 1991, Ser. No. 640,912
Int. Cl.[5] A61F 2/06
U.S. Cl. 623—1 7 Claims

1. In a vascular graft for implanting into the blood circulatory system of a living recipient, said graft formed from a woven fabric of 'synthetic' material polymeric substrate, said fabric characterized by interstices created by the woven nature of the fabric another, said graft having a surface formed by said fabric, said surface for exposure to the blood of said recipient, the improvement comprising:
a thin layer of metallic gold applied to coat said fabric forming said surface,



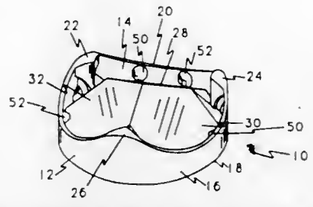
said layer applied to leave said interstices open and unblocked.

5,207,707

TRI-LEAFLET ALL CARBON HEART VALVE

Monti R. Gourley, Austin, Tex., assignor to Carbomedics, Inc., Austin, Tex.

Filed Jan. 16, 1992, Ser. No. 821,973
Int. Cl.[5] A61F 2/24
U.S. Cl. 623—2 12 Claims



1. A tri-leaflet prosthetic heart valve comprising
an annular body having an inner surface and being disposed around a central axis; and
three substantially identical leaflets mounted in said annular body and configured to translate between a closed position impeding blood flow through the valve and an open position permitting blood flow through the valve;
said annular body having three symmetrically placed pivot structures spaced around an inner surface of said annular body for pivotally supporting said leaflets, each pivot structure having a plane of symmetry containing said central axis and having curved grooves placed on opposing sides of said plane of symmetry, each groove having a convex edge adjacent said plane of symmetry, a concave edge spaced away from said convex edge, and a curved surface segment adjacent said concave edge; and
each of said leaflets having opposed ears for slidingly engaging said curved grooves and a concave edge adjacent each of said ears for slidingly engaging said curved surface segment.

5,207,708

ARTIFICIAL EYE LENS AND METHOD OF IMPLANTING SAME

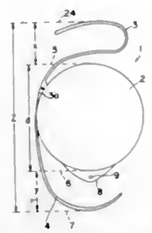
Michael Blumenthal, 2 Egoz Street, Ramat Efal 52960, Israel

Filed Oct. 18, 1991, Ser. No. 779,050
Int. Cl.[5] A61F 2/16
U.S. Cl. 623—6 10 Claims

1. An intraocular lens, insertable into the capsular bag after capsulorhexis capsulotomy, comprising a central convex optical portion with opposed lens surfaces and two fixation loop appendages having a base extending from the periphery of said optical portion and substantially in the horizontal plane thereof, characterized in that one of said loop appendages is

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double spring-like and curves from said periphery of said optical portion in a curvilinear "reverse S" shape, said loop being insertable first into said capsular bag, and the other said loop appendage extends from the same side of the periphery curving in the opposite direction in a curve from the said



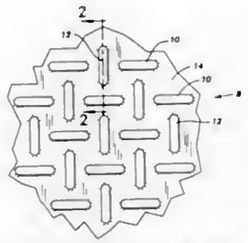
optical portion, said other loop appendage defining a curvilinear "C" shape which is smoothly slidable into said capsular bag, the overall length of the lens being between 11.0 and 12.0 mm, inclusive, and the outer distance of both loops from the optical portion along its central axis being equal.

5,207,709

IMPLANT WITH TEXTURED SURFACE

George J. Picha, 6554 Beechwood Dr., Independence, Ohio 44131

Filed Mar. 1, 1993, Ser. No. 791,917
Int. Cl.[5] A61F 2/02
U.S. Cl. 623—11 21 Claims



1. An implantable medical device for implanting into soft tissue of a mammal, said implantable device comprising a supporting structure, said supporting structure having an outer surface for interface with the soft tissue and a plurality of fin projections extending from said outer surface, said plurality of fin projections forming a textured exterior surface over at least a portion of said implantable device, each fin projection having a length substantially greater than its width, said fin projections being arranged in a pattern so as to create a sinuous path for collagen formation around the device and to substantially eliminate straight-line paths for collagen formation around the device.

5,207,710

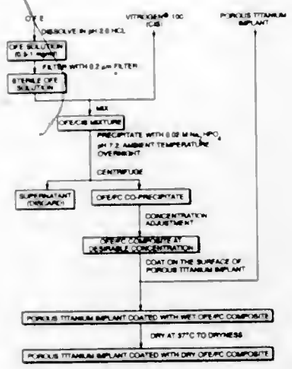
METHOD FOR IMPROVING IMPLANT FIXATION

George H. Chu, Sunnyvale; Rosa Armstrong, Palo Alto, and Robert Chang, Hillsborough, all of Calif., assignors to Collagen Corporation, Palo Alto, Calif.

Division of Ser. No. 527,765, May 23, 1990, which is a division of Ser. No. 275,215, Nov. 23, 1988, Pat. No. 5,108,436, which is a continuation-in-part of Ser. No. 250,952, Sep. 29, 1988, abandoned. This application Jan. 10, 1992, Ser. No. 819,059
Int. Cl.[5] A61F 2/28, 2/30
U.S. Cl. 623—16 12 Claims

1. A method for permanently fixing a stress-bearing bone-replacement prosthesis having a stress-bearing member by inducing bony ingrowth into the stress-bearing member, where said prosthesis is implanted in a site in a subject, wherein said method comprises:

administering to the site in the subject a substantially pure



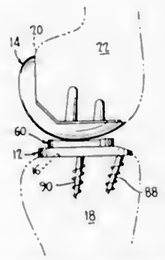
osteogenically active protein and an effective amount of a transforming growth factor of the beta type in a pharmaceutically acceptable carrier wherein the osteogenic protein and carrier are present in a weight ratio of about 1:5,000 to 1:50,000.

5,207,711

KNEE JOINT PROSTHESIS

Richard B. Caspari, 2192 Sheppard Town Rd., Maidens, Va. 23102; Jeffrey G. Roberts, 3688 Montclair Dr., Palm Harbor, Fla. 34684, and James T. Treace, 2701 Bluffs Dr., Largo, Fla. 34640

Division of Ser. No. 462,528, Jan. 8, 1990, Pat. No. 5,171,276. This application Oct. 9, 1991, Ser. No. 773,408
Int. Cl.[5] A61F 2/38
U.S. Cl. 623—20 10 Claims



1. A knee joint prosthesis for implant on the tibial plateau and femoral condyle of the knee comprising

a tibial component including a body, a tibial fixation surface on said tibial body adapted to be positioned on the tibial plateau, an end wall in said body spaced from said tibial fixation surface for forming a tibial cement receiving chamber when said tibial fixation surface is positioned on the tibial plateau, a peripheral wall joined to said tibial fixation surface and having a portion extending beyond said end wall toward said tibial fixation surface and means in said peripheral wall portion for establishing communication with said tibial cement receiving chamber from exteriorly of said tibial body for supplying cement to the tibial cement receiving chamber after said tibial fixation surface has been positioned on the tibial plateau;

a femoral component including a body, a femoral fixation surface on said femoral body adapted to be positioned on the femoral condyle, an end wall in said femoral body spaced from said femoral fixation surface for forming a femoral cement receiving chamber when said femoral fixation surface is positioned on the femoral condyle, a peripheral wall joined to said femoral fixation surface and having a portion extending beyond said femoral end wall toward said femoral fixation surface and means in said femoral peripheral wall portion for establishing communication with said femoral cement receiving chamber from exteriorly of said femoral body for supplying cement to the femoral cement receiving chamber after said femoral fixation surface has been positioned on the femoral condyle; and

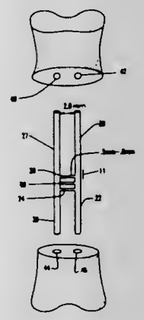
insert means supported by said tibial component for engaging said femoral component in weight bearing relationships.

5,207,712

ABSORBABLE JOINT IMPLANTS FOR THE LESSER DIGITS AND METATARSAL PHALANGEAL JOINTS IN THE SURGICAL CORRECTION OF THE FOOT

Michael Cohen, 170 Lakeview Dr. #201, Ft. Lauderdale, Fla. 33326

Filed May 7, 1992, Ser. No. 879,886
Int. Cl.[5] A61F 2/42
U.S. Cl. 623—21 10 Claims



5. An implant for correction of malformations of digits of a foot, said implant comprising:

shaft means for locating a pair of bones of a foot with respect to each other;

spacer means on said shaft means for maintaining a separation between said bones;

said separation being greater than a distance across which bone tissue is likely to grow during a healing process;

said spacer means being of a distance across which fibrous tissue is likely to form during a healing process; p1 said implant consisting of absorbable material means:

for absorption by the body,

for complete replacement by fibrous tissue during the healing process, and

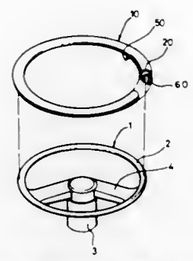
for structural location of the bones during the healing process, said structural location function diminishing during said replacement by fibrous tissue.

5,207,713

SAFETY COVER FOR STEERING WHEEL

Kwang J. Park, Seoul, Rep. of Korea, assignor to Yohan Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 23, 1991, Ser. No. 811,689
Claims priority, application Rep. of Korea, Dec. 26, 1990, 20998/1990
Int. Cl.[5] B62D 1/06
U.S. Cl. 74—558 15 Claims



1. A safety cover adapted for use with a steering wheel having a generally circular handgrip portion, comprising:

(a) an annular impact reducing portion (20) adapted for concentric arrangement about said handgrip portion; and

(b) a mounting portion (60) operable to mount said impact reducing portion to said handgrip portion;

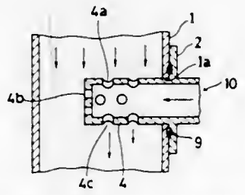
(c) said impact reducing portion including a partition wall portion (21) integral with said mounting portion, said partition wall portion containing a chamber (22) for receiving an impact reducing material (24).

5,207,714

EXHAUSTED GAS RECYCLE DEVICE

Minoru Hayashi, Nagoya; Nakai Kiyotaka, Chita, and Yoshifumi Yamada, Chiryu, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jan. 24, 1992, Ser. No. 824,981
Claims priority, application Japan, Jan. 25, 1991, 3-001907[U]
Int. Cl.[5] F02M 25/07
U.S. Cl. 123—568 6 Claims



2. An exhausted gas recycle device which is installed in an intake manifold, comprising:

an inlet pipe shaped portion which penetrates into the intake manifold and communicates to an exhaust manifold; and

a porous member located on the inlet pipe shaped portion inside the intake manifold and extending from an inner surface of the intake manifold, the porous member mixing the exhausted gas and an intake air therein.

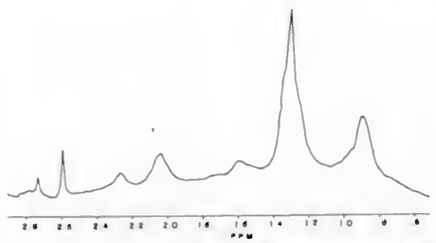
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5,207,715

METHOD OF DETECTING CANCER BY MEASURING LIPID-PEROXIDATION USING NMR

Eric T. Fossel, Chestnut Hill, Mass., assignor to The Beth Israel Hospital Association, Boston, Mass.

Continuation of Ser. No. 803,775, Dec. 5, 1991, abandoned, which is a continuation of Ser. No. 557,529, Jul. 24, 1990, abandoned. This application Apr. 14, 1992, Ser. No. 869,052
Int. Cl.[5] A61B 5/055
U.S. Cl. 128—653.2 59 Claims



1. A method of diagnosing the presence of cancer in a living patient, comprising the following steps:
a) subjecting a blood component sample from a patient to be tested to proton nuclear magnetic resonance spectroscopy to generate a NMR spectrum from which undesirable signals have been suppressed;
b) selecting a lipoprotein resonance line for lipid peaks in said spectrum;
c) measuring the full width at half-height of said resonance line;
d) classifying the full width measured into either a category of normal full widths or into a category of abnormal full widths as compared to a predetermined standard for which abnormal full widths indicate the presence of cancer;
e) for measured full width readings classified as abnormal in step d), measuring the triglyceride level of the blood component sample;
f) classifying the triglyceride level so measured into the category of normal levels or above normal levels;
g) for component samples having above normal levels of triglycerides, subjecting the blood component sample to a second proton nuclear magnetic resonance spectroscopy to generate an NMR spectrum;
h) selecting a resonance line for lipoproteins in the region in said spectrum;
i) measuring the area of said resonance line;
j) classifying the NMR spectrum into a category of normal spectrum or into a category of abnormal spectrum as compared to a predetermined standard for which abnormal spectrum indicate the presence of cancer.

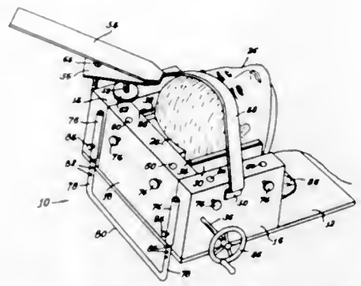
5,207,716

SURGICAL HEAD SUPPORTING AND IMMOBILIZING APPARATUS

William U. McReynolds; William E. McReynolds, and Ralph S. McReynolds, all of 2301 York St., Quincy, Ill. 62301

Filed Mar. 13, 1992, Ser. No. 851,184
Int. Cl.[5] A61F 5/37
U.S. Cl. 128—870 23 Claims

1. A head supporting and immobilizing apparatus, comprising
a. a base support,
b. a headrest portion secured to said base support, said headrest portion having open sides, and being curved and shaped to engage only the back and top of a head when located in said headrest portion, with the sides of the head not being engaged by the headrest portion,
c. a pair of head immobilizing jaws carried by said base support, one jaw being located on one side of said headrest portion and being engageable with one side of a head, and a second jaw being located on an opposite side of said headrest portion and being engageable with an opposite side of a head,



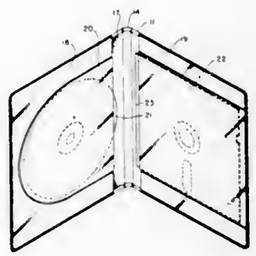
d. means for adjusting said jaws in unison toward and away from said headrest portion for engagement with the sides of a head, and
e. means for steadying a portion of a physician's arm.

5,207,717

BOOK CARRIER FOR RECORDED AND PRINTED MATERIAL

Larry F. Manning, 4706 Kester, Sherman Oaks, Calif. 91403

Filed Apr. 13, 1992, Ser. No. 867,384
Int. Cl.[5] B65D 85/57, 85/575
U.S. Cl. 206—232 1 Claim



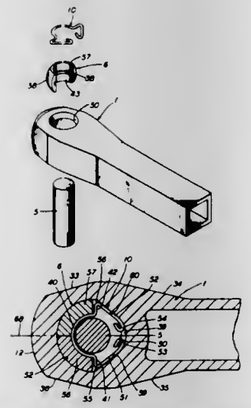
1. A folder or carrier simulating a book cover for holding a tape cassette, a compact disc or floppy disc comprising the combination of:
an elongated rectangular backing sheet of transparent material having opposite end portions separated by an elongated flat central strip defined by parallel spaced-apart score lines so that said backing sheet end portions fold over upon themselves about said respective score lines aligning the peripheral edges of said backing sheet end portions together to represent the cover of a book;
a pair of front sheets carried against each of said backing sheet end portions secured to said peripheral edges thereof with unsecured edges opposing each other so as to constitute a pair of open pockets facing each other in opposing relationship;
an elongated rectangular sheet of foldable material having indicia thereon visually displayed through said end portions and central strip of said backing sheet and further having opposite ends insertably disposed within said pair of pockets wherein said sheet of foldable material is conformal in shape and configuration with said backing sheet;
an elongated pouch attached to one of said front sheets having an open end for slidably receiving said cassette or cartridge;
said pouch having a rigid sidewall upstanding from said front sheet on which it is attached so that said pouch has a predetermined thickness;
said central strip having a width substantially equal to said pouch sidewall thickness to separate said backing sheet end portions when folded over upon themselves so that said backing sheet end portion peripheral edges are aligned and conformal;
said pouch having an open cavity for insertably receiving said cartridge or cassette;
said pouch having a top sheet of material having its edge secured to the edge of said sidewall;
said pouch top sheet configured to conform to the shape and configuration of said cassette or cartridge;
a cantilevered protrusion carried on said top sheet projecting into said cavity for yieldable interference with said cassette or cartridge;
each of said backing sheet end portions terminating their outer ends with squared corners;
said squared corners of each end portion connected together by a straight edge;
said end portion straight edges being arranged in parallel spaced-apart relationship and in alignment when said end portions are folded over;
a compact disc having recorded data on both sides thereof insertably received into one of said open pockets;
a floppy disc insertably received into the other open pocket; and
said backing sheet and said pair of front sheets being transparent to display indicia and pictorial subject matter carried on said sheet of foldable material.

5,207,718

SLACKLESS DRAWBAR

Mary A. Glover, Pittsburgh, and Peter S. Mautino, Verona, both of Pa., assignors to McConway & Torley Corporation, Pittsburgh, Pa.

Filed Mar. 23, 1992, Ser. No. 855,521
Int. Cl.[5] B61G 9/00
U.S. Cl. 213—62 R 18 Claims



1. A drawbar for a slackless drawbar system for interconnecting adjacent ends of a pair of adjacent cars in a train, said drawbar comprising:
(a) an elongated bar having a load support portion adjacent its one end for connection to one of such pair of adjacent cars;
(b) a pin receiving opening extending through said load support portion;
(c) a hemispherical recess extending partially around said pin receiving opening; and
(d) a pin bearing including at least two individual substantially identical portions supported and retained in said hemispherical recess, each of said at least two of said individual substantially identical portions having an outer surface closely matching a surface of said hemispherical recess and received therein and an inner surface of cylindrical shape to receive a pin therein.

5,207,719

JOGGERS A1D

Ronald E. Janus, Deerfield Beach, Fla., assignor to Ji-Sco-Ni Enterprises, Inc., Chicago, Ill.

Continuation of Ser. No. 927,159, Nov. 5, 1986, abandoned, which is a continuation of Ser. No. 798,406, Nov. 15, 1985, abandoned. This application Mar. 2, 1990, Ser. No. 487,411
Int. Cl.[5] A45F 5/00
U.S. Cl. 224— 148 17 Claims



1. A container for holding liquid around a user's neck comprising:
means defining an integral, hollow, generally flat, substantially symmetrical arcuate-shaped container having a pair of front and rear walls which are substantially symmetrical to one another on either side of an imaginary plane extending through the center line of said front and rear walls, said front and rear walls joined peripherally at the edges, with said rear wall generally contoured in a substantially flat shape for disposition adjacent the user's front;
aperture means formed on an upper arcuate-shaped portion and intermediate the end portions of said arcuate-shaped container for delivering liquid through the intermediately disposed aperture means upwardly during use into the user's mouth;
strap means extending from the end portions of said container and continuously supporting said container around the user's neck during use in non-constricting disposition and disposing said rear wall of said arcuate-shaped container adjacent the user's front to position said aperture means in upwardly directed disposition for delivering liquid upwardly therefrom during use; and
a straw member extending upwardly from said container so as to enable the user to remove the liquid contents therefrom by means of suction, whereby the user is able to suction liquid upwardly from the container while engaging in physical exercise.

5,207,720

HOCKEY PUCK DEVICE

Charles G. Shepherd, Oakville, Canada, assignor to Fortron International Inc., Hamilton, Canada

Filed Mar. 25, 1992, Ser. No. 857,005
Claims priority, application Canada, Feb. 12, 1992, 2061075
Int. Cl.[5] A63B 71/06
U.S. Cl. 273—128 R 9 Claims

1. A practice ice hockey puck for indicating in relative terms

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the energy of impact when the puck is driven into a solid object, the puck comprising:

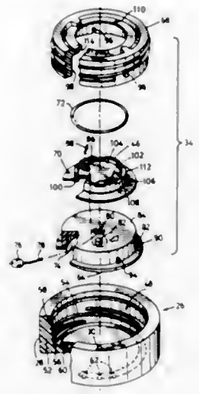
a shallow cylindrical case extending about a central axis and defining an axially extending well and a floor at the bottom of the well;

a housing inside the well, the housing defining a central opening and a post remote from said axis;

means retaining the housing in the well;

an indicator contained in the housing in frictional engagement with the housing, the indicator being moveable angularly between first and second positions about said axis;

a driver coupled to the indicator, the driver comprising a



weight contained inside the housing and a string attached to the weight and extending through the central opening and about the post, the string being anchored to the indicator at a point spaced from said axis so that in plan view the string lies in a generally U-shaped configuration and on impact between the puck and an object, kinetic energy in the weight is transferred by the string to the indicator thereby moving the indicator angularly relative to the housing away from said first position and towards said second position against the resistance of said frictional engagement; and

scale means coupled to the indicator and housing to record the degree of angular movement of the indicator to show the user in relative terms the energy of impact.

5,207,721

PUTTER

Thomas Lobdell, 1411 Summit Ct., Mukwonago, Wis. 53149

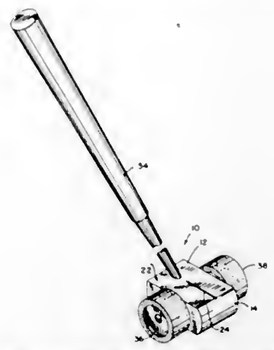
Filed Jun. 9, 1992, Ser. No. 895,619
Int. Cl.[5] A63B 69/36
U.S. Cl. 273—186.2 11 Claims

1. An improved putter having a shaft adapted to be grasped by the hands of the user and a head attached to the shaft for striking a golf ball, comprising:

a. the head having an upper surface in communication with the shaft and including a sight line extending along the upper surface and outwardly from the shaft;

b. the head having a ball striking surface generally orthogonal to the upper surface and having a convex radius thereon such that the same portion of the ball is contacted independently of the angle of the shaft and head;

c. wheels mounted for rotation on the head on either side of the shaft and on an axis orthogonal to the sight line, whereby the putter may be advanced in the direction of



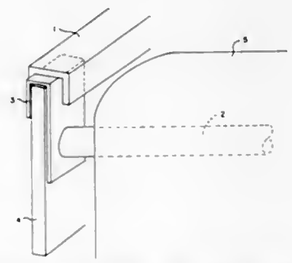
the sight line by pushing the shaft and rolling the head on the wheels.

5,207,722

PARTITION FOR AIR-CONDITIONED VEHICLE

Ling H. Lee, 6496 Heather Dr., Memphis, Tenn. 38119

Filed Aug. 13, 1992, Ser. No. 928,714
Int. Cl.[5] B62D 33/04
U.S. Cl. 296—24.1 5 Claims



1. To achieve more efficient control of interior temperature of the front half of a four door passenger vehicle, an attachable and detachable partition assembly across mid section of interior of said vehicle comprising:

[a] a transparent and flexible curtain fitting said cross mid section behind front seats of said vehicle, said curtain being hung on a elongated, tensioned, and elastic means, and

[b] two inverted U-shaped hooks, one for left one for right, each fitting snugly over respective top edge of closed window pane of openable and closeable windows of right and left rear side doors of said four door vehicle, interior limb of each of said U-shaped hooks being operatively attached to one of two ends of said elastic means.

5,207,723

PORTABLE SECTIONAL STORAGE CABINET

John P. Newby, Sr., Raleigh, N.C., assignor to Southern Case, Inc., Raleigh, N.C.

Filed Sep. 24, 1991, Ser. No. 764,797
Int. Cl.[5] A47B 47/04
U.S. Cl. 312—249.11 18 Claims

1. A portable sectional cabinet capable of easy assembly, comprising:

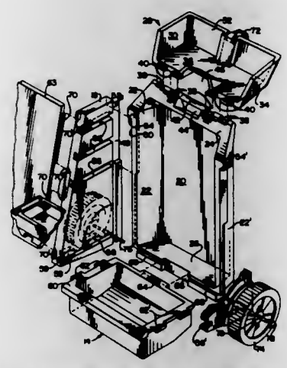
a lower section;

a rear section extending upwardly from a rearward part of said lower section;

first and second opposite side sections extending upwardly from respective first and second opposite side edge portions of said lower section, and forwardly from respective first and second opposite side edge portions of said rear section;

said lower, rear and side sections being formed of double-wall plastic material;

mating tongue/groove connector means integral with each of said sections for releasably connecting said rear section



to said side sections and said lower section in a manner permitting movement of said rear section in a first direction extending generally vertical relative to said side sections and said lower section while restricting relative movement therebetween in a second vertical direction extending opposite to said first vertical direction; and

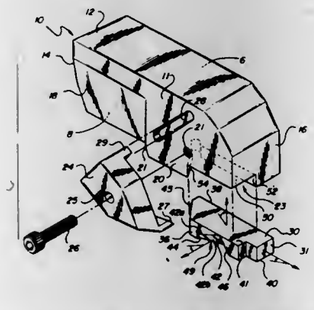
a wheel/axle assembly extending transversely through the lower portion of said cabinet and cooperating with lower portions of said rear section and opposing side sections, and preventing relative movement of said rear section relative to said side sections and said lower section in said first vertical direction.

5,207,724

CUTTING INSERT AND RETAINER

Virgil Shouse, 290 N. Alloy Dr., Fenton, Mich. 48430

Filed May 18, 1992, Ser. No. 884,369
Int. Cl.[5] B23B 27/16
U.S. Cl. 407—108 11 Claims



11. The insert of claim 9, wherein said bearing surface forms an angle of about 38° to the longitudinal axis, about 23° to the vertical axis, and about 30° to the horizontal axis.

5,207,725

SOAP HOLDER

Linda L. Pinkerton, 7110 Winchester Rd., Ft. Wayne, Ind. 46819

Continuation-in-part of Ser. No. 664,859, Mar. 5, 1991, abandoned. This application Sep. 12, 1991, Ser. No. 758,004
Int. Cl.[5] B65D 30/06, 33/14, 33/16
U.S. Cl. 383—24 6 Claims



1. A soap holder for holding and dispensing bathing soap, which can be temporarily secured to an outwardly extending element, comprising:

a sack element of a size to receive and hold at least a bar of bathing soap, said sack element being formed from a tubular segment of a soft, non-abrasive thermoplastic netting having an open end and a closed end;

means for closing and securing said open end of said tubular segment, said closing and securing means including a loop element;

a suspending element having a first end attached to said loop element and a second end defining a suspending loop having an opening within which the outwardly extending element may be received; and

bead means slidable along said suspending loop for varying the size of the opening of said suspending loop, whereby the soap holder may be temporarily secured to the outwardly extending element.

5,207,726

HYDRAULIC PUMP

Christopher Rathweg, Rte. I, Box 218-7, Espanola, N. Mex. 87532

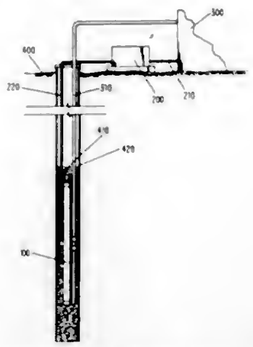
Filed Aug. 6, 1991, Ser. No. 741,094
Int. Cl.[5] F04B 47/08
U.S. Cl. 417—393 10 Claims

1. In a hydraulic pumping system intended for pumping fluid from a below-ground well, said system comprising an above-ground reservoir and pressurizing pump, a submerged reciprocating pumping system including a shaft, at least two spatially separated cylindrical chambers, each enclosing a reciprocating piston concentrically mounted on said shaft and associated intake and relief valves, and valve switching means consisting in part of valve bodies immovably positioned between such chambers, together with tubing means and associated manifold means capable of conducting fluid between said reservoir and said submerged pumping system, the improvement in said valve switching means comprising:

pilot means adapted to be driven reciprocally between a first position and a second position by said reciprocating pistons;

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spool means slidably and concentrically mounted on said shaft and adapted to be driven reciprocally between a first position and a second position by fluid released by the movement of said pilot means; and



annular cavities and radial passages adapted to carry pressurized fluid through said valve switching means so as to cause the movement of said spool means in response to movement of said pilot means, whereby fluid is driven unidirectionally through said tubing means to said reservoir while said pistons are reciprocating.

5,207,727

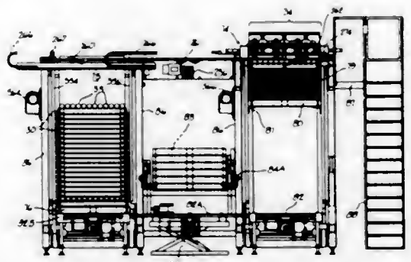
CAN END HANDLING SYSTEM

Ronald A. Pearce, Lakewood, and Ira D. Hooker, Jr., Arvada, both of Colo., assignors to Rapsco Incorporated, Denver, Colo.

Continuation-in-part of Ser. No. 549,463, Jul. 6, 1990. This application Jun. 28, 1991, Ser. No. 723,066

Int. Cl.[5] B65B *25/24, 43/00;* **B65D** *1/36;* **B65G** *57/02*

U.S. Cl. 414—792.7 **32 Claims**



1. A system for receiving can end members from a supply of can end members and loading can end members on a plurality of empty tray units to provide a plurality of loaded tray units and for transporting unloaded tray units to a processing station and the system comprising:

a tray loading station for loading can end members on an empty tray unit;

a plurality of tray units, each tray unit having a quadrilateral peripheral configuration and being made of molded plastic material and comprising:

four peripheral side wall portions;

a central wall portion located between and integrally connected to said side wall portions; and

a plurality of parallel equally spaced equal length elongated compartment means of identical cross-sectional configuration extending between one pair of opposite side wall portions and parallel to another pair of opposite side wall portions for receiving and holding a stack of can end members;

each of said compartment means comprising:

laterally spaced upwardly outwardly extending opposite wall portions having side surfaces for supporting engagement with peripheral portions of an horizontally extending stack of can end members located in said compartment means;

stack insertion and removal opening means in said one pair of opposite side wall portions for enabling horizontal movement therethrough of a stack of can end members during insertion in and removal from said compartment means of a stack of can end members;

stack abutment means in each of said one pair of opposite side wall portions at opposite ends of said compartment means for supporting retaining engagement with opposite end portions of the stack of can end members received therein; and

a lifting tool access slot means associated with said stack abutment means and extending through one of each of said one pair of opposite side wall portions for enabling insertion into said compartment means of a lifting tool device to engage and lift can end members above said stack abutment means for removal of the stack of can end members by horizontal movement through the stack insertion an removal opening means;

stack forming means adjacent said tray loading station for forming a plurality of substantially equal-length individual stacks of multiple can end members approximately equal in length to the length of said compartment means;

tray holding means at the loading station for receiving and holding one empty tray unit at a time; and

can end member stack loading means at said loading station for laterally horizontally moving a stack of can end members through said insertion and removal opening means into each of the compartment means on the empty tray unit and filling each of the compartment means with a stack of can end members to provide a loaded tray unit.

5,207,728

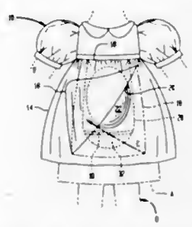
MATERNITY DRESS FOR A DOLL WHICH SIMULATES PREGNANCY

A. Edward Fogarty, and Bonnie R. Fogarty, both of 39 Sandy Hook Rd., Sarasota, Fla. 34242

Filed Mar. 30, 1992, Ser. No. 859,661

Int. Cl.[5] A63H *3/08, 33/22, 3/52, 33/30*

U.S. Cl. 446—98 **5 Claims**



1. A removable maternity dress garment in conjunction with a doll simulating pregnancy of said doll and simulated childbirth of a baby doll comprising:

a flexible fabric sheet formed into a shape of a doll dress loosely fitting over said doll;

an upright pocket connected inside a front surface of said doll dress and having an openable flap at a lower end thereof, said pocket structured to supportively receive said baby doll insertable therein through said openable flap;

said baby doll removal from said pocket downwardly therefrom by opening said flap, simulating the appearance of a baby birth;

a front opening in said dress shaped to expose a second flexible sheet connected to a perimeter of said front opening and smoothly textured and positioned with respect to the doll to simulate a stomach of said doll;

a movable cover formed of a fabric sheet and connected along an upper margin thereof to said doll dress so as to lay over and cover said front opening when said doll is upright.

5,207,729

CIRULATING TYPE WATER FLOW POOL

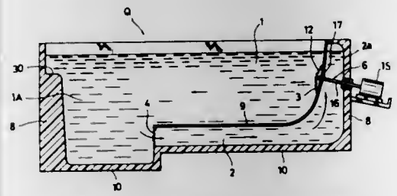
Miyoshi Hatanaka, 22-19, Matsubara 5-chome, Setagaya-ku, Tokyo 156, Japan

Filed Aug. 7, 1991, Ser. No. 741,586

Claims priority, application Japan, Aug. 15, 1990, 2-215306; Jun. 3, 1991, 3-159970

Int. Cl.[5] E04H *4/12*

U.S. Cl. 4—492 **3 Claims**



1. A circulating type water flow pool comprising:

a tank portion;

a closed circulating passage formed in a lower portion of said tank portion, said circulating passage having at one end a riser portion in communication therewith and extending to an upper portion of said tank portion where a delivery port is formed in communication with an interior of said tank portion;

an intake port formed at the other end of said circulating passage in communication therewith and with the interior of the tank portion;

a water flow control member mounted on said delivery port at the riser portion of said circulating passage; and

a delivery unit including a screw blade actuated by a driving motor to circulate water through said tank portion and passage, said screw blade being disposed facing said delivery port;

wherein said tank portion includes a shallow tank portion communicating with said delivery port and having a depth and size to allow a person to swim therein, and a deep well portion in communication with said shallow tank portion and said intake port, said deep well portion having a depth and being sized to serve as a treading water portion for the swimmer.

5,207,730

EXPANSION TUBE PULLER

Joseph Ruggiero, 509 E. Broadway, Port Jefferson, N.Y. 11777

Filed Aug. 3, 1992, Ser. No. 923,594

Int. Cl.[5] B23P *19/04*

U.S. Cl. 29—255 **4 Claims**

1. An expansion tube puller, comprising:

a pair of pivotably-joined jaws; and

means, coupled to at least one of said jaws, for percussively jarring said jaws; wherein

said one jaw has an anvil extending therefrom;

said jarring means comprises a hammer assembly joined to said anvil;

said jaws have outermost terminations progressively narrowed outwardly thereof;

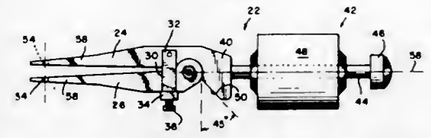
said terminations have first and second opposite sides;

said termination of one of said jaws, of said pair thereof, has only a single recess formed therein;

said termination of the other of said jaws, of said pair thereof, has only a single recess formed therein;

said recess in said termination of said one jaw is formed in only said first side thereof;

said recess in said termination of said other jaw is formed in only said second side thereof;



said hammer assembly comprises (a) a rod projecting outwardly from said anvil, (b) a centrally-bore hammer slidably disposed on said rod, and (c) a limit stop fixed to an outermost termination of said rod;

said rod has a longitudinal axis; and

said anvil has an impactable land, formed thereon, which lies in a plane diagonal to said axis of said rod.

5,207,731

ELECTRIC SHAVER

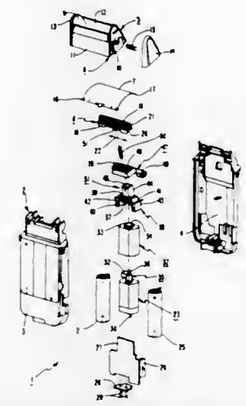
Romuald L. Bukoschek, Klagenfurt, Austria, assignor to U.S. Philips Corp., New York, N.Y.

Filed Jan. 16, 1992, Ser. No. 821,213

Claims priority, application Austria, Jan. 18, 1991, A110/91

Int. Cl.[5] B26B *29/02, 21/00*

U.S. Cl. 30—43.92 **10 Claims**



1. An electric shaver comprising a housing, a shaving head connected to the housing and comprising a shaving foil and a cutter assembly which comprises a multitude of cutter lamellae, which is reciprocable parallel to a direction of movement and which cooperates with the shaving foil, a motor of the rotary type secured in the housing and having a specific nominal operating speed, and a transmission mechanism which is coupled to the motor shaft of the motor to convert the rotation of the motor shaft into a reciprocating movement and which is coupled to the cutter assembly for the reciprocating drive of this assembly, wherein (1) the motor has a nominal operating speed in a range between 8000 and 10,000 revolutions per minute; (2) the motor is covered with a sheath of an elastic material which at least partly surrounds the motor and is situated at least at the location of all the contact areas between the motor and the housing provided for the motor on the housing;

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(3) the transmission mechanism comprises at least one balancing mass which performs a movement in phase opposition to the movement performed by at least a part of the transmission mechanism, and each of the cutter lamellae of the cutter assembly is provided with an indentation in each of its side faces which are each bounded by a cutting edge, which indentation extends parallel to and up to the cutting edge, and exhibits a cutting angle smaller than 90° at both its cutting edges.

5,207,732

FLY FISHING LINE

John E. Stark, Maplewood, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Filed May 21, 1991, Ser. No. 703,608
Int. Cl.[5] A01K *91/00*
U.S. Cl. 43—44.98 9 Claims

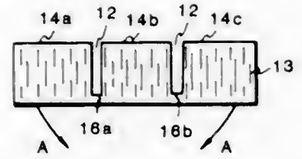
1. A fly line comprising a core, and a coating adherably bonded to said core, said coating comprising a polyvinyl chloride resin, an in situ formed polymer to provide increased stiffness to said line, said polymer being derived from at least one polymerizable monomer including a polyfunctional acrylic monomer, and an initiator for polymerizing said acrylic monomer.

5,207,733

MATERIALS FOR USE IN PLANT PROPAGATION

Alan P. Perrin, The Cottage, Cartref Gwenyn, Cefn-y-Gwrych, Meliden, Prestatyn, Clwyd, Wales

Filed Jan. 16, 1990, Ser. No. 465,965
Int. Cl.[5] A01G *31/00*
U.S. Cl. 47—87 16 Claims



1. A block of rigid, substantially unicellular expanded polyurethane foam which has a density of 5–12 Kgs/M^3, said block having a thickness and being perforated through at least part of its thickness, the perforations resulting in a hydrophilic, heterocellular foam structure locally in the block, said hydrophilic, heterocellular foam structure defining groups of enlarged voids to facilitate water absorption and retention.

5,207,734

ENGINE EXHAUST SYSTEM FOR REDUCTION OF HYDROCARBON EMISSIONS

J. Paul Day, Big Flats, and Louis S. Socha, Jr., Painted Post, both of N.Y., assignors to Coroing Incorporated, Corning, N.Y.

Filed Jul. 22, 1991, Ser. No. 734,146
Int. Cl.[5] F02M *33/02*
U.S. Cl. 60—278 23 Claims

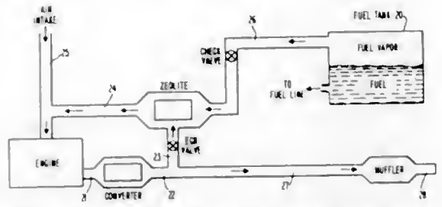
1. An engine exhaust system for reducing evaporative emissions of a hydrocarbon fuel comprising

an engine;

a fuel tank, including a vapor space, for storing hydrocarbon fuel for said engine;

molecular sieve means for adsorbing hydrocarbons evaporating from said fuel, said molecular sieve means being capable of having hydrocarbons desorbed therefrom upon heating to a desorption temperature;

vapor-conveyance means for providing communication between said molecular sieve means and the vapor space of said fuel tank; and



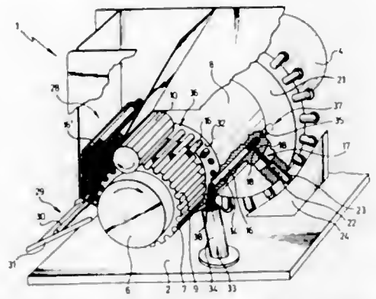
purge means for conveying a heated purge stream through said molecular sieve means and then conveying at least part of said purge stream back to the engine.

5,207,735

METHOD AND APPARATUS FOR RECLAIMING TOBACCO FROM REJECTED CIGARETTES

Horst Furmanski, Berlin, Fed. Rep. of Germany, assignor to Fabriques de Tabac Reunies, S.A., Neuchatel, Switzerland

Filed Sep. 16, 1991, Ser. No. 760,493
Claims priority, application Fed. Rep. of Germany, Sep. 14, 1990, 4029263
Int. Cl.[5] A24C *5/36*
U.S. Cl. 131—96 20 Claims



1. Apparatus for reclaiming tobacco from rejected cigarettes, each cigarette having a wrapper and two ends, the apparatus comprising:

a) a hopper for the rejected cigarettes;

b) means for transporting the cigarettes comprising a fluted drum rotatable about a center axis and having a plurality of fluted depressions regularly distributed about its periphery;

c) means for restraining single cigarettes;

d) means for applying a jet of compressed air to expel the tobacco from each restrained cigarette;

e) a first collector means for receiving the ejected tobacco and a second collector means to receive the cigarette wrappers;

f) a receiving drum having receiving holes axially aligned with the flutes in the fluted drum the receiving drum having a front face and a rear face, the front face facing the fluted drum and the rear face facing away from the fluted drum, the receiving drum coupled to the fluted drum so that the drums rotate together about the center axis; and

g) suction means for moving each cigarette singly from the fluted drum into the corresponding receiving hole so that one end of the cigarette is positioned in an area of the receiving hole near the rear of the receiving drum; wherein:

h) the restraining means comprises at least one restraining needle per receiving hole, the needle being radially moveable with respect to the center axis so that the needle can move into engagement with the end of the cigarette in the receiving hole; and the apparatus further comprises:

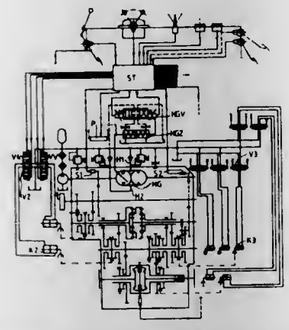
i) coordinating control means comprising the control ring axially extending from the receiving drum and divided into predetermined angular zones for applying one of (1) positive air pressure, and (2) negative air pressure, in accordance with a working sequence of the apparatus.

5,207,736

CONTROL OF A DISPLACEMENT MACHINE OF A HYDROSTATIC-MECHANICAL TORQUE SHIFT TRANSMISSION

Nils Fredriksen, Harsewinkel, Fed. Rep. of Germany, assignor to Claas oHG, Harsewinkel, Fed. Rep. of Germany

Filed Mar. 26, 1992, Ser. No. 858,284
Claims priority, application Fed. Rep. of Germany, Mar. 26, 1991, 4109884
Int. Cl.[5] F16H *47/04*
U.S. Cl. 74—866 13 Claims



1. In a process for controlling a hydrostatic adjustment gear (HG) of a hydrostatic-mechanical, continuous, split-output torque shift transmission providing two clutches (K2, K3), where following an engagement of one of said two clutches (K2, K3) of a new gear a setting of a new displacement volume (V_{new}, $V_{new'}$) takes place which is determined in respect to a theoretical displacement volume (V_{th}) taking into consideration an old leakage volume (DV_{old}, $DV_{old'}$), which was present at a prior shift operation, thereafter the remaining one of said two clutches (K2, K3) of a respective previously operating gear, which is still turning, is disengaged, the improvement wherein a new leakage volume (DV_{new}, $DV_{new'}$) is determined from the old leakage volume (DV_{old}, $DV_{old'}$) in accordance with different hydraulic pressure conditions in the adjustment gear (HG) prior to and following the shift operation, and the new displacement volume (V_{new}, $V_{new'}$) is determined from the new leakage volume (DV_{new}, $DV_{new'}$) with respect to the theoretical displacement volume (V_{th}), whereafter the setting of the new displacement volume (V_{new}, $V_{new'}$) takes place.

5,207,737

ANALOG OUTPUT ELECTRO-PNEUMATIC TRANSDUCER

Mark G. Hanley, Gurnee, and Guy P. Caliendo, Algonquin, both of Ill., assignors to Landis & Gyr Powers, Inc., Buffalo Grove, Ill.

Filed Feb. 27, 1992, Ser. No. 842,890
Int. Cl.[5] G05D *16/20*
U.S. Cl. 137—85 22 Claims

1. An electro-pneumatic pressure transducer comprising:

a valve body assembly having a supply chamber sealingly separated from an exhaust chamber;

intake means in fluid communication with said supply chamber for providing a source of fluid to the transducer;

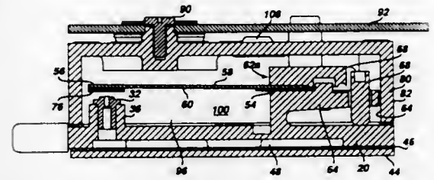
output means for directing the fluid to a pneumatic actuator;

a first two-way bender and a supply nozzle, said bender being adjustably mounted to said valve body within said supply chamber to selectively permit and restrict the flow of fluid through said supply nozzle and into said manifold means according to signals supplied form said control means;

a second two-way bender and an exhaust nozzle, said second bender being adjustably mounted to said valve body within said exhaust chamber to selectively permit and restrict the flow of fluid form said manifold means into said exhaust chamber;

said first bender and said second bender each having a first end, a second end, an upper surface and a lower surface;

manifold means for fluidly connecting said intake means, said supply chamber, said exhaust chamber, and said output means;



pressure sensor means for measuring the pressure in said valve body, said sensor means being responsive to increases or decreases of the pneumatic pressure in said valve body;

means for monitoring a power source wherein said means for monitoring generates a failure mode signal when said power source fails to supply a predetermined level of power;

means, responsive to said failure mode signal, for controlling said first bender and said second bender to depressurize the transducer; and

said supply chamber and said exhaust chamber being configured and arranged with respect to said manifold means so as to provide an intrinsic fail safe action during temporary power failure independent from a fail-safe mode based on said failure mode signal, said intrinsic fail-safe action using said fluid from said intake means to drive said first bender against said supply valve while forcing said second bender away from said exhaust valve to bleed said fluid out said exhaust chamber resulting in substantially zero pressure within said valve body.

5,207,738

HEAT EXCHANGER MANIFOLD ASSEMBLY

LaVoyce Dey, Youngsville, Pa., assignor to Valeo, Jamestown, N.Y.

Filed Aug. 28, 1992, Ser. No. 936,939
Int. Cl.[5] F28F *9/02*
U.S. Cl. 165—175 4 Claims

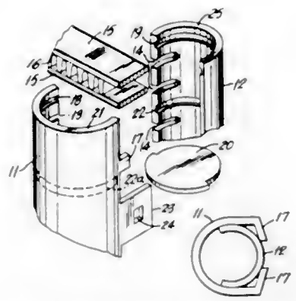
1. A heat exchanger comprising: spaced generally parallel manifold constructions between which extend a plurality of tubular elements, each manifold construction having an end with an end plate;

the manifold constructions comprising separate first and second manifold portions wherein the first manifold portion can be mated with the second manifold portion;

each of the manifold portions having at one side thereof elongated slots, the slots of the first manifold portion corresponding to the slots of the second manifold portion so that the tubular elements extending between the gener-

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ally parallel manifold constructions can be received and encompassed by the slots; and



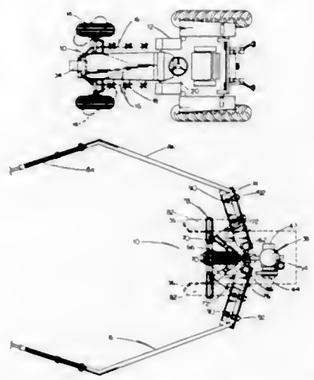
the end plates of the manifold construction being inserted and held in place by grooves adjacent to the ends of the first and second manifold portions.

5,207,739

COLLAPSIBLE GUIDE ROD ASSEMBLY FOR A TRACTOR GUIDANCE SYSTEM

Henry K. Orthman, Lexington, Nebr., assignor to Orthman Manufacturing, Inc., Lexington, Nebr.

Filed May 4, 1992, Ser. No. 877,786
Int. Cl.[5] A01B *63/00*
U.S. Cl. 172—5 **14 Claims**



1. A collapsible guide rod assembly for a tractor guidance system comprising,

said guide rod assembly including a pair of spaced apart guide rods pivotal between an operative open substantially parallel position to a transport closed collapsed position wherein said rods extend toward each other,

lifting means for raising and lowering said guide rod assembly, and

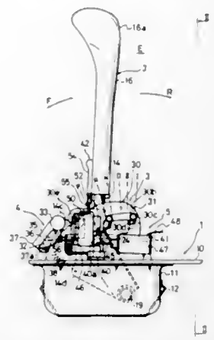
actuation means for pivoting said guide rod assembly between said open and closed positions.

5,207,740

CONTROL DEVICE FOR AUTOMATIC TRANSMISSION

Shunsuke Ikushima; Atsuo Ohno, both of Yokohama; Yasushi Asano, Kosai; Yoshimasa Kataumi, Kosai; Norio Togano, Kosai, and Hiroshi Sakon, Kosai, all of Japan, assignors to Fujikiko Kabushiki Kaisha and Nissan Motor Co., Ltd., Japan

Filed May 28, 1991, Ser. No. 706,951
Claims priority, application Japan, May 30, 1990, 2-55925[U]; May 30, 1990, 2-138518; May 30, 1990, 2-138519
Int. Cl.[5] F16H *59/04*; B60K *41/26*
U.S. Cl. 192—4 A **15 Claims**



1. A control device for an automatic transmission, comprising:

a base member for mounting on a vehicle body;

a shift lever pivotably supported at one of its ends by said base member,

a positioning member movable substantially parallel to the longitudinal axis of said shift lever;

a guide structure for guiding said shift lever, comprising a guide member having a parking position part and a moving position part for engaging said positioning member so as to guide said positioning member, said guide member provided at the moving position part with a buffer member for absorbing a shock when coming in contact with said positioning member, said guide member mounted on said base member;

a check structure for moderating motion of said shift lever, comprising a check member and a check arm contacting said check member, said check member mounted on said base member, said check arm pivotably mounted on said shift lever and urged to said check member; and

a shift-locking device for locking said shift lever, comprising a rotary bushing for blocking disengagement of said positioning member from said parking position part, said rotary bushing pivotably mounted on a fixed member other than said shift lever, and a shift-lock solenoid for pivoting said rotary bushing when releasing said shift lever from a locked condition, said shift-lock solenoid being mounted on a fixed part on said base member.

5,207,741

RELEASE ASSEMBLY FOR A PULL-TYPE CLUTCH

Minoru Abe, Neyagawa, Japan, assignor to Daikin Clutch Corporation, Neyagawa, Japan

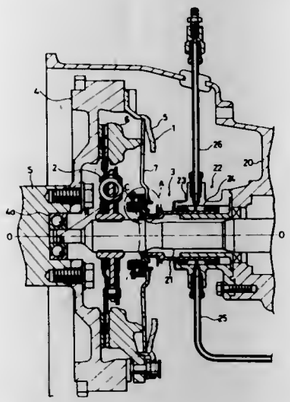
Filed Oct. 15, 1991, Ser. No. 775,400
Claims priority, application Japan, Oct. 18, 1990, 2-109686[U]
Int. Cl.[5] F16D *23/14*
U.S. Cl. 192—70.13 **13 Claims**

1. A release assembly for a pull-type clutch which connects a diaphragm spring with a support sleeve for a slidable movement on a transmission main drive shaft, comprising:

a release bearing having an outer race fixed to said diaphragm spring and an inner race having a lateral surface

formed with a spherically shaped concavity formed generally along a circumference of a sphere having a center point located approximately at a tip of the main drive shaft proximate an output shaft of an engine; and

a retaining tube connected to said support sleeve, having a



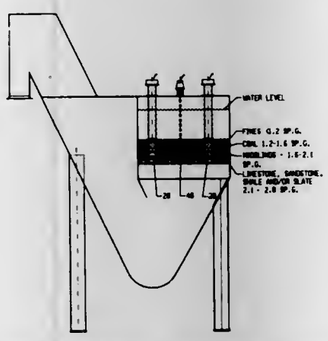
lateral surface formed with a convex spherically shaped surface which slidably mates with said spherically shaped concavity, whereby said convex spherically shaped surface remains mating with said spherically shaped concavity in spite of misalignment of an axis of said main drive shaft with an axis of rotation of said clutch.

5,207,742

CONTROL APPARATUS FOR COAL/MINERAL JIGS

G. Edward Scott, Allegheny County, and John J. Glista, Butler County, both of Pa., assignors to Svedala Industries, Inc., Pittsburgh, Pa.

Filed Mar. 9, 1992, Ser. No. 848,127
Int. Cl.[5] B03B *5/52*
U.S. Cl. 209—455 **9 Claims**



1. A control apparatus for controlling a refuse gate of a mineral washing jig, said control apparatus comprising:

an insertion tube positioned within a bed of said jig wherein a radiation source is positioned within said tube;

a pair of detectors positioned within said bed on opposite sides of said insertion tube for detecting an amount of radiation which passes through a vertically extending measuring zone between said detectors and said radiation source wherein said measuring zone is at least three inches in vertical height;

an actuation unit for operatively opening and closing said refuse gate; and

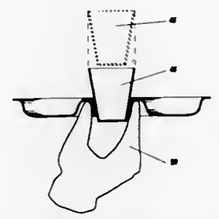
a control means for controlling the operation of said actuation unit comprising a means for averaging the output from said pair of detectors and a proportional controller means for generating a control signal from said averaged value, whereby, said generated control signal causes said actuation means to proportionally move the refuse gate to a position between a substantially closed and an open position as a function of the amount of average radiation detected by said pair of detectors.

5,207,743

DRINKING VESSEL SUPPORTING PLATE FOR ONE HAND

Joseph Costarella, and Sumi Shohara, both of 368 Cavour St., Oakland, Calif. 94618

Filed Jun. 23, 1992, Ser. No. 902,983
Int. Cl.[5] B65D *73/00*
U.S. Cl. 220—574 **11 Claims**



1. A one-hand supported plate comprising in combination:

(a) a generally flat surface having a upwardly projecting peripheral retaining lip; and

(b) a hole generally centered in said flat surface, sides of said hole form a surface to support a drinking vessel, said sides of hole do not extend above said retaining lip and below said flat surface; and

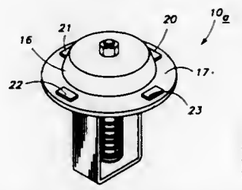
(c) a peripheral recess on the underside of said flat surface surrounding said hole and partially forming said sides of said hole, said recess having a sufficient shape forming a gripable surface to be grasped by the fingers and thumb of one hand.

5,207,744

THERMOSTAT APPARATUS

Morris T. Heafner, P.O. Box 55, High Shoals, N.C. 28077

Filed Mar. 30, 1992, Ser. No. 859,938
Int. Cl.[5] F01P *7/16*
U.S. Cl. 236—34.5 **2 Claims**



1. A thermostat apparatus, comprising in combination,

a support housing, the support housing including a floor, and the support housing including a mounting flange mounted fixedly to an upper terminal end of the support housing in a spaced parallel relationship relative to the floor, with the mounting flange including a central flange opening, and

a valve cap mounted above the mounting flange, with the

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valve cap including a rod coaxially directed through the central flange opening, and

the rod including a rod plate fixedly and orthogonally mounted to a lower terminal end of the rod, the rod plate including a bi-metallic spring captured between the rod plate and a bottom surface of the mounting flange, and

a plurality of by-pass openings directed through the mounting flange in a spaced relationship relative to one another, wherein the spaced relationship defines an equal predetermined spacing between adjacent by-pass openings, and

wherein the by-pass openings include at least a first by-pass opening, a second by-pass opening, and a third by-pass opening, the first by-pass opening including a first by-metallic covering plate positioned over the first by-pass opening, a second bi-metallic covering plate positioned to overlie the second by-pass opening, and a third bi-metallic covering plate positioned to overlie the third by-pass opening, wherein the first bi-metallic covering plate is arranged to deflect relative to the mounting flange at a first temperature, the second bi-metallic covering plate is arranged to deflect at a second temperature, the third by-pass covering plate is arranged to deflect a third temperature, wherein the first temperature is greater than the second temperature and the second temperature is greater than the third temperature.

5,207,745

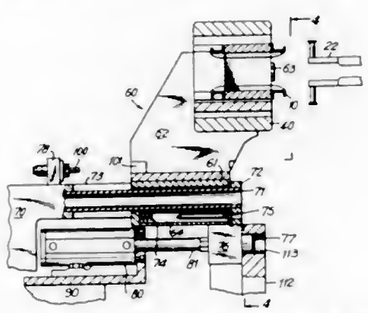
METHODS AND APPARATUS FOR AUTOMATED STATOR WINDING STATION SET UP

Luciano Santandrea, Florence, Italy, assignor to Axis U.S.A., Inc., Marlborough, Mass.

Continuation-in-part of Ser. No. 306,618, Feb. 6, 1989, Pat. No. 4,969,606. This application Oct. 3, 1990, Ser. No. 592,221

Int. Cl.[5] **H02K** *15/02*

U.S. Cl. 242—1.1 R **20 Claims**



1. A method of winding coils onto each one of at least first and second stator cores, said first stator core having a longitudinal axis, a first length, a midpoint and an endface, said second stator core having a longitudinal axis, a second length, a midpoint and an endface, said second length being shorter than said first length, said coils being would using a winder having a longitudinal axis and a stroke which is adjustable between a longer stroke and a shorter stroke, wherein said longer stroke and said shorter stroke have midpoints that coincide with each other, said method comprising the steps of:

a. aligning said first stator core so that its longitudinal axis is parallel with said longitudinal axis of said winder;

b. abutting said endface of said first stator core against a reference plane to determine the location of said midpoint of said first stator core;

c. adjusting said winder to provide said longer stroke;

d. translating said first stator core relative to said winder so that said midpoint of said first stator core coincides with said midpoint of said longer stroke;

e. operating said winder to dispose coils onto said first stator core;

f. removing said first stator core from said winder;

g. aligning said second stator core so that its longitudinal axis is parallel with said longitudinal axis of said winder;

h. abutting said endface of said second stator core against said reference plane to determine the location of said midpoint of said second stator core;

i. adjusting said winding machine to provide said shorter stroke;

j. translating said second stator core relative to said winder so that said midpoint of said second stator core coincides with said midpoint of said shorter stroke; and

k. operating said winder to dispose coils onto said second stator core.

5,207,746

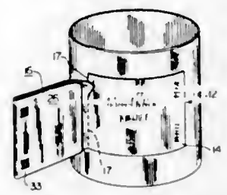
PACKAGE LABEL

Donald Jones, Long Grove, Ill., assignor to Pharmagraphics, Inc., Greensboro, N.C.

Filed Jun. 4, 1992, Ser. No. 893,646

Int. Cl.[5] **B42D** *15/00*

U.S. Cl. 283—81 **8 Claims**



1. A unitary label of the type including a base portion on which can be printed product identifying matter as well as such statutory material as the lot number and/or manufacturing date, and a folded instruction leaflet on which can be imprinted information concerning the content and use of the product, said label construction comprising:

a. a paper blank divided into a plurality of panels defined by fold lines;

b. said plurality of panels including:

i. a first or base panel having a non-adhesive front surface with a prescribed printed indicia thereon and an opposite rear surface which has adhesive applied thereto;

ii. a second or front panel adjacent said base panel and having a prescribed printed indicia on the front surface adjacent the adhesive surface and opposite the non-adhesive printed surface of said first panel;

iii. a tear line extending parallel to and adjacent the fold line between said first and second panels;

iv. a third panel adjacent said second panel and folded thereunder between said first and second panels, said third panel including one or more adhesive areas adjacent the fold line between said second and third panels for holding the free edge of said folded instructional leaflet in place against said front surface of said base panel until said folded instructional leaflet is removed;

v. a plurality of further panels folded together and positioned between said first and second panels;

c. whereby said label may be applied as a unit to a product and then the folded instructional leaflet portion may be torn along said tear line and removed from the base label, with the base label remaining affixed to said product for identification thereof.

5,207,747

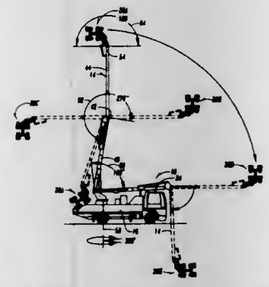
MOBILE LIGHTING SYSTEM

Myron K. Gordin; Robert D. Jones; George P. Glass; David M. Crookham; Bradley M. Chelesvig, and James A. Whitson, all of Oskaloosa, Iowa, assignors to Musco Corporation, Oskaloosa, Iowa

Filed Apr. 12, 1991, Ser. No. 685,296

Int. Cl.[5] **F21M** *1/00*

U.S. Cl. 362—233 **38 Claims**



1. A mobile lighting system which can be transported in operational form comprising:

a mobile platform means;

an articulateable, rotatable, and extendable boom means mounted on the platform means;

a boom head means mounted on the boom means for providing pivoting and rotational movement between the boom head and the boom means;

a light fixture rack means pivotally attached to the boom head means;

light fixture mounting means attached to the rack means for mounting light fixtures and allowing panning and tilting of each fixture;

one or more light fixtures each including a lamp means and a reflecting means, each fixture being attached to said mounting means;

electrical power generator means mounted on the platform means for producing power for the boom means, boom head means, light fixture mounting means, light fixtures, and lamps;

ballast means mounted on the platform for providing ballast to the lamps;

variable beam means associated with each light fixture for providing a variable beam pattern for each light fixture;

cooling means for providing air flow to the fixtures and lamps to cool at least a portion of the fixtures and lamps during operation; and

control means mounted on the platform for operating and controlling the system.

5,207,748

HIGH PRODUCTIVITY INSERT

Karl Katbi, Troy; Thomas J. Bernadic, Madison Heights; Tony M. Lowe, Royal Oak, and Brendon L. Brockett, Dearborn Heights, all of Mich., assignors to Valenite Inc., Troy, Mich.

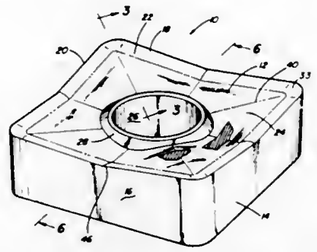
Filed Nov. 12, 1991, Ser. No. 790,966

Int. Cl.[5] **B23B** *27/22*

U.S. Cl. 407—114 **4 Claims**

1. A polygonal indexable cutting insert, comprising:

an upper surface which is a rake face, a lower surface adapted to be seated in a tool holder pocket, and a side wall extending substantially unbroken therebetween to form a body; said upper surface defining a tapered cutting edge along its periphery; said edge having its greatest height at each corner of the insert and a bi-directional angle descending therefrom toward a centerline of the insert to define a resultant ridge to impart impact resistance at each said corner; said ridge formed by the joining of two different angular surfaces formed in the cutting edge; a land formed along and rearward from said cutting edge; said body having a tapered configuration corresponding to said cutting edge; and a centrally located



aperture extending at least partially through the insert to accommodate a fastener means, whereby said tapered cutting edge imparts improved force distribution across the rake face of the insert, which reduces localized stress concentrations at depth of cut.

5,207,749

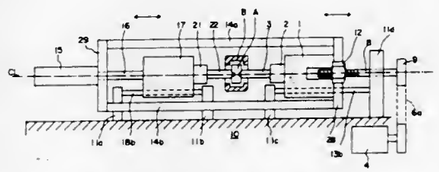
INNER SURFACE SHAPER

Yukihiko Ariyoshi, deceased, late of Yamaguchi, Japan by Kiyoko Ariyoshi, heiress , assignor to Kabushikikaisha Otec, Kurashiki and Kabushikikaisha Ariyoshikikoushudan, Yamaguchi, both of Japan

Filed Feb. 13, 1992, Ser. No. 834,831

Int. Cl.[5] **B23C** *3/00*

U.S. Cl. 409—143 **1 Claim**



1. An inner surface shaper comprising, on a bed,:

a first reciprocating stock having a first working spindle and a drive screw aligned with each other;

a first reciprocating drive having a servomotor to drive said drive screw for making a linear reciprocating motion of said first reciprocating stock;

a second reciprocating stock having a second working spindle in opposite relation with said first working spindle;

a second reciprocating drive having a hydraulic cylinder to drive said second reciprocating stock toward and apart from said first reciprocating stock; and

a tool rest placed between said first working spindle and said second working spindle to permit a tool to cut and shape the inner surface of a work piece,

said first reciprocating stock and said second reciprocating stock being arranged and movably fixed to said bed with said first working spindle, said second working spindle, said drive screw and said hydraulic cylinder arranged along the center line of said bed; said hydraulic cylinder and said first reciprocating stock being connected by two joint rods which are arranged symmetrically with respect to the center line of said bed.

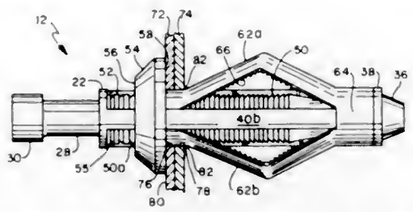
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,750

INSERT MOLDABLE RATCHET RIVET ASSEMBLY

George M. Rapata, Canton, Ohio, assignor to Illinois Tool Works Inc., Glenview, Ill.

Filed Jun. 24, 1992, Ser. No. 903,146
Int. Cl.[5] F16B *13/04, 13/06*
U.S. Cl. 411—38 15 Claims



1. An insert moldable ratchet rivet assembly of a unitary construction for securing a plurality of panels together, said rivet assembly comprising:

a drive-pin having a first end portion, a second end portion, and a substantially triangular shaped body portion extending between said first and second end portion;

said body portion having a plurality of arcuate segments which are spaced equally apart from each other to form recessed flattened surfaces therebetween;

each of said flattened surfaces being provided with a plurality of lengthwise-spaced horizontal teeth;

said first end portion being formed of a stem portion having its one end connected to said body portion and its other end connected to an annular flange;

said second end portion formed of a neck portion having its one end connected to said body portion and its other end connected to an end cap by an abutting flange;

a rivet housing having a head flange and a cylindrical-shaped shank, said rivet housing being formed integrally with and surrounding said shank portion and said neck portion of said second end portion of said drive-pin;

said rivet head flange having a front surface and a rear surface;

said rivet shank being formed of a plurality of shank wall portions extending from the rear surface of said rivet head flange and being joined together at their other end by a circular wall member;

said plurality of shank wall portions being spaced equally apart from each other to provide slots therebetween which are formed by said plurality of arcuate segments on said body portion of said drive-pin, said plurality of shank wall portions being disposed over a corresponding one of said flattened surfaces to provide a plurality of lengthwise-spaced lateral teeth which engagingly mate with said horizontal teeth on said flattened surfaces;

said rivet shank being insertable through aligned openings in said plurality of panels so that the rear surface of said rivet head flange engages an outer surface of said plurality of panels;

said first end portion of said drive-pin being moved positively relative to said rivet head flange and said aligned openings to thereby cause said abutting flange of said drive-pin to firmly engage with said circular wall member an to releasably disengage said horizontal teeth on said flattened surfaces from said lateral teeth so that said rivet shank wall portions flex outwardly to engage an inner surface of said plurality of panels; and

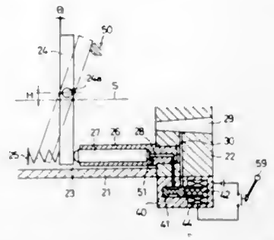
a plurality of double-spaced horizontal teeth disposed inside said annular flange which are wider than said plurality of lengthwise-spaced horizontal teeth so as to permit the drive-pin to be removed axially with a reduced initial force, thereby facilitating installation.

5,207,751

SWASH PLATE TYPE PUMP WITH SWASH PLATE TILT ANGLE CONTROLLER

Shigeru Suzuki; Hisashi Kuriya, and Kunifumi Goto, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Mar. 9, 1992, Ser. No. 848,017
Claims priority, application Japan, Mar. 11, 1991, 3-045148
Int. Cl.[5] F04B *1/28*
U.S. Cl. 417—222.1 14 Claims



1. A variable displacement pump having a swash plate rotatably supported in a housing, the swash plate being displaceable from a minimum tilt angle position that is substantially perpendicular to a drive axis of the pump to a maximum tilt angle position, the capacity of the pump being varied in accordance with the tilt angle, the pump comprising:

a bias means for biasing the swash plate in a direction to reduce the tilt angle;

a positioning means for controlling the position of the swash plate, the positioning means including a hydraulic cylinder and being arranged to apply a positioning force to the swash plate in the opposite direction to the force of the bias means; and

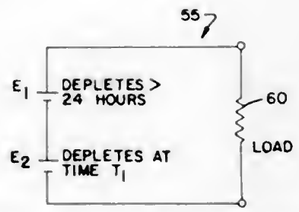
an adjusting means for adjusting the magnitude of the positioning force, the adjusting means including a valve that permits a pressurized fluid to flow into the hydraulic cylinder in an open state and cuts off the pressurized fluid in a closed state, the adjusting means being arranged to gradually reduce the positioning force when the pump is inactivated, and further has a bleed passage that leaks a fluid from the hydraulic cylinder when the valve is in the closed state.

5,207,752

IONTOPHORETIC DRUG DELIVERY SYSTEM WITH TWO-STAGE DELIVERY PROFILE

Paul D. Sorenson, Blaine; John D. Badzinski, Coon Rapids; Gary A. Lattin, Forest Lake, and Larry A. McNichols, Coon Rapids, all of Minn., assignors to Alza Corporation, Palo Alto, Calif.

Continuation-in-part of Ser. No. 502,176, Mar. 30, 1990, abandoned. This application Mar. 21, 1991, Ser. No. 671,306
Int. Cl.[5] A61N *1/30*
U.S. Cl. 604—20 22 Claims



1. A method of iontophoretic drug delivery wherein there is provided at least two electrodes carrying or in contact with an ionized therapeutic agent and wherein the electrodes and agent are positioned against body tissue to form an electrical path for an iontophoretic current traveling from one electrode to the other, said method comprising the steps of:

(a) inducing a first level of iontophoretic current between said electrodes wherein the ionized therapeutic agent is delivered into the tissue at a first rate and maintaining said first level for a predetermined interval so that the agent is rapidly introduced into the tissue; and

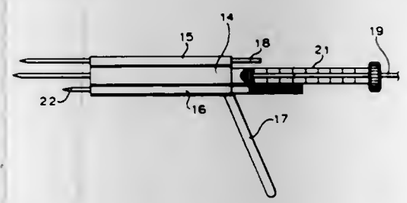
(b) reducing said first level to a second lower level of iontophoretic current at a time when the concentration of therapeutic agent is substantially near that desired for a maintenance level, said lower level of current being sufficient to maintain said desired concentration level.

5,207,753

BONE FRACTURE REPAIR APPARATUS AND METHOD

Kannivelu Badrinath, 18 Taunton Close, Hainault, Essex, IG6 3DN, England

Filed Feb. 11, 1992, Ser. No. 834,893
Claims priority, application United Kingdom, Feb. 18, 1991, 9103345; May 3, 1991, 9109623; Oct. 16, 1991, 9121930
Int. Cl.[5] A61F *2/32*
U.S. Cl. 606—96 6 Claims



1. A method of repairing a fracture of a bone comprising the steps of:

(a) driving a first guide wire substantially centrally of the bone through the fracture,

(b) sliding onto the first guide wire a first guide comprising three parallel elongate bores, two of said elongate bores are bores of small diameter, each of said bores of smaller diameter have a diameter substantially equal to the diameter of said first guide wire, one of said elongate bores is a bore of larger diameter than said bores of smaller diameter,

(c) rotating the first guide around the first guide wire so that the bore of larger diameter is directed towards a suitable area to receive a screw,

(d) introducing into the bore of larger diameter a second guide of elongate substantially cylindrical cross section having an outer diameter which permits a snug sliding fit in the bore, said second guide having an inside diameter substantially equal to the diameter of said bores of smaller diameter,

(e) driving a second guide wire into the bone through the bore of the second guide into the fracture to a required depth as defined by a monitoring means,

(f) noting the required depth,

(g) passing a guide anchoring pin through another of said bores of smaller diameter into the bone to secure the first guide against rotation,

(h) removing the second guide wire and second guide from the bore of larger diameter,

(i) inserting a screw of length equal to said noted depth through the bore of larger diameter and driving said screw into the bone,

(j) removing the guide anchoring pin,

(k) rotating the first guide around the first guide wire so that the bore of larger diameter is directed towards another suitable area to receive a screw, and

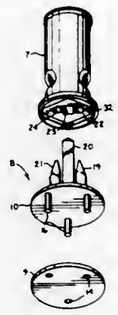
(l) repeat steps (d) to (j).

5,207,754

QUICK-RELEASE CONNECTOR FOR MOP HANDLES AND THE LIKE

David W. Harrah, DeSoto, Kans., assignor to FLC, Inc., Lenexa, Kans.

Filed Jan. 30, 1991, Ser. No. 648,018
Int. Cl.[5] A47L *13/24*
U.S. Cl. 15—147.1 3 Claims



1. A quick-release connector apparatus for connecting a handle to a working head, the connector apparatus comprising:

(a) a cylindrical handle portion adapted to be joined with the handle at one end thereof and a plurality of receptacles at the other end with at least one indentation in a side wall of said handle portion that opens into a respective one of said receptacles; and

(b) a head portion releasably mateable with said handle portion, said head portion comprising a plurality of bayonet projections arranged to mate with respective ones of said plurality of receptacles in said handle portion, at least one of said bayonet projections being flexible and including a gripping ledge such that, when said handle and head portions are fully joined together, said flexible bayonet projection is urged outwardly so that said gripping ledge overlaps a side of said indentation to securely fasten said handle and head portions together; said head portion includes:

(1) a first section including said plurality of bayonet projections on a top side thereof and a plurality of projecting studs on a bottom side thereof; and

(2) a second section which includes a plurality of through-apertures arranged to receive respective ones of said plurality of studs, wherein said first section and said second section are permanently affixed to the working head by inserting said studs through the working head, placing said second section over said studs and securing said studs to said second section.

5,207,755

UNIVERSALLY ADJUSTABLE PAINT ROLLER

Gregory J. Ampian, 3201 Castleleigh Rd., Beltsville, Md. 20705

Filed May 20, 1992, Ser. No. 885,891
Int. Cl.[5] B05C *17/02*
U.S. Cl. 15—230.11 10 Claims

1. A universally adjustable paint roller, comprising:

a roller head;

a support arm having first and second ends, said roller head being rotatably supported on said first end;

a handle for allowing a user to hold said paint roller;

universal rotating means for rotatably securing said support arm to said handle, said rotating means being rotatable about three independent axes disposed orthogonally with

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respect to one another to enable said roller head to be universally adjustable; and

lock means for locking said rotating means in a desired position, wherein said rotating means comprises:

a first L-shaped coupling member having a first end extending along a first axis of said axes and a second end extending along a second axis of said axes, said second end of said support arm being rotatably coupled to said first end of



said first coupling member so as to be rotatable about said first axis; and

a second coupling member having first and second ends, said first end of said second coupling member being rotatably coupled to said second end of said first coupling member such that said first coupling member is rotatable about said second axis, said second end of said second coupling member being rotatably coupled to said handle so as to rotatable about a third axis of said axes.

5,207,756

COMPOSITIONS OF MATTER FOR STOPPING FIRES, EXPLOSIONS AND OXIDATIONS OF MATERIALS AND BUILD UP OF ELECTROSTATIC CHARGES AND METHOD AND APPARATUS FOR MAKING SAME

Shaikh G. M. Y. Alhamad, P.O. Box 31590, Riyadh, Saudi Arabia 11418, and Sami I. Altikan, Riyadh, Saudi Arabia, assignors to Shaikh G. M. Y. Alhamad, Riyadh, Saudi Arabia

Division of Ser. No. 605,268, Oct. 29, 1990, Pat. No. 5,095,597, which is a division of Ser. No. 417,696, Oct. 5, 1989, Pat. No. 5,001,017, which is a continuation of Ser. No. 280,317, Dec. 6, 1988, abandoned. This application Dec. 12, 1991, Ser. No. 806,904

Int. Cl.[5] B21D *31/04*

U.S. Cl. 29—6.1 **2 Claims**

1. Apparatus for producing ellipsoid forms from an expanded metal net comprising:

a. a first frame defining a path of travel for a continuous sheet of slitted metal foil, said frame having a proximal end and a distal end;

b. an input feed roller, rotatably mounted at the proximal end of said frame, for holding a continuous sheet of slitted metal foil in roll form, said sheet of slitted metal foil having a leading edge;

c. a pair of opposing tracks mounted on opposing sides of said frame and extending from the proximal to the distal ends thereof;

d. multiple work stations located on said frame between the proximal and distal ends thereof;

e. a grasping member extending transverse to the path of travel of said metal foil, and having opposing ends running in said opposing tracks;

f. means on said grasping member for grasping the leading edge of said continuous sheet of foil;

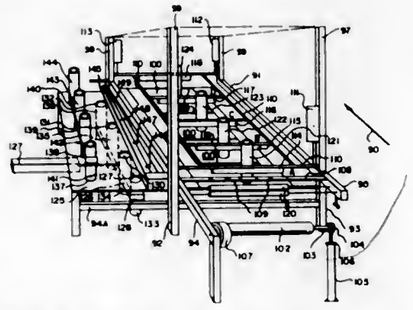
g. means for moving said grasping member from a normal position adjacent the proximal end of said frame to the distal end thereof at a predetermined speed, thereby pulling said metal foil across said frame from the proximal to the distal end thereof, into position above said work stations;

h. speed adjustment means for slowing movement of said continuous sheet of foil leaving said input feed roller to a speed less than said predetermined speed of movement of said grasping member, whereby the continued movement of the grasping member causes the section of slitted metal foil between the grasping member and the said input feed roller to be stretched into an expanded metal net.

i. a second frame mounted above said first frame and reciprocating vertically toward and away from said work stations on said first frame,

j. transversely extending knives mounted on said second frame between each of said work stations, for cutting said continuous sheet of expanded metal net into individual sheets at each work station when said second frame is reciprocated toward said work stations;

k. forming pistons mounted vertically on said second frame above each of said work stations, for intercepting the plane of said expanded metal sheets when said second



frame is reciprocated toward said work stations, said pistons having leading ends shaped in the form of a semi-ellipsoid;

l. a third frame mounted below said first frame and reciprocating laterally toward and away from the work stations on said first frame;

m. forming cylinders mounted vertically on said third frame below each of said work stations, for cooperation with said forming pistons when they intercept the plane of said expanded metal sheets, to form said expanded metal sheets into semi-ellipsoid pieces having a closed end and an open end, and to hold said pieces after being formed therein, the interior of said forming cylinders being shaped in the form of a semi-ellipsoid.

n. closing pistons mounted on a lateral extension of said first frame for reciprocation toward and away from said third frame;

o. means for reciprocating said third frame from a position where its forming cylinders are in registration with said forming pistons, for forming said expanded metal sheets into semi-ellipsoid pieces, to a lateral position where its forming cylinders holding said semi-ellipsoid pieces which have been formed therein are in registration with said closing pistons; and

p. means for reciprocating said closing pistons into said forming cylinders to close the open ends of said semi-ellipsoid pieces.

5,207,757

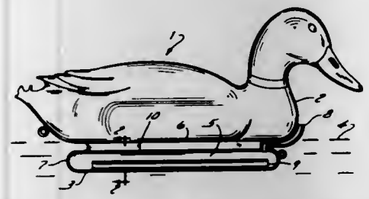
SELF-RIGHTING AND SELF-BALLASTING WATERFOWL DECOY

Augusto Franceschini, Rero, Italy, assignor to Carry-Lite, Inc., Milwaukee, Wis.

Filed Mar. 13, 1992, Ser. No. 851,098

Int. Cl.[5] A01M *31/06*

U.S. Cl. 43—3 **5 Claims**



1. An improved self-ballasting floating waterfowl decoy of the type including:

a. a floating body in the form of a closed hollow shell representing a waterfowl, having an underside intended to directly rest on the water and a waterline located above said underside whenever the decoy is used;

b. a connecting rib depending from the underside longitudinally along said floating body; and

c. a ballast tank attached to said connecting rib and spaced at some distance from the underside of said floating body below the waterline thereof, said tank being in the form of a longitudinally elongated hollow tubular body closed at each end and being provided in correspondence to the bottom of said tank at one of said ends with an opening for the passage of the water, and, in correspondence to the top of the opposite end with an upwardly directed air duct, terminating with its free end above the waterline of the floating body for the escape of air from said tank;

wherein the improvement comprises

d. a hollow metal pipe section inserted within the ballast tank having the minimum weight necessary to, in the event the decoy lands on its backside in a body of water, tip the decoy to a sufficiently upright position whereby water enters the opening of the ballast tank.

5,207,758

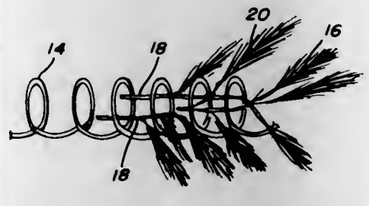
METHOD OF MANUFACTURING A WREATH

Galen E. Royalty, 1222 Cresthaven Dr., Silver Spring, Md. 20903

Filed Feb. 14, 1991, Ser. No. 655,030

Int. Cl.[5] A01G *5/00*

U.S. Cl. 47—41.13 **4 Claims**



1. A method of manufacturing a wreath consisting of:

wrapping a wire around a spindle to form a helical coil having a predetermined diameter, removing said helical coil from said spindle and separating the helical coils to provide spaces between two adjacent coils, and attaching the free ends of the helical coil to create a ring;

selecting sprigs of evergreen or other ornamental material having a shaft and side branch, inserting the shaft of at least one of said sprigs through a first and second coil of said helical coil such that said side branch protrudes between said first and second coils, and

repeating the insertion of sprigs into the next coils sequentially around the helical coil ring until sprigs are protruding between all of the coils and sprigs interlock with the coils to prevent removal.

5,207,759

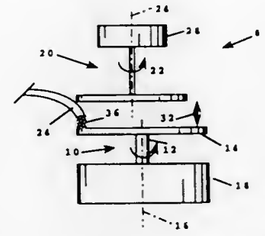
TEXTURING SLURRY AND METHOD

Yassin Mehmandoust, Berkeley; Atef H. Eltoukhy, Saratoga, and Abdoul H. Riahi-Samani, San Jose, all of Calif., assignors to HMT Technology Corporation, Fremont, Calif.

Filed Sep. 20, 1991, Ser. No. 763,228

Int. Cl.[5] B24B *1/00*

U.S. Cl. 51—281 SF **3 Claims**



1. A method of texturing a magnetic disc substrate comprising the steps of:

applying to at least a portion of a surface of the substrate a slurry containing texturing particles, a total weight of said particles comprising between 10–40 weight percent of first texturing particles having sizes between about 2.5–3.5 microns and between 60–90 weight percent of second texturing particles having sizes between about 0.5 to 1.5 microns,

pressing a texturing pad against the substrate in the presence of the slurry; and

moving the pad relative to the substrate, and thereby scouring the substrate with the first and second particles of the slurry.

5,207,760

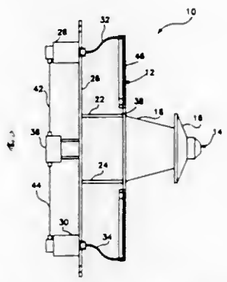
MULTI-MEGAWATT PULSED INDUCTIVE THRUSTER

Charles L. Dailey, Palos Verdes Estates, Calif.; Ralph H. Lovberg, Santa Fe, N. Mex., and James L. Hieatt, Manhattan Beach, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Jul. 23, 1991, Ser. No. 734,723

Int. Cl.[5] F03H *5/00*

U.S. Cl. 60—202 **25 Claims**



1. A method of providing thrust by means of an inductive type magnetic thruster comprising the steps of:

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connecting a series of electrically parallel coils in a flat, spiral inductor arrangement, wherein each coil includes at least two coil sections such that each coil section is electrically connected to an outer perimeter of the inductor and an inner perimeter of the inductor;

connecting a series of discharge capacitors in electrical connection with the inductor such that each coil is electrically connected to at least two capacitors;

injecting an ionizable gas towards the inductor such that the gas substantially uniformly spreads out over a face of the conductor; and

simultaneously discharging all of the capacitors of the series of capacitors to create a magnetic field which ionizes the gas and forces the gas away from the inductor providing thrust.

5,207,761

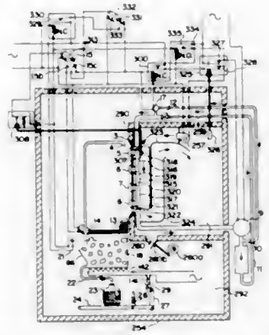
REFRIGERATOR/WATER PURIFIER WITH COMMON EVAPORATOR

John D. Ruff, Alexandria, Va., assignor to Thermadyne, Inc., Alexandria, Va.

Continuation-in-part of Ser. No. 864,781, Apr. 7, 1992, which is a continuation-in-part of Ser. No. 654,509, Feb. 13, 1991, Pat. No. 5,123,943, which is a continuation-in-part of Ser. No. 494,546, Mar. 16, 1990, Pat. No. 4,998,417, which is a continuation-in-part of Ser. No. 437,161, Nov. 16, 1989, Pat. No. 4,941,902, which is a division of Ser. No. 278,447, Dec. 1, 1988, Pat. No. 4,897,099. This application Apr. 30, 1992, Ser. No. 876,258

Int. Cl.[5] C02F *1/22*

U.S. Cl. 62—124 **6 Claims**



1. A system for storage of foodstuffs at temperatures less than 45° F., and for providing ice and purified water comprising:

a continuous refrigerant flow path including a compressor, a condenser, a metering means and an evaporator means;

a storage space for food;

fan means for cooling said storage space by conducting thermal energy from said storage space to said evaporator means;

temperature sensor means for sensing the temperature in said storage space;

control means responsive to said temperature sensor means for energizing said compressor and said fan means when the temperature in said storage space is higher than a first predetermined level;

at least one ice-forming surface;

means for cooling selected areas of said ice-forming surface to a temperature below the freezing temperature of water by conducting thermal energy to said evaporator means from said selected areas;

pump means for circulating a stream of unpurified water over said selected areas to form ice at said selected areas while washing impurities away from the formed ice with said stream;

means for increasing the temperature at said selected areas at various times to remove said ice from said ice-forming surface;

a bin for collecting ice removed from said ice-forming surface;

means for warming said bin to melt some of the ice collected therein into purified liquid water;

container means for collecting the purified liquid water formed by melting the ice in said bin;

bin sensor means for sensing the amount of ice collected in said bin;

container sensor means for sensing the amount of purified liquid water collected in said container;

control means responsive to said bin sensor means for deactivating said pump means when said amount of said collected ice in said bin exceeds a first predetermined amount;

control means responsive to said bin sensor means for activating said pump means when said amount of said collected ice in said bin becomes less than said first predetermined amount; and

control means responsive to both said temperature sensor means and said bin sensor for de-energizing said compressor when the temperature in said storage space is less than said first predetermined level and the amount of said collected ice in said bin exceeds said first predetermined amount, said control means further including means for re-energizing said compressor in response to either or both of the following conditions: (1) the temperature in the said storage space exceeds a second predetermined level; and (2) the amount of said collected ice in the said bin falling below said first predetermined amount.

5,207,762

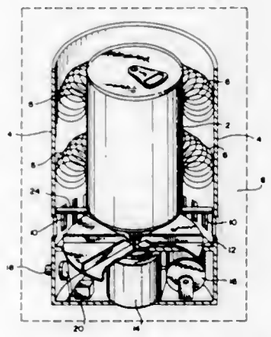
QUICK COOLING APPARATUS AND METHOD

Arnold L. Newman, Kensington, Md., assignor to Synexas Corporation, Bethesda, Md.

Filed Sep. 4, 1991, Ser. No. 754,623

Int. Cl.[5] F25B *41/00*

U.S. Cl. 62—419 **9 Claims**



1. An apparatus for portable use within a refrigeration system for increasing the cooling rate of an item comprising:

(a) a housing for removable placement within said refrigeration system for receiving and holding said item therein in at least partially spaced relationship with an inner surface of said housing;

(b) a fan positioned within said refrigeration system in conjunction with said housing for moving cold air from said refrigeration system through said housing, said cold air contacting said item.

5,207,763

MONITORING SYSTEM FOR KNITTING MACHINES

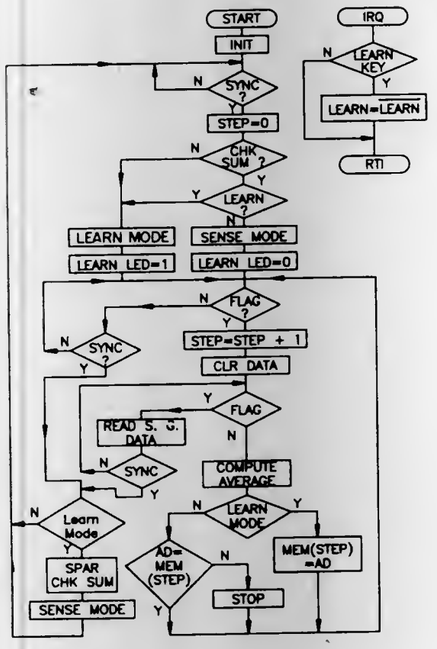
Kurt A. G. Jacobsson, Ulricehamn, Sweden, assignor to International Trading S.r.L., Busto Arsizio, Italy

Continuation of Ser. No. 411,494, Oct. 10, 1989. This application Oct. 18, 1991, Ser. No. 779,138

Claims priority, application PCT Int'l Appl., Apr. 15, 1988, PCT/SE88/00196

Int. Cl.[5] D04B *35/10*

U.S. Cl. 66—163 **3 Claims**



1. A monitoring system for knitting machines as are intended for the knitting of hosiery or socks, comprising an number of yarn or thread guards associated with each yarn intended for infeed into the machine, the guards each being operative, in response to a movement or absence of movement of the yarn, respectively, detected thereby, to generate an output signal to stop the machine in the event of yarn or thread breakage or other fault in the yarn infeed, by the intermediary of an electronic control unit connected to the yarn guards, wherein said control unit includes memory and comparison means and is arranged to gather and memorize, during an introductory, correct and approved working or report cycle of the machine, information representing the yarn infeed phase in the form of the actual pattern of output signals from said yarn guards, and is further arranged thereafter to compare, during subsequent working or report cycles of the machine, the pattern of output signals thus registered and memorized during the introductory, correct and approved working or report cycle with the actual pattern of output signals registered during the current, subsequent working or report cycle in order, in the event of a discrepancy therebetween, to generate a fault signal for stopping the machine.

5,207,764

TUMBLER TYPE WASHING/DRYING MACHINE

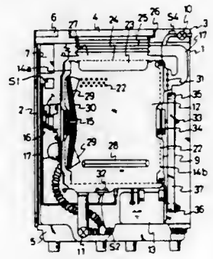
Tatuo Akabane, Tondabayashi; Susumu Kitamura, Kishiwada; Kazuhide Niinai, Osaka; Hiroaki Nagata, Yamatokoriyama; Yoshiaki Kajita, Kyoto; Koji Yamane, Kashiwara, and Takeo Noguchi, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 15, 1991, Ser. No. 775,542

Claims priority, application Japan, Oct. 16, 1990, 2-278650; Dec. 28, 1990, 2-415986; Jan. 25, 1991, 3-47254; Feb. 12, 1991, 3-18953; Feb. 15, 1991, 3-22267; Feb. 20, 1991, 3-26428; Apr. 20, 1991, 3-88883; Jun. 18, 1991, 3-145734; Jun. 18, 1991, 3-159042; Jul. 4, 1991, 3-164692; Jul. 4, 1991, 3-164693; Jul. 5, 1991, 3-165910; Jul. 23, 1991, 3-182658; Jul. 30, 1991, 3-190328; Aug. 9, 1991, 3-200218

Int. Cl.[5] D06F *21/04*

U.S. Cl. 68—20 **15 Claims**



1. A washing/drying machine comprising:

a washtub;

means for feeding water to the washtub;

means for draining water from the washtub;

a tumbling drum, that includes a flat end wall, rotatably supported along a lateral axis in the washtub, the tumbling drum having a plurality of holes for the passage of air and water and an opening for introducing the washing, and a lid for closing the opening;

means for rotating the tumbling drum at various speeds;

a disc for agitating the washing, disposed in the drum adjacent to the flat end wall of the tumbling drum in parallel with the wall;

means for rotatably supporting the disc;

means for selectively fixing the disc;

means for supplying hot air to the tumbling drum; and

means for controlling the fixing means to intermittently fix the disc in a stationary position as the tumbling drum rotates.

5,207,765

SENSOR FOR THERMAL MASS FLOWMETERS

Kurt Eiermann, Friedhofstrasse 26, D-6102 Pfungstadt 2; Dieter Link, August-Bebel-Strasse 1, 6450 Hanau 11; Martin Hohenstatt, Unter den Weingaerten 9, 6451 Hammersbach; Reiner Goebel, Schanzenstrasse 7, D-6450 Hanau 11; Juergen Schrode, Urnenstrasse 11, D-6451 Hammersbach 1; Andreas Gabel, Eifelstrasse 23, D-6095 Ginsheim 2, and Andreas Hoehler, Gruensaustrasse 5, D-6450 Hanau 9, all of Fed. Rep. of Germany

Filed Aug. 16, 1991, Ser. No. 746,666

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1990, 9011927[U]; Jul. 16, 1991, 4123482

Int. Cl.[5] G01F *1/68*

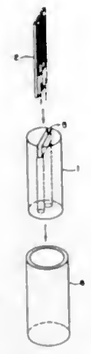
U.S. Cl. 73—204.26 **8 Claims**

1. A sensor for a thermal mass flow meter, said sensor comprising:

a plate-shaped thin-film resistor, a holder in the shape of a cylindrical rod, and a tube tightly enclosing the cylindrical rod, wherein the holder includes an electrically insu-

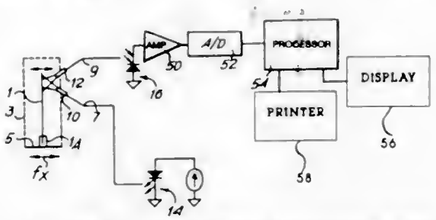
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lating material and is provided with capillary drillings for receiving conductors connected to the thin-film resistor;
wherein a first end of the holder defines a pocket hole which is adapted to receive the thin film resistor;
said pocket hole being defined by a slit extending across said first end of the holder and by the enclosing tube;
wherein a narrow end portion of the thin-film resistor is inserted into the pocket hole, whereby approximately 10



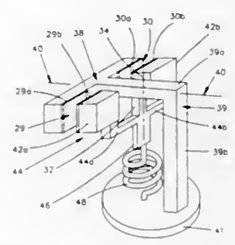
to 60% of the length of the thin-film resistor is received therein;
wherein an area between a wall of the pocket hole and the received end portion of the thin-film resistor is filled with an adhesive substance; and
wherein said holder in the shape of the cylindrical rod further includes a tapered portion which prevents contact between the cylindrical rod and the tube enclosing the rod over at least the length of the tapered portion.

5,207,766
FIBER-OPTIC VIBRATION SENSOR
Giuliano Conforti, Florence; Andrea A. Mencaglia, Siena; Mario Brenci, Pistoia, and Anna G. Mignani, Florence, all of Italy, assignors to Consiglio Nazionale Delle Ricerche, Italy
Division of Ser. No. 389,189, Aug. 3, 1989, Pat. No. 5,063,781. This application Jul. 31, 1991, Ser. No. 739,134
Int. Cl.[5] G01H *9/00;* **G01K** *5/52*
U.S. Cl. 73—653 **13 Claims**



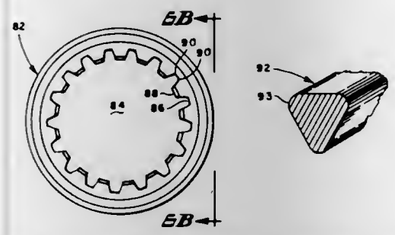
1. A method for measuring vibrations of a body, the method comprising the steps of:
providing a vibratable element mechanically connected to the body;
providing a diffusing screen on said vibratable element;
directing a beam of electromagnetic energy onto said diffusing screen of said vibratable element;
recording reflective portions of said beam of electromagnetic energy reflected from said vibratable element; determining a magnitude of said recorded reflected portions as a function of second degree of a position of said vibratable element;
expanding said function into a Fourier series up to a second harmonic using a main vibration mode of the body as a fundamental frequency; and
determining an amplitude of the vibrations of the body from harmonic components of said Fourier series.

5,207,767
CAPACITOR AND PRESSURE TRANSDUCER
Leroy C. Delatorre, Sugar Land, Tex., assignor to Panex Corporation, Sugar Land, Tex.
Filed Oct. 3, 1991, Ser. No. 770,352
Int. Cl.[5] G01L *7/04, 9/12*
U.S. Cl. 73—733 **24 Claims**



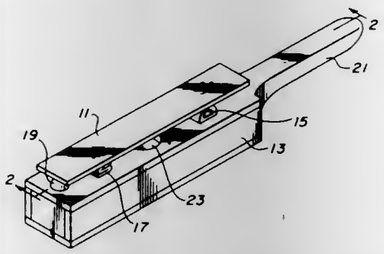
1. A dual capacitor device utilizing dependent capacitance for measurement purposes comprising:
a first capacitance base member and a second capacitance base member respectively having capacitor surfaces arranged parallel to one another and disposed in spaced apart, first and second parallel planes and respectively defining first and second capacitors, said first and second capacitors being located on each side of a transducer plane which is transverse to said parallel planes;
said second capacitance base member having a centrally located section, an outer section and torsion beam means connecting said centrally located section to said outer section, said outer section of said second capacitance base member having one of said capacitor surfaces for each of said first and second capacitors and said first capacitance base member having the other of said capacitor surfaces for said first and second capacitors;
attachment means connecting said centrally located section to said first capacitance base member;
said torsion beam means having a displacement axis located parallel to said capacitor surfaces, said torsion beam means being responsive to a torsion force about said displacement axis for permitting an angular torque displacement of said outer section of said second capacitance base member relative to said centrally located section about said displacement axis and for displacing said one capacitor surfaces relative to said other capacitor surfaces for producing a dependent capacitance change in said first and second capacitors in response to an angular torque displacement; and
force means coupled to said outer section of said second capacitance base member for producing a torsion force on said torsion beam means about said displacement axis relative to said first capacitance base member for developing angular torque displacement of said outer section relative to said first capacitance base member and a dependent capacitance change in said first and second capacitors as a function of said torsion force.

5,207,768
TRANSMISSION THRUST WASHER AND LOCKING MEANS THEREFOR
James D. Gluys, Portage, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed Apr. 16, 1990, Ser. No. 509,394
Int. Cl.[5] F16H *3/08;* **F16D** *13/60, 1/00*
U.S. Cl. 74—331 **9 Claims**



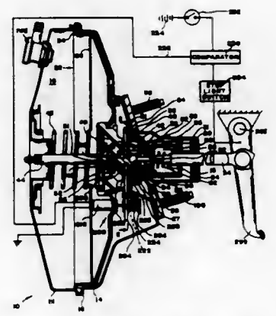
9. In a transmission, the combination of a plurality of keyways and at least one key for securing a thrust washer to a mainshaft of the transmission, said mainshaft having a plurality of axially extending grooves disposed in a substantially circumferentially equi-distant array in the outer surface thereof and having at least one annular groove disposed in the outer surface thereof that is in substantial transverse relationship to the axially extending grooves, said thrust washer having an open end for receiving the mainshaft therethrough surrounded by a surface having a corresponding array of grooves therein having rounded intersections between the opposed sidewalls and the bottom surface respectively thereof and that are respectively registerable with the mainshaft grooves, said key having a substantially triangular cross-sectional configuration having rounded intersections between adjacent side thereof and adapted to be received through at least on of the keyways to secure the thrust washer to the mainshaft.

5,207,769
STRIKERLESS PERCUSSION MUSICAL INSTRUMENT
Jacob H. Malta, New Britain, Pa., assignor to Malmark, Inc., Plumsteadville, Pa.
Filed Oct. 31, 1991, Ser. No. 785,805
Int. Cl.[5] A63H *5/00;* **G10D** *13/08*
U.S. Cl. 84—404 **9 Claims**



1. A handheld percussion musical instrument, comprising:
an elongate body, including a resonator at one end and a handle at the opposite end;
a swinging tone plate fastened to said body by a connector which suspends the plate directly above said resonator and permits the tone plate to move through a limited arc; and
an impact element rigidly affixed to said body, said element located at the contact point of said body and said tone plate, such that when the instrument is played, the tone plate is swung into contact with said impact element, thus sounding the tone plate.

5,207,770
MODIFIER FOR VACUUM BOOSTER REACTION FORCE
Douglas A. Fecher, Granger, Ind., assignor to Allied-Signal Inc., Morristown, N.J.
Filed Jan. 29, 1992, Ser. No. 827,668
Int. Cl.[5] F15B *9/10*
U.S. Cl. 91—369.4 **4 Claims**



1. In a brake booster having a plunger located in a bore in a hub of a movable wall and responsive to an operator input force for controlling the flow of a first fluid to a first chamber to create a pressure differential with a second fluid in a second chamber, said pressure differential acting on the movable wall to develop an original output force that is transmitted through a reaction member to an output member for moving a pressurizing device to effect a desired brake application, said pressurizing device resisting movement by the original output force to develop a reaction force which is transmitted back through the reaction member to oppose and balance the operator input force and terminate the communication of the first fluid to said first chamber to terminate the development of said pressure differential, said original output force being a linear function of the operator input force, the improvement comprising:
a lever having a first end and a second end, said lever engaging a fulcrum on said hub to define a ratio of the distances between the first and second ends and the fulcrum, said first end engaging said plunger;
resilient means connected to said second end; and
a solenoid carried by said moveable wall and responsive to an operational signal generated on initiation of a brake application for positioning said second end of said lever to provide said first end with a spring force from said resilient means, said spring force being combined with said operator input force during a brake application, said reaction force balancing said spring force and operator input force to produce a modified output force which is supplied to operate said pressurizing device, said modified operational output force being a function of said operational input force and having a greater gain than said original output force.

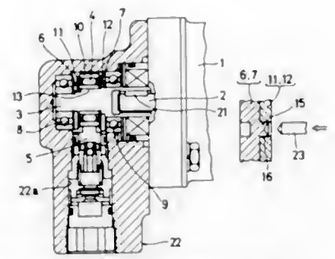
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,771

RADIAL PLUNGER TYPE PUMP WITH COUNTER WEIGHT AND WASHER INTEGRALLY SECURED

Masakazu Sugisaw, Takahama, and Yoshio Watanabe, Kariya, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Dec. 12, 1991, Ser. No. 805,623
Claims priority, application Japan, Dec. 19, 1990, 2-411685
Int. Cl.[5] F01B *1/00*; F04B *1/04*
U.S. Cl. 92—72 6 Claims



1. A radial plunger type pump comprising:
a housing;
an eccentric cam shaft rotatably supported by the housing;
a pair of bearing means for supporting the cam shaft in the housing;
a radial plunger reciprocally disposed in a cylinder of the housing and reciprocating within the cylinder of the housing in accordance with the eccentric rotation of a cam portion of the eccentric cam shaft;
a pair of counterweights disposed in spaces provided between the bearing means and the cam portion of the eccentric cam shaft, the pair of counterweights including a counterweight portion for balancing the rotation of the eccentric cam shaft and a washer portion for preventing the plunger from axial movement, wherein the counterweight portion and washer portion are integrally secured, wherein the counterweights are engaged with the eccentric cam shaft for preventing the relative rotation therewith, wherein the pair of counterweights have an engaging portion which engages with the eccentric cam shaft for preventing the relative rotation therewith, wherein the engaging portions of the pair of counterweights are radial projections provided in central bores and wherein the radial projections engage with grooved portions provided on the outer surface of the eccentric cam shaft for preventing the relative rotation therewith.

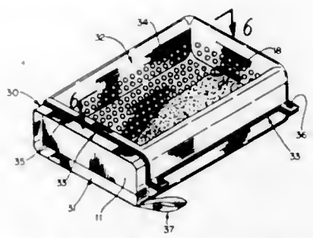
5,207,772

LITER BOX LINER AND FILTRATION SYSTEM AND METHOD

John J. Lauretta, and Romana A. Lauretta, both of 4398 Prasse Rd., South Euclid, Ohio 44121

Filed Mar. 23, 1992, Ser. No. 855,303
Int. Cl.[5] A01K *29/00*
U.S. Cl. 119—167 11 Claims

1. A filter liner system for use with a litter box having an open top and containing litter material for receiving animal waste comprising,
a plurality of inter-fitting filter liner bags having an open end and sufficient volume to insert said box into said bags through said open end so that said box is completely enclosed by said bags,
a top surface of each of said bags fitting in the bottom of said box over which litter material is placed,
a bottom solid surface of each of said bags positioned underneath said box,
said top surface of each of said bags further comprising a plurality of perforations, said perforations being of sufficient size and relative placement to allow filtration of



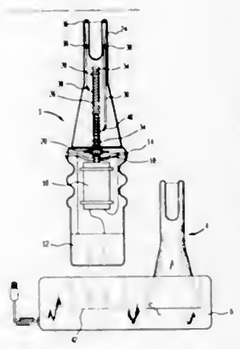
litter material therethrough and retention of solid animal waste.

5,207,773

TEETH CLEANING APPARATUS

Doug Henderson, 1390 California Ave., Turlock, Calif. 95380

Filed Nov. 26, 1990, Ser. No. 618,110
Int. Cl.[5] A61C *5/00*
U.S. Cl. 132—322 18 Claims



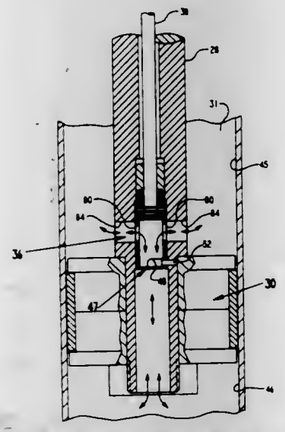
1. Teeth cleaning apparatus, comprising:
handle means having a casing with a motor disposed therein; and
floss applicator means adapted to be selectively, drivably connected to said handle means;
said floss applicator means including a casing with a floss applicator tip, a floss tube rotatably disposed within said applicator casing and having a supply of new floss provided thereon;
said motor having a rotatable output shaft which projects outwardly of said handle casing and is adapted to be securely, coaxially received within one end of said floss tube when said floss applicator means is connected to said handle means such that said floss tube will rotate together with said output shaft when said motor is actuated;
said supply of new floss being wound around a first portion of said floss tube in one direction, and one end of said new floss being extended along a path of movement through said applicator tip to a second portion of said floss tube around which said floss is wound in a direction opposite to said one direction, such that used floss will be taken up by said second portion of said floss tube;
said applicator means further including means for sanitizing said used floss as it is moved along a section of said path of movement between said applicator tip and said second portion of said floss tube; and
said sanitizing means comprising a tube lined with an antibacterial substance, said floss extending through said sanitizing tube.

5,207,774

VALVING FOR A CONTROLLABLE SHOCK ABSORBER

Paul T. Wolfe, Leonard J. Schwemmer, Donald R. Prindle, North East, all of Pa., and Charles B. Tidwell, Durham, N.C., assignors to Lord Corporation, Erie, Pa.

Filed Nov. 27, 1991, Ser. No. 799,592
Int. Cl.[5] F16K *5/10*
U.S. Cl. 137—625.32 10 Claims



1. A rotary valve assembly which is actuated by a rotated means on a variable shock absorber, comprising:
a) a piston rod having a hollow portion, a first end for attachment to a piston and a second end spaced apart from said first end for interconnecting to a component:
b) a rotary valve means which is hollow inside, has at least one open end, at least two ports formed therein, and has rotation limiting means formed thereon for restricting the rotation of said rotary valve means within limits, said means for restricting rotation limiting movement to an angle of about 90°; and
c) a control rod disposed within said hollow portion in said piston rod, said control rod being substantially smaller in diameter than said hollow portion in said piston rod, being pivotally attached to said rotary valve means, and having a support bearing located sufficiently far away from said second end of said piston rod, such that said control rod can bendingly align with the rotating means, said control rod having one end connected to said rotary valve means, and the other end connected to an output shaft of the rotating means.

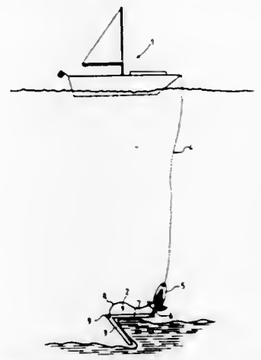
5,207,775

DEVICE FOR RELEASING AN ANCHOR

Claude Piton, and Jacqueline Piton, both of 45, rue de Dinan, F-22130 Plancoet, France

Filed Apr. 8, 1992, Ser. No. 866,798
Claims priority, application France, Apr. 8, 1991, 91 04396
Int. Cl.[5] B63B *21/46*
U.S. Cl. 114—299 4 Claims

1. A device for the unhooking a main chain (4) from a free end of a shank (7) of an anchor (2) that makes it possible to release said anchor (2) by pulling it by means of a cable (8) connected to one side of an anchor crown (9) said device comprising an elongated first plate (10) having one end which receives a main chain (4), means on the other end of said plate 10 including an opening (15) that is located substantially on an axis of said plate (10), a second plate (16) superimposed on and pivotally attached to the first plate (10) said second plate (16) having a part (17) that covers an open end part of said opening (15) when said first and second plates (10, 16) are in a first mutual position, thus making it possible to hook a shackle (6) at a free end of the shank (7) of anchor (2), said first and second plates (10, 16) in a second mutual position uncovering said open end part for unhooking said shackle (6), means comprising a spring (22) (2) for normally holding said plates (10, 16) in said first mutual position, said second plate (16) having a first lateral edge (26) that projects beyond a corresponding lateral



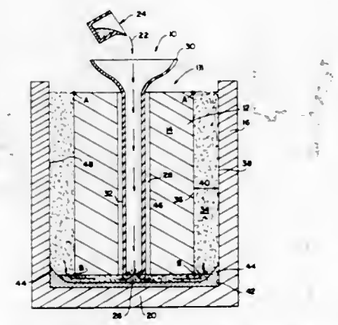
edge (27) of the first plate (10) when said plates are in said first mutual position and which is juxtaposed over said corresponding lateral edge when in said second mutual position, and tube means (29) for freely sliding down said main chain, said tube means engaging the first lateral edge of said second plate (16) to bring it closer to the corresponding lateral edge (27) of said first plate (10), the internal diameter of said tube (29) forcing the first edge (26) of the second plate (16) and the corresponding edge (27) of said first plate (10) into said second mutual position for releasing said shackle (6).

5,207,776

BI-METALLIC EXTRUSION BILLET PREFORMS AND METHOD AND APPARATUS FOR PRODUCING SAME

Robert J. Pearce, Sewickley, Pa., assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Oct. 4, 1991, Ser. No. 771,906
Int. Cl.[5] B22D *19/16*
U.S. Cl. 164—98 24 Claims

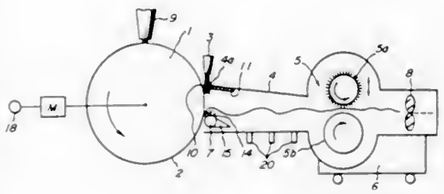


1. A method for producing a bi-metallic extrusion billet preform in a single casting, comprising the steps of:
providing a mold for said preform;

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providing a bottom pouring distribution manifold on a bottom surface of said mold;
providing a metal core having a bore which extends along an entire length of said core;
placing said core into said mold so that said manifold supports said core, leaving an annular area between an outside surface of said core and an inner surface of said mold;
delivering a molten cladding metal into a bottom of said mold via a bottom pouring tube positioned within said bore so that the molten cladding metal is delivered directly to said manifold in a bottom pouring operation, filling said annular area with said molten cladding metal; and
allowing said molten cladding metal to solidify around said core to produce said extrusion billet preform.

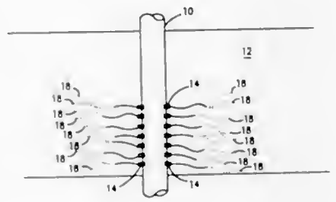
5,207,777
APPARATUS FOR TRANSFERRING RAPIDLY QUENCHED METALLIC TAPES
Kiyoshi Shibuya; Toru Sato; Nobuyuki Morito; Seiko Nara, and Teruo Hiramatsu, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan
Continuation of Ser. No. 649,302, Jan. 30, 1991, abandoned, which is a continuation of Ser. No. 422,776, Oct. 17, 1989, abandoned. This application May 21, 1992, Ser. No. 886,305
Claims priority, application Japan, Oct. 21, 1988, 63-264215; Oct. 21, 1988, 63-264216; Nov. 16, 1988, 63-2875519; Aug. 18, 1989, 1-211420
Int. Cl.[5] B22D *11/06*
U.S. Cl. 164—463 **7 Claims**



1. An apparatus for guiding and transferring a rapidly quenched metallic tape comprising a cylindrical transfer guide for introducing thereinto and guiding therein the rapidly quenched metallic tape produced by solidification through rapid quenching on a circumferential surface of a single cooling roll and peeled therefrom, said transfer guide being arranged on a normal line of the single cooling roll at a position where the metallic tape is peeled, said transfer guide having upper and lower edges adjacent said single cooling roll and defining clearances with respect to said single cooling roll, a pinch roll unit arranged at a terminal end of the transfer guide for catching the metallic tape, and a transfer trolley for transferring said pinch roll unit to a winder for the metallic tape, said transfer guide is arranged adjacent said single cooling roll, and the apparatus further comprises an air knife for peeling the metallic tape from the single cooling roll by air jetting, said air knife being arranged extending from a downstream side of a rotating direction of the single cooling roll toward said upper clearance between the single cooling roll and the transfer guide, and an adjusting plate on said transfer guide for adjusting the upper clearance between the single cooling roll and the transfer guide.

5. A method of guiding and transferring a rapidly quenched metallic tape which comprises the steps of, peeling a rapidly quenched metallic tape, which is produced by solidification through rapid quenching on a circumferential surface of a single cooling roll rotating at a high speed, jetting air through an upper clearance between the cooling roll and a cylindrical transfer guide, controlling the size of said clearance to adjust the amount of the jetted air against the peeled tape to support and feed the tape to avoid contact with said cylindrical transfer guide, introducing the peeled metallic tape into said transfer guide arranged in a flying direction of the metallic tape to feed the metallic tape substantially without being in contact with the transfer guide, guiding said metallic tape by suction air to a pinch roll arranged at a terminal end of the transfer guide, said suction air being developed by means of a blower, in which high speed air flow directing from an entrance side to a delivery side of the transfer guide is caused by air suction on the delivery side of the transfer guide so that the velocity of the metallic tape fed in the transfer guide, to catch the metallic tape by a pinch roll unit along a pass line substantially formed by a deflector roll with an air floated provided on the entrance side of the transfer guide, and moving the pinch roll unit to a winder for winding the metallic tape.

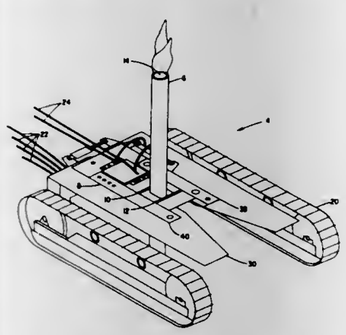
5,207,778
METHOD OF MATRIX ACIDIZING
Alfred R. Jennings, Jr., Plano, Tex., assignor to Mobil Oil Corporation, Fairfax, Va.
Filed Oct. 24, 1991, Ser. No. 782,192
Int. Cl.[5] E21B *43/27*
U.S. Cl. 166—281 **4 Claims**



1. A method to improve matrix acidizing in a carbonate containing formation comprising:
a) introducing a pore volume of hydrochloric acid into a formation which enters a zone of higher permeability thereby forming wormholes which make this zone more permeable;
b) directing a solidifiable viscous gel with gel breakers into the higher permeability zone which gel enters the wormholes and forms a solid gel therein which precludes entry of additional acid while displacing the acid further into the formation;
c) introducing additional acid into the formation which acid bypasses the wormholes in the higher permeability zone containing the solid gel and penetrates substantially further into the formation; and
d) repeating steps b) and c) which displaces acid further into the formation so as to substantially increase the permeability of the formation and improve matrix acidizing.

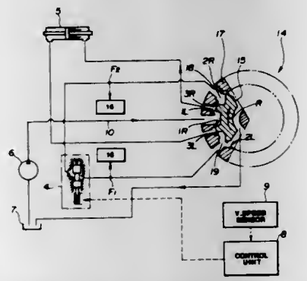
5,207,779
METHOD AND APPARATUS FOR CLOSING A WELLHEAD CASING
Charles Chaplinski, Rte. 1, Box 19, Middle River, Minn. 56737
Filed Jun. 17, 1991, Ser. No. 716,097
Int. Cl.[5] A62C *3/06*
U.S. Cl. 169—43 **14 Claims**

1. A method for controlling a wellhead fire comprising:
a) remotely guiding means for compressing a wellhead casing into alignment with the casing, wherein the compressing means includes a plurality of articulating clamp arms, compression dies, and a hydraulic cylinder;
b) manipulating said clamp arms to encircle said casing and interlocking said clamp arms to prevent release until withdrawal from the casing;
c) drawing the compression dies into engagement with said wellhead casing; and
e) extending the hydraulic cylinder to compress walls of the wellhead casing in a region of said compression dies,



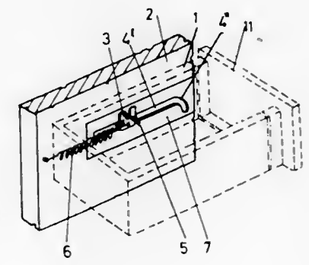
whereby opposite interior surfaces of the casing walls are collapsed on each other.

5,207,780
HYDRAULIC VALVE DEVICE FOR AUTOMOTIVE POWER STEERING GEAR
Naoki Norimatsu; Naoki Yuzuriha, and Koh Uchida, all of Kanagawa, Japan, assignors to Nissan Motor Co., Ltd., Yokohama City, Japan
Filed Jun. 4, 1991, Ser. No. 709,833
Claims priority, application Japan, Jul. 4, 1990, 2-176899
Int. Cl.[5] B62D *5/083*
U.S. Cl. 180—141 **17 Claims**



1. A power steering device for a motor vehicle, comprising:
first means for producing a hydraulic pressure;
a power cylinder powered by said hydraulic pressure for producing a force to assist a steering job applied to the motor vehicle;
a hydraulic valve for controlling the hydraulic pressure supplied to said power cylinder, said hydraulic valve including a valve shaft and a valve body;
a chattering protection seal associated with said hydraulic valve to assure a concentric rotation of said valve shaft relative to said valve body with an assistance of hydraulic pressure applied thereto; and
second means for applying, when the vehicle is at a standstill or under a low speed movement, said chattering protection seal with a hydraulic pressure which is varied as a steering wheel is turned, and applying, when the vehicle is under a high or middle speed movement, said chattering protection seal with a hydraulic pressure which is controlled to a relatively low constant level even when the steering wheel is turned.

5,207,781
CLOSING DEVICE FOR MOVING A DRAWER TO A FULLY INSERTED POSITION WITHIN A FURNITURE BODY
Erich Röck, Höchst, Austria, assignor to Julius Blum Gesellschaft m.b.H., Höchst, Austria
Continuation of Ser. No. 738,355, Jul. 31, 1991, abandoned, which is a continuation-in-part of Ser. No. 504,136, Apr. 3, 1990, abandoned. This application Apr. 30, 1992, Ser. No. 876,903
Claims priority, application Austria, Apr. 3, 1989, 766/89; Jul. 31, 1990, 1607/90; Dec. 14, 1990, 2534/90
Int. Cl.[5] A47B *88/00*
U.S. Cl. 312—319.1 **105 Claims**



1. A closing device, for use in an article of furniture having furniture components including a furniture body and a drawer slidable in opposite directions into and out of the furniture body, for moving the drawer to a fully inserted position within the furniture body, said closing device comprising:
a pin member adapted to be fixedly mounted on one of the furniture components;
a tiltable member adapted to be mounted on the other of the furniture components for displacement relative thereto in opposite first and second directions;

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means providing engagement between said pin and tiltable members when the drawer is in the fully inserted position and thereby for causing, upon the drawer being moved in a direction outwardly of the furniture body, relative displacement in said first direction between said tiltable member and the other furniture component;

spring means, acting on said tiltable member and adapted to act on the other furniture component, for urging relative displacement in said second direction between said tiltable member and the other furniture component, and thereby for, when said pin and tiltable members are in engagement, urging the drawer to move in a direction inwardly of the furniture body to the fully inserted position; and

means for, upon relative displacement between said tiltable member and the other furniture component against the urging force of said spring means in said first direction to a predetermined relative position, causing said tiltable member to tilt in a first pivot direction about an axis to a locking position whereat said tiltable member is locked in position with respect to the other furniture component and whereat engagement between said pin and tiltable members is released such that the drawer is freely movable into and out of the furniture body, and for, upon free movement of the drawer inwardly of the furniture body to a position whereat said pin and tiltable members again are engaged, causing said pin member to tilt said tiltable member in a second pivot direction about said axis away from said locking position, such that said urging force of said spring means again acts between said tiltable member and the other furniture component to thereby cause relative displacement therebetween in said second direction and to move the drawer in the direction inwardly of the furniture body to the fully inserted position.

5,207,782

Patent Not Issued For This Number

5,207,783

SAFETY CLOSURES FOR CONTAINERS

George W. Burton, London, United Kingdom, assignor to Johnsen & Jorgensen Plastics Limited, London, United Kingdom

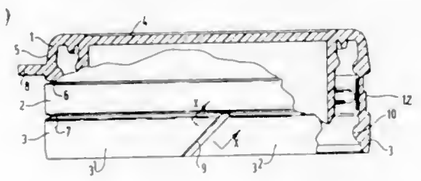
Filed Sep. 20, 1988, Ser. No. 246,867

Claims priority, application United Kingdom, Sep. 21, 1987, 8722126

The portion of the term of this patent subsequent to Sep. 4, 2008, has been disclaimed.

Int. Cl.[5] B65D *41/32*

U.S. Cl. 215—256 8 Claims



1. A plastics material, one-piece closure for a container wherein the closure is adapted to be push fitted onto the container and comprises a cap part with a depending skirt having a top connected to the cap part and a bottom, a tear band having a top and bottom, the top of the tear band being connected to the bottom of the skirt by frangible safety means, an annular anchor band having a top and a bottom, the top of the anchor band being connected to the bottom of the tear band by frangible safety means and a hinge member connecting the anchor band to the skirt and by which the skirt and cap part may be hinged relative to the anchor band after the tear band has been removed characterized in that the annular anchor band is divided into separate sections by frangible indicating means for indicating that tampering has occurred and for indicating that an upwards force has been applied to the closure with said tear band in place, said frangible indicating means comprising lines of weakening across the width of the anchor band, the frangible indicating means remaining unbroken when the closure is opened in normal use, and the frangible indicating means breaking only as the closure is moved upwardly over a retaining bead around the neck of the container when an upward force is applied to persuade the closure off the container without tearing away the tear band to thereby indicate that tampering has occurred.

5,207,784

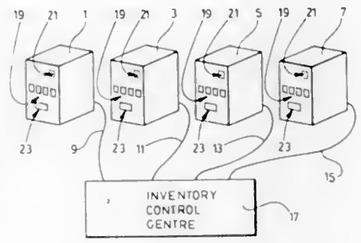
VENDING MACHINE WITH MONITORING SYSTEM

Wilbur Schwartzendruber, 53 3rd Road East, Stoney Creek, Ontario, Canada L6G 3X4

Continuation-in-part of Ser. No. 320,970, Mar. 9, 1989, abandoned. This application Jul. 29, 1991, Ser. No. 737,144

Int. Cl.[5] G07F *11/00*

U.S. Cl. 221—6 19 Claims



1. Vending apparatus with self-monitoring system, comprising:

at least one compartment for storing a predetermined quantity of articles to be dispensed;

user activated means for dispensing individual ones of said articles from said compartment;

means for counting said individual ones of said articles dispensed by said user activated means and in response maintaining a predetermined count value representative thereof;

means for subtracting said predetermined count value from said predetermined quantity and in response generating a signal representative of the number of said articles remaining in said compartment; and

means for transmitting said signal to a remote location, whereby inventory status of said vending apparatus is communicated to said remote location.

5,207,785

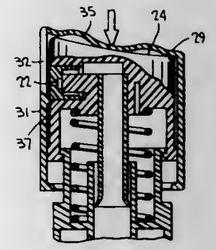
PROTECTOR CAP AND WIPER FOR DISPENSER DISCHARGE ORIFICE

Michael G. Knickerbocker, Upland, Calif., assignor to Calmar Inc., City of Industry, Calif.

Filed Aug. 19, 1991, Ser. No. 746,713

Int. Cl.[5] B67D *1/08*

U.S. Cl. 222—148 4 Claims



1. A manually operated dispenser having a plunger head reciprocable along a central axis thereof, said head having a smooth cylindrical side wall and a top wall, said side wall containing a discharge orifice through which product is expelled upon head reciprocation, a protector cap mounted on said plunger head for reciprocation independent thereof along sad axis, said cap having a cylindrical side wall telescoped over said head side wall, said cap having a top wall overlying said head top wall and being spaced therefrom in a condition of non-use, a portion of said cap side wall covering said orifice in said condition of non-use, said cap side wall having an aperture adjacent said wall portion for alignment with said orifice for uncovering said orifice in a condition of use, said cap top wall having an integral bow spring bearing against said head top wall for spacing said top walls apart for thereby resiliently urging said cap into said condition of non-use, said cap being axially moveable relative to said head into said condition of and use upon application of finger force to said cap top wall overcoming the spring force of said bow spring in the direction of head reciprocation for uncovering said orifice, said bow spring urging said cap into said condition of non-use upon removal of the applied finger force.

5,207,786

WIRE BONDING METHOD

Hiroshi Kawashimo, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 21, 1992, Ser. No. 822,678

Claims priority, application Japan, Feb. 1, 1991, 3-31431

Int. Cl.[5] B23K *31/02*; H01L *21/603*

U.S. Cl. 228—179 2 Claims

1. A wire bonding method comprising sequentially:

forming a ball at the tip of a fine metal wire passing through a capillary tip;

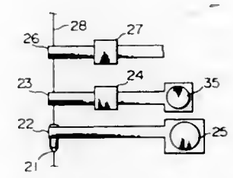
joining the ball by pressing the ball with the capillary tip against a first electrode;

moving the capillary tip from the first electrode toward a second electrode while the fine metal wire is paid out through the capillary tip;

clamping the fine metal wire with a first clamp and moving the first clamp and the capillary tip closer to the second electrode;

releasing the first clamp from the fine metal wire;

moving the capillary tip still closer to the second electrode;



clamping the fine metal wire and the first clamp;

moving the first clamp away from the capillary tip, thereby drawing an excess length of the fine metal wire protruding from the end of the capillary tip back into the capillary tip;

clamping the fine metal wire with a second clamp located farther from the capillary tip than the first clamp;

releasing the first clamp from the fine metal wire;

moving the capillary tip toward the second electrode and joining the fine metal wire at the end of the capillary tip to the second electrode by pressing the capillary tip against the second electrode; and

releasing the second clamp form the fine metal wire.

5,207,787

VARIABLE AREA NOZZLE

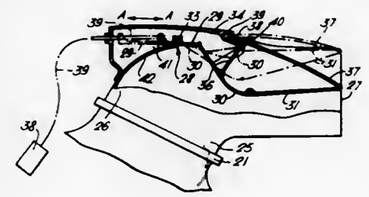
William J. Lewis, Somerset, United Kingdom, assignor to Rolls-Royce plc, Bristol, England

Filed Feb. 23, 1982, Ser. No. 356,914

Claims priority, application United Kingdom, Feb. 28, 1981, 8106397

Int. Cl.[5] B05B *12/00*

U.S. Cl. 239—265.39 10 Claims



1. A variable area nozzle for a turbo machine, comprising:

a duct;

a fixed plate forming a portion of at least one wall of said duct;

a first movable plate forming a further portion of said at least one wall, located adjacent to a downstream end of said fixed plate and mounted to be slidable relative to the fixed plate in a substantially longitudinal direction along the duct;

at least one additional movable plate forming a still further portion of said at least one wall, an upstream end of said at least one additional movable plate being pivotally mounted to a downstream end of said first movable plate;

an outer wall encompassing said movable plates and extend-

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ing downstream beyond said downstream end of said fixed plate;

a seal plate having one end pivotally attached to said outer wall downstream of said downstream end of said fixed plate and another end pivotally attached to said at least one additional movable plate;

a pressurizable chamber on a side of said movable plates remote from an interior of said duct, said fixed plate, movable plates, outer wall and seal plate together comprising walls of said chamber;

means for admitting pressurized gas to the chamber, thereby at least partially to counterbalance pressure loads on said movable plates due to the pressure of any gasses flowing through said nozzle; and

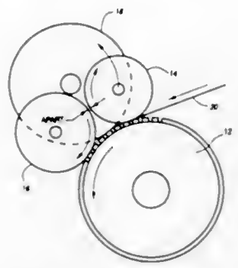
actuator means for moving said first movable plate in said longitudinal direction, thereby to cause said at least one additional movable plate and said seal plate to pivot and vary the area of the nozzle.

5,207,788

FEED ARRANGEMENT FOR CURRENCY HANDLING MACHINES

Joseph J. Geib, DesPlaines, and Lars Stromme, Arlington Heights, both of Ill., assignors to Cummins-Allison Corp., Mt. Prospect, Ill.

Continuation of Ser. No. 680,585, Apr. 4, 1991, abandoned. This application Aug. 13, 1992, Ser. No. 928,535
Int. Cl.[5] B65H *3/06*
U.S. Cl. 271—122 **11 Claims**



1. In currency handling apparatus wherein an input bin is provided for accepting a stack of bills from which bottom bills are to be successively fed in single file in a given feed direction along a bill transport path, a feed arrangement comprising:

at least one drum roller adapted to frictionally contact said bottom bills to facilitate advancement thereof along the bill feed direction, said drum roller being rotationally driven in a direction which is complementary to said bill feed direction, and

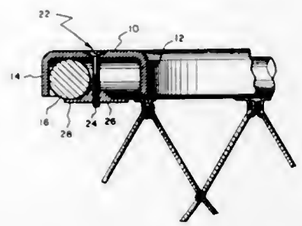
at least one picker roller adapted to contact and retard incoming bills other than said bottom bills, said picker roller being rotationally driven in a substantially continuous fashion in a direction counter to said bill feed direction as said roller contacts said incoming currency bills and in the absence of a bill in the region of engagement between said picker roller and said drum roller so as to impose a retarding action upon bills coming into contact therewith, thereby restricting said bills other than said bottom bills from being fed in along with said bottom bills, said picker roll being subsequently susceptible to rotation along said bill feed direction by contact with bills between said picker and drum rollers.

5,207,789

BASKETBALL SHOOTING AID

Horace Gates, Central City, Iowa, assignor to Accu-Rim, Inc., Central City, Iowa

Filed Apr. 3, 1992, Ser. No. 863,111
Int. Cl.[5] A63B *63/08*
U.S. Cl. 273—1.5 A **5 Claims**



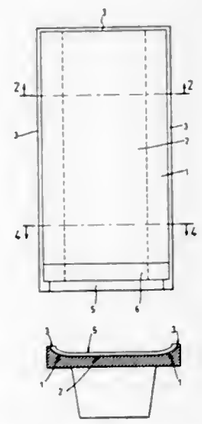
1. A device for improving the shooting accuracy of a basketball player shooting a basketball at a goal that includes a circular rim having regulation outside and inside diameters, said device comprising an annular member having a top portion and an inner edge and an outer edge extending downwardly from the top portion, both the inner edge and the outer edge being integral with the top portion to form a somewhat U-shaped cross section of the annular member, the outer edge having an inside diameter that is slightly greater than the outside diameter of the rim of the goal, the inner edge having an inside diameter that is less than the inside diameter of the rim of the goal, and means for removably attaching the device to the goal with the annular member on top of the rim and with the outer edge extending around the outside of the rim.

5,207,790

BILLIARD TABLE WITH CONCAVE EDGES

Jacques Eveillard, Evreux, France, assignor to Philippe Eveillard, Corsept, France, a part interest

Filed Mar. 18, 1992, Ser. No. 855,051
Claims priority, application France, Mar. 18, 1991, 91 03248
Int. Cl.[5] A63D *15/00*
U.S. Cl. 273—3 A **5 Claims**



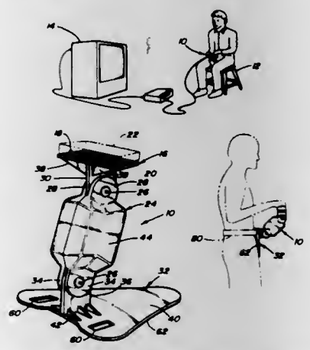
1. A billiard table, comprising a substantially planar playing surface said playing surface being limited at its periphery by retention edges, and bordered longitudinally by a concave playing surface disposed between the planar playing surface and the longitudinal retention edges each of said concave playing surfaces (1) having a radius of curvature between 0.30 and 1.1 meters said billiard table having one of retention edges horizontally wider and vertically shorter than the other retention edges so as to constitute a rest for a layer's hand when making a billiard.

5,207,791

UNIVERSAL SUPPORT FOR A HAND OPERATED DEVICE

Darryl Scherbarth, 10805 Dale Rd. SE., Yelm, Wash. 98597

Filed Mar. 23, 1992, Ser. No. 855,555
Int. Cl.[5] A63B *71/00*; A63F *9/00*
U.S. Cl. 273—148 B **8 Claims**



1. A universal support for a hand operated device comprising:

a platform having a holding surface for holding said device;

a base having datum engaging surface, a body engaging surface, and belt receiving means for attachment to a user's waist;

a connector connected to pivot about a first axis at one end to said platform and connected to pivot about a second axis parallel to said first axis at its other end to said base;

first lock means for locking said platform to said connector with a selected angular orientation at said first pivot connection;

second lock means for locking said base to said connector with a selected angular orientation at said second pivot connection; and

wherein when said base is pivoted relative to said connector to a first angular position and locked so that the base is attached to the waist of the user's body by a belt, supporting the datum engaging surface against the user's abdominal area, and said platform is pivoted relative to said connector to a second angular position and locked so that said platform is in a plane transverse to a plane containing said base and said hand operated device is held on said holding surface and freely manipulated by the user's hands and fingers;

wherein when said base is pivoted relative to said connector to a third angular position and locked so that said base can be supported on a datum by said datum engaging surface as the user's legs engage said body engaging surface, and said platform is pivoted relative to said connector to a fourth angular position and locked so that said platform is in a plane substantially parallel to a plane containing said base and said hand operated device can be held on said holding surface and freely manipulated by the user's hands and fingers; and

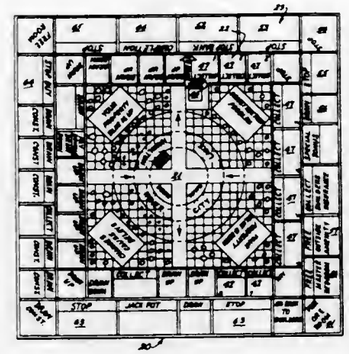
wherein said apparatus is pivotal between a first position and a second position, said positions being mutually exclusive of each other.

5,207,792

HOME BUILDING BOARD GAME

Janet Anderson, 304 Joy Dr., Hot Springs, Ark. 71913

Filed Apr. 11, 1991, Ser. No. 684,068
Int. Cl.[5] A63F *3/00*
U.S. Cl. 273—256 **17 Claims**



1. A combination board game and advertising medium for displaying products and businesses in the housing industry and products for housing to players of the game comprising, a game board having at least a first and second series of separate spaces, a source of play money, a plurality of said first spaces indicating play money paid to a player, at least one of said first spaces indicating a house plan selection, a plurality of house plan card means, said house plan card means including indicia indicating a house point scoring value and purchase information, at least two game pieces selectively movable along said first and second spaces, chance means for determining the number of spaces a game piece is moved, a plurality of house amenity card means, said second series of spaces including a plurality of spaces including indicia for permitting the selection of a house amenity card means for a house plan card means selected, each of said house amenity card means including a display of an amenity product and indicia as to its purchase and point scoring value, at least one of said home amenity card means including a display of a business said amenity product display, a plurality of builder card means each representing a builder and each having a stated point value, said builder card means each having a plurality of information about the builder thereon, a plurality of first game control card means including thereon a number of separate game control instructions with respect to a variety of actions which may be taken by a player, said instructions of said first game control card means directly referencing at least one of said plurality of information on said builder card means to thereby determine which of the variety of actions are to be taken by a player, and whereby total point values accumulated by a player are used to determine the outcome of the game.

5,207,793

HAMMERING GAME

Derek A. Brand, Camarillo; Derek R. Brand, Carpinperia; Kenneth J. Brand, Camarillo, all of Calif., and Takeshi Sano, Yono Saitama, Japan, assignors to Tyco Investment Corp., Wilmington, Del.

Filed Feb. 7, 1992, Ser. No. 832,247
Int. Cl.[5] A63F *9/00*
U.S. Cl. 273—445 **23 Claims**

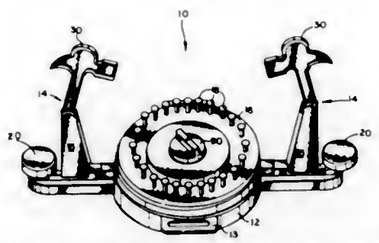
1. A game apparatus comprising:

a base;

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at least one mechanically articulated hammer device coupled with the base;

a platform mounted to revolve on the base; and



a plurality of pegs protruding through the platform and positioned to be hammered into the platform by the hammer device.

5,207,794

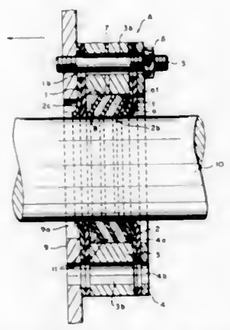
SEAL ASSEMBLY FOR A SHAFT COMPRISING A STUFFING BOX

Jan H. Erdal, Kristiansand, Norway, assignor to Tor Birger Krageboen, Tveit, Norway

Filed May 18, 1992, Ser. No. 884,349

Int. Cl.[5] F16J *15/32*

U.S. Cl. 277—4 10 Claims



1. A seal assembly for a shaft, said assembly comprising; a stuffing box having an inner circular cylindrical wall surface, for attachment to a wall having an opening for passage of a shaft therethrough, at least one annular sealing lip of elastic material secured at each end section of said stuffing box to close and bear resiliently against said shaft and form acute angles therewith, each said at least one annular sealing lip defining therebetween an annular chamber in said stuffing box, said annular chamber enclosing at least one annular elastic sealing member disposed between said shaft and an inner circular cylindrical wall surface of said stuffing box, said sealing member being releasably and resiliently retained on said shaft for rotation therewith and extending obliquely outward toward said inner wall surface of said stuffing box and forming an acute angle with said shaft, a vertex of said acute angle being turned toward a shaft passage opening in said wall which bounds a room having an atmosphere to be contained.

5,207,795

AUTOMATIC LIFTING ANGLE ADJUSTER FOR LIFTING WIRE ROPE

Masanori Sato, Kawachinagano; Kazuyoshi Goto, Kitakyushu; Katsuyuki Hiyama, Hikari, and Yoshinobu Chaen, Sakai, all of Japan, assignors to Sankyu, Inc., Fukuoka, Japan

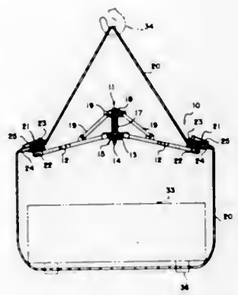
PCT No. PCT/JP90/01261, § 371 Date Jul. 23, 1991, § 102(e) Date Jul. 23, 1991, PCT Pub. No. WO91/05730, PCT Pub. Date May 2, 1991

PCT Filed Sep. 29, 1990, Ser. No. 690,888

Claims priority, application Japan, Oct. 18, 1989, 1-122533[U]; Apr. 20, 1990, 2-42870[U]

Int. Cl.[5] B66C *1/12*

U.S. Cl. 294—74 2 Claims



1. An automatic lifting angle adjuster for lifting wire rope, comprising:

expandable arm members which are connected radially to an expanding driving means disposed at the center thereof and fixing means each of which is placed at the top end portion of each arm member so as to fix a lifting wire rope, by which the opening angle between the arm members is increased at the time of hooking work and the opening angle between the arm members is decreased at the time of lifting, wherein each of said fixing means comprises a rotation shaft which is installed horizontally at the top end portion of each of said arm members, a rope-fixing member having a supporting shaft which meets the rotation shaft at right angles and a fixing jig for fixing said wire rope at the upper end portion thereof, and being rotatably supported by said rotation shaft, a rope guide member which is swingably supported by said supporting shaft and grips said wire rope inserted therein under said rope-fixing member, and a tension spring which connects said rope-fixing member and said rope guide member by a predetermined tension, being hitched at the top portion thereof.

5,207,796

ELECTRONIC TYPEWRITER

Alessandro Crotti, Strambino, and Daniele Mazzini, Caluso, both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Feb. 25, 1992, Ser. No. 841,327

Claims priority, application Italy, Feb. 25, 1991, T091A000126

Int. Cl.[5] B41J *23/34*

U.S. Cl. 400—185 33 Claims

1. An electronic typewriter comprising:

an electric motor having a driveshaft which is rotatable in both directions;

a first function device;

a second function device;

a shift member displaceable from one of two operative positions to the other for connecting the first or the second function device to the driveshaft;

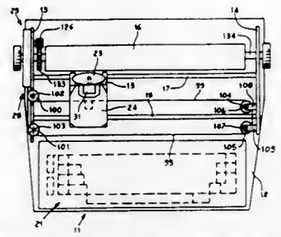
a shift electromagnet for control of said shift member;

an electronic control means for controlling the electric motor and the shift electromagnet;

a servomechanism for displacing the shift member between the two operative positions and activatable to be motorized by said driveshaft;

an actuating element operated by the shift electromagnet to actuate said servomechanism; and

positioning means for holding said shift member in each of the two operative positions and wherein the electronic control means selectively controls said motor to displace



the shift member from one of said operative positions to the other by means of said servomechanism.

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5,207,797

METHOD FOR PRODUCING DESIGNS AND IMAGE PATTERNS ON DENIM PRODUCTS

Masato Yamate, 612-2, Managura, Ekiya-cho, Fukuyama-shi, Hiroshima-ken, Japan

Division of Ser. No. 257,669, Oct. 14, 1988, abandoned. This application Jul. 23, 1990, Ser. No. 559,538

Claims priority, application Japan, Jan. 8, 1988, 63-2702; Jul. 13, 1988, 63-175578

Int. Cl.[5] D06L *3/08;* B05D *3/12, 5/00*

U.S. Cl. 8—108.1 8 Claims

1. A method for producing a design on a denim product comprising the steps of:

a) printing a pattern on the surface of a denim product with a paste for inhibiting bleaching, prepared by admixing wheat flour paste with a material selected from the group consisting of albumen, deutoplasm, granulated egg shells, and mixtures thereof;

b) drying the denim product from step a) to adhere the paste to the denim;

c) soaking pumice in an aqueous solution of calcium hypochlorite;

d) tumbling the pumice and denim having the paste adhered thereto for a predetermined time and tumbling speed; and

e) removing the adhered paste by washing with water, whereby the area of the pattern covered by the paste remains unbleached and the uncovered portions are bleached.

5,207,798

PROCESS FOR DYEING KERATINOUS FIBRES, AT ACID PH USING 6- OR 7-MONOHYDROXYINDOLES AND THE COMPOSITIONS EMPLOYED

Jean Cotteret, Verneuil-sur-Seine, and Marie P. Audousset, Levallois-Perret, both of France, assignors to L'Oreal, Paris, France

Filed Mar. 7, 1991, Ser. No. 666,187

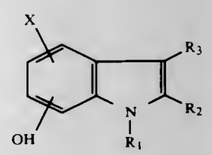
Claims priority, application France, Mar. 8, 1990, 90 02975

Int. Cl.[5] A61R *7/13*

U.S. Cl. 8—408 20 Claims

1. A process for dyeing keratinous fibers consisting of applying to said fibers a composition comprising, in a medium suitable for dyeing said fibers, a combination of

(a) at least one 5-, 6- or 7- hydroxyindole derivative having the formula



(I)

wherein

R_1 represents hydrogen or C_1–C_4 alkyl,

R_2 and R_3, each independently, represent hydrogen, C_1–C_4 lower alkyl, carboxyl or alkoxy carbonyl,

X represents hydrogen, C_1–C_4 lower alkyl, C_1–C_{18} alkoxy, halogen, C_2–C_{20} acyloxy or acetylamino,

or a salt of the derivative of formula I,

said derivative of formula I being present in an amount ranging from 0.01 to 3.5 percent by weight based on the total weight of said composition;

(b) an oxidation dye precursor selected from the group consisting of a paraphenylenediamine, a para-aminophenol, a para-heterocyclic precursor, an ortho-aminophenol and an ortho-phenylenediamine, and

(c) an oxidizing agent selected from the group consisting of hydrogen peroxide, urea peroxide, an alkaline metal bromate and a persalt,

said oxidation dye precursor (b) and said oxidizing agent (c) being present in an amount effective to dye said keratinous fibers,

said composition being free of iodide ions and nitrite ions in an amount sufficient to oxidize said derivative of formula I or said oxidation dye precursor, and

said composition when applied to said keratinous fibers having a pH less than 7.

5,207,799

PROCESS FOR DYEING WOOL AND BLENDS THEREOF WITH OTHER FIBRES USING REACTIVE DYES AND COLORLESS FIBER-REACTIVE DYEING ASSISTANT

Gerhard Back; Klaus Hannemann, both of Lörrach, Fed. Rep. of Germany, and Josef Koller, Reinach, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Aug. 27, 1991, Ser. No. 750,364

Claims priority, application Switzerland, Aug. 28, 1990, 2787/90

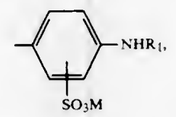
Int. Cl.[5] D06P *1/62, 3/14*

U.S. Cl. 8—449 14 Claims

1. A process for non-skittery and level dyeing of wool or a blend thereof with other fibres using reactive dyes, which comprises using an aqueous liquor which comprises at least one colourless, fibre-reactive compound of the formula

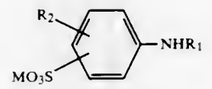
$$A\text{+}B\text{—}A)_n, \quad (1)$$

in which n is 0 or 1, and if n is 1, A is a radical of the formula



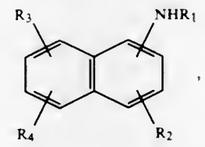
(2)

and B is an alkylene or alkenylene group or a direct bond, or if n is zero, A is a compound of the formula



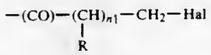
(3)

or of the formula

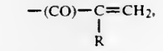


(4)

in which, in the formulae (1) to (4), R_1 is a radical of the formula



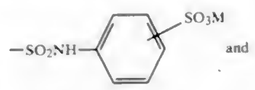
or of the formula



in which Hal is halogen, R is hydrogen or halogen, n_1 is 1 or 0, R_2 is hydrogen, SO_3M or $—NH_2$, R_3 is hydrogen, SO_3M or a

VOL 1150 ISS 1 MY 4 1993 UMI

radical of the formula —OX, in which X is hydrogen or C_1 to C_4alkyl, R_4 is hydrogen, SO_3M or a radical of the formula



(5)

and

M is hydrogen, an alkali metal or ammonium, and the compound of the formula (4) contains at least one —SO_3M group, for dyeing these materials and finishing the dyeing at a pH of 4.0 to 5.0, regardless of the depth of shade.

5,207,800

LOW TOXICITY, BIODEGRADABLE SALT SUBSTITUTE FOR DYEING TEXTILES: MAGNESIUM ACETATE IN DIRECT OR REACTIVE DYEING OF COTTON

Samuel B. Moore, Burlington, N.C., assignor to Burlington Chemical Co., Inc., Burlington, N.C.

Filed Oct. 7, 1991, Ser. No. 772,482
Int. Cl.[5] C09B *62/80, 67/80*
U.S. Cl. 8—543 **5 Claims**

1. A composition for replacing alkali salts in direct or reactive dyeing of cotton and cotton blended fabrics, said composition comprising:
(a) about 3.5 to 10 wt. % magnesium oxide;
(b) about 13.3 to 40 wt. % acetic acid;
(c) up to about 26.7 wt. % of another organic acid selected from the group including citric acid and polyacrylic acid; and
(d) the balance water.

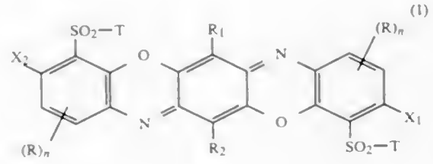
5,207,801

REACTIVE DYE MIXTURES, PROCESSES FOR THEIR PREPARATION AND THEIR USE: REACTIVE SULFONATED TRI-PHENOL-DIOXAZINE DYE MIXTURE FOR CELLULOSE FIBERS

Peter Aeschlimann, Allschwil; Paul Herzig, Basel, and Athanassios Tzikas, Pratteln, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

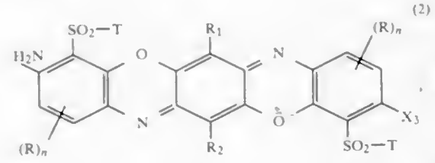
Filed Nov. 5, 1991, Ser. No. 787,991
Claims priority, application Switzerland, No 6, 1990, 3512/90
Int. Cl.[5] C09B *62/04, 67/22;* **D06P** *1/38, 3/66*
U.S. Cl. 8—549 **17 Claims**

1. A reactive dye mixture comprising the reactive dyes of the formulae



(1)

and



(2)

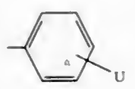
wherein dyes of formulae (1) and (2) are in a ratio between 10:90 and 90:10, and in which

R_1 and R_2 are hydrogen, chlorine, bromine, C_1-C_4alkyl, C_1-C_4alkoxy or substituted or unsubstituted phenyl or substituted or unsubstituted phenoxy;

$(R)_n$ is n substituents R, which can be, independently of one another, C_1-C_4alkyl, C_1-C_4alkoxy, halogen, sulfo, carboxyl, carbamoyl, N-C_1-C_4alkylcarbamoyl, N,N-di-C_1-C_4alkylcarbamoyl, C_1-C_4alkylsulfonyl, sulfamoyl, N-C_1-C_4alkylsulfamoyl or N,N-di-C_1-C_4alkylsulfamoyl;

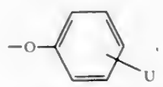
n is 0, 1 or 2;

T is hydroxyl or C_1-C_6alkyl, which can be substituted by hydroxyl, carboxyl, sulfo, sulfato, chlorine, C_1-C_4alkoxy, carbamoyl, sulfamoyl or a radical of the formula



(3a)

or



(3b)

in which U is hydrogen, sulfo, sulfato, hydroxyl or carboxyl; or

T is a radical of the formula



(4)

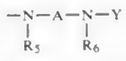
in which

R_3 is hydrogen or substituted or unsubstituted C_1-C_4alkyl;

R_4 is hydrogen or C_1-C_6alkyl, which can be substituted by hydroxyl, carboxyl, sulfo, sulfato, chlorine, C_1-C_4alkoxy, carbamoyl, sulfamoyl or

a radical of the formula (3a) or (3b), in which U is as defined;

X_1, X_2 and X_3 independently of one another are each a radical of the formula



(5)

in which

R_5 and R_6 independently of one another are hydrogen or substituted or unsubstituted C_1-C_4alkyl;

A is C_2-C_4alkylene, which can be substituted by halogen, hydroxyl, carboxyl, sulfo, phenyl, sulfophenyl or C_1-C_4alkoxycarbonyl, or cyclohexylene, which can be substituted by C_1-C_4alkyl; or in which the group —N(R_5)—A—N(R_6)— is 1,4-piperazinediyl; and

Y is a fiber-reactive halogenopyrimidine or halogenotriazine radical.

5,207,802

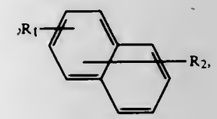
SULPHO GROUP-CONTAINING AROMATIC COMPOUNDS, THEIR PRODUCTION AND USE AS DISPERSANTS OR LEVELLING AGENTS IN DYEING TEXTILES OR TANNING LEATHER

Hans-Peter Baumann, Ettingen, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Aug. 23, 1990, Ser. No. 572,520
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1989, 3928170
Int. Cl.[5] C09B *67/38;* **C08G** *10/02;* **D06P** *1/56, 1/62*
U.S. Cl. 8—557 **37 Claims**

1. A methylene bridge and sulpho group-containing aromatic compound (e) or mixture of compounds (e) obtainable by condensation of

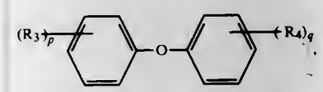
(a) a sulphonation product of a compound of formula



(I)

wherein
R_1 signifies C_{1-4}-alkyl and
R_2 signifies hydrogen or C_{1-4}-alkyl
and the sum of the number of carbon atoms in R_1 and R_2 together amounts to a least 2 or a mixture thereof, and

(b) a sulphonation product of a compound of formula



(II)

wherein
each of R_3 and R_4 independently signifies C_{1-4}-alkyl and each of p and q independently signifies 0,1 or 2
or a mixture thereof with

(c) formaldehyde or a formaldehyde-yielding compound in an acidic medium,

and optionally salt formation.

5,207,803

METHOD FOR DYEING AROMATIC POLYAMIDE FIBROUS MATERIALS: N,N-DIETHYL(META-TOLUAMIDE) DYE CARRIER

John R. Holsten, Spartanburg, and Nigel E. Neely, Rock Hill, both of S.C., assignors to Springs Industries, Fort Mill, S.C.

Filed Sep. 28, 1990, Ser. No. 589,919
Int. Cl.[5] D06P *1/64, 1/649, 3/24, 3/26*
U.S. Cl. 8—586 **39 Claims**

1. A method for dyeing fibrous material comprising the steps of:
consisting of aromatic polyamide fibers, polybenzimidazole fibers, aromatic polyimide fibers, fibers of copolymers of the monomers thereof, or blends thereof with an aqueous dyebath comprising a mixture of a carrier and a dye soluble or dispersed in the dyebath, the carrier comprising N,N-diethyl (m-toluamide); and
heating the fiber while in contact with the dyebath to fix said dye within the fibrous material.

5,207,804

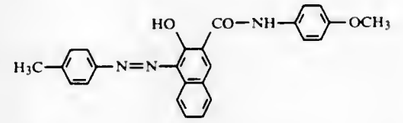
MULTI-COMPONENT MIXTURES OF BRIGHT RED DISPERSE AZO DYESTUFFS

Reinhard Kühn, Frankfurt am Main; Margareta Boos, Hattersheim am Main; Rudolf Binder, München, and Klaus Hofmann, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

PCT No. PCT/EP90/01480, § 371 Date Apr. 20, 1992, § 102(e) Date Apr. 20, 1992, PCT Pub. No. WO91/04302, PCT Pub. Date Apr. 4, 1991
PCT Filed Sep. 4, 1990, Ser. No. 838,702
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1989, 3930393
Int. Cl.[5] C09B *7/10, 67/22;* **D06P** *1/18, 3/84*
U.S. Cl. 8—639 **10 Claims**

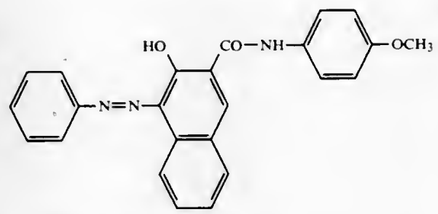
1. A dyestuff preparation in the form of a multi-component mixture comprising red disperse azo dyestuffs, which comprises

80 to 20 parts by weight, of the dyestuff of the formula I



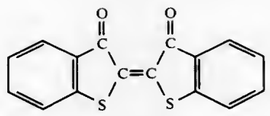
(I)

and
20 to 80 parts by weight, of the dyestuff of the formula II



(II)

and, as the shading component,
0 to 20 parts by weight, of the dyestuff C.I. Vat Red 41 having the C.I. No. 73300 and corresponding to the formula III



(III)

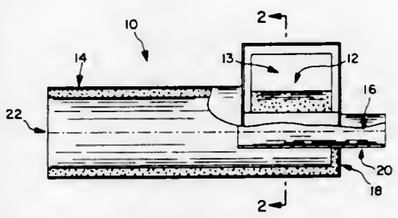
with the proviso that the sum of the proportions of the individual dyestuffs on which the mixture is based in each case makes up a total weight of the preparation of 100 parts by weight and is based on the content of pure dyestuff.

5,207,805

CYCLONE SEPARATOR SYSTEM

Bodo Kalen, Huntington Bay, and Nicholas L. Giuricich, Dix Hills, both of N.Y., assignors to Emtrol Corporation, Hauppauge, N.Y.

Continuation of Ser. No. 757,457, Sep. 10, 1991, abandoned, which is a continuation-in-part of Ser. No. 640,022, Jan. 11, 1991, Pat. No. 5,122,171. This application Mar. 27, 1992, Ser. No. 860,296
Int. Cl.[5] B01D *45/12*
U.S. Cl. 55—1 **24 Claims**



10. A method of constructing a cyclone separator of a type adapted to separate particulates from a hot particulate laden gas entering a cylindrical cyclone barrel at a predetermined velocity through an inlet slot disposed at one end of the periph-

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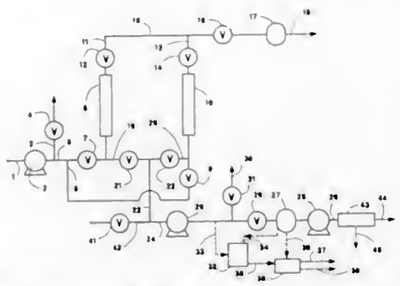
ery of said barrel and extending in the axial direction thereof, which comprises closing the slotted end of such barrel with a disc member which supports in concentric relation to the barrel a gas discharge tube of substantially smaller diameter than the barrel with one end portion of said tube extending inwardly in the barrel a distance substantially commensurate with the axial length of the slot and the other end portion extending axially outwardly of the barrel, and proportioning the axial length of the slot and the barrel so that the axial length of the slot is very substantially less barrel differs from what would be the theoretical characteristic frequency length commensurate with the corresponding frequency of the gas in said barrel at the predetermined velocity by an amount sufficient to suppress the natural tendency for the separator to act as a resonator.

5,207,806

DUAL PRODUCT PRESSURE SWING ADSORPTION AND MEMBRANE OPERATIONS

Dale A. Lagree, Williamsville, and David R. Thompson, Grand Island, both of N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.

Filed Oct. 8, 1991, Ser. No. 772,867
Int. Cl.[5] B01D *53/22, 53/04*
U.S. Cl. 55—16 **20 Claims**



1. In a pressure swing adsorption process for the recovery of either oxygen or nitrogen as a high purity product in an adsorption system having at least one adsorbent bed containing adsorbent material capable of selectively adsorbing either oxygen or nitrogen as the more readily adsorbable component of feed air, said process comprising, on a cyclic basis in each bed, an adsorption/desorption/repressurization sequence in which product gas is recovered from the system and a waste stream is separately discharged therefrom, the improvement comprising:

(a) separating a portion of the waste stream from a net waste portion thereof, the separated portion having a non-product component purity higher than the average purity level of said component in the waste stream, said purity level being at least equal to a minimum acceptable level desired for said non-product component;

(b) passing said separated portion of the waste stream to a membrane system capable of selectively recovering either nitrogen or oxygen present as a non-product component of the separated portion of the waste stream from impurities present therein;

(c) discharging the net waste portion of the waste stream;

(d) discharging said impurities form the membrane system; and

(e) recovering the non-product component of the separated portion of the waste stream as a high purity second product, whereby the recovery of high purity oxygen and nitrogen streams enhances the efficiency of the overall air separation process.

11. In a pressure swing adsorption system for the recovery of either oxygen or nitrogen product in an adsorption system having at least one adsorbent bed containing adsorbent material capable of selectively adsorbing either oxygen or nitrogen as the more readily adsorbable component of feed air, said system being adapted for operation of a processing sequence comprising adsorption, desorption and repressurization in which product gas is recovered from the system and a waste stream is separately discharged from said system, the improvement comprising:

(a) a permeable membrane system capable of selectively recovering either nitrogen or oxygen present as a principal component of said waste stream from impurities present therein;

(b) control means for separating a portion of the waste stream from a net waste portion thereof, the separated portion having a non-product component purity higher than the average purity level of said component in the waste stream, said purity level being at least equal to a minimum acceptable level established for the non-product component;

(c) conduit means for passing the separated portion of the waste stream to said membrane system;

(d) conduit means for discharging the net waste portion of the waste stream;

(e) conduit means for discharging the impurities form the membrane system; and

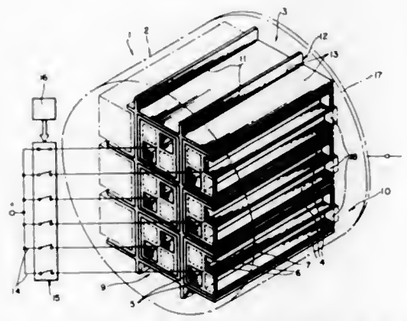
(f) conduit means for separately recovering the principal component of the waste stream from the membrane system, whereby the recovery of high purity oxygen and nitrogen streams enhances the efficiency of the overall air separation operation.

5,207,807

REGENERABLE FILTER FOR EXHAUST GASES OF AN INTERNAL-COMBUSTION ENGINE

Giovanni Manfré, Vinovo; Angelo Giachello, and Francesco Cuniberti, both of Turin, all of Italy, assignors to Iveco Fiat S.p.A., Turin, Italy

Continuation of Ser. No. 128,327, Dec. 3, 1987, abandoned. This application Nov. 27, 1991, Ser. No. 800,879
Claims priority, application Italy, Dec. 5, 1986, 67909 A/86
Int. Cl.[5] B01D *46/04*
U.S. Cl. 55—269 **20 Claims**



1. A regenerable filter for the exhaust gases of an internal-combustion engine, of the type comprising: an outer casing provided with at least an inlet duct and at least an outlet duct, apt to be placed in series with an exhaust pipe of said engine; filtering means housed into said outer casing and apt to intercept the residual combustion products in said exhaust gases; electric heating means apt to rise said residual combustion products to a temperature sufficient to start their combustion; and control means for electrically supplying said electric heating means; wherein said filtering means (**21, 43**) is formed of a filtering fabric; said electric heating means including a set of conductive fibers (**26, 46**) of electrically conductive material inserted in said filtering fabric; elongated insulating elements

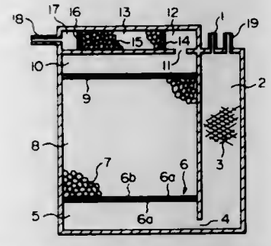
(**27, 45**) being provided to define a plurality of elongated portions (**26, 44**) of said filtering fabric insulated from one another; said portions (**26, 44**) being connected to said control means (**15, 16**) as to be electrically supplied in a selective and cyclic manner.

5,207,808

CANISTER FOR ADSORBING EVAPORATED FUEL

Kazumi Haruta, Obu; Hideo Yamada, and Kenji Koeda, both of Nagoya, all of Japan, assignors to Aisan Kogyo Kabushiki Kaisha, Obbu, Japan

Filed Aug. 5, 1992, Ser. No. 924,962
Claims priority, application Japan, Sep. 10, 1991, 3-229895
Int. Cl.[5] B01D *50/00*
U.S. Cl. 55—316 **9 Claims**



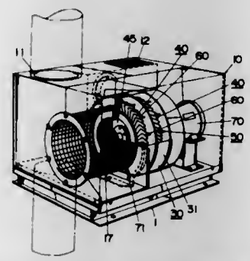
1. A canister for adsorbing evaporated fuel comprising a first container which is provided in adjacent to an inlet for evaporated fuel and which incorporates therein a liquid-phase component adsorbent for collecting liquid-phase components in the evaporated fuel, a second container which is provided on a downstream side of said first container and on one of a top and a side of said first container and which is filled with an adsorbent, and a third container disposed between said second container and an atmosphere port and filled with an adsorbent, wherein said first container, said second container and said third container are formed integrally with one another.

5,207,809

GREASE EXTRACTOR

Toshihiro Higashino, Osaka; Takashi Takato, Nabari; Noriaki Yamamoto, Yokkaichi, and Mizuo Edamura, Kobe, all of Japan, assignors to Kuraco Limited, Osaka, Japan

Filed Jun. 18, 1992, Ser. No. 900,718
Claims priority, application Japan, Jun. 18, 1991, 3-145760; Sep. 2, 1991, 3-221810; Sep. 2, 1991, 3-221811; Sep. 2, 1991, 3-221812
Int. Cl.[5] B01D *45/12*
U.S. Cl. 55—401 **12 Claims**



1. A grease extractor for removing grease from a grease laden air and discharging a clean air after removal of the grease, said grease extractor comprising:

a vessel having an inlet for introducing the grease laden air and an outlet for discharging the clean air, said vessel defining therein a flow path extending from said inlet to said outlet;

centrifugal fan means provided in said flow path between said inlet and said outlet, said centrifugal fan means having a rotation axis about which said fan means rotates for receiving air axially inwardly and directing air radially outwardly to generate a forced flow for introducing said grease laden air through said inlet and forcing said air to said outlet along said flow path, said fan means including a baffle means which deflects said grease laden air so as to separate said grease therefrom and coagulate said grease into corresponding grease particles, said fan means having a circumferential fan surface with flow converting means which converts the radial air flow into an axial air flow directed outwardly from said fan means substantially along said rotation axis; and

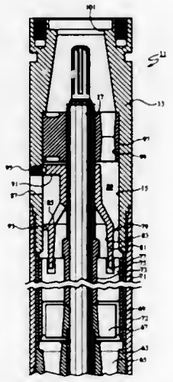
grease trap means disposed downstream of said fan means and between said inlet and said outlet, said grease trap means being defined on an interior wall of said vessel radially outwardly of said fan surface such that said grease particles flown radially outwardly on said grease laden air through said fan surface are caused to collide against said trap means and deposit thereon while said flow converting means allows said air passing through said fan surface to deflect axially so as not to be directed against said grease trap means at a portion in an directly radially opposed relation to said fan surface, said trap means including recovery means for collecting and draining deposited grease out of said vessel.

5,207,810

SUBMERSIBLE WELL PUMP GAS SEPARATOR

Ketankumar K. Sheth, Tulsa, Okla., assignor to Baker Hughes Incorporated, Houston, Tex.

Continuation of Ser. No. 690,704, Apr. 24, 1991, abandoned. This application May 6, 1992, Ser. No. 880,488
Int. Cl.[5] B01D *45/00*
U.S. Cl. 55—406 **10 Claims**



1. In a gas separator for a submersible centrifugal pump for a well, the gas separator having a cylindrical housing with a bore extending therethrough, a shaft driven by a motor of the pump and extending axially through the bore, an intake in the lower end of the housing for receiving well fluid containing liquid and gas, a rotor mounted to the shaft for rotation therewith for receiving well fluid flowing through the bore of the housing and forcing liquid of the well fluid radially outward while the gas flows through a central portion of the rotor, the rotor having an inner hub and at least one longitudinal vane extending radially outward from the inner hub, and a discharge member mounted stationarily above the rotor and about the shaft for directing the gas outward into the well and directing

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the liquid upward into an intake of the pump, the improvement comprising in combination:

an annular stationary skirt on the discharge member extending downward into the rotor radially outward of the hub and radially inward of the outer periphery of the rotor, the interior of the skirt defining a gas cavity, the skirt having an upper portion having a gas outlet connected to a gas outlet in the housing for discharging gas into the well, the exterior of the skirt defining a liquid passage for the passage of the liquid to the intake of the pump; and

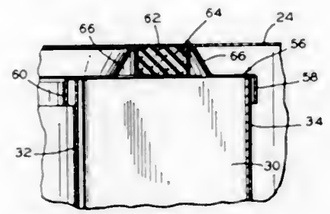
a notch formed in an upper edge of the vane for receiving a lower edge of the skirt.

5,207,811

AIR FILTER SEALING GROOVE

Ernesto Buonpastore, Gastonia, N.C., assignor to Dana Corporation, Toledo, Ohio

Filed Jul. 8, 1992, Ser. No. 910,415
Int. Cl.[5] B01D *46/02*
U.S. Cl. 55—498 17 Claims



1. An air filter assembly, comprising:

a filter housing having opposing end walls and a side wall between the end walls, said housing having an air inlet and an air outlet formed therein;

a filter media mounted within said housing and interposed between the inlet and outlet of said housing;

a metal end cap secured to one end of said filter media, said end cap having a pair of radially spaced annular projections extending from said end cap to form an annular groove in said metal end cap, each of said projections being comprised of a pair of opposed sidewalls interconnected at the distal ends thereof;

a gasket disposed within said groove, said gasket being formed of a pliable material; and

means for urging said end cap against an adjacent end wall of said housing to compress said gasket therebetween, thereby sealing said inlet from said outlet and insuring that air passing through said outlet must first pass through said filter media.

5,207,812

FILTER CARTRIDGE

Gregory S. Tronto, Wilmington, and Raymond Wnenchak, Newark, both of Del., assignors to W. L. Gore & Associates, Inc., Newark, Del.

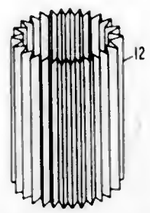
Filed May 8, 1992, Ser. No. 880,810
Int. Cl.[5] B01D *46/24*
U.S. Cl. 55—498 4 Claims

1. A pleated filter cartridge consisting essentially of:

a. a perforated support tube,

b. a pleated filter medium around said tube, comprising a laminate of a nonwoven or felt backing and an expanded porous polytetrafluoroethylene,

c. end caps into which the ends of the filter medium, and the tube is sealed,



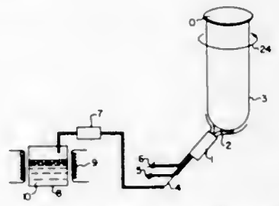
wherein the pleated filter medium has less than seven pleats per inch and is not supported by any external support other than the structure recited in elements a), b) and c).

5,207,813

METHOD FOR PRODUCING GLASS ARTICLE

Toshio Danzuka; Masumi Ito; Masahiro Takagi, and Hiroshi Yokota, all of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Sep. 4, 1991, Ser. No. 754,470
Claims priority, application Japan, Sep. 7, 1990, 2-238507
Int. Cl.[5] C03B *37/018*
U.S. Cl. 65—3.12 8 Claims



1. A method for producing a glass article comprising the steps of:

vaporizing a glass-forming raw material by heating said glass-forming material to a temperature higher than a boiling point of said glass-forming material;

supplying said vaporized glass-forming material and a first combustion gas mixture to an inner port of a multi-port burner, a molar ratio of water generated by a reaction of said first combustion gas mixture to said vaporized glass-forming material being from 2 to 3;

supplying a second combustion gas mixture to an outer port of said multi-port burner for heating a formed preform;

jetting said vaporized glass-forming raw material from said inner port of said multi-port burner;

synthesizing glass soot through hydrolysis of said vaporized glass-forming raw material;

depositing said glass soot to form a soot preform; and

heating and vitrifying said soot preform to produce a transport glass article.

5,207,814

PROCESS FOR PREPARING MONOLITHS OF AEROGELS OF METAL OXIDES

Guido Cogliati, Rome, and Giovanni Bezzi, Bagnacavallo, both of Italy, assignors to Enichem S.p.A., Milan, Italy

Continuation of Ser. No. 476,962, Feb. 7, 1990, abandoned. This application Oct. 8, 1991, Ser. No. 772,934
Claims priority, application Italy, Feb. 10, 1989, 19404 A/89
Int. Cl.[5] C03B *19/06, 37/016*
U.S. Cl. 65—18.3 12 Claims

1. Process for preparing monoliths of an aerogel of at least

one oxide, which process comprises the following operating steps:

(a) mixing an alkoxide of at least one metal with water in the presence of an acidic catalyst to form a mixture;

(b) hydrolyzing the mixture obtained in step (a) to form a hydrolysate;

(c) adding an oxide of at least one metal as a fine powder having a high specific surface area to the hydrolysate of step (b) to form a colloidal solution;

(d) causing the colloidal solution of step (c) to become a gel;

(e) washing the gel;

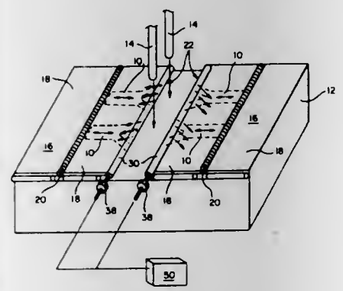
(f) drying the gel at values of temperature and pressure which are higher than the critical pressure and temperature values of the solvent used for the washing to form said monolith.

5,207,815

MECHANISM FOR SHEARING DISCRETE GOBS OF MOLTEN GLASS

Douglas W. Wright, Bloomfield, Conn., assignor to Emhart Glass Machinery Investments Inc., Wilmington, Del.

Filed Dec. 24, 1991, Ser. No. 813,340
Int. Cl.[5] C03B *7/10, 7/12;* B26D *7/08*
U.S. Cl. 65—332 2 Claims



1. A shear mechanism for shearing discrete gobs from at least one runner of molten glass comprising

a housing, open at the top,

at least one pair of opposed shears supported within said housing for reciprocating displacement from a retracted position to an advanced position,

a pair of covers for partially closing said open housing and overlying said retracted shears, said covers including opposed spaced front edges extending transverse to the direction of displacement of said shears,

conduit means secured to each of said front edges of said covers for directing coolant downwardly in a selected direction against said retracted shears, and including setting means for setting said direction within a selected range,

said setting means being selectively located outside said partially closed housing.

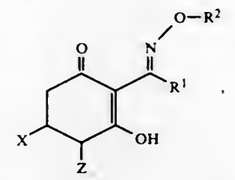
5,207,816

CYCLOHEXENONE DERIVATIVES AND THEIR USE FOR CONTROLLING UNDESIRABLE PLANT GROWTH

Rainer Becker, Bad Duerkheim; Dieter Jahn, Edingen-Neckarhausen; Michael Keil, Freinsheim; Hans Theobald, Limburgerhof; Wolfgang Spiegler, Worms, and Bruno Wuerzer, Otterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 552,853, Jul. 12, 1990, abandoned, which is a continuation of Ser. No. 370,068, Jun. 22, 1989, abandoned, which is a continuation of Ser. No. 149,937, Jan. 28, 1988, abandoned, which is a continuation of Ser. No. 717,009, Mar. 28, 1985, abandoned. This application Jun. 6, 1991, Ser. No. 711,392
Claims priority, application Fed. Rep. of Germany, Mar. 29, 1984, 3430229; Aug. 17, 1984, 3411530
The portion of the term of this patent subsequent to Nov. 14, 2006, has been disclaimed.
Int. Cl.[5] A01N *43/24;* C07D *261/06, 261/08, 261/12*
U.S. Cl. 504—271 12 Claims

1. A cyclohexenone compound of the formula



(I)

where R^1 is ethyl or n-propyl, R^2 is ethyl or $-CH_2-CH-CH_2$, X is isoxazol-5-yl substituted by 3-methyl and Z is hydrogen and agriculturally suitable salts thereof.

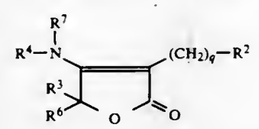
5,207,817

HERBICIDAL 5H-FURAN-2-ONE DERIVATIVES

Wolfgang Krämer, Burscheid; Gerd Kleefeld, Düsseldorf; Jürgen Bachmann, Leverkusen; Peter Babczinski, Wuppertal; Hans-Joachim Santel, Leverkusen; Klaus Lürssen, and Robert R. Schmidt, both of Glasbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 575,517, Aug. 30, 1990, Pat. No. 5,094,681. This application Oct. 17, 1991, Ser. No. 777,988
Claims priority, application Fed. Rep. of Germany, Sep. 23, 1989, 3931773; May 5, 1990, 4014420
Int. Cl.[5] A01N *43/36, 43/40*
U.S. Cl. 504—299 11 Claims

1. A 5H-furan-2-one of the formula



(I)

in which

R^4 and R^7 together with the nitrogen atom to which they are bonded represent a saturated hetrocycle having 4 to 5 carbon atoms, and

q represents the numbers 0 or 1,

R^2 represents phenyl which is unsubstituted or monosubstituted or polysubstituted by identical or different substituents selected from the group consisting of cyano, nitro, halogen, in each case straight-chain or branched alkyl or alkoxy having 1 to 6 carbon atoms in each case straight-chain or branched halogenoalkyl or halogenoalkoxy having 1 to 4 carbon atoms and 1 to 9 identical or different halogen atoms, and phenethenyl or phenethynyl, each of

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which is unsubstituted or monosubstituted or polysubstituted by identical or different substituents, the substituents in each case being the phenyl substituents already mentioned above; or the radical $-(CH_2)_n-Z_m-(CH_2)_p-R^5$, where

R^5 represents aryl which has 6 to 10 carbon atoms and which is unsubstituted or monosubstituted or polysubstituted by identical or different substituents selected from the group consisting of cyano, nitro, balogen, C_{1-4}-alkyl, C_{1-4}-alkoxy, halogeno-C_{1-4}-alkyl and halogeno-C_{1-4}-alkoxy,

Z represents oxygen or sulphur or represents the group >C=O and

n, m and p independently of one another represent the numbers 0 or 1, and

R^3 and R^6 represent hydrogen, straight-chain or branched alkyl having 1 to 6 carbon atoms, phenyl which is unsubstituted or monosubstituted to polysubstituted by identical or different substituents as defined hereinabove, or aralkyl which has 6 to 10 carbon atoms in the aryl moiety and 1 to 4 carbon atoms in the alkyl moiety and which is unsubstituted or monosubstituted to polysubstituted by identical or different substituents, the substituents being selected from the group consisting of cyano, nitro, halogen, C_{1-4}-alkyl, C_{1-4}-alkoxy, halogeno-C_{1-4} and halogeno-C_{1-4}-alkoxy.

5,207,818

HERBICIDALLY ACTIVE BENZOXAZINES

Toyohiko Kume, Hino; Toshio Goto, Kokubunji; Atsumi Kamochi, Oyama; Hidenori Hayakawa, Oyama; Akihiko Yanagi, Oyama, and Tadao Asami, Oyama, all of Japan, assignors to Nihon Bayer Agrochem K.K., Tokyo, Japan

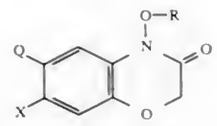
Filed Sep. 16, 1991, Ser. No. 761,199

Claims priority, application Japan, Sep. 25, 1990, 2-251839

Int. Cl.[5] C07D *413/02;* A01N *43/84*

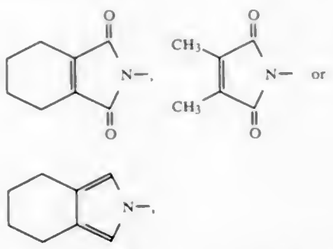
U.S. Cl. 504—225 18 Claims

1. A benzoxazine of the formula (I)



(I)

wherein Q represents



X represents a hydrogen atom or fluorine atom, and

R represents a C_{1-5} alkyl group, C_{3-4} alkenyl group, C_{3-4} alkynyl group, cyclopropylmethyl group, C_{2-3} cyanoalkyl group, C_{1-2} alkoxy-C_{1-2} alkyl group or C_{1-2} alkylthio-C_{1-2} alkyl group.

13. A method for combating unwanted vegetation which comprises applying to such vegetation or to a locus from which it is desired to exclude such vegetation a herbicidally effective amount of a benzoxazine of the formula (I) according to claim 1.

5,207,819

PHENOXYPROPIONIC ACID ESTER DERIVATIVES

Sinzo Someya, Tokorozawa; Seigo Koura, Nerima; Mikio Ito, Tokuyama; Yoichi Kitamura, Sin-nan-yoo; Hiroyuki Watanabe, Sin-nan-yoo, and Kenji Tsuzuki, Sin-nan-yoo, all of Japan, assignors to Agro-Kanesho Co., Ltd, Tokyo and Tosoh Corporation, Yamaguchi, both of Japan

Division of Ser. No. 184,052, Apr. 20, 1988, Pat. No. 4,948,421.

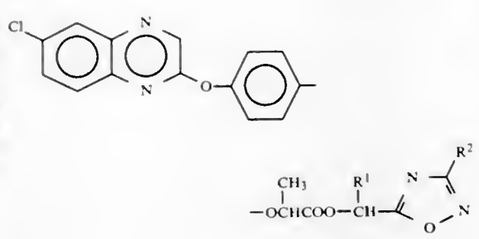
This application Jun. 11, 1990, Ser. No. 535,518

Claims priority, application Japan, Apr. 20, 1987, 62-97043; Aug. 20, 1987, 62-207172; Oct. 23, 1987, 62-267110

Int. Cl.[5] A01N *43/82;* C07D *413/12*

U.S. Cl. 504—235 2 Claims

1. A phenoxy propionic acid ester derivative of the formula [ii]:



wherein R^1 is H or CH_3, R^2 is H or C_1-C_4 alkyl group.

5,207,820

CROP PROTECTION AGENTS BASED ON 1-ARYL- OR 1-HETARYLIMIDAZOSE CARBOXYLIC ESTERS

Ulrich Wriede, Mutterstadt; Gerhard Hamprecht, Weinheim; Hermann Koehler, Bobenheim, and Bruno Wuerzer, Otterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 462,631, Jan. 9, 1990, Pat. No. 5,043,454.

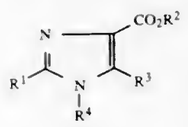
This application May 3, 1991, Ser. No. 701,402

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1989, 3902439

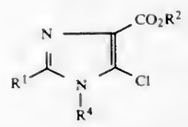
Int. Cl.[5] A01N *43/50, 43/08, 43/10, 43/16*

U.S. Cl. 504—106 10 Claims

1. A herbicidal composition containing at least one compound selected from the compounds of the formulae Ia and Ib



Ia



Ib

where

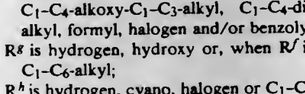
R^1 is halogen or C_1-C_4-alkyl which may bear from one to three chlorine atoms,

R^2 is C_1-C_6-alkyl which may bear from one to three of the radicals halogen, C_1-C_4-alkoxy and/or C_1-C_4-alkoxy-C_1-C_4-alkoxy, or is C_3-C_6-alkenyl, C_3-C_6-alkynyl or C_3-C_6-cycloalkyl,

R^3 is hydrogen or C_1-C_4-alkyl,

R^4 is a phenyl ring or a 5- or 6 membered heteroaromatic ring selected from the group consisting of pyrrole, pyrazole, imidazole, furan, thiozole, isoxazole, isothiazole, pyridine, pyridazine, pyrimidine or pyrazine, and these aromatic rings may bear from one to three of the following groups: halogen, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-haloalkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulfinyl, C_1-C_4-alkylsulfonyl, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, carboxyl, nitro and/cyano and at least one herbicidally active ingredient selected from the group consisting of

a) 2-(4-heteroaryloxy)- or 2-(4-aryloxy)phenoxyacetic acid derivatives of the formula IV



IV

where

R^a is phenyl, pyridyl, benzoxazyl, benzothiazyl or benzopyrazinyl, and these aromatic ring systems may bear up to two of the following radicals: halogen, C_1-C_4-alkyl, C_1-C_4-haloalkyl and/or C_1-C_4-haloalkoxy,

R^b is hydrogen, C_1-C_5-alkyl, C_3-C_5-alkylideneimino, C_3-C_5-alkylideneiminooxy-C_2-C_3-alkyl, or one equivalent of a plant-tolerated cation, and

R^c is hydrogen or methyl, and

b) cyclohexenone derivatives of the formula V

V

where

R^d is C_1-C_4-alkyl;

R^e is C_1-C_4-alkyl, C_3-C_4-alkenyl, C_3-C_4-alkynyl, C_3-C_4-haloalkenyl or thenyl which may carry a halogen atom;

R^f is C_1-C_4-alkyl which is unsubstituted or monosubstituted by C_1-C_4-alkylthio or C_1-C_4-alkoxy; a 5- or 6-membered saturated or monounsaturated ring system, which in addition to carbon members may contain an oxygen or a sulfur atom or a sulfoxyl or sulfonyl group, and this ring may bear from one to three of the following radicals: hydroxyl, halogen, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy and/or C_1-C_4-alkylthio; a 10-membered saturated or monounsaturated heterocyclic structure containing two oxygen or sulfur atoms and which is unsubstituted or mono- to trisubstituted by C_1-C_4-alkyls and/or methoxy groups; phenyl, pyridyl or isoxazolyl, and these groups may bear up to three of the following groups: C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_3-C_6-alkenyloxy, C_3-C_6-alkynyloxy, C_1-C_4-alkoxy-C_1-C_3-alkyl, C_1-C_4-dialkoxy-C_1-C_3-alkyl, formyl, halogen and/or benzolyamino;

R^g is hydrogen, hydroxy or, when R^f is C_1-C_6-alkyl, C_1-C_6-alkyl;

R^h is hydrogen, cyano, halogen or C_1-C_4-alkoxycarbonyl and

R^i is hydrogen or one equivalent of an environmental compatible cation.

5,207,821

MULTI-PHASE SINTERED ALLOY COMPOSITION AND METHOD OF MANUFACTURING THE SAME

Yutaka Ikenoue; Keitaro Suzuki; Yoshimasa Aoki, all of Chiba; Hideo Urata, Saitama; Koji Koishikawa, Kanagawa, and Makoto Tsuji, Saitama, all of Japan, assignors to Hitachi Powdered Metals Co., Ltd., Chiba and Honda Giken Kogyo Kabushiki Kaisha, Tokyo, both of Japan

Filed Jul. 9, 1991, Ser. No. 727,601

Claims priority, application Japan, Jul. 12, 1990, 2-182767

Int. Cl.[5] C22C *9/00*

U.S. Cl. 75—247 28 Claims

1. A sintered alloy composition having a multi-phase structure, comprising: a first phase composed of aluminum and copper; and a second phase being dispersed in the first phase and composed of molybdenum, chromium, silicon and cobalt.

5,207,822

SYNERGISTIC FILLER BLENDS FOR WOOD-CONTAINING PAPERS

John A. Manasso, Macon, Ga.; Kenneth Mueller, North Wales, Pa., and Susan Di Donato, Springfield, N.J., assignors to ECC International Inc., Atlanta, Ga.

Filed Apr. 3, 1992, Ser. No. 863,592

Int. Cl.[5] C04B *14/04*

U.S. Cl. 106—416 5 Claims

1. A high opacity, high light scattering filler pigment for use in wood-containing paper manufacture, comprising by weight

(a) 25 to 50% of a fine particle size hydrous kaolin which has been defined as to have a particle size distribution such that less than 20% by weight are of less than 0.3 μm E.S.D., while not being chemically surface treated; and

(b) substantially the balance being a fine particle size calcined kaolin.

5,207,823

WOOD PRESERVATIVE COMPOSITION AND PROCESS FOR TREATING WOOD WITH THE SAME

Kazunobu Shiozawa, Osaka, Japan, assignor to Kabushiki Kaisha Koshii Preserving, Osaka, Japan

Filed Apr. 1, 1991, Ser. No. 678,383

Claims priority, application Japan, Apr. 3, 1990, 2-89534; May 22, 1990, 2-133501

Int. Cl.[5] C09D *5/14*

U.S. Cl. 106—18.13 12 Claims

1. A wood preservative composition comprising:

a preservative component selected from the group consisting of copper tetraborate monobasic, copper tetraborate dibasic, zinc tetrahydroxide tri (tetraboric acid) salt, zinc hydroxide dimetaboric acid salt, and mixtures thereof, the content by weight of said preservative component with respect to 100 parts by weight of the wood preservative composition being 0.1–10.0 parts;

a volatile basic compound of the formula R_3N, wherein R is selected from the group consisting of a hydrogen atom and a lower alkyl group, the content by weight of said volatile basic compound with respect to 100 parts by weight of the preservative component being 75–160 parts; and

water.

5,207,824

FORMULATION FOR CONTROL OF PAPER COCKLE IN THERMAL INK-JET PRINTING

John R. Moffatt, and Hiang P. Lauw, both of Corvallis, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 16, 1992, Ser. No. 872,204

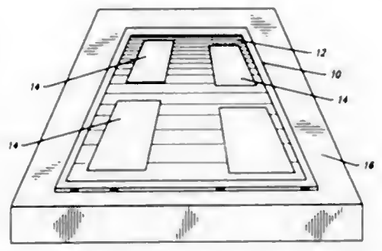
Int. Cl.[5] C09D *11/02*

U.S. Cl. 106—22 R 18 Claims

1. An improved thermal ink-jet ink evidencing reduced medium cockle consisting essentially of:

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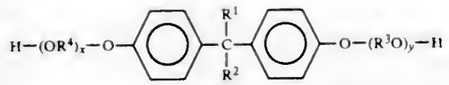
(a) about 0.5 to 20 wt % of at least one low vapor pressure solvent;
(b) about 0.5 to 5 wt % of at least one water-soluble dye;
(c) about 15 to 50 wt % of an anti-cockle agent, based on the total ink composition, said anti-cockle agent comprising a



compound selected from the group consisting of hexaethylene glycol and an organic compound having from four to eight carbon atoms and from two to three OH groups; and
(d) water.

5,207,825
INK COMPOSITIONS FOR INK JET PRINTING
William M. Schwarz, Jr., Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Jul. 30, 1991, Ser. No. 738,021
Int. Cl.[5] C09D *11/00*
U.S. Cl. 106—22 R **12 Claims**

1. An ink composition which comprises an aqueous liquid vehicle, a colorant, and a polymeric additive of the formula



wherein R^1 and R^2 are independently selected from the group consisting of hydrogen, alkyl groups with from 1 to about 8 carbon atoms, and alkoxy groups with from 1 to about 8 carbon atoms, R^3 and R^4 are independently selected from the group consisting of alkyl groups with from 1 to about 4 carbon atoms, and x and y are each independently a number of from about 100 to about 400, present in an amount of at least about 1 part per million.

5,207,826
BACTERIAL CELLULOSE BINDING AGENT
John A. Westland, Bothell; R. Scott Stephens, Auburn; William C. Johnston, Jr., Puyallup, and Harold J. Rosenkrans, Seattle, all of Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.
Continuation-in-part of Ser. No. 513,349, Apr. 20, 1990, abandoned. This application Oct. 7, 1991, Ser. No. 771,811
Int. Cl.[5] C08L *1/02*
U.S. Cl. 106—163.1 **16 Claims**

1. A method for binding biomass fragments selected from the group consisting of: natural wood fragments; chemically or physically treated wood fragments; natural or treated plant-derived fragments; and combinations thereof having average fragment lengths of at least about 0.3 inches and average fragment diameters of at least about 0.02 inches, which comprises mixing the biomass fragments with a binder comprising microbially produced cellulose formed under agitated culture conditions by Acetobacter microorganisms to distribute the microbially produced cellulose over the surface of the biomass fragments and adhere the microbially produced cellulose to the biomass fragments.

5,207,827
EAR PLUG COMPOSITION
Joseph F. Tokarz, 211 Van Ness Ave., Ashland, Oreg. 97520
Filed May 19, 1992, Ser. No. 885,683
Int. Cl.[5] C08L *3/06*
U.S. Cl. 106—212 **7 Claims**

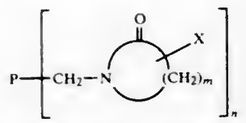
1. A resilient composition, especially useful for earplugs, comprising: about 1 part by volume wax, 4 parts by volume starch based acid ester of a dicarboxylic acid, 1 part by volume soya lecithin and a biocidally effective amount of grapefruit seed extract.

5,207,828
TEMPERATURE-STABLE PIGMENT-COLORED PLASTIC COMPOSITIONS, PROCESS FOR PRODUCING THEM AND MEANS FOR CONDUCTING THE PROCESS
Ingrid Ressler, Goslar; Gerhard Adrian; Walter Horn, both of Langelsheim, all of Fed. Rep. of Germany, and Donald Gray, Piscataway, N.J., assignors to Dr. Hans Heubach GmbH & Co KG, Fed. Rep. of Germany
Continuation of Ser. No. 445,593, Nov. 7, 1989, abandoned. This application Jun. 23, 1992, Ser. No. 905,141
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1988, 3811693; Mar. 2, 1989, 3906670
Int. Cl.[5] C09C *1/20, 1/14;* C09D *5/16, 5/18*
U.S. Cl. 106—433 **32 Claims**

1. An improved temperature-stable pigment-colored plastic composition which comprises a thermoplastic synthetic resin, a pigment and a temperature-stabilizing additive capable of retarding the discoloration of the composition upon extended exposure to elevated temperatures, wherein said pigment is not an iron oxide pigment and wherein said additive consists of 1-15% by weight boric acid, based on starting pigment weight, in intimate contact with said pigment.

5,207,829
PIGMENT PREPARATIONS
Wolfgang Schwab, Kelsterbach, and Erwin Dietz, Kelkheim, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Dec. 4, 1991, Ser. No. 803,346
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1990, 4038885
Int. Cl.[5] C08K *5/357, 5/3437*
U.S. Cl. 106—493 **12 Claims**

1. A pigment preparation whose pigment portion is comprised of organic pigments selected from the class consisting of azo pigments anthraquinone anthanthrone, flavanthrone, quinacridone, quinophthalone, dioxazine, isoindoline, isoindolinone, perinone, perylene and/or thioindigo pigments, and of pigment additives of the formula (I),



(I)

in which P is a radical of an organic pigment from the above classes, m is an integer from 3 to 20, n can have a value from 0.1 to 4, and X in the methylene groups of the lactam ring is hydrogen, C_1-C_4-alkyl, phenyl, hydroxyl, NR^1R^2, R^1 and R^2 independently of one another being hydrogen or C_1-C_4-alkyl, or COOM, M being hydrogen or the stoichiometric amount of a mono-, di- or trivalent cation.

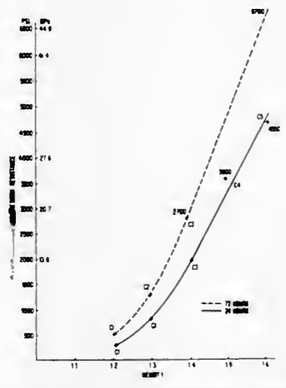
5,207,830
LIGHTWEIGHT PARTICULATE CEMENTITIOUS MATERIALS AND PROCESS FOR PRODUCING SAME
Jack C. Cowan, Lafayette, La.; Roy F. House, Houston, Tex., and Andree' H. Harrington, Lafayette, La., assignors to Venture Innovations, Inc., Lafayette, La.
Continuation-in-part of Ser. No. 498,097, Mar. 21, 1990. This application Feb. 22, 1991, Ser. No. 659,177
Int. Cl.[5] C04B *7/02;* A01K *1/015*
U.S. Cl. 106—672 **21 Claims**

1. A process of preparing a lightweight particulate cementitious composition comprising a water absorbent material coated with a cementitious material, which comprises: (1) forming a foamed aqueous slurry containing water and a cementitious material in a water to cementitious material weight ratio from about 0.2 to about 1.2, the slurry containing from about 0.1% to about 5%, by weight of the water, of a foaming surfactant, and from 0% to about 20% based on the weight of the cementitious material, of a plasticizer for the cementitious material; (2) mixing with the foamed slurry up to about 120%, based on the weight of the cementitious material, of a water absorbent particulate particle forming agent selected from the group consisting of clays, heat expanded perlite, exfoliated vermiculite, porous silicates, ground vegetable materials, water absorbent polymers, and mixtures thereof; and (3) aging the treated foamed slurry for a period of time sufficient for the particles of the lightweight particulate cementitious composition to form and harden for subsequent handling without crushing the particles, whereby the water absorbent particle forming agent is coated with the cementitious composition; wherein the particle size and concentration of the particle forming agent are selected such that at least 65% of the particles of the lightweight particulate cementitious composition have a particle size less than 3 mesh, U.S. Standard Sieve Series; and wherein the cementitious material is Portland cement.

5,207,831
CEMENT FLUID LOSS REDUCTION
Kenneth M. Cowan, Sugarland, Tex., assignor to Shell Oil Company, Houston, Tex.
Continuation of Ser. No. 614,048, Nov. 9, 1990, abandoned, which is a continuation of Ser. No. 363,233, Jun. 8, 1989, abandoned. This application Jan. 27, 1992, Ser. No. 825,732
Int. Cl.[5] C04B *24/02*
U.S. Cl. 106—724 **2 Claims**

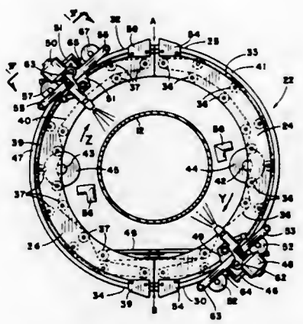
1. A method for preparing an aqueous oil field cement slurry for injection between a borehole and a pipe within the borehole, comprising:
preparing an effective amount of polyvinyl alcohol/polyvinyl acetate functional to reduce fluid loss of the cement slurry;
preparing an effective amount of a surfactant functional 1) to interact with said polymer to reduce fluid loss of the cement slurry, 2) to disperse the cement in the slurry, and 3) to improve interfacial sealing between the cement and at least one of a) the pipe, and b) the borehole, said surfactant reducing the surface tension of the aqueous phase of the slurry by from about 20 to 55 dynes/centimeter, said surfactant being selected from the group consisting of sodium decyl sulfate, sodium tridecyl sulfate, sodium lauryl sulfate a C_{12}-C_{13} linear alcohol ethoxylate with about 3 moles ethylene oxide, a C_{12}-C_{15} linear alcohol ethoxylate sulfate with about 3 moles ethylene oxide, a C_{14}-C_{15} linear alcohol ethoxylate sulfate with about 2.5 moles ethylene oxide, a sodium salt of alkyl aryl polyether sulfonate, cocoamidopropyl hydroxysultaine, polyoxyethylene sorbitan monooleate; and
blending the polymer, surfactant, water and cement to form the cement slurry.

5,207,832
LIGHTENED CEMENT GROUT SUITABLE FOR THE CEMENTATION OF HYDROCARBON PRODUCTION WELLS
Daniel Baffreau, Saint-Maur-des-Fosses; Jean-Claude Laugerotte, Paris, and Nicolas Musikas, Essigny le Petit, all of France, assignors to Total Compagnie Francaise des Petroles, Puteaux and Ciments d'Origny, Paris, both of France
PCT No. PCT/FR90/00099, § 371 Date Oct. 11, 1991, § 102(e) Date Oct. 11, 1991, PCT Pub. No. WO90/09357, PCT Pub. Date Aug. 23, 1990
PCT Filed Feb. 12, 1990, Ser. No. 743,406
Claims priority, application France, Feb. 14, 1989, 89 01881
Int. Cl.[5] C04B *14/00, 16/00*
U.S. Cl. 106—727 **28 Claims**



1. A lightened, gas-impermeable cement grout which comprises hydraulic cement, water, silica fumes in an amount of from about 5 to about 65 weight % based on the weight of the cement and at least one polyethylene imine having a molecular weight of between about 600,000 and about 1,000,000 in an amount of from about 1 to about 25% weight % based on the weight of the water.

5,207,833
LINE TRAVEL SPRAY COATING DEVICE
Milburn L. Hart, Tulsa, Okla., assignor to Commercial Resins Company, Tulsa, Okla.
Filed Nov. 29, 1991, Ser. No. 800,077
Int. Cl.[5] B05C *1/04*
U.S. Cl. 118—307 **9 Claims**



5. A device for spraying coating onto the exterior surface of a pipe comprising means for moving the device longitudinally

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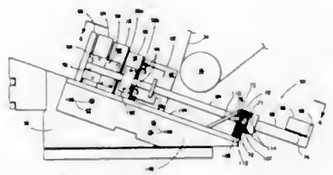
along the pipe, a yoke mounted on the device, said yoke encircling the pipe, said yoke being in two halves, each half having an upper end and a lower end, each half provided with outside edges, spray guns flexibly engaging said outside edges by means of spring-loaded gun carriages, means for moving the spray guns circumferentially along said outside edges, said spray guns aimed at the pipe, and means for controlling the spray guns to turn "ON" and "OFF".

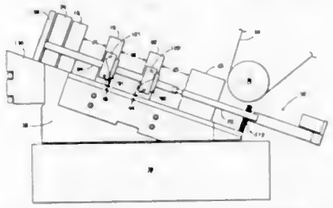
5,207,834

SLIDE COATING APPARATUS WITH MOVING PLATES

Frederick E. Curtis; Terrance W. Grant, both of Rochester; Roberto D. Marcuccio, Brockport, and Siegfried R. Scheske, Pavilion, all of N.Y., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 29, 1991, Ser. No. 692,656
Int. Cl.[5] B05C *5/00, 3/18*
U.S. Cl. 118—410 9 Claims





1. In a slide coating apparatus comprising at least one slide surface disposed along a top portion of a front plate supported by a platform and a fluid supply cavity for supplying a coating fluid to the slide surface, the cavity formed at the juncture of a side surface of said front plate with a side surface of a back plate contiguous with the front plate and moveably supported by said platform, said side surface for each plate adjoining two opposite side ends thereof, and means for applying force to said back plate to maintain said back plate contiguous to said front plate, the improvement comprising:

means for moving said back plate away from said front plate to a first cleaning position along a direction substantially parallel to the slide surface, said moving means comprising at least a first actuator assembly connected between the back plate and the platform for effecting linear movement of a first shaft along said back plate direction.

5,207,835

HIGH CAPACITY EPITAXIAL REACTOR

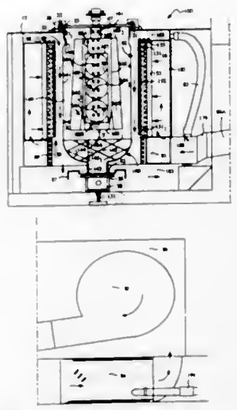
Gary M. Moore, San Jose, Calif., assignor to Moore Epitaxial, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 317,260, Feb. 28, 1989, Pat. No. 5,053,247. This application Feb. 9, 1990, Ser. No. 477,396
The portion of the term of this patent subsequent to Oct. 1, 2008, has been disclaimed.
Int. Cl.[5] C23C *16/48*
U.S. Cl. 118—725 42 Claims

1. A cold wall barrel epitaxial reactor for processing a multiplicity of wafers comprising:

a housing, wherein said housing was designed to contain a first reactor chamber means, a first radiant energy heat source means, and a first susceptor having a flat zone of about 12 inches;

second reaction chamber means including susceptor means having a flat zone in the range of greater than 12 inches to about 18 inches in length in a first direction wherein said second reactor chamber means is operatively mounted in said housing; and



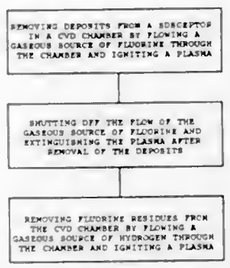
second radiant energy heat source means, operatively mounted in said housing, for providing an unsymmetrical heat energy distribution about the center of said second radiant energy heat source means in said first direction so that epitaxial layers formed on adjacent wafers in said reaction chamber have a resistivity that varies by less than approximately 10%.

5,207,836

CLEANING PROCESS FOR REMOVAL OF DEPOSITS FROM THE SUSCEPTOR OF A CHEMICAL VAPOR DEPOSITION APPARATUS

Mei Chang, Cupertino, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Continuation of Ser. No. 707,214, May 23, 1991, abandoned, which is a continuation of Ser. No. 389,689, Aug. 25, 1989, abandoned. This application Jun. 3, 1992, Ser. No. 894,180
Int. Cl.[5] B08B *3/00*
U.S. Cl. 134—1 20 Claims



1. An improved process for removing deposits of tungsten and/or tungsten silicide from a vacuum deposition chamber after processing of a semiconductor wafer therein which comprises:

(a) flowing into said vacuum deposition chamber a gaseous source of fluorine capable of reacting with said deposits of tungsten or tungsten silicide;

(b) igniting a plasma in said chamber while said gaseous source of fluorine is flowing therein and reacting with said deposits of tungsten or tungsten silicide;

(c) stopping said flow of said gaseous source of fluorine into said chamber and extinguishing said plasma;

(d) then flowing a gaseous source of hydrogen into said chamber to remove fluorine residues remaining from said reaction of said gaseous source of fluorine with said deposits of tungsten or tungsten silicide; and

(e) maintaining a plasma in said chamber during said flow of said gaseous source of hydrogen therein.

5,207,837

METHOD OF DISPOSAL OF HOT WATER SOLUBLE GARMENTS AND LIKE FABRICS

Travis W. Honeycutt, 3544 Mill Rd., Gainesville, Ga. 30504

Continuation-in-part of Ser. No. 683,290, Apr. 10, 1991, abandoned. This application May 12, 1992, Ser. No. 881,685
Int. Cl.[5] B08B *7/00;* D03D *1/00;* D04B *1/00;* D04H *1/00*
U.S. Cl. 134—42 28 Claims

1. A method of disposing of thermoplastic polymer fabric of polyvinyl alcohol fiber after use, said fabric being configured into one or more members selected from the group consisting of drapes, towels, covers, overwraps, gowns, head covers, face masks, shoe coverings, sponges, dressings, tapes, underpads, diapers, wash cloths, sheets, pillow covers and napkins, said polyvinyl alcohol fiber being water soluble only at temperatures above 37° C. and insoluble at temperatures below 37° C. and subjecting said thermoplastic polymer fabric after use to an aqueous bath to dissolve said polymer fabric whereupon said dissolved polymer fabric is subjected to disposal, said polymer fabric comprising a polyvinyl alcohol homopolymer that has been highly crystallized by post drawing or by heat annealing.

5,207,838

NONHAZARDOUS SOLVENT COMPOSITION AND METHOD FOR CLEANING METAL SURFACES

John M. Googin, Oak Ridge; Ronald F. Simandl, Farragut, and Lisa M. Thompson, Knoxville, all of Tenn., assignors to Martin Marietta Energy Systems, Inc., Oak Ridge, Tenn.

Filed Aug. 29, 1991, Ser. No. 751,912
Int. Cl.[5] C23G *5/024, 5/032, 5/036*
U.S. Cl. 134—42 10 Claims

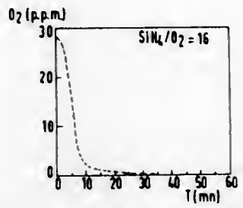
7. A method for cleaning a surface of a metal including a radioactive metal or alloy by the removal therefrom organic contaminants, water and aqueous residue b y the steps which comprise contacting the metal alloy surface with a water-displacing solvent composition consisting essentially of a blend of a nonpolar aliphatic hydrocarbon solvent and about 2 to about 25 volume percent of a polar solvent, said aliphatic hydrocarbon solvent being substantially free of aromatic components and having a major component with at least eleven carbon atoms, a boiling point in a narrow boiling range in a temperature of about 170° to about 250° C., a minimum flash point of at least 140° F., and a vapor pressure greater than about 0.4 mm mercury at room temperature, said polar solvent being selected from the group consisting of alcohol, ether, pyrrolidinone, carbonate, and mixtures thereof that are characterized by possessing a flash point at a sufficiently high temperature so as to provide the solvent composition with a minimum flash point of 140° F., and wiping from said metal surface substantially all of the solvent composition and any of said organic contaminants, water and aqueous residue contacted and displaced from said metal surface by the solvent composition.

5,207,839

PROCESSES FOR THE PRODUCTION OF A CONTROLLED ATMOSPHERE FOR HEAT TREATMENT OF METALS

Pierre Claverie, Boulogne Billancourt; Eric Duchateau, Versailles; Pierre Karinthi, Jouy-en-Josas, and Philippe Queille, Viroflay, all of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Geroges Claude, Paris, France

Filed Oct. 15, 1991, Ser. No. 777,676
Claims priority, application France, Oct. 18, 1990, 90 12874
Int. Cl.[5] C21D *1/00*
U.S. Cl. 148—206 12 Claims



1. A process for the production of a controlled atmosphere substantially free of residual oxidizing gases for the heat treatment of metals in at least one treatment vessel, said atmosphere consisting essentially of inert or reducing gases which are pure or in a mixture, comprising injecting a silicon hydride in the gaseous state into said vessel in an amount such that the ratio R of the content of silicon hydride injected, to the content of oxidizing gases to be eliminated, is within the range of 1.5 to 20.

5,207,840

PROCESS FOR PREPARING ZINC PHOSPHATE COATINGS CONTAINING MANGANESE AND MAGNESIUM

Joerg Riesop, Niederzier; Karl-Heinz Gottwald, Erftstadt, and Wolf-Achim Roland, Solingen, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf-Holthausen, Fed. Rep. of Germany

PCT No. PCT/EP90/00919, § 371 Date Dec. 16, 1991, § 102(e) Date Dec. 16, 1991, PCT Pub. No. WO90/15889, PCT Pub. Date Dec. 27, 1990
PCT Filed Jun. 12, 1990, Ser. No. 776,319
Claims priority, application Fed. Rep. of Germany, Jun. 21, 1989, 3920296
Int. Cl.[5] C23C *22/36, 22/18*
U.S. Cl. 148—260 20 Claims

1. A process for producing zinc phosphate coatings containing manganese and magnesium on metal surfaces selected from the group consisting of steel, zinc, aluminum, the alloys thereof, and combinations thereof by contacting the metal surfaces by a method selected from the group consisting of spraying, spray-immersion, immersion, and combinations thereof with an aqueous solution consisting essentially of the following components:

0.4 to 0.6 g/l of zinc(II) ions,
0.9 to 1.1 g/l of manganese(II) ions,
1.4 to 1.6 g/l of magnesium(II) ions,
12.0 to 16.0 g/l of phosphate ions,
1.0 to 5.0 g/l of nitrate ions,
0.4 to 0.6 g/l of fluoride ions,

and, optionally,

0.2 to 0.8 g/l of nickel(II) ions,

and, necessarily, an accelerator component selected from the group consisting of:

0.02 to 0.2 g/l of nitrite ions,
0.4 to 1 g/l of chlorate ions,
0.2 to 1.0 g/l of an organic oxidizing agent,

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and combinations of any two or of all of these,

wherein the aqueous solution has a free acid content of 0.6 to 1.8 points and a total acid content of from 15 to 30 points and Na^+ ions are present in the amount necessary to adjust the free acid.

5,207,841

SOFT MAGNETIC POWDER AND MAGNETIC SHIELD COMPOSITION

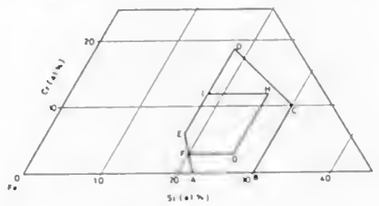
Masao Shigeta, Narashino; Asako Kajita, Abiko, and Ippo Hirai, Yachiyo, all of Japan, assignors to TDK Corporation, Tokyo, Japan

Filed Apr. 5, 1991, Ser. No. 681,061

Claims priority, application Japan, Apr. 12, 1990, 2-97241; May 1, 1990, 2-115583

Int. Cl.[5] C22C *38/06, 38/18*

U.S. Cl. 148—307 **12 Claims**



1. A soft magnetic powder for use in magnetic shield comprising flat soft magnetic particles of an alloy having a composition defined and encompassed by polygon ABCDE in a ternary composition diagram of Fe, Si, and Cr wherein points A, B, C, D, and E have the following compositions as expressed in atomic percentage

A: $Fe_{78}Si_{22}Cr_0$
B: $Fe_{70}Si_{30}Cr_0$
C: $Fe_{60}Si_{30}Cr_{10}$
D: $Fe_{63}Si_{18}Cr_{19}$
E: $Fe_{76}Si_{18}Cr_6$

wherein said flat soft magnetic particles have a weight average particle diameter D_{50} of 5 to 30 μm and an average thickness of up to 1 μm, the average particle diameter divided by the average thickness being from 10 to 3,000.

5,207,842

MATERIAL BASED ON SILVER AND TIN OXIDE FOR THE PRODUCTION OF ELECTRICAL CONTACTS; ELECTRICAL CONTACTS THUS PRODUCED

Jean-Paul Guerlet, Paris; Dan Weber, Presles; Sophie Coupez, Paris, and Claude Lambert, Saint-Witz, all of France, assignors to Comptoir Lyon-Alemand Louyot, France

Continuation of Ser. No. 332,705, Apr. 3, 1989, abandoned. This application Oct. 23, 1990, Ser. No. 602,916

Claims priority, application France, Mar. 10, 1989, 89 03182

Int. Cl.[5] C22C *5/06*

U.S. Cl. 148—431 **15 Claims**

1. Material for electrical contacts, consisting essentially of silver in the amount of at least 80% by weight, tin oxide in an amount of from 9 to 13% by weight, and tellurium oxide in an amount of from 0.02 to 5% by weight and one other metal oxide selected from the group consisting of indium oxide, zinc oxide and copper oxide in an amount of from 0.06 to 0.2% by weight, the combined amount of tin oxide and said other metal oxide in this material shall not exceed 15% by weight, the oxides being evenly dispersed in the silver.

5,207,843

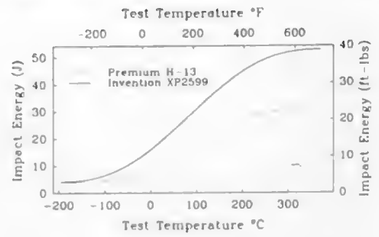
CHROMIUM HOT WORK STEEL

James L. Maloney, Greensburg; William P. Edwards, Ligonier, and Mark S. Rodney, Pittsburgh, all of Pa., assignors to Latrobe Steel Company, Latrobe, Pa.

Filed Jul. 31, 1991, Ser. No. 738,805

Int. Cl.[5] C21D *8/00*

U.S. Cl. 148—540 **11 Claims**



10. A process for producing a heat resistant steel having improved high temperature impact toughness and thermal fatigue resistance comprising the steps of:

providing a steel consisting of, in weight %:

Carbon (C):	0.34–0.40,
Manganese (Mn):	0.25–0.45,
Silicon (Si):	0.85–1.15,
Chromium (Cr):	5.00–5.40,
Molybdenum (Mo):	1.20–1.50,
Vanadium (V):	0.30–0.52,
Niobium (Nb):	0.02–0.09,
Titanium (Ti):	0.01–0.20,
Iron (Fe) and Incidental impurities:	Balance;

remelting said steel;

homogenizing said remelted steel; and

hot working said remelted and homogenized steel.

5,207,844

METHOD FOR MANUFACTURING AN FE-NI COLD-ROLLED SHEET EXCELLENT IN CLEANLINESS AND ETCHING PIERCEABILITY

Atsushi Watanabe; Teruyuki Hasegawa; Tadashi Inoue; Tomoyoshi Okita; Yoshiteru Kikuchi, and Hidetoshi Matsuno, all of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan

Continuation of Ser. No. 667,968, Mar. 12, 1991, abandoned. This application May 18, 1992, Ser. No. 887,385

Claims priority, application Japan, Mar. 22, 1990, 2-72651

Int. Cl.[5] C22C *38/08*

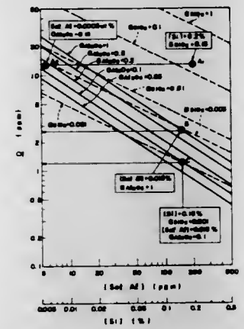
U.S. Cl. 148—546 **7 Claims**

1. A method for manufacturing an Fe-Ni alloy cold-rolled sheet excellent in cleanliness and etching pierceability, which comprises the steps of:

preparing an Fe-Ni molten alloy, containing nickel in an amount within a range of from 30 to 45 wt. %, and subjected to dephosphorization and decarburization;

adding aluminum and flux to said Fe-Ni molten alloy thus prepared, in a ladle made of an MgO-CaO refractory containing CaO in an amount within a range of from 20 to 40 wt. %;

strongly stirring said Fe-Ni molten alloy which contains said added aluminum and flux in said ladle to produce a CaO-Al_2O_3-MgO slag in said ladle, so as to react said Fe-Ni molten alloy with said CaO-Al_2O_3-MgO slag to deoxidize said Fe-Ni molten alloy while controlling a value of activity of SiO_2 (a_{SiO2}) within a range of from 0.001 to 0.005 and a value of activity of Al_2O_3($A_{\alpha l2O3}$) within a range of from 0.1 to 0.3 in said CaO-Al_2O_3-MgO slag, and said CaO-Al_2O_3-MgO slag having the following chemical



composition so as to satisfy said values of activities of SiO_2 (a_{SiO2}) and Al_2O_3(a_{Al2O3}):

CaO and Al_2O_3	at least 57 wt. %,
MgO	up to 25 wt. %,
SiO_2	up to 15 wt. %,

wherein, the ratio of CaO/(CaO + Al_2O_3) being at least 0.45,

and oxides of metals having an oxygen affinity lower than that of silicon: up to 3 wt. % in total;

casting said deoxidized Fe-Ni molten alloy into an ingot; and

blooming, hot-rolling and cold-rolling said ingot to manufacture an Fe-Ni alloy cold-rolled sheet containing non-metallic inclusions comprising a composition in a region of a melting point of at least 1,600° C., which region is defined by a liquidus curve of 1,600° C. in a CaO-Al_2O_3-MgO ternary phase diagram and having a particle size up to 6 μm in a total amount of up to 0.002 wt. % as converted into oxygen.

5,207,845

PROCESS FOR MANUFACTURING ROLLED ARTICLES OF TITANIUM MATERIAL

Akira Yoshino; Haruo Senbokuya, and Masaaki Tahara, all of Osaka, Japan, assignors to Daidousanso Co., Ltd., Osaka, Japan

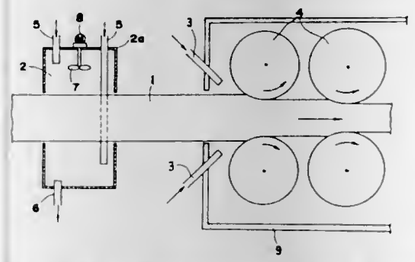
PCT No. PCT/JP91/01598, § 371 Date May 28, 1992, § 102(e) Date May 28, 1992, PCT Pub. No. WO92/08556, PCT Pub. Date May 29, 1992

PCT Filed Nov. 20, 1991, Ser. No. 852,218

Claims priority, application Japan, Nov. 20, 1990, 2-316562

Int. Cl.[5] C22C *14/00*

U.S. Cl. 148—670 **1 Claim**



1. A process for manufacturing rolled articles of titanium material comprising steps of contacting titanium material in a heated condition with fluorine- or fluoride-containing gas to form a fluoride layer on the surface of the titanium material, removing the fluoride layer formed thereon just before rolling and then rolling the titanium material to give a rolled article.

5,207,846

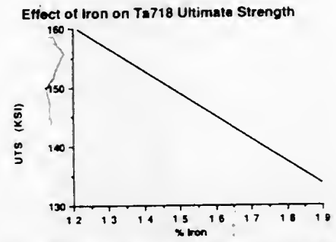
TANTALUM-CONTAINING SUPERALLOYS

Thomas J. Kelly, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 335,353, Apr. 10, 1989, abandoned. This application Feb. 19, 1991, Ser. No. 658,417

Int. Cl.[5] C22C *30/00*; C22F *1/10*

U.S. Cl. 148—675 **5 Claims**



1. A superalloy which consists essentially of about 30 to about 40% nickel, about 30 to about 40% iron, about 15 to about 23% cobalt, about 8 to about 16% tantalum, and about 30 to about 150 ppm boron, the superalloy being characterized by a microstructure having a uniform distribution of gamma prime and gamma double prime precipitated, the gamma prime and gamma double prime having been formed within a gamma matrix by first heating the cast alloy to a temperature of about 2000° F. for about one hour, heating the alloy at a temperature of about 2050° F. for about 3 to about 5 hours, cooling the alloy to a temperature of about 1925°° F. and holding at 1925° F. for about 4 hours, cooling to a first aging temperature of about 1600° F. and aging for about 2 hours and optionally cooling to a second aging temperature of about 1350° F. and aging for about 8 hours.

4. A method of improving the high temperature strength properties of a substantially niobium-free nickel-base superalloy consisting essentially of about 8.5 to about 10% tantalum, about 18 to about 20% chromium, about 17 to about 19% iron, about 2.5 to about 4% molybdenum, about 0.75 to about 2.5% titanium, about 0.25 to about 0.75% aluminum, about 30 to about 60 ppm boron if the alloy is to be cast or about 80 to about 100 ppm boron if the alloy is to be wrought, about 0.03 to about 0.05% carbon, the balance essentially nickel, comprising the steps of:

(a) heat treating at about 2000° F. for about 1 hour,

(b) hot isostatic pressing at about 2050° F. at a pressure of about 12 to about 15 ksi for about 3 to about 5 hours,

(c) heating to about 1925° F. and holding for about 4 hours, and

(d) heating to about 1600° F. and holding for about 2 hours.

5,207,847

PNEUMATIC TIRE OF LOW PROFILE HAVING A TIE RUBBER BETWEEN THE TREAD AND SIDEWALL

Akinori Tokieda, Fujisawa, and Masakazu Kojima, Mishima, both of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed Jul. 24, 1991, Ser. No. 735,316

Claims priority, application Japan, Aug. 14, 1990, 2-213715

Int. Cl.[5] B60C *13/00*

U.S. Cl. 152—209 R **2 Claims**

1. A pneumatic tire of a low profile having an aspect ratio of smaller than 60% which comprises:

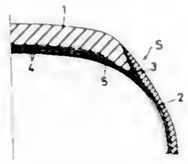
(a) a cap tread formed from a rubber composition comprising a styrene-butadiene rubber having a styrene content of

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greater than 28% by weight in an amount of more than 50 parts by weight per 100 parts by weight of the total rubber component;

(b) a sidewall; and

(c) a tie rubber interposed between said cap thread and said sidewall, said tie rubber comprising a syndiotactic-1,2-butadiene rubber and a cis-1,4-butadiene rubber totalling at or above 50 parts by weight per 100 parts by weight of



the total rubber material, said syndiotactic-1,2-butadiene rubber being contained in an amount of at least 30 parts by weight, and a vulcanization accelerator comprising at least 50% by weight, based on the total weight of the accelerator, of a sulfenamide type vulcanization accelerator, whereby said cap tread is disposed to be overlapped at its two opposite sides with two corresponding sides of said sidewall.

5,207,848

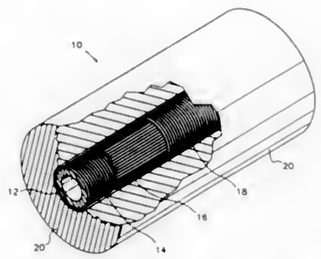
METHOD OF FABRICATING FIBER REINFORCED METAL TUBES

Murray W. Mahoney, Camarillo, and Milan G. Metcalf, Lakeview Terrace, both of Calif., assignors to Rockwell International Corporation, Seal Beach, Calif.

Filed Oct. 18, 1989, Ser. No. 423,086

Int. Cl.[5] B32B *31/00*

U.S. Cl. 156—172 **17 Claims**



1. A method of fabricating a reinforced tube, comprising the steps of:

providing a first metal tube having an outside surface;

wrapping the outside surface of said first tube with a reinforcing fiber, said fiber wrapped tube having an outside diameter;

providing a second metal tube having an inside diameter slightly larger than the outside diameter of said fiber wrapped tube;

inserting said fiber wrapped tube into said second tube;

expanding said fiber wrapped tube inside said second tube to consolidate said reinforcing fiber, thereby forming the reinforced tube.

5,207,849

METHOD AND DEVICE FOR STITCHING MULTILAYER PRODUCTS OF GREEN ELASTOMERIC MATERIAL

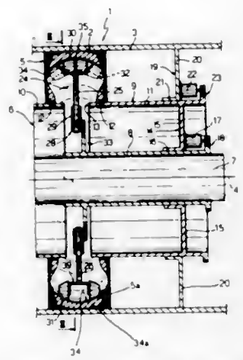
Karl J. Siegenthaler, Ostia, Italy, assignor to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Feb. 6, 1992, Ser. No. 832,185

Claims priority, application Italy, Mar. 26, 1991, 000211 A/91

Int. Cl.[5] B29C *30/14, 30/28*

U.S. Cl. 156—130.3 **9 Claims**



1. A method of stitching a multilayer product of green elastomeric material including the steps of:

providing a stitching mold having a hollow annular body and a concave inner surface;

placing the multilayer product into the hollow annular body with a convex surface of said multilayer product being in contact with the concave inner surface of said stitching mold body;

providing a tubular control body extending coaxially through said stitching mold, with said control body being formed with a circumferential opening;

moving stitching elements through the circumferential opening of the tubular body from an idle position to an operating position wherein said stitching elements contact at a given pressure against a concave inner surface of the multilayer product to force the convex surface of said product into contact with the concave inner surface of the stitching mold; and

producing relative motion between said stitching elements and said multilayer product to cause said stitching elements to stitch said multilayer product.

7. A device for stitching an annular multilayer product of green elastomeric material having a concave inner surface negatively matching an outer convex surface, including a stitching mold having a hollow annular body and stitching means housed inside a concave inner surface of said stitching mold for moving to and from an operating position and contacting the concave inner surface of said multilayer product, said stitching means comprising an internal control device and a number of stitching elements extending outwardly from and connected to said control device, said control device including a tubular body extending coaxially through said stitching mold and having a circumferential opening through which said stitching elements are adapted to move between a first idle position, wherein the stitching elements are housed inside said tubular body, and a second operating position wherein said stitching elements extend through said circumferential opening to contact at a given pressure said concave inner surface of said multilayer product; and actuating means for producing relative motion of said stitching means and said multilayer product, so as to cause said stitching elements to press said multilayer product into contact with said inner concave surface of said stitching mold and stitch said multilayer product.

5,207,850

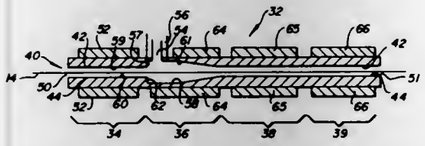
PROCESS FOR MAKING THERMOPLASTIC COMPOSITES WITH CYCLICS OLIGOMERS AND COMPOSITES MADE THEREBY

Shashi L. Parekh, Pittsfield, Mass., assignor to General Electric Company, Pittsfield, Mass.

Filed Jul. 17, 1990, Ser. No. 553,925

Int. Cl.[5] B32B *31/12*

U.S. Cl. 156—166 **3 Claims**



1. A pultrusion process for making reinforced thermoplastic composites, said process comprising:

(a) pulling a plurality of continuous fibrous strands into an upstream portion of an elongated die;

(b) forcing molten cyclic aromatic polycarbonate oligomers into the upstream portion of said die into contact with said strands such that a pool of molten oligomers forms around the strands;

(c) moving said contacted strands and oligomers downstream into a reaction zone of the die wherein said oligomers are heated to a reaction temperature in the presence of a catalyst to form a high molecular weight aromatic polycarbonate resin matrix around said strands;

(d) moving said strands and resin matrix further downstream into a cooling zone of the die wherein said resin is allowed to cool to a temperature below its glass transition temperature to provide a rigid polymeric matrix around the strands;

(e) pulling the strands and rigid polymeric matrix from the die through an exit portion in the die to form a final article of the strands and polymeric matrix, wherein the configuration of the vertical cross section of the die at the exit port defines the shape of the final article.

5,207,851

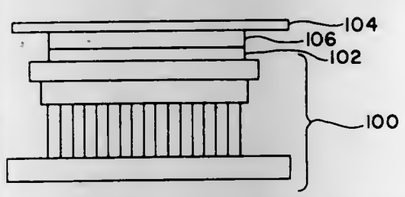
TRANSFERS

Louis B. Abrams, St. Louis, Mo., assignor to High Voltage Graphics, Inc., St. Louis, Mo.

Filed Mar. 28, 1991, Ser. No. 676,377

Int. Cl.[5] B44C *1/165*; B32B *33/00*

U.S. Cl. 156—230 **11 Claims**



1. A method of making a decorative transfer having a flock component and a second material component which comprises:

a) forming a flock transfer having at least one open interior section; and

b) bonding through an adhesive a second material to the flock so that it is visible through the interior open section wherein said second material is dimensionally greater than the dimensions of the flock's at least one open interior section and less than the outside dimensions of the flock.

5,207,852

METHOD FOR MAKING PERMEABLE RETROREFLECTIVE SHEETING

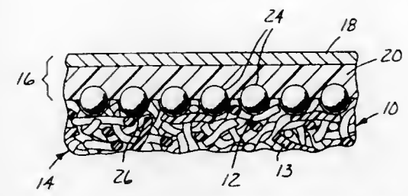
Vera L. Lightle, Hudson, Wis.; Johann F. Petersen, Grevenbroich, Fed. Rep. of Germany, and Wallace K. Bingham, North St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 651,121, Feb. 6, 1991, Pat. No. 5,128,804.

This application Mar. 16, 1992, Ser. No. 851,864

Int. Cl.[5] B29C *65/02*

U.S. Cl. 156—230 **11 Claims**



1. A process for making a flexible, self-supporting, air-permeable retroreflective sheeting comprising the following steps:

a) providing a monolayer of retroreflective elements releasably secured to a temporary carrier sheet;

b) heat-laminating an air-permeable web of thermoplastic filaments to said retroreflective elements, said filaments softening and flowing sufficiently to bond to said retroreflective elements but not flowing to such an extent that the air-permeability of said web is reduced to below about 5 liters/minute; and

c) stripping away said carrier sheet.

5,207,853

METHOD OF MANUFACTURING INJECTION NEEDLES

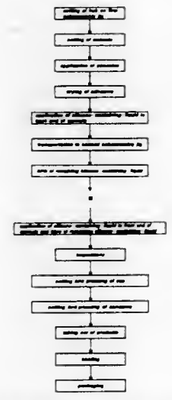
Fumio Awazu, Otsu, and Hideo Kuwabara, Kustasu, both of Japan, assignors to Nissho Corporation, Osaka, Japan

Filed Jul. 25, 1991, Ser. No. 735,972

Claims priority, application Japan, Jul. 30, 1990, 2-201757

Int. Cl.[5] A61M *5/32*

U.S. Cl. 156—293 **2 Claims**



1. A method of manufacturing an injection needle having a hub with a center hole and a cannula inserting in the center hole, the cannula having a front end with a sharp bevel and a back end with another sharp bevel, the back end terminating within the hub, comprising the steps of:

(a) mounting the hub on a first subassembly jig capable of

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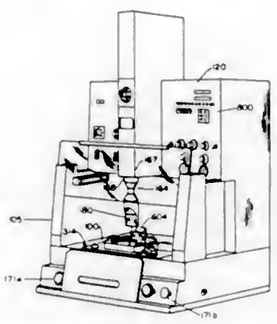
supporting individually the hub and the cannula in predetermined positions relative to each other, with the front end of the cannula pointed upward;
(b) inserting the cannula into the center hole of the hub to a depth limited by the first subassembly jig;
(c) applying an adhesive to a bonding area of the hub and the cannula;
(d) curing the adhesive in the bonding area to form a hub-cannula assembly;
(e) dismounting the hub-cannula assembly from the first subassembly jig;
(f) applying silicone-containing-liquid to the back end of the cannula of the hub-cannula assembly;
(g) mounting the hub-cannula assembly, whose back end has been coated with silicone-containing-liquid, on a second subassembly jig having a hollow cylindrical rest capable of supporting the hub-cannula assembly by contacting only the hub, with the front end of the cannula pointed upward;
(h) removing excess amount of silicone-containing-liquid within the cannula;
(i) applying silicone-containing-liquid to the front end of the cannula of the hub-cannula assembly;
(j) covering the front end of the cannula with a cap of an elongated cylindrical shape having an open end and a semi-spherical closed end to form a hub-cannula-cap assembly;
(k) housing the hub-cannula-cap assembly into a container having an opening at one end to form a hub-cannula-cap-container assembly;
(l) dismounting the hub-cannula-cap-container assembly from the second subassembly jig; and
(m) sealing the opening of the container of the hub-cannula-cap-container assembly.

5,207,854

CONTINUOUS LOOP RIBBON WELDING SYSTEM

Paul E. Becking, 13795 Vista Dorada, Salinas, Calif. 93908

Filed Oct. 9, 1990, Ser. No. 594,659
Int. Cl.[5] B65H *69/02;* **B32B** *31/00*
U.S. Cl. 156—350 **14 Claims**



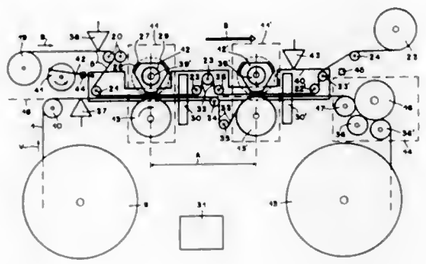
1. Apparatus for adjoining two segments of a ribbon made of a fusible material, comprising
means for securing the two ribbon segments in overlapping position,
means for applying tension to the overlapping portion of at least one ribbon segment after it is secured by the securing means,
means for selecting the optimum tension for the ribbon,
means for adjusting the tension applying means to apply the optimum tension, and
means for fusing the two ribbon segments together within the overlapped portions.

5,207,855

APPARATUS FOR STICKING ON STAMPS FROM AN EMBOSSING FOIL

Alex Nyfeler; Michael Wessner, both of Baar, and Ohannes Minnetian, Lucerne, all of Switzerland, assignors to Landis & Gyr Betriebs AG, Zug, Switzerland

Filed Nov. 27, 1990, Ser. No. 618,632
Claims priority, application Switzerland, Dec. 21, 1989, 04571/89; Apr. 19, 1990, 01332/90
Int. Cl.[5] B44C *1/16;* **B32B** *31/00*
U.S. Cl. 156—351 **12 Claims**



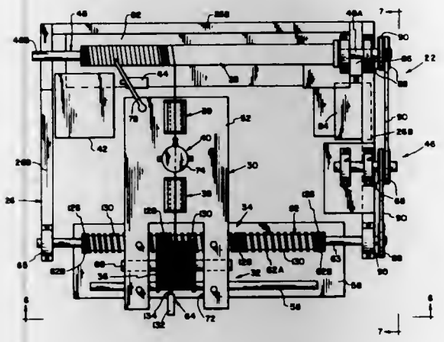
1. Apparatus for sticking stamps from a foil onto motifs printed at a motif pitch on a substrate said foil facing towards said motifs on said substrate and, having said stamps spaced at a stamp pitch and a backing strip,
said sticking being caused by pressing means whose work cycle comprises a sticking phase and a forward feed phase,
said apparatus comprising means for unwinding said foil and backing strip and for winding-on the backing strip and means for supplying and removing the substrate,
motor driven carriage means, which is displaceable in parallel to a feed direction of said substrate, for cyclically adding speed to said foil moving at a strip speed at the beginning of, and during, said sticking phase and for cyclically subtracting speed from said foil during said forward feed phase,
and at least one sticking station through which said foil with said backing strip and said substrate are passed in the same feed direction,
wherein said at least one sticking station comprises a pressing cylinder and a backing cylinder disposed adjacent to said pressing cylinder,
said pressing cylinder having at least one radially raised smooth pressing portion whose pressing surface is part of a cylindrical surface which is concentric with respect to the pressing cylinder and which is adjacent to the backing cylinder during the sticking phase only,
and in which, by a displacement of said motor driven carriage means, said foil with the backing strip is accelerated to move at the same uniform forward feed speed of the substrate immediately prior to each sticking phase, and said substrate and said foil on said backing strip are pressed between said pressing surface and said backing cylinder running at a circumference speed equal to the forward feed speed of the substrate,
and such that after said sticking phase, a gap opens between the pressing cylinder and the backing cylinder so that during said forward feed phase said backing strip is separated from said stamp sticking on said substrate and is decelerated by the displacement of said motor driven carriage means to move independently from the substrate in said gap.

5,207,856

APPARATUS FOR MAKING A FILTER SUPPORT TUBE

Clifford H. May, 702 S. Muskogee St., Sapulpa, Okla. 74066

Filed Jul. 25, 1991, Ser. No. 735,437
Int. Cl.[5] B65H *81/00;* **B01D** *29/48*
U.S. Cl. 156—425 **14 Claims**



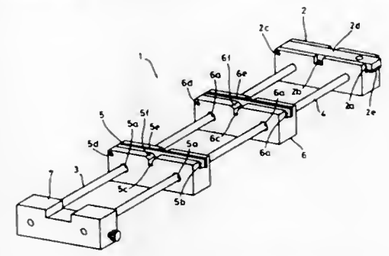
1. An apparatus for making a filter support tube from a continuous length of wire wound about and embedded in a plurality of reinforcing strips, comprising:
a stationary main frame;
an elongated mandrel mounted on said main frame for rotation about a longitudinal axis of produce a filter support tube comprising a helical wound wire and a plurality of plastic elongated strips interconnecting and reinforcing said wire;
an auxiliary frame;
means for mounting said auxiliary frame adjacent said mandrel for movement relative to said mandrel along a linear path extending generally parallel to said mandrel and between a starting position and an ending position;
a reel rotatably mounted on said auxiliary frame for storing a continuous stand of wire having a terminal end connectable to said mandrel;
means mounted on said auxiliary frame between said wire storing means and said mandrel for heating the wire above the melting point of said plurality of plastic strips as the wire is drawn from said storing means to said mandrel;
means for applying a continuous corrosion resistant coating to the wire as the wire is drawn from said heating means to said mandrel, said wire heating means being mounted on said auxiliary frame between said wire heating means and said mandrel;
means for concurrently rotatably driving said mandrel and moving said auxiliary frame along said linear path such that the rotation of said mandrel draws the heated wire from said wire storing means to said mandrel and embeds said wire into said plurality of plastic strips, and movement of said auxiliary frame along said linear path winds the wire about said mandrel as said driving means being mounted on said stationary frame and coupled to said mandrel;
means on said mandrel for releasably holding a said plurality of elongated strips; and
means coupled to said mandrel for actuating said mandrel between a first condition in which said mandrel is set to permit forming of the filter support tube and a second condition in which said mandrel is set to permit release and removal of he formed filter support tube.

5,207,857

FORCED ALIGNING JIG FOR LOOSE WIRES

Akio Tanabe; Kazuo Hashimoto; Hideki Watanabe, and Hiroyuki Yatsu, all of Tokyo, Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed May 24, 1991, Ser. No. 705,288
Claims priority, application Japan, May 29, 1990, 2-56259[U]
Int. Cl.[5] B32B *5/00, 31/12;* **G02B** *6/08*
U.S. Cl. 156—441 **13 Claims**



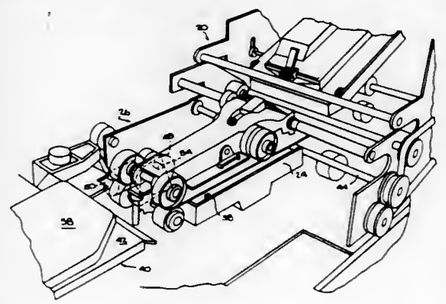
1. A forced aligning jig for loose wires, comprising:
a retaining means for retaining a plurality of loose wires;
a guiding means which has one end and another end, and wherein said one end is fixed to said retaining means;
aligning means which is slidably supported by said guiding means and which forcibly aligns said plurality of loose wires; and
a vertically extending aligning groove in said aligning means for aligning and storing the plurality of loose wires retained by said retaining means, and holding means in said aligning means for holding said plurality of loose wires which have been stored in said aligning groove in an aligned state;
wherein said aligning groove is defined by vertical side walls and a bottom surface, the groove width between the vertical side walls is larger than a diameter D of a loose wire and less than two times the diameter D, and the relation of the depth T of said aligning groove to the number n of the loose wires and the diameter D is $T=n\cdot D$.

5,207,858

EJECTION APPARATUS FOR MODULAR ENVELOPE INSERTER

Christopher DeBarber, Woodbury; Sandra Graveson, Waterbury, and Joseph H. Marzullo, Brookfield, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Aug. 31, 1992, Ser. No. 937,268
Int. Cl.[5] B65H *9/06;* **B05C** *1/00*
U.S. Cl. 156—441.5 **5 Claims**



1. Apparatus for removing an envelope from a stream of envelopes moving along a straight path, comprising:

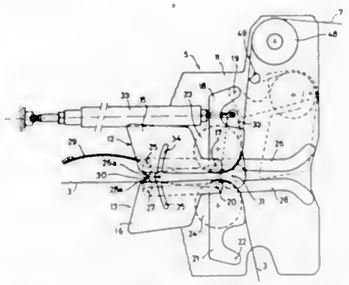
VOL 1150 ISS 1 MY 4 1993 UMI

an envelope turner;
means for raising and lowering the downstream end of said envelope turner;
an envelope sealer situated adjacent and downstream of said envelope turner;
means for detecting an envelope to be ejected; and
means for signaling said raising and lowering means to be raised in order to feed an envelope to be ejected over said envelope sealer.

5,207,859
DEVICE FOR INTERCONNECTING TWO WEBS OF MATERIAL

Thomas G. M. Jacobs, Cuijk, Netherlands, assignor to Stork Contiweb B.V., Boxmeer, Netherlands

PCT No. PCT/NL89/00058, § 371 Date Jan. 18, 1991, § 102(e) Date Jan. 18, 1991, PCT Pub. No. WO90/01012, PCT Pub. Date Feb. 8, 1990
PCT Filed Jul. 18, 1989, Ser. No. 613,677
Claims priority, application Netherlands, Jul. 19, 1988, 8801829
Int. Cl.[5] B65H *19/02*
U.S. Cl. 156—502 2 Claims

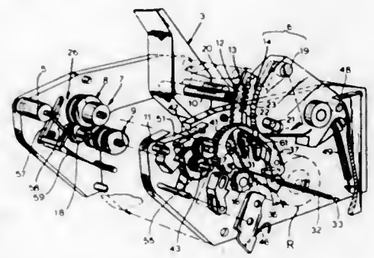


1. Device for connecting the trailing end of a first web of material, which downstream of the device undergoes a treatment or processing operation, to the leading end of a second web of material, comprising:
a frame with guide rollers and two movable pressure elements each provided with a roller, said guide rollers in combination with a roller of one of said pressure elements determining a travel path for said first web of material, said pressure elements being arranged on opposite sides of said travel path;
each pressure element comprising a bar fixed between two side plates, each bar having a pressure face extending substantially along its entire length and a slit in said pressure face extending in lengthwise direction of the bar,
each pressure element having a working position, wherein said pressure faces of said pressure elements are opposed and, face each other on opposite sides of said travel path, said slits communicate with each other, and said pressure elements are movable towards and away from each other at right angles to said travel path along the working position to connect said webs,
each pressure element having a rest position which is upstream of the roller of said opposing pressure element in said working position and wherein said pressure element in said rest position exposes its pressure face in preparation of said leading edge of said second web substantially at right angles to its working position;
a wire cutting element arranged between said two pressure elements in said working position, which cutting element can be displaced from a central position into either of said slits for cutting through said trailing end of said first web of material,
each pressure element being movable between said working position and said rest position by means of said side plates which are each suspended in said frame by means of an arm pivotally connected to said frame and to a hinge point of said side plate and which extends substantially at right angles away from said travel path when that pressure element is in said working position, and by means of a guide wheel fixed to said side plate downstream of said hinge point, said guide wheel being slidably guided in a corresponding guide slot of said frame, said guide slot having a first portion at right angles to said travel path to receive said guide wheel in said working position and a second portion extending substantially parallel to said travel path.

5,207,860
TAPE HOLDER AND DISPENSER

Willem Klaassen, St. Michelsgestel, Netherlands, and Christoph Manusch, Hemmingen, Fed. Rep. of Germany, assignors to Pelikan Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Jul. 31, 1991, Ser. No. 739,157
Claims priority, application Netherlands, Jul. 31, 1990, 9001733
Int. Cl.[5] B32B *31/00*
U.S. Cl. 156—526 14 Claims



1. A tape-applying apparatus comprising:
a housing adapted to hold a roll of tape;
feed means actuatable for paying out a piece of the tape;
cutting means actuatable for cutting off the piece of tape payed out by the feed means, the cutting means including a blade displaceable transversely through the tape,
spring means carrying the blade on the housing and tensionable to urge the blade transversely of the tape, and
blocking means including a formation operatively engageable with the blade to retain same against the force of the spring means at a spacing from the tape;
an actuating lever displaceable inward and outward between start and finish end positions and through an intermediate position;
a spring braced between the lever and the housing and urging the lever into the start end position; and
coupling means for connecting the lever to the feed means during inward travel of the lever from the start to the intermediate position, for actuating the feed means with the lever and paying out a piece of the tape, and for connecting the lever to the spring and blocking means of the cutting means only during inward travel of the lever between the intermediate and finish positions for tensioning the spring means and then releasing the blocking means for cutting off the piece of tape payed out, whereby the blade is held back against spring force and only released when the lever moves generally into the finish position.

5,207,861
PROCESS FOR PRODUCING A HIGH STRENGTH AND HIGH TOUGHNESS SINTER

Takemi Yamamura; Toshihiro Ishikawa; Makoto Tamura; Masaki Shibuya, all of Yamaguchi; Kiyohito Okamura, Ibaragi, and Mitsuhiko Sato, Ooarai, all of Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Division of Ser. No. 265,254, Oct. 31, 1988, Pat. No. 4,990,470. This application Oct. 31, 1990, Ser. No. 606,762
Claims priority, application Japan, Nov. 5, 1987, 62-279884; Nov. 5, 1987, 62-279885; Nov. 5, 1987, 62-279886; Feb. 5, 1988, 63-26198; Feb. 5, 1988; 63-26199; Feb. 5, 1988, 63-26200; Sep. 8, 1988, 63-225197
Int. Cl.[5] C04B *37/00;* B29C *71/00*
U.S. Cl. 156—89 5 Claims



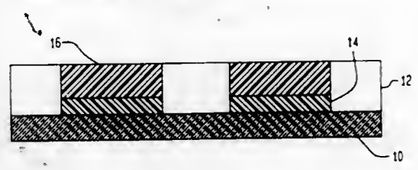
1. A process for producing a high-strength and high toughness sinter comprising a crystal agglomerate which maintains a fibrous shape in the sinter and is composed of crystals of SiC and MC_{1-x} wherein M is Ti and/or Zr and x is a number of 0 or more but less than 1, wherein sections of at least part of said crystal agglomerate maintaining the fibrous shape are deformed as will be able to most closely pack to fill up gaps which occur in said crystal agglomerate maintaining the fibrous shape, said process comprising
laminating inorganic fibers composed of inorganic material (i), (ii), or (iii) defined below, to form a laminate,
molding the laminate into a predetermined shape, and conducting heat-sintering simultaneously with the molding or after the molding in an atmosphere comprising at least one member selected from the group consisting of a vacuum, an inert gas, a reducing gas, and a hydrocarbon gas at a temperature of 1,700 to 2,200° C.;
(i) an amorphous substance consisting essentially of silicon, M, carbon, and oxygen,
(ii) an agglomerate comprising fine crystalline grains each having a diameter of 500 Å or less and essentially consisting of β-SiC, MC, a solid solution composed of β-SiC and MC and/or MC_{1-x} wherein SiO_y and MO_z, wherein $O<y$, $z\leqq 2$, may be present around these fine crystalline grains, and
(iii) a system comprising a mixture of said amorphous substance (i) with said agglomerate (ii); and
wherein said inorganic fibers are woven into a plain weave.

5,207,862
TECHNIQUE FOR EPITAXIAL GROWTH OF ORIENTED THIN FILMS OF POLYDIACETYLENES

Gregory L. Baker, Tinton Falls; Sin-Doo Lee, Eatontown, and Jayantilal S. Patel, Middletown, all of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.

Filed Sep. 8, 1989, Ser. No. 404,888
Int. Cl.[5] C30B *29/54*
U.S. Cl. 156—600 10 Claims

1. Method for the preparation of an oriented thin film polydiacetylene upon a substrate which comprises the steps of:
(a) depositing a thin film of an alignment layer upon said substrate,
(b) rubbing the surface of the alignment layer with a cloth, thereby inducing orientation therein,
(c) depositing a soluble film of a polydiacetylene upon the oriented alignment layer,

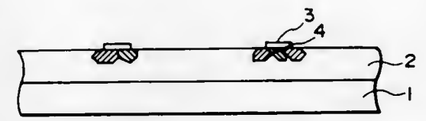


(d) heating the resultant assembly to a temperature above the glass transition temperature but just below the melting point of the polydiacetylene, and
(e) cooling the assembly to room temperature.

5,207,863
CRYSTAL GROWTH METHOD AND CRYSTALLINE ARTICLE OBTAINED BY SAID METHOD

Hideya Kumomi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 4, 1991, Ser. No. 680,528
Claims priority, application Japan, Apr. 6, 1990, 2-91655; Apr. 7, 1990, 2-92478
Int. Cl.[5] C30B *25/00*
U.S. Cl. 156—603 17 Claims

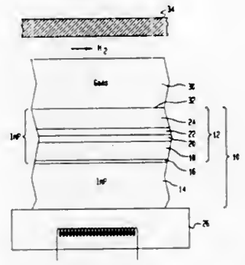


1. A crystal growth method for crystallizing an amorphous thin film, comprising heat-treating an amorphous thin film having a region (I) with a first film thickness and a region (II) with a second film thickness larger than said region (I) and having a sufficiently small area so as to form only a single nucleus from which a single crystal is grown by solid phase growth at a temperature not higher than the melting point of the film.

5,207,864
LOW-TEMPERATURE FUSION OF DISSIMILAR SEMICONDUCTORS

Rajaram Bhat, Red Bank, N.J., and Yu-hwa Lo, Ithaca, N.Y., assignors to Bell Communications Research, Livingston, N.J.

Filed Dec. 30, 1991, Ser. No. 814,147
Int. Cl.[5] H01L *21/306;* B44C *1/22;* B32B *31/20;* C09J *5/02*
U.S. Cl. 156—633 18 Claims

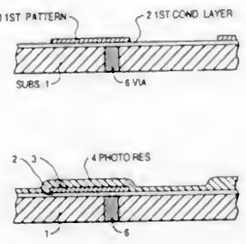


1. A fusion method, comprising the steps of:
placing a first surface of a first body comprising a first semi-

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conductor in contact with a second surface of a second body comprising a second semiconductor;
exposing said bodies to a fluid capable of reducing an oxide of at least one of said semiconductors; and
annealing said bodies placed in contact at a temperature not substantially higher than the lowest of respective temperatures of atomic rearrangement of said first and second semiconductors on said first and second surfaces respectively.

5,207,865
MULTILAYER STRUCTURE AND METHOD FOR FABRICATING THE SAME
Kazuaki Satoh, Hachioji, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Filed Mar. 8, 1991, Ser. No. 666,710
Claims priority, application Japan, Mar. 19, 1990, 2-69133
Int. Cl.[5] B44C *1/22*; B29C *37/00*; C23F *1/00*
U.S. Cl. 156—643 **12 Claims**



1. A method of fabricating a multilayer structure, comprising the steps of:
forming a first electrically conductive layer on an insulative substrate;
forming a first electrically conductive pattern on said first layer;
forming a resist layer over said first layer and said first pattern, said resist layer having a via hole therethrough communicating with said first pattern;
forming a conductive via lead in said via hole by electrically plating a metal therein utilizing said first layer as an electroplating lead during said plating operation, said conductive via lead thereby being formed in electrical contact with said first pattern;
removing said resist layer;
removing a predetermined portion of said first layer;
coating an insulative resin layer over said substrate, said first pattern and said via lead;
etching the surface of said resin layer at a location adjacent said via lead to selectively remove the resin layer until a top segment of said via lead protrudes to a predetermined height above the etched surface of said resin layer; and
forming a second electrically conductive pattern over said resin layer and over the protruding top segment of said via lead.

5,207,866
ANISOTROPIC SINGLE CRYSTAL SILICON ETCHING SOLUTION AND METHOD
Ping-Chang Lue, and Henry G. Hughes, both of Scottsdale, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jan. 17, 1991, Ser. No. 642,592
Int. Cl.[5] H01L *21/00*
U.S. Cl. 156—647 **8 Claims**

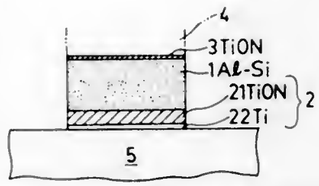
1. An electrochemical method of anisotropically etching single crystal silicon comprising the steps of:
providing single crystal silicon to be etched; and
anisotropically etching said silicon in an electrochemical bath having an etching solution consisting essentially of more than 20% by weight R_4NOH and solvent wherein R is an alkyl group having between 0 and 4 carbon atoms.

6. An electrochemical method of preferentially etching single crystal silicon having a <100> or <110> crystallographic orientation comprising the steps of:
providing single crystal silicon having a <100> or <110> crystallographic orientation to be etched; and
preferentially etching said silicon in an electrochemical bath having an etching solution consisting essentially of R_4NOH and H_2O wherein R is an alkyl group having between 0 and 4 carbon atoms and said solution comprises more than 20% R_4NOH by weight.

5,207,867
COMPOSITION AND METHOD FOR IMPROVING THE SURFACE INSULATION RESISTANCE OF A PRINTED CIRCUIT
John L. Cordani, Waterbury, Conn., assignor to MacDermid, Incorporated, Waterbury, Conn.
Filed Mar. 17, 1992, Ser. No. 852,791
Int. Cl.[5] B44C *1/22*; C23F *1/00*; C09K *13/08*
U.S. Cl. 156—651 **18 Claims**

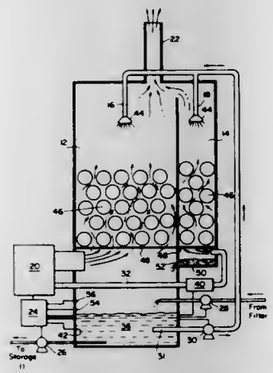
1. In a process for fabricating a printed circuit, wherein a printed circuit material, composed of an insulating substrate resin material having a thin metal cladding layer adhered to at least one surface thereof, is treated in order to strip or etch therefrom all or portions of said metal cladding layer to thereby expose said insulating substrate resin material in the course of providing a printed circuit material having a surface pattern of conductive areas and insulating areas composed of the insulating substrate resin material, the improvement comprising contacting said exposed insulating areas with a liquid treatment composition comprising an aqueous acidic solution containing fluoride ion, said contacting being for a time, and at conditions, effective to remove from the surface of said exposed insulating areas a sufficient quantity of metal species otherwise affixed to or associated with said surface so as to increase the surface insulation resistance of said exposed insulating areas relative to the surface prior to said contacting.

5,207,868
ETCHING PROCESS FOR FILMS OF ALUMINUM OR ITS ALLOYS
Keiji Shinohara, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Sep. 11, 1991, Ser. No. 757,642
Claims priority, application Japan, Sep. 11, 1990, 2-240486
Int. Cl.[5] H01L *21/00*
U.S. Cl. 156—656 **10 Claims**



1. A process for etching an aluminum-based film of a composite structure including a substrate with a barrier layer and the aluminum-based film being on the barrier layer, said process comprising the steps of:
(a) etching and patterning said aluminum-based film by using a plasma with a gaseous mixture until the barrier layer of said substrate is exposed, said gaseous mixture containing a hydrogen-donating gas in an amount of 10 to 99% by volume;
(b) then forming a protective film at two opposite sides walls of the resulting pattern by supplying an oxidation-imparting gas to the plasma; and
(c) then over-etching the barrier layer with said hydrogen-donating gas.

5,207,869
EVAPORATIVE REDUCTION OF WASTE LIQUID
H. David Harmoning, Andover, and Guy Marchesseault, Boxford, both of Mass., assignors to Clivus Multrum, Inc., Lawrence, Mass.
Filed Feb. 20, 1991, Ser. No. 658,193
Int. Cl.[5] B01D *1/00*; C02F *1/04*
U.S. Cl. 159—16.1 **13 Claims**



1. An evaporative method for reducing the volume of waste liquid, comprising the steps of:
a) introducing waste liquid to a first packed column, whereby the liquid passes through the first packed column and is collected in a reservoir;
b) introducing waste liquid to a second packed column, whereby the liquid passes through the second packed column and is collected in said reservoir;
c) forcing a gas in the same direction through the first packed column and the second packed column with a blower;
d) evaporating water from the waste liquid;
e) sensing the fluid level in the reservoir by a sensor; and
f) controlling by a control unit the activation of a heating element which, in response to the fluid level, heats only the gas forced through the second packed column.

13. An evaporative method for reducing the volume of waste liquid, comprising the steps of:
a) introducing waste liquid to a first packed column, whereby the liquid passes through the first packed column and is collected in a reservoir;
b) introducing waste liquid to a second packed column, whereby the liquid passes through the second packed column and is collected in said reservoir;
c) forcing gas in the same direction through the first packed column and the second packed column with a blower;
d) evaporating water from the waste liquid;
e) sensing the fluid level in the reservoir by a sensor;
f) controlling by a control unit the activation of a heating element which, in response to the fluid level, heats only the gas forced through the second packed column.
g) recalculating concurrently the waste liquid from the reservoir to the first packed column and second packed column with a distributor pump;
h) controlling operation of the distribution pump with the control unit such that the distributor pump is deactivated when the sensed fluid level in the reservoir drops below a predetermined level; and
i) controlling the operation of the blower with the control unit such that the blower is deactivated when the sensed fluid level in the reservoir drops below a predetermined level.

5,207,870
PROCESS AND EQUIPMENT FOR PRETREATMENT OF CELLULOSIC RAW MATERIAL
Osmo Abo, Kasurisentie 17, 37630 Valkeakoski, and Antti Abo, Helsinki, both of Finland, assignors to Osmo Abo, Valkeakoski, Finland
PCT No. PCT/FI89/00017, § 371 Date Aug. 7, 1990, § 102(e) Date Aug. 7, 1990, PCT Pub. No. WO89/07170, PCT Pub. Date Aug. 10, 1989
Continuation of Ser. No. 543,727, Aug. 7, 1990, abandoned. This PCT application Jan. 30, 1989, Ser. No. 789,638
Claims priority, application Finland, Feb. 8, 1988, 880560
Int. Cl.[5] D21C *1/10*
U.S. Cl. 162—53 **9 Claims**

1. A process for the pretreatment of cellulose chips, comprising the steps of:
(a) removing air from the cellulose chips by exposing the chips to subatmospheric pressure;
(b) contacting the chips from step (a) with a penetrating liquid having a temperature lower than the liquid's boiling point at said subatmospheric pressure, said contacting taking place within about 0.5 minute after said exposure to subatmospheric pressure in step (a) and under conditions such that a pressure gradient is maintained between the liquid and the fiber cavities; and
(c) exposing the chips and the liquid to a pressure of atmospheric or above within said 0.5 minutes and for a time sufficient to allow the solution to penetrate into the chips;
wherein said subatmospheric pressure in step (a) is from about 0.1 to about 0.5 bar, and wherein the penetrating liquid has a temperature of from about 35° to about 85° C.; and
wherein the cellulose chips, prior to removal of air in step (a), are substantially unmoistened.

5,207,871
PROCESS FOR MAKING TRANSPARENT PAPER USING A UV CURABLE COMPOSITIONS OF MALEATE, VINYL MONOMER AND AN ALLYL COMPOUND
Edward J. Murpby, Arlington Heights; Edward P. Zabora, Naperville, and Sami A. Shama, Hoffman Estates, all of Ill., assignors to DSM N.V., Netherlands
Filed Jun. 13, 1991, Ser. No. 714,856
Int. Cl.[5] D21H *19/28*
U.S. Cl. 162—164.7 **11 Claims**

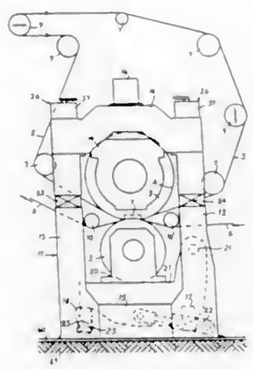
1. A process for making a transparent paper comprising:
impregnating paper stock with a liquid mixture consisting essentially of a liquid maleate polyester with a photoinitiator and at least one of a vinyl monomer, oligomer or polymer, and an allyl functional compound; and
polymerizing the liquid mixture in situ on the paper stock by exposing the impregnated paper stock to ultraviolet light.

5,207,872
PRESTRESSED PRESS FRAMEWORK FOR A PAPERMAKING MACHINE
Kjell S. E. Jansson, Forshaga, Sweden, assignor to Valmet-Karlstad AB, Sweden
Filed Aug. 16, 1991, Ser. No. 745,934
Claims priority, application Sweden, Mar. 29, 1990, 9002758
Int. Cl.[5] D21F *3/00*
U.S. Cl. 162—272 **12 Claims**

1. In a machine for the manufacture of a fibrous web; said machine including a press having framework, a first press member and a cooperating second press member; said press members being elongate and extending generally parallel to each other in the width direction of said machine; at least one

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of said press members being movable relative to the other of said press members in a loading/unloading direction to form a press nip with the other of said press members; at least one endless belt, one of said press members being located within the loop formed by said endless belt, said belt and said web passing together through said nip during operation of said machine; said framework of said press including first and second side frames extending in substantially parallel relationship to each other upon respective operational and drive sides of said machine, each of said side frames having two columns extending in parallel relationship to each other in a direction other than substantially perpendicular to said loading/unloading direction, one of said columns being located upstream of said press nip and the other of said columns being located downstream of said press nip, each of said columns on said operational side of said machine having a removable section intermediate its length for permitting exchange of said endless belt, the improvement comprising:



a plurality of prestressing means, each of said prestressing means being associated with a respective one of said columns for prestressing each of said columns axially with a compressive force at least substantially equal to the tensile force induced in said column by a maximum permissible press force in said nip, said prestressing means being structured and arranged for keeping said columns under axial compressive prestress during operation of said press, and each of said prestressing means associated with respective ones of said columns on said operational side of said machine including an elongate tension element having two parts, said two parts being disengageable from each other at a location proximate said removable column section, at least one of said two parts being axially displaceable, when disconnected from the other of said parts, to form at said location a gap permitting removal of said removable section of said column and exchange of said endless belt.

5,207,873

ANTI-CONTAMINANT TREATMENT FOR PAPERMAKING FABRICS

Mohan L. Sanduja, Flushing, and Paul Thottathil, New Hyde Park, both of N.Y., assignors to Huyck Corporation, Wake Forest, N.C.

Filed Apr. 17, 1992, Ser. No. 869,945

Int. Cl.[5] D21F *3/00*

U.S. Cl. 162—358.2 **7 Claims**

1. A papermaking fabric comprising an endless belt woven from interwoven machine direction yarns and cross machine direction yarns, said belt coated with an anti-contaminant coating of: 20–30 parts by weight polytetrafluoroethylene; 20–30 parts by weight urethane copolymer; 10–15 parts by weight polyacrylamide; 2–4 parts by weight acrylic copolymer; 0.5–1.5 parts by weight methylene bisacrylamide; 0.5–1.5 parts by weight polyaziridine crosslinker; 0.5–1.5 parts by weight methyl pyrolidone; 0.5–1.0 parts by weight ammonium persulfate 10% solution; 0.5–1.0 parts by weight sodium metabisulfite 10% solution; 0.5–1.0 parts by weight urea peroxide 0.1% solution; and 0.0005–0.001 parts by weight silver nitrate 0.1% solution, diluted to 1% solids solution and dried to cure the coating to the fabric.

5,207,874

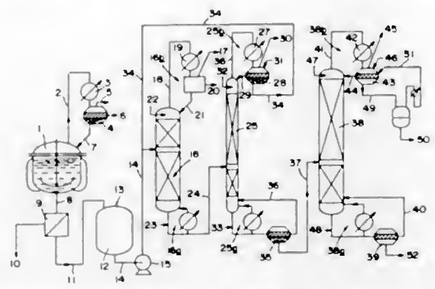
PROCESS FOR THE PURIFICATION OF GLYCIDYL (METH)ACRYLATE

Raymond Hess, and Christian Lacroix, both of Forbach, France, assignors to Atochem, Paris la Defense, France

Filed Jun. 20, 1991, Ser. No. 717,289

Int. Cl.[5] B01D *3/36*; C07D *301/32*

U.S. Cl. 203—8 **11 Claims**



1. A process for purification by distillation of glycidyl acrylate or methacrylate containing light products comprising epichlorohydrin and light impurities, and heavy impurities in a distillation zone comprising at least one column and at least one boiler, comprising:

in a first stage, a distillation of the glycidyl acrylate and methacrylate to be purified is conducted in the presence of a first solvent capable of forming a low boiling point heteroazeotrope with the light impurities and epichlorohydrin, so as to obtain a head fraction which consists essentially of a first solvent-light products heteroazeotrope;

in a second stage, the glycidyl acrylate or methacrylate thus freed from the light products is subjected to a distillation in the presence of a second solvent capable of forming a low boiling point heteroazeotrope with glycidyl acrylate or methacrylate, so as to obtain a head fraction consisting essentially of the second solvent and glycidyl acrylate or methacrylate thus freed from the heavy impurities,

said solvents being present, during these two distillations, throughout the distillation zone, including the boiler, and

in a third stage, separating the second solvent from said glycidyl acrylate or methacrylate freed from the heavy impurities.

5,207,875

SEAWATER PRE-DEAERATOR PROCESS FOR OPEN-CYCLE OCEAN THERMAL ENERGY CONVERSION APPLICATIONS

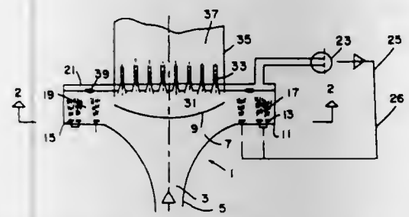
Manfred J. Zapka, and Hans-Jurgen Krock, both of Honolulu, Hi., assignors to University of Hawaii, Honolulu, Hi.

Division of Ser. No. 350,912, May 12, 1989, Pat. No. 5,096,544. This application Jan. 9, 1992, Ser. No. 803,069

Int. Cl.[5] B01D *3/06, 19/00*

U.S. Cl. 203—11 **9 Claims**

1. A method of deaerating seawater comprising the steps of supplying seawater to a reservoir, releasing seed bubbles of gas into the seawater supplied to the reservoir by means of gas injectors located at a bottom of the reservoir, bubbling the gas through the reservoir, withdrawing dissolved gas from the seawater in the reservoir with the bubbles to a top of the reservoir, removing the withdrawn gas from the reservoir by



means of a vacuum pump, recycling the removed gas by supplying the gas from the vacuum pump to the gas injectors, and flowing out deaerated seawater from the reservoir.

5,207,876

SEPARATION OF TETRACHLOROETHYLENE FROM THE LOWER ALCOHOLS BY EXTRACTIVE DISTILLATION

Lloyd Berg, 1314 S. 3rd Ave., Bozeman, Mont. 59715, and Zuyin Yang, Bozeman, Mont., assignors to Lloyd Berg, Bozeman, Mont.

Filed Jan. 17, 1992, Ser. No. 822,141

Int. Cl.[5] B01D *3/40*; C07C *17/38, 29/84*

U.S. Cl. 203—57 **14 Claims**

1. A method for recovering tetrachloroethylene from a mixture of tetrachloroethylene and methanol which comprises distilling a mixture of tetrachloroethylene and methanol in the presence of about one part of an extractive agent per part of tetrachloroethylene-methanol mixture, recovering the methanol as overhead product and obtaining the tetrachloroethylene and the extractive agent from the stillpot, wherein said extractive agent consists of one material selected from the group consisting of acetophenone, 2-heptanone, 3-heptanone, 5-methyl-2-hexanone, 2-octanone, 3,3-dimethyl-2-butanone, diisobutyl ketone, isobutyl heptyl ketone, 2,4-pentanedione, isophorone, acetonyl acetone, methyl benzoate, methyl salicylate, hexyl formate, isobutyl butyrate, hexyl acetate, amyl propionate, ethyl n-valerate, ethylene glycol butyl ether acetate, ethylene glycol ethyl ether acetate, diethylene glycol ethyl ether acetate, propoxypropanol, butoxypropanol, phenyl acetate, benzyl acetate dipropylene glycol methyl ether acetate, ethyl caproate and diethylene glycol diethyl ether.

5,207,877

METHODS FOR PURIFICATION OF AIR

Norman L. Weinberg, Amherst; John D. Genders, Lancaster, and Alfred O. Minklei, Grand Island, all of N.Y., assignors to Electrocinerator Technologies, Inc., Lancaster, N.Y.

Continuation-in-part of Ser. No. 138,441, Dec. 28, 1987, Pat. No. 5,009,869. This application Mar. 18, 1991, Ser. No. 670,885

Int. Cl.[5] B01D *53/00*

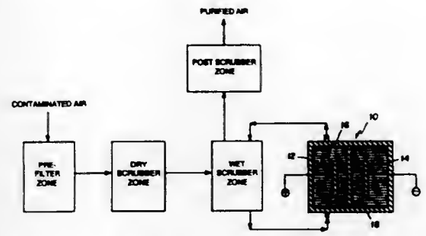
U.S. Cl. 204—130 **28 Claims**

1. A method for purification of air and destruction of pollutants therein in which comprises the steps of:

(a) providing an air purification system comprising a wet scrubber zone in combination with an electrolyzer zone, and an aqueous scrubber liquid-electrolyte circulating between said electrolyzer and scrubber zones comprising an electrochemically regeneratable degradant and a pollutant solubilizing agent;

(b) cleaning polluted air by dissolving pollutants into said scrubber liquid-electrolyte and impressing a voltage across said electrochemical cell;

(c) converting said pollutants in said scrubber liquid-electrolyte to substances of lesser toxicity or hazard, and



(d) reactivating said electrochemically regeneratable degradant in said scrubber liquid-electrolyte for further cleaning of polluted air.

5,207,878

METHOD FOR THE PREPARATION OF FINE PARTICULATE METAL-CONTAINING COMPOUND

Nobuo Shimo, and Masato Fujita, both of Chiba, Japan, assignors to Idemitsu Kosan Company Limited, Chiba, Japan

Division of Ser. No. 463,392, Jan. 11, 1990, Pat. No. 5,064,517. This application Jul. 10, 1991, Ser. No. 728,182

Claims priority, application Japan, Jan. 18, 1989, 1-7755; Jun. 14, 1989, 1-149706

Int. Cl.[5] C01B *9/00*

U.S. Cl. 204—157.41 **9 Claims**

1. A method for the preparation of a metal halide in fine particulate form which comprises the steps of:

(a) admixing a vapor of an exothermically decomposable organometallic compound having a density of molecules of the compound of at least 10^{15} molecules per cm^3 in the vapor phase with a reactant compound which is a halogen compound selected from the group consisting of molecular halogens, methyl halides and mixtures thereof; and

(b) irradiating at least a part of the vapor phase with laser beams in a pulse having a width not exceeding 1×10^{-3} seconds, and an energy density of at least 10^{-4} joules per cm^2 so as to produce activated species of the organometallic compound which starts an exothermic chain of the organometallic compound with the reactant compound to form the fine particles of the metal halide.

5,207,879

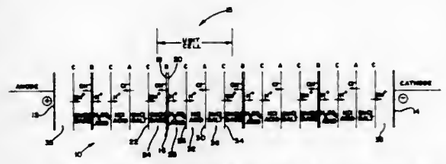
BIPOLAR MEMBRANE STACK AND METHOD FOR PRODUCTION OF LOW CHLORIDE SODIUM HYDROXIDE

Donald J. Butterworth, Stirling, N.J., assignor to The Graver Company, Union, N.J.

Filed Mar. 11, 1991, Ser. No. 667,542

Int. Cl.[5] B01D *61/00*

U.S. Cl. 204—182.4 **11 Claims**



3. A method of generating a product acid solution and a product base solution by electrodialysis of a salt solution which comprises:

using an electrodialysis cell comprising an anode and a

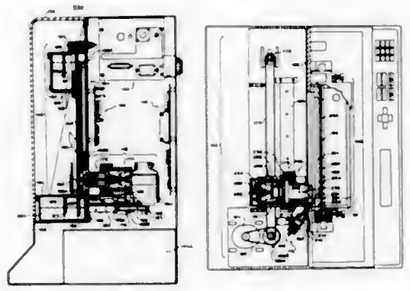
VOL 1150 ISS 1 MY 4 1993 UMI

cathode and a unit cell defining a plurality of flow channels disposed between the anode and cathode;
circulating a base solution through a first channel formed by a first cation-selective membrane and the anion-selective face of a bipolar membrane;
circulating a a second solution through a second channel formed by a second cation-selective membrane and the anion-selective face of the bipolar membrane;
circulating an acid solution through a third channel formed by a anion-selective membrane and the second cation-selective membrane;
circulating a salt solution through a fourth channel formed by a third cation-selective membrane and the anion-selective membrane; and
applying a direct current across the anode and cathode.

5,207,880
DNA SEQUENCING

Lyle R. Middendorf, and John A. Brumbaugh, both of Lincoln, Nebr., assignors to The Board of Regents of the University of Nebraska, Lincoln, Nebr.

Continuation-in-part of Ser. No. 78,279, Jul. 27, 1987, abandoned, which is a division of Ser. No. 594,676, Mar. 29, 1984, Pat. No. 4,729,947. This application Aug. 21, 1990, Ser. No. 570,503
Int. Cl.[5] G01N *27/26;* B01D *57/02*
U.S. Cl. 204—182.8 12 Claims

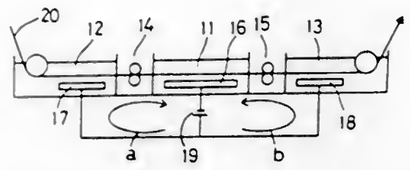


1. A method for sequencing DNA comprising:
applying flourescently marked DNA samples at a plurality of locations for electrtophoresing in a plurality of channels through a gel electrophoresis slab;
establishing electrical potential across said gel electrophoresis slab wherein DNA samples are resolved in accordance with the size of DNA fragments in said gel electrophoresis slab into fluorescently marked DNA bands;
scanning the separated sampled photoelectrically with a laser and a sensor wherein the laser scans with scanning light at a scanning light frequency within the absorbance spectrum of said fluorescently marked DNA samples and sensing light at the emission frequency of the marked DNA;
modulating said light from said laser at a predetermined modulation frequency;
detecting fluorescent light emitted by said DNA bands at said modulation frequency, whereby background noise from the medium through which the light is transmitted may be discriminated against;
said step of modulating including the step of modulating said light at a frequency with the band between 100 hertz to 30 kilohertz.

5,207,881
APPARATUS FOR CONTINUOUS ELECTROLYTIC TREATMENT OF ALUMINUM ARTICLE

Nobuyoshi Kaneko, and Tsutomu Kakei, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Mar. 9, 1992, Ser. No. 848,526
Claims priority, application Japan, Mar. 7, 1991, 3-041929
Int. Cl.[5] C25D *17/00*
U.S. Cl. 204—211 8 Claims

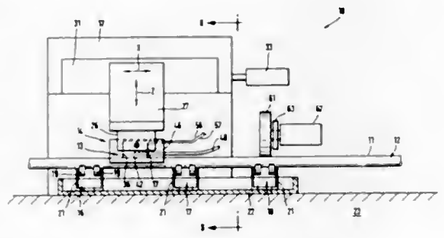


1. An apparatus for continuous electrolytic treatment of an article of aluminum or an alloy thereof wherein the article moves from an upstream end to a downstream end of the apparatus, the apparatus comprising an electrolytic part, a pre-stage power supply part provided upstream of the electrolytic part, a post-stage power supply part provided downstream of the electrolytic part and a direct current power source, at least one electrode in the pre-stage power supply part and at least one electrode in the post-stage power supply part being connected with one pole of the power source, and at least one electrode of the electrolytic part being connected with the other pole of the power source.

5,207,882
APPARATUS FOR ELECTROCHEMICAL MARKING OF WORKPIECES

Saulius Baublys, Auf der Schutte 19, D-7148 Remseck 1, and Ludwig Rommel, Salonalles 21, D-7140 Ludwigsburg, both of Fed. Rep. of Germany

Filed Dec. 3, 1991, Ser. No. 800,322
Claims priority, application Fed. Rep. of Germany, Dec. 5, 1990, 4038717
Int. Cl.[5] C25D *17/00;* C25F *7/00;* B23H *9/06*
U.S. Cl. 204—212 11 Claims

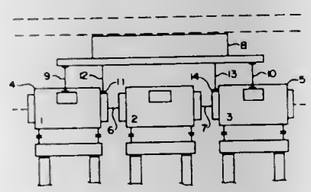


1. An apparatus for the electrochemical marking of a metallic surface of a workpiece, adapted for connection to one pole of a voltage source, comprising:
a tool including at least one metallic pin having a writing end, said at least one pin adapted for connection with the other pole of the voltage source, and a tool holder of an electrically non-conducting material, said at least one pin being mounted in said tool holder;
means for moving the tool holder relative to the workpiece; and
means for urging the tool holder toward the surface of the workpiece to be marked with a preset force, wherein:
an area of the underside of the tool holder is adapted to the shape of the workpiece surface to be marked, said area being provided with at least one electrolyte outlet opening from which electrolyte emerges under pressure, said electrolyte being situated between said underside and the workpiece surface to be marked; and
the at least one pin being disposed with its writing end flush with the area of the underside of the tool holder, adjacent the electrolyte outlet opening.

5,207,883
JUMPER SWITCH MEANS

Pierluigi A. V. Borrione, Milan; Maurizio Marzupio, Capriate San Gervasio, both of Italy, and Gregory J. E. Morris, Midland, Mich., assignors to De Nora Permelec S.p.A., Italy

Continuation-in-part of Ser. No. 751,340, Aug. 29, 1991, abandoned. This application Jul. 9, 1992, Ser. No. 910,246
Claims priority, application Italy, Dec. 21, 1990, 22510; European Pat. Off., Dec. 20, 1991, 91122025.9
Int. Cl.[5] C25B *9/04*
U.S. Cl. 204—228 11 Claims

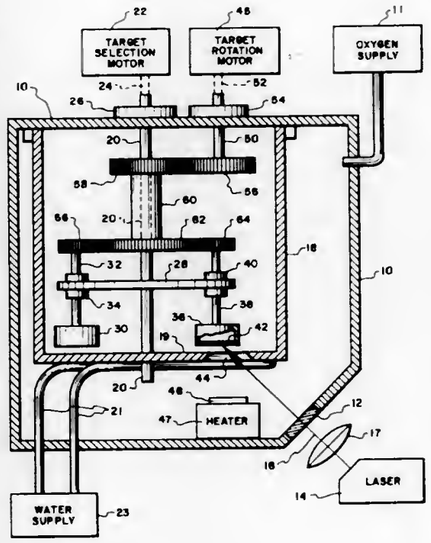


1. A jumper switch means for electrically by-passing a monopolar electrolyzer out of a plurality of monopolar electrolyzers connected in series to an electrical power source, which electrolyzers consist of individual electrolysis cells each having anodic and cathodic contact points, said jumper switch means comprising an internal circuitry and a multiplicity of extension arms for connection to the electrolyzers immediately preceding and following the electrolyzer to be by-passed, characterized in that said jumper switch means is positioned above said plurality of electrolyzers, said multiplicity of extension arms comprises first extension arms suitable for connection to the anodic contact point of each individual cell of the electrolyzer immediately preceding the electrolyzer to be by-passed, second extension arms suitable for connection to the cathodic contact point of each individual cell of the electrolyzer immediately following the electrolyzer to be by-passed, said first and second extension arms being joined to said internal circuitry to provide by-passing of the electrolyzer without a shift of electrical current in the adjacent cells of the electrolyzers immediately preceding and following the electrolyzer to be by-passed, said connections between the extension arms and the anodic and cathodic contact points being of the friction-type.

5,207,884
SUPERCONDUCTOR DEPOSITION SYSTEM

Kookrin Char, Palo Alto; Nathan Newman, Montara, botb of Calif., and John M. Rowell, Berkeley Heights, N.J., assignors to Conductus, Inc., Sunnyvale, Calif.

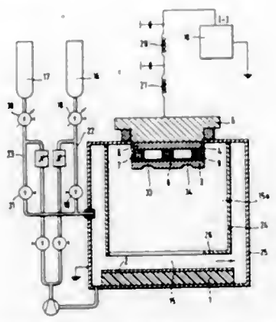
Filed Dec. 24, 1990, Ser. No. 633,275
Int. Cl.[5] B05D *3/06;* C23C *14/00*
U.S. Cl. 204—298.02 5 Claims



1. A deposition system to vaporize materials onto a substrate comprising in combination:
a chamber having a portion transparent to a laser beam;
a laser positioned to direct a beam through said transparent portion to a focus point at a first location inside said chamber;
support means inside said chamber;
first rotatable shaft means inside said chamber and carried by said support means;
a plurality of rotatable target carriers mounted on said first shaft means for rotation therewith into position at said first location, said target carriers being rotatable in planetary bearings, which planetary bearings are disposed in the periphery of a disc member, said disc member mounted on said first shaft means for rotation therewith; and
target carrier rotating means connected to said carriers so as to rotate said carriers during said vaporization by said laser beam and move the surface of targets in said target carriers through said focus point at said first location, said carrier rotating means including a sun gear concentrically surrounding said first shaft means for rotation thereabout, said sun gear engaging and turning planetary gears connected to said carriers and also including a tubular shaft concentrically surrounding said first shaft means and connected to said sun gear, and further including a second gear on said tubular shaft engaging and driven by a drive gear connected to a second shaft means.

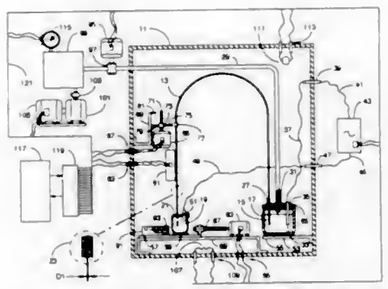
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5,207,885
TARGET FOR REACTIVE SPUTTERING
Reiner Seiler, Hanau, Fed. Rep. of Germany, assignor to Leybold Aktiengesellschaft, Hanau I, Fed. Rep. of Germany
Filed Nov. 7, 1991, Ser. No. 790,417
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1991, 4131181
Int. Cl.[5] C23C *14/34*
U.S. Cl. 204—298.13 4 Claims



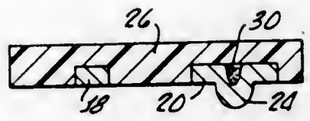
1. Target for reactive sputtering in a vacuum coating apparatus, said target consisting of at least one of tin and lead doped with 20 to 200 ppm gallium and 2 to 20 ppm phosphorus.

5,207,886
CAPILLARY ELECTROPHORESIS
Henk H. Lauer, Belmont; Paul D. Grossman, Redwood City, and Dennis E. Mead, Campbell, all of Calif., assignors to Applied Biosystems, Inc., Foster City, Calif.
Continuation of Ser. No. 463,796, Jan. 5, 1990, abandoned, which is a continuation of Ser. No. 156,430, Feb. 16, 1988, abandoned. This application Sep. 27, 1991, Ser. No. 767,345
Int. Cl.[5] G01N *27/26, 27/447*; B01D *57/02*
U.S. Cl. 204—299 R 3 Claims



1. An apparatus for capillary electrophoresis comprising:
a capillary tube in which to electrophorese a sample;
high voltage power supply means for providing an electrical potential difference between opposite ends of said capillary tube;
injection means for injecting said sample into said capillary tube;
heating means for heating said capillary tube;
detection means for detecting said sample in said capillary tube;
first reservoir means for holding a first volume of an electrophoretic solution;
second reservoir means for holding a second volume of an electrophoretic solution;
holding means for holding said capillary tube, said high voltage power supply means, said injection means, said heating means and said detection means, for holding said first reservoir means in proximity of a first end of said capillary tube, and for holding said second reservoir means in proximity of a second end of said capillary tube.

5,207,887
SEMI-ADDITIVE CIRCUITRY WITH RAISED FEATURES USING FORMED MANDRELS
William R. Crumly, Anaheim; Christopher M. Schreiber, Newport Beach, and David B. Swarbrick, El Toro, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.
Filed Aug. 30, 1991, Ser. No. 753,400
Int. Cl.[5] C25D *1/20*
U.S. Cl. 205—78 17 Claims



1. A method of making a multi-layer circuit having raised features comprising the steps of:
forming a mandrel having at least one depression therein,
coating said mandrel and depression with an electrically conductive material such that said coating is readily separable from said mandrel and said depression,
additively forming a pattern of circuit traces on said coating and in said depression,
laminating a dielectric substrate to said traces and depression, wherein said coating effectively blocks said dielectric substrate from adhering to said mandrel,
removing said traces, said substrate and said coating from said mandrel, said step of additively forming comprising forming a raised feature that projects from the plane of said circuit traces, and
removing said coating from said traces, said raised feature and said substrate after the step of removing from said mandrel.

5,207,888
ELECTROPLATING PROCESS AND COMPOSITION
John J. Bladon, Wayland, Mass., assignor to Shipley Company Inc., Newton, Mass.
Filed Jun. 24, 1991, Ser. No. 719,978
Int. Cl.[5] C25D *5/02, 5/54*
U.S. Cl. 205—125 15 Claims

1. A method for electroplating a nonconductor comprising the steps of contacting the surface of the nonconductor to be plated with a preformed colloid of a catalytic metal chalcogenide and metal plating the surface of the nonconductor by passing a current between electrodes immersed in an electrolyte containing dissolved plating metal where one of said electrodes comprises said nonconductor to be plated.

5,207,889
METHOD OF PRODUCING TREATED COPPER FOIL, PRODUCTS THEREOF AND ELECTROLYTE USEFUL IN SUCH METHOD
Adam M. Wolski, Edgewater Park, N.J.; Laurette M. Maguet, Le Moulin, Luxembourg, and Michel Streel, Mabompre, Belgium, assignors to Circuit Foil USA, Inc., Bordentown, N.J.
Filed Jan. 16, 1991, Ser. No. 641,922
Int. Cl.[5] C25D *3/58, 7/06*
U.S. Cl. 205—155 12 Claims

1. A method of treating copper foil comprising forming on at least one side thereof an electrodeposited metallic barrier layer comprising about 65–80 weight % copper, about 20–35 weight % zinc and about 2–5 weight % antimony.

5,207,890
USE OF BARIUM CHROMATE AS A SULFATE SCAVENGER IN CHROMIUM ELECTROPLATING BATHS
Kenneth R. Newby, 77 Sycamore Ave., Berkeley Heights, N.J. 07922-1614; Allen R. Jones, 6 Wells Rd., Flemington, N.J. 08822-1976, and John Meng, 32265 Corte Chatada, Temecula, Calif. 92390-6320
Filed Jun. 13, 1991, Ser. No. 714,818
Int. Cl.[5] C25D *3/04, 3/06, 21/18*
U.S. Cl. 205—283 21 Claims

1. In a chromium-plating bath for the electrodeposition of chromium onto a conductive substrate consisting essentially of chromic acid and sulfate ion, the improvement which comprises the addition of a compound selected from the group consisting of barium chromate, barium dichromate and mixtures thereof as a sulfate-ion scavenger.

5,207,891
COMPOSITION OF MATTER FOR OLIGOMERIC ALIPHATIC ETHER ASPHALTENES AS ASPHALTENE DISPERSANTS
Rodney L. Sung, Fishkill, N.Y.; Thomas F. DeRosa, Passaic; David A. Storm, Montvale, both of N.J., and Benjamin J. Kanfman, Hopewell Jct., N.Y., assignors to Texaco Inc., White Plains, N.Y.
Filed Dec. 30, 1991, Ser. No. 814,536
Int. Cl.[5] C10C *3/02*; C10L *1/26*
U.S. Cl. 208—44 1 Claim

1. A composition of matter comprising a mixture of:
(a) poly[P,P'-(propylene oxide-400)phosphite) poly[di(propylene oxide--400)diol)]]-P,P'diasphalenate;
(b) poly[P,P'-(propylene oxide-400)phosphite -poly[di(propylene oxide--1000) diol)]]-P,P'-diasphalenate;
(c) Poly[P,P'-(propylene oxide-400)phosphite) -poly(propylene oxide-400-poly(propylene oxide-1000)diol)]]-P-P'-diasphalenate
(d) Poly[P,P'-(propylene oxide-1 000)phosphite -poly[di(propylene oxide-400) diol)]]-P,P'-diasphalenate;
(e) poly[P,P'-(propylene oxide-1000)phosphite) poly[di(propylene oxide-1000)diol)]]-P,P'-diasphalenate;
(f) poly[P,P'(propylene oxide-1000) phosphite) poly[di([propylene oxide-400-poly (propylene oxide-1000)diol)]]-P,P'-diasphaltenate;
(g) cyclo[P,P'-di(polypropylene oxide-400)phosphite]-P,P'-diasphaltenate;
(h) cyclo[P,P'-di-(polypropylene oxide-1000) phosphite]-P,P'-diasphaltenate;
(i) cyclo[P,P'-(polypropyleneoxide-400)-(polypropyleneoxide-1000)-phosphite]-P,P'diasphaltenate;
(j) poly[(dipropyleneoxide-400)phosphite) diol]asphaltenate;
(k) poly[dipropyeneoxide-1000) phosphite)diol]asphaltenate;
(l) poly[(propyleneoxide-400)-propyleneoxide-1000)phosphite
(m) poly[cyclo(propyleneoxide-400)phosphite]asphaltenate; and
(n) poly[cyclo(propyleneoxide-1000) phosphite]asphaltenate.

5,207,892
HYDROCARBON CONVERSION PROCESS EMPLOYING A MODIFIED FORM OF ZEOLITE
James G. Vassilakis, New York, and Donald F. Best, Mahopac, both of N.Y., assignors to UOP, Des Plaines, Ill.
Continuation-in-part of Ser. No. 417,611, Oct. 5, 1989, Pat. No. 5,013,699, which is a continuation-in-part of Ser. No. 178,901, Apr. 7, 1988, abandoned. This application Dec. 24, 1990, Ser. No. 633,544
Int. Cl.[5] C10G *47/02*
U.S. Cl. 208—111 8 Claims

1. Process for hydroconversion which comprises contacting a hydrocarbon feedstock in the presence of added a hydrogen under hydroconversion conditions with a catalyst composition which comprises a metal hydrogenation component and a modified form of zeolite Y prepared by
(a) ammonium ion-exchanging zeolite Y to lower its sodium content to less than 3.0 weight percent;
(b) hydrothermal steaming the low-sodium product of step (a) at a temperature of 550° to about 850° to reduce the unit cell dimension;
(c) contacting the steamed product of step (b) with a sufficient amount of an aqueous solution of ammonium ions having a pH of less than about 4.0 for a sufficient time to exchange at least some of the residual sodium cations for ammonium ions and to increase the bulk Si/Al_2 molar ratio of the zeolite composition to the range of 6.5 to 20.

5,207,893
HYDROCRACKING PROCESS EMPLOYING A NOVEL IRON-CONTAINING ALUMINOSILICATE
Ryuichiro Iwamoto, and Satoshi Nakai, both of Sodegaura, Japan, assignors to Research Association for Residual Oil Processing, Tokyo, Japan
Division of Ser. No. 468,102, Jan. 22, 1990, Pat. No. 5,141,737. This application Feb. 11, 1992, Ser. No. 833,709
Claims priority, application Japan, Feb. 7, 1989, 1-026770; Oct. 16, 1989, 1-264843
Int. Cl.[5] C10G *47/02*
U.S. Cl. 208—111 15 Claims

1. A process for hydrocracking heavy oil which comprises hydrocracking the heavy oil in the presence of a catalyst comprising a support of 10 to 90% by weight of an iron-containing aluminosilicate and 90 to 10% by weight of an inorganic oxide, and at least one metal belonging to Group VIB of the Periodic Table and at least one metal belonging to Group VIII deposited on the support, said iron-containing aluminosilicate having a composition of the formula expressed as oxides:

$$aFe_2O_3 \cdot Al_2O_3 \cdot bSiO_2 \cdot nH_2O$$

wherein n is a real number of 0 to 30, and a and b are real numbers satisfying the following relationships:

$$15 < b < 100,\ 0.005 < a/b < 0.15;$$

having an inert iron compound content, $(Fe)_{dep}$, as calculated by a temperature programmed reduction, of not more than 35% of the total iron content; and
when subject to a temperature programmed reduction, at least one temperature of a high-temperature reduction peak, Th (°C.), within the following equation:

$$700°\ C. \leqq Th \leqq (-300 \times UD + 8{,}320)°C.$$

wherein UD is a lattice constant (Å) of the iron-containing aluminosilicate, and
said iron-containing aluminosilicate is prepared by
(a) steam treating an aluminosilicate having a silica to alumina molar ratio of at least 3.5/1 to obtain a steam treated aluminosilicate,
(b) contacting the steam treated aluminosilicate with a mineral acid, and
(c) then contacting the steam treated aluminosilicate with an iron salt in the presence of said mineral acid without washing, drying or calcining after step (b).

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5,207,894

REMOVAL OF AROMATIC COLOR BODIES FROM AROMATIC HYDROCARBON STREAMS

Stewart H. Presnall; Robert J. Haynal; Beverly B. Slimp, Jr., all of Houston; Martin P. Grosboll, Kingwood, and Pamela A. Yanchik, Houston, all of Tex., assignors to Lyondell Petrochemical Company, Houston, Tex.

Continuation-in-part of Ser. No. 596,478, Oct. 12, 1990, Pat. No. 5,081,325, and a continuation-in-part of Ser. No. 596,870, Oct. 12, 1990, abandoned. This application Oct. 11, 1991, Ser. No. 775,339

The portion of the term of this patent subsequent to Jan. 14, 2009, has been disclaimed.

Int. Cl.[5] C01G *25/00*

U.S. Cl. 208—299 7 Claims

1. A process for removing aromatic color bodies from a hydrocarbon resin oil stream comprising 60% or more of C_{8-11} aromatics and having a boiling range between 160°–460° F. comprising the steps of contacting said hydrocarbon resin oil stream with an adsorbent consisting essentially of a neutral attapulgite clay for a time sufficient to purify said hydrocarbon resin oil stream, and collecting a purified resin oil.

5,207,895

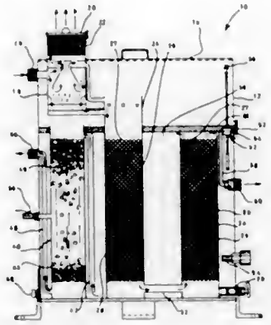
OIL/WATER SEPARATOR

Sanjiv K. Basseen, Oak Ridge; Devendra K. Sahu, and Masoud Zarif, both of Knoxville, all of Tenn., assignors to Pioneer Air Systems, Inc., Morgan County, Tenn.

Filed Jun. 15, 1992, Ser. No. 898,319

Int. Cl.[5] C02F *1/40*; B01D *17/022, 15/00*

U.S. Cl. 210—95 19 Claims



19. An oil/water separator for removing oil substances from water containing the same, said separator comprising:

a containment vessel, said vessel having a vertical axis, said vessel defined by a cylindrical peripheral wall and a bottom wall, and being provided with a removable cover member;

an air/liquid separator mounted within said vessel, said air/liquid separator having an air discharge exterior said vessel and a liquid outlet, said air discharge provided with a vapor adsorber therein to prevent escape of vapors with exiting air;

an inlet, for receiving said water containing said oil substances, communicating with said air/liquid separator;

a first vertical coalescing column within said vessel having an upper end in fluid communication with said liquid outlet of said air/liquid separator, and a lower end;

a second vertical coalescing column within said vessel having a lower end in fluid communication with said lower end of said first coalescing column, and an upper end in fluid communication with an interior of said vessel to discharge water and coalesced oil into said vessel for gravity separation to achieve a layer of oil phase on a water phase within said vessel;

a randomly-oriented packing of fiberglass pad within said first and second coalescing columns, said fiberglass pad encased within porous mesh bags to facilitate loading and unloading said coalescing columns;

a vertical adsorber column within said vessel having a first end in communication with said water phase in said vessel proximate said bottom wall and with a second end in fluid communication with a water outlet from said vessel;

a packing of activated carbon pellets within said adsorber column for removing traces of oil from said water phase;

a skimmer means positioned in communication with said oil phase to draw at least a portion of said oil phase, said skimmer means having a skimmer cup in communication with an oil outlet from said vessel and means for adjusting an elevation of said skimmer cup to control an amount of oil directed to said oil outlet;

a sight glass window in said peripheral wall proximate said skimmer cup to observe an elevational position of said skimmer cup for optimum removal of said oil phase;

a drain communicating with said interior of said vessel for selectively draining liquids from said vessel; and

a further drain communicating with said coalescing columns for selectively draining liquids from said coalescing columns.

5,207,896

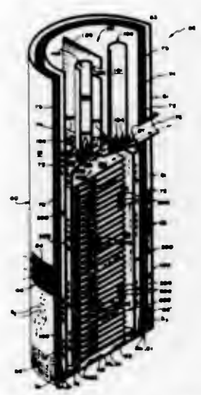
WASTEWATER TREATMENT MECHANISM

Jan D. Graves, Norwalk, Ohio, assignor to Norwalk Wastewater Equipment Company, Norwalk, Ohio

Filed Feb. 9, 1990, Ser. No. 477,389

Int. Cl.[5] C02F *3/06*

U.S. Cl. 210—109 134 Claims



121. A wastewater treatment tank comprising a wastewater treatment chamber, means for introducing wastewater into said wastewater treatment chamber, a solids settling chamber within said wastewater treatment chamber, means for conducting wastewater from said wastewater treatment chamber into said solids settling chamber, filtering means forming a part of said solid settling chamber through which wastewater passes for separating larger and smaller solids between first upstream and second downstream side-by-side generally vertically disposed settling zones on opposite sides of said filter means, means for conducting wastewater from said solids settling chamber exteriorly of said wastewater treatment chamber, and means for chlorinating the wastewater prior to settling out solids therefrom by said settling means and before the wastewater exits the wastewater treatment chamber.

5,207,897

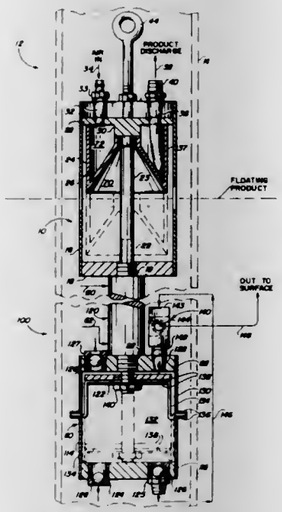
FLOATING HYDROCARBONS SEPARATOR PUMP WITH BUOYANT HOUSING AND TWO-CHAMBER VERTICALLY MOVEABLE MEMBER

William E. Baird, 55 Red Gate La., Cohasset, Mass. 02025, and Peter J. Tolan, 30 Greenfield La., Scituate, Mass. 02066

Filed May 20, 1991, Ser. No. 702,752

Int. Cl.[5] C02F *1/40*

U.S. Cl. 210—109 25 Claims



1. A hydraulic separator system for recovering floating hydrocarbons from a water surface comprising:

a buoyant housing having an encompassing side wall with top and bottom closures, said side wall having at least one opening bridging the water surface for admitting surface water and floating product into said housing;

a linear actuator mounted to said housing and having a vertically oriented actuator rod extending into the housing;

means for coupling a vertically movable member situated within said housing to said actuator rod for vertical movement relative to said housing between an upper position above a surface and a lower position in which the member is partially submerged;

said member, having a cylindrical side wall and closed at the bottom by an inwardly tapering wall extending upwardly within the side wall to a position below an upper end of the cylindrical side wall, said inwardly tapered end wall dividing said member into a first chamber above said end wall and a second chamber below said end wall;

means defining at least one opening extending through said inwardly tapering end wall to communicate between said chambers;

a sealing surface extending along said top closure within said housing and having a configuration shaped to seal the upper end of the cylindrical side wall and the at least one opening in said end wall when the member is in the upper position, thereby closing said first chamber;

means for pressurizing said first chamber when said member is in the upper position; and

means including a pickup tube extending into said first chamber through said top closure for removing liquid collected in said first chamber upon pressurization thereof.

5,207,898

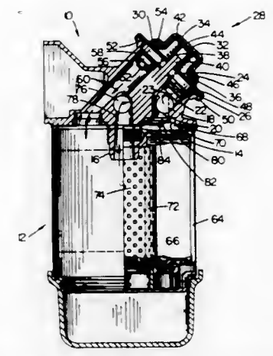
FILTER HEAD WITH INTEGRAL PRIMING PUMP AND VALVED BYPASS PASSAGE

David H. Hodgkins, Modesto, Calif., assignor to Parker Hannifin Corporation, Cleveland, Ohio

Filed Mar. 11, 1992, Ser. No. 849,264

Int. Cl.[5] B01D *35/147, 35/153*

U.S. Cl. 210—136 12 Claims



1. A filter head including means for mounting a replaceable filter and separator element thereon, for removing impurities from liquid flowing therethrough, said filter head including priming means for filling said element with liquid and displacing air therefrom subsequent to replacement of said element, said element having a liquid in-flow area for accepting incoming liquid and air and a liquid out-flow are for delivering liquid and air that has been passed through the element, said filter head and priming means comprising:

an inlet in fluid communication with a supply of liquid;

a first fluid chamber in fluid communication with said inlet;

a second chamber;

pumping means in fluid connection with said second chamber for alternatively drawing a vacuum and applying fluid pressure in said second chamber under control of an operator;

first fluid passage means for passing liquid and air form said first chamber to said second chamber;

first check valve means in operative connection with said first fluid passage means for permitting flow of liquid and air though said first fluid passage means only from said first chamber to said second chamber;

second fluid passage means for passing liquid and air form said second chamber to said in-flow area of said element;

second check valve means in operative connection with said second fluid passage means for permitting flow of liquid and air through said second fluid passage means only from said second chamber to said liquid in-flow are of said element;

and wherein an improvement comprises:

third fluid passage means for passing liquid and air form said first chamber to said in-flow area of said element; and

third check valve means inoperative connection with said third fluid passage means for permitting flow of liquid and air through said third fluid passage means only from said first chamber to said in-flow area of said element;

said third check valve means being operative to automatically prevent flow through said third fluid passage means in response to said pumping means applying fluid pressure, and in response to a vacuum being drawn by said pumping means, to automatically enable flow through said third fluid passage means.

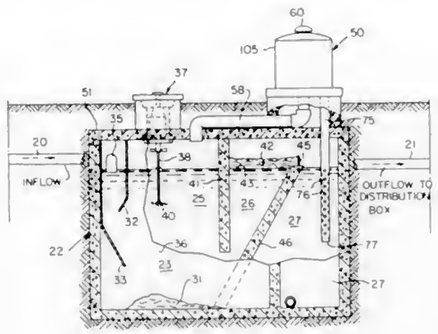
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,899

ROTATING BACTERIAL TABLET DISPENSER FOR AN UNDERGROUND WASTEWATER DENITRIFICATION SYSTEM

Gregory Boyle, 16 Stonebridge Rd., Cherry Hill, N.J. 08003

Division of Ser. No. 661,968, Feb. 28, 1991. This application Feb. 10, 1992, Ser. No. 833,229
Int. Cl.[5] C02F 1/00
U.S. Cl. 210—138 4 Claims



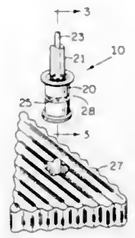
1. Apparatus for use in conjunction with a process for treating sewage in an underground enclosure, said sewage being
(a) from an individual home at the home site and having been previously subjected to primary settling, aeration and secondary settling;
(b) that utilizes ground temperature in the process;
(c) that also utilizes bacteria that are deposited periodically into said underground enclosure from an outside source;
(d) in combination with said underground enclosure, a dispenser for periodically depositing bacteria in tablet form into said underground enclosure comprising:
(1) a support column;
(2) a horizontal sheet fixed on the support column and having an opening at a given radius from the support column,
(3) a horizontal disk journalled on the support column and free to rotate thereon
(a) having a plurality of openings circumferentially spaced at a radius from the support column conforming to the radius of the opening in said horizontal sheet fixed to the support column,
(b) resting on said horizontal sheet and free to rotate thereon, and
(c) having a loading column over each opening for receiving bacteria tablets,
(4) a drive motor for rotating the horizontal disk,
wherein
one of said openings in the horizontal disk periodically aligns with the opening in the horizontal sheet permitting a tablet to drop through the opening in the sheet,
means for supporting the tablets above the bottommost tablet in the loading column when the opening in the stationary sheet and the rotating disk are aligned,
said drive motor being of the actuator type and having a drive arm that oscillates in one direction in a driving action on the rotating disk, and in a reverse direction in a non-driving action on the rotating disk,
said support column being a pipe that also serves as vent means in the otherwise closed underground system of sewage treatment.

5,207,900

SPONGE AQUARIUM FILTER

Christopher L. Findell, Cibolo, Tex., assignor to Jungle Laboratories, Cibolo, Tex.

Filed May 8, 1991, Ser. No. 697,268
Int. Cl.[5] A01K 63/04
U.S. Cl. 210—169 4 Claims



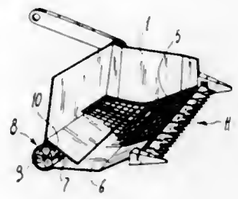
1. An apparatus for fish aquariums comprising:
a core structure comprised of an outer circular groove surrounding an air line stem and bubble tube stem, and means to weigh down said core structure;
a sponge member enclosing said outer circular groove;
an elongated bubble tube connected to said bubble tube stem; and
an air line inserted into said bubble tube and connected to said air line stem such that air is supplied from a pump means to said air line and is transmitted via said air line stem into said bubble tube; and
apertures in said core structure, wherein said apertures, said sponge member, and said bubble tube are constructed and arranged to force water in said aquarium through said sponge member, into said bubble tube by way of said apertures and back into said aquarium.

5,207,901

WATERCRAFT BUCKET FOR COLLECTING FLOATING MATERIALS

Giancarlo Ravagnan, Padova, Italy, assignor to O.C.S. Officine Costruzioni Speciali S.p.A., Albignasego, Italy

Filed Jan. 21, 1992, Ser. No. 822,815
Claims priority, application Italy, Jan. 22, 1991, 000015 A/91
Int. Cl.[5] E02B 15/04
U.S. Cl. 210—173 7 Claims



1. A watercraft bucket for collecting floating materials, comprising:
a loader bucket having a lower section and a rear wall and side walls extending upwardly from said lower section, said loader bucket also having an open front;
means for connecting said loader bucket to a powered watercraft so that, when the watercraft is floating on a water surface, said lower section is submerged beneath the water surface and said rear and side walls are partially submerged under the water surface, and the water surfaces passes through said open front of said loader bucket;
a sieve bottom arranged at said lower section of said loader bucket for collecting floating materials while allowing water to pass therethrough;

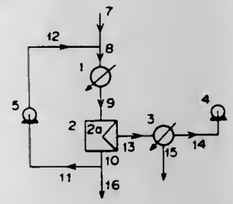
at least one ejector means connector to said loader bucket and arranged below and rearwardly of said sieve bottom for drawing water through said sieve bottom and out of said loader bucket; and
means for removing material from the loader bucket and into the watercraft.

5,207,902

METHOD FOR SEPARATING A LIQUID MIXTURE

Furuto Seiryo, Tokyo, Japan, assignor to Ryoka Techno Engineering & Construction Co. and Mitsubishi Kasei Corporation, both of Tokyo, Japan

Division of Ser. No. 813,783, Dec. 27, 1991. This application Apr. 3, 1992, Ser. No. 863,722
Claims priority, application Japan, Dec. 27, 1990, 2-408428
Int. Cl.[5] B01D 71/64
U.S. Cl. 210—195.2 2 Claims



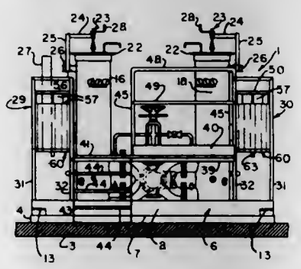
1. An apparatus for separating water by pervaporation from a liquid mixture comprising isopropanol and water, which comprises (a) means for heating the liquid mixture, then supplying the heated mixture to a pervaporation membrane module unit using a polyimide-type separating membrane to conduct separation of the liquid mixture, recycling a part or whole of the liquid not permeated through the membrane to a feed liquid mixture, supplying a fresh feed liquid mixture to an optional place in the circulation route, and withdrawing the liquid mixture from an optional place in the circulation route, (b) a means for controlling the amount of the liquid to be recycled among the liquid not permeated through the membrane including structure designed for enabling a level of at least 10 times by volume the amount of the fresh feed liquid mixture, and (c) a means for controlling the difference between the liquid temperature at the inlet of the membrane module unit and the liquid temperature at the outlet of the membrane module unit including structure designed for enabling to a level of at most 20° C.

5,207,903

FILTER STAND ASSEMBLY

Melbourne F. Giberson, 5 Spring Mill La., Haverford, Pa. 19041

Filed Oct. 16, 1992, Ser. No. 962,287
Int. Cl.[5] B01D 35/00, 35/16
U.S. Cl. 210—238 6 Claims



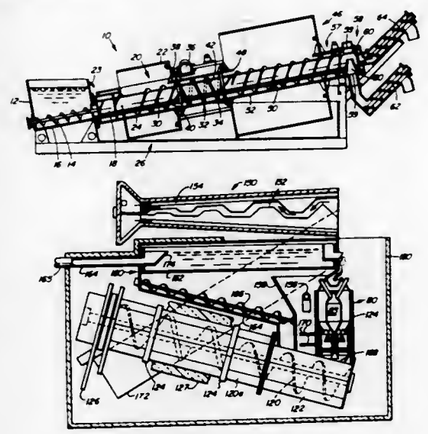
1. A modular filter drain assembly for a duplex filter having two vertically oriented cylindrical filter canisters each containing a plurality of replaceable cylindrical filter elements, said filter canisters having selectively removable top closures swingable to a top pan area, said filter canisters being spaced apart and connected by valved piping between them, a vertical plane between vertical axes of said canisters defining a plane of reference, said drain assembly comprising a sump base pan with side walls embracing the lower portion of said assembly and said filter canisters, a stand outboard of each of said filter canisters, extending substantially perpendicularly to the plane of reference and projecting beyond the said canisters in each direction, each of said stands comprising vertical legs at corners thereof, a top drain pan near an upper end of said legs and supported thereby, a filter element support pan intermediate said top drain pan and said sump pan, and a platform extending between said stands with an edge generally parallel to said plane of reference and adjacent said filter canisters; said top drain pan having filter element receiving passages near said platform and a drain passage; said filter element support pan having a surface below said filter element receiving passages for engaging a lower edge of said filter elements, and drain means, said filter element support pan surface being imperforate but for said drain means for permitting liquid from used filter elements to drain to said sump pan, said filter element support pan surface being spaced below said top pan a distance sufficiently less than the height of said filter elements to cause said elements to project above said top drain pan enough to permit the filter elements easily to be removed manually from said filter element passages.

5,207,904

APPARATUS FOR COMPOSTING WASTE MATERIAL

Gunther Abel, Whistler, Canada, assignor to 396234 B C Ltd., Whistler, Canada

Filed Jul. 15, 1991, Ser. No. 729,535
Int. Cl.[5] C02F 9/00
U.S. Cl. 210—252 8 Claims



4. Apparatus for composting biological waste material, comprising;
means for separating the biological waste material into solids and liquids;
means for adding sludge to the solids to form a mixture therewith;
means for compacting the mixture;
means for mixing further sludge with the compacted mixture to form a further mixture therewith;
means for composting the further mixture; and
means for mixing the liquid from the biological waste material with the further mixture in said composting means.

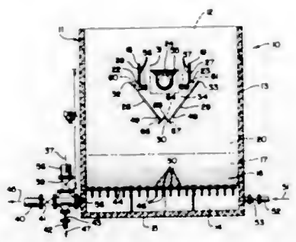
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,905

BAFFLE ASSEMBLY FOR AIR AND WATER BACKWASH OF A MEDIA FILTER

Michael J. O'Brien, Basking Ridge, and Eli Salem, Deal, both of N.J., assignors to The Graver Company, Union, N.J.

Filed Sep. 25, 1992, Ser. No. 951,203
Int. Cl.[5] B01D *24/46*
U.S. Cl. 210—274 7 Claims



1. In a filter including a filter vessel, a media filter bed supported in said filter vessel, a collection trough having an overflow level positioned in said vessel, inlet means for passing an unfiltered liquid stream downwardly through said bed, and backwashing means for passing backwash gas and backwash liquid upwardly through said bed, a baffle system comprising:

a pair of generally planar head baffles disposed on opposite sides of said collection trough having said overflow level, each of said head baffles extending downwardly from above said overflow level and defining a lower edge located below said overflow level;

a pair of spaced apart wing baffles defining an opening therebetween, each of said wing baffles being substantially aligned with and distanced from said head baffles so as to define a gap, each of said wing baffles extending outwardly and upwardly from below said collection trough so as to define an upper edge which is located above said lower edges of said head baffles and below said overflow level; and

a toe baffle positioned across and substantially below said opening between said wing baffles, said toe baffles being spaced from said wing baffles so as to define two slots, each of said slots being located between said toe baffle and one of said wing baffles;

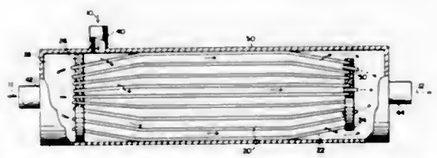
whereby said head baffles, said wing baffles, and said toe baffle shelter a relatively quiescent volume in the vicinity of said collection trough which promotes settling of entrained filter media and return of the filter media to said media filter bed during gas and liquid backwashing.

5,207,906

MEMBRANE SEPARATION MODULE

Steven R. Auvil, Macungie; James C. Sorensen, Allentown, both of Pa., and Daniel T. Diggs, Florissant, Mo., assignors to Permea, Inc., St. Louis, Mo.

Filed Jul. 28, 1992, Ser. No. 921,184
Int. Cl.[5] B01D *63/02*
U.S. Cl. 210—321.8 3 Claims



1. In a countercurrent flow membrane separation module comprising:

a) a housing means containing a fiber bundle which fiber bundle comprises a plurality of individual semi-pereable hollow fiber membranes each having a closed end and an open end, the closed ends of which terminate into a first tubesheet and the open ends of which penetrate through a second tubesheet into an adjacent permeate compartment;

b) a feed inlet port in flow communication with the exterior of the fiber bundle at or near the second tubesheet for introducing a feed stream to the housing means such that the feed stream can be separated into a permeate stream and a non-permeate stream which represent those portions of the feed stream which, respectively, have or have not permeated into the interiors of the individual hollow fiber membranes;

c) a permeate outlet port in flow communication with the permeate compartment for withdrawing the permeate stream from the housing means; and

d) a non-permeate outlet port in flow communication with the exterior of the fiber bundle at or near the first tubesheet for withdrawing the non-permeate stream from the housing means;

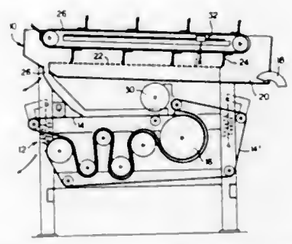
the improvement for increasing the efficiency of said membrane separation module comprising: means for reducing the undesirable fluid channeling effects in the interior of the fiber bundle at or near the first and/or second tube sheet, further comprising one or more flow tubes positioned within the housing means such that one end of each flow tube penetrates one of the tubesheets and partially extends into the interior of the fiber bundle without penetrating into the interiors of the individual hollow fiber membranes.

5,207,907

COMPACT APPARATUS FOR TREATING SLUDGE BY DRAINING AND PRESSING

Luc DeLons, Rueil Malmaison; Joseph Andrieu, Velizy, and Patrick Bele, Saint Germain En Laye, all of France, assignors to DeGremont, Rueil Malmaison, France

Filed Mar. 10, 1992, Ser. No. 848,185
Claims priority, application France, Mar. 13, 1991, 91 03037
Int. Cl.[5] B01D *33/04*; C02F *11/00*
U.S. Cl. 210—396 6 Claims



1. Apparatus for dehydrating sludge originating from a water purification station comprising:

a draining grid for draining water from said sludge, said grid extending longitudinally between a sludge inlet portion and a thickened sludge outlet portion;

scraper means for moving sludge along said grid from said inlet portion to said outlet portion;

a pressing belt assembly for receiving drained sludge from said grid and pressing said drained sludge to form a thickened sludge, said belt assembly being positioned below said draining grid; and,

a washing assembly for washing said grid with water concurrently with movement of sludge along said grid, said washing assembly being positioned above said grid and comprising a movable wash rack, a plurality of nozzles mounted on said wash rack for spraying water downwardly on said grid, and means for moving said wash rack longitudinally with respect to said grid while spraying water on said grid.

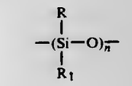
5,207,908

SEMI-PERMEABLE COMPOSITE MEMBRANE AND PROCESS FOR MANUFACTURING SAME

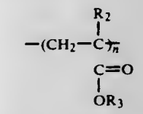
Dirk M. Koenhen, RS Dedemsvaart, and Aloysius H. A. Tinnemans, BG Zeist, both of Netherlands, assignors to X-Flow B.V., AH Almelo, Netherlands

Filed Jun. 5, 1991, Ser. No. 711,189
Claims priority, application Netherlands, Jun. 6, 1990, 9001274
Int. Cl.[5] B01D *69/12*
U.S. Cl. 210—490 6 Claims

1. A semi-permeable composite membrane with a porous carrier substrate whereon a polymer network obtained by interfacial polymerisation is applied, said network comprises an additional polymer characterized in that said additional polymer is dissolved in the water phase or in the organic phase, from which said interfacial polymerisation occurs, which additional polymer is molecularly entangled in said network and may regulate in particular the selectivity and the permeability of the composite membrane, and, said polymer is a non-reactive polymer selected from the group consisting of a polyalkyl siloxane either branched or not with the formula



wherein R and R_1 independent of each other represent C_1-C_{20} alkyl or alkyl group either substituted or not and n is an integral of 20–50,000 or a copolymer thereof, a polyacrylate or methacrylate with the formula



wherein R_2=H or CH_3 and R_3 is an alkyl group either branched or not with 1–20 carbon atoms, while n is an integer of ≧10, cellulose acetate, and a polyethylene oxide of the formula $(CH_2—CH_2—O)_n$ wherein n is an integer of ≧20.

5,207,909

PLASMA POLYMER MEMBRANE (C-2564)

Benjamin Abeles, Princeton, N.J., assignor to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Mar. 25, 1992, Ser. No. 857,200
Int. Cl.[5] B01D *39/00*
U.S. Cl. 210—500.27 9 Claims

1. A membrane for separating at least one component selected from the group consisting of an aromatic and linear hydrocarbons, from organic feeds comprising a plasma polymer formed from plasma polymerizing monomers which contain functional groups selected from the group consisting of C—Cl, C—F, and C=O, having polarity so as to separate said component from said feed.

5,207,910

COMBINED FILTRATION AND FIXATION OF HEAVY METALS

Roy S. Rieber, Houston, Tex., assignor to enviroGuard, Inc., Houston, Tex.

Division of Ser. No. 666,788, Mar. 8, 1991, Pat. No. 5,106,510.
This application Dec. 11, 1991, Ser. No. 804,960
Int. Cl.[5] B01D *39/06, 39/04*
U.S. Cl. 210—503 5 Claims

1. A filter medium for filtering and chemically fixing metal precipitates in a waste liquid having a pH from about 8 to 14 comprising,

a mixture of silicious particles and at least one polyvalent metal ion,

the silicious particles being present in an amount effective to filter the metal precipitates from the liquid and to contain them,

the silicious particles effective to form a soluble silicate with the liquid,

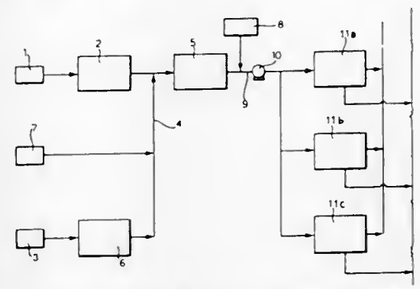
the polyvalent metal ion being present in an amount when combined with any polyvalent metal ions in the waste liquid sufficient to form a silicious cement with the soluble silicate and to chemically fix the metal precipitates in the silicious cement.

5,207,911

METHOD FOR THE BREAKDOWN AND RECYCLING OF SOLID URBAN WASTE BY ANAEROBIC FERMENTATION

Roberto Pellegrin; Silvio Tasca, and Franco Tasca, all of Turin, Italy, assignors to Rosewell Limited, Dublin, Ireland

PCT No. PCT/EP89/00212, § 371 Date Sep. 7, 1990, § 102(e) Date Sep. 7, 1990, PCT Pub. No. WO89/08616, PCT Pub. Date Sep. 21, 1989
PCT Filed Mar. 2, 1989, Ser. No. 572,986
Claims priority, applicatioo Italy, Mar. 7, 1989, 67184 A/88
Int. Cl.[5] C02F *3/28*
U.S. Cl. 210—603 7 Claims



1. A method for the breakdown and recycling of solid urban waste by means of anaerobic fermentation comprising the steps of:

(A) mixing a crushed solid urban waste with an aqueous suspension of conditioned biological sludge to produce a waste sludge suspension; and

(B) subjecting the waste sludge suspension to anaerobic fermentation to produce biogas; wherein

(i) said conditioned biological sludge comprises biological sludge resulting from aerobic purification of sewage that has been heated to a temperature of from 40° C. to 100° C. for a period of from 10 to 180 minutes, and then inoculating the heated biological sludge with a bacterial strain which can effect anaerobic breakdown of said waste sludge suspension; and

(ii) said subjecting step is carried out in an anaerobic fermentation cell under fluidized-bed conditions until the biogas production has substantially stopped.

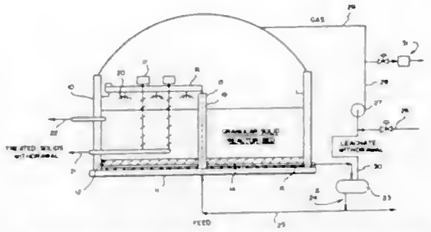
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,912

PROCESS FOR TREATING OILY SLUDGE

John D. Winter, Port Neches; James E. Myers, Port Arthur, and William R. Deever, Beaumont, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Apr. 13, 1992, Ser. No. 868,072
Int. Cl.[5] C02F 3/02
U.S. Cl. 210—604 35 Claims



1. A method for aerobically treating a low solids water-containing oily sludge which comprises combining said sludge with a biologically inert, non-friable bulking agent having at least about 25 volume percent of a component with a density less than water to form a mixture, passing an oxygen-containing gas through said mixture to separate and remove excess water and form a high solids content reaction mixture, reacting said high solids content reaction mixture in the presence of an aerobic biomass under effective aerobic conditions to form a treated sludge and an active biomass-coated bulking agent component having a density less than water in said high solids content reaction mixture, separating said biomass-coated bulking agent component from said treated sludge, and recovering said treated sludge from said reaction mixture.

5,207,913

PROCESS FOR THE PURIFICATION OF AQUEOUS SOLUTIONS POLLUTED BY NITRATES IONS

Jean-Pierre Letourneux, Montelimar, and Alain Bourdeau, Pierrelatte, both of France, assignors to Lafarge Fondu International, Neuilly Sur Seine, France

Filed Jan. 8, 1992, Ser. No. 817,808
Claims priority, application France, Jan. 8, 1991, 91 00260
Int. Cl.[5] C02F 3/00, 1/58
U.S. Cl. 210—620 32 Claims

1. A process for the purification of aqueous solutions polluted by nitrate ions, comprising precipitating hydrated double or mixed calcium nitroaluminates, by adding to the solutions to be treated at least one agent supplying the element aluminum and at least one agent supplying the element calcium, the overall mole ratio of the element aluminum to nitrate, Al/NO_3, being higher than 1 and the overall mole ratio of calcium to nitrate, Ca/NO_3, being higher than 2, and conducting the precipitation reaction with stirring at basic pH.

5,207,914

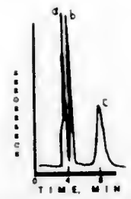
HIGH PERFORMANCE CHROMATOGRAPHY

GwoChung Lin, McCandless Township, Allegheny County, Pa., assignor to Alcoa Company of America, Pittsburgh, Pa.

Continuation of Ser. No. 294,343, Dec. 28, 1988, abandoned.
This application Aug. 13, 1991, Ser. No. 745,470
The portion of the term of this patent subsequent to Apr. 18, 2006, has been disclaimed.
Int. Cl.[5] B01D 15/08
U.S. Cl. 210—635 18 Claims

18. A process for the separation of at least two basic, nitrogen-containing compounds in a liquid chromatography column comprising:

(a) introducing a liquid feed stream containing at least one basic, nitrogen-containing compound into a column containing a packed bed of stable polybutadiene in a homogeneous, uniform film layer coated and crosslinked on an alumina of generally spherical metal oxide/hydroxide support particles comprising crystals of metal oxide/hydroxide with the crystals extending radially outward from



a central core region and having a shape selected from principally acicular to principally lamellar; and

(b) separating said basic compound by reverse phase liquid chromatography in said packed bed to form a purified product stream of said basic compounds.

5,207,915

SEPARATION METHOD USING CONTROLLED PORE COMPOSITE POLYTETRAFLUOROETHYLENE ARTICLE

Donald F. Hagen, Woodbury; Craig G. Markell, White Bear Township, Ramsey County; William V. Balsimo, Afton, and Louis A. Errede, North Oaks, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 706,420, May 28, 1991, Pat. No. 5,147,539, which is a division of Ser. No. 639,515, Jan. 10, 1991, Pat. No. 5,071,610, which is a continuation-in-part of Ser. No. 484,184, Feb. 23, 1990, abandoned. This application Jun. 11, 1992, Ser. No. 897,110
Int. Cl.[5] B01D 15/08
U.S. Cl. 210—635 16 Claims



1. A method of separating at least one component of a fluid mixture comprising the step of: allowing said fluid to flow through a composite article having controlled void volume and mean pore size comprising: polytetrafluoroethylene (PTFE) fibril matrix, and insoluble, non-swellable sorptive particles enmeshed in said matrix, the ratio of non-swellable sorptive particles to PTFE is in the range of 40:1 to 1:4 by weight, the composite article having a porosity in the range of 30 to 80 percent void volume and a mean pore size in the range of 0.3 to 5.0 micrometers, said article being provided by a method comprising the steps of:

a) admixing lubricant with a blend comprising insoluble, non-swellable, sorptive particles and polytetrafluoroethylene to form a soft dough-like mass, the lubricant being present in an amount to exceed the sorptive capacity of the particles by at least 3 weight percent, said mass having a cohesive consistency, and the ratio of insoluble particles to PTFE being in the range of 40:1 to 1:4;

b) intensively mixing said mass at a temperature and for a time sufficient to cause initial fibrillation of said PTFE particles;

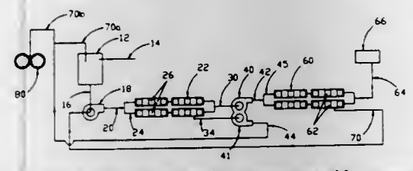
c) biaxially calendering said mass between gaps in calendering rolls maintained at a temperature and for a time, while closing the gap between the calendering rolls with each successive calendering operation, to cause additional fibrillation of said PTFE particles to form a self-supporting tear-resistant sheet having a void volume in the range of 30 to 80 percent and a mean pore size in the range of 0.3 to 5.0 micrometers, wherein said void volume and mean pore size vary directly with and are controlled by the amount of lubricant present during processing and wherein said article has reproducible porosity and mean pore size.

5,207,916

REVERSE OSMOSIS SYSTEM

Duane F. Gobeen, and David C. Nethercot, both of Naples, Fla., assignors to MESCO, Inc., Naples, Fla.

Filed May 20, 1992, Ser. No. 886,527
Int. Cl.[5] B01D 61/12
U.S. Cl. 210—637 16 Claims



1. A reverse osmosis separation system operable to separate a feed liquid having dissolved solids into a purified liquid and concentrate, through a single unit, double-pass, reverse osmosis unit with successive banks of reverse osmosis membranes in series while using only one high pressure pump, comprising:

a first bank of cross flow reverse osmosis membranes;

a high pressure pump arranged to apply excessive high pressure to feed liquid having solids therein to said first bank of reverse osmosis membranes;

a feed supply including a feed inlet to said pump;

said first bank of membranes having a product flow outlet for liquid that has passed through said first bank of membranes with loss of pressure, and a concentrate flow outlet for liquid that has not passed through said first bank of membranes and remains at high pressure;

means for providing an alterative to a second pump, including: said high pressure pump;

a dual chamber turbocharger downstream of said first bank of membranes and having a product flow outlet and a concentrate flow outlet, said turbo charger having a concentrate flow inlet for receiving from said first bank of membranes concentrate flow under high pressure as the dynamic liquid and discharging it out said concentrate flow outlet, and having a product flow inlet for receiving product flow under low pressure as the passive liquid and thereby elevating the pressure of said product flow to an elevated pressure when discharged from said turbocharger product flow outlet;

a second bank of cross flow reverse osmosis membranes downstream of said turbocharger product flow outlet and having a product flow inlet for receiving said elevated pressure product flow from said turbocharger product flow outlet, said second bank having a product flow outlet and a concentrate flow outlet; and

said concentrate flow outlet from at least one of said first and second banks of membranes being connected back to said feed supply for supplying a controlled amount of concentrate flow back to said feed inlet to thereby increase the natural osmotic pressure across said first set of membranes a controlled amount for balancing excess pressure of said feed liquid on said first bank of membranes sufficient to control net drive force and maintain proper flux rates at said first bank of membranes in a manner to avoid excess pressure causing overproduction at said first set of membranes.

10. A method for reverse osmosis separation of dissolved and/or suspended solids from a carrier liquid in a feed solution comprising the steps of:

pumping at excess elevated pressure the feed solution to a first bank of reverse osmosis semipermeable membranes, said excess pressure tending to cause overproduction at said first set of membranes, to produce a low pressure product flow of liquid through said membranes and an elevated pressure concentrate flow of liquid and solids not passing through the membranes;

providing an alternative to a second pump for a second bank of reverse osmosis membrane, comprising:

providing downstream of said first bank of membranes a turbocharger having a dynamic turbine part and a passive pump part;

introducing said elevated pressure concentrate flow from said first bank of membranes to the dynamic turbine part of the turbocharger while introducing said low pressure product flow from said first bank of membranes to the pump part of the turbocharger to elevate the pressure of said product flow to a value greater than the natural osmotic pressure on said product flow across a second bank of reverse osmosis, semipermeable membranes;

passing the elevated pressure product flow from said first bank through the second bank of reverse osmosis semipermeable membranes to produce a purified product flow and a concentrate flow; and

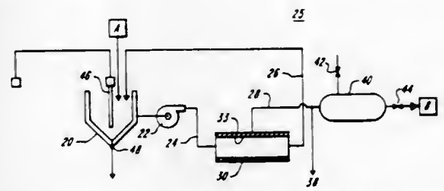
increasing the osmotic pressure at said first bank of membranes by returning at least a portion of the concentrate flow from at least one of said first bank and said second bank back to said feed solution.

5,207,917

RECYCLING AND RECOVERY OF AQUEOUS CLEANER SOLUTIONS

Thomas J. M. Weaver, 56 Alexander Rd., Billerica, Mass. 01821

Filed Oct. 8, 1991, Ser. No. 773,140
Int. Cl.[5] B01D 61/00
U.S. Cl. 210—651 7 Claims



1. A process for separating an aqueous cleaner solution from contaminants, said process comprising the steps of:

transferring contaminated aqueous cleaner solution from a wash tank to a concentration tank;

cycling said contaminated cleaner solution across a microfiltration membrane having an average pore diameter chosen to filter out contaminants while not filtering out molecules of aqueous cleaner;

returning unfiltered cleaner solution to said concentration tank for recycling across said microfiltration membrane; and

directing filtered cleaner solution back to said wash tank.

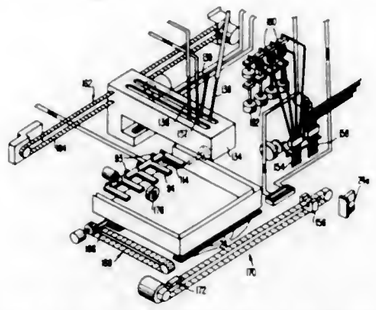
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,918

COLUMN ANALYZER SYSTEM

James R. M. Sanford, Vidor; Patrick M. Frank, Beaumont; Joseph H. Golias, Beaumont, and William C. Jennings, Beaumoot, all of Tex., assignors to Helena Laboratories Corporation, Beaumont, Tex.

Division of Ser. No. 427,346, Oct. 27, 1989, Pat. No. 5,045,208. This application May 31, 1991, Ser. No. 708,298
Int. Cl.[5] B01D *15/08*
U.S. Cl. 210—656 19 Claims



1. A system for separating fluid solutions by chromatography of a plurality of columns, each column including first and second ends, comprising:

means for positioning a plurality of chromatographic columns at a first station, said first station including a plurality of column locations;

means for positioning a plurality of cuvettes at a second station, said second station having a predetermined spatial orientation relative to said first station; said second station having a plurality of cuvette locations; one cuvette location at said second station associated with a column location at said first station; each cuvette having a plurality of discrete cells, the cells of a cuvette for separately collecting at least two eluted fluids associated with a single chromatographic column;

pressure means providing fluid at a constant low pressure to the first end of each of said columns such that fluids introduced into the first end of each column are eluted through the column into at least two cells of the cuvette associated with the column;

means for optically reading a cuvette; and

means for advancing each cuvette cell sequentially relative to said optical reading means.

5,207,919

METAL ION COMPLEXES FOR USE AS SCALE INHIBITORS

Patrick J. Breen, Houston; Hartley H. Downs, Kingwood, both of Tex., and Bruce N. Diel, Batavia, Ill., assignors to Baker Hughes Incorporated, Houston, Tex.

Continuation-in-part of Ser. No. 509,911, Apr. 16, 1990, Pat. No. 5,057,228. This application Oct. 14, 1991, Ser. No. 776,605
The portion of the term of this patent subsequent to Oct. 15, 2008, has been disclaimed.
Int. Cl.[5] C02F *5/14*
U.S. Cl. 210—700 3 Claims

1. A method of inhibiting the formation of barium sulfate scale in an aqueous liquid containing barium sulfate scale forming substances, comprising the steps of:

adding to the liquid at least 0.001 pbw for each pbw of barium sulfate scale forming substance, of a phosphonate metal complex molecule made by the process comprising the steps of:

mixing ethylenediaminetetra(methylenephosphonic) acid (ENTMP) or a salt thereof with a transition metal ion of copper (II) to form a phosphonate metal complex molecule;

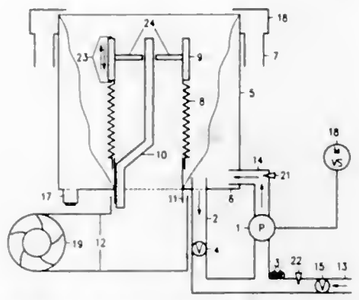
where the aqueous liquid has a pH of about 5 or less.

5,207,920

CENTRIFUGAL FLOTATION SEPARATOR

Raymond Jones, 827 W. 24 Ave., Anchorage, Ak. 99503

Continuation-in-part of Ser. No. 730,089, Jul. 15, 1991. This application Mar. 23, 1992, Ser. No. 856,837
Int. Cl.[5] B01D *17/038, 17/035;* C02F *1/24;* B03D *1/14*
U.S. Cl. 210—703 14 Claims



11. A method of separating high specific gravity liquid and high density particulate from low specific gravity liquid and low density particulate existing in a liquid mixture, comprising the steps of:

(a) pumping said mixture into a vertical elongate vessel thru a tangential inlet tube means, thereby forcing the mixture into a circulating mass, thereby producing a centrifugal force field of liquid within said vertical elongate vessel, said pumping means having means for charging said liquid mixture with gas bubbles resulting in a foam mixture on the surface of said liquid mixture, said foam mixture containing said low density particulate and said low specific gravity liquid therein, said pumping means operating at sufficient pressure to create sufficient velocity of the said liquid mixture to create a vortex within said vertical elongate vessel; said vertical elongate vessel having a vertically oriented annular discharge assembly having buoyant means for self adjustment in the height of said annular discharge assembly in accordance with said liquid mixture surrounding said annular discharge assembly;

(b) having the top of said discharge assembly achieve a position in said vortex wherein the top of said annular discharge assembly is slightly above the said high specific gravity liquid;

(c) having the higher specific gravity liquid and higher density particulate migrate to the outer periphery of said elongate vessel where said high specific gravity liquid and said high density particulate are removed directly through an outlet which is at the upper outer periphery of said elongate vessel and above said annular discharge assembly;

(d) having said low specific gravity liquid and said foam mixture migrate toward the bottom of the vortex where they are discharged into said annular discharge assembly.

5,207,921

INDUSTRIAL WASTE WATER RECLAMATION PROCESS

John D. Vincent, 531 SW. 63 Ter., Margate, Fla. 33068

Continuation of Ser. No. 580,148, Sep. 10, 1990, abandoned. This application Apr. 1, 1992, Ser. No. 865,825
Int. Cl.[5] C02F *1/24*
U.S. Cl. 210—704 3 Claims

1. An improved water reclamation process for removing

emulsified fats, oils, and greases, and particulates from an animal or food processing waste stream to produce water suitable for reuse in non-food processing industrial applications, consisting of the steps of:

providing a storage reservoir having an inlet and an outlet;

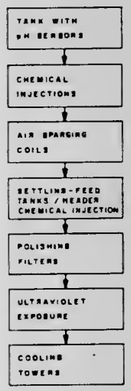
directing said animal or food processing, waste stream to the inlet of said storage reservoir;

continuously monitoring the inlet of said storage reservoir for pH and turbidity of said waste stream, and continuously adjusting the pH when necessary to a desired value to aid in separation of said emulsified fats, oils, and greases from said waste stream;

diverting the inlet waste stream away from said inlet of said storage reservoir if the turbidity exceeds a predetermined value;

providing a first settling tank having a bottom mounted inlet and a centrally located outlet coupled in a series arrangement with said reservoir outlet;

transferring the waste stream from said storage reservoir to an air sparging coil for injecting air into said waste stream to accelerate the separation of said emulsified fats, oils, and greases from said waste stream; discharging said waste stream into a first settling tank through a distribution header located in the lower portion of said first settling tank for reducing turbulence;



providing a second settling tank having a centrally mounted inlet and a centrally located outlet;

transferring the waste stream from said first settling tank to said second settling tank for separating said emulsified fats, oils, and greases, and particulates from said waste stream;

skimming the separated fats, oils, and greases, and particulates from the waste stream in the second settling tank;

providing a distribution tank having a centrally mounted inlet and a bottom located outlet;

transferring the waste stream from said second settling tank through said centrally located outlet to said distribution tank;

providing a plurality of pressurized polishing filters for removing particulates from the waste stream remaining after skimming;

transferring the waste stream from said distribution tank to said polishing filters by means of a pump;

providing ultraviolet exposure for killing bacteria in the waste stream; and

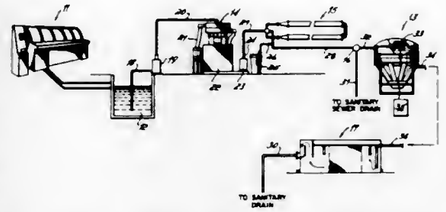
directing the waste stream from the outlet of said third settling tank, through said polishing filters and said ultraviolet exposure to produce a treated waste stream suitable for use or storage in non-food processing industrial purposes.

5,207,922

METHOD FOR TREATING LAUNDRY WASTE WATER

James P. McFarlan, Ft. Thomas, Ky., and William H. Frisz, Cincinnati, Ohio, assignors to Diversey Corporation, Ontario, Canada

Filed Oct. 25, 1990, Ser. No. 603,796
Int. Cl.[5] B01D *17/05*
U.S. Cl. 210—708 7 Claims



1. A method of separately laundering oily fabric and nonoily fabric in a laundering apparatus and subsequently treating the effluent from the laundering apparatus wherein the effluent is alternately an oily aqueous effluent containing a destabilizable emulsifier created by washing said oily fabric and a nonoily aqueous effluent produced by washing said nonoily fabric said method comprising;

directing said oily effluent through a particulate filter and to an oil water separator and separating oil and water from said oily effluent and directing said water to a sewer system and collecting said oil wherein an emulsion destabilizing agent is added to said oily effluent to break down said destabilizable emulsifier prior to directing said effluent to said oil water separator;

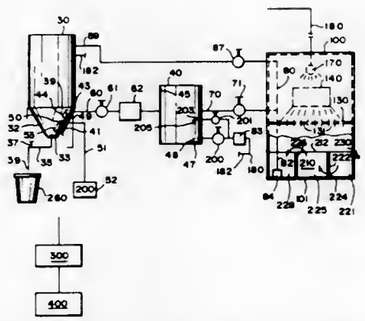
directing said nonoily effluent through said particulate filter; and directing said nonoily effluent to a sewer system without directing said nonoily effluent to said oil water separator.

5,207,923

PROCESS AND APPARATUS FOR WASTE WATER TREATMENT

John Wese, c/o A-1 Radiator Service, Inc., 6004 E. Virginia Beach Blvd., Norfolk, Va. 23502

Division of Ser. No. 686,614, Apr. 17, 1991. This application Apr. 14, 1992, Ser. No. 868,237
Int. Cl.[5] C02F *1/56, 1/62*
U.S. Cl. 210—727 13 Claims



1. A process for treating waste water generated from one or more operations involved in the cleaning/and or repairing of automotive parts, said waste water contaminated with one or more metals comprising:

(a) agitating said waste water in a treatment tank;

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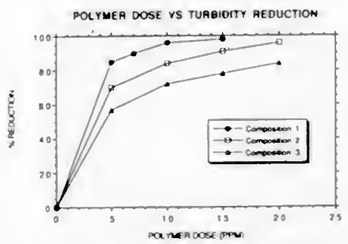
(b) adding thereto an aluminum-containing base and agitating the mixture;
(c) adding to the resulting mixture an organic polyelectrolyte and agitating the mixture;
(d) adding to the resulting mixture a copolymer of sodium acrylate and acrylamide dispersed in mineral oil and agitating the mixture;
(e) allowing the mixture to settle to form a clean water phase and a sludge phase;
(f) separating the clean water phase from the mixture; and
(g) treating the remaining sludge phase.

5,207,924

DIALLYL DIMETHYL AMMONIUM CHLORIDE COPOLYMERS IN DEINKING PROCESS WATER CLARIFICATION

Peter E. Reed, Naperville, and Karen R. Tubergen, Mt. Prospect, both of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Jun. 19, 1992, Ser. No. 901,310
Int. Cl.[5] C02F *1/56*
U.S. Cl. 210—734 3 Claims



1. A process wherein a coagulating amount of a water soluble polymer is used to coagulate suspended solids from deinking process waters which result from the processing of recycled paper, the improvement which comprises using as the coagulant a polydiallyl dimethyl ammonium chloride copolymer which contains from between 1–30 mole percent of 3-acrylamido-3-methylbutanoic acid and has an intrinsic velocity of at least 0.5.

5,207,925

PROCESS FOR THE DETOXIFICATION OF CYANIDE-CONTAINING AQUEOUS SOLUTIONS

Norbert Steiner, Albstadt; Stephen Gos, Hanau; Frank Ladwig, Gruendau, and Manfred Diehl, Frankfurt, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 26, 1992, Ser. No. 857,414
Claims priority, application Fed. Rep. of Germany, Mar. 27, 1991, 4110055
The portion of the term of this patent subsequent to Apr. 20, 2010, has been disclaimed.
Int. Cl.[5] C02F *1/72*
U.S. Cl. 210—746 20 Claims

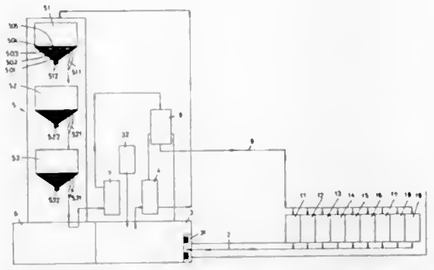
1. A process for the detoxification of cyanide-and/or cyano complex-containing wastewater, in the presence of a compound of a heavy metal from the group consisting of Mn, Co, Ni, Cu, Cd and Zn, comprising treating said wastewater with at least one peroxide compound, at least one equivalent of peroxide compound being used per equivalent of cyanide in said wastewater, at a pH value of 8 to 12 and at a temperature between the freezing point of the wastewater and 80° C., wherein one or more peroxide compounds from the group consisting of alkali metal and alkaline earth metal perborates, alkali percarbonates and alkaline earth metal peroxides is used, the peroxide compound being added to said wastewater to be detoxified in solid form or in solution or suspension in water or being formed in situ therein from hydrogen peroxide and a member of the group consisting of the metaborate, the alkali metal and the alkaline earth metal ions.

5,207,926

INDUSTRIAL WASTE WATER TREATMENT PROCESS

Kun-Hei Liu, 2F., No. 32, Lane 200, Tung Hwa Street, Taipei, Taiwan

Filed May 14, 1992, Ser. No. 882,862
Int. Cl.[5] C02F *9/00*
U.S. Cl. 210—749 3 Claims



1. A method of treating waste water resulting from a process for removing iron rust from iron pipes before spray painting, which consists essentially of the steps of:
(a) collecting waste water containing iron rust from a plurality of troughs used to remove said iron rust from said iron pipes into a gutter,
(b) feeding said waste water through a wire gauge screen into a waste water reservoir,
(c) adding a chemical solution containing NaOH and H_2O in a volume ratio of NaOH to H_2O of 25:75 to said waste water in said waste water reservoir.
(d) feeding treated water from said waste water reservoir to a water filtration tower and passing said treated waste water through a plurality of water filtration tanks arranged in series, and then collecting filtered waste water into a depositing reservoir, and
(e) pumping said collected filter waste water from said depositing reservoir to a water tower for reuse.

5,207,927

TREATMENT OF AN AQUEOUS STREAM CONTAINING WATER-SOLUBLE INORGANIC SULFIDE COMPOUNDS

Richard E. Marinangeli, Arlington Heights, and Tom N. Kalnes, La Grange, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed Mar. 18, 1992, Ser. No. 853,555
Int. Cl.[5] C02F *1/72, 1/74*
U.S. Cl. 210—763 12 Claims

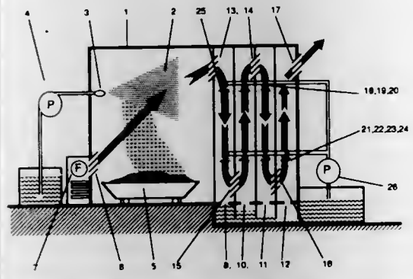
1. A method for treating an aqueous stream containing a water-soluble, inorganic sulfide compound which method comprises the steps of:
(a) contacting said aqueous stream and oxygen at a pH in the range less than about 12 and an oxygen to sulfur molar ratio greater than about 5 with a metallic phthalocyanine oxidizing catalyst at oxidation conditions selected to provide a high conversion of said inorganic sulfide compound in an amount greater than about 95 weight percent to sulfate; and
(b) recovering a substantially sulfide-free treated aqueous stream.

5,207,928

METHOD FOR DESALINATION AND FRESH WATER RECOVERY

Eric J. Lerner, 20 Pine Knoll Dr., Lawrenceville, N.J. 08648

Filed May 23, 1991, Ser. No. 704,886
Int. Cl.[5] B01D *1/16*
U.S. Cl. 210—774 4 Claims



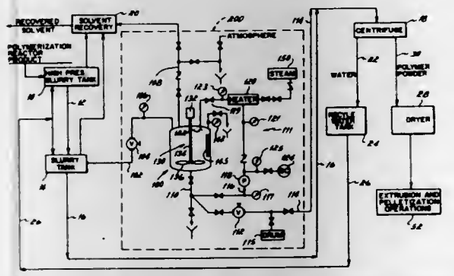
1. A method of saltwater desalination and fresh water recovery, comprising:
spraying a mixture of saltwater droplets substantially in the range of 7 to 30 microns in diameter and compressed air with a mass flow ratio of about one part compressed air to 10 parts saltwater droplets, without heating the droplets, into a chamber at a velocity of at least 200 meters per second to progressively vaporize the saltwater droplets for effectuating precipitation of dissolved impurities and salts from the vaporizing saltwater droplets and accumulation of a fresh water droplet suspension within the chamber;
evacuating the accumulated fresh water drop suspension out of the chamber at a rate controlled by a blower to maintain the fresh water droplets in suspension;
washing fresh water droplets from the evacuated fresh water droplets suspension; and collecting the fresh water.

5,207,929

METHOD FOR REMOVING HYDROCARBONS FROM POLYMER SLURRIES

Chieh-Yuan F. Sung, Cincinnati, and Stephen J. Krause, Batavia, both of Ohio, assignors to Quantum Chemical Corporation, New York, N.Y.

Filed Aug. 2, 1991, Ser. No. 739,876
Int. Cl.[5] C08F *6/00*
U.S. Cl. 210—774 27 Claims



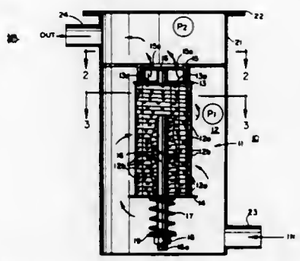
1. A process for removing a hydrocarbon from a polymer slurry comprising the steps of:
feeding a hydrocarbon-containing polymer slurry to a flash tank to flash a portion of the hydrocarbon from the slurry;
circulating at least a portion of the polymer slurry from the flash tank through heating means to heat the slurry to a temperature above the operating temperature of the flash tank, and recirculating the heated slurry to the flash tank to flash additional hydrocarbon from the slurry; and
collecting from said flash tank slurry having a substantially lower hydrocarbon content than the slurry fed to the flash tank.

5,207,930

FILTRATION SYSTEM WITH HELICAL FILTER CARTRIDGE

Raghavachari Kannan, Newtown Square, Pa., assignor to Crane Company, New York, N.Y.

Filed Jul. 30, 1991, Ser. No. 738,152
Int. Cl.[5] B01D *29/62, 29/48*
U.S. Cl. 210—791 8 Claims



6. A filtration system for separating solid particles from liquid comprising a vessel having an inlet for unfiltered liquid and an outlet for filtered liquid, a partition within said vessel separating said inlet from said outlet, a filter cartridge supported at one end within an opening in said partition and adjacent the inlet, said cartridge comprising a cylindrical housing for supporting the cartridge in the opening in said partition, said housing having a partition having openings extending axially therethrough, a flexible ribbon in the form of a helix having a plurality of helical coils extending around the longitudinal axis of the helix, each of said coils having a plurality of radial grooves in at least one face of the ribbon, said grooves being of predetermined size corresponding to the smallest particle size to be trapped by the cartridge and prevented from entering the interior of the helix, a bottom plate for engaging the bottom end of said helix, said helical coils being sandwiched between the bottom of said housing and said bottom plate, a central rod extending along the longitudinal axis of said helix and having a top end attached to the housing partition and a bottom end extending through said bottom plate, a coil spring on the bottom end of said rod, and means on said bottom end of said rod for cooperation with said spring in applying a force to said helix in the axial direction to maintain the helical coils in closed position.

8. A method of backwashing solid particles from the cartridge of the filtration system of claim 6 comprising the steps of directing clean liquid into the outlet of the vessel and through the interior of said helix at a pressure greater than the pressure existing outside of said helix, the differential in pressures causing the force within the helix to push the bottom plate downwardly and simultaneously the force acts radially to separate the adjacent helical coils one from the other so that the clean liquid will pass through all of the coils concurrently resulting in a uniform flow of liquid through the grooves in the helical coils whereby the clean liquid washes out said plurality of radial grooves and removes the trapped particles.

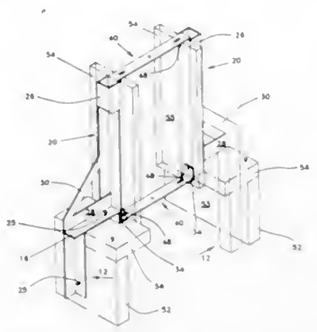
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,931

BRACE FOR CONCRETE FORM

Walter W. Porter, 1500 Palo Verde Dr., Carson City, Nev. 89701

Filed Feb. 12, 1992, Ser. No. 835,692
Int. Cl.[5] E04G *17/14*
U.S. Cl. 249—210 9 Claims



1. A concrete brace comprising:
a) a lower brace leg including a lower bracing section and a lower support section,
b) an upper brace leg including an upper bracing section and an upper support section,
c) a brace cross support joining the upper end of the lower brace leg to the lower end of the upper brace leg,
d) the lower end of the upper brace leg having a strap mounting flange provided thereon,
e) the upper end of the upper brace leg including a strap attachment cap, and
f) an angled support joining the upper end of the lower brace leg to the upper brace leg.

5,207,932

ALCOHOL RESISTANT AQUEOUS FILM FORMING FIREFIGHTING FOAM

Edward C. Norman, Chester Springs, and Anne C. Regina, Coatesville, both of Pa., assignors to Chubb National Foam, Inc., Lionville, Pa.

Continuation-in-part of Ser. No. 383,141, Jul. 20, 1989, Pat. No. 4,999,119. This application Mar. 11, 1991, Ser. No. 666,989
Int. Cl.[5] A62D *1/02, 1/04*
U.S. Cl. 252—3 32 Claims

1. A foamable firefighting concentrate composition comprising: perfluoroalkyl surfactants, a solvent and an effective amount of alkyl polyglycoside sufficient to permit a reduction in the concentration of the perfluoroalkyl surfactant without loss of firefighting performance by the composition, said alkyl polyglycoside present in an amount from between about 1.0 to 10.0% by weight.

5,207,933

LIQUID FABRIC SOFTENER WITH INSOLUBLE PARTICLES STABLY SUSPENDED BY SOIL RELEASE POLYMER

Toan Trinh, Maineville, and Helen B. Tordil, West Chester, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Aug. 28, 1991, Ser. No. 751,427
Int. Cl.[5] D06M *13/00*
U.S. Cl. 252—8.6 11 Claims

1. An aqueous fabric softening composition comprising:
I. from about 3% to about 35% by weight of the total composition of fabric softener;
II. from about 0.5% to about 25% of water-insoluble particles that tend to separate in said composition;
III. soil release polymer in an effective amount to improve the suspension of the said water-insoluble particles; and
IV. the balance comprising liquid carrier selected from the group consisting of water, C_1-C_4 monohydric alcohols, C_2-C_6 polyhydric alcohols, and mixtures thereof.

5,207,934

CROSSLINKED HYDROXYETHYLCELLULOSE AND ITS USES

Hoai T. Dovan, Yorba Linda, and Richard D. Hutchins, Placentia, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Division of Ser. No. 696,625, May 7, 1991, Pat. No. 5,111,886. This application Feb. 26, 1992, Ser. No. 842,240
Int. Cl.[5] E21B *43/16*
U.S. Cl. 252—8.551 22 Claims

12. A composition capable of forming a gel, the composition comprising:
(a) a crosslinkable polymer selected from the group consisting of cellulose ethers and ammonium and alkali metal salts thereof, the cellulose ether being selected from the group consisting of carboxyalkylhydroxyethyl celluloses and hydroxyethylcellulose;
(b) a lanthanide; and
(c) an ingredient selected from the group consisting of gel breakers, sequestering agents, proppants suitable for use in hydraulically fracturing subterranean formations, and particulate agents suitable for use in forming a gravel pack.

5,207,935

WHEEL BEARING GREASE

John A. Waynick, Wheaton, Ill., assignor to Amoco Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 738,264, Jul. 31, 1991, Pat. No. 5,158,694, which is a continuation-in-part of Ser. No. 590,482, Sep. 28, 1990, Pat. No. 5,096,605, which is a continuation-in-part of Ser. No. 332,509, Mar. 31, 1989, Pat. No. 5,000,862. This application Apr. 7, 1992, Ser. No. 864,592
The portion of the term of this patent subsequent to Nov. 29, 2005, has been disclaimed.
Int. Cl.[5] C10M *117/00, 125/10*
U.S. Cl. 252—18 19 Claims

1. A wheel bearing grease, comprising:
from about 20% to about 95% of a base oil;
a thickener;
a succinate-containing texture improving additive for imparting a substantially smooth texture to said grease;
a carbonate selected from the group consisting of a carbonate of a Group 1a alkali metal and a carbonate of a Group 2a alkaline earth metal; and
a phosphate selected from the group consisting of a phosphate of a Group 1a alkali metal and a phosphate of a Group 2a alkaline earth metal.

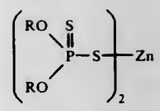
5,207,936

GREASE COMPOSITION FOR CONSTANT VELOCITY JOINT

Yasuyuki Anzai, Kamakura; Kiyoshi Takeuchi, Odawara; Yoshikazu Fukumura, and Yukio Hasegawa, both of Iwata, all of Japan, assignors to NTN Corporation, Osaka, Japan

Filed Feb. 13, 1992, Ser. No. 834,763
Claims priority, application Japan, Apr. 1, 1991, 3-094748
Int. Cl.[5] C10M *141/02, 141/06, 141/08, 141/10*
U.S. Cl. 252—25 4 Claims

1. A grease composition for constant velocity joint comprising a urea grease composed of a lubricating oil and a urea base thickener and containing (A) 1–5% by weight of molybdenum sulfide dialkyldithiocarbamate, (B) 0.2–1% by weight of molybdenum disulfide, (C) 0.5–3% by weight of an extreme pressure additive of zinc dithiophosphate represented by the following general formula:



(wherein R is an alkyl group or an aryl group) and (D) 0.5–5% by weight of an oiliness agent composed of at least one of vegetable oils and fats as an essential component, provided that a weight ratio of the component (B) to the component (A) is 0.04–0.5.

5,207,937

AMINE SALTS OF SULFUR-CONTAINING ALKYLATED PHENOLS OR ALKYLATED NAPHTHOLS AS MULTIFUNCTIONAL ANTIOXIDANT AND ANTIWEAR ADDITIVES

Shih-Ying Hsu, Morrisville, Pa.; Arjun K. Goyal, Woodbury, N.J.; Andrew G. Horodysky, Cherry Hill, N.J., and Liwen Wei, Somerville, N.J., assignors to Mobil Oil Corp., Fairfax, Va.

Filed Apr. 29, 1991, Ser. No. 692,835
Int. Cl.[5] C10M *135/30*
U.S. Cl. 252—33.6 18 Claims

1. An improved lubricant composition comprising a major proportion of said lubricant or fuel and a minor multifunctional antiwear, antioxidant proportion of an additive product of reaction comprising an amine salt of a sulfur-containing hydrocarbyl phenol or naphthol prepared from (1) the reaction of a hydrocarbyl phenol or naphthol and a quaternary ammonium salt in the presence of an organic or inorganic base and a protic or aprotic solvent and (2) thereafter reacting in situ the resulting phenol-naphthol quaternary ammonium complex and elemental sulfur in a non-sulfur reactive solvent at temperatures varying from about 25° to about 300° C., pressures varying from ambient to slightly higher or autogenous for a time sufficient to obtain the desired tetra-substituted ammonium salt of sulfurized hydrocarbyl phenol or naphthol.

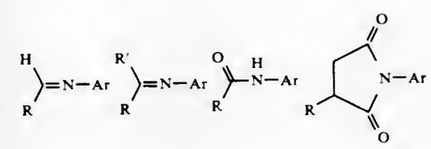
5,207,938

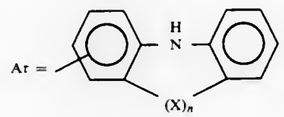
METHOD FOR RETARDING DARKENING OF A DISPERSANT-ANTIOXIDANT OLEFIN COPOLYMER

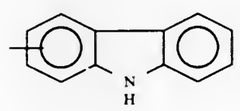
Theodore E. Nalesnik, Wappingers Falls, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Apr. 22, 1991, Ser. No. 688,800
Int. Cl.[5] C10M *149/10, 151/02*
U.S. Cl. 252—51.5 A 6 Claims

1. A method of retarding the darkening effect of a unreacted, excess antioxidant amine in a Dispersant-Antioxidant olefin copolymer comprising:
a) reacting a low molecular weight organic compound selected from the group consisting of an aldehyde, a ketone, an acid and an acid anhydride, with a finished Dispersant-Antioxidant olefin copolymer containing an unreacted excess antioxidant amine to form therewith, respectively, a corresponding adduct represented, respectively, by the following formulas:







wherein n=0 or 1 and when n=1, then X=CH_2, O, S or NH, and although R' ≠ or = R, both R and R' each are H or a (C_1-C_{30}) alkyl, a (C_6-C_{30}) alkenyl or a (C_7-C_{30}) alkylaryl group; and
b) recovering said Dispersant-Antioxidant olefin copolymer containing said formed adduct, product, whereby the darkening of said Dispersant-Antioxidant olefin copolymer is retarded.

5,207,939

DIHYDROCARBYL SUBSTITUTED PHENYLENEDIAMINE-DERIVED PHENOLIC PRODUCTS AS ANTIOXIDANTS

L. Oscar Farng, Lawrenceville, and Andrew G. Horodysky, Cherry Hill, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Aug. 23, 1990, Ser. No. 571,348
Int. Cl.[5] C10M *133/14, 133/54*
U.S. Cl. 252—51.5 R 19 Claims

1. A lubricating oil, or grease composition comprising a lubricating oil or grease and an antioxidant amount of a reaction product of a hydrocarbyl-substituted phenylenediamine, in whch the hydrocarbyl substituents contain from 4 to 60 carbon atoms, a carbonyl compound and a di-hydrocarbyl-substituted hindered phenol whereby the reaction product has improved lubricant solubility properties.

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5,207,940
α-OLEFIN OLIGOMER-PHENOL LUBRICANT OIL ADDUCTS
Joel F. Carpenter, and Jerry M. Roper, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.
Continuation of Ser. No. 581,540, Sep. 12, 1990, abandoned. This application Feb. 12, 1992, Ser. No. 835,103
Int. Cl.[5] C10M *105/06*
U.S. Cl. 252—52 A 17 Claims

1. A synthetic oil which is a dispersant for polar lubricant additives comprising the alkylation reaction product of an α-olefin oligomer derived from an α-olefin monomer containing from 8 to 20 carbon atoms and prepared using a Friedel-Crafts catalyst and from about 0.01 to 1 mol of a phenol per mole of oligomer, which product has been reacted to convert at least a portion of the hydroxyl groups to alkoxylated alcohols.

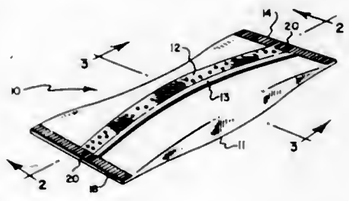
5,207,941
USE OF WATER-SOLUBLE OR WATER-DISPERSIBLE GRAFTED PROTEINS AS DETERGENT ADDITIVES
Matthias Kroner, Bad Durkheim; Heinrich Hartmann, Limburgerhof; Richard Baur, Mutterstadt, and Wolfgang Trieselt, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany
Filed May 10, 1991, Ser. No. 697,961
Claims priority, application Fed. Rep. of Germany, May 18, 1990, 4016002
Int. Cl.[5] C11D *3/37, 3/384*
U.S. Cl. 252—174.23 3 Claims

1. A phosphate-free or low-phosphate detergent comprising:
a) a surfactant; and
b) 0.1–20% by weight based on the formulation, of a water-soluble or water-dispersible grafted protein obtained by free radical copolymerization of
(A) monoethylenically unsaturated monomers selected from the group consisting of esters of a monoethylenically unsaturated C_{3-8} carboxylic acids with monohydric or polyhydric C_{1-22} alcohols, esters of a monoethylenically unsaturated C_{3-8} carboxylic acids with the addition products of 1–50 mol of alkylene oxide with 1 mol of a C_{1-22} alcohol, amides of C_{3-8} carboxylic acids which are derived from ammonia, C_{1-22} alkylamines or C_{1-22} dialkylamines, nitriles of carboxylic acids, vinyl ethers of C_{1-8} alcohols, vinyl esters of saturated C_{1-22} carboxylic acids, N-vinylamides, vinylpyridines, acrylamidopropanesulfonic acid, acrylamidoethanesulfonic acid, N,N-dialkylamino-C_{2-4}-alkyl(meth)acrylamides, styrene, alkylstyrene and a mixture thereof;
(B) a protein
in a weight ratio of (A):(B) of (0.5–90):(99.5–10).

5,207,942
PREPARATION OF MIXTURES OF DIPHENYLMETHANE DIISOCYANATES AND POLYPHENYLPOLYMETHYLENE POLYISOCYANATES HAVING A REDUCED IODINE COLOR NUMBER
Dietrich Scherzer, Ludwigshafen; Roland Minges, Gruenstadt; Werner Langer; Bernd Bruchmann, both of Ludwigshafen; Wolfgang Heider, Limburgerhof; Peter Keller, Hirschberg; Arnold Schmitt, Friedelsheim, and Willy Van Pee, Kapellen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Feb. 8, 1991, Ser. No. 653,566
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1990, 4006976
Int. Cl.[5] C09K *3/00;* C07C *263/10*
U.S. Cl. 252—182.2 9 Claims

1. A process for the preparation of a mixture of diphenylmethane diisocyanates and polyphenylpolymethylene polyisocyanates having a reduced iodine color number, by reacting:
a) a corresponding mixture of a diphenylmethane diamines; with
b) phosgene, in the presence of one or more inert solvents;
c) adding, in an amount sufficient to reduce the iodine color, a low molecular weight alkanol and/or polyhydric alcohol at the end of the phosgenation but prior to separating off any excess phosgene and the insert solvent;
d) separating off excess phosgene and unreacted solvent; and,
e) dechlorinating the mixture of diphenylmethane diisocyanates and polyphenylpolymethylene polyisocyanates by heating under pressure.

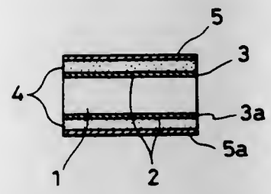
5,207,943
OXYGEN ABSORBER FOR LOW MOISTURE PRODUCTS
John S. Cullen, Buffalo; George E. McKedy, Williamsville; Christopher S. Nigon, Orchard Park, and Thomas H. Powers, Mayville, all of N.Y., assignors to Multiform Desiccants, Inc., Buffalo, N.Y.
Filed Jan. 7, 1991, Ser. No. 638,491
Int. Cl.[5] C09K *15/02*
U.S. Cl. 252—188.28 19 Claims



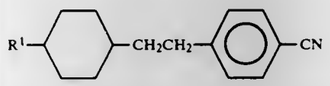
1. An oxygen-absorbing composition for absorbing oxygen from a container having a low moisture product therein comprising in relatively sufficient proportions for absorbing oxygen in said container, particles of iron, particles of a solid electrolyte material, and particles of a hydrogel type of flowable amorphous silicon dioxide containing 50%–70% moisture wherein said hydrogel type of flowable amorphous silicon dioxide in present in an amount by weight of between about 30% and 300% of said iron, and wherein said electrolyte material is present in an amount by weight sufficient to combine with moisture from said hydrogel to provide a sufficiently strong electrolytic solution to effect electrolytic action.

5,207,944
LIQUID CRYSTAL COMPOSITION AND LIQUID CRYSTAL DISPLAY ELEMENT
Shinichi Sawada, and Akiko Fukuda, both of Ichihara, Japan, assignors to Chisso Corporation, Tokyo, Japan
Continuation of Ser. No. 774,652, Oct. 15, 1991, abandoned, which is a continuation of Ser. No. 507,577, Apr. 11, 1990, abandoned. This application Jul. 29, 1992, Ser. No. 919,373
Claims priority, application Japan, Apr. 17, 1989, 1-97228; Dec. 11, 1989, 1-321218
Int. Cl.[5] C09K *19/52, 19/34;* G02F *1/13*
U.S. Cl. 252—299.01 16 Claims

1. A liquid crystal composition for a supertwisted birefringence effect display including, a first component comprising at

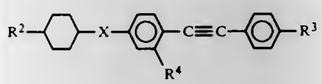


least one member of compounds expressed by the formula



(I)

wherein R^1 represents an alkyl group of 1 to 10 carbon atoms, and a second component comprising at least one member of compounds expressed by the formula

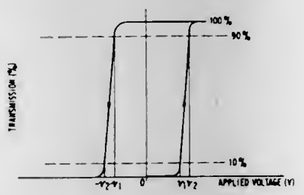


(II)

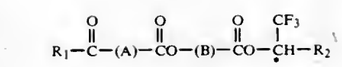
wherein R^2 represents an alkyl group of 1 to 10 carbon atoms, R^3 represents an alkyl group or an alkoxy group each of 1 to 10 carbon atoms, R^4 represents H or F and X represents a single bond or $—CH_2CH_2—$ and the blending proportion of the first component is 20 to 70% by weight and that of the second component is 20 to 50% by weight.

5,207,945
Patent Not Issued For This Number

5,207,946
LIQUID CRYSTAL COMPOUNDS
Koichi Numazawa; Noriko Yamakawa; Yoshiichi Suzuki, and Ichiro Kawamura, all of Tokyo, Japan, assignors to Showa Shell Sekiyu K.K., Tokyo, Japan
Filed Jul. 25, 1990, Ser. No. 557,845
Claims priority, application Japan, Jul. 26, 1989, 1-193694
Int. Cl.[5] C09K *19/12, 19/20;* C07C *69/76*
U.S. Cl. 252—299.65 3 Claims

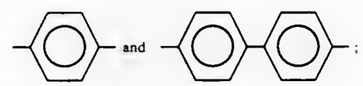


1. A liquid crystal compound represented by formula (III)



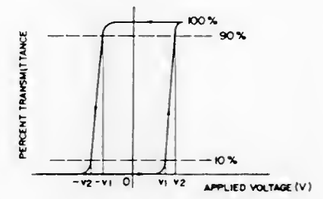
(III)

wherein R_1 and R_2 represents an alkyl group having from 4 to 15 carbon atoms, (A) and (B) each represents a group selected from the group of

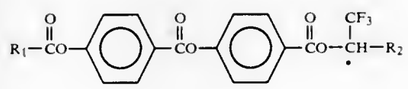


and which compound is in an $S^*_{(3)}$ phase.

5,207,947
LIQUID CRYSTAL COMPOUND
Yoshiichi Suzuki; Noriko Yamakawa; Yoshihiko Aihara; Hiroyuki Mogamiya; Toru Oolde; Tadaaki Isozaki; Yuvra Negi, and Shigenori Sakuma, all of Tokyo, Japan, assignors to Showa Shell Sekiyu Kabushiki Kaisha, Tokyo, Japan
Continuation-in-part of Ser. No. 592,683, Oct. 3, 1990, abandoned. This application Jun. 11, 1991, Ser. No. 713,143
Claims priority, application Japan, Oct. 6, 1989, 1-261804; Nov. 21, 1989, 1-302569; Nov. 29, 1989, 1-309709; Dec. 12, 1989, 1-321829; Dec. 27, 1989, 1-339482; Jan. 22, 1990, 2-12005; Jan. 22, 1990, 2-12006; Jul. 9, 1990, 2-181186; Nov. 20, 1990, 2-315142
Int. Cl.[5] C09K *19/20, 19/06;* C07C *69/76*
U.S. Cl. 252—299.67 3 Claims



1. Liquid crystal compound having the formula (I)L



(I)

wherein R_1 is a C_{8-18} alkyl group and R_2 is a C_{6-16} alkyl group, which has $S^*(3)$ phase showing tristable states.

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5,207,948

STIR-IN FLUORESCENT LAMP PHOSPHOR AND METHOD OF MAKING SAME

Robert W. Wolfe; Joseph J. Lenox, both of Towanda, and Theodore J. Tomlinson, Canton, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Feb. 11, 1991, Ser. No. 656,342
Int. Cl.[5] C09K *11/02;* B05D *5/06;* B32B *5/16*
U.S. Cl. 252—301.36 9 Claims

1. A method of making a stir-in magnesium tungstate phosphor, comprising the steps of:

a) forming an aqueous slurry of said phosphor, a latex polymer and fumed silica;

b) stirring said aqueous slurry to form a uniform dispersion of solid particles in an aqueous suspension;

c) separating said solid particles from said aqueous suspension; and

d) drying and screening said solid particles to form a stir-in polymer-coated magnesium tungstate phosphor.

5,207,949

HIGHLY CONDUCTIVE POLYOXYMETHYLENE RESIN COMPOSITION CONTAINING CARBON BLACK

Masahiko Niino, and Shuichi Kudoh, both of Kurashiki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Apr. 16, 1991, Ser. No. 686,135
Claims priority, application Japan, Apr. 16, 1990, 2-097547
Int. Cl.[5] H01B *1/24*
U.S. Cl. 252—511 15 Claims

1. A highly conductive resin composition comprising:

(a) 55%–89.95% by weight of a polyoxymethylene resin,

(b) 5–15% by weight of a carbon black exhibiting a dibutyl phthalate absorption of 300–480 ml/100 g,

(c) 0.05–10% by weight of an epoxy compound containing at least one glycidyl group or an epoxy compound obtained by oxidizing a compound having unsaturation to form an epoxy group therein, and

(d) 5–20% by weight of a polyolefin copolymer of ethylene and an α-olefin of 3–6 carbon atoms, or a polyester copolymer having diol residues represented by formula (1) and dicarboxylic acid residues represented by formulae (2) and (4),



(1)

R is an aliphatic hydrocarbon residue of 2–12 carbon atoms,



(2)

R^1 is an ethylene group, a polymethylene group of 3–4 carbon atoms, or an alkylene group of 2–4 carbon atoms,



(4)

Ph is an aromatic hydrocarbon residue, and the molar ratio of (2)/[(2)+(4)] being 5–100 mole %.

5,207,950

POLYMER COMPOSITION CONTAINING CHLORIDED CONDUCTIVE PARTICLES

John Ehrreich, Maynard, Mass., assignor to Ercon, Inc., Waltham, Mass.

Filed Mar. 16, 1989, Ser. No. 324,420
Int. Cl.[5] H01B *1/22*
U.S. Cl. 252—518 64 Claims

1. A composition comprising chlorided and non-chlorided conductive particles and organic material selected from the group consisting of polymers, pre-polymers and mixtures thereof wherein at least about 5 percent by weight of the particles included in the composition are particles which were formed and subsequently chlorided prior to inclusion in the composition such that the particles have noble metal chloride at least on their surface prior to inclusion in the composition.

5,207,951

AMINE OXIDE SURFACTANT COMPOSITIONS

Joe D. Sauer; Kim R. Smith; James E. Borland, and Terry Crutcher, all of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed Aug. 27, 1991, Ser. No. 750,191
The portion of the term of this patent subsequent to Nov. 7, 2019, has been disclaimed.
Int. Cl.[5] C11D *1/75, 1/72, 3/26, 17/08*
U.S. Cl. 252—547 19 Claims

1. A surfactant composition consisting of (A) an amine oxide corresponding to the formula RR'R"NO in which R is a primary alkyl group containing 6–24 carbons and R' and R' are independently selected from methyl, ethyl, and 2-hydroxyethyl and (B) a normally liquid polyalkylene glycol.

5,207,952

SIDE CHAIN LIQUID CRYSTALLINE POLYMERS AS NONLINEAR OPTICAL MATERIALS

Anselm C. Griffin, III, Hattiesburg, Miss., assignor to University of Southern Mississippi, Hattiesburg, Miss.

Continuation of Ser. No. 342,634, Apr. 20, 1984, abandoned, which is a continuation of Ser. No. 917,710, Oct. 10, 1986, abandoned. This application Apr. 2, 1991, Ser. No. 682,841
Int. Cl.[5] F21V *9/00;* C09K *19/52;* C08G *67/24*
U.S. Cl. 252—582 40 Claims

1. A composition of matter, comprising a liquid crystalline, noncentrosymmetric polymer having a polymeric backbone and a plurality of dipolar pendant groups attached at intervals along the backbone; said dipolar pendant groups comprising a pi-electron donor and a pi-electron acceptor that comprises NO_2 or CN and is conjugatively connected to the pi-electron donor.

5,207,953

FIRE RETARDED SOLVENTS

Donald A. Thorssen, and Dwight N. Loree, both of Calgary, Canada, assignors to Trisol Inc., Calgary, Canada

Filed Nov. 27, 1991, Ser. No. 800,475
Int. Cl.[5] C09K *21/08, 7/06;* C23G *5/028*
U.S. Cl. 252—601 13 Claims

1. A fire retarded solvent composition for use as an oil and gas operation fluid, the composition comprising:

a mixture of at least one well formation compatible flammable or combustible organic solvent; and

at least one non-flourine containing brominated non-aromatic hydrocarbon dissolved in the organic solvent in an amount sufficient to cause a decrease in the flame propagation rate of the composition said brominated non-aromatic hydrocarbon being present in an amount of no more than about 5% by volume of said organic solvent.

5,207,954

METHOD OF MAKING COREACTABLE POWDERED COATINGS

Jeffrey M. Lewis, Charleston; Kenneth L. Hoy, Saint Albans, both of W. Va., and Michael J. Greene, Mt. Pleasant, S.C., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Continuation of Ser. No. 819,648, Jan. 10, 1992, abandoned, which is a continuation of Ser. No. 412,191, Sep. 25, 1989, abandoned. This application Jun. 22, 1992, Ser. No. 900,779
Int. Cl.[5] B29B *9/10*
U.S. Cl. 264—13 46 Claims



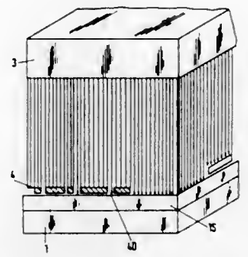
1. A process of forming a thermosettable, coreactable particulate powdered composition which comprises spray drying an aqueous dispersion containing two or more coreactive copolymers, at least one of the coreactive copolymers having a weight average molecular weight of less than about 50,000 and each coreactive copolymer having at least one functional group and made by polymerizing (i) at least one olefinically unsaturated monomer and (ii) at least one functionality providing monomer which is capable of being polymerized with the at least one olefinically unsaturated monomer, to form particles of the powdered composition, wherein a substantial portion of the particles each contain functional groups which are thermosettably reactive with each other and the particles are substantially uniform and spherical.

5,207,955

PROCESS FOR REMOVING AND/OR STRUCTURING SURFACES BY IRRADIATING WITH A LIGHT SOURCE

Hilmar Esrom, Edingen-Neckarhausen, Fed. Rep. of Germany, and Ulrich Kogelschatz, Hausen b. Brugg, Switzerland, assignors to ABB Pateot GmbH, Mannheim, Fed. Rep. of Germany

Filed Dec. 27, 1991, Ser. No. 815,262
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1990, 4041884
Int. Cl.[5] B44C *1/22*
U.S. Cl. 264—22 3 Claims



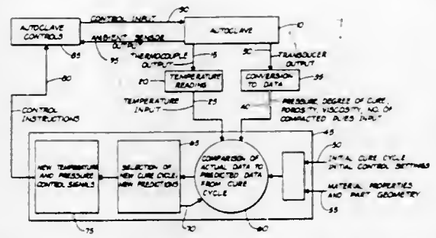
1. In a process for removing and/or structuring surfaces by irradiating with a light source, the improvement which comprises producing incoherent UV radiation having a wavelength of substantially 172 nm with a high-power lamp filled with xenon gas filling, irradiating a polyamide surface for 1 to 30 minutes in a vacuum with the incoherent UV radiation, and removing and/or structuring the polyamide surface to substantially 1.5 μm.

5,207,956

COMPUTER-CONTROLLED METHOD FOR COMPOSITE CURING

Ronald A. Kline, and M. Cengiz Altan, both of Norman, Okla., assignors to The Board of Regents of The University of Oklahoma, Norman, Okla.

Filed Feb. 5, 1992, Ser. No. 831,608
Int. Cl.[5] B29C *35/02*
U.S. Cl. 264—40.6 18 Claims



1. A method for controlling a curing process for curing a composite material part in a curing vessel, comprising the steps of:

placing the composite material part in the curing vessel;

selecting an initial cure cycle;

beginning the curing process of the composite material part in accordance with the initial cure cycle;

measuring an actual part temperature of the part during the curing process;

measuring a pressure within the curing vessel during the curing process;

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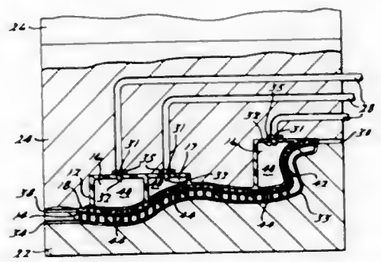
directly measuring during the curing process at least one additional real part parameter value;
comparing the additional real part parameter value to a predicted part parameter value determined from a predictive analytic model;
selecting a new cure cycle periodically during the curing process when the additional real part parameter value falls outside of a predetermined acceptable range about the predicted part parameter value; and
adjusting the curing process in accordance with the new cure cycle.

5,207,957

METHOD FOR PRODUCING A FOAMED PANEL

Gerald A. Heath, Canton; Richard L. Hamilton, Novi, and Steven D. McCarthy, Farmington Hills, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 8, 1991, Ser. No. 742,113
Int. Cl.[5] B29C *45/14, 67/22*
U.S. Cl. 264—40.5 **9 Claims**



1. A method of manufacturing an article having a substructure with a wall having first and second wall surfaces and a molded layer along said first wall surface, comprising the following steps:
supporting said substructure in a tool having first and second die surfaces on either side of said wall, said first die surface being spaced apart from said first wall surface and said second die surface being spaced apart from said second wall surface;
injecting a moldable material between said first die surface and said first wall surface under conditions causing said material to apply a varying pressure against said first wall surface between the time said moldable material is first injected to a time thereafter; and
contacting said second wall surface with a fluid under sufficient pressure to create a force on said wall that offsets the pressure exerted by said material and changing the pressure of said fluid in accordance with a predetermined time/pressure relationship, whereby said wall is supported against deformation.

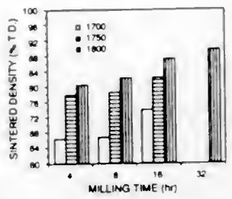
5,207,958

PRESSURELESS SINTERING OF WHISKER-TOUGHENED CERAMIC COMPOSITES

Terry N. Tiegs, Lenoir City, Tenn., assignor to Martin Marietta Energy Systems, Inc., Oak Ridge, Tenn.

Continuation of Ser. No. 579,506, Sep. 10, 1990, abandoned, which is a continuation of Ser. No. 340,625, Apr. 9, 1989, abandoned. This application Nov. 6, 1991, Ser. No. 789,390
Int. Cl.[5] C04B *35/10*
U.S. Cl. 264—65 **7 Claims**

1. The method of producing whisker-toughened ceramic composites from alumina, SiC whiskers having an aspect ratio of at least about 50, and a sintering aid including yttria and MgO, which comprises forming a homogeneous mixture including from about 10 to about 20 wt. % of the SiC whiskers, a yttria concentration of from about 10 to about 40 wt. %, a MgO concentration of from about 0.1 to about 1 wt. %, and a balance of alumina; milling said homogeneous mixture for a period of 16 to 32 hours to achieve an average aspect ratio of the whiskers of from about 10 to about 20; shaping the mixture into a preselected configuration at a pressed density of about 50% of the theoretical density; and heating the mixture at essentially atmospheric pressure in an inert atmosphere at a



temperature in the range of from about 1750° to about 1800° C. for a sufficient time to effect liquid-phase pressureless sintering of the ceramic matrix wherein a sintered self-supporting composite of the predetermined configuration is produced which is toughened by a dispersed whisker phase and which exhibits an improved sintered density of at least about 94% of the theoretical density.

5,207,959

PROCESS FOR OBTAINING PET YARNS WITH AN IMPROVED PRODUCTION EFFICIENCY

Paul Antikow, Lyons, and Francois Pinaud, Brignais, both of France, assignors to Rhone Poulenc Fibres, Lyons, France

Filed Dec. 13, 1990, Ser. No. 626,766
Claims priority, application France, Dec. 20, 1989, 89 17216
Int. Cl.[5] D01D *5/088;* **D01F** *6/62*
U.S. Cl. 264—103 **6 Claims**

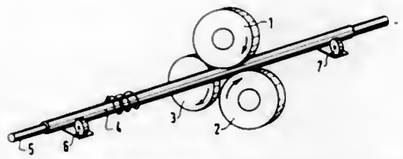
1. Process for improving the production efficiency during the spinning of an undrawn, preoriented yarn based on polyethylene terephthalate (PET) at a velocity of at least 3000 m/min, characterized in that, before the spinning, 0.03 to 0.1% by weight of fumed silica with a particle size of between 5 and 15 nm is introduced into the molten polymer in the form of dispersion in a masterbatch of the same polymer as that to be processed, followed by spinning of the PET containing the silica in the finely dispersed state, the filaments being next cooled by means of a gas stream at temperature between 17° to 22° C. and then sized and wound at a velocity of between 3500 and 5000 m/min.

5,207,960

METHOD FOR THE MANUFACTURE OF THIN TUBES OF FLUORINATED RESIN, PARTICULARLY OF POLYTETRAFLUOROETHYLENE

Bernard Moret de Rocheprise, Chalindrey, France, assignor to Compagnie Plastic Omnium, Lyons, France

Filed May 29, 1991, Ser. No. 706,897
Claims priority, application France, May 30, 1990, 90 06723
Int. Cl.[5] B29C *55/26, 39/36*
U.S. Cl. 264—103 **3 Claims**



1. A process for the manufacture of thin-walled tubes of wall thickness of less than 2 mm of fluorinated resin comprising the steps of:

a) winding a ribbon of fluorinated resin into a tube on a mandrel and holding said tube on the mandrel,
b) heating said ribbon to a temperature above the sintering temperature of the fluorinated resin and maintaining it at said temperature for sufficient time to sinter the resin,
c) rolling the tube between wheels while it is being held on the mandrel to reduce its thickness, to elongate it and to increase its inside diameter to facilitate tube extraction from the mandrel, and
d) extracting said tube from said mandrel.

5,207,961

INJECTION-MOULDED ARTICLE AND PROCESS FOR THE PRODUCTION THEREOF

Joachim Wank, Dormagen; Werner Waldenrath, Cologne, and Eckart Reese, Dormagen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 312,646, Feb. 17, 1989, abandoned, which is a division of Ser. No. 53,870, May 26, 1987, Pat. No. 4,828,901. This application Aug. 6, 1990, Ser. No. 563,829
Claims priority, application Japan, Jun. 6, 1986, 3619081
Int. Cl.[5] B32B *31/12*
U.S. Cl. 264—135 **10 Claims**

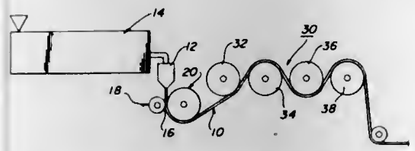
1. A process for preparing an injection molded article which is a metal/plastic composite bonded with a tack-free polyurethane adhesion promoter layer, said process consisting essentially of first applying polyurethane adhesion promoter to metal thereby forming a layer having a thickness of 2 to 80 μ, secondly, drying the promoter layer wherein the promoter layer is formed from (1) a polyurethane solution based on polybutylene adipate or polybutylene hexylene adipate having a molecular weight of 1000 to 8000 and hexamethylene diisocyanate or (2) a polyurethane dispersion based on a polyalkylene adipate or polyalkylene phthalate having a molecular weight of 1000 to 8000 and tolylene diisocyanate or hexamethylene diisocyanate, then thirdly encapsulating the promoter-layered metal by injection molding with a thermoplastic composition based on cellulose ester, polyvinyl chloride, polyamide, polycarbonate, polysulphone, ABS, polymethyl methacrylate, polyphenylene sulphide, polyalkylene terephthalate, polyarylene terephthalate, polyphenylene oxide, polyphosphonate or polyether ester ketone.

5,207,962

METHOD OF MAKING APERTURED FILM FABRICS

Edward E. Hovis, Newark, and Eric D. Johnson, Wilmington, both of Del., assignors to Applied Extrusion Technologies, Inc., Middletown, Del.

Filed Jun. 25, 1991, Ser. No. 720,543
Int. Cl.[5] B29C *67/20;* **B29D** *28/00*
U.S. Cl. 264—145 **18 Claims**



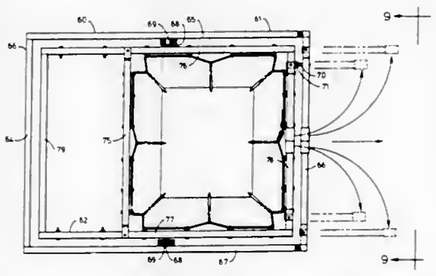
1. A process for the preparation of an apertured thermoplastic film by a single-sided embossing method comprising the steps of:
(a) extruding in the machine direction, a film from a molten thermoplastic polymer including polymers selected from the group consisting of low density polyethylene, low density polyethylene copolymers, linear low density polyethylene, very low density polyethylene, ultra low density polyethylene and blends thereof;
(b) passing the molten extruded film in the machine direction through the nip of two metal rollers, one of said rollers having a substantially smooth surface and the other of said rollers including a plurality of discrete, raised projections disposed in a pattern, with each of said projections terminating in a sharp distal end, said distal ends of said projections being separated from each other and being completely surrounded by continuous, surface regions located proximally of said distal ends;
(c) applying sufficient pressure at the nip for causing a plurality of small apertures to be formed in the extruded film in substantially the same pattern as the pattern of discrete, raised projections of said other of said rollers;
(d) orienting said apertured film in both the cross-machine direction and in the machine-direction to increase the open area of said apertures, said oriented film, with the apertures formed therein, being substantially planar and being free of continuous strand-like sections disposed in different planes; and
(e) embossing the oriented film on at least one surface with a plurality of raised members spaced closer to each other than the spaces between the apertures in the oriented film to thereby provide a matte-type finish on said at least one surface.

5,207,963

METHOD OF MOLDING PLASTIC-BACKED CARPET

Ronald R. Grace, Hamilton, Ohio, assignor to Nifty Products, Inc., Hamilton, Ohio

Filed Jul. 15, 1988, Ser. No. 219,358
Int. Cl.[5] B29C *51/08, 51/32;* **B29L** *31/58*
U.S. Cl. 264—163 **23 Claims**



1. A method of molding a plastic-backed carpet to a contoured shape designed to fit the interior floor area of a motor vehicle wherein the method requires a minimum of carpet material and work force, comprising the steps of:
(a) positioning a plastic-backed carpet blank within a portable frame assembly, said frame assembly having a fixed open rack of rails attached together to form a shape approximating the carpet blank, a set of legs extending from the open rack with each of said legs having a wheel mounted at a bottom extremity for the purpose of moving the frame assembly during treatment stages, and a yieldable holding means mounted on the open rack for holding the carpet blank at selected areas, said yieldable holding means having an elastic cord secured to an inside surface of the rack and a set of clamp means wherein each clamp means is movably secured at one end to the elastic cord and at a second end to the plastic-backed carpet blank;
(b) clamping the plastic-backed carpet blank to the yieldable holding means mounted on the open rack so that the carpet blank is suspended under a substantially constant tension within the open rack of the frame assembly;
(c) moving the frame assembly with the plastic-backed carpet blank into a heating zone;
(d) heating the plastic-backed carpet blank for a time and a

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temperature sufficient to soften the plastic backing so as to be moldable;

(e) moving the frame assembly with the heated plastic-backed carpet blank to a molding zone comprised of male and female molds;

(f) molding the heated plastic-backed carpet blank to the contour of the molds by causing said male and female molds to come together under pressure such that the shape defined by the molds is imparted to the plastic-backed carpet blank; and

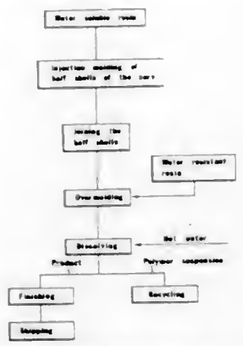
(g) cooling the molded plastic-backed carpet blank sufficiently to set its molded configuration.

5,207,964

METHOD FOR MANUFACTURING A PLASTIC HOLLOW PRODUCT USING WATER SOLUBLE RESIN

James J. Mauro, 19 E. Heritage Dr., Chatham, N.J. 07928

Filed Feb. 13, 1991, Ser. No. 654,875
Int. Cl.[5] B29C *33/40*
U.S. Cl. 264—221 14 Claims



1. A method for manufacturing a plastic hollow core product using water soluble resin, which comprises the steps of:

making first and second half shells of a high temperature resistant core by an injection molding process which employs an elongated injection cylinder having an inlet end and an outlet end, whereby for preparing each half shell said injection molding process comprises of: (1) heating the elongated injection cylinder to cause a temperature gradient along the elongated injection cylinder wherein the temperature at the inlet end is lower than the temperature at the outlet end; and (2) introducing water soluble resin through said injection cylinder and into a first mold cavity in a stepwise manner such that injection time, injection speed, and injection pressure through the elongated injection cylinder can be regulated;

joining said half shells together into one piece by spreading a solvent on the contacting surfaces of said half shells and then drying the joined core for approximately 1 to 24 hours while applying pressure of approximately 30 to 140 psi thereon;

making an overmolded core product by positioning said core into a second mold cavity, and thereafter injecting under high pressure a water resistant resin around said core by a process which employs the elongated injection cylinder, whereby the step of injecting said water resistant resin comprises of: (1) heating the elongated injection cylinder to cause a temperature gradient along the elongated injection cylinder wherein the temperature at the inlet is lower than the temperature at the outlet; and (2) introducing said resistant resin through said injection cylinder and into the second mold cavity in a stepwise manner such that injection time, injection speed, and injection pressure through the elongated injection cylinder can be regulated and then cooling the overmolded core product; and

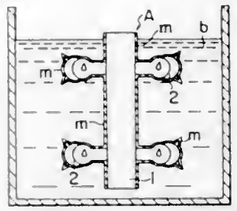
dissolving said water soluble resin from said overmolded core product with hot water.

5,207,965

METHOD FOR MANUFACTURING AN ELASTIC MOLD

Shigeo Komine, Tokyo, and Toshiya Fujishima, Kamakura, both of Japan, assignors to Komine Rubber Industrial Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 496,080, Mar. 15, 1990, abandoned, which is a continuation of Ser. No. 298,311, Jan. 17, 1989, abandoned, which is a continuation of Ser. No. 38,573, Apr. 15, 1987, abandoned, which is a division of Ser. No. 920,384, Oct. 20, 1986, abandoned. This application Nov. 20, 1991, Ser. No. 795,302
Claims priority, application Japan, Oct. 19, 1985, 60-160288; Oct. 19, 1985, 60-234203
Int. Cl.[5] B29C *41/14*
U.S. Cl. 264—226 5 Claims



1. A method of manufacturing an elastic mold, which comprises the steps of: pretreating an external surface of a pattern mounted on a face of a plate to facilitate rubber adhesion of the pattern, the pretreating step comprising dipping the pattern mounted on the face of the plate into a coagulation liquor, said face of the plate being dipped at a right angle to a surface of the coagulation liquor and withdrawing said pattern from said coagulation liquor to provide a uniform film thickness and avoid air bubble entrainment in the elastic mold product;

dipping the pattern mounted on the face of the plate into an elastic mold solution, the face of the plate being dipped at right angles to a surface of said elastic mold solution to form an elastic film on the plate and on the external surface of the pattern;

withdrawing the pattern from said elastic mold solution;

vulcanizing the film on the pattern; and

peeling the film off the pattern to obtain an elastic mold having an internal surface for receiving and holding casting material, the internal surface of the elastic mold being defined by the external surface of the pattern, said internal surface being in contact with said external surface prior to peeling of the elastic mold, and said elastic mold having a fixing member which corresponds to the face of said plate as an integral part of the mold.

5,207,966

METHOD FOR MOLDING A STRIP OF BLIND RIVETS

Douglas H. Adkins, Anaheim; John P. Anderson, Norco; Robert L. Conly, Glendora, and Thomas G. Singer, Huntington Beach, all of Calif., assignors to The Hartwell Corporation, Placentia, Calif.

Division of Ser. No. 566,971, Aug. 13, 1990, Pat. No. 5,080,229. This application Sep. 16, 1991, Ser. No. 760,737
Int. Cl.[5] B29C *45/16, 45/32*
U.S. Cl. 264—250 10 Claims

1. A method of molding a strip of blind rivets, each of said rivets having a pin within a sleeve, with the pin having a pulling head and a shank,

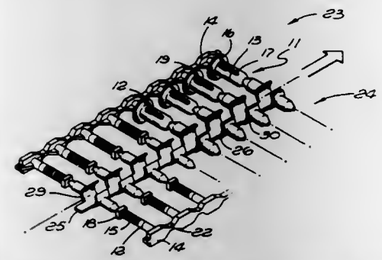
including the steps of:

molding a set of pins in pin mold cavities, each of the pins having ahead end and a shank end, including

feeding molding material to each of the pin mold cavities at the shank end of the pin from a first runner,

with the first runner including band means about an advance member adhering the first runner to the advance member;

advancing the molded pins to sleeve mold cavities by advancing the advance member from a first position to a



second position with the pins joined together at the shank ends by the first runner;

retracing the advance member to the first position leaving the molded pins in the sleeve mold cavities; and

molding a set of sleeves about corresponding pins in the sleeve mold cavities forming rivets, each of the sleeves having a flange end and a body end, including feeding each of the sleeve mold cavities at the body end of the sleeve from a second runner overlying the first runner.

5,207,967

MULTICOMPONENT POLYESTER/POLYCARBONATE BLENDS WITH IMPROVED IMPACT STRENGTH AND PROCESSABILITY

James D. Small, Jr., Blountville, and Spencer A. Gilliam, Kingsport, both of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 2, 1992, Ser. No. 844,020
Int. Cl.[5] C08L *69/00, 67/02;* B29C *45/73*
U.S. Cl. 264—328.16 15 Claims

1. A thermoplastic molding composition comprising:

(A) about 10 to about 90 weight percent of an aromatic polycarbonate of 4,4'isopropylidenediphenol having a relative viscosity of about 1.1 to about 1.5;

(B) about 90 to about 10 weight percent of a poly(1,4-cyclohexylenedimethylene terephthalate) resin consisting essentially of repeat units from terephthalic acid and 1,4-cyclohexanedimethanol, based on 100 mole percent dicarboxylic acid and 100 mole percent diol, said resin having an inherent viscosity of about 0.4 to about 1.2 dl/g; and

(C) about 10 to about 90 weight percent of a copolyester comprising

(1) a dicarboxylic acid component consisting essentially of repeat units from about 1 to about 50 mole percent isophthalic acid and from about 50 to about 99 mole percent terephthalic acid, and

(2) a diol component consisting essentially of repeat units from 1,4-cyclohexanedimethanol, based on 100 mole percent dicarboxylic acid and 100 mole percent diol;

it being understood that the combined weights of (A), (B) and (C) total 100 percent.

5,207,968

METHOD FOR MAKING A DIMENSIONALLY STABLE GREEN CERAMIC SHEET

Frankie E. Phelps, Washington Twp; Clement E. Valchar, Lower Burrell, and Robert A. DiMillia, Export, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed May 16, 1991, Ser. No. 701,046
Int. Cl.[5] B29C *71/00;* C04B *41/81*
U.S. Cl. 264—344 20 Claims

1. A process for dimensionally stabilizing a green card cut from a cast sheet of frit bound together with a binder, said process comprising,

(a) contacting said card with moisture at a temperature in the range from about 40° C. to about 100° C., in humidifying zone which is essentially free of a solvent for a water-soluble thermoplastic synthetic resinous component of said binder, said humidifying zone being maintained with a relatively humid atmosphere in the range from 50% relative humidity to 100% relative humidity;

(b) maintaining said card in contact with said moisture for sufficient time, less than about 1 hr, to allow said moisture thoroughly to contact the card, resulting in a humidified card; and,

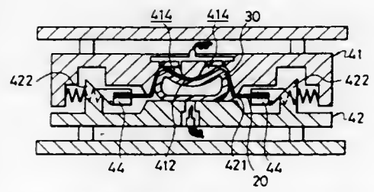
(c) storing said humidified card in ambient atmosphere in the range from about 10° C. to about 30° C. for a period of at least 10 min, whereby upon further drying at a temperature below 200° C., said humidified card shrinks no more than 0.1 mil/inch in the direction of either lateral axis, or either diagonal axis, so as to yield a dimensionally stable green card.

5,207,969

PROCESS OF PRODUCING BLOW MOLDED ARTICLE

Itaru Shirahata, Ohbu, Japan, assignor to Tokai Kogyo Co., Ltd., Ohbu, Japan

Filed Aug. 20, 1991, Ser. No. 747,810
Claims priority, application Japan, Oct. 12, 1990, 2-272477
Int. Cl.[5] B29C *49/20*
U.S. Cl. 264—516 3 Claims



1. A process for producing a blow molded article, comprising:

placing (1) a parison capable of being blow molded, and (2) a resin film, between a first mold section having a first molding surface for forming the outer face of the blow molded article and a second mold section having a second molding surface for forming the inner face of the blow molded article, said first mold section having air-bleeding hole means through said first surface for removing air therefrom, said first and second mold sections being spaced-apart from each other, said resin film being located between said first molding surface and said parison;

applying a tension force for maintaining said resin film under tension between said first molding surface and said parison;

then closing said first and second mold sections to form a mold cavity, gradually reducing said tension force applied to said film in response to closing of said first and second mold sections so that said film can freely conform to the shape of said parison, blowing a pressurized fluid into said parison to inflate the parison to form it into said blow molded article having the shape of the mold cavity and

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simultaneously to unite said film to the outer face of said blow molded article, and removing air from between said first molding surface and said resin film through said bleeding hole means;

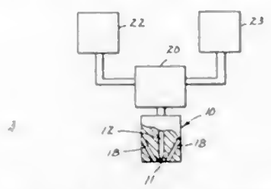
then cooling the blow molded article, opening said mold sections and removing the blow molded article.

5,207,970

METHOD OF FORMING A WEB OF MELT BLOWN LAYERED FIBERS

Eugene G. Joseph, Arden Hills, and Daniel E. Meyer, Stillwater, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 30, 1991, Ser. No. 769,206
Int. Cl.[5] D01D 5/08
U.S. Cl. 264—518 5 Claims



1. A method for forming a nonwoven web of melt-blown microfibers comprising the steps of

a) providing at least two streams of flowable polymeric materials

b) dividing at least one stream of the at least two streams into two or more separate streams,

c) combining said at least two streams, with at least one stream divided into said separate streams, as layers in a layered, combined rectilinear flowstream, the layers being parallel each to the other,

d) forming the combined rectilinear flowstream in a laminar manner into a flowstream having an overall height of about 50 mils or less while maintaining the parallel layers,

e) extruding the combined rectilinear flowstream through a die containing multiple side-by-side orifices to form a plurality of side-by-side flowstreams,

f) attenuating the extruded side-by-side flowstreams with two high-velocity gaseous streams located at each side of the die face to form microfibers, and

g) collecting the microfibers on a collecting surface as an entangled melt-blown web formed of melt-blown microfibers having at least three continuous layers.

5,207,971

EXTRUSION OF WRINKLE-FREE BLOWN FILM FROM HIGH MODULUS RESIN

Richard J. Volungis, Mason, Ohio, assignor to Quantum Chemical Corporation, New York, N.Y.

Filed Feb. 7, 1992, Ser. No. 832,254
Int. Cl.[5] B29C 47/88
U.S. Cl. 264—564 13 Claims

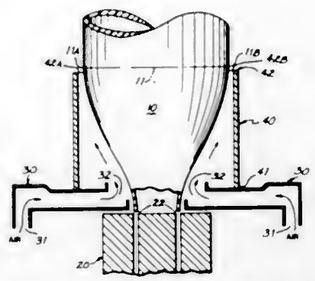
1. A process for blown-film extrusion of high modulus resin, the process comprising

extruding through a circular die a thermoplastic resin, having a modulus of greater than 140,000 psi as measured by ASTM D638, to form a film tube;

passing the film tube through an air ring which has an air orifice;

passing the film tube through a cylinder above the air ring, the cylinder having continuous walls, being sealed at its lower circumference to the air ring at a position outside the air ring orifice, and being open at its upper circumference;

expanding the film tube radially to form a bubble having a frost line no lower than the upper circumference of the cylinder and having a maximum bubble diameter of from 90 to 105 percent of the cylinder diameter at the cylinder's upper circumference; and



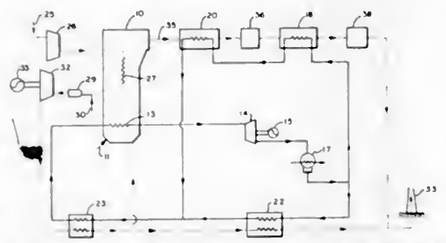
maintaining a flow of air through the air ring and cylinder sufficient to maintain the gap between the bubble and the cylinder's upper circumference at less than ten percent of the maximum bubble diameter.

5,207,972

HIGH TEMPERATURE FURNACE

Klaus H. Hemsath, Toledo, Ohio, assignor to Indugas, Inc., Toledo, Ohio

Continuation-in-part of Ser. No. 520,244, May 7, 1990, Pat. No. 5,078,368. This application Dec. 10, 1991, Ser. No. 805,580
Int. Cl.[5] F27B 9/16
U.S. Cl. 266—44 12 Claims



1. A method for effecting high temperature heat transfer in an industrial furnace system having a heat track conduit with an opening in its inner wall; a heat transfer cylinder positioned relative to said heat track conduit so that a portion of its cylindrical surface extends through said opening; a cylindrical furnace casing wall extending about that portion of said heat transfer cylinder which does not extend into said opening to define an annular heat transfer space between said casing wall and said heat transfer cylinder, a plurality of heat exchange tubes in said annular space; said method comprising the steps of:

a) providing industrial burners in said heat track conduit and firing said burners to produce products of combustion at high temperature;

b) heating that portion of the cylindrical surface of said heat transfer cylinder which extends into said opening from said burner's products of combustion;

c) rotating said heat transfer cylinder so that the heated cylindrical surface portion resulting from step (b) is rotated into said heat transfer space;

d) heating said heat exchange tubes in said annular space by said heated cylindrical surface portion of said heat transfer cylinder while simultaneously cooling said cylindrical portion when heat is transferred to said heat exchange tubes; and

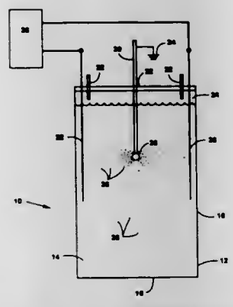
e) rotating said cylindrical surface portion when cooled by heat transfer to said heat exchange tubes back into said opening for reheating by said burner products of combustion whereby a continuous, regenerative furnace system is provided for indirectly heating fluid in said heat exchange tubes.

5,207,973

METHOD AND APPARATUS FOR THE PRODUCTION OF METAL OXIDE POWDER

Michael T. Harris; Timothy C. Scott, both of Knoxville, and Charles H. Byers, Oak Ridge, all of Tenn., assignors to Martia Marietta Energy Systems, Inc., Oak Ridge, Tenn.

Division of Ser. No. 441,793, Nov. 27, 1989, Pat. No. 5,122,360. This application Feb. 6, 1992, Ser. No. 832,091
Int. Cl.[5] C22B 3/00
U.S. Cl. 266—170 3 Claims



1. An apparatus for reacting immiscible liquid reactant phases to form metal oxide particles comprising:

a vessel for containing a liquid continuous phase reactant;

a liquid drop delivering means for delivering a liquid dispersed phase reactant as drops into said liquid continuous phase reactant, said liquid drop delivering means being disposed so as to be submerged in said liquid continuous phase reactant, at least one of said liquid continuous phase reactant and said liquid dispersed phase reactant comprising a source of metal-containing ions;

a pulse electric field applying means for producing and applying a pulsed electrical field to said liquid dispersed phase reactant, said pulsed electrical field applying means being disposed so as to be submerged in said liquid continuous phase reactant, said pulsed being capable of fracturing said drops of said liquid dispersed phase reactant to form micro-drops of said liquid dispersed phase reactant so that said liquid continuous phase reactant can react with said micro-drops of said liquid dispersed phase reactant to form metal hydroxide particles; and

a drying means for drying said metal hydroxide particles to a metal oxide powder.

5,207,974

PARTITIONED RECEPTACLE FOR DISTRIBUTING MOLTEN METAL FROM A SPOUT TO FORM AN INGOT

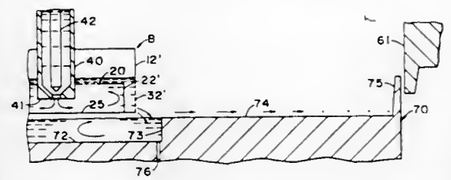
David I. Yun, Murrysville, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Jul. 29, 1991, Ser. No. 737,197
Int. Cl.[5] B22D 45/00
U.S. Cl. 266—230 20 Claims

1. A melt distribution bag adapted for use under a spout the discharge end of which is positioned to discharge said melt to form an ingot of generally rectangular cross section which ingot is to be cast in an ingot-defining mold cavity, said bag comprising,

an essentially pressureless box-shaped receptacle having a substantially planar base member and upstanding side and end walls rising from the periphery of said base member forming an outer bag which is partitioned to provide at least two opposed, spaced-apart discharge zones at each end of said outer bag;

an essentially melt-impermeable inner bag centrally disposed upon said base member, said inner bag being defined by upstanding laterally spaced apart partitions which connect



said side walls so as to retain a pool of said melt within said inner bag;

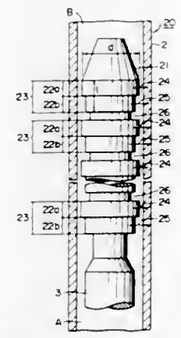
at least each said end wall having near the bottom thereof, a discharge outlet having a filtration member through which said melt is discharged into said mold cavity.

5,207,975

HYDRAULIC CONTROL ROD DRIVING SYSTEM

Youichirou Murakami; Zen-ichi Yoshida; Otomasa Mukouhara, all of Takasago; Chikara Kurimura, and Kenji Umeda, both of Kobe, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 27, 1991, Ser. No. 798,091
Claims priority, application Japan, Nov. 27, 1990, 2-320723
Int. Cl.[5] G21C 7/16
U.S. Cl. 376—230 2 Claims



1. A hydraulic control rod driving system provided with a cylinder installed on a reactor vessel cover and a driving shaft which is coupled with a control rod cluster, extends into said cylinder while penetrating through said reactor vessel cover and has a piston portion at an upper end thereof, in which said driving shaft is moved vertically by controlling fluid pressure above and under said piston portion, characterized in that:

radial clearance is formed between said piston portion and said cylinder;

step portions each composed of a cylindrical upper part having a large diameter and a cylindrical lower part having a small diameter arranged adjacent to the lower side of said upper part are provided on said piston portion along an axial direction thereof;

circumferential grooves for partitioning said respective step portions are provided; and

a ratio of the length of each step portion to the maximum outside diameter of said piston portion is set at 0.5 to 1.0.

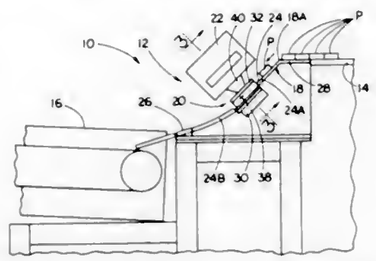
VOL 1150 ISS 1 MY 4 1993 UMI

5,207,976

PELLET SLIDE AND INSPECTION ASSEMBLY IN A NUCLEAR FUEL PELLET SURFACE DEFECT INSPECTION APPARATUS

Roosevelt Garrick, Cadsden; John F. Wilson, Columbia, and Hassan J. Ahmed, Irmo, all of S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 680,861, Apr. 5, 1991, abandoned. This application Sep. 11, 1992, Ser. No. 944,017
Int. Cl.[5] G21C *19/00*
U.S. Cl. 376—261 16 Claims



1. In an apparatus for inspecting nuclear fuel pellets for surface defects, said apparatus including a pellet infeed conveyor and a pellet discharge conveyor, a pellet slide and inspection assembly comprising:

(a) a pellet slide defining an inclined track having an exit end adjacent to said discharge conveyor and an entry end adjacent to said infeed conveyor and at a higher elevation than said exit end;

(b) an inspection station located along said inclined track between said entry and exit ends of said track, said station including lower and upper sound reflectors being configured to define an annular inspection chamber through which a pellet moves as the pellet slides down said inclined track, said lower and upper sound reflectors defining said annular inspection chamber completely surrounding the circumferential surface of the pellet as the pellet moves through said chamber; and

(c) an ultrasonic inspection head mounted at said inspection station and being operable to transmit and receive sound energy to and from a pellet as it moves through said inspection chamber such that the sound energy completely surrounds the moving pellet being inspected within said chamber;

(d) one of said lower and upper sound reflectors having an opening therethrough, said ultrasonic inspection head extending through said opening in said one of said lower and upper sound reflectors for transmitting and receiving sound energy to and from the pellet as it moves through said annular inspection chamber;

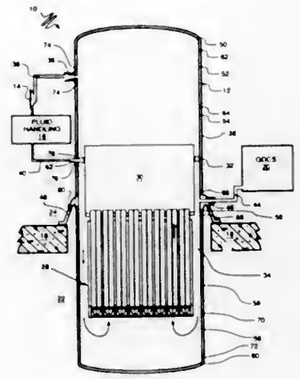
(e) one of said lower and upper sound reflectors having a recess defined therein, a first semicircular cavity defined in said recess and a pair of first surface portions defined along opposite sides of said first semicircular cavity, the other of said lower and upper sound reflectors having a second semicircular cavity defined therein being complementary to said first semicircular cavity and a pair of second surface portions defined along opposite sides of said second semicircular cavity, said other of said lower and upper sound reflectors being inserted into said recess of said one of said lower and upper sound reflectors so as to mate therewith at said respective pairs of surface portions such that said first and second semicircular cavities together define said annular inspection chamber and completely surround the circumferential surface of the pellet as the pellet moves through said chamber.

5,207,977

REACTOR PRESSURE VESSEL WITH FORGED NOZZLES

Dilip R. Desai, Fremont, Calif., assignor to General Electric Company, San Jose, Calif.

Continuation of Ser. No. 745,647, Aug. 16, 1991, abandoned. This application Jun. 12, 1992, Ser. No. 898,245
Int. Cl.[5] G21C *13/02*
U.S. Cl. 376—294 2 Claims



1. A reactor vessel for enclosing nuclear fuel and coolant in a nuclear reactor comprising:

a top, a bottom, and a vertically extending series of generally cylindrical sections extending between said bottom and said top,

a first of said cylindrical sections having at least one nozzle formation weldlessly formed therein,

a second of said cylindrical sections having a nozzle welded thereto; and

a support skirt for supporting said reactor pressure vessel on a concrete structure, said support skirt flaring outward toward said concrete structure, said support skirt being welded to said first cylindrical section and to said nozzle formation.

5,207,978

NUCLEAR REACTOR CONTROL CLUSTER GUIDE DEVICE

Gérard Barbe, Rueil Malmaison, France, assignor to Framatome, Courbevoie, France

Filed Sep. 19, 1991, Ser. No. 762,461
Claims priority, application France, Sep. 20, 1990, 90 11614
Int. Cl.[5] G21C *1/04*
U.S. Cl. 376—353 8 Claims

1. In a nuclear reactor, having a core formed of mutually adjacent fuel assemblies, upper internals above the core and a plurality of control clusters each of said guide devices movable, between a lower position in which it is inserted almost completely in the core and an upper position in which it is situated in said upper internals, said control clusters each comprising a bundle of elongated elements suspended from radial arms of a spider carried by a vertical drive shaft,

a plurality of control cluster guide devices for guiding a respective one of said control clusters, each comprising:

a plurality of mutually parallel guide tubes provided in one of said fuel assemblies for receiving the elongated elements of one of said control clusters;

a vertical tubular casing located in said upper internals and having, at its upper part, a closure plate formed with a central hole for said drive shaft;

a plurality of horizontal guide plates spaced apart vertically within and along the casing and cut out so as to let the spider pass and to guide said elements at vertical intervals; and

means for continuously guiding the elements in a lower part of the casing, formed as tubes for guiding individual elements and sleeves for guiding pairs of elements, each having a vertical slit of sufficient width to let a respective arm of the spider pass, located in intervals between the lowest ones of said horizontal plates, to protect the elements from the action of a turbulent coolant flow which leaves the core upwardly and is deflected towards coolant outlet openings formed in the casing and situated in said intervals,



wherein: said openings are formed immediately below the plates defining respective ones of said intervals; the tubes each guiding a single element are devoid of openings additional to said slit, so that a differential pressure appears which applies the elements against the tube wall; and

a lowest one of said horizontal guide plates has a cut-out shape defining a flow cross-sectional area greater than that of any one of those horizontal guide plates which are thereabove and define one said interval.

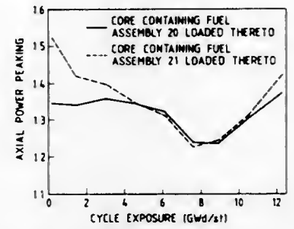
5,207,979

NUCLEAR FUEL ASSEMBLIES AND REACTOR CORES INCLUDING THEM

Junichi Koyama, Hitachi; Motoo Aoyama, Mito; Akinobu Nakajima, Hitachi; Yasunori Bessho, Mito; Junichi Yamashita, Hitachi; Sadao Uchikawa; Hiromi Maruyama, both of Katsuta; Michihiro Ozawa, and Mitsunari Nakamura, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 268,595, Nov. 7, 1988, Pat. No. 5,008,070. This application Mar. 20, 1990, Ser. No. 496,309
Claims priority, application Japan, Nov. 7, 1987, 62-281639; Jun. 24, 1988, 63-154746; Mar. 20, 1989, 1-66224
Int. Cl.[5] G21C *3/00*
U.S. Cl. 376—419 11 Claims

1. A nuclear fuel assembly having upper and lower regions and an array of fuel rods extending through both said regions, said fuel rods comprising a plurality of first fuel rods each containing nuclear fuel material but not containing burnable poison and a plurality of further fuel rods each containing both nuclear fuel material and burnable poison, said further fuel rods comprising at least one second fuel rod and at least one third fuel rods, wherein said at least one second fuel rod has at a lower region of the fuel assembly a burnable poison concentration which is a lowest burnable poison concentration other than zero of said burnable poison concentration contained in said further fuel rods at said lower region of the fuel assembly, and said at least one third fuel rod has at said lower region of the fuel assembly a burnable poison concentration higher than said lowest burnable poison concentration of said at least one second fuel rod, and wherein as seen in plan view said first fuel rods are disposed nearer to said second and third fuel rods than said second and third fuel rods are disposed with respect to one another in said array, and the burnable poison concentration of



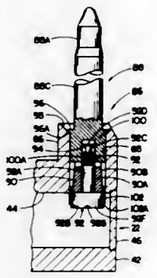
said second and third fuel rods of said further fuel rods at the lower region of the fuel assembly is determined at the same horizontal section extending through said further fuel rods in said lower region of the fuel assembly average burnable poison concentration of said further fuel rods is equal or higher in said lower region than in said upper region.

5,207,980

TOP NOZZLE-MOUNTED REPLACEMENT GUIDE PIN ASSEMBLIES

Charles B. Gilmore, and Walter H. Andrews, both of Columbia, S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 27, 1991, Ser. No. 782,183
Int. Cl.[5] G21C *3/32*
U.S. Cl. 376—446 34 Claims



1. A guide pin assembly for aligning a nuclear fuel assembly with an upper core plate of a nuclear reactor core, said guide pin assembly comprising:

(a) an elongated guide pin body having a base portion being insertable within a hole in the top nozzle, said guide pin body having a longitudinal axis;

(b) an expandable body insertable within the top nozzle hole with said base portion of said guide pin body, said expandable body having a wall portion including a plurality of circumferentially spaced vertical slots defining between them a plurality of flexible wall segments being capable of expanding radially outwardly relative to said longitudinal axis of said guide pin body to provide an interference fit with the top nozzle; and

(c) means insertable within the top nozzle hole with said expandable body and said base portion of said guide pin body for threading with said base portion of said guide pin body to produce a predetermined displacement of said threading means relative to said guide pin body along said longitudinal axis thereof sufficient to impart a radially and

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outwardly directed force on said flexible wall segments of said wall portion of said expandable body to produce expanding thereof within the hole of the top nozzle into said interference fit with the top nozzle and thereby secure said guide pin body to the top nozzle.

5,207,981

HEAT RESERVING MATERIALS USUABLE AT VERY LOW TEMPERATURES

Yasuhiro Hanaue; Etsuji Kimua; Takuo Takeshita; Kouichi Ishiyama, all of Omiya; Masashi Nagao, Amagasaki; Takashi Inaguchi, Amagasaki, and Hideto Yoshimura, Amagasaki, all of Japan, assignors to Mitsubishi Materials Corporation and Mitsubishi Denki Kabushiki Kaisha, both of Tokyo, Japan

Filed Sep. 27, 1991, Ser. No. 766,769

Claims priority, application Japan, Sep. 28, 1990, 2-259282; Jun. 11, 1991, 3-165151

Int. Cl.[5] C22C *5/00*

U.S. Cl. 420—416 **2 Claims**

1. Heat reserving materials comprising alloys of Ru and at least one rare earth metal which are represented by formula (I):

$$(A_{1-x}B_x)_zRu_{1-y}C_y$$

wherein

A represents one or two or more of Er, Ho and Dy, wherein the content ratio of Er in A is not less than 20 wt. %;

B represents one or two or more of the other rare earth metals;

C represents one or two or more of Co, Ni, Al, Cu, Pd, Rh, Au, Ag, Cr, Mn, V and B;

x is not less than 0 and not more than 0.5;

y is not less than 0 and less than 0.4; and

z is more than 1.1 and less than 5.0.

5,207,982

HIGH TEMPERATURE ALLOY FOR MACHINE COMPONENTS BASED ON DOPED TIAL

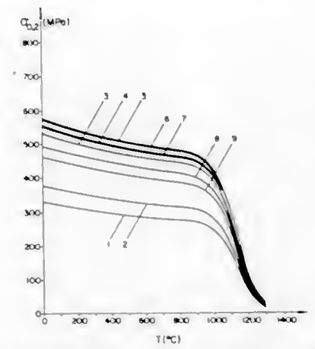
Mohamed Nazmy, Fislsibach, and Markus Staubli, Dottikon, both of Switzerland, assignors to Asea Brown Boveri Ltd., Baden, Switzerland

Filed May 3, 1991, Ser. No. 695,406

Claims priority, application Switzerland, May 4, 1990, 1523/90; May 4, 1990, 1524/90; May 11, 1990, 1616/90

Int. Cl.[5] C22C *14/00*; C21D *1/00*

U.S. Cl. 420—418 **3 Claims**



1. A high temperature alloy for a component subjected to high mechanical stress in thermal equipment, based on doped TiAl, having the composition $Ti_xEl_yMe_zAl_{1-(x+y+z)}$ in which El=Si and Me=Hf, Mo, Ta and/or W and

0.46	≦ x ≦	0.54	
0.001	≦ y ≦	0.015	
0.01	≦ z ≦	0.04	if Me is an individual element,
0.01	≦ z ≦	0.08	if Me are two or more individual elements,
0.46	≦ (x + y + z) ≦	0.54.	

5,207,983

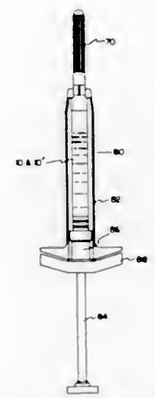
METHOD OF TERMINAL STEAM STERILIZATION

Richard T. Liebert, Ballston Spa; Neil H. Brown, Nassau, and John R. Pistolese, Valatie, all of N.Y., assignors to Sterling Winthrop Inc., New York, N.Y.

Filed Jan. 29, 1992, Ser. No. 827,239

Int. Cl.[5] A61L *2/00*

U.S. Cl. 422—25 **30 Claims**



1. A method for terminal sterilization of a pre-filled plastic syringe comprising: providing

a syringe barrel terminating in a nozzle at a distal end of the syringe barrel, and an open or proximal end and

a slideable plunger situated in the syringe barrel sealing the proximal end of the syringe barrel to retain a liquid therein and having a means to engage a plunger rod;

inserting the slideable plunger into the syringe barrel and sliding it toward the distal end thereof to leave a volume of at least about 2% empty space between the slideable plunger and the proximal end of the syringe barrel;

filling the syringe barrel through the nozzle of the syringe barrel with the liquid allowing for a head space not exceeding 10% by volume;

hermetically sealing the nozzle by a cap;

placing the pre-filled plastic syringe into an autoclave chamber to sterilize the liquid therein, said pre-filled plastic syringe having a pressure on outside surfaces of the pre-filled plastic syringe exerted by a steam atmosphere in the autoclave chamber and an internal pressure of the liquid contained in the pre-filled plastic syringe;

autoclaving the pre-filled plastic syringe at an autoclave pressure less than the pressure of the liquid in the pre-filled plastic syringe; and

cooling the autoclave chamber with a water cascade or nozzle spray or air draft at a rate that will not allow a collapse of the steam atmosphere in the autoclave chamber.

5,207,984

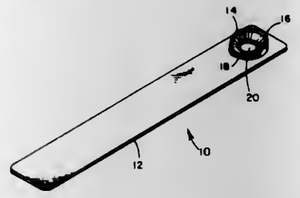
BLOOD SAMPLE COLLECTION AND TEST DEVICE

Mohammad A. Kheiri, Elkhart, Ind., assignor to Miles Inc., Elkhart, Ind.

Filed Mar. 11, 1991, Ser. No. 667,047

Int. Cl.[5] G01N *21/00*

U.S. Cl. 422—58 **4 Claims**



1. A test device consisting essentially of:

(a) an elongated strip,

(b) a sample delivery means, disposed on a surface of said strip, wherein said sample delivery means has an open, circular bowl shaped configuration with an open bottom and with walls extending vertically from said surface of said strip and wherein the walls forming a portion of said bowl shaped configuration of said sample delivery means are lower than the walls of an opposite portion of said bowl shaped configuration of said sample delivery means, and

(c) a reagent pad secured to the strip and positioned beneath the open bottom of the circular bowl shaped configuration of the sample delivery means.

5,207,985

KIT FOR USE IN ASSAY METHOD FOR THE DETERMINATION OF LITHIUM WITH NOVEL SUBSTITUTED CROWN DYES

Cheng-I Lin, and Marcel Pirio, both of San Jose, Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

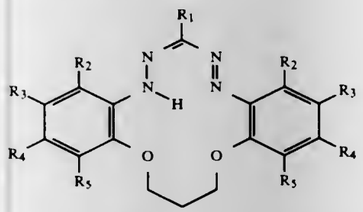
Division of Ser. No. 164,025, Mar. 4, 1988, Pat. No. 5,049,666, which is a division of Ser. No. 866,821, May 23, 1986, Pat. No. 4,742,010. This application Jun. 20, 1991, Ser. No. 718,067

Int. Cl.[5] G01N *33/20*

U.S. Cl. 422—61 **8 Claims**

1. A kit for use in an assay for lithium, said kit comprising in a packaged combination:

(a) a compound having the formula:



wherein:

R_1 is an electron withdrawing group, selected from the group consisting of $—NO_2$, $—SO_2CF_3$, $—CONX_2$, and $—SO_2NX_2$, and X is independently selected from the group consisting of hydrogen, methyl and ethyl;

R_2 and R_5 are independently selected from the group consisting of hydrogen, methoxy, carboxymethoxy, nitro, chlorine, bromine and fluorine; and

R_3 and R_1 are independently selected from the group consisting of hydrogen and a hydrophilic substituent consisting of from one to twelve atoms other than hydrogen, which atoms are selected from the group consisting of carbon, oxygen, nitrogen, phosphorous, sulfur and halogen; with the proviso that not more than three of R_3 and R_4 are hydrogen; and

(b) an aqueous buffer solution of pH of about 8 to about 14.

5,207,986

AUTOMATIC ANALYZER

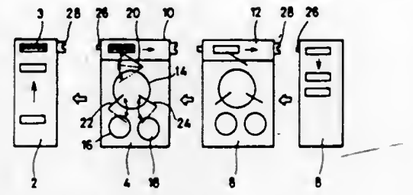
Toshimi Kadota, and Koji Tanimizu, both of Kyoto, Japan, assignors to Shimadzu Corporation, Kyoto, Japan

Filed Mar. 26, 1991, Ser. No. 675,179

Claims priority, application Japan, Mar. 30, 1990, 2-87233; Apr. 27, 1990, 2-113829

Int. Cl.[5] G01N *33/50*

U.S. Cl. 422—65 **20 Claims**



1. An automatic analyzer, comprising:

at least one analysis unit part including means for conducting a biochemical or chemical analysis, said analysis unit part integral comprising a rack carrier part of a belt conveyor system for transferring a sample rack used for arranging and holding a plurality of sample containers, means for collecting samples from said sample rack transferred by said rack carrier part and analyzing the samples, and locating members constructed and arranged to be coupled with locating members of another analysis unit part, said locating members of said analysis unit part oriented in a sample rack transfer direction of said rack carrier part;

a rack supply part structured as a unit separable from said analysis unit part, said rack supply pat comprising a locating member constructed and arranged to be coupled with a locating member of said analysis unit part, said rack supply part configured for containing a plurality of sample racks and including sample rack guide means for successively feeding sample racks to said rack carrier part of said analysis unit part; and

a rack storage part structured as a unit separable from said analysis unit part, said rack storage part comprising a locating member constructed and arranged to be coupled with an opposite locating member of said analysis unit part, and configured for receiving and storing sample racks after completion of measurements of the samples.

5,207,987

TEMPERATURE CONTROLLED CHAMBER FOR DIAGNOSTIC ANALYZER

Fareed Kureshy, Westwood; Shailendra Singh, and Gary L. Webber, both of Sharon, all of Mass., assignors to PB Diagnostic Systems Inc., Westwood, Mass.

Filed May 21, 1990, Ser. No. 526,048

Int. Cl.[5] G01N *21/13*; C12M *1/38*

U.S. Cl. 422—67 **11 Claims**

1. Apparatus for use in an analytical instrument in which a fluid sample is dispersed to an assay element carried by a circular conveyor and the assay element is analyzed after a period of incubation, said apparatus comprising

a circular conveyor;

means defining a temperature controlled chamber extending circumferentially around a peripheral region of said conveyor and extending radially inward partway to the center of said conveyor for enclosing the peripheral region of

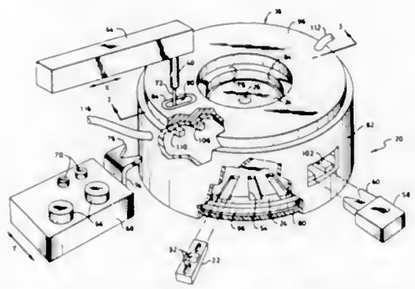
VOL 1150 ISS 1 MY 4 1993 UMI

said conveyor while exposing a central region of said conveyor, said chamber including

an outer sidewall and an inner sidewall arranged radially inward of said outer sidewall, a top wall spaced above said conveyor and joining said inner and outer sidewalls, first airlock means joining said inner sidewall to said conveyor and second airlock means joining said outer sidewall to said conveyor, said outer sidewall comprising a polymeric material and said top wall and said inner sidewall comprising a thermally conductive material;

a first heating element located above said conveyor, a second heating element located below said conveyor, and means for pulsing an electric current to said first and second heating elements at a rate sufficient to maintain the temperature adjacent said conveyor within a predetermined range,

temperature sensing means located within said chamber for sensing the temperature within said chamber



means for introducing an assay element onto said conveyor through an opening in said housing;

means for activating said first heating element and said second heating element in response to said temperature sensing means; and

control means operatively connected to and for controlling said activating means and said introducing means;

wherein said control means causes said heater activating means to energize said heaters with pulses of electric current at a repetition frequency at least double the rate at which assay elements are introduced onto said conveyor by said introducing means for improved speed of thermal response of said chamber, the duration of said current pulses being modulated by said heater activating means to provide for increased pulse duration for raising the temperature and reduced pulse duration for reducing the temperature.

5,207,988

APPARATUS FOR DETECTING AND QUANTIFYING CLOT LYSIS AND ESTABLISHING OPTIMUM MEDICATION AND DOSAGES

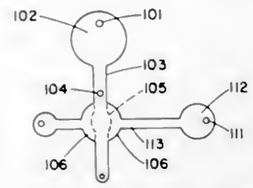
Frederick V. Lucas, Fort Lauderdale, Fla., assignor to The Cleveland Clinic Foundation, Cleveland, Ohio

Filed Jul. 6, 1989, Ser. No. 376,246
Int. Cl.[5] G01N *11/04*
U.S. Cl. 422—73 **8 Claims**

1. An analytical device for measuring clot lysis time of blood comprising:

a housing containing a chamber including an inlet port and, a permeable tube section constructed so as to contain a blood clot and positioned within a reaction chamber, a first exit port, a first inlet capillary unit for independently pumping blood from said first inlet portion to said permeable tube section, and a first exit capillary unit positioned between and operatively connected to said reaction chamber unit and said first exit port for independently pumping blood from said reaction chamber unit to said first exit port; wherein said inlet port, first inlet capillary unit, said permeable tube section, first exit capillary unit, and exit port are present in a continuous first capillary pathway and said first pathway containing a reagent to affect blood clotting;

said housing further containing a second chamber including a second inlet port connected by second capillary means



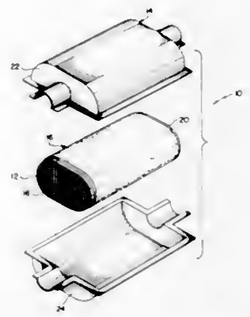
in fluid communication with said reaction chamber, a second exit capillary means connecting said reaction chamber and a second exit port in a second continuous capillary pathway whereby a second blood supply may be drawn through said inlet port to said reaction chamber into contact with a slot contained in said permeable tube section, and thence to said outlet port.

5,207,989

SEAL FOR CATALYTIC CONVERTER AND METHOD THEREFOR

Gerald F. MacNeil, Bristol, R.I., assignor to ACS Industries, Inc., Woonsocket, R.I.

Filed Mar. 22, 1991, Ser. No. 673,353
Int. Cl.[5] B01D *53/36*
U.S. Cl. 422—179 **21 Claims**



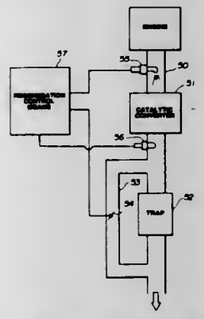
7. A method of forming a catalytic converter for automotive exhaust gases comprising applying an aqueous blend of a high temperature resistant seal material to a monolithic catalyst structure, said monolithic catalyst structure having inlet and outlet ends and including a supporting monolith and a catalyst on said supporting monolith, said seal material comprising between approximately 28 and 80 dry weight percent of ceramic fibers capable of withstanding continuous exposure to temperatures in excess of 2000° F. and between approximately 20 and 50 dry weight percent of an aqueous dispersion of high aspect ratio vermiculite, said high aspect ratio vermiculite having an aspect ratio of at least approximately 10 and a mean particle size of less than approximately 50 microns, said seal material being applied to said monolithic catalyst structure so that said seal material substantially encircles the monolithic catalyst structure, said method further comprising heating said monolithic catalyst structure and said seal material thereon to evaporate substantially all of the water from said seal material in order to form said seal, and assembling a housing on said monolithic catalyst structure, said housing having inlet and outlet ends and being adapted for sealingly containing said catalyst structure so that he inlet and outlet ends of said catalyst structure correspond to the inlet and outlet ends, respectively, of said housing, whereby substantially all of the gases passing through said housing form said inlet end to said outlet end thereof pass through said monolithic catalyst structure from said inlet end to said outlet end thereof.

5,207,990

EXHAUST GAS PURIFYING DEVICE FOR INTERNAL COMBUSTION ENGINE

Yoshiki Sekiya; Tetsuya Kamihara, and Eiji Aiyoshizawa, all of Kanagawa, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 30, 1991, Ser. No. 707,506
Claims priority, application Japan, Jun. 1, 1990, 2-143500
Int. Cl.[5] F01N *3/22, 9/00*
U.S. Cl. 422—183 **8 Claims**



1. An exhaust gas purifying system for an internal combustion engine, comprising:

a catalytic converter disposed in an exhaust conduit of an internal combustion engine;

means for supplying fuel to an upstream side of said catalytic converter, said fuel supply means taking one of an operative state and an inoperative state;

a trap disposed in the exhaust conduit downstream of said catalytic converter to trap particulate matter contained in exhaust gas;

means defining a bypass passage whose upstream end is communicated with the exhaust conduit between said catalytic converter and said trap and whose downstream end is communicated with the exhaust conduit downstream of said trap;

a bypass valve disposed in said bypass passage and operative to take one of a closing state to close the bypass passage and an opening state to open the bypass passage;

means for detecting an exhaust gas temperature in the exhaust conduit between said catalytic converter and said trap;

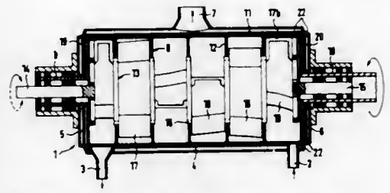
means for controlling fuel supply of said fuel supply means and operation of said bypass valve in accordance with the exhaust gas temperature detected by said gas temperature detecting means.

5,207,991

REACTOR FOR HIGHLY VISCOUS MEDIA

Lüder Gerking, Berlin, Fed. Rep. of Germany, assignor to Karl Fischer Industrieanlagen GmbH, Berlin, Fed. Rep. of Germany

Filed Apr. 25, 1991, Ser. No. 691,075
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1990, 4013912
Int. Cl.[5] B01J *8/08;* **B01F** *7/00*
U.S. Cl. 422—210 **13 Claims**



1. A reactor for a viscous medium comprising:

a horizontally oriented reactor casing with an inlet and an outlet;

first rotor means rotatably mounted in the reactor casing for thoroughly mixing, during rotation, the viscous medium entraining part of the medium in the rotation direction and forming free surface through the draining and dripping off of the medium from the first rotor means;

second rotor means, rotatably mounted in the reactor casing coaxially with respect to the first rotor means, for removing medium adhering to the first rotor means and forming a free central working area within the first and second rotor means; and

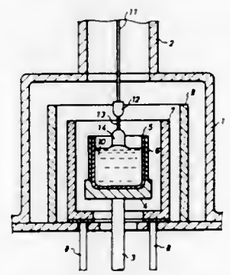
at least one of the first and second rotor means having conveying means formed thereon for conveying the medium from the inlet to the outlet, the one of the first and second rotor means rotating within the other of the first and second rotor means.

5,207,992

SILICON SINGLE CRYSTAL PULLING-UP APPARATUS

Shuitsu Matsuo, Atsugi; Kazuo Ito, and Masayuki Saito, both of Nishi-Okitama, all of Japan, assignors to Toshiba Ceramics Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 132,512, Dec. 14, 1987, abandoned. This application Apr. 22, 1991, Ser. No. 689,333
Claims priority, application Japan, Dec. 26, 1986, 61-315576
Int. Cl.[5] C30B *35/00, 15/10, 29/06*
U.S. Cl. 422—249 **4 Claims**



1. A silicon single crystal pulling-up apparatus comprising:

a silica glass crucible for accommodating a melted silicon material;

a cylindrical member made of a carbon composite material which is composed of a carbon fiber with a diameter not

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more than about 3 mm wound in a shape of cylinder in one layer, impregnated with a resin and carbonized, said member being in contact with and covering the outer side surface of a cylindrical portion of said crucible, the wall thickness of said cylindrical member being not more than about 3 mm;

a rotational shaft for rotating said crucible; and

a crucible support fixed to an upper end of said rotational shaft for supporting said crucible.

5,207,993

BATCH LIQUID PURIFIER

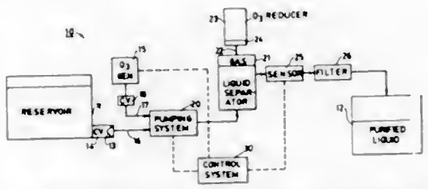
William A. Burris, 7 E. Jefferson Cir., Pittsford, N.Y. 14534

Continuation-in-part of Ser. No. 575,622, Aug. 31, 1990, Pat. No. 5,082,558. This application Mar. 18, 1991, Ser. No. 670,690

The portion of the term of this patent subsequent to Jan. 21, 2009, has been disclaimed.

Int. Cl.[5] B01D *11/04*

U.S. Cl. 422—256 **55 Claims**



1. A batch operation purifier for contacting a liquid with an ozone containing gas, said purifier comprising:

a. a generator that makes said ozone containing gas;

b. a reservoir sized for holding less than 20 liters of said liquid;

c. a liquid passageway arranged for conducting said liquid from said reservoir to a treated liquid container also sized for holding less than 20 liters;

d. a gas passageway leading from said generator to said liquid passageway;

e. a pumping system arranged for causing said liquid to flow through said liquid passageway and for contacting said liquid with said ozone containing gas to treat said liquid with ozone; and

f. said pumping system and said liquid and gas passageways being sized to determine the flow rates of said liquid and said ozone containing gas.

5,207,994

APPARATUS FOR INNOXIOUS DISPOSAL OF MEDICAL WASTES

Takashi Suzuki, Fukushima, and Koichi Yamanobe, Sannohe, both of Japan, assignors to Sanyo Co., Ltd., Fukushima, Japan

Filed Dec. 20, 1991, Ser. No. 810,885

Claims priority, application Japan, Jan. 10, 1991, 3-65759

Int. Cl.[5] B01D *1/00*; B30B *9/04*

U.S. Cl. 422—307 **6 Claims**

1. An apparatus for innoxious disposal of medical wastes, comprising:

a pedestal;

A housing mounted on said pedestal and provided with a discharge port;

an upright compression hopper arranged on said housing and provided with a charge port for charging medical wastes into said hopper, and an open bottom end;

a swingable first closure for selectively opening and closing said charge port;

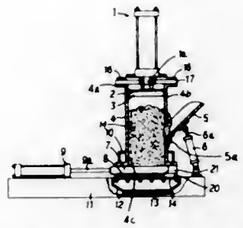
a movable second closure for selectively opening and closing said open bottom end of said hopper;

a first piston unit mounted atop said hopper and including a piston for compressing the medical wastes charged into said hopper downwardly toward said open bottom end of said hopper to form a compact cake;

a second piston unit mounted to said pedestal and operably connected with said movable second closure for moving said movable second closure between open and closed positions;

a cooling jacket surrounding a lower section of said hopper;

a first heater attached to said first piston unit;



a second heater attached to said movable second closure; and

an evaporation unit arranged within said pedestal below said housing, said evaporation unit including a filter grid arranged beneath said housing, and evaporation dish arranged below said filter grid, and third heater attached to said evaporation dish.

5,207,995

RECOVERY OF CERIUM FROM FLUORIDE-CONTAINING ORES

Paula J. Bosserman, Riverside, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Sep. 19, 1990, Ser. No. 584,729

Int. Cl.[5] C01F *17/00*

U.S. Cl. 423—21.5 **17 Claims**

1. A process for recovering cerium values from bastnasite which comprises the steps of:

contacting a solid material comprising a cerium component and a fluoride component obtained from bastnasite with a solution of a strong acid and a boron compound capable of reacting with said fluoride component, the solution being sufficient to form a leachate containing solubilized cerium and a reaction product of said boron compound and said fluoride component; and

contacting said leachate with a source of potassium ion to form a precipitate containing fluoroborate.

5,207,996

ACID LEACHING OF COPPER ORE HEAP WITH FLUOROALIPHATIC SURFACTANT

Michael J. Sierakowski, Woodbury, Minn., and Frank A. Lee, La Porte, Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 10, 1991, Ser. No. 774,201

Int. Cl.[5] C01G *3/00*

U.S. Cl. 423—27 **20 Claims**

1. In a method for leaching of copper ore comprising the steps of:

(A) contacting a heap of low grade copper oxide ore with an aqueous leaching solution comprising sulfuric acid and allowing said solution to flow through the heap;

(B) collecting the resulting pregnant aqueous solution; and

(C) transferring copper values from the aqueous solution into an organic medium by extraction; the improvement comprising dissolving in said aqueous leaching solution a fluoroaliphatic surfactant which is soluble in said aqueous leaching solution, is not extracted into said organic medium, and does not cause a stable emulsion to be formed during said extraction, the amount of said surfactant which is dissolved being an amount sufficient to increase the amount of copper values which are leached.

5,207,997

PROCESS FOR PRODUCING AN INORGANIC BARIUM-CONTAINING SOLIDS COMPOSITION

Jacopo Porta, Querceta, Italy, assignor to Kali-Chemie AG, Hanover, Fed. Rep. of Germany

Filed Dec. 20, 1990, Ser. No. 630,552

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1989, 3942242

Int. Cl.[5] C01F *11/18*

U.S. Cl. 423—165 **16 Claims**

1. A process for producing an inorganic, barium-containing solids composition, said process comprising the steps of

reacting at a temperature in the range from 15° to 100° C. in an aqueous medium

a) leaching residues from barium sulfide leaching and

b) carbon dioxide, a gas mixture containing carbon dioxide, alkali hydrogen carbonate or alkali carbonate

to produce a reaction mixture containing the barium-containing solids composition and an aqueous hydrogen sulfide or alkali sulfide solution, and

separating the barium-containing solids composition from said reaction mixture.

5,207,998

SUNCARE COMPOSITIONS

Larry R. Robinson, Oxford; Marie A. Rinaldi, Hamden, and Anil J. Gupte, Seymour, all of Conn., assignors to Richardson-Vicks Inc., Shelton, Conn.

Filed May 7, 1991, Ser. No. 696,817

Int. Cl.[5] A61K *7/42, 7/44, 7/48, 9/12*

U.S. Cl. 424—59 **20 Claims**

1. A suncare composition having enhanced substantivity and efficacy comprising:

(a) a sunscreen component consisting essentially of:

(i) from about 0.1% to about 20% of octocrylene based on the weight of the total composition; and

(ii) from about 0.1% to about 25% of titanium dioxide based on the weight of the total composition; and

(b) a safe and effective amount of a topical carrier.

5,207,999

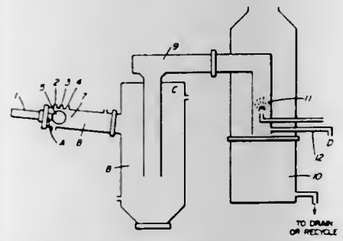
GENERATION OF FLUORINE VIA THERMAL PLASMA DECOMPOSITION OF METAL FLUORIDE

Robert C. Burk, Ottawa; Maher I. Boulos, Sherbrooke; Dennis G. Garratt, Saskatoon; Tadeusz W. Zawidzki, Gloucester, and Andrzej Huczko, Sherbrooke, all of Canada, assignors to Cameco Corporation, Saskatoon, Canada

Filed Aug. 13, 1991, Ser. No. 744,413

Int. Cl.[5] C01B *7/20, 9/08*; C01G *43/06, 43/01*

U.S. Cl. 423—258 **9 Claims**



1. A process for producing free fluorine gas or a fluoride, which comprises subjecting the compound MF_n, where M is a metal and n is the valency of the metal and has a value from 1 to 6 inclusive, to the effect of a thermal plasma at a temperature of at least 3000 K to cause MF_n to separate into its constituents, the reaction being carried out in the presence of an added oxide of uranium that reacts with the metal and/or the fluorine to prevent their recombination so that there is formed a fluoride of uranium.

5,208,000

HYDROLYSIS OF PHOSPHORUS TRICHLORIDE

Chen-Hsyong Yang, and David O. Fisher, both of Chesterfield, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Oct. 2, 1992, Ser. No. 955,590

Int. Cl.[5] C01B *25/163*

U.S. Cl. 423—316 **10 Claims**

1. A process for the controlled hydrolysis of phosphorus trichloride which avoids the formation of lower oxides of phosphorus, phosphines and diphosphines comprising adding phosphorus pentachloride to the phosphorus trichloride in an amount in the range of from about 20 to about 90 percent, by weight of the phosphorus trichloride, to provide a mixture of phosphorus pentachloride and liquid phosphorus trichloride, and then adding water in the form of finely divided droplets over the surface of the phosphorus trichloride while controlling the temperature of the mixture below about 80° C.

5,208,001

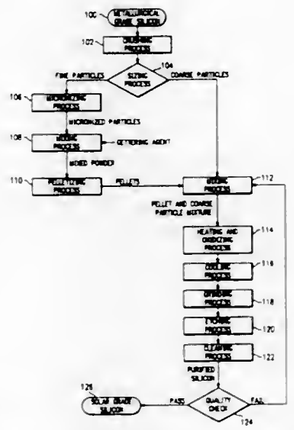
METHOD FOR SILICON PURIFICATION

James K. Truitt, Dallas, and Mobendra S. Bawa, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 20, 1991, Ser. No. 718,171

Int. Cl.[5] C01B *33/02*

U.S. Cl. 423—348 **22 Claims**



1. A method for removing impurities from low grade silicon, comprising the steps of:

mixing a solid-phase particulate zirconium compound with the solid-phase particulate low grade silicon; and

forming a solid phase slag from oxygen and one portion of the low grade silicon for adsorbing impurities in the remaining portion of the low grade silicon and thereby forming purified silicon from the remaining portion of the low grade silicon.

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5,208,002

METHOD OF PRODUCING ALKALI METAL AZIDES

Masanori Sasaki, Tokyo; Hiroshi Shibafuchi, Yokohama; Yasushi Imai, Hiratsuka; Masahiko Yoshida, Tokyo, and Kazuyoshi Miyata, Uozu, all of Japan, assignors to Nippon Carbide Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 14, 1992, Ser. No. 882,959
Claims priority, application Japan, May 17, 1991, 3-140688
Int. Cl.[5] C01B *21/08*
U.S. Cl. 423—410 5 Claims

1. A method of producing an alkali metal azide by reacting hydrazine with an alkyl nitrite in a solvent in the presence of an alkali metal hydroxide, wherein said solvent is an aqueous solvent having a water content of 50% or more and reaction ratio of hydrazine is controlled within the range between 50% and 90%.

5,208,003

MICROCELLULAR CARBON FOAM AND METHOD

Ronald F. Simandl, Farragut, and John D. Brown, Harriman, both of Tenn., assignors to Martin Marietta Energy Systems, Inc., Oak Ridge, Tenn.

Filed Oct. 13, 1992, Ser. No. 960,600
Int. Cl.[5] C01B *31/00, 31/02;* C08J *9/36*
U.S. Cl. 423—445 23 Claims

1. A method for producing a microcellular carbon foam of a density in the range of about 30 to 1000 mg/cm^3 and open porosity provided by well interconnected strut morphology, comprising the steps of:

a) dissolving polyacrylonitrile in a heated solution consisting essentially of at leas tone alkali metal halide and a solvent for the dissolution of the polyacrylonitrile in the heated solution and the phase inversion of the dissolved polyacrylonitrile to a liquid gel upon sufficient cooling of the heated solution;

b) placing the heated solution including the dissolved polyacrylonitrile in containment means provided with one of a nucleating promoting means and a relatively smooth surface;

c) sufficiently cooling the heated solution in the containment means to form a liquid gel of the polyacrylonitrile by phase inversion;

d) removing the solvent and substantially all of the dissolved alkali metal halide from the gel to provide a porous foam consisting essentially of polyacrylonitrile;

e) removing the residual solvent under vacuum;

f) cross linking the dry polyacrylonitrile foam at an elevated temperature;

g) curing the porous foam at an elevated temperature in an oxygen containing environment; and

h) heating the porous foam in an inert atmosphere to a temperature sufficient to carbonize the polyacrylonitrile forming the porous foam to provide the microcellular carbon foam.

5,208,004

METHOD FOR THE RECOVERY OF ZINC OXIDE

Allan S. Myerson, Brooklyn, N.Y., assignor to Metals Recycling Technologies Corp., Atlanta, Ga.

Filed Jan. 15, 1992, Ser. No. 820,987
Int. Cl.[5] C22B *19/24*
U.S. Cl. 423—622 22 Claims

1. A method for the recovery of zinc oxide from waste material streams which comprise zinc compounds, comprising the steps of:

a. treating said waste material with an ammonium chloride solution at an elevated temperature to form a solution comprising dissolved zinc and dissolved zinc oxide whereby any iron oxide in said waste material will not go into solution;

b. separating said solution from any undissolved materials present in said solution including any of said iron oxide;

c. adding zinc metal to said solution whereby any lead and copper ions contained within said solution are displaced by said zinc metal and precipitate out of said solution as lead and cadmium metals;

d. separating said solution from the lead and cadmium metals;

e. lowering the temperature of said solution thereby precipitating the zinc component as a mixture of crystallized zinc compounds.

f. separating said precipitated zinc compounds from said solution;

g. washing said zinc compounds solids with a wash water therby solubilizing certain of said zinc compounds;

h. separating the remaining zinc compound solids from said solution; and

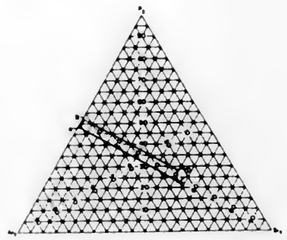
i. drying said remaining zinc compound solids at a temperature of between about 100° C. whereby said resulting product is zinc oxide of 99% or greater purity.

5,208,005

SYNTHESIS OF A CRYSTALLINE SILICOALUMINOPHOSPHATE

Stephen J. Miller, San Francisco, Calif., assignor to Chevron Research and Technology Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 550,937, Jul. 11, 1990, Pat. No. 5,087,347, which is a division of Ser. No. 155,191, Feb. 12, 1988, Pat. No. 4,943,424. This application Jul. 22, 1991, Ser. No. 733,589
The portion of the term of this patent subsequent to Jul. 24, 2007, has been disclaimed.
Int. Cl.[5] C01B *33/34*
U.S. Cl. 423—702 17 Claims



1. A process for preparing a crystalline silicoaluminophosphate molecular sieve having a characteristic X-ray powder diffraction pattern which contains at least the d-spacings of Table I, and wherein the P_2O_5 to alumina mole ratio at the surface of the silicoaluminophosphate is about 0.80 or less, the P_2O_5 to alumina mole ratio of the bulk of the silicoaluminophosphate is 0.96 or greater, and the SiO_2 to alumina mole ratio at the surface is greater than in the bulk of the silicoaluminophosphate, said process comprising:

a. preparing an aqueous reaction mixture containing a reactive source of SiO_2, aluminum isopropoxide, phosphoric acid, and an organic templating agent, said reaction mixture having at least 80 weight percent of the particles of size less than 80 microns in diameter, and said reaction mixture having a composition expressed in terms of mole ratios of oxides of:

$$aR:Al_2O_3:0.9\text{–}1.2P_2O_5:0.1\text{–}4.0SiO_2:bH_2O$$

wherein R is an organic templating agent; "a" has a value large enough to constitute an effective amount of R; "b" has a value such that there are 10 to 40 moles of H_2O per mole of aluminum oxide; said reaction mixture having been formed by combining the alumina and phosphorus sources in the substantial absence of the silicon source, thereafter combining the resulting mixture with the silicon source and the organic templating agent to form the complete reaction mixture;

b. insuring the pH of the reaction mixture is from about 6.0 to 8.5;

c. heating the reaction mixture to a temperature in the range of from 150° C. to 240° C. until crystals of silicoaluminophosphate are formed; and

d. recovering said crystals.

5,208,006

LARGE-PORED MOLECULAR SIEVES CONTAINING AT LEAST ONE OCTAHEDRAL SITE COMPRISING TITANIUM AND AT LEAST SILICON AS A TETRAHEDRAL SITE

Steven M. Kuznicki, Readington, N.J., and Kathleen A. Thrush, Easton, Pa., assignors to Engelhard Corporation, Iselin, N.J.

Continuation-in-part of Ser. No. 527,624, May 28, 1990, abandoned. This application Jan. 24, 1992, Ser. No. 825,205
Int. Cl.[5] C01B *33/34*
U.S. Cl. 423—713 55 Claims

1. A crystalline molecular sieve having a pore size of at least 8 Angstrom units and having a composition consisting of in terms of mole ratios of oxide as follows:

$$a\,(1.0\pm0.25)M_{2/n}O:XO_\alpha:dZO_\beta:0\text{–}100\ H_2O$$

wherein X is octahedrally coordinated titanium alone or a mixture of octahedrally coordinated titanium and another octahedrally coordinated metal selected from the group consisting of arsenic, cobalt, chromium, copper, iron, germanium, hafnium, magnesium, manganese, molybdenum, niobium, nickel, antimony, tin, uranium, vanadium, yttrium, zinc, zirconium, lanthanium, an actinide and a lanthanide and mixtures thereof; Z is silicon and another metal selected from the group consisting of aluminum, arsenic, bismuth, boron, beryllium, cobalt, chromium, copper, iron, gallium, germanium, indium, lead, magnesium, manganese, molybdenum, niobium, nickel, antimony, tin, titanium, vanadium, tungsten, zinc, and mixtures thereof; M is at least one cation of valence n; α is $\frac{1}{2}$ the valence of X; β is $\frac{1}{2}$ the valence of Z; d is 2–100; a is equal to $\frac{1}{2}$ the charge provided by the total of X and Z with the proviso that when X is solely titanium, Z cannot be solely silicon or silicon plus aluminum.

5,208,007

ISOTOPIC TRACER COMPOSITION AND METHOD FOR MAKING AND USING SAME

Stanley L. Mills, Washington, Okla., assignor to Board of Regents of the University of Oklahoma, Norman, Okla.

Division of Ser. No. 274,759, Nov. 22, 1988, abandoned. This application Jan. 22, 1991, Ser. No. 645,153
Int. Cl.[5] A61K *43/00;* B65D *69/00*
U.S. Cl. 424—1.1 13 Claims

1. A kit for preparing a reagent to be used with a radioisotope and a protein or fragment thereof thereby preparing an isotopic tracer composition, wherein the radioisotope is characterized by the ability to bind a protein or fragment thereof when reduced to a lower oxidation state consisting of:

an effective amount of an alkalizing agent to produce a pH greater than 7 in the composition; and

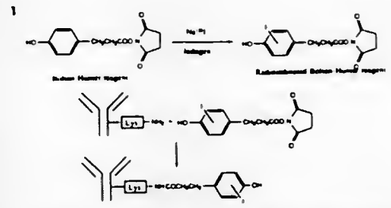
an effective amount of stannous phosphate to reduce a scintigraphically detectable amount of the radioisotope to a lower oxidation state thereby binding the protein or fragment thereof to the radioisotope.

5,208,008

REGIOSELECTIVE CHEMICAL MODIFICATION OF MONOCLONAL ANTIBODIES

Girish Ranadive; Howard S. Rosenzweig; Michael Epperly, and William Bloomer, all of Pittsburgh, Pa., assignors to University of Pittsburgh, Pittsburgh, Pa.

Filed Nov. 14, 1990, Ser. No. 613,127
Int. Cl.[5] A61K *49/02;* C07K *15/28, 15/02*
U.S. Cl. 424—1.1 39 Claims



1. A method of selectively modifying an immunoglobulin having at least one Fab region and at least one Fc region, each region having an isoelectric point wherein said isoelectric point of the Fab fragment of said immunoglobulin is different than the isoelectric point of the Fc fragment of immunoglobulin, said method comprising modification of the Fc region amino groups of the immunoglobulin at a pH between the respective isoelectric point of the Fab and Fc fragments of the immunoglobulin.

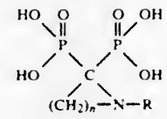
5,208,009

ANTICALCULUS ORAL COMPOSITIONS

Abdul Gaffar, Princeton; John J. Afflito, Brookside, and Marilou T. Joziak, South River, all of N.J., assignors to Colgate-Palmolive Company, Piscataway, N.J.

Continuation-in-part of Ser. No. 631,232, Dec. 20, 1990, Pat. No. 5,096,699. This application Nov. 25, 1991, Ser. No. 794,783
The portion of the term of this patent subsequent to Mar. 17, 2009, has been disclaimed.
Int. Cl.[5] A61K *7/16, 7/22*
U.S. Cl. 424—49 12 Claims

1. An anticalculus oral composition which comprises an orally acceptable vehicle or base for such composition, an effective anticalculus proportion, about 0.01% to about 5% by weight of an orally acceptable azacycloalkane-2,2-diphosphonic compound (AAP) selected from the group consisting of compounds of the formula:



wherein R is selected from the group consisting of hydrogen and alkyls of 1 to 3 carbon atoms and n is an integer from 3 to 5, and orally acceptable salts thereof and about 0.1% to about 5% by weight of a water soluble or water swellable synthetic anionic polymer (SAP) of a molecular weight in the range of about 1,000–2,000,000, which is effective to increase the anticalculus action of the APP in said composition.

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5,208,010

TOOTH WHITENING DENTIFRICE

Irwin Thaler, Dix Hills, N.Y., assignor to Dental Concepts Inc., Elmsford, N.Y.

Division of Ser. No. 716,123, Jun. 17, 1991, Pat. No. 5,084,268.
This application Jan. 27, 1992, Ser. No. 826,389
Int. Cl.[5] A61K *7/20, 33/40*
U.S. Cl. 424—53 13 Claims

1. A non-abrasive flavored aqueous based homogeneously dispersed dentifrice having a tooth past consistency, which comprises a tooth-bleaching agent consisting of from 0.2% to 10% by weight of hydrogen peroxide, from 0.25% to 4% by weight of Carbomer 940 gelling agent, from 2% to 35% by weight of corn starch filler, and from 0.2% to 2% by weight of surfactant and foaming agent, based upon the weight of the total dentifrice.

5,208,011

ULTRAVIOLET RESISTANT SUNSCREEN COMPOSITIONS

Christopher D. Vaughan, Ft. Lauderdale, Fla., assignor to Sun Pharmaceutical Corp., Pompano Beach, Fla.

Filed Sep. 4, 1990, Ser. No. 577,690
Int. Cl.[5] A61K *7/42, 7/44, 9/10, 9/12*
U.S. Cl. 424—59 3 Claims

1. A sunscreen emulsion composition comprising:

A. from about 1% to about 50% by weight of a sunscreen selected from the group consisting of:
octyl methoxycinnamate,
oxybenzone
octyl salicylate, and
combinations thereof;

B. from about 1.5% to about 12.5% by weight of a film-forming polymer having a carbon chain length of from about 50 to about 5000 carbon atoms, said polymer being selected from the group consisting of:
polyethylene,
an octyl maleic copolymer, and
combinations thereof;

C. from about 0.1% to about 15% by weight of an oil-soluble solubilizer selected from the group consisting of:
stearyl alcohol,
glyceryl stearate,
methyl acetyl ricinoleate,
myristyl lactate,
PEG-7 glyceryl cocoate, and
combinations thereof;

D. from about 0.1% to about 10% by weight of ethoxylated castor oil having an average of from about 1 to about 100 moles of ethylene oxide moieties per mole of castor oil; and

E. from about 35% to about 96% by weight water.

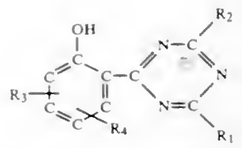
5,208,012

ANTI-INFLAMMATORY OR ANTI-SUNBURN COSMETIC COMPOSITION

Mirihiro Sudo, Tokyo; Tomoyasu Muraki, Abiko; Eiji Kawachi, kiryu, and Yasushi Kawachi, Ashikaga, all of Japan, assignors to Daikyo Gomu Seiko Ltd., Tokyo, Japan

Filed Jul. 31, 1991, Ser. No. 738,544
Int. Cl.[5] A61K *7/40, 7/42, 7/44, 7/48*
U.S. Cl. 424—59 4 Claims

1. An anti-inflammatory or anti-sunburn cosmetic composition comprising 0.1 to 20% by weight of a hydroxyaryl-s-triazine compound of the following structural formula (I) in a cosmetically acceptable oil carrier:



wherein R_1 and R_2 are the same or different, hydrogen atoms, chlorine atoms, hydroxyl groups, alkoxy groups of 1 to 18 carbon atoms, aryloxy groups of 6 to 8 carbon atoms or mono- or dialkylamino groups containing 1 to 4 carbon atoms and R_3 and R_4 represent, same or different, hydrogen atoms, chlorine atoms, alkyl groups of 1 to 8 carbon atoms, methoxy groups or ethoxy groups.

5,208,013

COMPOSITION FOR SKIN CARE AND PROTECTION

Kenneth Klein, Fairlawn, N.J., assignor to Olympus International, Inc., Salt Lake City, Utah

Filed Jun. 3, 1991, Ser. No. 709,694
Int. Cl.[5] A61K *7/40, 7/42, 7/44, 7/48*
U.S. Cl. 424—59 5 Claims

1. A composition for topical application to the skin of a human being which provides a barrier against irritation and painful damage due to contact with many otherwise harmful materials, said composition comprising in combination water, dimethicone, stearic acid, coconut fatty acid, isopropyl myristate, glycerin, triethanolamine, cetyl alcohol, polyvinyl pyrrolidone, cetearyl alcohol, ceteareth-20, tetrasodium EDTA, hydroxyethyl cellulose, aloe vera gel, vitamin E and lanolin.

5,208,014

REDUCING COSMETIC COMPOSITION FOR PERMING THE HAIR, CONTAINING CYSTEAMINE AND/OR ITS N-ACETYL DERIVATIVE AND A CATIONIC POLYMER, AND A PROCESS FOR PERMANENT DEFORMATION OF THE HAIR

Claude Dubief, Le Chesnay, and Christine Dupuis, Paris, both of France, assignors to L'Oreal, Paris, France

Filed Dec. 10, 1990, Ser. No. 624,218
Claims priority, application France, Dec. 8, 1989, 89 16273; Jan. 19, 1990, 90 00637
Int. Cl.[5] A61K *7/09, 7/11*
U.S. Cl. 424—71 18 Claims

1. A reducing composition for permanently deforming hair in the cold state comprising

(1) a reducing agent wherein said reducing agent is present at a concentration of between 0.1 and 15% by weight and is selected from the group consisting of cysteamine, a cysteamine salt and N-acetylcysteamine; and

(2) a cationic polymer wherein said cationic polymer is present at a concentration of between 0.1 and 3% by weight and said cationic polymer is a polymer of 45 to 99.5 mole % N-vinylpyrrolidone and 0.5 to 55 mole % non quaternized dialkyl ($C_1$14 C_4) aminoalkyl (C_1-C_{18}) acrylate or methacrylate.

5,208,015

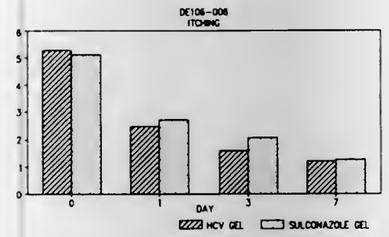
TOPICAL ANTI-FUNGAL AGENTS HAVING ANTI-INFLAMMATORY ACTIVITY

Hemanshu S. Shah; Cheng-Der Yu, both of Amherst, and John Gibson, Buffalo, all of N.Y., assignors to Bristol-Myers Squibb Company, New York, N.Y.

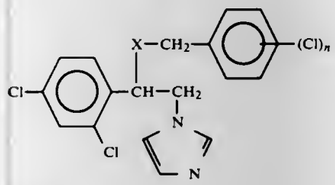
Filed Jul. 23, 1991, Ser. No. 734,701
Int. Cl.[5] A61K *9/10*
U.S. Cl. 424—78.05 11 Claims

1. A composition useful for the topical treatment of inflammations associated with fungal infections of the skin or scalp consisting essentially of:

(a) about 0.1 to about 10% of at least one compound of



formula I or a pharmaceutically acceptable derivative thereof:



(I)

wherein
x =O or S;
n =1, 2 or 3; and

(b) a pharmaceutically acceptable carrier therefor, wherein the carrier contains a lower alcohol, a trihydroxy alcohol, a dihydroxy alcohol and water.

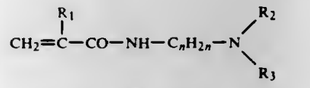
5,208,016

ANTIMICROBIAL SUBSTANCE AND ANTIMICROBIAL RESIN COMPOSITION CONTAINING ETHYLENE COPOLYMER

Tadayuki Ohmae, Chiba; Takashi Chinuki, Osaka; Tadashi Sakurai, Osaka; Kouichiro Asao, Osaka; Makoto Fujimura, Osaka; Shigeo Yamamoto, Hyogo; Masato Mizutani, Osaka, and Tomohiro Teramae, Hyogo, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Filed Mar. 3, 1989, Ser. No. 318,310
Claims priority, application Japan, Mar. 3, 1988, 63-50867; Apr. 27, 1988, 63-107009
Int. Cl.[5] A61K *31/78/31/765*
U.S. Cl. 424—78.27 8 Claims

1. A method for controlling harmful microorganisms which comprises applying to the vicinity of said microorganisms an antimicrobial substance containing, as an active ingredient, an ethylene copolymer comprising from 45 to 85% by weight of ethylene, from 15 to 55% by weight of at least one dialkylaminoalkylacrylamide comonomer represented by formula (I):



(I)

wherein R_1 represents a hydrogen atom or a methyl group; R_2 and R_3, which may be the same or different, each represents an alkyl group having from 1 to 4 carbon atoms; and n represents an integer of from 2 to 5, and up to 20% by weight of one or more of other ethylenically unsaturated comonomers selected from the group consisting of methyl acrylate, ethyl acrylate, methyl methacrylate, vinyl acetate, dimethylaminoethyl methacrylate, and dimethylaminoethyl acrylate, said ethylene copolymer having a number average molecular weight of from 5,000 to 50,000.

5,208,017

BIOLOGICALLY ACTIVE *BACILLUS THURINGIENSIS* ISOLATES

Gregory A. Bradfisch, San Diego; Tracy Michaels, Escondido, and Jewel M. Payne, San Diego, all of Calif., assignors to Mycogen Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 658,934, Feb. 21, 1991, abandoned. This application Jun. 6, 1991, Ser. No. 710,890
Int. Cl.[5] A01N *25/00;* C12N *3/00*
U.S. Cl. 424—84 17 Claims

1. A process for controlling corn rootworm larvae which comprises incorporating in the soil habitat of said corn rootworm larvae a corn rootworm larvae-controlling amount of *Bacillus thuringiensis* PS86A1 NRRL B-18900 or PS86Q3 NRRL B-1876, and mutants thereof which retain the activity against the corn rootworm, or spores of said microbes.

5,208,018

TREATMENT OF CACHEXIA WITH INTERLEUKIN 2

David B. Gough, Galway, Ireland, assignor to Brigham and Women's Hospital, Boston, Mass.

Continuation-in-part of Ser. No. 495,049, Mar. 19, 1990. This application Mar. 19, 1991, Ser. No. 672,703
Int. Cl.[5] A61K *37/02, 45/05*
U.S. Cl. 424—85.2 20 Claims

1. A method of treating cachexia in an animal comprising administering to said animal a therapeutically effective amount of interleukin 2 or a functional analogue thereof which retains the characteristics of interleukin 2.

5,208,019

USE OF GAMMA-INTERFERON FOR THE TREATMENT OF VASCULAR STENOSIS

Göran Hansson, Dr Linds gata 6, S-413 25 Göteborg; Jan Holm, Änggardsplatsen 8, S-413 19 Göteborg, and Lena Jonasson, Gröna gatan 8, S0575 33Eksjö , all of Sweden

PCT No. PCT/SE89/00520, § 371 Date May 17, 1991, § 102(e) Date May 17, 1991, PCT Pub. No. WO90/03189, PCT Pub. Date May 5, 1990
PCT Filed Sep. 27, 1989, Ser. No. 671,786
Claims priority, application Sweden, Sep. 30, 1988, 8803472-3
Int. Cl.[5] A61K *37/66;* C07K *15/26*
U.S. Cl. 424—85.5 5 Claims

1. A method of using gamma-interferon for the treatment of vascular stenosis, wherein gamma-interferon is administered to a patient having vascular stenosis in a pharmaceutical preparation containing said interferon in a sufficient amount to inhibit growth or proliferation activity of arterial smooth muscle cells.

5,208,020

CYTOTOXIC AGENTS COMPRISING MAYTANSINOIDS AND THEIR THERAPEUTIC USE

Ravi J. Chari, Boston; Victor S. Goldmacher, Newton Center; John M. Lambert, Cambridge, and Walter A. Blattler, Brookline, all of Mass., assignors to ImmunoGen Inc., Cambridge, Mass.

Contiouation of Ser. No. 426,247, Oct. 25, 1989, abandoned. This application Jul. 13, 1992, Ser. No. 911,380
Int. Cl.[5] A61K *39/00, 31/535, 49/00;* A01N *57/00*
U.S. Cl. 424—85.91 18 Claims

1. A cytotoxic agent comprising one or more maytansinoids linked to a monoclonal antibody or fragment thereof via a disulfide bridge at the C-3, -14, -15, or -20 position of said maytansinoids and wherein said monoclonal antibody or fragment thereof is selective for tumor cell antigens.

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5,208,021

METHOD OF PREPARING DIPHTHERIA IMMUNOTOXINS

Virginia G. Johnson, College Park, Md.; Larry Greenfield, Emeryville, Calif.; Richard J. Youle, Garrett Park, Md., and Walter Laird, Pinole, Calif., assignors to The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C. and Cetus Corporation, Emeryville, Calif.

Division of Ser. No. 236,225, Aug. 25, 1988, abandoned, which is a continuation-in-part of Ser. No. 105,172, Oct. 5, 1987, abandoned. This application Jan. 25, 1989, Ser. No. 301,376

Int. Cl.[5] A61K *39/00;* C07K *3/00*

U.S. Cl. 424—85.91 14 Claims

1. A method of preparing an immunotoxin comprising:

linking an inactivated diphtheria toxin in which the native binding site has been inactivated, said inactivated diphtheria toxin being selected from the group consisting of CRM102, CRM103, and CRM107 to an ester to form a linked toxin;

reducing a binding moiety, said binding moiety being a moiety which binds to a specific receptor;

mixing the linked toxin with reduced binding moiety and incubating the mixture; and

separating immunotoxins formed from unconjugated binding moiety and toxin.

5,208,022

NON-MALIGNANT CELLS COUPLED TO ADJUVANTS AND THEIR USE IN A METHOD TO INDUCE ANTI-TUMOR IMMUNITY

Arnold E. Eggers, New York, N.Y., assignor to State University of New York (Suny), Albany, N.Y.

Continuation of Ser. No. 196,037, May 19, 1988, abandoned. This application Dec. 10, 1990, Ser. No. 627,555

Int. Cl.[5] A61K *39/00, 37/02*

U.S. Cl. 424—88 26 Claims

1. A vaccine composition for inducing immunity in a mammal against a tumor selected from the group consisting of sarcomas, gliomas, and carcinomas, comprising a therapeutically effective amount of non-malignant mammalian fibroblast cells covalently coupled with an adjuvant in a pharmaceutically acceptable medium, said adjuvant selected from the group consisting of muramyl dipeptide, the p-nitrophenyl ester of muramyl dipeptide (N-acetylmuramyl-L-alanyl-D-isoglutamine), the p-nitrophenyl ester of cord factor analog, and other adjuvants derived from or synthesized to resemble components of bacterial or fungal cell walls which have a reactive carboxyl, amino, or sulfhydryl group capable of activation for vonalent coupling to cells

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5,208,023

VACCINE AGAINST AVIAN ENCEPHALOMYELITIS

Robin A. J. Nicholas, Farnham; Denise H. Thornton, Bagshot, and Roy D. Goddard, Woodham, all of Great Britain, assignors to Minister of Agriculture, Fisheries & Food in Majesty's Government of Great Britain, London, England

Filed Oct. 12, 1989, Ser. No. 420,251

Claims priority, application United Kingdom, Aug. 16, 1989, 8918689

Int. Cl.[5] A61K *39/12;* C12N *7/00*

U.S. Cl. 424—89 20 Claims

1. A process for preparation of an attenuated strain of avian encephalomyelitis virus ("AEV") which comprises the steps of:

a. infecting chick embryo fibroblast ("CEF") cells with AEV, then

b. culturing the infected CEF cells until the AEV has become adapted to the CEF cells, then

c. isolating the AEV from the cultured CEF cells.

5,208,024

VACCINE AGAINST *E. COLI* SEPTICAEMIA IN POULTRY

Johannes F. Van Den Bosch, Boxmeer, Netherlands, assignor to Akzo NV, Arnhem, Netherlands

Continuation of Ser. No. 255,806, Oct. 11, 1988. This application Sep. 23, 1991, Ser. No. 764,991

Claims priority, application Netherlands, Oct. 26, 1987, 87.02536

Int. Cl.[5] A61K *39/00, 39/02*

U.S. Cl. 424—92 1 Claim

1. Method for protecting poultry against *E. coli* air sac inflammation and septicaemia, comprising administering an effective amount of a vaccine comprising an *E. coli* immunogen consisting essentially of at least one purified immunogenic component selected from the group consisting of fimbriae of the F11 type, an immunogenic section thereof, and an organism in which there is expressible genetic material which codes for the production of said fimbriae or an immunogenic section thereof and a pharmaceutically acceptable carrier or diluent.

5,208,025

Patent Not Issued For This Number

5,208,026

COMPOSITION FOR BIOCONTROL OF PLANTAIN

Alan K. Watson, Pincourt; Guy Tourigny, and Richard S. Winder, both of Ile Perrot, all of Canada, assignors to The Royal Institution for the Advancement of Learning, Quebec, Canada

Filed Feb. 6, 1990, Ser. No. 475,950

Int. Cl.[5] C12N *1/00;* A01N *63/00*

U.S. Cl. 424—93 Q 5 Claims

1. A method for controlling the growth of the Plantain, *Plantago major,* which method comprises applying to the plaintain or locus of the plaintain an effective amount of the isolated fungus Colletotrichum sp. G1 having the identifying characteristics of culture deposit No. ATCC 20980, to cause lesions so as to depress growth or kill said plaintain.

5,208,027

ARTICLE FORMING SYSTEM

Donald E. Weder; E. H. Weder, both of Highland, Ill.; R. E. Jack Dunn, St. Louis, and Franklin J. Craig, Valley Park, both of Mo., assignors to Highland Supply Corporation, Highland, Ill.

Continuation of Ser. No. 219,083, Jul. 13, 1988, Pat. No. 4,897,031, which is a continuation of Ser. No. 4,274, Jan. 5, 1987, Pat. No. 4,773,182, which is a continuation of Ser. No. 613,080, May 22, 1984, abandoned. This application Jan. 16, 1990, Ser. No. 464,694

The portion of the term of this patent subsequent to Jan. 30, 2007, has been disclaimed.

Int. Cl.[5] B29C *51/20, 51/26, 51/10, 51/38*

U.S. Cl. 425—388 4 Claims

1. An apparatus for forming a sheet of material into a flower pot or flower pot cover, comprising:

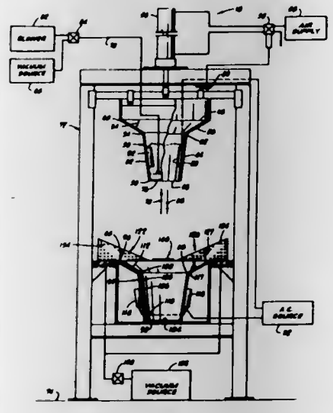
a male die having an upper end, a lower end and an outer peripheral male die surface extending a distance generally between the lower end and the upper end of the male die;

a female die having an upper end, a lower end and an opening intersecting the upper end and extending a distance toward the lower end forming an inner peripheral female die surface, the opening being shaped to receive the portion of the male die having the male die surface formed thereon and the female die surface being mateable with the male die surface with a clearance therebetween in a forming position of the male die and the female die and the male die being disposed a distance above the female die in a storage position of the male die and the female die;

means for automatically positioning the sheet of material between the male die and the female die when the male die and the female die are positioned in the storage position;

means for moving one of the male die and the female die to the forming position after the sheet of material has been positioned between the male die and the female die for forming the flower pot or flower pot cover, and for removing one of the male die and the female die from the forming position and moving the one of the male die and the female die to the storage position after the flower pot or flower pot cover has been formed;

a platform having a support surface formed thereon and an opening extending through the support surface, the female die being disposed in the opening with the upper end of the female die being disposed generally near the support surface, the support surface being adapted to support at least portions of the sheet of material with a generally central portion of the sheet of material being disposed generally over the opening through the upper end of the female die; and



means for holding predetermined portions of the sheet of material during the forming of the flower pot or flower pot cover as the male die and the female die are moved into the forming position while permitting such held portions to slide on the support surface, said means comprising:

a plurality of hold openings formed through the support surface and the hold openings being positioned on the support surface in predetermined positions, and a vacuum source connectable to the hold openings in the support surface for creating a vacuum at the hold openings when connected to the hold openings, the vacuum being sufficient to hold portions of the sheet of material disposed over the hold openings while permitting the held portions of the sheet of material to slide on the support surface during the forming of the flower pot or flower pot cover.

5,208,028

GELLED EMULSION PARTICLES AND COMPOSITIONS IN WHICH THEY ARE PRESENT

Anne Clement, Paris; Pierre Fodor, Vaucresson; Gérard Guth, Montmorency, all of France, and Nathalie Thiollet, Antananarivo, Madagascar, assignors to Helena Rubinstein, Inc., Wilmington, Del.

Filed Mar. 29, 1989, Ser. No. 330,601

Claims priority, application France, Mar. 29, 1988, 88 04105

Int. Cl.[5] A61K *7/00, 9/107*

U.S. Cl. 424—401 14 Claims

1. A composition comprising (a) particles of gelled emulsion, said particles produced by adding discrete volumes of at least one emulsion to a gelling solution, said emulsion containing at least one active ingredient and having an aqueous external phase containing in solution therein a soluble reagent which produces gelling at least at the peripheries of said discrete volumes upon reaction with said gelling solution, and (b) a medium containing a sufficient amount of base to decrease the rigidity of said particles of gelled emulsion,

said particles being contained in said medium.

5,208,029

INSECT REPELLENT AND METHOD USING PLANT OILS

Donald E. Plummer, and Sonja A. Plummer, both of 10165 NW. 8th La., Ocala, Fla. 32675

Filed Sep. 10, 1991, Ser. No. 757,195

Int. Cl.[5] A01N *65/00*

U.S. Cl. 424—405 5 Claims

5. A method for repelling biting mosquitoes comprising the steps of blending 30-60 parts of Oil of Pimpinella Anisum, 1-5 parts of Oil of Hedeoma Pulegioides and 2,920-2,940 parts of Oil of Chrysanthemum, all by volume and applying the blend to the skin of a subject to repel mosquitoes from the skin.

5,208,030

ACTIVE INGREDIENT DOSAGE DEVICE

John Hoy, Rivonia, and Phillipus J. van Rensburg, Randburg, both of South Africa, assignors to Imperial Chemical Industries PLC, London, Great Britain

Filed Aug. 29, 1990, Ser. No. 574,630

Claims priority, application South Africa, Aug. 30, 1989, 89/6653

Int. Cl.[5] A01N *25/10, 25/08, 25/04*

U.S. Cl. 424—409 9 Claims

1. A dosage device which is in compressed unitary form and which comprises an admixture of a pesticide which is in solid form at 25° C., is sparingly soluble in water, and has an average particle size of 1 to 3 microns, and a disintegrating agent, with the device being capable of disintegrating in water to form a suspension of the pesticide in the water, when introduced into sufficient water such that the concentration of the pesticide in the water is above the solubility limit of the pesticide in water, with the average particle size of the pesticide in the suspension being in the range of 1 to 3 microns.

5,208,031

SEXUAL LUBRICANTS CONTAINING ZINC AS AN ANTI-VIRAL AGENT

Patrick D. Kelly, 33 Berry Oaks, Glendale, Mo. 63122

Continuation-in-part of Ser. No. 528,495, May 25, 1990, abandoned, which is a continuation-in-part of Ser. No. 362,058, Jun. 6, 1989, abandoned. This application Jul. 29, 1991, Ser. No. 737,169

Claims priority, applicatioo European Pat. Off., Jun. 4, 1990, 90306054

Int. Cl.[5] A61K *7/40, 31/315, 33/30;* A01N *55/02*

U.S. Cl. 424—412 8 Claims

1. An article of manufacture comprising a sexual lubricant

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mixture contained within a watertight deformable metallic container which allows the sexual lubricant mixture to be conveniently warmed before use during intercourse by immersing the metallic container in warm water, wherein the sexual lubricant mixture consists of a hydrophilic gel comprising:

a. water;

b. a thickening agent selected from the group consisting of cellulose and chemically treated derivative thereof, acacia, agar, alginate, carrageenan, gum tragacanth, xanthan gum, collagen, carboxypolymethylene, glyceryl monostearate, polyvinylpyrrolidone, and polyacrylamide;

c. a lubricating agent selected from the group consisting of glycerin, propylene glycol, polyethylene glycol, polypropylene glycol, polyisobutene, polyoxyethylene, behenic acid, behnyl alcohol, sorbitol, and polydimethylsiloxane; and,

d. a zinc salt which releases zinc ions when dissolved in the aqueous carrier substance, at an effective concentration which reduces the risk of transmission of herpes simplex virus from an infected person to an uninfected person by means of sexual intercourse,

wherein the sexual lubricant is physiologically acceptable for use as a sexual lubricant during intercourse and does not irritate genital surfaces or mucous membranes of a person uninfected by genital herpes when used during intercourse as a sexual lubricant.

5,208,032

INCREASING THE GROWTH OF TURKEYS USING IMPLANT OF 19-NORTESTOSTERONE

Colin G. Scanes, North Brunswick, and Michael J. Fennel, Jr., Monmouth Junction, both of N.J., assignors to Rutgers, The State University of New Jersey, New Brunswick, N.J.

Continuation of Ser. No. 219,710, Jul. 15, 1988, abandoned. This application Jun. 26, 1992, Ser. No. 905,192

Int. Cl.[5] A61F *13/00*

U.S. Cl. 424—422 **8 Claims**

1. A method for increasing the rate of growth or feed efficiency of turkeys, which comprises administering to said turkeys a growth promoting amount of 19-nortestosterone in the range of at least 5 mg to at least about 50 mg as a bioacceptable and biocompatible implant which releases said 19-nortestosterone to provide said increasing the rate of growth or feed efficiency of turkeys.

5,208,033

Patent Not Issued For This Number

5,208,034

TETRAAMIDES AND METHOD FOR IMPROVING FEED UTILIZATION

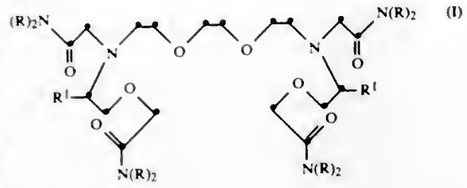
David C. Herting, Carter County, and Alan W. White, Kingsport, both of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Divisioo of Ser. No. 280,083, Dec. 5, 1988, Pat. No. 5,141,749. This application Aug. 25, 1992, Ser. No. 935,496

Int. Cl.[5] A23K *1/165*

U.S. Cl. 424—442 **10 Claims**

4. A composition comprising standard animal feed in admixture with from about 20 ppm to about 1,000 ppm of the total amount of the ultimate composition of a tetraamide compound of the formula:



(I)

wherein each R is independently, an alkyl group of 1 to 6 carbon atoms and each R^1 is, independently, an alkyl group of 1-6 carbons or hydrogen, or the physiologically acceptable salts thereof.

5,208,035

DICLOFENAC SODIUM PLASTER

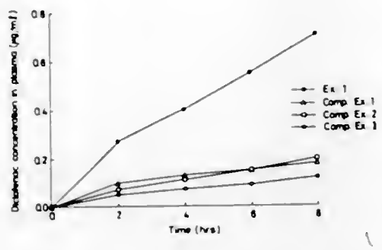
Hirohisa Okuyama, Tomisatomachi; Yasuo Ikeda, Narashino; Shigenori Otsuka, Chiba; Shuichi Kasai, Narita, and Akira Iwasa, Yotsukaido, all of Japan, assignors to SS Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Dec. 3, 1991, Ser. No. 801,901

Claims priority, application Japan, Jul. 26, 1991, 3-187532

Int. Cl.[5] A61L *15/16*

U.S. Cl. 424—446 **3 Claims**



1. A diclofenac sodium plaster comprising a backing material and a paste spread on the backing material, said paste comprising diclofenac sodium, a penetration enhancer composed of l-menthol and propylene glycol, and a hydrophilic base composed principally of a water-soluble polymer, wherein diclofenac sodium is contained in an amount of 0.5–20 wt. % based on the paste, wherein the water-soluble polymer is contained in an amount of 0.5–40 wt. % based on the paste, wherein propylene glycol is contained in an amount of 0.1–60 wt. % based on the paste, wherein l-menthol is contained in an amount of 0.05–10 wt. % based on the paste, and wherein the backing material is a woven or non-woven fabric of rayon,

polyester, polyolefin or polyurethane fibers, a polymer film, or a foamed sheet.

5,208,036

N-(ω, (ω-1)-DIALKYLOXY)- AND N-(ω, (ω-1)-DIALKENYLOXY)-ALK-1-YL-N,N,N-TETRASUBSTITUTED AMMONIUM LIPIDS AND USES THEREFOR

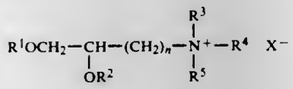
Deborah A. Eppstein, Menlo Park; Philip L. Felgner, Los Altos; Thomas R. Gadek, Oakland; Gordon H. Jones, Cupertino, all of Calif., and Richard B. Roman, Fairhope, Ala., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Division of Ser. No. 524,257, May 15, 1990, which is a division of Ser. No. 428,815, Oct. 27, 1989, Pat. No. 4,946,787, which is a division of Ser. No. 114,809, Oct. 29, 1987, Pat. No. 4,897,335, which is a continuation-in-part of Ser. No. 877,916, Jun. 24, 1986, which is a continuation-in-part of Ser. No. 689,407, Jan. 7, 1985, abandoned. This application Nov. 16, 1990, Ser. No. 614,412

Int. Cl.[5] A61K *37/22, 9/70;* **C12N** *1/20;* **B01J** *13/02*

U.S. Cl. 424—450 **30 Claims**

1. A polyanion-lipid complex formed from a compound of Formula I and a polyanion, wherein Formula I is represented by the formula:



or an optical isomer thereof wherein

R^1 and R^2 are the same or different and are an al':yl or alkenyl group of 6 to 24 carbon atoms; R^3, R^4, and R^5 are the same or different and are alkyl of 1 to 8 carbon atoms, aryl, aralkyl of 7 to 11 carbon atoms or when two or three of R^3, R^4, and R^5 are taken together to form quinoclidino, pyrrolidono, piperidino or morpholino; n is 1 to 8; and X is a pharmaceutically acceptable atom; and an aqueous solution in a quantity sufficient to make 100% by volume,

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5,208,037

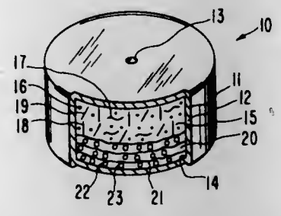
DOSAGE FORMS COMPRISING POLYMERS COMPRISING DIFFERENT MOLECULAR WEIGHTS

Jeri D. Wright, Dublin; Brian L. Barclay, Sunnyvale, and David R. Swanson, Palo Alto, all of Calif., assignors to ALZA Corporation, Palo Alto, Calif.

Filed Apr. 22, 1991, Ser. No. 688,807

Int. Cl.[5] A61K *9/24*

U.S. Cl. 424—473 **7 Claims**



1. A method for administering a drug to the gastrointestinal tract of a patient, which method comprises,

(a) admitting a dosage form orally into a patient, said dosage form comprising:

(1) a first layer comprising 10 ng to 750 mg of drug;

(2) a second layer for pushing the first layer from the dosage form;

(3) a wall surrounding the first and second layers, the wall comprising at least in part, a composition permeable to the passage of fluid;

(4) an exit passageway in the wall for delivering the drug from the dosage form to the patient; and wherein said,

(5) first layer comprises an alkali carboxymethylcellulose comprising a 10,000 to 300,000 molecular weight; and said,

(6) second layer comprises an alkali carboxymethylcellulose comprising a molecular weight greater than 300,000; and wherein the dosage form when in use is characterized by said:

(7) first layer possessing an initial flow-resistant that is changed in the presence of imbibed fluid into a dispensable aqueous drug layer; and said:

(8) second layer pushing the first layer through the exit passageway, with each alkali carboxymethylcellulose maintaining its original separate identities and functions; thereby,

(b) administering the drug by the first and second layers cooperating to administer substantially all the drug to the patient over time.

5,208,038

COACERVATED HIGHLY ABSORPTIVE POLYMERS

Tina M. Gressani, and William L. Klein, both of New York, N.Y., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 8, 1989, Ser. No. 448,024

Int. Cl.[5] A61K *9/16, 9/18*

U.S. Cl. 424—489 **13 Claims**



1. A composition comprising discrete particles of a highly cross-linked macroporous polymer, the particles being of a first predetermined average diameter, the polymer particles having entrapped therein and dispersed uniformly throughout an active ingredient, the particles including unit particles of less than about one micron in average diameter, agglomerates of fused unit particles of sizes in the range of about twenty to eighty microns in average diameter, and aggregates of clusters of fused agglomerates of sizes in the range of about two-hundred to about twelve-hundred microns in average diameter, and a coacervating agent mixed with the polymer particles in an amount sufficient to cause the polymer particles to collect forming dense clusters of coacervated particles of a second predetermined average diameter, the second predetermined average diameter being substantially in excess of the first predetermined average diameter.

5,208,039

NUTRIENT COMPOSITIONS DEPRIVED OF METHIONINE AND SUPPLEMENTED WITH HOMOCYSTEINE

Marie-France Poupon, Fresnes; Paule Echinard-Garin, Sceaux, and Fabienne R. Breillout, Paris, all of France, assignors to Centre National de la Recherche Scientifique (CNRS), Paris, France

Continuation of Ser. No. 98,026, Oct. 6, 1987, abandoned. This application Dec. 26, 1989, Ser. No. 457,194

Int. Cl.[5] A61K *9/16*

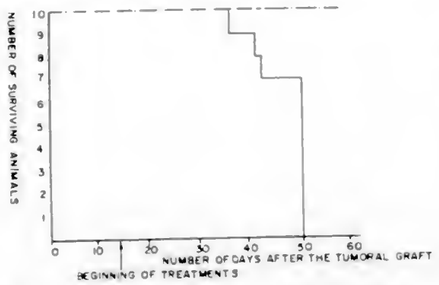
U.S. Cl. 424—490 **28 Claims**

1. A synthetic or semi-synthetic nutritional composition, for inhibiting the development and dissemination of malignant tumors in a human,

said composition containing, as the source of amino acids, a mixture of essential amino acids in appropriate propor-

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tions so as to constitute a balanced nutritional composition for the said mammal, but containing a methionine content reduced by x %, with x being at least 50,



said composition additionally containing homocysteine, it being understood that said reduced methionine content is a content of

$$\frac{y(100 - x)}{100} \%$$

by weight, wherein y is the % by weight methionine content which is normally present in a balanced nutritional composition for the said human.

5,208,040

Patent Not Issued For This Number

5,208,041

ESSENTIALLY PURE HUMAN PARATHYROID HORMONE

Dennis R. Sindrey, Etobicoke, Canada, assignor to Allelix Biopharmaceuticals Inc. and Glaxo Canada Inc., both of Mississauga, Canada

Filed May 23, 1991, Ser. No. 707,114
Int. Cl.[5] A61K 37/24
U.S. Cl. 424—562 21 Claims

1. Essentially pure human parathyroid hormone, characterized by single peak migration when analyzed by capillary electrophoresis at 214 nm, and by an EC50 as determined in the UMR 106-based adenylate cyclase assay of not more than 2 nM.

5,208,042

STABILIZED MERCURIC OXIDE OINTMENT COMPOSITIONS

Harry Gordon, Wantagh; Henry Chan, Massapequa, and Howard Brasch, Brentwood, all of N.Y., assignors to Del Laboratories, Inc., Farmingdale, N.Y.

Filed May 10, 1991, Ser. No. 698,287
Int. Cl.[5] A01N 59/18; A61K 33/28
U.S. Cl. 424—644 23 Claims

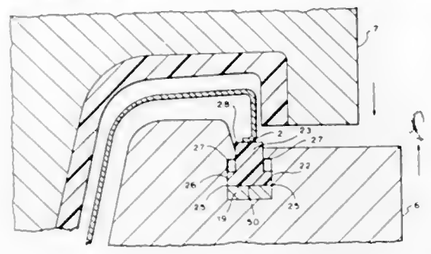
1. An oleaginous ointment composition for topical antibacterial treatment containing about 0.5 to about 1.5% yellow mercuric oxide by weight of the composition, wherein the improvement comprises increasing the color stability of the composition by the addition thereto of about 0.1 to about 10.0% by weight of a stabilizing compound selected from the group consisting of alkanoic acids of formula $CH_3(CH_2)_nCOOH$, wherein n is an integer from 4 to 22, benzoic acid and arylalkanoic acids of formula $C_6H_5(CH_2)_nCOOH$, wherein n is an integer from 1 to 17.

5,208,043

ADJUSTABLE SHIMS FOR MOLD SEALS

Gregory M. Gatarz, East Brunswick, N.J., and Ronald M. Marsilio, Mogadore, Ohio, assignors to American Standard Inc., New York, N.Y.

Filed Jan. 19, 1990, Ser. No. 467,184
Int. Cl.[5] B29C 33/12, 39/18, 45/14
U.S. Cl. 425—4 R 15 Claims



1. An adjustable sealing assembly in a molding apparatus for applying a coating to a surface of a shell, the molding apparatus including a molding surface and a seal groove having a bottom wall and opposing side walls adapted for retaining a seal, the molding apparatus is capable of receiving the shell and forming a molding cavity between a surface of the shell and the molding surface, the seal establishes sealed contact between the shell and the molding surface when the molding apparatus is closed, the adjustable sealing system comprising:

a seal in a seal groove, and having a bottom, dimensions and elastomeric properties which facilitate insertion and retention in a seal groove of the molding apparatus such that a portion of said seal extends from the seal groove to a selected height when the molding apparatus is opened;

a pair of oppositely disposed side flanges protruding from said seal for retaining said seal within the respective opposing side walls; and

solid seal height adjustment means disposed under the seal, said height adjustment means having a width that is at least equal to the width of the portion of said seal that extends from said seal groove and which is capable of adjusting the height of the seal above the seal groove to correspond to particular contour of a shell being molded, whereby the shell establishes sealed contact with the seal forming a sealed molding cavity between the shell and the receptacle molding surface, said height adjustment means comprising at least one structural element having a width dimension that is at least equal to said seal groove width and a length dimension extending under said seal, and means having variable heights, said means extending along said length dimension for adjusting the height of the seal above the seal groove bottom to match the particular contour of the shell being molded.

5,208,044

VULCANIZING MOLD

Mitsuki Miyata, and Yasunori Ueda, both of Kobe, Japan, assignors to Sumitomo Gomu Kogyo Kabushiki Kaisha, Kobe, Japan

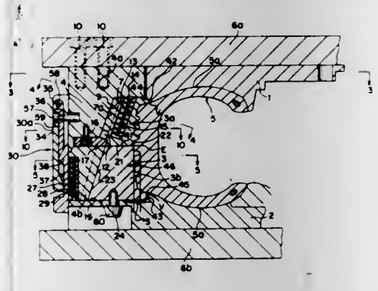
PCT No. PCT/JP90/00175, § 371 Date Oct. 15, 1990, § 102(e) Date Oct. 15, 1990, PCT Pub. No. WO90/09268, PCT Pub. Date Aug. 23, 1990
PCT Filed Feb. 13, 1990, Ser. No. 582,855
Claims priority, application Japan, Feb. 15, 1989, 1-35297; Oct. 18, 1989, 1-271382
Int. Cl.[5] B29C 35/02, 43/36
U.S. Cl. 425—32 13 Claims

1. A vulcanizing mold comprising a first mold half, a second mold half, a tread mold sector and a tapered ring disposed radially outwardly of the thread mold sector;

said first mold half and said second mold half being disposed vertically relative to one another;

said tapered ring including a first tapered ring half and a second tapered ring half both vertically movable relative to the tread mold sector, a space being provided between said first tapered ring half and said second tapered ring half when the tapered ring halves are vertically separated, the tapered ring halves being vertically movable into engagement with each other, the tapered ring halves each being generally ring shaped and each having a tapered inner face;

said tread mold sector including a first tread mold sector half and a second tread mold sector half, the first and second mold sector halves each having a tapered outer face, the tapered outer face of the first tread mold sector half being



engaged with the tapered inner face of the first tapered ring half and the tapered outer face of the second tread mold sector half being engaged with the tapered inner face of the second tapered ring half, said first tread mold sector half being slidable radially to open and close the tread mold sector with a slide movement in contact with the first tapered ring half in response to a relative vertical movement of the first tapered ring half, said second tread mold sector half being mounted on the second mold half to be slidably and vertically unmovable relative to the second mold, the second tread mold sector half being slidable radially to open and close the tread mold sector without causing a vertical self-displacement relative to the second mold half and with a slide movement in contact with the second tapered ring half in response to a relative vertical movement of the second tapered ring half.

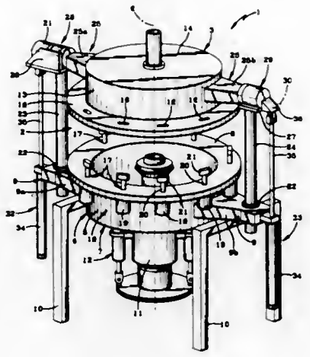
5,208,045

TIRE CURING UNIT

Karl J. Siegenthaler, Rome, Italy, assignor to Bridgestone Corporation, Tokyo, Japan

Filed Dec. 19, 1991, Ser. No. 810,249
Claims priority, application Italy, Apr. 12, 1991, T091A-000278
Int. Cl.[5] B29C 35/00
U.S. Cl. 425—35 12 Claims

1. A tire curing unit comprising a mold which in turn comprises two oppositely-concave half molds coaxial with each other and with a first axis; a number of mold segments connected in a sliding manner to a first one of said half molds; means for releasably connecting said half molds; and first actuating means for moving said half molds in relation to each other along said first axis and between a closed nd an open position; and second actuating means for rotating at least said first half mold about a second axis substantially perpendicular to said first axis and to and form a maintenance position



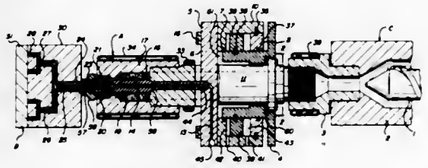
wherein the concave side of said first half mold faces substantially upwardly.

5,208,046

NOZZLE APPARATUS FOR GAS ASSISTED INJECTION MOLDING

Chandrakant S. Shah, 4433 Clarke, Troy, Mich. 48098, and Verman Sarbjit, 32 Graham Place, Lambeth, Ontario, Canada

Filed Sep. 6, 1991, Ser. No. 755,672
Int. Cl.[5] B29C 45/23
U.S. Cl. 425—130 14 Claims



1. A nozzle apparatus for injecting a viscous fluid and a non-viscous fluid comprising:

a nozzle body having a bore with an inlet end and a discharge end to establish a flow passage for said viscous fluid extending from said inlet end to said discharge end;

valve means for reciprocating in said nozzle body flow passage to control a flow of said viscous fluid through said nozzle body discharge end; and

actuator means for selectively actuating said valve means to an open or closed position,

said reciprocating valve means having a bore located longitudinal within said reciprocating valve means to provide a flow passage for non-viscous fluid and having a pin means located within said flow passage providing an orifice at said flow passage discharge end.

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5,208,047

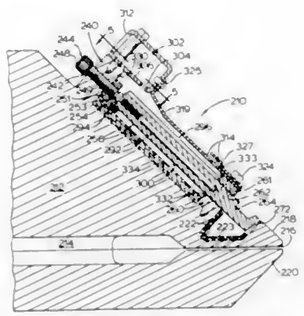
APPARATUS FOR ADJUSTING DIE LIP GAP

Peter F. Cloeren, and Richard L. Linam, both of Orange, Tex., assignors to The Cloeren Company, Orange, Tex.

Continuation of Ser. No. 637,178, Jan. 3, 1991, abandoned, which is a continuation-in-part of Ser. No. 521,101, May 9, 1990, Pat. No. 5,020,984. This application Mar. 26, 1992, Ser. No. 857,718

Int. Cl.[5] B29C *47/22*

U.S. Cl. 425—141 11 Claims



11. An extrusion apparatus comprising means forming an exit opening which extends along the width of the apparatus, and exit opening control means comprising a plurality of spaced-apart adjustment members each having capacity to expand and contract thermally, and each operatively arranged to adjust the exit opening at an individual location by expansion and contraction, individual heating means associated with, and in contact with, each of said plurality of adjustment members, said heating means and said plurality of members being disposed within a common chamber, said common chamber being in direct fluid communication with an upstream chamber via a continuous elongated slot, said upstream chamber having means for inletting a gaseous medium, said elongated slot extending along said width of said apparatus and being of increasing opening away from said means for inletting said gaseous medium, said common chamber having means for outflow of said gaseous medium disposed between said elongated slot and said exit opening, and insulating means disposed between a main body of said apparatus and said plurality of adjustment members.

5,208,048

EXTRUSION HEAD FOR TUBULAR STRANDS OF THERMOPLASTIFIED SYNTHETIC RESIN MATERIAL

Bernhard Reckmann, Troisdorf-Spich; Wilfried Schwarz, Königswinter, and Bernd Schroeter, Troisdorf-Sieglar, all of Fed. Rep. of Germany, assignors to Reifenhauser GmbH & Co. Maschinenfabrik, Troisdorf, Fed. Rep. of Germany

Filed Mar. 17, 1992, Ser. No. 852,633

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1991, 4109369

Int. Cl.[5] B29C *47/20*

U.S. Cl. 425—462 14 Claims

1. An extrusion head for extruding a tubular strand of thermoplastified synthetic resin material, comprising:

a core-forming inner die member;

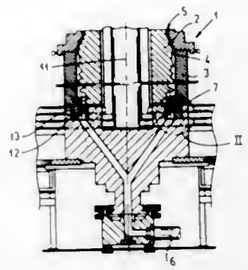
an outer die member defining with said inner die member an annular extrusion passage surrounding an axis and through which said thermoplastified synthetic resin flows, said passage having an upstream end and a mouth at a downstream end form which said tubular strand emerges;

feed means communicating with said upstream ed of said passage for feeding a flow of said thermoplastified synthetic resin to said passage; and

flow-rearrangement means between said fed means and said upstream end of said passage for redistributing the flow of said thermoplastified synthetic resin fed to said upstream end of said passage, said flow-rearrangement means including:

a multiplicity of inlet bores angularly spaced apart around said axis and connected to said feed means,

a multiplicity of outlet bores angularly spaced apart



around said axis, connected to said upstream end of said passage and angularly offset form the inlet bores about sad axis, and

rearrangement ducts generally transverse to said bores interconnecting said inlet ores with said outlet bores for delivering said thermoplastified synthetic resin from said inlet bores to said outlet bores, said bores all extending generally in axial directions.

5,208,049

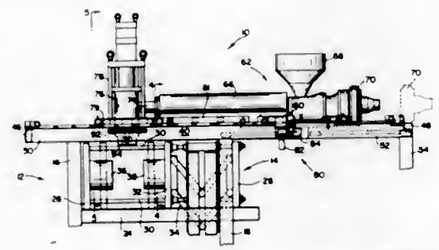
CARRIAGE-MOUNTED EXTRUDER AND BLOW MOLDING HEAD

David Hatfield, Cincinnati, and Richard Frazier, Milford, both of Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Jan. 14, 1992, Ser. No. 820,241

Int. Cl.[5] B29C *49/04*

U.S. Cl. 425—185 13 Claims



1. A supporting frame for a blow molding machine, said frame comprising:

a) a mold clamp support frame for supporting a movable blow mold, the mold clamp support frame having a pair of spaced, substantially vertical end members positioned to support between the substantially vertical ends a blow mold and a blow mold actuation mechanism for imparting movement to at least one of the molds to move the molds relative to and in a direction toward and away from each other;

b) an extruder support frame carried by the mold clamp support frame and positioned above the blow mold supported in the mold clamp support frame, the extruder support frame extending laterally outwardly from the mold clamp support frame in two directions;

c) a carriage movable along the extruder support frame for carrying an extruder and an extrusion head that is positioned at an outlet from the extruder to receive extruded material from the extruder and to provide a tubular parison of extruded material, the carriage being movable laterally relative to the mold clamp support frame and along the extruder support frame between a first position at which the carriage is laterally outward of the mold clamp support frame on one side of the mold clamp support frame and a second position at which the carriage is laterally outward of the mold clamp support frame on an opposite side of the mold clamp support frame; and

d) an actuator for shifting the extruder carriage in a first direction of movement along the extruder support frame between a first position at which the extruder and extruder head are each positioned laterally outwardly relative to the molds to permit access to the molds, and a second position at which the extrusion head is spaced laterally outwardly of the mold clamp support frame for convenient access to the extrusion head.

5,208,050

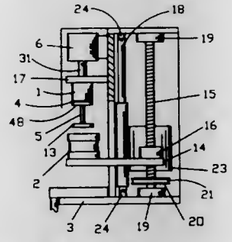
MIXING ORIFICE EXTRUDER

Robert J. Ney, 4215 E. Bay Dr., Ste. 1103B, Clearwater, Fla. 34624

Filed Jun. 7, 1989, Ser. No. 363,132

Int. Cl.[5] A23G *9/12, 9/28;* B29C *47/36*

U.S. Cl. 425—202 6 Claims



1. A food mixing, chopping and extruding apparatus comprising:

a cylindrical cup having an extrusion orifice in its bottom wall, said extrusion orifice comprising a solid core centrally located in said bottom wall and supported by thin web-like members, the spaces between said web-like members forming individual extrusion apertures in close proximity to each other such that extrudate flowing from said apertures join together to form one integral stream;

a piston cooperating with said cylindrical cup and actuated by a press for pressurizing a food charge;

and a rotating cutter and agitator device coaxial with said extrusion orifice and mounted on a retractable drive shaft keyed to a drive barrel;

wherein the apparatus further comprises a spring biasing said drive shaft in the extended position and a torque-actuated detent mechanism to hold said drive shaft in the extended position, whereby torque produced by the resistance of the food charge on the rotating cutter and agitator device actuates said detent mechanism, holding said drive shaft in the extended position.

5,208,051

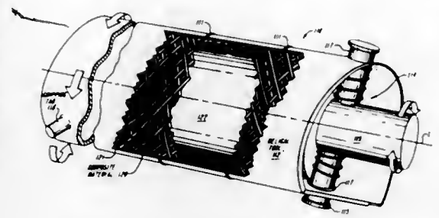
HELICAL TOOLING FOR CONSOLIDATION OF THERMOPLASTIC COMPOSITE TUBES

Timothy M. Berg, Hudson, Wis., and Timothy G. Gutowski, Newton, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Nov. 2, 1990, Ser. No. 608,303

Int. Cl.[5] B29C *43/02*

U.S. Cl. 425—393 8 Claims



1. An apparatus for applying pressure to form a tube shaped part, the apparatus comprising:

a helically shaped member defining at least one substantially smooth cylindrical surface about a longitudinal axis,

means, coupled to the helically shaped member, for applying a force to said helically shaped member to cause the diameter of said at least one cylindrical surface to change, and

means, opposite said cylindrical surface, for resisting the change in diameter of said cylindrical surface.

5,208,052

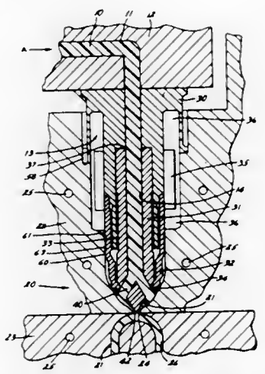
HOT RUNNER NOZZLE ASSEMBLY

Harald Schmidt, Georgetown, and Fong F. Sit, Toronto, both of Canada, assignors to Husky Injection Molding Systems Ltd., Bolton, Canada

Filed Nov. 18, 1991, Ser. No. 793,633

Int. Cl.[5] B29C *45/20*

U.S. Cl. 425—549 14 Claims



1. Hot runner nozzle assembly which comprises:

a mold assembly including a mold cavity defined therein;

an inlet port in said mold assembly communicating with the mold cavity;

an injection nozzle for delivering molten resin through said inlet port having a nozzle tip with an opening therein aligned with said inlet port, said nozzle tip defining a resin space adjacent said nozzle tip opening;

an insulating sleeve positioned around said injection nozzle between the mold assembly and the injection nozzle insulating the injection nozzle from the mold assembly includ-

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ing a first downstream contact site between the sleeve and injection nozzle adjacent the resin space, a second upstream contact site between the sleeve and injection nozzle spaced from the first contact site, and an air space between the sleeve and injection nozzle separating the first and second contact sites;

means adjacent the injection nozzle for heating the nozzle; and

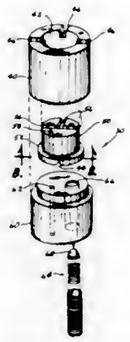
an insulating air gap between the injection nozzle and mold assembly; whereby there is substantially no contact between the injection nozzle and mold assembly so that the mold assembly may be cooled while the injection nozzle may be maintained at molding temperature and whereby on heating the injection nozzle expands against the insulating sleeve causing the sleeve to deflect.

5,208,053

RUNNER SHUT-OFF FOR AN INJECTION MOLDING SYSTEM

Leo A. Vandenberg, 1032 Heartwood La., Lake Zurich, Ill. 60047

Filed Oct. 3, 1991, Ser. No. 770,440
Int. Cl.[5] B29C *45/32*
U.S. Cl. 425—572 **11 Claims**



1. In a runner shut off in an injection molding system including a pair of one-piece mold plates having mating surfaces, the mold plates being secured together to form a plurality of mold cavities joined in fluid communication by supply runners formed in one of the mating surfaces of one of the one-piece mold plates, the improvement comprising:

a cylindrical bore formed in one of the mold plates such that it cuts through one of the supply runners and extends from the surface of the mold plate a predetermined depth less than the total thickness of the mold plate; and

supply runner shut off means for selectively controlling the flow of a molding material to the mold cavities, the shut off means including an outer casing press-fit into the cylindrical bore and a core pin rotatably received in the casing and being movable to a plurality of rotated positions with respect to the casing.

5,208,054

PROCESS FOR PRODUCTION OF ALCOHOLIC BEVERAGES

Kazuyuki Torii, Nishinomiya, and Kenji Sato, Nara, both of Japan, assignors to Suntory Limited, Osaka, Japan

Filed May 23, 1991, Ser. No. 704,394
Claims priority, application Japan, May 23, 1990, 2-131147
Int. Cl.[5] C12G *3/02*
U.S. Cl. 426—13 **7 Claims**

1. A process for the production of an alcoholic beverage comprising the steps of adding phospholipase to fermentable materials, and fermenting the fermentable materials under conditions sufficient to produce an alcoholic beverage.

5,208,055

FREEZE DRIED CHEESE AND POPCORN PRODUCT

Frederic W. Plochman, Hinsdale, Ill., assignor to NatureStar Foods, Inc., Hinsdale, Ill.

Filed Jan. 15, 1992, Ser. No. 821,438
The portion of the term of this patent subsequent to Jun. 11, 2008, has been disclaimed.
Int. Cl.[5] A23B *9/10*
U.S. Cl. 426—93 **25 Claims**

1. A method for producing a crunchy freeze-dried food product to be consumed in its non-constituted state comprising the steps of:

providing an unlayered, substantially homogeneous: mixture of popped popcorn and shredded cheese;

heating said mixture to melt said shredded cheese;

cooling said heated mixture thereby forming a cohesive mixture of cheese and popped popcorn;

freezing said cohesive mixture to form a frozen mixture; and

freeze-drying said frozen mixture to provide a crunchy freeze-dried food product to be consumed in its non-reconstituted state.

5,208,056

PROCESS FOR DECAFFEINATING RAW COFFEE

Arthur G. Fischer, Niedergosgen, and Peter M. Kummer, Neunkirch, both of Switzerland, assignors to Chocolat Suchard Societe Anonyme, Neuchatel, Switzerland

Continuation of Ser. No. 824,654, Jan. 31, 1986, abandoned, which is a continuation of Ser. No. 656,503, Oct. 1, 1984, abandoned, which is a continuation of Ser. No. 257,710, Apr. 27, 1981, abandoned, which is a continuation of Ser. No. 62,632, Aug. 1, 1979, abandoned. This application Jan. 2, 1990, Ser. No. 459,522
Claims priority, application Switzerland, Aug. 22, 1978, 8891/78
Int. Cl.[5] A23F *5/18*
U.S. Cl. 426—422 **8 Claims**

1. A process for extracting caffeine from raw coffee beans with an aqueous liquid and adsorbing the caffeine from said aqueous liquid by contact with a solid adsorption agent which process comprises:

(a) passing a first caffeine-free aqueous coffee extract solution through an extraction zone containing raw coffee beans to form a second aqueous coffee extract solution, said first caffeine-free coffee extract solution containing a concentration of coffee extract substances including sucrose such that an equilibrium is present so that substantially only caffeine is dissolved from the raw coffee beans;

(b) contacting said second aqueous coffee extract solution with an adsorption agent to adsorb caffeine from said second solution onto said adsorption agent, said adsorption agent being pre-loaded with a quantity of at least one substance found in raw coffee beans and consisting essentially of sucrose such that during the contacting of said second coffee extract solution with said adsorption agent, caffeine is adsorbed and an equilibrium is present between the sucrose in said second aqueous extract solution and that contained on said adsorption agent such that the concentration of sucrose in said second coffee extract solution remains substantially unchanged; and

(c) recovering said extracted raw coffee beans whereby extractable substances other than caffeine are substantially not lost.

5,208,057

PROCESS FOR BUTCHERING AND DISINFECTING FOWL

David E. Greenley, Blue Bell; Adam Chi-Tung Hsu, Lansdale; Barry C. Lange, both of Lansdale; Ellenn F. Warwick, Lansdale, all of Pa.; Samuel E. Sherba, Willingboro, N.J., and John S. Chapman, Ambler, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Nov. 12, 1991, Ser. No. 790,047
Int. Cl.[5] A23B *4/18*; A23L *1/315*
U.S. Cl. 426—332 **14 Claims**

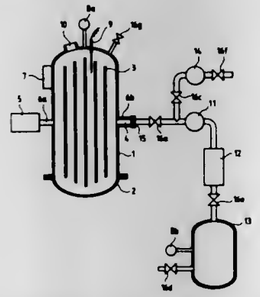
1. In a process for butchering fowl which comprises a step wherein said fowl is treated with water, the improvement comprising introducing a bromide and an oxidant into said water in an amount effective to control Salmonella and other undesirable microorganisms.

5,208,058

METHOD FOR TREATING NUTS

Akeshi Kotani, and Masahiro Takagaki, both of Hiroshima, Japan, assignors to Amano Jitsugyo Co., Ltd., Hiroshima; Tabata Co., Ltd., Osaka and Kasho Co., Ltd., Tokyo, all of Japan

Continuation of Ser. No. 638,970, Jan. 9, 1991, abandoned. This application May 27, 1992, Ser. No. 888,316
Int. Cl.[5] A23B *4/16*; A23L *1/36, 3/3418*
U.S. Cl. 426—486 **5 Claims**



1. A method of treating nuts with compressed carbon dioxide to render them oxidation-resistant and exhibiting peroxide values from about 17.8 to about 69.1 meg/1000gr. after a post treatment storage period of one month in a sealed package, comprising the sequential steps of:

(1) placing uncrushed roasted nuts in a vessel;

(2) supplying compressed carbon dioxide gas into the vessel at between 5 to 30 kg/cm^2, under heating conditions in a temperature range from 70° C. but not exceeding 125° C. for a sufficient period of time to cause carbon dioxide gas to diffuse into said nuts to provide said oxidation-resistance and said peroxide values but not to cause browning or oxidation;

(3) cooling said nuts to prevent excess heating or browning and a loss of CO_2 gas from said nuts;

(4) discharging the carbon dioxide gas from said vessel at room temperature over about 15 to 30 minutes to prevent breakage of the nuts by escaping carbon dioxide;

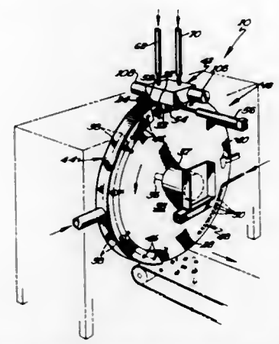
(5) placing the nuts in a package; and sealing said package.

5,208,059

DUAL TEXTURED FOOD PIECE FABRICATION METHOD

Jon M. Dubowik, Buzzards Bay; Karl T. Ulrich, Belmont, and Michael A. Nemirow, Lancaster, all of Mass., assignors to General Mills, Inc., Minneapolis, Minn.

Division of Ser. No. 624,945, Dec. 10, 1990, Pat. No. 5,146,844. This application Jul. 13, 1992, Ser. No. 896,699
Int. Cl.[5] A23P *1/00*
U.S. Cl. 426—512 **24 Claims**



1. A method for fabricating a food piece, comprising the steps of: providing a first plate having an inner surface; providing a second plate having an inner surface; moving the first and second plates along a circuitous path with the circuitous path having a first portion with the inner surfaces of the first and second plates abutting and a second portion with the inner surfaces of the first and second plates being spaced from each other, with at least a first cavity being formed in and defined by the abutting inner surfaces of the first and second plates; filling the cavity with at least a first food material in the first portion of the circuitous path to harden in the cavity while the first and second plates are in the first portion of the circuitous path; and removing the hardened food piece from the cavity when the first and second plates are in the second portion of the circuitous path.

5,208,060

REDUCED FAT PIES AND METHODS OF PREPARING THE PIES

Peter M. Gautchier, Mc Henry, and John D. Chapman, Naperville, both of Ill., assignors to Van den Bergh Foods Co., Division of Conopco, Inc., Lisle, Ill.

Filed Mar. 4, 1992, Ser. No. 845,580
Int. Cl.[5] A21D *10/00*; A23D *9/00*
U.S. Cl. 426—556 **19 Claims**

1. A pie product containing less than or equal to 25% fat and comprising

(a) from about 1 to about 10% of fat A, wherein fat A is a vegetable fat having a Wiley melting point below 110° F. and a Solid Fat Index at 70° F. in the range of from 20 to 49;

(b) from about 2 to about 15% of fat B, wherein fat B is a hard vegetable fat having a Wiley melting point below 110° F. and a Solid Fat Index at 70° F. in the range of from 50 to 73; and

(c) from about 0.5 to about 10% of an emulsifier.

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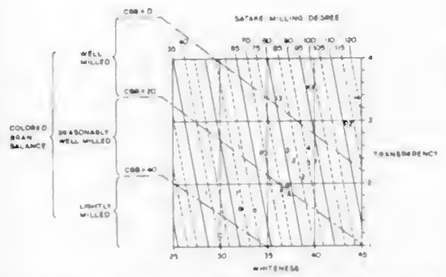
5,208,061
STARCH COMPOSITION
Valère L. M. P. de Coninck, Zelzate; André L. I. Rapaille, Knokke-Heist, and Freddy M. L. Van der Schueren, Aalst, all of Belgium, assignors to Cerestar Holding B.V., Vilvoorde
Filed Dec. 9, 1991, Ser. No. 803,974
Claims priority, application United Kingdom, Dec. 13, 1990, 9027106
Int. Cl.[5] A23L *1/0522;* A23G *3/00*
U.S. Cl. 426—573 10 Claims

1. A composition suitable for use as a replacement for gum arabic which comprises a mixture of 60 to 80% of an extruded waxy starch, based on the weight of the composition, 12 to 25% of a low DE maltodextrin, based on the weight of the composition, and at least 8% of an enzymatically hydrolysed collagen, based on the weight of the composition.

5,208,062
METHOD FOR PRODUCING ROUX
Ko Sugisawa, Nara; Masanori Yamamoto, Kaizuka; Masaru Shibuki; Yoshitaka Hirano, both of Nara; Koichi Shibahara, Toyonaka, and Nozomu Tanihara, Nara, all of Japan, assignors to House Food Industrial Company Limited, Higashi-osaka, Japan
Continuation of Ser. No. 191,178, May 6, 1988, abandoned. This application Nov. 19, 1990, Ser. No. 614,975
Claims priority, application Japan, May 8, 1987, 62-111967
Int. Cl.[5] A23P *1/12*
U.S. Cl. 426—589 15 Claims

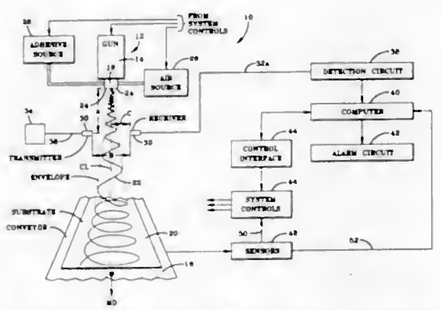
1. A method for producing roux comprising heating and kneading a starting material comprised of fats and oils and farinaceous materials in a twin-screw extruder at a temperature of 90° to 150° C. for 1 to 12 minutes, at least one of a reverse screw and a paddle screw being disposed at least at one portion of a heating and kneading zone of the twin-screw extruder, the amount of fats and oils in the starting material being 15 to 50% by weight.

5,208,063
MILLING PROCESS FOR CONTROLLING RICE COOKING CHARACTERISTICS
Robin D. Andrews, Clear Lake Shores; Deborah Locke, Alvin; John A. Mann, Friendswood, and James E. Stroike, League City, all of Tex., assignors to RiceTec, Inc., Houston, Tex.
Filed Mar. 18, 1991, Ser. No. 671,273
Int. Cl.[5] A23L *1/00*
U.S. Cl. 426—482 9 Claims



1. A process for changing the cooking behavior and cooked rice texture of a given well-milled rice when cooked in a predetermined way, including the steps of:
varying only the milling degree of said rice by
milling said rice to a greater degree than well-milled to produce cooked white rice having substantially softer and stickier texture; or,
milling said rice to a lesser degree than well-milled to produce cooked white rice having substantially fluffier and drier texture.

5,208,064
METHOD AND APPARATUS FOR OPTICALLY MONITORING AND CONTROLLING A MOVING FIBER OF MATERIAL
Kevin C. Becker, Westlake; Patrick J. O'Keefe, Jr., Wellington, and Eddie W. Dixson, Jr., Cleveland, all of Ohio, assignors to Nordson Corporation, Westlake, Ohio
Filed Nov. 4, 1991, Ser. No. 787,237
Int. Cl.[5] B05D *1/00*
U.S. Cl. 427—8 20 Claims

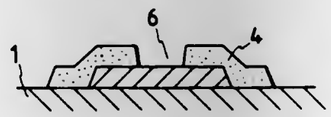


1. A method of monitoring a fiber of material comprising:
a) transmitting a beam of light;
b) causing the fiber to repeatedly pass through the beam of light;
c) generating a signal in response to the presence or absence of the fiber within the beam of light;
d) determining an interval between the presence of the fiber in the beam of light and a subsequent presence of the fiber in the beam of light; and
e) comparing the interval to a reference.

5,208,065
PROCESS FOR THE FORMATION OF UNDERCOAT FOR CRT METAL BACK LAYER
Norihisa Osaka; Yukihiro Ikegami; Kiichiro Ishiguro; Shuichiro Tokuda, and Masanori Itakura, all of Nagoya, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan
Filed Jul. 17, 1991, Ser. No. 731,477
Claims priority, application Japan, Jul. 19, 1990, 2-191448
Int. Cl.[5] B05D *5/06*
U.S. Cl. 427—64 4 Claims

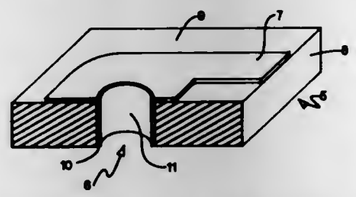
1. A process for the formation of an undercoat for a cathode ray tube (CRT) metal back layer, which comprises the following steps (A), (B) and (C):
(A) coating a pretreatment composition, which comprises 2–20wt. % of an alkyl monoalcohol having a C_{1-3} alkyl group, 0.05–1wt. % of a water-soluble polymer selected from the group consisting of polyvinyl alcohol, cellulose derivatives and gum arabic and 79–97.95 wt. % of water, on a glass panel having a fluorescent layer overlaid thereon, whereby a water film is formed;
(B) coating an undercoating composition, which comprises 1–7 parts by weight of an acrylic resin obtained by polymerizing 90–100 wt. % of an alkyl methacrylate having a C_{1-4} alkyl group other than tert-butyl methacrylate and 0–10 wt. % of an ethylenically unsaturated monomer copolymerizable therewith and 99–93 parts by weight of a solvent containing at least 80 wt. % of toluene, the sum of said acrylic resin and said solvent being 100 parts by weight, on the water film by a wet-on-wet coating method, whereby a coating layer is formed; and
(C) drying the water film and the coating layer to form the undercoat.

5,208,066
PROCESS OF FORMING A PATTERNED POLYIMIDE FILM AND ARTICLES INCLUDING SUCH A FILM
Koji Fujisaki; Shunichi Numata, both of Hitachi; Takao Miwa, Katsuta; Takayoshi Ikeda, Ibaraki, and Hisae Shimanoki, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 494,666, Mar. 16, 1990, abandoned. This application Apr. 30, 1992, Ser. No. 877,391
Claims priority, application Japan, Mar. 18, 1989, 1-66776
Int. Cl.[5] C23C *26/00*
U.S. Cl. 427—96 36 Claims



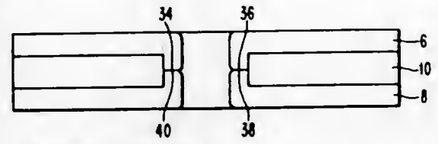
1. In a process of forming a patterned polyimide film on a substrate including the step of conversion of a polyimide precursor into polyimide, the improvement which comprises the steps of coating a mask on the film of the precursor of polyimide formed on the substrate, selectively converting the precursor into polyimide by contacting only an unmasked portion of the precursor with a chemical imidizing reagent for a time sufficient to effect imidization of the precursor over the entire thickness of the unmasked portion of the film, and then removing the precursor beneath the mask.

5,208,067
SURFACE MODIFICATION OF ORGANIC MATERIALS TO IMPROVE ADHESION
Carol R. Jones, Binghamton, and Robin A. Susko, Owego, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 449,184, Dec. 13, 1989, Pat. No. 5,039,569, which is a division of Ser. No. 93,923, Sep. 8, 1987, Pat. No. 4,908,094, which is a division of Ser. No. 851,856, Apr. 14, 1986, Pat. No. 4,715,941. This application May 16, 1991, Ser. No. 700,833
Int. Cl.[5] H01L *21/00*
U.S. Cl. 427—96 14 Claims



1. In the method for coating a silicon-modified organic surface with metal comprising electrolessly depositing a layer of metal on said organic surface from a metal containing bath, the improvement comprising, prior to electroless deposition of the metal, subjecting the silicon-modified surface to an oxygen containing plasma, whereby adhesion between the silicon-modified surface and the electrolessly deposited metal is improved.

5,208,068
LAMINATION METHOD FOR COATING THE SIDEWALL OR FILLING A CAVITY IN A SUBSTRATE
Charles R. Davis, Johnson City, and Ronald D. Goldblatt, Rye Brook, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 339,557, Apr. 17, 1989, abandoned. This application Dec. 13, 1990, Ser. No. 626,327
Int. Cl.[5] C23C *26/00*
U.S. Cl. 427—97 29 Claims



1. A method comprising:
providing a substrate having a substantially solvent free material layer on at least a part of a surface of said substrate, there being a cavity having a sidewall in said substrate extending at least to said layer;
providing an environment sufficient for said material layer to flow;
pressing said material towards said substrate causing said material layer to flow into said cavity; and
said material layer first flows down said sidewall forming a coating which substantially coats said sidewall, on continued pressing of said material layer said coating thickens; and
controlling said pressing to control the thickness of said coating to be less than sufficient to completely fill said cavity.

5,208,069
METHOD FOR PASSIVATING THE INNER SURFACE BY DEPOSITION OF A CERAMIC COATING OF AN APPARATUS SUBJECT TO COKING, APPARATUS PREPARED THEREBY, AND METHOD OF UTILIZING APPARATUS PREPARED THEREBY
Terence J. Clark; Michael J. Hanagan, both of Princeton; Richard W. Cruse, Kendall Park; Veronika A. Szalai, Rocky Hill; Stephen J. Rohman, Plainsboro, and Robert M. Mininni, Skillman, all of N.J., assignors to Istituto Guido Donegani S.p.A. and Enichem S.p.A., Milan, Italy
Filed Oct. 28, 1991, Ser. No. 783,264
Int. Cl.[5] B05D *3/02*
U.S. Cl. 427—226 13 Claims

1. A method for passivating the inner surface of a metallic reactor tube which is used in steam or steamless hydrocarbon pyrolysis, comprising decomposing at 700° C.–900° C. a non-oxygen containing silicon containing precursor selected from the group consisting of hexamethyldisilazane, tetramethylsilane, (diethylamino)trimethylsilane, (isopropylamino)trimethylsilane, (dimethylamino)trimethylsilane, heptamethyldisilazane, bis(isopropylamino)dimethylsilane, hexamethyldisilane, tetramethyldisilazane, (diethylamino)triethylsilane, tetrakis(-dimethylamino)silane, bis(dimethylamino)methylsilane, (dimethylamino)triethylsilane, trimethylsilane, (dimethylamino)benzyldimethylsilane, (dimethylamino)phenylmethylsilane, (2-picolylamino)trimethylsilane, tris(isopropylamino)methylsilane, dimethylsilane, bis(diethylamino)methylsilane, (dimethylamino)benzylmethylsilane, butylmethylphenylsilane, (diisopropylamino)methylchlorosilane, octamethyltrisilazane, bis(dimethylamino)phenylsilane, benzylmethylchlorosilane, triisopropylsilane, tris(dimethylamino)methylsilane, diethylmethylsilane, triethylsilane, bis(dimethylamino)ethylsilane, hexamethyltrisilazane, and (dimethylamino)dimethylsilane, in the vapor phase, in an inert or reducing gas atmosphere in said tube to form a thin layer of 1 to 20 μm of a ceramic material on a surface of said reactor tube.

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5,208,070

METHOD OF ALUMINUM PLATING AN ARTICLE

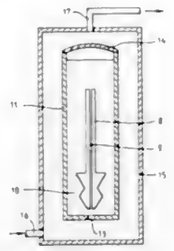
Robert W. Johnson, Bedworth; Ian K. Gillett, Birmingham; Paul S. J. Magrath, Daventry, and Colin R. Weaver, Kenilworth, all of England, assignors to Rolls-Royce Plc, London, England

Filed Apr. 12, 1991, Ser. No. 684,383

Claims priority, application United Kingdom, Apr. 17, 1990, 9008626

Int. Cl.[5] C23C *16/08, 16/12*

U.S. Cl. 427—252 2 Claims



1. A method of aluminum plating an article comprising the following steps:

(a) providing an aluminising powder consisting of metallic aluminum, a volatile halide, and a refractory bulking agent;

(b) providing a crucible adapted to receive the article, the crucible having a top closure member and an aperture in its base;

(c) providing a retort adapted to receive the crucible, the retort having an inlet port and an outlet port whereby an inert gas may be flushed through the retort, the retort being otherwise sealable;

(d) placing the article in the crucible, completely covering the article within the crucible with the aluminising powder, and closing the top of the crucible after the article and aluminising powder have been placed therein;

(e) placing the crucible in the retort,

(f) sealing the retort except for the inlet and outlet ports;

(g) pumping an inert gas into the retort through the inlet port so as to displace air from the retort;

(h) heating the retort so as to react the aluminum with the halide and thereby produce an aluminum halide gas which descends through the crucible and decomposes on contact with the article to deposit a layer of aluminum thereon, excess aluminum halide gas escaping through the aperture in the base of the crucible; and

(i) maintaining a flow of inert gas through the retort so as to entrain excess aluminum halide escaping from the base of the crucible.

5,208,071

METHOD FOR ALUMINIZING A FERRITIC WORKPIECE BY COATING IT WITH AN AQUEOUS ALUMINA SLURRY, ADDING A HALIDE ACTIVATOR, AND HEATING

Thomas L. Davis, Louisville; Dale F. LaCount; Steven E. LeBeau, both of Alliance, all of Ohio, and Kenneth D. Seibert, Hemet, Calif., assignors to The Babcock & Wilcox Company, New Orleans, La.

Division of Ser. No. 691,182, Apr. 25, 1991, Pat. No. 5,135,777, which is a division of Ser. No. 486,481, Feb. 28, 1990, Pat. No. 5,041,309. This application Apr. 24, 1992, Ser. No. 873,925

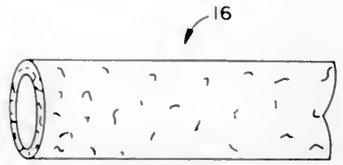
Int. Cl.[5] C23C *16/00*

U.S. Cl. 427—253 3 Claims

1. A method for aluminizing a ferritic workpiece, comprising the steps of;

forming an aqueous aluminum slurry composition, the aqueous aluminum slurry composition comprising methyl cellulose, alumina, aluminum powder and water;

applying said aluminum slurry composition to the ferritic workpiece to form a coating;



adding a halide activator to the coated ferritic workpiece; and

heating the coated ferritic workpiece to a temperature of about 1275° F. to about 1300° F. for approximately 24 hours.

5,208,072

MASS TREATMENT OF CELLULOSIC MATERIALS

Conrad W. Kamienski, and Robert S. Wedinger, both of Gastonia, N.C., assignors to FMC Corporation, Philadelphia, Pa.

Division of Ser. No. 630,721, Dec. 20, 1990, Pat. No. 5,104,997, and a continuation of Ser. No. 252,421, Sep. 30, 1988, abandoned. This application Nov. 13, 1991, Ser. No. 792,499

Int. Cl.[5] B05D *1/18, 3/00*

U.S. Cl. 427—296 19 Claims

1. A process for deacidifying cellulosic materials comprising contacting the cellulosic material with a hydrocarbon or halocarbon solution or mixtures thereof containing an effective deacidifying amount of a composition selected from the group consisting of:

(A) a substituted metal alkoxide having the formula

$$X_yM^a(OR)_{a-y}(R^1OH)_x$$

wherein:

(I) —OR is a group selected from 2-alkoxyalkoxy- and ω-alkoxypolyalkoxy- groups of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nOR^3]$$

wherein R^2 is selected from H and $-CH_3$ and R^3 is selected from alkyl groups of 1 to 18 carbon atoms, cycloalkyl groups of 3 to 18 carbon atoms and aryl, arylalkyl and alkylaryl groups of 6 to 18 carbon atoms and n is a value of 1 to 20;

(II) X— is a group selected from

(a) 2-dialkylaminoalkoxy- and ω-dialkylaminopolyalkoxy groups of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nNR_2^3]$$

wherein R^2 is selected from hydrogen and methyl, R^3 is selected from alkyl groups of 1 to 18 carbon atoms, cycloalkyl groups of 3 to 18 carbon atoms and aryl, arylalkyl and alkylaryl groups of 6 to 18 carbon atoms and n is a value of 1 to 20;

(b) a halogen selected from chlorine and bromine;

(c) an organic group $—R^4$ wherein R^4 is selected from the group consisting of alkyl groups containing 1 to 18 carbon atoms, cycloalkyl groups containing 3 to 18 carbon atoms and aryl, arylalkyl and alkylaryl groups containing 6 to 18 carbon atoms;

(d) an acyloxy group of the formula $[—O(O)CR^4]$ wherein R^4 has the hereintobefore ascribed meaning;

(e) ω-alkoxypolyalkoxy- groups of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nOR^3]$$

wherein R^2, R^3 and n have the herintobefore ascribed meanings;

(f) an alkoxy group $—OR^4$ wherein R^4 has the hereintobefore ascribed meanings;

(III) M is a metal selected from groups IIa and IIb of the Periodic Table and aluminum and mixtures thereof;

(IV) R^1OH is a compound in which R^1O is a group selected from

(e) alkoxy groups of the formula R^4O wherein R^4 has the hereintobefore ascribed meanings;

(f) 2-alkoxyalkoxy- and ω-alkoxypolyalkoxy- groups of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nOR^3]$$

wherein R^2, R^3 and n have the hereintobefore ascribed meanings;

(g) 2-dialkylaminoalkoxy- and ω-dialkylaminopolyalkoxy groups of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nNR_2^3]$$

(V) a is the valence of the metal M;

(VI) y has a value between zero and one; and

(VII) x has a value of zero to two;

(B) a carbonated substituted metal alkoxide having the formula

$$X_yM^a(OR)_{a-y}(R^1OH)_x$$

in which either X_y or —OR is carbonated wherein R^1OH, M, a, y and x have the hereintobefore ascribed meanings; and

(I) —OR is a group selected from 2-alkoxyalkoxy-and ω-alkoxypolyalkoxy- groups of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nOR^3]$$

wherein R^2 is selected from H and $—CH_3$ and selected from alkyl groups of 1 to 18 carbon atoms, cycloalkyl groups of 3 to 18 carbon atoms and aryl, arylalkyl and alkylaryl groups of 6 to 18 carbon atoms and n is a value of 1 to 20; and

(II) X— is a group selected from

(a) 2-dialkylaminoalkoxy- and ω-dialkylaminopolyalkoxy groups of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nNR_2^3]$$

#wherein R^2 is selected from hydrogen and methyl, R^3 is selected from alkyl groups of 1 to 18 carbon atoms, cycloalkyl groups of 3 to 18 carbon atoms and aryl, arylalkyl and alkylaryl groups of 6 to 18 carbon atoms and n is a value of 1 to 20;

(b) an ω-alkoxypolyalkoxy- group of the formula

$$[-OCH(R^2)CH_2-OCH(R^2)CH_2\rightarrow_nOR^3]$$

wherein R^2, R^3 and n have the hereintobefore ascribed meanings; and,

(c) an alkoxy group $—OR^4$ wherein R^4 has the hereintobefore ascribed meaning

(C) and mixtures of (A) and (B).

5,208,073

METHOD OF MANUFATURING A COLORED METALLIC SHEET

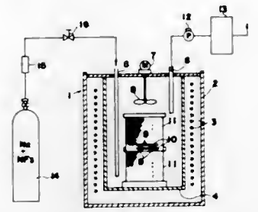
Akira Yoshino, Osakayama, Japan, assignor to Daidousanso Co., Ltd., Osaka, Japan

Filed Oct. 2, 1991, Ser. No. 769,703

Claims priority, application Japan, Jan. 22, 1991, 3-22986

Int. Cl.[5] B05D *3/02*

U.S. Cl. 427—318 1 Claim



1. A method of manufacturing a colored metallic sheet comprising the steps of holding a surface of a metallic plate to be painted in a fluorine or fluoride-containing atmosphere in a heated condition to form a fluoride layer on the surface to be painted, removing the formed fluoride layer from the surface just before painting the surface so as to expose a metallic base, and painting a surface of the exposed metallic base.

5,208,074

SOLUBLE ALKALI METAL STEARATE SOLUTION COMPOSITIONS

Jeffrey A. Kosal, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Dec. 9, 1991, Ser. No. 803,888

Int. Cl.[5] B05D *3/02*

U.S. Cl. 427—389 5 Claims

1. An aqueous alkali metal stearate solution comprising: 0.01–10.0 weight percent of an alkali metal stearate selected from the group consisting of sodium stearate, potassium stearate, and mixtures thereof; 0.01–20.0 weight percent of a water soluble nonionic surfactant having the formula $C_aH_b(OCH_2CH_2)_nOH$ in which a has a value of 11–15, b has a value of 23–31, and n has an average value of 4–10; and 70.0–99.98 weight percent of water; the surfactant being present in at least a 1:1 weight ratio with the alkali metal stearate; and an effective buffering amount of an electrolyte selected from the group consisting of sodium hydroxide, potassium hydroxide, and sodium borate; the pH of the solution being 6.5 or above.

5,208,075

SIZING AGENT FOR STAPLE FIBER AND FILAMENT YARNS

Matthias Kroner, Bad Durkheim; Manfred Niessner, Schifferstadt; Heinrich Hartmann, Limburgerhof; Dieter Voelker, Mutterstadt; Juergen Hartmann, Ludwigshafen, and Holger Schoepke, Neckargemuend, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 746,988, Aug. 19, 1991. This application May 26, 1992, Ser. No. 888,139

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1990, 4029348

Int. Cl.[5] B05D *3/00;* C08L *89/00;* C08H *1/00*

U.S. Cl. 427—389.9 3 Claims

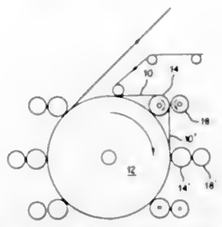
1. A method for sizing staple fiber and filament yarns comprising:

contacting said staple fiber and filament yarns with an aqueous liquor of a sizing agent, wherein said sizing agent is a grafted protein obtained by free radical polymerization of

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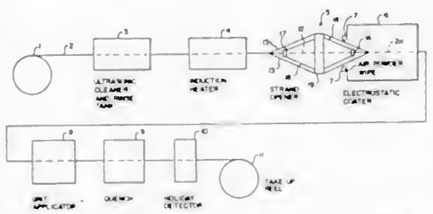
(a) a monoethylenically unsaturated monomer in the presence of
(b) a protein in water in a weight ratio (a):(b) of (0.5–90):(99.5–10).

5,208,076
FULL COVERAGE PRINTING
Bill R. Wood, Simpsonville, S.C., assignor to W. R. Grace & Co.-Conn., Duncan, S.C.
Filed Aug. 29, 1991, Ser. No. 751,498
Int. Cl.[5] B05D *1/28*
U.S. Cl. 427—428 **3 Claims**



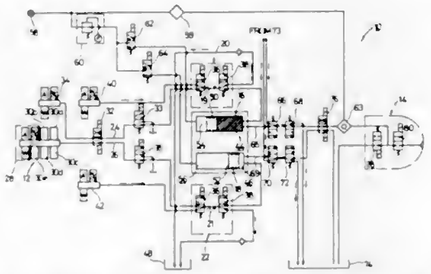
1. A method for printing a web comprising:
(a) passing the web between a printing cylinder and an anilox roll; and
(b) applying ink from the anilox roll to the web; wherein the printing cylinder is covered by a continuous rubber or elastomeric covering; and wherein the ink is applied from the anilox roll such that the ink covers substantially the entire lateral width of an outer surface of the web.

5,208,077
METHOD FOR A COMPOSITE MATERIAL COMPRISING COATED AND FILLED METAL STRAND FOR USE IN PRESTRESSED CONCRETE, STAY CABLES FOR CABLE-STAYED BRIDGES AND OTHER USES
Dale D. Proctor; Denny M. Bucy, both of Orange Park; R. Terry Johnson, Macclenny, all of Fla., and Michael R. Bradley, St. George, Ga., assignors to Florida Wire and Cable Company, Jacksonville, Fla.
Filed Nov. 9, 1990, Ser. No. 610,225
Int. Cl.[5] B05D *1/06*
U.S. Cl. 427—461 **4 Claims**



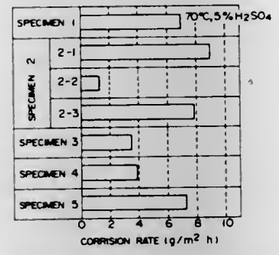
1. A method of making a composite material comprising a strand of high strength steel wires, the strand being coated and impregnated with a substantially impermeable and strongly adherent plastic resin, comprising advancing a fully formed strand of high strength steel bare wires from a supply thereof, the strand comprising plural outer wires individually spiraled about a center wire, cleansing the strand as it advances, heating the strand as it advances to a temperature above the fusion temperature of a plastic resin powder to be electrostatically applied thereto in a subsequent stages, temporarily opening successive sections of the strand as it advances by guiding the outer spiraled bare wires individually outwardly at an acute angle from the center wire, and subsequently closing the strand by returning the outer wires to their initial spiral configuration about the center wire, subjecting the successive sections of the advancing strand while in the opened state and after return to the closed state to an electrostatically charged powder of a thermosetting plastic resin which maintaining the strand at a different potential relative to the powder so as to attract the powder the strand and form a coating of the powder thereon which melts and fuses by heat from the strand such that upon closing the strand the resin on the center wire and the relatively inner surfaces of the outer wires impregnates an substantially fills the interstices between the center wire and to the outer wires and other of the resin forms a fused coating on the exterior of the closed strand, permitting the resin filling and coating to at least partially cure under the heat of the strand, quenching the filled and coated strand after the at least partial curing, and continuously taking up the quenched coated strand.

5,208,078
METHOD OF PAINT APPLICATION BY ELECTROSTATIC SPRAYING
Ichirou Ishibashi; Yoshio Tomioka; Toshio Kubota, and Niichi Toyama, all of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 27, 1991, Ser. No. 722,195
Claims priority, application Japan, Jul. 6, 1990, 2-179306
Int. Cl.[5] B05D *1/04*; B05B *15/02*
U.S. Cl. 427—483 **6 Claims**



1. A method of paint application, comprising the steps of:
feeding a desired paint to a first paint feeder from a grounded paint feed source through a first feed line having an electrically-insulated portion formed in at least one portion thereof;
cleaning and drying said electrically-insulated portion of said first feed line thereby to electrically insulate said paint feed source from said first paint feeder;
thereafter feeding paints to a spray gun from said first paint feeder thereby to carry out a painting process with said paint;
cleaning a second paint feeder without supplying paint to said second paint feeder while said painting process with said paints is being carried out;
after said painting process with said paint has been completed, feeding desired paint to said second paint feeder from said paint feed source through a second feed line having an electrically-insulated portion formed in at least one portion thereof;
cleaning and drying said electrically-insulated portion of said second feed line thereby to electrically insulate said paint feed source from said second paint feeder; and
feeding said paint to said spray gun from said second paint feeder thereby to carry out a painting process with said paint.

5,208,079
PROCESS FOR IMPROVING THE RESISTANCE TO CORROSION OF STAINLESS STEEL
Makoto Fukushima, Kumagaya, and Kikuo Takizawa, Kazo, both of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed May 26, 1992, Ser. No. 888,892
Claims priority, application Japan, May 27, 1991, 3-174280
Int. Cl.[5] C23C *14/00*
U.S. Cl. 427—527 **2 Claims**

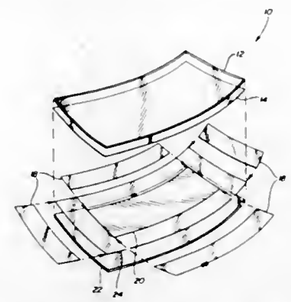


1. A process for improving the resistance to corrosion of a stainless steel, the process comprising coating the stainless steel having an Mn/S ratio of less than 100 as substrate by ion plating process with a Ti-layer for surface preparation, coating directly the resulting Ti-layer or indirectly a TiC-layer, which has been coated onto the Ti-layer in advance as intermediate, with a TiN-layer in a total thickness of 1 to 3 μm, the composition of the substrate comprising the following A or B:

A		B	
% by Wt.	Element	% by Wt.	Element
less than 0.08	C	less than 0.08	C
less than 1.0	Si	less than 1.0	Si
less than 1.0	Mn	less than 1.0	Mn
less than 0.04	P	less than 0.04	P
less than 0.01	S	0.005 to 0.010	S
8.0 to 12.0	Ni	8.0 to 12.0	Ni
17.0 to 20.0	Cr	17.0 to 20.0	Cr
0.40 to 0.80	Mo	0.40 to 0.80	Mo
the balance	Fe	the balance	Fe

5,208,080
LAMINATION OF SEMI-RIGID MATERIAL BETWEEN GLASS
Kenneth J. Gajewski, Woodhaven, and John H. Meyer, Milford, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Division of Ser. No. 604,689, Oct. 29, 1990, Pat. No. 5,147,485. This application Jul. 1, 1992, Ser. No. 907,350
Int. Cl.[5] B32B *17/10*; C03C *27/12*; G02F *1/13*
U.S. Cl. 428—1 **24 Claims**

1. A safety laminate having encapsulated semi-rigid material, said laminate comprising:
first and second layers of thermoplastic laminating material;
an interlayer including at least one sheet of semi-rigid material, said semi-rigid material capable of bending and flexing and tending to crease and fold thereby, said semi-rigid material encapsulated within said first and second layers of said thermoplastic laminating material substantially without creasing and folding; and
first and second rigid transparent layers bonded to said first and second layers of laminating material, respectively,



whereby one surface of each of said rigid transparent layers is an outer surface of said laminate.

5,208,081
PLASTIC MOLDING HAVING A PAINTED SURFACE
Franz Gübitz, Kelkheim; Volker Ritter, deceased, late of Hünfelden-Dauborn, and Ursula J. Ritter, née Zöller, legal beir, Hünfelden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Aug. 8, 1991, Ser. No. 742,634
Claims priority, application Fed. Rep. of Germany, Aug. 10, 1990, 4025361
Int. Cl.[5] B60R *13/00*; B32B *27/00*
U.S. Cl. 428—31 **6 Claims**

1. A molded plastic article having a painted surface, said article comprising:
a molded, colored plastic mass, said molded, colored plastic mass comprising:
a) from 95 to 50 parts by weight of isotactic polypropylene or a copolymer of propylene containing up to 10% by weight of ethylene,
b) from 5 to 50 parts by weight of an amorphous, rubber-like, polypropylene-compatible copolymer comprising 30–70% by weight of ethylene and 70–30% by weight of propylene or a terpolyemr comprising ethylene, propylene and up to 5% by weight of a diene, and
c) from 0 to 50 parts by weight of a reinforcing filler;
a clearcoat paint coating adherently coated on a surface of said molded, colored plastic mass, said clearcoat paint coating having been coated onto said surface of said molded plastic article without physical or chemical pretreatment of said surface, said clearcoat paint coating being substantially a single layer and containing an adhesion promoter.

5,208,082
BLENDS AND STRUCTURES BASED ON ETHYLENE VINYL ALCOHOL COPOLYMER AND SELECTED AMORPHOUS POLYAMIDES
Richard T. Chou, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Division of Ser. No. 551,389, Jul. 12, 1990, Pat. No. 5,126,402. This application Mar. 6, 1992, Ser. No. 847,339
The portion of the term of this patent subsequent to Jun. 30, 2009, has been disclaimed.
Int. Cl.[5] B32B *27/30, 27/32, 27/34*
U.S. Cl. 428—36.6 **12 Claims**

1. A multiple layer structure wherein at least one of the layers is prepared from a blend consisting essentially of:
(a) about 5 to about 95 percent by weight of at least one ethylene vinyl alcohol copolymer having a copolymer-

VOL 1150 ISS 1 MY 4 1993 UMI

ized ethylene content of about 20 to about 50 mole percent and a degree of saponification of at least about 90%, and

(b) about 95 to about 5 percent by weight of a polyamide component comprising at least about 30 weight percent of at least one amorphous polyamide having a glass transition temperature of up to about 160° C. and fewer than about 0.100 equivalents of carboxyl end groups per kilogram, said polyamide component forming a separate phase from that of the ethylene vinyl alcohol copolymer.

5,208,083

POLYMER BLENDS WITH ENHANCED PROPERTIES

William T. Freed, Stockton, N.J., assignor to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 438,371, Nov. 16, 1989, Pat. No. 5,147,930. This application Feb. 28, 1992, Ser. No. 843,784

Int. Cl.[5] B32B *27/08, 27/32*

U.S. Cl. 428—36.7 **5 Claims**

1. A container having walls suitable for protecting the container contents from environmental gases, the walls being a gas-barrier polymer blend comprising

a) from about 20 to about 95% by weight of a first polymer containing at least 50 mole percent mers of one or both of lower alkyl (meth)acrylates and glutarimides and forming a continuous phase, and

b) from about 2.5% to about 40% by weight of a second polymer having at least 50 mole percent vinyl alcohol mers which is either miscible with, or forms a discontinuous phase in, the continuous phase, wherein the permeability to oxygen of the blend is 10% or less of the permeability of the first polymer alone.

5,208,084

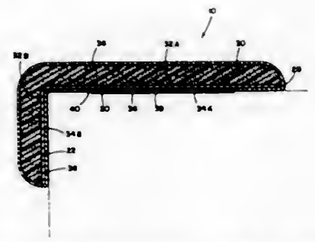
EDGE PAD

Almer J. Rutz, Box 816, Riverdale, N. Dak. 58565

Filed May 21, 1991, Ser. No. 703,454

Int. Cl.[5] A61F *13/02*

U.S. Cl. 428—40 **11 Claims**



7. An edge padding device for covering an exposed edge of two intersecting surfaces, comprising:

a rigid frame portion for providing a structure adapted for fitting over at least one of the intersecting surfaces and glued thereto, the covering means have openings for the placement of the adhesive means wherein the frame portion has corners which have obtuse angles;

padding means for providing cushioning over the frame means;

adhesive means for attaching the padding device to at least one of the intersecting surfaces; and,

covering means for covering the padding means and the frame means applied in a single non-overlapping layer.

5,208,085

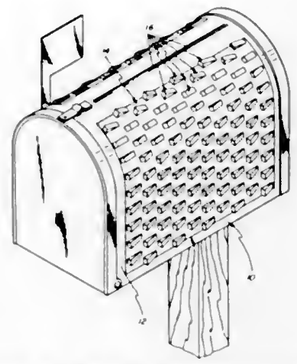
INK OR DYE-FILLED BLISTER PACKS

Marvin B. Pace, 2955 Shiloh Rd., Ludlow Falls, Ohio 45339

Filed Aug. 19, 1991, Ser. No. 746,729

Int. Cl.[5] B32B *3/02*

U.S. Cl. 428—43 **17 Claims**



1. A device for deterring vandalism to exposed exterior surfaces, said device comprising:

nodule means including a substantially planar surface for mounting said device to said exposed exterior surface, a dispersion wall portion extending from said substantially planar surface and a body portion defining an axis extending in a longitudinal direction from said dispersion wall portion,

a mixture of a dye and an incompressible substance having fluid characteristics, said mixture being contained within said nodule means, and

weakened burst line means formed on said nodule whereby a predetermined minimum impact force exerted on said body portion will cause said mixture to press against and break said burst line means such that said mixture is propelled in a direction generally parallel to said axis and opposite from the direction in which said body portion extends from said dispersion wall portion.

5,208,086

LAMINATED TILE PRODUCT, METHOD FOR PRODUCING THE SAME AND METHOD FOR INSTALLING THE SAME

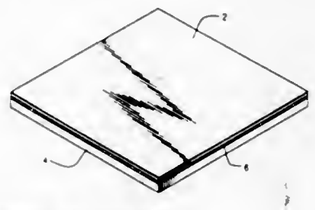
Charles R. Owens, 6100 Valley View Dr., Alexandria, Va. 22310

Continuation-in-part of Ser. No. 177,947, Apr. 5, 1988, Pat. No. 4,931,331, and a continuation-in-part of Ser. No. 375,726, Jul. 5, 1989, Pat. No. 5,062,913, which is a continuation-in-part of Ser. No. 177,947, Apr. 5, 1988, Pat. No. 4,931,331. This application Oct. 19, 1989, Ser. No. 424,193

The portion of the term of this patent subsequent to Jun. 5, 2007, has been disclaimed.

Int. Cl.[5] B32B *3/14*

U.S. Cl. 428—47 **10 Claims**



1. A laminated tile comprising:

a layer of natural stone;

a plurality of fired, fused, impact-resistant ceramic substrates; an

an adhesive bonding said layer of natural stone to said plurality of ceramic substrates.

5,208,087

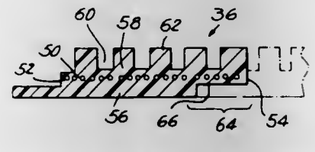
SPIRAL CONSTRUCTION FOR A LONG NIP PRESS BELT

Carl E. Stigberg, Schenectady, N.Y., assignor to Albany International Corp., Albany, N.Y.

Filed Oct. 8, 1991, Ser. No. 773,120

Int. Cl.[5] B32B *3/10*

U.S. Cl. 428—60 **12 Claims**



2. A belt for use in a long nip press for dewatering a fibrous web, said long nip press having a cylindrical press roller and an arcuate pressure shoe which together define a nip therebetween, said belt being passed through said nip in conjunction with at least one pres felt supporting and carrying said fibrous web to be dewatered, said belt being between said press felt and said arcuate pressure shoe in said nip, said belt accordingly having a felt side and a shoe side, said belt comprising:

an elongated strip, said strip being elongated in a longitudinal direction, and having a first edge, a second edge, a constant width and a uniform thickness;

said elongated strip being wound into the form of a closed helix having an axial direction, said elongated strip forming a plurality of successive coils of said closed helix, each of said plurality of successive coils being joined to those in contact therewith by joining said first edge of said elongated strip in each coil to said second edge of said elongated strip in a subsequent coil in said axial direction of said closed helix to form said belt;

wherein said elongated strip comprises a reinforcing web, said reinforcing web having a first side and a second side, said first side being coated with coating of a first polymeric resin, said first coating being uniformly smooth, said first coating on said first side of said reinforcing web being on said shoe side of said belt;

said second side of said reinforcing web being coated with a second coating of a second polymeric resin, said second polymeric resin having a hardness value greater than that of said first polymeric resin, said second coating having at least one groove in said longitudinal direction of said elongated strip, said second coating on said second side of said reinforcing web being on said felt side of said belt; and

means for joining said first edge of said elongated strip in each of said plurality of successive coils to said second edge of said elongated strip in a subsequent coil.

5,208,088

OPTICAL RECORDING MEDIUM

Junji Tominaga, Kitasaku; Hiroyuki Arioka, and Akio Ogawa, both of Saku, all of Japan, assignors to TDK Corporation, Tokyo, Japan

Filed Nov. 21, 1991, Ser. No. 795,443

Claims priority, application Japan, Nov. 22, 1990, 2-320109; Jul. 10, 1991, 3-195770

Int. Cl.[5] B32B *3/02*

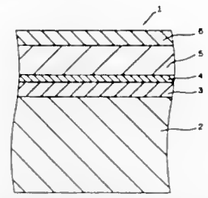
U.S. Cl. 428—64 **3 Claims**

1. An optical recording medium, comprising:

a substrate,

a reflective thin film on one surface of the substrate containing at least one element selected from the group consisting of Ag, Au, Cu, and Pt and being 200 to 700 A thick,

an intermediate thin film on said reflective thin film containing at least one element selected from the group consisting of Zn, Al, Sn, In, Cd, Tl, Pb, and Bi and being 10 to 200 A thick, and



a low-melting thin film having a melting point of about 200 to about 400 degrees C. on said intermediate thin film and containing at least one element selected from the group consisting of Te, Se, and S and being 200 to 1500 A thick.

5,208,089

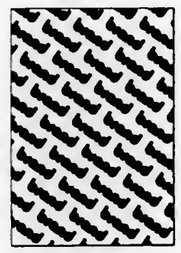
FABRIC CONDITIONING ARTICLES FOR USE IN LAUNDRY DRYERS

Russell Norris, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 895,335, Sep. 11, 1978, abandoned. This application May 17, 1978, Ser. No. 906,807

Int. Cl.[5] A32B *3/00*

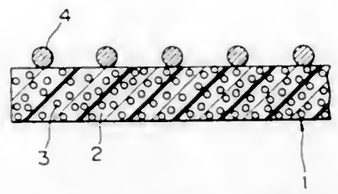
U.S. Cl. 428—136 **46 Claims**



1. An article suitable for conditioning fabrics in a laundry dryer, said article comprising a flexible woven or nonwoven web in sheet form having disposed thereon a fabric conditioning composition, wherein the fabric conditioning composition is unevenly distributed on the substrate in areas of high concentration of fabric conditioning composition per unit area of substrate and areas of low concentration of fabric conditioning composition per unit area of substrate so as to produce a visual contrast between said high concentration and low concentration areas, wherein the portion of the fabric conditioning composition in the areas of high concentration contains from about 0.05% to about 10% based on the total weight of fabric conditioning composition in said areas of high concentration, of a pigment which accentuates the visual difference between the portion of fabric conditioning composition in the areas of high concentration and the portion of the fabric conditioning composition in the areas of low concentration, wherein the weight per unit area of composition in the high concentration areas is at least about 1.25 times the weight per unit area of composition in the low concentration areas, and wherein the total weight ratio of fabric conditioning composition to substrate is from about 0.5:1 to about 5:1.

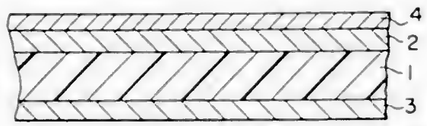
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,090
METAL SINGLE FIBER-REINFORCED PREPREG
Masatoyo Okitsu, Kasukabe, and Tsuneo Akatsuka, Saitama, both of Japan, assignors to Somar Corporation, Japan
Filed Feb. 4, 1991, Ser. No. 649,917
Claims priority, application Japan, Feb. 9, 1990, 2-31030
Int. Cl.[5] B32B *5/12, 9/00, 5/06;* D04H *3/12*
U.S. Cl. 428—113 4 Claims



1. A composite material comprising a planar sheet of a prepreg including a multitude of substantially uniaxially oriented filaments selected from the group consisting of carbon, ceramic and aromatic polyamide filaments, said filaments having a diameter of 3–16 μm and impregnated with a thermosetting resin, and a multiplicity of metal single fibers having a diameter of 50–300 μm and bonded to at least one surface of said sheet by said thermosetting resin with only a portion of the circumference of each of said single fibers being embedded in said sheet, said single fibers being spaced apart from each other and arranged substantially in parallel with said filaments.

5,208,091
MAGNETIC RECORDING MEDIUM
Takafumi Yanagita, and Tsutomu Kenpo, both of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan
Filed Jul. 25, 1990, Ser. No. 558,089
Claims priority, application Japan, Jul. 31, 1989, 1-198167
Int. Cl.[5] B32B *3/10, 5/16;* G11B *5/66*
U.S. Cl. 428—141 14 Claims

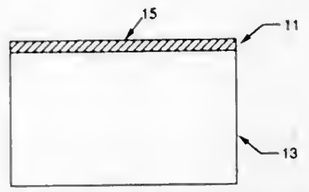


1. A magnetic recording medium comprising at least two magnetic layers provided on a first side of a non-magnetic support, and a backing layer on a second side of said support, wherein at least one of said magnetic layers comprises a resin containing a hydrophilic polar group selected from the group consisting of $-SO_3M$, $-COOM$, and $-PO(OM)_2$, in which M represents hydrogen or an alkali metal; the uppermost layer of said magnetic layers having a thickness of not more than 0.6 μm; said backing layer having, on the surface thereof, 10,000 to 100,000 protrusions per cm^2, each having a height of 0.05 to 0.6 μm, and an interval between protrusions being not less than 10 μm.

5,208,092
TRANSPARENT LIQUID ABSORBENT MATERIALS FOR USE AS INK-RECEPTIVE LAYERS
Mohammad Iqbal, Austin, Tex., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Oct. 24, 1990, Ser. No. 602,793
Int. Cl.[5] B32B *3/00*
U.S. Cl. 428—195 9 Claims

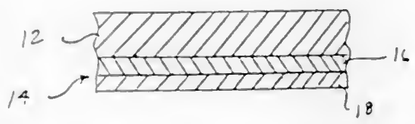
1. A recording sheet comprising a transparent support bearing on at least one major surface thereof a transparent ink-receptive layer comprising:
(1) from about 92 to about 99.5% by weight of a water-soluble copolymer; and
(2) from about 0.5 to about 8% by weight of a polyfunctional aziridine crosslinking agent;
said water-soluble copolymer having been crosslinked after being coated onto said support.

5,208,093
FILM CONSTRUCTION FOR USE IN A PLAIN PAPER COPIER
Joseph C. Carls; Alan J. Herbert, and Donald J. Williams, all of Austin, Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of Ser. No. 677,475, Mar. 28, 1991, abandoned. This application Nov. 5, 1991, Ser. No. 788,138
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—195 11 Claims



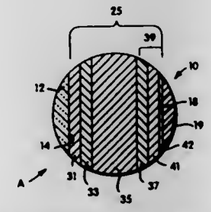
1. An electrographic article capable of providing a full color image when said image is projected, comprising a transparent polymeric film having at least one polymeric receptor layer coated on at least one side thereof, said receptor layer having an equivalent or lower storage electricity modulus that a toner resin used for forming images on said article.

5,208,094
MULTILAYERED FILM FOR PACKAGING
Joseph Z. Sun, 14 Cheng Kong Road, Feng Shan, Taiwan
Continuation of Ser. No. 730,865, May 6, 1985, abandoned. This application Mar. 23, 1987, Ser. No. 28,884
The portion of the term of this patent subsequent to Mar. 4, 2009, has been disclaimed.
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—212 11 Claims



1. A multilayered film of 1.2 mils to 4.2 mils thick comprises the following layers:
a. a crosslinked outer layer occupying between 60% to 98% of said multilayered film thickness, comprising a single component ethylene vinyl acetate copolymer having 3% to 15% by weight of vinyl acetate with the irradiation dosage for said crosslinking of said outer layer being greater than 4 MR,
b. an intermediate layer occupying between 0% to 20% of said multilayered film thickness, comprising a single component ethylene vinyl acetate copolymer having 9% to 17% of vinyl acetate by weight, and sandwiched between said outer layer and the following layer,
c. an un-irradiated inner layer occupying between 2% to 40% of said multilayered film thickness, comprising a single component ethylene vinyl acetate copolymer having 4% to 17% of vinyl acetate by weight, adapted for lying adjacent to the product, and producing a moisture barrier.

5,208,095
LAMINATED GLAZING UNIT
Kenneth E. Nietering, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Division of Ser. No. 628,293, Dec. 17, 1990, Pat. No. 5,073,450. This application Aug. 28, 1991, Ser. No. 751,379
Int. Cl.[5] B32B *18/00*
U.S. Cl. 428—215 5 Claims



1. An electrically heatable windshield for a motor vehicle comprising a glass substrate ply, a polyvinyl butyral laminating ply laminated to a surface of the substrate ply, a substantially transparent, electrically conductive coating on the laminated surface of the substrate ply, and means for passing an electrical current through the coating for heating the windshield, the coating consisting essentially of, in order: a first film of dielectric material immediately adjacent the laminating ply; a first film of silver metal; and a film of zinc oxide immediately adjacent the substrate ply; wherein the first film of dielectric material consists essentially of:
a layer of silicon dioxide about 2 to 10 nanometers thick immediately adjacent the laminating ply; and
a layer of zinc oxide immediately adjacent the silicon dioxide on one side and the film of silver metal on the other, being substantially as thick as the film of zinc oxide.

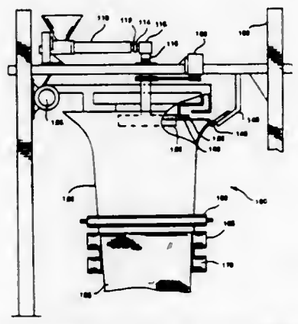
5,208,096
SINGLE-SIDED CLING STRETCH FILM
Gregory L. Dohrer, Broken Arrow, Okla., assignor to Paragon Films Incorporated, Broken Arrow, Okla.
Continuation-in-part of Ser. No. 462,504, Jan. 8, 1990. This application Jan. 8, 1991, Ser. No. 638,615
The portion of the term of this patent subsequent to Mar. 3, 2009, has been disclaimed.
Int. Cl.[5] B32B *27/08*
U.S. Cl. 428—218 19 Claims

1. A stretch wrap thermoplastic A/B/C film having minimum stretch capability of 200% comprising:
a polyolefinic A layer having a cling force to the C layer between about 100 to about 350 g wherein the A layer is selected from the group consisting of polyethylene, atactic polypropylene, copolymers of ethylene and propylene, and polymers obtained from (i) ethylene and/or propylene and (ii) an ethylenically unsaturated monomer;
a polyolefinic B layer having a tensile strength between about 4,000 to about 12,000 psi; and
a C layer having a cling force in a non-stretched condition to another C layer according to ASTM D4649 of approximately zero wherein said C surface is fabricated from a film forming system free of a slip additive and comprising a polyethylene or polypropylene having a melt flow rate, in accordance with ASTM D-1238, less than 10.0.

5,208,097
BASE FABRIC FOR AIR BAG
Hiroshi Honma; Takehiko Sakai, and Takao Matsushita, all of Chiba, Japan, assignors to Dow Corning Toray Silicone Co., Ltd., Tokyo, Japan
Filed Oct. 23, 1992, Ser. No. 965,502
Claims priority, application Japan, Oct. 31, 1991, 3-355404
Int. Cl.[5] B32B *7/00*
U.S. Cl. 428—266 4 Claims

1. A base fabric for air bags produced by (I) coating a surface of a fabric comprised of a polyamide fiber or polyester fiber with a thermosetting organopolysiloxane product comprised of
(A) an unvulcanized organopolysiloxane rubber containing 2 or more alkenyl groups in a molecule;
(B) a fine silica powder;
(C) an organopolysiloxane comprised of at least 5 silicon atoms in the main chain and further containing 1 or more trialkoxysilyl groups bonded with a silicon atom through a carbon atom, 1 or more epoxyalkyl groups and 3 or more hydrogen atoms bonded with a silicon atom;
(D) a catalyst for hydrosilylation reaction and
(E) an organic solvent
followed by (II) heating the coated fabric for hardening.

5,208,098
SELF-BONDED NONWOVEN WEB AND POROUS FILM COMPOSITES
Walter H. Stover, Marietta, Ga., assignor to Amoco Corporation, Chicago, Ill.
Filed Oct. 23, 1990, Ser. No. 601,519
Int. Cl.[5] B32B *27/34*
U.S. Cl. 428—284 17 Claims



1. A self-bonded nonwoven web and porous film composite comprising,
at least one layer of a uniform basis weight self-bonded, fibrous nonwoven web comprising a plurality of substantially randomly disposed, substantially continuous thermoplastic filaments wherein said web has a Basis Weight Uniformity Index of 1.0±0.05 determined from average basis weights having standard deviations of less than 10%, adhered to
at least one layer of a vapor-permeable polymeric porous film.

VOL 1150 ISS 1 MY 4 1993 UMI

5,208,099

OXIDATION PROTECTION PROCESS FOR POROUS CARBON BODIES

Ines Maiwald-Hiller, Waiblingen; Karen B. Riedl, and Jörg Arndt, both of Tübingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz, Fed. Rep. of Germany

Filed Sep. 8, 1992, Ser. No. 940,208
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1991, 4129600
Int. Cl.[5] B32B 9/00; B05D 3/02
U.S. Cl. 428—306.6 10 Claims

8. A use of a carbon body protected against oxidation as a component subjected to wear, produced by a process wherein the carbon bodies are treated with $SiO_2-B_2O_3$ gel and/or sol having a molar composition of SiO_2 to B_2O_3 of 60:40 to 85:15 as antioxidant, the treatment of the carbon bodies with the antioxidant is carried out at a temperature of 15° to 25° C. under a vacuum of 10^{-2} to 10^{-4} bar, and subsequently, the treated carbon body, with the antioxidant which has infiltrated the pores and has been applied to the surfaces, is air dried and subjected to a multistage temperature treatment, first being dried for up to 5 hours at 110° to 130° C., then being kept at a temperature of 200° C. for up to 2 hours and then being kept at a temperature of up to 600° C. for a period of 2 to 10 hours.

5,208,100

ARTICLE WITH ANTIQUE APPEARANCE AND METHOD OF MAKING SAME

Victoria L. Rush, 5088 Wallace Rd., St. Paris, Ohio 43072

Filed Aug. 20, 1991, Ser. No. 747,603
Int. Cl.[5] B32B 23/08
U.S. Cl. 428—332 17 Claims

1. An article having a base, a base coating adhered to the base, the base coating being formed from a base coating composition comprising, in approximate volume, the following ingredients:

Ingredients	Volume
Hide glue	14–34
Colorant	0.1–2

and an acrylic polymer paint coating adhered to the base coating, the acrylic coating having checks to provide an antique appearance.

5,208,101

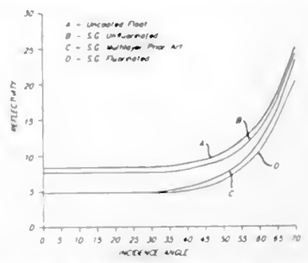
ANTI-REFLECTIVE COATINGS COMPRISING LIGHT METAL FLUORIDES

Edward N. Boulos, Troy; Mark F. Best, Taylor, both of Mich.; Joseph H. Simmons, and Stephen J. Pagano, both of Gainsville, Fla., assignors to Ford Motor Company, Dearborn, Mich.

Division of Ser. No. 357,918, May 30, 1989. This application Jul. 1, 1991, Ser. No. 723,992
Int. Cl.[5] G02B 5/28
U.S. Cl. 428—336 8 Claims

1. A coated substrate, comprising:
A) a substrate; and
B) an anti-reflective coating on the substrate, comprising:
i) a metal oxide; and
ii) a graded concentration of light metal fluoride,

wherein the concentration of light metal fluoride within the coating is greater at a point furthest from the substrate



and lesser at an interface between the coating and the substrate

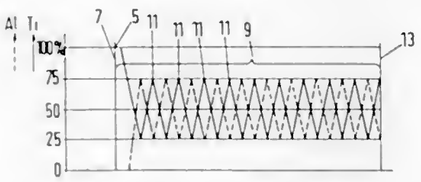
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5,208,102

COATED HIGHLY WEAR-RESISTANT TOOL AND PHYSICAL COATING PROCESS THEREFOR

Hans Schulz, Balzers, Liechtenstein; Karl-Heinz Zehenter, Rankweil, Austria, and Erich Bergmann, Mels, Switzerland, assignors to Balzers Aktiengesellschaft, Balzers, Liechtenstein

Filed Jan. 17, 1992, Ser. No. 822,604
Claims priority, application Switzerland, Jan. 21, 1991, 150/91
Int. Cl.[5] H32B 7/02
U.S. Cl. 428—336 12 Claims



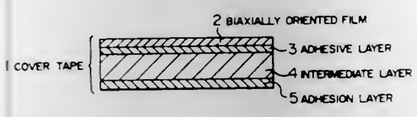
1. Coated highly wear-resistant tool comprising
a basic body; and
a coating on the basic body with an Me^1_{1-x}• (α_2Me^2 • α_3Me^3 • . . . α_nMe^n)$_xN_uC_vO_w$ coating in which;
the concentration of Me^1 relative to the concentration of (α_2Me^2 • α_3Me^3 • . . . α_nMe^n) changes continuously during the formation of the coating thickness 2 to 5 times per micrometer between relative maxima and minima of Me^1;
Me^1 being a metal of the chemical group IVb of the periodic system;
Me^2, Me^3, . . . Me^n being other metals selected from the chemical group IVb of the periodic system, vanadium and aluminum;
$\alpha_2, \alpha_3, \ldots \alpha_n$ being the mixed fraction of said other metals with respect to each other wherein $\alpha_2+\alpha_3+\ldots\alpha_n=100\%$;
x being between 0.1 and 0.7; and
u, v and w being between 1 and zero, wherein $u+v+w=1$.

5,208,103

COVER TAPE FOR PACKAGING CHIP TYPE ELECTRONIC PARTS

Tomoharu Miyamoto, Itami, and Shigeru Maeda, Kobe, both of Japan, assignors to Sumitomo Bakelite Company Limited, Tokyo, Japan

Filed Oct. 30, 1991, Ser. No. 785,116
Claims priority, application Japan, Feb. 28, 1991, 3-117090
Int. Cl.[5] B32B 5/16, 7/12
U.S. Cl. 428—354 2 Claims



1. A cover tape used for packaging of electronic parts in the form of a chip comprising:
an outer layer;
a laminating adhesive layer;
an intermediate layer; and
an adhesion layer which is heat-sealable to a plastic carrier tape having at given intervals pockets for accommodation of electronic parts in the form of a chip;
wherein the outer layer is made of a biaxially oriented film made from a polymer selected from the group consisting of polyester, polypropylene, and nylon and the visible light transmittance of the cover tape is at least 65.4% and the thickness of the outer layer is from 6 to 100 microns;
the adhesive layer is between the outer layer and the intermediate layer;
the intermediate layer is a polyolefin film
comprising (a) 55–95% by weight of at least one ethylene polymer selected from the group consisting of polyethylene having a density of 0.91–0.93 g/cm^3 and ethylene-vinyl acetate copolymers containing 10% by weight or less of vinyl acetate; (b) 5–30% by weight of polystyrene and (c) 0–20% by weight of a thermoplastic elastomeric polymer selected from the group consisting of styrene-butadicne-styrene and styrene-isoprene-styrene, and having cohesive strength of 10–120 g per mm of sealing width and wherein the adhesion strength between the adhesion layer and the sealing surface of the carrier tape is larger than the cohesive strength of the intermediate layer of the cover tape; and
the adhesion layer comprises a thermoplastic resin in which is dispersed from 10–10,000 parts by weight per 100 parts by weight of the thermoplastic resin a conductive fine powder, said conductive fine powder being selected from the group consisting of tin oxide, zinc oxide, titanium oxide, ethyl silicate, carbon black, and mixtures thereof, the thickness of the adhesion layer is 5 microns or less, and the surface resistivity of the adhesion layer is 10^{13} ohms per square or less.

5,208,104

HIGH-TENACITY WATER-SOLUBLE POLYVINYL ALCOHOL FIBER AND PROCESS FOR PRODUCING THE SAME

Fujio Ueda; Hiroyoshi Tanaka, both of Ehime, and Masahiko Hayashi, Iyo, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Continuation of Ser. No. 279,172, Dec. 2$_0$1988, abandoned. This application Jul. 11, 1991, Ser. No. 729,890
Claims priority, application Japan, Feb. 10, 1988, 63-29563
Int. Cl.[5] D02G 3/00
U.S. Cl. 428—364 5 Claims

1. A high-tenacity, water-soluble fiber consisting essentially of a polyvinyl alcohol polymer with a degree of polymerization of at least 1500 and a degree of saponification of 80 to 99 mol %; said fiber having a tensile strength of at least 10 g/d, an initial modulus of at least 100 d/d, and a water soluble temperature of 100° C. or below, a maximum dissolving shrinkage ratio



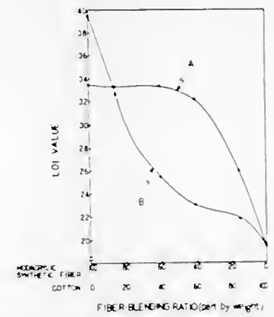
of at least 60%, a maximum dissolving shrinkage stress of at least 300 mg/d, and a four point axial texture structure pattern on small-angle X-ray scattering.

5,208,105

FLAME-RETARDED COMPOSITE FIBER

Keiji Ichibori, Akashi; Takaharu Matsumoto, Takasago, and Youichi Kanbara, Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 385,620, Jul. 26, 1989, abandoned, which is a division of Ser. No. 147,089, Jan. 20, 1988, Pat. No. 4,863,797, which is a continuation of Ser. No. 783,502, Oct. 3, 1985, abandoned. This application Oct. 8, 1991, Ser. No. 771,900
Int. Cl.[5] D02B 3/00
U.S. Cl. 428—373 10 Claims



1. A flame-retarded fiber blend comprising
(A) 85 to 15 parts by weight of a fiber consisting essentially of (1) a polymer having a halogen content of 17 to 86% by weight and (2) a flame retardant comprising 8 to 40% by weight of an Sb compound based on said polymer, and
(B) 15–85 parts by weight of at least one fiber selected from the group consisting of natural fibers and chemical fibers,
wherein the total amount of fibers (A) and (B) is 100 parts by weight, and said polymer is at least one polymer selected from the group consisting of a polymer of a halogen-containing vinyl monomer, and a polymer to which a halogen-containing compound is added.

5,208,106

TRILOBAL AND TETRALOBAL FILAMENTS EXHIBITING LOW GLITTER AND HIGH BULK

Wae-Hai Tung, Seaford, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 822,150, Jan. 17, 1992, Pat. No. 5,176,926. This application Aug. 26, 1992, Ser. No. 935,574
Int. Cl.[5] D02G 3/00
U.S. Cl. 428—397 7 Claims

1. A filament comprising a synthetic polymer and character-

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ized by a tetralobal cross-section having substantial convex curves, connected by cusps, along the contour of each lobe and



being essentially free of flat surfaces, with 2 to 20 curvature reversals per lobe and a modification ratio of about 1.2 to 4.5.

5,208,107

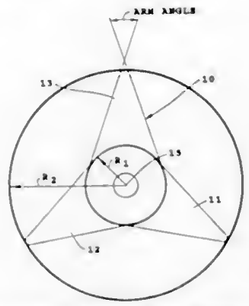
HOLLOW TRILOBAL CROSS-SECTION FILAMENT

Ling Yeh, Asheville, and Richard Kotek, Arden, both of N.C., assignors to BASF Corporation, Parsippany, N.J.

Filed May 31, 1991, Ser. No. 708,156

Int. Cl.[5] **B29C** *47/12;* **B32B** *3/02;* **D02G** *3/00*

U.S. Cl. 428—397 **4 Claims**



1. A trilobal synthetic thermoplastic filament having a single void extending approximately axially central, a total cross-sectional void area between about 3 and about 10 percent void, a modification ratio between about 2 and about 6, and an arm angle between about 7° and about 35°.

5,208,108

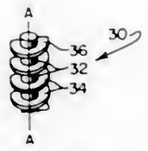
HELICAL FOAM PACKING PEANUT

Patrick M. Russell, Freeland, and Dale G. Petrini, Midland, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 20, 1992, Ser. No. 855,171

Int. Cl.[5] **B32B** *3/30*

U.S. Cl. 428—398 **12 Claims**



1. An extruded, foamable plastic pellet suitable for expansion into a foam peanut, comprising: a discrete plastic body, the body having (a) a core portion extending substantially along the longitudinal extension of the body, and (b) an outer portion extending from and continuously along the core portion along the longitudinal extension, the outer portion being discontinuous in shape in cross-section transverse to the longitudinal extension along the longitudinal extension, the discrete body having incorporated therein a blowing agent.

5,208,109

PROCESS FOR THE POLYMERIZATION AND COPOLYMERIZATION OF ALPHA-OLEFINS IN A FLUIDIZED BED

Jean C. Bailly; Laszlo Havas, both of Martigues; Stylianos Sandis, Lavera; Alain Blaya, and Pierre Crouzet, both of Martigues, all of France, assignors to BP Chemicals Limited, London, England

Division of Ser. No. 488,422, Feb. 27, 1990, Pat. No. 5,087,522, which is a continuation of Ser. No. 072,401, Aug. 20, 1987, abandoned, which is a division of Ser. No. 920,930, Oct. 17, 1986, Pat. No. 4,721,763, which is a continuation of Ser. No. 504,982, Jun. 16, 1983, abandoned. This application Dec. 9, 1991, Ser. No. 804,047

Claims priority, application France, Jun. 24, 1982, 82 11053; Jun. 24, 1982, 82 11055; Jun. 24, 1982, 82 11056; Jun. 24, 1982, 82 11057

Int. Cl.[5] **C08F** *4/44, 4/06;* **B32B** *5/16*

U.S. Cl. 428—402 **2 Claims**

1. A polyethylene powder based on a homopolymer of ethylene or a copolymer of 90 mol % or more of ethylene with at least one C3 to C8 alpha-olefin, containing (i) at least some titanium catalyst residue, the amount of titanium from said at least some titanium catalyst residue being less than 2×10^{-4} milligram atoms per gram of polyethylene and (ii) less than 150 ppm of at least some inorganic residues, said polyethylene powder having a bulk density from 0.45 to 0.52 g/cm^3 and consisting of particles having a mean diameter by mass, Dm, from 600 to 1,200 microns and a particle size distribution such that the ratio of Dm to the mean diameter by number, Dn, of said particles is from 1.2 to 3.

5,208,110

SECURITY CARDS

Terence J. Smith, Royston, and Edward Irving, Burwell, both of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 19, 1989, Ser. No. 368,452

Claims priority, application United Kingdom, Jun. 21, 1988, 8814705

Int. Cl.[5] **B32B** *27/38;* **D21H** *5/10*

U.S. Cl. 428—414 **20 Claims**

1. A security card comprising a data-carrying sheet having a gelatin layer thereon and a transparent polymeric film having a gelatin layer thereon, said sheet and said film being bonded together by an adhesive composition polymerized between and in contact with the gelatin layers, the adhesive composition comprising a carboxylic acid having at least one polymerizable acrylic group.

5,208,111

ONE- OR MULTI-LAYERED LAYER ELEMENTS APPLIED TO SUPPORTS AND THEIR PRODUCTION

Gero Decher, Wiesbaden-Biebrich, and Jong-Dal Hong, Mainz, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 15, 1991, Ser. No. 745,572

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1990, 4026978

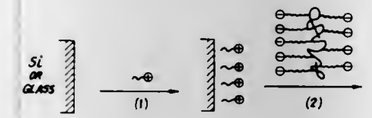
Int. Cl.[5] **B32B** *7/04, 31/00*

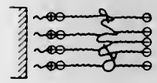
U.S. Cl. 428—420 **8 Claims**

1. A layer element applied to a support, comprising:

(a) a modified support having an even surface, in which modification means the application of ions or ionizable compounds of the same charge over the entire surface area of the support, and

(b) one or more layers made of organic materials which in each layer contain ions of the same charge, the ions of the first layer having the opposite charge of the modified support and, in the case of further layers, each further layer having a charge opposite that of the previous layer, wherein the organic material is a monomeric substance having two ionic or ionizable functional groups of the same charge, the monomeric substance having the formula

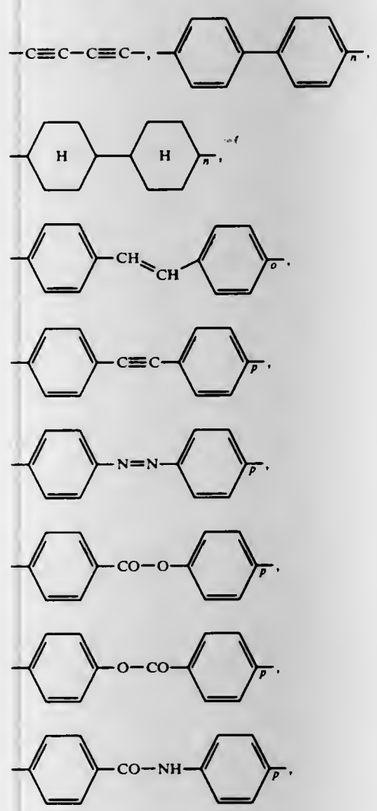




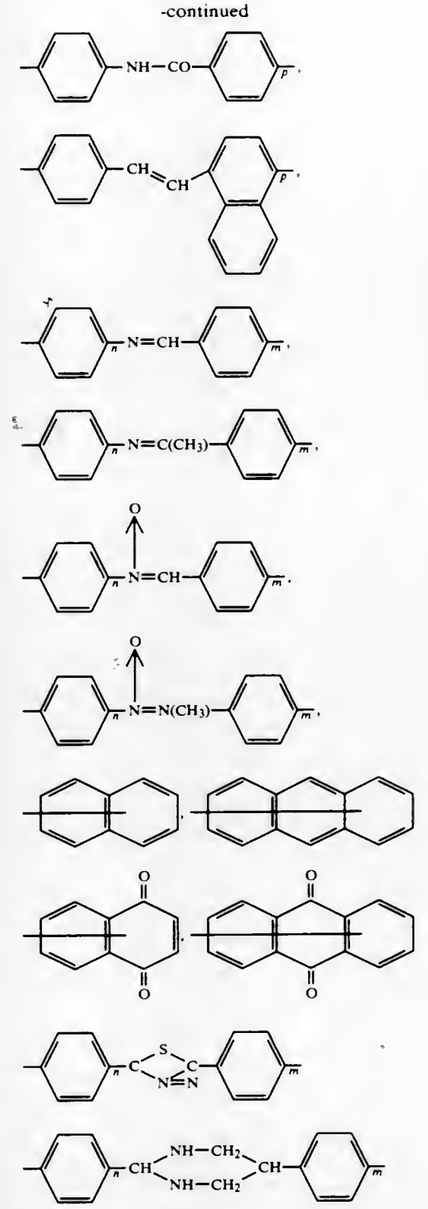
$$\text{ion}-Z^1-(-Y^1-Z^2-)_m-X-Z^3-Y^2-Z^4-\text{ion} \quad (I)$$

in which

x represents



-continued



in which the aromatic rings in these groups can be mono- to trisubstituted by methyl, fluorine or chlorine or can be hydrogenated to the cycloalkane,

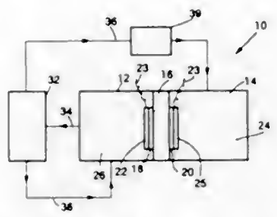
Y^1 and Y^2, independently of one another, represent $-(-CH_2-)_q-$, $-(-Si(CH_3)_2-O-)_q-$, $-(-CH=CH-)_q-$ or $-(C\equiv C-)_q-$, it being possible for the hydrogen atoms in these groups to be substituted in part or completely by methyl, fluorine or chlorine,

Z^1, Z^2, Z^3 and Z^4, independently of one another, represent a

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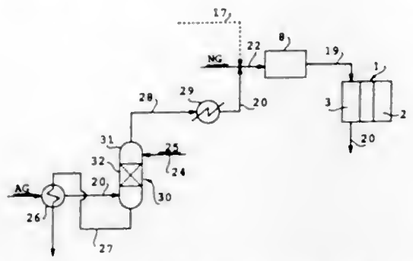
single bond, —O—, —S—, —CO—, —SO—, —SO_2—, —CO—O—, —O—CO—, =N—CO, —CO—N=, —NH— or —N(C_1-C_4-alkyl)—,
ion represents a cation, or an anion or a group which can be ionised to the cation or the anion,
m represents 0 or 1, preferably 1,
n represents integral values from 0 to 7,
o represents integral values from 1 to 3,
p represents the value 1 or 2 and
q represents integral values from 1 to 20.

5,208,112
THERMALLY REGENERATED FUEL CELL
Frank A. Ludwig, Rancho Palos Verdes, Calif.; Robert A. Osteryoung, Snyder, N.Y.; Carl W. Townsend, Los Angeles, and Andrew Kindler, San Marino, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.
Filed Nov. 8, 1991, Ser. No. 789,493
Int. Cl.[5] H01M 8/06
U.S. Cl. 429—20 **23 Claims**



1. A thermally regenerated fuel cell for generating an electric current, said fuel cell comprising:
an electrochemical cell having an anode compartment and a cathode compartment, said cathode compartment and said anode compartment separated by a common ion conducting separator;
a porous hydrogen-reactive anode located in said anode compartment and a porous hydrogen-reactive cathode located in said cathode compartment;
a first current collector and a second current collector each having a first and second surface wherein each of said first surface of said first and second current collectors contacts, respectively, said anode and said cathode,
a solvent-free catholyte selected from the group consisting of gaseous acids and molten conductive acids, said catholyte located in contact with said cathode and in said cathode compartment wherein hydrogen gas is generated and said catholyte is consumed during generation of said electrical current;
a solvent-free anoyte selected from the group consisting of gaseous bases and conductive molten bases, said anolyte located in contact with said anode and in said anode compartment wherein said base and said hydrogen are consumed at said anode during generation of said electrical current and said base and said acid combine to form a salt which can be thermally decomposed to form said acid and said base; and
thermal regenerator means for thermally converting said salt back to said acid and said base to replenish said acid consumed during generation of said electrical current.

5,208,113
POWER GENERATION METHOD USING MOLTEN CARBONATE FUEL CELLS
Noboru Kinoshita, Chiba, Japan, assignor to Ishikawajima-Harima Heavy Industries Co., Ltd., Tokyo, Japan
Filed Jul. 10, 1991, Ser. No. 727,888
Int. Cl.[5] H01M 8/14
U.S. Cl. 429—16 **9 Claims**

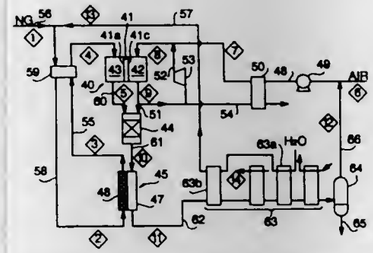


1. A method of producing electrical power using a molten carbonate fuel cell, a reformer and a CO_2 separator, the fuel cell having an anode and a cathode with raw material gas to be reformed being introduced to the reformer together with steam to obtain fuel gas, the fuel gas being introduced to the anode of the fuel cell, oxidizing gas being introduced to the cathode such that an electrochemical reaction takes place between the anode and the cathode, comprising the steps of
(A) introducing to the CO_2 separator anode exhaust gas discharged from the anode;
(B) introducing liquid absorbent of a predetermined temperature to the CO_2 separator;
(C) allowing the anode exhaust gas to contact the absorbent inside the CO_2 separator such that CO_2 of the anode exhaust gas is absorbed and separated by the absorbent and such that the CO_2-removed anode exhaust gas contains in the form of steam moisture which corresponds to vapor pressure of the absorbent;
(C-2) controlling the predetermined temperature of the liquid absorbent to adjust an amount of the steam to be contained in the anode exhaust gas;
(D) introducing the CO_2-removed anode exhaust gas to the reformer from the CO_2 separator together with the raw material gas such that reformation of the raw material gas occurs and the raw material gas is converted into the fuel gas;
(E) feeding back to the anode the fuel gas which contains the anode exhaust gas to utilize non-used hydrogen contained in the anode exhaust gas for power generation; and
(F) returning to the step (A) to repeat the steps (A)–(E).

5,208,114
POWER GENERATION SYSTEM USING MOLTEN CARBONATE FUEL CELLS
Hiroyoshi Uematsu, Yokohama, and Satoshi Hatori, Ibaraki, both of Japan, assignors to Ishikawajima-Harima Heavy Industries Co., Ltd., Tokyo, Japan
Filed Jan. 23, 1991, Ser. No. 644,927
Int. Cl.[5] H01M 8/04
U.S. Cl. 429—20 **47 Claims**

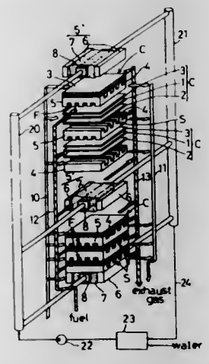
1. A power generation system comprising:
molten carbonate fuel cells, each fuel cell having an anode chamber and a cathode chamber and power generation being caused by anode gas supplied to the anode chamber and cathode gas supplied to the cathode chamber;
a reformer having a reforming section and a heating section, raw material being reformed to the anode gas by the reforming section and the reforming section being heated by the heating section;

means for feeding raw material to be reformed, to the reforming section of the reformer;
an anode gas feeding line for feeding the anode gas, which is the gas reformed by the reformer, into the anode chamber;
means for feeding the cathode gas into the cathode chamber, the cathode gas including air;
an anode exhaust gas line for discharging anode exhaust gas from the anode chamber; and
a cathode exhaust gas line for discharging cathode exhaust gas from the cathode chamber;
characterized in that the reformer has a reforming chamber and a heating chamber, the raw material being reformed



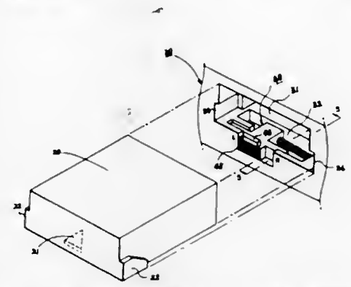
by the reforming chamber and the reforming chamber being heated by the heating chamber; and
the system further comprises:
a catalyst combustor for combusting combustible components among the anode exhaust gas, the combustor being directly connected with the anode exhaust gas line and the cathode exhaust gas line, and the combustor having an exit; and
a sensible heat utilization line for connecting the exit of the catalyst combustor with the heating chamber of the reformer for feeding exhaust gas of the catalyst combustor to the heating chamber.

5,208,115
SOLID-ELECTROLYTE FUEL CELL SYSTEM
Kosuke Akagi, Ikoma, Japan, assignor to Osaka Gas Company Limited, Osaka, Japan
Filed Jun. 17, 1992, Ser. No. 900,145
Claims priority, application Japan, Jun. 21, 1991, 3-149121
Int. Cl.[5] H01M 8/04
U.S. Cl. 429—26 **8 Claims**



1. A solid-electrolyte fuel cell system comprising:
a plurality of solid-electrolyte fuel cells each including an electrolyte layer, an oxygen electrode applied to one surface of said electrolyte layer, and a fuel electrode applied to the other surface of said electrolyte layer;
a plurality of oxigen gas passage devices each defining oxygen-containing gas passages opposed to said oxygen electrode, and having a conductive portion; and
plurality of fuel gas passage devices each defining fuel passages opposed to said fuel electrode, and having a conductive portion;
wherein adjacent cells are laminated in a conductive state through the oxigen gas and fuel gas passage devices; and
said oxygen gas passage devices or said fuel gas passage devices include a pair of spacers provided to maintain an adjacent gas passage device spaced apart from one of said cells, said spacers being spaced from each other to define the passages, and a flexible conductive member filled between said spacers for allowing passage of a gas;
said flexible conductive member having a water-cooling guide mounted therein to be out of contact with said adjacent gas passage device and said one of said cells.

5,208,116
BATTERY LOCKING APPARATUS FOR PORTABLE PERSONAL COMPUTER
Deok-Soon Joh, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea
Filed Dec. 31, 1991, Ser. No. 815,142
Int. Cl.[5] H01M 2/10
U.S. Cl. 429—96 **3 Claims**



1. A battery locking apparatus for a portable personal computer, comprising a channel formed at a bottom surface of a battery receiving cavity of a PC main body, a battery locking means disposed in the channel to be slidable between the locking and releasing positions, a spring member provided in the channel for the resilient movement of the battery locking means, wherein the battery locking means includes a movable body disposed in the channel, having a strut to support the spring member, an outwardly exposed knob united with the body, a protrusion formed at a top surface of the knob, and a pair of supporting members provided at both sides of the body to retain the locking means in the channel.

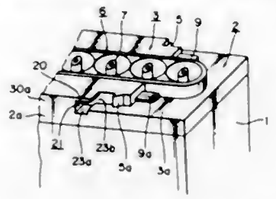
5,208,117
BATTERY AND MANUFACTURING METHOD FOR BATTERY COVER
Sachio Uemichi, c/o Yuasa Battery Co., Ltd., 6-6, Josai-cho, Takatsuki-shi, Osaka, and Shuji Takahashi, c/o Kabushiki Kaisha Honda Gijutu Kenkyusho 4-1, Chuo 1-chome, Wako-shi, Saitama, both of Japan, assignors to Sachio Uemichi, Osaka and Shuji Takahashi, Saitama, both of Japan
Filed Dec. 16, 1991, Ser. No. 808,311
Claims priority, application Japan, Dec. 18, 1990, 2-412008; Apr. 17, 1991, 3-85201; Apr. 24, 1991, 3-122472
Int. Cl.[5] H01M 2/36, 2/26, 2/02
U.S. Cl. 429—72 **6 Claims**

1. A battery having a container and a cover for covering an upper surface of said container,
said container having vertical side and end walls and a posi-

VOL 1150 ISS 1 MY 4 1993 UMI

tive conductor post and a negative conductor post in said container,

said cover having side and end walls in alignment with said side and end walls of said container, an electrolyte filling part extending upward and in a direction between the end walls of said container, a first top wall extending between said side walls of said cover and one of said end walls of said cover in substantial alignment with an upper end of said electrolyte filling part, a second top wall extending between said side walls of said cover and the other of said end walls of said cover intermediate said upper surface of said container and said upper end of said electrolyte filling part, an intermediate wall extending between said end



walls of said cover and interconnecting an end of said first top wall with an end of said second top wall, and a pair of conductor tab terminals,

said intermediate wall having a projecting portion extending around one end of said electrolyte filling part, and outwardly extending portions extending from opposite ends of said projecting portion of said intermediate wall to said side walls of said cover, one end of each of said conductor tab terminals projecting from said intermediate wall at the opposite sides, respectively, of said projecting portion at positions above said second top wall, and the other end of each of said conductor tab terminals extending in said cover for connection to said positive and negative posts, respectively.

5,208,118

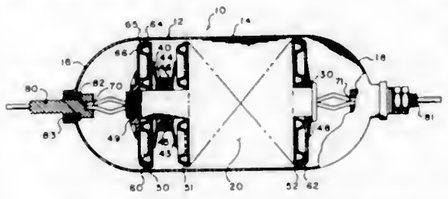
VESSEL FOR A METAL GAS CELL

Kenneth R. Richardson, Gainesville, Fla., assignors to Gates Energy Products, Inc., Gainesville, Fla.

Division of Ser. No. 465,694, Jan. 16, 1990, Pat. No. 5,002,842, which is a division of Ser. No. 189,264, May 2, 1988, Pat. No. 4,950,564. This application Jul. 16, 1990, Ser. No. 553,055

Int. Cl.[5] H01M *2/02*

U.S. Cl. 429—101 9 Claims



1. A pressure vessel for use in housing components of a metal gas cell comprising:

a generally cylindrical container defining a first and a second substantially circumferentially extending lip, the container being constructed of a rolled metal sheet of substantially uniform thickness having a weld seam along its length joining together longitudinally extending edges of the rolled sheet;

a first hydroformed end portion;

a second hydroformed end portion; and

means for securing said first end portion to said first lip and said second end portion to said second lip.

5,208,119

ELECTROCHEMICAL CELL

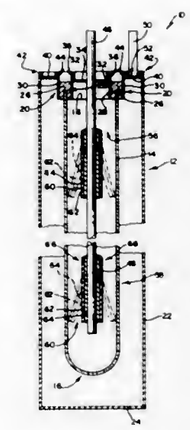
James H. Ducan, Stafford, England, assignor to AABH Patent Holdings Societe Anonyme, Luxembourg, Luxembourg

Filed Mar. 7, 1991, Ser. No. 665,989

Claims priority, application United Kingdom, Mar. 12, 1990, 9005485

Int. Cl.[5] H01M *2/26, 4/20, 6/20*

U.S. Cl. 429—103 10 Claims



8. A current collector assembly for a high temperature rechargeable electrochemical power storage cell comprising (i) an anode compartment containing, at the operating temperature of the cell and when the cell is in its charged state, a molten alkali metal anode; (ii) a cathode compartment containing, at said operating temperature and in said charged state, an alkali metal aluminum halide molten salt electrolyte which is also molten at the operating temperature of the cell, and having the formula $MalHal_4$, wherein M is the alkali metal of the anode and Hal is a halide, the cathode compartment also containing in said charged state, a cathode which comprises an electronically conductive electrolyte-permeable porous matrix which has dispersed therein an active cathode substance $THal_2$ in which Hal is the halide of the electrolyte and T is a transition metal selected from the group of transition metals consisting of Fe, Ni, Co, Cr, Mn and mixtures thereof, the matrix being impregnated with said molten electrolyte; and (iii) a separator separating the anode compartment from the electrolyte, the separator comprising a solid conductor of the ions of the alkali metal of the anode or a micromolecular sieve which contains said alkali metal sorbed therein, the assembly comprising

a current collecting member adapted to be located in one of the cell compartments of the cell; and

at least one bimetallic current collector being composed of abutting layers of first and second metals respectively, with the metals having different coefficients of thermal expansion and the layers being bonded together, and with a first portion of the bimetallic current collector being attached to the current collecting member so that at ambient temperature the bimetallic current collector is in a non-deformed configuration, while at elevated temperature it is in a deformed configuration in which a second portion thereof is spaced further from the current collecting member than in the non-deformed configuration as a result of the difference in co-efficients of thermal expansion of the metals making up the bimetallic current collector.

5,208,120

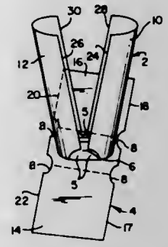
SEPARATOR FOR ELECTROCHEMICAL CELL AND PROCESS FOR ASSEMBLING IT INTO THE CELL

Jerrold Winger, Elyria, Ohio, assignor to Eveready Battery Company, Inc., St. Louis, Mo.

Division of Ser. No. 594,525, Oct. 9, 1990, Pat. No. 5,154,731. This application Jul. 2, 1992, Ser. No. 908,701

Int. Cl.[5] H01M *2/18*

U.S. Cl. 429—133 11 Claims



1. An electrochemical cell assembled in a housing comprising a container having a closed end and an open end closed by a cover; a first active electrode material positioned within and contacting the inner wall of the container and defining a centrally disposed cavity; a separator comprising at least two separator strips with each strip having a bottom segment with extending walls and each wall being defined by two edges; the bottom segment of one strip superimposed on the bottom segment of the other strip with the extending walls of each strip arranged to face the edges of the walls of the other strip so that the walls define a cavity in said separator and wherein each edge of at least one strip has a notch formed in it at the area of the edge adjacent the bottom segment of the strip to substantially eliminate the usual projected folds in the edge of the strip formed at said area; said separator positioned within and contacting said first active electrode material; a second active electrode material positioned within said cavity of the separator; a first terminal on the housing electrically connected to said first active electrode material; and a second terminal on the housing electrically insulated from the first terminal and electrically connected to said second active electrode material.

5,208,121

BATTERY UTILIZING CERAMIC MEMBRANES

Mark S. Yahnke, Madison, Wis.; Golan Shlomo, Haifa, Israel, and Marc A. Anderson, Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 18, 1991, Ser. No. 717,789

Int. Cl.[5] H07M *6/12*

U.S. Cl. 429—162 8 Claims



1. A thin film battery cell comprising

a cathode collector of conductive metal material;

a cathode surface deposited on the cathode collector;

a separator formed of a metal oxide porous ceramic membrane impregnated with an electrolyte; and

an anode formed of a metallic conductive metal;

wherein the cell is less than 10 microns in total thickness.

5,208,122

ENCLOSED ALKALINE STORAGE CELL

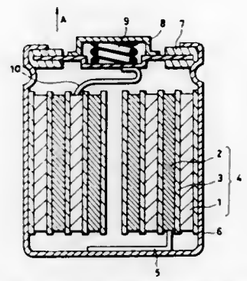
Akira Hirakawa; Takahisa Awajitani, and Hironori Honda, all of Sumoto, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Mar. 24, 1992, Ser. No. 856,743

Claims priority, application Japan, Mar. 26, 1991, 3-61881; Apr. 5, 1991, 3-73113; Apr. 5, 1991, 3-73114

Int. Cl.[5] H01M *4/90*

U.S. Cl. 429—222 5 Claims



1. An enclosed alkaline storage cell comprising a negative electrode made of materials including a main active material of cadmium oxide, a positive electrode, and a separator impregnated with an alkaline electrolytic solution and interposed therebetween, characterized in that the negative electrode is coated with a layer made of a product produced by cross linking reaction between at least one of high polymers selected from the group consisting of polyvinyl alcohol and ethylene-vinyl alcohol copolymer, and at least one of boric acid and boric acid salt.

5,208,123

HOLOGRAM CONSTRUCTION

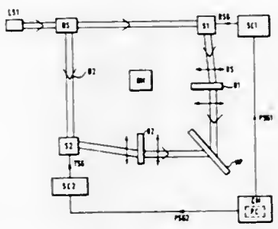
Andrew P. Ramsbottom, Bolton, United Kingdom, assignor to Pilkington P.E. Limited, United Kingdom

Filed May 17, 1990, Ser. No. 524,656

Claims priority, application United Kingdom, May 18, 1989, 89/11454

Int. Cl.[5] G03H *1/04, 1/02*

U.S. Cl. 430—1 10 Claims



1. A method of constructing a hologram including the steps of;

directing at least first and second separate illuminating beams towards a photosensitive film from separate independent substantially fixed apparent beam source positions respectively;

overlapping the first and second illuminating beams where they are incident at the photosensitive film;

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generating stationary interference fringes in the region of the overlapping beams; and,

moving the first and second illuminating beams relative to the photosensitive film in a manner which maintains said overlapping throughout exposure of the photosensitive film to record the stationary interference fringes and to form a hologram of substantially larger area than said overlapping beams.

5,208,124

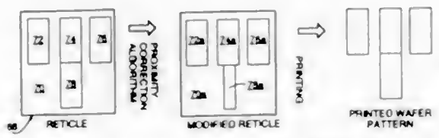
METHOD OF MAKING A MASK FOR PROXIMITY EFFECT CORRECTION IN PROJECTION LITHOGRAPHY

Frederik Sporon-Fiedler, San Mateo; Nader Shamma, Los Altos, and Edward Lin, Santa Clara, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 19, 1991, Ser. No. 671,567

Int. Cl.[5] G03F *1/00*

U.S. Cl. 430—5 **5 Claims**



1. A method for manufacturing a mask or reticle for use in a fabrication process, wherein said mask or reticle is compensated for proximity effects, said method comprising the steps of:

generating original mask or reticle data corresponding to an original mask or reticle pattern;

adjusting said original mask or reticle data to produce a modified mask or reticle pattern which compensates for anticipated differences in features sizes between isolated features on a surface subjected to masked radiation and features within a dense pattern of features on said surface due to said proximity effects, said isolated features being not substantially affected by said proximity effects,

wherein said step of adjusting comprises adjusting said original mask or reticle data to reduce a size of one or more opaque portions of said original mask or reticle pattern associated with said isolated features, with respect to opaque portions associated with features within said dense pattern of features, to compensate for differences between feature sizes due to said proximity effects; and

producing a mask or reticle having a pattern corresponding to said modified mask or reticle pattern.

5,208,125

PHASE SHIFTING RETICLE FABRICATION USING ION IMPLANTATION

Tyler A. Lowrey, and Randal W. Chance, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Jul. 30, 1991, Ser. No. 738,063

Int. Cl.[5] G03F *9/00*

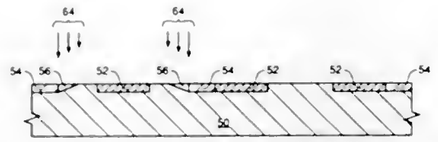
U.S. Cl. 430—5 **20 Claims**

1. A method of forming a phase shifting reticle comprising:

forming a pattern of ion implant areas on a transparent substrate by ion bombardment of the substrate with an ion dopant selected to change an absorption property of the substrate and form opaque light blockers;

forming a second pattern of ion implant areas on the substrate by ion bombardment of the substrate with an ion dopant selected to change an index of refraction of the substrate to form phase shifters for producing a phase shift of light; and

forming a third pattern of light transmission areas on the substrate aligned with respect to the first and second patterns such that light passed through the phase shifters is phase shifted relative to light passed through the light



transmission areas for improving an image defined by the opaque light blockers during photopatterning.

5,208,126

ELECTROPHOTOGRAPHIC PRINTING PLATE PRECURSOR AND PHOTOSENSITIVE LITHOGRAPHIC PRINTING PLATE PRECURSOR

Hiromichi Tachikawa; Hiroaki Yokoya, both of Kanagawa, and Yoshihiko Urabe, Shizuoka, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 17, 1991, Ser. No. 701,721

Claims priority, application Japan, May 18, 1990, 2-128587; May 28, 1990, 2-137886; Jun. 7, 1990, 2-148953

Int. Cl.[5] G03G *13/28*

U.S. Cl. 430—49 **35 Claims**

1. An electrophotographic printing plate precursor comprising a photoconductive layer on a conductive support having a hydrophilic surface, wherein a printing plate is prepared by imagewise exposure, toner image formation by development with a toner and removal of the photoconductive layer in the nonimage areas other than the toner image areas, characterized in that a layer containing a polymer having at least a polysiloxane structure is formed at the end face of the plate precursor.

5,208,127

PHOTOCONDUCTIVE RECORDING MATERIAL WITH SPECIAL OUTERMOST LAYER

David R. Terrell, Lint; Stefaan K. De Meutter, Zandhoven, both of Belgium; Peter Horlacher, Senden, Fed. Rep. of Germany; Volker Serini, Krefeld, Fed. Rep. of Germany, and Ulrich Grigo, Kempen, Fed. Rep. of Germany, assignors to Agfa-Gevaert, N.V., Mortsel, Belgium

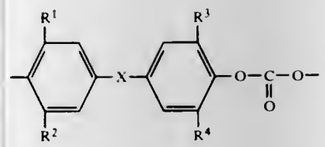
Filed Nov. 9, 1990, Ser. No. 611,087

Claims priority, application European Pat. Off., Nov. 13, 1989, 89202865.5

Int. Cl.[5] G03G *5/14*

U.S. Cl. 430—59 **13 Claims**

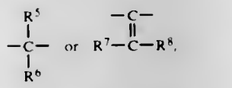
1. A photoconductive recording material which incorporates in an outermost layer a siloxane-copolymer including at least one polysiloxane block that is copolymerized with aromatic ester units or with aromatic carbonate units and aromatic ester units, wherein the polysiloxane block(s) consist(s) of 5 to 200 chemically bonded diorgano siloxy units in which the organic substituents are selected from the group consisting of an alkyl, an aralkyl, an alkaryl and an aryl group, and said block(s) is (are) present in an amount by weight in the range of 0.3% to 80% with respect to the total weight of said copolymer, and wherein the aromatic carbonate part of said copolymer is present in the range of 0 to 94.7% by weight of said copolymer, and in said part the aromatic carbonate units correspond to the following general formula (I) :



(I)

in which:

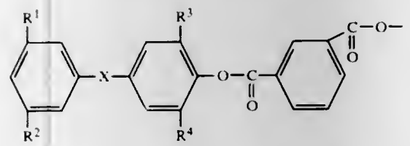
X represents S, SO_2,



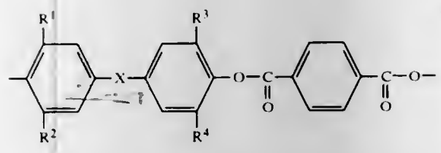
each of R^1, R^2, R^3, R^4, R^7 and R^8 (same or different) represents hydrogen, halogen, an alkyl group or an aryl group, and

each of R^5 and R^6 (same or different) represents hydrogen, an alkyl group, an aryl group or together represent the necessary atoms to close a cycloaliphatic ring, and

wherein the aromatic ester unit part of said copolymer is present in said copolymer in the range of 5 to 99.7% by weight and consists of a type of units within the scope of one of following structural formula (II) or (III) or consists of a mixture of both types of said units :



(II)



(III)

in which:

X, R^1, R^2, R^3 and R^4 have the same meaning as described above.

5,208,128

PHOTOCONDUCTIVE RECORDING MATERIAL WITH SPECIAL OUTERMOST LAYER

David R. Terrell, Lint; Stefaan K. De Meutter, Zandhoven, both of Belgium; Peter Horlacher, Senden, Fed. Rep. of Germany; Volker Serini, Krefeld, Fed. Rep. of Germany, and Ulrich Grigo, Kempen, Fed. Rep. of Germany, assignors to AGFA-Gevaert, N.V., Mortsel, Belgium

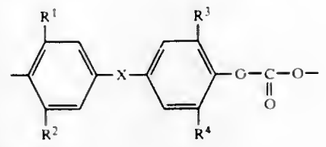
Filed Nov. 9, 1990, Ser. No. 610,943

Claims priority, application European Pat. Off., Nov. 13, 1989, 89202865.5

Int. Cl.[5] G03G *5/14*

U.S. Cl. 430—59 **13 Claims**

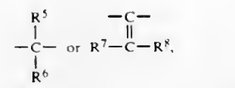
1. A photoconductive recording material which incorporates in an outermost layer a siloxane-copolymer including at least one polysiloxane block that is copolymerized with aromatic carbonate units, wherein the polysiloxane block(s) consist(s) of 5 to 200 chemically bonded diorgano siloxy units in which the organic substituents are selected from the group consisting of an alkyl, an aralkyl, an alkaryl and an aryl group, and said block(s) is (are) present in an amount by weight in the range of 0.3% to 6% with respect to the total weight of said copolymer, and wherein the aromatic carbonate part of said copolymer is present in the range of 94 to 99.7% by weight of said copolymer, and in said part the aromatic carbonate units correspond to the following general formula (I):



(I)

in which:

X represents S, SO_2,



each of R^1, R^2, R^3, R^4, R^7 and R^8 (same or different) represents hydrogen, halogen, an alkyl group or an aryl group, and each of R^5 and R^6 (same or different) represents hydrogen, an alkyl group, an aryl group or together represent the necessary atoms to close a cycloaliphatic ring.

5,208,129

PASSIVATED TONER COMPOSITIONS COMPRISING POSITIVE CHARGE ENHANCING ADDITIVE

Roger N. Ciccarelli, Rochester, and Denise R. Bayley, Fairport, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 28, 1991, Ser. No. 706,476

Int. Cl.[5] G03G *9/097*

U.S. Cl. 430—110 **20 Claims**

1. A process for the preparation of toner compositions consisting essentially of admixing toner resin particles, colored negatively charged pigment particles selected from the group consisting of red and blue, and a positive charge enhancing additive selected from the group consisting of cetyl pyridinium chloride and distearyl dimethyl ammonium methyl sulfate; and subsequently adding thereto surface additives thereby enabling passivation of said pigment particles and wherein there is minimal or no adverse effects on the toner compositions triboelectric characteristics by said pigment particles.

5,208,130

CHARGE DIRECTOR COMPOSITIONS FOR LIQUID DEVELOPER

Yaacov Almog, Rehovot, and Frida Avadik, Rishon Le Zion, both of Israel, assignors to Spectrum Sciences B.V., Wassenaar, Netherlands

Continuation-in-part of Ser. No. 387,161, Jul. 31, 1989, abandoned. This application Jun. 6, 1990, Ser. No. 533,765

Int. Cl.[5] G03G *9/00*

U.S. Cl. 430—115 **46 Claims**

1. A liquid developer for use in electrostatic imaging processes of the positive toner type, such system comprising:

an insulating non polar carrier liquid;

toner particles micro-dispersed in said carrier liquid; and

at least one charge director compound selected from the group consisting of sub-groups (i) and (ii), namely:

(i) organo-silicon compounds of the general formula

$$RSiX_3$$

wherein

R is either a saturated hydrocarbon radical where one or more hydrogen atoms is optionally substituted by

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one or more halogen atoms or R is a hydrocarbon radical where one or more hydrogen atoms is substituted by one or more halogen atoms, and

X is a halogen atom or a lower alkoxy radical; and

(ii) the organo-silicon reaction product of at least one unreacted charge director compound of subgroup (i) with at least about one mole of at least one acid containing at least one organic moiety.

5,208,131

DEGRADABLE RESINS FOR ELECTROSTATIC LIQUID DEVELOPERS

Thomas C. Felder, Wilmington, and Thomas M. Ford, Greenville, both of Del., assignors to DX1Maging, Lionville, Pa.

Continuation of Ser. No. 552,386, Jul. 13, 1990, abandoned. This application Jan. 10, 1992, Ser. No. 820,012

Int. Cl.[5] G03G *9/08*

U.S. Cl. 430—115 **39 Claims**

1. An electrostatic liquid developer having improved degradability compatible with recycling of printed paper consisting essentially of

(A) a nonpolar liquid having a Kauri-butanol value of less than 30, present in a major amount,

(B) particles of a degradable polymeric resin containing at least one hydroxy acid unit selected from the group consisting of

(1) $(O(CR^1R^2)_nCO)_p$

(2) $(OCR^1R^2COOCR^1R^2CO)_q$

(3) $(OCR^1R^2CR^1R^2OCR^1R^2CO)_r$ and

(4) $(OCR^1R^2CR^1R^2OCR^1R^2CR^1R^2CO)_s$

wherein n is a whole number 2, 4 or 5, the total of p, q, r and s being 15 to 5,000, and R^1 or R^2, which can be the same or different, is hydrogen, hydrocarbyl containing 1 to 12 carbon atoms, or substituted hydrocarbyl containing 1 to 12 carbon atoms, the resin particles having an average by area particle size of less than 10 μm, and

(C) a nonpolar liquid soluble ionic or zwitterionic charge director compound.

5,208,132

PHOTOCHROMIC MATERIALS

Masayasu Kamada, Kusatsu, and Shozo Suefuku, Otsu, both of Japan, assignors to Matsui Shikiso Chemical Co., Ltd., Kyoto, Japan

PCT No. PCT/JP91/00813, § 371 Date Feb. 10, 1992, § 102(e) Date Feb. 10, 1992

PCT Filed Jun. 18, 1991, Ser. No. 828,951

Claims priority, application Japan, Jun. 18, 1990, 2-160839

Int. Cl.[5] G03C *1/685, 1/72*

U.S. Cl. 430—138 **5 Claims**

1. A photochromic material characterized in that a composition having an organic photochromic compound dissolved or uniformly dispersed in a hindered amine compound is microencapsulated.

5,208,133

PHOTOSENSITIVE RESIN COMPOSITION

Toshiro Tsumori, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 15, 1991, Ser. No. 700,469

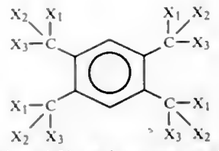
Claims priority, application Japan, May 15, 1990, 2-123000

Int. Cl.[5] G03H *7/038*

U.S. Cl. 430—270 **12 Claims**

1. A photosensitive resin composition, comprising a mixture of a base resin, an acid cross-linking agent and a photoreactive acid catalyst generator, wherein said base resin is any one of cresolnovolak resin, polyvinyl phenol or vinyl phenol-methyl methacrylate copolymer, and wherein the improvement resides in that

said photoreactive acid catalyst generator is tetrakis-1,2,4,5-(polyhalomethyl) benzene represented by the formula I

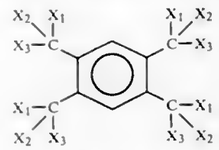


(I)

wherein X_1, X_2 and X_3 each represent a halogen atom or a hydrogen atom and at least one of X_1, X_2 or X_3 is a halogen atom.

3. A photosensitive resin composition, comprising a mixture of a base resin, an acid cross-linking agent and a photoreactive acid catalyst generator, wherein said acid cross-linking agent is hexamethoxymethylmelamine, and wherein the improvement resides in that

said photoreactive acid catalyst generator is tetrakis-1,2,4,5-(polyhalomethyl) benzene represented by the formula I

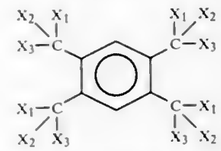


(I)

wherein X_1, X_2 and X_3 each represent a halogen atom or a hydrogen atom and at least one of X_1, X_2 or X_3 is a halogen atom.

5. A photosensitive resin composition, comprising a mixture of a base resin, an acid cross-linking agent and a photoreactive acid catalyst generator, wherein said photoreactive acid catalyst generator and said acid cross-linking agent are contained in amounts of 0.1 to 10 parts by weight and 0.1 to 10 parts by weight, respectively, to 100 parts by weight of the base resin, and wherein the improvement resides in that

said photoreactive acid catalyst generator is tetrakis-1,2,4,5-(polyhalomethyl) benzene represented by the formula I

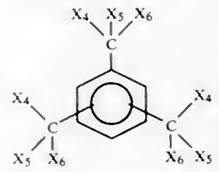


(I)

wherein X_1, X_2 and X_3 each represent a halogen atom or a hydrogen atom and at least one of X_1, X_2 or X_3 is a halogen atom.

7. A photosensitive resin composition, comprising a mixture of a base resin, an acid cross-linking agent and a photoreactive acid catalyst generator, wherein said base resin is any one of cresol-novolak resin, polyvinyl phenol or vinylphenol-methyl methacrylate copolymer, and wherein the improvement resides in that

said photoreactive acid catalyst generator is tris(-polyhalomethyl)benzene represented by the formula II



(II)

wherein X_4, X_5 and X_6 each represent a halogen atom or a hydrogen atom and at least one of X_4, X_5 or X_6 is a halogen atom.

5,208,134

IMAGE-FORMING MATERIAL FOR PRODUCING A COLORED RELIEF IMAGE

Yoshikatsu Maruyama; Toshimichi Katsuoka, both of Tokyo, and Yasunori Sagiyama, Urawa, all of Japan, assignors to Kimoto Co., Ltd., Japan

Filed Feb. 22, 1991, Ser. No. 659,271

Claims priority, application Japan, Feb. 28, 1990, 2-48298

Int. Cl.[5] G03C *1/492*

U.S. Cl. 430—271 **10 Claims**

1. An image-forming material for photographically producing a colored relief image comprising:

a plastic film substrate having one surface roughened to an arithmetic mean deviation of 0.25–1.25μ;

a transparent resin non-photosensitive layer 0.1 to 5 microns thick formed on said substrate;

a colored resin non-photosensitive layer containing a color pigment and formed on said transparent resin layer, said transparent layer separating said color pigment of said colored resin layer from said substrate to prevent fogging of said substrate by said color pigment;

a photosensitive resin layer containing no coloring component and formed on said colored resin layer, said colored resin layer and said photosensitive resin layer being coextensive; and

a protective layer formed on said photosensitive resin layer.

5,208,135

PREPARATION AND USE OF DYES

Ranjan C. Patel, Little Hallingbury; Tran V. Thien, and David Warner, both of Harlow, all of Great Britain, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

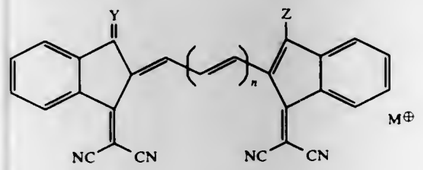
Filed Feb. 11, 1991, Ser. No. 653,358

Claims priority, application United Kingdom, Feb. 27, 1990, 9004337

Int. Cl.[5] G03F *7/029*; C09B *23/00*

U.S. Cl. 430—281 **19 Claims**

1. A compound having a nucleus of general formula (I):



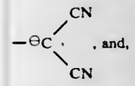
wherein:

n is 1 or 2,

Y is selected from the group consisting of 0 and



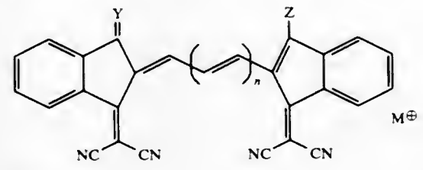
Z is selected from the group consisting of $0^{\mp}$ and



$M^{\oplus}$ is a cation.

4. A photosensitive element comprising a layer of a photocurable composition comprising:

(a) a compound having a nucleus of general formula (I):



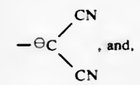
wherein:

n is 1 or 2,

Y is selected from the group consisting of 0 and



Z is selected from the group consisting of $0^{\ominus}$ and



M^{+} is a cation.

(b) an iodonium salt, and

(c) a free-radical curable resin.

5,208,136

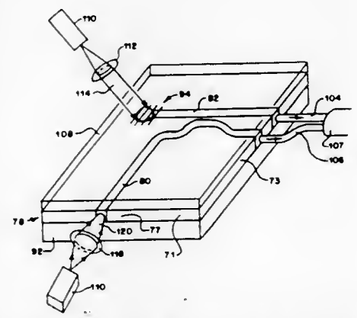
FABRICATING OF INTEGRATED OPTICS

Raymond Zanoni, and Qian Gong, both of Tucson, Ariz., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 6, 1990, Ser. No. 580,405

Int. Cl.[5] G03C *7/02, 1/72*

U.S. Cl. 430—290 **13 Claims**



1. A method for fabricating components for integrated optics comprising irradiating portions of a film of PS-MR on a substrate with light tuned within the absorption band of such polymer, in air, to photobleach such film portions while applying lesser or no bleaching to at least part of said film between said film portions to reduce the refractive index of said film portions below that of such film part to define an optical path or waveguide in such lesser bleached part.

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5,208,137

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Yasushi Usagawa; Yasuhiko Kawashima, and Nobuaki Kagawa, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Continuation of Ser. No. 853,881, Mar. 18, 1992, abandoned, which is a continuation of Ser. No. 634,062, Dec. 26, 1990, abandoned. This application Aug. 19, 1992, Ser. No. 933,001
Claims priority, application Japan, Dec. 28, 1989, 1-342348
Int. Cl.[5] G03C 1/06
U.S. Cl. 430—522 7 Claims

1. A silver halide photographic light-sensitive element having a silver halide emulsion layer on a support, a non-support layer containing fine solid particles having a diameter of 0.005 to 1.0 μm, said particles consisting essentially of a compound represented by

$$A=L_1-(-L_2=L_3-)_m-B$$

said compound being present in an amount of 0.0001 to 5.0 g/m^2, wherein A represents an acidic nucleus of 2-pyrazoline-5-one; B represents aryl substituted at the 4 position with amino substituted with at least one substituent selected from the group consisting of alkenyl, alkynyl, a heterocyclic, or B is a 4-aminoaryl group including a cyclic amino; L_1, L_2, and L_3, each represent methine; m is an integer of 0 or 1; wherein A has at least one substituent selected from the group consisting of carboxyphenyl, sulfonamidophenyl, and aminosulfonylaminophenyl.

5,208,138

HIGH CONTRAST HIGH THERMAL STABILITY POSITIVE PHOTORESISTS HAVING NOVOLAK RESINS OF LOWERED HYDROXYL CONTENT

Richard M. Lazarus, Mission Viejo; Randall Kautz, Irvine, and Sunit S. Dixit, Mission Viejo, all of Calif., assignors to Morton International, Inc., Chicago, Ill.

Division of Ser. No. 475,402, Feb. 5, 1990. This application May 21, 1992, Ser. No. 886,976
Int. Cl.[5] G03F 7/32, 7/023
U.S. Cl. 430—326 3 Claims

1. A method of forming a resist pattern on a substrate comprising:

I. coating said substrate with a layer of a positive photoresist composition comprising an admixture of a bindingly effective amount of an esterified novolak resin and a photoimaging amount of a photosensitizer;

II. exposing said layer patternwise to actinic radiation; and

III. removing the exposed portion of said layer with an aqueous alkaline developer for the exposed resist composition to uncover the areas of the substrate beneath the exposed portions;

said an esterified novalak resin comprising, prior to exposure:

(a) a mixture of m- and p-cresol and

(b) a mixture of aldehydes comprising formaldehyde or formaldehyde precursor and

a monohydroxy aromatic aldehyde selected from the group consisting of 2-hydroxybenzaldehyde, 3-hydroxybenzaldehyde and 4-hydroxybenzaldehyde, wherein said an esterified novalak resin has hydroxyl groups thereof esterified so that an aliphatic or aromatic ester group exists in place of the hydrogen atom in at least a portion of the hydroxyl groups,

whereby said an esterified novolak resin having a hydroxyl number of about 120 to about 180 grams of resins per equivalent of hydroxyl.

5,208,139

SILVER HALIDE PHOTOGRAPHIC MATERIALS

Kunio Ishigaki, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 804,436, Dec. 10, 1991, abandoned. This application Oct. 13, 1992, Ser. No. 960,236
Claims priority, application Japan, Dec. 11, 1990, 2-409698
Int. Cl.[5] G03C 1/76
U.S. Cl. 430—523 7 Claims

1. A silver halide photographic element comprising a support having thereon at least one silver halide emulsion layer containing colloidal silica having an average particle size of from 5 to 500 mμ and in a dry weight ratio based on gelatin in said silver halide emulsion layer of from 0.05 to 1.0, and at least one light insensitive protective layer disposed above said at least one silver halide emulsion layer containing said colloidal silica, and wherein an outermost layer of said at least one light insensitive protective layer has an exposed outer surface and contains a lubricant in an amount effective to provide a dynamic friction coefficient of said outer surface of 0.35 or less.

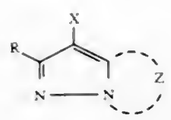
5,208,140

LIGHT-SENSITIVE SILVER HALIDE PHOTOGRAPHIC MATERIAL PREVENTED IN COLOR CONTAMINATION

Toyoki Nishijima, Odawara, Japan, assignor to Konica Corporation, Tokyo, Japan

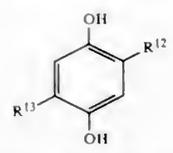
Filed Sep. 23, 1991, Ser. No. 764,369
Claims priority, application Japan, Sep. 25, 1990, 2-256125; Nov. 30, 1990, 2-336717
Int. Cl.[5] G03C 7/38, 1/34
U.S. Cl. 430—551 14 Claims

1. A light-sensitive silver halide photographic material having at least one light-sensitive emulsion layer and at least one non-light-sensitive emulsion layer on a support, the improvement wherein a coupler represented by the following formula (M—I) and an anti-fading additive having a quenching rate constant of a singlet oxygen of $1\times10^7M^{-1}\cdot sec^{-1}$ or more are contained in at least one layer of the light-sensitive emulsion layer, and a compound represented by the following formula (II) is contained in at least one layer selected from the light-sensitive emulsion layer and the non-light-sensitive emulsion layer:



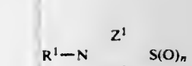
(M-I)

wherein Z represents a group of non-metallic atoms necessary for forming a nitrogen-containing heterocyclic ring, the ring formed by said Z may have a substituent(s), X represents hydrogen atom or an eliminatable group by the reaction with an oxidized product of a color developing agent, and R represents hydrogen atom or a substituent,



(II)

wherein R^{12} and R^{13} each represent secondary or tertiary alkyl group, provided that total carbon atoms of the alkyl groups represented by R^{12} and R^{13} are 20 or more and the anti-fading additive is a compound represented by the formula (D):



(D)

wherein R^1 represents an aryl group or a heterocyclic group; Z^1 and Z^2 each represent an alkylene group having 1 to 3 carbon atoms, provided that the total carbon atoms of the alkylene group represented by Z^1 and Z^2 are 3 to 6; and n is an integer of 1 or 2.

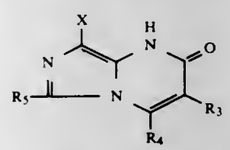
5,208,141

SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Satoru Ikesu; Hiroshi Kita, and Yutaka Kaneko, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Oct. 4, 1991, Ser. No. 771,447
Claims priority, application Japan, Oct. 9, 1990, 2-270980; Oct. 10, 1990, 2-271537; Oct. 17, 1990, 2-278769; Oct. 17, 1990, 2-278770
Int. Cl.[5] G03C 7/38
U.S. Cl. 430—558 8 Claims

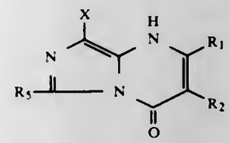
1. A silver halide color photographic light-sensitive material comprising a support having thereon a silver halide emulsion layer containing a coupler represented by the formula (I-1) defined below



(I-1)

wherein R_3, R_4 and R_5 are each a hydrogen atom or a substituent; X is a hydrogen atom or a substituent capable of splitting off upon reaction with the oxidation product of a color developing agent.

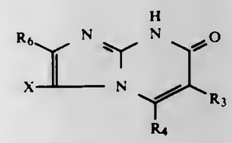
2. A silver halide color photographic light-sensitive material comprising a support having thereon a silver halide emulsion layer containing a coupler represented by the formula (I-2) defined below



(I-2)

wherein R_1, R_2 and R_5 are each a hydrogen atom or a substituent; X is a hydrogen atom or a substituent capable of splitting off upon reaction with the oxidation product of a color developing agent.

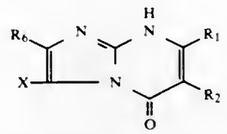
3. A silver halide color photographic light-sensitive material comprising a support having thereon a silver halide emulsion layer containing a coupler represented by the formula (I-3) defined below



(I-3)

wherein R_3, R_4 and R_6 are each a hydrogen atom or a substituent; X is a hydrogen atom or a substituent capable of splitting off upon reaction with the oxidation product of a color developing agent.

4. A silver halide color photographic light-sensitive material comprising a support having thereon a silver halide emulsion layer containing a coupler represented by the formula (I-4) defined below



(I-4)

wherein R_1, R_2 and R_6 are each a hydrogen atom or a substituent; X is a hydrogen atom or a substituent capable of splitting off upon reaction with the oxidation product of a color developing agent.

5,208,142

METHOD FOR SEPARATING ERYTHROCYTES FROM WHOLE BLOOD

Marvin A. Genshaw, Elkhart, Ind., assignor to Miles Inc., Elkhart, Ind.

Filed Nov. 19, 1991, Ser. No. 794,483
Int. Cl.[5] G01N 21/22
U.S. Cl. 435—2 10 Claims

6. In the method of analyzing a whole blood sample for the presence of cholesterol, the improvement which comprises diluting the blood sample with at least about 3 times the sample's volume of a saline solution which is in substantial osmotic balance with the blood in said sample and adding to the diluted blood sample a soluble salt of an anion and a trivalent cation in an amount sufficient to cause agglutination of the erythrocytes in the blood sample without causing significant precipitation of cholesterol.

5,208,143

IMMUNOASSAY ON A PREBLOCKED SOLID SURFACE

Glenn L. Henderson, Durham; Randal A. Hoke, Cary; Anne C. Hopkins, Cary, and Daniel A. McLaurin, Cary, all of N.C., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 655,198, Feb. 14, 1991, which is a continuation of Ser. No. 272,380, Nov. 17, 1988, abandoned. This application Sep. 30, 1991, Ser. No. 767,351
The portion of the term of this patent subsequent to May 30, 2002, has been disclaimed.
Int. Cl.[5] C12Q 1/70, 1/00
U.S. Cl. 435—5 4 Claims

1. A method for assay of a viral antigen in an aqueous liquid comprising:

a) combining a first aqueous liquid suspected of containing a viral antigen with a membrane precoated with an inert protein but not with a specific capture antibody, said protein being immunologically unreactive toward any other component of the assay, whereby said antigen nonimmunologically attaches to said precoated membrane;

b) separating said membrane having nonimmunologically attached viral antigen from said first liquid by causing said first liquid to pass through said membrane;

c) incubating said membrane with a second aqueous liquid containing an antibody specific for said antigen having a first hydrolase conjugated thereto whereby said viral antigen binds to said antibody to give a bound fraction including said first hydrolase on said membrane;

d) contacting said coated membrane with a third liquid containing a blocked fluoroketone inhibitor, a second hydrolase substantially unreactive toward said blocked fluoroketone inhibitor and a substrate for said second

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hydrolase whereby said first hydrolase on said support converts said blocked fluoroketone inhibitor to a fluoroketone which inhibits conversion of said substrate to a colored product by said second hydrolase; and

e) detecting said viral antigen by a signal associated with the color of said product.

5,208,144

METHOD FOR DETECTION OF HUMAN DNA CONTAINING THE GENE ENCODING LOW DENSITY LIPOPROTEIN RECEPTOR

John A. Smith, Brookline; Raktima Raychowdhury, and John L. Niles, both of Cambridge, all of Mass., assignors to The General Hospital Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 313,682, Feb. 22, 1989, abandoned, which is a continuation-in-part of Ser. No. 235,211, Aug. 23, 1988, abandoned. This application Aug. 22, 1989, Ser. No. 396,697

Int. Cl.[5] **C12Q** *1/68;* **C07H** *15/12, 17/00;* **C12N** *15/00*

U.S. Cl. 435—6 **1 Claim**

1. A method for the detection of human DNA which contains the gene encoding low density lipoprotein receptor, said method comprising

(a) isolating DNA that contains said DNA which contains the gene encoding low density lipoprotein receptor from a human;

(b) contacting said DNA obtained in step (a) with DNA encoding gp330 under for a time and under conditions sufficient for hybridization to occur; and

(c) detecting hybridization of said DNA which contains the gene encoding gp330 DNA with said low density lipoprotein receptor whereby the presence of said hybridization indicates the presence of DNA which contains the gene encoding the low density lipoprotein receptor.

5,208,145

ASSAY FOR THE PRESENCE, IN CULTURED CELLS, OF FUNCTIONAL LIGAND-GATED CHANNELS, AND SUBSTANCES WHICH ENHANCE INTRACELLULAR LITHIUM ACCUMULATION BY CULTURED CELLS VIA SUCH CHANNELS

Scott W. Rogers, San Diego, Calif., assignor to The Salk Institute for Biological Studies, La Jolla, Calif.

Filed May 6, 1991, Ser. No. 695,962

Int. Cl.[5] **C12Q** *1/68, 1/46, 1/02;* **G01N** *33/566*

U.S. Cl. 435—6 **20 Claims**

1. A method for determining whether a compound is, directly or indirectly, an agonist or antagonist of ligand-gated channels expressed by cells, said method comprising:

measuring the incorporation of a labeled building block into said cells when said cells are contacted with an effective amount of said compound, relative to the incorporation of labeled building block into said cells when said cells are subjected to the same conditions, but in the absence of said compound;

wherein said cells have first been contacted with said compound and a lithium ion-containing flux buffer for a time sufficient to allow the intracellular accumulation of lithium, by both passive and non-passive means, but not so long as to allow the amount of passive lithium accumulation to substantially exceed the amount of non-passive lithium transport, then with an effective amount of at least one labeled cellular building block; and

wherein said contacting of said cells with said labeled building block is carried out for a time sufficient to allow at least about 20% of the cell population to move from G1 phase to DNA synthesis phase, but not so long as to allow substantially all of the cell population to move from G1 phase to DNA synthesis phase.

5,208,146

MURINE MONOCLONAL ANTI-IDIOTYPE ANTIBODIES

Reiko F. Irie, Los Angeles, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Nov. 5, 1990, Ser. No. 609,255

Int. Cl.[5] **G01N** *33/536;* **C12N** *5/20;* **A61K** *35/14;* **C07K** *15/28*

U.S. Cl. 435—7.23 **3 Claims**

3. A method for detecting the presence of human monoclonal antibody bound to human tumor tissue comprising the steps of treating said human tumor tissue with an immunoreactive amount of anti-idiotype antibody for a sufficient time to allow said anti-idiotype antibody to bind to human monoclonal antibody; and detecting the presence of any anti-idiotype antibody which becomes bound to said human monoclonal antibody, wherein said anti-idiotype antibody is an alpha-type anti-idiotype antibody produced by a hybridoma which is identified as 18C6 and which is deposited at the American Type Culture Collection under ATCC accession number HB10723.

5,208,147

MEANS FOR MEASURING A CHARACTERISTIC IN A SAMPLE FLUID

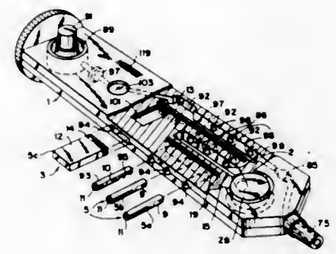
Henrik Kagenow, Farum, and Anne R. Eisenhardt, Horsholm, both of Denmark, assignors to Radiometer A/S, Copenhagen, Denmark

Continuation of Ser. No. 689,727, Apr. 22, 1991, Pat. No. 5,114,859, which is a continuation of Ser. No. 608,012, Oct. 31, 1990, abandoned, which is a continuation of Ser. No. 238,556, Aug. 30, 1988, abandoned. This application May 18, 1992, Ser. No. 884,703

Claims priority, application Denmark, Jul. 21, 1988, 4091/88

Int. Cl.[5] **C12Q** *1/54;* **G01N** *21/00*

U.S. Cl. 435—14 **4 Claims**



1. A measuring device for measuring the concentration of glucose in a sample of whole blood, comprising:

a housing;

a glucose sensor;

a sample fluid chamber adapted to contain the whole blood sample, the housing having sample inlet means for introducing the sample into the sample fluid chamber;

the glucose sensor having a front face constituting at the time of measuring a wall part of the sample fluid chamber and comprising indicator means and a filter layer interposed between the indicator means and the sample fluid chamber;

said filter layer being capable to induce by capillary action part of the sample to flow through the filter to substantially separate plasma containing the glucose from red blood cells contained in the whole blood and said indicator means being capable to react with glucose for indicating the concentration of glucose in the blood.

5,208,148

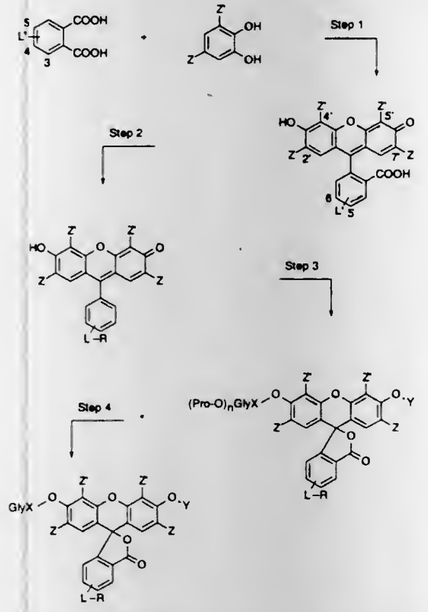
LIPOPHILIC FLUORESCENT GLYCOSIDASE SUBSTRATES

Richard P. Haugland; John J. Naleway, and Yu-zhong Zhang, all of Eugene, Oreg., assignors to Molecular Probes, Inc., Eugene, Oreg.

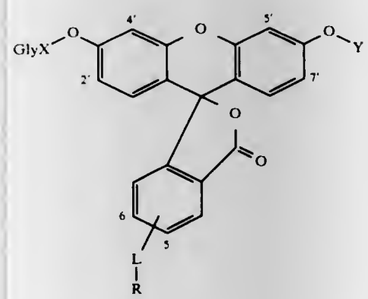
Filed Dec. 7, 1990, Ser. No. 623,600

Int. Cl.[5] **C07H** *15/00;* **C08B** *37/02;* **G01N** *33/54;* **C12Q** *1/34*

U.S. Cl. 435—14 **20 Claims**



1. A glycosidase substrate that is a fluorescein derivative of the general formula:



wherein

GlyX is a carbohydrate bonded to fluorescein by a glycosidic linkage;

Y, which may be the same as GlyX or different, is an alkyl ether, an ester, or a glycosidically linked carbohydrate;

R is a lipophilic residue containing from 1 to 21 carbon atoms; and

L links the R residue to fluorescein.

5,208,149

NUCLEIC ACID CONSTRUCTS CONTAINING STABLE STEM AND LOOP STRUCTURES

Massayori Inouye, Bridgewater, N.J., assignor to The Research Foundation of State University of New York, Albany, N.Y.

Continuation of Ser. No. 530,159, May 29, 1990, abandoned, which is a division of Ser. No. 436,598, Nov. 15, 1989, which is a continuation-in-part of Ser. No. 300,741, Jan. 23, 1989, abandoned, and a continuation-in-part of Ser. No. 228,852, Aug. 3, 1988, abandoned, said Ser. No. 300,741, is a continuation of Ser. No. 585,282, Mar. 1, 1984, abandoned, which is a continuation-in-part of Ser. No. 543,528, Oct. 20, 1983, abandoned, said Ser. No. 228,852, is a continuation of Ser. No. 543,528, Oct. 20, 1983, abandoned. This application Apr. 10, 1992, Ser. No. 870,186

Int. Cl.[5] **C12N** *5/10, 1/11, 15/09*

U.S. Cl. 435—91 **198 Claims**

1. A non-native polynucleotide construct comprising:

a. a transcriptional promoter segment;

b. a segment coding for a stable stem and loop structure with a negative ΔG of formation operably linked downstream of said promoter segment; and

c. a polynucleotide segment comprising a gene segment operably linked downstream of said promoter segment and inverted with respect to a gene in a cell, whereby the transcript of said inverted gene segment regulates the function of said gene.

5,208,150

SALMONELLA-SELECTIVE PLATING MEDIUM

Christopher Tate, Frederick; Russell Miller, Glen Dale; Edward Mallinson, Columbia, and Sammy Joseph, Derwood, all of Md., assignors to The University of Maryland, College Park, Md. and The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Continuation-in-part of Ser. No. 330,479, Mar. 30, 1989. This application Apr. 8, 1991, Ser. No. 681,358

Int. Cl.[5] **C12Q** *1/10, 1/04, 1/24, 1/02, 1/22, 1/06, 1/08;* **C12N** *1/20*

U.S. Cl. 435—38 **18 Claims**

1. In a Salmonella-selective plating medium, the improvement comprising the addition of 7-ethyl-2-methyl-4-undecanol hydrogen sulfate, or sodium salt (TERGITOL ®4) thereof, in concentrations sufficient to suppress Salmonella-competing organism growth.

5,208,151

PROCESS FOR THE PREPARATION OF DERIVATIVES OF MALTOOLIGOSACCHARIDES

Taichi Usui, Shizuoka; Teruo Nakakuki, Misbima, and Kazuo Sakai, Yaizu, all of Japan, assignors to Nihon Shokuhin Kako Co., Ltd., Tokyo and Yaizu Suisan Kagaku Kogyo Co., Ltd., Yaizu, both of Japan

Continuation of Ser. No. 568,525, Aug. 14, 1990, abandoned, which is a continuation of Ser. No. 434,516, Nov. 14, 1989, abandoned, which is a continuation of Ser. No. 234,019, Aug. 18, 1988, abandoned. This application Oct. 31, 1990, Ser. No. 607,612

Int. Cl.[5] **C12P** *19/20, 19/14;* **C07G** *3/00;* **C07H** *15/00*

U.S. Cl. 435—99 **14 Claims**

1. A process for the preparation of a derivative of maltooligosaccharide comprising an α-phenylmaltooligoside or a β-phenylmaltooligoside wherein the phenyl or substituted phenyl group thereof contains two or more glucoses bonded thereto or a derivative of maltooligosaccharide having two or more glucoses bonded to aglycone selected from the group consisting of phenol glycosides, coumarin glycosides, anthracene glycosides, terpene glycosides, bitter glycosides, steroid glycosides, cardiac glycosides, gibberellin glycosides and lignan glycosides comprising reacting amylase and a mixture of

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(i) at least one maltooligosaccharide or a decomposition product of starch capable of being converted into the maltooligosaccharides upon reaction with the amylase, and (ii) an o-glycosyl derivative, in a mixture of a hydrophilic organic solvent and water.

5,208,152

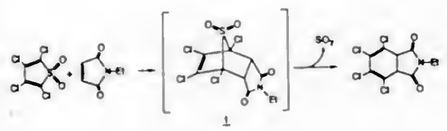
CATALYSTS OF DIELS-ALDER REACTIONS, METHODS AND CATALYSTS THEREFOR

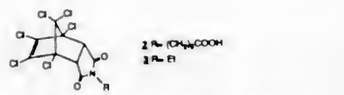
Donald Hilvert, and Kenneth W. Hill, both of San Diego, Calif., assignors to The Scripps Research Institute, La Jolla, Calif.

Continuation of Ser. No. 422,643, Oct. 17, 1989, abandoned. This application Feb. 27, 1992, Ser. No. 842,792

Int. Cl.[5] C12P *17/18*; C12N *9/00*

U.S. Cl. 435—119 **29 Claims**





1. A catalyst molecule comprising an antibody combining site that catalyzes the reaction of a dienophile molecule containing a reactive multiple bond and a conjugated cyclic diene molecule to form a cyclic reaction product from a Diels-Alder [4+2] cycloaddition/fragmentation reaction in which said dienophile molecule and cyclic diene molecule form a reactive intermediate upon cycloaddition and prior to fragmentation,

said cyclic conjugated diene molecule having a structure that includes a fugitive leaving group within a five- or six-membered ring, said fugitive leaving group being substantially stable when present in said cyclic conjugated diene and being expelled from said reactive intermediate as a molecular entity to form said cyclic reaction product,

said catalyst molecule immunoreacting with an antigent that is an analog to a transition state leading to the formation of the reactive intermediate, said antigen being isologous to the reactive intermediate and having a structure that (i) includes a [2.2.1] or [2.2.2] bicyclic ring system absent from the reaction product, (ii) contains at least one endocyclic double bond fewer in said bicyclic ring system than the number of endocyclic double bonds present in the reaction product, and (iii) contains a group or moiety that is isostructural to the fugitive leaving group and is substantially less reactive in the antigen than is the fugitive leaving group in the reactive intermediate.

5,208,153

PROCESS FOR PRODUCING STREPTOVARICIN C

Kaname Inoue, Kanagawa; Motohide Yamazaki; Kanji Murofushi, both of Niigata, all of Japan, and Richard W. Armentrout, La Jolla, Calif., assignors to Shin-Etsu Bio, Inc., San Diego, Calif. and Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1991, Ser. No. 776,989

Int. Cl.[5] C12N *1/36*; C12P *17/18*

U.S. Cl. 435—119 **10 Claims**

1. A process for the increased production of Streptovaricin C which comprises subjecting a biologically pure culture strain of *Streptomyces spectabilis* to fermentation conditions in an aqueous nutrient broth containing an assimilable carbon source, a nitrogen source, minerals, fumaric acid, or a water soluble salt of fumaric acid, in the presence of adsorbent beads, said strain being obtained by:

a) subjecting a wild-type strain of *Streptomyces spectabilis* to conditions to eliminate non-streptovaricin resistant organisms and to induced mutagenesis;

b) culturing the streptovaricin resistant strain obtained from step a);

c) growing a multiplicity of colonies from the culture of step b), and selecting those colonies which are asporogenous;

d) culturing each asporogenous colony in a separate liquid fermentation mixture so as to form pellets of the strains from each colony; and

(e) selecting from the fermentation mixture containing non-homogeneous pellets, the smallest pellet visible to the naked eye.

5,208,154

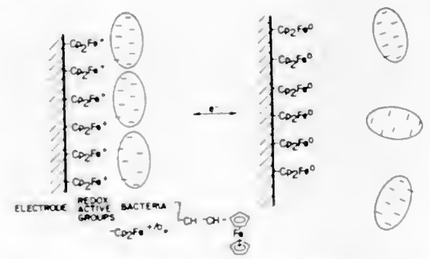
REVERSIBLY IMMOBILIZED BIOLOGICAL MATERIALS IN MONOLAYER FILMS ON ELECTRODES

Paul F. Weaver, Golden, and Arthur J. Frank, Lakewood, both of Colo., assignors to The United States of America as represented by the Department of Energy, Washington, D.C.

Filed Apr. 8, 1991, Ser. No. 681,298

Int. Cl.[5] C12N *11/14, 11/02, 11/08, 1/02*; G01N *27/26*

U.S. Cl. 435—176 **7 Claims**



1. A method for reversibly binding negatively charged biological particles in a liquid medium at neutral pH to an electrode surface, wherein said particles are selected from the group consisting of microbial cells and proteins the method comprising the steps of:

(a) treating said electrode surface with an electrochemically active material selected from the group consisting of polyvinylferrocene, silicon-linked ferrocene and quinone;

(b) connecting said electrode to an electrical potential; wherein said electrical potential induces a positive charge on said electrochemically active material; and

(c) exposing said medium to said electrode surface in a manner such that said charged particles are adsorbed on said electrode surface.

5,208,155

D-AMINO ACID OXIDASE AND METHOD FOR ISOLATION THEREOF

Klaus Mosbach, Rebbergstrasse 83, CH-8102 Oberengstringen, Switzerland, and Estera Szwajcer, Tillämpad Biokemi, Kemicentrum, Lunds Universitet, Box 124, S-221 00 Lund, Sweden

PCT No. PCT/SE86/00006, § 371 Date Nov. 5, 1986, § 102(e) Date Nov. 5, 1986, PCT Pub. No. WO86/04087, PCT Pub. Date Jul. 17, 1986

Continuation of Ser. No. 773,763, Oct. 10, 1991, abandoned, which is a continuation of Ser. No. 373,607, Jun. 30, 1989, abandoned, which is a continuation of Ser. No. 918,251, Nov. 5, 1986, abandoned. This PCT application Jan. 10, 1986, Ser. No. 900,758

Claims priority, application Sweden, Jan. 11, 1985, 8500157

Int. Cl.[5] C12N *9/06, 11/12*

U.S. Cl. 435—191 **5 Claims**

1 *Trigonopsis variabilis* D-amino acid oxidase which is active against the substrate cephalosporin C, said D-amino acid oxidase having an isoelectric point of about 4.6, existing in its active form as a dimer, having two subunits, and having a molecular weight of about 86,000.

5,208,156

ESTERASE PURIFIED FROM SERRATIA MARCESCENS SR41 (FERM BP-NO. 487)

Takeji Shibatani; Hiroaki Matsumae, both of Kobe, and Hiroyuki Akatsuka, Osaka, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Mar. 12, 1991, Ser. No. 668,979

Claims priority, application Japan, Mar. 13, 1990, 2-63830

Int. Cl.[5] C12N *9/16, 1/00*

U.S. Cl. 435—196 **1 Claim**

1. An essentially purified esterase derived from *Serratia marcescens* Sr41 (FERM BP-No. 487) having the following physico-chemical properties and enzymatic characteristics:

(1) Activity: said esterase hydrolyzes an ester bond of organic carboxylates,

(2) Substrate specificity: said esterase acts on alkyl esters of organic carboxylic acids, triglycerides or thiol esters,

(3) Optimum pH: said esterase has an optimum pH of 7.5-9.0 when the hydrolysis is carried out using olive oil as the substrate,

(4) pH stability: said esterase is stable at pH 5.0-9.0 when it is stored at 30° C. for one hour,

(5) Optimum temperature: said esterase has an optimum temperature of 40°-50° C. when the hydrolysis is carried out using olive oil as the substrate,

(6) Heat stability: said esterase is stable at a temperature of not higher than 50° C. when it is stored at pH 8.0 for 30 minutes,

(7) Molecular weight: 62,000±2,000 (SDS-polyacrylamide gel electrophoresis),

(8) Isoelectric point: 4.6±0.1,

(9) Effect of metal ions: said esterase is activated in the presence of 1 mM calcium ion, and inhibited in the presence of 1 mM cobalt ion, nickel ion, iron ion or ethylenediaminetetraacetic acid.

5,208,157

CLONING THE TAQI RESTRICTION AND MODIFICATION GENES

Geoffrey G. Wilson, Boxford, Mass., assignor to New England Biolabs, Inc., Beverly, Mass.

Continuation of Ser. No. 323,114, Mar. 13, 1989, Pat. No. 5,180,673, which is a continuation of Ser. No. 826,892, Feb. 6, 1986, abandoned, which is a continuation-in-part of Ser. No. 707,079, Mar. 1, 1985, Pat. No. 5,120,464. This application Apr. 26, 1991, Ser. No. 692,204

Int. Cl.[5] C12N *9/22, 15/55*

U.S. Cl. 435—199 **8 Claims**

1. Isolated DNA coding for the TaqI restriction endonuclease, wherein the isolated DNA is obtainable from ATCC Accession No. 75274.

5,208,158

OXIDATION STABLE DETERGENT ENZYMES

Lene M. Bech, Naestved; Sven Branner, Lyngby; Klaus Breddam, Glostrup, and Hanne Groen, Copenhagan, all of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

Filed Jul. 17, 1990, Ser. No. 553,934

Claims priority, application Denmark, Apr. 19, 1990, 971/90

Int. Cl.[5] C12N *9/50, 9/26, 9/20, 9/42*

U.S. Cl. 435—219 **12 Claims**

1. A modified enzyme, wherein one or more methionine residues of a detergent enzyme are replaced by cysteine having an HS-group, wherein said cysteine residue(s) are further modified by replacing the hydrogen atom of the HS-group with a group of formula R^1S—, wherein R^1 is C_{1-6}-alkyl.

5,208,159

ANTIBACTERIAL, ANTI-NEMATODE AND/OR PLANT-CELL ACTIVATING COMPOSITION, AND CHITINOLYTIC MICROORGANISMS FOR PRODUCING THE SAME

Takashi Toda, Shiga, and Hideyuki Matsuda, Matsue, both of Japan, assignors to Toda Biosystem Laboratory, Japan

Filed May 15, 1990, Ser. No. 523,388

Claims priority, application Japan, May 16, 1989, 1-121989

Int. Cl.[5] C12N *1/20*; A01N *63/00*

U.S. Cl. 435—252.1 **4 Claims**

1. A composition consisting of a highly acidic culture liquid obtained by a process comprising the steps of:

preparing a culture material by incubating on a culture medium containing chitin or chitosan, a strain selected from the group consisting of Corynebacterium Bine-A, having an accession number FERM BP-2879, Achromobacter Bine-B, having an accession number FERM BP-2880, and a combination thereof;

adding water to said culture material, to obtain a mixture consisting of a liquid phase containing water-soluble components of said culture material and a solid phase consisting of waterinsoluble components of said culture material; and

separating said liquid phase as said culture liquid from said solid phase.

2. An antibacterial composition consisting of a solid culture material prepared by (a) incubating on a culture medium containing chitin or chitonan, a strain selected from the group consisting of Corynebacterium Bine-A, having an accession number FERM BP-2879, Achromobacter Bine-B, having an accession number FERM BP-2880, and a combustion thereof and (b) recovering the solid culture material.

5,208,160

METHODS AND APPARATUS FOR THE CONTINUOUS TREATMENT OF BIOLOGICAL SAMPLES

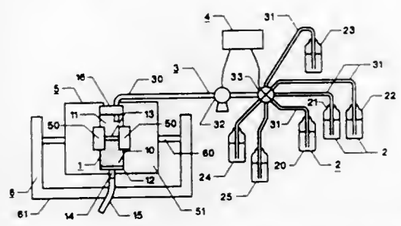
Sho Kikyotani, and Tatsuo Yamamoto, both of Osaka, Japan, assignors to Sekisui Kagaku Kogyo Kabusbiki Kaisha, Osaka, Japan

Filed Apr. 22, 1988, Ser. No. 184,835

Claims priority, application Japan, Apr. 22, 1987, 62-99446; May 13, 1987, 62-116417; May 13, 1987, 62-116418

Int. Cl.[5] C12N *1/08*

U.S. Cl. 435—270 **8 Claims**



1. An automated method for a column separation and/or purification of predetermined components in biological samples by the use of an automated apparatus, said apparatus comprising:

a) at least one column comprising an upper and a lower part, wherein an adsorbent layer is sandwiched between two porous filters in the bottom part of said column, said filters not allowing permeation of the samples into the adsorbent layer, but allowing permeation of the predetermined components in the samples, and wherein the top part of the column forms a reservoir;

b) at least three vessels connected via supply means to said reservoir, said vessels, respectively, being disposed so as to contain (i) said samples, pretreatment liquid for lysing

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said samples, (ii) washing liquid for use in the washing of the adsorbent, and (iii) eluants to recover said predetermined components of said samples from said adsorbent, said reservoir being a space where said samples are lysed with said pretreatment liquid prior to adsorption of said components of said samples to said adsorbent layer;

c) two valve means, a first valve means at the upper side of the reservoir for opening said column to atmospheric pressure and a second valve means at the outlet of said column for retaining contents of said column;

d) a collecting means for the separated/purified predetermined components; and

e) a means for automatically controlling said supply means and collecting means;

said method comprising the steps of:

i) supplying said samples from said corresponding vessel to said reservoir via said supply means or supplying said samples directly to said reservoir;

ii) supplying said pretreatment liquid from said corresponding vessel to said reservoir via said supply means or supplying said pretreatment liquid directly to said reservoir, so that said samples are lysed with said pretreatment liquid within said reservoir prior to adsorption of said predetermined components of said sample to said adsorbent layer;

iii) allowing said lysed samples to permeate the adsorbent layer of said column, which comprises the steps of opening said second valve at the outlet of said column, closing said first valve at the upper side of the reservoir and making air flow to the reservoir by said supply means, so that said column becomes an open system and the lysed samples in the reservoir permeate into the adsorbent layer, and which causes said adsorbent to adsorb components of said lysed samples to be separated and/or purified; and

iv) supplying washing liquid to the adsorbent layer from the vessels via the supply means, so that said adsorbent layer is washed;

v) supplying eluants to the adsorbent layer via the supply means to cause the predetermined components to be eluted from the adsorbent layer, said supply of the samples, the pretreatment liquid, the washing liquid and the eluants by the use of said supply means being controlled by said controlling means; and,

vi) collecting the separated/purified predetermined components by the use of said collecting means being controlled by said controlling means.

5,208,161

FILTER UNITS

Anthony J. Saunders, Weybridge, England, and Roy L. Manns, Marshfield Hills, Mass., assignors to Polyfiltronics N.A., Inc., Rockland, Mass.

PCT No. PCT/GB88/00700, § 371 Date Feb. 26, 1990, § 102(e) Date Feb. 26, 1990, PCT Pub. No. WO89/01966, PCT Pub. Date Mar. 9, 1989

PCT Filed Aug. 25, 1988, Ser. No. 465,142

Claims priority, application United Kingdom, Aug. 27, 1987, 8720253; May 17, 1988, 8811635

Int. Cl.[5] G01N *33/53*; **B01D** *24/00*

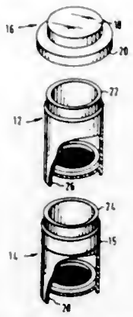
U.S. Cl. 435—286 **10 Claims**

1. An assay filter unit for filtering a sample and comprising, in combination:

a body having an internal passageway;

a filter disposed within said passageway;

a filter support means for supporting said filter and seal within said body so as to prevent passage of any of said sample around the edges of said filter, and provided with a line of mechanical weakness disposed peripherally about



said support means so that said filter is removable from said body by breaking said support means along said line.

5,208,162

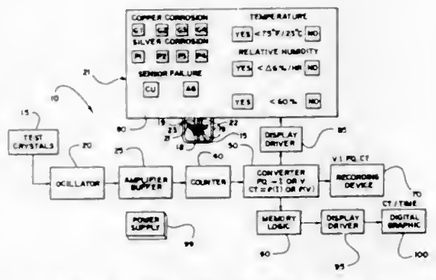
METHOD AND APPARATUS FOR MONITORING CORROSION

Michael W. Osborne, Lilburn; William G. England, Suwanee, both of Ga., and Xiuyi Zhang, Shandong, China, assignors to Purafil, Inc., Doraville, Ga.

Continuation-in-part of Ser. No. 521,079, May 8, 1990, abandoned. This application Dec. 23, 1991, Ser. No. 812,766

Int. Cl.[5] G01N *17/02*

U.S. Cl. 436—6 **21 Claims**



1. A method of monitoring corrosion in a corrosive atmosphere, comprising the steps of:

exciting in the atmosphere a crystal, coated with a corrodible metallic substance and having a characteristic vibration frequency;

obtaining an initial frequency measurement of said crystal at the time of initial exposure of said crystal to the atmosphere;

periodically obtaining subsequent frequency measurements of said crystal at times after said initial frequency measurement;

determining and monitoring the cumulative corrosion thickness built up on said crystal from the time of initial exposure to each of the times of said periodic subsequent frequency measurements;

defining a measurement interval beginning at the time of one of said subsequent frequency measurements and ending at the time of another of said subsequent frequency measurements; and

converting the frequency change from the beginning to the end of said measurement interval to a corrosion thickness signal corrected by a corrective value dependent on the cumulative corrosion built up on said crystal;

said corrected corrosion thickness signal representing the corrosion thickness that would have resulted if, at the beginning of said measurement interval, a new, unexposed reactivity monitoring coupon prepared according to a reactivity monitoring standard had been used to monitor corrosion during said measurement interval, expressed in accordance with said standard.

5,208,163

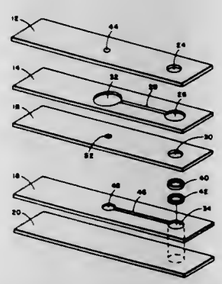
SELF-METERING FLUID ANALYSIS DEVICE

Steven C. Charlton, Osceola; Mihailo V. Rebec, Bristol, and Catherine Ruetten, Granger, all of Ind., assignors to Miles Inc., Elkhart, Ind.

Division of Ser. No. 563,044, Aug. 6, 1990, Pat. No. 5,147,606. This application Dec. 6, 1991, Ser. No. 803,076

Int. Cl.[5] G01N *31/22, 33/52*

U.S. Cl. 436—63 **2 Claims**



1. A method for analyzing fluid, comprising the steps of:

introducing a sample of fluid into a test device which directs the fluid to a metering chamber that further directs excess fluid to a fluid capillary once the metering chamber has received an ample amount of the fluid;

directing an aliquot of said fluid from the metering chamber to a reaction chamber;

filtering the fluid in the reaction chamber and then directing the filtering fluid into contact with a reagent.

5,208,164

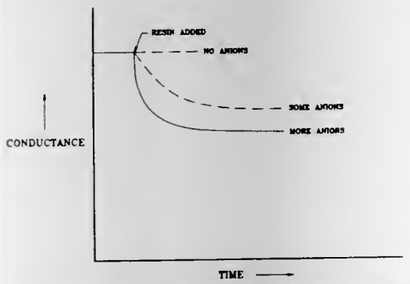
PROCESS FOR MONITORING ALKANOLAMINE SOLUTIONS

Arthur L. Cummings, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed May 2, 1991, Ser. No. 695,498

Int. Cl.[5] G01N *27/04*

U.S. Cl. 436—79 **22 Claims**



1. A process for directly monitoring the anion concentration in an alkanolamine solution which comprises:

(a) introducing an alkanolamine solution containing anions to a contacting zone;

(b) thereafter introducing to the contacting zone a solid anion exchange resin in the OH^- form in an amount in excess of that required to exchange all of the anions from the alkanolamine solution;

(c) stirring the contents of the contacting zone and measuring and recording the conductance of the alkanolamine solution during and after addition of the ion exchange resin;

(d) monitoring the conductance of the alkanolamine solution until steady state is reached; and

(e) determining the total anion content of the alkanolamine solution from the recorded conductance trace.

5,208,165

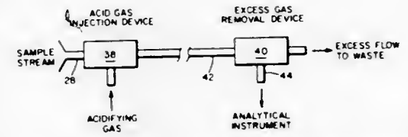
METHOD FOR TESTING THE SOLUBLE CONTENTS OF NUCLEAR REACTOR COOLANT WATER

Robert J. Law; Michel N. Robles, both of Livermore, and Dane T. Snyder, San Jose, all of Calif., assignors to General Electric Company, San Jose, Calif.

Filed Jan. 31, 1991, Ser. No. 648,096

Int. Cl.[5] G01N *33/18*

U.S. Cl. 436—176 **15 Claims**



1. An improved method of testing for soluble contents of coolant circulating through a water cooled and moderate nuclear fission reactor cooling system which inhibits unbalancing of an equilibrium in solutions of the coolant with metal ion solutes derived from fluid carrying metal conduits, consisting essentially of the combinations of steps of:

alternately withdrawing samples of coolant water circulating through a nuclear reactor cooling system from several different locations within the system for analysis:

conveying the alternately withdrawn coolant water samples through a network of fluid carrying metal conduits to an analytical testing apparatus for ascertaining any ion composition and concentration of each of the alternately withdrawn water coolant samples;

adjusting the pH of each withdrawn water coolant sample to an acidic state prior to passing each withdrawn water coolant sample through the analytical testing apparatus by introducing an acidifying agent into each coolant water sample; and determining the soluble contents of each coolant water sample in the analytical testing apparatus.

5,208,166

REACTIVE CHITOSAN COATED ARTICLES AND TEST KIT FOR IMMUNOASSAY

Mary S. Saunders, Rte. 3, Box 106-1, Monticello, Fla. 32344, and Randall K. Pegg, 5201 First Coast Hwy., Amelia Island, Fla. 32034

Filed Feb. 28, 1991, Ser. No. 662,420

Int. Cl.[5] G01N *33/544*

U.S. Cl. 436—518 **9 Claims**

1. An apparatus for performing an immunoassay comprising:

a) a substrate;

b) a surface coating member on said substrate comprising a composition of chitosan, either natural or synthetic, and a polyvalent organic acid;

c) said chitosan of said surface coating member further reacted with an oxidizer to produce a reactive moiety on said surface member;

d) an immunochemical reagent member covalently bound to said surface coating member via said reactive moiety, thereby insolubilized on said substrate.

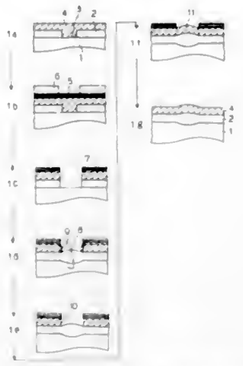
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,167

METHOD FOR PRODUCING SOI SUBSTRATE

Tomofumi Nakamura, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Jun. 19, 1992, Ser. No. 901,629
Claims priority, application Japan, Sep. 30, 1991, 3-251916; Sep. 30, 1991, 3-251917
Int. Cl.[5] H01L *21/265, 21/20*
U.S. Cl. 437—21 4 Claims



1. A method for producing a SOI substrate comprising:

a step wherein a first opening is formed at an insulating film formed on a semiconductor substrate and then a semiconductor crystal layer is formed over the first opening and the insulating film by epitaxial growth with using the semiconductor crystal of the substrate exposed through the first opening as a seed;

a step wherein a second opening is formed by removing the semiconductor crystal layer formed in the first opening;

a step wherein another insulating film is formed on the exposed semiconductor substrate through the second opening to be integrated with the insulating film; and

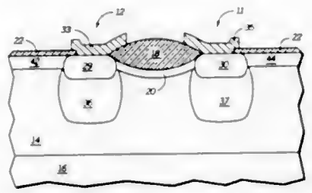
a step wherein on the another insulating film formed in the second opening semiconductor crystal is further formed by epitaxial growth in the transverse direction with using the semiconductor crystal by epitaxial growth as a seed to form a semiconductor crystal layer integrated with the semiconductor crystal layer.

5,208,168

SEMICONDUCTOR DEVICE HAVING PUNCH-THROUGH PROTECTED BURIED CONTACTS AND METHOD FOR MAKING THE SAME

Louis C. Parrillo; Neil B. Henis, both of Austin, Tex., and Richard W. Mauntel, Phoenix, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 26, 1990, Ser. No. 617,727
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—26 9 Claims



1. A method for forming a semiconductor device comprising:

providing a semiconductor device region of a first conductivity type having a principal surface and having a first and second active regions therein separated by an isolation region;

forming subsurface punch-through prevention regions of the first conductivity type in selected portions of the first and second active regions;

forming a doped conductive layer having a portion in intimate contact with the principle surface; and

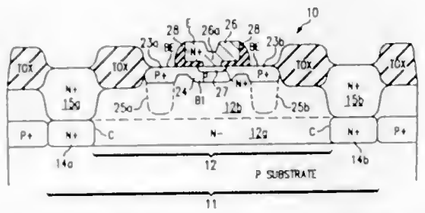
forming doped contact regions of a second conductivity type in the first and second active regions adjacent to the isolation region extending from the principle surface to the subsurface punch-through prevention regions wherein the subsurface punch-through prevention regions surround a lower portion of the doped contact regions and are separated from the principle surface by the doped contact regions.

5,208,169

METHOD OF FORMING HIGH VOLTAGE BIPOLAR TRANSISTOR FOR A BICMOS INTEGRATED CIRCUIT

Rajiv R. Shah, and Stephen A. Keller, both of Sugar Land, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 28, 1991, Ser. No. 724,574
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—31 12 Claims



1. An HV BICMOS method of fabricating relatively high voltage (HV) bipolar transistors in a BICMOS integrated circuit using a semiconductor substrate of a first conductivity type over which is formed an epitaxial layer of a second conductivity type, comprising the steps:

forming in each of selected number of HV regions in the substrate an HV well of the second conductivity type with a dopant concentration about the same as the epitaxial layer;

forming adjacent to each HV well at least one collector region of the second conductivity type with a dopant concentration substantially greater than the epitaxial layer;

forming the epitaxial layer over the substrate including each HV well, thereby forming an HV/epitaxial well;

over each collector region, forming in the epitaxial layer a collector contact region extending through the epitaxial layer to the collector region;

in each epitaxial/HV well, forming a base region of the first conductivity type, insulated from the collector contact region; and

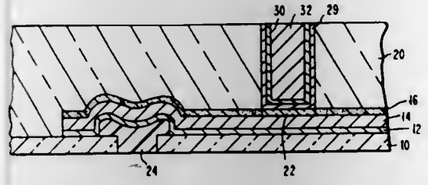
forming an emitter of the second conductivity type over the base region.

5,208,170

METHOD FOR FABRICATING BIPOLAR AND CMOS DEVICES IN INTEGRATED CIRCUITS USING CONTACT METALLIZATION FOR LOCAL INTERCONNECT AND VIA LANDING

Edward Kobeda, and Gary L. Patton, both of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 18, 1991, Ser. No. 761,596
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—34 2 Claims



1. A method for fabricating semiconductor devices in integrated circuits including the use of contact metallization for local interconnect and via landing comprising the steps of:

Step 1. depositing a layer of titanium on a semiconductor substrate having an emitter structure disposed thereon, said titanium layer overlapping said emitter structure,

Step 2. depositing a layer of tungsten over said titanium layer,

Step 3. depositing a layer of silicon over said tungsten layer,

Step 4. depositing a first layer of silicon dioxide over said silicon layer,

Step 5. patterning said titanium layer, said tungsten layer and said silicon layer,

Step 6. depositing a second layer of silicon dioxide over said first layer of silicon dioxide and a portion of said semiconductor substrate,

Step 7. forming a photoresist mask layer over said second silicon dioxide layer and etching said second silicon dioxide layer through said photoresist mask,

Step 8. using said etched second silicon dioxide layer as a mask, reactive ion etching said second silicon dioxide layer to form a recess in said second silicon dioxide layer above said silicon layer,

Step 9. depositing a titanium layer on the surfaces of said recess, said titanium forming a low resistance titanium silicide by reaction with silicon at the surface of said silicon layer under said recess.

5,208,171

PROCESS FOR PREPARING BICMOS SEMICONDUCTOR DEVICE

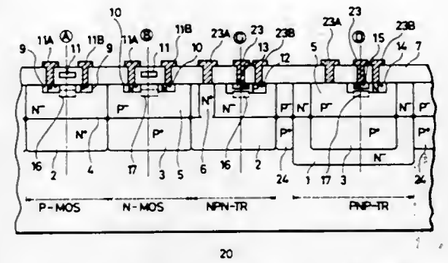
Toshinori Ohmi, Higashiosaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 1, 1991, Ser. No. 786,742
Claims priority, application Japan, Jan. 22, 1991, 3-22982
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—34 2 Claims

1. A process for preparing a BiCOMOS semiconductor device having a MOS transistor element and a vertical type bipolar transistor element, said elements both being constituted in an epitaxial layer of n-type conductivity formed on a substrate of p-type conductivity, said process comprising the step of:

(i) implanting n-type impurities at a high energy simultaneously around the bottom of a channel region of the p-channel MOS transistor and around the bottom of the base region of the NPN transistor.

(ii) implanting p-type impurities at a high energy simultaneously around the bottom of a channel region of the n-channel MOS transistor and around the bottom of the base region of PNP-transistor, thereby forming a highly-doped impurity region having an impurity type opposite to the source-drain region around the bottom of said channel region of MOS transistor element as well as



a highly-doped impurity region having an impurity type opposite to the base region around the bottom of said base region of said bipolar transistor element.

5,208,172

METHOD FOR FORMING A RAISED VERTICAL TRANSISTOR

Jon T. Fitch; Carlos A. Mazuré and Keith E. Witek, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 2, 1992, Ser. No. 844,038
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—40 21 Claims

1. A method for forming a transistor comprising the steps of:

providing a substrate having a surface and being of a first conductivity type;

forming a first dielectric layer overlying the substrate;

forming a control electrode conductive layer overlying the first dielectric layer;

forming a second dielectric layer overlying the control electrode conductive layer;

sequentially removing portions of each of the second dielectric layer, the control electrode conductive layer, and the first dielectric layer, the sequential removing forming an opening which exposes the surface of the substrate and forming a sidewall of the control electrode conductive layer;

growing a sidewall dielectric from the sidewall of the control electrode conductive layer to form a control electrode dielectric, the sidewall dielectric being laterally adjacent the sidewall of the control electrode conductive layer; and

forming a conductive region within the opening, the conductive region having a first portion of a second conductivity type which functions as a first current electrode, the first portion being laterally adjacent the first dielectric layer and overlying the substrate, the conductive region having a second portion of the first conductivity type functioning as a channel region, the second portion being adjacent the sidewall dielectric, and overlying the first current electrode, and the conductive region having a third portion of the second conductivity type functioning

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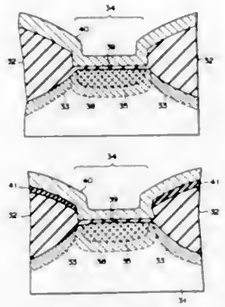
as a second current electrode, the third portion being adjacent the second dielectric layer and overlying the channel region.

5,208,173

METHOD OF MANUFACTURING NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE

Seiji Yamada, Tokyo, and Kiyomi Naruke, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 20, 1991, Ser. No. 672,631
Claims priority, application Japan, Mar. 20, 1990, 2-68081
Int. Cl.[5] A01L *21/265;* H01R *21/22*
U.S. Cl. 437—43 16 Claims



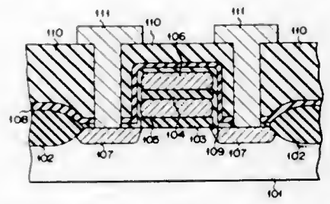
1. A method of manufacturing a non-volatile semiconductor memory device having a floating gate for storing data, the method comprising the steps of:
preparing a semiconductor substrate;
selectively implanting ions of a fist impurity into said semiconductor substrate to form a channel stop;
forming a field oxide film on said channel stop to define an element region;
implanting ions of a second impurity into said semiconductor substrate at said element region to form a first impurity region for receiving a voltage to generate a tunnel current between said first impurity region and said floating gate;
forming a gate insulating film on said element region;
forming a mask on the result structure;
patterning the mask to form an opening at a tunnel region over said first impurity region and extending at least partially over said field oxide film;
implanting ions of a third impurity into said semiconductor substrate at said tunnel region using the patterned mask to form a second impurity region;
exposing a surface of said semiconductor substrate at said tunnel region by removing the gate insulating film at said tunnel region and the portion of said field oxide film at said tunnel region, wherein said second impurity region prevents said channel stop from being exposed;
removing said mask;
forming a tunnel insulating film through which the tunnel current flows on the exposed surface of said semiconductor substrate; and
forming the floating gate on said gate and tunnel insulating films.

5,208,174

METHOD FOR MANUFACTURING A NONVOLATILE SEMICONDUCTOR MEMORY DEVICE

Seiichi Mori, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 3, 1991, Ser. No. 725,479
Claims priority, application Japan, Jul. 5, 1990, 2-178083
Int. Cl.[5] H01L *21/265, 21/70*
U.S. Cl. 437—43 18 Claims



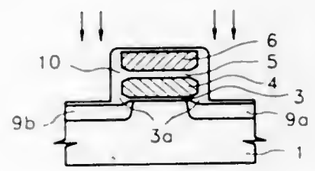
1. A method for manufacturing a nonvolatile semiconductor memory device having a floating gate transistor in an element region on a major surface of a body of semiconductor material, the method comprising the steps of:
depositing a first oxidation film on a side wall portion of a floating gate of said floating gate transistor using a CVD method; and
subsequently forming a second oxidation film between said floating gate and said first oxidation film.

5,208,175

METHOD OF MAKING A NONVOLATILE SEMICONDUCTOR MEMORY DEVICE

Jeong-hyeok Choi, Seoul; Geon-su Kim, and Yun-seong Sin, both of Kyunggi, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea

Filed Apr. 26, 1991, Ser. No. 692,210
Claims priority, application Rep. of Korea, Dec. 21, 1990, 90-21387
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—43 4 Claims



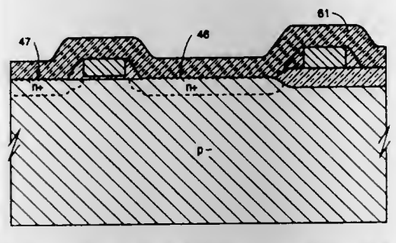
4. A method for manufacturing a nonvolatile semiconductor memory device comprising the steps of:
growing a gate oxide film on the an active region of a semiconductor substrate of a first conductivity type;
depositing a first polycrystalline silicon layer on said gate oxide film;
covering said first polycrystalline silicon layer with an interlayer insulating layer;
depositing a second polycrystalline silicon layer on said interlayer insulating film;
forming a pattern of said first polycrystalline silicon layer as a floating electrode for accumulating charges and a pattern of said second polycrystalline silicon layer provided as a control electrode overlapping said floating electrode;
growing a thermal oxide film on the whole surface of the above resultant structure; and
thinning a portion of said thermal oxide film formed on said active region after the step of growing said thermal oxide film; introducing a seconductivity type impurity through the thinned thermal oxide film to form source and drain regions.

5,208,176

METHOD OF FABRICATING AN ENHANCED DYNAMIC RANDOM ACCESS MEMORY (DRAM) CELL CAPACITOR USING MULTIPLE POLYSILICON TEXTURIZATION

Aftab Ahmad; Pierre C. Fazan, and Ruojia Lee, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 465,692, Jan. 16, 1990, and a continuation-in-part of Ser. No. 465,693, Jan. 16, 1990. This application Oct. 25, 1990, Ser. No. 603,528
Int. Cl.[5] H01L *21/00, 21/02, 21/70*
U.S. Cl. 437—47 12 Claims



1. A method of fabricating a memory cell storage capacitor, comprising the steps of:
(a) conductively doping a region within a layer of silicon support material adjacent to a surface thereof;
(b) texturizing said silicon layer surface a plurality of times to produce a texturization pattern thereof by:
(i) depositing a layer of polysilicon of substantially uniform thickness as a sacrificial material upon said silicon layer surface, said polysilicon layer having an exposed surface;
(ii) texturizing said exposed polysilicon surface;
(iii) consuming substantially all of said polysilicon layer; and
(iv) repeating steps (i) through (iv) at least once;
(c) depositing a substantially conformal layer of dielectric material of substantially uniform thickness upon said texturized surface, said dielectric layer being sufficiently thin to allow said texturization pattern to transfer therethrough;
(d) depositing a substantially conformal layer of polysilicon upon said layer of dielectric material;
(e) conductively doping said conformal polysilicon layer.

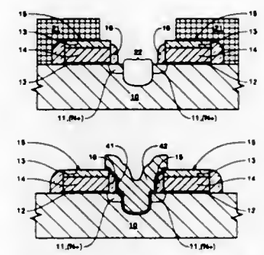
5,208,177

LOCAL FIELD ENHANCEMENT FOR BETTER PROGRAMMABILITY OF ANTIFUSE PROM

Roger R. Lee, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Feb. 7, 1992, Ser. No. 832,561
Int. Cl.[5] H01L *21/265, 21/44*
U.S. Cl. 437—47 32 Claims

1. A fabrication method to improve programmability of a one time programmable element in an integrated circuit, said method comprising the steps of:
masking a diffusion region adjoining neighboring access lines thereby exposing a portion of said adjoining diffusion region, said diffusion region being heavily doped as a conductivity type, said access devices forming active metal oxide transistors having overlying insulation means and dielectric spacers for isolation and said diffusion region for source/drain regions;
b) trenching through said exposed diffusion region thereby severing said diffusion region and forming edges in said severed diffusion region self-aligned to lower outer surface of said dielectric spacers;
c) etching back said dielectric spacers thereby exposing said edges of severed diffusion region;
d) forming a dielectric layer superjacent and coextensive



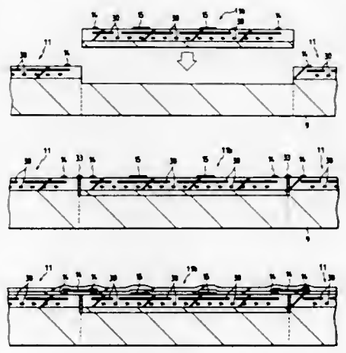
resulting trench, said exposed edges and said dielectric spacers; and
e) forming a conductive layer superjacent and coextensive said dielectric thereby forming a programmable element comprising said dielectric layer sandwiched between said severed diffusion regions and said conductive layer.

5,208,178

MANUFACTURING A SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING ON CHIP LOGIC CORRECTION

Mitsuo Usami, Akishima, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 31, 1991, Ser. No. 738,570
Claims priority, application Japan, Aug. 2, 1990, 2-205590; Nov. 29, 1990, 2-332604
Int. Cl.[5] H01L *21/66*
U.S. Cl. 437—51 45 Claims



1. A method for manufacturing a semiconductor integrated circuit device, comprising the steps of:
providing a semiconductor wafer having a semiconductor elements arranged in chip regions of the semiconductor wafer, the semiconductor wafer having a thickness;
forming primary wiring to interconnect the semiconductor elements, so as to form a plurality of macrocells in at least one of the chip regions;
without prior interconnecting the plurality of macrocells, testing electrical characteristics of the macrocells to determine whether any macrocells are defective;
after said testing, removing any defective macrocells, from the wafer, so as to form a macrocell removed region, the

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macrocell removed region extending only partially, and not fully, through the thickness of the semiconductor wafer;

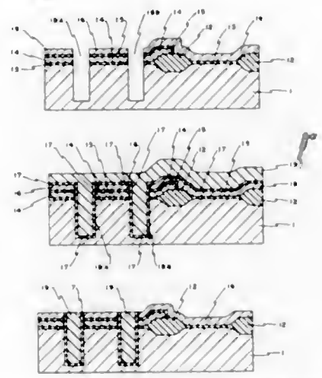
after testing the macrocells to determine whether any macrocells are defective, forming secondary wiring to interconnect at least two of the plurality of macrocells with each other.

5,208,179

METHOD OF FABRICATING PROGRAMMABLE READ ONLY MEMORY DEVICE HAVING TRENCH ISOLATION STRUCTURE

Takeshi Okazawa, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Dec. 27, 1990, Ser. No. 634,441
Claims priority, application Japan, Dec. 29, 1989, 1-342859
Int. Cl.[5] H01L *21/76, 21/70, 21/4763*
U.S. Cl. 437—52 13 Claims



1. A method of fabricating a semiconductor integrated circuit device, comprising the steps of:

forming a first gate insulating film selectively on a main surface of a semiconductor substrate;

forming a first polysilicon layer on said first gate insulating film;

forming a second gate insulating film on the surface of said first polysilicon layer;

forming a second polysilicon layer on said second gate insulating film;

forming trenches for isolation of adjacent element sin said circuit by selectively removing said second polysilicon layer, said second gate insulating film, said first polysilicon layer, said first gate insulating film and said semiconductor substrate;

forming a BPSG film over the entire resulting surface to fill said trenches; and

selectively removing said BPSG film from said surface while leaving said BPSG film in said trenches.

4. A method of fabricating a semiconductor integrated circuit, comprising the steps of:

forming a first gate insulating film selectively on a main surface of a semiconductor substrate;

forming a first polysilicon layer on said first gate insulating film;

forming a second gate insulating film on the surface of said first polysilicon layer;

forming a second polysilicon layer on said second gate insulating film;

forming trenches for isolating elements by selectively removing said second polysilicon layer, said second gate insulating film, said first polysilicon layer, said first gate insulating film and said semiconductor substrate;

forming a BPSG film over the entire resulting surface to fill said trenches;

selectively removing said BPSG film to leave said BPSG film in said trenches;

forming a word line in contact with said second polysilicon layer;

selectively etching, by using said work line as a mask, said second polysilicon layer, said second gate insulating film, and said first polysilicon layer;

forming an insulating layer having contact holes for exposing parts of said semiconductor substrate; and

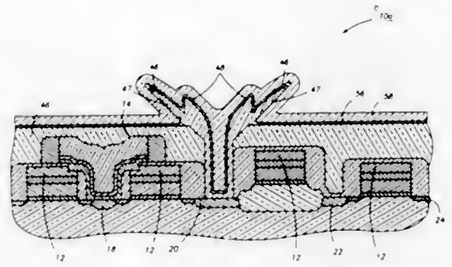
forming a bit line in contact with said parts of said semiconductor substrate through said contact holes.

5,208,180

METHOD OF FORMING A CAPACITOR

Fernando González, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Mar. 4, 1992, Ser. No. 846,215
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—60 29 Claims



1. A method of forming a capacitor on a semiconductor wafer comprising the following steps:

providing a layer of insulating dielectric atop the semiconductor wafer to a selected thickness, the insulating layer having an upper surface;

providing a mask layer over the layer of insulating dielectric;

patterning an aperture of a selected diameter through a mask layer for definition of a contact opening through the insulating dielectric layer to a defined area on the wafer;

isotropically etching the insulating dielectric through the aperture to a selected depth which is less than the selected thickness and thereby defining a first contact opening of a selected diameter having non-perpendicular angled ramps extending partially into the layer of insulating dielectric which define a first contact opening base, the selected diameter of the first contact opening at the upper insulating dielectric layer surface being greater than the aperture selected diameter;

anisotropically etching the insulating dielectric through the aperture and first contact opening to the defined area on the wafer thereby defining a second contact opening of a selected diameter extending from the first contact opening base to the defined area on the wafer, the second contact opening diameter being substantially equal to the selected diameter of the aperture;

non-conformally depositing a layer of polysilicon atop the wafer and to within the first and second contact openings, the non-conformal layer incompletely filling the second contact opening and having a first thickness therein, the non-conformal layer having a second thickness over the insulating dielectric layer upper surface which is greater than the first thickness, the non-conformal layer having a third thickness over at least a portion of the angled ramps which is greater than the first and second thickness;

selectively masking polysilicon within the first and second contact openings for definition of a capacitor storage node;

anisotropically etching the masked polysilicon layer to substantially completely remove polysilicon from atop the non-perpendicular insulating dielectric and to leave polysilicon atop the non-perpendicular angled ramp portions to provide non-perpendicularly angled projecting polysilicon portions;

providing a layer of cell dielectric atop the wafer and over polysilicon remaining in the first and second contact openings; and

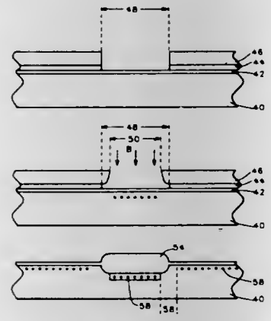
providing a layer of conductive material atop the cell dielectric layer.

5,208,181

LOCOS ISOLATION SCHEME FOR SMALL GEOMETRY OR HIGH VOLTAGE CIRCUIT

Keh-Fei C. Chi, Singapore, Singapore, assignor to Chartered Semiconductor Manufacturing PTE Ltd., Singapore, Singapore

Filed Aug. 17, 1992, Ser. No. 930,367
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—70 22 Claims



1. A method of forming a silicon oxide isolation region, with field implant, on the surface of a silicon wafer comprising:

forming a layer of silicon oxide on the surface of said wafer;

forming a layer of silicon nitride on said silicon oxide layer;

forming a layer of polysilicon on said silicon nitride layer:

patterning said polysilicon and silicon nitride layers to form a narrow opening over said silicon surface; oxidizing said polysilicon to produce polysilicon oxide overhang at the edge of said narrow opening to form a mask opening equal to said narrow opening less the overhang;

ion implanting in a vertical direction to form said field implant in said silicon surface of the dimension of said narrow opening less said overhang;

removing said polysilicon oxide;

and oxidizing said isolation region to form field oxide that is larger than said field implant by said overhang dimension, and thereby not encroaching the planned device regions.

5,208,182

DISLOCATION DENSITY REDUCTION IN GALLIUM ARSENIDE ON SILICON HETEROSTRUCTURES

Jagdish Narayan, Raleigh, N.C., and John C. C. Fan, Chestnut Hill, Mass., assignors to Kopin Corporation, Taunton, Mass.

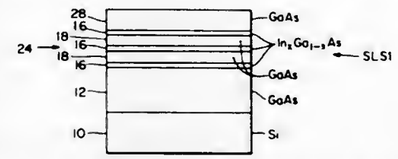
Filed Nov. 12, 1991, Ser. No. 790,356
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—110 20 Claims

1. A method of forming a gallium arsenide on silicon heterostructure comprising the steps of:

forming a first gallium arsenide layer over a silicon substrate;

forming a first strained layer superlattice over the first gallium arsenide layer, the strained layer superlattice comprising alternating layers of a first material and second material;

forming an upper gallium arsenide over the first strained layer superlattice to form a layered structure; and



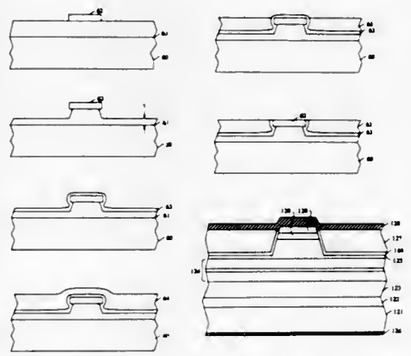
subjecting the formed structure to rapid thermal annealing for about two minutes or less.

5,208,183

METHOD OF MAKING A SEMICONDUCTOR LASER

Young-Kai Chen; Minghwei Hong, both of Berkeley Heights, and Ming-Chiang Wu, Bridgewater, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Division of Ser. No. 631,292, Dec. 20, 1990, Pat. No. 5,088,099.
This application Oct. 4, 1991, Ser. No. 771,718
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—129 6 Claims



1. A method of making a semiconductor laser comprising a ridge-waveguide structure, the method comprising

a) providing a multi-layer semiconductor body comprising an active region and a major surface;

b) processing the semiconductor body such that a ridge-waveguide structure is formed; and

c) providing means for making electrical contact to the laser;

CHARACTERIZED IN THAT step b) comprises

d) forming on the major surface a patterned first layer;

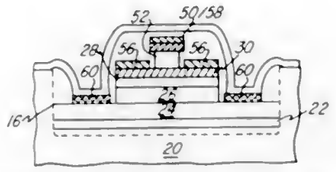
e) exposing the major surface with the patterned first layer thereon to an etching medium such that a portion of the major surface is etched, resulting in an etched surface overlying, and spaced from, the active region, whereby the ridge-waveguide structure is formed;

f) depositing a planarization layer such that a portion of the planarization layer that overlies the ridge-waveguide structure is thinner than a portion of the planarization layer that overlies the etched surface;

g) removing the portion of the planarization layer that overlies the ridge-waveguide structure without removing all of the portion of the planarization layer that overlies the etched surface.

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5,208,184
P-N JUNCTION DIFFUSION BARRIER EMPLOYING MIXED DOPANTS
Burhan Bayraktaroglu, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Apr. 30, 1991, Ser. No. 693,490
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—132 **19 Claims**

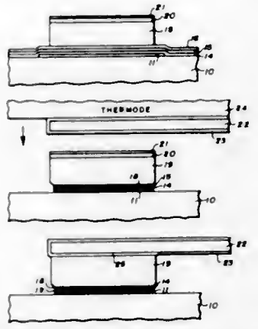


1. A method of making a p-n junction diffusion barrier, comprising the steps of:
providing a first semiconductor layer of p-type conductivity doped with a first dopant, said first dopant having a first diffusivity;
depositing a second semiconductor layer of p-type conductivity on said first semiconductor layer, said second semiconductor layer doped with a second dopant, said second dopant having a second diffusivity which is less than said first diffusivity in order to form a diffusion barrier between said first semiconductor layer and a third semiconductor layer; and
depositing said third semiconductor layer of n-type conductivity on said second semiconductor layer.

5,208,185
PROCESS FOR DIFFUSING BORON INTO SEMICONDUCTOR WAFERS
Yoshiyuki Mori, Takasaki; Yukiharu Kitazawa, Annaka; Masahide Kojima, Takasaki; Tomoyuki Sakai, Annaka; Eiichi Nishijo, Takasaki; Nobuhiro Tsuda, Annaka, and Tadayuki Ebe, Urawa, all of Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan
Filed Mar. 17, 1992, Ser. No. 852,613
Claims priority, application Japan, Mar. 20, 1991, 3-081710
Int. Cl.[5] H01L *21/223*
U.S. Cl. 437—168 **11 Claims**

1. In the process of diffusing boron into a semiconductor wafer which comprises:
at least partially oxidizing a disk of pyrolytic boron nitride to a disk comprising boron oxide;
assembling such wafer and said oxidized disk adjacent thereto;
subjecting said wafer and disk to conditions, including high temperature and an inert atmosphere comprising hydrogen, which are conducive to the diffusion of boron from said disk into said wafer;
thereby diffusing said boron into said wafer; the improvement which comprises limiting the initial proportion of hydrogen in said inert atmosphere to the range of 0.01–0.05% by volume, whereby reducing the number of lattice defects in said boron diffused wafer, as compared to the number of lattice defects which would exist in substantially the same wafer having boron diffused thereinto from substantially the same source under substantially the same conditions, except at a higher effective concentration of hydrogen than that present in said inert atmosphere.

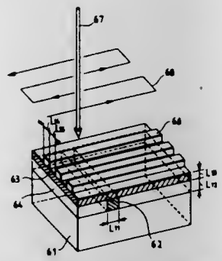
5,208,186
PROCESS FOR REFLOW BONDING OF BUMPS IN IC DEVICES
Ranjan J. Mathew, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Continuation of Ser. No. 461,701, Jan. 8, 1990, abandoned, Division of Ser. No. 308,704, Feb. 9, 1989, Pat. No. 4,922,322. This application Nov. 12, 1991, Ser. No. 804,612
Int. Cl.[5] H01L *21/44*; B23K *31/02*
U.S. Cl. 437—183 **6 Claims**



1. A process for fabricating a bonded semiconductor device having an aluminum bonding pad located on its surface comprising the steps:
forming a gold bump inside the edges of said bonding pad;
depositing a layer of tin on the upper surface of said gold bump;
depositing a layer of gold on top of said tin layer;
pressing a gold coated copper finger against said gold layer on said tin-coated gold bump;
heating the assembly above the melting temperature of the gold-tin eutectic whereby said tin combines with said gold to form a eutectic liquid phase that abuts said copper finger on said gold bump, wherein the volume of tin deposited is controlled so that following the heating step the tin is entirely converted to eutectic alloy; and
cooling the assembly whereby said copper finger is soldered to said gold bump while eliminating the presence of any free tin in the soldered joint.

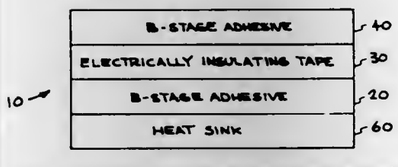
5,208,187
METAL FILM FORMING METHOD
Kazuo Tsubouchi, 30-38 Hitokita 2-chrome, and Kazuya Masu, 3-3-201, Mikamine 1-chrome, both of Taihaku-ku, Sendai-shi, Miyagi-ken, Japan
Filed Jul. 8, 1991, Ser. No. 726,995
Claims priority, application Japan, Jul. 6, 1990, 2-177554; Jul. 6, 1990, 2-177555
Int. Cl.[5] H01L *21/44, 21/465*; B05D *5/12*
U.S. Cl. 437—194 **14 Claims**

1. A metal film forming method for a semiconductor device, comprising the steps of:
forming an insulation film on a principal surface of a semiconductor body;
forming an aperture in said insulation film thereby exposing the surface of said semiconductor body therein;
selectively depositing a first monocrystalline metal consisting essentially of aluminum, in said aperture;
forming a non-monocrystalline metal film consisting essentially of aluminum on said first monocrystalline metal and on said insulation film by non-selective deposition; and



heating said non-monocrystalline metal film to convert at least a part thereof to monocrystalline state, utilizing said first monocrystalline metal as a crystal seed.

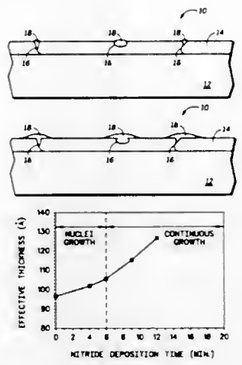
5,208,188
PROCESS FOR MAKING A MULTILAYER LEAD FRAME ASSEMBLY FOR AN INTEGRATED CIRCUIT STRUCTURE AND MULTILAYER INTEGRATED CIRCUIT DIE PACKAGE FORMED BY SUCH PROCESS
Robert A. Newman, Santa Clara, Calif., assignor to Advanced Micro Devices,Inc., Sunnyvale, Calif.
Continuation-in-part of Ser. No. 710,416, Jun. 5, 1991, which is a division of Ser. No. 415,844, Oct. 2, 1989, Pat. No. 5,068,708. This application Jan. 15, 1992, Ser. No. 822,330
Int. Cl.[5] H01L *21/60*
U.S. Cl. 437—220 **24 Claims**



1. A process of making a multilayer lead frame assembly for an integrated circuit structure which comprises:
a) bonding a first surface of an insulating tape to a planar metal lead frame using a first b-stage adhesive curable at a first temperature; and
b) bonding a second surface of said insulating tape to a planar metal member capable of serving as a ground plane using a second b-stage adhesive curable at a second temperature different than said first temperature.

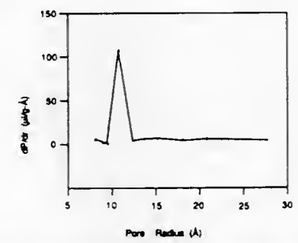
5,208,189
PROCESS FOR PLUGGING DEFECTS IN A DIELECTRIC LAYER OF A SEMICONDUCTOR DEVICE
Bich-Yen Nguyen, and Philip J. Tobin, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Sep. 30, 1991, Ser. No. 769,049
Int. Cl.[5] H01L *21/443*
U.S. Cl. 437—238 **21 Claims**

1. A process of plugging defects in a dielectric layer of a semiconductor device, comprising the steps of:
providing a substrate material;
forming an dielectric layer on the substrate material;
after forming the dielectric layer, initiating growth of a predetermined material in any defects in the dielectric layer; and



terminating growth of the predetermined material prior to forming a continuous film of the predetermined material across the dielectric layer.

5,208,190
MICROPOROUS ALUMINA CERAMIC MEMBRANES
Marc A. Anderson, and Guangyao Sheng, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.
Filed Oct. 8, 1991, Ser. No. 773,168
Int. Cl.[5] C04B *35/10*
U.S. Cl. 501—12 **11 Claims**



1. A method of making microporous alumina ceramic membranes comprising the steps of
(a) introducing an aluminum alkoxide into aqueous solution;
(b) peptizing the solution by the addition of acid at a temperature less than 80° C. under conditions that favor the formation of small alumina particles in the solution;
(c) recovering from the solution a stable sol;
(d) removing solvent from the sol to form a xerogel; and
(e) firing the xerogel at temperatures up to 500° C. to obtain a porous ceramic alumina membrane having a narrow distribution of pore sizes.

5,208,191
CRYSTALLIZING ENAMEL COMPOSITION AND METHOD OF MAKING AND USING THE SAME
Clifford G. Ruderer; Robert C. Stroup, both of Pittsburgh, and George C. Korn, Coraopolis, all of Pa., assignors to Ferro Corporation, Cleveland, Ohio
Continuation-in-part of Ser. No. 579,301, Sep. 7, 1990, Pat. No. 5,153,150. This application Nov. 27, 1991, Ser. No. 799,389
Int. Cl.[5] C03C *8/04, 8/14*
U.S. Cl. 501—17 **18 Claims**

1. An enamel composition which during firing forms an

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enamel, said enamel composition comprising a solids portion, said solids portion comprising:

A. at least 10 percent by weight of a crystallizable glass frit portion including at least 35 percent by weight precursors from which $An_2Si_2O_4$ can be crystallized upon firing of said composition;

B. a seed powder which causes at least a portion of said precursors to crystallize upon firing such that during firing at least 2 percent by weight of said crystallizable glass frit yields crystallized Zn_2SiO_4 formed by said precursors; and

C. a separate addition of Bi_2O_3.

5,208,192

PRECERAMIC POLYSILAZANE COMPOSITIONS

Yuan-Fu Yu, and Eric W. Lilmatta, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 552,872, Jul. 16, 1990, abandoned, which is a continuation-in-part of Ser. No. 464,229, Jan. 12, 1990, abandoned. This application Jan. 15, 1991, Ser. No. 647,533

Int. Cl.[5] C04B *35/52, 35/56, 35/58*

U.S. Cl. 501—92 17 Claims

1. A crosslinkable preceramic composition comprising about 40–70% by weight of a low molecular weight polysilazane having a relative viscosity of 1.12–1.16, measured as a solution of 5% by weight of the polymer in tetrahydrofuran, about 15–35% by weight of a medium molecular weight polysilazane having a relative viscosity of 1.3–1.4, measured as a solution of 5% by weight of the polymer in tetrahydrofuran, and about 5–30% by weight of an unsaturated organic or organosilicon compound containing at least two alkenyl groups.

5,208,193

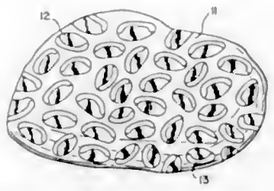
CERAMIC COMPOSITES WITH IMPROVED THERMAL SHOCK RESISTANCE

Ronald R. Smyth, Freeport, and Walter W. Henslee, Lake Jackson, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 166,291, Mar. 10, 1988, Pat. No. 4,843,045, which is a continuation of Ser. No. 874,322, Jun. 13, 1986, abandoned, which is a continuation-in-part of Ser. No. 643,619, Aug. 24, 1984, abandoned, which is a continuation-in-part of Ser. No. 451,122, Dec. 20, 1982, abandoned. This application Mar. 7, 1989, Ser. No. 320,029

Int. Cl.[5] C04B *35/44*

U.S. Cl. 501—120 2 Claims



1. A ceramic material consisting essentially of a mixture which has undergone densification, said mixture consisting essentially of

1) 1 to 4 mol of $MgAl_2O_4$ spinel as a matrix material which is densifiable at between 1000° C. and 1750° C., and

2) dispersed in the spinel matrix, 1.5 to 1 mol of Mg oxide derived, during said densification, as the decomposition product of a thermally decomposable magnesium salt, said Mg oxide having

a) a thermal expansion characteristic different from said matrix, and

b) a volume, as the oxide, less than that of the decomposable salt from which it is derived, and

said Mg oxide being unmelted at the temperature of said densification and being present in an amount sufficient to provide a quantity in excess of that which goes into solid solution in the spinel matrix during said densification thereof.

5,208,194

RECOVERY OF GROUP VIII TRANSITION METALS FROM ORGANIC SOLUTIONS USING ACIDIC ION-EXCHANGE RESINS

Rangasamy Pitchai; Thomas S. Zak, both of West Chester, and Kurt E. Soring, Aston, all of Pa., assignors to Arco Chemical Technology, L.P., Wilmington, Del.

Filed Feb. 25, 1992, Ser. No. 841,396

Int. Cl.[5] B01J *38/74, 31/40;* C01G *55/00;* C07C *45/78*

U.S. Cl. 502—12 16 Claims

1. A rhodium-recovery process which comprises contacting a solution of a rhodium hydridocarbonyl complex in an organic solvent with an acidic ion-exchange resin that has sulfonic acid active groups, separating the resin from the treated solution, and recovering the rhodium complex from the resin.

5,208,195

PROCESS FOR THE PREPARATION OF A CATALYST FOR THE HYDRATION OF OLEFINS TO GIVE ALCOHOLS

Dietrich Schlueter, Sobernheim; Franz-Josef Baumeister, Recklinghausen, and Klaus-Peter Schubert, Herne, all of Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Mar. 3, 1992, Ser. No. 845,155

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1991, 4107973

Int. Cl.[5] B01J *21/16, 37/00*

U.S. Cl. 502—63 9 Claims

1. A process for the preparation of a catalyst of a phosphoric acid treated carrier prepared from clay minerals and silica gel for the production of an alcohol by the hydration of C_{2-3} olefin which comprise:

acid treating an essentially montmorillonite-containing clay contaminated with not more than 3% of extraneous materials until an acid treated clay is obtained having a 10–20% by weight Al_2O_3 content and a specific surface area of 200 to 400 m^2/g;

adding from 20 to 40 parts by weight of finely particulate silica gel having a particle size distribution of between 30 and 60×10^{-6} m, a pore volume of 0.9 to 1.7 ml/g and a specific surface are of 200 to 500 m^2/g and from 1.5 to 2.5 parts by weight of titanium dioxide, each based on total dry substance, to said acid treated clay;

shaping the acid treated material to a total water content of 40 to 60% by compression;

calcining the shaped material at 500° to 900°C.;

in a second stage, acid treating the calcined material with acid until it has an Al_2O_3 content of 1 to 4% by weight and has a specific surface area of 180 to 250 m^2/g and a pore volume of between 0.8 to 1.5 ml/g; and

impregnating the acid treated material with phosphoric acid.

5,208,196

ALUMINUM BRIDGED CLAYS

Alain Aubry, Joinville Le Pont, and Jean-Michel Popa, Drancy, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Dec. 27, 1990, Ser. No. 634,438

Claims priority, application France, Dec. 27, 1989, 89 17230

Int. Cl.[5] B01J *21/16, 20/12*

U.S. Cl. 502—63 30 Claims

1. An aluminom bridged clay having an interfoliate spacing greater than 1 nm.

5. The bridged clay as defined by claim 1, comprising two SiO_4 tetrahedron layers separated by aluminum pillars which comprise an aluminum oxyhydroxide.

8. A process for the preparation of the bridged clay, comprising (a) introducing an aqueous solution of a hydroxide base into an aqueous reaction medium which comprises suspended clay particulates and a dissolved aluminum salt, at a rate and for such period of time that the ratio of the concentration [C] of the base, in moles of OH^- and expressed in moles/liter, to the duration (h) of introducing said OH^- values, expressed in hours, is at least 0.1, and (b) recovering the reaction product bridged clay thus produced.

5,208,197

OCTANE GASOLINE CATALYST

James G. Vassilakis, Westmont, Ill.; Donald F. Best, Mahopac, N.Y.; Gary W. Skeels, Brewster, N.Y., and Edith M. Flanigen, White Plains, all of N.Y., assignors to UOP, Des Plaines, Ill.

Division of Ser. No. 694,198, May 1, 1991, Pat. No. 5,160,033, which is a continuation-in-part of Ser. No. 596,157, Oct. 11, 1990, Pat. No. 5,095,169, Continuation-in-part of Ser. No. 366,263, Jun. 12, 1989, abandoned, Division of Ser. No. 175,332, Mar. 30, 1988, abandoned, which is a continuation-in-part of Ser. No. 417,611, Oct. 5, 1989, Pat. No. 5,013,699, which is a continuation-in-part of Ser. No. 178,901, Apr. 7, 1988, abandoned, which is a continuation-in-part of Ser. No. 541,580, Jun. 21, 1990, Pat. No. 5,116,794, Continuation-in-part of Ser. No. 366,264, Jun. 12, 1989, abandoned, Continuation of Ser. No. 175,333, Mar. 30, 1988, abandoned. This application May 19, 1992, Ser. No. 885,707

Int. Cl.[5] B01J *29/06*

U.S. Cl. 502—67 4 Claims

1. A catalyst composition suitable for use in the catalytic hydrocracking of hydrocarbon feedstocks to gasoline which comprises a modified form of zeolite Y prepared by the steps of:

(a) ammonium ion-exchanging zeolite Y to lower its alkali metal content of less than 4.0 weight percent;

(b) hydrothermal steaming the low-sodium product of step (a) at a temperature of 550° C. to about 850° C. to reduce the unit cell dimension; and

(c) contacting the steamed product of step (b) with a sufficient amount of an aqueous solution of ammonium ions having a pH of less than about 4.0 for a sufficient time to exchange at least some of the residual alkali metal cations for ammonium ions and to increase the bulk Si/Al_2 molar ratio of the zeolite composition to the range of 6.5 to 20;

an activated zeolite beta prepared by ion-exchanging the sodium and hydrogen form of zeolite beta in which the hydrogen cations are formed by the thermal decomposition of the organic templating cations, present in the as-synthesized form of zeolite beta, with a hydrogen-forming cation other than hydronium to reduce the sodium cation population to less than 25 equivalent percent, and calcining the thus-exchanged zeolite in air or an inert atmosphere at a temperature effective to form an initial concentration of weak acid species and strong acid species, and continuing said heating to substantially reduce the concentration of strong acid species without substantially reducing the concentration of weak acid species;

and a metal hydrogenation component.

5,208,198

CATALYST FOR PURIFYING EXHAUST GAS

Masao Nakano, Hikari; Akinori Eshita, and Kazuhiko Sekizawa, both of Shinnanyo, all of Japan, assignors to Tosoh Corporation, Shinnanyo, Japan

Filed Dec. 12, 1991, Ser. No. 805,956

Claims priority, application Japan, Dec. 18, 1990, 2-411254; Dec. 18, 1990, 2-411255; Dec. 18, 1990, 2-411256; Dec. 18, 1990, 2-411257

Int. Cl.[5] B01J *29/10*

U.S. Cl. 502—74 16 Claims

1. A catalyst for purifying an exhaust gas to remove nitrogen oxides, carbon monoxide and hydrocarbons from an oxygen-rich exhaust gas containing nitrogen oxides, carbon monoxide and hydrocarbons, comprising (i) a zeolite having an SiO_2/Al_2O_3 mole ratio of at least 15 and (ii) (a) cobalt, (b) an alkaline earth metal and (c) silver, incorporated thereinto.

5,208,199

CATALYST OF RARE EARTH AND PHOSPHORUS-CONTAINING XEROGELS FOR ALKOXYLATION PROCESS

Richard A. Kemp, Stafford, Tex., assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 513,391, Apr. 23, 1990, Pat. No. 5,118,870. This application Dec. 9, 1991, Ser. No. 806,068

Int. Cl.[5] B01J *23/10, 27/18*

U.S. Cl. 502—208 14 Claims

1. A catalyst composition for the preparation of alkylene oxide adducts of active hydrogen-containing compounds consisting essentially of a xerogel consisting essentially of one or more compounds of a rare earth element and phosphorus.

5,208,200

NOBLE METAL ON RARE EARTH MODIFIED SILICA ALUMINA AS HYDROCARBON CONVERSION CATALYST

Stuart L. Soled, Pittstown; Gary B. McVicker, Califon, and William E. Gates, Somerset, all of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Feb. 27, 1992, Ser. No. 842,863

Int. Cl.[5] B01J *21/12, 23/10*

U.S. Cl. 502—241 8 Claims

1. A catalyst composition comprising an amorphous silica-alumina support having at least about 50 wt% silica, a rare earth oxide, and metal(s) selected from the group consisting of Group VIII noble metal(s), mixtures of Group VIII noble metal(s) and rhenium and mixtures of Group VIII noble metal(s) and tin.

3. A catalyst composition according to claim 1 wherein said rare earth oxide is present as a monolayer dispersed on the surface of said amorphous silica-alumina.

5,208,201

CHEMICAL PROCESS AND CATALYST

Sami A. I. Barri, Berkshire, and Rabaab Tahir, Middlesex, both of England, assignors to The British Petroleum Company p.l.c., London, England

Division of Ser. No. 377,986, Jul. 11, 1989, Pat. No. 5,126,502. This application Dec. 16, 1991, Ser. No. 807,362

Claims priority, application United Kingdom, Jul. 14, 1988, 8816722

Int. Cl.[5] B01J *23/60*

U.S. Cl. 502—253 19 Claims

1. A catalyst which comprises zinc, together with an effective amount of a platinum group metal on a support which is a material having the silicalite structure, the framework of said material consisting essentially of silicon and oxygen atoms or silicon, zinc and oxygen atoms; provided that if the framework of said material consists essentially of silicon and oxygen atoms, said platinum group metal is other than palladium; and provided that if the framework of said material consists essentially of silicon, zinc and oxygen atoms, said platinum group metal is other than platinum.

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5,208,202

EXHAUST GAS CLEANER AND METHOD OF CLEANING EXHAUST GAS CATALYST FOR CLEANING EXHAUST GAS

Gyo Muramatsu; Kiyohide Yoshida; Satoshi Sumiya, and Akira Abe, all of Kumagaya, Japan, assignors to Kabushiki Kaisha Riken, Tokyo, Japan

Filed Sep. 25, 1991, Ser. No. 765,580

Claims priority, application Japan, Sep. 25, 1990, 2-256218; Sep. 25, 1990, 2-256219; Sep. 25, 1990, 2-256220; Sep. 25, 1990, 2-256221; Sep. 25, 1990, 2-256222

The portion of the term of this patent subsequent to Dec. 24, 2008, has been disclaimed.

Int. Cl.[5] B01J *23/04, 23/10*

U.S. Cl. 502—302 17 Claims

1. A catalyst for cleaning an exhaust gas containing substantially no fine carbonaceous particles, which is capable of removing nitrogen oxides from said exhaust gas regarded as an oxidizing atmosphere by utilizing unburned hydrocarbons contained in said exhaust gas as agents for reducing said nitrogen oxides, said catalyst being a mixture consisting essentially of:

(a) 10–80% by weight of one or more alkali metal elements selected from the group consisting of Na, K, Cs, Rb and Fr;

(b) 10–80% by weight of copper; and

(c) 10–80% by weight of one or more rare earth elements.

5,208,203

DIESEL ENGINE EXHAUST GAS-PURIFYING CATALYST

Makoto Horiuchi, and Koichi Saito, both of Himeji, Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

Filed Dec. 24, 1991, Ser. No. 812,941

Claims priority, application Japan, Jan. 7, 1991, 3-000201

The portion of the term of this patent subsequent to Dec. 10, 2008, has been disclaimed.

Int. Cl.[5] B01J *21/06, 23/56, 23/58, 23/60*

U.S. Cl. 502—302 5 Claims

1. A diesel engine exhaust gas-purifying catalyst which comprises a refractory three dimensional structure having deposited thereon a catalytic component comprising titania having dispersed and deposited thereon at least one noble metal selected from the group consisting of palladium, platinum and rhodium, and at least one additional element selected from the group consisting of scandium, yttrium, rare earth elements, alkali metals, alkaline earth metals, gold, silver, copper and zinc, said titania having a specific surface area in the range of 1 to 60 m^2/g, and said additional element being deposited in an amount of 1.5 to 12 g per liter of the refractory three dimensional structure.

5,208,204

THREE-WAY CATALYST FOR TREATING EMISSIONS FROM COMPRESSED NATURAL GAS FUELED ENGINES

Somasundaram Subramanian, Melvindale, Mich.; William L. H. Watkins, Toledo, Ohio, and Mohinder S. Chattha, Northville, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 7, 1991, Ser. No. 772,318

Int. Cl.[5] B01J *23/10*

U.S. Cl. 502—303 10 Claims

10. A three-way catalyst system for treating the exhaust of a compressed natural gas fueled engine operating substantially at or slightly rich of stoichiometry, the catalyst comprising:

a high surface area gamma alumina support impregnated discontinuously with an oxide selected from the group consisting of La_2O_3, WO_3, MoO_3, and mixtures thereof, in an amount of 3–20% by weight of the catalyst, and impregnated with 0.2–30% by weight palladium.

5,208,205

CATALYST SYSTEM FOR CONVERTING EMISSIONS OF A LEAN-BURN ENGINE

Somasundaram Subramanian, Melvindale; Robert J. Kudla, Warren, and Mohinder S. Chattha, Northville, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 7, 1991, Ser. No. 772,410

Int. Cl.[5] B01J *21/04, 23/40*

U.S. Cl. 502—333 12 Claims

1. A catalyst system for attaining high conversion of NO_x, HC, and CO contained in the emission flow from a lean-burn internal combustion engine, the system comprising:

(a) a first stage catalyst for treating nitric oxide in said emission flow, said first stage catalyst consisting of highly acidic gamma alumina having a pH_{pze} of less than 3;

(b) means for distributing a gaseous or liquid NO_x reductant into said emission stream prior to entering said first stage catalyst when the latter is at a temperature range of 550°–650° C., said reductant being selected from the group consisting of alkanes, alkenes, alkynes, aromatics, alcohols, aldehydes, ketones, ethers, and esters; and

(c) an oxidizing catalyst effective for treating the effluent from said first stage catalyst.

5,208,206

METHOD OF MANUFACTURING AN EXHAUST GAS PURIFYING CATALYST

Shigeru Yasaki; Yasutaka Yoshino, both of Tokyo; Kazunori Ihara, deceased, late of Iwakuni, and Kenji Ohkubo, Hiroshima, all of Japan, assignors to Tokyo Roki Co., Ltd., Kanagawa and Mazda Motor Corporation, Hiroshima, both of Japan

Filed Mar. 27, 1991, Ser. No. 675,258

Claims priority, application Japan, Mar. 30, 1990, 2-86768; Nov. 16, 1990, 2-312531

Int. Cl.[5] B01J *21/04, 23/42, 23/46, 32/00*

U.S. Cl. 502—334 14 Claims

1. A method of manufacturing an exhaust gas purifying catalyst support comprising the steps of:

preparing a carrier of heat-resistant alloy steel containing aluminum as a metallic carrier;

coating a first alumina slurry containing fine particles of hydrated alumina and water on a surface of said metallic carrier;

drying and calcining said first alumina slurry at 600° to 700° so that a first alumina layer is formed on the surface of said metallic carrier;

coating a second alumina slurry containing gamma-alumina particles, hydrated alumina and water on a surface of said first alumina layer; and

drying and calcining said second alumina slurry so that a second alumina layer is formed on the surface of said first alumina layer.

5,208,207

ELECTROCATALYST

Paul Stonehart, Madison, Conn.; Masahiro Watanabe, Yamanashi, Japan; Nobuo Yamamoto, Kanagawa, Japan; Toshihide Nakamura, Kanagawa, Japan; Noriaki Hara, Kanagawa, Japan, and Kazunori Tsurumi, Kanagawa, Japan, assignors to Tanaka Kikinzoku Kogyo K.K., Tokyo, Japan and Stonehart Associates, Inc., Madison, Conn.

Filed Feb. 26, 1992, Ser. No. 841,795

Int. Cl.[5] B01J *23/42, 23/44, 23/46*

U.S. Cl. 502—339 1 Claim

1. An electrocatalyst which comprises an inorganic support and a ternary alloy essentially consisting of 10 to 50 atomic percent of platinum, 10 to 50 atomic percent of palladium and 10 to 50 atomic percent of ruthenium.

5,208,208

HEAT-SENSITIVE RECORDING MATERIAL

Makoto Motoda, and Hideaki Senoo, both of Tokyo, Japan, assignors to Mitsubishi Paper Mills Limited, Tokyo, Japan

Filed Jul. 22, 1991, Ser. No. 733,830

Claims priority, application Japan, Jul. 25, 1990, 2-196818; Sep. 21, 1990, 2-253383

Int. Cl.[5] B41M *5/30*

U.S. Cl. 503—208 2 Claims

1. A heat-sensitive recording material comprising a support and a heat-sensitive recording layer formed in said support; said heat-sensitive recording layer containing an aromatic isocyanate compound, an imino compound as color developing agent and a silane modified acrylic resin constituting at least 1 to 40% by weight based on the total solids exclusive of the binder in the heat-sensitive recording layer.

5,208,209

FLUORAN COMPOUNDS, PROCESS FOR PREPARATION THEREOF AND RECORDING MATERIALS COMPRISING SAID COMPOUND

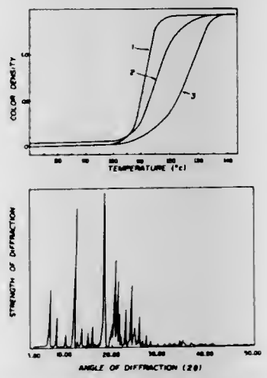
Atsuo Otsuji, Kamakura; Masakatsu Nakatsuka; Kiyoharu Hasegawa, both of Yokohama; Masatoshi Takagi, and Akihiro Yamaguchi, both of Kamakura, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Division of Ser. No. 584,219, Sep. 18, 1990, Pat. No. 5,087,706. This application Dec. 19, 1991, Ser. No. 810,095

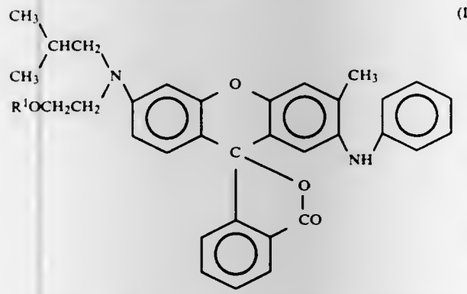
Claims priority, application Japan, Sep. 29, 1989, 1-252054

Int. Cl.[5] B41M *5/03, 5/26;* C07D *311/88*

U.S. Cl. 503—221 4 Claims



1. A recording material comprising the fluoran compound represented by the formula (I)



(I)

wherein R^1 is an alkyl group having from 1 to 4 carbon atoms.

5,208,210

THERMAL TRANSFER PRINTING

Ruediger Sens, Mannheim, and Karl-Heinz Etzbach, Frankenthal, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

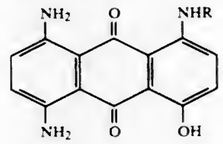
Filed Sep. 23, 1991, Ser. No. 763,638

Claims priority, application Fed. Rep. of Germany, Oct. 9, 1990, 4031984

Int. Cl.[5] B41M *5/035, 5/38*

U.S. Cl. 503—227 3 Claims

1. In a process for thermotransfer printing, wherein the improvement comprises using as the transfer dye an anthraquinone dye of the formula I



I

where R is alkyl, alkoxyalkyl, aryloxyalkyl, alkanoyloxyalkyl, alkoxycarbonyloxyalkyl or alkoxycarbonylalkyl, which may each contain up to 20 carbon atoms and whose carbon chains may be interrupted by from one to four oxygen atoms in ether function, or is C_5–C_8-cycloalkyl or phenyl which may each be substituted by C_1–C_4-alkyl or C_1–C_4-alkoxy.

5,208,211

IMAGE-RECEIVING SHEET FOR ELECTROPHOTOGRAPHY AND ELECTROPHOTOGRAPHIC METHOD USING THE SAME

Tsuneo Kurotori, Tokyo; Itsuo Ikeda, Sagamihara; Manabu Mochizuki, and Yuji Sawai, both of Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Jul. 30, 1991, Ser. No. 737,648

Claims priority, application Japan, Jul. 30, 1990, 2-201873; Aug. 31, 1990, 2-231456; Feb. 15, 1991, 3-42314

Int. Cl.[5] B41M *5/035*

U.S. Cl. 503—227 13 Claims

1. An image-receiving sheet for use in an electrophotographic method comprising a transparent support and an overcoat layer formed thereon, said overcoat layer (i) comprising a thermoplastic resin which has a fluidification initiation temperature lower than of a toner for image formation to be employed or that of a resin contained in said toner, and (ii) being white and opaque from being in a porous state, wherein said overcoat layer is capable of turning transparent when heated to said fluidification temperature.

5,208,212

HERBICIDAL COMPOSITIONS CONTAINING TRIAZOLINONES

Kathleen M. Poss, Lawreneeville, N.J.; Frederick W. Hotzman, Morrisville, Pa., and Jacques Meyer, Zofingen, Switzerland, assignors to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 852,424, Mar. 16, 1992, which is a division of Ser. No. 664,704, Mar. 5, 1991, Pat. No. 5,125,958, which is a continuation-in-part of Ser. No. 462,360, Dec. 28, 1989, abandoned, which is a continuation-in-part of Ser. No. 383,109, Jul. 20, 1989, abandoned, which is a continuation-in-part of Ser. No. 238,804, Aug. 31, 1988, abandoned. This application Oct. 30, 1992, Ser. No. 969,648

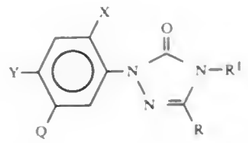
Int. Cl.[5] A01N *43/653, 39/02, 39/04*

U.S. Cl. 504—139 12 Claims

1. A synergistic herbicidal composition comprising a herbicidally effective amount of the combination of:

(1) a triazolinone of the formula

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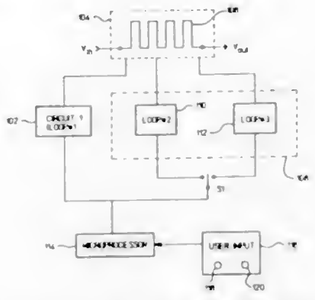
in which
R is halogen or lower alkyl;
R^1 is haloalkyl;
X is hydrogen, halogen, alkyl, haloalkyl, alkoxy or nitro;
Y is hydrogen, halogen, alkyl, haloalkyl, alkoxy, haloalkyl, halo lower alkylsulfinyl, or halo lower alkoxy;
Q is $-CH(R^2)C(R^3)(R^4)Q'$ or $-CH=C(R^4)Q'$;
R^2 is H or halogen;
R^3 is halogen;
R^4 is H or lower alkyl;
Q' is CO_2H, CO_2R^5, $CON(R^6)(R^7)$, CN, CHO, or $C(O)R^5$;
R^5 is alkyl, alkoxycarbonylalkyl, cycloalkyl, benzyl, chlorobenzyl, alkylbenzyl, or haloalkylbenzyl; and each of R^6 and R^7 is independently H, or a radical which is an alkyl, cycloalkyl, alkenyl, alkynyl, alkoxy, phenyl, benzyl, or SO_2R^6 (in which R^6 is other than H) or is one of said radicals substituted by halogen, alkyl, or cyano;
or a base-addition salt of the compound in which Q' is CO_2H; with the proviso that any alkyl, alkenyl, or alkynyl moiety have less than 6 carbon atoms and that any cycloalkyl moiety have 3 to 7 carbon atoms, and (2) dichloro- or chloro-lower alkylphenoxy lower alkanoic acids, or their corresponding herbicidally effective esters, or alkali metal or ammonium salts, in admixture with a suitable carrier.

5,208,213

VARIABLE SUPERCONDUCTING DELAY LINE HAVING MEANS FOR INDEPENDENTLY CONTROLLING CONSTANT DELAY TIME OR CONSTANT IMPEDANCE

Richard C. Ruby, Menlo Park, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 12, 1991, Ser. No. 864,429
Int. Cl.[5] H01P 9/00; H03H 11/16; H01B 12/02
U.S. Cl. 505—1 **15 Claims**



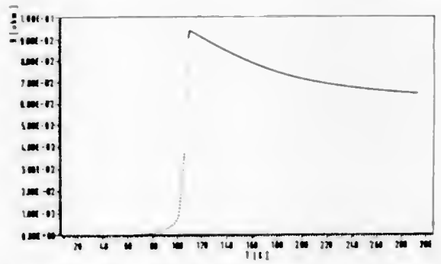
1. A variable superconducting delay line system for providing a time delay for a signal applied to the system, the system permitting a user to select either a constant delay time for the applied signal propagating through the system, or a constant impedance value for the system, comprising:
an insulative substrate having first and second surfaces oriented substantially parallel to one another;
a superconducting transmission line comprising:
(i) a high temperature superconducting trace on a first region of said first surface, said high temperature superconducting trace having an input end for receiving the applied signal and an output end for outputting the applied signal; and
(ii) a conductive layer on said second surface to function as a ground plane for said superconducting transmission line;
a capacitance control means coupled to said insulating substrate, for adjusting permittivity thereof to thereby control a capacitance C of said superconducting transmission line independently of an inductance L thereof;
inductance control means coupled to said insulating substrate for adjusting permeability thereof to thereby control the inductance L of said superconducting transmission line independently of the capacitance C; and
feedback control means for receiving:
(i) a predetermined delay time for delaying the signal applied to said input; and
(ii) one of:
(a) a predetermined constant delay time for the signal propagating through said superconducting transmission line, and
(b) a predetermined constant impedance value for said superconducting transmission line;
said feedback control means coupled to said transmission line for monitoring the capacitance C and the inductance L and further coupled to said capacitance control means and said inductance control means for adjusting one of:
(i) said capacitance control means and said inductance control means of said superconducting transmission line to obtain a product of LxC which maintains said predetermined constant delay time; and
(ii) said capacitance control means and said inductance control means of said superconducting transmission line to obtain a ratio of L/C which maintains said predetermined constant impedance value.

5,208,214

MULTIPHASE SUPERCONDUCTOR AND PROCESS FOR ITS PRODUCTION

Winfried Becker, Kelkheim, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

PCT No. PCT/EP89/01605, § 371 Date Aug. 19, 1991, § 102(e) Date Aug. 19, 1991, PCT Pub. No. WO90/07475, PCT Pub. Date Jul. 12, 1990
PCT Filed Dec. 23, 1989, Ser. No. 720,495
Claims priority, application Fed. Rep. of Germany, Dec. 29, 1988, 3844207
Int. Cl.[5] H01L 39/24; C04B 35/00
U.S. Cl. 501—1 **6 Claims**



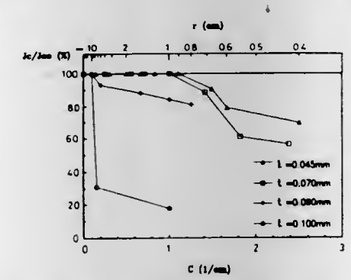
1. A multiphase ceramic superconductor which contains
a) an oxide ceramic superconductor of the overall composition $Bi_4(Sr,Ca)_kCu_{k-2}O_x$, where k is a number from 4-8, the Sr/Ca atomic ratio is 1:9 to 9:1, and, $x=4+2k+\delta$ where δ is between about 0 and 0.4; and
b) the superconducting phase strontium calcium indate $(Sr,Ca)In_2O_4$ having Sr/Ca atomic ratio of 1:0 to 0:1
with an a:b weight ratio of 1:0.428 to 1:9.

5,208,215

PROCESS FOR FABRICATING FLEXIBLE BI-PB-SR-CA-CU-O SUPERCONDUCTING TAPE

Kouth Chen, Taipei Shen; Lian-Haei Horng, Tao-Yen; Horng-Show Koo, Hsinchu; Weir-Mirn Hurng, Ping-tung, and Wun-Hsin Lee, Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Aug. 21, 1991, Ser. No. 747,976
Int. Cl.[5] H01C 39/14
U.S. Cl. 505—1 **2 Claims**



1. A process for fabricating a superconducting tape, comprising:
(a) preparing a $Bi_{1.81}Pb_{0.43}Sr_{1.71}Ca_{2.14}Cu_3O_x$ superconducting composition;
(b) filling a silver tube with the superconducting composition;
(c) gradually forming, from the filled silver tube, a tape with a thickness equal to or less than 0.07 mm through a series of at least two pressing steps, each pressing step being followed by a heat-treatment process which comprises raising gradually the temperature of the pressed tape from a room temperature of about 25° C. to an elevated temperature of about 843° C., maintaining the tape at the elevated temperature of about 843° C. for a period of about 24 to 48 hours, and decreasing gradually the elevated temperature to the room temperature.

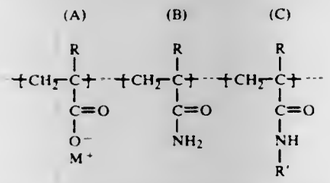
5,208,216

ACRYLAMIDE TERPOLYMER SHALE STABILIZING ADDITIVE FOR LOW VISCOSITY OIL AND GAS DRILLING OPERATIONS

C. Darwin Williamson, Sugar Land, Tex.; Dodd W. Fong, Naperville, Ill., and Robert K. Gabel, Sugar Land, Tex., assignors to Nalco Chemical Company, Naperville, Ill.

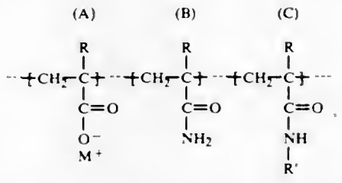
Continuation-in-part of Ser. No. 714,666, Jun. 13, 1991, abandoned. This application Jun. 30, 1992, Ser. No. 906,560
Int. Cl.[5] C09K 7/02
U.S. Cl. 507—120 **20 Claims**

1. A method for stabilizing a downhole shale formation, comprising the steps of:
(a) inverting a water-in-oil emulsion comprising a random hydrophobic acrylamide copolymer having the formula:



wherein R is a hydrogen or methyl group, M is hydrogen, an alkali metal, ammonium or amine group, and R' is an hydrocarbyl group having from 1 to about 6 carbon atoms, said inverted emulsion forming a polymer concentrate, wherein said (A) repeat units comprise from about 2 to about 50 mole percent of said copolymer, said (B) repeat units comprise from about 50 to about 98 mole percent of said copolymer and said (C) repeat units comprise from about 0.1 to about 15 mole percent of said copolymer;
(b) preparing an aqueous drilling fluid comprising a sufficient amount of said concentrate to give a copolymer concentration of from about 0.04 to about 1.8 pounds per barrel, from about 5 to about 50 pounds per barrel of potassium chloride, and a weighting agent, wherein the drilling fluid has a density from about 8 to about 18 pounds per gallon and a viscosity from about 5 to about 30 centistokes; and
(c) circulating said drilling fluid through a bore in the formation.

11. An aqueous based drilling fluid suitable for stabilizing a downhole shale formation, comprising:
(a) from about 0.04 to about 1.8 pounds per barrel of a random hydrophobic acrylamide copolymer having the formula:



wherein R is a hydrogen or methyl radical, M is hydrogen, an alkali metal, ammonium or amine cation, and R' is an hydrocarbyl radical having from 1 to about 6 carbon atoms, wherein said (A) repeat units comprise from about 2 to about 50 mole percent of said copolymer, said (B) repeat units comprise from about 50 to about 98 mole percent of said copolymer and said (C) repeat units comprise from about 0.1 to about 15 mole percent of said copolymer;
(b) from about 5 to about 50 pounds per barrel of potassium chloride;
(c) a weighting agent to provide a density from about 8 to about 18 pounds per gallon;
wherein the fluid has a viscosity of from about 5 to about 30 centistokes.

5,208,217

HEPATOSPECIFIC INSULIN ANALOGUES

Panayotis G. Katsoyannis, Manhassett, N.Y., assignor to Mount Sinai School of Medicine of The City University of New York, New York, N.Y.

Continuation of Ser. No. 340,929, Apr. 20, 1989, abandoned. This application Oct. 29, 1991, Ser. No. 785,146
Int. Cl.[5] A61K 37/26; C07K 7/40
U.S. Cl. 514—3 **14 Claims**

1. An analogue of a naturally occurring insulin having an A chain comprising amino acids A1 through A21 and a B chain comprising amino acids B1 through B30, in which analogue the A14 amino acid is substituted with an amino acid residue selected from the group consisting of tryptophan, naphtylalanine, N^{γ}-dansyl-a, γ-diaminobutyric acid, leucine, valine, alanine, isoleucine, proline, and methionine, said insulin analogue otherwise being sufficiently structurally similar to natural insulin so as to retain at least some therapeutically effective portion of insulin potency.

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5,208,218

T CELL GROWTH FACTOR GLYCOPROTEINS

Jacques Van Snick, Brussels; Catherine Uyttenhove, Chaumont-Gistoux, both of Belgium, and Richard J. Simpson, Melbourne, Australia, assignors to Ludwig Institute for Cancer Research, New York, Switzerland

Filed Sep. 19, 1988, Ser. No. 246,482
Int. Cl.[5] A61K *37/36;* C07K *15/14*
U.S. Cl. 514—8 6 Claims

1. An isolated biologically pure, mammalian T cell growth factor molecule which is a single chain glycoprotein having a molecular weight of from about 30 KDa to about 40 KDa and which supports interleukin-2 and interleukin-4 independent growth of helper T cells.

5,208,219

METHOD FOR INDUCING BONE GROWTH

Yasushi Ogawa, Pacifica; David K. Schmidt, Santa Cruz; Rosa Armstrong, Palo Alto; Ranga Nathan, Newark; Andrea Y. Thompson, Mountain View, and Saeid M. Seyedin, Saratoga, all of Calif., assignors to Celtrix Pharmaceuticals Inc., Santa Clara, Calif.

Filed Feb. 14, 1991, Ser. No. 655,313
Int. Cl.[5] A61K *37/02, 37/36*
U.S. Cl. 514—12 31 Claims

1. A method for inducing deposition and maturation of bone in a subject in need thereof, which comprises administering an osteogenically effective amount of activin in a pharmaceutically acceptable excipient to said subject.

5,208,220

COMPOSITION AND TREATMENT WITH BIOLOGICALLY ACTIVE PEPTIDES AND ANTIBIOTICS WHICH INHIBIT DNA GYRASE

Barry Berkowitz, Ft. Washington, Pa., assignor to Magainin Pharmaceuticals, Inc., Plymouth Meeting, Pa.

Continuation of Ser. No. 545,356, Jun. 27, 1990, abandoned.
This application Nov. 15, 1991, Ser. No. 798,253
Int. Cl.[5] A61K *37/02;* C07K *7/10*
U.S. Cl. 514—13 63 Claims

1. A process of inhibiting growth of a microbe in a host, comprising:

administering to a host at least one biologically active amphiphilic peptide and/or biologically active protein, said biologically active peptide or protein being an ion channel-forming peptide or protein; and

an antibiotic which inhibits DNA gyrase, said components being administered in a combined amount effective to inhibit growth of a microbe in a host.

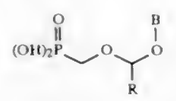
5,208,221

ANTIVIRAL (PHOSPHONOMETHOXY) METHOXY PURINE/PYRIMIDINE DERIVATIVES

Choung U. Kim, Madison; John C. Martin, Cheshire; Bing Y. Luh, Killingworth, and Peter F. Misco, Durham, all of Conn., assignors to Bristol-Myers Squibb Company, New York, N.Y.

Filed Nov. 29, 1990, Ser. No. 619,856
Int. Cl.[5] A61K *31/675;* C07F *9/02, 9/06*
U.S. Cl. 514—81 15 Claims

1. A compound of the formula



wherein

R is hydrogen, alkyl having 1 to 6 carbon atoms, hydroxyalkyl with 1 to 6 carbon atoms, or haloalkyl having 1 to 6 carbon atoms; and

B is a purine base or pyrimidine base

or a pharmaceutically acceptable salt thereof.

13. A method for treating a warm blooded animal infected with herpes simplex virus I, herpes simplex virus II, or human cytomegalovirus, which comprises administering to said warm blooded animal an effective amount of at least one compound of claim 1, or a salt, hydrate or solvate thereof.

14. A method for treating a warm blooded animal infected with murine leukemia virus, which comprises administering to said warm blooded animal an effective amount of at least one compound of claim 1, or a salt, hydrate or solvate thereof.

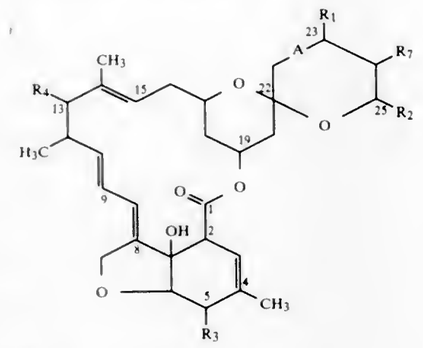
5,208,222

4"-AND 4'-ALKYLTHIO AVERMECTIN DERIVATIVES

Peter T. Meinke, New York, N.Y., and Helmut Mrozik, Matawan, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Mar. 28, 1991, Ser. No. 676,626
Int. Cl.[5] A61K *31/70, 31/365*
U.S. Cl. 514—30 8 Claims

1. A compound having the formula:



wherein:

A at the 22,23 position represents

(1) a single bond and wherein R_1 is

(a) hydrogen,

(b) hydroxy, or

(c) oxo; or

(2) a double bond and R_1 is absent;

R_2 is

(1) C_{1-4} alkyl,

(2) substituted C_{1-4} alkyl with 1 to 3 substituents selected from C_{4-6} cycloalkyl, phenyl, and halo,

(3) alpha-branched C_{3-8} alkyl,

(4) C_{2-8} alkenyl,

(5) C_{2-6} alkynyl,

(6) C_{1-6} alkoxy C_{1-6} alkyl,

(7) C_{1-6} alkylthio C_{1-6} alkyl,

(8) C_{4-6} cycloalkyl or C_{4-6} cycloalkenyl, either unsubstituted or substituted with 1 to 3 substitutents selected from

(a) methylene,

(b) halo, and

(c) C_{1-4} alkyl,

(9) 3 to 6 membered nitrogen, oxygen or sulfur containing heterocycle containing one heteroatom saturated or unsaturated, connected through a carbon atom on the heterocycle to C-25 either unsubstituted or substituted with 1 to 3 substitutents selected from

(a) C_{1-4} alkyl, and

(b) halo, or

(10) phenyl, either substituted or unsubs*' ted with 1 to 3 substitutents selected from

(a) C_{1-3} alkyl, and

(b) halo;

R_3 is

(1) hydroxy,

(2) C_{1-6} alkoxy,

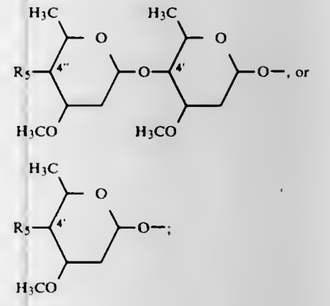
(3) C_{2-6} alkanoyloxy,

(4) oxo, or

(5) oximino;

R_7 is hydrogen or C_{1-6} alkyl, either straight chain or branched; and

R_4 is



wherein:

R_5 is

(1) $S(O)_nR_6$ wherein n is 0, 1 or 2, or

(2) $SCOR_6$

wherein:

R_6 is

(1) hydrogen,

(2) C_{1-8} alkyl either straight or branched chain and either unsubstituted or substituted with 1–3 substitutents selected from

(a) halo,

(b) hydroxy,

(c) C_{1-3} alkoxy,

(d) phenoxy,

(e) C_{1-3} alkylthio,

(f) C_{1-3} alkylsulfinyl,

(g) C_{1-3} alkylsulfonyl,

(h) amino,

(i) C_{2-6} alkanoylamino,

(j) C_{1-3} alkylamino,

(k) di(C_{1-3} alkyl)amino,

(l) halo C_{1-3} alkoxycarbonylamino,

(m) oxo,

(n) carboxy, and

(o) C_{1-3} alkoxycarbonyl,

(3) C_{2-8} alkanoyl either unsubstituted or substituted with 1–3 substitutents selected from

(a) halo,

(b) hydroxy,

(c) C_{1-3} alkoxy,

(d) phenoxy,

(e) C_{1-3} alkylthio,

(f) C_{1-3} alkylsulfinyl,

(g) C_{1-3} alkylsulfonyl,

(h) amino,

(i) C_{2-6} alkanoylamino,

(j) C_{1-3} alkylamino,

(k) di(C_{1-3} alkyl)amino,

(l) halo C_{1-3} alkoxycarbonylamino,

(m) oxo,

(n) carboxy, and

(o) C_{1-3} alkoxycarbonyl,

(4) C_{3-8} cycloalkyl either unsubstituted or substituted with 1–3 substitutents selected from

(a) halo,

(b) C_{1-3} alkoxy,

(c) sulfonamido,

(d) amino,

(e) C_{1-3} alkylamino,

(f) di(C_{1-3} alkyl)amino, and

(g) C_{2-6} alkanoylamino.

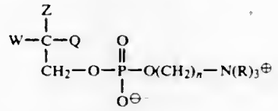
5,208,223

PHOSPHOCHOLINE DERIVATIVE INHIBITORS OF PHOSPHOLIPASE A_2

(1) Allan Wissner, Ardsley, N.Y.; Robert E. Schaub, Upper Saddle River, N.J.; Kenneth E. Green, Yorktown Heights, and Philip R. Hamann, Garnerville, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 612,745, Nov. 13, 1990, Pat. No. 5,144,045.
This application Jun. 3, 1992, Ser. No. 865,395
Int. Cl.[5] A61K *31/66, 31/675;* C07F *9/02, 9/28*
U.S. Cl. 514—92 6 Claims

(2) 1. A compound, including the individual R and S enantiomer and the racemic mixture, represented by the formula:

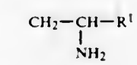


wherein:

A) n is an integer from 2 to 6;

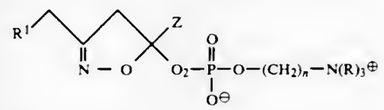
B) R is selected from the group consisting of C_1–C_4 alkyl; and

C) Q is



and W is hydrogen or hydroxyl, Z is CH_2—OX wherein R^1 and X are selected from the group consisting of C_1–C_{24} alkyl.

2. A compound, including the individual R and S enantiomer and the racemic mixture, represented by the formula:



wherein:

A) n is an integer from 2 to 6;

B) R is selected from the group consisting of C_1–C_4 alkyl; and

C) Z is —CH_2—O—X wherein R^1 and X are selected from the group consisting of C_1–C_{24} alkyl

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5,208,224

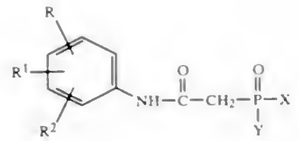
PHOSPHORUS CONTAINING COMPOUNDS AS ANTIHYPERCHOLESTEROLEMIC AND ANTIATHEROSCLEROTIC AGENTS

Gary L. Bolton; Janak K. Padia, both of Ann Arbor, and Bharat K. Trivedi, Farmington Hills, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Mar. 13, 1991, Ser. No. 668,534
Int. Cl.[5] A61K *31/66;* C07F *9/32, 9/40, 9/46*
U.S. Cl. 514—110 6 Claims

1. A compound of Formula I

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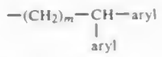
wherein

R, R^1 and R^2 are each independently hydrogen, alkyl of from one to six carbon atoms, alkoxy of from one to six carbon atoms, halogen, or trifluoromethyl;

X and Y are each independently alkyl of from one to twenty carbon atoms, with the proviso that X and Y are not both alkyl, aryl, $-OR^5$ wherein R^5 is

alkyl of from one to twenty carbon atoms,

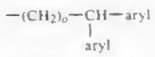
$-(CH_2)_m$-aryl wherein m is zero or an integer of 1, 2, or 3 or



wherein m is as defined above

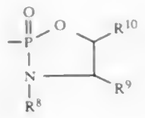


wherein R^6 and R^7 are each independently hydrogen, alkyl of from one to twenty carbon atoms, $-(CH_2)_o$-aryl wherein O is an integer of 1, 2, or 3 or



wherein O is as defined above or

X and Y are taken together with the phosphorus atom to which they are attached to form a ring denoted by



wherein R^8 is

hydrogen,

alkyl of from one to twenty carbon atoms, or

$-CH_2$-aryl and

R^9 and R^{10} are each independently hydrogen, alkyl of from one to twenty carbon atoms, or aryl; provided both X and Y are not $-OR^5$ wherein R^5 is alkyl of from one to six carbon atoms or phenyl; or a pharmaceutically acceptable base addition salt thereof

5. A method of treating hypercholesterolemia or atherosclerosis comprising administering to a mammal in need of such treatment an acyl-coenzyme A:cholesterol acyltransferase-inhibitory effective amount of a compound as defined in claim 1 in unit dosage form.

5,208,225
COMPOSITIONS CONTAINING FIXED COMBINATIONS

Roger M. Boissonneault, Long Valley, and Henry A. Miller, Jr., Lake Hopatcong, both of N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 647,189, Jan. 24, 1991, abandoned, which is a continuation of Ser. No. 366,796, Jun. 15, 1989, abandoned, which is a continuation-in-part of Ser. No. 168,106, Mar. 14, 1988, abandoned, which is a continuation-in-part of Ser. No. 73,367, Jul. 6, 1987, abandoned, which is a continuation of Ser. No. 834,263, Feb. 26, 1986, abandoned. This application Oct. 22, 1991, Ser. No. 781,568

Int. Cl.[5] A61K *31/56*

U.S. Cl. 514—178 6 Claims

1. A method for treating menopausal symptoms associated with hormone deficiency in a postmenopausal female host comprising continuous, daily administration to said host of a fixed combination in the form of a pharmaceutical composition for oral administration comprising:

(a) about 1–20 mcg ethinyl estradiol, and

(b) about 0.1–1.0 mg norethindrone acetate, wherein the ratio of norethindrone acetate to ethinyl estradiol is about 50:1 to about 200:1.

5,208,226
MEDICAMENTS

James B. D. Palmer, Greenford, United Kingdom, assignor to Glaxo Group Limited, London, England

Continuation of Ser. No. 578,606, Sep. 7, 1990, abandoned. This application Sep. 3, 1991, Ser. No. 753,906

Claims priority, application United Kingdom, Sep. 8, 1989, 8920391; Oct. 20, 1989, 8923645

Int. Cl.[5] A61K *31/57, 9/14*

U.S. Cl. 514—171 11 Claims

1. A pharmaceutical composition comprising effective amounts of salmeterol or a physiologically acceptable salt thereof and beclomethasone dipropionate as a combined preparation for simultaneous, sequential or separate administration by inhalation in the treatment of respiratory disorders.

5,208,227
METHOD, COMPOSITIONS, AND COMPOUNDS FOR MODULATING BRAIN EXCITABILITY

Kelvin W. Gee, Hacienda Heights; Michael B. Bolger, Los Alamitos, both of Calif.; Roberta E. Brinton, New York, N.Y.; Deborah J. Burke, Hacienda Heights, Calif., and Bruce S. McEwen, Englewood, N.J., assignors to University of Southern California, Los Angeles, Calif.

Continuation of Ser. No. 379,047, Jul. 13, 1989, abandoned, which is a continuation-in-part of Ser. No. 89,362, Aug. 25, 1987, abandoned. This application Feb. 13, 1991, Ser. No. 655,275

The portion of the term of this patent subsequent to Jun. 9, 2009, has been disclaimed.

Int. Cl.[5] A61K *31/58, 31/56;* C07J *43/00, 41/00*

U.S. Cl. 514—172 12 Claims

1. A method for modulating the excitability of the central nervous system as mediated by the ability to regulate chloride ion channels associated with the GABA-benzodiazepine receptor complex comprising administering to a patient in need of such treatment a central nervous system excitability modulating pharmaceutically effective amount of a 3-hydroxylated-5-reduced neuroactive steriod compound that activates the GABA-benzodiazepine receptor-chloride ionopore complex by attaching to a brain receptor site other than any previously known recognition site of said complex, but associated with and still activating said complex.

5,208,228
AMINOMACROLIDES AND DERIVATIVES HAVING IMMUNOSUPPRESSIVE ACTIVITY

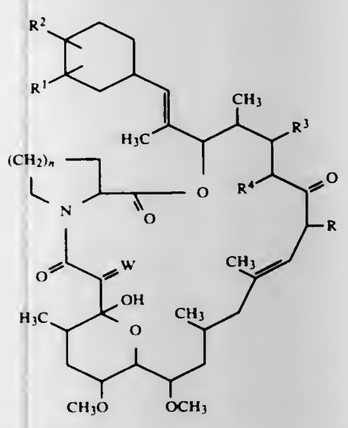
Hyun O. Ok, Edison; Thomas R. Beattie, Scotch Plains; Michael H. Fisher, Ringoes; Matthew J. Wyvratt, Mountainside, and Mark Goulet, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 598,440, Oct. 22, 1990, abandoned, which is a continuation-in-part of Ser. No. 434,158, Nov. 13, 1989, abandoned. This application May 13, 1991, Ser. No. 698,888

Int. Cl.[5] A61K *31/33, 31/535, 31/44;* C07D *498/12*

U.S. Cl. 514—183 27 Claims

1. A compound of formula I:



I

or a pharmaceutically acceptable salt thereof, wherein:

R is

1) methyl,
2) ethyl,
3) propyl, or
4) allyl;

R^1 and R^2 are, independently,

1) $-N_3$;
2) —NHCN;
3) $-NR^5R^6$, wherein R^5 and R^6 are independently,
   a) hydrogen,
   b) C_1-C_{12} alkyl, unsubstituted or substituted with R^7 and R^8, wherein R^7 and R^8 are independently selected from the group consisting of:
      i) hydrogen,
      ii) —OH,
      iii) C_1-C_6alkoxy,
      iv) —O—CO—C_1-C_6alkyl,
      v) $-NR^9R^{10}$, wherein R^9 and R^{10} are independently, hydrogen, or C_1-C_6alkyl, unsubstituted or substituted with phenyl
      vi) $-CONR^9R^{10}$,
      vii) $-CO_2H$,
      viii) —CO—O—C_1-C_6alkyl,
      ix) —S—C_1-C_6alkyl,
      x) —SO—C_1-C_6alkyl,
      xi) $-SO_2-C_1$-C_6alkyl,
      xii) halo,
      xiii) $-C_3$-C_7-cycloalkyl,
      xiv) phenyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are independently selected from the group consisting of:
         A) hydrogen,
         B) C_1-C_6alkyl,
         C) —OH,
         D) C_1-C_6alkoxy,
         E) —O—CO—C_1-C_6alkyl,
         F) $-NR^9R^{10}$, wherein R^9 and R^{10} are as defined above,
         G) $-CONR^9R^{10}$,
         H) $-CO_2H$,
         I) —CO—O—C_1-C_6alkyl,
         J) halo,
         K) $-NO_2$,
         L) —CN, and
         N) $-CF_3$,
      xv) naphthyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above, and
      xvi) $-CF_3$,
   c) C_3-C_{12} alkenyl, unsubstituted or substituted with R^7 and R^8, wherein R^7 and R^8 are as defined above,
   d) C_3-C_7 cycloalkyl, unsubstituted or substituted with R^7 and R^8, wherein R^7 and R^8 are as defined above,
   e) phenyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above,
   f) naphthyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above,
   g) $-SO_2$-phenyl, wherein phenyl is unsubstituted or substituted with with M, W and Y, wherein M, W and Y are as defined above,
   h) $-SO_2-C_1$-C_6alkyl,
   i) or where R^5 and R^6 and the N to which they are attached may form an unsubstituted or substituted 3- to 7-membered heterocyclic ring which may include one or two additional heteroatoms independently selected from the group consisting of O, S, or NR^9, wherein R^9 is as defined above, and where the substituent(s), attached to the carbon atom(s) in the heterocyclic ring is/are independently selected form the group consisting of:
      i) hydrogen,
      ii) —OH,
      iii) C_1-C_6 alkoxy,
      iv) —O—CO—C_1-C_6 alkyl,
      v) $-NR^9R^{10}$, wherein R^9 and R^{10} are independently, hydrogen, or C_1-C_6alkyl, unsubstituted or substituted with phenyl,
      vi) $-CONR^9R^{10}$,
      vii) $-CO_2H$,
      viii) —CO—O—C_1-C_6 alkyl,
      ix) —SH,
      x) halo,
      xi) phenyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above,
      xii) naphthyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above, and
      xiii) $-CF_3$;
4) $-N(R^5)CO-O-R^{11}$, wherein R^5 is as defined above and R^{11} is C_1-C_{12} alkyl, unsubstituted or substituted with R^7 and R^8, wherein R^7 and R^8 are as defined above;
5) $-N(R^5)CO-R^{12}$, wherein R^5 is as defined above and R^{12} is
   a) hydrogen,
   b) C_1-C_{12} alkyl, unsubstituted or substituted with R^7 and R^8, wherein R^7 and R^8 are as defined above,
   c) C_3-C_{12} cycloalkyl, unsubstituted or substituted with R^7 and R^8, wherein R^7 and R^8 are as defined above,
   d) phenyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above,
   e) naphthyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above, or
   f) where R^5 and R^{12} and the —NCO— to which they are attached may form an unsubstituted or substituted 5- to 7-membered heterocyclic ring which may include one or two additional heteroatoms independently selected from the group consisting of O, S, or NR^9, wherein R^9 is as defined above;
6) $-N(R^{13})COCH(R^{17})NR^5R^6$ wherein R^5 and R^6 are as defined above, R^{13} is selected from the definitions of R^5, and R^{17} is:

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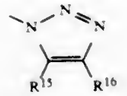
a) hydrogen,
b) C_1-C_4 alkyl, unsubstituted or substituted with R^{18}, wherein R^{18} is selected from the group consisting of:
i) —OH,
ii) C_1-C_6alkoxy,
iii) —O—CO—C_1-C_6alkyl,
iv) —SH,
v) —S—C_1-C_6alkyl,
vi) —NR^9R^{10}, wherein R^9 and R^{10} are as defined above,
vii) —CO_2H,
viii) —$CONH_2$,
ix) imidazolyl,
x) indolyl,
xi) phenyl, and
xii) p-hydroxyphenyl, or
c) phenyl;

7) —$N(R^{13})CO(CH_2)_mNR^5R^6$, wherein m is 0 or 2-6, R^5 and R^6 are as defined above, and R^{13} is selected from the definitions of R^5, or where R^{13} and R^5 and the —$NCO(CH_2)_mN$— to which they are attached may form an unsubstituted or substituted 5- to 7-membered heterocyclic ring;

8) —$N{=}C(R^{13})$—NR^5R^6, wherein R^5 and R^6 are as defined above, and R^{13} is selected from the definitions of R^5, and wherein if either R^5 or R^6 are hydrogen, the tautomeric structure —$NHC(R^{13}){=}NR^{5or6}$ is also possible;

9) —$N(R^{14})_3{}^+A^-$, wherein R^{14} is C_1-C_6 alkyl, unsubstituted or substituted with phenyl or naphthyl, and wherein A^- is a counterion;

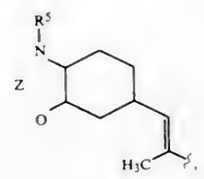
10)

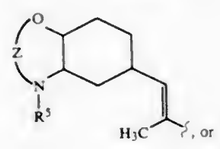


wherein R^{15} and R^{16} are independently,
a) hydrogen,
b) phenyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above,
c) naphthyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above,
d) —CN,
e) —CF_3,
f) —CO—C_1-C_6alkyl, or
g) —CO—O—C_1-C_6alkyl;

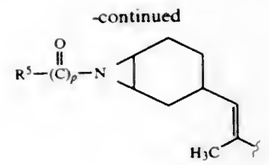
11) hydroxy or C_1-C_6 alkoxy, with the proviso that R^1 and R^2 are not simultaneously hydroxy, C_1-C_6 alkoxy, or combinations thereof; or

12) where R^1 and R^2 may both be connected to form a 3- to 7-membered heterocyclic ring of the form:





-continued



wherein p is zero or one, R^5 is as defined above, and Z is
a) —CO—,
b) —CS—,
c) —CO—C_1-alkyl,
d) —CS—C_1-alkyl, or
e) C_1-C_2-alkyl, wherein the alkyl may be unsubstituted or substituted with one or more of the following:
i) —OH,
ii) C_1-C_6 alkyl,
iii) C_1-C_6 alkoxy,
iv) —O—CO—C_1-C_6 alkyl,
v) —NR^9R^{10}, wherein R^9 and R^{10} are as defined above,
vi) —$CONR^9R^{10}$,
vii) —CO_2H,
viii) —CO—O—C_1-C_6 alkyl,
ix) —S—C_1-C_6 alkyl,
x) —SO—C_1-C_6 alkyl,
xi) —SO_2—C_1-C_6 alkyl,
xii) halo,
xiii) phenyl, unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above, or
xiv) naphthyl unsubstituted or substituted with M, W and Y, wherein M, W and Y are as defined above;

R^3 is hydrogen, hydroxy, or C_1-C_6 alkoxyl;
R^4 is hydrogen, or R^3 and R^4 taken together form a double bond;
X is 0 or (H,OH); and
n is 1 or 2.

24. A method for the treatment of immunoregulatory disorders or diseases comprising the administration to a mammalian species in need of such treatment an effective amount of the compound of claim **1**.

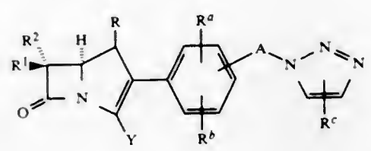
5,208,229

2-(1,2,3-TRIAZOLYLSUBSTITUTED)PHENYL CARBAPENEM ANTIBACTERIAL AGENTS

Susan M. Schmitt, Scotch Plains, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 793,270, Nov. 13, 1991, abandoned, which is a continuation of Ser. No. 619,647, Nov. 29, 1990, abandoned. This application Mar. 23, 1992, Ser. No. 859,599
Int. Cl.[5] **A61K** *31/40*; **C07D** *487/04*
U.S. Cl. 514—210 **13 Claims**

1. A compound of the formula I:



I

wherein:
R is H or CH_3;
R^1 and R^2 are independently H, CH_3—, CH_3CH_2—, $(CH_3)_2$, $HOCH_2$—, (R)—$CH_3CH(OH)$—, $(CH_3)_2C(OH)$—, FCH_2—, F_2CH—, F_3C—, (R)—$CH_3CH(F)$—, CH_3CF_2—, or $(CH_3)_2C(F)$—;
R^a and R^b are independently hydrogen or:
a) a trifluoromethyl group: —CF_3;
b) a halogen atom: —Br, —Cl, —F, or —I;

c) C_1-C_4 alkoxy radical: —OCl_4 alkyl, wherein the alkyl is optionally mono-substituted by R^q, where
R^q is a member selected from the group consisting of —OH, OCH_3, —CN, —$C(O)NH_2$, —$OC(O)NH_2$, CHO, —$OC(O)N(CH_3)_2$, —SO_2NH_2, —$SO_2N(CH_3)_2$, —$SOCH_3$, —SO_2CH_3, —F, —CF_3, —$COOM^a$ (where M^a is hydrogen, alkali metal, methyl or phenyl), tetrazolyl (where the point of attachment is the carbon atom of the tetrazole ring and one of the nitrogen atoms is mono substituted by M^a as defined above) and SO_3M^b (where M^b is hydrogen or an alkali metal);
d) a hydroxy group: —OH;
e) a carbonyloxy radical: —$O(C{=}O)R^2$, where
R^s is C_{1-4} alkyl or phenyl, each of which is optionally mono-substituted by R^q as defined above;
f) a carbamoyloxy radical:—$O(C{=}O)N(R^y)R^z$ where
R^y and R^z are independently H, C_{1-4} alkyl (optionally mono-substituted by R^q as defined above), together a 3- to 5-membered alkylidene radical to form a ring (optionally substituted with R^q as defined above) or together a 2 to 4-membered alkylidene radical, interrupted by —O, —S—, —S(O)—, —$S(O)_2$—or —NR^e—, to form a ring (where R^e is hydrogen, C_1-C_4alkyl, and C_1-C_4alkyl mono-substituted with R^q and the ring is optionally mono substituted with R^q as defined above);
g) a sulfur radical: —$S(O)_n$ —R^s where n=0-2, and R^s is defined above;
h) a sulfamoyl group: —$SO_2N(R^y)R^z$ where R^y and R^z are as defined above;
i) azido: N_3
j) a formamido group: —$N(R^t)(C{=}O)H$,

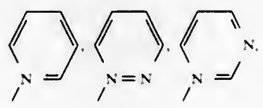
R^t is H or C_{1-4} alkyl, and the alkyl thereof is optionally mono substituted by R^q as defined above;
k) a (C_1-C_4 alkyl)carbonylamino radical: —$N(R^t)(C{=}O)C_{1-4}$ alkyl, where R^t is as defined above, and the alkyl group is also optionally mono substituted by R^q as defined above;
l) a (C_1-C_4 alkoxy) carbonylamino radical: —$N(R^t)(C{=}O)OC_{1-4}$ alkyl, where R^t is as defined above, and the alkyl group is also optionally mono-substituted by R^q as defined above;
m) a ureido group: —$N(R^t)(C{=}O)N(R^y)R^z$ where R^t, R^y and R^z are as defined above;
n) a sulfonamido group: —$N(R^t)SO_2R^s$, where R^s and R^t are as defined above;
o) a cyano group —CN;
p) a formyl or acetalized formyl radical: —(C=O)H or —$CH(OCH_3)_2$;
q) (C_1-C_4 alkyl)carbonyl radical wherein the carbonyl is acetalized: —$C(OCH_3)_2C_{1-4}$ alkyl, where the alkyl is optionally mono-substituted by R^q as defined above;
r) carbonyl radical: —$(C{=}O)R^s$, where R^s is as defined above;
s) a hydroximinomethyl radical in which the oxygen or carbon atom is optionally substituted by a C_1-C_4 alkyl group: —$(C{=}NOR^z)R^y$ where R^y and R^z are as defined above, except they may not be joined together to form a ring;
t) a (C_1-C_4 alkoxy)carbonyl radical: —$(C{=}O)OC_{1-4}$ alkyl, where the alkyl is optionally mono-substituted by R^q as defined above;
u) a carbamoyl radical: —$(C{=}O)N(R^y)R^z$ where R^y and R^z are as defined above;
v) an N-hydroxycarbamoyl or N(C_1-C_4 alkoxy)carbamoyl radical in which the nitrogen atom may be additionally substituted by a C_1-C_4 alkyl group: —$(C{=}O)$—$N(OR^y)R^z$ where R^y and R^z are as defined above, except they may not be joined together to form a ring;
w) a thiocarbamoyl group: —$(C{=}S)N(R^y)R^z$ where R^y and R^z are as defined above;
x) carboxyl: —$COOM^b$, where M^b is as defined above;
y) thiocyanate: —SCN;
z) trifluoromethylthio: —SCF_3;
aa) tetrazolyl, where the point of attachment is the carbon atom of the tetrazole ring and one of the nitrogen atoms is mono substituted by hydrogen, an alkali metal or a C_1-C_4 alkyl optionally substituted by R^q as defined above;
ab) an anionic function selected from the group consisting of: phosphono [P=O(OM^b)]; alkylphosphono (P=O-(OM^b)—[O(C_1-C_4 alkyl)]); alkylphosphinyl [P=O-(OM^b)—(C_1-C_4 alkyl)]; phosphoramido [P=O-$(OM^b)N(R^y)R^z$ and P=$O(OM^b)NHR^x$]; sulfino (SO_2M^b); sulfo (SO_3M^b); acylsulfonamides selected from the structures $CONM^bSO_2R^x$, $CONM^bSO_2N(R^y)R^z$, $SO_2NM^bCON(R^y)R^z$; and SO_2NM^bCN, where
R^x is phenyl where the phenyl is optionally mono-substituted by R^q, as defined above; M^b is as defined above; and R^y and R^z are as defined above;
ac) C_5-C_7 cycloalkyl group in which one of the carbon atoms in the ring is replaced by a heteroatom selected from O, S, NH or N(C_1-C_4 alkyl) and in which one additional carbon atom may be replaced by NH or N(C_1-C_4 alkyl), and in which at least one carbon atom adjacent to each heteroatom has both of its attached hydrogen atoms replaced by one oxygen thus forming a carbonyl moiety and there are one or two carbonyl moieties present in the ring;
ad) C_2-C_4 alkenyl radical, optionally mono-substituted by one of the substituents a) to ac) above and phenyl which is optionally substituted by R^q as defined above;
ae) C_2-C_4 alkynyl radical, optionally mono-substituted by one of the substituents a) to ac) above;
af) C_1-C_4 alkyl radical;
ag) C_1-C_4 alkyl mono substituted by one of the substituents a)-ac) above;
ah) a 2-oxazolidinonyl moiety in which the point of attachment is the nitrogen atom of the oxazolidinone ring, the ring oxygen atom is optionally replaced by a heteroatom selected from S and NR^t (where R^t is as defined above) and one of the saturated carbon atoms of the oxazolidinone ring is optionally mono substituted by one of the substituents a) to ag) above;
R^c is



but independently selected from R^a and from each other if more than one R^c is present, and is attached to a ring carbon atom;
R^d is R^a as defined hereinabove, hydrogen or —NR^yR^z (where R^y and R^z are defined hereinabove);

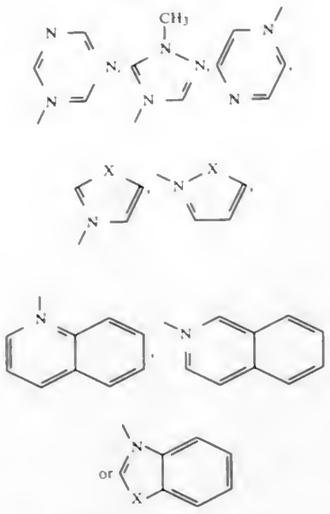


is selected from the group consisting of



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where X = O, S, or NR_a.
R_a = Me, CH_2CN, CH_2CONH_2, $CH_2CO_2^-$ or $CH_2SO_3^-$

A and A' are independently $(CH_2)_m$—Q—$(CH_2)_n$, where m is zero to 6 and n is zero to 6 and Q is a covalent bond, O, S, SO, SO_2, NH, $—SO_2NH—$, $NHSO_2—$, CONH—, —NHCO—, $—SO_2N(C_1\text{-}C_4alkyl)—$, $—N(C_1\text{-}C_4alkyl)\text{-}SO_2—$, $—CON(C_1\text{-}C_4alkyl)—$, $—N(C_1\text{-}C_4alkyl)CO—$, —CH=CH—, —CO—, —OC(O)—, —C(O)O—or $N(C_1\text{-}C_4alkyl)$; provided when m=n=zero that Q is not a covalent bond;

Y is selected from:

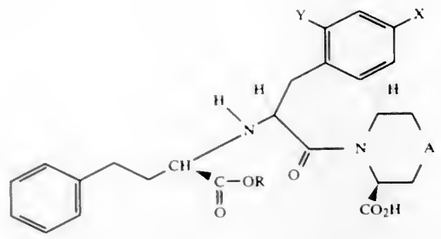
i) COOH or a pharmaceutically acceptable ester,

ii) COOM wherein M is an alkali metal, or

iii) COO^-;

provided that when Y is other than iv) and a quaternary nitrogen heteroatom is present, a counterion Z^- is provided,

or the pharmaceutically acceptable salt thereof



wherein

A is methylene;

R is hydrogen or a C_1-C_4 alkyl; and

X and Y are each independently hydrogen, nitro or amino, with the proviso that one of X and Y is hydrogen and one of X and Y is other than hydrogen; and

pharmaceutically acceptable salts thereof.

5,208,230

AMINO AND NITRO CONTAINING TRICYCLIC COMPOUNDS USEFUL AS INHIBITORS OF ACE

Gary A. Flynn, and Douglas W. Beight, both of Cincinnati, Ohio, assignors to Merrell Dow Pharmaceuticals, Cincinnati, Ohio

Continuation of Ser. No. 777,625, Oct. 23, 1991, abandoned, which is a continuation-in-part of Ser. No. 633,572, Dec. 21, 1990, abandoned. This application Jun. 25, 1992, Ser. No. 905,494

Int. Cl.[5] **A61K** *31/55;* **C07D** *471/04, 487/04, 498/04*

U.S. Cl. 514—214 **18 Claims**

1. A compound of the formula

5,208,231

TRIAZOLE COMPOUND AND INSECTICIDE COMPOSITION CONTAINING THE SAME

Toshiya Kimata; Tetsuo Tsuruya; Shunji Hayashi; Kazuhiro Kojima; Satoshi Yamanaka, all of Tokyo, and Kiyoshi Sakuma, Honjo, all of Japan, assignors to S.D.S. Biotech K.K., Tokyo, Japan

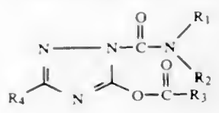
Division of Ser. No. 528,384, May 25, 1990, Pat. No. 5,155,124. This application Apr. 20, 1992, Ser. No. 870,836

Claims priority, application Japan, May 26, 1989, 1-131281; Dec. 19, 1989, 1-327165

Int. Cl.[5] **A01N** *43/84, 43/78;* **C07D** *417/12, 413/12*

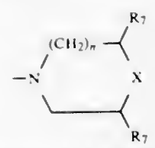
U.S. Cl. 514—227.8 **2 Claims**

1. A triazole compound having the formula (I):

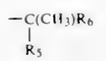


(I)

wherein R_1 and R_2 represent a hydrogen atom, a C_1-C_6 alkyl group or a dialkylcarbamoyl group having C_1-C_6 alkyl group, R_3 represents the structure



wherein X represents O or S, R_7 independently represents a hydrogen atom or a methyl group, and N=O or 1; R_4 represents



where R_5 represents a hydrogen atom, a C_1-C_4 alkyl group, R_6 represents a C_1-C_6 alkyl group or R_5 and R_6 may be bonded to form a C_2-C_7 alkylene group, with the proviso that R_1 and R_2 cannot be dialkylcarbamoyl groups at the same time.

5,208,232

PIPERIDINE COMPOUNDS AND THEIR PREPARATION AND USE

Palle Jakobsen, and Jorgen Dreger, both of Værløse, Denmark, assignors to Novo Nordisk A/S, Måløv, Denmark

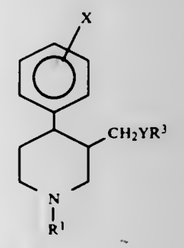
Division of Ser. No. 337,301, Apr. 13, 1989, Pat. No. 5,017,585, which is a continuation-in-part of Ser. No. 106,154, Oct. 8, 1987, Pat. No. 4,877,799. This application Mar. 22, 1991, Ser. No. 673,729

Claims priority, application Denmark, Nov. 3, 1986, 5232/86; Jun. 25, 1987, 3234/87; Apr. 28, 1988, 2310/88

Int. Cl.[5] **C07D** *417/06, 413/06;* **A61K** *31/535, 31/54*

U.S. Cl. 514—228.2 **10 Claims**

1. A method of treating anoxia, ischemia, migraine, epilepsy or head injury, which comprises the step of administering to the mammal an effective calcium-uptake-inhibitory amount of a piperidine compound selected from those having the Formula I



(I)

wherein

R^3 is 3,4-methylenedioxyphenyl, phenyl, or naphthyl, which are optionally substituted with one or more halogen, $C_{1\text{-}6}$-alkoxy, phenoxy, cyano, mono or poly halogenated $C_{1\text{-}6}$-alkyl, $C_{2\text{-}6}$-alkenyl, $C_{1\text{-}6}$-alkyl, or $C_{3\text{-}5}$-alkylene,

R^1 is $C_{1\text{-}8}$-alkyl substituted with piperidino, morpholino, thiomorpholino, dioxolanyl, or tetrahydrofuranyl, wherein the heterocyclic ring is optionally substituted with $C_{1\text{-}6}$-alkyl,

X is hydrogen, halogen, trifluoromethyl, hydroxy, cyano, or $C_{1\text{-}8}$-alkoxy,

Y is O or S;

and a pharmaceutically-acceptable acid addition salt thereof.

5,208,233

ANTI-HYPERTENSIVE COMPOSITIONS OF SECONDARY AMINE-NITRIC OXIDE ADDUCTS AND USE THEREOF

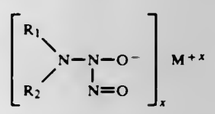
Larry K. Keefer, Bethesda; David A. Wink, Hagerstown, both of Md.; Tambra M. Dunams, Florence, Ala., and Joseph A. Hrabie, Frederick, Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Continuation-in-part of Ser. No. 409,552, Sep. 15, 1989, Pat. No. 5,039,705. This application Aug. 12, 1991, Ser. No. 743,892

Int. Cl.[5] **A61K** *31/33, 31/535*

U.S. Cl. 514—231.8 **8 Claims**

1. An injectable pharmaceutical composition comprising an effective amount of a compound of the Formula:



I

wherein R_1 and R_2 together with the nitrogen atom are bonded to form a heterocyclic group of the Formula



wherein Z is 1 to 5, M^{+x} is a pharmaceutically acceptable cation, and x is the valence of the cation; and a pharmaceutically acceptable sterile carrier.

5,208,234

SUBSTITUTED IMIDAZOLE PHOSPHONIC AND PHOSPHINIC ACID DERIVATIVES

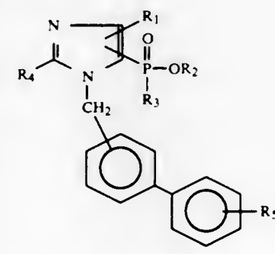
Michael A. Poss, Lawrenceville, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Mar. 10, 1992, Ser. No. 851,373

Int. Cl.[5] **A61K** *31/535, 31/415;* **C07D** *413/14;* **C07F** *9/28*

U.S. Cl. 514—235.8 **8 Claims**

1. A compound of the formula



I

or a pharmaceutically acceptable salt or prodrug thereof

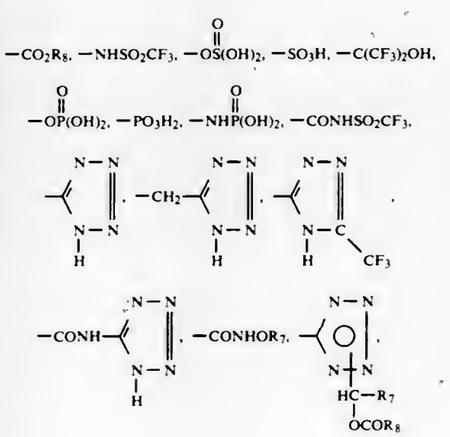
where R_1 is hydrogen, halogen, $—CF_3$ or $—CF_2CF_3$;

R_2 is hydrogen or R_6;

R_3 is hydroxy or R_7;

R_4 is alkyl, alkenyl or alkynyl or an alkyl, alkenyl or alkynyl group substituted with one or more F or $—CO_2R_8$ groups; cycloalkyl; (cycloalkyl)alkyl of 4 to 10 carbon atoms; (cycloalkyl)alkenyl or (cycloalkyl)alkynyl of 5 to 10 carbon atoms; $—NR_{11}R_{12}$; $—(CH_2)_nZ(CH_2)_pR_{14}$; benzyl or benzyl substituted with 1 or 2 halogens, alkoxy of 1 to 4 carbon atoms, alkyl of 1 to 4 carbon atoms, haloalkyl or nitro; $—SR_{15}$; or $—OR_{15}$;

R_5 is an acid moiety such as hydrogen,

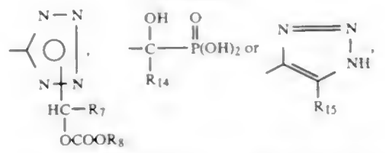


—CO_2R_8, —$NHSO_2CF_3$, —$OS(OH)_2$, —SO_3H, —$C(CF_3)_2OH$,

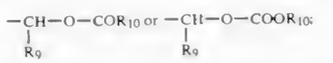
—$OP(OH)_2$, —PO_3H_2, —$NHP(OH)_2$, —$CONHSO_2CF_3$,

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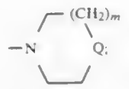
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R_6 is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, arylalkyl, alkylaryl or phenyl;
R_7 is alkyl of 1 to 6 carbon atoms, alkylaryl, cycloalkyl of 3 to 6 carbon atoms or OR_6;
R_8 is hydrogen, alkyl, perfluoroalkyl of 1 to 8 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl, benzyl,



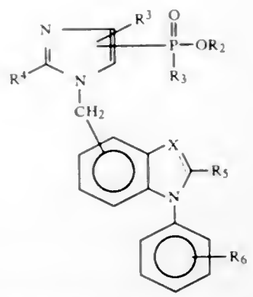
R_9 is hydrogen, alkyl, aryl, alkylaryl, arylalkyl or cycloalkyl;
R_{10} is alkyl, aryl, alkylaryl, arylalkyl or cycloalkyl;
R_{11} and R_{12} are independently hydrogen, alkyl of 1 to 6 carbon atoms, benzyl, α-methylbenzyl, or taken together with the nitrogen atom to which they are attached form a ring of the formula



R_{13} is hydrogen, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl or benzyl;
R_{14} is hydrogen; alkyl of 1 to 6 carbon atoms; cycloalkyl; alkenyl or alkynyl of 2 to 4 carbon atoms; or the above alkyl, cycloalkyl, alkenyl or alkynyl group optionally substituted with F or $—CO_2R_8$;
R_{15} is alkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, heterocyclo, (heterocyclo)alkyl or haloalkyl;
R_{16} is hydrogen, alkyl of 1 to 5 carbon atoms or phenyl;
R_{17} is —CN, $—NO_2$ or $—CO_2R_8$;
Q is $—CH_2$, —O—, or $—NR_9$;
Z is —O—, —S— or $—NR_{13}$;
m is 0, or the integer 1;
n is an integer of 1 to 5; and
p is an integer of 1 to 5.

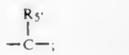
5,208,235
INDOLE- AND BENZIMIDAZOLE-SUBSTITUTED IMIDAZOLE DERIVATIVES
Michael A. Poss, Lawrenceville, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.
Filed Mar. 10, 1992, Ser. No. 849,118
Int. Cl.[5] **A61K** *31/535, 31/445;* **C07D** *413/14;* **C07F** *9/28*
U.S. Cl. 514—235.8 **19 Claims**

1. A compound of the formula

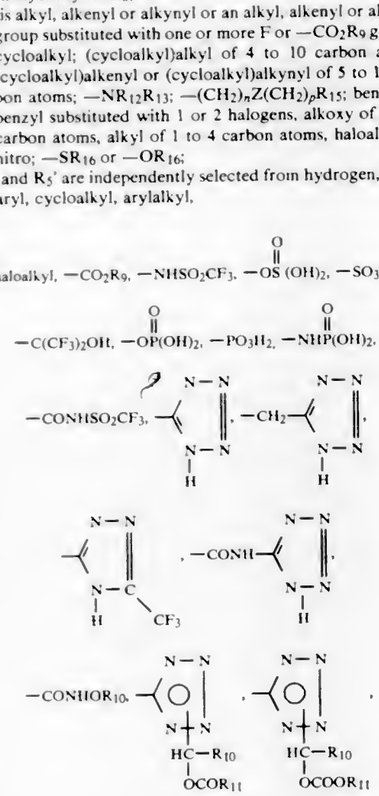


or a pharmaceutically acceptable salt or prodrug thereof;

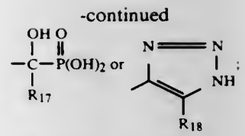
where X is —N— or



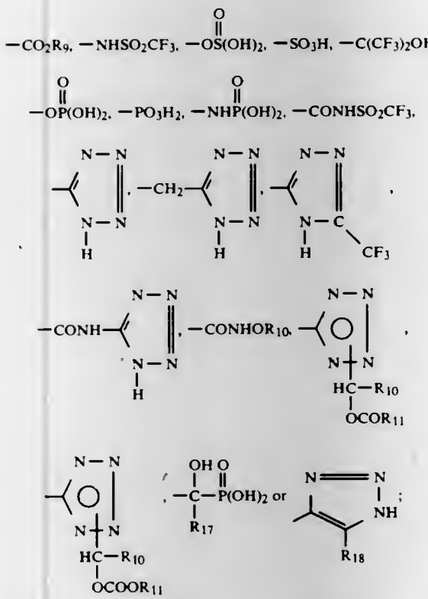
the broken line adjacent to the X atom represents the optional presence of a double bond, provided that if X is nitrogen, the double bond must be present;
R_1 is hydrogen, halogen, $—CF_3$ or $—CF_2CF_3$;
R_2 is hydrogen or R_7;
R_3 is hydroxy or R_8;
R_4 is alkyl, alkenyl or alkynyl or an alkyl, alkenyl or alkynyl group substituted with one or more F or $—CO_2R_9$ groups; cycloalkyl; (cycloalkyl)alkyl of 4 to 10 carbon atoms; (cycloalkyl)alkenyl or (cycloalkyl)alkynyl of 5 to 10 carbon atoms; $—NR_{12}R_{13}$; $—(CH_2)_nZ(CH_2)_pR_{15}$; benzyl or benzyl substituted with 1 or 2 halogens, alkoxy of 1 to 4 carbon atoms, alkyl of 1 to 4 carbon atoms, haloalkyl or nitro; $—SR_{16}$ or $—OR_{16}$;
R_5 and R_5' are independently selected from hydrogen, alkyl, aryl, cycloalkyl, arylalkyl,



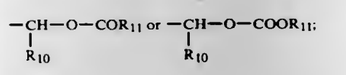
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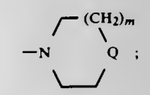
R_6 is an acid moiety such as hydrogen,



R_7 is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, arylalkyl, alkylaryl or phenyl;
R_8 is alkyl of 1 to 6 carbon atoms, alkylaryl, cycloalkyl of 3 to 6 carbon atoms or OR_7;
R_9 is hydrogen, alkyl, perfluoroalkyl of 1 to 8 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl, benzyl,



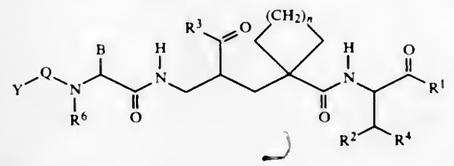
R_{10} is hydrogen, alkyl, aryl, alkylaryl, arylalkyl or cycloalkyl;
R_{11} is alkyl, aryl, alkylaryl, arylalkyl or cycloalkyl;
R_{12} and R_{13} are independently hydrogen, alkyl of 1 to 6 carbon atoms, benzyl, α-methylbenzyl, or taken together with the nitrogen atom to which they are attached form a ring of the formula



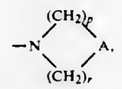
R_{14} is hydrogen, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl or benzyl;
R_{15} is hydrogen; alkyl of 1 to 6 carbon atoms; cycloalkyl; alkenyl or alkynyl of 2 to 4 carbon atoms; or the above alkyl, cycloalkyl, alkenyl or alkynyl group optionally substituted with F or $—CO_2R_9$;
R_{16} is alkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, heterocyclo, (heterocyclo)alkyl or haloalkyl;
R_{17} is hydrogen, alkyl of 1 to 5 carbon atoms or phenyl;
R_{18} is —CN, $—NO_2$or $—CO_2R_9$;
Q is $—CH_2$, —O—, or $—NR_{10}$;
Z is —O—, —S— or $—NR_{14}$;
m is 0, or the integer 1;
n is an integer of 1 to 5; and
p is an integer of 1 to 5.

5,208,236
N-(ACYLAMINOMETHYL)GLUTARYL AMINO ACIDS AND USE
Bernard R. Neustadt, West Orange, N.J., assignor to Schering Corporation, Kenilworth, N.J.
Filed Sep. 23, 1992, Ser. No. 950,535
Int. Cl.[5] **A61K** *31/195, 31/535;* **C07C** *275/16;* **C07D** *295/15*
U.S. Cl. 514—237.5 **11 Claims**

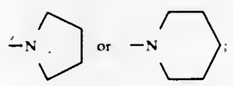
1. A compound having the structural formula



wherein:
R^1 and R^3 are independently selected from the group consisting of hydroxy, lower alkoxy, aryllower alkoxy, amino, lower alkylamino and di-(lower alkyl)amino;
R^2 is H or hydroxy;
R^4 is aryl, substituted aryl, heteroaryl or substituted heteroaryl;
R^6 is H or $R^7—(CH_2)_3—$, wherein R^7 is amino or (aryllower alkoxy)carbonylamino;
Q is —C(O)— or $—SO_2—$;
Y is lower alkyl, lower alkoxy, aryllower alkoxy, amino, lower alkylamino, di-(lower alkyl)amino, or a group of the formula



wherein A is a bond, $—N(R^5)—$, or —O—; p and r are independently 2 or 3; and wherein R^5 is H or lower alkyl;
B is H or $Z—(CH_2)_m—$
Z is amino, lower alkylamino, di-(lower alkyl)amino, (aryllower alkoxy)carbonylamino, (lower alkoxy)carbonylamino



m = 1,2,3,4 or 5; and
n = 1,2 or 3; or
or a pharmaceutically acceptable addition salt thereof.

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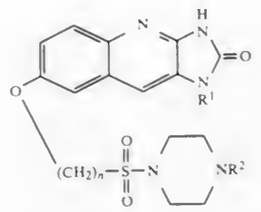
5,208,237

7-OXYPROPYLSULFONAMIDO-IMIDAZO[4,5-B]QUINOLIN-2-ONES

Piyasena Hewawasam, Middletown, and Nicholas A. Meanwell, East Hampton, both of Conn., assignors to Bristol-Meyers Squibb Company, New York, N.Y.

Filed Apr. 3, 1992, Ser. No. 862,879
Int. Cl.[5] A61K *31/495;* C07D *487/04*
U.S. Cl. 514—254 17 Claims

1. A compound of the formula



wherein
R^1 is H, or C_1–C_4 lower alkyl;
R^2 is H, $(CH_2)_mR^3$; benzoxazol-2yl, or benzothiazol-2-yl;
R^3 is C_1–C_8 alkyl, C_4–C_8 cycloalkyl, or substituted or unsubstituted phenyl, wherein the substituents are halogen, alkoxy or trifluoromethyl;
m is an integer of 1–3; and
n is an integer of 1–5;
or pharmaceutically acceptable salt thereof.

16. A method for inhibiting blood platelet aggregation in a mammal which comprises administering a therapeutically effective amount of a compound of claim 1 or a pharmaceutically acceptable salt thereof.

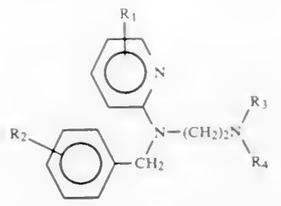
5,208,238

AGENTS FOR POTENTIATING THE EFFECTS OF ANTITUMOR AGENTS AND COMBATING MULTIPLE DRUG RESISTANCE

Ann C. King, Chapel Hill, N.C., assignor to Burroughs Wellcome Company, Research Triangle Park, N.C.

Division of Ser. No. 539,837, Jun. 18, 1990, Pat. No. 5,124,339.
This application Jun. 10, 1992, Ser. No. 896,305
Int. Cl.[5] A01N *43/60;* A61K *31/495*
U.S. Cl. 514—255 10 Claims

1. A method of increasing the sensitivity of a tumor to an antineoplastic agent, which tumor is harbored in a subject and which tumor is resistant to said antineoplastic agent, comprising concurrently administering to said subject an antineoplastic agent and a potentiating agent, said potentiating agent selected from the class consisting of



wherein:
R_1 is selected from the class consisting of halogen, —COOH, —CH=CH—COOH, —CH_2COOH, or —$(CH_2)_2$COOH;
R_2 is selected from the class consisting of hydrogen, halogen, C_{1-4} alkoxy and C_{1-4} alkyl; and
R_3 and R_4 are the same or different and are selected from the class consisting of hydrogen and C_{1-4} alkyl, or NR_3R_4 is pyrrolidino;
and the pharmaceutically acceptable salts thereof, said potentiating agent being provided in an amount effective to increase the sensitivity of said tumor to said antineoplastic agent.

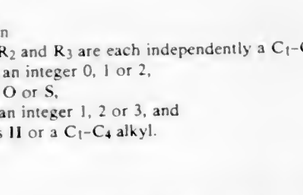
5,208,239

FUNGICIDAL PYRIDINYLPYRIMIDINE COMPOUNDS

Michael J. Robson, Bracknell, and Paul A. Worthington, Maidenhead, both of England, assignors to Imperial Chemical Industries PLC, London, United Kingdom

Filed Oct. 31, 1991, Ser. No. 785,646
Claims priority, application United Kingdom, Nov. 15, 1990, 9024873
Int. Cl.[5] A61K *31/505;* C07D *239/24, 401/04*
U.S. Cl. 514—256 8 Claims

1. A compound of formula (I):



(I)

wherein R^1 is an optional substituted phenyl with one or more members of the group consisting of halogen, C_{1-4} alkyl, C_{1-4} alkoxy, C_{1-4} haloalkoxy, C_{2-4} alkenyl, C_{2-4} alkynyl, C_{1-4} haloalkyl and phenyl, C_{3-6} cycloalkyl optionally substituted by alkyl; R^2, R^3, R^4, R^5, R^6 and R^7 are independently hydrogen, C_{1-4} alkyl, C_{1-4} haloalkyl, C_{1-4} alkoxy or N'R"; Z is a linking group and is —C≡C—, —CR^8=CR^{10}— or —CR^8R^9—$CR^{10}CR^{11}$—; R^8, R^9, R^{10}, R^{11}, R' and R" are independently hydrogen or C_{1-4} alkyl; provided that when R^1 is alkyl Z is not —CR^8R^9—$CR^{10}R^{11}$—; and acid addition salts or metal complexes thereof.

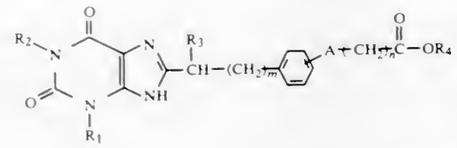
5,208,240

8-SUBSTITUTED PURINES AS SELECTIVE ADENOSINE RECEPTOR AGENTS

Norton P. Peet, Cincinnati; Nelsen L. Lentz, West Chester, and Mark W. Dudley, Somerville, all of Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Filed Mar. 12, 1991, Ser. No. 667,943
Int. Cl.[5] C07D *473/01;* A61K *31/52*
U.S. Cl. 514—263 13 Claims

1. A compound of the formula



wherein
R_1, R_2 and R_3 are each independently a C_1–C_4 alkyl,
m is an integer 0, 1 or 2,
A is O or S,
n is an integer 1, 2 or 3, and
R_4 is H or a C_1–C_4 alkyl.

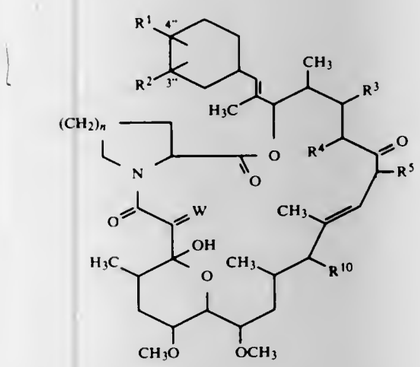
5,208,241

N-HETEROARYL, N-ALKYLHETEROARYL, N-ALKENYLHETEROARYL AND N-ALKYNYLHETEROARYLMACROLIDES HAVING IMMUNOSUPPRESSIVE ACTIVITY

Hyun O. Ok, Edison; Joung Goulet, Westfield, and Peter J. Sinclair, Highland Park, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

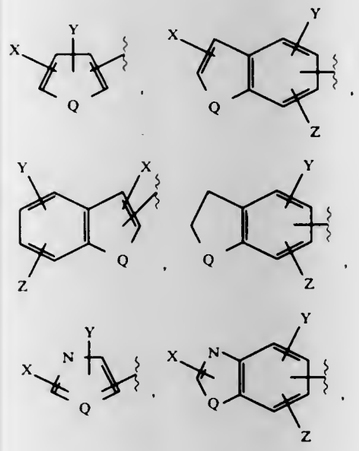
Filed Sep. 9, 1991, Ser. No. 756,660
Int. Cl.[5] C07D *521/00;* A61K *31/395*
U.S. Cl. 514—291 32 Claims

1. A compound of Formula I:

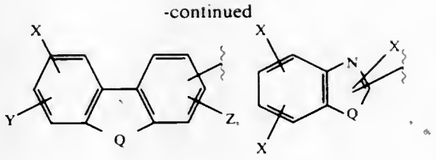


I

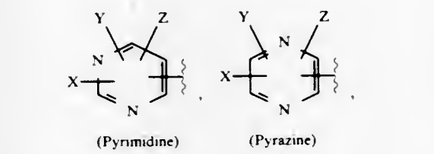
or a pharmaceutically acceptable salt thereof, wherein:
R^1 is selected from:
(1) —NR^6R^7,
(2) —NR^6COR^7,
(3) —$NR^7CO_2R^6$,
(4) —$NR^7CO_2R^6$,
(5) —$NR^6CO_2R^7$, and
(6) —$NR^6CHR^6R^7$;
R^6 is selected from
(1) heteroaryl, wherein heteroaryl is selected from the group consisting of:



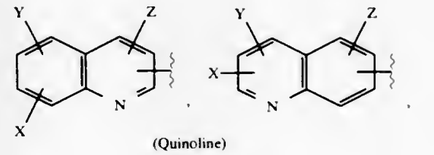
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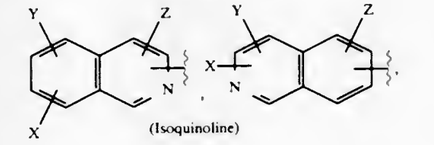
(Pyridine) (Pyridazine)



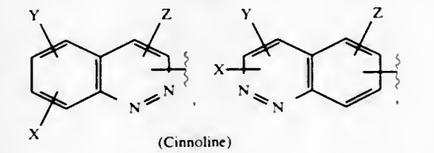
(Pyrimidine) (Pyrazine)



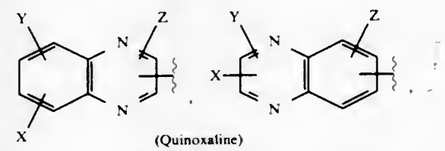
(Quinoline)



(Isoquinoline)



(Cinnoline)



(Quinoxaline)

wherein Q is $N(R^8)$—, —O—, or —S—;
(2) substituted heteroaryl, wherein heteroaryl is as defined above, and in which the substituents are X, Y and Z;
(3) heteroaryl-C_{1-10}alkyl, wherein heteroaryl is as defined above;
(4) substituted heteroaryl-C_{1-10}alkyl, wherein heteroaryl is as defined above and in which the heteroaryl group is substituted by X, Y and Z and the alkyl portion may be substituted with one or more of the substituent(s) selected from:
(a) hydroxy,
(b) oxo,
(c) C_{1-6}alkoxy,
(d) phenyl-C_{1-3}alkoxy,

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(e) substituted phenyl-C_{1-3}alkoxy, in which the substituents on phenyl are X, Y and Z,
(f) —OCO—C_{1-6}alkyl,
(g) —NR^8R^9, wherein R^8 and R^9 are independently selected from
(i) hydrogen,
(ii) C_{1-10}alkyl unsubstituted or substituted with one or more of the substituent(s) selected from:
(a') phenyl, which is unsubstituted or substituted with X, Y and Z,
(b') —OH,
(c') C_{1-6}alkoxy,
(d') —CO_2H,
(e') —CO_2—C_{1-6}alkyl,
(f') —C_{3-7}cycloalkyl, and
(g') —OR^{11},
(iii) C_{3-10}alkenyl unsubstituted or substituted with one or more of the substituent(s) selected from:
(a') phenyl, which is unsubstituted or substituted with X, Y and Z,
(b') —OH,
(c') C_{1-6}alkoxy,
(d') —CO_2H,
(e') —CO_2—C_{1-6}alkyl,
(f') —C_{3-7}cycloalkyl, and
(g') —OR^{11},
(iv) or where R^8 and R^9 and the N to which they are attached may form a heterocyclic ring selected from the group consisting of: morpholine, thiomorpholine, piperidine, and piperizine,
(h) —NR^8CO—C_{1-6}alkyl-R^9, wherein R^9 is as defined above,
(i) —NR^8CO_2—C_{1-6}alkyl-R^9,
(j) —$NR^8CONR^8R^9$,
(k) —$OCONR^8R^9$,
(l) —$COOR^8$,
(m) —CHO,
(n) phenyl,
(o) substituted phenyl in which the substituents are X, Y and Z,
(p) —$S(O)_p$—C_{1-6}alkyl, and
(q) —OR^{11};
(5) heteroaryl-C_{1-10}alkyl wherein heteroaryl is as defined above and one or more of the alkyl carbons is replaced by a group selected from: —NR^8—, —O—, —$S(O)_p$—, —CO_2—, —O_2C—, —$CONR^8$—, —NR^8CO—, —NR^8CONR^9—;
(6) substituted heteroaryl-C_{1-10}alkyl wherein heteroaryl is as defined above and one or more of the alkyl carbons is replaced by a group selected from: —NR^8—, —O—, —$S(O)_p$—, —CO_2—, —O_2C—, —$CONR^8$—, —NR^8CO—, and —NR^8CONR^9—, the heteroaryl group is substituted with X, Y, and Z, and the alkyl group may be substituted with one or more of the substituent(s) selected from:
(a) hydroxy,
(b) oxo,
(c) C_{1-6}alkoxy,
(d) phenyl-C_{1-3}alkoxy,
(e) substituted phenyl-C_{1-3}alkoxy, in which the substituents on phenyl are X, Y and Z,
(f) —OCO—C_{1-6}alkyl,
(g) —NR^8R^9, wherein R^8 and R^9 are as defined above,
(h) —NR^8CO—C_{1-6}alkyl, wherein R^8 is as defined above,
(i) —NR^8CO_2—C_{1-6}alkyl,
(j) —$NR^8CONR^8R^9$,
(k) —$OCONR^8R^9$,
(l) —$COOR^8$,
(m) —CHO,
(n) phenyl,
(o) substituted phenyl in which the substituents are X, Y and Z,
(p) —$S(O)_p$—C_{1-6}alkyl, and
(q) —OR^{11};
(7) heteroaryl-C_{3-10}alkenyl wherein heteroaryl is as defined above and alkenyl contains one to four double bonds;
(8) heteroaryl-C_{3-10}alkenyl wherein heteroaryl is as defined above and alkenyl contains one to four double bonds and wherein one or more of the alkyl carbons is replaced by a group selected from: —NR^8—, —O—, —$S(O)_p$—, —CO_2—, —O_2C—, —$CONR^8$—, —NR^8CO—, and —NR^8CONR^9—;
(9) substituted heteroaryl-C_{3-10}alkenyl wherein heteroaryl is as defined above and alkenyl contains one to four double bonds and wherein one or more of the alkyl carbons may be replaced by a group selected from: —NR^8—, —O—, —$S(O)_p$—, —CO_2—, —O_2C—, —$CONR^8$—, —NR^8CO—, —NR^8CONR^9, —NR^8CONR^9, the heteroaryl group is substituted with X, Y, and Z, and the alkyl group may be substituted with one or more of the substituent(s) selected from:
(a) hydroxy,
(b) oxo,
(c) C_{1-6}alkoxy,
(d) phenyl-C_{1-3}alkoxy,
(e) substituted phenyl-C_{1-3}alkoxy, in which the substituents on phenyl are X, Y and Z,
(f) —OCO—C_{1-6}alkyl,
(g) —NR^8R^9, wherein R^8 and R^9 as defined above,
(h) —NR^8CO—C_{1-6}alkyl, wherein R^8 is as defined above,
(i) —NR^8CO_2—C_{1-6}alkyl,
(j) —NR^8CONR^9,
(k) —$OCONR^8R^9$,
(l) —$COOR^8$,
(m) —CHO,
(n) phenyl,
(o) substituted phenyl in which the substituents are X, Y and Z,
(p) —$S(O)_p$—C_{1-6}alkyl, and
(q) —OR^{11};

R^2 is independently selected from:
(1) the definitions of R^1;
(2) hydroxy;
(3) phenyloxy;
(4) substituted phenyloxy in which the substituents are X, Y and Z;
(5) 1- or 2-naphthyloxy;
(6) substituted 1- or 2-naphthyloxy in which the substituents are X, Y and Z;
(7) biphenyloxy;
(8) substituted biphenyloxy in which the substituents are X, Y and Z;
(9) C_{1-10}alkoxy;
(10) substituted-C_{1-10}alkoxy in which one or more substituent(s) is(are) selected from:
(a) hydroxy,
(b) oxo,
(c) C_{1-6}alkoxy,
(d) phenyl-C_{1-3}alkoxy,
(e) substituted phenyl-C_{1-3}alkoxy, in which the substituents on phenyl are X, Y and Z,
(f) —OCO—C_{1-6}alkyl,
(g) —NR^8R^9, wherein R^8 and R^9 are as defined above
(h) —NR^6CO—C_{1-6}alkyl, wherein R^6 is as defined above,
(i) —$COOR^6$, wherein R^6 is as defined above,
(j) —CHO,
(k) phenyl,
(l) substituted phenyl in which the substituents are X, Y and Z,
(m) 1- or 2-naphthyl,
(n) substituted 1- or 2-naphthyl in which the substituents are X, Y and Z,
(o) biphenyl,
(p) substituted biphenyl in which the substituents are X, Y and Z,
(q) —OR^{11}, and
(r) —$S(O)_p$—C_{1-6}alkyl;
(11) C_{3-10}alkenyloxy;

(12) substituted C_{3-10}alkenyloxy in which one or more substituent(s) is(are) selected from:
(a) hydroxy,
(b) oxo,
(c) C_{1-6}alkoxy,
(d) phenyl-C_{1-3}alkoxy,
(e) substituted phenyl-C_{1-3}alkoxy, in which the substituents on phenyl are X, Y and Z,
(f) —OCO—C_{1-6}alkyl,
(g) —NR^8R^9, wherein R^8 and R^9 are as defined above
(h) —NR^8CO—C_{1-6}alkyl, wherein R^8 is as defined above,
(i) —$COOR^8$, wherein R^8 is as defined above,
(j) —CHO,
(k) phenyl,
(l) substituted phenyl in which the substitutents are X, Y and Z,
(m) 1- or 2-naphthyl,
(n) substituted 1- or 2-naphthyl in which the substituents are X, Y and Z,
(o) biphenyl,
(p) substituted biphenyl in which the substituents are X, Y and Z,
(q) —OR^{11}; and
(15) —OR^{11};

R^7 is selected from
(1) hydrogen, and
(2) C_{1-10}alkyl, unsubstituted or substituted with, one or more of the substitutent(s) selected from:
(a) hydroxy,
(b) oxo,
(c) C_{1-6}alkoxy,
(d) phenyl-C_{1-3}alkoxy,
(e) substituted phenyl-C_{1-3}alkoxy, in which the substituents on phenyl are X, Y and Z,
(f) —OCO—C_{1-6}alkyl, and
(g) —NR^8R^9, wherein R^8 and R^9 are as defined above;

R^3 is hydrogen, hydroxy, —OR^{11}, or C_{1-6}alkoxy;
R^4 is hydrogen, or R^3 and R^4 taken together form a double bond;
R^5 is
1) methyl,
2) ethyl,
3) propyl, or
4) allyl;

R^{10} is hydrogen, hydroxy, —OR^{11} or fluoro;
R^{11} is selected from:
(a) —$PO(OH)O^-M^+$, wherein M^+ is a positively charged inorganic or organic counterion selected from the group consisting of: ammonium, sodium, lithium, potassium, calcium, magnesium, dicyclohexylamine, N-methyl-D-glucamine, arginine and lysine,
(b) —$SO_3^-M^+$,
(c) —$CO(CH_2)_qCO_2^-M^+$, wherein q is 1 to 3, and
(d) —CO—C_{1-6}alkyl-NR^8R^9, wherein R^8 and R^9 are as defined above and the alkyl is unsubstituted or substituted with one or more substituents selected from:
(i) hydroxy,
(ii) C_{1-6}alkoxy,
(iii) —$NR^{16}R^{17}$, wherein R^{16} and R^{17} are independently selected from:
(a') hydrogen, and
(b') C_{1-6}alkyl,
(iv) —$COOR^6$, wherein R^6 is as defined above,
(v) phenyl,
(iv) substituted phenyl in which the substituents are X, Y and Z,
(vii) heteroaryl,
(viii) —SH, and
(ix) —S—C_{1-6}alkyl;

W is 0 or (H_2OH);
X, Y and Z independently are selected from:
(1) hydrogen,
(2) C_{1-7}alkyl,
(3) C_{2-6}alkenyl,
(4) halogen,
(5) —$(CH_2)_m$—NR^8R^9, wherein R^8 and R^9 are as defined above, and m is 0, 1 or 2,
(6) —CN,
(7) —CHO,
(8) —CF_3,
(9) —SR^{12}, wherein R^{12} is hydrogen, C_{1-6}alkyl, trifluoromethyl, or phenyl,
(10) —SOR^{12}, wherein R^{12} is as defined above,
(11) —SO_2R^{12}, wherein R^{12} is as defined above,
(12) —$CONR^8R^9$, wherein R^8 and R^9 are as defined above,
(13) $R^{13}O(CH_2)_m$— wherein R^{13} is hydrogen, C_{1-3}alkyl, hydroxy-C_{2-3}alkyl, phenyl, R^{11} or naphthyl and m is as defined above,
(14) —$CH(OR^{14})(OR^{15})$, wherein R^{14} and R^{15} are C_{1-3}alkyl or taken together form an ethyl or propyl bridge,

(15) $R^{13}CO(CH_2)_m$—

wherein R^{13} and m are as defined above,

(16) $R^{13}OC(CH_2)_m$—

wherein R^{13} and m are as defined above, and
(17) —OR^{11};
or any two of X, Y and Z may be joined to form a saturated ring dioxolanyl or dioxanyl; and
n is 1 or 2.

22. A pharmaceutical composition for the treatment of immunoregulatory disorders or diseases comprising a pharmaceutical carrier and a therapeutically effective amount of the compound of claim **1**.

5,208,242

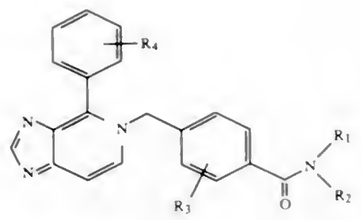
5-SUBSTITUTED-4-PHENYL-5H-IMIDAZO[4,5-C]PYRIDINE DERIVATIVES

Ish K. Khanna, Skokie, and Richard M. Weier, Lake Bluff, both of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Filed Aug. 26, 1992, Ser. No. 935,761
Int. Cl.[5] **C07D** *471/04;* **A61K** *31/53*
U.S. Cl. 514—303 **10 Claims**

1. A compound of the formula

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or a pharmaceutically acceptable acid addition salt thereof, wherein

R_1 and R_2 are each independently selected from the group consisting of hydro, straight or branched chain alkyl having 1 to 6 carbon atoms or cycloalkyl having 3 to 8 carbon atoms;

R_3 is a group substituted at one or more of the 2, 3, 5 or 6 positions of the phenyl ring said group being independently selected from hydrido, alkyl having 1 to 6 carbon atoms, halogen, alkoxy having 1 to 6 carbon atoms and thioalkyl wherein the alkyl has 1 to 6 carbon atoms; and

R_4 is a group substituted at one or more of the 2, 3, 4, 5 or 6 positions of the phenyl ring, said group being independently selected from hydrido, alkyl having 1 to 6 carbon atoms, thioalkyl wherein the alkyl has 1 to 6 carbon atoms, alkoxy having 1 to 6 carbon atoms and fluoro.

5,208,243

5-ISOQUINOLINESULFONAMIDES

Jean-Louis Peglion, Le Vesinet; Jean-Paul Vilaine, Chatenay Malabry; Nicole Villeneuve, Rueil Malmaison, and Philip Janiak, Clichy, all of France, assignors to Adir et Compagnie, Courbevoie, France

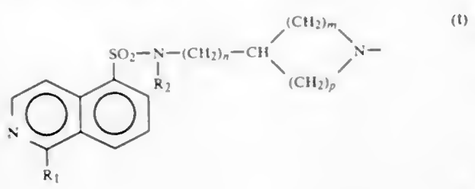
Filed Jul. 30, 1992, Ser. No. 922,991

Claims priority, application France, Jul. 31, 1991, 91 09719

Int. Cl.[5] A61K *31/47;* **C07D** *401/12*

U.S. Cl. 514—309 **9 Claims**

1. A compound selected from those of formula (I):



(I)

in which:

n is 0 or 1 to 4 inclusive,

m and p are 1 to 4 inclusive, it being understood that the sum m + p is 2, 3, 4 or 5,

r is 1 to 6 inclusive,

R_1 represents hydrogen, chlorine, or hydroxy,

R_2 represents hydrogen, lower alkyl, lower alkenyl, lower alkynyl, cycloalkyl, lower cycloalkylalkyl, phenyl, or phenyl loweralkyl,

X, Y or Z, which are identical or different, represent hydrogen, halogen, or a group chosen from lower alkyl, lower alkoxy, nitro, amino, cyano, acetamido, carboxamido, or X and Y, or Y and Z, together form, with the 2 carbon atoms of the phenyl nucleus carrying them, a furan, dihydrofuran, or benzene ring,

U represents a single bond, oxygen, sulfur, or a group chosen from: carbonyl, sulfinyl, sulfonyl, —NH—CO—, —CO—NH—, or —O—$(CH_2)_{r'}$—O—, with r' meaning 2 or 3, —$(CH_2)_{r''}$—O—$(CH_2)_{r'''}$— with r'' and r''' meaning 1 or 2, and



where

R_3 represents:

- hydrogen,
- formyl,
- —A, —CO—A, or —CO—O—A, with A meaning lower alkyl, lower alkenyl, lower alkynyl, cycloalkyl, or cycloalkyllowеralkyl,
- —$(CH_2)_q$—phenyl or substituted —$(CH_2)_q$— phenyl, with q meaning 0 or 1 to 4 inclusive,
- —CO—phenyl or substituted —CO—phenyl,
- —CO—O—phenyl or substituted —CO—O—phenyl,
- —CO—NR_4R_5

where

R_4 and R_5: - which are identical or different, represent hydrogen or a group chosen from lower alkyl, lower alkenyl, lower alkynyl, phenyl or pheny, loweralkyl,

- or form with the nitrogen atom carrying them a saturated ring with 4 to 7 members, 3 to 6 of which are carbon atoms,

it being understood that the term "substituted" which applies to the groups —$(CH_2)_q$—phenyl, —CO—phenyl, or —CO—O—phenyl means that these groups may be substituted by one or more radicals chosen from: lower alkyl, lower alkoxy, hydroxyl, a halogen atom, and trifluoromethyl,

it being understood that the terms "lower alkyl" and "lower alkoxy" mean linear or branched saturated carbon groups having 1 to 6 carbon atoms, inclusive,

that the terms "lower alkenyl" and "lower alkynyl" denote linear or branched unsaturated groups having 2 to 6 carbon atoms, inclusive,

- that the term "cycloalkyl" denotes a saturated carbon ring having 3 to 8 members, inclusive,

the optical isomers thereof which may exist, as well as, where appropriate, its addition salts with a pharmaceutically-acceptable acid.

5,208,244

METHOD OF SELECTIVELY INHIBITING CALCIUM-INDEPENDENT MYOCARDIAL PHOSPHOLIPASE A2

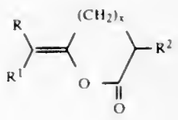
Randy H. Weiss, St. Louis, Mo., assignor to Washington University, St. Louis, Mo.

Filed Oct. 2, 1990, Ser. No. 591,583

Int. Cl.[5] A61K *31/44, 31/35, 31/34*

U.S. Cl. 514—336 **15 Claims**

1. A method for treating a mammalian patient susceptible to cardiac injury, including ischemia and related infarction, from the activity of calcium-independent PLA_2 which comprises administering to said patient an effective inhibitory amount of a compound which selectively inhibits calcium-independent PLA_2said compound represented by the formula



wherein R and R^1 independently represent hydrogen and radicals selected from the group consisting of halogen and alkyl, alkenyl, and alkynyl radicals; R^2 represents radicals selected from the group consisting of aryl, aryloxy, and heteroaryl radicals selected from aromatic monocyclic, bicyclic or tricyclic heterocycles containing one or more heteroatoms; and x represents 1 or 2.

5,208,245

DIHYDROPYRIDINE DERIVATIVE

Terukage Hirata; Yasushi Yoshimura; Masanori Kakimoto; Koichi Tamura, and Harunobu Amagase, all of Hiroshima, Japan, assignors to Wakunaga Seiyaku Kabushiki Kaisha, Osaka, Japan

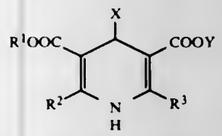
Filed May 7, 1991, Ser. No. 696,704

Claims priority, application Japan, May 7, 1990, 2-117129

Int. Cl.[5] C07D *405/06;* **A61K** *31/44*

U.S. Cl. 514—337 **3 Claims**

1. A dihydropyridine compound represented by the following formula (I)



(I)

wherein R^1 is a lower alkyl group; R^2 and R^3, which may or may not be the same, are lower alkyl groups; X is a halogen substituted phenyl group; and Y is a 3,4-dihydro-2H-benzo[b]-pyran-4-yl group or methyl substituted 3,4-dihydro-2H-benzo[b]pyran-4-yl group; or a salt thereof.

5,208,246

TETRALONES WITH PHARMACOLOGICAL ACTIVITY

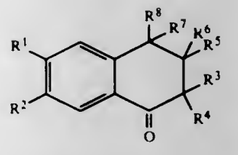
Carmen Almansa; Carmen Torres; Concepción Gonzpález; Elena Carceller, and Javier Bartroli, all of Barcelona, Spain, assignors to J. Uriach & Cia., Barcelona, Spain

Filed Dec. 2, 1991, Ser. No. 801,000

Int. Cl.[5] C07D *211/76, 211/72;* **A01K** *31/44*

U.S. Cl. 514—345 **24 Claims**

1. A compound of formula I:



I

wherein:

R^1 and R^2 represent hydrogen, C_{1-4} alkyl, hydroxyl, C_{1-4} alkoxy, formyl, C_{1-4} alkylcarbonyl, C_{1-4} alkylthiocarbonyl, carboxyl, C_{1-4} alkoxycarbonyl, C_{1-4} alkoxythiocarbonyl, C_{1-4} alkylcarbonyloxy, C_{1-4} alkylthiocarbonyloxy, hydroxy-(C_{1-4}) alkyl , mercapto-(C_{1-4}) alkyl, perfluoro(C_{1-4})alkyl, nitro, amino, cyano, halogen, trifluoromethoxy, ethynyl, trimethylsilylethynyl, C_{1-4} alkylsulphinyl, arylsulphinyl, C_{1-4} alkylsulphonyl, arylsulphonyl, C_{1-4} alkoxysulphinyl, C_{1-4} alkoxysulphonyl, C_{1-4} alkylcarbonylamino, C_{1-4} alkoxycarbonylamino, aminosulphinyl, aminosulphonyl, aminocarbonyl, aminothiocarbonyl, C_{1-4} alkylsulphinylamino, C_{1-4} alkylsulphonylamino, C_{1-4} alkoxysulphinylamino, C_{1-4} alkoxysulphonylamino, (C_{1-4} alkyl)carbonyl, (C_{1-4} alkyl), nitro-(C_{1-4} alkyl), cyano-(C_{1-4} alkyl), (C_{1-4} alkyl)C(=NOH), (C_{1-4} alkyl)C(=NNH2) or (C_{1-4} alkoxy)C(=NH), the above amino groups being optionally substituted by one or two C_{1-4} alkyl groups;

R^3 is hydrogen or C_{1-4} alkyl; R^4 is C_{1-4} alkyl, or R^3 and R^4 together form a C_{2-5} polymethylene chain;

either R^5 represents hydroxyl, acetoxy or formyloxy and R^6 and R^7 are both hydrogen; R^5 together with R^6 form a carbonyl group and R^7 is hydrogen; or R^5 and R^7 together form a bond and R^4 is hydrogen;

R^8 is 1,2-dihydro-2-oxo-1-pyridyl or 1,2-dihydro-2-thioxo 1-pyridyl, both of them being optionally substituted by a group R^9;

R^9 is fluorine, chlorine, bromine or iodine atom or a C_{1-4} alkyl, hydroxyl, nitro, or amino group, the amino group being optionally substituted by one or two C_{1-4} alkyl groups;

or a salt thereof.

5,208,247

PYRIDINIUM COMPOUNDS WHICH ARE USEFUL AS ANTAGONISTS OF PLATELET ACTIVATING FACTOR

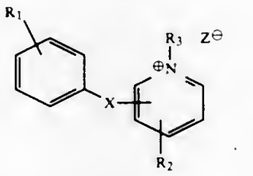
Michael P. Trova, Salisbury Mills, and Allan Wissner, Ardsley, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Aug. 1, 1991, Ser. No. 738,961

Int. Cl.[5] C07D *213/02*

U.S. Cl. 514—358 **25 Claims**

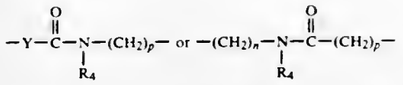
1. A compound of the formula:



I

wherein:

(A) X is a divalent radical of:



wherein Y is a divalent radical $(CH_2)_n$, or p is the integer 1, 2, or 3; n is the integer 0, 1, or 2; R_4 is hydrogen, phenyl, —COR_6 or —SO_2R_7; wherein R_6 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_1-C_6 alkylamino, C_1-C_6 alkoxy, phenyl, aminophenyl, substituted phenyl or substituted aminophenyl and the substituents are of one or more of the following C_1-C_4 alkyl, C_1-C_4 alkoxy, halogen or trifluoromethyl; R_7 is C_1-C_{25} alkyl, C_2-C_{25} alkenyl, phenyl or substituted phenyl and the substituents are C_1-C_{20} alkyl, C_1-C_{20} alkoxy, halogen or trifluoromethyl;

(B) R_1 is one or more substituents of the aromatic ring which may be the same or different and is

(i) C_1-C_{25} alkyl, C_2-C_{25} alkenyl, C_1-C_{25} alkoxy, C_2-C_{25} alkenyloxy, C_1-C_{25} thioalkyl, phenyl, phenoxy, substituted phenyl or substituted phenoxy wherein the substituents are C_1-C_{20} alkyl, C_1-C_{20} alkoxy, halogen, or trifluoromethyl;

(ii) halogen, trifluoromethyl, cyano, or nitro;

(iii) —CO_2R_7, —$CONHR_7$, —$OCONHR_7$, or —$NHCOR_7$ wherein R_7 is as previously described above;

(C) the moiety R_2 is one or more substituents of the pyridine ring which may be in any position and are hydrogen, C_1-C_5 alkyl, C_1-C_5 alkoxy, or halogen;

(D) the heterocycle is bonded to the X-group at optionally the 2, 3, or 4 position.

(E) the group R_3 is C_1-C_8 alkyl, C_1-C_8 halogen (bromine,

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chlorine or fluorine) substituted alkyl, hydrogen, or N-oxide; and

(F) $Z^{\ominus}$ represents a pharmacologically acceptable anion.

5,208,248

INDAZOLE-SUBSTITUTED FIVE-MEMBERED HETEROAROMATIC COMPOUNDS

Raymond Baker; Mark S. Chambers, both of Hertfordshire, and Leslie J. Street, Essex, all of England, assignors to Merck Sharpe & Dohme, Ltd., Hertfordshire, United Kingdom

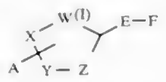
Continuation-in-part of Ser. No. 665,047, Mar. 6, 1991, abandoned. This application Jul. 16, 1991, Ser. No. 730,751

Claims priority, application United Kingdom, Jan. 11, 1991, 9100648

Int. Cl.[5] **C07D** *413/10;* **A61K** *31/415*

U.S. Cl. 514—364 **7 Claims**

1. A compound of formula I:



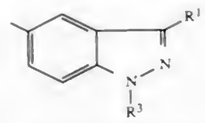
wherein the broken circle represents two non-adjacent double bonds in any position in the five-membered ring;

W, X, Y and Z independently represent oxygen, nitrogen or carbon, provided that one of W, X, Y and Z represents oxygen and at least two of W, X, Y and Z represent nitrogen and one of W, X, Y and Z represents carbon;

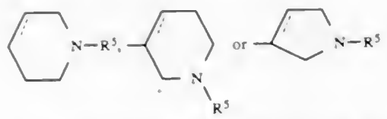
A is selected from the group consisting of hydrogen, hydrocarbon having up to 18 carbon atoms, halogen, cyano, trifluoromethyl, nitro, $—OR^x$, $OCOR^x$, $—ONR^xR^y$, $—SR^x$, $—NR^xR^y$, $—NR^xOR^y$, $—NR^xNR^xR^y$, $—NR^x—COR^y$, $—NR^xCO_2R^y$, $—NR^xSO_2R^y$, $—NR^zCVNR^xR^y$, $—COR^x$, $—CO_2R^x$ and $—CONR^xR^y$;

E represents a bond or a straight or branched alkylene chain containing from 1 to 4 carbon atoms;

F represents a group of formula:



R^1 represents $—CH_2.CHR^4.NR^xR^y$ or a group of formula



in which the broken line represents an optional chemical bond;

R^3, R^4, R^5 are independently selected from the group consisting of hydrogen, C_{1-6} alkyl, C_{2-6} alkenyl and C_{2-6} alkynyl;

R^x and R^y independently represent hydrogen or hydrocarbon having up to 18 carbon atoms or R^x and R^y together represent a C_{2-6} alkylene group;

R^z represents hydrogen or hydrocarbon having up to 18 carbon atoms;

V represents oxygen, sulphur or a group of formula =N.G; and

G represents hydrocarbon having up to 18 carbon atoms or an electron-withdrawing group selected from the group consisting of cyano, nitro, $—COR^x$, $—CO_2R^x$ and $—SO_2R^x$ wherein R^x is as defined above and salt thereof.

5,208,249

METHOD FOR STIMULATING INTRACELLULAR SYNTHESIS OF GLUTATHIONE USING ESTERS OF L-2-OXOTHIAZOLIDINE-4-CARBOXYLATE

W. Bruce Rowe, Evanston, and Dennis I. Goldberg, Palatine, both of Ill., assignors to Clintec Nutrition Co., Deerfield, Ill.

Filed Aug. 20, 1992, Ser. No. 932,761

Int. Cl.[5] **A61K** *31/425*

U.S. Cl. 514—369 **20 Claims**

1. A method for stimulating the intracellular synthesis of glutathione comprising the step of administering to a mammal a therapeutically effective amount of an ester of 2-oxothiazolidine-4-carboxylate for stimulating the intracellular synthesis of glutathione.

5,208,250

KNOWN AND SELECTED NOVEL ARYLMETHYLENYL DERIVATIVES OF THIAZOLIDINONES, IMIDAZOLIDINONES AND OXAZOLIDINONES USEFUL AS ANTIALLERGY AGENTS AND ANTI-INFLAMMATORY AGENTS

Wiaczeslaw A. Cetenko; David T. Connor; Roderick J. Sorenson; Paul C. Unangst, all of Ann Arbor, Mich., and Stephen S. Stabler, Santa Clara, Calif., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation of Ser. No. 375,794, Jul. 5, 1989, abandoned, which is a continuation-in-part of Ser. No. 334,346, Apr. 10, 1989, abandoned, which is a continuation-in-part of Ser. No. 198,528, May 25, 1988, abandoned. This application May 13, 1991, Ser. No. 702,132

Int. Cl.[5] **C07D** *277/34;* **A61K** *31/425*

U.S. Cl. 514—369 **7 Claims**

1. 5-[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl)]-methylene]-2,4-thiazolidinedione or a pharmaceutically acid addition salt thereof.

5,208,251

STYRYL PYRAZOLES, ISOXAZOLES AND ANALOGS THEREOF HAVING ACTIVITY AS 5-LIPOXYGENASE INHIBITORS, PHARMACEUTICAL COMPOSITIONS AND METHODS OF USE THEREFOR

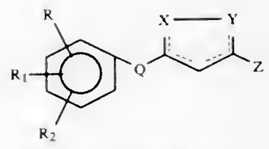
Thomas R. Belliotti, Ypsilanti; David T. Connor, Ann Arbor; Daniel L. Flynn, Ann Arbor; Catherine R. Kostlan, Ann Arbor, and Donald E. Nies, Ann Arbor, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation of Ser. No. 32,730, Apr. 6, 1987, abandoned, which is a continuation-in-part of Ser. No. 910,692, Sep. 22, 1986, abandoned, which is a continuation-in-part of Ser. No. 861,179, May 9, 1986, abandoned. This application Aug. 16, 1989, Ser. No. 395,165

Int. Cl.[5] **A61K** *31/42;* **C07D** *261/08*

U.S. Cl. 514—372 **79 Claims**

1. A compound of the formula (I)



I

or pharmaceutically acceptable salt thereof; wherein

(1) — is a single or double bond;

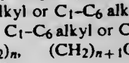
(2) R, R_1, and R_2 may be the same or different and are selected from the group consisting of hydrogen, lower alkyl, hydroxy, OR_3 wherein R_3 is lower alkyl, $C(O)OR_4$ wherein R_4 is hydrogen or lower alkyl, $OC(O)R_3$ wherein R_3 is independently as defined above, $C(O)R_3$ wherein R_3 is independently as defined above, NR_6R_7 wherein R_6 and R_7 may be the same or different and are hydrogen or lower alkyl, $NHC(O)R_3$ wherein R_3 is independently as defined above, NHCHO, $NHSO_2R_3$ wherein R_3 is independently as defined above, $NHCONHR_4$ where R_4 is as defined above, hydroxymethyl, halogen, trifluoromethyl, SR_4 wherein R_4 is independently as defined above, or nitro;

(3) Q is CH=CH;

(4) X and Y are one of the following combinations:

X	Y
N	NR_5, O or S
NR_5	N
O	N
S	N

wherein R_5 is hydrogen, lower alkyl,



wherein R'_1 and R'_2 may be the same or different and are hydrogen or lower alkyl, $C(O)R_4$ wherein R_4 is independently as defined above, cycloalkyl or from three to twenty carbons having of from three to eight ring carbons optionally substituted by alkyl of from one to twelve carbons, aryl, or aralkyl;

(5) Z is aryl, aralkyl, $OC(O)R_3$ wherein R_3 is independently as defined above, $C(O)R_3$ wherein R_3 is independently as defined above, $C(O)OR_4$ wherein R_4 is independently as defined above, $(CH_2)_{1-2}OH$, $CH(R'_1)CO_2R'_2$ wherein R'_1 and R'_2 are independently as defined above, halogen, trifluoromethyl,

wherein R, R_1 and R_2 are independently as defined above.

5,208,252

AMINOETHYLTHIOPHENE DERIVATIVES

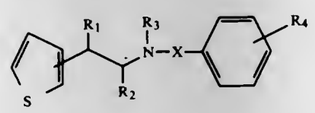
Ronald K. Russell, Titusville, N.J., and Joseph J. Salata, Newtown, Pa., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Jul. 24, 1992, Ser. No. 919,650

Int. Cl.[5] **A61K** *31/38;* **C07D** *333/20*

U.S. Cl. 514—438 **14 Claims**

1. A compound of the following formula:



where

R_1 and R_2 are the same or different and are hydrogen, C_1–C_4 alkyl, C_3–C_5 branched chain alkyl, aryl, phenyl or substituted aryl or phenyl where the substituents are halogen, C_1–C_6 alkyl or C_1–C_6 alkoxy;

R_3 is hydrogen, C_1–C_6 alkyl or C_3–C_5 branched chain alkyl;

X is $(CH_2)_n$, $(CH_2)_{n+1}O$, $(CH_2)_2NR_5CO$, or $(CH_2)_2NR_5SO_2$;

R_4 is a mono-, di- or tri-sustituent which may be the same or different and is halogen, NO_2, NH_2, $NHCOR_6$ or $NHSO_2R_6$;

n is 1–5;

R_5 is hydrogen, C_1–C_4 alkyl or C_3–C_5 branched chain alkyl;

R_6 is C_1–C_4 alkyl, C_3–C_5 branched chain alkyl or phenyl; and

substantially pure stereoisomers and pharmaceutically acceptable salts thereof.

5,208,253

3-ALKYLOXY-, ARYLOXY-, OR ARYLALKYLOXY-BENZO(B) THIOPHENE-2-CARBOXAMIDES AS INHIBITORS OF CELL ADHESION

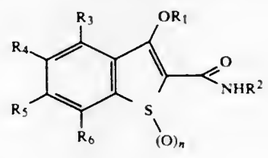
Diane H. Boschelli, Plymouth; David T. Connor, and Clifford D. Wright, both of Ann Arbor, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Feb. 24, 1992, Ser. No. 840,361

Int. Cl.[5] **A61K** *31/38;* **C07D** *333/56*

U.S. Cl. 514—443 **2 Claims**

1. A method of treating diseases mediated by inhibiting the adhesion of leukocytes to endothelial cells comprising administering to a host in need thereof an effective amount in unit dosage form of a compound of the formula



I

wherein

R_1 is lower alkyl, phenyl, or benzyl;

R_2 is hydrogen, lower alkyl, phenyl, benzyl, thiophene, $(CH_2)_mQ$, or phenyl, benzyl, or thiophene substituted with $(CH_2)_mQ$;

n is an integer from 0 to 2;

m is an integer from 0 to 6;

Q is CO_2R_7 where R_7 is hydrogen or lower alkyl; and

R_3, R_4, R_5, R_6 are independently hydrogen, hydroxy, nitro, amino, lower alkyl, and lower alkoxy, or a pharmaceutically acceptable salt thereof.

5,208,254

PROCESS FOR THE PREPARATION OF ZINC CARBOCYSTEINATE COMPOSITIONS

Antonio B. Viñas, Barcelona, Spain, assignor to Laboratorios Vinas, S.A., Barcelona, Spain

Filed Apr. 19, 1991, Ser. No. 689,695

Claims priority, application Spain, Jul. 13, 1990, 9001921

Int. Cl.[5] **A61K** *31/315*

U.S. Cl. 514—494 **6 Claims**

1. A process for the treatment of hepatopathical diseases selected from the group consisting of alcoholic hepatopathy, chronic hepatitis and hepatic cirrhosis comprising the step of orally administering to a patient a therapeutically effective amount of an oral administration unit of a zinc carbocysteinate composition.

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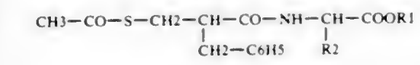
5,208,255

THIOESTER ENANTIOMERIC COMPOUNDS AND THEIR THERAPEUTIC USES

Pierre Duhamel; Lucette Duhamel, both of Mont Saint Aignan; Denis Danvy, Cany Barville; Jean-Christophe Plaquevent, Notre Dame De Bondeville; Bruno Giros, Kremlin Bicetre; Claude Gros, Paris; Jean-Charles Schwartz, Paris, and Jeanne-Marie Lecomte, Paris, all of France, assignors to Societe Civile Bioprojet, Paris, France

Filed Nov. 22, 1988, Ser. No. 274,884
Claims priority, application France, Nov. 24, 1987, 87 16239
Int. Cl.[5] A61K *31/21*
U.S. Cl. 514—513 6 Claims

1. An enantiomer (S) compound having the formula



in which

R1 = CH3 or CH2—C6H5 R2 = H

5,208,256

TREATMENT OF OCULAR HYPERTENSION WITH A SYNERGISTIC COMBINATION FOR OCULAR ADMINISTRATION

Ryuji Ueno, Hyogo, Japan, assignor to R-Tech Ueno, Ltd., Osaka, Japan

Filed May 21, 1991, Ser. No. 703,660
Claims priority, application Japan, May 22, 1990, 2-132909
Int. Cl.[5] A61K *31/215, 31/19*
U.S. Cl. 514—530 11 Claims

1. A method for treatment of ocular hypertension which comprises ocularly administering, to a subject in need of such treatment, an oculo-hypotensively synergistic combination of

(a) a 13,14-dihydro-15-keto-20-loweralkylprostaglandin or a pharmaceutically acceptable salt thereof, or a pharmaceutically acceptable ester thereof, and

(b) a polyoxyethylenesorbitan unsaturated higher aliphatic acid monoester in an amount effective in treatment of ocular hypertension.

5,208,257

TOPICAL ANTIMICROBIAL PHARMACEUTICAL COMPOSITIONS AND METHODS

Jon J. Kabara, 414 Green St., Galena, Ill. 61036

Continuation of Ser. No. 509,316, Apr. 13, 1990, abandoned, which is a continuation of Ser. No. 266,202, Oct. 27, 1988, abandoned, which is a continuation-in-part of Ser. No. 136,540, Dec. 22, 1987, abandoned, which is a continuation of Ser. No. 854,154, Apr. 21, 1986, abandoned. This application Jun. 23, 1992, Ser. No. 902,767
Int. Cl.[5] A61K *31/23, 31/20*
U.S. Cl. 514—552 18 Claims

1. A topical antimicrobial or antiparasitic pharmaceutical composition comprising a safe and effective amount of a mixture comprising:

(a) a glycerol monoester of lauric acid present in an amount of about 0.05 to about 2.0 percent by weight of the composition;

(b) a binary mixture of fatty acids comprising:

(i) a first fatty acid comprising capric acid, and

(ii) a second fatty acid comprising caprylic acid;

wherein (a) and (b) are present at a level such that the weight:weight ratio of (a):(b) is about 10:1 to 1:10, and wherein (i) and (ii) are present in a weight:weight ratio of about 1:10 to about 10:1 and said binary mixture is present in an amount of about 0.5 to about 8.0 percent by weight of the composition:

(c) a pharmaceutically-acceptable carrier which includes lactic acid; and

(d) a surfactant which comprises a block copolymer of propylene oxide and ethylene oxide.

5,208,258

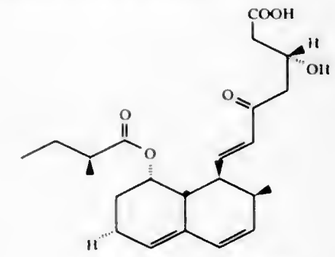
ANTIHYPERCHOLESTEROLEMIC COMPOUNDS AND SYNTHESIS THEREOF

Clayton H. Heathcock, Kensington, Calif., and Terry J. Rosen, Waukegan, Ill., assignors to The Regents of the University of California, Oakland, Calif.

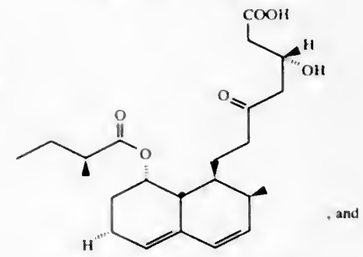
Division of Ser. No. 786,839, Oct. 11, 1985, Pat. No. 4,950,775.
This application Apr. 17, 1990, Ser. No. 510,033
Int. Cl.[5] C07D *309/30;* C07C *69/28;* A61K *31/22*
U.S. Cl. 514—557 5 Claims

1. A method of treating hypercholesterolemia, comprising: administering a pharmacologically acceptable dose of a compound selected from the group consisting of:

(a)

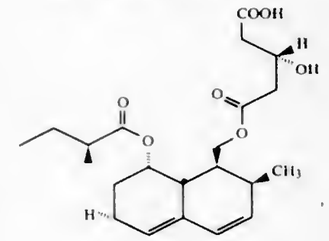


(b)



, and

(c)



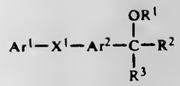
5,208,259

DIARYL ETHER HETROCYCLES

Thomas G. C. Bird, Witry-Les-Reims, France, and Philip N. Edwards, Bramhall, England, assignors to Imperial Chemical Industries, London, England and ICI Pharma, Cergy Cedex, France

Filed Jul. 3, 1990, Ser. No. 547,229
Claims priority, application European Pat. Off., Jul. 18, 1989, 894020460; Apr. 11, 1990, 904010006
Int. Cl.[5] A61K *31/35;* C07D *309/10*
U.S. Cl. 514—460 10 Claims

1. A diaryl ether heterocycle of the formula I



wherein Ar^1 is phenyl or naphthyl which may optionally bear one or more substituents selected from amino, halogeno, hydroxy, cyano, (1–6C)alkyl, (2–6C)alkenyl, (2–6C)alkynyl, (1–4C)alkoxy, (1–4C)alkylthio, (1–4C)alkysulphinyl, (1–4C)alkylsulphonyl, (1–4C)alkylamino, di-[(1–4C)alkyl]amino, (1–4C)alkoxycarbonyl, (2–4C)alkanoyl, hydroxy-(1–6C)alkyl, fluoro-(1–4C)alkyl, cyano-(1–6C)alkyl, fluoro-(1–4C)alkoxy, cyano-(1–4C)alkoxy, (1–4C)alkoxy-(1–4C)alkyl, (1–4C)alkylthio-(1–4C)alkyl, (1–4C)alkylsulphinyl-(1–4C)alkyl, (1–4C)alkylsulphonyl-(1–4C)alkyl, cyano-(4–6C)cycloalkyl, (2–4C)alkanoylamino, N-[(1–4C)alkyl]-(2–4C)alkanoylamino, N-(2,2,2-trifluoroethyl)-(2–4C)alkanoylamino, N-[(1–4C)alkoxycarbonyl-(1–2C)alkyl]-(2–4C)alkanoylamino, trifluoroacetyl, trifluoroacetamido, N-[(1–4C)alkyl]trifluoroacetamido, 2-oxopyrrolidinyl, 1,1,3,3-tetramethyl-2,2-dioxo-2-thiatrimethylene, tri-(1–4C)alkylsilyl, phenyl, benzoyl, benzamido and N-[(1–4C)alkyl]benzamido, and wherein said phenyl, benzoyl, benzamido or N-[(1–4C)alkyl]benzamido substituent may optionally bear a substituent selected from halogeno, (1–4C)alkyl and (1–4C)alkoxy;

wherein X^1 is oxy, thio, sulphinyl or sulphonyl;

wherein Ar^2 is phenylene which may optionally bear one or two substituents selected from halogeno, hydroxy, amino, nitro, cyano, carbamoyl, (1–4C)alkyl, (3–4C)alkenyloxy, (1–4C)alkoxy, (1–4C)alkylthio, (1–4C)alkylsulphinyl, (1–4C)alkylsulphonyl, (1–4C)alkylamino, di-[(1–4C)alkyl]amino, fluoro-(1–4C)alkyl, cyano-(1–4C)alkyl, (1–4C)alkoxycarbonyl, N-[(1–4C)alkyl]carbamoyl, N,N-di-[(1–4C)alkyl]carbamoyl, (2–4C)alkanoylamino, fluoro-(1–4C)alkoxy, cyano-(1–4C)alkoxy, carbamoyl-(1–4C)alkoxy, amino-(2–4C)alkoxy, (1–4C)alkylamino-(2–4C)alkoxy, di-[(1–4C)alkyl]amino-(2–4C)alkoxy and (1–4C)alkoxycarbonyl-(1–4C)alkoxy;

wherein R^1 is (1–6C)alkyl, (3–6C)alkenyl, (3–6C)alkynyl, cyano-(1–4C)alkyl or (2–4C)alkanoyl, or R^1 is benzoyl which may optionally bear a substituent selected from halogeno, (1–4C)alkyl and (1–4C)alkoxy; and

wherein R^2 and R^3 together form a group of the formula $—A^2—X^2—A^3—$ which, together with the carbon atom to which A^2 and A^3 are attached, defines a ring having 4 to 7 ring atoms, wherein A^2 and A^3, which may be the same or different, each is (1–4C)alkylene and X^2 is oxy, and which ring may bear one, two or three substituents, which may be the same or different, selected from halogeno, hydroxy, cyano, (1–4C)alkyl, (1–4C)alkoxy, (1–4C)alkylthio, (1–4C)alkylsulphinyl, (1–4C)alkylsulphonyl and fluoro-(1–4C)alkyl;

or a pharmaceutically-acceptable salt thereof.

5,208,260

VINYL GLYCINE DERIVATIVES FOR MEMORY AND LEARNING ENHANCEMENT OR TREATMENT OF A COGNITIVE DISORDER

Alex A. Cordi, St. Louis; Joseph B. Monahan, Black Jack, both of Mo., and Robert M. Williams, Fort Collins, Colo., assignors to G. D. Searle & Co., Chicago, Ill.

Filed Mar. 29, 1990, Ser. No. 501,640
Int. Cl.[5] A01N *37/12, 37/44*
U.S. Cl. 514—561 5 Claims

1. A method to improve cognitive function or to treat cognitive dysfunction by administering to a subject a therapeutically-effective amount of a vinyl glycine derivative or a prodrug thereof, selected from compounds and their pharmaceutically-acceptable salts, of the group consisting of

trans-L-2-amino-pent-3-enoic acid;
trans-D-2-amino-pent-3-enoic acid;
trans-L-2-amino-hept-3-enoic acid;
trans-D-2-amino-hept-3-enoic acid;
trans-L-2-amino-dec-3-enoic acid;
trans-D-2-amino-dec-3-enoic acid;
trans-D-2-amino-6-hydroxy-hex-3-enoic acid; and
trans-L-2-amino-6-hydroxy-hex-3-enoic acid.

5,208,261

STABILIZED SOLUTIONS OF PSYCHOTROPIC AGENTS

Petrus J. M. Van Den Oetelaar, Heesch, and Maria M. F. Mentink, Oss, both of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Division of Ser. No. 621,480, Dec. 3, 1990, Pat. No. 5,082,864.
This application Oct. 1, 1991, Ser. No. 769,312
Claims priority, application European Pat. Off., Dec. 6, 1989, 89203092.5
Int. Cl.[5] A61K *31/135*
U.S. Cl. 514—646 7 Claims

1. A stable aqueous preparation comprising: a stabilizer selected from the group consisting of L-methionine, D-methionine, DL-methionine and mixtures thereof in admixture with water and a therapeutically useful concentration of at least one tricyclic nitrogen heterocycle antidepressant capable of stabilization by the selected stabilizer, wherein the stabilizer is present in a concentration sufficient to stabilize the tricyclic nitrogen heterocycle.

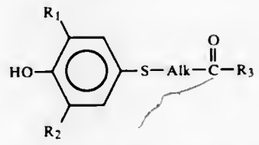
5,208,262

METHODS AND COMPOSITIONS FOR INHIBITING LIPOXYGENASE

Richard A. Mueller, Glencoe, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Division of Ser. No. 714,301, Jun. 12, 1991, which is a division of Ser. No. 360,963, Jun. 2, 1989, Pat. No. 5,047,593, which is a division of Ser. No. 196,927, May 20, 1988, Pat. No. 4,857,558, which is a continuation of Ser. No. 736,887, May 20, 1985, abandoned. This application Sep. 18, 1992, Ser. No. 947,214
Int. Cl.[5] A61K *31/05*
U.S. Cl. 514—678 10 Claims

1. A method of inhibiting lipoxygenase in a mammal which comprised administering to a mammal in need of such treatment an effective lipoxygenase inhibiting amount of a compound of the formula



wherein R_1 and R_2 are the same or different members of the group consisting of 1,1-dimethlethyl, halo, phenyl and substituted phenyl, wherein the substituents are selected from the group consisting of halo, hydroxy, lower alkyl, and lower alkoxy; Alk is straight or branched chain lower alkylene; and R_3 is hydrogen or lower alkyl.

5,208,263

ANTI-ANDROGEN COMPOUNDS

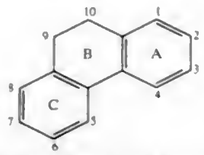
Shutsung Liao; John Pataki, and Ronald G. Harvey, all of Chicago, Ill., assignors to Arch Development Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 252,375, Sep. 30, 1988, abandoned. This application Sep. 27, 1989, Ser. No. 413,249
Int. Cl.[5] A61K *31/045, 31/04*
U.S. Cl. 514—730 1 Claim

1. A method for treatment of disorders associated with

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excessive androgenic activity comprising administering a pharmaceutical composition which includes an anti-androgenic compound selected from the group consisting of the general formula:



wherein ring A is 2-substituted with a hydroxyl, a 1'-hydroxyethyl or a 2' hydroxyethyl; ring B is monounsaturated at the 9-10 position and is optionally substituted with methyl at either the 9 or 10 position; and ring C is unsubstiuted, provided that rings A and C may not both be unsubstituted.

5,208,264

PROCESS FOR PRODUCING AN AMINOPHOSPHORIC ACID-TYPE CHELATE RESIN

Tsuyoshi Ito, and Takayuki Tashiro, both of Tokyo, Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

Filed Jul. 24, 1992, Ser. No. 917,973
Claims priority, application Japan, Jul. 26, 1991, 3-209938
Int. Cl.[5] C08F *8/40*; B01J *45/00*
U.S. Cl. 521—32 12 Claims

1. A process for producing an aminophosphoric acid-type chelate resin, which comprises aminating halomethyl groups of a polymer having the halomethyl groups on aromatic nuclei, followed by phosphomethylation, wherein the amination reaction is conducted by means of an amine mixture comprising a monoamine and a polyamine, wherein the proportion of the monoamine to the total amount of both amines is from 20 to 70% by mole.

5,208,265

FOAM BASED ON AN IMPACT COPOLYMER

Isidoor de Grave, Wachenheim; Joachim Fischer, Dirmstein, and Onno Graalmann, Dossenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Aug. 4, 1992, Ser. No. 924,492
Claims priority, application Fed. Rep. of Germany, Aug. 9, 1991, 4126358
Int. Cl.[5] C08J *9/18, 9/20, 9/232*
U.S. Cl. 521—59 7 Claims

1. A foam having a density of from 0.01 to 0.2 g/cm^3 and a cell count of from 2 to 1,000 cells/mm^2 and based on an impact copolymer, wherein the impact copolymer consists of

a) from 1 to 55% by weight of a block copolymer of

a_1) from 35 to 65% by weight of ethylene and

a_2) from 35 to 65% by weight of propylene and

b) from 45 to 99% by weight of a random copolymer of

b_1) from 0.5 to 6% by weight of ethylene and from 94 to 99.5% by weight of propylene, or of

b_2) from 0.5 to 12% by weight of but-1-ene and 88 to 99.5% by weight of propylene.

5,208,266

LIGHTLY CROSSLINKED POLYMERIC FOAMS AND PROCESS FOR MAKING SAME

Tosbimichi Yamazaki, 27 Tanager Rd., Hyannis, Mass. 02601

Filed Apr. 28, 1992, Ser. No. 874,814
Int. Cl.[5] C08J *9/14*
U.S. Cl. 521—79 12 Claims

1. A process for the preparation of a lightly crosslinked polymer foam material, comprising the steps of:

(a) melt processing an olefinic polymer, together with a volatile blowing agent, a sufficient amount of a free radical generating peroxide as a crosslinking agent, said peroxide having a decomposition temperature at a one minute half-life of about 130° C. or greater, the ratio of said peroxide to said olefinic polymer being from about 1 ppm to about 20,000 ppm, and an antioxidant as a countervailing agent to terminate the free radical crosslinking reaction, the weight ratio of said antioxidant to said peroxide being from about 0.01 to about 50.0 wt./wt. to form a flowable admixture; and

(b) extruding said admixture through a die to a zone of lower pressure and activating said blowing agent to expand the polymer to form a cellular lightly crosslinked polymer foam material.

5,208,267

STARCH-BASED, BIODEGRADABLE PACKING FILLER AND METHOD OF PREPARING SAME

Paul E. Neumann, 2908 Jeffrey Cir., and Paul A. Seib, 836 Dondee, both of Manhattan, Kans. 66502

Filed Jan. 21, 1992, Ser. No. 822,885
Int. Cl.[5] C08J *3/02, 9/12*
U.S. Cl. 521—79 14 Claims

1. In a method of producing a starch product adapted for use as a packaging filler or the like, said method including the steps of extruding starch containing moisture under conditions of elevated temperature and pressure through a restricted orifice die in order to create an expanded, cellular compressible and resilient body having a starch matrix, the improvement which comprises mixing with said starch an amount of a polyalkylene glycol or derivative thereof.

5,208,268

INTERNAL RELEASE AGENTS, ACTIVE HYDROGEN CONTAINING MIXTURES WHICH CONTAIN SUCH AGENTS AND THE USE THEREOF IN A PROCESS FOR THE PRODUCTION OF MOLDED PRODUCTS

Robson Mafoti, Pittsburgh, Pa., assignor to Miles Inc., Pittsburgh, Pa.

Filed Sep. 25, 1992, Ser. No. 951,685
Int. Cl.[5] C08G *18/14*
U.S. Cl. 521—115 10 Claims

1. A novel release agent comprising the reaction product of 1) an ester having an acid number of 15 or less, prepared by reacting (a) one mole of a tetrahydroxy compound prepared by reacting one mole of a C_2 to C_8 alkylene diamine with from 4 to 12 moles of an alkylene oxide, with (b) four moles of an acid mixture consisting of at least one saturated monocarboxylic acid and at least one unsaturated monocarboxylic acid, with the molar ratio of saturated to unsaturated acid being from 1:1 to 3:1, and ii) a neutralizing amount of a neutralizing agent selected from the group consisting of sodium bicarbonate, cesium bicarbonate, and zinc oxide, said reaction product having an acid number of one or less.

5,208,269

LOW-DENSITY RRIM USING MINERAL FIBER FILLER

Bari W. Brown, Trenton, Mich., assignor to BASF Corporation, Parsippany, N.J.

Filed Jul. 16, 1992, Ser. No. 914,080
Int. Cl.[5] C08G *18/00*; C08J *9/00*
U.S. Cl. 521—125 13 Claims

1. A process of making a low density RRIM composite having a specific gravity of less than 1.0 and having wollastonite fibers dispersed throughout a matrix, comprising reacting:

A) an "A side" isocyanate component comprising one or more polyisocyanates, reacted with,

B) a "B side" component comprising a polyoxyalkylene polyether polyol composition comprising hydroxyl functional tertiary amine polyether polyols prepared by oxyalkylating an amine with ethylene oxide, propylene oxide, tetrahydrofuran, or mixtures thereof, a blowing agent comprising water, a polyurethane/isocyanurate-promoting catalyst, and optionally a chain extender, a surfactant, and stabilizers.

5,208,270

CATALYST SYSTEMS USEFUL FOR FORMING ISOCYANURATE, AMIDE AND/OR OXAZOLIDINONE GROUPS AND A METHOD FOR THEIR USE

Shenghong A. Dai, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 816,914, Jan. 3, 1992, abandoned. This application Jul. 14, 1992, Ser. No. 913,111
Int. Cl.[5] C08G *18/14*
U.S. Cl. 521—129 20 Claims

1. A catalyst system comprising:

(A) an N,N',N''-tris(N,N-dialkylaminoalkyl)-s-triazine component; and

(B) a monocarboxylic acid component;

wherein the monocarboxylic acid component is a monocarboxylic acid or a mixture of monocarboxylic acids having from 4 to 18 carbons, and the molar ratio of the monocarboxylic acid component to the N,N',N''-tris(N,N-dialkylaminoalkyl)-s-triazine component is from about 2:1 to about 25:1.

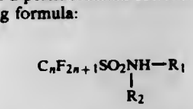
5,208,271

FLEXIBLE POLYURETHANE FOAMS WITH REDUCED TENDENCY FOR SHRINKAGE

James A. Gallagher, Grosse Ile, Mich., assignor to BASF Corporation, Parsippany, N.J.

Filed Nov. 2, 1992, Ser. No. 970,448
Int. Cl.[5] C09K *3/00*
U.S. Cl. 521—174 10 Claims

1. A polyol composition comprising a polyoxyalkylene polyether polyol and a perfluorinated sulfonamide surfactant having the following formula:



wherein R_1 and R_2 are each independently hydrogen or a branched or unbranched alkyl, aryl, aralkyl having 1–20 carbon atoms; with R_1 and/or R_2 optionally being bonded end to end as a heterocyclic ring; and R_1 and/or R_2 optionally containing as internal to an alkyl chain the groups —NR'—, —NR'$_2$—, —O—, —SO_2—, —OOC—, —COO—, —CO—, —CONR'—, —NR'CO—, or —SO_2NR'; and/or as terminal to an alkyl chain the groups —OH, —COOH—, —NH_2, —NHR^1, —COH, and R' is independently a branched or unbranched alkyl having up to 18 carbon atoms; and wherein n is from 4 to 20.

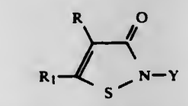
5,208,272

MILDEW RESISTANT PAINT COMPOSITIONS COMPRISING AN ISOTHIAZOLONE AND A WATER-INSOLUBLE ZINC COMPOUND, ARTICLES, AND METHODS

Stanley LeSota, Horsham, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation of Ser. No. 360,504, Jun. 2, 1989, abandoned. This application Oct. 12, 1990, Ser. No. 596,804
Int. Cl.[5] A61K *31/78*; G09D *5/16*
U.S. Cl. 523—122 7 Claims

1. Process for preventing chemical degradation of an isothiazolone of the formula:



wherein Y is substituted or unsubstituted alkyl, unsubstituted or halo substituted alkenyl or alkynyl, unsubstituted or substituted cycloalkyl, unsubstituted or substituted aralkyl, or hydrogen, R is hydrogen, chloro, or methyl, and R_1 is hydrogen or methyl; which then mixed into a film-forming, non-wood penetrating, organic polymeric latex emulsion paint vehicle comprising mixing an effective amount of a water-insoluble, organic solvent soluble zinc salt of an organic carboxylic acid selected from the group consisting of octoate, hexanoate, heptanoate, decanoate, dodecanoate, cyclohexylcarboxylate, 2-ethylhexanoate, neodecanoate, oleate, alkanoate (mixture of about (C_2–C_{13}) alkyl carboxylates), with said isothiazolone so as to prevent chemical degradation of said isothiazolone in said latex.

5,208,273

RUBBER COMPOSITION AND ITS APPLICATION

Sumio Takatsu, Nishinomiya, and Kiyoshige Muraoka, Kobe, both of Japan, assignors to Sumitomo Rubber Industries, Limited, Hyogo, Japan

Filed Oct. 25, 1990, Ser. No. 603,322
Claims priority, application Japan, Oct. 26, 1989, 1-279185
Int. Cl.[5] C08K *3/16*
U.S. Cl. 523—152 5 Claims

1. A rubber composition for tire treads comprising a base rubber and an inorganic halide in crystalline form contained therein, said inorganic halide having a melting point of at least 180° C., an average particle size of 20 to 600 micrometer and a solubility of at least 5 g in 100 g of water at 0° C.; said inorganic halide being present in an amount of 3 to 35 parts by weight based on 100 parts by weight of said base rubber.

5,208,274

RETARDERS FOR HARDENING PHENOLIC RESINS

Arthur H. Gerber, Louisville, Ky., assignor to Borden, Inc., Columbus, Ohio

Division of Ser. No. 698,945, May 13, 1991, Pat. No. 5,180,795, which is a continuation-in-part of Ser. No. 562,206, Aug. 2, 1990, Pat. No. 5,096,983. This application Sep. 10, 1992, Ser. No. 942,938
Int. Cl.[5] B22C *1/22*
U.S. Cl. 523—145 14 Claims

1. A method for retarding the hardening of a mixture comprising a phenolic resole resin having a pH of about 4.5 to 9.0 and a magnesium hardening agent selected from the group consisting of magnesium hydroxide and lightburned magnesium oxide which method comprises mixing said resin and hardener with a retarder selected from the group consisting of: azelaic acid; catechol; glyoxal; and salicylic acid said retarder being in a quantity sufficient to retard the hardening of the mixture in comparison with such mixture without the retarder.

5,208,275

IN-REACTOR STABILIZATION OF POLYMERS VIA COATED STABILIZERS

Ananda M. Chatterjee, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 376,266, Jul. 5, 1989, abandoned. This application Nov. 20, 1990, Ser. No. 617,299
Int. Cl.[5] C08K *9/10*
U.S. Cl. 523—200 5 Claims

1. A method for making a substantially coated polymer stabilizer particulate comprising the steps of:

forming a polypropylene emulsion or dispersion;

fluidizing the polymer stabilizer particles, wherein the polymer stabilizer particles are selected from the group consisting of 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene, octadecyl 3-(3',5'-di-tert-butyl-4'-hydroxyphenyl)propionate, tetrakis[methylene (3,5-di-tert-butyl-4-hydroxyhydrocinnamate)] methane, tris[3,5-di-t-butyl-4-hydroxybenzyl) isocyanurate, 3,5-di-tert-butyl-4-hydroxyhydrocinnamic acid triester with 1,3,5-

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tris(2-hydroxyethyl)-s-triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl), 1,3,5-triazine-2,4,6-(1H,3H,5H)-trione, bis-[3,3-bis(4'-hydroxy-3'tert-butyl-phenyl)-butanoic acid]-glycolester, 2,2'-methylene-bis(4-methyl-6-tertiary-butyl-phenol)-terephthalate, 2,2-bis[4-(2-(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyloxy))ethoxy-phenyl]propane, calcium bis[monoethyl(3,5-di-tert-butyl-4-hydroxybenzyl)phosphonate], 1,2-bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyl)-hydrazine, and 2,2'-oxamidobis-[ethyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate];

spraying the emulsion or dispersion on the fluidized polymer stabilizer particles; and

forming discrete substantially coated polymer stabilizer particles.

5,208,276

TIRE TREAD COMPOUND

Paul Stephens, Halesowen, and Andrew Chanse, Atherstone, both of Great Britain, assignors to Sumitomo Rubber Industries Limited, Hyogo, Japan

Filed Jun. 11, 1991, Ser. No. 713,097

Claims priority, application United Kingdom, Jun. 15, 1990, 9013369

Int. Cl.[5] C08L *51/04*

U.S. Cl. 523—436 **4 Claims**

1. A tire tread compound comprising a base polymer of natural or synthetic rubber; a filler comprising at least 50% carbon black, and silica; and between 2 and 10 parts of epoxy resin per hundred of said base polymer of natural or synthetic rubber.

5,208,277

GLASS REINFORCED BLENDS OF HIGHER α-OLEFINS AND POLYESTERS OPTIONALLY COMPATIBILIZED WITH CARBOXYLATED POLYOLEFINS

Edwin Boudreaux, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 15, 1991, Ser. No. 731,225

Int. Cl.[5] C08K *7/14;* **C08L** *23/20*

U.S. Cl. 523—523 **5 Claims**

1. A method for improving the thermal performance of polymethylpentene/polyethylene terephthalate blends said method comprising admixing with polymethylpentene:

(a) an amount of polyethylene terephthalate in the range of about 15 to about 55 weight percent based on the weight of said polymethylpentene;

(b) an amount of glass fiber in the range of about 10 weight percent to about 50 weight percent, based on the total weight of the composition; and

(c) an amount of at least one carboxylated polyolefin in the range of about 1 weight percent to about 35 weight percent based on the weight of said polymethylpentene thereby providing a blend of glass, polymethylpentene, polyethylene terephthalate and carboxylated polyolefin.

5,208,278

STABILIZED POLYARYL ETHER KETONE MOLDING COMPOSITIONS

Juergen Koch, Neuhofen, and Gerhard Heinz, Weisenheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Mar. 29, 1991, Ser. No. 677,336

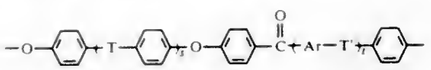
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1990, 4010188

Int. Cl.[5] C08K *5/45, 5/34, 5/48*

U.S. Cl. 524—83 **7 Claims**

1. A stabilized polyaryl ether ketone molding composition containing as essential components

A) from 50 to 99.99% by weight of a Lewis acid containing polyaryl ether ketone prepared by electrophilic polycondensation and composed to an extent of not less than 50 mol % of units for the formula I'



I'

where s and t are each 0, 1, 2 or 3, T and T' are each —O— or —CO— and Ar is meta-phenylene, paraphenylene or two aromatic rings linked to each other in the meta or para position by a chemical bond, or the ring-substituted C_1-C_8-alkyl, C_6-C_{20}-aryl or halogen derivatives thereof,

B) from 0.01 to 4% by weight of at least one organic compound which has a base constant pk_b within the range from 2 to 12 and a boiling point of higher than 300° C.,

C) from 0 to 50% by weight of a further thermoplastic other than A), and

D) from 0 to 45% by weight of fibrous or particulate fillers or mixtures thereof.

5,208,279

WEATHER-RESISTANT POLYACETAL RESIN COMPOSITION

Toru Katsumata, Shizuoka, Japan, assignor to Polyplastics Co., Ltd., Osaka, Japan

PCT No. PCT/JP91/00605, § 371 Date Jun. 25, 1991, § 102(e) Date Jun. 25, 1991, PCT Pub. No. WO91/17212, PCT Pub. Date Nov. 14, 1991

PCT Filed May 7, 1991, Ser. No. 720,455

Claims priority, application Japan, May 7, 1990, 2-118371

Int. Cl.[5] C08K *5/3435, 5/3475, 5/20, 5/13*

U.S. Cl. 524—91 **7 Claims**

1 A weather-resistant polyacetal resin composition which comprises:

(A) a polyacetal base resin;

(B) between 0.01 to 5 parts by weight, based on 100 parts by weight of the polyacetal base resin, of a stabilizer which is at least one compound selected from the group consisting of benzotriazoles, benzophenones, aromatic benzoates, cyanoacrylates, oxalanilides and hindered amines; and

(C) between 0.05 to 60 parts by weight, based on 100 parts by weight of the polyacetal base resin, of a graft copolymer which is the reaction product of (a) polyethylene or copolymers comprised of ethylene and an unsaturated carboxylic acid ester and epoxidized ethylene copolymers, and (b) polymethyl methacrylate or an acrylonitrile-styrene polymer.

5,208,280

ELASTOMERS AND TIRE WITH N-ALKYL-P-QUINONEDIIMINO TRIAZINE STABILIZERS

Edward L. Wheeler, Watertown, Conn., assignor to Uniroyal Chemical Company, Inc., Middlebury, Conn.

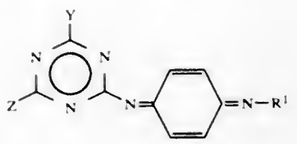
Division of Ser. No. 421,438, Oct. 13, 1989, Pat. No. 5,118,807. This application May 28, 1992, Ser. No. 890,496

Int. Cl.[5] C08K *5/34*

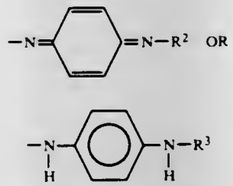
U.S. Cl. 524—100 **2 Claims**

1. A degradation-resistant composition comprising:

an unsaturated polymer having homogeneously incorporated therein an effective amount of one or more compounds of the general formula:



Y and Z are independently selected from



in which R^1, R^2 and R^3 are radicals independently selected from a C_3-C_{18} branched or linear alkyl, or a C_3-C_{12} cycloalkyl or a C_3-C_{12} cycloalkyl substituted with one or more C_1-C_{12} alkyl groups.

5,208,281

STABILIZATION OF THIOLENE COMPOSITIONS

David M. Glaser, New Britain, Conn., assignor to Loctite Corporation, Hartford, Conn.

Continuation-in-part of Ser. No. 651,271, Feb. 5, 1991. This application Aug. 16, 1991, Ser. No. 746,649

Int. Cl.[5] C08K *5/22, 3/00*

U.S. Cl. 524—189 **18 Claims**

1. In a curable thiol-ene formulation comprising a polythiol, a polyene and a free radical retarding agent the improvement comprising that the free radical retarding agent is a N-nitrosoarylhydroxylamine or salt thereof and the formulation includes a stabilizing effective amount of an active iodine species selected from the group consisting of $I^{\ominus}$, I_2 and mixtures thereof.

5,208,282

AQUEOUS SYNTHETIC RESIN FORMULATIONS

Gerd Rehmer, Beindersheim; Maria G. Rau, Bad Durkheim; Eckehardt Wistuba, Bad Durkheim; Reinhard Baecher, Bad Durkheim; Helmut Teichmann, Bad Durkheim, and Wilhelm F. Beckerle, Bobenheim-Roxheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed May 13, 1991, Ser. No. 698,858

Claims priority, application Fed. Rep. of Germany, May 18, 1990, 4016056

Int. Cl.[5] C08K *5/23*

U.S. Cl. 524—190 **8 Claims**

1 An aqueous synthetic resin formulation containing

A) from 3 to 75% by weight of one or more synthetic resins which consists of

a) from 50 to 99.85% by weight of one or more esters of α, β-monoethylenically unsaturated carboxylic acids of 3 to 6 carbon atoms and alkanols of 1 to 18 carbon atoms or one or more vinyl esters of an aliphatic monocarboxylic acid of 2 to 8 carbon atoms or of a mixture of these monomers (monomer a),

b) from 0.1 to 12% by weight of one or more α, β-monoethylenically unsaturated mono- or dibasic acids of 3 to 8 carbon atoms, of anhydrides thereof or of a mixture of these monomers (monomer b),

c) from 0.05 to 10% by weight of one or more monoethylenically unsaturated monomers of 2 to 24 carbon atoms which are not an acetophenone or benzophenone derivative and have one or more aldehyde or keto groups or a mixture of both groups (monomer c),

d) from 0 to 10% by weight of one or more monoethylenically unsaturated acetophenone or benzophenone derivatives or a mixture of these monomers (monomer d) and

e) from 0 to 35% by weight of one or more copolymerizable monoethylenically unsaturated monomers other than monomers (a)–(d) (monomer e), in polymerized form,

the percentages by weight of monomers a, b, c and e being chosen within the stated limits so that a synthetic resin consisting only of these monomers would have a glass transition temperature of from 40° to −50° C.,

B) one or more organic compounds having two or more hydrazide groups,

C) from 0 to 10% by weight, based on the synthetic resin A, of benzophenone or acetophenone or of one or more acetophenone or benzophenone derivatives which are not monoethylenically unsaturated or of a mixture of these active ingredients,

D) effective amounts of emulsifiers or protective colloids or of a mixture of these active ingredients,

E) not less than 5% by weight of water and

F) from 0 to 85% by weight of finely divided fillers, with the proviso that the total amount of the monomers d polymerized in the one or more synthetic resins A and of component C is from 0.05 to 10% by weight, based on the one or more synthetic resins A, and the ratio of the number of moles of hydrazide groups of component B and the number of moles of the aldehyde and keto groups of the monomers c polymerized in the one or more synthetic resins A is from 0.01 to 2.

5,208,283

MIXED S-ALKYLTHIOPROPIONIC ACID ESTERS AND POLYMERS STABILIZED THEREWITH

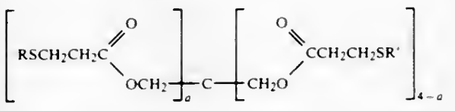
Michael H. Fisch, Wayne, and Richard D. Peveler, Woodcliff, both of N.J., assignors to Witco Corporation, New York, N.Y.

Continuation of Ser. No. 467,898, Jan. 22, 1990, Pat. No. 5,057,567. This application Oct. 1, 1991, Ser. No. 770,992

Int. Cl.[5] C07C *323/52;* **C08K** *5/36*

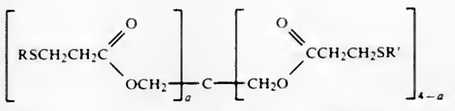
U.S. Cl. 524—302 **24 Claims**

14. A mixed ester stabilizer component for inclusion within a stabilized polymer composition including the mixed ester stabilizer component and an extrudable polymer resin component, said mixed ester stabilizer component comprising a mixed tetraester of pentaerythritol with a plurality of 3-alkylthiopropionic acid, said mixed tetraester comprising at least one tetraester component having the formula:



wherein R is an alkyl group having 4 to 12 carbon atoms, wherein R' is an alkyl group different from R and having from 4 to 12 carbon atoms, and wherein a is 1, 2 or 3, and said R and R' alkyl groups are selected whereby said mixed ester stabilizer component exhibits maximized compatibility with the particular extrudable polymer resin component of the stabilized polymer composition.

15. A stabilized polymer composition including an extrudable polymer resin component and a stabilizer component, wherein said stabilizer component comprises a mixed tetraester of pentaerythritol with a plurality of 3-alkylthiopropionic acids, said mixed tetraester including at least one tetraester component having the formula:



wherein R is an alkyl group, wherein R' is an alkyl group different from R, wherein a is 1, 2 or 3, and wherein said 3-alkylthiopropionic acids are selected from the group consisting of 3-butylthiopropionic acid, 3-octylthiopropionic acid, 3-decylthiopropionic acid and 3-dodecylthiopropionic acid.

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5,208,284
COATING COMPOSITION
Leonard M. Niebylski, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.
Filed Dec. 5, 1989, Ser. No. 446,184
Int. Cl.[5] C08G 77/04, 77/26
U.S. Cl. 524—382 15 Claims

1. A composition comprising a solution of (A) a Group IIIb metal hydrocarbyloxide, (B) a Group IVa metal hydrocarbyloxide, (C) a bis-, tris-, or tetrakis(dialkylamino)metal of Group IVa, (D) a polysilazane and/or a bis-, tris-, or tetrakis(-dialkylamino)silane, and (E) optionally also a cyclopentadienyl Group IVa metal halide in an organic solvent; each of ingredients A-D constituting 1-50% of their combined weights, and the amount ingredient E employed being such that it constitutes 0-20% of the combined weights of the ingredients.

5,208,285
VINYL ACETATE POLYMER WITH WET ADHESION
Clarke A. Boyce, Oakville; Rajeev Farwaha, Etobicoke; Brigitte H. Licht, Burlington, and Martin Menard, Varennes, all of Canada, assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.
Continuation of Ser. No. 480,432, Feb. 15, 1990, abandoned. This application Aug. 16, 1991, Ser. No. 749,613
Claims priority, application Canada, Feb. 17, 1989, 519428
Int. Cl.[5] C08L 31/04
U.S. Cl. 524—516 18 Claims

1. An aqueous coating composition having wet adhesion properties, which comprises a blend of two different aqueous film-forming copolymer dispersions in which the copolymer particles have different average particle size ranges and consisting essentially of:
(a) about 1 to about 50 wt % of a first of said two different film-forming copolymer dispersions wherein the copolymer particles have an average particle size of from about 50 to about 200 nm, said copolymer particles of said first film-forming copolymer dispersion comprising the copolymeric product formed by copolymerization of a first copolymerizable mixture of monomers which includes a wet adhesion-imparting quantity of an unsaturated wet adhesion property imparting cyclic ureido monomer, and
(b) about 99 to about 50 wt % of a second of said two different film-forming copolymer dispersions wherein the copolymer particles have an average particle size of about 300 to about 700 nm, said copolymer particles of said second film-forming copolymer dispersion comprising the copolymeric product formed by copolymerization of a second copolymerizable mixture of monomers from which said unsaturated wet adhesion property imparting cyclic ureido monomer is absent,
wherein said cyclic ureido monomer is present in said blend, in copolymerized form and only in the first polymer dispersion, in an amount of about 0.01 to about 0.25 wt % of total monomer present in polymerized form in said first and second film-forming copolymer dispersions in said blend.

5,208,286
CROSS-LINKABLE ETHYLENE-VINYL ALCOHOL-ACRYLATE POLYMER AND METHOD OF PRODUCING THE SAME
Hakan Sjöstrom, Porvoo; Kenneth Ekman, Kaarina; Veijo Turpeinen, Porvoo, and Kirsi Pulliainen, Kulloo, all of Finland, assignors to Neste Oy, Finland
Filed Dec. 14, 1990, Ser. No. 628,855
Claims priority, application Finland, Dec. 18, 1989, 896054
Int. Cl.[5] C08G 63/46; C08F 8/14
U.S. Cl. 525—57 6 Claims

1. Copolymer of ethylene, vinyl alcohol and vinyl acetate, said co- or ter-polymer containing pendant unsaturated acrylate groups and being cross-linkable by ionizing radiation or chemically by peroxides.

5,208,287
THERMOPLASTIC ELASTOMERS AND METHOD FOR MAKING
Marijn E. J. Dekkers, and Andra J. Moffett, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Continuation-in-part of Ser. No. 540,031, Jun. 18, 1990, abandoned. This application Apr. 17, 1991, Ser. No. 686,446
Int. Cl.[5] C08L 51/06, 67/02
U.S. Cl. 525—64 13 Claims

1. A thermoplastic elastomer having an elastic recovery % of at least 70, which is the product obtained by melt extruding a blend comprising by weight,
(A) an effective amount of a curing agent and
(B) a melt extruded mixture comprising,
(i) from about 45% to 70% by weight of an EPDM rubber functionalized with from about 0.1 to about 16 epoxy groups or 0.1 to 16 ortho ester groups per 1000 carbon atoms, and having from 0.1 to 20 percent by weight of epoxy or 0.1 to 20% by weight of ortho ester containing grafting material grafted on the EPDM rubber and,
(ii) from about 55% to about 30% by weight of aromatic thermoplastic polyester,
where the curing agent of (A) is a member selected from a free radical initiator or a crosslinking agent selected from the class consisting of organic polyamines, organic polyacids, organic polyesters, organic polyanhydrides, organic polysulfides and precursors thereof.

5,208,288
MODIFIED NONFLAMMABLE RESIN COMPOSITION
Ikuhiro Misbima; Kenji Nishimoto, and Hideki Hosoi, all of Hyogo, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Apr. 12, 1991, Ser. No. 684,117
Claims priority, application Japan, Apr. 20, 1990, 2-106249
Int. Cl.[5] C08L 25/04, 27/06, 51/04, 55/02
U.S. Cl. 525—84 3 Claims

1. A modified nonflammable resin composition comprising 100 parts by weight of a nonflammable resin composition (A) composed of 30 to 80% by weight of a styrene resin comprising a rubber portion, a cross-linked portion and a non-rubber portion, said styrene resin having a methyl ethyl (keton-soluble) ketone-soluble portion having a reduced viscosity in the range of from 0.2 to 0.5 dl/g in N,N-dimethylformamide at 30° C. at a concentration of 0.3 g/dl, and 70 to 20% by weight of a vinyl chloride resin having a polymerization degree of 400 to 800; and
0.5 to 15 parts by weight of a copolymer (B) prepared by copolymerizing (a) a vinyl cyanide, (b) an alkyl methacrylate, (c) an aromatic vinyl compound, and (d) another copolymerizable vinyl monomer in amounts specified by the equation below, and having a reduced viscosity of not less than 1.8 dl/g in N,N-dimethylformamide at 30° C. at a concentration of 0.3 g/dl;

$$15 \leqq a+b/4 \leqq 40$$

$$d = 100-a-b-c$$

$$a \geqq 0,\ b \geqq 0$$

$$0 \leqq c \leqq 85, \text{ and}$$

$$0 \leqq d \leqq 20$$

with proviso that when a is zero, b is not zero and when b is zero, both a and c are not zero; wherein a, b, c, and d, respectively, denote percentage by weight of the vinyl cyanide compound (a), the alkyl methacrylate (b), the aromatic vinyl compound (c), and the copolymerizable vinyl monomer (d).

5,208,289
CURING RESIN COMPOSITION AND ITS CURED PRODUCT
Mitsuhiro Takarada; Yuji Yoshikawa; Kenji Yamamoto, all of Gunma; Hiroharu Ohsugi, Ohsaka; Atsushi Ohgaki, Kobe, and Ryozo Takagawa, Ohsaka, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan
Filed Mar. 27, 1991, Ser. No. 675,620
Claims priority, application Japan, Mar. 27, 1990, 2-75728
Int. Cl.[5] C08L 83/05
U.S. Cl. 525—100 19 Claims

1. A curing resin composition comprising (a) an acrylic resin containing no less than two alkenyl groups per molecule and having a number average molecular weight of 500–100,000, (b) an organohydrogenpolysiloxane containing no less than two Si-H bonds per molecule, and (c) a platinum catalyst, wherein the acrylic resin containing alkenyl groups of component (a) is a copolymerization product of an acrylic monomer containing alkenyl groups and another polymerizable monomer, an addition reaction product of an acrylic resin containing hydroxyl groups and an alkenyl isocyanate compound and/or carboxylic acid anhydride containing alkenyl groups, an addition reaction product of an acrylic resin containing carboxyl groups and an epoxy compound containing alkenyl groups, or an addition reaction product of an acrylic resin containing epoxy groups and carboxylic acids containing alkenyl groups.

5,208,290
EPOXY RESIN CROSSLINKED WITH POLYAMINE AND CHLOROSULFONATED POLYOLEFIN
Edward G. Brugel, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of Ser. No. 414,826, Sep. 29, 1989, abandoned. This application Aug. 6, 1990, Ser. No. 562,980
Int. Cl.[5] C08L 23/34, 63/02, 63/04
U.S. Cl. 525—113 9 Claims

1. A process for preparing a crosslinked epoxy resin composition which comprises, at ambient temperature in the absence of a bicyclic amidine:
1) preparing a derivative by reacting:
a) 5–80% by weight, based on the total weight of the composition, of a chlorosulfonated olefin polymer having a chlorine content of about 20–60% by weight and a sulfur content of about 0.5–10% by weight; with
b) 0.1–1 equivalent, per equivalent of sulfur present in the chlorosulfonated olefin polymer, of a compound selected from the group consisting of primary and secondary monoamines, monohydric alcohols, and mixtures thereof; and
2) further reacting the resultant derivative with:
c) 5–90% by weight, based on the total weight of the composition, of a polyamide having at least two terminal amine groups per molecule, or a polyamine other than said polyamide, wherein the equivalent ratio of the polyamide having at least two terminal amine groups per molecule, or a polyamine other than said polyamide to sulfur in the chlorosulfonated olefin polymer is greater than 1:1 and the polyamide having at least two terminal amine groups per molecule, or a polyamine other than said polyamide has an equivalent weight up to 5,000; and with
d) at least 5% by weight, based on the total weight of the composition, of an epoxy resin prepolymer; and with
e) optionally, 0.1–2 equivalents, per equivalent of sulfur present in the chlorosulfonated olefin polymer, of a tertiary amine; wherein the epoxy resin is crosslinked with the chlorosulfonated olefin polymer via sulfonamide groups.

5,208,291
POWDER COATING COMPOSITIONS, A PROCESS FOR THEIR PRODUCTION AND THEIR USE FOR COATING HEAT-RESISTANT SUBSTRATES
Christian Wamprecht, Neuss; Reinhard Halpaap, Odenthal-Globusch; Hans-Joachim Kreuder, Toenisvorst; Manfred Bock, Leverkusen; Jürgen Meixner, Krefeld, all of Fed. Rep. of Germany; Rainer Rettig, Amagasaki, Japan, and Wolfgang Schultz, Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen Bayerwerk, Fed. Rep. of Germany
Filed Sep. 8, 1992, Ser. No. 941,498
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1991, 4130336
Int. Cl.[5] C08G 18/80
U.S. Cl. 525—124 20 Claims

1. A process for the production of a powder coating composition having a glass transition temperature of 20° to 80° C. which comprises
a) homogeneously dissolving in an inert solvent or solvent mixture having a boiling point or range between 50° and 150° C.
A) a polyol component having a hydroxyl value of 30 to 155 and a glass transition temperature of 30° to 120° C. and containing at least one hydroxy-functional copolymer of olefinically unsaturated monomers,
B) a polyisocyanate component containing blocked isocyanate groups, having a glass transition temperature of −45° to +45° C. and containing at least one ketoxime-blocked polyisocyanate selected from the group consisting of
i) polyisocyanates containing one or more biuret, isocyanurate, uretdione or urethane groups and prepared from 1,6-diisocyanatohexane,
ii) polyisocyanates containing isocyanurate groups and prepared from mixtures of 1,6-diisocyanatohexane and 1-isocyanato-3,3,5-trimethyl-5-isocyanatomethyl cyclohexane and
iii) polyisocyanates containing isocyanurate groups and uretdione groups and prepared from a mixture of 1,6-diisocyanatohexane and 1-isocyanato-3,3,5-trimethyl-5-isocyanatomethyl cyclohexane and
C) a catalyst component containing at least one catalyst for the reaction between blocked isocyanate groups and hydroxyl groups components,
wherein components A) and B) are present in an amount which are sufficient to provide an equivalent ratio of blocked isocyanate groups to hydroxyl groups of 0.5:1 to 1.5:1,
b) freeing the resulting solution from the solvent and
c) simultaneously and/or subsequently converting the solid obtained into powder form.

5,208,292
THERMOPLASTIC COMPOSITIONS BASED ON SATURATED POLYESTER AND MOULDED ARTICLES CONTAINING THEM
Marius Hert, Verneuil-En-Halatte, and Germain Bertin, Lens, both of France, assignors to Norsolor, Paris, France
PCT No. PCT/FR88/00641, § 371 Date Aug. 23, 1990, § 102(e) Date Aug. 23, 1990, PCT Pub. No. WO89/05838, PCT Pub. Date Jun. 29, 1989
PCT Filed Dec. 23, 1988, Ser. No. 566,352
Claims priority, application France, Dec. 23, 1987, 87 17995
Int. Cl.[5] C08L 67/02
U.S. Cl. 525—166 3 Claims

1. Thermoplastic composition consisting essentially of at least 60% by weight of a saturated polyester and not more than 40% by weight of at least one polymeric reinforcement, wherein the polymeric reinforcement employed is an at least partially crosslinked polymeric composition obtained by mixing:
(a) at least one copolymer comprising from 94 to 60% by

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weight of ethylene, from 5 to 25% by weight of at least one alkyl or cycloalkyl acrylate or methacrylate in which the alkyl or cycloalkyl group has from 2 to 10 carbon atoms, and from 1 to 15% by weight of at least one unsaturated epoxide,

(b) at least one copolymer comprising from 84 to 60% by weight of ethylene, from 15 to 34% of at least one alkyl or cycloalkyl acrylate or methacrylate in which the alkyl or cycloalkyl group has from 2 to 10 carbon atoms, and from 1 to 6% by weight of at least one anhydride of an unsaturated dicarboxylic acid, and

(c) at least one compound capable of accelerating the reaction between the epoxy group present in the copolymer (a) and the anhydride group present in the copolymer (b);

said polymeric reinforcement being present in a sufficient quantity to impart to said thermoplastic composition a melt index (determined at 250° C. under a load of 5 kg) of at least 10 dg/min., and to impart to said composition upon being molded into articles, a notched Izod impact strength of at least equal to 110 kg/cm/cm at 20° C., at least equal to 25 kg/cm/cm at −30° C., and at least 20 kg/cm/cm at −40° C.

5,208,293

RUBBER COMPOSITION HAVING LOW FRICTION

Yoshio Oki, Yokkaichi; Kazutoshi Sugitani; Takeo Kaneko, both of Yokohama; Yukimasa Shimizu, and Hidetsugu Yagi, both of Hofu, all of Japan, assignors to NTN Engineering Plastics Corporation, Osaka, Japan

Filed Oct. 26, 1990, Ser. No. 603,481

Claims priority, application Japan, Jan. 29, 1990, 2-19976

Int. Cl.[5] **C08L** *27/12, 27/16, 27/18, 27/20*

U.S. Cl. 525—199 **4 Claims**

1. A rubber composition comprising at least one thermoplastic fluororesin as a first ingredient selected from the group consisting of a tetrafluoroethylene-ethylene copolymer, a tetrafluoroethylene-perfluoroalkyl vinylether copolymer and a tetrafluoroethylene-hexafluoropropylene copolymer, a thermoset fluororubber as a second ingredient, and a tetrafluoroethylene polymer as a third ingredient represented by formula

$$+CF_2-CF_2+_n$$

5,208,294

HYDROGENATED NITRILE VULCANIZATES

Trevor A. Brown, Sarnia, Canada, assignor to Polysar Rubber Corporation, Sarnia, Canada

Filed Jun. 20, 1991, Ser. No. 718,179

Int. Cl.[5] **C08F** *8/42*

U.S. Cl. 525—263 **7 Claims**

1. A hydrogenated nitrile rubber based vulcanizate having improved load bearing capabilities, improved abrasion resistance and reduced heat build-up, said vulcanizate having been produced by vulcanization of a compound consisting essentially of 100 parts by weight of hydrogenated nitrile rubber, 10 to 85 parts by weight of zinc di-acrylate and 1 to 10 parts by weight of an organic peroxide based on 100% active peroxide.

5,208,295

CHARGE IMBALANCED POLYELECTROLYTE COMPOSITION

Ratan K. Chaudhuri, Butler; Robert B. Login, Oakland; Lowell R. Anderson, Morristown, all of N.J., and Mohammed Tazi, Marietta, Ga., assignors to ISP Investments Inc., Wilmington, Del.

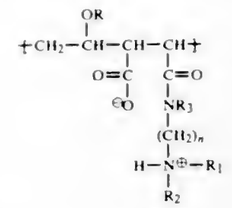
Filed Nov. 25, 1991, Ser. No. 796,996

Int. Cl.[5] **C08F** *8/33*

U.S. Cl. 525—327.6 **7 Claims**

1. A composition comprising:

(a) about 10 to 90 mole % of an amphoteric copolymer having the formula



where

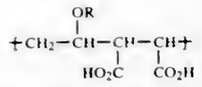
R = alkyl C_1-C_4,

n = 1-6,

R_1 and R_2 are independently alkyl C_1-C_6, and

R_3 is H,

(b) about 10 to 90 mole % of a polymeric diacid having the formula:



where R is as defined above, and

(c) less than about 8 mole % of by-product salts which are the dialkylaminoalkylamine salts of (a) and (b).

5,208,296

NITRILE RUBBER HYDROGENATION

Garry L. Rempel, and Xiang-Yao Guo, both of Waterloo, Canada, assignors to Polysar Rubber Corporation, Sarnia, Ontario, Canada

Filed Sep. 2, 1992, Ser. No. 939,245

Int. Cl.[5] **C08F** *8/04*

U.S. Cl. 525—338 **10 Claims**

1. An improved process for the production of hydrogenated nitrile rubber wherein a nitrile rubber which is a polymer comprising a conjugated C_4-C_6 diolefin and a C_3-C_5 unsaturated nitrile is hydrogenated in the presence of a divalent ruthenium catalyst selected from compounds of the general formula:

$$RuXY(CO)ZL_2, \text{ or } RuDE(CO)M_n, \text{ or } RuGJM_3, \text{ or } RuK_2N_2$$

wherein X is selected from a halogen atom or a carboxylate group, Y is selected from a halogen atom, a hydrogen atom, a phenyl group, a carboxylate group or a styryl group, Z is selected from CO, pyridine., benzonitrile or no ligand and L is selected from the phosphine ligands of the general formula PR_3 in which R is selected from alicyclic or alkyl groups, n is 2 or 3 and when n is 3, D is a halogen atom and E is a hydrogen atom and when n is 2, D is selected from a halogen atom or a carboxylate group and E is selected from a halogen atom, a hydrogen atom a phenyl group or a carboxylate group and M is selected from the phosphine ligands of the formula PA_3 in which A is a phenyl group or a C_1 to C_4 alkyl group or mixtures thereof, G is selected from a halogen atom or a hydrogen atom, J is selected from a halogen atom or a carboxylate group, K is a carboxylate group and N is triphenylphosphine, the improvement being that said nitrile rubber is provided in an aqueous emulsion, an organic compound which is miscible with the aqueous phase and is also a solvent for the polymer and for the catalyst is added to said aqueous emulsion and an organic additive is added to the mixture before hydrogenation is initiated, said additive being selected from monocarboxylic acids of formula R_1—COOH, from dicarboxylic acids of formula HOOC—R^1—COOH and from tartaric, citric and ascorbic acids, where R_1 is selected from Q—$(CH_2)_m$— where m is an integer from 1 to 6 and Q is selected from hydroxy and phenoxy or R_1 is selected from T—$C(CH_3)_2$—, T—CH_2—$(CH_2)_p$—, T_2CH—$(CH_2)_p$—, T_3C—$(CH_2)_p$—, CH_3—CT—$(CH_2)_{p-1}$—, CH_3—$(CH_2)_y$—CHT—$(CH_2)_{p-1-y}$—, or CH_3—$(CH_2)_{p-1}$—CHT— where T is fluorine or chlorine, p is 0 or an integer from 1 to 5 and y is an integer from 1 to 3, or R_1 is selected from the aromatic group C_6H_4Y where Y is selected from chlorine and hydroxy, and wherein R^1 is selected from —$(CH_2)_q$— where q is 0 or an integer from 1 to 5, from —CH=CH— and from (p) C_6H_4, the weight of said additive per 0.01 parts by weight of ruthenium in the catalyst being from about 0.3 to about 1.5.

5,208,297

RARE EARTH METAL COORDINATION COMPOUNDS AS LACTONE POLYMERIZATION CATALYSTS

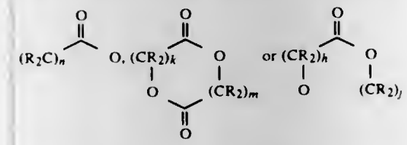
Thomas M. Ford, Greenville, and Stephan J. McLain, Wilmington, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 30, 1991, Ser. No. 814,135

Int. Cl.[5] **C08G** *63/84, 63/91*

U.S. Cl. 525—415 **14 Claims**

1. A process for polymerizing lactide comprising: contacting at 100° C. to 220° C. a lactide and up to 20 mole percent of another lactone selected from the group consisting of



and mixtures thereof, where n is 4 or 5, h, i, k and m are independently 1 or 2, each R is independently selected from H, a hydrocarbyl containing up to 12 carbon atoms or substituted hydrocarbyl containing up to 12 carbon atoms with a catalytic amount of a catalyst of the formula MZ_3, wherein M is metal selected from the group consisting of scandium, yttrium, bismuth and lanthanide series rare earth metals and the Zs are independantly the same or different highly coordinating ligands wherein at least one Z is a betadiketone, betaketoester or malonate anion, and cooling the resulting polymer.

5,208,298

STABLE SOLUTION OF POLYBENZIMIDAZOLE AND POLYSULFONS BLENDS

Tai-Shung Chung, Randolph; Arthur G. Schlask, Roselle Park, and Dieter Kurschus, Bayville, all of N.J., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Apr. 8, 1992, Ser. No. 865,386

Int. Cl.[5] **C08L** *77/06, 81/06, 79/04*

U.S. Cl. 525—435 **20 Claims**

1. A stable solution of polybenzimidazole resin consisting of from approximately 10 to approximately 35 weight percent of resin and from approximately 65 to approximately 90 weight percent of a suitable solvent, based on the total weight of the solution, the resin consisting of from approximately 70 to approximately 95 weight percent of polybenzimidazole and from approximately 5 to approximately 30 weight percent of polysulfone, based on the total weight of the resins present in the solution, wherein the solution is substantially free of organic salts.

5,208,299

NONLINEAR OPTICAL ARYLHYDRAZONES AND NONLINEAR OPTICAL POLYMERS THEREOF

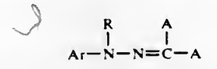
Stephen E. Bales; David J. Brennan; Robert J. Gulotty; Anthony P. Haag, and Muthiah N. Inbasekaran, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 10, 1992, Ser. No. 866,400

Int. Cl.[5] **C08F** *20/00;* **C08G** *8/02, 63/00*

U.S. Cl. 525—437 **50 Claims**

1. A nonlinear optical material comprising dihydroxy arylhydrazones exhibiting nonlinear optical properties when oriented by an electric field, represented by the formula:



wherein Ar is an aromatic hydrocarbyl or heterocyclic radical, substituted with at least one electron withdrawing group, and containing up to 30 non-hydrogen atoms; A is independently at each occurrence either R or a C_{6-30} aromatic group, optionally substituted with one or more hydroxy groups; and R is hydrogen or a C_1 to C_{20} hydrocarbyl radical; provided that there are at least two aromatically substituted hydroxy groups in the aryl hydrazone molecule.

5,208,300

SOLUTION-STABLE, MOISTURE-CURABLE SILICONE PRESSURE SENSITIVE ADHESIVES

Robert H. Krahnke; Shawn K. Mealey, and William J. Schoenherr, all of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Aug. 22, 1991, Ser. No. 748,477

Int. Cl.[5] **C08F** *283/12*

U.S. Cl. 525—474 **10 Claims**

1. A method comprising: reacting (i) a silicone pressure sensitive adhesive composition having reactive sites of the formula ≡SiX and X denotes an alkenyl radical, a hydroxyl radical or a hydrogen atom, substantially all X being OH, with (ii) a moisture-reactive compound having the formula $R_b(OR')_{3-b}SiY$ wherein Y denotes a radical which is reactive with ≡SiX, whereby the Y-substituted silicon atom is linked with the X-substituted silicon atom by a divalet Z radical, R denotes a monovalent hydrocarbon radical, R' denotes an alkyl or alkoxyalkyl radical, and the subscript b has a value of 0 or 1; and with (iii) a silanol-capping compound having the formula R_3SiY' wherein Y' denotes a radical which is reactive with silanol, whereby the Y'-substituted silicon atom is linked with the silanol-substituted silicon atom by a divalent oxygen atom, and R denotes a monovalent hydrocarbon radical; all other silicon-bonded radicals in (i) being selected from the group consisting of divalent oxygen atoms linking silicon atoms, hydrogen atoms and monovalent hydrocarbon radicals; the moisture-reactive compound and the silanol-capping compound comprise disilazanes and said reacting is promoted by the action of an acid catalyst.

5,208,301

SULFONATED POLYANILINE COMPOSITIONS, AMMONIUM SALTS THEREOF, PROCESS FOR THEIR PREPARATION AND USES THEREOF

Arthur J. Epstein, Bexley, and Jiang Yue, Columbus, both of Ohio, assignors to Ohio State University Research Foundation, Columbus, Ohio

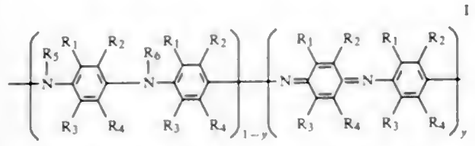
Continuation-in-part of Ser. No. 423,902, Oct. 19, 1989, Pat. No. 5,137,991, which is a continuation-in-part of Ser. No. 193,964, May 13, 1988, Pat. No. 5,079,334. This application May 25, 1990, Ser. No. 529,023

Int. Cl.[5] **C08F** *283/00, 6/00;* **C08G** *73/00, 75/00*

U.S. Cl. 525—540 **3 Claims**

1. A method for making a self-protonated, conducting sulfonated polyaniline composition of formula I:

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I

wherein $0 \leqq y \leqq 1$, R_1, R_2, R_3, R_4, R_5 and R_6 are independently selected from the group consisting of H, $-SO_3M$, $-R_7SO_3M$, $-OCH_3$, $-CH_3$, $-C_2H_5$, $-F$, $-Cl$, $-Br$, $-I$, $-(NR_7)_2$, $-NHCOR_7$, $-OH$, $-O^-$, $-SR_7$, $-OR_7$, $-OCOR_7$, $-NO_2$, $-COOH$, $-COOR_7$, $-COR_7$, $-CHO$ and $-CH$, wherein R_7 is a C_1-C_8 alkyl, aryl or aralkyl group, wherein the fraction of rings containing at least one R_1, R_2, R_3 or R_4 group being an $-SO_3M$, or $-R_7SO_3M$ wherein M is an unsubstituted or substituted ammonia of the formula $NA_1A_2A_3$ and A_1, A_2 and A_3 are independently selected from the group consisting of H, and C_1-C_8 straight or branched alkyl, varies from approximately 20 percent to 100 percent; comprising:

(a) dissolving a sulfonated polyaniline composition in an unsubstituted or substituted ammonium hydroxide to form a solution comprising an unsubstituted or substituted ammonium salt of the sulfonated polyaniline composition;

(b) exposing a substrate to the solution comprising the ammonium salt of the sulfonated polyaniline composition; and,

(c) converting the ammonium salt of the sulfonated polyaniline composition to the self-protonated conducting sulfonated polyaniline composition by removing water and the unsubstituted or substituted ammonia gas.

5,208,302

CATALYST, PROCESS FOR PREPARATION OF SAME AND PROCESS FOR POLYMERIZATION OF OLEFINS USING SAME

Tetuo Nakajo; Hisayoshi Yanagihara; Masaki Fushimi; Shigenobu Miyake, all of Oita, and Hideki Sakurai, Sendai, all of Japan, assignors to Showa Denko K.K., Tokyo, Japan

Division of Ser. No. 551,238, Jul. 11, 1990, Pat. No. 5,049,533.
This application Jun. 18, 1991, Ser. No. 717,141
Claims priority, application Japan, Jul. 11, 1989, 1-178620
Int. Cl.[5] C08F *4/651, 10/00*
U.S. Cl. 526—125 **5 Claims**

1. A process for preparing stereoregular olefin polymers which comprises contacting an olefin having 2 to 18 carbon atoms with a catalyst composition for use in the polymerization of olefins, which comprises (a) a catalyst component containing magnesium, titanium, and a halogen, (b) an organoaluminum compound, and (c) 0.001 to 5 moles, per mole of the organoaluminum compound (b), of a stereoregularity-improving agent selected from the group consisting of aromatic monocarboxylic acid esters, silicon compounds having an Si—O—C or Si—N—C bond, acetal compounds, germanium compounds having a Ge—O—C bond, and nitrogen-or oxygen-containing heterocyclic compounds having an alkyl substituent;

said catalyst component further containing an ingredient which is at least one member selected from the group consisting of keto-esters represented by the following formula (I):



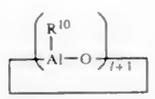
(I)

wherein R^1 and R^2 independently represent a univalent hydrocarbon group having 1 to 20 carbon atoms which may have a chloride substituent, and Z represents a divalent aromatic or polycyclic hydrocarbon group having 6 to 20 carbon atoms which may have a chlorine substituent, the R^1 and R^2 being selected from the group consisting of aliphatic hydrocarbons, alicyclic hydrocarbons, aromatic hydrocarbons, and polycyclic hydrocarbons; and

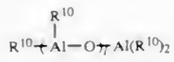
said organoaluminum compound being selected from the group consisting of the compounds represented by the following general formulae (II) through (V):

$$AlR^3R^4R^5 \quad (II)$$

$$R^6R^7Al—O—AlR^8R^9 \quad (III)$$



(IV)



(V)

wherein R^3, R^4 and R^5 independently represent a hydrocarbon group having 1 to 12 carbon atoms, a halogen atom or a hydrogen atom, with the proviso that at least one of R^3, R^4 and R^5 represents a hydrocarbon group, R^6, R^7, R^8, and R^9 independently represent a hydrocarbon group having 1 to 12 carbon atoms, R^{10} represents a hydrocarbon group having 1 to 12 carbon atoms, and l is an integer of at least 2.

5,208,303

PROCESS FOR PREPARING A VANADIUM-BASED CATALYST SUITABLE FOR OLEFIN POLYMERIZATION

Jean-Claude A. Bailly, Martigues, France, assignor to BP Chemicals Limited, London, England

Division of Ser. No. 561,786, Aug. 2, 1990, Pat. No. 5,070,054.
This application Jul. 29, 1991, Ser. No. 736,791
Claims priority, application France, Aug. 8, 1989, 89 10856
Int. Cl.[5] C08F *4/68, 210/06*
U.S. Cl. 526—125 **21 Claims**

1. A process for preparing an elastomeric copolymer of propylene with ethylene and/or 1-butene having a propylene content by weight of 30 to 72% and obtaining said elastomeric copolymer directly in the form of a non-adhesive powder with a high yield, which process comprises copolymerising in a gas phase reactor propylene with ethylene and/or 1-butene at a temperature from 0° to 60° C. under a total pressure from 0.1 to 5 MPa in the presence of (i) a catalyst based on a vanadium compound precipitated within a liquid hydrocarbon by reduction reaction of vanadium on a spherical support of magnesium dichloride and (ii) an organoaluminum compound cocatalyst, said catalyst being prepared by contacting with said liquid hydrocarbon:

(a) a vanadium-reducing agent selected from the group consisting of organoaluminum, organomagnesium or organozinc compounds with,

(b) a vanadium compound soluble in said liquid hydrocarbon and containing halogen atom, X, and alkoxy group, OR, in a molar ratio X:OR, from 0.051 to 20:1, and

(c) a solid support consisting of spherical particles and containing (i) from 80 to 99.5 mol % of magnesium dichloride substantially free from any product containing a Mg—C bond, and (ii) from 0.5 to 20 mol % of at least one organic electron-donor compound, D, free from labile hydrogen.

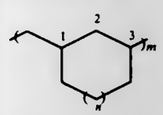
5,208,304

STEREOREGULAR CYCLOPOLYMERS AND METHOD

Robert M. Waymouth, Palo Alto, Calif., assignor to Board of Trustees, Leland Stanford Junior University, Stanford, Calif.

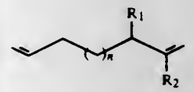
Division of Ser. No. 452,721, Dec. 19, 1989, Pat. No. 5,104,956.
This application Oct. 7, 1991, Ser. No. 772,562
Int. Cl.[5] C08F *36/20*
U.S. Cl. 526—164 **12 Claims**

1. A method of preparing polymers formed of monomer moieties, substantially each monomer having the following structural formula:



where C_1,C_2, and C_3 designate respectively the first, second, and third carbon in the ring of each monomer, where n is an integer from 0 to about 3 and m is a positive number up to about 10,000, comprising the step of:

(a) providing nonconjugated diolefins having the following structural formula:



where n is an integer between about 0 and 3 and R_1 and R_2 are hydrogens or hydrocarbyl substituents between 1 and 20 carbons in length, including cyclic structures where R_1 is connected to R_2 by a chain of atoms; and

(b) adding a soluble catalyst system to the diolefins, said catalyst system consists essentially of (i) an achiral metallocene derivative $(C_5R'_5)_2MX_2$, where $(C_5R'_5)$ is a substituted or nonsubstituted cyclopentadienyl ligand, R' is a hydrogen or hydrocarbyl substituent, M is Zr, Hf, or Ti, and X is any uninegative ligand including a halide, hydrocarbyl, alkoxide or amide and (ii) an aluminum compound wherein the polymers synthesized are predominately atactic.

5,208,305

FLUORINE-CONTAINING POLYMERS AND PREPARATION AND USE THEREOF

Werner M. Grootaert, Oakdale, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 17, 1992, Ser. No. 869,943
Int. Cl.[5] C08F *4/16*
U.S. Cl. 526—194 **10 Claims**

1. A method for the preparation of fluorine-containing polymer comprising, polymerizing, under free-radical conditions, a polymerizable mixture comprising fluorine-containing ethylenically unsaturated monomer, and a non-free-radically polymerizable organometallic compound comprising a silicon atom and an aliphatic carbon atom bonded directly to said silicon atom and to a hydrogen atom.

5,208,306

MESOGENIC ALKENYL FUNCTIONAL MALEIMIDES AND THERMOSETS THEREOF

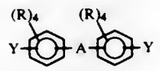
Robert E. Hefner, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 675,603, Mar. 25, 1991, Pat. No. 5,159,030.
This application Aug. 7, 1992, Ser. No. 926,886
Int. Cl.[5] C08F *22/140*
U.S. Cl. 526—256 **6 Claims**

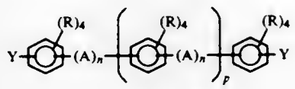
1. A product resulting from curing a compound containing at least one alkenyl group, at least one maleimide group and at least one rodlike mesogenic moiety, optionally in the presence of one or more catalysts.

2. A product of claim 1 wherein the compound being cured is represented by the following Formulas I, II, III or IV

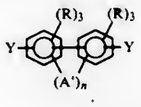
FORMULA I



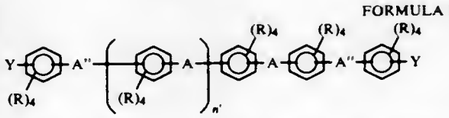
FORMULA II



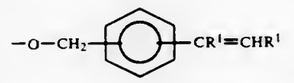
FORMULA III



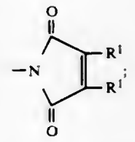
FORMULA IV



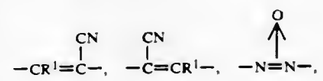
wherein at least about 80 percent of the —A— linkages in Formulas I, II and IV and the direct bond in Formula III and the Y groups are in the para position with respect to each other; one Y group is an alkenyloxy group represented by the formulas —O—CR^1=CHR^1, —O—CHR^1—CR^1=CHR^1,



and the other Y group is a maleimide group represented by the formula

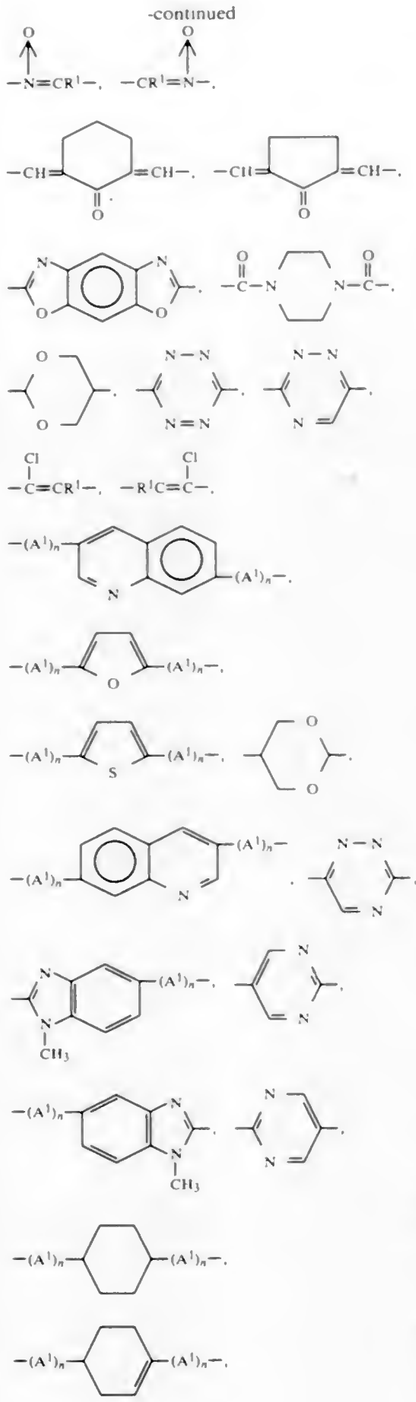


each A is independently $-CR^1$=CR^1-, $-C\equiv C-$, $-N$=$N-$, $-CR^1$=$N-$, —O—CO—, $-NR^1$—CO—, $-CR^1$=$N-N$=CR^1-, $-CR^1$=CR^1—CO—, —CO—O—, —CO—NR^1—, —CO—CR^1=CR^1-, $-CR^1$=C-R^1—O—CO—$(CH_2)_{n'}-$, $-N$=CR^1-, $-(CH_2)_{n'}$—CO—O—CR^1=CR^1-, $-CR^1$=CR^1—O—CO—, —CO—O—CR^1=CR^1-, —CO—O—N=CR^1-, $-CR^1$-=N—O—CO—, $-CR^1$=CR^1—CO—O—, —CO—S—, —O—CO—CR^1=CR^1-, $-CR^1$=CR^1—CO—O—$(CH_2)_{n'}$—, —S—CO—, $-(CH_2)_{n'}$—O—CO—CR^1=CR^1—, —CH-R^1—CHR^1—CO—O—, —O—CO—CHR^1—CHR^1—CH-R^1—, $-C\equiv C-C\equiv C-$, $-CR^1$=CR^1—CR^1=CR^1-, —CO—NR^1—NR^1—CO—,

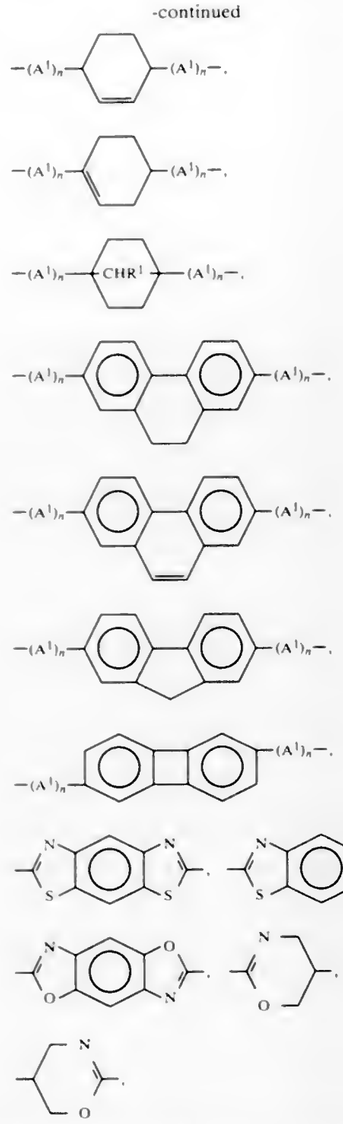


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each A' is independently a divalent hydrocarbyl group having from 1 to about 10 carbon atoms; each A'' is independently an alkylene group having from 1 to about 10 carbon atoms carbon atoms, a direct bond, —O—, —CO—, —S—, —S—S—, —SO—, —SO_2— or —O—CO—O—; each A^1 is independently a —CO—, —O—CO—, —CO—O—, —CO—NR^1—, or —NR^1—CO— group; each R is independently hydrogen or a hydrocarbyl or hydrocarbyloxy group having from 1 to about 10 carbon atoms, a halogen atom, a nitro group, a nitrile group, a phenyl group or a —CO—R^1 group; each R^1 is independently hydrogen or a hydrocarbyl group having 1 to about 3 carbon atoms; n has a value of zero or one, n' has an average value from zero to about 6; and p has an average value from 1 to about 30; with the proviso that any of the aromatic rings

can, if desired, contain a nitrogen, oxygen or sulfur heteroatom.

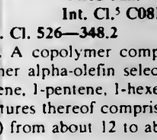
5,208,307

OPTICAL MATERIAL

Toru Doi, and Tomohiro Ishikawa, both of Yokkaichi, Japan, assignors to Tosoh Corporation, Yamaguchi, Japan

Filed Aug. 19, 1991, Ser. No. 746,663
Claims priority, application Japan, Aug. 24, 1990, 2-221212
Int. Cl.[5] C08F *22/40*
U.S. Cl. 526—262 **5 Claims**

1. An optical lens comprising a resin composed of a polymer containing 20 to 90 mol %, based on the polymer, of a first structural unit represented by the formula (I) and 80 to 10 mol %, based on the polymer, of a second structural unit represented by the formula (2), and having a weight-average molecular weight of from 1×10^4 to 1×10^5 in polystyrene equivalent, a light transmittance value not less than 85%, a T_g value not less than 120° C. and a pencil hardness not lower than B:



(I)

where R^1 is a cyclic alkyl group represented by C_mH_{2m-1} or a linear or branched alkyl group represented by C_nH_{2n+1}; m is an integer of 3 to 8; and n is an integer of 1 to 18;

(II)

where R^2 denotes hydrogen or an alkyl group having 1 to 8 carbons.

5,208,308

ACRYLAMIDE DERIVATIVES AND THEIR POLYMERS

Yuji Suzuki, Osaka; Satoshi Urano, Yawata; Hirotoshi Umemoto, Kyoto; Ryuzo Mizuguchi, Yawata; Kei Aoki, Ikoma, and Noriyuki Tsuboniwa, Osaka, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Division of Ser. No. 42,893, Apr. 27, 1987, Pat. No. 4,914,225.
This application Jan. 22, 1990, Ser. No. 468,281
Claims priority, application Japan, Apr. 25, 1986, 61-97760; Apr. 25, 1986, 61-97761
The portion of the term of this patent subsequent to Nov. 13, 2007, has been disclaimed.
Int. Cl.[5] C08F *20/58*
U.S. Cl. 526—304 **9 Claims**

1. A polymer comprising a carbon-carbon backbone chain and at least one N-(substituted oxalyl)carbamoyl group of the formula: —CH—NH—CO—CO—OR wherein R is a hydrocarbon group, having a molecular weight of not more than 500 and being selected from the group consisting of alkenyl, alkynyl, aryl, aralkyl, and alkyl substituted with alkenyloxy, as a side chain attached to said backbone chain.

5,208,309

LINEAR, VERY LOW DENSITY POLYETHYLENE POLYMERIZATION PROCESS AND PRODUCTS THEREOF

Max P. McDaniel, and Elizabeth A. Benham, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 31, 1992, Ser. No. 829,807
Int. Cl.[5] C08F *210/02, 210/08, 210/14*
U.S. Cl. 526—348.2 **16 Claims**

1. A copolymer composition of ethylene and at least one higher alpha-olefin selected from the group consisting of 1-butene, 1-pentene, 1-hexene, 1-octene, 4-methyl-1-pentene and mixtures thereof comprising:

a) from about 12 to about 40 weight percent higher alpha-olefin, based on the total weight of the copolymer, in said copolymer; and

b) from about 100 to about 180 short chain branches per 10,000 backbone carbons of said copolymer; and

wherein said copolymer has a density within a range of about 0.89 to about 0.915 g/cc, a melt index (MI) within a range of about 0.05 to about 0.35 g/10 minutes, a high load melt index (HLMI) within a range of about 5 to about 50 g/10 minutes, a HLMI/MI ratio within a range of about 100 to about 300, and a Mw/Mn ratio within a range of about 12 to about 35.

5,208,310

METHOD FOR PREPARATION OF VERY HIGH MOLECULAR WEIGHT POLYCARBORANE SILOXANES

Thomas K. Dougherty, Playa Del Rey, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 16, 1991, Ser. No. 807,364
Int. Cl.[5] C08G *77/56*
U.S. Cl. 528—5 **3 Claims**

1. In a method for the preparation of a very high molecular weight polycarborane siloxane polymer comprising the step of:

(a) providing carborane bisdimethyl silanol in dried chlorobenzene solvent, to form a slurry and cooling said slurry to $-10°\pm5°$ C.;

(b) adding to said slurry a mixture of dimethylbisureido silane and methylphenylbisureido silane to form a reaction mixture at $-10°\pm5°$ C.;

(c) separating from said reaction mixture a silanol end-capped prepolymer of said polycarborane siloxane polymer;

(d) dissolving said prepolymer in chlorobenzene to form a solution; and

(e) adding to said prepolymer solution an excess of said bisuriedo silane selected from the group consisting of dimethylbisureido silane, methylphenylbisureido silane and a mixture thereof to form said very high molecular weight polycarborane siloxane polymer, wherein the improvement comprises:

(i) providing said carborane bisdimethyl silanol in an ultra-pure state by dissolving said carborane bisdimethylsilanol in a dry, oxygen-free mixture of hexane and toluene by heating to approximately 70° C. in providing carborane bisdimethyl silanol in dried cooling said first filtered solution to form a first crystalline product, and repeating said dissolving of said first crystalline product, said filtering, and said cooling for a total of 2 to 5 additional times.

(ii) providing said dimethylbisureido silane in an ultra-pure state by dissolving said dimethylbisureido silane in a dry, oxygen-free mixture of diisopropyl ether and tetrahydrofuran by heating to approximately 60° C. in an inert atmosphere to form a second solution, filtering said second solution, and cooling said second filtered solution to form a second crystalline product, and repeating said dissolving of said second crystalline product, said filtering, and cooling one time; and

(iii) providing said methylphenylbisureido silane in an ultra-pure state by dissolving said methylphenylbisureido silane in dry, oxygen-free diisopropyl ether by heating to form a third solution, filtering said third solution, adding dry hexane to said third filtered solution to form a mixture and cooling said mixture to room temperature, to form a third crystalline product and repeating said dissolving of said third crystalline product, said filtering, said adding of hexane and said cooling two additional times;

whereby said polycarborane siloxane polymer has a molecular weight in excess of 120,000.

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5,208,311
ORGANOPOLYSILOXANES WITH POLYETHER AND ESTER GROUPS LINKED TO A COMMON SPACER GROUP

Dietmar Schaefer, Hattingen; Andreas Weier, Essen, and Dietmar Wewers, Bottrop, all of Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Essen, Fed. Rep. of Germany

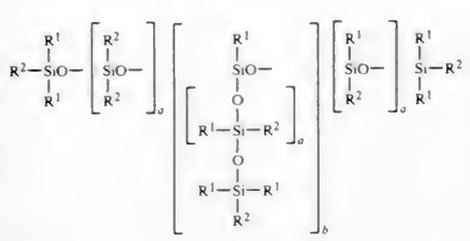
Filed Jan. 24, 1992, Ser. No. 825,393

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1991, 4104270

Int. Cl.[5] C08G *77/08*

U.S. Cl. 528—13 **14 Claims**

1. An organopolysiloxane having polyether and ester groups linked to a common spacer group, wherein the spacer group is linked to the siloxane backbone through an SiC bond and the organopolysiloxane has the formula



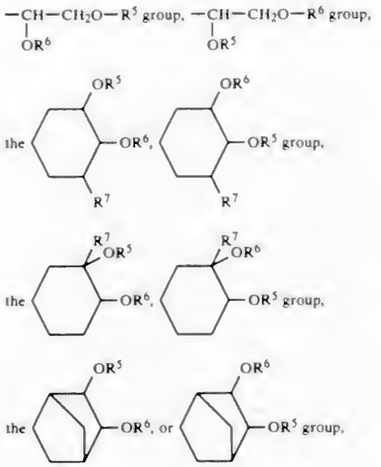
wherein

R^1 groups are the same or different and in each case represent alkyl groups with 1 to 4 carbon atoms or phenyl groups, with the proviso that at least 90% of the R^1 groups are methyl groups,

R^2 is selected from the group consisting of R^1 group, R^3—R^4 group, an alkyl group with 2 to 30 carbon atoms and a hydrogen group, wherein the ratio of R^3—R^4 group to the sum of alkyl group with 2 to 30 carbon atoms and hydrogen group is 70:30 to 100:0, in which

R^3 is a divalent hydrocarbon group, the carbon chain of which is selected from the group consisting of a carbon chain, a carbon chain interrupted by an oxygen atom and a carbon chain with a carbonyl group and

R^4 is one of the following groups:



in which

R^5 is the acyl group of a monocarboxylic acid with 1 to 20 carbon atoms,

R^6 is a polyether group and

R^7 is a hydrogen or methyl group and

a has a value of 1 to 1,000 and

b has a value of 0 to 10,

with the proviso that, in the average molecule, at least one R^2 group is a group having the formula R^3—R^4.

5,208,312
SILICONES WHICH CONTAIN LATERAL PERIPHERAL VINYL ETHER GROUPS HAVING ALIPHATIC OR AROMATIC URETHANES

Bernard J. L. Boutevin, Montpellier; Boulos Youssef, Mont-Saint-Aignan, both of France, and Gerardo Caporiccio, Milan, Italy, assignors to Dow Corning Corporation, Midland, Mich.

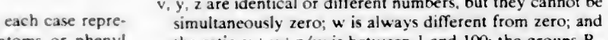
Filed Feb. 21, 1992, Ser. No. 839,163

Claims priority, application France, Jun. 27, 1991, 91 07954

Int. Cl.[5] C08G *77/04*

U.S. Cl. 528—28 **6 Claims**

1. A siloxane copolymer having a molecular weight from 5,000 to 100,000 and represented by formula I:



where

V = —SiR_aR_bO—;

W = —$SiR'_a(R_c$—R_d—$OCH{=}CH_2)O$—;

Y = —SiR_aR_gO—;

Z = —$R_aR_gSiC_nH_{2n}R'_fC_nH_{2n}SiR_aR_gO$— with n = 2, 3 or 4;

v, y, z are identical or different numbers, but they cannot be simultaneously zero; w is always different from zero; and the ratio v + y + z/w is between 1 and 100; the groups R_a represent, independently of each other, a radical selected from the group consisting of CH_3, C_2H_5, n-C_3H_7, n-C_4H_{10} radicals, and phenyl, with not more than one phenyl radical being attached to a given silicon atom;

$R_b = R_a$;

$R'_a = R_a$, —OCH_3 or OC_2H_5

$R_c = C_2H_4$—, —C_3H_6—, —C_2H_4—S—C_2H_4—, or —C_3H_6—S—C_2H_4—;

R_d = —$OCONHR_eNHCO$—, —NH—$COOC_2H_4$—, or —$NHCOOC_3H_6$—;

R_e = —$C_6H_3(CH_3)$—, —$C_6H_4CH_2C_6H_4$—, —$(CH_2)_6$—, —C_6H_{10}—CH_2—C_6H_{10}—, or —CH_2—[$(CH_3)_3C_6H_7$]—;

R_g = —C_kH_{2k}—R_f where k = 2, 3 or 4;

R_f is a perfluoroalkyl group with 1 to 12 carbon atoms, or a monovalent radical of an oligomer of oxetanes or fluorinated oxiranes;

R'_f is a perfluoroalkylene group with 4 to 10 carbon atoms, or an alpha,omega-fluoroalkenyl group formed by telomerization of tetrafluoroethylene, or a telechelic divalent radical of an oligomer derived from fluorinated oxetanes or oxiranes, or an m-phenylenedi(hexafluoroisopropoxy) radical; and

the units V, W, Y and Z can be arranged randomly, in order or alternated along the polymer chain.

5,208,313
WATERPROOF BREATHABLE POLYURETHANE MEMBRANES AND POROUS SUBSTRATES PROTECTED THEREWITH

Sundaram Krishnan, Stoneham, Mass., assignor to Surface Coatings, Inc., Wilmington, Mass.

Filed Jul. 16, 1992, Ser. No. 914,871

Int. Cl.[5] C08G *77/04*

U.S. Cl. 528—28 **7 Claims**

1. A coating system for rendering porous substrates waterproof and water vapor transmissible, which system comprises a basecoat chain extended polyurethane prepolymer solute composition dissolved in a fugitive compatible solvent therefor, said solute being the reaction product of:

(a) a polyisocyanate;

(b) a polyalkylene ether glycol wherein the number of carbon atoms of the alkylene radical thereof is 2;

(c) at least one polyalkylene ether glycol wherein the number of carbon atoms of the alkylene radical thereof is at least 3; and

(d) an isocyanate reactive hydroxyl group-containing polydimethylsiloxane having a functionality of at least 2; the mole ratio of the polyaklylene ether glycol of (a) to the at least one polyalkylene ether glycol of (b) being within the range of from 1.5:0.5 to 0.5:1.5 and the mole ratio of said isocyanate reactive polydimethylsiloxane to the total of said polyalkylene ether glycols of (b) and (c) being within the range of from 0.1:1 to 0.3:1.

5,208,314
DUAL CURE CASTING RESIN

Gary L. Linden, Centerville, Ohio, assignor to DAP Products Inc., Tipp City, Ohio

Continuation of Ser. No. 537,654, Jun. 14, 1990, abandoned. This application Nov. 6, 1991, Ser. No. 789,385

Int. Cl.[5] C08G *18/08*; C08F *20/26*

U.S. Cl. 528—50 **9 Claims**

1. In an exothermic condensation reaction polymerization system for forming a solid polyurethane resin and a second solid resin within said polyurethane resin, the combination comprising:

a polyisocyanate reactant and a polyol reactant for entering into said exothermic condensation reaction to form said polyurethane;

a solvent for said polyurethane reaction, said solvent comprising a liquid organic monomer capable of undergoing free radical polymerization to form said second resin;

an organic hydroperoxide compound adapted to form a free radical polymerization initiator in said system to initiate polymerization of said organic monomer to eliminate need for removing said solvent from said system.

5,208,315
ELASTOMERS BASED ON 4,4'-DIISOCYANATO DICYCLOHEXYLMETHANE ENRICHED IN THE TRANS, TRANS ISOMER WHICH CONTAIN ESSENTIALLY NO CHAIN EXTENDERS

Stephen D. Seneker, Paden City, W. Va., assignor to Miles Inc., Pittsburgh, Pa.

Filed Oct. 8, 1991, Ser. No. 772,995

Int. Cl.[5] C08G *18/75*

U.S. Cl. 528—67 **5 Claims**

1. An improved elastomer comprising a reaction product of a polyisocyanate and an active hydrogen containing material, the improvement wherein the elastomer is essentially free of a chain extender, and the polyisocyanate comprises 4,4'-diisocyanato dicyclohexylmethane containing from 45 to 100 percent by weight of the trans,trans isomer.

5,208,316
CYCLODEXTRIN POLYMER AND CYCLODEXTRIN MEMBRANE PREPARED USING SAID POLYMER

Masanobu Yoshinaga, Tokyo, Japan, assignor to Toppan Printing Co., Ltd., Tokyo, Japan

PCT No. PCT/JP91/01012, § 371 Date Mar. 23, 1992, § 102(e) Date Mar. 23, 1992, PCT Pub. No. WO92/06127, PCT Pub. Date Apr. 16, 1992

PCT Filed Jul. 29, 1991, Ser. No. 842,157

Claims priority, application Japan, Oct. 1, 1990, 2-263581

Int. Cl.[5] C08G *18/48*

U.S. Cl. 528—68 **3 Claims**

1. A cyclodextrin polymer which contains cyclodextrin in the backbone chain of a high-molecular weight compound selected from a polyurethane, a polyurea, an unsaturated polyester, a polyester, a polycarbonate, a polyamide and a polysulfone.

5,208,317
COMPOSITION COMPRISING EPOXY RESIN AND CATIONIC AMIRE PHOSPHONIUM CATALYST

Ha Quoc Pham, Richwood; Marvin L. Dettloff, and Allyson J. Malzman, both of Lake Jackson, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 568,290, Aug. 16, 1990, Pat. No. 5,109,099, which is a division of Ser. No. 477,368, Feb. 6, 1990, Pat. No. 4,981,926. This application Jan. 31, 1992, Ser. No. 828,614

Int. Cl.[5] C08G *59/68*

U.S. Cl. 528—89 **5 Claims**

1. A composition comprising (A) at least one vicinal epoxy-containing compound having an average of more than one vicinal epoxy group per molecule; and (B) a catalyst comprising at least one phosphonium compound having an amino group in the cation portion of the phosphonium compound.

5,208,318
PHOSPHAZENE-CONTAINING AMINE AS CURING AGENT FOR PHTHALONITRILE-BASE POLYMER

Teddy M. Keller, 6633 Sky Blue Ct., Alexandria, Va. 22310

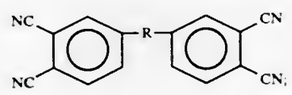
Filed Mar. 15, 1991, Ser. No. 670,096

Int. Cl.[5] C08G *83/00*

U.S. Cl. 528—168 **15 Claims**

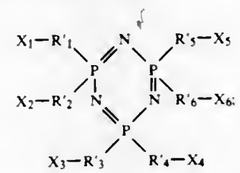
1. A curable mixture comprising:

a phthalonitrile, said phthalonitrile having the formula:



and

a phosphazene-consisting amine monomer having the formula:



in an amount effective to significantly accelerate the heat-curing rate of said phthalonitrile;

where R is an organic divalent radical, linking the terminal phthalonitrile moieties, which does not interfere with thermal cure of said phthalonitrile by the curing agent; each of $X_{1\text{-}6}$ is a hydrogen, an unsubstituted amine group, or an amine group substituted with C_1–C_{12} alkyl groups or aromatic groups; at least one of $X_{1\text{-}6}$ is an amine group; and each of $R'_{1\text{-}6}$ is an alkyl, aromatic, or alkyl-substituted aromatic moiety.

5,208,319
ROSIN-BASED GRIND RESINS FOR AQUEOUS PRINTING INKS

Peter Schilling, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 712,436, Jun. 10, 1991, abandoned. This application Jun. 25, 1992, Ser. No. 904,218

Int. Cl.[5] C09D *11/08*

U.S. Cl. 530—210 **20 Claims**

1. A water soluble grinding resin comprising the reaction product of:

(a) 100 parts by weight of rosin reacted in a cycloaddition reaction with 5 to 30 parts by weight of a member selected from the group consisting of maleic acid, maleic anhy-

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dride, itaconic acid, itaconic anhydride, and fumaric acid to produce a rosin adduct; and

(b) 100 parts by weight of said rosin adduct reacted in a condensation reaction with 5 to 25 parts by weight of a polyamine containing at least one primary amine group to produce said reaction product.

5,208,320

POLYPEPTIDE HAVING C-AMP-PRODUCING ACTIVITY

Chieko Kitada, Osaka, and Takuya Watanabe, Ibaraki, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Jul. 18, 1991, Ser. No. 732,059
Claims priority, application Japan, Jul. 18, 1990, 2-187959
Int. Cl.[5] A61K *37/02*; C07K *7/10*
U.S. Cl. 530—324 13 Claims

1. A polypeptide represented by the following general formula or a pharmaceutically acceptable salt thereof.

X-Ser-Asp-Gly-Ile-Phe-Thr-Asp-Ser-Tyr-Ser-Arg-Tyr-Arg-Lys-Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Y (X-SEQ ID NO:2-Y)

wherein X represents an aromatic amino acid residue or a carboxylic acid-derived acyl group, and Y represents NH_2, OH, Ala-NH_2, Ala-OH, Ala-Ala-NH_2, Ala-Ala-OH, Ala-Ala-Val-NH_2 or Ala-Ala-Val-OH.

5,208,321

HIV-2 TRANSMEMBRANE GLYCOPROTEIN HOMODIMER (GP 80)

Ara G. Hovanessian, Montrouil; Marie-Anne Rey, Paris; Anne G. Laurent, Paris; Bernard Krust, Paris, and Luc Montagnier, Le Plessis-Robinson, all of France, assignors to Institut Pasteur, France

Continuation-in-part of Ser. No. 204,346, Jun. 9, 1988. This application May 25, 1989, Ser. No. 356,459
Int. Cl.[5] C07K *15/00*
U.S. Cl. 530—350 10 Claims



1. A glycoprotein of human immunodeficiency virus type 2 (HIV-2), wherein

(a) said glycoprotein is a dimeric form of the transmembrane glycoprotein of HIV-2;

(b) said glycoprotein has an apparent molecular weight of about 80 kDa (gp80) as indicated by gel electrophoresis; and

(c) said glycoprotein is isolated from other HIV-2 proteins and glycoproteins from HIV-2 infected cells.

5,208,322

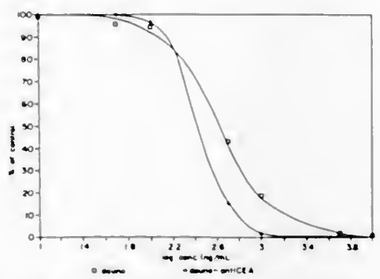
Patent Not Issued For This Number

5,208,323

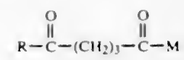
COUPLING OF AN ANTI-TUMOR TO AN ANTIBODY USING GLUTARALDEHYDE PREACTIVATED ANTI-TUMOR AGENT

Michel Page, Charlesbourg, and Denis Thibeault, Ste-Foy, both of Canada, assignors to Universite Laval, Quebec, Canada

Continuation of Ser. No. 391,928, Aug. 10, 1989, abandoned. This application Jan. 13, 1992, Ser. No. 819,669
Int. Cl.[5] C07K *17/02, 15/28*; A61K *39/44, 37/04*
U.S. Cl. 530—391.9 6 Claims



1. A method of preparing compounds of formula I



I

wherein M is selected from the group consisting of a peptide residue, and a protein residue linked to the carbon atom via an amino residue of ε-lysine present therein, and wherein R represents an anti-tumor agent residue, which comprises the steps of:

a) reacting said antitumor agent with glutaraldehyde;

b) purifying the activated product by extraction with dichloromethane; and

c) reacting the drug-glutaraldehyde complex of step a) with a peptide or a protein M.

5,208,324

PARAMAGNETIC COMPOUNDS

Jo Klaveness, Oslo; Pal Rongved, Hellvik, and Per Strande, Oslo, all of Norway, assignors to Nycomed Imaging AS, Oslo, Norway

PCT No. PCT/EP89/00078, § 371 Date Jul. 26, 1990, § 102(e) Date Jul. 26, 1990, PCT Pub. No. WO89/06979, PCT Pub. Date Aug. 10, 1989
PCT Filed Jan. 26, 1989, Ser. No. 548,994
Claims priority, application United Kingdom, Jan. 26, 1988, 8801646
Int. Cl.[5] A61K *49/00*
U.S. Cl. 534—16 18 Claims

1. A paramagnetic compound comprising a paramagnetic metal species chelated by a chelating moiety bound by an amide group to a linker group itself bound by an ester group to a macromolecule selected from the group consisting of polymeric and polymerised carbohydrates and polymerised sugar alcohols, and physiologically tolerable derivatives thereof, wherein said linker group provides a carbon chain of from 2 to 11 atoms between said amide group and said ester group.

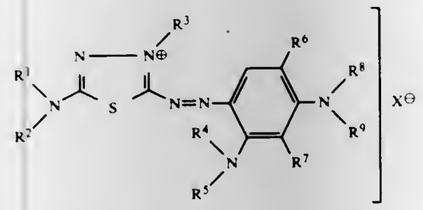
5,208,325

CATIONIC 1,3,4-THIADIAZOLE DYESTUFFS

Horst Berneth, and Klaus Leverenz, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 11, 1991, Ser. No. 805,147
Claims priority, application Fed. Rep. of Germany, Jan. 12, 1991, 4100810
Int. Cl.[5] C09B *29/048, 44/20, 69/06*; D06P *1/41*
U.S. Cl. 534—607 5 Claims

1. A cationic 1,3,4-thiadizole dyestuff of the formula



wherein

R^1 represents a C_1–C_8-alkyl radical which is unsubstituted or substituted by one or more substitutents selected from the group consisting of hydroxyl, halogen, cyano, C_1–C_4 alkoxy, aminocarbonyl and C_1–C_4-alkoxycarbonyl;

or represents allyl, cyclopentyl or cyclohexyl;

or represents a benzyl or phenethyl radical, each of which is unsubstituted or substituted by a substituent selected from the group consisting of halogen, cyano, C_1–C_4 alkyl and C_1–C_4 alkoxy;

or represents a thienyl, furyl, tetrahydrofuryl, pyridylmethyl or pyridylethyl radical;

or represents a phenyl radical which is unsubstituted or substituted by one or more substituents selected from the group consisting of halogen, cyano, C_1–C_4 alkyl, and C_1–C_4 alkoxy;

R_2 represents hydrogen or represents a C_1–C_8-alkyl radical which is unsubstituted or substituted by one or more substituent selected from the group consisting of hydroxyl, halogen, cyano, C_1–C_4 alkoxy, aminocarbonyl and C_1–C_4 alkoxycarbonyl;

or represents allyl, cyclopentyl or cyclohexyl;

or represents a benzyl or phenethyl radical, each of which is unsubstituted or substituted by a substituent selected from the group consisting of halogen, cyano, C_1–C_4 alkyl and C_1–C_4 alkoxy;

or represents a thienyl, furyl, tetrahydrofuryl, pyridylmethyl or pyridylethyl radical;

or represents a phenyl radical which is unsubstituted or substituted by one or more substituents selected from the group consisting of halogen, cyano, C_1–C_4 alkyl and C_1–C_4 alkoxy; or

R^1 and R^2 together with the nitrogen atom to which they are bonded represent a pyrrolidino, piperidino, piperazino or morpholino radical which is unsubstituted or substituted by up to 4 methyl groups;

R^3 represents C_1–C_4 alkyl which is unsubstituted or substituted with one or more substitutents selected from the group consisting of hydroxyl, halogen, cyano, C_1–C_4 alkoxy, aminocarbonyl and C_1–C_4 alkoxycarbonyl;

or represents an allyl radical;

or represents a benzyl or phenethyl radical each of which is unsubstituted or substituted by one or more substituents selected from the group consisting of halogen, C_1–C_4 alkyl, and C_1–C_4 alkoxy;

R4 represents hydrogen or C_1–C_4-alkyl;

R_5 represents SO_2R_{10} or COR^{11};

R^6 and R^7, independently of one another each represent hydrogen, C_1–C_4 alkyl, C_1–C_4 alkoxy or halogen,

R^8 represents a C_1–C_4 alkyl radical which is unsubstituted or substituted by one or more substituents selected from the group consisting of hydroxyl, halogen, cyano, C_1–C_4 alkoxy, aminocarbonyl and C_1–C_4 alkoxycarbonyl;

or represents an allyl, cyclopentyl or cyclohexyl radical;

or represents a benzyl, phenethyl or phenyl radical, each of which is unsubstituted or substituted by one or more substituents selected from the group consisting of halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-acylamino and hydroxyl;

or represents a thienyl, furyl, tetrahydrofuryl, pyridyl, pyridylmethyl, pyridylethyl radical;

R^9 represents hydrogen;

or represents a C_1–C_4-alkyl radical which is unsubstituted or substituted by one or more substituents selected from the group consisting of hydroxyl, halogen, cyano, C_1–C_4 alkoxy, aminocarbonyl and C_1–C_4 alkoxycarbonyl;

or represents an allyl, cyclopentyl or cyclohexyl radical;

or represents a benzyl, phenethyl or phenyl radical, each of which is unsubstituted or substituted by one or more substituents selected from the group consisting of halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-acylamino and hydroxyl;

or represents a thienyl, furyl, tetrahydrofuryl, pyridyl, pyridylmethyl, pyridylethyl radical; or

R^8 and R^9 together with the nitrogen atom to which they are attached represent a pyrrolidino, piperidino, piperazino, morpholino or pyrazolino radical which is unsubstituted or substituted by up to 4 methyl groups;

R^{10} represents a hydrogen or C_1–C_8 alkyl which is unsubstituted or substituted by one or more substitutents selected from the group consisting of hydroxy, halogen, C_1–C_4-alkoxy, and cyano;

or represents C_2–C_4 alkenyl, cyclopentyl or cyclohexyl;

or represents a benzyl or phenyl radical each of which is unsubstituted or substituted by a substituent selected from the group consisting of halogen, cyano, C_1–C_4 alkyl and C_1–C_4 alkoxy;

or represents a thienyl or pyridyl radical;

or represents O-C_1–C_8-alkyl;

or represents a benzyloxy or phenyloxy radical, each of which is unsubstituted or substituted with one or more substituents selected from the group consisting of halogen, cyano-, C_1–C_4 alkyl and C_1–C_4 alkoxy;

R^{11} represents a hydrogen or C_1–C_8 alkyl which is unsubstituted or substituted by one or more substitutents selected from the group consisting of hydroxy, halogen, C_1–C_4-alkoxy, and cyano;

or represents C_2–C_4 alkenyl, cyclopentyl or cyclohexyl;

or represents a benzyl or phenyl radical each of which is unsubstituted or substituted by a substituent selected from the group consisting of halogen, cyano C_1–C_4 alkyl and C_1–C_4 alkoxy;

or represents a thienyl or pyridyl radical;

or represents O-C_1–C_8 alkyl;

or represents a benzyloxy or phenyloxy radical, each of which is unsubstituted or substituted with one or more substituents selected from the group consisting of halogen, cyano-, C_1–C_4 alkyl and C_1–C_4 alkoxy;

or represents NHR^{11}, and

$X^{\ominus}$ represents an anion.

5,208,326

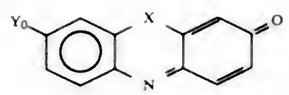
8-HYDROXY-2H-DIBENZ(B,F)AZEPIN-2-ONE DYES

Paul F. Corey, Elkhart, Ind., assignor to Miles Inc., Elkhart, Ind.

Filed Nov. 8, 1991, Ser. No. 789,317
Int. Cl.[5] C12Q *1/37, 1/40*; C07H *15/24*; C08B *37/00*
U.S. Cl. 536—53 11 Claims

1. 2H-Dibenz[b,f]azepin-2-one based compounds characterized by the formula:

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wherein X is CH_2CH_2 or CH=CH and Y is H or an enzyme cleavable group.

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INTERMEDIATES USEFUL IN A SYNTHESIS OF 2-CHLORO-2'-DEOXYADENOSINE

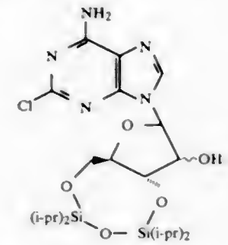
Robert H. K. Chen, Belle Mead, N.J., assignor to Ortho Pharmaceutical Corporation, Raritan, N.J.

Continuation-in-part of Ser. No. 810,992, Dec. 18, 1991, abandoned. This application Apr. 16, 1992, Ser. No. 869,689

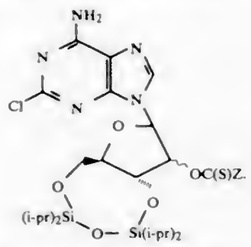
Int. Cl.[5] C07H *19/167, 19/173*

U.S. Cl. 536—27.7 **3 Claims**

1. A compound of the following formula

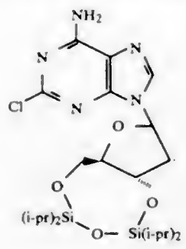


2. A compound of the following formula



wherein Z is R^2 or YR^2; Y is O or S; and R^2 is a C_{1-5} straight- or branched-chain alkyl or phenyl.

3. A compound of the following formula



5,208,328

2-PHENANTHRIDONYL CARBAPENEM INTERMEDIATES

Frank DiNinno, Old Bridge; Mark L. Greenlee, Rahway, and Thomas A. Rano, Somerville, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

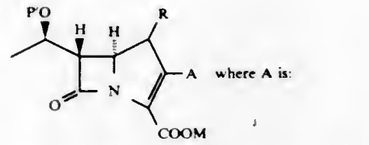
Filed Apr. 16, 1991, Ser. No. 686,725

The portion of the term of this patent subsequent to Oct. 6, 2009, has been disclaimed.

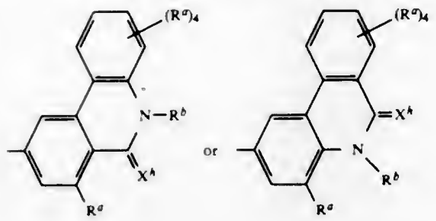
Int. Cl.[5] C07D *487/04*

U.S. Cl. 540—302 **10 Claims**

1. A compound of the formula:



where A is:



wherein:

R is H or CH_3;

X^h is O or S;

P' is a removable protecting group for hydroxy;

R^a are independently selected from the group consisting of hydrogen and the radicals set out below, provided that not more than four R^a and R^b radicals are other than hydrogen:

a) a trifluoromethyl group: $—CF_3$;

b) a halogen atom: —Br, —Cl, —F, or —I;

c) C_1-C_4 alkoxy radical: $—OC_{1-4}$ alkyl, wherein the alkyl is optionally mono-substituted by R^q, where

R^q is a member selected from the group consisting of —OH, OP', $—OCH_3$, —CN, $—C(O)NH_2$, $—OC(O)NH_2$, CHO, $—OC(O)N(CH_3)_2$, $—SO_2NH_2$, $—SO_2N(CH_3)_2$, $—SOCH_3$, $—SO_2CH_3$, —F, $—CF_3$, $—COOM^a$ (where M^a is hydrogen, alkali metal, methyl or phenyl), tetrazolyl (where the point of attachment is the carbon atom of the tetrazole ring and one of the nitrogen atoms is mono-substituted by M^a as defined above) and $—SO_3M^b$ (where M^b is hydrogen or an alkali metal or M);

d) a hydroxy group: —OH or OP';

e) a carbonyloxy radical: $—O(C=O)R^s$, where

R^s is C_{1-4} alkyl or phenyl, each of which is optionally mono-substituted by R^q as defined above;

f) a carbamoyloxy radical: $—O(C=O)N(R^y)R^z$ where

R^y and R^z are independently H, C_{1-4} alkyl (optionally mono-substituted by R^q as defined above), together a 3- to 5-membered alkylidene radical to form a ring (optionally substituted with R^q as defined above) or together a 2- to 4-membered alkylidene radical, interrupted by —O—, —S—, —S(O)— or $—S(O)_2—$, to form a ring (where the ring is optionally mono-substituted with R^q as defined above);

g) a sulfur radical: $—S(O)_n—R^s$ where n=0-2, and R^s is defined above;

h) a sulfamoyl group: $—SO_2N(R^y)R^z$ where R^y and R^z are as defined above;

i) azido: N_3

j) a formamido group: $—N(R^t)(C=O)H$, where

R^t is H or C_{1-4} alkyl, and the alkyl thereof is optionally mono-substituted by R^q as defined above;

k) a (C_1-C_4 alkyl)carbonylamino radical: $—N(R^t)(C=O)C_{1-4}$ alkyl, where R^t is as defined above, and the alkyl group is also optionally mono-substituted by R^q as defined above:

l) a (C_1-C_4 alkoxy) carbonylamino radical: $—N(R^t)(C=O)OC_{1-4}$ alkyl, where R^t is as defined above, and the alkyl group is also optionally mono-substituted by R^q as defined above;

m) a ureido group: $—N(R^t)(C=O)N(R^y)R^z$ where R^t, R^y and R^z are as defined above;

n) a sulfonamido group: $—N(R^t)SO_2R^s$, where R^s and R^t are as defined above;

o) a cyano group: —CN;

p) a formyl or acetalized formyl radical: $—(C=O)H$ or $—CH(OCH_3)_2$;

q) (C_1-C_4 alkyl)carbonyl radical wherein the carbonyl is acetalized: $—C(OCH_3)_2C_{1-4}$ alkyl, where the alkyl is optionally mono-substituted by R^q as defined above;

r) carbonyl radical: $—(C=O)R^s$, where R^s is as defined above;

s) a hydroximinomethyl radical in which the oxygen or carbon atom is optionally substituted by a C_1-C_4 alkyl group: $—(C=NOR^z)R^y$ where R^y and R^z are as defined above, except they may not be joined together to form a ring;

t) a (C_1-C_4 alkoxy)carbonyl radical: $—(C=O)OC_{1-4}$ alkyl, where the alkyl is optionally mono-substituted by R^q as defined above;

u) a carbamoyl radical: $—(C=O)N(R^y)R^z$ where R^y and R^z are as defined above;

v) an N-hydroxycarbamoyl or N(C_1-C_4 alkoxy)carbamoyl radical in which the nitrogen atom may be additionally substituted by a C_1-C_4 alkyl group: $—(C=O)—N(OR^y)R^z$ where R^y and R^z are as defined above, except they may not be joined together to form a ring;

w) a thiocarbamoyl group: $—(C=S)N(R^y)(R^z)$ where R^y and R^z are as defined above;

x) carboxyl: $—COOM^b$, where M^b is as defined above;

y) thiocyanate: —SCN;

z) trifluoromethylthio: $—SCF_3$;

aa) tetrazolyl, where the point of attachment is the carbon atom of the tetrazole ring and one of the nitrogen atoms is mono-substituted by hydrogen, an alkali metal or a C_1-C_4 alkyl optionally substituted by R^q as defined above;

ab) an anionic function selected from the group consisting of: phosphono $[P(=O)(OM^b)_2]$; alkylphosphono $\{P(=O)(OM^b)—[O(C_1\text{-}C_4\text{ alkyl})]\}$; alkylphosphinyl $[P(=O)(OM^b)—(C_1\text{-}C_4\text{alkyl})]$; phosphoramido $[P(=O)(OM^b)N(R^y)R^z$ and $P(=O)(OM^b)NHR^x]$; sulfino (SO_2M^b); sulfo (SO_3M^b); acylsulfonamides selected from the structures $CONM^bSO_2R^x$, $CONM^bSO_2N(R^y)R^z$, $SO_2NM^bCON(R^y)R^z$; and SO_2NM^bCN, where

R^x is phenyl or heteroaryl, where heteroaryl is a monocyclic aromatic hydrocarbon group having 5 or 6 ring atoms, in which a carbon atom is the point of attachment, in which one of the carbon atoms has been replaced by a nitrogen atom, in which one additional carbon atom is optionally replaced by a heteroatom selected from O or S, and in which from 1 to 2 additional carbon atoms are optionally replaced by a nitrogen heteroatom, and where the phenyl and heteroaryl are optionally mono-substituted by R^q, as defined above; M^b is as defined above; and R^y and R^z are as defined above;

ac) C_5-C_7 cycloalkyl group in which one of the carbon atoms in the ring is replaced by a heteroatom selected from O, S, NH or N(C_1-C_4 alkyl) and in which one additional carbon atom may be replaced by NH or N(C_1-C_4 alkyl), and in which at least one carbon atom adjacent to each nitrogen heteroatom has both of its attached hydrogen atoms replaced by one oxygen thus forming a carbonyl moiety and there are one or two carbonyl moieties present in the ring;

ad) C_2-C_4 alkenyl radical, optionally monosubstituted by one of the substituents a) to ac) above and phenyl which is optionally substituted by R^q as defined above;

ae) C_2-C_4 alkynyl radical, optionally monosubstituted by one of the substituents a) to ac) above;

af) C_1-C_4 alkyl radical;

ag) C_1-C_4 alkyl mono-substituted by one of the substituents a)–ac) above;

ah) a 2-oxazolidinonyl moiety in which the point of attachment is the nitrogen atom of the oxazolidinone ring, the ring oxygen atom is optionally replaced by a heteroatom selected from —S— and NR^t (where R^t is as defined above) and one of the saturated carbon atoms of the oxazolidinone ring is optionally mono-substituted by one of the substituents a) to ag) above;

R^b is —H, —OH, OP', $—CF_3$, $—(C=O)R^s$, $—S(O)_nR^s$ where n=0-2, $—SO_2NR^yR^z$, $—(C=O)OC_{1-4}$alkyl, $—(C=O)N(R^y)R^z$, $—(C=O)N(OR^y)R^z$, $—(C=S)N(R^y)R^z$, $—NH_2$, C_{1-4} alkoxy optionally mono-substituted with R^q, R^x as defined above, C_{1-4} alkyl optionally mono-substituted on an alpha carbon or higher by one of the substituents a)–ae) as defined for R^a;

M is a removable protecting group for carboxy.

5,208,329

2-BIPHENYL CARBAPENEM INTERMEDIATES

Frank P. Dininno, Old Bridge, and Thomas N. Salzmann, North Plainfield, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

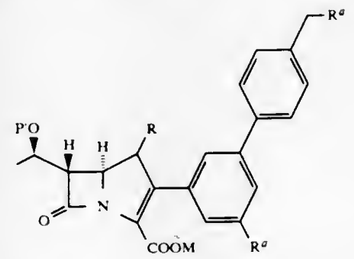
Continuation of Ser. No. 594,886, Oct. 9, 1990, abandoned. This application Feb. 14, 1992, Ser. No. 839,005

The portion of the term of this patent subsequent to Apr. 30, 2008, has been disclaimed.

Int. Cl.[5] C07D *487/04;* **C07F** *7/18*

U.S. Cl. 540—302 **4 Claims**

1. A compound of the formula



where

R is H or CH_3;

P' is a removable protecting group for hydroxy;

R^a is selected from the group consisting of H, Cl, Br, I, SMe, CN, CHO, SOMe, SO_2Me, and OP';

M is a removable protecting group for carboxyl; and

Z is an effective leaving group selected from the group consisting of alkyl and substituted alkylsulfonates, aryl and substituted arylsulfonates, and halides.

VOL 1150 ISS 1 MY 4 1993 UMI

5,208,330

FUSED HETEROALKYLENE QUINOLINAMINES

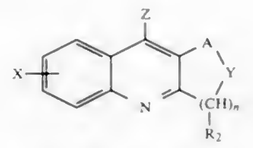
Gregory M. Shutske, Somerset, and Richard C. Effland, Bridgewater, both of N.J., assignors to Hoechst-Roussel Pharmaceuticals Incorporated, Somerville, N.J.

Continuation of Ser. No. 645,384, Jan. 10, 1991, Pat. No. 5,112,830, which is a division of Ser. No. 337,603, Apr. 13, 1989, Pat. No. 5,002,955, which is a division of Ser. No. 171,103, Apr. 4, 1988, Pat. No. 4,843,079, which is a continuation-in-part of Ser. No. 41,562, Apr. 23, 1987, abandoned. This application Feb. 25, 1992, Ser. No. 841,168

Int. Cl.[5] C07D *245/04, 223/14, 223/18, 221/06*

U.S. Cl. 540—471 1 Claim

1. A compound having the formula



wherein n is 1–4; A is a direct bond or $(CHR_3)_m$, m being 1–3; X is hydrogen, loweralkyl, cycloalkyl, loweralkoxy, halogen, hydroxy, nitro, trifluoromethyl, formyl, loweralkylcarbonyl, arylcarbonyl, —SH, loweralkylthio, —NHCOR$_4$ or -NR$_5$R$_6$, R$_4$ being hydrogen or loweralkyl, and R$_5$ and R$_6$ being independently hydrogen, loweralkyl or cycloalkyl; Y is O, S or NR$_7$; Z is halogen, hydroxy or loweralkoxy; and R$_2$, R$_3$ and R$_7$ are independently hydrogen or loweralkyl, or taken two at a time form a methylene or ethylene group constituting a part of a ring of at least five atoms with the proviso that when A is CH_2, Y is NCH_3, $(CHR_2)_n$ is CH_2CH_2 and X is H, CH_3, Cl, Br or NO_2, Z is not Cl; and whenever A, Y and $(CH)_n$ forms a seven-membered ring consisting of one nitrogen atom and six carbon atoms, X is —SH, cycloalkyl, loweralkylthio, or —NHCOR$_4$.

5,208,331

PROCESS FOR PREPARING 1,3-DIOXOLANE DERIVATIVES

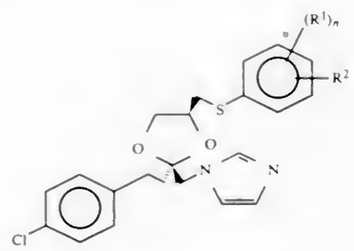
Norman H. Dyson, Palo Alto; John O. Gardner, Los Altos; Anthony Prince, and Denis J. Kertesz, both of Mountain View, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Jun. 18, 1992, Ser. No. 900,568

Int. Cl.[5] C07D *417/14, 413/14, 405/14, 401/12*

U.S. Cl. 544—60 19 Claims

1. A process for the preparation of compounds of formula (I):

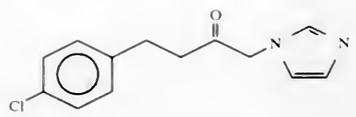


(I)

wherein:
n is 1 or 2;
each R^1 is independently halo or lower alkyl;
R^2 is nitro or —N(R^3)R^4 where
R^3 is hydrogen or lower alkyl;
R^4 is hydrogen, lower alkyl, lower alkylsulfonyl or —C(Y)R^5 where Y is oxygen or sulfur and R^5 is hydrogen, lower alkyl, lower alkoxy or —N(R^6)R^7 where R^6 is hydrogen or lower alkyl and R^7 is hydrogen, lower alkyl or lower alkoxycarbonyl; or
R^3 and R^4 together with N is pyrrolidino, piperidino, morpholino, thiomorpholino or piperazino, wherein the piperazino is optionally substituted at the 4-position by —C(O)R^8 where R^8 is hydrogen, lower alkyl, lower alkoxy or amino;

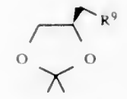
or a pharmaceutically acceptable salt thereof; which process comprises the following steps:

(1) reacting the compound of formula (B):



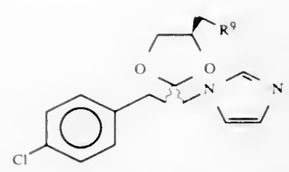
(B)

with a compound of formula (D):



(D)

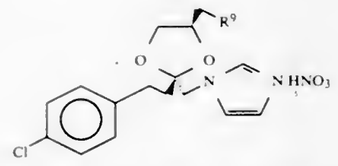
wherein R^9 is halo, tosylate or mesylate, in the presence of a strong acid selected from the group consisting of alkanesulfonic acids, arenesulfonic acids and Lewis acids, to yield a mixture of stereoisomers represented by the following formula (E):



(E)

wherein R^9 is halo, tosylate or mesylate;

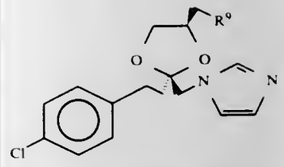
(2) dissolving the mixture of stereoisomers represented by formula (E), as defined above, in a suitable solvent and treating the resulting solution with about 0.5 to about 2.0 molar equivalents of concentrated nitric acid to yield a compound of formula (Eb):



(Eb)

wherein R^9 is halo, tosylate or mesylate, as a precipitate;

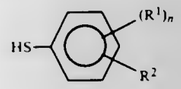
(3) treating the mother liquor resulting from the preparation of the compound of formula (Eb) with a suitable base and allowing the resulting mixture to crystallize from a suitable solvent to yield a compound of formula (Ea):



(Ea)

wherein R^9 is halo, tosylate or mesylate; and

(4) treating a compound of formula (Ea), as defined above, with a compound of formula (F):



(F)

wherein
n is 0, 1 or 2;
each R^1 is independently halo or lower alkyl;
R^2 is nitro or —N(R^3)R^4 where
R^3 is hydrogen or lower alkyl;
R^4 is hydrogen, lower alkyl, lower alkylsulfonyl or —C(Y)R^5 where Y is oxygen or sulfur and R^5 is hydrogen, lower alkyl, lower alkoxy or —N(R^6)R^7 where R^6 is hydrogen or lower alkyl and R^7 is hydrogen, lower alkyl or lower alkoxycarbonyl; or
R^3 and R^4 together with N is pyrrolidino, piperidino, morpholino, thiomorpholino or piperazino, wherein the piperazino is optionally substituted at the 4-position hy —C(O)R^8 where R^8 is hydrogen, lower alkyl, lower alkoxy or amino;

in the presence of base to yield a compound of formula (I), as defined above.

5,208,332

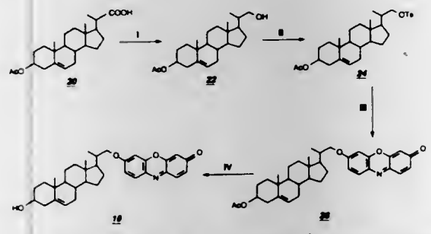
OPTICAL PROBE FOR THE CYTOCHROME P-450 CHOLESTEROL SIDE CHAIN CLEAVAGE ENZYME

Babetta L. Marrone; Daniel J. Simpson; Clifford J. Unkefer, all of Los Alamos, and Thomas W. Whaley, Santa Fe, all of N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

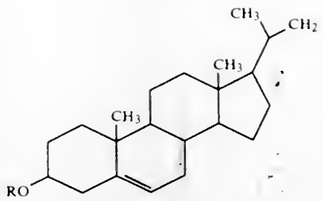
Division of Ser. No. 680,978, Apr. 5, 1991, Pat. No. 5,110,725. This application Dec. 20, 1991, Ser. No. 811,217

Int. Cl.[5] C07D *265/38*

U.S. Cl. 544—102 2 Claims



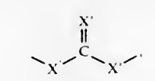
1. An optical probe for use in quantifying the activity of the P-450$_{scc}$ enzyme, wherein the probe comprises Y-L-Q, where Y is a cholesterol-like steroid selected from the group consisting of



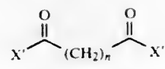
where R = H, alkyl, alkyl—CO—;

L is a linking group selected from the group consisting of

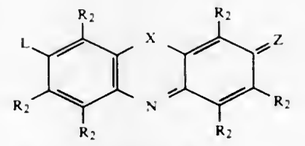
—X'—, where n = 2 or 3
X' = O or S; and



and

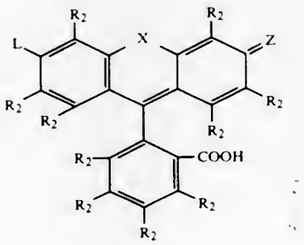


Q is a chormophore selected from the group consisting of



where R$_2$ = H,halogen, alkyl,
—O—alkyl, —COOalkyl,
or —COOH
X = O, S, NH, or N—alkyl
Z = O or N, N—dialkyl

and



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5,208,333

(2R)-1-(ARYLOXY)-3-(BUTYRYLOXY)-2-PROPANOLS

Axel Paul, Mannheim; Wolfgang Ladner, Fussgoenheim, and Hardo Siegel, Speyer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Dec. 9, 1988, Ser. No. 282,000

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1987, 3742222

Int. Cl.[5] **C07D** *295/24*

U.S. Cl. 544—134 **4 Claims**

3. (2R)-1-(butyryloxy)-3-[(4-morpholino-1,2,5-thiadiazol-3-yl)oxy]-2-propanol.

5,208,334

PROCESS FOR THE PRODUCTION OF POLYISOCYANATES CONTAINING ALLOPHANATE AND ISOCYANURATE GROUPS

Terry A. Potter, Beaver, Pa., and William E. Slack, Moundsville, W. Va., assignors to Miles Inc., Pittsburgh, Pa.

Continuation of Ser. No. 733,549, Jul. 22, 1991, abandoned. This application Jun. 9, 1992, Ser. No. 895,955

Int. Cl.[5] **C07D** *251/34*

U.S. Cl. 544—193 **24 Claims**

1. A process for the production of a polyisocyanate composition having an NCO content of 10 to 47% by weight and a viscosity of less than 2,500 mPa.s, wherein the viscosity is determined from a mixture containing less than 1% by weight of the starting organic diisocyanate, and containing isocyanurate and allophanate groups in a molar ratio of monoisocyanurates to monoallophanates of 10:1 to 1:5 which comprises

a) catalytically trimerizing a portion of the isocyanate groups of an organic diisocyanate having (cyclo)aliphatically bound isocyanate groups in the presence of a trimerization catalyst,

b) adding 0.01 to 0.5 moles, per mole of said organic diisocyanate, of a monoalcohol containing 6 to 9 carbon atoms to said organic diisocyanate prior to or during the trimerization reaction of step a) and

c) terminating the trimerization reaction at the desired degree of trimerization by adding a catalyst poison and/or by thermally deactivating the catalyst,

wherein said trimerization catalyst comprises a compound containing aminosilyl groups or a catalyst which is capable of reducing the isocyanate content of a mixture consisting of 1,6-hexamethylene diisocyanate containing less than 10 ppm of carbon dioxide and the trimerization catalyst from 50% to 45% by weight or less within a period of 4 hours at a catalyst concentration of 500 ppm, based on the weight of 1,6-hexamethylene diisocyanate, and a temperature of 80° C.

5,208,335

REVERSIBLE OXYGEN SORBENT COMPOSITIONS

Dorai Ramprasad; Guido P. Pez, both of Allentown; Ronald M. Pearlstein, Macungie, all of Pa., and Ingrid K. Meier, Asbury, N.J., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 672,711, Mar. 19, 1991, Pat. No. 5,126,466. This application May 27, 1992, Ser. No. 890,065

Int. Cl.[5] **C07F** *15/06*

U.S. Cl. 544—225 **14 Claims**

1. A solid state composition comprising one or more cyanocobaltate complexes represented by the chemical formula:

$$[(A)_a(R_4N)_b]^{z+}{}_{x/z}[Co(CN)_n]^{x-} \cdot pS$$

where:

A is alkali metal atom, alkaline earth metal atom, Zn, Cd or Hg atom;

a is any number from 0 to 2.5

each R is independently C_1-C_{10} substituted or unsubstituted alkyl, aryl or aralkyl; or a long chain hydrocarbon polymer

b is any number from greater than zero to 3

z is 1, 2 or 3;

n is any number from 3 to 5;

x is n−2;

p is any number from greater than zero to 6; and

S is a ligand which is capable of coordinating with $[(A)_a(R_4N)_b]^{z+}$, Co or both.

5,208,336

SELENOMEROCYANINES AND PROCESSES FOR PREPARATION AND METHODS OF USE AND COMPOSITIONS THEREOF

Wolfgang H. H. Gunther, Chester County, Pa., and Roger Searle, Sand Lake, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

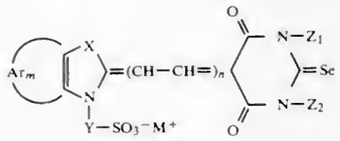
Filed Oct. 19, 1990, Ser. No. 599,961

Int. Cl.[5] **C07D** *413/06, 417/06, 421/06;* **G03G** *5/06*

U.S. Cl. 544—300 **17 Claims**

1. A compound having the structural formula

Formula I



wherein

X is O, S, Se, Te, $C(CH_3)_2$ or NR wherein R is methyl, ethyl, propyl, cyclopropyl, cyclohexyl, phenyl or phenyl substituted by from one to three of methyl, trifluoromethyl, methoxycarbonyl, ethoxycarbonyl, cyano, dimethylamino, methoxy, methylthio, fluoro, chloro, bromo, or iodo;

Y is alkylene having from two to nine carbon atoms or alkylene having from two to nine carbon atoms interrupted by O, S, NR', CONH or phenylene wherein R' is methyl or phenyl;

Z_1 and Z_2 are independently H or alkyl having from one to ten carbon atoms;

m is 0 or 1;

n is 1, 2 or 3;

M+is pharmaceutically or photographically acceptable cation; and

Ar is a fused aromatic nucleus selected from the group consisting of benzo and naphtho.

5,208,337

PROCESS FOR THE PREPARATION OF AMINOPYRIMIDINES

Stephen Lachhein, Hofheim am Taunus, and Hilmar Mildenberger, Kelkheim (Taunus), both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 13, 1991, Ser. No. 759,898

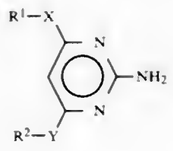
Claims priority, application European Pat. Off., Sep. 15, 1990, 90117823.6

Int. Cl.[5] **C07D** *239/42*

U.S. Cl. 544—320 **10 Claims**

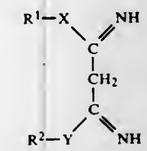
1. A process for the preparation of compounds of the formula I

(I)



in which X and Y are in each case oxygen or sulfur and R^1 and R^2 independently of one another are (C_1-C_4)alkyl, (C_1-C_4)alkoxy(C_1-C_2)alkyl or halo(C_1-C_4)alkyl, by reacting a propanediimidate of the formula II

(II)



or a salt thereof with cyanamide (NH_2—CN) in the presence of a base, which comprises adding the propanediimidate or its salt to a solution of a base and cyanamide in an inert solvent at pH values of above pH 7 to pH 14 and carrying out the reaction.

5,208,338

RADIOLABELED N-SUBSTITUTED-6-IODO-3,14-DIHYDROXY-4,5α-EPOXYMORPHINANS

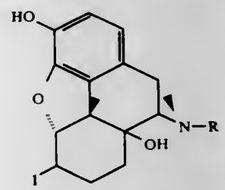
Brian R. de Costa, Gaithersburg, Md.; Michael J. Iadarola, Washington, D.C.; Kenner C. Rice, Bethesda; Richard B. Rothman, Silver Spring, both of Md., and Karen F. Berman, Washington, D.C., assignors to The United States of America as represented by the Department of Health & Human Services., Washington, D.C.

Filed Jun. 14, 1991, Ser. No. 715,762

Int. Cl.[5] **A61K** *43/00, 49/02;* **C07D** *489/08*

U.S. Cl. 546—44 **5 Claims**

1. A radioimaging agent having the formula:



wherein I is selected from the group consisting of ^{123}I and ^{125}I; and where R is alkyl having from about 1 to 6 carbon atoms, cycloalkylloweralkyl or allyl.

5,208,339

NITROGEN-CONTAINING PERFLUOROALKANOYL PEROXIDE AND METHOD FOR PRODUCTION THEREOF

Haruhiko Fukaya, Oobu; Takashi Abe, Kasugai; Eiji Hayashi, Konan, and Yoshio Hayakawa, Aichiken, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, Tokyo, Japan

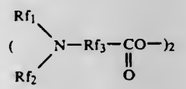
Filed Sep. 8, 1992, Ser. No. 941,884

Claims priority, application Japan, Nov. 15, 1991, 3-355487

Int. Cl.[5] **C07D** *265/30*

U.S. Cl. 544—79 **3 Claims**

1. A nitrogen-containing perfluoroalkanoyl peroxide represented by the formula:



wherein Rf_1 and Rf_2 independently stand for a perfluoroalkyl group of 1 to 5 carbon atoms, joined to each other through an oxygen atom to form a five-membered ring, six-membered ring or seven-membered ring, and Rf_3 stands for a perfluoroalkylene group of 1 to 3 carbon atoms.

5,208,340

PROCESS FOR PRODUCING AN ARYL-IMIDO-PERALKANOIC ACID BY OXIDIZING THE CORRESPONDING ARYL-IMIDO-ALKANOIC ACID WITH HYDROGEN PEROXIDE

Claudio Cavallotti, Milan; Michele Merenda, Frugarolo; Alessandro Zaro, Alessandria; Attilio Lagostina, Spinetta Marengo, and Ugo P. Bianchi, Verona, all of Italy, assignors to Ausimont S.p.A., Milan, Italy

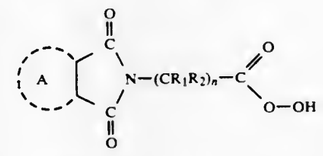
Filed Dec. 11, 1991, Ser. No. 805,480

Claims priority, application Italy, Dec. 13, 1990, 22374 A/90

Int. Cl.[5] **C07D** *209/48, 209/66;* **C11D** *3/395;* **D06L** *3/02*

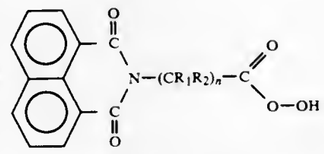
U.S. Cl. 546—98 **19 Claims**

1. A process for continuously producing an arylimidoperalkanoic acid having the following formula:



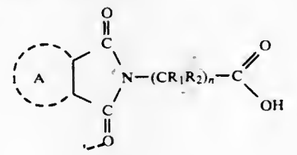
wherein A is selected from the group consisting of benzene, 1,2-naphthalene or 2,3-napthalene rings,

or

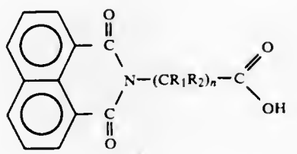


in which n is an integer ranging from 3 to 7; the benzene or naphthalene rings are either unsubstituted, or substituted by one or more carboxy groups; and R_1 and R_2, which are the same, or different from each other, are selected from the group consisting of H and C_1-C_5 alkyl groups bearing carboxy, percarboxy, hydroxy (OH), nitro (NO_2) and C_1-C_5 alkoxy substituents, said process comprising the following steps:

(a) Preparing a solution of an arylimidoalkanoic acid having the following formula:



or



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wherein A, n, R_1 and R_2 are the same as above, and wherein the benzene or napthalene rings are either unsubstituted, or substituted by one or more carboxy groups, in a halogenated solvent selected from the group consisting of methylene chloride (CH_2Cl_2) and trichloromethane ($CHCl_3$), said solution being prepared by dissolving an amount of said arylimidoalkanoic acid which is:

(i) equal to, or less than the solubility threshold of said arylimidoalkanoic acid in said halogenated solvent at the reaction temperature as defined in step (b) below, and

(ii) greater than the amount of said arylimidoalkanoic acid which stoichiometrically corresponds to the solubility threshold of said arylimidoperalkanoic acid in said halogenated solvent at the reaction temperature as defined in step (b) below:

(b) continuously reacting the solution prepared in step (a) at a reaction temperature of 10°–35° C., with aqueous H_2O_2, in the presence of a string acid selected from the group consisting of H_2SO_4, oleum, methanesulfonic acid, trifluoromethanesulfonic acid, fluorosulfonic acid, and mixtures thereof, said strong acid having a molar feed ratio to said arylimidoalkanoic acid of less than 2, to form a reaction product having an aqueous phase and an organic phase;

(c) separating the aqueous phase and the organic phase;

(d) recovering the arylimidoperalkanoic acid from the organic phase; and

(e) recovering the halogenated solvent from the organic phase and recycling said recovered halogenated solvent for use in step (a).

5,208,341

CARBONYLAMINOSTYRYLS

Karin Hassenrück, Düsseldorf, and Roderich Raue, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

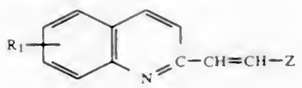
Filed Oct. 4, 1991, Ser. No. 771,714

Claims priority, application Fed. Rep. of Germany, Oct. 11, 1990, 4032208

Int. Cl.[5] **C07D** *215/12, 215/14*

U.S. Cl. 546—175 **6 Claims**

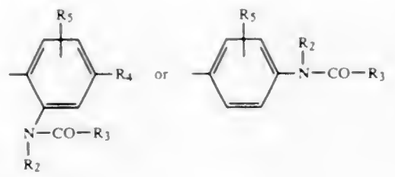
1. Carbonylaminostyryls of the formula



wherein

R_1 represents hydrogen, alkyl having 1 to 8 carbon atoms, which is optionally substituted by one or more substituents selected from the group consisting of alkoxy having 1 to 6 carbon atoms, cyano, hydroxyl and halogen, or represents cycloalkyl having 3 to 8 carbon atoms, alkenyl having 2 to 6 carbon atoms, alkoxy having 1 to 6 carbon atoms or halogen, and

represents



wherein

R_2 represents hydrogen, alkyl having 1 to 8 carbon atoms, which is optionally substituted by one or more substituents selected from the group consisting of alkoxy having 1 to 6 carbon atoms, hydroxyl, cyano and halogen, or represents alkenyl having 2 to 6 carbon atoms, cyclo-alkyl having 3 to 8 carbon atoms, which is optionally substituted by one or more substituents selected from the group consisting of alkyl, alkoxy having in each case 1 to 6 carbon atoms, hydroxyl and halogen, or represents aryl or aralkyl having 1 to 6 carbon atoms in the alkyl part and in each case 6 to 10 carbon atoms in the aryl part, each of which is optionally substituted in the aryl part by one or more substituents selected from the group consisting of alkyl having 1 to 6 carbon atoms and halogen,

R_3 represents hydrogen, alkyl or alkoxy having in each case 1 to 18 carbon atoms, each of which is optionally substituted by one or more substituents selected from the group consisting of alkoxy having 1 to 6 carbon atoms, cyano, hydroxyl and halogen, or represents cycloalkyl having 3 to 8 carbon atoms, which is optionally substituted by one or more substituents selected from the group consisting of alkyl, alkoxy having in each case 1 to 6 carbon atoms, hydroxyl and halogen, or represents aryl or aralkyl having 1 to 6 carbon atoms in the alkyl part and in each case 6 to 10 carbon atoms in the aryl part, each of which is optionally substituted in the aryl part by one or more substituents selected from the group comprising alkyl having 1 to 6 carbon atoms and halogen, or represents alkenyl having 2 to 6 carbon atoms, dialkylamino or alkylamino having in each case 1 to 18 carbon atoms in the alkyl part, cycloalkylamino having 3 to 8 carbon atoms, arylamino or aralkylamino having 1 to 6 carbon atoms in the alkyl part and in each case 6 to 10 carbon atoms in the aryl part, each of which is optionally substituted in the aryl part by one or more substituents selected from the group consisting of alkyl having 1 to 6 carbon atoms and halogen, and

R_4 and R_5 independently of one another represent hydrogen, alkyl having 1 to 18 carbon atoms, which is optionally substituted by one or more substituents selected from the group consisting of alkoxy having 1 to 6 carbon atoms, cyano, hydroxyl and halogen, or represents alkenyl having 2 to 6 carbon atoms, cycloalkyl having 3 to 8 carbon atoms, which is optionally substituted by one or more substituents selected from the group consisting of alkyl, alkoxy having in each case 1 to 6 carbon atoms, cyano and halogen, or represents alkoxy having 1 to 18 carbon atoms or halogen.

5,208,342

CONVERSION OF PYRIDINE-2,3-DICARBOXYLIC ACID ESTERS TO CYCLIC ANHYDRIDES

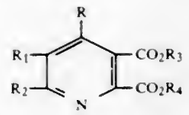
B. Franklin Gupton, Virginia Beach, Va., and John Saukaitis, East Greenwich, R.I., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Filed Mar. 30, 1992, Ser. No. 860,093

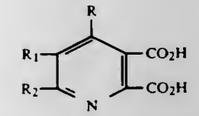
Int. Cl.[5] **C07D** *491/048*

U.S. Cl. 546—116 **11 Claims**

1. A process for the production of a pyridine-2,3-dicarboxylic anhydride compound which comprises (1) synthesizing and recovering a pyridine-2,3-dicarboxylic diester which contains more than about 10 weight percent of organic impurities, and which corresponds to the formula:



where each of R, R_1 and R_2 is hydrogen, halogen, C_1–C_6 alkyl, phenyl or C_1–C_4 alkyl-substituted phenyl group, and each of R_3 and R_4 is a C_1–C_{12} organic group; (2) cycling the diester through a thin film evaporator and distillation column system to provide a diester distillate of at least 90 weight percent purity; (3) hydrolyzing the purified diester in an alkaline aqueous medium, and acidifying the reaction medium to form a corresponding 2,3-pyridine-dicarboxylic acid having the formula:



where R, R_1 and R_2 are as previously defined; (4) extracting the aqueous reaction medium with an organic solvent to obtain a solvent solution of the pyridine-2,3-dicarboxylic acid; (5) removing any residual water by azeotropic distillation; and (6) reacting the pyridine-2,3-dicarboxylic acid with at least an equimolar quantity of alkanoic anhydride in an organic solvent medium under anhydrous conditions to form pyridine-2,3-dicarboxylic anhydride product.

5,208,343

TETRAHYDROPYRIDINE OXIME COMPOUNDS

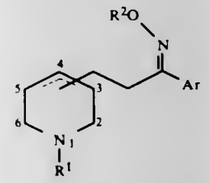
Yazhong Pei, Ann Arbor, and Haile Tecle, Ypsilanti, both of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Mar. 24, 1992, Ser. No. 856,233

Int. Cl.[5] **C07D** *213/04;* **A61K** *31/44*

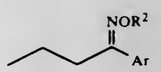
U.S. Cl. 546—284 **4 Claims**

1. A compound of the formula



wherein the dotted line indicates a bond between either the carbons at the 3- and 4-positions or the 4- and 5-positions;

wherein the side chain



is attached to either the 3- or 4-position of the tetrahydropyridine ring;

wherein R^1 is hydrogen; a straight or branched alkyl group having from 1 to 6 carbon atoms; a cycloalkylmethyl group wherein the cycloalkyl moiety has from 3 to 6 carbon atoms; phenyl$(CH_2)_n$ wherein n is one or two and wherein the phenyl ring is unsubstituted or is substituted with from 1 to 3 substituents selected from chlorine, bromine, fluorine, trifluoromethyl, hydroxy, straight or branched alkoxy having from 1 to 4 carbon atoms, straight or branched alkyl having from 1 to 4 carbon atoms, trifluoromethoxy, nitro, or $—NR_3R_4$ wherein each of R_3 and R_4 is individually hydrogen or a straight or branched alkyl having from 1 to 4 carbon atoms;

wherein Ar is 2- or 3-thienyl, phenyl, or phenyl substituted with from 1 to 3 substituents selected from chlorine, bromine, fluorine, trifluoromethyl, hydroxy, straight or branched alkoxy having from 1 to 4 carbon atoms, straight or branched alkyl having from 1 to 4 carbon atoms, trifluoromethoxy, nitro, or $—NR_3R_4$ wherein each of R_3 and R_4 has the meaning defined above;

wherein R_2 hydrogen, a straight or branched alkyl having from 1 to 6 carbon atoms, benzyl, or phenethyl; a pharmaceutically acceptable salt thereof or a geometric and optical isomer thereof.

5,208,344

NAPHTHALENEPROPIONIC ACID DERIVATIVES AS ANTI-INFLAMMATORY/ANTIALLERGIC AGENTS

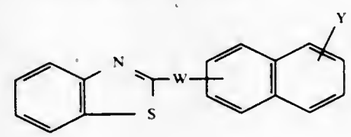
Anthony F. Kreft, III, Langhorne, Pa.; John H. Musser, Alameda, Calif.; James J. Bicksler, Cranbury, N.J.; John W. Giberson, Newtown; Dennis M. Kubrak, Fairless Hills, both of Pa., and Annette L. Banker, Plainsboro, N.J., assignors to American Home Products Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 578,367, Sep. 6, 1990, Pat. No. 5,084,575, Continuation-in-part of Ser. No. 351,119, May 12, 1989, Pat. No. 4,960,892, Continuation-in-part of Ser. No. 202,975, Jun. 10, 1988, abandoned, Continuation-in-part of Ser. No. 80,122, Jul. 31, 1987, abandoned. This application Dec. 13, 1991, Ser. No. 807,526

Int. Cl.[5] **C07D** *277/62;* **A61K** *31/425*

U.S. Cl. 548—179 **9 Claims**

1. A compound having the formula

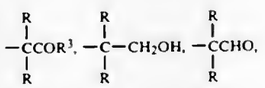


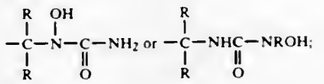
wherein

W is $—CR_2O—$, $—CH=CH—$ or $—CH=CHCH_2O—$;

R is hydrogen or lower alkyl;

Y is





R^3 is $—OR$,



or $—NHSO_2R^4$;

R^4 is phenyl or lower alkyl substituted phenyl;

or a pharmaceutically acceptable salt thereof.

5,208,345

PROCESS FOR THE PRODUCTION OF (S)-VINYL AND ALLENYL GABA

Jonathan C. Evans, Midland, Mich., assignor to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

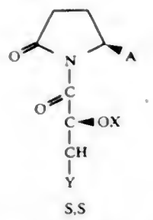
Continuation of Ser. No. 782,941, Oct. 25, 1991, abandoned, which is a continuation-in-part of Ser. No. 628,738, Dec. 17, 1990, abandoned. This application Aug. 31, 1992, Ser. No. 938,661

Int. Cl.[5] **C07F** *7/02;* **C07D** *207/12*

U.S. Cl. 548—406 **9 Claims**

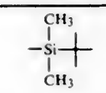
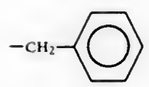
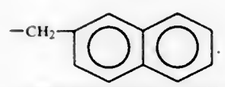
1. An optical isomer of the formula:

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S,S

in which A is represented by —CH=CH$_2$ or —CH=C=CH$_2$, and X and Y are each simultaneously represented by

Y	X
H	
	
H	
	
H	

5,208,346

SIMPLIFIED PROCESS FOR THE PREPARATION OF AROMATIC BISMIDES

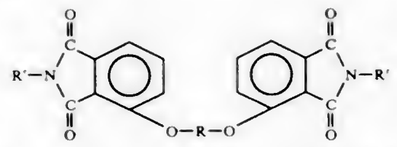
Brent A. Dellacoletta, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Mar. 16, 1992, Ser. No. 851,667

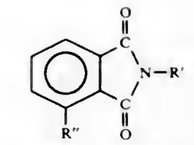
Int. Cl.[5] **C07D** *209/02*

U.S. Cl. 548—461 **10 Claims**

1. A process for preparing aromatic imides of the general formula



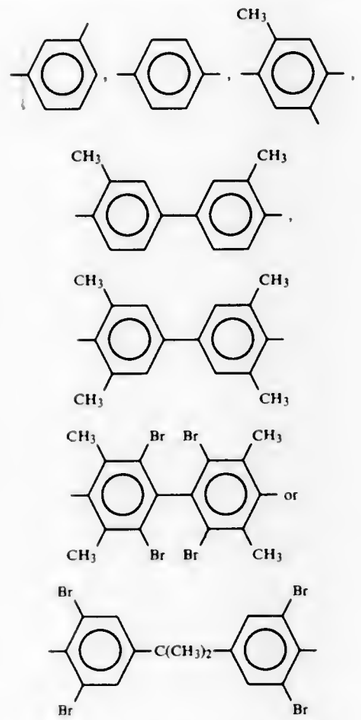
which consists of (1) reacting 3-substituted N-arylphthalimide of the general formula



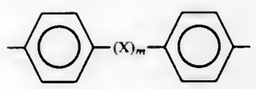
with a dianion of an aromatic dihydroxy compound of the general formula

$$^{+}Z^{-}O—R—O^{-}Z^{+}$$

under bisimide-forming conditions, where Z is an alkali metal, R comprises (a) divalent radicals of the formula



or (b) divalent organic radicals of the general formula



where X comprises a divalent radical of the formula —C$_y$H$_{2y}$—, —CO—, —SO$_2$—, —SO—, —O— or —S—, wherein m is 0 or 1, y is a whole number from 1 to 5, R' is an aryl radical having from 6 to 20 carbon atoms and R'' comprises NO$_2$, CN, F, Br, or Cl the reaction being conducted in a non-polar solvent and (2) isolating the formed aromatic bisimide.

5,208,347

PROCESS FOR THE SYNTHESIS AND RECOVERY OF TETRAHYDRO-N-[1-METHYL-1-[3-(1-METHYLETHENYL)-PHENYL]ETHYL]-2-OXO-1-H-PYRROLO-1-CARBOXAMIDE

Dane K. Parker, Massillon, and Richard T. Musleve, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 30, 1992, Ser. No. 876,149

Int. Cl.[5] **C07D** *207/12*

U.S. Cl. 548—538 **14 Claims**

1. A process for the preparation of tetrahydro-N-[1-methyl-1-[3-(1-methylethenyl)phenyl]ethyl]-2-oxo-1-H-pyrrolo-1-carboxamide which is comprised of (1) reacting m-isopropenyl α,α-dimethylbenzylisocyanate with 2-pyrrolidinone at a temperature which is within the range of about 80° C. to about 150° C. to produce a molten reaction product; (2) mixing the molten reaction product with an aqueous emulsifier solution to form an aqueous medium, wherein the aqueous emulsifier solution contains from about 0.1 weight percent to about 10 weight percent emulsifier, and wherein the weight ratio of the molten reaction product to the emulsifier solution in the aqueous medium is within the range of 1:0.5 to 1:100; (3) allowing the tetrahydro-N-[1-methyl-1-[3-(1-methylethenyl)phenyl]ethyl]-2-oxo-1-H-pyrrolo-1-carboxamide in the aqueous medium to crystallize under conditions of agitation into the form of essentially spherical particles; and (4) recovering the tetrahydro-N-[1-methyl-1-[3-(1-r ethylethenyl)phenyl]ethyl]-2-oxo-1-H-pyrrolo-1-carboxamide particles from the aqueous medium by filtration.

5,208,348

MERCAPTAN COMPOUND

Tameo Iwasaki, Nishinomiya; Kazuhiko Kondo, Osaka; Hiroshi Horikawa, Kawanishi; Totaro Yamaguchi, Urawa, and Tadahiro Matsushita, Hatsudo, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Division of Ser. No. 755,884, Sep. 6, 1991, Pat. No. 5,153,187.

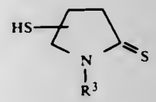
This application Jul. 14, 1992, Ser. No. 913,506

Claims priority, application Japan, Sep. 7, 1990, 3-238420; Jan. 14, 1991, 2-70285

Int. Cl.[5] **C07D** *207/12, 307/40*

U.S. Cl. 548—544 **5 Claims**

1. A mercaptan compound of the formula:



[III]

wherein R^3 is a hydrogen atom or a lower alkyl group, or a salt thereof.

5,208,349

PROCESS FOR PREPARING MILBEMYCIN DERIVATIVES AND CERTAIN NOVEL COMPOUNDS EMPLOYED THEREIN

Kazuo Sato; Takao Kinoto; Shigeru Mio, and Toshiaki Yanai, all of Tokyo, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

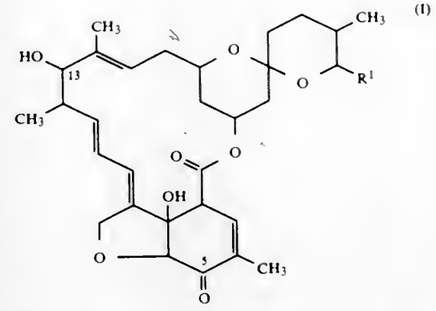
Continuation of Ser. No. 308,770, Feb. 9, 1989, abandoned, which is a division of Ser. No. 115,642, Oct. 26, 1987, Pat. No. 4,835,290, which is a continuation of Ser. No. 790,748, Oct. 24, 1985, abandoned. This application Jan. 24, 1991, Ser. No. 644,880

Claims priority, application Japan, Oct. 26, 1984, 59-225551; Apr. 2, 1985, 60-69804

Int. Cl.[5] **C07D** *313/00*

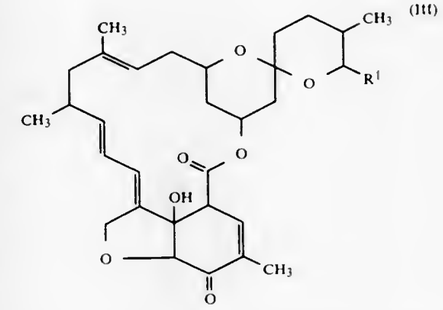
U.S. Cl. 549—264 **13 Claims**

1. A process for preparing a compound of formula (I):



(I)

in which R^1 represents a methyl, ethyl, isopropyl or sec-butyl group, by treating a compound of formula (III):

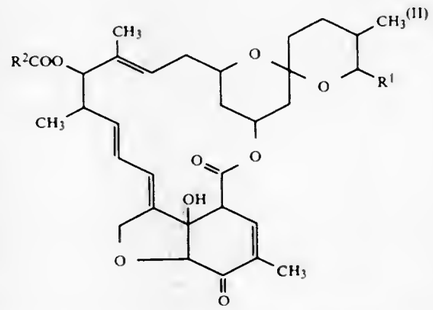


(III)

wherein R^1 is as defined above, with selenium dioxide in the presence of a carboxylic acid of formula (IV):

$$R^2—COOH \quad (IV)$$

wherein R^2 represents a hydrogen atom to produce said compound of formula (I) together with a compound of formula (II):



(II)

wherein R^1 and R^2 are as defined above and optionally, hydrolizing said compound of formula (II) to form said compound of formula (I).

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5,208,350
7-HYDROXY COUMARINS HAVING SUBSTITUTIONS IN THE 4 POSITION

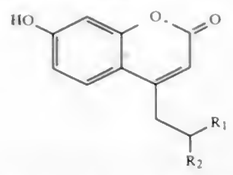
Stanley R. Bouma, Mundelein, and Joseph E. Celebuski, Gurnee, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 394,052, Aug. 17, 1989, abandoned. This application May 21, 1991, Ser. No. 705,709

Int. Cl.[5] C07D *311/16*

U.S. Cl. 549—289 13 Claims

1. A compound of the formula:



wherein R_1 is selected from the group consisting of —CH_3, —G—OZ, —G—SZ, —G— NHY, —OZ, —SZ, —NHY, and alkyl of the formula —G—CH_3, where G represents an alkylene chain having from 1 to 12 carbon atoms, and Z represents hydrogen or a protecting group for O or S, and Y represents hydrogen or a protecting group for N; and

wherein R_2 is selected from the group consisting of —J—SH, —J—X, —OH, —SH, and —COOR', where J represents an alkylene chain having from 1 to 10 carbon atoms, X represents a halogen, and R' represents H or an alkyl chain having from 1 to 10 carbon atoms.

5,208,351
PROCESS FOR THE PREPARATION OF N-CYANOIMIDOCARBONATES

Franz Thalhammer, and Stefan Weiss, both of Trostberg, Fed. Rep. of Germany, assignors to SKW Trostberg Aktiengesellschaft, Trostberg, Fed. Rep. of Germany

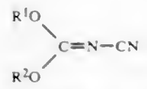
Filed Jul. 15, 1992, Ser. No. 914,268

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1991, 4123608

Int. Cl.[5] C07D *317/32, 319/06, 249/00*

U.S. Cl. 549—449 23 Claims

1. Process for the preparation of N-cyanoimidocarbonates of the general formula:



in which R^1 and R^2 are the same and are alkyl radicals containing up to 4 carbon atoms or R^1 and R^2 are joined together to give an ethylene or propylene chain which is optionally substituted by an alkyl radical containing up to 3 carbon atoms, wherein an imidocarbonate obtained in aqueous alkaline solution from the appropriate alcohol and cyanogen chloride is added with an acid to an aqueous solution of cyanamide in such a manner that the reaction mixture has a pH value of from 3 to 8.

5,208,352
PROCESS FOR PREPARING THE R- AND S-ISOMERS OF 2-HYDROXY-METHYL-2-OCTADECYLOXYMETHYL-TETRAHYDROFURAN AND THEIR USE IN PREPARING STEREOISOMERS OF PHARMACOLOGICALLY ACTIVE COMPOUNDS

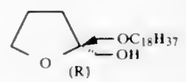
Chung-Pin Chen; Prasad K. Kapa, both of Parsippany, and William J. Houlihan, Mountain Lakes, all of N.J., assignors to Sandoz Ltd., Basle, Switzerland

Filed Apr. 2, 1992, Ser. No. 862,137

Int. Cl.[5] C07D *307/06, 303/14, 303/18, 301/12*

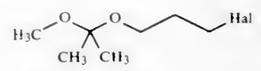
U.S. Cl. 549—502 30 Claims

1. A process for preparing the R-isomer of 2-hydroxymethyl-2-octadecyloxymethyl-tetrahydrofuran having the formula



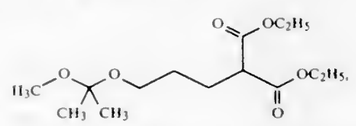
comprising the steps of:

a) reacting either 3-chloro- or 3-bromopropanol with 2-methoxypropene in the presence of the pyridinium salt of p-toluenesulfonic acid to obtain a compound having the formula

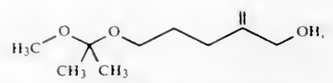


where Hal is chloro or bromo;

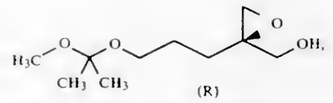
b) alkylating diethylmalonate with a compound prepared in step a) in the presence of an alcoholic solution of sodium ethoxide and an alkali metal iodide to obtain a malonic diester having the formula



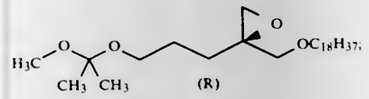
c) in a first part, reacting the diester compound prepared in step b) with an alkali metal hydride and, in a second part, reducing the compound prepared in the first part with sodium bis(2-methoxyethoxy)aluminum hydride to obtain an allylic alcohol having the formula



d) subjecting the allylic alcohol prepared in step c) to metal-catalyzed asymmetric Sharpless epoxidation employing a system consisting of titanium tetraisopropoxide, (−)-diethyl tartrate and t-butyhydroperoxide to obtain an epoxy alcohol having the formula



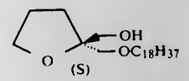
e) alkylating the epoxy alcohol prepared in step d) with n-octadecyl bromide in the presence of an alkali metal hydride and tetrabutylammonium iodide to obtain an oxirane compound having the formula



and

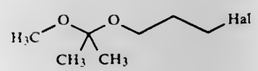
f) reacting the oxirane compound prepared in step e) with acetic acid in the presence of the pyridinium salt of p-toluenesulfonic acid to obtain the desired R-isomer of 2-hydroxymethyl-2-octadecyloxymethyl-tetrahydrofuran.

16. A process for preparing the S-isomer of 2-hydroxymethyl-2-octadecyloxymethyl-tetrahydrofuran having the formula



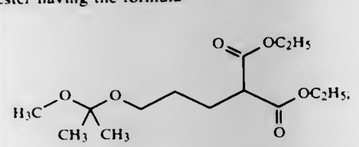
comprising the steps of:

a) reacting either 3-chloro- or 3-bromopropanol with 2-methoxypropene in the presence of the pyridinium salt of p-toluenesulfonic acid to obtain a compound having the formula

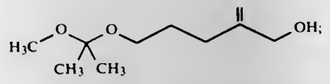


where Hal is chloro or bromo;

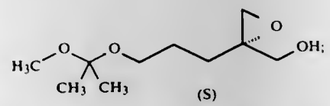
b) alkylating diethylmalonate with a compound prepared in step a) in the presence of an alcoholic solution of sodium ethoxide and an alkali metal iodide to obtain a malonic diester having the formula



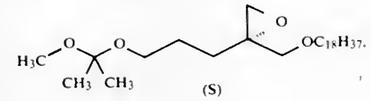
c) in a first part, reacting the diester compound prepared in step b) with an alkali metal hydride and, in a second part, reducing the compound prepared in the first part with sodium bis(2-methoxyethoxy) aluminum hydride to obtain an allylic alcohol having the formula



d) subjecting the allylic alcohol prepared in step c) to metal-catalyzed asymmetric Sharpless epoxidation employing a system consisting of titanium tetraisopropoxide, (+)-diethyl tartrate and t-butylhydroperoxide to obtain an epoxy alcohol having the formula



e) alkylating the epoxy alcohol prepared in step d) with n-octadecyl bromide in the presence of an alkali metal hydride and tetrabutylammonium iodide to obtain an oxirane compound having the formula



and

f) reacting the oxirane compound prepared in step e) with acetic acid in the presence of the pyridinium salt of p-toluenesulfonic acid to obtain the desired S-isomer of 2-hydroxymethyl-2-octadecyloxymethyltetrahydrofuran.

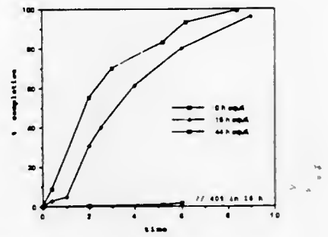
5,208,353
INTERMEDIATES FOR PREPARING EPOXY ESTERS

Joseph R. Flisak, Audubon, Pa.; Paul G. Gassman, St. Paul, Minn.; Ivan Lantos, Wayne, and Wilford L. Mendelson, King of Prussia, both of Pa., assignors to SmithKline Beecham Corp., Philadelphia, Pa.

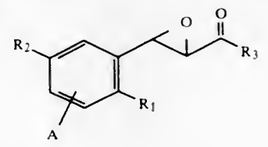
Continuation of Ser. No. 816,984, Jan. 3, 1992, abandoned, which is a division of Ser. No. 366,059, Jun. 14, 1989, Pat. No. 5,110,959. This application Jul. 15, 1992, Ser. No. 914,652

Int. Cl.[5] C07D *303/08;* C07C *49/29, 49/217, 49/223*

U.S. Cl. 549—548 12 Claims



1. A chemical compound having the formula:



(III)

wherein

R_1 is $(L)_a$—$(CH_2)_b$—$(T)_c$—B:

a is 0 or 1;

b is 3 to 14;

c is 0 or 1;

L and T are independently oxygen or CH_2;

B is C_{1-4}alkyl, trifluoromethyl, furanyl, thienyl, cyclohexyl or phenyl, optionally monosubstituted with Br, Cl, CF_3, C_{1-4}alkoxy, or C_{1-4}alkyl;

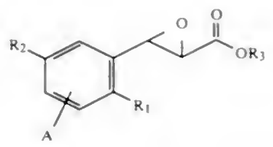
R_2 and A are independently selected from H, CF_3, C_{1-4}alkyl, halogen or NO_2;

or R_1 is H and R_2 is $(L)_a$—$(CH_2)_b$—$(T)_c$—B, wherein a, b, c, L, T and B are as defined above; and

R3 is phenyl or naphthyl unsubstituted or substituted by one or two halogen, Cl-4alkyl, Cl-4alkoxy or trifluoromethyl groups.

7. A chemical compound having the formula:

VOL 1150 ISS 1 MY 4 1993 UMI



(IV)

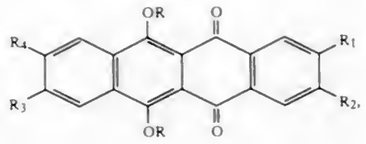
wherein
R_1 is $(L)_a$—$(CH_2)_b$—$(T)_c$—B;
a is 0 or 1;
b is 3 to 14;
c is 0 or 1;
L and T are independently oxygen or CH_2;
B is C_{1-4}alkyl, trifluoromethyl, furanyl, thienyl, cyclohexyl or phenyl, optionally monosubstituted with Br, Cl, CF_3, C_{1-4}alkoxy, or C_{1-4}alkyl;
R_2 and A are independently selected from H, CF_3, C_{1-4}alkyl, halogen or NO_2,;
or R_1 is H and R_2 is $(L)_a$—$(CH_2)_b$—$(T)_c$—B, wherein, a, b, c, L, T and B are as defined above; and
R_3 is phenyl or naphthyl unsubstituted or substituted by one or two halogen, C_{1-4}alkyl, C_{1-4}alkoxy or trifluoromethyl groups.

5,208,354
PHOTOCHROMIC NAPHTHACENEQUINONES, PROCESS FOR THEIR PREPARATION AND THE USE THEREOF

Walter Fischer, Reinach, Switzerland; Jürgen Finter, Freiburg, Fed. Rep. of Germany, and Heinz Spahni, Frenkendorf, Switzerland, assignors to Ciba-Geigy Corp., Ardsley, N.Y.

Filed Dec. 2, 1991, Ser. No. 801,150
Claims priority, application Switzerland, Dec. 5, 1990, 3837/90
Int. Cl.[5] C07C *50/36, 50/22*
U.S. Cl. 552—200 **9 Claims**

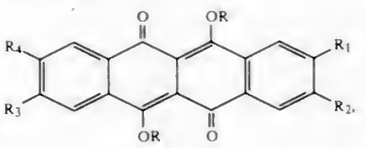
1. A compound of formula I or a mixture thereof



(I)

wherein
R is unsubstituted C_6-C_{14}aryl or C_6-C_{14}aryl which is substituted by C_1-C_{12}alkyl, C_1-C_{12}alkoxy, C_1-C_{12}alkylthio, phenyl, benzyl, —CN, —CF_3, halogen or —$COOR_5$, and R_5 is H, C_1-C_{18}alkyl, cyclohexyl, cyclopentyl, phenyl, C_1-C_{12}alkylphenyl, benzyl or C_1-C_{12}alkylbenzyl, wherein at least one of the substituents R_1 to R_4 is the group RO—, and the other substituents R_1 to R_4 are H, —F, —Cl or —Br.

8. A compound of formula V



(V)

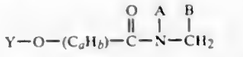
wherein
R is unsubstituted C_6-C_{14}aryl or C_6-C_{14}aryl which is substituted by C_1-C_{12}alkyl, C_1-C_{12}alkoxy, C_1-C_{12}alkylthio, phenyl, benzyl, —CN, —CF_3, halogen or —$COOR_5$, and R_5 is H, C_1-C_{18}alkyl, cyclohexyl, cyclopentyl, phenyl, C_1-C_{12}alkylphenyl, benzyl or C_1-C_{12}alkylbenzyl, and at least one of the substituents R_1 to R_4 is —F, —Cl or —Br, or is independently the group RO—, and the other substituents R_1 to R_4 are H, —F, —Cl or —Br, or a mixture thereof.

5,208,355
COSMETIC COMPOSITION

Ian R. Scott, Wellingborough, England, assignor to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

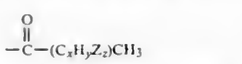
Filed May 1, 1991, Ser. No. 693,883
Claims priority, application United Kingdom, May 1, 1990, 9009793
Int. Cl.[5] C07C *251/00*
U.S. Cl. 554—37 **7 Claims**

1. An amide derivative having the structure (1):



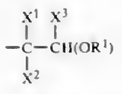
(1)

where Y is H or a residue of an all cis n-6,9 fatty acid or a derivative thereof, having the structure (2):



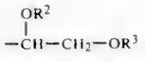
(2)

where Z is —OH or an epoxy oxygen
x is an integer of from 16 to 20
y is an integer of from 24 to 36, and
z is 0, or an integer of from 1 to 4;
provided that:
when z=0
then y is an integer from 26 to 36 or when z is an integer of from 1 to 4, then y is an integer of from 24 to 35;
and where
a is an integer of from 7 to 49
b is an integer of from 10 to 98
and where A is the group
—$(CH_2)_c$OH, where c is an integer of from 1 to 6 or



(3)

where X^1, X^2, and X^3 are individually H, C_{1-5} alkyl or hydroxyalkyl, and R^1 is H, a sugar residue or a phosphate residue,
and where B is



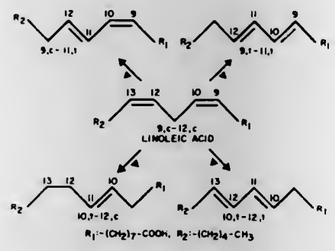
(4)

where
R^2 is H, a sugar residue or phosphate residue; and
R^3 is a C_{8-28} aliphatic hydrocarbon or the group —CH(OH) R^3 with R^3 as defined above; and
wherein at least one of R^1 and R^2 must be a phosphate residue.

5,208,356
OCTADECADIENOIC PHOSPHOLIPIC ESTERS, ANTIOXIDANT AND MOLD INHIBITING COMPOSITIONS

Michael W. Pariza, Madison, Wis., and Yeong L. Ha, Pusan, Rep. of Korea, assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Continuation-in-part of Ser. No. 313,120, Feb. 17, 1989. This application Apr. 3, 1991, Ser. No. 679,841
Int. Cl.[5] C07F *9/02*
U.S. Cl. 554—79 **1 Claim**



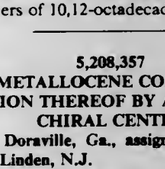
1. A phospholipid ester selected from the group consisting of the phospholipid esters of 9,11-octadecadienoic acid and the phospholipid esters of 10,12-octadecadienoic acid.

5,208,357
CHIRAL METALLOCENE COMPOUNDS AND PREPARATION THEREOF BY ATTACHMENT OF CHIRAL CENTER

Eric A. Mintz, Doraville, Ga., assignor to Exxon Chemical Patents, Inc., Linden, N.J.

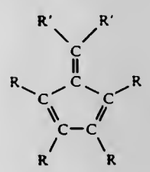
Filed Dec. 31, 1990, Ser. No. 636,403
Int. Cl.[5] C07F *9/00, 17/00, 13/00, 11/00*
U.S. Cl. 556—43 **35 Claims**

1. A method of making enantiomerically enhanced chiral substituted cyclopentadienyl ligands of general formula III:



(III)

comprising contacting a substituted fulvene compound of general formula I:



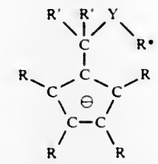
(I)

with a enantiomerically enhanced chiral nucleophile, capable of forming ions of general formula II:

R^*Y^-

wherein each R and each R' is independently selected from the group consisting of H, radicals of substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons, unsubstituted heterocyclic hydrocarbons and two neighboring R groups can be joined together to form a ring of five or more carbon atoms; R^* contains at least one chiral carbon center and is selected from the group consisting of enantiomerically enhanced chiral radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons; Y is selected from the group consisting of NR'', NH, O, S, C(R'')$_2$, PR'' and Si(R'')$_2$; and each R'' is independently selected from the group consisting of H radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons.

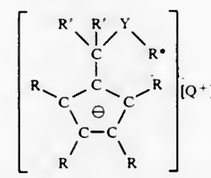
13. An enantiomerically enhanced composition comprising chiral substituted cyclopentadienyl ligands of general formula III:



(III)

wherein each R and each R' is independently selected from the group consisting of H, radicals of substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons and two neighboring R groups can be joined together to form a ring of five or more carbon atoms; R^* contains at least one chiral carbon center and is selected from the group consisting of enantiomerically enhanced chiral radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons; Y is selected from the group consisting of NR'', NH, O, S, C(R'')2, PR'' and Si(R'')$_2$; and each R'' is independently selected from the group consisting of H, radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons.

17. An enantiomerically enhanced composition comprising chiral substituted cyclopentadiene compounds of general formula IIIb:



(IIIb)

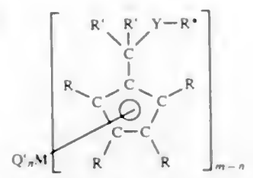
wherein each R and each R' is independently selected from the group consisting of H, radicals of substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons, unsubstituted heterocyclic hydrocarbons and two neighboring R groups can be joined together to form a ring of five or more carbon atoms R^* contains at least one chiral carbon center and is selected from the group consisting of enantiomerically enhanced chiral radicals

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of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons; Y is selected from the group consisting of NR'', NH, O, S, C(R'')2, PR'' and Si(R'')2; each R'' is independently selected from the group consisting of H, radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons, and Q is selected from the group consisting of thallium, potassium, lithium, sodium and MgX, wherein X is selected from the group consisting of Br, Cl and I.

23. An enantiomerically enhanced composition comprising chiral compounds of general formula V:

(V)



wherein each R and each R' is independently selected from the group consisting of H, radicals of substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons, unsubstituted heterocyclic hydrocarbons and two neighboring R groups can be joined together to form a ring of five or more carbon atoms; R* contains at least one chiral carbon center and is selected from the group consisting of enantiomerically enhanced chiral radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons; Y is selected from the group consisting of NR'', NH, O, S, C(R'')2, PR'' and Si(R'')2; each R'' is independently selected from the group consisting of H, radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons; each Q' is independently a univalent anionic ligand selected from the group consisting of a halide, hydride, substituted or unsubstituted C_1-C_{20} hydrocarbyl, alkoxide, aryloxide, amide, arylamide, phosphide and arylphosphide; M is a transition metal selected from the group consisting of Group IIIB-VIIIB transition metals; m is the transition state of the metal; and n is in the range of about 1 to about m−1.

31. An enantiomerically enhanced composition comprising chiral substituted cyclopentadiene compounds of general formula IIIc:

(IIIc)



wherein each R and each R' is independently selected from the group consisting of H, radicals of substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons, unsubstituted heterocyclic hydrocarbons and two neighboring R groups can be joined together to form a ring of five or more carbon atoms; R* contains at least one chiral carbon center and is selected from the group consisting of enantiomerically enhanced chiral radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons; Y is selected from the group consisting of NR'', NH, O, S, $C(R'')_2$, PR'' and $Si(R'')_2$; each R'' is independently selected from the group consisting of H, radicals of amino acids, substituted aliphatic hydrocarbons, unsubstituted aliphatic hydrocarbons, substituted cyclic hydrocarbons, unsubstituted cyclic hydrocarbons, substituted heterocyclic hydrocarbons and unsubstituted heterocyclic hydrocarbons.

5,208,358

PROCESS FOR PREPARATION OF SILYL KETENE ACETALS

Paul C. Dinh; Jeff A. Gray, and Peter Y. K. Lo, all of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Jul. 13, 1992, Ser. No. 912,433
Int. Cl.[5] C07F *7/08, 7/18*
U.S. Cl. 556—445 15 Claims

1. A process for preparation of silyl ketene acetals, the process comprising:

(A) contacting a mixture comprising a organohydrosilane described by formula

R_3SiH

and a vinylic compound described by formula

$R^1{}_2C{=}CR^1{-}COOR^2$

with RhCl(di-tert-butylsulfide)$_2$ catalyst at a temperature within a range of about 20° C. to 100° C.; and

(B) recovering a silyl ketene acetal described by formula

$R^1{}_2CHCR^1{=}C(OSiR_3)(OR^2)$;

where each R is a radical independently selected from a group consisting of alkyls comprising one to 20 carbon atom, alkoxys comprising one to 20 carbon atoms, cycloalkyls comprising four to 20 carbon atoms, halogenated hydrocarbons comprising one to 20 carbon atoms, aryls, and aryloxys; each $R^1$is independently selected from a group consisting of R and hydrogen; and R^2 is selected from a group consisting of alkyls comprising one to 20 carbon atoms, halogenated hydrocarbons comprising one to 20 carbon atoms, aryls, triorganosilyl radicals described by formula —SiR_3 where R is as previously described, and organooxy radicals of formula —$(CH_2)_nOR^3$ where n is an integer from one to ten and R^3 is selected from a group consisting of alkyls comprising one to 20 carbon atoms, cycloalkyls comprising four to 20 carbon atoms, halogenated hydrocarbons comprising one to 20 carbon atoms, aryls, and triorganosilyls described by formula —SiR_3 and R is as previously described.

5,208,359

PROCESS FOR THE PREPARATION OF DI-TERT.BUTOXYDIACETOXYSILANE

Claus-Dietrich Seller; Hartwig Rauleder; Hans-Joachim Kötzsch, and Reinhold Schork, all of Rheinfelden, Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 709,592, Jun. 3, 1991, abandoned. This application Dec. 20, 1991, Ser. No. 812,586
Claims priority, application Fed. Rep. of Germany, Jul. 9, 1990, 4021870
Int. Cl.[5] C07F *7/08, 7/18*
U.S. Cl. 556—442 4 Claims

1. In the method of preparing di-tert.butoxydiacetoxysilane by reacting tetraacetoxysilane with tert.butanol, the improvement which comprises performing the reaction at a temperature of 0° to 60° C., and isolating the resulting di-tert.butoxydiacetoxysilane product.

5,208,360

GLYCEROXYFUNCTIONAL SILANES AND SILOXANES

Andrew H. Ward, Sanford; Stefan F. Reutsch, Midland, both of Mich., and Alfred J. DiSapio, Greenwich, Conn., assignors to Dow Corning Corporation, Midland, Mich.

Division of Ser. No. 681,584, Apr. 8, 1991, Pat. No. 5,145,875, which is a division of Ser. No. 489,117, Mar. 5, 1990, Pat. No. 5,043,359. This application Feb. 6, 1992, Ser. No. 832,191
Int. Cl.[5] C07F *7/04, 7/08*
U.S. Cl. 556—444 3 Claims

1. An organosilicon compound having a formula selected from the group consisting of

$$R_xSi(Q)_{4-x} \quad \text{and} \quad R_3SiO(R_2SiO)_y(RSiO)_zSiR_3 \quad (R{=}Q)$$

wherein R is an alkyl radical of one to six carbon atoms or phenyl; Q is the glyceroxy radical —$OCH_2CH(OH)CH_2OH$; x is an integer having a value form zero to three; y is an integer having a value of from zero to about one thousand; and z is an integer having a value of from one to about twenty.

5,208,361

METHOD OF PREPARING ALKYLISOTHIOCYANIC ACID ESTERS

Günter Giesselmann, Heusenstamm, and Kurt Günther, Erlensee, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Jan. 15, 1991, Ser. No. 641,260
Claims priority, application Fed. Rep. of Germany, Jan. 16, 1990, 4001020
Int. Cl.[5] C07C *331/20*
U.S. Cl. 558—18 8 Claims

1. In a method of preparing alkylisothiocyanic acid esters of the formula R—N=C=S, in which R signifies a methyl or ethyl group, from an aqueous solution of an N-alkyldithiocarbamate of the formula R—NH—C(S)—S—Me, in which R stands for a methyl or ethyl group and Me for an alkali-metal atom or an ammonium or alkylammonium group, and from an aqueous solution of hydrogen peroxide, using at least one mole hydrogen peroxide for each mole of N-alkyldithiocarbamate, the reaction being carried out at a temperature of 95° to 130° C. and the alkylisothiocyanic acid ester formed being separated in known manner from the mixture;

the improvement in which the aqueous solution of N-alkyldithiocarbamate is used in the form of a 30 to 45% by weight aqueous solution having a pH of 9.5 to 12 and it is reacted with a 20 to 40% by weight aqueous solution of hydrogen peroxide in a volumetric ratio of 1 to 0.8 to 1 while maintaining a pH of 1.5 to 4.5, the aqueous solution of N-alkyldithiocarbamate and the aqueous solution of hydrogen peroxide being reacted with one another in the form of droplets.

5,208,362

PROCESS FOR STABILIZING ORGANOPHOSPHORUS COMPOUNDS

Richard D. Glass, and Vincent J. Gatto, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed Feb. 27, 1992, Ser. No. 842,653
Int. Cl.[5] C07F *9/40, 9/20, 9/18, 9/142*
U.S. Cl. 558—146 19 Claims

1. In a process for recovering an organophosphorus compound from its synthesis reaction mixture, the improvement which comprises minimizing or preventing its decomposition by adding to the synthesis reaction mixture at least 0.5% by weight of an acid scavenger, based on the weight of the organophosphorus compound, before allowing the organophosphorus compound to crystallize.

5,208,363

PREPARATION OF AMINONITRILES

Druce K. Crump, Lake Jackson, and David A. Wilson, Richwood, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 597,625, Oct. 15, 1990, abandoned. This application May 5, 1992, Ser. No. 878,572
Int. Cl.[5] C07C *253/30*
U.S. Cl. 558—346 28 Claims

1. A process for preparing aminoacetonitriles comprising the steps of (a) reacting by contacting in a liquid aqueous reaction medium, at a basic pH and at a temperature of from about 0° C. to about 70° C. glycolonitrile with an unsubstituted or inertly-substituted amine having at least one primary amine group to form a intermediate aminonitrile, (b) placing the reaction product of Step (a) in a suitable acidic liquid reaction medium at a temperature of from about 0° C. to about 90° C. and thereafter admixing it with formaldehyde and hydrocyanic acid such that each hydrogen on an amine nitrogen is replaced by an acetonitrile group.

5,208,364

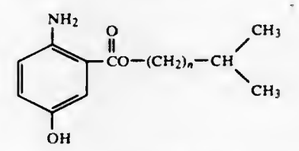
ANTIBIOTIC 5-LIPOXYGENASE INHIBITORS

Hiroaki Ohkuma; Yutaka Hoshino; Yosuke Sawada, all of Tokyo, Japan, and Derek Hook, Roxbury, Conn., assignors to Bristol-Myers Squibb Co., New York, N.Y.

Filed Jun. 25, 1992, Ser. No. 904,412
Int. Cl.[5] C07C *229/00*
U.S. Cl. 560—46 6 Claims

1. A novel compound of structure I:

(I)



wherein n=7, 8 or 9, or a pharmaceutically acceptable derivative thereof.

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5,208,365
PROCESS FOR THE PREPARATION OF 2,5-DI(PHENYLAMINO)-TEREPHTHALIC ACID AND ITS DIALKYL ESTERS IN HIGH PURITY

Hermann Fuchs, Königstein/Taunus; Walter Gilb, and Otto Arndt, both of Hofheim am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

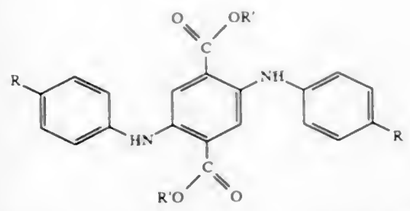
Filed Jun. 11, 1992, Ser. No. 898,201

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1991, 4119601

Int. Cl.[5] C07C *229/00*

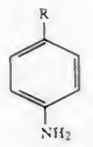
U.S. Cl. 560—48 7 Claims

1. A process for the preparation of 2,5-di(phenylamino) terephthalic acid, or its dialkyl esters, of formula (I):



(I)

in which R is a hydrogen atom or a methyl group and R' is a hydrogen atom or a methyl or ethyl group, said process comprising (1) reacting a dialkyl(C_1-C_2) succinate with a sodium alcoholate in xylene, in the manner of a Dieckmann condensation, to give the disodium salt of the dialkyl (C_1-C_2)2,5-dihydroxycyclohexadiene-1,4-dicarboxylate, (2) reacting the resulting condensation product, after decomposition of the disodium salt with acid, with a phenylamine of formula (II):



(II)

in which R is as defined above, in the presence of an organic acid, in xylene, to give the dialkyl(C_1-C_2) 2,5-di(-phenylamino)-3,6-dihydroterephthalate, (3) dehydrogenating (oxidizing) the resulting 1,4-cyclohexadiene derivative with oxygen to give the corresponding dialkyl(C_1-C_2) 2,5-di(-phenylamino)-terephthalate, said steps (1) through (3) being optionally carried out without isolation of any of the intermediate products, and then (4) optionally saponifying the resulting dialkyl ester in methanolic sodium hydroxide solution to give the corresponding disodium 2,5-di(phenylamino) terephthalate, and (5) optionally liberating the 2,5-di(phenylamino) terephthalic acid from said disodium salt with acid, and wherein said process further comprises carrying out the oxidation in stage (3) in such a way that the reaction mixture of stage (2), in the form of a solution or suspension containing solid particles, is blanketed with nitrogen in a stirred vessel, this reaction mixture is circulated by pumping and the oxygen is metered into a partial volume of the circulated reaction mixture in such a way as to produce effective thorough mixing.

5,208,366
HIGH YIELD METHOD FOR PREPARATION OF DIALKYL ESTERS OF POLYHALOAROMATIC ACIDS

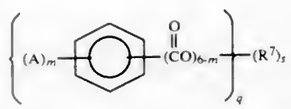
Joseph M. Bohen, King of Prussia, and Anthony J. Mancuso, Trappe, both of Pa., assignors to Elf Atochem North America, Inc., Philadelphia, Pa.

Continuation of Ser. No. 244,421, Sep. 16, 1988, Pat. No. 5,049,697, which is a continuation-in-part of Ser. No. 99,361, Sep. 21, 1987, abandoned. This application Aug. 19, 1991, Ser. No. 738,992

Int. Cl.[5] C07C *67/08*

U.S. Cl. 560—83 6 Claims

1. A method for preparing esters of polyhaloaromatic carboxylic acids and anhydrides of the formula:



[I]

wherein:

(a) the aromatic rings can have all possible isomeric arrangements;

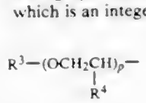
(b) A is Br or Cl;

(c) m is 3, 4, or 5;

(d) q is an integer of 1 to 6;

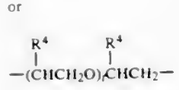
(e) R^7 is

(i) a substituted or unsubstituted, C_{1-30} alkyl or an aryl having up to 30 carbon atoms, and with a valence (v) which is an integer of 1 to 4;



(ii)

or



where:

R^3 is H or a substituted or unsubstituted C_{1-30} alkyl, or an aryl having up to 30 carbon atoms,

R^4 is, independently, H or CH_3,

p is an integer of 1 to 50, and

t is an integer of 1 to 49; or



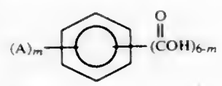
(iii)

where R^5 is a substituted or unsubstituted, C_{1-30} alkyl or an aryl having up to 30 carbon atoms; and

$$s \text{ is } \frac{q(6-m)}{v}, \quad \text{(f)}$$

q, m, and v being as defined above; which comprises reacting:

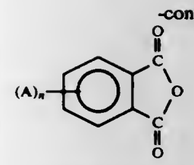
(I) at least one polyhaloaromatic carboxylic acid or anhydride of the formulae



[IIa]

or

-continued



[IIb]

wherein A and m are as defined above and n is 3 or 4; with

(II) at least a stoichiometric quantity of alcohol or polyol of the formula

$R^7(OH)_v$

wherein R^7 and v are as defined above; and

(III) a catalytically effective amount of $Ti(OR^2)_4$, wherein R^2, independently, is a substituted or unsubstituted C_{1-30} alkyl or a substituted or unsubstituted C_{2-22} alkylene, in the absence of an alkali or alkaline salt.

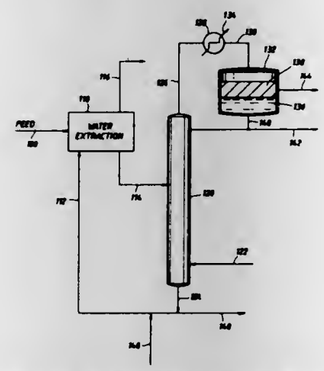
5,208,367
PROCESS FOR RECOVERY OF VINYL ACETATE

John D. Ou, Houston, Tex., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Filed Dec. 17, 1991, Ser. No. 809,453

Int. Cl.[5] B01D *3/36*; C07C *67/54*

U.S. Cl. 560—248 17 Claims



1. A method for the separation of vinyl acetate from liquid mixtures containing oxygenated compounds, paraffins and/or olefins, vinyl acetate, water, heavy oils, and antioxidants, comprising:

extracting vinyl acetate and other polar compounds in said liquid mixtures from non-polar compounds in said liquid mixtures with water to provide a vinyl acetate-rich water extract,

distilling the vinyl acetate-rich water extract with steam,

recovering and condensing vapors from said distilling step, and

separating said condensed vapors into a vinyl acetate phase and an aqueous phase.

5,208,368
PREPARATION OF MIXTURES OF DIPHENYLMETHANE DIISOCYANATES AND POLYPHENYLPOLYMETHYLENE POLYISOCYANATES OF REDUCED IODINE COLOR NUMBER

Dietrich Scherzer, Ludwigshafen; Roland Minges, Gruenstadt; Bernd Bruchmann, Ludwigshafen; Wolfgang Heider, Limburgerhof; Willy van Pee, Kapellen, and Peter Keller, Hirschberg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jun. 28, 1991, Ser. No. 723,133

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1990, 4021712

Int. Cl.[5] C07C *249/14*

U.S. Cl. 560—333 12 Claims

1. A process for the preparation of mixtures of diphenylmethane diisocyanates and polyphenylpolymethylene polyisocyanates of reduced iodine color number, by reacting the corresponding mixtures of diphenylmethanediamines and polyphenylpolymethylene polyamines with phosgene in the presence of at least one inert organic solvent at elevated temperature, removing the excess phosgene and solvent when the phosgenation is complete, and heating the reaction product, the improvement which comprises incorporating monohydric or polyhydric polyoxyalkylene alcohols or mixtures thereof in an effective amount into the reaction mixture when the phosgenation is complete.

5,208,369
DEGRADABLE CHELANTS HAVING SULFONATE GROUPS, USES AND COMPOSITIONS THEREOF

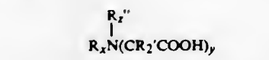
Druce K. Crump, Lake Jackson, and David A. Wilson, Richwood, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 31, 1991, Ser. No. 708,534

Int. Cl.[5] C07C *303/00, 307/00, 309/00, 311/00*

U.S. Cl. 562—106 19 Claims

1. A compound of Formula I or a salt or complex thereof wherein Formula I is:



and salts and complexes thereof; wherein R is an alkyl group having at least one $—SO_3H$ and at least one —OH; each R' is independently selected from hydrogen, an unsubstituted or inertly substituted alkyl group, an alkyl group substituted with a carbonyl group, with a carboxylic acid, salt or complexed carboxyl group, a hydroxyalkyl or an alkoxy group; R'' is a hydroxyalkyl group; and x, y and z are integers, x and y each being at least 1, such that $x+y+z=3$.

5,208,370
METHOD OF REDUCING IMPURITIES IN AQUEOUS ACRYLIC MONOMER SOLUTIONS

William Bauer, Jr., Huntingdon Valley, and Nelson I. Quirós, North Wales, both of Pa., assignors to Rohm and Haas Co., Philadelphia, Pa.

Filed Apr. 22, 1992, Ser. No. 872,278

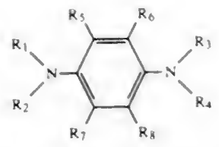
Int. Cl.[5] C07C *51/42*

U.S. Cl. 562—600 17 Claims

1. A method of reducing the level of protoanemonin in an aqueous monomer solution comprising:

adding to the aqueous monomer solution an effective amount of one or more para-phenylenediamines having the following formula:

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I

wherein R_1, R_2, R_3 and R_4 are the same or different radical selected from hydrogen, methyl, ethyl, n-propyl, iso-propyl or methoxyphenyl with the proviso that at least one of R_1, R_2, R_3 and R_4 is hydrogen; R_5, R_6, R_7 and R_8 are the same or different radical selected from the group consisting of hydrogen, methyl, ethyl, n-propyl, iso-propyl, methoxy or ethoxy with the proviso that at least one of R_5, R_6, R_7 and R_8 is hydrogen; and salts thereof.

5,208,371

PROCESS FOR PRODUCTION OF METHACROLEIN AND METHACRYLIC ACID

Tooru Kuroda; Motomu Oh-Kita, and Masaaki Kato, all of Hiroshima, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 761,313, Sep. 17, 1991, abandoned, which is a continuation of Ser. No. 114,589, Oct. 30, 1987, abandoned. This application Apr. 24, 1992, Ser. No. 873,223
Claims priority, application Japan, Nov. 11, 1986, 61-266550
Int. Cl.[5] C07C *51/16*; B01J *21/08*
U.S. Cl. 562—538 4 Claims

1. A process for producing methacrolein and methacrylic acid which comprises subjecting isobutylene or tert-butanol to gas phase catalytic oxidation with a molecular oxygen-containing gas in the presence of a catalyst having the composition represented by the following formula:

$$Mo_aW_bBi_cFe_dSb_eCr_fSi_gA_hX_iY_jZ_kO_l$$

wherein Mo, W, Bi, Fe, Sb, Cr, Si and O represent molybdenum, tungsten, bismuth, iron, antimony, chromium, silicon and oxygen, respectively; A represents at least one element selected from the group consisting of nickel and cobalt; X represents at least one element selected from the group consisting of potassium, rubidium, cesium and thallium; Y represents at least one element selected from the group consisting of magnesium, zinc, manganese, cadmium, lead and barium; Z represents at least one element selected from the group consisting of phosphorus, boron, sulfur, chlorine, cerium, tin and titanium; a, b, c, d, e, f, f, g, h, i, j, k and l each represents the atomic ratio of each element; and wherein a is 12, b is 0.03–1, c is 0.1–2, d is 1–3.5, e is 0.1–2, f is 0.03–1, g is 3–18, h is 3–10, i is 0.05–1, j is 0.1–4 and k is 0–1 and l is the number of oxygen atom necessary to satisfy valence of each of said component.

5,208,372

CALCIUM CITRATE ANTICAKING AGENT

Susan Vidal, Patterson, and Fouad Z. Saleeb, Pleasantville, both of N.Y., assignors to Kraft General Foods, Inc., Northfield, Ill.

Division of Ser. No. 704,500, May 23, 1991, Pat. No. 5,149,552. This application May 18, 1992, Ser. No. 883,987
Int. Cl.[5] C07C *59/265*
U.S. Cl. 562—584 12 Claims

1. A process for producing a reaction product of a calcium compound selected from the group consisting of calcium hydroxide, calcium oxide and calcium carbonate with citric acid wherein the reaction product has a mole ratio of calcium to citric acid from 2.50:2 to 2.95:2 and a pH value in a 1% water slurry of said reaction product about 4 to below 7 at 25° C. which comprises.

(a) reacting a mixture of an aqueous slurry of said calcium compound and an aqueous solution of said citric acid at mole ratios of said calcium compound to citric acid of less than 3:2 at a rate to avoid temperatures of heat of reaction exceeding 60° C. and maintaining a pH of said mixtures during the reaction in the range from about 4 to about 7 to obtain a solids level of said reaction mixture from about 20 to about 26% by weight; and

(b) cooling said reaction mixture of (a) below about 100° F.

5,208,373

PROCESS FOR THE PREPARATION OF PERFLUOROPOLYETHERACYL FLUORIDES

Matthias Meyer, Frankfurt am Main, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 12, 1992, Ser. No. 834,382
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1991, 4104465
Int. Cl.[5] C07C *315/00*
U.S. Cl. 562—851 6 Claims

1. A process for the preparation of perfluoropolyetheracyl fluorides of formula (I)

$$F_3C(CF_2)_2—O—[CF(CF_3)CF_2—O—]_nCF(CF_3)COF \quad (I)$$

in which n is an integer from 0–60, wherein hexafluoropropylene oxide is oligomerized in the presence of CsF and a polyethylene glycol dimethyl ether and the reaction mixture thus formed is reacted with at least one of the halogen compounds HCl, HBr, BCl_3, PCl_3, $SCl_2$and R_mSiCl_{4-m}, where m=0, 1, 2 or 3 and R=C_1–C_3-alkyl or phenyl, dissolved in an aprotic solvent, and the resulting cesium halide precipitate is removed from the purified perfluoropolyetheracyl fluorides of formula (I).

5,208,374

AMINE OXIDE PROCESS

James E. Borland; Fred J. Impastato, both of Baton Rouge, La., and Kim R. Smith, Huntington, Ind., assignors to Ethyl Corporation, Richmond, Va.

Continuatinn-in-part of Ser. No. 706,768, May 29, 1991, abandoned, which is a continuation-in-part of Ser. No. 569,648, Aug. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 429,032, Oct. 30, 1989.
Int. Cl.[5] C07C *291/00*
U.S. Cl. 564—298 17 Claims

1. In a process for preparing an amine oxide by reacting a non-aromatic tertamine with hydrogen peroxide at a temperature of about 20°–100° C. in a carbon dioxide atmosphere and in a liquid medium that constitutes not more than 50% of the weight of the reaction mixture, the improvement which comprises minimizing discoloration of the product by diluting the carbon dioxide before allowing it to contact the reaction mixture so that the entire reaction is conducted in an atmosphere composed of carbon dioxide and an amount of inert gas at least equal in volume to the amount of carbon dioxide.

5,208,375

COMPOSITIONS FOR MAGNETIC RESONANCE IMAGING

Dennis A. Moore, Ferguson, and Rebecca A. Wallace, Manchester, both of Mo., assignors to Mallinckrodt Medical, Inc., St. Louis, Mo.

Division of Ser. No. 724,653, Jul. 2, 1991, Pat. No. 5,138,040. This application Apr. 29, 1992, Ser. No. 875,503
Int. Cl.[5] C07C *229/06*
U.S. Cl. 564—197 1 Claim

1. The compound N'-(2-Hydroxyethyl)-N-(2-hydroxyethyl)-glycinamide.

5,208,376

PROCESS FOR THE CONTINUOUS PREPARATION OF 3,3'-DICHLORO-BENZIDINE DIHYDROCHLORIDE

Kart Habig, Mörfelden-Walldorf; Konrad Baessler, Frankfurt am Main, and Klaus Warning, Eppstein, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

PCT No. PCT/EP90/01844, § 371 Date Jun. 8, 1992, § 102(e) Date Jun. 8, 1992, PCT Pub. No. WO91/07377, PCT Pub. Date May 30, 1991
PCT Filed Nov. 3, 1990, Ser. No. 856,063
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1989, 3937320
Int. Cl.[5] C07C *209/00*
U.S. Cl. 564—309 17 Claims

1. A process for the continuous preparation of 3,3'-dichlorobenzidine dihydrochloride from 2,2'-dichlorohydrazobenzene by treatment with aqueous sulfuric acid, which comprises treating the 2,2'-dichlorohydrazobenzene, dissolved in a water-immiscible aromatic solvent, continuously at temperatures of from about 20° to about 50° C in the presence of an alkali metal salt of an alkyl (C_8–C_{23})polyglycol ether sulfate, with such an amount of from about 50 to about 80 % strength aqueous sulfuric acid that the suspension formed remains conveyable, subsequently diluting the suspension emerging from the reaction zone with water, again continuously, and subsequently heating the suspension to a temperature of from about 90° to about 95° C. until a solution is obtained, separating off the aromatic solvent from the hot, sulfuric acid aqueous phase, and precipitating the 3,3'-dichlorobenzidine dihydrochloride by adding hydrochloric acid to the sulfuric acid solution which remains, and filtering off this product.

5,208,377

PURIFICATION AND DECOLORIZATION OF OFF-COLOR ALKYL ALKANOLAMINES

Thomas H. Overgaard, Redford Township, Wayne County, and Louis P. Verduce, Wyandotte, both of Mich., assignors to Elf Atochem North America, Inc., Philadelphia, Pa.

Continuation of Ser. No. 587,198, Sep. 24, 1990, abandoned. This application Sep. 1, 1992, Ser. No. 939,532
Int. Cl.[5] C07C *213/00*
U.S. Cl. 564—477 14 Claims

1. A process for the preparation of high purity, low APHA color product from a crude N-(C_4–C_{10})alkyl di (C_2–C_3)alkanolamine containing contaminants including color-forming bodies which comprises vacuum distilling said alkanolamine at a pressure of less than about 50 mm. Hg in the presence of water and a water-soluble metal borohydride whereby the distilled alkanolamine has a reduced APHA color rating which is maintained on storage.

5,208,378

PROCESS FOR PRODUCTION OF WATER-SOLUBLE CARBODIIMIDE

Takahiro Yoneyama, Matsudo; Masaki Odagiri, Ushiku, and Makoto Imanari, Aml, all of Japan, assignors to Research Association for Utilization of Light Oil, Tokyo, Japan

Filed Jul. 18, 1991, Ser. No. 732,123
Claims priority, application Japan, Jul. 19, 1990, 2-189414
Int. Cl.[5] C07C *267/00*
U.S. Cl. 564—252 10 Claims

1. A process for the production of water-soluble carbodiimide, which comprises

(1) allowing ethyl isothiocyanate to react with N,N-dimethyl-1,3-propanediamine in an aromatic hydrocarbon solvent selected from the group consisting of benzene, toluene and a mixture thereof (first reaction step),

(2) removing hydrogen sulfide from a thiourea derivative formed in the first reaction step by adding a hydrogen sulfide removing agent selected from the group consisting of a lead oxide, a copper oxide and a mixture thereof and heating at a temperature of about 50° C. to a reflux temperature without isolating the thiourea derivative (second reaction step), and

(3) recovering the water-soluble carbodiimide from the resulting reaction mixture.

5,208,379

HYDROLYSIS OF POLYURETHANES

Lau S. Yang, Wilmington, Del., and Diane A. Macarevich, Collegeville, Pa., assignors to Arco Chemical Technology, L.P., Wilmington, Del.

Filed May 14, 1992, Ser. No. 882,776
Int. Cl.[5] C07C *209/44*
U.S. Cl. 564—468 22 Claims

1. A method of hydrolyzing a polyurethane produced by reacting an active hydrogen containing polyether and an organic polyisocyanate which comprises contacting said polyurethane with water in the presence of an effective amount of a strong base selected from the group consisting of alkali metal oxides, alkali metal hydroxides, alkaline earth metal oxides, and alkaline earth metal hydroxides and an effective amount of an activating agent selected from the group consisting of quaternary ammonium salts containing at least 15 carbon atoms and organic sulfonates containing at least 7 carbon atoms for a time and at a temperature effective to yield the active hydrogen-containing polyether and an organic polyamine.

5,208,380

PROCESS FOR PREPARING MONOALLYLAMINE

Shinkichi Shimizu, Kawanishi; Takayuki Shoji, Osaka, and Hideki Nakao, Sakai, all of Japan, assignors to Koei Chemical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 631,233, Dec. 20, 1990, abandoned. This application Apr. 13, 1992, Ser. No. 866,268
Claims priority, application Japan, Dec. 22, 1989, 1-333066; Nov. 27, 1990, 2-328191
Int. Cl.[5] C07C *211/21*
U.S. Cl. 564—509 3 Claims

1. A process for preparing monoallylamine represented by the formula (II):

$$CH_2=CHCH_2NH_2 \quad (II)$$

which comprises: catalytically reacting isopropanolamine represented by the formula (I):

$$CH_3\underset{\displaystyle OH}{\underset{|}{C}}HCH_2NH_2 \quad (I)$$

in a gaseous phase in the presence of a catalyst comprising at least one oxide selected from the group consisting of zirconium oxide, lanthanum oxide, yttrium oxide, cerium oxide, neodymium oxide and praseodymium oxide.

5,208,381

METHOD FOR THE MANUFACTURE OF CAROTINOIDS AND NOVEL INTERMEDIATES

Karl Meyer, Liestal, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

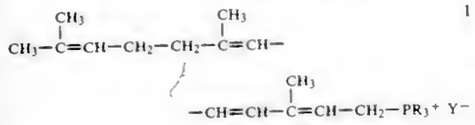
Division of Ser. No. 463,698, Jan. 11, 1990, Pat. No. 5,166,445. This application Jun. 29, 1992, Ser. No. 905,968
Claims priority, application Switzerland, Feb. 10, 1989, 468/89
Int. Cl.[5] C07F *9/30*
U.S. Cl. 568—10 3 Claims

1. A method for the manufacture of a 3,7,11-trimethyldodeca-2,4,6,10-tetraen-1-yl phosphonium salt of a strong acid comprising

a) reacting 3,7,11-trimethyldodeca-1,4,6,10-tetraen-3-ol with triarylphosphine and a compound selected from the group

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consisting of C_{1-6} alkanoic acid and boron trifluoride etherate to produce a compound of the formula



wherein R is aryl and Y^- is C_{1-6}-alkanoate or hydroxytrifluoroborate and

b) reacting the compound of formula 1 with a strong acid.

5,208,382

REDUCING COPPER CORROSIVENESS OF ORGANIC SULFIDES

Edmund F. Perozzi, Crestwood, Mo., and John F. Sieberth, Baton Rouge, La., assignors to Ethyl Petroleum Additives, Inc., St. Louis, Mo.

Filed Jan. 29, 1992, Ser. No. 827,437
Int. Cl.[5] C07C *321/14, 323/12*
U.S. Cl. 568—22 **24 Claims**

1. A process of reducing the copper corrosiveness of a hydrocarbyl polysulfide in which the average number of sulfur atoms is above 3 that is corrosive toward copper which comprises treating said dihydrocarbyl polysulfide with an alkali metal-containing or alkaline earth metal-containing substance capable of dissolving elemental sulfur, such treatment being effected in the presence of a phase transfer catalyst in an aqueous liquid reaction medium at temperatures between about 35° C. and about 150° C., whereby the treated dihydrocarbyl polysulfide is less corrosive toward copper.

5,208,383

PROCESS FOR PRODUCING AROMATIC ACYLATION PRODUCT

Tadayoshi Takefumi; Yoshihiro Shiokawa; Shunichi Matsumoto, and Nobuyuki Tokura, all of Kurashiki, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Continuation-in-part of Ser. No. 737,231, Jul. 29, 1991, abandoned. This application Jan. 24, 1992, Ser. No. 825,275
Claims priority, application Japan, Jun. 14, 1991, 3-169005
Int. Cl.[5] C07C *45/45*
U.S. Cl. 568—323 **14 Claims**

1. A process for producing an aromatic acylation product from an aromatic compound, an olefin and carbon monoxide, which comprises the steps of:

(a) reacting an olefin with carbon monoxide in the presence of hydrogen fluoride and boron trifluoride at a pressure of not more than 100 kg/cm^2G to prepare an acyl fluoride synthesis solution,

(b) allowing the acyl fluoride synthesis solution to absorb boron trifluoride to form a complex of acyl fluoride and boron trifluoride,

(c) subjecting an aromatic compound to an acylation reaction with a reaction mixture containing the complex of acyl fluoride and boron trifluoride, obtained in the step (b), to form a complex of boron trifluoride, hydrogen fluoride and an aromatic acylation compound, provided that the amount of the acyl fluoride in the complex of acyl fluoride and boron trifluoride is less than 1 mole per mole of the aromatic compound, and

(d) separating the aromatic acylation compound from the complex formed in the step (c) by heating a reaction mixture obtained in the step (c).

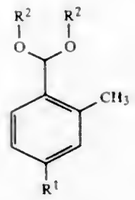
5,208,384

2-METHYLBENZALDEHYDE DIALKYL ACETALS

Dieter Hermeling, Frankenthal, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

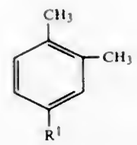
Filed Feb. 26, 1992, Ser. No. 841,982
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1991, 4106661
Int. Cl.[5] C07C *45/00*
U.S. Cl. 568—426 **11 Claims**

1. A process for the preparation of a 2-methylbenzaldehyde dialkyl acetal of the formula



where R^1 is C_3-C_{20}-alkyl or C_1-C_{12}-alkoxy and R^2 is C_1-C_8-alkyl, with the proviso that R^1 is not methoxy when R^2 is methyl, which process comprises:

electrochemically oxidizing a 1,2-dimethylbenzene of the formula



where R^1 has the above-mentioned meanings, with an alcohol R^2—OH, where R^2 has the above-mentioned meanings, and an auxiliary electrolyte.

5,208,385

PREPARATION OF TETRAHYDROFURAN POLYMERS HAVING A NARROW MOLECULAR WEIGHT DISTRIBUTION USING AN AMORPHOUS SILICA-ALUMINA CATALYST

Andrew P. Kahn, Wayne; Robert G. Gastinger, and Rangasamy Pitchai, both of West Chester, all of Pa., assignors to Arco Chemical Technology, L.P., Wilmington, Del.

Filed Feb. 19, 1992, Ser. No. 839,538
Int. Cl.[5] C07C *41/01, 41/02*
U.S. Cl. 568—617 **7 Claims**

1. A process for producing a tetrahydrofuran polymer having a narrow molecular weight distribution, said process comprising polymerizing tetrahydrofuran in the presence of a carboxylic acid anhydride and an effective amount of an amorphous silica-alumina catalyst, wherein the amorphous silica-alumina catalyst has an Al_2O_3 content within the range of about 10 to about 30 weight percent, and wherein the resulting tetrahydrofuran polymer has a number average molecular weight within the range of about 200 to about 5,000, and a molecular weight distribution (M_w/M_n) less than about 3.

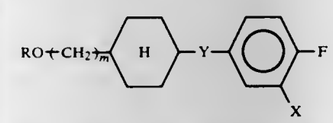
5,208,386

FLUORINE-SUBSTITUTED COMPOUND CONTAINING ETHER BOND

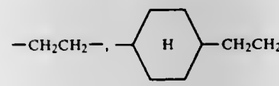
Makoto Sasaki, Saitama; Haruyoshi Takatsu, and Kiyofumi Takeuchi, both of Tokyo, all of Japan, assignors to Dainippon Ink and Chemicals, Inc., Tokyo, Japan

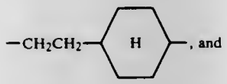
Filed Aug. 9, 1991, Ser. No. 744,186
Claims priority, application Japan, Aug. 10, 1990, 2-213344; Aug. 10, 1990, 2-213345; Aug. 10, 1990, 2-213346
Int. Cl.[5] C07C *43/166, 43/164*
U.S. Cl. 568—661 **5 Claims**

1. A compound represented by formula (I):

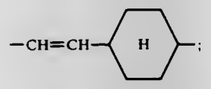


wherein R represents a straight chain alkyl group having from 1 to 5 carbon atoms; m represents an integer of from 1 to 7; X represents hydrogen atom or fluorine atom; Y represents a connecting group selected from a consisting of





and



and the cyclohexane ring represents a trans(equatorial-equatorial) cyclohexane ring.

5,208,387

TWO STAGE PROCESS FOR PRODUCTION OF DIISOPROPYL ETHER

Mohsen N. Harandi, Lawrenceville, and Hartley Owen, Belle Mead, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Dec. 27, 1991, Ser. No. 813,716
Int. Cl.[5] C07C *41/09, 41/05*
U.S. Cl. 568—695 **20 Claims**

1. A process for the production of high octane value diisopropyl ether without recycling unconverted propene, comprising;

a) contacting C_3 hydrocarbon feedstock containing propene and a recycle stream comprising isopropanol and water with acidic shape selective metallosilicate catalyst particles in a first reactor under olefin hydration and etherification conditions whereby a first reactor effluent stream is produced comprising diisopropyl ether, isopropanol, unconverted propene and water;

b) separating step (a) effluent stream and recovering a first fraction comprising said unconverted propene and a second fraction comprising said diisopropyl ether and isopropanol;

c) introducing step (b) first fraction and excess water into a second reactor under olefin hydration and/or etherification conditions in contact with acidic etherification and/or hydration catalyst particles whereby a second reactor effluent stream is produced comprising diisopropyl ether, isopropanol, unconverted C_3 hydrocarbons and water;

d) separating step (b) second fraction and said second reactor effluent stream whereby a stream comprising said high octane diisopropyl ether and a stream comprising step (a) recycle stream are produced.

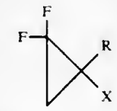
5,208,388

2,2-DIFLUOROCYCLOPROPYL DERIVATIVES

Karl-Rudolf Gassen, Odenthal, and Bernd Baasner, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 692,825, Apr. 26, 1991, Pat. No. 5,095,147, which is a continuation of Ser. No. 378,545, Jul. 11, 1989, abandoned. This application Sep. 20, 1991, Ser. No. 763,031
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1988, 3824432
Int. Cl.[5] C07C *35/04*
U.S. Cl. 568—700 **4 Claims**

1. A 2,2-difluorocyclopropyl derivative of the formula



in which

R represents alkyl having 1 to 4 carbon atoms, phenyl or benzyl and

X represents hydroxymethyl or 2-hydroxyethyl.

5,208,389

PROCESS FOR HIGH PURITY TETRABROMOBISPHENOL-A

Bonnie G. McKinnie, and Gary L. Sharp, both of Magnolia, Ark., assignors to Etbyl Corporation, Richmond, Va.

Filed Apr. 1, 1992, Ser. No. 861,544
Int. Cl.[5] C07C *39/367, 37/68*
U.S. Cl. 568—726 **19 Claims**

1. An improvement in a process for enhancing the quality of a flame retardant product predominant in tetrabromobisphenol-A (TBBPA), wherein the improvement comprises (a) contacting said product with an amount of treated water, which treated water has a resistivity of greater than about 50,000 ohms and (b) heat treating said product for a period of time and a temperature which are sufficient to obtain a TBBPA predominant product having less than about 20 ppm of total ionic impurity wherein the amount of treated water is more than about 0.2 grams per gram of product so contacted and wherein the ionic impurity is predominantly HBr.

5,208,390

PROCESS FOR ALKYLATING AROMATIC POLYOLS WITH HIGHER CARBON NUMBER ALPHA OLEFIN OLIGOMERS

Anatoli Onopchenko, Concord, and Brian R. Kennedy, San Rafael, both of Calif., assignors to Chevron Research and Technology Company, San Francisco, Calif.

Filed Oct. 25, 1991, Ser. No. 782,935
Int. Cl.[5] C07C *37/14, 39/12*
U.S. Cl. 568—766 **22 Claims**

1. A process for the alkylation of an aromatic polyol, having from 1 to 3 aromatic rings and from 2 to 4 hydroxyl groups and wherein at least two of said hydroxyl groups are directly connected to adjacent aromatic ring carbon atoms, with an alpha olefin oligomer of an alpha olefin having from 8 to 14 carbon atoms and wherein said oligomer has from 24 to 60 carbon atoms and greater than 85 percent branched olefins to produce a liquid alkyl aromatic polyol product, which com-

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prises reacting said aromatic polyol with said alpha olefin oligomer under alkylation reaction conditions in the contact presence of a catalytic amount of an organic sulfonic acid catalyst which is soluble under reaction conditions and thereafter recovering a liquid alkyl aromatic polyol product.

5,208,391

TETRACYANO-1,4-HYDROQUINONE AND TETRACYANO-1,4-BENZOQUINONE

Carlos Vazquez, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 472,920, Jan. 31, 1990, Pat. No. 5,068,367. This application Jul. 18, 1991, Ser. No. 732,246

Int. Cl.[5] C07C *39/10*

U.S. Cl. 568—767 7 Claims

1. A process for the preparation of tetracyano-1,4-hydroquinone comprising reacting a tetrasubstituted-1,4-benzoquinone selected from bromanil, chloranil, 2,3,5,6-tetramethoxy-1,4-benzoquinone or 2,3-dichloro-5,6-dicyano-1,4-benzoquinone with a source of cyanide ion to generate the desired product in a yield of at least 6%.

5,208,392

CATALYST AND METHOD FOR PREPARING MIXTURE OF CYCLOHEXANOL AND CYCLOHEXANONE

Kyu-Wan Lee; Ki-Won Jun, and Eun-Kyung Shim, all of Daejeon, Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Daejeon, Rep. of Korea

Filed Apr. 27, 1992, Ser. No. 874,624

Claims priority, application Rep. of Korea, Mar. 13, 1992, 92-4140

Int. Cl.[5] C07C *35/08, 49/543*

U.S. Cl. 568—836 10 Claims

1. A method for preparing a mixture of cyclohexanol and cyclohexanone by selectively oxidizing cyclohexane at a temperature ranging from 10° to 50° C. in a reaction medium bubbled with hydrogen and oxygen gases in the presence of an iron-palladium catalyst prepared by impregnating, either together or separately, an iron salt compound and a palladium salt compound onto a carrier, followed by drying said impregnated carrier and calcining said dried carrier in a flow of air or a mixture of hydrogen and nitrogen gases, wherein the weight ratio of said cyclohexane to said catalyst is in the range of 3 to 10 and the weight ratio of said reaction medium to said catalyst is in the range of 10 to 40.

5,208,393

PROCESS FOR THE MANUFACTURE OF CHLOROFORM

Emilio Tijer Miquel, Barcelona; José M. Sule Gimenez, Premia de Mar; Antonio Cortes Arroyo, Madrid; Xose L. Seoane Gomez, Madrid, and Adolfo Arcoya Martin, Madrid, all of Spain, assignors to Ercros, S.A., Barcelona, Spain

PCT No. PCT/ES90/00047, § 371 Date Aug. 2, 1991, § 102(e) Date Aug. 2, 1991, PCT Pub. No. WO91/09827, PCT Pub. Date Jul. 11, 1991

PCT Filed Dec. 13, 1990, Ser. No. 741,396

Claims priority, application Spain, Dec. 22, 1989, P 8904342

Int. Cl.[5] C07C *19/04, 19/00, 17/24, 17/26*

U.S. Cl. 570—101 31 Claims

1. A process for manufacture of chloroform by catalytic hydrogenolysis of carbon tetrachloride, comprising the steps of reacting liquid carbon tetrachloride with a hydrogen-containing member selected from the group consisting of hydrogen gas and gases containing molecular hydrogen at a pressure below 8,000 kPa and at a temperature below 250° C., in the presence of a catalyst, said catalyst comprising a metal deposited on a powdered substrate, and said catalyst being held in suspension in the liquid carbon tetrachloride, said metal being selected from the group consisting of palladium, rhodium, ruthenium and platinum.

5,208,394

PROCESS FOR PRODUCING CHLOROFLUOROBENZENES

Seisaku Kumai, Fujisawa; Akihiro Wada, and Shinsuke Morikawa, both of Yokohama, all of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

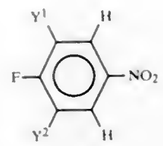
Continuation of Ser. No. 675,064, Mar. 26, 1991, abandoned, which is a continuation of Ser. No. 394,805, Aug. 17, 1989, abandoned. This application Aug. 6, 1992, Ser. No. 924,790

Claims priority, application Japan, Aug. 26, 1988, 63-210805

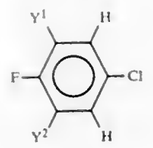
Int. Cl.[5] C07C *17/22, 17/20, 25/13*

U.S. Cl. 570—141 2 Claims

1. A continuous process for producing chlorofluorobenzenes, which comprises reacting the nitrobenzene of formula (6) in the vapor phase with chlorine gas at 300°-600° C. to obtain a chlorofluorobenzene of formula (7):



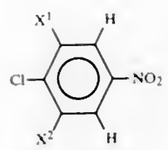
(6)



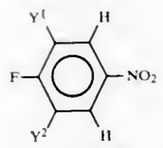
(7)

wherein each of Y^1 and Y^2 is H or F.

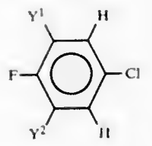
2. A process for producing chlorofluorobenzenes, which comprises reacting aromatic nitro compounds of formula (5) with a fluorinating agent to obtain fluorine-containing nitrobenzenes having formula (6), and then reacting the nitrobenzene of formula (6) in the vapor phase with chlorine gas at 300°-600° C. to obtain a chlorofluorobenzene of formula (7):



(5)



(6)



(7)

wherein each of X^1, X^2, Y^1 and Y^2 is H or F.

5,208,395

MANUFACTURE OF HYDROFLUOROCARBONS

Maher Y. Elsheikh, Tredyffrin, Pa., assignor to Elf Atochem North America, Inc., Philadelphia, Pa.

Filed Apr. 6, 1992, Ser. No. 866,772

Int. Cl.[5] C07C *17/08*

U.S. Cl. 570—166 3 Claims

1. A heterogeneously catalyzed gas phase process for producing 1,1-difluoromethane or 1,1-difluoroethane comprising contacting hydrogen fluoride and the corresponding 1,1-dichloroalkane in the vapor phase in the presence of a solid catalyst consisting of tin tetrafluoride supported on activated carbon.

5,208,396

PRODUCTION OF SATURATED HALOHYDROCARBONS

Douglas R. Anton, Claymont, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 607,754, Oct. 31, 1990, Pat. No. 5,097,082, which is a continuation-in-part of Ser. No. 533,333, Jun. 5, 1990, abandoned. This application Dec. 20, 1991, Ser. No. 811,283

The portion of the term of this patent subsequent to Mar. 17, 2009, has been disclaimed.

Int. Cl.[5] C07C *17/00, 19/08*

U.S. Cl. 570—175 20 Claims

1. A process for producing saturated halohydrocarbons containing fluorine comprising the step of: reacting a saturated compound of the formula

$$C_nH_mF_pX_q$$

wherein each X is independently selected from Cl and Br, n is an integer from 1 to 8, m is an integer from 0 to 16, p is an integer from 1 to 17 and q is an integer from 2 to 17, and wherein m+p+q equals 2n+2 when the compound is acylic and equals 2n when the compound is cyclic, at a temperature from about 100° C. to 500° C. (i) with hydrogen in the presence of at least one material selected from the group consisting of iodine and hydrogen iodide or (ii) with hydrogen iodide, to produce a saturated product containing fluorine and hydrogen wherein at least one X has been removed.

5,208,397

HYDROGENOLYSIS OF HALOCARBON MIXTURES

William H. Manogue, Newark, and V. N. Mallikarjuna Rao, Wilmington, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 9, 1991, Ser. No. 682,764

Int. Cl.[5] C07C *19/08*

U.S. Cl. 570—176 23 Claims

1. A process for the hydrogenolysis of a mixture of halocarbon starting materials having the formula $C_nH_mF_pX_q$ wherein X is Cl or Br, n is an integer from 1 to 4, m is an integer from 0 to 8, p is an integer from 1 to 9 and q is an integer from 1 to 9, provided that m+p+q equals 2n+2, wherein the distribution of fluorine substituents on the carbon atoms of a first halocarbon starting material in said mixture is different from the distribution of fluorine substituents on the carbon atoms of a second halocarbon starting material in said mixture, comprising the step of:

contacting said mixture with at least 0.5 mole of hydrogen per mole of said halocarbon starting materials in said mixture undergoing hydrogenolysis, in a reaction vessel of aluminum, molybdenum, titanium, nickel, iron, cobalt, or their alloys or of silicon carbide, which is either empty or is packed with particles or formed shapes of aluminum, molybdenum, titanium, nickel, iron, cobalt, or their alloys or silicon carbide or low surface area carbon at a pressure within the range of from 0 psig to 1000 psig, at a temperature within the range of from 350° C. to 700° C. and for a time sufficient to produce a product mixture containing hydrogenolysis product of said first halocarbon starting material wherein at least one X of said first halocarbon starting material has been replaced by a hydrogen atom and the distribution of fluorine substituents on the carbon atoms is the same as the distribution of fluorine substituents on the carbon atoms in said first halocarbon starting material, containing hydrogenolysis product of said second halocarbon starting material wherein at least one X of said second halocarbon starting material has been replaced by a hydrogen atom and the distribution of fluorine substituents on the carbon atoms is the same as the distribution of fluorine substituents on the carbon atoms in said second halocarbon starting material, and having a molar ratio of said hydrogenolysis product of the first halocarbon starting material to said hydrogenolysis product of the second halocarbon starting material substantially equal to the molar ratio of said first halocarbon starting material to said second halocarbon starting material in said mixture of halocarbon starting materials.

5,208,398

HF EXTRACTION OF R365 FROM R141B

John A. Wismer, Hamilton Square, N.J., assignor to Elf Atochem N.A., Inc., Philadelphia, Pa.

Filed Apr. 16, 1992, Ser. No. 869,977

Int. Cl.[5] C07C *17/38*

U.S. Cl. 570—177 2 Claims

1. A method of separating a mixture containing 1,1,1,3,3-pentafluorobutane and 1,1-dichloro-1-fluoroethane comprising liquid-liquid extraction of said mixture with hydrofluoric acid.

5,208,399

METHOD FOR PRODUCING ALLYL CHLORIDE

Takanori Miyake, Yokkaichi; Kazunari Hirakawa, Kurume; Makoto Hanaya, Yokkaichi, and Junichi Kawamura, Yamaguchi, all of Japan, assignors to Tosoh Corporation, Shinnanyo, Japan

Filed Sep. 10, 1991, Ser. No. 757,193

Claims priority, application Japan, Sep. 10, 1990, 2-237011; Sep. 10, 1990, 2-237012; Sep. 11, 1990, 2-239071; Sep. 11, 1990, 2-239072; Sep. 12, 1990, 2-240081; Sep. 12, 1990, 2-240082; Jul. 29, 1991, 3-210473

Int. Cl.[5] C07C *11/15, 17/156*

U.S. Cl. 570—224 10 Claims

1. A method for producing allyl chloride by oxychlorination of propylene, which comprises reacting propylene, hydrogen chloride and oxygen in the presence of a catalyst comprising ana alloy of tellurium with a member selected from the group consisting of metals of groups VIII, Va and Ib of the Periodic Table, supported on a carrier.

5,208,400

PROCESS FOR PRODUCING ALLYL BROMIDES

Ryuichi Mita; Yuji Fukunaga; Hironobu Horie; Mitsumasa Umemoto, and Yasuhiro Matsuki, all of Ohmuta, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Japan

Continuation of Ser. No. 534,228, Jun. 7, 1990, abandoned. This application Jan. 2, 1992, Ser. No. 815,778

Claims priority, application Japan, Jun. 14, 1989, 1-149513; Jul. 4, 1989, 1-171213; Jul. 28, 1989, 1-194247

Int. Cl.[5] C07C *17/20*

U.S. Cl. 570—235 8 Claims

1. In a process for preparing an allyl bromide represented by the formula (I):

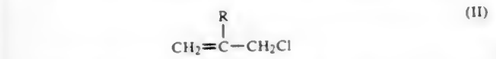


(1)

wherein R represents a hydrogen atom or a methyl group, by

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a halogen exchange reaction of an allyl chloride represented by the formula (II) with a metal bromide in a reaction solvent,



(II)

wherein R is defined as in the formula (I),

the improvement which comprises recycling the reaction solvent without the necessity of its purification by carrying out the halogen exchange reaction in an aprotic polar solvent and thereafter employing the following steps (a) or (b):

(a) (1) first removing the formed metal chloride as a solid from the reaction product,

(2) then separating the unreacted allyl chloride and the formed allyl bromide from the reaction product by distillation, and

(3) then recycling, without purification, the aprotic polar solvent remaining as a distillation residue; or

(b) (1) first separating the unreacted allyl chloride and the formed allyl bromide by distillation,

(2) cooling the thus formed distillation residue,

(3) then removing the formed metal chloride as a solid from the liquid phase of the distillation residue, and

(4) then recycling, without purification, the aprotic polar solvent recovered as the liquid phase of the distillation residue.

5,208,401

SEPARATION OF COMMERCIALLY VALUABLE CHEMICALS FROM TIRE-DERIVED PYROLYTIC OILS

Christian Roy, Sillery, Canada, assignor to Universite Laval, Sainte-Foy, Canada

Divisioo of Ser. No. 372,568, Jun. 28, 1989, Pat. No. 5,099,086. This application May 9, 1991, Ser. No. 697,688

Int. Cl.[5] **C07C** *4/04*

U.S. Cl. 585—1 **16 Claims**

1. A method of separating commercially valuable chemicals from tire-derived pyrolytic oils, comprising the steps of:

a) subjecting the pyrolytic oils to a fractional distillation at a temperature of up to about 204° C. under atmosphere pressure;

b) recovering a fraction boiling in the range between about 70° C. to about 204° C. and containing benzene, toluene, xylene, styrene and dl-limonene; and

c) subjecting said fraction to a further fractional distillation to isolate at least one commercially valuable chemical selected from the group consisting of benzene, toluene, xylene, styrene and dl-limonene.

5,208,402

LIQUID FUELS FOR INTERNAL COMBUSTION ENGINES AND PROCESS AND APPARATUS FOR MAKING SAME

Ewert J. A. Wilson, Albany, Ky., assignor to Interstate Chemical, Inc., White Pine, Tenn.

Continuatioo-in-part of Ser. No. 678,790, Apr. 1, 1991, abandoned, which is a continuation-in-part of Ser. No. 529,878, May 25, 1990, Pat. No. 5,093,533, and a continuation-in-part of Ser. No. 447,543, Dec. 8, 1989, Pat. No. 5,004,850. This application Sep. 5, 1991, Ser. No. 756,216

The portion of the term of this patent subsequent to Apr. 2, 2008, has been disclaimed.

Int. Cl.[5] **C07C** *7/20*; **C10L** *1/16*

U.S. Cl. 585—1 **13 Claims**

1. A process for producing liquid fuels for internal combustion engines, comprising the steps of withdrawing a stream of light-weight hydrocarbons from a natural gasoline component, and blending said natural gasoline component with at least one octane-enhancing component, said octane-enhancing component having an (R+M)/2 octane of at least about 85 and a vapor pressure less than about 8 psia.

5,208,403

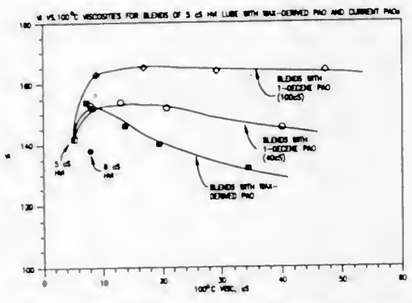
HIGH VI LUBRICANT BLENDS FROM SLACK WAX

J. Scott Buchanan, Mercerville, and Margaret M. Wu, Skillman, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation of Ser. No. 818,582, Jan. 9, 1992, abandoned. This application Apr. 28, 1992, Ser. No. 876,801

Int. Cl.[5] **C10L** *1/16*; **C07C** *2/02*

U.S. Cl. 585—7 **20 Claims**



1. A hydrocarbon lubricant mixture having viscosity between about 7 cS and 15 cS at 100° C., low pour point and enhanced viscosity index comprising a first hydrocarbon lubricant having a viscosity less than 7 cS at 100° C. and a second hydrocarbon lubricant having a viscosity greater than 20 cS at 100° C., produced by the Lewis acid catalyzed oligomerization of alpha olefins having an average carbon number of about 10 recovered from the thermal cracking of slack wax from a distillate petroleum fraction to form an olefin oligomer which is hydrogenated to form the second hydrocarbon lubricant.

5,208,404

PROCESS FOR PRODUCING FUEL OIL AND GAS BY CRACKING WASTE RUBBER

Chaur G. Lu, Taitung, Taiwan, assignor to Full Born Chen Industrial Co., Ltd., Taitung, Taiwan

Filed Jan. 21, 1992, Ser. No. 822,669

Int. Cl.[5] **C07C** *1/00*

U.S. Cl. 585—241 **5 Claims**

1. A process for producing fuel oil and gas by cracking rubber, comprising the reaction of about 2–6 parts catalyst with about 40 parts waste rubber in a reactor, wherein said catalyst is composed of CaO, Ni, XT-10, and traces of Nb and Ti, said XT-10 is a mixture of one or more of the following groups: polomite, garbbro, microcline, Muscovite, tourmaline, talc, graphite-silkymicaschist, syenite, lenslimestone, sacharoidal-limestone, magnetite, shihui, shihuishi, and citu; said catalyst and waste rubber being heated gently, softened at about 230° C., and stirred for about 1 hour at about 280° C., the pressure of the reactor being increased to about 2 kg/cm^2; gas products thus formed being then collected.

5,208,405

SELECTIVE HYDROGENATION OF DIOLEFINS

Tin-Tack P. Cheung, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 3, 1992, Ser. No. 845,128

Int. Cl.[5] **C07C** *5/05*

U.S. Cl. 585—274 **20 Claims**

1. A process for hydrogenating at least one diolefin containing 4–10 carbon atoms per molecule at a high selectivity to at least one monoolefin having the same number of carbon atoms per molecule as said at least one diolefin which comprises:

contacting a fluid feed comprising said at least one diolefin and molecular hydrogen with a catalyst composition consisting essentially of (a) at least one nickel promoter selected from the group consisting of nickel metal and readily reducible nickel compounds, (b) at least one silver promoter selected from the group consisting of silver metal and readily reducible silver compounds, and (c) at least one solid inorganic support material,

wherein said process is carried out at a temperature in the range of about 35° C. to about 200° C. so as to at least partially convert said at least one diolefin to said at least one monoolefin.

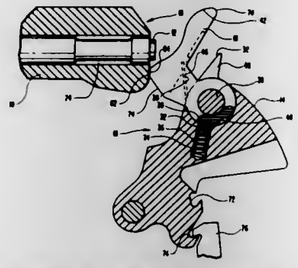
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5,208,406

THUMB SAFETY FOR EXPOSED HAMMER FIREARMS

Joseph A. Badali, Ogden, Utah, assignor to Browning, Ogden, Utah

Filed Nov. 26, 1991, Ser. No. 800,447
Int. Cl.[5] F41A *17/74*
U.S. Cl. 42—70.08 **4 Claims**



1. A safety system for firearms of the type in which a hammer may be urged into a cocked position and may then be actuated by operation of a trigger to cause striking of a firing pin, said safety system comprising:

a hammer pivotally mounted to cause striking of a firing pin, said hammer including a tip projecting therefrom;

a thumb safety carried by and rotatably mounted with respect to said hammer, said thumb safety including a portion projecting from the hammer and having a surface thereon for engaging said tip projecting from said hammer, a surface for striking the firing pin, and a thumb pressure application surface, said thumb pressure application surface and said surface for engaging said tip of said hammer being aligned with said tip for engagement of said tip by said thumb safety upon rotation of the thumb safety to move said hammer into a selected half-cocked position and a firing position, and upon rotation of the thumb safety away from engagement with said tip to a safe position with the surface on the thumb safety for striking the firing pin out of alignment to engage said firing pin and said thumb safety in position to engage other structure and block engagement of the thumb safety with the firing pin; and

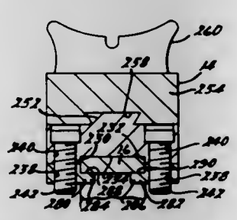
means to semi-fix the position of the thumb safety with respect to the hammer in the firing position and in the safe position, said means comprising semi-spherical detents formed in the thumb safety and a spring-biased ball carried by the hammer and selectively biased into said detents.

5,208,407

GUN SIGHT MOUNTING SYSTEM FOR SHOTGUN

Gerold E. Stover, Lapeer, Mich., assignor to Williams Gunsight & Outfitters, Davison, Mich.

Filed Apr. 19, 1991, Ser. No. 687,992
Int. Cl.[5] F41G *1/10, 1/42*
U.S. Cl. 42—102 **4 Claims**



1. A gun sight mounting assembly for a firearm having a vent rib on its barrel, said vent rib including a top surface, a bottom and a pair of sides comprising:

a mounting base having a sight member attached thereto, said mounting base including a recess means for tightly engaging the top and sides of the vent rib such that the sight will not move from side to side during firing of the shotgun;

a means for clampingly engaging the vent rib from the bottom of the vent rib for securing the mounting base to the vent rib of the firearm barrel;

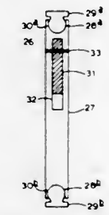
wherein said means for clampingly engaging said vent rib further comprises a pair of L-shaped securement members which are operable to clamp a thin vent rib in a first position and which when reversed are adapted to engage a thicker vent rib in a secured position.

5,208,408

SOUND POST FOR MUSICAL INSTRUMENTS

James G. Cave, 1324 NW. 6th St., Bend, Oreg. 97701

Filed Oct. 31, 1991, Ser. No. 786,038
Int. Cl.[5] G10D *3/00*
U.S. Cl. 84—277 **14 Claims**



1. A sound post for fitting between interior surfaces of the top and back vibrating plates of a sound box on a stringed musical instrument, the sound post comprising:

a post having opposed ends,

at least one end of said post having a swivel platform with a flat surface thereon which can swivel in a plurality of planes to fit against an interior surface of a sound box to make full and even contact with the interior surface.

5,208,409

VIOLIN SHOULDER REST

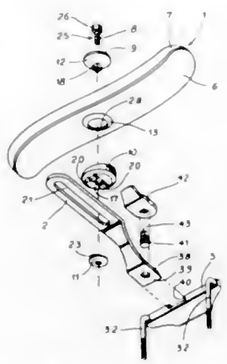
Paul-Antoine Roulet, Les Jordils 1, CH-2016 Cortaillod, Switzerland

Filed Feb. 28, 1991, Ser. No. 664,012
Claims priority, application France, Mar. 2, 1990, 90 02771
Int. Cl.[5] G10D *1/02*
U.S. Cl. 84—278 **5 Claims**

1. A shoulder rest for a longitudinally extending violin, comprising a support piece intended to lie against a shoulder of a violinist, said support piece being rigidly secured to one end of an elongated arm in a manner to enable adjusting both a position of the support piece along said one end of said arm, and also longitudinal and transversal inclinations of said support piece relative to said arm, said arm being rigidly secured at an opposite end thereof to a base of a chin rest located over the violin, said shoulder rest further comprising a single cap screw rigidly fixing the support piece to said arm in the position as adjusted, both along the arm and at said longitudinal and transversal inclinations to said arm, said cap screw passing through a first clamping piece, said support piece, a second clamping piece and said arm so as to engage with a third clamping piece and thereby compress together the arm, the support piece and the first and second clamping pieces, wherein the first and second clamping pieces are provided with complementary surfaces at least approximately in a form of respectively convex and concave spherical caps, and wherein the support piece comprises a portion having a form

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approximating a spherical shell gripped between the first and second clamping pieces; and



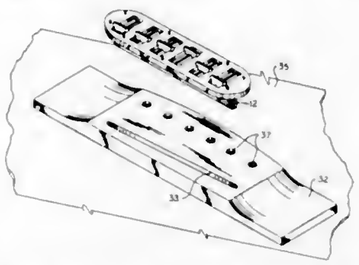
wherein a head of the aforesaid cap screw bears on he first clamping piece.

5,208,410

ADJUSTABLE BRIDGE FOR ACOUSTIC GUITAR

William S. Foley, 1425 Inglis Ave., Columbus, Ohio 43212

Filed Apr. 11, 1991, Ser. No. 683,852
Int. Cl.[5] G10D *3/04*
U.S. Cl. 84—307 3 Claims



1. A replacement adjustable saddle member for mounting to a string base of a stringed instrument having strings supported between a head stock at a distal end of a fingerboard and a string anchoring means on an instrument body, the string base having an anchor slot interposed between the string anchoring means and the headstock, the saddle member providing intonation, height and tilt adjustment and comprising:

(a) an elongated chassis having a plurality of pockets formed in a top side between opposite ends of the chassis and an elongated anchor protruding downwardly from a bottom side dimensioned for mating engagement in the anchor slot;

(b) a plurality of saddles mounted in the pockets of the chassis for slidable adjustment along axes parallel to the strings;

(c) means for adjustably retaining the saddles in a selected position; and

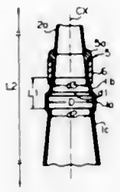
(d) a plurality of stabilizing legs adjustably engaged transversely to the chassis and having ends abutting a top surface of the string base for adjusting the height and inclination of the chassis above the string base.

5,208,411

SAXOPHONE WITH OCTAVE HOLE FOR PRODUCING AN OCTAVE HIGHER TONE

Fusao Satoh, Shizuoka, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Apr. 17, 1991, Ser. No. 686,407
Claims priority, application Japan, Apr. 18, 1990, 2-102335
Int. Cl.[5] G10D *7/08*
U.S. Cl. 84—385 R 6 Claims



1. A saxophone comprising

a) a first tube member having a first end portion gradually increasing in diameter toward a second end thereof and a plurality of tone holes being formed in said first tube member,

b) a second tube member coupled to said first end of said first tube member and having an octave hole formed therein so that a player blowing in through said second tube member forms a column of air vibrating in said first tube member and said second tube member,

c) a key mechanism mounted on said first tube member and having a plurality of keys associated with said tone holes, one of said keys selectively closing and opening one of said tone holes closes to said second tube member, and

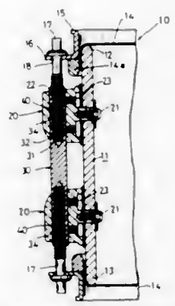
d) an octave key selectively closing and opening said octave hole and used for producing a tone spaced apart from another tone by an octave, wherein said first end portion of said first tube member has an enlarged portion, said enlarged portion being formed about an entire inner circumference of said first tube member to establish an inner diameter larger than adjacent portions of said first end portion contiguous to said enlarged portion.

5,208,412

ROTATION RESISTANCE DEVICE FOR A BOLT OF A TIGHTENING DEVICE OF A DRUM HEAD

Yoshihiro Hoshino, Nagoya, Japan, assignor to Hoshino Gakki Co., Ltd., Japan

Filed Aug. 6, 1991, Ser. No. 740,958
Claims priority, application Japan, Jan. 19, 1991, 3-006754[U]
Int. Cl.[5] G10D *13/02*
U.S. Cl. 84—413 12 Claims



1. A device for tightening a drum head and setting the tension of the drum head on a drum body, the device comprising:

a drum body having an open end over which a drum head is to be placed;

a drum hoop supported on the drum body at the open end and movable along the drum body to pass the open end, the hoop including means for engaging a drum head at the drum body open end for tightening the drum head as the drum hoop is moved a short distance along the drum body;

a lug secured to the drum body, the lug having an opening therein generally in the direction along the drum trunk;

a lug nut in the lug opening, the lug nut having an external periphery in the opening in the lug, means holding the lug nut in place to the lug, the lug nut having a bolt receiving opening therein, the bolt receiving open being at least partially screw threaded, the bolt receiving opening extending generally along the drum body and away from the open end;

a drum head tension setting and adjusting bolt, the bolt including means for engaging the drum hoop at the open end of the drum body for holding the drum hoop to the drum body, the bolt having a shank which is cooperatingly screw threaded to the threaded part of the opening in the lug nut, and the bolt being tightenable into the bolt receiving opening of the lug nut, the tightening of the bolt moving the means engaging the drum hoop for moving the hoop to tension and fix the drum head to the drum body over the open end of the drum body;

a radial opening through the lug nut from the periphery of the lug nut to the bolt receiving opening;

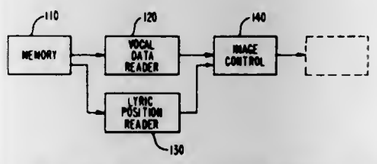
a bolt rotation resisting chip comprised of an elastic body and disposed in the radial opening in the lug nut, the chip including a radially outer side, which contacts the lug at the inside of the lug opening, the chip including a radially inner side which directly engages the shank of the bolt in the bolt receiving opening in the lug nut for resisting the rotation of the bolt in the bolt receiving opening.

5,208,413

VOCAL DISPLAY DEVICE

Mihoji Tsumura, and Shinnosuke Taniguchi, both of Osaka, Japan, assignors to Ricos Co., Ltd., Japan

Filed Dec. 5, 1991, Ser. No. 803,155
Claims priority, application Japan, Jan. 16, 1991, 3-16983; Jan. 16, 1991, 3-16984; Jan. 16, 1991, 3-16985; Jan. 16, 1991, 3-16986; Jan. 16, 1991, 3-16987
Int. Cl.[5] G11B *20/02*; G10G *7/02*
U.S. Cl. 84—615 9 Claims



1. A vocal display device for providing displays on a visual display medium of vocal data representing characteristics of vocals and a current lyric position indicator representing a current position in lyrics associated with music data representing music, the vocal display device comprising:

(a) memory means for storing the music data and the vocal data and the current lyric position indicator associated with the music data;

(b) vocal data reading means connected to the memory means for reading the vocal data;

(c) lyric position indicator reading means connected to the memory means for reading the current lyric position indicator;

(d) detection means for detecting characteristics of actual vocals; and

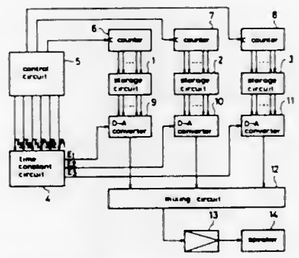
(e) image control means responsive to the vocal data reading means, the lyric position indicator reading means and the detection means and connected to the visual display medium for generating in real time displays of selected messages as a function of a comparison of the characteristics of vocals to the characteristics of actual vocals at the current position in the lyrics.

5,208,414

ACOUSTIC SIGNAL GENERATOR WITH MEANS FOR CHANGING THE TIME CONSTANT OF THE ENVELOPE SIGNAL

Kunio Yamada, Tokyo, Japan, assignor to Seikosha Co., Ltd., Tokyo, Japan

Filed Sep. 16, 1991, Ser. No. 760,543
Claims priority, application Japan, Nov. 30, 1990, 2-337299
Int. Cl.[5] G10H *1/057, 7/00*
U.S. Cl. 84—627 2 Claims



1. An acoustic signal synthesizer comprising

means for storing a plurality of different acoustic data;

a plurality of D/A converters;

a separate one of said D/A converters connected to receive each of said different acoustic data;

means connected to mix the outputs of said D/A converters;

separate envelope generating means for each of said different acoustic data, said envelope generating means being connected to apply output envelope signals to separate respective D/A converters; and

control means connected to control said storing means to output a selected acoustic data and to simultaneously control the respective envelope generating means to output an envelope signal, said control means further comprising means for changing the time constant of the envelope signal in synchronism with the generation timing of another later generated acoustic data.

5,208,415

FLUCTUATION GENERATOR FOR USE IN ELECTRONIC MUSICAL INSTRUMENT

Yasushi Sato, Hamamatsu, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Japan

Filed Feb. 28, 1991, Ser. No. 662,770
Claims priority, application Japan, Feb. 28, 1990, 2-45486
Int. Cl.[5] G10H *7/00, 1/02, 5/00*
U.S. Cl. 84—629 25 Claims

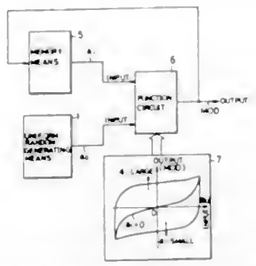
1. A fluctuation generator for use in an electronic musical instrument comprising:

uniform random generating means for generating a first random number comprising a sequence of multiple bits having a uniform probability distribution over a predetermined interval; and

a function circuit for receiving said first random number from said uniform random generating means and altering the probability distribution thereof to produce a second random number having a probability distribution accord-

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ing to a predetermined function, whereby a tone signal is processed with the second random number to produce a

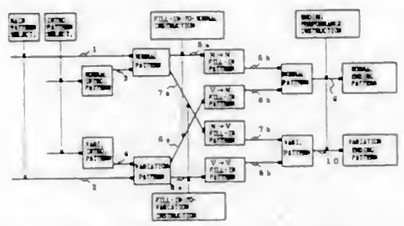


fluctuation in accordance with said second random number.

5,208,416
AUTOMATIC PERFORMANCE DEVICE

Tokuji Hayakawa; Yorihisa Yamaguchi, and Takeo Shibukawa, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Filed Mar. 31, 1992, Ser. No. 861,430
Claims priority, application Japan, Apr. 2, 1991, 3-096200
Int. Cl.[5] G10H *1/38, 1/40, 7/00*
U.S. Cl. 84—634 11 Claims

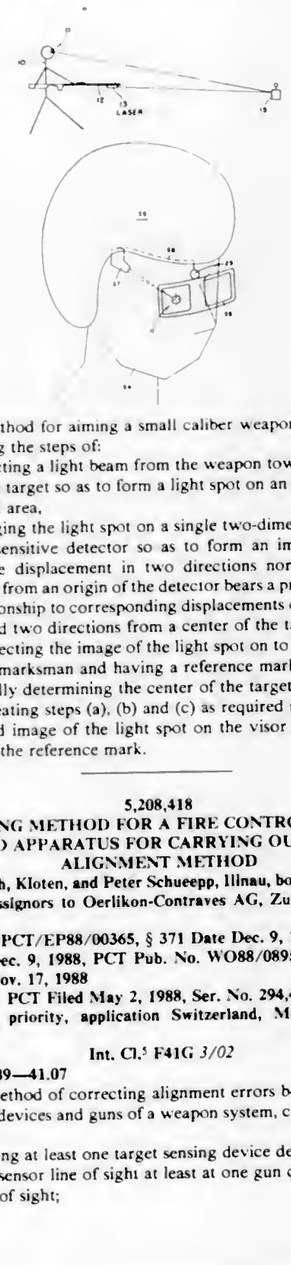


9. An automatic performance device comprising:
performance pattern memory means for storing plural main patterns and plural sub-patterns;
instruction means for, when an automatic performance is being carried out, instructing temporarily inserting a performance of a sub-pattern and then shifting to a performance of a desired main pattern;
first control means responsive to the instruction by said instruction means for reading out the sub-pattern from said memory means and carrying out an automatic performance of the read out sub-pattern and, thereafter, reading out the desired main pattern from said memory means and carrying out an automatic performance of the desired main pattern; and
second control means for controlling said first control means in a manner that when, during the automatic performance of the read out sub-pattern, said instruction means also instructs temporarily inserting a performance of another sub-pattern and then shifting to a performance of another main pattern, a main pattern to be performed thereafter will be changed from the desired main pattern to the other main pattern without changing the automatic performance of the read out sub-pattern to that of the other sub-pattern.

5,208,417
METHOD AND SYSTEM FOR AIMING A SMALL CALIBER WEAPON

Moshe Langer, Nes-Ziona; Zion Azar, Nave Monoson, and Uriel Halavee, Ramat-Gan, all of Israel, assignors to The State of Israel, Atomic Energy Commission, Soreq Nuclear Research Center, Yavne, Israel

Filed Dec. 23, 1991, Ser. No. 812,703
Claims priority, application Israel, Jan. 2, 1991, 96869
Int. Cl.[5] F41G *1/36*
U.S. Cl. 89—41.06 12 Claims



1. A method for aiming a small caliber weapon at a target, comprising the steps of:
(a) directing a light beam from the weapon towards an area of the target so as to form a light spot on an object in the target area,
(b) imaging the light spot on a single two-dimensional position sensitive detector so as to form an image thereon whose displacement in two directions normal to each other from an origin of the detector bears a predetermined relationship to corresponding displacements of said object in said two directions from a center of the target,
(c) projecting the image of the light spot on to a visor worn by a marksman and having a reference mark thereon for visually determining the center of the target, and
(d) repeating steps (a), (b) and (c) as required until the projected image of the light spot on the visor is coincident with the reference mark.

5,208,418
ALIGNING METHOD FOR A FIRE CONTROL DEVICE AND APPARATUS FOR CARRYING OUT THE ALIGNMENT METHOD

Peter Toth, Kloten, and Peter Schueepp, Illnau, both of Switzerland, assignors to Oerlikon-Contraves AG, Zurich, Switzerland

PCT No. PCT/EP88/00365, § 371 Date Dec. 9, 1988, § 102(e) Date Dec. 9, 1988, PCT Pub. No. WO88/08952, PCT Pub. Date Nov. 17, 1988
PCT Filed May 2, 1988, Ser. No. 294,489
Claims priority, application Switzerland, May 15, 1987, 01881/87
Int. Cl.[5] F41G *3/02*
U.S. Cl. 89—41.07 23 Claims

1. A method of correcting alignment errors between target tracking devices and guns of a weapon system, comprising the steps of:
mounting at least one target sensing device defining at least one sensor line of sight at least at one gun defining a gun line of sight;
aligning said at least one sensor line of sight to the at least one gun line of sight;
separately mounting at least one target tracking device and said at least one gun containing said at least one target sensing device, with the at least one target tracking device in spatially spaced relationship from the at least one gun;
aiming at a common measuring target, said at least one target tracking device and said at least one gun mounted target sensing device;
determining positional deviation data indicative of a positional deviation between measured positions of the common measuring target as determined by means of said at least one target tracking device and as determined by said at least one gun mounted target sensing device;

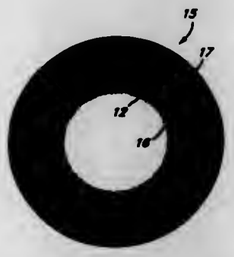


processing said positional deviation data and thereby determining at least one alignment error vector which includes data concerning mounting errors between the separately mounted at least one target tracking device and the at least one gun;
storing said at least one alignment error vector;
producing, by means of said at least one target tracking device, control signals for aiming said at least one gun at an actual target during a firing operation; and
correcting said control signals produced by said at least one target tracking device by means of said stored at least one alignment error vector.

5,208,419
SHOCK TUBING THAT IS IR TRANSPARENT COLOR-CODED

Robert C. Greenborn, L'Orignal, and Jacques Lafond, Lachute, both of Canada, assignors to ICI Canada Inc., North York, Canada

Continuation of Ser. No. 693,886, May 1, 1991. This application Oct. 19, 1992, Ser. No. 963,425
Int. Cl.[5] C06C *5/04*
U.S. Cl. 102—275.4 22 Claims

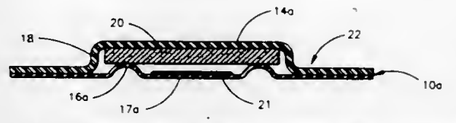


1. A method of producing shock tubing, which shock tubing has a hollow tube with an inner core loading of a reactive material for the propagation of a shock wave within said tube, and which reactive material absorbs radiation of a selected frequency, which process comprises:
forming a visually colored hollow tube comprising a colored compound, and having a inner surface and an outer surface; and
coating the inner surface of said tube with a core loading of said reactive material,
characterized in that said visually colored hollow tube is essentially transparent to infrared and near infrared radiation.

5,208,420
PROPELLANT STRIP ASSEMBLY

Brian K. Hamilton, 6919 S. Steele St., Littleton, Colo. 80122, and F. William Pugh, 11610 Thistlehill Dr., Loveland, Ohio 45140

Continuation of Ser. No. 851,174, Mar. 13, 1992, abandoned. This application Sep. 2, 1992, Ser. No. 939,831
Int. Cl.[5] C06C *7/02;* F42B *39/08;* B25C *1/08*
U.S. Cl. 102—281 17 Claims

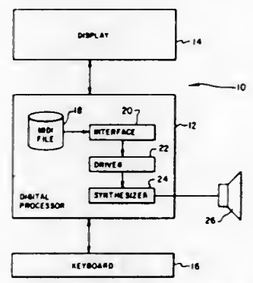


1. A propellant strip assembly for use with a fastener driving tool comprising:
a plurality of propellant charges;
a plurality of sensitizers associated with each propellant charge for activating said charge;
a flexible carrying strip containing a plurality of chambers for holding each charge;
a flexible cover strip for holding each propellant charge and sensitizer within a chamber of said carrying strip;
and means associated with one of said strips for feeding said strip assembly into said fastener driving tool.

5,208,421
METHOD AND APPARATUS FOR AUDIO EDITING OF MIDI FILES

Ronald J. Lisle, Cedar Park; Daniel J. Moore, Austin; Steven C. Penn, Georgetown, and Michael D. Wilkes, Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 1, 1990, Ser. No. 608,113
Int. Cl.[5] G10H *7/00*
U.S. Cl. 84—645 12 Claims



1. A method for editing a MIDI file having a plurality of serially listed program status messages and matched note on and note off messages contained therein, said method comprising the steps of:
designating a section of said MIDI file having a selected starting point and a selected ending point;
automatically inserting a copy of a preceding program status message into said designated section in response to a re-

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moval or copying of said designated section of said MIDI file; and

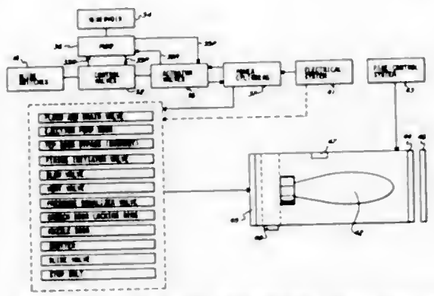
automatically inserting a matching note off message into said designated section for any unmatched note on message within said designated section in response to a removal or copying of said designated section of said MIDI file.

5,208,422

SUBMARINE WEAPON LAUNCH CONTROL SYSTEM

Paul E. Moody, Barrington, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 26, 1992, Ser. No. 904,630
Int. Cl.[5] F41F 3/10
U.S. Cl. 89—1.809 17 Claims



1. In a submarine, a torpedo launching and control assembly for launching a torpedo, comprising:

a multiplicity of torpedo tubes each having a muzzle door, a shutter and a breech door and having a series of fluid operated mechanisms which are movable from a first position to a second position for operation of various elements of the assembly and actuator valves for operating said mechanisms;

a source of fluid under pressure and conduits therefrom to said actuator valves for operating said fluid operated mechanisms; and

a control panel having a series of manipulatable fluid control members each associated with one of said actuator valves for operating said fluid operated mechanisms, said control members being movable from a first position to a second position to effect the direction of flow of fluid to and from said actuator valves and thereby to move said mechanisms between said first and second positions, and visual indicators associated with said fluid control members to indicate the position of the associated fluid control member and thereby the fluid operated mechanism, and at least two interlock valves for interlocking at least two of said fluid operated mechanisms requiring fluid to flow through said interlock valves to permit operation of mechanisms subsequent thereto in the fluid path defined by said conduits if the interlocked mechanism effecting its actuation has not been moved to its second position.

5,208,423

MECHANICAL SHIELDING FOR ELECTRIC PRIMER

Raymond J. Goetz, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 27, 1992, Ser. No. 874,156
Int. Cl.[5] F42B 5/08; F42C 19/12
U.S. Cl. 102—472 5 Claims

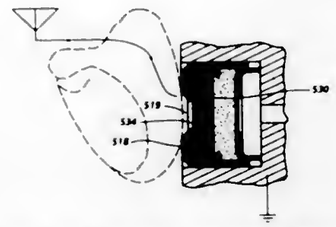
1. In a cartridge including a case having an aft facing recess in the base thereof for receiving an electrically activatable primer for igniting propellant in the case, said primer comprising:

an electrically conductive primer housing in the form of a cup having a base wall, and a cylindrical side wall adapted to be fitted in the base recess with the base wall facing aft;

said base wall including a generally planar inner face and an axially disposed opening extending therethrough for allowing entry therethrough of an electrically charged plunger;

an electrically conductive pyrotechnic charge disposed inside the cup housing in electrical contact with the side wall thereof;

a button electrode disposed inside the cup housing in electrical contact with the pyrotechnic charge and having a



generally planar surface facing the base wall inner face for receiving electrical contact with the entering plunger; and,

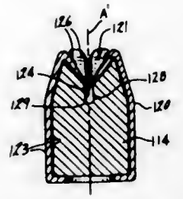
means insulating the button electrode from the cup housing walls, and having a thickness sufficient for spacing the button electrode inside the base wall with the planar surface of the button electrode disposed entirely inside the cup housing and spaced inwardly from the generally planar inner face thereof for minimizing opportunity for coupling of stray electromagnetic radiation to the button electrode.

5,208,424

FULL METAL JACKET HOLLOW POINT BULLET

David K. Schluckebier, Cabot, Ark.; Jack D. Dippold, Edwardsville, and Alan J. Corzine, Marine, both of Ill., assignors to Olin Corporation, Cheshire, Conn.

Continuation-in-part of Ser. No. 679,475, Apr. 2, 1991, Pat. No. 5,101,732. This application Apr. 2, 1992, Ser. No. 863,647
Int. Cl.[5] F42B 12/34
U.S. Cl. 102—509 20 Claims



1. A bullet comprising:

a malleable metal body symmetrical about an axis therethrough, said body having a forwardly open recess in one end, said recess having a forward divergent portion and an coaxial extension portion joining said divergent portion at an annular base therebetween, said divergent portion terminating in a mouth at said end; and

a metal jacket over a major portion of said body enclosing said one end, said jacket extending fully into said divergent portion of said recess over said mouth, said jacket in said divergent portion having a plurality of circumferentially spaced radial slits forming pointed prongs therebetween, said prongs each having a hardened transition region about said mouth and at least one reinforcing fillet on at least one of said prongs about said mouth.

11. A bullet comprising:

a malleable metal core body symmetrical about an axis therethrough, said body having a forwardly open recess in one end, said recess having a forward divergent portion and an coaxial extension portion joining said divergent portion at an annular base therebetween, said divergent portion terminating in a mouth at said end; and

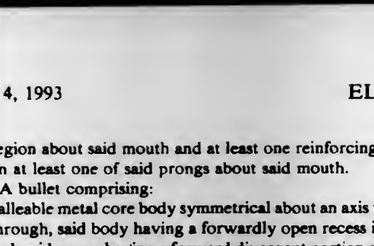
a metal jacket over a major portion of said body enclosing said one end, said jacket having an oxide coating on an inside surface thereof frictionally bonding with said core body, said jacket extending fully into said divergent portion of said recess over said mouth, said jacket in said divergent portion having a plurality of circumferentially spaced slits forming pointed prongs therebetween, said prongs each having a hardened transition region about said mouth.

5,208,425

STRUCTURE FOR FIXING A SHIELDING WINDOW OF AN ELECTRONIC EQUIPMENT

Yuji Hasegawa; Akiyoshi Yamaguchi; Toshiaki Suzuki, and Minoru Suzuki, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jun. 23, 1992, Ser. No. 902,732
Claims priority, application Japan, Jun. 28, 1991, 3-158112
Int. Cl.[5] H05K 9/00
U.S. Cl. 174—35 R 7 Claims



1. A structure for fixing a shielding window so as to cover an opening formed in a cover of an electronic equipment comprising:

a cover having a bonnet and a metallic shielding plate connected to a reverse side of said bonnet, said cover being entirely coated with an insulating layer, the reverse surface of said cover being further coated with a conductive layer;

a shielding window with a conductive member embedded therein being mechanically fixed to said cover with an adhesive provided in a plurality of fixing holes formed on the outer peripheral flange surface of said shielding window; and

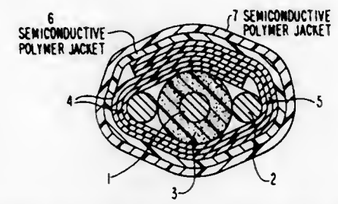
a plurality of holes penetrating through said flange surface of said shielding window, conductive layer, and insulating layer to said shielding plate, and being filled with a conductive adhesive so as to electrically connect said conductive member of said shielding window with said shielding plate.

5,208,426

SHIELDED ELECTRIC SIGNAL CABLE HAVING A TWO-LAYER SEMICONDUCTOR JACKET

Francis A. Kennedy, Elkton, Md.; John T. Mongan, Avondale, Pa., and William G. Hardie, Newark, Del., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Filed Sep. 3, 1991, Ser. No. 753,779
Int. Cl.[5] H01B 7/34
U.S. Cl. 174—36 11 Claims



1. A shielded electric signal cable comprising from inside to outside:

(a) a conductive metal center conductor surrounded by an electrically insulating material;

(b) at least one electrically conductive metal drain wire positioned along the length of said cable outside of said insulating material;

(c) a layer of electrically conductive shielding material positioned around said center conductor, said insulating material, and said drain wires as a unit; and

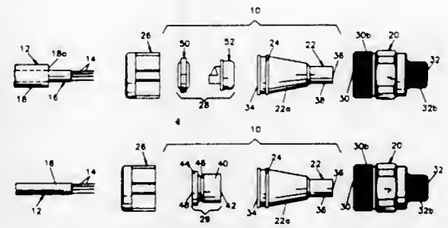
(d) at least two layers of semiconductive polymer jacketing surrounding the shielding material.

5,208,427

CONNECTOR FOR TERMINATING ELECTRICAL CABLE ASSEMBLIES OF MULTIPLE CONFIGURATIONS

Luis R. Couto, Hillside; Jaspal S. Bawa, Neshanic Station; Giacomo F. Mancini, Piscataway, all of N.J., and Marc Brodeur, Iberville, Canada, assignors to Thomas & Betts Corporation, Bridgewater, N.J.

Filed Jan. 31, 1992, Ser. No. 830,407
Int. Cl.[5] H02G 3/22
U.S. Cl. 174—65 SS 5 Claims



1. A kit of parts adapted for terminating an electrical cable assembly including a cable having plural insulated conductors extending within an insulative jacket, said kit being capable of terminating said cable alone or when said cable assembly includes said cable contained in an outer cable conduit, said kit of parts comprising:

(a) a body having a cable assembly receiving end, a conductor egressing end and a central cavity extending therethrough;

(b) a hollow insert extending within said central cavity for permitting accommodation of said cable assembly therein,

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said insert having an access opening at an end adjacent said cable receiving end of said body;

(c) a gland nut for screw cooperative attachment to said body at said cable assembly receiving end for retaining said cable assembly within said body; and

(d) sealing means adapted for cooperation with said insert and said gland nut for providing a cable assembly seal, said sealing means further comprising cable sealing components and conduit sealing components which are used alternatively for sealing either said cable alone or said cable contained in said conduit.

5,208,428

SPLICE CLOSURES

Raymond C. Foss, Plymouth, United Kingdom, assignor to Bowthorpe-Hellermann Limited, Crawley, Great Britain

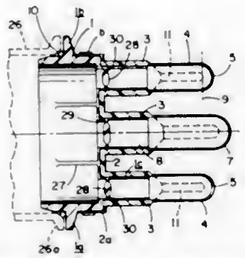
PCT No. PCT/GB90/00003, § 371 Date Jun. 28, 1991, § 102(e) Date Jun. 28, 1991, PCT Pub. No. WO90/07812, PCT Pub. Date Jul. 12, 1990

PCT Filed Jan. 2, 1990, Ser. No. 721,429

Claims priority, application United Kingdom, Jan. 5, 1989, 8900163; Sep. 13, 1989, 8920706

Int. Cl.[5] H02G *15/115*

U.S. Cl. 174—91 **10 Claims**



1. A base assembly for a cable splice closure, said base assembly comprising:

a one-piece member of rigid construction, having a plurality of tubular projections extending thereon in a direction which is outwardly with respect to the cable splice closure when formed, said tubular projections forming cable entry ports, and frangible membranes closing the axially inner ends of the tubular projections; and

a separate member having a plurality of tubular elements fitted closely around respective tubular projections of the one-piece member, the tubular elements having portions projecting beyond the free, axially outer ends of the respective tubular projections of the one-piece member, said projecting portions of the tubular elements being heat-shrinkable.

10. A method of forming a cable joint, comprising the steps of:

a) furnishing a closure base assembly, said base assembly comprising

a one-piece member of rigid construction, having a plurality of tubular projections extending thereon in a direction which is outwardly with respect to the cable splice closure when formed, said tubular projections forming cable entry ports, and frangible membranes closing the axially inner ends of the tubular projections, and

a separate member having a plurality of tubular elements fitted closely around respective tubular projections of the one-piece member, the tubular elements having portions projecting beyond the free, axially outer ends of the respective tubular projections of the one-piece member, said projecting portions of the tubular elements being heat-shrinkable;

b) rupturing the frangible membrane of at least one particular tubular projection of the one-piece member of the closure base assembly;

c) passing a cable through said one particular tubular projection and the tubular element fitted over said particular tubular projection;

d) applying heat to the heat-shrinkable projecting portion of the tubular element fitted over said one particular tubular projection; and

e) simultaneously with said step of applying heat, using at least one heat shield to insulate the other tubular elements of said separate member from the heat being applied to said heat-shrinkable projecting portion.

5,208,429

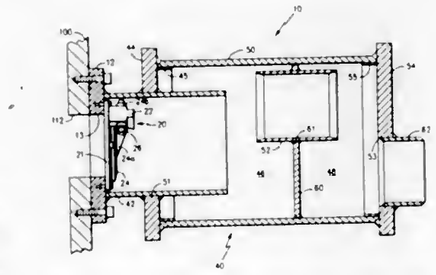
COMBINATION MUFFLER AND CHECK VALVE FOR A SCREW COMPRESSOR

Michael G. Field, Fabius, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Jul. 26, 1991, Ser. No. 736,550

Int. Cl.[5] F02M *35/00;* **F04B** *21/00;* **F01C** *1/02*

U.S. Cl. 181—229 **3 Claims**



1. A combination muffler and check valve comprising:

first plate means having a bore therein and adapted to be secured to a compressor having a discharge whereby said bore forms a continuous flow path with said discharge;

check valve assembly means secured to said first plate means and including valve seat means surrounding said bore and forming a continuous flow path therewith;

first tube means secured to said first plate means and surrounding said check valve assembly means;

second plate means having a bore therein and secured to said first tube means such that said first tube means extends through said bore in said second plate means;

third plate means having a bore therein;

an annular cylindrical member having a first end secured to said second plate means and a second end secured to said third plate means;

divider means having a bore therein and located within said annular cylindrical member so as to coact with said second plate means and said cylindrical member to define a first chamber and to coact with said third plate means and said cylindrical member to define a second chamber;

second tube means located in said bore in said divider means and extending into said first and second chamber;

third tube means located in said bore in said third plate means and extending outwardly therefrom so as to define an outlet for said combination muffler and check valve.

5,208,430

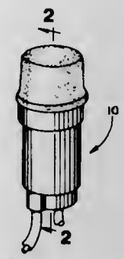
POSITION RESPONSIVE SWITCH

Leo F. Ludzia, Chicago, Ill., assignor to Christiana Industries Corporation, Chicago, Ill.

Filed Jul. 1, 1992, Ser. No. 907,266

Int. Cl.[5] H01H *35/02*

U.S. Cl. 200—61.52 **19 Claims**



1. A position responsive switch comprising, an insulating housing, said housing having

a first portion including a hollow sleeve having a closed end and an open end, said closed end having at least two apertures formed therein,

a second portion forming a cover to be secured on said open end,

a first electrically conductive member formed as a hollow sleeve which is received within said hollow sleeve of said insulating housing,

a second electrically conductive member received in one of said apertures, said second electrically conductive member having a first portion forming a first terminal for the switch, and a second portion extending into said hollow sleeve of said housing and engaging said first electrically conductive member to form an electrical connection therewith,

a third electrically conductive member extending through another of said apertures, said third electrically conductive member having a first portion forming a second terminal for the switch, and a second portion extending within and spaced from said hollow sleeve of said first electrically conductive member,

a fourth electrically conductive member, received and movable within said hollow sleeve of said first electrically conductive member, whereby in a first position of the position responsive switch said fourth electrically conductive member does not engage or make electrical contact with said third electrical conductive member, and in a second position of the position responsive switch said fourth electrical conductive member engages both said first electrically conductive member and said third electrically conductive member so as to complete an electrical circuit between said first portions of said second and third electrically conductive members.

5,208,431

METHOD FOR PRODUCING OBJECT BY LASER SPRAYING AND APPARATUS FOR CONDUCTING THE METHOD

Futoshi Uchiyama, Kashiwa; Koichi Tsukamoto; Yoshihiro Ohno, both of Tokyo; Yasuo Kaga, and Akihiko Momma, both of Tsukuba, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Sep. 9, 1991, Ser. No. 756,875

Claims priority, application Japan, Sep. 10, 1990, 2-239655

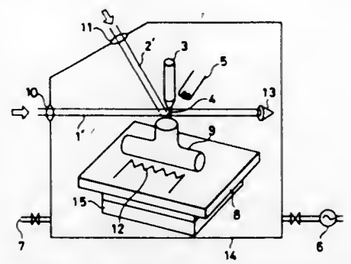
Int. Cl.[5] B23K *26/00*

U.S. Cl. 219—121.65 **13 Claims**

1. A method for producing an object by laser beam spraying comprising the steps of

directing a laser beam to pass near an object-forming table capable of being three-dimensionally controlled in position and attitude,

melting at least one material by passing it through the laser beam and conveying the molten material to a prescribed location on the object-forming table, and



three-dimensionally controlling the position and attitude of the object-forming table for enabling the molten material conveyed thereto to deposit thereon and form an object of prescribed shape.

5,208,432

MAGNETRON DRIVING POWER SUPPLY CIRCUIT

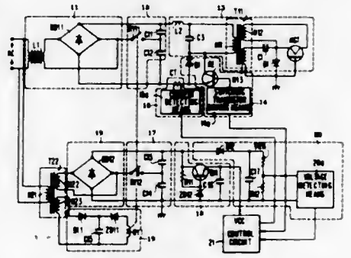
Gyeong H. Han, Seoul, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Apr. 12, 1991, Ser. No. 684,227

Claims priority, application Rep. of Korea, Apr. 14, 1990, 4546/1990

Int. Cl.[5] H05B *6/68*

U.S. Cl. 219—10.55 B **2 Claims**



1. A magnetron driving power supply circuit comprising:

input power rectifying means for inputting power from a commercial power source, and comprising means for stopping noise of the power and rectifying the noise-stopped power;

variable smoothing means coupled to said input power rectifying means and including a relay switch for smoothing the rectified power from said input power rectifying means in response to switching states of said relay switch;

magnetron driving means coupled to said variable smoothing means and including a magnetron for inputting the smoothed output power from said variable smoothing means and switching the smoothed output power at high speed to boost up to high voltage in order to drive said magnetron;

a low voltage transformer for inputting the power from said commercial power source and outputting a voltage less than that of the commercial power source;

low voltage rectifying means connected to rectify the output from said low voltage transformer;

low voltage smoothing means coupled to said low voltage rectifying means and said relay switch and including relay

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switch means for smoothing the rectified output power from said low voltage rectifying means in response to switching states of said relay switch;

relay driving means coupled to said relay switch means and said low voltage smoothing means for inputting the output from said low voltage transformer and controlling open/-close operations of said relay switch means in accordance with output voltage levels from said low voltage transformer;

current level detecting means coupled to said magnetron driving means for detecting input current level of said magnetron driving means;

voltage level detecting means connected to said low voltage smoothing means for detecting output voltage level from said low voltage smoothing means;

constant voltage output means connected to said low voltage smoothing means for inputting output voltage from said low voltage smoothing means to output a constant voltage;

control circuit means coupled to said current level detecting means and said voltage level detecting means for inputting output voltage from said constant voltage output means as a drive voltage and for outputting a switching drive control signal in response to the detected signals from said current level detecting means and said voltage level detecting means; and

high speed switching means coupled to said magnetron driving means and control circuit means for controlling high speed switching operation of said magnetron driving means in response to the switching drive control signal from said control circuit means.

5,208,433

INDUCTIVE HEATING COIL

Jean Hellegouarc'h, Le Perreux Sur Marne, and Gérard Prost, Fresnes, both of France, assignors to Rotelec S. A., Bagnolet, France

Filed Jun. 14, 1991, Ser. No. 715,192
Claims priority, application France, Jun. 15, 1990, 90 07507
Int. Cl.[5] H05B *6/36*
U.S. Cl. 219—10.79 11 Claims



1. In an inductive heating coil comprising a plurality of electrical connectors forming a group and being connected in parallel between tow electrical terminals of said coil, each of said conductors comprising:

a cooling tube for carrying a cooling fluid, and

strands for carrying electrical current, said strands being connected in parallel between said terminals of said coil and being in thermal contact with walls of said tube,

said conductors including deformations along a length of said conductors, with said conductors being transposed in said coil, and said strands being transposed in each conductor to reduce a formation of unwanted current loops;

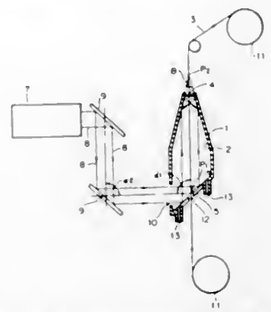
the improvement wherein positions of said strands relative to the walls of said tube and relative to each other in a cross-section of said each conductor are substantially unchanged over a complete length of each said conductor, and said transposition between said strands being locally effected by a twist of at least one half-turn of each said conductor about a conductor axis in at least one marked deformation section of limited length of each said conductor.

5,208,434

METHOD AND APPARATUS FOR LASER HEAT TREATMENT FOR METAL WIRE

Katsuhiro Minamida, and Motoi Kido, Kanagawa, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Jan. 6, 1992, Ser. No. 820,310
Claims priority, application Japan, Jan. 10, 1991, 3-1525
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.6 4 Claims



1. A method for the heat treatment of a metal wire employing a laser, comprising the steps of:

forming a cone shaped mirror of circular or polygon cross section having a peak angle in a range of 5° to 20° and interior mirror surface, said cone shaped mirror defining an opening having a diameter greater than the diameter of the metal wire in a range of 0.2 to 2 mm;

feeding the metal wire having a diameter less than or equal to 1 mm through said cone shaped mirror along the center axis thereof;

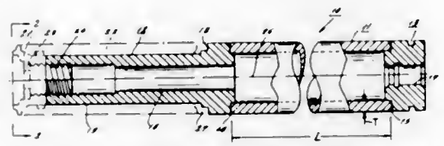
irradiating a laser beam with an incident angle including an angular deflection with respect to the center axis of said cone shaped mirror in a range of ±10°, resulting in multiple reflection of the laser beam between the interior mirror surface and the surface of the fed metal wire.

5,208,435

LIGHTWEIGHT RAM FOR BODYMAKER

Ralph Main, San Pedro, and Rodney Blue, Huntington Beach, both of Calif., assignors to Sequa Corporation, New York, N.Y.

Filed Nov. 25, 1991, Ser. No. 797,387
Int. Cl.[5] B23K *15/00*
U.S. Cl. 219—121.13 11 Claims



1. A weldment constituting a lightweight ram for high speed apparatus that produces relatively elongated can bodies by driving relatively shallow cups through a ring type die means, said weldment including:

a nose piece constructed to mount and operatively position a punch on said ram;

a tail piece adapted for connection to a drive means that reciprocates the ram along its longitudinal axis;

an elongated relatively thin-walled tube having a front end and a rear end;

said tube, said nose piece and said tail piece being in axial alignment, with said tube interposed between said nose piece and said tail piece;

a first weld fixedly securing said nose piece to said tube at said front end and extending forward thereof; and

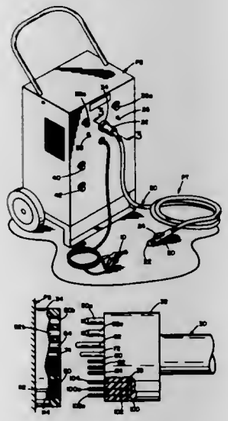
a second weld fixedly securing said tail piece to said tube at said rear end and extending rearward thereof.

5,208,436

PLASMA TORCH WITH IDENTIFICATION CIRCUIT

George D. Blankenship, Chardon, Ohio, assignor to The Lincoln Electric Company, Cleveland, Ohio

Filed Apr. 12, 1991, Ser. No. 684,310
Int. Cl.[5] B23K *9/10*
U.S. Cl. 219—121.54 25 Claims



1. A system for automatically identifying a specific torch assembly from a plurality of torch assemblies connected to a power supply and regulating at least the current and gas fed to said torch assembly from said power supply, said system comprising:

electrical identification circuit means associated with each torch assembly having an electrical property unique to the operating characteristics of each one of said plurality of torch assemblies, means for automatically interrogating said identification circuit means to produce an electrical identification signal unique to said specific torch assembly when said specific torch assembly is connected to said power supply;

control means associated with said power supply for receiving said identification signal and comparing same with known set values; and

servo means for automatically setting and controlling by feedback the power and gas supplied to said specific torch assembly by said power supply.

5,208,437

METHOD OF CUTTING INTERCONNECTION PATTERN WITH LASER AND APPARATUS THEREOF

Tateoki Miyauchi; Mikio Hongo; Shigenobu Maruyama; Katsurou Mizukoshi, all of Yokohama; Hiroshi Yamaguchi, Fujisawa, and Koyo Morita, Yamanashi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

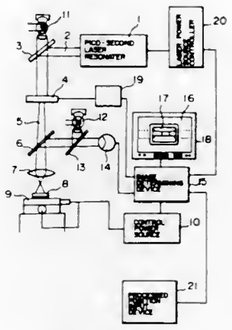
Filed May 9, 1991, Ser. No. 697,779
Claims priority, application Japan, May 18, 1990, 2-126691
Int. Cl.[5] B23K *26/14*
U.S. Cl. 219—121.67 21 Claims

1. A method of cutting an interconnection pattern with a laser, the method comprising steps of:

providing a laser beam of a single pulse having a pulse width of 10^{-9} seconds or less and an energy density of substantially 10^6 w/cm^2 or more, the pulse width permitting optical energy absorbed by said interconnection pattern to be converted into thermal energy to begin melting said interconnection pattern when said laser beam is incident upon said interconnection pattern;

shaping said laser beam to assume a desired configuration corresponding to substantially a width of said interconnection pattern;

coordinating said laser beam upon a desired portion or portions of said interconnection pattern; and,



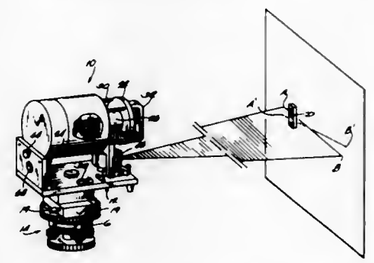
projecting the laser beam upon said desired portion or portions of said interconnection pattern so that optical energy of said laser beam of the single pulse is absorbed by said desired portion or portions of said interconnection pattern to be converted into thermal energy to permit said desired portion or portions of said interconnection pattern to melt and evaporate for cutting of the interconnection pattern without damaging a layer below said interconnection pattern through direct irradiation of laser beam is accomplished.

5,208,438

METHOD AND APPARATUS FOR ADJUSTING LASER INSTRUMENTS Z AXIS

Robert L. Underberg, Meguon, Wis., assignor to David White, Inc., Germantown, Wis.

Filed Jun. 17, 1991, Ser. No. 716,245
Int. Cl.[5] B23K *26/02*
U.S. Cl. 219—121.78 8 Claims



1. Apparatus in which self leveling laser beam emitting

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instruments of the type that have X and Y axes and a normally vertical Z axis can be supported for adjustment of said Z axis into a desired final alignment, said apparatus comprising,

a base,

cradle means mounted on said base and operative to support a self leveling laser instrument with its normally vertical Z axis disposed horizontally to cause vertical emission of its laser beam,

mounting means mounted on said base,

reflecting means mounted on said mounting means in position for a laser beam emitted by an instrument placed in said cradle means to impinge on the reflecting means and reflected in a horizontal path,

said mounting means including a means permitting adjustment of said reflecting means reflective to said base to a fixed reference position wherein the sweep of a standardized reference instrument laser beam is level thus indicating that the reflecting means is set at a proper position of adjustment enabling subsequent use of the apparatus to adjust the Z axis of any self-leveling laser instruments placed thereon into desired final alignment.

5,208,439

LASER BEAM RELAY UNIT

Takeji Arai, Yamanashi, Japan, assignor to Fanuc Ltd, Minamitsuru, Japan

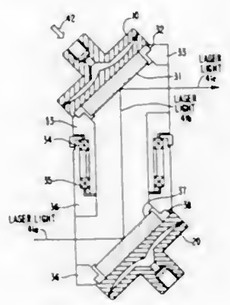
PCT No. PCT/JP89/00857, § 371 Date Apr. 18, 1990, § 102(e) Date Apr. 18, 1990, PCT Pub. No. WO90/02626, PCT Pub. Date Mar. 22, 1990

PCT Filed Aug. 22, 1989, Ser. No. 474,033

Claims priority, application Japan, Sep. 7, 1988, 63-224083

Int. Cl.[5] B23K *26/06*

U.S. Cl. 219—121.74 **3 Claims**



1. A laser beam relay unit having two reflecting mirrors for shifting the direction of a laser beam, comprising:

two reflecting mirrors disposed parallel to each other and at a predetermined angle relative to incident light, each mirror having a reflecting surface and an opposite rear surface and being mounted on a rotatable light guiding member; and

a reflecting-mirro holder provided on the rear surface of each mirror and having an inlet for introducing cooling air, a retaining section in which air is retained comprising a plurality of radially or spirally directed channels connected to the inlet, and radially disposed outlets, each at a radial outer end of one of the plurality of channels.

5,208,440

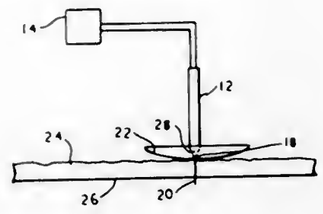
PLASMA ARC CUTTING OF CONDUCTIVE AND NON-CONDUCTIVE MATERIALS

James A. Conley, 280 Meadow St., Meadville, Pa. 16335

Filed Sep. 12, 1991, Ser. No. 758,562

Int. Cl.[5] B23K *9/00*

U.S. Cl. 219—121.44 **14 Claims**



1. A method of cutting insulation and sheet metal for air conditioning duct work using a plasma arc, comprising:

providing a plasma arc cutter and alternately sheets of insulation and metal, said plasma arc cutter being adapted to constantly arc; and,

cutting alternately said sheets of insulation and metal.

5,208,441

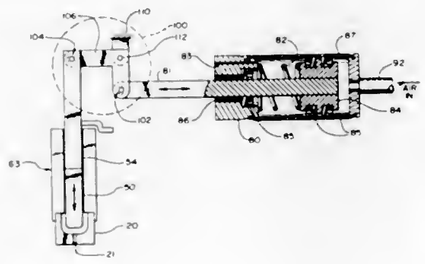
PLASMA ARC IGNITION SYSTEM

Daniel M. Broberg, Edina, Minn., assignor to Century Manufacturing Co., Minneapolis, Minn.

Continuation of Ser. No. 693,916, Apr. 29, 1991, abandoned. This application Jul. 23, 1992, Ser. No. 919,081

Int. Cl.[5] B23K *9/00*

U.S. Cl. 219—121.52 **10 Claims**



1. A plasma arc torch contact starting system comprising:

a torch head having an electrically conductive plasma exit nozzle at one end and a pilot arc chamber within said torch head immediately adjacent the plasma exit nozzle;

an electrode mounted and supported in said torch head for movement relative to the nozzle;

means for biasing the electrode into electrical contact with the nozzle;

means for supplying a flow of pressurized gas to the pilot arc chamber; and

arc-drawing means operably connected to but substantially thermally isolated from the electrode and the torch head for delivering current to the electrode and subsequently displacing the electrode from the nozzle to draw a pilot arc in the pilot arc chamber, wherein the arc-drawing means displaces the electrode in response to pressurized gas diverted from the flow of pressurized gas supplied to the pilot arc chamber, said substantial thermal isolation being effected by placing the arc-drawing means so that it is not within the thermal mass of the torch head that contains the pilot arc chamber and supports the electrode.

5,208,442

PLASMA ARC TORCH HAVING ADJUSTABLE ELECTRODE

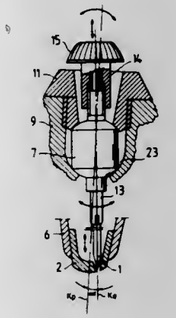
Tom Ahola, and Kari Ahola, both of Klaukkala, Finland, assignors to Rotaweld Oy, Klaukkala, Finland

Filed Feb. 10, 1992, Ser. No. 833,034

Claims priority, application Finland, Feb. 25, 1991, 910883

Int. Cl.[5] B23K *9/00*

U.S. Cl. 219—121.52 **6 Claims**



1. A plasma welding torch, comprising:

a torch body provided with a longitudinal axis;

a plasma nozzle attached to the torch body, said plasma nozzle being provided with an orifice for generating a plasma arc;

an electrode provided within the torch body via a pivotal element, which allows the tip of the electrode to be pivotally adjusted in relation tot he orifice of the plasma nozzle;

sealing means for sealing orifices between the torch body and the pivotal element and between the pivotal element and the electrode when the position of the tip of the electrode is adjusted;

tightening means for adjusting a force needed to pivot the electrode held in the pivotal element and for locking the electrode and the pivotal element to a working position; and

means for pivoting the electrode held in the pivotal element in order to adjust the position of the tip of the electrode in relation to the orifice of the plasma nozzle.

5,208,443

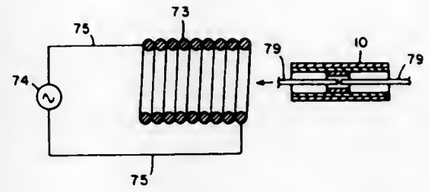
TEMPERATURE AUTO-REGULATING, SELF-HEATING RECOVERABLE ARTICLES

Thomas H. McGaffigan, Half Moon Bay, Calif., assignor to Metcal, Inc., Menlo Park, Calif.

Continuation-in-part of Ser. No. 242,208, Sep. 9, 1988, abandoned. This application Sep. 8, 1989, Ser. No. 404,621

Int. Cl.[5] B29C *19/02;* **H05B** *6/10*

U.S. Cl. 219—505 **24 Claims**



1. A self-heating, self-regulating, heat-recoverable article for use in an alternating magnetic field, comprising:

a) a layer of heat-recoverable material which has been deformed in shape or dimensions from its original shape or dimensions and which has a recovery temperature T at which the article is capable of recovering to its original undeformed shape or dimensions upon being heated to at least to temperature T, and

b) an electrically non-conductive layer of lossy heating particles having a Curie temperature of T or greater whereby said particles are capable of heating to Curie temperature when subjected to an alternating magnetic field, and are capable of self-regulating at Curie temperature while in such magnetic field,

said layer of particles being in thermal contact with said layer of material and thereby being capable of heating said layer of material to a temperature of T upon the article being subjected to said alternating magnetic field and capable of self-regulating the temperature of said layer of material at Curie temperature whereby the layer of particles is adapted to change shape or dimensions to conform to the shape or dimension of the layer of material as it recovers to thereby maintain said thermal contact during recovery of said layer of material.

5,208,444

ELECTRICAL CONNECTORS FOR ELECTRICALLY HEATED VEHICLE WINDOWS

John A. Winter, Pittsburgh; Bruce A. Bartrug, Lower Burrell, and Harry S. Koontz, Pittsburgh, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 1, 1990, Ser. No. 607,947

Int. Cl.[5] H05B *3/10;* **B60L** *1/02*

U.S. Cl. 219—547 **10 Claims**

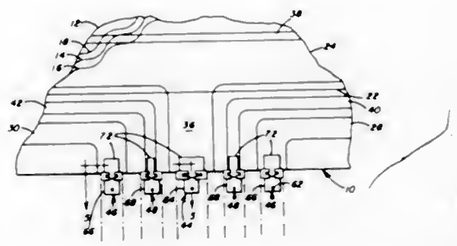
1. In a heated window assembly for a vehicle of the type having a first transparent sheet laminated to a second transparent sheet, a terminal connection area along one edge portion of said assembly, a first bus bar having first electroconductive extension means extending along an interior major surface of said first sheet into said terminal connection area, a second bus bar having second electroconductive extension means electrically insulated from said first electroconductive extension means and extending along said major surface of said first sheet and into said terminal connection area, and an electroconduc-

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tive heating member extending between and electrically interconnecting said first and second bus bars, the improvement comprising:

a first terminal connector including a strip having an inner portion overlapping said first extension means within said terminal connection area and laminated between said first and second sheets to electrically connect said first electroconductive extension means with said first terminal connector, and

a second terminal connector including a strip having an inner portion overlaying said second extension means within said terminal connecting area and laminated between said first and second sheets in close proximity to



said first terminal connector to electrically connect said second electroconductive extension means with said second terminal connector, wherein each strip of said terminal connectors further include an outer portion extending outwardly from said assembly at said terminal connection area, said connectors being spaced along said edge portion of said assembly at said terminal connection area to allow simultaneous engagement of said outwardly extending portions with a corresponding terminal of a multiple terminal housing having at least two terminals constructed and arranged in close proximity to each other simultaneously receive each of said outwardly extending portions of said terminal connectors.

5,208,445

METHOD AND APPARATUS FOR RECEIVING, MARKING AND RETAINING DISCOUNT COUPONS

Rathindra Nahar, and Barry M. Mergenthaler, both of Cambridge, Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Aug. 26, 1991, Ser. No. 750,161

Int. Cl.[5] G06K *15/00*; **G06F** *15/21*

U.S. Cl. 235—375 **49 Claims**

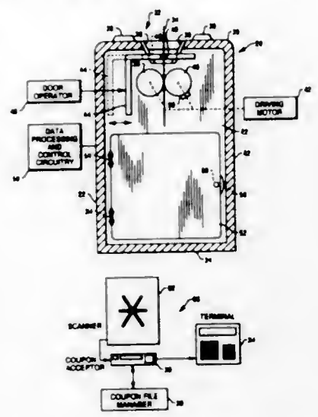
1. Apparatus for receiving and marking record members, comprising:

a secure structure having a plurality of side walls, and first and second end surfaces;

a slot in one of said end surfaces to receive record members;

a pair of cooperating, counter-rotating cylinders disposed in the secure structure in proximity to the slot to receive the record member therebetween and transport it past said cylinders into the interior of the secure structure;

means for driving said cylinders; and



marking means on at least one of said cylinders in the secure structure to mark said record member.

5,208,446

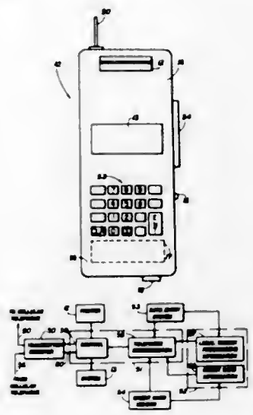
METHOD AND APPARATUS FOR VALIDATING CREDIT INFORMATION DURING HOME DELIVERY OF ORDER

Jerry R. Martinez, 5312 W. Tierra Buena, Glendale, Ariz. 85306

Filed Sep. 19, 1991, Ser. No. 762,398

Int. Cl.[5] G06K *5/00*

U.S. Cl. 235—380 **3 Claims**



1. In a home delivery system for validating credit tendered to a delivery person when the person delivers an order to a recipient at a residence,

(a) a host computer with memory means for storing credit validation data;

(b) portable housing means carried by the delivery person;

(c) credit data entry means mounted in said housing means for entering credit information concerning the recipient;

(d) data processing means mounted in said housing means and coupled with said credit data entry means for storing said credit information;

(e) first transmission means mounted in said housing means and operatively associated with said data processing means to transmit said credit information from said portable housing means over a cellular telephone line and to said host computer for examination to generate validation information indicating whether said credit information is acceptable;

(f) receiver means mounted in said housing and operatively associated with said data processing means;

(g) printer means mounted in said housing and operatively associated with said data processing means; and,

(h) second transmission means operatively associated with said host computer for transmitting said validation information to said receiver means to generate validation information signals from said receiver means to said data processing means, said data processing means, when said validation information signals indicate said credit information is acceptable, activating said printer to print a receipt for the recipient to confirm that the order was delivered to the recipient and paid for by the recipient.

5,208,447

METHOD FOR TESTING A TERMINAL COMMUNICATING WITH CHIP CARDS

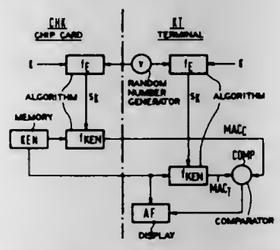
Dietrich Kruse, Ottobrunn, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 23, 1990, Ser. No. 527,439

Claims priority, application Fed. Rep. of Germany, May 30, 1989, 3917540

Int. Cl.[5] G06K *5/00*

U.S. Cl. 235—380 **3 Claims**



2. Method for testing a terminal communicating with at least one chip card using a respective action code derived both in the chip card as well as in the terminal from a common secret code and from a common algorithm dependent on a common random number, in addition to performing a check of a personal identification number, the method comprising the steps of:

storing identification data in the chip card;

transmitting the identification data in an uncoded form from the chip card to the terminal;

generating in the chip card a chip authentification code from the identification data using the respective action code and an algorithm stored in the chip card;

generating in the terminal a terminal authentification code from the identification data transmitted by the chip card using the respective action code and an algorithm stored in the terminal;

transmitting the chip authentification code generated in the chip card to the terminal, thereby transmitting the identification data in a coded form from the chip card to the terminal;

comparing the chip and terminal authentification codes in the terminal; and

displaying the identification data at the terminal when the chip authentification code is identical to the terminal authentification code.

5,208,448

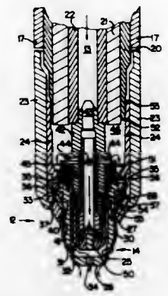
PLASMA TORCH NOZZLE WITH IMPROVED COOLING GAS FLOW

Jeffrey S. Everett, Florence, S.C., assignor to ESAB Welding Products, Inc., Florence, S.C.

Filed Apr. 3, 1992, Ser. No. 863,215

Int. Cl.[5] B23K *9/00*

U.S. Cl. 219—121.5 **20 Claims**



1. An improved plasma torch nozzle comprising:

a substantially barrel-shaped nozzle body having a longitudinal opening therethrough for directing the flow of a gas for a plasma arc from rearward portions of said body downstream to forward portions of said body, and then out of a face at said forward portions to form a plasma arc in the presence of a sufficient electrical potential difference;

said nozzle body further comprising

a rear section for which the outer surface portions diverge with respect to the downstream direction,

a center section for which the outer surface portions are substantially cylindrical with respect to the downstream direction, and

a forward section for which the outer surface portions converge with respect to the downstream direction so that said outer surface of said nozzle body changes direction at said forward section for creating a pressure gradient where said center section meets said forward section when a gas flows from said center section to said forward section in which the pressure gradient tends to hold the gas along said outer surface as it flows, and so that the gas converges at said face of said nozzle body.

5,208,449

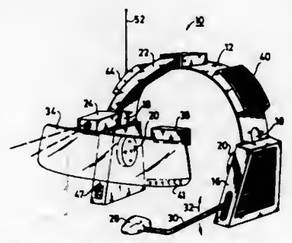
PORTABLE TRANSACTION TERMINAL

Jay M. Eastman, Pittsford, and John A. Boles, Fishers, both of N.Y., assignors to PSC, Inc., Webster, N.Y.

Filed Sep. 9, 1991, Ser. No. 756,637

Int. Cl.[5] G06K *7/10*

U.S. Cl. 235—462 **13 Claims**



1. A portable transaction terminal which does not require manual keyboard or code reader actuation, said terminal com-

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prising a headset, an optical code reader on said headset for scanning a code symbol when actuated, and voice operated means for entering transaction data and for actuating said code reader to enter data corresponding to the codes scanned by said reader also carried on said headset.

5,208,450

IC CARD AND A METHOD FOR THE MANUFACTURE OF THE SAME

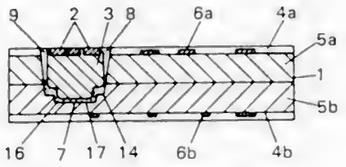
Mitsuaki Uenishi, Takatsuki; Yoshihisa Takase, Higashiosaka, and Takashi Fujii, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 445,659, Dec. 15, 1989, abandoned. This application Oct. 16, 1991, Ser. No. 777,457

Claims priority, application Japan, Apr. 20, 1988, 63-97071; Apr. 20, 1988, 63-97076; Apr. 21, 1988, 63-98661; PCT Int'l Appl., Apr. 19, 1989, PCT/JP89/00418

Int. Cl.[5] G06K *19/06, 19/02*

U.S. Cl. 235—492 **2 Claims**



1. An IC card comprising a flexible card base, an IC module constructed in a first recess formed in the card base and an adhesive adhering the IC module to the inside bottom surface of the first recess, the adhesive having sufficient elasticity to absorb stress caused by bending of the card base, the adhesive maintaining said elasticity after hardening, wherein a gap is formed between the inside surface of the first recess and the outside surface of the IC module, the difference between the inside surface of the first recess and the outside surface of the IC module gradually becoming narrower from the inside upper part of the first recess toward the inside lower part of the first recess, wherein a second recess is formed in the inside bottom surface of the first recess excluding a peripheral portion thereof, and a protrusion protruding toward the second recess is formed on the bottom surface of the IC module.

5,208,451

METHOD AND APPARATUS FOR AUTOMATED FOCUSING OF AN INTERFEROMETRIC OPTICAL SYSTEM

Leslie L. Deck, Middletown, Conn., assignor to Zygo Corporation, Middlefield, Conn.

Filed May 4, 1992, Ser. No. 878,447

Int. Cl.[5] G01J *1/20*

U.S. Cl. 250—201.3 **38 Claims**

1. A method for automated focusing of an optical system on a test surface disposed for relative axial movement between the test surface and optical system in an interferometric apparatus in which a cyclically-varying interference beam impinges on a detector, comprising the steps of:

providing a first signal indicative of distributive position of the impinging interference beam relative to an electro-optical center of the detector;

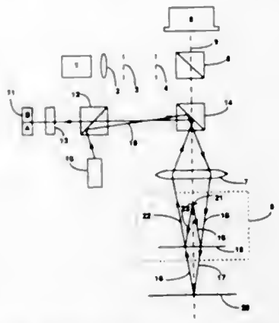
determining a first time instant when a first point occurs in each cycle of the interference beam;

determining a second time instant when a second point, 180 degrees out of phase with said first point, occurs in each cycle of the interference beam;

sampling the first signal at each of said first and second time instants to provide a respective first and second sample of the first signal for each said cycle of the interference beam;

adding the first and second sample for each said cycle of the interference beam to provide a focus error signal;

determining a required direction of axial movement toward focus of the test sample relative to the optical system as a function of the focus error signal such that a positive state of the focus error signal relative to a predetermined value indicates required relative movement of the test surface in



a first axial direction, a negative state of the focus error signal relative to said predetermined value indicates required relative movement of the test surface in a second axial direction opposite the first direction, and equality of the focus error signal with said predetermined value indicates that the test surface is in focus so that no relative movement of the test surface is required; and

moving the test sample relative to the optical system in said required direction toward focus as indicated by the state of the focus error signal.

5,208,452

METHOD AND APPARATUS FOR RELIABLY DETECTING LIGHT BEAM IN THE PRESENCE OF UNDESIRABLE LIGHT, ESPECIALLY SUITABLE FOR SURVEYING INSTRUMENTS

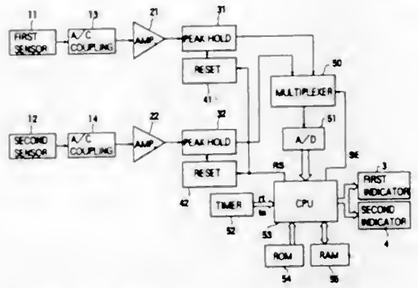
Kazuki Osaragi, Tama, Japan, assignor to Kabushiki Kaisha TOPCON, Tokyo, Japan

Filed Dec. 20, 1990, Ser. No. 631,020

Claims priority, application Japan, Dec. 20, 1989, 1-329938; Feb. 27, 1990, 2-46941

Int. Cl.[5] H01J *40/14*

U.S. Cl. 250—208.2 **8 Claims**



1. A light beam detection method, comprising:

1) converting a received light beam into an electrical signal;

2) holding a value of the electrical signal that is a maximum value of the electrical signal for a predetermined sampling period;

3) storing the maximum value of the electrical signal in a memory as a stored value;

4) determining whether or not three maximum values have been stored in the memory;

5) comparing the stored values with each other, when it is determined that three such maximum values have been stored; and

6) performing a further step, based on the comparing step, the further step including either:

6a) using a first stored value of the three stored values for subsequent signal processing; or

6b) concluding that the stored values are based on noise; the further step being chosen depending on whether or not:

i) the first stored value is larger than second and third of the three stored values; and

ii) the second and third stored values are substantially equal to each other.

5,208,453

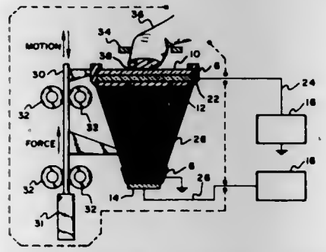
DEVICE TO MEASURE THE RATE OF BREAKDOWN-MEDIATED CHARGE TRANSFER ON A DIELECTRIC

William B. Hostetler, Skillman, N.J. 08558

Filed Sep. 18, 1991, Ser. No. 761,668

Int. Cl.[5] H01J *40/14*

U.S. Cl. 250—214 LA **11 Claims**



1. An optical assembly for collecting and collimating light emitted from a planar corona discharge, comprising in combination, a dielectric plate, a transparent electrode means in intimate contact with a surface of said dielectric plate; a photocell means; and elongated light pipe means intermediate said transparent electrode means and said photocell means having one end thereof in intimate contact with said electrode means and an opposite end in intimate contact with a surface of said photocell.

5,208,454

Patent Not Issued For This Number

5,208,455

SQUARE OPTICAL PULSE GENERATOR

Brian P. Nelson; Keith J. Blow, both of Woodbridge, and Nicholas J. Doran, Stratford-upon-Avon, all of England, assignors to British Telecommunications plc, London, England

PCT No. PCT/GB90/01422, § 371 Date Mar. 25, 1992, § 102(e) Date Mar. 25, 1992, PCT Pub. No. WO91/04593, PCT Pub. Date Apr. 4, 1991

PCT Filed Sep. 14, 1990, Ser. No. 842,342

Claims priority, application United Kingdom, Sep. 15, 1989, 8920913

Int. Cl.[5] H01J *5/16*

U.S. Cl. 250—227.19 **6 Claims**

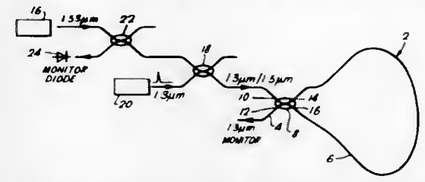
1. A square optical pulse generator comprising:

a first optical coupler (**8**) having a first and a second pair of optical communication ports (**10, 12 and 14, 16**) in which substantially equal first signal portions of an optical signal at a first wavelength received at a port (**10**) of one pair are coupled to the two ports (**14,16**) of the other pair of ports;

an optical waveguide (**6**) coupling together the second pair of ports having an interaction section which includes a material having a non-linear refractive index;

a cw optical source (**16**) for providing a cw optical signal at the first wavelength optically coupled to a first port (**10**) of the first pair of ports (**10, 12**);

a pulsed optical source (**20**) for providing a pulsed optical signal at a second wavelength optically coupled to the



interaction section (**6**) so the pulsed optical signal propagates along it in substantially one direction;

the intensity of the pulsed optical signal being sufficient to provide a relative phase shift in the first signal portions as they propagate round the optical waveguide (**6**) and the interaction section being longer than the inverse of the absolute difference in group delays of the cw and pulsed optical signals.

5,208,456

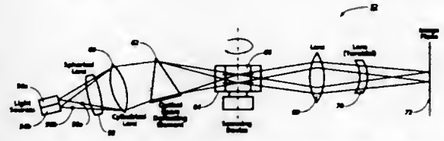
APPARATUS AND SYSTEM FOR SPOT POSITION CONTROL IN AN OPTICAL OUTPUT DEVICE EMPLOYING A VARIABLE WAVELENGTH LIGHT SOURCE

James J. Appel, Brighton, N.Y., and Thomas L. Paoli, Los Altos, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 19, 1991, Ser. No. 747,166

Int. Cl.[5] H01J *3/14;* **G01D** *9/42*

U.S. Cl. 250—236 **38 Claims**



1. In an optical output device wherein a beam of light is generated and focused to a spot upon an image plane means, an apparatus for controlling the position of the spot in the slow scan plane of the image plane means, comprising:

a light source capable of emitting the beam of light at a selected one of at least two selectable wavelengths; and

beam deflecting means for deflecting the beam of light an amount which depends on the wavelength of the beam of light, the amount of deflection determining the position of the spot in the slow scan plane on the image plane means.

5,208,457

METHOD OF SECONDARY ION MASS SPECTROMETRY ANALYSIS

Tsutomu Tsuji, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 6, 1991, Ser. No. 755,779

Claims priority, application Japan, Sep. 7, 1990, 2-237438

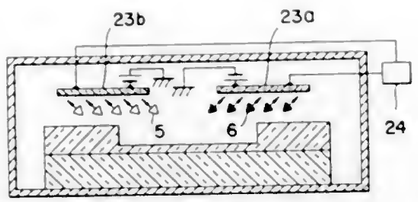
Int. Cl.[5] G01N *23/00*

U.S. Cl. 250—282 **4 Claims**

1. A method of secondary ion mass spectrometry analysis comprising steps of (a) sputtering the surface of a specimen to be analyzed with the use of a cesium oxide ion as a primary ion beam source and (b) analyzing by means of a secondary ion mass spectrometer intensities of positive and negative second-

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ary ions emitted by the sputtering, said secondary ion mass spectrometer being provided with at least one secondary ion



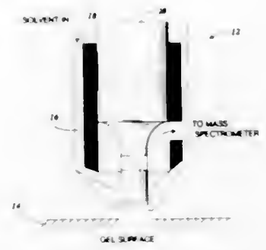
current detection electrode for selectively detecting the positive and the negative secondary ions emitted by the sputtering.

5,208,458

INTERFACE DEVICE TO COUPLE GEL ELECTROPHORESIS WITH MASS SPECTROMETRY USING SAMPLE DISRUPTION

Kenneth L. Busch, Marietta, Ga., and Stephen M. Brown, Jr., St. Johns, Mich., assignors to Georgia Tech Research Corporation, Atlanta, Ga.

Filed Nov. 5, 1991, Ser. No. 788,311
Int. Cl.[5] B01D *59/44;* H01J *49/00*
U.S. Cl. 250—288 27 Claims



9. A system for introducing sample to a spectrometric device comprising:

a) a sample removal means comprising a solvent introduction means for introducing a solvent to the sample, a sample disruption means for disrupting the sample so as to release molecules of the sample into the solvent, and a sample withdrawal means for withdrawing said sample containing solvent from the sample; and

b) an introduction means for transferring said sample containing solvent from said sample removal means and introducing said sample containing solvent into said spectrometric device.

5,208,459

METHOD AND APPARATUS FOR READING-OUT A PHOTOSTIMULABLE PHOSPHOR PANEL

Luciano Morrone, Carcare, and Alfredo Viglienzoni, Savona, both of Italy, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

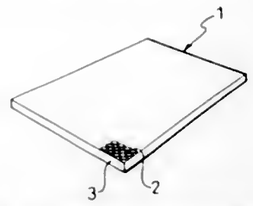
Filed Oct. 3, 1991, Ser. No. 770,555
Claims priority, application Italy, Oct. 5, 1990, 21647 A/90
Int. Cl.[5] G01N *23/04*
U.S. Cl. 250—327.2 15 Claims

1. A method for reading-out a radiation image stored in a structured type photostimulable phosphor panel, wherein the phosphor is a plurality of cells ordered in parallel rows into an inert substrate, said method comprising the following steps:

a) photostimulating contemporaneously and uniformly along a scanning line all the cells belonging to the same row, causing each cell in said row to emit light according to energy stored therein,

b) collecting the emitted light and converting it into electrical signals, processing contemporaneously and separately the light emitted by each cell along the scanning line,

c) repeating the above steps for cells of an adjacent row by shifting the panel relative to the scanning line.

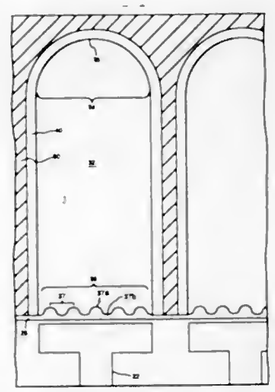


5,208,460

PHOTODETECTOR SCINTILLATOR RADIATION IMAGER HAVING HIGH EFFICIENCY LIGHT COLLECTION

Henri M. Rougeot, and Joseph M. Pimbley, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 23, 1991, Ser. No. 764,291
Int. Cl.[5] G01T *1/20*
U.S. Cl. 250—368 21 Claims



1. A radiation imaging device comprising:

an array of photodetectors;

a plurality of scintillator elements arranged in an array, each of said elements having a first end surface through which incident radiation enters the scintillator element and a second end surface optically coupled to said photodetector array, each of said scintillator elements further having sidewalls extending between said first and second end surfaces;

a non-optically diffusive dielectric layer disposed immediately adjacent to and extending around at least said sidewalls of each of said scintillator elements, said dielectric layer having an optical index that is less than the optical index of said scintillator element; and

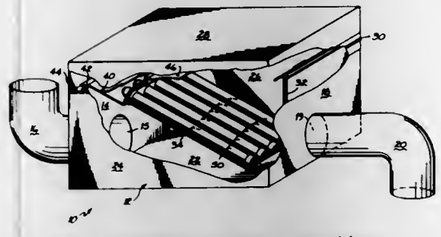
an optically reflective layer adjoining said dielectric layer.

5,208,461

ULTRA-VIOLET WASTEWATER DISINFECTION SYSTEM

Frederick D. Tipton, Milford, Ohio, assignor to Simon Hydro-Aerobics, Inc., Milford, Ohio

Filed Oct. 3, 1991, Ser. No. 770,604
Int. Cl.[5] C02F *1/32*
U.S. Cl. 250—436 17 Claims



1. A wastewater disinfection system, comprising:

a flow-through treatment chamber for treating wastewater, said chamber having an inlet end and an outlet end for the wastewater; and

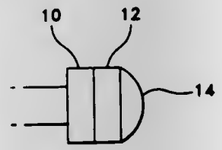
a plurality of tube-type ultra-violet lamps positioned in a parallel array within said treatment chamber during operation of the system, said array of lamps disposed at an acute angle with respect to and transverse to the flow of the wastewater therethrough so that the wastewater passes through said array of ultra-violet lamps as it flows through said treatment chamber and is thereby disinfected, said array of lamps serves the dual functions of disinfecting the wastewater and acting as a flow control baffle to directionalize the wastewater flow.

5,208,462

WIDE BANDWIDTH SOLID STATE OPTICAL SOURCE

James M. O'Connor, Ellicott City, and Olaleye A. Aina, Columbia, both of Md., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Dec. 19, 1991, Ser. No. 810,583
Int. Cl.[5] G21G *4/00;* H01L *31/12*
U.S. Cl. 250—493.1 8 Claims



1. A wide bandwidth solid state optical source, comprising:

(a) a solid state optical source having a light emitting surface which emits a first light having a first FWHM bandwidth;

(b) a phosphor positioned near said light emitting surface so that said phosphor absorbs said first light and emits a second light having a second FWHM bandwidth, said phosphor containing a material selected from the group consisting of CaS and SrS, said material being doped with Yb and said second FWHM bandwidth being greater than said first FWHM bandwidth;

said phosphor being in a powder form and mixed with an epoxy which is nearly transparent to the wavelength emitted by both the solid state optical source and the phosphor; and

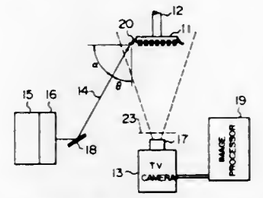
a lens positioned to capture said second light.

5,208,463

METHOD AND APPARATUS FOR DETECTING DEFORMATIONS OF LEADS OF SEMICONDUCTOR DEVICE

Makoto Honma, Tokyo; Sotozi Hiramoto, Chiba; Seiji Hata, Ayauta; Masamichi Tomita, Niihari, and Akira Ishibashi, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 5, 1991, Ser. No. 740,605
Claims priority, application Japan, Aug. 24, 1990, 2-221302
Int. Cl.[5] G01N *21/86*
U.S. Cl. 250—561 9 Claims



1. A method of detecting horizontal and/or vertical deformation of leads of a semiconductor device, comprising steps of:

illuminating leads of a semiconductor device with a planar light beam;

picking up images of regions of said leads illuminated with said planar light beam by means of image pick-up means;

arithmetically determining statistically weighted average positions of the illuminated lead regions picked up by said image pick-up means; and

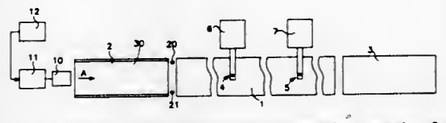
detecting at least one of vertical deformation and horizontal deformation of said leads on the basis of distribution of said statistically weighted average positions.

5,208,464

DEVICE FOR DETECTING ERRORS IN TOP/BOTTOM/FRONT/BACK ORIENTATION OF A LEAD FRAME

Michio Yonemoto, and Masayuki Shimura, both of Tokyo, Japan, assignors to Kabushiki Kaisha Shinkawa, Tokyo, Japan

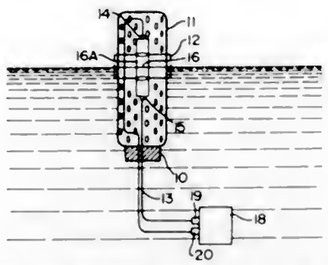
Filed Dec. 2, 1991, Ser. No. 801,444
Claims priority, application Japan, Nov. 30, 1990, 2-336611
Int. Cl.[5] G01N *21/86*
U.S. Cl. 250—561 1 Claim



1. A lead frame transporting device comprising, a pusher for feeding out a lead frame from a loader; feeder rails which carries said lead frame to a detecting location; two optical sensors provided between said loader and feeder rail such that said sensors are positioned on both sides of a lead frame, said optical sensors detecting a first detecting point of said lead frame which is carried by said pusher to said detecting location and then detecting a second detecting point of said lead frame which is further carried by said pusher to said detecting location, thus detecting if said lead frame in its top/bottom/front-/back orientation is in error.

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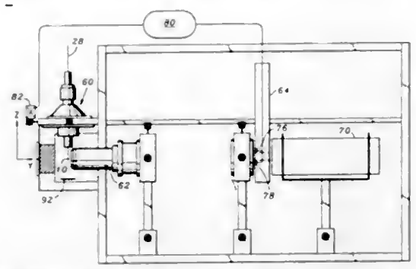
5,208,465
AUTOMATIC DETECTION SYSTEM OF OIL SPILLAGE INTO SEA WATERS
Amnon Jacobson, Tel Aviv, Israel, assignor to Ispra - Israel Product Research Company Ltd., Herzlia, Israel
Filed Jan. 22, 1992, Ser. No. 823,832
Int. Cl.[5] G01N *15/06*
U.S. Cl. 250—573 **34 Claims**



1. An automatic detection system for control of oil spillage into sea waters comprising a plurality of optical fiber cables connected each at the first ending to a control box having an electronic processing and alarm means, and a plurality of light transmitters and light detectors connected to said first endings of said optical fiber cables; and the second endings of said fiber cables are connected to a plurality of sensors located remotely in the open sea; and each of said sensors is a part of a closed loop of a light signal transmitted by one of said light transmitters through one of said optical fiber cables through said sensor, and received by one of said light detectors provided in said control box; and each of said sensors consists of a floating buoy affixed by mechanical means to a permanent location in the open sea, so as to allow said buoy free vertical movement but limit its horizontal movement; and said buoy is constructed of a light weight floatable material, and has its center of gravity adjustable and stabilized by a weight, so that when it floats, the central part of said sensor rests at sea level and said buoy is provided with a central bore, into which said second optical fiber cable's ending is positioned; and a plurality of concentric channels are provided from all sides of said bore, leading sea water from the outer surface of said buoy inwards; and said second optical fiber cable's ending is terminated in said bore and provided with a light indicator; so that said light signal, transmitted through said optic fiber cable form said light transmitter, passes through said light indicator and when an oil slick enters said bore, the light parameters' change can be instantaneously detected by said light detector and said electronic processing means of said control box set on said alarm means.

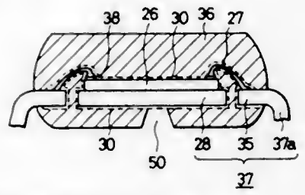
5,208,466
APPARATUS AND METHOD FOR ALIGNING CAPILLARY COLUMN AND DETECTION OPTICS
Stephen L. Pentoney, Jr., Yorba Linda, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.
Filed Oct. 8, 1991, Ser. No. 772,997
Int. Cl.[5] G01N *27/00*
U.S. Cl. 250—574 **24 Claims**

1. An apparatus for aligning a capillary with respect to a radiation source comprising:
a capillary tube defining a capillary channel;
radiation means for illuminating a defined section of the capillary channel, the illumination from the radiation means optically interacting with the capillary tube to produce a distinct light pattern; and



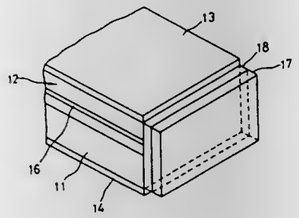
alignment means for aligning the capillary channel with respect to the radiation means based on the distinct light pattern.

5,208,467
SEMICONDUCTOR DEVICE HAVING A FILM-COVERED PACKAGED COMPONENT
Shunpei Yamazaki, Tokyo, Japan, assignor to Semiconductor Energy Laboratory Co., Ltd., Atsugi, Japan
Continuation of Ser. No. 385,173, Jul. 26, 1989, abandoned. This application Jan. 14, 1991, Ser. No. 640,560
Claims priority, application Japan, Jul. 28, 1988, 63-189314
The portion of the term of this patent subsequent to Oct. 15, 2008, has been disclaimed.
Int. Cl.[5] H01L *23/48, 29/46*
U.S. Cl. 257—667 **5 Claims**



1. A semiconductor device comprising:
a lead frame having a stem and a die pad having an undersurface;
a semiconductor chip positioned on the lead frame and having an aluminum pad for bonding the chip;
a wire provided for bonding between the aluminum pad and the stem;
a silicon nitride film having a thickness of 300–2500 angstroms and formed such that the surfaces of the semiconductor chip, the pad, the wire, and the lead frame are covered with the silicon nitride film, and
a molded package formed from a plastic material to enclose the silicon nitride film covered chip, pad, wire and lead frame therein, with at least part of the undersurface of the die pad of the lead frame exposed outside of the molded package.

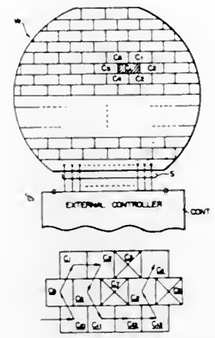
5,208,468
SEMICONDUCTOR LASER DEVICE WITH A SULFUR-CONTAINING FILM PROVIDED BETWEEN THE FACET AND THE PROTECTIVE FILM
Hidenori Kawanishi; Taiji Morimoto; Shinji Kaneiwa, all of Nara; Hiroshi Hayashi, Soraku; Nobuyuki Miyauchi, Yamatokoriyama; Seiki Yano, Kashihara; Mitsuhiro Matsumoto, Nara; Kazuaki Sasaki, Yao; Masaki Kondo; Takebiro Shiomoto, both of Nara, and Saburo Yamamoto, Uda, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 474,272, Feb. 2, 1990, abandoned. This application Jul. 5, 1991, Ser. No. 727,375
Claims priority, application Japan, Feb. 3, 1989, 1-26414; Nov. 6, 1989, 1-289705; Dec. 29, 1989, 1-341890
Int. Cl.[5] H01L *33/00*
U.S. Cl. 257—98 **4 Claims**



1. In a semiconductor laser device which emits laser light from a facet, comprising a multi-layered structure including a pair of electrodes and formed on a semiconductor substrate, said multi-layered structure having an AlGaAs active layer for laser oscillation, and a protective film formed on said facet of said multi-layered structure, the device wherein a film containing sulfur is provided between the facet and the protective film so as to be formed directly on said facet; and wherein said sulfur-containing film consists essentially of chemical elements selected from the group consisting of gallium, aluminum, arsenic, nitrogen, hydrogen, and sodium, in addition to a sulfide of AlGaAs.

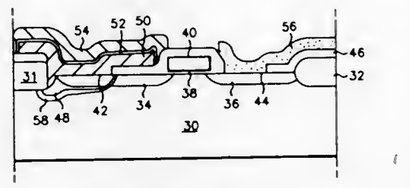
5,208,469
WAFER SCALE INTEGRATED CIRCUIT AND METHOD OF FORMING SIGNAL PROPAGATION PATH THEREIN
Toshiyuki Hodoshima, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan
Filed Jul. 5, 1991, Ser. No. 726,081
Claims priority, application Japan, Jul. 6, 1990, 2-177440
Int. Cl.[5] H01L *27/02*
U.S. Cl. 257—208 **3 Claims**

1. A wafer scale integrated circuit comprising:
a plurality of functional circuit blocks arranged in rows on a wafer, each functional circuit block having four corners; and
a signal propagation path serially connecting some of the plurality of functional circuit blocks,
wherein each functional circuit block is arranged in a zigzag manner such that at least two corners of a functional circuit block in one row are located approximately in the



center of respective sides of corresponding functional circuit blocks in a row adjacent to that row.

5,208,470
SEMICONDUCTOR MEMORY DEVICE WITH A STACKED CAPACITOR
Kyu-Pil Lee; Jong-Jik Park; Yun-Seung Shin, all of Suwon-city, and Joon Kang, Seoul, all of Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Jul. 30, 1991, Ser. No. 738,132
Claims priority, application Rep. of Korea, Feb. 25, 1991, 1991-2988
Int. Cl.[5] H01L *29/68*
U.S. Cl. 257—296 **13 Claims**



1. A memory device, comprising:
a semiconductor substrate of a first conductivity type;
first and second diffusion regions of a second conductivity type by a channel region in said substrate;
a gate region formed on said channel region;
an element-isolation insulating layer spaced apart by a given distance from a selected one of said first and second diffusion regions;
an exposed substrate surface positioned between said element-isolation insulating layer and said selected one of said first diffusion region and said second diffusion region
a stacked capacitor having a first conductive layer contacting said exposed substrate surface and a partial top surface of said selected one of said first diffusion region and said second diffusion region, and a second conductive layer having a second insulating layer serving as an interlayer, on said first conductive layer; and
a third diffusion region of said second conductivity type formed under said exposed substrate surface under a junction surface between said first conductive layer one of said first diffusion region and said second diffusion region.

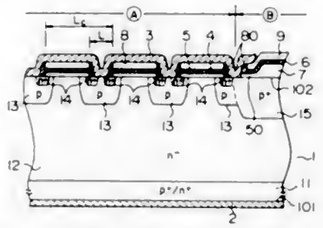
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,471

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREFOR

Mutsuhiro Mori; Yasumichi Yasuda, and Yasunori Nakano, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 536,521, Jun. 12, 1990, abandoned. This application Sep. 19, 1991, Ser. No. 762,793
Claims priority, application Japan, Jun. 12, 1989, 1-146814; Sep. 20, 1989, 1-242224
Int. Cl.[5] H01L 29/10, 29/78, 29/40
U.S. Cl. 257—327 16 Claims



1. A semiconductor device having two main surfaces comprising:

a semiconductor substrate of a first or second conductivity type forming one of said main surfaces and having a first main electrode formed on said main surface;

a first semiconductor region of the first conductivity type formed on said semiconductor substrate and forming the other main surface;

a plurality of second semiconductor regions of the second conductivity type exposed at said other main surface, wherein the second semiconductor regions are arranged side by side so that longitudinal axes of said second semiconductor regions are parallel to one another, wherein said second semiconductor regions include a pair of end second semiconductor regions located, respectively, at the ends of the plurality of second semiconductor regions so that one of said end second semiconductor regions is adjacent to one peripheral area of the other main surface while the other of said end second semiconductor regions is adjacent to another peripheral area of the other main surface, and wherein the second semiconductor regions further include a plurality of interior second semiconductor regions located between said pair of end second semiconductor regions;

a plurality of insulated gate electrodes, each formed, with an insulating film interposed, on said other main surface and on said first semiconductor region located between adjacent ones of said second semiconductor regions and on portions of said adjacent ones of said second semiconductor regions;

third semiconductor regions of the first conductivity type respectively formed extending from said other main surface into said second semiconductor regions so that a portion of each of said third semiconductor regions is located beneath an end of one of said insulated gate electrodes, wherein said third semiconductor regions include a pair of end third semiconductor regions respectively formed in the pair of end second semiconductor regions;

a fourth semiconductor region of the second conductivity type located adjacent to peripheral sides of only the second semiconductor regions said peripheral sides being parallel to the longitudinal axes of said end second semiconductor regions, said fourth semiconductor region being formed to extend into said first semiconductor region deeper than all of said second semiconductor regions and having a higher impurity concentration than an impurity concentration of said second semiconductor regions;

a second main electrode in contact with said second semiconductor regions and said third semiconductor regions with a low resistance at said other main surface; and

means for electrically connecting said second main electrode to said fourth semiconductor region,

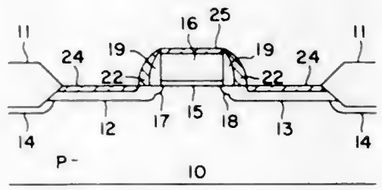
wherein in the end second semiconductor regions adjacent to said fourth semiconductor region, the contact part between said second main electrode and said respective end second semiconductor regions is located at a peripheral side with respect to the contact part between said second main electrode and said respective end third semiconductor region.

5,208,472

DOUBLE SPACER SALICIDE MOS DEVICE AND METHOD

Wen-Doe Su, Yun Lin, and Neng-Wei Wu, Taipei, both of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Continuation of Ser. No. 651,048, Feb. 4, 1991, abandoned, which is a continuation of Ser. No. 393,662, Aug. 14, 1989, abandoned, which is a continuation of Ser. No. 194,649, May 13, 1988, abandoned. This application Jun. 3, 1992, Ser. No. 893,605
Int. Cl.[5] H01L 29/10, 29/78, 23/48
U.S. Cl. 257—344 1 Claim



1. A self-aligned MOS semiconductor device comprising:

a substrate;

a gate insulating layer having opposing vertical edges disposed upon said substrate;

a gate region of predetermined height disposed upon said gate insulating layer, said gate region being of substantially constant longitudinal cross-section throughout said height, and said cross-section having opposed vertical edges disposed upon and vertically aligned with the vertical edges of the gate insulating layer so as to form continuous vertical sidewalls;

a lightly doped source region and a lightly doped drain region embedded in said substrate, each substantially aligned with and outwardly disposed from one of said vertical sidewalls;

opposed dielectric first spacer means each contiguous with and outwardly disposed by a first distance of between 300 and 2500 Å from one of the vertical sidewalls along the upper surface of the lightly doped source and drain regions, respectively;

a source region and a drain region embedded a predetermined junction depth in said substrate contiguous with and outwardly disposed from said lightly doped source and drain regions respectively and forming vertical boundaries therewith, each of said boundaries being substantially aligned with the outer edge of one of said first spacer means;

opposed dielectric second spacer means each contiguous with and outwardly disposed by a second distance of between 500 and 4000 Å from the outer edge of one of said first spacer means along the upper surface of the source and drain regions, respectively;

a first silicide region embedded in the upper face of said gate region; and

second and third silicide regions embedded in and forming vertical boundaries with said source and drain regions,

respectively, each of said boundaries being substantially aligned with the outer edge of one of said second spacer means;

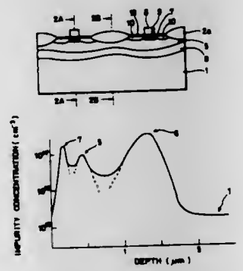
the sum of said first and second distances being at least 80% of said junction depth and being optimally defined to maximize electrostatic discharge protection between the gate region and the silicide in the source and drain regions; and the first distance being optimally defined to minimize junction leakage while maintaining device performance.

5,208,473

LIGHTLY DOPED MISFET WITH REDUCED LATCHUP AND PUNCHTHROUGH

Shigeki Komori; Shigeru Kusunoki, and Katsuhiro Tsukamoto, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 516,643, Apr. 30, 1990, Pat. No. 5,019,520. This application Jan. 3, 1991, Ser. No. 637,243
Claims priority, application Japan, Nov. 29, 1989, 1-311264
Int. Cl.[5] H01L 29/78
U.S. Cl. 257—345 7 Claims



1. A metal-insulator-semiconductor field effect transistor (MISFET) comprising:

(A) a semiconductor substrate, of a first conductivity type, having a planar surface;

(B) a source region and a drain region, each of a second conductivity type, formed in the planar surface of said semiconductor substrate, said source region and said drain region being spaced apart;

(C) a channel region formed in said planar surface of said semiconductor substrate between said source region and said drain region, at least a partial layer of said channel region having an impurity concentration lower than 10^{16} cm^{-3} to enable a high speed carrier movement in said channel region;

(D) a gate electrode formed on said channel region with an insulating layer interposed therebetween;

(E) impurities distributed in said semiconductor substrate to produce a first peak impurity concentration adjacent to the bottom of said channel region, said first peak impurity concentration acting to control the threshold voltage of said MISFET;

(F) impurities distributed in said semiconductor substrate to produce a second peak impurity concentration at a position deeper than said first peak impurity concentration, said second peak impurity concentration acting to suppress punch-through phenomenon in said MISFET; and

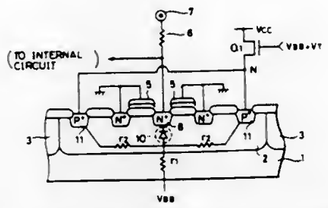
(G) impurities distributed in said semiconductor substrate to produce a third peak impurity concentration at a position deeper than said second peak impurity concentration, said third peak impurity concentration acting to prevent a latch-up phenomenon of said MISFET.

5,208,474

INPUT CIRCUIT OF A SEMICONDUCTOR DEVICE

Tadato Yamagata; Hiroshi Miyamoto, and Michihiro Yamada, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Denki, Tokyo, Japan

Filed Jan. 28, 1991, Ser. No. 646,544
Claims priority, application Japan, Feb. 7, 1990, 2-29141
Int. Cl.[5] H01L 29/06
U.S. Cl. 257—356 9 Claims



1. An input circuit of a semiconductor device, comprising:

a semiconductor substrate of a first conductivity type having a main surface and connected to a first potential;

a first region of said same first conductivity type as said substrate, said first region formed on the main surface of said semiconductor substrate;

a first region of a second conductivity type different from said first conductivity type formed on said main surface in the first region of said first conductivity type, wherein

a P-N junction is formed by said first region of the second conductivity type and said first region of the first conductivity type,

an input voltage applied to said first region of said second conductivity type,

said input voltage applied to an internal circuit formed on said semiconductor substrate; and

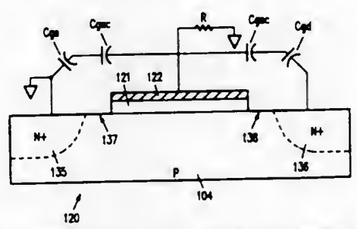
current absorbing means connected to a second region of the first conductivity type formed on said main surface in said first region of the first conductivity type for absorbing, when said P-N junction is rendered conductive by an application of an excessive voltage to said input voltage, current generated by said excessive voltage to a second potential different from said first potential.

5,208,475

ELECTROSTATIC DISCHARGE PROTECTION DEVICE AND A METHOD FOR SIMULTANEOUSLY FORMING MOS DEVICES WITH BOTH LIGHTLY DOPED AND NON LIGHTLY DOPED SOURCE AND DRAIN REGIONS

Gordon L. Mortensen, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jan. 30, 1991, Ser. No. 648,661
Int. Cl.[5] H01L 29/06, 29/10
U.S. Cl. 257—360 5 Claims

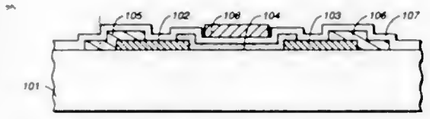


1. An integrated circuit having protection against electrostatic discharge, the integrated circuit comprising:

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a pin through which input signals to or output signals from said integrated circuit are conducted;
at least one lightly doped drain (LDD) transistor coupled to said pin for receiving said input signals or producing said output signals; and
a non-LDD metaloxide semiconductor (MOS) transistor coupled to said pin for providing said protection against electostatic discharge for said LDD transistor, said non-LDD MOS transistor having a highly-doped source region, a highly-doped drain region and a gate region, both of said highly-doped source and drain regions being separated from said gate region by an undoped region;
wherein, in the event of an electrostatic discharge (ESD) event at the pin, a portion of the ESD is dissipated through the non-LDD MOS transistor thereby protecting said LDD transistor.

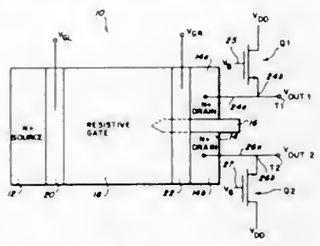
5,208,476
LOW LEAKAGE CURRENT OFFSET-GATE THIN FILM TRANSISTOR STRUCTURE
Satoshi Inoue, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan
Filed May 31, 1991, Ser. No. 708,154
Claims priority, application Japan, Jun. 8, 1990, 2-150151
Int. Cl.[5] H01L *29/76, 29/04, 29/94*
U.S. Cl. 257—408 **11 Claims**



1. A thin film transistor, comprising:
a) a source area and an opposing drain area, having top sides, which are comprised of a first thin film having a first concentration of impurity atoms and a first portion of a second thin film, disposed on said source and drain area top sides and having a second concentration of impurity atoms;
b) a channel area comprised of a second portion of said second thin film formed between said source area and said drain area, wherein said second portion of said second thin film is in contact with said source and drain areas, said second portion of said second thin film having a third concentration of impurity atoms;
c) a gate insulation layer formed to cover at least said channel area; and
d) a gate electrode disposed on said gate insulation layer;
wherein said first concentration is greater than said second concentration, and said first concentration and said second concentration are each greater than said third concentration.

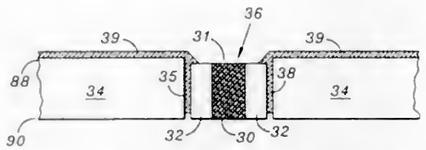
5,208,477
RESISTIVE GATE MAGNETIC FIELD SENSOR
Francis J. Kub, Arnold, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Dec. 31, 1990, Ser. No. 636,348
Int. Cl.[5] H01L *27/22*
U.S. Cl. 257—421 **22 Claims**

1. A FET device for sensing a magnetic field, said FET device comprising:
a semiconductor material having a source at a first position therein and receiving means at a second position therein for receiving charge carriers;
bias voltage means for providing a bias voltage between said source and said receiving means to produce a movement of charge carriers in a direction between said source and said receiving means;
a channel layer disposed within said semiconductor material between said source and said receiving means through which said charge carriers move in said direction as a function of said bias voltage, and said magnetic field being sensed having a strength and producing a deflection of said charge carriers from said direction, which deflection varies as a function of the strength of said magnetic field being sensed;
a resistive gate having first and second resistive gate



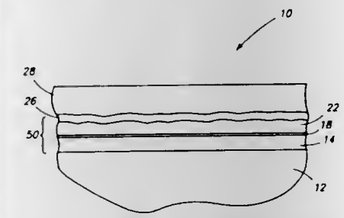
contacts respectively disposed at first and second ends of said resistive gate, said resistive gate disposed between said source and said receiving means and above said channel layer;
resistive gate voltage means for providing a resistive gate bias voltage between said first and second resistive gate contacts to establish a longitudinal electric field in said channel layer; and
output means coupled to said receiving means for providing a signal related to the deflection of the charge carriers that is produced by the strength of the magnetic field sensed by said FET device.

5,208,478
DETECTOR INTERFACE DEVICE
Allen I. Solomon, Fullerton, Calif., assignor to Grumman Aerospace Corp., Bethpage, N.Y.
Division of Ser. No. 508,607, Apr. 13, 1990, Pat. No. 5,075,238.
This application May 2, 1991, Ser. No. 694,887
The portion of the term of this patent subsequent to Dec. 24, 2008, has been disclaimed.
Int. Cl.[5] H01L *27/14, 31/00*
U.S. Cl. 257—443 **11 Claims**



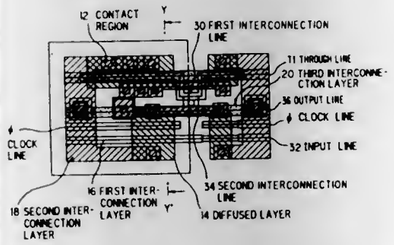
1. An array of infrared detector elements formed directly upon a detector interface device, the array comprising:
(a) a substrate, said substrate having a cavity formed therein;
(b) a ceramic encapsulated single crystalline seed crystal disposed within the cavity of said substrate; and
(c) a glass layer formed upon said substrate, said glass layer having an aperture formed therein, the aperture being disposed above said seed crystal.

5,208,479
METHOD OF INCREASING CAPACITANCE OF POLYCRYSTALLINE SILICON DEVICES BY SURFACE ROUGHENING AND POLYCRYSTALLINE SILICON DEVICES
Viju Mathews, and Charles Turner, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Filed May 15, 1992, Ser. No. 883,186
Int. Cl.[5] H01L *27/02, 21/203*
U.S. Cl. 257—534 **25 Claims**



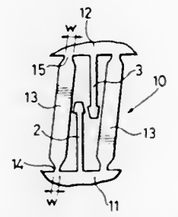
1. A method of forming an electrically conductive polysilicon capacitor plate on a semiconductor substrate comprising the following steps:
providing a first layer of conductively doped polysilicon atop a semiconductor substrate to a first selected thickness;
providing a thin layer of oxide atop the first polysilicon layer to a thickness of from about 2 Angstroms to a maximum of about 30 Angstroms, the thin oxide layer having an outwardly exposed surface; and
providing a second layer of conductively doped polysilicon having an outer exposed surface over the outwardly exposed thin oxide surface, the first polysilicon layer being electrically conductive with the second polysilicon layer through the thin layer of oxide, the second polysilicon layer having a thickness from about 500 Angstroms to about 700 Angstroms, the thin oxide layer reducing silicon atom mobility during polysilicon deposition to induce roughness into the outer exposed surface of the about 500 Angstrom to about 700 Angstrom second conductive polysilicon layer.

5,208,480
DYNAMIC LATCH CIRCUIT
Takashi Ishibashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Aug. 28, 1991, Ser. No. 751,331
Claims priority, application Japan, Aug. 29, 1990, 2-227712
Int. Cl.[5] H01L *23/48, 29/46, 29/54*
U.S. Cl. 257—503 **4 Claims**



1. A dynamic latch circuit, comprising:
at least first and second circuits having predetermined functions and connected by a holding line, said first circuit having an input line and said second circuit having an output line;
wherein said holding line, and said input and output lines are of at least three interconnection layers which are provided on a semiconductor substrate to be insulated by insulating layers grown thereon, said output line being provided as an uppermost interconnection layer, and said holding line being provided as a secondly highest interconnection layer, such that said output line is positioned on a straight upper side of said holding line.

5,208,481
LEAD-FRAME FOR MANUFACTURING SEMICONDUCTOR DEVICES
Yoshio Kurita, Kyoto, and Akira Akamatsu, Okayama, both of Japan, assignors to Rohm Co., Ltd., Kyoto, Japan
Division of Ser. No. 625,536, Dec. 11, 1990, Pat. No. 5,068,206, which is a division of Ser. No. 377,969, Jul. 11, 1989, Pat. No. 5,038,453. This application Jul. 11, 1991, Ser. No. 728,350
Claims priority, application Japan, Jul. 22, 1988, 63-184283; Apr. 25, 1989, 1-106471
Int. Cl.[5] H01L *23/28*
U.S. Cl. 257—666 **7 Claims**



1. A leadframe comprising at least two longitudinal bands which are transversely spaced from each other but connected together by bar-like connecting segments spaced longitudinally of said leadframe, one longitudinal band being formed with a first group of leads spaced longitudinally of said leadframe and extending toward the other longitudinal band, said other longitudinal band being formed with a second group of leads spaced longitudinally of said leadframe and extending toward said one longitudinal band in staggered relation to said first group of leads, wherein each of said connecting segments has a pair of narrower neck portions for stress concentration to allow permanent deformation at said neck portions when said two longitudinal bands are moved relative to each other longitudinally of said leadframe to bring said first group of leads substantially into alignment with said second group of leads transversely of said leadframe.

5,208,482
COAXIAL STARTER
Shuzoo Isozumi, Hyogo, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan
Continuation of Ser. No. 698,347, May 7, 1991, abandoned, which is a continuation of Ser. No. 357,132, May 26, 1989, abandoned. This application Aug. 31, 1992, Ser. No. 936,866
Claims priority, application Japan, May 30, 1988, 63-72152
Int. Cl.[5] F02N *11/00, 15/02*
U.S. Cl. 290—48 **1 Claim**

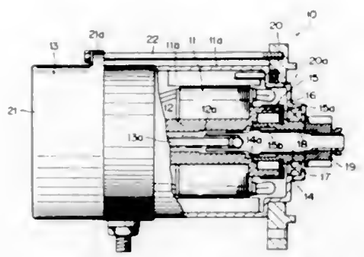
1. A coaxial starter, comprising:
an electric motor housed in a cylindrical yoke, said motor including an armature and an armature rotation shaft;
a clutch mechanism for transmitting rotational force of said electric motor to an output shaft disposed on the same axis as an armature shaft of the electric motor, said clutch mechanism having a clutch inner and a clutch outer, said clutch outer being formed adjacent said armature of said electric motor integrally and continuously with said arma-

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ture rotation shaft, said clutch outer having a portion engaging said clutch inner, said portion of said clutch outer having a diameter greater than that of said armature rotation shaft;

a front bracket for supporting the output shaft;

field magnet means bonded to an inner circumferential surface of said yoke, said field magnet means comprising a plurality of arcuate permanent magnets defining an even number of poles pointing radially inwardly, wherein a number of said poles pointing radially inwardly is at least



six to reduce the magnetic flux density in the yoke and attendantly minimize the radial thickness of the yoke;

a mounting plate mounted at an aperture of said front bracket and secured to an outer circumferential surface of said front bracket at an end portion of said yoke;

a rear bracket having a flange; and

a mounting bolt provided through holes in said flange and secured to said mounting plate;

said yoke of said electric motor being formed of a metal sheet integrally with said front bracket through drawing to form a unitary construction.

5,208,483

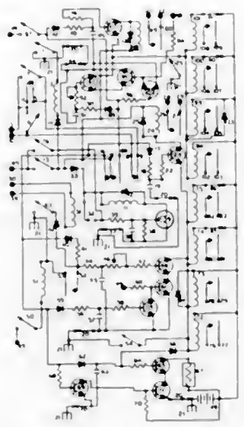
AUTOMATIC POWER-OPERATED WINDOW AND ROOF PANEL SYSTEM FOR A MOTOR VEHICLE

Paul A. Reneau, 9261 N. 60th Street, Brown Deer, Wis. 53223

Continuation of Ser. No. 542,962, Jun. 25, 1990, abandoned. This application Aug. 31, 1992, Ser. No. 938,510

Int. Cl.[5] H02P *1/04;* **H01H** *43/00;* **H04M** *11/00;* **B60J** *7/057*

U.S. Cl. 307—10.1 **21 Claims**



1. An improved system for automatically activating power-operated window and roof panel motors and motor actuators in a motor vehicle so equipped, the system is comprised of:

a vehicle battery with a positive pole and a negative pole wherein said negative pole is connected to a vehicle ground,

two groups of relays, each relay of said two groups has a set of normally open contacts, each said set of contacts is in a separate circuit between said vehicle battery and a single motor or motor actuator to operate said single motor or motor actuator in one direction,

two controlling circuits for operating said two groups of relays,

a first circuit that controls the operation of a first group of relays, said first circuit is comprised of:

a first switch that is closed by closing an ignition switch of the vehicle, said first switch is normally open and tied to said positive pole of the vehicle battery, said ignition switch is also tied to said positive pole of the vehicle battery,

a first transistor arrangement to operate said first group of relays, said first transistor arrangement is comprised of:

said first switch,

a first timer that activates a first transistor,

a second timer that activates a second transistor,

said first timer and said second timer both are activated by closing said first switch, said first transistor is disabled by closing said first switch, said first transistor is enabled by opening said first switch and also by activating a first prime transistor, said first prime transistor has a base tied to said positive pole of the vehicle battery and said first prime transistor also has a collector tied to an emitter of said first transistor, said second transistor has a base tied to said first switch, said second transistor also has a collector tied to said base of the first prime transistor, activating said second transistor disables said first prime transistor, all of the coils of said first group of relays are in parallel with each other and tied together at an end of each of said coils, an other end of each of said coils of said first group of relays is tied to the positive pole of the vehicle battery, said first transistor has a collector tied to said end of each of said coils of said first group of relays,

opening said first switch after said closing said first switch activates said first transistor, activating said first transistor engages said first group of relays, engaging said first group of relays energizes said motors or motor actuators in a first direction,

a second circuit that controls a second group of relays, said second circuit is comprised of:

a second switch that is not closed by closing said ignition switch of the vehicle, said second switch is normally open and tied to said positive pole of the vehicle battery,

a second transistor arrangement to operate said second group of relays, said second transistor arrangement is comprised of:

said second switch,

a third timer that activates a third transistor,

a fourth timer that activates a fourth transistor,

said third timer and said fourth timer both are activated by closing said second switch, said third transistor is enabled by a second prime transistor, said second prime transistor has a base tied to said positive pole of the vehicle battery, said second prime transistor also has a collector tied to an emitter of said third transistor, said fourth transistor has a collector tied to said base of said second prime transistor,

activating said fourth transistor disables said second prime transistor, all of the coils of said second group of relays are in parallel with each other and tied together at an end of each coil, an other end of each of said coils of said second group of relays is tied to said positive pole of the vehicle battery, said third transistor has a collector tied to said end of each of said coils of said second group of relays,

opening said second switch after closing said second switch activates said third transistor,

activating said third transistor engages said second group of relays, engaging said second group of relays energizes said motors or motor actuators in a second direction,

closing said first switch disables closing said second switch.

5,208,484

CONTROL SYSTEM FOR VEHICLE SAFETY DEVICE

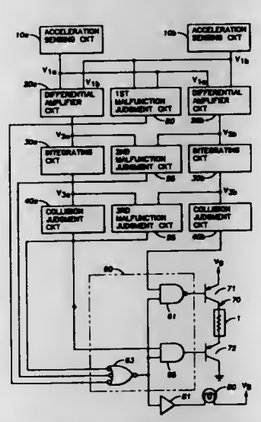
Masami Okano; Kunihiro Takeuchi, and Hideyuki Kaneko, all of Higashimatsuyama, Japan, assignors to Zexel Corporation, Tokyo, Japan

Filed Feb. 22, 1991, Ser. No. 659,563

Claims priority, application Japan, Mar. 1, 1990, 2-47289

Int. Cl.[5] B60R *21/32*

U.S. Cl. 307—10.1 **8 Claims**



1. A control system for a vehicle safety device comprising:

(a) first and second acceleration sensing circuits each having an acceleration sensor; outputs of said acceleration sensing circuits corresponding to a deceleration of a vehicle in a direction of running of the vehicle, and being in opposite phase with each other;

(b) first and second differential amplifier circuits, the outputs of said first and second acceleration sensing circuits being fed respectively to a non-inverting input terminal and an inverting input terminal of said first differential amplifier circuit, and the outputs of said first and second acceleration sensing circuits being fed respectively to an inverting input terminal and a non-inverting input terminal of said second differential amplifier circuit, whereby the outputs of said first and second differential amplifier circuits are in opposite phase with each other;

(c) a pair of integrating circuits respectively receiving and integrating the outputs of said first and second differential amplifier circuits, whereby the integral outputs of said pair of integrating circuits are in opposite phase with each other;

(d) a pair of collision judgment circuits, each of which compares the output of a corresponding one of said integrating circuits with a threshold level, and outputting a collision judgment signal when said output of said corresponding one of said integrating circuits exceeds said threshold level; and

(e) a drive circuit activating the vehicle safety device when receiving said the collision judgment signals from said pair of collision judgment circuits at the same time.

5,208,485

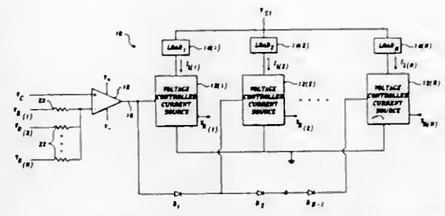
APPARATUS FOR CONTROLLING CURRENT THROUGH A PLURALITY OF RESISTIVE LOADS

Jeffrey A. Krinsky, Renton, and Tim R. Majoch, Puyallup, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Oct. 24, 1991, Ser. No. 781,963

Int. Cl.[5] H02J *3/00*

U.S. Cl. 307—41 **21 Claims**



1. Apparatus for controlling current through a plurality of loads using a single control line, comprising:

a plurality of current control stages arranged in a sequence, each current control stage including a first terminal coupled to a different one of the loads, a second terminal, a third terminal, and means for conducting current between the first and second terminals in response to a level signal present at the third terminal, each current control stage being operable in response to its level signal in a first state in which it conducts a relatively low level of current, in a second state in which it conducts a predetermined level of current, and in a plurality of intermediate states between the first and second states in which the current control stage conducts current between said low and predetermined levels of current; and

activation means, coupled to the third terminals of each current control stage, for producing the level signals in response to a control signal present on the single control line, the activation means producing level signals such that when one of the current control stages is conducting current in an intermediate state, all preceding current control stages in the sequence are in their second states and all subsequent current control stages in the sequence are in their first states.

5,208,486

SWITCHING MECHANISM FOR MAKING AND BREAKING AN ELECTRICAL CIRCUIT

Arthur N. Revis, 1235 N. D'Amico Dr., Chicago Heights, Ill. 60411

Continuation-in-part of Ser. No. 574,894, Aug. 30, 1990, Pat. No. 5,088,013. This application Jun. 20, 1991, Ser. No. 718,370

Int. Cl.[5] H01H *35/00;* **F21V** *23/04*

U.S. Cl. 307—122 **18 Claims**

1. A switch for turning on and turning off electrical connection between a load and a power source, comprising:

a first ratchet wheel mounted for rotation and having a side surface comprising first engaging means;

means operatively associated with said first ratchet wheel for rotating said first ratchet in either the clockwise direction or counterclockwise direction, said means for rotating normally biassing said first ratchet wheel in one of said directions;

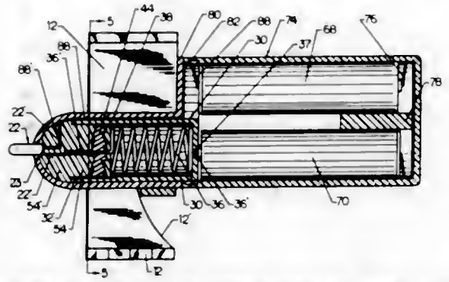
a second ratchet wheel operatively coupled to said first ratchet wheel and having a first and second side surface comprising a series of second and third engaging means, respectively, said second ratchet wheel being mounted for rotation in one direction opposite to said one direction in which said first ratchet wheel is biassed;

and a stationary ratchet face having fourth engaging means,

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said second ratchet wheel being sandwiched between said first ratchet wheel and said stationary ratchet face;

each said series of said second and third engaging means of said first and second side surfaces of said second ratchet wheel comprising an alternating pattern of shallow and deep engaging surfaces, whereby said first engaging means of said first ratchet wheel is alternatively brought into engagement with a shallow and a deep engaging surface of said second engaging means for alternatively disconnecting and connecting a power source means to a load, and said fourth engaging means of said stationary ratchet face is alternatively brought into engagement with a shallow and a deep engaging surface of said third engaging means, said fourth engaging means preventing the rotation of said second ratchet wheel in one direction; and



means for urging said first engaging means into contact with said second engaging means, and for urging said fourth engaging means into contact with said third engaging means;

said means for urging comprising an electrically conductive biassing element comprising a main body portion having a first extended end, and a second end, each of said first and second ratchet wheels and said stationary ratchet face having an opening through which passes said first end for contacting a load when said shallow engaging surfaces of said second engaging means are engaged by said first engaging means of said first ratchet wheel and said shallow engaging surfaces of said third engaging means are engaged by said fourth engaging means of said stationary ratchet face; said second end being connected to a power source.

5,208,487

RS FLIP-FLOP

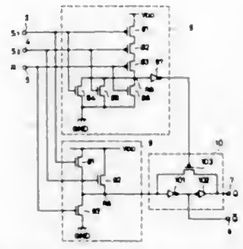
Yoshinori Matsuura; Shinichi Nakagawa, and Tetsuya Matsumura, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 1, 1992, Ser. No. 862,661

Claims priority, application Japan, Apr. 4, 1991, 3-71745

Int. Cl.[5] H03K *3/26, 3/29*

U.S. Cl. 307—289 **13 Claims**



1. An RS flip flop for storing first and second logic states in response to a reset input and a plurality of set inputs, comprising:

logic circuit means including a plurality of set input transistors electrically connected in parallel to selectively provide respective current paths between a first reference potential source and an output node in response to said set inputs, respectively, and a reset input transistor electrically disposed to selectively provide a current path between a second reference potential source and said output note in response to said reset input, said logic circuit means having a first mode for outputting a first or a second logic level signal based on a logic combination of said set inputs and said reset input, and a second mode for placing said output node in a high-impedance state,

latch means for receiving the signal outputted from said logic circuit means, and

control signal generating means for generating a control signal to control said latch means in response to said reset input and said set inputs,

said latch means outputting memory state signals.

5,208,488

POTENTIAL DETECTING CIRCUIT

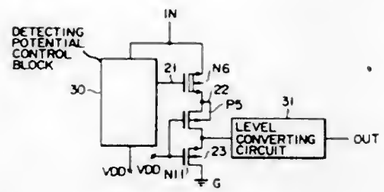
Akira Takiba; Osamu Matsumoto, and Yukihiro Saeki, all of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 486,348, Feb. 28, 1990, abandoned. This application Aug. 31, 1992, Ser. No. 937,452

Claims priority, application Japan, Mar. 3, 1989, 1-51711

Int. Cl.[5] H03K *5/153, 19/0175*

U.S. Cl. 307—362 **35 Claims**



1. A potential detecting circuit comprising:

a first terminal for receiving an input potential, the input potential having an absolute value equal to or lower than a first potential;

a second terminal for receiving a second potential;

a third terminal for receiving a reference voltage having an absolute value less than an absolute value of the second potential;

a fourth terminal for receiving another potential;

a first MOS transistor of a first conductivity type having a gate coupled to the fourth terminal, and a drain coupled to the first terminal, and a source, the first MOS transistor being characterized by a certain breakdown voltage;

a second MOS transistor of a second conductivity type having a source coupled to the source of the first MOS transistor, a gate coupled to the second terminal, and a drain, the second MOS transistor being characterized by a breakdown voltage substantially lower than the certain breakdown voltage; and

a third MOS transistor of the first conductivity type having a drain coupled to the drain of the second MOS transistor, a source coupled to the third terminal, and a gate coupled to the second terminal, wherein the first potential has an absolute valve greater than an absolute value of the second potential.

5,208,489

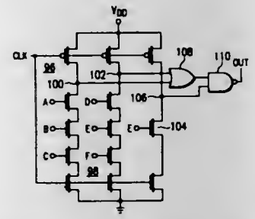
MULTIPLE COMPOUND DOMINO LOGIC CIRCUIT

Theodore W. Houston, Dallas County, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 375,097, Jun. 30, 1989, abandoned, which is a continuation-in-part of Ser. No. 903,330, Sep. 3, 1986, abandoned. This application Dec. 10, 1990, Ser. No. 627,562

Int. Cl.[5] H03K *19/094, 19/20*

U.S. Cl. 307—451 **27 Claims**



1. A compound domino logic circuit for providing a plurality of logic outputs based on a plurality of logic inputs, comprising:

a plurality of electrically isolated input logic sections, each of said input logic sections for receiving at least one logic input, and each of said input logic sections including a preliminary node defining an output of the respective section;

a plurality of clocked precharge devices, each of said clocked precharge devices connected to one of said preliminary nodes for precharging said preliminary nodes to a first voltage;

one or more clocked discharge devices connected to said plurality of electrically isolated input logic sections for referencing each of said input logic sections to a second voltage level;

a first output logic device connected directly to at least one of said preliminary nodes including a first preliminary node for providing a first logic output; and

a second output logic device connected directly to two or more of said preliminary nodes for providing a second logic output wherein one of said two or more preliminary nodes is said first preliminary node.

5,208,490

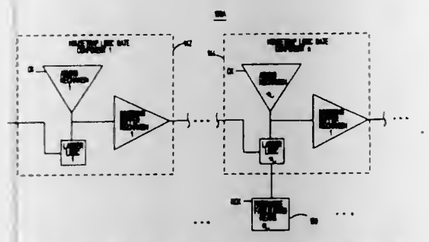
FUNCTIONALLY COMPLETE FAMILY OF SELF-TIMED DYNAMIC LOGIC CIRCUITS

Jeffry D. Yetter, Ft. Collins, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 12, 1991, Ser. No. 684,720

Int. Cl.[5] H03K *19/017*

U.S. Cl. 307—452 **27 Claims**



1. A logic gate for use in a logic system having a plurality of vector logic states wherein one and only one vector logic state is defined valid by a high logic state on a predetermined exclusive set of one or more logic paths and wherein an invalid vector logic state is defined when all said logic paths exhibit a low logic gate, the logic gate comprising:

logic corresponding to each of said logic paths, said logic for recognizing a logic gate input on said logic paths;

an inverting buffer connected to each said logic, said inverting buffer for providing a logic gate output, said logic gate output triggered from a low logic state to a high logic state by said logic, said inverting buffer comprising a static CMOSFET inverter having a p-channel MOSFET and an n-channel MOSFET, said p-channel MOSFET having a wider gate than said n-channel MOSFET; and

an arming mechanism adapted to periodically precharge the input of said inverting buffer to thereby cause said inverting buffer to maintain said buffer output at a low logic state until triggered by said logic.

5,208,491

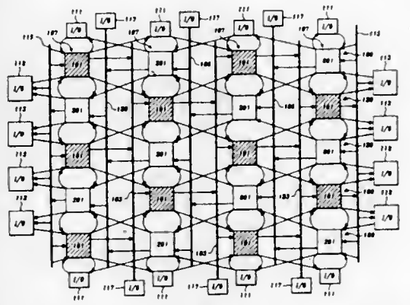
FIELD PROGRAMMABLE GATE ARRAY

William H. C. Ebeling, and Gaetano Borriello, both of Seattle, Wash., assignors to Washington Research Foundation, Seattle, Wash.

Filed Jan. 7, 1992, Ser. No. 817,697

Int. Cl.[5] H03K *19/173;* **H01L** *25/00*

U.S. Cl. 307—465 **28 Claims**



1. A field programmable gate array comprising:

(a) a plurality of forwardly propagating routing and logic blocks (FPRLBs), each of said FPRLBs having means for receiving a plurality of input signals and a plurality of output signals; and

(b) a plurality of backwardly propagating routing and logic blocks (BPRLBs), each of said BPRLBs having means for receiving said plurality of input signals and said plurality of output signals, said BPRLBs intermeshing with said FPRLBs to form a two-dimensional checkerboard array, wherein the columns of said checkerboard array comprise a plurality of FPRLBs and BPRLBs arranged in alternating sequence and the rows of said checkerboard array comprise a plurality of FPRLBs and BPRLBs arranged in alternating sequence;

wherein each of said FPRLBs not on the periphery of said checkerboard array is communicatively connected to a plurality of BPRLBs in the same column such that said input signals and said output signals may be passed therebetween, wherein each of said BPRLBs not on the periphery of said checkerboard array is communicatively connected to a plurality of FPRLBs in the same column such that said input signals and said output signals may be passed therebetween, wherein each of said FPRLBs not on the periphery of said checkerboard array is communicatively connected to a plurality of FPRLBs in the immediately adjacent leftward column such that said input signals may be received therefrom and a plurality of FPRLBs in the immediately adjacent rightward column such that said output signals may be transmitted thereto, and wherein each of said BPRLBs not on the periphery of

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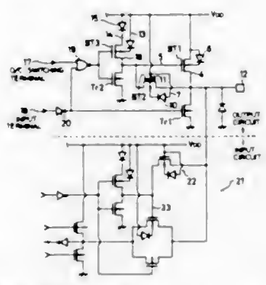
said checkerboard array is communicatively connected to a plurality of BPRLBs in the immediately adjacent leftward column such that said output signals may be transmitted thereto and a plurality of BPRLBs in the immediately adjacent rightward column such that said input signals may be received therefrom.

5,208,492

OUTPUT BUFFER USER-PROGRAMMABLE TO FUNCTION AS CMOS OUTPUT DRIVER OR OPEN-DRAIN OUTPUT DRIVER

Hiroaki Masumoto, and Shigemi Chimura, both of Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Filed Feb. 5, 1992, Ser. No. 831,538
Claims priority, application Japan, Feb. 7, 1991, 3-038151
Int. Cl.[5] H03K *19/094*
U.S. Cl. 307—469 **10 Claims**



1. In a CMOS output circuit that has an enhancement-type P-channel MOSFET and an enhancement-type N-channel MOSFET connected in order between a power supply line and a reference potential line and that has the junction between the P-channel MOSFET and the N-channel MOSFET connected to an output terminal, the improvement wherein a P-type region is provided in the back gate region of said P-channel MOSFET to form a diode, said back gate region being connected to the power supply line via said diode, a switch circuit being inserted between the gate of said P-channel MOSFET and either said junction or the output terminal, said switch circuit turning on in response to a voltage that is higher than the voltage on the power supply line and which is applied to said output terminal.

5,208,493

STEREO EXPANSION SELECTION SWITCH

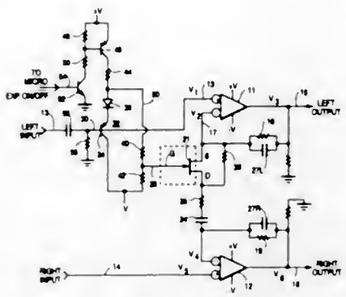
Jeffery B. Lendaro, Noblesville, and Robert E. Morris, Jr., Indianapolis, both of Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed Apr. 30, 1991, Ser. No. 693,309
Int. Cl.[5] H04S *5/00*; H03K *17/687*
U.S. Cl. 307—529 **2 Claims**

1. An arrangement including first and second channels having respective first and second amplifiers, each amplifier having respective non-inverting and inverting input terminals and an output terminal, one of said input terminals receiving an input signal, and a feedback path connected between the output terminal and the other of said input terminals,

switch means coupled between the other said input terminals of said first and second amplifiers for coupling a first signal from the first channel to the second channel and coupling a signal from the second channel to the first channel when said switch means is closed, said switch means comprising a transmission gate having a control input coupled to a control signal for actuating the transmission gate,

control means for generating said control signal, and



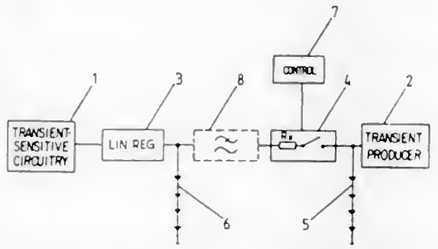
means for coupling a version of one of the first and second channel signals to said control input of said switch means.

5,208,494

METHOD FOR THE ELIMINATION OF TRANSIENTS FROM THE OPERATING VOLTAGE OF TDMA SYSTEM

Raimo Ikonen, Pertteli; Pekka Lonka, and Pekka Mikkola, both of Salo, all of Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland

Continuation of Ser. No. 484,210, Feb. 23, 1990, abandoned. This application Apr. 2, 1992, Ser. No. 863,137
Claims priority, application Finland, Mar. 10, 1989, 891168
Int. Cl.[5] H03K *17/687*; H04B *1/10*
U.S. Cl. 307—572 **10 Claims**



1. A method of protecting an apparatus operating in a system based on time division multiplexing (TDMA) from detrimental effects of transients, the apparatus having a current source and a plurality of functional blocks, at least one of which is a transient producing block which takes in current in pulses from said current source according to TDMA and which, in response produces transients in operating voltage, the method comprising the steps of:

separating the current source and the transient-producing block from at least one other block for time intervals when the transient producing block takes in pulses of current and produces the transients, the separating taking place via a switch, and

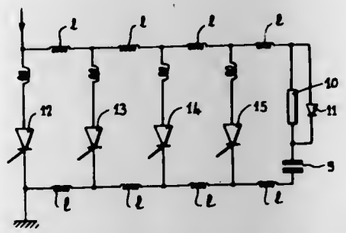
connecting the current source to the one other block and to an energy-storing buffer via the switch when the transient producing block stops taking in pulses of current so that transients are not produced.

5,208,495

STATIC POWER SWITCH INCORPORATING SEMI-CONDUCTOR

Jian Franco De Palma, Chateauneuf par Chamoux aur Gelon; Jean-Jacques Rousseau, Saint-Etienne, and Pierre Epron, Lyons, all of France, assignors to Ferraz, Lyons, France

Filed Dec. 30, 1991, Ser. No. 814,492
Int. Cl.[5] H03K *17/72, 17/51*
U.S. Cl. 307—640 **2 Claims**



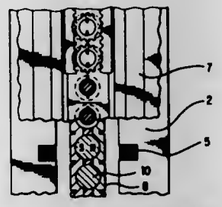
1. A static power switch incorporating semiconductors, adapted to switch overintensities of a first magnitude in the order of at least several hundred amps, occurring between a source of power supply and a load, wherein the power switch comprises a plurality of small static switches, means for connecting said small static switches in parallel, each of said small static switches having cut-off characteristics which are operable at maximum overintensities ratings, said ratings being less than a theoretical rating determined by dividing the number of small switches into the first magnitude of overintensities so that when added together for each of the small switches connected in parallel the total is less than the first magnitude, a plurality of snubber circuits, and means for connecting a snubber circuit to at least one of the small static switches to protect the small switches.

5,208,496

LINEAR SYNCHRONOUS MOTOR HAVING VARIABLE POLE PITCHES

Oleg Tozoni, Rockville, and Edward Dantsker, Lanham, botb of Md., assignors to Maglev Technology, Inc., Gaithersburg, Md.

Continuation-in-part of Ser. No. 583,082, Sep. 17, 1990, abandoned. This application Apr. 25, 1991, Ser. No. 691,430
Int. Cl.[5] H02K *41/00*; B60L *13/04*
U.S. Cl. 310—12 **27 Claims**



25. A linear synchronous motor comprising:

a. a linear stator assembly having two ferromagnetic cores symmetrical about a plane such that an air gap is formed between said bores that extends in a longitudinal direction substantially parallel to said plane, each of said ferromagnetic cores having windings formed of phase coils, a length of the phase coils and a spacing between centers of adjacent phase coils varying along a longitudinal axis of said stator and providing predetermined changes in the length and speed of magnetic field traveling waves generated in aid air gap by the phase coils of each ferromagnetic core of said stator assembly; and

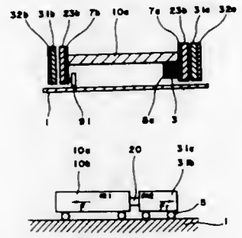
b. a propulsion magnet assembly rigidly coupled to a vehicle and disposed in said air gap of said stator assembly whereby an attractive force is produced between a magnetic field of said propulsion magnet assembly and said traveling waves of said stator assembly, said magnetic field of said propulsion magnet assembly propelling said vehicle.

5,208,497

LINEAR DRIVING APPARATUS

Hiroshi Ishii, Kashihara; Hiroyuki Sawai, Nabari; Masaaki Ozaki, and Toshiaki Kagawa, both of Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 17, 1990, Ser. No. 509,806
Claims priority, application Japan, Apr. 17, 1989, 1-98601; Oct. 31, 1989, 1-285380; Dec. 7, 1989, 1-318678; Jan. 29, 1990, 2-20208; Jan. 31, 1990, 2-23273; Jan. 31, 1990, 2-23274
Int. Cl.[5] H02K *41/00*
U.S. Cl. 310—12 **12 Claims**



1. A linear driving apparatus comprising:

at least one moving unit provided to move linearly on a base fram;

magnetic field forming members opposed to each one of the moving units; and

moving means provided on said magnetic forming members for moving a magnetic forming member on the base frame by reaction force occurring when at least one moving unit is driven, so that when at least one moving unit moves in a first direction the magnetic forming members will move in a second direction which is opposite to said first direction.

5,208,498

LINEAR ACTUATOR

Takanori Hamajima, Chita, Japan, assignor to Aisien Seiki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 27, 1991, Ser. No. 766,381
Claims priority, application Japan, Sep. 28, 1990, 2-256858; Sep. 20, 1991, 3-241664
Int. Cl.[5] H02K *41/00*
U.S. Cl. 310—12 **19 Claims**

1. A linear actuator comprising:

a shaft made of non-magnetic material for being reciprocatingly moved in an axial direction of the shaft;

a plurality of ring-shaped moving cores located on the shaft and arranged in the axial direction thereof, each of said moving cores being comprised of a plurality of laminated plates of magnetic material;

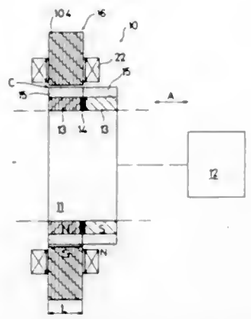
a first spacer made of non-magnetic material and interposed between adjacent moving cores;

a plurality of ring-shaped permanent magnets, each of said permanent magnets being mounted on one of the ring-shaped moving cores, each of said permanent magnets including a plurality of magnets arranged circumferentially so that adjacent magnets possess different polarities, the polarities of each of the permanent magnets being radially oriented with respect to the shaft;

a stationary core located around at least one of the perma-

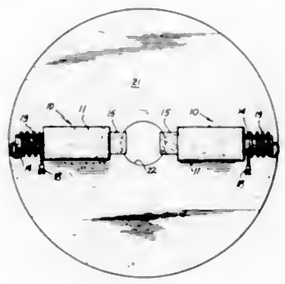
VOL 1150 ISS 1 MY 4 1993 UMI

nent magnets so that a clearance is provided between the stationary core and the permanent magnet, a number of stationary cores in the axial direction of the shaft being at least one less than a number of permanent magnets, each stationary core being comprised of a plurality of laminated



plates of magnetic material, each of the plates forming the stationary core including an outer ring, magnetic poles which face the permanent magnets, and legs connecting the magnetic poles to the outer ring; and
coils wound around the legs.

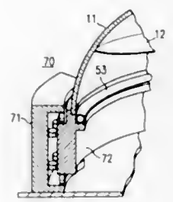
5,208,499
EMI/RFI SUPPRESSING BRUSH HOLDER ASSEMBLY FOR ELECTRIC MACHINES
Harry C. Barber, Chesterfield; Kenneth P. Green, Lurenburg, and Otway A. Southall, Farmville, all of Va., assignors to Carbone-Lorraine of North America, Parsippany, N.J.
Filed Jan. 16, 1992, Ser. No. 821,995
Int. Cl.[5] H02K *5/24, 13/00*
U.S. Cl. 310—51 20 Claims



1. An EMI/RFI suppressing brush holder assembly for electric machines comprising at least in part a high permeability, magnetically susceptible, ferrite-based material in powder or granular form suspended in a molded plastic carrier configured to physically support a commutating brush and similar electrical contact-making devices in juxtaposition to and physically contacting a moving electrical contact-making mechanism for making and breaking closed electrical circuit connections to said mechanism.

5,208,500
Patent Not Issued For This Number

5,208,501
RIM DRIVEN STEPPER MOTOR AND METHOD OF OPERATION RIM DRIVEN
Tommy D. Wright, Irving, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 563,238, Aug. 6, 1990, abandoned. This application Jul. 3, 1991, Ser. No. 727,328
Int. Cl.[5] H02K *41/02, 21/12, 1/27*
U.S. Cl. 310—75 C 17 Claims

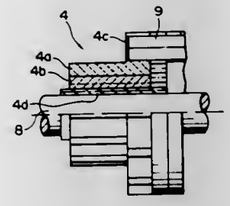


1. A linear stepper motor comprising:
(a) a stationary forcer having a radius of curvature and magnetic elements positioned therein, said forcer occupying a sector of a circle subscribed by said radius;
(b) a platen having a circular perimeter, having substantially the same radius of curvature as said stationary forcer and having magnetic elements positioned therein operable in conjunction with said magnetic elements of said forcer for driving all points of said perimeter of said platen along said forcer following a circle; and
(c) a support supporting said platen only along the region of said perimeter.

5,208,502
SLIDING CURRENT COLLECTOR MADE OF CERAMICS
Nobuyuki Yamashita; Kazuo Tahara; Akio Chiba, all of Hitachi; Masahisa Sobue, Mito; Toshimi Abukawa, Hitachiota; Shin'ichi Sakamoto, Hitachi, and Shun Suzuki, Katsuta, all of Japan, assignors to Hitachi, Ltd. and Hitachi Koki Co., Ltd., Tokyo, Japan
Filed Feb. 27, 1992, Ser. No. 842,484
Claims priority, application Japan, Feb. 28, 1991, 3-055685
Int. Cl.[5] H02K *13/00*
U.S. Cl. 310—219 8 Claims

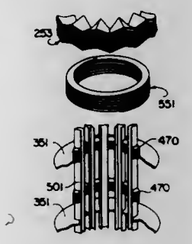
1. A ceramics sliding current collector comprising a substantially cylindrical composite ceramics member having a conductive portion and an insulating portion which are formed integrally from a conductive ceramics material and an insulating ceramics material, said substantially cylindrical ceramics member having a bore which receives a rotary shaft having an outer peripheral surface with an outside diameter to which said

substantially cylindrical composite ceramics member is fixed, said bore of said substantially cylindrical composite ceramics member having an inner diameter slightly greater than the outside diameter of said shaft so that a substantially annular gap is formed between said substantially cylindrical composite



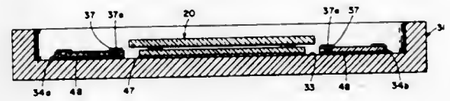
ceramics member and said shaft, said annular gap being filled with a resin layer which has been cured therein so as to bond said substantially cylindrical composite ceramics member to said rotary shaft.

5,208,503
ENERGY-EFFICIENT FERROMAGNETIC STATOR AND CORE APPARATUS
Bradner L. Hisey, 19325 Athos Pl., Saratoga, Calif. 95070
Filed Apr. 12, 1991, Ser. No. 684,569
Int. Cl.[5] H02K *1/12*
U.S. Cl. 310—259 23 Claims



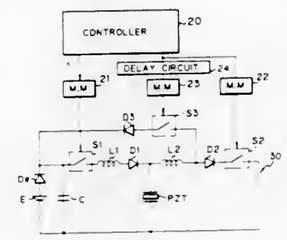
2. In a radial-gap electric motor having a longitudinal axis and having a stator structure, an elongate ferromagnetic strip having first and second edges and a longitudinal axis, said strip having fanfolds therein extending entirely across said strip from the first edge to the second edge at angles with erspect to the longitudinal axes of said strip, said strip having therein fold angles less than 180 degrees, said strip having faces between said fanfolds, said strips being deflected about the longitudinal axis of the motor, said strip having greater fold angles at the inner margin of the geometric figure than at the outer margin to provide a twist in each face, said strip having superposed portions extending over more than one turn disposed closely adjacent to each other along the longitudinal axis of the motor with a plurality of immediately adjacent folds in registration to form a substantially solid laminated magnetic flux path in the stator.

5,208,504
SAW DEVICE AND METHOD OF MANUFACTURE
Thomas E. Parker, Framingham, and James A. Greer, Andover, both of Mass., assignors to Raytheon Company, Lexington, Mass.
Filed Dec. 28, 1990, Ser. No. 643,923
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—313 R 13 Claims



1. A SAW oscillator comprising:
means for providing a closed loop having an integral multiple of 2π radians phase shift and excess small signal gain at a frequency said means including a surface acoustic wave device disposed to stabilize the frequency and phase characteristics of said means;
a package comprising a base having a first stiffness characteristic supporting said providing means, and
means disposed on said base for increasing the stiffness characteristic of said base.

5,208,505
DEVICE FOR DRIVING A PIEZOELECTRIC ELEMENT
Masaki Mitsuyasu, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Filed Jun. 5, 1991, Ser. No. 711,173
Claims priority, application Japan, Jun. 8, 1990, 2-148518
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—317 20 Claims



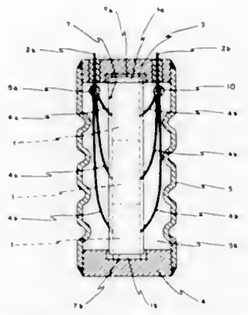
1. A device for driving a piezoelectric element, comprising:
a power condenser having a high voltage side terminal;
first switching means connected between the piezoelectric element and the high voltage side terminal of said power condenser for charging the piezoelectric element by using a high potential at the high voltage side terminal of said power condenser;
a first discharging circuit having a discharging coil therein and connected between the piezoelectric element to the ground via said first discharging circuit;
a second discharging circuit having a discharging coil therein and connected between the piezoelectric element

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and the high voltage side terminal of said power condenser for discharging the piezoelectric element to the high voltage side terminal of said power condenser via said second discharging circuit; and

discharge control means coupled to the first and second discharging circuits for discharging the piezoelectric element to the high voltage side terminal of said power condenser via said second discharging circuit after discharging the piezoelectric element to the ground via said first discharging circuit, said discharge control means including means for selectively preventing discharging of the piezoelectric element through the first and second discharging circuits.

5,208,506
LAMINATED PIEZOELECTRIC ACTUATOR
Osamu Yamashita, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Nov. 13, 1991, Ser. No. 791,433
Claims priority, application Japan, Nov. 14, 1990, 2-307664
Int. Cl.[5] H01L *41/04, 41/08, 41/09*
U.S. Cl. 310—328 **3 Claims**

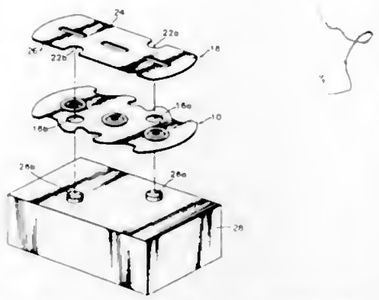


1. A laminated piezoelectric actuator comprising: a plurality of piezoelectric actuator units housed in an insulating case having a pair of elongated slits in a wall thereof, each of said actuator units being stacked free of an adhesive agent therebetween, each of said actuator units having a pair of lead wires, all of said lead wires passing through a said pair of elongated slits, a hermetically sealed metal case housing said actuator units and said insulating case, said metal case having a pair of external terminals connected to a plurality of pairs of said lead wires within a space between an outer surface of said insulating case and an inner wall of said metal case.

5,208,507
IN-LINE TYPE ELECTRON GUN ENABLING EASY CENTERING BETWEEN MAIN ELECTRODE AND AUXILIARY ELECTRODE
Injae Jung, Kyunggi-do, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Kyunggi-do, Rep. of Korea
Filed Nov. 27, 1991, Ser. No. 800,143
Claims priority, application Rep. of Korea, Dec. 6, 1990, 90-19382
Int. Cl.[5] H01J *29/54, 29/02*
U.S. Cl. 313—414 **3 Claims**

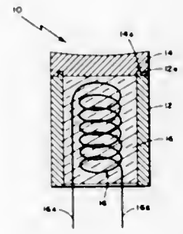
1. A screen electrode structure for an in-line type electron gun of a color cathode ray tube comprising:

a main electrode and an auxiliary electrode, the main electrode comprising two circular side beam passing holes and a circular center beam passing hole, and a pair of guide holes disposed symmetrically around horizontal and vertical axes of the center beam passing hole in the main electrode and the auxiliary electrode comprising two elongated side beam passing holes and an elongated center beam passing hole, and a pair of guide slots formed in a top edge and a bottom edge of the auxiliary electrode and coaxially positioned and aligned with said guide holes,



said main and auxiliary electrodes being in contact with each other for providing a centered integral structure thereof.

5,208,508
CATHODE HEATER POTTING ASSEMBLY
Beverley A. Shaw, North Reading, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Sep. 16, 1991, Ser. No. 760,296
Int. Cl.[5] H01J *19/18*
U.S. Cl. 313—446 **7 Claims**



1. A potted heater assembly comprising:

a member of a dielectric material formed from a starting powder of spherical shaped particles of said dielectric material having a diameter in the range of 0.1 μm to 1.0 μm; and

a coiled filament embedded in the dielectric material of the member.

5,208,509
ARC TUBE FOR HIGH PRESSURE METAL VAPOR DISCHARGE LAMP
Richard A. Snellgrove, Danvers, and Elliot F. Wyner, Peabody, both of Mass., assignors to GTE Products Corporation, Danvers, Mass.
Continuation of Ser. No. 194,060, May 13, 1988, abandoned.
This application Apr. 9, 1992, Ser. No. 865,734
Int. Cl.[5] H01J *61/36, 61/30*
U.S. Cl. 313—623 **5 Claims**

1. An arc tube for a high pressure metal vapor discharge lamp, said arc tube comprising:

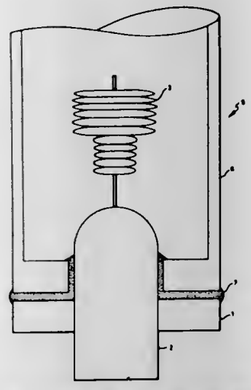
a tubular aluminum oxide ceramic envelope having an inwardly projecting flange at each end;

a chemical fill comprising sodium, mercury, and a starting gas within said envelope;

a pair of cylindrically shaped ceramic seal buttons, each button having a flat surface, said respective flat surfaces being positioned at each end of said envelope adjacent said flange, said ceramic seal button having an aperture therethrough;

a sealing frit material between said respective flanges and said respective flat surfaces,

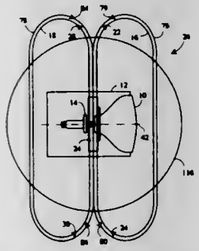
a niobium metallic feedthrough member having an electrode



projecting therefrom passing through said ceramic seal button aperture and being oriented such that the electrode projects into said tubular ceramic envelope,

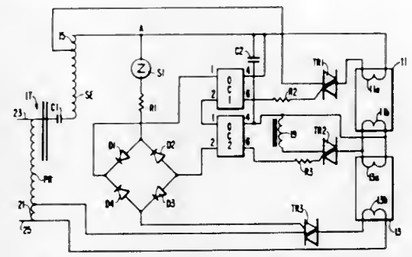
said ceramic seal button being shrunk onto said metallic feedthrough member during firing of said ceramic seal button to form a fritless seal between said ceramic seal button and said metallic feedthrough member.

5,208,510
CRT MAGNETIC FIELD CANCELLING DEVICE
Wayne D. Grocki, Libertyville, Ill., assignor to Zenith Electronics Corporation, Glenview, Ill.
Filed Dec. 30, 1991, Ser. No. 814,125
Int. Cl.[5] H01J *5/02*
U.S. Cl. 315—85 **18 Claims**



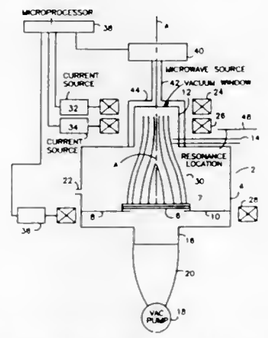
1. A CRT stray field cancelling device for abating a stray magnetic field emanating from a vertical deflection coil of a yoke, the device comprising an elongated member of adjustable length composed of at least two magnetizable metal plates in slidable relationship enveloped by an electromagnetic coil, the device being physically isolated from the yoke a distance effective to exert minimum effect on the yoke deflection fields, and oriented transversely to the centerline of a CRT so as to generate a cancelling magnetic field in opposed relationship with, and transverse to, the stray magnetic field.

5,208,511
FLUORESCENT LAMP ELECTRODE DISCONNECT ARRANGEMENT
Glenn D. Garbowicz, Rosemont, Ill., assignor to North American Philips Corporation, New York, N.Y.
Filed Mar. 21, 1991, Ser. No. 673,692
The portion of the term of this patent subsequent to Dec. 19, 2009, has been disclaimed.
Int. Cl.[5] H05B *41/36*
U.S. Cl. 315—106 **21 Claims**



1. A fluorescent lamp system comprising a fluorescent lamp having a pair of electrodes, a ballast for connection to a proper source of voltage, said ballast including a primary winding and a secondary winding, said ballast when connected to said proper source of voltage providing voltage across said lamp, said ballast including a pair of electrode heater windings, at least one of said electrode heater windings comprising a portion of said secondary winding, a pair of semiconductor switches, each connecting one of said electrode heater windings to a respective lamp electrode, and control means connected across said lamp and responsive to said voltage across said lamp when said lamp is on to render each said semiconductor switch non-conductive, said control means being responsive to said voltage across said lamp when said lamp is off to render each said semiconductor switch conductive.

5,208,512
SCANNED ELECTRON CYCLOTRON RESONANCE PLASMA SOURCE
John C. Forster, Poughkeepsie; William M. Holber, New York, and Joseph S. Logan, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 598,311, Oct. 16, 1990, abandoned.
This application Jan. 23, 1992, Ser. No. 902,773
Int. Cl.[5] C23C *14/22*; H05H *1/46*
U.S. Cl. 315—111.41 **15 Claims**



1. Electron cyclotron resonance apparatus comprising:

a chamber,

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means for producing an axial magnetic field in said chamber that is symmetric about the axis and varies in strength with radius from the axis and decreases in strength in a given direction along the axis,

means for passing electromagnetic waves into said axially symmetric magnetic field,

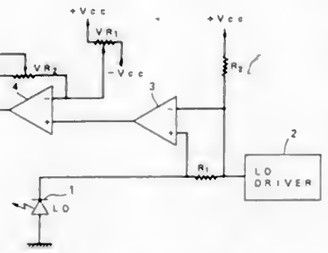
means defining at least one opening in said chamber through which gas can be passed to a region occupied by said axially symmetric magnetic field and said electromagnetic waves, and

scanning means for varying at least one of the strength of the axially symmetric magnetic field produced by said magnetic field producing means in an electron cyclotron resonance zone and the fundamental frequency of said electromagnetic waves so as to change the locus along which maximum cyclotron resonance occurs.

5,208,513
MONITORING CIRCUIT FOR A LIGHT EMISSION DEVICE

Kazuo Murayama, Yokohama, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jul. 24, 1991, Ser. No. 735,261
Int. Cl.[5] H01J *1/60;* **G05F** *1/00;* **G08B** *21/00;* **G01R** *1/30*
U.S. Cl. 315—129 **7 Claims**



1. A monitoring circuit for monitoring a light emission device, comprising:

conversion means for providing a voltage signal based upon current flowing through said light emission device;

means for amplifying said voltage signal of said conversion means to produce an amplified voltage;

level adjustment means for producing a shift adjustment signal of a variable output voltage level; and

feedback type amplification means for controlling further amplification of said amplified voltage by using a feedback loop and said shift adjustment signal to produce a monitor signal which has a linear relationship to the amount of light emitted by said light emission device.

5,208,514
INTEGRATED PILOT PROTECTIVE AND RESTRAINT SYSTEM

John W. Bassick, Paxton, Mass., assignor to David Clark Company Incorporated, Worcester, Mass.

Filed Apr. 27, 1992, Ser. No. 874,973
Int. Cl.[5] F41H *1/04*
U.S. Cl. 318—560 **20 Claims**

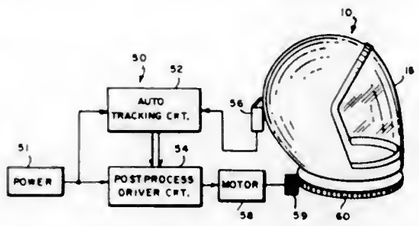
1. An integrated pilot protection and restraint system, comprising:

a circular bearing structure configured to surround the wearer's neck;

a helmet detachably coupled to and rotatively supported by said bearing structure, said helmet defining a chamber in which the wearer's head may freely rotate;

rotating means for rotating said helmet in opposite directions on said bearing structure; and

control means for controlling said rotating means to rotate said helmet in response to movements of the wearer's head

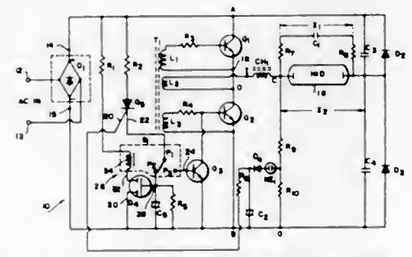


in order to maintain said helmet in a predetermined position with respect to the wearer's head.

5,208,515
PROTECTION CIRCUIT FOR STABILIZER FOR DISCHARGE APPARATUS

Sang-Woo Lee, 187-90 Yeonhee-Dong Seodaemoon-Ku, Seoul, Rep. of Korea

Filed Dec. 11, 1991, Ser. No. 805,485
Claims priority, application Rep. of Korea, Dec. 11, 1990, 19770
Int. Cl.[5] H05B *37/02*
U.S. Cl. 315—225 **12 Claims**



1. A protection circuit for a high intensity discharge lamp, comprising:

a power source;

a lighting circuit connected to said power source for igniting and maintaining an HID lamp on;

voltage detector means coupled to said lighting circuit and producing an output when said HID lamp is off;

a diode having an anode and a cathode, said anode being connected to said voltage detector means;

a thyristor having a gate, an anode and a cathode, said thyristor gate being connected to said diode cathode and said thyristor anode being connected to said power source;

a first capacitor connected to said diode cathode for controlling the conductivity of said thyristor in response to the output of said voltage detector means;

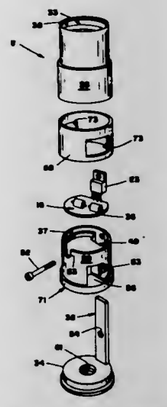
control means responsive to the conductivity of said thyristor for switching said lighting circuit off in response to an output from said voltage detector means; and

an intermittent switching means connected to said thyristor for automatically switching said lighting circuit on after a predetermined delay time.

5,208,516
TOUCH CONTROLLED ELECTRIC LIGHT SOCKET WITH HIGH CURRENT TOLERANCE

Jacob Saidian, 440 El Rio Rd., Danville, Calif. 94526

Filed Jun. 24, 1991, Ser. No. 719,355
Int. Cl.[5] H05B *37/07*
U.S. Cl. 315—362 **5 Claims**



1. An electric light socket for engaging and energizing a light bulb, said socket having a housing adapted for attachment to a support, a receptacle in said housing for receiving the base of said bulb, contacts in said receptacle for supplying electrical voltage to said bulb, and a touch responsive control circuit in said housing which includes an input signal terminal and a solid state switch element through which current is transmitted to said contacts in response to a first change of capacitance at said input terminal and which ceases to transmit voltage to said contacts in response to a subsequent change of capacitance at said input terminal, wherein the improvement comprises a thermally conductive heat sink member disposed in contact with said solid state switch element to receive heat therefrom and which extends away from said switch element to a location at which said heat sink member contacts said support when said housing is attached thereto, wherein said light bulb receiving receptacle is situated at a first end of said housing, and wherein said heat sink member extends to the opposite end of said housing and has an enlarged region thereat and a threaded passage in said enlarged region for engaging a threaded portion of said support whereby said heat sink member serves as a connector for attaching said housing to said support, wherein said housing has a first internal chamber in which said solid state switch element is disposed, and wherein said heat sink member is a metallic body having an arm which extends from said enlarged region of said member into said first chamber and into contact with said solid state switch element.

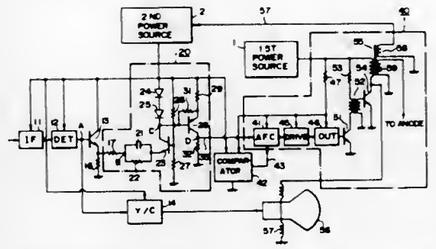
5,208,517
TELEVISION SYNCHRONOUS DEFLECTION CIRCUIT

Takemi Beppu, Ora, Japan, assignor to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Feb. 3, 1992, Ser. No. 829,328
Claims priority, application Japan, Feb. 8, 1991, 3-018003
Int. Cl.[5] G09G *1/04;* **H01J** *29/70;* **H03L** *7/00*
U.S. Cl. 315—364 **6 Claims**

1. In a television receiver including a picture intermediate-frequency amplifier for amplifying a picture intermediate-frequency signal, a detector for detecting the picture intermediate-frequency signal amplified by the picture intermediate-frequency amplifier and for outputting a composite picture signal, a synchronous separator for separating a horizontal synchronous signal from the composite picture signal outputted by the detector, a horizontal deflector for generating a horizontal deflection signal which is to be applied to the horizontal deflecting coil of the cathode-ray tube and which is based on the horizontal synchronous signal separated by the synchronous separator, a horizontal AFC circuit located in the horizontal deflector for eliminating a noise pulse from the horizontal synchronous signal and for processing the horizontal synchronous signal so that it will be free from staggering in horizontal synchronization, a flyback transformer for generating a high-frequency flyback pulse and an anode voltage for the cathode-ray tube, a television synchronous deflection circuit comprising:

(a) a first power supply circuit for supplying a D.C. voltage to the horizontal AFC circuit;



(b) a second power supply circuit for smoothing the flyback pulse and for supplying a predetermined D.C. voltage to the synchronous separator;

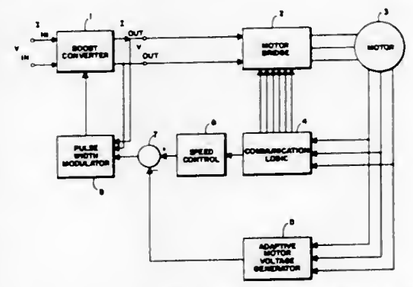
(c) a comparator for comparing a first reference voltage of said first power supply circuit and a second reference voltage of said second power supply circuit with each other; and

(d) a control circuit for controlling the operation of the horizontal AFC circuit wherein said control circuit prohibits the AFC circuit from operating when the second reference voltage is below the first reference voltage, and starts the AFC circuit when the second reference voltage exceeds the first reference voltage.

5,208,518
DC-DC BOOST CONVERTER FOR SPINDLE MOTOR CONTROL

Hans Grapenthin, Westendorf, and Horst Haug, Stoettwang, both of Fed. Rep. of Germany, assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Nov. 15, 1991, Ser. No. 792,848
Int. Cl.[5] H02P *7/00*
U.S. Cl. 318—138 **7 Claims**



1. A circuit for controlling the rotational speed of a direct current motor comprising:

means for producing a supply voltage;

means for modifying the supply voltage;

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a motor bridge coupled to the means for modifying the supply voltage and being effective to provide a motor voltage to the motor;

a commutation circuit responsive to motor position that is effective to control the motor voltage provided by the motor bridge, the motor voltage being a commutated form of the modified supply voltage;

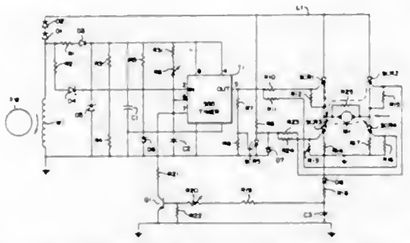
means for controlling the modified supply voltage, the means for controlling the modified supply voltage producing a control signal effective to control the means for modifying the supply voltage, the means for controlling the modified supply voltage being effective to raise the modified supply voltage to a voltage above the supply voltage during the startup phase and during the braking phase and being effective to lower the modified supply voltage to a voltage below the supply voltage in the region of each commutation phase.

5,208,519

ELECTRONIC SPEED GOVERNOR

Richard A. Dykstra, Cedar Grove, and Douglas G. Janisch, Mequon, both of Wis., assignors to Briggs & Stratton Corporation, Wauwatosa, Wis.

Filed Feb. 7, 1991, Ser. No. 653,081
Int. Cl.[5] B63H *23/08*
U.S. Cl. 318—139 **33 Claims**



1. An electronic speed governor that maintains the actual speed of a device near a predetermined speed, comprising:

input means for receiving an alternating signal indicative of actual speed, said alternating signal having a first polarity and a second polarity;

signal conditioning means for receiving said alternating signal and for outputting a direct current signal;

timer means for receiving said direct current signal and for outputting a control signal having a first state and a second state;

first switch means, connected in circuit with both said input means and with said timer means, for gating on when both said control signal is in said first state while at the same time said alternating signal is at said first polarity; and

adjustment means for adjusting the actual speed when said first switch means is gated on.

5,208,520

PEDAL ASSEMBLY IN SEWING MACHINE WITH POTENTIOMETER CONTROL DEVICE

Tatsuya Sawato; Hiroshi Yamada, and Keiichi Takikoshi, all of Aichi, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Jan. 15, 1992, Ser. No. 820,982
Claims priority, application Japan, Jan. 24, 1991, 3-001817[U]
Int. Cl.[5] H02P *7/00*
U.S. Cl. 318—551 **6 Claims**

1. A pedal assembly in a sewing machine drive device which comprises:

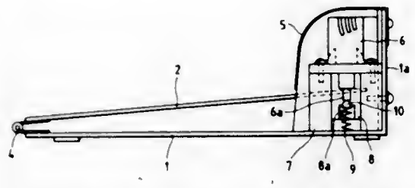
a pedal stand;

a mounting stand secured to said pedal stand;

a direct acting type potentiometer secured to said mounting stand;

a potentiometer operating member which is guided and held by said mounting stand, to control a slide shaft of said direct acting type potentiometer; and

a speed changing pedal including a depressing board which depresses said potentiometer operating member positioned at one end portion of said pedal, said speed changing pedal being swingably mounted to said pedal stand with another end portion;



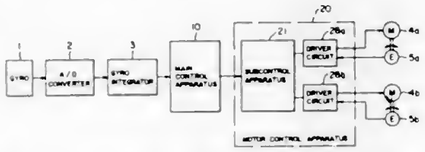
wherein said potentiometer is positioned above said speed changing pedal and said speed changing pedal is depressed to output a signal for changing the speed of rotation of a sewing machine in accordance with an amount of movement of said speed changing pedal.

5,208,521

CONTROL SYSTEM FOR A SELF-MOVING VEHICLE

Hazime Aoyama, Utsunomiya, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 3, 1992, Ser. No. 940,326
Claims priority, application Japan, Sep. 7, 1991, 3-227542
Int. Cl.[5] A47L *9/28*
U.S. Cl. 318—587 **2 Claims**



1. A control system for a self-moving vehicle having a pair of drive shafts coaxially provided under each left and right side of said self-moving vehicle, a pair of driving wheels supported on said driving shafts, each motor connected to said driving shafts, and a gyroscope mounted on said self-moving vehicle for detecting a direction to move and for generating a gyro signal, the control system which comprises:

an encoder connected to each driving wheel for detecting each speed of said wheels and for producing a speed signal;

an A/D converter responsive to said gyro signal for converting an analogue signal into a digital signal and for generating said digital signal;

a gyro integrator responsive to said digital signal for integrating said digital signal and for generating a feedback signal;

a main controller responsive to said feedback signal for calculating a rotational speed of said motor and for generating a command signal;

a motor controller responsive to said speed signal and said command signal for integrating both said signals per a predetermined time and for correcting said command signal; and

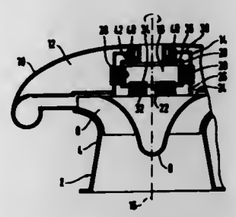
said main controller derives a correction signal of said command signal by integrating a yaw rate per said predetermined time when said yaw rate is higher than a predetermined value so as to obtain self-moving vehicle without receiving an error from said gyro.

5,208,522

MACHINE WITH MAGNETIC-BORNE ROTOR AND ELECTRICAL RADIAL FIELD MOTOR-GENERATOR

Hartmut F. L. Griepentrog, Veltstr. 17, 1000 Berlin 27, and Herbert Weh, Wöhlerstr. 20, 3300 Braunschweig, both of Fed. Rep. of Germany

Filed Feb. 27, 1987, Ser. No. 19,678
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1985, 3523343; Jun. 29, 1985, 3523344
Int. Cl.[5] G05B *5/01*
U.S. Cl. 318—611 **8 Claims**



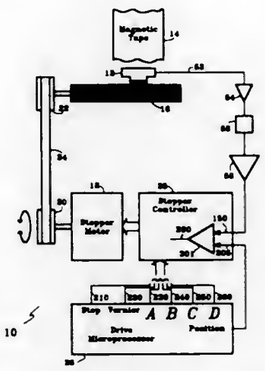
1. A rotating machine assembly comprising a casing, a rotor in said casing, a radial field motor-generator and an axial field motor-generator, said axial field motor-generator including a stationary armature winding and means for generating an axial magnetic field and being operative for absorbing axial bearing forces acting on said rotor, said radial field motor-generator including a stationary armature winding and means for generating a radial magnetic field and being operative for absorbing radial forces acting on said rotor, said means for generating a radial magnetic field and said means for generating an axial magnetic field being mounted on said rotor, the magnetic field of said axial field motor-generator having a greater effective diameter than the magnetic field of said radial field motor-generator, the stationary armature windings of said radial field motor-generator and said axial field motor-generator each being subdivided into four winding quadrants, each winding quadrant having a separate regulating unit for regulating the current thereof, said axial field motor generator including means for controlling the regulating units thereof to control the movement of said rotor in two directions of rotation and in a first direction of spacial freedom, said radial field motor-generator including means for controlling the regulating units thereof to control the movement of said rotor in second and third directions of spacial freedom, said axial field motor-generator further including four gap sensors, each of said gap sensors being operative for sensing the gap between said axial field magnetic field generating means and a different quadrant of the stationary armature winding of said axial field motor generator, said means for controlling the regulating units of said axial field motor-generator being responsive to said gap sensors for controlling the regulating units of said axial field motor-generator to individually shift the current distribution in the phases of the different quadrants of said axial field motor-generator in order to control the movement of said rotor in said first direction of spacial freedom and in said two directions of rotation.

5,208,523

STEPPER MOTOR WITH VERNIER CONTROL MODE

Jefferson H. Harman, Thousand Oaks, Calif., assignor to Wangtek, Inc., Simi Valley, Calif.

Filed Mar. 10, 1992, Ser. No. 850,331
Int. Cl.[5] G05B *19/40*
U.S. Cl. 318—685 **27 Claims**



1. A method of positioning a stepper motor, comprising the steps of:

stepping the motor to a stepper motor target in the vicinity of a final target displaced therefrom; and then

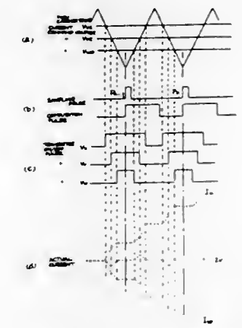
applying closed loop servo control to position the motor to achieve said final target.

5,208,524

CURRENT CONTROL APPARATUS FOR PWM CONTROL

Shinichi Kono, and Hironobu Takahashi, both of Oshino, Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

PCT No. PCT/JP89/00428, § 371 Date Oct. 2, 1989, § 102(e) Date Oct. 2, 1989, PCT Pub. No. WO89/10655, PCT Pub. Date Nov. 2, 1989
PCT Filed Apr. 21, 1989, Ser. No. 425,168
Int. Cl.[5] H02P *7/63*
U.S. Cl. 318—727 **10 Claims**



1. A current control apparatus for pulse width modulation (PWM) control of a motor current through a winding of a motor including first, second and third phases, said apparatus comprising:

a current detector connected to detect the motor current and output a digital current value at a predetermined interval;

arithmetic means for receiving first, second and third PWM

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command signals and for predicting a current change ΔI at a present point in time by determining the current change ΔI for at least one of the first, second and third phases of the motor based, respectively, on at least one of ΔIu, ΔIv and ΔIw as follows:

$$\Delta Iu = K_1(Vuc\text{-}Vuc) + K_1(Vuc\text{-}Vwc)$$

$$\Delta Iv = K_1(Vvc\text{-}Vuc) + K_1(Vvc\text{-}Vwc)$$

$$\Delta Iw = K_1(Vwc\text{-}Vuc) + K_1(Vwc\text{-}Vvc)$$

wherein
Vuc is the first PWM command signal,
Vvc is the second PWM command signal,
Vwc is the third PWM command signal, and
K_1 is a constant;

control means for outputting a pulse width modulation control signal based on the digital current value from said current detector and the current change ΔI from said arithmetic means; and

a switching circuit operatively connected to said control means and said motor to receive the pulse width modulation control signal and to control the motor in response to the pulse width modulation control signal.

5,208,525

ELECTRIC POWER SUPPLY ASSEMBLY FOR A CORDLESS ELECTRIC APPLIANCE

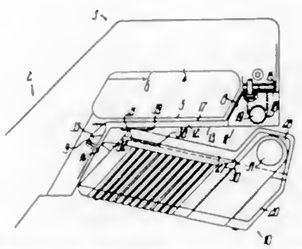
Franz Lopic, Nersingen; Johann Katzer, Neu-Ulm, and Wolfgang Lindermeir, Untermarchtal, all of Fed. Rep. of Germany, assignors to Gardena Kress + Kastner GmbH, Fed. Rep. of Germany

Continuation of Ser. No. 446,132, Dec. 5, 1989, abandoned. This application Oct. 15, 1991, Ser. No. 776,853

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1988, 3841735

Int. Cl.[5] **H02J** *7/00*

U.S. Cl. 320—2 **30 Claims**



1. An electric power supply assembly for a cordless electric appliance, said assembly comprising:

at least one power storage unit;

a mounting support having at least one holder for removably receiving said storage unit, said holder having a first engaging surface and said storage unit having a second engaging surface for removably engaging said first engaging surface, said first engaging surface and said second engaging surface defining a contact plane when engaged;

at least one holder electric contact provided on said holder; and

at least one storage unit electric contact provided on said storage unit, said holder electric contact and said storage unit electric contact providing electrical connection when engaged, at least one of said holder electric contact and said storage unit electric contact providing a contact face aligned in a plane substantially parallel to said contact plane, wherein said holder electric contact and said storage unit electric contact engage and disengage in a connecting direction transverse to said contact plane by pivotal mounting and dismounting of said storage unit with said holder and wherein at least one of said holder electric contact and said storage unit electric contact is resiliently flexible in a direction substantially parallel to said connecting direction.

5,208,526

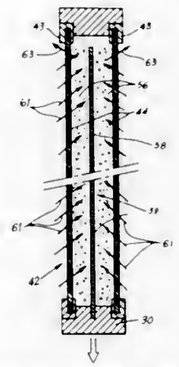
ELECTRICAL POWER STORAGE APPARATUS

Arnold J. Goldman; Jonathan Goldstein, and Menachem J. Korall, all of Jerusalem, Israel, assignors to Luz Electric Fuel Israel Ltd., Jerusalem, Israel

Continuation-in-part of Ser. No. 555,921, Jul. 19, 1990, Pat. No. 5,121,044. This application Dec. 31, 1990, Ser. No. 636,450

Int. Cl.[5] **H02J** *7/00;* **H01M** *8/08*

U.S. Cl. 320—2 **69 Claims**



1. A rechargeable electrical power storage system employing an electrical power storage medium in the form of a slurry containing active metal particles and an electrolyte solution, the system comprising:

at least one metal-air cell, each cell including:

outer electrode means including air electrode means and being configured to define a liquid permeable housing;

a volume of said active metal particles arranged within said housing so as to define a liquid permeable static bed, which is saturated with the electrolyte solution; and

inner electrode means arranged within said housing so as to be surrounded by said static bed; and

means for causing flow of the electrolyte solution through said housing and said static bed.

5,208,527

REFERENCE VOLTAGE GENERATOR WITH PROGRAMMABLE THERMAL DRIFT

Vanni Poletto, Camino, and Massimiliano Brambilla, Sesto S. Giovanni, both of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Milan, Italy

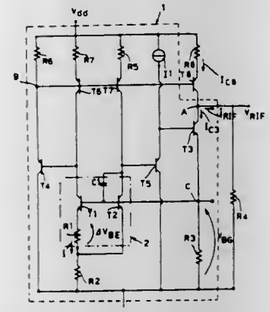
Filed Dec. 19, 1991, Ser. No. 811,261

Claims priority, application Italy, Dec. 21, 1990, 22470 A/90

Int. Cl.[5] **G05F** *3/30*

U.S. Cl. 323—313 **16 Claims**

1. Reference voltage generator, characterised in that it comprises a first generator of voltage with thermal drift of zero, a second generator of voltage with given thermal drift, first means for applying a given load to the voltage generated by the first generator, second means for applying a given load to the voltage generated by the second generator, subtracting



means for subtracting one from the other the loaded voltages generated by said first and second generator of voltage.

5,208,528

METHOD FOR INSPECTING A POPULATED PRINTED CIRCUIT BOARD, PARTICULARLY FOR INSPECTING SOLDER JOINTS ON THE BOARD AND A SYSTEM FOR WORKING THIS METHOD

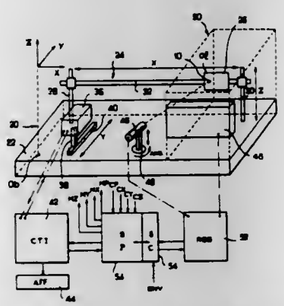
Alain Quintard, La Ville du Bois, France, assignor to Bull S.A., Paris, France

Continuation of Ser. No. 576,430, Oct. 31, 1990, abandoned. This application Aug. 6, 1992, Ser. No. 925,903

Claims priority, application France, Jan. 19, 1989, 89 00612

Int. Cl.[5] **G01R** *31/02;* **G01N** *21/71*

U.S. Cl. 324—158 R **15 Claims**



1. A method for inspecting areas of a populated printed circuit board, comprising the following steps:

continuously heating the board until a set temperature is measured at a target point on the board;

defining a measurement validity time range that begins at a time after heating has stopped, and includes all subsequent times wherein a measured heat difference can be used to detect insufficient or irregular soldering material;

recording a thermographic image of the board, the thermographic image consisting of instantaneous temperature measurements as a function of position on the board, at an instant in time within the measurement validity time range; and

analyzing the thermographic image by detecting temperature differences between a predefined standard thermographic image and the thermographic image of the board.

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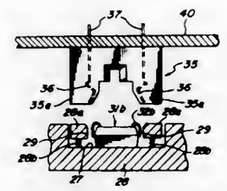
ELECTRIC DEVICE CONTACT ASSEMBLY

Kazuyuki Tsurishima, and Teruaki Sakurada, both of Saitama, Japan, assignors to Sym-Tek Systems, Inc., San Diego, Calif. and Advantest Corp., Tokyo, Japan

Filed Jul. 3, 1991, Ser. No. 725,334

Int. Cl.[5] **G01R** *1/02, 1/04*

U.S. Cl. 324—158 F **16 Claims**



1. A contact assembly for use in connection with an electronic device test system having a test signal generator and a signal comparator, comprising:

a test socket having a plurality of test leads and a plurality of electric pins corresponding to said test leads, said test leads contacting the signal leads of an electric device under test, and said electric pins providing to said electric device under test stimulus test signals from said test signal generator and further providing the resultant signals from said electric device under test to said signal comparator;

a carrier module for carrying electric devices to be tested to a corresponding test position in said electric device test system, said carrier module having seats for setting said electric devices to be tested therein; and

a hold means for holding said electric devices to be tested in said seats of said carrier module while at rest and releasing said hold from said electric device when contact is made between said test socket and said electric device under test.

5,208,530

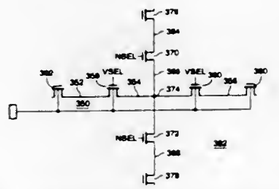
TESTABILITY ARCHITECTURE AND TECHNIQUES FOR PROGRAMMABLE INTERCONNECT ARCHITECTURE

Khaled A. El-Ayat, and Jia-Hwang Chang, both of Cupertino, Calif., assignors to Actel Corporation, Sunnyvale, Calif.

Division of Ser. No. 822,490, Jan. 14, 1992, which is a continuation of Ser. No. 375,799, Jul. 5, 1989, Pat. No. 5,083,083, which is a continuation-in-part of Ser. No. 195,728, May 18, 1988, Pat. No. 4,873,459, which is a continuation-in-part of Ser. No. 909,261, Sep. 19, 1986, Pat. No. 4,758,745. This application May 26, 1992, Ser. No. 889,838

Int. Cl.[5] **G01R** *31/00, 31/02*

U.S. Cl. 324—158 R **1 Claim**



1. In a user-configurable integrated circuit including a plurality of conductors which may be connected to one another and to functional circuit blocks by programming user-programmable antifuse elements connected thereto to form electronic circuits, said integrated circuit including high-voltage transistors in the programming paths of said antifuse elements, apparatus for performing high voltage testing of said high-volt-

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age transistors prior to formation of said electronic circuits by a user, including:

means, responsive to signals provided to said integrated circuit from an external source, for temporarily connecting together a first group of said conductors to form a circuit path, said circuit path including the source and drain of at least one of said high-voltage transistors during a selected time period;

means for driving said circuit path and the gate of said at least one high-voltage transistor to a first voltage potential during said selected time period;

means for driving a bulk semiconductor region in said integrated circuit surrounding said source and drain of said at least one high-voltage transistor to a second voltage potential different from said first voltage potential during said selected time period, wherein the difference between said first voltage potential and said second voltage potential is more than the voltage necessary to cause degradation of faulty high-voltage transistors but less than the voltage necessary to cause degradation of property functioning high-voltage transistors; and

means for measuring the current flowing between said first and second voltage potential during said selected time period.

5,208,531

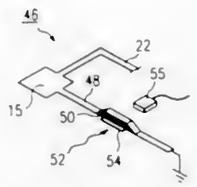
APPARATUS AND METHOD FOR TESTING INTEGRATED CIRCUITS

Thomas J. Aton, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 13, 1990, Ser. No. 566,658

Int. Cl.[5] G01R *1/00, 31/02*

U.S. Cl. 324—158 R **18 Claims**



1. An integrated circuit having photon-activated signal elements for testing the integrity of an active portion of said integrated circuit, which comprises;

an output pad for receiving a first electrical signal from said active portion of said integrated circuit; and

an electro-optic receiving element connected to said output pad for sensing a second electrical signal based upon said first electrical signal for testing the integrity of said integrated circuit with physical contact with an external circuit.

5,208,532

THROTTLE POSITION SENSOR ADAPTED TO MAINTAIN A FIXED POSITION RELATIVE TO A SHAFT CENTERLINE

Eugene D. Alfors, Rockford, Ill., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 31, 1992, Ser. No. 860,876

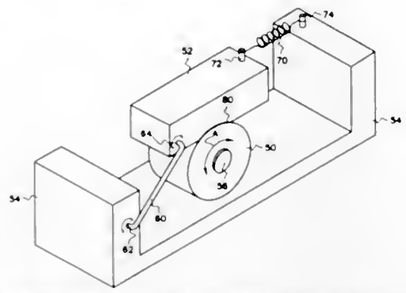
Int. Cl.[5] G01B *7/30, 7/14;* **F02P** *5/02*

U.S. Cl. 324—207.2 **20 Claims**

1. A device for determining the position of a rotatable member, comprising:

means for causing a magnetic field to rotate with said rotatable member, said rotatable member being rotatable relative to a housing structure;

a magnetically sensitive device disposed in a carrier assembly, said rotatable member being disposed in rotatable association with said carrier assembly, said carrier assembly having a portion shaped to receive said rotatable member in sliding association therein, said magnetically sensitive device being disposed within effective magnetic range of said causing means to sense a magnitude of said magnetic field in a predefined direction;



pivot means, attached to said housing structure and to said carrier assembly, for permitting said carrier assembly to rotate relative to said housing structure; and

means, in contact with said carrier assembly, for urging said carrier assembly against said rotatable member.

5,208,533

NMR MACHINE WITH LOW FIELD AND DYNAMIC POLARIZATION

Patrick Le Roux, Gif sur Yvette, France, assignor to General Electric CGR S.A., Yvette, France

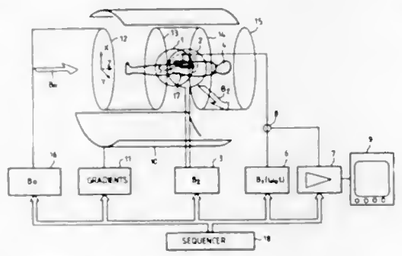
PCT No. PCT/FR89/00485, § 371 Date Mar. 29, 1991, § 102(e) Date Mar. 29, 1991, PCT Pub. No. WO90/03583, PCT Pub. Date Apr. 5, 1990

PCT Filed Sep. 22, 1989, Ser. No. 671,696

Claims priority, application France, Sep. 30, 1988, 88 12836

Int. Cl.[5] G01V *3/00*

U.S. Cl. 324—307 **26 Claims**



1. An NMR machine comprising

means for subjecting a body to be scanned to an intense magnetic polarisation field,

means for exciting said body with an electromagnetic wave,

means for measuring an electromagnetic wave re-emitted in response by the body, wherein said machine comprises in addition

means for producing a resonance field of distinctly lower strength than, and orthogonal to the polarisation field,

and means for cancelling the polarisation field prior to measurement of the electromagnetic wave, including means for damping the cancellation.

5,208,534

MAGNETIC RESONANCE IMAGING SYSTEM

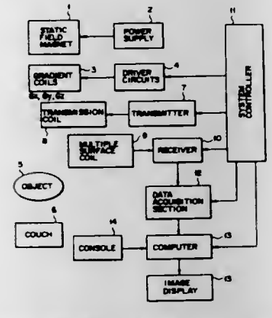
Kazuya Okamoto, Yono, and Kozo Satoh, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 8, 1990, Ser. No. 564,328

Claims priority, application Japan, Aug. 9, 1989, 1-204760; Feb. 28, 1990, 2-47814

Int. Cl.[5] G01V *3/00*

U.S. Cl. 324—309 **24 Claims**



1. A magnetic resonance imaging system comprising:

magnetic field applying means for applying a static field, gradient field pulses, and an RF magnetic field to an object to be examined so as to cause magnetic resonance in an imaging region of the object;

a plurality of signal detecting means, including a plurality of surface coils, for detecting magnetic resonance signals from the object through said surface coils;

inverse Fourier transforming means for inverse Fourier transforming a plurality of weighting functions which are defined for each of said plurality of surface coils as a plurality of spatial position functions;

convolution integration means for performing convolution integration of the magnetic resonance signals respectively detected by said plurality of signal detecting means and results of said inverse Fourier transforming means;

synthesizing means for additively synthesizing convolution integration results obtained by said convolution integration means; and

imaging means for obtaining an image of the imaging region by performing Fourier transform of data obtained by said synthesizing means.

5,208,535

MR POSITION DETECTING DEVICE

Akihito Nakayama, and Satoshi Sakamoto, both of Tokyo, Japan, assignors to Research Development Corporation of Japan, Tokyo, Japan

Filed Dec. 12, 1991, Ser. No. 805,635

Claims priority, application Japan, Dec. 28, 1990, 2-416675; Jan. 17, 1991, 3-015723

Int. Cl.[5] G01R *33/20*

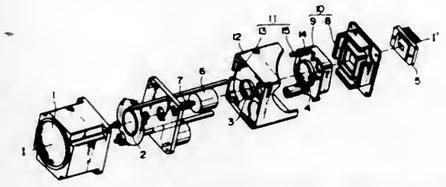
U.S. Cl. 324—318 **7 Claims**

1. An MR position detecting device comprising:

a magnet having magnetic poles alternately magnetized at predetermined intervals;

a magnetoresistive element having magneto-detectors for a plurality of phases successively disposed a predetermined distance apart, with a pair of said magneto-detectors provided for each phase, wherein said pair of magneto-detectors for each phase change their resistance values in response to the magnetic field of said magnet, are disposed half the formed magnetic pole width, in substance, apart, and are applied with a voltage at both ends of a series connection thereof so as to output a signal from the middle point of the connection; and

a signal processing circuit for detecting a change in relative



position between said magnetoresistive element and said magnet on the basis of a signal obtained from the outputs of said pairs of magneto-detectors for the respective phases of said magnetoresistive element.

5,208,536

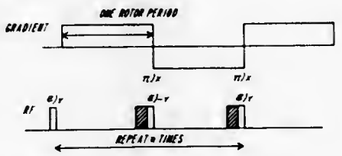
METHOD FOR SLICE SELECTION IN AN NMR MAS SOLIDS IMAGING SYSTEM

David G. Cory, Boston, Mass., assignor to Bruker Instruments, Inc., Billerica, Mass.

Filed Jul. 2, 1991, Ser. No. 724,876

Int. Cl.[5] G01R *33/20*

U.S. Cl. 324—321 **24 Claims**



1. In an NMR magicangle-spinning solids:imaging system in which an object is placed in a main static magnetic field having a field direction and physically rotated with a predetermined rotation period about an axis positioned at an angle of 54° 44' to said main magnetic field, at least one magnetic field having a field gradient perpendicular to said rotation axis is applied to said object and NMR induced magnetization is detected in a direction transverse to the main static magnetic field direction, a method for slice selection comprising the steps of:

A. applying to said object a slice selection magnetic field gradient having a direction parallel to said rotation axis, said slice selection magnetic field gradient periodically reversing in direction with a period equal to twice said rotation period; and

B. applying a periodic sequence of radio frequency pulses to said object, said sequence having a period equal to a multiple of said rotation period and each of the pulses in said sequence comprising an RF pulse applied in the X direction and an RF pulse applied alternately in the Y and Y directions, where the X and Y directions are perpendicular to the main magnetic field direction, an X RF pulse has a relative phase shift of 90° with respect to a Y RF pulse and a −Y RF pulse has a relative phase shift of 180° with respect to an Y pulse

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5,208,537

METHOD FOR MATCHING ANTENNAS IN A NUCLEAR MAGNETIC RESONANCE IMAGING APPARATUS

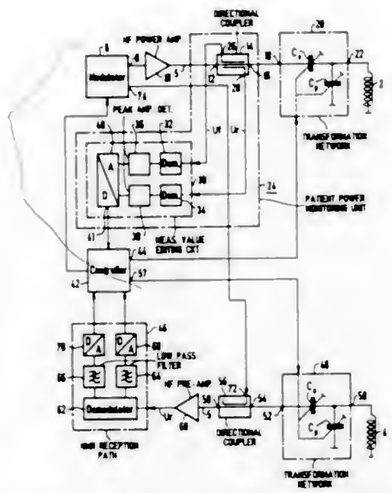
Norbert Rietsch, Dormitz; Markus Vester, Erlangen, and Horst Kroeckel, Bamberg, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Nov. 6, 1991, Ser. No. 788,593

Claims priority, application Fed. Rep. of Germany, Nov. 12, 1990, 4035994

Int. Cl.[5] G01R *33/20*

U.S. Cl. 324—322 16 Claims



1. A method for matching a transmission/reception antenna in a magnetic resonance imaging apparatus to the impedance of a high-frequency system connected to said transmission/reception antenna via a transformation network, said transformation network being settable at a plurality of settings, each setting defining a different impedance for said transmission/reception antenna, said method comprising the steps:

(a) for a setting of said transmission network, generating a high-frequency pulse in said high-frequency system having a pulse length between 1 ms and 50 ms and a power of substantially 100 W and thereby causing a forward voltage wave to be supplied to said transmission/reception antenna resulting, in the event of mismatching, in an associated return voltage wave reflected by said transmission/reception antenna;

(b) demodulating each forward voltage wave and its associated return voltage wave;

(c) detecting a peak amplitude value of the each demodulated forward voltage wave and its associated demodulated return voltage wave;

(d) forming a ratio of the peak amplitude values of each forward voltage wave and its associated return voltage wave and storing said ratio;

(e) repeating steps (a), (b), (c) and (d) for each impedance of said transmission/reception antenna which can be respectively defined by said settings of said transmission network and thereby obtaining a plurality of stored ratios respectively corresponding to said different impedances of said transmission/reception antenna, said plurality of stored ratios including an extreme ratio; and

(f) during generation of a tomogram of a subject, setting said transformation network at a setting which defines an impedance of said transmission/reception antenna corresponding to said extreme ratio.

5,208,538

APPARATUS HAVING A PAIR OF MAGNETIC FIELD GENERATING CABLES FOR MEASURING POSITION OF AN UNDERGROUND EXCAVATOR

Shoichi Sakanishi, and Kanji Shibatani, both of Hiratsuka, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

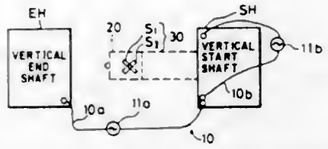
PCT No. PCT/JP90/00847, § 371 Date Dec. 20, 1991, § 102(e) Date Dec. 20, 1991, PCT Pub. No. WO91/00497, PCT Pub. Date Jan. 10, 1991

PCT Filed Jun. 29, 1990, Ser. No. 778,166

Claims priority, application Japan, Jun. 30, 1989, 1-170422

Int. Cl.[5] E21B *47/09;* G01V *3/00;* G01B *7/14;* E21D *9/06*

U.S. Cl. 324—326 20 Claims



1. A position measuring apparatus for measuring the position of an underground excavator in a horizontal plane, comprising: a transmitter (10) including at least two cables (10*a*), (10*b*) which are provided under or on the ground and around which AC magnetic fields are generated by electricity from an AC power source, one of said cables being in a first plane and another of said cables being in a second plane, said second plane being at least substantially perpendicular to said first plane; a receiver (30) which receives the AC magnetic fields from the transmitter (10), the position of said receiver (30) being associated with the position of said underground excavator (20); and a computing unit (60) which identifies signals from the receiver (30) and which calculates the position of the underground excavator (20) in said horizontal plane.

5,208,539

METHOD FOR DETERMINING ELECTROMAGNETICALLY THE LOCATIONS OF UNDERGROUND ORE DEPOSITS

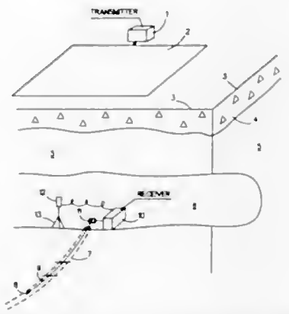
Svante Holmqvist; Robert Pantze, both of Boliden, and Stig Strömbergsson, Kåge, all of Sweden, assignors to Boliden Mineral AB, Boliden, Sweden

Filed Dec. 30, 1991, Ser. No. 815,809

Claims priority, application Sweden, Jan. 4, 1991, 9100018

Int. Cl.[5] G01V *3/10*

U.S. Cl. 324—334 20 Claims



18. Apparatus for electromagnetically determining the position of an underground conductive body, said apparatus comprising:

a loop for generating a primary electromagnetic field and means for generating a current in said loop, the primary electromagnetic field for being propagated underground to interact with an underground conductive body to provide a secondary electromagnetic field;

said loop being configured for being positioned at a surface of terrain, generally above an area in which the position of an underground conductive body is to be determined, to define a propagation area of the primary field;

said means for generating a current in said loop, for being positioned adjacent said loop;

probe means for being disposed in a borehole being provided within the propagation area;

said probe means for receiving at least a portion of a total electromagnetic field which total electromagnetic field comprises at least a portion of the primary electromagnetic field and at least a portion of the secondary electromagnetic field;

receiver means for receiving signals from said probe means;

means for transmitting measurement information of the total electromagnetic field from said probe means to said receiver means;

reference coil means, separate from said receiver means, for receiving at least a portion of the primary electromagnetic field;

means for transmitting measurement information of the primary magnetic field from said reference coil means to said receiver means;

said receiver means comprising means for determining the secondary electromagnetic field from the measurement information from said probe means and from the measurement information from said reference coil means; and

both said reference coil means and said receiver means being configured for being positioned underground and remotely from said loop.

5,208,540

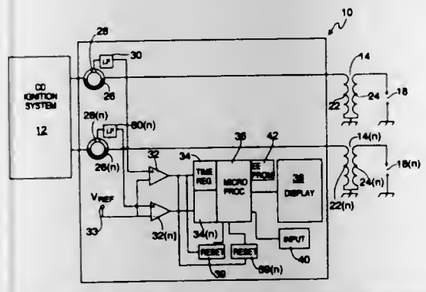
IGNITION PERFORMANCE MONITOR AND MONITORING METHOD FOR CAPACITIVE DISCHARGE IGNITION SYSTEMS

Gary R. Hoeflich, Roscoe, Ill., assignor to Coltec Industries Inc., New York, N.Y.

Filed Feb. 28, 1992, Ser. No. 843,187

Int. Cl.[5] G06F *15/48;* F02P *17/00*

U.S. Cl. 324—388 17 Claims



1. An ignition performance monitor to receive the ignition current from a capacitive discharge ignition system which is provided by the capacitive discharge ignition system to the primary winding of an ignition coil which has a secondary winding connected to fire a spark plug comprising

current sensing means connected to sense the ignition current provided by said capacitive discharge ignition system to said primary winding and operative to provide a sense signal which is a function of said ignition current and indicative thereof, said current sensing means including a toroidal coil connected in series with said primary winding and a Hall Effect sensor to measure the flux density of said torodial coil;

duration determining means connected to said current sensing means to receive said sense signal and operating to provide an output signal indicative of a time period during which the current sensed by said current sensing means exceeds zero amperes, and

processor means connected to receive said output signal and operative to compute therefrom a value indicative of the firing voltage required to fire said spark plug.

5,208,541

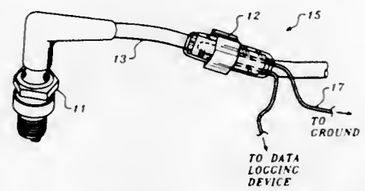
SPARK PLUG FIRING SENSOR WITH CAPACITIVE COUPLING AND OPTICAL PICKUP

Daniel Yerkovich, 11811 Willows Rd. Nortbeast, Redmond, Wash. 98052; John M. Adams, 4704 - 194th Ave. Southeast, Issaquah, Wash. 98027, and Stephen T. Vinceot, 14208 Northeast 73rd St., Redmond, Wash. 98052

Filed Jun. 19, 1991, Ser. No. 718,349

Int. Cl.[5] G01R *31/00, 19/145;* G01P *3/36*

U.S. Cl. 324—395 11 Claims



1. A sensor for detecting a transient electrical potential in a conductor, said sensor comprised of a bulb having a first lead and a second lead, said first and second leads forming a bulb capacitor for carrying a bulb voltage, said bulb emitting light when said bulb voltage reaches a predetermined level, an optical fiber having a first end and a second end, said first end disposed adjacent to said bulb such that light emitted from said bulb is coupled into said first end of said optical fiber as an optical signal, and a conductive sleeve element conductively attached to said second lead, said conductive sleeve element along with said conductor forming a capacitor, whereby said transient electrical potential charges said capacitor and said bulb capacitor, said bulb capacitor charged to said predetermined voltage causing said bulb to emit light when said sensor is proximate to said conductor.

5,208,542

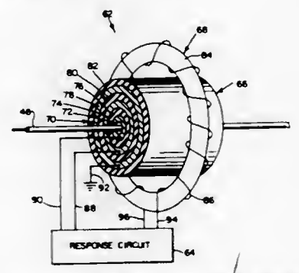
TIMING WINDOW ARC DETECTION

Charles J. Tennies, Waukesha; Bruce C. Beiboff, Wauwatosa, and James E. Hansen, Oak Creek, all of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed Mar. 28, 1991, Ser. No. 676,742

Int. Cl.[5] G01R *31/12*

U.S. Cl. 324—544 30 Claims



1. An arc detector for an electric circuit including an electrified conductor connecting a voltage source to a load, said arc

VOL 1150 ISS 1 MY 4 1993 UMI

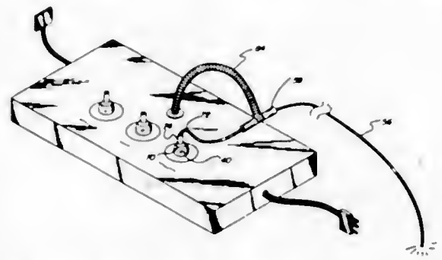
detector comprising a field sensor sensing an electromagnetic field established about said conductor by the occurrence of an electrical arc in said electric circuit, and generating a field responsive signal in response thereto, an arc discrimination circuit responsive to said field sensor and generating a tentative arc signal in response to a given characteristic of said field responsive signal, an arc timing window circuit responsive to said arc discrimination circuit and generating a confirmed arc signal in response to a given timing characteristic of said tentative arc signal, wherein said field sensor comprises an E field sensor sensing the E field established about said conductor by the occurrence of an electrical arc in said electric circuit and generating an E field responsive signal.

5,208,543

POWER ANTENNA QUICK TESTER WITH OPTICAL REMOTE INDICATOR

Donald W. Albiniak, 930 Hiawatha Dr., Elgin, Ill. 60120

Filed May 21, 1991, Ser. No. 703,675
Int. Cl.[5] G01R *31/02*; G02B *3/36*
U.S. Cl. 324—556 **2 Claims**



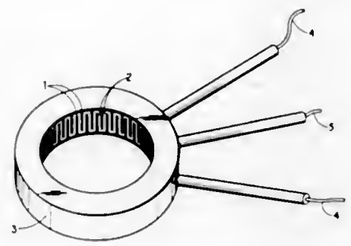
1. A power antenna tester comprising:
housing means;
circuit means retained within said housing means, said circuit means being serially connectable to electrical power supply leads which function to operate said power antenna; and
signal means attached to said housing means and being operable to indicate a desired delivery of electrical power though said electrical power supply leads,
wherein said electrical power supply leads include a first supply lead which operates to deliver a continuous supply of DC current to said power antenna, a second supply lead which operates to selectively deliver DC current to an extension mechanism associated with said power antenna, and a third supply lead which operates to deliver DC current to a retraction mechanism associated with said power antenna,
wherein said signal means comprises first, second and third light emitting diodes, said first, second and third diodes being illuminable when DC current is respectively delivered through said first, second and third supply leads,
said power antenna tester further including remote signal indicating means, said remote signal means including a length of fiber optic cable, said cable being selectively attached to at least one of said light emitting diodes,
wherein a connection of said fiber optic cable to at least one of said light emitting diodes is accomplished through a use of a bulb connector assembly, said bulb connector assembly comprising a conically shaped connector attachable to one of said light emitting diodes,
wherein said power antenna tester further includes a holder assembly attached to said housing means, said holder assembly being selectively positionable into a plurality of chosen configurations and being operable to hold said fiber optic cable in a desired viewable position, and
wherein said holder assembly further includes a tubular member through which one end of said fiber optic cable may be selectively positioned and frictionally engaged to effect an attachment thereof to said holder assembly.

5,208,544

NONINVASIVE DIELECTRIC SENSOR AND TECHNIQUE FOR MEASURING POLYMER PROPERTIES

Michael McBrearty, Hockessin, and Stephen A. Perusich, Newark, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 26, 1990, Ser. No. 588,411
Int. Cl.[5] G01R *27/26*
U.S. Cl. 324—687 **25 Claims**



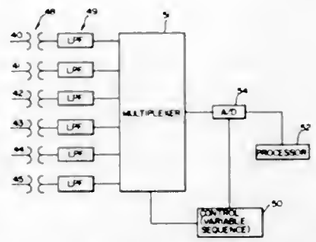
1. A sensor for making complex permittivity measurements in-line in a fluid conduit without obstructing the flow of the process fluid, said sensor comprising a non-conductive shell having a bore therethrough, a pair of interdigitated fringing field electrodes on the inner surface of the shell, the electrodes being spaced from each other by 0.1 to 10 millimeters, an electrostatic shield on the outer surface, and means for conducting electrical current to one electrode and from the other electrode.

5,208,545

APPARATUS AND METHOD FOR ELIMINATING PHASE SKEW IN A MULTI-CHANNEL DATA ACQUISITION SYSTEM

Edmund O. Schweitzer, III, Pullman, Wash., assignor to Schweitzer Engineering Laboratories Inc., Pullman, Wash.

Filed Mar. 27, 1991, Ser. No. 676,099
Int. Cl.[5] H03K *5/59, 5/00*
U.S. Cl. 328—151 **24 Claims**



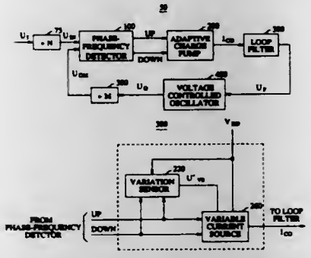
1. An apparatus for eliminating phase skew in a multi-channel data acquisition system, comprising:
means for receiving analog input signals from an electric power system on a plurality of channels, wherein successive sampling of analog input signals on a plurality of channels will ordinarily result in a phase skew between channels; and
means for sampling the input signals on each channel at predetermined time intervals, wherein the channels are sampled in at least two different successive orders of sampling such that an average phase skew between the channels is substantially zero.

5,208,546

ADAPTIVE CHARGE PUMP FOR PHASE-LOCKED LOOPS

Krishnaswamy Nagaraj, Macungie, Pa., and Reza S. Shariatdoust, Spotswood, N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Aug. 21, 1991, Ser. No. 748,136
Int. Cl.[5] H03K *17/00*; H03L *7/00*
U.S. Cl. 328—155 **15 Claims**



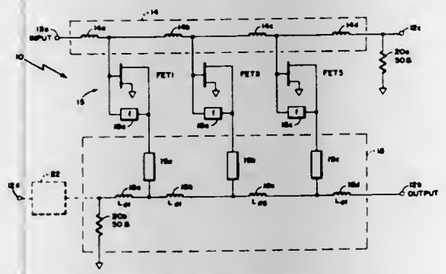
1. In a phase-locked loop including a loop filter, an oscillator providing an output of the phase-locked loop, a phase detector, and a charge pump providing current to the loop filter, the current having a magnitude, a method of adjusting the bandwidth of the phase-locked loop, the method comprising the steps of:
the phase detector sensing a phase error between a reference signal and the output signal of the phase-locked loop;
the charge pump increasing the magnitude of charge pump current responsive to the phase error sensed by the phase detector and providing the charge pump current to the loop filter; and
subsequent to increasing the magnitude of said current, the charge pump decreasing the magnitude of said current.

5,208,547

DISTRIBUTED AMPLIFIER HAVING NEGATIVE FEEDBACK

Manfred J. Schindler, Newton, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Jun. 6, 1991, Ser. No. 711,676
Int. Cl.[5] H03F *3/60*
U.S. Cl. 330—54 **11 Claims**



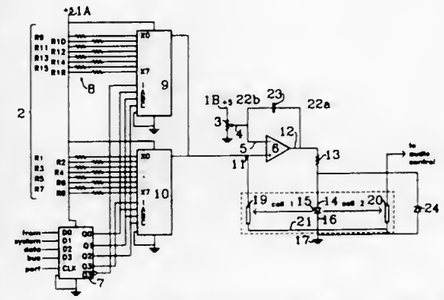
1. A radio frequency circuit, comprising:
a plurality of field effect transistors, each one of said transistors having an input electrode and an output electrode;
input propagation means for successively coupling the input electrodes of each one of said transistors to an input terminal of said radio frequency circuit;
output propagation means for successively coupling the output electrodes of each one of said transistors to an output terminal of said circuit; and
feedback means disposed between the input electrode and the output electrode of at least one of said transistors for providing a negative feedback path about said at least one transistor.

5,208,548

PROGRAMMABLE CONTROLS FOR VACUUM TUBE PREAMPLIFIER

Daniel A. Van Riezen, Novato, Calif., assignor to Randall C. Smith, Petaluma, Calif.

Filed May 8, 1992, Ser. No. 880,740
Int. Cl.[5] H03F *17/00*; H03G *3/08*
U.S. Cl. 330—59 **3 Claims**



1. A circuit for replacing an analog variable resistor in an audio amplifier comprising
a Light Dependent Resistor divided by a center-tap into a first "reference" segment and a second "active" segment both illuminated by a Light Emitting Diode;
a differential amplifier circuit including a negative feedback path with a time constant;
a first, substantially fixed voltage divider sourced from reference supply voltage and shunted to ground;
a second selectable reference voltage divider sourced from reference supply and shunted to ground wherein the series element of said reference voltage divider comprises a selectable fixed resistance value and wherein the shunt element of said reference voltage divider consists of said LDR reference segment configured such that:
output from said second selectable reference voltage divider is applied to the non-inverting terminal of said differential amplifier,
output from said first fixed voltage divider is applied in conjunction with negative feedback to the inverting terminal of said differential amplifier, and
output from the differential amplifier—representing any difference between the ratios of values in said first and second voltage dividers—is applied to said feedback path and to said Light Emitting Diode such that stable, selectable high resistance values in said active segment are obtainable.

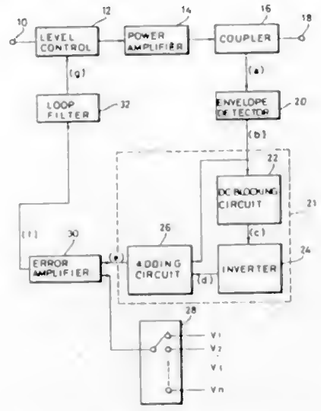
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5,208,549

AUTOMATIC POWER CONTROL APPARATUS FOR LINEAR MODULATION

Akira Andoh, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 21, 1991, Ser. No. 747,963
Claims priority, application Japan, Aug. 22, 1990, 2-220550
Int. Cl.[5] H03G 3/20
U.S. Cl. 330—129 3 Claims



1. An automatic power control apparatus for a linearly modulated signal, comprising:

level control means for receiving the modulated signal and adjusting the power level thereof in response to a control voltage;

power amplifying means connected to said level control means, for receiving the adjusted modulated signal from said level control means and amplifying said adjusted modulated signal to produce an amplified signal;

coupling means connected to said power amplifying means, for extracting part of the power of said amplified signal, thereby producing an extracted signal;

envelope detecting means connected to said coupling means, for detecting an envelope of said extracted signal, thereby generating an envelope signal;

dc component detecting means connected to said envelope detecting means, for detecting a dc component of said envelope signal, including

a dc blocking circuit connected to said envelope detecting means, for receiving said envelope signal and rejecting dc components therein, thus producing an ac component;

an inverting circuit connected to said dc blocking circuit, for inverting said ac component, thus producing an inverted ac component; and

a voltage adding circuit connected to said envelope detecting means and said inverting circuit, for summing said envelope signal and said inverted ac component, thus producing said dc component;

reference voltage selecting means for selecting a reference voltage;

error amplifying means connected to said dc component detecting means and said reference voltage selecting means, for amplifying a difference between said dc component and said reference voltage, thereby producing an error signal; and

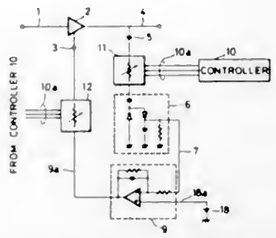
loop filter means connected to said level control means and said error amplifying means, for filtering said error signal, thereby producing said control voltage.

5,208,550

RADIO-FREQUENCY POWER AMPLIFIER DEVICE

Yasushi Iwane, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 3, 1992, Ser. No. 863,119
Claims priority, application Japan, Apr. 16, 1991, 3-109626
Int. Cl.[5] H03G 3/20
U.S. Cl. 330—129 8 Claims



8. In a radio-frequency power amplifier device having a radio-frequency power amplifier and a gain control circuit as a feedback loop for said power amplifier for controlling the gain of said power amplifier based on an output signal produced by said power amplifier, the improved in the gain control circuit comprising:

variable extracting means for extracting part of the output signal of said power amplifier and producing a magnitude signal indicative of the magnitude of said output signal of said power amplifier, said magnitude signal being varied according to a power level switch control signal for controlling the output power of the output signal of said power amplifier; and

variable gain control means for producing a gain control signal for controlling the gain of said power amplifier based on said magnitude signal produced by said variable extracting means, said gain control signal being varied according to said power level switch control signal in a direction opposite to that of the variation of said magnitude signal, such that the overall gain of said feedback loop is maintained substantially constant.

5,208,551

NOISE REDUCTION CIRCUIT WITH A MAIN SIGNAL PATH AND AN AUXILIARY SIGNAL PATH HAVING A HIGH-PASS FILTER CHARACTERISTIC

Duck-young Jung, Namdong-ku, and Seung-yup Koo, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyunggi-do, Rep. of Korea

Filed Dec. 20, 1991, Ser. No. 811,148
Claims priority, application Rep. of Korea, Jun. 14, 1991, 91-9842
Int. Cl.[5] H03F 1/26
U.S. Cl. 330—149 3 Claims

1. A noise reduction circuit with a main signal path having a main signal output and an auxiliary signal path having a high pass filter characteristic and having an auxiliary signal output, comprising:

voltage-to-current converting means having at least a first differential input and a differential output and connecting said auxiliary signal path to said main signal path;

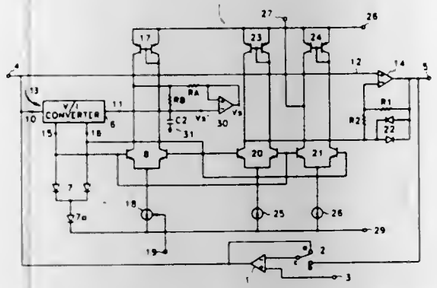
PN junction means connected to said differential output of said voltage-to-current converting means;

a paired common-emitter transistor arrangement having base electrodes connected to said PN junction means;

capacitance means connected to said first differential input of said voltage-to-current converting means;

feedback resistance means connecting a collector of a first common-emitter transistor of said paired common-emitter transistor arrangement to said first differential input of said voltage-to-current converting means;

voltage buffer means coupled between said collector of said first common-emitter transistor of said paired common-emitter transistor arrangement and said first differential input;



second resistance means connected between said collector of said first common-emitter transistor and said voltage buffer means; and

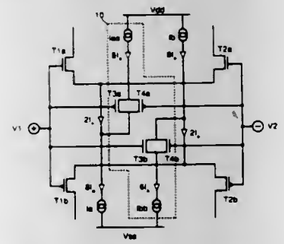
operation means for summing said auxiliary signal output and said main signal output.

5,208,552

RAIL TO RAIL OPERATIONAL TRANSCONDUCTANCE AMPLIFIER

Marc Ryat, Grenoble, France, assignor to SGS-Thomson Microelectronics S.A., Gentilly, France

Filed Feb. 11, 1992, Ser. No. 834,059
Claims priority, application France, Feb. 12, 1991, 91 01974
Int. Cl.[5] H03F 3/45
U.S. Cl. 330—253 21 Claims



1. A transconductance amplifier comprising:

a first differential amplifier with a pair of transistors of a first type, each of which is controlled by one of two inputs, the quiescent current of said transistors being fixed to a predetermined value by a first current source connected to a first supply rail;

a second differential amplifier with a pair of transistors of a type opposite to that of the first, each of which is controlled by one of said inputs, the quiescent current of these transistors being fixed to said predetermined value by a second current source connected to a second supply rail; the transconductance amplifier having a first operating range where the two differential amplifiers are active and second and third operating ranges where only one differential amplifier is active;

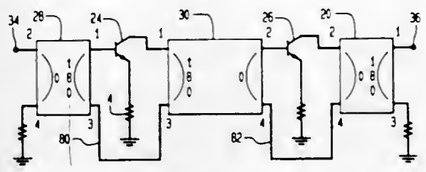
means for deriving constant current equal to a predetermined fraction of the currents provided by the current sources to the differential amplifiers, said means being active in the first operating range and inactive in one of the second and third ranges, and the predetermined fraction being such that the transconductance of the active transistors in one of the second and third ranges is equal to twice the transconductance of the transistors in the first range.

5,208,553

MULTI-STAGE AMPLIFIER WITH SHARED DIRECTIONAL COUPLER FEEDBACK

Christopher W. Rice, Palm Bay, Fla., assignor to Q-Bit Corporation, Palm Bay, Fla.

Filed Apr. 5, 1991, Ser. No. 680,813
Int. Cl.[5] H03F 3/60
U.S. Cl. 330—286 10 Claims



1. A two-stage amplifier circuit comprising:

first and second amplifiers, each amplifier having a signal input and an amplified signal output;

a first directional coupler coupled to the first amplifier for receiving an input signal to be amplified by the amplifier circuit into an amplified signal, for receiving a first feedback signal, and for providing a signal to the input of the first amplifier;

a second directional coupler coupled between the first and second amplifiers for receiving a signal from the output of the first amplifier and a second feedback signal, and for providing a signal to the input of the second amplifier and the first feedback signal to the first directional coupler; and

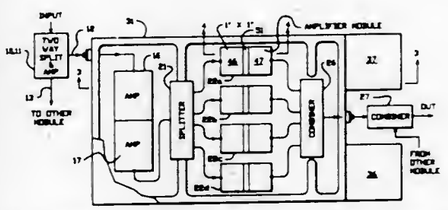
a third directional coupler coupled to the second amplifier for receiving a signal from the output of the second amplifier, for providing the second feedback signal to the second directional coupler, and for providing the amplified signal as an output signal.

5,208,554

HIGH POWER COMPACT MICROWAVE AMPLIFIER

Harvey Endler, Van Nuys, and Hadi Mojaradi, Los Angeles, both of Calif., assignors to Systron Donner Corporation, Sylmar, Calif.

Filed Jan. 24, 1992, Ser. No. 825,194
Int. Cl.[5] H03F 3/68
U.S. Cl. 330—295 6 Claims



1. A class A power amplifier having an operating frequency in the range of less than substantially 2 GHz comprising:

a plurality of parallel connected gallium arsenide (GaAs) field effect transistors (FETs) providing a high power output in the range of at least 100 watts, said FETs having a relatively low input and output impedance compared to a required normal relatively high system impedance;

a microstrip matching circuit mounted on a dielectric sub-

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strate for matching said relatively high system impedance to said input and output impedance of said FETs, each substrate being dimensioned in accordance with the frequency 2 GHz or less, said substrates being substantially 1 by 1 inch in size; a plurality of conductive bases for providing a thermal expansion match with said dielectric substrate, said conductive bases also providing a direct mounting surface for said plurality of FETs, each of said bases carrying a pair of said FETs along with said microstrip matching circuits carried on said dielectric substrates;

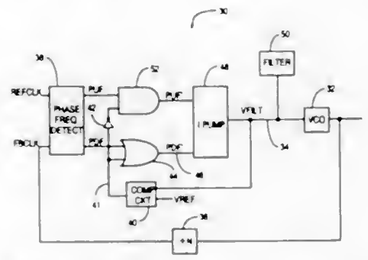
heat sink means for cooling said FETs including a unitary copper base in which said FETs are inset via said conductive base whereby cooling is accomplished by at least conduction.

5,208,555

CIRCUIT FOR LIMITING MAXIMUM FREQUENCY OUTPUT OF A VOLTAGE CONTROLLED OSCILLATOR

Andrew C. Graham, Sunnyvale, and Robert C. Burd, San Jose, both of Calif., assignors to TriQuint Semiconductor, Inc., Santa Clara, Calif.

Filed Sep. 23, 1991, Ser. No. 764,039
Int. Cl.[5] H03L *7/085*
U.S. Cl. 331—1 A **14 Claims**



2. A circuit comprising:

a voltage controlled oscillator (VCO), said VCO generating an output signal having an output frequency, wherein said VCO is connected within a phase-locked loop (PLL);

a first circuit connected to an output of said VCO and having a maximum operating frequency above which said first circuit no longer accurately performs, said VCO being capable of generating an output signal having an output frequency which exceeds said maximum operating frequency of said first circuit; and

means for decreasing said output frequency if said frequency exceeds a preset limit, said preset limit being chosen based upon said maximum operating frequency of said first circuit.

5,208,556

PHASE LOCK LOOP FOR SECTOR SERVO SYSTEM

Rosser S. Wilson, Menlo Park, Calif., assignor to Maxtor Corporation, San Jose, Calif.

Continuation of Ser. No. 767,073, Sep. 27, 1991, Pat. No. 5,146,183. This application Sep. 4, 1992, Ser. No. 940,610
Int. Cl.[5] G11B *5/596, 21/10*; H03L *7/08*
U.S. Cl. 331—1 A **1 Claim**

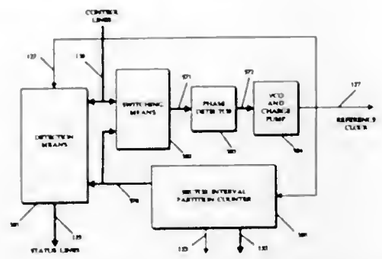
1. A circuit comprising:

receiving means coupled to a clock signal and an input signal, and generating at least one detection signal;

switching means coupled to said at least one detection signal and at least one reference signal, said switching means providing one of said at least one detection signal and one of said at least one reference signal at a switch output port according to at least one control signal;

a phase detector coupled to said switch output port, said phase detector generating a phase control signal;

an oscillator coupled to said phase control signal, said oscillator generating said clock signal;



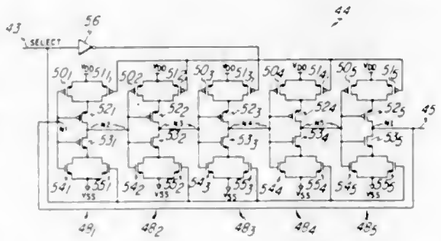
partitioning means coupled to said clock signal, said partitioning means generating said at least one reference signal.

5,208,557

MULTIPLE FREQUENCY RING OSCILLATOR

David V. Kersh, III, Sugarland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 18, 1992, Ser. No. 837,521
Int. Cl.[5] H03B *5/24*; H03K *3/354*
U.S. Cl. 331—57 **34 Claims**



1. A multiple frequency oscillator, comprising:

a plurality of inverter stages, each inverter stage including an input and an output, the input of each inverter stage coupled to the output of at least one other inverter stage, one of said inverter stage outputs supplying an oscillator output signal;

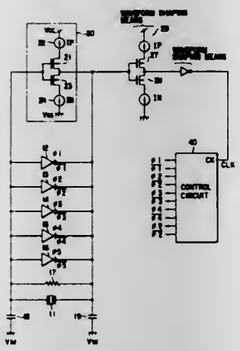
at least one of said inverter stages having an input for receiving a control signal, said control signal selectively having a first state or a second state, said at least one inverter stage responsive to said first state to cause said oscillator output signal to have a first frequency and responsive to said second state to cause said oscillator output signal to have a second frequency different from said first frequency, said at least one inverter stage including a plurality of parallel current paths, at least one of said current paths being non-conductive in response to said first state of said control signal and conductive in response to said second state of said control signal.

5,208,558

CRYSTAL OSCILLATOR HAVING PLURAL INVERTERS DISABLED AFTER START-UP

Hiroshi Shigehara, Tokyo; Ryuji Fujiwara, and Kenichi Matsumoto, both of Oolta, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 800,830, Nov. 27, 1991, abandoned. This application Aug. 10, 1992, Ser. No. 926,382
Claims priority, application Japan, Nov. 29, 1990, 2-333074
Int. Cl.[5] H03B *5/26*
U.S. Cl. 331—116 FE **12 Claims**



1. An oscillation circuit comprising:

an oscillator composed of one of a quartz oscillator and a ceramic oscillator;

a clocked inverter controlled so as to operate for a predetermined period of time after oscillation begins, an input and an output of which being connected across said oscillator; and

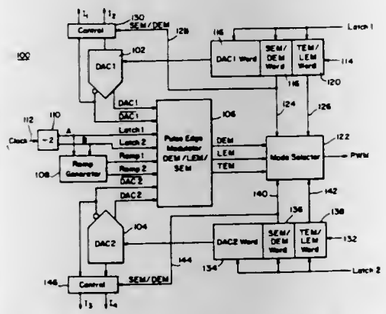
an inverter having a constant-current means connected in serial in a path of a power source, an input and an output of which being connected across said oscillator.

5,208,559

PULSE SHAPING SYSTEM FOR A PULSE WIDTH MODULATION SYSTEM

Edward P. Jordan, Greensboro, N.C., assignor to Analog Devices, Inc., Norwood, Mass.

Filed May 29, 1992, Ser. No. 890,948
Int. Cl.[5] H03K *7/08*
U.S. Cl. 332—109 **6 Claims**



1. A pulse shaping system for a pulse width modulation system comprising:

ramp generator means for generating a ramp signal having a ramp portion and a rest portion;

latch signal generating means for providing a latch signal coincident with the ramp portion of said ramp signal;

means for indicating the desired width of a pulse to be generated;

pulse edge modulation means, responsive to said ramp portion of said ramp signal and to said means for indicating for providing a pulse with at least one edge modulated to achieve the desired width;

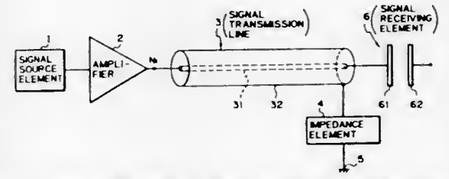
a fill circuit including means, responsive to said means for indicating, for detecting that a maximum width pulse has been indicated, means, responsive to said means for detecting, for gating said latch signal when said means for detecting detects a maximum width pulse indication, and means, responsive to said means for gating, for combining said latch signal and the pulse generated by said pulse edge modulation means for producing a maximum width pulse at the full width of the latch signal and said ramp portion.

5,208,560

SIGNAL TRANSMISSION CIRCUIT

Nobuyuki Yasutake, Tokyo, Japan, assignor to Fujitsu Limited, Kawawaki, Japan

Continuation of Ser. No. 618,390, Nov. 27, 1990, abandoned. This applicatioo Aug. 19, 1992, Ser. No. 930,449
Claims priority, application Japan, Nov. 27, 1989, 1-308404
Int. Cl.[5] H03H *7/00*
U.S. Cl. 333—12 **8 Claims**



1. A signal transmission circuit between a signal source element and a signal receiving element for transmitting a signal therethrough, comprising:

a signal line through which the signal is transmitted from the signal source element to the signal receiving element;

a grounding line arranged lengthwise along said signal line and consisting of solely one connection thereto at a predetermined position between an input end and an opposing output end, wherein said grounding line prevents disturbing effects of noises outside of a frequency range of the signal from being transmitted; and

a resonant circuit connected solely from ground to said grounding line at solely the one predetermined position on said grounding line, said resonant circuit having a high impedance sufficient to cause a high speed transmission of the signal in the frequency range of the signal.

5,208,561

LOAD FOR ULTRAHIGH FREQUENCY THREE-PLATE STRIPLINE WITH DIELECTRIC SUBSTRATE

Xavier Delestre, Paris, and Thierry Dousset, St. Gratien, both of France, assignors to Thomson-CSF, Puteaux, France

Filed Dec. 27, 1991, Ser. No. 813,666
Claims priority, application France, Dec. 27, 1990, 90 16329
Int. Cl.[5] H01P *1/26*
U.S. Cl. 333—22 R **8 Claims**

1. A load for high frequency three-plate stripline, comprising:

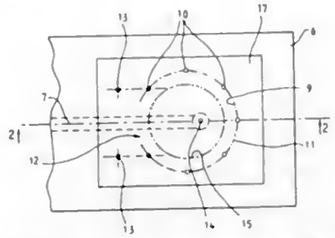
a three-plate stripline having outer plates and a conductor disposed therebetween;

metallized holes spaced a maximum of ¼ wavelength apart extending through the outer of the stripline and defining a resonant cavity therein;

an end of the conductor between the outer plates of the

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stripline extending into and terminating in the resonant cavity;
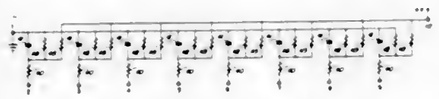


an electrically absorbent material inside of the resonant cavity between the outer plates of the stripline and connected to the end of the conductor.

5,208,562

BUS TERMINATOR CIRCUIT HAVING RC ELEMENTS

Louis Schirm, IV, Yorba Linda, Calif., assignor to ISP Technologies, Inc., Anaheim, Calif.

Filed Oct. 7, 1991, Ser. No. 772,223
Int. Cl.[5] H01P *1/24*
U.S. Cl. 333—22 R 13 Claims



9. A power bus terminator circuit including in combination:
a first bus pin;
a second bus pin;
a predetermined number of sets of first and second resistors, each resistor having first and second ends, with the second end of the first resistor in each set connected to the first end of the second resistor of each set to realize a predetermined number of first junctions corresponding to said predetermined number of sets of resistors, with the first ends of said first resistors connected to said first bus pin, and the second ends of said second resistors connected to said second bus pin;
a predetermined number of circuit termination pins equal in number to said predetermined number of sets of first and second resistors;
a predetermined number of first capacitors, each having first and second terminals, with the first terminal of each of said first capacitors connected to said second bus pin and the second terminal of each of said first capacitors connected to a different one of said predetermined number of first junctions; and
a predetermined number of third resistors, each having first and second ends, with the first ends thereof each connected to a different one of said first junctions, and the second ends of said third resistors each connected to a different one of said circuit termination pins.

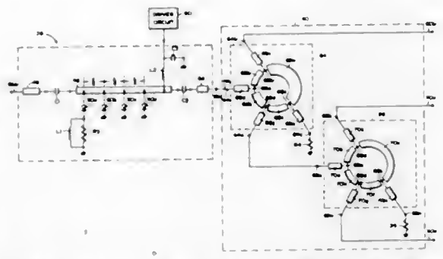
5,208,563

RADIO FREQUENCY CIRCUIT

Mark E. Russell, Londonderry, N.H.; David C. Miller, Greenfield, and Anthony M. Doiisi, Tewksbury, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 19, 1991, Ser. No. 810,615
Int. Cl.[5] H01P *5/22*
U.S. Cl. 333—109 7 Claims

1. An RF circuit comprising:
an RF power divider circuit having an input port and a plurality of output ports, said RF power divider circuit providing, in response to a signal fed to said input port, an output signal at each output port, each output signal having known amplitude and known phase;
means for selectively coupling at least a portion of a signal fed to an input port of said RF circuit to the input port of said RF power divider circuit;
wherein said means for selectively coupling comprises:
a first RF coupler having an input port coupled to the input port of the RF circuit and a coupled port; and



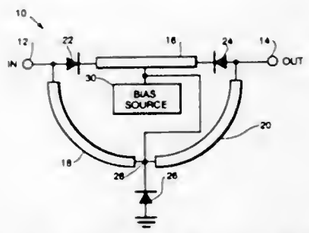
an RF switch having an input port coupled to the coupled port of the first RF coupler and an output port coupled to the input port of the RF power divider circuit; and
a plurality of directional coupler circuits, each of said directional coupler circuits having an input port and a coupled port with each input port coupled to a corresponding one of the plurality of output ports of the RF power divider circuit and each coupled port providing an output port of the RF circuit.

5,208,564

ELECTRONIC PHASE SHIFTING CIRCUIT FOR USE IN A PHASED RADAR ANTENNA ARRAY

Richard W. Burns, Orange, and Darren E. Atkinson, La Habra, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 19, 1991, Ser. No. 812,243
Int. Cl.[5] H01P *1/185*
U.S. Cl. 333—164 20 Claims



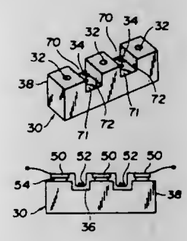
1. A phase bit circuit for receiving an input signal and producing an output signal which is selectively shifted in phase by a first predetermined amount or a second predetermined amount relative to the input signal, comprising;
input terminal means for inputting the input signal;
output terminal means for outputting the output signal;
first transmission line means coupled between the input and output terminal means;
a first diode coupled between the first transmission line means and the input terminal means;
a second diode coupled between the first transmission line means and the output terminal means;
second and third transmission line means connected in series with each other between the input and output terminal means, the second and third transmission line means defining a junction therebetween;
a third diode coupled between said junction of the second and third transmission line means and ground; and
biasing means coupled to the first, second and third diodes for selectively forward biasing the first, second and third diodes to cause substantially all of the input signal to propagate from the input terminal means through the first transmission line means to the output terminal means to constitute the output signal which is shifted in phase relative to the input signal by the first predetermined amount; or reverse biasing the first, second and third diodes to cause a first portion of the input signal to propagate from the input terminal means through the first transmission line means to the output terminal means and a second portion of the input signal to propagate from the input terminal means through the second and third transmission line means to the output terminal means, said first and second portions of the input signal combining at the output terminal means to constitute the output signal which is phase shifted in phase relative to the input signal by the second predetermined amount.

5,208,565

DIELECTRIC FILER HAVING A DECOUPLING APERTURE BETWEEN COAXIAL RESONATORS

Hiroyuki Sogo; Yasuyuki Kondo, both of Tochigi; Kazuhisa Yamazaki, Shizuoka; Junji Konda, Aichi, and Shigemitsu Suzuki, Shizuoka, all of Japan, assignors to Fujitsu Limited, Kanagawa and Fuji Electrochemical Co., Ltd., Tokyo, both of Japan

Filed Feb. 28, 1991, Ser. No. 662,199
Claims priority, application Japan, Mar. 2, 1990, 2-51223; Mar. 2, 1990, 2-51224; Mar. 3, 1990, 2-21685[U]; Mar. 3, 1990, 2-52481
Int. Cl.[5] H01P *1/202*
U.S. Cl. 333—206 6 Claims



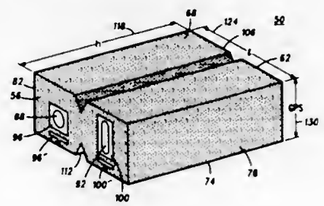
1. A dielectric filter comprising:
a dielectric block having:
a plurality of resonance apertures positioned a predetermined distance from each other and each of said plurality of resonance apertures extending through said dielectric block;
a non-conductive open side on an outer side of said dielectric block having an end of each of said plurality of resonance apertures extending there through;
a plurality of recesses, each of said plurality of recesses formed between respective adjacent ones of said plurality of resonance apertures along said open side of said dielectric block; and
a plurality of decoupling apertures, each of said plurality of decoupling apertures formed within a respective one of said plurality of recesses and extending through said dielectric block for electromagnetically shielding adjacent resonance apertures;
an electrically conductive film extending along the surface of said plurality of resonance apertures, said plurality of decoupling apertures, said plurality of recesses and each outer surface of said dielectric block except for said open side, for electrically connecting opposite sides of said plurality of decoupling apertures with outer surfaces of said dielectric block covered by said conductive film; and
a plurality of coils, each of said plurality of coils being received in a respective one of said plurality of recesses and connected between respective adjacent ones of said plurality of resonance apertures.

5,208,566

DIELECTRIC FILTER HAVING ADJACENTLY-POSITIONED RESONATORS OF DISSIMILAR CROSS-SECTIONAL DIMENSIONS AND NOTCHED SIDE SURFACE

Robert Kenoun, Prospect Heights, and Darioush Agahi-Kesbeh, Buffalo Grove, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

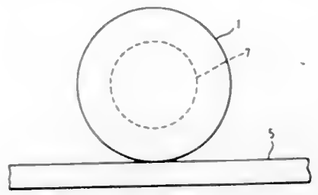
Filed Jan. 21, 1992, Ser. No. 823,227
Int. Cl.[5] H01P *1/205*
U.S. Cl. 333—206 9 Claims



1. A filter construction for generating a filtered signal responsive to application of an input signal thereto, said filter construction comprising:
a dielectric block defining top, bottom, and at least first and second side surfaces;
at least two longitudinally-extending resonators defined by sidewalls of cavities formed to extend longitudinally along longitudinal axes thereof between the top and bottom surfaces of the dielectric block, the at least two longitudinally-extending resonators including a pair of adjacently positioned resonators wherein a first resonator of the pair of adjacently positioned resonators is of a circular cross-section and a second resonator of the pair of adjacently positioned resonators is of a substantially elliptical cross-section;
a coating of an electrically-conductive material substantially covering the bottom and the at least first and second side surfaces and the sidewalls of the cavities defining the at least two longitudinally-extending resonators thereby to permit electromagnetic coupling between adjacent ones of the at least two resonators;
means forming a notch positioned to extend along at least one of the first and second side surfaces of the dielectric block at a location between the first resonator and the second resonator of the pair of adjacently positioned resonators, for altering the electromagnetic coupling between the pair of adjacently positioned resonators of the at least two longitudinally-extending resonators.

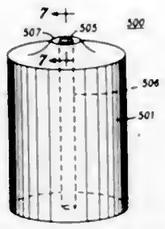
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,567
TEMPERATURE COMPENSATED DIELECTRIC RESONANT OSCILLATOR
Robin A. Bell; Alistair M. Bullen, and Ian R. Aldred, all of Hertfordshire, England, assignors to GEC-Marconi Limited, United Kingdom
Filed Jan. 10, 1991, Ser. No. 639,281
Claims priority, application United Kingdom, Jan. 31, 1990, 9002120
Int. Cl.[5] H01P *7/10*
U.S. Cl. 333—219.1 **16 Claims**



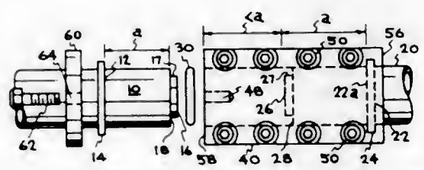
1. A dielectric resonant oscillator, comprising:
a body of a first dielectric material;
a base of a second dielectric material having a temperature-dependent dielectric constant, said body being mounted on said base;
a conductor disposed on said base immediately adjacent to said body for carrying a radio frequency signal;
said body having dimensions causing said body to present a cavity having a resonant frequency to a radio frequency signal coupled from said conductor; and
a conductive pad disposed between said body and said base, said body having a projected area on said base, and said pad having a surface area less than, or substantially equal to, half said projected area, said pad being effective to de-couple said base from said body and cause said resonant frequency of said cavity to be independent of the temperature dependence of said temperature-dependent dielectric constant.

5,208,568
METHOD FOR PRODUCING DIELECTRIC RESONATOR APPARATUS HAVING METALLIZED MESAS
Frederick L. Sassin, Albuquerque, N. Mex., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Feb. 3, 1992, Ser. No. 829,367
Int. Cl.[5] H01P *7/04, 1/205*
U.S. Cl. 333—223 **5 Claims**



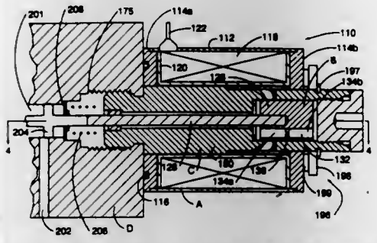
1. A method of altering resonant frequency characteristics of a dielectric resonator, the method comprising the steps of:
forming a volume of dielectric material having first, second, and side surfaces, at least said first surface further having a protuberance formed thereon;
forming a hole in said volume, such that said hole extends substantially from the apex of said protuberance through said dielectric material to said second surface;
coating said first, second, and side surfaces of said volume, said protuberance, and an interior surface of said hole with a conductive material;
removing at least a portion of the conductive material from said protuberance, such that a mesa having physical dimensions is formed by said hole and protuberance, thereby forming a dielectric hole resonator having frequency response characteristics: and
altering the physical dimensions of the mesa such that the frequency response characteristics of the hole resonator are changed.

5,208,569
SIMPLIFIED FLANGELESS UNISEX WAVEGUIDE COUPLER ASSEMBLY
Dimartino Michelangelo, La Mesa, and Charles P. Moeller, Del Mar, both of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Jun. 3, 1992, Ser. No. 893,154
Int. Cl.[5] H01P *1/06*
U.S. Cl. 333—257 **10 Claims**
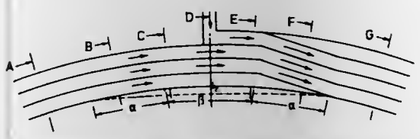


1. A unisex coupler assembly for coupling together first and second waveguides of matching external cross-section which comprises:
a) a split collar comprising two half collars, said split collar, when assembled, defining an interior bore matching the external cross-section of said first and second waveguides, and having an annular groove in said interior bore adjacent a near end of said split collar;
b) an external annular groove in each of said first and second waveguides spaced the same distance from an end of said respective waveguides;
c) a retaining ring in said annular groove in each of said first and second waveguides, said retaining ring in said first waveguide being receivable in said annular groove in said split collar when- said first waveguide is inserted into said split collar to protrude from said near end thereof;
d) means for fastening said split collar together around at least said first waveguide with said retaining ring on said first waveguide in said annular groove in said split collar;
e) a second collar having an interior cross-section matching the external cross-section of said waveguides and carried on said second waveguide at a point spaced from said end of said second waveguide, with said annular groove and retaining ring on said second waveguide spaced between said second collar and said end; and
f) means for fastening said second collar to said split ring collar and to urge said second collar against said retaining ring on said second waveguide when said end of said second waveguide is inserted into a far end of said split collar to thereby axially urge said second waveguide into sealing engagement with said first waveguide in said split collar.

5,208,570
SOLENOID CONSTRUCTION AND METHOD FOR MAKING SAME
Andrew H. Nippert, Peoria, Ill., assignor to Caterpillar Inc., Peoria, Ill.
Filed Apr. 6, 1992, Ser. No. 864,248
Int. Cl.[5] H01F *3/00, 7/08*
U.S. Cl. 335—261 **14 Claims**



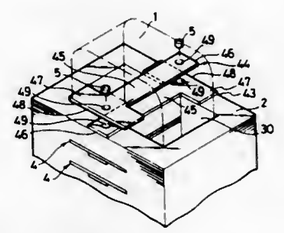
1. An assembly for use in a solenoid having an energizable coil, comprising:
a hollow solenoid armature tube adapted to be received in the coil, the armature tube having an armature chamber therein;
a stationary pole piece member defining a first end of the armature chamber;
an end plug defining a second end of the armature chamber; and
an armature member having an orifice and a longitudinal bore which are fluidly connected and adapted to provide nonlaminer fluid flow through the armature, the longitudinal bore having a diameter at least three times larger than the diameter of the orifice, and the armature member being positioned in the armature chamber for axial sliding movement relative to and defining a working gap relative to the pole piece.

5,208,571
MAGNET WINDING WITH LAYER TRANSITION COMPENSATION
Wolfgang H.-G. Müller, Karlsruhe, Fed. Rep. of Germany, assignor to Bruker Analytische MeBtechnik GmbH, Fed. Rep. of Germany
Filed Jun. 21, 1991, Ser. No. 719,124
Claims priority, application Fed. Rep. of Germany, Jun. 23, 1990, 4020112
Int. Cl.[5] H01F *5/00*
U.S. Cl. 335—299 **30 Claims**



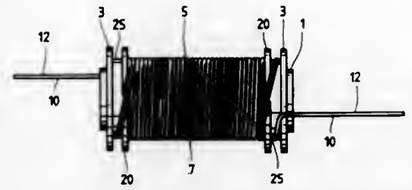
14. Magnet winding comprising windings made from conducting elements forming a coil having a longitudinal axis and surrounding a magnetic field axis which is coincidental with the coil longitudinal axis, said windings being wound in at least two layers separated along the longitudinal axis, said layers being interconnected by at least one layer transition, said windings having an angular region about the magnetic field axis which includes the layer transition, and a radial separation from the magnetic field axis of at least a radially innermost winding of one respective layer is less than that of a radial separation of the innermost winding in another angular region, the radial separation of at least the radially innermost winding of the respective layer from the magnetic field axis, at the middle of the angular region, is less than that outside the angular region by a multiple of one-half of a radial extent of the conducting element.

5,208,572
AIR-CORE REACTOR WITH A MAGNETIC SHIELD
Katsumi Kondo, Akou, and Mitsuhiro Kishida, Amagasaki, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 8, 1992, Ser. No. 923,181
Claims priority, application Japan, Jul. 16, 1991, 3-175135
Int. Cl.[5] H01F *15/04, 27/30*
U.S. Cl. 336—83 **6 Claims**



1. A reactor comprising:
a coil (1) having a central opening (1*a*);
a magnetic shield (2) having walls surrounding said coil (1) and formed of a plurality of laminated sheets of magnetic material; and
a plurality of connecting members (4) inserted through the central opening (1*a*) of said coil and clamped at their first and second ends between the sheets of said magnetic shield (2) forming the side walls;
wherein each connecting member (4) is formed of a first and second connecting plates having a front end and a rear end, and a laterally expanded part at the rear end, with the front and rear ends of the first connecting plates being in alignment with the rear and front ends of the second connecting sheets.

5,208,573
ELECTRICAL COIL UNIT
Akihiro Nagaoka, Osaka, Japan, assignor to Diamond Electric Mfg. Co., Ltd., Japan
Filed Feb. 26, 1992, Ser. No. 841,505
Claims priority, application Japan, Oct. 4, 1991, 3-89616[U]
Int. Cl.[5] H01F *15/10*
U.S. Cl. 336—192 **6 Claims**



1. An electrical coil unit including a bobbin made of non-magnetic material, said bobbin comprising:
a primary winding portion defined between two first flanges, on which a coil winding consisting of a wire covered by an insulating film is wound to form a coil and including leaders which consist of portions of said wire and insulating film;
auxiliary winding portions defined between said first flanges and respective second flanges provided outside of said

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first flanges, on which said leaders extending from a winding starting and a winding finishing end of said coil are wound;

wherein said insulating films of said leaders are stripped to expose portions of said wire, said exposed portions of said wire being uncovered by any material and extending from points on said auxiliary winding portions to said ends of said leaders, said insulating films extending into said auxiliary winding portions to the points where said exposed portions of said wire start.

5,208,574

TEMPERATURE SENSOR

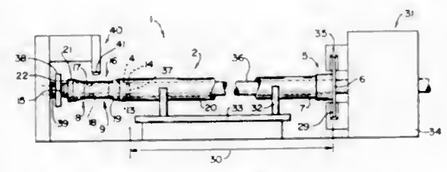
Siegfried Mannuss, Sternenfels, and Heinz Petri, Bretten, both of Fed. Rep. of Germany, assignors to E.G.O. Elektro-Gerate Blanc u. Fischer, Fed. Rep. of Germany

Filed Sep. 11, 1991, Ser. No. 757,721

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1990, 4029351

Int. Cl.[5] **H01H** *37/48, 37/46*

U.S. Cl. 337—394 **36 Claims**



1. A temperature sensor comprising:

at least one sensing rod, having a first rod unit (2) radially surrounding a second rod unit (3) and an abutment (4) radially surrounded by said first rod unit (2) for operationally supporting said second rod unit (3) against said first rod unit (2), said abutment having circumferential engagement faces for bearingly engaging said first rod unit (2) to prevent axial motion of said abutment relative to said first rod unit, wherein said engagement faces of said abutment have substantially smooth faces.

5,208,575

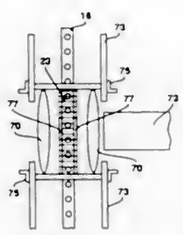
APPARATUS FOR COORDINATED TRIGGERING OF CHEMICALLY AUGMENTED ELECTRICAL FUSES

Victor Temple, Clifton Park, N.Y., assignor to General Electric Company, Malvern, Pa.

Filed Jan. 40, 1992, Ser. No. 818,923

Int. Cl.[5] **H101H** *37/76;* **P42C** *19/00*

U.S. Cl. 337—401 **15 Claims**



1. An apparatus for triggering chemically augmented electrical fuses, said apparatus comprising:

a) means, responsive to a signal generated upon the occurrence of a triggering event, for generating an internal triggering stimulus and mechanical energy;

b) means for receiving said mechanical energy and providing a trigger output signal as a result thereof; and

c) means for coupling said mechanical energy from said generating means to said receiving means.

5,208,576

ELECTRICAL EXTERNAL RESISTANCE

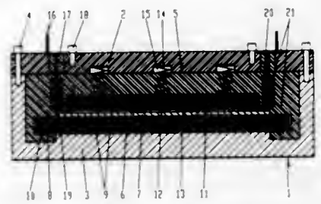
Dieter Wunderlich, Selb; Ernst Karich, Naila-Lippertsgrun, and Claus Degel, Hof, all of Fed. Rep. of Germany, assignors to Draloric Electronic GmbH, Selb, Fed. Rep. of Germany

Filed May 1, 1991, Ser. No. 694,118

Claims priority, application Fed. Rep. of Germany, May 2, 1990, 4014104

Int. Cl.[5] **H01C** *1/028*

U.S. Cl. 338—248 **23 Claims**



1. An electrical resistor comprising:

a plate-like electrically insulating carrier element having a lower surface, an upper surface and an edge area surrounding said upper and lower surfaces;

a coating covering said carrier element and comprising a first film consisting of an electrically conductive material and applied to said lower surface of said carrier element, a second film consisting of cermet and applied to said upper surface of said carrier element, and a third film consisting of an electrically insulating material and applied to said edge area of said carrier element;

a flat resistance element; and

means for pressing said resistance element into contact with said second film.

5,208,577

MARKER LIGHT ARRANGEMENT FOR POWER LINES

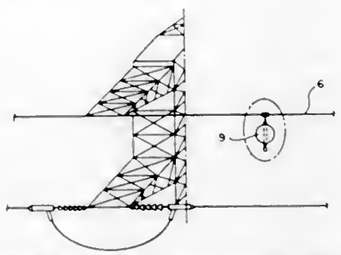
Rafael C. Herzberg, Paulista-Sao Paulo, Brazil, assignor to Construcoes Electricas Eltec S.A., Sao Paulo, Brazil

Filed Jun. 11, 1992, Ser. No. 897,297

Claims priority, application Brazil, Jun. 20, 1991, 7101294

Int. Cl.[5] **G01R** *19/145;* **H04L** *12/26*

U.S. Cl. 340—310 R **1 Claim**



1. A marker apparatus for power lines comprising: a discharge lamp, first cable means for electrically connecting the lamp to an overhead ground wire and suspending the lamp from the wire, a metallic energy captor, second cable means for electrically connecting the captor with the lamp, the electrostatic field of the power lines works as a power source to turn on the lamp, by induction, via said metallic energy captor, and a member made of translucid material of attractive and visible color, said member being disposed around the lamp.

5,208,578

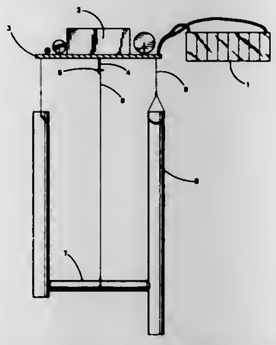
LIGHT POWERED CHIME

Jon M. Tury, 11641 U.S. 27, DeWitt, Mich. 48820, and Edward L. Tury, 9732 Rosemary La., Brighton, Mich. 48116

Filed Apr. 15, 1991, Ser. No. 685,554

Int. Cl.[5] **G08B** *3/00;* **G10K** *1/00*

U.S. Cl. 340—393 **12 Claims**



1. A light powered musical chime apparatus which produces an intermittent and random sound comprising:

a housing;

a plurality of resonating elements suspended from said housing;

a motor mounted to said housing;

a striker suspended from an output shaft of said motor such that said striker is capable of contacting said resonating elements in a random and non-sequential manner when said output shaft is rotated;

an electronic circuit adapted to intermittently switch a varying amount of power to said motor at time intervals of varying length, wherein the amount of said power and said length of said intervals being determined by a varying output of a variable power source supplying power to said electronic circuit; and

a solar cell mounted to the housing so as to be exposed to ambient light to produce said varying output and electrically connected to supply said varying output to said electronic circuit thereby providing said variable power source.

5,208,579

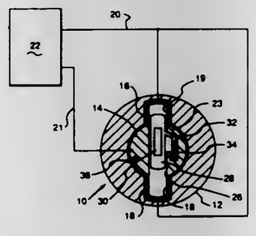
ALARM SYSTEM

Chiang S. Tseng, 9780 Capella Drive, Richmond, British Columbia, Canada V6X3N4

Continuation-in-part of Ser. No. 691,367, Apr. 25, 1991. This application May 2, 1991, Ser. No. 694,825

Int. Cl.[5] **E05B** *45/06;* **H01H** *27/06;* **G08B** *19/00*

U.S. Cl. 340—542 **11 Claims**



1. An improved alarm system comprising:

a locking mechanism including:

a fixed body;

a movable body movable relative to said fixed body and operative to perform a locking function;

a plurality of locking elements individually movable between a first position in which movement of said movable body relative to said fixed body is prevented by engagement of at least one of said locking elements with a blocking surface, and a second position in which no locking element engages said blocking surface and movement between said movable body and said fixed body is permitted;

first electrode means formed by at least one of said locking elements; and

second electrode means formed by said blocking surface, at least one of said first and second electrode means being electrically insulated from the other components of said locking mechanism;

alarm means including:

an alarm signal generator and

a plurality of event-detection sensors, said first and second electrode means forming one of said sensors, said sensors being coupled to said signal generator such that an event detected by any one of said sensors will cause said generator to develop an alarm signal; and

switching means for disabling said alarm means,

said switching means being coupled to said movable body and operable to enable said alarm means when said movable body is in a position such that said locking mechanism is locked and is operable to disable said alarm means when said movable body is in a position such that said locking mechanism is unlocked.

5,208,580

SECURITY TAG ATTACHMENT

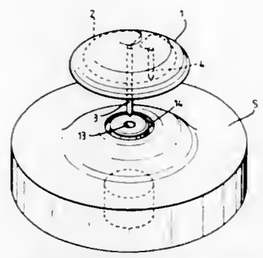
Michael D. Crossfield, Perne Drift, Burton End, West Wickham, Cambridge, England

Filed Dec. 20, 1990, Ser. No. 631,248

Claims priority, application United Kingdom, Dec. 21, 1989, 8928966

Int. Cl.[5] **G08B** *13/14*

U.S. Cl. 340—571 **4 Claims**



1. A security or antipilferage tag and means for attaching the tag to an article of merchandise, wherein the tag comprises an electrical circuit including means for generating an alarm signal under predetermined conditions, and wherein the attachment means is shaped so as to fit against a surface region of the tag whereby a portion of the article of merchandise is clamped between the tag and the attachment means, thereby retaining the tag on the article of merchandise, the attachment means comprising a generally circular cap having an upper surface and a lower surface, and a pair of pins depending from said lower surface of the cap, wherein (a) each of said pins is electrically conductive or includes within it an electrically conductive pathway; (b) an electrical conductor is provided within the body of said cap which makes an electrical connection between the pair of pins; (c) one of said pair of pins is located at the center of the lower surface of said cap and the other of said pair of pins is located intermediate the center of

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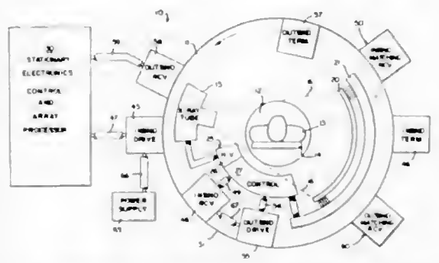
the cap and the periphery thereof; and (d) the tag includes a first opening in the form of a centrally located pin hole orifice adapted to receive the central pin of said attachment means and to permit electrical contact between said central pin and a first component of the electrical circuit within the tag, and a second opening in the form of an annular channel adapted to receive the other of said pair of pins of said attachment means and to permit electrical contact between said other pin and a further component of the electrical circuit within the tag.

5,208,581

HIGH SPEED COMMUNICATION APPARATUS FOR COMPUTERIZED AXIAL TOMOGRAPHY (CAT) SCANNERS WITH MATCHING RECEIVER

Arthur K. Collins, Waukesha, Wis., assignor to General Electric Company, Milwaukee, Wis.

Filed Nov. 22, 1991, Ser. No. 796,162
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—671 **9 Claims**



1. A communications apparatus for providing high speed communications between first and second electronics systems mounted on first and second mechanical mounting structures, respectively, where the first and second mechanical mounting structures rotate with respect to each other along an axis of rotation, the apparatus comprising:

a slip ring arranged coaxially with the axis of rotation and attached to one of said mounting structures;

drive means attached to the first mechanical mounting structure and electrically connecting the first electronics system to the slip ring at a first point in the frame of reference of the first mechanical mounting structure;

termination means attached to the first mechanical mounting structure and electrically connected to the slip ring at a second point in the frame of reference of the first mechanical mounting structure which is diametrically opposite said first point in the frame of reference of the first mechanical mounting structure;

receive means attached to the second mechanical mounting structure and electrically connecting the second electronics system to the slip ring at a first point in the frame of reference of the second mechanical mounting structure;

matching receive means attached to the second mechanical mounting structure and electrically connected to the slip ring at a second point in the frame of reference of the second mechanical mounting structure which is diametrically opposite said first point in the frame of reference of the second mechanical mounting structure;

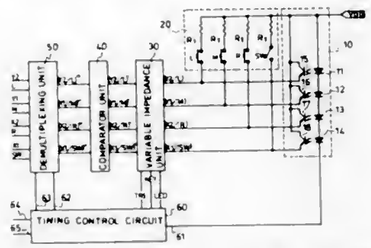
wherein the drive means transmits an electrical signal on the slip ring which is received by the receive means, and the matching receive means balances the impedance of the receive means such that any reflection of the electrical signal from the termination means is minimized.

5,208,582

MULTIPLEXING INPUT DEVICE TO BE USED IN COMBINATION WITH AN INTEGRATED COMPUTER MOUSE CONTROL CIRCUIT

Jyn-Guo Hwang, Hsin-Chu, Taiwan, assignor to Hualon Microelectronics Corporation, Taiwan

Filed Dec. 12, 1991, Ser. No. 806,880
Int. Cl.[5] G09G *3/02*
U.S. Cl. 340—706 **1 Claim**



1. A multiplexing input device to be used in combination with an integrated computer mouse control circuit, comprising:

a timing control circuit having a sensor activating output, a movement sampling signal simultaneous with said sensor activating output and a key input sampling signal;

a movement sensor unit activated by said sensor activating output of said timing control circuit, said movement sensor unit having a first movement signal, a second movement signal, a third movement signal and a fourth movement signal when activated;

a key input control unit including a first press key, a second press key, a third press key, a control switch and four resistor units connecting a respective one of said first, said second and said third press keys and said control switch to an external voltage source;

a controllable variable impedance unit having a first input terminal receiving said first movement signal and being connected to said first press key, a second input terminal receiving said second movement signal and being connected to said second press key, a third input terminal receiving said third movement signal and being connected to said third press key, and a fourth input terminal receiving said fourth movement signal and being connected to said control switch; said controllable variable impedance unit being controlled by said timing control circuit to have a first impedance value when said sensor activating output is generated and a second impedance value much larger than said first impedance value when said key input sampling signal is generated; said controllable variable impedance unit further having four resistance output terminals;

a comparator unit including four comparator circuits, each of said comparator circuits having a first input terminal connected to a respective one of said resistance output terminals of said controllable variable impedance unit and a second input terminal connected to a reference voltage; said controllable variable impedance unit varying the input impedance to said comparator unit; said comparator unit having four output signals corresponding to said first, said second, said third and said fourth movement signals when said controllable variable impedance unit has said first impedance value; said output signals of said comparator unit corresponding to the status of said first, said second and said third press keys and said control switch when said controllable variable impedance unit has said second impedance value; and

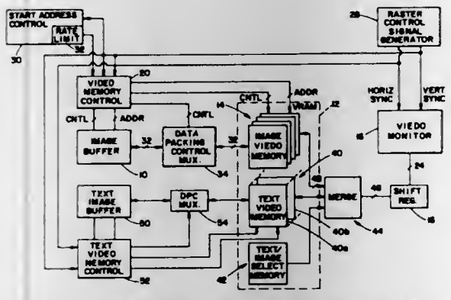
a demultiplexing unit receiving said output signals from said comparator unit; said demultiplexing unit having a first set of data outputs corresponding to said first, said second, said third and said fourth movement signals and a second set of data outputs corresponding to the status of said first, said second and said third press keys and said control switch; said demultiplexing unit updating said first set of data outputs to correspond with said output signals from said comparator unit upon reception of said movement sampling signal; and said demultiplexing unit updating said second set of data outputs to correspond with said output signals from said comparator unit upon reception of said key input sampling signal.

5,208,583

ACCELERATED PIXEL DATA MOVEMENT

Daniel V. Cusick, Chesterland; John E. Conroy, Hudson; Raymond G. Molnar, Boston Heights, all of Ohio, and O. Nolan Daines, Fremont, Calif., assignors to Bell & Howell Publication Systems, Company, Wooster, Ohio

Continuation-in-part of Ser. No. 592,186, Oct. 3, 1990, Pat. No. 5,199,101. This application Oct. 9, 1990, Ser. No. 594,384
Int. Cl.[5] G09G *1/06*
U.S. Cl. 340—723 **20 Claims**



1. A video data handling system for providing data to a video monitor having raster movement that is controlled by horizontal and vertical synchronization pulses, the system comprising:

an image buffer memory means for storing bits of video data indicative of pixels of a large image which has more pixels than are concurrently displayed on the video monitor;

a video random access memory means for storing rows of video data which are currently displayed on the video monitor, the video random access memory means being connected with the video monitor to provide the rows of video data thereto for display and being connected with the image buffer memory means for being refreshed by video data received from a subregion thereof;

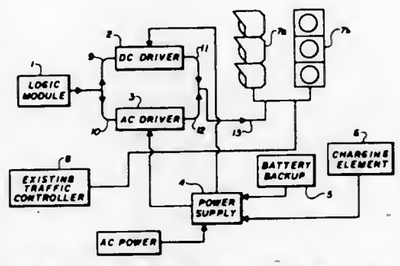
a video memory control means operatively connected with the image buffer memory means and the video random access memory means for refreshing the video random access memory means by selectively causing a plurality of rows of video data to be transferred from the image buffer memory means subregion to the video random access memory means during a vertical retrace period of the video monitor, the plurality of rows transferred during the vertical retrace period being less than all the rows of a displayed video image, the video memory control means causing the transfer of a another video data row from the image buffer memory means subregion to the video random access memory means during horizontal readout of a row of video data from the video random access memory after each horizontal synchronization pulse until all the rows of video data corresponding to the displayed video image are transferred, whereby another row of video data in the video random access memory means is updated with video data from the image buffer memory means subregion with each raster scan of the video monitor.

5,208,584

TRAFFIC LIGHT AND BACK-UP TRAFFIC CONTROLLER

Jonathan Kaye, 11 Pond Path, Woodbury, N.Y. 11797, and Albert Briffa, 2 Stardom Ct., St. James, N.Y. 11780

Filed Sep. 3, 1991, Ser. No. 753,921
Int. Cl.[5] G08G *1/095*
U.S. Cl. 340—907 **10 Claims**



1. Apparatus for operating a traffic control having a plurality of lights, said apparatus comprising:

variable timer means for generating time interval signals having a timing sequence for controlling said plurality of lights, and

timer capacitor means operatively connected to said variable timer means for holding an electrical charge whose rates of discharge determines the time intervals generated by said variable timer means, and

timer resistor array for varying a resistance-capacitance constant of a discharge path of said timer capacitor means, comprising timer resistor means, said timer resistor means being sequentially connected to said timer capacitor means for providing said rates of discharge, and

coupling array for sequentially connecting said timer capacitor means with said timer resistor means of said timer resistor means array, and

rectifier bridge array for supplying direct current to said coupling array comprising rectifier bridge means, said rectifier bridge means being operatively interposed between said timer capacitor means and said timer resistor array for obtaining a unidirectional current flow in said coupling array, and

sequencing register means for sequentially selecting a particular coupling within said coupling array, said sequencing register means being responsive to said variable timer means.

5,208,585

HIGHWAY BARRIER FOR TRAFFIC CONTROL

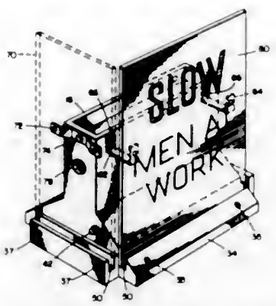
R. Paul Sprague, 350 Indian Rock Rd., New Canaan, Conn. 06840

Filed Jan. 21, 1992, Ser. No. 822,725
Int. Cl.[5] B60Q *7/00*; E01F *9/00*; G08G *1/00*
U.S. Cl. 340—908.1 **20 Claims**

13. A portable hollow highway barrier comprising a box-like element adapted for temporary placement on a surface in an upright position for traffic control and channelization, said element being constructed of a resilient plastic material and having an upper portion of rectangular cross-sectional configuration defined by a pair of vertically-oriented side walls, a pair of vertically-oriented end walls integrally joined to said side walls and a top wall integrally joined to said side and end walls at a distance below their upper edges so as to form a shallow well in the top of said barrier surrounded by upwardly extending side and end walls, and having a bottom portion including a rectangular bottom wall having a length substantially coextensive with said side walls and a width greater than the end walls of said upper portion and inclined side walls diverging outwardly and downwardly from the side walls of said upper

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portion and integrally joined to respective side edges of said bottom wall, said bottom portion being constructed and defined for providing a vertically-oriented slot exteriorly of and



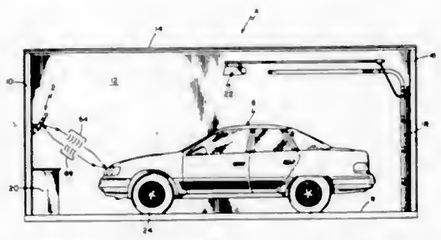
parallel to each end wall and a vertically-oriented slot in each inclined side wall and substantially parallel to the side walls of said upper portion, each of which slots is constructed to receive and support a highway sign in an upright position.

5,208,586

ULTRASONIC VEHICLE POSITIONING APPARATUS AND METHOD

Nathan J. Friberg, 10545 Maryland Cir., Bloomington, Minn. 55438, and Charles A. Boulos, Milford, Mass., assignors to Nathan J. Friberg, Bloomington, Minn.

Filed Feb. 14, 1991, Ser. No. 655,770
Int. Cl.[5] G08G *1/14*
U.S. Cl. 340—932.2 **23 Claims**



1. Apparatus for helping an operator of a movable vehicle to park or otherwise position that vehicle at a desired pre-determined spot within a target area comprising a parking stall, which comprises:

(a) at least one alarm which s discernible to the vehicle operator when the alarm is actuated; and

(b) means for actuating the alarm when the vehicle reaches the pre-determined spot as the vehicle is being driven into the target area to allow the operator to stop the vehicle when the vehicle is located approximately at the pre-determined spot, the alarm actuating means including:

(i) means for generating a succession of pulses of sound energy and for directing the sound pulses into the target area and towards the vehicle as the vehicle is being driven towards the pre-determined spot, wherein the pulse generating means generates pulses at a frequency such that the vehicle when driven into the target area at a parking speed does not move a significant distance forwardly between successive sound pulses;

(ii) means for detecting sound pulse echoes which are reflected from the target area including sound pulse echoes reflected from the vehicle being moved into the target area by the operator; and

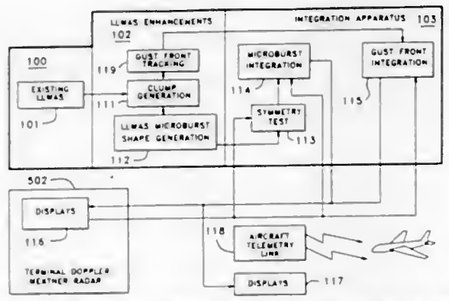
(iii) control means responsive to the reflected sound pulse echoes received by the detecting means for determining when the vehicle has reached the pre-determined spot within the target area and for simultaneously actuating the alarm in that event to alert the operator that movement of the vehicle should be stopped to locate the vehicle approximately at the pre-determined spot.

5,208,587

LOW-LEVEL WIND-SHEAR ALERT SYSTEM

Lawrence B. Cornman, Boulder, Colo., assignor to University Corporation for Atmospheric Research, Boulder, Colo.

Division of Ser. No. 718,345, Jun. 19, 1991. This application Feb. 25, 1992, Ser. No. 841,979
Int. Cl.[5] G08B *23/00*
U.S. Cl. 340—968 **14 Claims**



1. A method of identifying the presence and locus of a gust front in a predefined area based on wind measurements from a plurality of wind sensors, each of which wind sensors being positioned at a predetermined locus within said predefined area to produce wind data indicative of wind magnitude and direction at said predetermined locus, said method comprising the steps of:

collecting said wind data from said plurality of wind sensors;

producing a plurality of axes, each of which is indicative of the locus and bounds of one of a like plurality of wind shear events within said predefined area based on said collected wind data, comprising:

mapping said wind data into a grid of wind data points, each of which is representative of wind magnitude at a one of a plurality of predetermined points in said predefined area,

expunging from said grid of wind data points, said mapped wind data points whose wind data value does not exceed a predetermined threshold,

producing a plurality of axes, each axis being representative of a least squares line segment through a contiguous plurality of non-expunged ones of said mapped wind data points; and

combining a plurality of said produced axes into a smooth continuous curve on said grid of wind data points to identify the presence and locus of a gust front in said predefined area.

5,208,588

METHOD AND APPARATUS FOR CONTINUOUSLY SCROLLING LARGE SCALE PICTURE

Kazuyoshi Nishiyama, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 10, 1991, Ser. No. 683,067
Claims priority, application Japan, Apr. 10, 1990, 2-94713
Int. Cl.[5] G09G *1/06*
U.S. Cl. 340—724 **5 Claims**

1. A method for continuously scrolling a large scale picture, comprising the step of:

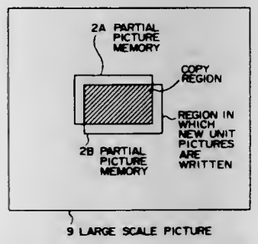
extracting a first partial picture of a part of the large scale

picture from picture memory means storing a plurality of unit pictures, which form the large scale picture and are respectively corresponded to predetermined addresses;

storing the first partial picture into a first partial picture memory means, said first partial picture having a region with a first position and a first size, which are relatively defined based on orthogonal coordinate axes of said large scale picture;

reserving second partial picture memory means for storing a second partial picture having a second position and a second size, which are relatively defined based on the orthogonal coordinate axes of the large scale picture, said second position of said second partial picture being defined by parallel translation of said first position of said first partial picture, said second partial picture having a region overlapping said first partial picture;

calculating a position and a size of the region where said first and second partial picture overlap each other, and those of



a region where said first and second partial picture do not overlap each other;

copying picture data of said first partial picture memory means corresponding to the region where said first and second partial pictures overlap each other, to a corresponding region of said second partial picture memory means;

searching the unit pictures forming the region of said second partial picture which does not overlap said first picture based on the respective addresses of the plurality of the unit pictures forming said large scale picture;

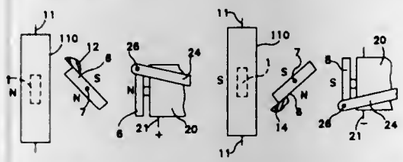
storing the searched unit pictures to the corresponding position of said second partial picture memory means and operating said second partial picture memory means in which all picture data to be stored are stored, in place of the operation of said first partial picture memory means; and displaying the content of said second partial picture memory means, thereby continuously scrolling the large scale picture.

5,208,589

MAGNETICALLY CONTROLLED INDICIA DISPLAY DEVICE

Eugene E. Reynolds, 1145 Pacific Beach Dr., Apt. 407, San Diego, Calif. 92109

Filed Jul. 23, 1990, Ser. No. 554,794
Int. Cl.[5] G09G *3/16*
U.S. Cl. 340—764 **7 Claims**



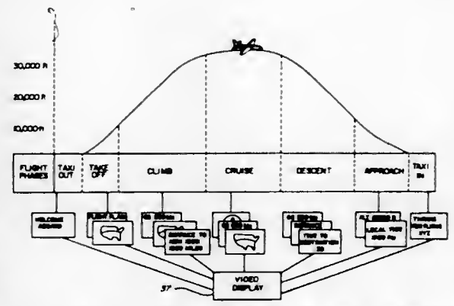
1. An indicia display device comprising a support panel, a display unit having at least two modes of display and pivots supporting the unit on the panel for rotation about the pivot axis, and magnetic control means for rotating the unit from a first to a second mode of display, the control means comprising a first magnet fixedly supported in the display unit; in combination with a second magnet having first and second polar faces and further having a perpendicular axis of rotation relative to said pivot axis, one end of said second magnet being offset from said pivot axis and singly presenting said first polar face adjacent a first end of said first magnet when said unit is in said first mode, and energizable electromagnetic means for changing the field of flux of the second magnet from a first to a second condition, energizing of said electromagnetic means concommitantly rotating said second magnet through a predetermined angle about said perpendicular axis to bring said one end of the second magnet to a point singly presenting said second polar face adjacent the other end of said first magnet, said one end following a path substantially aligned with said pivot axis; and said display unit being rotated to said second mode of display in response to changing the field of flux to said second condition.

5,208,590

FLIGHT PHASE INFORMATION DISPLAY SYSTEM FOR AIRCRAFT PASSENGERS

Alexander C. Pitts, Huntington Beach, Calif., assignor to Asinc, Inc., Tustin, Calif.

Filed Sep. 20, 1991, Ser. No. 763,370
Int. Cl.[5] G01C *23/00*
U.S. Cl. 340—973 **6 Claims**



1. An information display system for aircraft passengers in an aircraft following a flight plan and having a receiver for receiving flight information and a video display system, the information display system comprising:

memory means for storing a plurality of display screen formats for displaying flight information, and for storing a plurality of display modes, each mode representing a specific sequence of preselected display screen formats, with each display mode corresponding to one phase of the flight plan of the aircraft;

said memory means also storing, for each phase of the flight plan, a plurality of ranges of flight information;

data processor means for determining a current phase of the flight plan by:

comparing the received flight information with the plurality of ranges of flight information stored by the memory means;

determining, out of the plurality of ranges, a current range corresponding to the received flight information; and

identifying the current phase of the flight plan as being the phase corresponding to the current range;

said data processor means also retrieving a sequence of display screen formats for a display mode corresponding to the determined current phase of flight, inserting received flight information into said display screen formats that is appropriate to said display screen formats, and inputting the retrieved sequence of display formats to the video display system for display to the

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passengers, such that, as each phase of the flight plan is reached, the system displays a new sequence of informative video displays to the passengers; and

wherein the current phases of flight include taxi out, take off, initial climb, climb, en route cruise, proximity to points of interest, descent, approach, land, rollout, and taxi in.

5,208,591

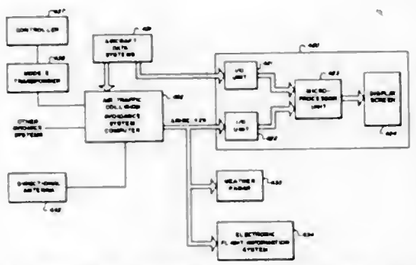
TRACK EXTENSION FOR USE WITH ATCRBS SURVEILLANCE PROCEDURES

Kathryn W. Ybarra, Phoenix, and Gregory T. Stayton, Glendale, both of Ariz., assignors to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 415,192, Sep. 29, 1989, abandoned. This application Apr. 19, 1991, Ser. No. 687,965

Int. Cl.[5] **G08G** *5/04*

U.S. Cl. 340—961 **10 Claims**



1. A method of processing aircraft traffic target replies provided in response to interrogation signals from a monitoring aircraft for traffic in a vicinity of said monitoring aircraft, wherein positions of target aircraft traffic are represented by target reply signals in aircraft processing apparatus, said method comprising the steps of:

accumulating sets of target replies, each target reply including a time and a distance parameter, wherein said sets of target replies can include missing and inaccurate target replies;

based on a predetermined criterion for correlation between target reply parameters for a plurality of unassigned target replies, assigning unassigned correlated target replies to a target aircraft track;

based on a preselected relationship between parameters for each correlated target reply of a target aircraft track, determining a priority level for each target aircraft track;

providing an additional set of target replies along with parameters for each additional set of target replies;

assigning an unassigned additional set target reply to a target aircraft track when said additional set target reply has said predetermined criterion for correlation with target replies of said target aircraft track, wherein said assigning an unassigned additional set target reply step is performed in order of priority level of said target aircraft tracks;

accumulating unassigned additional set target replies with sets of target replies previously accumulated; and

returning to said providing an additional set of target replies step.

5,208,592

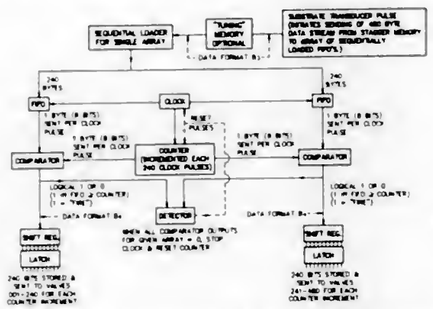
DATA LOADING AND DISTRIBUTING PROCESS AND APPARATUS FOR CONTROL OF A PATTERNING PROCESS

Harold L. Johnson, Jr., Pauline, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Division of Ser. No. 327,843, Mar. 23, 1989, Pat. No. 4,984,169. This application Oct. 2, 1990, Ser. No. 592,034

Int. Cl.[5] **H03M** *7/00;* **H03K** *21/10, 5/04*

U.S. Cl. 341—63 **1 Claim**



1. A method for transforming a succession of parameter values used to control the selective application of dyes or other marking materials to a moving substrate, each such value being digitally encoded in an individual binary character string of uniform length, into a number of respective binary character sequences, each such sequence being comprised of an individual series of n binary characters having a uniform binary state and wherein n is an integer and the value of n is determined by an individual parameter value corresponding to said respective sequence, wherein said respective binary character sequences are collectively generated by (a) initializing a counter value, (b) successively comparing the encoded parameter value expressed in each of said binary character strings with said counter value, the result of said comparison being a single binary character having a uniform binary state so long as said encoded parameter value is greater than said counter value, and an opposite binary state of said uniform binary state otherwise, (c) incrementing said counter value, and repeating steps (b) and (c), using said incremented counter values, until said incremented counter value exceeds the parameter value encoded in each of said binary character strings these binary character strings represent firing times for dye contact and the value in the counter represents an elapsed firing time with the generated binary character sequence utilized as firing commands to activate individual air valves associated with individual dye applicators.

5,208,593

METHOD AND STRUCTURE FOR DECODING HUFFMAN CODES USING LEADING ONES DETECTION

Po Tong, Fremont, and Peter A. Ruetz, Redwood City, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Continuation-in-part of Ser. No. 737,959, Jul. 30, 1991, and a continuation-in-part of Ser. No. 737,620, Jul. 30, 1991, Pat. No. 5,181,031. This application Jun. 26, 1992, Ser. No. 905,257

Int. Cl.[5] **H03M** *7/40*

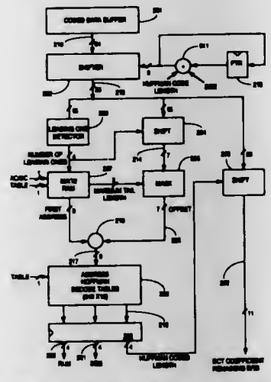
U.S. Cl. 341—65 **12 Claims**

1. A method for decoding a variable length codeword embedded in a bit stream, comprising the steps of:

detecting the number of leading 1's in said variable length codeword;

looking up from a first storage means (i) a "tail length" corresponding to the maximum number of bits following said number of leading 1's in said variable length codeword; and (ii) a first memory address;

separating from said bit stream in accordance with said tail length a bit string including the bits of said codeword following said leading 1's;



combining said first memory address and said bit string to form a second memory address; and

using said second address to access a second storage means to obtain a decoded value of said codeword.

5,208,594

SIGNAL PROCESSOR THAT USES A DELTA-SIGMA MODULATION

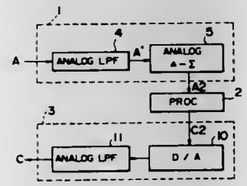
Nobuhide Yamazaki, Yokohama, Japan, assignor to Ricoh Company, Ltd.

Filed Apr. 28, 1992, Ser. No. 874,817

Claims priority, application Japan, May 2, 1991, 3-130586; May 2, 1991, 3-130593

Int. Cl.[5] **H03M** *3/02*

U.S. Cl. 341—143 **9 Claims**



1. A signal processing system for processing an input analog signal, comprising:

delta-sigma modulation means supplied with said input analog signal for applying thereon a delta-sigma modulation, said delta-sigma modulation means producing one-bit data sequentially in response to said input analog signal;

arithmetic means supplied with said output one-bit data of said delta-sigma modulation means for applying a predetermined arithmetic operation thereon;

integration means supplied with an output of said arithmetic means for integrating the same to produce multiple-bit data as an output;

comparator means having first and second input ports, said comparator means being supplied with said multiple-bit data from said integration means at said first input port and multiple-bit reference data at said second input port for producing one-bit data as a result of comparison of the multiple-bit data at said first input port and said reference data at said second input port;

feedback means supplied with an output of said comparator means for producing said multiple-bit reference data based upon said one-bit data produced by said comparator means such that said reference data predicts said multiple-bit data supplied to said first input port, said feedback means supplying said multiple-bit reference data to said second input port of said comparator means; and

digital-to-analog conversion means supplied with said output one-bit data of said comparator means for converting the same to an analog output signal.

5,208,595

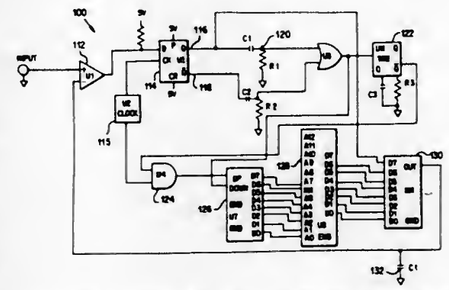
DIGITALLY CONTROLLED ADAPTIVE SLEW RATE DELTA MODULATOR

Melvyn Engel, Scottsdale; Michael A. Sowell, Chandler, and Michael D. Bethel, Scottsdale, all of Ariz., assignors to Wave-Phore, Inc., Tempe, Ariz.

Filed Aug. 21, 1991, Ser. No. 748,023

Int. Cl.[5] **H03M** *3/02*

U.S. Cl. 341—143 **31 Claims**



1. In a delta modulator for converting an analog input signal into a digital output signal, the output of the modulator providing periodic samples of a comparison between the analog input signal and an integration of the output signal, wherein the integration occurs in response to an adjustable second signal, the improvement comprising:

a detector responsive to changes in the output of the delta modulator; and

a processing circuit responsive to the detector for adjusting the second signal at designatable increasing substantially linear first changes in magnitude in response to an absence of a change within a predetermined number of sequential samples and for otherwise adjusting at decreasing substantially different designatable second changes in magnitude.

5,208,596

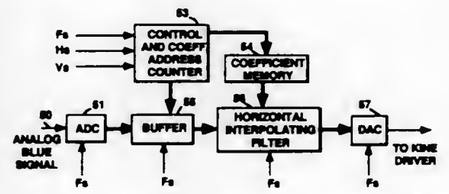
DAC DISTORTION COMPENSATION

Charles B. Dieterich, Kingston, N.J., assignor to RCA Thomson Licensing Corporation, Princeton, N.J.

Filed Apr. 10, 1992, Ser. No. 866,711

Int. Cl.[5] **H03M** *1/66*

U.S. Cl. 341—144 **10 Claims**



1. Signal processing apparatus of the type including a cascade connection of a digital filter and a digital to analog convertor, and wherein said digital filter is incorporated to per-

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form a filter function defined by the impulse response function h(nT), said apparatus improved by conditioning said filter to exhibit an impulse response function h'(nT) given by

$$h'(nT)=h(nT)*g(nT)$$

where g(nT) corresponds to the reciprocal of the time response of undesirable frequency characteristics G(ω) of said digital to analog convertor, the asterisk designates convolution, n is an index integer and T defines the period between samples applied to said digital to analog convertor.

5,208,597

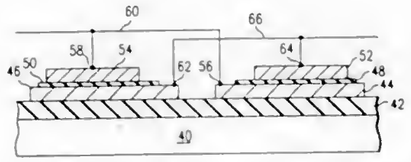
COMPENSATED CAPACITORS FOR SWITCHED CAPACITOR INPUT OF AN ANALOG-TO-DIGITAL CONVERTER

Adrian B. Early, Buda, and Baker P. L. Scott, III, Austin, both of Tex., assignors to Crystal Semiconductor, Austin, Tex.

Division of Ser. No. 257,477, Oct. 13, 1988, Pat. No. 4,918,454. This application Dec. 22, 1989, Ser. No. 455,171

Int. Cl.[5] H03M *1/00*

U.S. Cl. 341—172 **11 Claims**



1. A semiconductor capacitor having a low voltage coefficient, comprising:

a first lower electrode;

a second lower electrode;

a first upper electrode disposed over said first lower electrode and separated therefrom;

a second upper electrode disposed over said second lower electrode and separated therefrom;

a first layer of capacitor dielectric disposed between said first lower electrode and said first upper electrode;

a second layer of capacitor dielectric disposed between said second upper electrode and said second lower electrode;

said first and second lower electrodes and said first and second upper electrodes being fabricated from polycrystalline silicone that is doped with impurities to increase the conductance thereof;

said first and second lower electrodes being fabricated from a substantially identical material;

said first and second upper electrodes being fabricated from a substantially identical material;

first terminal means for connecting said first lower electrode to said second upper electrode; and

second terminal means for interconnecting said second lower electrode to said first upper electrode.

5,208,598

DIGITAL PULSE GENERATOR USING LEADING AND TRAILING EDGE PLACEMENT

Jonathan Lueker, Portland; John Hengeveld, Aloha; Brad Needham, Hillsboro; Burt Price, Portland; Jim Schlegel, and Mehrab Sedeh, both of Beaverton, all of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Oct. 31, 1990, Ser. No. 606,387

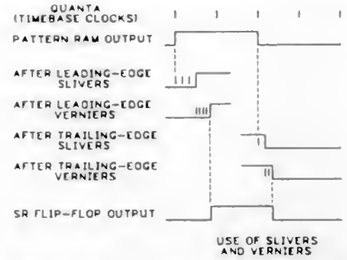
Int. Cl.[5] H03K *5/04, 5/13*

U.S. Cl. 341—182 **15 Claims**

1. A digital pulse generator, which synthesizes a pulse, comprising:

means for specifying desired pulse characteristics, including the specification of the edge placement of both a leading edge and a trailing edge of the pulse;

means for producing an output from a controllable timebase, the output being determined by the specifying means; and



means for digitally converting the controllable timebase output into the pulse according to the specified desired pulse characteristic, by synthesizing the leading edge placement and the trailing edge placement into the pulse with the resulting edge placement time resolution being higher than that of the controllable timebase output.

5,208,599

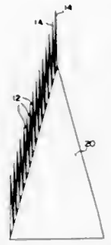
SERRATED ELECTROMAGNETIC ABSORBER

Roger C. Rudduck; Walter D. Burnside, and Chang-Fa Yang, all of Columbus, Ohio, assignors to Ohio State University, Columbus, Ohio

Filed Aug. 28, 1991, Ser. No. 751,419

Int. Cl.[5] H01Q *17/00*

U.S. Cl. 342—4 **20 Claims**



1. An electromagnetic absorber having a geometrical configuration comprising a plurality of surfaces, at least one of said surfaces having formed thereon a plurality of serrations defining a plurality of fins projecting from said at least one surface, the difference in height between adjacent fins being less than ¼ freespace wavelengths at the lowest design frequency for reducing the reflection of incident electromagnetic waves from said absorber.

5,208,600

GLIDE SLOPE SURVEILLANCE SENSOR

William L. Rubin, 166-47 16th Ave., Whitestone, N.Y. 11357

Filed Mar. 2, 1992, Ser. No. 844,767

Int. Cl.[5] G01S *13/95*

U.S. Cl. 342—26 **17 Claims**

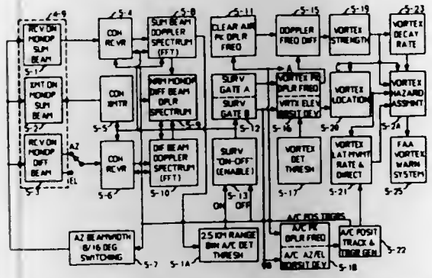
1. A surveillance sensor for monitoring and detecting aerodynamic conditions in a vicinity of an aircraft landing glide slope comprising:

means for transmitting a radar signal;

monopulse means for receiving backscatter of said radar signal in range bins of predetermined length through a sum beam and a difference beam;

doppler spectrum means coupled to said sum and difference beams for providing a sum beam doppler spectrum and a difference beam doppler spectrum;

processor means coupled to said doppler spectrum means for processing said sum and difference beam doppler spectra and for providing signals representative of aerodynamic conditions; and



means responsive to said signals representative of aerodynamic conditions for assessing said aerodynamic conditions and for providing hazardous condition warning signals when hazardous aerodynamic conditions are detected.

5,208,601

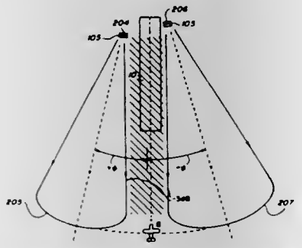
ALL-WEATHER PRECISION LANDING SYSTEM FOR AIRCRAFT IN REMOTE AREAS

Gerald E. Hart, McLean, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 24, 1990, Ser. No. 556,606

Int. Cl.[5] G01S *1/14, 13/91*

U.S. Cl. 342—33 **15 Claims**



1. An all-weather landing system for aircraft comprising:

radar means housed in an aircraft;

a plurality of passive 90° dihedral corner reflectors positioned in a predetermined array for producing two-bounce reflected signals from incident transmitted signals from said radar means without substantial ground reflections, each reflector producing a reflected signal of the same rotational sense as the incident signal, such that at least two dihedral reflectors are positioned a distance D apart along an axis adjacent an aircraft runway and parallel to said runway centerline, said two dihedral reflectors' vertex junctions being oriented generally perpendicular to said runway surface such that reflected beam signal strength maximums in the plane bisecting each dihedral angle respectively are directed at differing angles with respect to said runway surface to produce a narrow upper reflected beam pattern and a lower reflected beam pattern envelope resulting in a median beam angle along an equal power intersection of said narrow upper and lower reflected beam patterns corresponding to the desired glide slope for said runway; and

reflection signal processing circuitry means in said aircraft for processing reflected signals from said dihedral reflectors to provide an indication of said approach vector and glide slope of said aircraft.

5,208,602

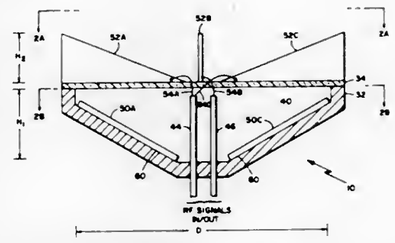
CAVITY BACKED DIPOLE ANTENNA

George J. Monser, Las Vegas, Nev., and Steven J. Ball, Lompoc, Calif., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 700,348, May 7, 1991, abandoned, which is a continuation of Ser. No. 492,186, Mar. 12, 1990, abandoned. This application Jun. 1, 1992, Ser. No. 891,904

Int. Cl.[5] H01Q *21/26*

U.S. Cl. 343—795 **15 Claims**



7. An antenna comprising:

a) a base having a cavity formed therein;

b) a dielectric sheet having a first side and a second side mounted to the base over the cavity with the first side facing into the cavity and a second side out of the cavity;

c) a dipole comprising a pair of conductive elements mounted to the dielectric sheet, each such element comprising a sheet of conductive material mounted outside the cavity substantially orthogonal to the dielectric sheet, each of said conductive sheets having a first end over a first portion of the cavity, and a second end over a second portion of the cavity, and a first edge joining the first and second ends, wherein the first edge is tapered with respect to the dielectric sheet, wherein radio frequency energy passes between said dipole and said cavity; and

wherein the cavity is deepest below the portions of the conductive elements where the tapered edges are closest to the dielectric sheet.

5,208,603

FREQUENCY SELECTIVE SURFACE (FSS)

James S. Yee, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Jun. 15, 1990, Ser. No. 539,018

Int. Cl.[5] H01Q *15/00, 1/42*

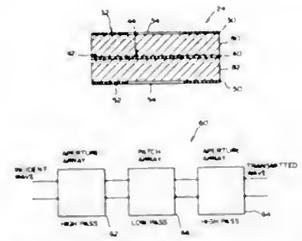
U.S. Cl. 343—909 **5 Claims**

1. A frequency selective surface for transmitting a discrete frequency of incident electromagnetic energy, comprising:

slots in spaced conductive sheets aligned with one another and separated by a solid dielectric material, the slots being tuned at a discrete frequency to function as a high pass filter; and

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a patch element within the dielectric material tuned to the discrete frequency and functioning as a low pass filter for



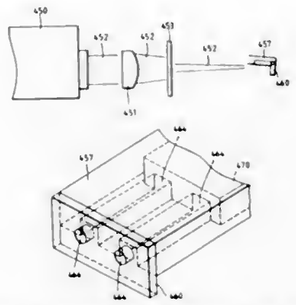
passing energy received by one slot to the other slot through the dielectric material.

5,208,604

INK JET HEAD AND MANUFACTURING METHOD THEREOF, AND INK JET APPARATUS WITH INK JET HEAD

Takashi Watanabe, Yokohama; Kazuaki Masuda, Sagamihara; Akira Goto, Yokohama; Hiroshi Kono, Yokohama; Takashi Kanzaki, Yokohama; Toshio Kashino, Chigasaki; Akio Saito, Hadano; Koyo Midorikawa, Tokyo; Toru Okumura, Yokohama; Masami Ikeda, and Nobuyuki Kuwabara, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 429,811, Oct. 31, 1989, abandoned.
This application Aug. 26, 1991, Ser. No. 752,909
Claims priority, application Japan, Jan. 13, 1989, 1-007403; Jan. 13, 1989, 1-007409; Jan. 13, 1989, 1-007410; Jan. 13, 1989, 1-007470; Jan. 18, 1989, 1-009181; Jan. 18, 1989, 1-009184; Jan. 28, 1989, 1-018079; Oct. 31, 1989, 63-275794; Oct. 31, 1989, 63-275797; Oct. 31, 1989, 63-275800
Int. Cl.[5] B41J 2/16
U.S. Cl. 346—1.1 13 Claims



1. A method of manufacturing an ink jet heat having a first base plate provided with energy generating means for generating energy used for discharging ink, a second base plate provided with a recessed portion for forming a portion of an ink path, and a discharge opening member provided with ink discharge openings communicated with the ink path, wherein the ink path is formed by connecting the first and second base plates and the discharge openings and the ink path are communicated with each other by connecting the discharge opening member to the first base plate, said method comprising the steps of:

integrally forming the second base plate and a plate member, the plate member to be formed into the discharge opening member; and

forming the discharge openings on the discharge opening member by irradiating a laser beam onto portions of the plate member to be formed into the discharge opening member from a side of the plate member where the ink path is formed and in a direction in which the ink is discharged; and

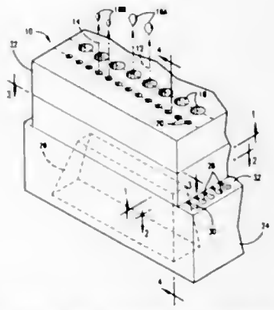
connecting the first base plate and the second base plate such that the energy generating means and the recessed portion are opposed and the discharge opening member and the first base plate abut one another.

5,208,605

MULTI-RESOLUTION ROOFSHOOTER PRINTHEADS

Donald J. Drake, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 3, 1991, Ser. No. 770,272
Int. Cl.[5] B41V 2/05, 2/205
U.S. Cl. 346—1.1 20 Claims



19. A method of carrying printing resolution of a printhead comprising the steps of:

bonding a heater substrate having an architecture including a first and second arrays of heating elements on opposite sides of an ink feed slot to a fluid directing structural member having first and second arrays of printhead nozzles on opposite sides of said ink feed slot to form a printhead in which the first and second arrays of heating elements project ink through said first and second arrays of printhead nozzles, respectively; and

varying a nozzle diameter, number of nozzles per unit length, and heating element area of said first array of printhead nozzles and heating elements from a nozzle diameter, number of nozzles per unit length, and heating element area of said second array of printhead nozzles and heating elements to provide said printhead with multiple resolution modes.

5,208,606

DIRECTIONALITY OF THERMAL INK JET TRANSDUCERS BY FRONT FACE METALIZATION

Igal E. Klein, Karmiel, Israel; Cathie J. Burke, Rochester, N.Y.; William G. Hawkins, Webster, N.Y., and Roberto E. Proano, Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

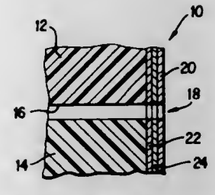
Filed Nov. 21, 1991, Ser. No. 795,596
Int. Cl.[5] B41J 2/05, 2/14
U.S. Cl. 346—1.1 24 Claims

10. A process for ensuring directionality of ink droplets ejected from an ink jet printhead, comprising the steps of:

forming the ink jet printhead by coupling a first substrate having channels therein and a first front face to a second substrate having a second front face, the first front face and the second front face being coextensive and defining a printhead front face having nozzles therein, said first substrate being dielectric;

depositing an adhesion layer on the printhead font face;

depositing an intermediate layer over said adhesion layer; and



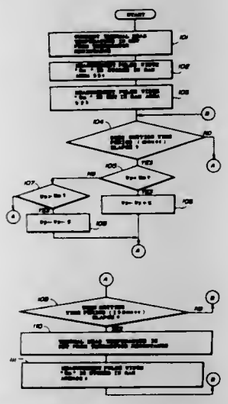
coating a metallic, ink repellant layer on the printhead front face around said nozzles.

5,208,607

THERMAL RECORDING METHOD USING DRIVE SIGNAL PULSE WIDTHS CHANGED AT TIME INTERVALS WITHIN THERMAL HEAD TEMPERATURE MEASURING TIME INTERVALS

Takeo Ohashi, Isehara, and Takahiko Tokumasu, Atsugi, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 30, 1991, Ser. No. 753,074
Claims priority, application Japan, Sep. 3, 1990, 2-233018
Int. Cl.[5] B41J 2/365
U.S. Cl. 346—1.1 4 Claims



1. A heat-sensitive thermal recording method of performing a thermal printing at variable printing time intervals by a heat-generating part in a facsimile system having a memory part in which a pulse width table defining a relationship between heat-generating part temperature and measurement pulse width is stored, said heat-sensitive thermal recording method comprising steps of:

measuring a temperature of the heat-generating part from a resistance of thermistor provided within the heat-generating part, said resistance of said thermistor being measured at a first time interval;

determining a measurement pulse width corresponding to said heat-generating part temperature in accordance with said pulse width table stored in said memory part;

storing said measurement pulse width corresponding to said temperature in a first memory area;

periodically determining a recording power pulse width and storing the recording power pulse width in a second memory area;

detecting whether the recording power pulse width stored in the second memory area is smaller than the measurement pulse width stored in the first memory area; and

correcting said recording power pulse width stored in said second memory area into a new recording power pulse width at a second time interval, said new recording power pulse width being generated by one of (a) adding a predetermined value to the recording power pulse width stored in said second memory area when said recording power pulse width is smaller than said measurement pulse width; and (b) subtracting the predetermined value from said recording power pulse width when it is greater than said measurement pulse width; so that a thermal printing is performed in which the recording power pulse width is varied in gradual steps by applying a printing power pulse with the thus corrected pulse width to the heat-generating part;

wherein said predetermined value is set from the heat-generating part temperature in accordance with a relationship between thermistor resistance and heat-generating part temperature;

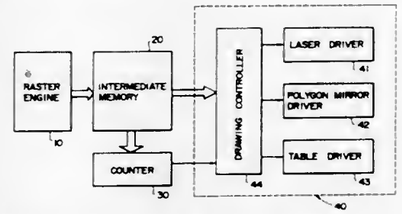
wherein said first time interval at which said resistance of said thermistor is measured is divided into small time intervals each of which is equal to said second time interval at which said recording power pulse width stored in the second memory area is corrected.

5,208,608

PLOTTER WITH DRAWING SPEED CHANGE

Takashi Okuyama, and Toshitaka Yoshimura, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 472,876, Jan. 31, 1990, abandoned. This application Jun. 1, 1992, Ser. No. 891,917
Claims priority, application Japan, Jan. 31, 1989, 1-19678
Int. Cl.[5] H04N 1/21
U.S. Cl. 346—108 19 Claims



14. A system for drawing an image, comprising:

means for converting image data to raster data;

means for temporarily storing said converted image data;

a printing device for drawing an image based upon data outputted from said storing means; and

means for controlling said printing device corresponding to an amount of data remaining in said storing means.

5,208,609

ROLLER TYPE DEVELOPING APPARATUS FOR A CYCOLOR TYPE COLOR VIDEO PRINTER

Seok Pyo Chung; Seong Ju Lee, and Hyun Ki Park, all of Seoul, Rep. of Korea, assignors to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 15, 1991, Ser. No. 729,944
Claims priority, application Rep. of Korea, Jul. 16, 1990, 10747/1990; Aug. 31, 1990, 13824/1990; Dec. 13, 1990, 20499/1990
Int. Cl.[5] H04N 1/21
U.S. Cl. 346—110 R 15 Claims

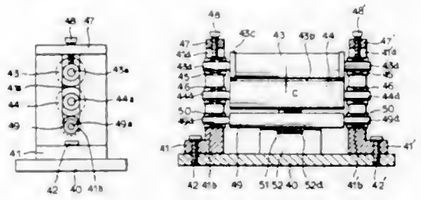
2. In a cycolor type color video printer including a roller type developing apparatus for transcribing an exposed color image of a cylith film onto a receiver paper by means of pressing power provided thereby, said developing apparatus comprising:

a pair of side plates mounted on a base of said color video

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printer and spaced apart from each other, said side plates each provided with a mounting hole;

rotary pressing means rotatably supported between said side plates, said rotary pressing means provided with a clearance for allowing said cylith film and said receiver paper to pass therethrough at the same time, and said rotary pressing means comprising an upper pressing roller provided with a pair of flanges, one at each end thereof, and a cylindrical lower pressing roller contacting with said flanges of the upper pressing roller at both ends thereof,



thereby providing said clearance between said upper and lower pressing rollers;

upper and lower support bearings vertically mounted in each said mounting hole of said side plate and connected to respective end shafts of said rotary pressing means, respectively, and each adapted for supporting said rotary pressing means rotatably; and

a pressure controlling means for controlling said clearance in order to control the pressure for said rotary pressing means.

5,208,610

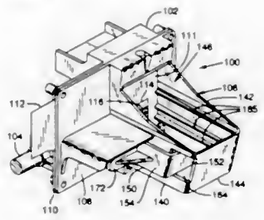
PEN CARRIAGE FOR AN INK-JET PRINTER

Wen-Li Su; J. P. Harmon, both of Vancouver, Wash., and Les R. Pierce, Hillsboro, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 31, 1991, Ser. No. 738,718

Int. Cl.[5] B41J *2/07, 25/34*

U.S. Cl. 346—140 R **14 Claims**



1. A carriage for a printer, comprising:

a base having features attached thereto for supporting a pen;

a chute assembly attached to the base and defining an opening having a first size, the chute assembly including a first guide part configured for guiding toward the features a pen that has a first shape and that is inserted into the chute opening; and

a second guide part mounted to the chute assembly and movable for changing the chute opening to a second size that is different from the first size, the second guide part being configured for guiding toward the features a pen that has a second shape, the second shape being different from the first shape, and that is inserted into the chute opening.

5,208,611

ARRANGEMENT FOR HEATING THE INK IN THE WRITE HEAD OF AN INK-JET PRINTER

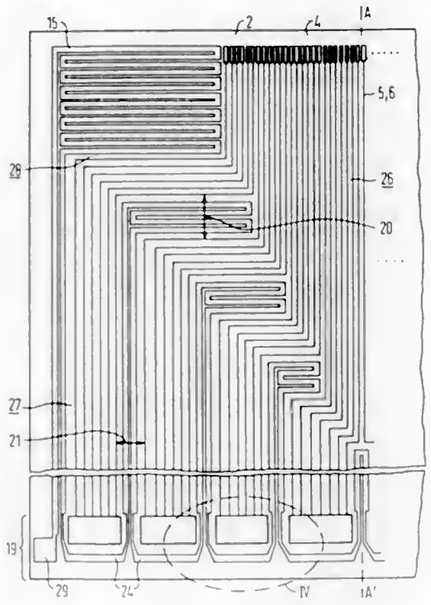
Andreas Kappel, and Rudolf Probst, both of Munich, Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Jun. 14, 1991, Ser. No. 715,794

Claims priority, application European Pat. Off., Dec. 14, 1988, 88120858.1

Int. Cl.[5] B41J *2/05*

U.S. Cl. 346—140 R **36 Claims**



1. A device for heating of an ink in a write head constructed based on layer technology for an ink-jet printer, comprising the following features:

(a) a plurality of electrothermal converter elements (**4**), disposed in ink channels, are controlled by individual current feed lines provided as conductor paths (**5, 6**),

(b) the electrothermal converter elements (**4**) and the conductor paths (**5, 6**) are generated in a single metallization plane on a substrate (**2**),

(c) a number of conductor paths (**5, 6**) are combined in groups, wherein said groups in turn are placed at a distance relative to each other defined by intermediate spaces,

(d) part sections of a large-face heating resistor (**15**) are disposed in these intermediate spaces in a first metallization plane, wherein the part sections of the large-face heating resistor are electrically connected amongst each other,

(e) the part sections of the heating resistor (**15**) and the conductor paths (**5, 6**) lead to an edge region of the write head and are contacted at the edge region, and

(f) the electrothermal converter elements (**4**), the conductor paths (**5, 6**) and the heating resistor (**15**) are jointly covered with an isolator layer (**7**),

(g) the heating resistor (**15**) serves as a heat source and simultaneously as a temperature sensor.

5,208,612

IMAGE RECORDING APPARATUS CONSTITUTING OF SELECTABLE UNITS

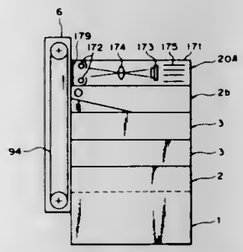
Makoto Obu; Minoru Suzuki, both of Yokohama; Koichi Noguchi, Tokyo; Takashi Mori, Tokyo; Akira Ishida, Tokyo, and Koichiro Jinnai, Kawasaki, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 6, 1990, Ser. No. 623,683

Claims priority, application Japan, Dec. 6, 1989, 1-315346; Dec. 28, 1989, 1-338638; Mar. 16, 1990, 2-64271; Mar. 16, 1990, 2-64272; Mar. 16, 1990, 2-64273; Mar. 16, 1990, 2-64274; Mar. 27, 1990, 2-75397; Mar. 27, 1990, 2-75398; May 14, 1990, 2-121211; Sep. 5, 1990, 2-234753

Int. Cl.[5] C01D *15/06*

U.S. Cl. 346—153.1 **14 Claims**



1. An image recording apparatus constituted by components each being constructed as an independent, stackable, modular unit, comprising:

a base unit comprising a single casing accommodating at least an electric control device;

at least one image forming unit comprising a single casing accommodating image processing means for forming an image in response to an image signal which is representative of an image to be recorded, said image forming unit casing having an end opening and said image processing means being positioned adjacent said end opening such that an image may be formed on an image receiving element covering said opening;

an image receiving unit removably mounted to the base unit and comprising means for linearly transporting an image receiving element in a vertical direction so as to cover the opening and have an image formed thereto;

said image forming unit being removably externally mounted to said base unit and operated by said electric control device of said base unit, wherein each said at least one image forming unit lacks means for transporting said image receiving element.

5,208,613

IMAGE FORMING APPARATUS

Masami Takeda, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 28, 1992, Ser. No. 843,597

Claims priority, application Japan, Mar. 4, 1991, 3-37411

Int. Cl.[5] G01D *15/06*

U.S. Cl. 346—154 **6 Claims**

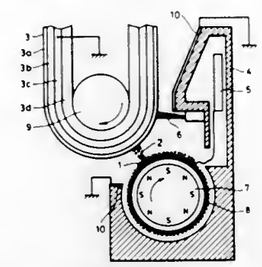
1. An image forming apparatus comprising:

electrically independent recording electrodes;

a recording medium which is movable relative to said recording electrodes;

developing agent supply means for supplying a conductive developing agent between said recording electrodes and said recording medium;

means for applying a recording signal voltage to said recording electrodes; and



a resin member which opposes said recording medium, said resin member having a charging preventing function.

5,208,614

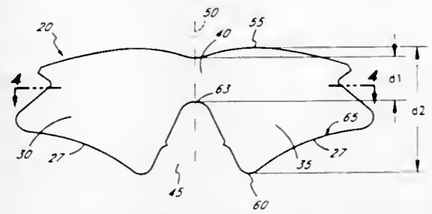
CONCAVELY INDENTED LENSES FOR EYEWARE

James H. Jannard, San Juan Capistrano, Calif., assignor to Oakley, Inc., Irvine, Calif.

Filed Nov. 30, 1990, Ser. No. 620,648

Int. Cl.[5] G02C *7/02*

U.S. Cl. 351—41 **25 Claims**



1. An arcuately molded lens for eyeglasses for participation in active sports, such as biking and skiing, said lens comprising:

a top edge and a bottom edge, said bottom edge having a nose opening therein for mounting said lens on the nose of a wearer and for defining a right and a left lens region;

said lens having a bridge portion over said nose opening, the distance separating the lower edge of said bridge portion and the top edge of the lens being defined as d_1 and the distance separating the top edge of the lens and the lowest bottom edge of the lens being defined as d_2, wherein d1 is in the range of about ¼ inch to about 1μ inches, and d_2 is in the range of about 1¼ inches to about 3 inches;

said lens having an arcuate horizontal cross sectional configuration, wherein the arc length (L1) of said lens is in the range of from about five inches to about seven inches;

wherein the bottom edge of each of said right and left lens regions is concavely indented, open in the downward direction, with a maximum indentation depth of no less than about 1/16 of an inch.

5,208,615

OPTICAL ARRANGEMENTS FOR READING DEFICIENCIES

Robert T. Solman, Bronte, and Stephen J. Dain, Brighton Le Sands, both of Australia, assignors to Unisearch Limited, Kensington, Australia

Filed Oct. 25, 1990, Ser. No. 603,125

Claims priority, application Australia, Oct. 27, 1989, PJ7119

Int. Cl.[5] G02C *7/10*

U.S. Cl. 351—44 **13 Claims**

9. Apparatus for reducing the impact of a reading deficiency caused by a too slow transient response of a reader, said appa-

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ratus comprising light diffusion means and chromatic filter means for modifying light passing through said diffusion means and filter means to an eye of the reader for limiting the red



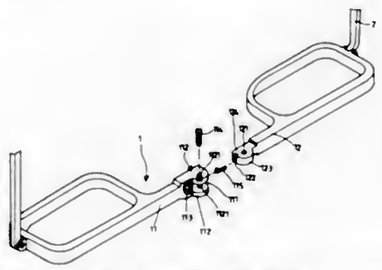
and/or green mediated sustained response relative to the blue cone mediated transient response of the reader's eye, and location means to locate said diffusion means and filter means in the reader's light path.

5,208,616

FOLDING SPECTACLES

Antony Chang, 5F, No. 43, Lane 2, Sec. 6, Chung Shan N. Rd., Taipei, Taiwan

Filed Oct. 16, 1991, Ser. No. 777,002
Int. Cl.[5] G02C *5/08*
U.S. Cl. 351—63 **4 Claims**



1. A pair of folding spectacles comprising:

a pair of spectacle frames each having inner and outer portions, the inner portion of one of said spectacle frames being bifurcated, said bifurcated inner portion being formed with a blind hole, the inner portion of the other one of said spectacle frames terminating in an arched-shaped end, said arched-shaped end including means defining a recess;

a pair of temples each of which is pivotally attached to the outer portion of a respective one of said spectacle frames such that said temples are pivotable between an unfolded position in which said temples extend substantially perpendicular to a plane defined by said spectacle frames and a folded position in which said temples extend substantially parallel to said plane;

means for pivotally interconnecting the inner portions of said spectacle frames such that said spectacle frames can pivot within said plane defined by said spectacle frames between a folded position and an unfolded position; and

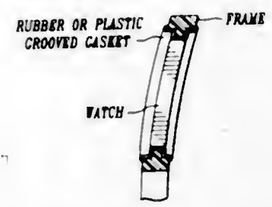
a spring pin having a first end which extends into said blind hole and a second end which slides along said arched-shaped end as said spectacle frames are pivoted between their folded and unfolded positions and also extends into said recess defining means when said spectacle frames are fully unfolded.

5,208,617

SUNGLASSES HAVING REVERSIBLE WATCH

Sandra Schwartz, 8601 NW. 47th St., Lauderhill, Fla. 33351

Filed Nov. 12, 1991, Ser. No. 790,528
Int. Cl.[5] G02C *1/00*
U.S. Cl. 351—158 **2 Claims**



1. A pair of sunglasses comprising:

a frame with a cutout in the center having ridges and a digital or analog water resistant or waterproof watch which is inserted in said cutout and which is reversible to the inside or outside of said sunglasses by means of a rubber or plastic grooved gasket;

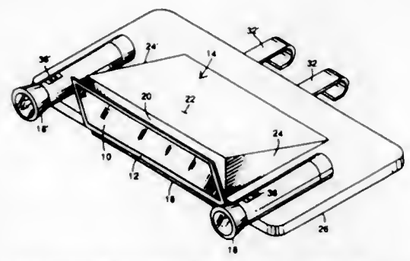
said digital or analog water resistant or waterproof watch being affixed to said gasket, said cutout being in the center of said frame, said watch and gasket snapping into the ridges designed into the cutout.

5,208,618

APPARATUS FOR OBSERVING AND EXAMINING THE EYES

Michael D. Brunette, P.O. Box 25216, Honolulu, Hi. 96825

Continuation of Ser. No. 457,180, Dec. 26, 1989, abandoned. This application Feb. 13, 1991, Ser. No. 654,836
Int. Cl.[5] A61B *3/02, 3/10*
U.S. Cl. 351—223 **16 Claims**



1. A portable device for observing and examining one's eyes comprising:

(a) a triangular-shaped base sized to occupy the space between a horizontally extended automobile sun-visor and automobile ceiling;

(b) a mirror the bottom of which is hingeably attached to the bottom front edge of said base and is rotatable about said base; and

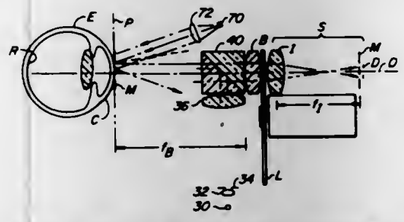
(c) lamps mounted at each side of said mirror which emit light in the same direction as the light being reflected by said mirror.

5,208,619

AUTOMATIC REFRACTOR, LENSMETER AND KERATOMETER UTILIZING BADAL OPTICS

Charles E. Campbell, Berkeley, Calif., assignor to Allergan Humphrey, San Leandro, Calif.

Continuation-in-part of Ser. No. 614,476, Nov. 16, 1990, abandoned. This application Jul. 18, 1991, Ser. No. 732,268
Int. Cl.[5] A61B *3/10*
U.S. Cl. 351—211 **13 Claims**



1. A Badal system for determining the power of an optical system under test comprising in combination:

means for emission of light along an optical axis to the system under test;

a Badal lens positioned along said optical axis having said optical system under test positioned at the approximate focal length of said Badal lens;

a detector positioned on said optical axis for receiving light passing from said optical system under test and said Badal lens;

a detector array positioned on said optical axis for forming at said detector at least three sampling apertures for sampling light passing from said optical system under test;

detector array relay optics between said Badal lens and said detector array for defining a Badal space behind said Badal lens to permit the relay of light from discrete sampling apertures on said optical system under test with the excursion of light between said sampling aperture at said optical system under test and said detector responsive to the deflection of said optical system under test;

means for measuring the excursion of light emitted between the discrete sampling apertures at the optical system under test and the detector array, this measuring means measuring that displacement normal to tbe axis of the Badal system whereby the excursion when measured gives a vector signature of power of said optical system under test, which power may be conveniently converted to components of sphere, cylinder and axis or the equivalents thereof for the measurement of the optical system under test.

5,208,620

DISPLAY APPARATUS

Hideaki Mitsutake; Nobuo Minoura, both of Yokohama; Katsumi Kurematsu, Kawasaki, and Haruyuki Yanagi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

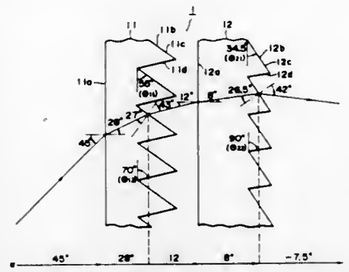
Continuation of Ser. No. 416,424, Oct. 3, 1989, abandoned. This application Jun. 24, 1991, Ser. No. 718,908
Claims priority, application Japan, Oct. 4, 1988, 63-250375; Sep. 25, 1989, 1-248715
Int. Cl.[5] G03B *21/22*
U.S. Cl. 353—74 **14 Claims**

1. A display apparatus comprising:

projecting means for projecting an image, said projecting means having a projection optical system having a limited pupil diameter; and

screen means arranged at a position where an image is substantially projected by said projecting means, said screen means having a plurality of Fresnel lens sheets each having a number of prisms formed on a surface on a side opposite to said projecting means, and each of said prisms having an effective portion for allowing a light flux from said projecting means to be emitted in a predetermined direction and a non-effective portion which does not contribute to the emission of the light flux in said predetermined direction, and

wherein the non-effective portions of at least one selected sheet from said plurality of Fresnel lens sheets, excluding



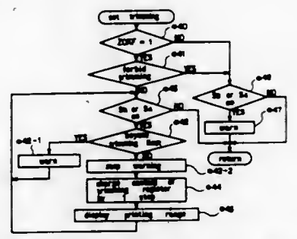
said sheet arranged at a position nearest to said projecting means, extend in a middle direction substantially between a direction in which a principal ray of a light flux from said projecting means is incident on the effective portions of said prisms of said selected sheet and a direction in which the principal ray is emitted from the effective portions of said prisms of said selected sheet.

5,208,621

PHOTOGRAPHIC SYSETM CAPABLE OF RECORDING THEREIN PHOTOGRAPHING DATA AND READING OUT THE SAME AND FILM STRUCTURE FOR USE IN THE PHOTOGRAPHIC SYSTEM

Nobuyuki Taniguchi; Manabu Inoue; Reiji Seki, and Katsuyuki Nanba, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 768,332, Sep. 30, 1991, abandoned, which is a continuation of Ser. No. 488,999, Mar. 6, 1990, abandoned. This application Jun. 22, 1992, Ser. No. 902,589
Claims priority, application Japan, Mar. 6, 1989, 1-053389; Mar. 6, 1989, 1-053390; Mar. 6, 1989, 1-053391; Mar. 6, 1989, 1-053392
Int. Cl.[5] G03B *7/00*
U.S. Cl. 354—21 **5 Claims**



1. A camera capable of setting a range of an image to be produced, comprising:

means for setting a range of an image to be produced;

memory means for storing a range limit value, said range limit value capable of being set;

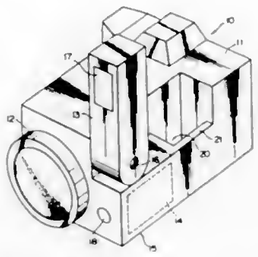
warning means for giving a warning when the image range set by the setting means reached the range limit value stored in the memory means; and

permitting means for permitting the setting of image range

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beyond the limit range value even when a warning is given by the warning means.

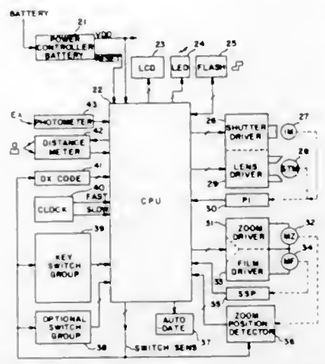
5,208,622
HOLDING MECHANISM FOR A CAMERA
Kiyoshi Kawano, Rochester, N.Y., assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 497,351, Mar. 22, 1990, Pat. No. 5,066,966. This application Jul. 17, 1991, Ser. No. 731,280
Claims priority, application Japan, Mar. 27, 1989, 1-34637
Int. Cl.[5] G03B *29/00*
U.S. Cl. 354—82 11 Claims



1. A camera comprising:
a camera body comprising means for receiving film;
a photographing lens projecting forwardly from said camera body and defining a photographing lens barrel, said photographing lens barrel having bottom and lateral side portions;
at least one operating element for operating said camera;
integrated operating units positioned at a front portion of said photographing lens barrel such that a center of gravity of said camera lies between said camera body and the front portion of said photographing lens barrel; and
a handhold in an area of the center of gravity, said handhold comprising a lateral opening for a vertically oriented thumb of an operator, said lateral opening projecting upwardly from said bottom portion of said lens barrel and extending inwardly from a lateral side of said lens barrel, a side of said lens barrel opposite said lateral opening comprising means for supporting said operating element to be within reach of remaining fingers of an operator's hand when the thumb is received within said lateral opening.

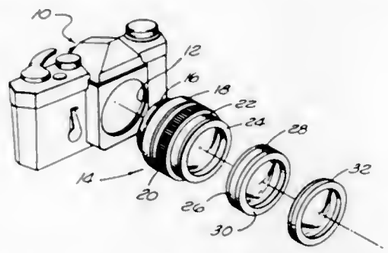
5,208,623
CAMERA INCORPORATING A ZOOM LENS
Hiroshi Takahashi, Hachioji, Japan, assignor to Konica Corporation, Tokyo, Japan
Filed Dec. 10, 1990, Ser. No. 625,044
Claims priority, application Japan, Dec. 12, 1989, 1-322405
Int. Cl.[5] G03B *3/10*
U.S. Cl. 354—195.1 5 Claims

1. A camera incorporating a zoom lens comprising;
an operating member for zooming purpose;
a drive means for driving said zoom lens; and
a control means for controlling said drive means;
wherein said control means controls said drive means in the first driving mode in which said zoom lens is moved in a predetermined direction upon operation of said operating member and is further moved in the same direction upon further operation of said operating member; and inverts moving direction upon arrival either at TELE terminal or at WIDE terminal while moving or in the second driving mode in which said zoom lens is moved in a predetermined direction upon operation of said operating member; and inverts direction of movement upon further operation of said operating member; and inverts moving direction



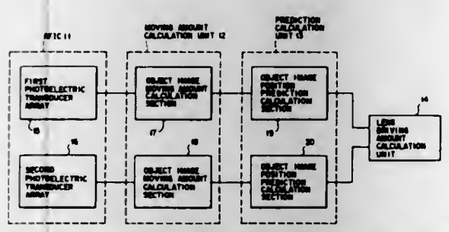
upon arrival either at TELE terminal or at WIDE terminal while moving.

5,208,624
CAMERA LENS AND FILTER ADAPTER ASSEMBLY
Michael T. MacKay, Vallejo, Calif., assignor to Sony Corporation of America, Park Ridge, N.J.
Filed Oct. 10, 1991, Ser. No. 775,700
Int. Cl.[5] G03B *11/00*
U.S. Cl. 354—295 6 Claims



1. A magnetic mount for mounting external camera add-on devices to a camera lens assembly, said magnetic mount comprising:
an adapter magnetic ring having an outer perimeter, an inner perimeter, a device mount surface and a camera mount surface, said camera mount surface of said adapter magnetic ring being coupled to said camera lens assembly, said adapter magnetic ring being magnetically polarized such that a magnetic field emanates away from said adapter magnetic ring in a plane perpendicular to said device mount surface; and
a plurality of add-on devices each having a front mounting magnetic ring and a rear mounting magnetic ring, said front and rear magnetic mounting rings having an outer diameter and an inner diameter, said outer perimeter of said adapter magnetic ring being equal to said outer diameter of said mounting magnetic rings, said inner perimeter of said adapter magnetic ring being equal to said inner diameter of said mounting magnetic rings, said front mounting magnetic ring being magnetically polarized in an opposite direction than said adapter magnetic ring and said rear magnetic ring being magnetically polarized in the same direction as said adapter magnetic ring such that said add-on devices are magnetically coupled to said camera lens assembly when said add-on devices are placed in proximity to said camera lens assembly;
said camera lens assembly comprising:
standard connection means for coupling said camera lens assembly to a camera body;
a plurality of lens elements;
a helical mount having an outer shell, an inner shell, and an optical path defined through said plurality of lens elements by a hole bounded by said inner shell of said helical mount;
helical mount connection means for mounting said helical mount to said camera lens assembly;
a manual focusing ring; and
non-rotational focusing means for focusing said camera lens assembly such that rotation of said manual focusing ring moves said helical mount in a forward and aft direction with respect to said camera body such that said helical mount and said plurality of add-on devices will not rotate.

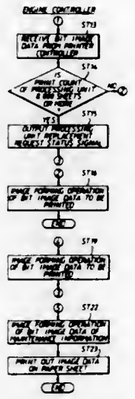
5,208,625
AUTOMATIC FOCUSING APPARATUS
Hisashi Suekane, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Mar. 31, 1992, Ser. No. 861,304
Claims priority, application Japan, Apr. 2, 1991, 3-94870
Int. Cl.[5] G03B *3/00, 7/00*
U.S. Cl. 354—402 20 Claims



20. A distance detection apparatus for a camera, which has image split means for splitting an object image into first and second images, and first and second photoelectric transducer arrays for respectively receiving the split images, comprising:
means for calculating an image shift amount of an object on the basis of the first and second images in an early stage of a focus detection operation;
first calculation means for calculating a change in position over time of the first image on said first photoelectric transducer array;
second calculation means for calculating a change in position over time of the second image on said second photoelectric transducer array; and
means for calculating a position of the object image on the basis of the image shift amount, and outputs from said first and second calculation means.

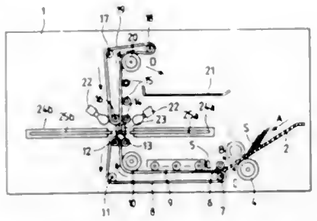
5,208,626
IMAGE FORMING APPARATUS HAVING A DETACHABLY MOUNTED PROCESSING UNIT
Yasufumi Tanimoto, Kanagawa, and Takashi Saitoh, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Nov. 22, 1991, Ser. No. 796,586
Claims priority, application Japan, Nov. 28, 1990, 2-328477
Int. Cl.[5] G03G *15/00*
U.S. Cl. 355—200 9 Claims

1. An image forming apparatus for performing an image forming operation on an image bearing member, the image forming apparatus comprising:
a processing unit, including the image bearing member and a processing means for acting on the image bearing member, to perform the image forming operation during the service life of the processing unit;
a main body to which the processing unit is detachably mounted, wherein the processing unit mounted on the main body may be replaced with a new processing unit when the service life of the mounted processing unit expires;
means for detecting a performance of the image forming operation of the processing unit so as to measure an amount of use of the processing unit;
first memory means for storing the amount of use of the processing unit mounted on the main body, as measured by the detecting means;



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than that of the photographing lens of said first recording unit; and



transport means for transporting the recording medium in said first and second recording units held by said first and second holding units at different speeds.

5,208,628

IMAGE FORMING APPARATUS

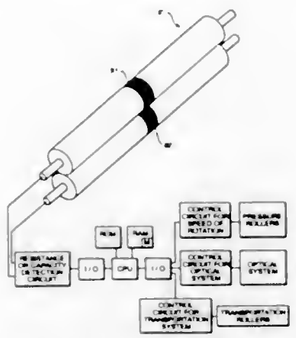
Kunio Ohashi, and Shoichi Nagata, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 609,099, Oct. 31, 1990, abandoned, which is a continuation of Ser. No. 296,450, Jan. 12, 1989, abandoned. This application Mar. 25, 1992, Ser. No. 859,261

Claims priority, application Japan, Jan. 14, 1988, 63-6672; Jan. 14, 1988, 63-6675

Int. Cl.[5] G03B *27/32*

U.S. Cl. 355—27 4 Claims



1. In an image forming apparatus adapted to form an image by superposing an image transfer sheet over a photosensitive sheet, said photosensitive sheet having a surface of a sheet-like base material thereof coated with microcapsules encapsulating a light-curable agent and a colorless dye and said image transfer sheet having one surface of a sheet-like base material thereof coated with a developing agent having a chromogenic effect on said colorless dye, rupturing unhardened ones of said microcapsules by compressing said photosensitive sheet and said image transfer sheet superposingly together by means of a compressive device, and heating said image transfer sheet by means of a heating device, the improvement wherein said image forming apparatus comprises:

detecting means for detecting a thickness of said image transfer sheet, the detecting means including a measuring means for measuring a property of said image transfer sheet the property being selected from the group consisting of electrostatic capacity and electrical resistance; and

controlling means for controlling the speed of said image transfer sheet passing through said compression device according to said thickness of said image transfer sheet detected by said detecting means.

5,208,629

OPTICAL PROJECTION EXPOSURE METHOD AND SYSTEM USING THE SAME

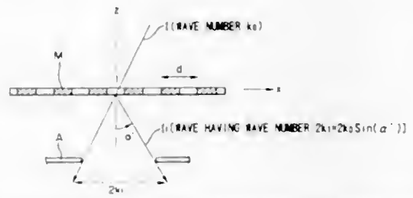
Seitaro Matsuo, Kanagawa; Yoshinobu Takeuchi, Tokyo; Kazuhiko Komatsu; Emi Tamechika, both of Kanagawa; Katsuhiro Harada, Tokyo; Yoshiaki Mimura, and Toshiyuki Horiuchi, both of Kanagawa, all of Japan, assignors to Nippon Telegraph & Telephone Corporation, Japan

Filed Apr. 3, 1992, Ser. No. 863,454

Claims priority, application Japan, Apr. 5, 1991, 3-99822; May 13, 1991, 3-135317; May 20, 1991, 3-142782; May 24, 1991, 3-148133; Jun. 3, 1991, 3-157401; Jun. 24, 1991, 3-177816; Jul. 12, 1991, 3-197457; Aug. 5, 1991, 3-218098; Aug. 5, 1991, 3-218099; Aug. 5, 1991, 3-218100; Aug. 12, 1991, 3-225335; Aug. 23, 1991, 3-235753; Sep. 6, 1991, 3-254306; Oct. 11, 1991, 3-290442

Int. Cl.[5] G03H *27/42, 27/54*

U.S. Cl. 355—53 91 Claims



1. An optical projection exposure method of a micropattern, comprising the steps of inclining illumination light for illuminating a mask having the micropattern thereon by an angle corresponding to a numerical aperture of an optical projection lens located below said mask with respect to an optical axis, and causing the illumination light to be obliquely incident on said mask to expose the micropattern on an object located below said optical projection lens.

5,208,630

PROCESS FOR THE AUTHENTICATION OF DOCUMENTS UTILIZING ENCAPSULATED TONERS

H. Bruce Goodbrand, Hamilton; James M. Duff, and Raymond W. Wong, both of Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 4, 1991, Ser. No. 787,470

Int. Cl.[5] G03G *21/00*

U.S. Cl. 355—201 3 Claims

1. A process for the authentication of documents which comprises generating developed documents in an electrophotographic apparatus, or in a laser printer, with an encapsulated toner comprised of a core comprised of polymer, pigment, and an infrared absorbing component, and thereover a polymeric shell; and subjecting said documents to an infrared reader whereby said infrared absorbing component is detected spectroscopically.

5,208,631

HIGH LIGHT COLOR TONER IDENTIFICATION SCHEME

Timothy W. Jacobs, Fairport, and David M. Korvick, Pittsford, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 9, 1991, Ser. No. 803,889

Int. Cl.[5] G03G *21/00*

U.S. Cl. 355—204 1 Claim

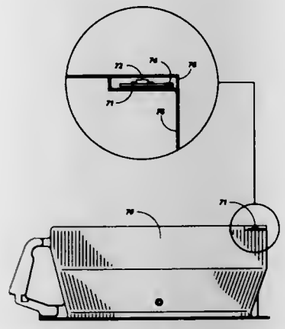
1. A reproduction machine comprising

a developer cartridge for developing color images,

a control including a decoder for mapping colors from one color space to another color space within the machine,

a card attached to the developer cartridge including address, power and control line contacts electrically connected to the decoder,

a memory device supported by the card, the memory device identifying within the cartridge specific coordinates of a color coordinate system, the decoder conveying the color coordinate information from the memory device to the



control of the machine for mapping colors from one color space to another color space,

a connector, one side of the connector coupled to the decoder, the other side of the connector coupled to the memory device, the connector coupling the address, power and control line between the memory device and the machine control.

5,208,632

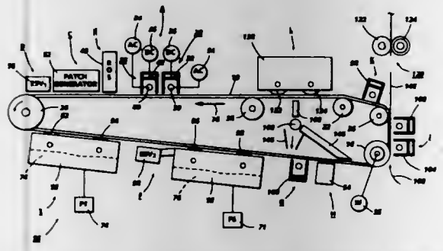
CYCLE UP CONVERGENCE OF ELECTROSTATICS IN A TRI-LEVEL IMAGING APPARATUS

Carl B. Hurwitch, Rochester; Daniel W. MacDonald, Farmington, and Mark A. Scheuer, Williamson, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 5, 1991, Ser. No. 755,196

Int. Cl.[5] G03G *21/00*

U.S. Cl. 355—208 32 Claims



1. In a method of printing electrostatic images on a charge retentive surface, the steps of:

uniformly charging said charge retentive surface;

using a raster output scanner, forming voltage patches on said charge retentive surface;

using a plurality of voltage measuring devices, measuring electrostatic values of said patches;

comparing said values to predetermined target values, said predetermined target values representing values necessary for forming optimum latent images; and

inhibiting formation of images until all of said electrostatic values meet predetermined target values.

5,208,633

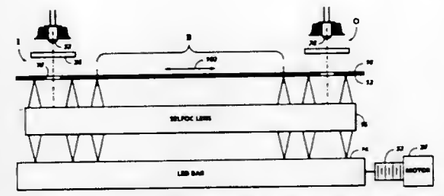
BELT POSITION SENSING FOR IMAGE REGISTRATION

Frank C. Genovese, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 23, 1991, Ser. No. 812,083

Int. Cl.[5] G03G *5/00*

U.S. Cl. 355—212 20 Claims



1. In an imaging device having a belt member with an image supporting surface moving along an endless path in a process direction, an exposure device for forming images on the image supporting surface, and means for maintaining the belt in registration with the exposure device, said registration means comprising:

said belt member provided with at least one fiducial opening formed therein;

a sensor disposed with respect to said belt member and said fiducial opening, to sense illumination directed through the fiducial opening in said belt member;

means at a fixed position with respect to said exposure device and said sensor for directing illumination therethrough, including at least first and second independently detectable illumination sources arranged along a cross process direction;

means for determining, from sensed illumination, belt position with respect to the exposure device from the amount of occlusion of one of said first and second independently detectable illumination sources.

5,208,634

PROCESS CARTRIDGE DETACHABLY MOUNTABLE TO IMAGE FORMING APPARATUS FEATURING AN INJECTABLE SEALING MEMBER

Isao Ikemoto; Tadayuki Tsuda, both of Kawasaki; Kazushi Watanabe, Yokohama; Kazuhiko Ishiwata, Tokyo; Kazuo Shishido; Kanji Yano, both of Kawasaki; Makoto Tanaka, Tokyo; Shinichi Sasaki, Fujisawa; Toshiyuki Karakama, and Hiroyuki Shirai, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 23, 1991, Ser. No. 689,517

Claims priority, application Japan, Apr. 27, 1990, 2-110613; Mar. 19, 1991, 3-54446

Int. Cl.[5] G03G *15/00*

U.S. Cl. 355—215 30 Claims

1. A process cartridge detachably mountable to a main assembly of an image forming apparatus for forming an image on a recording material using a developer, comprising:

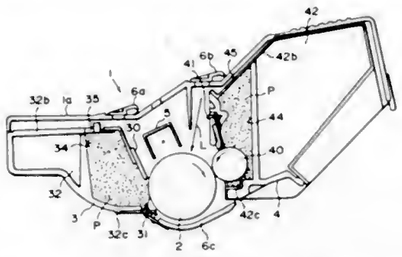
means for forming an image;

a developer accommodator; and

a sealing member formed on a connecting surface between

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said image forming means and said developer accommodator, wherein said sealing member is provided by inject-



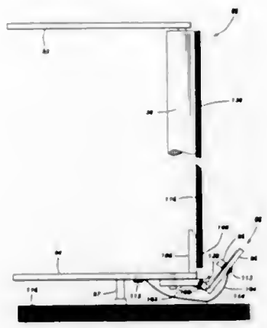
ing into a groove formed in the connecting surface a liquid material which becomes an elastomer when it is solidified.

5,208,635

APPARATUS FOR ELECTRICALLY COUPLING A CONDUCTIVE LAYER OF A PHOTORECEPTOR TO A REFERENCE POTENTIAL

Scott A. Reese, Farmington; Richard M. Dastin, Fairport, and Douglas W. Gates, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 15, 1991, Ser. No. 776,941
Int. Cl.[5] G03G *15/02*
U.S. Cl. 355—219 16 Claims



1. An apparatus for electrically coupling a conductive layer of a photoreceptor to a reference potential, the photoreceptor being mountable on a module and positionable between an operative position and a replacement position, comprising:

an electrically conductive member, said conductive member being electrically coupled to the reference potential; and

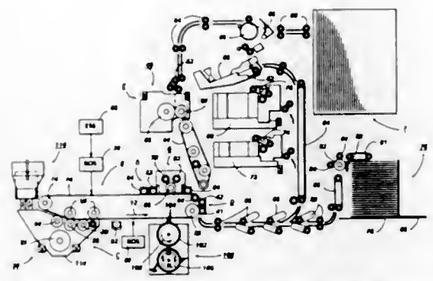
means for moving said conductive member into physical contact with the conductive layer in response to the photoreceptor being moved to the operative position and out of physical contact with the conductive layer in response to the photoreceptor being moved to the replacement position, the photoreceptor being mounted on the module when the photoreceptor is positioned at the operative position and the replacement position.

5,208,636

HIGHLIGHT COLOR PRINTING MACHINE

James D. Rees, Pittsford; Cyril G. Edmunds, Webster; Charles H. Tabb, Penfield, and Paul A. Garsin, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 23, 1992, Ser. No. 856,311
Int. Cl.[5] G03G *15/02*
U.S. Cl. 355—219 11 Claims



1. An electrophotographic printing machine adapted to print indicia on a document, including:

a moving photoconductive member;

means for recording at least two electrostatic latent images on said photoconductive member with one of the latent images being a charged area and the other of the latent images being a discharged area with the charged area latent image being positioned on said photoconductive member before the discharged area latent image in the direction of movement of said photoconductive member;

means for developing the charged area latent image with first marking particles and the discharged area latent image with second marking particles having different properties than the first marking particles with the charged area latent image being developed before the discharged area latent image in the direction of movement of said photoconductive member, said developing means includes magnetic means for developing the charged area latent image with the first marking particles, and non-magnetic means for developing the discharged area latent image with the second marking particles, said recording means records the discharged area latent image after said developing means develops the charged area latent image with the first marking particles, said recording means includes means for charging at least a portion of said photoconductive member, means for exposing the charged portion of said photoconductive member to record the charged area latent image thereon, means for recharging said photoconductive member after the charged area latent image is developed; and means for exposing the recharged portion of said photoconductive member to record the discharged area image thereon;

means for transferring the first and second marking particles from said photoconductive member to the document; and

means for substantially permanently fusing the first and second marking particles to the document to form the indicia on the document.

5,208,637

LIQUID TONER REPLENISHMENT SYSTEM

Benzion Landa, Edmonton, Canada, assignor to Spectrum Sciences B.V., Wassenaar, Netherlands

Filed Aug. 22, 1990, Ser. No. 570,777
Int. Cl.[5] G03G *15/10*
U.S. Cl. 355—256 26 Claims

1. Liquid toner imaging apparatus for producing an image on a substrate and having toner particle and carrier liquid carry-out on the average in a first ratio, the apparatus comprising:

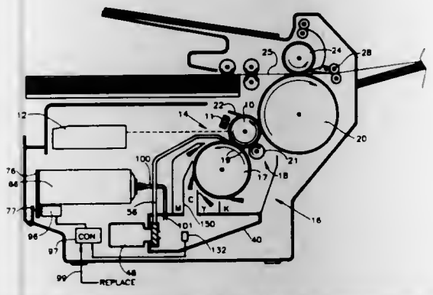
an image bearing surface;

means for developing an image on the image bearing surface using a liquid toner including carrier liquid and toner particles; and

means for transferring a developed image from the image bearing surface to the substrate,

wherein the means for developing comprises:

a liquid toner reservoir;



supply apparatus comprising a replaceable container having an enclosure, including a compartment initially containing toner concentrate including carrier liquid and toner particles, the compartment having an opening communicating with the reservoir; and

replenishment means for causing transfer of toner concentrate from the compartment to the reservoir to replenish the toner and for causing transfer of contents of the reservoir to the compartment to remove excess liquid toner from the reservoir.

5,208,638

INTERMEDIATE TRANSFER SURFACE AND METHOD OF COLOR PRINTING

David P. Bujese, and Peter E. Materazzi, both of Southington, Conn., assignors to Olin Corporation, Cheshire, Conn.

Continuation-in-part of Ser. No. 546,287, Jun. 29, 1990, Pat. No. 5,132,743. This application Feb. 19, 1991, Ser. No. 656,400
Int. Cl.[5] G03G *15/16*
U.S. Cl. 355—274 32 Claims



1. A conductive transfer surface for use in electrostatic image transfer comprising, in combination:

(a) a supporting substrate; and

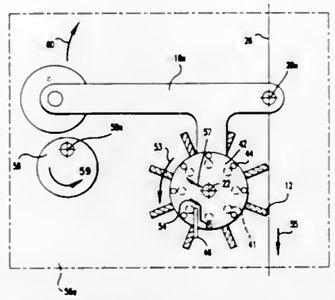
(b) a fluoropolymer layer having a dispersion of conductive material therein supported by and in contact with the supporting substrate, the conductive material being fibers or particles each less than about 5 microns in size.

5,208,639

MULTIPLE CLEANING BLADE INDEXING APPARATUS

Bruce E. Thayer, Webster, and Alvin J. Owens, Jr., Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 25, 1992, Ser. No. 904,094
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—299 26 Claims



1. A cleaning apparatus for cleaning a moving photoreceptor surface having particles thereon, comprising:

a support and loading means pivotally and rotatably attached to two end plates of the cleaning apparatus for supporting and loading a blade holder, said means further comprising two support arms to which said blade holder is removably attached;

said blade holder further comprising two ends, a mounting extension at each end and a plurality of cleaning blades mounted radially from a central core axis of said blade holder with a first cleaning blade in frictional contact with the moving photoreceptor surface during a cleaning operation to remove particles therefrom;

an indexing means for indexing said blade holder to rotate and position a second cleaning blade into frictional contact with the photoreceptor surface and to space said first mentioned cleaning blade remotely from the photoreceptor surface, said indexing means further comprising a detent disk which is non-rotatably compression spring mounted to said mounting extension and positioned outside a first support arm; and

a means for lifting and lowering said support and loading means to index said cleaning blades.

5,208,640

IMAGE RECORDING APPARATUS

Kiyoshi Horie; Toshiaki Yajima; Hiroshi Ishikawa, and Akira Ogita, all of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Nov. 8, 1990, Ser. No. 610,250
Claims priority, applicatioo Japan, Nov. 9, 1989, 1-291717
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—321 3 Claims

1. An image recording apparatus comprising:

a plurality of recording modules for substantially simultaneously recording on recording sheets images according to image data supplied thereto;

image data supplying means for supplying images to said recording modules;

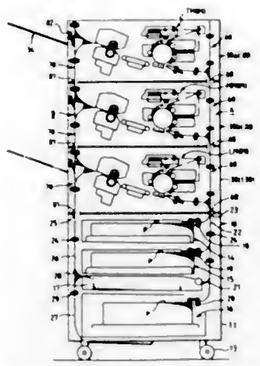
sheet supplying means for successively supplying said recording sheets to said recording modules;

sheet distributing means for distributing said recording sheets thus supplied successively by said sheet supplying means to said recording modules; and

sheet collecting means, arranged on top of said sheet supplying means, for successively delivering said recording

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sheets recorded by said recording modules to a predetermined sheet discharge section,



wherein said recording modules and said sheet distributing means are arranged on top of said sheet supplying means.

5,208,641

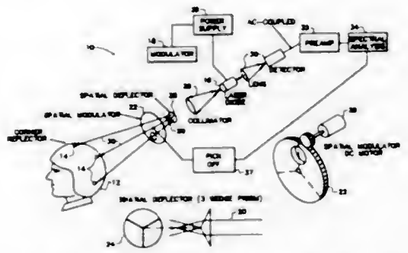
LASER CAVITY HELMET MOUNTED SIGHT

Hans W. Mocker, Minneapolis, and John E. Overland, Plymouth, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Continuation of Ser. No. 589,714, Sep. 28, 1990, abandoned. This application Mar. 3, 1992, Ser. No. 845,879

Int. Cl.[5] G01C *3/08*; G01B *11/26*; G01J *1/20*

U.S. Cl. 356—5 **15 Claims**



1. An object position and orientation determining system comprising:

light source;

modulating means connected to the light source for modulating the frequency of a light beam emitted from the light source;

spatial modulating means for spatially modulating the light beam;

a plurality of reflectors positioned on an object in predetermined positions;

a detector for detecting an associated beat frequency in a mixture of the light beam and reflected light from each of the reflectors, wherein the beat frequency is proportional to the distance to its associated reflector; and

processing means connected to the detector and the spatial modulating means for determining the position and orientation of the object.

5,208,642

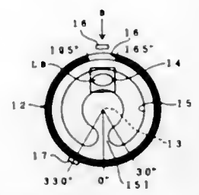
ELECTRO-OPTICAL DISTANCE METER

Yoshinori Narutaki, Machida, Japan, assignor to Optec Co. Ltd., Tokyo, Japan

Filed Apr. 29, 1992, Ser. No. 876,002

Int. Cl.[5] G01C *3/08*

U.S. Cl. 356—4 **11 Claims**



1. An electro-optical distance meter for measuring an external optical path comprising:

a light-emitting element for emitting modulated light to a target; a lens in optical alignment with said light-emitting element and said target providing an external optical path;

a photo-detector element in optical alignment with said target for receiving return light from said target through another lens for providing an external return optical path;

an internal optical path having a predetermined length and being used for calibrating said external optical path to be measured;

a continuously rotating shutter disposed in said external and internal optical paths for switching between said external and internal optical paths, said shutter comprising a rotating disc having a C-shaped opening and an index corresponding to a leading angular position of said C-shaped opening;

a dichroic means disposed in alignment with said shutter having a predetermined inclined angle to the axis of said light-emitting element;

a stationary means for detecting said index of said rotating disc; and

an electric control means operatively connected to said light-emitting and photo-detector elements and stationary means for performing measurements of said external and internal optical paths in a predetermined time ratio.

5,208,643

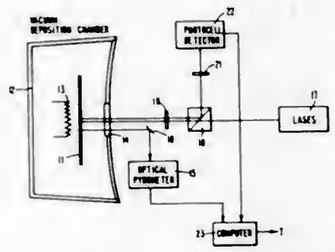
METHOD OF AND APPARATUS FOR NON-CONTACT TEMPERATURE MEASUREMENT

James A. Fair, Mountain View, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Oct. 5, 1990, Ser. No. 594,528

Int. Cl.[5] G01J *5/48*

U.S. Cl. 356—43 **25 Claims**



1. A non-contact method of determining the temperature of a plate that is not opaque to optical energy, the method comprising detecting the intensity of radiant energy emitted from the plate and deriving a first indication of said detected intensity, irradiating the plate with said optical energy, said optical energy interacting with the plate to provide alternate constructive and destructive interference patterns as the plate temperature varies and deriving a second indication of the amplitude of said patterns, and combining said second indication of the amplitude of the detected constructive and destructive interference patterns as the plate temperature varies and said first indication of the detected intensity of the emitted radiant energy to provide an indication of the plate temperature.

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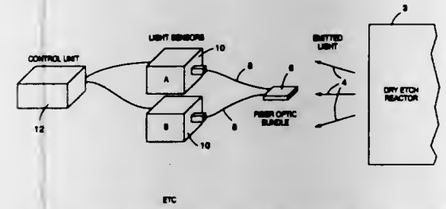
INTERFERENCE REMOVAL

Herbert E. Litvak, Palo Alto; Steven C. Leach, Santa Clara, and Edward G. Rogers, Mountain View, all of Calif., assignors to Xinix, Inc., Santa Clara, Calif.

Filed May 18, 1990, Ser. No. 526,558

Int. Cl.[5] G01N *23/22*

U.S. Cl. 356—72 **6 Claims**



ETC

1. In an optical emission detection method which converts a self-emitted light emission intensity to a measurable electrical signal for monitoring a dry etch process for microfabrication an improved method for minimizing interferences comprising the steps of:

(a) measuring said electrical signal in separate channels at two or more wavelengths employing a fiber optics bundle having two or more sets of fibers, with the fibers within said sets mixed to minimize any bias in the view of each fiber bundle;

(b) normalizing the separate electrical signals from said separate channels;

(c) analyzing said electrical signals for random noise, correlated fluctuations, and the dry process monitoring signal;

(d) maximizing the signal to random noise ratio of the process monitoring signal;

(e) minimizing the obscuring effects of correlated fluctuations from the separate channels by algorithms; thereby providing a resultant signal which is no longer obscured by random noise or correlated fluctuations.

5,208,645

METHOD AND APPARATUS FOR OPTICALLY MEASURING THE THICKNESS OF A COATING

Akira Inoue; Yoichi Ishiguro, and Haruhiko Aikawa, all of Kanagawa, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jan. 16, 1991, Ser. No. 641,784

Claims priority, application Japan, Feb. 23, 1990, 2-40962; Jul. 19, 1990, 2-189529

Int. Cl.[5] G01B *11/06*; C03B *37/023, 37/07*

U.S. Cl. 356—73.1 **18 Claims**

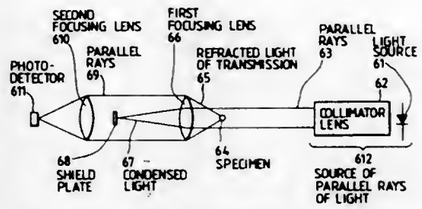
1. A method of measuring the thickness of a coating on the outer surface of a cylindrical member comprising the steps of:

irradiating the outer surface of said coated cylindrical member with parallel light which has a beam width wider than the diameter of said coated cylindrical member, said parallel light having neither 0% nor 100% transmittance through said cylindrical member;

separating the light passing through said cylindrical member from the light passing by said cylindrical member by condensing each said light onto different positions;

receiving the light passing through said cylindrical member by a photodetector;

determining the thickness of the coating around the cylindrical member on the basis of the quantity of light received by said photodetector;



determining the position of said cylindrical member relative to an optical system; and

correcting the thickness of said coating based on the thus determined position of said cylindrical member.

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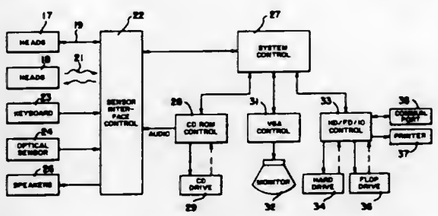
WHEEL ALIGNMENT SYSTEM

Steven W. Rogers; James L. Dale, Jr.; Hanford D. Monroe; Carl W. Pruitt, and Sherman Paul, all of Conway, Ark., assignors to FMC Corporation, Chicago, Ill.

Filed Dec. 20, 1991, Ser. No. 811,493

Int. Cl.[5] G01B *11/26, 5/24*

U.S. Cl. 356—152 **36 Claims**



1. A wheel alignment system for measuring alignment angles of wheels which support a vehicle on a running surface, comprising

system function control means for providing system operating instructions and for receiving alignment angle data,

angle sensing means mounted on at least two of the vehicle support wheels for providing angle measurement signals indicative of the angle between the planes of the support wheels and a reference direction,

said angle sensing means further comprising fast response signal amplitude sampling means for providing substantially instantaneous toe angle measurement signal detection, whereby data update frequency is increased and angle sensing accuracy is improved,

sensor and system interface control means for receiving and preprocessing said angle measurement signals and external system control inputs and for providing bi-directional data flow between said angle sensing means and said system function control means, and

graphics array control and display means for receiving and displaying measured alignment angle data.

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METHOD AND APPARATUS FOR THE OPTICAL MEASUREMENT OF AN ANGLE BETWEEN POSITIONS OF COMPONENTS RELATIVE TO EACH OTHER

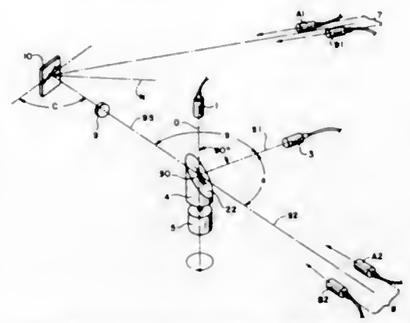
Simone Longa, Arcisate, and Marco Castelnuovo, Milan, both of Italy, assignors to Hofmann Werkstatt-Technik GmbH, Pfungstadt, Fed. Rep. of Germany

Filed Dec. 9, 1991, Ser. No. 802,645

Claims priority, application Fed. Rep. of Germany, Dec. 13, 1990, 4039881

Int. Cl.[5] G01B *11/26*

U.S. Cl. 356—152 20 Claims



1. A method for optically measuring an angle between positions of components relative to one another, comprising the steps of:

(a) emitting at least one first light beam along a first side of an angle to be measured, said angle having an apex, towards a rotating light transmission means disposed at said apex of said angle;

(b) transmitting said first light beam at interval of time corresponding to one full rotation of said rotating light transmission means, such that said first light beam is registered at a first moment in time;

(c) emitting at least one second light beam along a second side of said angle to be measured, towards said rotating light transmission means;

(d) transmitting said second light beam at intervals of time corresponding to one full rotation of said rotating light transmission means, such that said second light beam is registered at a second moment in time relative to said first moment in time; and

(e) calculating the magnitude of said angle based on the time interval between said first moment in time and said second moment in time.

5,208,648

APPARATUS AND A METHOD FOR HIGH NUMERICAL APERTURE MICROSCOPIC EXAMINATION OF MATERIALS

John S. Batchelder, Somers; Philip C. D. Hobbs, Briarcliff Manor; Marc A. Taubenblatt, Pleasantville, and Douglas W. Cooper, Millwood, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 11, 1991, Ser. No. 667,773

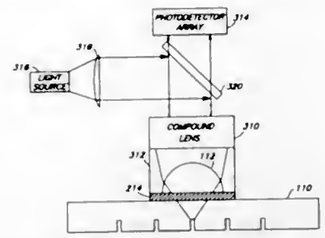
Int. Cl.[5] G01N *21/88*; G02B *7/02, 13/14, 21/02*

U.S. Cl. 356—237 25 Claims

1. Apparatus for aiding in the internal inspection of an object having a smooth surface and having an index of refraction greater than unity, comprising:

an optical device, including a plano-convex lens, made from a material having an index of refraction which approximates the index of refraction of the object to be inspected and having a flat face which is shaped to conform to the smooth surface of the object, wherein said plano-convex lens has an optical geometrical center which is at a point beyond the flat face;

optical coupling means, coupled to the optical device, for coupling the optical device to the smooth surface of the



object in a manner which allows light rays, from inside the object, that have an angle of incidence greater than a critical angle defined for the smooth surface, to propagate into said optical device.

5,208,649

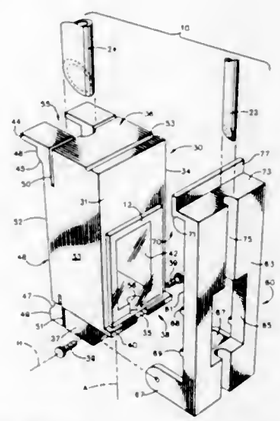
ASSEMBLY FOR FRONT FACE TESTING

John Cuppoletti, and Nick H. Langdon, both of Cincinnati, Ohio, assignors to University of Cincinnati, Cincinnati, Ohio

Filed Feb. 20, 1992, Ser. No. 839,469

Int. Cl.[5] G01N *21/01, 21/64*

U.S. Cl. 356—244 20 Claims



1. A holder assembly for a coverslip, said holder adapted for use in conjunction with a sample vessel and a device for assaying the light absorbing, reflecting or other optical characteristics of substances on such coverslip, and

a holder body having spaced front and rear faces, and top and bottom ends, with said front face having a substantially planar portion, means located adjacent the bottom end of said front face for supporting a coverslip substantially flush with said planar portion, and a non-reflecting light sink; and

a clamp releasably attachable to said holder body, said clamp comprising means for maintaining a coverslip in substantially flush supported position relative to said front face of said holder body, and a light permeable portion generally aligned with said planar portion when in attached position with said holder body.

5,208,650

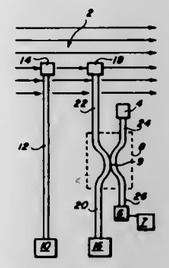
THERMAL DILATION FIBER OPTICAL FLOW SENSOR

Thomas G. Giallorenzi, Springfield, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 30, 1991, Ser. No. 767,189

Int. Cl.[5] G01B *9/02*

U.S. Cl. 356—345 3 Claims



1. A thermal dilation type optical flow sensor comprising:

probe reflecting means disposed in a flowing fluid for reflecting incident coherent light within a light pipe, wherein a phase of a reflected light within said light pipe relative to a phase of said incident light varies according to a temperature of said probe means;

optical heating means for heating said probe means with a predetermined heat; and

measurement means for measuring said relative phase of said reflected light relative to said phase of said incident light and calculating said flow rate based on said relative phase of said reflected light relative to said incident light and said predetermined heat; and

wherein said probe reflecting means comprises:

an optical fiber disposed in said flowing fluid;

an absorbing cladding on a portion of said optical fiber comprising a material for absorbing light wherein said optical heating means comprises said absorbing material; and

a reflector disposed on a first end of said optical fiber, opposite to a second end connected to said measurement means.

5,208,651

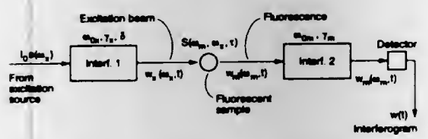
APPARATUS AND METHOD FOR MEASURING FLUORESCENCE INTENSITIES AT A PLURALITY OF WAVELENGTHS AND LIFETIMES

Tudor N. Buican, Albuquerque, N. Mex., assignor to The Regents of the University of California, Alameda, Calif.

Filed Jul. 16, 1991, Ser. No. 731,070

Int. Cl.[5] G01B *9/02*

U.S. Cl. 356—346 17 Claims



1. An apparatus for simultaneously measuring any combination of excitation, emission, and lifetime properties of the fluorescence from a sample, said apparatus comprising in combination:

a. an excitation light source comprising a source of multiple-wavelength electromagnetic radiation and first interferometric means for receiving the electromagnetic radiation from said source of electromagnetic radiation, and having as the output thereof a chosen plurality of excitation wavelengths, each excitation wavelength being modulated at a multiplicity of frequencies different from those of other wavelengths within the plurality thereof, said first interferometric means being driven at a chosen first driving frequency, the output being directed into the sample;

b. second interferometric means for receiving electromagnetic radiation emitted from the sample resulting from the interaction thereof with the plurality of excitation wavelengths output from said first interferometric means, and for introducing modulation into the received emitted electromagnetic radiation, such that each received wavelength is modulated at a multiplicity of frequencies different from those of other received wavelengths before appearing as an output therefrom, said second interferometric means being driven at a chosen second driving frequency and having a chosen phase relationship with the first driving frequency;

c. detection means for receiving the output from said second interferometric means and generating an electrical signal therefrom; and

d. means for analyzing the electrical signal from said detection means and for deriving therefrom any combination of the fluorescence properties of the sample.

5,208,652

AN IMPROVED OPTICAL BRANCHING/COUPLING UNIT FOR AN OPTICAL FIBER GYROSCOPE, AND NAVIGATION SYSTEM EMPLOYING THE SAME

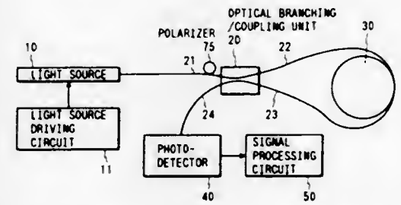
Hisao Sonobe, Katsuta; Shigeru Obo, Hitachi; Junichi Makino, Katsuta; Yasuhiro Gunji, Hitachi; Hiroshi Kajioka, Tsuchiura, and Tatsuya Kumagai, Hitachi, all of Japan, assignors to Hitachi, Ltd. and Hitachi Cable Ltd., both of Tokyo, Japan

Filed Apr. 26, 1991, Ser. No. 691,977

Claims priority, application Japan, Apr. 26, 1990, 2-111204; May 30, 1990, 2-138489; Jun. 4, 1990, 2-145978

Int. Cl.[5] G01C *19/72*

U.S. Cl. 356—350 26 Claims



1. In an optical fiber gyroscope having an optical branching/coupling unit in which light from a coherent light source is bifurcated or conjoined in two directions, an optical system which includes an optical fiber loop for propagating bifurcated light beams in terms of reverse rotations, as well as light phase difference bias means for affording a bias to the bifurcated light beams, a signal processing system which converts an optical output of the optical system into an electric signal and processes the electric signal, and detection means for detecting an angular velocity on the basis of a processed result of the signal processing system;

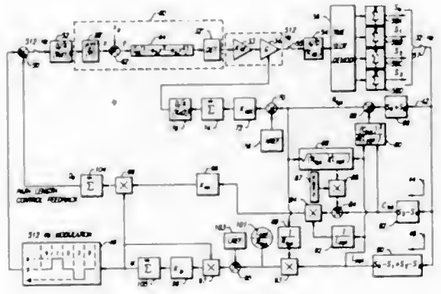
an optical fiber gyroscope characterized in that said optical branching/coupling unit has waveguide paths of the transmitted light and the branched light which are asymmetrically structured and develops a predetermined light phase difference between transmitted light and branched light, thereby to function also as said means for affording the light phase bias.

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5,208,653
MULTIOSCILLATOR RING LASER GYROSCOPE ADAPTIVE DIGITALLY CONTROLLED CAVITY LENGTH CONTROL SYSTEM

John G. Mark, Pasadena; Daniel A. Tazartes, West Hills, and Tae W. Hahn, Chatsworth, all of Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Continuation-in-part of Ser. No. 640,179, Nov. 1, 1991, Pat. No. 5,074,664. This application Aug. 6, 1991, Ser. No. 741,291
The portion of the term of this patent subsequent to Dec. 24, 2008, has been disclaimed.
Int. Cl.[5] G01B 9/02
U.S. Cl. 356—350 9 Claims

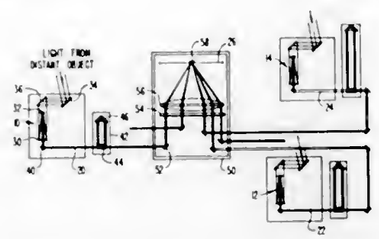


5. A ring laser gyroscope cavity length control system, comprising, in combination:
a ring laser gyroscope defining an optical pathway having electromagnetic propagating waves circulating among at least three corner mirrors comprising said optical pathway, at least one of which is partly transmissive, and at least one of which is movable inwardly and outwardly;
driver means for moving said at least one corner mirror inwardly and outwardly for purposes of cavity length control;
means for providing a controlled activation of said driver means, including:
transducer means for measuring the intensity of electromagnetic propagating waves circulating within said gyroscope;
servo-loop control means for controlling the movement of said at least one mirror which produces a servo-loop control signal that is a function of mirror driver voltage and the change in said electromagnetic propagating wave intensity as such intensity relates to said driver voltage;
modulation control means for controlling the amplitude of the modulation of the servo-loop control signal of said servo-loop control means, said modulation control means additionally producing a gain control signal that is a function of said mirror driver voltage and having sensitivity to the change in said wave intensity as such intensity relates to said driver voltage; and,
radio-frequency (RF) gain control means for adjusting the amplitude of a detected signal representing gyroscope intensity;
whereby, a stable servo-loop gain is achieved for controlling said at least one mirror.

5,208,654
LASER METROLOGY FOR COHERENT MULTI-TELESCOPE ARRAYS

Michael Shao, Pasadena, and Norbert A. Massie, San Ramon both of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 16, 1990, Ser. No. 524,114
Int. Cl.[5] G01B 11/02
U.S. Cl. 356—358 16 Claims

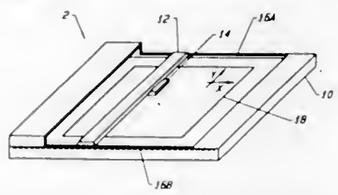


1. A metrology system for pathlength monitoring of a multi-telescope array, the array comprising a multiplicity of telescopes, a beam combining module, and a multiplicity of flat mirrors for directing light- beam output from the multiplicity of telescopes to the beam combining module, said metrology system comprising:
a reference frame; and
interferometric means, comprising a multiplicity of lasers associated with the reference frame, and a multiplicity of retroreflectors attached to the rigid reference frame and to the flat mirrors, for monitoring the positions of the flat mirrors with respect to the reference frame.

5,208,655
METHOD AND APPARATUS FOR AUTOMATIC DENSITOMETER ALIGNMENT

James R. Cox, Richardson, and Mark A. Colvin, Mesquite, both of Tex., assignors to Graphics Microsystems, Inc., Sunnyvale, Calif.

Filed Aug. 7, 1991, Ser. No. 741,748
Int. Cl.[5] G01B 11/27
U.S. Cl. 356—400 20 Claims

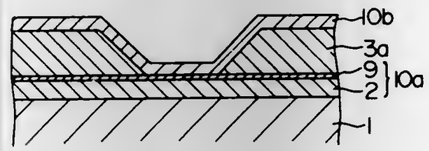


1. A method for aligning an automatic reflectometer relative to a printed sample which is to be measured by the reflectometer, wherein the sample has at least one alignment target and a plurality of features printed thereon, and wherein each feature has a known position relative to the target, comprising:
a. placing the sample on a sample holder;
b. scanning the alignment target with the reflectometer to generate an output signal from the reflectometer that undergoes a step change as the target is scanned such that the position of the target relative to the sample holder is established by reference to the step change, thereby establishing the position of each feature relative to the sample holder, wherein the scanning step comprises:
c. making a horizontal (x-dimension) scan across the target to obtain a first signal, wherein the step change in the first signal establishes the horizontal position (x-coordinate) of the target relative to the sample holder; and
d. making a vertical (y-dimension) scan across the target to obtain a second signal, wherein the step change in the second signal establishes the vertical position (y-coordinate) of the target relative to the sample holder.

5,208,656
MULTILAYER WIRING SUBSTRATE AND PRODUCTION THEREOF

Haruhiko Matsuyama, Hiratsuka; Mitsuo Yoshimoto, Yokohama; Jun Tanaka, Yokohama; Fusaji Shoji, Yokohama; Hitoshi Yokono, Toride; Takashi Inoue, Yokohama; Tetsuya Yamazaki, Yokohama; Minoru Tanaka, Yokohama, and Hidetaka Shigi, Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 25, 1991, Ser. No. 674,605
Claims priority, application Japan, Mar. 26, 1990, 2-73491
Int. Cl.[5] B44C 1/22; H01L 23/48
U.S. Cl. 174—253 17 Claims

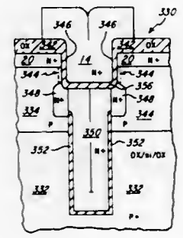


1. A multilayer wiring substrate comprising (1) a ceramic substrate having opposed major surfaces and containing a circuit comprising interlayer wirings in the ceramic substrate and first terminals for at least one of power supply and signal input and output, (2) alternately laminated layers of metal wiring layers and organic insulating layers, formed on at least one of the opposed major surfaces of the ceramic substrate, the organic insulating layers having holes therethrough, the metal wiring layers being electrically connected to each other via the holes through the organic insulating layers, a first portion of at least one of the metal wiring layers being provided beneath an immediately overlying organic insulating layer and a second portion of said at least one of the metal wiring layers being provided beneath a respective hole through the immediately overlying organic insulating layer, each of said at least one of the metal wiring layers having a stabilization treatment layer formed thereon (a) by coating, on said each of said at least one of the metal wiring layers, a metal selected from the group consisting of Cr, Mo, W, Cu, Au and Ni-Cu, the coating being provided between an upper metal wiring layer and a lower metal wiring layer where the upper and lower metal wiring layers are electrically connected to each other, or (b) by dipping in an aqueous solution of water glass, said stabilization treatment layer extending on a respective metal wiring layer both on the first portion of the respective metal wiring layer and on the second portion of the respective metal wiring layer, and (3) a thin film circuit layer having second terminals, for at least one of power supply and signal input and output, to be connected to a large-scale integrated circuit, the thin film circuit layer being formed on a surface of the laminated layers.

5,208,657
DRAM CELL WITH TRENCH CAPACITOR AND VERTICAL CHANNEL IN SUBSTRATE

Pallab K. Chatterjee, Richardson; Satwinder Malhi, Garland, and William F. Richardson, Richardson, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 106,958, Oct. 14, 1987, abandoned, which is a continuation of Ser. No. 679,663, Dec. 7, 1984, abandoned, which is a continuation-in-part of Ser. No. 655,849, Sep. 27, 1984, abandoned, and Ser. No. 654,285, Sep. 24, 1984, Pat. No. 4,683,486, and Ser. No. 646,556, Aug. 31, 1984, Pat. No. 4,651,184, and Ser. No. 646,663, Aug. 31, 1984, abandoned.
This application Jul. 22, 1991, Ser. No. 733,916
The portion of the term of this patent subsequent to Dec. 13, 2005, has been disclaimed.
Int. Cl.[5] H01L 29/68, 27/02, 29/06
U.S. Cl. 257—302 28 Claims



1. A device comprising:
(a) a substrate with a trench formed therein;
(b) material for storing a signal within said trench substantially insulated from said substrate; and
(c) a field effect transistor having a channel in said substrate and positioned to provide channel current flow substantially along the walls of said trench, said field effect transistor being conductively connected to said material for storing a signal.

5,208,658
SEMICONDUCTOR INTEGRATED CIRCUIT PROVIDED WITH CONTACT FOR INTER-LAYER CONNECTION AND METHOD OF INTER-LAYER CONNECTION THEREFOR

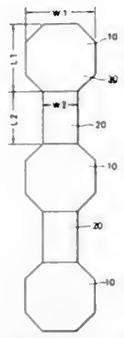
Masaomi Murata, Chiba, Japan, assignor to Kawasaki Steel Corporation, Hyogo, Japan

Filed Dec. 18, 1991, Ser. No. 809,148
Claims priority, application Japan, Dec. 28, 1990, 2-406234[U]
Int. Cl.[5] H01L 23/48, 21/82
U.S. Cl. 257—758 10 Claims

1. A semiconductor integrated circuit with a contact having a relatively longer lengthwise contact dimension than a widthwise contact dimension for electrically connecting a first conducting layer to an adjacent second conducting layer through an insulating layer, to form a plurality of layers in a laminated structure including conducting layers and insulating layers deposited therebetween, said conducting layers made of at least one of a semiconductor substrate, polycrystalline silicon and metal, said contact comprising at least one first pattern, each first pattern having a widthwise dimension W1 substantially equal to a lengthwise dimension L1, and at least one

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second pattern, each second pattern having a widthwise dimension W2 smaller than the widthwise dimension W1 of said



each first pattern, said first and second patterns being connected.

5,208,659

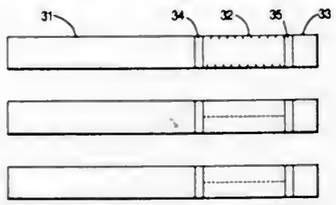
METHOD AND APPARATUS FOR INDEPENDENTLY TRANSMITTING AND RECAPTURING CLOCK RECOVERY BURST AND DC RESTORATION SIGNALS IN A MAC SYSTEM

Charles W. Rhodes, Atlanta, Ga., assignor to Scientific Atlanta, Inc., Atlanta, Ga.

Continuation of Ser. No. 248,249, Sep. 19, 1988, abandoned, which is a continuation of Ser. No. 870,036, Jun. 3, 1986, abandoned. This application Dec. 7, 1989, Ser. No. 445,101

Int. Cl.[5] H04N *11/10*

U.S. Cl. 358—12 **17 Claims**



1. In a frequency modulated time division multiplexed analog component video signal having a line which includes a luminance component, a chrominance component and a horizontal blanking interval which comprises either a clock recovery burst or a DC restoration level, but not both, the method of transmitting multiple lines of the video signal comprising the steps of:

transmitting a first line of the video signal wherein the horizontal blanking interval comprises the clock recovery burst; and

transmitting N subsequent lines of the same video signal wherein

a) N is an integer greater than 1 and less than the number of lines per field in the video system, and

b) the horizontal blanking interval comprises the DC restoration reference level.

5,208,660

TELEVISION DISPLAY APPARATUS HAVING PICTURE-IN-PICTURE DISPLAY FUNCTION AND THE METHOD OF OPERATING THE SAME

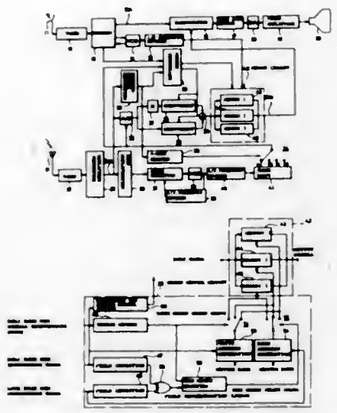
Shigeo Yoshida, Kashiwa, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 557,547, Jul. 24, 1990, abandoned. This application Jan. 10, 1992, Ser. No. 821,236

Claims priority, application Japan, Jul. 29, 1989, 1-197780; Jul. 29, 1989, 1-197781

Int. Cl.[5] H04N *5/45*

U.S. Cl. 358—22 **11 Claims**



1. A television display apparatus comprising:

first television signal receiving means for receiving a first television signal of a first color television standard system,

second television signal receiving means for receiving a second television signal of a second color television standard system,

said first television signal including at least a horizontal synchronizing signal and a vertical synchronizing signal of the standard type defined by the first color television standard system,

said second television signal including a horizontal synchronizing signal, a vertical synchronizing signal, a color burst signal, a video signal, a chrominance signal of the standard type defined by the second color television standard system, and

picture display means, coupled to said first and second television signal receiving means, having a screen for displaying pictures of said first and second television signals,

composite picture display control means for displaying a picture by said first television signal in a large image area on the screen of said picture display means, and displaying a picture by said second television signal in a small image area within said large image area by locally substituting for the picture of said first television signal, to display on the screen of said picture display means a composite picture having a picture of said second television signal nested in the picture of the first television signal,

said composite picture display control means comprising

said first clock signal generating means for generating a first clock signal associated with the horizontal synchronizing signal and the vertical synchronizing signal including in said first television signal,

second clock signal generating means for generating a second clock signal in synchronism with the color burst signal included in said second television signal, and having a frequency of L/K times (K≦L, K and L are natural numbers) the frequency of the color subcarrier,

scanning line number converting means for converting the number of signal scanning lines of the second television signal to the number in which the scanning lines of the picture of the first television signal in the large image area is included within the height of the small image area, in accordance with the ratio of the height of the large image area to the height of the small image area,

writing clock generating means for generating a plurality of writing clock signal trains shifting said second clock signal in turn by a predetermined phase of a clock style selected so as to correct the phase shifting between the cycle of said second clock signal and the cycle of the horizontal scanning of the second television signal, for every 1 horizontal period,

memory means for storing the second video signal written therein from said scanning line number converting means in response to the cycle of the writing clock from said writing clock generating means and read therefrom in response to said first clock signal, and

substituting means for substituting the video signal associated with the second television signal read out from said memory means for a portion of the video signal included in said first television signal.

8. A television display apparatus comprising:

first television signal receiving means for receiving a first television signal of a first television standard system,

second television signal receiving means for receiving a second television signal of a second television standard system,

said first television signal including a first synchronizing signal and a video signal of the standard type defined by said first television standard system,

said second television signal including a second synchronizing signal and a video signal of the standard type defined by said second television standard system,

picture display means, coupled to said first and second television signal receiving means, having a screen for displaying pictures of said first and second television signals, and

composite picture display control means for displaying a picture by said first television signal in a large image area on the screen of said picture display means, and displaying a picture by said second television signal in a small image area within said large image area by locally substituting for the picture of said first television signal, to display on the screen of said picture display means a composite picture having a picture of said second television signal nested in the picture of said first television signal,

said composite picture display control means comprising

means for generating a write clock signal in synchronization with a second synchronizing signal included in said second television signal,

means for generating a read clock signal in synchronization with a first synchronizing signal included in said first television signal,

three field memories, each having the video signal included in said second television signal written therein according to the cycle of said generated write clock signal, and having said written video signal read out therefrom according to the cycle of said generated read clock signal,

first field detecting means for detecting whether the video signal included in said first television signal is a signal of the first field or the second field,

second field detecting means for detecting whether the video signal included in said second television signal is a signal of the first field or the second field, and

means responsive to the detection signals from said first field detecting means and said second frame detecting means for selecting, out of said three field memories, the field memory not being currently scanned and having a field which is identical to that of the first video signal being currently scanned.

5,208,661

COLOR PICTURE DISPLAY DEVICE AND COLOR CAMERA

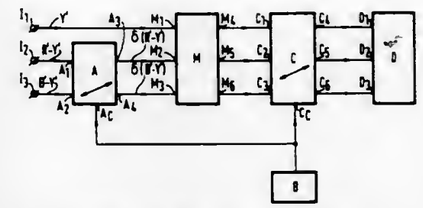
Cornelis A. M. Jaspers, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 24, 1992, Ser. No. 826,326

Claims priority, application Netherlands, Feb. 1, 1991, 9100174

Int. Cl.[5] H04N *9/69*

U.S. Cl. 358—32 **4 Claims**



1. A color picture display device comprising:

means for receiving a color video signal composed of a gamma-precorrected luminance component and gamma-precorrected chrominance components;

a matrix circuit for deriving gamma-precorrected primary color signals from the received gamma-precorrected luminance and chrominance components;

gamma correction means coupled to the matrix circuit for modifying the gamma of the primary color signals, said gamma correction means having a control input for controlling the gamma of the primary color signals in response to a gamma control signal applied to the control input;

means for generating said gamma control signal; and

a color picture display screen coupled to the gamma correction means for displaying the color picture represented by the gamma-corrected color signals, characterized in that said picture displaying device further comprises:

a color correction circuit for modifying, in response to the gamma control signal, the mutual ratio of the primary color signals either before or after the gamma correction means.

5,208,662

METHOD OF ENCODING COLOR TELEVISION SIGNAL AND A CIRCUIT THEREFOR

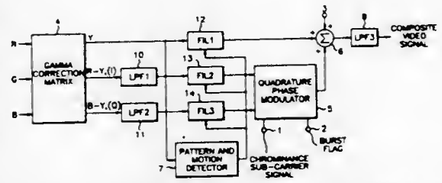
Tong-Ill Song, Suwon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Paldal-ku, Rep. of Korea

Filed Dec. 21, 1990, Ser. No. 631,995

Claims priority, application Rep. of Korea, Dec. 22, 1989, 1989-19320

Int. Cl.[5] H04N *9/64, 9/78, 7/18*

U.S. Cl. 358—40 **26 Claims**



1. A method of encoding a composite image signal in a color television having a gamma correction matrix, a plurality of low pass filters, a quadrature phase modulator and a mixer, said method comprising the steps of:

detecting intrafield image patterns and frame differences of

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said composite image signal to provide pattern and motion value signals;

determining a bandwidth of a three dimensional filter with respect to vertical, horizontal, and temporal axes according to said pattern and motion value signals for a luminance signal of said gamma correction matrix and chrominance signals of said plurality of low pass filters; and

controlling amplitude gains of output signals passed through the bandwidth of said three dimensional filter according to said pattern and motion value signals.

5,208,663

COLOR IMAGE PROCESSING APPARATUS PROVIDED WITH AN IMAGE DISCRIMINATION MEANS

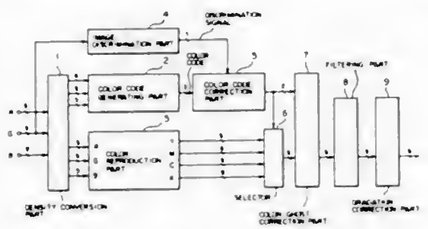
Seiichiro Hiratsuka; Koji Washio, and Masahiko Matsunawa, all of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Continuation of Ser. No. 496,026, Mar. 20, 1990. This application Jul. 23, 1992, Ser. No. 918,136

Claims priority, application Japan, Mar. 22, 1989, 1-69909; Apr. 21, 1989, 1-101967; Apr. 28, 1989, 1-10983

Int. Cl.[5] H04N *1/46*

U.S. Cl. 358—75 7 Claims



1. An image processing apparatus, comprising:

means for reading an original image to obtain color image data in a form of pixels and for generating a plurality of color component signals for each pixel, each of said color component signals representing a density level of a corresponding component color;

first classifying means for classifying a color of each pixel as one of a chromatic color, an achromatic color, and an intermediate color on the basis of said color component signals, said intermediate color being a color in a color region between said chromatic color and said achromatic color;

means for detecting a change in density level between pixels on the basis of the density levels of the color component signals; and

second classifying means for further classifying a color of pixels classified as said intermediate color as either said chromatic color or said achromatic color on the basis of said change in density level.

5,208,664

IMAGE READING METHOD AND APPARATUS WITH COORDINATION FUNCTION FUNCTION BETWEEN READ VALUE AND ORIGINAL DENSITY

Shin Yamada, Kawasaki; Yoshimitsu Kanno, Sagamihara, and Teruo Fumoto, Kawasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 6, 1991, Ser. No. 696,412

Claims priority, application Japan, May 16, 1990, 2-127278

Int. Cl.[5] H04N *1/46*

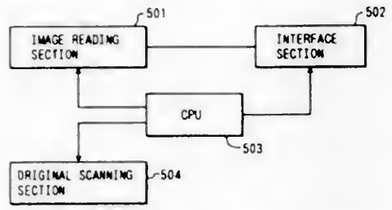
U.S. Cl. 358—80 5 Claims

1. An image reading method of reading color information on an original picture, comprising the steps of:

optically reading a density of a color chip having a predetermined density so as to constitute a densitometer with the read density of said color chip being adjusted to be substantially coincident with the predetermined density, said densitometer being arranged so as to measure a density a point on said original picture;

measuring densities of highlight and shadow points on said original picture, which are designated by an operator, by means of said densitometer;

correcting density values, which are designated by said operator, on the basis of the measured densities so that a balance between a plurality of colors obtained through



color separations of the highlight and shadow points is kept and so that values of color signals obtained when color-separating gray are coincident with each other; and

performing a coordination between the read density and a density of said original picture with the read densities of the highlight and shadow points being adjusted to be coincident with the corrected densities, thereby determining an output signal when reading a point on said original picture.

5,208,665

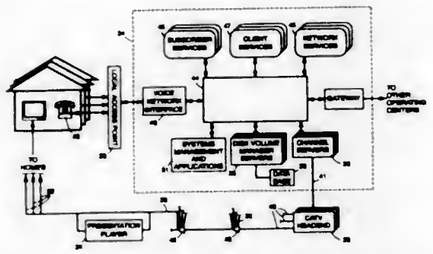
PRESENTATION PLAYER FOR AN INTERACTIVE DIGITAL COMMUNICATION SYSTEM

Kari W. McCalley, South Barrington; Steven D. Wilson, Chicago; James L. Fischer, Barrington, and Kenneth P. Belau, Chicago, all of Ill., assignors to Telaction Corporation, Schaumburg, Ill.

Continuation of Ser. No. 579,184, Sep. 5, 1990, abandoned, which is a continuation of Ser. No. 456,181, Dec. 15, 1989, abandoned, which is a continuation of Ser. No. 286,742, Dec. 19, 1988, abandoned, which is a division of Ser. No. 271,086, Nov. 14, 1988, abandoned, and a continuation of Ser. No. 87,668, Aug. 20, 1987, Pat. No. 4,829,372, said Ser. No. 271,086, is a continuation-in-part of Ser. No. 87,668, Aug. 20, 1987. This application Feb. 15, 1991, Ser. No. 657,245

Int. Cl.[5] H04N *7/10*

U.S. Cl. 358—86 40 Claims



1. In an interactive digital communications system wherein each of a plurality of subscribers may select for viewing on a television set particular presentations from a plurality of presentations available on said system, said particular presentations being distributed in the form of digital data on one or more distribution channels, each distribution channel capable of being transmitted on one or more distribution channel frequencies to a plurality of presentation players, each of said plurality of subscribers having a television set connected to one of said presentation players, said digital data being uniquely addressed to said subscriber who has selected said particular presentations, each of said presentation players comprising:

a) converter means capable of receiving and scanning said one or more distribution channel frequencies and selecting one of said one or more distribution channel frequencies for further processing of said digital data thereon in response to information derived from said scanning;

b) one or more subscriber servers capable of receiving said digital data uniquely addressed to one of said plurality of subscribers connected thereto, each of said one or more subscriber servers having means for converting said digital data to analog television signals and means for transmitting said analog television signals to display said particular presentation on the television set of said subscriber to whom said digital data is uniquely addressed; and

c) a connection for providing a communications path between said converter means and said one or more subscriber servers.

5,208,666

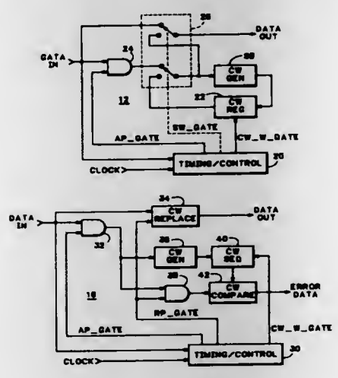
ERROR DETECTION FOR DIGITAL TELEVISION EQUIPMENT

Bob Elkind, Gaston; David Fibush, Beaverton, and Kenneth M. Ainsworth, Aloha, all of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Oct. 25, 1991, Ser. No. 782,927

Int. Cl.[5] H04N *17/00*

U.S. Cl. 358—139 10 Claims



1. An error detection system for testing digital television equipment of the type that processes only the active picture area of a television signal comprising:

means for generating a digital test signal for input to the digital television equipment, the digital test signal having check word data inserted into the active picture area of a digital video signal at a predetermined location; and

means for receiving from the digital television equipment an output corresponding to the digital test signal, the receiving means including means for generating check word data from the output for the active picture area and for comparing the active picture area check word data with the check word data inserted by the generating means to determine whether an error occurred between the input and the output of the digital television equipment.

5,208,667

MOTION COMPENSATED VIDEO STANDARDS CONVERTER AND METHOD OF DERIVING MOTION VECTORS

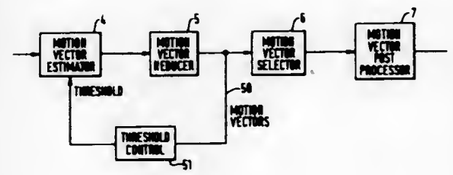
Nicholas I. Saunders, Basingstoke, United Kingdom, assignor to Sony Broadcast & Communications Limited, Basingstoke, United Kingdom

Filed Jun. 12, 1991, Ser. No. 713,988

Claims priority, application United Kingdom, Jul. 24, 1990, 9016167

Int. Cl.[5] H04N *7/01, 7/18, 7/12*

U.S. Cl. 358—140 10 Claims



1. A motion compensated video standards converter for converting a video signal conforming to a first video standard to a converted video signal conforming to a second video standard, said video signal being provided as a sequence of intervals selected from field and frame intervals, each said interval being arranged in a plurality of blocks each representing a portion of a video image represented by said interval, comprising:

comparing means for comparing a respective one of said blocks in each of a plurality of first intervals of the video signal with a plurality of blocks in a corresponding one of a plurality of adjacent intervals thereof for deriving motion vectors representing motion of the portion of an image represented by said respective one of said blocks between said each of said plurality of first intervals and said corresponding one of said plurality of adjacent intervals by generating a respective correlation surface for said respective one of said blocks in said each of said plurality of first intervals, said correlation surface representing respective differences between the portion of the image represented by said respective one of said blocks in said each of said plurality of first intervals and the respective portions of the image represented by each of said plurality of blocks in said corresponding one of said plurality of adjacent intervals;

selecting means for selecting from each said respective correlation surface a selected motion vector corresponding to a minimum value of said respective differences which differs from a next smallest value of said respective differences represented by said respective correlation surface by more than predetermined threshold value such that a plurality of selected motion vectors are produced for said plurality of first intervals;

averaging means for averaging a number of said plurality of selected motion vectors determined by said selecting means over a predetermined number of said plurality of first intervals to produce an average number;

threshold determining means for determining said predetermined threshold value in dependence on said average number; and

interpolator means for producing said converted video signal controlled in dependence on the plurality of selected motion vectors.

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5,208,668

TELEVISION TRANSMISSION SYSTEM INCLUDING ENCODER AND DECODER COMPATIBLE WITH CURRENT TELEVISION STANDARDS HAVING A 4:3 ASPECT RATIO

Siegfried Dinsel, and Werner Habermann, both of München, Fed. Rep. of Germany, assignors to Telefunken, Fed. Rep. of Germany

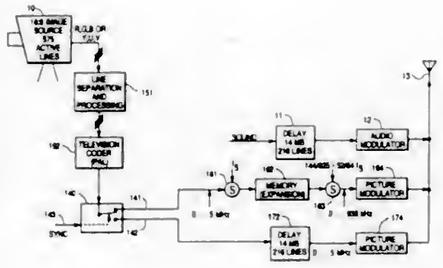
PCT No. PCT/EP89/01503, § 371 Date Jul. 24, 1991, § 102(e) Date Jul. 24, 1991, PCT Pub. No. WO90/06655, PCT Pub. Date Jun. 14, 1990

PCT Filed Dec. 7, 1989, Ser. No. 720,493

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1988, 3841173

Int. Cl.[5] H04N *7/01, 7/04, 11/20*

U.S. Cl. 358—140 8 Claims



1. A system for processing a television signal containing wide aspect ratio information compatible with a standard television signal containing image information having an aspect ratio less than that of said compatible television signal, said system comprising:

means for providing a widescreen television signal having an image aspect ratio greater than said standard aspect ratio, said widescreen television signal (a) occupying a frequency spectrum including a first carrier modulated with first image information defining a first modulation band, and (b) containing vacated spatial areas along upper and lower edges of an image defined by lines remaining after lines are separated from groups of a prescribed number of successive lines within an image scanning interval, said separated lines being inserted into said vacated spatial areas;

means for temporally expanding active image portions of said separated lines;

means for modulating a second carrier with said time expanded portions of said separated lines to produce a second modulation band disposed in an upper portion of said frequency spectrum, said second modulation band subject to being suppressed in a standard television receiver for processing a standard aspect ratio television signal;

means for modulating said first carrier with nonactive portions of said separated lines and with said remaining lines so that said first modulation band is within a passband of said standard receiver for processing by said standard receiver as said standard television signal;

means for modulating a third carrier with audio information; and

means for combining said modulated first, second and third carriers for transmission.

5,208,669

UP-CONVERSION OF A VIDEO SIGNAL FORMAT WITH EXPANSION OF ACTIVE PORTION OF VIDEO FIELD

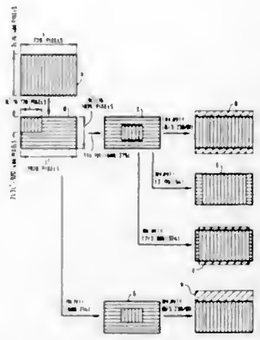
John W. Richards, Stockbridge, United Kingdom, assignor to Sony Broadcast & Communications Limited, Basingstoke, Great Britain

Filed Jan. 3, 1992, Ser. No. 816,561

Claims priority, application United Kingdom, Jan. 8, 1991, 9100314

Int. Cl.[5] H04N *7/01*

U.S. Cl. 358—140 23 Claims



1. An apparatus for up-converting a digital video signal from a first definition format to a second high-definition format, comprising:

storage means for storing an input field/frame of pixel data in the first format;

storage control means for controlling the storage means to output the stored pixel data together with dummy data as an intermediate field/frame in the second format, such that the pixel data occupies a continuous active portion of the intermediate field/frame and the dummy data occupies the remainder of the intermediate field/frame; and

means for processing the intermediate field/frame by expanding the active portion thereof in the vertical and horizontal directions and producing an output field/frame in the second format such that the pixel data extends across substantially the whole of the output field/frame in at least one of the two directions.

5,208,670

TELEVISION SYSTEM FOR TRANSMITTING AUXILARY IMAGE SIGNALS IN THE BLACK BANDS IN ACCORDANCE WITH IMAGE MOTION

Yoshio Sugimori; Yoshihide Kimata, and Toshiya Ito, all of Tokyo, Japan, assignors to Nippon Television Network Corporation, Tokyo, Japan

Filed Dec. 18, 1990, Ser. No. 629,554

Claims priority, application Japan, Dec. 27, 1989, 1-339380

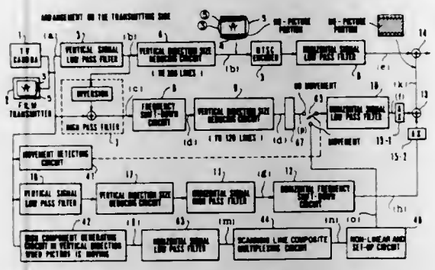
Int. Cl.[5] H04N *7/00, 11/00*

U.S. Cl. 358—141 3 Claims

1. A television system, in which a picture is transmitted to a television screen having an aspect ratio of 4:3 form an oblong screen having an aspect ratio which is different from that of said television screen so as to result in the development of no-picture portions within upper and lower sections of said television screen having said aspect ratio of 4:3, which is different from that of said oblong screen, and wherein signals are inserted into said no-picture portions of said television screen such that said signals are used as signals for improving the resolution of said picture upon said television screen, comprising:

means for transmitting a first signal obtained by shifting a horizontal signal component, which exceeds the horizontal band determined by means of the lateral width of said television screen which is equal to the width of the scanning raster thereof, down to a lower frequency;

means for developing a second signal which is obtained by shifting a vertical signal component, with a band which has a vertical frequency which is greater than the vertical frequency determined by means of the number of scanning lines in the vertical direction of said oblong screen within the portion of said oblong screen wherein said picture si not moving, to a lower frequency;



means for developing a third signal which comprises the difference between the scanning lines characteristic of said portion of said oblong screen within which said picture is not moving and a portion of said oblong screen within which said picture is moving; and

a picture movement detecting circuit for selectively transmitting either one of said second and third signals, along with said first signal, depending upon detection by said circuit of a non-moving picture portion or a moving picture portion.

5,208,671

TELETEXT DECODER ARRANGEMENT

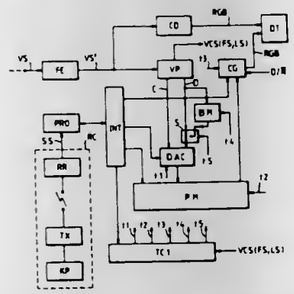
David R. Tarrant, Romsey, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 19, 1991, Ser. No. 794,284

Claims priority, application United Kingdom, Nov. 30, 1990, 9026041

Int. Cl.[5] H04N *7/04, 7/08*

U.S. Cl. 358—147 18 Claims



1. A teletext decoder arrangement for teletext transmissions comprising a page memory for storing data packets of said teletext transmissions corresponding to a teletext page, a background memory for storing data packets of said teletext transmissions as they are received and scanning means for causing the stored data packets of said background memory to be scanned to locate the data packets corresponding to a required teletext page, said scanning means including means adapted to scan the stored data packets of said background memory in the reverse order to that in which they are received to locate said data packets corresponding to said required teletext page.

5,208,672

HORIZONTAL SYNCHRONIZING SIGNAL GENERATING CIRCUIT

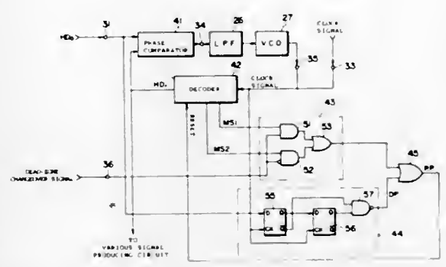
Masahiro Konishi, Tokyo; Kazuo Kawamura, Kanagawa; Hitoshi Koike, and Satoshi Iwamatsu, both of Tokyo, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 8, 1991, Ser. No. 742,430

Claims priority, application Japan, Aug. 30, 1990, 2-226605; Aug. 30, 1990, 2-226606

Int. Cl.[5] H04N *5/06*

U.S. Cl. 358—150 8 Claims



1. A horizontal synchronizing signal generating apparatus comprising:

horizontal synchronizing reference signal producing means for producing a internal horizontal synchronizing reference signal based upon an inputted clock signal and a reset pulse;

a phase comparator for comparing the phase of a given external horizontal synchronizing reference signal and the phase of an internal horizontal synchronizing reference signal outputted by said horizontal synchronizing reference signal producing means, and generating a phase comparator voltage signal conforming to a difference between the phases of said given external horizontal synchronizing reference signal and said internal horizontal synchronizing reference signal;

a low-pass filter for passing low-frequency components of the phase comparator voltage signal outputted by said phase comparator;

a voltage-controlled oscillator, whose oscillation frequency is controlled by a low-pass filter output voltage signal from said low-pass filter, for generating a clock signal applied to said horizontal synchronizing reference signal producing means;

decision means for determining whether the phase difference between the phases of the internal horizontal synchronizing reference signal and the given external horizontal synchronizing reference signal lies within a follow-up range in which follow-up is capable of being performed by said voltage-controlled oscillator;

reset-pulse generating means for generating a reset pulse synchronized to a prescribed edge of the given external horizontal synchronizing reference signal; and

reset control means for inhibiting input of the reset pulse to said horizontal synchronizing reference signal producing means when said decision means determines that the phase difference lies within the follow-up range, and applying the reset signal to said horizontal synchronizing reference signal producing means when said decision means determines that the phase difference lies outside the follow-up range.

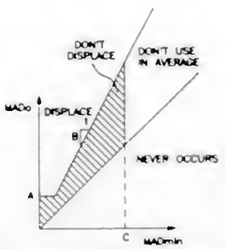
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,673

NOISE REDUCTION IN FRAME TRANSMITTED VIDEO SIGNALS

Jill M. Boyce, East Windsor, N.J., assignor to Matsushita Electric Corporation of America, Secaucus, N.J.

Filed Nov. 5, 1991, Ser. No. 788,026
Int. Cl.[5] H04N *5/213, 7/18*
U.S. Cl. 358—167 10 Claims



1. A method for reducing the noise in video signals of sequential frames comprising:

generating a difference signal indicating differences between pixel signals of blocks in a reference frame and corresponding blocks in another frame;

comparing pixel signals of the block in the reference frame to pixel signals of a matching block the other frame to generate a measure of image noise distortion;

combining the difference signal with the measure of noise distortion to generate a reliable motion signal indicating that the block in the reference frame exhibits motion relative to the corresponding block in the other frame;

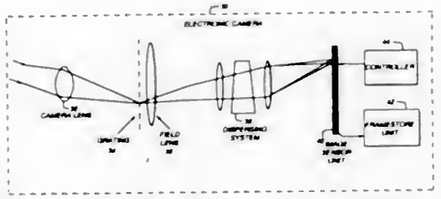
respectively averaging the pixel signals of blocks of a reference frame with the pixel signals of corresponding blocks in another frame only when the reliable motion signal has a value indicating that there is relatively little motion between the block in the reference frame and the corresponding block in the other frame.

5,208,674

MICRO-DISPERSION ELECTRONIC CAMERA

John S. Setchell, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 633,132, Dec. 24, 1990, abandoned.
This application Jun. 19, 1992, Ser. No. 896,501
Int. Cl.[5] H04N *5/30*
U.S. Cl. 358—209 1 Claim



1. A method of producing spectrally correct image data comprising the steps of: generating a plurality of micro-spectra from scene light; imaging the microspectra onto an electronic imaging sensor unit including an array of pixel groups, each pixel group including a plurality of pixel elements, wherein each micro-spectra exposes a corresponding pixel group and each pixel element within the corresponding pixel group generates an image signal representative of a portion of the micros-pectra; generating image data based on signals produced by the pixel elements in response to the imaging of the micro-spectra thereon; and correlating the image data to a plurality of wavelengths;

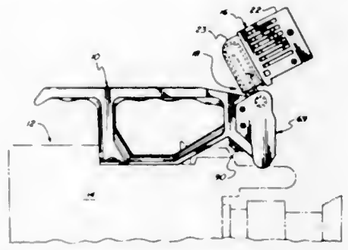
wherein the step of correlating the image data includes the steps of sequentially illuminating a surface with light of specific wavelengths of a desired spectrum using a variable monochromator, activating the electronic image sensor to capture image correlation data of the surface for each wavelength of light; storing the image correlation data in a framestore; polling the image correlation data stored in the framestore to determine which of the pixel elements of the electronic image sensor produce a signal response for a given wavelength of light; storing a data table which identifies the wavelength of light to which each pixel is responsive; and using the data table to match the image data to a specific wavelength of light.

5,208,675

VIDEO CAMERA WITH INTEGRAL LIGHT ASSEMBLY

Anton Wilson, White Plains, N.Y., and Jeffrey P. Crouch, Terryville, Conn., assignors to Anton/Bauer, Inc., Shelton, Conn.

Continuation of Ser. No. 456,106, Dec. 26, 1989, abandoned.
This application Jul. 15, 1991, Ser. No. 730,076
Int. Cl.[5] H04N *5/30*
U.S. Cl. 358—209 13 Claims



1. A video camera system comprising:

a camera body;

a clip and socket assembly;

a light module slidably and removably mounted on said clip and socket assembly;

means for pivotally mounting said clip and socket assembly directly onto said camera body such that said light module when mounted on said clip and socket assembly can be pivoted from an upright position to a storage position, said means including a pivotal connector, said pivotal connector having a clutch for securing the clip and socket assembly in a selected position and providing for smooth pivotal adjustment;

said camera body further including a mounting block including a first wall and a second wall spaced apart from and facing said first wall, the walls defining a surface being substantially parallel and having a length substantially corresponding to the length of the clip and socket assembly, and the walls forming a chamber within said mounting block between said first and second walls for receiving and storing said clip and socket assembly when said light module is removed therefrom and said clip and socket assembly is pivoted to a storage position, wherein said pivotal connector is located within said chamber.

5,208,676

IMAGE PROCESSING APPARATUS WITH DATA STORAGE REGION MANAGEMENT, MEMORY SPACE ALLOCATION IN ACCORDANCE WITH DETECTED COMPRESSION RATIO OF DATA

Tetsuyuki Inui, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1990, Ser. No. 621,810
Int. Cl.[5] H04N *1/21*
U.S. Cl. 358—296 20 Claims

1. An image recording apparatus comprising

an external image data input section providing image data;

an image reading section for reading images of documents and generating corresponding image data;

data compression means for compressing image data generated by said image reading section according to a compression ratio;

data storage means having a predetermined data memory space for storing said image data compressed by said data compression means;

data storage region management means for managing a plurality of data storage regions in said data storage means for the image data provided by said external image data input section and for the image data generated by said image reading section, wherein each one of said plurality of data storage regions is allocated a portion of said data memory space;

compression ratio detection means for detecting the compression ratio of the image data generated by said image reading section and compressed by said data compression means; and

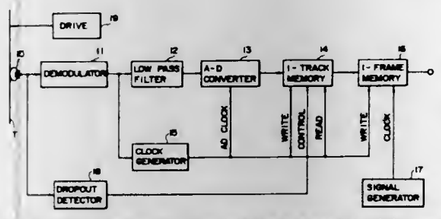
control means for changing the portion of said data memory space allocated for at least one of said plurality of data storage regions in said data storage means for the image data generated by said image reading section in accordance with the compression ratio detected by said compression ratio detection means.

5,208,677

VIDEO SIGNAL REPRODUCING APPARATUS

Hajime Nishimura, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Aug. 22, 1991, Ser. No. 748,455
Claims priority, application Japan, Aug. 29, 1990, 2-225292
Int. Cl.[5] H04N *5/783, 5/94*
U.S. Cl. 358—335 6 Claims



1. A video signal reproducing apparatus for high speed playback of a recording medium having a shuffled video signal of one field recorded thereon in a plurality of tracks, said shuffled video signal having mutually adjacent lines of an image of said one field recorded on different tracks in a predetermined sequence, said apparatus comprising:

playback means for generating a reproduced signal by playing back said recording medium at a high speed used in a high speed playback mode and which is an integer plus ½ times a standard speed used in a standard speed playback mode;

memory means including a one-track memory into which said reproduced signal is written in response to one state of a control signal and further including a one-frame memory;

detector means for detecting a noise bar in said reproduced signal and for providing another state of said control signal to inhibit writing of said reproduced signal in said one-track memory in response to detecting of said noise bar;

clock generating means for generating a clock signal based on said reproduced signal;

means applying said clock signal to said one-track memory for reading data devoid of noise bars from the latter;

means applying said clock signal to said one-frame memory for writing said data devoid of noise bars into said one-frame memory in synchronism with said reading of said data devoid of noise bars from said one-track memory; and

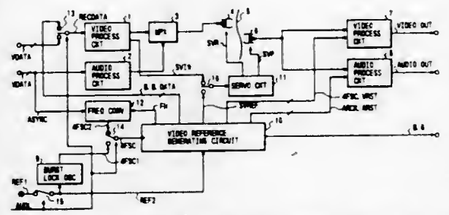
readout control means for controlling readout of said data devoid of noise bars from said one-frame memory so as to produce a deshuffled video signal having a deshuffled sequence which is the inverse of said predetermined sequence and which is the same for the high speed playback mode and for the standard-speed playback mode.

5,208,678

AUDIO AND VIDEO DATA SYNCHRONIZATION APPARATUS FOR RECORDING AND REPRODUCING SYSTEM

Yukio Nakagawa, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 6, 1991, Ser. No. 756,018
Claims priority, application Japan, Sep. 18, 1990, 2-249431
Int. Cl.[5] H04N *5/91*
U.S. Cl. 358—341 8 Claims



1. In a system wherein a video recording processing circuit and an audio recording processing circuit process digital recording video data and digital recording audio data; output data from the video recording processing circuit and the audio recording processing circuit is recorded into a recording medium by using a sync signal of the digital recording video data as a reference; a video reproducing processing circuit and an audio reproducing processing circuit process data reproduced from the recording medium; and reproduced video data and reproduced audio data are outputted in synchronism with an externally generated reference video signal inputted to the system, video and audio data recording a reproducing apparatus usable in combination with a digital audio interface, comprising:

a frequency converting circuit for generating a clock signal of a video sampling frequency from one of a clock signal or a sync signal outputted from the digital audio interface;

an oscillator for generating a clock signal of the video sampling frequency;

a video reference generating circuit for generating a video timing signal, an audio timing signal, and black burst data from one of the clock signals generated by the frequency converting circuit and the oscillator and from the external reference video signal;

said video reference generating circuit including reference-detecting means for detecting the external reference video signal;

first switching means for, in cases where the recording audio

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data is recorded or edited, replacing the recording video data by the black burst data and feeding the black burst data to the video recording processing circuit;

second switching means for, in cases where the recording audio data is recorded or edited, replacing the video-sampling-frequency clock signal from the oscillator by the video-sampling-frequency clock signal from the frequency converting circuit and feeding the video-sampling-frequency clock signal from the frequency converting circuit to the video reference generating circuit; and

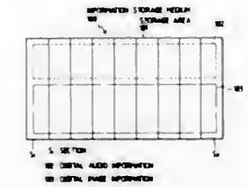
third switching means for, in cases where the recording audio data is recorded or edited, suspending detection of the external reference video signal by said reference detecting means in the video signal by said reference detecting means in the video reference generating circuit, and inhibiting a timing reset of the video reference generating circuit.

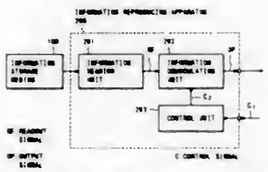
5,208,679

APPARATUS FOR REPRODUCING INFORMATION IN RESPONSE TO SELECTED IMAGE CHANGE CONTROL INFORMATION

Keiichi Yamauchi; Toshihiko Shimizu, and Satomi Sudo, all of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 2, 1991, Ser. No. 725,128
Claims priority, applicatioo Japan, Jul. 6, 1990, 2-179795
Int. Cl.[5] G11B *7/00*
U.S. Cl. 358—342 **15 Claims**





1. In an apparatus for reproducing information from an information storage medium having a storage area divided into a plurality of sections, for storing digital audio information and digital image information including a plurality of image change information and picture information, comprising:

information reading means for reading information from said information storage medium;

information demodulating means for demodulating the information read by said information reading means and outputting as demodulated information at least said image change control information and said picture information;

transition period detecting means for detecting a starting portion and an ending portion of said demodulated picture information; and

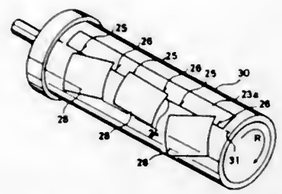
control means for selecting said image change control information to control said picture information output by said information demodulating means, so as to permit control of said picture information during the transition period of said picture information.

5,208,680

LAYOUT POSITION DESIGNATING SHEET AND METHOD OF MOUNTING ORIGINAL USING THE SAME

Yoshio Sugimoto, Rolling Meadows, Ill., and Masayuki Sasahara, Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Japan

Filed Oct. 11, 1989, Ser. No. 420,155
Claims priority, application Japan, Oct. 12, 1988, 63-254900
Int. Cl.[5] H04N *1/00*
U.S. Cl. 358—400 **16 Claims**



1. A positioning sheet for an image reproducing apparatus for positioning and reproducing a desired portion of an original, wherein the original has at least two intersecting sides and the image reproducing apparatus specifies said desired portion by a pair of first reference lines which extend in a first direction and a pair of second reference lines which extend in a second direction intersecting the first direction, said positioning sheet comprising:

only one first reference line corresponding to one of said pair of first reference lines associated with said image reproducing apparatus;

a pair of second reference lines corresponding to said pair of second reference lines associated with said image reproducing apparatus and

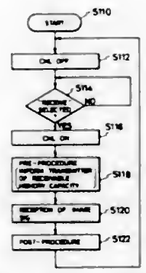
a third reference line intersecting with said only one first reference line and specifying at least two intersecting lines of said original.

5,208,681

DATA COMMUNICATION APPARATUS FOR RECEIVING INFORMATION INDICATIVE OF AN AVAILABLE MEMORY AND RECORDING CAPACITY

Takehiro Yoshida, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 165,476, Mar. 8, 1988, abandoned. This application Jan. 10, 1991, Ser. No. 639,364
Claims priority, application Japan, Mar. 11, 1987, 62-57671
Int. Cl.[5] H04N *1/40*
U.S. Cl. 358—404 **6 Claims**



3. A data transmission apparatus comprising:

transmitting means for transmitting image data;

means for receiving information representing a receivable capacity, which comprises information representing a memory capacity, from a receiver;

a table memory for storing information of a one-page transmission data amount corresponding to image data size information and a pixel density of image data; and

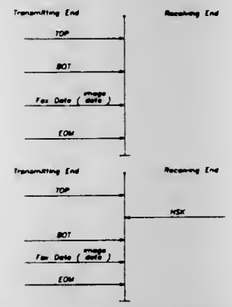
means for displaying a receivable paper number on the basis of the unit transmission data amount and the memory capacity information from said receiver.

5,208,682

METHOD AND APPARATUS FOR AN AUTO HANDSHAKE CAPABLE FACSIMILE MACHINE USING DIGITAL SYNC FAX PROTOCOLS

Allam Z. Ahmed, Santa Clara, Calif., assignor to Ricoh Company Ltd., Tokyo, Japan and Ricoh Corporation, San Jose, Calif.

Filed Apr. 23, 1992, Ser. No. 872,920
Int. Cl.[5] H04M *1/00*
U.S. Cl. 358—434 **21 Claims**



1. An apparatus being adaptable to a protocol standard for transmitting and receiving data, said standard defining a first operation mode, a second operation mode, a first protocol type, a second protocol type, and a response protocol type, said apparatus comprising:

means for detecting said first protocol type;

means for detecting said second protocol type;

means for setting said apparatus in said first operation mode and said second operation mode in response to detections of said first protocol type and said second protocol type; and

means for selecting said responsive protocol type in response to said first operation mode and said second operation mode set by said setting means.

5,208,683

FACSIMILE APPARATUS

Osamu Okada, c/o Konica Corporation 26-2, 1-chome, Nishi-Shinjuku, Shinjuku-ku, Tokyo, Japan

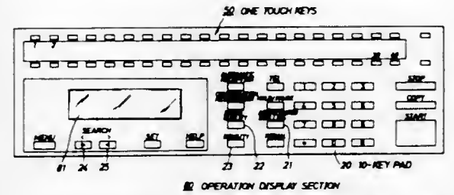
Filed Jul. 24, 1989, Ser. No. 383,544
Claims priority, application Japan, Jul. 25, 1988, 63-185230
Int. Cl.[5] H04N *1/32*
U.S. Cl. 358—468 **7 Claims**

1. A facsimile apparatus comprising:

a plurality of one-touch keys, each for reproducing a combination of predetermined functions of the apparatus;

a plurality of function keys for setting a predetermined function; and

memory means for holding an identity of a plurality of different functions which are set by said function keys for each one-touch key, wherein the identity of the plurality of different functions includes a sequence in which said



function keys are operated after designations of one of said one-touch keys until registration of said one-touch key.

5,208,684

HALF-TONE IMAGE PROCESSING SYSTEM

Seiichi Itoh, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Apr. 24, 1991, Ser. No. 690,574
Claims priority, application Japan, Apr. 26, 1990, 2-111320; May 21, 1990, 2-130701; May 25, 1990, 2-133847; May 25, 1990, 2-133851
Int. Cl.[5] G06K *9/34*
U.S. Cl. 358—456 **14 Claims**

1. A half-tone image processing system, comprising:

density data storage means for storing density data of each pixel of an original image;

Laplacian calculation means for reading out the density data from the density data storage means, for performing a Laplacian calculation on an object pixel and peripheral pixels around the object pixel to obtain corrected data, the Laplacian calculation being performed in such a manner that a difference in density between the object pixel and each of the peripheral pixels is calculated and all the differences are summed;

binary-coding means for comparing the corrected data with a fixed threshold value to obtain binary-coded data indicating either black or white color in accordance with the threshold value;

error calculation means for determining a difference between the corrected data;

an error distribution means for receiving the binary-coded error and a predetermined error diffusion matrix and for obtaining a weighted binary-coded error for each peripheral pixel based on the received binary-coded error and the predetermined error diffusion matrix; and

calculation means for adding the weighted binary-coded error to the density data corresponding to each peripheral pixel to produce corrected density data, and for replacing

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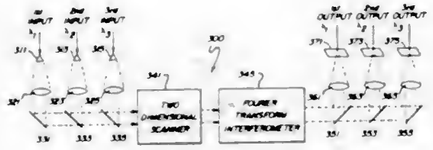
the density data with the corrected density data int he density data storage means.

5,208,685

COMPACT OPTICAL PROCESSOR

Carl C. Aleksoff, and Nikola S. Subotic, both of Ann Arbor, Mich., assignors to Environmental Research Institute of Michigan, Ann Arbor, Mich.

Filed Jan. 14, 1992, Ser. No. 820,498
Int. Cl.[5] G02B *5/32*
U.S. Cl. 359—19 23 Claims



1. An optical processor comprising:.

a light generating device for generating a plurality of two dimensional input optical wavefronts at predetermined differing wavelengths, each two dimensional input optical wavefront having an intensity modulated according to a corresponding input signal;

a plurality of optical elements, each optical element receiving a plurality of two dimensional optical wavelengths at said predetermined wavelengths of said light generating device and outputting a plurality of processed two dimensional optical wavefronts, said plurality of optical elements disposed in tandem with a first said optical element receiving said plurality of two dimensional input optical wavefronts at said predetermined wavelengths of said light generating device and each later optical element receiving said processed two dimensional optical wavefronts output by the prior optical element; and

a light detecting device for receiving said plurality of processed two dimensional optical wavefronts of said last optical element and having a plurality of two dimensional arrays of photosensitive elements, each two dimensional array of photosensitive elements receiving light of a corresponding wavelength, each photosensitive element of each two dimensional array generating an electrical signal corresponding to the intensity of received light thereby generating a plurality of image signals corresponding to said plurality of processed two dimensional optical wavefronts of said last optical element.

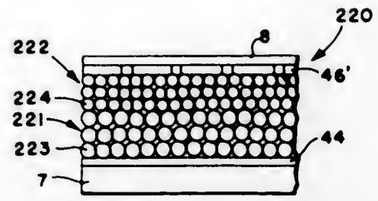
5,208,686

LIQUID CRYSTAL COLOR DISPLAY AND METHOD

James L. Fergason, Atherton, Calif., assignor to Manchester R&D Partnership, Pepper Pike, Ohio

Division of Ser. No. 431,336, Nov. 3, 1989, Pat. No. 5,132,815, which is a continuation of Ser. No. 942,548, Dec. 16, 1986, Pat. No. 4,878,741, which is a continuation-in-part of Ser. No. 707,486, Mar. 1, 1985, abandoned. This application May 19, 1992, Ser. No. 885,495
The portion of the term of this patent subsequent to Nov. 7, 2006, has been disclaimed.
Int. Cl.[5] G02F *1/12*
U.S. Cl. 359—51 12 Claims

1. An optical device, comprising plural groups of volumes of liquid crystal in a containment medium, a plurality of such groups containing in the volumes thereof respective pleochroic dye to color light transmitted therethrough, said volumes being arranged relative to each other in generally optically serial relation to effect color of light transmitted therethrough in a subtractive color operation, and at least one of such groups containing in the volumes thereof further pleochroic dye operative selectively to attenuate at least one characteristic of electromagnetic energy incident thereon.

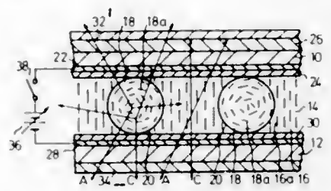


5,208,687

LIQUID CRYSTAL DISPLAY DEVICE HAVING A LIQUID CRYSTAL CAPSULES DISPERSED IN THE FIRST LIQUID CRYSTAL AND INCLUDING THEREIN A SECOND LIQUID CRYSTAL

Hidefumi Yoshida; Kazutaka Hanaoka; Kimiaki Nakamura, and Makoto Ohashi, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 11, 1992, Ser. No. 849,338
Claims priority, application Japan, Mar. 12, 1991, 3-045306; Feb. 12, 1992, 4-25117
Int. Cl.[5] G02F *1/13*
U.S. Cl. 359—51 9 Claims



1. A liquid crystal device comprising a first transparent plate (10) having transparent electrode means and an orientation layer, a second transparent plate (12) having transparent electrode means and an orientation layer, a liquid crystal layer (14) inserted between the first and second transparent plates, a first polarizer (32) arranged on the outside of the first transparent plate, and a second polarizer (34) arranged on the outside of the second transparent plate, wherein the liquid crystal layer (14) includes a first liquid crystal (16) existing between the orientation layer of the first transparent plate and the orientation layer of the second transparent plate, and liquid crystal capsules (20) dispersed in the first liquid crystal and including therein a second liquid crystal (18).

5,208,688

EYE PROTECTION DEVICE FOR WELDING HELMETS

John D. Fergason, Sunnyvale; Jeffrey K. Fergason, Menlo Park; Arthur L. Berman, San Jose, and James L. Fergason, Atherton, all of Calif., assignors to OSD Envizion Company, Menlo Park, Calif.

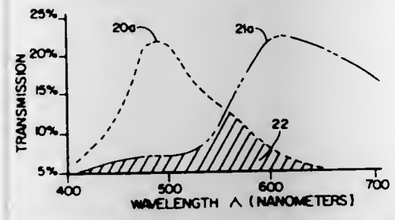
Filed Feb. 8, 1991, Ser. No. 653,661
Int. Cl.[5] G02F *1/133*
U.S. Cl. 359—53 48 Claims

1. A light transmission control device, comprising

a. band pass filter means for transmitting visible light of a prescribed wavelength and for blocking transmission of visible light of a different prescribed wavelength, and

b. variable optical filter means for controllably transmitting light of a visible wavelength, and

c. wherein said band pass filter and variable optical filter are cooperatively related to provide at least three different



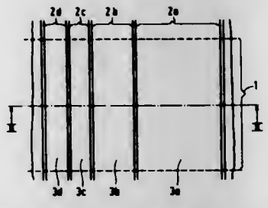
light transmitting conditions, including a maximum transmission, a minimum transmission, and a third transmission.

5,208,689

ELECTRO-OPTIC DISPLAY DEVICE WITH INCREASED NUMBER OF TRANSMISSION LEVELS

Wilbert J. A. M. Hartmann; Leonard J. M. Esser; Antonius G. H. Verhulst, and Johannes A. M. M. Van Haaren, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 19, 1991, Ser. No. 747,218
Claims priority, application Netherlands, Sep. 13, 1990, 9002011
Int. Cl.[5] G02F *1/13*
U.S. Cl. 359—54 22 Claims



1. A display device comprising: an electro-optical medium positioned between two supporting plates in which pixels are divided into a plurality of sub-pixels that are defined on at least one of the supporting plates by means of picture electrodes, characterized in that for a pixel one sub-pixel thereof has a surface area which is at most equal to a surface area of one of the other sub-pixels of said same pixel and is adjustable at a plurality of transmission levels greater than two, while the other sub-pixels of said pixel are exclusively switchable between two extreme transmission states.

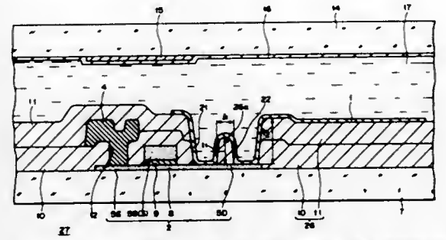
5,208,690

LIQUID CRYSTAL DISPLAY HAVING A PLURALITY OF PIXELS WITH SWITCHING TRANSISTORS

Hisao Hayashi, and Akio Kawamura, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 21, 1991, Ser. No. 673,192
Claims priority, application Japan, Mar. 24, 1990, 2-074988; Jan. 25, 1991, 3-025501
Int. Cl.[5] G02F *1/13*
U.S. Cl. 359—59 8 Claims

1. A liquid crystal display device composed of a plurality of pixels respectively having switching transistors and aligned in a matrix form, comprising:



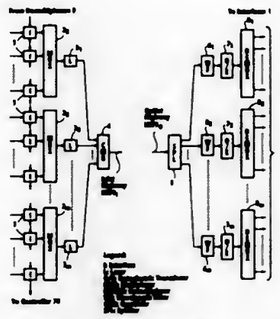
a plurality of contact holes through which a transparent pixel electrode of each of said pixels is connected to each of said switching transistors.

5,208,691

WAVELENGTH-TIME-SPACE DIVISION SWITCHING SYSTEM

Makoto Nishio, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 28, 1991, Ser. No. 723,157
Claims priority, application Japan, Jun. 29, 1990, 2-172921
Int. Cl.[5] H04J *14/00*
U.S. Cl. 359—123 10 Claims



1. An optical switching network comprising:

a plurality of optical splitters coupled respectively to inlet highways for receiving a plurality of wavelength-time division multiplex (WTDM) signals through the respective inlet highways, each of the WTDM signals being identified by a unique wavelength onto which a plurality of assigned time slots are multiplexed;

a plurality of sets of tunable wavelength filters, the tunable wavelength filters of each set being coupled to respective outputs of the optical splitters for selecting one of the WTDM signals from the optical splitters;

a plurality of time-space switch means associated respectively with the sets of the tunable wavelength filters, each of the time-space switch means having input ports and output ports, the input ports of each time-space switch means being coupled respectively to outputs of the tunable wavelength filters of the associated set for interchanging the time slot of the selected WTDM signal with another time slot and establishing a path for the timeslot-interchanged WTDM signal between the input ports and the output ports;

a plurality of sets of wavelength conversion means, the wavelength conversion means of each set being coupled to the output ports of an associated one of the time-space switch means for producing an optical output in accor-

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dance with the WTDM signal from said established path, said optical output having a wavelength different from the wavelength of the selected WTDM signal; and

a plurality of optical combiners for coupling the output of the wavelength conversion means of different sets to a respective one of outlet highways.

5,208,692

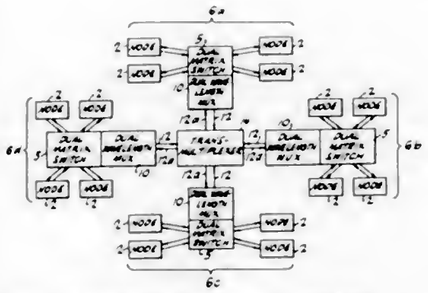
HIGH BANDWIDTH NETWORK BASED ON WAVELENGTH DIVISION MULTIPLEXING

Donald H. McMahon, Carlisle, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 373,160, Jun. 29, 1989, Pat. No. 5,043,975. This application Jul. 31, 1991, Ser. No. 738,665

Int. Cl.[5] **H04J** *14/02*; **H04B** *10/20*

U.S. Cl. 359—128 **19 Claims**



1. An optical transmultiplexer device, comprising:

a) a plurality of input signal ports which carry an input signal;

b) a plurality of output signal ports which carry an output signal;

c) means for wavelength selection from said input signal enabling a point-to-point transfer of optical signal wavelengths between the input signal and output signal ports;

d) an optic device coupled to said means for wavelength selection which provides additional focussing of said input and output signals into and from the means for wavelength selection, respectively, for efficient coupling between the input signal and output signal ports;

e) wherein said optic device comprises additional signal ports for receiving selected wavelengths from the output side of said means for wavelength selection and means for coupling the additional signal ports to selected output signal ports.

5,208,693

TRANSMISSION PROTOCOL FOR CLAMPING RECEIVER

David M. Arstein, Scotts Valley; William L. Geller, Foster City; Thomas E. Giles, Union City, and Mark S. Thomas, Sunnyvale, all of Calif., assignors to Raynet Corporation, Menlo Park, Calif.

Filed Mar. 29, 1991, Ser. No. 677,707

Int. Cl.[5] **H04J** *14/08*

U.S. Cl. 359—137 **11 Claims**

1. A fiber-optic communications network, comprising:

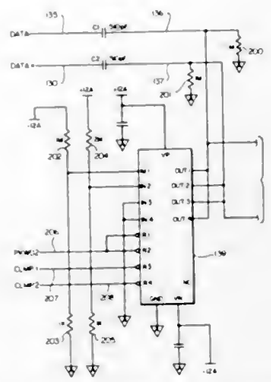
at least one head end;

optical fiber link means;

a plurality of remote stations connected to the head end by the optical fiber link means;

the head end including a receiver for receiving packets of information transmitted from the plurality of remote stations as respective sequences of energy packets, wherein each sequence includes a first clamping interval during which an OFF training pulse is transmitted and a second clamping interval during which an ON training pulse is transmitted, the receiver comprising;

single to differential signal generating means for generating first and second differential output signals at first and second outputs respectively in response to an input signal, the first output signal being an inverse of the second output signal, the input signal representing packetized information transmitted from a plurality of information sources;



clamping means for clamping a DC voltage of the first output when the input signal represents a binary OFF training pulse, and for clamping a DC voltage of the second output when the input signal represents a binary ON training pulse;

a dynamic comparator;

means for AC coupling the first and second outputs to the dynamic comparator.

5,208,694

OPTICAL SCANNER

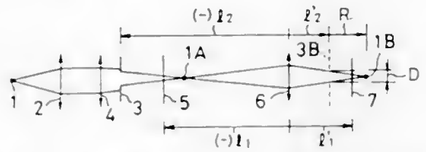
Kan Tomita, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 14, 1991, Ser. No. 791,547

Claims priority, application Japan, Nov. 29, 1990, 2-332720; Jun. 3, 1991, 3-131267

Int. Cl.[5] **G02B** *26/08*

U.S. Cl. 359—216 **20 Claims**



1. An optical scanner in which a divergent light beam emitted from a laser diode light source is changed by an anamorphic optical system to a parallel or weak convergent light beam in a main scan-corresponding direction and a convergent light beam in a cross scan-corresponding direction, and a portion of the light beam is interrupted by an aperture and the light beam of a light emitting section of said laser diode light source is focused and formed as a linear image extending in the main scan-corresponding direction and is then deflected by a rotary polygon mirror, and the deflected light beam is converged by an image-forming optical system toward a scanned face to obtain a light spot on the scanned face and optically scan the scanned face by this light spot;

said image-forming optical system approximately setting the position of a deflecting/reflecting face of the rotary polygon mirror and a position of the scanned face in a conjugate relation in geometrical optics in the cross scan-corresponding direction;

said image-forming optical system having a function for converging said deflected light beam onto the scanned face in the main scan-corresponding direction;

the optical scanner being constructed such that a real image of the aperture formed by an image-forming element arranged between said aperture and the scanned face is located on a side of the rotary polygon mirror with respect to the scanned face in an entire effective scanning range; and

an opening diameter and an arrangement position of the aperture, and a focal length and an arrangement position of the anamorphic optical system in the cross scan-corresponding direction being determined such that the following condition,

$$W_0/k_2 < R/D < W_0/k_1$$

is satisfied where

R designates a distance between a position of said real image and a position of the image of the light emitting section of the laser diode light source formed by the image-forming element between said laser diode light source and the scanned face;

D designates a diameter of an opening image in the cross scan-corresponding direction with respect to the real image of said aperture;

W_0 designates a waist diameter of the deflected light beam to be obtained between said position of the real image and the image position of the light emitting section of the laser diode light source;

λ designates a light emitting wavelength of the laser diode light source;

a wavelength λ_0 is set to 780 nm;

k_1 is equal to $0.67\lambda/\lambda_0$; and

k_2 is equal to $1.1\lambda/\lambda_0$.

5,208,695

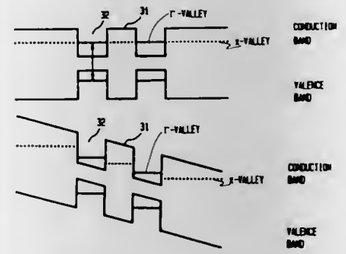
OPTICAL MODULATOR BASED ON GAMMA -X VALLEY MIXING IN GAAS-ALAS

Mitra Dutta, Matawan, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 20, 1991, Ser. No. 765,215

Int. Cl.[5] **G02F** *1/03*; **H01L** *29/161, 27/14*

U.S. Cl. 359—245 **5 Claims**



1. An optic modulator comprising:

a multiple quantum well structure, the multiple quantum well structure comprising alternating layers of at least a first and second semiconductor material, the first and second semiconductor materials having predetermined band gap energy levels, compositions and thickcesses such that at zero electric field the θ state of the conduction band of the first semiconductor material is approximately equal to the x state of the second semiconductor material; and

means to apply an electric field to the multiple quantum well structure.

5,208,696

SPATIAL LIGHT MODULATING DEVICE WITH CRT INPUT IMAGE

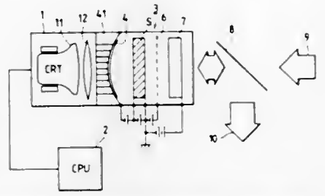
Yuji Kobayashi; Tsutomu Hara, and Yoshiharu Ooi, all of Shizuoka, Japan, assignors to Hamamatsu Photonics Kabushiki Kaisha, Shizuoka, Japan

Filed Jun. 7, 1989, Ser. No. 362,551

Claims priority, application Japan, Jun. 23, 1988, 63-155430

Int. Cl.[5] **G02F** *1/03, 1/07*; **G02B** *26/00*

U.S. Cl. 359—245 **7 Claims**



1. A spatial light modulating device, comprising:

a spatial light modulator having, in a vacuum enclosure, a photoelectric converter and electro-optic means for storing an electron image provided from said photoelectric converter and for creating in itself an optical change;

laser means for launching a laser beam into said electro-optic means to produce a modulated laser beam;

first optical image display means for converting a first input electric signal into a first optical image and displaying said first optical image so as to be incident on a light-receiving surface of said photoelectric converter;

first control means for supplying said first input electric signal to said first optical image display means;

sending means for sending said modulated laser beam; and

a half mirror disposed between said first optical image display means and said light-receiving surface of said photoelectric conversion means, for transmitting said first optical image so as to be incident on said light-receiving surface and reflecting said modulated laser beam sent by said sending means so as to be incident on said light-receiving surface.

5,208,697

MICROWAVE FREQUENCY RANGE ELECTRO-OPTIC MODULATOR WITH EFFICIENT INPUT COUPLING AND SMOOTH WIDEBAND FREQUENCY RESPONSE

James H. Schaffner, Chatsworth; Robert L. Joyce, Newbury Park; Caroline M. Gee, Los Angeles, and James M. Schellenberg, Huntington Beach, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Mar. 30, 1990, Ser. No. 502,377

Int. Cl.[5] **G02B** *5/174, 6/10, 5/14*

U.S. Cl. 359—254 **6 Claims**

1. An electro-optic modulator assembly comprising:

a travelling-wave electro-optic modulator having an optical input, an optical output, and an electrical modulation electrode means having a predetermined input impedance, said modulation electrode means including a coplanar waveguide;

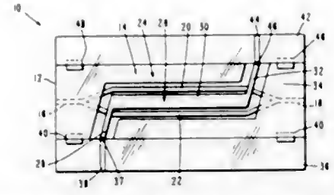
input connector means for receiving an electrical modulation input signal, having a predetermined output impedance which is different from said predetermined input impedance, said input connector means including a microstrip line;

microwave energy absorbing means positioned to absorb

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spurious resonant microwave emissions from said electro-optic modulator; and

Chebyshev impedance matching transformer means for coupling the input signal from the input connector means to the modulation electrode means, and matching said output impedance to said input impedance respectively,



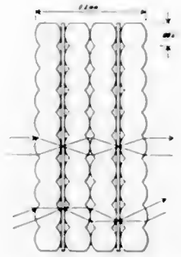
wherein the impedance matching transformer means comprises a tapered coplanar waveguide transformer and wherein the modulation electrode means is constructed to operate at microwave input signal frequencies, the impedance matching transformer means matching said output impedance to said input impedance at said microwave input signal frequencies.

5,208,698

OPTICALLY-NEUTRAL LASER SHIELD

Richard A. Muller, Berkeley, Calif., assignor to The Mitre Corporation, Bedford, Mass.

Filed Dec. 19, 1990, Ser. No. 630,156
Int. Cl.[5] G02B *26/08, 3/00, 5/22;* **G02F** *1/03*
U.S. Cl. 359—299 **10 Claims**



1. An optical device that is optically neutral to normal light but at least partially blocks the transmission through the device along a first direction of collimated light to an imaging device which may include the human eye, comprising

an array of optical cells each having (i) means for bringing collimated light incident on its entrance aperture to at least one internal focus, (ii) means for limiting the transmission of said focused light by at least one of the techniques including attenuation and reflection, and (iii) means for re-collimating and inverting the light after it has been focused and limited,

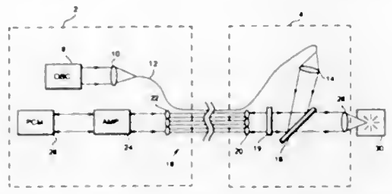
wherein said optical cells are arrayed to form a mosaic with the precision of the location of the cells within the array being sufficient that the light emerging from each of said cells in said mosaic combines coherently with light from other cells in said mosaic to yield an image with a resolution greater than that obtainable with a single one of said optical cells.

5,208,699

COMPENSATED, SBS-FREE OPTICAL BEAM AMPLIFICATION AND DELIVERY APPARATUS AND METHOD

David A. Rockwell, Santa Monica, and John L. Bartelt, Camarillo, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 20, 1991, Ser. No. 811,199
Int. Cl.[5] G01J *1/20;* **H01S** *3/098;* **B23K** *26/02*
U.S. Cl. 359—338 **20 Claims**



1. An optical beam amplification and delivery system, comprising:

a central station having a phase conjugate mirror (PCM) and an optical amplifier coupled together for amplification and phase conjugation of an input optical signal,

a local station,

means for generating a source optical signal,

a first optical fiber for providing said source optical signal to said local station,

optical fiber means for operatively connecting said central and local stations, and

coupling means at said local station for coupling said source optical signal from said first optical fiber into said optical fiber means for amplification and phase conjugation at said central station and return along said optical fiber means to said local station, and for decoupling the returned optical signal from said optical fiber means for use at the local station, said PCM rendering said returned optical signal more nearly diffraction limited than an originally diffraction limited optical signal of the same power that is transmitted in a single pass through said optical fiber means,

said optical fiber means having a cross-sectional area sufficient to substantially inhibit stimulated Brillouin scattering (SBS) by said return optical signal.

5,208,700

LENS COVER ASSEMBLY FOR BINARY DIFFRACTIVE OPTIC LENSES

Ellis D. Harris, Claremont, and Steven A. Buhler, Redondo Beach, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

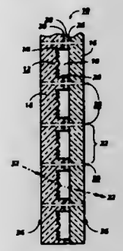
Filed Dec. 23, 1991, Ser. No. 812,296
Int. Cl.[5] G02B *27/42*
U.S. Cl. 359—569 **13 Claims**

1. A lens cover assembly for binary diffractive optic lenses comprising:

a first substrate having a plurality of binary diffractive optic lenses within a corresponding plurality of recesses on one surface of said first substrate,

a second substrate, and

bonding means for securing said first and second substrates together to form a lens cover assembly from the combination of one of said binary diffractive optic lens and one of said recesses.

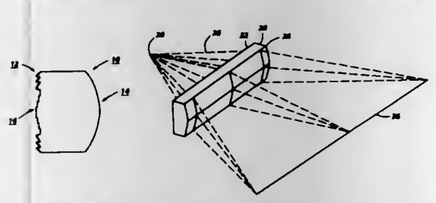


5,208,701

WOBBLE CORRECTION LENS WITH BINARY DIFFRACTIVE OPTIC SURFACE AND REFRACTIVE CYLINDRICAL SURFACE

Patrick Y. Maeda, Redondo Beach, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 24, 1991, Ser. No. 813,177
Int. Cl.[5] G02B *27/42*
U.S. Cl. 359—574 **26 Claims**



1. An optical scanning system for correction of wobble and correction of cross-scan field curvature comprising:

a rotating polygon mirror with a plurality of facets,

means for generating a collimated laser beam directed onto one of said facets,

a lens which focuses said beam reflected off said one of said facets to a scan line, said lens comprising a binary diffractive optic lens surface and a refractive cylindrical surface to correct for wobble of said beam at said scan line and to correct the cross-scan field curvature of said beam at said scan line.

5,208,702

OBJECTIVE LENS SYSTEM FOR ENDOSCOPES

Masaru Shiraiwa, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 10, 1991, Ser. No. 683,018
Claims priority, application Japan, Apr. 11, 1990, 2-93937; Oct. 9, 1990, 2-269483
Int. Cl.[5] G02B *13/22*
U.S. Cl. 359—663 **13 Claims**

1. An objective lens system for endoscopes comprising, in order from the object side:

a first lens component having a negative refractive power;

a second lens component having a positive refractive power;

an aperture stop;

a rear lens unit including a positive cemented lens component consisting of a positive lens element and a negative lens element, said rear lens unit having a positive refractive power as a whole;

said aperture stop being disposed substantially at a location of a front focal point of said rear lens unit; and

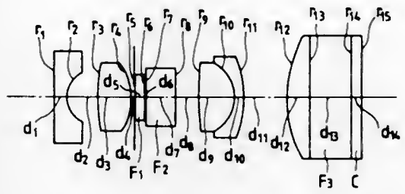
said objective lens system satisfying the following conditions (1), (2) and (3):

(1) $|f_t/f| < 5$

(2) $|f_2/f| < 10$

(3) $|r_b/r_a| < 0.7$

wherein the reference symbol f represents the focal length of the objective lens system as a whole, the reference symbols f_1 and f_2 designate the focal lengths of the first lens component and the second lens component, respectively, and the reference symbol r_a represents a radius of curvature on the most object side surface of said second lens component and the reference symbol r_b denotes a radius of curvature on the most image side surface of said second lens component.

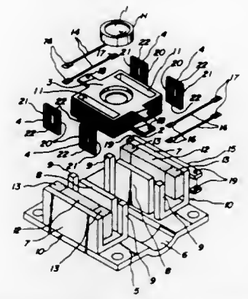


5,208,703

APPARATUS FOR SUPPORTING OPTICAL SYSTEM

Tetsuo Ikegame, and Ichiro Ikari, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 8, 1990, Ser. No. 564,095
Claims priority, application Japan, Aug. 15, 1989, 1-209631
Int. Cl.[5] G02B *7/02;* **G11B** *7/00*
U.S. Cl. 359—813 **11 Claims**



1. An apparatus for supporting an optical system movably in at least one direction comprising:

a holding means for holding the optical system;

a supporting means for said holding means, said supporting means being made of resilient material and having a main beam portion which extends in a first direction, a first end portion providied at one end of said main beam portion for connecting the main beam portion to the holding means, a second end portion provided at the other end of said main beam portion for connecting said main beam portion to a stationary member, and a first flexure portion formed in the vicinity of at least one of said first and second end portions and including at least one first projecting element which extends from said main beam portion perpendicularly to said first direction, at least one projecting portion which extends from said main beam portion and a second projecting element extending from said projecting portion in said first direction, the second projecting element being

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spaced apart from said main beam portion and said first projecting element; and

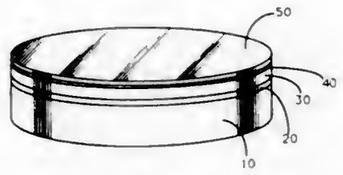
a damping member provided on at least said flexure portion such that the first and second projecting elements, the projecting portion and the main beam portion are interconnected by means of said damping member.

5,208,704

ULTRALIGHT MIRRORS

Richard R. Zito, 330 N. Mathilda Ave. (#606), Sunnyvale, Calif. 94086

Filed Nov. 25, 1991, Ser. No. 798,287
Int. Cl.[5] G02B *5/08*
U.S. Cl. 359—848 **3 Claims**



1. A mirror comprising;

a) a sintered fibrous substrate, composed of tangled silica and alumina fibers, containing voids,

b) a sealant layer containing clay deposited upon said sintered fibrous substrate, whereby the surface voids of said sintered fibrous substrate are sealed,

c) a glassy layer deposited upon said sealant layer, and

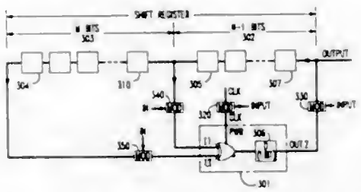
d) a reflective layer deposited upon said glassy layer.

5,208,705

OPTICAL LINEAR FEEDBACK SHIFT REGISTER

Hercules Avramopoulos, Red Bank; Alan Huang, Middletown, and Norman A. Whitaker, Jr., Atlantic Highlands, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 5, 1991, Ser. No. 787,985
Int. Cl.[5] H04B *10/12*
U.S. Cl. 359—173 **26 Claims**



1. An optical linear feedback shift register arrangement comprising:

encoding means utilizing all-optical interaction, including

means for receiving an optical clock signal,

first control means for receiving a first delayed version of an encoded optical clock signal,

second control means for receiving a second delayed version of said encoded optical clock signal,

means for outputting an encoded optical clock signal,

wherein said encoding means encodes the clock signal with a value derived from an exclusive-or of said first and second

delayed encoded clock signals, and wherein a third delay caused by said encoding means from said control means to said output means is a prespecified time interval;

first delay means for coupling the encoded clock signal from said output means to said first control means, after a first predetermined time interval;

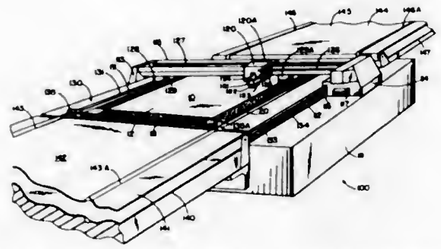
second delay means for coupling the encoded clock signal to said second control means after a second predetermined time interval.

5,208,706

MAGNETIC REPRODUCTION APPARATUS AND METHOD

Jerome H. Lemelson, 48 Parkside Dr., Princeton, N.J. 08540

Filed Oct. 24, 1988, Ser. No. 262,942
Int. Cl.[5] G11B *25/04*
U.S. Cl. 360—2 **10 Claims**



1. Magnetic recording apparatus comprising in combination:

a) a first support,

b) a second support movably supported on said first support,

c) guide means supported by said first support for guiding said second support in movement thereon,

d) first motor means operable for effecting driving movement of said second support on said first support,

e) magnetic reproduction transducing means mounted on said second support to be carried therewith as said second support is driven with respect to said first support,

f) means supported by said first support for retaining, guiding and driving a magnetic record member adjacent and operably past said magnetic transducing means, which magnetic record member contains first track means having magnetic recordings of data defining information to be selectively reproduced by said magnetic reproduction transducing means from said record member and second track means defining electro-optically scannable indicia predeterminaly located with respect to said first track means,

g) electro-optical scanning means supported by said second support and operable to scan said record member and detect said electro-optically scannable indicia as said second support is driven on said first support across said record member when it is operably supported adjacent thereto, whereby said electro-optical scanning means is operable to generate indicia detection signals,

h) computing electronic circuit means for receiving and processing said detection signals and generating control signals,

i) means for employing said control signals as tracking signals and applying same to cause said magnetic transducing means to scan select data recorded on said first track means of said magnetic record member and generate select electrical signals, modulated with select information, on an output, and

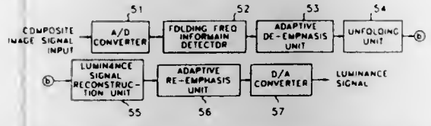
j) means for receiving and recording select electrical signals generated by said magnetic reproduction transducing means when it scans select magnetic recordings along select portions of said first magnetic track means of said magnetic record member.

5,208,707

CIRCUIT FOR MAINTAINING COMPATIBILITY BETWEEN DIFFERENT IMAGE SYSTEMS DURING REPRODUCTION HAVING AN ADAPTIVE DE-EMPHASIS UNIT

Yong-je Kim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki, Rep. of Korea

Filed Jul. 30, 1991, Ser. No. 737,685
Claims priority, application Rep. of Korea, Oct. 31, 1990, 90-17586; Jul. 19, 1991, 91-12411
Int. Cl.[5] H04N *5/78*
U.S. Cl. 360—33.1 **7 Claims**



1. An improved circuit for maintaining compatibility between different image signal recording/reproducing systems comprising:

an A/D converter for converting the input composite image signals into digital signals;

a folding frequency information detector for determining whether the digital signal from said A/D converter employs frequency folding;

an adaptive de-emphasis unit for de-emphasizing the folding frequency from said detector;

an unfolding unit for spreading said adaptively de-emphasized frequency band;

a luminance signal reconstruction unit for removing the folding carrier generated during frequency folding and for removing undesirable residuals generated from the demodulator during reproducing;

an adaptive reemphasis unit for emphasizing the high-frequency signal component of said reconstructed luminance signal; and

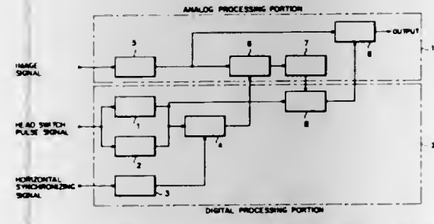
a D/A converter for converting the digital signal from said adaptive reemphasis unit into analog signal.

5,208,708

COPY GUARD SYSTEM OF A SOFTWARE PROGRAM USED IN VTR

Do-Sang Mok, Selul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Oct. 22, 1991, Ser. No. 779,196
Claims priority, application Rep. of Korea, Apr. 19, 1990, 91-6341
Int. Cl.[5] G11B *15/04*
U.S. Cl. 360—60 **1 Claim**



1. A copy guard system for protecting software in a video tape recording (VTR) system, the copy guard system comprising:

positive edge detection means for detecting a positive edge of an input VTR head switch pulse signal;

negative edge detection means for detecting a negative edge of the input VTR head switch pulse signal;

counter means for generating a fixed duration pulse signal in response to said positive edge;

clamp means for clamping an input image signal;

gate pulse generating means for generating a pulse signal before the end of said fixed duration pulse signal;

level detection means for determining whether a copy guard signal is set in response to an output from said clamp means and the pulse signal generated by said gate pulse generating means;

pulse detection generating means coupled to said level detection means for transmitting a rectangular waveform to a signal killer pulse generating means;

said signal killer pulse generating means, responsive to the rectangular waveform from said pulse detection generating means and the signal output from said positive edge detection means, for generating a killer pulse in order to control a signal only during the period of having an image signal in one field; and

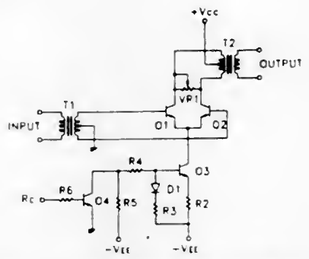
signal killer means, for receiving the clamped output from said clamp means and at the same time receiving the killer pulse from said signal killer pulse generating means, for controlling the output of the image signal.

5,208,709

DIGITAL MAGNETIC RECORDING/REPRODUCING AMPLIFYING APPARATUS

Chang-jin Yang, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea

Filed Mar. 15, 1991, Ser. No. 670,037
Int. Cl.[5] G11B *5/09*
U.S. Cl. 360—64 **1 Claim**



1. A digital magnetic recording/reproducing amplifying apparatus in a digital VTR system comprising:

an input portion which receives analog video signals and converts them to digital video signals;

an output portion which converts the digital video signals to the analog video signals;

a recording amplifying portion for amplifying signals outputted from a recording equalizer in said input portion;

a first reproducing amplifying portion for amplifying output current signals when signals recorded on tape are detected and outputted via a plurality of heads fixed on a drum;

a switching portion for selectively switching signals transmitted from said first reproducing amplifying portion; and

a second reproducing amplifying portion for amplifying the output signal of said first reproducing amplifier switched selectively in said switching portion, and for transmitting it to the reproducing equalizer in said output portion;

wherein said recording amplifying portion comprises:

a first transformer which converts output signals of said recording equalizer to balance signals;

a second transformer for generating head recording signals;

transistors for supplying constant current to said second transformer with said transistors controlled by the output of said first transformer;

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a variable resistance provided between said second transformer and transistors for shaping the output of said second transformer;

a constant current circuit connected to said transistors; and

a control portion for controlling said constant current circuit by a recording control signal.

5,208,710

METHOD FOR HIGH SPEED POSITIONAL CONTROL OF A TRANSDUCER FOR ROTATING DISK DATA STORAGE APPARATUS

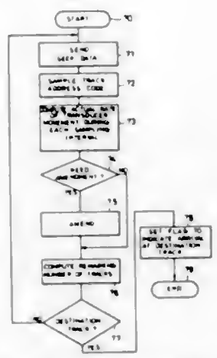
Hisatoshi Uno, Tokyo, Japan, assignor to Teac Corporation, Musashino, Japan

Filed May 24, 1990, Ser. No. 528,725

Claims priority, application Japan, May 30, 1989, 1-137141

Int. Cl.[5] G11B *5/55, 5/596*

U.S. Cl. 360—78.01 8 Claims



1. In a data storage apparatus having a transducer to be selectively positioned on any of a multiplicity of concentric data tracks on at least one major surface of a disklike record medium, the data tracks being divided into a plurality of groups having a fixed number of tracks, each data track having a different address code character prerecorded thereon, all the groups of tracks having the same set of address code characters assigned thereto for the simplicity of the address code, a method for the positional control of the transducer traveling at a controlled speed, the method comprising the steps of:

(a) causing the transducer to traverse successive tracks from a departure track to a destination track defining a track seeking operation;

(b) reading the address code characters on the successive tracks being traversed by the transducer during the track seeking operation;

(c) sampling at regular intervals the address code characters being read by the transducer during the track seeking operation;

(d) computing an ACTUAL RATE OF TRANSDUCER MOVEMENT in terms of the number of tracks that have been traversed by the transducer during each sampling interval, on the basis of the address code characters so sampled;

(e) determining, in advance of each sampling interval, an expected number of tracks to be traversed by the transducer during each sampling interval based on the controlled speed of the transducer, the expected number defining an EXPECTED RATE OF TRANSDUCER MOVEMENT;

(f) computing a difference between the ACTUAL RATE OF TRANSDUCER MOVEMENT during each sampling interval and the EXPECTED RATE OF TRANSDUCER MOVEMENT for the same sampling interval;

(g) determining an absolute value of the difference between the ACTUAL and EXPECTED RATES OF TRANSDUCER MOVEMENT;

(h) if the absolute value exceeds a predetermined value, adding the number of tracks of each group, or an integral multiple thereof, to the ACTUAL RATE OF TRANSDUCER MOVEMENT for a determination of a track on which the transducer is currently positioned, and of a remaining number of tracks to the destination track;

(i) if the absolute value does not exceed the predetermined value, directly using the ACTUAL RATE OF TRANSDUCER MOVEMENT for the determination of the track on which the transducer is currently positioned, and of the remaining number of tracks to the destination track; and

(j) controlling the speed of the transducer traveling from the track on which the transducer is currently positioned to the destination track based on the remaining number of tracks to the destination track.

5,208,711

DATA RECORDING/REPRODUCING APPARATUS HAVING RECORDING HEAD POSITION DETECTION AND CONTROL

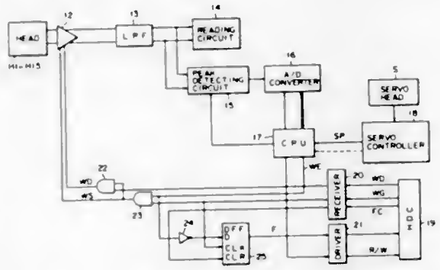
Shunji Kitamura, Hanno, and Katsuhiko Kaida, Mizuho, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 3, 1990, Ser. No. 547,204

Claims priority, application Japan, Jul. 4, 1989, 1-172299

Int. Cl.[5] G11B *5/55, 19/04*

U.S. Cl. 360—78.04 6 Claims



1. A data recording/reproducing apparatus, comprising

at least one recording medium having on one side a serve surface including tracks for pre-storing servo data, and on the other side a data surface including tracks for reading/writing data;

a first magnetic head for reading out the servo data from the servo surface of the recording medium;

a second magnetic head for reading/writing data on the tracks of the data surface;

means for moving the first and second magnetic heads relative to the recording medium, the second magnetic head being movable in conjunction with the first magnetic head;

head positioning means for enabling the moving means to position the first magnetic head to a destination track on the servo surface, and to position the second magnetic head to a destination track on the data surface on the basis of the servo data read out from the servo surface by the first magnetic head;

means for detecting an off-track distance L of the second magnetic head with respect to the destination track on the data surface, when the head positioning means has positioned the first magnetic head on the destination track of the servo surface;

means for comparing the off-track distance L detected by the off-track distance detecting means with a first predetermined value Lw when in a data write mode and a second predetermined value Lc when in a data read mode; and

control means for enabling the second magnetic head to perform a data write operation on the data surface unless the detected off-track distance L is greater than the first predetermined value Lw, and enabling the second magnetic head to perform a data read operation on the data surface unless the detected off-track distance L is greater than the second predetermined value Lc.

5,208,712

DATA HEAD LOAD BEAM FOR HEIGHT COMPACTED, LOW POWER FIXED HEAD AND DISK ASSEMBLY

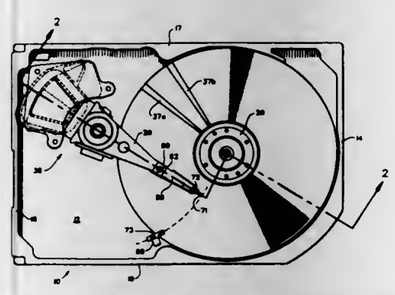
Michael R. Hatch, Palo Alto, and William G. Moon, Saratoga, both of Calif., assignors to Quantum Corporation, Milpitas, Calif.

Continuation of Ser. No. 610,306, Nov. 6, 1990, Pat. No. 5,027,241, which is a continuation of Ser. No. 491,748, Mar. 12, 1990, abandoned, which is a continuation of Ser. No. 362,031, Jun. 1, 1989, abandoned. This application Jun. 18, 1991, Ser. No. 717,038

The portion of the term of this patent subsequent to Jun. 25, 2008, has been disclaimed.

Int. Cl.[5] G11B *5/54, 21/22*

U.S. Cl. 360—98.01 12 Claims



1. A method for loading a head assembly into proximity with a storage surface fixed data disk during manufacture of a head and disk assembly of a fixed disk drive, the head assembly including a spindle means for rotating the fixed data disk and a mass balanced rotary voice coil actuator means for carrying at least one in-line load beam means, the method including the steps of:

forming said load beam means as an elongated unitary structure from metal sheet material so as to define: an actuator attachment end region for attachment to an outward end of the rotary actuator, a leaf spring loading region inwardly adjacent to the attachment end region, a gimbal mounting attachment region adjacent a head end region of the load beam for attachment of a gimbal mounting means and said head slider, a longitudinally reinforced loading tab means extending longitudinally from an end of the head end region, and a stiffened load beam region located between the leaf spring loading region and the loading tab means,

attaching the gimbal mounting means to the gimbal mounting attachment region of the load beam means,

attaching the slider to the gimbal mounting means,

attaching the load beam to the rotary actuator means by securing the attachment end region to the outward end of the rotary actuator to form a rotary actuator assembly,

positioning the rotary actuator assembly in operative proximity with the data storage disk within the head and disk assembly,

positioning a loading map means within the head and disk assembly in proximity to an outer peripheral edge of the disk such that the loading tab means is engaged by the loading ramp means.

rotating the rotary actuator means to move the slider toward the disk during which movement the loading tab means follows the loading ramp means in order to guide the slider into a loaded position with respect to the disk,

whereby the head is guided by cooperation of the loading tab and loading ramp into a loaded position with respect to the disk.

5,208,713

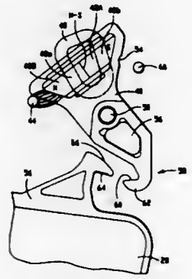
BISTABLE MAGNETIC/ELECTROMAGNETIC LATCH FOR DISK FILE ACTUATOR

Joshua Lindsay, Redwood City, and Philip W. Rich, San Jose, both of Calif., assignors to Quantum Corporation, Milpitas, Calif.

Filed May 7, 1991, Ser. No. 696,629

Int. Cl.[5] G11B *5/54, 21/22*

U.S. Cl. 360—105 16 Claims



1. A bistable latch for a disk file actuator within a disk drive including a base and wherein the actuator is moveably mounted relative to the base, the latch comprising:

latch mounting means mounted in reference to the base,

latch body means moveably mounted to the latch mounting means and positionable between a first bistable position and a second bistable position,

the latch body means including permanent magnet means,

plural detent pin means fixed relative to the base and formed of a ferromagnetic material, one of the pin means coming within a holding flux of the permanent magnet means at the first bistable position, and another of the pin means coming within a holding flux of the permanent magnet means at the second bistable position,

electrical coil means disposed in relation to the permanent magnet means for generating switching fluxes from current flowing in the coil means such that current in one direction causes the body means to move to the first bistable position, and reverse direction current flowing in the coil means causes the body means to move to the second bistable position, and

latching means defined by the latch body means for engaging an engagement means of the actuator when the latch body means is positioned at one of the first and second bistable positions and when the actuator is positioned in predetermined relation to a data storage disk of the disk drive.

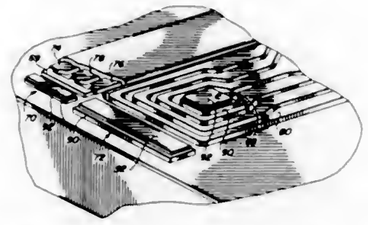
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,714

MAGNETIC HYBRID INTERLEAVED HEAD WITH CLOSURE SUPPORTING ISLANDS

Edward V. Denison; Vincent N. Kahwaty; Gustave C. Stern; Gerald Steving, and Robert P. Zammit, all of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 634,679, Dec. 26, 1990, Pat. No. 5,161,299.
This application Jul. 20, 1992, Ser. No. 916,354
Int. Cl.[5] G11B *5/127, 5/265*
U.S. Cl. 360—113 25 Claims



1. A data transducing head module having one transducing gap line extending normal and adjacent to a magnetic media, the gap line including a plurality of alternating write and read gaps, said head module comprising:
- a substrate and a closure of a magnetic ferrite material, said substrate and closure providing the plurality of write gaps at one edge adjacent the media and a plurality of write back gap regions a distance from the media, perpendicular to the one edge;
- a plurality of thin film read transducers providing the read gaps;
- a plurality of read transducer conductors providing electrical connections to said read transducers;
- a plurality of write coils, one around each write back gap region; and
- a plurality of write back gap islands, one provided in each write back gap region, each island substantially enclosed in a plane by at least one write coil, said island of a same material and thickness as the read transducer and conductor;
- said islands providing mechanical support for the closure relative to the substrate.

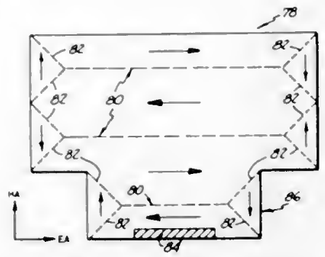
5,208,715

SHIELD GEOMETRY FOR STABILIZING MAGNETIC DOMAIN STRUCTURE IN A MAGNETORESISTIVE HEAD

Gregory S. Mowry, Burnsville, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Aug. 31, 1990, Ser. No. 575,589
Int. Cl.[5] G11B *5/11, 5/127, 5/147*
U.S. Cl. 360—113 15 Claims

8. A magnetic storage system comprising:
- a magnetic storage disk for storing magnetically encoded information on a surface;
- a support arm proximate the magnetic storage disk for moving relative to the surface of the magnetic storage disk;
- a transducer coupled to the support arm, for reading and writing magnetically encoded information upon the surface of the magnetic storage disk, comprising:
  - a magnetoresistive sensor element for sensing magnetically encoded information carried upon the surface of the magnetic storage disk;
  - electrical contacts coupled to the magnetoresistive sensor element;
  - a magnetic shield adjacent the magnetoresistive sensor element for magnetically isolating the magnetoresistive sensor element from stray magnetic fields, the shield having a height and comprising a magnetic material having a magnetic domain pattern; and
  - a lip associated with the magnetic shield and adjacent to the magnetoresistive sensor element, said lip including at least



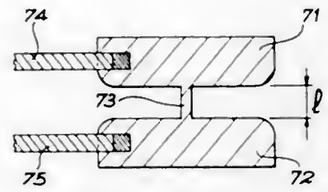
a portion of each of two magnetic domains which have substantially equal equilibrium periods, and wherein said lip has a length in the direction of the long axis substantially equal to the equilibrium period of each of the magnetic domains of said lip.

5,208,716

MAGNETORESISTANT MAGNETIC HEAD FOR LONGITUDINAL RECORDING AND PROCESS FOR PRODUCING SUCH A HEAD

Jean-Pierre Lazzari, Corenc, France, assignor to Commissariat a l'Energie Atomique, Paris, France

PCT No. PCT/FR90/00213, § 371 Date Nov. 16, 1990, § 102(e) Date Nov. 16, 1990, PCT Pub. No. WO90/11597, PCT Pub. Date Oct. 4, 1990
PCT Filed Mar. 28, 1990, Ser. No. 603,758
Claims priority, application France, Mar. 29, 1989, 89 04060
Int. Cl.[5] G11B *5/127, 5/33*
U.S. Cl. 360—113 3 Claims



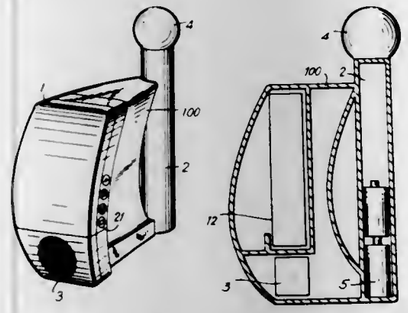
1. A magnetic reading head comprising:
- a horizontal lower magnetic layer;
- a horizontal upper magnetic layer interrupted by a gap filled with a non-magnetic spacer, said spacer having a predetermined length (L) and thickness;
- two magnetic vertical connectors connecting said lower and upper magnetic layer;
- a H-shaped magnetoresistant element with two large strips and a ribbon linking said two large strips, said ribbon being placed beneath said spacer and having a predetermined length (l) less than said predetermined length (L) of said spacer and a predetermined thickness equal to said predetermined thickness of said spacer; and
- two reading terminals connected to contacts made on said two large strips wherein said head being adapted to read a track written over a width l less than the width L of the track.

5,208,717

PORTABLE INFORMATION REPRODUCING AND VOICE AMPLIFYING APPARATUS

Hideo Takao, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 827,544, Jan. 29, 1992, abandoned, which is a continuation of Ser. No. 445,655, Nov. 29, 1989, abandoned. This application Jun. 17, 1992, Ser. No. 900,523
Claims priority, application Japan, Mar. 31, 1988, 63-044135; Mar. 31, 1988, 63-044136; Jun. 10, 1988, 63-077497
Int. Cl.[5] G11B *33/12;* H04B *1/20, 1/00;* H04R *27/00*
U.S. Cl. 360—137 2 Claims



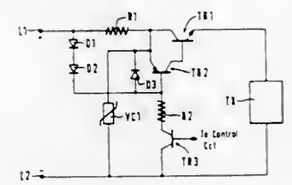
1. A portable music information reproducing and voice amplifying apparatus suitable for use as a karaoke device which can be held as a unit in one hand of a user with a microphone thereof facing the user's head, comprising:
- a housing having a first side, a second side essentially opposite said first side, a first end between said first and second sides facing in a first direction, a second end opposed to said first end facing in a second direction, and a first portion and a second portion spaced in the directions faced by said first and second ends respectively, said housing formed with accommodating means within the housing for accommodating a music information recording medium having information recorded thereon;
- an elongated handle having a first end and a second end, at least one of the first and second ends of the handle being attached to the housing so as to define a space between the handle and the housing dimensioned to receive at least a portion of the hand of the user, the handle being adapted to enable the apparatus to be held as a unit solely by the handle, the first end of the handle having a segment extending beyond the first end of the housing in the direction faced by said first end of the housing, said handle being formed with a battery storing portion for storing batteries for powering said apparatus;
- detection means positioned in the accommodating means for detecting the information on the recording medium;
- circuit means coupled to said detection means for effecting reproduction of the information on the recording medium to form a part of an output signal representative of the information;
- said microphone for detecting an external voice sound, the microphone being electrically coupled to the circuit means to form a part of said output signal representative to the voice sound, said microphone being rigidly mounted on the segment of the first end of the handle extending beyond the first end of the housing; and
- speaker means for receiving the output signal of the circuit means to generate a combined audible sound including the information from the recording medium and the voice sound, said speaker means being positioned in the housing on the second side thereof to project away from the handle and to be spaced from the microphone so that no feedback occurs;
- said housing supporting said handle, said detection means, said circuit means, said microphone and said speaker means to form a unitary structure supportable solely by said handle;
- whereby when the apparatus is used for karaoke and is held as a unit by the user one handedly by only the handle, the microphone can face essentially upwardly toward the head of the user and the speaker means projects the audible sound away from the body of the user.

5,208,718

PROTECTION CIRCUIT

Ronald C. S. Fox, Randwick, Australia, assignor to Alcatel N.V., Amsterdam, Netherlands

PCT No. PCT/AU89/00491, § 371 Date Jul. 9, 1991, § 102(e) Date Jul. 9, 1991, PCT Pub. No. WO90/07213, PCT Pub. Date Jun. 28, 1990
PCT Filed Nov. 17, 1989, Ser. No. 690,937
Claims priority, application Australia, Dec. 12, 1988, PJ1884
Int. Cl.[5] H02H *9/04*
U.S. Cl. 361—18 11 Claims



1. A protection circuit for protecting circuit elements connected to a line via line terminal means from the effects of a transient abnormal high voltage surge, said circuit comprising
- a controllable semiconductor switch having a conductive path serially connected between said line terminal means and said circuit elements and responsive to an associated control element for selectively connecting said circuit elements to said line, a connection between said conductive path and said control element defining a semiconductor junction,
- a first circuit further comprising
  - first resistance means of a predetermined value connecting one terminal of the line terminal means with the conductive path of the semiconductor switch and connected in series with said semiconductor junction, and
  - first voltage reference means connected in parallel with said first resistance means and said semiconductor junction, and
- a second circuit comprising
  - the first voltage reference means,
  - second voltage reference means in series with said first voltage reference means, said first and second voltage reference means being connected in parallel with said first resistance means, and
  - voltage dependent second resistance means having a predetermined threshold value and connected between the conductive path and another terminal of said line terminal means,
- wherein the resistance value of said first resistance means is such that with a magnitude of line current within a predetermined normal range,
  - the sum of the voltage drops across the first resistance means and said semiconductor junction is less than the reference voltage of the first reference means, and
  - as the magnitude of the line current exceeds said predetermined normal range, said sum increases until it reaches the reference voltage of the first reference voltage means
  - whereupon said first reference voltage means clamps the voltage across said first resistance means and thereby limits the current therethrough,
- and upon said voltage dependent second resistance means

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detecting its threshold voltage in response to said transient abnormal high voltage surge across said terminal means,

said second resistance means permits said current to further increase through said first resistance means until the voltage drop across said first resistance means equals the sum of the reference voltages of the first and second reference voltage means

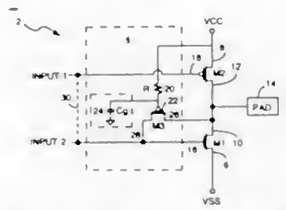
whereupon the voltage across said first resistance means is clamped and the semiconductor switch means is rendered nonconducting by the second voltage reference means.

5,208,719

OUTPUT PAD ELECTROSTATIC DISCHARGE PROTECTION CIRCUIT FOR MOS DEVICES

Yi-Hen Wei, Saratoga, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Aug. 20, 1991, Ser. No. 747,545
Int. Cl.[5] H02H *9/04*
U.S. Cl. 361—56 **19 Claims**



1. In a CMOS device that includes an output PMOS transistor coupled in series with an output NMOS transistor, the PMOS and NMOS transistors each including first and second output leads and a gate, the first output leads being coupled to an output pad, an output protection circuit comprising

a second PMOS transistor, including a gate coupled to a voltage source node in the circuit, a first output lead coupled to the output pad, and a second output lead coupled to the gate of the output NMOS transistor;

whereby a positive ESD potential at said output pad turns on said second PMOS transistor, thereby turning on the output NMOS transistor;

said output NMOS transistor being protected thereby from snapback mode destruction that would occur in the absence of the output protection circuit

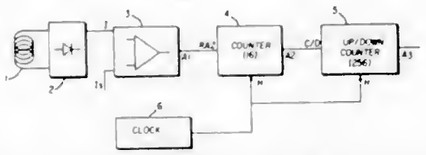
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5,208,720

ELECTRONIC TRIP DEVICE WITH SHORT DELAY FUNCTION

Didier Fraisse, St. Martin D'Heres, and Marc Levain, Grenoble, both of France, assignors to Merlin Gerin, Meylan, France

Filed Jul. 23, 1991, Ser. No. 734,683
Claims priority, application France, Aug. 1, 1990, 9009939
Int. Cl.[5] H02H *7/00*
U.S. Cl. 367—94 **8 Claims**



1. A short delay function electronic trip device designed to produce a tripping signal when an input signal, representative of a current flowing in at least one conductor to be protected, is greater than a preset threshold value over a preset time delay period, said trip device comprising: comparison means for comparing the input signal and the threshold value and for producing an output signal when the input signal is greater than the threshold value, and

time delay means connected to the output of the comparison means, wherein the time delay means comprises a counter and an up-down counter each comprising a clock input coupled to receive clock signals of preset frequencies from a clock circuit, a zero reset input of the counter being connected to the output of the comparison means, and the output of the counter being connected to an up-down counting input of the up-down counter in such a way as to trigger its count-down when the content of the counter reaches a first preset value, wherein the up-down counter generates a tripping signal when its content reaches a second preset value.

5,208,721

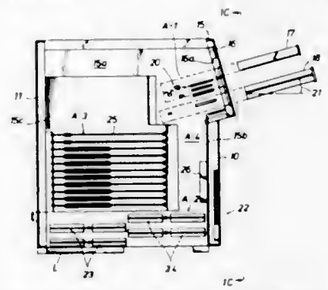
Patent Not Issued For This Number

5,208,722

TOWER SYSTEM UNIT WITH ANGLED DRIVE BAY

Dean Ryan, Ventura, Calif.; Charles R. Lewis, Eindhoven, Netherlands; George R. Daniels, Houston, Tex.; Donald E. Moore, Houston, Tex., and James F. Babb, Houston, Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Continuation of Ser. No. 431,288, Nov. 3, 1989, abandoned, which is a continuation-in-part of Ser. No. 291,746, Dec. 29, 1988, Pat. No. Des. 313,015. This application Apr. 13, 1992, Ser. No. 869,205
Int. Cl.[5] G11B *5/016*
U.S. Cl. 360—99.01 **14 Claims**



1. A tower unit for a computer system which includes a chassis for mounting a plurality of data storage units, wherein the tower unit is located on a horizontal reference plane, comprising:

at least one data storage unit for receiving and supporting generally planar and removable storage media, said data storage units including opposing side walls and having an upright position wherein said data storage units receive and support said planar removable storage media in a plane being generally parallel to the horizontal reference plane when said data storage units are in said upright position;

each of said data storage units having flanges attached to each said data storage unit opposing side wall wherein said flanges extend outwardly from and normal to said data storage unit side walls;

said chassis comprising a generally rectangular box frame including front and rear walls connected with opposing side walls wherein said front, rear and side walls being generally normal to the horizontal reference plane;

said front wall including a data storage bay which includes a bay face and a recess for receiving said data storage units, said bay being angled upwards at an angle with respect to the horizontal reference plane; and

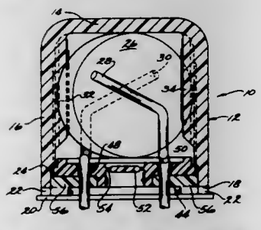
angled mount means positioned within said frame and forming part of said opposing side walls of the chassis for mounting said data storage units at said upward angle, said data storage units being generally in an upright position but angled from the horizontal plane at said upward angle, to allow greater ease of access to aid data storage unit users in the entry and removal of said planar removable storage media, wherein said angle mount means comprises a series of internally mounted flange sets mounted on said opposing walls of said chassis which extend inwardly towards said recess for receiving said data storage units and for mounting each of said data storage units at said upward angle.

5,208,723

SOLID STATE ELECTRONIC PROTECTOR WITH PRESSURE RELEASE

Richard L. Jenne, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 20, 1990, Ser. No. 570,073
Int. Cl.[5] H02H *3/22;* **H04M** *1/74*
U.S. Cl. 361—119 **9 Claims**



1. A telephone line overcurrent protector comprising a generally cup shaped housing formed of electrically insulating material having a top wall and side wall depending therefrom for mounting on a circuit board, said side walls having a distal free end and a projection formed on a portion of the distal free end to form a selected stand off space between the protector and said circuit board when the protector is mounted, bottom cover means received on the side walls, an element of positive temperature coefficient (PTC) of resistivity disposed in the housing, the element being generally cylindrical in configuration with first and second end faces, first and second wire leads electrically coupled to the respective first and second end faces and extending out of the housing through respective apertures formed in the cover means for connecting to said circuit board, the cover means formed with pressure release means to specifically direct and confine any debris generated by a catastrophic failure of the element to a preselected location on the circuit board.

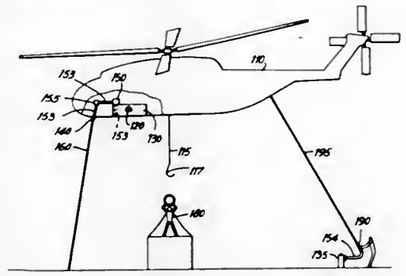
5,208,724

PROCESS AND APPARATUS FOR REDUCING THE DIFFERENCE IN ELECTRIC POTENTIAL BETWEEN A FLYING HOVERCRAFT AND EARTH GROUND

Richard F. Honigsbaum, A-21 Barry Gardens, 245 Passaic Ave., Passaic, N.J. 07055

Continuation of Ser. No. 358,563, May 26, 1989, abandoned. This application Jun. 11, 1991, Ser. No. 713,580
Int. Cl.[5] H05F *3/02;* **B64D** *1/18*
U.S. Cl. 361—218 **9 Claims**

1. An apparatus for reducing the difference in electric potential between a flying hovercraft and earth ground, and comprising a means for producing a stream of electrically conducting liquid that bridges at least the air gap between said hovercraft and earth ground, and a means for transporting said



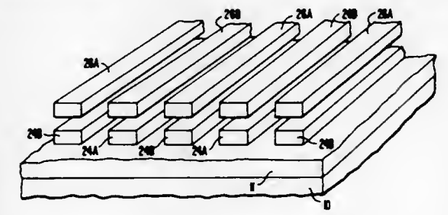
electrically conducting liquid to said means for producing a stream.

5,208,725

HIGH CAPACITANCE STRUCTURE IN A SEMICONDUCTOR DEVICE

Osman E. Akcasu, 5068 Glentree Dr., San Jose, Calif. 95129

Filed Aug. 19, 1992, Ser. No. 932,425
Int. Cl.[5] H01G *4/10;* **H01L** *27/02*
U.S. Cl. 361—313 **12 Claims**



1. On a semiconductor substrate, a capacitor structure comprising

a first layer of conducting strips parallel to each other on said substrate; and

a second layer of conducting strips parallel to each other, said second layer of conducting strips overlying, electrically separated from and substantially congruent to said first layer of conducting strips in a top view;

said first layer of conducting strips alternately connected to a first node and a second node, said second layer of conducting strips alternately connected to said first node and said second node in such a manner that each first layer conducting strip and a second layer conducting strip overlying said first layer conducting strip are connected to different nodes;

whereby said first and second nodes form two opposing nodes of an enhanced capacitor structure.

5,208,726

METAL-INSULATOR-METAL (MIM) CAPACITOR-AROUND-VIA STRUCTURE FOR A MONOLITHIC MICROWAVE INTEGRATED CIRCUIT (MMIC) AND METHOD OF MANUFACTURING SAME

Thomas R. Apel, Sunnyvale, Calif., assignor to Teledyne Monolithic Microwave, Mountain View, Calif.

Filed Apr. 3, 1992, Ser. No. 860,641
Int. Cl.[5] H01L *39/02;* **H01G** *4/06;* **H05K** *5/00*
U.S. Cl. 257—532 **4 Claims**

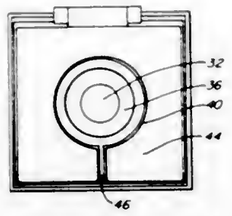
1. In a monolithic microwave integrated circuit (MMIC) employing a via hole to provide electrical continuity between

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a frontside conductive layer and a backside ground plane, a capacitor-around-via structure comprising:

(a) a substrate, having a frontside surface, a backside ground plane, and a via hole extending through said substrate, a volume overlying the via-hole opening defining a capacitor exclusion zone;

(b) a first conductive layer overlying the via hole and an adjacent portion of said frontside surface, said first conductive layer being electrically coupled to said backside ground plane by said via hole;



(c) a dielectric layer, overlying a portion of said first conductive layer and substantially surrounding, but lying outside, said capacitor exclusion zone; and

(d) a second conductive layer, overlying a portion of said dielectric layer and substantially surrounding, but lying outside, said capacitor exclusion zone.

5,208,727

SEMICONDUCTOR-TYPE LAMINATED CERAMIC CAPACITOR WITH A GRAIN BOUNDARY-INSULATED STRUCTURE AND A METHOD FOR PRODUCING THE SAME

Kaori Okamoto, Takatsuki; Yasuo Wakahata, Katano, and Iwao Ueno, Ibaraki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

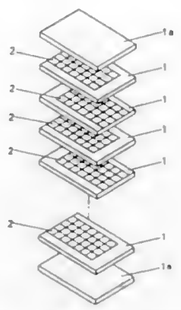
PCT No. PCT/JP90/00378, § 371 Date Aug. 5, 1991, § 102(e) Date Aug. 5, 1991, PCT Pub. No. WO90/11606, PCT Pub. Date Oct. 4, 1990

PCT Filed Mar. 20, 1990, Ser. No. 582,221

Claims priority, application Japan, Mar. 22, 1989, 1-69651; Mar. 22, 1989, 1-69660; Mar. 22, 1989, 1-69667

Int. Cl.[5] H01G *4/12, 7/00;* C04B *35/46*

U.S. Cl. 361—321 22 Claims



1. A semiconductor-type laminated ceramic capacitor with a grain boundary insulated structure comprising a plurality of inner electrodes on the surfaces of the grain boundary insulated, semiconductor type ceramic sheets, the terminal of each of said inner electrodes being extended to one edge of the corresponding ceramic sheet and said ceramic sheets being laminated so that said terminals of said inner electrodes come to the corresponding opposite edges of said ceramic sheets alternatively one by one; and outer electrodes electrically connected to said terminals of inner electrodes at opposite edges of each of said grain boundary insulated, semiconductor type ceramic sheets, wherein said ceramic sheets comprise of a material of the composition of $Sr_{(1-x)}Ca_xTiO_3$ containing excess Ti to make final molecular ratio of Ti to $Sr_{(1-x)}Ca_x$ in the range of $0.95 \leqq Sr_{(1-x)}Ca_x/Ti < 1.00$(where x is in the range of $0.001 \leqq x \leqq 0.2$); at least one or more kinds of the compounds selected from Nb_2O_5, Ta_2O_5, V_2O_5, W_2O_5, Dy_2O_3, Nd_2O_3, Y_2O_3, La_2O_3 or CeO_2 are added to said ceramic material to make their relative molar content in the range from 0.05 to 2.0%; and Mn and Si are also included in said ceramic material to the amount of their combined relative molar content, converting into MnO_2 and SiO_2 respectively, in the range of 0.2 to 5.0%.

5,208,728

HOUSING FOR FITTING IN MOTOR VEHICLES TO HOLD ELECTRONIC COMPONENTS

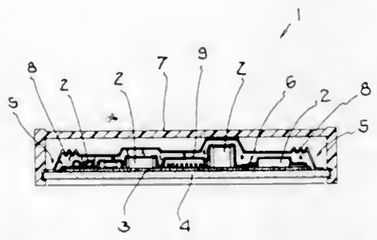
Klaus Schirmer, Ingolstadt, Fed. Rep. of Germany, assignor to Telefunken electronic GmbH, Heilbronn, Fed. Rep. of Germany

Filed Mar. 26, 1992, Ser. No. 857,948

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1991, 4112022

Int. Cl.[5] H02B *1/00*

U.S. Cl. 361—380 18 Claims



1. A housing containing electronic components for use in motor vehicles wherein:

said electronic components are disposed on an electronic carrier which is one of a PCB, a film or a hybrid carrier;

a metal plate is provided to accommodate said electronic carrier, with the are of said metal plate having a larger area than said electronic carrier in order to form an edge all round said electronic carrier;

the surface of said electronic carrier provided with said electronic components is provided with a protective lacquer;

as a protection against moisture, a flexible and watertight film is spanned over the array formed by said metal plate and said electronic carrier provided with said electronic components such that said film is connected to said all-round edge in an airtight and watertight fashion and is largely matched to the surface contours of said electronic components; and

a housing cover is provided as a mechanical protection and forms said housing in conjunction with said metal plate.

5,208,729

MULTI-CHIP MODULE

Thomas M. Cipolla, Katonah; Paul W. Coteus; Glen W. Johnson, both of Yorktown Heights, and Lawrence S. Mok, Brewster, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 14, 1992, Ser. No. 836,672

Int. Cl.[5] H05K *7/20*

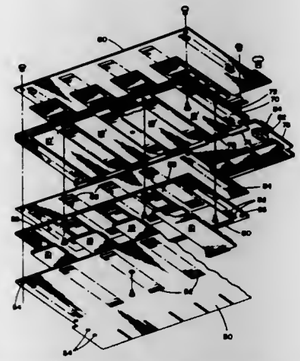
U.S. Cl. 361—382 26 Claims

1. A high density package for a plurality of integrated circuit chips, the combination comprising:

first and second planar metal plates;

a spacer metal plate sandwiched between said first and second planar metal plates, said spacer metal plate having a plurality of spaced apart circuit-receiving apertures therein;

a plurality of planar circuit carriers, one face of each said circuit carriers including a plurality of bonded chip means, each said circuit carrier positioned in a circuit-receiving aperture in said spacer metal plate so as to maintain said bonded chip means in heat exchange contact with a said planar metal plate, regions of said first and second metal plates positioned intermediate said apertures serving as



heat dissipation regions, each said planar circuit carrier having a connector region that extends out from between said first metal plate and said spacer metal plate at an extremity of a said circuit receiving aperture; and

a circuit card positioned at said extremity and provided with a plurality of interconnection areas, one for each said extended connector region, said circuit card having a major surface positioned parallel to said plates; and

means for rigidly connecting said first and second planar metal plates, said spacer metal plate and said circuit card to enable said package to manifest an overall planar and unitary configuration.

5,208,730

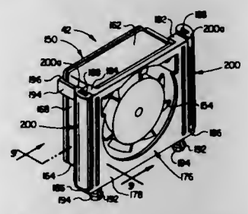
COMPUTER COOLING FAN VIBRATION ISOLATION APPARATUS

Mark S. Tracy, Tomball, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Division of Ser. No. 721,996, Jun. 27, 1991. This application Oct. 28, 1992, Ser. No, 967,704

Int. Cl.[5] F04D *29/66*

U.S. Cl. 361—384 8 Claims



5. In a computer having an interior housing portion with a generally rectangular cross-section defined by first and second opposite side walls and third and fourth opposite side walls, a resiliently mounted cooling fan assembly disposed within said interior housing portion and comprising:

a rectangular mounting frame having first and second opposite outer peripheral sides respectively parallel to said first and second opposite side walls of said interior housing portion, and third and fourth opposite outer peripheral sides respectively parallel to said third and fourth opposite side walls of said interior housing portion;

a cooling fan including a rectangular fan frame having a motor-driven fan impeller operatively mounted therein;

means for releasably securing said fan frame to said mounting frame in a side-by-side, generally aligned relationship therewith; and

vibration isolation means for reducing the amount of cooling fan vibration transmitted to said interior housing portion of the computer, said vibration isolation means including:

first and second elongated vibration isolation members formed from an elastomeric material, said first and second vibration isolation members, respectively, being outwardly secured to said third and fourth peripheral outer sides of said mounting frame in parallel relationships therewith, said first vibration isolation member being laterally compressed between said third side wall of said interior housing portion and said third peripheral outer side of said mounting frame, and said second vibration isolation member being laterally compressed between said fourth side wall of said interior housing portion and said fourth peripheral outer side of said mounting frame.

5,208,731

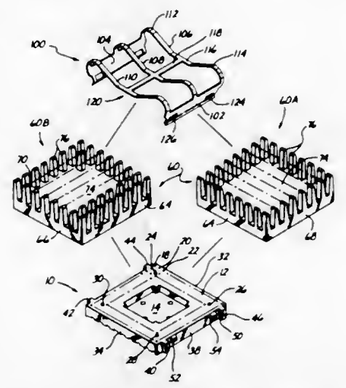
HEAT DISSIPATING ASSEMBLY

Michael L. Blomquist, Newbury Park, Calif., assignor to International Electronic Research Corporation, Burbank, Calif.

Filed Jan. 17, 1992, Ser. No. 822,432

Int. Cl.[5] H05K *7/20*

U.S. Cl. 361—386 13 Claims



1. An improved heat dissipating assembly of the type including a socket and at least one first latching element disposed on respective opposing sides of said socket, a electronic device, the electronic device being adapted to be mounted to said socket, a heat sink member, and an retainer element, said retainer element being adapted to removably retain said heat sink member in a position to remove heat from the electronic device by conduction, said heat sink member having a first surface generally adapted to conform to an exposed mating surface of the electronic device, said heat sink member including a second surface and a plurality of outwardly projecting heat dissipating members arranged on said second surface so as to define therebetween a plurality of first channels extending generally in a first direction and a plurality of second channels extending generally in a second direction, said second direction being generally perpendicular to said first direction, said first and second channels being of generally equal lengths and depths, said retainer element including side panel portions

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depending from and integral with respective opposite ends of a plurality of relatively narrow mutually parallel spaced apart spring elements, said spring elements being adapted to hold said panel portions in an unassembled configuration and to be received in and extend along said first channels, each of said side panel portions having at least one second latching element adapted to latch with at least one said first latching element in an assembled configuration; wherein the improvement comprises:

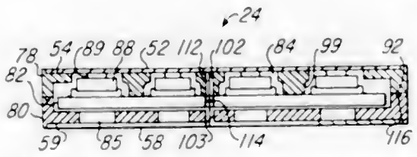
said panel portions being spaced apart in said unassembled configuration by a distance which is less than the distance between said respective opposing sides of said socket, whereby said socket is resiliently clamped between said panel portions in said assembled configuration, cross member means integral with and transverse to each of said spring elements and intermediate said side panel portions, said cross member means lying in a common plane with a midportion of said spring elements and being adapted to be received in at least one of said second channels, whereby the engagement of said cross member means in said least one of said second channels prevents substantial relative longitudinal movement between said spring elements and said heat sink, said panel portions extending toward said opposing sides of said socket at a shallow angle whereby said panel portions generally make approximate line contact with said opposing sides in the general location of said latching elements.

5,208,732

MEMORY CARD WITH FLEXIBLE CONDUCTOR BETWEEN SUBSTRATE AND METAL COVER

Daniel Baudouin, Missouri City; Alton Carpenter, Houston, and James Wallace, Sugarland, all of Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex.

Filed May 29, 1991, Ser. No. 707,353
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—386 **7 Claims**



1. A memory card, comprising:

a housing including an interior chamber and a top metal cover;

a substrate in said chamber, said substrate carrying printed circuit leads, packaged semiconductor devices connected to selected printed circuit leads, and a connector connected to selected printed circuit leads, said packaged semiconductor devices being spaced from said top metal cover, said substrate including a plated through hole connected to circuit ground and a flexible conductor soldered in said plated through hole and extending through said housing to contact said top metal cover; and

a thermal coupler between said top metal cover and said packaged semiconductor devices for coupling heat generated by said packaged semiconductor devices to said top metal cover.

5,208,733

ENCLOSURE AND PRINTED CIRCUIT CARD WITH HEAT SINK

Michel Besanger, Grenoble, France, assignor to Merlin Gerin, France

Filed Oct. 30, 1991, Ser. No. 785,074
Claims priority, application France, Nov. 9, 1990, 90 14016
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—386 **7 Claims**



1. An electronic device comprising:

a card having first and second faces opposite each other;

electrical devices comprising at least one of a printed circuit and a plurality of components fixed to said first face of said card;

a metal plate spaced apart from said card such that a gap is formed between said first face and said metal plate;

pulp filled within said gap, wherein said pulp is more thermally conductive than air; and

a plastic insulating film disposed between said pulp and said card, whereby an integrated assembly of said card, said electrical means, said plastic insulating film and said metal plate is formed.

5,208,734

COMPACT ELECTRONIC EQUIPMENT HOUSING WITH LOWER METAL-BASED PRINTED WIRING BOARD AND REMOVABLY COUPLED

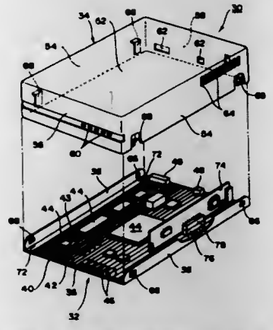
Syouji Someno, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 16, 1992, Ser. No. 851,775
Claims priority, application Japan, Mar. 18, 1991, 3-51823
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—388 **2 Claims**

1. A housing for electronic equipment comprising:

a metal-base printed wiring board including a flat base and a pair of side portions each bent upwardly approximately at right angles with respect to the flat base, said metal-base printed wiring board serving as a lower housing and having a plurality of surface mounting devices mounted on the flat base thereof, said metal-base printed wiring board being made of an aluminum-base member and printed circuit layers on top thereof, said printed circuit layers covering said aluminum-base member except on the flat base at the periphery and except for the side portions;

a cover having a top and four side portions each bent downwardly approximately at right angles with respect to the top; and



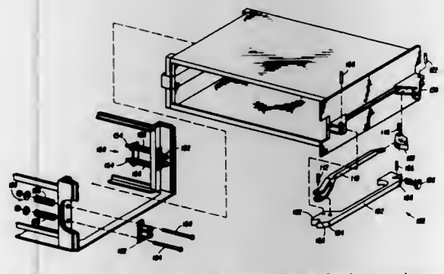
means removably coupling the side portions of said cover to the side portions of said metal-base printed wiring board.

5,208,735

LATCHING SYSTEM FOR AVIONICS LINE REPLACEABLE MODULES INCLUDING A HANDLE CAM AND A PIVOTING LATCH CAM

Todd Twachtmann, Marion; James B. Shumaker, Cedar Rapids; M. Duane Weltha, Marion; Chris L. Thompson, and David M. Mick, both of Cedar Rapids, all of Iowa, assignors to Rockwell International Corporation, Seal Beach, Calif.

Filed Dec. 12, 1991, Ser. No. 805,665
Int. Cl.[5] H05K *7/14;* **A47B** *95/02*
U.S. Cl. 361—391 **3 Claims**



1. An improved mounting system for avionics equipment comprising:

a rack,

a carrying handle,

a pivoting handle cam disposed on a first end of said carrying handle,

a pivoting latch cam;

a slide arm coupled with said pivoting latch cam and said carrying handle;

a first spring loaded latch plate disposed on said rack for coupling with said pivoting handle cam; and,

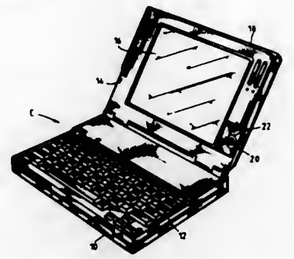
a second spring loaded latch plate disposed on said rack for coupling with said pivoting latch cam.

5,208,736

PORTABLE COMPUTER WITH TRACKBALL MOUNTED IN DISPLAY SECTION

Cynthia A. Crooks, Houston; Michael W. Ambrose, Cypress; Stephen A. Mato, Katy, and Gopal C. Bhagat, Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed May 18, 1992, Ser. No. 885,121
Int. Cl.[5] H05K *7/02;* **G06F** *1/16*
U.S. Cl. 361—393 **6 Claims**



1. A portable computer system, comprising:

a base section; and

a display section pivotably connected to said base section, said display section including:

a housing, said housing being generally a parallelepiped and including a front face, a back face, a bottom face, two side faces and a first opening in said front face, said first opening being less than the size of said front face so that a border results, a second opening in said border and a third opening in said back face;

a display for displaying an image, said display located inside said housing at said first opening; and

a user interface device located inside said housing, said user interface device including:

a trackball projecting through said second opening; and

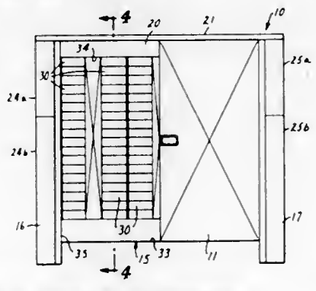
a first select button located near said trackball and projecting through said third opening.

5,208,737

CROSS CONNECT CABINET FOR TELECOMMUNICATIONS EQUIPMENT

Donald F. Miller, Austin, Tex., assignor to Minnesota Minlog and Manufacturing Company, St. Paul, Minn.

Filed Aug. 14, 1991, Ser. No. 744,990
Int. Cl.[5] H01R *9/00*
U.S. Cl. 361—426 **10 Claims**



1. A cross connect cabinet comprising:

a housing and columns of cross-connect blocks having wire receiving terminals,

said housing including

an enclosure for supporting said columns of cross-connect blocks in back to back relationship,

means defining a connection chamber disposed in the upper

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portion of said housing above said enclosure with the columns of cross-connect blocks for connection of said blocks to incoming cables from a central station and subscribers, and

legs positioned at opposite ends of said housing affording entry of the cables to the opposite ends of the connection chamber.

5,208,738

CONSTANT FREQUENCY RESONANT DC/DC CONVERTER

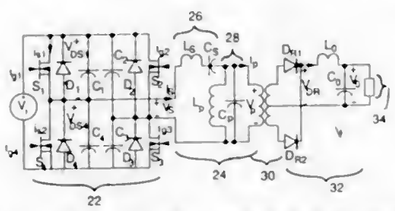
Praveen K. Jain, Kanata, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Dec. 13, 1990, Ser. No. 627,157

The portion of the term of this patent subsequent to Oct. 20, 2009, has been disclaimed.

Int. Cl.[5] H02M *3/335*

U.S. Cl. 363—17 **4 Claims**



1. A constant frequency full resonant mode dc/dc converter having a constant resonant operating frequency comprising:

a full bridge inverter having at least four semiconductor switches controlled by at least four control signals and at least four substantially large snubber capacitors;

a resonant circuit means connected to the full bridge inverter and comprising a series resonant branch which has a series inductor and series and it tuned to said resonant operating frequency to provide a near zero impedance at said resonant operating frequency and a parallel resonant branch which has a parallel inductor and a parallel capacitor and is tuned to a frequency different from said resonant operating frequency to provide an effective inductive impedance at said resonant operating frequency;

a transformer connected to said resonant circuit means in such a way that said series resonant branch is connected in series to said transformer and said parallel resonant branch is connected in parallel to said transformer; and

a rectifying circuit means connected to said transformer to produce a converter output signal,

in that the phase shift angle among said control signals is adjustable to maintain the voltage of said converter output signal constant.

5,208,739

INTEGRATED MAGNETIC POWER CONVERTER

Clayton L. Sturgeon, Dallas, Tex., assignor to Powercube Corporation, Billerica, Mass.

Filed Jan. 7, 1992, Ser. No. 817,600

Int. Cl.[5] H02M *3/335*

U.S. Cl. 363—24 **7 Claims**

1. An integrated magnetic power converter for supplying power to a load comprising:

a continuous magnetic structure having first and second oppositely disposed legs and third and fourth oppositely disposed legs and magnetic path therebetween;

a first winding wound on said first leg;

a second winding wound on said second leg and connected to the load;

a third winding in series with said second winding and wound on said first leg;

first circuit means connected to said first winding for supplying energy to the power converter;

second circuit means connected in series with said second and third windings for transferring energy to the load;

third circuit means coupled to said second and third windings for transferring energy from said second winding to the load, such that when energy is supplied to said first winding for transformation to said second winding, a magnetic flux is produced in said magnetic path for power transfer to the load and an amount of energy is stored in the area surrounding said magnetic structure and said magnetic path, and when energy applied to said first winding is removed, said stored energy induces a magnetic flux in said magnetic path and energy is transferred to the load via said second and third windings and said third circuit means;

a fourth winding wound on said second leg;

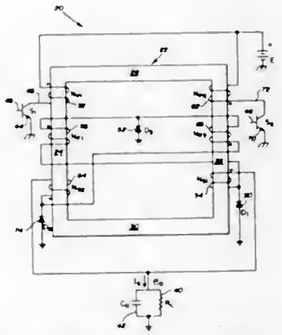
a fifth winding wound on said first leg and connected to the load,

a sixth winding in series with said fifth winding and wound on said second leg;

fourth circuit means connected to said fourth winding for supplying energy to the power converter;

fifth circuit means coupled to said fifth and sixth windings for transferring energy to the load;

sixth circuit means connected in series with said fifth and sixth windings for transferring energy from said fifth



winding to the load, such that when energy is supplied to said fourth winding for transformation to said fifth winding, a magnetic flux is produced in said magnetic path for power transfer to the load and an amount of energy is stored in the area surrounding said magnetic structure and said magnetic path, and when energy applied to said fourth winding is removed, said stored energy induces a magnetic flux in said magnetic path and energy is transferred to the load via said fifth and sixth windings and said sixth circuit means;

said third circuit means includes means for preventing current flow in said third winding while energy is being supplied to said first winding to thereby permit the storage of energy around said magnetic structure and to permit current flow from said third winding to the load when energy supplied to said first winding is removed, thereby generating an induced current in said second winding;

said third circuit means providing current for said third winding when energy is removed from said first winding, thereby removing voltage from said fourth winding to allow current to flow in said first and fourth windings without supplying energy through said first and fourth windings;

said sixth circuit means includes means for preventing current flow in said sixth winding while energy is being supplied to said fourth winding to thereby permit the storage of energy around said magnetic structure and to

permit current flow from said sixth winding to the load when energy supplied to said fourth winding is removed, thereby generating an induced current in said fifth winding;

said sixth circuit means providing current for said sixth winding when energy is removed from said fourth winding, thereby removing voltage from said first winding to allow current to flow in said first and fourth windings without supplying energy through said first and fourth windings;

a seventh winding wound on said third leg; and

an eighth winding wound on said fourth leg, said seventh and eighth windings being in series.

5,208,740

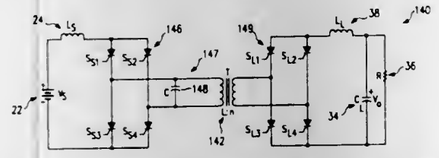
INVERSE DUAL CONVERTER FOR HIGH-POWER APPLICATIONS

Mehrdad Ehsani, Bryan, Tex., assignor to The Texas A & M University System, College Station, Tex.

Filed May 30, 1991, Ser. No. 707,852

Int. Cl.[5] H02M *3/135*

U.S. Cl. 363—124 **49 Claims**



1. An inverse dual DC-DC converter circuit, comprising:

an input DC voltage source for supplying an input DC voltage;

an inverse dual converter bridge associated with said voltage source for receiving said input DC voltage and generating an output DC voltage, said inverse dual converter bridge having a source side and a load side, said source side including a source voltage converter in series with a source inductor, and said load side including a load voltage converter in series with a load inductor; and

circuitry for delivering said output DC voltage to a DC load.

5,208,741

CHOPPER CIRCUIT FOR DYNAMIC BRAKING IN AN ELECTRIC POWER CONVERSION SYSTEM

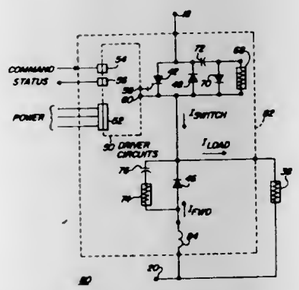
Ajith K. Kumar, Erie, Pa., assignor to General Electric Company, Erie, Pa.

Division of Ser. No. 676,643, Mar. 28, 1991, Pat. No. 5,117,166.

This application Oct. 30, 1991, Ser. No. 784,866

Int. Cl.[5] H02M *7/525*

U.S. Cl. 363—124 **11 Claims**



1. A chopper circuit for a load comprising:

a first current path including the load connected in series with a electronic switch means for switching power applied to the load, the load having sufficient inductance to limit the rate of change of current through the electronic switch means via the first current path during at least a first interval of time; and

a second current path including an inductor connected in series with a diode and being connected in parallel with the load, the inductor having sufficient inductance to limit the rate of change of current through the electronic switch means via the second current path during at least a second interval of time, wherein the average time in which current flows through the inductor is substantially less than the average time in which current flows through the electronic switch means.

5,208,742

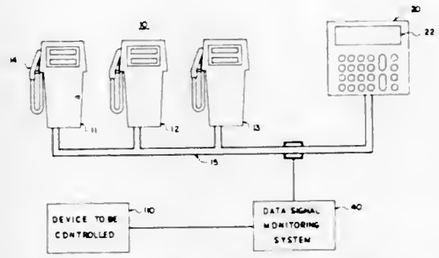
DATA LINE MONITORING SYSTEM

Walter E. Warn, Knightdale, N.C., assignor to Progressive International Electronics, Raleigh, N.C.

Filed Apr. 30, 1990, Ser. No. 516,668

Int. Cl.[5] G06F *3/00*

U.S. Cl. 364—131 **13 Claims**



1. A data signal monitoring system having microprocessor for monitoring data signals in a data wire without interrupting data signal flow, where said microprocessor then controls other devices from information extracted from said data wire, comprising:

(a) a configuration circuit, attached to said data wire to be monitored, having opto-coupler means for coupling and isolating said data wire from said data signal monitoring system allowing data signals to be monitored without interruption, where said opto-coupler generates computer logic signals corresponding to said data signals;

(b) a microprocessor including plural input-output ports, programmable read and write only memory, programmable read and write variable memory, said microprocessor having bus means connecting said configuration circuit with at least one of said microprocessor ports for receiving said computer logic signals from said configuration circuit;

(c) a programmable switch selector having bus connection to at least one of said microprocessor ports for instructing said microprocessor as to which of said computer logic signals to select and process, and which of said computer logic signals to discard, where said microprocessor generates output signals corresponding to said selected and processed signals; and

(d) a converter means having bus connection to at least one of said input-out ports, for transforming said output signals to signals readable by an electrical device to be controlled, whereby said microprocessor controls said device from information extracted from said data wire.

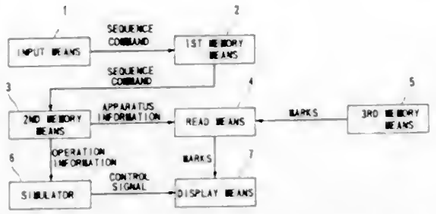
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,743

DEVICE AND METHOD FOR GENERATING A SEQUENCE OF INDUSTRIAL PROCESS

Hiroshi Nishikawa, Chiba, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 28, 1990, Ser. No. 635,230
Claims priority, application Japan, Dec. 28, 1989, 1-344281
Int. Cl.[5] G06F *15/46*; G05B *11/01*
U.S. Cl. 364—140 13 Claims



1. A device for generating a sequence of an industrial process by combining in a required sequence a plurality of processes each realized by operating an assembly of a plurality of apparatuses in a predetermined manner, the device comprising:

first memory means for storing a sequence command including apparatus data relating to the apparatuses and operation data relating to operations of the apparatuses for preparing a command file to realize the industrial process;

first means for reading the sequence command from the first memory means,

second memory means for storing the command file containing the sequence command read from the first memory means by the first reading means to simulate the industrial process,

third memory means for storing beforehand symbols corresponding to the apparatus data of the sequence command;

cond means for reading from the third memory means the symbols corresponding to the apparatus data of the sequence command in the command file stored in the second memory means,

means for displaying a schema of system for realizing the industrial process by using the symbols read by the second reading means; and

a simulator for reading the operation data of the sequence command in the command file from the second memory means and simulating the operational procedure of the industrial process with the schema displayed by the display means.

5,208,744

AUTOMATIC ADJUSTMENT SYSTEM FOR A PROCESS CONTROLLER

Masae Kanda, Kanagawa, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan

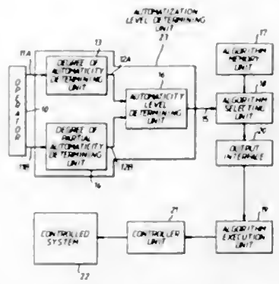
Filed Feb. 14, 1991, Ser. No. 655,031
Claims priority, application Japan, Feb. 23, 1990, 2-42882
Int. Cl.[5] G05B *13/02*
U.S. Cl. 364—162 4 Claims

1. A control supporting system for automatically determining control constants, including proportional gain, integral time and derivative time, of a controller used for controlling a given system in accordance with characteristics of the given system and control characteristics demanded of the controller, the control supporting system comprising:

automatization level determining means for determining the desired level of automatization of the controller in accordance with the characteristics of the given system and the control characteristics demanded of the controller;

algorithm memory means for storing a plurality of algorithms to determine the control constants;

algorithm selecting means for selecting an algorithm from among the plurality of algorithms in accordance with the determined automatization level; and



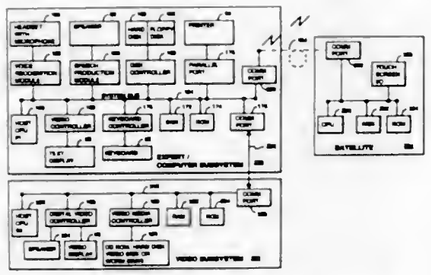
algorithm execution means for executing the algorithm to determine the control constants.

5,208,745

MULTIMEDIA INTERFACE AND METHOD FOR COMPUTER SYSTEM

George H. Quentin, San Jose, Calif.; Brian A. Isle, Isanti, Minn.; Charles P. Bloom, Eagan, Minn.; Arch W. Butler, Minneapolis, Minn.; David Spoor, Eden Prairie, Minn.; David J. Wunderlin, New Hope, Minn.; Rence Bedros, West Saint Paul, Minn.; Francis M. Campos, Sausalito, and Stephen R. Sweet, Sonoma, both of Calif., assignors to Electric Power Research Institute, Palo Alto, Calif.

Continuation-in-part of Ser. No. 223,499, Jul. 25, 1988, Pat. No. 4,931,950. This application Jun. 4, 1990, Ser. No. 532,596
Int. Cl.[5] G06F *15/46*, *11/30*
U.S. Cl. 364—188 14 Claims



1. In a computer system, the combination comprising:

a first data processing unit coupled to a first display apparatus;

first memory means, coupled to said first data processing unit, for storing application software, wherein said application software displays messages on said first display apparatus and also transmits video display instructions;

a second data processing unit coupled to a second display apparatus, and coupled to said first data processing unit so as to receive said transmitted video display instructions;

random access video memory means, coupled to said second data processing unit, for storing a multiplicity of digitized video images; and

a digital video controller, coupled to said second data processing unit and to said video memory means, that displays on said second display apparatus selected ones and selected sequences of said digitized video images stored in said video memory means in accordance with said video display instructions transmitted by said application software;

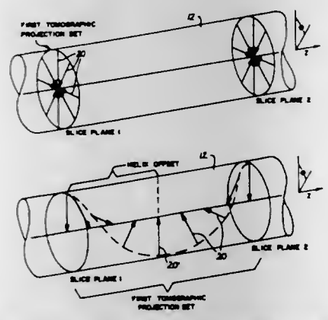
said application software including means for coordinating said video images displayed on said second display apparatus with said messages displayed on said first display apparatus.

5,208,746

METHOD FOR HELICAL SCANNING WITH A STATIONARY DETECTOR USING REBINNING AND SPLICING TO CREATE DETECTOR VERTEX PROJECTION SETS

Kevin F. King, New Berlin, and Carl R. Crawford, Milwaukee, both of Wis., assignors to General Electric Company, Milwaukee, Wis.

Filed Nov. 22, 1989, Ser. No. 440,566
Int. Cl.[5] G06F *15/00*
U.S. Cl. 364—413.16 5 Claims



1. A method producing a tomographic image of an imaged object from data acquired in a helical scan, the data acquired as a series of source-vertex projections at a plurality of gantry angles ϕ about a z-axis and within an image plane at detectors at detector angles β, the source-vertex projections including a plurality of data at ray angles α, comprising the steps of:

(a) identifying a slice plane z_{sp} relative to the imaged object and parallel to the image plane;

(b) acquiring a source-vertex projection set of data over 2π of source rotation;

(c) moving the imaged object along the z-axis and rotating the source so that the imaging plane crosses the slice plane during the acquisition of a source-vertex projection set;

(d) rebinning the source-vertex projection set into a detector vertex projection set including redundant data and missing data relative to a complete detector-vertex projection set;

(e) dividing the detector-vertex projection set into two half scans, each including portions of the redundant data and the missing data;

(f) splicing data between the half scans by using the redundant data of each half scan as the missing data from the other half scan to create a complete detector-vertex projection set over 2π of detector angle β, the splicing being effected by changing at least the gantry angle β of the redundant data;

(g) extrapolating and interpolating the data of the half scans into a slice plane detector-vertex projection set; and

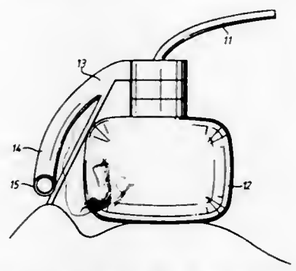
(h) reconstructing the slice plane detector-vertex projection set into a slice image.

5,208,747

ULTRASONIC SCANNING METHOD AND APPARATUS FOR GRADING OF LIVE ANIMALS AND ANIMAL CARCASES

John Wilson, 96a London Road, Marlborough, Wilts. SN8 2AP, Great Britain, and Richard D. Capello, 1911 Rushmore, Orange, Calif. 92667

Continuation of Ser. No. 335,114, Apr. 7, 1989. This application Mar. 18, 1991, Ser. No. 673,164
Claims priority, application United Kingdom, Apr. 7, 1988, 8808101
Int. Cl.[5] A22B *17/00*
U.S. Cl. 364—413.25 12 Claims



1. A method of carrying out the ultrasonic scanning of live animals and carcases for determining fat and muscle thickness and/or fat content of muscle, which comprises utilizing a single elongate ultrasonic scanning probe to effect scanning of a region along the back of the animal or carcase along a line parallel to the line of the spine to provide a continuous two-dimensional image extending lengthwise of said back.

5,208,748

METHOD AND APPARATUS FOR STRUCTURING AND MANAGING HUMAN COMMUNICATIONS BY EXPLICITLY DEFINING THE TYPES OF COMMUNICATIONS PERMITTED BETWEEN PARTICIPANTS

Carlos F. Flores, Berkeley, Calif.; Juan J. Ludlow, Mexico City, Mexico; Chauncey F. Bell, III, Alameda, Calif.; Raul M. Mora, Tlalpan, Mexico; Terry A. Winograd, Stanford, and Michael J. Graves, Alameda, both of Calif., assignors to Action Technologies, Inc., Alameda, Calif.

Continuation-in-part of Ser. No. 798,904, Nov. 18, 1985, Pat. No. 5,157,003. This application Jun. 19, 1989, Ser. No. 368,179
Int. Cl.[5] G06F *15/42*
U.S. Cl. 364—419 19 Claims

1. The machine-implemented method for managing business, social, and/or personal communications in which a communication among a set of participants is treated as a move in one of a first type of conversation for declaring specific realizable possibilities and a second type of conversation for producing action to complete a specific declared possibility, said method utilizing a computer system including a user input/output interface and a record storage system and being based on

a predefined set of conversational roles played by participants in said conversations, with each participant playing at least one conversational role in any one of said conversations;

a preselected set of types of incompletions which occur recurringly within said conversations, including a first type in which a conversational move by at least one participant to declare at least one specific realizable possibility is missing, and a second type in which a conversational move by at least one participant to complete a specific realizable possibility is missing;

a set of types of permitted moves for each of said first type of conversation and said second type of conversation, including at least one predefined initial type of move and

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subsequent types of moves preselected on the basis of a functional relationship among said types of incompletions, said conversational roles, and a specific subset of said types of incompletions produced by each of said initial and subsequent types of moves;

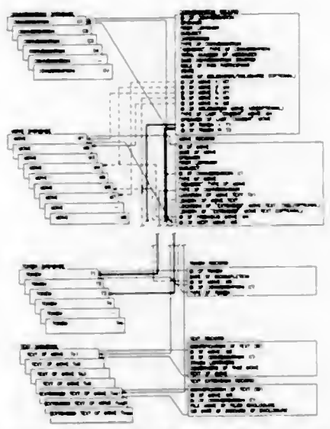
a preselected set of associated data for each of said initial and subsequent types of moves;

a predefined conversation record format for each of said conversations comprising identities and roles of participants, incompletions, and a pre-defined body of data associated with each move in the coversation, including the type of move;

said method comprising the steps of:

a. presenting to one participant via said user input/output interface device a selection menu comprising menu elements for selecting one of Task 1 comprising opening a new conversation of one of said first type and second type, Task 2 comprising selecting an existing conversation in which to make a subsequent type of move, and Task 3 comprising reviewing one of all initial types of moves and subsequent types of moves by other participants in all conversations in which said one participant plays one of said conversational roles;

b. responding to a selection by said one participant of said Task 1 via said interface device by performing a sequence of steps comprising:



b.1. prompting said one participant via said interface device to select an initial move in one of said first and second types of conversations;

b.2. prompting said one participant via said interface device to enter said set of associated data for said selected initial move; and

b.3. responding to entry of said set of associated data by creating and storing in said record storage system a new conversation record corresponding to said conversation record format, including said associated data and said types of incompletions produced by said selected initial type of move;

c. responding to a selection by said one participant of said Task 2 via said interface device by performing a sequence of steps comprising:

c.1. deriving from said stored conversation record of said selected existing conversation a subset of said set of moves comprising currently permitted moves for said one participant;

c.2. prompting said one participant via said interface device to select one of said currently permitted moves;

c.3. prompting said one participant via said interface device to enter said set of associated data for said selected one of said currently permitted moves; and

c.4. responding to entry of said set of associated data by updating and storing in said record storage system said conversation record corresponding to said selected conversation, including said associated data and said types of incompletions produced by said selected one of said currently permitted moves.

5,208,749

METHOD FOR CONTROLLING ACTIVE SUSPENSION SYSTEM ON THE BASIS OF ROTATIONAL MOTION MODEL

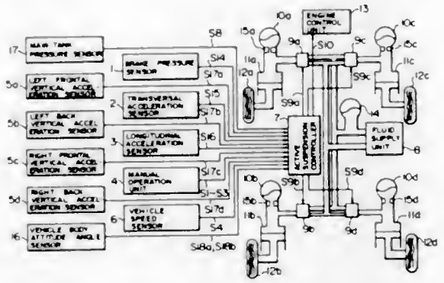
Masao Adachi, Sagamihara; Naoyuki Ozaki, Katsuta, and Makoto Shioya, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 7, 1990, Ser. No. 563,348

Claims priority, application Japan, Aug. 11, 1989, 1-208759

Int. Cl.[5] B60G *21/00, 17/00*

U.S. Cl. 364—424.05 **9 Claims**



1. An active suspension control method for controlling a vehicle active suspension system which includes a main tank for storing fluid, and suspension cylinders provided at wheels of the vehicle and connected to said main tank for being supplied with said fluid to control the attitude of the vehicle body, said method comprising the steps of:

sensing an acceleration acting on the body of the vehicle which is in a running state;

predicting a rotational angle of said vehicle body using a controller by solving a dynamic model equation of rotational motion of the vehicle mathematically according to a value of sensed acceleration and predetermined parameter coefficients of said model equation, said predicted rotational angle being provided as a control signal, wherein the dynamic model equation includes an equation for roll motion of:

$$Ir\phi_2+Cr\phi_1+(Kr-Ms\cdot Hr\cdot g)\phi_0=Ms\cdot Ay\cdot Hr \ldots$$

where

Ir is the roll moment of inertia;

ϕ_0 is the roll angle;

ϕ_1 is the roll angular velocity;

ϕ_2 is the roll angular acceleration;

Cr is the roll-equivalent damping coefficient;

Kr is the roll stiffness;

Ms is the on-sprung weight;

Hr is the distance between roll axis centroids;

g is the gravitational acceleration; and

Ay is the lateral acceleration signal;

and further includes the equation for pitch motion of:

$$Ip\lambda_2+Cp\lambda_1+(Kp-Ms\cdot Hp\cdot g)\lambda_0=Ms\cdot Ax\cdot Hp \ldots$$

where

Ip is the pitch moment of inertia;

λ_0 is the pitch angle;

λ_1 is the pitch angular velocity;

λ_2 is the pitch angular acceleration;

Cp is the pitch-equivalent damping coefficient;

Kp is the pitch stiffness;

Hp is the distance between pitch axis centroids; and

Ms is the sprung weight; and

controlling the supply of fluid from said main tank to said suspension cylinders according to said control signal representing the predicted rotational angle of the vehicle body, wherein said predicting step includes the steps of detecting at least one roll angle and pitch angle of the vehicle body, and correcting a predicted rotational angle with a signal indicative of the detected angle, and correcting said parameter coefficients I_R of the roll motion equation with the actual roll angle and the predicted roll angle, and/or correcting said parameter coefficient I_P of the pitch motion equation with the actual pitch angle and the predicted pitch angle.

5,208,750

CONTROL SYSTEM FOR UNMANNED AUTOMOTIVE VEHICLE

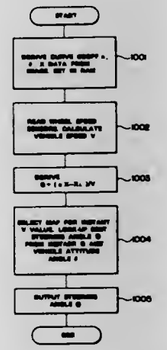
Kunihiko Kurami, Kawasaki; Norimasa Kishi, Yokohama; Kazunori Noso, Yokohama, and Akira Hattori, Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jun. 15, 1988, Ser. No. 206,667

Claims priority, application Japan, Jun. 17, 1987, 62-150452; Jun. 17, 1987, 62-150453; Jun. 17, 1987, 62-150461

Int. Cl.[5] G06F *15/50*

U.S. Cl. 364—424.02 **38 Claims**



1. In a method of controlling an unmanned vehicle, the steps of:

observing a road using camera means;

producing an image of the road based on the output of the camera means;

rectifying the image in a manner which depicts the left and right hand edges of the lane on which the vehicle is running and which enables data to be read therefrom;

determining the curvature of the road and the direction in which it is curving;

determining the attitude of the vehicle on the road by determining the angle between the longitudinal axis and an imaginary line which runs along the middle of the lane depicted in the rectified image;

determining the vehicle speed;

determining a variable which varies as a function of the road curvature, the distance of the center of the vehicle from a side of the lane on which the vehicle is running and the vehicle speed;

performing a table look-up on a selected map using the attitude angle and the variable, to derive a steering angle; and

controlling the angle of the steering wheels of the vehicle with respect to the longitudinal axis of the vehicle to the derived steering angle.

5,208,751

ACTIVE FOUR-WHEEL STEERING SYSTEM FOR MOTOR VEHICLES

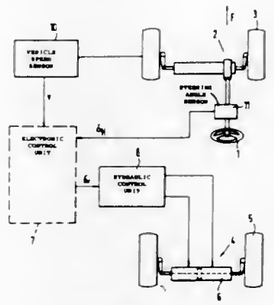
Volker Berkefeld, Renningen, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany

Continuation of Ser. No. 338,287, Apr. 14, 1989, abandoned. This application Jul. 8, 1991, Ser. No. 728,326

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1988, 3812957

Int. Cl.[5] B62D *5/06*

U.S. Cl. 364—424.05 **11 Claims**



1. An active four-wheel steering system for a motor vehicle having front and rear wheels comprising:

a) front wheel steering means for setting a front wheel steering angle (δ_f) of the front wheels;

b) rear wheel steering means for setting a rear wheel steering angle (δ_r) of the rear wheels which can be adjusted with respect to the front wheel steering angle (δ_f) in a variable wheel steering angle relationship;

c) steering wheel means for controlling the front wheel steering means to set the front wheel steering angle (δ_f);

d) a steering wheel angle sensor for providing a steering wheel signal representative of a steering wheel angle (δ_H) as set by a position of the steering wheel means;

e) a vehicle speed sensing means for providing a vehicle speed signal representative of a vehicle speed (v);

f) first function calculation task means for receiving the vehicle speed signal and said steering wheel angle signal and for generating a lateral acceleration signal (a_y) representative of a lateral acceleration of the vehicle as a function of the vehicle speed and steering angle signals and defined by the relationship

$$a_y=\frac{\delta_f}{\frac{1-l_h}{l^2}+C_1-C_3}$$

wherein l is the wheel base, l_h is the distance between a center of gravity of the motor vehicle and a rear axle, and C_1 and C_3 are constants;

g) second function calculation task means for receiving the lateral acceleration signal and the vehicle speed signal and for generating a first rear wheel steering angle (δ_r) signal representative of the rear wheel steering angle as a function of the lateral acceleration signal and the vehicle speed signal defined by the relationship

$$\delta_r=-(l_h/v^2+C_3)\cdot a_y$$

h) a hydraulic control means for receiving the first rear

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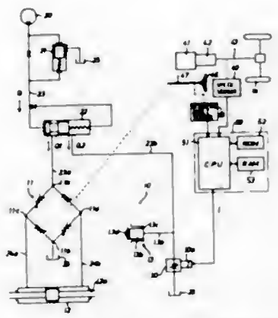
wheel steering angle signal and for controlling a valve-controlled adjusting means for adjusting the rear wheel steering angle of the rear wheels as a function of the first rear wheel steering angle signal.

5,208,752

CONTROL APPARATUS FOR POWER-ASSISTED STEERING SYSTEM

Kazumasa Kodama, Okazaki; Kunihiko Eto, Toyota; Hisashi Koba; Yuzo Kubota, both of Susono, and Kimio Yamaguchi, Gotenba, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Nov. 30, 1990, Ser. No. 620,003
Claims priority, application Japan, Dec. 1, 1989, 1-313950
Int. Cl.[5] B62D *6/02*
U.S. Cl. 364—424.05 4 Claims



1. A control apparatus for a power-assisted steering system in a wheeled vehicle including an input shaft operatively connected to a steering wheel, an output shaft arranged for relative rotation with said input shaft, a hydraulic power cylinder operatively connected to said output shaft and having opposite fluid chambers subdivided by a power piston mounted therein for reciprocating movement, a servo valve arranged to be operated by relative rotation of said input and output shafts for selectively directing the flow of fluid under pressure from a source of hydraulic pressure to one of said fluid chambers of said power cylinder and permitting the flow of fluid discharged from the other of said fluid chambers into a fluid reservoir, and an electrically operated control valve arranged to control hydraulic pressure for power assist in accordance with a control current applied thereto,

wherein the control apparatus comprises:

a first sensor for detecting a steering angle of said steering wheel and for producing a first output signal indicative of the steering angle;

a second sensor for detecting a travel speed of the vehicle and for producing a second output signal indicative of the vehicle travel speed;

means responsive to the first output signal from said first sensor for determining whether said steering wheel is being turned or is being returned to its neutral position from its steered position; and

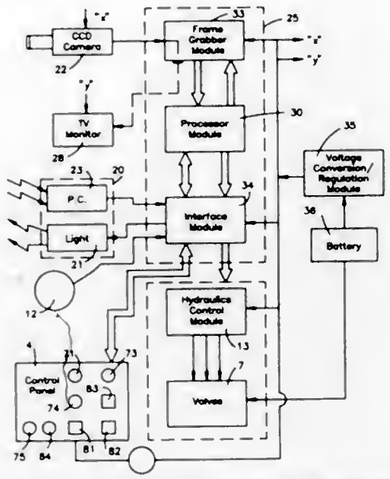
means responsive to the second output signal from said second sensor for controlling the value of said control current at a base current value when said steering wheel is being turned, and for controlling the value of said control current in such a manner that the hydraulic pressure for power assist is decreased as compared to the hydraulic pressure that defined by said base value when said steering wheel is returned during low speed travel of the vehicle and that the hydraulic pressure for power assist is increased as compared to the hydraulic pressure that defined by said base value when said steering wheel is returned during high speed travel of the vehicle.

5,208,753

FORKLIFT ALIGNMENT SYSTEM

Dallas W. Acuff, 507 Columbia Dr., Apt. L, Columbia, Mo. 56201

Filed Mar. 28, 1991, Ser. No. 676,525
Int. Cl.[5] B66F *9/06*; G06F *15/50*
U.S. Cl. 364—424.07 13 Claims



1. Apparatus for alignment of a forklift truck with a pallet including:

a control system having a processor including first and second storages, a scanner assembly, controls for movement of forks on said forklift truck, an operator control unit;

said first storage for storage of said pallet image when said pallet is in a selected ideal position with the forks of said forklift truck;

said second storage for storage of successive images obtained by the scanning of said pallet by said scanner assembly while said forks of said forklift truck are automatically moved by said controls;

said processor performing a compare function of said first and second storages as successive images are placed in said second storage;

said processor generating a signal when an equal compare condition is obtained;

said signal controlling said controls to stop movement of said forks;

said signal also indicating to said operator control unit that said forks of said forklift truck are in said selected ideal position to engage said pallet.

7. A method for calibrating a forklift control system to store the image of an ideal position of a pallet in relation to the forks of a forklift truck by the following steps:

a) moving said forklift truck to face said pallet at a distance of approximately 7 feet from the front of the forklift truck to the pallet;

b) viewing the pallet image on a display monitor connected to a camera on said forklift truck;

c) adjusting said forks and said forklift truck to be in a position that if the forklift truck were moved directly forward the forks would engage the pallet in an ideal manner as judged by a trained operator;

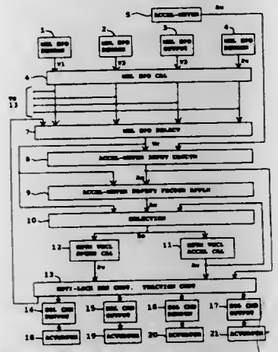
d) storing under control of a switch the pallet image shown on said display monitor which represents the ideal position into a video storage.

5,208,754

DEVICE FOR CALCULATING ESTIMATED VEHICLE ACCELERATION AND SPEED

Tohru Nakaura, and Koji Takata, both of Itami, Japan, assignors to Sumitomo Electric Industries Ltd., Osaka, Japan

Filed Jan. 14, 1992, Ser. No. 820,372
Claims priority, application Japan, Jan. 14, 1991, 3-002713
Int. Cl.[5] G01P *3/00*; B60K *23/00*
U.S. Cl. 364—426.01 22 Claims



1. A device for calculating estimated vehicle acceleration and speed of a vehicle having a gravity-type accelerometer, comprising:

means for detecting a wheel speed of at least one wheel of the vehicle at each calculation cycle;

means for calculating a representative speed Vr based on said wheel speed;

means for detecting a gravitationally detected acceleration Am by said gravity-type accelerometer;

means for correcting the gravitationally detected acceleration Am to produce a substiute acceleration as;

means for calculating an estimated vehicle acceleration Av and an estimated vehicle speed Vv based on said representative speed Vr;

means for calculating a subservient acceleration Az which constitutes a part of the equations for calculating said estimated vehicle acceleration and speed, Av and Vv;

means for selecting either one of said subservient acceleration Az and said substitute acceleration As based on a comparison between said subservient acceleration Az and said substitute acceleration As and for outputting said selected one of said subservient acceleration Az and said substitute acceleration As to be used in place of said part of the equations for calculating Av and Vv in said calculating means.

5,208,755

SYSTEM FOR CONTROLLING DISTRIBUTION OF TORQUE TO LEFT AND RIGHT WHEELS OF A MOTOR VEHICLE

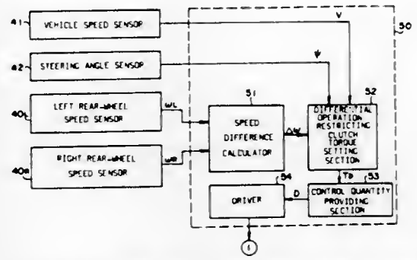
Kazunari Tezuka, Niiza, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 3, 1990, Ser. No. 563,436
Claims priority, application Japan, Aug. 31, 1989, 1-225250
Int. Cl.[5] B60K *17/348*
U.S. Cl. 364—426.03 4 Claims

1. A system for controlling a torque distribution to a left and a right wheel of a motor vehicle having a transmission, a differential for distributing an output torque of the transmission to said left and right wheels, and a fluid-operated restricting device for restricting a differential operation of said differential, the system comprising:

calculator means for calculating a speed difference between speeds of said left and said right wheels;

means for setting a restricting torque of said fluid-operated restricting device which increases with an increase of said speed difference and decreases with an increase in steering angle and with an increase in vehicle speed and for producing a restricting torque signal; and



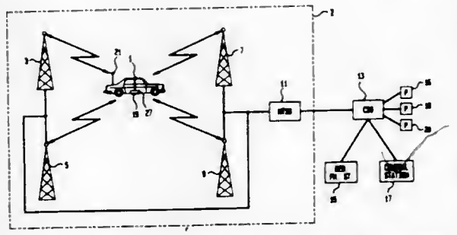
control means responsive to said restricting torque signal for operating said fluid-operated restricting device.

5,208,756

VEHICLE LOCATING AND NAVIGATING SYSTEM

Han L. Song, 6906 Hana Rd., Edison, N.J. 08817

Filed Jan. 28, 1991, Ser. No. 646,706
Int. Cl.[5] G01S *3/02*
U.S. Cl. 364—449 40 Claims



1. A system for determining a vehicle's location comprising:

(a) receiving means for receiving signals transmitted from a plurality of base stations of a cellular telephone network;

(b) first determining means for determining the received-power at which each of said signals is received;

(c) second determining means for determining the location of each of said base stations from which each of said signals is transmitted, the transmitting power at which each signal is transmitted, and the signal-attenuation factor of each signal;

(d) first calculating means for calculating the distance between said vehicle and each of said base stations as a function of the transmitting power, received-power, and signal-attenuation factor of each of said signals;

(e) second calculating means for calculating the vehicle-location of said vehicle as a function of said distances and the location of each of said base stations; and

(f) transmitting means for transmitting a signal identifying said vehicle-location.

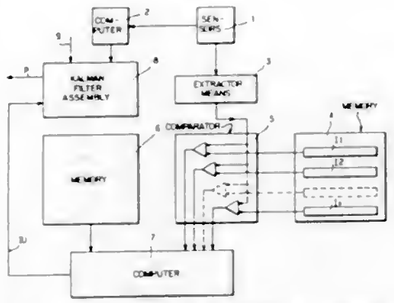
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,757

AIRBORNE SYSTEM FOR DETERMINING THE POSITION OF AN AERIAL VEHICLE AND ITS APPLICATIONS

Alain Appriou, Saclay; Jean Dezert, Malakoff, and Joseph Bensimon, L'Hay-les-Roses, all of France, assignors to Societe Anonyme dite: Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Jan. 11, 1991, Ser. No. 639,987
Claims priority, application France, Jan. 12, 1990, 90 0031
Int. Cl.[5] G06F *15/50*
U.S. Cl. 364—456 8 Claims



1. In an airborne system for determining the position of an aerial vehicle, of the type comprising sensitive means scanning the ground flown over, Kalman filter means, storage means containing the map of the ground to be flown over, means for comparison between the information delivered by said sensitive means and information from said storage means, as well as computing means delivering error information to said Kalman filter means,

the improvement wherein:

said storage means comprises a first memory containing the general characteristics of different types of discrete landmarks and a second memory containing the geographical position of such landmarks on the ground to be flown over; and

said system further comprises:

a device for extracting, from the signals delivered by said sensitive means, said general characteristics of said different types of discrete landmarks located on the ground being flown over; and

a device for computing, from the signals delivered by said sensitive means, the relative positions of said vehicle with respect to said recognized landmarks, which is sends to said Kalman filter means;

said comparison means comprising a first comparison device comparing the information from said extraction device with that contained in said first memory, as well as a second comparison device comparing the information from said first comparison device with that contained in said second memory.

5,208,758

UNBALANCE POINT CORRECTIVE METHOD AND APPARATUS

Hiromitsu Okumura, 241-2, Mihara-cho-Kuroyama, Minamikawachi-gun, Osaka, Japan

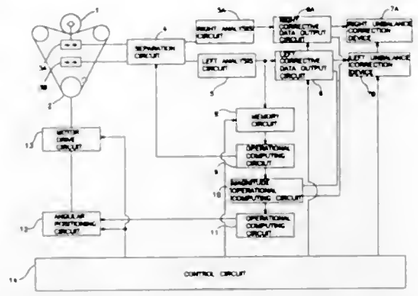
Filed Oct. 9, 1990, Ser. No. 594,781
Claims priority, application Japan, Oct. 6, 1989, 1-262679
Int. Cl.[5] G01M *1/22*
U.S. Cl. 364—463 7 Claims

1. An unbalance point corrective method characterized by the following steps:

an object to be measured is rotated and measured for its unbalance points;

based upon the result of which measurement a correction is made for said unbalance points to the measured object in accordance with preset corrective characteristics based upon the measurement result of the unbalance points;

said measured object is rotated and measured again for said



unbalance points which are corrected in accordance with said corrective characteristics based on the result of the second measurement;

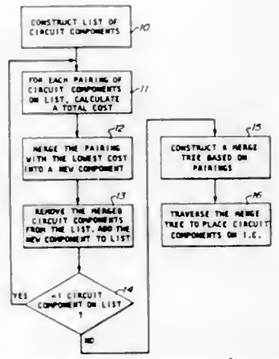
and subsequent corrections of said unbalance points are made in accordance with the corrective characteristics.

5,208,759

METHOD FOR PLACEMENT OF CIRCUIT COMPONENTS IN AN INTEGRATED CIRCUIT

Dale M. Wong, San Francisco, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Dec. 13, 1990, Ser. No. 626,816
Int. Cl.[5] G06F *15/46*
U.S. Cl. 364—468 17 Claims



1. A method for optimizing placement of circuit components on at least one integrated circuit, the method comprising the steps of:

(a) constructing a list of circuit components;

(b) while there is more than one circuit component on the list, determining an order for merging circuit components on the list, the determining including the following substeps:

(b1) for each pairing of circuit components on the list, calculating a total cost of the pairing, the total cost being calculated by

calculating the dead space resulting from the pairing,

estimating the total increase in routing area resulting from the pairing, and

adding the dead space to the total increase in routing area to obtain the total cost;

(b2) for a first pairing with a lowest total cost as calculated in step (b1),

merging first circuit components which form the first pairing into a new circuit component,

removing the first circuit components from the list, and

adding the new circuit component to the list; and,

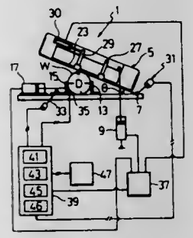
(c) based on the order for merging determined in step (b), placing the circuit components on the at least one integrated circuit.

5,208,760

METHOD AND DEVICE FOR RECOGNIZING CROSS SECTIONAL EXTERNAL FORM AND DIMENSIONS OF A WORKPIECE IN A BANDSAW MACHINE

Kikuo Moriya, Machida, Japan, assignor to Amada Company, Limited, Japan

Continuation-in-part of Ser. No. 352,889, May 17, 1989, abandoned. This application Feb. 1, 1991, Ser. No. 649,042
Claims priority, application Japan, May 17, 1988, 63-120052; Jun. 2, 1988, 63-134470
Int. Cl.[5] G06F *15/46*
U.S. Cl. 364—474.37 6 Claims



1. A method for recognizing the shape and dimensions of a workpiece which is to be cut by a band sawing machine having a saw blade and a movable vise for clamping the workpiece, and for preventing a misplaced workpiece from being cut, comprising the steps of:

(a) detecting the width D of the workpiece by measuring moved distance of the movable vise;

(b) measuring a parameter selected from the group consisting of a contact angle θ and a height H of the saw blade when the saw blade contacts the workpiece prior to starting cutting, by using a detector selected form the group consisting of an angle detector and a height detector;

(c) detecting whether a vertical side surface of the workpiece is present, by a contact sensor provided at a position selected from the group of positions consisting of positions of and along the vise;

(d) presuming the external form and dimensions of the workpiece from data including the width D, one of the contact angle θ and the height H, and whether a vertical side surface is present; and

(e) comparing the external form and dimensions of the workpiece with previously obtained values with respect to the workpiece to be cut;

(f) determining that the workpiece is misplaced if the external form and dimensions differ from the obtained values; and

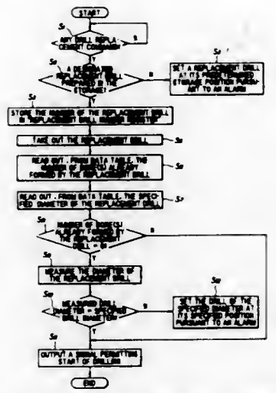
(g) stopping machining of the misspaced workpiece, thereby preventing it from being cut.

5,208,761

METHOD FOR THE DIAMETER CONFIRMATION OF DRILLS IN A PWB MACHINE

Norio Michigami, 2-202, 4-3 Higashinaruse, Isehara-shi, Kanagawa; Tamio Otani, 814-14, Tsurumaki, Hadano-shi, Kanagawa; Yasuhiko Kanaya, 4-16-35, Tamagawagakuen, Machida-shi, Tokyo, and Hiroyuki Kamata, Tejima-so 10, 2-38-3, Sagamigaoka, Zama-shi, Kanagawa, all of Japan

Filed Jan. 7, 1991, Ser. No. 637,789
Int. Cl.[5] G01B *7/12*
U.S. Cl. 364—474.21 1 Claim



1. A method for confirming the diameters of plural drills of different diameters in a PWB working machine in which the drills are interchangeably mounted to perform drilling, which comprises:

storing, with respect to each of the drills, data on whether or not the drill has yet been used;

checking the data of one of the drills upon drill replacement; and

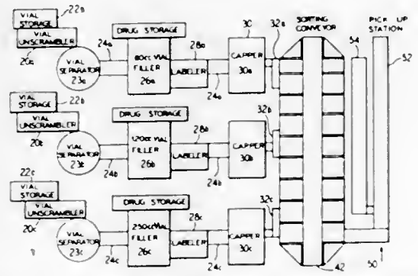
measuring the diameter of the drill only where the drill has not previously been used.

5,208,762

AUTOMATED PRESCRIPTION VIAL FILLING SYSTEM

Kenneth A. Charhut, Libertyville; Keith Goodale, Park City; Joseph Blechl, Ingleside, and Will Skou, Des Plaines, all of Ill., assignors to Baxter International Inc., Deerfield, Ill.

Filed Dec. 6, 1990, Ser. No. 622,991
Int. Cl.[5] G06F *15/42*
U.S. Cl. 364—478 15 Claims



1. A system for automatically filling prescriptions comprising:

means for receiving a patient's order, said order comprising

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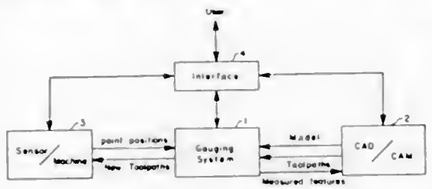
patient identification information and one or more prescriptions;
at least one prescription filling line including machines for automatically filling, labeling, and capping vials with drugs;
means for assigning one of said prescriptions to said prescription filling line for processing;
means for receiving vials from said filling line and for sorting said vials according to patient orders; and
means for collecting vials pertaining to one patient's order.

5,208,763

METHOD AND APPARATUS FOR DETERMINING POSITION AND ORIENTATION OF MECHANICAL OBJECTS

Jiawei Hong, and Xiaonan Tan, both of Brooklyn, N.Y., assignors to New York University, New York, N.Y.

Filed Sep. 14, 1990, Ser. No. 582,582
Int. Cl.[5] G01B *5/20;* **G06F** *15/46*
U.S. Cl. 364—551.02 **47 Claims**



1. For use in connection with a machine, said machine being a machine tool or an inspection system, a method for determining the position and orientation of a workpiece in relation to a known coordinate system in order to enable the machine tool to engage such workpiece accurately or to enable proper inspection of such workpiece by the inspection system, said machine tool or said inspection system employing a data processing system where numerical data corresponding to a model of such workpiece is stored, comprising the steps of:
measuring, by means of at least one sensor, coordinates of at least one reference point on the workpiece;
determining an approximate Euclidean transformation which indicates the position and orientation of such workpiece with respect to the model on the basis of said at least one reference point;
measuring, by means of at least one sensor, coordinates of a plurality of points on a plurality of surfaces of the workpieces such that the information regarding the correspondence between the measured points on the workpiece and virtual surfaces, represented by the model of the workpiece, is provided to the data processing system; and
improving the accuracy of the approximate transformation so as to obtain an improved Euclidean transformation which indicates the position and orientation of the workpiece with respect to the model, and in which the sum of the squared distances from the plurality of points of the workpiece to the corresponding virtual surfaces of the model is minimized,
wherein the step of improving the approximate transformation so as to obtain the improved Euclidean transformation comprises modifying the approximate transformation in accordance with a result of applying a transformation, which is not a Euclidian transformation, to the coordinates of the plurality of points measured on the plurality of surfaces of such workpiece or to the coordinates of the plurality of points which have been operated on by the approximate Euclidean transformation;
whereby the machine is controllable to engage or operate upon the workpiece with a tool, sensor or the like, on the basis of the improved transformation.

5,208,764

METHOD FOR OPTIMIZING AUTOMATIC PLACE AND ROUTE LAYOUT FOR FULL SCAN CIRCUITS

Stefan Rusu, Sunnyvale, and Joseph S. Yang, Freemont, both of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Oct. 29, 1990, Ser. No. 605,557
Int. Cl.[5] G06F *15/60*
U.S. Cl. 364—491 **10 Claims**



1. A method of placing circuit cells on an integrated circuit, said circuit cells comprising flip-flop circuits, buffers and combinatorial circuit elements and routing connections between those circuit cells, said method comprising the steps of:
receiving a schematic diagram of a block of said circuit cells to be placed and routed;
representing the flip-flop circuits, buffers and combinatorial circuit elements as a multiplicity of standard cells;
routing at least one conductor across the circuit cells representing the flip-flop circuits, said conductor transmitting at lest one global signal across the circuit cell;
terminating said conductor at input and output terminals on opposite sides of the circuit cells;
receiving at least one loading value table comprising standard load values representing the conductors of said flip-flop circuits;
placing the circuit cells so that all flip-flop circuits lie in rows with other flip-flop circuits, said rows having left and right ends;
computing buffer amplification values for said buffers from the standard load values in the loading tables by adding the standard values representing the flip-flop circuits placed in said rows to form a total flip-flip load;
placing on the integrated circuit said buffers at said left and right ends of said rows with said flip-flop circuits for driving the conductors according to the total flip-flop load computed to be driven; and,
updating said schematic by back-annotating said conductors and total flip-flop load into said schematic.

5,208,765

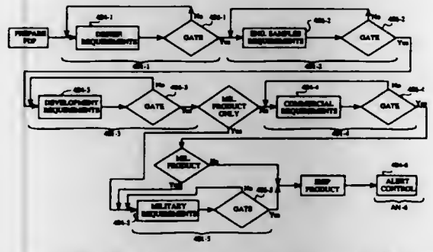
COMPUTER-BASED METHOD AND SYSTEM FOR PRODUCT DEVELOPMENT

Robert S. Turnbull, Sunnyvale, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jul. 20, 1990, Ser. No. 556,790
Int. Cl.[5] G06F *15/20*
U.S. Cl. 364—552 **39 Claims**

6. A system for monitoring product development comprising:

means for indicating at least one product development stage to depict the status of the development of a product;
means for providing for said at least one product development stage a set of requirements wherein the set of requirements defines the product development operations in the product development stage including engineering



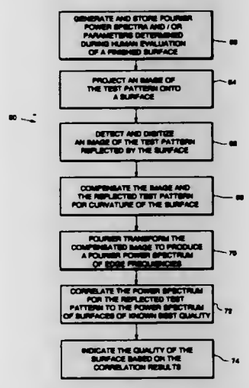
functions necessary for successful completion of any subsequent product development stages and sequencing of engineering functions to ensure a selected time to market for said product; and
means for associating with each requirement an indicium of the status of that requirement.

5,208,766

AUTOMATED EVALUATION OF PAINTED SURFACE QUALITY

David B. Chang, Tustin; I-Fu Shih, Los Alamitos, and Michael E. Stickney, El Toro, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Nov. 13, 1990, Ser. No. 611,597
Int. Cl.[5] G01N *21/55;* **G06F** *15/20*
U.S. Cl. 364—552 **22 Claims**



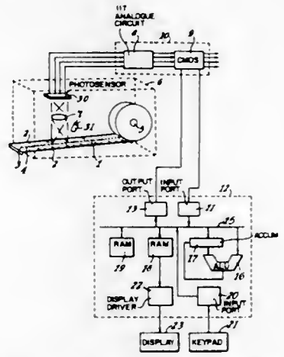
1. A method of automatically deriving a computer simulated human subjective judgment of the quality of a test surface comprising the steps of:
storing a Fourier power spectra of line edge parameters of a test pattern reflected from at least one standardized surface, said standardized surface having a value assigned thereto according to aesthetic human judgment, said test pattern having at least one line with well defined line edges, said test pattern extending over the gross morphology of said standardized surface;
projecting said test pattern onto said test surface;
detecting a reflected image of said test pattern;
generating a Fourier power spectra of said reflected image of said projected test pattern;
using said Fourier power spectra of said reflected image to provide a plurality of said line edge parameters relating to said reflected test pattern;
comparing said plurality of line edge parameters from said reflected test pattern from said test surface with said stored line edge parameters of said at least one standardized surface to determine the degree of correlation therewith; and
assigning a value of human esthetic judgment to said test surface according to the degree of correlation with said standardized surface so that human esthetic judgment of said test surface is machine simulated,
whereby automatic evaluation of said test surface substantially equivalent to human evaluation is obtained.

5,208,767

DISPLACEMENT MEASURING APPARATUS

Simon George-Kelso; Vinay Sajip; Jim Lindop, and Paul T. Ryan, all of Cambridge, United Kingdom, assignors to The Stanley Works, New Britain, Conn.

PCT No. PCT/US86/02557, § 371 Date Jan. 9, 1991, § 102(e) Date Jan. 9, 1991, PCT Pub. No. WO87/03361, PCT Pub. Date Jun. 4, 1987
PCT Filed Nov. 26, 1986, Ser. No. 92,911
Claims priority, application United Kingdom, Nov. 28, 1985, 8529360
Int. Cl.[5] G01B *3/10;* **G06F** *15/20*
U.S. Cl. 364—563 **9 Claims**



1. Displacement measuring apparatus comprising reading means and a member moveable relative to the reading means, said member carrying a position track defined by a sequence of alternative markings made in succession along the member,
the alternative markings recording different values in a pseudo-random sequence which is the result of repetitive operations on a seed consisting of a small number of elements and is at least a portion of a linear binary sequence obtained by clocking a feedback shift register, the sequence having the property that a group of successive markings of length at least equal to that of the seed occurs at a single position in the sequence so that a succession of markings read from the track and of length at least equal to the seed defines an absolute position of the reading means and the member;
said reading means having at least three sensors arranged to respond to different locations within each marking with the pattern of the markings and the location of the sensors arranged so that only a single sensor changes state each time that the member moves through an interval of displacement relatively to the sensing means, the states occurring consecutively in alternative sequences along the

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member that are recognizable by decoding logic fed with successive states as a logical value corresponding to one of the alternative markings depending upon which sequence has been followed, said decoding logic comprising:

first shift register means having a length at least equal to the seed through which logical values are clocked, said values corresponding to successive markings recognized by the reading means,

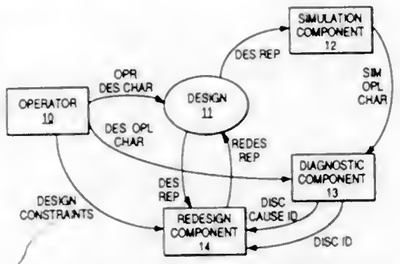
second shift register means for reproducing the pseudo-random sequence when the register means are clocked; and comparator means for detecting a relationship in the states of the first and second shift register means.

5,208,768

EXPERT SYSTEM INCLUDING ARRANGEMENT FOR ACQUIRING REDESIGN KNOWLEDGE

Evangelos Simoudis, Marlboro, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 270,893, Nov. 14, 1988, abandoned.
This application Jul. 30, 1991, Ser. No. 737,845
Int. Cl.[5] G06F *15/20*
U.S. Cl. 364—578 **22 Claims**



1. A data processing expert system including a memory for storing an original design of a complex system including a plurality of operations performed by said original design of said complex system, and for storing at least one desired operation, and a plurality of redesign modules, said expert system performing a redesign in connection with the original design, the expert system comprising:

A. a diagnostic component that identifies a discrepancy between the stored operations of the original design and the stored desired operation;

B. a redesign component, coupled to the diagnostic component, for generating a redesign in accordance with the plurality of redesign modules, the original design, and the identified discrepancy; and

C. a redesign generation component, coupled to the redesign component, that generates a new redesign module in response to the identified discrepancy and adds said new redesign module to said plurality of redesign modules, the new redesign module thereafter being used by the redesign component.

5,208,769

UNSIGNED INTEGER MULTIPLY/DIVIDE CIRCUIT

Babu S. Mandava, Campbell, Calif., assignor to Zilog, Inc., Campbell, Calif.

Filed Sep. 19, 1991, Ser. No. 762,593
Int. Cl.[5] G06F *7/52*
U.S. Cl. 364—766 **3 Claims**

1. A circuit for conducting integer division, comprising:

a first register having a plurality of bit locations including a first and second portion;

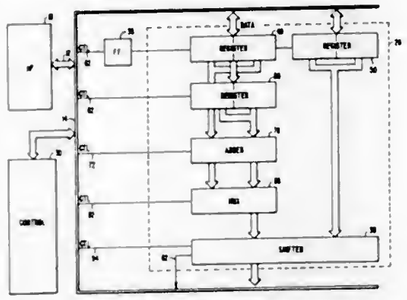
a second register having a plurality of bit locations equal in number to said first portion of said first register;

means for subtracting the contents of said second register from the contents of said first portion of said first register to generate a difference and a carry-out bit;

a flip-flop;

logical OR means connected to said subtracting means and said flip-flop, for logically ORing said carry-out bit and the contents of said flip-flop and generating a multiplexer selection signal in response thereof;

multiplexer means for receiving as inputs, the contents of said first portion of said first register, said difference from said subtracting means, and said multiplexer selection signal, and generating as outputs in response thereof, either the contents of said first portion of said first register or said difference from said subtracting means, the selection of which being determined by the logic level of said multiplexer selection signal;



a shifter having a first set of inputs for receiving said multiplexer outputs, a second set of inputs for receiving the contents of said second portion of said first register, and a carry-in input for receiving said multiplexer selection signal, and a set of outputs generated by shifting said first and second set of inputs each one bit location to the left with said carry-in input being shifted into a least significant bit location of said output and said most significant bit of said first set of inputs being a shifted out bit;

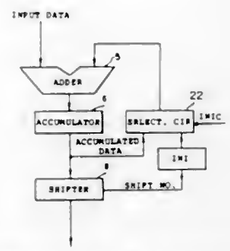
means for storing said outputs of said shifter into the contents of said first register and said shifted out bit into said flip-flop.

5,208,770

ACCUMULATION CIRCUIT HAVING A ROUND-OFF FUNCTION

Akira Ito, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 530,328, May 30, 1990, abandoned.
This application Jan. 24, 1992, Ser. No. 825,407
Claims priority, application Japan, May 30, 1989, 1-136514
Int. Cl.[5] G06F *7/50*
U.S. Cl. 364—768 **13 Claims**



1. An accumulation circuit for accumulating input data, comprising:

an accumulator storing accumulated data using accumulation cycles;

a selection circuit, operatively connected to said accumulator, and selectively outputting one of the accumulated data and an initial value, said selection circuit selecting the initial value when an initialization signal is input thereto during a first accumulation cycle to produce an output;

an adder, operatively connected to said accumulator and said selection circuit, for summing the input data and the output of said selection circuit, and outputting a result to said accumulator; and

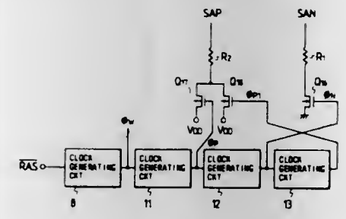
a shifter, operatively connected to said accumulator, shifting-right bit positions of the accumulated data by a predetermined shift number, input to said shifter, for rounding off the accumulated data to obtain rounded-off data, the initial value representing the predetermined shift number and having logic "1" in a ½ LSB position of the rounded-off data and logic "0" in all bit positions other than the ½ LSB position.

5,208,771

SEMICONDUCTOR MEMORY APPARATUS

Michiharu Shikata, Kusatsu, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

Filed Oct. 30, 1990, Ser. No. 605,314
Claims priority, application Japan, Oct. 30, 1989, 1-283280
Int. Cl.[5] G11C *7/06*
U.S. Cl. 365—154 **1 Claim**



1. A semiconductor memory apparatus comprising a plurality of sense amplifier circuits arrayed in parallel, each sense amplifier circuit including:

first and second data lines respectively connected in parallel to a plurality of memory cells;

a first flip-flop formed of first and second n-channel metal insulation semiconductor field effect transistors with the source electrodes thereof connected in common, with the gate electrodes and drain electrodes thereof mutually cross-coupled, and with the drain electrodes thereof respectively connected to the first and second data lines;

a second flip-flop formed of first and second p-channel metal insulation semiconductor field effect transistors with the source electrodes thereof connected in common, the gate electrodes and drain electrodes thereof mutually cross-coupled, and with the drain electrodes thereof respectively connected to the first and second data lines, the source electrodes of the first flip-flops of the plurality of sense amplifier circuits being mutually connected as a first common connection node, and the source electrodes of the second flip-flops of the plurality of sense amplifier circuits being mutually connected as a second common connection node;

a first switching transistor coupled between the second common connection node and a first potential of a power source;

a second switching transistor coupled between the first common connection node and a second potential of the power source;

a third switching transistor coupled between the second common connection node and the first potential of the power source; and

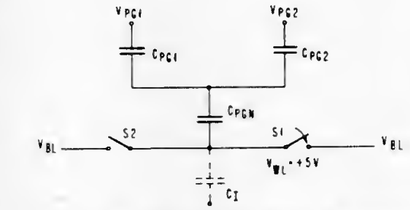
operation timing means operable for initiating a read operation of the semiconductor memory apparatus, including means for consecutively setting the first switching transistor into a conducting condition at a first predetermined time point, the second switching transistor into a conducting condition at a second predetermined time point subsequent to the first time point, and the third switching transistor into a conducting condition at a third predetermined time point subsequent to the second time point.

5,208,772

GATE EEPROM CELL

Jeffrey P. Kasold, San Jose, Calif., and Chung H. Lam, Troy, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 655,175, Sep. 27, 1984, abandoned. This application May 28, 1986, Ser. No. 869,469
Int. Cl.[5] B11C *16/04*
U.S. Cl. 365—185 **14 Claims**



1. A non-volatile semiconductor storage cell formed on a semiconductor substrate, the cell having an overwrite capability such that successive first and second logic states may be overwritten into the cell without intervening erase cycles, comprising:

a first surface region defined on said substrate, said first surface region having a conductive state indicative of a logic state stored by the cell;

a first diffusion region formed in said substrate adjacent said first surface region, said first diffusion region being biased at approximately 0 volts to set said first surface region at a first conductive state indicative of a first logic state when writing said first logic state into the cell, and being biased at not more than approximately five volts to set said first surface region at a second conductive state indicative of said second logic state when writing said second logic state into the cell,

a floating gate electrode disposed above and insulated from said substrate, said floating gate electrode at least partially determining the conductive state of said first surface region; and

first and second program gates disposed on said floating gate electrode,

each of said first and second program gates receiving independent control signals, such that said first program gate removes charge from said floating gate electrode to write said first logic state into the cell only when said cell does not currently store said first logic state, or said second program gate injects charge into said floating gate electrode to write said second logic state into the cell only when said cell does not currently store said second logic state, when said first surface region is at said first and second conductive states, respectively, said program gates overwriting successive logic states into the cell.

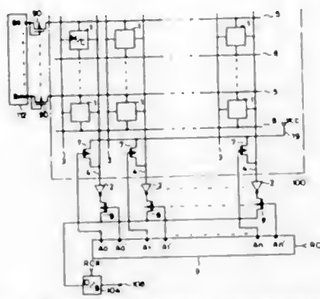
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,773

SEMICONDUCTOR MEMORY DEVICE HAVING BIT LINES AND WORD LINES DIFFERENT IN DATA READING AND DATA WRITING

Takenori Okitaka; Yasunori Maeda, and Yukio Miyazaki, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 13, 1991, Ser. No. 669,437
Claims priority, application Japan, Mar. 20, 1990, 2-70837
Int. Cl.[5] G11C *13/00*
U.S. Cl. 365—189.04 30 Claims



24. A serial access semiconductor memory device comprising:

a plurality of memory cells (1) arranged in a matrix of rows and columns,

a writing word line (5) corresponding to each row of memory cells (1) and a writing bit line (3) corresponding to each column of memory cells (1) for selectively writing information to said memory cells (1);

a reading word line (6) corresponding to each row of memory cells (1) and a reading bit line (4) corresponding to each column of memory cells (1) for selectively reading information from said memory cells (1),

each memory cell (1) comprising a writing transistor (14), a storage capacitor (17), a storage transistor (15) and a reading transistor (16),

selecting means (9) for sequentially selecting one of said reading bit lines (4) for a predetermined time period,

precharging means (7) corresponding to each of said reading bit lines (4) for precharging said bit lines (4),

first activating means (9) for activating the precharging means (7) corresponding to the selected bit line for a predetermined portion of said predetermined time period,

switching means (8) connected to said bit lines (4) for extracting the potential on said corresponding reading bit line (4), and

second activating means (9) for activating said switching means (8) during said predetermined time period and subsequent to said predetermined portion.

5,208,774

SEMICONDUCTOR MEMORY DEVICE WITH LOW POWER CONSUMPTION OUTPUT DATA SELECTOR

Yasuo Shibue, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 30, 1991, Ser. No. 767,717
Claims priority, application Japan, Sep. 30, 1990, 2-263668
Int. Cl.[5] G11C *13/00*
U.S. Cl. 365—189.08 7 Claims

6. A random access memory device fabricated on a single semiconductor chip and having at least a write-in phase and a read-out phase of operation, comprising:

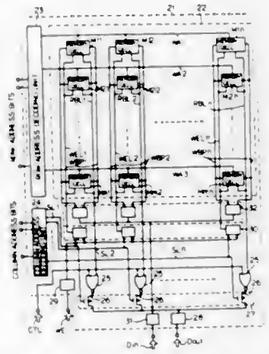
a) a plurality of word lines one of which is shifted to an active level on the basis of row address bits;

b) a plurality of write-in bit line pairs;

c) a plurality of read-out bit lines;

d) a plurality of write enable signal lines;

e) a plurality of memory cells arranged in rows and columns, the rows of said plurality of word lines being respectively associated with said word lines, the columns of said plurality of memory cells being associated with said plurality of read-out bit lines, said plurality of write-in bit line pairs and said plurality of write enable signal lines, each of said plurality of memory cells having a flip flop circuit having a pair of memory nodes for memorizing a data bit in the form of a difference in voltage level, a first pair of transfer transistors respectively coupled with said pair of memory nodes and gated by the associated word line, a second pair of transfer transistors coupled between said first pair of transfer transistors and the associated write-in bit line pair and gated by the associated write enable signal line, a first inverting circuit coupled at the input node thereof with



one of said pair of memory nodes for producing the complementary bit of said data bit memorized in said flip flop circuit, and a first transistor coupled between said first inverting circuit and the associated read-out bit line and gated by said associated word line;

f) a plurality of series combinations of complementary inverting circuits and third transistors each coupled between first and second sources of power voltage levels, said complementary inverting circuits being controlled by said read-out bit lines, respectively, said third transistors selectively shifted between on-state and off-state depending upon column address bits; and

g) a column selecting circuit having a plurality of fourth transistors coupled between the associated output nodes of said complementary inverting circuits and an output data unit, each of said fourth transistors being selectively shifted to the same state as the associated third transistor depending upon said column address bits.

5,208,775

DUAL-PORT MEMORY DEVICE

Jang-Kyu Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Sep. 7, 1990, Ser. No. 578,945
Int. Cl.[5] G11C *29/00*
U.S. Cl. 365—200 2 Claims

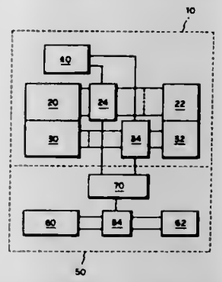
1. A dual-port memory for split data transfer comprising:

a first normal memory means comprising a first RAM (Random Access Memory), a first SAM (Serial Access Memory), and a first transfer gate connected for memory data transfer between said first RAM and said first SAM when said first transfer gate is turned on;

a second memory means comprising a second RAM, a second SAM, and a second transfer gate for memory data transfer between said second RAM and said second SAM when said second transfer gate is turned on;

a transfer memory signal generator for providing first and second transfer signals to said first and second transfer gates, respectively, for turning on said first transfer gate while turning off said second transfer gate, and vice-versa, in response to a preselected characteristic of a first address signal (CAm) applied to said memory; and

a redundant memory comprising a redundant RAM, a redundant SAM, a redundant transfer gate connected for



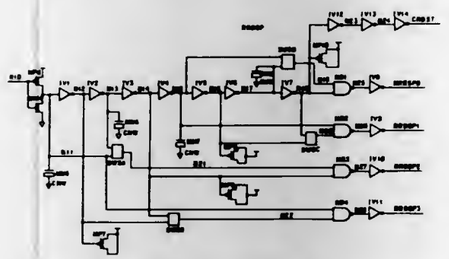
memory data transfer between said redundant RAM and said redundant SAM when said redundant transfer gate is turned on, and a redundant transfer signal generator for selecting one of said first and second transfer signals in response to said preselected characteristic of said first address signal and in response to a redundant enable signal (RE) indicative of the presence of a defect in one of said first and second memory means for turning on said redundant transfer gate and substituting said redundant memory for said one of said first and second normal memory means in which said defect occurs.

5,208,776

PULSE GENERATION CIRCUIT

Takumi Nasu, Dallas, and Hugh P. McAdams, Houston, both of Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex.

Filed Jul. 31, 1990, Ser. No. 560,962
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—200 8 Claims



1. A pulse generation circuit comprising:

a serially connected chain of delay elements, the first delay element for receiving an input pulse; and

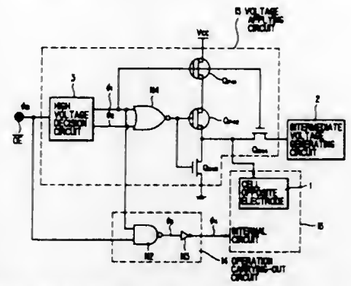
a plurality of logic gates, each logic gate having one input coupled to an output of a delay element in the chain another input coupled to the output of the next delay element in the chain such that when the input pulse is received, the outputs of the logic gates form a plurality of non-overlapping pulses.

5,208,777

SEMICONDUCTOR MEMORY DEVICE

Kazuo Shibata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 2, 1991, Ser. No. 801,375
Claims priority, application Japan, Nov. 30, 1990, 2-340104
Int. Cl.[5] G11C *29/00*
U.S. Cl. 365—201 4 Claims



1. A semiconductor memory device, comprising:

capacitive memory cells each having first and second electrodes for sandwiching a dielectric member therebetween, said first electrode accumulating a bit of stored information, and said second electrode being fixed by a predetermined voltage in ordinary "write" and "read" operation;

a voltage applying circuit for applying a volt selected from a power supply voltage of "Vcc", an intermediate voltage of "½ Vcc" and a voltage of ground level to said second electrode in test operation by receiving a test mode instruction signal; and

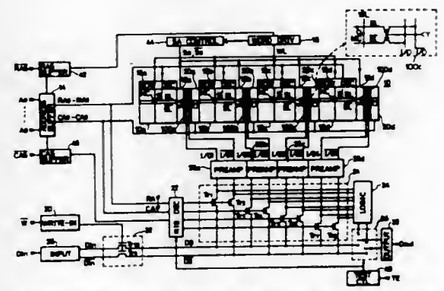
an operation carrying-out circuit for carrying out said ordinary "write" and "read" operation during said test operation, said operation carrying-out circuit converting said test mode instruction signal to an instruction signal of said ordinary "write" and "read" operation.

5,208,778

DYNAMIC-TYPE SEMICONDUCTOR MEMORY DEVICE OPERABLE IN TEST MODE AND METHOD OF TESTING FUNCTIONS THEREOF

Masaki Kumanoya; Katsumi Dosaka; Yasuhiro Konishi; Takahiro Komatsu, and Yoshinori Inoue, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 432,837, Nov. 7, 1989, abandoned. This application Jul. 30, 1991, Ser. No. 739,736
Claims priority, application Japan, Nov. 16, 1988, 63-290705
Int. Cl.[5] G11C *5/06, 29/00*
U.S. Cl. 365—201 20 Claims



7. A connection arrangement as recited in claim 6, wherein

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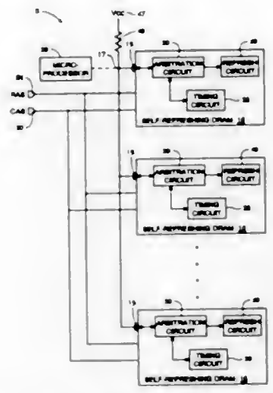
a set of input/output lines are used for both input and output of data to said memory cells and said reversed input connection and said reversed output connections comprise a single reversed connection of said set of input/output lines to a cell of said group of memory cells.

5,208,779

CIRCUIT FOR PROVIDING SYNCHRONOUS REFRESH CYCLES IN SELF-REFRESHING INTERRUPTABLE DRAMS

Terry R. Walther, and Scott E. Schaefer, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Apr. 15, 1991, Ser. No. 685,576
Int. Cl.[5] G11C 7/00
U.S. Cl. 365—222 40 Claims



1. A memory bank having a plurality of random access memories, comprising:
a) an internal refresh circuit for each of said random access memories, each said internal refresh circuit, when actuated, providing memory preservation to at least one of said random access memories;
b) a bi-directional external refresh pin for each of said random access memories, each of said bi-directional external refresh pins capable of receiving a refresh message and said refresh message generated by one of said random access memories;
c) a common node in electrical communication with each of said bi-directional external refresh pins; and
d) said random access memories interacting one with the other through said common node such that when one of said random access memories generates said refresh message all of said plurality of random access memories are refreshed in response to said refresh message.

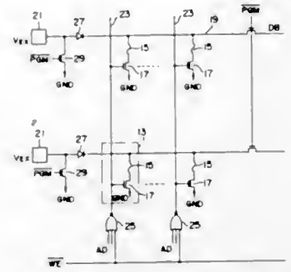
5,208,780

STRUCTURE OF ELECTRICALLY PROGRAMMABLE READ-ONLY MEMORY CELLS AND REDUNDANCY SIGNATURE THEREFOR

Taira Iwase, Kawasaki; Makoto Takizawa, Yokohama; Shigefumi Isbiguro, Chigasaki, and Kazuhiko Nobori, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 17, 1991, Ser. No. 731,467
Claims priority, application Japan, Jul. 17, 1990, 2-188447; Jul. 17, 1990, 2-188451
Int. Cl.[5] G11C 17/16
U.S. Cl. 365—225.7 3 Claims

1. An electrically programmable read-only semiconductor memory device, comprising:
a memory cell including a series-connected element composed of a combination writing and reading transistor and a fuse;
a high-voltage applying pad adapted to be applied with a high voltage to blow out the fuse when a data is written in the memory cell;
a bit line connected to the series connected element of the memory cell and used in common for both a line for



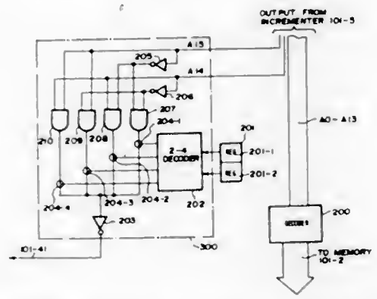
applying the high voltage applied to said high-voltage applying pad to the series-connected element and a line for reading the data written in the memory cell; and
connecting/isolating means interposed between said bit line and said high-voltage applying pad, for electrically connecting both when the data is written and electrically isolating both when the data is read.

5,208,781

MEMORY DEVICE WITH STANDBY FUNCTION

Osamu Matsushima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 22, 1991, Ser. No. 704,157
Claims priority, application Japan, May 22, 1990, 2-131814
Int. Cl.[5] G11C 8/02
U.S. Cl. 365—230.01 5 Claims



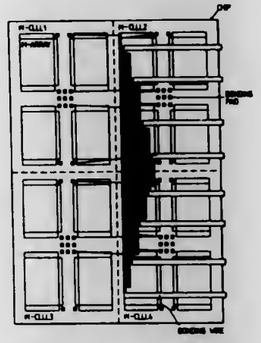
1. A memory device in which a memory means, an address means having an increment means and an address decoding means are installed on the same semiconductor substrate, said address decoding means comprising:
a mapping means which assigns said memory means to a predetermined address; and
a standby means which detects whether said address means is specifying an address assigned by said mapping means and which outputs a standby signal to set said memory device to a standby state of low power consumption when said standby means does not detect said address means specifying said address assigned by said mapping means.

5,208,782

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING A PLURALITY OF MEMORY BLOCKS AND A LEAD ON CHIP (LOC) ARRANGEMENT

Toshiyuki Sakuta; Masamichi Ishihara, both of Hamura; Kazuyuki Miyazawa, Iruma; Masanori Tazunoki, Hamura; Hidetoshi Iwai; Hisashi Nakamura, both of Shin; Yasushi Takahashi, Tachikawa; Toshio Maeda, Ohme; Hiromi Matsuura, Tokorozawa; Ryoichi Hori, Hinode; Toshio Sasaki, Hachioji; Osamu Sakai, Kodaira; Hiroyuki Uchiyama, Fucbuu; Eiji Miyamoto; Kazuyoshi Oshima, both of Ohme, and Yasuhiro Kasama, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo and Hitachi Vlsi Engineering Corp., Kodaira, both of Japan

Continuation of Ser. No. 478,541, Feb. 9, 1990, abandoned. This application May 29, 1992, Ser. No. 892,708
Claims priority, application Japan, Feb. 9, 1989, 1-30196; Mar. 20, 1989, 1-65839
Int. Cl.[5] G11C 5/06
U.S. Cl. 365—230.03 28 Claims



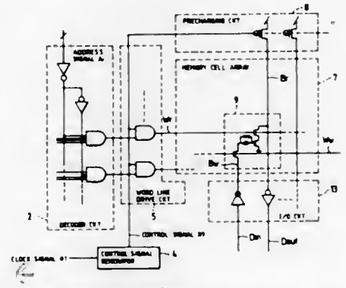
1. A semiconductor integrated circuit device comprising:
a first memory block formed in a main surface of a semiconductor chip, which includes a first memory array having memory cells arranged in a matrix form, a first address decoder coupled to said first memory array and a first data input/output circuit coupled to said first memory array;
a second memory block formed in said main surface of said semiconductor chip, which includes a second memory array having memory cells arranged in a matrix form, a second address decoder coupled to said second memory array and a second data input/output circuit coupled to said second memory array;
a first external terminal formed in said main surface of said semiconductor chip, to provide an external connection point for internal elements of said first memory block, said first external terminal being formed to be closer to the first memory block than to the closet peripheral edge of the semiconductor chip to shorten the connection distance between the first external terminal and the first memory block;
a second external terminal formed in said main surface of said semiconductor chip, to provide an external connection point for internal elements of said second memory block, said second external terminal being formed to be closer to the second memory block than to the closest peripheral edge of the semiconductor to shorten the connection distance between the second external terminal and the second memory block;
a lead attached on said main surface of said semiconductor chip via an insulator;
a first bonding wire for coupling said lead and said first external terminal; and
a second bonding wire for coupling said lead and said second external terminal,
wherein said lead crosses a peripheral edge of the chip to extend from outside of said chip to the interior of said chip, wherein said lead has a first end located over the interior of said chip, and wherein at least one of said first and second bonding wires extends from a portion of said lead located over the interior of said chip, other than the first end of said lead, to shorten the distance for the connection between the lead and the corresponding first or second external terminal.

5,208,783

MEMORY UNIT DELAY-COMPENSATING CIRCUIT

Kazuki Ninomiya, and Seiji Yamaguchi, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

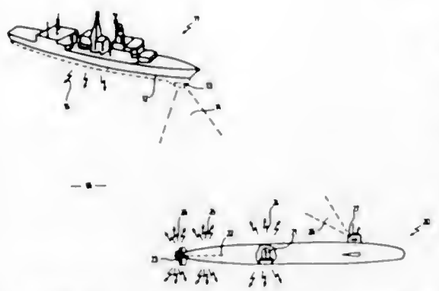
Continuation of Ser. No. 331,784, Apr. 3, 1989, Pat. No. 5,054,002. This application Apr. 15, 1991, Ser. No. 684,735
Claims priority, application Japan, Apr. 5, 1988, 63-83305
The portion of the term of this patent subsequent to Oct. 1, 2008, has been disclaimed.
Int. Cl.[5] G11G 7/04
U.S. Cl. 365—233 28 Claims



1. A memory unit comprising:
an array of memory cells which has a capacity of n-words by m-bits where the characters "m" and "n" denote preset natural numbers;
word lines connected to the memory cells;
bit lines connected to the memory cells;
a decoder receiving an address signal at a timing which follows a timing of an occurrence of a clock signal by a given time t1, the address signal being in synchronism with the clock signal and having k-bits where the character "k" denotes a preset natural number which satisfies a relationship as "$2^k \geqq n$", the clock signal having a preset period t0, the decoder decoding the address signal into a word signal and outputting the word signal at a timing which follows a timing of the reception of the address signal by a given time t2;
delaying means for delaying the clock signal by a preset time "t" and thereby converting the clock signal into a control signal;
means for performing an access to a word of the memory cells via one of the word lines in accordance with the word signal at a timing determined by the control signal; and
means for precharging the bit lines at a timing determined by the control signal;
wherein the preset time "t" is longer than a sum of the times t1 and t2 but shorter than a half of the period t0, and wherein the delaying means includes a delay causing component substantially identical in structure to a part of the decoder causing variation in the time t2, thereby to adjust the time "t" to compensate for the variation of the time t2.

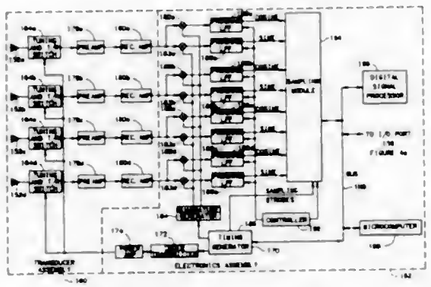
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,784
METHOD FOR INFLUENCING AN ACOUSTIC SOURCE, IN PARTICULAR OF A SUBMERGED SUBMARINE, AND SUBMARINE
Günther Laukien, Silberstreifen, D-7512 Rheinstetten-Forchheim, Fed. Rep. of Germany
Filed Nov. 15, 1990, Ser. No. 614,300
Claims priority, application Fed. Rep. of Germany, Mar. 16, 1989, 3908578; PCT Int'l Appl., Mar. 16, 1990, PCT/DE90/00197
Int. Cl.[5] H04K *3/00*
U.S. Cl. 367—1 31 Claims



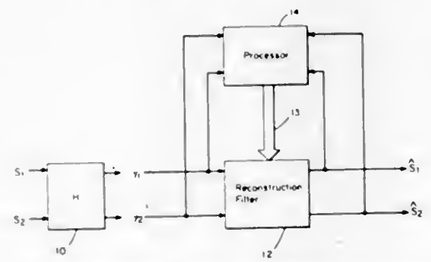
1. Submarine with sound-emitting mechanical elements (21, 22, 23) and means to camouflage emitted acoustic signals (S), characterized in that means are provided to influence said mechanical elements (21, 22, 23) in such a way that a first frequency spectrum (33) emitted by the mechanical elements (21, 22, 23) is modulated.

5,208,785
BROADBAND ACOUSTIC DOPPLER CURRENT PROFILER
Blair H. Brumley, San Diego; Kent L. Deines, Poway; Ramon G. Cabrera, San Diego, all of Calif., and Eugene A. Terray, Woods Hole, Mass., assignors to Rowe, Deines Instruments Incorporated, San Diego, Calif.
Continuation of Ser. No. 588,469, Sep. 26, 1990, abandoned. This application Mar. 13, 1992, Ser. No. 851,269
Int. Cl.[5] G01J *15/58*
U.S. Cl. 367—90 36 Claims



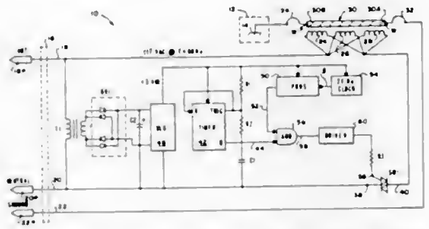
1. A velocity measuring system, comprising:
a transmitting transducer for producing a beam pointing in a direction along which a phase change is measured;
pulse transmission means for providing a pulse train to the transmitting transducer, the pulse train comprising at least first and second emitted pulses having a predetermined pulse separation;
means for complex sampling in echo return of the emitted pulses received by a receiving transducer so as to provide a first set of complex samples;
means for displaying the first set of complex samples by a selected time lag thereby producing a second set of complex samples;
means for computing a measured value of complex correlation using at least a portion of the first set of complex samples and at least a portion of the second set of samples; and
means for obtaining a velocity measurement based on a Doppler frequency calculated from the complex correlation.

5,208,786
MULTI-CHANNEL SIGNAL SEPARATION
Ehud Weinstein, Ramat-gam; Meir Feder, Herzliya, both of Israel, and Alan V. Oppenheim, Lexington, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
Filed Aug. 28, 1991, Ser. No. 750,917
Int. Cl.[5] G01S *15/00*
U.S. Cl. 367—124 44 Claims



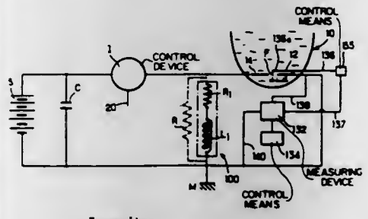
1. A signal processing system comprising:
a plurality of detectors for detecting source signals subjected to a generating system transfer function;
a processor for receiving the detected signals and producing a reconstruction filter for filtering the detected signal to produce reconstructed source signals, the reconstruction filter being produced such that correlation between reconstructed source signals is forced to approach zero even when each detector receives source signals from plural sources; and
said reconstruction filter for receiving the detected signals to generate a reconstruction of the various source signals without interference from any of the other source signals.

5,208,787
RODENT CONTROL BY SOUND WAVES
Gerald C. Shirley, P.O. Box 1101, Osage Beach, Mo. 65065
Filed Jan. 7, 1992, Ser. No. 818,642
Int. Cl.[5] H04B *11/00*
U.S. Cl. 367—139 11 Claims



1. Apparatus for repelling rodents from a building having an AC wiring power distribution system including a hot conductor, a neutral conductor and a ground conductor electrically connected to a common AC service receptacle of the type having jacks for receiving plug prongs, said apparatus comprising:
a housing;
at least one coil in said housing operable to generate sound waves offensive to rodents when alternately energized and deenergized by an alternating electromagnetic field at a predetermined frequency;
a plug adapted to be received by the receptacle, said plug having a first pair of prongs for establishing electrical connection with the hot and neutral power conductors and a ground prong for establishing electrical connection with the ground conductor when the plug prongs are inserted into the AC service receptacle jacks;
an electrical circuit connected between the hot and neutral prongs, said circuit including said coil therein and operable to effect energization of the coil when said plug is inserted into an active AC service receptacle and said circuit is completed;
frequency control means for alternately completing and interrupting said circuit at a predetermined frequency;
an elongated bar disposed within said coil, said elongated bar having first and second end portions; and,
a first wiring conductor having a first end portion attached to the first end portion of said bar and having a second end portion attached to one of the prongs of said plug.

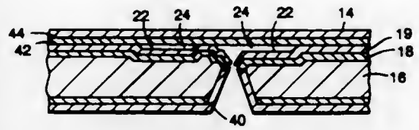
5,208,788
DISCHARGE CIRCUIT, AND USE THEREOF IN A METHOD AND IN APPARATUS FOR DETECTING AND CORRECTING THE POSITIONS OF ELECTRODES, IN PARTICULAR AS USED IN APPARATUSES FOR GENERATING PRESSURE WAVES
Paul Dancer, Saint Etienne, and Maurice Bourlion, Saint Chamond, both of France, assignors to Technomed International, Paris, France
Filed Jul. 15, 1991, Ser. No. 729,710
Claims priority, application France, Jul. 16, 1990, 90 09052
Int. Cl.[5] G01V *1/00;* A61B *17/22*
U.S. Cl. 367—147 13 Claims



Invention

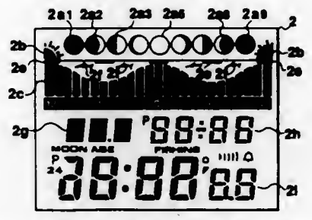
1. An electrical discharge circuit for providing a discharge between two discharge electrodes immersed in a liquid comprising means for intermittently connecting a voltage source across said two electrodes, and a non-mechanical electronic switch connected in parallel with said electrodes, said switch presenting a low impedance approximating a short circuit condition for low frequency currents approximating a direct current, and said switch presenting a high impedance approximating an open circuit condition for higher frequencies including during discharge.

5,208,789
CONDENSER MICROPHONES BASED ON SILICON WITH HUMIDITY RESISTANT SURFACE TREATMENT
Chung H. Ling, Singapore, Singapore, assignor to Lectret S. A., Geneva, Switzerland
Filed Apr. 13, 1992, Ser. No. 867,993
Int. Cl.[5] H04R *19/00*
U.S. Cl. 367—181 12 Claims



1. A condenser microphone element comprising
a backplate including a silicon core and a dielectric layer thereon, said dielectric layer including a layer of silicon dioxide on said silicon core and a layer of tantalum pentoxide on said silicon dioxide layer to protect said silicon dioxide layer from humidity, said dielectric layer having a surface exposed to an air cavity, with said surface spaced from a movable electrode, wherein said movable electrode is a diaphragm of a microphone.

5,208,790
ASTRONOMICAL DATA INDICATING DEVICE
Hiroshi Sato, Fussa, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 682,849, Apr. 4, 1991, abandoned, which is a continuation of Ser. No. 528,947, May 24, 1990, abandoned. This application Apr. 30, 1992, Ser. No. 879,153
Claims priority, application Japan, May 29, 1989, 1-62190; May 29, 1989, 1-135084; May 29, 1989, 1-135085; May 29, 1989, 1-135094; May 29, 1989, 1-135095; May 29, 1989, 1-135096
Int. Cl.[5] G04B *19/26*
U.S. Cl. 368—15 19 Claims



1. A device for providing a forecasted catch size of a certain animal at a given time, comprising:
location data means for providing location data representing a specified location on the earth;
time data means for providing time data including time of day data and data data at said specified location;
hour angle data calculation means for calculating hour angle data of the moon at the specified location based on said location data and said time data;
moon data means for providing moon data based on said time data;
means for converting said hour angle data and said moon data to an output signal corresponding to a forecasted catch size of the certain animal; and
a display including a first indicating portion for said time data, and a second indicating portion having means responsive to said output signal of the converting means for providing a visual indication of the forecasted catch size corresponding to said time data.

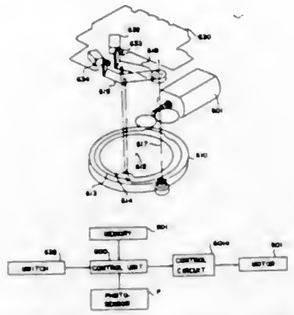
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,791

SYSTEM FOR RECOVERING A CD IN A CD PLAYER HAVING A MAGAZINE CONTAINING A PLURALITY OF DISKS

Sei Onishi; Atsushi Kurosawa; Kiyoshi Morikawa; Kaoru Takemasa; Kiyohito Kajihara, and Osamu Kitazawa, all of Saitama, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Continuation of Ser. No. 616,536, Nov. 21, 1990, abandoned.
This application May 29, 1992, Ser. No. 892,712
Claims priority, application Japan, Feb. 16, 1990, 2-35451; Feb. 16, 1990, 2-35453; Feb. 16, 1990, 2-35454; Feb. 16, 1990, 2-35462; Feb. 16, 1990, 2-35463
Int. Cl.[5] G11B *17/00*
U.S. Cl. 369—36 3 Claims



1. A system for recovering a CD in a CD player having a magazine containing a plurality of trays each of which mounts the CD, and a moving device for moving one of the trays between the magazine and a playback position, said moving device having a rotating member, and a link mechanism cooperating with the rotating member for moving the tray between the magazine and the playback position, comprising:

actuating means provided on said rotating member;

a switch operated by said actuating means,

said actuating means actuating said switch to produce a first signal when said tray is located in said magazine and said switch also produces said first signal when said tray is at said playback position, and to produce a second signal when said rotating member starts to rotate to release the CD from a clamping position;

control means responsive to said first and second signals for reversely rotating said rotating member for returning the tray to an initial position when a subsequent first signal is not supplied thereto after a predetermined time from the production of the second signal.

5,208,792

RECORDING AND REPRODUCING APPARATUS USING OPTO-MAGNETO MEDIA

Ryoichi Imanaka, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 24, 1990, Ser. No. 527,846
Claims priority, application Japan, May 29, 1987, 1-134915; Jul. 14, 1989, 1-182876
Int. Cl.[5] G11B *7/00, 7/095, 11/12*
U.S. Cl. 369—44.38 3 Claims

1. A recording and reproducing apparatus for recording and reproducing an information signal on and from an optical disk having a plurality of tracks each including wobble pits for use in detecting a tracking error signal, clock pits for use in generating a reference position for recording the information signal, and address information signals, said apparatus comprising:

a laser means for generating and projecting at least two laser beams onto an optical disk;

an optical system including a tracking servo means for generating a tracking error signal by detecting relative positions of said at least two laser beams and said wobble pits and, based upon said tracking error signal, for providing an output signal to control said laser means to cause said laser beams to track respectively on at least two tracks of said plurality of tracks of said optical disk;

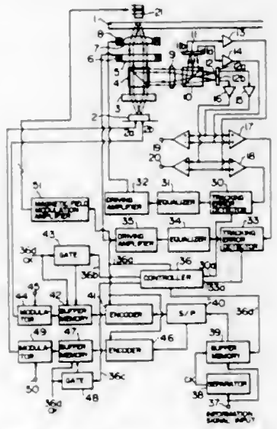
a first buffer memory storing data representing the information signal to be recorded;

serial/parallel converter means for receiving said data represented the information signal to be recorded from said first buffer memory and for dividing said data into at least two data signals respectively belonging to at least two channels to reduce a transmission speed;

at least two detectors, corresponding respectively to said at least two channels, for detecting the clock pits on said at least two tracks from said at least two laser beams when they are reflected from the optical disk and generating a signal each time one of said clock pits on said at least two tracks is detected;

a second buffer memory means for receiving and storing said at least two data signals;

a controller for generating a start/stop signal in response to said signal indicating detection of one of said clock pits to control timing of (i) storing the at least two data signals in said second buffer memory means and (ii) reading the at least two data signals from said second buffer memory means in order to record the at least two data signals at predetermined positions on said at least two tracks relative to locations of respective clock pits thereon;



at least two address detectors for respectively detecting said address information signals provided on said at least two tracks of said optical disk from said at least two laser beams when they are reflected from the optical disk and providing at least first and second outputs respectively representing said address information signals on said at least two tracks;

a comparator means for receiving and comparing said first and second outputs and providing an output representing a difference between said first and second outputs;

said controller receiving and comparing said output from said comparator with a predetermined value and producing a track jumping signal when said difference between said first and second outputs reaches said predetermined value; and

said optical system including means for adding the track jumping signal to said tracking error signal generated by said tracking servo means to obtain a track jump drive signal which is provided to said laser means to cause said at least two laser beams to undergo a track jump,

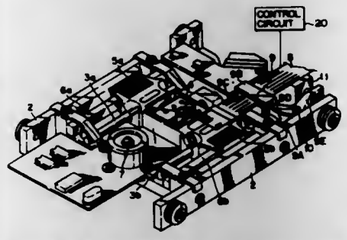
whereby said track jump prevents one of said at least two laser beams from recording erroneously an information signal onto an information signal which has already been recorded by another of said at least two laser beams.

5,208,793

OPTICAL DISK APPARATUS INCLUDING A BRAKING DEVICE FOR FRICTIONALLY SUPPRESSING MOVEMENT OF AN OPTICAL HEAD CARRIAGE

Masahiko Chaya, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 3, 1991, Ser. No. 709,196
Claims priority, application Japan, Jun. 4, 1990, 2-144533
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—44.14 5 Claims



1. An optical disk apparatus for effecting at least one of recording of information on and reproduction of information from a recording medium by using a light beam, said apparatus comprising:

a support frame;

an optical head carriage mounted on said support frame, said optical head carriage having at least an optical system, including an objective lens for converging the light beam onto the recording medium in a focusing direction and a tracking/focusing actuator for driving the objective lens along one of the focusing direction and a tracking direction of the light beam relative to the recording medium, mounted thereon;

a linear motor mounted on said optical head carriage for moving said optical head carriage radially of the recording medium;

a wiring member extending from said tracking/focusing actuator and said linear motor, and being attached at one end to said support frame and at another end to said optical head carriage; and

braking means mounted to said support for frictionally engaging said wiring member, said braking means comprising means for suppressing movement of said optical head carriage when frictionally engaged with said wiring member.

5,208,794

OPTICAL DISK APPARATUS HAVING A STATIONARY OPTICAL SYSTEM AND A MOVABLE OPTICAL SYSTEM

Akira Mashimo, Tokyo, Japan, assignor to TEAC Corporation, Japan and Mitsubishi Electric Corporation, Japan

Filed Apr. 17, 1991, Ser. No. 686,689
Claims priority, application Japan, Apr. 19, 1990, 2-104321
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—44.27 13 Claims

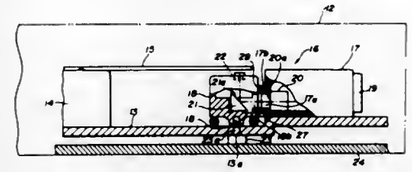
1. An optical disk apparatus comprising:

a stationary optical portion having a light source and a first opening through which a beam emitted from said light source passes;

a movable optical portion which moves linearly with respect to said stationary optical portion and which receives said beam from said light source through a second opening of said movable optical portion and irradiates said beam to an optical disk;

detection means for detecting a predetermined operative state of said optical disk apparatus in which the apparatus is neither recording nor reproducing;

control means for moving said movable optical portion to a contact position in which said movable optical portion is



in contact with said stationary optical portion when said detection means detects said predetermined operative state; and

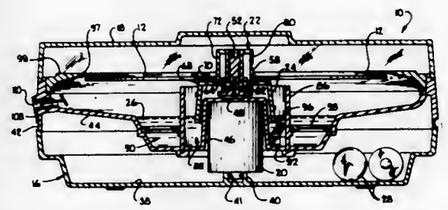
sealing means operatively associated with at least one of said movable and stationary optical portions and interposable between said movable and stationary portions for forming a seal about said first and second openings only when said movable optical portion is in said contact position.

5,208,795

CLEANER UNIT WITH JET SPRAY FOR INFORMATION DISKS

Joshua F. Lavinsky, 350 San Fernando Blvd., #301, Burbank, Calif. 91502; Dean S. Graham, 17551 Lemay Pl., Van Nuys, Calif. 91406, and Gary D. Gibson, 3021 Trudi La., Burbank, Calif. 91504

Division of Ser. No. 670,688, Mar. 18, 1991, Pat. No. 5,126,992.
This application Mar. 13, 1992, Ser. No. 851,243
The portion of the term of this patent subsequent to Jun. 30, 2009, has been disclaimed.
Int. Cl.[5] G11B *3/58*
U.S. Cl. 369—72 4 Claims



1. A method of cleaning an information disk, comprising the steps of:

rotatably driving an information disk within a housing;

pumping a jet of a liquid cleaning solution from a reservoir within the housing against one side surface of the rotatably driven information disk such that the jet contacts the disk at a position generally near the disk center;

said driving step including rotating the disk at a sufficient speed to cause the liquid cleaning solution to spread radially outwardly as a film and substantially without agitation over the one side surface of the disk and to be directed radially outwardly from the periphery of the disk; and

deflecting the liquid cleaning solution moving radially outwardly from the disk with an annular shroud positioned in relatively closely spaced relation to the disk periphery and having a smoothly contoured shape for redirecting the liquid cleaning solution substantially without agitation to the reservoir for recirculation.

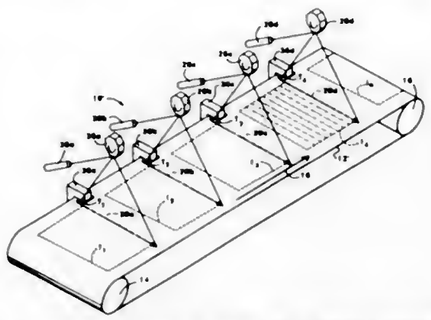
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,796

METHOD AND APPARATUS FOR TRANSVERSE IMAGE REGISTRATION ON PHOTORECEPTIVE BELTS

Lam F. Wong, Fairport; Stephen C. Arnone, Rochester; William J. Nowak; Daniel W. Costanza, both of Webster; Jacob N. Kluger, Rochester; Soujan Hou, Webster, and Lloyd W. Durfey, Palmyra, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 3, 1991, Ser. No. 635,835
Int. Cl.[5] G11B 7/00; G01N 21/86
U.S. Cl. 369—97 23 Claims



1. A method for transverse registration of an image area to be exposed on a longitudinally moving belt subject to lateral deviation from linear travel, said method comprising the steps of:

providing a target in a fixed position on the belt, wherein said target defines a pattern having an inclined line at an angle to the direction of belt travel and at least one reference line;

detecting the lateral position of said target during movement of the belt by measuring the time interval between travel of said lines past a spatially fixed point; and

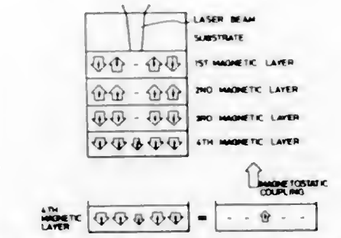
adjusting the transverse location of the image area on the belt to compensate for the distance between the detected lateral position of said target and the spatially fixed reference point.

5,208,797

MAGNETO-OPTICAL RECORDING MEDIA AND APPARATUS

Yoshiyuki Nakaki; Takashi Tokunaga; Tatsuya Fukami; Motohisa Taguchi, and Kazuhiko Tsutsumi, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Nov. 14, 1990, Ser. No. 612,798
Claims priority, application Japan, Nov. 14, 1989, 1-296856
Int. Cl.[5] G11B 7/00
U.S. Cl. 369—100 26 Claims



1. A magneto-optical recording medium for use in a system for recording information with bits having upward magnetization and having downward magnetization on a recording layer of the magneto-optical recording medium, comprising:

a first magnetic layer with perpendicular magnetic anisotropy, said first magnetic layer having a Curie temperature Tc1,

a second magnetic layer disposed on this first magnetic layer and coupled to said first magnetic layer by an exchange force, said second magnetic layer having Curie temperature Tc2,

a third magnetic layer disposed on this second magnetic layer and coupled to said second magnetic layer by an exchange force, said third magnetic layer having a Curie temperature Tc3, and

a fourth magnetic layer disposed on this third magnetic layer and coupled to said third magnetic layer by an exchange force, said fouth magnetic layer having a Curie temperature Tc4;

said magneto-optical recording medium satisfying:

$Tc4 > Tc1$,

$Tc4 > Tc3$,

$Tc2 > Tc1$, and

$Tc2 > Tc3$,

the magnetization of the first magnetic layer being not reversed by magnetic reversal of the second magnetic layer at room temperature,

wherein

a sublattice magnetization direction of each of the second magnetic layer, the third magnetic layer, and the fourth magnetic layer is initialized so as to be aligned in one of two opposite directions at room temperature after recording, and

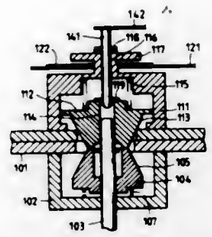
wherein the fourth magnetic layer has a magnetization value which is reduced in the vicinity of a first predetermined temperature greater than room temperature as compared to a magnetization value of the fourth magnetic layer in the vicinity of room temperature, whereby a stray magnetic field generated by said magneto-optical recording medium acts so that the sublattice magnetization direction of the second magnetic layer is recorded in the direction opposite to said initialization direction.

5,208,798

DOUBLE-SIDED DISK PLAYER

Tadashi Funabashi, and Izumi Kenmotsu, both of Saitama, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Continuation of Ser. No. 534,213, Jun. 7, 1990, Pat. No. 5,121,379, which is a continuation of Ser. No. 278,303, Nov. 30, 1988, abandoned. This application Feb. 3, 1992, Ser. No. 829,885
Claims priority, application Japan, Nov. 30, 1987, 52-303506; Dec. 26, 1987, 52-198782[U]; Jan. 14, 1988, 53-3165[U]
Int. Cl.[5] G11B 17/28, 17/00
U.S. Cl. 369—270 1 Claim



1. A disc player for reproducing recorded signals from a disc, on both sides of which signals are recorded and which has a center hole, comprising:

a turntable disposed on a first side of said disc;

at least one pickup is movable so as to read said first side of said disc and a second side of said disc opposite to said turntable;

a first centering hub mounted on said turntable for centering said first side of said disc when said first side is to be reproduced;

clamper means for clamping said disc placed on said turntable, said clamper means being disposed on said second side of said disc;

a second centering hub directly mounted on said clamper means for centering said second side of said disc when said second side is to be reproduced; and

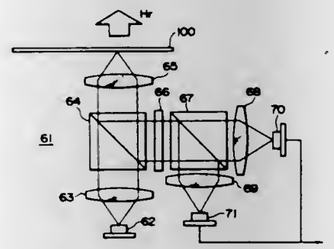
driving means for selectively driving a selected one of the first and second centering hubs for centering the selected hub in registration with the center hole of said disc.

5,208,799

MAGNETO-OPTIC RECORDING METHOD AND MAGNETO-OPTIC RECORDING/REPRODUCING APPARATUS

Isamu Nakao, Tokyo; Atsushi Fukumoto, Kanagawa; Toshiki Udagawa, and Shunji Yoshimura, both of Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 7, 1992, Ser. No. 832,384
Claims priority, application Japan, Feb. 8, 1991, 3-018078
Int. Cl.[5] G11B 13/04
U.S. Cl. 369—110 10 Claims



2. A magneto-optic recording/reproducing apparatus for recording information on and reading information from a magneto-optic recording medium having at least a reproducing layer and a recording layer, comprising:

a recording optical head means having a recording light beam for recording information on the magneto-optic recording medium in a region smaller than a spot of a reading light beam employed for reading;

a reproducing optical head means having said reading light beam for reading information by magneto-optic effect by changing a state of magnetization of the reproducing layer and at the same time irradiating the recording medium with the light beam; and

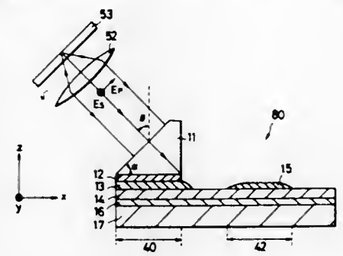
a wavelength of the recording light beam emitted by the recording optical head means being substantially smaller than a wavelength of the reading light beam emitted by the reading optical head means.

5,208,800

MODE SPLITTER AND MAGNETO-OPTICAL SIGNAL DETECTION DEVICE

Tami Isobe, Yokohama; Shigeyoshi Misawa, Tokyo; Kiyoshi Yokomori; Syunsuke Fujita, both of Yokohama; Magane Aoki, Yokohama; Yoshinobu Nakayama, Kawasaki, and Hiroyoshi Funato, Chigasaki, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 11, 1991, Ser. No. 683,724
Claims priority, application Japan, Apr. 13, 1990, 2-98454; May 9, 1990, 2-119123; Jul. 17, 1990, 2-189232; Apr. 9, 1991, 3-76026
Int. Cl.[5] G11B 7/00
U.S. Cl. 369—112 11 Claims



1. A magneto-optical signal detection device, comprising:

a first waveguide layer;

a light coupling means disposed on one end portion of said first waveguide layer for simultaneously coupling two polarization components of light reflected from a magneto-optical recording medium, which are perpendicular to each other, into said first waveguide layer to thereby produce a first light of TE mode and a second light of TM mode, each of which propagates toward the opposite end portion of said first waveguide layer; and

a light separating means comprising a second waveguide layer which is disposed on said opposite end portion of said first waveguide layer so as to efficiently separate said first light and said second light propagated through said first waveguide layer,

said second waveguide layer having a first edge portion for receiving said first and second lights propagating within said first waveguide layer, and a second edge portion from which one of said received first and second lights is emitted, and from which the other of said received first and second lights is reflected, said first and second edge portions crossing each other at a predetermined angle at one end of each of said first and second edge portions, the thickness of each of said first and second edge portions becoming gradually smaller toward the outside of said second waveguide layer,

said first waveguide layer and said second waveguide layer satisfying the following formulae:

$$\beta_{Ai} > \beta_{Bi} \quad (1)$$

$$\beta_{Aj} > \beta_{Bj} \quad (2)$$

$$(\beta_{Bi}/\beta_{Ai}) > (\beta_{Bj}/\beta_{Aj}) \quad (3)$$

$$\theta > \sin^{-1}((\beta_{Bi}/\beta_{Ai}) \quad (4)$$

$$\sin^{-1}\{(\beta_{Ai}/\beta_{Bi})\sin(\theta-\theta_{ci})\} < \alpha < \sin^{-1}\{(\beta_{Aj}/\beta_{Bj})\sin(\theta-\theta_{cj})\} \quad (5)$$

where β_{Ai} is a propagation constant of one of said first and second lights in said first waveguide layer, β_{Bi} is a propagation constant of said one of said first and second lights in said second waveguide layer, β_{Aj} is a propagation constant of the other of said first and second lights in said first waveguide layer. β_{Bj}

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is a propagation constant of said other of said first and second lights in said second waveguide layer, θ is said predetermined angle, and α is an incident angle of a light including said TE mode and said TM mode with respect to said first edge portion, wherein θ_{ci} is equal to $\sin^{-1}(\beta_{Bi}/\beta_{Ai})$ and represents a critical angle of said one of said first and second lights, θ_{cj} being equal to $\sin^{-1}(\beta_{Bj}/\beta_{Aj})$ and representing a critical angle of said other of said first and second lights.

5,208,801

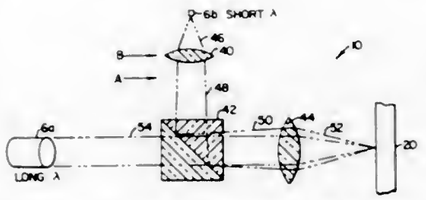
METHOD AND APPARATUS FOR CORRECTING FOCUS IN AN OPTICAL RECORDING SYSTEM

Joel D. Finegan, Campbell, Calif., assignor to Tandy Corporation, Ft. Worth, Tex.

Continuation of Ser. No. 513,406, Apr. 23, 1990, abandoned, which is a continuation-in-part of Ser. No. 294,723, Jan. 10, 1989, which is a continuatioo-in-part of Ser. No. 153,288, Feb. 5, 1988, abandoned. This application Aug. 23, 1991, Ser. No. 753,017

Int. Cl.[5] G11B *7/08*

U.S. Cl. 369—284 **18 Claims**



1. A recording system for recording detectable marks on a storage media, said storage media responsive to light of at least a first wavelength, comprising:

a) a first light source for generating said first wavelength of light;

b) a second light source for generating a second wavelength of light, which is different from said first wavelength of light;

c) an objective lens for focusing light from said first and said second light source; and

d) a collimating lens for adjusting a focus position of light from at least one of said light sources on said recording media, said collimating lens being displaced from a first position said first position producing a fully collimated light beam from said at least one of said light sources, said light from said first and second light sources being simultaneously focused on same position of said recording media.

5,208,802

DISK ADAPTER FOR DISK CARTRIDGE

Akira Suzuki, and Yoshikazu Ishimatsu, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 30, 1990, Ser. No. 501,728

Claims priority, application Japan, Apr. 3, 1989, 1-039441[U]

Int. Cl.[5] G11B *7/26, 23/03*

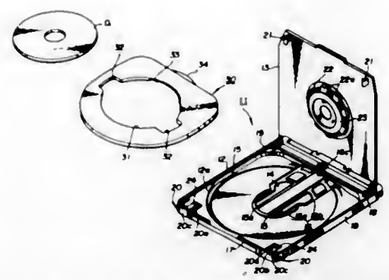
U.S. Cl. 369—289 **4 Claims**

1. A disk adaptor for a disk cartridge comprising a rigid plate-like member, wherein said rigid plate-like member includes:

an opening at approximately the center thereof for rotatably accommodating a disk-shaped recording medium therein;

a plurality of recesses adjacent to and communicating with said opening for use in removing the disk-shaped recording medium from said adapter;

said plate-like member having one end substantially rounded and the other end having at least two corner projections integrally formed with said plate-like member for positioning and retaining the disk adapter in a disk housing section of the disk cartridge by placing said corner projections into complementary corner recesses formed as part of the disk housing section; and



at least one locating lug protruding from the outer periphery of the adapter proximate said two corner projections for engaging a complimentary slot formed in the disk housing section of the disk cartridge for locating the adapter upon placement into the disk cartridge.

5,208,803

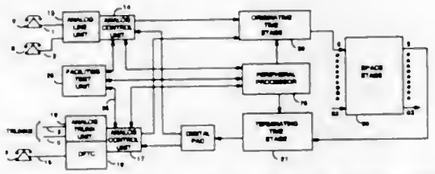
CIRCUIT FOR TESTING DIGITAL LINES

Joseph A. Conforti, Phoenix; Thomas C. Bissonnette, and Anthony J. Baca, both of Glendale, all of Ariz., assignors to AG Communication Systems Corporation, Phoenix, Ariz.

Filed Nov. 19, 1990, Ser. No. 615,529

Int. Cl.[5] H04J *01/16, 03/14*

U.S. Cl. 370—013 **12 Claims**



1. A digital test card for testing the quality of a digital system in a central office system, said digital system includes a digital line card connected to a customer premise equipment by a two-wire digital connection, said digital test card comprising:

a line interface means for providing a full duplex transmission link between said digital test card and said digital system, when said digital test card is testing said customer premise equipment said line interface means operates as a master, when said digital test card is testing said digital line card said line interface means operates as a slave;

a buffer means connected to said line interface means and said central office system, said buffer means buffers data between said line interface means and said central office system, said buffer means further comprising:

(1) a receive trap means for trapping data from said line interface means and making said trapped data available to a processor means;

(2) a receive insert means for inserting data from said processor means, said inserted data being sent to said central office system;

(3) a transmit trap means for trapping data from said central office system and making said trapped data available to said processor means, and;

(4) a transmit insert means for inserting data from said processor means, said inserted data being sent to said line interface means;

a protocol controller means connected to said line interface means said protocol controller means performs a packet protocol, and;

said processor means connected to said protocol controlled means, said line interface means, said buffer means, and to said central office system, under the direction of said central office system, said processor means controls the operation of said digital test card, and said processor means, through said protocol controller means and said buffer means, determines the quality of said digital system.

5,208,804

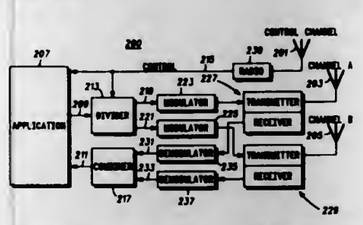
FLEXIBLE-BANDWIDTH RADIO

Timothy J. Wilson, Schaumburg, and Stuart W. Thro, Cary, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 30, 1990, Ser. No. 605,893

Int. Cl.[5] H04J *1/00*; H04B *7/02*

U.S. Cl. 370—30 **18 Claims**



7. A radio arranged to transmit in a radio frequency band, the radio frequency band including a set of n predetermined radio frequency channels, each of the n predetermined radio frequency channels being capable of supporting a predetermined data rate, the radio arranged for transmitting an aggregate signal via the n predetermined radio frequency channels, the aggregate signal having an aggregate data rate which exceeds the predetermined data rate of any individual radio frequency channel of the set of n predetermined radio frequency channels, the radio comprising:

forming means for forming a multiplicity of n signals, each of the multiplicity of n signals being based on said aggregate signal;

modulating means for modulating each of the n signals to form n modulated signals; and,

transmitting means for transmitting said n modulated signals via said predetermined radio frequency channels, each of said n modulated signals being transmitted on exactly one channel

wherein said forming means and said modulating means are substantially comprised by a digital signal processor.

5,208,805

METHOD FOR CONTROLLING THE COMMUNICATION PRIORITY OF COMMUNICATION PACKETS AND EXCHANGE EMPLOYING THE METHOD

Tamiya Ochiai, Shiroyama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 26, 1990, Ser. No. 634,353

Claims priority, application Japan, Dec. 27, 1989, 1-343478

Int. Cl.[5] H04Q *11/04*

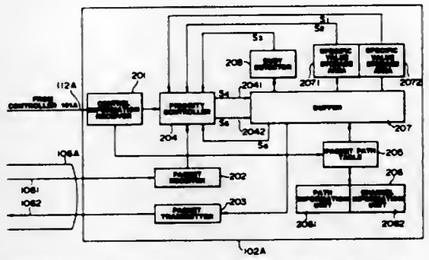
U.S. Cl. 370—60 **15 Claims**

1. A method for controlling a communication priority of communication packets comprising the steps of:

conducting connection processing for determining in advance a communication path and a communication channel between a calling terminal and a called terminal on the basis of call information from said calling terminal in an exchange interpose in the communication path prior to commencing packet communication;

setting a call priority value presented in the call information from said calling terminal, said setting being effected with respect to each connection at the time of connection processing;

setting a packet priority value for each packet being communicated during packet communication;



setting a control priority value on the basis of the call priority value and the packet priority value; and

controlling the communication priority of a communication packet on the basis of the control priority value.

5,208,806

ISDN TERMINAL EQUIPMENT OPERATING WITH CIRCUIT SWITCHING MODE AND PACKET SWITCHING MODE

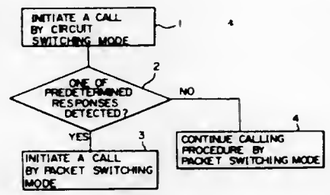
Kenichi Hasegawa, Inagi, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Nov. 16, 1990, Ser. No. 614,518

Claims priority, application Japan, Nov. 17, 1989, 1-297676

Int. Cl.[5] H04J *3/24*

U.S. Cl. 370—60.1 **10 Claims**



5. A method for determining a correct protocol for establishing communication between a first terminal and a second terminal, comprising the steps of:

(a) sending first data representing a first protocol to the second terminal from the first terminal;

(b) determining whether the first protocol is the correct protocol in dependence upon the first data;

(c) sending second data representing a second protocol to the second terminal from the first terminal if the first protocol is not the correct protocol;

(d) determining whether the second protocol is the correct protocol in dependence upon the second data; and

(e) establishing communication between the first terminal and the second terminal when one of the first protocol and the second protocol is the correct protocol.

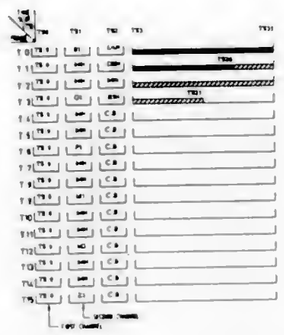
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5,208,807

DATA TRANSMISSION METHOD EMPLOYING A SYNCHRONOUS FRAME COMBINING ASYNCHRONOUS CELLS WITH ISOCHRONOUS CHANNELS

Raymond Gass, Erstein, and Christine Cordonnier, Wolfisheim, both of France, assignors to Alcatel Business Systems, Paris, France

Filed Jan. 22, 1991, Ser. No. 643,258
Claims priority, application France, Jan. 22, 1990, 90 00705
Int. Cl.[5] H04L 5/22
U.S. Cl. 370—60.1 4 Claims



1 A data transmission method employing a synchronous multiframe associating asynchronous cells and synchronous data octets to isochronous channels on a time-division multiplex link to transmit data during successive multi-frames, each multiframe comprising a plurality of numbered frames, said frames each being made up of a plurality of time slots and the time slots identically numbered in successive frames constituting an isochronous and octet-oriented data transmission channel, said method comprising the steps of:

reserving a first time slot of each frame for management data that are independent of the data to be transmitted,

reserving a second time slot of each frame for path service data, said path service data being divided according to the frame numbers, between a first group of the second time slots, having specific frame numbers, which are reserved for asynchronous data cell service octets, and a second group of the second time slots, each time slot of the second group of the second time slots being reserved from data indicating the number of time slots to be used for synchronous transmission during the frame corresponding thereto and optionally during the next frame if the second time slot thereof is a second time slot of the first group, and

reserving a third time slot of each frame for a code defining a start-of-cell time slot number when a cell begins in the frame,

the first, second and third time slots of the same frame being immediately successive to one another.

5,208,808

METHOD OF ASSIGNING SLOTS IN A UCOL-TYPE STAR NETWORK AND ELECTRONIC DEVICE FOR CARRYING OUT SUCH METHOD

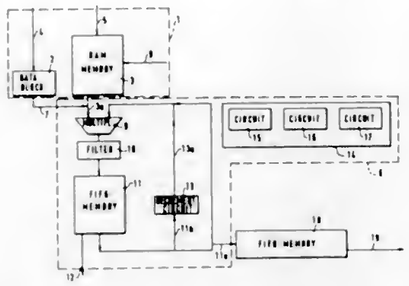
Franco D'Ignazio, Pomezia, and Bruno Bianchi, Velletri, both of Italy, assignors to Alcatel, N.V., Amsterdam, Netherlands

Filed Sep. 24, 1991, Ser. No. 764,548
Claims priority, application Italy, Sep. 28, 1990, 21605 A/90
Int. Cl.[5] H04J 3/16
U.S. Cl. 370—85.7 5 Claims

3. Electronic device, comprising:

a first circuit block (1) including a first memory unit (3) of the type RAM for storing incoming requests for assignment,

a second circuit block (8) being connected to said first circuit block (1), the second circuit block (8) having a second memory unit (11) in which requests for assignment to be carried out on a first-in-first-out (FIFO) basis are cyclically loaded, having decrement circuit means (13) connected downstream from said second memory unit (11),



having filter means (10) coupled between an input of said second memory unit (11) and said decrement circuit means (13) for eliminating the requests for assignment which are null or already satisfied, and having control circuit means (14) which permits and realizes the cyclic scanning of requests, and

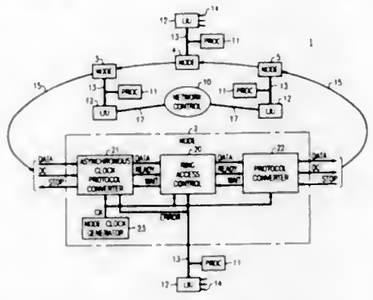
a third memory unit (18) provided at an output of said second circuit block (8) for storing the requests relative to single slots assigned during each cycle.

5,208,809

COMMUNICATION NETWORK NODE

Allen D. Fergeson, Johnstown, and James A. Uetrecht, Pickerington, both of Ohio, assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 537,739, Jun. 14, 1990, abandoned.
This application Mar. 5, 1992, Ser. No. 844,917
Int. Cl.[5] H04J 3/00, 1/16
U.S. Cl. 370—91 21 Claims



1. A node having pulse controlled components for use with communication networks to interconnect data systems with asynchronous and synchronous network transmission paths interconnecting network nodes comprising

means interconnected with the node pulse controlled components for generating clock pulses to control data flow through the node pulse controlled components, and

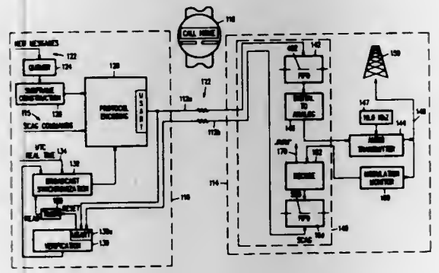
means coupled with ones of the network transmission paths incoming to and outgoing from the node and with the pulse controlled components for interconnecting ones of the node pulse controlled components connected with said clock pulse generating means with said ones of the network transmission paths and controlled by said generated clock pulses for synchronizing network transmission path asynchronous and synchronous data flow incoming to and outgoing from the node within the node at a repetition rate of said generated clock pulses independent of data transfer rates of the incoming and outgoing network transmission path asynchronous and synchronous data flow.

5,208,810

METHOD OF DATA FLOW CONTROL

Daniel J. Park, Portland, Oreg., assignor to Seiko Corp. and Seiko Epson Corp., both of Japan

Filed Oct. 10, 1990, Ser. No. 595,146
Int. Cl.[5] H04J 3/24
U.S. Cl. 370—94.1 5 Claims



1. A method of delivering information from a data providing device to a radio transmitting device, said information being processed at the radio transmitting system at a predetermined data processing rate, the method comprising,

constructing delivery data comprising the information as data packets and flags separating the packets, the flags being of selectably variable length; said data packets including commands for said radio transmitting system and data to be transmitted by said radio transmitting system,

transmitting said delivery data to said radio transmitting system at a rate greater than the predetermined processing rate; and

controlling the amount of said information transmitted to said radio transmitting system by selecting said flag lengths whereby (a) longer flags result in less of said information delivered to said radio transmitting system, (b) shorter flags result in more of said information delivered to said radio transmitting system, and (c) said delivery data is substantially continuously transmitted to said radio transmitting system.

5,208,811

INTERCONNECTION SYSTEM AND METHOD FOR HETEROGENEOUS NETWORKS

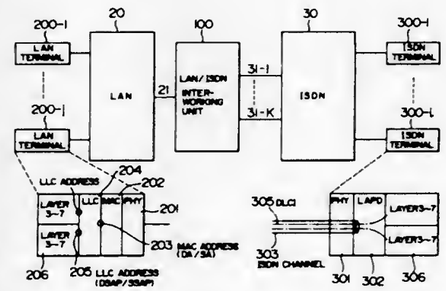
Jiro Kashio, Kawasaki; Kenji Kawakita, Yokohama; Masao Kunimoto, Yokohama; Tetsuo Takemura, Yokohama, and Takeshi Harakawa, Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 1, 1990, Ser. No. 607,830
Claims priority, application Japan, Nov. 6, 1989, 1-287413
Int. Cl.[5] H04J 3/24
U.S. Cl. 370—94.1 11 Claims

1. An interconnection method for use in a network system wherein a local area network (LAN) connected to a plurality of LAN terminals is linked via an inter-working unit with an integrated services digital network (ISDN) connected to a plurality of ISDN terminals and each of the ISDN terminals has a function to multiplex a plurality of ISDN communication paths respectively identified by data link connection identifiers (DLCIs) on an ISDN channel, comprising the steps of:

executing, by the inter-working unit with coordination with said ISDN, in response to receipt of a LAN frame set by one of said LAN terminals via said LAN, wherein said LAN frame includes a header field loaded with a transmission destination address indicating one of said ISDN terminals and a transmission source address indicating said one LAN terminal, a call establishment procedure to form an ISDN communication path between the inter-working unit and said one ISDN terminal identified by the destination address to determine communication path information including an ISDN channel number and a DLCI assigned to said ISDN communication path thus formed if the ISDN communication path is not established yet;

converting said received LAN frame to an ISDN frame based on said determined communication path information and sending he ISDN frame to said ISDN by the inter-working unit if said received LAN frame is to be transmitted to said one ISDN terminal;



sending from the inter-working unit to the LAN a control frame destined to said one LAN terminal, said control frame being loaded with said determined ISDN communication path information including said ISDN channel number and said DLCI;

sending from said one LAN terminal having received the control frame to the LAN a LAN frame destined to the ISDN terminal, said LAN frame includes a header field loaded with the ISDN communication path information informed by said control frame;

converting by said inter-working unit, upon receipt of said LAN frame including the ISDN communicating path information, the received LAN frame into an ISDN frame based on said ISDN communication path information included in the received LAN frame; and

sending by the inter-working unit the converted ISDN frame to said ISDN.

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5,208,812

TELECOMMUNICATIONS SYSTEM

Michael T. Dudek, Agoura, Calif.; Rupert Goodings, Cambridge, Great Britain; Emlyn Jones, Harlow, Great Britain; David C. Odhams, Epping, Great Britain, and Peter N. Proctor, Basingstoke, Great Britain, assignors to British Telecommunications Public Limited Company, London; Ferranti Creditphone Limited, Moston; GEC Plessey Telecommunications Limited, Coventry; Mercury Communications Limited, London; Orbitel Mobile Communications Limited, Basingstoke; Shaye Communications Limited, Winchester; Phonepoint Limited, London and STC PLC, London, all of United Kingdom

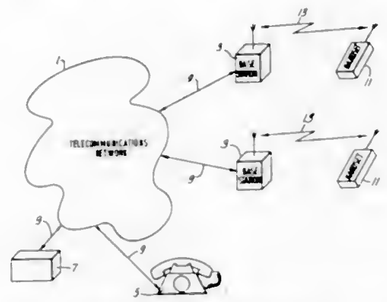
PCT No. PCT/GB90/00120, § 371 Date Nov. 26, 1990, § 102(e) Date Nov. 26, 1990, PCT Pub. No. WO90/09073, PCT Pub. Date Aug. 9, 1990

PCT Filed Jan. 26, 1990, Ser. No. 573,308

Claims priority, application United Kingdom, Jan. 27, 1989, 8901756; Jan. 27, 1989, 8901823

Int. Cl.[5] H04J *03/06*; H04L *07/00*

U.S. Cl. 370—100.1 47 Claims



1. A telecommunication system comprising:

a device of a first type and a plurality of devices of a second type, said device of the first type comprising communication means for conducting time-division two-way communication with any one of said devices of the second type over a radio channel by exchanging radio signals in alternating bursts carrying digital data, such that during the time-division two-way communication, transmission of one of said alternating bursts from one of the devices is completed before transmission of the next of said alternating bursts by the other of the devices is begun, and each of said devices of the second type comprising communication means for conducting said time-division two-way communication with the device of the first type;

the device of the first type comprising means for providing said bursts such that at least some of the bursts contain a first synchronisation pattern or one of a group of first synchronization patterns, and detecting means for asynchronously detecting a second synchronisation pattern or one of a group of second synchronisation patterns in a received burst to enable it to determine timing information about said received burst, each device of the second type comprising means for producing said bursts such that at least some of the bursts contain said second synchronisation pattern or one of said group of second synchronisation patterns, and detecting means for asynchronously detecting said first synchronisation pattern for one of said group of first synchronisation patterns in a received burst to enable it to determine timing information about said received burst, said first synchronization pattern or patterns being different from said second synchronization pattern or patterns, said detecting means in the plurality of devices of the second type not responding to reception of the second synchronisation pattern or patterns, whereby each of said plurality of devices of the second type does not respond to reception of transmissions or any other device of the second type.

5,208,813

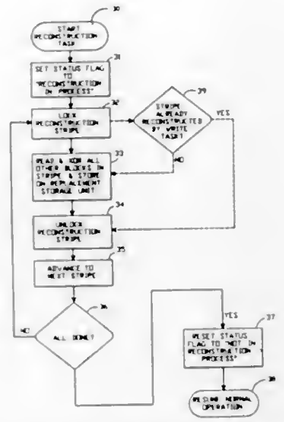
ON-LINE RECONSTRUCTION OF A FAILED REDUNDANT ARRAY SYSTEM

David C. Stallmo, Boulder, Colo., assignor to Array Technology Corporation, Boulder, Colo.

Filed Oct. 23, 1990, Ser. No. 601,912

Int. Cl.[5] G06F *11/20*

U.S. Cl. 371—10.1 17 Claims



1. A method for on-line reconstruction of a failed data storage unit in a redundant array of storage units coupled to a controller, the storage units having a plurality of stripes each containing a plurality of data blocks and at least one associated error-correction block, comprising the steps of:

a, providing a replacement storage unit for the failed storage unit;

b. reconstructing the data block of the failed storage unit for each stripe in the array;

c. storing the reconstructed data block on the replacement storage unit in the corresponding stripe;

d. if the controller requests a read operation for a data block during reconstruction, then:

(1) if the requested data block is located on the replacement storage unit, then:

(a) accessing all of the other data blocks and at least one corresponding error-correction block in the stripe containing the requested data block;

(b) reconstructing the requested data block from the accessed blocks;

(2) if the requested data block is not located on the replacement storage unit, then:

accessing the requested data block directly.

5,208,814

METHOD AND APPARATUS FOR OPERATING AN ELECTRONIC REPROGRAPHIC PRINTING SYSTEM CONTAINING A JOB SUBMIT COUNTER

Dennis B. Ulrich, Fairport; David L. Salgado, Rochester, and Elizabeth A. Bennett, Penfield, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 28, 1990, Ser. No. 589,684

Int. Cl.[5] G06F *11/00*

U.S. Cl. 371—16.4 6 Claims

4. An apparatus for an electronic reprographic system in which a plurality of jobs are active concurrently, comprising:

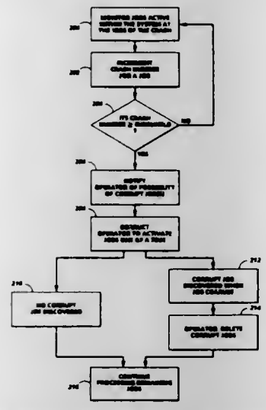
means for monitoring the jobs active in the system;

means for monitoring the system to determine occurrence of a crash in the system;

means for counting the number of times a specific job is concurrently active and the system crashes, said number being designated a crash number;

means for comparing the crash number with a predetermined threshold crash number to determine whether the crash number is at least as great as the predetermined threshold crash number and;

means for notifying an operator that at least one of the jobs concurrently active in the system is corrupted with the crash number is at least as great as the predetermined threshold number.



5,208,815

APPARATUS FOR DECODING BCH CODE

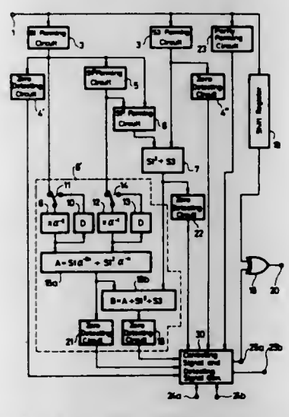
Yuichi Kojima, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Oct. 26, 1989, Ser. No. 426,862

Claims priority, application Japan, Nov. 4, 1988, 63-278722

Int. Cl.[5] G06F *11/10*

U.S. Cl. 371—37.7 5 Claims



1. An apparatus for decoding BCH code comprising:

(a) first, second and third means for generating a syndrome S1, a syndrome S3 and a parity P, respectively from a received sequence;

(b) fourth means coupled to said first means for generating $S1^2$ from the syndrome S1;

(c) fifth means coupled to said first means, second means and fourth means for generating $(S1^3+S3)$;

(d) Chien search means including first generating means supplied with said S1 and $S1^2$ for generating a first stage of error-location polynomial A, where $A+S1\alpha^{-2n}+S1\text{-}^{2}\alpha^{-n}$, and second generating means supplied with said $(S1^3+S3)$ and said A for generating a second stage of error-location polynomial B, wherein $B=A+S1^3+S3$; and

(e) error correction logic means supplied with said S1, P, $(S1^3+S3)$, A and B together with a decode selection signal and a BCH code selection signal for generating an error correction signal.

5,208,816

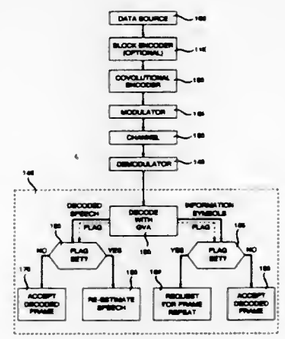
GENERALIZED VITERBI DECODING ALGORITHMS

Nambirajan Seshardi, Scotch Plains, and Carl-Erik W. Sundberg, Chatham, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 395,930, Aug. 18, 1989, abandoned. This application Mar. 11, 1992, Ser. No. 850,239

Int. Cl.[5] G06F *11/10*

U.S. Cl. 371—43 23 Claims



1. A method of processing a coded information sequence received from a transmitter comprising,

determining the value for a metric indicative of the relative quality for each of the L (>1) best candidates to be selected as the sequence actually transmitted,

wherein said candidates each correspond to paths through a trellis structure having a plurality of stages and a plurality of states at each stage,

wherein each path entering each state at each stage has a partial metric associated with it,

wherein said determining comprises finding the L paths through said trellis which have the highest sum of partial metrics,

said determining further comprises recognizing at each stage of the trellis the L paths entering each state that have the highest cumulative metric at that stage, and

retaining such recognized paths as partial paths leading to the L paths through the trellis having the largest sum of partial metrics.

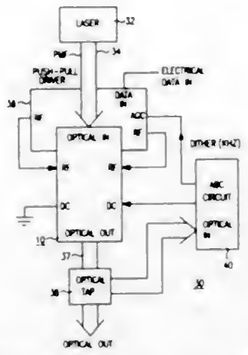
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,817

MODULATOR-BASED LIGHTWAVE TRANSMITTER

Ming-Lai Kao, and Yong-Kwan Park, both of Lower Macungie Township, Lehigh County, Pa., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Apr. 10, 1992, Ser. No. 866,616
Int. Cl.[5] H01S 3/10
U.S. Cl. 372—26 13 Claims



1. An externally optical transmitter comprising
a transmitting optical device based to produce an essentially constant optical output signal;
driver means responsive to an electrical data signal for forming an electrical drive signal therefrom;
modulating means responsive to the constant optical output signal and the electrical drive signal for utilizing said electrical drive signal to modulate said constant optical signal and provide as an output an optical data signal which essentially replicates the electrical data signal; and
automatic bias control means coupled to the drive means and the modulating means for monitoring the output optical data signal and providing bias voltage correction to said modulating means, the automatic bias control means comprising
reference means for providing an electronic dither signal having a predetermined frequency and transmitting said dither signal to the driver means for amplitude modulating said electrical drive signal;
receiving means responsive to the output optical data signal from the modulating means for converting said output optical data signal into a reconstructed electrical representation thereof; and
means for comparing the phase of the dither signal to the phase of the reconstructed electrical signal and providing as an output of the automatic bias control means a DC electrical control signal representative of the relation between the phases, said DC electrical control signal being applied as a DC bias input to the modulating means.

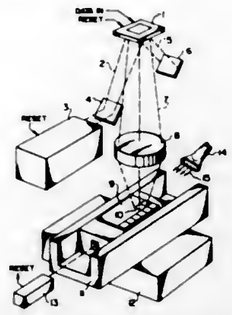
5,208,818

LASER SYSTEM FOR RECORDING DATA PATTERNS ON A PLANAR SUBSTRATE

Daniel Gelbart, and Amos Michelson, both of Vancouver, Canada, assignors to Creo Products Inc., Burnaby, Canada

Filed Dec. 12, 1991, Ser. No. 805,756
Int. Cl.[5] H01S 3/13; G01D 15/10
U.S. Cl. 372—30 9 Claims

1. A system for recording data patterns on a planar substrate comprising:
a laser operating in a pulsed mode;
a deformable mirror array light modulator illuminated by said laser and means of loading said data patterns into said modulator;
a reduction lens forming a reduced image of said modulator onto said substrate, said reduction lens positioned relative to said modulator in a manner allowing only light reflected by those of said deformable mirrors activated by said data pattern to reach said reduction lens;
means of generating relative motion between said substrate and said reduction lens;



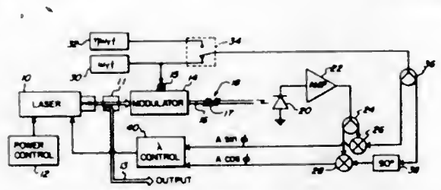
means of synchronizing said data patterns in said modulator and light pulses of said pulsed laser to said relative motion, in order to record said data patterns on a portion of said substrate larger than said reduced image, by combining a plurality of said reduced images;
a thin coating applied to said substrate capable of reacting with the said light pulses of said laser.

5,208,819

OPTICAL SOURCE WITH FREQUENCY LOCKED TO AN IN-FIBER GRATING RESONANTOR

David R. Huber, Warrington, Pa., assignor to General Instrument Corporation, Hatboro, Pa.

Filed Jan. 23, 1992, Ser. No. 822,581
Int. Cl.[5] H01S 3/13
U.S. Cl. 372—32 15 Claims



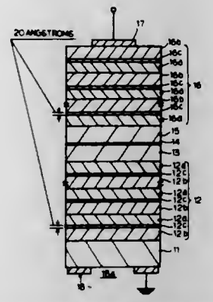
1. A frequency stabilized optical signal source comprising:
a laser for producing an optical carrier at a wavelength λ;
means operatively associated with said laser for adjusting said wavelength λ;
means for modulating said optical carrier by a periodic reference signal;
an optical fiber coupled to receive the modulated optical carrier from said modulating means;
a resonator within said optical fiber for effecting at least one of a phase and amplitude change between the modulated optical carrier and a sideband thereof at a resonant frequency of said resonator;
means for detecting one of said phase and amplitude changes; and
means responsive to said change detecting means for controlling said laser wavelength adjusting means.

5,208,820

OPTICAL DEVICE WITH LOW-RESISTIVE MULTI-LEVEL REFLECTING STRUCTURE

Kaori Kurihara, and Mitsunori Sugimoto, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jan. 7, 1992, Ser. No. 817,620
Claims priority, application Japan, Jan. 8, 1991, 3-644; May 24, 1991, 3-119656
Int. Cl.[5] H01S 3/19
U.S. Cl. 372—45 10 Claims



1. An optical device fabricated on a substrate, comprising:
a) an active layer provided for light;
b) a lower multi-layer reflecting structure provided on one side of said active layer, and having a plurality of combinations each implemented by an n-type low refractive film and an n-type high refractive film different in refractive index as well as in energy band gap;
c) an upper multi-layer reflecting structure provided on the opposite side of said active layer, and having a plurality of combinations each implemented by a p-type low refractive film and a p-type high refractive film different in refractive index as well as in energy band gap; and
d) a pair of electrodes operative to apply bias voltage across said lower and upper multi-layer reflecting structures to said active layer for producing light, at least one of said n-type low refractive film and said p-type low refractive film having a heavily doped region extending from a first heterojunction negatively biased toward a second heterojunction on the opposite side thereof in case of said n-type low refractive film or from said second heterojunction positively biased toward said first heterojunction in case of said p-type low refractive film, said heavily doped region having an impurity profile substantially tracing plots of a delta function.

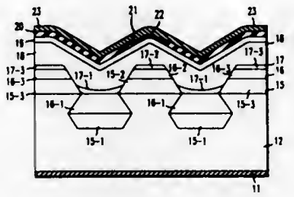
5,208,821

BURIED HETEROSTRUCTURE LASERS USING MOCVD GROWTH OVER PATTERNED SUBSTRATES

Paul R. Berger, Summit; Niloy K. Dutta, Colonial; William S. Hobson, Summit, and John Lopata, North Plainfield, N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jan. 24, 1992, Ser. No. 825,208
Int. Cl.[5] H01S 3/19
U.S. Cl. 372—48 33 Claims

1. A buried heterostructure laser, which comprises:
a compound semiconductor structure and a top and a bottom electrode to the said structure, said structure comprising in an ascending order
a substrate of one conductivity type, a buffer layer of said one conductivity type, a bottom confining layer of said one conductivity type, an active layer, a top confining layer of another conductivity type, and a contact layer of said another conductivity type, in which
said substrate has two parallel grooves forming a reentrant mesa and shoulder sections, each of said grooves having a dovetailed cross-section, said buffer layer, said bottom confining layer and said active layer each having sections arranged in columns on the mesa, in the grooves and on the shoulders, each of said sections in one column being laterally discontinuous with respect to the related sections in adjacent columns, said top confining layer overlaying sections of the active layer on top of each column and sloped walls of sections of the buffer layer, bottom confining layer and active layer so as to bury the section of the active layer of the column above the mesa and separate this section from other columns,



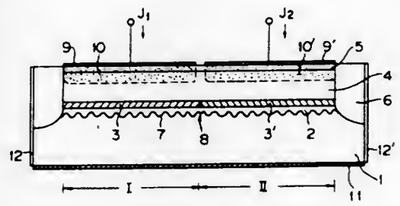
a dielectric layer on the contact layer, said dielectric layer having a window coxetensive with the mesa,
a top electrode in contact with the contact layer exposed in said window, said top electrode being also coextensive of the mesa, and
an overlay electrode on the whole of the upper surface of the said top electrode and of said dielectric layer and forming contact to the top electrode.

5,208,822

SEMICONDUCTOR ELEMENT HAVING OPPOSITE SIGNS OF α PARAMETER

Hermann A. Haus, Lexington, Mass., and Katsuyuki Utaka, Tokyo, Japan, assignors to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan

Filed Jul. 18, 1991, Ser. No. 732,284
Claims priority, application Japan, Jul. 19, 1990, 2-189330
Int. Cl.[5] H01S 3/19
U.S. Cl. 372—50 11 Claims



11. A semiconductor optical element comprising;
a semiconductor substrate,
a wave-guide, an active layer and a clad layer mounted on said semiconductor substrate,
said active layer comprising first region and second region coupled optically with each other, and having opposite signs of α parameters with each other, where said parameter is ratio of change of refractive index to change of gain following change of carrier density,
a first electrode common to all regions attached on one side of said substrate, and
second electrodes for each region attached on the other side of said substrate.

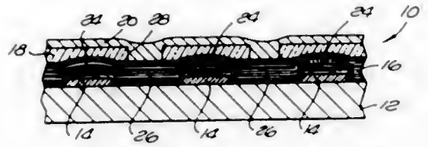
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,823

OPTICALLY ISOLATED LASER DIODE ARRAY

Rushikesh Patel, Pomona, Calif., assignor to Applied Solar Energy Corporation, City of Industry, Calif.

Filed Sep. 3, 1991, Ser. No. 753,970
Int. Cl.[5] H01S 3/19; H01L 21/20
U.S. Cl. 372—50 20 Claims



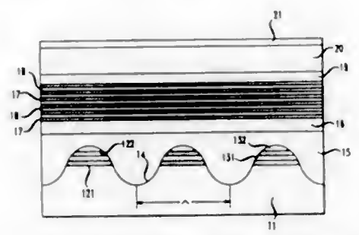
I. An optically isolated laser diode array comprising:
a semiconductor substrate;
a plurality of spaced apart elongated strips disposed on said substrate;
a semiconductor quantum well layer disposed on said substrate overlying said strips, said quantum well layer being displaced in regions thereof above each of said strips such that said regions are optically lossy;
an electrically insulative layer disposed on said quantum well layer, said insulative layer having a plurality of elongated trenches wherein each of said trenches exposes a portion of said quantum well layer thereunder, said trenches being alternatingly disposed intermediate said strips; and
an electrically conductive layer fillingly disposed in each of said trenches in electrical communication with said exposed portion of said quantum well layer, whereby a plurality of laser diode active regions are formed in said quantum layer under each of said trenches and are optically isolated from each other by said optically lossy regions.

5,208,824

ARTICLE COMPRISING A DFB SEMICONDUCTOR LASER

Won-Tien Tsang, Holmdel, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 12, 1991, Ser. No. 806,969
Int. Cl.[5] H01S 3/19
U.S. Cl. 372—96 8 Claims



1. An article comprising a DFB laser that comprises a semiconductor body comprising a multiplicity of epitaxial semiconductor layers on a semiconductor substrate comprising
a) a periodically varying first semiconductor region (the "grating" region), associated with the grating region being a period Λ;
b) a second semiconductor region (the "active" region) suitable for generation of electromagnetic radiation of wavelength λ through electron-hole recombination therein, said active region being spaced apart from said grating region; and
c) said laser further comprises contact means that facilitate flowing an electrical current through said semiconductor body; associated with said laser being a radiation emission direction;
CHARACTERIZED IN THAT
d) said grating region comprises one or more semiconductor layers of a first composition, a given first composition layer being sandwiched between semiconductor material of a second composition and varying in said radiation emission direction with period Λ.

5,208,825

RANDOM POLARIZATION GAS LASER TUBE

Hiroyuki Ishihara, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 8, 1991, Ser. No. 681,924
Claims priority, application Japan, Apr. 6, 1990, 2-91583
Int. Cl.[5] H01S 3/08
U.S. Cl. 372—99 2 Claims



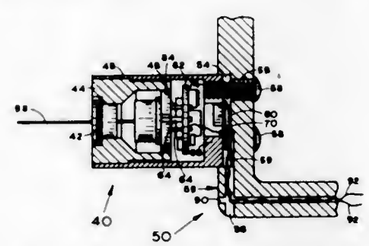
1. A random polarization gas laser tube comprising:
a tube defining an envelope filled with laser gas;
a pair of electrodes provided in the envelope to discharge said gas; and
a pair of mirrors, each of the mirrors having an anisotropic reflection intensity wherein the reflection intensity varies with the angular orientation of the mirror and is highest in a first direction, the mirrors being respectively positioned on opposite ends of the tube with the direction of highest reflection intensity of one of the mirrors being orthogonal to the direction of highest reflection intensity of the other mirror, whereby the laser tube polarization characteristics are stabilized.

5,208,826

AIMABLE LASER MODULE MOUNT

Robert Kelly, Grants Pass, Oreg., assignor to Applied Laser Systems, Grants Pass, Oreg.

Filed Jan. 6, 1992, Ser. No. 817,391
Int. Cl.[5] H01S 3/08
U.S. Cl. 372—107 20 Claims



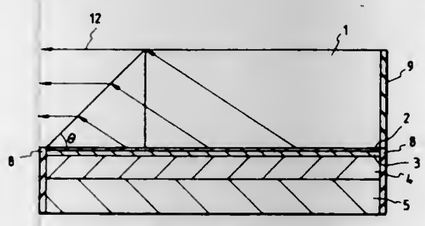
1. A device for mounting a laser device that emits a laser beam from one end thereof onto a bracket, comprising:
a bracket containing at least three through holes passing therethrough,
an end portion of said laser device opposite the end from which said laser beam is emitted and having screw holes therein facing each of said through holes,
a quantity of screws equal in number to said number of screw holes, said screws passing through said through holes and rotatably entering into said screw holes,
means for varying the orientation of said laser device as the depth of entry of said screws into said screw holes is adjusted, and
means for providing electrical power to said laser device.

5,208,827

SEMICONDUCTOR LASER DEVICE HAVING A TRANSPARENT WAVEGUIDE AND A LARGE SECOND HARMONIC GENERATION OUTPUT

Misuzu Sagawa, Kokubunji; Hiroaki Inoue, Hidaki; Kimio Tatsuno, Kodaira, and Masahiro Ojima, Shakujii, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 18, 1991, Ser. No. 793,647
Claims priority, application Japan, Nov. 30, 1990, 2-337115
Int. Cl.[5] H01S 3/10
U.S. Cl. 372—108 22 Claims



1. A semiconductor laser device comprising;
a semiconductor laser having a semiconductor substrate, a first cladding layer, an active layer, a second cladding layer, an electrode disposed on at least an upper surface of said second cladding layer and a cavity comprising said first and second cladding layers and said active layer, for oscillating a fundamental wave; and
a transparent waveguide disposed on said semiconductor laser substantially in parallel to a length direction of said cavity wherein,
when a refractive index of the fundamental wave is made λ, a refractive index of said active layer with respect to the fundamental wave is made $n_i(\lambda)$, a refractive index of said transparent waveguide with respect to the fundamental wave is made $n_2(\lambda)$, and an effective refractive index of the optical waveguide constituted by said semiconductor laser and said transparent waveguide is made n_2, it follows that

$$n_2(\lambda) < n_1(\lambda)$$

$$n_2 < n_2(\lambda/2)$$

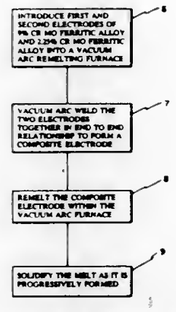
thereby second harmonics of the fundamental wave travel through said transparent waveguide and are emitted therefrom.

5,208,828

PRODUCTION OF TRANSITION JOINTS BETWEEN FERRITIC STEEL COMPONENTS

Graham Oakes, Sheffield, England, assignor to Special Melted Products Limited, Yorkshire, England

Filed Oct. 15, 1991, Ser. No. 775,823
Claims priority, application United Kingdom, Jun. 27, 1991, 9113828
Int. Cl.[5] H05B 3/60
U.S. Cl. 373—51 1 Claim



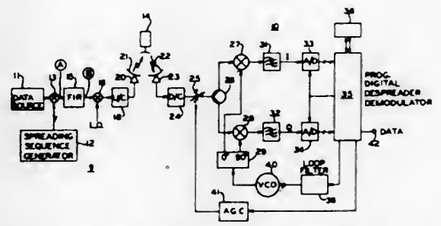
1. A method of producing a transition joint between a first component manufactured from a 9% Cr Mo ferritic alloy and a second component manufactured from a 2.25% Cr Mo ferritic alloy, the method comprising the steps of introducing first and second electrodes of 9% Cr Mo ferritic alloy and 2.25% Cr Mo ferritic alloy into a vacuum arc remelting furnace, vacuum arc welding the electrodes together in end to end relationship to form a composite electrode, remelting the composite electrode with the vacuum arc remelting furnace to produce a melt and solidifying the melt as it is progressively formed.

5,208,829

COMMUNICATION SATELLITE SYSTEM HAVING AN INCREASED POWER OUTPUT DENSITY PER UNIT OF BANDWIDTH

Mohammad Soleimani, Silver Spring, and Sasan Rostami, Gaithersburg, both of Md., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Mar. 26, 1991, Ser. No. 674,746
Int. Cl.[5] H04K 1/00
U.S. Cl. 375—1 15 Claims



1. An earth station transmitter for transmitting a spread spectrum modulated data signal to a satellite comprising:
a source of data signals;
a spreading sequence generator for generating a spreading signal at a spreading signal chip rate f(c) synchronized with said data signals;
a multiplier for multiplying said data signals with said spreading signal to produce a spread spectrum signal

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having an amplitude versus frequency function defined by

$$\frac{\text{SIN } X}{X},$$

where X is frequency;

a filter having an amplitude versus frequency characteristic defined by a 6-pole Butterworth function and by X/SIN X for filtering said spread spectrum signal to thereby produce a filtered spread spectrum signal which is amplitude normalized over at least a portion of said spread spectrum signal bandwidth; and,

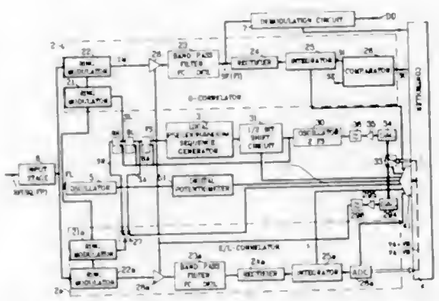
a converter for frequency upconverting said filtered spread spectrum signal for transmission to the satellite.

5,208,830

PROCESS FOR SEARCHING FOR SYNCHRONIZATION ON RECEPTION OF A SPREAD SPECTRUM MODULATED SIGNAL

Jean-Paul Cornec, Lannion, and Philippe Gay, Perros-Guirec, both of France, assignors to French State, represented by the Minister of the Post, Telecommunications and Space, France

Filed Nov. 9, 1990, Ser. No. 611,103
Claims priority, application France, Nov. 15, 1989, 89 14968
Int. Cl.[5] H04K *1/00*
U.S. Cl. 375—1 **10 Claims**



1. A process for searching for synchronization and frequency of a carrier in order to demodulate a received signal resulting from a phase modulation of a digital pseudorandom sequence by a data signal, said digital pseudorandom sequence phase-modulating said carrier and having a length of L bits,

process according to which a local signal having a local frequency close to said frequency of said carrier is phase-modulated by a local digital pseudorandom sequence identical to said sequence in said received signal and then is mixed with said received signal into a mixed signal with intermediary frequency, and said mixed signal is filtered in a filtering frequency band centered on a predetermined intermediary center frequency and having a predetermined width into a filtered signal, and

process comprising an integration step which consists in integrating said filtered signal into an integrated signal for at least a predetermined period and in comparing said filtered signal with at least one predetermined threshold, for a predetermined value of said local frequency and a predetermined shifting of said local sequence with regard to said sequence in said received signal,

said process being characterized by

plural successive series of integration steps respectively for first predetermined discrete values of said local frequency corresponding to first intermediary frequencies substantially equidistributed in a band widely including said filtering band, each series of steps comprising at least 2L integration steps corresponding to 2L successive half-bit time shifts of said local sequence respectively, and the discrete variation of said local frequency and the half-bit shifting of said local sequence ceasing at a first found intermediary frequency and at a found time shift as soon as said integrated signal exceeds said predetermined threshold, and

last integration steps in a predetermined number for which said local sequence does not undergo any time shift and during which said local frequency is respectively estimated at second respective discrete values which are deducted from one another from a second frequency stepping increment that is lower than the difference between two first intermediary frequencies and which correspond to intermediary frequencies included in a second frequency band centered on said first found frequency and wider than said filtering band, each of said last steps at the end of which said integrated signal exceeds said threshold being declared favourable, and

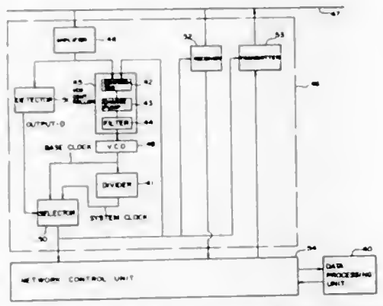
the calculation of a parameter varying linearly with the average frequency of said local frequencies which respectively correspond to the last favourable steps thereby setting said local signal at said average frequency.

5,208,831

NETWORK INTERFACE SYSTEM

Masaji Ueno, Tokyo; Akihito Nishikawa, Kanagawa; Shinichi Iida, and Hajime Shiraishi, both of Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Continuation of Ser. No. 604,480, Oct. 26, 1990, abandoned. This application Feb. 3, 1992, Ser. No. 829,534
Claims priority, application Japan, Oct. 26, 1989, 1-277197
Int. Cl.[5] H04L *7/08*
U.S. Cl. 375—7 **11 Claims**



6. A communications network interface system comprising:

means for receiving a network clock signal from a communications network at one of the plurality of predetermined frequencies;

means, responsive to the receiving means, for generating a detection signal to indicate which one of the plurality of preferred frequencies corresponds to the network clock signal received by the receiving means;

means, having a first input coupled to the receiving means and a second input, for generating a voltage in accordance with a phase difference between a network clock signal on the first input and a signal on the second input;

means for generating a first clock signal having a frequency that corresponds to one of the plurality of predetermined frequencies and that varies in accordance with the voltage generated by the voltage generating means;

means, responsive to the clock signal generating means, for generating a divided clock signal that corresponds to another one of the plurality of predetermined frequencies; and

means, responsive to the detection signal, for selecting one of the first clock signal and the divided clock signal, and

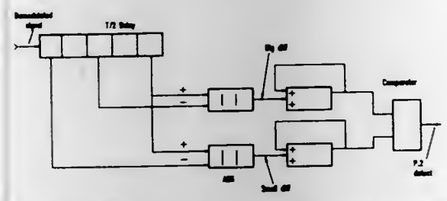
for applying the selected signal to the second input of the voltage generating means.

5,208,832

METHODS AND APPARATUS FOR DETECTING REPETITIVE SEQUENCES

Israel Greiss, Raanana, Israel, assignor to National Semiconductor Corporation, Santa Clara, Calif.

Continuation of Ser. No. 564,791, Aug. 8, 1990, abandoned. This application May 19, 1992, Ser. No. 887,105
Int. Cl.[5] H04B *3/10*
U.S. Cl. 375—13 **7 Claims**



1. A method for detecting a repetitive sequence in a received signal, the method comprising:

(a) estimating the signal level of the received signal;

(b) estimating the error level of the received signal; and

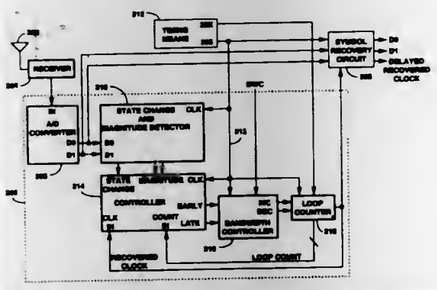
(c) comparing the estimated signal level and the estimated error level against a decision criterion to arrive at a decision regarding the existence of the repetitive sequence.

5,208,833

MULTI-LEVEL SYMBOL SYNCHRONIZER

Richard A. Erhart, Boynton Beach; David F. Willard, Plantation, and James G. Mittel, Boynton Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 8, 1991, Ser. No. 681,841
Int. Cl.[5] H03K *13/24*
U.S. Cl. 375—20 **20 Claims**



1. A symbol synchronizer for a communication receiver receiving multi-level data signals, comprising:

reference clock generating means, for generating a reference clock signal having a predetermined time period;

detecting means for detecting state changes occurring within the received multi-level data signals over the predetermined time period, and for determining time locations corresponding thereto, wherein the time locations are assigned predetermined numeric values corresponding to the time locations determined;

accumulating means, coupled to said reference clock generating means and responsive to the numeric values determined, for accumulating a time location count; and

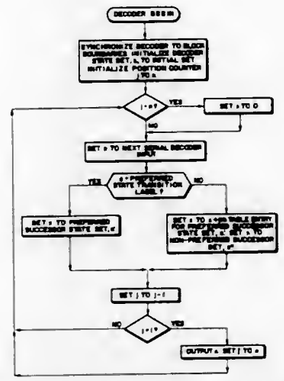
phase adjusting means, coupled to said reference clock generating means, and responsive to the time location count accumulated, for adjusting the phase of the reference clock signal relative to the received multi-level data signal.

5,208,834

LEXICOGRAPHICAL ENCODING AND DECODING OF STATE-DEPENDENT CODES

Lyle J. Frederickson, Sunnyvale, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 15, 1991, Ser. No. 669,784
Int. Cl.[5] H04B *14/04*
U.S. Cl. 375—25 **21 Claims**



14. A method for lexicographically decoding to a number x an n-bit coded output string, in a state-dependent code, from a binary storage channel, said method comprising the steps of:

(a) providing a coding trellis having a plurality of sets of states, each state in each set having a respective threshold equal to the number of valid code subsequences from that particular state to the end of the trellis;

(b) after initially setting x equal to zero, decoding the input string by conditionally adding to x a succession of predetermined ones of said thresholds;

(c) by following a path through the coding trellis,

(1) determining a successor state; and

(2) if the successor state is not in a preferred one of said sets, adding to x the threshold equal to the number of valid code subsequences to the end of the trellis for the state in the preferred one of said sets to derive a number x′ to be used in place of x;

(d) recursively repeating step (c) until all n of the input bits have been decoded; and

(e) outputting the accumulated number x as determined in step (d).

5,208,835

AUTOMATIC FREQUENCY CONTROL SYSTEM AND METHOD FOR FREQUENCY-SHIFT-KEY DATA TRANSMISSION SYSTEMS

Richard W. Weeks, and Edward R. Eisenhaner, both of Laramie, Wyo., assignors to In-Situ, Inc., Laramie, Wyo.

Filed Sep. 24, 1990, Ser. No. 586,804
Int. Cl.[5] H04L *27/06, 27/10*
U.S. Cl. 375—45 **22 Claims**

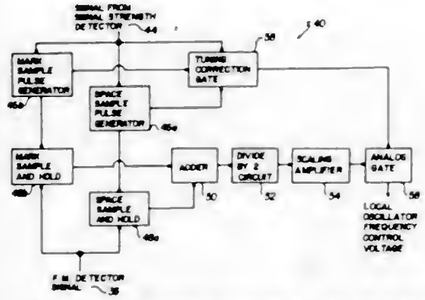
22. An automatic frequency control system for an FSK data transmission system comprising:

first means for transmitting an FSK signal that includes a first FSK signal, a second FSK signal that is different than said first FSK signal, and a third FSK signal for user data, wherein said first and second FSK signals are located in a preamble that precedes said third FSK signal; and

second means for receiving said first FSK signal, said second

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FSK signal, and said third FSK signal and converting each of said first FSK signal, said second FSK signal and said third FSK signal to a different frequency, said means for receiving and converting includes a voltage-controlled-oscillator for outputting a signal having a frequency that is related to a control signal, a mixer for combining said signal output by said oscillator with said first FSK signal, said second FSK signal, and said third FSK signal to produce a fourth FSK signal, a fifth FSK signal, and a sixth FSK signal, respectively, with each having a different frequency than said first FSK signal, second FSK signal, and third FSK signal, means for providing a first signal that is representative of the frequency



of said fourth FSK signal and a second signal that is representative of the frequency of said fifth FSK signal, means for sampling-and-holding said first signal representative of the frequency of said fourth FSK signal and said second signal representative of the frequency of said fifth FSK signal, and means for averaging said first signal that was sampled by said means for sampling-and-holding with said second signal that was sampled by said means for sampling-and-holding to produce said control signal that is used to adjust the frequency of said signal output by said oscillator, wherein adjustment of the frequency of said signal output by said oscillator tunes said second means for receiving for processing of said third FSK signal.

5,208,836

METHOD FOR BIT DETECTION AT THE RECEIVER END OF DIFFERENTIALLY CODED BINARY OR QUATERNARY PSK SIGNALS IN DIFFERENTIAL-COHERENT DEMODULATION

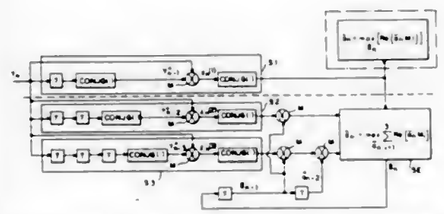
Franz Edbauer, Germering, Fed. Rep. of Germany, assignor to Deutsche Forschungsanstalt fur Luft-und Raumfahrt e.v., Cologne, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 604,286, Oct. 29, 1990, abandoned. This application Aug. 6, 1991, Ser. No. 740,688

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1989, P3935911.5

Int. Cl.[5] H04L *27/22*

U.S. Cl. 375—85 **1 Claim**



1. A method for bit detection at the receiver end of differentially coded binary or quaternary phase shift keying signals in differential-coherent demodulation, wherein

a received, processed signal (y_n) is supplied parallel to each of a number of L symbol detectors (S1 to SL) of the order j (j=1,2,3, . . . , L; (L>1));

said each of said number of L symbol detectors delaying said received, processed signal (y_n) by a respective j symbol period and outputting therein a conjugate complex signal (y_{n-1}^*, y_{n-2}^*, . . . y_{n-L}^*);

each said conjugate complex signal and a further said received processed signal (y_n) inputted into a first multiplication element (M) of said each of said number of L symbol detectors and multiplied to a non-quantized output value $z_n^{(j)}$;

said non-quantized output value being subsequently complex conjugated in said each of said number of L symbol detectors;

said complex conjugated non-quantized output value of said each of said number of L symbol detectors inputted into a bit detection unit;

said bit detection unit outputting detected phase shift keying symbols ($\hat{a}_{n-1}$, $\hat{a}_{n-2}$, . . . $\hat{a}_{n-L+1}$), which are subsequently delayed by time delay elements (T) and then fed back to said bit detection unit;

wherein a symbol (a_n) is determined for which the sum of the squared distances of said number of L symbol detectors assumes a minimum.

5,208,837

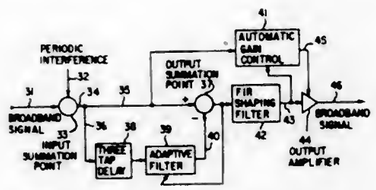
STATIONARY INTERFERENCE CANCELLOR

Manuel F. Richey, Paola, Kans., assignor to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Aug. 31, 1990, Ser. No. 576,035

Int. Cl.[5] H04B *1/10*

U.S. Cl. 375—103 **11 Claims**



9. A stationary interference cancellor comprising:

input summation means for receiving a broadband signal and a periodic interference and for transmitting a primary input and a reference input;

three tap delay means for receiving said reference input and for transmitting a delayed reference input;

least mean squares adaptive filter means for receiving said delayed reference input and for transmitting a filtered signal;

output summation means for receiving said primary input and said filtered signal and for transmitting an output summation signal;

finite impulse response digital shaping filter means for receiving said output summation signal and for transmitting a shaped filtered output;

automatic gain control means for receiving said primary input and said shaped filtered output and for transmitting a control output; and,

output amplifier means for receiving said shaped filtered output and said control output and for transmitting a broadband signal having reduced or eliminated interference.

5,208,838

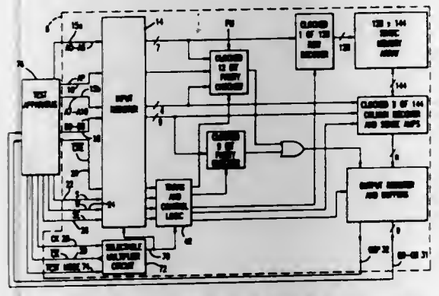
CLOCK SIGNAL MULTIPLIER

Dennis L. Wendell; Charles Hochstedler; Dan Lunecki, all of Puyallup, Wash., and Terry L. Lyon, Roseville, Minn., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Mar. 30, 1990, Ser. No. 502,207

Int. Cl.[5] H04L *7/00*

U.S. Cl. 375—106 **18 Claims**



1. In an integrated circuit having at least a first internal clock signal line, apparatus for selectably translating a clock signal to a higher-frequency clock signal, comprising:

input means for receiving a first clock signal;

multiplier means for receiving said clock signal from said input means and outputting a second clock signal having a higher frequency than said first clock signal;

means for adjusting the frequency of said second clock signal; and

multiplexer means for selectably placing one of said first clock signal and said second clock signal on said internal clock signal line.

5,208,839

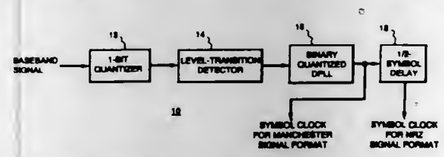
SYMBOL SYNCHRONIZER FOR SAMPLED SIGNALS

Stephen M. Hladik, Albany, and Richard C. Gaus, Jr., Burnt Hills, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed May 28, 1991, Ser. No. 706,604

Int. Cl.[5] H04L *7/02*

U.S. Cl. 375—110 **16 Claims**



6. A symbol synchronizer, comprising:

one-bit quantization means for receiving a sampled baseband signal in a predetermined digital signalling format and generating a binary-valued data sequence therefrom;

level-transition detection means for detecting logic level transitions in said binary-valued data sequence, said level-transition detection means including logic means for masking transitions in said data sequence that do not occur at a predetermined timing offset from the symbol timing epochs thereof and for generating a transition pulse sequence comprising logic pulses at the symbol rate of said data sequence and at said predetermined timing offset from the symbol timing epochs, said predetermined timing offset being on the interval

$$\left[\frac{-T}{2}, \frac{T}{2}\right),$$

depending on said digital signalling format, where T is the symbol period; and

a binary-quantized digital phase-locked loop for receiving the transition pulse sequence from said level-transition detection means and generating a stable symbol clock therefrom, said phase-locked loop including:

(a) a digitally controlled oscillator for generating a symbol clock signal;

(b) phase detecting means for comparing the symbol clock signal from said digitally controlled oscillator to the transition pulse sequence from said level-transition detection means, said phase detecting means including counting means for determining the timing difference between the symbol clock signal and the pulses of the transition pulse sequence, said counting means being enabled by the symbol clock pulses, and said counting means being reset by the transition pulse sequence, said phase detecting means further including count decoding means for receiving said timing difference from said counting means and generating a lead signal if the symbol clock leads the transition pulse sequence and generating a lag signal if the symbol clock lags the transition pulse sequence; and

(c) a random walk filter for receiving the lead and lag signals from said phase detecting means, said filter including an up/down counting means for incrementing a filter count upon receipt of a lag signal and for decrementing a filter count upon receipt of a lead signal, said filter further including count decoding means for receiving said filter count and generating advance and retard signals to said digitally controlled oscillator for respectively advancing and retarding the phase of the symbol clock based on said timing difference.

5,208,840

METHOD AND ARRANGEMENT FOR DETECTING FRAMING BIT SEQUENCE IN DIGITAL DATA COMMUNICATIONS SYSTEM

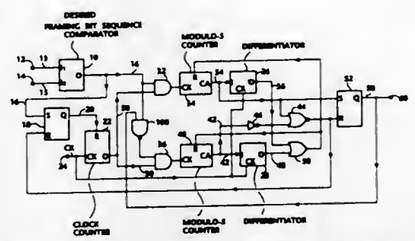
Kazuaki Masuda, Kanagawa, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 4, 1991, Ser. No. 771,466

Claims priority, application Japan, Oct. 4, 1990, 2-267851

Int. Cl.[5] H04L *7/00*

U.S. Cl. 375—114 **8 Claims**



1. A method of detecting a plurality of framing bit sequences for establishing synchronization at a receiver in a digital communications system wherein a bit stream is transmitted to the receiver in a manner divided into a plurality of frames each of which is identified by a frame bit sequence included therein, the method comprising the steps of:

(a) receiving the bit stream and a desired bit sequence whose bit length equals a bit length of the framing bit sequence, comparing the desired bit sequence with part of the bit

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stream, and issuing a coincidence signal in the event that the desired bit sequence coincides with the part of the bit stream;

(b) issuing an output from a clock counter each time the clock counter reaches the number of clocks corresponding to one frame;

(c) counting up the number of occurrences of an event that the coincidence signal issues simultaneously with the output of the clock counter at a first counter;

(d) counting up the number of occurrences of the output of the clock counter at a second counter;

(e) resetting the clock counter and allowing the first and second counters to be reset, in the event that the second counter reaches a predetermined number; and

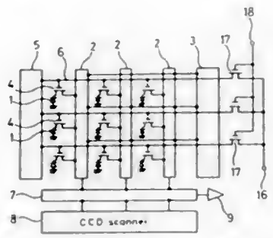
(f) issuing an output which indicates the establishment of the synchronization, in the event that the first counter reaches a predetermined number.

5,208,841

SOLID STATE IMAGING ELEMENT WITH BUS BREAKAGE DETECTOR

Junji Nakanishi, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 8, 1991, Ser. No. 772,887
Claims priority, application Japan, Nov. 14, 1990, 2-311107
Int. Cl.[5] G11C *19/28;* H01C *29/78*
U.S. Cl. 377—60 13 Claims



1. A solid state imaging element comprising:

a plurality of photodetectors arranged in a two-dimensional array on a semiconductor substrate;

first and second charge transfer circuits for transferring signal charges in a vertical direction and a horizontal direction, respectively;

a plurality of transfer gates for controlling charge transfer from respective photodetectors to one of said first and second charge transfer circuits;

a scanner for controlling switching of said transfer gates;

a plurality of bus lines connecting said transfer gates with said scanner; and

bus line breakage checking means including a plurality of transistors connected in series with respective bus lines, a test pad connected to said bus lines through said transistors, and a voltage applying pad connected to said transistors for applying a voltage to control switching of said transistors.

5,208,842

PRECISION DIGITALLY-CONTROLLED VARIABLE ATTENUATION CIRCUIT

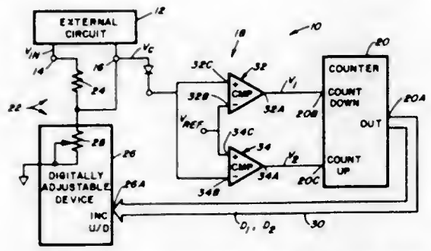
Kenneth L. Atwood; Hyun S. Kim, and Kang M. Lee, all of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 1, 1991, Ser. No. 786,665
Int. Cl.[5] H01C *13/00;* H03K *21/02*
U.S. Cl. 377—55 20 Claims

1. A precision digitally-controlled variable attenuation circuit for adjusting the attenuation of a signal in an external circuit, comprising:

(a) a signal magnitude detector having lower and upper threshold limits representing a desired range of attenuation, said detector being operable to receive a control signal and compare it with said upper and lower threshold limits and, in response to such comparison, to produce either (i) a first signal if the magnitude of the control signal is less than the lower threshold limit or (ii) a second signal if the magnitude of the control signal is greater than the upper threshold limit;

(b) a resistance adjustment control connected to said detector for receiving said first and second signal therefrom and being operable to produce either (i) a first digital signal in



response to receiving said first signal or (ii) a second digital signal in response to receiving said second signal; and

(c) a resistance divider network having a fixed resistance connected between a pair of terminals of an external circuit for receiving a signal applied therebetween, and a digitally-adjustable device with a variable resistance connected between one of the terminals of the external circuit and said adjustment control and being operable to increase or decrease the magnitude of said variable resistance, and thereby correspondingly decrease or increase the attenuation by said divider network of the signal of the external circuit, in response to receiving respectively said first or second digital signal from said adjustment control.

5,208,843

ROTARY X-RAY TUBE AND METHOD OF MANUFACTURING CONNECTING ROD CONSISTING OF PULVERIZED SINTERED MATERIAL

Hitoshi Marumo, Kamakura; Masaru Ishizuka, Kawasaki; Takeshi Nishioka, Yokohama, and Tomiya Sasaki, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 16, 1991, Ser. No. 700,861
Claims priority, application Japan, May 16, 1990, 2-124085; Nov. 29, 1990, 2-325209
Int. Cl.[5] H01J *35/10*
U.S. Cl. 378—125 26 Claims

9. A rotary anode x-ray tube comprising:

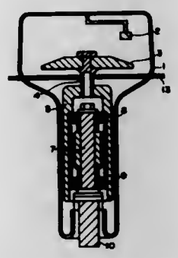
a vacuum vessel;

a cathode electrode, arranged in said vacuum vessel, for emitting electrons;

an anode target, arranged in said vacuum vessel, for generating x-rays when electrons emitted from said cathode electrode collide with said anode target;

a connecting rod, arranged in said vacuum vessel, for supporting said anode target, said connecting rod being manufactured by subjecting a tubular member consisting of a sintered material to processes including plasticization to pulverize crystal grains of the sintered material, such that the connecting rod is constituted by a pulverized sintered material;

a rotor arranged in said vacuum vessel and mounted on said connected rod; and



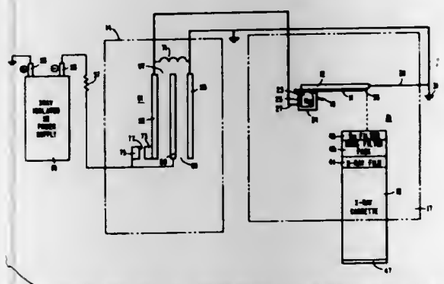
bearings, arranged in said vacuum vessel, for rotatably supporting said anode target.

5,208,844

ELECTRONIC DEVICES USING DISCRETE, CONTAINED CHARGED PARTICLE BUNDLES AND SOURCES OF SAME

Harold E. Puthoff; George W. Church, Jr.; David B. Clifton, and Scott R. Little, all of Austin, Tex., assignors to Jupiter Toy Company, Austin, Tex.

Filed May 20, 1991, Ser. No. 702,467
Int. Cl.[5] H01J *1/46*
U.S. Cl. 378—122 59 Claims



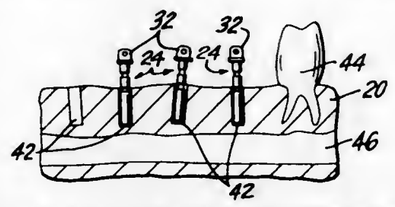
1. An electronic device comprising a cathode; an anode; and a dielectric interposed between the cathode and anode so that a path subsists along the dielectric between the cathode and anode; a pulsed voltage source connected between the anode and cathode; the pulsed voltage source, anode and cathode being such that a discrete contained charged particle bundle is formed at the cathode to propagate along the path to the anode; the pulsed voltage source including: a DC power supply, a capacitor having first, second and third electrodes, the first electrode being located between the second and third electrodes and connected to the DC power supply to be charged by the supply, the second and third electrodes being respectively connected to the cathode and anode, a coil connected across the second and third electrodes, and spark gap breakdown discharge means for selectively connecting the first electrode to one of the second and third electrodes to establish a second discharge including the discrete contained charged particle bundle between the cathode and anode.

5,208,845

RADIOGRAPHIC DEPTH GAUGE

David A. Gelb, 47 Norwood, West Hartford, Conn. 06117

Filed Feb. 4, 1992, Ser. No. 830,604
Int. Cl.[5] A61B *6/14*
U.S. Cl. 378—163 15 Claims



1. A radiographic depth gauge for determining the depth and angulation of a bore in a jaw bone for receiving dental implants, comprising:

an elongated cylindrical member which is of a diameter substantially equal to the diameter of a drill used to form a pilot bore in a jaw bone, which bore is smaller than the diameter of the implant; and

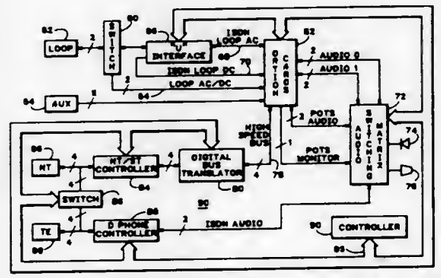
means which will show on an x-ray for indicating distances, which means is physically a part of the structure of the elongated member.

5,208,846

SUBSCRIBER LOOP TESTER FOR TELEPHONE SWITCHING SYSTEMS

John A. Hammond, Portland; James W. Edwards, Beaverton, both of Oreg., and Andre Lubarsky, Jr., Auburn, Calif., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Sep. 3, 1991, Ser. No. 758,971
Int. Cl.[5] H04M *3/30*
U.S. Cl. 379—15 18 Claims



1. A subscriber loop tester for transmitting outgoing telecommunications signals to and receiving incoming telecommunications signals from telephone switching systems implementing different data line codes and protocols and telecommunications standards comprising:

a partitioned "U" interface having a high impedance transformer coupled to receive the telecommunications signals and meeting the bandwidth and line matching requirements for different line codes and protocols implemented in an ISDN telecommunications system;

a plurality of circuits selectively coupled to receive the telecommunications signals from the high impedance transformer with each circuit having AC and DC terminations matching a specific line code and protocol and programmable attenuators for producing a proper nominal signal level as a function of the specific line code and protocol and providing variable insertion loss, the terminations and attenuators being coupled to a transceiver

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circuit for generating an output having a specific data format;

a digital bus translator for converting the specific data formats of the various transceiver circuits on the plurality of circuits to a common data format;

a high speed bus for coupling the output of the transceiver circuits on the plurality of circuits to the digital bus controller, the high speed bus being selectively coupled to each of the plurality of circuits and selectively configured by the digital bus translator for the specific data format of the transceiver circuit; and

means for controlling source and destination audio paths for voice telecommunications signals within the subscriber loop tester

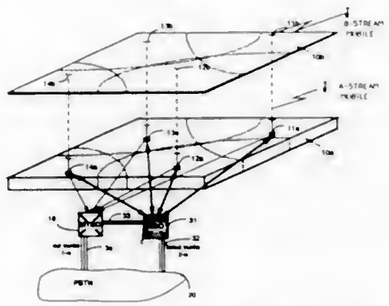
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5,208,847

METHOD OF INCREASING CAPACITY OF CELLULAR NETWORK

Daniel L. Allen, McKinney, Tex., assignor to Northern Telecom Limited, Montreal, Canada

Filed Feb. 25, 1991, Ser. No. 659,939
Int. Cl.[5] H04M *11/00*
U.S. Cl. 379—59 **7 Claims**



3. A method for providing an overlay cellular network and operating in tandem said overlay cellular network with an existing cellular network to increase said existing cellular network's capacity, said existing network having a plurality of cells with at least a first base station in each cell connected to a mobile telephone switching office (MTSO) connected to a public switched telephone network (PSTN), said MTSO having paging/access control channels, said method comprising the steps of:

a) providing a second switching office (SSO), said SSO having paging/access control channels;

b) coupling in and out trunks between said SSO and said PSTN;

c) coupling inter-office trunks between said SSO and said MTSO;

d) decoupling incoming trunks between said MTSO and said PSTN;

e) providing a second base station in each cell, said second base station being associated with said SSO;

f) assigning for each cell associated with said SSO a paging-/access control channel;

g) monitoring incoming and outgoing call to and from mobile subscribers to identify a first group of subscribers having a Mobile Identification Number (MIN) with a least significant bit equal to a first binary number;

h) monitoring incoming and outgoing calls to and from mobile subscribers to identify a second group of subscribers having a MIN with a least significant bit equal to a second binary number;

i) assigning for each cell associated with said MTSO a modified paging/access control channel such that said paging channel is modified to prevent subscribers from said first group and said second group from scanning and locking onto any paging channels from said MTSO;

j) intercepting, at said SSO, outgoing calls from a mobile subscriber in said first group for service by said MTSO; and

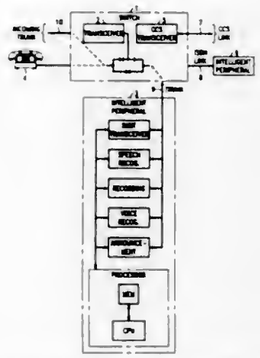
k) intercepting, at said SSO, incoming and outgoing calls to and from a mobile subscriber in said second group for set up and service by said SSO and incoming calls from said PSTN to a mobile subscriber in said first group for transfer to said MTSO via one of said interoffice trunks.

5,208,848

TELECOMMUNICATIONS CALL PROCESSING

Michael K. Pula, Naperville, Ill., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Aug. 26, 1991, Ser. No. 750,138
Int. Cl.[5] H04M *1/64, 11/100*
U.S. Cl. 379—67 **25 Claims**



1. A method of processing a telecommunications call comprising the steps of:

responsive to receipt of a service request or an incoming call request from a calling station, connecting said calling station, in parallel, to a digit receiver of a switching system and to an intelligent peripheral means;

testing in said intelligent peripheral means whether dialing information for completing said call is required from said intelligent peripheral means;

responsive to a determination that dialing information is required from said intelligent peripheral means, supplying characters for said call from said intelligent peripheral means to said switching system for use in controlling establishment of said call; and

responsive to a determination that no dialing information is required from said intelligent peripheral means, using dialing information supplied by said calling station to said digit receiver for controlling establishment of said call.

5,208,849

METHOD OF AND APPARATUS FOR PRIVATE TELEPHONE AUTOMATIC LOCATING AND ANSWERING

Wong K. Fu, Kowloon, Hong Kong, assignor to Star Paging (Communications Equipment) Manufacturing Ltd., Kowloon, Hong Kong

Filed Oct. 16, 1991, Ser. No. 777,749
Claims priority, application China, Aug. 19, 1991, 91105913
Int. Cl.[5] H04M *1/57, 1/64*
U.S. Cl. 379—70 **7 Claims**

1. A method of private telephone automatic locating and answering, comprising the following sequential steps:

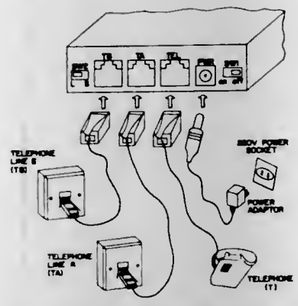
A. the apparatus for automatic locating and answering

basically works with two telephone lines, the caller dials the number of a receiver's "apparatus for automatic locating and answering", and connects his phone with the apparatus on one of the two telephone lines;

B. conversation may be held with the caller immediately using the handset provided on the apparatus;

C. if within a predetermined period of time, no one answers the call over the phone on the apparatus, said apparatus then keeps in contact with the caller, and at the same time on another phone line dials up a paging centre, leaves a verbal message, and hangs up to wait for the receiver's response;

D. the paging centre calls the receiver, telling him that



someone is waiting to talk to him through the receiver's apparatus for automatic locating and answering;

E. the receiver dials up his own automatic telephone locating and answering apparatus, which connects the two incoming telephone lines, in other words, the caller has put through his line to the receiver; and

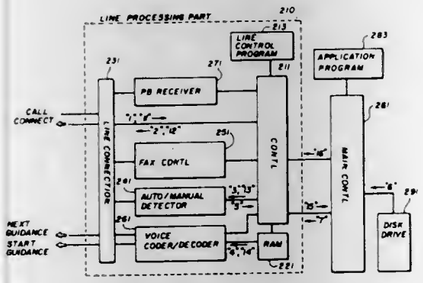
F. if the receiver does not respond to his "apparatus for automatic telephone locating and answering" within a predetermined period of time, said apparatus once again dials the paging centre, requesting the caller to directly leave a verbal message with the paging centre; the receiver, after getting the paging message at the second time and on being able to identify the caller, may choose either to call back or to take no action.

5,208,850

MULTI-MEDIA INFORMATION SERVICE CENTER AND MULTI-MEDIA COMMUNICATION SYSTEM

Tooru Kino, Kunitachi, Japan, assignor to Fujitsu Limited, Japan

Continuation of Ser. No. 477,429, Feb. 9, 1990, abandoned. This application Aug. 5, 1991, Ser. No. 741,962
Claims priority, application Japan, Feb. 9, 1989, 1-30577
Int. Cl.[5] H04M *1/64, 11/00*
U.S. Cl. 379—88 **18 Claims**



1. A multi-media information service center which is coupled to a telephone set that transmits keypad information and to a communication unit that transmits communication signals via a line network which includes a predetermined line, the communication unit being other than a telephone set, said multi-media information service center comprising:

line connection means for connecting the multi-media information service center to an end of the predetermined line of the line network in response to a call received from the other end of the predetermined line;

storage means for storing voice information;

voice information transmission means for reading the voice information from said storage means and for transmitting the voice information to the predetermined line;

discrimination means for receiving the call and for discriminating a communication mode of the call based on determining immediately upon reception of said communication signals within a predetermined time whether the call originated from the communication unit; and

service providing means for providing a service immediately to one of the telephone set and the communication unit in response to the communication mode discriminated by said discrimination means,

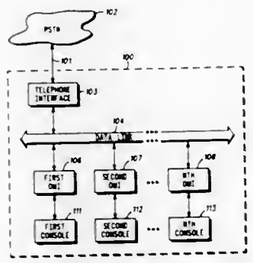
said voice information transmission means and said discrimination means operating simultaneously and immediately after said line connection means connects the multi-media information service center to the predetermined line.

5,208,851

METHOD FOR CONTROLLING ALLOCATION OF A COMMUNICATION LINK

Jeffrey J. Blanchette, Hoffman Estates; James C. Tykal, Streamwood, and David A. Sticha, Marengo, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 509,915, Apr. 16, 1990. This application Apr. 12, 1991, Ser. No. 684,412
Int. Cl.[5] H04N *13/00*
U.S. Cl. 379—177 **14 Claims**



1. A method for controlling allocation of a communication link amongst a plurality of consoles, comprising the steps of:

A) establishing a communication link upon determining a need for the communication link by a first console;

B) when additional consoles indicate a need to also use the communication link, assigning one of the first and additional consoles to indicate, from time to time, a continued need to retain the communication link;

C) when the assigned console no longer needs the communication link, assigning a different console to indicate, from time to time, a continued need to retain the communication link;

D) when no consoles indicate a need to use the communication link, breaking the communication link.

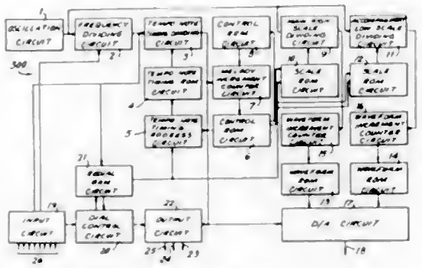
VOL 1150 ISS 1 MY 4 1993 UMI

5,208,852

SOUND GENERATION CIRCUIT

Tsuyoshi Tamura, and Masanki Sagara, both of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 784,742, Oct. 29, 1991, abandoned, which is a continuation of Ser. No. 412,367, Sep. 26, 1989, abandoned. This application Apr. 3, 1992, Ser. No. 864,176
Claims priority, application Japan, Sep. 27, 1988, 63-241633; Jun. 15, 1989, 1-153490
Int. Cl.[5] H04M 1/50
U.S. Cl. 379—353 69 Claims



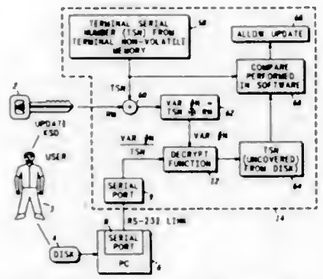
1. A sound generation circuit, comprising:
memory means for storing data for controlling production by the sound generation circuit of a dual tone;
selection means for selecting the data stored in the memory means; and
frequency dividing means for producing an output signal having a frequency which varies based on the data selected by the selection means;
wherein production of said dual tone is based on the output signal of said frequency dividing means and wherein said memory means includes a first memory for storing data associated with the length of a musical note.

5,208,853

METHOD AND APPARATUS FOR USAGE PROTECTION OF DATA FILES USING SPLIT KEY AND UNIQUE VARIABLE

Peter J. Armbruster, Chandler, and Paul R. Kennedy, Mesa, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 9, 1991, Ser. No. 756,702
Int. Cl.[5] H04L 9/04
U.S. Cl. 380—4 17 Claims



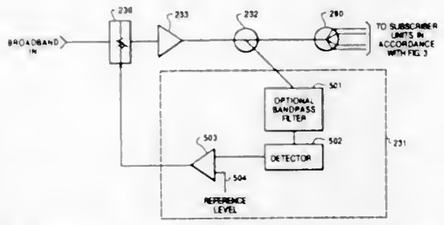
1. A method for preventing unauthorized use of an unencrypted data file using a split key encryption system, the method comprising the steps of:
providing a unique variable;
generating a random number;
copying the random number to a key storage device;
combining the unique variable and the random number to generate an encryption variable;
encrypting the unique variable using the encryption variable, resulting in an encrypted unique variable;
transferring the encrypted unique variable and the unencrypted data file to a user; and
transferring the key storage device to the user.

5,208,854

PICTURE CARRIER CONTROLLED AUTOMATIC GAIN CONTROL CIRCUIT FOR CABLE TELEVISION INTERDICTION OR JAMMING APPARATUS

Lamar E. West, Jr., Rte. 2, Box 377, Maysville, Ga. 30558, assignor to Scientific-Atlanta, Inc., Atlanta, Ga.

Continuation-in-part of Ser. No. 166,302, Mar. 10, 1988, Pat. No. 4,912,760, and a continuation-in-part of Ser. No. 279,619, Dec. 5, 1988. This application Dec. 6, 1989, Ser. No. 446,603
Int. Cl.[5] H04N 7/167
U.S. Cl. 380—7 17 Claims



13. Automatic gain control apparatus of an interdiction cable television system, the CATV system including co-located common circuitry, shared by a plurality of subscriber units, the automatic gain control apparatus comprising:
variable gain means for receiving a broadband television signal and for adjusting the power level of the broadband television signal transmitted toward a subscriber of the CATV system to a predetermined reference power level responsive to a control signal and
control means for comparing the power level of the output of the variable gain means with the predetermined reference power level and for providing the control signal to the variable gain means,
the output of the variable gain means being coupled to radio frequency signal splitter means for splitting the output of the variable gain means to the plurality of subscriber units.

5,208,855

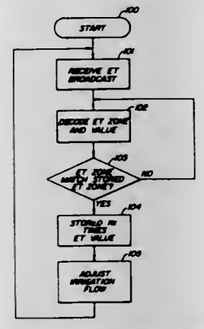
METHOD AND APPARATUS FOR IRRIGATION CONTROL USING EVAPOTRANSPIRATION

Michael B. Marian, 2110 Meadowview Dr., Petaluma, Calif. 94954

Filed Sep. 20, 1991, Ser. No. 763,001
Int. Cl.[5] H04K 1/02; A01G 25/16
U.S. Cl. 380—9 16 Claims

15. A system for directly broadcasting selected portions of an Evapotranspiration database to a collection of receiving and sprinkler-controlling units distributed over a geographic area, each receiving and sprinkler-controlling unit being coupled to at least one irrigation sprinkler, said system comprising:
means for directly broadcasting a stream of encrypted Evapotranspiration data;
a plurality of irrigation sprinkler controllers, each of said controllers having a preset duty cycle for watering;
a plurality of receiving means for receiving said encoded Evapotranspiration data signal, each of said receiving means being coupled to at least one of said irrigation sprinkler controllers, and each receiving means including

means for storing a preset Evapotranspiration zone reference and for storing a preset crop adjustment value;
each of said receiving means also including means for decrypting said encrypted irrigation control signal into a broadcast Evapotranspiration zone identifier and a broadcast corresponding Evapotranspiration value;
each of said receiving means coupled to irrigation sprinkler controller means including means of comparing said broadcast Evapotranspiration zone identifier with said preset Evapotranspiration zone reference such that each of said sprinkler controllers is selectively responsive to a



corresponding one of said Evapotranspiration values of one of said zone identifiers;
means for coupling said Evapotranspiration data signal from each of said receiving means to said irrigation sprinkler controllers;
means for adjusting in said irrigation sprinkler controllers said preset duty cycles for watering responsive to said Evapotranspiration data signals and also responsive to said preset crop adjustment value to provide adjusted duty-cycle signals, whereby said each of said irrigation sprinkler controllers controls the amount of water sent to plants according to said adjusted duty-cycle signal.

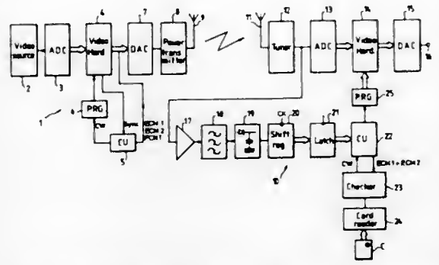
5,208,856

SCRAMBLING AND UNSCRAMBLING METHOD FOR COMPOSITE VIDEO SIGNALS AND IMPLEMENTING DEVICE

Michel Leduc, Boersch; Joël Hamon, Lipsheim; Jean-Claude Guillon, Gerstheim; Francis Renard, Ostwald, and Eric Diehl, Neudorf, all of France, assignors to Laboratoire Europeen de Recherches Electroniques Avancees, Courvevole, France

Continuation of Ser. No. 566,347, Aug. 22, 1990, abandoned. This application Dec. 23, 1991, Ser. No. 811,906
Claims priority, application France, Dec. 23, 1988, 8817092
Int. Cl.[5] H04N 7/167
U.S. Cl. 380—14 12 Claims

1. A scrambling and unscrambling method for composite video signals, comprising:
scrambling said video signals by a line permutation controlled by a first pseudo-random sequence using a variable control word;
inserting, in predetermined unused lines of at least a portion of transmitted images included in said composite video signals, encoded digital data packets corresponding to different access messages, said digital data packets including said control word;
transmitting said scrambled composite video signals including said access messages;
receiving said transmitted scrambled composite video signal;
extracting said access messages from said received composite video signal;
combining said access messages in a confidential manner with data supplied to a receiver of the scrambled composite video signals;
producing said control word for a pseudo-random sequence generator; and



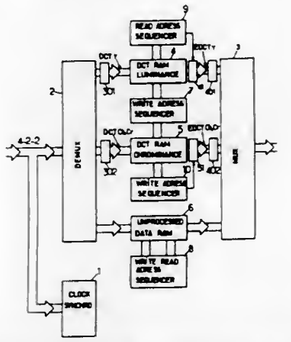
controlling unscrambling of said scrambled composite video signal using a second pseudo-random sequence based upon said control word, said second pseudo-random sequence being identical to and synchronized with said first pseudo-random sequence.

5,208,857

METHOD AND DEVICE FOR SCRAMBLING-UNSCRAMBLING DIGITAL IMAGE DATA

Francois Lebrat, Paris, France, assignor to Telediffusion de France, France

Filed Apr. 24, 1991, Ser. No. 690,839
Claims priority, application France, Apr. 25, 1990, 90 05269
Int. Cl.[5] H04N 7/167
U.S. Cl. 380—14 22 Claims



16. A device for scrambling-descrambling multiplexed digital television image data, said digital image data comprising video data that undergo a scrambling-descrambling operation together with auxiliary data that are not subjected to said scrambling-descrambling operation, this video data being subjected to compression to enable transmission thereof, said device comprising:
demultiplexing means for extracting the luminance and chrominance components of the pixels forming the image and the data not subjected to the scrambling-unscrambling operation,
first and second means for storing in blocks pixels of the luminance and chrominance components so as to generate corresponding spatial chopping of the image, said blocks b(I,J) of pixels being stored at corresponding addresses I, J where I designates a line index and J a column index of arrangement of the blocks of the image,

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third means for storing said data not subjected to the scrambling-unscrambling operation, and

mixing means for mixing said pixels x(i,j) of each block b(I,J) so as to obtain a scrambled arrangement of blocks of pixels.

5,208,858

METHOD FOR ALLOCATING USEFUL DATA TO A SPECIFIC ORIGINATOR

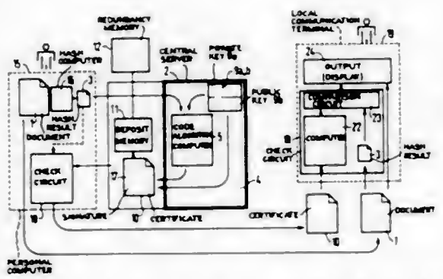
Emmeran Vollert, Grossboebenrain, and Eberhard Wildgrube, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jan. 24, 1991, Ser. No. 645,496

Claims priority, application Fed. Rep. of Germany, Feb. 5, 1990, 4003386

Int. Cl.[5] H04L *9/02*; **H04K** *1/00, 9/00*

U.S. Cl. 380—43 **7 Claims**



1. A method for the unambiguous allocation of useful data transmitted between first and second local communication terminals to a specific originator, comprising the steps of:

(a) compressing useful data with a hash method to form a hash result at a first local communication terminal;

(b) transmitting a message including the hash result and a header identifying the originator, the receiver and the nature and extent of further processing to a central server;

(c) processing the data for forwarding in the central processor by

(c1) biometrically authenticating the user on the basis of the header, and

(c2) forming a signature by processing the hash result and a private key code of the user with a first crypto-algorithm;

(d) storing the signature in the central server;

(e) transmitting the signature and the public key code of the user to the user for checking;

(f) checking the signature and the public key code of the user at the first local communication terminal;

(g) in response to a positive result of the check, transmitting the useful data, in clear text, and the signature to the second local communication terminal;

(h) receiving the clear text useful data and the signature at the second local communication terminal;

(i) applying the same hash method to the received clear text data to obtain the same hash result;

(j) applying a second crypto-algorithm which is the inverse of the first crypto-algorithm to the signature;

(k) comparing the results of the steps (i) and (j); and

(l) in response to coincidence in the step (k), indicating a valid allocation of the useful data to the specific user.

5,208,859

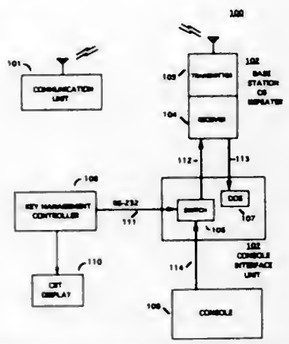
METHOD FOR REKEYING SECURE COMMUNICATION UNITS BY GROUP

John T. Bartucci; Kevin M. Cutts, both of Schaumburg, and Jeffrey J. Brzozowski, Arlington Heights, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 15, 1991, Ser. No. 670,553

Int. Cl.[5] H04L *9/02*

U.S. Cl. 380—45 **5 Claims**



1. In a secure communication system including a plurality of communication units and a key management controller, a method for storing and managing rekeying information, the method comprising:

(a) storing communication unit identification information within the key management controller;

(b) storing encryption keys associated with the communication units within the key management controller;

(c) maintaining a plurality of editable data bases that establish a one-to-one correspondence between the encryption keys and key storage locations within the communication units;

(d) assigning each communication unit to one of a number of predetermined groups; and

(e) assigning each group to one of the editable data bases.

5,208,860

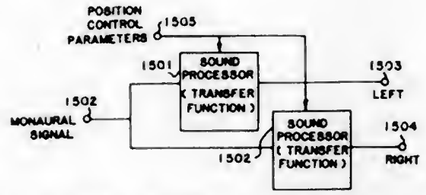
SOUND IMAGING METHOD AND APPARATUS

Danny D. Lowe, and John W. Lees, both of Calgary, Canada, assignors to QSound Ltd., Calgary, Canada

Division of Ser. No. 696,989, May 2, 1991, Pat. No. 5,105,462, which is a continuation of Ser. No. 398,988, Aug. 28, 1989, abandoned, which is a continuation-in-part of Ser. No. 239,981, Sep. 2, 1988, Pat. No. 5,046,097. This application Oct. 31, 1991, Ser. No. 786,027

Int. Cl.[5] H04S *5/00*

U.S. Cl. 381—17 **6 Claims**



1. A method for producing and locating an apparent origin of a selected sound from an input monaural signal corresponding to the selected sound in a predetermined and localized position anywhere within the three-dimensional space containing a listener, comprising the steps of:

separating said input monaural signal into respective first and second channel signals;

providing a sound position control signal derived independently of the input monaural signal for making amplitude and phase adjustments at each of a number of discrete frequency bands over the audio spectrum and relating to a sound location determined by azimuth, height, and depth;

altering the amplitude and shifting the phase of the signal in at least one of said first and second channels in response to said sound position control signal, both altering and shifting being done on a predetermined frequency dependent basis for successive discrete frequency bands across the audio spectrum and each successive phase shift being different than the preceding phase shift relative to zero degrees, thereby producing at least a first channel qr a second channel modified signal and creating a continuous phase differential and a continuous amplitude differential between the two channel signals that varies for each of said discrete frequency bands;

maintaining the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase; and

respectively applying at least first and second channel modified signals that are maintained separate and apart and that have said phase and amplitude differential therebetween to first and second transducer means located with the three-dimensional space and spaced apart from the listener to produce a sound apparently originating at a predetermined location in the three dimensional space that may be different from the location of said sound transducer means.

5,208,861

PITCH EXTRACTION APPARATUS FOR AN ACOUSTIC SIGNAL WAVEFORM

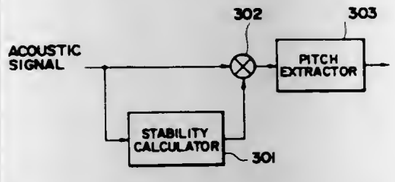
Shigeki Fujii, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Jun. 12, 1989, Ser. No. 365,188

Claims priority, application Japan, Jun. 16, 1988, 63-146875; Jun. 16, 1988, 63-146876; Jun. 16, 1988, 63-146877

Int. Cl.[5] G10L *5/00*

U.S. Cl. 381—31 **14 Claims**



1. A pitch extraction apparatus comprising:

stability calculating means for calculating, on the basis of an acoustic signal, stability which exhibits a larger value when the amplitude of the acoustic signal is relatively larger and the frequency of the acoustic signal is relatively lower;

multiplying means for calculating a product of said stability and said acoustic signal to provide a product signal; and

pitch extraction means for extracting a pitch on the basis of the product signal output from said multiplying means.

5,208,862

SPEECH CODER

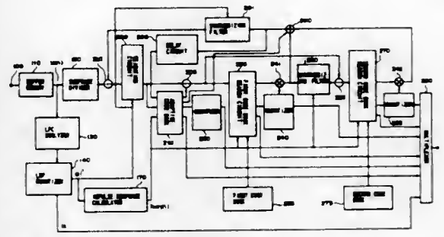
Kazunori Ozawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 20, 1991, Ser. No. 658,473

Claims priority, application Japan, Feb. 22, 1990, 2-42955; Feb. 22, 1990, 2-42956

Int. Cl.[5] G10L *5/00*

U.S. Cl. 381—36 **9 Claims**



1. A speech coder comprising:

means for dividing a discrete input speech signal into signal components in units of frames each frame having a predetermined time length, and for generating a spectrum parameter representing a spectrum envelope of said discrete input speech signal;

means for generating a subframe signal by dividing the frame into subframes each subframe having a predetermined time length, and for calculating a pitch parameter using a correlation between said discrete input speech signal and synthetic speech calculated from an excitation signal generated from a previous discrete input speech signal;

a first code book for storing code vectors formed by off-line training based on a speech signal data base;

a second code book for storing code vectors having predetermined statistical characteristics; and

means for generating an excitation signal of the discrete input speech signal by a linear combination of a code vector selected from said first code book in accordance with each obtained subframe signal and a code vector selected from said second code book, and outputting an index of said code vector selected from said first code book and an index of said code vector selected from said second code book together with said spectrum parameter and said pitch parameter.

5,208,863

ENCODING METHOD FOR SYLLABLES

Atsushi Sakurai, Yokohama; Junichi Tamura, Tokyo, and Tetsuo Kosaka, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 2, 1990, Ser. No. 608,376

Claims priority, application Japan, Nov. 7, 1989, 1-290912

Int. Cl.[5] G10L *5/00*

U.S. Cl. 381—43 **7 Claims**

1. A method of generating code information having first and second parts representing a syllable, said method comprising the steps of:

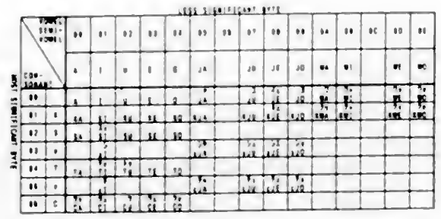
providing a first set of phonemes each of which is only part of a syllable;

providing a second set of phonemes each of which can be a syllable in combination with a consonant;

forming a table comprising a first category of data representing the first set of phonemes provided in said first providing step and a second category of data representing the second set of phonemes provided in said second providing step;

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generating a first part of the code information using the first category of data, and



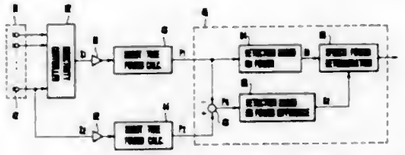
generating a second part of the code information using the second category of data.

5,208,864

METHOD OF DETECTING ACOUSTIC SIGNAL

Yutaka Kaneda, Tokyo, Japan, assignor to Nippon Telegraph & Telephone Corporation, Japan

Filed Mar. 8, 1990, Ser. No. 490,773
Claims priority, application Japan, Mar. 10, 1989, 1-58953
Int. Cl.[5] G10L *3/00*; H04R *3/00, 75/00*
U.S. Cl. 381—46 5 Claims



1. A method of detecting an acoustic signal, comprising the steps of:

using first and second sound receiving units, located at the same position and having different directivity characteristics, for outputting signals having different target signal power to noise power ratios; and

when a difference between logarithmic powers of said signals output from said first and second sound receiving units in a given period falls within a predetermined range, determining reception of the target signal within the given period, and

using said first sound receiving unit in the form of an adaptive microphone array for controlling directivity characteristics in correspondence with a noise position.

5,208,865

MUTING CIRCUIT USING COMMON MODE REJECTION OF DIFFERENTIAL AMPLIFIER

James W. Friske, Northville, and Andrew C. Krochmal, Plymouth, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 23, 1991, Ser. No. 812,337
Int. Cl.[5] H04B *15/00*
U.S. Cl. 381—94 11 Claims

1. An audio system for a vehicle comprising:

a source of audio signals to be reproduced;

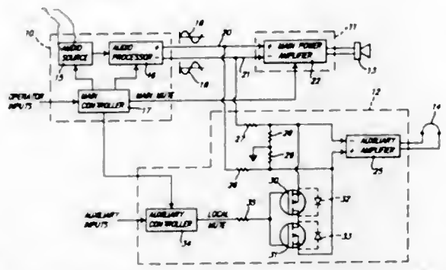
an audio processor coupled to said source and providing a low level differential output signal across a pair of output terminals;

main controller means coupled to said source and said audio processor for controlling audio parameters of said low level differential output signal;

primary output means coupled to said output terminals for amplifying said low level differential output signal and for reproducing sound in said vehicle; and

auxiliary output means coupled to said output terminals for reproducing sound audible in a portion of said vehicle, said auxiliary output means comprising:

a fixed gain differential amplifier having a pair of differential inputs coupled to receive said low level differential output signal;



muting means coupled to said pair of differential inputs for selectably connecting together said differential inputs in response to a mute signal; and

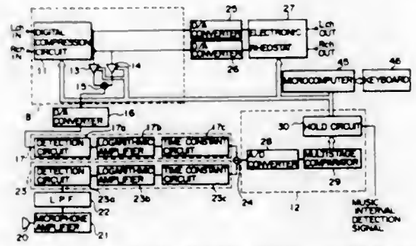
auxiliary controller means coupled to said muting means for generating said mute signal for a predetermined time when said audio processor is first activated.

5,208,866

ON-BOARD VEHICLE AUTOMATIC SOUND VOLUME ADJUSTING APPARATUS

Shinjiro Kato; Hisashi Kihara; Fumio Tamura, and Shuichi Mori, all of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 27, 1990, Ser. No. 619,182
Claims priority, application Japan, Dec. 5, 1989, 1-316230
Int. Cl.[5] H03G *3/20*
U.S. Cl. 381—107 5 Claims



1. An on-board vehicle automatic sound volume adjusting apparatus for receiving an audio signal and automatically adjusting the level of said audio signal in accordance with a running noise level detected inside said vehicle, said apparatus comprising:

control means for generating a control signal in response to a difference value between an audio signal level derived from an audio input and said running noise level; and

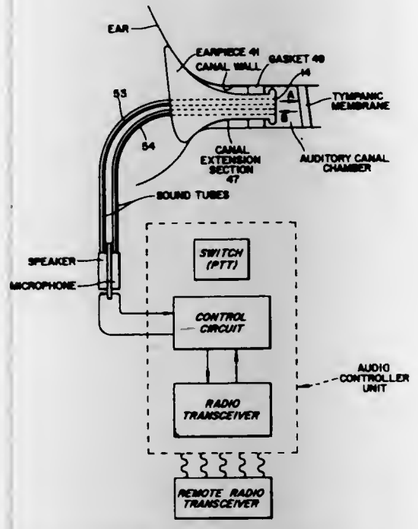
compressing means provided in an input/output line of said audio signal for detecting an absolute value of said audio signal level and for compressing the amplitude of said audio signal at a degree corresponding to said control signal and said absolute value.

5,208,867

VOICE TRANSMISSION SYSTEM AND METHOD FOR HIGH AMBIENT NOISE CONDITIONS

George M. Stites, III, Ocean City, N.J., assignor to IntelEx, Inc., Marmora, N.J.

Filed Apr. 5, 1990, Ser. No. 504,971
Int. Cl.[5] H04R *25/00*
U.S. Cl. 381—169 52 Claims



1. A voice transmission system comprising:

a) earpiece means having sound dampening means and an outer surface effective to removably interlock contiguously to the outer ear auricle of a wearer of the earpiece means,

b) first speaker means for sending inbound sounds and first microphone means for receiving outbound voice sounds respectively to and from the tympanic membrane of said wearer,

c) said first speaker means and first microphone means being structurally and electrically connected to a circuit board member to form a speaker/microphone module,

d) said circuit board member including means for electrically connecting and transmitting inbound electrical audio signals to the first speaker means and means for electrically connecting and transmitting outbound electrical voice signals from the first microphone means to control circuit means,

e) said control circuit means including outbound audio circuit means and inbound audio circuit means, said outbound audio circuit means being electrically connected to said first microphone means and said inbound audio circuit means being electrically connected to said first speaker means,

f) second speaker means disposed at a location remote from said person for receiving said outbound electrical voice signals from the first microphone means, and

g) second microphone means disposed at a location remote from said person for forwarding said inbound electrical audio signals to said first speaker means,

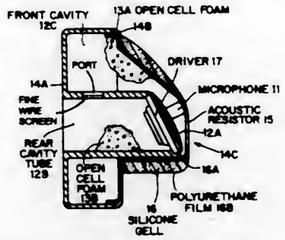
h) said sound dampening means being disposed to isolate the earpiece means for substantially eliminating audio vibration pickup of sound transmitted by bone and tissue conduction.

5,208,868

HEADPHONE OVERPRESSURE AND CLICK REDUCING

Roman Sapiejewski, Boston, Mass., assignor to Bose Corporation, Framingham, Mass.

Filed Mar. 6, 1991, Ser. No. 665,644
Int. Cl.[5] H04R *25/00*
U.S. Cl. 381—183 7 Claims



1. Apparatus for reducing pressure in a headphone comprising

a headphone having a front and back cavity; and

a port tuned to about 50 Hz inserted between the front and back cavities of the headphone,

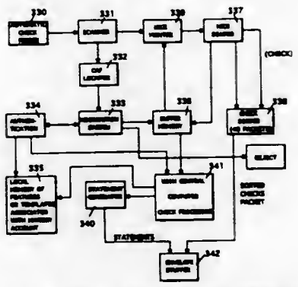
said port being a combination of a mass element and a resistive element with said resistive element in said port.

5,208,869

CHARACTER AND PATTERN RECOGNITION MACHINE AND METHOD

Arthur W. Holt, 20 Wardour Dr., Annapolis, Md. 21401

Division of Ser. No. 244,425, Sep. 15, 1988, Pat. No. 5,097,517, which is a continuation-in-part of Ser. No. 26,817, Mar. 17, 1987, abandoned, which is a continuation-in-part of Ser. No. 909,388, Sep. 19, 1986, Pat. No. 4,837,842. This application Aug. 2, 1991, Ser. No. 739,752
Int. Cl.[5] G06K *9/00*
U.S. Cl. 382—7 3 Claims



1. Banking apparatus for high speed processing bank checks, drafts and like documents having courtesy amount fields thereon with numeric characters therein, comprising:

means for conveying said documents along a path,

means for locating and scanning said courtesy amount field to produce an optical image thereof,

digitizing means for converting said optical image of the numeric character in said courtesy amount field to an electronic binary black/white pixel image thereof,

a plurality of parallel connected artificial fovea for emulating the behavior of a human fovea, each artificial fovea including means for temporary storage of said pixel image, means for measuring sections of said pixel images to produce image measurements, means for scoring said image measurements, and

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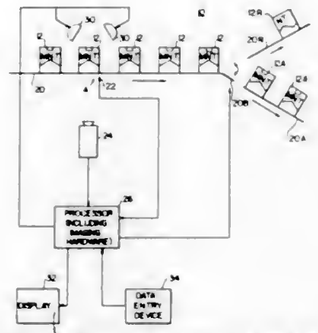
recognition scoring means having recognition equations stored therein, said recognition scoring means being connected to said plurality of artificial fovea to score the image measurements from each said artificial fovea and identify the numeric character from the respective artificial fovea.

5,208,870

IMAGE INSPECTION METHODS AND APPARATUS

Daniel Ennis, Midlothian, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed Jun. 21, 1991, Ser. No. 715,781
Int. Cl.[5] G06K 9/00
U.S. Cl. 382—30 **14 Claims**



1. The method of determining whether a test image is substantially like any of a plurality of sample images comprising the steps of:

using said computer processor means to subdivide each of said sample images into a plurality of segments;

using said computer processor means to associate with each segment of each sample image a value representative of the image information in the segment to produce a vector of said values for each sample image, each vector having a number of elements equal to the number of segments in each sample image;

using said computer processor means to calculate a variance-covariance matrix of said vectors;

using said computer processor means to calulate a mean vector of said vectors;

using said computer processor means to calculate a Cholesky decomposition matrix of said variance-covariance matrix such that said Cholesky decomposition matrix times the transpose of said Cholesky decomposition matrix equals said variance-covariance matrix;

using a camera to capture a test signal representative of said test image;

using computer processor means to form said test image from of said test signal;

using said computer processor means to convert said test image into gray-scale pixel density values;

using said computer processor means to subdivide said test image into a plurality of segments similar to the segments used for said sample images;

using said computer processor means to associate with each segment of said test image a value representative of the image information in that segment to produce an image vector of said values, said image vector having a number of elements equal to the number of segments in said test image;

using said computer processor means to calculate a product vector equal to the product of the inverse of said Cholesky decomposition matrix times the difference between said image vector and said means vector;

using computer processor means to calculate the dot product of said product vector with itself;

using computer processor means to compare said dot product to a predetermined value; and

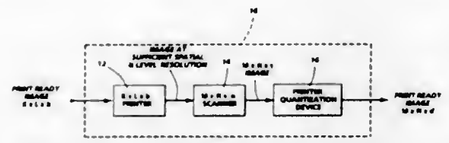
using said computer processor means to identify said test image as substantially like a random sample of said sample images only if said dot product has a predetermined relationship to said predetermined value.

5,208,871

PIXEL QUANTIZATION WITH ADAPTIVE ERROR DIFFUSION

Reiner Eschbach, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 600,542, Oct. 19, 1990, abandoned. This application Jan. 14, 1992, Ser. No. 820,713
Int. Cl.[5] G06K 9/36
U.S. Cl. 382—41 **2 Claims**



1. A method of preparing an image for printing at a printer capable of printing spots responsive to image signals having a desired output set of 'd' optical densities, each image signal representing an optical density of the image at a location therewithin, and having an original optical density selected from one of a set of 'c' original optical density values that has a number of members larger than a desired output set of 'd' optical density values, the steps comprising:

receiving an image having image signals representing printable spots at the printer and image signals which are not printable at the printer;

thresholding each image signal in the image, to produce a printable output signal having d levels corresponding to printable spots at a printer;

determining a difference in optical density between the each image signal having an original optical density selected from one of a set of 'c' original optical density values, and the printable output signal having an optical density selected from the output set of 'd' optical density values, said difference to be applied to a predetermined plurality of neighboring image signals;

for each neighboring image signal in the predetermined plurality to which the difference may be applied, comparing the optical density of the neighboring image signal to each of the legal output values which the output printer can reproduce, to determine equivalence;

applying the difference to neighboring image signals determined not to have legal output values; and

if all the image signals in the predetermined set have legal output values, applying the value of the difference to all the members of the set of neighboring image signals.

5,208,872

PROGRAMMABLE REMAPPER WITH SINGLE FLOW ARCHITECTURE

Timothy E. Fisher, Houston, Tex., assignor to The United States of America as represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 30, 1990, Ser. No. 506,136
Int. Cl.[5] G06K 9/36
U.S. Cl. 382—42 **19 Claims**

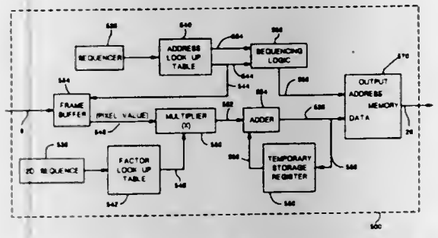
1. The method of generating image transformations of an input image to an output image in an accumulator/display memory by use of precalculated factor look up tables and

address look up tables where the address lookup tables are of the type which have both an output destination address in an accumulator/display memory and a source input address in a frame buffer, where the input image is composed of input image pixels and the output image is composed of output image pixels, each output pixel being formed from a pre-image of input pixels, each pixel having a pixel value, and where the image transformations are of the type such that the sequential order in which the output image pixels are created and stored is different from the sequential order in which the input image pixels are stored, comprising the steps:

(a) storing the input image pixel values in the frame buffer;

(b) specifying explicitly in the address lookup tables the input pixels comprising a pre-image where the input pixels forming the pre-image may be non-contiguous and where each input pixel may be used in more than one pre-image;

(c) reading the source address from the address look up table for a pre-image pixel;



(d) reading the source pixel value from the image buffer for the pre-image pixel;

(e) reading the factor corresponding to the pre-image pixel from the factor look up table;

(f) multiplying the factor and the pixel value to form a product;

(g) reading the destination address from the address look up table;

(h) reading the contents of the accumulator/display memory at the destination address;

(i) adding the product from step (f) to the contents read in step (h);

(j) writing the sum of step (i) to the accumulator/display memory at the destination address;

(k) repeating steps (c) through (j) for each remaining specified pixel in the pre-image; and

(l) repeating steps (c) through (k) for each output pixel.

5,208,873

IMAGE READER HAVING AN EDITOR FOR SETTING A THRESHOLD VALUE

Akio Nakajima, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

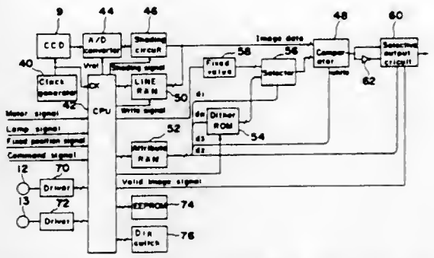
Continuation of Ser. No. 242,348, Sep. 9, 1988, abandoned. This application May 9, 1991, Ser. No. 701,348
Claims priority, application Japan, Sep. 10, 1987, 62-227484; Sep. 10, 1987, 62-227485
Int. Cl.[5] H04N 1/415
U.S. Cl. 382—50 **8 Claims**

1. An image reader for reading an image of a document by an image sensor and for outputting image data after processing obtained image data, comprising:

binarization means for binarizing image data ready by said image sensor by comparing respective image data with a fixed threshold, said fixed threshold being held constant at a predetermined value during processing image data belonging to at least one image area of a document, wherein said at least one image are a of the document defines a portion of the image of the document;

means for designating and entering said at least one image area of the document and for designating and entering said fixed threshold to be compared with image data of the designated image area from an exterior source;

means for giving said designated image area of the document and said designated fixed threshold to said binarization means; and



control means for controlling said giving means so as to give said designated image area and said designated fixed threshold entered by said designating and entering means to the binarization means;

wherein said designating and entering means includes;

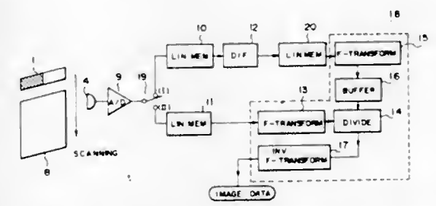
memory means for memorizing designated and entered fixed thresholds by image areas.

5,208,874

METHOD FOR CORRECTING IMAGE SIGNAL DETERIORATED BY FLARE AND IMAGE READING UNIT

Katsuyuki Omura, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Sep. 30, 1991, Ser. No. 767,378
Claims priority, application Japan, Oct. 12, 1990, 2-274558
Int. Cl.[5] G06K 9/45
U.S. Cl. 382—54 **8 Claims**



1. A method for correcting image information deteriorated by flare generated in an image reading unit having a light source for irradiating a document, a scanning system for optically scanning the document irradiated by said light source line by line and outputting the image information, and a reference image having a step shaped density distribution in a direction parallel to each scanning line of said scanning system, said method comprising the following steps (a) through (d) of:

(a) optically scanning, with said scanning system, the reference image having a step shaped density distribution irradiated by said light source, and said scanning system outputting reference image information corresponding to the reference image;

(b) generating a function representing an effect surrounding points have on the density of a specified point, said effect being caused by the flare, using the reference image information obtained by said scanning system in said step (a);

(c) optically scanning the document irradiated by said light

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source with said scanning system, such that said scanning system outputs image information of the document; and

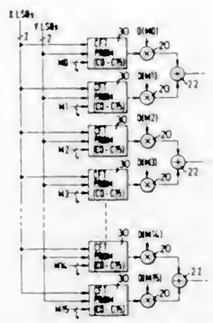
(d) performing a deconvolution operation in which the image information of the document outputted by said scanning system in said step (c) and the function generated by said step (b) are used to calculate corrected image information of the document.

5,208,875

DIGITAL PICTURE SIGNAL PROCESSING APPARATUS

Peter J. Virtue, Basingstoke; Stephen M. Keating, Abbots Barton, and David J. Hedley, Abbots Barton, all of England, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 482,045, Feb. 20, 1990, abandoned.
This application May 7, 1992, Ser. No. 883,044
Claims priority, application United Kingdom, Mar. 7, 1989, 8905185
Int. Cl.[5] G06K *9/36*
U.S. Cl. 382—54 9 Claims



1. A digital video signal processing apparatus comprising:

receiving means for receiving a video signal in the form of a sequence of digitized data words which each represents a respective pixel of a picture, and for supplying said digitized data words to respective data buses;

write address generator means for generating address signals and for supplying the same to respective address buses;

a plurality of memory means coupled to said respective data buses and said respective address buses, each of said memory means being operative to receive and store a plurality of said digitized data words in respective addresses;

read address generator means for producing a reference digital read address signal and a plurality of surrounding digital read address signals which together are a set of digital read address signals identifying the positions along two orthogonal coordinate directions of a set of stored digitized words which represent a set of pixels constituting at least some of the pixels of a two-dimensional portion of said picture, each of said digital read address signals including at least one significant bit for each of said coordinate directions, the values of the least significant bits indicating the respective memory means in which the respective digitized words are stored, and for simultaneously supplying said digital read address signals of said set of stored digitized words which represent said set of pixels to respective address buses for reading said set of stored digitized words from said plurality of memory means; and

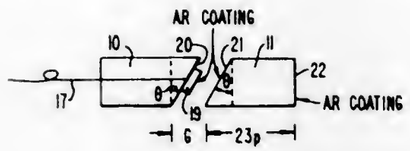
digital filter means having a plurality of multipliers equal in number to the number of said digitized words in said set of stored digitized words, each of said multipliers being connected to a respective one of said memory means by one of the respective data buses so as to receive a respective one of the set of stored digitized words read therefrom, a plurality of coefficient memories each connected to a respective one of said multipliers, each of said coefficient memories storing a plurality of weighting coefficients which are each associated with the position of a respective one of said set of pixels in said two-dimensional portion of said picture and means for supplying to each of said coefficient memories a characteristic identification signal characteristic of said memory means whose respective data bus is connected to said respective one of said multipliers to which the coefficient memory is also connected, each of said coefficient memories being responsive to the values of the least significant bits of said reference digital read address signal and to the characteristic identification signal supplied thereto to supply to said respective multiplier that one of said plurality of weighing coefficients which is associated with the position of the pixel in said two-dimensional portion of said picture represented by the word supplied to said respective multiplier.

5,208,876

OPTICAL ISOLATOR

Jing-Jong Pan, San Jose, Calif., assignor to E-Tek Dynamics, Inc., San Jose, Calif.

Filed Nov. 1, 1991, Ser. No. 786,434
Int. Cl.[5] G02B *6/32*
U.S. Cl. 385—11 20 Claims



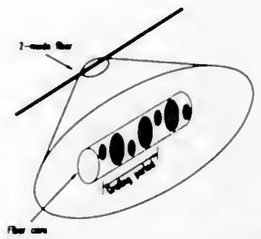
1. In an improved optical isolator for optical fibers having a first sleeve for holding a first optical fiber, a first GRIN lens, a first polarizer, an optical Faraday rotator, a second polarizer, a second GRIN lens and a second sleeve for holding a second optical fiber, the improvement wherein at least one of said polarizers comprises a birefringent crystal of lithium niobate.

5,208,877

FIBER OPTIC GRATING-BASED WEIGHTED, TWO-MODE FIBER SENSORS

Kent A. Murphy, Roanoke, Va.; Ashish Vengsarkar, Ashville, N.C.; Brian Fogg; Jonathan Greene, both of Blacksburg, Va., and Richard O. Claus, Christiansburg, Va., assignors to Center for Innovative Technology, Herndon and VPI&SU, Blacksburg, both of Va.

Filed Aug. 29, 1991, Ser. No. 751,737
Int. Cl.[5] G02B *6/26*; H01J *5/16*
U.S. Cl. 385—12 4 Claims



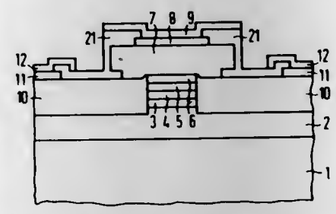
1. A two-mode, elliptical-core, vibration-modal optical fiber strain sensor with a permanent photo-induced index change forming a grating within the optical fiber characterized by a change in beat-length along the length of the optical fiber which is dependent on the amount of strain induced in the optical fiber while the grating is being formed, said grating being produced by differential phase modulation between LP_{01} and LP_{11}^{even} modes of laser light propagating in said optical fiber while the fiber is under stress, said optical fiber sensor exhibiting a strain sensitivity which is a function of distance along the length of the optical fiber.

5,208,878

MONOLITHICALLY INTEGRATED LASER-DIODE-WAVEGUIDE COMBINATION

Wolfgang Thulke, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 2, 1991, Ser. No. 769,972
Claims priority, application Fed. Rep. of Germany, Nov. 28, 1990, 4037896
Int. Cl.[5] G02B *6/00*; H01S *3/19*
U.S. Cl. 385—14 6 Claims



1. A monolithically integrated laser diode waveguide system, comprising:

a semi-insulating substrate;

a passive waveguide layer coupled with a strip-shaped laser diode active layer adjacent a main surface of the substrate;

a strip-shaped upper cover layer of first conductivity type at a side of the active layer not facing the substrate, and a central contact layer applied on the cover layer;

a strip-shaped intermediate layer of second conductivity type at a side of the active layer facing the substrate and which is defined by two main surfaces parallel to the main surface of the substrate and two longitudinal sides and two narrow end sides;

a lower cover layer bordering the two longitudinal sides of the intermediate layer at a region of the laser diode and which is doped as a second conductivity type at least at one longitudinal side of the intermediate layer;

a lateral contact layer applied on said lower cover layer;

a central contact applied on the central contact layer and a lateral contact applied on the lateral contact layer;

the lower cover layer being doped on one side of the intermediate layer as first conductivity type;

a tuning layer at a surface of the intermediate layer facing the substrate;

a region doped of the first conductivity type and bordering a main side of the adjustment layer facing the substrate and which is connected with a portion of the lower cover layer which is doped as first conductivity type;

the lateral contact layer having a first portion on a first portion of the lower cover layer doped as first conductivity type, and a second portion separated therefrom on a second portion of the lower cover layer doped as the second conductivity type; and

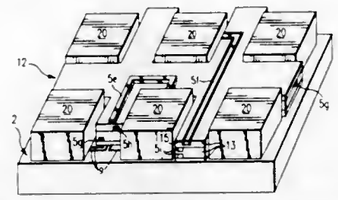
the separated first and second portions of the lateral contact layer each being provided with a separate lateral contact.

5,208,879

OPTICAL SIGNAL DISTRIBUTION SYSTEM

Antonio R. Gallo, Pleasant Valley; Gordon J. Robbins, Wappingers Falls, and Robert R. Shaw, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 18, 1991, Ser. No. 779,428
Int. Cl.[5] G02B *6/10, 6/12, 6/36*
U.S. Cl. 385—14 19 Claims



1. An optical signal distribution system comprising:

a) an electronic substrate having a principal surface;

b) at least one optical component on said principal surface of said electronic substrate; and

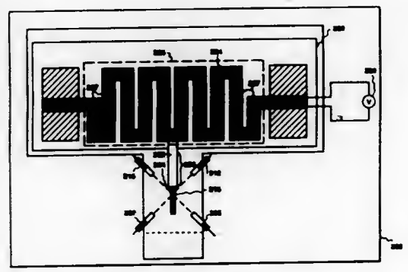
c) at least one optical waveguide nonintegrally formed on said principal surface but distinct from said electronic substrate through which an optical signal may be passed to or from said optical component.

5,208,880

MICRODYNAMICAL FIBER-OPTIC SWITCH AND METHOD OF SWITCHING USING SAME

Nabeel A. Riza, Clifton Park, N.Y., and Dennis L. Polla, Brooklyn Park, Minn., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 30, 1992, Ser. No. 876,274
Int. Cl.[5] G02B *6/26*
U.S. Cl. 385—18 20 Claims



1. A microdynamical optical switch comprising:

a substrate;

a piezoelectric actuator disposed on said substrate;

a mirror mechanically coupled to said piezoelectric actuator and disposed to be translated along a mirror displacement path corresponding to deflection of said piezoelectric actuator, said mirror further having a reflective surface oriented at an angle to the path of light that passes from said input connection port;

at least one optical input connection port; and

a plurality of optical output ports;

said at least one input connection port and said plurality of output connection ports being disposed so that light from said input connection port is selectively directed to a selected output connection port in dependence on the location of said mirror along said mirror displacement path, said mirror being selectively disposed along said

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deflection path by said piezoelectric actuator such that light passing from said input connection port is deflected into a selected output connection port when said mirror is positioned in the path of light emanating from said input connection port;

said piezoelectric actuator comprising a plurality of micromachined piezoelectric bars arranged in a meander line geometry and which are mechanically coupled together in series and electrically coupled together in parallel.

16. A method of switching an optical signal comprising:

passing an optical signal through an optical input connection port, said optical input port being disposed in a spaced relationship with a plurality of optical output connection ports; and

selectively displacing a mirror along a mirror displacement path positioned to be disposed at least partially along the axis on which light beams emanate from said optical input connection port, the position of said mirror along said displacement path determining the optical output connection port into which the light beams emanating from said input connection port pass;

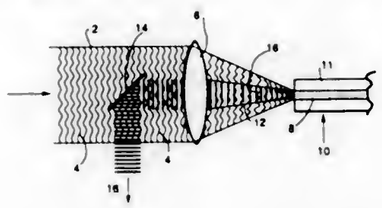
the selective displacement of said mirror along said mirror displacement path being determined by controlling a piezoelectric actuator comprising a plurality of micromachined piezoelectric bars arranged in a meander line geometry and that are mechanically coupled to said mirror.

5,208,881

METHOD AND APPARATUS FOR OPTICAL BEAM COMBINATION AND CLEANUP USING STIMULATED SCATTERING

Hans W. Bruesselbach, Calabasas, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 20, 1991, Ser. No. 810,980
Int. Cl.[5] G02B 6/26
U.S. Cl. 385—27 **25 Claims**



1. An optical beam processing system for producing a diffraction limited output beam, comprising:

a beam source for providing a divergent input optical beam,

an elongate beam guiding means, and

means for coupling said input optical beam from said beam source into said beam guiding means,

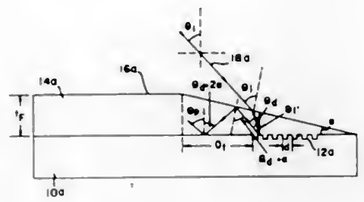
said beam guiding means having a normalized frequency value large enough to support substantially multi-mode propagation of said input optical beam, and a length which is long enough to generate a diffraction limited return beam which is substantially more diffraction limited than said input optical beam through stimulated scattering in response to said input optical beam being coupled into said beam guiding means, said diffraction limited return beam exiting said beam guiding means as said diffraction limited output beam.

5,208,882

HYBRID THIN FILM OPTICAL WAVEGUIDE STRUCTURE HAVING A GRATING COUPLER AND A TAPERED WAVEGUIDE FILM

Thomas A. Strasser; Wei Y. Hsu, both of Ithaca, and Mool C. Gupta, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 14, 1991, Ser. No. 791,830
Int. Cl.[5] G02B 6/34
U.S. Cl. 385—37 **22 Claims**



1. A hybrid optical waveguide structure comprising:

a substrate having a grating formed thereon; and

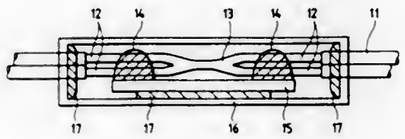
a thin-film waveguide film being formed on said substrate and having a tapered profile portion overlaying said grating.

5,208,883

METHOD OF REINFORCING OPTICAL FIBER COUPLER

Tomoyuki Hattori; Hiroshi Suganuma; Hiroaki Takimoto, all of Kanagawa, and Kazuhiko Arimoto, Tokyo, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka and Sumiden Opcom, Ltd., Tokyo, both of Japan

Filed Aug. 3, 1992, Ser. No. 923,616
Claims priority, application Japan, Aug. 1, 1991, 3-193083
Int. Cl.[5] G02B 6/26
U.S. Cl. 385—43 **11 Claims**



1. A method of reinforcing a multiple optical fiber coupling unit comprising the steps of:

removing a portion of longitudinal coatings of optical fibers of the multiple optical fiber coupling unit to expose glass portions of said optical fibers;

fusing a portion of said exposed glass portions so as to optically couple said optical fibers;

extending the fused portion to a predetermined state;

fixing non-extended portions of said exposed glass portions on a first reinforcing substrate with a first adhesive; and

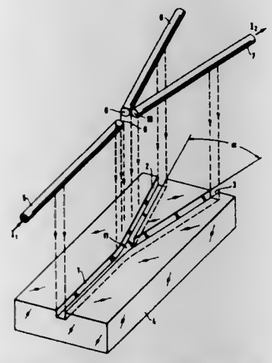
fixing said first reinforcing substrate on a second reinforcing substrate with a second adhesive.

5,208,884

NEW MULTICOMPATIBLE OPTICAL COUPLER PRODUCED BY INJECTION MOLDING

Werner Groh, Lich; Andreas Brockmeyer, Liederbach; Jürgen Theis, Oberursel, and Thomas Stehlin, Hofheim am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 21, 1991, Ser. No. 672,948
Claims priority, application Fed. Rep. of Germany, Mar. 23, 1990, 4009332
Int. Cl.[5] G02B 6/26
U.S. Cl. 385—46 **14 Claims**



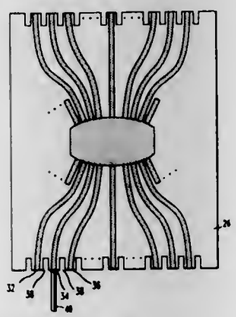
1. An optical coupler comprising a mixing zone and optical waveguide ends defining a space therebetween wherein the coupler element including said mixing zone and said optical waveguide ends is produced by forming an injection mole, filling said mold with a first transparent polymer to form a polymeric block, laying a plurality of polymer optical waveguides in channels formed in said polymeric block, filling said space between said optical waveguide ends with a second transparent polymer, and bonding said polymeric block to said coupler element.

5,208,885

OPTICAL FIBER TO STRIP WAVEGUIDE INTERCONNECT

Corrado Dragone, Little Silver, and Herman M. Presby, Highland Park, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Feb. 27, 1992, Ser. No. 842,919
Int. Cl.[5] G02B 6/26
U.S. Cl. 385—49 **14 Claims**



14. An interconnect comprising

a waveguide supported by a substrate,

an optical fiber positioned end-to-end in butt relationship with said waveguide,

heat breaks located within said substrate and which extend from an edge of the substrate back along each side of the waveguide, and

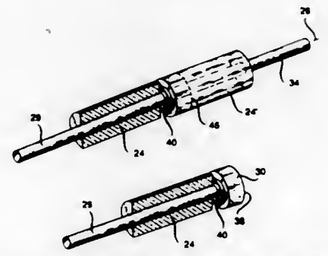
glass material having a melting temperature that is lower than the temperature to which the waveguide can be safely heated coupled to join the end of the optical fiber to the end of the waveguide.

5,208,886

METHODS OF MAKING AN OPTICAL FIBER FILTER

Jane B. Clayton, Suwanee; Calvin M. Miller, Atlanta, and William A. Vicory, Duluth, all of Ga., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Division of Ser. No. 466,536, Jan. 17, 1990. This application Jun. 28, 1991, Ser. No. 723,135
Int. Cl.[5] G02B 6/38
U.S. Cl. 385—73 **10 Claims**



1. A method of making an optical filter, said method comprising the steps of:

providing first and second pairs of ferrules each of which includes a longitudinal extending passageway and a longitudinal axis;

causing an optical fiber to be disposed in the passageway of each ferrule;

causing a mirror to be formed on an end surface of one ferrule of each pair such that the mirror covers the passageway which opens to the end surface;

positioning the other ferrule of each pair with the one ferrule of said each pair to cause the passageways to be aligned and to cause an end surface of the other ferrule to abut the mirror on the end surface of the one ferrule;

causing the other ferrule of each pair to become attached to the one ferrule of each pair in the aligned position to provide a ferrule assembly;

severing the one ferrule of each pair in a plane normal to the longitudinal axes of the ferrules at a distance from the mirror which is small relative to the length of the ferrule to provide a wafer having a newly formed end surface; and

positioning the ferrule assemblies to align the passageways and to cause the spacing between the newly formed end surfaces of the wafers to be a predetermined value.

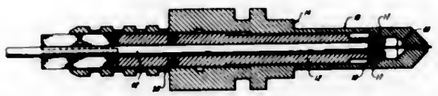
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5,208,887

METHOD AND APPARATUS FOR TERMINATING A FIBER-OPTIC CABLE WITHOUT ADHESIVE

Soren Grindersley, Shelton, Conn., assignor to AMP Incorporated, Harrisburg, Pa.

PCT No. PCT/US90/03964, § 371 Date Jan. 10, 1992, § 102(e) Date Jan. 10, 1992
Continuation-in-part of Ser. No. 574,852, Aug. 30, 1990, Pat. No. 5,008,804, and a continuation-in-part of Ser. No. 467,915, Jan. 22, 1990, abandoned. This PCT application Jul. 11, 1990, Ser. No. 778,898
Int. Cl.[5] G02B 6/36
U.S. Cl. 385—81 24 Claims



1. Apparatus for terminating a fiber optic cable by mechanical engagement, said apparatus comprising

A. a terminating element having a passage extending axially therethrough, said passage having a first forward section axially forward of and coaxial with a second rearward section, said passage being adapted for receiving an optical fiber extending axially therein with a forward portion of said optical fiber extending within said forward section,

B. a compressive system disposed, within a forward portion of said second passage section, circumferentially about said forward portion of said optical fiber, said compressive system being compressible at least in part with substantially a linear relation between compressive force and deformation and being radially inwardly deformable into engagement with said optical fiber, and

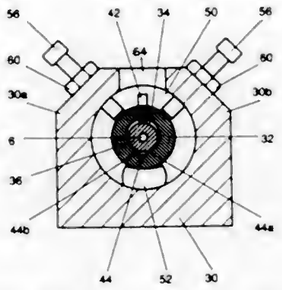
C. selectively movable actuating means movably seated relative to said terminating element and arranged for radially inwardly deforming said compressive system within said passage into engagement with said forward portion of said optical fiber.

5,208,888

COUPLING DEVICE FOR COUPLING A LASER BEAM INTO AN OPTICAL FIBRE

Serge Steinblatt, Raanana; Dov Berman, Hofit, and Yossi Kamir, Netanya, all of Israel, assignors to Scitex Corporation Ltd., Herzlia Bet, Israel

Filed May 1, 1992, Ser. No. 877,503
Claims priority, application Israel, May 22, 1991, 98216
Int. Cl.[5] G02B 6/42
U.S. Cl. 385—90 19 Claims



1. A coupling device for coupling a laser beam into an optical fibre, comprising:

a base plate carrying a laser holder and an optical fibre holder substantially aligned with each other along a common axis;

said optical fibre holder including an outer housing, and an inner housing disposed within said outer housing;

said inner housing being formed with a bore for receiving he end of the optical fibre;

one of said housings including first pin adjusting means for adjusting said received end of the optical fibre substantially parallel to said common axis;

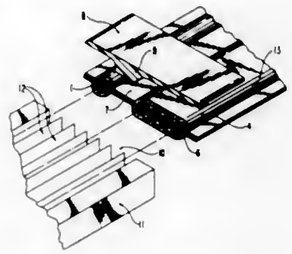
the other of said housings including second pin adjusting means for adjusting said received end of the optical fibre substantially perpendicularly to said common axis.

5,208,889

OPTICAL FIBER RIBBON CABLE AND ASSEMBLY THEREOF WITH A CONNECTOR

Alfredo L. Cedrone, Austin, and Brian K. Lloyd, Pflugerville, both of Tex., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Filed Oct. 24, 1991, Ser. No. 782,224
Int. Cl.[5] G02B 6/44
U.S. Cl. 385—114 6 Claims



1. An assembly comprising:

(a) an optical fiber ribbon connector terminated to;

(b) a flat optical fiber ribbon cable comprising:

(i) a multiplicity of parallel optical fibers cabled together adjacent each other at precise distances apart and spaced from an adjacent reference edge of said cable within a jacket of dielectric material;

(ii) the first optical fiber adjacent said reference edge of said cable being spaced one or more optical fiber diameters from the next adjacent optical fiber of the cable; and

(iii) the next adjacent and remaining optical fibers of said cable being positioned a known distance from said first optical fiber as referenced by a web formed from said dielectric material of said jacket; and

(c) a molded dielectric polymer guide piece configured on one side to fit into the space between said first and said adjacent optical fibers against said web of insulation linking said fibers, said guide piece positioned on said flat optical fiber ribbon cable at the aforementioned space.

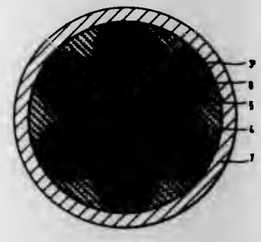
5,208,890

REFRACTORY-BONDED GLASS FIBERS

Matthias Kohler, Bad Schwalbach, and Rudolf Wolter, Mainz, both of Fed. Rep. of Germany, assignors to Schott Glaswerke, Mainz, Fed. Rep. of Germany

Filed Feb. 6, 1992, Ser. No. 828,665
Claims priority, application Fed. Rep. of Germany, Feb. 7, 1991, 4103641
Int. Cl.[5] G02B 6/04
U.S. Cl. 385—115 22 Claims

1. A fiber optic unit comprising a bundle of a plurality of glass fibers bonded together by cavities filled with a water insoluble bonding agent, which bonding agent is crystallized or amorphous SiO_2 precipitated from a solid silica sol having an



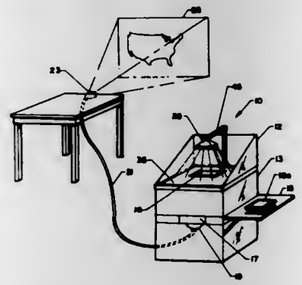
SiO_2 to alkali molar ratio content, calculated as $SiO_2:R_2O$ wherein R is an alkali metal, of less than 15:1.

5,208,891

FIBER-OPTIC VIEWGRAPH PROJECTOR

William J. Prysner, Gales Ferry, Conn., assignor to The United State of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 7, 1991, Ser. No. 772,185
Int. Cl.[5] G02B 6/06, 6/32; G03B 17/02, 21/26
U.S. Cl. 385—116 5 Claims



1. A fiber-optic viewgraph projector comprising:

means for mounting projector components including a vertical stand suitable for locating components in a stacked configuration;

a light source attached to said mounting means, the construction and arrangement being auch that intrinsic convective cooling of the light source is provided;

a transparency receiver and condenser lens assembly attached to said mounting means and receiving projection light from said light source;

a fiber-optic cable attached on a first end to said transparency receiver and lens assembly; and

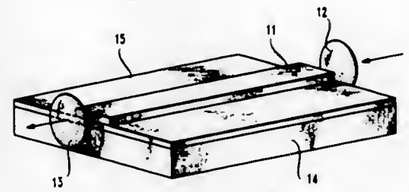
a projecting lens attached to a second end of said fiberoptic cable, and having a means by which it may be removably affixed in position relative to suitable structures in a conference room environment.

5,208,892

TRIAZINE OPTICAL WAVEGUIDES

John J. Burack, Toms River; Treliant Fang, Lawrenceville; Jane D. LeGrange, Princeton, all of N.J., and Jose A. Ors, New Hope, Pa., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Division of Ser. No. 797,632, Nov. 25, 1991, which is a continuation-in-part of Ser. No. 748,375, Aug. 22, 1991, abandoned, which is a continuation-in-part of Ser. No. 525,947, May 18, 1990, Pat. No. 5,045,364. This application Mar. 30, 1992, Ser. No. 859,758
Int. Cl.[5] G02B 6/10
U.S. Cl. 385—129 2 Claims



1. An optical waveguide for guiding light along a path comprising: an elongated polymer element having first and second ends; said polymer element being substantially surrounded by a medium having a lower index of refraction than the polymer element; said polymer element comprising means for transmitting light between the first and second ends thereof, wherein the improvement is characterized in that:

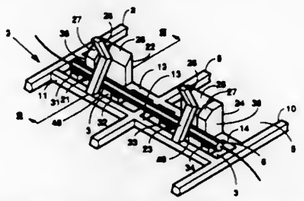
said polymer element is substantially entirely composed of triazine.

5,208,893

OPTICAL FIBER SPLICE TRAY AND SPLICE HOLDER

Mark McCall, San Jose; Thomas Wong, Menlo Park, and Marc F. Moisson, San Carlos, all of Calif., assignors to Raynet Corporation, Menlo Park, Calif.

Filed May 21, 1992, Ser. No. 887,432
Int. Cl.[5] G02B 6/00, 6/36
U.S. Cl. 385—135 11 Claims



1. An optical fiber splice holder, comprising:

first and second separated and elongated torsion bars;

a first member extending outward from the first torsion bar and a second member extending outward from the second torsion bar, the members extending outward along a direction away from a plane interconnecting the first and second torsion bars, the first and second torsion bars and members having a stiffness and resilience and being sized and being oriented such that a variety of different sized optical fiber splice containers can be resiliently retained therebetween;

third and fourth separated and elongated torsion bars, the third torsion bar being in line with the first torsion bar, the fourth torsion bar being in line with the first torsion bar;

a third member extending outward from the third torsion bar and a fourth member extending outward from the fourth torsion bar, the third and fourth members extending out-

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ward along the direction away from the plane interconnecting the torsion bars;

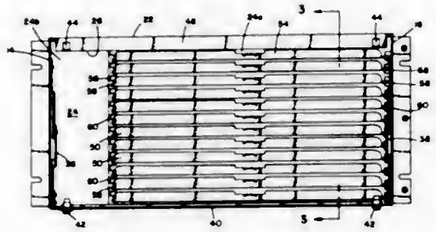
the first and second torsion bars and first and second members being sized and oriented and having a stiffness and resilience such that one end of a variety of sized optical fiber splice containers can be resiliently retained therebetween, the third and fourth torsion bars and third and fourth members being sized and oriented and having a stiffness and resilience such that an opposite end of the variety of different sized optical fiber splice containers can be resiliently retained therebetween.

5,208,894

FIBER OPTIC SPLICE CABINET

Stephen M. Johnson, St. Paul, and Wayne A. Johnson, Rosemount, both of Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.

Filed Jul. 16, 1990, Ser. No. 552,699
Int. Cl.[5] G02B *6/36*
U.S. Cl. 385—135 **3 Claims**



1. A fiber optic enclosure cabinet comprising:

a housing having walls defining an interior; an access opening formed through said housing and exposing said interior;

an access panel sized to cover said access opening and secured to said housing to selectively cover and expose said access opening at an option of an operator;

a plurality of discrete individual platters disposed within said interior and each of said platters mounted to be extendable independent of others of said platters with said individual platters extendable through said access opening and completely returned to said interior at an option of an operator;

each of said platters having disposed thereon an optical fiber splice tray and an optical fiber take-up spool;

said platters are disposed in a vertical column within said interior and separated by a dividing wall from an optical cable chamber, said dividing wall having a plurality of openings formed therethrough each aligned to direct an optical fiber from said chamber to a spool of a platter;

said housing has upper and lower walls each provided with a bundle opening formed in each of said upper and lower walls and in communication with said chamber and with said housing configured for a plurality of cabinets of similar housing to be stacked upon one another with a lower wall opening of a cabinet in communication with an upper wall opening of a contiguous cabinet, said bundle openings sized to pass a bundle of fibers into said chamber.

5,208,895

COMBINATION HEATED SCRAPER AND STEAMER

Joseph R. Hoover, Jr., and Chellie S. Hoover, both of 224 Silverwood Way, El Paso, Tex. 79922

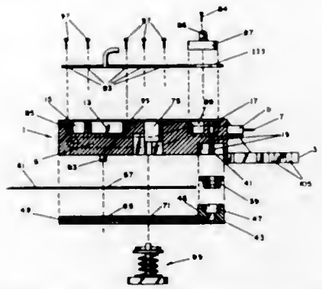
Filed Dec. 6, 1991, Ser. No. 802,898
Int. Cl.[5] D06F *75/10*; F22B *1/28*
U.S. Cl. 392—404 **10 Claims**

1. A heated scraper and steamer apparatus comprising:

a housing;

a heat conductive blade;

means for producing heat and steam within said housing, said heat and steam producing means being capable of selectively producing heat only or heat and steam simultaneously;



means for attaching said heat conductive blade to said apparatus;

means for conducting steam produced by said heat and steam producing means to a work surface; and

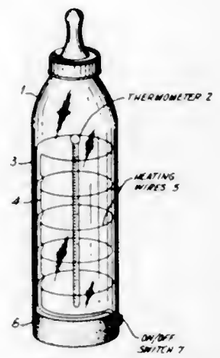
means for conducting heat to said blade and to the work surface via said blade.

5,208,896

ELECTRICALLY WARMED BABY BOTTLE WITH RECHARGEABLE BATTERY RECHARGING SYSTEM

Alexander Katayev, 89-15 102nd St., Apt. 2C, Richmond Hill, N.Y. 11418

Filed Aug. 31, 1990, Ser. No. 576,611
Int. Cl.[5] F27D *11/02*; H05B *1/02*
U.S. Cl. 392—444 **9 Claims**



8. An electrically warmed baby bottle and recharging system which comprises:

(1) an electrically warmed baby bottle composed of:

(a) a container made of an electrically non-conductive material;

(b) an electrically conductive heating wire embedded in the wall of the container; and

(c) a temperature regulation system mounted below the container in a water-tight housing having self-sealing ports, the temperature regulation system being composed of:

(i) a thermostat which extends through the housing into the interior of the container, the thermostat being able to regulate the flow of electricity to the conductive heating wire so as to maintain the interior of the container at a predetermined temperature;

(ii) a rechargeable battery connected to the conductive heating wire via the thermostat, the rechargeable battery being mounted in such a manner so as to allow plug prongs of a battery charger to transverse the water-tight housing through the self-sealing ports for recharging the battery;

(iii) an on-off switch, the on-off switch being mounted within the water-tight housing and accessible from the exterior of the water-tight housing by indenting a flexible section of the housing; and

(2) a battery charger constructed in such a manner so as to conform to the shape of the water-tight housing of the baby bottle, the battery charger having plug prongs which align with the self-sealing ports of the baby bottle so that when the baby bottle is placed in the battery charger, the plug prongs of the battery charger enter the water-tight housing through the self-sealing ports and are in electrical contact with the rechargeable battery.

5,208,897

METHOD AND APPARATUS FOR SPEECH RECOGNITION BASED ON SUBSYLLABLE SPELLINGS

Sandra E. Hutchins, Del Mar, Calif., assignor to Emerson & Stern Associates, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 570,459, Aug. 21, 1990. This application Sep. 28, 1990, Ser. No. 589,646
Int. Cl.[5] G10L *9/00*
U.S. Cl. 395—2 **19 Claims**
MICROFICHE APPENDIX INCLUDED
(119 Microfiche, 2 Pages)

1. An apparatus for speech recognition comprising:

means for sampling a speaker's speech and for providing speech data sample segments of predetermined length at predetermined sampling intervals based on changes in energy in the speech;

means, coupled to the sampling means, for identifying cohesive speech segments from the speech data sample segments and for assigning frames of subsyllables to the cohesive segments, wherein the cohesive segments correspond to intervals of stable vocoids, changing vocoids, frication, and silence in the speech data sample segments, each cohesive segment corresponds to at least one respective frame, and each frame comprises at least one of a plurality of subsyllables that characterizes predetermined gross and fine phonetic attributes of the respective cohesive segment;

means, coupled to the identifying and assigning means, for locating the subsyllables in a first lookup to table mapping sequences of subsyllables into syllables;

means for combining syllables located by the locating means into words by locating words in a lookup table mapping sequences of syllables into words; and

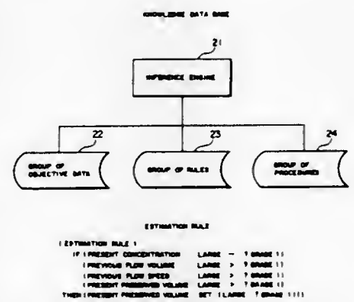
means, coupled to the combining means, for checking the conformance of sequences of the words to a set of predetermined checking rules relating the words to one another and for reporting a recognition result based on the checked conformance of the sequences of the words.

5,208,898

ADAPTIVE KNOWLEDGE INFERENCE METHOD AND SYSTEM

Motohisa Funabashi, Sagamihara, and Tohru Otokita, Yokohama, both of Japan, assignors to Hitachi, Ltd. and Hitachi Control Systems, Inc., both of Tokyo, Japan

Filed May 30, 1989, Ser. No. 359,023
Claims priority, application Japan, Jun. 8, 1988, 63-139325
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—50 **16 Claims**



13. A knowledge processing system in which each rule is represented in a form of a pair having a condition part and an action part so as to conduct an inference, comprising:

inference engine means for executing the inference;

object data storage means connected with said inference engine means for holding object data to be accessible therefrom;

rule storage means connected with said inference engine means for holding rules each including a pair of a condition part related to an event to be measured and an action part specifying a grade representing a degree to which the event is satisfied based on the object data from said object data storage means and the inference to be executed by said inference engine means;

procedure storage means connected with said inference engine means for holding entities of said processing to be executed by said inference engine means based on a result in said rule storage means;

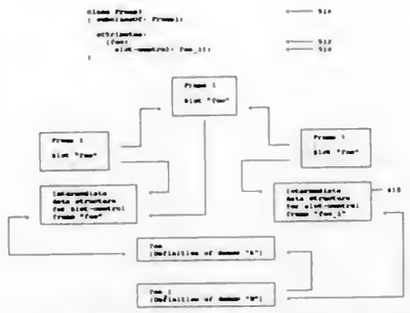
said inference engine means receiving sensor data from sensor means connected thereto, based on the processing described in said rule storage means so as to update a corresponding part of the object data held in said object data storage means said inference engine means determining said condition part of one of said rules held in said rule storage means based on said object data held in said object data storage means to execute one of said entities; and,

estimation rule storage means connected with said inference engine means for holding a plurality of estimation rules each including a pair of a condition part related to an event to be measured and an action part related to an event not to be measured used by an estimating means for estimating an estimation value associated with a non-measured predetermined event;

wherein said inference engine means executes the estimation rule based on said updated object data.

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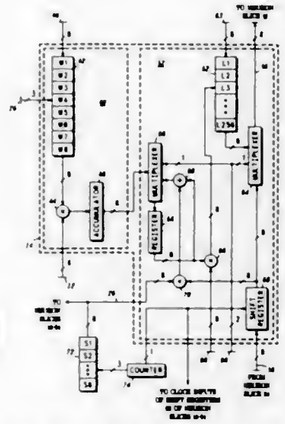
5,208,899
METHOD AND APPARATUS FOR STORING INFORMATION ABOUT AND ASSOCIATING SLOT BEHAVIORS OF A SLOT IN A FRAME-BASED SEMANTIC NETWORK
Leslie A. Wheeler, and Alisoo E. Shapiro, both of Pittsburgh, Pa., assignors to Carnegie Group, Pittsburgh, Pa.
Filed Jul. 31, 1990, Ser. No. 560,141
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—62 6 Claims



1. In a frame-based semantic network, a method of operating a processing means to associate slot behaviors with the occurrence of a slot in any frame in the network, the method comprising the steps of:
utilizing the processing means to create in a memory means a plurality of slot control frames for the slot;
storing in the memory means information about the slot and the global behavior and at least one specialized behavior associated with the slot;
utilizing the processing means to link the plurality of slot control frames to create a hierarchical data structure in the memory means including a base slot control frame defining the global behavior and at least one specialization slot control frame defining a specialized behavior; and
utilizing the processing means to attach the behaviors stored in the memory means in at least one of the slot control frames to an occurrence of the slot in another frame such that the slot and its behaviors are inherited to related frames as a unit.

5,208,900
DIGITAL NEURAL NETWORK COMPUTATION RING
Robert M. Gardner, Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.
Continuation of Ser. No. 600,892, Oct. 22, 1990. This application Jun. 8, 1992, Ser. No. 895,230
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—27 7 Claims

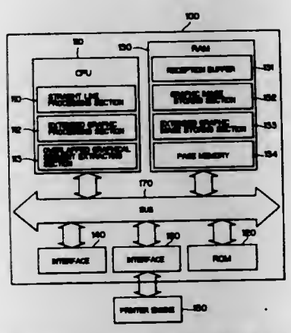
5. An integrated neural network, comprising:
a memory circuit having an address input coupled for receiving an address signal and an output bus for providing a weight signal in response to said address signal;
first means for cycling said address signal and activating a control signal at each change in value of said address signal; and
a plurality of digital processing elements each having an input and an output, said output of a first one of said plurality of digital processing elements being coupled to said input of a second one of said plurality of digital processing elements, said first one of said plurality of digital processing elements including,
(a) first processing means for combining first and second input signals and accumulating a value thereof as an accumulation signal,
(b) a first register having an input, a control input and an output, said input being coupled to said input of said first one of said plurality of digital processing elements, said control input receiving said control signal,
(c) a first multiplexer circuit having first and second inputs and an output, said first input being coupled to said output of said first register, said output being coupled to said input of said second one of said plurality of digital processing elements,
(d) a first multiplier circuit having first and second inputs and an output, said first input receiving said weight signal from said output bus, said second input being coupled to said output of said first register, said output providing a product signal,
(e) a second multiplexer circuit having first and second inputs and an output, said first input receiving said accumulation signal,



(f) a second register having an input and an output, said input being coupled to said output of said second multiplexer circuit,
(g) a first adder having first and second inputs and an output, said first input being coupled to said output of said first multiplier circuit, said second input being coupled to said output of said second register, said output being coupled to said second input of said second multiplexer circuit,
(h) a second multiplier circuit having first and second inputs and an output, said first input being coupled to said output of said second register, said second input receiving a third input signal, and
(i) a lookup table having a control input being coupled to said output of said second multiplier circuit and having an output coupled to said second input of said first multiplexer circuit.

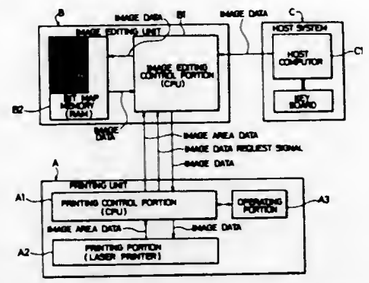
5,208,901
GRAPHIC IMAGE DRAWING DEVICE
Hiroyuki Sasaki, Gamagori; Icbiro Sasaki, Chita, and Yosuke Ito, Takamatsu, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Jun. 24, 1992, Ser. No. 903,273
Claims priority, application Japan, Jun. 24, 1991, 3-151844
Int. Cl.[5] G06K *15/00*
U.S. Cl. 395—117 8 Claims

1. A graphic image drawing device comprising:
first computing means for obtaining graphic data representative of a line segment defined by a length between two given points and a width;
first storage means for storing first graphic data representative of a first line segment and second graphic data representative of a second line segment, both the first and second graphic data being obtained by said first computing means, the first line segment having first and second side lines equal in length to a length of the first line segment and the second line segment having first and second side lines equal in length to a length of the second line segment wherein the first and second line segments intersect at respective ends thereof;
second computing means for obtaining first graphic data representative of a first extended graphic segment formed by extending the first and second side lines of the first line segment in a direction to intersect extended first and second side lines of the second line segment and second graphic data representative of a second extended graphic



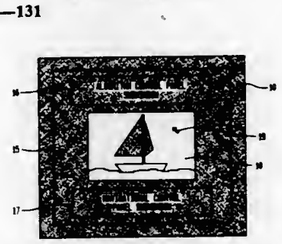
segment formed by extending the first and second side lines of the second line segment in a direction to intersect the extended first and second side lines of the first line segment based on the first and second graphic data stored in said first storage means;
second storage means for storing the first and second graphic data obtained by said second computing means;
extracting means for extracting graphic data representative of an overlapped graphic segment of the first and second extended graphic segments based on the first and second graphic data stored in said second storage means; and
drawing means for drawing a graphic image based on the first and second graphic data stored in said first storage means and the graphic data extracted by said extracting means.

detecting means for detecting breadth of the recording medium to output a breadth signal; and
determination means in response to said breadth signal for determining the size of the image editing area independent



of the length of the recording medium, said determination means determining the size of the image editing area before the editing means edits and stores the digital data in the image editing area.

5,208,903
VIDEO IMAGE DISPLAY FOR PREDICTING COLOR HARDCOPY IMAGE QUALITY
Kenneth D. Curry, Victor, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sep. 10, 1990, Ser. No. 579,529
Int. Cl.[5] G06F *15/62*
U.S. Cl. 395—131 2 Claims



1. A method of presentation and interaction with a video color display device and of controlling said device for color image display, the method permitting a user to accurately predict, solely from the video rendition of the image(s), the density, color balance and contrast of the image(s) to be printed on a hardcopy printing device, the method comprising the steps of:
(a) providing the image on the video color display device with a uniform surround of controllable luminance and chrominance levels, the uniform surround being large enough in proportion to the image to mimic the viewing conditions of the final hardcopy;
(b) integrating the presentation of user controls for image manipulation on the same video color display device, with controllable brightness as compared to the controlled, uniform surround, to minimize disruption of the user's visual system of density, color balance and contrast;
(c) fading the user controls away, into the controlled, uniform surround for critical judgment of the video image;
(d) subsequently restoring the user controls to their original, controlled brightness;
(e) controlling the rate of the fade in and fade out of the user controls;
(f) saving multiple versions of the image(s) in a memory device; and
(g) providing easy recall of individual versions of the ima-

5,208,902
RECORDING APPARATUS
Toshihiko Kumon, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 423,488, Oct. 12, 1989, abandoned, which is a continuation of Ser. No. 57,941, Jun. 3, 1987, abandoned. This application Apr. 23, 1991, Ser. No. 690,071
Claims priority, application Japan, Jun. 13, 1986, 61-136046
Int. Cl.[5] G06F *15/66*
U.S. Cl. 395—116 27 Claims

1. A recording apparatus for recording a visible image on a recording medium based on digital image data comprising:
editing means, including a memory means, for editing the digital image data and storing the edited digital image data in an image editing area of a predetermined size in said memory means;
image forming means for forming an image in accordance with the edited digital image data, said image forming means including means for emitting a light beam and means for modulating the light beam in accordance with the edited digital image data;
supply means for supplying the recording medium to the image forming means;

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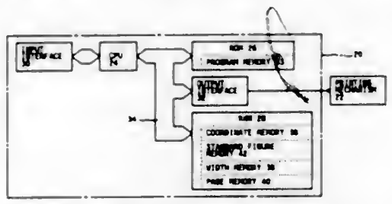
ge(s) from the memory device for toggled comparison among such recalled image versions.

5,208,904

DATA PROCESSING APPARATUS AND METHOD FOR PREPARING DATA REPRESENTATIVE OF SUPPLEMENTAL FIGURE ATTACHED TO BASIC FIGURE REPRODUCED ON OUTPUT MEDIUM

Ichiro Sasaki, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Continuation of Ser. No. 486,852, Mar. 1, 1990, abandoned. This application Nov. 18, 1991, Ser. No. 794,665
Claims priority, application Japan, Mar. 7, 1989, 1-54576
Int. Cl.[5] G06F *15/626*
U.S. Cl. 395—143 **20 Claims**



1. A data processing apparatus comprising:

basic figure processing means for preparing basic figure data on an output medium such as recording medium and a display screen;

program memory means for storing a control program defining at least one standard supplement figure with respect to a shape and a size thereof and a relative position thereof to said at least one basic figure so as to partially overlap said at least one basic figure in a predetermined relation therewith;

standard supplement figure processing means for determining, by utilizing said control program and a characteristic of said at least one basic figure, a size and a position of said at least one standard supplement figure, and preparing standard supplement figure data necessary to output said at least one standard supplement figure on said output medium;

each of said basic figure data and said standard supplement figure data consisting of inside-indicating data indicating an area inside a corresponding one of said basic figure and said standard supplement figure, and outside-indicating data indicating an area outside said corresponding one of the basic figure and the standard supplement figure; and

output figure processing means for processing said basic figure data and said standard supplement figure data into output figure data used to output as an output figure the overlapped at least one basic figure and at least one standard supplement figure, such that an area inside said output figure is indicated by said inside-indicating data and an area outside said output figure is indicated by said outside-indicating data;

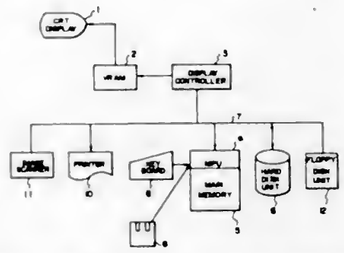
said output figure containing at least one supplemental figure which is a portion of said at least one standard supplemental figure.

5,208,905

DOCUMENT PROCESSING APPARATUS

Hiroshi Takakura, Yokohama; Satoshi Ishihara, Sagamihara, and Keiko Yasuda, Fuchu, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 270,647, Nov. 14, 1988, abandoned. This application Oct. 22, 1991, Ser. No. 782,767
Claims priority, application Japan, Nov. 16, 1987, 62-289141; Nov. 16, 1987, 62-289142; Nov. 16, 1987, 62-289143
Int. Cl.[5] G06F *15/20*
U.S. Cl. 395—148 **26 Claims**



1. A document processing apparatus for processing a sheet displayed on a display screen, comprising:

format setting means for setting format information regarding character editing displayed on the display screen;

figure input means for inputting a figure on the same display screen as that upon which said character editing is displayed;

grid information generating means for determining a grid pitch in response to the format information set by said format setting means; and

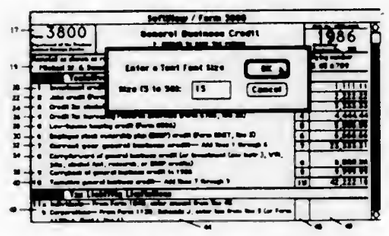
display control means for controlling the display screen such that the figure input by said figure input means is displayed in accordance with the grid pitch determined by said grid information generating means.

5,208,906

METHOD AND APPARATUS FOR REPRESENTING BORDERED AREAS OF A GENERIC FORM WITH RECORDS

Michael W. Morgan, Camarillo, Calif., assignor to Chipsoft CA, Corp., San Diego, Calif.

Division of Ser. No. 292,611, Dec. 30, 1988. This application Sep. 21, 1990, Ser. No. 586,256
Int. Cl.[5] G06F *15/20*
U.S. Cl. 395—148 **55 Claims**



1. In a computer system having a display screen and a memory for storing data, a method for effectively representing a generic form, said representation intended to allow dynamic alteration of said generic form, said generic form characterized as a two-dimensional space comprising a plurality of non-overlapping bordered areas, each of said bordered areas including none, one or more non-overlapping smaller bordered areas or

text, said text comprising none, one, or more lines of characters, each of said smaller bordered areas included within an associated larger bordered area in said bordered areas, said method comprising the steps of:

storing a plurality of records defining structure of said generic form, each of said records associated with at least one of said bordered areas and including information with respect to said at least one bordered area,

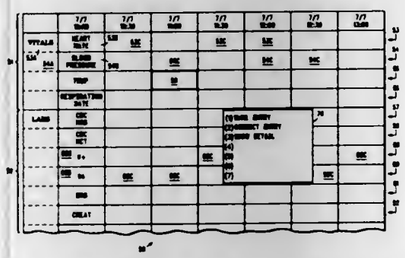
establishing interlinking indications in said records for identifying structural relationships between said plurality of records, said interlinking indications for identifying whether one of said bordered areas includes any of said smaller bordered areas and whether one of said bordered areas is included in any of said associated larger bordered areas.

5,208,907

METHOD FOR GENERATING A DISPLAY UTILIZING OBJECTS IN AN OBJECT LIST

Richard E. Shelton, Mesa; Ronald E. Norden-Paul, Tempe; Audree A. Thurman, Phoenix, and Stanley C. Person, Mesa, all of Ariz., assignors to Emtek Health Care Systems, Inc., Tempe, Ariz.

Continuation of Ser. No. 322,740, Mar. 13, 1989, abandoned. This application Jun. 19, 1990, Ser. No. 540,382
Int. Cl.[5] G06F *15/20*
U.S. Cl. 395—149 **11 Claims**



1. In a computer system having input means for entering a plurality of objects to form an object list, data and commands into said system by a system user, an operator display module for displaying information to said user, a memory for storing said data and instructions, and processing means for performing processing operations in response to the entry of said data and said commands by said user, a method for generating a display on said operator display module comprising the steps in sequence of:

(a) entering a command into said system by said user to display a form;

(b) in response to said command, using said processing means to obtain said object list, corresponding to said form, from said memory;

(c) using said processing means, assigning a plurality of tiles to each of said objects in said object list, at least one of said tiles being assigned to a group of said objects, and at least a second of said tiles being assigned to an individual one of said objects; and

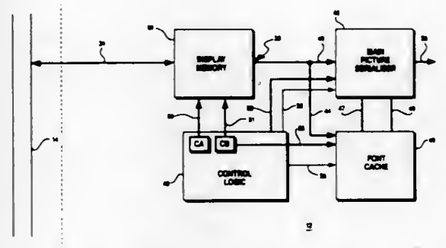
(d) using said processing means, displaying said tiles on said operator display module.

5,208,908

DISPLAY SYSTEM HAVING A FONT CACHE FOR THE TEMPORARY STORAGE OF FONT DATA

Roy B. Harrison, East Wellow; David C. Haigh, Winchester, and Roger T. Wood, Romsey, all of England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 26, 1990, Ser. No. 485,347
Claims priority, application European Pat. Off., Oct. 12, 1989, 89310458
Int. Cl.[5] G06F *15/20*
U.S. Cl. 395—150 **14 Claims**



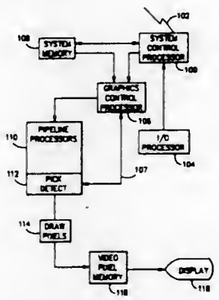
1. A display system comprising a display memory for storage of information for display on a display device, said information including a set of character font definitions, a font cache for temporary storage of definitions of one or more character fonts currently required for display and control logic for updating said font cache from said display memory.

5,208,909

PRE-DRAWING PICK DETECTION IN A GRAPHICS DISPLAY SYSTEM

James Corona, Kingston; Daniel G. Gibbons, Ulster Park, both of N.Y., and Terence W. Lindgren, Littleton, Mass., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 23, 1989, Ser. No. 425,777
Int. Cl.[5] G06F *15/62, 3/14*
U.S. Cl. 395—155 **9 Claims**



5. A system for detecting operator selection of an object displayed in an image on a display device, said image generated by a plurality of graphics orders, said system comprising:

operator position indicating means for an operator to establish a position within said image;

first memory means for storing a minimum and maximum pick boundary for a first and second dimension, said pick boundaries representing an offset from said operator position, and combined to form vertices of an operator selection window;

second memory means for storing said graphics orders;

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first processing means for decoding said orders and transmitting object vertex information;

second processing means for performing graphic transformation on said transmitted vertex information to generate transformed vertex information;

first logic means for generating a coded representation of said transformed vertex information in relation to said pick boundaries;

second logic means for logically combining a first and second coded representation from a first and second object vertex;

third logic means for generating a match signal if said logically combined representation is a trivial pick on the basis of said coded representations, or a non-trivial signal if said logically combined representation cannot be trivially evaluated;

fourth logic means for evaluating a line connecting said first and second object vertices against test lines between one of said object vertices and a selected pair of vertices of said operator selection window; and

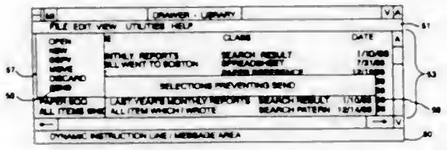
fifth logic means for comparing said evaluations with each other and for generating a pick signal in accordance with said comparison, said fifth logic means generating said pick signal if said line intersects said operator selection window.

5,208,910

MENU DRIVEN AND METHOD SYSTEM FOR INFORMING WHICH PAST SELECTIONS HAVE CAUSED DISABLED ACTIONS

Patricia E. Higgins, Gaithersburg; Ta-Jen Hu, Rockville; Joseph W. Potts, Bethesda, all of Md., and William J. Wyatt, Lowell, Mass., assignors to International Business Machines, Armonk, N.Y.

Filed May 12, 1992, Ser. No. 883,909
Int. Cl.[5] G06F *15/403*
U.S. Cl. 395—156 19 Claims



10. A data processing system for informing a system user which of a plurality of selections made by the system user have disabled an action in a menu presented to the user comprising:

a memory for storing program modules and data files;

a processor coupled to the memory by means of a system bus the processor operates the data processing system according to instructions in the program modules stored in the memory;

means for establishing a selections list in memory, the selections list containing a plurality of selections which have been selected by the system user;

means for updating the selections list in response to a selection or deselection by the system user;

means for determining whether any of the selections contained in the selections list have disabled any action in an actions list containing a plurality of actions;

display means for displaying information to the system user coupled to the processing means and the memory by means of a system bus, the display means displaying the actions list in a menu including at least one disabled action displayed in a manner indicating its disabled state;

an input device for querying the data processing system as to the selections which are causing the disabled action to be disabled; and,

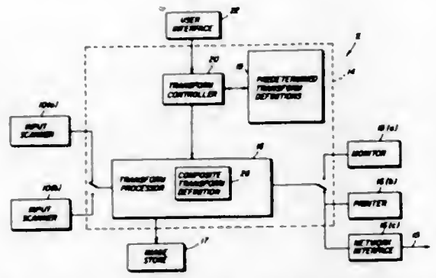
means for indicating which of the selections have caused the disabled action to be disabled in response to the input means signaling that a cursor has been moved to the disabled action.

5,208,911

METHOD AND APPARATUS FOR STORING AND COMMUNICATING A TRANSFORM DEFINITION WHICH INCLUDES SAMPLE VALUES REPRESENTING AN INPUT/OUTPUT RELATION OF AN IMAGE TRANSFORMATION

Gary H. Newman, Concord, Mass.; Christopher J. Enscoe, Earleville, N.Y.; Robert F. Poe, Charlestown, Mass.; H. Scott Gregory, Jr., Bedford, Mass., and Michael S. Schwartz, Arlington, Mass., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 717,099, Jun. 18, 1991, which is a continuation of Ser. No. 590,375, Sep. 28, 1990, abandoned. This application Feb. 7, 1992, Ser. No. 832,358
Int. Cl.[5] G06F *15/20*; G09G *1/28*; H04N *1/46*
U.S. Cl. 395—162 33 Claims



1. A method for communicating a transform definition to a destination device, said transform definition for generating output image parameter data based on input image data and having a channel corresponding to each output image parameter, each channel having at least one input table, an output table and a grid table representing an input/output relation of an image transformation, said method comprising the steps of:

providing said destination device with identification data identifying the communication as that of a transform definition,

providing said destination device with version data for distinguishing the transform definition from other versions of the transform definition,

providing the destination device with size data specifying a size of one of the grid table's dimensions for each channel's grid table,

providing the destination device with input table data of any input table which is shared by a plurality of channels of said transform definition,

providing the destination device with output table data of any output table which is shared by a plurality of channels of said transform definition,

providing the destination device with grid table data of any grid table which is shared by a plurality of channels of said transform definition,

providing said destination device with input table data of any private input tables,

providing said destination device with output table data of any private output tables,

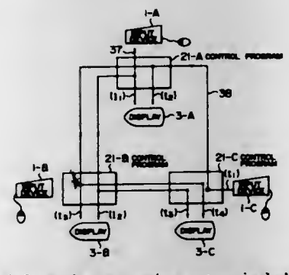
providing said destination device with grid table data of any private grid tables.

5,208,912

JOINT INFORMATION PROCESSING SYSTEM COMPRISING A PLURALITY OF TERMINAL APPARATUSES GUARANTEEING IDENTICALNESS OF DATA PROCESSING RESULTS

Yoshiyuki Nakayama, Yokohama; Kenjiro Mori, Machida, and Tadashi Yamamitsu, Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 15, 1990, Ser. No. 614,087
Claims priority, application Japan, Nov. 15, 1989, 1-294983
Int. Cl.[5] G06F *15/16*
U.S. Cl. 395—200 9 Claims



4. A joint information processing system, including a plurality of terminal stations connected to each other via a communication network, wherein each of said terminal stations comprises:

input means operated by a user to input data and/or commands;

communication interface means connected to said communication network for receiving data and/or commands from another one of said terminal stations and for transferring the data and/or commands to said other one of said terminal stations;

data process means coupled to said input means and said communication interface means for executing predetermined data processing operations using application programs for input data and/or input commands supplied from said input means and said communication interface means; and

display means coupled with said data process means for displaying a result of data processing conducted by said data process means;

said data process means including:

(a) means for receiving data and/or commands from said input means;

(b) means for selectively distributing data and commands to said application programs; and

(c) communication control means operatively connected to receive input data and/or commands from said receiving means and said communication interface means and to selectively supply input data and/or commands to said distribution means and said communication interface means;

said communication control means having:

(i) first means for storing information to indicate whether said terminal station possesses an effectuation floor qualification to set data and/or commands into a particular category; and

(ii) second means operatively connected to said first means, for adding a status identifier to received input data and commands when the information stored in said first means indicates that said terminal station has an effectuation floor qualification for input data and commands and when said received input data and commands are in an ineffective state, said status identifier denoting that the input data and commands are in the effective state, and for thereafter delivering the resultant data and commands with the added status identifier to both said communication interface means and said distributing means, and for delivering received input data and commands with no status identifier to said communication interface means when said information indicates that the terminal station has no effectuation floor qualification for the input data and commands;

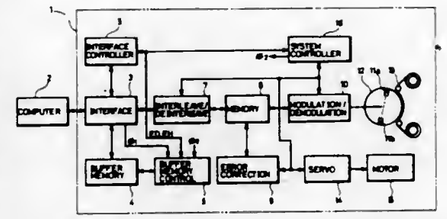
said data processing means in each terminal station operating so that only the input data and commands having a status identifier added thereto are subjected to data processing for joint information processing.

5,208,913

BUFFER MEMORY FOR SYNCHRONIZING DATA TRANSMISSION AND RECEPTION BETWEEN TWO DEVICES HAVING MUTUALLY DIFFERENT OPERATING SPEEDS AND OPERATING METHODS THEREFOR

Hirotoshi Yamamoto, Hiroshima, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 368,651, Jun. 20, 1989, abandoned. This application Feb. 21, 1992, Ser. No. 839,699
Claims priority, application Japan, Jun. 22, 1988, 63-155747
Int. Cl.[5] G06F *13/20*, *13/42*
U.S. Cl. 395—250 8 Claims



1. A buffer memory device connected between a first device and a second device operating at mutually different first and second rates of data transmission and reception, respectively, and adapted for synchronizing data transmission and reception between said first and second devices, wherein the first rate of said first device operates at a lower rate of data transmission and reception than the second rate of said second device, said buffer memory device comprising:

a memory area for storing data, said memory area being divided into a plurality of addressable sections;

first addressing means responsive to the first rate of said first device for periodically addressing each section in said memory area;

second addressing means responsive to the second rate of said second device for periodically addressing each section in said memory area;

accessing means connected to said memory area for performing first and second accessing operations to the section addressed by said first and second addressing means respectively; and

control means for detecting a coincidence of said first and second accessing operations in the same addressable section of said memory area and a difference between the addressable sections of said memory area having said first and second accessing operations so that the operation of said second addressing means is stopped when said addressable section of said memory area and the operation of said second addressing means is subsequently started when said difference between said addressable sections is detected to be a predetermined difference corresponding to at least two addressable sections of said memory area to thereby avoid an undesired addressing collision caused by simultaneous addressing by said first and second addressing means in the same addressable section of said memory area.

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5,208,914

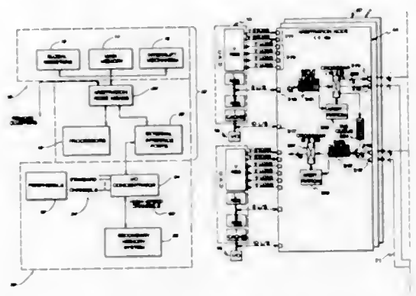
METHOD AND APPARATUS FOR NON-SEQUENTIAL RESOURCE ACCESS

Jimmie R. Wilson, Eau Claire; Douglas R. Beard, Eleva; Steve S. Chen, Chippewa Falls; Roger E. Eckert, Eau Claire; Richard E. Hessel, Altonna; Andrew E. Phelps, Eau Claire; Alexander A. Silbey, Eau Claire, and Brian D. Vanderwarn, Eau Claire, all of Wis., assignors to Superconductor Systems Limited Partnership, Eau Claire, Wis.

Continuation-in-part of Ser. No. 459,083, Dec. 29, 1989. This application Jun. 11, 1990, Ser. No. 535,786

Int. Cl.[5] G06F *9/00, 9/46*

U.S. Cl. 395—275 19 Claims



1. An apparatus for non-sequential shared resource access in a multiprocessor system having a plurality of processors coupled to a plurality of hardware shared resources, the apparatus comprising:

a unique request generation means physically connected to each of the processors for generating a plurality of resource requests from that processors each of the resources requests comprising:

an address for a requested shared resource; and

a request tag designating a memory element means physically located within the processor for storing the resource request that is to be returned;

a separate switching means physically connected to all of the request generation means for receiving the resource requests in a time order in which the resource requests were generated and routing the resource requests to the requested shared resources, the switching means including:

tag queue means for storing the request tags associated with the resource requests; and

logic means for associating the respective request tag from the tag queue means with a resource response; and

means for returning the resource response and respective request tag to the processor; and

a plurality of hardware shared resource means physically connected to the switching means for servicing the resource requests as the requested shared resource means becomes available and returning the resource response to the switching means in an order in which the resource requests are serviced,

whereby the resource responses may be returned out-of-order as compared with the time order in which the resource requests were issued.

5,208,915

APPARATUS FOR THE MICROPROGRAM CONTROL OF INFORMATION TRANSFER AND A METHOD FOR OPERATING THE SAME

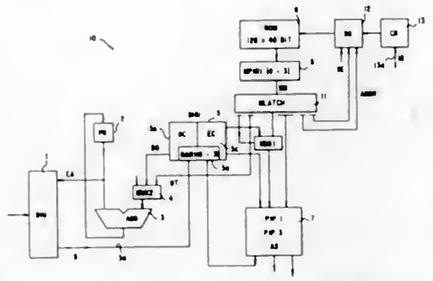
Hans Stadlmeier, and Franz Schönberger, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 205,505, Jun. 3, 1988, abandoned, which is a continuation of Ser. No. 549,582, Nov. 7, 1983, abandoned. This application Aug. 1, 1991, Ser. No. 742,172

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1982, 3241356

Int. Cl.[5] G06F *9/06, 9/22*

U.S. Cl. 395—325 10 Claims



1. Circuit arrangement in a direct memory access controller having a plurality of independent data transmission channels for autonomous data transmission between a plurality of data sources and data sinks, the circuit arrangement comprising a microprogram, a microprogram memory for storing said microprogram, a plurality of microprogram instruction registers, one for each of said data transmission channels, having inputs connected to said microprogram memory, each microprogram instruction register operating to store a respective channel-specific microprogram instruction, and each microprogram instruction register receiving said respective microprogram instruction from said microprogram memory, a microprogram interim memory having an input connected to said microprogram instruction registers for receiving a respective microprogram instruction from one of said microprogram instruction registers for a current data transmission, controlling means having inputs connected to said microprogram interim memory for controlling said current data transmission, said controlling means being connected to said microprogram interim memory and being responsive to said respective microprogram instruction for execution of said microprogram instruction, an independently operating data handling unit for determining presence of an access byte/word during data transmission having an input connected to said controlling means, a data assembly register having an input connected to said data handling unit, and respective outputs assigned to each of said data transmission channels for temporary storage of data bits or control information, means in said data handling unit for, after microprogrammed initialization, executing channel-specific processing of the data transmission.

DESIGN PATENTS

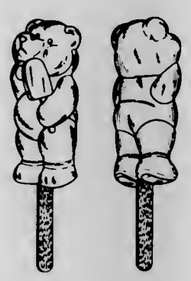
GRANTED May 4, 1993

ERRATA

For CLASS	See PATENT NO.
D06-335	335,222

VOL
1150
ISS
1
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4
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335,198
CONFECTION ON A STICK
Wolfgang Straka, Bahngasse, Austria, assignor to Gold Bond Ice Cream, Inc., Green Bay, Wis.
Filed Nov. 9, 1990, Ser. No. 611,858
Claims priority, application Austria, May 9, 1990, 553372
Term of patent 14 years
U.S. Cl. D1—104



335,199
CHOCOLATE CANDY IN THE SHAPE OF A BEAR
Marika Kesdekoglu, Brussels, Belgium, assignor to S.A. Confiserie Leonidas, Brussels, Belgium
Filed Apr. 3, 1990, Ser. No. 504,268
Claims priority, application Benelux, Oct. 3, 1989, DM/014.749
Term of patent 14 years
U.S. Cl. D1—110



335,200
PRALINE
Marika Kesdekoglu, Brussels, Belgium, assignor to S.A. Confiserie Leonidas, Brussels, Belgium
Filed Apr. 3, 1990, Ser. No. 504,423
Claims priority, application Benelux, Oct. 3, 1989, DM/014.749
Term of patent 14 years
U.S. Cl. D1—127



335,201
CHOCOLATE CANDY
Marika Kesdekoglu, Brussels, Belgium, assignor to S.A. Confiserie Leonidas, Brussels, Belgium
Filed Oct. 15, 1990, Ser. No. 597,437
Claims priority, application Benelux, Apr. 23, 1990, DM/016.488
Term of patent 14 years
U.S. Cl. D1—127

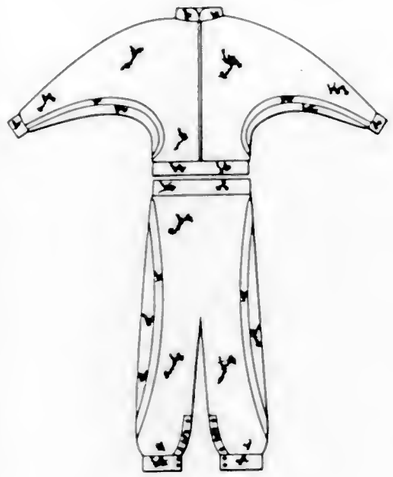


335,202
CHOCOLATE CANDY
Marika Kesdekoglu, Brussels, Belgium, assignor to S.A. Confiserie Leonidas, Brussels, Belgium
Filed Oct. 15, 1990, Ser. No. 597,442
Claims priority, application Benelux, Apr. 23, 1990, DM/016.488
Term of patent 14 years
U.S. Cl. D1—127



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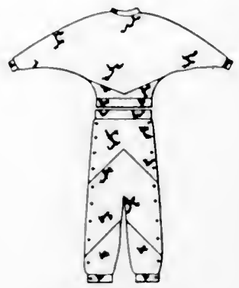
335,203
WARM-UP SUIT
David B. Aubuchon, Festus; Karen J. Riebel, St. Louis, and William L. Schaefer, Arnold, all of Mo., assignors to Figgie International, Inc., Willoughby, Ohio
Filed Sep. 10, 1990, Ser. No. 580,004
Term of patent 14 years
U.S. Cl. D2—29



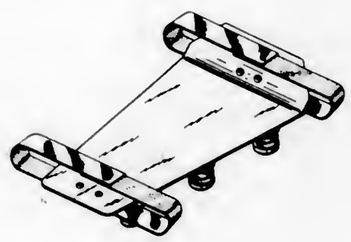
335,204
WARM-UP SUIT
David B. Aubuchon, Festus; Karen J. Riebel, St. Louis, and William L. Schaefer, Arnold, all of Mo., assignors to Figgie International Inc., Willoughby, Ohio
Filed Sep. 10, 1990, Ser. No. 580,007
Term of patent 14 years
U.S. Cl. D2—29



335,205
WARM-UP SUIT
David B. Aubuchon, Festus; Karen J. Riebel, St. Louis, and William L. Schaefer, Arnold, all of Mo., assignors to Figgie International Inc., Willoughby, Ohio
Filed Sep. 10, 1990, Ser. No. 579,500
Term of patent 14 years
U.S. Cl. D2—29



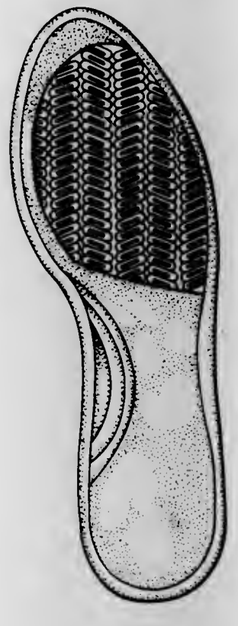
335,206
RESILIENT FOOT SUPPORT
Willie Hempstead, 4017 Adair St., No. 1, Los Angeles, Calif. 90011
Filed Jan. 16, 1992, Ser. No. 821,599
Term of patent 14 years
U.S. Cl. D2—265



335,207
SHOE UPPER
Robert P. Lucas, Portland, Oreg., assignor to Nike, Inc. and Nike International Ltd., Beaverton, Oreg.
Filed Feb. 25, 1992, Ser. No. 840,989
Term of patent 14 years
U.S. Cl. D2—314



335,208
SHOE SOLE
William R. Peterson, Encino, Calif., assignor to Guess?, Inc., Los Angeles, Calif.
Filed Nov. 18, 1991, Ser. No. 793,705
Term of patent 14 years
U.S. Cl. D2—320



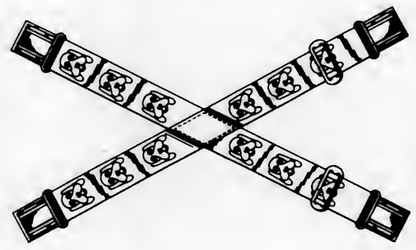
335,209
SHOE UPPER
Eric P. Avar, Hillsboro, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Jul. 1, 1992, Ser. No. 905,659
Term of patent 14 years
U.S. Cl. D2—314



335,210
NECKWEAR
Thomas F. Barrett, 1204 Chestertowne Rd., Chester, Va. 23583
Filed Apr. 15, 1991, Ser. No. 685,504
Term of patent 14 years
U.S. Cl. D2—600

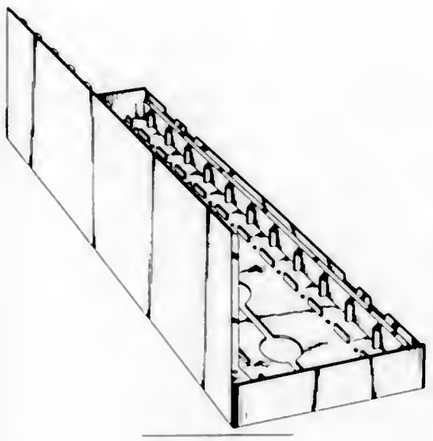


335,211
SHIRT RETAINING STRAP SET
Vickie Hightower, 1046 N. Canton, Tulsa, Okla. 74115
Continuation-in-part of Ser. No. 113,263, Oct. 27, 1987, abandoned. This application Oct. 10, 1990, Ser. No. 595,008
Term of patent 14 years
U.S. Cl. D2—626

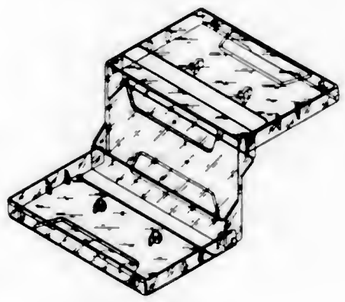


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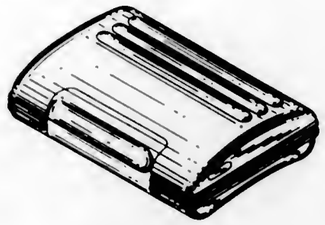
335,212
CASE FOR CASSETTE TAPES
Kitti Mitsattha, 19665-66 Petchkasem Road, Wat Tha Pra Sub-District, Bangkokyai District, Bangkok, Thailand
Filed Oct. 11, 1990, Ser. No. 595,925
Term of patent 14 years
U.S. Cl. D3—35



335,213
CASE FOR AUDIO TAPE CASSETTES
Kazuhisa Horikiri, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jun. 17, 1991, Ser. No. 716,232
Term of patent 14 years
U.S. Cl. D3—35

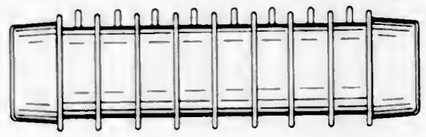


335,214
CASE FOR A MAGNETIC TAPE CASSETTE
Masayuki Hata, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jul. 9, 1991, Ser. No. 727,528
Claims priority, application Japan, Jan. 24, 1991, 3-1345
Term of patent 14 years
U.S. Cl. D3—35



335,215
STORAGE CONTAINER FOR DISK-SHAPED OBJECT
David L. Stumpff, Alpharetta, Ga., assignor to Atlanta Precision Molding Co., Duluth, Ga.
Filed Jan. 6, 1992, Ser. No. 817,521
Term of patent 14 years
U.S. Cl. D3—35

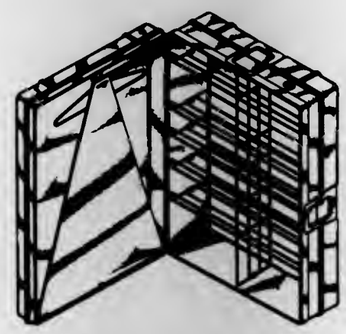
335,216
LEADER HOLDER
Gary G. Carlson, 15605 Lexington Ave. Northeast, Anoka, Minn. 55304
Filed Aug. 10, 1990, Ser. No. 565,405
Term of patent 14 years
U.S. Cl. D3—38



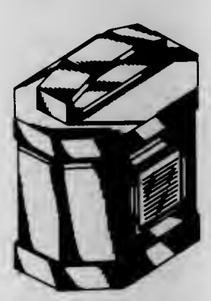
335,217
BRACELET LIKE KEY RING
Kathleen J. Seitz, 884 Links View Dr., Simi Valley, Calif. 93065
Continuation-in-part of Ser. No. 216,189, Jul. 7, 1988, Pat. No. Des. 315,056. This application Jun. 29, 1990, Ser. No. 546,776
The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.
Term of patent 14 years
U.S. Cl. D3—62



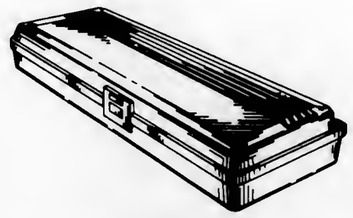
335,218
TRUNK FOR A STEAMER OR AIRPLANE
Bill Markham, Westlake Village, Calif., assignor to Bill and Lorraine Markham Family Trust, Thousand Oaks, Calif.
Filed Jun. 19, 1991, Ser. No. 718,163
Term of patent 14 years
U.S. Cl. D3—70



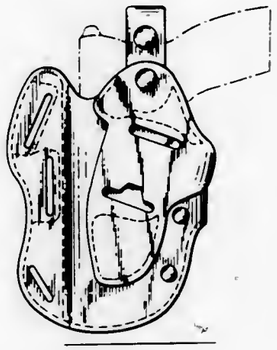
335,219
PERSONAL BELONGINGS CARRYING CASE
Richard Vogt, and Jane E. Schmeichel, both of 27 Dogwood Dr., Bella Vista, Ark. 72714
Filed Apr. 11, 1991, Ser. No. 683,652
Term of patent 14 years
U.S. Cl. D3—73



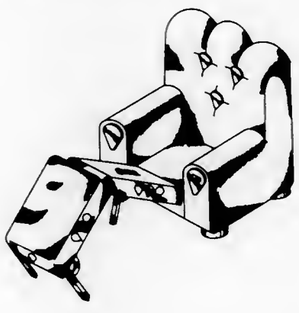
335,220
UTILITY CASE
William W. Ward, Clayton, and Donald R. Reynolds, Raleigh, both of N.C., assignors to Southern Case, Inc., Raleigh, N.C.
Filed Apr. 9, 1991, Ser. No. 682,715
Term of patent 14 years
U.S. Cl. D3—78



335,221
PISTOL HOLSTER
Richard D. E. Nichols, 13223 Black Mountain Rd., #357, San Diego, Calif. 92129
Filed Jan. 7, 1991, Ser. No. 638,409
Term of patent 14 years
U.S. Cl. D3—101

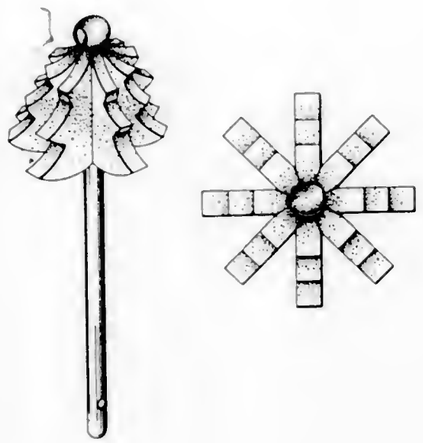


335,222
ELECTRONICALLY ADJUSTABLE SOFA BED
John H. Washington, Jr., 800 E. Jersey St., Elizabeth, N.J. 07206-1913
Filed Nov. 5, 1990, Ser. No. 608,894
Term of patent 14 years
U.S. Cl. D6—335



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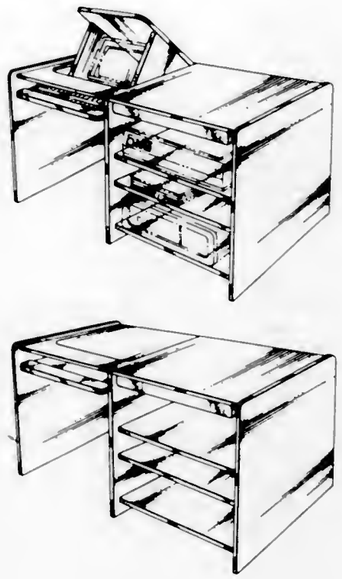
335,223
BOTTLE BRUSH
Craig S. Shumway, and Amy Shumway, both of 865 S. Pennsylvania Ave., Winter Park, Fla. 32789
Filed Aug. 5, 1991, Ser. No. 740,187
Term of patent 14 years
U.S. Cl. D4—119



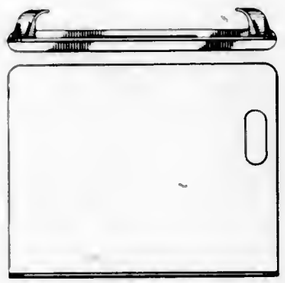
335,224
ROCKING CHAIR
Leroy C. Freeman, and Johnny M. Freeman, both of 3846 35th St., San Diego, Calif. 92104
Filed Oct. 25, 1990, Ser. No. 603,847
Term of patent 14 years
U.S. Cl. D6—348



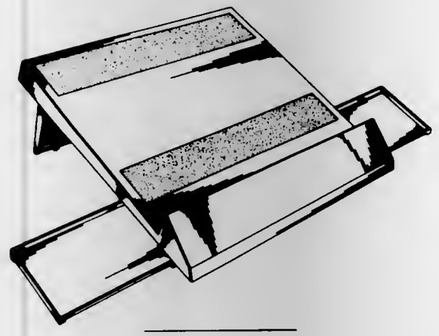
335,225
CONVERTIBLE COMPUTER WORKSTATION
Carlos V. Ugalde, San Dimas, Calif., assignor to Continental Engineering Group, Inc., Irwindale, Calif.
Filed Dec. 27, 1990, Ser. No. 634,499
Term of patent 14 years
U.S. Cl. D6—425



335,226
VEHICLE STEERING WHEEL TABLE
William O. Horne, Whittier, Calif., assignor to Auto Table, Orange, Calif.
Filed Mar. 22, 1991, Ser. No. 673,507
The portion of the term of this patent subsequent to Nov. 27, 2004, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—406



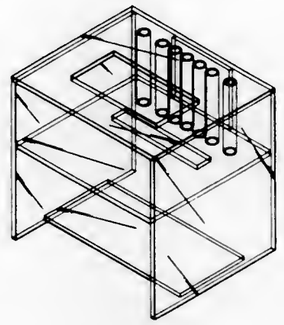
335,227
TELEPHONE STAND
Joshua Lapsker, Thornhill, and Lawrie McIntosh, Mississauga, both of Canada, assignors to Starline Industries Inc., Concord, Canada
Filed May 21, 1992, Ser. No. 886,742
Claims priority, application Canada, Dec. 6, 1991, 612911
Term of patent 14 years
U.S. Cl. D6—449



335,228
MERCHANDISING DISPLAY STAND FOR CHILDREN'S CLOTHING
Kris Barthelmess, 59 Compo Rd. S., Westport, Conn. 06880; Karen Barnett, and Wayne Barnett, both of 320-47 Strawberry Hill Ave., Stamford, Conn. 06902
Filed Apr. 11, 1991, Ser. No. 683,671
Term of patent 14 years
U.S. Cl. D6—450



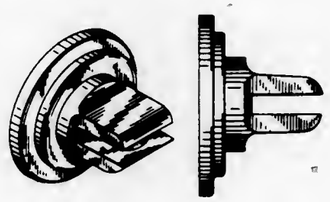
335,229
STEREO STAND
Miranda Leonard, Church Court Condominiums, 492 Beacon St., Boston, Mass. 02115
Filed Jun. 4, 1990, Ser. No. 533,043
The portion of the term of this patent subsequent to Sep. 1, 2006, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—469



335,230
BRACE FOR A FOLDING CHAIR
Lynford Hershey, P.O. Box 1228, Crooked River Ranch, Oreg. 97760
Filed Feb. 2, 1990, Ser. No. 473,848
Term of patent 14 years
U.S. Cl. D6—491

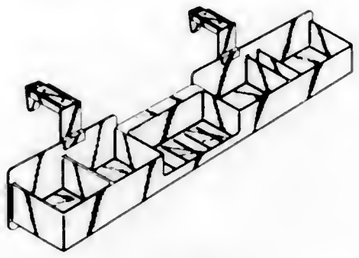


335,231
BRACKET SUPPORT FOR AN ACCESSORY
Alan D. Bengtson, Sheboygan, Wis., assignor to Kohler Co., Kohler, Wis.
Division of Ser. No. 639,953, Jan. 11, 1991. This application Sep. 30, 1992, Ser. No. 954,854
Term of patent 14 years
U.S. Cl. D6—524

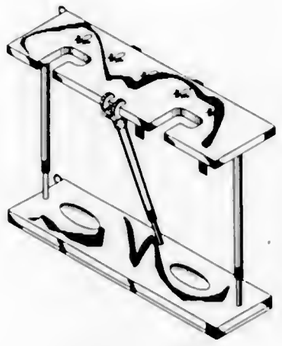


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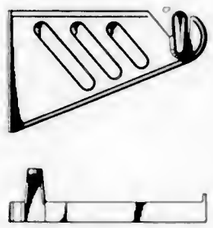
335,232
SHOWER ITEMS RACK
J. E. Kenneth Whitlock, 6210 NW. 31st Ter., Bethany, Okla. 73008-4223
Filed Oct. 15, 1991, Ser. No. 776,737
Term of patent 14 years
U.S. Cl. D6—525



335,233
GUN RACK
Michael Long, P.O. Box 3923, San Angelo, Tex. 76902
Filed Jul. 20, 1990, Ser. No. 555,151
Term of patent 14 years
U.S. Cl. D6—552



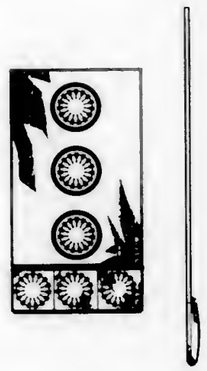
335,234
BICYCLE STORAGE RACK
John A. D. Alguire, 1965 Concorde Avenue, Cornwall, Ontario, Canada K6H 6M3
Filed Aug. 23, 1991, Ser. No. 748,904
Term of patent 14 years
U.S. Cl. D6—552



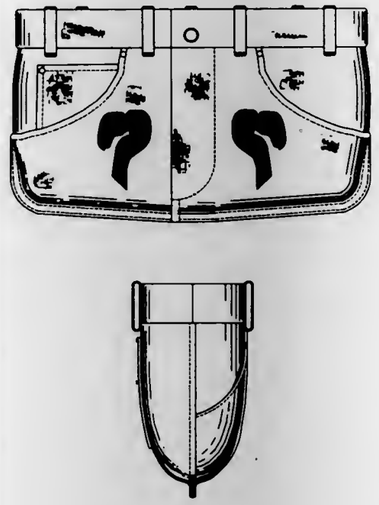
335,235
WHEELCHAIR CUSHION
Tommye C. Hildreth, Westlake, Ohio, assignor to Biotech Ltd., Inc., Westlake, Ohio
Filed Sep. 26, 1990, Ser. No. 588,955
Term of patent 14 years
U.S. Cl. D6—601



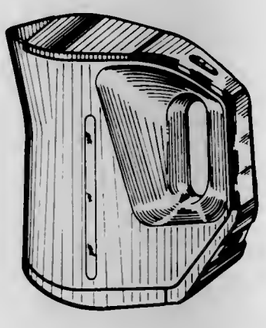
335,236
PORTABLE POCKET BEACH BATH TOWEL
Douglas W. Wood, 102 Carol Ct., Collinsville, Va. 24078
Filed May 4, 1990, Ser. No. 518,829
Term of patent 14 years
U.S. Cl. D6—608



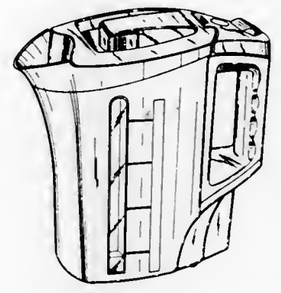
335,237
SANITARY NAPKIN BOX COVER
Sylvia Dyer, 3964 Gardenia Pl., Oakland, Calif. 94605
Continuation-in-part of Ser. No. 266,493, Nov. 3, 1988, abandoned. This application Sep. 13, 1991, Ser. No. 759,078
Term of patent 14 years
U.S. Cl. D6—610



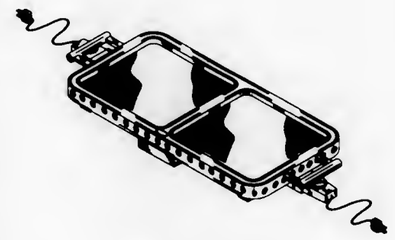
335,238
KETTLE
Alvaro Correa, Cheshire, Conn.; Gary VanDeursen, Upper Saddle River, N.J., and David W. Kaiser, North Haven, Conn., assignors to Black & Decker Inc., Newark, Del.
Filed Sep. 21, 1990, Ser. No. 586,040
Term of patent 14 years
U.S. Cl. D7—317



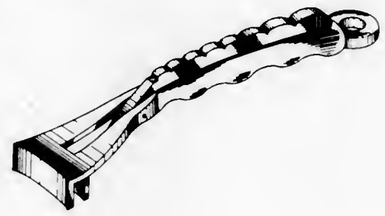
335,239
ELECTRIC JUG
Nigel G. Crunden, Windsor; Mitchell J. Henney, Iver; Anthony J. Lee, Worcester Park, and Russell Wilcox, Windsor, all of United Kingdom, assignors to Moulinex Societe Anonyme, Bagnolet, France
Filed Nov. 27, 1990, Ser. No. 618,375
Claims priority, application France, Jun. 6, 1990, 90 3615
Term of patent 14 years
U.S. Cl. D7—317



335,240
DUAL TEMPERATURE CONTROL GRIDDLE
Ruby L. Critchfield, and Reed C. Critchfield, both of Rte. 1 Box 104, King Hill, Id. 83633
Filed Feb. 7, 1991, Ser. No. 651,918
Term of patent 14 years
U.S. Cl. D7—364

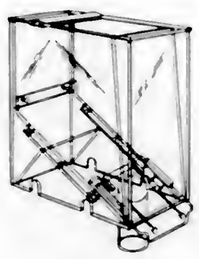


335,241
DETACHABLE POT HANDLE
Peter Babin, Jr., 11019 Morrison Blvd., New Orleans, La. 70127
Filed Nov. 4, 1991, Ser. No. 786,942
Term of patent 14 years
U.S. Cl. D7—395

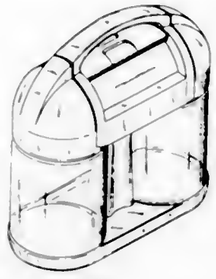


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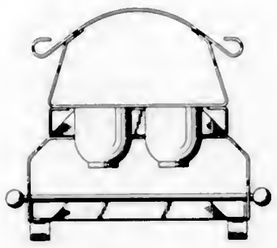
335,242
BULK FOOD DISPENSER
Michael P. Saunders, 86 Park Lane Crescent, London, Ontario, Canada N6K 2T8
Filed Apr. 10, 1990, Ser. No. 507,180
Term of patent 14 years
U.S. Cl. D7—589



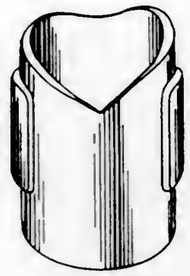
335,243
CRUET SET
Josep Maria P. Gibert, Tarragona, Spain, assignor to Industria Auxiliar Manodomesticos, S.A., Tarragona, Spain
Filed Nov. 26, 1991, Ser. No. 797,818
Claims priority, application Spain, May 27, 1991, 125.013
Term of patent 14 years
U.S. Cl. D7—590



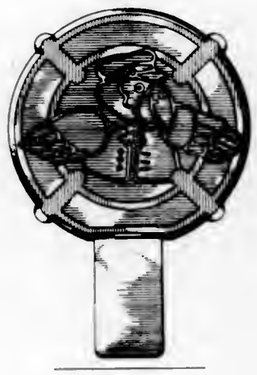
335,244
CONDIMENT CADDY
Hyman Abrams, P.O. Box 27, North Hackensack Station, River Edge, N.J. 07661
Filed May 13, 1991, Ser. No. 699,226
Term of patent 14 years
U.S. Cl. D7—600



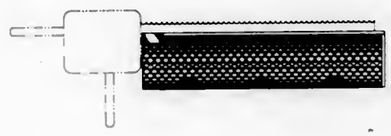
335,245
INSULATED BEVERAGE CAN HOLDER
Jeffrey S. Bauer, 9642 Gallop Ln., St. Louis, Mo. 63126
Filed Jul. 25, 1991, Ser. No. 735,463
Term of patent 14 years
U.S. Cl. D7—608



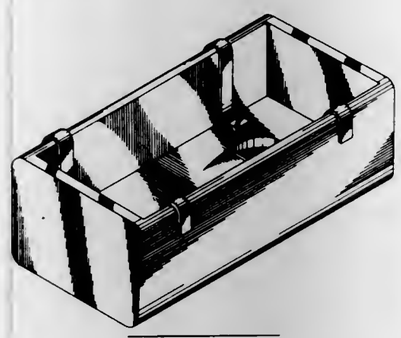
335,246
CONFECTION MOLD
Jerrilyn C. Kiyokane, Torrance, Calif., assignor to Namkung Promotions Inc., Costa Mesa, Calif.
Filed Jan. 2, 1991, Ser. No. 636,960
Term of patent 14 years
U.S. Cl. D7—675



335,247
HEDGE TRIMMER BASKET
Vernon H. Gittery, 23852 Bonny Bank Dr., Westlake, Ohio 44145
Filed Apr. 22, 1991, Ser. No. 688,989
Term of patent 14 years
U.S. Cl. D8—8



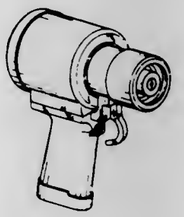
335,248
SHOE-WORN TROWEL
Clyde D. Horath, and Nancy J. Horath, both of R#2 Box 280, Beecher City, Ill. 62414
Filed Oct. 23, 1990, Ser. No. 601,569
Term of patent 14 years
U.S. Cl. D8—45



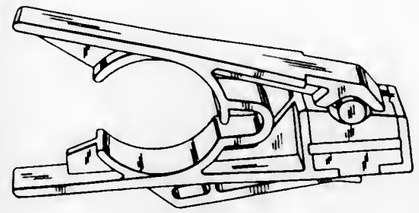
335,249
PLIERS
Harmon R. Hopkins, 18 Marshall St., Milford, Del. 19963
Filed Mar. 22, 1991, Ser. No. 673,500
Term of patent 14 years
U.S. Cl. D8—52



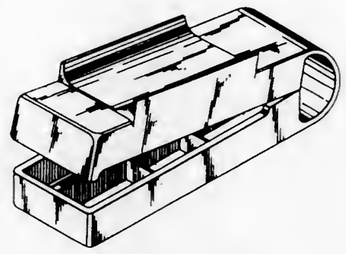
335,250
FASTENER INSTALLATION TOOL
Hendrik E. Rosier, Kingston, N.Y., assignor to Huck Patents, Inc., Wilmington, Del.
Filed Jun. 26, 1991, Ser. No. 721,020
Term of patent 14 years
U.S. Cl. D8—68



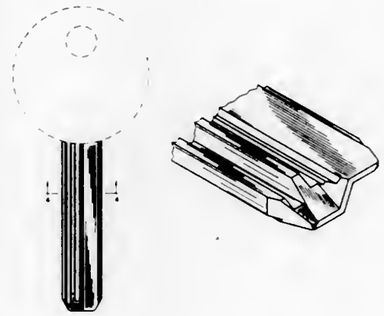
335,251
CABLE STRIPPING TOOL
Mikael Nilsson, Evertsberg 3545, S-796 00 Älvdalen, Sweden
Filed Aug. 10, 1990, Ser. No. 565,328
Claims priority, application Sweden, Feb. 16, 1990, 90-0360
Term of patent 14 years
U.S. Cl. D8—98



335,252
RIBBON SHREDDING AND CURLING UNIT
Arnold M. DeJaynes, R.R. #1, Box 168, New London, Iowa 52645
Filed Aug. 19, 1991, Ser. No. 746,594
Term of patent 14 years
U.S. Cl. D8—98

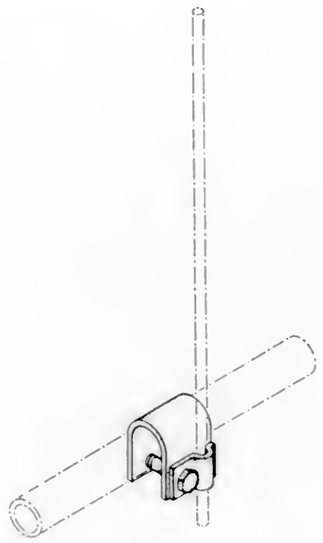


335,253
KEY BLADE BLANK
Noach Elzen, Rishon Lezion, Israel, assignor to Mul-T-Lock Ltd., Yavne, Israel
Filed Dec. 10, 1990, Ser. No. 624,779
Claims priority, application Israel, Jun. 19, 1990, 16629
Term of patent 14 years
U.S. Cl. D8—347

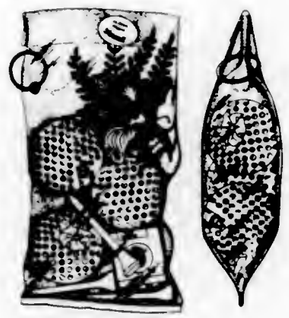


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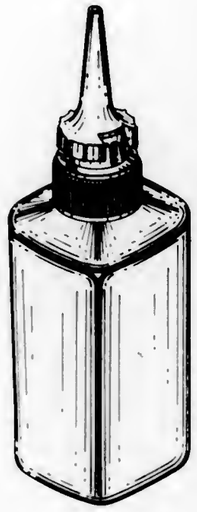
335,254
SAFETY FLAG MOUNTING BRACKET FOR USE WITH A RECREATIONAL VEHICLE
William W. Carter, Rte. 1 Box 42, Brundidge, Ala. 36010
Filed Jul. 29, 1991, Ser. No. 736,829
Term of patent 14 years
U.S. Cl. D8—354



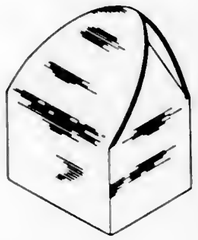
335,255
GOLFER'S DISPLAY PACKAGE
Theresa J. Carrillo, 2376 D Mercury St., Honolulu, Hi. 96818
Filed Nov. 7, 1990, Ser. No. 610,266
Term of patent 14 years
U.S. Cl. D9—337



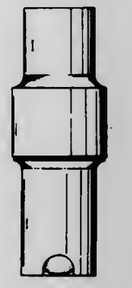
335,256
APPLICATOR
Kimberly Slavin, Norwalk; Wesley F. Rager, Bethel, and Joseph Pereira, West Redding, all of Conn., assignors to Clairol Incorporated, New York, N.Y.
Filed Mar. 12, 1991, Ser. No. 668,426
Term of patent 14 years
U.S. Cl. D9—338



335,257
CARTON
David E. Hauber; Monica Jacobs; W. Richard Davis, all of Winston-Salem, N.C.; Tom Rushing, Denville; Robert A. Fanara, Lawrenceville, both of N.J.; Gilbert L. Horton, Kernersville, N.C., and Richard M. Porter, Hartsville, S.C., assignors to Sara Lee Corporation, Winston-Salem, N.C.
Filed May 3, 1991, Ser. No. 695,888
Term of patent 14 years
U.S. Cl. D9—431



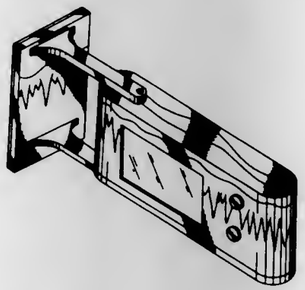
335,258
COMBINED BOTTLE AND CAP
Thomas F. Wiegner, Trumbull; Joseph Pereira, West Redding, and Gregory C. Peischl, Bethel, all of Conn., assignors to Clairol Incorporated, New York, N.Y.
Filed Aug. 6, 1991, Ser. No. 745,116
Term of patent 14 years
U.S. Cl. D9—504



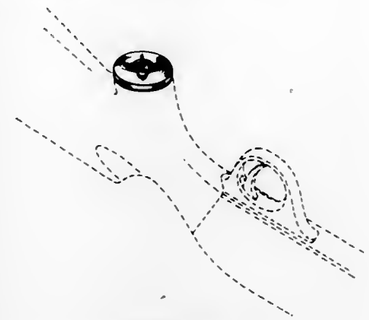
335,259
BOTTLE
Matthew R. Waine, Egham, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Dec. 6, 1990, Ser. No. 624,918
Claims priority, application United Kingdom, Jun. 6, 1990, 2007377
Term of patent 14 years
U.S. Cl. D9—574



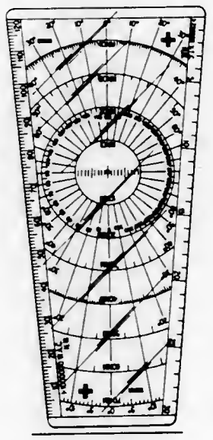
335,260
ELECTRONIC THERMOMETER
In Y. Choi, 20 Traverse Dr., Norristown, Pa. 19401
Filed Feb. 28, 1990, Ser. No. 486,181
Term of patent 14 years
U.S. Cl. D10—57



335,261
GUN COMPASS
Alfred L. Cowles, III, Germantown, Tenn. 38138
Filed Oct. 2, 1991, Ser. No. 769,881
Term of patent 14 years
U.S. Cl. D10—68



335,262
MAP OVERLAY
Colin J. Wells, Single Persons Quarters, Block A, Room 107, Middlemount, Queensland 4746, Australia
Filed Oct. 25, 1991, Ser. No. 782,459
Claims priority, application Australia, May 28, 1991, 1492/91
Term of patent 14 years
U.S. Cl. D10—64

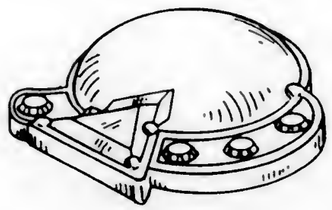


335,263
WRISTBAND
John E. Willis, 789 Calabria Dr., Santa Barbara, Calif. 93105
Filed Jun. 28, 1990, Ser. No. 545,189
Term of patent 14 years
U.S. Cl. D11—3

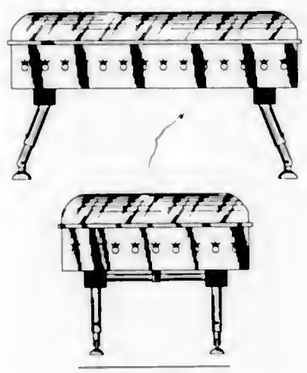


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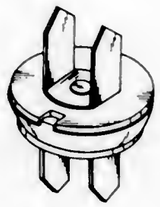
335,264
JEWELRY FINDING
Sammy L. Coleman, 5125 Highway 16, Rapid City, S. Dak. 57701
Filed Jul. 12, 1991, Ser. No. 729,006
Term of patent 14 years
U.S. Cl. D11—79



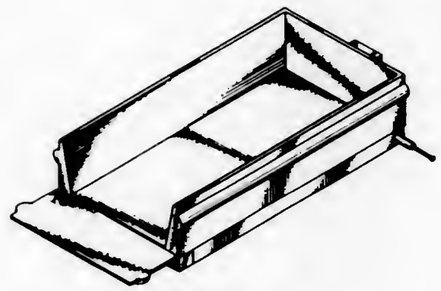
335,265
PORTABLE GREENHOUSE
Rodney D. Rush, R.D. #1, Box 488, Brand Blvd., Toronto, Ohio 43964
Filed May 25, 1990, Ser. No. 528,788
Term of patent 14 years
U.S. Cl. D11—145



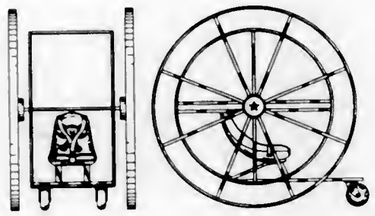
335,266
MAGNETIC FASTENER
Tamao Morita, 47-1 Arakawa, 6-chome, Arakawa-ku, Tokyo, Japan
Filed May 21, 1991, Ser. No. 703,995
Claims priority, application Japan, Nov. 7, 1990, 2-37225
Term of patent 14 years
U.S. Cl. D11—231



335,267
DUMP BODY INSERT FOR THE BED OF A PICKUP TRUCK
Richard Upshaw, 785 Peachtree Battle Ave., Atlanta, Ga. 30327
Filed Nov. 22, 1991, Ser. No. 796,238
Term of patent 14 years
U.S. Cl. D12—98



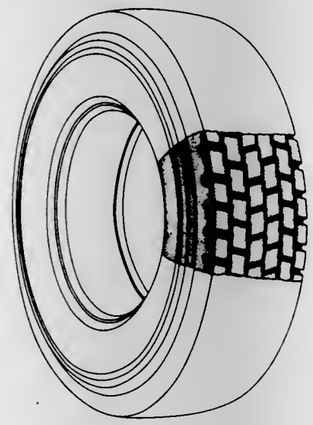
335,268
HIGH ROLLER
David W. Barnett, Rte. 1, Box 146, Pleasant Plains, Ill. 62677
Filed Aug. 19, 1991, Ser. No. 746,568
Term of patent 14 years
U.S. Cl. D12—131



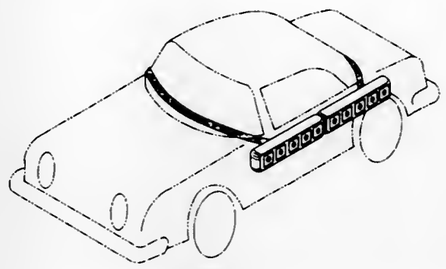
335,269
PNEUMATIC TIRE TREAD AND BUTTRESS
Georges I. Adam, Bissen, Luxembourg, and Michel Premont, Boevange/Attert, Belgium, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Jul. 23, 1990, Ser. No. 556,913
Term of patent 14 years
U.S. Cl. D12—146



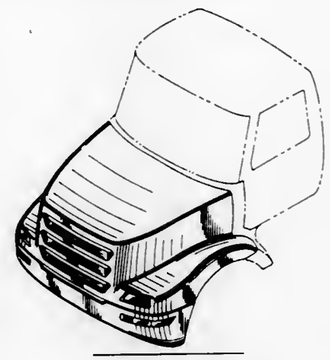
335,270
TIRE
Patrick Lurois, Greenville, S.C., assignor to Compagnie Generale Des Etablissements Michelin - Michelin & Cie, Cedex, France
Filed Sep. 3, 1991, Ser. No. 753,698
Claims priority, application France, Mar. 4, 1991, 241
Term of patent 14 years
U.S. Cl. D12—147



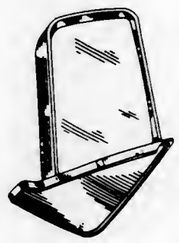
335,271
VEHICLE BODY SIDE GUARD
Terry G. Davis, 437 W. Laurel St., #A, Campton, Calif. 90220
Filed Aug. 9, 1990, Ser. No. 564,957
Term of patent 14 years
U.S. Cl. D12—167



335,272
EXTERIOR SHELL OF A VEHICLE HOOD
L. David Allendorph; Franz Mueller, and Larry N. Reynard, all of Fort Wayne, Ind., assignors to Navistar International Transportation Corp., Chicago, Ill.
Filed Sep. 25, 1991, Ser. No. 766,701
Term of patent 14 years
U.S. Cl. D12—173

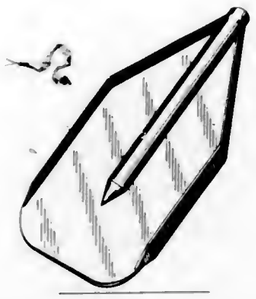


335,273
VEHICLE REARVIEW MIRROR
Jim Fairweather, Reedley, Calif., assignor to Bell Super Tech, Inc., Fresno, Calif.
Filed Aug. 9, 1991, Ser. No. 743,561
Term of patent 14 years
U.S. Cl. D12—187



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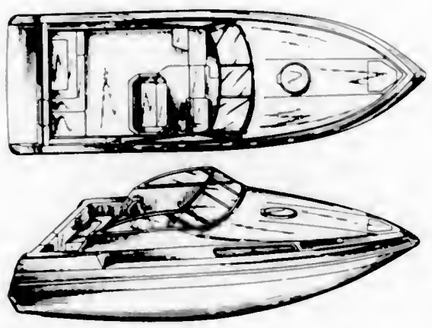
335,274
BLADE FOR A PADDLE
Frank S. Beckerer, Jr., 40 Dock Rd., Milford, Conn. 06460
Filed Jun. 11, 1990, Ser. No. 535,861
Term of patent 14 years
U.S. Cl. D12—215



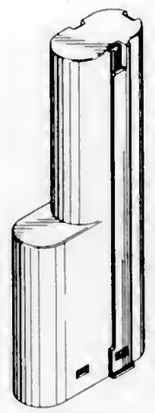
335,275
VEHICLE ATTACHED BOAT RACK
James H. Wright, Jr., 5862 Sherrie La., Powder Springs, Ga. 30073
Filed Feb. 22, 1991, Ser. No. 659,041
Term of patent 14 years
U.S. Cl. D12—156



335,276
RECREATION BOAT
Thomas Wenstadt, Cadillac, Mich., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed May 7, 1991, Ser. No. 699,806
Term of patent 14 years
U.S. Cl. D12—314

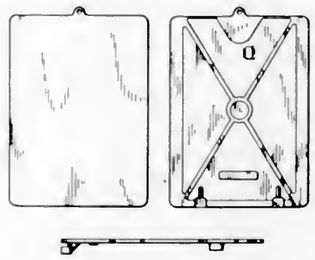


335,277
BATTERY PACK
Noriyasu Hattori, La Mirada, Calif., assignor to Makita Corporation, Aichi, Japan
Filed Oct. 22, 1991, Ser. No. 780,312
Term of patent 14 years
U.S. Cl. D13—103

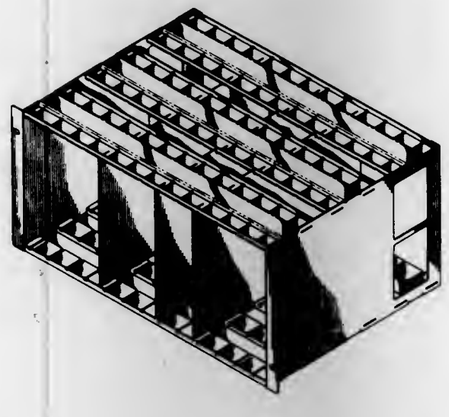


335,278
BATTERY CHARGER FOR A TAPE PLAYER
Joh Wada, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Nov. 25, 1991, Ser. No. 797,289
Claims priority, application Japan, Jun. 17, 1991, 3-18009
Term of patent 14 years
U.S. Cl. D13—107

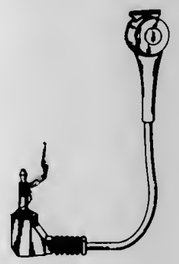
335,279
TRANSFORMER BASE PLASTIC DOOR
Philip Parduhn, 320 SW. 18th, Edmond, Okla. 73013
Filed Jul. 30, 1990, Ser. No. 560,965
Term of patent 14 years
U.S. Cl. D13—118



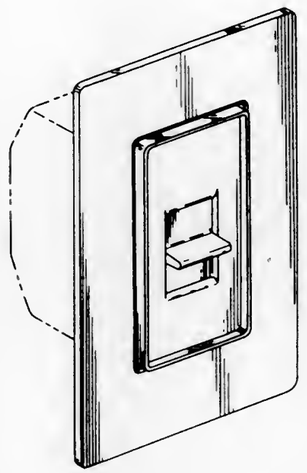
335,280
CARDCAGE CHASSIS FOR ELECTRONIC EQUIPMENT OR SIMILAR ARTICLE
Hans L. Schoemer, Schaumburg, and Raul Olivera, Hoffman Estates, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Oct. 4, 1991, Ser. No. 771,917
Term of patent 14 years
U.S. Cl. D13—184



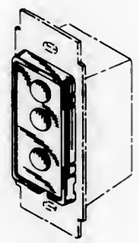
335,281
TACTICAL ACTIVATION SWITCH FOR A FIREARM SIGHTING LASER
Heinz Thummel, Soquel, Calif., assignor to Laser Devices, Inc., Soquel, Calif.
Filed Dec. 7, 1990, Ser. No. 624,919
Term of patent 14 years
U.S. Cl. D13—158



335,282
COMBINED DIMMER CONTROL AND FACE PLATE
Scott Jurell, Hellertown; Darryl W. Tucker, Royersford, and Neol Mayo, Philadelphia, all of Pa., assignors to Lutron Electronics Co., Inc., Coopersburg, Pa.
Filed Oct. 14, 1988, Ser. No. 257,920
Term of patent 14 years
U.S. Cl. D13—170

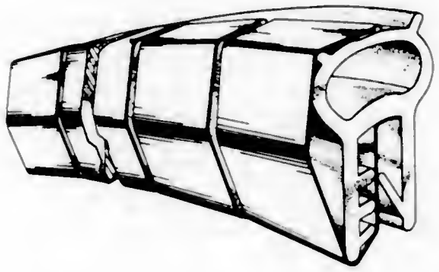


335,283
COMBINED SWITCHES AND COVER PLATE
Joseph G. Justiniano, Bethpage; Lester Rivera, Glendale; Edward Krajci, Franklin Square, and Saul Rosenbaum, East Meadow, all of N.Y., assignors to Leviton Manufacturing Company, Little Neck, N.Y.
Continuation of Ser. No. 591,485, Oct. 1, 1990, abandoned, which is a continuation of Ser. No. 230,931, Aug. 11, 1988, abandoned. This application Jul. 8, 1991, Ser. No. 727,804
The portion of the term of this patent subsequent to Apr. 21, 2006, has been disclaimed.
Term of patent 14 years
U.S. Cl. D13—171

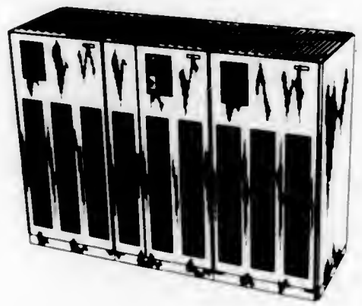


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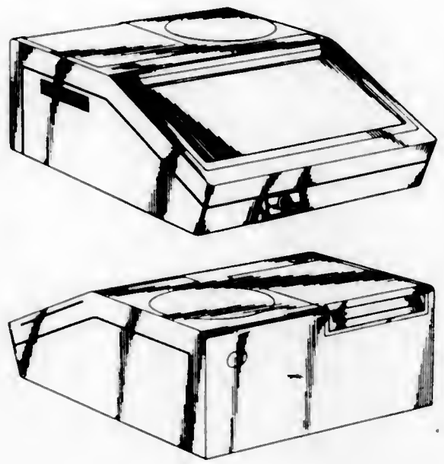
335,284
CLIP-ON ELECTROMAGNETIC SHIELDING GASKET
George McIlwraith, Stone Mountain, Ga., assignor to Gichner Systems Group, Inc., Dallastown, Pa.
Filed Dec. 11, 1990, Ser. No. 625,595
Term of patent 14 years
U.S. Cl. D13—184



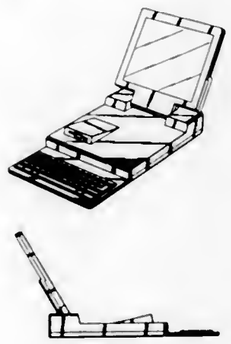
335,285
MAGNETIC DISC STORAGE UNIT FOR ELECTRONIC COMPUTER
Toshiyuki Utsuki, Tokyo; Syoji Umemoto, Iruma; Tatsuo Murai, Tokyo; Naoyuki Fukada, Odawara; Takeo Hayakawa, Kanagawa, and Kazuo Nakagoshi, Odawara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 22, 1991, Ser. No. 659,146
Claims priority, application Japan, Jan. 28, 1991, 3-1462
Term of patent 14 years
U.S. Cl. D14—102



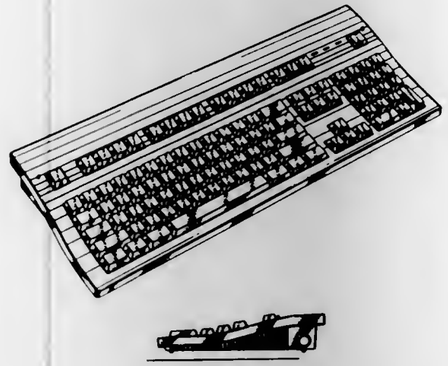
335,286
COUNTERTOP PROCESSOR
Dino M. Savio, Clearwater, Fla., assignor to International Business Machines Corp., Armonk, N.Y.
Filed May 15, 1990, Ser. No. 524,761
Term of patent 14 years
U.S. Cl. D14—105



335,287
ELECTRONIC COMPUTER
Masaaki Iino, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan
Continuation of Ser. No. 461,464, Jan. 5, 1990, abandoned. This application May 11, 1992, Ser. No. 884,222
Claims priority, application Japan, Jul. 14, 1989, 1-25872
Term of patent 14 years
U.S. Cl. D14—106



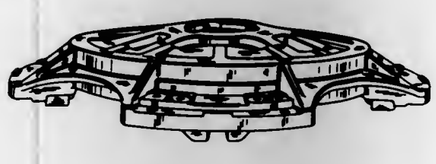
335,288
COMPUTER KEYBOARD
Dexter W. Francis, and Stephen Peart, both of Los Gatos, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
Continuation-in-part of Ser. No. 591,846, Oct. 2, 1990. This application Nov. 15, 1990, Ser. No. 614,646
Term of patent 14 years
U.S. Cl. D14—115



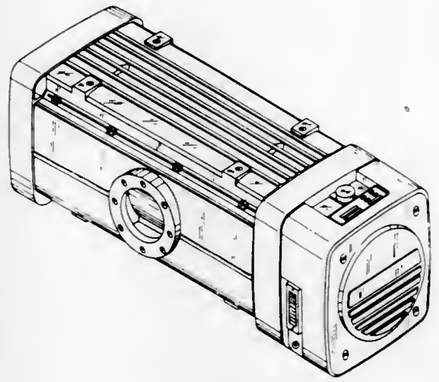
335,289
COMBINATION CORDLESS TELEPHONE HANDSET AND BASE
George P. Roegner, Vero Beach, Fla., assignor to North American Foreign Trading Corporation, New York, N.Y.
Filed Dec. 30, 1991, Ser. No. 814,682
Term of patent 14 years
U.S. Cl. D14—138



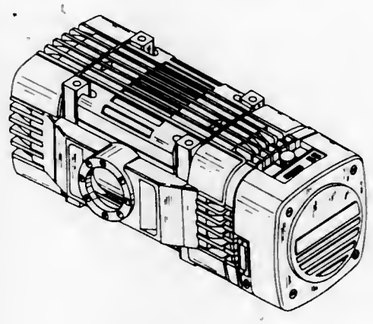
335,290
CLUTCH COVER
Richard A. Flotow, Butler, Ind., assignor to Dana Corporation, Toledo, Ohio
Filed May 15, 1990, Ser. No. 523,921
Term of patent 14 years
U.S. Cl. D15—5



335,291
COMBINED VACUUM PUMP AND COMPRESSOR
Manfred Schnell, Schopfheim, Fed. Rep. of Germany, assignor to Mannesmann AG, Düsseldorf, Fed. Rep. of Germany
Filed Feb. 4, 1991, Ser. No. 653,439
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1990, M9005129.7
Term of patent 14 years
U.S. Cl. D15—7

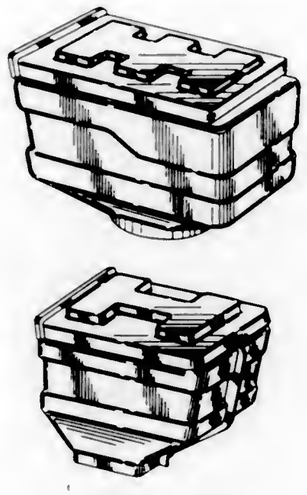


335,292
COMBINED VACUUM PUMP AND COMPRESSOR
Manfred Schnell, Schopfheim, Fed. Rep. of Germany, assignor to Mannesmann AG, Düsseldorf, Fed. Rep. of Germany
Filed Feb. 4, 1991, Ser. No. 653,441
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1990, M9005129.7
Term of patent 14 years
U.S. Cl. D15—7

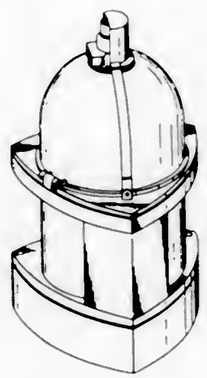


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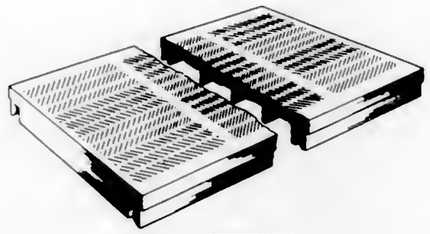
335,293
COMBINED HOPPER AND LID FOR AGRICULTURAL PLANTERS
Larry J. Pingry, Celina, and LaVern Kunk, Coldwater, both of Ohio, assignors to Allied Products Corporation, Chicago, Ill.
Filed Aug. 22, 1990, Ser. No. 571,426
Term of patent 14 years
U.S. Cl. D15—28



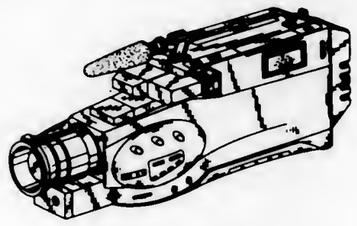
335,294
CENTRIFUGAL SEPARATOR
Bertil Vallien, Eriksmala, Sweden, assignor to Alfa-Laval Separation AB, Tumba, Sweden
Filed Sep. 7, 1990, Ser. No. 579,449
Claims priority, application Sweden, Mar. 9, 1990, 90-0545
Term of patent 14 years
U.S. Cl. D15—147



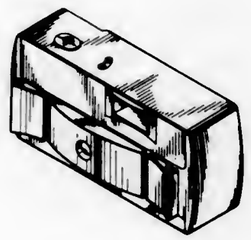
335,295
SCREENING MODULE
William Rutherford, New South Wales, Australia, assignor to Floris Pty. Ltd., Islington, Australia
Filed Nov. 30, 1990, Ser. No. 620,293
Claims priority, application Australia, Sep. 27, 1990, 3128/90
Term of patent 14 years
U.S. Cl. D15—199



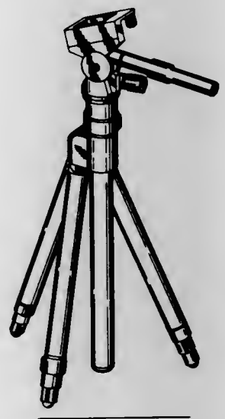
335,296
VIDEO CAMERA
Jung C. Lee, Suweon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Jun. 21, 1990, Ser. No. 541,408
Claims priority, application Rep. of Korea, Dec. 13, 1989, 1989-16957
Term of patent 14 years
U.S. Cl. D16—202



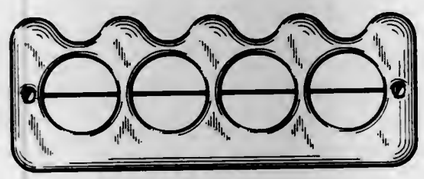
335,297
SINGLE USE CAMERA
Hiroaki Kawagoe, Tokyo, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Nov. 9, 1990, Ser. No. 612,123
Term of patent 14 years
U.S. Cl. D16—208



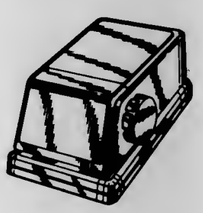
335,298
COMPACT CAMERA TRIPOD
Rudolph M. Hanke, Monheim, Fed. Rep. of Germany, assignor to Hama Hamaphot KG Hanke & Thomas, Fed. Rep. of Germany
Filed Mar. 22, 1991, Ser. No. 674,028
Claims priority, application Fed. Rep. of Germany, Sep. 25, 1990, 9006391
Term of patent 14 years
U.S. Cl. D16—244



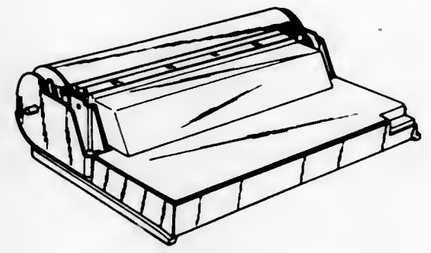
335,299
CALLOUS BUILDING DEVICE FOR THE FINGERS
Mark Guidry, 410 Steeplechase Dr., Lafayette, La. 70506
Filed Mar. 25, 1991, Ser. No. 674,057
Term of patent 14 years
U.S. Cl. D17—99



335,300
STAMPER
Mitsuo Ishii, Ageo, Japan, assignor to Elm Industry Co., Ltd., Tokyo, Japan
Filed Dec. 12, 1989, Ser. No. 448,826
Claims priority, application Japan, Jul. 7, 1989, 1-25383
Term of patent 14 years
U.S. Cl. D18—15



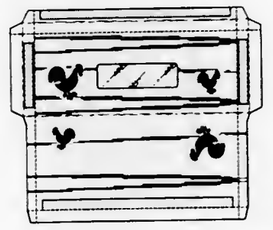
335,301
PHOTOSENSITIVE DRUM CARTRIDGE FOR AN ELECTROPHOTOGRAPHIC APPARATUS
Jin-keun Kwak, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea
Filed Dec. 28, 1990, Ser. No. 635,336
Claims priority, application Rep. of Korea, Sep. 29, 1990, 90-14040
Term of patent 14 years
U.S. Cl. D18—43



335,302
PRINTER CONTROL PANEL
Jeffrey L. Quedenfeld, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 1, 1991, Ser. No. 662,896
Term of patent 14 years
U.S. Cl. D18—56

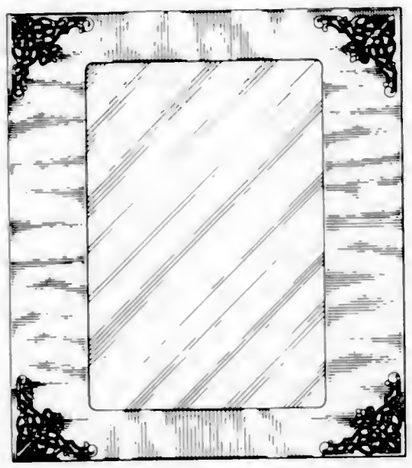


335,303
ENVELOPE
Claude E. Reeves, P.O. Box 190, Blountstown, Fla. 32424
Filed Jul. 26, 1991, Ser. No. 736,138
Term of patent 14 years
U.S. Cl. D19—4

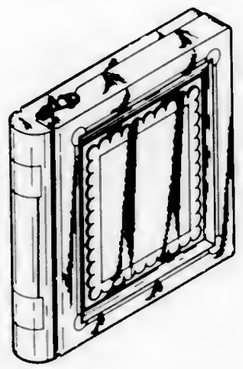


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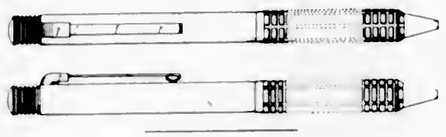
335,304
COMBINED PHOTO ALBUM AND FRAME
Melvin L. Gordon, West Palm Beach, Fla., assignor to Melannco International, Ltd., Chelsea, Mass.
Filed Dec. 18, 1990, Ser. No. 629,208
Term of patent 14 years
U.S. Cl. D19—26



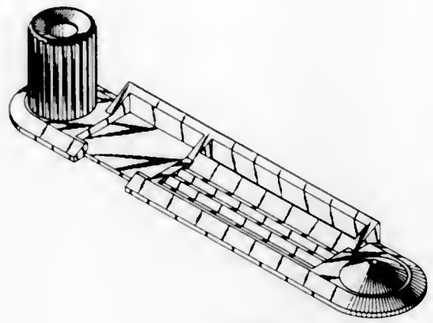
335,305
FIREPROOF PHOTO ALBUM
Jeanne M. Burns, 49 Bittersweet Rd., Levittown, Pa. 19057
Filed Dec. 7, 1990, Ser. No. 624,260
Term of patent 14 years
U.S. Cl. D19—26



335,306
WRITING INSTRUMENT
Norman D. Poisson, Andover, Mass.; Walter B. Herbst, Evanston, Ill., and Paul D. Hurley, Huntington Woods, Mich., assignors to The Gillette Company, Boston, Mass.
Filed Jan. 25, 1991, Ser. No. 648,431
The portion of the term of this patent subsequent to Mar. 10, 2009, has been disclaimed.
Term of patent 14 years
U.S. Cl. D19—48



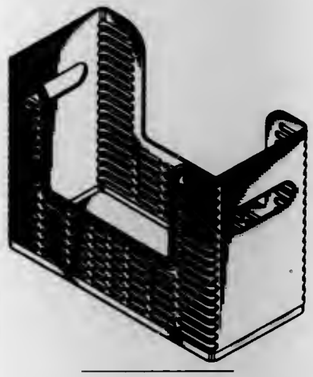
335,307
DESK SET
Bernd Brüssing, Ulm/Donau, Fed. Rep. of Germany, assignor to Hans Friedrich Hefendehl, Kierspe, Fed. Rep. of Germany
Filed Nov. 22, 1991, Ser. No. 797,794
Claims priority, application Fed. Rep. of Germany, Jun. 4, 1991, 9104025
Term of patent 14 years
U.S. Cl. D19—75



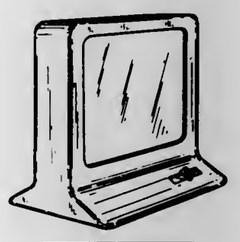
335,308
PENCIL SHARPENER
Bruce Shapiro, Northbrook, and Gunar Narubin, Chicago, both of Ill., assignors to Creative Works, Inc., Northbrook, Ill.
Filed Jan. 27, 1992, Ser. No. 827,923
Term of patent 14 years
U.S. Cl. D19—73



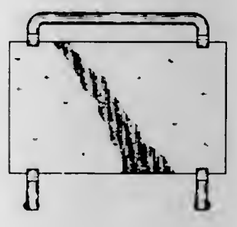
335,309
PORTABLE CONTAINER FOR FILE FOLDERS
Mel Evenson, San Pedro, Calif., assignor to Rubbermaid Office Products Group Inc., Maryville, Tenn.
Filed Dec. 13, 1991, Ser. No. 806,462
Term of patent 14 years
U.S. Cl. D19—90



335,310
ILLUMINATED VIEWING STAND
Bruce P. Kurnow, 7338 Columbus Ave., Richfield, Minn. 55423, and John D. Dainty, 7005 Heatherton Trail, Edina, Minn. 55435
Filed Oct. 10, 1991, Ser. No. 776,449
Term of patent 14 years
U.S. Cl. D20—10



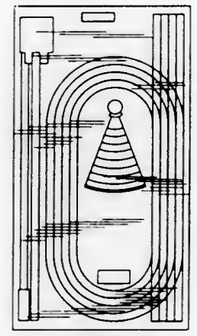
335,311
TARGET SUPPORT
Lyle H. Robinson, H C R 1 Box 152, Underwood, N. Dak. 58576
Filed May 14, 1990, Ser. No. 522,865
Term of patent 14 years
U.S. Cl. D21—5



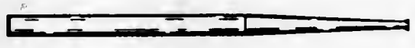
335,312
DOLL
Dorothy J. Baker, S. 6506 Mayflower, Spokane, Wash. 99204
Filed Jun. 27, 1990, Ser. No. 544,365
Term of patent 14 years
U.S. Cl. D21—154



335,313
CARPET FOR SPORTS
Jacques Borlee, Rue Obberg, Belgium, assignor to Bureau Heck S.P.R.L., Brussels, Belgium
Filed Feb. 28, 1989, Ser. No. 317,782
Claims priority, application Benelux, Aug. 31, 1988, 04456-00
Term of patent 14 years
U.S. Cl. D21—199



335,314
WIFFLE BALL BAT
Jerome T. Coyle, Jr., 4 Shirlwin Dr., Granite City, Ill. 62040
Filed Jul. 3, 1990, Ser. No. 548,733
Term of patent 14 years
U.S. Cl. D21—211

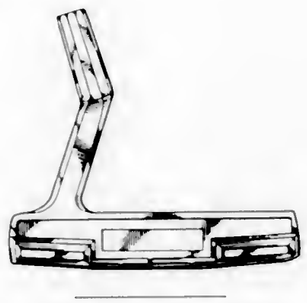


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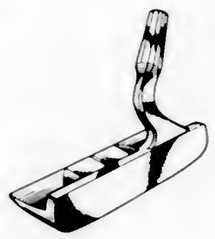
335,315
PUTTER HEAD
William B. Shearer, 2905 W. Main St., Muncie, Ind. 47305
Filed Jan. 4, 1991, Ser. No. 637,508
Term of patent 14 years
U.S. Cl. D21—219



335,316
PUTTER HEAD
William B. Shearer, 2905 W. Main St., Muncie, Ind. 47305
Filed Jan. 4, 1991, Ser. No. 637,510
Term of patent 14 years
U.S. Cl. D21—219



335,317
PUTTER HEAD
William B. Shearer, 2905 W. Main St., Muncie, Ind. 47305
Filed Jan. 4, 1991, Ser. No. 637,509
Term of patent 14 years
U.S. Cl. D21—219



335,318
PUTTER HEAD
William B. Shearer, 2905 W. Main St., Muncie, Ind. 47305
Filed Jan. 4, 1991, Ser. No. 637,511
Term of patent 14 years
U.S. Cl. D21—219

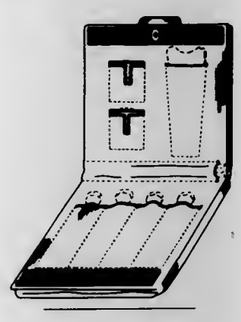


335,319
PUTTER HEAD
William B. Shearer, 2905 W. Main St., Muncie, Ind. 47305
Filed Jan. 4, 1991, Ser. No. 637,755
Term of patent 14 years
U.S. Cl. D21—219

335,320
TRAINING AID ATTACHMENT FOR A GOLF CLUB GRIP
Roy McCarty, Box 750, Spirit River, Alberta, Canada T0H 3G0
Filed Jul. 16, 1990, Ser. No. 553,010
Term of patent 14 years
U.S. Cl. D21—222



335,321
HOLDER FOR GOLF ACCESSORIES
Bradley P. Williams, 1024 Camelot Dr., Boise, Id. 83704, and Gary D. Archer, 278 Ranch Dr., Eagle, Id. 83616
Filed Mar. 20, 1989, Ser. No. 325,510
Term of patent 14 years
U.S. Cl. D21—234



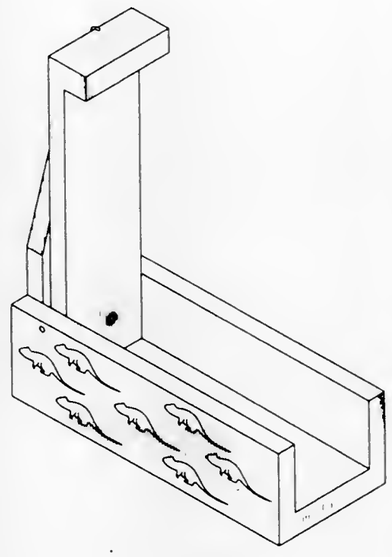
335,322
SNORKEL FACE MASK
Philip J. Jones, 250 Alamaha N-8 #113, Kahului, Hi. 96732
Filed Aug. 23, 1991, Ser. No. 748,910
Term of patent 14 years
U.S. Cl. D21—236



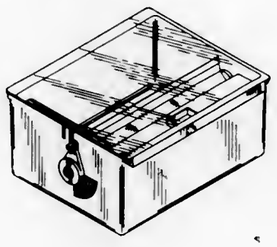
335,323
ACCESSORY MOUNT FOR AN ARCHERY BOW
Van R. Powis, Grand Ledge, Mich., assignor to E-Zee Drag Inc., Fraser, Mich.
Filed Apr. 30, 1990, Ser. No. 516,239
Term of patent 14 years
U.S. Cl. D22—107



335,324
MOUSE TRAP
Ty R. Burris, Rte. 2, Box 241-D, Oakboro, N.C. 28129, and Tommy W. Smith, 9825 Bowman Barrier Rd., Mt. Pleasant, N.C. 28124
Filed Sep. 19, 1990, Ser. No. 586,584
Term of patent 14 years
U.S. Cl. D22—119



335,325
MOUSE TRAP
Marvin Morford, 1815 Ashworth Rd., West Des Moines, Iowa 50265
Filed Dec. 11, 1990, Ser. No. 626,851
Term of patent 14 years
U.S. Cl. D22—119

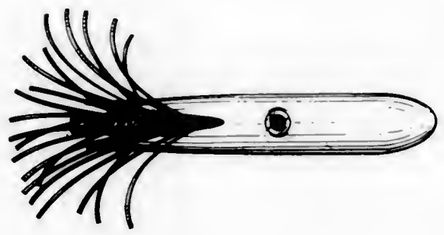


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335,326
FLY BAIT CONTAINER
Ewel W. Chapman, III, 3205 Lisa Dr., Modesto, Calif. 95350
Filed Oct. 18, 1990, Ser. No. 599,377
Term of patent 14 years
U.S. Cl. D22—122



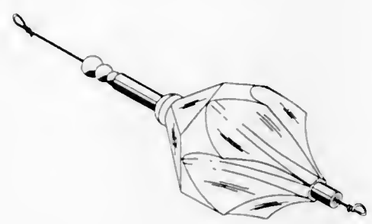
335,327
FISHING LURE
Gary R. Fisher, 925 Rosewood Ave., Camarillo, Calif. 93010
Filed Aug. 19, 1991, Ser. No. 747,099
Term of patent 14 years
U.S. Cl. D22—128



335,328
LINE GUIDE FOR FISHING ROD
Ryuichi Ohmura, Shizuoka, Japan, assignor to Fuji Kogyo Co., Ltd., Shizuoka, Japan
Filed Mar. 28, 1991, Ser. No. 676,533
Claims priority, application Japan, Oct. 25, 1990, 2-35775
Term of patent 14 years
U.S. Cl. D22—143



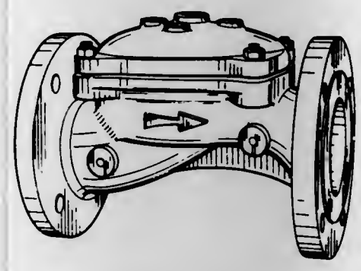
335,329
FISHING LURE
Ray Winesett, Jr., P.O. Box 72, Big Pine, Calif. 93513
Filed Oct. 28, 1991, Ser. No. 784,048
Term of patent 14 years
U.S. Cl. D22—132



335,330
CHEMICAL DETERGENT BLOCK
Elizabeth J. Gladfelter, Falcon Heights; Tina O. Outlaw, Inver Grove Heights; James L. Copeland; Rhonda K. Schulz, both of Burnsville; Daniel K. Boche, Eagan, and Jeff W. Peterson, Minnetonka, all of Minn., assignors to Ecolab Inc., St. Paul, Minn.
Filed May 14, 1991, Ser. No. 699,788
Term of patent 14 years
U.S. Cl. D23—207



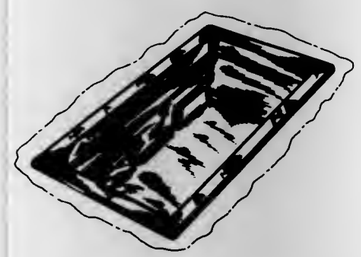
335,331
DIAPHRAGM VALVE
Zvi Weingarten, DoarNa Oshrat, Israel, assignor to Bermad, Registered Partnership, Oshrat, Israel
Filed Aug. 10, 1990, Ser. No. 565,538
Claims priority, application Israel, Feb. 13, 1990, 16176
Term of patent 14 years
U.S. Cl. D23—248



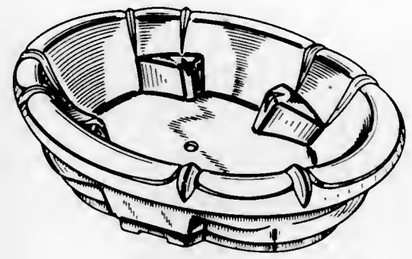
335,332
COMBINED BATHTUB AND SPOUT
David J. O'Connell, Sturgeon Bay, Wis., assignor to Kohler Co., Kohler, Wis.
Filed Jan. 11, 1991, Ser. No. 639,956
Term of patent 14 years
U.S. Cl. D23—271



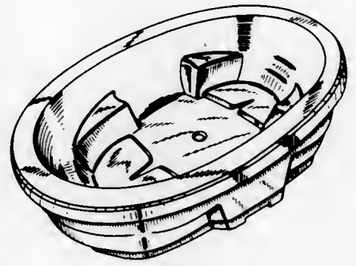
335,333
COMBINED BATHTUB AND SPOUT
Herbert V. Kohler, Jr., Kohler, and David J. O'Connell, Sturgeon Bay, both of Wis., assignors to Kohler Co., Kohler, Wis.
Filed Jan. 11, 1991, Ser. No. 641,015
Term of patent 14 years
U.S. Cl. D23—271



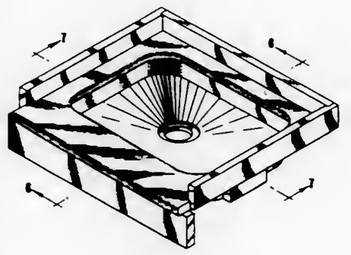
335,334
BATHTUB
George S. Gruber, Canyon Country, Calif., assignor to Six Eleven Limited, North Hollywood, Calif.
Filed Jun. 20, 1991, Ser. No. 721,353
Term of patent 14 years
U.S. Cl. D23—280



335,335
BATHTUB
George S. Gruber, Canyon Country, Calif., assignor to Six Eleven Limited, North Hollywood, Calif.
Filed Jun. 20, 1991, Ser. No. 721,356
Term of patent 14 years
U.S. Cl. D23—280

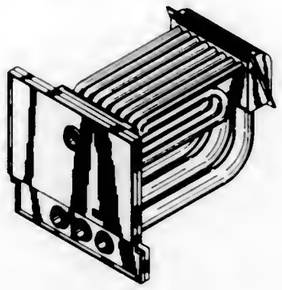


335,336
BASE FOR A SHOWER STALL
Jeffrey P. Stiefel, 1425 Crowder Ave., Reading, Pa. 19607
Filed Feb. 26, 1990, Ser. No. 484,665
Term of patent 14 years
U.S. Cl. D23—283

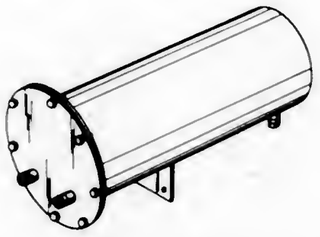


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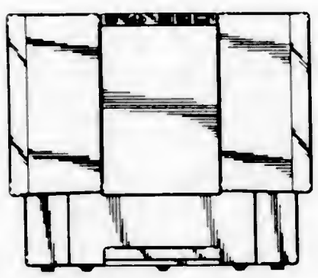
335,337
HEAT EXCHANGER FOR FUEL FIRED FURNACES
Timothy J. Shellenberger, Fort Smith, Ark., assignor to Rheem Manufacturing Company, New York, N.Y.
Filed May 18, 1990, Ser. No. 525,477
Term of patent 14 years
U.S. Cl. D23—330



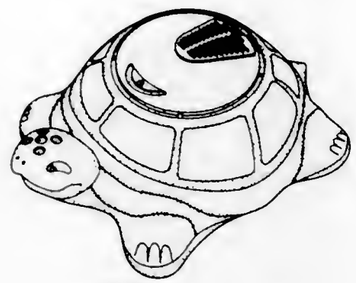
335,338
HEAT EXCHANGER HOUSING
William K. Shero, 30961 Steeplechase, San Juan Capistrano, Calif. 92675
Filed Dec. 12, 1990, Ser. No. 628,928
Term of patent 14 years
U.S. Cl. D23—323



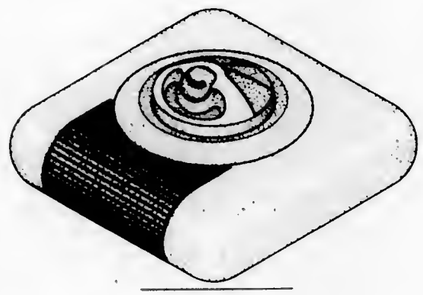
335,339
WARM MIST HUMIDIFIER
Dov Z. Glucksman, Wenham, Mass., and David Lekhtman, Morin Heights, Canada, assignors to Bionaire Inc., Quebec, Canada
Continuation of Ser. No. 412,388, Sep. 26, 1989, abandoned. This application Dec. 24, 1991, Ser. No. 813,306
Term of patent 14 years
U.S. Cl. D23—356



335,340
PORTABLE ELECTRICAL HUMIDIFIER
Robert L. Marvin, Jr., New Britain, Conn., assignor to Duracraft Corporation, Whitinsville, Mass.
Filed Apr. 29, 1992, Ser. No. 875,143
Term of patent 14 years
U.S. Cl. D23—356



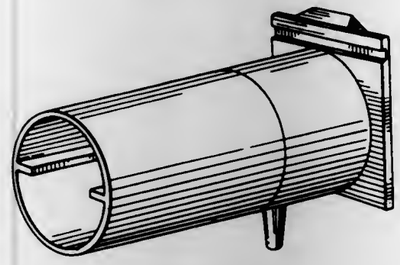
335,341
PORTABLE VAPORIZER
Richard M. O'Grady, Southington, Conn., assignor to Duracraft Corporation, Whitinsville, Mass.
Filed Jul. 15, 1992, Ser. No. 914,692
Term of patent 14 years
U.S. Cl. D23—360



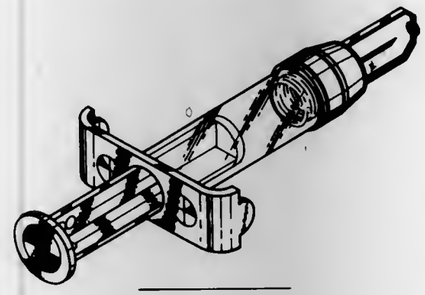
335,342
EARPLUG
Howard S. Leight, 4061 Glencoe Ave., Marina Del Rey, Calif. 90292
Filed May 20, 1991, Ser. No. 702,683
The portion of the term of this patent subsequent to Sep. 29, 2006, has been disclaimed.
Term of patent 14 years
U.S. Cl. D24—106



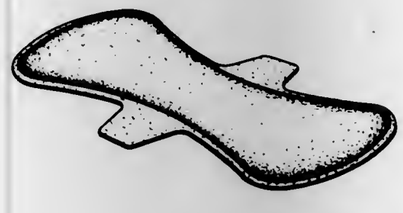
335,343
MOUTHPIECE FOR A SPIROMETER
William C. Jones, and William C. Jones, Jr., both of 200 Windsor Dr., Oak Brook, Ill. 60521
Continuation-in-part of Ser. No. 369,744, Jun. 22, 1989. This application Aug. 22, 1990, Ser. No. 570,715
Term of patent 14 years
U.S. Cl. D24—110



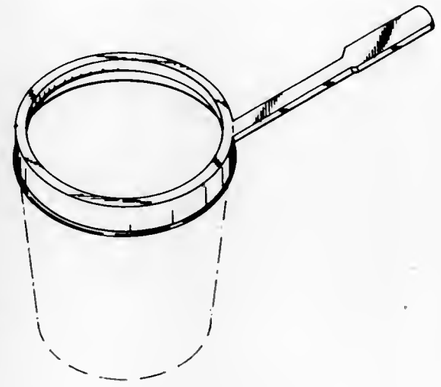
335,344
COMBINED HYPODERMIC NEEDLE GUIDE AND GUARD
James A. Hastings, 571 Bloomfield Ave., Montclair, N.J. 07042
Filed Oct. 2, 1990, Ser. No. 591,862
Term of patent 14 years
U.S. Cl. D24—114



335,345
SANITARY NAPKIN
Frank Glaug, Appleton, Wis., assignor to Johnson & Johnson Inc., Canada
Continuation of Ser. No. 560,470, Jul. 27, 1990, abandoned, which is a continuation of Ser. No. 242,272, Sep. 12, 1988. This application Mar. 2, 1992, Ser. No. 845,750
Term of patent 14 years
U.S. Cl. D24—125



335,346
SPECIMEN CUP HOLDER
Timothy B. Jones, 200 15th St., Edmond, Okla. 73013; Robert D. Jones, and Lori D. Jones, both of 1452 N. Washington, Ardmore, Okla. 73401
Filed Sep. 30, 1991, Ser. No. 769,019
The portion of the term of this patent subsequent to Apr. 27, 2007, has been disclaimed.
Term of patent 14 years
U.S. Cl. D24—128

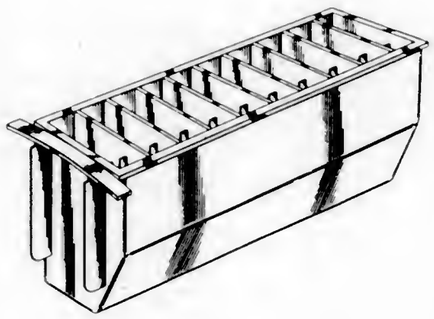


335,347
DENTAL INSTRUMENT HANDLE
Timothy McKeown, Chicago, Ill., assignor to Hu-Friedy Mfg. Co., Inc., Chicago, Ill.
Filed Apr. 26, 1991, Ser. No. 692,000
Term of patent 14 years
U.S. Cl. D24—133

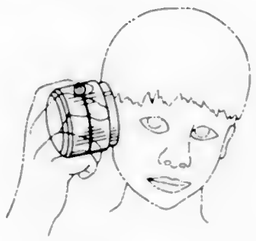


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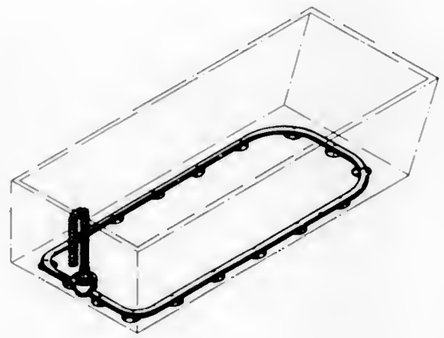
335,348
ASSAY MODULE MAGAZINE
Dina Frenkel, Plano, Tex.; Melvin S. Henriksen, Walpole, Mass.; Ernest W. Long, Concord, Mass., and Robert C. MacIndoe, Jr., Linwood, Mass., assignors to PB Diagnostic Systems Inc., Westwood, Mass.
Filed Jul. 23, 1991, Ser. No. 734,808
Term of patent 14 years
U.S. Cl. D24—224



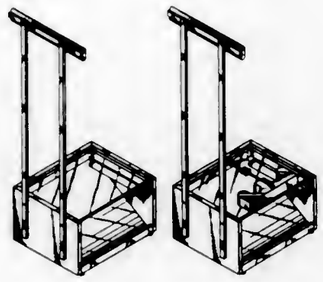
335,349
HAND-HELD HEARING SCREENER
Paul C. Lyon; Lynn S. Alvord, both of Sandy; Evan B. Campbell, Logan; Rex D. Bodrero, Hyde Park, and Ron Carter, Logan, all of Utah, assignors to Handtronix, Inc., Sandy, Utah
Continuation-in-part of Ser. No. 431,740, Nov. 2, 1989, abandoned, which is a continuation of Ser. No. 164,183, Mar. 4, 1988, abandoned. This application Aug. 21, 1990, Ser. No. 570,352
Term of patent 14 years
U.S. Cl. D24—151



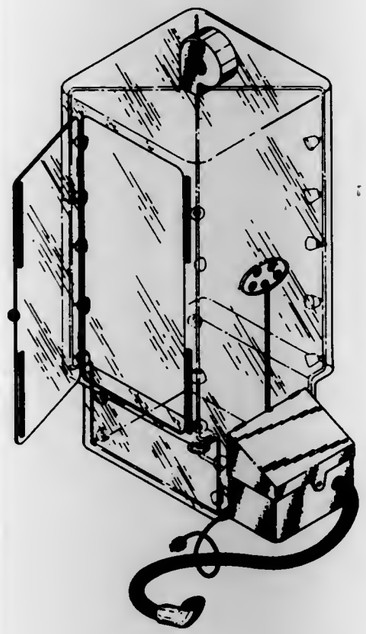
335,350
HOSE FOR AIR-WATER MASSAGER FOR BATHTUBS
Kennith W. Wentz, 723 N. 46th Ave., Fayetteville, Ark. 72701
Filed Jun. 8, 1990, Ser. No. 535,352
Term of patent 14 years
U.S. Cl. D24—201



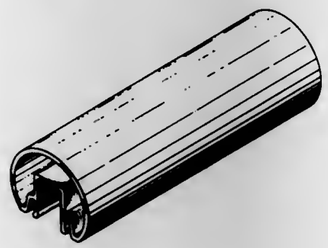
335,351
FOOT DIAGNOSIS UNIT
Stanley J. Melnick, Dallas, Tex., assignor to Russell D. Morgan, Midlothian, Tex., a part interest
Filed May 22, 1990, Ser. No. 526,614
Term of patent 14 years
U.S. Cl. D24—186



335,352
THERAPEUTIC SHOWER CABINET
Albert W. Ristine, III, 731 Beach Trail, Indian Rocks Beach, Fla. 34635
Filed Oct. 23, 1990, Ser. No. 601,579
Term of patent 14 years
U.S. Cl. D24—201



335,353
RAILING EXTRUSION
Neill E. Baker, 13900 60th Avenue, Surrey, British Columbia, Canada V3W 1S7
Filed Feb. 1, 1991, Ser. No. 649,819
Term of patent 14 years
U.S. Cl. D25—38



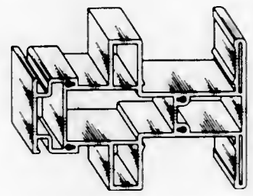
335,354
LADDER HANDRAIL
Bryant E. Phillips, 7932 Allott Ave., Van Nuys, Calif. 91402
Filed Jun. 15, 1989, Ser. No. 366,409
Term of patent 14 years
U.S. Cl. D25—68



335,355
WINDOW
Dennis Granda, and Steven R. Wilkening, both of Grand Rapids, Mich., assignors to ODL, Incorporated, Zeeland, Mich.
Division of Ser. No. 615,651, Nov. 19, 1990. This application Jul. 20, 1992, Ser. No. 915,191
Term of patent 14 years
U.S. Cl. D25—103

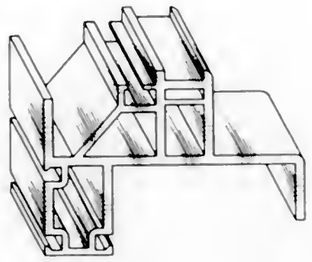


335,356
WINDOW UNDERSLIDE COMPONENT EXTRUSION
Douglas L. Cole, Seattle, Wash., assignor to Mikron Industries, Kent, Wash.
Filed Apr. 18, 1991, Ser. No. 687,428
Term of patent 14 years
U.S. Cl. D25—124

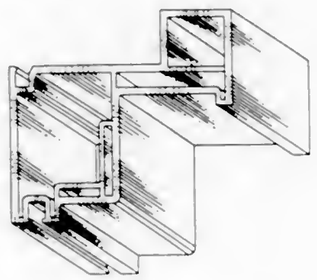


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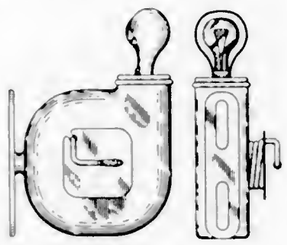
335,357
EXTRUDED FRAME MEMBER FOR A SKYLIGHT
Douglas L. Cole, Seattle, Wash., assignor to Mikron Industries, Kent, Wash.
Filed Apr. 18, 1991, Ser. No. 687,426
Term of patent 14 years
U.S. Cl. D25—124



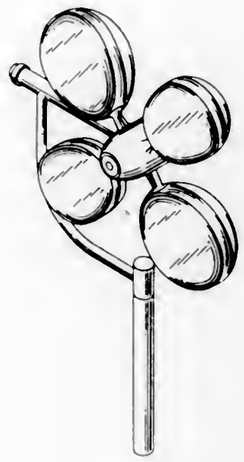
335,358
CASEMENT WINDOW VENT BAR EXTRUSION
Douglas L. Cole, Seattle, Wash., assignor to Mikron Industries, Kent, Wash.
Filed Apr. 18, 1991, Ser. No. 687,532
Term of patent 14 years
U.S. Cl. D25—124



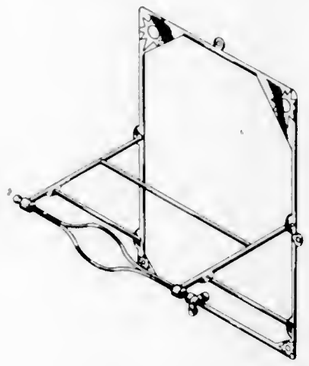
335,359
RETRACTABLE EMERGENCY TROUBLE LIGHT FOR MOTOR VEHICLE
Bryan A. Grubb, 2604 Westward Dr., Fort Wayne, Ind. 46809
Filed Nov. 29, 1990, Ser. No. 619,684
Term of patent 14 years
U.S. Cl. D26—61



335,360
SHADOWLESS LAMP FOR MEDICAL USE
Reijiro Yamada, and Yasuhiro Kato, both of Tokyo, Japan, assignors to Yamada Iryo Shomei Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 25, 1991, Ser. No. 673,754
Claims priority, application Japan, Sep. 27, 1990, 2-32162
Term of patent 14 years
U.S. Cl. D26—65



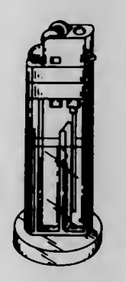
335,361
SUSPENDED FLASHLIGHT SUPPORT
Michael Lemek, P.O. Box 212, Forestdale, R.I. 02824
Filed Aug. 22, 1990, Ser. No. 570,700
Term of patent 14 years
U.S. Cl. D26—140



335,362
LIGHTING FIXTURE NECK
Arnold Schonbek, Plattsburgh, N.Y., assignor to A. Schonbek & Co., Inc., Plattsburgh, N.Y.
Filed Jul. 3, 1991, Ser. No. 725,269
Term of patent 14 years
U.S. Cl. D26—149



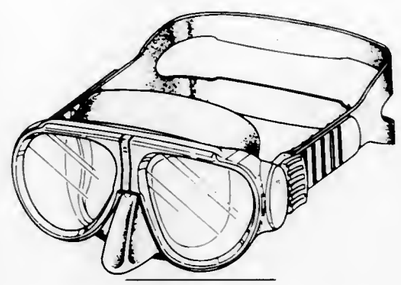
335,363
COMBINED CIGARETTE LIGHTER AND BASE THEREFOR
Kenneth M. Van Norman, and John S. Van Norman, both of 2709-18th St. EM, Silvis, Ill. 61282
Filed Nov. 16, 1989, Ser. No. 437,498
Term of patent 14 years
U.S. Cl. D27—142



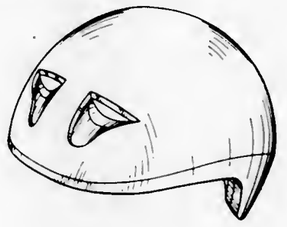
335,364
LIPSTICK CASE
Shen-Shyong Yang, No. 227-17, Tay-Tzyy Miaw, Tay-Tzyy Tsuen, Ren-Der Hsiang, Tainan Hsien, Taiwan
Filed Dec. 3, 1990, Ser. No. 621,541
Term of patent 14 years
U.S. Cl. D28—85



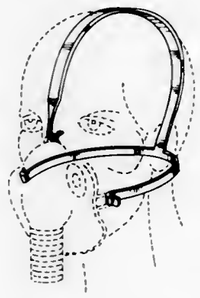
335,365
DIVER'S MASK
Hiromasa Sato, Tokyo, Japan, assignor to Tabata Co. Ltd., Tokyo, Japan
Filed Dec. 17, 1991, Ser. No. 809,064
Claims priority, application Japan, Jun. 17, 1991, 18011
Term of patent 14 years
U.S. Cl. D29—9



335,366
HELMET
George O. Podd, III, Wheaton; Russell J. Schweizer, Crystal Lake, both of Ill., and Larry E. Maddux, Knoxville, Tenn., assignors to Athletic Helmet, Inc., Knoxville, Tenn.
Filed Jan. 8, 1991, Ser. No. 638,654
Term of patent 14 years
U.S. Cl. D29—12

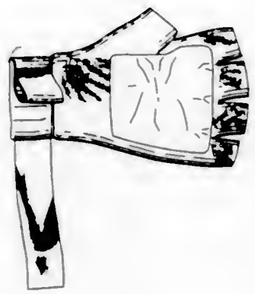


335,367
OXYGEN MASK SECURING STRAPS
Darlene R. Mieskoski, 20992 Jonathan Dr., Strongsville, Ohio 44136
Filed Apr. 2, 1991, Ser. No. 679,356
Term of patent 14 years
U.S. Cl. D29—16



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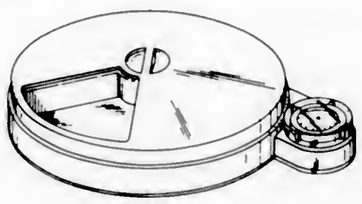
335,368
SUPPORT GLOVE
Troy J. Houston, 917 Village Rd., Folsom, Pa. 19033
Filed Apr. 9, 1991, Ser. No. 682,228
Term of patent 14 years
U.S. Cl. D29—20



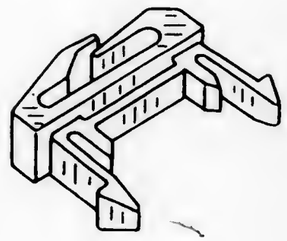
335,369
BIRD COTTAGE
Douglas E. Gravelle, 7240 Carmel St., Gilroy, Calif. 95020
Filed Sep. 25, 1991, Ser. No. 766,644
Term of patent 14 years
U.S. Cl. D30—111



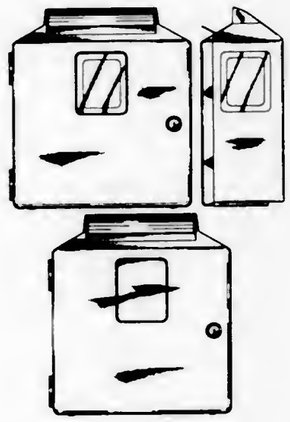
335,370
AUTOMATIC ANIMAL FEEDER
Christopher P. Kirk, Sunbury-on-Thames, United Kingdom, assignor to Pet Mate Limited, Middlesex, United Kingdom
Filed Mar. 22, 1991, Ser. No. 673,521
Claims priority, application United Kingdom, Oct. 9, 1990, 2010140
Term of patent 14 years
U.S. Cl. D30—122



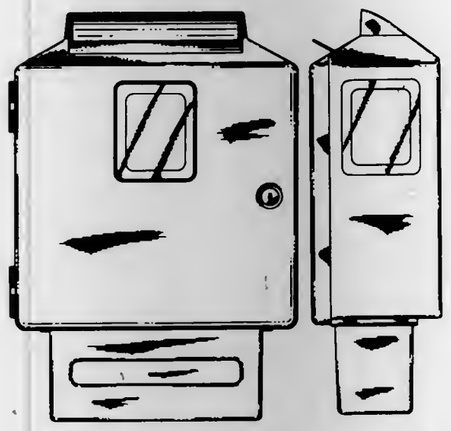
335,371
CLOTHES LINE CLIP
Ronald G. Meade, Seaton Park, Australia, assignor to Hills Industries Limited, Edwardstown, Australia
Filed Aug. 28, 1990, Ser. No. 574,243
Claims priority, application Australia, Mar. 2, 1990, 667/90
Term of patent 14 years
U.S. Cl. D32—60



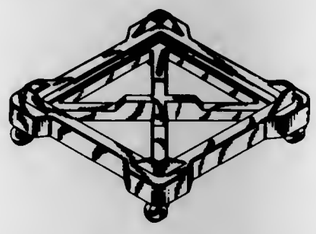
335,372
NEEDLE DISPOSAL CONTAINER
Donald J. Mosior, Lake Geneva, Wis., assignor to Sage Products, Inc., Crystal Lake, Ill.
Filed Oct. 4, 1991, Ser. No. 770,963
Term of patent 14 years
U.S. Cl. D34—11



335,373
COMBINED NEEDLE DISPOSAL CONTAINER AND GLOVE DISPENSER
Donald J. Mosior, Lake Geneva, Wis., assignor to Sage Products, Inc., Crystal Lake, Ill.
Filed Nov. 13, 1991, Ser. No. 791,602
Term of patent 14 years
U.S. Cl. D34—11



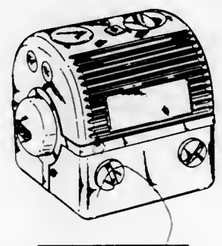
335,374
DOLLY
Curt J. Schulze, Lakeland, Fla., and James M. Nichols, Old Saybrook, Conn., assignors to Browning-Ferris Industries, Inc., Houston, Tex.
Filed Jul. 25, 1991, Ser. No. 735,474
Term of patent 14 years
U.S. Cl. D34—23



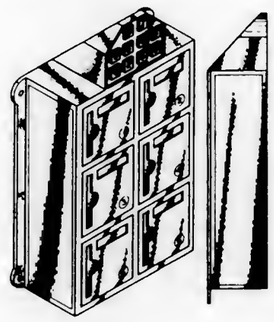
335,375
CASKET LUG
Walter G. Coe, Burnaby, and Winston L. Wan, Richmond, both of Canada, assignors to Wincoe Enterprises N.V., Netherlands Antilles
Filed Apr. 10, 1991, Ser. No. 683,030
Claims priority, application Canada, Nov. 12, 1990, 1210906
Term of patent 14 years
U.S. Cl. D99—8



335,376
PIGGY BANK
Shigeya Mochiki, Osaka; Hiroyuki Miyai, Hyogo, and Masaki Kitsukawa, Osaka, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Feb. 21, 1991, Ser. No. 658,850
Claims priority, application Japan, Aug. 22, 1990, 2-28209
Term of patent 14 years
U.S. Cl. D99—38

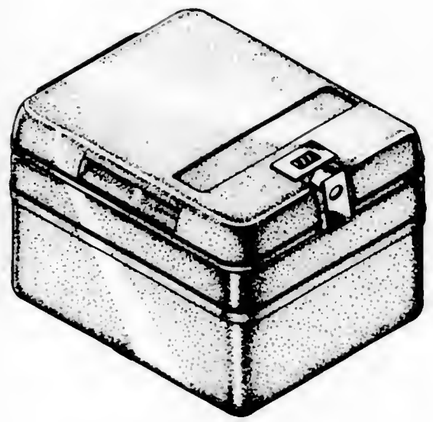


335,377
SAFETY CONTAINER FOR KEYS
Elizabeth B. P. Speciale, 206 E. 31st, New York, N.Y. 10016
Filed Apr. 25, 1991, Ser. No. 691,116
Term of patent 14 years
U.S. Cl. D99—28

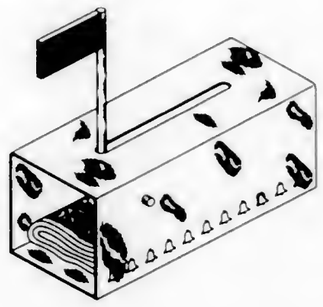


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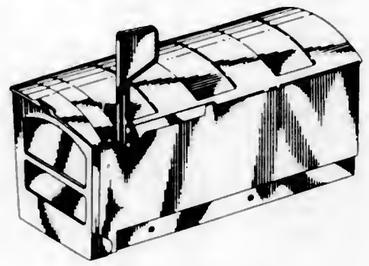
335,378
FIRE PROOF MEDIA CONTAINER
James F. Marioi, Cincinnati, Ohio, assignor to Brave of Michigan, Inc., Columbus, Ind.
Filed Feb. 25, 1991, Ser. No. 660,600
Term of patent 14 years
U.S. Cl. D99—28



335,379
PAPER TELLER
Donna M. Clark, and James E. Clark, both of 3135 S. Graham Rd., Saginaw, Mich. 48603
Filed Jul. 20, 1990, Ser. No. 554,826
Term of patent 14 years
U.S. Cl. D99—29



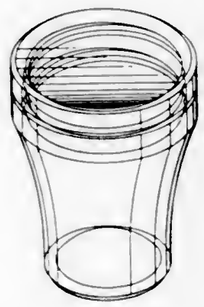
335,380
RURAL DELIVERY MAILBOX
John D. Breen, 1898 Burbank Rd., Wooster, Ohio 44691
Filed Aug. 9, 1991, Ser. No. 742,921
Term of patent 14 years
U.S. Cl. D99—29



335,381
TELLER MACHINE
Takao Miyake; Masayoshi Kawaishi; Katsuhiro Ishida; Maki Tomoike; Kensho Tsuji, and Fumikazu Shimanuki, all of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Apr. 1, 1991, Ser. No. 676,966
Claims priority, application Japan, Oct. 4, 1990, 2-33701; Oct. 4, 1990, 2-33708
Term of patent 14 years
U.S. Cl. D99—34



335,382
INDIVIDUAL HOLY COMMUNION PACKET
Gwendolyn I. O'Brien, 6011 Mercedes, Dallas, Tex. 75206
Filed Jun. 8, 1990, Ser. No. 534,857
Term of patent 14 years
U.S. Cl. D99—25



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 4TH DAY OF MAY, 1993

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Y. McDonald Mgf. Co.: *See—*
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AABH Patent Holdings Societe Anonyme: *See—*
Ducan, James H., 5,208,119, Cl. 429-103.000.
AB Manus: *See—*
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AB Volvo: *See—*
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Abb Flakt AB: *See—*
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ABB Patent GmbH: *See—*
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Abbott Laboratories: *See—*
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Abe, Akira: *See—*
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Abe, Hajime: *See—*
Seki, Kuniaki; Nishiyama, Shinichi; Abe, Hajime; and Hagiwara, Noboru, 5,207,248, Cl. 138-145.000.
Abe, Minoru, to Daikin Clutch Corporation. Release assembly for a pull-type clutch. 5,207,741, Cl. 192-70.130.
Abe, Shizuo: *See—*
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Abe, Takashi: *See—*
Fukaya, Haruhiko; Abe, Takashi; Hayashi, Eiji; and Hayakawa, Yoshio, 5,208,339, Cl. 544-79.000.
Abel, Gunther, to 396234 B C Ltd. Apparatus for composting waste material. 5,207,904, Cl. 210-252.000.
Abeles, Benjamin, to Exxon Research and Engineering Company. Plasma polymer membrane (C-2564). 5,207,909, Cl. 210-500.270.
Abt, Jurgen; Stumpf, Sybille; Kuhn, Ulrich; Banzhaf, Werner; Felten, Gerhard; Lemperle, Gerold; and Specker, Michael, to Robert Bosch GmbH. Method for measuring the control cross section area of a nozzle. 5,207,089, Cl. 73-37.500.
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Accuray, Inc.: *See—*
Adler, John R., 5,207,223, Cl. 128-653.100.
Acharya, Divyanshu R., to BOC Group plc, The. Air separation. 5,207,067, Cl. 62-24.000.
Achtenberg, Richard J.: *See—*
Pack, Wesley D., Jr.; Achtenberg, Richard J.; and Wysocki, Michael E., 5,207,450, Cl. 280-738.000.
ACS Industries, Inc.: *See—*
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Actel Corporation: *See—*
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Acuff, Dallas W. Forklift alignment system. 5,208,753, Cl. 364-424.070.
Adachi, Masao; Ozaki, Naoyuki; and Shioya, Makoto, to Hitachi, Ltd. Method for controlling active suspension system on the basis of rotational motion model. 5,208,749, Cl. 364-424.050.
Adams, John M.; Alferness, Clifton A.; Infinger, Kenneth R.; and Bocek, Joseph M., to InControl, Inc. Atrial defibrillator and method for providing interval timing prior to cardioversion. 5,207,219, Cl. 128-419.00D.
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Adkins, Douglas H.; Anderson, John P.; Conly, Robert L.; and Singer, Thomas G., to Hartwell Corporation, The. Method for molding a strip of blind rivets. 5,207,966, Cl. 264-250.000.
Adler, John R., to Accuray, Inc. Apparatus for and method of performing stereotaxic surgery. 5,207,223, Cl. 128-653.100.
Adrian, Gerhard: *See—*
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AFA Products, Inc.: *See—*
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Ahlstone, Arthur G., to Vemeo Corporation. Graphic arts light box. 5,207,495, Cl. 362-33.000.
Ahmad, Aftab; Fazan, Pierre C.; and Lee, Ruojia, to Micron Technology, Inc. Method of fabricating an enhanced dynamic random access memory (DRAM) cell capacitor using multiple polysilicon texturization. 5,208,176, Cl. 437-47.000.
Ahmed, Allam Z., to Ricoh Company Ltd.; and Ricoh Corporation. Method and apparatus for an auto handshake capable facsimile machine using digital sync fax protocols. 5,208,682, Cl. 358-434.000.
Ahmed, Hassan J.: *See—*
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Aho, Antti: *See—*
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Aho, Osmo; and Abo, Antti, to Aho, Osmo. Process and equipment for pretreatment of cellulosic raw material. 5,207,870, Cl. 162-53.000.
Ahola, Kari: *See—*
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Aihara, Takatsugu; and Hisano, Soichiro, to Suzuki Warper Ltd. Automatic shedding mechanism. 5,206,976, Cl. 28-198.000.
Aihara, Yoshihiko: *See—*
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Oxley, Jeffery A., Rasmussen, Jerome J. M., Draper, James E.; Mann, Thomas J.; and Samuels, Brian R., to Viskase Corporation. Buffered acid-treated food casing. 5,207,609, Cl. 452-27.000.

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Watanabe, Atsushi; Hasegawa, Teruyuki; Inoue, Tadashi; Okita, Tomoyoshi; Kikuchi, Yoshiteru; and Matsuno, Hidetoshi, to NKK Corporation. Method for manufacturing an Fe-Ni cold-rolled sheet excellent in cleanliness and etching pierceability. 5,207,844, Cl. 148-546.000.

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Murakami, Youichirou; Yoshida, Zen-ichi; Mukouhara, Otomasa; Kurimura, Chikara; and Umeda, Kenji, 5,207,975, Cl. 376-230.000.
Yoshihara, Yoshihiko; and Shirai, Masahiro, to Canon Kabushiki Kaisha. Recording apparatus. 5,208,627, Cl. 355-23.000.
Yoshikawa, Yuji: *See*—
Takarada, Mitsuhiro; Yoshikawa, Yuji; Yamamoto, Kenji; Ohsugi, Hiroharu; Ohgaki, Atsushi; and Takagawa, Ryozo, 5,208,289, Cl. 525-100.000.
Yoshimoto, Mitsuo: *See*—
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Yoshimura, Hideto: *See*—
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Yoshimura, Shunji: *See*—
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Yoshimura, Toshitaka: *See*—
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Yoshimura, Yasushi: *See*—
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Yoshinaga, Masanobu, to Toppan Printing Co., Ltd. Cyclodextrin polymer and cyclodextrin membrane prepared using said polymer. 5,208,316, Cl. 528-68.000.
Yoshino, Akira; Senbokuya, Haruo; and Tahara, Masaaki, to Daidousanso Co., Ltd. Process for manufacturing rolled articles of titanium material. 5,207,845, Cl. 148-670.000.
Yoshino, Akira, to Daidousanso Co., Ltd. Method of manufaturing a colored metallic sheet. 5,208,073, Cl. 427-318.000.
Yoshino, Yasutaka: *See*—
Yasaki, Shigeru; Yoshino, Yasutaka; Ihara, Kazunori, deceased; and Ohkubo, Kenji, 5,208,206, Cl. 502-334.000.
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You, Jih-Lee: *See*—
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Youle, Richard J.: *See*—
Johnson, Virginia G.; Greenfield, Larry; Youle, Richard J.; and Laird, Walter, 5,208,021, Cl. 424-85.910.
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Youssef, Boulos: *See*—
Boutevin, Bernard J. L.; Youssef, Boulos; and Caporiccio, Gerardo, 5,208,312, Cl. 528-28.000.
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Yu, Yuan-Fu; and Liimatta, Eric W., to Ethyl Corporation. Preceramic polysilazane compositions. 5,208,192, Cl. 501-92.000.
Yue, Jiang: *See*—
Epstein, Arthur J.; and Yue, Jiang, 5,208,301, Cl. 525-540.000.
Yun, David I., to Aluminum Company of America. Partitioned receptacle for distributing molten metal from a spout to form an ingot. 5,207,974, Cl. 266-230.000.
Yuzuriha, Naoki: *See*—
Norimatsu, Naoki; Yuzuriha, Naoki; and Uchida, Koh, 5,207,780, Cl. 180-141.000.
Zaerr, Jon B.: *See*—
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Zahora, Edward P.: *See*—
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Zak, Thomas S.: *See*—
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Zammit, Robert P.: *See*—
Denison, Edward V.; Kahwaty, Vincent N.; Stern, Gustave C.; Steving, Gerald; and Zammit, Robert P., 5,208,714, Cl. 360-113.000.
Zanoni, Raymond; and Gong, Qian, to United States of America, Air Force. Fabricating of integrated optics. 5,208,136, Cl. 430-290.000.
Zapka, Manfred J.; and Krock, Hans-Jurgen, to University of Hawaii. Seawater pre-deaerator process for open-cycle ocean thermal energy conversion applications. 5,207,875, Cl. 203-11.000.
Zarif, Masoud: *See*—
Basseen, Sanjiv K.; Sahu, Devendra K.; and Zarif, Masoud, 5,207,895, Cl. 210-95.000.
Zaro, Alessandro: *See*—
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Zawidzki, Tadeusz W.: *See*—
Burk, Robert C.; Boulos, Maher I.; Garratt, Dennis G.; Zawidzki, Tadeusz W.; and Huczko, Andrzej, 5,207,999, Cl. 423-258.000.
Zehenter, Karl-Heinz: *See*—
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Zenith Electronics Corporation: *See*—
Grocki, Wayne D., 5,208,510, Cl. 315-85.000.
Zeo-Tech (Zeolith-Technologie GmbH: *See*—
Maier-Laxhuber, Peter; and Engelhardt, Reiner, 5,207,073, Cl. 62-269.000.
Zexel Corporation: *See*—
Okano, Masami; Takeuchi, Kunihiro; and Kaneko, Hideyuki, 5,208,484, Cl. 307-10.100.
Sekiguchi, Akira, 5,207,199, Cl. 123-357.000.
Zhang, Xiuyi: *See*—
Osborne, Michael W.; England, William G.; and Zhang, Xiuyi, 5,208,162, Cl. 436-6.000.
Zhang, Yu-zhong: *See*—
Haugland, Richard P.; Naleway, John J.; and Zhang, Yu-zhong, 5,208,148, Cl. 435-14.000.
Zilog, Inc.: *See*—
Mandava, Babu S., 5,208,769, Cl. 364-766.000.
Zimmer, Inc.: *See*—
Dietz, Terry L.; and Vanlaningham, Richard D., 5,207,680, Cl. 606-86.000.
Zimmer, Larry W.: *See*—
Brooks, Gregory L.; Zimmer, Larry W.; Fullerton, Allan B.; and Morris, Raymond L., 5,207,530, Cl. 405-53.000.
Zimmerman, Kenneth J.: *See*—
Thompson, Stanley P.; and Zimmerman, Kenneth J., 5,207,009, Cl. 34-135.000.
Zito, Richard R. Ultralight mirrors. 5,208,704, Cl. 359-848.000.
Zotter, Johann: *See*—
Erdei, Roland; Freisinger, Henry; Wittmann, Heinz; and Zotter, Johann, 5,207,447, Cl. 280-617.000.
Zygo Corporation: *See*—
Deck, Leslie L., 5,208,451, Cl. 250-201.300.
10954 Shady Trail; and Person, Steven M., to DeMoore, Howard W. Coating apparatus for sheet-fed, offset rotary printing presses. 5,207,159, Cl. 101-350.000.
396234 B C Ltd.: *See*—
Abel, Gunther, 5,207,904, Cl. 210-252.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 4TH DAY OF MAY, 1993

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Akzo N.V.: *See*—
Rae, Duncan R.; and Gibson, Samuel G., Re. 34,242, Cl. 514-340.000.
Dallas Semiconductor Corp.: *See*—
Jiang, Ching-Lin, Re. 34,241, Cl. 375-116.000.
Gabrlik, Zdenek; Morris, John M.; Oliphant, Timothy L.; Green, Charles J.; and Phillips, Nelson O., to GT Development Corporation. Fuel tank cap with pressure/thermal relief. Re. 34,238, Cl. 137-73.000.
Gerber, Bernard R., to ReSeal International Limited Partnership. Valve assembly. Re. 34,243, Cl. 604-247.000.
Gibson, Samuel G.: *See*—
Rae, Duncan R.; and Gibson, Samuel G., Re. 34,242, Cl. 514-340.000.
Green, Charles J.: *See*—
Gabrlik, Zdenek; Morris, John M.; Oliphant, Timothy L.; Green, Charles J.; and Phillips, Nelson O., Re. 34,238, Cl. 137-73.000.
GT Development Corporation: *See*—
Gabrlik, Zdenek; Morris, John M.; Oliphant, Timothy L.; Green, Charles J.; and Phillips, Nelson O., Re. 34,238, Cl. 137-73.000.
Hospal Ltd.: *See*—
Marze, Xavier, Re. 34,239, Cl. 210-651.000.
Jiang, Ching-Lin, to Dallas Semiconductor Corp. Method and apparatus for extracting a predetermined pattern from a serial bit stream. Re. 34,241, Cl. 375-116.000.
Lin, Jui C., to Taiwan Fu Hsing Industry Co., Ltd. Tubular door lock with an adjustable device for setting the dead bolt. Re. 34,240, Cl. 292-337.000.
Marze, Xavier, to Hospal Ltd. Semi-permeable membranes. Re. 34,239, Cl. 210-651.000.
Morris, John M.: *See*—
Gabrlik, Zdenek; Morris, John M.; Oliphant, Timothy L.; Green, Charles J.; and Phillips, Nelson O., Re. 34,238, Cl. 137-73.000.
Oliphant, Timothy L.: *See*—
Gabrlik, Zdenek; Morris, John M.; Oliphant, Timothy L.; Green, Charles J.; and Phillips, Nelson O., Re. 34,238, Cl. 137-73.000.
Phillips, Nelson O.: *See*—
Gabrlik, Zdenek; Morris, John M.; Oliphant, Timothy L.; Green, Charles J.; and Phillips, Nelson O., Re. 34,238, Cl. 137-73.000.
Rae, Duncan R.; and Gibson, Samuel G., to Akzo N.V. Amino-oxazole compounds having dopaminergic activity. Re. 34,242, Cl. 514-340.000.
ReSeal International Limited Partnership: *See*—
Gerber, Bernard R., Re. 34,243, Cl. 604-247.000.
Taiwan Fu Hsing Industry Co., Ltd.: *See*—
Lin, Jui C., Re. 34,240, Cl. 292-337.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Akiyama, Kenyu: *See*—
Wada, Sadao; Akiyama, Kenyu; and Tokashiki, Michihide, B1 4,968,453, Cl. 252-56.00S.
Auvinen, Stuart T.; and Hobermann, Barry A., to Monolithic Memories, Inc. Fast flush for a first-in first-out memory. B1 4,802,122, 5-4-93, Cl. 365-154.000.
Ferag AG: *See*—
Hansch, Egon, B1 4,684,116, Cl. 270-54.000.
Gordon, Gary B.; and Gosselli, Robert R., to Total Spectrum Manufacturing Inc. Robotic television-camera dolly system. B1 5,008,804, 5-4-93, Cl. 364-167.010.
Gosselli, Robert R.: *See*—
Gordon, Gary B.; and Gosselli, Robert R., B1 5,008,804, Cl. 364-167.010.
Hansch, Egon, to Ferag AG. Method and apparatus for collating folded printed signatures using conveyors revolving about a central axis. B1 4,684,116, 5-4-93, Cl. 270-54.000.
Hobermann, Barry A.: *See*—
Auvinen, Stuart T.; and Hobermann, Barry A., B1 4,802,122, Cl. 365-154.000.
Hoff, H. Milton, to J. M. Huber Corporation. Inverted cone stuffing box. B1 4,560,176, 5-4-93, Cl. 277-105.000.
J. M. Huber Corporation: *See*—
Hoff, H. Milton, B1 4,560,176, Cl. 277-105.000.
Monolithic Memories, Inc.: *See*—
Auvinen, Stuart T.; and Hobermann, Barry A., B1 4,802,122, Cl. 365-154.000.
Toa Nenryo Kogyo Kabushiki Kaisha: *See*—
Wada, Sadao; Akiyama, Kenyu; and Tokashiki, Michihide, B1 4,968,453, Cl. 252-56.00S.
Tokashiki, Michihide: *See*—
Wada, Sadao; Akiyama, Kenyu; and Tokashiki, Michihide, B1 4,968,453, Cl. 252-56.00S.
Total Spectrum Manufacturing Inc.: *See*—
Gordon, Gary B.; and Gosselli, Robert R., B1 5,008,804, Cl. 364-167.010.
Toyota Jidosha Kabushiki Kaisha: *See*—
Wada, Sadao; Akiyama, Kenyu; and Tokashiki, Michihide, B1 4,968,453, Cl. 252-56.00S.
Wada, Sadao; Akiyama, Kenyu; and Tokashiki, Michihide, to Toyota Jidosha Kabushiki Kaisha; and Toa Nenryo Kogyo Kabushiki Kaisha. Synthetic lubricating oil composition. B1 4,968,453, 5-4-93, Cl. 252-56.00S.

LIST OF DESIGN PATENTEES

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Abrams, Hyman. Condiment caddy. 335,244, 5-4-93, Cl. D7-600.000.
Adam, Georges I.; and Premont, Michel, to Goodyear Tire & Rubber Company, The. Pneumatic tire tread and buttress. 335,269, 5-4-93, Cl. D12-146.000.
Alfa-Laval Separation AB: *See*—
Vallien, Bertil, 335,294, Cl. D15-147.000.
Alguire, John A. D. Bicycle storage rack. 335,234, 5-4-93, Cl. D6-552.000.
Allendorph, L. David; Mueller, Franz; and Reynard, Larry N., to Navistar International Transportation Corp. Exterior shell of a vehicle hood. 335,272, 5-4-93, Cl. D12-173.000.
Allied Products Corporation: *See*—
Pingry, Larry J.; and Kunk, LaVern, 335,293, Cl. D15-28.000.
Alvord, Lynn S.: *See*—
Lyon, Paul C.; Alvord, Lynn S.; Campbell, Evan B.; Bodrero, Rex D.; and Carter, Ron, 335,349, Cl. D24-151.000.
Apple Computer, Inc.: *See*—
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Athletic Helmet, Inc.: *See—*
Podd, George O., III; Schweitzer, Russell J.; and Maddux, Larry E., 335,366, Cl. D29-12.000.

Atlanta Precision Molding Co.: *See—*
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Aubuchon, David B., Riebel, Karen J.; and Schaefer, William L., to Figgie International, Inc. Warm-up suit. 335,203, 5-4-93, Cl. D2-29.000.

Aubuchon, David B., Riebel, Karen J.; and Schaefer, William L., to Figgie International Inc. Warm-up suit. 335,204, 5-4-93, Cl. D2-29.000.

Aubuchon, David B., Riebel, Karen J.; and Schaefer, William L., to Figgie International Inc. Warm-up suit. 335,205, 5-4-93, Cl. D2-29.000.

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Babin, Peter, Jr. Detachable pot handle. 335,241, 5-4-93, Cl. D7-395.000.

Baker, Dorothy J. Doll. 335,312, 5-4-93, Cl. D21-154.000.

Baker, Neill E. Railing extrusion. 335,353, 5-4-93, Cl. D25-38.000.

Barnett, David W. High roller. 335,268, 5-4-93, Cl. D12-131.000.

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Barnett, Wayne: *See—*
Barthelmess, Kris; Barnett, Karen; and Barnett, Wayne, 335,228, Cl. D6-450.000.

Barrett, Thomas F. Neckwear. 335,210, 5-4-93, Cl. D2-600.000.

Barthelmess, Kris; Barnett, Karen; and Barnett, Wayne. Merchandising display stand for children's clothing. 335,228, 5-4-93, Cl. D6-450.000.

Bauer, Jeffrey S. Insulated beverage can holder. 335,245, 5-4-93, Cl. D7-608.000.

Beckerer, Frank S., Jr. Blade for a paddle. 335,274, 5-4-93, Cl. D12-215.000.

Bell Super Tech, Inc.: *See—*
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Bengtson, Alan D., to Kohler Co. Bracket support for an accessory. 335,231, 5-4-93, Cl. D6-524.000.

Bermad, Registered Partnership: *See—*
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Bill and Lorraine Markham Family Trust. *See—*
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Bionaire Inc.: *See—*
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Biotech Ltd., Inc.: *See—*
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Brave of Michigan, Inc.: *See—*
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Breen, John D. Rural delivery mailbox. 335,380, 5-4-93, Cl. D99-29.000.

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Bureau Heck S.P.R.L.: *See—*
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Carrillo, Theresa J. Golfer's display package. 335,255, 5-4-93, Cl. D9-337.000.

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Carter, William W. Safety flag mounting bracket for use with a recreational vehicle. 335,254, 5-4-93, Cl. D8-354.000.

Chapman, Ewel W., III. Fly bait container. 335,326, 5-4-93, Cl. D22-122.000.

Choi, In Y. Electronic thermometer. 335,260, 5-4-93, Cl. D10-57.000.

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Cole, Douglas L., to Mikron Industries. Extruded frame member for a skylight. 335,357, 5-4-93, Cl. D25-124.000.

Cole, Douglas L., to Mikron Industries. Casement window vent bar extrusion. 335,358, 5-4-93, Cl. D25-124.000.

Coleman, Sammy L. Jewelry finding. 335,264, 5-4-93, Cl. D11-79.000.

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Cowles, Alfred L., III. Gun compass. 335,261, 5-4-93, Cl. D10-68.000.

Coyle, Jerome T., Jr. Wiffle ball bat. 335,314, 5-4-93, Cl. D21-211.000.

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Critchfield, Ruby L.; and Critchfield, Reed C. Dual temperature control griddle. 335,240, 5-4-93, Cl. D7-364.000.

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Dyer, Sylvia. Sanitary napkin box cover. 335,237, 5-4-93, Cl. D6-610.000.

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Arianoutsos, Steve L.; Dremann, Alan P.; Metz, Jerry A.; and Newman, Harry B., to Caterpillar Inc. Face seal with increased torque transfer capacity. H1180, 5-4-93, Cl. 277-92.000.
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54	5,207,127
57.18	5,207,128
63.2	5,207,129
90.2	5,207,130
443	5,207,131
460	5,207,132

CLASS 82

126	5,207,133
129	5,207,134
	5,207,135
130	5,207,136

CLASS 83

167	5,207,137
337	5,207,138
417	5,207,139
451	5,207,140
471.3	5,207,141

CLASS 84

277	5,208,408
278	5,208,409
307	5,208,410
385 R	5,208,411
404	5,207,769
413	5,208,412
615	5,208,413
627	5,208,414
629	5,208,415
634	5,208,416
645	5,208,421

CLASS 89

1.809	5,208,422
41.06	5,208,417
41.07	5,208,418

CLASS 91

369.1	5,207,142
369.4	5,207,770
442	5,207,143

CLASS 92

12.2	5,207,144
72	5,207,771
85 B	5,207,145
88	5,207,146
176	5,207,147

CLASS 99

281	5,207,148
293	5,207,149
439	5,207,150
451	5,207,151
510	5,207,152

CLASS 100

37	5,207,154

CLASS 101

35	5,207,153
	5,207,155
38.1	5,207,156
116	5,207,157
348	5,207,158
350	5,207,159
425	5,207,160

CLASS 102

275.4	5,208,419
281	5,208,420
472	5,208,423
509	5,208,424

CLASS 105

4.1	5,207,161

CLASS 106

18.13	5,207,823
22 R	5,207,824
	5,207,825
163.1	5,207,826
212	5,207,827
416	5,207,822
433	5,207,828
493	5,207,829
672	5,207,830
724	5,207,831
727	5,207,832

CLASS 108

65	5,207,162
157	5,207,163

CLASS 110

246	5,207,176
345	5,207,164

CLASS 111

200	5,207,168

CLASS 112

49	5,207,169
262.2	5,207,165
	5,207,166
280	5,207,167

CLASS 114

150	5,207,170
218	5,207,171
299	5,207,775
357	5,207,172

CLASS 116

34 B	5,207,173
173	5,207,174
209	5,207,175

CLASS 118

307	5,207,833
410	5,207,834
725	5,207,835

CLASS 119

14.28	5,207,177
29	5,207,178
	5,207,179
52.3	5,207,180
57.9	5,207,181
77	5,207,182
87	5,207,183
167	5,207,772

CLASS 122

510	5,207,184

CLASS 123

3	5,207,185
41.31	5,207,186
41.7	5,207,187
41.79	5,207,188
41.84	5,207,189
55 VS	5,207,190
90.17	5,207,192
90.27	5,207,193
90.39	5,207,191
179.1	5,207,194
179.25	5,207,195
188.17	5,207,196
195 R	5,207,197
357	5,207,198
	5,207,199
425	5,207,200
447	5,207,201
450	5,207,202
514	5,207,203
533	5,207,204
	5,207,205
564	5,207,206
568	5,207,714
586	5,207,207
596	5,207,208
627	5,207,209
661	5,207,210

CLASS 126

360 R	5,207,211
391	5,207,212

CLASS 128

6	5,207,213
24 AA	5,207,214
24 EL	5,207,215
25 R	5,207,216
203.21	5,207,217
206.29	5,207,221
207.14	5,207,220
419 D	5,207,219
419 PG	5,207,218
653.1	5,207,223
653.2	5,207,222
	5,207,715
653.5	5,207,224
660.1	5,207,225
661.08	5,207,226
691	5,207,227
713	5,207,228
780	5,207,230
787	5,207,231
837	5,207,232
842	5,207,233
870	5,207,716
898	5,207,234

CLASS 131

96	5,207,735

CLASS 132

207	5,207,235
227	5,207,236
322	5,207,773

CLASS 134

1	5,207,836
42	5,207,837
	5,207,838
102.1	5,207,237

CLASS 135

16	5,207,238

CLASS 137

73	Re.34,238
82	5,207,240
85	5,207,737
115	5,207,239
447	5,207,241
454.6	5,207,242
498	5,207,243
625.24	5,207,244
625.32	5,207,774
625.65	5,207,245
	5,207,246

CLASS 138

89	5,207,247
145	5,207,248

CLASS 141

59	5,207,249
65	5,207,250

CLASS 144

84	5,207,252
136 C	5,207,253

CLASS 148

206	5,207,839
260	5,207,840
307	5,207,841
431	5,207,842
540	5,207,843
546	5,207,844
670	5,207,845
675	5,207,846

CLASS 150

104	5,207,254

CLASS 152

209 R	5,207,847

CLASS 156

89	5,207,861
130.3	5,207,849
166	5,207,850
172	5,207,848
230	5,207,851
	5,207,852
293	5,207,853
350	5,207,854
351	5,207,855
425	5,207,856
441	5,207,857
441.5	5,207,858
502	5,207,859
526	5,207,860
600	5,207,862
603	5,207,863
633	5,207,864
643	5,207,865
647	5,207,866
651	5,207,867
656	5,207,868

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CLASS 160

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84.1 5,207,256
5,207,257
130 5,207,258
133 5,207,259
135 5,207,260
176.1 5,207,261
354 5,207,262

CLASS 162

53 5,207,870
164.7 5,207,871
272 5,207,872
358.2 5,207,873

CLASS 164

97 5,207,263
98 5,207,776
312 5,207,264
348 5,207,266
428 5,207,265
457 5,207,267
463 5,207,777
491 5,207,269

CLASS 165

104.11 5,207,268
151 5,207,270
175 5,207,738

CLASS 166

66 5,207,272
281 5,207,271
5,207,778
369 5,207,273
382 5,207,274
386 5,207,275

CLASS 168

772 5,207,229

CLASS 169

43 5,207,779
61 5,207,276

CLASS 171

38 5,207,277

CLASS 172

5 5,207,739
22 5,207,278
140 5,207,279

CLASS 173

105 5,207,280

CLASS 174

35 R 5,208,425
36 5,208,426
65 SS 5,208,427
91 5,208,428
253 5,208,656

CLASS 175

27 5,207,281
72 5,207,282
296 5,207,283

CLASS 177

241 5,207,284
245 5,207,285

CLASS 180

13 5,207,286
140 5,207,287
141 5,207,780
220 5,207,288
307 5,207,289

CLASS 181

229 5,208,429

CLASS 182

153 5,207,290

CLASS 184

6.16 5,207,291
15.1 5,207,292
101 5,207,293

CLASS 186

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CLASS 187

1 R 5,207,295
8.41 5,207,297
8.5 5,207,296
31 5,207,298

CLASS 188

79.55 5,207,299
299 5,207,300
5,207,301
372 5,207,302

CLASS 190

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CLASS 191

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CLASS 192

0.084 5,207,306
4 A 5,207,740
58 C 5,207,305
70.13 5,207,741

CLASS 194

317 5,207,307

CLASS 198

336 5,207,308
341 5,207,309
370 5,207,310
419.1 5,207,311
600 5,207,312
780 5,207,313
800 5,207,314

CLASS 200

43.11 5,207,315
47 5,207,316
61.52 5,208,430
457 5,207,317
534 5,207,318

CLASS 203

8 5,207,874
11 5,207,875
57 5,207,876

CLASS 204

130 5,207,877
157.41 5,207,878
182.4 5,207,879
182.8 5,207,880
211 5,207,881
212 5,207,882
228 5,207,883
298.02 5,207,884
298.13 5,207,885
299 R 5,207,886

CLASS 205

78 5,207,887
125 5,207,888
155 5,207,889
283 5,207,890

CLASS 206

216 5,207,319
220 5,207,320
223 5,207,321
232 5,207,717
268 5,207,322
315.1 5,207,323
334 5,207,324
370 5,207,325
424 5,207,326
523 5,207,327
554 5,207,328
555 5,207,329

CLASS 208

44 5,207,891
111 5,207,892
5,207,893
299 5,207,894

CLASS 209

219 5,207,330
455 5,207,742
556 5,207,331
569 5,207,332

CLASS 210

95 5,207,895
109 5,207,896
5,207,897
136 5,207,898
138 5,207,899
169 5,207,900
173 5,207,901
195.2 5,207,902
238 5,207,903
252 5,207,904
274 5,207,905
321.8 5,207,906
396 5,207,907
490 5,207,908
500.27 5,207,909
503 5,207,910
603 5,207,911
604 5,207,912
620 5,207,913
635 5,207,914
5,207,915
637 5,207,916
651 Re.34,239
5,207,917
656 5,207,918
700 5,207,919
703 5,207,920
704 5,207,921
708 5,207,922
727 5,207,923
734 5,207,924
746 5,207,925
749 5,207,926
763 5,207,927
774 5,207,928
5,207,929
791 5,207,930

CLASS 211

13 5,207,333
41 5,207,334
122 5,207,335
183 5,207,336

CLASS 212

249 5,207,337

CLASS 213

62 R 5,207,718

CLASS 215

11.1 5,207,338
228 5,207,339
256 5,207,340
5,207,783
321 5,207,782
334 5,207,341

CLASS 219

10.55 B 5,208,432
10.79 5,208,433
121.13 5,208,435
121.44 5,208,440
121.5 5,208,448
121.52 5,208,441
5,208,442
121.54 5,208,436
121.6 5,208,434
121.65 5,208,431
121.67 5,208,437
121.74 5,208,439
121.78 5,208,438
505 5,208,443
547 5,208,444

CLASS 220

4.02 5,207,342
4.28 5,207,343
23.83 5,207,344
254 5,207,345
277 5,207,346
541 5,207,347
574 5,207,743
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CLASS 221

6 5,207,784
15 5,207,349
105 5,207,350
223 5,207,351

CLASS 222

1 5,207,352
5,207,353
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95 5,207,356
109 5,207,357
134 5,207,785
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39 5,207,361
148 5,207,362
5,207,719
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264 5,207,364
316 5,207,365
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CLASS 225

49 5,207,367
106 5,207,368

CLASS 228

4.5 5,207,369
102 5,207,370
125 5,207,371
179 5,207,786
180.2 5,207,372

CLASS 229

92.8 5,207,373
102 5,207,374
151 5,207,375
186 5,207,376

CLASS 232

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CLASS 235

375 5,208,445
380 5,208,446
5,208,447
462 5,208,449
492 5,208,450

CLASS 236

9 R 5,207,379
34.5 5,207,744

CLASS 239

64 5,207,380
72 5,207,381
79 5,207,382
265.39 5,207,787
409 5,207,383
463 5,207,384
533.3 5,207,385
542 5,207,386
585.4 5,207,387
598 5,207,388

CLASS 241

3 5,207,389
34 5,207,390
186.4 5,207,391
236 5,207,392

CLASS 242

1.1 R 5,207,745
54 R 5,207,393
58.6 5,207,394
199 5,207,395
321 5,207,396

CLASS 244

45 A 5,207,397
100 R 5,207,398
172 5,207,399
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CLASS 246

442 5,207,401

CLASS 248

156 5,207,402
215 5,207,403
217.4 5,207,404
411 5,207,405
514 5,207,406
519 5,207,407
550 5,207,408

CLASS 249

210 5,207,931

CLASS 250

201.3 5,208,451
208.2 5,208,452
214 LA 5,208,453
227.19 5,208,455
236 5,208,456
282 5,208,457
288 5,208,458
327.2 5,208,459
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436 5,208,461
493.1 5,208,462
561 5,208,463
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CLASS 251

7 5,207,409
129.15 5,207,410
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3 5,207,932
8.551 5,207,934
8.6 5,207,933
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25 5,207,936
33.6 5,207,937
51.5 A 5,207,938
51.5 R 5,207,939
52 A 5,207,940
56 S B1 4,968,453
99.63 5,207,945
174.23 5,207,941
182.2 5,207,942
188.28 5,207,943
299.01 5,207,944
299.65 5,207,946
299.67 5,207,947
301.36 5,207,948
511 5,207,949
518 5,207,950
547 5,207,951
582 5,207,952
601 5,207,953

CLASS 257

98 5,208,468
208 5,208,469
296 5,208,470
302 5,208,657
327 5,208,471
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345 5,208,473
356 5,208,474
360 5,208,475
408 5,208,476
421 5,208,477
443 5,208,478
503 5,208,480
532 5,208,726
534 5,208,479
666 5,208,481
667 5,208,467
758 5,208,658

CLASS 264

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22 5,207,955
40.5 5,207,957
40.6 5,207,956
65 5,207,958
103 5,207,959
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135 5,207,961
145 5,207,962
163 5,207,963
221 5,207,964
226 5,207,965
250 5,207,966
328.16 5,207,967
344 5,207,968
516 5,207,969
518 5,207,970
564 5,207,971

CLASS 266

44 5,207,972
170 5,207,973
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CLASS 270

1.1 5,207,412
54 B1 4,684,116

CLASS 271

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5,207,414
5,207,415
11 5,207,416
31 5,207,788
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CLASS 273

1.5 A 5,207,789
1.5 R 5,207,419
3 A 5,207,790
26 R 5,207,421
37 5,207,422
58 K 5,207,420
73 R 5,207,423
128 R 5,207,720
140 5,207,424
148 B 5,207,426
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148 R 5,207,425
167 R 5,207,427
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186.2 5,207,429
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411 5,207,432
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CLASS 277

4 5,207,794
38 5,207,436
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CLASS 280

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204 5,207,441
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617 5,207,447
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CLASS 281

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CLASS 283

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5,207,746

CLASS 285

23 5,207,459
222 5,207,461
258 5,207,460
321 5,207,462

CLASS 290

48 5,208,482

CLASS 292

256.6 5,207,463
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CLASS 294

2 5,207,465
61 5,207,466
64.1 5,207,467
67.31 5,207,468
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CLASS 296

24.1 5,207,722
37.12 5,207,471
37.6 5,207,469
37.7 5,207,470
39.2 5,207,472
65.1 5,207,473
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183 5,207,476
194 5,207,477
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344 5,207,480
464 5,207,481

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33 5,207,482
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110 5,207,484
113.2 5,207,485
5,207,486
5,207,487
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CLASS 307

10.1 5,208,483
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122 5,208,486
289 5,208,487
362 5,208,488
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452 5,208,490
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529 5,208,493
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5,208,497
5,208,498
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5,208,500
75 C 5,208,501
219 5,208,502
259 5,208,503
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CLASS 312

139 5,207,490
249.11 5,207,723
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CLASS 315

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111.41 5,208,512
129 5,208,513
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CLASS 318

138 5,208,518
139 5,208,519
551 5,208,520
560 5,208,514
587 5,208,521
611 5,208,522
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CLASS 323

313 5,208,527

CLASS 324

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158 R 5,208,528
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5,208,531
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309 5,208,534
318 5,208,535
321 5,208,536
322 5,208,537
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334 5,208,539
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395 5,208,541
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151 5,208,545
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CLASS 330

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59 5,208,548
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116 FE 5,208,558

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109 5,208,559

CLASS 333

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22 R 5,208,561
5,208,562
109 5,208,563
164 5,208,564
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219.1 5,208,567
223 5,208,568
257 5,208,569

CLASS 335

261 5,208,570
299 5,208,571

CLASS 336

83 5,208,572
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CLASS 337

394 5,208,574
401 5,208,575

CLASS 338

248 5,208,576

CLASS 340

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393 5,208,578
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571 5,208,580
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724 5,208,588
764 5,208,589
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CLASS 342

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CLASS 343

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63 5,208,616
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CLASS 354

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82 5,208,622
195.1 5,208,623
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CLASS 355

23 5,208,627
27 5,208,628
53 5,208,629
200 5,208,626
201 5,208,630
204 5,208,631
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215 5,208,634
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274 5,208,638
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73.1 5,208,645
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345 5,208,651
346 5,208,652
350 5,208,653
5,208,654
358 5,208,655
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CLASS 358

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40 5,208,662
75 5,208,663
80 5,208,664
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139 5,208,666
140 5,208,667
5,208,668
5,208,669
141 5,208,670
147 5,208,671
150 5,208,672
167 5,208,673
209 5,208,674
5,208,675
296 5,208,676
335 5,208,677
341 5,208,678
342 5,208,679
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404 5,208,681
434 5,208,682
456 5,208,684
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51 5,208,686
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53 5,208,688
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173 5,208,693
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5,208,696
254 5,208,697
299 5,208,698
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569 5,208,700
574 5,208,701
663 5,208,702
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848 5,208,704

CLASS 360

2 5,208,706
33.1 5,208,707
60 5,208,708
64 5,208,709
78.01 5,208,710
78.04 5,208,711
98.01 5,208,712
99.01 5,208,722
105 5,208,713
113 5,208,714
5,208,715
5,208,716
137 5,208,717

CLASS 361

18 5,208,718
56 5,208,719
119 5,208,723
218 5,208,724
313 5,208,725
321 5,208,727
380 5,208,728
382 5,208,729
384 5,208,730
386 5,208,731
5,208,732
5,208,733
388 5,208,734
391 5,208,735
393 5,208,736
426 5,208,737

CLASS 362

30 5,207,492
31 5,207,493
32 5,207,494
33 5,207,495
35 5,207,496
61 5,207,497
91 5,207,498
96 5,207,499
105 5,207,500
137 5,207,501
158 5,207,502
219 5,207,503
233 5,207,747
260 5,207,504
373 5,207,505

CLASS 363

17 5,208,738
24 5,208,739
124 5,208,740
5,208,741

CLASS 364

131 5,208,742
140 5,208,743
162 5,208,744
167.01 B1 5,008,804
188 5,208,745
413.16 5,208,746
413.25 5,208,747
419 5,208,748
424.02 5,208,750
424.05 5,208,749
5,208,751
5,208,752
424.07 5,208,753
426.01 5,208,754
426.03 5,208,755
449 5,208,756
456 5,208,757
463 5,208,758
468 5,208,759
474.21 5,208,761
474.37 5,208,760
478 5,208,762
491 5,208,764
551.02 5,208,763
552 5,208,765
5,208,766
563 5,208,767
578 5,208,768
766 5,208,769
768 5,208,770

CLASS 365

154 5,208,771
B1 4,802,122
185 5,208,772
189.04 5,208,773
189.08 5,208,774
200 5,208,775
5,208,776
201 5,208,777
5,208,778
222 5,208,779
225.7 5,208,780
230.01 5,208,781
230.03 5,208,782
233 5,208,783

CLASS 366

095 5,207,506

CLASS 367

1 5,208,784
90 5,208,785
94 5,208,720
124 5,208,786
139 5,208,787
147 5,208,788
181 5,208,789

CLASS 368

15 5,208,790

CLASS 369

36 5,208,791
44.14 5,208,793
44.27 5,208,794
44.38 5,208,792
72 5,208,795
97 5,208,796
100 5,208,797
110 5,208,799
112 5,208,800
270 5,208,798
284 5,208,801
289 5,208,802

CLASS 370

30 5,208,804
60 5,208,805
60.1 5,208,806
5,208,807
85.7 5,208,808
91 5,208,809
94.1 5,208,810
5,208,811
013 5,208,803
100.1 5,208,812

CLASS 371

10.1 5,208,813
16.4 5,208,814
37.7 5,208,815
43 5,208,816

CLASS 372

26 5,208,817
30 5,208,818
32 5,208,819
45 5,208,820
48 5,208,821
50 5,208,822
5,208,823
5,208,824
96 5,208,825
99 5,208,826
107 5,208,827
108

CLASS 373

51 5,208,828

CLASS 374

14 5,207,507

CLASS 375

1 5,208,829
5,208,830
7 5,208,831
13 5,208,832
20 5,208,833
25 5,208,834
45 5,208,835
85 5,208,836
103 5,208,837
106 5,208,838
110 5,208,839
114 5,208,840
116 Re.34,241

CLASS 376

230 5,207,975
261 5,207,976
294 5,207,977
353 5,207,978
419 5,207,979
446 5,207,980

CLASS 377

55 5,208,842
60 5,208,841

CLASS 378

122 5,208,844
125 5,208,843
163 5,208,845

CLASS 379

15 5,208,846
59 5,208,847
67 5,208,848
70 5,208,849
88 5,208,850
177 5,208,851
353 5,208,852

CLASS 380

4 5,208,853
7 5,208,854
9 5,208,855
14 5,208,856
5,208,857
43 5,208,858
45 5,208,859

CLASS 381

17 5,208,860
31 5,208,861
36 5,208,862
43 5,208,863
46 5,208,864
94 5,208,865
107 5,208,866
169 5,208,867
183 5,208,868

CLASS 382

7 5,208,869
30 5,208,870
41 5,208,871
42 5,208,872
50 5,208,873
54 5,208,874
5,208,875

CLASS 383

4 5,207,508
24 5,207,725
38 5,207,509

CLASS 384

43 5,207,510
99 5,207,511
464 5,207,512
492 5,207,513
497 5,207,514
516 5,207,515

CLASS 385

11 5,208,876
12 5,208,877
14 5,208,878
5,208,879
18 5,208,880
27 5,208,881
37 5,208,882
43 5,208,883
46 5,208,884
49 5,208,885
73 5,208,886
81 5,208,887
90 5,208,888
114 5,208,889
115 5,208,890
116 5,208,891
129 5,208,892
135 5,208,893
5,208,894

CLASS 392

404 5,208,895
444 5,208,896

CLASS 395

2 5,208,897
27 5,208,900
50 5,208,898
62 5,208,899
116 5,208,902
117 5,208,901
131 5,208,903
143 5,208,904
148 5,208,905
5,208,906
149 5,208,907
150 5,208,908
155 5,208,909
156 5,208,910
162 5,208,911
200 5,208,912
250 5,208,913
275 5,208,914
325 5,208,915

CLASS 400

120 5,207,516
121 5,207,517
124 5,207,518
185 5,207,796
202.4 5,207,519
279 5,207,520
647.1 5,207,521

CLASS 401

52 5,207,522
107 5,207,523
210 5,207,524

CLASS 403

11 5,207,525
199 5,207,526
246 5,207,527
325 5,207,528
354 5,207,529

CLASS 405

53 5,207,530
79 5,207,531
128 5,207,532
156 5,207,533
209 5,207,534
269.1 5,207,535

CLASS 406

182 5,207,536

CLASS 407

108 5,207,724
110 5,207,537
113 5,207,538
114 5,207,748

CLASS 408

10 5,207,539

CLASS 409

143 5,207,749
163 5,207,540
179 5,207,541
226 5,207,542

CLASS 411

38 5,207,750
121 5,207,543
348 5,207,544
383 5,207,545
553 5,207,546

CLASS 414

331 5,207,547
340 5,207,549
404 5,207,548
420 5,207,550
528 5,207,551
563 5,207,552
737 5,207,553
744.6 5,207,554
749 5,207,555
792.7 5,207,727

CLASS 415

115 5,207,556
157 5,207,557
161 5,207,558
166 5,207,559
199.1 5,207,560

CLASS 416

134 R 5,207,561

CLASS 417

222.1 5,207,751
234 5,207,562
269 5,207,563
312 5,207,564
393 5,207,726
407 5,207,565
5,207,566
540 5,207,567

CLASS 418

203 5,207,568

CLASS 420

416 5,207,981
418 5,207,982

CLASS 422

25 5,207,983
58 5,207,984
61 5,207,985
65 5,207,986
67 5,207,987
73 5,207,988
179 5,207,989
183 5,207,990
210 5,207,991
249 5,207,992
256 5,207,993
307 5,207,994

CLASS 423

21.5 5,207,995

VOL 1150 ISS 1 MAY 4 1993 UMI

27 5,207,996
165 5,207,997
258 5,207,999
316 5,208,000
348 5,208,001
410 5,208,002
445 5,208,003
622 5,208,004
702 5,208,005
713 5,208,006

CLASS 424

1 1 5,208,007
5,208,008
49 5,208,009
53 5,208,010
59 5,207,998
5,208,011
5,208,012
5,208,013
71 5,208,014
78 05 5,208,015
78 27 5,208,016
84 5,208,017
85 2 5,208,018
85 5 5,208,019
85 91 5,208,020
5,208,021
88 5,208,022
89 5,208,023
92 5,208,024
93 Q 5,208,026
401 5,208,028
405 5,208,029
409 5,208,030
412 5,208,031
422 5,208,032
5,208,033
442 5,208,034
446 5,208,035
450 5,208,036
473 5,208,037
489 5,208,038
490 5,208,039
562 5,208,041
644 5,208,042

CLASS 425

4 R 5,208,043
32 5,208,044
35 5,208,045
130 5,208,046
141 5,208,047
185 5,208,049
202 5,208,050
388 5,208,027
393 5,208,051
462 5,208,048
549 5,208,052
572 5,208,053

CLASS 426

13 5,208,054
93 5,208,055
332 5,208,057
422 5,208,056
482 5,208,063
486 5,208,058
512 5,208,059
556 5,208,060
573 5,208,061
589 5,208,062

CLASS 427

8 5,208,064
64 5,208,065
96 5,208,066
5,208,067
97 5,208,068
226 5,208,069
252 5,208,070
253 5,208,071
296 5,208,072
318 5,208,073
389 5,208,074
389 9 5,208,075
428 5,208,076
461 5,208,077
483 5,208,078
527 5,208,079

CLASS 428

1 5,208,080
31 5,208,081
36 6 5,208,082
36 7 5,208,083
40 5,208,084
43 5,208,085
47 5,208,086
60 5,208,087
64 5,208,088
113 5,208,090
136 5,208,089
141 5,208,091
195 5,208,092
5,208,093
212 5,208,094
215 5,208,095
218 5,208,096
266 5,208,097
284 5,208,098
306 6 5,208,099
332 5,208,100
336 5,208,101
5,208,102
354 5,208,103
364 5,208,104
373 5,208,105
397 5,208,106
5,208,107
398 5,208,108
402 5,208,109
414 5,208,110
420 5,208,111

CLASS 429

16 5,208,113
20 5,208,112
5,208,114
26 5,208,115
72 5,208,117
96 5,208,116
101 5,208,118
103 5,208,119
133 5,208,120
162 5,208,121
222 5,208,122

CLASS 430

1 5,208,123
5 5,208,124
5,208,125
49 5,208,126
59 5,208,127
5,208,128
110 5,208,129
115 5,208,130
5,208,131
138 5,208,132
270 5,208,133
271 5,208,134
281 5,208,135
290 5,208,136
326 5,208,138
522 5,208,137
523 5,208,139
551 5,208,140
558 5,208,141

CLASS 431

6 5,207,569
188 5,207,570
295 5,207,571

CLASS 432

58 5,207,572
152 5,207,573
241 5,207,578

CLASS 433

74 5,207,574
126 5,207,575
215 5,207,576
217 1 5,207,577

CLASS 434

11 5,207,579
238 5,207,580
412 5,207,581
416 5,207,582

CLASS 435

2 5,208,142
5 5,208,143
6 5,208,144
5,208,145
7 23 5,208,146
14 5,208,147
5,208,148
38 5,208,150
91 5,208,149
99 5,208,151
119 5,208,152
5,208,153
176 5,208,154
191 5,208,155
196 5,208,156
199 5,208,157
219 5,208,158
252 1 5,208,159
270 5,208,160
286 5,208,161

CLASS 436

6 5,208,162
63 5,208,163
79 5,208,164
176 5,208,165
518 5,208,166

CLASS 437

1 5,208,167
26 5,208,168
31 5,208,169
34 5,208,170
5,208,171
40 5,208,172
43 5,208,173
5,208,174
5,208,175
47 5,208,176
5,208,177
5,208,178
51 5,208,179
52 5,208,180
60 5,208,181
70 5,208,182
110 5,208,183
129 5,208,184
132 5,208,185
168 5,208,186
183 5,208,187
194 5,208,188
220 5,208,189
238

CLASS 439

49 5,207,583
66 5,207,584
5,207,585
76 5,207,586
5,207,587
84 5,207,588
112 5,207,589
148 5,207,590
212 5,207,591
352 5,207,593
490 5,207,594
517 5,207,595
585 5,207,596
607 5,207,597
636 5,207,598
650 5,207,599
682 5,207,600
715 5,207,601
836 5,207,602
884 5,207,603

CLASS 440

62 5,207,604
71 5,207,605

CLASS 441

69 5,207,606

CLASS 445

25 5,207,607

CLASS 446

98 5,207,728

CLASS 452

27 5,207,608
5,207,609
110 5,207,610

CLASS 453

61 5,207,612
011 5,207,611

CLASS 454

184 5,207,613
298 5,207,614
322 5,207,615

CLASS 464

111 5,207,616

CLASS 474

28 5,207,617
101 5,207,618
5,207,619
135 5,207,620

CLASS 482

53 5,207,621
54 5,207,622
61 5,207,623
93 5,207,624
111 5,207,625
123 5,207,626
124 5,207,627
140 5,207,628

CLASS 492

7 5,206,978
13 5,206,979

CLASS 493

29 5,207,629
216 5,207,592
313 5,207,630
334 5,207,631
355 5,207,632
357 5,207,633

CLASS 494

10 5,207,634

CLASS 501

1 5,208,214
12 5,208,190
17 5,208,191
92 5,208,192
120 5,208,193

CLASS 502

12 5,208,194
63 5,208,195
5,208,196
67 5,208,197
74 5,208,198
208 5,208,199
241 5,208,200
253 5,208,201
302 5,208,202
5,208,203
5,208,204
303 5,208,205
333 5,208,206
334 5,208,207
339

CLASS 503

208 5,208,208
221 5,208,209
227 5,208,210
5,208,211

CLASS 504

106 5,207,820
139 5,208,212
225 5,207,818
235 5,207,819
271 5,207,816
299 5,207,817

CLASS 505

1 5,208,213
5,208,215

CLASS 507

120 5,208,216

CLASS 514

3 5,208,217
8 5,208,218
12 5,208,219
13 5,208,220
30 5,208,222
81 5,208,221
92 5,208,223
110 5,208,224
171 5,208,226
172 5,208,227
178 5,208,225
183 5,208,228
210 5,208,229
214 5,208,230
227 8 5,208,231
228 2 5,208,232
231 8 5,208,233
235 8 5,208,234
5,208,235
237 5 5,208,236
254 5,208,237
255 5,208,238
256 5,208,239
263 5,208,240
291 5,208,241
303 5,208,242
309 5,208,243
336 5,208,244
337 5,208,245
340 Re 34,242
345 5,208,246
358 5,208,247
364 5,208,248
369 5,208,249
5,208,250
372 5,208,251
438 5,208,252
443 5,208,253
460 5,208,259
494 5,208,254
513 5,208,255
530 5,208,256
552 5,208,257
557 5,208,258
561 5,208,260
646 5,208,261
678 5,208,262
730 5,208,263

CLASS 521

32 5,208,264
59 5,208,265
79 5,208,266
5,208,267
115 5,208,268
125 5,208,269
129 5,208,270
174 5,208,271

CLASS 523

122 5,208,272
145 5,208,274
152 5,208,273
200 5,208,275
436 5,208,276
523 5,208,277

CLASS 524

83 5,208,278
91 5,208,279
100 5,208,280
189 5,208,281
190 5,208,282
302 5,208,283
382 5,208,284
516 5,208,285

CLASS 525

57 5,208,286
64 5,208,287
84 5,208,288
100 5,208,289
113 5,208,290
124 5,208,291
166 5,208,292
199 5,208,293
263 5,208,294
327 6 5,208,295
338 5,208,296
415 5,208,297
435 5,208,298
437 5,208,299
474 5,208,300
540 5,208,301

CLASS 526

125 5,208,302
5,208,303
164 5,208,304
194 5,208,305
256 5,208,306
262 5,208,307
304 5,208,308
348 2 5,208,309

CLASS 528

5 5,208,310
13 5,208,311
28 5,208,312
5,208,313
50 5,208,314
67 5,208,315
68 5,208,316
89 5,208,317
168 5,208,318

CLASS 530

210 5,208,319
324 5,208,320
350 5,208,321
391 9 5,208,323

CLASS 534

16 5,208,324
607 5,208,325

CLASS 536

27 7 5,208,327
53 5,208,326

CLASS 540

302 5,208,328
5,208,329
471 5,208,330

CLASS 544

60 5,208,331
79 5,208,339
102 5,208,332
134 5,208,333
193 5,208,334
225 5,208,335
300 5,208,336
320 5,208,337

CLASS 546

44 5,208,338
98 5,208,340
116 5,208,342
175 5,208,341
284 5,208,343

CLASS 548

179 5,208,344
406 5,208,345
461 5,208,346
538 5,208,347
544 5,208,348

CLASS 549

264 5,208,349
289 5,208,350
449 5,208,351
502 5,208,352
548 5,208,353

CLASS 552

200 5,208,354

CLASS 554

37 5,208,355
79 5,208,356

CLASS 556

43 5,208,357
442 5,208,359
444 5,208,360
445 5,208,358

CLASS 558

18 5,208,361
146 5,208,362
346 5,208,363

CLASS 560

46 5,208,364
48 5,208,365
83 5,208,366
248 5,208,367
333 5,208,368

CLASS 562

106 5,208,369
538 5,208,371
584 5,208,372
600 5,208,370
851 5,208,373

CLASS 564

197 5,208,375
252 5,208,378
298 5,208,374
309 5,208,376
468 5,208,379
477 5,208,377
509 5,208,380

CLASS 568

10 5,208,381
22 5,208,382
323 5,208,383
426 5,208,384
617 5,208,385
661 5,208,386
695 5,208,387
700 5,208,388
726 5,208,389
766 5,208,390
767 5,208,391
836 5,208,392

CLASS 570

101 5,208,393
141 5,208,394
166 5,208,395
175 5,208,396
176 5,208,397
177 5,208,398
224 5,208,399
235 5,208,400

CLASS 585

1 5,208,401
5,208,402
7 5,208,403
241 5,208,404
274 5,208,405

CLASS 602

19 5,207,635
5,207,636
26 5,207,637

CLASS 604

4 5,207,638
5,207,639
20 5,207,752
28 5,207,640
32 5,207,641
65 5,207,642
80 5,207,643
93 5,207,644
110 5,207,646
141 5,207,645
158 5,207,647
164 5,207,648
167 5,207,649
173 5,207,650
174 5,207,651
180 5,207,652
192 5,207,653
203 5,207,654
247 Re 34,243
5,207,655
256 5,207,656
272 5,207,658
295 5,207,657
298 5,207,659
300 5,207,660
317 5,207,661
385 1 5,207,663
385 2 5,207,662
5,207,664
399 5,207,665
891 1 5,207,666
905 5,207,667

CLASS 606

5 5,207,668
7 5,207,669
8 5,207,670
9 5,207,671

10 5,207,672
16 5,207,673
20 5,207,674
40 5,207,675
54 5,207,676
61 5,207,678
72 5,207,679
86 5,207,680
96 5,207,681
5,207,682
108 5,207,683
109 5,207,685
113 5,207,686
122 5,207,687
130 5,207,688
133 5,207,689
135 5,207,690
142 5,207,691
143 5,207,692
146 5,207,693
148 5,207,694
153 5,207,695
167 5,207,696
5,207,697
182 5,207,699
194 5,207,700
207 5,207,702
226 5,207,701
232 5,207,703
240 5,207,704

CLASS 623

1 5,207,705
5,207,706
2 5,207,707
6 5,207,708
11 5,207,709
16 5,207,710
20 5,207,711
21 5,207,712

CLASSIFICATION OF DESIGNS

D1— 104 335,198
110 335,199
127 335,200
335,201
335,202
D2— 29 335,203
335,204
335,205
265 335,206
314 335,207
335,209
320 335,208
600 335,210
626 335,211
D3— 35 335,212
335,213
335,214
335,215
38 335,216
62 335,217
70 335,218
73 335,219
78 335,220
101 335,221
D4— 119 335,223
D6— 335 335,222
348 335,224
406 335,226
425 335,225
449 335,227
450 335,228
469 335,229
491 335,230
524 335,231
525 335,232
552 335,233
335,234
601 335,235
608 335,236
610 335,237
D7— 317 335,238
335,239
364 335,240
395 335,241
589 335,242
590 335,243
600 335,244
608 335,245
675 335,246
D8— 8 335,247
45 335,248
52 335,249
68 335,250
98 335,251
335,252
347 335,253
354 335,254
D9— 337 335,255
338 335,256
431 335,257
504 335,258
574 335,259
D10— 57 335,260
64 335,262
68 335,261
D11— 3 335,263
79 335,264
145 335,265
231 335,266
D12— 98 335,267
131 335,268
146 335,269
147 335,270
156 335,275
167 335,271
173 335,272
187 335,273
215 335,274
314 335,276
D13— 103 335,277
107 335,278
118 335,279
158 335,281
170 335,282
171 335,283
184 335,280
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PATENTS

01	:	5,207,211	5,207,304	5,207,793	5,208,593		5,207,629		5,207,695
		5,207,309	5,207,318	5,207,835	5,208,614		5,207,662	12	5,207,005
		5,207,564	5,207,327	5,207,836	5,208,619		5,207,727		5,207,014
02	:	5,207,305	5,207,338	5,207,848	5,208,624		5,208,154		5,207,017
		5,207,920	5,207,340	5,207,854	5,208,643		5,208,420		5,207,076
04	:	5,207,237	5,207,345	5,207,884	5,208,644		5,208,490		5,207,085
		5,207,253	5,207,348	5,207,886	5,208,653		5,208,587		5,207,183
		5,207,254	5,207,350	5,207,887	5,208,654		5,208,813		5,207,212
		5,207,413	5,207,355	5,207,898	5,208,682	09	5,207,053		5,207,216
		5,207,470	5,207,363	5,207,934	5,208,686		5,207,100		5,207,247
		5,207,559	5,207,380	5,207,966	5,208,688		5,207,140		5,207,308
		5,207,671	5,207,397	5,207,977	5,208,693		5,207,236		5,207,347
		5,207,866	5,207,399	5,207,985	5,208,697		5,207,245		5,207,362
		5,208,136	5,207,406	5,207,995	5,208,698		5,207,260		5,207,408
		5,208,446	5,207,420	5,208,005	5,208,699		5,207,295		5,207,430
		5,208,591	5,207,423	5,208,017	5,208,700		5,207,298		5,207,464
		5,208,595	5,207,431	5,208,036	5,208,701		5,207,349		5,207,549
		5,208,714	5,207,476	5,208,037	5,208,704		5,207,378		5,207,582
		5,208,803	5,207,494	5,208,112	5,208,712		5,207,403		5,207,605
		5,208,853	5,207,495	5,208,124	5,208,713		5,207,414		5,207,643
		5,208,900	5,207,502	5,208,138	5,208,719		5,207,425		5,207,652
		5,208,907	5,207,510	5,208,145	5,208,722		5,207,461		5,207,656
05		5,207,074	5,207,527	5,208,146	5,208,725		5,207,701		5,207,712
		5,207,792	5,207,531	5,208,152	5,208,726		5,207,815		5,207,719
		5,208,389	5,207,532	5,208,165	5,208,731		5,207,858		5,207,728
		5,208,424	5,207,544	5,208,186	5,208,745		5,207,867		5,207,916
		5,208,646	5,207,565	5,208,188	5,208,748		5,207,998		5,207,921
06		Re 34,243	5,207,576	5,208,213	5,208,759		5,208,207		5,207,988
		5,206,962	5,207,586	5,208,219	5,208,764		5,208,221		5,208,011
		5,206,975	5,207,602	5,208,227	5,208,765		5,208,237		5,208,029
		5,206,988	5,207,606	5,208,258	5,208,766		5,208,280		5,208,050
		5,206,999	5,207,613	5,208,304	5,208,769		5,208,281		5,208,077
		5,207,011	5,207,621	5,208,310	5,208,772		5,208,451		5,208,118
		5,207,018	5,207,625	5,208,331	5,208,785		5,208,585		5,208,166
		5,207,042	5,207,626	5,208,390	5,208,795		5,208,638		5,208,553
		5,207,054	5,207,627	5,208,435	5,208,801		5,208,845		5,208,617
		5,207,055	5,207,630	5,208,443	5,208,812		5,208,887		5,208,833
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		5,207,109	5,207,645	5,208,478	5,208,842		5,207,812		5,207,290
		5,207,150	5,207,658	5,208,503	5,208,855		5,207,962		5,207,822
		5,207,185	5,207,667	5,208,516	5,208,876		5,208,082		5,207,837
		5,207,213	5,207,673	5,208,523	5,208,881		5,208,106		5,208,098
		5,207,223	5,207,684	5,208,530	5,208,893		5,208,131		5,208,162
		5,207,230	5,207,693	5,208,548	5,208,897		5,208,290		5,208,357
		5,207,232	5,207,699	5,208,554	5,208,906		5,208,297		5,208,458
		5,207,233	5,207,710	5,208,555	4,802,122		5,208,379		5,208,659
		5,207,239	5,207,717	5,208,556	5,008,804		5,208,391		5,208,854
		5,207,241	5,207,743	5,208,562	08	5,207,092		5,208,396		5,208,886
		5,207,244	5,207,759	5,208,564		5,207,296		5,208,397	15	5,207,875
		5,207,251	5,207,760	5,208,569		5,207,297		5,208,544		5,208,618
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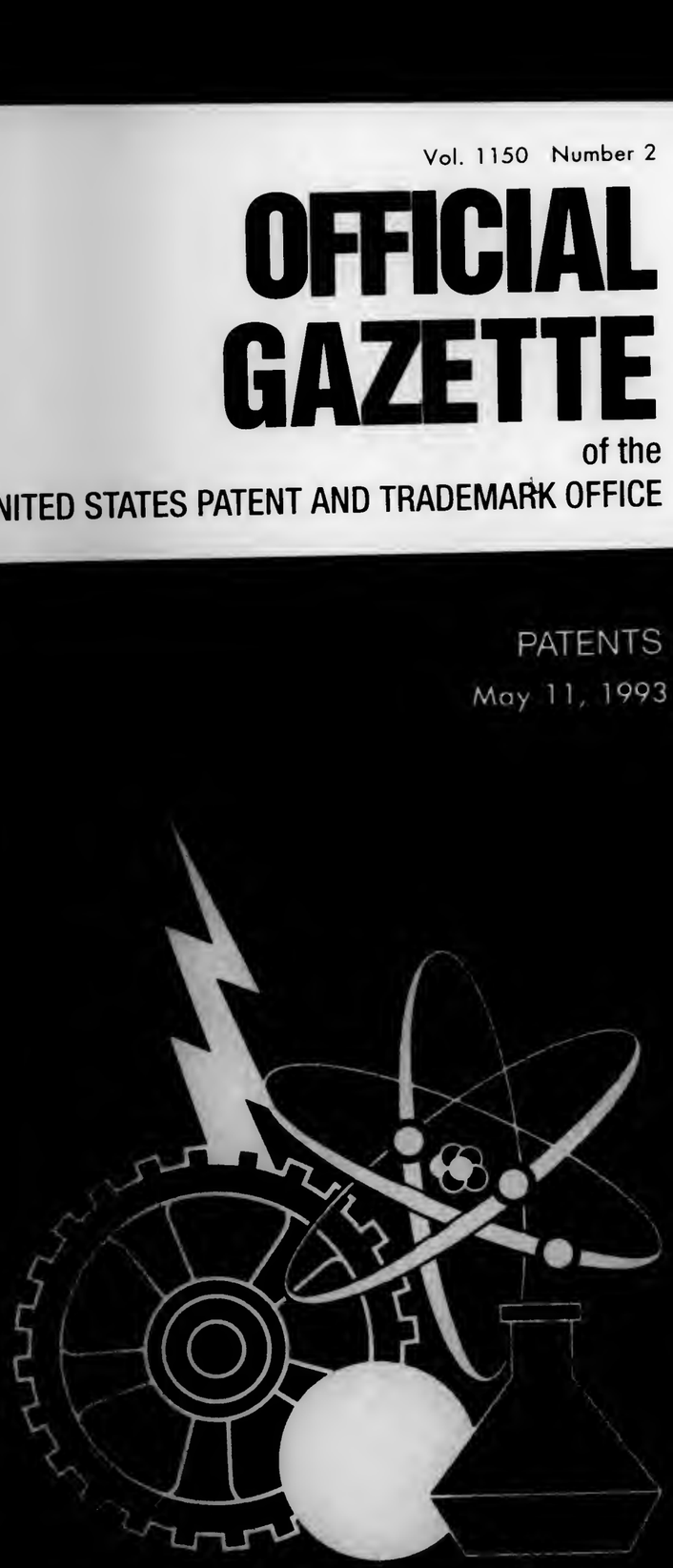
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1149 O.G. 36, on Apr. 20, 1993.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed, effective May 1, 1993, due to changes in the exchange rate of the U.S. dollar to the German mark, and was announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

International fees were changed, effective on May 1, 1993, due to changes in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective Oct. 1, 1992, and were announced in the *Official Gazette* at 1141 O.G. 68, on Aug. 25, 1992.

The schedule of PCT fees (in U.S. dollars), effective May, 1, 1993, is as follows:

Transmittal fee:	200.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	620.00
—Corresponding prior U.S. national application filed	410.00
—Supplemental search fee, per additional invention	170.00
European Patent Office as ISA	1512.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	450.00
—Additional examination fee, per additional invention	140.00
—ISA not the USPTO	670.00
—Additional examination fee, per additional invention	230.00
International fees	
Basic fee	530.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	128.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	162.00

U.S. National Stage fees	Small Entity	Regular
USPTO was IPEA	320.00	640.00
USPTO was ISA but not IPEA	355.00	710.00
USPTO was neither ISA nor IPEA	475.00	950.00
Filing with an EPO or JPO search report	415.00	830.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	45.00	90.00
—For each independent claim in excess of 3	37.00	74.00
—For each claim in excess of 20	11.00	22.00
—For each application containing a multiple dependent claim	115.00	230.00
—Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Mar. 17, 1993

MICHAEL K. KIRK,
Acting Assistant Secretary and Acting Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d) provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on May 8, 1990 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,922,550 through 4,924,524
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on May 6, 1986 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,586,196 through 4,587,670
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after December 12, 1980, but before August 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months and eleven years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1992, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after after Dec. 12, 1980 , in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9f) $465.00
By other than a small entity $930.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9f) $935.00
By other than a small entity $1,870.00

(g) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity(§ 1.9(f)) $1,410.00
By other than a small entity $2,820.00

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(h), and (i), which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months , seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980

By a small entity (§ 1.9f) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been

(1) unavoidable $620.00
(2) unintentional $1,500.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED FEBRUARY 28, 1993 DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,501,026	06/522,807	2/26/85
4,501,028	06/497,861	2/26/85
4,501,033	06/497,005	2/26/85
4,501,035	06/421,369	2/26/85
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4,501,038	06/391,468	2/26/85
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4,501,042	06/310,499	2/26/85
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4,501,054	06/537,304	2/26/85
4,501,055	06/566,780	2/26/85
4,501,056	06/486,743	2/26/85
4,501,059	06/367,810	2/26/85
4,501,062	06/470,179	2/26/85
4,501,068	06/484,899	2/26/85
4,501,069	06/554,961	2/26/85
4,501,070	06/572,826	2/26/85
4,501,076	06/436,394	2/26/85
4,501,081	06/428,431	2/26/85
4,501,084	06/520,337	2/26/85
4,501,088	06/455,748	2/26/85
4,501,089	06/446,723	2/26/85
4,501,091	06/422,818	2/26/85
4,501,092	06/417,840	2/26/85
4,501,094	06/443,168	2/26/85
4,501,098	06/399,906	2/26/85
4,501,101	06/439,315	2/26/85
4,501,104	06/416,491	2/26/85
4,501,110	06/589,344	2/26/85
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4,501,127	06/316,355	2/26/85
4,501,128	06/374,936	2/26/85
4,501,132	06/283,509	2/26/85
4,501,135	06/347,305	2/26/85
4,501,139	06/526,920	2/26/85
4,501,145	06/486,960	2/26/85
4,501,146	06/461,283	2/26/85
4,501,151	06/446,408	2/26/85
4,501,153	06/440,211	2/26/85
4,501,155	06/509,219	2/26/85
4,501,156	06/399,988	2/26/85
4,501,162	06/468,567	2/26/85
4,501,165	06/379,545	2/26/85
4,501,166	06/391,889	2/26/85
4,501,169	06/458,488	2/26/85
4,501,179	06/415,978	2/26/85
4,501,180	06/460,531	2/26/85
4,501,183	06/603,906	2/26/85
4,501,184	06/489,860	2/26/85
4,501,187	06/470,749	2/26/85
4,501,189	06/402,267	2/26/85
4,501,196	06/441,759	2/26/85
4,501,199	06/465,652	2/26/85
4,501,200	06/450,512	2/26/85
4,501,201	06/370,180	2/26/85
4,501,205	06/474,125	2/26/85
4,501,208	06/530,314	2/26/85
4,501,213	06/531,688	2/26/85
4,501,227	06/580,769	2/26/85
4,501,229	06/540,139	2/26/85
4,501,235	06/482,098	2/26/85
4,501,238	06/491,032	2/26/85
4,501,241	06/477,893	2/26/85
4,501,246	06/397,712	2/26/85
4,501,247	06/415,047	2/26/85
4,501,249	06/488,453	2/26/85
4,501,261	06/507,917	2/26/85
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4,501,277	06/426,133	2/26/85
4,501,282	06/403,743	2/26/85
4,501,285	06/365,569	2/26/85
4,501,308	06/494,945	2/26/85
4,501,315	06/339,846	2/26/85
4,501,318	06/428,189	2/26/85
4,501,319	06/460,221	2/26/85
4,501,323	06/453,064	2/26/85
4,501,324	06/453,506	2/26/85
4,501,326	06/458,517	2/26/85
4,501,327	06/487,238	2/26/85
4,501,328	06/474,952	2/26/85
4,501,330	06/576,827	2/26/85
4,501,339	06/420,113	2/26/85
4,501,341	06/406,557	2/26/85

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4,501,342	06/499,845	2/26/85
4,501,345	06/557,791	2/26/85
4,501,350	06/359,329	2/26/85
4,501,352	06/480,035	2/26/85
4,501,353	06/446,269	2/26/85
4,501,358	06/546,482	2/26/85
4,501,361	06/575,899	2/26/85
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4,501,376	06/554,243	2/26/85
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4,501,388	06/606,953	2/26/85
4,501,390	06/449,947	2/26/85
4,501,391	06/576,775	2/26/85
4,501,398	06/448,573	2/26/85
4,501,399	06/284,895	2/26/85
4,501,401	06/422,858	2/26/85
4,501,402	06/463,502	2/26/85
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4,501,411	06/528,586	2/26/85
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4,501,434	06/419,140	2/26/85
4,501,438	06/283,982	2/26/85
4,501,445	06/518,987	2/26/85
4,501,451	06/435,932	2/26/85
4,501,457	06/450,671	2/26/85
4,501,461	06/565,560	2/26/85
4,501,473	06/347,758	2/26/85
4,501,477	06/487,149	2/26/85
4,450,488	06/331,296	2/26/85
4,501,489	06/471,724	2/26/85
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4,501,534	06/390,016	2/26/85
4,501,535	06/417,680	2/26/85
4,501,538	06/389,443	2/26/85
4,501,539	06/557,466	2/26/85
4,501,541	06/511,497	2/26/85
4,501,558	06/589,674	2/26/85
4,501,561	06/513,717	2/26/85
4,501,563	06/476,191	2/26/85
4,501,565	06/499,563	2/26/85
4,501,568	06/528,800	2/26/85
4,501,570	06/450,743	2/26/85
4,501,571	06/473,435	2/26/85
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4,808,257	06/918,353	2/28/89
4,808,270	07/005,820	2/28/89
4,808,274	06/906,345	2/28/89
4,808,276	07/019,667	2/28/89
4,808,286	07/029,267	2/28/89
4,808,291	07/094,684	2/28/89
4,808,295	07/133,773	2/28/89
4,808,299	07/181,285	2/28/89
4,808,305	06/916,876	2/28/89
4,808,309	07/140,516	2/28/89
4,808,314	07/098,299	2/28/89
4,808,322	07/166,330	2/28/89
4,808,328	07/047,345	2/28/89
4,808,329	07/026,100	2/28/89
4,808,341	06/557,112	2/28/89
4,808,347	07/173,179	2/28/89
4,808,361	07/026,414	2/28/89
4,808,364	06/811,189	2/28/89
4,808,370	06/866,060	2/28/89
4,808,373	06/921,235	2/28/89
4,808,377	06/759,539	2/28/89
4,808,383	06/794,801	2/28/89
4,808,387	07/050,945	2/28/89
4,808,394	07/094,462	2/28/89
4,808,397	07/078,088	2/28/89
4,808,418	07/068,672	2/28/89
4,808,428	07/169,857	2/28/89
4,808,429	07/082,993	2/28/89
4,808,432	06/897,624	2/28/89
4,808,438	07/150,930	2/28/89
4,808,440	07/114,322	2/28/89
4,808,447	07/061,916	2/28/89
4,808,459	07/097,604	2/28/89
4,808,470	07/058,312	2/28/89
4,808,478	06/904,728	2/28/89
4,808,482	07/011,895	2/28/89
4,808,488	07/052,931	2/28/89
4,808,490	06/924,260	2/28/89
4,808,496	07/025,475	2/28/89
4,808,512	07/170,430	2/28/89
4,808,526	06/735,914	2/28/89
4,808,527	06/735,915	2/28/89
4,808,530	06/904,160	2/28/89
4,808,534	06/885,957	2/28/89
4,808,538	06/821,554	2/28/89
4,808,544	07/174,494	2/28/89
4,808,559	07/151,194	2/28/89
4,808,563	07/087,534	2/28/89
4,808,574	06/937,606	2/28/89
4,808,575	06/877,079	2/28/89
4,808,579	07/120,282	2/28/89
4,808,598	06/880,476	2/28/89
4,808,599	07/058,780	2/28/89
4,808,602	07/012,019	2/28/89
4,808,603	06/895,604	2/28/89
4,808,604	07/058,699	2/28/89
4,808,606	06/909,697	2/28/89
4,808,620	07/076,504	2/28/89
4,808,623	07/160,038	2/28/89
4,808,628	07/119,779	2/28/89
4,808,635	07/060,293	2/28/89
4,808,636	07/184,671	2/28/89
4,808,640	07/029,037	2/28/89
4,808,644	07/008,444	2/28/89
4,808,649	07/084,220	2/28/89
4,808,654	06/880,731	2/28/89
4,808,666	07/138,278	2/28/89
4,808,681	07/013,144	2/28/89
4,808,684	06/922,410	2/28/89
4,808,687	07/140,710	2/28/89
4,808,695	07/039,459	2/28/89
4,808,703	06/622,884	2/28/89
4,808,707	07/059,342	2/28/89
4,808,710	07/074,442	2/28/89
4,808,714	07/083,912	2/28/89
4,808,722	06/793,372	2/28/89
4,808,724	07/103,240	2/28/89
4,808,727	07/102,067	2/28/89
4,808,734	06/936,569	2/28/89
4,808,747	06/711,712	2/28/89
4,808,764	06/484,656	2/28/89
4,808,775	07/080,763	2/28/89
4,808,777	07/104,585	2/28/89
4,808,779	07/178,582	2/28/89
4,808,781	07/169,747	2/28/89
4,808,789	07/010,817	2/28/89
4,808,792	07/129,461	2/28/89
4,808,794	07/072,106	2/28/89
4,808,795	07/082,629	2/28/89
4,808,802	07/079,048	2/28/89
4,808,803	07/089,342	2/28/89
4,808,805	06/916,942	2/28/89
4,808,807	06/937,767	2/28/89
4,808,817	07/124,072	2/28/89
4,808,837	06/830,396	2/28/89
4,808,842	07/175,420	2/28/89
4,808,846	06/907,295	2/28/89
4,808,847	07/208,852	2/28/89
4,808,848	07/164,665	2/28/89
4,808,849	07/151,758	2/28/89
4,808,851	07/014,502	2/28/89
4,808,865	07/106,187	2/28/89
4,808,867	07/001,344	2/28/89
4,808,868	07/083,137	2/28/89
4,808,869	07/122,344	2/28/89
4,808,876	06/825,727	2/28/89
4,808,877	07/104,541	2/28/89
4,808,889	07/130,401	2/28/89
4,808,890	06/895,915	2/28/89
4,808,893	06/927,446	2/28/89
4,808,898	07/102,994	2/28/89
4,808,904	07/147,548	2/28/89
4,808,911	07/076,528	2/28/89
4,808,914	06/788,236	2/28/89
4,808,928	07/117,795	2/28/89
4,808,935	06/924,095	2/28/89
4,808,941	07/108,486	2/28/89
4,808,942	07/177,242	2/28/89
4,808,944	07/123,841	2/28/89
4,808,947	07/035,984	2/28/89
4,808,949	07/153,915	2/28/89
4,808,956	06/905,319	2/28/89
4,808,958	07/092,829	2/28/89
4,808,969	07/033,839	2/28/89
4,808,973	07/104,264	2/28/89
4,808,974	07/068,328	2/28/89
4,808,977	07/087,401	2/28/89
4,808,978	06/794,789	2/28/89
4,808,999	07/156,968	2/28/89
4,809,000	06/391,903	2/28/89
4,809,006	06/868,958	2/28/89
4,809,014	07/108,444	2/28/89
4,809,016	07/020,955	2/28/89
4,809,017	07/141,530	2/28/89
4,809,018	07/008,353	2/28/89
4,809,028	07/102,453	2/28/89
4,809,040	07/044,584	2/28/89
4,809,054	06/889,655	2/28/89
4,809,072	07/117,012	2/28/89
4,809,074	07/062,681	2/28/89
4,809,081	07/060,301	2/28/89
4,809,089	07/109,043	2/28/89
4,809,108	06/945,828	2/28/89
4,809,137	07/099,125	2/28/89
4,809,138	07/205,746	2/28/89
4,809,143	07/195,450	2/28/89
4,809,145	07/005,605	2/28/89
4,809,150	07/148,945	2/28/89

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Patent Number	Serial Number	Issue Date
4,809,151	07/124,798	2/28/89
4,809,176	06/921,468	2/28/89
4,809,183	07/018,622	2/28/89
4,809,191	07/044,593	2/28/89
4,809,194	06/901,115	2/28/89
4,809,195	06/856,154	2/28/89
4,809,207	06/829,574	2/28/89
4,809,213	06/898,373	2/28/89
4,809,240	07/066,802	2/28/89
4,809,241	07/058,932	2/28/89
4,809,242	07/090,893	2/28/89
4,809,244	07/090,265	2/28/89
4,809,246	07/042,466	2/28/89
4,809,248	07/007,466	2/28/89
4,809,262	07/158,574	2/28/89
4,809,280	07/136,442	2/28/89
4,809,301	07/128,006	2/28/89
4,809,302	07/055,572	2/28/89
4,809,314	06/832,973	2/28/89
4,809,317	07/041,236	2/28/89
4,809,322	07/161,728	2/28/89
4,809,333	07/041,270	2/28/89
4,809,335	06/790,949	2/28/89
4,809,339	07/008,073	2/28/89
4,809,351	06/940,294	2/28/89
4,809,355	06/939,331	2/28/89
4,809,360	07/106,613	2/28/89
4,809,363	07/102,242	2/28/89

NOTIFICATION OF ACCEPTANCE OF DELAYED PAYMENT OF MAINTENANCE FEE (35 U.S.C. 41(c); 37 CFR 1.378)

The patent(s) listed below are considered as not having expired but are subject to the conditions set forth in 35 U.S.C. 41(c)(2), in view of the Petition to Accept Late Payment of the maintenance fees which has been GRANTED BY THE COMMISSIONER OF PATENTS AND TRADEMARKS, as provided for under 35 U.S.C. 41(c)(1) and 37 CFR 1.378.

Patent No.	Serial No.	Patent Date	Application Filing Date	Delayed Payment Acceptance Date
4,412,651	06/371,824	11/01/83	4/26/82	3/12/93
4,696,315	06/777,614	9/29/87	9/19/85	3/11/93
4,700,619	06/925,282	10/20/87	10/30/86	3/11/93
4,716,087	06/940,246	12/28/87	12/10/86	3/11/93
4,768,850	06/622,637	9/06/88	6/20/84	3/11/93
4,796,227	07/027,218	1/03/89	3/17/87	3/11/93
4,435,060	06/346,768	3/06/84	2/08/82	3/22/93
4,469,002	06/380,357	9/04/84	5/21/82	3/22/93
4,475,273	06/529,657	10/09/84	9/06/83	3/22/93
4,493,821	06/345,589	1/15/85	2/04/82	3/18/93
4,695,385	06/728,204	9/22/87	4/29/85	3/19/93
4,733,749	06/834,403	3/29/88	2/26/86	1/14/93
4,779,614	07/036,304	10/25/88	4/09/87	2/26/93
4,793,287	06/851,075	12/27/88	4/14/86	3/22/93
4,784,908	07/084,803	11/15/88	8/13/87	3/18/93

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,777,984, Re. S.N. 08/028,609, Filed Mar. 8, 1993, Cl. 138, METHOD FOR LINING A PIPE OR MAIN, Brian W. Storah, Owner of Record: *British Gas PLC, London, England,* Attorney or Agent: Charles L. Gholz, Ex. Gp.: 2402

4,964,082, Re. S.N. 07/962,329, Filed Oct. 16, 1992, Cl. 365/189.09, SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE, Katsuyuki Sato, et. al., Owner of Record: *Hitachi, Ltd., Tokyo, Japan,* Attorney or Agent: Gregory E. Montone, Ex. Gp.: 2511

4,979,185, Re. S.N. 07/991,682, Filed Dec. 16, 1992, Cl. 375/20, HIGH SPEED SERIAL DATA LINK, Mark A. Bryans, et. al., Owner of Record: *Texas Instruments Inc., Dallas, Tex.,* Attorney or Agent: Robert D. Marshall, Jr., Ex. Gp.: 2603

4,980,576, Re. S.N. 07/990,630, Filed Dec. 14, 1992, Cl. 367/270, INDUCTANCE, Domenico Rossi, et. al., Owner of Record: *SGS-Thomson Microelectronics S.R.L., Milano, Italy,* Attorney or Agent: David M. Driscoll, Ex. Gp.: 2304

4,985,768, Re. S.N. 07/004,689, Filed Jan. 14, 1993, Cl. 358/136, INTER-FRAME PREDICTIVE ENCODING SYSTEM WITH ENCODED AND TRANSMITTED PREDICTION ERROR, Kenji Sugiyama, Owner of Record: *Victor Company of Japan, Ltd., Yokohama, Japan,* Attorney or Agent: Abraham Kasdan, Ex. Gp.: 2615

4,997,732, Re. S.N. 08/026,361, Filed Mar. 4, 1993, Cl. 429/153, BATTERY IN A VACUUM SEALED ENVELOPING MATERIAL AND A PROCESS FOR MAKING THE SAME, Robert A. Austin, et. al., Owner of Record: *MHB Joint Venture,* Attorney or Agent: Bradley A. Perkins, Ex. Gp.: 1107

5,001,146, Re. S.N. 08/035,145, Filed Mar. 19, 1993, Cl. 514/453, STORAGE STABLE AZADIRACHTIN FORMULATION, Charles Garvie Carter, et. al., Owner of Record: *W. R. Grace & Co.-Conn., New York, N.Y.,* Attorney or Agent: Beverly K. Johnson, Ex. Gp.: 1205

5,016,551, Re. S.N. 08/016,067, Filed Feb. 10, 1993, Cl. 114/045, LIFT FOR WATER VEHICLES, Ralph E. Peck, et. al., Owner of Record: *National Hydrohoist Co., Claremore, Okla.,* Attorney or Agent: Frank J. Catalano, Ex. Gp.: 3102

5,051,895, Re. S.N. 08/033,620, Filed Mar. 19, 1993, Cl. 395/425, APPARATUS AND METHOD FOR TRACKING AND IDENTIFYING PRINTED CIRCUIT ASSEMBLIES, Donald Lee Rogers, Owner of Record: *Hewlett-Packard Co., Palo Alto, Calif.,* Attorney or Agent: Douglas L. Weller, Ex. Gp.: 2312

5,086,855, Re. S.N. 08/031,825, Filed Mar. 8, 1993, Cl. 177/5, WEIGHING AND LABELING APPARATUS AND METHOD, Sidney S. Tolson, Owner of Record: *Ossid Corp., Rocky Mount, N.C.,* Attorney or Agent: B. B. Olive, Ex. Gp.: 2108

5,095,680, Re. S.N. 08/031,493, Filed Mar. 15, 1993, Cl. 53/224, FILLING CONTAINERS WITH PRODUCTS IN A PREDETERMINED DISTRIBUTION, Augustin Davder Guardiola, Owner of Record: *Talleres, Davmar S.A., Barcelona, Spain,* Attorney or Agent: Henry A. Marzullo, Jr., Ex. Gp.: 3201

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,875,401, Reexam. No. 90/003,000, Requested Mar. 9, 1993, Cl. 250/201.8, FOCUS DETECTING APPARATUS, Norman L. Stauffer, Owner of Record: *Honeywell, Inc., Minneapolis, Minn.* Attorney or Agent: The Office of General Counsel, Honeywell, Inc., Ex. Gp.: 2509, Requester: Anthony G. M. Davis, DB & S International, Manchester, N.H.

4,013,109, Reexam. No. 90/002,983, Requested Mar. 8, 1993, Cl. 150, DISPOSABLE CONTAINER FOR SURGICAL INSTRUMENTS, Dan Sandel, Owner of Record: *Inventor, Encino, Calif.,* Attorney or Agent: Poms, Smith, Lande & Rose, Los Angeles, Calif., Ex. Gp.: 2404, Requester: Quantech, Inc., Louisville, Ky

4,359,827, Reexam. No. 90/002,994, Requested Mar. 2, 1993, Cl. 034/016, HIGH SPEED PAPER DRYING, Keith V. Thomas, Owner of Record: *J. M. Voith, GmbH, Heidenhim, Germany,* Attorney or Agent: Robert C. Farber, Ostrolenk, Faber, Gerb & Soffen, New York, N.Y., Ex. Gp.: 3404, Requester: George Wheeler, McAndrews, Held & Malloy, Ltd., Chicago, Ill.

4,382,124, Reexam. No. 90/002,957, Requested Feb. 11, 1993, Cl. 521/038, PROCESS FOR PREPARING MACRONETICULAR RESINS, COPOLYMERS, AND PRODUCTS OF SAID PROCESS, Erich F. Meitzner, et. al., Owner of Record: *Rohm and Haas Co., Philadelphia, Pa., Attorney or Agent: Connolly, Bone, Lodge & Hutz, Wilmington, Del.,* Ex. Gp.: 1505, Requester: Herbert B. Keil, Keil & Weinkauf, Washington, D.C.

4,509,412, Reexam. No. 90/003,005, Requested Mar. 23, 1993, Cl. 099/331, FOOD STEAMING DEVICE, Stephen L. Whittenberg, et. al., Owner of Record: Rival Manufacturing Co., Kansas City, Mo., Attorney or Agent: William A. Webb, Willian, Brinks, Olds, Hofer, Gilson & Lione, Chicago, Ill., Ex. Gp.: 2402, Requested: Black & Decker, Shelton, Conn.

4,558,594, Reexam. No. 90/002,987, Requested Mar. 1, 1993, Cl. 073/189, PHASED ARRAY ACOUSTIC ANTENNA, Martin Balser, et. al., Owner of Record: *Aero Vironment, Inc., Monovia, Calif.,* Attorney or Agent: Christie, Parker & Hale, Pasadena, Calif., Ex. Gp.: 2608, Requester: Owner

4,923,022, Reexam. No. 90/002,984, Requested Mar. 4, 1993, Cl. 177/004, AUTOMATIC MAILING APPARATUS, Tzu-Yen Hsieh, Owner of Record: *Inventor, Taipeh, Taiwan,* Attorney or Agent: Bruce E. O'Connnor, Christensen, O'Connor, Johnson & Kindness, Seattle, Wash., Ex. Gp.: 2106, Requester: Linda T. Jaron, Lalos & Keegan, Washington, D.C.

4,981,534, Reexam. No. 90/003,008, Requested Mar. 29, 1993, Cl. 149/019.910, OCCUPANT RESTRAINT SYSTEM AND COMPOSITION USEFUL THEREIN, Robert S. Scheffe, Owner of Record: *Atlantic Research Corp., Alexandria, Va.,* Attorney or Agent: Frank P. Presta, Laubscher, Presta & Laubscher, Arlington, Va., Ex. Gp.: 2204, Requester: Gerald K. White, Morton International, Inc., Chicago, Ill.

5,042,348, Reexam. No. 90/002,993, Requester Feb. 23, 1993, Cl. 083/471.300, COMPOUND MITER SAW, Richard B. Brundage, Owner of Record: *Emerson Electric Co., St. Louis, Mo.,* Attorney or Agent: Polster, Polster & Lucchesi, St. Louis, Mo., Ex. Gp.: 3240, Requester: Richard C. Turner, Washington, D.C.

5,095,037, Reexam. No. 90/002,988, Requester Mar. 4, 1993, Cl. 514/561, COMBINED ANTI-INFLAMMATORY AGENT, Kenichi Iwamitsu, et. al., Owner of Record: *Nissho Corp., Osaka, Japan,* Attorney or Agent: R. Eugene Varndell, Jr., Arlington, Va., Ex. Gp.: 1205, Requester: Leonard R. Svensson, Birch, Stewart, Kolash & Birch, Falls, Church, Va.

Errata

"All reference to Patent No. 5,197,469 to Theodore P. Adams of Edina, Minn., for STERILIZABLE PROGRAMMER REPEATER appearing in the *Official Gazette* of Mar. 30, 1993 should be deleted since no patent was granted."

The following registration numbers listed in the "Trademark Registrations Issued" and "Index of Registrants" sections of the *Official Gazette* was listed inadvertently of Mar. 30, 1993:

TM 211 TMI 9	1,761,286
TM 218 TMI 29	1,761,617
TM 220 TMI 13	1,761,686
TM 224 TMI 14	1,761,865
TM 28 TMI 3	1,761,171
TM 210 TMI 34	1,761,231
TM 212, 221 TMI 6	1,761,308
TM 203 TMI 30	1,760,906
TM 203 TMI 26	1,760,925
TM 216 TMI 4	1,761,489
TM 215 TMI 20	1,761,484
TM 216 TMI 23	1,761,515
TM 210 TMI 15	1,761,254
TM 219 TMI 25	1,761,636
TM 205 TMI 15	1,760,987
TM 219 TMI 24	1,761,624
TM 217 TMI 8	1,761,534
TM 217, 223 TMI 19	1,761,564
TM 207, 222 TMI 1	1,761,075
TM 209 TMI 5	1,761,195
TM 203 TMI 21	1,760,903
TM 217 TMI 34	1,761,565
TM 210 TMI 10	1,761,247
TM 213 TMI 15	1,761,383
TM 208, 219 TMI 1	1,761,143
TM 216 TMI 23	1,761,504

Consequently, the certificates of registration bearing the above identified registration numbers were not issued on the date indicated, and the registration numbers have been vacated.

Apr. 15, 1993

DAVID E. BUCHER
Director of Trademark Examining Groups

Filing of Petitions to Withdraw a Patent Application from Issue after Payment of the Issue Fee (37 CFR 1.313(b))

Effective immediately, the Patent and Trademark Office has established a special mail box designator to allow expedited processing of petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.

In order to take advantage of this new service, the envelope must be addressed:

Box 313b
Commissioner of Patents and Trademarks
Washington, D.C. 20231

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Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application, also may be hand delivered to the Office of Petitions at Two Crystal Park, Suite 913. Additionally, petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee can be transmitted by facsimile to (703) 305-8825.

Apr. 14, 1993 STEPHEN G. KUNIN
Acting Assistant Commissioner for Patents

Patents Available for License or Sale

4,342,465, SAFETY WALKER AND WHEEL-CHAIR COMBINATION, Delia Stillings, 1150 W. Prince Rd., #7B, Tucson, Ariz. 85705

4,615,442, RECEPTACLE FOR ROLL OF SHEET MATERIAL, Leslie E. Beeken, 955 Sun Valley Dr., Cheyenne, Wyo. 82001, (307) 778-7917

4,675,918, ONE PIECE BRIEF WITH HOOK AND PILE CLOSURES, Ann N. O'Brien, E-Z FIT Inc., 53-16 62nd St., Maspeth, N.Y. 11378

4,716,886, UMBILICAL CORD CLAMP AND CUTTERS, Robert H. Fleming, McGoldrick & McGoldrick, 17601 S. Denver Ave., Gardena, Calif. 90248-3412, (310) 327-7212

4,778,217, ORTHOPEDIC CHAIR, Bruce E. Lane, 2158 Alice Ave. #2, Oxon Hill, Md. 20745, (301) 894-5934

4,938,215, UMBILICAL CORD CLAMP AND CUTTERS, Robert H. Fleming, McGoldrick & McGoldrick, 17601 S. Denver Ave., Gardena, Calif. 90248-3412, (310) 327-8508

5,064,688, AUTOMOTIVE TOP COAT RESTORING COMPOSITION AND PROCESS, Carolee A. Trifon, Georgeco, P.O. Box 1655, Loganville, Ga. 30249, (404) 972-4155

5,116,154, SPRING-LOADED BOTTLE CAP-APPLICATOR APPARATUS, Mark D. Elchuk, Harness, Dickey & Pierce, P.O. Box 828, Bloomfield Hills, Mich. 48303, (313) 641-1600

5,127,775, FAIL SAFE STOP FOR DRILL PRESS CONTROL DEVICE, Steven N. Fox, Chapin, Neal & Dempsey, 1331 Main St., Springfield, Mass. 01103

5,143,343, AUTOMOBILE RADIO SECURITY SYSTEM, Robert F. Zielinski, Ballard Spahr Andrews & Ingersoll, 1735 Market St., 51st Floor, Philadelphia, Pa. 19103-7599

5,144,294, RADIO FREQUENCY MESSAGE APPARATUS FOR AIDING AMBULATORY TRAVEL OF VISUALLY IMPAIRED PERSONS, Mark D. Elchuk, Harness, Dickey & Pierce, P.O. Box 828, Bloomfield Hills, Mich. 48303, (313) 641-1600

5,180,924, IGNITION SWITCH BYPASS CIRCUIT, Rick Rudisel, 7550 S. E. Harney, Portland, Oreg. 97206

5,181,181, COMPUTER APPARATUS INPUT DEVICE FOR THREE-DIMENSIONAL INFORMATION, Allen J. Montecino, Jr., Triton Technologies, Inc., Box 199, Fairfax Station, Va. 22039, (703) 250-2618

5,196,729, LIQUID ACTIVATED CONTROL SWITCH, John T. Thorngren, 205 Carlisle, P.O. Drawer 718, Lake Dallas, Tex. 75065

5,197,199, REFLECTED SPOT SUNDIAL, William W. Shrader, 114 Harvard Rd., Stow, Mass. 01775-1070, (508) 440-5634

5,197,837, BROACH TOOL CHIP REMOVER, Patent Counsel H-17, GE Aircraft Engines, General Electric Co., Cincinnati, Ohio 45215-6301

5,199,361, BEACH SAFETY ANCHOR SECURITY SYSTEM, Kenneth P. Glynn, Suite 201 (Plaza One), One Rte, 12 West, Flemington, N.J. 08822-1731

D. 332,970, THIGH MOUNTED WIRING SYSTEM, Monty Fritts, Leisure Tech, 1006 South Elm, Ottawa, Kans. 66067-3232

D. 334,725, CROSS, Lindsey White, 32 Shetland La., Willingboro, N.J. 08046

Survey of Registered Practitioners in Patent Cases

Pursuant to 37 CFR 10.11(b), a survey letter was mailed on Jan. 15, 1993 from the Office of Enrollment and Discipline (OED) to all practitioners in patent cases whose last names began with E through J. Enclosed with the letter was a data sheet which should have been completed and returned to OED as soon as possible. All data sheets returned to OED were acknowledged.

If your last name begins with E through J and you did not receive a data sheet, or if you returned the data sheet to OED, and you have not received an acknowledgement from OED, please contact Shirley B. Rasheed at (703) 308-9617.

Apr. 6, 1993 CAMERON WEIFFENBACH, *Director*
Office of Enrollment and Discipline

PATENT NOTICES

Certificates of Correction For Week of May 11, 1993

Re. 33,739	5,025,754	5,058,379	5,076,589
Des. 322,799	5,026,707	5,059,489	5,076,675
Des. 323,485	5,028,451	5,060,572	5,077,115
4,778,618	5,032,444	5,060,993	5,077,718
4,832,873	5,032,584	5,062,251	5,078,069
4,841,042	5,033,656	5,062,745	5,078,580
4,854,842	5,035,304	5,062,912	5,078,569
4,863,937	5,036,129	5,063,176	5,078,671
4,884,294	5,037,853	5,063,561	5,078,912
4,890,893	5,039,262	5,063,658	5,079,033
4,931,355	5,041,431	5,065,011	5,079,315
4,932,253	5,041,862	5,065,181	5,079,965
4,938,137	5,044,341	5,065,335	5,080,915
4,938,772	5,046,351	5,065,568	5,081,874
4,947,229	5,047,008	5,066,112	5,082,023
4,948,402	4,047,170	5,067,985	5,082,148
4,952,859	5,047,210	5,068,101	5,082,189
4,960,716	5,047,307	5,068,261	5,084,605
4,965,678	5,047,793	5,068,749	5,085,168
4,967,495	5,048,162	5,068,972	5,085,728
4,971,027	5,048,695	5,069,355	5,086,478
4,985,552	5,049,359	5,069,533	5,086,498
4,988,381	5,049,427	5,069,901	5,090,557
4,988,452	5,050,543	5,070,305	5,090,658
4,990,517	5,053,268	5,071,838	5,091,244
4,991,326	5,054,960	5,072,167	5,091,458
4,991,684	5,055,288	5,072,785	5,091,764
4,997,788	5,056,031	5,072,804	5,092,233
5,009,739	5,056,735	5,072,823	5,092,376
5,011,874	5,056,876	5,073,126	5,093,507
5,012,560	5,056,886	5,073,307	5,095,887
5,015,130	5,057,146	5,074,090	5,109,220
5,017,651	5,057,346	5,074,349	5,158,637
5,017,646	5,057,804	5,076,207	5,194,589
5,020,376	5,058,092	5,076,257	

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SPECIAL BOXES FOR MAIL

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Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box 313b	Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
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Box DD	Disclosure Documents or material related to the Disclosure Document Program.
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Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box Issue Fee	All communications following the receipt of a PTOL-85. "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box ITU	All intent to use documents, excluding the initial application and amendments to allege use.
Box M. Fee	Correspondence related to a patent that is subject to the payment of a maintenance fee.
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Box OED	Mail for the Office of Enrollment and Discipline
Box PATENT APPLICATION	New patent application and associated papers and fees.
Box TRADEMARK APPLICATION	New trademark application and associated papers and application fees.
Box Pat. Ext.	Applications for patent term extension.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Reconstruction	Correspondence pertaining to the reconstruction of lost patent files.
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return postcard or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

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In addition, each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials. Facilities for making paper copies of patent and trademark information are generally provided for a fee.

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	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
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		(808) 586-3477
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Minnesota	Minneapolis Public Library and Information Center	(601) 359-1036
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	St. Louis Public Library	(406) 496-4281
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	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Center for International Trade Development	(405) 744-7086
Oregon	Salem: Oregon State Library	(503) 378-4239
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Charleston: Medical University of South Carolina Library	(803) 792-2372
	Clemson University Libraries	Not Yet Operational
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	Nashville: Stevenson Science Library,Vanderbilt University	(615) 322-2775
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West Virginia	Morgantown: Evansdale Library, West Virginia University	(304) 293-2510
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 278-3247

PATENT EXAMINING CORPS

STEPHEN G. KUNIN, Acting Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 1100 — D. E. TALBERT, Director	308-0661 308-1235	5/09/92 8/06/92
ORGANIC CHEMISTRY, GROUP 1200 — JOHN F. TERAPANE, JR., Director	308-0651	6/12/92
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300 — EDWARD E. KUBASIEWICZ, Director	308-2351	6/12/92
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 1500 — J. O. THOMAS, Director	308-0196	10/03/91
BIOTECHNOLOGY, GROUP 1800 — BARRY S. RICHMAN, Director		
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100 — D. G. KELLY, Director	308-1782 308-0511	10/15/91 9/28/91
SPECIAL LAWS ADMINISTRATION, GROUP 2200 — ROBERT E. GARRETT, Director		
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 2300 — GERALD GOLDBERG, Director	308-0754	1/02/91
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 2400 — CARLTON CROYLE, Director	308-0771	4/24/92
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500 — JOSEPH J. ROLLA, Director	308-0956	9/03/91
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 2600 — BOBBY R. GRAY, Director	305-4700 308-0511	9/21/91 12/16/90
DESIGN, GROUP 2900 — ROBERT E. GARRETT, Director		
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100 — F. R. SCHMIDT, Director	308-1113	3/14/92
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200 — N. GODICI, Director	308-1148	6/30/92
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 3300 — J. J. LOVE, Director	308-0858	6/02/92
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400 — JOHN KITTLE, Director	308-0861	7/10/92
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500 — A.L. SMITH, Director	308-1021	3/17/92

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during April 1993 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

Patents	Numbers 3,947,896 to 3,953,891 inclusive
Plant Patents	3,856 to 3,875

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REEXAMINATIONS

MAY 11, 1993

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

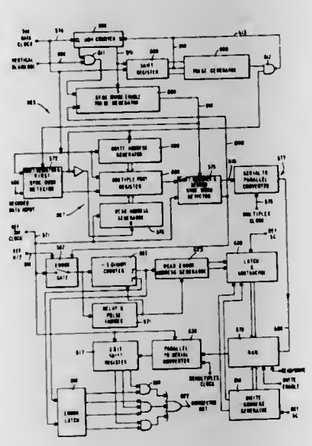
B1 4,349,832 (1998th)
DIGITAL DATA RATE CORRECTOR AND TIME BASE CORRECTOR

Luigi C. Gallo, Woodside, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Reexamination Request No. 90/002,633, Feb. 7, 1992.
Reexamination Certificate for Patent No. 4,349,832, issued Sep. 14, 1982, Ser. No. 108,912, Dec. 31, 1979.
Continuation of Ser. No. 763,762, Jan. 28, 1977, Pat. No. 4,181,817

Int. Cl.[5] **H04N** *11/00, 5/95, 5/91*

U.S. Cl. 358—17



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-11** is confirmed.

New claims **12-20** are added and determined to be patentable.

9. A digital time base compensator for correcting timing errors in a stream of digital data, said digital data occurring at intervals and a rate that varies with timing errors and including a selected sequence of digital data bits that periodically occurs in the stream of digital data in phase with the digital data, comprising:

a first clock signal generator for generating a first clock signal at a variable rate in accordance with that of the digital data;

a second clock signal generator for generating a second clock signal at a reference rate;

a detector responsive to the first clock signal to receive the stream of digital data for generating a first indicating signal upon the detection of the occurrence of the selected sequence of digital data bits;

a digital data memory for temporarily storing the digital data at a time after the receipt of the digital data by the detector, said digital data memory responsive to one of said first and second clock signals for entering the digital data for storage at a rate determined by said one clock signal and responsive to the other of said first and second clock signals for retrieving the stored digital data at a rate determined by said other clock signal, said digital data memory further responsive to the first indicating signal for initially setting the relative times of entering and retrieving digital data.

B1 4,522,828 (1999th)
THERAPEUTIC AGENTS

James E. Jeffery; Antonin Kozlik, and Eric C. Wilmshurst, all of Nottingham, England, assignors to The Boots Company plc

Reexamination Request No. 90/002,111, Aug. 17, 1990.
Reexamination Certificate for Patent No. 4,522,828, issued Jun. 11, 1985, Ser. No. 365,285, Apr. 5, 1982.
Claims priority, application United Kingdom, Apr. 6, 1981, 8110709

Int. Cl.[5] **A01N** *33/02*

U.S. Cl. 514—646

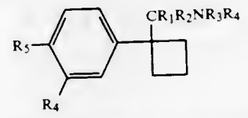
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** to **18** and **20** to **29** are cancelled.

Claim **19** is determined to be patentable as amended.

New claims **30** to **39** are added and determined to be patentable.

19. A method of treating depression which comprises administering to a depressed patient a therapeutically active amount of a compound of formula III



in which R_1 is selected from the group consisting of methyl, propyl, isobutyl and phenyl; R_2 is H; R_3 is H[,] *or* methyl [or ethyl]; R_4 is H[,] *or* methyl [or ethyl]; R_5 is chloro; R_6 is H or chloro and their pharmaceutically acceptable salts.

B1 4,869,278 (2000th)
MEGASONIC CLEANING APPARATUS

Mario E. Bran, Garden Grove, Calif., assignor to Verteq, Inc. Anaheim, Calif.

Reexamination Request No. 90/002,852, Oct. 2, 1992.
Reexamination Certificate for Patent No. 4,869,278, issued Sep. 26, 1989, Ser. No. 144,515, Jan. 15, 1988.
Continuation-in-part of Ser. No. 43,852, Apr. 29, 1987, Pat. No. 4,804,007
Int. Cl.[5] **B08B** *3/10*

U.S. Cl. 134—184

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-14** is confirmed.

1. A static megasonic cleaning system, comprising:

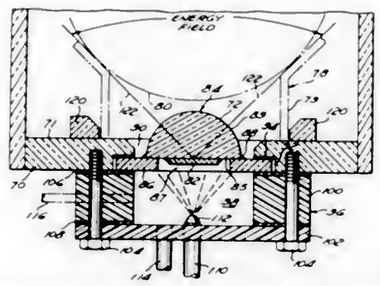
a container for cleaning solution and components to be cleaned by a megasonic energy;

a megasonic transducer array mounted in a wall of the container including a transmitter having an interior surface exposed to the interior of the container and an exterior surface not exposed to the interior of the container, and a transducer bonded to said exterior surface, said transmitter being adapted to oscillate at a frequency for propagating megasonic energy and being made of sapphire or quartz that will transmit said energy into said container,

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and is hard, durable and relatively inert so as to be able to withstand exposure to cleaning solutions in the container without contaminating the solution; and

a source of megasonic energy connected to said transducer to cause said transducer and said transmitter to transmit



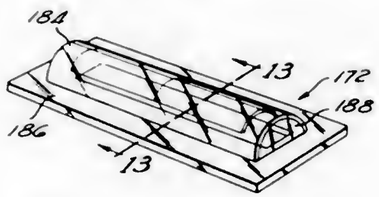
megasonic energy into the interior of the container, said transmitter being formed to disperse the megasonic energy into a diverging pattern greater in width than that of the transducer, so that said components greater in width than that of said transmitter can be cleaned by said energy without moving the components.

B1 4,998,549 (2001st)

MEGASONIC CLEANING APPARATUS

Mario E. Bran, Garden Grove, Calif., assignor to Verteq, Inc. Anaheim, Calif.

Reexamination Request No. 90/002,851, Oct. 2, 1992.
Reexamination Certificate for Patent No. 4,998,549, issued Mar. 12, 1991, Ser. No. 272,501, Nov. 16, 1988.
Continuation-in-part of Ser. No. 144,515, Jan. 15, 1988, Pat. No. 4,869,278, which is a continuation-in-part of Ser. No. 43,852, Apr. 29, 1987, Pat. No. 4,804,852
Int. Cl.[5] B08B *3/10*
U.S. Cl. 134—184



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–19** and **20** is confirmed.

10. A static megasonic cleaning system, comprising:

a container for cleaning solution and components to be cleaned by megasonic energy;

a megasonic transducer array including a transmitter having an interior surface exposed to the interior of the container and a surface not exposed to the interior of the container, and a transducer bonded to said not exposed surface, said transmitter being adapted to oscillate at a frequency for propagating megasonic energy and being of a material that will efficiently transmit said energy into said container, and said material being hard, durable and relatively inert so as to be able to withstand exposure to cleaning solutions in the container without contaminating the solution;

a source of megasonic energy connected to said transducer to cause said transducer and said transmitter to transmit megasonic energy into the interior of the container, said transmitter being formed to disperse the megasonic energy into a diverging pattern greater in width than that of the transducer, so that said components can be cleaned by said energy without moving; and

said transmitter has a thin walled, curved configuration with a convex surface being said exposed surface, and a concave surface being said not exposed surface, and said transducer has a thin walled, cufved surface of the transmitter and has a concave surface spaced from the transmitter,

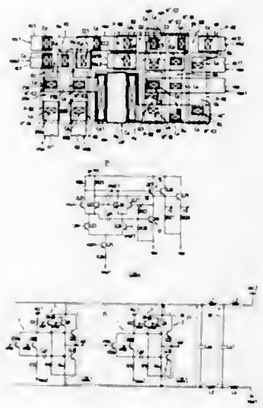
said transmitter being made of quartz or sapphire.

B1 4,999,520 (2002nd)

HIGH SPEED TTL BUFFER CIRCUIT WHICH IS RESISTIVE TO THE INFLUENCE OF ALPHA-RAYS

Mitsuo Usami, Tokyo; Noboru Shiozawa, Ohme; Toshio Yamada; Hiromasa Katoh, both of Hamura; Kazuyoshi Satoh, Tokorozawa; Tohru Kobayashi, Iruma; Tatsuya Kimura, Ohme; Masato Hamamoto, Ohme; Atsushi Shimizu, Ohme, and Kaoru Koyu, Ohme, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Reexamination Request No. 90/002,569, Feb. 12, 1992.
Reexamination Certificate for Patent No. 4,999,520, issued Mar. 12, 1991, Ser. No. 330,461, Mar. 30, 1989.
Claims priority, application Japan, Apr. 2, 1988, 63-81645; Apr. 12, 1988, 63-89622; Oct. 28, 1988, 63-274170
Int. Cl.[5] H03K *3/33, 17/04, 19/088, 19/013*
U.S. Cl. 307—456



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **2**, **3**, **10**, **11**, **23–28** and **31–33** are cancelled.

Claims **1**, **4–7**, **9**, **12–22**, **29** and **34–36** are determined to be patentable as amended.

Claims **8**, **30** and **37**, dependent on an amended claim, are determined to be patentable.

New claims **38–52** are added and determined to be patentable.

1. A semiconductor integrated circuit comprising:

an input terminal for receiving an input signal;

an output terminal for supplying an output signal;

first and second terminals for receiving first and second supply voltages, respectively;

an inputting means for forming complementary first and second signals in accordance with **[**an**]** *the* input signal supplied to **[**an**]** *said* input terminal;

a first voltage level outputting means for supplying **[**an**]** *the* output signal of a first voltage level to **[**an**]** *said* output terminal in accordance with the voltage level of said first signal; and

second voltage level outputting means for supplying temporarily **[**an**]** *the* output signal of a second voltage level to said output terminal in accordance with said second signal formed by said inputting means depending on change of the voltage level of said input signal,

wherein said inputting means comprises:

a first bipolar transistor **[**in which**]** *having* a base **[**is**]** coupled to the input terminal, *an emitter and a collector,*

a collector load coupled between said first terminal and the collector of said first bipolar transistor, and

an emitter load coupled between the emitter of said first bipolar transistor and said second terminal,

wherein said first voltage level outputting means comprises a second bipolar transistor forming an emitter follower **[**in**]** which *has* a base **[**is**]** coupled to the collector of said first bipolar transistor, *a collector coupled to said first terminal* and an emitter *coupled* to the output terminal, **[**and**]**

wherein said second voltage level outputting means comprises a third bipolar transistor and a first **[**capacitance**]** *capacitor having first and second electrodes,* said third bipolar transistor having a collector coupled to the output terminal, **[**having**]** a base **[**connected**]** *coupled* to **[**a**]** *the* first electrode of said first **[**capacitance**]** *capacitor and an emitter coupled to said second terminal,* **[**a**]** *the* second electrode of the first **[**capacitance**]** *capacitor* being coupled to the emitter of the first bipolar transistor,

wherein said first capacitor includes a dielectric film formed between the first electrode and the second electrode,

wherein said semiconductor integrated circuit further comprises bias means for supplying a third signal of a third voltage level to the base of said third bipolar transistor, and

wherein said bias means comprises a fourth bipolar transistor having an emitter coupled to the base of said third bipolar transistor, a base for receiving a fourth signal and a collector coupled to said first terminal, and a resistor coupled between the base and emitter of said third bipolar transistor.

B1 4,999,845 (2003rd)

WET SUIT

James E. Jenks, Jr., Dana Point, and Howard A. Barmazel, Northridge, both of Calif., assignors to Ocean Pacific Sunwear Limited, Tustin, Calif.

Reexamination Request No. 90/002,504, Nov. 12, 1991.
Reexamination Certificate for Patent No. 4,999,845, issued Mar. 19, 1991, Ser. No. 407,444, Sep. 14, 1989.
Int. Cl.[5] A41B *13/00, 7/00;* **B63C** *11/02*
U.S. Cl. 2—2.1 R

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–10** is confirmed.

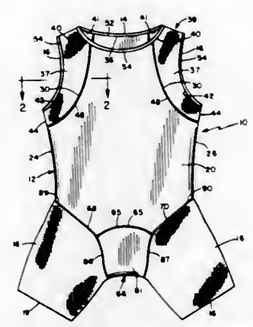
Claims **11–15** are cancelled.

Claim **16** is determined to be patentable as amended.

16. A seam for securing adjacent edges of two panels of material together in an article of clothing, *wherein at least one panel is formed of synthetic rubber,* comprising:

a series of parallel rows of straight stitches extending through the underlying panel material;

a transverse, serpentine cross-stitch on each face of the seam linking the stitches in adjacent rows; and



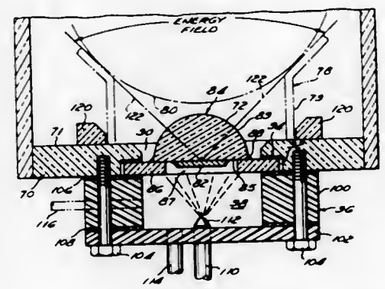
the parallel and serpentine stitches being formed from four threads of non-fluffed fiber and three threads of fluffed fiber.

B1 5,037,481 (2004th)

MEGASONIC CLEANING METHOD

Mario E. Bran, Garden Grove, Calif., assignor to Verteq, Inc., Anaheim, Calif.

Reexamination Request No. 90/002,853, Oct. 2, 1992.
Reexamination Certificate for Patent No. 5,037,481, issued Aug. 6, 1991, Ser. No. 482,086, Feb. 15, 1990.
Continuation of Ser. No. 272,501, Nov. 6, 1988, Pat. No. 4,998,549, which is a continuation-in-part of Ser. No. 144,515, Jan. 15, 1988, Pat. No. 4,869,278, which is a continuation-in-part of Ser. No. 43,852, Apr. 29, 1987, Pat. No. 4,804,007
Int. Cl.[5] B08B *9/00*
U.S. Cl. 134—1



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–5** is confirmed.

Claim **6** is determined to be patentable as amended.

New claims **7–11** are added and determined to be patentable.

1. A method of transmitting megasonic energy, comprising:

bonding a transducer to a surface of a transmitting device made of quartz or sapphire and having a surface on the side opposite that of the transducer adapted to direct megasonic energy in a diverging pattern; and

applying megasonic energy to the transducer, causing it to transmit megasonic energy to the device and causing the device to transmit the megasonic energy in said diverging pattern.

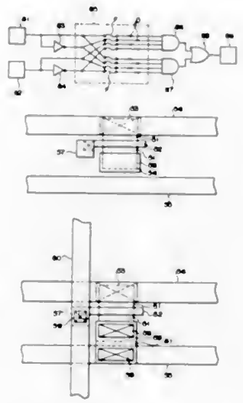
VOL 1150 ISS 2 MY 11 1993 UMI

B1 5,068,549 (2005th)

SEMICONDUCTOR INTEGRATED CIRCUIT APPARATUS HAVING PROGRAMMABLE LOGIC DEVICE

Hiroshi Iwasaki, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Reexamination Request No. 90/002,579, Feb. 10, 1992.
Reexamination Certificate for Patent No. 5,068,549, issued Nov. 26, 1991, Ser. No. 614,261, Nov. 16, 1990.
Claims priority, application Japan, Nov. 20, 1989, 1-299856
Int. Cl.[5] H03K *19/177, 5/08, 19/092, 3/01*
U.S. Cl. 307—465.1



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** and **6** are cancelled.

Claims **2–5** and **7–10** are determined to be patentable as amended.

New claims **11–14** are added and determined to be patentable.

11. A semiconductor integrated circuit apparatus comprising:
a programming region having an AND region and an OR region;
a plurality of gates, each gate including an input and an output;
a plurality of first wires in the AND region, each first wire including a metal;
a plurality of second wires in the AND region, each second wire coupled to the input of one of the gates, each second wire including a metal;
a plurality of first programming elements, in the AND region, each including
a semiconductor region,
a first terminal opposed to the semiconductor region, and
a second terminal opposed to the semiconductor region,
wherein selected ones of the first programming elements have the first terminal electrically coupled to a corresponding one of the first wires through an opening defined by the programming region, and have the second terminal electrically coupled to a corresponding one of the second wires through an opening defined by the programming region,
and wherein each first programming element other than the selected ones have the first and second terminals both electrically isolated from the plurality of first wires and from the plurality of second wires;
a plurality of third wires in the OR region, each third wire coupled to the output of one of the gates, each third wire including a metal;
a plurality of fourth wires in the OR region, each fourth wire including a metal;
a plurality of second programming elements, in the OR region, each including
a semiconductor region,
a first terminal opposed to the semiconductor region, and
a second terminal opposed to the semiconductor region,
wherein selected ones of the second programming elements have the first terminal electrically coupled to a corresponding one of the third wires through an opening defined by the programming region, and have the second terminal electrically coupled to a corresponding one of the fourth wires through an opening defined by the programming region,
and wherein each second programming element other than the selected ones have the first and second terminals both electrically isolated from the plurality of third wires and from the plurality of fourth wires.

B1 5,102,889 (2006th)

2-(4-PIPERIDINYL)-1H-PYRIDO[4,3-B]INDOL-1-ONES AND RELATED COMPOUNDS

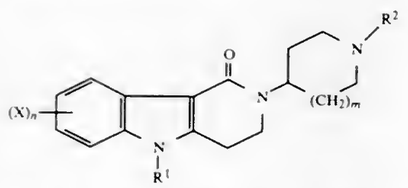
Lawrence L. Martin, Lebanon; Denise M. Flanagan, Livingston, and Joseph F. Payack, Somerset, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Incorporated, Bridgewater, N.J.

Reexamination Request No. 90/002,793, Jul. 21, 1992.
Reexamination Certificate for Patent No. 5,102,889, issued Apr. 7, 1992, Ser. No. 588,870, Sep. 27, 1990.
Int. Cl.[5] C07D *471/06;* **A61K** *31/44*
U.S. Cl. 514—292

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–8** is confirmed.

1. A compound of the formula



wherein R^1 is hydrogen, loweralkyl, phenyl, phenyl substituted by one or more loweralkyl, loweralkoxy,



wherein R^3 is loweralkyl, halologeralkyl, phenyl, phenyl substituted by one or more loweralkyl, loweralkoxy, halogen, or trifluoromethyl groups, phenylloweralkyl, or phenylloweralkyl in which the phenyl group is substituted by one or more loweralkyl, loweralkoxy, halogen, or trifluoromethyl groups; X is hydrogen, loweralkyl, loweralkoxy, halogen, or trifluoromethyl; m is 1, n is 1 or 2; an optical isomer thereof, or a pharmaceutically acceptable salt thereof.

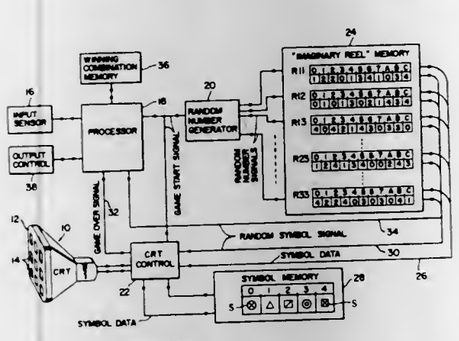
Matter enclosed in heavy brackets **[ ]** appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 34,244

MULTILINE SLOT MACHINE

Takahashi Hagiwara, Zama, Japan, assignor to Sigma Enterprises, Inc., Tokyo, Japan

Original No. 4,838,552, dated Jun. 13, 1989, Ser. No. 210,195, Jun. 20, 1988. Continuation of Ser. No. 846,502, Mar. 27, 1986, abandoned, which is a continuation of Ser. No. 541,231, Oct. 12, 1983, abandoned. Application for reissue Mar. 6, 1991, Ser. No. 666,827
Int. Cl.[5] A63F *09/22*
U.S. Cl. 273—138 A **4 Claims**



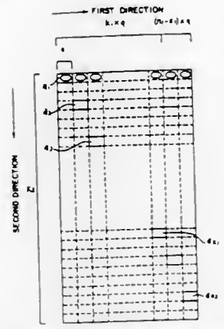
3. A machine comprising:
(a) an electronic display means for displaying a plurality of independent display zones for simultaneously displaying images flatly, the independent display zones being arrayed in rows and columns thereon wherein the number of rows and columns is greater than one and wherein each of said plurality of independent display zones represents one of a plurality of independent imaginary reels of said machine;
(b) memory means for storing therein a plurality of symbol groups, one of which is provided for each independent display zone, each symbol group having M kinds of N symbols, N being at least equal to M, each symbol being adapted to be successively displayed and randomly stopped on one independent display zone of the display means, the memory means comprising a storing means for storing therein a plurality of arrangements of coded symbols, an arrangement being provided for each independent display zone, and an image symbol memory for converting said coded symbols to image symbols for display;
(c) display control means connected between the display means and the memory means for causing the display means to sequentially display the symbols of the symbol groups on the respective independent display zones of the display means, each randomly selected symbol being displayed at the center of each display zone in a state wherein a portion of each of two symbols next to the selected symbol is respectively displayed on a upper and lower portion of each independent display zone; and
(d) means for randomly selecting one symbol of each sumbol group stored in the memory means, the display control means being responsive to the randomly selecting means for causing the display means to stop the sequential display of the symbols at the randomly selected symbol,
whereby the machine shows, on the display means, alignment and non-alignment of matching randomly selected symbols in the horizontal, vertical and diagonal directions of the array of independent display zones of the display means.

Re. 34,245

TWO STAGE CODING METHOD

Kiyoshi Matsutani, and Ken Ohnishi, both of Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Original No. 4,769,819, dated Sep. 6, 1988, Ser. No. 905,313, Dec. 19, 1985. Applicatioo for reissue Sep. 6, 1990, Ser. No. 578,178
Claims priority, application Japan, Dec. 26, 1984, 59-280163
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—38.1 **27 Claims**



6. A two stage coding system for encoding digital information arranged in an information matrix of $k_1 \times q$ digits in a first direction, and k_2 digits in a second direction orthogonal to the first direction, wherein
k_1, q, and k_2 are integers,
$k_1 < k_2$; q=the number of digits per data word, and
k_1, k_2=the number of data words in said first and second directions respectively, comprising:
C_2 encoder means for encoding said digital information with a C_2 code on a Galois field $GF(2^2)$, said C_2 encoder means selecting data words in said information matrix diagonally from an arbitrary data word a_1 and including a_2 to a_{n2}, wherein n_2 is the length of the C_2 encoded data, such that

$$a_2 = a_1 + n_2 \times h_1 + 1$$

$$a_3 = a_2 + n_2 \times h_2 + 1$$

$$\vdots$$

$$a_{k1} = a_{k1-1} + n_2 \times h_{k1-1} + 1$$

$$\vdots$$

$$a_{n2} = a_{n2-1} + n_2 \times h_{n2-1} + 1,$$

h_1 to h_{2n-1} each being selected from one of h_A and h_B, wherein,

$$h_A = [k_2/n_2],$$

$$h_B = [k_2/n_2] + 1, \text{ and}$$

$$h_A \times l_1 + h_B \times l_2 \leqq k_2, \text{ where}$$

$$l_1 + l_2 = n_2$$

said C_2 encoder means forming said C_2 code from said selected data words and adding the obtained C_2 code to an end of said

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information matrix in said first direction thereby forming a C_2 encoded matrix; and

C_1 encoder means for encoding each line in said first direction of said C_2 encoded matrix with a C_1 code having a predetermined length on a GF(2ᵐ), and adding the obtained C_1 code to an end of each said line of said matrix in said first direction to form a C_2C_1 encoded matrix.

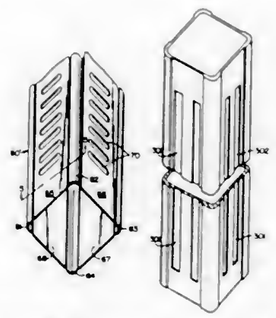
Re. 34,246
THIN WALLED CHANNEL

Russell L. Crowther, deceased, late of Saratoga by Cossette M. Crowther, surviving spouse, Russell L. Crowther, III, Eric J. Crowther, co-trustees, and Eric B. Johansson, San Jose, all of Calif., assignors to General Electric Company, San Jose, Calif.

Original No. 4,749,544, dated Jun. 7, 1988, Ser. No. 29,509, Mar. 24, 1987. Application for reissue Jun. 6, 1990, Ser. No. 533,964

Int. Cl.[5] G21C *3/32*

U.S. Cl. 376—443 **11 Claims**



1. A fuel assembly comprising a plurality of fuel rods positioned in a spaced array by upper and lower tie-plates, an open ended flow channel surrounding said array for conducting coolant upward about said fuel rods, said open ended channel having a polygon shaped cross section with flat side sections connected between said corner sections; means separate from said channel connecting said upper and lower tie-plates together and maintaining said fuel rods in spaced array independent of said flow channel, improvement in said flow channel comprising:

four corners having a first thickness;

four sides having a second and reduced thickness from said corner thickness, said sides welded to said corner sections; *said side sections defining two or more longitudinal grooves.*

Re. 34,247
DIGITAL SPEECH PROCESSOR USING ARBITRARY EXCITATION CODING

Bishnu S. Atal, New Providence, N.J., and Isabel M. Martins Trancoso, Lisbon, Portugal, assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Original No. 4,827,517, dated May 2, 1989, Ser. No. 810,920, Dec. 26, 1985. Application for reissue May 2, 1991, Ser. No. 694,583

Int. Cl.[5] G10L *1/00*

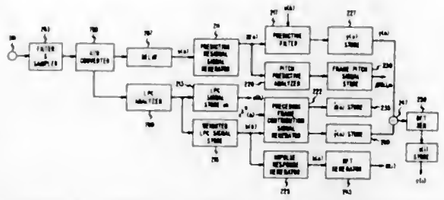
U.S. Cl. 381—41 **23 Claims**

16. Apparatus for processing input speech signals occurring over one or more successive time frame intervals comprising

means (e.g., 203, 205) for forming first signals representative of said speech signals for each of said time frame intervals,

means (e.g., 305) for providing a set of transform domain representations of a corresponding set of codes each of said codes being representative of possible speech signals over a time frame interval, and for providing a set of index signals, each identifying one of said codes,

means (e.g., 315) for generating a set of similarity signals corresponding to the similarity of said first signals to each of said set of transform domain representations,



means (e.g., 320) for generating index signals corresponding to codes having transform domain representations giving rise to similarity signals meeting a predetermined criterion.

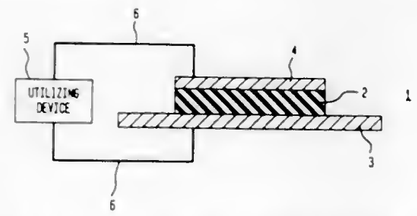
Re. 34,248
PRIMARY SOURCE OF ELECTRICAL ENERGY USING A MIXTURE OF FUEL AND OXIDIZER

Christopher K. Dyer, Chatham, N.J., assignor to Bell Communications Research, Inc., Livingston, N.J.

Original No. 4,863,813, dated Sep. 5, 1989, Ser. No. 244,350, Sep. 15, 1988. Application for reissue Jul. 13, 1990, Ser. No. 552,800

Int. Cl.[5] H01M *8/10*

U.S. Cl. 429—33 **15 Claims**



1. A device which is a *primary* source of electrical current comprising a first electrode and a second electrode *in face-to-face arrangement and* separated by and in contact with a solid electrolyte body characterized in that the first electrode is permeable to an oxidizer and a fuel, *thereby permitting passage therethrough to said electrolyte body by said oxidizer and said fuel,* the second electrode is impermeable to the oxidizer and the fuel *thereby permitting substantially no passage therethrough to said electrolyte body by said oxidizer and said fuel,* and the solid electrolyte body consists essentially of an electron insulating material which is also ionically conducting to at least a first ionic species and which material is permeable to the oxidizer, the fuel and produces of the electrochemical reactions of the oxidizer and the fuel.

Re. 34,249
INTERDENTAL IMMOBILIZATION DEVICE

Boris Divis, Campbell River, and Colin McColgan, Komoka, both of Canada, assignors to Dimac Medical Inc.

Original No. 4,968,248, dated Nov. 6, 1990, Ser. No. 338,935, Apr. 12, 1989. Application for reissue Mar. 12, 1991, Ser. No. 668,971

Claims priority, application Canada, Sep. 27, 1988, 578613

Int. Cl.[5] A61C *3/00*

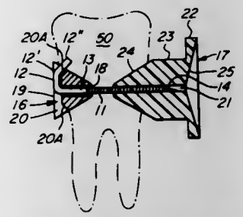
U.S. Cl. 433—18 **51 Claims**

31. A fixture for interdental immobilization comprising:

(a) an elongated [screw member carrying] *shaft comprising a detent* near [one] *a proximate* end [, a detent], and *a threaded portion* near the [other] opposite *distal* end [, a threaded portion];

(b) a first anchor means adapted to engage the detent; and,

(c) a second anchor means defining a body portion and a [bore] *channel* and adapted to travel on the [screw member] *shaft*, the body portion having a cross-sectional area [traverse] *transverse* to the [bore] *channel* that in part, is smaller than at other axial locations along the body portion so as to accommodate and carry interconnecting elements [such as wires or elastics].



Re. 34,250
PROCESS FOR REGENERATING SULFUR CONTAMINATED REFORMING CATALYSTS

Dean A. Van Leirsburg, Oklahoma City, Okla.; Donald H. Mohr, Albany, Calif.; Paul W. Tamm, Oakland, Calif.; Robert L. Jacobson, Vallejo, Calif.; Thomas R. Hughes, Orinda, Calif., and Charles R. Wilson, San Francisco, Calif., assignors to Chevron Research and Technology Company, San Francisco, Calif.

Original No. 4,851,380, dated Jul. 25, 1989, Ser. No. 80,111, Jul. 31, 1987. Continuation-in-part of Ser. No. 944,392, Dec. 19, 1986, abandoned. Application for reissue Jul. 22, 1991, Ser. No. 733,704

Int. Cl.[5] B01J *29/38, 38/45, 38/42*; C10G *35/095*

U.S. Cl. 502—37 **33 Claims**

21. A process for removing sulfur from a sulfur contaminoted zeolite catalyst containing platinum, said process comprising:

(a) subjecting the contaminated cotalyst to a carbon burn to remove carbon;

(b) treating the zeolite catalyst contaminated with sulfur by (i) agglomerating the platinum with an oxygen-containing gas under agglomerating conditions which result in greater than 50% of the platinum forming agglomerate greater than 50 Å in diameter, and (ii) thereafter removing sulfur from the catalyst by contacting said catalyst with a halogen acid gas and a reducing gas, wherein the reducing gas is hydrogen, the concentration of said reducing gas being 10% or more of the total gas volume, and the catalyst being contacted with the halogen acid gas subsequent to or simultaneously with its contact with the reducing gas;

(c) redispersing the platinum within the catalyst.

Re. 34,251
MULTIFOCAL, ESPECIALLY BIFOCAL, INTRAOCULAR, ARTIFICIAL OPHTHALMIC LENS

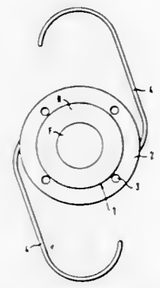
Manfred Achatz, Limeshain; Peter Höfer, Aschaffenburg, and Jürgen Strobel, Marburg, all of Fed. Rep. of Germany, assignors to Storz Instrument Company, St. Louis, Mo.

Original No. 4,813,955, dated Mar. 21, 1989, Ser. No. 648,639, Sep. 7, 1984. Application for reissue Mar. 20, 1991, Ser. No. 672,516

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1983, 3332313

Int. Cl.[5] A61F *1/16*; A68F *1/24*

U.S. Cl. 623—6 **19 Claims**



18. In a multifocal, especially bifocal, artificial, intraocular, ophthalmic lens adapted to be implanted in the eye at a fixed position and having a transparent optical lens portion for covering the pupil of the iris and means for holding said lens portion in a fixed position in the eye, the improvement wherein the optical lens portion has near and far range zones located symmetrically about the axis of the optical lens portion, such that rays received by the pupil of the eye in which the lens is fixed can pass through approximately equal areas of said near range and far range zones for simultaneous, sharp near and far vision.

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PLANT PATENTS

GRANTED MAY 11, 1993

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

8,223

CHRYSANTHEMUM PLANT NAMED DARK BRIOSO

Cornelis P. VandenBerg, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed May 16, 1991, Ser. No. 701,088
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—74.1 1 Claim

1. A new and distinct Chrysanthemum plant named Dark Brioso, as described and illustrated.

8,224

CHRYSANTHEMUM PLANT NAMED LIGHT BRIOSO

Cornelis P. VandenBerg, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed May 16, 1991, Ser. No. 701,116
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—74.1 1 Claim

1. A new and distinct Chrysanthemum plant named Light Brioso, as described and illustrated.

8,225

CHRYSANTHEMUM PLANT NAMED BRONZE MELOSA

Cornelis P. VandenBerg, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Jun. 14, 1991, Ser. No. 715,632
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—79 1 Claim

1. A new and distinct Chrysanthemum plant named Bronze Melosa, as described and illustrated.

8,226

CHRYSANTHEMUM PLANT NAMED YELLOW BRIOSO

Cornelis P. VandenBerg, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed May 16, 1991, Ser. No. 701,087
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—82.2 1 Claim

1. A new and distinct Chrysanthemum plant named Yellow Brioso, as described and illustrated.

8,227

CHRYSANTHEMUM PLANT — ALHA CULTIVAR

Jacques C. M. van der Knapp, De Lier, Netherlands, assignor to Fides Beheer B.V., De Lier, Netherlands

Filed Jun. 25, 1991, Ser. No. 720,725
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—82.2 1 Claim

1. A new and distinct cultivar of Chrysanthemum plant named ALHA, substantially as herein shown and described, which:

(a) exhibits attractive yellow spider anemone flowers having a small cushion at the center and tubular ray florets which end in a spoon-like configuration,
(b) bears flowers of a generally flat capitulum form,
(c) exhibits a flower response period of approximately eight weeks,
(d) exhibits tolerance to white rust,
(e) forms attractive dark green foliage, and
(f) has the ability to produce flowers of commercially acceptable quality throughout the year in a cut mum production program.

8,228

CHRYSANTHEMUM PLANT NAMED BRONZE BRIOSO

Cornelis P. VandenBerg, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed May 16, 1991, Ser. No. 701,089
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—82.3 1 Claim

1. A new and distinct Chrysanthemum plant named Bronze Brioso, as described and illustrated.

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GRANTED May 11, 1993

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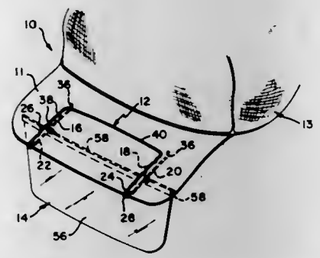
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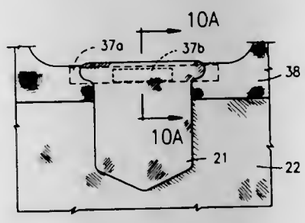
GENERAL AND MECHANICAL

5,208,916
SUNGLASS ASSEMBLY FOR VISORED HEADGEAR
Charles D. Kelman, 721 Fifth Ave., New York, N.Y. 10022
Filed Aug. 17, 1992, Ser. No. 931,067
Int. Cl.[5] A61F *9/00*
U.S. Cl. 2—10 **16 Claims**



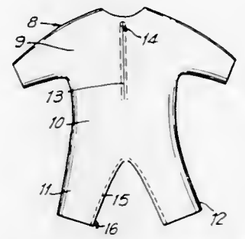
1. A sunglass assembly for attachment to a headgear having a front visor comprising;
mounting means for removable attachment to the headgear visor including,
a pair of parallel rail means for extending, in use, in a direction of a wearer's frontal line of vision, said rail means being of extended length
a sunglass member having a tinted transparent portion for viewing therethrough;
slide means for frictionally and slidingly engaging each said rail means, respectively, and for engaging said sunglass member, said member translating with motion of said slide means along said rail means toward and away from the eyes of the wearer, said slide means being selectively positionable along the length of said rail means, whereby the spacing of said sunglass member from the eyes of a wearer is adjustable.

5,208,917
NECK-LESS NECKWEAR
Donald F. Acenbrack, 1926 Sever Dr., Clearwater, Fla. 34624
Filed Apr. 4, 1991, Ser. No. 680,388
Int. Cl.[5] A41B *1/18, 1/22;* **A41D** *25/02, 25/04*
U.S. Cl. 2—113 **4 Claims**



1. An article of clothing, comprising:
an under garment worn above the waist;
said under garment having a collarless shirt-like structure, including a neck opening;
an elongate, first releasable fastening means being fixedly secured to a front of said under garment, just below said neck opening on a rearward side thereof so that said first releasable fastening means is not visible when said under garment is worn;
an ascot means, substantially smaller than said under garment, having a second releasable fastening means fixedly secured to a rear surface thereof, said second releasable fastening means being disposed at an uppermost end of said rear surface and said second releasable fastening means releasably engaging said first releasable fastening means when said uppermost end of said ascot means is folded rearwardly so that said second releasable fastening means overlies said first releasable fastening means;
said under garment being substantially covered by an outer garment when an outer garment is worn;
whereby when an outer garment having a shirt-like structure is worn over said under garment, said ascot means appears to be held into its position by a neck-encircling means even though no neck-encircling means is provided.

5,208,918
GARMENT, PARTICULARLY FOR RESTRICTING WEARER'S UNDRESSING
Pearl Royal, 25-13 Newkirk Ave., 1/F, Brooklyn, N.Y. 11226
Filed Jun. 16, 1992, Ser. No. 899,486
Int. Cl.[5] A41D *13/00*
U.S. Cl. 2—114 **3 Claims**



1. A garment, in particular for restraining an unauthorized wearer's undressing, comprising a front part, a rear part connected with said front part, said front and rear part each having a torso-covering portion, a pelvis-covering portion, and a leg-covering portion including two individual leg-covering sections, said front part being formed without slots to be opened for undressing, said rear part having a slot which extends exclusively over said torso-covering portion and does not extend over said pelvis-covering portion of said rear part, said leg-covering portion having a slot extending over both said leg-covering sections between said front part and said rear part, said slot extending exclusively over said torso-covering portion of said rear part and said slot extending over said leg-covering sections between said front part and said rear part not communicating with one another so that an unslotted area remains in said rear part between said slots, so that simultaneously the garment has said unslotted front part and also said unslotted area of said rear part and thereby said front part without slots and said unslotted area of said rear part restrain an unauthorized wearer's undressing; and fastening means for closing and opening said slots.

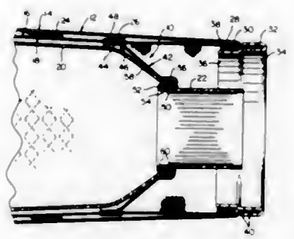
5,208,919
FIREFIGHTER COAT WITH RESERVOIR CUFF
Ronald L. Fields, Winchester, Ky., assignor to Lion Apparel, Inc., Dayton, Ohio
Filed Feb. 10, 1992, Ser. No. 833,089
Int. Cl.[5] A41B *7/00*
U.S. Cl. 2—123 **12 Claims**

1. In a firefighter coat having an outer shell, a moisture barrier and a thermal barrier, a reservoir cuff comprising:
an outer shell sleeve;

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a thermal barrier sleeve extending within said outer shell sleeve; and

a moisture barrier sleeve, positioned between said outer shell sleeve and said thermal barrier sleeve and attached at an outer end to said outer shell, said moisture barrier sleeve including a reservoir member attached to said thermal



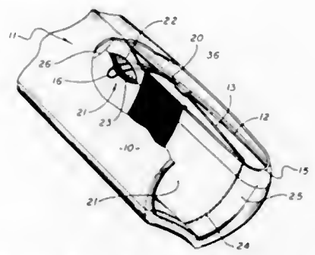
barrier sleeve, whereby said reservoir member prevents liquid from flowing between said thermal barrier sleeve and said moisture barrier sleeve, and attachment between said moisture barrier sleeve and said outer shell sleeve prevents liquid from flowing between said moisture barrier sleeve and said outer shell sleeve at said outer end.

5,208,920

ADJUSTMENT SYSTEM FOR GARMENTS

Aaron Schaefer, 1415 N. Brand Blvd., No. H, Glendale, Calif. 91202, and James Ranney, 1501 W. Olive, Burbank, Calif. 91506

Filed Feb. 5, 1992, Ser. No. 831,355
Int. Cl.[5] A41D *27/10*
U.S. Cl. 2—269 **15 Claims**



1. A garment having at least one limb covering portion having an inside and an outside and having a generally tubular shape for covering a limb in which the length of the limb portion is desired to be adjusted without sewing, and wherein said limb covering portion is of a length at least as long as the greatest length desired; said limb portion having at least one longitudinal seam and having an upper end attached to a body portion of said garment and a lower end, in combination with a means for adjusting the length of the limb portion, said means comprising:

i. elongated flexible means having a first end, an intermediate portion and a second end wherein the first end of the elongated flexible means is attached to the inside lower end of the limb portion;

ii. means attached to the inside of the limb portion above the point of attachment of the said elongated flexible means to the limb portion for locating said intermediate portion of said elongated flexible means spaced from said first end;

iii. said elongated flexible means manually movable through said locating means;

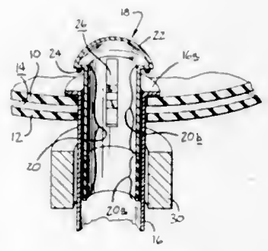
iv. said elongated flexible men sand said locating means being in sufficient frictional engagement to maintain the lower end region of the limb portion in fixed length after manual adjustment; and including at least a partial lining for said garment limb portion, said lining covering said locating means and said elongated flexible means when the garment is worn and said lining having an opening therein to provide access to said elongated flexible means.

5,208,921

MAGNETIC DRAIN STOPPER

James D. Nicoll, 829 Randall, Troy, Mich. 48098

Filed Jan. 13, 1992, Ser. No. 820,199
Int. Cl.[5] E03C *1/23, 1/26*
U.S. Cl. 4—286 **14 Claims**



13. A stopper assembly configured to engage a drain pipe attached to a drain orifice of a sink, said stopper assembly being actuatable from a first position which closes the drain orifice to a second position which opens the drain orifice, said assembly comprising:

a hollow cylinder configured to pass through the drain orifice and into the drain pipe and defining a central passageway therethrough, a first length of the cylinder comprising a first magnetic material and a second length of the cylinder comprising a non-magnetic material, said second length extending to one end of the cylinder and including an opening therethrough, proximate said end communicating with the central passageway;

a stopper disposed at one end of the cylinder, said stopper being of a size larger than the size of the drain orifice and operative to seal the drain orifice when the assembly is actuated to said first position; and

an actuator which includes a body of permanent magnetic material disposed to create a magnetic field which surrounds a length of the exterior of the drain pipe so as to magnetically couple the actuator and the cylinder, said actuator further including a rod associated therewith for moving the body of permanent magnetic material between a first position along the length of the drain pipe to a second position along the length of the drain pipe.

5,208,922

SANITARY DEVICE

Haruo Machinaga, Anjo; Shinji Kawai, Toyota; Osamu Matsubara, Anjo, and Tetsuo Makino, Okazaki, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 27, 1991, Ser. No. 766,261
Claims priority, application Japan, Sep. 29, 1990, 2-258857; Sep. 29, 1990, 2-258858
Int. Cl.[5] A61H *35/00*; E03D *9/08*; A47K *3/20*
U.S. Cl. 4—448 **3 Claims**

1. A sanitary device comprising:

a toilet bowl having therein an inner space and a rear portion;

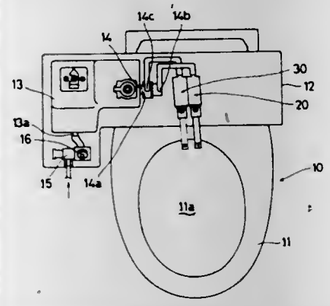
a casing mounted on the rear portion of the toilet bowl:

an outer nozzle having at front, intermediate and rear portions thereof, an opening, a tapered wall and an inlet, respectively, the outer nozzle being secured to the casing in such a manner that the outer nozzle is oriented toward the inner space of the toilet bowl;

water supply means for supplying an amount of water continuously to the inlet of the outer nozzle;

an auxiliary valve provided at a frontward portion of the tapered wall of the outer nozzle for interrupting the fluid communication between the atmosphere and the inside of the outer nozzle;

an inner nozzle having holes to be aimed at a body part and disposed in the outer nozzle in such a manner tat when the inner nozzle is in a retracted position, fluid communica-



tion between the inlet and the inside of the outer nozzle is established, and when the inner nozzle extends from the opening of the outer nozzle with a retainer mounted of the rear portion of the inner nozzle in engagement with the tapered wall, the inner nozzle is at an extended position;

a spring for urging the inner nozzle in the direction of the retracted position; and

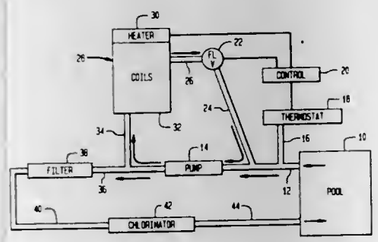
a valve disposed in a rear portion of the inner nozzle so as to be opened only when the inner nozzle is in one of the retracted and extended positions.

5,208,923

SWIMMING POOL WATER FLOW SYSTEM

J. Harold Stiver, 2807 27th Ave. Dr. West, Bradenton, Fla. 34205

Filed Jan. 27, 1992, Ser. No. 825,994
Int. Cl.[5] E04H *4/12*
U.S. Cl. 4—493 **4 Claims**



1. In a swimming pool water flow system including a water pump having an inlet thereof connected to a pool water outlet and a water filter connected in series between an outlet of said pump and a pool water inlet, the improvement comprising:

a heat exchanger for heating water having an inlet operably connected at said pump outlet and an inlet of said filter;

a water flow control valve operably connected in series between an outlet of said heat exchanger and said pump inlet structured for regulating the flow of water from said pool through said heat exchanger;

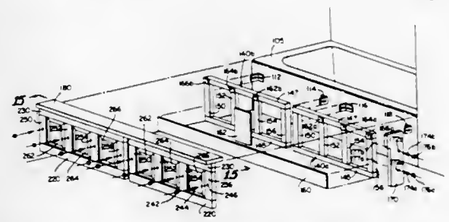
water temperature control means operably connected between said pool outlet and said heat exchanger and said valve for sensing the temperature of water in said pool and for opening said valve and activating said heat exchanger at a predetermined pool outlet water temperature.

5,208,924

DECORATIVE BATHTUB FRONT ENCLOSURE

Timothy S. Smith, Indianapolis, Ind.; Mostafa Doroudian, Los Angeles, and Howard D. Dirkson, Mission Viejo, both of Calif., assignors to Gaylan Industries, Inc., Anaheim, Calif.

Continuation-in-part of Ser. No. 474,231, Jan. 19, 1990, abandoned, which is a continuation of Ser. No. 181,819, Apr. 15, 1988, abandoned. This application Feb. 19, 1991, Ser. No. 658,024
Int. Cl.[5] A47K *3/02*; B44F *7/00*
U.S. Cl. 4—584 **11 Claims**



1. A front enclosure for a bathtub, comprising

a first frame section and a second frame section co-planarly positionable end to end on a floor against a front face of a bathtub with a gap between the first and second frame sections being adjustable to permit alignment of a first side of the first frame section with a first side edge of the bathtub and alignment of a first side of the second frame section with a second side edge of the bathtub;

a first panel section and a second panel section, each panel section being comprised of:

a bottom rail having a top surface and a bottom surface with a longitudinal groove centered along the top surface thereof,

a top rail having a top surface and a bottom surface with a longitudinal groove centered along the bottom surface thereof,

two vertical end supports each connected at opposite ends to the top and bottom rails thereby forming a rectangular shape for the panel section, wherein said vertical end supports each have a longitudinal groove along an inside surface thereof, the longitudinal grooves on said supports and said rails being co-planar,

an insert panel installed between adjacent vertical supports within the grooves;

a foot board secured lengthwise along the floor to the first and second frame sections;

a center board extending from a top surface of the foot board to a top surface, wherein the center board bridges the gap between the first and second frame sections; and

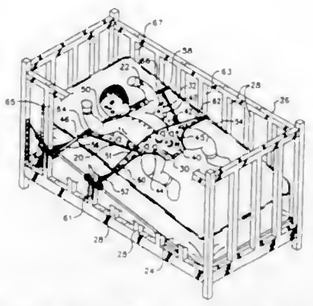
spacer shims attached to the first and second frame sections, the spacer shims having the same thickness as both the floor board and the center board, thereby forming a planar surface, wherein the first and second panel sections are positionable end to end along said planar surface and attached to the first and second frame sections with a gap between the first and second panel sections being adjustable to permit alignment of a first side of the first panel section with the first side edge of the bathtub and alignment of a first side of the second panel section with the second side edge of the bathtub;

a top board attached along a top surface of the bathtub and the top of the first and second panel sections,

wherein the foot board is constructed and arranged to cover a gap between the panel sections and the floor and wherein the center board is constructed and arranged to cover a gap between the first and second panel sections.

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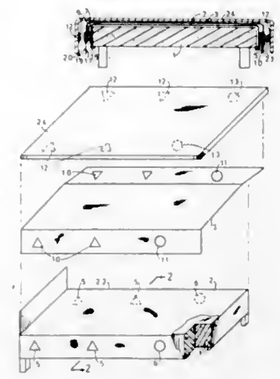
5,208,925
SHEET FOR INCLINED INFANT MATTRESS
Edith M. Edlund, 10430 NE. 112th St., Kirkland, Wash. 98033
Filed May 28, 1992, Ser. No. 891,157
Int. Cl.[5] A47D *15/00*
U.S. Cl. 5—424 8 Claims



3. An apparatus for holding a child having two legs on an inclined mattress held within a crib, said apparatus comprising:
(a) a front portion defining a front side of a sling;
(b) a back portion defining a back side of said sling, said back portion further defining a fitted mattress sheet removably attached to the mattress, said front portion being attached to said back portion along a common juncture, sides of said front portion converging toward said common juncture; and
(c) means for attaching said front portion to the crib, said attaching means having opposed front straps extending outwardly from respective sides of said front portion, sides of said front portion diverging away from said common juncture to gradually form said front straps, sides of said front straps being gradually tapered from said front portion, said front portion being folded over a portion of said back portion and said front straps being removably attached to the crib to place said sling in an operative position to form an enclosure into which the child may be held, when said sling is in said operative position the child having one leg located on each side of said common juncture, said sling preventing the child from sliding down the inclined mattress when in said operative position, said front portion and said front straps defining a barrier to prevent the child from turning over when said sling is in said operative position.

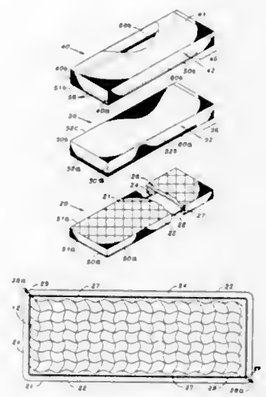
5,208,926
BEDDING FOR CHILDREN
Elizabeth A. Stackhouse, 1915 SW. 67 Ter., North Lauderdale, Fla. 33301
Filed Jul. 6, 1992, Ser. No. 908,337
Int. Cl.[5] A47G *9/04, 9/02*
U.S. Cl. 5—482 8 Claims

1. A bedding for a child's bed having a central longitudinal axis adapted for use on and alignment with foot, head an sides of a rectangular mattress having a central longitudinal axis to facilitate making of abed by a child, said bedding comprising:
a) a plurality of substantially rectangular sheets of material, each defining head and foot ends that may be interchangeable and a pair of side edges for disposition along said sides of said mattress substantially parallel to said longitudinal axis;
b) a plurality of spaced-apart graphic emblems or figures of distinctive shapes at least some of which differ from one another and selected for ease of recognition by a child, all said emblems affixed adjacent each of said side edges, said emblems so arranged in corresponding positions on each said sheet that alignment of each particular graphic em-



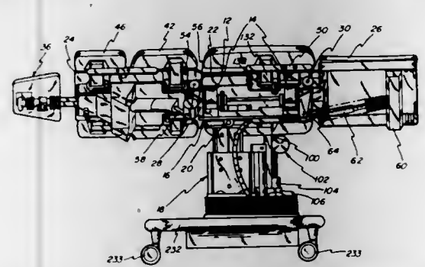
blem of one sheet upon its matching emblem on a lower sheet properly arranges said sheets to make the bed.

5,208,927
BEDDING APPARATUS COMPRISING A TOP SHEET, A BOTTOM SHEET AND A BLANKET
Edward B. Lachmar, 13342 Bow Pl., Tustin, Calif. 92705
Filed Jun. 15, 1992, Ser. No. 899,613
Int. Cl.[5] A47G *9/04, 9/02*
U.S. Cl. 5—497 9 Claims



1. Bedding apparatus for use with a generally rectangularly configured box-like mattress or the like, said apparatus comprising:
a fitted bottom sheet member having a main portion configured to the sleeping surface of the mattress, a peripheral skirt portion contoured to the mattress and an underhang for extending peripherally beneath the edge of the mattress;
first fastening means on said peripheral skirt portion at the junction with said underhang;
a blanket member having a skirt portion configured for extending about both sides and the foot end of said mattress;
second fastening means on the skirt portion of said blanket member for coactingly engaging said first fastening means for releasably securing said blanket member to said bottom sheet member, said first and second fastening means having a length sufficient to extend across the foot end and the majority of opposite sides of the mattress;
a top sheet member contoured with a skirt portion to overlie said bottom sheet member and being configured for being receiving within said blanket member between said bottom sheet member and said blanket member; and
other coacting fastening means on the skirt portions of said blanket member and said top sheet member for releasably securing said top sheet member within said blanket member.

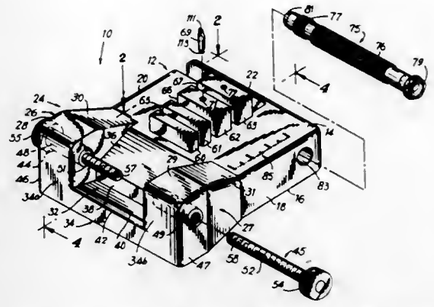
5,208,928
PLASTIC SURGERY TABLE
Jay L. Kuck, St. Marys; Keith A. Stickley, Greenville, both of Ohio; Terry J. Simpkins, Sr., and Terry J. Simpkins, Jr., both of Carlsbad, Calif., assignors to Midmark Corporation, Versailles, Ohio
Filed Sep. 20, 1991, Ser. No. 763,197
Int. Cl.[5] A61G *7/00*
U.S. Cl. 5—608 29 Claims



1. A surgery table for supporting a patient in a plurality of positions, said table comprising:
a patient support defining a longitudinal axis extending along an elongated dimension of said table and a lateral axis extending along a width dimension of said table, said patient support including at least a central portion longitudinally spaced from opposing longitudinal ends of said patient support for supporting a trunk portion of a patient,
a pedestal structure located at said central portion for supporting said patient support,
a support base including an arcuate track cooperating with bearings to form a support connection between said patient support and said pedestal structure, said arcuate track defining a longitudinal pivot axis parallel to said longitudinal axis and located above said patient support,
a support base pivot forming a connection between said support base and said pedestal located between said ends of said patient support under said central portion, said support base pivot defining a lateral pivot axis parallel to said lateral axis whereby said patient support is guided in pivotal movement about said lateral pivot axis.

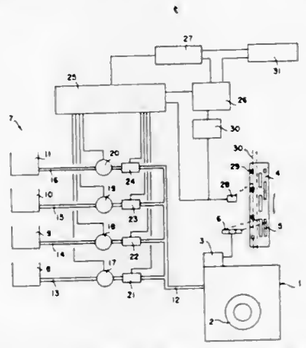
5,208,929
MULTIPLE BAND SIZING AND REPAIRING DEVICE
Scott M. S. Chou, Paramus, N.J., assignor to Kabushiki Kaisha Hattori Seiko, Tokyo, Japan
Filed Oct. 4, 1991, Ser. No. 770,805
Int. Cl.[5] G04D *3/00*
U.S. Cl. 7—101 63 Claims

1. A holding device for sizing and repairing any one of a band, a band having at least one pin, a band having at least one screw, and a band including a plurality of links joined together by a plurality of pins, comprising:
a base; and
a plurality of essentially straight parallel block means coupled to an upper surface of said base for receiving and inhibiting the lateral movement of said band, said plurality of block means being separated by varying distances from each other to form channels of varying widths, the portion of said channels on said upper surface of said base being



flat for supporting an edge of said band in said channel, said plurality of block means having facing sides so that the facing sides of each adjacent pair of block means are straight and extend essentially parallel to each other.

5,208,930
METHOD AND DEVICE FOR SUPPLYING TREATMENT PRODUCTS TO A COMPARTMENT, PARTICULARLY A WASHING MACHINE COMPARTMENT
Paul L. Chabard, 4, rue de Beaumont, CH-1206 Geneva, Switzerland
PCT No. PCT/FR91/00270, § 371 Date Dec. 3, 1991, § 102(e) Date Dec. 3, 1991, PCT Pub. No. WO91/15623, PCT Pub. Date Oct. 17, 1991
PCT Filed Apr. 3, 1991, Ser. No. 777,302
Claims priority, application France, Apr. 3, 1990, 90 04267
Int. Cl.[5] D06F *39/02*
U.S. Cl. 8—158 10 Claims



1. A method for supplying at least one compartment of at least one treatment machine with doses of various treatment products, wherein the treatment machine undergoes an independent treatment operating process, said method comprising the steps of:
providing the machine with separate transfer means for respectively transferring the products to the compartment, each transfer means including a pump means and a volumetric metering means;
memorizing a program selectively associating the transfer means and volumetric quantities of the corresponding products with a sequence of control signals;
generating the sequence of control signals which are identi-

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cal each time and which appear at predetermined periods during said treatment operating process;

and, along the treatment operating process, successively controlling, in accordance with said program, said transfer means as the control signals are generated, wherein the controlling of the transfer means of each product to be supplied includes the steps of starting the corresponding pump means at a detection of the associated control signal, measuring the volume of the product to be supplied with the corresponding volumetric metering means, comparing the measured volume with the memorized volumetric quantity of the product, and stopping said corresponding pump means when the measured volume is equal to the volumetric quantity of the product as predetermined by said program.

4. A supply device for supplying at least one compartment of a treatment machine with doses of various treatment products, said machine having an independent treatment operating process, said device comprising:

separate transfer means for respectively transferring the products to the compartment, each transfer means including a pump means;

means for memorizing a program for selective control of said transfer means with regard to a sequence of control signals and for memorizing volumetric quantities of respective products;

means for generating, successively as said sequence of control signals, a control signal at predetermined periods during the treatment operating process of said treatment machine;

control means connected to said generating means and said memorizing means, said control means selectively controlling a starting and a stopping of said transfer means in accordance to said program having been memorized,

each of said transfer means further including a volumetric metering means for measuring the volume of product being supplied, said volumetric metering means being connected to said control means, and said control means further including comparing means for comparing the volume supplied and the volume memorized and generating a signal for stopping said transfer means.

5,208,931

LAUNDRY MACHINES AND/OR METHODS OF CONTROLLING THE SAME

John Julian A. Williams; Frank W. Shacklock, and David J. Ensor, all of Auckland, New Zealand, assignors to Fisher & Paykel Limited, Mt. Wellington, New Zealand

Filed Aug. 28, 1990, Ser. No. 573,799

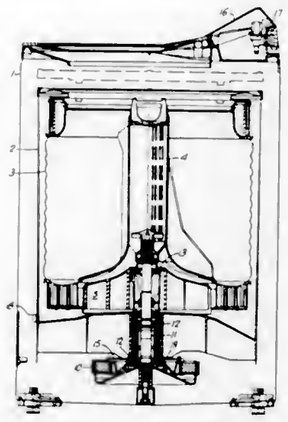
Claims priority, application New Zealand, Aug. 30, 1989, 230489

Int. Cl.[5] D06F *33/02*

U.S. Cl. 8—159 26 Claims

1. A method of providing a desired level of washing liquid in a laundry machine having a cabinet, a washing container within said cabinet, a rotatable assembly including a spin tub within said container and an agitator within said spin tub, a motor driving said agitator conjointly with said spin tub or separately on disconnection of said spin tub from said agitator as required, and washing liquid level control means to control washing liquid level in said washing container, the method comprising:

placing a load of clothes in said spin tub; initiating the supply of washing liquid to said container and energizing said motor intermittently to produce changes in the rotational speed of said rotatable assembly as washing liquid is being supplied to said container; sensing the changes in speed of said rotatable assembly relative to energy input to said motor with a sensing means; passing signals indicative of the total rotating mass of said rotatable assembly including the washing liquid in said container and the clothes in said spin tub from said sensing means to said liquid level control means; determining the point of disconnection of said spin tub from said agitator dependent on said signals with said control means, said signals passed from said sensing means to said control means at the time of disconnection being indicative of the mass of said load of clothes; determining said desired level of liquid washing with said control means from said signals at the time of disconnection,



said desired level being dependent on the mass of the load of clothes; controlling the supply of further washing liquid to said container to said desired level with said control means; and causing continuous washing action to commence when said desired level is reached.

5,208,932

CABLE-STAY BRIDGE AND METHOD FOR CONSTRUCTION THEREOF

Jean M. Muller, Suresnes, France, assignor to Societe Centrale d'Etudes et de Realisations Routieres-Scetauroute, Paris, France

Filed Apr. 25, 1991, Ser. No. 690,789

Claims priority, application France, Apr. 25, 1990, 90 05257

Int. Cl.[5] E01D *11/00*

U.S. Cl. 14—21 10 Claims



1. A bridge comprising a deck and at least two towers, that part of the deck which extends on either side of each tower being supported by stays which are anchored on the deck and tensioned between their anchorage points on the deck and points situated at the top of the tower or distributed over the height of the latter, longitudinal compressions in this part of the deck which result from the tensioning of the stays being approximately balanced on either side of the tower, the deck furthermore comprising a central part situated approximately half-way between two successive towers and which is supported exclusively, from these two towers, by stays which are anchored, on the one hand, in this central part of the deck, and on the other hand, on one or the other of two anchor blocks beyond the deck, and are each deflected at the top of the tower situated between said central part and said anchor block, means for subjecting said central part of the deck to an permanent axial prestress calculated in order to compensate at least partially for the tensile stress to which the central part is subjected under the effect of said stays anchored on the anchor blocks.

5,208,933

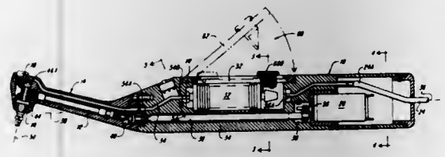
DENTAL TOOL WITH LIQUID DISPENSING, AND CARTRIDGE

L. Paul Lustig, 304 Greenwood St., Newton, Mass. 02159, and Andrew Tybinkowski, Boxford, Mass., assignors to L. Paul Lustig, Newton Centre, Mass.

Continuation-in-part of Ser. No. 611,898, Nov. 9, 1990, Pat. No. 5,142,723. This application Apr. 17, 1991, Ser. No. 686,793

Int. Cl.[5] A61C *17/28, 17/36;* A46B *13/04*

U.S. Cl. 15—22.1 17 Claims



1. In dental tool apparatus

having a housing with a head portion for deploying a dental tool implement, and

having a first passage within said housing for the delivery of fluid material to said head portion for discharge to a dental site,

the improvement comprising

A. means forming a cartridge-receiving seat in said housing for receiving a supply of fluid material in a removable and replaceable cartridge element, and

B. cartridge-carrying transport means movably mounted with said housing and movable relative to said housing between a load position and a deploy position, said transport means being mounted with said housing in both said load position and said deploy position,

C. said transport means being arranged for the removable and replaceable loading of a cartridge element thereon and the unloading of a cartridge element therefrom when in said load position, and being further arranged for coupling a cartridge element received thereon into fluid communication with said passage upon movement from said load position to said deploy position and for uncoupling a cartridge element from fluid communication with said passage upon movement to said load position.

5,208,934

COVER FOR A PILLOW OR DUVET FOR A CHILD'S BED

Martina Bachnick, and Arnfried Maaser, both of Herbertstrasse 3, D-1000 Berlin 62, Fed. Rep. of Germany

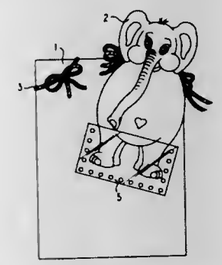
PCT No. PCT/DE90/00311, § 371 Date Oct. 24, 1991, § 102(e) Date Oct. 24, 1991, PCT Pub. No. WO90/12527, PCT Pub. Date Nov. 1, 1990

PCT Filed Apr. 25, 1990, Ser. No. 773,856

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1989, 8905368[U]

Int. Cl.[5] A47C *9/00;* A63H *3/00*

U.S. Cl. 5—482 10 Claims



1. A bedspread cover having a toy attached thereto; said toy including a first substantially two dimensional portion and a second three dimensional pillow-like portion; said toy being attached to said bedspread cover such that at least a major part of said substantially two dimensional portion of said toy does not extend beyond an edge of said bedspread cover, and said three dimensional portion of said toy extends beyond said edge of said bedspread cover; and means for removably attaching at least said three dimensional portion of said toy to said bedspread cover.

5,208,935

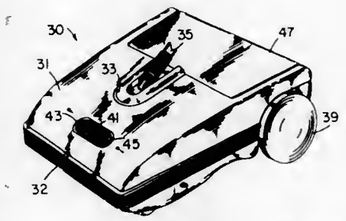
CARPET SWEEPER

John J. Jailor, Rockford, and Henry J. Rosendall, Grand Rapids, both of Mich., assignors to Bissell Inc., Grand Rapids, Mich.

Filed Jul. 16, 1991, Ser. No. 730,709

Int. Cl.[5] A47L *11/33*

U.S. Cl. 15—41.1 59 Claims



1. A carpet sweeper having a rotatable brush which is driven by a wheel of said sweeper as said sweeper is moved across a carpet comprising:

a frame for said sweeper said frame having a flexible portion for supporting a cleaning brush;

a pair of front and a pair of rear wheels for supporting said sweeper;

means on said frame for removably and replacably supporting said pair of front and said pair of rear wheels for said sweeper;

a rotatable cleaning brush supported by said frame and releasable therefrom by flexing said frame;

a dirtpan pivotally and releasably supported by said frame and normally spring biased in said frame to receive dirt from said cleaning brush; and

a soft cover for said frame, said soft cover being removably and replacably attached to said frame by a plurality of gripping members.

5,208,936

VARIABLE SPEED PIG FOR PIPELINES

Douglas C. Campbell, 30 Sandpiper Drive, Sherwood Park, Alberta, Canada T8A 0B8

Filed May 9, 1991, Ser. No. 697,411

Int. Cl.[5] B08B *9/04*

U.S. Cl. 15—104.061 11 Claims

1. A variable speed pig for a pipeline comprising:

a cylindrical housing having a first open end and a second open end;

an annular seal disposed about the housing for sealing engagement with the pipeline and the housing;

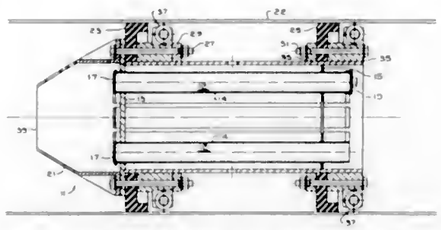
closure means disposed within the housing including a first plate disposed in the housing, the first plate having a plurality of first openings, and a second plate disposed in the housing, the second plate having a plurality of second openings and being disposed in the housing to block the flow of fluid through the housing except through the plurality of second openings, the first openings including means extending into contact with the second openings and defining flowthrough passageways;

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sensor means for producing first signals indicative of the speed of the pig;

control means responsive to the first signals to produce control signals;

drive means responsive to the control signals for operating the closure means; and



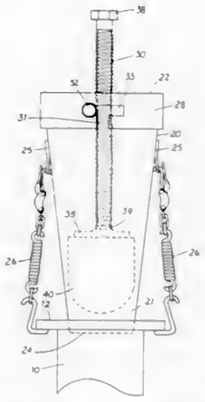
the first plate being movable by the drive means in relation to the second plate from a position in which at least some of the first openings are aligned with the second openings with fluid communication between respective ones of the first and second openings being provided by the flow-through passageways to a position in which substantially none of the first openings are aligned with the second openings.

5,208,937

APPARATUS FOR LAUNCHING PIGS INTO PIPELINES

Clarence G. Cooper, 1417 Bernice St., Morgan City, La. 70380

Filed Dec. 27, 1990, Ser. No. 634,618
Int. Cl.[5] B08B *9/04*
U.S. Cl. 15—104.062 8 Claims



1. A pig launcher for inserting an oversized compressible pig into a pipeline comprising:

a) a conical chamber for holding said pig, said conical chamber having an inlet opening of greater diameter than said pig and a narrower outlet opening of lessor diameter than said pig;

b) means for temporarily attaching said chamber onto the end of said pipeline; and

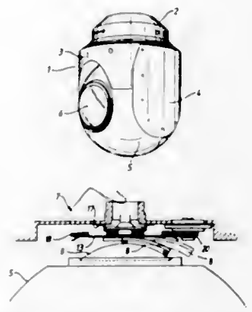
c) means for propelling said pig through said conical chamber.

5,208,938

CENTRIFUGALLY OPERATED WIPER MECHANISM FOR CLEANING TURRET MOUNTED LENSES

Duncan J. Webb, Essex, England, assignor to GEC-Marconi Limited, Stanmore, United Kingdom

Filed Sep. 13, 1991, Ser. No. 759,306
Claims priority, application United Kingdom, Sep. 20, 1990, 9020528
Int. Cl.[5] B60S *1/44, 1/04*
U.S. Cl. 15—250.22 6 Claims



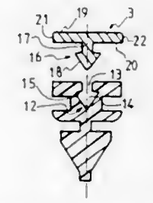
1. A wiper mechanism comprising a wiper, a plate which is rotatably mounted on an axis which is perpendicular to the surface of the plate, means for causing said plate to be rotated, a spring loaded lever on which said wiper is mounted, said spring loaded lever being pivotally mounted on said plate on an axis substantially parallel to the axis of rotation of said plate, said lever being biased into a predetermined parked position by said spring, and a centrifugally operated weight mounted on said lever, whereby when said plate is rotated said wiper is caused to be rotated and, under the action of said centrifugally operated weight is caused to be moved transversely relative to the axis of rotation of said plate form the parked position where it is clear of a surface to be cleaned, to an operating position, in which it is radially disposed relative to the axis of rotation of said plate, in which operating position said wiper contacts said surface.

5,208,939

WINDSHIELD WIPER BLADE AND A WIPING STRIP WITH STIFFENING ELEMENT THEREFOR

Michel Oulie, Issoire, France, assignor to Valeo Systemes d'Essuyage, Montigny-Le-Bretonneux, France

Continuation of Ser. No. 641,851, Jan. 16, 1991, abandoned. This application Sep. 24, 1992, Ser. No. 950,755
Claims priority, application France, Jan. 19, 1990, 90 00632
Int. Cl.[5] B60S *1/38*
U.S. Cl. 15—250.36 8 Claims



1. A wiper blade assembly including an elongated wiping lip (2) comprising a base portion (4) having an upper horizontal face (5) and a lower horizontal face (6) joined by a pair of vertical faces (7, 8), a pair of opposed cavities (9) in said vertical face for receiving a supporting structure, a flexible neck

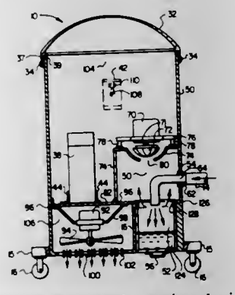
(10) connected to said lower face, a wiping friction element (11) for engaging a surface to be wiped connected to said neck for pivotal motion with respect to said base, and a stiffening element (3) coextensively mounted to and lying in contact with said upper horizontal face of said base, and means securing said stiffening element to said base, said securing means comprising a longitudinal groove (12) in said base and a rib (16) depending from said stiffening element, said rib being frictionally received in said groove whereby lateral flexing of said wiping lip is prevented by paid stiffening element.

5,208,940

FLOOR DRYER AND WARNING DEVICE

London, Charles A., 4325 Hermosa, Corpus Christi, Tex. 78411, and George A. Schultz, 176 Ohio, New Braunfels, Tex. 78130

Filed Nov. 1, 1990, Ser. No. 607,677
Int. Cl.[5] A47L *7/00*
U.S. Cl. 15—345 30 Claims



1. A portable floor dryer and warning device which comprises:

a. a supporting frame adapted to be placed on a surface;

b. a vacuum chamber supported by said supporting frame;

c. a plenum chamber ductedly connected to said vacuum chamber;

d. a vacuum director having an opening at one end into said vacuum chamber and an opening at the other end exterior to said vacuum chamber;

e. a vacuum creation means, held in ducted communication with said vacuum chamber, for creating a vacuum in said vacuum chamber and expelling exhaust into said plenum chamber;

f. an exhaust direction means, held in ducted communication with said plenum chamber, for directing exhaust from said plenum chamber to impinge on said surface; and,

g. a signal means, supported by said supporting frame, for drawing the attention of passersby to the presence of said device.

5,208,941

HIGH POWER VACUUM ATTACHMENT APPARATUS

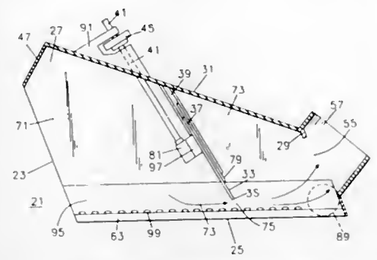
Mark Ettere, 456 Victoria Ave., Piscataway, N.J. 08854

Filed Jun. 23, 1992, Ser. No. 902,831
Int. Cl.[5] A47L *9/02*
U.S. Cl. 15—401 18 Claims

1. An attachment for a high power fluid vacuum system, which comprises:

(a) a housing having a left side wall, a right side wall, a rear wall connected to said left side wall and said right side wall, a top connected to all of the aforesaid walls to seal off its sides, top and rear, and having an open front and an open bottom, said front and said bottom being respectively substantially vertical and substantially horizontal, said rear wall having an evacuation orifice for connection to a vacuum system pipe;

(b) a gate dividing said housing into a forward compartment and a rearward compartment, and mounted within said housing between said open front and said rear wall, and being adjustably movable from the open bottom level upwardly so as to create a control for setting a passageway between said gate and any surface upon which said housing may rest to a predetermined size, and so as to thereby control vacuuming of shallow bodies of fluid, and



so as to create a safety wall between said open front and said rear wall;

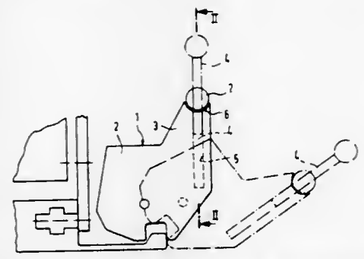
(c) an adjustment mechanism connected to said gate through the top of said housing so as to permit manual opening and closing adjustment of said gate from outside of said housing.

5,208,942

INSERTION AND REMOVAL AID

Peter Simon, Munich, Fed. Rep. of Germany, assignor to Knürr-Mechanik für die Elektronik Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Aug. 23, 1991, Ser. No. 748,649
Claims priority, application Fed. Rep. of Germany, Aug. 23, 1990, 9012143[U]
Int. Cl.[5] A47B *95/02;* H01R *13/62*
U.S. Cl. 16—115 15 Claims



1. An insertion and removal aid, for the fitting of electronic subassemblies in systems, comprising:

a molding having a locking part and a gripping part, wherein said gripping part comprises an extension which can slide in and out of said gripping part and is received in a recessed extension guide in said gripping part shaped for receiving said extension in its slid-in position,

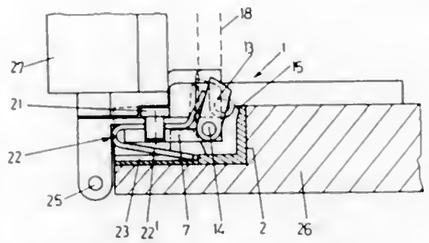
wherein an upper end of the extension has a cylindrical handle, which in the slid-in position is located in a substantially semicircular depression of the gripping part.

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5,208,943
HINGE WITH A COUPLING MEMBER RELEASABLY ANCHORED

Fredi Dubach, Adetswil, Switzerland, and Erich Röck, Höchst, Austria, assignors to Julius Blum Gesellschaft m.b.H., Höchst, Austria

Continuation of Ser. No. 675,524, Mar. 26, 1991, abandoned. This application May 13, 1992, Ser. No. 884,290
Claims priority, application Austria, Mar. 27, 1990, 705/90
Int. Cl.[5] E05D *5/00*
U.S. Cl. 16—258 17 Claims



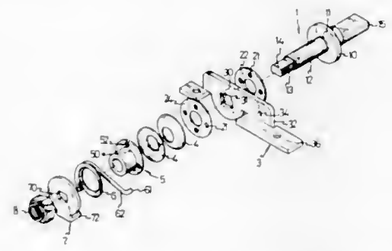
1. A hinge for mounting a door to a furniture unit to pivot relative thereto about a single axis, said hinge comprising:
a hinge pot to be mounted on the door of the furniture unit, said hinge pot having therein a recess;
a hinge arm to be mounted on a wall of the furniture unit;
a coupling member pivotally mounted on said hinge arm for pivotal movement relative thereto about said single axis;
means for enabling said coupling member to be fitted into said recess in said hinge pot, said means comprising at least one groove formed in one of said hinge pot or said coupling member and at least one shoulder formed on the other of said coupling member and said hinge pot, said shoulder being dimensioned to closely fit in said groove by being inserted therein when said hinge pot is moved relative to said coupling member in a direction substantially perpendicular to the plane of the door to be connected to said hinge pot, said groove and said shoulder each having a pair of spaced side surfaces that diverge from each other relative to a direction of insertion of said shoulder into said groove; and
means for releasably locking said coupling member in an anchored position within said recess in said hinge pot, said locking means comprising a catch formed on said hinge pot, a locking member mounted on said coupling member for pivotal movement relative thereto between a locked position abutting said catch and preventing withdrawal of said shoulder from said groove and an unlocked position spaced from said catch and allowing said withdrawal, and a spring urging said locking member to pivot to said locked position thereof.

5,208,944
HINGE DEVICE FOR CASINGS

Sheng N. Lu, No. 174, Chun Ying St., Shu Lin Chen, Taipei Hsien, Taiwan

Filed Jun. 16, 1992, Ser. No. 899,293
Int. Cl.[5] E05F *1/08*; E05C *17/64*; E05D *11/08*
U.S. Cl. 16—278 4 Claims

1. A hinge device for a casing having a body portion and an upper cover, comprising:
a substantially L-shaped mount plate having a vertical portion with a first hole and a second hole and a horizontal portion adapted to be securely mounted to said body portion of said casing;
a pivotal axle comprising a mounting portion located on a first side of said vertical portion and adapted to be securely mounted to said upper cover of said casing, a flange portion also located on said first side of said vertical portion, and an extension with a portion thereof fittingly and pivotally received in said first hole of said vertical portion of said mount plate and having a threaded end portion;
a first washer mounted on said extension of said pivotal axle and attached to said first side of said vertical portion of said mount plate between said vertical portion and said flange portion;
a second washer mounted on said extension of said pivotal axle and attached to a second side of said vertical portion of said mount plate;
a spring means mounted around said extension of said pivotal axle;
a sleeve member mounted on said extension adjacent to said spring means, having a tubular portion and a flange;
a torsion spring mounted on said tubular portion of said sleeve member, said torsion spring having an arm with a distal end thereof securely attached to said second hole in said vertical portion,



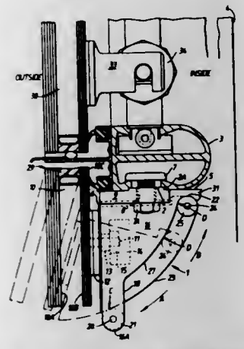
a follower securely mounted on said threaded end portion of said pivotal axle for rotation therewith, said follower having a stop slightly biasing said torsion spring when the upper cover and the body portion is in a locked position, and said stop contacting said arm when the upper cover is opened to a pre-set maximum angle relative to the body portion; and
a nut mounted on said threaded end portion of said extension to bias said spring between said member and said second washer;
whereby said pivotal axle is freely pivotable relative to said spring means, when a desired position of said upper cover relative to said body portion of said casing is reached, said spring means biased by said nut exerts a longitudinal force on said pivotal axle, such that said flange portion of said pivotal axle is tightly against said first washer, thereby retaining said pivotal axle in position.

5,208,945
MECHANISM FOR OPENABLE/CLOSEABLE MEANS

Graham S. Dodd, Lymm, United Kingdom, assignor to Pilkington PLC, Merseyside, England

Filed Oct. 17, 1991, Ser. No. 777,917
Claims priority, application United Kingdom, Oct. 17, 1990, 9022476
Int. Cl.[5] E05D *11/06*
U.S. Cl. 16—358 27 Claims

1. A two-part mechanism serving as a hinge for openable/-closeable means mounted in a structure, the mechanism comprising in combination:
a stationary part including first locating means for accommodating first attachment means for facilitating attachment of said stationary part to the structure, first arcuate track means and first roller bearing means;
a movable part including second locating means for accommodating second attachment means for facilitating attachment of the movable part to the openable/closeable means, second arcuate track means and second roller bearing means; the first and second roller bearing means respectively making contact with the second and first arcuate track means; wherein in operation of the mechanism to enable opening/closing of the openable/closeable means with respect to the structure, the relative movement of the movable part with respect to the stationary part is such that the second roller bearing means is guided

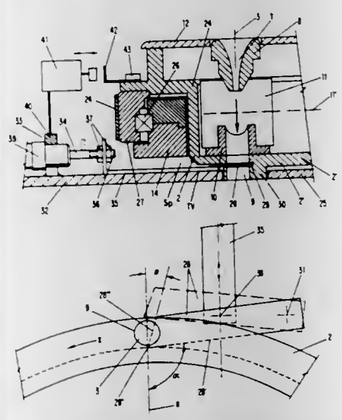


progressively over the first arcuate track means while the second arcuate track means is guided progressively over the first roller bearing means, the effective pivot point of the mechanism being defined as a virtual pivot point which is the center of curvature of the first and second arcuate track means.

5,208,946
GROOVED CAN COILER HAVING PIVOTABLE SLIVER CUTTING BLADE

Udo Stentenbach, Nordhorn, Fed. Rep. of Germany, assignor to Rosink GmbH & Co. KG, Nordhorn, Fed. Rep. of Germany

PCT No. PCT/EP89/01289, § 371 Date Apr. 19, 1991, § 102(e) Date Apr. 19, 1991, PCT Pub. No. WO90/05106, PCT Pub. Date May 17, 1990
PCT Filed Oct. 28, 1989, Ser. No. 678,353
Claims priority, application Fed. Rep. of Germany, Nov. 5, 1988, 3837596
Int. Cl.[5] D01G *27/00*; B65H *54/80*
U.S. Cl. 19—159 R 8 Claims

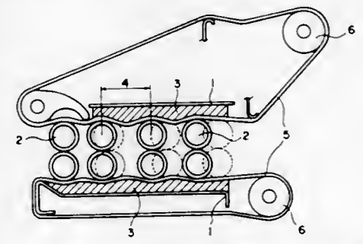


1. In a can coiler with an outlet channel for delivering a sliver to a can, said outlet channel being fastened to a rotating turn table and following a circular path, and with calender rolls, for transporting said sliver, being rotatably fastened to said turntable upstream said outlet channel, and having a sliver cutting device with a cutting element that is movable, transverse to a longitudinal direction of said sliver, into and away from said circular path of said outlet channel and into and out of a peripheral groove comprised by said turn table, the improvement wherein:
said cutting element consisting of a cutting knife with a blade and a cutting edge for a cutting process, said process consisting of a pulling cutting action, said knife being moved into said circular path into a cutting position so as to cut the sliver, with said cutting edge in said cutting position extending to a radial line of said circular path, said radial line being essentially perpendicular to said cutting edge.

5,208,947
CLEARER FOR DRAFT ROLLERS

Hiroaki Sanno, Nonoichi, and Hiroshi Nakayama, Kanazawa, both of Japan, assignors to Murao and Company Limited, Kanazawa, Japan

Filed Mar. 5, 1992, Ser. No. 845,426
Claims priority, application Japan, Mar. 14, 1991, 3-049645
Int. Cl.[5] D01H *5/60*, *5/64*
U.S. Cl. 19—262 7 Claims

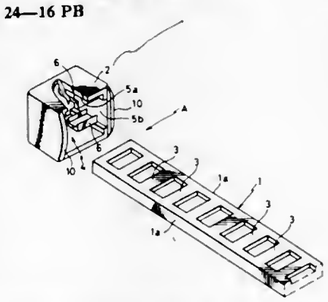


1. A clearer for clearing draft rollers comprising a cloth guide urging a clearer cloth into contact with the draft rollers, said clearer further comprising elastic means for substantially conforming to a space laterally bounded between a cloth plate and said clearer cloth.

5,208,948
APPARATUS FOR AND METHOD OF BINDING ELECTRIC CABLES

Shigenobu Nirei, Mitaka, Japan, assignor to Nirei Industry Co., Ltd., Tokyo, Japan

Filed Nov. 12, 1991, Ser. No. 789,871
Claims priority, application Japan, Nov. 27, 1990, 2-124767[U]
Int. Cl.[5] B65D *63/00*
U.S. Cl. 24—16 PB 2 Claims



1. A binding article for binding an object to be bound, comprising:

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(a) an elongated binding band for binding the object to be bound by winding the band around the object in a loop-like fashion and formed with a plurality of convex-like gears in a rack-like fashion on a surface of the binding band;

(b) a stopper having:

i) an opening portion through which the binding band is inserted with respective back faces of the binding band overlapping, said binding band having a portion protruding from the stopper;

ii) an inside wall of the opening portion having two opposing portions;

iii) an opening end of the opening portion; and

iv) a pair of pawl members, each pawl member being concurrently projected from one of the opposing portions of the inside wall of the opening portion, each pawl member engaging with said convex-like gears of the binding band, and each pawl member having a top, unattached end; and

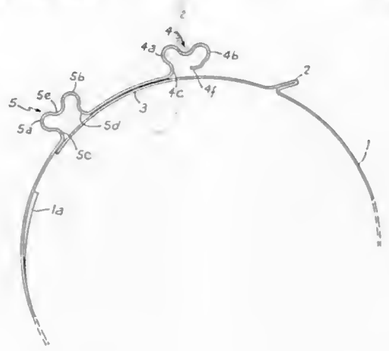
(c) parallel ribs protrusively formed on both sides of the opening end of the opening portion of said stopper, said opening end facing the top, unattached end of the pawl members and a space being formed between the parallel ribs so that a cutter for cutting said protruding portion of said binding band may pass between the ribs.

5,208,949

ELASTIC CLAMP FITTING

Lionel Calmettes, and Michel Andre, both of Romorantin Lanthenay, France, assignors to Etablissements Caillau, France

Filed Dec. 11, 1991, Ser. No. 804,962
Claims priority, application France, Dec. 19, 1990, 90 15955
Int. Cl.[5] B65D *63/00*
U.S. Cl. 24—20 R **13 Claims**



1. A clamp comprising:

a) a metal band wound on itself including an inner end provided with a first lug and an outer end provided with a hook to form a complementary fastening means, the hook adapted to pass over the first lug during the clamping operation; and

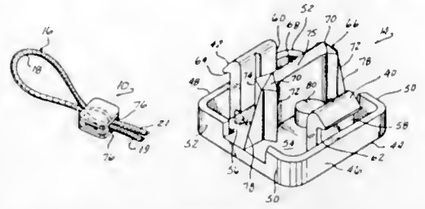
b) at least one group of alternating undulations projecting outwardly from the outer periphery of said metal band and forming an M-shaped portion, said group of undulations including a first joining section connecting said group of undulations to said metal band, the first joining section having a radius of at least twice the thickness of said metal band and extending through an arc of at least 90°.

5,208,950

ELASTIC CORD LOCK

Richard C. Merritt, Barrie, Canada, assignor to Polytech Netting Industries, L.P., Ontario, Canada

Filed Feb. 27, 1992, Ser. No. 842,453
Int. Cl.[5] F16G *11/00*
U.S. Cl. 24—115 H **10 Claims**



1. An elastic cord lock for securing two sections of cord and preventing slippage therebetween, the cord lock comprising:

two body portions each having sections which, joined together, define tortuous paths for each of the cord sections, the tortuous paths being sized such that the cords must be stretched to be positioned within such tortuous paths, wherein the body portions comprise:

a female body section and a male body section, the female body section having opposed concave walls terminate at the opposite ends defining cord openings through which said cord extends through said female body;

said male body section comprising opposed concave walls and a centrally disposed I-shaped web member which is received by said female body section to divide said female body section into two tortuous paths for receiving said cord sections, the distance between said I-shaped member and the opposed walls of said female body section defining an interference fit to receive the stretched portions of said stretchable cords; and

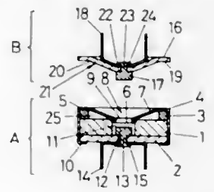
means for securing the body portions to each other to lock the cords in position.

5,208,951

MAGNETIC LOCK DEVICE

Yoshihiro Aoki, Tokyo, Japan, assignor to Application Art Laboratories Co., Ltd., Tokyo, Japan

Filed Dec. 24, 1991, Ser. No. 813,011
Claims priority, application Japan, Dec. 28, 1990, 2-417578
Int. Cl.[5] A44B *21/00*
U.S. Cl. 24—303 **16 Claims**



1. A magnetic lock device, comprising:

a first element comprising a permanent magnet with a center bore extending therethrough, said permanent magnet having a first side for providing one polarity and a second side opposite to said first side for providing the opposite polarity, a first ferromagnetic plate rigidly attached to said one side of said permanent magnet, a rod of ferromagnetic material extending from said first ferromagnetic plate into said center bore of said permanent magnet, and a nonferromagnetic enclosure housing said permanent magnet and said first ferromagnetic plate as a single unit, said nonferromagnetic enclosure having a center bore aligned with said center bore of said permanent magnet; and

a second element comprising a second ferromagnetic plate for detachable attachment with said first ferromagnetic plate of said first element and a rod of ferromagnetic material extending from said second ferromagnetic plate for at least indirectly detachably engaging said first ferromagnetic plate through said rod of ferromagnetic material of said first element when said rod of said second element extends through said center bores of said nonferromagnetic enclosure and said permanent magnet;

wherein said nonferromagnetic enclosure has a depressed surface inclining downwardly from a peripheral marginal edge thereof toward said center bore; and

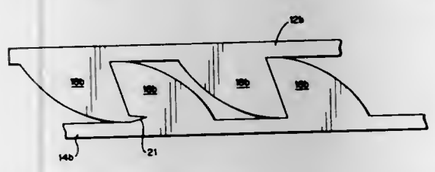
wherein an air gap is defined between said depressed surface of said nonferromagnetic enclosure and said second side of said permanent magnet.

5,208,952

CLOSURE DEVICE FOR RIB LOCK

Thomas E. Mintel, Rahway; Henry D. Cross, III, Colts Neck, both of N.J., and Robert C. Sullivan, Chappaqua, N.Y., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Sep. 11, 1991, Ser. No. 757,822
Int. Cl.[5] A44B *21/00*
U.S. Cl. 24—580 **5 Claims**



1. A fastener device comprising:

a pair of strap structures having a plurality of identical ribs on each of said strap structures, each of said ribs extending across the respective strap structure form side to side thereof, said ribs each having a flat front face extending at an angle of about 45° to 75° with respect to said strap structures, each of said ribs having an arcuate rear face, the spacing between said ribs being such that when said ribs are interlocked with their flat front faces in locking engagement the respective rear faces are spaced apart to facilitate engagement and disengagement of said ribs; and wherein at least one rib is provided with a sharp knife edge member for penetrating the opposing rib when the strap structures are interlocked.

5,208,953

SEAT BELT BUCKLE HAVING PIVOTAL LEVER

Bob L. McFalls, Shelby Township, Macomb County, Mich., assignor to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Nov. 26, 1991, Ser. No. 800,444
Int. Cl.[5] A44B *11/10*
U.S. Cl. 24—639 **10 Claims**

5. A buckle for receiving a tongue connected to a seat belt, said buckle comprising:

means for defining a passage into which the tongue is movable;

locking means for locking the tongue in said passage, said locking means including a locking member which is movable in said passage, said locking member being movable into engagement with the tongue when the tongue is received in said passage to lock the tongue in said passage, said locking member being movable out of engagement with the tongue to release the tongue for movement out of said passage;

unlocking means for unlocking the tongue, said unlocking means including an unlocking member which is movable relative to said locking member, said unlocking member having means for moving said locking member out of engagement with the tongue when said unlocking member is moving relative to said locking member; and

lever means for moving said unlocking member relative to said locking member, said lever means comprising a lever arm supported for pivotal movement about a pivotal axis, said lever arm having a handle portion and a cam surface;

said cam surface on said lever arm being movable in sliding contact with said unlocking member to move said unlocking member relative to said locking member upon pivotal movement of said lever arm;

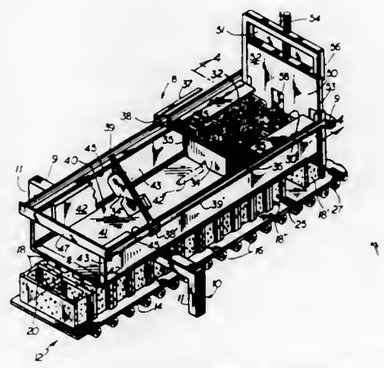
said handle portion of said lever arm being elongated in a lengthwise direction perpendicular to said pivotal axis, said handle portion of said lever arm having first and second side surfaces facing away from each other in opposite directions along said pivotal axis, said first and second side surfaces being spaced from each other a distance along said pivotal axis which is less than the length of said handle portion extending in said lengthwise direction.

5,208,954

MACHINE FOR THE AUTOMATED FITTING OF INSULATIVE FOAM INSERTS INTO MASONRY BUILDING BLOCKS

David L. Nickerson, Wilbraham, and Jeffrey A. Nickerson, Warren, both of Mass., assignors to Insulated Concrete Corporation, Mass.

Filed Jul. 26, 1991, Ser. No. 736,690
Int. Cl.[5] B29D *22/00*; E04B *2/00*
U.S. Cl. 29—33 K **9 Claims**



1. Machine for fitting insulative foam inserts sequentially into the cores of masonry building blocks carried by a conveyor, said machine comprising a base for supporting said machine in spaced relation with a section of the conveyor by which the building blocks are adapted to be carried, a maga-

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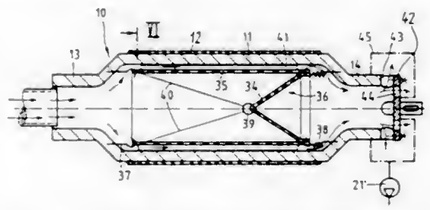
zine adapted to receive and support a line of said inserts in generally perpendicular orientation to said conveyor, reciprocating tamping means for sequentially moving at least one of said inserts in said line into the cores of said building blocks and means for continuously urging the line of inserts toward said tamping means and guide means disposed in registered relation with the tamping means for laterally compressing the inserts as they are moved into said building blocks.

5,208,955

ROLL

Christian Schiel, Heidenheim, Fed. Rep. of Germany, assignor to J.M. Voith GmbH, Fed. Rep. of Germany

Filed Mar. 23, 1992, Ser. No. 855,273
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1991, 4111911
Int. Cl.[5] B21B *27/06*; B60B *19/10*
U.S. Cl. 492—12 9 Claims



1. A roll for forming a press gap with a backing roll, said roll comprising:

a hollow rotatable roll body having two ends and featuring a roll shell, said roll body including a hollow roll journal at each end thereof, said roll shell and said hollow roll journals defining a one-piece roll body, each of the hollow roll journals and the roll shell having respective inside diameters wherein the inside diameters of the hollow roll journals are smaller than the inside diameter of the roll shell;

a guide body extending through the interior of said roll body, said guide body being one of stationary and fastened to said roll body, said guide body being formed of a flexible material, said guide body further being sized and configured to be inserted through one of said hollow roll journals and expanded to a cylindrical body inside the roll body, said guide body and said roll shell defining a channel system through which operationally flows a tempering medium; and

blowing means operatively connected to said channel system for supplying said tempering medium; said channel system and said blowing means being dimensioned so that when air is said tempering medium the air may flow through said channel system at a velocity of more than 10 m/sec.

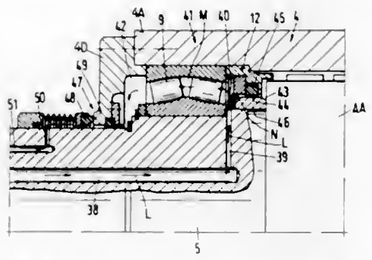
5,208,956

ROLL FOR USE IN CALENDERS AND LIKE MACHINES

Reinhard Wenzel, Krefeld; Thomas Hermsen, Issum, and Rolf Van Haag, Kerken, all of Fed. Rep. of Germany, assignors to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany

Filed Mar. 6, 1992, Ser. No. 847,778
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1991, 4107440
Int. Cl.[5] B21B *13/02*
U.S. Cl. 492—7 21 Claims

1. A controlled deflection roll comprising a carrier; a flexible rotary shell spacedly surrounding said carrier and having first and second end portions and a peripheral surface including first and second marginal sections surrounding the respective end portions of said shell and a main section between said marginal sections; hydraulic shell deforming means disposed between said carrier and said shell radially inwardly of said main section and including at least one row of deforming elements; first and second bearings disposed between said carrier and the respective end portions of said shell; means for supplying a first liquid to said deforming elements whence the first liquid overflows into a space between said carrier and said shell; means for feeding a second liquid to said bearings comprising a source of second liquid, means for conveying first and second main streams of second liquid from said source toward the respective bearings and means for dividing each of said main streams into a primary stream flowing to the respective



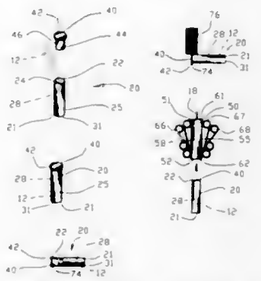
bearing and a secondary stream flowing toward said deforming elements, said flow dividing means comprising a first annular component and an axially movable second annular component adjacent said first component and defining therewith at least one hydrostatic pocket which establishes a path for the respective secondary stream, each second component being acted upon and being biased against the respective first component by the respective main stream of second liquid, one annular component of each of said flow dividing means being rotatable with said shell and the other annular component of each of said dividing means being provided on said carrier; and means for varying the rate of feed of said second liquid.

5,208,957

PROCESS OF ENCAPSULATING CREMATION ASHES WITHIN A JEWELRY CONTAINER

William M. Hereford, 1202 Hereford Rd., Ruskin, Fla. 33570

Division of Ser. No. 687,827, Apr. 19, 1991, Pat. No. 5,158,174. This application Jan. 21, 1992, Ser. No. 823,666
Int. Cl.[5] B21F *43/00*
U.S. Cl. 29—160.6 7 Claims



1. The process of encapsulating cremation ashes within a jewelry container, comprising the steps of:

fabricating a minor container having an opening;

fabricating a minor container cap for sealing the opening in the minor container;

transporting the minor container and the minor container cap to a location of the cremation ashes;

filling the minor container with the cremation ashes;

inserting the minor container cap into the opening of the minor container to temporarily seal the cremation ashes within the minor container;

affixing the minor container cap to the minor container to permanently seal the cremation ashes within the minor container;

fabricating a decorative major cylindrical container having an opening;

fabricating a major container cap for the opening in the major container;

inserting the minor container within the opening of the decorative major container; and

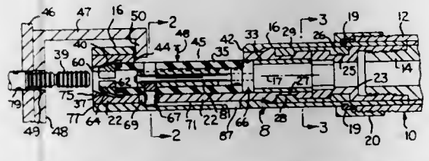
affixing the major container cap to the major container to retain the minor container within the major container.

5,208,958

FASTENER NOSE ASSEMBLY WITH REARWARD JAW RELEASE

Robert B. Wilcox, Kingston, N.Y., assignor to Huck Patents, Inc., Wilmington, Del.

Filed May 10, 1991, Ser. No. 698,526
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—252 16 Claims



1. A nose assembly for gripping and pulling a fastener pin positioned within a workpiece and for use with a tool member actuable for applying a relative axial force to said nose assembly, said nose assembly comprising:

a generally elongated tubular housing having an axially extending bore with a generally central axis;

a collet slidably and telescopically located within said bore of said housing, said collet having an internal jaw engagement surface;

connecting means for connecting said housing and said collet to the tool member whereby actuation of the tool member causes relative axial movement of said collet within said bore of said housing in response to said relative axial force from the tool member;

a segmented jaw structure located within said collet, said jaw structure having outwardly-facing actuator surfaces for engaging said jaw engagement surface;

support means extending axially relative to said axis of said bore for supporting said jaw structure; and

release means responsive to said relative axial movement of said collet within said bore of said housing toward said workpiece for halting movement of said jaw structure and for axially disengaging said jaw structure from said jaw engagement surface, said release means extending radially between said support means and said housing for abutting engagement therebetween.

5,208,959

OFFSET NOSE ASSEMBLY WITH PIN RELEASING ASSEMBLY FOR FASTENER INSTALLATION TOOLS

Hendrik E. Rosier, and Robert B. Wilcox, both of Kingston, N.Y., assignors to Huck Patents, Inc., Wilmington, Del.

Filed May 10, 1991, Ser. No. 698,525
Int. Cl.[5] B21J *15/18*
U.S. Cl. 29—252 20 Claims

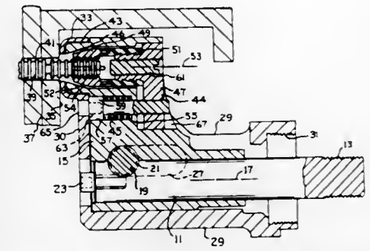
1. An apparatus for exerting an axial pulling force on a fastener pin having an axis and extending through a workpiece, said apparatus comprising:

a housing;

a drawbar positioned within said housing and having an axis and being connected to a fluid-operated actuator tool for relative motion along an actuator axis radially offset from the fastener pin;

a collet carried by said drawbar for movement therewith;

a segmented jaw structure having an axis radially offset from said drawbar axis and mounted on the collet for exerting a pulling force on the fastener pin, said collet having surface areas thereof aligned with said jaw structure so that axial



motion of said collet is effective to radially move said jaw structure into clamped engagement on the fastener pin; and

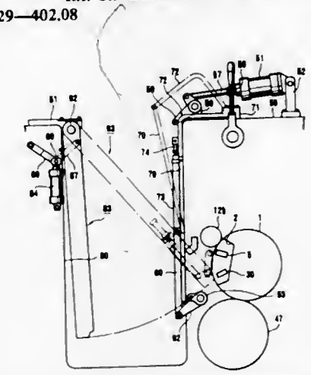
biasing means radially offset from said jaw structure axis for axially biasing said jaw structure relative to said collet and said housing so that during initial motion of said collet away from the workpiece said segmented jaw structure remains in a fixed position relative to said housing.

5,208,960

METHOD OF REPLACING PLATE FOR PRINTING PRESS

Kazuhiro Maejima; Hisaaki Oyoshi, and Toshio Miyamoto, all of Ibaraki, Japan, assignors to Komori Corporation, Japan

Division of Ser. No. 633,080, Dec. 19, 1990, abandoned. This application Oct. 24, 1991, Ser. No. 781,899
Claims priority, application Japan, Dec. 26, 1989, 1-337338; Apr. 3, 1990, 2-87439; Dec. 26, 1990, 1-149750[U]
Int. Cl.[5] B23P *6/00*, *19/04*
U.S. Cl. 29—402.08 10 Claims



1. A method of replacing an old plate mounted on a circumferential surface of each of 1 to Nth plate cylinders with a new plate, comprising:

rotating each of the 1 to Nth plate cylinder in a first direction;

stopping the 1 to Nth plate cylinders when a predetermined plate cylinder is located at first plate removal position;

removing the old plate mounted on the predetermined plate cylinder while rotating the 1 to Nth plate cylinders in the first direction;

stopping the 1 to Nth plate cylinders when a plate cylinder

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sequentially subsequent to the predetermined plate cylinder is located at a second plate removal position;

removing the old plate mounted on the sequentially subsequent plate cylinder while rotating the 1 to Nth plate cylinders in the first direction;

repeating the preceding two steps for each remaining plate cylinder of the 1 to Nth plate cylinders in a sequential manner from a plate cylinder sequentially following the sequentially subsequent plate cylinder to a plate cylinder sequentially preceding the predetermined plate cylinder until each old plate is removed from each of the 1 to Nth plate cylinders;

stopping the 1 to Nth plate cylinders when the predetermined plate cylinder is located at a first plate supply position;

supplying the new plate to the predetermined plate cylinder while rotating the 1 to Nth plate cylinders in a second direction;

stopping the 1 to Nth plate cylinders when the plate cylinder sequentially preceding the predetermined plate cylinder is located at a second plate supply position;

supplying the new plate to the sequentially preceding plate cylinder while rotating the 1 to Nth plate cylinders in the second direction;

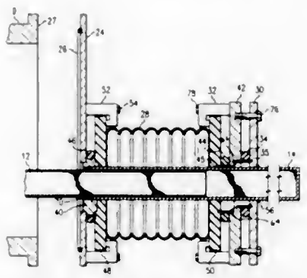
repeating the preceding two steps for each remaining plate cylinder of the 1 to Nth plate cylinders in a sequential manner from a plate cylinder sequentially prior to the sequentially preceding plate cylinder to the plate cylinder sequentially subsequent to the predetermined plate cylinder until each new plate is supplied to each of the 1 to Nth plate cylinders.

5,208,961

SEMICONDUCTOR PROCESSING FURNACE DOOR ALIGNMENT APPARATUS AND METHOD

Marc S. Lajoie, Grand Prairie, Tex., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Feb. 28, 1992, Ser. No. 843,537
Int. Cl.[5] B23P *19/04*; F27D *1/18*
U.S. Cl. 29—434 22 Claims



1. Furnace door alignment apparatus, comprising:

a furnace door movable with respect to an opening in said furnace, said door having an opening through which paddle apparatus is disposed so that said paddle apparatus is located in the furnace while said door is sealed to the furnace opening; and

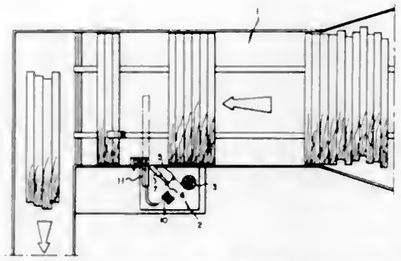
an alignment collar supporting said paddle apparatus with respect to said furnace door, said alignment collar having a bore therein through which said paddle apparatus passes, and said bore being offset from a central axis of said alignment collar so that when said alignment collar is rotated about said paddle apparatus, said door is moved with respect to said central axis.

5,208,962

METHOD AND APPARATUS FOR AFFIXING TAGS ON LUMBER

Allen R. Walker, Jr., Salem, Va., assignor to Tag-Matic, Inc., Salem, Va.

Filed Feb. 4, 1992, Ser. No. 831,056
Int. Cl.[5] B23P *11/00*
U.S. Cl. 29—432 9 Claims



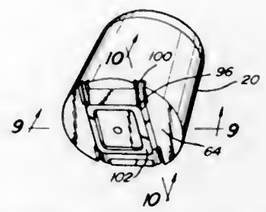
1. A method for securing tags on lumber comprising the steps of moving a plurality of individual pieces of lumber along a conveyor, activating a sensor switch as each individual piece of lumber approaches an elevated roller, stapling a tag on an end of one of the individual pieces of lumber while the sensor switch is activated and elevating the one individual piece of lumber on the roller, thereby resetting the sensor switch.

5,208,963

DIE FOR INSTALLING SEALING FASTENER

Harold A. Ladouceur, Livonia, Mich., assignor to Multifastener Corporation, Detroit, Mich.

Filed May 1, 1991, Ser. No. 693,892
Int. Cl.[5] B23P *11/00*
U.S. Cl. 29—432 5 Claims



1. A die member for joining a fastener to a panel, said fastener of a type having an insertion face including a generally rectangular pilot having a top face, said top face bounded by at least two opposing end walls, said fastener further including a flange portion on opposed sides of said pilot, each said flange portion having bearing surfaces lying in a plane spaced apart from said pilot top face, each said flange portion further including a groove in said bearing surface, each said groove having an inner side wall, an outer side wall, and a bottom wall extending between said inner and outer side walls, said inner side walls being disposed proximate said pilot and said outer side walls being disposed distal said pilot, said die member comprising:

a die body having a generally rectangular opening adapted to intimately engage said pilot portion of said fastener, said opening defined by at least two opposing end walls and two opposing side walls, said generally rectangular opening having generally arcuate corners, said opposed end walls being spaced apart such that the distance between said spaced apart end walls is less than the width of said fastener pilot between said two opposing end walls of said pilot, said die body opening being surrounded by a generally planer surface having a generally rectangular outer perimeter having generally arcuate corners, said die body further including

clinching lips located along opposing sides of said generally rectangular opening, said clinching lips having a flat top portion and inner and outer side walls, said inner side walls adapted to engage a portion of said panel proximate a panel opening and deform said portion of said panel proximate said opening against said inner side walls of said grooves,

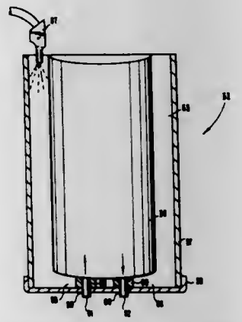
whereby, said panel is adapted to be disposed between said fastener and said die body, and said fastener insertion face is adapted to be passed through said panel opening and brought into operative engagement with said generally planer surface surrounding said generally rectangular opening of said die body, said opposing end walls and said arcuate corners being operative for deforming, parallel to the plane of said flange bearing surfaces, an edge portion of said pilot near said pilot end walls thereby forming a panel bearing surface on said pilot, said panel bearing surface generally extending across the width of the fastener end walls and into said grooves; said panel being supported upon said pilot bearing surface in a sealed relationship thereto in conjunction with said panel being deformed into said groves, thereby providing a continuous low pressure seal between said fastener and said panel and whereby said arcuate corners of said outer perimeter of said die body planer surface are adapted to engage said panel thereby forming arcuate depressions in said panel, said arcuate depressions being effective for resisting panel cracking due to fatigue.

5,208,964

METHOD OF MAKING A WATER HEATER CONSTRUCTION

Thomas E. Nelson, Crestwood, Ky., assignor to Soltech, Inc., Shelbyville, Ky.

Divisiom of Ser. No. 647,547, Jan. 29, 1991, which is a continuation-in-part of Ser. No. 392,342, Aug. 11, 1989, Pat. No. 4,992,223. This application May 5, 1992, Ser. No. 861,270
Int. Cl.[5] B29C *67/22*; B23P *19/04*
U.S. Cl. 29—460 2 Claims



1. A method of constructing a water heater comprising the following steps:

providing an inner water tank having in a normal-use orientation a top surface and a lower side wall portion;

providing enclosing means having a size and shape to fit over and around said inner water tank so as to define a clearance space therebetween;

positioning said tank and said enclosing means relative to each other so as to define therebetween said clearance space, said clearance space having a lower opening area adjacent said lower side wall portion;

orienting both the tank and the enclosing means in an inverted orientation such that said top surface is vertically below said lower side wall portion;

injecting foam-in-place insulation into said lower opening directed downwardly in the direction of said top surface so as to foam the portion of said clearance space which is adjacent the top surface of the inner water tank first;

filling only a portion of said clearance space with foamed foam-in-place insulation; and

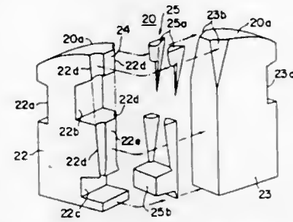
insulating with dry insulation material the portion of said clearance space not foamed.

5,208,965

METHOD FOR PRODUCING MAGNETIC HEAD HAVING TRACK REGULATION GROOVES FORMED AT TAPE SLIDING SURFACE

Makoto Ozeki; Takashi Tsutsui; Sohei Obara, all of Yokohama, and Kouji Nemoto, Yokosuka, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Division of Ser. No. 464,135, Jan. 16, 1990, Pat. No. 5,060,102.
This application Aug. 20, 1991, Ser. No. 751,591
Claims priority, application Japan, Jan. 17, 1989, 1-8128
Int. Cl.[5] G11B *5/42*
U.S. Cl. 29—603 12 Claims



1. A method for producing a magnetic head comprising:

providing a first pole-shaped body of ferromagnetic material;

cutting a first deep and long groove in a first surface of said first pole-shaped body;

cutting a second deep and long groove in said first surface of said first pole-shaped body parallel and spaced from said first groove;

cutting a third deep and long groove in a second surface of said first pole-shaped body parallel to said first groove, said second surface facing in a direction substantially oppositely to said first surface;

cutting a plurality of first notches in said first surface of said first pole-shaped body at an angle to said first surface and extending substantially transversely across said first deep and long groove to said second deep and long groove;

providing a second pole-shaped body of ferromagnetic material;

providing first and second oppositely facing surfaces on said second pole-shaped body;

cutting a deep and long groove in said second surface of said second pole-shaped body;

cutting a plurality of second notches in a corner of said first surface of said second pole-shaped body at an angle to said first surface thereof;

positioning said first and second pole-shaped bodies together with said first surfaces thereof in abutting contacting relationship with said groove in said second body parallel to said third groove in said first body and with said notches coinciding;

molding melted glass in said coinciding notches and said first and second grooves in said first pole-shaped body;

solidifying said glass in said notches and first and second grooves to join said pole-shaped bodies together;

regulating the shape of said joined bodies by a predeter-

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mined treatment to a predetermined outer surface thereof; and

dividing said joined body in planes extending through said notches and grooves into a plurality of magnetic heads having a predetermined shape wherein said first and second pole shaped bodies provide first and second head core half bodies, respectively, said first deep and long groove in said first pole-shaped body forms a winding groove in said first head core half body of each magnetic head, said third deep and long groove in said first pole-shaped body forms a first winding guide in said first head core half body of each magnetic head, said deep and long groove in said second pole-shaped body forms a second winding guide in said second head core half body of each magnetic head, and said second deep and long groove in said first pole-shaped body and said notches are filled with molded glass attaching said half bodies together to form each magnetic head.

5,208,966

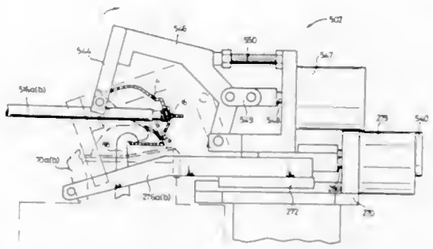
APPARATUS FOR ASSEMBLING DOOR HANDLE

Hiroyuki Noguchi; Darrell Stofford, and Lewis Sandridge, all of Marysville, Ohio, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 542,078, Jun. 22, 1990, Pat. No. 5,083,357, which is a division of Ser. No. 334,155, Apr. 6, 1989, Pat. No. 4,967,471. This application Oct. 1, 1991, Ser. No. 769,235

Int. Cl.[5] B23P *21/00*

U.S. Cl. 29—714 **3 Claims**



1. An apparatus for assembling a door handle primarily from a handle case and a handle in an assembling station disposed alongside of a looped conveyor, said apparatus comprising:

means for clamping a handle case and a handle which are assembled on a pallet;

stopper supply means for receiving a stopper in a vertically movable socket and moving said stopper into engagement with a needle on a robot wrist; and

a jig for temporarily unclamping said handle case and turning said handle case when said stopper is to be installed on said handle case.

5,208,967

TUBE EXTRACTION APPARATUS

James H. Beard, Leicestershire, Great Britain, assignor to Wicksteed Engineering Limited, Northants, United Kingdom

PCT No. PCT/GB89/01245, § 371 Date May 9, 1991, § 102(e) Date May 9, 1991, PCT Pub. No. WO90/04492, PCT Pub. Date May 3, 1990

PCT Filed Oct. 20, 1989, Ser. No. 681,526

Claims priority, application United Kingdom, Oct. 26, 1988, 8825063; Jan. 25, 1989, 8901586

Int. C.[5] H66F *1/08*

U.S. Cl. 29—726 **6 Claims**

1. Apparatus for effecting stepwise lengthwise movement of elongated articles, said apparatus comprising:

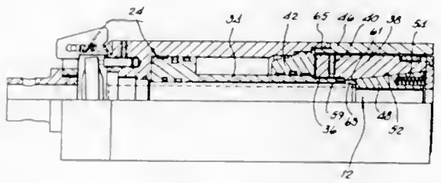
a) primary article gripping means,

b) fluid actuator means to apply to said primary article gripping means an extraction load to be applied to an article to be moved in a lengthwise direction to effect extraction movement thereof,

c) secondary article gripping means comprising a gripping collar to encircle and engage and grip said article by tilting relative thereto;

d) biasing means for urging said collar into a titled position such that movement of the article in a return direction is inhibited,

e) said primary and secondary said article grippiag means being independently operable in sequence to apply, respectively, an extraction load in one direction and then a non-return gripping effect to inhibit elastic return move-



ment of a tube being extracted, and/or to inhioit axial movement of the main body of the apparatus between successive extraction steps,

f) said fluid operated actuator comprising a piston and cylinder arranged of annular configuration co-axially and around the lengthwise tube-pulling axis of the apparatus, and an annular piston rod provided intermediate said primary and secondary gripping means,

g) said primary gripping means, which applies an extraction load to a tube to be extracted, comprising a series of radially-movable jaw elements which are circumferentially spaced about the periphery of the tube in use, and said primary and secondary gripping means provided in a common housing.

5,208,968

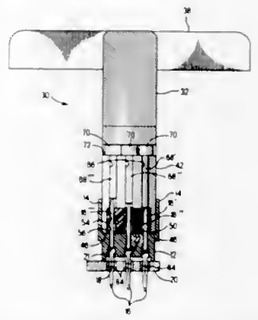
PROGRAMMABLE INSERTION TOOL FOR A PIN HEADER

Edwin Camsell; Wolfgang E. A. Feiber; Jackie A. Kline, all of Harrisburg, and Douglas C. Rubendall, Millersburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 27, 1991, Ser. No. 799,496

Int. Cl.[5] H01R *43/00*

U.S. Cl. 29—739 **8 Claims**



1. A programmable insertion tool for inserting a plurality of contact pins of a connector into respective openings in a substrate, said tool comprising:

(a) a body; and,

(b) a plurality of elongated members arranged within openings in said body, each of said elongated members being in axial alignment with a respective one of said contact pins and having an end in abutting engagement with said respective one contact pin during said inserting, each elongated member disposed at a selected distance from said substrate for engaging corresponding ones of said plurality of contact pins, said plurality of elongated members including at least first and second elongated members disposed at selected different relative distances from said substrate and engaging first and second ones of said contact pins, respectively, such that when said body is urged toward said substrate, each of said plurality of contact pins is inserted to a selected depth in its respective said opening, said selected depth corresponding to said selected distance of a respective said elongated member from said substrate, and the first contact pin is inserted to a first depth different from a depth of the second contact pin.

5,208,969

ELECTRONIC COMPONENTS MOUNTING APPARATUS

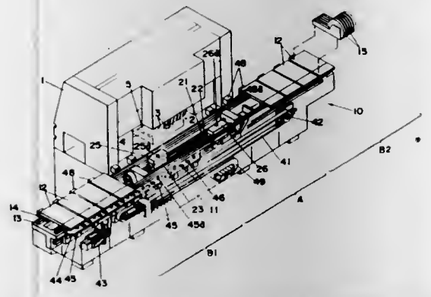
Wataru Hidese, Chikushino, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 22, 1991, Ser. No. 796,173

Claims priority, application Japan, Nov. 29, 1990, 2-333935

Int. Cl.[5] B23P *19/00*

U.S. Cl. 29—740 **7 Claims**



1. An electronic components mounting apparatus comprising pick-and-place heads rotated for indexing along a rotary head, and an electronic components feeding device for feeding electronic components to said pick-and-place heads, and an X-Y table for positioning a circuit board, the electronic components of said electronic components feeding device being picked up by said pick-and-place heads and mounted on said circuit board, wherein:

said electronic components feeding device comprises a plurality of tables where feeders of the electronic components are placed, a base having said tables movably mounted thereon, a first feeding means for moving said tables in lateral direction along which said tables are arranged in a feeding area at a central part of said base in order to stop said feeder at a pickup position on the pick-and-place head, and a second feeding means for moving said tables between retreat areas on the sides of said base and said feeding area.

5,208,970

APPARATUS FOR FEEDING SLIDE FASTENER CHAIN WITH ATTACHED FABRIC STRIPS

Kiichiro Ishikawa, Marietta, Ga., assignor to Yoshida Kogyo K. K., Tokyo, Japan

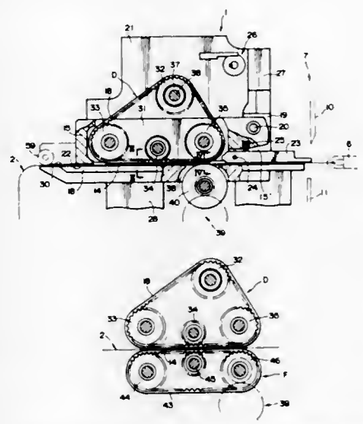
Filed Aug. 27, 1992, Ser. No. 935,967

Int. Cl.[5] A41H *37/06*

U.S. Cl. 29—768 **7 Claims**

1. An apparatus for feeding to a processing station a continuous slide fastener chain which has a pair of interengaged rows of coupling elements secured on inner edges of respective tapes of a pair of tapes of the slide fastener chain, and strips of fabric secured on an outer edge of at least one of the tapes at predetermined intervals, said apparatus comprising:

(a) a pair of opposed upper and lower guide members disposed upstream of the processing station and defining



therebetween a feed path for feeding a continuous chain with attached strips along; and

(b) a drive endless belt unit mounted on either one of the guide members for pressing contact with the continuous chain with attached strips over a suitable length thereof and connected with a drive source to positively feed the continuous chain with attached strips along the feed path.

5,208,971

PROCESS OF MANUFACTURING A MAGNETIC HEAD

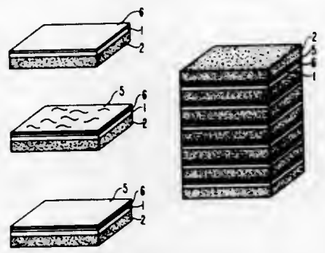
Shunsaku Muraoka; Eisuke Sawai, both of Hirakata, and Etsuko Suzuki, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 15, 1991, Ser. No. 700,461

Claims priority, application Japan, May 17, 1990, 2-128477

Int. Cl.[5] G11B *5/127*

U.S. Cl. 29—603 **4 Claims**



1. A method of manufacturing a magnetic head, comprising the steps of:

forming a plurality of compound substrates each by forming a magnetic metal material layer at least on one side of a non-magnetic oxide substrate and forming an anti-diffusion film on said magnetic metal material layer, and forming a crystallization glass layer by sputtering at least on one side of said non-magnetic oxide substrate on which

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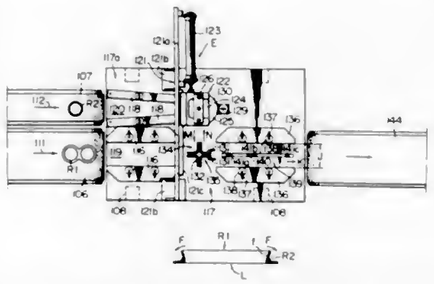
said anti-diffusion film and said magnetic metal material layer have been formed;
heat-treating each of the plurality of compound substrates in an atmosphere containing oxygen;
laminating the heat-treated plurality of compound substrates;
heat-treating the laminated plurality of compound substrates under pressure to form a laminate;
processing said laminate to obtain a pair of core bars each having a gap forming surface;
grinding said gap forming surface of each of said core bars to smooth said gap forming surface;
forming a non-magnetic material layer on said gap forming surface;
butting said core bars at said gap forming surfaces; and
heat-treating said gap forming surfaces under pressure so as to bond said gap forming surfaces of said core bars.

5,208,972

APPARATUS FOR ASSEMBLING RING-SHAPED ARTICLES

Shogo Tanno, Itami; Toru Kashioka, Moriguchi; Etsuro Mamishin, and Kenji Kawamura, both of Nishinomiya, all of Japan, assignors to Mitsubishi Cable Industries, Ltd., Amagasaki and Nippon Reinz Co., Ltd., Yamato, both of Japan

Filed Nov. 19, 1991, Ser. No. 794,246
Claims priority, application Japan, Nov. 21, 1990, 2-316632; Nov. 21, 1990, 2-316633
Int. Cl.[5] B23P *21/00*
U.S. Cl. 29—788 **23 Claims**



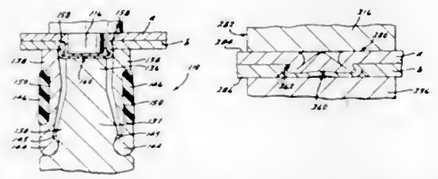
1. An apparatus for assembling ring-shaped articles comprising:
means for supplying first ring-shaped articles one by one to a first delivery end;
means for supplying second ring-shaped articles one by one to a second delivery end;
first article holding means disposed adjacent to said first delivery end for receiving and retaining thereon first ring-shaped articles one at a time;
second article holding means disposed adjacent to said second delivery end for receiving and retaining thereon second ring-shaped articles one at a time;
head means movable between said second and first article holding means for picking up the second ring-shaped article on said second article holding means to transfer the second article so as to place the same onto the first ring-shaped article on the first article holding means in concentrically overlapping relation; and
die means movable toward and away from the first article holding means for acting upon the overlapped first and second ring-shaped articles on the first article holding means to deform the first ring-shaped article so as to cause one article to engage the other article, thereby producing an inseparable pair of the first and second articles.

5,208,973

APPARATUS FOR JOINING SHEET MATERIAL

Edwin G. Sawdon, St. Clair, Mich., assignor to BTM Corporation, Marysville, Mich.

Continuation-in-part of Ser. No. 748,858, Aug. 23, 1991, Pat. No. 5,177,861, which is a continuation-in-part of Ser. No. 694,141, May 1, 1991, Pat. No. 5,150,513, which is a division of Ser. No. 468,579, Jan. 23, 1990, Pat. No. 5,027,503, which is a division of Ser. No. 175,941, Mar. 31, 1988, Pat. No. 4,910,853, which is a division of Ser. No. 853,130, Apr. 17, 1986, Pat. No. 4,757,609, which is a continuation-in-part of Ser. No. 607,948, May 7, 1984, abandoned, which is a division of Ser. No. 495,440, May 17, 1983, Pat. No. 4,459,735, which is a continuation of Ser. No. 184,951, Sep. 8, 1980, abandoned. This application Nov. 22, 1991, Ser. No. 796,477
The portion of the term of this patent subsequent to Jul. 19, 2005, has been disclaimed.
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—798 **19 Claims**



1. An apparatus for joining two or more overlying sheet material items having a combined thickness, the apparatus including punch means and further comprising:
first and second die members having operative portions configured to cooperate with the punch means to forcibly deform portions of the sheet material items into a first stage joint therebetween without shearing the sheet material items when the punch means and said die members are moved relatively toward one another in a generally longitudinal direction, said die members defining an opening for receiving the sheet material portions during such deformation into said first stage joint;
means for mounting the operative portions of said die members for lateral movement with respect to one another;
an anvil disposed in said opening and having an end surface against which the sheet material portions can be pressed by said punch means during said deformation into said first stage joint; and
press means for forcibly flattening said first stage joint in order to form a flattened second stage joint, said flattened second stage joint lying within the combined thickness of the sheet material items.

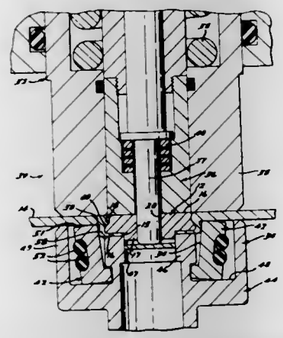
5,208,974

APPARATUS FOR ATTACHING A FASTENER TO SHEET MATERIAL

Stephen B. Sawdon, Marysville, and Edwin G. Sawdon, St. Clair, both of Mich., assignors to BTM Corporation, Marysville, Mich.

Continuation-in-part of Ser. No. 694,141, May 1, 1991, Pat. No. 5,150,513, which is a division of Ser. No. 468,579, Jan. 23, 1990, Pat. No. 5,027,503, which is a division of Ser. No. 175,941, Mar. 31, 1988, Pat. No. 4,910,853, which is a division of Ser. No. 853,130, Apr. 17, 1986, Pat. No. 4,757,609, which is a continuation-in-part of Ser. No. 607,948, May 7, 1984, abandoned, which is a division of Ser. No. 495,440, May 17, 1983, Pat. No. 4,459,735, which is a continuation of Ser. No. 184,951, Sep. 8, 1980, abandoned. This application Jul. 26, 1991, Ser. No. 736,499
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—798 **66 Claims**

1. An apparatus for forming an attachment of an item to a sheet material, said item having an attachment portion with a lateral face and a transverse edge thereon, said apparatus comprising:
punch means;
die means defining an opening therein, and a fixed anvil disposed within said opening and defining the bottom thereof;
press means for forcibly moving said punch means generally longitudinally toward one another with said attachment portion and said sheet material therebetween in order to force said attachment portion and a portion of said sheet material into said opening without shearing said sheet



material and for forcibly pressing said attachment portion and a first part of said sheet material portion generally longitudinally against said fixed anvil to laterally deform said first part of said sheet material portion generally laterally outwardly in order to longitudinally interlock said attachment portion with said sheet material, said lateral deformation occuring without shearing said first part of said sheet material portion, said die means including a number of die members defining said opening, said die members being laterally movable relative to one another generally laterally outwardly away from one another in response to said lateral deformation.

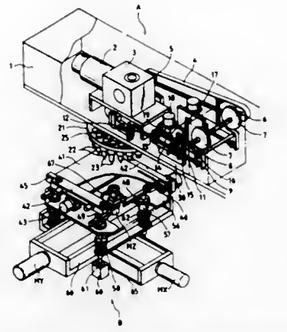
5,208,975

METHOD AND APPARATUS FOR MOUNTING ELECTRONIC PARTS

Wataru Hidese, Chikushino, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 723,915, Jul. 1, 1991, abandoned. This application Jul. 24, 1992, Ser. No. 918,063
Claims priority, application Japan, Jul. 6, 1990, 2-180047
Int. Cl.[5] H05K *3/30*
U.S. Cl. 29—832 **3 Claims**

1. A method of mounting an electronic component on a printed circuit board, comprising the steps of:
vertically moving the electric component through a stroke toward the printed circuit board;
adjusting the stroke of movement of the electric component in accordance with a thickness of the electronic component; and



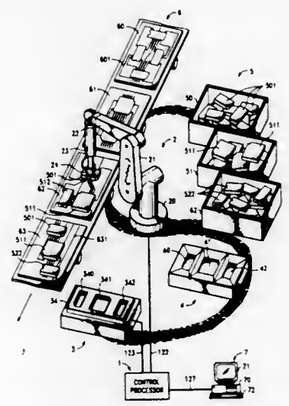
adjusting a height of the printed circuit board in accordance with the thickness of the electronic component.

5,208,976

APPARATUS AND METHOD FOR ASSEMBLING CIRCUIT STRUCTURES

Charles G. Bess, Little Rock; Walter W. Jones, Jr., and Edward E. Lewis, both of Benton, all of Ark., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

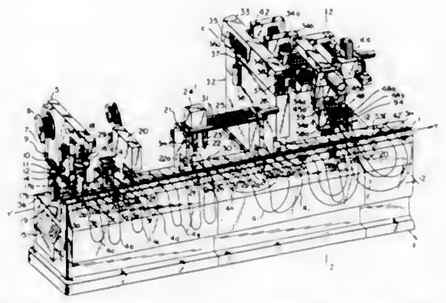
Filed Jun. 5, 1991, Ser. No. 710,631
Int. Cl.[5] H05K *3/30*
U.S. Cl. 29—837 **19 Claims**



1. A method for assembling circuit structures in a continuous assembly process wherein said circuit structure assembling method comprises the steps of
selecting components in response to a set of program instructions in a predefined sequence from a plurality of components and aligning each selected component to correspond with an orientation defined by the program instruction set required to mount the selected component at a specific location on circuit boards, and
electrically programming and configuring each selected and aligned component in accordance with subsets of the program instruction set and installing each programmed and configured component at predefined locations on the circuit boards.

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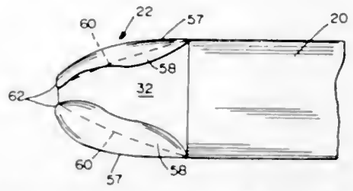
5,208,977
PROCESS FOR THE CONNECTION OF CONDUCTOR WIRE OR OPTICAL FIBER SECTION ENDS TO CONNECTORS
Claude Ricard, Villa Ste Magdeleine 52 Cours GAMBETTA, 13100 Aix En Provence, France
Filed Oct. 17, 1991, Ser. No. 777,697
Claims priority, application France, Oct. 17, 1990, 90 13137; Oct. 17, 1990, 90 13138; Oct. 17, 1990, 90 13139
Int. Cl.[5] A01R *43/04*
U.S. Cl. 29—861 14 Claims



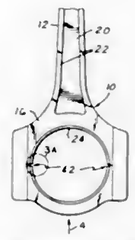
1. A process for the automatic connection of ends of sections of conductor wire or optical fiber, to connectors, said process including the steps of:
providing a conveyor having clamps which grasp and hold said ends;
intermittently transferring said clamps with said ends along a given transfer path;
selectively feeding some of said clamps with said ends to end processing units arranged laterally along said transfer path;
selectively modifying said ends on said some of said clamps using said end processing units;
feeding said clamps with said ends to an interchange unit which is placed laterally along said transfer path;
modifying the order of some of said ends on said conveyor through the use of said interchange unit;
feeding said clamps with said ends to at least one connection unit placed laterally along said transfer path downstream from said interchange unit;
said connection unit comprising means for taking each of said ends and connecting it to each of said connectors;
said connection unit selectively connecting said each of said ends to said each of said connectors in a predetermined manner;
said ends being connected in an order which may be different from the order in which said ends are fed to said connection unit.

5,208,978
METHOD OF FABRICATING AN ELECTRICAL TERMINAL PIN
Daniel A. Dixon, Naperville; Frederick J. Gierut, Tinley Park; Joe Lawniczak, Schaumburg; Arvind Patel, Naperville, and Michael Primorac, Chicago, all of Ill., assignors to Molex Incorporated, Lisle, Ill.
Division of Ser. No. 879,637, May 7, 1992, Pat. No. 5,188,547. This application Oct. 1, 1992, Ser. No. 955,186
Int. Cl.[5] H01R *13/03*
U.S. Cl. 29—874 5 Claims

1. A method of fabricating an electrical terminal pin having a pin tip or insertion into a mating electrical female terminal or a hole in a printed circuit board, comprising the steps of:
providing a pin blank with an electrically conductive core plated with an electrically conductive layer;
forming a pin tip on at least one end of the terminal pin with a generally rounded pyramidal configuration with four slightly curved convex sides joined at four edges converging at a pin end, with two opposite sides of the pin tip being non-plated and the other two opposite sides of the pin tip being plated with said conductive layer; and
further forming the pin tip such that portions of the conductive layer overlap the edges of the pin tip in a smooth configuration to eliminate any sharpness thereof.



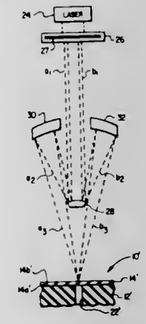
5,208,979
PREFRACTURE LASER FORMATION OF A STRESS RISER GROOVE
Howard Schmidt, 8082 Woodview, Clarkston, Mich. 48016
Continuation-in-part of Ser. No. 762,124, Sep. 19, 1991, abandoned. This application Sep. 25, 1992, Ser. No. 951,059
Int. Cl.[5] B23P *17/00*
U.S. Cl. 29—888.09 8 Claims



1. A method of manufacturing a multiple part metal component by using a beam of a laser comprising the steps of integrally forming the respective parts of the multiple part component as a single piece of steel; machining the component to approximately final dimensions; focusing the laser beam at an oblique angle with respect to the surface of the component; energizing the laser and moving the focused beam in a direction parallel to the surface of the component to produce a linear stress riser groove; applying a sufficient tension force normal to the stress riser groove so as to fracture the component into its parts.

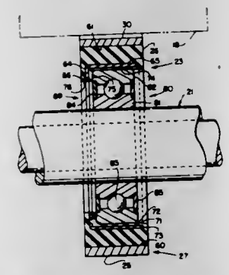
5,208,980
METHOD OF FORMING TAPERED ORIFICE ARRAYS IN FULLY ASSEMBLED INK JET PRINTHEADS
Donald J. Hayes, Plano, Tex., assignor to Compaq Computer Corporation, Houston, Tex.
Filed Dec. 31, 1991, Ser. No. 815,396
Int. Cl.[5] B41J *3/04*
U.S. Cl. 29—890.1 12 Claims

10. A method of forming an orifice array for an ink jet printhead comprising the steps of:
providing an ink jet printhead body having a front side and a plurality of ink-carrying channels axially extending therethrough, said ink-carrying channels in communication with said front side for the ejection of ink from said front side of said ink jet printhead body;
selecting a cover plate having front and inner sides to be mounted onto said front side of said ink jet printhead body based upon the desired size at the inner side of said cover plate of the orifices to be formed;
mounting the inner side of said cover plate onto said front side of said ink jet printhead body to cover said inkcarrying channels;
generating first and second cover plate ablating light beams for each orifice to be formed;



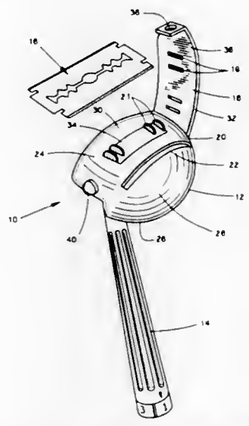
directing said front and second cover plate ablating light beams to specified locations on the front side of said cover plate corresponding to selected ones of said ink-carrying channels, said first and second cover plate ablating light directed towards said specified locations at first and second angles, respectively, to form ink-carrying channel communicating orifices extending through said cover plate, tapering outwardly therethrough and in respective communication with said selected ones of said ink-carrying channels.

5,208,981
DRIVE SHAFT SUPPORT
Bela Puzsik, 3325 Archwood Dr., Rocky River, Ohio 44116
Filed Jan. 19, 1989, Ser. No. 299,030
Int. Cl.[5] B29C *45/14*
U.S. Cl. 29—898.07 13 Claims



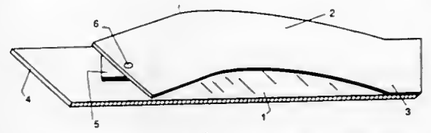
1. A method of making a drive shaft support comprising the steps of forming a first bracket part and a second bracket part; providing one of said bracket parts with a mounting hole; assembling the bracket parts to form a two-part generally annular bracket, closing said bracket parts between vulcanizing mold parts, which include a pilot core having a center extending between said vulcanizing mold parts, centered within said bracket, fixing with precision the distance between the bracket parts and the center of said pilot core, injecting rubber into the vulcanizing mold parts between the bracket and pilot core with the pilot core forming a hole in the injected rubber, and vulcanizing the rubber to cause it to bond to the bracket parts, opening the vulcanizing mold parts, and press fitting a bearing into the hole formed by said pilot core.

5,208,982
DEVICE TO SHAVE CONCAVE AREAS
Gerald A. Ferruzza, Jr., 1150 Cherry St., Lakeville, Mass. 02347
Continuation-in-part of Ser. No. 837,752, Feb. 19, 1992, abandoned. This application Oct. 6, 1992, Ser. No. 957,622
Int. Cl.[5] B26B *21/00*
U.S. Cl. 30—49 3 Claims



1. A razor comprising a head, a handle and a razor blade, the head including a body portion having an upper surface and a lower surface and a cover, the upper surface including a top portion and slot, the head being arcuate in configuration and having hinged means of movably engaging the cover, the cover positioned on the top portion of the upper surface and having a leading edge, a slot formed in the upper surface of the body portion and spaced from the leading edge of the cover, the razor blade positioned on the top portion.

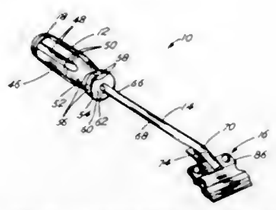
5,208,983
RETRACTING CUTTER
Joseph H. Masse, 151 Coggeshall St., New Bedford, Mass. 02746
Filed Aug. 19, 1991, Ser. No. 746,997
Int. Cl.[5] B25G *1/00, 1/02;* B26B *3/00*
U.S. Cl. 30—340 25 Claims



1. An adjustable self-retracting instrument comprising:
(a) a primary functional cutting section of said instrument;
(b) a first curved leg having upper and lower ends, said section being located at the lower end of said first leg; and
(c) a second shorter less curved leg having upper and lower ends, wherein at least one leg is made from a resilient material, said second leg being attached to said first leg at the upper end and resting against said section, whereby when said legs are compressed together said section extends beyond said lower end of said second leg for use.

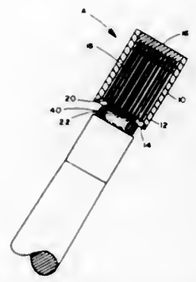
VOL 1150 ISS 2 MY 11 1993 UMI

5,208,984
MULTI-PURPOSE SCRAPING APPARATUS
Joel A. Negus, Clarinda, Inwa, assignor to Lisle Corporation, Clarinda, Iowa
Filed Apr. 2, 1991, Ser. No. 679,518
Int. Cl.[5] B26B *3/00*
U.S. Cl. 30—169 6 Claims



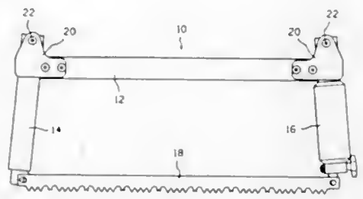
1. A multi-purpose scraping apparatus comprising, in combination:
a handle, a shank, and a blade receiving assembly;
the handle being constructed and arranged to facilitate gripping thereof by a human hand, and having means for securing the shank to the handle;
the shank being connected to the handle at one end and the blade receiving assembly at its opposite end, thereby maintaining the handle and the blade receiving assembly in spaced apart relation;
the blade receiving assembly comprising a back plate, a spring plate, a spring tongue and means for securing the spring plate to the back plate;
the back plate being connected to the shank; the spring plate being secured to the back plate; the spring tongue extending from the spring plate and providing means for moving the blade receiving assembly from a gripping position to a releasing position;
the back plate and the spring plate being constructed and arranged to cooperatively engage a blade to be used with the scraping apparatus and to bias the blade receiving assembly in the gripping position; whereby the spring tongue is moveable to effect movement of the blade receiving assembly from the gripping position to the releasing position;
the back plate having an outer face and an inner face;
the outer face having a proximal flat portion located proximate to the shank, a ridge and a distal flat portion, the ridge having at least one lateral indentation and being elevated in relation to the proximal flat portion;
the inner face having a proximal flat portion located proximate to the shank, a depression and a distal flat portion, the depression being depressed in relation to the proximal flat portion;
the back plate being constructed and arranged to be of substantially uniform thickness;
the spring plate having an outer face and an inner face; the outer face having a first proximal flat portion and a second proximal flat portion located proximate to the shank, a ridge and a distal flat portion, the ridge having at least one lateral indentation and being elevated in relation to the proximal flat portions;
the inner face having a first proximal flat portion and a second proximal flat portion located proximate to the shank, a depression and a distal flat portion, the depression being depressed in relation to the proximal flat portions;
the spring plate being constructed and arranged to be of substantially uniform thickness;
the means for securing the spring plate to the back plate defining a pivoting axis being substantially perpendicular to the shank; and
the distal flat portion of the inner face of the back plate being proximate to the distal flat portion of the inner face of the spring plate when the blade receiving assembly is in the gripping position, and the distal flat portion of the inner face of the back plate being moveable away from the distal flat portion of the inner face of the spring plate by depressing the spring tongue and moving the blade receiving assembly into the releasing position.

5,208,985
CUE TIP CONDITIONING DEVICE AND METHOD
Robert H. Carter, Hartwell, Ga., assignor to Glen L. Sadler, Jr., Toney, Ala.
Filed Sep. 15, 1988, Ser. No. 244,286
Int. Cl.[5] B27L *9/00*
U.S. Cl. 30—494 27 Claims



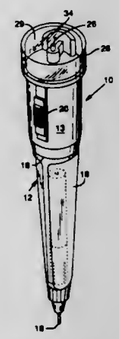
1. A device for conditioning a cue tip of a cue stick to accept chalk comprising:
a base;
an array of needles carried by said base terminating in free sharpened ends;
a holder carried with said base for manually tapping said needles against said cue tip to break up a hardened glazed over chalk surface on said cue tip and form minute perforations in said cue tip so that said cue tip accepts chalk; and
said holder including a protective casing carried by said base surrounding said array of needles for protecting objects from coming into contact accidentally with the sharpened ends of said needles.

5,208,986
FOLDING BUCKSAW
Randall C. Ryon, 36 Alina St., Fairport, N.Y. 14450, and Richard M. Baran, 1262 Conifer Cove La., Webster, N.Y. 14580
Filed Dec. 9, 1991, Ser. No. 803,519
Int. Cl.[5] B27B *21/02, 21/00;* A44B *21/00*
U.S. Cl. 30—506 3 Claims



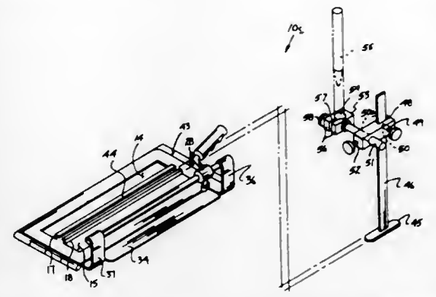
1. A foldable bucksaw, including:
an elongated hollow box frame forming a sawblade storage sheath;
left and right hollow handles pivotally connected to the ends of said box frame for movement between storage positions along said box frame and operative positions extending transversely of said box frame;
a sawblade removably connected to the lower ends of said handles;
an adjusting thumbscrew rotatably mounted on the lower end of said right handle, said thumbscrew threaded to and captively engaging a tensioner nut between walls of said right handle;
said tensioner nut including a central threaded portion for engagement with said thumbscrew, a depending blade mount portion adapted for attachment to said sawblade, and an upper portion extending upward into said hollow right handle to prevent rotation of said tensioner nut with rotation of said thumbscrew;
a first pair of opposed inwardly convex centering spring clips biased against each other within one end of said box frame, and a second pair of opposed inwardly convex centering spring clips biased against each other within the other end of said box frame, said spring clips effective to guide said sawblade along the interior of said frame and to engage said sawblade for storage thereof;
said spring clips each including end flanges biased against an interior wall of said frame, and a connecting web portion extending inward from said wall, said web portions of opposed spring clips biased against each other midway between the walls of said frame, said spring clips thereby effective to avoid the teeth of said sawblade when it is moved therealong.

5,208,987
MARKING DEVICE WITH VIBRATING YIELDABLE WRITING TIP
Richard P. Christen, Sandy, Oreg., assignor to Hart Enterprises, Inc., Vancouver, Wash.
Filed May 12, 1992, Ser. No. 881,873
Int. Cl.[5] B43K *19/00, 21/00;* B43L *13/00*
U.S. Cl. 33—18.1 17 Claims



1. A marking device for marking a writing surface comprising:
an elongate housing,
a writing tip and mounting means mounting the tip on the housing and in a position located beyond one end of the housing,
said mounting means including resilient yieldable means biasing the tip relative to the housing,
electrically powered means for producing oscillatory motion in the housing with such movement transmitted by the housing to the tip,
said resilient yieldable means providing for continuous contact of the tip with the writing surface during oscillation of the tip in a plane perpendicular to the tip while the marking device is held at an acute angle with the writing surface.

5,208,988
CUFF CUTTER APPARATUS
Herman Edelman, 8811 Canoga Ave. #414, Canoga Park, Calif. 91304
Filed Nov. 12, 1991, Ser. No. 790,822
Int. Cl.[5] B43L *13/00*
U.S. Cl. 33—32.3 3 Claims



1. A cuff cutter apparatus for marking a pants leg, wherein the apparatus comprises,
a template plate, the template plate including a front edge spaced from, coextensive with, and parallel to a rear edge, and
the template plate including a first side edge spaced from and parallel a second side edge, wherein the first side edge and the second side edge are orthogonally oriented relative to the front edge and the rear edge, and
a first enclosed slot adjacent the rear edge and parallel the rear edge defined by a predetermined length, and a second slot positioned between the first slot and the front edge parallel to the first slot and defined by a second slot length equal to the predetermined length, and
the first slot including a first slot rear edge spaced from a first slot front edge, and the second slot including a second slot rear edge spaced from and parallel a second slot front edge, and
the front edge is spaced from the second slot rear edge a predetermined first length, and the second slot rear edge is spaced from the first slot rear edge a predetermined second length, and the first slot rear edge is spaced from the template plate rear edge a predetermined third length, wherein the predetermined second length is equal to the predetermined third length and the predetermined first length is greater than the predetermined second length, and
including a clamp plate, the clamp plate including a clamp plate first side edge, and the clamp plate further including a threaded boss fixedly and orthogonally mounted to the clamp plate projecting upwardly thereof adjacent the first side edge, and the template plate first side edge including a bifurcated projection defining a projection slot to receive the threaded boss therethrough, and the clamp plate including a clamp plate second side edge, the clamp plate second side edge including a hinge mounted to the clamp plate second side edge and mounted to the template plate second side edge to permit pivotment of the template plate relative to the clamp plate, and the clamp plate including a clamp plate front edge spaced beyond the template plate front edge, and further including a polymeric insert anvil strip mounted within the clamp plate extending from the template front edge to substantially clamp the clamp plate front edge when the bifurcated projection receives a threaded boss therethrough, and the threaded boss includes a clamp fastener for securement to the threaded boss to secure the template plate to the clamp plate.

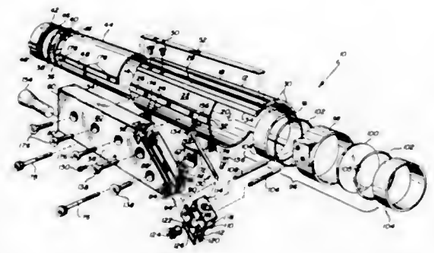
VOL 1150 ISS 2 MY 11 1993 UMI

5,208,989

SIGHT VIEWING APPARATUS

Ronald J. Sanders, P.O. Box 658, Floodwood, Minn. 55736

Division of Ser. No. 459,544, Jan. 2, 1990, Pat. No. 5,046,277.
This application Sep. 9, 1991, Ser. No. 756,814
Int. Cl.[5] F41G 1/34
U.S. Cl. 33—241 22 Claims



1. Viewing apparatus for sighting distant targets comprising, in combination: a generally enclosed and elongated see-through passage allowing viewing of the target therethrough; means for sighting the target along a single sight line extending through the enclosed and elongated see-through passage; an enclosed source of light located outside the enclosed and elongated see-through passage; means for allowing light from the source to pass into the enclosed and elongated see-through passage and generally without direct viewing from outside of the enclosed and elongated see-through passage; and means located within the enclosed and elongated see-through passage for reflecting the light passing into the enclosed and elongated see-through passage to illuminate the sighting means; wherein the sighting means comprises iridescent matter to self-luminate under low light conditions, with the self-luminating requiring energization of the source of light only for a time necessary to activate the iridescent matter to further reduce the possibility of viewing the source of light from outside the enclosed and elongated see-through passage.

5,208,990

MASONRY LEVEL APPARATUS

Oscar J. Woerlein, P.O. Box 954, Woodside, N.Y. 11377

Filed Mar. 30, 1992, Ser. No. 859,950
Int. Cl.[5] G01C 9/00
U.S. Cl. 33—354 3 Claims

1. A masonry level apparatus, comprising,

an elongate plate member, the plate member including a planar top surface spaced from and parallel to a planar bottom surface in a coextensive relationship, wherein the plate member further includes a first elongate side edge spaced from, parallel to, and coextensive with a second side edge, and

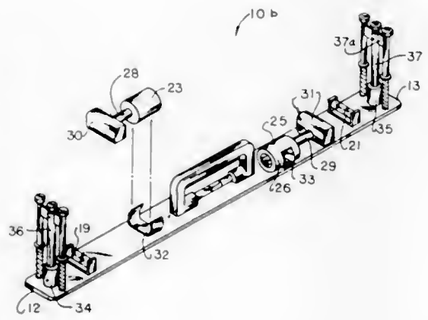
a first end edge spaced from, parallel to, and coextensive with a second end edge, wherein the first end edge and the second end edge are orthogonally oriented relative to the first side edge and the second side edge extending therebetween, and

a U-shaped handle loop fixedly mounted medially of the top surface extending orthogonally thereto, wherein the handle loop is oriented parallel and medially between the first side edge and the second side edge, and

a first spirit level tube mounted below the handle loop, wherein the handle loop includes spaced parallel handle loop legs and the first spirit level tube is positioned between the handle loop legs, and

a second spirit level tube mounted to the top surface parallel to and adjacent the first end edge, and a third spirit level tube fixedly mounted to the top surface parallel to and adjacent the second end edge, and

the second spirit level tube includes a second spirit level tube U-shaped support receiving the second spirit level tube therewithin, and the third spirit level tube includes a third spirit level tube U-shaped support fixedly receiving the third spirit tube therewithin to afford protection to the



second spirit level tube and the third spirit level tube respectively, and

a first support boss orthogonally mounted to the top surface between the first end edge and the second spirit level tube, and a second support boss orthogonally mounted to the top surface between the third spirit level tube and the second end edge, and the first support boss accommodating a first slide cylinder thereon, and the second support boss accommodating a second slide cylinder thereon, the first slide cylinder including a first impact rod slidably mounted within the first slide cylinder coaxially aligned with the first support boss, and the second slide cylinder including a second impact rod aligned relative to the second slide cylinder and the second support boss, and the first impact rod including a first handle orthogonally mounted to an upper distal end of the first impact rod, and the second impact rod including a second handle orthogonally mounted to an upper distal end of the second impact rod.

5,208,991

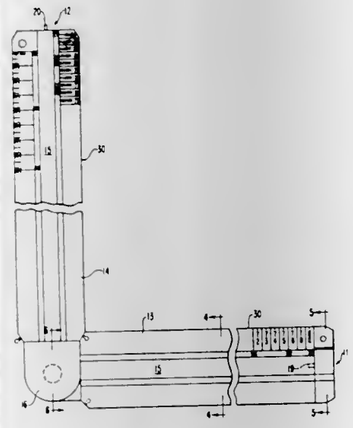
Patent Not Issued For This Number

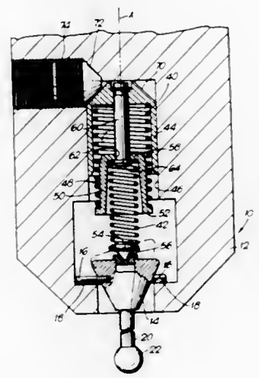
5,208,992

MEASURING INSTRUMENT

Jeffrey M. Syken, 211-10 73rd Ave. Apt. 4C, Bayside, N.Y. 11364

Continuation-in-part of Ser. No. 493,167, Mar. 14, 1990, Pat. No. 5,020,233. This application Jul. 15, 1991, Ser. No. 729,651
The portion of the term of this patent subsequent to Jun. 4, 2008, has been disclaimed.
Int. Cl.[5] B43L 7/10, 7/12
U.S. Cl. 33—472 8 Claims





1. An improved measuring apparatus for use with drawings employing different scales; wherein, the measuring apparatus comprises:

generally elongated male and female instrument members having opposite ends wherein one pair of ends are adapted to be releasably and pivotally connected to one another and the other pair of ends are adapted to be releasably and matingly engaged to one another in a straight line fashion; and

means associated with said male and female instrument members for captively yet releasably engaging said instrument members in both and L and an inverted L configuration.

5,208,993

TOUCH PROBE

Andrew J. Harding, Almondsbury, United Kingdom, assignor to Renishaw Metrology Limited, Gloucestershire, United Kingdom

Filed Mar. 19, 1992, Ser. No. 854,004
Claims priority, application United Kingdom, Mar. 28, 1991, 9106731
Int. Cl.[5] G01B 5/20
U.S. Cl. 33—559 7 Claims

1. A touch probe for use on a coordinate positioning machine, comprising:

a fixed structure by which the probe may be supported on a movable arm of the machine;

a stylus-supporting member supported relative to the fixed structure in a repeatable rest position from which the supporting member may be displaced under the influence of a deflecting force and to which the supporting member may return when the deflecting force is removed; and

biasing means for urging the supporting member into said rest position, said biasing means comprising a first biasing element acting between an abutment provided on the fixed structure and an intermediate member, and a second biasing element acting between the intermediate member and the supporting member;

adjusting means for adjusting a biasing force provided by said biasing means on said supporting member comprising means for adjusting a distance between said abutment and said supporting member; wherein

the intermediate member is movable relative to both the abutment and the supporting member; and

the first and second biasing elements have different spring rates, the biasing element with the lower spring rate being pre-loaded so that adjustment of said distance initially causes a change in the load applied to the supporting member at a rate of change of force with change of said distance which corresponds to the spring rate of the biasing element having the higher spring rate.

5,208,994

STYLUS COUNTERBALANCING MECHANISM FOR A MEASURING PROBE

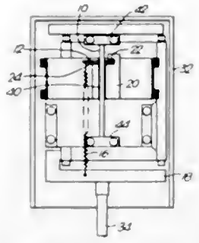
David R. McMurtry, Wotton-Under-Edge, and Stephen E. Lummes, Stroud, both of United Kingdom, assignors to Renishaw Metrology Limited, Gloucestershire, United Kingdom

Filed Apr. 6, 1992, Ser. No. 864,355
Claims priority, application United Kingdom, Apr. 12, 1991, 9107825
Int. Cl.[5] G01B 7/28
U.S. Cl. 33—561 4 Claims

1. A probe for use with a co-ordinate positioning machine,

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the probe having a housing, a stylus support member movably mounted within the housing to which may be attached different styli and a counterbalancing mechanism for counterbalancing at least part of the weight of the stylus, said mechanism comprising actuating means and resilient means connected between the actuating means and the stylus-support member for applying a force to the stylus support member in opposition to the weight of the stylus, said actuating means comprising an



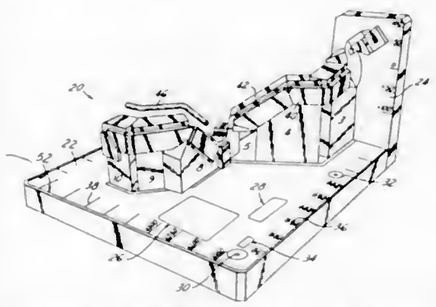
actuating member within the probe housing and which is movable between positions in which the resilient means exerts a greater or lesser force on the stylus-support member, releasable locking means for locking the actuating member in any of said positions after a movement thereof, and a projection extending from the actuating member through the housing to be operable from the outside of the probe to release said locking means and move the actuating member.

5,208,995

FIXTURE GAUGE AND METHOD OF MANUFACTURING SAME

Blair T. McKendrick, 29684 Kenloch Dr., Farmington Hills, Mich. 48331

Filed Mar. 27, 1992, Ser. No. 858,877
Int. Cl.[5] G01B *5/20*
U.S. Cl. 33—567 39 Claims



1. A method of manufacturing a gauge for checking conformance of features of a part with a reference standard, comprising the steps of:

(A) providing a set of spatial coordinates defining said reference standard in terms of a three dimensional coordinate system;

(B) producing a set of programmed, automated machine control instructions using said set of coordinates;

(C) producing a plurality of gauge parts including a gauge and a plurality of gauge blocks;

(D) etching reference marks on said gauge base and on at least certain of said gauge blocks using an automated machine controlled by said programmed instructions, said etching step including-

(1) etching a first set of alignment marks on said base and said certain gauge blocks for aligning said certain gauge blocks relative each other on said gauge base, and

(2) etching a second set of alignment marks on said certain gauge blocks for use in positioning said part in a preselected attitude on said gauge, said first and second sets of marks defining said reference standard in terms of said three dimension coordinate system; and

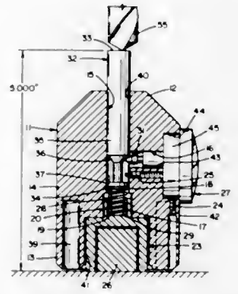
(E) securing said gauge blocks on said gauge base using said first set of reference marks to align said gauge blocks relative to said gauge base.

5,208,996

AXIS REFERENCE PROBE

Kurt Schaldach, 20409 Whitebark Dr., Strongsville, Ohio 44136

Filed Jan. 21, 1992, Ser. No. 822,868
Int. Cl.[5] G01D *21/00*
U.S. Cl. 33—644 8 Claims



2. An axis reference probe including in combination a body, a first bore extending longitudinally into said body, a plunger having first and second end portions residing in said first bore and movable between first and second positions therein, a plug residing in said first bore, a spring retainer attached to said plug and residing in said first bore, a spring carried by said spring retainer, said spring acting against said second end portion of said plunger and urging said plunger toward said first position, a cam surface on said plunger, a second bore extending generally transversely to the extend of said first bore and communicating between the exterior of said body and said first bore, a gage residing in said second bore at the exterior of said body, said gage having a rotary indicator, said gage having a cam following actuation arm engageable with said cam surface on said plunger for translating longitudinal movement of said plunger to said second position into rotary movement of said indicator.

5,208,997

APPARATUS FOR MEASURING THE THICKNESS OF FLOWER STEMS

Adrianus W. Tas, Nootdorp, Netherlands, assignor to Aweta B.V., Nootdorp, Netherlands

Filed Jan. 22, 1992, Ser. No. 824,209
Claims priority, application Netherlands, Jan. 22, 1991, 9100099
Int. Cl.[5] G01B *5/02, 5/10*
U.S. Cl. 33—783 9 Claims

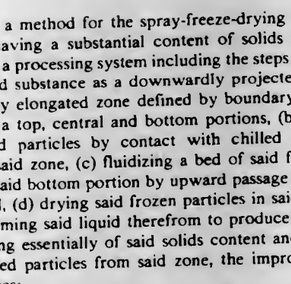
1. An apparatus for grading the stem thickness of a flower, comprising:

(1) an endless conveyor having a plurality of flower supporting means for receiving and supporting a vertically disposed single flower;

(2) a horizontally disposed rotatable restraining roller adapted to rotate about a fixed vertical shaft;

(3) a horizontally disposed rotatable and displaceable roller supported by a displaceable end of a lever such that a periphery of the displaceable roller is urged towards a periphery of the restraining roller by a spring means and the restraining roller and displaceable roller are positioned relative to the supporting members such that the stem of each flower in each support passes between said rollers;

(4) drive means for rotating one of said rollers at a peripheral



velocity which is approximately equal to a speed of the conveyor; or

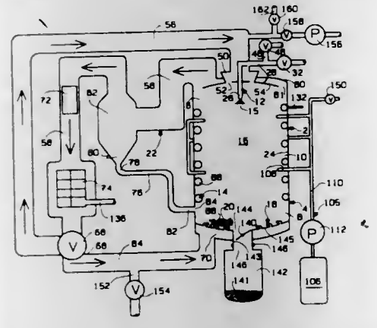
(5) measuring means for measuring a displacement of the displacement roller caused by the passing of a flower stem between the said rollers, whereby the thickness of the flower stem is determined.

5,208,998

LIQUID SUBSTANCES FREEZE-DRYING SYSTEMS AND METHODS

James R. Oyler, Jr., 2801 Ocean Dr., Vero Beach, Fla. 32963

Continuation-in-part of Ser. No. 659,727, Feb. 25, 1991, abandoned. This application Oct. 3, 1991, Ser. No. 770,456
Int. Cl.[5] F26B *5/06*
U.S. Cl. 34—5 27 Claims



17. In a method for the spray-freeze-drying of a fluid substance having a substantial content of solids dissolved in a liquid in a processing system including the steps of (a) spraying said fluid substance as a downwardly projected spray into a vertically elongated zone defined by boundary walls and including a top, central and bottom portions, (b) freezing said atomized particles by contact with chilled gas circulated within said zone, (c) fluidizing a bed of said frozen particles within said bottom portion by upward passage of gas through said bed, (d) drying said frozen particles in said fluidized bed by subliming said liquid therefrom to produce dried particles consisting essentially of said solids content and (e) removing said dried particles from said zone, the improvement which comprises:

maintaining said system at essentially atmospheric pressure throughout the course of said method,

exhausting gas from said top portion of said zone throughout the course of said method,

injecting gas into said bottom portion of said zone throughout the course of said method, and

during said spraying step, surrounding said projected spray with a downwardly flow of gas.

5,208,999

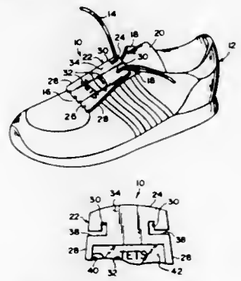
Patent Not Issued For This Number

5,209,000

DISPLAY FOR FOOTWEAR

Edward P. Rowland, 660 Arlington Dr., Seaford, N.Y. 11783, and George Spector, 233 Broadway Rm. 3815, New York, N.Y. 10007

Filed Feb. 20, 1991, Ser. No. 658,230
Int. Cl.[5] A43B *5/00, 23/24*
U.S. Cl. 36—136 2 Claims



1. A display attachment for a shoe of the type having a lace, an instep, a pair of flaps and a tongue, said attachment comprising:

a) a flexible plate having a curved top edge, a fringed bottom edge, a pair of tapering side edges and a pair of spaced apart apertures formed within said plate proximate the curved top edge so that the ends of the lace can be inserted through said apertures and tied together with said plate covering the instep, flaps and tongue of the shoe; and

b) indicia placed upon the front face of said plate for a decorative appearance thereof; and

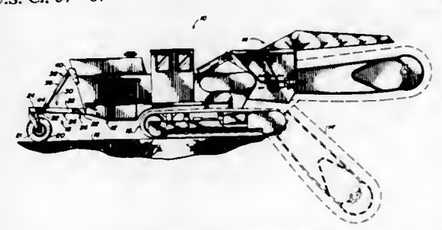
c) a recessed window with a transparent cover for placement of indicia therein; further including said plate having a pair of L-shaped slots, each extending from one of the apertures to the curved top edge for easy assembly and disassembly of the lace.

5,209,001

TRENCHING MACHINE WITH LONGITUDINALLY STABILIZED MAIN FRAME FOR STABILIZING DIGGING IMPLEMENT

Jerry F. Gilbert, 3545 E. Main St., Grand Prairie, Tex. 75050

Filed Apr. 14, 1992, Ser. No. 869,349
Int. Cl.[5] E02F *5/06*
U.S. Cl. 37—87 20 Claims



1. A ground supported excavating machine having a main

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frame, said main frame has opposed ends; support and propelling means attached to said main frame for supporting and propelling the machine along the ground; means supporting a digging implement at one end of said main frame for excavating longitudinally of said main frame as the machine travels along the ground, and a stabilizer apparatus supported at the other end of said main frame in opposition to the digging implement;

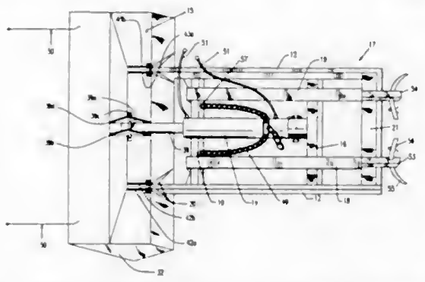
said stabilizer apparatus includes a knuckle to which there is pivotally attached a yoke for pivoting about a vertical axis; a horizontally mounted wheel axle attached to the lower end of said yoke, a wheel rotatably supported in journaled relationship on said axle; said yoke and knuckle cooperate together to allow said wheel to caster as it makes rolling contact with the ground;

said stabilizer apparatus further includes elevator means to which said knuckle is attached; said stabilizer apparatus is attached for movement to said main frame for elevating and for lowering said knuckle and thereby place the wheel in rolling contact with the ground and thereby elevate the end of the frame to which the stabilizer apparatus is attached while selectively forcing said digging implement against the ground; and, means for controlling the force with which the elevator means elevates and lowers said knuckle respective to the frame.

5,209,002
FRONT-END BUCKET ASSEMBLY FOR USE WITH 4-WHEEL DRIVE VEHICLE

Dominick R. Tranquilli, Basking Ridge; Greg H. Hamm, Parsippany, and Stephen K. Quigley, Washington, all of N.J., assignors to Transtar Truck Body and Welding Co., Inc., Califon, N.J.

Filed Aug. 20, 1991, Ser. No. 747,624
Int. Cl.[5] E02F *3/28*
U.S. Cl. 37—442 **8 Claims**



1. An H-shaped frame assembly for attaching a bucket having a rear panel to a vehicle, comprised of a pair of push beam arms generally parallel to each other, each push beam arm having a front and rear end, each front end being pivotally attached to the rear panel of said bucket;

a front H-beam cross beam, and a rear cross-brace, each of said front cross-beam and rear cross-brace being substantially perpendicular to the H-beam push arms and rigidly attached to the H-beam push arms to define a plane;

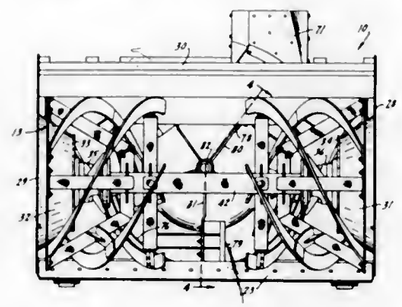
said front H-beam cross beam spaced rearwardly from said front ends of said H-beam push arms to facilitate the tilting of said bucket over the front ends of said push arms; and

a pair of ears mounted directly on the rear cross-brace in a position effective for cooperating with a pair of attachment means mounted on the chassis of a vehicle during use.

5,209,003
SNOW BLOWER AUGERS AND IMPELLERS

LeRoy Maxfield; Donald H. Verhoff, and David R. Church, all of Oshkosh, Wis., assignors to Oshkosh Truck Corporation, Oshkosh, Wis.

Continuation-in-part of Ser. No. 732,377, Jul. 18, 1991, abandoned. This application Nov. 4, 1991, Ser. No. 787,493
Int. Cl.[5] E01H *5/09*
U.S. Cl. 37—252 **11 Claims**



1. In a snow blower auger assembly having a front opening defined by a rear wall and two end wall means which project forwardly of the rear wall and into which snow enters as the assembly moves forwardly,

a set of ribbon spokes extending inwardly from each end wall means toward the center of the auger assembly,

each set of ribbon spokes terminating short of the center of the auger assembly,

means for providing an open central region between the inner terminal ends of the sets of ribbon spokes, said central region being unobstructed by the sets of ribbon spokes,

whercin at least a portion of the snow aligned with the said central region of the auger assembly enters said central region without deflection in any direction transverse to the direction of advance of the auger assembly into the snow, said means for providing including:

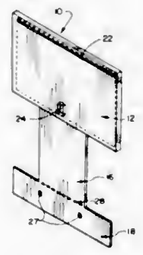
an impeller intake located in the center of the rear wall;

said impeller intake being located behind the sweep of the sets of ribbons.

5,209,004
WEATHERPROOF DISPLAY DEVICE

Dawian D. Kirlin, 7901 Porsche, Anchorage, Ak. 99502

Filed Mar. 25, 1992, Ser. No. 857,229
Int. Cl.[5] G09F *3/18*
U.S. Cl. 40—642 **1 Claim**



1. A weatherproof display device for displaying changeable printed materials upon a coin controlled newspaper vending machine comprising:

a housing for substantially vertical support of printed materials therein, said housing having a downwardly sloping curved guide permitting the insertion and removal of printed materials, said housing also having an access hole for manipulation of printed materials therein;

a transparent plate joined to the front of said housing, said plate permitting the printed materials inserted within said housing to be readily observed from the exterior of said device;

a vertical support member joined to said housing, said vertical support member having perforations therein;

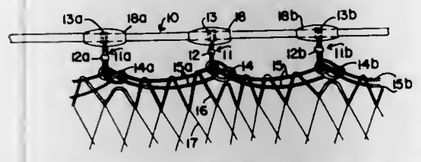
a mounting bracket joined to said vertical support member, said bracket having a plurality of holes permitting attachment to a coin controlled newspaper vending machine; and,

said housing, vertical support member, and mounting bracket being integrally formed of rigid plastic material.

5,209,005
SYSTEM FOR POSITIONING A FISHING NET

William R. Krager, 3443 Bobbie Cir., Anchorage, Ak. 99515

Filed May 21, 1992, Ser. No. 886,234
Int. Cl.[5] A01K *71/00*
U.S. Cl. 43—7 **6 Claims**



1. A device, which in cooperation with at least one similar device, is capable of (a) being suspended from a horizontal elongated supporting element and (b) at least partially suspending a fishing net, comprising:

clamping means in the form of a sleeve with two open ends,

a first loop extending from one of said ends and comprising means for supporting said clamping means from said element,

second and third loops extending away from said other, end, one of which second and third loops is longer than the other and comprising means for supporting said net,

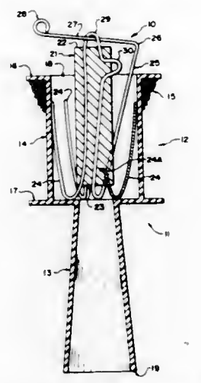
each of said three loops comprising a cord extending into said sleeve, and said clamping means comprising means for clamping said cords in said sleeve together.

5,209,006
FISHING LURE RETRIEVER

Albert Wilhelmer, 634 Herstone Ave., Winnipeg, Canada R3R 1C9

Filed Oct. 9, 1991, Ser. No. 773,427
Int. Cl.[5] A01K *47/00*
U.S. Cl. 43—17.2 **6 Claims**

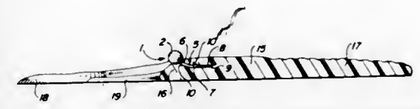
1. A fishing lure retriever comprising a lure retriever member having an elongate body, defining a first end and a second end of the body and a longitudinal axis of the body attachment means on the body adjacent the first end thereof for attachment to a retrieval line by which the body can be pulled back to the user, a plurality of wire retrieval arms projecting outwardly from the body for engaging a lure to be retrieved, the wire retrieval arms each being arranged in a respective one of a plurality of axial planes of the body with the axial planes being spaced angularly around the axis of the body, each retrieval arm being connected to the body at the second end thereof and being bent so as to turn back along the body toward the first end surrounding the body and so as to extend in a direction outwardly inclined from the axis of the body, and a spring wire loop member for engaging around a fishing line for transmission along the line to the lure, the wire loop comprising one of said wire retrieval arms connected to the second end of the body, a hook at the first end of the body, and an outer portion of said one wire retrieval arm which is inserted through the hook to form said one retrieval arm and the body into a closed loop.



5,209,007
REMOVABLE EYES FOR FISHING LURES

Jack G. Southerland, Jr., 9063 Avalon Dr., Shreveport, La. 71118

Filed Aug. 27, 1991, Ser. No. 750,811
Int. Cl.[5] A01K *85/00*
U.S. Cl. 43—42.09 **2 Claims**



1. The combination of removable and flexible plastic fishing lures, said combination comprising simulated eyes of selected size and shape and an elongated barbed shank carried by each of said simulated eyes, respectively, for insertion int he head of the flexible fishing lures and securing said simulated eyes to the head of the flexible plastic fishing lures in spaced relationship, said barbed shank including a shank bend, said bend defining a shank base and a shank leg, and said simulated eyes carried on said shank base.

5,209,008
WINGING MATERIAL FOR FISHING FLIES

John M. Kasznica, 84 Pleasant St., S. Weymouth, Mass. 02190-9998

Filed Jun. 29, 1992, Ser. No. 905,414
Int. Cl.[5] A01K *85/00*
U.S. Cl. 43—42.53 **5 Claims**

1. A method of assembling a fishing fly having a body portion and a wing portion, comprising the steps of:

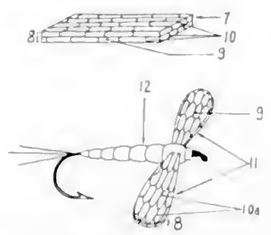
(a) providing a thin wafer of closed cell plastic foam material;

(b) shaping said wafer to resemble a wing portion of a natural insect;

(c) attaching said wind portion to a fishing fly body;

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wherein said wafer is a closed cell polyethylene foam sheet material having a density of 1.6–2.5 lb/cu.ft. and a thick-



ness of one to three closed cells; said cell has a maximum cell size of up to 4 millimeters.

5,209,009

TACKLE BOX FISHING ROD HOLDER

Barbara L. Fast, 8150 Bernice, Center Line, Mich. 48015

Filed Dec. 26, 1991, Ser. No. 814,377
Int. Cl.[5] A01K *97/00*
U.S. Cl. 43—54.1 **3 Claims**



1. A tackle box incorporating a fishing rod holder for selectively connecting a fishing rod with respect to a sidewall of the tackle box, said tackle box comprising:

a tackle box, said tackle box having a lower component defined by a plurality of sidewalls and a bottom connected with said plurality of sidewalls, said tackle box further having an upper component hingeably connected with said lower component, said upper component and said lower component being dimensioned so that each substantially comprise substantially one-half of said tackle box;

a back plate, said back plate having a front side and a rear side;

a fishing rod handle receptacle means mounted to said front side of said back plate for releasably receiving a handle portion of a fishing rod, said fishing rod handle receptacle means comprising a generally cylindrically shaped projection member connected with said front side of said back plate, said generally cylindrically shaped projection member having an interior blind bore structured for receiving a handle portion of the fishing rod, wherein said blind bore of said generally cylindrically shaped projection member is oriented substantially parallel with respect to said back side of side back plate and substantially perpendicular with respect to said bottom; and

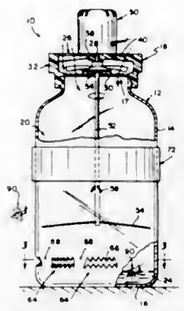
tackle box sidewall connection member means connected with said rear side of said back plate for securing said back plate to a sidewall of said plurality of sidewalls of said lower component of said tackle box.

5,209,010

INSECT KILLER

Jack L. Vickery, 4451 E. Main St., Carmel, Ind. 46033

Filed Feb. 14, 1992, Ser. No. 835,488
Int. Cl.[5] A01M *1/06*
U.S. Cl. 43—139 **20 Claims**



1. An apparatus with an attractant for luring insects therein to be killed, the apparatus comprising;

container means for holding liquid attractant and restricting the movement of insects until they can be killed,

entry means for allowing insect ingress to the container means, wherein said entry means are formed on side walls of the container,

lid means attached to a top portion of the container means for preventing insect egress from the container except through the entry means, fan means for drawing air through the lid means and causing the air to dispense the scent of the attractant out through the entry means, wherein said fan means are mounted on the lid means of the container means, and

means for striking the insects within the container means, wherein said striking means are coupled to the fan means and in spaced-apart relation to the fan means.

5,209,011

APPARATUS FOR GRAFTING IMMATURE PLANTS

Tatsuya Mori; Masahiro Cei; Shigeru Honda; Hitoshi Uemura; Chikaya Sakai; Ruriko Oda; Chiyoko Shimada, and Yusaku Sekino, all of Hiratsuka, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

PCT No. PCT/JP90/00064, § 371 Date Sep. 9, 1991, § 102(e) Date Sep. 9, 1991, PCT Pub. No. WO90/07869, PCT Pub. Date Jul. 26, 1990
PCT Filed Jan. 19, 1990, Ser. No. 730,927
Claims priority, application Japan, Jan. 19, 1989, 1-8595; Feb. 13, 1989, 1-31175
Int. Cl.[5] A01G *1/06*
U.S. Cl. 47—6 **9 Claims**

8. An apparatus for grafting immature plants, comprising:

a first conveyor for sequentially carrying a plurality of stock raising boxes;

a second conveyor, laid in parallel with said first conveyor, for sequentially carrying a plurality of spicate segment raising boxes;

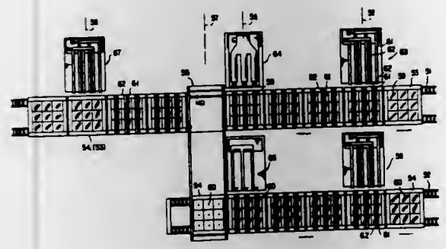
seizing, cutting and grafting stations, arranged sequentially from an upstream side in the carrying direction of said two conveyors; a frame releasing station provided in continuation from said grafting station on the lowest stream side in the carrying direction of said first conveyor;

seizing means, mounted on said respective seizing stations of said first and second conveyors, for seizing said saplings raised in array within said sapling raising boxes by use of an induction seizing member and a support seizing member and fixing said seizing members onto said sapling raising boxes in a state where said seizing members seize said saplings;

a stock cutting means, mounted on said cutting station of said first conveyor, for cutting said saplings catered for stocks with upper portions of its seizing unit;

a scion cutting means, mounted on said cutting station of said second conveyor, for cutting said saplings catered for scions with lower portions of said seizing unit thereof;

a grafting means, mounted on said grafting station of said



first conveyor, for fixedly superposing said scion saplings cut and separated from the lower parts of said saplings by the lower portions of said seizing unit while being seized by said seizing members on a sapling raising box for stocks obtained by cutting the upper parts of said saplings with the upper portions of said seizing unit, the lower parts thereof being seized by said seizing members; and

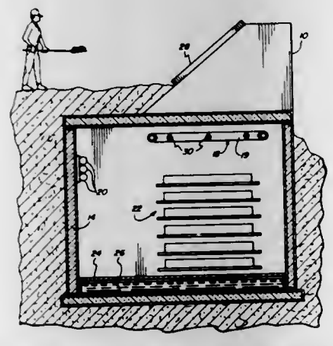
a frame releasing means, mounted on said frame releasing station, for taking off said seizing members which seize said saplings after completely grafting said saplings.

5,209,012

METHOD FOR IMPROVED PLANT GROWTH

Sharon-Joy Palmer, 1725 Brenda Rd., Rio Rancho, N. Mex. 87124

Division of Ser. No. 401,666, Aug. 31, 1989, Pat. No. 5,035,077. This application Jul. 17, 1991, Ser. No. 731,652
Int. Cl.[5] F24F *13/10*
U.S. Cl. 47—17 **12 Claims**



1. A method of enhancing the growing of plant life comprising the steps of

providing an enclosed chamber,

maintaining the temperature within said chamber between 68 and 78 degrees Fahrenheit,

coating the bottom of a seed tray with a nutrient gel,

placing plant seeds to be grown in the nutrient gel,

locating the seed tray with nutrient gel embedded with said seeds within the enclosed chamber,

purifying a water supply by exposing said water supply to a broad spectrum light source,

applying said purified water to said seeds at predetermined timed intervals,

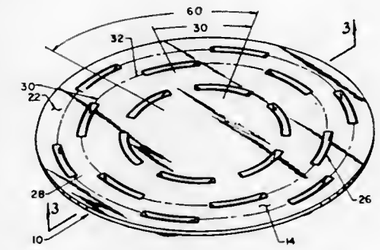
and illuminating said seeds with the broad spectrum light source for at least eight hours per day.

5,209,013

POTTED PLANT SUPPORT

Kathleen R. Sellers, 5104 Coronado Ridge, Boca Raton, Fla. 33486

Continuation-in-part of Ser. No. 627,223, Dec. 12, 1990. This application May 22, 1991, Ser. No. 704,265
Int. Cl.[5] A47G *7/02*
U.S. Cl. 47—71 **5 Claims**



1. An apparatus for supporting a plant pot on a carpeted floor surface having a pile comprising:

a rigid planar member having an upper and lower peripheral surface forming a common outer perimeter and a center point; and

a plurality of hollow, semi-circular, independent support feet, each foot having a pair of curved wall surfaces, each wall radially spaced from each other and concavely shaped relative to the center of said planar member, each foot tapered in vertical thickness, protruding normal to said planar member lower peripheral surface, said support feet circumferentially disposed along radials extending outward from said planar member center to predetermined positions inward of said outer perimeter, said support feet acting to minimize said planar member buckling and extending into said carpet pile to uniformly distribute the weight of said plant pot resting on said planar member upper peripheral surface thereby preventing carpet pile crushing under load, said support feet furthermore constructed of equal length sufficient to elevate said planar member and plant pot into a position above said carpet pile surface, thus creating air space which prevents carpet pile degradation from water seepage, condensation stains, mildew, and dirt.

5,209,014

MOLDS FOR THE GROWING OF SEEDLINGS

Manfred Teichmann, Wittenbach, Switzerland, assignor to Spuhl AG, Switzerland and Klasmann-Deilmann GmbH, Fed. Rep. of Germany

Filed Jun. 9, 1989, Ser. No. 364,467
Claims priority, application Fed. Rep. of Germany, Jun. 11, 1988, 8807619[U]
Int. Cl.[5] A01G *9/02*; **C05G** *3/04*
U.S. Cl. 47—73 **4 Claims**

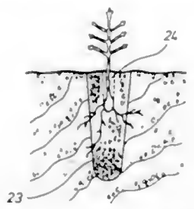
1. A mold for growing a seedling, the mold comprising:

a dry mass consisting of ground turf mixture;

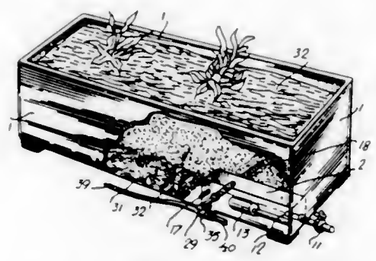
synthetic material comprising an open-cell foam material comprising hydrophilic polyurethane prepolymer in an amount of about 6 to 8% by weight relative to the dry mass; and

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water sufficient to facilitate reaction of the synthetic material in the mixture with the dry mass and water;
said synthetic material, when mixed with said dry mass and water, permitting said mold, when dried and all water has been removed, to be self-supporting and to retain a predetermined shape including a recess formed therein adapted to retain a seedling without being maintained by an encompassing container.

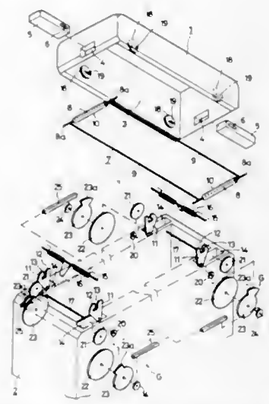


5,209,015
MOISTENING DEVICE FOR FLOWER POT STANDS AND/OR THE LIKE
Felipe De Filippi, Junin 1349, 2nd Floor "G", Buenos Aires, Argentina
Filed Jul. 12, 1991, Ser. No. 728,744
Claims priority, application Argentina, Jul. 19, 1990, 317414
Int. Cl.[5] A01G 27/00
U.S. Cl. 47—79 7 Claims



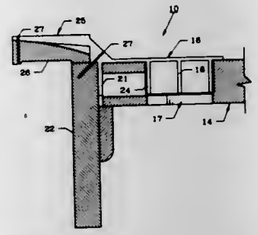
1. A device for moistening flower pot stands of a type wherein water is supplied in a capillary manner toward the roots of plants sown into flower pots, said device comprising:
a first flower pot;
said first flower pot having a water reservoir positioned in a corner thereof;
a water supply conduit extending between said water reservoir and an internal compartment of said first flower pot, said water supply conduit passing through a wall of said water reservoir and having a plurality of through holes surrounded by porous and light gravel layers;
a removable, axially extending metal tube positioned within said water supply conduit, said metal tube having a plurality of through holes and being removable to facilitate cleaning of said device;
means for supplying water to said water reservoir;
said water supply means comprising a cock communicating with a source of water, valve means associated with said cock for controlling the flow of water into said water reservoir, and float means for operating said valve means;
said float means being positioned within said water reservoir;
said water supply means further comprising a cap head communicating with said source of water, said cap head having a threaded inlet and a filter positioned within a compartment in said cap head; and
a flexible conduit connecting a fluid passage in said cap head with said cock.

5,209,016
APPARATUS FOR OPENING AND SHUTTING A LID
Satoshi Yamada, Yokosuka, Japan, assignor to Kato Hatsujo Kaisha, Ltd., Yokohama, Japan
Filed Nov. 26, 1991, Ser. No. 798,563
Claims priority, application Japan, Feb. 25, 1991, 3-015027[U]
Int. Cl.[5] E05D 15/50
U.S. Cl. 49—193 3 Claims



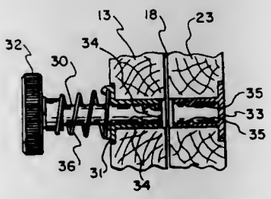
1. An apparatus for opening and closing a lid disposed rotatably on an opening of a box body selectively in two directions, which comprises:
a pair of operating members independently movably supported one each at opposite ends of the lid;
spring means having a pair of rotary shafts disposed on an inner side of the lid so as to advance or retreat under the influence of resilient pressure of said spring means, said rotary shafts being connected to said operating members so as to urge said operating members outwardly away from each other by virtue of the resilient pressure of said spring means;
two pairs of storage mouths formed in an edge of said box body defining the opening of the box body at four corner portions thereof;
two pairs of lock members pivotally supported inside said storage mouths for detachably supporting said rotary shafts above said storage mouths;
each of said rotary shafts connected to said operating members being released from said lock members by a pressing operation of the corresponding operating member; and
two pairs of rotary gear mechanisms attached to said lock members so that each pair of rotary gear mechanisms are interconnected to each other and the two pairs of rotary gear mechanisms are interlocked with each other;
whereby the pressing operation of one of said operating members to open the lid in one direction causes one pair of lock members on the side being opened to be rotated and plunged into the corresponding pair of storage mouths due to the interlocking between said two pairs of rotary gear mechanisms.

5,209,017
PRE-HUNG DOOR RETAINING DEVICE
Jimmy D. Ridge, Rte. 4, Box 851, High Point, N.C. 27263
Filed Jan. 30, 1992, Ser. No. 828,007
Int. Cl.[5] E06B 1/00
U.S. Cl. 49—380 14 Claims



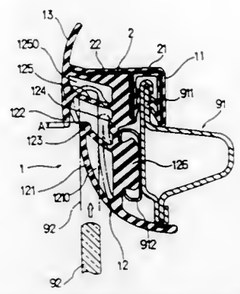
1. A door retaining device for use with a door having front and rear faces and with a hardware opening comprising: a rigid member for positioning against a door face, an inserting means for inserting into the door hardware opening, said inserting means attached to said rigid member, a door frame and a stabilizing means to stabilize said door, said stabilizing means affixed to said rigid member and positioned between said door and said door frame, and said device being attached to said door frame.

5,209,018
SLIDING PATIO DOOR IMPROVEMENT
William I. Heinrich, 1249 Cloverwood Dr., Webster, N.Y. 14580
Filed Mar. 12, 1992, Ser. No. 862,614
Int. Cl.[5] E06B 3/00
U.S. Cl. 49—449 4 Claims



1. A sliding patio door including a stationary panel with a vertical frame member, and a horizontally movable panel with a vertical frame member, said vertical frame members overlapping each other when said door is closed;
a rotatable and axially movable bolt extending transversely through the vertical frame member of said movable panel at a central location between the top and bottom thereof; and
a nut disposed in the vertical frame member of said stationary panel;
said bolt engaging said nut when said door is closed to pull said vertical frame members together to eliminate clearance therebetween, and to lock said panels together to prevent both horizontal and vertical movement of said movable panel.

5,209,019
SEAL STRUCTURE FOR AUTOMOBILE DOORS
Hiroyuki Morita, Oobu, Japan, assignor to Tokai Kogyo Kabushiki Kaisha, Oobu, Japan
Continuation of Ser. No. 755,078, Sep. 5, 1991, abandoned. This application Sep. 21, 1992, Ser. No. 947,984
Claims priority, application Japan, Sep. 27, 1990, 2-101529[U]
Int. Cl.[5] E06B 7/16
U.S. Cl. 49—490.1 4 Claims



1. A seal structure for sealing windows of automobile doors which are raised to a closed position and lowered to an open position, comprising:
a door flange clamping portion for mounting said seal structure on a door frame;
a glass seal portion for stopping the gap between said door frame and a window glass when the window glass is raised to its closed position; and
a drip seal;
said door flange clamping portion, said glass seal portion and said drip seal portion being produced by integral extrusion;
a support strip integrally buried in said door flange clamping portion and in a back surface of said glass seal portion;
said glass seal portion including a sliding seal portion which comes into sliding contact with an inner wall surface of said window glass, and a glass sealing lip having a tip contacting an outside surface of said window glass when said window glass is in its closed position;
said sliding seal portion being formed into a hollow shape except for a solid, enlarged, and bulbous hoodmolding portion provided at a free end thereof, said hollow shape comprising first and second flexible walls converging toward said hoodmolding portion from a third wall;
wherein said glass seal portion is provided with a projection facing said hoodmolding portion so as to press said first and second flexible walls together between the inner wall surface of the window glass and said projection when the window glass is raised to its closed position, thereby greatly reducing the volume of said sliding seal portion in comparison with the volume of said sliding seal portion when said window is in its open position.

5,209,020
METHOD OF AND APPARATUS FOR PROFILING GRINDING WHEELS
Armin Feisel, Schaffhausen, Switzerland, assignor to Reishauer A.G., Wallisellen, Switzerland
Filed Nov. 7, 1991, Ser. No. 789,026
Claims priority, application Switzerland, Nov. 7, 1990, 03539/90
Int. Cl.[5] B24B 53/00
U.S. Cl. 51—5 D 20 Claims

1. A method for dressing a grinding wheel (12) by a profiled dressing roller (19), said method comprising:
moving said grinding wheel (12) radially against said dressing roller (19), said dressing roller (19) linearly contacting said grinding wheel (12) to dress said wheel; and

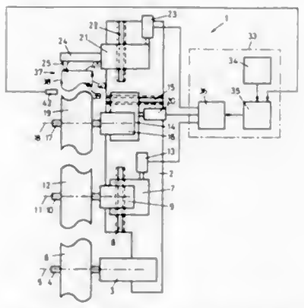
VOL 1150 ISS 2 MY 11 1993 UMI

conditioning said dressing roller (19) with a conditioning mechanism (25, 50) moved radially thereto, wherein said conditioning step includes contacting said dressing roller (19) substantially in point contact with said conditioning mechanism (25, 50) and one of said dressing roller and said conditioning mechanism being axially movable synchronously by program control with radial movement of said conditioning mechanism (25, 50) relative to said dressing roller (19).

2. An apparatus for dressing a grinding wheel, comprising:

a first spindle (10) driven rotatably around a first axis (11) by a first drive mechanism (9), a grinding wheel (12) being mounted on said first spindle (10);

a second spindle (17) driven rotatably around a second axis (18) by a second drive mechanism (16);



a dressing roller (19) mounted on said second spindle (17);

a first feed mechanism (13) for displacing said first spindle (10) radially relative to said second spindle (17) along a third axis (8);

a conditioning mechanism (25, 50) displaced radially relative to said second spindle (17);

a second feed mechanism (23) for displacing said conditioning mechanism (25, 50) radially relative to said second spindle (17);

a third feed mechanism (20) for displacing said dressing roller (19) axially relative to said conditioning mechanism (25, 50); and

a controller (33) which synchronizes movement of said second and third feed mechanisms (23, 20).

5,209,021

APPARATUS AND METHOD FOR SPRUE REMOVAL AND GRINDING OF RAILROAD WHEELS

C. Dale Christie, Naperville; Charles W. Taff, Fox Lake, and Jaime F. Pozo, Chicago, all of Ill., assignors to Amsted Industries, Inc., Chicago, Ill.

Filed Aug. 30, 1991, Ser. No. 753,037
Int. Cl.[5] B24B 5/26, 9/00
U.S. Cl. 51—104 11 Claims

1. A grinding apparatus comprising

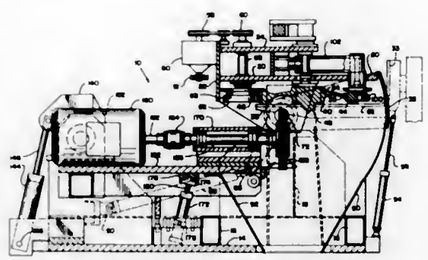
a base frame,

a railroad wheel support assembly comprising a railroad wheel support frame, railroad wheel support roller means affixed to said railroad wheel support frame, roller drive means operatively connected to a railroad wheel support drive roller means, a railroad wheel held in said railroad wheel support roller means and said railroad wheel support drive roller means such that said railroad wheel can be rotated about a center axis of said railroad wheel when said railroad wheel is held in said railroad wheel support roller means and said railroad wheel support drive roller means,

a grinding support assembly comprising a grinding wheel motor, grinding wheel operatively connected to said grinding wheel motor, a grinding wheel support frame onto which said grinding wheel motor is mounted, said grinding wheel support frame being movable such that said grinding wheel can be brought into contact with said railroad wheel,

railroad wheel support frame axle and bearing means, flange sections extending downwardly from said railroad wheel support frame,

said flange sections including openings and bearing means which receive said railroad wheel support frame axle means,



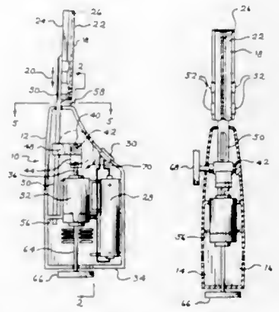
and a first operating cylinder having one end attached to said base frame, with another end of said first operating cylinder operatively attached to said railroad wheel support frame bearing means such that upon extension of said first operating cylinder, said railroad wheel support frame is rotated about said railroad wheel support frame axle means to expose a surface of said railroad wheel to said grinding wheel.

5,209,022

EDGE SHARPENING OR SURFACE ABRADING APPARATUS

James E. McCambridge, Polo, Ill., assignor to Wahl Clipper Corporation, Sterling, Ill.

Filed Jan. 10, 1992, Ser. No. 819,031
Int. Cl.[5] B24B 23/00
U.S. Cl. 51—181 R 10 Claims



1. An apparatus having a medium for abrading or sharpening a surface comprising:

a flexible drive member operatively coupled to the medium and reciprocally secured by a plurality of bearing means to facilitate a stroke by said flexible drive member;

a pivot arm pivotal about a shaft and operatively coupled to said flexible drive member, said pivot arm further positioned so as to lie between said plurality of bearing means;

drive means, operatively coupled to said pivot arm, for driving said flexible drive member in a reciprocating motion,

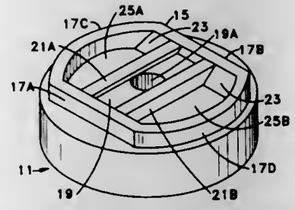
wherein said flexible drive member is pivotal about said plurality of bearing means in response to a force applied to said flexible member and said stroke varies in response to said applied force.

5,209,023

THERMOPLASTIC POLYMER OPTICAL LAP AND METHOD OF MAKING SAME

Jerry Bizer, 516 East Hwy. 131, Clarksville, Ind. 47130

Filed May 18, 1990, Ser. No. 525,449
Int. Cl.[5] B23F 23/00
U.S. Cl. 51—209 R 12 Claims



1. An optical polishing lap comprising a thermoplastic polymer containing a particulate-mineral-reinforced polyamide resin of uniform density, porosity, and texture throughout including the surface of said lap, said lap, being of unitary construction formed having a solid main body with a generally domed-shaped upper head portion of substantially monolithic form providing an upper curved surface and a lower flat surface having an attachment means defining an integral base portion extending downward opposite said lower flat surface offset from said main body, said integral base portion having parallel side rail means having a straight outside wall and an angled inside wall sloped inwardly toward the center of said main body and toward one another providing a thicker rail at the intersection of said lower flat surface to provide additional structural strength and dimensional stability to said rails and said main body during use, end rail means conforming to the curvature of said main body for attaching said lap to a lap grinding machine, a lap cutter, or an optical polishing machine.

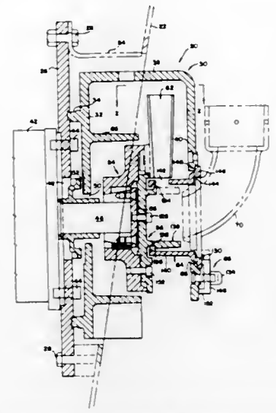
5,209,024

INEXPENSIVE ABRASIVE BLAST WHEEL

James H. Carpenter, Hagerstown, and Horace A. Bailey, Smithsburg, both of Md., assignors to Pangborn Corporation, Hagerstown, Md.

Filed Oct. 22, 1991, Ser. No. 780,338
Int. Cl.[5] B24C 5/06
U.S. Cl. 51—434 21 Claims

1. A hub, radially extending vanes and impeller plate combination for a blast wheel, said combination comprising said hub being bowl shape and including a peripheral upstanding flange to function as a runnerhead, each of said vanes including an anchoring base of a transverse width greater than a remainder of said vane and said anchoring base having a radially outer end complementary to said upstanding flange, said impeller plate having a plurality of radial slots each opening radially outwardly, there being one radial slot for each of said vanes, each of said radial slots receiving a radially inner end portion of a respective one of said vanes with material of said impeller plate on each side of each of said radial slots being seated on said anchoring base of said respective vane, and releasable means releasably axially securing said impeller plate relative to said hub to axially clamp said vane bases to said hub with said vanes being retained against radial outward movements by said vane anchoring base end engaging said hub flange.

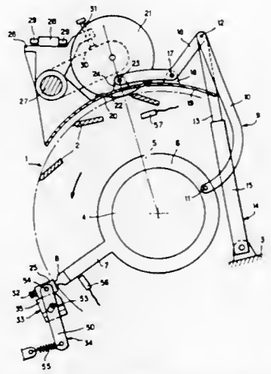


5,209,025

PROCESS FOR SHARPENING THE KNIVES OF A ROTATING DRUM AND ADJUSTING THE FIXED COUNTER-KNIFE COOPERATING THEREWITH AND DEVICE FOR CARRYING OUT THIS PROCESS

Jean-Paul L. M. Martin, St Gilles-Croix de Vie; Louis J. B. Pambrun, La Roche S/Yon, and Henri G. Beauchene, Challans, all of France, assignors to Hesston Braud, France

Filed Jun. 25, 1991, Ser. No. 721,097
Claims priority, application France, Jun. 25, 1990, 90 07934
Int. Cl.[5] B24B 3/55; A01D 75/08
U.S. Cl. 51—249 16 Claims



1. A process for sharpening the knives of a rotating drum of a fodder-harvesting machine, and for adjusting the fixed counter-knife cooperating therewith,

process comprising the steps of:

bringing at least two aligned positioners of said counter-knife opposite a knife-sharpening wheel by pivoting said positioners about the axis of rotation of the drum, said knife sharpening wheel having a fixed angular orientation in said machine, said counter-knife being provided with stops,

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grinding the ends of said aligned positioners with said knife sharpening wheel at the time as said knife sharpening wheel sharpens said knives of said rotating drum during rotation of said drum,

thereafter returning said aligned positioners opposite said counter-knife by pivoting said positioners in the opposite direction about said axis of rotation of said drum,

and adjusting said counter-knife again by applying said stops against said positioners.

5,209,026

DEVICE FOR FASTENING A HOLDING PART ON AN EYEGLASS LENS, INCORPORATING A LOCKABLE ARM

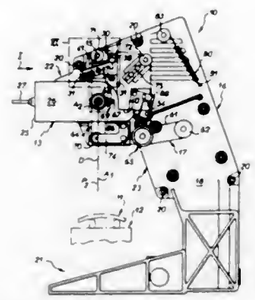
Jean-Louis Cariou, Roissy-en-Brie; Christian Joncour, Saint Maurice; Claude Borius, Bagnolet; Philippe Clara, Le Perreux, and Francois Brule, Champigny, all of France, assignors to Essilor International Cie Generale D'Optique, Creteil Cedex, France

Filed Oct. 7, 1991, Ser. No. 772,495

Claims priority, application France, Oct. 25, 1990, 2-13233

Int. Cl.[5] B24B *13/00*

U.S. Cl. 51—277 **16 Claims**



1. Device for fastening a holding part on an eyeglass lens placed on a plate, comprising an arm adapted to receive removably said holding part, a carriage on which said arm is able to pivot between a raised loading end position and a lowered fitting end position and a frame on which said carriage is mobile in a straight line between a retracted rest end position and an advanced end of travel end position, drive means and, operative between said drive means and either said arm or said carriage, a transmission system such that, at least when said carriage is in the vicinity of its advanced end of travel position, said arm is in its lowered fitting end position, said device further comprising locking means operative between said arm and said carriage to lock said arm releasably to said carriage when the arm is in its lowered fitting end position.

5,209,027

POLISHING OF THE REAR SURFACE OF A STAMPER FOR OPTICAL DISK REPRODUCTION

Toshihiko Ishida, Komoro; Tetuji Takamizawa, Usuda, and Hiroyuki Arioka, Saku, all of Japan, assignors to TDK Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 596,028, Oct. 11, 1990, abandoned. This application Jan. 10, 1992, Ser. No. 819,067

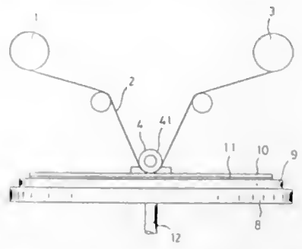
Claims priority, application Japan, Oct. 13, 1989, 1-267692

Int. Cl.[5] B24B *1/00*

U.S. Cl. 51—283 R **5 Claims**

1. A method for polishing a rear surface of a stamper for use in the manufacture of optical disks requiring high speed rotation, comprising the step of:

feeding a length of abrasive tape across the stamper in pressure contact with the rear surface of the stamper through a pressure roller while the stamper is rotating, said pressure roller comprising a surface layer formed of a rubber having a hardness of up to 80 degrees as measured according to ASTM D 2240 type A for minimizing vibrations of



the pressure roller and stamper caused by a motor for driving the stamper so as to uniformly polish the rear surface of the stamper.

5,209,028

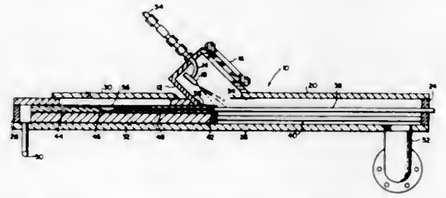
APPARATUS TO CLEAN SOLID SURFACES USING A CRYOGENIC AEROSOL

Wayne T. McDermott, Allentown, Pa.; Jin J. Wu, Ossining, N.Y., and Richard C. Ockovic, Northampton, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa. and International Business Machines Corporation, Armonk, N.Y.

Continuation Oct. 9, 1992, Ser. No. 958,417

Int. Cl.[5] B24C *1/00*

U.S. Cl. 51—426 **22 Claims**



1. An apparatus for cleaning undesired material from a solid surface using a projected spray of discrete substantially frozen cleaning particles which can vaporize after impingement on the solid surface, comprising:

a) a generally closed housing in which a solid surface to be cleaned is accommodated and having entry means for introducing a solid surface into said housing;

b) a nozzle situated in said housing so as to project a spray of discrete substantially frozen cleaning particles at said solid surface to be cleaned;

c) means for supplying a fluid cleaning medium to said nozzle for generation of substantially frozen cleaning particles;

d) means for removal from said housing of said undesired material cleaned from said solid surface;

e) movable support means in said housing for supporting said solid surface to be cleaned and having means to controllably move said solid surface from said entry means to a position juxtaposed to said projected spray of said nozzle; and

f) means for supplying a flush gas to said housing to control the atmosphere in said housing and to assist the removal of said undesired material cleaned from said solid surface wherein said housing has a chamber accommodating said nozzle with an opening juxtaposed to a chamber accommodating said support means and said chamber accommodating said nozzle includes flow baffles at said opening for controlling said spray of said cleaning particles.

5,209,029

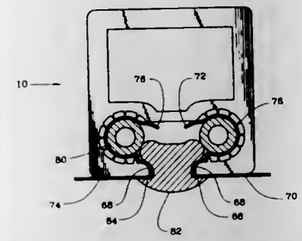
CONSTRUCTION ASSEMBLY FOR AWNINGS

George Foerst, Pompano Beach, Fla., assignor to Extrusion 2001, Inc., Pompano Beach, Fla.

Filed Oct. 18, 1991, Ser. No. 777,760

Int. Cl.[5] E04H *15/18*

U.S. Cl. 52—63 **16 Claims**



1. A construction assembly securely attaching a covering material to a fixture comprising: a covering material; an elongated reusable support member defined by a base, a first upstand wall means having a lower edge fixed to said base and a upper edge fixed to an insertion lip projecting inwardly from said upper edge in a parallel plane to said base, a second upstand wall means having a lower edge fixed to said base and an upper edge fixed to an insertion lip projecting inwardly from said upper edge in a parallel plane to said base, a traverse support member disposed between said first and second wall means located between the upper edge and lower edge of each of said walls in a plane parallel to said base a pair of elongated substantially circular surfaces formed from an inner surface of the transverse support member in conjunction with each of said upstand walls and associated lips; means for releasably fastening said covering material to said circular surfaces; and, an elongated deformable trim pad maintaining at least one elongated bead in position by frictional engagement with at least one surface of said support member.

5,209,030

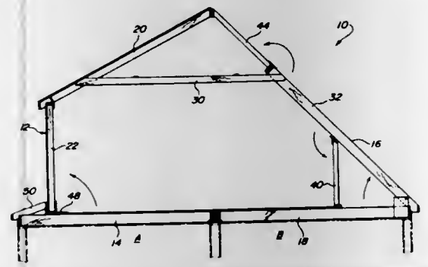
PREFABRICATED MODULAR HOUSING UNIT HAVING A COLLASIBLE DORMER

Gregory J. Sloditskie; Paul R. John, both of Winfield; Paul D. John, Mifflinburg, and Robert J. Roney, Danville, all of Pa., assignors to Ritz-Craft Corp., Mifflinburg, Pa.

Filed Mar. 11, 1991, Ser. No. 667,736

Int. Cl.[5] E04B *1/36, 1/344, 1/348*

U.S. Cl. 52—79.5 **6 Claims**



1. In a prefabricated housing formed by a series of engaging modules, a module comprising: (a) a base structure forming at least a portion of at least one floor of the housing unit, (b) a collapsible dormer structure forming at least a portion of an additional floor on top of the base, the collapsible dormer in the collapsed condition conforming to the dimensions of the base, the dormer comprising (i) at least one vertical side wall pivotally attached to the base and (ii) separable roofing means forming a portion of an angled roof for the module, the roofing means in the collapsed condition of the dormer conforming to the dimensions of the base, the roofing means being attached to the pivoted side wall of the dormer upon the side wall being pivoted to the substantially vertical position.

5,209,031

SLOPED GLAZING STRUCTURE

John Tavano, 28 Edgewood Dr., Torrington, Conn. 06790

Filed Apr. 10, 1992, Ser. No. 867,032

Int. Cl.[5] E04B *7/06*

U.S. Cl. 52—92.2 **3 Claims**



1. A sloped glazing structure adapted to support glazed panels in an inclined condition from an existing wall structure and comprising:

a) an elongated horizontally extending sill adapted for mounting on a wall structure and having a cross sectional shape that defines a raised portion int the upper surface thereof that is of convex contour,

b) an elongated panel lower edge support bar having mutually perpendicular elongated panel support surfaces for supporting the panel lower edge, and having a concave lower surface that mates with said convex contour of said sill for supporting the lower edge of a glazed panel at an angle alpha in a range of slope angles,

c) an elongated header having an elongated channel for receiving the upper edges of glass panels oriented at said angle alpha, said header having a cross sectional shape that includes an upper flange opposite said channel, said upper flange defining a top surface of convex contour, said convex contour of said header upper flange defining longitudinally extending ribs and

d) an elongated top bar of L-shape cross section with one flange for engaging the wall and with a second flange of concave contour to mate with said convex contour of said header upper flange and mating ribs defined by said concave contour of said second flange.

5,209,032

ASSEMBLY FOR PREVENTING PIGEONS FROM ENTERING THE SPACE BETWEEN A PAIR OF ADJACENT I-BEAMS OF A BRIDGE

Thomas D. Laumeister, 185 Freedom St., Hopedale, Mass. 01747

Filed Oct. 28, 1991, Ser. No. 783,259

Int. Cl.[5] E04B *1/72*

U.S. Cl. 52—101 **5 Claims**

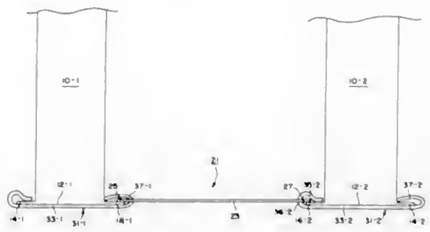
1. An assembly for preventing pigeons from entering the space between a pair of adjacent I-beams of a bridge, each of the pair of adjacent I-beams having a bottom surface, a lower inner flange extending towards the space between the pair of adjacent I-beams, and a lower outer flange extending away from space between the pair of adjacent I-beams, the assembly comprising:

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a. a plastic sheet, said plastic sheet being dimensioned so as to extend over the space between the pair of adjacent I-beams and to rest on top of the lower inner flanges of the pair of adjacent I-beams, said plastic sheet having a plurality of openings spaced thereover, said openings being sufficiently small to prevent the passage of pigeons therethrough;

b. a first clip for clipping the plastic sheet onto one of the I-beams; and

c. a second clip for clipping the plastic sheet onto the other I-beam;



d. each clip comprising an elongated strip of plastic material that is flexible yet will retain its shape and which is bent back over itself at each end in its normal condition to form a C-shape having arcuate-shaped end portions, the elongated strip being sized in cross-section so that it can be inserted from an end into an opening in the plastic sheet, the clip being sized and shaped so that it can clip onto the bottom of an I-beam with each end thereof engaging one flange, the elongated strip being bent back at one end in a looped shaped to facilitate insertion of the end through said opening after said clip has been clipped onto the bottom of said I-beam.

5,209,033

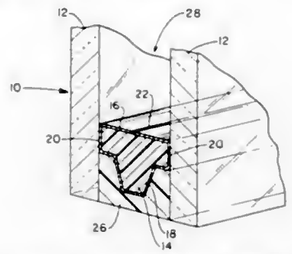
Patent Not Issued For This Number

5,209,034

PREVENTION OF FOGGING AND DISCOLORATION OF MULTI-PANE WINDOWS

James A. Box, Broadview Heights; Thomas W. Greenlee, Shaker Heights, and Lori A. Postak, Cleveland Heights, all of Ohio, assignors to Tremco, Inc., Beachwood, Ohio

Filed Dec. 18, 1990, Ser. No. 628,882
Int. Cl.[5] E06B *7/12*
U.S. Cl. 52—171 **21 Claims**



1. In a polymeric window seal that has the tendency to evolve organic off-gases, the improvement comprising:

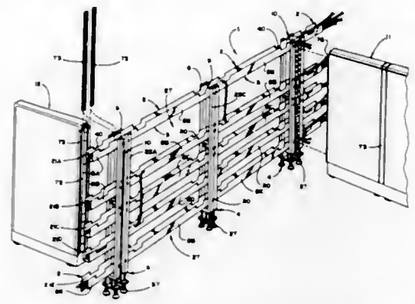
a scavenger disposed within the seal, the scavenger sorbing the organic off-gases before their evolution from the seal, the scavenger consisting essentially of diatomaceous earth.

5,209,035

UTILITY PANEL SYSTEM

Ronald R. Hodges, Grandville, and George V. Weller, Grand Rapids, both of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Filed Jan. 10, 1991, Ser. No. 639,513
Int. Cl.[5] E04B *5/48*
U.S. Cl. 52—220.7 **40 Claims**



1. In a partition system for open office spaces, and the like, of the type including a plurality of freestanding, portable partition panels detachably interconnected on a floor surface in a selected configuration, the improvement of a utility panel therefor, comprising:

a panel frame having opposite faces, a foot portion adapted to abuttingly support said utility panel on the floor surface, and opposite sides shaped for operable connection with the opposite sides of an adjacent, like panel frame to create a substantially freestanding utility panel system;

at least one cover panel shaped to cover at least a portion of one of the faces of said panel frame, and being detachably connected therewith to provide ready access to an interior portion of said utility panel;

at least one utility trough shaped to receive and retain utilities therein; said utility trough extending continuously between and to the opposite sides of said panel frame in a substantially horizontal orientation and having generally open ends positioned at the opposite sides of said panel frame such that when two adjacent utility panels are interconnected in a side-by-side relationship, the open ends of adjacent utility troughs are aligned to define a continuous uninterrupted horizontal channel which isolates the utilities therein;

at least one panel connector having a first portion thereof connected with one side of said panel frame, and a second portion thereof which means for detachable connection with one of said partition panels; said panel connector being configured so as to permit the utilities in said utility panel to be fed into said one partition panel, whereby said utility panel functions as a spine which supplies utilities to said partition panels.

5,209,036

INSULATING MEMBER AND METHOD FOR INSULATING A BUCK OF A DWELLING WALL

Scott J. Cancilliari, 8984 Bridge, Grosse Ile, Mich. 48138

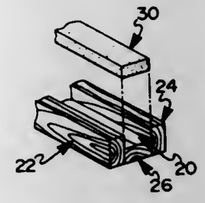
Filed Nov. 1, 1991, Ser. No. 786,508
Int. Cl.[5] E04C *1/00*
U.S. Cl. 52—309.4 **8 Claims**

1. A method for insulating a buck area of a wall at a work site with an elongated insulating member having a pre-determined height, length and width, and a predetermined shape, said method comprising the steps of:

forming at least one buck in a wall by securing first and second studs a predetermined distance apart and securing a third stud transversely between said first and second studs at rearwardmost end portions of said first and second studs, to thereby form an elongated cavity opening outwardly relative to said third stud representing said buck, said cavity having approximate dimensions in accordance with dimensions of said insulating member;

slidably inserting said elongated insulating member securely within said buck, while at said work site, to substantially occupy said buck, an outer surface of said elongated insulating member being flush with forward edge surfaces of said first and second studs; and

placing a sheet of sheathing over said buck such that an inner surface of said sheathing is in abutting contact with forward edge surfaces of said first and second studs and said outer surface of said elongated insulating member.

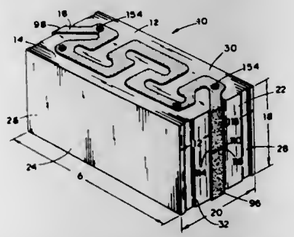


5,209,037

BUILDING BLOCK INSERT

Francis A. Kennedy; John P. Neff, both of Williamsville, and Kenneth J. Blake, East Aurora, all of N.Y., assignors to ThermaLock Products, Inc., North Tonawanda, N.Y.

Continuation-in-part of Ser. No. 605,576, Oct. 29, 1990, Pat. No. 5,066,440, which is a continuation-in-part of Ser. No. 433,842, Nov. 9, 1989, Pat. No. 4,986,049. This application Nov. 18, 1991, Ser. No. 793,804
The portion of the term of this patent subsequent to Jan. 22, 2008, has been disclaimed.
Int. Cl.[5] E04C *1/40*
U.S. Cl. 52—309.12 **13 Claims**



1. A substantially serpentine, integral insert comprised of three substantially T-shaped sections and a multiplicity of curvilinear surfaces, wherein:

(a) said insert is substantially curvilinear in cross section as viewed from the top of said insert, and

(b) said insert is wedge-shaped and is defined by walls which extend outwardly from said top of said insert to the bottom of said insert.

5,209,038

HEAT CHAMBER LINING

Michael K. Robbins, 4420 Pine Lake Dr., Medina, Ohio 44256

Filed Aug. 19, 1991, Ser. No. 746,737
Int. Cl.[5] E04B *1/74*
U.S. Cl. 52—404 **13 Claims**

1. A heat chamber wall having:

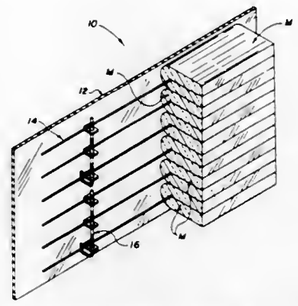
an insulating lining, comprised of at least one row of modules of heat insulating material, each of said modules comprised of a length of material folded over to define two side portions with a bight portion, and

means for supporting said modules comprising:

a module rod having a longitudinal axis, said module rod adapted to support each of said modules extending through its associated module;

a mounting clip secured to said module rod and extending outward from said module rod, said clip having an aperture of predetermined configuration formed therethrough along a predetermined axis which is offset and generally perpendicular to the longitudinal axis of said rod, and

hanger means having an elongated straight portion dimensioned to extend through said aperture in said mounting clip and to bind therewith in locking fashion when the axis of said aperture is tilted relative to the axis of said hanger.

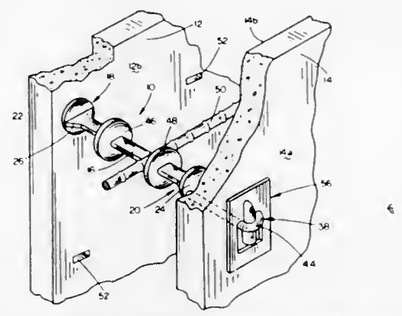


5,209,039

APPARATUS FOR INTERCONNECTING CONCRETE WALL FORMS

Patrick E. Boeshart, R.R. 1, Box 134, Sioux City, Iowa 51108

Filed Apr. 10, 1992, Ser. No. 866,443
Int. Cl.[5] E04C *1/38*
U.S. Cl. 52—699 **8 Claims**



1. Apparatus for interconnecting a pair of spaced-apart form panels, comprising:

an elongated strap having first and second opposite ends;

stop means on said first and second ends, for preventing movement of said panels inwardly towards one another along said strap;

wale receiving means on said first and second ends, extending outwardly from said stop means, for receiving a wale to prevent outward movement of panels on said first and second ends;

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said wale receiving means including an aperture formed in each said end;

wale means removable connected to each said end through said apertures, for preventing movement of said panels outwardly; said wale receiving means including:

a first loop having a pair of legs extending outwardly from said stop means on said first end, and a base portion connecting said pair of legs, to form a first aperture between said first loop legs, the first end stop means and the base portion; and

a second loop having a pair of legs extending outwardly from said second end stop means, and a base portion connecting said pair of legs, to form a second aperture between said second loop legs, the second end stop means, and the second base portion.

5,209,040

CAPSULE SEALING APPARATUS

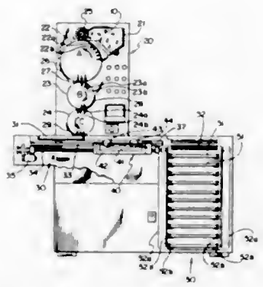
Taizo Yamamoto, Osaka; Masakiyo Inoue, Nara, and Yoshihisa Kawaguchi, Kashihara, all of Japan, assignors to Nippon Elanco Kabushiki Kaisha, Osaka, Japan

Filed Jul. 16, 1992, Ser. No. 915,084

Claims priority, application Japan, Jul. 19, 1991, 3-179958

Int. Cl.[5] B65B *51/02, 61/00*

U.S. Cl. 53—137.2 **6 Claims**



1. A capsule sealing apparatus comprising:

a capsule supplying device for intermittently supplying a prescribed number of capsules aligned in the same direction at a time, each capsule including a cap and a body, and charged with contents with the cap closing the body;

a slat including a plurality of capsule resting slits for individually accommodating the capsules supplied from the capsule supplying device, each capsule resting slit including an opening at its bottom;

a capsule conveyor unit for linearly reciprocating the slat, the capsules supplied from the capsule supplying device being individually accommodated in respective capsule resting slits during the travel of the slat;

a capsule sealing device for coating the seams between their caps and bodies of the capsules individually accommodated in respective capsule resting slits with a sealing liquid through the openings at the bottoms of the slits in the slat, the capsule sealing device being disposed in an area where the slats are moved by the capsule conveyor unit;

a plurality of capsule retaining plates onto which all the capsules in each capsule resting slit of the slat are transferred, the plates horizontally being disposed at a return point of the slat;

a drying device for vertically circulating the capsule retaining plate with the charged capsules thereon in the horizontal posture so as to dry the sealing liquid applied on each capsule; and

a capsule discharging device for discharging the capsules outside the drying device, the sealing liquid of the capsules being dried on the capsule retaining plate of the drying device.

5,209,041

CHUB PACKAGING MACHINE CLIPPING MECHANISM

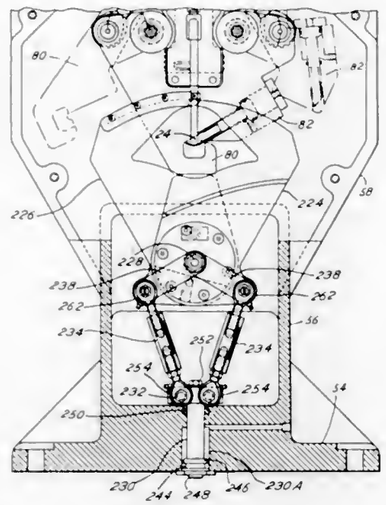
Alfred J. Evans, Raleigh, N.C., assignor to Delaware Capital Formation, Inc., Apex, N.C.

Division of Ser. No. 601,322, Oct. 22, 1990, Pat. No. 5,077,955.

This application Jan. 7, 1992, Ser. No. 817,516

Int. Cl.[5] B65B *51/05*

U.S. Cl. 53—138.4 **6 Claims**



1. In a packaging machine for applying clips to rope sections of filled tubular casing to form clubs, the path of movement of the filled tubular casing defining a longitudinal axis, an improved voiding mechanism comprising:

a support structure;

fixed voider plates with means for fixing the position of the fixed voider plates along the longitudinal axis;

spreading voider plates;

a gathering cylinder;

a gathering piston in the gathering cylinder, movable along a piston line transverse to and intersecting the longitudinal axis, the piston line and longitudinal axis defining a longitudinal plane;

a drive rod extending generally parallel to the longitudinal axis attached to the gathering piston and movable therewith;

turnbuckles pivotally attached to the ends of the drive rod and movable in planes transverse to the longitudinal plane;

guide rods extending generally parallel to the longitudinal axis, the turnbuckles mounted on the guide rods;

paris of drive links mounted on the guide rods and movable in said transverse planes;

a support rod extending generally parallel to the drive rods, the support rod supported on the support structure;

a support rod cylinder attached to the spreading voider plates and extending along a portion of the support rod;

a spreading piston mounted on the support rod within the spreading cylinder, the spreading cylinder movable over the spreading piston;

the drive links and voider plates mounted to the support rod, the fixed voider plates affixed to a pair of the drive links, the spreading voider plates movable longitudinally with the spreading cylinder, and the fixed voider plates and spreading voider plates movable transversely under action of the gathering cylinder.

5,209,042

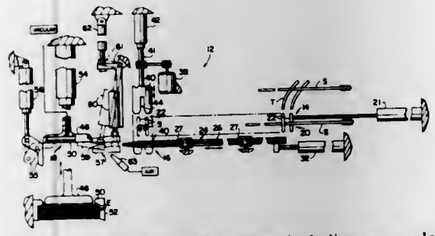
STRING PACKAGING APPARATUS AND METHOD

James H. Rickard, P.O. Box 98, Harwinton, Conn. 06791

Filed Oct. 2, 1992, Ser. No. 955,653

Int. Cl.[5] B65B *63/04*

U.S. Cl. 53—430 **20 Claims**



1. Apparatus for forming a package including an envelope containing a resilient flexible string in the form of a coil, said apparatus comprising insert means for positioning within an envelope a coil to be packaged and including an insert number having an opening therein partially defined by radially inwardly open groove means for receiving and supporting a portion of the outer circumferential surface of the coil to be packaged and further defined by a radially outwardly open mouth, the coil having an unsupported portion in the region of said mouth, means for moving into the envelope said insert means and the coil supported by said insert means, clamping means for engaging opposing outer surface portions of the envelope in the region of said unsupported portion of the coil within the envelope to simultaneously grip and hold the envelope and the unsupported portion therein, and means for moving said insert member and said clamping means in generally radially opposite directions relative to each other to withdraw said insert means from the envelope and separate the coil from said insert means by movement of the coil through said mouth whereby the coil remains within the envelope.

5,209,043

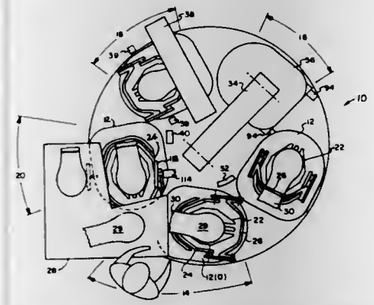
VACUUM PACKAGING METHOD AND APPARATUS

Vytautas Kupcikevicius, Oaklawn, Ill., assignor to Viskase Corporation, Chicago, Ill.

Filed Mar. 3, 1992, Ser. No. 845,307

Int. Cl.[5] B65B *31/02, 7/06*

U.S. Cl. 53—434 **29 Claims**



19. Vacuum packaging method comprising the steps of:

a) moving a carrier through successive loading, evacuating, heat sealing and unloading zones;

b) placing an open article-containing bag having a pre-closed end onto said carrier at said loading zone and arranging the open end of the bag to a flat width;

c) during transit between said loading and evacuating zones, swinging a clamp member, which spans the article-containing bag over substantially the full length of the bag from a full open position adjacent the pre-closed end of the bag and towards a position adjacent to but spaced from the open end of the bag;

d) evacuating air from the article-containing bag in the evacuation zone and thereafter drawing said clamp member down to a position tightly clamped against the open bag end for effecting an air tight mechanical seal of the bag;

e) moving said carrier to said heat sealing zone and in transit exposing said article-containing bag to atmospheric pressure while maintaining said air tight mechanical seal;

f) heat sealing across the flat width of said bag to effect a permanent air tight seal thereof and then moving said carrier to said unloading zone;

g) releasing said clamp member and swinging it back over the length of the article-containing bag to the clamp full open position; and

h) removing the now sealed article-containing bag from the carrier at the unloading zone.

5,209,044

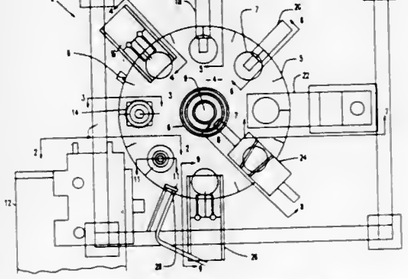
AUTOMATIC TUBE FILLING DEVICE AND PROCESS

James D'Addario, Westbury, and Steven T. Murray, Oak Beach, both of N.Y., assignors to Innovative Automation Inc., East Farmingdale, N.Y.

Filed Jul. 11, 1991, Ser. No. 728,613

Int. Cl.[5] B65B *3/04, 55/24, 57/02*

U.S. Cl. 53—469 **30 Claims**



1. An apparatus for filling tubes comprising:

a) means for moving a tube serially to a plurality of work stations;

b) means for delivering empty tubes having a fill opening to the means for moving a tube serially to a plurality of work stations;

c) means for orienting a tube to provide a desired orientation for subsequent work stations;

d) means for filling a tube;

e) mean for sealing the fill opening on the tube after a tube has been filled; and

f) means for removing a sealed filled tube from the means for moving a tube serially to a plurality of work stations;

wherein the means for delivering empty tubes to the means for moving tubes serially to a plurality of work stations is comprised of sensor means for detecting if a tube exists and is correctly positioned, a pivotally mounted carriage, means for releasably retaining an empty tube to the carriage, means for pivoting the carriage to deliver the empty tube to the means for moving tubes serially to a plurality of work stations and means for positively securing the empty tube to the means for moving the tubes serially to a plurality of work stations.

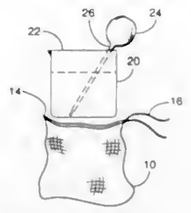
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,045

METHOD FOR PREVENTING HEAT LOSS FROM A STERILE IRRIGATION FLUID CONTAINER DURING SURGERY

Edward R. Howard, Jr., Dallas, Tex., and Donna L. Klinger, Palmyra, Pa., assignors to Techstyles, Inc., Dallas, Tex.

Filed Apr. 21, 1992, Ser. No. 871,394
Int. Cl.[5] B65B *63/08, 55/00*
U.S. Cl. 53—469 3 Claims



1. A method for reducing heat loss in a container of irrigation fluid from which the fluid is retrieved with a longitudinal cannula member with a syringe mechanism disposed on one end thereof, the container cylindrical in shape with one open end and one closed end, comprising the steps of:

providing a bag having one open end and one closed end and peripheral surfaces and dimensions slightly larger than the container, the bag being sterile and having a heat reflective surface;

disposicng the container within the bag after sterilization thereof and insertion of sterile irrigation fluid therein at a predetermined temperature; and

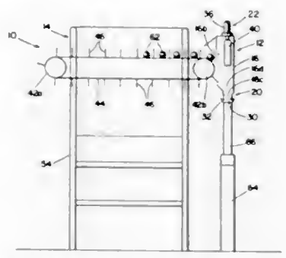
contracting the opening of the bag over the opening in the container to a substantially closed opening to substantially reduce the heat loss from the fluid in the container due to evaporation, the substantially closed opening being sized such that the longitudinal cannula member can be inserted therethrough.

5,209,046

METHOD AND APPARATUS FOR INSERTING ARTICLES INTO PACKAGES

Donald A. Tapscott, Cobourg, and Josef F. Vrana, Roseneath, both of Canada, assignors to Kraft General Foods Canada, Inc., Don Mills, Canada

Continuation of Ser. No. 702,979, May 20, 1991, abandoned. This application Feb. 13, 1992, Ser. No. 835,647
Int. Cl.[5] B65B *39/00, 57/02, 61/20*
U.S. Cl. 53—473 11 Claims



6. A method of inserting articles into packages, comprising:

moving the packages one at a time past and below an article dispenser, the article dispenser defining a loading chamber for holding the article and an outlet for dispensing the articles from the dispenser, and including a bottom gate moveable toward and away from the dispenser outlet; and each time one of the packages moves beneath the dispenser,

(i) opening said outlet to dispense one of said articles into the one package from the dispenser, and

(ii) feeding another of the articles into the leading chamber of the article dispenser;

wherein the opening step includes the steps of

(i) sensing and generating a first control signal each time one of the packages reaches a predetermined position below the dispenser,

(ii) transmitting the first control signal to a control assembly, and

(iii) the control assembly, opening the dispenser outlet in response to receiving the first control signal to dispense said one of the articles into said one of the packages; and

wherein the feeding step includes the steps of

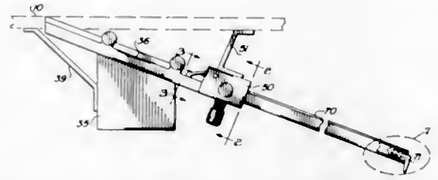
placing the articles on a conveyor belt, and the control assembly, (i) moving the conveyor belt to deposit said another of the articles into the article dispenser, and (ii) stopping the conveyor belt in response to a second control signal generated each time the conveyor belt has moved a predetermined distance to prevent a further one of the articles from being deposited in the dispenser body while said another of the articles is therein.

5,209,047

TUBE LOADER FOR INTEGRATED CIRCUIT PARTS

David Olson, Tempe, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Sep. 2, 1992, Ser. No. 939,221
Int. Cl.[5] B65B *5/10, 35/10*
U.S. Cl. 53—506 19 Claims



1. A tube loader for facilitating the loading of integrated circuit devices into a storage and transport tube including in combination:

an inclined ramp with an upper end and a lower end and having a guideway for gravity feeding integrated circuit devices from the upper end of said ramp to the lower end thereof;

a tube holder member attached to the lower end of said inclined ramp and having a tube-receiving aperture therein in alignment with the guideway on said ramp;

blocking means on said tube holder member for preventing integrated circuit devices from moving into the tube-receiving aperture of said tube holder member when no storage and transport tube is located therein; and

means responsive to the presence of a storage and transport tube in the tube receiving aperture of said tube holder member for releasing said blocking means to permit integrated circuit devices to move from said ramp into a storage and transport tube located in the tube-receiving aperture of said tube holder member.

5,209,048

HOOF PROTECTIVE DEVICE

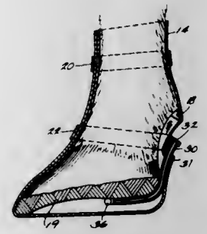
Peter D. Hanson, 12150 County Rd. M-Y, Grantsburg, Wis. 54840

Filed Jun. 8, 1992, Ser. No. 895,091
Int. Cl.[5] B68C *5/00*
U.S. Cl. 54—82 5 Claims

1. A protective boot for an animal's hoof comprising:

a flexible covering of a general hollow ungulate shape to fit an ungulate's hoof;

an upper portion connected to the top of said hollow covering to provide a protective covering for the lower leg of the animal, said upper portion being of sufficient length to extend above the dewclaws on the animal's leg;



securing means near the tip of said upper portion of said boot designed to secure the upper around the reduced diameter portion of the animal's leg located above the dewclaws;

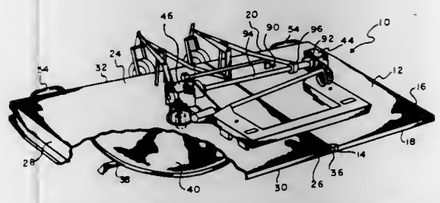
a flexible hollow tube extending from the upper portion down to the bottom of the boot to fit under the hoof of said animal, said tube being provided with a branched end of a Y-shaped or T-shaped configuration, the ends of the branches extending to opposite sides of said hoof.

5,209,049

ARTICULATED LAWN MOWER

Jimmy Heard, 1242 Placid Dr., Lake Placid, Fla. 33852

Filed Oct. 28, 1991, Ser. No. 783,317
Int. Cl.[5] A01D *34/00*
U.S. Cl. 56—15.5 5 Claims



1. A lawn mower adapted to be coupled to a tractor for cutting the grass of an uneven terrain, comprising:

a first deck having lateral edges at a front end and a rear end;

a second deck having lateral edges at a front end and a rear end laterally positioned adjacent to the first deck at adjacent lateral edges;

pivot means coupled to the adjacent lateral edges of the decks adapted to support the decks in side by side relationship in an essentially horizontal plane;

rotary cutting means secured to the lower surface of each deck with a motor secured to each cutting means on the upper surface of each deck;

an interior wheel and an exterior wheel located adjacent to one end of each of the decks, the exterior wheels having a barrel shaped profile;

an A-frame mounting bracket coupled to the upper surface of each of the decks adjacent to the other end;

link means pivotally coupling each deck and a portion of the mounting bracket, each link being freely swingable in a vertical plane parallel with the front and rear ends whereby when the interior wheels are lowered through the cutting in a valley, the pivot means and adjacent edges of the decks will move downwardly and the lower portions of the links will swing inwardly toward the pivot means;

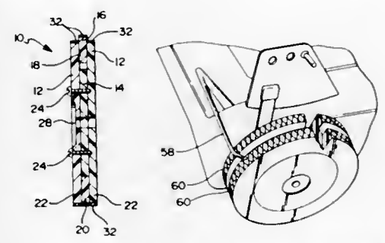
and a limiting means formed of an upstanding fixture coupled to each deck and a rod pinned at the first end to one bracket and slidable in the other fixture with positionable means received in the second end of the rod to limit the degree of pivoting.

5,209,050

MOWER WHEEL ASSEMBLY

Tracy Carrigan, 1902 Cumberland Rd., Lansing, Mich. 48906

Filed Nov. 4, 1991, Ser. No. 787,494
Int. Cl.[5] A01D *34/82*
U.S. Cl. 56—16.7 18 Claims



13. A wheel assembly for use on a mower for reducing the accumulation of grass clippings on the mower wheels, said wheel assembly comprising:

at least an outer wheel and an inner wheel each having substantially the same outer diameter, said inner and outer wheels being coaxially mounted upon said mower such that said mower is supported upon said inner and outer wheels, said inner and outer wheels defining a space between them;

a rod for clearing away accumulated grass, said rod being mounted on said mower and extending from said mower into said space to clear accumulated grass clippings from said inner and outer wheels;

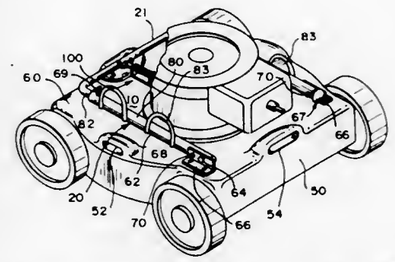
whereby, as said mower is propelled, said rod is constantly forced between said inner and outer wheels to dislodge grass clippings that are accumulating on said wheel assembly.

5,209,051

LAWN MOWERS INCLUDING PUSH HANDLES

Christopher D. Langdon, P.O. Box 904, Tryon, N.C. 28782

Continuation-in-part of Ser. No. 666,573, Mar. 8, 1991, Pat. No. 5,136,830. This application Apr. 22, 1992, Ser. No. 872,065
Int. Cl.[5] A01D *34/68*
U.S. Cl. 56—16.7 7 Claims



1. A rotary lawn mower adapted to be moved over a surface to mow vegatation; said lawn mower includes a mower deck, a motor, rotary cutting means and a push handle assembly

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having a hand grip; said mower deck including a top portion adapted to support said motor and downwardly extending edge portions; said motor being affixed to the central portion of said mower deck and coupled to drive rotary cutter means positioned underneath said mower deck and substantially parallel to said surface, said push handle assembly being pivotally secured to said mower deck at one side behind said motor means and adapted to be pivoted forwardly to lie on said mower deck and means, remote from said one side to secure the push handle to the mower deck thus permitting a user of said mower to selectively grasp said push handle assembly to move said rotary mower from one location to another.

5,209,052

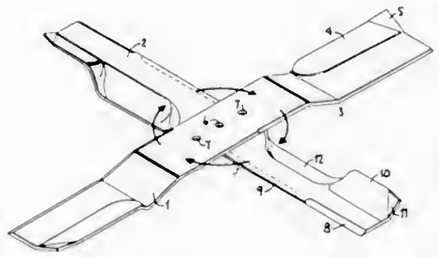
CUTTING AND MULCHING BLADE ASSEMBLY

William R. Carroll, 200 E. Holly St., Hazleton, Pa. 18201

Filed Jul. 11, 1991, Ser. No. 728,696

Int. Cl.[5] A01D *34/68, 34/73*

U.S. Cl. 56—255 **4 Claims**



1. A cutting and mulching blade assembly for use with a rotary lawn mower having a motor and a depending drive shaft comprising:

(A) a first cutter blade member having a sharpened cutting edge on each leading edge thereof and an airlift on each trailing edge thereof, each said sharpened cutting edge extending upwardly and inwardly from the ends of said first cutting blade member to substantially the center of rotation of said first cutting blade member;

(b) a second mulching blade member attached perpendicular to said first cutting blade member and having a sharpened outboard cutting edge and a sharpened inboard cutting edge on each leading edge thereof, and an outboard airlift and an inboard airlift on each trailing edge thereof, said inboard airlift being inverted with respect to said outboard airlift.

5,209,053

INJECTION MOLDED KNIFE GUARDS

John Verbeek, Saskatchewan, Canada, assignor to Vixen Mfg. Inc., Saskatchewan, Canada

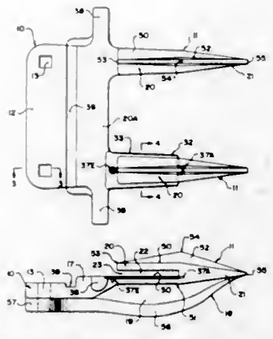
Filed Mar. 13, 1991, Ser. No. 669,444

Claims priority, application Canada, Jul. 13, 1989, 605540

Int. Cl.[5] A01D *55/00*

U.S. Cl. 56—298 **5 Claims**

1. A knife guard for use with reciprocating knives of a sickle bar, comprising an integrally molded body formed from a synthetic plastics material and defining a support portion for attachment to a support flange of a machine on which the knife guard is supported, a transverse bar mounted on the support portion forwardly thereof, at least one prong projecting forwardly from the transverse bar and defining a substantially sharp front nose and defining a space between the prong and a next adjacent prong, guide means on the prong rearwardly of the nose for guiding the reciprocating knife assembly and including a lower guide element and an upper guide element extending over the lower guide element and defining between the guide elements a substantially horizontally extending slot for receiving the reciprocating knife assembly, the lower guide element including a sharpened ledger plate means inserted in the plastics material, the ledger plate means forming side edges of the prong for cutting action with side edges of the knife assembly, the ledger plate means comprising a single plate member defining an upper guide surface forming an upper most surface of the lower guide element over which the reciprocating knife assembly slides, means mounting the single plate member on the prong comprising a tab member at one of front



and rear ends thereof, the tab member being buried in the plastics material and screw fastener means mounted in a countersunk bore in the single plate member and engaging the plastics material, the prong having an upper surface of a width substantially equal to the width of the prong and a rib narrower than the width of the prong mounted on the upper surface and extending longitudinally of the prong from a position adjacent the sharp nose to a position adjacent a rear edge of the upper guide element.

5,209,054

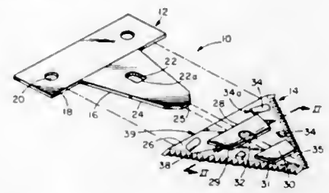
MOWING DEVICE

Francis J. Lawson, Lafaivre, Canada, assignor to James E. Cummings, Sharon, Mass.

Continuation-in-part of Ser. No. 516,201, Apr. 30, 1990, abandoned. This application Mar. 21, 1991, Ser. No. 673,225

Int. Cl.[5] A01D *34/13, 34/14*

U.S. Cl. 56—300 **30 Claims**



1. A two-piece cutter member for mounting on a sickle bar comprising a rigid thin support element arranged for relatively permanent attachment to a sickle bar, a flat planar pyramid-shaped spring metal blade having a cutting face and a support face, a portion of the blade being displaced away from the support face to provide at least one loop for encircling said support element and holding said blade onto said support element, an opening in said support element, a portion of said one loop being bent toward the plane of the blade and positioned to engage said opening in the support element to releasably hold said blade on said support when said blade is fully positioned on said support element, other portions of said blade being displaced from the plane of the blade to engage edges of

the support element to resist sideways displacement of the blade during use.

5,209,055

STEP BEARING FOR THE SHAFT OF A SPINNING ROTOR

Eugen Hini, Kosching; Erich Bock, Wettstetten, and Eberhard Grimm, Ingolstadt, all of Fed. Rep. of Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Fed. Rep. of Germany

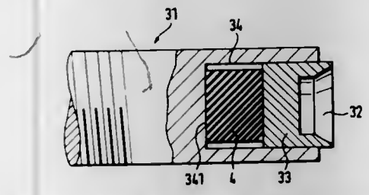
PCT No. PCT/DE90/00320, § 371 Date Jan. 2, 1991, § 102(e) Date Jan. 2, 1991, PCT Pub. No. WO90/13690, PCT Pub. Date Nov. 15, 1990

PCT Filed May 4, 1990, Ser. No. 646,757

Claims priority, application Fed. Rep. of Germany, May 5, 1989, 3914777

Int. Cl.[5] D01H *4/12*

U.S. Cl. 57—406 **3 Claims**



1. A step bearing for use in an open-end spinning device having a plurality of spinning stations,

a spinning rotor having a shaft extending rearwardly therefrom comprising:

a ball,

ball support means mounted on said spinning machine for supporting said ball and receiving oscillations from said spinning machine which cause said ball to rotate in said support means,

an end of said rotor shaft engaging one side of said ball,

resilient means formed of an elastomeric material for engaging said ball support means on a side opposite said shaft for axially damping any axial oscillations imparted to said ball by said shaft,

said ball support means including,

an elongated housing carried on a side of said ball opposite said shaft of said rotor,

a tubular cylindrical bore provided in said housing having an open-end, a side wall and a bottom surface,

said resilient means having first and second ends carried in said bore with said first end abutting said bottom surface of said tubular bore,

a ball receiver carried in said bore in abutting relation with said second end of said resilient means, and

said resilient means having a diameter less than the diameter of said cylindrical bore so that said resilient means when radially expanded by axial force imparted by said shaft is in a non-damping capacity in the radial direction.

5,209,056

STORED ENERGY, WIDE ENERGY RANGE TURBINE STARTING ENGINE

Jack R. Shekleton, San Diego, Calif., and Robert W. Smith, Rockford, Ill., assignors to Sundstrand Corporation, Rockford, Ill.

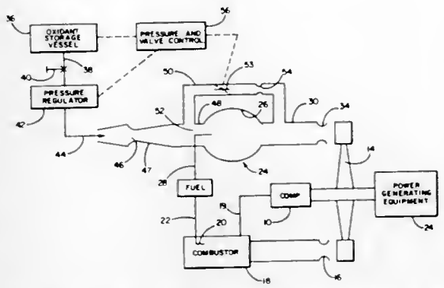
Division of Ser. No. 447,444, Dec. 7, 1989, Pat. No. 5,136,888. This application Mar. 6, 1992, Ser. No. 822,306

Int. Cl.[5] F02C *7/26, 7/18*

U.S. Cl. 60—39.06 **5 Claims**

1. A method of achieving a desired ease of ignitability of fuel in a combustor of a particular volume comprising the steps of

a) introducing oxidant into said combustor through a choked orifice; and



b) regulating the pressure of the oxidant applied to the choked orifice to achieve the desired ease of ignitability.

5,209,057

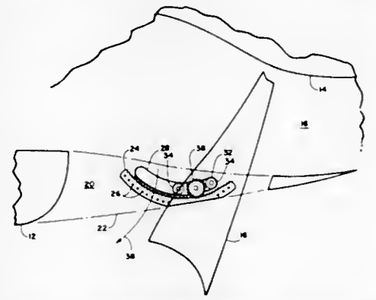
RACK AND PINION ACTUATION FOR AN AIRCRAFT ENGINE THRUST REVERSER

Jihad I. Remlaoui, Oceanside, Calif., assignor to Rohr, Inc., Chula Vista, Calif.

Filed Oct. 23, 1991, Ser. No. 780,945

Int. Cl.[5] F02K *1/00*

U.S. Cl. 60—226.2 **13 Claims**



1. A thrust reverser system for a fan type turbine aircraft engine which comprises:

a plurality of blocker doors positioned in circumferentially arranged openings separated by islands, near the aft end of the nacelle of a fan type aircraft engine;

said islands each having a first wall adjacent to the adjacent door;

said doors each having a second wall adjacent to the island first wall;

a rack gear secured to one of said first and second walls;

a correspondingly configured track secured to said one of said first and second walls;

a pinion gear in engagement with said rack and rotatably secured to the other of said first and second walls;

guide means engaging said track to cause said door to move and pivot in accordance with the relative position of said pinion and rack;

whereby as said pinion gear is rotated in a first direction, said pinion and rack move relative to each other and said guide means is moved relative to said track in a direction moving said door from the stowed to the deployed position and when rotated in the opposite direction returning said door to the stowed position, said door pivoting in accordance with the orientation of said guide means relative to said track.

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5,209,058

FUEL CONTROL SYSTEM FOR A GAS TURBINE ENGINE

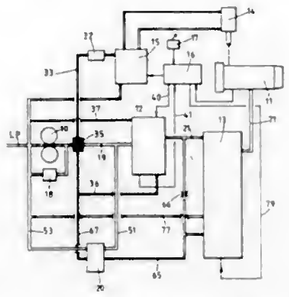
Brian E. Sparks, Shrewley Common, and Simon J. Burr, Birmingham, both of England, assignors to Lucas Industries public limited company of Brueton House, Solihull, England

Filed Oct. 15, 1991, Ser. No. 775,563

Claims priority, application United Kingdom, Oct. 16, 1990, 9022387

Int. Cl.[5] F02C *9/28*

U.S. Cl. 60—39.281 15 Claims



1. A fuel control system for a gas turbine engine, comprising a pump, a metering device responsive to an electric control signal for regulating fuel flow from the pump to the engine, a shut-off valve downstream of said metering device and operable by a first servo pressure, a spill valve for spilling fuel from upstream of said metering device, said spill valve being operable by a second servo pressure, an electrically operable valve for controlling said first and second servo pressures, and a circuit for supplying electric signals to said metering device and said electrically operable valve so that during a first stage of shut-down of the system said shut-off valve is shut and said metering device is at least partially open and during a second stage of shut-down of the system said metering device is shut.

5,209,059

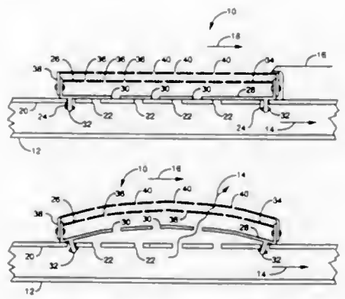
ACTIVE COOLING APPARATUS FOR AFTERBURNERS

Eric Ward, W. Palm Beach, Fla., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Dec. 27, 1991, Ser. No. 820,728

Int. Cl.[5] F02K *3/10, 11/00;* B64D *33/04*

U.S. Cl. 60—261 2 Claims



1. An active cooling apparatus for use in jet engines having afterburners therein, said active cooling apparatus comprising:

a liner of the afterburner, said liner having a plurality of cooling air supply holes and the jet engine providing cooling air to the supply holes;

an inner manifold, said inner manifold being a container having a bottom layer, a top layer, and walls thereabout, said bottom layer having a plurality of receiving holes therein and offset from the cooling air holes of said liner, said bottom layer further having attaching means to be connected to said liner, said top layer having a plurality of vent holes therein, a volume of space existing between said bottom layer and said top layer, said bottom layer and said top layer being substantially parallel; and

a hot cover layer, said hot cover layer attached directly over said top layer and spaced therefrom, said hot cover layer having a plurality of flow path holes therein;

said bottom layer having less thermal expansion than said top layer, said top layer having less thermal expansion than said hot cover layer whereby a hot gas flow over said hot cover layer causes a bowing of said layers away from said liner thus allowing cooling air to flow into the active cooling apparatus.

5,209,060

METHOD FOR THE CONTINUOUS LAMBDA CONTROL OF AN INTERNAL COMBUSTION ENGINE HAVING A CATALYZER

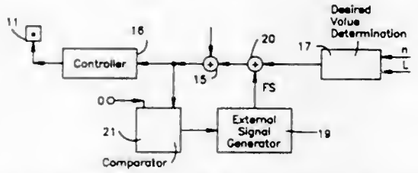
Klaus Hirschmann, Leonberg; Lothar Raff, Remseck, and Eberhard Schnaibel, Hemmingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 31, 1991, Ser. No. 738,621

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1990, 4024212

Int. Cl.[5] F01N *3/20*

U.S. Cl. 60—274 4 Claims



1. A method for continuous lambda control of an internal combustion engine having a catalyzer, the method comprising the steps of:

generating a control oscillation with controllable amplitude in at least pregiven operating conditions;

adjusting the control oscillation amplitude in dependence upon a conversion rate estimate value for the catalyzer; and,

the adjustment of said amplitude starting first from the maximum amplitude when using a new catalyzer and then to a lesser value the more the conversion rate estimate quantity indicates a deterioration of the conversion rate of the catalyzer.

5,209,061

EXHAUST GAS PURIFICATION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Shinichi Takeshima, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Mar. 9, 1992, Ser. No. 848,386

Claims priority, application Japan, Mar. 13, 1991, 3-72057

Int. Cl.[5] F01N *3/20;* F02M *25/06*

U.S. Cl. 60—278 11 Claims

1. An exhaust gas purification system for an internal combustion engine comprising:

an internal combustion engine capable of fuel combustion at lean air-fuel ratios and having an exhaust conduit;

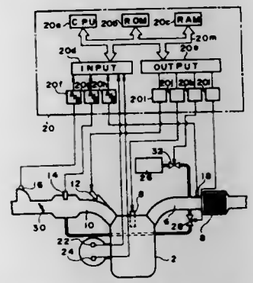
an NOx catalyst installed in the exhaust conduit of the engine, the NOx catalyst being constructed of zeolite and

carrying a metal selected from the group consisting of transition metals and noble metals;

HC amount increasing means capable of increasing an amount of HC included in exhaust gas flowing to the NOx catalyst;

catalyst temperature determining means for determining one of a temperature of the NOx catalyst and a temperature representing the NOx catalyst temperature and determining whether the NOx catalyst temperature is below a predetermined temperature; and

HC amount increasing means operating means for operating the HC amount increasing means intermittently when the catalyst temperature determining means determines that



the NOx catalyst temperature is below said predetermined temperature, wherein the NOx catalyst reduces NOx included in the exhaust gas from the engine in the presence of radicals generated through partial oxidization of HC, a relatively large amount of said radicals being produced in said NOx catalyst, said produced radicals being held within cells of the NOx catalyst at NOx catalyst temperatures which are below the predetermined NOx catalyst temperature and wherein the HC amount increasing means operating means operates to maintain the HC amount increasing means in an ON state for a first predetermined time period and, subsequently, operates to maintain the HC amount increasing means in an OFF state for a second predetermine time.

5,209,062

LARGE DIESEL ENGINE

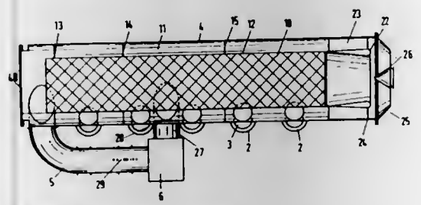
Jakob Vollenweider, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Jul. 16, 1991, Ser. No. 731,751

Claims priority, application Switzerland, Jul. 27, 1990, 02502/90

Int. Cl.[5] F01N *3/24*

U.S. Cl. 60—280 20 Claims



1. A diesel engine comprising

a plurality of cylinders;

an exhaust gas manifold connected to said cylinders to receive as flow of exhaust gas from each cylinder;

a tube concentrically disposed in said manifold to define an annular chamber therebetween in communication with said cylinders;

a static mixer extending in said tube with a catalyst coating thereon, said static mixer having a plurality of sheets distributed over the cross-section of said tube in the flow direction of the exhaust gas and parallel guide elements on said sheets, adjacent rows of said guide elements being disposed in crossing relation and inclined to said flow direction; and

means in said manifold for supplying a reducing agent into a flow of exhaust gas passing therethrough upstream of said static mixer.

5,209,063

HYDRAULIC CIRCUIT UTILIZING A COMPENSATOR PRESSURE SELECTING VALUE

Kiyoshi Shirai; Shigeru Shinohara; Teruo Akiyama; Takahide Takiguchi, and Naoki Ishizaki, all of Kawasaki, Japan, assignors to Kabusbiki Kaisha Komatsu Seisakusho, Tokyo, Japan

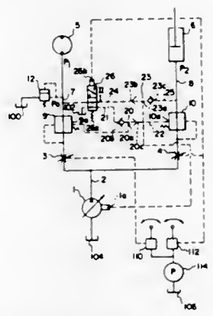
PCT No. PCT/JP90/00667, § 371 Date Apr. 9, 1991, § 102(e) Date Apr. 9, 1991, PCT Pub. No. WO90/14519, PCT Pub. Date Nov. 29, 1990

Continuation of Ser. No. 646,739, Apr. 9, 1991, abandoned. This PCT application May 24, 1990, Ser. No. 877,364

Claims priority, application Japan, May 24, 1989, 1-128798; May 24, 1989, 1-128799

Int. Cl.[5] F16D *31/02*

U.S. Cl. 60—422 7 Claims



1. A hydraulic circuit comprising:

a plurality of operating valves connected to a discharge passage of a hydraulic pump, the operating valves each regulating the flow of fluid under pressure to a plurality of hydraulic actuators, each of the operating valves having a pressure compensating valve provided on the side thereof, between each of the operating valves and the plurality of hydraulic actuators, each of the pressure compensating valves being arranged to be set by the load pressure in the hydraulic actuator loaded with the highest pressure; and

a compensation pressure selecting valve for normally supplying the highest load pressure to the spring chamber of each of the pressure compensating valves, and supplying each of spring chambers of the pressure compensation valves in the load pressures in the hydraulic actuators connected to each of the pressure compensating valves when either one of the operating valves is operated in conjunction with operation of the other operating valve for the full stroke.

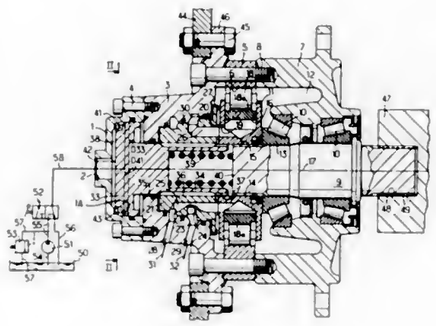
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,064

DEVICE FOR MUTUAL IMMOBILIZATION OF TWO ELEMENTS MOUNTED FOR RELATIVE ROTATION

Alain W. Noel, Verberte, and Louis B. Bigo, Compiegne, both of France, assignors to Poclain Hydraulics, Verberie, France

Filed Mar. 6, 1990, Ser. No. 490,104
Claims priority, application France, Mar. 7, 1989, 89 02985
Int. Cl.[5] F16D *31/02*
U.S. Cl. 60—442 11 Claims



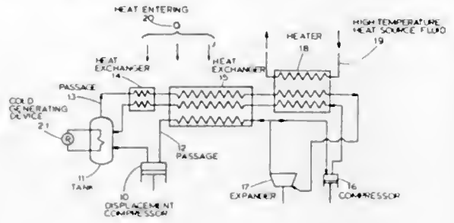
1. An assembly of a hydraulic motor and a combined device for immobilization, comprising:
a reaction cam;
a cylinder-block mounted to rotate with respect to the reaction cam,
a first immobilization means which is fast with respect to the rotation of the cylinder-block;
a second immobilization means which is fast with respect to the rotation of the reaction cam and which is capable of being disposed with respect to said first immobilization means in two distinct positions: a first position, in which said first and second immobilization means are fast with one another with respect to rotation, and a second position, in which these first and second immobilization means do not cooperate for their mutual immobilization; and
a device for adjusting the relative position of the first and second immobilization means coupled together wherein said device comprises a pressurized fluid jack including a working chamber defined by a cylindrical section and by a piston mounted to slide therein; and wherein
a) one of the first and second immobilization means is coupled to an immobilization member which is mounted to move in translation on the cylinder-block and the reaction cam elements of the motor, said reaction cam and said immobilization means being fast with respect to rotation;
b) said immobilization member and said cylinder-block defining the working chamber of said fluid jack;
c) one of the first and second immobilization means having at least one immobilization catch capable of cooperating with at least one receiving housing formed in the other of said first and second immobilization means; and
d) the first and second immobilization means are contained in the working chamber of the pressurized fluid jack.

5,209,065

HEAT ENGINE UTILIZING A CYCLE HAVING AN ISENTHALPIC PRESSURE-INCREASING PROCESS

Toyoshi Sakata, 128 Nojiri, Shikata-cho, Kakogawa 675-03, Japan

Continuation of Ser. No. 694,230, May 1, 1991, abandoned. This application Jul. 6, 1992, Ser. No. 911,247
Claims priority, application Japan, May 8, 1990, 2-119340
Int. Cl.[5] F02C *1/04*
U.S. Cl. 60—650 1 Claim



1. A method of generating power comprising:
(a) directing a working fluid through a series of heat exchange steps to increase the temperature and pressure of the fluid;
(b) expanding the thus high temperature, high pressure working fluid to produce a work output and an exhaust working stream;
(c) splitting the exhaust working stream into first and second flow streams;
(d) directing the first flow stream serially through at least one heat exchange zone, a compression zone, and a mixing zone;
(e) directing the second flow stream serially through a compression zone, at least one heat exchange zone, and said mixing zone;
(f) withdrawing fluid from said mixing zone as working fluid, and cyclically repeating the steps (a)-(e).

5,209,066

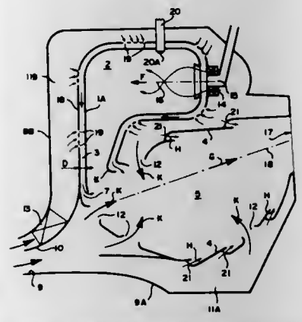
COUNTER FLOW COMBUSTION CHAMBER FOR A GAS TURBINE ENGINE

Gérard Y. G. Barbier, Morangis; Xavier M. H. Bardey, Chartrettes; Michel A. A. DeSaulty, Vert Saint Denis, and Serge M. Meunier, Le Chatelet en Brie, all of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs, Paris, France

Filed Dec. 13, 1991, Ser. No. 806,297
Claims priority, application France, Dec. 19, 1990, 90 15911
Int. Cl.[5] F02C *1/00*
U.S. Cl. 60—732 5 Claims

1 A combustion chamber for a gas turbine engine comprising:
a) first wall means defining a first chamber portion having a primary oxidizer inlet and a first outlet, wherein the first wall comprises:
i) an inner, hot wall;
ii) an outer, cold wall surrounding the inner, hot wall and spaced therefrom so as to define a cooling passage therebetween; and,
iii) a plurality of perforations defined by the outer, cold wall and communicating with an oxidizer gas chamber so as to allow oxidizer gas to pass through the cooling passage;
b) fuel injection means operatively associated with the first wall means so as to inject fuel into the first chamber portion to form a fuel/oxidizer mixture;
c) ignition means operatively associated with the first chamber portion so as to ignite the fuel/oxidizer mixture in the first chamber portion to produce exhaust gases;

d) second wall means defining a second chamber portion having a second inlet and a second outlet, the second chamber portion oriented such that the second inlet communicates with the first outlet such that the exhaust gases travel in substantially opposite directions through the first and second chamber portions;
e) third wall means surrounding the first and second wall means so as to define therebetween an oxidizer gas chamber, the third wall means defining a third inlet communicating with a source of oxidizer gas, the oxidizer gas chamber communicating with the primary oxidizer inlet; and,
f) at least one secondary oxidizer intake orifice defined by the second wall means such that the oxidizer gas is admitted through the at least one secondary oxidizer intake orifice to only the second chamber portion.

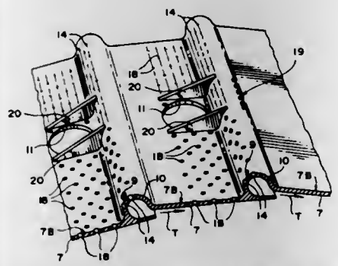


5,209,067

GAS TURBINE COMBUSTION CHAMBER WALL STRUCTURE FOR MINIMIZING COOLING FILM DISTURBANCES

Gérard Y. G. Barbier, Morangis; Frédéric Beule, Charenton Le Pont; Michel A. A. Desaulty, Vert Saint Denis; Jean M. C. M. P. Latour, La Chaussee Saint Victor, and Bruno R. H. Masse, Vaux Le Penil, all of France, assignors to S.N.E.C.M.A. Societe Nationale d'Etude et de Construction de Moteurs D'Aviation, Paris, France

Filed Oct. 17, 1991, Ser. No. 778,283
Claims priority, application France, Oct. 17, 1990, 90 12785
Int. Cl.[5] F23R *3/06, 3/08*
U.S. Cl. 60—757 12 Claims



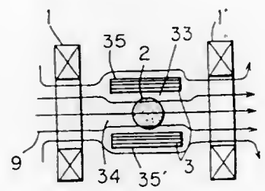
1. A wall structure for a combustion chamber of a gas turbine engine comprising:
a) a plurality of wall segments, each wall segment having an upstream portion and a downstream portion, each downstream portion having an inner surface facing into the combustion chamber and an outer surface facing away from the combustion chamber;
b) means attaching an upstream portion of one segment to the outer surface of the downstream portion of an adjacent segment along a juncture line so as to define a cooling chamber having an outlet facing generally in a downstream direction to direct cooling air along the inner surface of the downstream portion;
c) a plurality of main cooling air holes having air inlets defined by the upstream portion and communicating with the cooling chamber the upstream portion being oriented such that at least one of the main cooling air holes has an air inlet substantially co-planar with the juncture line; and,
d) a primary air hole defined by the downstream portion and communicating with the combustion chamber to supply combustion/dilution air to the combustion chamber, and located such that the primary air hole is substantially tangent to the juncture line and is immediately adjacent to the main cooling air holes so as to minimize the disturbances of the cooling air emanating from the cooling chamber and passing along the inner surface of the downstream portion by air passing through the primary air hole.

5,209,068

STATIC MAGNETIC REFRIGERATOR

Yoshiro Saji; Hiroaki Toda; Tetsuo Takagi; Takao Sugioka; Masaru Inone; Kohei Otani, and Manabu Sato, all of Osaka, Japan, assignors to Koatsu Gas Kogyo Co., Ltd., Osaka, Japan

Filed Jan. 13, 1992, Ser. No. 819,887
Claims priority, application Japan, Jan. 22, 1991, 3-22894
Int. Cl.[5] F25B *21/00*
U.S. Cl. 62—3.1 8 Claims



1. A static magnetic refrigerator comprising:
a magnet generating a high-intensity magnetic field,
a magnetic working material disposed in the high-intensity magnetic field,
a superconducting magnetic shield disposed between the magnet and said magnetic working material, and
a rotating means for rotating said superconducting magnetic shield,
said superconducting magnetic shield comprising a pair of superconducting bodies being capable of simultaneously rotating around said magnetic working material, and being arranged such that each of said superconducting bodies is spacedly disposed around the magnetic working material with a space and lateral magnetic passages communicating with the space,
whereby a magnetization process wherein said magnetic working material is magnetized in the high-intensity magnetic field by way of rotating said superconducting magnetic shield around said magnetic working material at a position allowing the permeation of the magnetic field through said magnetic working material via the magnetic passages and the space and a demagnetization process wherein said magnetic working material is demagnetized by way of further rotating said superconducting magnetic shield at another position permitting the shield of the magnetic field via said superconducting bodies are repeated by said rotating means so that said magnetic working material generates coldness.

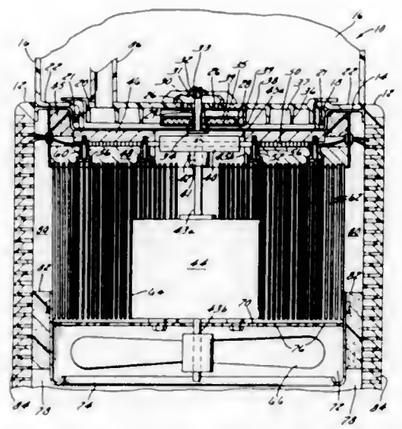
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,069

COMPACT THERMOELECTRICALLY COOLED BEVERAGE DISPENSER

Brian D. Newnan, Louisville, Ky., assignor to Grindmaster Corporation, Louisville, Ky.

Filed May 6, 1991, Ser. No. 696,178
Int. Cl.[5] F25B *21/02*
U.S. Cl. 62—3.64 11 Claims



1. In an improved refrigerated beverage dispensing machine of the type which conventionally includes a housing; a thermally conductive, magnetically permeable support plate attached to said housing; a transparent beverage container disposed on said support plate; a drive motor disposed in said housing; magnetic drive means responsively connected to said motor and disposed in said housing next to said support plate; and liquid circulating means rotatably disposed in said container next to said support plate; and liquid circulating means rotatably disposed in said container next to said support plate and being responsively coupled magnetically to said drive means, the improvement of which comprises

A. a thermoelectric refrigeration system disposed in said housing for removing heat from said support plate to cool a beverage stored in said container, said refrigerating system including

(i) a cold plate attached to said support plate;

(ii) a hot plate mechanically fastened to but thermally isolated from said cold plate;

(iii) a series of thermoelectric modules sandwiched between said hot and cold plates, said hot and cold plates defining openings therethrough which are in registry with one another, said magnetic drive means being disposed within said openings and said modules being spaced around said openings; and

(iv) a plurality of heat exchanger plates mounted in thermal contact with said hot plate along a region of said hot plate extending from said hot plate defining opening to the outer periphery of said hot plate,

said modules being in thermal contact with said region of said hot plate and a centrally disposed group of said plurality of said plates being shorter and defining a void in which said motor is disposed; and

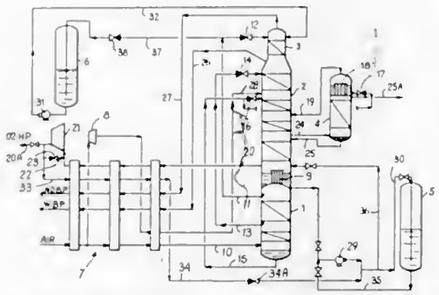
B. air circulating means disposed within said housing for drawing ambient air into said housing along said heat exchanger plates to extract heat therefrom and for exhausting said air heated from contract with said heat exchanger plates from said housing, said air circulating means being responsively connected to said motor.

5,209,070

PROCESS AND ARRANGEMENT FOR THE DISTILLATION OF AIR IN THE PRODUCTION OF GASEOUS OXYGEN UNDER VARIABLE OPERATING CONDITIONS

Bernard Darredeau, Sartrouville, France, assignor to L'Air Liquide, Societe Anonyme Pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Filed Dec. 3, 1991, Ser. No. 801,731
Claims priority, application France, Dec. 6, 1990, 90 15294
Int. Cl.[5] F25J *3/00*
U.S. Cl. 62—11 9 Claims



1 An air distillation process for producing a variable amount of oxygen in a double column apparatus in which compressed air cooled in a heat exchange line is fed to a high pressure column, and gaseous and liquid oxygen are produced in a low pressure column, comprising the steps of:

a) when oxygen demand is low, supplying liquid oxygen from said low pressure column to an oxygen tank, supplying additional liquid oxygen to said oxygen tank by cooling compressed gaseous oxygen in the heat exchange line, and reducing liquid nitrogen flow from a nitrogen tank to said low pressure column; and

b) when oxygen demand is high, supplying liquid oxygen from said oxygen tank to said low pressure column, condensing a corresponding amount of nitrogen from said high pressure column, and supplying the condensed nitrogen to the nitrogen tank.

5,209,071

IMMEDIATE HEAT UPGRADING AIR CONDITIONING SYSTEM AND ASSOCIATED COOL THERMAL STORAGE

Chen-Yen Cheng, 9605 LaPlaya St., NE., Albuquerque, N. Mex. 87111

Continuation-in-part of Ser. No. 708,507, May 31, 1991. This application Mar. 9, 1992, Ser. No. 851,298
Int. Cl.[5] F25J *5/00*
U.S. Cl. 62—12 40 Claims

1. A heat upgrading absorption system for cooling or heating an air mass to be conditioned by taking heat in from a first mass of fluid at a first temperature and supplying heat to a second mass of fluid at a second temperature that is higher than the first temperature, one of the masses of fluid being the air mass to be conditioned, that comprises a first sub-system [denoted also as a Type A sub-system] that comprises one or more air handlers, each exchanging heat with the air mass to be conditioned, and each air handler comprises one or more Type A processing regions, and each Type A processing region comprises:

(a) a Type A enclosure surrounded by a Type A heat conductive wall;

(b) an evaporation zone [Zone A-1] and an absorption zone [Zone A-2] and a vapor passage between the two zones within the Type A enclosure;

(c) a first heat interaction zone [Zone A-3] that is outside of the Type A enclosure and is in heat communication with Zone A-1 through a first portion of the Type A heat conductive wall;

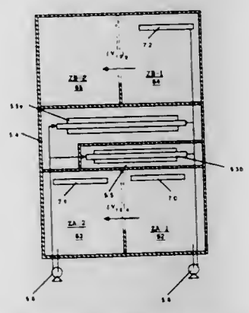
(d) a second heat interaction zone [Zone A-4] that is also outside of the Type A enclosure and is in heat communication with Zone A-2 through a second portion of the Type A heat conductive wall;

so that conduction of the following operational steps:

(a) introducing water into Zone A-1,

(b) introducing a first absorbing solution into Zone A-2,

(c) introducing the first mass of fluid into Zone A-3, and



(d) introducing the second mass of fluid into Zone A-4;

lead to the occurance of the following operational steps:

(a) heat transfers from Zone A-3 to Zone A-1 to thereby cool the first mass of fluid in Zone A-3 and vaporize water in Zone A-1 to form a first water vapor;

(b) the first water vapor flows through the vapor passage from Zone A-1 to Zone A-2 and is absorbed into the absorbing solution to thereby release the heat of absorption and form a second diluted absorbing solution;

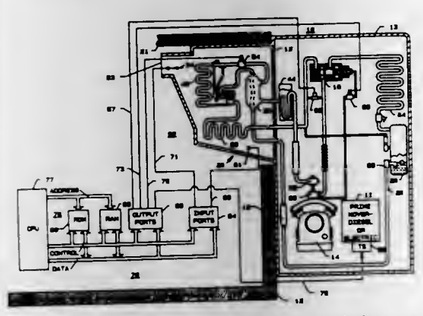
(c) heat transfers from Zone A-2 to Zone A-4 to thereby heat the second mass of fluid in Zone A-4.

5,209,072

REFRIGERATION TEMPERATURE CONTROL SYSTEM

Greg Truckenbrod, Fridley, and Paul C. Wacker, Plymouth, both of Minn., assignors to Westinghouse Electric Corp. and Honeywell, Inc.

Continuation of Ser. No. 641,292, Jan. 15, 1991, abandoned. This application Mar. 18, 1992, Ser. No. 853,128
Int. Cl.[5] F25D *29/00*
U.S. Cl. 62—56 12 Claims



8. A method of controlling a temperature regulating system comprising:

a. measuring a first parameter of said system;

b. measuring a second parameter of said system;

c. deciding from the value measured of said first parameter and said second parameter whether to control said system by said first parameter or said second parameter;

d. computing an error signal from said selected parameter;

e. computing an integrated error signal from said error signal by integrating at a rate determined by said error signal;

f. algebraically combine said error signal and said integrated error signal to produce a combined error signal; and,

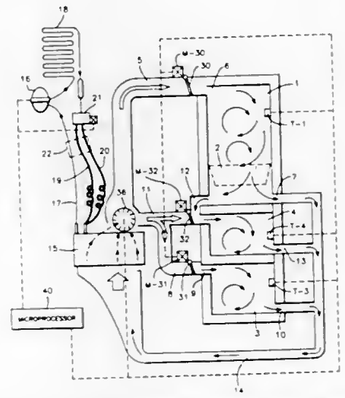
g. controlling said system in response to said combined error signal.

5,209,073

COOLING DEVICE AND METHOD WITH MULTIPLE COOLED CHAMBERS AND MULTIPLE EXPANSION MEANS

David A. Thomas, and Ian C. McGill, both of Auckland, New Zealand, assignors to Fisher & Paykel Limited, Auckland, New Zealand

Filed Oct. 31, 1991, Ser. No. 784,505
Claims priority, application New Zealand, Nov. 1, 1990, 235931
Int. Cl.[5] F25B *41/00*
U.S. Cl. 62—81 20 Claims

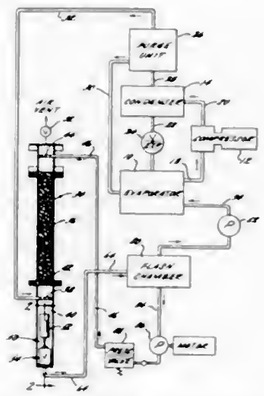


13. A method of controlling the temperatures of at least two chambers of a cooling device including; a refrigeration plant including an evaporator and a condenser containing refrigerant; at least two refrigerant flow control means between said condenser and said evaporator, said refrigerant flow control means having different flow capacities to control the temperature of said evaporator, and a refrigerant conduit having one end connected to said evaporator and another end connected to the inlet of a compressor, the compressor having an outlet connected to an inlet of said condenser, said conduit being thermally connected by a heat exchanger to at least one of said at least two refrigerant flow control means; evaporator temperature control means to direct refrigerant flow selectively through said at least two refrigerant flow control means; an evaporator air flow passageway across said evaporator; separate air flow passageways through said at least two chambers, said separate air flow passageways being connected to said evaporator air flow passageway, at least one of said separate air flow passageways directly connecting at least one of said at least two chambers to another of said at least two chambers; separate valve means in each of said separate air flow passageways; temperature sensing means within at least one of said chambers; and selection means for controlling said separate valve means to control flow in said chambers in response to said temperature sensing means, operating said evaporator temperature control means, and operating a pressure means

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operatively connected to said air flow passageways; the method comprising:
sensing the temperature within at least one of said chambers;
controlling said separate valve means to control flow of air through said chambers in response to said temperatures within at least one of said chambers;
operating said evaporator temperature control means for directing refrigerant through at least one of said refrigerant flow control means; and
operating said pressure means for moving air through said air flow passageways.

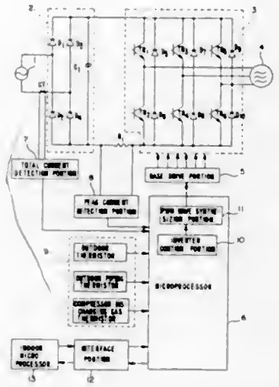
5,209,074
HIGH EFFICIENCY REFRIGERANT RECOVERY SYSTEM
Donald E. McConnell, Charlotte, N.C.; William E. Holland, and Mark A. Casey, both of Newark, Del., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del.
Filed Dec. 18, 1991, Ser. No. 809,948
Int. Cl.[5] F25D *43/04*
U.S. Cl. 62—85 **44 Claims**



1. An apparatus for removing non-condensible gases from a refrigerant purge stream comprising:
a scrubbing column;
means for introducing a refrigerant-containing purge stream from a refrigeration system into a lower section of said scrubbing column;
means for introducing a high boiling point liquid capable of absorbing said refrigerant into an upper section of said scrubbing column;
means for recovering a mixture of said refrigerant and said high boiling point liquid from a lower section of said scrubbing column; and
means for venting non-condensible gasses received in an upper section of said scrubbing column to the atmosphere.

5,209,075
CURRENT CONTROLLING APPARATUS AND METHOD FOR AIR CONDITIONING APPARATUS
Tae D. Kim, Taekoo, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Nov. 15, 1991, Ser. No. 792,929
Claims priority, application Rep. of Korea, Nov. 20, 1990, 90-18830
Int. Cl.[5] F25B *1/00*
U.S. Cl. 62—126 **4 Claims**

1. A current control apparatus for use in an air conditioning apparatus separated into an indoor device and an outdoor device and providing a heating operation and a cooling operation, said current control apparatus comprising:
rectifying means for rectifying alternating current power to pulsating direct current power;
inverter means for converting the pulsating direct current power output of the rectifying portion into three phase alternating current power, said inverter means comprising plural transistors;
base drive means for supplying a control signal to bases of the transistors;
total current detection means for detecting current by a current transformer mounted between a source of the alternating power and the rectifying means and outputting the detected total current value;
peak current detection means for detecting peak current

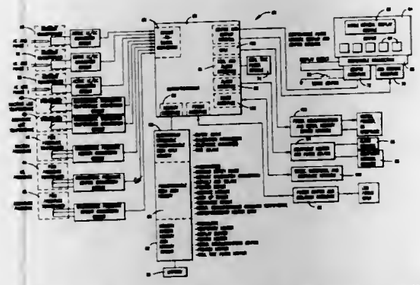


flowing in a shunt resistor mounted between the rectifying means and the inverter means and outputting the detected peak current value;
temperature sensing means for sensing at least indoor and outdoor temperature, indoor and outdoor piping temperature and compressor discharging gas temperature and outputting the above sensed data;
microprocessor means for outputting a control signal to the base drive means which is obtained by processing the temperature data received from the temperature sensing means and the current data received from the total current detection means and the peak current detection means, said microprocessor means comprising an indoor microprocessor and an outdoor microprocessor; and
interface means for connecting the outdoor microprocessor and the indoor microprocessor.

5,209,076
CONTROL SYSTEM FOR PREVENTING COMPRESSOR DAMAGE IN A REFRIGERATION SYSTEM
Gary O. Kauffman, Olathe, Kans., and Michael L. Hobbs, Kansas City, Mo., assignors to Izon, Inc., Lenexa, Kans.
Filed Jun. 5, 1992, Ser. No. 894,440
Int. Cl.[5] F25B *41/00*
U.S. Cl. 62—126 **1 Claim**

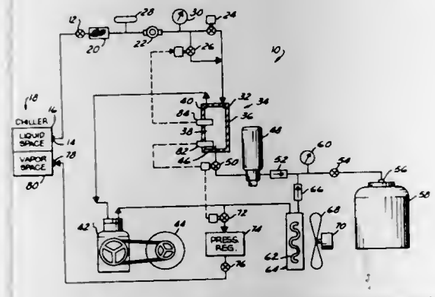
1. A microprocessor based apparatus for monitoring the operation of a cooling system which includes a compressor having a suction side to which refrigerant gas is delivered and a discharge side from which the refrigerant gas is discharged, said apparatus comprising:
microprocessor means;
a visual display controlled by said microprocessor means;
means for sensing the superheat condition of the refrigerant gas at the suction side of the compressor;

means for monitoring additional operating parameters of the cooling system;
means for entering in said microprocessor means a selected superheat value indicative of a gaseous state of the refrigerant;
means associated with said microprocessor means for comparing the superheat condition sensed by said sensing means with said selected superheat value and for deacti-



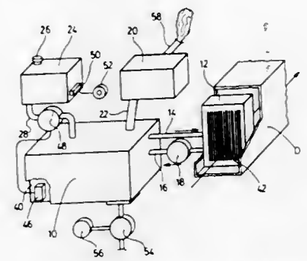
vating the compressor when the superheat condition sensed by said sensing means drops below said selected superheat value;
means for displaying on said visual display the superheat condition sensed by said sensing means and the values of said additional operating parameters; and
means for providing a printed record of the superheat condition sensed by said sensing means and the values of said additional operating parameters.

5,209,077
REFRIGERANT RECOVERY SYSTEM
Kenneth W. Manz, Paulding; Christopher M. Powers, Bryan, both of Ohio, and Charles E. Dull, Fort Wayne, Ind., assignors to SPX Corporation, Muskegon, Mich.
Filed Nov. 26, 1991, Ser. No. 799,433
Int. Cl.[5] F25B *45/00*
U.S. Cl. 62—149 **16 Claims**



1. A system for recovering refrigeration from refrigeration equipment comprising:
a refrigerant compressor having an inlet and an outlet,
refrigerant accumulation means having an inlet port, a vapor outlet port and a liquid outlet port,
input means for connecting said inlet port of said accumulation means to the refrigeration equipment from which refrigerant is to be recovered,
means for connecting said vapor outlet port to said compressor inlet such that operation of said compressor reduces pressure within said accumulation means,
a liquid refrigerant pump having an inlet and an outlet,
means for connecting said outlet of said liquid refrigerant pump to a refrigerant storage container, and
means coupled to said accumulation means for operatively connecting said inlet of said liquid refrigerant pump to said liquid outlet port of said accumulation means, such that operation of said compressor functions to draw refrigerant from said input means into said accumulation means and said liquid pump pumps refrigerant from said accumulation means to the storage container.

5,209,078
VACUUM FLUID COOLING APPARATUS
Wayne E. Conrad, 27 King Street, Hampton, Ontario, Canada L0B 1J0 ; Richard S. Phillips, 24 Devondale St., Courtice, Ontario, Canada L1E 1S1 , and Andrew R. Phillips, 584 Bloor Street East, Oshawa, Ontario, Canada L1H 3N2
Filed Aug. 16, 1991, Ser. No. 746,348
Int. Cl.[5] F25B *19/00*
U.S. Cl. 62—169 **5 Claims**



1. An air cooler system for use in association with an air circulation system and comprising;
an air circulation heat exchanger adapted to be mounted in said air circulation system for recovering heat from said system;
vacuum chamber means;
a vacuum chamber heat exchanger comprising a plurality of generally parallel spaced horizontal radiator tubes extending between first and second header tank means and heat exchange fins mounted on said tubes located within said vacuum chamber means and in fluid communication with said air circulation heat exchanger means;
a water supply tank, and means connecting said water supply tank to said vacuum chamber means;
fluid circulation means for circulating heat exchange fluid from said air circulation heat exchanger to one of said first and second header tank means and back again from the other of said header tank means whereby to transfer heat from said air circulation heat exchanger to said tubes of said vacuum chamber heat exchanger;
a belt formed of a liquid evaporation media placed around said vacuum chamber radiator tubes and fins and extending from a lower region to an upper region of said vacuum chamber means, said belt in said lower region being normally immersed in water, and said belt in said upper region being normally above said water whereby water within said lower region of said chamber may permeate said media, and substantially surround at least a portion of said radiator tubes and fins;
water distributor means in an upper region of said chamber above said belt for distributing water within said vacuum chamber means, for wetting said liquid evaporation belt in said upper region of said chamber;
sensing means for sensing a predetermined level of water in said vacuum chamber means;
control means for controlling flow of water from said water supply tank through said water distribution means in said upper region of said vacuum chamber means, whereby to maintain said predetermined level of water therein, expos-

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ing a portion of said evaporation belt above said predetermined level;

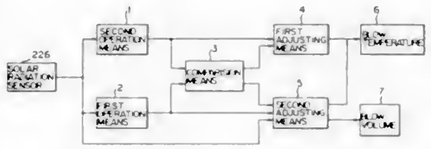
vacuum source means, adapted to operate to draw a predetermined degree of vacuum in said vacuum chamber means, whereby to effectively reduce the boiling point of water therein, and, whereby water may be continuously vaporised from said belt of evaporation media, above said water level, thereby drawing water up from said lower region of said chamber means, around said radiator tubes and fins, and cooling the same by extracting the latent heat of vaporisation of water from said fins and tubes.

5,209,079

CONTROL APPARATUS FOR AIR CONDITIONER USED FOR VEHICLES

Yuuichi Kajino, Nagoya; Koichi Ban, Toukai; Yuuji Honda, Kariya, and Hikaru Sugi, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 5, 1991, Ser. No. 710,039
Claims priority, application Japan, Jun. 8, 1990, 2-151352
Int. Cl.[5] F25D *17/00*
U.S. Cl. 62—180 **11 Claims**



1. A control apparatus for an air conditioner used for a vehicle, for setting target temperatures and adjusting and maintaining the temperatures of air to be blown into the room of the vehicle according to the target temperatures, comprising:

a solar radiation sensor for detecting a quantity of solar radiation coming into the vehicle room;

an operation means for entering a set temperature;

a target temperature determining means for receiving and processing a solar radiation quantity signal from the solar radiation sensor and a set temperature signal from the operation means, and successively finding the target temperatures in the course of said processing operation said target temperature determining means including:

a first processing means for processing a first air blow temperature which will decrease a value of the temperature of the vehicle room, said first processing means having a certain limitation of an amount of the decrease which is based on the solar radiation quantity signal from the solar radiation sensor and a set temperature signal from said operation means;

a second processing means for processing a second air blow temperature which cancels a temperature increment in said room of the vehicle caused by the solar radiation quantity, on the basis of the solar radiation quantity signal from the solar radiation sensor and the set temperature signal from said operation means;

a target temperature determining means for determining a target temperature by selecting any one of said first air blow temperature from said first processing means and said second air blow temperature from said second processing means; and

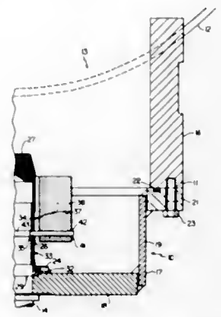
an adjusting means for adjusting the temperatures of air to be blown into the vehicle room according to the target temperatures.

5,209,080

REFRIGERANT FLOW CONTROL DEVICE

Thomas M. Zinsmeyer, Pennellville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Jan. 21, 1992, Ser. No. 822,784
Int. Cl.[5] F16K *31/18;* **F25B** *41/04*
U.S. Cl. 62—216 **7 Claims**



1. A refrigerant flow control device for regulating the flow of refrigerant from a condenser sump in response to the level of liquid refrigerant in the sum comprising:

a standpipe extending upwardly from a lower portion of and contained completely within the sum and having near its lower end at least one opening formed to provide fluid communication from the lower portion of the drain pipe on the outer side of said standpipe, into said standpipe, and to a refrigerant return line;

a sleeve slideably disposed within said standpipe and moveable between a lower position in which it covers said standpipe opening and an upper position in which is uncovers said standpipe opening to allow the liquid refrigerant to flow through said opening to said refrigerant return line; and

a float device slideably disclosed in surrounding relationship on the outer side of said standpipe so as to be moved vertically in response to the level of liquid refrigerant in the sump, said float device being connected to said sleeve such that said sleeve moves vertically with said float device and thereby covers said standpipe opening when the liquid refrigerant is at a lower level in said sump and uncovers said opening when the liquid refrigerant is at a higher level in said sump.

5,209,081

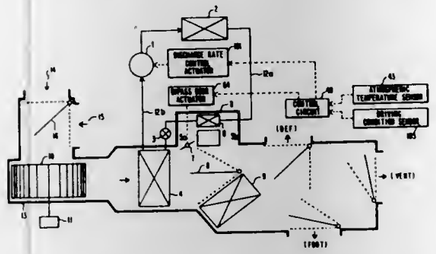
AIR CONDITIONER FOR VEHICLE

Takayoshi Matsuoka, Yokosuka, Japan, assignor to Nissan Motor Co., Ltd., Japan

Filed May 5, 1992, Ser. No. 878,695
Claims priority, application Japan, Jun. 28, 1991, 3-159008
Int. Cl.[5] B60H *1/32*
U.S. Cl. 62—244 **5 Claims**

1. An air conditioner for a vehicle comprising:

a refrigerating cycle including a compressor compressing a gasified refrigerant into a compressed refrigerant, a condenser condensing said compressed refrigerant into a liquid refrigerant, an undercooling heat exchanger undercooling said liquid refrigerant into a cold liquid refrigerant, an expansion means for expanding said cold liquid refrigerant into an expanded refrigerant, an evaporator evaporating said expanded refrigerant, said evaporator being disposed in an air duct, said undercooling heat exchanger being disposed at the downstream of said evaporator within said air duct; and



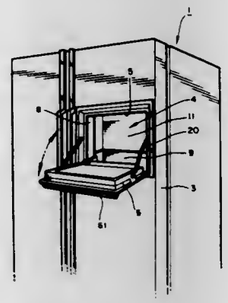
a control means for controlling said refrigerating cycle so as to supply to said undercooling heat exchanger with said conditioned air.

5,209,082

MULTI-PURPOSE REFRIGERATOR HAVING A DOOR WITHIN A DOOR

Dea Y. Ha, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Jan. 28, 1992, Ser. No. 826,877
Claims priority, application Rep. of Korea, Jan. 29, 1991, 91-1286
Int. Cl.[5] F25D *23/02*
U.S. Cl. 62—265 **11 Claims**



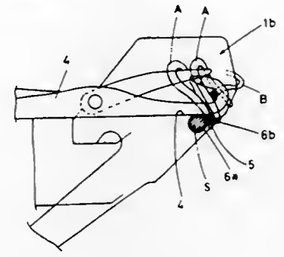
1. A multi-purpose refrigerator comprising a freezer compartment, a refrigerator compartment, a main door for opening and closing said refrigerator compartment, a rear side of said main door including a pair of spaced apart upstanding walls projecting rearwardly, a housing removably connected between said walls to define therein a fresh storage compartment, an aperture formed in said housing, manually removable temperature regulating means for selectively uncovering said aperture to communicate said refrigerator compartment and fresh storage compartment with one another, and an auxiliary door for affording access to said fresh storage compartment.

5,209,083

FLAT KNITTING MACHINE HAVING FUNCTION FOR ADJUSTING KNOCK-OVER TIMING

Takashi Wada; Shigeki Nakahara, and Ryoichi Kubota, all of Wakayama, Japan, assignors to Shima Seiki Mfg., Ltd., Wakayama, Japan

Filed Feb. 7, 1991, Ser. No. 651,823
Claims priority, application Japan, Feb. 7, 1990, 2-27355
Int. Cl.[5] D04B *7/00*
U.S. Cl. 66—90 **4 Claims**



1. A flat knitting machine having a function for adjusting knock-over timing comprising;

a plurality of sinkers fixed on a top of a needle bed at specific intervals in parallel with each other, each of said sinkers including at least one aperture near a front tip of said sinkers,

multiple knitting needles mounted on the needle bed and slidable along the sinkers, each of the knitting needles being controlled by a cam mechanism of a carriage running on the needle bed, and

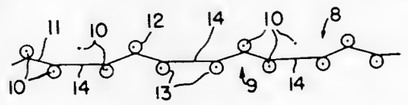
a knitting thread stopping wire rod is provided below hook portions of the knitting needles in operation of knock-over, the knitting thread stopping wire rod extending through at least one of said at least one aperture in the sinkers to be orthogonal to the sliding direction of the knitting needles, wherein a setting position of the knitting thread stopping wire rod in the sinkers is made adjustable so that an abutting position of a knitting thread loop on the knitting thread stopping wire rod is changed in the sliding direction of the knitting needles.

5,209,084

KNITTED FABRIC HAVING LOW STRETCH FOR UPHOLSTERY

Frank Robinson, and Gerald F. Day, both of Breaston, United Kingdom, assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 26, 1991, Ser. No. 675,167
Claims priority, application United Kingdom, Mar. 27, 1990, 9006773
Int. Cl.[5] D04B *1/00*
U.S. Cl. 66—196 **24 Claims**



1. A weft knitted double jersey fabric suitable for use as an upholstery fabric of which at least a substantial part of the fabric has a repeating structure of a group of at least three courses including at least one course having loops pulled to both faces of the fabric, at least one course having all, or substantially all, loops pulled to one face of the fabric, and yarn regions extending course-wise without loops, and wales transverse to said group of courses comprising repeating sets of

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wales in which a first set of two or more wales is adjacent to a second set of two or more wales, adjacent wales in the first set having loops on opposite faces of the fabric with the loops on one face being in number ratio to the loops on the other face of at least 3:1 and the second set of wales being traversed in at least one of the courses having all, or substantially all, of the loops pulled to one face of the fabric by a yarn region without loops which extends between loops across two or more wales, said structure and the tightness of the knitting being such that the stretch of the fabric is no more than 12% in wale and course directions respectively.

5,209,085

CLUTCH/BRAKE DRIVE UNIT

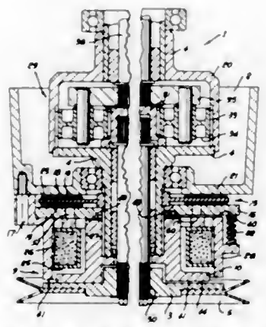
Phillip M. Brien, Blaxland, Australia, assignor to Hoover (Australia) Pty. Limited, Australia

Continuation of Ser. No. 659,038, Feb. 21, 1991, abandoned. This application May 21, 1992, Ser. No. 888,400

Claims priority, application Australia, Feb. 23, 1990, PJ879671239/9

Int. Cl.[5] D06F *37/40*

U.S. Cl. 68—23.7 **16 Claims**



1. A washing machine including a clutch/brake drive unit, said drive unit comprising a frame, a driving member and a driven member mounted coaxially for independent relative rotation with respect to the frame, a clutch including a clutch disc and mutually opposed frictional engagement surfaces respectively associated with the driving member and the driven member, said clutch being selectively engageable to permit the transmission of torque between the driving member and the driven member, a brake including a brake disc and mutually opposed frictional braking surfaces respectively associated with the driven member and the frame, said brake being selectively engageable to retard rotation of the driven member with respect to the frame, and a solenoid disposed intermediate the clutch and the brake such that energization of the solenoid causes the brake to be released and the clutch to be engaged, said washing machine further including a spin bowl connected with the driven member, and an agitator couplable with the driving member.

5,209,086

ANTI-THEFT APPARATUS

Othmar Brühwiler, Gossau, Switzerland, assignor to Pataco AG, Elgg, Switzerland

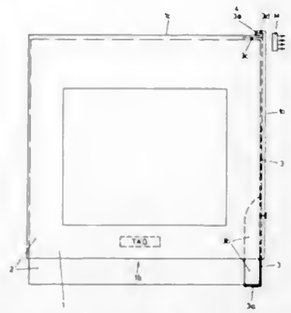
Filed Mar. 27, 1992, Ser. No. 859,044

Claims priority, application Switzerland, Apr. 8, 1991, 1033/91

Int. Cl.[5] E05B *65/00*

U.S. Cl. 70—57.1 **8 Claims**

1. An anti-theft apparatus for a box-shaped article intended to be sold, such as a cassette with a data carrier, having a casing for receipt of the article, which casing includes at least one narrow side having a slide-in opening and a single transmitter adapted to trigger an alarm, having locking means arranged on and cooperating with said casing which are adapted to engage the article located in the casing, which locking means are adapted to be unlocked in order to separate the article from the casing, comprising a bracket-shaped auxiliary member guided at the inner side of one of two opposite narrow sides of the casing for a longitudinal displacement, which auxiliary member includes at both its ends a perpendicularly projecting stiff leg, whereby the box-shaped article is caught between said legs during a displacing, which bracket-shaped member has an end piece positioned at the outside which is elastically bendable to



allow removal of the article from the bracket and insertion of said article when the bracket is in its drawn-out position, whereby the end of the bracket positioned at the inside includes a locking lug located adjacent the projecting leg and, as seen in a longitudinal direction of the bracket, positioned outside of the leg and projecting also towards the inside, which lug is adapted to snap into a locking slot at the narrow side of the casing located opposite of the slide-in opening when the bracket is at least substantially completely slid into the casing, whereby the desired unlocking is achieved by means of a special tool.

5,209,087

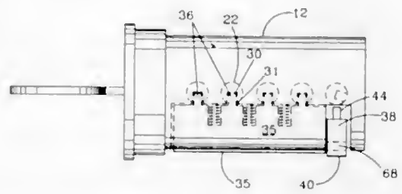
HIGH SECURITY REMOVABLE CORE CYLINDER LOCK

Terry L. Cox, 9510 Westpark, Houston, Tex. 77063

Filed Sep. 16, 1992, Ser. No. 945,686

Int. Cl.[5] E05B *27/04*

U.S. Cl. 70—369 **15 Claims**



1. A method of disengaging a removable core cylinder lock, comprising the steps of:

inserting a proper operating key in a keyway of a removable core cylinder lock to selectively position one or more pin tumblers for alignment of a transverse opening formed in each tumbler pin with a fence recess in a core of the lock without aligning one or more of said transverse openings with said fence recess, said lock comprising:

a plurality of pin tumbler bores formed in the core in alignment with the keyway and adjacent the fence recess, a said tumbler pin biased in each of said bores toward the keyway;

a lock housing having a longitudinal cavity slideably receiving the core therein, a locking recess formed in a wall of the cavity, and a transverse retaining surface,

an outwardly biased fence disposed in the fence recess having an outer locking surface engaged in the locking recess and at least one inward projection receivable in a said tumbler opening,

a normally outwardly biased retainer disposed in the fence recess having an outer member engaged with the retaining surface and at least one inward projection receivable in a tumbler opening, and

rotating the core with respect to the housing to inwardly slide each inward projection of the fence into a respective aligned pin tumbler opening to disengage the locking surface of the fence from the locking recess, wherein at least one inward projection of the retainer is not aligned with a respective tumbler opening so that the outer member of the retainer is maintained in slideable engagement with the retaining surface to keep the core in the housing.

5,209,088

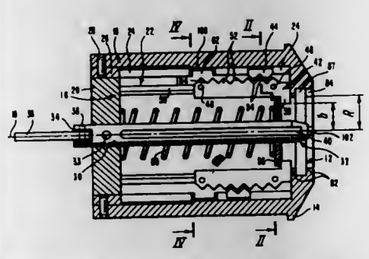
CHANGEABLE CODE LOCK

Rimma Vaks, 121 Elmwood Rd., Swampscott, Mass. 01907

Filed Aug. 8, 1991, Ser. No. 742,594

Int. Cl.[5] E05B *25/00*

U.S. Cl. 70—384 **16 Claims**



1. A variable code lock for use with a cylindrical key comprising:

an external shell having a cylindrical inner surface and a wall at one end thereof having an orifice of smaller diameter than that of the inner surface, the inner surface having a plurality of longitudinally disposed grooves thereon and an annular recess longitudinally spaced from the orifice;

a drum disposed coaxially and rotationally within the shell and having a plurality of longitudinally disposed slots thereon each circumferentially corresponding to one of the grooves;

a centrally disposed longitudinally oriented guiding rod rotationally fixed to and coaxial with the drum;

a plurality of tumblers disposed in at least some of said slots extending radially inwardly further than an edge of the orifice and extending radially outwardly no further than a radially outwardly disposed edge of the drum, the tumblers each carrying a plurality of undulations;

a plurality of blocks disposed and substantially radially fixed within the grooves having corresponding undulations that radially extend to interengage with the undulations of each of the tumblers;

wherein the insertion of the cylindrical key having the predetermined code longitudinally through the orifice disposes each of the blocks within the recess of the shell to enable the drum to rotate circumferentially without interference and wherein the annular recess is constructed and arranged to allow the blocks to displace circumferentially therein;

a plurality of radially outwardly disposed indentations located upon the inner surface of the shell within the annular recess at positions upon a circumference of the inner surface between each of the grooves, the indentations each having a radially outwardly disposed depth sufficient to allow radial displacement of the blocks away from the tumblers, so that the undulations of the tumblers disengage from interengaging contact with the corresponding undulations of the blocks, the blocks in the indentations remaining longitudinally fixed in the annular recess and the tumblers being movable in corresponding slots toward the orifice;

the orifice being constructed and arranged so that the key can be inserted therethrough and removed therefrom only when the blocks are positioned within predetermined grooves and when the blocks are positioned within predetermined indentations, respectively, and a changing of a fixed longitudinal positioning of the blocks relative to the tumblers being enabled by changing the predetermined code of the key only when the blocks are located in the indentations; and

a cylindrical key having a shaft with a plurality of lugs positioned thereon, the lugs each being independently rotationally variable relative to the shaft for engaging predetermined of the tumblers and wherein the shaft includes a selectively movable lug for selectively enabling the key to be removed from the orifice when the blocks are located in the indentations, whereby the predetermined code can be changed only when the lug is moved to a predetermined radial position on the shaft.

5,209,089

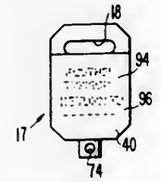
KEY HOLDER

Linden D. Nelson, 31535 Southfield Rd., Birmingham, Mich. 48009

Continuation-in-part of Ser. No. 675,724, Mar. 27, 1991, abandoned, which is a continuation of Ser. No. 470,765, Jan. 26, 1990, Pat. No. 5,031,430. This application Feb. 6, 1992, Ser. No. 830,583

Int. Cl.[5] A47G *29/10*

U.S. Cl. 70—456 R **15 Claims**



1. A key holder comprising:

a first body portion having a first axis;

a second body portion;

said first body portion and said second body portion having an engaged position and an open position;

said first and second body portions being secured together for relative sliding movement between said engaged position and said open position along a second axis generally perpendicular to said first axis;

said first body portion having an opening therethrough for retaining a key ring, and an access to said opening;

said access being closed when said body portions are in said engaged position to prevent removal of a key ring, the relative movement of said first and second body portions into said open position for exposing said access to permit removal of a key ring; and

means for biasing said first and second body portions along said second axis into said engaged position; and

wherein one of said body portions includes coded data indicative of the owner of the key holder and non-encoded data independent of the owner of the key holder; and

said second body portion further includes means for retain-

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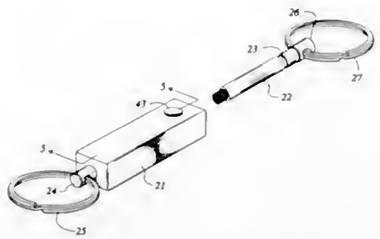
ing a second key ring, said second key ring retaining means being positioned along said first axis, said second key ring retaining means being a rod having an aperture therethrough for receiving said second key ring.

5,209,090

OBJECT RETENTION APPARATUS

Woodrow C. Stillwagon, Fulton County, Ga., assignor to Stillwagon Applied Technology, Inc., Columbus, Ohin

Continuation-in-part of Ser. No. 562,638, Aug. 6, 1990, Pat. No. 5,058,405. This application Jun. 20, 1991, Ser. No. 717,923
The portion of the term of this patent subsequent to Oct. 22, 2008, has been disclaimed.
Int. Cl.[5] A47G *29/10*
U.S. Cl. 70—456 R 40 Claims



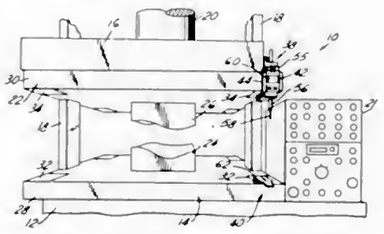
1. A key chain, comprising:
a body having a first end and a second end and defining an open space accessible from said first end of said body;
key retention means connected to said second end of said body for attaching keys to said body;
a cap;
cap retention means for holding said cap at a position which covers said cavity;
a hollow vial for insertion into said open space of said body, said hollow vial including an opening at one end and a bead around said vial opening; and
said cap comprising, at least, a protrusion for insertion into said hollow vial, and a ridge around said cap protrusion which positively engages with said bead to seal said vial openi.g.

5,209,091

APPARTUS FOR SETTING THE SHUT HEIGHT OF A PRESS

Gerald J. Koenigbauer, 606 Woods La., Grosse Pointe Woods, Mich. 48236; August F. Pitonyak, 13058 Parkridge, Shelby Township, Mich. 48315; John H. Jeffcoat, 8188 Pacton Dr., Utica, Mich. 48317, and David Kaslatas, 28520 Milton, Warren, Mich. 48092

Filed Nov. 5, 1992, Ser. No. 971,639
Int. Cl.[5] B21D *37/00;* B21J *13/00*
U.S. Cl. 72—21 12 Claims



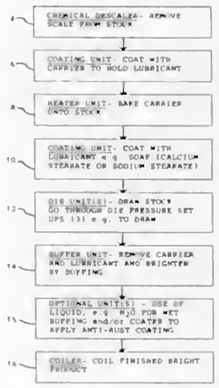
1. Apparatus for setting the shut height of opposed first and second dies of a press supported for relative movement toward and away from each other and having confronting finished surfaces, comprising a portable measuring device, said measuring device having first and second parts, first mounting means for releasably mounting said first part on said finished surface of said first die, second mounting means for releasably mounting said second part on said finished surface of said second die, said first part comprising an indicator having a depressible probe, and said second part comprising a probe contact member in position to be contacted by and depress said probe upon relative movement of said dies toward one another, said indicator registering the separation of said dies by the extent to which said probe is depressed.

5,209,092

CONTINUOUS WIRE DRAWING PROCESS WITH CHEMICAL DESCALING AND POST-DIE TREATMENT AND APPARATUS

Anthony J. Russo, 950 Schweitzer Pl., North Brunswick, N.J. 08902

Filed Sep. 3, 1991, Ser. No. 754,461
Int. Cl.[5] B21C *9/00*
U.S. Cl. 72—41 14 Claims



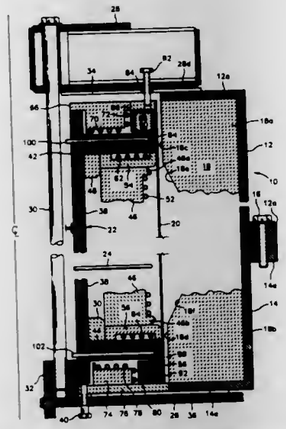
1. A process for drawing and forming a bright wire of a predetermined diameter and cross-section from stock of a greater diameter, which comprises:
(a) removing substantially all of the scale from the wire by only chemically removing the scale from said stock on a continuous basis which includes the following steps:
(i) Immersion in an acid bath;
(ii) Immersion in a water rinse bath; and,
(iii) Immersion in a mild alkali bath;
(b) applying a coating of lubricant carrier to the chemically descaled stock;
(c) applying drying air to the stock with the lubricant carrier thereon;
(d) applying a lubricant to the dried carrier-coated stock;
(e) drawing the lubricated stock through a plurality of sequential pressure dies and each sequential die has a final diameter less than that of any die preceding it and lubricating the stock before each die to decrease the diameter to the desired predetermined diameter;
(f) buffing the drawn stock with a plurality of buffing wheels, said buffing wheels being applied to the drawn stock at a plurality of angles to the direction of travel of the stock to produce bright wire; and,
(g) coiling the resulting bright wire into coils for subsequent use; wherein the speed of the stock is maintained by conventional drive mechanisms to feed into the process and to coil off the process at predetermined speeds.

5,209,093

APPARATUS FOR SUPERPLASTIC FORMING OF LARGE CYLINDRICAL STRUCTURES

Gilbert C. Cadwell, Lakeside, Calif., assignor to Rohr, Inc., Chula Vista, Calif.

Filed May 4, 1992, Ser. No. 877,719
Int. Cl.[5] B21D *26/02*
U.S. Cl. 72—62 16 Claims



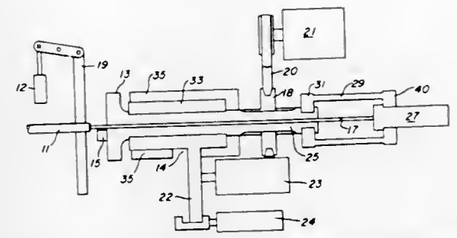
1. An apparatus for superplastic forming of large generally cylindrical structures, comprising:
a generally cylindrical ceramic die having a radially inwardly facing surface defining the contour of a structure to be formed from a cylindrically rolled metal sheet positioned radially inwardly therefrom;
generally cylindrical jacket means surrounding the ceramic die for reinforcing the same against radially outwardly directed loading forces;
first radiant heating means positioned radially inwardly of the rolled metal sheet for heating a medial portion thereof to a predetermined temperature at which it achieves a superplastic condition;
an upper horizontal generally cylindrical metal support member having a radially outwardly facing surface for expanding and contacting an upper portion of the rolled metal sheet so that said sheet contacts the radially inwardly facing surface of the ceramic die;
an upper generally cylindrical metal seal member adjacent the upper horizontal support member and having a radially outwardly facing surface for expanding and
contacting the upper portion of the rolled metal sheet so that said sheet contacts the radially inwardly facing surface of the ceramic die;
a lower horizontal generally cylindrical metal support member having a radially outwardly facing surface for expanding and contacting a lower portion of the rolled metal sheet so that said sheet contacts the radially inwardly facing surface of the ceramic die;
a lower generally cylindrical metal seal member adjacent the lower horizontal support member and having a radially outwardly facing surface for expanding and contacting the lower portion of the rolled metal sheet so that said sheet contacts the radially inwardly facing surface of the ceramic die;
an upper seal ring positioned between the upper horizontal support member, the upper seal member and an upper radially inwardly facing surface of the rolled metal sheet;
a lower seal ring positioned between the lower horizontal support member, the lower seal member and a lower radially inwardly facing surface of the rolled metal sheet;
second radiant heating means for heating the upper and lower seal rings so that they soften; and
means for introducing a pressurized gas to force the medial portion of the rolled metal sheet radially outwardly against the ceramic die when the seal rings are softened to provide substantially gas impervious seals and the medial portion of the rolled metal sheet has been heated to a superplastic condition.

5,209,094

CHAMFER AND STAMP MACHINE

Richard F. Edmonds, Jr., Sellersville, and William C. Sholly, Souderton, both of Pa., assignors to B & G Manufacturing Co., Hatfield, Pa.

Filed Mar. 6, 1992, Ser. No. 846,708
Int. Cl.[5] B21C *26/00;* B31F *1/07*
U.S. Cl. 72—71 9 Claims



1. A metalworking machine for chamfering and stamping the ends of metal rods, comprising:
a base;
a releaseable clamp affixed to said base holding a rod-like workpiece in a fixed, stationary position;
a hollow spindle rotatably and slideably affixed to said base having an axial throughbore;
a chuck mounted on one end of said spindle and having an axial bore and an axis of rotation co-linear with longitudinal axis of said workpiece;
a cutting tool mounted in said chuck;
drive means for rotating said spindle;
a stamping rod slideably held within said spindle throughbore, said stamping rod including indicia imprint means on a first end;
impact means affixed to said base beyond a second end of said spindle and acting upon a second end of said stamping rod; and
advance means affixed between said base and said spindle which moves said chuck back and forth, whereby the advancement of the chuck causes the cutting tool to chamfer the edges of the workpiece, and at a pre-selected point of advancement triggers the impact means to forcibly drive the stamping rod forward, thereby producing an identification mark in the end of the workpiece.

5,209,095

MILL FOR PRODUCING STRIP AND USE THEREOF

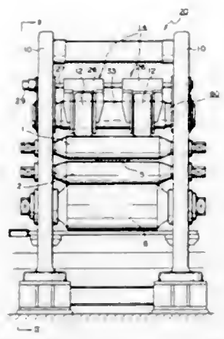
Katsuhide Kimura; Kazuo Kubozoe, both of Ube, and Tetsuo Okita, Tokyo, all of Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed Jul. 12, 1991, Ser. No. 729,129
Claims priority, application Japan, Jul. 13, 1990, 2-184105; Aug. 28, 1990, 2-224442
Int. Cl.[5] B21B *13/02. 31/18*
U.S. Cl. 72—241.4 37 Claims

1. A mill for producing a continuous strip comprising: a roll stand; inner rollers including a pair of upper and lower work rollers rotatably mounted on the roll stand at opposite ends thereof to receive a metallic material under rolling pressure to form the strip; means provided in the roll stand for exerting a

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rolling force against the work rollers to produce the rolling pressure; means for bending neck portions of the pair of work rollers provided in the roll stand at opposite ends thereof; at least one local back-up roller each being positioned upper or lower relative to the strip as an outermost roller mounted on the roll stand at opposite ends thereof and having means for defining a surface in contact with an adjacent inner work roller, said surface consisting essentially of a pair of separate surface sections, each section being movable coaxially relative to the axis of the local back-up roller involved and rotatable



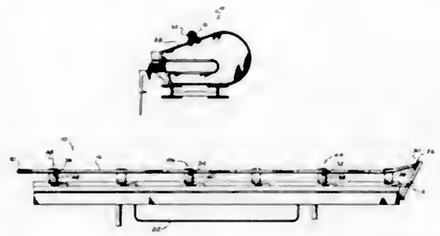
thereabout and being fixed at a constant radial distance from said axis at any axial position where the section is allowed to move, both sections being axially arranged to have a back-up effect on said adjacent inner work roller at two local areas thereof; and means in each local back-up roller for drivably moving each contact surface section axially relative to the adjacent inner work roller and relative to each other between a position wherein the contact surface sections are in contact with each other and a position where the contact surface sections are spaced apart from each other at a predetermined maximum axial length.

5,209,096

LEVER FOR SHEET METAL BRAKES

Gordon A. Phelps, 63 Greenleaf Dr., Hampden, Mass. 01036

Filed Apr. 20, 1992, Ser. No. 870,919
Int. Cl.[5] B21D *5/04*
U.S. Cl. 72—319 7 Claims



1. In a brake for bending sheet metal of the type having an anvil member for supporting the sheet metal, a clamp member adjustably secured adjacent the anvil member, at least on C-shaped member that secures the anvil member adjacent to the clamp member so that sheet metal may be adjustably secured between the anvil and clamp members, a bending member pivotally secured to the anvil member for bending secured sheet metal, said clamp member having an edge extending along an axis about which the bending member bends the sheet metal, said edge having a predetermined length, and a lever pivotally secured to the clamp member for adjusting the clamp member to secure the sheet metal against the anvil, the improvement comprising a hand-operated extension pivotally attached to the lever and movable along a path parallel to the axis of said clamp member, wherein the extension extends parallel to the axis of said clamp member substantially along the entire edge length so that its user may adjust the lever by manipulating the extension at substantially any point along the length of said clamp member edge to actuate the clamp member.

5,209,097

FLUID OPERATED CORNERBEAD CRIMPING TOOL

Guy Lallier, 3837 Coco Plum Cir, Karanda Village 3, Pompano Beach, Fla. 33063

Continuation-in-part of Ser. No. 448,737, Dec. 11, 1989, abandoned. This application Apr. 24, 1990, Ser. No. 513,987
Int. Cl.[5] B23P *11/00*
U.S. Cl. 72—325 9 Claims



1. A fluid cornerbead crimping tool comprising:

handle means, said handle means including a hand gripping portion, a fluid inlet passage within said handle means, a fluid exit passage within said handle means, a valve between said fluid inlet and fluid exit passages, a trigger operatively connected to said valve wherein actuation of said valve into an open position provides fluid communication between said fluid inlet and fluid exit passages;

cylinder means in fluid communication with said fluid exit passage of said handle means, said cylinder means including a cylinder housing having a spring actuated piston means in said cylinder housing, said piston means including a piston head and a piston rod connected to said piston head, and piston rod extending outwardly of said cylinder housing through an opening, said cylinder housing being singularly, releasably connected at one end to said handle means by way of said fluid exit passage;

crimping head means connected to said cylinder means, said crimping head means being singularly, releasably connected to the other end of said cylinder means by way of said opening, said crimping head means terminating at a V-shaped surface for mounting onto cornerbead and said head means further including an internal elongated cavity having a lug therein, said lug being connected to said piston rod, a pair of articulated arms also being connected to said lug, each of said arms terminating at a crimping edge, wherein, upon the opening of said valve by said trigger, fluid flows through said fluid inlet and fluid exit passages and impinges against said piston head causing said piston head and said piston rod to move longitudinally compressing said spring and causing said lug to move longitudinally within said internal elongated cavity whereupon said articulated arms will drive said crimping edges toward each other and into the cornerbead; and

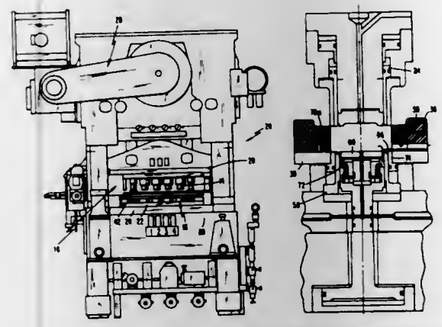
each of said handle means, cylinder means and crimping head means being disconnectable from one another as separate, self contained units.

5,209,098

METHOD AND APPARATUS FOR FORMING CAN ENDS

Daniel F. Cudzik, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Continuation-in-part of Ser. No. 530,506, May 31, 1990, abandoned, which is a continuation of Ser. No. 104,745, Oct. 5, 1987, abandoned. This application Jun. 17, 1991, Ser. No. 716,715
Int. Cl.[5] B21D *45/05, 51/44*
U.S. Cl. 72—346 23 Claims



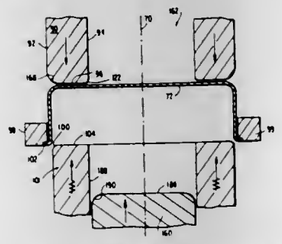
1. In a method for forming metallic can ends between upper and lower die assemblies, each of said die assemblies having relatively vertically reciprocal die components which coact with die components of the other die assembly, comprising cutting metal blanks from a sheet of metal stock between said upper die assembly and a cutting edge and forming said blanks into ends between said die assemblies, the improvement comprising ejecting said ends from between said die assemblies at a predetermined position above the uppermost position of said lower die assembly and below said metal stock and said upper die assembly to thereby prevent passing of said ends through said metal stock, wherein said ends are blown from between said die assemblies with at least one air jet into an ejection slot located immediately and substantially coelevationally adjacent said predetermined position, said ends being blow into said ejection slot substantially at the instant said ends are released from between said die assemblies.

5,209,099

DRAW-PROCESS METHODS, SYSTEMS AND TOOLING FOR FABRICATING ONE-PIECE CAN BODIES

William T. Saunders, Weirton, W. Va., assignor to Weirton Steel Corporation

Continuation-in-part of Ser. No. 831,624, Feb. 21, 1986, Pat. No. 5,014,536, which is a continuation-in-part of Ser. No. 712,238, Mar. 15, 1985, abandoned. This application Mar. 8, 1990, Ser. No. 490,781
Int. Cl.[5] B21D *22/22*
U.S. Cl. 72—349 23 Claims



1. Redraw tooling apparatus for redrawing a cup-shaped work product having a closed endwall, a cylindrical-configuration side wall and curvilinear surface transition zone unitary with such endwall and side wall drawn from flat-rolled sheet metal substrate coated with an organic polymeric coating and draw lubricant, comprising

A. registry means for positioning the cup-shaped drawn work product in alignment for redraw, such registry means presenting

a working surface which conforms to at least a portion of the external side wall configuration of the drawn work product,

B. redraw tooling members, including

(i) a redraw punch,

(ii) a redraw die having a tubular, sleeve-like configuration, and

(iii) a redraw clamping member having a tubular, sleeve-like configuration;

the registry means working surface and the redraw tooling members being symmetrically disposed in aligned relationship with a common central axis common with that of the drawn work product when positioned for redraw usage;

the redraw punch and clamping member being disposed as aligned for relative movement when positioned for such redraw usage toward the interior surface side of the drawn work product with the redrawn die toward the exterior surface side of the drawn work product;

the redraw die including

(a) an inner side wall defining a centrally located redraw cavity which is symmetrically disposed in relation to the common central axis,

(b) an outer side wall which is symmetrically disposed in relation to the common central axis with a cross sectional configuration, as viewed in a plane which is perpendicularly transverse to such common central axis so as to interfit coaxially within the work surface of the registry means, and

(c) a redraw die endwall between such inner and outer redraw die side walls,

such redraw die endwall presenting solely a planar clamping surface of predetermined surface area symmetrically disposed in relation to such common central axis about the redraw die cavity for coaction with the redraw clamping member located on the interior surface side of the drawn work product when positioning for such redraw usage,

(d) a unitary curvilinear redraw die cavity entrance transition zone between such redraw die endwall and inner side wall, and

(e) a unitary curvilinear outer periphery transition zone between such redraw die clamping surface and outer side wall,

each such redraw die transition zone having a compound curvature surface so as to be curvilinear as viewed in cross section in both a plane which is perpendicularly transverse to and a plane which includes such common central axis;

the redraw punch presenting an external surface which is symmetrically disposed with respect to the common central axis and including

(1) a redraw punch endwall presenting at least a peripheral portion which defines a plane which is perpendicularly transverse to such central axis,

(2) a side wall having a cross sectional configuration and defining a cross sectional area in a plane perpendicularly transverse to such common central axis providing for relative movement of the redraw punch into the redraw die cavity while allowing for sheet metal and tooling clearances when positioned for redraw usage which decreases the cross-sectional area defined by the side wall in the range of about 15% to 30%, and

(3) a curvilinear-surface punch transition zone unitary with the redraw punch endwall and side wall;

the redraw clamping member being unitary and presenting

an outer side wall,

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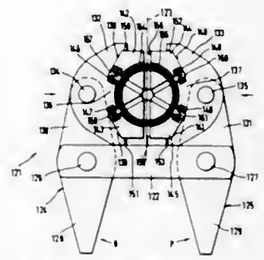
an inner side wall,
an endwall therebetween, and
a curvilinear transition zone surface between the clamping member endwall and outer sidewall;
the redraw clamping member endwall presenting a planar clamping surface disposed in a plane transverse to the common central axis;
the redraw punch having an outer side wall cross sectional configuration with dimensional characteristics approximating those of the redraw clamping member inner side wall so to enable the punch to fit within such inner side wall while allowing for tooling clearance when positioned for redraw usage;
the transition zone for the redraw clamping member presenting a curvilinear surface having a compound curvature so as to be curvilinear as viewed in cross section in a plane which is perpendicularly transverse to such common central axis and in a plane which includes such common central axis;
the clamping member transition zone, as projected onto a plane which is perpendicularly transverse to the common central axis of the redraw tooling, occupying less than about 40% of a corresponding projection of the curvilinear juncture between the endwall and side wall of the drawn work product onto such perpendicularly transverse plane when positioned for redraw usage during which the curvilinear juncture of the drawn work product is initially reshaped to that of the redraw clamping member curvilinear transition zone, as the drawn work product is clamped outwardly of and contiguous to the redraw punch solely between the planar clamping surfaces of the redraw die and redraw clamping member to form a redrawn can body presenting
(i) a closed endwall with at least a peripheral portion of its endwall defining a plane which is perpendicularly transverse to the common central axis of the redrawn can body,
(ii) a side wall corresponding in cross sectional configuration corresponding in configuration and size to that of the redraw die cavity and defining a cross sectional area in a plane perpendicularly transverse to the common central axis of the redrawn can body which is in the range of about 15% to 30% less than the corresponding cross sectional area of the drawn work product, and having
a uniform height extending from the closed endwall toward the axially opposite open end of the redrawn can body, and
flange metal extending about the full periphery of the side wall of the redrawn can body at its open end,
the flange metal being disposed at completion of the redraw usage in a plane which is at or near perpendicularly transverse to the common central axis of the redrawn can body, with
the side wall height of the redrawn can body being greater than the side wall height of the drawn work product, and having
a curvilinear juncture between the redrawn can body endwall and side wall,
the redrawn can body curvilinear juncture having an interior surface area which is approximately equal to the surface area of the redraw punch curvilinear transition zone.

5,209,100

COMPRESSION TOOL

Helmut Dischler, Droste-Hülshoff-Str. 9, D-4040 Neuss 1, Fed. Rep. of Germany

Continuation of Ser. No. 680,420, Apr. 4, 1991, abandoned. This application Jun. 8, 1992, Ser. No. 895,449
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1990, 4011822
Int. Cl.[5] B21D *39/04*
U.S. Cl. 72—410 **20 Claims**



1. A compression tool, comprising:
a) first and second adjacently disposed pivot levers;
b) first and second jaw supports, each support pivotally connected to one of said levers and pivotal relative thereto for being displaced relative to the other pivot lever and to an axis centrally disposed relative to said supports and said axis extending generally perpendicular to the direction of movement of said supports;
c) a plurality of moveable compression jaws, at least two moveable jaws operably associated with each support and the jaws of one support being uniformly spaced relative to the jaws of the other support;
d) first and second guide means operably associated with each of said supports, one of said guide means of each support oriented in a first direction and the other of said guide means of each support oriented in an opposite direction so that the guide means of each support subtend an angle symmetrical with said axis and opening thereto;
e) each of said jaws operably associated with one of said guide means and moveable relative thereto as said supports are displaced by said pivot levers;
f) each of said guide mans is bounded by a first and a second terminal end portion of the associated jaw support, and each of said terminating second end portions extends outwardly from the associated guide means for thereby providing a stop for the associated jaw.

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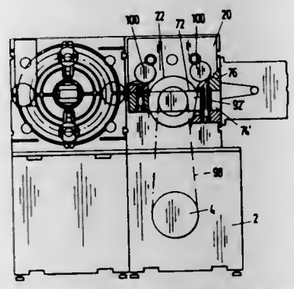
WORKPIECE MACHINING CENTER OF MODULAR CONSTRUCTION

Heinz Finzer, Rheinvogtstrasse 17, W-7880 Bad Saeckingen 11, Fed. Rep. of Germany

PCT No. PCT/EP90/02320, § 371 Date Oct. 7, 1991, § 102(e) Date Oct. 7, 1991, PCT Pub. No. WO91/11278, PCT Pub. Date Aug. 8, 1991
PCT Filed Dec. 27, 1990, Ser. No. 768,294
Claims priority, application Fed. Rep. of Germany, Feb. 5, 1990, 4003396; Mar. 29, 1990, 4010115
Int. Cl.[5] B21J *13/00*
U.S. Cl. 72—449 **9 Claims**

1. A modular machining center comprising:
(a) a drive module comprising:
(i) a main drive;
(ii) main drive means being driven by said main drive;
(iii) first tool driving gears being driven by said main drive means;
(iv) first system driving gears being driven by said main drive means;

(v) a first tool being driven by said first tool driving means and having a first housing having a first wall; and,
(vi) a first base for supporting said first tool; and,
(b) a work module comprising:
(i) module driving gears
(ii) second tool driving gears being driven by said module driving gears;
(iii) second system driving gears being driven by said module driving gears;



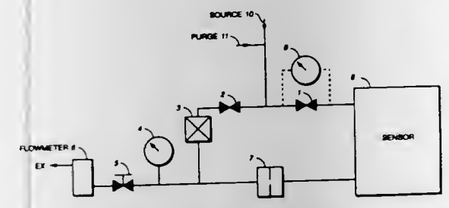
(iv) a second tool being driven by said second tool driving gears and having a second wall; and,
(v) a second base for supporting said second tool;
wherein, said drive and work modules are positioned so that said first and second walls are adjacent one another, said first and second walls defining a vertical interface plane, and wherein said first system driving gears and said module driving gears are positioned to mesh within said vertical interface plane to drive the modular machining center.

5,209,102

METHOD OF INTRODUCING AND CONTROLLING COMPRESSED GASES FOR IMPURITY ANALYSIS

Hwa-Chi Wang, Downers Grove, and Richard J. Udischas, Chicago, both of Ill., assignors to American Air Liquide, New York, N.Y.

Filed Jan. 31, 1992, Ser. No. 828,403
Int. Cl.[5] G01N *1/00*
U.S. Cl. 73—28.01 **12 Claims**



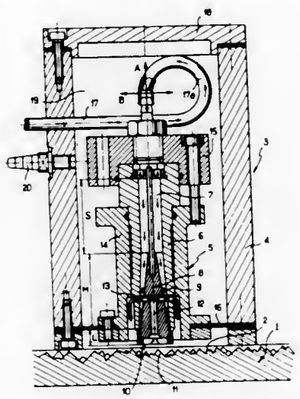
1. A system for analyzing particles from compressed gas, said system comprising a sensor means for measuring said particle impurity within said gas, means to pressure balance said system comprising first valve means located between a source of compressed gas and said sensor means, second valve means for introducing said gas to said system, filter means located downstream of said second valve means for substantially removing particle impurities in the source gas and/or introduced by the upstream components, a third valve means located downstream of said filter means for controlling the exhaust of the gas from the system, a critical orifice located between said filter means and sensor means for back-filling said gas to said sensor until there is a pressure equilibrium across said first valve means.

5,209,103

APPARATUS FOR MONITORING THE QUALITY OF THE SURFACE STATE OF A PART

Jacques Driviere, Villeparisis, and Jacques Bielle, Chalons sur Marne, both of France, assignors to Société d'Etudes et de Recherches de l'Ecole Nationale Supérieure d'Arts et Métiers (SERAM), Paris, France

Filed Jun. 24, 1991, Ser. No. 719,512
Claims priority, application France, Jun. 26, 1990, 90 08001
Int. Cl.[5] G01B *13/22*
U.S. Cl. 73—37 **10 Claims**



1. Apparatus for monitoring the quality of the surface state of a part, said apparatus comprising an air flow duct having an end portion fitted inside a nozzle whose front surface is trued so that it can be applied against the surface to be scanned and so that it can co-operate therewith to form a leak through which air flows as a function of the surface state of the part, and further comprising measuring means for measuring the flow rate of air passing through the leak, wherein the nozzle delimits an annular air flow duct at its trued front surface, the portion of the nozzle inside the annular air flow duct including a duct connected to the atmosphere.

5,209,104

METHOD FOR DESATURATING A POROUS ROCK FOR ELECTRICAL RESISTIVITY MEASUREMENTS

Samuel H. Collins, Desoto, and Eve S. Sprunt, Farmers Branch, both of Tex., assignors to Mobil Oil Corporation, Fairfax, Va.

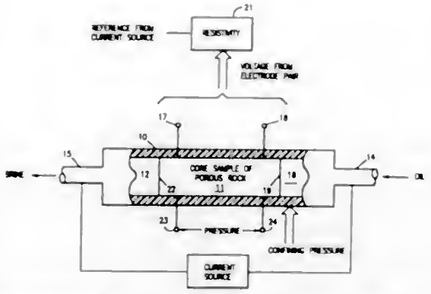
Filed Jan. 23, 1992, Ser. No. 824,268
Int. Cl.[5] G01N *15/08*
U.S. Cl. 73—38 **22 Claims**

1. A method for desaturating a porous rock for electrical resistivity measurements, comprising the steps of:
a) saturating a porous rock with a first fluid to effect a first fluid saturation throughout said porous rock,
b) measuring electrical resistivity along a selected length of said first fluid saturated porous rock,
c) injecting a second fluid which is immiscible with and of opposite electrical conductance with said first fluid into said porous rock at a first flow rate to displace a portion of said first fluid from said porous rock and effect a second fluid saturation within said porous rock that is a minimum partial fluid saturation with respect to said first fluid saturation for said first flow rate,
d) measuring pressure drop across a selected length of said porous rock,
e) terminating the injection of said second fluid at said first flow rate when displacement of said first fluid from said porous rock ceases and the measured pressure drop along the selected length of said porous rock is constant, thereby

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effecting a first residual fluid saturation equilibrium within said porous rock,

f) measuring electrical resistivity along said selected length of porous rock at said first residual fluid saturation equilibrium, and



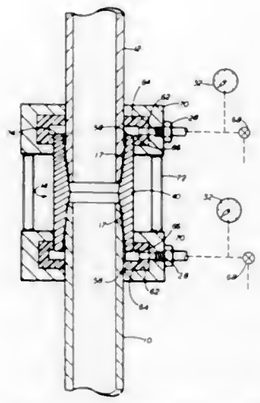
g) repeating steps c) - f) for each of a plurality of increasing second fluid flow rates to effect decreasing residual fluid saturation equilibriums.

5,209,105

METHOD AND APPARATUS FOR EXTERNALLY AND INTERNALLY TESTING FOR LEAKS IN CONNECTIONS BETWEEN TUBULAR MEMBERS

Malvern M. Hasha, 14655 Champion Forest Dr., #1802, Houston, Tex. 77069; Brian B. Hasha, 6114 Willowcrest Ct., Spring, Tex. 77389, and Bruce B. Hasha, 11242-A Fremont Ave. N., Seattle, Wash. 98133

Filed Jun. 20, 1990, Ser. No. 540,916
Int. Cl.[5] G01M *3/28*
U.S. Cl. 73—49.1 **13 Claims**



1. An improved method for hydrostatically testing connections between segments of pipe, comprising:

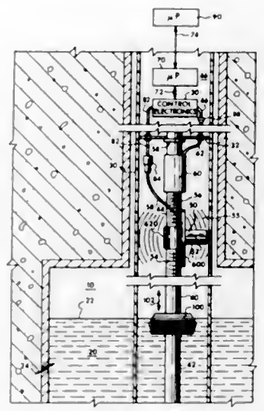
selectively applying pressurized hydrostatic test fluid such that the pressures are principally applied to a selected localized area in the vicinity of the orifice leading into the sealing elements of the connection and there is no substantial test pressure applied radially to the inner or outer annular surfaces of the connection in the vicinity of the sealing elements of the connection which would tend to substantially affect the bearing pressure of the sealing element whereby such test pressure does not adversely affect the accuracy of the testing process.

5,209,106

LEAK DETECTOR FLOAT SYSTEM AND METHOD THEREFOR

John A. Carlin, Denver, Colo., assignor to ProEco, Inc., Tampa, Fla.

Filed Jul. 26, 1991, Ser. No. 736,406
Int. Cl.[5] G01M *3/16*
U.S. Cl.,73—49.2 **21 Claims**



1. An improved leak detecting float system for use in a storage tank (**10**) containing fluid (**20**) to measure the level of said fluid, said float system comprising:

a float (**100**) for floating on the surface (**22**) of said fluid (**20**),

means (**30, 40**) disposed vertically in said fluid for containing said float in a measurement area (**23**) on said surface,

means (**46, 80, 50**) operative upon said containing means for producing a vibrational wave (**55**) onto said float, said vibrational wave breaking any surface tension existing between said float and said fluid to orient said float in said fluid based upon the buoyancy of said float in said fluid so as to substantially minimize any offset error due to said surface tension before measuring the level of said fluid.

5,209,107

CAPILLARY RHEOMETER PLUNGER PRESSURE TRANSDUCER AND MEASUREMENT TECHNIQUE

Christopher P. Grudzien, Jr., Mansfield, Mass., and Robert Malloy, Londonderry, N.H., assignors to Dynisco, Inc., Sharon, Mass.

Filed Apr. 4, 1991, Ser. No. 680,561
Int. Cl.[5] G01N *11/08*
U.S. Cl. 73—54.14 **68 Claims**

1. A capillary rheometer apparatus for generating information on the compressability of materials, comprising:

a housing;

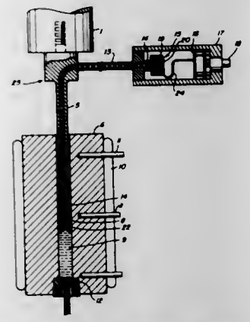
a plunger;

said housing having passage means for receiving said plunger and means contiguous with said passage means for blocking flow out of said housing;

means for driving said plunger longitudinally within said passage means to move one end of said plunger towards said means for blocking;

said plunger having means defining a liquid-filled capillary passage extending therein from said one end of said plunger;

a coupler at said one end of said plunger defining with said plunger a chamber in communication with said capillary passage and for sensing pressure in said passage means and transmitting said pressure to said liquid fill; and



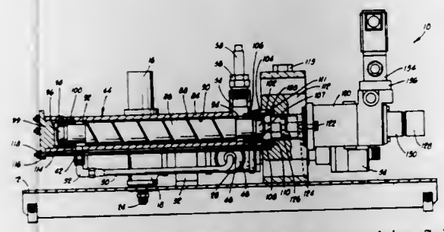
means coupled from said capillary passage responsive to pressure exerted by said liquid fill for providing an indication of sensed pressure.

5,209,108

RHEOLOGICAL TEST APPARATUS AND METHOD USING A HELICAL SCREW RHEOMETER

Donald W. Shackelford, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Mar. 13, 1990, Ser. No. 493,589
Int. Cl.[5] G01N *11/14*
U.S. Cl. 73—54.28 **16 Claims**



1. A rheology test apparatus for use in determining fluid properties of base gels for well fracturing operations, said apparatus comprising:

a helical screw rheometer comprising:

a housing having an inlet and an outlet; and

a screw disposed in said housing;

wherein, said housing and screw are relatively rotatable;

a prime mover for providing relative rotation between said housing and screw;

speed control means for controlling a speed of said prime mover;

valve means for closing said outlet of said helical screw rheometer;

pressure sensing means for sensing an outlet pressure of said helical screw rheometer when said outlet is closed and in response to a speed of said prime mover;

speed sensing means for measuring a speed of said prime mover; and

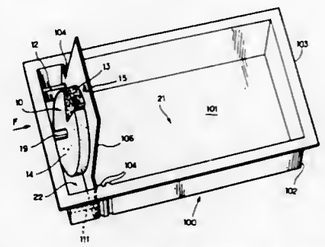
computer means for receiving a signal from said pressure sensing means and a signal from said speed sensing means and controlling said speed control means.

5,209,109

DEVICE FOR DETERMINING THE QUANTITY OF WATER REQUIRED BY A CULTIVATION MEDIUM, AND A PLANT TRAY ADAPTED TO IMPLEMENTING THE DEVICE

Michel Chamoulaud, 46, rue Louis Coullet, 33700 Merignac, France

PCT No. PCT/FR91/00615, § 371 Date Mar. 26, 1992, § 102(e) Date Mar. 26, 1992, PCT Pub. No. WO92/01365, PCT Pub. Date Feb. 6, 1992
PCT Filed Jul. 25, 1991, Ser. No. 842,332
Claims priority, application France, Jul. 26, 1990, 90 09802
Int. Cl.[5] G01N *5/02*
U.S. Cl. 73—73 **17 Claims**



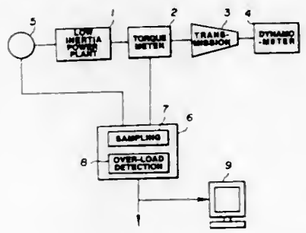
1. A device for determining the quantity of water required by a cultivation medium placed in a tray (**100**), the device comprising a measuring wheel (**1**; **10**) disposed vertically and mounted on a vertical partition (**6**; **106**) so as to be free to rotate about a horizontal axis (**9**; **19**), while presenting an unbalance, the bottom portion of the measuring wheel (**1**; **10**) being situated a few millimeters from the bottom of the tank of the tray, said measuring wheel comprising a first portion (**4**; **14**) which is relatively unhydrophilic and which has a mean relative density that is less than unity, and a second portion provided with hydrophilic means (**3**; **13**) which cause the unbalance of the wheel to change as a function of the quantity of water retained in the hydrophilic means (**3**; **13**), and wherein the measuring wheel (**1**; **10**) includes display means (**5**; **15**) for displaying the angular position of the measuring wheel (**1**; **10**).

5,209,110

OVER-LOADING MONITORING SYSTEM FOR ELECTRIC MOTOR IN AUTOMOTIVE ENGINE SIMULATING APPARATUS

Kaoru Sano; Fumio Mizushina; Takashi Goto; Toshimitsu Maruki, all of Shizuoka, and Yukio Naganuma, Tokyo, all of Japan, assignors to Kabushiki Kaisha Meidensha, Japan

Filed Dec. 10, 1990, Ser. No. 624,962
Claims priority, application Japan, Dec. 11, 1989, 1-320819
Int. Cl.[5] G01M *19/00*
U.S. Cl. 73—118.1 **2 Claims**



1. In an apparatus for testing an automotive power transmission:

a power plant including an electric motor;

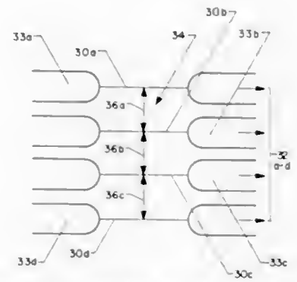
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a torque meter connected to said power plant;
an automotive power transmission connected to said torque meter and having output shaft;
a dummy load connected to said output shaft of said automotive power transmission;
a revolution speed sensor so constructed and arranged as to monitor revolution speed of said electric motor and produce a revolution speed signal indicative of said monitoring revolution speed;
said torque meter being so constructed and arranged as to monitor an output torque indicative signal indicative of said monitored output torque;
a controller connected to said torque meter and said revolution speed sensor, said controller including means for performing a first step of giving said torque indicative signal a weight which is a function of said revolution speed indicative signal and storing the result as data, a second step of repeating said first step a predetermined number of times to provide a predetermined number of said stored data, a third step of deriving a running average of said predetermined number of stored data; a fourth step of evaluating said running average in comparison with a predetermined criterion; and a fifth step of outputting an overloading signal in response to a result of evaluating step; and
means responsive to said over-loading signal for indicating an over-loading condition of said electric motor.

5,209,111
METHOD OF MEASURING CROSS-FLOW VORTICES BY USE OF AN ARRAY OF HOT-FILM SENSORS

Naval K. Agarwal; Dal V. Maddalon, both of Yorktown, and Siva M. Mangalam, Kingsmill on the James, all of Va., assignors to The United States as represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 7, 1992, Ser. No. 823,805
Int. Cl.[5] G01M *9/00*
U.S. Cl. 73—147 **4 Claims**

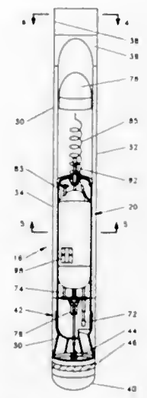


1. A method for measuring the wavelength of cross-flow vortices of air flow having streamlines of flow traveling across a swept airfoil, comprising:
providing a plurality of hot-film sensing means, each sensing means providing a signal, each sensing means being spaced in a straight-line array such that the distance between successive hot-film sensing means is less than the wavelength of the cross-flow vortices being measured;
determining the direction of travel of the streamlines across the airfoil;
positioning the straight-line array of hot-film sensing means perpendicular to the direction of travel of the streamlines, such that each sensing means has a spanwise location;
processing the plurality of signals provided by the plurality of hot-film sensing means to provide a plurality of root-mean-square values for each said signal;
plotting each root-mean-square value against the corresponding spanwise location of each sensing means; and
determining the wavelength of the cross-flow vortices by observing the distance between one of two maxima of root-mean-square values and two minima of root-mean-square values.

5,209,112
EXPENDABLE OCEANOGRAPHIC SENSOR APPARATUS

Kim O. McCoy, Carmel, Calif.; John P. Downing, Jr., Port Townsand, Wash.; Bradley G. DeRoos, Worthington, Ohio, and Michael R. Riches, Silver Spring, Md., assignors to Battelle Memorial Institute, Richland, Wash., a part interest

Filed Feb. 28, 1991, Ser. No. 662,064
Int. Cl.[5] G01W *1/00*
U.S. Cl. 73—170.01 **24 Claims**



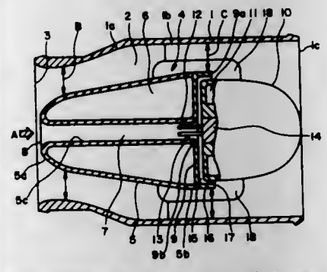
1. Apparatus for remote monitoring of water characteristics in a body of water, comprising:
(a) a shipping/deployment member having a longitudinal axis, said shipping/deployment member divided into halves along the longitudinal axis with the halves interconnected in clamshell arrangement;
(b) a sensor package within the shipping/deployment member having sensors for measuring predetermined water characteristics, said sensors being operable to measure water characteristics
(i) during descent of the sensor package to the floor of the body of water,
(ii) while anchored to the floor of the body of water,
(iii) during ascent of the sensor package to the surface of the body of water, and
(iv) while floating on the surface of the body of water;
(c) a detachable anchor within the sensor package so as to provide negative buoyancy to the sensor package while therein; and
(d) a transmitter for transmitting sensor data to a satellite.

5,209,113
AIR FLOW METER

Yukio Sawada, Anjo; Yukio Mori; Ryo Nagasaka, both of Nagoya; Takao Ban, Toyohashi, and Norihide Hattori, Chiryu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 25, 1991, Ser. No. 692,392
Claims priority, application Japan, Apr. 26, 1990, 2-110872; Feb. 27, 1991, 3-33111
Int. Cl.[5] G01F *1/68, 5/00*
U.S. Cl. 73—202.5 **25 Claims**

1. An air flow meter comprising:
a housing which has an inlet portion and an outlet portion between which is formed a main passage through which air flows;
a bypass passage forming member, provided substantially in a center of said main passage of said housing, including an inlet and an outlet opened at an outer periphery of said bypass forming member at a location opposing an inner surface of said housing for forming a bypass passage which is communicated with said main passage;
flow rate detecting means, provided in said bypass passage, for detecting a flow rate of air flowing through said bypass passage;
downstream throttling means formed between said inner surface of said housing and an outer surface of said bypass passage forming member, for throttling a flow of air in



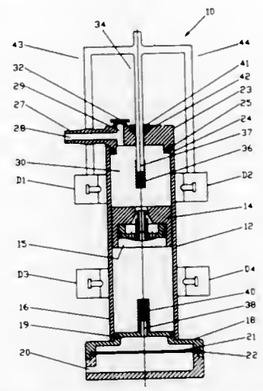
said main passage near said outlet of said bypass passage at a first throttling area so as to cause said air in said main passage to be introduced into said inlet of said bypass passage; and
upstream throttling means, which is provided between said inner surface of said housing and said outer surface of said bypass passage forming member and surrounding said outer surface of said bypass passage forming member at a first location upstream of said downstream throttling means to form a second throttling area which is smaller than said first throttling area of said downstream throttling means, for limiting a flow of air in each cross-sectional segment of said first location of said main passage so that the flow of air in said main passage is equalized.

5,209,114
RECIPROCATING PISTON FLOW METER

Hill S. Lalin, 10 Bonita Terr., Wayne, N.J. 07470, and Roman A. Stobnicki, 48 Nestor St., Franklin, N.J. 07416

Filed Jun. 26, 1991, Ser. No. 721,126
Int. Cl.[5] G01F *3/14*
U.S. Cl. 73—248 **5 Claims**

1. A reciprocating piston flow meter for use in measuring air flow through the flow meter comprising:
(a) a hollow flowtube vertically oriented to form an open top end and an open bottom end, with one end connected to the atmosphere;
(b) means for connecting the opposite end of said flowtube to an external pump for directing a flow of air through said flowtube;
(c) a piston disposed in said flowtube for movement between a bottom position adjacent said bottom end and an elevated position relative to said top end;
(d) a valve assembly contained in said piston for movement in concert therewith, with said valve assembly comprising: a valve body, valve seat(s), a valve head having a valve-open and a valve-closed position, and a valve shuttle connected to said valve head for shifting said valve head into the valve-open and valve-closed position, respectively, in response to the relative position of said piston;
(e) means disposed at each opposite end of said flowtube for moving said valve shuttle in said valve assembly, such that when said piston reaches said elevated position, said valve head is shifted into said valve-open position for causing said piston to reverse direction and descend by gravity to said bottom position, and upon reaching said bottom position, said valve head is shifted into said valve-closed position for causing said piston to ascend in response to the presence of said air flow; and

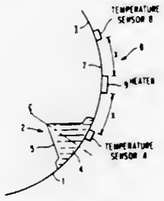


(f) photoelectric sensor means arranged along said flowtube for detecting the passage of said piston between two predetermined locations.

5,209,115
LIQUID DETECTOR FOR THIN-WALLED TANKS OPERATING IN ZERO GRAVITY

Donald L. Bond, Sunnyvale, Calif., assignor to Intelsat, Washington, D.C.

Filed Sep. 11, 1991, Ser. No. 757,754
Int. Cl.[5] B64D *37/02*; G01F *17/00, 23/24*
U.S. Cl. 73—295 **20 Claims**



1. A liquid detector for detecting a liquid in a thin-walled tank operating in a zero gravity environment, said thin-walled tank including at least one internal zero gravity liquid management device which selectively positions the liquid in said thin-walled tank at a specific region along a wall of said thin-walled tank and under said internal zero gravity liquid management device due to surface tension forces which predominate in said zero gravity environment, said liquid detector comprising:
a heating means disposed on an outer surface of said thin-walled tank and proximate to said region;
means for periodically activating said heating means for a preset period of time;
a first temperature sensing means positioned on the outer surface of said thin-walled tank and directly opposite to said region; and
a second temperature sensing means positioned on the outer surface of said thin-walled tank and at a location spaced apart from said region;
whereby when said heating means is activated for said preset period of time, a change in temperature at each of said first and second temperature sensing means is sensed, such that

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a temperature sensed by one of said first and second temperature sensing means corresponding to a potion of said tank where liquid is in contact with said wall increases less than a temperature sensed by the other of said first and second temperature sensing means located at a portion of said tank where no liquid is present, and a quantity of the liquid remaining in the tank is then known within the limits of a capacity of said internal zero gravity liquid management device.

5,209,116

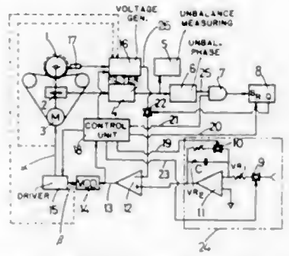
UNBALANCE POINT POSITIONING APPARATUS AND METHOD

Hiromitu Okumura, Osaka, Japan, assignor to Denshi Seiki Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 584,402, Sep. 17, 1990, abandoned, which is a continuation of Ser. No. 322,267, Mar. 10, 1989, abandoned. This application Nov. 6, 1991, Ser. No. 889,291

Int. Cl.[5] G01M *1/22*

U.S. Cl. 73—462 **13 Claims**



1. An unbalance point positioning method for use in measuring a rotatable object, comprising the steps of:

producing a drive control signal forming the basis for acceleration, constant-rate rotation and deceleration of a measured object,

obtaining an unbalance phase signal resulting from revolution of an unbalance point of the measured object by causing a drive device controlled by said drive control signal to rotate the measured object at a high rate,

producing a frequency-responsive voltage corresponding to a rotational frequency of the measured object,

starting said deceleration control through said drive control signal, by utilizing said unbalance phase signal as a trigger, while effecting feedback control of the rotational frequency of the measured object with said frequency-responsive voltage, and

continuing said deceleration control through said control signal, while continuing feedback control of the rotational frequency of the measured object with said frequency-responsive voltage to smoothly and completely stop the measured object with the unbalance point of the measured object at a selected position after rotation of the measured object through a predetermined angle.

5,209,117

TAPERED CANTILEVER BEAM FOR SENSORS

Paul T. Bennett, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 22, 1990, Ser. No. 600,949

Int. Cl.[5] G01P *15/125*

U.S. Cl. 73—517 R **9 Claims**

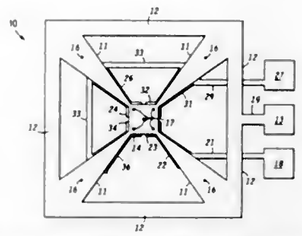
1. A sensor which comprises:

a substrate;

a first electrically conductive area supported by the substrate which is part of a capacitor;

a suspended mass which is electrically conductive but, is suspended above and is isolated from the first electrically conductive area; and

a tapered support means including a cantilever beam having a first end and a second end with the second end attached to the substrate and extending upwards from the substrate,



wherein the cantilever beam is further extended from the upward extension of the second end toward the suspended mass, and is continuously tapered with the first end being narrower than the second end, the first end being attached to the suspended mass, and wherein the suspended mass serves as part of a capacitor that moves.

5,209,118

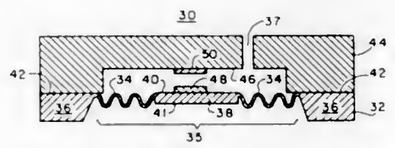
SEMICONDUCTOR TRANSDUCER OR ACTUATOR UTILIZING CORRUGATED SUPPORTS

John H. Jerman, Palo Alto, Calif., assignor to IC Sensors, Milpitas, Calif.

Division of Ser. No. 335,185, Apr. 7, 1989, Pat. No. 5,064,165. This application Aug. 30, 1991, Ser. No. 753,194

Int. Cl.[5] G01L *7/08, 9/06, 9/12*

U.S. Cl. 73—715 **7 Claims**



1. A semiconductor device comprising:

a diaphragm member including a centrally disposed substantially rigid planar semiconductor deflecting member surrounded by a plurality of grooves formed in said diaphragm member and separated by thin sections, and an outer nondeflecting support member.

5,209,119

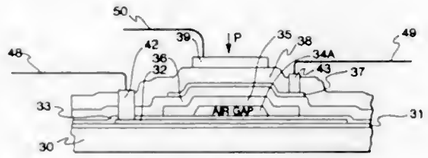
MICRODEVICE FOR SENSING A FORCE

Dennis L. Polla, Brooklyn Park, and Takashi Tamagawa, Minneapolis, both of Minn., assignors to Regents of the University of Minnesota, St. Paul, Minn.

Filed Dec. 12, 1990, Ser. No. 626,712

Int. Cl.[5] G01L *7/08, 9/00*

U.S. Cl. 73—723 **10 Claims**



1. A microdevice formed integral to an integrated circuit chip for sensing a force comprising:

a lead zirconate titanate (PZT) piezoelectric thin film having a thickness between about 0.1 and 0.5 microns, said thin film presenting a surface upon which said force acts and being adapted for deflective movement in response to the application of said force;

first and second electrodes positioned on opposite sides of said PZT thin film, each of said electrodes having an inner surface in operable contact with said PZT thin film and an outer surface defining an outer surface of said microdevice, the first and second electrodes comprising means for sensing the piezoelectric effects produced in the film by said deflective movement of said thin film; and

electrical connection means for electrically connecting said first and second electrodes to a voltage sensor.

5,209,120

SEMICONDUCTOR PRESSURE-DETECTING APPARATUS

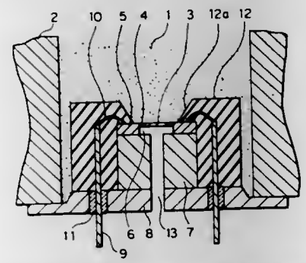
Toru Araki, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 2, 1991, Ser. No. 769,781

Claims priority, application Japan, Jan. 24, 1991, 3-22714

Int. Cl.[5] G01L *7/08, 9/06*

U.S. Cl. 73—727 **5 Claims**



1. A semiconductor pressure-detecting apparatus comprising:

a semiconductor chip including a diaphragm for responding to a stress applied by a medium under pressure and a strain gauge for converting the stress into an electrical signal;

a frame supporting said semiconductor chip;

a stem supporting said frame;

a wire connected to said semiconductor chip;

a lead connected to said wire and penetrating said stem; and

a resin disposed on a first side of said stem encapsulating said wire, said lead on the first side of said stem, said frame, and part of said semiconductor chip, said resin including an opening through which said diaphragm is exposed for directly contacting the medium, the pressure of which is to be detected from the stress applied to said diaphragm.

5,209,121

PRESSURE SENSOR

Hans W. Häfner, Aichach-Walchshofen, Fed. Rep. of Germany, assignor to Pfister Messtechnik GmbH, Augsburg, Fed. Rep. of Germany

Filed Jul. 22, 1991, Ser. No. 733,531

Claims priority, application Fed. Rep. of Germany, Jul. 24, 1990, 4023420

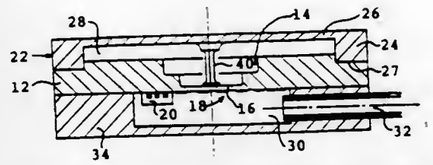
Int. Cl.[5] G01L *7/08, 9/06*

U.S. Cl. 73—727 **3 Claims**

1. A pressure sensor having pressure transmission capability comprising:

a disk-type base part having a preferably central opening at one end of which there is provided integrally with said base part a surface-type pressure transducer having a first pressure effective area, wherein said surface-type pressure transducer comprises a first diaphragm spanning over said opening in said base part;

a pressure receiving part including a second diaphragm extending essentially in parallel at a distance from a second end of said opening opposite to said first end thereof and formed integrally at a rigid ring having about the same peripheral dimension on the disk-type base part and



being connected thereto, said second diaphragm having a considerably larger pressure-effective area than said pressure transducer; and

distance means arranged between said second diaphragm and said pressure transducer normal thereto and transmitting a deformation of said second diaphragm completely to said pressure transducer.

5,209,122

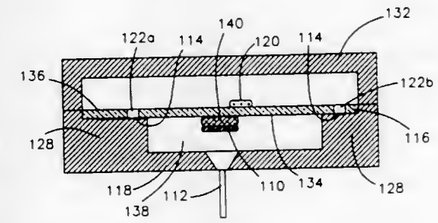
PRESSURER SENSOR AND METHOD FOR ASSEMBLY OF SAME

John M. Matly, and Janet S. Dawson, both of Kokomo, Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Nov. 20, 1991, Ser. No. 795,866

Int. Cl.[5] G01L *7/08, 9/06;* **H01C** *17/24*

U.S. Cl. 73—727 **9 Claims**



1. A pressure sensor comprising:

a substrate of alumina having oppositely disposed first and second surfaces, and having thick film signal conditioning circuitry on said first surface, said thick film circuitry disposed on said first surface containing at least one resistor characterized by a resistance value which can be varied in response to a signal output by said signal conditioning circuitry;

a silicon pressure sensing integrated circuit disposed on said second surface of said substrate, said pressure sensing integrated circuit having a semiconductor circuit means including a pressure sensitive element and associated circuitry for producing a pressure sensitive output signal;

at least one electrically conductive through-hole for contact with and electrical connection of said thick film signal conditioning circuitry disposed on said first surface and associated circuitry disposed on said second surface; and

a ported housing having a ledge, said second surface of said substrate being mounted to said ledge of said ported housing so as to form a pressurized chamber enclosing said silicon pressure sensing integrated circuit and so as to seal all of said at least one through-holes;

effective to produce an operable pressure sensor having a pressurized chamber wherein said resistance value of said at least one resistor disposed on said first surface of said

VOL 1150 ISS 2 MY 11 1993 UMI

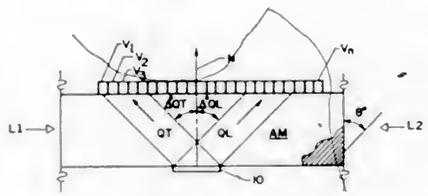
substrate may be adjusted in response to said signal output of said signal conditioning circuitry.

5,209,123

METHODS OF DETERMINING LOADS AND FIBER ORIENTATIONS IN ANISOTROPIC NON-CRYSTALLINE MATERIALS USING ENERGY FLUX DEVIATION

William H. Prosser, Newport News; Ronald D. Kriz, Blacksburg, both of Va., and Dale W. Fitting, Golden, Colo., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 22, 1991, Ser. No. 797,507
Int. Cl.[5] G01N *3/00*
U.S. Cl. 73—788 **14 Claims**



1. A method of determining an applied load of a particular anisotropic sample material comprising the steps of:

applying an ultrasonic wave to the particular anisotropic sample material in an initial direction;

measuring an angle of flux deviation of the ultrasonic wave front from the initial direction, the flux deviation angle induced by the applied load;

determining a flux shift between this load-induced flux deviation angle and a previously determined angle of flux deviation of an ultrasonic wave applied to a similar anisotropic reference material under an initial known load condition; and

comparing this said flux shift to a plurality of previously determined flux shifts of a similarly tested, similar anisotropic reference material tested under a plurality of respective known load conditions, whereby the load applied to the particular anisotropic sample material is determined by correlating said flux shifts to previously determined flux shifts due to known loads in said reference material.

5,209,124

METHOD AND APPARATUS FOR DETERMINING THE FILLING CAPACITY OF TOBACCO AND THE HARDNESS OF CIGARETTES

Wolfgang Graudejus, Haselau, and Martin Rattemeyer, both of Hamburg, Fed. Rep. of Germany, assignors to H.F. & Ph.F. Reemtsma GmbH & Co., Hamburg, Fed. Rep. of Germany

Filed Aug. 24, 1990, Ser. No. 571,976
Claims priority, application Fed. Rep. of Germany, Sep. 2, 1989, 3929155
Int. Cl.[5] G01N *3/08*
U.S. Cl. 73—821 **17 Claims**

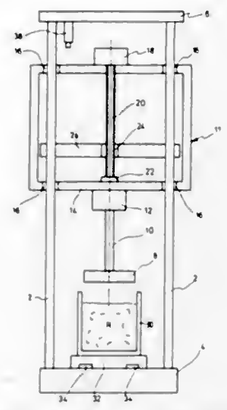
1. A method for determining the hardness of cigarettes wherein a force is exerted on a predetermined number of cigarettes disposed on a substantially flat sample holder by a test plunger movable toward the cigarettes on said sample holder, and wherein the thickness of the cigarettes under the action of the force and its elapsed time are measured, said method comprising the steps of:

compressing the cigarettes on the sample holder by moving the plunger toward said sample holder;

measuring the force exerted on the cigarettes and providing an output signal in response thereto;

measuring the thickness of the cigarettes by measuring the distance moved by said test plunger and providing an output signal in response thereto;

after the end of the compression movement of said test plunger when it rests in its end position for a relaxation period, measuring the force acting on the cigarettes at preset time intervals and providing an output signal responsive thereto;



independently measuring a parameter indicative of the hardness of the cigarettes and providing an output signal in response thereto; and

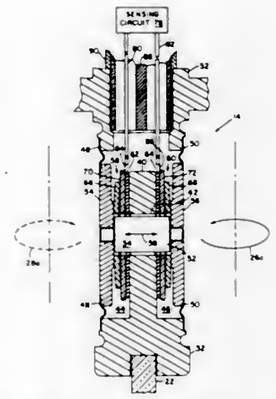
processing said signals by computer to determine the hardness of the cigarettes, the step of processing said signals including processing the signals derived from measuring the force acting on the cigarettes during the relaxation period.

5,209,125

PIEZOELECTRIC PRESSURE SENSOR

Richard W. Kalinoski, Rumford, R.I.; Gordon W. Chitty, Norfolk, and James H. Vignos, Needham Heights, both of Mass., assignors to The Foxboro Company, Foxboro, Mass.

Continuation-in-part of Ser. No. 455,058, Dec. 22, 1989, Pat. No. 5,003,827. This application Mar. 27, 1991, Ser. No. 676,038
Int. Cl.[5] G01F *1/32*
U.S. Cl. 73—861.24 **24 Claims**



7. A vortex sensor for a vortex-shedding flowmeter that measures a flow rate of a fluid flowing through a flow passage

by detecting alternating pressure variations generated by a shedding body placed in the flow passage, the vortex sensor comprising

a sensor housing

two piezoelectric sensing means arranged within the sensor housing for generating signals in response to alternating pressure variations applied to each sensing means, the two piezoelectric sensing means being connected so that a common pressure variation applied equally to both produces substantially matched signals of opposite polarity which cancel each other,

means forming a controlled leak restrictor providing a diffusion path for atmospheric oxygen to reach the two piezoelectric sensing means, and

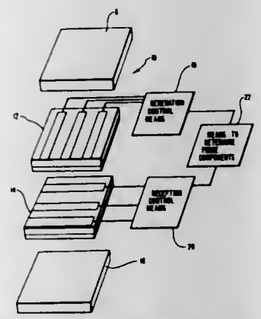
means interconnected with the piezoelectric sensing means, for detecting the signals generated by each of the piezoelectric sensing means to determine the flow rate of the fluid.

5,209,126

FORCE SENSOR

Allen R. Grahn, Salt Lake City, Utah, assignor to Bonneville Scientific, Salt Lake City, Utah

Filed Jan. 4, 1991, Ser. No. 638,044
Int. Cl.[5] G01L *5/16*
U.S. Cl. 73—862.046 **46 Claims**



43. A method for determining force components of a force applied to a contact surface of a deformable medium, said method comprising:

(a) selection of a signal generation region by a generation control means and selection of a signal reception region by a reception control means, thereby defining a selected cross-field intersection;

(b) activation by said generation control means of said selected generation control means to generate a signal,

(c) transmitting said signal from said signal generation region to said signal reception region by reflection from the contact surface, whereby said signal reception region receives said signal,

(d) generation by said signal reception region of a detection signal in response to the reception by said signal reception region of the signal generated in (b),

(e) detection of said detection signal by said reception control means, and

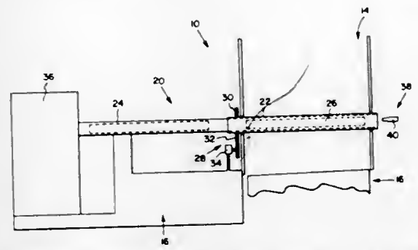
(f) determining said signal's transit time by timing activation in (b) and detection in (e).

5,209,127

DEVICE FOR RECEIVING AND TRANSFERRING CYLINDRICAL FILTER RODS FROM A MASS FLOW OF FILTER RODS BEING CONVEYED

Kenneth M. Milliner; Tommy J. Hinzman; Everett N. Finn, and Byron L. Lowe, all of Macon, Ga., assignors to Brown & Williamson Tobacco Corp., Louisville, Ky.

Filed Mar. 14, 1990, Ser. No. 493,267
Int. Cl.[5] A24C *5/33;* **G01N** *1/02*
U.S. Cl. 73—863.91 **5 Claims**



1. A device for receiving and transferring cylindrical articles having a preselected radius one at a time from a mass flow of parallel articles being conveyed along a conveying path in a direction transverse to their longitudinal axes comprising:

a stationary first semi-cylindrical filter receiving body disposed across the conveying path with its longitudinal axis transverse to the conveying path such that it is parallel to the longitudinal axis of the cylindrical articles being conveyed and concavely facing in the upstream direction of the conveying path, the inside radius of the first semi-cylindrical body being substantially equal to the radius of the cylindrical articles;

a rotatable second semi-cylindrical body substantially longitudinally coextensive with and concentrically disposed with the first semi-cylindrical body and having an inside radius substantially equal to the outside radius of the first semi-cylindrical body;

means for rotating the second semi-cylindrical body between a first position wherein the second semi-cylindrical body overlaps the first semi-cylindrical body and a second position wherein the second semi-cylindrical body concavely faces the first semi-cylindrical body defining a generally cylindrically shaped enclosure between the first and second semi-cylindrical bodies; and,

means for moving a cylindrical article captured in the generally cylindrically shaped enclosure longitudinally thereof and out of the generally cylindrically shaped enclosure through an open exit end thereof.

5,209,128

SAFETY PIPETTE AND ADAPTOR TIP

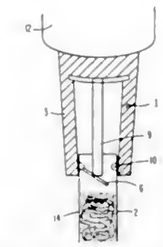
James P. Whelan, Damascus, Md., assignor to The United States of America as represented by the Secretary of the Department of Health & Human Services, Washington, D.C.

Continuation-in-part of Ser. No. 451,689, Dec. 18, 1989, Pat. No. 5,058,441. This application Dec. 18, 1990, Ser. No. 628,902
The portion of the term of this patent subsequent to Oct. 22, 2008, has been disclaimed.
Int. Cl.[5] G01N *1/14*
U.S. Cl. 73—864.03 **20 Claims**

1. A nosepiece for a pipetting device comprising a generally cylindrical housing having an internal diameter capable of tightly engaging a suction end of a pipette, said nosepiece being provided with a rod positioned in the direction of an axis for insertion into the pipette, wherein said rod is capable of dis-

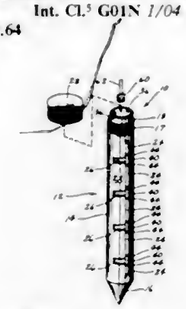
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placing into an open position a sealing means in the pipette or in a pipette insert positioned within the pipette, said rod being



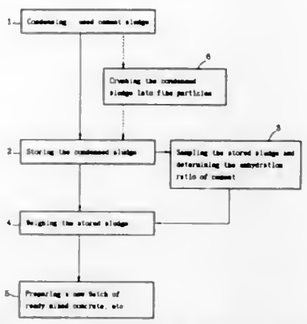
provided with fitting means for connection to the pipetting device.

5,209,129
SUBSURFACE SAMPLER
Edward J. Jaselskis, Ames, Iowa, and George F. Czapar, Rochester, Ill., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa
Filed Jul. 5, 1991, Ser. No. 726,311
Int. Cl.[5] G01N *1/04*
U.S. Cl. 73—864.64 11 Claims



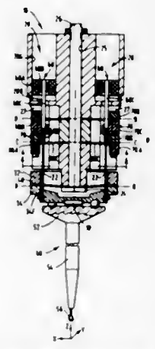
1. A subsurface sampler, comprising:
a casing having a top access opening, an inner surface defining an interior cavity, and an outer surface disposed in contact with a material to be sampled;
a porthole formed through the casing so that the interior cavity may be in direct communication with the material to be sampled;
movable gate means disposed over the porthole for selectively allowing or preventing direct communication between the interior cavity and the material to be sampled;
wiper means for displacing material in a smear zone adjacent the outer surface of the casing in the vicinity of the porthole, thereby exposing a representative material sampling surface in direct communication with the interior cavity of the casing through the porthole; and
a sampling probe received through the top access opening into the interior cavity and selectively positioned at the porthole in direct communication with the material sampling surface.

5,209,130
METHOD FOR RECYCLING WASH RESIDUE OF READY MIXED CONCRETE AND SYSTEM THEREFOR
Yukio Ohsaki; Fumio Iwase, and Yoshihisa Nakanishi, all of Tokyo, Japan, assignors to Neotec Co., Ltd., Tokyo, Japan
Division of Ser. No. 717,998, Jun. 19, 1991, Pat. No. 5,178,455.
This application Aug. 11, 1992, Ser. No. 928,116
Claims priority, application Japan, Jul. 19, 1990, 2-191224
Int. Cl.[5] G01N *15/06*
U.S. Cl. 73—866 2 Claims



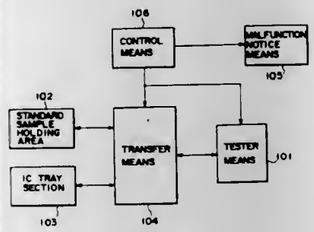
1. An apparatus for recycling the wash residue from ready mixed concrete comprising a condenser for condensing used cement sludge to a predetermined concentration, a tank for storing the condensed sludge, means for determining the unhydration ratio of cement contained in the sludge, means for weighing an amount of the stored sludge, said amount being based on the determined unhydration ratio to prepare a new batch of ready mixed concrete or mortar, and means for adding the weighed sludge to new concrete.

5,209,131
METROLOGY
Iain K. Baxter, Chesham, Great Britain, assignor to Rank Taylor Hobson, Great Britain
Filed Oct. 12, 1990, Ser. No. 596,696
Claims priority, application United Kingdom, Nov. 3, 1989, 8924852; Nov. 3, 1989, 8924853
Int. Cl.[5] G01B *5/00*
U.S. Cl. 73—865.8 17 Claims



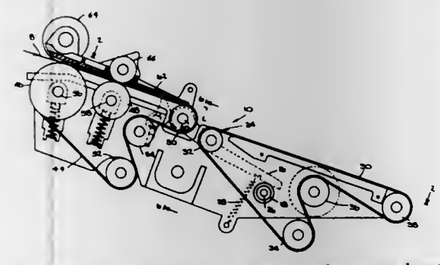
1. A probe for measuring workpieces, the probe having a longitudinal Z axis and comprising a body and a stylus or stylus mount having a rest position relative to the body defined by the equilibrium between a plurality of restoring forces the magnitude of at least one of which: (a) varies with the displacement of the stylus or stylus mount; and (b) is provided by a diaphragm spring, such that movement of the stylus or stylus mount in the Z axis direction changes the degree to which the diaphragm spring has a conical shape.

5,209,132
SEMICONDUCTOR HANDLING DEVICE HAVING A SELF-CHECK FUNCTION AND METHOD OF SELF-CHECKING A SEMICONDUCTOR HANDLING DEVICE
Yuzo Chayamichi, and Kenji Abe, both of Kitakyusbu, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Feb. 21, 1991, Ser. No. 658,751
Claims priority, application Japan, Feb. 23, 1990, 2-42886
Int. Cl.[5] G01M *19/00;* G01D *18/00;* B65H *43/04*
U.S. Cl. 73—865.9 2 Claims



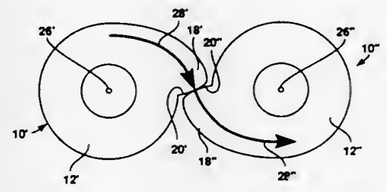
1. A handling device having a self-check mechanism, the handling device being adapted for determining whether a product is good or bad according to predetermined criteria, comprising:
a first area for holding a plurality of products;
a second area for holding a standard sample;
tester means for testing a product;
transfer means for transferring the product between the first area and the tester means, and for transferring the standard sample between the second area and the tester means; and
means for causing the tester means to test the standard sample when a testing operation starts and when said tester means continuously determines that a predetermined number of products are of bad quality, and for disabling testing operations of said tester means when said tester means determines that said standard sample is of bad quality.

5,209,133
BLIND LEVER ARM ADJUSTMENT DEVICE
Michael D. Ballard, Sandy Hook, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.
Filed Oct. 21, 1991, Ser. No. 780,168
Int. Cl.[5] B65H *3/52*
U.S. Cl. 74—89.15 5 Claims



1. An adjustment device for adjusting a lever arm located inside a machine frame wherein the lever arm is pivotally mounted to said frame at a first location and is spring biased against a stop at a second location of said frame, comprising a resilient sleeve having a shank portion adapted to extend through an aperture in said frame to act as the stop, said sleeve having a head portion of larger diameter then the diameter of the aperture in said frame, said shank portion having a threaded section and a non-threaded section, said non-threaded section having a length greater than frame thickness at said aperture, wherein the lever arm pivots as a screw extending axially through said sleeve is turned in said threaded section.

5,209,134
SYNCHRONOUS BIDIRECTIONAL GEARING MECHANISM
David Nguyen, Sunnyvale, and Dexter Francis, Los Altos, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
Filed Oct. 22, 1991, Ser. No. 782,004
Int. Cl.[5] F16H *55/17*
U.S. Cl. 74—437 3 Claims



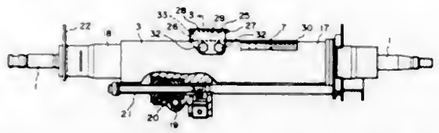
1. A synchronous gearing mechanism, comprising:
a first gear including a first gear profile having a first pair of asymmetrical teeth disposed about the perimeter of a first half of said first profile and a second gear profile having a second pair of asymmetrical teeth disposed about the perimeter of a second half of said second profile, said first profile for providing driving torque in a first rotational direction and said second profile for providing driving torque in a second rotational direction, opposite said first direction;
a second gear including a third gear profile having a third pair of asymmetrical teeth, substantially identical to said first pair of teeth, disposed about the perimeter of a third half of said third profile and a fourth gear profile having a fourth pair of asymmetrical teeth, substantially identical to said second pair of teeth, disposed about the perimeter of a fourth half of said fourth profile;
said first gear and said second gear being configured to intermesh and provide synchronous relative motion between each said gear when at least one of said gears is driven.

5,209,135
IMPACT ABSORBING TYPE STEERING COLUMN DEVICE
Mitsuo Ichikawa, Maebashi, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 18, 1991, Ser. No. 687,004
Claims priority, application Japan, Apr. 23, 1990, 2-42444[U]
Int. Cl.[5] B62D *1/19;* F16F *7/12*
U.S. Cl. 74—492 2 Claims

1. An impact absorbing type steering column device, comprising a steering column through which extends a steering shaft having one end at which a steering wheel is secured; left and right mounting plates fixed to an outer surface of said steering column for attachment to a vehicle body; a pair of reentrant notches formed respectively in corresponding edges of said mounting plates; a pair of bolts respectively inserted through said notches and fixing said steering column to said vehicle body via said mounting plates; and an energy absorbing

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member including a first end portion provided with a joint plate having a pair of holes respectively aligned with said notches and through which said bolts are respectively inserted such that said joint plate is attached to said vehicle body, an intermediate portion displaced from said first end portion along the length of said steering column and bent back toward said first end portion to form a U-shaped first return, and a second end portion folded by 180° in a direction opposite to said first return to form a second return with a radius of curva-



ture substantially smaller than that of said first return, said second end portion having an integral plate portion with opposite side portions bent toward said first return to form a pair of bent-over sides embracing said first return; and wherein said energy absorbing member is joined to an attachment portion of said steering column at said bent-over sides such that said first return is clasped between said attachment portion of said steering column and said plate portion of said energy absorbing member.

5,209,136

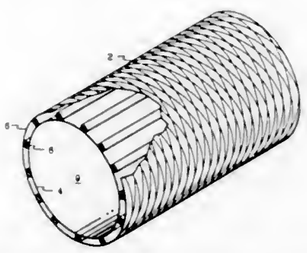
COMPOSITE ROD-STIFFENED PRESSURIZED CABLE

Jerry G. Williams, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Continuation of Ser. No. 614,769, Nov. 15, 1990, abandoned, which is a division of Ser. No. 495,004, Mar. 19, 1990, Pat. No. 5,018,583. This application Jun. 9, 1992, Ser. No. 896,277

Int. Cl.[5] F16C *1/10*

U.S. Cl. 74—502.5 **12 Claims**



1. A spoolable cable for use in a borehole, comprising an axially elongated pressurizable flexible membrane member covered by an outer cylindrical flexible protective sheath separate from said membrane member and a plurality of parallel unidirectional composite rods spaced from each other and in contact with said membrane member and disposed axially between said membrane member and said sheath, said flexible membrane being constructed for flexibility in such a manner that it can be partially collapsed when unpressurized to reduce the stiffness of the cable when it is being spooled.

5,209,137

CONTROL APPARATUS FOR MARINE ENGINE

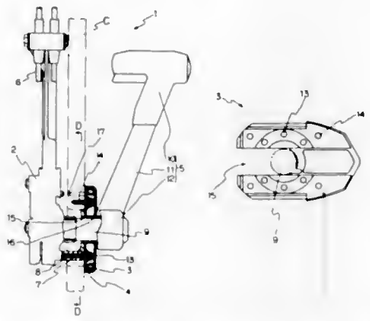
Mikiya Yagi, Takarazuka, Japan, assignor to Nippon Cable System Inc., Takarazuka, Japan

Filed Dec. 16, 1991, Ser. No. 808,402

Claims priority, application Japan, Dec. 17, 1990, 2-402884; Dec. 17, 1990, 2-402885

Int. Cl.[5] G05G *1/04*

U.S. Cl. 74—511 R **6 Claims**



1. A control apparatus for a marine engine for mounting on a hull board having an opening extending from a back side to a fore side, comprising:

an operating lever rotatably mounted through the opening in the hull board, said operating lever being disposed for rotation on the fore side of the hull board for controlling the marine engine:

a main body disposed on the back side of the hull board for transforming rotational movement of said operating lever into operation force on a control cable, said main body having a shaft connected with said operating lever for transmitting movement of said operating lever and a plurality of first installation holes arranged in a first pitch circle radially about said shaft; and

a set block installed on the fore side of the hull board for fixing said main body to the hull board, said set block having a slit for receiving said shaft in the lateral direction during installation and a plurality of second installation holes arranged in a second pitch circle having the same diameter as the first pitch circle of said first installation holes with at least some of said second installation holes aligned with said first installation holes when said shaft is received in said slit.

5,209,138

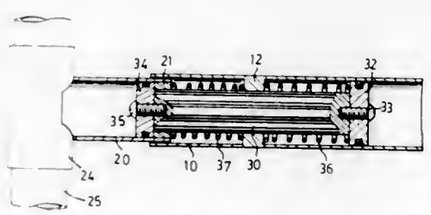
HANDLEBAR ASSEMBLY FOR CYCLES

Hung C. Shu, No. 32-1, Lane 10-8, Kuang Hsing Rd., Tai Ping Hsiang, Taichung Hsien, Taiwan

Filed Jul. 15, 1992, Ser. No. 913,423

Int. Cl.[5] B62K *21/14*

U.S. Cl. 74—551.2 **13 Claims**



1. A handlebar assembly comprising a shank including a first end fixed to a post and including a second end, a first ring formed integral with said shank and including a first engaging means formed in an inner peripheral portion thereof, a rod disposed in said shank and slidably engaged in said first ring and including a second engaging means formed in an outer peripheral portion thereof for engagement with said first engaging means so as to prevent said rod from rotating relative to said shank and in order to guide said rod to slide longitudinally in said shank, said rod including a first end located in said first end of said shank and a second end located in said second end of said shank, a first disc fixed to said first end of said rod, a tube coupled to said second end of said rod for supporting a handlebar, and means biased between said first ring of said shank and said first disc for cushioning shocks transmitted to said handlebar assembly.

5,209,139

FLYWHEEL FOR AN INTERNAL COMBUSTION ENGINE

Grzegorz Janiszewski, Angered, Sweden, assignor to AB Volvo, Goteborg, Sweden

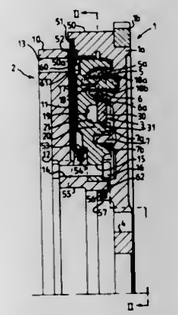
Filed Sep. 18, 1990, Ser. No. 584,244

Claims priority, application Sweden, Sep. 20, 1989, 8903091

The portion of the term of this patent subsequent to Oct. 20, 2009, has been disclaimed.

Int. Cl.[5] F16F *15/10*

U.S. Cl. 74—574 **4 Claims**



1. Flywheel device for internal combustion engines comprising a first flywheel mass, a second flywheel mass and spring means acting between said masses for transmitting torque between said masses, said first mass (**1**) having in the vicinity of its outer periphery a flange portion (**50**) radially outward of said spring means and axially projecting over at least a portion of the second mass, said flange portion (**50**) being so dimensioned that a gap is formed between an inner cylindrical surface (**50***a*) on said flange portion and an outer cylindrical surface on the second mass (**2**), said gap having bearing means (**60**) disposed therein.

5,209,140

WINDSHIELD WIPER APPARATUS HAVING A RETRACTION FACILITY

Jean-Pierre Eustache, Antony, and Philippe Arlon, Ozoir la Ferriere, both of France, assignors to Valeo Systems d'Essuyage, Montigny-le-Bretonneux, France

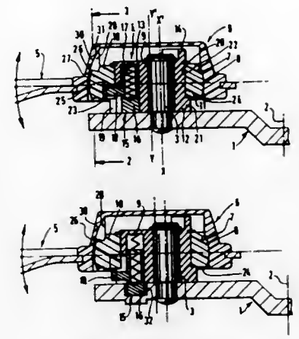
Filed Jun. 13, 1990, Ser. No. 537,930

Claims priority, application France, Jun. 15, 1989, 89 07966

Int. Cl.[5] B60S *1/08, 1/22, 1/24*; F16H *21/40*

U.S. Cl. 74—601 **8 Claims**

1. Windshield wiper apparatus, said apparatus comprising a motor spindle, a first crank arm carried on the motor spindle at one end of the first arm, a pivot pin carried by, and close to the other end, of the first arm, a knuckle piece eccentrically mounted on the said pivot pin, a second crank arm, a socket carried on the second arm, the socket being articulated on the knuckle piece, and a ratchet carried by the knuckle piece and comprising a finger and a radial arm fixed with respect to the finger, the said first crank arm having a first recess for receiving the said finger, wherein the knuckle piece comprises a first member and a second member, with the said first member carrying the ratchet and the said second member having a second recess for receiving the said radial arm of the ratchet.



5,209,141

APPARATUS FOR CONTROLLING GEAR BOX

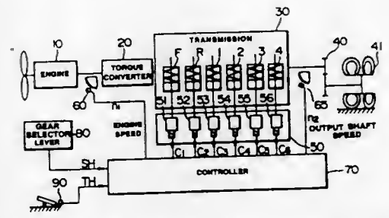
Yoshio Asayama, Chigasaki; Makio Tsubota, Hiratsuka; Yasunori Okura, Hiratsuka, and Takayuki Sato, Hiratsuka, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Japan

Division of Ser. No. 449,926, Dec. 20, 1989, Pat. No. 5,113,720. This application Feb. 26, 1992, Ser. No. 842,061

Claims priority, application Japan, Jun. 24, 1987, 62-157088; Aug. 7, 1987, 62-197711

Int. Cl.[5] F16H *61/06*

U.S. Cl. 74—866 **10 Claims**



1. An apparatus for controlling a gear box which is individually connected to a plurality of pressure control valves adapted to be actuated in response to electrical commands to be issued to a plurality of shift change clutches, said apparatus comprising;

shift change stage discriminating means for discriminating that shift change is effected from what speed stage to what speed stage during said shift change,

load determining means for determining a magnitude of load exerted on a vehicle,

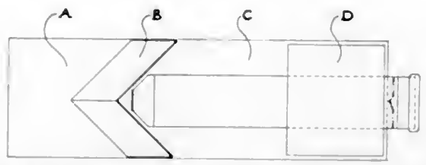
residual oil quantity determining means for determining a quantity of residual hydraulic oil in each shift change clutch during the shift change, and

controlling means for variably controlling a pattern of said electrical command to be issued to a pressure control valve in a required clutch during the shift change depending on outputs from said shift change stage discriminating means, said load determining means and said residual oil

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quantity determining means, said pattern varying as time elapses.

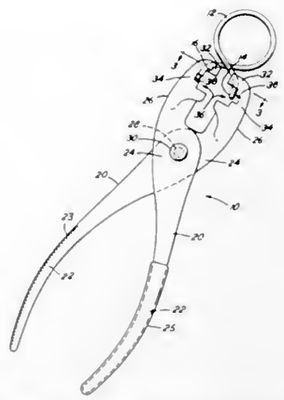
5,209,142
ASSIST-A-TWIST
Kenneth C. Dickson, 11 Japonica Crescent, Brantford, Ontario, Canada N3R-1N5
Filed Jan. 31, 1992, Ser. No. 830,187
Claims priority, application Canada, Jan. 17, 1990, 2008011
Int. Cl.[5] B67B *7/00*
U.S. Cl. 81—3.32 2 Claims



1. A device to firmly hold a container while removing the lid (or part thereof), or securing an object to perform a task on it, comprising of:
(a) a base fitted with rubber pads to act as non-slip surfaces when placed on a work counter with one end against a vertical support;
(b) permanently positioned blocks secured to the base to form a "V" (B) to locate the container to be opened;
(c) a channel enclosure comprising two side guides and one hold-down plate (D) firmly fastened to the base plate which locates and guides a pressure contact slider (C) having a gripper end and a padded end;
(d) the gripper end of the pressure slider (C) contacts the outside of the container, securely holding the container against the "V" blocks (B) when body weight is applied directly to the padded end of the pressure slider (C);
(e) gripper surfaces on the "V" blocks (B) and the pressure slider (C) are rubber faced to improve the gripping ability.

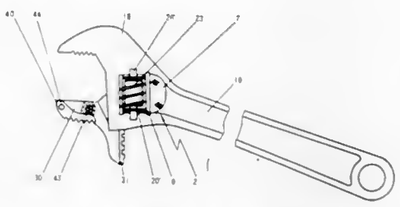
5,209,143
REVERSIBLE HOSE CLAMP TOOL
Paul A. Sweet, Rte. One; Box 150, New Madrid, Mo. 63819
Continuation-in-part of Ser. No. 736,438, Jul. 26, 1991, abandoned. This application Jun. 10, 1992, Ser. No. 896,417
Int. Cl.[5] B25B *27/00*
U.S. Cl. 81—9.3 6 Claims

1. A reversible hose clamp tool comprising:
(a) a pair of main members, each main member having a handle section, a pivot section and a jaw section, each pivot section having a pivot bore, each jaw section having a head end and two sides, each head end and each of the two sides having, along a front edge and laterally along an inside edge, respectively:
(i) a first generally rectangular cutout; and
(ii) a second generally rectangular cutout, the second generally rectangular cutout having a smaller length than the first generally rectangular cutout and being substantially centered along the length of the first generally rectangular cutout to form two landings of the first generally rectangular cutout;
(b) means for pivoting the main members, the means for pivoting extending through the pivot bore of the pivot section of the pair of main members and pivotally joining the pair of main members whereby the first and second generally rectangular cutouts of one jaw section oppose the first and second generally rectangular cutouts of the other jaw section when the reversible hose clamp tool is in



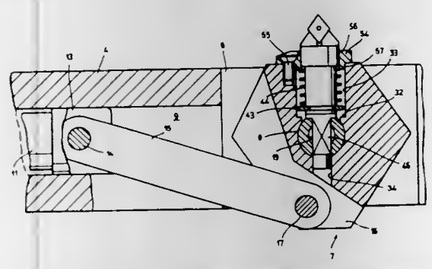
a closed position resulting in three generally cross-shaped openings.

5,209,144
DUAL-PURPOSE QUICKLY ADJUSTABLE WRENCH
Lu Guoji, Rm. 1401, Building No. 12, Anwaianhuilisanqu, Beijing, China 100012, P.R.C.
Filed Apr. 16, 1992, Ser. No. 869,295
Claims priority, application China, Apr. 19, 1991, 91206144.8
Int. Cl.[5] B25B *13/14*
U.S. Cl. 81—165 1 Claim



1. A dual-purpose adjustable wrench comprising:
a wrench body having an integrally formed fixed jaw at a first end extending outwardly from said wrench body, said wrench body having a rectangular aperture extending through said body, said aperture having a pair of opposing longitudinal side walls, each side wall having a groove extending from a surface of said wrench body, said wrench body further having a slot transverse to said rectangular aperture;
a movable jaw slidable and reversibly received in said transverse slot of the wrench body, said movable jaw including a flat first lateral side and a second lateral opposite side for cooperating with said longitudinal face of said fixed jaw, and a gear rack on a lower side of said movable jaw and being slidably received in said transverse slot;
a clutch means pivotally mounted in said rectangular aperture, said clutch means comprising a holder, a worm gear rotatably mounted on a worm gear shaft, said worm gear shaft mounted in said holder and having first and second rectangular ends, each end extending from said holder and being removably received in said grooves in the side walls of the aperture, a push plate integral with said holder, and a pivot pin mounted in said rectangular aperture and pivotally supporting said holder to pivot said worm gear from a first position engaging said gear rack to a second position disengaging said gear rack whereby said movable jaw can slide freely in said transverse slot and be removed from said wrench body;
a toothed element having a first end and second end and a longitudinal outwardly facing toothed lateral side, a pivot pin pivotally connecting said first end to said movable jaw, and a spring received in a blind hole in said toothed element to spring bias said second end of said toothed element away from said movable jaw.

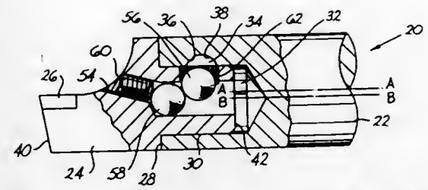
5,209,145
SPHERICAL BORING TOOL
Adolf Baudermann, Nuertingen, Fed. Rep. of Germany, assignor to Cross Europa-Werk GmbH, Wendlingen, Fed. Rep. of Germany
Filed Feb. 5, 1992, Ser. No. 831,693
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1991, 4104474
Int. Cl.[5] B23B *5/40*
U.S. Cl. 82—1.5 21 Claims



1. A device (1) for boring spherically curved workpiece inner surfaces comprising a main body (4) having an axis of rotation (3), a swivel housing (7) mounted for swivel motion in said main body (4), an axle bolt (8) mounted in said main body (4), said axle bolt having a longitudinal axis extending along the length thereof, said longitudinal axis being at right angles to said axis of rotation (3); said axle bolt (8) extending through a bore in said main body and through said swivel housing (7) to mount said swivel housing (7) for swivel motion in said main body; an arrangement of rods (11, 15) forming a linkage driving said swivel housing in said main body (4); a cutting tool holder (35) carried by said swivel housing (7) having a longitudinal axis extending radially into said axle bolt, said cutting tool holder (35) being radially adjustable relative to said axle bolt (8); bias means urging said cutting tool holder in a direction towards said axle bolt (8); a wedge surface (28) on said axle bolt cooperating with a wedge surface on said cutting tool holder (35) for radial adjustment of said cutting tool holder (35) by said member relative to said axle bolt (8) against said bias means, and an actuating means (23) for adjusting said wedge surface, comprising means mounting said axle bolt (8) for displacement in said main body (4) along said longitudinal axis thereof in said swivel housing (7), said axle bolt (8) rotationally fixedly mounted in said swivel housing (7).

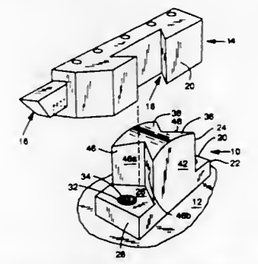
5,209,146
BALL LOCK APPARATUS FOR SMALL DIAMETER TOOLHOLDERS
William D. Armbrust, Cary, and Harold J. Royal, Raleigh, both of N.C., assignors to Kennametal Inc., Latrobe, Pa.
Filed Oct. 15, 1991, Ser. No. 777,885
Int. Cl.[5] B23B *29/00*
U.S. Cl. 82—160 24 Claims

1. A cutting toolholder assembly for holding a cutting tool used in a material removal operation, the assembly comprising:
a locking component containing a bore substantially defined by a bore wall, said bore having an opening at one end thereof;
said bore wall containing at least one recess therein;
a tool holding component including a shank whereby the bore receives the shank, said shank containing a compartment;
a locking assembly being contained within said compartment, said locking assembly including at least one locking member and positioning means for positioning the locking member into engagement with its corresponding recess;



said positioning means being internal to the shank compartment and accessible from a surface of the tool holding component not obstructed by the locking component and said recess being of a configuration corresponding to the shape of the locking member and adapted to restrict all movement within the bore of that locking member such that when the locking member engages the recess, the recess restrains the locking member so that there is essentially no movement between the older component and the locking component during a material removal operation.

5,209,147
STAND FOR LATHING TOOL HOLDER
Steven W. Hawkins, 7812 SE. Harney St., Portland, Oreg. 97206, and Marvin L. Estes, 2313 NW. Eleven Mile Ave., Gresham, Oreg. 97030
Filed Aug. 15, 1989, Ser. No. 394,219
Int. Cl.[5] B23B *29/12, 29/24*
U.S. Cl. 82—161 7 Claims



1. A stand for supporting a lathing tool holder, comprising:
a support base; and
a support member projecting outwardly from the base and having a cross sectional shape that defines a pair of connected trapezoids with major bases that are substantially parallel to each other, the support member being configured to support articles that have trapezoidal grooves formed therein, and in which the pair of trapezoids have a common minor base.

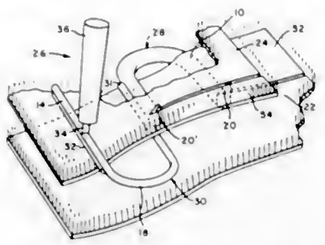
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5,209,148

CARPETING CUTTER FOR USE IN SEAMING WALL-TO-WALL CARPETING AND METHOD FOR USING THE SAME

Lea MacDonald, Kingston, Canada, assignor to Orcon Corporation, Union City, Calif.

Filed Jul. 27, 1992, Ser. No. 919,927
Int. Cl.[5] B26B *27/00*
U.S. Cl. 83—56 25 Claims



10. A carpet cutter for simultaneously cutting along the underside of overlapping edges of two pieces of carpet to produce substantially matching, closely abutting edges which can be seamed, the carpet cutter comprising:

an elongated first arm;

an elongated second arm substantially parallel to the first arm;

the first arm and the second arm together defining an arm plane;

a generally planar first blade having a first cutting edge and mounted on the first arm;

a generally planar second blade having a second cutting edge and mounted on the second arm;

the first blade and the second blade aligned and defining a blade plane substantially perpendicular to the first arm, the second arm, and the arm plane;

a third arm lying parallel with and close to the arm plane;

the first arm, second arm, and third arm forming an array having a front edge corresponding to the first arm, a back edge corresponding to the third arm, a first edge and a second edge, whereby a first carpet edge may be inserted between the first arm and the second arm, and a second, overlapping carpet edge may be inserted between the second arm and the third arm;

a first cross member joining the first arm to the second arm at the first edge of the array, and

a second cross member joining the second arm to the third arm at the second edge of the array to form the general "S" shape; and

a handle attached to the third arm for the user to manipulate the cutter.

25. A method for simultaneously cutting two adjacent pieces of carpeting which overlap along one edge to produce closely matching abutting edges between the two carpet pieces, the carpeting having a backing portion and a pile portion and oriented with the backing portion lying against a surface to be carpeted and with the pile portion extending away from the surface to be carpeted, using a carpeting cutter having an elongated first arm, an elongated second arm substantially parallel to the first arm, the first arm and the second arm together defining an arm plane having a first end, a second end, and a back end corresponding to the second arm, a first cross member joining the first arm to the second arm at the first end of the arm plane to form a first opening to receive a first piece of carpeting at the second end of the arm plane, a second cross member extending away from the second arm at the second end of the arm plane to form a second opening to receive an overlapping piece of carpeting at the first end of the arm plane, a means for exerting a force against the pile portion of the second piece of carpeting adjacent to the back end of the arm plane, a first blade having a point and a cutting edge mounted on the first arm, a second blade having a point and a cutting edge mounted on the second arm, the first and second blades being aligned in a blade plane substantially perpendicular to the first arm, the second arm, and the arm plane, and a means for moving the cutter, the method comprising the steps of:

placing the edge of the underlying piece of carpeting into the first opening so that the backing portion of the first piece of carpeting lies over the first arm;

placing the edge of the overlapping piece of carpeting into the second opening so that the backing portion of the second piece of carpeting lies over the second arm;

placing the arm plane in a substantially horizontal position so that the second arm pushes against the pile portion of the first piece of carpeting and the means for exerting a force pushes against the pile portion of the second piece of carpeting, such that the point of the first blade is inserted into the backing portion of the first piece of carpeting, causing the cutting edge of the first blade to engage the backing portion of the first piece of carpeting, and such that, at substantially the same time, the point of the second blade is inserted into the backing portion of the second piece of carpeting, causing the cutting edge of the second blade to engage the backing portion of the second piece of carpeting;

moving the cutter in a direction substantially perpendicular to the first and second arms and along the overlapped edges of the carpeting to cut the backing portion of the carpeting along a single seam line; and,

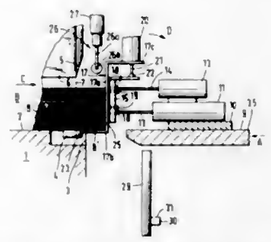
removing the pieces cut from the edges of the carpeting by the cutter.

5,209,149

APPARATUS FOR THE CUTTING OF STACKED SHEET-LIKE MATERIAL

Wolfgang Mohr, Hundshager Weg 42,D-6238, Hofheim/-Taunus, Fed. Rep. of Germany

Filed Apr. 24, 1991, Ser. No. 690,652
Claims priority, application Fed. Rep. of Germany, Apr. 25, 1990, 4013352
Int. Cl.[5] B26D *7/01, 7/18*
U.S. Cl. 83—91 22 Claims



1. An apparatus for cutting stacked sheet-like material, comprising:

a table (1) having a surface upon which said material may be laid, said table surface comprising an entry zone which is an area of the table surface where material to be cut first enters the table, and a work zone (2) which is an area of the table surface where the material is cut;

a cutting knife (5) and a press bar (6) located above said work zone, wherein said cutting knife is operatively arranged to cut the material;

an advance device for advancing the stack of material into the work zone in the direction of the cutting knife;

a further table part (9) having a slide (10) slidably mounted thereto;

a first straight guide (17), tiltably mounted to said slide about a horizontal axis, and physically located between said table and said further table part, said guide being movable relative to the work zone to form a gap therebetween, and

operatively arranged to support the stack of material during cutting and to subsequently maintain the cut stack in an erect position;

a second straight guide (29) initially located under said further table part and operatively arranged to be raised into a working position between said work zone and said first guide after said gap has been formed, to form a transverse channel between said first and second straight guides within which channel the cut material is located;

a holding-down device (26) for securing the cut material in place upon said first guide; and

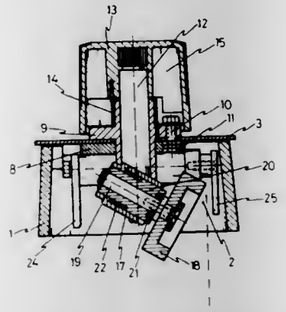
an ejector element (33) movable within said transverse channel, said ejector element being operatively arranged to remove the cut material from said transverse channel.

5,209,150

SHARPENING DEVICE FOR COLD CUTS CUTTING MACHINES

Luis Arconada Arconada, Avda. Sancho El Sabio, 26 - 1° C, San Sebastian, Spain 20010

Filed Dec. 9, 1991, Ser. No. 805,490
Claims priority, application Spain, Mar. 11, 1991, 9100739
Int. Cl.[5] B26D *7/12*
U.S. Cl. 83—174 6 Claims



1. A sharpening device for a cold cuts cutting machine, said cutting machine having a cutting blade, said sharpening device comprising:

A frame mounted to said device;

a cover mounted on said frame;

a first support mounted to said cover, said first support having a cylindrical body penetrating said cover in a vertical direction, said first support having a center hole;

a first shaft within said cylindrical body, said first shaft having a control end and a support end;

means for spring mounting a sharpening wheel to said support end, said means for spring mounting mounted on said support end;

a sharpening wheel rotatably mounted to said means for spring mounting;

spring means mounted on said control end;

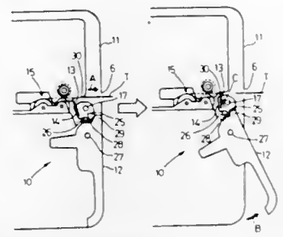
said sharpening wheel positioned such that upon rotation of said control end, said sharpening wheel will be brought into contact with said cutting blade, and upon releasing said control end, said spring means will cause said sharpening wheel to disengage from said cutting blade, said cutting blade being under said cover.

5,209,151

TAPE CUTTER

Yukihito Takagi, Kasugai; Shigeru Nakata, and Takashi Miki, both of Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Nov. 15, 1991, Ser. No. 792,412
Claims priority, application Japan, Dec. 6, 1990, 2-400146[U]
Int. Cl.[5] B41J *3/38;* B65H *35/06*
U.S. Cl. 83—564 11 Claims



1. A tape cutter, comprising:

a tape feeding mechanism for feeding a tape on which characters from a group including letters, numbers and symbols are printed or impressed in a predetermined direction;

a slidable cutter blade holding member rotatably mounted to a first shaft fixed in a main body of the tape cutter;

a cutter blade mounted in said cutter blade holding member for cutting the tape;

a pressing mechanism rotatably mounted around a second shaft in said main body for moving said cutter blade toward a tape face so as to press a cutting edge of the cutter blade against the tape face; and

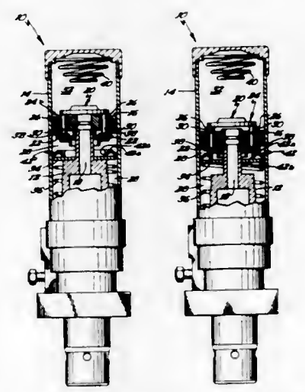
a slide mechanism for moving the cutter blade in a direction of the tape width when the cutter blade is moved toward blade holding member which has a notch portion cut off slantwise with respect to an upper face of said cutter blade holding member and said pressing mechanism has a projection which engages the notch portion.

5,209,152

AIRFOIL CHANGEOVER DEVICE

Andrew M. Olson, Villa Park, Ill., assignor to Graco, Inc., Minneapolis, Minn.

Filed Mar. 31, 1992, Ser. No. 861,609
Int. Cl.[5] F01L *15/02*
U.S. Cl. 91—50 2 Claims



1. In an air-operated reciprocating piston pump having a hollow center displacement rod comprising a top end with a

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piston located about said top end and a valve assembly comprising top and bottom air intake plates located above and below said piston respectively, said intake plates being attached to each other by spacers passing through a plurality of circumferentially spaced air passages in said piston, the improvement comprising means for increasing and utilizing air velocity during bottom changeover to increase axial changeover force and reliability, said velocity increasing means comprising an annular airfoil comprising a chevron cross-section with a base facing axially downward and an apex facing axially upward, said airfoil being located beneath said bottom air intake plate.

5,209,153

PORTABLE HYDRAULICALLY OPERATED DEVICE INCORPORATING AUTOMATIC DRAIN VALVE

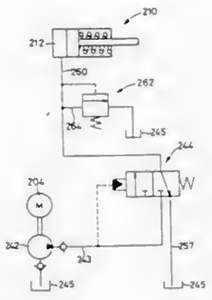
Masaharu Araki, Aichi, and Toshiyuki Kumazaki, Inuyama, both of Japan, assignors to Daia Industry Co., Ltd., Aichi, Japan

Division of Ser. No. 569,004, Aug. 17, 1990, Pat. No. 5,125,324. This application Apr. 14, 1992, Ser. No. 868,329

Claims priority, application Japan, Feb. 28, 1990, 2-20770; Mar. 30, 1990, 2-35381

Int. Cl.[5] F15B *11/08, 13/04*

U.S. Cl. 91—433 10 Claims



1. A hydraulically operated device comprising:

a working tool;

a single-acting cylinder having a piston for operating said working tool, a pressure chamber for applying a hydraulic pressure to move the piston from an original position to an operated position, and a return spring for biasing the piston toward the original position;

a housing which carries said single-acting cylinder;

a handle fixed to said housing for holding said hydraulically operated device;

a hydraulic pump incorporated in said housing, for delivering a pressurized fluid to be fed into said pressure chamber of said single-acting cylinder;

an electric motor incorporated in said housing, for operating said hydraulic pump;

a switch carried by said handle, for turning on and off said electric motor; and

an automatic drain valve, incorporated in said housing, for inhibiting the pressurized fluid from being discharged from said pressure chamber of said cylinder while a difference by which a delivery pressure of said hydraulic pump is higher than a pressure in said pressure chamber exceeds a predetermined value, said automatic drain valve allowing the pressurized fluid to be discharged from said pressure chamber when said difference is reduced to a value smaller than said predetermined value, whereby said pressure chamber is automatically drained when said hydraulic pump is turned off with said motor turned off by said switch.

5,209,154

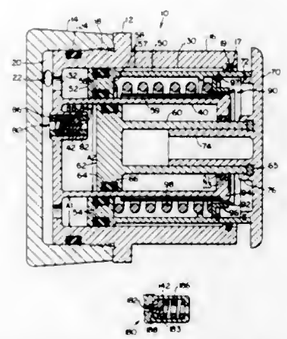
DUAL AREA BRAKE ACTUATION PISTON MECHANISM

Raymond J. Black, South Bend, Ind., assignor to Allied-Signal Inc., Morristown, N.J.

Continuation of Ser. No. 610,671, Nov. 8, 1990, abandoned. This application Feb. 10, 1992, Ser. No. 830,978

Int. Cl.[5] F15B *11/00*

U.S. Cl. 91—519 22 Claims



4. A dual area brake actuation piston mechanism, comprising a housing defining separately therein first and second bores substantially isolated from one another, the second bore disposed within and coaxial with said first bore, a first piston disposed in said first bore and extending exteriorly from the housing and first bore to a piston end, a second piston disposed within said second bore and extending exteriorly to said piston end, the pistons each attached fixedly to the piston end, a manifold chamber defined only by the housing and communicating with respective first and second bore openings in the housing to permit fluid flow communication with said bores, and the second bore opening containing valving means which controls fluid flow into said second bore, so that fluid pressure communicated with said bore openings causes said first piston to displace said piston end and increased fluid pressure causes said second piston to be displaced against said piston end such that the piston end is displaced conjointly by both pistons.

5,209,155

RADIAL PISTON ENGINE

Mattias Szewczyk, Witten, Fed. Rep. of Germany, assignor to Paul Pleiger Maschinenfabrik GmbH & Co. KG, Witten, Fed. Rep. of Germany

Filed Dec. 12, 1991, Ser. No. 806,879

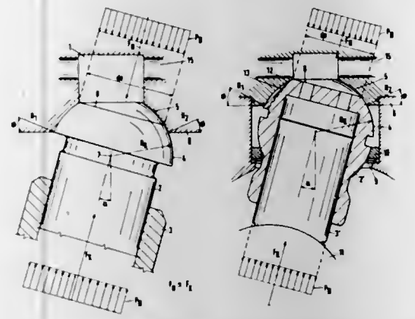
Claims priority, application Fed. Rep. of Germany, Dec. 19, 1990, 4040738

Int. Cl.[5] F01B *13/06*

U.S. Cl. 92—58 9 Claims

1. In a radial piston engine having a rotatable eccentric with a peripheral surface, a piston bearing against said peripheral surface of the eccentric for being driven by said eccentric during rotation thereof, a guide body slidably engaging said piston, said guide body having a longitudinal axis and guiding said piston for travel longitudinally of said guide body, said guide body having an outer end remote from said eccentric of convex spherical shape, a housing means having a surface of concave spherical shape which receives said outer end of convex spherical shape of said guide body and supports the same for swivelling movement, said housing means having an opening which communicates with said surface of concave spherical shape, said opening receiving a pressure medium which applies pressure to said outer end of said guide body, said outer end of said guide body undergoing swivelling movement through an angular travel in opposite directions as said piston undergoes longitudinal travel in said guide body, the improvement wherein:

said outer end of said guide body has an end face which is subjected to the pressure of said pressure medium, said end face being formed to expose a portion of said surface



of concave spherical shape of said housing means to said pressure medium during the swivelling movement of said outer end of said guide body through its entire angular travel in opposite directions to produce a force on said end face acting in the longitudinal direction of said guide body of substantially constant magnitude.

5,209,156

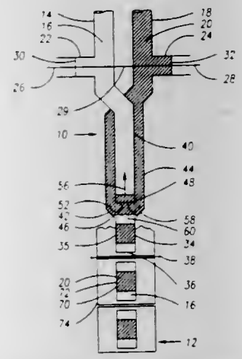
EXTRUDING AND CUTTING FROZEN CONFECTIONS CONTAINING EDIBLE PARTICULATES

Marco H. Lombard, 1704 Thousand Oaks Cir., Austin, Tex. 78746

Filed Oct. 31, 1991, Ser. No. 786,247

Int. Cl.[5] A23G *9/00, 9/04, 9/22*

U.S. Cl. 99—450.1 13 Claims



1. An apparatus for manufacturing an extruded frozen confection, comprising;

(a) a first conduit disposed to accept from suitable blender means, a first flow of a first material, and

(b) a first diverter means opening into said first conduit is disposed to enable the extraction or injection of said first material into or out of said first conduit at a rate equal to or greater than said first flow, forming a first intermittent flow downstream in said first conduit, and,

(c) a second conduit disposed to accept from suitable blender means, a second flow of a second material, and,

(d) a confluence of said first conduit and said second conduit, downstream from where said first diverter means joins said first conduit, whereby when said first diverter means is extracting said first material from said first conduit at a rate greater than said first flow, said first material cessates its entry into said confluence and reverses direction to flow towards said first diverter means, thus allowing a transverse section of said confluence to be filled exclusively with said second material from said second conduit, and alternatively when said first diverter means is injecting said first material into said first conduit, a section of said confluence is filled with said first material from said first conduit.

5,209,157

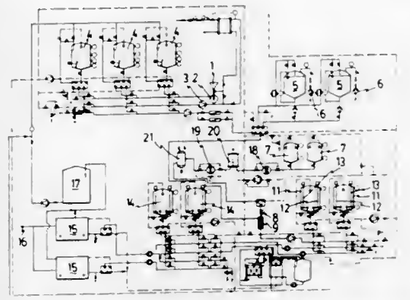
PLANT FOR OBTAINING DAIRY PREPARATION

José Sanchez Rodriguez, Las Palmas De Gran Canaria, Spain, assignor to Jose Sanchez Penate, S.A., Las Palmas De Gran Canaria, Spain

Division of Ser. No. 604,886, Oct. 29, 1990. This application Jan. 15, 1992, Ser. No. 821,754

Int. Cl.[5] A23C *19/02, 9/00*

U.S. Cl. 99—455 6 Claims



1. An apparatus for obtaining a dairy preparation consisting of a homogeneous mixture of liquid skim milk and vegetable oil with an oil content not exceeding 4 g per 100 ml. of the preparation, the apparatus comprising a powdered milk feeder hopper, a mixing pump, a circulation pump, a first holding tank containing hot water wherein powdered milk is gradually reconstituted to attain a suitable proportion, means to convey the powdered milk from said hopper to said tank, a milk deaerator, means to convey the reconstituted milk from said tank to said deaerator, emulsification means, an emulsifier tank capable of supplying emulsifier to the reconstituted milk to produce a water/oil emulsion, means for conveying milk from said deaerator to said emulsification means, means for conveying emulsifier from said emulsifier tank to said emulsification means, conveying said product discharging from said emulsification means through a static mixer and a dynamic mixer to produce an emulsified product, a standardization tank, means for conveying said product from said dynamic mixer to said standardization tank, means for adding liquid product to said standardization tank operably connected thereto, a storage tank having stirrer means located therein, means for conveying product from said standardization tank to said storage tank, means to convey product from said storage tank to ultrahigh temperature pasteurizing means, homogenizing means, means for conveying product from said pasteurizing means to said homogenizing means, cooling means, conveying means to convey the product from said homogenized means to said cooling means, packaging means and means for conveying product from said homogenizing means to said packaging means.

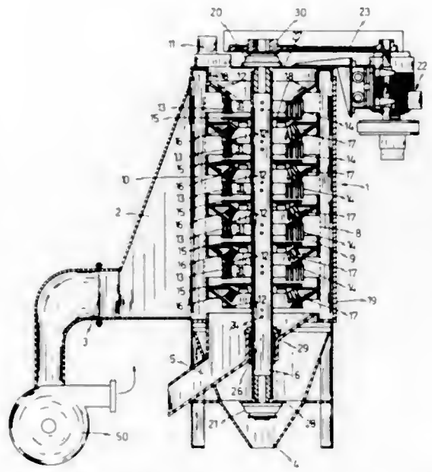
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,158

GRAIN CLEANING AND POLISHING MACHINE

Felipe Salete, Av.Año de Juarez No. 198, Col. Granjas San Antonio, Iztapalapa, 09070, Mexico

Filed Aug. 21, 1992, Ser. No. 933,074
Int. Cl.[5] B02B 3/00, 3/04, 3/06
U.S. Cl. 99—519 8 Claims



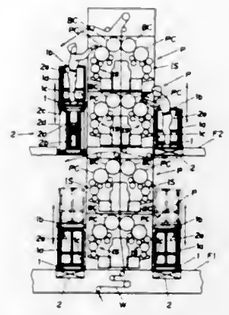
1. A grain cleaning and polishing machine which comprises a vertical housing; a cylindrical screen concentrically arranged within said housing at a distance therefrom sufficient to leave an annular space therebetween; a vertical hollow shaft rotatably mounted at the central axis of said inner space defined by the screen; drive means coupled to said rotatable shaft to impart a rotational movement thereto; at least one treatment chamber arranged within the inner space defined by said screen, said at least one treatment chamber including an upper frusto conical stationary baffle provided with a central opening and having at least one stationary brush and at least one set of stationary flexible fingers vertically hanging from its lower surface, and a rotatable disc coupled and supported by said central shaft to rotate in unison therewith, said rotatable disc being arranged in a horizontal position and with its upper surface directly confronted with the lower ends of said at least one stationary brush and said at least one stationary set of flexible fingers at a short distance therefrom, the lower surface of said rotatable disc having at least one downwardly extending projection provided with downwardly and inwardly extending end brackets, one of said end brackets supporting a downwardly and outwardly extending rotatable brush and the other of said end brackets supporting a downwardly and outwardly extending rotatable set of flexible fingers; a lower or outlet frusto conical stationary baffle having a central opening and arranged such that the upper conical surface thereof is directly confronted with the lower ends of said at least one rotatable brush and said at least one rotatable set of flexible fingers at a short distance therefrom; means for feeding grains above said upper stationary baffle; means for discharging treated grains below said outlet stationary baffle; and means for forcing an air stream to circulate from the hollow shaft through perforations provided therein into the said at least one treatment chamber, through said screen and outwardly of the machine through the space between said screen and said housing.

5,209,159

PRINTING PRESS

Kiyohisa Asanuma, Kawasaki, Japan, assignor to Tokyo Kikai Seisakusho, Ltd., Tokyo, Japan

Filed Apr. 28, 1992, Ser. No. 875,638
Claims priority, application Japan, Jun. 21, 1991, 3-175921
Int. Cl.[5] B41J 1/60
U.S. Cl. 101—112 5 Claims



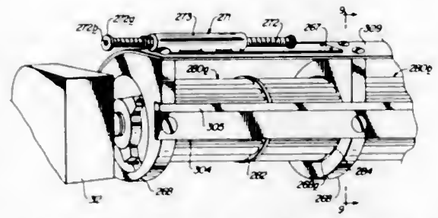
1. A printing press, comprising:
a plurality of stages of press units that are stacked;
operation floors provided for the press units;
operation floor hoist means for moving the operation floors up and down, said operation floor hoist means positioned below the operation floors;
a curtain connected along at least three sides of the operation floors for shielding the space below the operation floors when moved upward; and
a safety fence provided around at least three sides of the operation floors.

5,209,160

BLOWER MOUNTING FOR DAMPENING FLUID EVAPORATOR

Maurice D. Smith, 4440 Northcrest, Dallas, Tex. 75229

Continuation-in-part of Ser. No. 622,323, Nov. 28, 1990, Pat. No. 5,085,142, which is a continuation of Ser. No. 165,519, Mar. 8, 1988, abandoned. This application Feb. 4, 1992, Ser. No. 830,945
The portion of the term of this patent subsequent to Feb. 4, 2009, has been disclaimed.
Int. Cl.[5] B41F 7/26, 7/36
U.S. Cl. 101—148 12 Claims



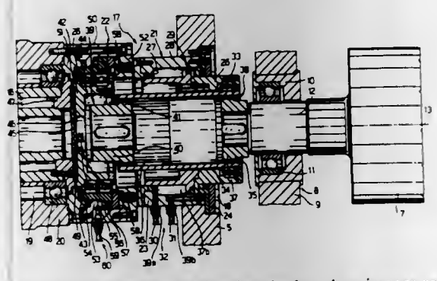
1. A method of evaporating liquid from the surface of a roller which rotates about an axis in a printing press comprising the steps of: mounting an elongated transflow blower housing spaced from and parallel to the axis about which the roller in the printing press rotates such that opposite ends of the elongated transflow blower housing are positioned adjacent opposite ends of the roller; supporting a plurality of fan means end to end in the blower housing such that fan blade means extend longitudinally of substantially the entire length of the roller such that ends of the blade means are positioned adjacent opposite ends of the roller in the printing press; and driving the fan blade means to draw and deliver air transversely of the roller while minimizing air flow in a direction parallel to the axis of the transflow blower housing.

5,209,161

METHOD OF MUTUALLY ADJUSTING SINGLE-COLOUR IMAGES ON A MULTICOLOUR ROTARY PRINTING PRESS

Ezio Derivi, Ivrea, and Domenico Barbero, Villata, both of Italy, assignors to Officine Meccaniche G. Cerutti S.p.A., Casale Monferrato, Italy

Filed Jul. 18, 1991, Ser. No. 732,066
Claims priority, application Italy, Jul. 20, 1990, 67573 A/90
Int. Cl.[5] B41F 13/14, 5/06
U.S. Cl. 101—211 5 Claims



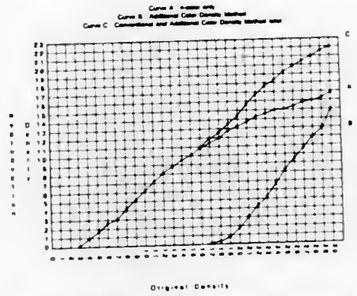
1. A method of mutually adjusting single-colour images on a multicolour rotary printing press (1), said single-colour images being printed on a continuous strip (3) by respective printing cylinders (7) on respective printing units (2) arranged in series along the path of said strip (3) and series connected to a single transmission (15) powering said printing cylinders (7); wherein said method comprises stages consisting in selecting a reference cylinder (7a) from among said printing cylinders (7); disconnecting said transmission (15) and one of said printing cylinder (7) for adjustment; and reconnecting said transmission (15) and said disconnected printing cylinder (7) for adjustment upon said reference cylinder (7a), powered by said transmission (15); eliminating any difference in timing in relation to said disconnected printing cylinders (7) for adjustment; wherein each said printing cylinder (7) is disconnected and connected to said transmission (15) by means of a connecting and timing unit (17) located between a respective printing cylinder (7) and said transmission (15), each said connecting and timing unit (17) comprises first (38) and second (49) connecting means arranged in series for transmitting a torque to a respective said printing cylinder (7); said disconnection and said connection involving only one of said connecting means (38, 49); wherein, for each said printing unit (2), said transmission (15) comprises an output shaft (16) coaxial with a respective said printing cylinder (7); each said connecting and timing unit (17) comprising a first (21) and second (22) pneumatic actuator for said first (38) and second (49) connecting means respectively; and second connecting means (49) being connected to said output shaft (16), and said second actuator (22) being activated for effecting said disconnection and said connection; and wherein each said first pneumatic actuator (21) is a double-acting actuator comprising a cylinder (23) and a piston (29) moving inside said actuating cylinder (23) between a first and second position; said piston (29) comprising an inner tubular member (34) coaxial with and rotating about its axis in relation to said actuating cylinder (23); said tubular member (34) presenting a splined inner portion (35); key means (37) being provided on a respective said printing cylinder (7); said key means (37) being connected to and disconnected from said splined portion (35) of said tubular member (34) when said piston (29) is set respectively to said first and said second position; and said key means (37) defining, with said splined portion (35), said first connecting means (38).

5,209,162

ADDITIONAL COLOR DENSITY METHOD

Jeffrey R. Whitbey, P.O. Box 311, Rochester, Mich. 48308

Filed Oct. 7, 1991, Ser. No. 772,099
Int. Cl.[5] B41M 1/18, 1/14
U.S. Cl. 101—211 1 Claim



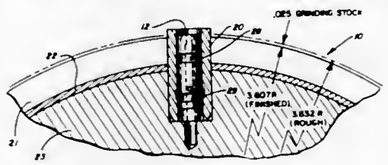
1. A process of producing an enhanced multicolor image comprising:
(a) making a first set of color plates;
(b) plotting reproduction density against original density to create a first tone curve representative of an image produced by said first set of color plates;
(c) establishing a reasonable maximum density obtainable for the preproduction density when the time is printed with a second set of color plates in addition to said first set of color plates;
(d) adding the established density of step (c) to the reproduction density of the fist tone curve and plotting it against original density to create a second, smooth tone curve;
(e) ascertaining the density needed in addition to that of the first tone curve to form an image representative of the second tone curve;
(f) making a second set of color plates comprising the necessary density determined in step (e);
(g) printing an image using both the first and second sets of color plates to produce an enhanced multicolor image.

5,209,163

PRINTING CYLINDER WITH RETRACTABLE PLATE REGISTER PIN AND METHOD OF ASSEMBLY

Ronald Banike, Orland Park, Ill., assignor to R. R. Donnelley & Sons Company, Lisle, Ill.

Continuation of Ser. No. 826,978, Feb. 7, 1986, abandoned. This application Oct. 23, 1989, Ser. No. 426,510
Int. Cl.[5] B41F 27/00
U.S. Cl. 101—483 16 Claims



13. The method of assembly of a retractable plate register pin with a printing cylinder, comprising:
drilling a hole in an outer surface portion of the cylinder;
inserting a bushing and pin in said hole, with the pin re-

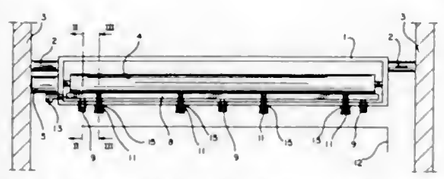
VOL 1150 ISS 2 MY 11 1993 UMI

tracted in the bushing, said bushing and pin extending to above said outer surface portion of the cylinder;
finishing the outer surface portion of the cylinder; and
causing the bushing and pin to be flush with the finished surface of the cylinder.

5,209,164
MECHANISM FOR SELECTIVELY ENGAGING THE DOCTOR BLADE WITH THE WASHER ROLLER IN A WASHER FOR A PRINTING PRESS BLANKET CYLINDER

Klaus Durrnagel, Taunusstein-Bleidenstadt, and Claus Simeth, Geisenheim-Johannisberg, both of Fed. Rep. of Germany, assignors to MAN Roland Drucksmaschinen AG, Fed. Rep. of Germany

Filed Jun. 5, 1992, Ser. No. 893,986
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1991, 4118527
Int. Cl.[5] B41F *35/06*
U.S. Cl. 101—425 **10 Claims**



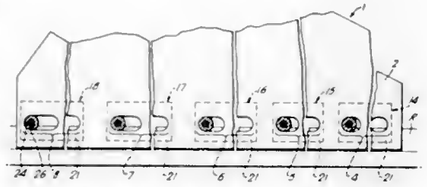
1. A doctor blade actuation mechanism for a blanket cylinder washer of a printing press having a blanket cylinder journalled in the press frame with a washer roller rotatably mounted in an elongated washer trough movably mounted on the press frame for permitting selective engagement of the washer roller with the blanket cylinder and a source of washer fluid communicating with the washer trough for supplying washer fluid to the washer roller, comprising, in combination,
an elongated doctor blade disposed in said trough and substantially coextensive in length with said washer roller,
a guide means for supporting said doctor blade for movement into and out of engagement with the surface of said washer roller, said guide means including a plurality of guide pins secured to said doctor blade and slidably mounted in said trough in spaced apart locations along the length thereof,
and actuating means including a plurality of actuators interposed between said doctor blade and said trough in spaced-apart locations along the length thereof for selectively moving said doctor blade into engagement with said washer roller independent of said selective engagement of said washer roller with said blanket cylinder.

5,209,165
BUFFER STOP

Andrew R. Foan, Bramcote, England, assignor to Bicc Public Limited Co., England

Filed Oct. 18, 1991, Ser. No. 781,067
Int. Cl.[5] B61K *7/18*
U.S. Cl. 104—259 **9 Claims**

1. A buffer stop for use on a permanent track of a railway comprising a buffer structure including a pair of transversely spaced side walls each adapted to extend lengthwise of and adjacent to one rail of the permanent track and having spaced from the lowermost edge a plurality of slots mutually spaced along the length of the side wall, each slot of one side wall extending substantially parallel to the adjacent rail and being directly opposite to and of substantially the same length as a substantially identical slot in the other side wall, and a plurality of pairs of transversely spaced two-part clamps for detachably securing the side walls of the buffer structure to the rails of the permanent track at spaced positions along the lengths of the side walls, each two-part clamp of each pair comprising a pair of plates which are disposed on opposite sides of one side wall of the buffer structure and are adapted to be clamped in direct contact with opposite sides of the adjacent rail by at least one clamping bolt which passes through one of the mutually spaced slots in said wall, the slots engaged by the bolts of the two-part clamps of each pair of clamps being substantially identical in length and the slots engaged by the bolts of the two-part clamps of each pair of clamps, except a first and upstream pair of clamps at an upstream end of the buffer structure, being greater in length than the slots engaged by the bolts of the two-part clamps of an adjacent upstream pair of clamps; whereby, on impact of a train with the buffer stop, the side walls of the buffer structure will move a first predetermined distance with respect to the permanent track so that the upstream end walls of the slots engaged by the bolts of the two-part clamps of the pair of clamps at said upstream end of the



buffer structure will abut said bolts to cause the side plates of said two-part clamps to slide with respect to the rails of the permanent track and to cause the energy of the train to be absorbed by frictional resistance between the relatively sliding contacting surfaces of the rails and side plates of the clamps, and the side walls of the buffer structure will move at least one further predetermined distance with respect to the permanent track, so that the upstream end walls of the slots engaged by the bolts of the two-part clamps of each succeeding pair of clamps will abut said bolts to cause the side plates on said succeeding pair of clamps to slide with respect to the rails of the permanent track and to cause further energy of the train to be absorbed by frictional resistance between the relatively moving contact surfaces of the rails and side plates of said succeeding pair of clamps in addition to that being absorbed by the frictional resistance between the relatively moving contacting surfaces of the rails and side plates of each preceding pairs of clamps.

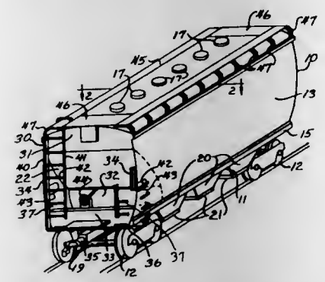
5,209,166
AERODYNAMIC SELF CLEANING HOPPER CAR

Eugene R. Tylisz, Michigan City, and Phillip G. Przybylinski, Schererville, both of Ind., assignors to Trinity Industries, Inc., Dallas, Tex.

Continuation of Ser. No. 446,042, Dec. 5, 1989, abandoned. This application Jun. 17, 1991, Ser. No. 715,726
Int. Cl.[5] B61D *17/02*
U.S. Cl. 105—1.1 **3 Claims**

1. An aerodynamic self clearing hopper car body supported by an undercarriage, comprising:
a roof sheet extending the length of the body;
end structures at each end of the vehicle body vertically extending from roof to undercarriage;
side sills extending longitudinally between the end structures;
chords at the edges of the roof, side sheets extending longitudinally between the end structures and extending vertically between the chords and side sills;
said side sheets having a contour being inwardly curved along the top and bottom lengths thereof and having intermediate lengths extending laterally outwardly so that the maximum width extends at least as far as the point of tangency of a vertical line from the chord to the side will

and enclosing said end structures for reduced aerodynamic drag,
said side sheets having smooth end extensions conforming to said contour of said side sheets and forming smooth, uninterrupted exterior side wall surfaces between the ends of the body,
a vertical end sheet extending between the curved side walls and having a bottom edge;
an end slope sheet sloping downwardly and away from the bottom edge of the end sheet and extending transversely between the curved side walls;

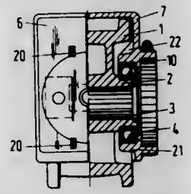


a vertical bolster web extending downwardly from a line on said end slope sheet intermediate the bottom edge of the end sheet and the bottom of the curved side sheets;
corner posts extending vertically between chord and sill, said corner post intersecting the side sheet curve with the point of tangency at the maximum width of the car;
a shear plate extending horizontally and outwardly from the web to corner post; and
an end sill extending from side wall to side wall at the corner posts and extending upwardly from the shear plate.

5,209,167
TROLLEY WHEEL ASSEMBLY AND HOUSING HAVING INJECTION MOLDED PLASTIC PARTS

Klaus Donner, Dohlenweg; Eberhard Becker, Westerwaldweg, and Roland Staggl, Brunnenweg, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Oct. 4, 1991, Ser. No. 771,981
Claims priority, application Fed. Rep. of Germany, Oct. 4, 1990, 4031685
Int. Cl.[5] B61F *3/16, 5/28*
U.S. Cl. 105—180 **17 Claims**

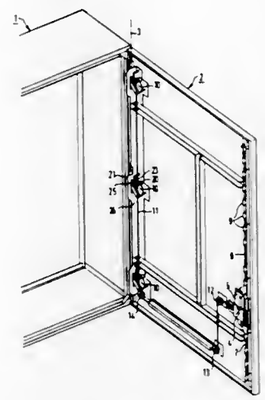


1. A wheel assembly for being mounted on a trolley, said wheel assembly comprising:
a housing comprising a first shell and a second shell, said first shell and said second shell being connected to one another to form said housing;
a wheel being mounted for rotational movement at least partly within said housing;
bearing means for guiding the rotational movement of said wheel;
at least one of:
means for interlocking said first shell and said second shell together; and
means for friction-locking said first shell and said shell together; and
means for friction-locking said first shell and said second shell together;
to connect said first shell and said second shell to form said housing;
said wheel comprising a central hub being disposed across said housing;
said bearing means comprising a plurality of bearings;
means for retaining said bearings towards said hub;
means for reinforcing said bearing means;
each of said first wheel and said second shell having an interior surface facing towards said wheel;
said reinforcing means being disposed on at least one of said first shell and said second shell; and
said reinforcing means comprising a plurality of spoke-like webs extending away from said retaining means along the interior surface of said at least one of said first shell and said second shell.

5,209,168
SECURE CLOSURE SYSTEM FOR METAL CABINET DOORS

Claude Chapron, Longjumeau; Alain Chappot, Bretigny Sur Orge, and Dominique Damas, Morigny Champigny, all of France, assignors to Compagnie Generale D'Automatisme CGA-HBS, France

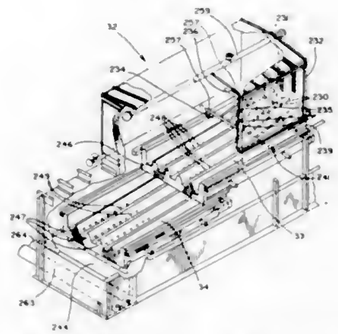
Filed Sep. 17, 1992, Ser. No. 945,948
Claims priority, application France, Sep. 20, 1991, 91 11615
Int. Cl.[5] E05G *1/04*
U.S. Cl. 109—59 T **3 Claims**



1. Security system for a hinged metal cabinet door comprising a latch adapted to be locked by a lock and to operate latching members of the door which comprise upper and lower strip members each having a plurality of hooks each of which, when said door is closed and latched, is engaged in an opening formed in a locking profiled member attached to said cabinet and at least one rotating sector whose rotation axis is perpendicular to the plane of said door and which, when said door is closed and latched, enters an opening in a longitudinal member attached to said cabinet, said sector(s) mounted on the same side of said door as the hinge(s), said sector(s) being operated in an unlatching direction by said latch through a cable and in a latching direction by a return spring.

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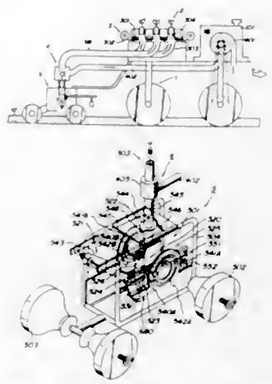
5,209,169
INCINERATOR IMPROVEMENTS
John N. Basic, Sr., 41 W. 202 Whitney Rd., St. Charles, Ill. 60175
Continuation-in-part of Ser. No. 60,761, Jun. 1, 1987, Pat. No. 5,007,353, which is a continuation-in-part of Ser. No. 659,849, Oct. 9, 1984, Pat. No. 4,706,578, which is a continuation of Ser. No. 362,853, Mar. 29, 1982, Pat. No. 4,475,469, which is a continuation-in-part of Ser. No. 248,054, Mar. 27, 1991, Pat. No. 4,438,705. This application Apr. 15, 1991, Ser. No. 685,630
Int. Cl.[5] B09B *3/00*; F23G *5/00*
U.S. Cl. 110—235 113 Claims



1. In an incinerator system for bulk refuse and hydrocarbon-containing liquids with an enclosed main chamber having a fire-resistant floor means for holding and burning material thereon, an inlet opening for the introduction of solid bulk refuse and an outlet opening for the egress of the gaseous products of combustion from said main chamber the improvement comprising (a) a grate, having openings therethrough and located within said main chamber, adjacent to said inlet opening, and above said floor means, for holding refuse newly introduced though said inlet opening above said floor means for a limited period of time and then allowing said refuse to drop through to said floor means while burning and (b) cooling means, coupled to said grate, for reducing the temperature of said grate, and (c) a refractory placed upon said grate.

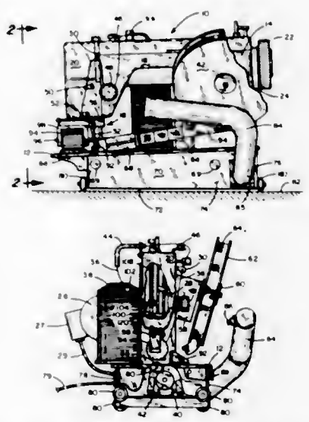
5,209,170
SETTING MACHINE
Etsuo Kobayashi, Suzaka, Japan, assignor to Shadan Hojin Naganoken Nokyo Chiiki Kaihatsu Kiko, Japan
PCT No. PCT/JP89/01338, § 371 Date Jun. 25, 1991, § 102(e) Date Jun. 25, 1991, PCT Pub. No. WO90/07263, PCT Pub. Date Jul. 12, 1990
PCT Filed Dec. 28, 1989, Ser. No. 691,030
Claims priority, application Japan, Dec. 29, 1988, 63-331325; Dec. 29, 1988, 63-331326; Jan. 31, 1989, 1-19427; Jan. 31, 1989, 1-19428; Jan. 31, 1989, 1-19429
Int. Cl.[5] A01C *11/02*
U.S. Cl. 111—105 24 Claims

1. A setting machine which includes a movable vehicle body comprising: seedling culture tray support means for supporting and holding stationary a seedling culture tray made of a synthetic resin having a plurality of cells containing seedlings to be transplanted; selector means for selectively taking the seedlings out of predetermined cells of said tray successively under negative pressure; seedling transfer means for forcibly transferring the taken out seedlings to a predetermined position under negative pressure, said transfer means including a transfer pipe having an upstream end for receiving the taken out seedlings and a downstream end horizontally offset with respect to said upstream end, and a negative pressure source connected to said transfer pipe at said downstream end for forcibly transporting the seedlings along said transfer pipe to the predetermined position; and transplanting means for receiving the seedlings transferred to the predetermined position thereat and transplanting them into ground, and wherein said selector means comprises selecting means formed with at least one selecting hole and means for moving said selecting means relative to the



stationary seedling culture trays in predetermined directions in a plane which is parallel with a bottom surface of the seedling culture tray to bring said at least one selecting hole into alignment with predetermined cells of the seedling culture tray successively.

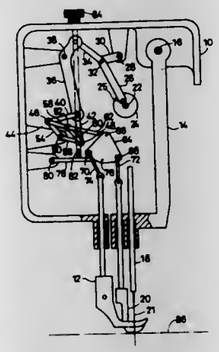
5,209,171
CARPET EDGE BINDING MACHINE
Martin L. Anderson, Rte. 3, Box 60, Maple Lake, Minn. 55358
Filed Apr. 21, 1992, Ser. No. 871,739
Int. Cl.[5] D05B *23/00*, *29/08*
U.S. Cl. 112—7 8 Claims



1. In a machine for sewing binding tape to a cut edge of floor carpeting, said carpeting having a pile surface on a backing layer, said machine comprising a supply of fabric binding tape, wheels, and having a baseplate supporting a machine arm on an upper side thereof, said machine arm having a needle assembly mounted therein and a drive motor for reciprocally moving said needle assembly in a generally vertical direction for generating stitches, carpet feeding means for engaging the carpeting to be bound, and means mounted on said baseplate for folding

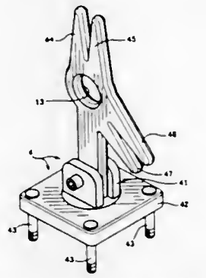
said binding tape over the cut edge of said carpet as said sewing machine is advanced along said edge of said carpet and said stitches are applied to said binding tape and carpet, the improvement wherein:
said feeding means consisting of a driving roller with a longitudinally serrated surface and being driven intermittently by said drive motor through a flexible shaft to engage said pile surface of said carpet and an idler roller for engaging said backing layer to advance said sewing machine along said edge of said carpet,
said driving roller being journaled for rotation about an axis offset slightly laterally of an axis of movement of said needle assembly and engages said carpet over an entire length of said roller a predetermined distance inward of said cut edge of said carpeting and out of lateral alignment with said needle assembly.

5,209,172
UPPER FABRIC FEED DEVICE FOR SEWING MACHINE, UTILIZING PARALLEL MOTION MECHANISM FOR RECIPROCATING FEED FOOT AND PRESSER FOOT
Yasuhiko Kawaguchi, Gifu; Yutaka Senda, Aichi; Masami Ito, Kagamihara; Hiroaki Onishi, and Yoichi Kumanda, both of Nagoya, all of Japan, assignors to Brother Kogyo Kabushi Kaisha, Aichi, Japan
Filed Apr. 6, 1992, Ser. No. 864,343
Claims priority, application Japan, Apr. 12, 1991, 3-108562
Int. Cl.[5] D05B *27/04*
U.S. Cl. 112—320 14 Claims



1. An upper fabric feed device for a sewing machine, including a frame, a feed foot for feeding a work fabric on a throat plate, a presser foot cooperating with the feed foot to hold the work fabric, and a feet reciprocating mechanism including a drive device, for alternately reciprocating the feed and presser feet to and from lower positions thereof at which said feed and presser feet contact said work fabric on said throat plate, said feet reciprocating mechanism comprising:
a first swing arm pivotally supported by said frame and pivoted alternately in clockwise and counterclockwise directions by said drive device;
a parallel motion mechanism including four motion links pivotally connected to each other so as to define a parallelogram having four apexes, said parallel motion mechanism being supported by said frame pivotally about a first one of said four apexes, said four motion links comprising a first pair of adjacent motion links which defines said first apex, and a second pair of adjacent motion links which defines a second one of said four apexes which is opposed to said first apex diagonally of said parallelogram;
a drive link mechanism including two drive links which pivotally connect said first swing arm to respective two motion links of one of said first and second pairs of adjacent motion links of said parallel motion mechanism;
a second swing arm pivotally supported by said frame;
a first connecting link pivotally connected to at least one of said second pair of adjacent motion links of said parallel motion mechanism;
a triangular lever connected to said first connecting link and said second swing arm;
a second connecting link and a third connecting link connecting said triangular lever to said feed and presser feet, respectively;
biasing means for biasing said feed and presser feet toward said throat plate; and
said feet reciprocating mechanism operating such that said feed and presser feet are both placed in said lower positions for contact with said work fabric on said throat plate, when said parallel motion mechanism has a smallest distance between said first and second apexes.

5,209,173
ELONGATE FITTING WITH AN EYE AND A "V"-CHANNEL FOR COMPRESSIVELY ENGAGING A ROPE, PARTICULARLY FOR CARGO TIE-DOWN
David A. Shell, 500 Rancheros Dr. #110, San Marcos, Calif. 92069
Continuation-in-part of Ser. No. 686,050, Apr. 16, 1991, abandoned. This application Jan. 8, 1992, Ser. No. 818,057
Int. Cl.[5] F16G *11/10*
U.S. Cl. 114—218 13 Claims



1. A generally elongated fitting having a first end adapted to be fastened to a structure and a second, opposite, end adapted to be releasably secured to a rope, the fitting comprising:
a central eye portion having an open eye extending therethrough;
a bar-shaped continuation of said central eye portion extending away from said central eye portion in a first direction;
support means connected to said bar-shaped continuation for securing said fitting to a structure;
said support means including spaced brackets adapted to receive said bar-shaped continuation therebetween and means to secure said bar-shaped continuation to said brackets in a manner permitting movement of said fitting relative to said structure;
first and second closely spaced arms secured to said central eye portion and extending away from said central eye portion in a second direction generally opposite to said first direction;
the adjacent sides of said first and second arms forming a generally V-shaped channel having an apex extending toward said open eye; and
third and fourth closely spaced arms secured to said central eye portion and extending away from said central eye portion in a third direction at an acute angle to said bar-like continuation;
the adjacent sides of said third and forth arms forming a generally V-shaped channel having an apex extending toward said central eye portion;

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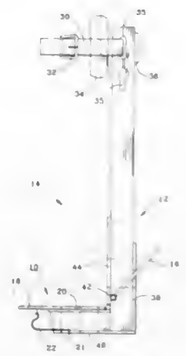
whereby said V-shaped channels are adapted to securely but releasably grasp a rope forcibly wedged thereinto.

5,209,174

MAST CLIMBING APPARATUS FOR SAILBOATS

Milby N. Hunt, 19 Manor Way, Galveston, Tex. 77550-3218

Filed Mar. 25, 1992, Ser. No. 856,634
Int. Cl.[5] B63B *15/00*
U.S. Cl. 114—93 20 Claims



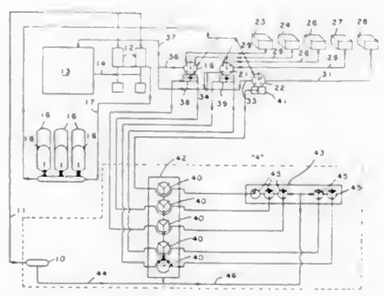
1. A mast climbing assembly for enabling a person to climb a mast, comprising:
- a pair of step leg units, each step leg unit including a step member having a substantially horizontal surface for supporting the person's foot, a leg member secured to the step member supporting the person's leg and a cringle secured to the leg member;
- a plurality of hook brackets each securable to the mast at selected spacings along a length of the mast, each hook bracket including a slot therein for receiving a portion of the cringle to support a respective step leg unit from the hook bracket; and
- a pair of hand hangers, each hand hanger adapted for engagement with the person's hand, and including a securing member for positioning within the slot of a respective hook bracket to support the hand hanger from the hook bracket.

5,209,175

EMERGENCY RELEASE DEVICE FOR DRILLING

Jose Cintron, Edostado Zulia, Venezuela, assignor to Lagoven, S.A., Caracas, Venezuela

Filed Sep. 13, 1991, Ser. No. 759,672
Int. Cl.[5] B63B *21/50*
U.S. Cl. 114—221 A 14 Claims



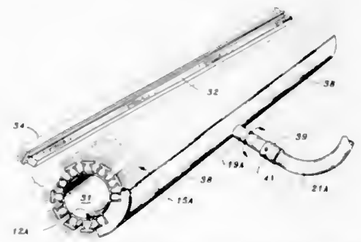
1. A control system for emergency use in onshore and offshore well drilling operations operable to sever anchor chains, mooring cables and drill pipes comprising:
- a first circuit containing a first pressurized medium;
- cutting means connected operatively to said first circuit responsive to said pressurized medium;
- a second circuit containing a second pressurized medium;
- valve means operatively connected to said first circuit responsive to said second pressurized medium, wherein said valve means comprises a plurality of four-way valves, each valve of said plurality of four-way valves having a closed position, a discharge position for returning said first pressurized medium to a reservoir, and two positions for supplying said first pressurized medium to said cutting means; and
- pressurized medium valve actuating means in said second circuit responsive to said second pressurized medium for operating said valve means whereby said first pressurized medium is directed to said cutting means for emergency operation of said cutting means.

5,209,176

BOAT BOTTOM FLOTATION SCRUBBER

Walter Pompei, and Nino S. Pompei, both of 2430 Camino Tassajara, Danville, Calif. 94526

Continuation-in-part of Ser. No. 568,401, Aug. 16, 1990, Pat. No. 5,105,752. This application Jul. 29, 1991, Ser. No. 737,273
Int. Cl.[5] B63B *55/08*
U.S. Cl. 114—222 2 Claims



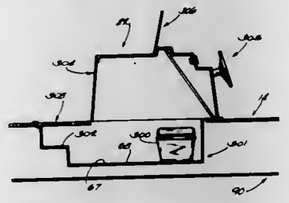
1. A floatation scrubber for cleaning boat bottoms while in the water, comprising:
- a cylindrical tubular head floatable in the water to rise against the bottom of a boat to be cleaned;
- scrubbing material replacably mountable in partially covering relation on said cylindrical tubular head; and
- an elongated tubular handle providing a cleaning end having a connection to the middle of said cylindrical tubular head;
- said elongated tubular handle being formed with an integral rigid substantially right-angle bend adjacent to said cleaning end whereby a person standing on a dock alongside said boat can rub said scrubbing material on said cylindrical tubular head against the bottom of said boat and remove unwanted growth therefrom;
- said scrubbing material being in the form of a plurality of strip brushes removably mountable in covering relation on said cylindrical tubular head;
- the exterior of said cylindrical tubular head being integrally formed with a plurality of parallel circumferentially spaced mounting slots and said strip brushes having backing members extending along the length of said mounting slots and being slidably mountable in said mounting slots; and
- said connection of said cleaning end of said handle to said cylindrical tubular head comprising a mounting head secured to said cleaning end of said handle and having bosses slidably engagable in said mounting slots for releasably securing said handle to said cylindrical tubular head.

5,209,177

PONTOON-TYPE BOAT

Charles L. Granie, Columbia, and James W. Filiatreault, Lexington, both of S.C., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Jul. 2, 1992, Ser. No. 907,911
Int. Cl.[5] B63B *17/00*
U.S. Cl. 114—343 9 Claims



1. A pontoon-type boat comprising
- a substantially planar deck having opposite sides and an upper surface and having therein a recess defined in part by an upwardly facing surface below said upper surface, said recess being located adjacent one of said sides of said deck.
- a head seated in said recess and on said upwardly facing surface,
- a step which is located in said recess, forwardly of said head, and which leads downwardly from said upper surface of said deck to said head,
- a helm/head console which is mounted on said deck, which is located off-center and adjacent one of said sides of said deck, which has a forwardly facing surface, and which extends above said head and partially over said recess
- a door which is located in said forwardly facing surface and which opens to afford access to said head.
- a hatch which is supported by said deck forwardly of said console, which extends over the remainder of said recess, including said step, and which has an upper surface substantially coplanar with said upper surface of said deck, and
- a hull supporting said deck and including a first outer sponson located adjacent one of said sides of said deck, a second outer sponson located adjacent the other of said sides of said deck, each of said outer sponsons having a forward end and a maximum depth, and said hull also including a center sponson which is located and spaced between said outer sponsons, which extends substantially the entire length of said boat and has a forward end located forwardly of said forward ends of said outer sponsons, and which includes a forward portion and a rearward portion, said rearward portion having a maximum width and a maximum depth, and said forward portion having a maximum width greater than the maximum width of said rearward portion and having a maximum depth greater than the maximum depth of said rearward portion and less than said maximum depths of said outer sponsons, such that said forward and rearward portions of said center sponson define therebetween a step.

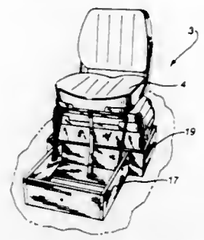
5,209,178

DUAL POSITION BOAT SEAT

Jerry D. Rowe, 2186 N. 2nd St., Lander, Wyo. 82520

Filed Mar. 8, 1991, Ser. No. 666,584
Int. Cl.[5] B60N *1/10*
U.S. Cl. 114—363 11 Claims

1. A boat seat assembly for recreational boats including two vertically spaced seating positions, comprising a seat mounting base structure having securement means for securing to the bottom of a boat, said base structure having a front portion and a rear portion, a hinged structure secured to the rear portion of the base structure and pivotal between a lowered position abutting the base structure and a raised position extending substantially upwardly from the rear portion of the base structure, a seat structure secured to the upper end of the hinged structure and foldable between a position abutting the base structure with the hinge structure locating within the base structure and a horizontal raised position with the hinged structure in the raised position, and a raised rigid support structure having a securement means for mounting within the boat in spaced relation to the base structure and having an upper horizontal rigid structure for receiving said seat structure with the hinged structure in the raised position and with the seat structure substantially supported by said horizontal rigid structure and the hinge structure is located with a minimal connecting load from said seat structure in said raised position or in said lowered position.

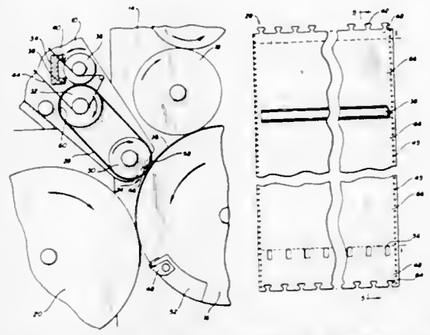


5,209,179

LIQUID COATING APPARATUS FOR USE IN CONJUNCTION WITH PRINTING PRESSES WHERE ACCESS OF THE COATING APPARATUS TO THE PRESS CYLINDERS IS RESTRICTED

John C. Herbert, Huntington Bay, N.Y., and Frank A. Andaloro, Pawcatuck, Conn., assignors to Herbert Produets, Inc., Westbury, N.Y.

Filed Jun. 4, 1991, Ser. No. 709,750
Int. Cl.[5] B05C *1/02*
U.S. Cl. 118—46 16 Claims



1. A liquid coating apparatus capable of operating in conjunction with a printing press having at least one press cylinder, the cylinder rotatably mounted within the press and having at least one gripper mechanism, the apparatus capable of applying a liquid coating fluid to a workpiece traveling over the press cylinder and comprising:
- a driveable support means suitable for supporting a belt, the support means including a first and a second roller both rotatably mounted within the apparatus, at least one of the rollers being drivingly coupled to a drive means;
- an endless coating plate belt for transferring the liquid coating fluid from the coating apparatus to the workpiece, the

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endless coating plate being trained about the first and second rollers and driveable by the rollers and supported thereon, the belt including at least three openings distributed transversely across the width of the belt;

drive means for driving the support means, thereby causing the endless coating plate belt to be driven about the first and second rollers;

supply means for supplying the liquid coating fluid to the endless coating plate belt; and

metering means for metering the supply of liquid coating fluid supplied to the endless coating plate belt.

5,209,180

SPIN COATING APPARATUS WITH AN UPPER SPIN PLATE CLEANING NOZZLE

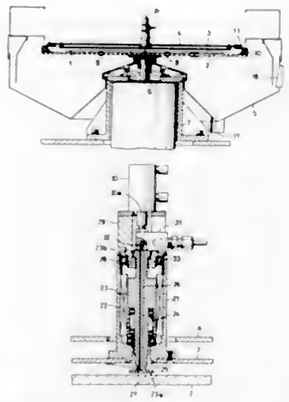
Mikio Shoda, and Masaaki Yamamoto, both of Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan

Filed Mar. 16, 1992, Ser. No. 852,048

Claims priority, application Japan, Mar. 28, 1991, 3-91264

Int. Cl.[5] B05C *11/08*

U.S. Cl. 118—52 **7 Claims**



1. A spin coating apparatus for use in applying a coating solution in film form to an upper surface of a substrate, said apparatus comprising:

a spinning table for supporting and spinning said substrate in horizontal posture;

an upper spinning plate disposed parallel to and substantially slightly spaced from the upper surface of said substrate supported on said spinning table, and having an opening formed substantially centrally thereof, said upper spinning plate being adapted to spin concurrently with said spinning table; and

a cleaning nozzle having an outlet port disposed in said opening and faced toward a lower surface of said upper spinning plate, to deliver a cleaning liquid toward said lower surface of said upper deliver a cleaning liquid toward said lower surface of said upper spinning plate for cleaning said lower surface.

5,209,181

SURGICAL TUBE PAINTING MACHINE

James R. Flood, Mishawaka, Ind., assignor to Spectra, Inc., Mishawaka, Ind.

Filed Aug. 2, 1991, Ser. No. 739,985

Int. Cl.[5] B05C *5/00*

U.S. Cl. 118—322 **26 Claims**

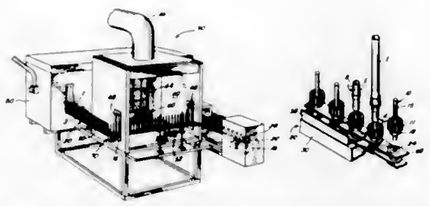
13. A machine for painting a plurality of tubular objects comprising:

a paint chamber,

means for painting said tubular objects when the tubular objects are within said painting chamber,

mounting means for supporting said tubular objects during said painting,

conveyor means for transporting said mounting means through said paint chamber,



spinning means for rotating said mounting means during said painting within said paint chamber,

said spinning means including a driven belt means in engagement with said mounting means for rotating said mounting means.

5,209,182

CHEMICAL VAPOR DEPOSITION APPARATUS FOR FORMING THIN FILM

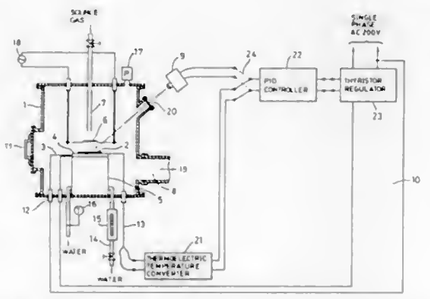
Tomohiro Ohta; Eiichi Kondoh; Tohru Mitomo; Kenichi Otsuka, and Hiroshi Sekihashi, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Division of Ser. No. 568,857, Aug. 17, 1990. This application Apr. 29, 1992, Ser. No. 875,424

Claims priority, application Japan, Dec. 1, 1989, 1-312509; Feb. 20, 1990, 2-39495

Int. Cl.[5] C23C *16/50*

U.S. Cl. 118—666 **7 Claims**



1. An apparatus for forming, by chemical vapor deposition, a thin film on a surface of a heated substrate placed in a vessel, said apparatus comprising:

gas supplying and exhausting means for supplying a source gas into said vessel and exhausting the resultant gas from said vessel;

decomposing means for decomposing said source gas;

substrate supporting means for supporting said substrate;

substrate cooling means for cooling said substrate;

substrate heating means for heating said substrate;

substrate temperature measuring means for measuring a temperature of said substrate wherein said substrate temperature measuring means measures, in a non-contacting manner, the temperature of the surface of said substrate which is opposite to the substrate surface on which said film is formed; and

substrate temperature control means for controlling said temperature of said substrate.

5,209,183

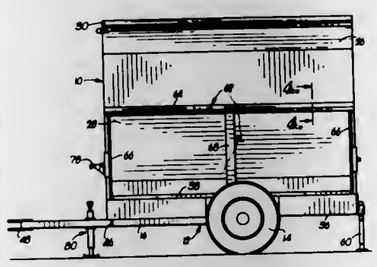
PORTABLE FEEDER APPARATUS

Darwin L. Sampson, Salina, Kans., assignor to Grain Belt Supply, Inc., Salina, Kans.

Filed Oct. 8, 1992, Ser. No. 958,657

Int. Cl.[5] A01K *5/00*

U.S. Cl. 119—53 **8 Claims**



1. A feeder apparatus comprising:

a feed hopper including front and rear end walls, a pair of opposed side walls each formed by upper and lower side panels secured together by a first plurality of removable fasteners, and a lid movable between open and closed positions, the side walls being attached to the front end wall by a second plurality of removable fasteners and to the rear end wall by a third plurality of removable fasteners;

a feed tray assembly secured between the front and rear end walls by a fourth plurality of removable fasteners, the feed tray assembly including a tray and a pair of opposed side rails attached to the tray by a fifth plurality of removable fasteners; and

an axle assembly including an axle, and a pair of opposed side mounting plates attached to the side rails of the feed tray assembly by several of the fifth plurality of removable fasteners so that the axle assembly may be added to or removed from the apparatus without requiring modification of the apparatus or further fasteners.

5,209,184

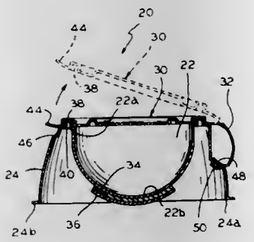
PET TRAVEL BOWL

Arnold L. Sharkan, 9120-D Niles Center Rd., Skokie, Ill. 60187, and Antonio Martinez, 2217 Warrenville Rd., Wheaton, Ill. 60187

Filed Apr. 1, 1992, Ser. No. 861,651

Int. Cl.[5] A01K *5/01*

U.S. Cl. 119—61 **18 Claims**



1. A pet travel bowl, comprising:

a container portion having an open top adapted to receive food or water therethrough, and means for sealingly covering said open top of said container portion, said cover means being a removable lid having a living hinge for securing said lid to said bowl; and

means for securing said bowl to a surface to prevent movement of said bowl on said surface.

5,209,185

ARTIFICIAL LITTER FOR PETS COMPRISING TAPIOCA

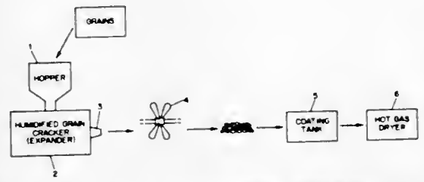
Osamu Chikazawa, 1-5-13, Nipponbashi, Chuo-Ku, Osaka, Japan 540

Filed Jul. 21, 1992, Ser. No. 917,839

Claims priority, application Japan, Jul. 31, 1991, 3-216111

Int. Cl.[5] A01K *29/00*

U.S. Cl. 119—171 **4 Claims**



1. A litter material for pet animals manufactured by the process comprising the steps of heating grains selected from the group consisting of tapioca or a mixture of tapioca and corn in a weight ratio of 95:5 to 70:30 under pressure, expanding said grains into the atmosphere whereby said grains are puffed, pelletizing the puffed grains, and coating the grains thus treated with an inorganic powder material of zeolite in a range of 3–50 parts thereof for 100 parts of the grains, wherein the tapioca and corn grains are pretreated by the steps of:

(a) drying and reducing in size;

(b) adding water to the dried and size-reduced grains to obtain a paste; and

(c) passing the paste through a fine sieve and heating the sieved paste at a temperature in the range of 120°–150° C. to transform the paste into a plurality of lumps having a diameter in the range of 1–2 millimeters.

5,209,186

ANIMAL BEDDING NODULES MODE FROM PAPER PULP AND METHOD OF MAKING THE SAME

Kennetb M. Dewing, Porterville, Calif., assignor to Endurequest Corporation, Porterville, Calif.

Filed Feb. 7, 1992, Ser. No. 832,782

Int. Cl.[5] A01K *1/015*

U.S. Cl. 119—172 **12 Claims**



1. Nodules prepared from paper fibers comprising nodules having a bulk density of from about 10 to about 15 lbs per cu. ft. and formed by:

(a) providing a paper pulp slurry containing at least about 95% by weight water and about 5% by weight fiber;

(b) partially dewatering said paper pulp slurry to form a partially dewatered paper pulp having a dry fiber weight of from about 10 to about 40 percent dry paper fiber and a moisture content from about 60 to about 90 percent by weight;

(c) nodulizing said partially dewatered paper pulp in an inclined rotating externally heated enclosure to form

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within said inclined enclosure and directly from said partially dewatered paper pulp a plurality of discrete nodules having smooth surface and a skin sufficiently hard to resist breakage under the weight of an animal, the majority of said nodules having the major dimension of from 0.3 to about 1 inch, said nodulizing occurring with a further reduction in moisture content and;

(d) further drying said nodules having the hard skin and smooth surface to provide dry nodules of a bulk density of about 10 to about 15 lbs./ cu. ft. substantially without change in nodule major dimension; said nodules formed for use as animal bedding.

5,209,187

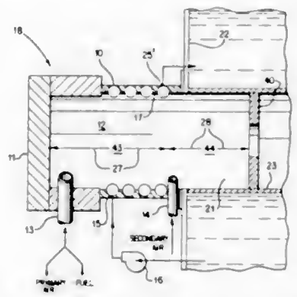
LOW POLLUTANT - EMISSION, HIGH EFFICIENCY CYCLONIC BURNER FOR FIRETUBE BOILERS AND HEATERS

Mark J. Khinkis, Morton Grove, Ill., assignor to Institute of Gas Technology, Chicago, Ill.

Filed Aug. 1, 1991, Ser. No. 739,209

Int. Cl.[5] F22H *07/00*

U.S. Cl. 122—136 R **23 Claims**



1. A process for cyclonic combustion with ultra-low pollutant emissions and high efficiency in firetube boilers, comprising the steps of:

(a) tangentially injecting fuel into a primary combustion zone of a combustion chamber of a cyclonic burner;

(b) tangentially injecting primary combustion air into the primary combustion zone in an amount equal to between about 30% and about 90% of a stoichiometric requirement for complete combustion of the fuel;

(c) burning a primary combustion air/fuel mixture formed by the fuel and the primary combustion air, within the primary combustion zone, forming primary combustion products;

(d) injecting secondary combustion air into a secondary combustion zone of the combustion chamber of the cyclonic burner in an amount equal to between about 10% and about 90% of the stoichiometric requirement;

(e) completing combustion in the secondary combustion zone, forming products of complete combustion; and

(f) water-cooling at least a portion of a combustor side wall and a firetube wall which define the primary combustion zone and the secondary combustion zone.

5,209,188

FLUID BED COMBUSTION REHEAT STEAM TEMPERATURE CONTROL

Paul S. Weitzel, Canal Fulton, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Jun. 1, 1992, Ser. No. 891,096

Int. Cl.[5] F22D *5/26*

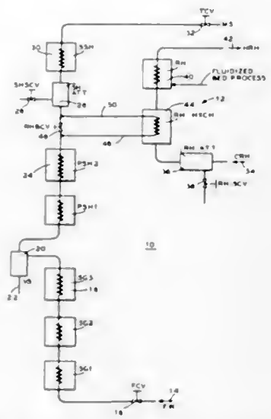
U.S. Cl. 122—451.1 **6 Claims**

1. A reheat steam temperature control system for a fluidized bed boiler comprising:

(a) a reheating circuit generating hot reheat steam comprising the separate components of a reheat heat exchanger and a reheater, said reheater having the fluidized bed process as its heat source;

(b) a main steam circuit generating main steam comprising the separate components of a superheater and a secondary superheater;

(c) reheater bypass control valve means in said main steam circuit for diverting a portion of said main steam to said reheat heat exchanger and for returning said portion from



said reheat heat exchanger, said reheater bypass control valve means being located intermediate said superheater and said secondary superheater;

(d) means for diverting a portion of said main steam to said reheat heat exchanger when the temperature of said hot reheat steam is lower than required, and,

(e) for reducing the flow of aid main steam to said reheat heat exchanger when the temperature of said hot reheat steam is higher than needed.

5,209,189

INTERNAL-COMBUSTION ENGINE

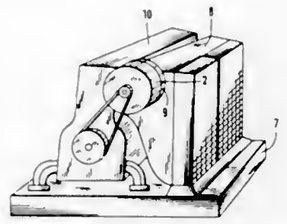
Hans Weitzenbuerger; Dieter Esche; Albert Nolte, all of Cologne, and Michael Klocke, Solingen, all of Fed. Rep. of Germany, assignors to Kloeckner-Humboldt-Deutz AG, Cologne, Fed. Rep. of Germany

Filed Mar. 25, 1991, Ser. No. 675,073

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1990, 4010087

Int. Cl.[5] F01P *7/10*

U.S. Cl. 123—41.49 **4 Claims**



1. In a liquid cooled reciprocating internal combustion engine having at least one cylinder with a piston and a cylinder head (4) the combination comprising:

a supporting platform mounting said engine,

a cooling-liquid system including a cooling liquid of predetermined composition wherein the boiling point of the cooling liquid lies between 110° C. and 130° C.,

a cooling fan (2) having a diffuser (3) operable to deliver cooling air at an elevated pressure,

a liquid/air heat. exchanger (1) mounted on said platform separately of said engine,

a scoop (8) and a flexible elastic boot (9) interconnected between said cooling air fan (2) and said liquid/air heat exchanger (1) whereby the latter is supplied cooling air at an elevated pressure from said cooling fan (2); and

an exhaust duct (5) in said cylinder head (4) having a substantial portion which projects outwardly so it is thermally isolated from nearby regions of the cylinder head.

5,209,190

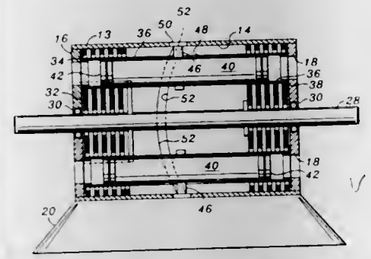
ROTARY POWER DEVICE

Eddie Paul, 414 W. Walnut St., El Segundo, Calif. 90245

Filed Jul. 1, 1991, Ser. No. 723,760

Int. Cl.[5] F02B *57/00;* **F01B** *13/04;* **F04B** *27/08, 35/00*

U.S. Cl. 123—43 AA **14 Claims**



1. A rotary power device comprising:

a. an open ended stationary housing defining an interior;

b. a sinusoidal cam track disposed in said interior of said stationary housing;

c. an end wall closing each said open end of said housing;

d. at least one fluid inlet port and one fluid outlet port in one of said end walls for fluid communication between said housing interior and the exterior of said end wall;

e. a rotor assembly disposed in said interior of said housing, said rotor assembly including a central shaft extending axially through said interior of said housing, said shaft being rotatably carried by each of said end walls, at least one heat conducting disk mounted on said shaft adjacent each of said end walls for rotation with said shaft, each said disks having at least two openings equiangularly located with respect to one another and aligned with corresponding equiangularly disposed openings in said other disk, said openings radially located from the center of said disks for intermittent alignment with said ports of said end walls as said rotor assembly rotates, said aligned openings carrying end portions of open ended tubular cylinder elements which extend between said disks parallel to the axis of said shaft, said open ends of each said cylinder element being located immediately adjacent to a corresponding end wall for intermittent communication with said ports as said rotor assembly rotates, an elongated piston including a piston head slidingly disposed in each said cylinder element for reciprocal movement parallel to the axis of said shaft, said piston including a normally projecting follower which extends through an axial slot in said cylinder element and the extending end thereof being received in said sinusoidal track in said housing;

f. means for collecting and conducting fluid from said outlet port and means for conducting fluid to said inlet port;

whereby said pistons reciprocate in their respective cylinder elements in an intake and an exhaust cycle responsive to the rotation of said rotor assembly through the action of said follower in said sinusoidal track to drawn in, compress and output a fluid.

5,209,191

AIR INTAKE MANIFOLD FOR AN INTERNAL COMBUSTION ENGINE

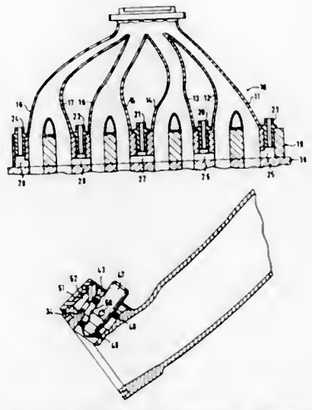
Eduard Kopec, Bietigheim-Bissingen, Fed. Rep. of Germany, assignor to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Fed. Rep. of Germany

Filed Dec. 3, 1991, Ser. No. 800,361

Claims priority, application Fed. Rep. of Germany, Dec. 3, 1990, 4038509

Int. Cl.[5] F02M *35/10*

U.S. Cl. 123—52 MC **6 Claims**



1. An air intake manifold for an internal combustion engine comprising a mounting flange for fastening said manifold to a cylinder head, a plurality of air intake ducts emanating from a common inlet and opening through said mounting flange, a longitudinal passageway in said mounting flange extending beside each of said intake ducts, a plurality of transverse bores each communicating with said passageway and opening into a respective one of said intake ducts, and connecting means for introducing a gas into said passageway, wherein each of said transverse bores opens through an inside wall of a fuel injection valve seat, and air is conveyed from a clean air side of an air filter through each of said transverse bores to a fuel injector valve disposed in said valve seat.

5,209,192

TWO-CYCLE ENGINE

Afif Ahmed, Bailly, and Bertrand Hauet, Carrieres sur Seine, both of France, assignors to Regie Nationale des Usiness Renault, Boulogne-Billancourt, France

Filed Nov. 1, 1991, Ser. No. 786,515

Claims priority, application France, Nov. 2, 1990, 90 13620

Int. Cl.[5] F02B *33/04, 75/02*

U.S. Cl. 123—65 PE **12 Claims**

1. A two stroke engine with fuel injection, comprising:

at least one cylinder;

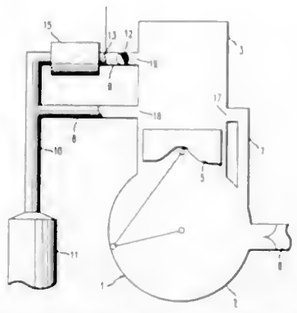
a piston reciprocatingly sliding in said cylinder between a top dead center position and a bottom dead center position;

an intake circuit terminating in the cylinder at an intake orifice adjacent the bottom dead center position for delivering compressed air to the cylinder;

an exhaust circuit comprising a first exhaust orifice adjacent the bottom dead center position and a second orifice positioned closer to said top dead center position than said

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intake orifice and said first exhaust orifice, said exhaust circuit further comprising an exhaust line, a first exhaust duct connecting said first exhaust orifice with said exhaust



line and a second exhaust duct connecting said second orifice with said exhaust line; and

an oxygen sensor in said second exhaust duct.

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INTAKE- AND/OR EXHAUST-VALVE TIMING CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES

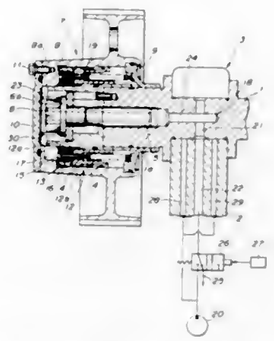
Katsuhiko Uchida, and Seiji Suga, both of Kanagawa, Japan, assignors to Atsugi Unisia Corp., Atsugi, Japan

Filed Nov. 22, 1991, Ser. No. 796,478

Claims priority, application Japan, Nov. 26, 1990, 2-322178

Int. Cl.[5] F01L *1/34*; F01M *1/06*

U.S. Cl. 123—90.17 **6 Claims**



1. An intake- and/or exhaust-valve timing control system for an internal combustion engine comprising:

a rotating member having a driven connection with a crankshaft of said engine;

a camshaft journaled by a bearing member mounted on a cylinder head and receiving torque transmitted from said rotating member;

a phase-angle adjusting mechanism for adjusting a relative phase angle between said rotating member and said camshaft;

a first hydraulic circuit provided for drivingly controlling said phase-angle adjusting mechanism via fluid pressure depending upon the operating state of said engine;

a second hydraulic circuit provided for lubricating frictional surfaces between said bearing member and said camshaft, said first and second hydraulic circuits being separated from each other;

a directional control valve connected to said first hydraulic circuit for switching the direction of working fluid flowing through said first hydraulic circuit;

said first hydraulic circuit including a supply and drain fluid passage serving as both oil supply passage and oil drain passage, said second hydraulic circuit including a lubricating oil passage, said supply and drain fluid passage and said lubricating oil passage both being disposed in said cylinder head; and

said lubricating oil passage including at least two oil ducts, respectively arranged at both sides of said supply and drain fluid passage in an axial direction of said camshaft, in order to enhance a lubricating efficiency.

5,209,194

VARIABLE VALVE TIMING APPARATUS

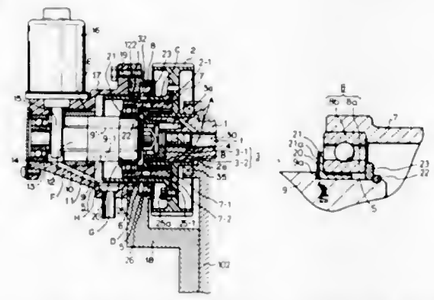
Michio Adachi, Obu, and Haruyuki Obata, Toyota, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 23, 1992, Ser. No. 872,392

Claims priority, application Japan, Apr. 26, 1991, 3-96977; Feb. 28, 1992, 4-42796

Int. Cl.[5] F01L *1/34*

U.S. Cl. 123—90.17 **26 Claims**



1. An apparatus for controlling a valve timing in an internal combustion engine having an engine block, a crankshaft mounted to the engine block, a camshaft mounted to the engine block, and a power receiving member rotatably mounted on the camshaft for receiving a rotational movement from the crankshaft, said apparatus comprising:

a housing connected to the engine block;

a first sleeve member fixedly connected to one end of the camshaft, the first sleeve member defining, at a cylindrical surface thereof, a helical spline;

a second sleeve member fixedly connected to the power receiving member;

a timing piston movable along the axis of the camshaft, the timing piston having a first helical spline portion engaging with the first sleeve member and a second spline portion engaging with the second sleeve in such a manner that the axial movement of the timing piston causes a mutual angular positioning of the camshaft and the power receiving member to be obtained;

rotary drive means for generating a rotating movement;

a feed mechanism having a rotating part rotatable with respect to the housing and connected to said rotary drive means and a linearly moving part which is moved with respect to the housing along the axis of the camshaft upon the rotation of the rotating part, and;

means for connecting the linearly moving part with the timing piston so that the axial movement from the feed mechanism is transmitted to the timing piston during a rotation thereof, and a limited radial relative movement is allowed between the linearly moving part and the timing piston.

14. An apparatus for controlling a valve timing in an internal combustion engine, having an engine block, a crankshaft

mounted to the engine block, a camshaft mounted to the engine block, and a power receiving member rotatably mounted on the camshaft for receiving a rotational movement from the crankshaft, said engine including an oil supply passageway in the engine block for a lubrication of various parts therein, said apparatus comprising:

a housing connected to the engine block;

a first sleeve member fixedly connected to one end of the camshaft, the first sleeve member defining, at a cylindrical surface thereof, a helical spline;

a second sleeve member fixedly connected to the power receiving member;

a timing piston movable along the axis of the camshaft, the timing piston having a first helical spline portion engaging with the first sleeve member and a second spline portion engaging the second sleeve in such a manner that the axial movement of the timing piston causes a mutual angular positioning between the camshaft and the power receiving member to be obtained;

rotary drive means for generating a rotating movement;

a feed mechanism having a rotating part rotatable with respect to the housing and connected to said rotary drive means and a linearly moving part moved with respect to the housing along the axis of the camshaft upon the rotation of the rotating part;

means for connecting the linearly moving part to the timing piston for a transmission of the axial movement of the feed mechanism to the timing piston;

said oil supply passageway being opened to a space formed between the housing and an engine block for lubricating the parts therein, including the feed mechanism, and;

means for defining an oil return passageway constructed such that the oil supplied to the feed mechanism is exhausted and does not remain therein when the engine is stopped.

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IGNITION DISTRIBUTOR

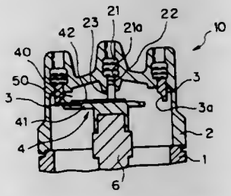
Seiki Nakagawa, Takahama; Yoshitaka Sato, and Hideo Asakura, both of Toyohashi, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 15, 1992, Ser. No. 913,476

Claims priority, application Japan, Jul. 19, 1991, 3-179737

Int. Cl.[5] F02P *7/02*; H01H *1/02, 19/00*

U.S. Cl. 123—146.5 A **4 Claims**



1. An ignition distributor having a plurality of stationary electrodes electrically connected to ignition plugs, respectively, and a rotary electrode rotating with a minute minimum distance maintained between one end thereof and said stationary electrodes and with a voltage application to the other end thereof, an electric discharge being triggered to occur between a discharge element of said stationary electrode and a discharge element composing said one end of said rotary electrode, thereby distributing electric power to said ignition plugs alternately when the rotation of said rotary electrode brings said discharge element of said rotary electrode alternately into face of said discharge elements of said stationary elements substantially at said minute minimum distance therebetween, wherein:

at least either one of said discharge element of said stationary electrode and said discharge element of said rotary electrode are composed of a sintered body comprising at least a ferrite and silicon oxide, have a surface precipitate layer having a thickness of from 1 to 7 μm and a silicon oxide content larger than that of a core portion of said sintered body surrounded by said surface precipitate layer; and

said discharge element has an electric resistivity of from 10^4 to 10^6 Ω in a portion from a site at which said voltage is applied to said discharge element to a site at which said electric discharge occurs.

5,209,196

OPERATING-MODE POSITION SELECTOR ARRANGEMENT FOR INTERNAL COMBUSTION ENGINE

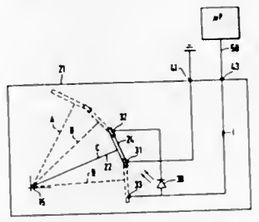
Hans Nickel, Cottenweiler, and Michael Wissmann, Schorndorf-Weiler, both of Fed. Rep. of Germany, assignors to Andreas Stihl, Waiblingen, Fed. Rep. of Germany

Filed May 18, 1992, Ser. No. 884,206

Claims priority, application Fed. Rep. of Germany, May 18, 1991, 4116395

Int. Cl.[5] F02P *11/00*; F02M *1/00*

U.S. Cl. 123—179.5 **5 Claims**



1. An operating-mode position selector arrangement for an internal combustion engine in a portable handheld apparatus such as a motor-driven chain saw, the engine including: an electrical ignition system, a fuel-metering device for supplying an air/fuel mixture to the engine, the fuel-metering device including an intake channel for conducting the air/fuel mixture to the engine, a throttle lever, a throttle flap pivotally mounted in the intake channel and a fuel-metering device for supplying an air/fuel mixture to the intake channel of the engine, the operating-mode position selector arrangement comprising:

operating-mode position selector mounted on said apparatus so as to be movable between a start position, an operating position and a stop position;

starter means mounted in said intake channel and being movable between an at-rest position wherein said starter means does not influence the metering of fuel in said air/fuel mixture and an in-service position for increasing the quantity of fuel in said air/fuel mixture;

first connecting means operatively connecting said position selector to said starter means for holding said starter means in said in-service position when said position selector is in said start position;

means for bringing said starter means into said at-rest position when said position selector is moved into said operating position;

linkage means operatively connecting said throttle lever to said throttle flap;

second connecting means for holding said throttle flap in a first position when said position selector is in said start position;

means for releasing said throttle flap for actuation via said throttle lever and said linkage means when said position selector is moved into said operating position;

said ignition system having a system terminal;

a ground terminal;

a resistance means; and,

switching means operatively connected to said position selector for connecting said system terminal to ground in

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said stop position and for connecting said resistance means between said terminals when said position selector is moved into said operating position.

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CYLINDER HEAD/CYLINDER SEALING DEVICE FOR A RECIPROCATING PRESSURIZED GAS MACHINE

Jean F. Melchior, 126 Bld Montparnasse, 75014 Paris, France

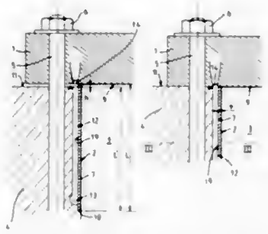
PCT No. PCT/FR91/00709, § 371 Date Apr. 24, 1992, § 102(e) Date Apr. 24, 1992, PCT Pub. No. WO92/04562, PCT Pub. Date Mar. 19, 1992

PCT Filed Sep. 4, 1991, Ser. No. 849,040

Claims priority, application France, Sep. 6, 1990, 90 11066

Int. Cl.[5] F02F 1/16

U.S. Cl. 123—193.3 10 Claims



1. Sealing device between the cylinder head (1) and the cylinder (2) of a reciprocating pressurized gas machine in which the gas is contained in at least one variable volume working chamber (3) delimited inside a cylinder (2) formed in a cylinder block (4) by a cylinder head (1) clamped against the cylinder block (4) by clamping studs (5) therein and by a piston sliding with a reciprocating movement in said cylinder (2), which sealing device is formed by a removable cylindrical liner (7) which is sleeved into a bore (8) provided in said cylinder block (4), the piston being provided with sealing rings in contact with the inside wall of the liner (7), characterized in that

the outside surface (19) of the liner (7) is part of a cylindrical, preferably circular cross-section surface with generatrices parallel to the axis of the cylinder (2) at least over the upper major part of its length;

said liner (7) is thin in the sense that it can be deformed by the compression force exerted by said clamping studs (5);

the liner (7) is compressed axially over at least the major part of its length directly between the cylinder head (1) and a circular lower bearing surface (10) formed in the cylinder block (4);

the height (L) of the liner (7) before the cylinder head (1) is clamped down is such that when the cylinder head rests before it is clamped down on the upper surface of the liner (7) in turn resting on the lower bearing surface (10) of the cylinder block (4) there remains an excess height (h) between the bearing surfaces of the cylinder head (1) and the cylinder block (4), the excess height (h) being sufficiently small that when the cylinder head (1) is clamped down it bears directly on the cylinder block (4) without any of the materials of the cylinder head (1), the liner (7) and the cylinder block (4) reaching its limit of elastic deformation, with a bearing force greater, given the thickness (e) of the liner (7), than the maximum force exerted by the gas pressure on the cylinder head (1) but sufficiently high for contact between the liner (7) and the cylinder head (1) to be maintained at all times during operation of the machine.

5,209,198

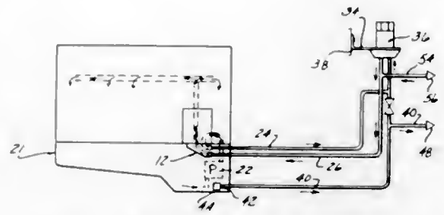
PROCESS FOR SIMPLE AND HIGH SPEED OIL CHANGE AND/OR FLUSHING THE ENGINE OIL DISTRIBUTION CHANNELS OF THE MOVING COMPONENTS OF THE CRANKCASE IN AN INTERNAL COMBUSTION ENGINE

Ram Bedi, Birmingham, Mich., assignor to K.J. Manufacturing Co., Wixom, Mich.

Continuation-in-part of Ser. No. 350,303, May 11, 1989, Pat. No. 4,884,660. This application Sep. 26, 1989, Ser. No. 413,008

Int. Cl.[5] F01M 1/00

U.S. Cl. 123—196 R 8 Claims



1. A device for facilitating flushing and scrub cleaning of movable parts in an internal combustion engine having an oil pan with a drain plug opening an internal lube oil distribution passage system, comprising:

an oil filter adapter to be sealingly connected to an engine oil filter mounting boss located on the internal combustion engine, said adapter having at least two nozzles, a first nozzle in fluid communication with an engine oil pump located in the oil pan and a second nozzle in fluid communication with the internal lube oil distribution passage system of the engine;

a remote oil filter mounting boss having first and second apertures and a mounting bracket attached thereto, said mounting bracket positioned on the engine remote from said engine oil filter mounting boss;

an oil filter removably mounted on said remote oil filter mounting boss;

a first inlet hose connected to said first nozzle and said first aperture of said mounting bracket;

a second outlet hose connected to said second nozzle and said second aperture on said mounting bracket;

a pump-out line connected to the drain plug opening having a coupling member at a remote end, said coupling member adapted to removably contact an external pump device; and

a fill line connected to said second outlet hose said fill line having a coupling member attached at a remote end, said coupling member adapted to removably contact said external pump device.

5,209,199

CONTROL APPARATUS FOR TURNING OFF AN INTERNAL COMBUSTION ENGINE

Lutz Ballhause, Korb, and Erwin Krimmer, Pluederhausen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 30, 1992, Ser. No. 953,346

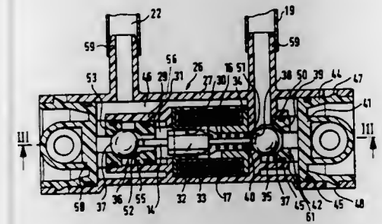
Claims priority, application Fed. Rep. of Germany, Oct. 10, 1991, 4133557

Int. Cl.[5] F02B 77/00

U.S. Cl. 123—198 DB 28 Claims

1. A control apparatus for turning off an internal combustion engine, in particular a Diesel engine, having a feed pump (13) that aspirates fuel from a fuel supply container (18) via a tank line (19) and a suction line (20) and pumps it into a suction chamber (23) of a fuel injection pump (10) via a pressure line (22) and a connecting line (24); further having a reversing

valve (111), embodied as a two-position multiposition valve, which in a feed position connects the tank line (19) to the suction line (20) and connects the pressure line (22) to the connecting line (24); said reversing valve has a valve member (14; 114) guided for axial movement inside a valve housing (26; 126), the valve member being displaceable by an electromagnet (17; 117) between the feed position, for operating the engine, and a shutoff position, for turning off the engine; in said shutoff position the suction chamber (23) of the fuel injection pump (10) is made to communicate with the suction line (20) of the



feed pump (13) and the pressure line (22) is made to communicate with the tank line (19); the valve member further having two seat valve closing bodies (37; 137) actuatable thereby; each said valve seat closing body cooperating with two associated valve seats (38, 39; 52, 53) disposed in opposed relation; the valve housing (26; 126) comprised of plastic and produced by injection molding; the electromagnet (17; 117) disposed in the inner cylinder (29; 129) being at least partly spray-coated with plastic; and the valve member (14; 114) acting as the magnet armature.

5,209,200

CONTROLLED DISPERSION OF INJECTED FUEL

Steven R. Ahern, Claremont, and Jorge M. P. da Silva, West Leederville, both of Australia, assignors to Orbital Engine Company (Australia) Pty. Limited, Balcatta, Australia

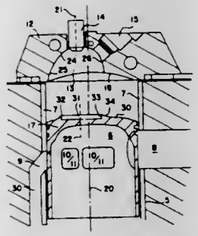
PCT No. PCT/AU90/00276, § 371 Date Dec. 6, 1991, § 102(e) Date Dec. 6, 1991, PCT Pub. No. WO91/00422, PCT Pub. Date Jan. 10, 1991

PCT Filed Jun. 29, 1990, Ser. No. 776,294

Claims priority, application Australia, Jun. 29, 1989, PJ4990

Int. Cl.[5] F02B 19/10

U.S. Cl. 123—276 19 Claims



5. An internal combustion engine comprising:

a cylinder;

a cylinder head at one end of the cylinder;

a piston mounted for reciprocation in the cylinder;

a cavity in the cylinder head;

spark means mounted in the cylinder for providing an ignition spark in the cavity;

a fuel injector nozzle located in the cavity in the cylinder head to deliver fuel in a direction towards the piston, the piston having a top face directed toward the cylinder head;

a bowl in the top face of the piston positioned so that throughout at least a final half of the compression stroke of the piston, the bowl is located in a path of delivery of the fuel from the nozzle so that fuel will be delivered into the bowl, an internal surface of said bowl having a flat bottom configuration which directs the fuel along a path substantially reverse to a direction of the incoming fuel, wherein a rim upstanding from the top face of the piston and shaped to create an air flow in said reverse direction of the fuel flow extends about a periphery of the bowl to substantially surround and thereby contain said reverse fuel flow during said final half of the compression stroke.

5,209,201

INTERNAL COMBUSTION ENGINE

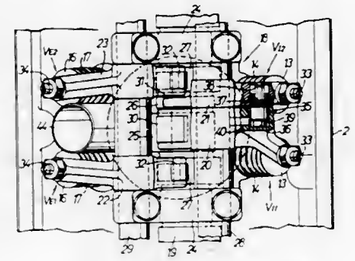
Kaoru Horie; Kazutoshi Nishizawa; Takatoshi Aoki; Ryuji Matsukado; Chihaya Sugimoto, and Takeshi Iwata, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 8, 1991, Ser. No. 742,831

Claims priority, application Japan, Aug. 10, 1990, 2-213376; Aug. 10, 1990, 2-213377

Int. Cl.[5] F02B 31/00

U.S. Cl. 123—308 14 Claims



1. An internal combustion engine comprising:

a valve operating system connected to a pair of intake valves and arranged to selectively open one of said intake valves only a very small amount that places said one intake valve into a substantially inoperative state during a normal suction stroke mainly in a low speed operation region of the engine;

a fuel injection valve capable of injecting fuel toward a pair of intake ports which independently correspond to said pair of intake valves; and

a control means for controlling an operation of said fuel injection valve, wherein

said control means is arranged to control said fuel injection so as to have a time of completing the fuel injection within a normal suction stroke, and wherein

said time of completing said fuel injection is established in a first half of a normal suction stroke in an operational condition in which only the other one of said pair of intake valves is being opened and closed in a normal suction stroke.

5,209,202

MULTIPLE FUNCTIONS CAM SENSING

James B. Maurer, Farmington Hills; Michael D. Czekala, Canton, and Marc G. Mrjoian, Ann Arbor, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jul. 27, 1992, Ser. No. 919,339

Int. Cl.[5] F01L 1/34; F02P 7/07, 11/00; F02D 41/22

U.S. Cl. 123—414 10 Claims

1. A method of operating an internal combustion engine by establishing the optimum rotational position of a crankshaft relative to a camshaft for variable cam timing, sequential fuel injection, and ignition timing comprising the steps of:

detecting the position of cylinder identification markers on a

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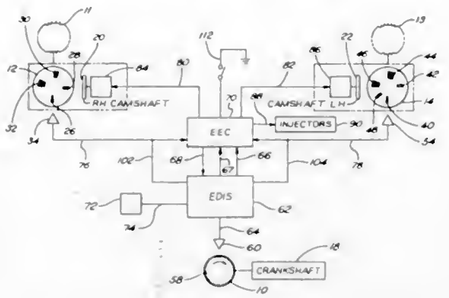
camshaft and thereby generating a camshaft signal containing positional and cylinder number identification components;

detecting the rotational position of a crankshaft relative to said camshaft and thereby generating a crankshaft signal having position and velocity components;

generating a phase angle signal in response to the positional component of said camshaft signal and said crankshaft signal, said phase angle signal corresponding to a phase angle relationship between said camshaft and said crankshaft predetermined as yielding minimum emissions and optimum fuel economy at an established operating condition;

activating a phase angle shifting mechanism with said phase angle signal to adjust the rotational position of said camshaft relative to said crankshaft; and

detecting the loss of said crankshaft signal and defaulting to a predetermined cam phase signal thereby returning the camshaft to a predetermined default position, and generating an ignition timing signal in response to said cam phase signal, allowing continuous operation of the engine.



5,209,203

METHOD AND APPARATUS FOR CONTROLLING THE TORQUE OF AN ENGINE

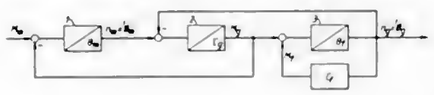
Peter Kaltenbrunn, Bietigheim-Bissingen; Karl Ott, Markgröningen; Bernhard Schray, and Ernst Wild, both of Oberriexingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/EP88/01108, § 371 Date May 17, 1991, § 102(e) Date May 17, 1991, PCT Pub. No. WO90/06441, PCT Pub. Date Jun. 14, 1990

PCT Filed Dec. 6, 1988, Ser. No. 688,954

Int. Cl.[5] F02P *5/155*; B60K *31/00*

U.S. Cl. 123—419 **10 Claims**



1. A method of controlling a torque of an internal combustion engine of a vehicle, comprising the steps of deriving a signal indicative of a speed of an internal combustion engine of a vehicle; deriving a further signal indicative of a wheel speed of the vehicle; determining a difference signal between said signal indicative of the speed of the engine and said signal indicative of the wheel speed of the vehicle; and varying an ignition angle of an internal combustion engine in response to the determined difference signal to counteract variations in the torque of the internal combustion engine.

5,209,204

FUEL DISTRIBUTOR FOR A FUEL INJECTION VALVE

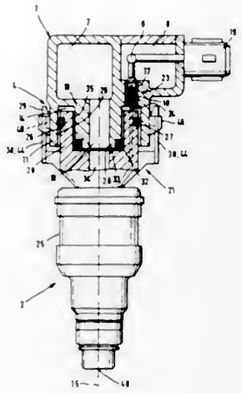
Eckhard Bodenhausen, Steinheim, and Klaus-Juergen Peters, Affalterbach-Birkbau, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 21, 1992, Ser. No. 948,200

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1991, 4131537

Int. Cl.[5] F02M *55/02*

U.S. Cl. 123—470 **5 Claims**



1. A fuel distributor for fuel injection systems of mixture-compressing internal combustion engines with externally supplied ignition, for supplying fuel to at least two fuel injection valves, having a fuel conduit and a guide conduit parallel to said fuel conduit for receiving electrical lines; a number of valve connection necks corresponding to the number of fuel injection valves, the fuel injection valves include connection tangs which extend parallel to the longitudinal valve axis of the fuel injection valves which can be inserted into said valve connection means; and an electrical plug connection that comprises a plug (**24**), the connection tang (**21**) is cup-shaped and has an annular wall (**20**) extending concentrically with the longitudinal valve axis (**15**), said wall at least partly fits into an annular chamber (**14**) formed by an inner branch (**10**) and an outer branch (**11**) of the valve connection neck (**4**) of the fuel distributor (**1**).

5,209,205

METHOD AND APPARATUS FOR INJECTING FUEL INTO THE CYLINDERS OF AN ENGINE HAVING AN INJECTION INPUT VALVE FOR EACH CYLINDER

Gerd Auracher, Beilstein; Joerg Lange, Eberdingen-Hochdorf, and Winfried Moser, Ludwigsburg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 3, 1992, Ser. No. 893,323

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1991, 4121396

Int. Cl.[5] F02M *51/00*

U.S. Cl. 123—478 **12 Claims**

1. A method of injecting fuel into a cylinder of an engine, the engine having an intake-valve arrangement for moving between an open position and a closed position to control injection of fuel from a suction pipe of the engine into the cylinder, comprising the steps of:

determining a temperature of the suction pipe;

introducing a first portion of fuel into the suction pipe when the intake-valve arrangement is in the closed position; and

introducing a second portion of fuel into the suction pipe when the intake-valve arrangement is in the open position,

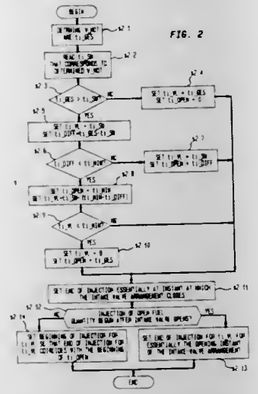


FIG. 2

the first and second portions of fuel being dependent on the determined temperature.

5,209,206

AIR-FUEL RATIO CONTROL SYSTEM

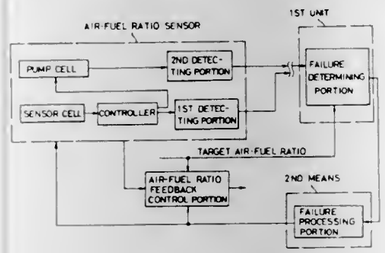
Yoshiaki Danno; Tetsurou Ishida, and Yoshiaki Kodama, all of Kyoto, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 10, 1991, Ser. No. 727,855

Claims priority, application Japan, Jul. 10, 1990, 2-182137; Jul. 17, 1990, 2-189227

Int. Cl.[5] F02M *51/00*

U.S. Cl. 123—479 **11 Claims**



1. An air-fuel ratio control system for an internal combustion engine on a motor vehicle, comprising:

an air-fuel ratio sensor for producing an air-fuel ratio signal indicative of the concentration of oxygen in an exhaust gas produced by a burned air-fuel mixture in the internal combustion engine;

first means comprising failure determining means responsive to an output signal from said air-fuel ratio sensor and a target air-fuel ratio determined depending on operating conditions of the motor vehicle, for determining at least an irreparable failure of said air-fuel ratio sensor through comparison between said output signal and said target air-fuel ratio;

air-fuel ratio feedback control means for correcting an air-fuel ratio correction according to at least said air-fuel ratio signal so that an actual air-fuel ratio of the internal combustion engine is equal to said target air-fuel ratio; and

second means comprising failure processing means for disabling said air-fuel ratio feedback control means and said air-fuel ratio sensor in response to an output signal from said failure determining means which indicates an irreparable failure of said air-fuel ratio sensor.

5,209,207

THROTTLE VALVE CONTROL SYSTEM FOR AUTOMOTIVE ENGINE

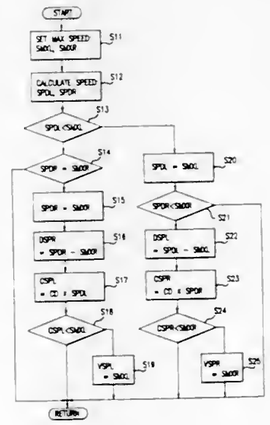
Yuji Shitani; Katsumi Nakamura, and Tatsuya Yamamoto, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Sep. 30, 1991, Ser. No. 766,923

Claims priority, application Japan, Sep. 29, 1990, 2-261426

Int. Cl.[5] F02D *7/00*

U.S. Cl. 123—399 **5 Claims**



1. A throttle valve control system for an automotive engine provided with a throttle valve for introducing intake air according to a displacement of an accelerator, comprising:

displacement detecting means for detecting the displacement of the accelerator;

control means for controlling a target throttle opening of said throttle valve according to a predetermined relationship based on the displacement of the accelerator detected by the displacement detecting means, for regulating an air-fuel ratio at which a fuel mixture is supplied to cylinders of said engine based on engine operating conditions, and for making a speed at which a throttle valve is driven toward the target throttle opening lower when a target air-fuel ratio represents a lean fuel mixture than when said target air-fuel ratio represent a rich fuel mixture;

air-fuel ratio setting means for setting said air-fuel ratio based on said target air-fuel ratio; and

drive means for driving said throttle valve so that it opens at said speed.

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5,209,208

FUEL INJECTION PUMP FOR DIESEL INTERNAL COMBUSTION ENGINES

Hans-Joachim Siebert, Schwieberdingen; Hermann Grieshaber, Aichtal-Aich; Bernhard Schenk; Walter Egler, both of Stuttgart, and Norbert Meissner, Ditzingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

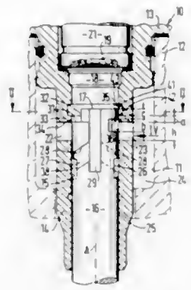
PCT No. PCT/DE90/00508, § 371 Date Feb. 10, 1992, § 102(e) Date Feb. 10, 1992, PCT Pub. No. WO91/02151, PCT Pub. Date Feb. 21, 1991

PCT Filed Jul. 7, 1990, Ser. No. 829,052

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1989, 3926166

Int. Cl.[5] F02M *37/04*

U.S. Cl. 123—503 17 Claims



1. A fuel injection pump for diesel internal combustion engines, for the delivery of an amount of fuel divided into a pilot injection amount and a main injection amount, which comprises, at least one pump plunger (16) which is held axially and rotationally movable within a pump cylinder (14) and which limits a pump chamber (18), a jacket face (25) of said at least one pump plunger being interrupted by a first recess (26), said first recess is limited on the pump chamber side by an inclined control edge (28) and is in constant connection with the pump chamber (18) via a flow passage 29, said at least one pump plunger (16) includes a front face (17) which is limited by a cut-out (32) which forms a set-back shoulder (31), a first forming horizontal control edge (33) together with said jacket extends perpendicular to the plunger longitudinal axis (A), and a transverse groove (37) in the jacket face, lying diametrically opposite the cut-out on the pump chamber side and forming a second upper horizontal control edge (35) and a third lower control edge (36), between the first recess (26) and the front face (17), with two control apertures (22, 23) lying diametrically opposite each other in the wall of the pump cylinder (14), of which the first of said control apertures (22) is controlled by the first control edge (33), said first of said control apertures is closed to initiate the start of delivery of the pilot injection, and of which at least one of the two control apertures (22, 23) is opened by the first recess (26), controlled by the inclined control edge (28), to end the main injection, and a relief duct (43) connects the pump chamber (18) via the transverse groove with a low pressure space (24) for the purpose of achieving a delivery interval between the pilot injection and the main injection, the two control apertures (22, 23) lie opposite and in alignment with each other and at the same height; the relief duct (43) in the cylinder bore (15) of the pump cylinder (14) comprises an annular groove (41) with a fixed distance (a) to the control apertures (22, 23) and offset towards the pump chamber (18); and the transverse groove (37) on the at least one pump plunger (16) is formed as a blind recess closed on the plunger side, through the second control edge (35) of which the end of delivery of the pilot injection is determined by wiping over a lower edge (42) of the annular groove (41), the width (b) of the transverse groove (37), which determines the distance between the second and third control edges (35 and 36), is larger than the fixed distance (a) between the second control aperture (23) and the lower edge (42) of the annular groove (41) by a difference (b—a) which determines the duration of the delivery interval, control of the start of delivery of the main injection is by means of the third control edge (36), on the delivery stroke, with the closure of the second control aperture (23), a second recess (27), also with an inclined control edge (28), is located in the jacket face (25) of the pump plunger (16), offset by 180° to the first recess (26), and the relief duct (43) is formed with the pump chamber (18) and extends from the cut-out (32) through the annular groove (41) to the transverse groove (37), and from there via the second control aperture (23) to the low pressure space (24) at a respective position of the pump piston.

5,209,209

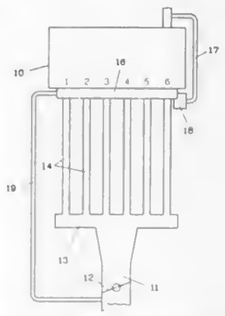
DEVICE AT INTAKE SYSTEMS FOR INTERNAL COMBUSTION ENGINES

Jan Karlsson, Västra Frölunda, and Jan Dahlgren, Göteborg, both of Sweden, assignors to AB Volvo, Gothenburg, Sweden

Filed Jul. 7, 1992, Ser. No. 909,647

Int. Cl.[5] F02M *25/07, 23/08*

U.S. Cl. 123—568 6 Claims



1. A device at an intake system for internal combustion engines having a number of cylinders arranged in an engine block, and with elongated inlet manifolds to the engine cylinders, a return conduit for exhaust gases provided between the exhaust side and the intake side of the engine, said return conduit being provided with a valve controlled by an engine parameter, whereby a connection flange is provided between the engine block and the inlet manifolds, said connection flange being equipped with through openings for intake air to the engine cylinders, and with an exhaust channel arranged along the edge portions of the connection flange in the flange material, which exhaust channel via said valve is connectable to the exhaust side of the engine and along its extension being equipped with branch conduits, which communicate with the different through openings,

characterized therein that the connection flange is equipped with a further internal channel having essentially the same extension as the exhaust channel, but which is situated between this exhaust channel and the side of the connection flange facing the intake manifolds, and which further channel is connected to an outlet tube forming part of the intake system before a throttle valve provided therein for supply of air to the further channel.

5,209,210

EVAPORATIVE EMISSION CONTROL SYSTEM

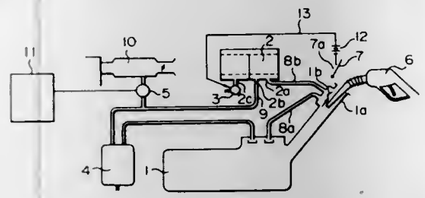
Satoru Ikeda, Toyoake; Kazumi Haruta, Obu, and Kenji Koeda, Nagoya, all of Japan, assignors to Aisan Kogyo Kabushiki Kaisha, Ohbu, Japan

Filed Jun. 27, 1991, Ser. No. 722,214

Claims priority, application Japan, Aug. 10, 1990, 2-84706[U]

Int. Cl.[5] F02M *33/02*

U.S. Cl. 123—520 4 Claims



1. An apparatus for preventing emission of fuel vapor comprising:

a fuel vapor canister for absorbing fuel vapor generated in a fuel tank during fuel supply and desorbing said absorbed fuel vapor by utilizing an air intake flow of an internal combustion engine;

a tank port having a first end connected to a first side of said fuel vapor canister, a second end of said tank port being connected to the fuel tank;

a purge port having a first end connected to said first side of said fuel vapor canister, a second end of said purge port being connected to an air intake passage of the internal combustion engine;

an atmospheric air port connected to a second side of said fuel vapor canister for introducing air thereto; and

switching means for controlling a cross-sectional area of an atmospheric air passage so that said switching means is disposed in a fully opened position during fuel supply, a predetermined restriction hole being defined in the atmospheric air passage at times other than during fuel supply.

5,209,211

THROTTLE VALVE CONNECTION PIECE

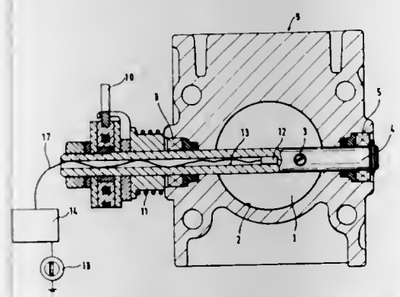
Reiner Kopp, Hirschlanden; Albrecht Baessler, Korntal-Muenchingen, and Peter Ropertz, Markgroeningen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 22, 1992, Ser. No. 902,338

Claims priority, application Fed. Rep. of Germany, Jul. 4, 1991, 4122138

Int. Cl.[5] F02G *5/00*

U.S. Cl. 123—549 6 Claims



1. A throttle valve connection piece for mixture-compressing internal combustion engines with externally supplied ignition, having an intake conduit and a throttle valve located in and controlling said conduit, said throttle valve being secured to a throttle valve shaft, said throttle valve being adapted to be heated by means of an electrical heating device, with said electrical heating device (12) being disposed in an axial bore (13) of the throttle valve shaft (4).

5,209,212

EXHAUST-GAS RECIRCULATION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

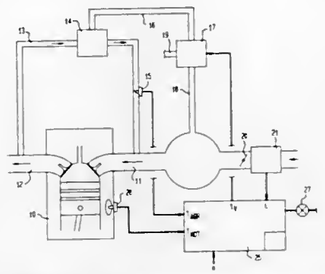
Walter Viess, Schwieberdingen, and Hans Koehnle, Salzgitter, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 4, 1992, Ser. No. 893,934

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1991, 4121071

Int. Cl.[5] F02M *25/06*

U.S. Cl. 123—571 7 Claims



1. An exhaust-gas recirculation system for an internal combustion engine, comprising:

an exhaust-gas return valve located in an exhaust-gas return duct;

a load sensor for measuring at least one operating parameter of the internal combustion engine;

a temperature sensor for measuring a temperature in the exhaust-gas return duct;

a control unit coupled to the load sensor for controlling the exhaust-gas return valve based upon the measured operating parameters;

means for determining a difference value between the measured temperature value in the exhaust-gas return duct and a preselected reference value;

filter means for receiving a first variable based upon at least one of a measured load of the engine and a trigger signal of the exhaust-gas return valve, for receiving a second variable based upon the difference value, and for generating a filtered output value based thereon; and

means for comparing the filtered output value to a first preselected threshold value and for performing a diagnosis of the exhaust-gas recirculation system based thereon by comparing the difference value to a second preselected threshold value.

5,209,213

AIR-FUEL RATIO CONTROL METHOD FOR INTERNAL COMBUSTION ENGINES

Yukio Miyashita; Kunio Noguchi, and Hironao Fukuchi, all of Wako, Japan, assignors to Honda Giken Kogyo Kabusbiki Kaisha, Tokyo, Japan

Filed Sep. 10, 1991, Ser. No. 757,424

Claims priority, application Japan, Sep. 14, 1990, 2-245697

Int. Cl.[5] F02D *41/14*

U.S. Cl. 123—687 3 Claims

1. In an air-fuel ratio control method for an internal combustion engine installed on a vehicle, said engine having an intake passage, an exhaust gas ingredient concentration sensor arranged in said exhaust passage for producing output substantially proportional to the concentration of an ingredient in

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exhaust gases emitted from said engine, and a transmission, wherein the air-fuel ratio of an air-fuel mixture supplied to the engine is feedback-controlled to a desired air-fuel ratio which is set to a value leaner than a stoichiometric air-fuel ratio, by the use of said output from said exhaust gas ingredient concentration sensor, depending upon operating conditions of said engine, and said desired air-fuel ratio is set to a leaner value as said transmission is set to a smaller reduction ratio,



the improvement comprising the steps of:

(1) detecting a reduction ratio to which said transmission has been set;

(2) detecting travelling speed of said vehicle; and

(3) setting said desired air-fuel ratio to a richer value as said travelling speed of said vehicle is lower, insofar as said transmission is set to the same reduction ratio.

5,209,214

AIR FUEL RATIO CONTROL APPARATUS FOR ENGINE

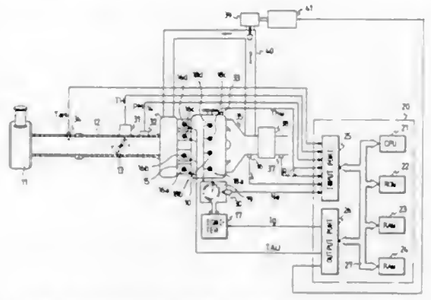
Kenji Ikuta, Hekinan, and Shohei Udo, Kawasaki, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 11, 1992, Ser. No. 897,026

Claims priority, application Japan, Jun. 11, 1991, 3-139250

Int. Cl.[5] F02D *41/14*; F02M *25/07*

U.S. Cl. 123—698 **4 Claims**



1. An air fuel control apparatus for an engine, comprising:

means for detecting an air fuel ratio of an air-fuel mixture to said engine;

means for controlling a fuel supply amount to said engine;

means for recirculating an exhaust gas from an exhaust pipe of said engine to an intake pipe thereof;

means for detecting a degree of the recirculation of said exhaust gas made by said exhaust gas recirculating means;

means for determining a controlled amount of said fuel supply amount control means on the basis of an optimal feedback gain set on the basis of a dynamic model of said engine and the air fuel ratio detected by said air fuel ratio detecting means so as to control the air fuel ratio in said engine to a target air fuel ratio;

means for setting a plurality of optimal feedback gains in accordance with the degree of said reflux detected by said exhaust gas recirculating degree detecting means; and

means for performing a switching operation between said plurality of feedback gains in accordance with the degree of the reflux detected by said exhaust gas recirculating degree detecting means.

5,209,215

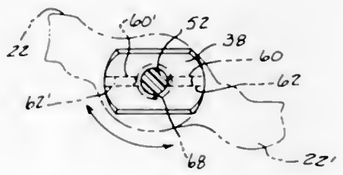
FOLDING CROSSBOW STOCK

David E. Morrison, Homosassa, Fla., assignor to Saxon International, Inc., Tarpon Springs, Fla.

Filed Nov. 15, 1991, Ser. No. 792,781

Int. Cl.[5] F41B *5/12*

U.S. Cl. 124—25 **5 Claims**



1. A rotatable stock for a crossbow having a barrel and a pistol grip portion, the stock comprising:

a body portion;

a first end on the body portion adapted to butt against a user's shoulder;

a second end on the body portion spaced distally from the first end; and

means, located at the second end, for rotatably connecting the stock to the barrel at an end adjacent the piston grip portion, wherein the rotatable connection means comprises:

an opening defined in the barrel end, the opening having an upper wall and a lower wall, relative to the position of the crossbow when in use, and being shaped to removably and rotatably receive the stock second end;

a first slot defined in the second end, with the first slot being open at an upper end and having a bottom wall; and

means, receivable within the opening and the first slot, for selectively and releasably locking the stock in position, wherein the selective and releasable locking means comprises:

a member receivable within the first slot;

a second slot defined in the barrel opening upper wall, adapted to receive an upper portion of the member when the stock is connected to the barrel;

a through bore defined in the opening upper wall;

a through bore defined in the member;

a through bore defined in the slot bottom wall;

a through bore defined in the opening lower wall;

a knob having a shaft portion and a button portion, the shaft portion having an indentation and being receivable through the upper wall through bore, the member through bore, the slot through bore and the opening lower wall through bore, respectively;

means for biasing the knob in an upward position;

means for retaining the knob in one position relative to the member; and

means for retaining the member within the first slot;

wherein, upon actuating the rotatable connecting means, the stock may be selectively rotated between an open, first locked position and a closed, second locked position.

5,209,216

CHAIN CUTTER

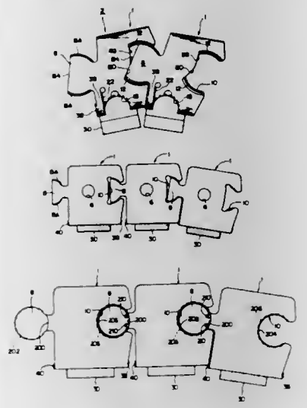
Katsumi Mogi, Omiya, Japan, assignor to Mitsubishi Metal Corporation, Tokyo, Japan

Continuation of Ser. No. 586,942, Sep. 24, 1990, abandoned. This application Mar. 12, 1992, Ser. No. 850,222

Claims priority, application Japan, Sep. 22, 1989, 1-247674; Nov. 17, 1989, 1-298835; Dec. 12, 1989, 1-322237

Int. Cl.[5] B28D *1/08*

U.S. Cl. 125—21 **16 Claims**



1. A chain cutter comprising:

a flexible, endless chain body having inner and outer sides and including a plurality of generally planar flaps connected to each other for angular movement in a common plane, each of said flaps having an end face on the inner side of the chain body,

the chain body further including a plurality of cutting devices connected to the end faces of at least selected ones of the flaps,

wherein each of the flaps has first and second opposite ends, the first end of each flap forms a connecting portion having a disc shape, the second end of each flap forms a connecting recess having a shape complementary with the shape of the connecting portion of the flap, and the connecting portion of each flap fits in the connecting recess of an adjacent flap to connect said each flap thereto, wherein the connecting portions and the connecting recesses connect the plurality of flaps to each other for angular movement in said common plane while inhibiting movement in a direction perpendicular to said common plane, and

wherein the connecting portion of each flap has a central section forming a driving throughbore.

3. A chain cutter comprising:

a flexible, endless chain body having inner and outer edges, and including a plurality of generally planar flaps, each of the flaps having first and second opposite ends and a pair of side stop faces facing toward adjacent flaps;

the first end of each flap forming a first connecting portion having a first pair of peripheral surfaces having circular shapes, the second end of each flap forming a second connecting portion having a second pair of peripheral recesses having shapes matching the shapes of the first pair of peripheral surfaces of the flap, the first connecting portion of each one of the flaps being fitted into the second connecting portion of an adjacent flap, with the first pair of peripheral surfaces of said one flap abutted against the second pair of peripheral surfaces of said adjacent flap, to connect said one flap thereto, the first and second connecting portions of said plurality of flaps connecting the plurality of flaps to each other for angular movement in a common plane while preventing disengagement of the flaps from each other in a direction perpendicular to the common plane;

each of the flaps having an end face on the inner edge of the chain body, each of at lest selected ones of the plurality of the flaps having a cutting device located at the end face of the flap; and

each flap having an area forming a driving throughhole, the driving throughhole of the flaps that are disposed in a longitudinal direction of the chain body being disposed at regular intervals;

wherein when the chain body bends inwardly to form an arc having a radius of curvature and the side stop faces of adjacent flaps in said arc abut against each other, the side stop faces of the adjacent flaps maintain the radius of curvature of said arc at a substantially fixed, predetermined minimum value.

5,209,217

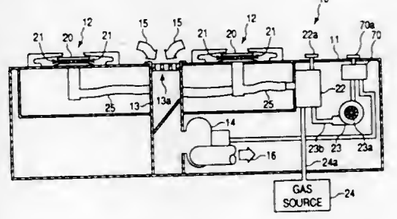
DOWNDRAFT GAS RANGE WITH DUAL MODE BURNER SYSTEM

Stanley H. Beach, Indianapolis, Paul D. Noel, Greenfield; Wallace E. Schmidt, Carmel, all of Ind., and Edward H. Stain, Tucson, Ariz., assignors to Maytag Corporation, Newton, Iowa

Filed Jul. 24, 1992, Ser. No. 919,728

Int. Cl.[5] F24C *3/00*

U.S. Cl. 126—39 R **17 Claims**



1. A dual mode downdraft gas range adapted to provide a gas burner with atmospheric and powered combustion air, comprising:

a cooktop comprising a top surface adapted to be sealed to a gas burner assembly;

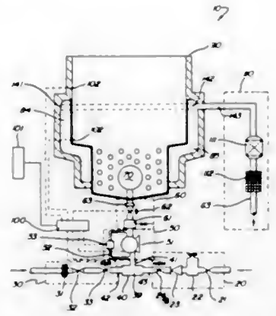
a downdraft plenum adjacent the gas burner assembly adapted to withdraw combustion byproducts and cooking vapors from adjacent the top surface and gas burner assembly;

a sealed gas burner assembly comprising a gas burner having a plurality of burner outlets, combined air and gas flow supply means adapted for connection with an air flow source and a gas flow source, said air flow source comprising means for providing air flow at pressures above atmospheric pressure in the presence of a downdraft exhaust and from atmosphere in the absence of a downdraft exhaust; and

a sealed conduit connected between said gas burner and said combined air and gas flow supply means, said combined air and gas supply means including means for combining air flow and gas flow from said air flow source and gas flow source and control means for controlling the air flow at pressures above atmospheric pressure and the gas flow to provide a combined flow of air and gas through said sealed conduit and said gas burner outlets for controllable combustion.

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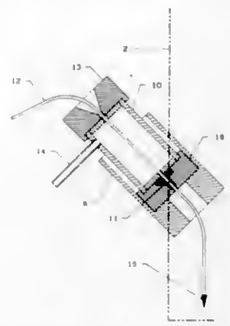
5,209,218
DEEP FRYING APPARATUS
Manouchehr Daneshvar, Novi, and William E. Kraemer, Sterling Heights, both of Mich., assignors to Combustion Concepts, Inc., Detroit, Mich.
Filed Apr. 17, 1992, Ser. No. 870,690
Int. Cl.[5] A47J 27/00
U.S. Cl. 126—391 48 Claims



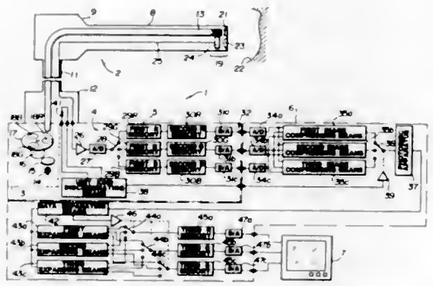
1. A clean burning gas flame frying apparatus for cooking foods comprising:
a frypot for holding cooking oil, said frypot including a heat exchanger and a housing defining a combustion chamber, said heat exchanger mated with said combustion chamber for transferring heat from said combustion chamber to said cooking oil;
burner means located in the bottom of said frypot for combusting a pressurized fuel gas and air premixture for providing said heat, said pressurized fuel gas and air premixture being supplied to said burner means at a specified pressure, said housing surrounding said burner means;
means for supplying air to said burner means;
means for supplying fuel gas to said burner means;
a mixing unit for said air and said fuel gas having an air inlet, a fuel gas inlet and an outlet, said mixing unit operable to create a fuel gas and air premixture, said mixing unit disposed between said burner means and said air and fuel gas supply means;
means for compressing said fuel gas and air premixture to provide said pressurized fuel gas and air premixture and introducing said pressurized premixture to said burner means at a specified velocity, said compressing means disposed between said mixing unit and said burner means;
means for exhausting the products of said combustion, said exhausting means mated with said heat exchanger; and
means for controlling the rate of combustion.

5,209,219
ENDOSCOPE ADAPTOR
Robert S. Hollobaugh, Columbus, Ohio, assignor to Laser Medical Research Foundation, Columbus, Ohio
Filed Mar. 18, 1991, Ser. No. 670,929
Int. Cl.[5] A61B 1/00
U.S. Cl. 128—4 3 Claims

1. An adapter apparatus for a medical endoscope comprising;
a) a hollow, cylindrical main body having one opening in each longitudinally opposite end thereof, permitting passage of a thin, long medical implement therethrough;
b) interior to said main body, a plug dividing the interior region of said main body into an upper and lower region, said plug permitting the passage of said medical implement therethrough, and said plug having therein a one-way means for passage of fluid from the upper region of said main body to the lower region thereof, while preventing passage of fluid in the reverse direction; and,
c) a means for introducing fluid into said upper region of said main body, said fluid having sufficient pressure to pass through said one-way means into the lower region of said body; and,
d) a sealing plug attached longitudinally on the exterior of the lower region of said main body, said sealing plug having size and flexibility to cause a tight seal when inserted in an access port of said endoscope, and said sealing plug having a hole completely therethrough, said hole being in flexible material permitting the passage of said medical implement therethrough while providing a fluid-impermeable barrier therearound; and,
e) a rigid guiding plug longitudinally connecting said main body with said sealing plug, said guiding plug facilitating the passage of said medical implement from said main body through said sealing plug.

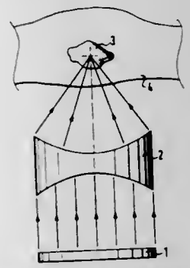


5,209,220
ENDOSCOPE IMAGE DATA COMPRESSING APPARATUS
Keiichi Hiyama, Akishima; Takao Tsuruoka; Kazunari Nakamura, both of Hachioji; Yutaka Konomura, Tachikawa; Masahide Kanno, and Shinichiro Hattori, both of Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Aug. 28, 1990, Ser. No. 574,401
Claims priority, application Japan, Oct. 5, 1989, 1-260843; Oct. 5, 1989, 1-260844; Oct. 5, 1989, 1-260846; Oct. 6, 1989, 1-261284; Oct. 6, 1989, 1-261285; Oct. 11, 1989, 1-265921
Int. Cl.[5] H04N 7/18; A61B 1/06
U.S. Cl. 128—6 4 Claims



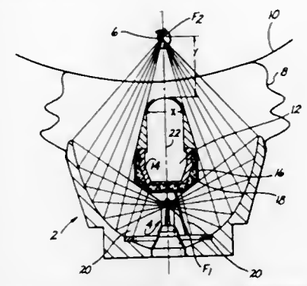
1. An endoscope image data compressing apparatus comprising:
an image recording and reproducing apparatus;
a plurality of image compressing means, each utilizing a different data compressing algorithm, connected in parallel in said image recording and reproducing apparatus, for outputting compressed data by compressing input endoscope image data;
a selecting means for switchably selecting said compressed data output from at least one of said image compressing means; and
a discriminating means for discriminating a unit kind of an endoscope operatively connected with said compressing means and communicating unit kind discrimination information to said selecting on the basis of the discriminated result of said discriminating means.

5,209,221
ULTRASONIC TREATMENT OF PATHOLOGICAL TISSUE
Rainer Riedlinger, Karlsruhe, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany
Continuation of Ser. No. 315,448, Feb. 24, 1989, abandoned.
This application Sep. 20, 1991, Ser. No. 763,475
Claims priority, application Fed. Rep. of Germany, Mar. 1, 1988, 3806532
Int. Cl.[5] A61H 23/00
U.S. Cl. 128—24 AA 30 Claims



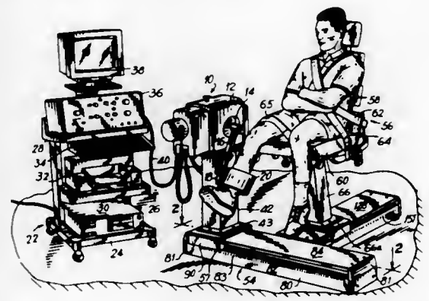
1. An ultrasonic transmission system for the treatment of pathological tissue by producing controlled cavitation in the pathological tissue comprising:
an ultrasonic pulse generating means comprising:
means for generating an ultrasonic signal having a carrier frequency exceeding 20 kHz;
means for generating pulses for controlled pathological tissue cavitation, said pulse generating means coupled to said signal generating means to generate briefly emitted pulses of said ultrasonic signal, each pulse having at least one rarefaction phase of negative sonic pressure amplitude exceeding 2×10^5 Pa in value, a pulse duration (T) of less than 100 μs, and a pulse recurrence rate of less than 1/(5T); and
means for focussing said ultrasonic pulses, said focussing means positioned with respect to said ultrasonic pulse generating means to focus the ultrasonic pulses generated therefrom upon a focal point whereby location of pathological tissue at the focal point of said focussing means and generation of ultrasonic pulses by way of a coupling medium by said ultrasonic pulse generating means upon the pathological tissue so located effects the destruction thereof by controlled cavitation,
said pulse generating means being capable of producing at said focal point a pulse envelope amplitude profile which is shaped as an exponential function.

5,209,222
ULTRASONIC TRANSDUCER IN LITHOTRIPTERS
Thomas Viebach, Paehl; Roland Denk, Munich; Alexander Heese, Munich; Anton Haas, Munich, and Rainer Kreibich, Munich, all of Fed. Rep. of Germany, assignors to Dornier Medizintechnik GmbH, Fed. Rep. of Germany
Filed Dec. 19, 1990, Ser. No. 632,102
Claims priority, application Fed. Rep. of Germany, Dec. 21, 1989, 3942253
Int. Cl.[5] A61B 17/22
U.S. Cl. 128—24 OEL 2 Claims



1. In a lithotripter which includes a shockwave generator having a cavity which is filled with water, the lithotripter further including an ultrasonic locating transducer and a holding device for the transducer, the holding device being positioned in an area and zone of propagation of shockwaves, said shockwaves as produced by the transducer having a particular frequency spectrum with a particular maximum frequency of emission, the improvement of the holding device, comprising:
a metallic outer shell;
a metallic inner shell;
each of the shells having a large acoustic impedance as compared with water; and
an acoustically attenuating layer in between the two shells and having by itself an acoustic impedance being different from the acoustic impedance of the the metallic shells.

5,209,223
SINGLE CHAIR MUSCLE EXERCISE AND REHABILITATION APPARATUS
Raymond W. McGorry, Bayport, N.Y., and Aldo Sori, Wallington, N.J., assignors to Biodex Medical Systems, Inc., Sbirley, N.Y.
Continuation of Ser. No. 672,181, Mar. 20, 1991, abandoned.
This application Oct. 13, 1992, Ser. No. 960,296
Int. Cl.[5] A61H 1/02
U.S. Cl. 128—25 R 2 Claims

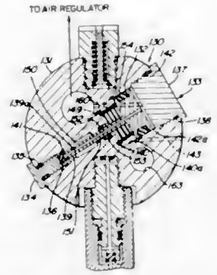


1. Muscle exercise and rehabilitation apparatus comprising:
(a) a patient chair having a first side and a second side,

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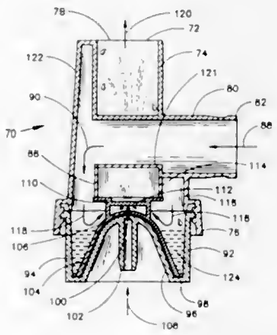
(b) power means for the exercise and rehabilitation of a patient seated in the patient chair,
(c) means for selectively moving the power means between a position adjacent the first side of the patient chair and the second side of the patient chair along a first linear path,
(d) means for controlling the position of the power means so that said power means can be selectively raised and lowered, rotated about a vertical axis passing through the power means and tilted about a horizontal axis passing through said power means,
(e) means for moving said patient chair along a second linear path toward and away from the first linear path, and
(f) means for raising and lowering the patient chair and for rotating the patient chair so that a patient seated in the patient chair can be positioned in a plurality of orientations relative to said power means.

5,209,224
LIGHTWEIGHT BREATHING DEVICE
Guy S. Nelepka, 2327 N. Tustin Ave., Newport Beach, Calif. 92660
Continuation-in-part of Ser. No. 528,248, May 24, 1990, Pat. No. 5,099,835, which is a continuation-in-part of Ser. No. 293,071, Jan. 3, 1989, Pat. No. 4,928,686. This application Mar. 27, 1992, Ser. No. 859,338
The portion of the term of this patent subsequent to May 29, 2007, has been disclaimed.
Int. Cl.[5] A61M *16/00*
U.S. Cl. 128—204.18 **8 Claims**



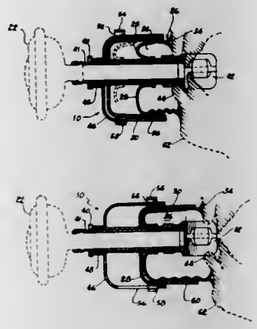
1. An air breathing device, comprising:
a. a main body including a fill port for supplying air to an air supply tank mounted on the breathing device;
b. a rotatable cylinder stem defining a first orifice bore, the cylinder stem being mounted on the breathing device and attached to the air supply tank, the first orifice bore being connected to the air supply tank;
c. an on-off valve mounted on the cylinder stem and defining a second orifice bore, the first and second orifice bores being adapted to form an air connection upon sufficient rotation of the cylinder stem, thereby turning on and admitting air from the air supply tank to the device;
d. an air regulator housing mounted within the main body and connecting from the second orifice bore to a poppet bore cavity, the main body defining an air bore connection leading linearly from the fill port to the air supply tank, the air regulator housing being off-line from the linear flow between the fill port and the air supply tank;
e. an elongate, spring loaded poppet means defining a longitudinal, axial bore, one end of the poppet means seating into an atmospheric bore, and an opposed end of the poppet means, including a poppet head, seating into and sealing the poppet bore cavity, and a poppet stem mounted and secured within the longitudinal, axial bore of the poppet;
f. a body portion mounted in the on-off valve and providing an air connection between the valve and the poppet means of the air regulator housing;
g. a breathing mouthpiece and exhaust port mounted on the air breathing device, the breathing mouthpiece being air connected through the body portion to the air regulator, housing and the poppet bore cavity, the exhaust port being connected to the body portion;
h. a lever adapted to actuate the stem of the poppet means, the poppet stem being connected to the lever through a poppet stem cavity contiguous with the poppet bore cavity and secured in the poppet stem cavity by a shoulder on the poppet stem; and,
i. piston means mounted within the main body and connected to the air regulator housing and the air supply tank, the piston means being adapted to reduce air pressure from the air supply tank and the air regulator; whereby,
a. when the on-off valve is turned on, and a user inhales on the mouthpiece, sufficient suction is produced to unseat the poppet means from the poppet bore cavity and admit air to the user from the air supply tank and through the connected first orifice bore, and then through the body portion;
b. when the user exhales on the mouthpiece, the poppet means closes and exhaust air passes through the body portion to the exhaust port; and,
c. when the lever is pressed, the poppet means will be unseated and release or blow out water and moisture through the body portion and exhaust port.

5,209,225
FLOW THROUGH NEBULIZER
Joseph G. Glenn, Box 91, Broken Arrow, Okla. 74013
Filed Nov. 19, 1991, Ser. No. 794,252
Int. Cl.[5] A61M *11/00*
U.S. Cl. 128—200.14 **10 Claims**



1. A nebulizer which comprises:
(a) a bottom cup for storing liquid medication therein, said bottom cup having an opening therethrough to receive a source of pressurized air;
(b) a substantially cylindrical housing having an open bottom removably attachable to said bottom cup, and an open top outlet;
(c) an air inlet tube traversing said housing, said air inlet tube extending a cross the diameter of said housing perpendicular to said housing and terminating in an aperture adjacent said open bottom so that substantially all of the air entering said inlet tube upon inhalation of a patient will pass across and transversely to said housing before entering said housing adjacent said open bottom; and
(d) a cover receivable within said bottom cup so that liquid medication may be drawn from said bottom cup by induction and form droplets, whereby said air inlet tube of said housing acts as a target for said pressurized air and said liquid droplets to impinge thereon, thereby breaking said droplets into micron-size droplets.

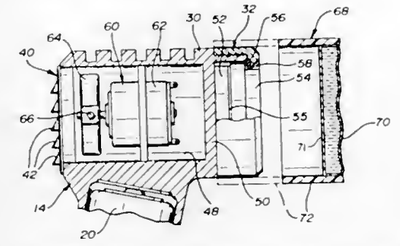
5,209,226
UNDERWATER RESPIRATORY DEVICE
Mark D. Goodley, 3120 Ryan Dr., Escondido, Calif. 92025
Filed Jan. 17, 1992, Ser. No. 846,242
Int. Cl.[5] A61M *16/06*
U.S. Cl. 128—205.25 **11 Claims**



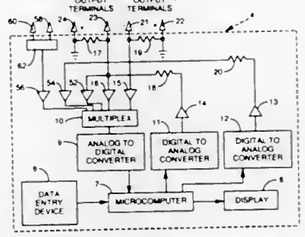
1. An air delivery apparatus for delivering air to the mouth of a diver comprising:
(a) a sealing cup having a sealing lip to seal around the mouth of the diver and define a breathing chamber adjacent to the mouth;
(b) a mouthpiece disposed at least partially within said breathing chamber and being movable from a position engaged in the mouth for delivering air thereto to a position retracted from the mouth exposing the mouth to communication with said breathing chamber; and,
(c) an air delivery system for connecting between an external air supply and both said breathing chamber and said mouthpiece, such that air is provided to the diver through said mouthpiece when same is in the mouth, and through said breathing chamber when said mouthpiece is retracted from the mouth;
(d) said air delivery system including a substantially rigid airpipe passing through said sealing cup to said mouthpiece and communicating with said breathing chamber through said mouthpiece when said mouthpiece is retracted from the mouth;
(e) said sealing cup including a substantially flexible diaphragm which defines said breathing chamber, said diaphragm defining said sealing lip and being sealed around said airpipe; and,
(f) said sealing cup including a reinforcing frame attached to said diaphragm adjacent said sealing lip to substantially maintain the shape of said diaphram around the mouth, said airpipe being slidable in a longitudinal direction substantially free of radial play with respect to said frame.

5,209,227
THERMOELECTRIC THERAPY DEVICE AND MOISTURIZING DEVICE THEREFOR
Richard Deutsch, 8 Bayview Ave., Islip, N.Y. 11751
Continuation-in-part of Ser. No. 587,407, Sep. 25, 1990, Pat. No. 5,097,828. This application Jan. 2, 1992, Ser. No. 815,958
Int. Cl.[5] A61F *7/00*
U.S. Cl. 128—399 **20 Claims**

1. A device for moisturizing the skin, comprising:
a housing, said housing including a handle portion;
a heat source mounted to said housing;
a pre-filled, liquid-containing, integral reservoir including a wall having a substantially impermeable portion which does not permit liquid to pass therethrough and a flexible permeable portion which allows the passage of liquid slowly therethrough, said heat source being positioned in proximity to said reservoir and capable of heating the liquid within said reservoir, and
means for removably securing said reservoir to said housing.



5,209,228
ELECTRONIC PACEMAKER TESTING DEVICE
Gerald G. Cano; Douglas A. Coast; Mark A. Lubinski; Frederick W. Moeller, and Timothy E. Rapp, all of Pittsburgh, Pa., assignors to Allegheny-Singer Research Institute, Pittsburgh, Pa.
Filed Oct. 26, 1990, Ser. No. 605,851
Int. Cl.[5] A61N *1/37*
U.S. Cl. 128—419 PT **14 Claims**



1. A self-contained, portable medical pacing unit tester capable of quickly and comprehensively testing medical pacing units comprising:
(a) a means for transferring signals between said tester and said pacing unit which is being tested by said tester;
(b) a data entry device, said data entry device further comprising a means to select at least one medical pacing unit test and to input one or more medical pacing unit parameters where said parameters are necessary to perform said selected medical pacing unit test;
(c) a means for timing intervals associated with performing said pacing unit test;
(d) a means to generate a set of test signals to be sent to said pacing unit when required for said medical pacing unit test, said means for generating said set of test signals further comprising a microcomputer and a digital/analog converter wherein said microprocessor further comprises a means for generating a series of digital values corresponding to at least one analog test waveform appropriate for said selected medical pacing unit test and a means for transferring said digital values to said digital/analog converter, said digital/analog converter further including a means for generating at least one corresponding analog test waveform and a means for transferring said analog test waveform to said pacing unit;
(e) a means to analyze a set of pacing signals received by said tester from said pacing unit, wherein said set of pacing

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signals generated by said pacing unit comprises at least one analog waveform whereupon said means for analyzing further comprises an analog/digital converter for converting said analog waveform to a series of digital values corresponding to said analog waveform, and a microcomputer for analyzing said digital values with programming appropriate to said selected medical pacing unit test; and

(f) a means to display result(s) of said analysis;

(g) wherein said means to select said medical pacing unit test includes a means to select a stimulus refractory interval test wherein said means to select said stimulus refractory interval test further includes:

(1) a means to generate at least one test waveform and transmit said test waveform to said pacing unit;

(2) a means to determine an interval between successive of said pacing signals generated by said pacing unit, wherein each of said pacing signals initially form an analog waveform of a pacing pulse which is converted to proportional digital values by said tester;

(3) a means to control voltage amplitude of said test waveform;

(4) a means to position said test waveform at a specific interval after the generation of one of said one or more pacing signals generated by said pacing unit;

(5) a means to measure an interval between successive pacing signals generated by said pacing unit, said interval now containing said test waveform of step (4) generated by said tester;

(6) a means to compare said interval of step (5) with said interval of step (2) to determine whether or not said positioned test waveform was detected by said pacing unit, said detection by said pacing unit being indicated by an increase of said interval of step (5) over said interval of step (2);

(7) a means to repeat steps (4)-(6), continually repositioning said test waveform pursuant to a binary search strategy to calculate an interval after generation of said pacing signals generated by said pacing units when demand circuitry of said pacing unit is first able to sense said test waveform.

5,209,229

APPARATUS AND METHOD EMPLOYING PLURAL ELECTRODE CONFIGURATIONS FOR CARDIOVERSION OF ATRIAL FIBRILLATION IN AN ARRHYTHMIA CONTROL SYSTEM

Norma L. Gilli, Elanora Heights, Australia, assignor to Telectronics Pacing Systems, Inc., Englewood, Colo.

Filed May 20, 1991, Ser. No. 702,891
Int. Cl.[5] A61N *1/39*
U.S. Cl. 128—419 D 59 Claims

1. An implantable atrial cardioverting device for the reversion of atrial tachycardias, comprising:

means for storing electrical energy;

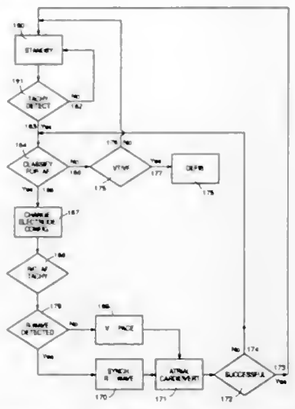
means for detecting the presence of an atrial tachycardia;

an electrode lead system including a plurality of electrode leads therein, each of said leads including a cardioverting electrode having a substantially larger surface area and lower electrode impedance than the surface area and impedance of a pacing lead electrode, at least one of said leads being an atrial endocardial electrode lead;

a plurality of atrial cardioversion electrode configurations, each of said configurations including at least two of said electrode leads;

switching means responsive to the detection of an atrial tachycardia by said detecting means for selectively connecting said energy storage means to one of said atrial cardioversion electrode configurations;

means for setting the level of electrical energy stored in said electrical energy storing means to an appropriate level for an atrial cardioversion shock; and,



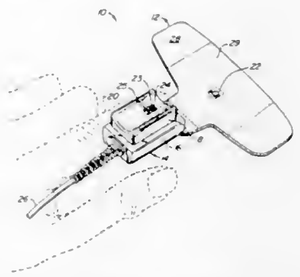
means for discharging said stored electrical energy across said selected atrial cardioversion electrode configuration.

5,209,230

ADHESIVE PULSE OXIMETER SENSOR WITH REUSABLE PORTION

David B. Swedlow, Foster City; Jessica Warring, Millbrae, and Russell Delonzor, Union City, all of Calif., assignors to Nellcor Incorporated, Hayward, Calif.

Continuation-in-part of Ser. No. 600,541, Oct. 19, 1990, abandoned. This application Aug. 6, 1991, Ser. No. 741,290
Int. Cl.[5] A61B *5/02*
U.S. Cl. 128—633 17 Claims



1. A sensor for attaching to a patient for electrooptical measurement of blood characteristics, comprising:

a reusable member including a first electronic means for emitting or detecting electromagnetic radiation;

conducting means, connected to said reusable member, for electrically connecting said first electronic means to an external sensor monitoring system;

a disposable, flexible member including a second electronic means for detecting electromagnetic radiation emitted by said first electronic means or emitting electromagnetic radiation to be detected by said first electronic means;

means for removably coupling said flexible member to said reusable member to provide a connection between said second electronic means and said conducting means; and

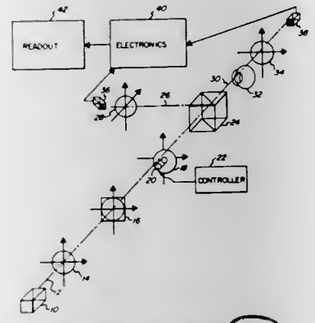
means for securing said disposable, flexible member and said reusable member to said patient.

5,209,231

OPTICAL GLUCOSE SENSOR APPARATUS AND METHOD

Gerard L. Cote, West Willington; Martin D. Fox, Mansfield, and Robert B. Northrop, Chaplin, all of Conn., assignors to University of Connecticut, Storrs, Conn.

Filed Nov. 2, 1990, Ser. No. 608,251
Int. Cl.[5] A61B *5/00*
U.S. Cl. 128—633 18 Claims



1. An optically based apparatus for in vivo non-invasively determining concentration of optically active substances in an animal comprising:

(a) a laser for producing a laser beam of spatially coherent light;

(b) means for acting upon said laser beam to produce a rotating linear polarized vector therein including

(i) a linear polarizer for linearly polarizing the laser beam,

(ii) a circular polarizer for circularly polarizing the linearly polarized beam, and

(iii) a rotating linear polarizer for producing a constant amplitude time varying linear polarization in the beam;

(c) beam splitter means for splitting the beam into a reference beam and a detector beam for passage through a specimen;

(d) beam transport means for transporting the detector beam to a selected area of an animal for passage through a medium in the animal containing an optically active substance;

(e) means for receiving the detector beam upon exiting the animal;

(f) means comparing the reference beam with the received detector beam to determine the amount of phase shift produced by rotation of the polarized light in the detector beam during passage through the animal; and

(g) means for converting the amount of phase shift determined by said rotation of the polarized light in the detector beam into a concentration value of the optically active substance in the medium through which said detector beam has passed.

5,209,232

BIOPSY NEEDLE POSITIONING

Simha Levene, Doarna Hadarom, Israel, assignor to Elscint Ltd., Haifa, Israel

Filed Jan. 31, 1991, Ser. No. 648,846
Claims priority, application Israel, Jan. 30, 1990, 093215
Int. Cl.[5] A61B *6/00*
U.S. Cl. 128—653.1 7 Claims

1. A mammographic biopsy needle holder positioning system for positioning a needle holder to locate lesions in a patent's breast, said system comprising:

a biopsy needle holder adapted to be inserted into the breast, said needle holder having a different X-ray transmission characteristic than body tissue,

an X-ray source for generating X-ray beams directed to pass through the breast of the patient,

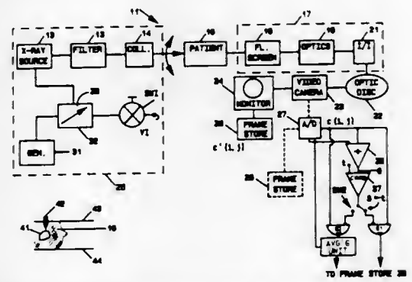
an X-ray detector located opposite the X-ray source for detecting said X-ray beams after the X-ray beams traverse the breast and providing output signals,

a processor for processing the output signals of the X-ray detector to provide display data giving views of the interior of the breast,

compression plates for compressing the breast substantially in the direction of the X-ray beams,

means for averaging said display data to obtain averaged display data,

means for providing a display from said averaged display data,



said processor including storage means for storing the average display data per pixel which is used to provide the display,

comparison means for comparing data acquired last for a particular pixel to the averaged display data for the particular pixel to determine whether said data acquired last for the particular pixel is substantially the same as the averaged display data for the particular pixel,

first gate means connected to said comparison means for averaging the data acquired last with the averaged display data for the particular pixel, and

second gate means connected to said comparison means for providing the data acquired last to said storage means as new display data for the pixel without averaging with the prior obtained averaged data.

5,209,233

TEMPERATURE SENSING AND CONTROL SYSTEM FOR CARDIAC MONITORING ELECTRODES

G. Neil Holland, Chagrin Falls; Douglas M. Blakeley, Euclid; Theodore J. Reisker, Lyndhurst, and David A. Molyneaux, Willowick, all of Ohio, assignors to Picker International, Inc., Highland Heights, Ohio

Continuation-in-part of Ser. No. 439,855, Nov. 21, 1989, Pat. No. 4,991,587, which is a continuation-in-part of Ser. No. 98,546, Sep. 18, 1987, abandoned, which is a continuation of Ser. No. 764,440, Aug. 9, 1985, Pat. No. 4,694,837. This application Feb. 11, 1991, Ser. No. 653,628
Int. Cl.[5] A61B *5/055*
U.S. Cl. 128—653.2 21 Claims

1. A non-invasive diagnostic apparatus comprising:

a means for subjecting a region of interest of a patient to changing magnetic fields and radio frequency signals in order to induce and encode magnetic resonance of selected nuclei in the region of interest;

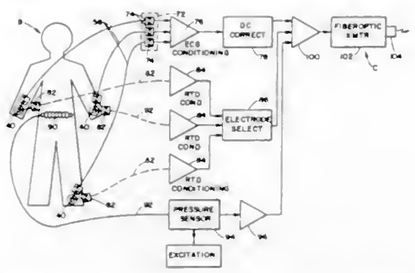
an electrode for engaging the patient to monitor ECG signals;

an electrically conductive lead having a clip means for selectively engaging and establishing electrical communication with the electrode, the radio frequency signals inducing radio frequency currents in the lead which currents can cause heating of the electrode;

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a temperature sensing means mounted to the clip means for sensing temperature;

a means mounted in series between the electrically conductive lead and the electrode for passing the ECG signals while inhibiting the passage of the radio frequency currents;



a receiving means for receiving magnetic resonance signals from the region of interest;

a sequence control means for controlling application of magnetic field gradients and radio frequency pulses and processing the received magnetic resonance signals into diagnostic information.

5,209,234

APPARATUS FOR THE NON-INTRUSIVE FRAGMENTATION OF RENAL CALCULI, GALLSTONES OR THE LIKE

Aldo LaRocca, Revigliasco Torinese, Italy, assignor to Lara Consultants s.r.l., Italy

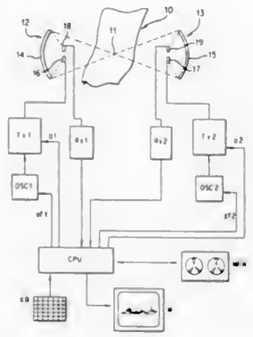
PCT No. PCT/IT88/00068, § 371 Date Mar. 23, 1990, § 102(e) Date Mar. 23, 1990, PCT Pub. No. WO89/02724, PCT Pub. Date Apr. 6, 1989

Continuation of Ser. No. 490,575, Mar. 23, 1990, abandoned. This PCT application Sep. 29, 1988, Ser. No. 827,870

Claims priority, application Italy, Oct. 2, 1987, 48443 A/87

Int. Cl.[5] A61B *17/22*

U.S. Cl. 128—660.03 5 Claims



1. An apparatus for the non-intrusive fragmentation of a renal calculus to be disintegrated by ultrasonic oscillations which are focussed on the renal calculus to be disintegrated, said apparatus comprising:

at least one receiver-transmitter head means for receiving and transmitting ultrasonic waves which are focussed on the renal calculus to be disintegrated, each said at least one receiver-transmitter head means including variable frequency transmitting means for generating ultrasonic oscillations having wavelengths within a very narrow band and receiver means for receiving ultrasonic waves reflected from the renal calculus to be disintegrated;

control means for effecting a frequency sweep of ultrasonic waves at low power over the renal calculus to be disintegrated;

means connected to said receiver means for performing a spectral analysis of the characteristic resonance frequencies corresponding to various crystalline structures aggregated within the renal calculus to be disintegrated based on said frequency sweep at low power, whereupon said transmitting means is caused to emit energy bursts of relatively high-power energy pulses possessing the minimum energy at the characteristic resonance frequencies of the renal calculus to effect its disintegration,

wherein further low power frequency sweeps can be effected to determine the characteristic resonance frequencies of any remaining crystalline structures within the renal calculus so that the high-power energy pulses can be adjusted depending on the shape and constitution of the renal calculus during its disintegration.

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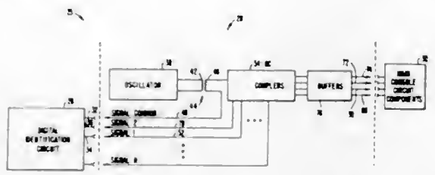
ULTRASONIC IMAGING CATHETER ASSEMBLY AND METHOD FOR IDENTIFICATION OF THE SAME

Axel F. Brisken, Fremont; Douglas A. LaPorte, Santa Clara, both of Calif.; Aage Gronningsaeter, Trondhjem, Norway, and Michael D. Rold, Cupertino, Calif., assignors to Cardiovascular Imaging Systems, Inc., Sunnyvale, Calif.

Filed Sep. 13, 1991, Ser. No. 758,879

Int. Cl.[5] A61B *8/12*

U.S. Cl. 128—662 13 Claims



1. An improved ultrasonic imaging catheter assembly of the type including an elongate tubular assembly carrying an imaging assembly at the distal end of the tubular assembly, the improvement comprising:

a digital identification circuit including a plurality of ID terminals and circuit means for electrically coupling the ID terminals according to the identification of the catheter assembly, wherein the circuit includes a common ID terminal and first and second signal terminals and the circuit means further includes first means for connecting the common ID terminal to the first signal terminal and second means for connecting the common ID terminal to the second signal terminal by one of the following: a short circuit; an open circuit; a diode with the cathode of the diode towards the common ID terminal; or a diode with the cathode towards the first signal terminal, whereby the digital identification circuit can be electrically interrogated through the ID terminals to determine the identification of the catheter assembly.

5,209,236

Patent Not Issued For This Number

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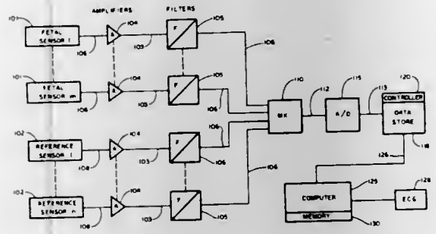
METHOD AND APPARATUS FOR DETECTING A SIGNAL FROM A NOISY ENVIRONMENT AND FETAL HEARTBEAT OBTAINING METHOD

Felix Rosenthal, 4020 Iva La., Annandale, Va. 22003

Continuation-in-part of Ser. No. 508,304, Apr. 12, 1990, abandoned. This application May 24, 1991, Ser. No. 705,493

Int. Cl.[5] A61B *5/0444*

U.S. Cl. 128—698 26 Claims



1. A method of generating an electrocardiogram representative of a fetal heartbeat, comprising the steps of:

placing at least one primary sensor on the abdominal area of a pregnant female in proximity of the fetus to detect signals generated by the fetal heart;

placing a plurality of reference sensors in other regions of the female body to detect signals generated by sources other than the fetal heart;

detecting a primary sensor output signal from said at least one primary sensor and reference sensor output signals from each of said plurality of reference sensors;

comparing said reference sensor output signals and identifying mutually independent noise source components of said reference sensor output signals;

generating filter constants using said identified components;

modifying each of said reference sensor output signals by said filter constants to generate modified reference output signals;

generating a modified primary output signal by subtracting components corresponding to said modified reference output signals from said primary output signal; and

producing an electrocardiogram representing said modified primary output signal.

5,209,238

ELECTRONIC OVULATION MONITOR

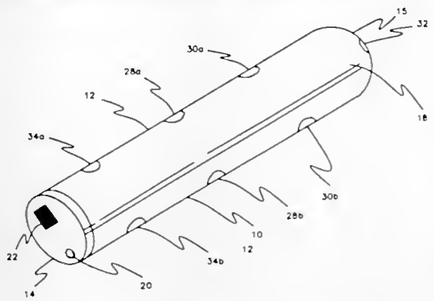
Shaam P. Sundhar, 87 Juniper Ave., Westerville, Ohio 43081

Continuation-in-part of Ser. No. 649,213, Jan. 25, 1991, which is a continuation of Ser. No. 395,002, Aug. 17, 1989, abandoned. This application May 5, 1992, Ser. No. 878,683

Int. Cl.[5] A61B *10/00*

U.S. Cl. 128—738 13 Claims

1. An electronic ovulation monitor comprising a rod-shaped housing, means for sensing and measuring four values, namely basal body temperature, mucous density, pH level and LH level, means for processing said values to determine if each



value is contraindicative of the presence of a viable egg, and means for immediately signaling the presence of a viable egg.

5,209,239

APPARATUS FOR CYSTOGRAPHIC INSPECTION

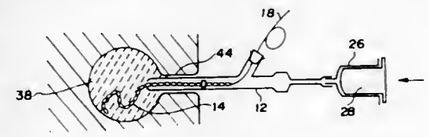
Hideki Watanabe, Aichi; Takashi Kojima, and Masaru Maruyama, both of Nagano, all of Japan, assignors to Hakko Electric Machine Works Co., Ltd., Nagano, Japan

Filed May 18, 1990, Ser. No. 525,554

Claims priority, application Japan, Apr. 9, 1990, 2-93538

Int. Cl.[5] A61B *5/103, 6/00*

U.S. Cl. 128—774 8 Claims



1. An apparatus used for cystographic inspection for examining a flexed condition of the urethra and a posterourethrovesical angle, the apparatus comprising:

a catheter for insertion through the urethra into the urinary bladder of a patient, said catheter injecting a contrast medium into the urinary bladder and being drawn out of the urethra after an injection of the contrast medium has been completed;

said catheter including a housing;

a cylindrical injector for containing the contrast medium and removably-connected to one end of said housing;

a urethral locus indicating member removably positioned in said housing and including a chain formed such that it can be roentgenographed, said chain being emitted out of out of said housing through another end thereof into the urinary bladder at a front portion of said chain upon said injection of the contrast medium into the urinary bladder and being left in a region extending from the urethra to the urinary bladder after the catheter has been drawn out of the urethra; and

a marker which is formed such that it can be roentgenographed, said marker being adjustably fixed on said chain in a predetermined position and at a distance from a front end of said chain and having a diameter larger than that of said urethral locus indicating member so as to prevent said marker from penetrating into the urethra when said chain is inserted into the urinary bladder and permit detection of the external urethral opening when said chain with said marker are roentgenographed.

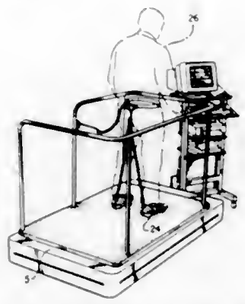
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5,209,240

DEVICE FOR INDUCING AND REGISTERING IMBALANCE

Sanjeev Jain, Columbia; John E. Vermette, Baltimore, both of Md.; Richard Weber, Middlesex, N.J.; Robert J. Doub, Baltimore, Md.; Gad Alon, Rockville, Md., and Alan G. Day, III, Timonium, Md., assignors to Baltimore Therapeutic Co., Hanover, Md.

Filed Feb. 20, 1991, Ser. No. 658,334
Int. Cl.[5] A61B *5/103*
U.S. Cl. 128—779 6 Claims



1 A device for registering and evaluating the response of a human subject in a stationary, standing position to induce imbalance which comprises a single, unitary horizontal platform means for accommodating said human subject; said platform means comprising a single horizontal surface mounted on linear bearing rails and connected to means for causing controlled linear displacement of said surface in a horizontal plane to cause said induced imbalance; displacement control means for controlling the speed, acceleration, duration and distance of said linear displacement; and means for causing said displacement causing means to return said platform to its initial position subsequent to said displacement; means for detecting said imbalance and the response of said subject thereto comprising a pair of pads adapted to be worn on the feet of said subject while standing on said platform means and providing with pressure responsive switches for producing signals which characterize movement of the feet of said subject caused by said imbalance and response; means for transmitting said signals to evaluation and recording means for displaying measured time intervals between said controlled displacement of the platform means and induced imbalance and response thereto by said subject.

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PROPHYLACTIC DEVICE FOR A FEMALE

Betty J. Hardy, 2934 Moyers Rd., Richmond, Calif. 94806

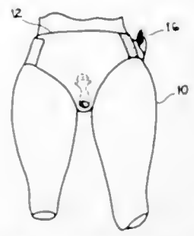
Filed Jun. 1, 1992, Ser. No. 891,634
Int. Cl.[5] A61F *6/02, 6/04*
U.S. Cl. 128—842 4 Claims

1. An unitary apparatus for contraception and prophylactic enhancement for use by a female user comprising:

a first portion to fit over the torso of a female user, the first portion having a front, back, side and middle section,

an attachment means at the side section of the first portion for allowing for a snug fit of the first portion on the user;

a hollow tubular portion coupled to the middle section of the first portion, the tubular portion being able to be inserted into the vaginal area of the user, the hollow tubular portion including a dome member that covers the cervical area of the female user; and



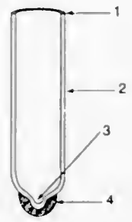
means projecting outwardly from the tubular portion for securing the dome member behind the pubic bone of the female user.

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CONDOMS WITH LEADING SPONGES

Jack W. Shields, 1950 Las Tunas Rd., Santa Barbara, Calif. 93103, and Richard P. Jobe, 26985 Orchard Hill La., Los Altos Hills, Calif. 94022

Filed Aug. 30, 1991, Ser. No. 753,630
Int. Cl.[5] A61F *13/00*
U.S. Cl. 128—844 9 Claims



1. A condom comprising a proximal ring, a tubular shaft and a closed leading end wherein said closed leading end further comprises a sponge on the outside surface of said leading end wherein the sponge is capable of holding medications, which are released during coitus, wherein the condom further includes a leading well and said sponge is located on the exterior surface of said well.

5,209,243

CESARIAN SECTION COLLECTING INCISE DRAPE

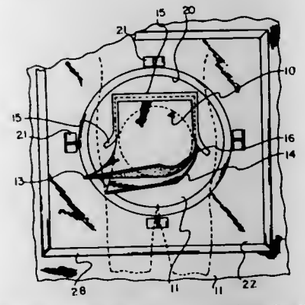
Jacob A. Glassman, 1680 Michigan Ave., Miami Beach, Fla. 33139

Filed Oct. 18, 1991, Ser. No. 778,663
Int. Cl.[5] A61B *19/00, 19/08*
U.S. Cl. 128—849 7 Claims

1. A cesarian section incise collecting drape adapted to be draped over the body of a patient lying on an operating table, said patient's body having an upper surface and downwardly extending side surfaces, comprising

a bottom layer of impervious flexible material having a first opening therethrough

a top layer of impervious flexible material having a second opening therethrough, said second opening being larger than said first opening, said first opening being located within the confines of said second opening, said top layer being sealingly connected to said bottom layer around an outside edge of said top layer forming impervious collecting means extending substantially around said first and second openings for collecting body fluids produced during a cesarian section surgical operation said collecting means comprising a space formed between said first and second layers extending around said first and second openings thereby creating a collecting chamber between



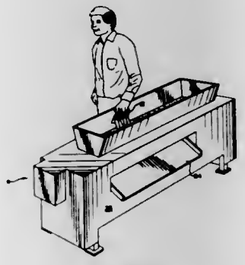
said top and bottom layers of impervious flexible material whereby at least some portion of said collecting chamber extends downwardly along a portion of said side surface of the body of said patient.

5,209,244

METHOD OF CLEANING METAL MESH GLOVES

Frank L. Adkison, Winfield, Iowa, assignor to Oscar Mayer Foods Corporation, Madison, Wis.

Division of Ser. No. 759,101, Sep. 6, 1991, abandoned, which is a continuation of Ser. No. 591,929, Oct. 19, 1990, abandoned. This application Jul. 7, 1992, Ser. No. 911,258
Int. Cl.[5] B08B *1/00;* A47L *25/00*
U.S. Cl. 134—6 11 Claims



1. A method of cleansing a metal mesh glove of the type used in the meat processing industry and which is constructed of metal strips having crevices and spaces therebetween which have particles of meat, fish and the like embedded therein, said method comprising:

rotating a pair of elongated rollers toward and in counter-rotation to each other about elongate axes to define an entry slot between said rollers, said rollers and axes extending substantially parallel to each other, and said rollers comprising a plurality of bristles extending generally radially therefrom;

providing a flow of cleansing fluid onto at least one of the rotating rollers; and

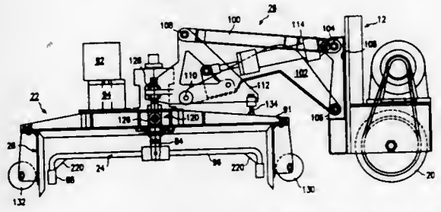
removing the particles of meat, fish and the like embedded in the crevices and spaces in the metal mesh glove by inserting the metal mesh glove into the entry slot between the rollers so that the rollers simultaneously exert inwardly and downwardly directed forces on the metal mesh glove, and said cleansing fluid flushes and removes the particles from the glove and the rollers.

5,209,245

HYDROCLEANING OF THE EXTERIOR SURFACE OF A PIPELINE TO REMOVE COATINGS

Gordon R. Chapman, Houston, Tex.; Charles M. Reid; James B. Seale, both of Edmooton, Canada, and Donald R. Andruik, Houston, Tex., assignors to CRC-Evans Rehabilitation Systems, Inc., Houston, Tex.

Continuation of Ser. No. 486,093, Feb. 28, 1990, Pat. No. 5,074,323, which is a continuation-in-part of Ser. No. 197,142, May 23, 1988, Pat. No. 5,052,423, which is a continuation-in-part of Ser. No. 55,119, May 28, 1987, abandoned. This application Nov. 8, 1991, Ser. No. 789,588
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—122 R 27 Claims



17. An apparatus for cleaning an exterior surface of a pipe comprising:

a frame defining a longitudinal passage therethrough of a size sufficient to permit said pipe to effectively pass longitudinally through said frame upon relative longitudinal motion between said frame and said pipe;

a plurality of suspension linkages mounted on said frame; and

a plurality of jet modules, each jet module comprising at least one rotatable liquid jet nozzle directed toward said exterior surface of said pipe, each jet module being mounted to said frame through a respective one of said suspension linkages, each suspension linkage being constructed to permit the associated jet module to move radially relative to said pipe;

wherein each said suspension linkage comprises:

an upper control arm having a first end and a second end, the first end of the upper control arm being pivotally mounted to said frame at a first pivot point;

a lower control arm having a first end and a second end, the first end of the lower control arm being pivotally mounted to said frame at a second pivot point; and

an end link, the end link being pivotally mounted to the second end of the upper control arm at a third pivot point, the end link being pivotally mounted to the second end of the lower control arm at a fourth pivot point, the end link being pivotally mounted to the associated jet module at a fifth pivot point.

5,209,246

SEALING SYSTEM FOR A DISHWASHER

Jon D. Tromblee, Hagar Township, Berrien County, and Vincent P. Gurubatham, St. Joseph, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Ill.

Filed Dec. 28, 1990, Ser. No. 635,479
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—186 19 Claims

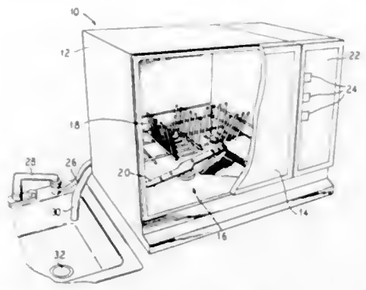
1. In a dishwasher having a wall defining a wash cavity, spray means for distributing wash liquid within said wash

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cavity, sump means for receiving said wash liquid from said wash cavity, pump means, having an intake disposed in said sump means and an outlet, for providing wash liquid to said spray means, and conduit means for carrying wash liquid from said pump means outlet to said spray means, a sealing system comprising;

base means for mounting said pump means thereon,

first sealing means for removably sealing said base means to said sump means,



said base means being positioned relative to said sump means so as to permit removal of said base means and pump means from said sump means while preventing leakage of any wash liquid remaining in said sump means, and

second sealing means located within said sump means for removably sealing

said pump means outlet to said conduit means, wherein said second sealing means and said pump means outlet are automatically sealed when said base means is sealed to said sump means.

5,209,247

SYSTEM FOR MANUFACTURING AND PACKAGING CIGARETTES

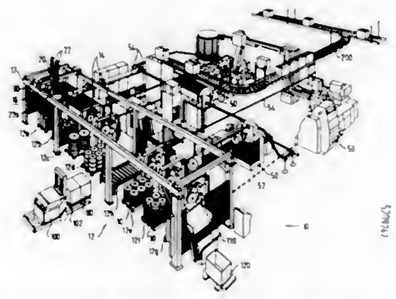
Erhard Rittershaus, Hamburg; Werner Zapf, Hayreuth; Horst Bäse, Wentorf, and Walter Kitzing, Pinneberg, all of Fed. Rep. of Germany, assignors to B.A.T. Cigarettenfabriken GmbH and Körber AG, both of Hamburg, Fed. Rep. of Germany

Filed Jun. 4, 1991, Ser. No. 710,278

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1990, 4018266

Int. Cl.[5] A24C *5/10, 5/20*

U.S. Cl. 131—58 14 Claims



1. A system for manufacturing and packaging cigarettes comprising

(a) at least one cigarette making machine,

(b) packaging machines associated with said at least one cigarette making machine for packaging the cigarettes in packages, cartons and boxes,

(c) a conveying system for the transport of pallets with bobbins of raw materials allocated for each single article from a central store to a plurality of supply and removal stations of an intermediate store station which is associated with a production unit comprising said at least one cigarette making machine and the associated packaging machines,

(d) a portal spanning at least some of the supply and removal stations,

(e) at least one portal robot for lifting bobbins of raw materials from a selected supply station,

(f) the at least one portal robot being movable longitudinally and transversely of an elongated crosshead of the portal and taking bobbins of raw materials from the selected supply station,

(g) transport means for conveying bobbins of raw materials to the at least one cigarette making and the associated packaging machines, and

(h) an automatic tool changer at the at least one portal robot, comprising:

(i) a bobbin changer associated with each bobbin supply station,

(j) the portal spanning both the supply stations and the associated bobbin changers, and

(k) the at least one portal robot supplying the bobbins from the bobbin supply stations to the bobbin changers.

5,209,248

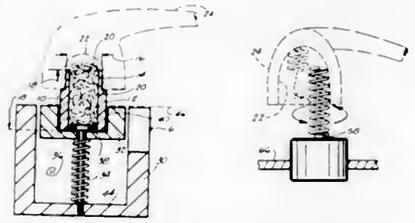
SMOKER'S PIPE FILLING AND CLEANING SYSTEM

Robert L. Slade, Sr., Rte. 3, Box 156, Perkinston, Miss. 39573

Filed Jun. 14, 1991, Ser. No. 715,682

Int. Cl.[5] A24F *9/02, 9/04*

U.S. Cl. 131—232 10 Claims



7. An apparatus for filling and cleaning a smoker's pipe by feel comprising, in combination:

a pipe filler box;

a removable tobacco filled tube, vertically insertable within a holder within said pipe filler box, said holder being movable from a first to a second position;

means for urging said holder into said first position;

a tamper extending up through said holder, being below said tube in said first position, extending up through said tube in said second position, pushing thereby tobacco from said tube;

a pipe cleaner box having a pipe aligning opening into an ash receiving container;

a reamer mounted within said ash receiving container such that said reamer extends into a pipe inserted into said pipe aligning opening;

means for rotating said reamer;

said pipe cleaner box and said pipe filler box being mounted within a case; and

said case supporting a plurality of said tubes.

5,209,249

CIGARETTE CHECKING APPARATUS

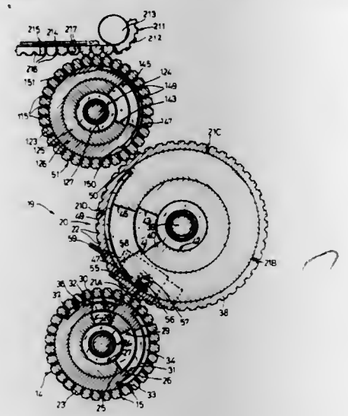
Armando Neri, Bologna, Italy, assignor to G. D. Societá Per Azioni, Italy

Filed Jul. 26, 1989, Ser. No. 385,809

Claims priority, application Italy, Jul. 28, 1988, 3554 A/88

Int. Cl.[5] A24D *5/14, 5/34, 5/345*

U.S. Cl. 131—282 19 Claims



1. A cigarette checking apparatus for checking selected cigarettes from a succession of single cigarettes, comprising means for selectively withdrawing said selected cigarettes from first transportation means for transporting said succession of single cigarettes to first conveying means, means for transporting said selected cigarettes withdrawn from said first transportation means to second transportation means, said second transportation means transporting said selected cigarettes withdrawn from said first transportation means to at least one checking device said at least one checking device checking the physical and geometrical characteristics of said cigarettes, and said at least one checking device having an independent inlet receiving said selected cigarettes from said second transportation means.

5,209,250

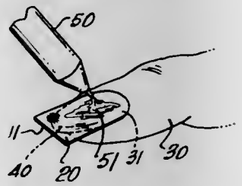
METHOD FOR ATTACHING AN ARTIFICIAL EXTENSION ON FINGERNAIL

Sandra D. Taeckens, La Quinta, assignor to Herbert C. Schulze

Filed Aug. 5, 1991, Ser. No. 740,293

Int. Cl.[5] A45D *29/00*

U.S. Cl. 132—73 1 Claim



1. The method of extending and beautifying a fingernail comprising: applying a plastic extension on a fingernail such that the extension extends the apparent length of the fingernail; shaping the joint point of the extension to the fingernail in such manner as to eliminate a clear line of demarkation; applying first adhesive material over the nail and the extension ; removing a single, pre-formed, element of fingernail fabric wrap with a releasable second adhesive on one side from a backing sheet having a multiplicity of preformed fingernail shapes; mounting said single, pre-formed, fingernail shaped element of fingernail fabric wrap material having a releasable second adhesive material on one side upon the nail by means of said releasable second adhesive material; impregnating said single, preformed element with third adhesive; and shaping and polishing over said fingernail wrap material impregnated with third adhesive.

5,209,251

DENTAL FLOSS

John P. Curtis, Bloomsbury, and James H. Kemp, North Brunswick, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 282,962, Dec. 2, 1988, Pat. No. 5,033,488, which is a continuation-in-part of Ser. No. 174,757, Mar. 29, 1988, abandoned. This application Jul. 11, 1991, Ser. No. 729,834

The portion of the term of this patent subsequent to Jul. 23, 2008, has been disclaimed.

Int. Cl.[5] A61C *15/00*

U.S. Cl. 132—321 20 Claims

1. A dental cleaning floss comprising at least one polytetrafluoroethylene strand that has been expanded by stretching under conditions to increase the tensile strength thereof, said floss having a coating of at least one material capable of increasing the coefficient of friction, wherein said dental floss has a denier of about 500 to 1500 and a coefficient of friction of about 0.08 to about 0.25.

5,209,252

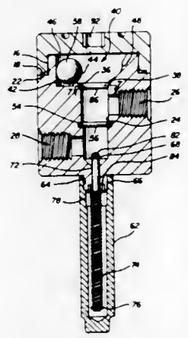
EARTHQUAKE GAS SHUT-OFF VALVE

Cery B. Perle, 11323 Moorpark St., #97, Toluca Lake, Calif. 91602

Filed Apr. 28, 1992, Ser. No. 874,695

Int. Cl.[5] F16K *17/36*

U.S. Cl. 137—38 25 Claims



1. A gas shut-off valve having inlet and outlet apertures communicating with a central valve chamber and a valve seat provided between said inlet and said outlet apertures, the valve comprising:

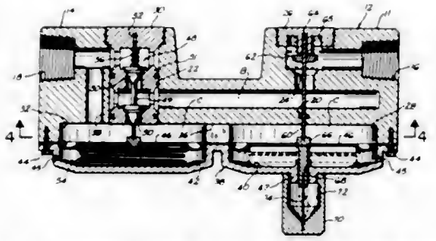
a channel located above said valve chamber;

at least one ball rolling on said channel;

a guide ramp causing a ball to leave the channel upon a seismic disturbance of predetermined magnitude, the ball falling onto said valve seat to interrupt gas flow through said valve chamber, the guide ramp comprising a concave surface having a crest, the surface providing a continuous unobstructed path for said ball to roll from said channel, said ball having a center of gravity substantially displaced from an initial position over said channel to a second position directly over the valve seat when said ball has rolled from said channel to said crest turbulence screen disposed within said valve chamber and preventing formation of eddy currents within said chamber.

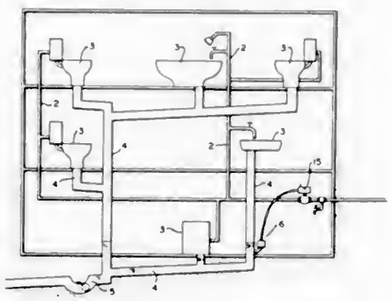
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,253
EMERGENCY SHUTOFF VALVE AND REGULATOR ASSEMBLY
Julian S. Taylor, 8300 SW. 8th, Oklahoma City, Okla. 73128
Continuation-in-part of Ser. No. 780,180, Oct. 21, 1991, Pat. No. 5,146,942. This application May 26, 1992, Ser. No. 888,086
Int. Cl.[5] F16K *17/00*
U.S. Cl. 137—67 7 Claims



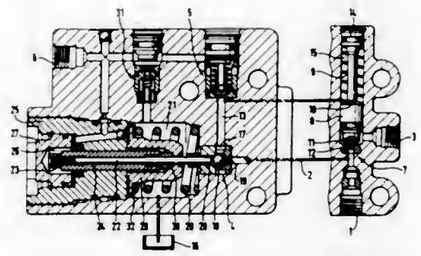
1. An emergency shutoff valve and regulator assembly, comprising:
a valve body having a flow passageway therethrough and communicating between an inlet port and an outlet port thereof, the valve body forming a valve seat in the flow passageway;
valve means supported by the valve body for sealing against the valve seat and preventing fluid flow through the inlet port in a closed position, the valve means having an open position wherein the inlet port is open to fluid flow;
axially collapsible pin means for retaining the valve means in the open position thereof when the fluid pressure is below a predetermined value and for releasing the valve means when the fluid pressure reaches the predetermined value;
means for biasing the valve means toward the valve seat and to the closed position thereof in response to the release of the valve means by the axially collapsible pin means; and,
regulator means for maintaining a predetermined downstream pressure through the exit outlet port.

5,209,254
WATER AND SEWERAGE SYSTEM FOR CONSTRUCTION, AND PROTECTION FOR THE SAME
Slomo Ancselovics, 1628 E. 23 St., Brooklyn, N.Y. 11229
Filed Oct. 29, 1991, Ser. No. 784,561
Int. Cl.[5] E03B *7/00*
U.S. Cl. 137—87 8 Claims



1. A water and sewerage system for a construction, comprising a plurality of water consumers; a water supply pipe adapted to supply water from a water source; a plurality of water supplying pipes extending from said water supply pipe to said water consumers; at least one water drainage pipe adapted to drain water to a sewage reservoir or the like; a plurality of water draining pipes extending from said water consumers to said water drainage pipe; a water level sensor connected with one of said water draining pipes so as to sense when water reaches a predetermined level in said one water draining pipe; and at least one water supply interrupting element cooperating with said water supply pipe so that when water in said one water draining pipe reaches said predetermined level said sensor sends a signal to said water supply interrupting element, and said water supply interrupting element interrupts water supply in said water supply pipe.

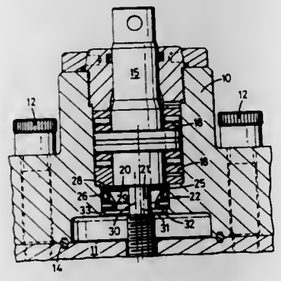
5,209,255
ACCUMULATOR LOADING VALVE
Gottfried Dehio, Frankfurt am Main, Fed. Rep. of Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany
Filed Nov. 16, 1990, Ser. No. 614,883
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1989, 3939500
Int. Cl.[5] G05D *16/04*
U.S. Cl. 137—115 9 Claims



1. A pressure-responsive accumulator loading valve for distributing fluid under pressure delivered by a pump connection to a consumer through a consumer connection and to an accumulator through an accumulator connection, respectively, said accumulator loading valve comprising:
a reservoir connection;
pilot valve means including:
(a) a valve having an inlet opening to said accumulator connection with a first flow cross-section and a discharge bore opening to said reservoir connection with a second flow cross-section which is larger than said first flow cross-section,
(b) an operating piston,
(c) a closing member actuated by said operating piston and adapted to open and close said valve inlet opening and said valve discharge bore opening, and
(d) a space-saving helical spring element having a constant spring rate for elastically prestressing said operating piston,
said pilot valve means adapted to respond to the pressure in said accumulator and having:
(e) a first position in which said closing member closes said discharge bore opening to prevent communication between said reservoir connection and said accumulator connection and opens said inlet opening to allow communication between said pump connection and said accumulator through said accumulator connection when the pressure in said accumulator is below a predetermined switching pressure, and
(f) a second position in which said closing member opens said discharge bore opening to allow communication between said reservoir connection and said accumulator connection and closed said inlet opening to prevent communication between said pump connection and said accumulator through said accumulator connection when the pressure in said accumulator reaches said predetermined switching pressure; and

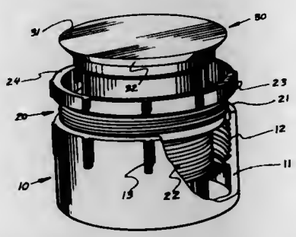
priority valve means disposed between said pump connection and said consumer connection responsive to the pressure in said accumulator.

5,209,256
SEALING ARRANGEMENTS
Edward T. Thornburrow, Leeds, United Kingdom, assignor to Cooper Industries, Inc., Houston, Tex.
Filed Apr. 6, 1992, Ser. No. 864,283
Claims priority, application European Pat. Off., Apr. 9, 1991, 91303097.9
Int. Cl.[5] F16K *41/00*
U.S. Cl. 137—214 4 Claims



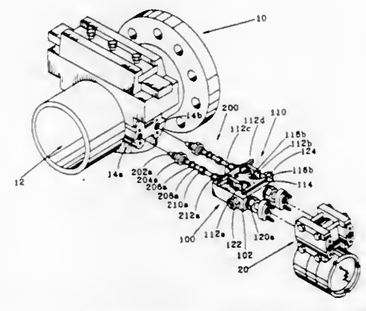
1. A sealing arrangement for sealing against an annular face comprising a sealing member having an annular sealing surface which sealingly engages said annular face, said sealing member being located such that the axis of the annular sealing surface is offset relative to the rotational axis of the annular face, whereby when the annular face rotates the area swept out by the sealing member is larger than the area of it sealing surface.

5,209,257
SEWER RELIEF VALVE
Clarence E. Baker, Jr., 1603 Old Mill Rd., Germantown, Tenn. 38138
Filed May 4, 1992, Ser. No. 877,708
Int. Cl.[5] E03F *5/08*; F16K *31/22, 33/00*
U.S. Cl. 137—315 2 Claims



1. A manually removable sewer relief valve comprising:
a. A cylindrical plug having manual gripping means at its upper periphery for easy removal, a threaded exterior below said gripping means having threads or different diameters for use in different size openings, and a concentric cylindrical opening therethrough, said opening being tapered outwardly at its upper extremity and having at least two interior diameters joined by a load-bearing shoulder perpendicular to the axis of said plug; and
b. A cylindrical float for closing said opening, with surfaces which complement the interior surfaces of said plug, said float having at least two diameters and an outward taper corresponding to the diameters and taper of said opening, said diameters being joined by a shoulder for sealing and load-bearing engagement with corresponding shoulder in said plug, and having a specific gravity less than 1, whereby said float being displaceable from said plug manually as well as by fluid pressure; said float being composed of polyvinyl chloride, a chlorinated polyvinyl chloride, or other rigid inert plastic.

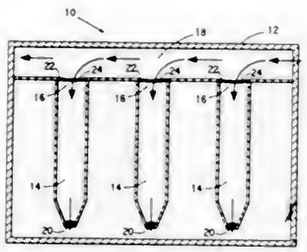
5,209,258
APPARATUS AND METHOD FOR MINIMIZING PULSATION-INDUCED ERRORS IN DIFFERENTIAL PRESSURE FLOW MEASURING DEVICES
James M. Sharp, Hitchcock, and William R. Freund, Houston, both of Tex., assignors to Daniel Flow Products, Houston, Tex.
Continuation of Ser. No. 494,871, Mar. 7, 1990, abandoned, which is a continuation of Ser. No. 181,918, Apr. 15, 1988, abandoned, which is a continuation-in-part of Ser. No. 20,562, Mar. 2, 1987. This application Feb. 14, 1992, Ser. No. 837,661
Int. Cl.[5] F16L *3/00*
U.S. Cl. 137—343 7 Claims



1. Apparatus for connecting an orifice meter or the like to a differential pressure detector, the orifice meter integral with a pressure signal includes one or more pressure transmitting ports, the apparatus comprising:
(a) a first connecting means for joining the apparatus to the orifice meter by way of the pressure transmitting port for receiving the pressure signal from the orifice meter, said first connecting means having a constant cross section from the orifice meter, through the pressure transmitting port, and through the first connecting means,
(b) a housing comprising
(1) one or more inlet ports in operative association with said first connecting means for receiving the pressure signal from the orifice meter, said inlet ports having a constant cross section equal to the cross section of said first connecting means,
(2) valve means associated with said inlet port for controlling the pressure signal from the orifice meter, said valve means having a passage of constant cross section equal to the cross section of said inlet port, and
(3) one or more outlet ports in operative association with said valve means for receiving the pressure signal from the orifice meter, said outlet ports having a constant cross section equal to the cross section of said valve means, and
(c) a second connecting means for joining said housing directly to the differential pressure detector employing said outlet port for receiving the pressure signal from the orifice meter, said second connecting means having a constant cross section equal to the cross section through said housing,
said first connecting means, said housing, and said second connecting means configured for providing a contiguous, abutting relationship between the orifice meter and the differential pressure detector.

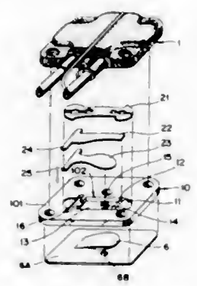
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,259
FLUID DISTRIBUTION SYSTEM HAVING NOISE REDUCTION MECHANISM
Terrence A. Dear, Elkton, Md., and Karl U. Ingard, Kittery Point, Me., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jan. 15, 1991, Ser. No. 641,402
Int. Cl.[5] F16K *47/00, 47/08*
U.S. Cl. 137—561 A **18 Claims**



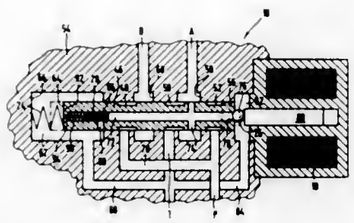
17. A fluid distribution system for conducting a fluid therethrough, comprising:
(a) a housing including at least one chamber, the chamber having a plurality of acoustic modes, the fluid having oscillations carried therein and the acoustic modes being excited when the fluid flows through the chamber;
(b) an inlet passage and an outlet disposed in the housing and in fluid communication with the chamber; and
(c) a plate disposed in the inlet passage for eliminating narrow band noise, the plate being deformed radially inwardly into the inlet passage and comprising a plurality of orifices disposed therein for reducing the coupling between the flow of fluid through the inlet passage and the acoustic modes of the chamber, whereby the acoustic modes of the chamber and the resonance frequency of each of the orifices are substantially unexcited by the flow of fluid through the orifices.

5,209,260
VALVE UNIT FOR HERMETIC RECIPROCATING TYPE COMPRESSOR
Chung-Guk Baek, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea
Filed Jan. 30, 1992, Ser. No. 828,128
Claims priority, application Rep. of Korea, Jan. 31, 1991, 91-1471
Int. Cl.[5] F16K *15/03*
U.S. Cl. 137—527 **2 Claims**



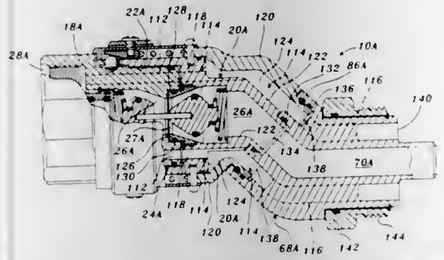
1. A valve unit for a hermetic reciprocating compressor, comprising:
a rigid cylinder,
a rigid cylinder head,
a valve plate disposed between said cylinder and cylinder head, said valve plate having inner and outer sides facing said cylinder and cylinder head, respectively, a stepped recess formed in said outer side and including first and second steps defining first and second accommodating portions, respectively, of which said second accommodating portion being disposed at a greater depth in said recess than said first accommodating portion, said recess including a supporting space disposed at a greater depth than said second accommodating portion,
a discharge passage extending through said valve plate from said first side to said second side and having an outlet end protruding into said supporting space,
a discharge valve including a first end portion abutting said outlet end of said discharge passage for closing the latter, and a second end portion disposed in said second accommodating portion, said second end including a lateral tab projecting into a supporting portion of said recess,
a bending spring overlying said discharge valve and including a first end portion biasing the latter to a closed position against said outlet end, and a second end portion disposed in said second accommodating portion, said second end including a lateral tab projecting into said supporting portion of said recess, and
a stopper member overlying said bending spring for retaining said bending spring and said discharge valve in said second accommodating portion, said stopper member including opposing ends disposed in said first accommodating portion,
portions of said cylinder head being arranged to overlie said first accommodating portion for engaging said opposing ends of said stopper member to retain said stopper member in said first accommodating portion.

5,209,261
SLIDE VALVE
Aydogan Cakmaz, and Jürgen Class, both of Stuttgart, Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany
Filed Jul. 6, 1992, Ser. No. 908,999
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1991, 4123036
Int. Cl.[5] F15B *13/02*
U.S. Cl. 137—596.17 **19 Claims**



1. Slide valve comprising:
a pressure or pump port,
a reservoir port,
at least one consumer port,
a slide,
a spring for loading the slide toward a first slide position,
an adjusting assembly for selectively moving the slide into a second slide position counter to the spring force,
wherein one of the consumer ports is connected to the reservoir port in the first slide position and to the pump port in the second slide position,
and a seat-controlled safety valve which is arranged between the adjusting assembly and the slide, said safety valve being loaded in its closing direction by the slide loaded by the spring force, said safety valve shutting off an adjacent open end of a longitudinal duct formed in the slide when in a safety valve closed position,
wherein the longitudinal duct is constantly connected, on the one hand, to the one consumer port and, on the other hand, to the reservoir port via the opened safety valve when the slide is possibly blocked and not loaded by the adjusting assembly,
wherein a further consumer port is connected to the pressure or pump port in the first slide position and is separated therefrom in the second slide position, wherein the longitudinal duct constantly communicates via a radial bore in the slide with that consumer port which is connected to the pressure or pump port in the second slide position,
wherein the longitudinal duct of the slide which is closed off at one end by the safety valve is closed off at the other end by an additional pressure relief valve which limits the pressure in the longitudinal duct with the safety valve usually being closed, and
wherein the outlet orifice of the pressure relief valve communicates with the reservoir port in all positions of the slide.

5,209,262
BREAKAWAY HOSE COUPLING WITH INTEGRATED SWIVEL MECHANISM
Walter M. Carow, Rte. 2, Box 379C, Kingston, Tenn. 37763; Alton Richards, Rte. 3, Box 45, Rockwood, Tenn. 37854, and Jerry L. Cox, 552 S. Kingston Ave., Rockwood, Tenn. 37854
Continuation-in-part of Ser. No. 642,857, Jan. 15, 1991. This application Sep. 30, 1991, Ser. No. 767,427
Int. Cl.[5] F16L *37/28*
U.S. Cl. 137—614.04 **5 Claims**



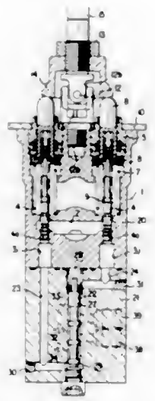
1. A breakaway hose coupling device with integrated swivel mechanism for releasably joining two fuel dispensing devices in fluid communication, and for selectively disengaging said dispensing devices in response to a disengaging force in excess of a preselected value being exerted on said coupling device, said coupling device comprising:
a first valve assembly for being secured on, and being placed in flow-through fluid communication with, a first said dispensing device and for selectively terminating flow of fuel from said first dispensing device, said first valve assembly including a first valve housing having a first valve means mounted therein for selectively terminating flow of fuel through said first valve assembly, said first valve means being aligned on a first axis, said first valve housing being provided with
a) a first passageway therethrough defining a first port for being placed in fluid communication with said first dispensing device, and a second port,
b) a plurality of first vapor conduits radially disposed about said first passageway for communicating recaptured fuel vapor, each of said first vapor conduits having a first port for being placed in fluid communication with said first dispensing device, and a second port;
a second valve assembly for being secured on, and placed in flow-through fluid communication with, a second said dispensing device and for selectively terminating flow of fuel from said second dispensing device, said second valve assembly including a second valve housing and an elbow, and having swivel connecting means for pivotally securing said elbow with said second valve housing whereby said elbow selectively swivels with respect to said second valve housing on a second axis inclined with respect to said first axis, said second valve assembly also including a second valve means disposed in said second valve housing at a location remote from said swivel connecting means for selectively terminating flow of fuel through said second valve assembly, said second valve housing being provided with
a) rearwardly protruding housing walls defining a second passageway through said second valve housing, said second passageway defining a first port for being placed in fluid communication with said second port of said first passageway, said protruding housing walls including an outboard end portion defining a second port of said second passageway,
b) a sleeve circumscribing said protruding housing walls defining a vapor cavity between said protruding housing walls and said sleeve, said vapor cavity having a first end and a second, said sleeve defining an outboard end portion whereby said outboard end portion of said sleeve and said outboard end portion of said protruding housing walls define said second port of said vapor cavity,
c) a plurality of vapor conduit sections circumscribing said second passageway, each of said vapor conduit sections having a first port for being placed in fluid communication with said second port of one of said first vapor conduits of said first valve housing, and a second port in fluid communication with said first end of said vapor cavity,
said elbow provided with
a) a third passageway therethrough having a first portion in fluid communication with said second port of said second passageway, and a second port for being placed in fluid communication with said second dispensing device,
b) a plurality of third vapor conduits radially disposed about said third passageway of said elbow, each of said third vapor conduits having a first port in fluid communication with said second end of said vapor cavity, and a second port in fluid communication with said second dispensing device;
means for prohibiting rotation of said first valve housing with respect to said second valve housing; and automatic disconnect means for maintaining said first and second valve housings in an engaged position in absence of said disengaging force in excess of a preselected value, and for disengaging said first and second valve housing in response to said disengaging force in excess of said preselected value, whereby said first and second valve means terminate flow of said fuel through said first and second valve assemblies, respectively, upon disengaging of said first and second valve housings.

5,209,263
PILOT VALVE ASSEMBLY
Shuji Hori, Kanagawa, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
PCT No. PCT/JP91/00262, § 371 Date Oct. 17, 1991, § 102(e) Date Oct. 17, 1991, PCT Pub. No. WO91/13282, PCT Pub. Date Sep. 5, 1991
PCT Filed Feb. 27, 1991, Ser. No. 768,329
Claims priority, application Japan, Feb. 27, 1990, 2-18212[U]
Int. Cl.[5] F15B *13/06*
U.S. Cl. 137—636.2 **1 Claim**

1. In a pilot valve assembly provided with four pistons arranged in parallel relationship with one another and spaced apart from one another at an equal distance so as to be in first and second pairs of respective two pistons opposite to each other, each piston being inserted into a main valve body slidably in its longitudinal direction parallel to the axis of said valve body and being urged upwardly by means of a compres-

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sion spring interposed between a proximal end thereof and said main valve body so as to project its leading end outwardly of the valve body; a disc member whose lower surface comes into contact with respective leading ends of said pistons; a control lever connected to an upper central portion of said disc member, said lever being swayed in operation in such a back and forth direction, so as to cause to thrust through said disc member either one of said first pair of pistons and in such a direction transverse to said back and forth direction, so as to cause to thrust through said disc member either one of said second pair of pistons; a pressure-oil port formed within said main valve body at an approximately intermediate portion with respect to the axial direction of said valve body; four outlet ports formed within said main valve body in parallel relationship with one another and spaced apart from one another at an equal distance so as to be in first and second pairs of respective two outlet ports opposite to each other, each of said outlet ports extending downward in a substantially linear relationship with each of said pistons; and four spool valves provided in said main valve body and operatively connected to said four pistons, respectively, so as to selectively allow at least any one of said outlet ports to communicate with said pressure-oil port and, on the other hand, other outlet ports to interrupt the communication with said pressure-oil port;



the improvement comprising:

(a) a pair of first and second main outlet ports formed in said main valve body so as to selectively establish and block communication of said main outlet ports to communicate/discommunicate with said pairs of outlet ports, respectively; and

(b) a spool valve slidably mounted in said main valve body of the pilot valve assembly so as to be movable between a first position, where one of said second pair of outlet ports and the other outlet port thereof are allowed to communicate with said first main outlet port and said second main outlet port, respectively, and a second position, where one of said second pair of outlet ports and the other outlet port thereof are allowed to communicate reversely with said second main outlet port and said first main outlet port, respectively; wherein said spool valve is moved in operation to said first position by the action of pressure oil introduced through one of said first pair of outlet ports from said pressure-oil port to one longitudinal end of said spool valve and, on the other hand, said spool valve is moved in operation to said second position by the action of pressure oil introduced through the other outlet port of said first pair of outlet ports from said pressure-oil port to the other longitudinal end of said spool valve.

5,209,264

CHECK VALVE

Yoshihiro Koyanagi, c/o Kabushikikaisha Kashiharaseitai, 1-13-5, Taihe□ji, Kashihara-shi, Osaka-fu, Japan

Filed Jul. 2, 1992, Ser. No. 907,642

Claims priority, application Japan, Jul. 5, 1991, 3-060652

Int. Cl.[5] F16K *15/16*

U.S. Cl. 137—852 **3 Claims**



1. A check valve comprising;

a filtering second plastic film, a third plastic film and a fourth plastic film, said third and fourth plastic films being shorter than said first plastic film respectively and arranged in this order on one surface of said first plastic film;

the lower edges and the right and left side edges of said first and second plastic films being joined together to define a discharge path therebetween and to define a valve seat portion in the upper portion of said first plastic film;

the lower edges of said third and fourth plastic films being joined to said second plastic film at its portion between its upper and lower edges and the right and left side edges of said third and fourth plastic films and being joined to the right and left side edges of said second plastic film to define an upper opening between said first and fourth plastic films, to define a check flap in the portion of said third plastic film extending upwardly beyond the upper edge of said second plastic film for cooperation with said valve seat portion of said first plastic film, and to define a pocket between said third and fourth plastic films for pressing said checking flap against said valve seat portion, and

the portion of said second plastic film in the side lower than the lower edges of said third and fourth plastic films being exposed for functioning as a filter surface.

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FLOW CONTROL DEVICE WITH RESTRICTOR

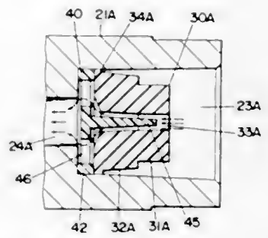
Noboru Taguri, Osaka; Yasuo Maeda, Nara; Shinjiro Seto, Shijonawate, and Yoshihiro Sakurai, Ibaraki, all of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Division of Ser. No. 685,120, Apr. 15, 1991. This application Jan. 16, 1992, Ser. No. 821,661

Claims priority, application Japan, Apr. 14, 1990, 2-39706; Aug. 1, 1990, 2-82259

Int. Cl.[5] F16K *15/14*

U.S. Cl. 138—45 **3 Claims**



1. A flow control device comprising:

a conduit body with a coupling end for coupling with a water supply pipe to receive water therefrom and a discharge end for discharging the water therethrough, said conduit body formed in said coupling end with a concavity having a bottom wall recessed from an end face of said coupling end and a peripheral inner wall, said conduit body having a passage opened in said bottom wall and extending therethrough to said discharge end;

an elastic valve received in said concavity, said valve having an aperture in fluid communication between said water supply pipe and said passage for feeding water from said water supply pipe into said passage through said aperture, said valve capable of elastically deforming to vary a diameter of said aperture in proportion to the pressure of the water applied thereto in order to feed the water through said passage at a constant flow volume level regardless of the pressure in said water supply pipe, said valve formed on its outer peripheral surface with three or more projections spaced circumferentially about said aperture in pressed contact relation with said inner peripheral wall of said concavity for holding said valve in position within said concavity;

said flow control device further including a restrictor with a rectifier plate and a flow regulating needle projecting from the center of said rectifier plate, said rectifier plate disposed between said valve and the bottom wall of said concavity with said flow regulating needle projecting loosely into said aperture in such a manner as to define a constricted annular channel within said aperture about said flow regulating needle, said rectifier plate formed with a vent for fluid communication between said annular channel and said passage in said conduit body.

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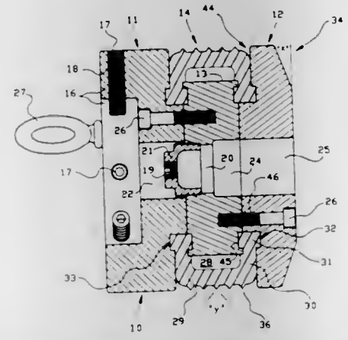
HIGH PRESSURE INFLATABLE PLUG DEVICE

Steven J. Hiemsoth, Brooklyn Park, Minn., assignor to Cherne Industries Incorporated, Minneapolis, Minn.

Continuation of Ser. No. 625,380, Dec. 11, 1990, abandoned. This application Jul. 14, 1992, Ser. No. 915,123

Int. Cl.[5] F16L *55/10*

U.S. Cl. 138—90 **14 Claims**



1. Inflatable plug device for sealing the interior of a high pressure pipeline, comprising:

a. a compact body structure having a circular cross-section and inner and outer ends, said body structure including inner and outer removable plate members and a central section which are connected via a plurality of removable connection bolts, said body structure further having a pair of spacially parallel inner and outer channel structures circumferentially disposed thereon and being separated a predetermined distance, said channel structures having generally T-shaped cross-sectional configurations including a narrow region of a first predetermined width and a wide region of a second predetermined width which is greater than said first width;

b. a unitary elastomeric annular sealing member, said sealing member being disposed circumferentially about said body structure, and forming an inner cavity between said sealing member and said body structure, said sealing member having a generally rectangular, open bottomed cross-section with an outer contact wall of a continuous predetermined longitudinal width and a radially continuous, non-folded circumference, and a pair of depending radial walls of a second predetermined width, each said radial wall terminating in an end portion having a generally T-shaped cross-sectional configuration with a narrow and a wide portion, said end portions forming spacially parallel rings which are sealingly compressed in their operative disposition within said channel structures between 20 to 40 percent of their uncompressed cross-sectional dimensions via sequential tightening of said connection bolts; and

c. means to permit ingress and egress of fluid into said inner cavity.

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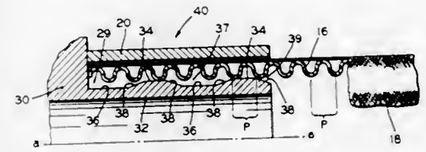
CONVOLUTED HOSE END ASSEMBLY

Thomas J. Morin, West Springfield, Mass., assignor to Dana Corporation, Toledo, Ohio

Continuation of Ser. No. 200,398, May 31, 1988, abandoned. This application Sep. 19, 1989, Ser. No. 410,005

Int. Cl.[5] F16L *9/00*

U.S. Cl. 138—109 **7 Claims**



1. In combination, a hose and a fitting, said fitting secured to one end of said hose, said hose end comprising helical convolutions having a predetermined pitch width, said fitting comprising a generally cylindrical nipple insert sealingly engaging said hose end, said insert having a longitudinal axis along which are spaced at least two distinct raised, annular, non-helical sealing surfaces and a relief region positioned between said surfaces, said relief region having a reduced diameter portion comprising a diameter less than that of each of said sealing surfaces, wherein each of said spaced sealing surfaces has a longitudinal width of approximately one pitch width of said hose, said combination further comprising at least one of said helical convolutions of said hose end being flattened directly over each of said sealing surfaces, and wherein other of said convolutions define a crush portion overlying said relief region, said reduced diameter portion of said relief region being bounded on each side by one of a pair of relief ramps, each ramp opposed to the other and defining equal but opposite angles in a range of 10 to 25 degrees with respect to said longitudinal axis, and wherein said reduced diameter portion is also equal to one pitch width of said hose.

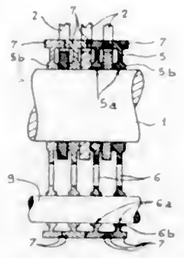
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SPACER DESIGN FOR DOBBY ROCKER MEMBERS

Jean Paul Froment, Doussard, and Jean-Pierre Pages, Faverges, both of France, assignors to S.A. des Etablissements Staubli, Faverges, France

Filed Feb. 3, 1992, Ser. No. 829,305
Claims priority, application France, Feb. 1, 1991, 91 01402
Int. Cl.[5] D03C *1/00*
U.S. Cl. 139—66 A 10 Claims



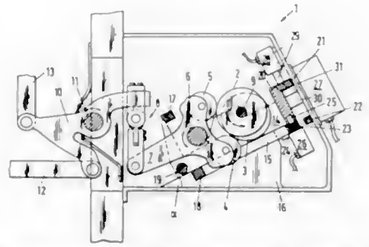
1. In a weaving mechanism for forming the shed on a weaving machine which mechanism includes rocking members oriented parallel to one another on a common support shaft for controlling the movement of heddle frames, the improvement comprising, the rocking members being separated by spacer means which are freely mounted to the common support shaft and between each of the rocking members, each spacer means including a body portion having oppositely oriented lateral faces, a plurality of spaced projections extending from at least one of said lateral faces of each of said spacer means, said projections being engageable with an adjacent spacer means to thereby retain said body portions of said spacer means in spaced relationship with respect to one another and to define spaces between the projections through which the rocking members extend, said rocking members being moveable between said body portions of adjacent spacer means while being maintained in spaced relationship with respect to one another

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POSITIVE ECCENTRIC DOBBY

Helmut Macho, Konstanz, Fed. Rep. of Germany, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Mar. 9, 1992, Ser. No. 849,113
Claims priority, application Switzerland, May 7, 1991, 01365/91
Int. Cl.[5] D03C *1/14*
U.S. Cl. 139—66 R 9 Claims



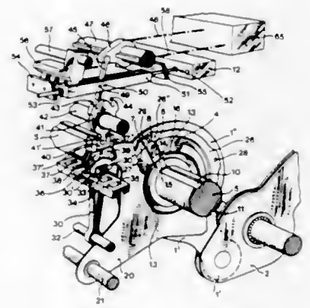
1. A positive eccentric dobby for driving heald shafts of a loom comprising a movably mounted carriage, a camshaft rigidly mounted on the carriage, a rigidly mounted roller lever shaft, roller levers pivotally carried on the roller lever shaft, rollers mounted on the roller levers, eccentrically disposed cam discs carried on the camshaft for moving the pivotable roller levers on the roller lever shaft by contacting the rollers, means for displacing the carriage to disengage the cam discs and the rollers and therewith the roller levers, and at least one stop device including stop means for adjustably acting on the roller levers for coordinating the position of the heald shafts.

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KEY COUPLING DEVICE FOR HIGH-SPEED ROTARY DOBBIES

Costantino Vinciguerra, Florence, Italy, assignor to Nuovopignone-Industrie Meccaniche e Fonderia S.p.A., Florence, Italy

Filed Jul. 3, 1991, Ser. No. 725,490
Claims priority, applicatinn Italy, Jul. 11, 1990, 20904 A/90
Int. Cl.[5] D03C *1/00*
U.S. Cl. 139—76 9 Claims



1. A control device for a high-speed rotary dobby comprising a main crank arm which has a small end hinged to a main lever of the dobby and a big end mounted idly on a drive shaft driven with intermittent motion with pauses at every 180° of rotation by a modulation mechanism via a cam which is rigidly connected alternately to said crank arm or to said shaft by a key which is housed in a radial groove in said cam and an end of said key during said pauses in the drive shaft is inserted into or is maintained inserted in one of two opposing radial grooves in said big end of the main crank arm or one of two opposing radial grooves in said drive shaft, in accordance with instructions of a programmer, by a control ring coaxial to said shaft, said ring cooperating with walls of a transverse groove in the key, wherein said transverse groove in the key has a width equal to the sum of the thickness of said control ring and length of travel undergone by the key in its insertion into or withdrawal from said radial grooves, said control ring being of elliptical shape with its major axis positioned along an axis of said opposing radial grooves in said big end of the main crank arm and fixed onto an operating lever the fulcrum of which lies on a prolongation of the minor axis of said elliptical control ring, said operating lever cooperating with a V-shaped spring which has ends of its two arms inserted in a cavity facing the lever fulcrum and provided in the body of the lever, and which is mounted preloaded between two fixed shoulders positioned symmetrically about an axis of symmetry of said spring, which passes through said fulcrum of said operating lever, this latter comprising a second cavity opposite the preceding cavity and cooperating with a slide to which there is hinged a lower end of a sector which rocks symmetrically about said axis of symmetry of the V-shaped spring, said sector comprising in its upper part two valleys arranged symmetrically about said axis of symmetry of the V-shaped spring and cooperating with a lower end of an overlying pusher rod which is hinged at its upper end to an arm projecting from a shaft made to rock by a control mechanism synchronized with said modulation mechanism, said overlying pusher rod is slidingly inserted between two pins of a needle selector which cooperates with a part of the programmer by the action of a thrust spring and a return

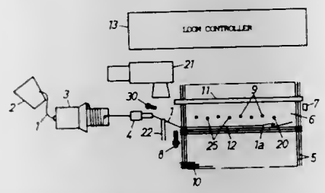
extractor comb made to rock by a second control mechanism and also synchronized with said modulation device.

5,209,271

MISPICKED WEFT REMOVING METHOD

Yujiro Takegawa, Kahoku, Japan, assignor to Tsudakoma Corporation, Ishikawa, Japan

Filed Dec. 23, 1991, Ser. No. 811,934
Claims priority, application Japan, Dec. 28, 1990, 2-418684
Int. Cl.[5] D03D *47/30*
U.S. Cl. 139—116.2 6 Claims



1. A mispicked weft removing method comprising the steps of: keeping a mispicked weft continuous with a weft remaining in a main picking nozzle of a loom; reversing the loom to open a shed in which the mispicked weft is inserted; additionally inserting the weft in the shed using the main picking nozzle so that the weft extends in a loop in the shed; and pulling the weft inserted in the shed to remove the is picked weft continuous with the weft from the shed;

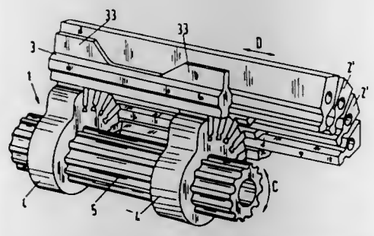
wherein a yarn guide is positioned in the loop of the weft before pulling the weft so that the mispicked weft is pulled via the yarn guide toward the picking side of the loom.

5,209,272

GRIPPER CHANGER FOR PROJECTILE LOOMS

Peter Riesen, Elgg, and Marc Gianotti, Wiesendangen, both of Switzerland, assignors to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Mar. 30, 1992, Ser. No. 860,385
Claims priority, application Switzerland, May 23, 1991, 01528/91
Int. Cl.[5] D03D *47/24*
U.S. Cl. 139—438 12 Claims



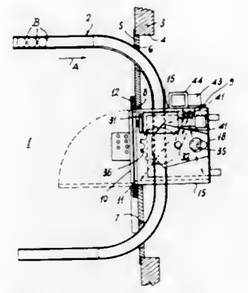
1. A weft yarn changer system for a projectile loom, the system comprising a change member (1) pivotable about a pivot axis and mounting at least two yarn transfer elements (2) each defining a slide rod (2a) and a yarn gripper (21), slide bars for the yarn transfer elements (2) provided on the change member (1), at least one lightweight plastics holder (4), and a tube (5) effective as drive shaft of the changer member (1) or as pivot spindle, the holder connecting the slide bars with the tube.

5,209,273

SAFETY CABIN FOR LOADING FLAMMABLE PROPELLANTS INTO AEROSOL CANS

Giancarlo Giuffredi; Domenico Crespiatico, both of Milan, Italy, and Carmelo Rigano, Saint Denis, France, assignors to Coster Tecnologie Speciali S.P.A., Italy

Filed Jun. 5, 1992, Ser. No. 893,780
Claims priority, application Italy, Jun. 7, 1991, M191A 001569
Int. Cl.[5] B65B *31/00, 3/04*
U.S. Cl. 141—20 8 Claims



1. A safety cabin, having a front, rear and two side walls for loading flammable propellants into aerosol cans, which contains conventional loading means with a loading head and is traversed by a can conveyor which enters from and exits towards a working environment, characterized by being associated with a shield outwardly bounding said working environment, and by comprising an access door in said front wall facing towards and accessible from said working environment and an operable rear door in said rear wall provided outwardly opposite the access door, and a suction system with suction ports located at the level of the loading head and in the lower part of the cabin respectively, said can conveyor traversing through said shield and said side walls.

5,209,274

FILLING VALVE APPARATUS HAVING SHORTENED VENT TUBE

Robert W. LaWarre, Sr., Titusville, Fla., assignor to LaWarre Precision Technologies Incorporated, Titusville, Fla.

Filed Aug. 13, 1991, Ser. No. 744,317
Int. Cl.[5] B65B *31/00*
U.S. Cl. 141—39 6 Claims

1. A filling valve apparatus for filling containers with a liquid, said apparatus comprising:

longitudinally extending housing means (14) having a passage (20) for allowing liquid to flow therethrough and including an inlet (114) for allowing liquid to flow into said housing means (14) and said passage (20), an outlet (116) to allow liquid to flow out of said housing means (14) and said passage (20), and having a valve seat (108) between said inlet (114) and said outlet (116);

valve means (110) movable within said passage (20) between said inlet (114) and said outlet (116) and including sealing means (112) moving against said valve seat (108) for preventing liquid from flowing through said passage (20) to said outlet (116) and moving away from said valve seat (108) for allowing liquid to flow through said passage (20) to said outlet (116);

said valve means (110) including a valve stem (118) movable within said passage (20) and extending within said housing means (14) to said outlet (116), said valve stem (118) including a gas passage (120) for allowing gas to pass therethrough;

said valve means (110) further including isolator means (301)

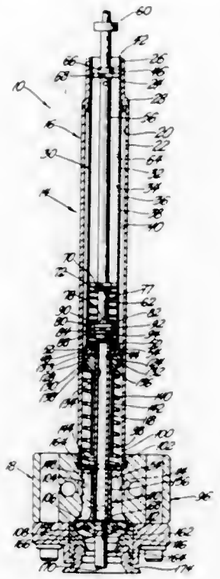
VOL 1150 ISS 2 MY 11 1993 UMI

operatively connected to and extending from said valve stem (**118**) and extending through said housing means (**14**) and having a hollow center for allowing gas to pass therethrough to said valve stem (**118**) while isolating liquid between said isolator means (**301**) and said housing means (**14**), said isolator means including an isolator base (**48**) having an aperture therein for receiving and securing said valve stem (**118**);

said valve means (**110**) including actuated means (**58**) extending through said hollow center of said isolator means (**301**) to said valve stem (**118**) for moving between an open position to allow filling of the container and a closed position preventing liquid from entering the container;

charging means (**80**) operatively connected between said actuated means (**58**) and said valve stem (**118**) within said isolator means (**30**) for controlling gas passing through said isolator means (**30**) and into said valve stem (**118**) in response to said actuated means (**58**);

said actuated means including a shaft (**56**) having an end



operatively connected to said charging means (**80**), and guide means (**66**, **70**) extending radially from said shaft (**56**) for slideably retaining said shaft (**56**) centrally within said isolator means (**30**);

biasing means (**77**) operatively connected between said isolator means (**30**) and said guide means (**66**, **70**) for biasing said guide means (**66**, **70**) away from said isolator base (**48**);

a liquid guide member (**130**) operatively connected to said valve stem (**118**) adjacent said isolator base (**48**) and extending radially to said housing means (**14**) for slideably retaining said valve stem (**118**) centrally therein;

a lower guide secured to said housing means (**14**) and having a passage for receiving said valve stem (**118**) to maintain said valve stem (**118**) centrally within said housing means (**14**);

lower biasing means (**140**) operatively connected between said lower guide (**144**) and said liquid guide member for biasing said sealing means (**112**) away from said valve seat (**108**).

5,209,275

LIQUID DISPENSING APPARATUS AND METHOD BY SENSING THE TYPE OF LIQUID VAPORS IN THE RECEIVER

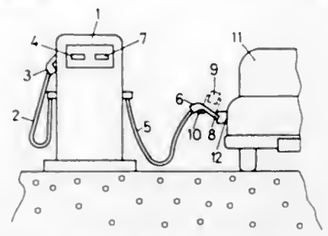
Jyuji Akiba, Iruma; Hiroyuki Sugibuchi, Tokorozawa; Kazuyuki Kojima, Sayama, and Hiroshi Satoh, Iruma, all of Japan, assignors to Junkosha Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 427,253, Oct. 25, 1989, abandoned, which is a continuation-in-part of Ser. No. 210,100, Jun. 22, 1988, abandoned. This application Aug. 28, 1991, Ser. No. 751,317

Claims priority, application Japan, Jul. 9, 1987, 62-171808; Aug. 9, 1987, 62-171807

Int. Cl.[5] **G01N** *27/46*

U.S. Cl. 141—83 **4 Claims**



1. A liquid dispensing apparatus comprising

a liquid supply line having an input and having an output end;

a dispenser gun attached to the output end of the liquid supply line;

a detecting element including a measuring means having an impedance change depending on a surrounding evaporated gas and attached to the dispenser gun for detecting the kind of liquid to be supplied from a gas evaporated from residual liquid surrounding a location which requires additional supply, said detecting element furnishing a sensor signal corresponding to the evaporated gas;

a discriminator connected to the detecting element for discriminating the sensor signal obtained from said detecting element and for generating a lock signal depending on distinction based on the kind of gas derived from evaporated liquid surrounding the location; and

a locking means connected electronically to the discriminator and actuated by said lock signal of the discriminator for interrupting dispensing of liquid depending on the lock signal furnished by the discriminator, further comprising

an outlet tube disposed at the output end of the dispenser gun, wherein the detecting element is disposed in the outlet tube for a liquid near the output end of the liquid supply line, and wherein the detecting element is covered with a protective film, which is permeable to gas but impermeable to liquid.

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Patent Not Issued For This Number

5,209,277

APPARATUS FOR NON-DAMAGING PACKAGING

Helmut Grüne; Manfred Nordmeyer, and Jens Quirling, all of Schwarmstedt, Fed. Rep. of Germany, assignors to Lieder Maschinenbau GMBH & Co. KG, Schwarmstedt, Fed. Rep. of Germany

Filed Oct. 15, 1990, Ser. No. 598,379

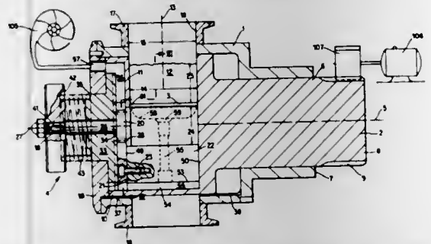
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1989, 3934323; Oct. 17, 1989, 3934518

Int. Cl.[5] **B67C** *3/26*

U.S. Cl. 141—250 **45 Claims**

1. An apparatus for non-damaging packaging of a flowable

product whose consistency can be affected by outside influences, comprising a housing; a metering container mounted in said housing for rotation about a predetermined axis between a first and second position, said container having an inlet which admits a product into the container by gravity in said first position and discharges the product from the container by gravity in said second position of the container, said container further having a bottom which is movable toward and away from said inlet to thereby vary the quantity of product which



can enter the container through said inlet; means for rotating said container between said positions; and means for moving said bottom relative to said inlet in directions substantially transversely of said axis, said moving means being carried by said housing and being rotatable about said predetermined axis.

5,209,278

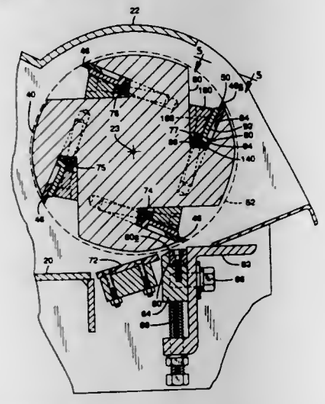
DRUM CHIPPER WITH KNIFE AND KNIFE HOLDER

Charles T. Carpenter, and Robert M. Bayly, both of Lake Oswego, Oreg., assignors to Commerical Knife,Inc., Wilsonville, Oreg.

Filed Feb. 27, 1992, Ser. No. 842,613

Int. Cl.[5] **B26D** *1/12*; **B27G** *13/04*; **B02C** *18/18*

U.S. Cl. 144—230 **5 Claims**



1. A chipper comprising:

a drum,

a slot in the drum opening to the periphery of the drum,

a first wall in the slot that extends outwardly on the slot towards the circumference of the drum,

a knife holder mounted on the drum and guided for movement along said first wall in a path,

adjustable positioning means interposed between the base of the slot and the knife holder determining the position of the holder in said path,

a knife mounted on said knife holder and the knife having a cutting edge and the knife being positioned with said edge located beyond the circumference of the drum, and

locking means for locking the knife holder in place against said positioning means,

said locking means including a second wall in the slot opposite said first wall that converges on the first wall progressing inwardly on the drum,

a wedge member movably supported by the second wall for movement toward the knife holder on moving inwardly on the drum, and

a fastener securing the wedge member in place.

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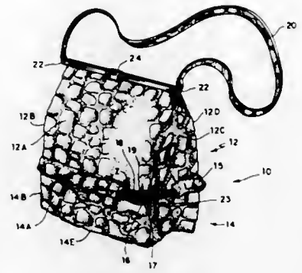
DUAL UNIT HANDBAG

Johnny D. Wilson, 40 S. Van Dorn St. #D40, Alexandria, Va. 22304

Filed Nov. 29, 1991, Ser. No. 800,131

Int. Cl.[5] **A45C** *1/02*, *3/06*, *5/06*

U.S. Cl. 150—111 **16 Claims**



1. A woman's handbag comprising:

an upper compartment having a front panel, a left side panel, a right side panel, a back panel, and a bottom panel, said upper compartment acting as a self contained unit with said left side panel and said right side panel both connected to the front panel and the back panel, said front, left side, right side and back panels of said upper compartment panels being connected to the bottom panel;

a lower compartment having a lower front panel, a lower left side panel, a lower right side panel, a lower back panel and a lower bottom panel, said lower compartment acting as a self contained unit with said lower right side panel and lower left side panel being connected to said lower front panel and lower back panel, said lower front, lower left side, lower right side and lower back panels of said lower compartment panels being connected to the lower bottom panel;

said lower compartment being connected to said upper compartment by a zipper hidden by a flap, said zipper being located adjacent said bottom panel of said upper compartment and a top portion of said lower compartment, said flap being attached on a lower portion of the front panel, the left side panel, the right side panel and the back panel of the upper compartment, and extending downward over the zipper;

said lower compartment being removable from said upper compartment and having a opening therein carrying accessories such as shoes and related items, and having means to close said lower compartment, whereby said upper and lower compartments form two self contained handbags.

5,209,280

PROTECTIVE HOOD FOR GOLF CLUBS

Peter D. Gevas, 63 Fox La., Dix Hills, N.Y. 11746

Filed Nov. 12, 1991, Ser. No. 791,788

Int. Cl.[5] **A63B** *57/00*

U.S. Cl. 150—159 **9 Claims**

1. A hood assembly for installation on a golf bag, comprising, in combination:

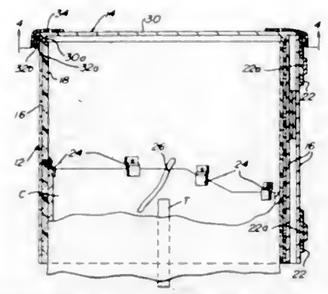
sleeve means fabricated of a generally flat elongate shell of hard flexible sheet material of sufficient length to encircle

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with overlapping ends the circumference of the open end of the bag;

first fastening means for selectively interlocking the overlapping ends; and

lid means formed of a generally flat hard material having a



perimeter generally congruent with a transverse cross section of the open end of the bag; and

second fastening means for selectively interlocking said lid means to the upper margin of said sleeve means when said first fastening means interlocks the overlapping ends of said sleeve means.

5,209,281

ANTI-JAMMING SAFETY DEVICE FOR A CURTAIN-TYPE DOOR HAVING REINFORCING BARS

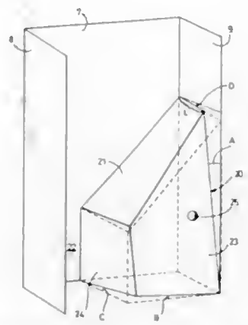
Bernard Kraeutler, La Villette, France, assignor to Nergeco (société anonyme), Dunieres, France

Filed Feb. 13, 1992, Ser. No. 836,209

Claims priority, application France, Feb. 27, 1991, 91 02346

Int. Cl.[5] E06B *3/94*

U.S. Cl. 160—84.1 **8 Claims**



1. A vertically-raisable door of the curtain type for industrial use and including a curtain for closing a door-bay, and being reinforced by bars whose ends are guided in slideways, each slideway comprising a web, a first guide wall against which the curtain is pressed when in a down position, and a second guide wall, said slideways forming lateral uprights of a door-frame surrounding the door-bay, the width of each slideway being reduced at its bottom end by means of a filler component received inside the slideway against the web of the slideway and against said second guide wall, said component having a clearance surface (**23**) facing the door-bay, and a guide ramp comprising an upper guide surface (**21**) and a placement surface (**24**) facing said first guide wall of the slideway and sloping down towards said first guide wall to co-operate with said first guide wall to delimit a placement volume that tapers downwards, wherein the clearance surface slopes from the bottom towards the web of the slideway at an angle (A) lying in a range from about 1° to about 10° such that the horizontal distance between the clearance surfaces of the two slideways in the two facing vertical lateral uprights increases going upwards.

5,209,282

VERTICAL BLIND WITH CORRUGATED SURFACE

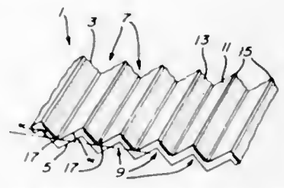
Giovanni Franco, Montreal, and Angelo Cianci, Ste-Dorothée, both of Canada, assignors to Extrusiovinyl & Plastics Co., Inc., Laval, Canada

Filed Feb. 14, 1989, Ser. No. 312,049

Claims priority, application Canada, Nov. 29, 1988, 584426

Int. Cl.[5] E06B *3/12*

U.S. Cl. 160—236 **2 Claims**



1. A blind slat having an inner and an outer surface, at least the outer surface being formed with regularly distributed successive corrugations, each corrugation comprising a pair of oppositely inclined surfaces defining ridges and hollows on said outer surface, said ridges and said hollows being joined by said oppositely inclined surfaces, said ridges, said hollows and said oppositely inclined surfaces extending lengthwise with respect to said slat, each oppositely inclined surface forming a similar angle with respect to a tangent relative to said outer surface, said oppositely inclined surfaces essentially intersecting one another at said hollows, said slat being extruded from a plastic material of one basic color, every similarly inclined slanted surface having another color which is different from said basic color, the remaining slanted surfaces and the outer surface of said slat having said one basic color.

5,209,283

ROLL AND/OR ROLLER FOR MACHINES OF CONTINUOUS CASTING

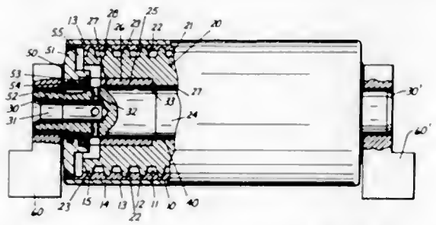
Bernd Miltzow, and Franz Schuster, both of Duesseldorf, Fed. Rep. of Germany, assignors to Mannesmann AG, Düsseldorf, Fed. Rep. of Germany

Continuation of Ser. No. 376,855, Jul. 7, 1989, abandoned. This application Apr. 1, 1991, Ser. No. 681,623

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1988, 3823655

Int. Cl.[5] B22D *11/128*

U.S. Cl. 164—448 **15 Claims**



1. Support and transport structure including a roller or roll in a machine for continuous casting, the roller or roll having a

core and an outer sleeve, there being a threaded connection between them, the structure further comprising:

an entire outer portion of the sleeve being a weld-deposit layer;

said core having an outer threadway with crowns and roots of a particular height, the sleeve having an inner threadway with crowns and roots of a height different from the particular height, the core being threaded into the sleeve so that the crown of one of said inner and outer threadways abuts the root of the other of said inner and outer threadway so that a spiral channel results between the crown of the other threadway and the root of the one threadway;

the respective abutting crowns and roots being intimately bonded together on account of the placement of said weld deposit layer having caused heat to migrate into zones of the abutting crown and root resulting in a weld bond between the abutting crown and root;

said core having a central bore;

bearing pins inserted respectively from opposite ends into the central bore for journalling the roll or roller, there being a gap between the pins and the bore;

mounting means for stationarily mounting said pins; and

duct means in the pins to conduct coolant to and from the gap and the channel.

5,209,284

REDUCED PRESSURE HEAT TREATING DEVICE

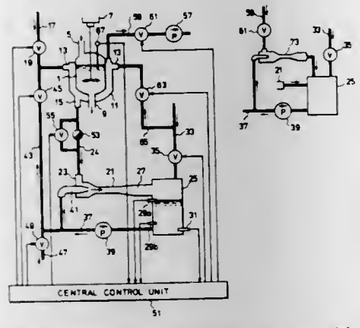
Masakatsu Okamoto, Kakogawa; Masao Yonemura, Akashi, and Hideaki Yumoto, Kakogawa, all of Japan, assignors to TLV Company, Limited, Hyogo, Japan

Filed Mar. 9, 1992, Ser. No. 848,286

Claims priority, application Japan, Apr. 15, 1991, 3-110880; May 15, 1991, 3-140928; Jul. 15, 1991, 3-201283; Jul. 15, 1991, 3-201284; Sep. 13, 1991, 3-262832

Int. Cl.[5] F25D *13/00;* **B01J** *19/00;* **C08F** *2/00;* **C08G** *85/00*

U.S. Cl. 165—32 **4 Claims**



1. A reduced pressure heat treating device comprising a heat exchanger having an inlet and an outlet for heat medium at upper and lower portions thereof, respectively, for effecting heat exchange with a product to be subjected to heat treatment, vapor producing means connected to said inlet for feeding vapor of said heat medium to said heat exchanger, first sucking means connected to said outlet for sucking said heat medium to put the interior of said heat exchanger in a reduced pressure state, a storage tank connected to said first sucking means for storing said heat medium, and pump means for feeding said heat medium from said storage tank to the inlet of said heat exchanger, said device further comprising:

second sucking means connected to the upper portion of said heat exchanger for sucking vapor of said heat medium produced in said heat exchanger to remove the same therefrom for promoting pressure reduction in said heat exchanger, said second sucking means comprising at least one ejector which is driven with output fluid of said pump means.

5,209,285

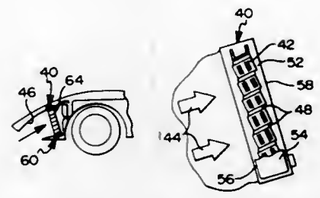
INCLINED TUBE RADIATOR

Shrikant M. Joshi, Getzville, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Sep. 24, 1990, Ser. No. 587,300

Int. Cl.[5] B60K *13/02;* **F01P** *7/02*

U.S. Cl. 165—41 **1 Claim**



1. A passenger vehicle having a body with a front engine compartment including an inlet ram air passage therein said inlet ram air passage extending from the bottom of the front end of the vehicle for upwardly inclined flow into the engine compartment;

a coolant radiator located within said ram air passage for cooling engine coolant by airflow across said radiator;

said radiator having an air side and a coolant side;

air flow means including spaced parallel flat tubes on the air side of said radiator for forming a plurality of air flow passages through said radiator;

means for supporting said radiator within said vehicle to locate said radiator at an acute angle with respect to a vertical plane;

each of said plurality of air flow passages inclined at an angle to substantially fully axially align said air flow passages with the direction of air flow through said inlet ram air passage to reduce airflow resistance across said radiator;

each of said air flow means including heat exchange elements extending between said tubes along the full length thereof and supported on each of said tubes; said heat exchange elements having inlet ends and outlet ends and passages therebetween located in axial alignment with the upwardly inclined direction of said inlet ram air passage and each of said heat exchange elements having inlet edges lying in planes that are progressively displaced away from each other in the direction of air flow through said inlet ram air passage from the bottom to the top of the radiator and each of said heat exchange elements having outlet edges lying in planes that are progressively displaced away from each other in the direction of air flow through said inlet ram air passage from the bottom to the top of the radiator.

5,209,286

GROUND OPEN-AIR HEAT EXCHANGE, OPEN-AIR CONDITIONING SYSTEM, AND METHOD

James D. Schmidt, P.O. Box 454, Brewster, Mass. 02631

Filed Feb. 24, 1992, Ser. No. 840,037

Int. Cl.[5] F28D *21/00;* **F25D** *9/00*

U.S. Cl. 165—45 **14 Claims**

1. An underground air conditioning apparatus adapted for underground cooling of outside air directed into an interior space comprising:

a) inlet means for admitting outside air including air quality screening means, comprising an above ground intake and a below ground outlet manifold;

b) blower means for acting on the admitted outside air creating positive air pressure, positioned in the inlet means;

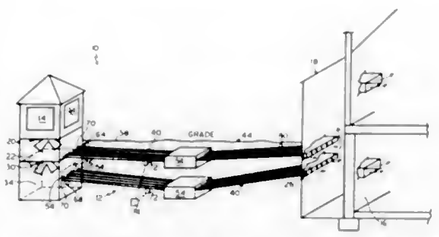
c) well means for providing an enlarged conduit for con-

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ducting the admitted air from the inlet means to a heat exchanger means;

d) a ground soil segment positioned between the open-air inlet means and the interior space;

e) heat exchanger means positioned underground in the soil segment for air conditioning outside outside-air directed by the blower means inwardly to the interior space comprising:



earth-embedded conduit means for exchanging thermal energy between the admitted outside air and the earth, having an inlet end and an outlet end;

f) sensing means for detecting inlet pressure and outlet pressure, poor quality conditions and inlet and outlet temperature; and

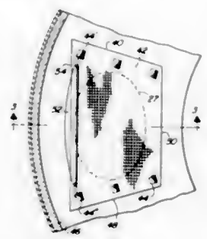
g) switch means for changing the path of the incoming air by detecting the coolest heat exchanger path volume and path.

5,209,287

FCC CATALYST COOLER

Daniel R. Johnson, Schaumburg, and Kevin J. Brandner, Elgin, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed Jun. 4, 1992, Ser. No. 893,289
Int. Cl.[5] F28C *3/16*
U.S. Cl. 165—104.18 8 Claims



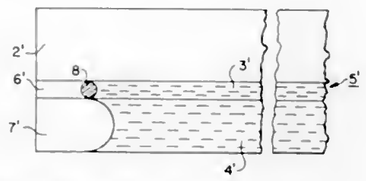
1. In an FCC regenerator having a catalyst cooler comprising a shell and tube heat exchanger located external to an FCC regenerator vessel, a regenerator outlet opening defined by the wall of the regenerator vessel for transferring catalyst from the regenerator to the catalyst cooler, a cooler inlet opening defined by the shell of the cooler for receiving catalyst from the regenerator outlet opening, means for contacting catalyst in said cooler with a fluidizing gas, and a fluidizing gas outlet opening defined by said means for contacting and located below said cooler inlet opening, the improvement wherein means for screening objects having any dimension greater than at least ½ inch is fixed about the regenerator outlet opening and said means for screening has an arrangement that diverts screened objects away from said means for screening without blocking catalyst flow into said regenerator outlet opening.

5,209,288

INTERRUPTED MONOGROOVE SLOT

Richard F. Brown; Fred Edelstein, both of Hauppauge, and Robert L. Kossin, Massapequa, all of N.Y., assignors to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Oct. 10, 1991, Ser. No. 774,338
Int. Cl.[5] F28D *15/02*
U.S. Cl. 165—104.26 5 Claims



1. A heat pipe, comprising:

a liquid channel;

a vapor channel;

a slot in communication with both said liquid channel and said vapor channel;

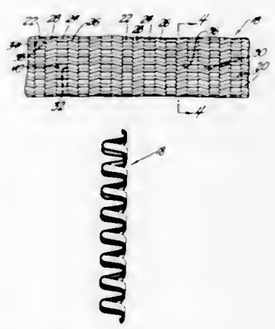
slot interrupter means in said slot for preventing liquid from completely filling said slot during initial priming until liquid advancing into said liquid channel has passed said slot interrupter means.

5,209,289

LANCED RUFFLED TURBULIZER

Frederick W. Haushalter, Kenton, Ohio, assignor to Robinson Fin Machines, Inc., Kenton, Ohio

Filed Dec. 2, 1991, Ser. No. 801,532
Int. Cl.[5] F28F *13/12*
U.S. Cl. 165—109.1 14 Claims



1. A turbulizer comprising:

a plurality of connecting interposing lines of fin forming a corrugated pattern and generated from a flat sheet of metal, said plurality of connecting interposing lines of fin defining a repeating corrugated pattern including,

a first section approximately parallel to a horizontal and situated in a horizontal plane,

a section approximately parallel to said horizontal and lying in said horizontal plane,

a third section sloping downward at a first angle from a first top corner of said second section toward a first bottom corner of a successive occurrence of said first section, and

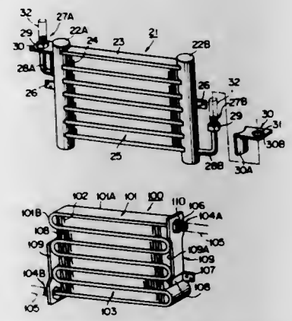
a fourth section sloping upward at a second angle from a second bottom corner of said first section toward a second top corner of said second section.

5,209,290

HEAT EXCHANGER

Hitoshi Chigira, Maebashi, Japan, assignor to Sanden Corporation, Gunma, Japan

Filed May 5, 1992, Ser. No. 878,386
Claims priority, application Japan, May 10, 1991, 3-32614[U]
Int. Cl.[5] F28F *9/00*
U.S. Cl. 165—149 15 Claims



1. A heat exchanger including a heat exchanger body comprising:

a plurality of parallel heat transfer tube segments fluidly interconnected to define at least one flow path for a heat transfer medium;

a plurality of corrugated fin units selectively attached between said tube segments;

an inlet tube fitting and an outlet tube fitting, both of said fittings being attached to said heat exchanger body in fluid communication with said heat transfer tube segments for providing a path of ingress and egress for said heat transfer medium in said heat exchanger body; and

support members secured to said heat exchanger body, each support member having an engaging surface which corresponds to the outer surface of at least one of said inlet and outlet tube fittings, said engaging surface of each of said support members contacting the outer surface of one of said inlet and outlet tube fittings and being secured thereto to hold said inlet and outlet tube fittings in fixed position relative to said heat exchanger body.

5,209,291

COOLING APPARATUS FOR OPTICAL DEVICES

William D. Taylor, Sandy Hook, Conn., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jun. 28, 1991, Ser. No. 722,649
The portion of the term of this patent subsequent to Dec. 8, 2009, has been disclaimed.
Int. Cl.[5] F28F *3/12*; G02B *5/08*
U.S. Cl. 165—168 20 Claims

1. A cooling apparatus for a device of the type that has a surface, said cooling apparatus comprising:

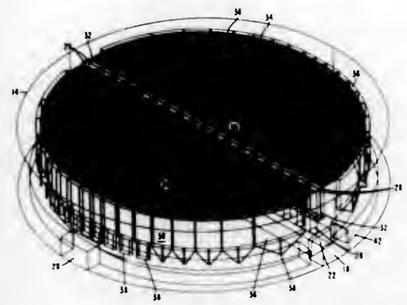
a body having a surface sized and configured to be in juxtaposition with and sealed to the surface of said device;

a plurality of grooves formed in the surface of said body, said grooves being closed by said device to form channels having first and second ends;

means for providing coolant flow to the first end of each of said channels;

a plurality of plenums disposed at the second ends of said channels, each plenum being connected to receive coolant from one of said channels; and

an orifice, formed in each said plenum, for the flow of coolant out of the plenum, each said orifice being sized to control the flow of coolant through the channel associated



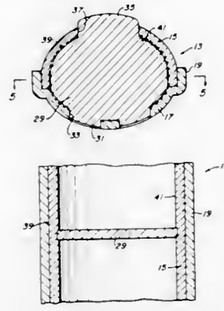
with the plenum, whereby the rate of cooling provided by different channels may be controlled.

5,209,292

CONDENSER HEADER AND TANK ASSEMBLY WITH INTERFERENCE FIT BAFFLE

Dean A. Arneson, Arlington, and Clive R. Hindle, Fort Worth, both of Tex., assignors to Zexel USA Corporation, Decatur, Ill.

Filed May 15, 1992, Ser. No. 884,517
Int. Cl.[5] F28F *9/02*
U.S. Cl. 165—176 12 Claims



1. In a heat exchanger having a plurality of parallel tubes extending between a pair of header and tank assemblies, each header and tank assembly having a header portion and a tank portion which are joined together with interior walls of the header portion and tank portion defining a flow area, the header portion having a plurality of tube slots for receiving ends of the tubes to flow refrigerant between the header and tank assemblies and the tubes, the improvement comprising in combination:

at least one flow blocking plate located in at least one of the header and tank assemblies, each plate being flat and having an outer abutment edge which abuts and deforms the interior walls of the header portion and tank portion in an interference fit when the header portion and tank portion are joined together, the deformation of the interior walls of the header portion and tank portion enhancing sealing of the abutment edge to the interior walls.

9. In a method of assembling a heat exchanger header and tank assembly, which includes providing a tank portion and a header portion which have interior walls when assembled together define a flow area, and forming tube slots in the header portion, the improvement comprising:

providing at least one baffle plate having an abutment edge

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which circumscribes an area that is larger than the flow area of the header and tank assembly;

inserting the plate into one of the portions; then

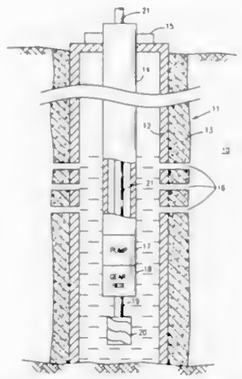
assembling the tank portion and header portion in engagement with each other with the plate located therein, and pressing the portions together with sufficient force to cause the abutment edge of the plate to deform the interior walls slightly to enhance sealing between the plate and the interior walls.

5,209,293

APPARATUS FOR FLUIDIZING FORMATION FINES ENTRAINED IN FORMATION FLUIDS ENTERING A PRODUCTION WELL PENETRATING AN OIL-BEARING FORMATION

Matthew G. McNaughton, Whitecourt; Eugene Ostapovich, and Farrokh N. Pebdani, both of Calgary, all of Canada, assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Mar. 2, 1992, Ser. No. 844,080
Int. Cl.[5] E21B *43/00*
U.S. Cl. 166—68.5 9 Claims



1. Apparatus for fluidizing formation fines entrained in formation fluid entering a production well through perforations in well casing penetrating a subsurface oil-bearing formation, comprising:

a) production tubing extending from the surface of the earth to a position below the lowermost of said perforations in said well casing,

b) a downhole pump positioned at the lower end of said tubing for pumping formation fluid from said formation upwardly through said tubing to the surface of the earth, and

c) an agitating unit positioned below said pump within said well, said agitating unit being rotated in the formation fluid within the production well below the lowermost of said perforations to fluidize formation fines entrained in said formation fluid so that they are produced upwardly through said pump and tubing to the surface of the earth.

5,209,294

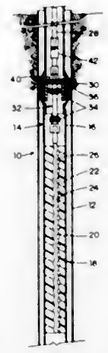
ROTOR PLACER FOR PROGRESSIVE CAVITY PUMP

James L. Weber, P.O. Box 1089, North Battleford, Saskatchewan, Canada S9A 3K2

Filed Sep. 27, 1991, Ser. No. 766,104
Claims priority, application Canada, Aug. 19, 1991, 2049502
Int. Cl.[5] E21B *23/00*
U.S. Cl. 166—105 14 Claims

1. A rotor placer for use in an oil well having production tubing, a progressive cavity pump with a stator coupled to the production tubing and a rotor rotatable in the stator, and sucker rod means coupled to the rotor for rotating the rotor in the stator, said rotor placer comprising:

drive shaft means with a lower end for driving connection with the rotor and an upper end for driven connection to the sucker rod means;



bearing means connected to the drive shaft at a fixed position therealong;

bearing seat means for connection to the production tubing at a fixed position therealong and engageable with the bearing means so as to limit movement of the bearing means along the production tubing towards the stator.

5,209,295

IN-SITU REDUCTION OF OIL VISCOSITY DURING STEAM INJECTION PROCESS IN EOR

Rafael E. Campos, and Jose A. Hernandez, both of Los Teques, Venezuela, assignors to Intevep, S.A, Caracas, Venezuela

Filed Dec. 2, 1991, Ser. No. 801,474
Int. Cl.[5] E21B *43/24*
U.S. Cl. 166—303 5 Claims

1. A method for lowering the viscosity of a heavy hydrocarbon in situ in a well formation so as to improve well production wherein the heavy hydrocarbon has an API° gravity in the range between 6 and 12 and a dynamic viscosity in the range between 300 and 900 centipoises 195° F. comprising:

injecting a mixture of steam and an aqueous solution of urea in a proportion of greater than or equal to 2% by weight with respect to the total amount of H_2O in the aqueous solution so as to reduce the viscosity of the heavy hydrocarbon by at least 50%.

5,209,296

ACIDIZING METHOD FOR GRAVEL PACKING WELLS

William P. Donlon; Lloyd G. Jones; E. Thomas Strom, all of Dallas, and Charles S. Yeh, Plano, all of Tex., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation-in-part of Ser. No. 810,463, Dec. 19, 1991. This application Sep. 11, 1992, Ser. No. 943,647
Int. Cl.[5] E21B *43/04, 43/27*
U.S. Cl. 166—276 9 Claims

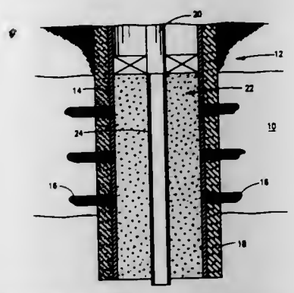
1. A method for removing sand or fines from hydrocarbonaceous fluids produced from a formation via a wellbore comprising:

a) gravel packing a wellbore and perforations communicating with a productive interval of the formation;

b) introducing an acidizing agent into the formation's near-wellbore area via perforations within the wellbore which acidizing agent is of a strength sufficient to dissolve formation sand or fines in channels contained in said formation and perforations;

c) introducing thereafter a sand consolidation agent into said perforations before said channels are blocked with formation sand or fines; and

d) allowing the consolidation agent to remain in the perforations for a time sufficient to form a cement having a porosity sufficient to prevent formation fines from entering said channels and perforations thereby permitting the production of substantially fines free hydrocarbonaceous fluids to the surface.

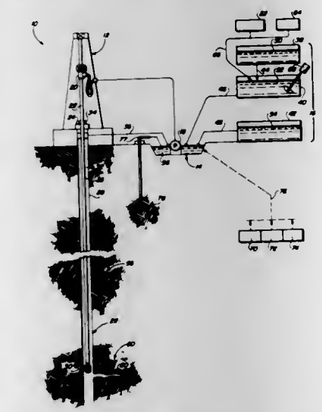


5,209,297

METHOD OF DRILLING THROUGH A HIGH TEMPERATURE FORMATION

William K. Ott, Houston, Tex., assignor to Well Completion Technology, Houston, Tex.

Filed Sep. 27, 1991, Ser. No. 767,003
Int. Cl.[5] E21B *21/06, 37/00*
U.S. Cl. 166—300 10 Claims



6. In a drilling operation having a drill string for forming a borehole while drilling fluid flows down the drill string to a drill bit and back up a borehole annulus to a mud pit, the improved method of modifying the drilling fluid to enable the borehole to be extended through a geothermal formation and through a fractured formation comprising the steps of:

preparing a mixture of sodium silicate and water, and adjusting the pH thereof within a range of 8–9 and continually agitating and shearing the resultant mixture the amount required to avoid mass gelation of the mixture, thereby obtaining a highly viscous thixotropic fluid;

adjusting the specific gravity of the highly viscous thixotropic fluid by adding weighting agents to said mud pit;

admixing the resultant viscous thixotropic fluid with the drilling fluid to provide an improved drilling fluid having admixed therewith at least ½-7½% activity by weight of said viscous thixotropic fluid;

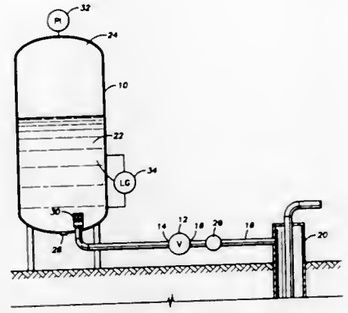
whereby, there is provided an improved drilling fluid for use in high temperature formations.

5,209,298

PRESSURIZED CHEMICAL INJECTION SYSTEM

Robert N. Ayres, 142 S. Cockren's Green Cir., The Woodlands, Tex. 77381

Filed Feb. 4, 1992, Ser. No. 830,599
Int. Cl.[5] E21B *37/06*
U.S. Cl. 166—305.1 20 Claims



1. An apparatus for selectively injecting a chemical into a well, comprising:

a pressure vessel for containing the chemical, wherein said pressure vessel is closed to atmospheric pressure;

a conduit between said pressure vessel and the well for transmitting the chemical from said pressure vessel to the well;

a valve in fluid communication with said conduit for selectively controlling the flow of chemical from said pressure vessel; and

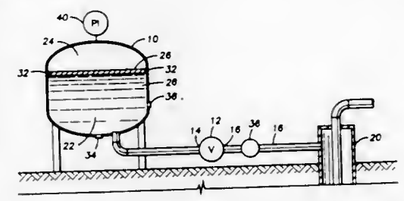
a pressurized gas in said pressure vessel for causing the chemical to flow into the well as said valve controls the flow of chemical from said pressure vessel.

5,209,299

MULTIPLE CHAMBER CHEMICAL INJECTION SYSTEM

Robert N. Ayres, 142 S. Cocren's Green Cir., The Woodlands, Tex.

Filed Feb. 4, 1992, Ser. No. 830,606
Int. Cl.[5] E21B *37/06*
U.S. Cl. 166—305.1 20 Claims



1. An apparatus for selectively injecting a chemical into a well, comprising:

a pressure vessel having a movable baffle defining a first chamber for holding the chemical and defining a second chamber separated from said first chamber, wherein said pressure vessel is closed to atmospheric pressure;

a valve in fluid communication with said first chamber and

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with the well for selectively permitting the chemical to exit said first chamber; and

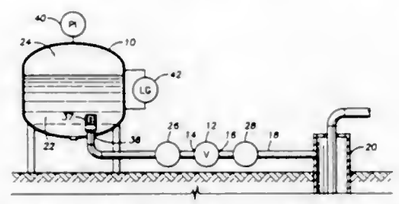
a pressurized gas located in said second chamber for moving said baffle to pressurize the chemical, thereby causing the chemical to exit said first chamber through said valve and to enter the well.

5,209,300

PRESSURE REGULATED CHEMICAL INJECTION SYSTEM

Robert N. Ayres, 142 S. Cockren's Green Cir., The Woodlands, Tex. 77383

Filed Feb. 4, 1992, Ser. No. 830,607
Int. Cl.[5] E21B *37/06*
U.S. Cl. 166—305.1 20 Claims



1. An apparatus for selectively injecting a chemical into a well, comprising:

a pressure vessel for containing the chemical, wherein said pressure vessel is closed to atmospheric pressure;

an outlet attached to said pressure vessel for permitting the chemical to exit said pressure vessel;

a valve in fluid communication with said outlet for selectively controlling the flow of chemical from said pressure vessel;

a pressure regulator in fluid communication with said chemical downstream of said outlet for controlling the pressure of the chemical; and

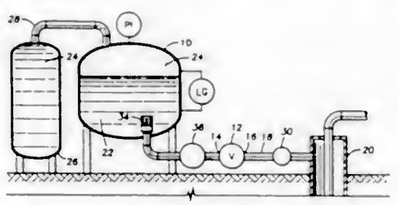
a pressurized gas located in said pressure vessel, wherein the pressure exerted by said pressurized gas caused the chemical to flow from said pressure vessel to the well through said pressure regulator and said valve.

5,209,301

MULTIPLE PHASE CHEMICAL INJECTION SYSTEM

Robert N. Ayres, 142 S. Cockren's Green Cir., The Woodlands, Tex. 77381

Filed Feb. 4, 1992, Ser. No. 830,608
Int. Cl.[5] E21B *37/06*
U.S. Cl. 166—305.1 18 Claims



1. An apparatus for selectively injecting a chemical into a well, comprising:

a first pressure vessel for containing a quantity of the chemical, wherein said first pressure vessel is closed to atmospheric pressure;

a second pressure vessel closed to atmospheric pressure;

flow communication means connected between said first pressure vessel and said second pressure vessel;

a pressurized gas located in said second pressure vessel, wherein said pressurized gas is in liquid and gaseous states, and wherein said pressurized gas communicates pressure to the chemical through said flow communication means; and

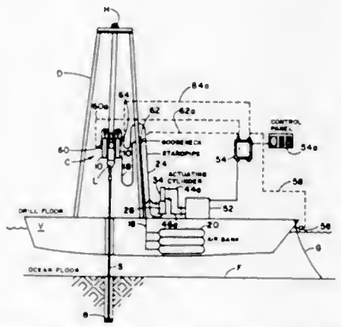
a valve in fluid communication with said first pressure vessel and the well for selectively permitting the chemical to exit said first pressure vessel, due to pressure induced by said pressurized gas, and to enter the well.

5,209,302

SEMI-ACTIVE HEAVE COMPENSATION SYSTEM FOR MARINE VESSELS

Leland R. Robichaux, and Jan T. Hatleskog, both of Aberdeen, Scotland, assignors to RETSCO, Inc., Houston, Tex.

Filed Oct. 4, 1991, Ser. No. 769,054
Int. Cl.[5] E21B *19/09*
U.S. Cl. 166—355 7 Claims



1. A system for compensating for the heave of waves on a marine vessel comprising,

a fluid responsive compensator attached to the vessel including a load carrying means, a chamber for receiving and discharging fluid and a piston moving within said chamber in response to changes in fluid pressure to reposition the load carrying means relative to a set point in the compensation chamber,

an accumulator chamber containing a fluid, in fluid communication with the compensator including a piston separating the accumulator chamber into two fluid reservoirs and having a rod attached to, and extending from, said piston;

an actuator cylinder having an actuator piston dividing the cylinder into a first and second chamber and rod connected on one end to the piston and on the other end to the piston rod of the accumulator such that the piston of the accumulator moves in response to movement of the actuator piston moving in response to changes of fluid pressure in the actuator chambers;

a variable pump in fluid communication with the two chambers of the actuator cylinder with the output of the pump being determined in response to a controller;

a means for sensing changes of conditions within the compensator from the set point and communicating the changes to the controller, which compares such changes to determine a rate of such change;

a means for sensing a wave heave in the vessel and communication of information sensed to the controller; and

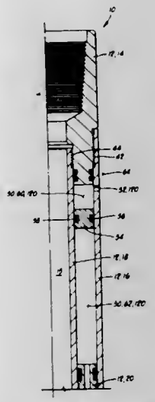
a means in the controller for comparing the information from such sensing means with the pump output and adjusting the output to return the conditions in the compensator to the set point.

5,209,303

COMPRESSIBLE LIQUID MECHANISM FOR DOWNHOLE TOOL

Burchus Q. Barrington, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Nov. 20, 1991, Ser. No. 795,347
Int. Cl.[5] E21B *34/10*
U.S. Cl. 166—374 26 Claims



22. A method of operating an annulus pressure responsive downhole tool, comprising:

(a) increasing well annulus pressure;

(b) communicating said increased well annulus pressure to a first side of a power piston of said tool while delaying communication of said increase through a compressible liquid to a second side of said power piston for a sufficient time to allow a pressure differential across said power piston to move said power piston between a first position and a second position within said tool and to thereby move an operating element from an initial position to an intermediate position within said tool;

(c) compressing said compressible liquid by a volume substantially equal to a displacement of said power piston as said power piston moves from its first to its second position and as said operating element correspondingly moves from its initial position to its intermediate position; and

(d) moving said operating element from its intermediate position to a final position by means other than said power piston without further compressing said compressible liquid as a result of said moving said operating element from its said intermediate position to its said final position.

5,209,304

PROPULSION APPARATUS FOR POSITIONING SELECTED TOOLS IN TUBULAR MEMBERS

Sidney B. Nice, Humble, Tex., assignor to Western Atlas International, Inc., Houston, Tex.

Filed Aug. 16, 1991, Ser. No. 745,926
Int. Cl.[5] E21B *23/08, 23/10, 34/10, 45/00*
U.S. Cl. 166—383 21 Claims

1. Propulsion apparatus for attachment to a selected tool for propelling and positioning the tool in a tubular member in response to fluid pressure exerted within the tubular member, comprising:

a top sub portion adapted for connection to the mating end of the tool,

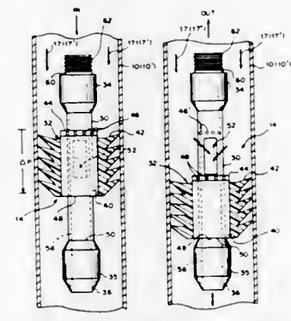
an elongated tubular mandrel depending from said top sub portion and terminating in a lower free end,

a tubular sleeve concentrically disposed around said elongated tubular mandrel and adapted for coaxial sliding movement with respect thereto,

cup apparatus mounted on said sleeve and having at least one fin element projecting radially and circumferentially therefrom for substantially reducing all of the annular space between said sleeve and the inner surface of the tubular member and cooperating with said sleeve and the tubular member and fluid pressure exerted therein for translating fluid differential pressure developed across said at least one fin element of said cup apparatus into propelling forces having a preselected magnitude and cooperating therewith to apply said forces to said sleeve,

sleeve retaining means cooperating with said sleeve and mandrel for positioning and retaining said sleeve in a first position with respect to said mandrel and cooperating with said propelling forces having said preselected magnitude and with said cup apparatus for transmitting said propelling forces cooperating with said cup apparatus and sleeve to said mandrel and the attached tool for propelling and positioning the tool to a selected location within the tubular member,

wherein said cup apparatus and sleeve retaining means cooperatively respond to a preselected change in the fluid pressure differential acting across said cup apparatus for releasing said sleeve and permitting predetermined movement thereof from said first position with respect to said mandrel, said predetermined movement of said sleeve with respect to said mandrel allowing substantial equalization of the differential pressure developed across said cop apparatus.



21. A method of propelling and positioning a selected tool in a tubular member in response to fluid pressure exerted within the tubular member, comprising the steps of:

attaching propulsion apparatus to the lower mating end of the downhole tool, said propulsion apparatus comprising:

a top sub portion adapted for connection to the mating end of the selected tool,

an elongated tubular mandrel depending from said top sub portion and terminating in a lower free end,

a tubular sleeve concentrically disposed around said elongated tubular mandrel and adapted for coaxial sliding movement with respect thereto,

cup apparatus mounted on said sleeve and having at least one fin element projecting radially and circumferentially therefrom for substantially reducing all of the annular space between said sleeve and the inner surface of the tubular member and cooperating with said sleeve and the tubular member and fluid pressure exerted therein for translating fluid pressure developed in the tubular member into forces cooperating with said cup apparatus and acting as a propelling force applied to said sleeve, and

sleeve retaining means cooperating with said sleeve and mandrel for positioning and retaining said sleeve in a first position with respect to said mandrel and cooperating with said fluid pressure for transmitting said fluid

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pressure forces cooperating with said cup apparatus and sleeve to said mandrel and the attached tool,

increasing the pressure of the fluid in the tubular member above said cup apparatus for creating a fluid differential pressure thereacross that translates into coaxial propelling forces acting thereon,

positioning the propulsion apparatus and attached tool to a desired position in the tubular member in response to said coaxial propelling forces acting on said cup apparatus, and

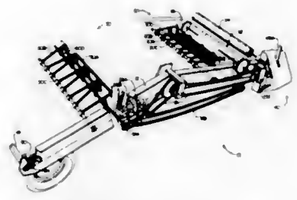
creating a selected change in the fluid pressure differential across said cup apparatus for cooperating therewith and with said retaining means for releasing said sleeve from said mandrel and permitting predetermined coaxial sliding movement therebetween from said first position with respect to said mandrel, said predetermined movement of said sleeve with respect to said mandrel allowing substantial equalization of the differential pressure across said cup apparatus.

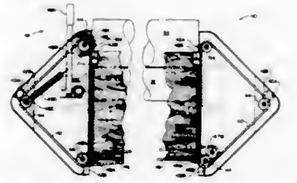
5,209,305

AUTOMATED APPARATUS FOR REMOVING TRANSPLANT SIZE SEEDLINGS

Raymond C. Long, Raleigh, N.C., assignor to North Carolina State University, Raleigh, N.C.

Filed Aug. 30, 1991, Ser. No. 752,874
Int. Cl.[5] A01D *17/02*
U.S. Cl. 171—7 **20 Claims**





1. An automated apparatus for removing transplant size seedlings from a plant bed comprising:

a frame adapted to be pulled through a plant bed by a tractor and having a front end and a rear end;

undercutter bar means rotatably mounted at the front end of said frame and adapted to be pushed beneath the surface of a plant bed as said undercutter bar means rotates upwardly toward the front end of said frame;

conveyor mean mounted on said frame defining a first upwardly inclined portion and a second generally horizontal portion for receiving and transporting seedlings along the first portion and the second portion thereof;

shaker means carried by said frame and positioned under at least one of said first and second portions of said conveyor means for shaking the seedlings carried thereby;

seedling boxing means positioned at the rear end of said frame for releasably engaging a container positioned for receiving seedlings from the second portion of said conveyor means and conveying the container from an upper position adjacent said conveyor to a vertically lower position where the seedling-filled container is released to fall upon the plant bed; and

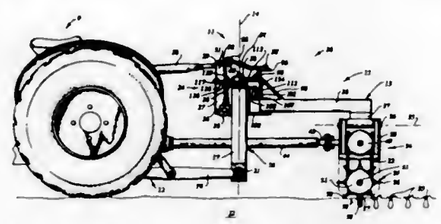
hydraulic means for actuating said conveyor means, undercutter bar means and shaker means.

5,209,306

TURF AERATOR WITH IMPROVED BEARINGS FOR LATERAL TINE MOVEMENT

Carroll J. Whitfield, 1709 Slack Dr., Tifton, Ga. 31793

Filed Apr. 6, 1992, Ser. No. 863,808
Int. Cl.[5] A01B *45/02*
U.S. Cl. 172—21 **7 Claims**



5. An agricultural implement comprising

a drive shaft having a longitudinal axis,

means for rotating said drive shaft about its longitudinal axis,

a plurality of rotary hoes mounted at spaced intervals along the length of said drive shaft,

each of said rotary hoes including a two row roller bearing assembly mounting the rotary hoe to the drive shaft and adapter means orienting the axis of rotation of the roller bearing assembly and its rotary hoe at an angle canted with respect to the longitudinal axis of said drive shaft,

each said adapter means comprising a pair of adapters mounted about said drive shaft and spaced from each other along the length of said drive shaft, said pair of adapters forming coextensive surfaces supporting the two row roller bearing assembly at an axis of rotation which is canted with respect to the axis of rotation of said drive shaft,

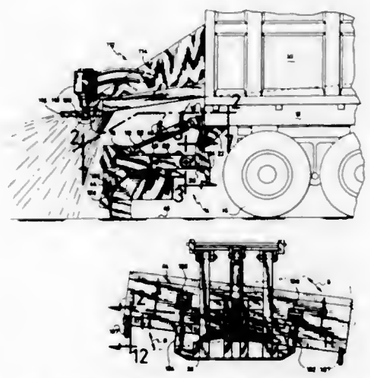
so that when the drive shaft is lowered toward the ground surface and the rotary hoes engage the ground and the drive shaft is rotated about its longitudinal axis the rotary hoes wobble and move the soil.

5,209,307

REAR MOUNTED GRADER FOR VEHICLES

Jean-Francois Hotte, 103, Emery-Belisle, Papineauville, Quebec, Canada J0V 1R0

Filed Jun. 18, 1992, Ser. No. 900,441
Int. Cl.[5] E01H *5/04*; **A01B** *59/042, 63/02*
U.S. Cl. 172—445.2 **7 Claims**



1. A rear mounted grader for a vehicle having a frame extending behind a pair of rear wheels of said vehicle, said grader comprising,

a plate member adapted to be vertically secured to said vehicle frame behind said wheels,

a pair of rearwardly extending arms pivotally mounted on said plate member for vertically moving relative to said plate member,

sliding member mounted between said arms, said sliding member adapted to move parallel to said arms and to vertically move said arms,

a blade transversally disposed relative to said arms and secured thereunder,

a hydraulic piston pivotally secured at one end to said plate member above said pair of arms, and to said sliding member at the end opposite said one end for raising and lowering said blade from a position above the ground to an abutting position with the ground,

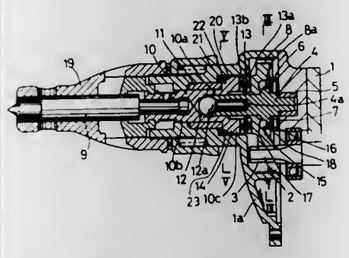
whereby, upon actuation of said piston, said blade is adapted to selectively abut against the ground for grading the ground or be lifted therefrom.

5,209,308

POWER DRIVEN SCREWDRIVER

Katsuhiko Sasaki, Anjo, Japan, assignor to Makita Corporation, Anjo, Japan

Filed Oct. 8, 1992, Ser. No. 958,183
Claims priority, application Japan, Oct. 8, 1991, 3-290803
Int. Cl.[5] B25B *23/00*
U.S. Cl. 173—178 **7 Claims**



1. A power driven screwdriver comprising:

a housing:

a motor mounted within said housing;

a spindle rotatably mounted within said housing for engagement with a driver bit for driving a screw, said spindle being axially movable relative to said housing between a first position and a second position;

biasing means for normally biasing said spindle toward said first position;

a drive member rotatably driven by said motor;

a clutch mechanism interposed between said spindle and said drive member, said clutch mechanism disconnecting said drive member from said spindle when said spindle is positioned at said first position, and said clutch mechanism permitting transmission of rotation of said drive member to said spindle when said spindle is positioned at said second position; and

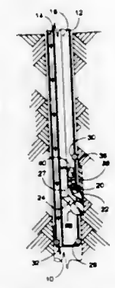
a device interposed between said spindle and said housing for preventing rotation of said spindle, said device including a first member and a second member, said first member being disposed on said spindle and rotatable therewith, said second member being fixed to said housing and axially opposed to said first member, said first and second members including a first conical surface and a second conical surface, respectively, said first and second conical surfaces having central axes parallel to a central axis of said spindle, respectively, and being opposed to each other, at least one of the central axes of said first and second conical surfaces being displaced from the central axis of said spindle, and said first conical surface contacting said second surface when said spindle is positioned at said first position.

5,209,309

TRIANGULAR CORE CUTTING TOOL

Bobby T. Wilson, 3300 Maxwell, Midland, Tex. 79707

Filed Aug. 16, 1991, Ser. No. 746,777
Int. Cl.[5] E21B *49/06*
U.S. Cl. 175—58 **17 Claims**



1. A sidewall coring tool for removing a selected section of the formation within a bore hole, comprising:

a housing for being lowered into the bore hole on the end of a drill string, said drill string operable to impart a vertically and downwardly directed force thereto along the longitudinal axis of the bore hole;

a longitudinal core tube formed interior to said housing and having an opening at one end for receiving core materials, said longitudinal core tube directed in an upward direction with the open end disposed on the lower end thereof;

a power source;

a coring device contained in said housing and operable to be disposed in a retracted non-cutting position in said housing and in an extended cutting position for core cutting and powered in the extended cutting position by said power source, said coring device when in the extended cutting position operable to be forced into the formation in the sidewall of the bore hole;

a motivating device for placing said coring device in said extended cutting position;

said coring device in the extended cutting position extracting a core from the sidewall of the bore hole in response to vertical movement of said housing; and

a diverting device for diverting said core after formation thereof by said coring device upward into the open end of said core tube, the vertical downward movement of said housing forcing said core into said core tube.

11. A method for sidewall coring of a formation within a bore hole, comprising the steps of:

providing a cutting tool that is disposed within a housing that forms a portion of a drill string along the longitudinal axis thereof;

lowering the drill string into the bore hole;

extending the cutting tool form a retracted position within the housing to and extended position such that the cutting tool is embedded in the sidewall of the formation;

lowering the drill string to allow a core to be formed by the cutting tool in response to the lowering of the drill string;

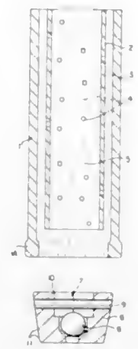
providing a core receptacle in the interior of the housing;

urging the formed core into the core receptacle; and

retracting the cutting tool from the extended position to the retracted position at the end of the coring operation.

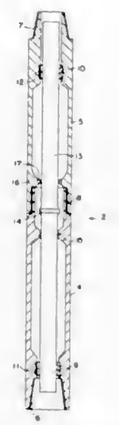
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5,209,310
COREBARREL
Graham Clydesdale, Aberdeen, Scotland, assignor to Diamant Boart Stratabit Limited, Aberdeen, Scotland
Filed Sep. 13, 1991, Ser. No. 759,170
Claims priority, application United Kingdom, Sep. 13, 1990, 9020038
Int. Cl.[5] E21B *25/00*
U.S. Cl. 175—244 4 Claims



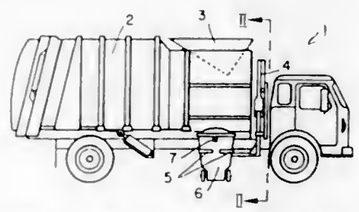
1. A corebarrel having an elongate cylindrical outer casing and an elongate cylindrical liner, the liner being disposed within the outer casing such that there is a space between the liner and the outer casing, the liner comprising a cylindrical wall and having a plurality of unidirectional valves provided in said wall which enable the lateral passage of gas from the volume within the liner to the space between the liner and outer casing, and preventing the passage of fluids from the said space to the said volume.

5,209,311
DRILL STRING COMPONENT
Lennart Donsé, Värmdö, Sweden, assignor to Atlas Copco Construction and Mining Technique AB, Stockholm, Sweden
Filed Nov. 4, 1991, Ser. No. 787,069
Claims priority, application Sweden, Nov. 14, 1990, 9003627
Int. Cl.[5] E21B *17/16*
U.S. Cl. 175—320 2 Claims



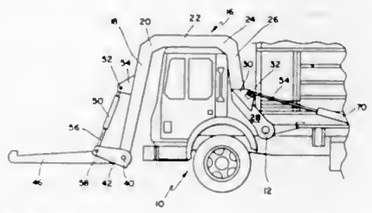
1. A first drill string component connectable to at least a second drill string component of a top hammer drilling apparatus including a rock drilling machine (1) and a drill bit (3), said drill string components being disposed between said rock drilling machine and said drill bit, said first drill string component comprising a rod (13) for transferring impact energy between said rock drilling machine and said drill bit arranged at a front end of said first drill string, and a tube packet (4, 5) positioned around said rod, said tube packet comprising two tubes for transferring rotational movement between said rock drilling machine and said drill bit, said rod having a section defining a diameter larger than other portions of said rod, said tube packet (4, 5) having a section defining a diameter less than other portions of said tube packet, said lesser diameter section of said tube packet being positioned below said larger diameter section of said rod during drilling in an upward orientation, said larger diameter section of said rod and said lesser diameter section of said tube packet being defined for sealing cooperation with each other.

5,209,312
METHOD OF COLLECTING AND RECORDING REFUSE
Asger R. Jensen, Frugthaven 37, DK-5462 Morud, Denmark
Filed Feb. 21, 1992, Ser. No. 839,587
Int. Cl.[5] G01G *19/08*; B65G *69/00*; B65F *3/02*
U.S. Cl. 177—136 10 Claims



1. A method of collecting and recording refuse, said refuse being placed in small containers which are lifted by means of a lift on a refuse collection truck; and the refuse is dumped from the container into a refuse container of the truck, and wherein the refuse is first led to a weighing container suspended in weighing cells in such a manner that the weight of the refuse is recorded, whereupon the refuse is discharged from the container and down onto a compressor which moves the refuse into a storage chamber of the refuse container.

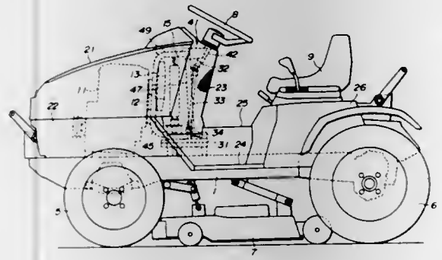
5,209,313
LIFT WEIGHING
Ronald F. Brodrick, Wayland, and Roger W. Masson, Acushnet, both of Mass., assignors to Teledyne Industries, Inc., Los Angeles, Calif.
Filed Mar. 28, 1991, Ser. No. 676,814
Int. Cl.[5] G01G *19/08, 19/14*
U.S. Cl. 177—139 7 Claims



1. Lift mechanism comprising:
mass support means,
vehicle means,

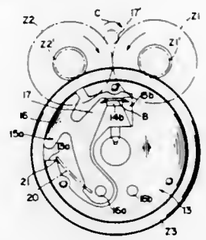
arm means interconnecting said mass support means and said vehicle means for relative movement therebetween,
said arm means comprising a pair of arms, each said arm being pivotally mounted about a pivot axis, and
two pairs of strain gauges on each said arm,
a first pair being nearer to and a second pair being farther from said mass support means,
said pivot axis being farther from said mass support means than said second pair of strain gauges,
in which said arms are parallel, and have the general configuration of an upside-down U.

5,209,314
RIDING-TYPE WORKING MACHINE
Kimito Nishiyama, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 9, 1991, Ser. No. 727,452
Claims priority, application Japan, Jul. 9, 1990, 2-181118
Int. Cl.[5] B60K *11/04*
U.S. Cl. 180—68.6 10 Claims



1. A riding-type working machine comprising:
a machine frame, said machine frame defining an engine compartment in a front portion thereof;
an engine mounted in said engine compartment;
a steering column in the form of a framework defining a space therein, said steering column being vertically mounted on said machine frame behind said engine;
a steering shaft disposed within said space in the steering column and secured to an upper end of said steering column,
a steering wheel,
a radiator for cooling said engine, said radiator being disposed within said space in the steering column;
a steering gearbox,
support means for fixedly mounting said steering gearbox horizontally on said machine frame under said radiator and steering column,
said steering shaft extending from said steering wheel into said steering gear box,
a lower end of said steering column being fixedly secured to said support means, and
means for securing and supporting a lower end of said radiator to said support means.

5,209,315
ELECTROMOTIVE POWER STEERING
Walter Schlagmueller, Schwieberdingen; Helmut Rembold, Stuttgart, and Ernst Linder, Mueblacker, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
PCT No. PCT/DE90/00698, § 371 Date May 2, 1991, § 102(e) Date May 2, 1991, PCT Pub. No. WO91/05692, PCT Pub. Date May 2, 1991
PCT Filed Sep. 12, 1990, Ser. No. 684,904
Claims priority, application Fed. Rep. of Germany, Oct. 10, 1989, 3933711
Int. Cl.[5] B62D *5/04*
U.S. Cl. 180—79.1 31 Claims



1. An electromotive power steering aid for motor vehicles, for a speed range during parking which comprises a steering column and a servo-motor drive, a reduction gear between said servo-motor drive and the steering column, at least one clutch block (15*a*, 15*b*, 15*a'*, 15*b'*) which creates a drive connection from the servo-motor drive to a steering gear side of the steering column (10; 23), a pawl (14, 14'), during manual exertion of a moment at a steering wheel said pawl (14, 14') is connected with the steering column (10; 22) and produces a requisite clutch pressure by a mechanical application on the at least one clutch block, a carrier flange (13, 13') is fitted on a driven side of the steering column (10; 23), said carrier flange has on an outer ring wall rotatably fitted ring gears (Z3, Z4) openings through which the clutch blocks (15*a*, 15*b*, 15*a'*, 15*b'*) which are firmly joined to the carrier flange (13, 13') each selectively contacts an inner diameter of the ring gears (Z3, Z4) by means of clutch shoes (16, 16') to bring about a friction lock, in dependence on the direction of application of the pawl (14, 14'), the steering column (10) forms over a partial section of its length a torsion bar (10*a*) which is fitted at one end by means of a rigid sleeve (12) and the pawl (14) which extends to the carrier flange (13) and which, depending on the direction of the moment exerted by the driver, engages within the carrier flange by means of a driving projection (14*b*) one of two clutch blocks (15*a*, 15*b*) which upon an actuation of the servo-motor drive resulting simultaneously with the exertion of the moment, come into operating engagement with one of the ring gears (Z3, Z4) which rotate continuously in opposite directions and are offset axially from each other.

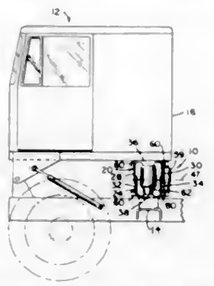
5,209,316
TRUCK CAB SUSPENSION UNIT
David R. Bauer, Brookfield, Wis., assignor to Applied Power Inc., Butler, Wis.
Filed Oct. 16, 1991, Ser. No. 778,421
Int. Cl.[5] B62D *33/067*
U.S. Cl. 180—89.14 14 Claims

1. A truck cab suspension unit, comprising:
a truck cab;
a truck chassis;
a first yoke having a bridge portion and a pair of laterally spaced arms extending in the same direction from said bridge portion;
a second yoke having a bridge portion and a pair of laterally spaced arms extending in the same direction from said

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bridge portion, the arms of said second yoke fitting inside of and adjacent to the arms of the first yoke in sliding contact, one arm of each yoke cooperating with the corresponding arm of the other yoke to define the corresponding lateral side of the unit and the bridge portions of said yokes defining the top and bottom sides of said unit;

an elongated slot formed in one of the arms on each lateral side of the unit, said slots extending in the direction from one bridge portion to the other bridge portion;



a bearing secured to the other of the arms on each lateral side of the unit, said bearing being received in the elongated slot of the adjacent arm and permitting rotation of said first yoke relative to said second yoke about an axis of said bearing;

a spring;

means for mounting said spring between the bridge portions; and

means for mounting one of said yokes to said truck cab and the other of said yokes to said truck chassis.

5,209,317

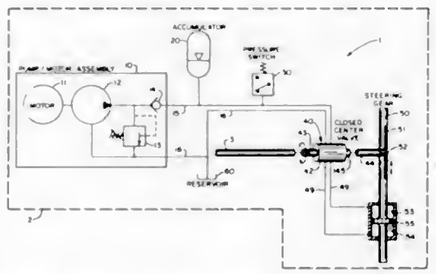
ELECTRO-HYDRAULIC VEHICULAR POWER STEERING SYSTEM WITH CLOSED CENTER VALVING

Steven H. Schnelle, Van Wert, Ohio, assignor to United Technologies Automotive, Inc., Dearborn, Mich.

Continuation of Ser. No. 279,601, Dec. 5, 1988, abandoned. This application Aug. 17, 1990, Ser. No. 781,654

Int. Cl.[5] B62D *5/06, 5/08, 5/083*

U.S. Cl. 180—132 **2 Claims**



1. In an electro-hydraulic vehicular power steering system for a motor vehicle having wheels, including—

a hydraulic pump having a fluid output line and a fluid input line;

a hydraulic accumulator connected to the output line of said pump;

a steering wheel shaft and a steering gear for turning the wheels of the vehicle, said shaft having centered positions in which the vehicle wheels are not being turned from a selected position;

a steering assist cylinder having a left chamber section and a right chamber section associated with said steering gear, assisting the driver of the vehicle in causing the steering gear to be moved, to move the wheels to the left or right and back again;

a reservoir connected to the fluid input line of said pump; and

hydraulic valving connected between said accumulator and said reservoir and hydraulically associated with said assist cylinder controlling the amount of driving fluid fed to said assist cylinder in response to the driver's turning the steering wheel; said valving including a control sleeve and an input shaft rotatably positioned within and movable concentrically with said control sleeve in response to the driver's turning the steering wheel, said control sleeve and said input shaft having peripherally spaced, longitudinally extended, interfacing grooves which when mated allow hydraulic fluid to flow from said accumulator to said assist cylinder and from said valving to said reservoir;

the improvement comprising:

said mating grooves being out of interfacing, hydraulic communication with each other when said steering wheel shaft is centered, providing closed center valving, allowing the pressure to be built up in the accumulator to a relatively high value when said steering shaft is centered.

5,209,318

CONSTANT-SPEED CRUISING SYSTEM FOR A VEHICLE

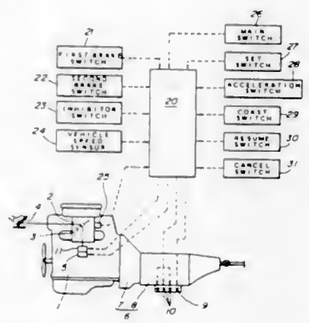
Katumi Miyahara; Yoshiaki Anan; Yoshiki Kubo; Hiroshi Ueda, and Takeshi Yamane, all of Hiroshima, Japan, assignors to Mazda Motor Corporation and NALDEC Corporation, Hiroshima, Japan

Continuation of Ser. No. 516,191, Apr. 30, 1990, abandoned. This application Feb. 26, 1992, Ser. No. 841,274

Claims priority, application Japan, Apr. 30, 1989, 1-110787

Int. Cl.[5] B60K *31/04*

U.S. Cl. 180—178 **6 Claims**



1. A constant-speed cruising system for a vehicle, comprising:

a vehicle speed governing means of an engine;

a means for detecting a vehicle speed;

a control unit for constant-speed cruising control, which controls the vehicle speed governing means so as for a vehicle speed to reach a target vehicle speed, the control unit is controlled to allow the vehicle speed detected by the means for detecting a vehicle speed to become the target vehicle speed;

a main switch for turning on or off a supply of an electric source to the control unit; and

a set switch for setting a vehicle speed at a point of time when the set switch is manually turned on to the target vehicle speed for constant-speed cruising control;

wherein the control unit has an inhibition means for inhibiting the setting of the target vehicle speed on the basis of the set switch for a lapse of a predetermined period from the point of time when the main switch is turned on, said predetermined period being set to at least a period of time required for initializing and for accumulating vehicle speed data necessary for setting an accurate target vehicle speed, and said inhibition means for inhibiting the setting of the target vehicle speed inhibits the setting of the target vehicle speed on the basis of the set switch by inhibiting a signal to be entered into the control unit from the set switch.

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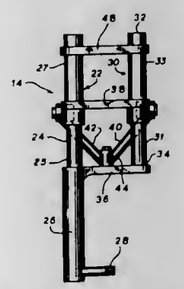
MOTORCYCLE FRONT SUSPENSION

Erik F. Buell, Mukwonago, Wis., assignor to Buell Motor Co., Mukwonago, Wis.

Filed Mar. 17, 1992, Ser. No. 852,636

Int. Cl.[5] B62K *25/08, 21/02*

U.S. Cl. 180—219 **10 Claims**



1. In a motorcycle of the type having front and rear wheels connected to a main frame, a suspension assembly for interconnecting the main frame having a steering shaft axis and the front wheel of the motorcycle comprising:

a main strut member having a lower portion extending downwardly and having a connecting arm extending inwardly from said main strut member's lower end for joining said main strut member to the front wheel, and an upper portion telescopically connected to said lower portion,

a secondary strut member substantially parallel with and offset from said main strut member and from the steering shaft axis, said secondary strut member having upper and lower ends with said lower end terminating at a point outside the circumference of the wheel,

coupling means for joining said main strut member to said secondary strut member and maintaining the parallel relationship between said struts, and

connecting means for pivotally connecting the suspension assembly to the main frame of the motorcycle.

5,209,320

OFFROAD AGRICULTURAL VEHICLE WITH ARTICULATED STEERING

Jerry A. Harrer, 2157 Carey Rd., Bloomvile, Ohio 44818

Filed Jan. 24, 1991, Ser. No. 645,419

Int. Cl.[5] B62D *13/00*

U.S. Cl. 180—235 **11 Claims**

1. An offroad agricultural vehicle comprising:

a first frame having at least one load bearing, ground engaging wheel, said at least one wheel having an axis of rotation substantially parallel to a ground surface and said axis being essentially fixed with respect to said first frame;

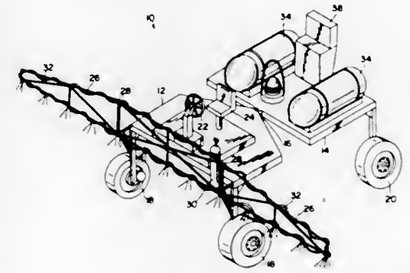
a second frame having at least one load bearing, ground engaging wheel, said at least one wheel having an axis of rotation substantially parallel to a ground surface and said axis being essentially fixed with respect to said second frame;

drive means which operably effect rotation of at least one of said at least one load bearing, ground engaging wheel of said first frame and said at least one load bearing, ground engaging wheel of said second frame to thereby provide drive to said offroad agricultural vehicle;

a universal pivot bearing positioned between and at a juncture of said first and said second frames which operably permits lateral relative pivoting motion between said first and said second frame and further operably accommodates a degree of vertical disparity between said at least one wheel connected to said first frame and said at least one wheel connected to said second frame with respect to a surface traversed by said offroad agricultural vehicle;

steering means for enabling an operator to direct and steer said offroad agricultural vehicle, said steering means including,

an arcuate rack connected to one of said first and said second frames and having a plurality of sequential drive transferring teeth;



a pinion gear connected to the other of said first and said second frames with respect to said arcuate rack and having a plurality of teeth operable to drivingly mesh with the drive transferring teeth of said arcuate rack;

means for maintaining engagement of said pinion gear with said arcuate rack as said offroad agricultural vehicle traverses an uneven ground surface; and

means for driving said pinion gear being connected to said pinion gear and the other of said first and said second frames, said means for driving said pinion gear comprising a motor connected to one of said first or said second frames which effects rotation of said pinion gear in two opposing directions, thereby imparting lateral movement of said first frame with respect to said second frame, such that an operator of said offroad agricultural vehicle may selectively steer and thereby effect relative pivoting of said first frame and said second frame.

5,209,321

POWER TRANSMISSION APPARATUS

Hideki Sado, Zama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 8, 1991, Ser. No. 696,574

Claims priority, application Japan, May 10, 1990, 2-120335

Int. Cl.[5] B60K *17/348*

U.S. Cl. 180—248 **7 Claims**

1. A power transmission apparatus for an automotive vehicle, comprising:

(a) an apparatus housing;

(b) a first front wheel drive hub extending in a first direction within said apparatus housing;

(c) a second rear wheel drive hub disposed coaxially with said first drive hub;

(d) a center differential gear housed within said apparatus housing, for differentially distributing power to said first and second hubs, respectively;

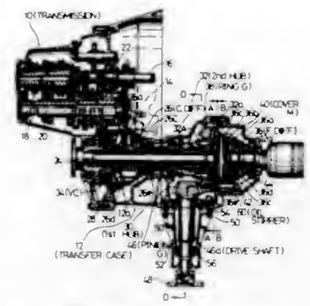
(e) a drive shaft extending in a second direction perpendicular to the first direction and having an axis which is located laterally offset from and above an axis of said first

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and second drive hubs when the power transmission apparatus is mounted on the vehicle;

(f) a steering rack being disposed under said drive shaft;

(g) a rotary direction change mechanism including said drive shaft, for changing a rotative direction along said first and



second hubs to another rotative direction along said drive shaft; and

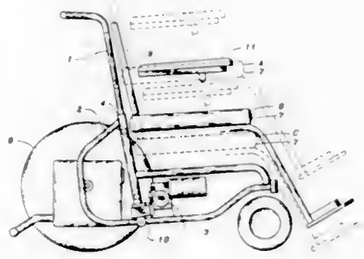
(h) lubricating means for supplying lubricant accumulated at a bottom of the apparatus housing to said rotary direction change mechanism.

5,209,322

ELEVATED WHEELCHAIR DEVICE

Robert McMahon, P.O. Box 10214, Reno, Nev. 89510

Filed Apr. 1, 1991, Ser. No. 678,794
Int. Cl.[5] B60K *28/00*
U.S. Cl. 180—271 9 Claims



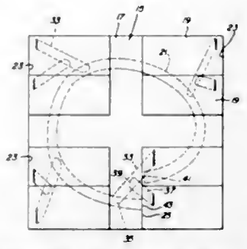
1. A wheel-chair device comprising a seat, a back support fixedly attached thereto, a wheel frame comprising at least 3 wheels, and a means for attaching said seat and back support to said wheel frame being adjustable in establishing the height of said seat with reference to said wheels; wherein said means for attaching said seat and back support comprises an elevator means and a first guide member and a second guide such that they are aligned substantially parallel, and a follower of first member moves within said second member in a track therein wherein said track comprises three sides wherein said means for attaching said seat and back support comprises a support guide means and an elevator means wherein said elevator means comprises a screw drive further comprising an electric motor and control means for driving said screw both upward and downward from a normal position range wherein a governor means operates to restrict the speed of motion of said wheels when said seat is at a position other than said normal position range.

5,209,323

INTERIOR FIRE ESCAPE CHUTE FOR A BUILDING

Sherlene Hopkins, 11827 Ohio, Detroit, Mich. 48204

Filed Jul. 23, 1992, Ser. No. 919,425
Int. Cl.[5] A62B *1/20*
U.S. Cl. 182—48 15 Claims



1. A fire escape chute for a building having a plurality of floors with hallways and a plurality of pairs of apartments with interior walls on each floor;

a plurality of vertically spaced aligned descending spiral chute segments positioned within the building and extending between adjacent floors;

each segment having an entrance on one floor and an exit upon a succeeding floor below;

a downwardly inclined escape chute for one of each of said pairs of apartments positioned within said building;

each escape chute having at one end an entrance opening within an interior wall of said one apartment, and an exit opening at its other end, said escape chute at its exit opening being connected to, merging and communicating with an adjacent chute segment for passage of a person thereinto;

and a downwardly inclined escape branch chute for the other of each of said pairs of apartments, positioned within said building, each escape chute branch having at one end an entrance opening within an interior wall of said other apartment, and an exit opening at its other end, said escape branch chute at said exit opening being connected to, merging and communicating with an adjacent escape chute for passage of a person thereinto and successively into the adjacent chute segment;

all of the persons using the escape chute and escape branch chutes successively passing therethrough and through the adjacent chute segment, successively exiting upon the adjacent lower floor.

5,209,324

METHOD FOR CONTROLLING A SOOTBLOWER LUBRICATION SYSTEM

Jaakko Högbacka, Kuusamo, Finland, assignor to Safematic Oy, Muurame, Finland

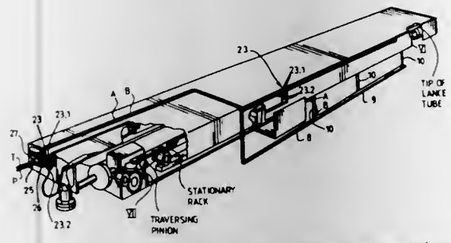
Filed Jun. 1, 1992, Ser. No. 891,047
Claims priority, application Finland, Jun. 3, 1991, 912670
Int. Cl.[5] F16N *27/00*
U.S. Cl. 184—7.4 5 Claims

1. A method for controlling a sootblowers lubrication system for at least one sootblower each of which includes a stationary portion, a movable portion which extends and retracts relative to the stationary portion, and a power source for extending and retracting the movable portion relative to the stationary portion, which lubrication system includes a lubricant container, a sootblower-specific lubricator for each said sootblower with distributors for distributing lubricant to each of a plurality of sites on each said sootblower for lubricating between said stationary and movable portions thereof, a lubricant distribution lien effectively extending between said lubricant container and each said sootblower-specific lubricator, a pump operable for pumping lubricant from said lubricant container through said lubricant distribution lien to each said

sootblower-specific lubricator, and, for each said sootblower, a respective lubricant flow control device interposed in said lubricant distribution line, between said pump and the respective said sootblower,

said method comprising:

(a) automatically intermittently operating said pump by using a timer operatively associated with the pump, so that during some, first periods, lubricant is being replenished through said lubricant distribution line from said lubricant container, and during other, second periods,



lubricant is not being replenished through said lubricant distribution line from said lubricant container;

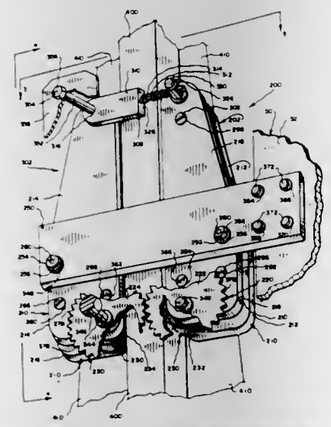
(b) sensing an activity which corresponds to movement of said movable portion of each sootblower relative to said stationary portion thereof, and applying such sensation automatically to enable each said lubricant flow control device only when the respective said sootblower movable portion has moved at least to a predetermined amount in at least one direction relative to the respective said sootblower stationary portion.

5,209,325

BRAKING APPARATUS AND METHOD FOR STORAGE AND RETRIEVAL VEHICLES

Paul K. Gines, Bountiful, and Richard M. Dicks, Salt Lake City, both of Utah, assignors to Eaton-Kenway, Inc., Salt Lake City, Utah

Filed Apr. 12, 1991, Ser. No. 684,410
Int. Cl.[5] B66B *5/26*
U.S. Cl. 188—67 43 Claims



1. Apparatus for braking a vertically travelling storage and retrieval carriage which travels along at least one guide rail or mast, said apparatus comprising:

means for sensing rate of travel of the carriage, generating an electrical voltage which is a function of the rate of carriage travel, and providing a brake actuating electrical signal when the rate of carriage descent is over a predetermined velocity;

at least one means for braking the carriage electrically connected to said sensing, generating and providing means, said braking means comprising:

braking cam means and means about which said braking cam means rotate into braking engagement against a guide rail or mast;

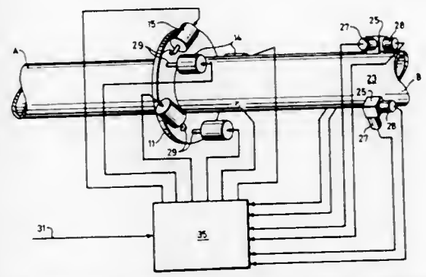
means for independently activating the at least one braking means by rotating said braking cam means into braking engagement against the guide rail or mast upon receipt of said electrical signal.

5,209,326

ACTIVE VIBRATION CONTROL

Mark F. L. Harper, Cambridge, England, assignor to Active Noise and Vibration Technologies Inc., Phoenix, Ariz.

Continuation-in-part of Ser. No. 492,819, Mar. 13, 1990, abandoned. This application Sep. 12, 1991, Ser. No. 758,612
Claims priority, application United Kingdom, Mar. 16, 1989, 8906069
Int. Cl.[5] F16F *7/10*
U.S. Cl. 188—378 5 Claims



1. A system for actively controlling vibration in a structure having an axis subject to unwanted vibrations, comprising:

a body extending along said axis and subject to said vibrations;

an intermediate member mounted on to said body and extending radially outwardly from said axis;

a plurality of uni-axial inertial actuators each for producing an action in a respective single direction, said actuators being mounted solely on said intermediate member, and said actuators being configured to act upon said intermediate member in respective directions disposed tangentially of said axis;

sensor means coupled to said structure for detecting unwanted vibrations; and

control means responsive to said sensor means for driving said actuators whereby cancelling vibrations are applied by said actuators to said structure in directions tangential to said axis for cancelling said unwanted vibrations in the structure.

5,209,327

WHEELED ARTICLE OF LUGGAGE

Richard A. Wright; Robert A. Wright, and Melvin Repscher, all of Taylorville, Ill., assignors to New Specialized Products, Inc., Taylorville, Ill.

Filed Nov. 6, 1991, Ser. No. 788,337
Int. Cl.[5] A45C *5/14*
U.S. Cl. 190—18 A 8 Claims

1. A wheeled article of luggage comprising a wheeled frame and a garment bag mounted on the frame, the frame comprising a generally rectangular base having two long edges, two ends, a top and a bottom, one of the long edges of the base

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constituting a front edge of the base and the other long edge constituting a back edge of the base, wheels at the bottom of the base, the base having a center of length, a post extending up from the base closely adjacent the back edge of the base generally at the center of length of the base, said post having an upper end, means extending forward from the post at the upper end of the post for hanging of garments on hangers in front of the post, the bag having a bottom, front, back, sides and a top, the bag bottom being of generally rectangular shape corresponding to the shape of the base and secured to the base, the



bag having an interior, the front of the bag extending up from the front edge of the base and being openable for access to the interior of the bag for hanging garments on hangers in the bag and for removal of garments hung in the bag; the back of the bag extending up from the back edge of the base in back of the post outside the post contiguous to the post, the sides of the bag extending up from the ends of the base, and the top of the bag extending over said garment-hanging means at the upper end of the post, and a handle attached to said garment-hanging means located outside of the top of the bag and arranged for pushing the article in direction lengthwise of the base.

5,209,328

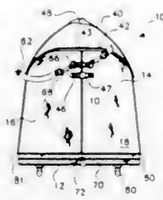
ROLLER-SUPPORTED TRAVELING LUGGAGE

Henry L. Kotkins, Jr., Seattle, Wash., assignor to Skyway Luggage Company, Seattle, Wash.

Filed Feb. 10, 1992, Ser. No. 832,984

Int. Cl.[5] A45C *5/14, 7/00*

U.S. Cl. 190—18 A **11 Claims**



1. Roller-supported traveling luggage comprising:

a central platform having front, rear, and opposite side edges, a bottom wall, top wall and side walls, the side walls of the central platform being expandable and having a zipper circumscribing the side walls of the central platform for expanding and contracting the side walls, rollers supporting the platform;

first and second cases each having a bottom panel, front and rear end panels, an inner side panel, and an outer side panel, each outer side panel having a lower outer edge hingedly joined to an opposite side edge of the central platform;

the inner side panels of each of the first and second cases opposed to one another in a case closed position and spaced outwardly from one another in a case open position; and

means for joining the cases together into a unitary unit when in the case closed position.

5,209,329

AUTOMATIC LOCKING BRAKE

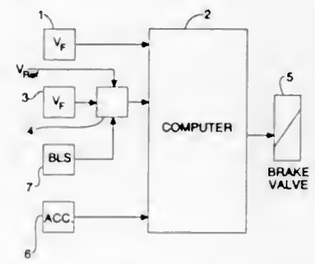
Alfred Sigl, Sersheim, and Wolf-Dieter Jonner, Beilstein-Schmidhausen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 460,942, Feb. 28, 1990, Pat. No. 5,129,496. This application May 1, 1992, Ser. No. 877,649

Claims priority, application Fed. Rep. of Germany, Aug. 28, 1987, 3728709

Int. Cl.[5] B60K *41/20*

U.S. Cl. 192—1.23 **4 Claims**



1. System for automatically locking the brakes of a vehicle said system comprising

means for determining the deceleration $\dot{v}_F$ of the vehicle,

means for determining the speed v_F of the vehicle,

means for comparing v_F to a reference speed v_{Ref},

means for extrapolating a time when the vehicle will be brought to a complete stop from said speed v_F and said deceleration $\dot{v}_F$, said extrapolating being done when said vehicle speed v_F falls below said reference speed v_{Ref}, and

means for automatically applying pressure to the brakes when said time is reached and maintaining said automatically applied pressure until a desired departure.

5,209,330

SLIPPING BYPASS CLUTCH FOR HYDROKINETIC TORQUE CONVERTER

Fraser J. Macdonald, Farmington Hills, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 23, 1991, Ser. No. 812,092

Int. Cl.[5] F16H *45/02*

U.S. Cl. 192—3.29 **10 Claims**

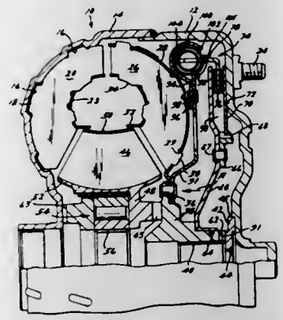
1. In an hydrokinetic torque converter that includes a casing, an impeller driveably connected to the casing and a turbine located between the casing and the impeller, a clutch for driveably releasing and locking the impeller and turbine, comprising:

a piston slidably mounted on the turbine, sealed on the turbine against passage of fluid, and having a first friction surface located at a radially outer portion of the piston;

means for nonreleasably connecting the piston and casing and for permitting axial displacement of the piston relative to the casing;

a second friction surface carried on the casing, facing the first friction surface;

a drive ring supported on the turbine for axial sliding movement relative to the turbine having a friction disc located between the first friction surface and second friction surface; and



passage means for alternatively pressurizing and venting a first space located between the casing and the piston and a second space located between the piston and the turbine.

5,209,331

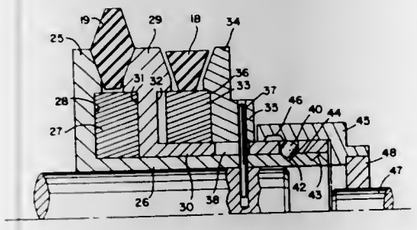
CLUTCH CONSTRUCTION

Thomas G. Artzberger, Menomonee Falls, Wis., assignor to M-B-W Inc., Slinger, Wis.

Division of Ser. No. 668,771, Mar. 13, 1991, Pat. No. 5,149,225. This application May 28, 1992, Ser. No. 889,375

Int. Cl.[5] F16H *9/18, 55/56;* **F16D** *21/02*

U.S. Cl. 192—48.91 **7 Claims**



1. A clutch construction, comprising a rotatably drive shaft, a first clutch member secured to said drive shaft, a second clutch member secured to said drive shaft and spaced a fixed axial distance from said first clutch member, a third clutch member disposed between said first and second clutch members and slidably mounted on said drive shaft, a first flexible drive member disposed between said first and third clutch members, a second flexible drive member disposed between said second and third clutch members, shift means operably connected to said third clutch member for shifting said third clutch member axially of said drive shaft between a first engaged position where said third clutch member effects a driving engagement between said first clutch member and said first flexible member to a second engaged position where said third clutch member effects a driving engagement between said second clutch member and said second flexible drive member, said first clutch member including a first clutch disc and a first cylindrical hub secured to said drive shaft, said second clutch member including a second clutch disc and a second cylindrical hub disposed concentrically outwardly of said first hub, said third clutch member comprising a third clutch disc and a third cylindrical hub disposed between said first and second hubs and having an elongated longitudinal slot therein, and locking means connecting said first hub and said second hub and extending through said slot whereby the engagement of said locking means with said slot permits said third clutch member to move axially relative to said shaft.

5,209,332

CONTROL SYSTEM FOR A CLUTCH OF A MOTOR VEHICLE

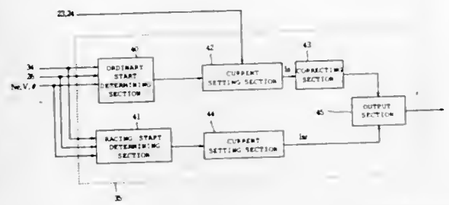
Maki Okayasu, Tokyo, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 27, 1991, Ser. No. 750,293

Claims priority, application Japan, Sep. 6, 1990, 2-236699

Int. Cl.[5] B60K *41/28*

U.S. Cl. 192—0.052 **4 Claims**



1. A control system for an electromagnetic clutch for a motor vehicle having an engine connected directly to said clutch, a transmission for transmitting power of said engine from an output member of said clutch to axles of vehicle driving wheels, a throttle position sensor for detecting a throttle opening degree of a throttle valve mounted on said engine and for producing a throttle position signal, an output member speed sensor for detecting speed of said axles and for producing an output member speed signal, an engine speed sensor for detecting engine speed and for generating an engine speed signal, a select position sensor for sensing a position of a selector lever for selecting ranges of the transmission and for producing a position signal, and an accelerator pedal switch for detecting depression degree of an accelerator pedal and for generating an accelerator signal, the improvement of the system which comprises:

reverse mode deciding means responsive to said position signal and said engine speed signal for deciding a reverse excitation mode of said clutch and for producing a reverse mode signal;

clutch current mode deciding means responsive to said reverse mode signal, said output member speed signal and said accelerator signal for deciding a clutch current mode and for generating a clutch current mode signal;

ordinary start deciding means responsive to said clutch current mode signal, said position signal, said throttle position signal, said engine speed signal and said output member speed signal for deciding an ordinary start mode by comparing an actual starting condition with a standard condition stored in a table of a memory and for producing an ordinary start signal; and

racing start deciding means responsive to said clutch current mode signal, said position signal, said throttle position signal, said engine speed signal and said output member speed signal for judging a racing start condition by comparing said actual starting condition with a standard racing condition stored in said table so as to rapidly increase clutch current after deciding said racing start condition for preventing said engine speed from excessively increasing.

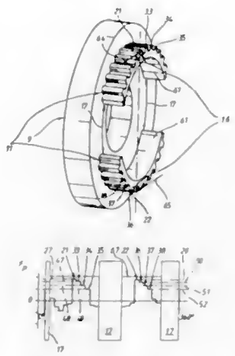
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TOOTH PITCH DEVIATION SHIFT MECHANISM FOR A GEARBOX

Martin Molitor, Esslingen, Fed. Rep. of Germany, assignor to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Mar. 27, 1992, Ser. No. 858,529
Claims priority, application Fed. Rep. of Germany, Mar. 27, 1991, 4110013
Int. Cl.[5] F16D *23/02*; B23F *1/04*
U.S. Cl. 192—67 R 14 Claims



1. Shift mechanism of a gearbox, comprising:
an idle wheel mounted rotatably and axially immovable on a transmission shaft, having a coupling ring with an outer axial coupling toothing arranged coaxially and immovably,
a shift sleeve carrier arranged immovably on the transmission shaft and having on the outer circumference an outer axial coupling toothing, and
an annular shift sliding sleeve, having on the inner circumference an inner axial coupling toothing corresponding to said outer coupling toothings, wherein at least one of either the outer coupling toothings has a tooth pair corresponding to two diametrically opposite coupling teeth having a pitch which deviates substantially from the pitch of other teeth.

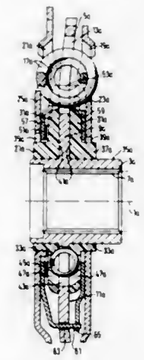
5,209,334

CLUTCH DISC

Matthias Fischer, Eltingshausen; Harald Jeppe, and Gerda Rudolph, both of Schweinfurt, all of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Sep. 6, 1991, Ser. No. 755,654
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1990, 4028616
Int. Cl.[5] F16D *13/64, 3/14*
U.S. Cl. 192—106.2 18 Claims

1. A clutch disc for a motor vehicle friction clutch, comprising:
a hub element which is concentric with a rotational axis and having a disc element wherein said disc element is fixedly connected to said hub element and further wherein said disc element projects radially from said hub element;
a plurality of side disc elements including at least a first side disc element and a second side disc element wherein one of said side disc elements forms a friction lining carrier and wherein said side disc elements are fixedly connected with each other and wherein said side disc elements are rotatable about said rotational axis relative to said disc element;
a plurality of first damping springs which are dimensioned for operation under load wherein said first damping springs are retained in windows located in an outer portion of said disc element and between said side disc elements wherein said first damping springs couple said disc elements in a torsionally elastic manner with an outer portion of said disc element;
a plurality of guidance elements including at least a first guidance element and a second guidance element wherein said guidance elements are arranged at opposite sides of said disc element and between said side disc elements wherein said guidance elements are rotatable relative to said hub element;
and further wherein said guidance elements are annularly-shaped and constructed of a plastic material molded part and further wherein said guidance elements rest axially at an inner portion of said disc element;
a plurality of second damping springs arranged in windows of said inner portion of said disc element and in recesses of said guidance elements wherein said second damping springs are dimensioned for operation in an idling range, and further wherein said second damping springs couple



said inner portion of said disc element in a torsionally elastic manner with said guidance elements;
a first friction means which is dimensioned for an under load operation and which is located between at least one of said side disc elements and said disc element;
a second friction means which is dimensioned for an idling operation wherein said second friction means utilizes side faces of said guidance elements in contact with said disc element; and
an axially acting spring which is arranged between a first guidance element and a first side disc element adjoining said first guidance element, wherein said axially acting spring serves to preload a second side disc element, which is fixedly connected to said first side disc element, against a second guidance element and further wherein said axially acting spring serves to preload said first and said second guidance elements against said inner portion of said disc element for fixing said first and second side disc elements to said hub element.

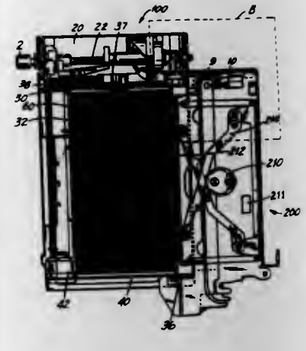
5,209,335

SECURITY ARRANGEMENT FOR USE WITH A LOCKABLE, REMOVABLE CASSETTE

Thomas Shuren, and John Zouzoulas, both of West Chester, Pa., assignors to Mars Incorporated, McLean, Va.

Filed Nov. 8, 1991, Ser. No. 792,147
Int. Cl.[5] G07F *7/04*
U.S. Cl. 194—200 17 Claims

1. A security arrangement for use with a bill acceptor and a removable cashbox, comprising:
a security sensor means which generates signals when a cashbox is attached and when a bill loading cycle takes place; and



a processing and control element which monitors the security sensor means and disables the bill acceptor if the cashbox is not properly attached.

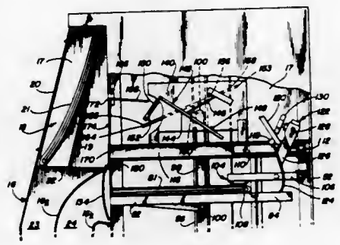
5,209,336

NEWSPAPER VENDING MACHINE

John H. Heltzen, 3282 Orangewood Ave., Los Alamitos, Calif. 90720, and Quentin W. White, 17749 Regency Cir., Bellflower, Calif. 90706

Filed Feb. 18, 1992, Ser. No. 836,246
Int. Cl.[5] G07F *11/14*
U.S. Cl. 194—248 13 Claims

1. A newspaper vending machine comprising:
an enclosed housing having a frame structure defining a newspaper-storage compartment;
a front door mounted to said housing for access to said storage compartment;
a display compartment defined in said front door whereby a single newspaper is stored for display therein;
means for locking said front door for controlled access to said storage compartment;
coin-operated means including coin-receiving means;
actuating means operably connected to said coin-operated means;
newspaper-dispensing means operated by said coin-operated means;
floating support means on which a multiplicity of newspapers are stacked within said storage compartment, whereby the top newspaper of said stacked newspapers is sequentially positioned to be dispensed by said newspaper-dispensing means;
means for releasing said newspaper displayed in said display compartment of said door after all of said stacked newspapers have been dispensed from said floating support means;
newspaper-receiving means formed in said front door to receive a dispensed newspaper; and
coin-return means attached to said coin-receiving means;
wherein said newspaper-dispensing means comprises:
a newspaper-dispensing carriage slidably mounted in a carriage-guide means;
actuating means operably connected to said newspaper-dispensing carriage;
newspaper-feeder means attached to said newspaper-dispensing carriage and adjustably mounted to engage the top positioned newspaper, whereby only said top newspaper is readily moved from the top of said stacked newspapers into said receiving means in said front door; and
means for adjusting said newspaper-feeder means to engage said top-positioned newspaper; and
wherein said actuating means comprises:
a handle mounted to the front of said housing;
a lever arm attached to said handle and extending within said housing, and including a latching arm pivotally mounted thereon, whereby said latching arm prevents said actuating means from operating without the proper coin or coins being inserted within said coin-receiving means;
a carriage plate releasably connected to said lever arm and



slidably mounted to a carriage-plate support frame for back-and-forth movement thereon when said lever arm is moved;
means attached to said carriage plate to release said carriage plate from said lever arm as said lever arm is extended outwardly therefrom;
biasing means attached to said lever arm, whereby said arm and said carriage plate are returned to a rearward rest position after said lever arm is pulled forwardly;
coin-activated releasing means pivotally mounted to said carriage plate and positioned thereon for engagement with a coin when positioned in said coin-receiving means and with said latching arm mounted to said lever arm;
engagement means interconnected between said lever arm and said dispensing carriage, whereby the back-and-forth movement of said lever arm is transferred to said newspaper-dispensing carriage.

5,209,337

Patent Not Issued For This Number

5,209,338

PRODUCT CONTROL APPARATUS

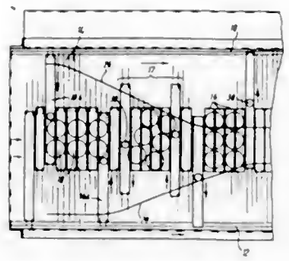
Dennis A. Kirtland, Ashby-de-la-Zouch, England, assignor to W. H. Dunn & Son Ltd., Leicestershire, England

PCT No. PCT/GB90/00393, § 371 Date Sep. 16, 1991, § 102(e) Date Sep. 16, 1991, PCT Pub. No. WO90/11239, PCT Pub. Date Oct. 4, 1990
PCT Filed Mar. 15, 1990, Ser. No. 762,023
Claims priority, application United Kingdom, Mar. 17, 1989, 8906149; Jun. 6, 1989, 8913003
Int. Cl.[5] B65G *37/00*
U.S. Cl. 198—365 14 Claims

1. Product control apparatus comprising conveying means

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for conveying product along a first path, the conveying means including support means adapted directly to receive the products, such that the products can be moved relative thereto, and product engaging means arranged for engagement directly with the products during conveying movement along the first



path, the product engaging means being carried by the apparatus in moving relation when engaging with products being conveyed and to thereby provide for changing the orientation of each of the products relative to the support means while continuing conveyance of the products along the first path.

5,209,339

CONVEYOR SYSTEM FOR MULTIPLYING SLICES OF PRODUCT

Peter H. Antonissen, Norfolk, England, assignor to Thurne Engineering Co., Ltd., England

PCT No. PCT/GB89/00501, § 371 Date Dec. 20, 1990, § 102(e) Date Dec. 20, 1990, PCT Pub. No. WO89/10318, PCT Pub. Date Nov. 2, 1989

Continuation of Ser. No. 623,733, Dec. 14, 1990, abandoned. This PCT application Apr. 25, 1989, Ser. No. 908,557

Claims priority, application United Kingdom, Apr. 28, 1988, 8810057

Int. Cl.[5] B65G *47/26*

U.S. Cl. 198—436 8 Claims

1. A conveyor system for multiplying one or more input streams of product into two or more output streams of product comprising:

an input conveyor (**4**) for conveying the one or more input streams of product,

a transfer conveyor (**5**, **51**, **52**) which is movable bodily in a direction transverse to its conveying direction and which is arranged to receive products from the input conveyor (**4**),

a multi-lane output conveyor (**6**) which carriers multiple sideby-side streams of product, the multi-lane output conveyor (**6**) being arranged to receive products from the transfer conveyor (**5**, **51**, **52**),

means (**10**) to control the forward movement of the products in the one or more input streams of product, and

means (**10**) to control the forward movement of the products in each stream on the output conveyor (**6**) to enable the products to be aligned with one another across the output conveyor, in which a single spaces stream of products is conveyed by the input conveyor (**4**) and in which the means (**10**) to control the forward movement of the products ensures that the products are entirely on the transfer conveyor (**5**, **51**, **52**) when the transfer conveyor (**5**, **51**, **52**)



moves transversely, so that the products do not span a joint between the input conveyor (**4**) and the transfer conveyor (**5**, **51**, **52**) or between the transfer conveyor (**5**, **51**, **52**) and the output conveyor (**6**) during transverse movement of the transfer conveyor (**5**, **51**, **52**).

5,209,340

METHOD AND DEVICE FOR DISPLAYING ADVERTISEMENTS ON CONVEYORS

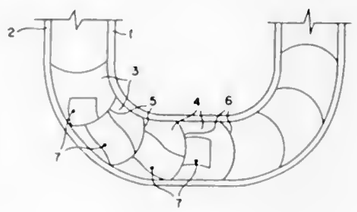
Jurgen R. Munkner, and Heinz-Joachim E. Schroeder, both of Valencia, Spain, assignors to IAP (International Airport Promotion) N.V., Curacao, Netherlands

Continuation of Ser. No. 505,271, Apr. 6, 1990, abandoned. This application Jan. 30, 1992, Ser. No. 828,191

Claims priority, application Spain, Jun. 2, 1989, 8901789; European Pat. Off., Dec. 29, 1989, 89560004.7

Int. Cl.[5] B65G *43/00*

U.S. Cl. 198—502.1 12 Claims



1. A method of displaying advertisement on an item supporting conveyor track having a horizontally curved section, a straight section, and a plurality of non-overlapping, substantially horizontal, individually rotatable item supporting belt-plates which feature adjacent curved contour sections, comprising:

securing an advertising poster comprised of a plurality of poster segments onto a plurality of adjacent belt-plates such that each poster segment is supported by a respective one of said adjacent belt-plates and such that said plurality of poster segments each have at least one peripheral portion which corresponds to the curved contour section of an underlying belt-plate and such that said poster segments individually rotate with respect to each other as the individually rotatable belt-plates rotate;

arranging said poster segments so that said poster segments combine together to convey a message during either said horizontally curved section or said straight section and become disoriented in an essentially non-message conveying arrangement during the other of said horizontally curved section or said straight section of the conveyor track while maintaining each of said poster segments in an essentially co-planar relationship with respect to said belt-plates and with each other both when combining together and when becoming disoriented.

5,209,341

TRANSFER DEVICE IN A PRESS

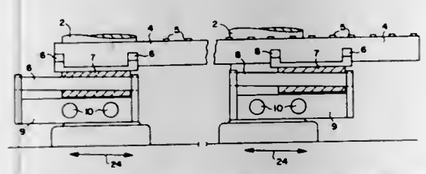
Lüthi Rudolf, Niederwangen, Switzerland, assignor to Styner & Bienz AG, Neiderwangen, Switzerland

Filed Feb. 12, 1992, Ser. No. 834,346

Claims priority, application Switzerland, Mar. 15, 1991, 00792/91

Int. Cl.[5] B65G *25/00*

U.S. Cl. 198—621 12 Claims



1. A transfer device for transporting a workpiece, said transfer device comprising:

an outer frame;

a plurality of processing stations within said outer frame and along a longitudinal axis through said transfer device, and inclined holding means for holding said workpiece in said transfer device as it moves through said processing stations, said holding means extending from a first side to a second side of said transfer device, wherein each of said processing stations comprises;

a processing station frame with oppositely positioned first and second ends along said longitudinal axis;

transport means for moving said workpiece from approximately said first end to approximately said second end of said processing station frame, said transport means slidably supporting said holding means;

control means for controlling any lateral movements of said holding means, said control means being adjacent to and cooperating with said transport means; and

a plurality of inclined guiding bars extending through said transport means and from said first end to said second end of said processing station frame which guide said transport means substantially continuously upwards as it moves from said first end to said second end of said processing station frame.

5,209,342

BELT DRIVE FOR A ROLLER CONVEYOR

Hans vom Stein, Wermelskirchen, Fed. Rep. of Germany, assignor to Interroll Holding AG, Switzerland

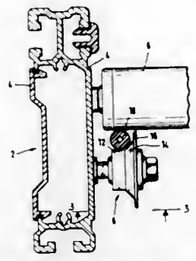
Filed Mar. 26, 1992, Ser. No. 858,227

Claims priority, application European Pat. Off., Apr. 5, 1991, 91105374.2

Int. Cl.[5] B65G *13/07*

U.S. Cl. 198—790 14 Claims

1. A belt drive for a roller conveyor, consisting of pressing rollers for pressing a drive belt against conveyor rollers of the roller conveyor, the conveyor rollers as well as the pressing rollers being arranged on a profile part which laterally delimits the roller conveyor and the drive belt extending between the pressing rollers and the conveyor rollers, characterized by the fact that each pressing roller (**8**) has a cylindrical base body (**12**) as well as at least one adjoining belt-pressing disc (**14**) which extends annularly around the circumference of the cylindrical base body (**12**) and obliquely to the axis (**32**) of the



pressing roller (**8**), the belt-pressing disc (**14**), as seen in the direction of the roller conveyor, being arranged in connection with successive pressing rollers (**8**) alternately on the right side and the left side on the pressing rollers (**8**).

5,209,343

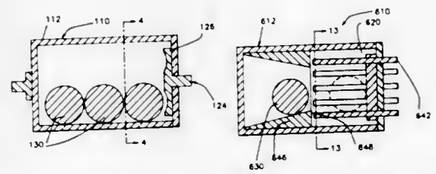
ELECTRICAL TILT SWITCH

Robert P. Romano, Glen Ridge, and James L. Weaver, Passaic, both of N.J., assignors to Comus International, Nutley, N.J.

Filed Jan. 21, 1992, Ser. No. 822,641

Int. Cl.[5] H01H *35/02, 35/14*

U.S. Cl. 200—61.52 19 Claims



1. A tilt switch for opening and closing an electric circuit in accordance with the angle of inclination of said switch, comprising:

a cavity formed within a conductive housing, said cavity enclosing an atmosphere that is inert to conductive materials;

at least one free moving spherical weight, having a predetermined radius of curvature and a conductive circumferential surface, positioned in said cavity, said at least one spherical weight moving to an operating position within said cavity when said at least one spherical weight is biased by gravity to said operating position by the angle of inclination of said housing; and

at least one conductive terminal positioned at said operating position, wherein said at least one conductive terminal has an arcuate groove of said predetermined radius of curvature disposed thereon, said at least one spherical weight engaging said arcuate groove at said operating position electrically coupling said at least one conductive terminal to said conductive housing, thereby completing said electric circuit.

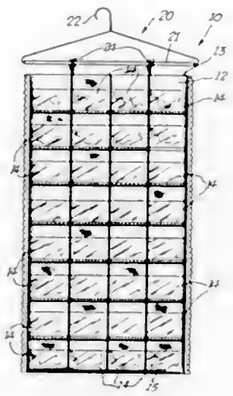
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5,209,344

DEVICE FOR ARRANGING AND STORING JEWELRY

Dorothy A. Smith, 1000 S. Ocean Blvd., Pompano Beach, Fla. 33062

Continuation-in-part of Ser. No. 621,057, Nov. 30, 1990, abandoned, which is a continuation-in-part of Ser. No. 518,756, May 2, 1990, abandoned. This application Feb. 18, 1992, Ser. No. 837,577
Int. Cl.[5] A45C 11/04
U.S. Cl. 206—6.1 14 Claims



1. A collapsable and foldable device for arranging and storing jewelry comprising:

a) a rectangular, flexible substratum having a length and height, said substratum having a top edge and two opposite substantially planar surfaces;

b) a first plurality of flexible, transparent members attached to a first of said two opposite substantially planar surfaces, each of said first plurality of flexible members having a plurality of side edges and a top edge and a bottom edge, each of said first plurality of flexible members attached to said first substantially planar surface along their respective plurality of side edges and respective bottom edge to form a first plurality of pockets on said first substantially planar surface and to create a natural fold line at the bottom edge for aiding in compactly folding and storing said device, whereby said top edge of each said first plurality of flexible members is unattached to said first substantially planar surface to provide access to a respective pocket of said first plurality of pockets;

c) a second plurality of flexible, transparent members attached to a second of said tow opposite substantially planar surfaces, each of said second plurality of flexible members having a plurality of side edges and a top edge and a bottom edge, each of said second plurality of flexible members attached to said second substantially planar surface along their respective plurality of side edges and respective bottom edge to form a second plurality of pockets on said second substantially planar surface and to create a natural fold line at the bottom edge for aiding in compactly folding and storing said device, whereby said top edge of each said second plurality of flexible members is unattached to said second substantially planar surface to provide access to a respective pocket of said second plurality of pockets; and

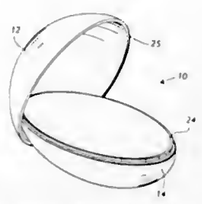
d) means for attaching said substratum to the lower edge of a hanger comprising at least one tube attached along said top edge of said substratum, said tube enclosing said lower edge of said hanger thereby supporting said substratum from said lower edge of said hanger through said tube.

5,209,345

COMBINATION STORAGE AND DISPLAY UNIT

Connie Haugabook, 616 Rawls St., Montezuma, Ga. 31063

Filed Apr. 24, 1990, Ser. No. 513,260
Int. Cl.[5] B65D 73/00
U.S. Cl. 206—45.13 8 Claims



1. A storage and display unit comprising:

a bottom member;

a top member configured to close over a top of said bottom member so as to form a sealed storage container; and

a latching mechanism disposed on said bottom member,

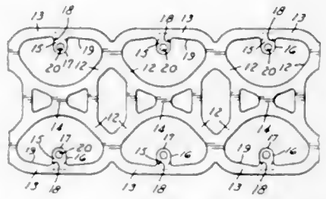
for engaging and securing said top member to said bottom member when said top member is displaced relative to said bottom member to form a display unit, and whereby said latching mechanism engages and secures said top member to said bottom member such that said top member matingly receives said bottom member in a nesting relationship to form said display unit.

5,209,346

CARRIER STOCK WITH TEAR TABS

David A. Pratt, Waterville, and J. Thomas Brinker, Perrysburg, both of Ohio, assignors to Owens-Illinois Plastic Products Inc., Toledo, Ohio

Filed Mar. 16, 1992, Ser. No. 852,058
Int. Cl.[5] B65D 75/62
U.S. Cl. 206—150 6 Claims



1. A carrier formed from a single sheet of resilient polymeric material such as low density polyethylene for machine application to substantially identical containers,

said carrier having container receiving apertures which are defines by band segments that include outer segments,

a tear tab extending radially inwardly from each outer segment,

each tab having a pair of diverging slits extending from a side edge thereof toward the respective adjacent outer segment, the slits terminating short of the outer segments, such that the tab can be grasped either with a right hand or left hand and pulled to severe the outer segment releasing the container in the associated aperture, and

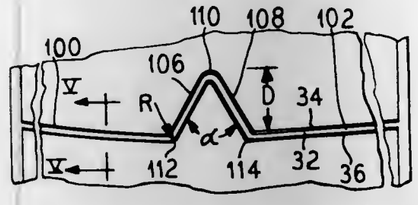
a weakened line extending longitudinally along each outer segment, such that a line drawn through each slit intersects the weakened line.

5,209,347

INTERNAL TEAR SEAL DUAL BAG

Eugene Fabisiewicz, Mt. Prospect; Jack Fagan, Lindenhurst, and Steffen A. Lyons, Libertyville, all of Ill., assignors to Clintec Nutrition Company, Deerfield, Ill.

Filed Dec. 5, 1990, Ser. No. 624,875
Int. Cl.[5] B65D 30/22, 81/32
U.S. Cl. 206—219 13 Claims



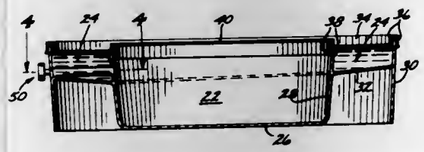
1. A container having at least two chambers separated by a selectively openable seal line, said container comprising an inner and two exterior sheets sealed together in registry about the peripheries thereof and forming two lateral edges, said seal line comprising a heat seal disposed between one exterior sheet and said inner sheet and across said container whereby at least a first chamber is formed between said one exterior sheet and said inner sheet and a second chamber is formed between said other exterior sheet and said inner sheet, said seal line substantially comprising in plan view a W-shape extending completely across a face of said container between the tow lateral edges thereof with tow inner legs and two outer legs, said inner legs describing an inverted central chevron portion, said outer legs defining an upwardly opening angle, each outer leg beginning at one lateral edge and ending at one inner leg.

5,209,348

CEREAL BOWL WITH SEPARATE SELF-CONTAINED CEREAL AND MILK COMPARTMENTS

Vernon Schafer, III, Newport Beach, Calif., assignor to James D. Schafer, Newport Beach, Calif., a part interest

Filed Jun. 4, 1992, Ser. No. 893,535
Int. Cl.[5] B61D 25/08
U.S. Cl. 206—222 10 Claims



1. A reusable self-contained cereal and milk bowl, comprising:

a bottom member on which the bowl rests;

a cereal container suitable for holding a quantity of cereal;

a milk container separate from said cereal container and suitable for holding a quantity of milk sufficient to mix with said cereal in said cereal container, said cereal container and said milk container sharing an inner sidewall member, said compartment comprising an opening permitting milk to be poured into said container when said bottom member is resting on a flat surface; and

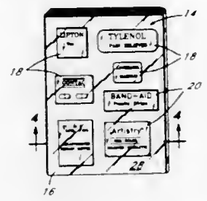
reusable valve means for selectively emptying said milk into said cereal container from said milk container, said valve comprising a valve member fitted in an opening in said inner sidewall for selectively permitting milk to flow from said milk container into said cereal container, wherein said valve member may be removed from said opening to permit said milk flow, and replaced within said opening to prevent said milk flow.

5,209,349

DEVICE AND METHOD FOR DISTRIBUTION OF CONSUMER SAMPLES WITH PUBLICATIONS

William J. N. Porter; James R. Benjamin, Woodland Hills, both of Calif., and Richard M. Applebaum, 1106 Loma Dr., Hermosa Beach, Calif. 90245, assignors to Richard M. Applebaum, Redondo Beach, Calif.

Filed Aug. 7, 1990, Ser. No. 564,366
Int. Cl.[5] B65D 71/08; A45F 5/12
U.S. Cl. 206—232 10 Claims



1. A container for the distribution of a product sample to consumers along with a publication, wherein an outer transparent protective coating surrounding said publication and container is provided, said container comprising:

a body being substantially planar and having lateral edges defining the outer shape of said container and having a predetermined thickness, said body comprising:

an inner core comprising a compressible material for absorbing shocks and forces exerted on said container;

a bottom covering adhered to the bottom surface of said core comprising a backing;

an upper covering adhered to the upper surface of said core; and

a recess in said core of said body and having an opening through said upper covering, said recess receiving and containing a product sample; and

an inner transparent protective coating entirely surrounding and closely conforming to the shape of said body, whereby said product sample is securely and visibly retained within said recess,

said container being snugly packaged together with said publication and within said outer transparent protective coating, said backing being adjacent said publication so that said product sample is visible through said inner transparent protective coating and through said outer transparent protective coating and

said shape of said container conforming closely to the shape of said publication in order to prevent slack in the protective coating of said publication and to evenly distribute forces exerted on said container, whereby said product sample is protected from damage.

9. A method for producing a protective container for the distribution of a product sample to consumers, comprising:

(a) mounting said product sample in said protective container;

(b) coating said protective container with a transparent protective coating so that said product sample is visible therethrough and retained in said protective container;

(c) placing said protective container so that it engages a publication for distribution to a consumer; and

(d) coating the combination of said publication and said protective container with a transparent protective coating so that the two are retained together for distribution to a consumer in a manner that permits said product sample to be readily visible to the consumer.

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5,209,350

GOLF BAG WITH SUPPORT STAND

Seop Maeng, Hanyang Apt. 22-102, Songpa-Dong, Songpa-Ku, Seoul, Rep. of Korea

Filed Aug. 16, 1991, Ser. No. 746,356

Claims priority, application Rep. of Korea, Jun. 26, 1991, 9660/1991

Int. Cl.[5] A63B 55/06

U.S. Cl. 206—315.7 9 Claims



1. A golf bag comprises a bag body and a pair of support legs pivotally mounted at their upper ends to said bag body by means to pivot members attached to the bag body, respectively, so as to pivot between extended and retracted positions thereof, the golf bag further comprising:

a bottom member constituting the bottom of bag body and having a flat lower surface;

a base plate disposed beneath said bottom member to be contactable with the ground and pivotally connected to the bottom member, by means of a generally U-shaped connecting rod pivotally mounted to said lower surface of the bottom member, said base plate having at least one first pivot member to which the lower end of said connecting rod is pivotally connected so that the bag body pivots between its inclined and upright positions about said first pivot member on the base plate which is in contact with the ground;

actuating means adapted to pivot said legs according to the pivoting the bag body; and

a plurality of downwardly extending base members provided at the lower surface of bottom member, except for at least the front portion of said lower surface, and arranged radially and inwardly from the periphery of the lower surface of bottom member and circumferentially spaced from one another, each of said base members having a certain vertical length such that its bottom surface is flush with the lower surface of base plate when the bag body is maintained at its upright position.

5,209,351

CONTAINER FOR TAPE CASSETTES

Klaus Schoettle, Heidelberg; Joachim Eberhard, Kippenheim; Lothar Gliniorz, Frankenthal, and Bozidar Pavelka, Willstaett, all of Fed. Rep. of Germany, assignors to BASF Magnetics GmbH, Mannheim, Fed. Rep. of Germany

Filed Jan. 17, 1992, Ser. No. 822,264

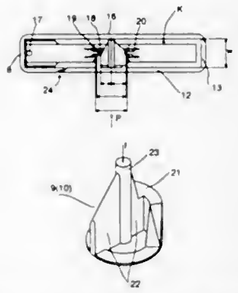
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1991, 9100607[U]

Int. Cl.[5] B65D 85/575

U.S. Cl. 206—387 18 Claims

1. In a parallelepiped container for a tape cassette, which tape cassette contains a longitudinal central axis, at least one hub for carrying tapes, which hub has a drive orifice, a housing containing the at least one hub for carrying tapes, and at least one drive opening having a circular shape in the housing through which the hub for carrying tape is engagable by driver means; the container comprising I) a bottom part comprising a bottom wall with at least one locking element for the at least one hub for carrying tapes in the tape cassette, at lest one back wall or front wall, and a side wall; and II) a lid part comprising one lid wall; the improvement comprising: the at least one locking element on the bottom wall contains 1) a ring segment extending less than 360° between its two ends and having an upper surface which is parallel to the bottom wall, which ring segment has an exterior arc shape which substantially corresponds in size to the circular shape of the drive opening of the cassette housing for contact between the ring segment of the locking element and the cassette housing, and 2) at least one web which is of such height as to extend into the driver orifice of the hub for carrying tapes when the cassette is in place in the container and when said ring segment is in the drive opening.

10. In a container for a compact tape cassette, which tape cassette contains a longitudinal central axis, two hubs for carrying tapes, each hub having a driver orifice, a housing containing the two hubs for carrying tapes and two drive openings having circular shapes in the housing through which the hubs for carrying tape are engagable by driver means; the container comprising I) a bottom part comprising a bottom wall and two



locking elements for the two hubs in the cassette and at least one back wall or front wall and a side wall, and II) a lid pat comprising one lid wall; wherein the bottom wall has a cut-out and the lid part has a receiving pocket for the compact cassette and a pocket front wall complementing the cut-out of the bottom wall, the improvement comprising: each of the two locking elements on the bottom wall of the container contains a ring segment extending less than 360° between its two ends and having an upper surface which is parallel to the bottom wall, which ring segment has an exterior arc shape which substantially corresponds in size to the circular shape of each of the drive openings of the cassette housing for substantial contact between each ring segment and the cassette hosing, and each of the two locking elements contains at least one web which is of such height as to extend into the driver orifice of the hub for carrying tapes when the cassette is in place in the container and when the ring segment is in one of the drive openings.

5,209,352

BARRIER PACKAGE FOR PHOTOGRAPHIC FILM PRODUCTS

Susan L. Light, Webster; Luke T. Faulstick, Rochester, and William G. Hoyt, Churchville, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

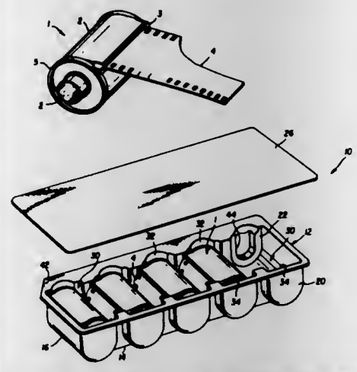
Filed Dec. 26, 1991, Ser. No. 814,381

Int. Cl.[5] B65B 85/672

U.S. Cl. 206—391 4 Claims

1. A package containing photographic film magazines, in an environment substantially free of moisture, dirt, and light, and wherein said photographic film magazines each comprises a pair of end portions, one of said pair of end portions of each said photographic film magazine having a hub extending axially therefrom, the package further comprising:

a single container having an openable end and a base, said base supporting a pair of opposed end walls interconnected with and substantially normal to adjacent opposed side walls, each said side walls having a plurality of corresponding spaced-apart substantially U-shaped recess portions defining chambers, and wherein each said recess portions in one side wall comprises a width slightly less than the diameter of one said end portion of each of said photographic film magazines and each said recess portions in said opposed side wall has a width slightly less than the diameter of said hubs for frictionally retaining said end



portions and said hubs of each of said photographic film magazines such that said photographic film magazines resist movement and are spatially separated from one another to avoid contact in said container; and,

a lid member adapted to resist moisture and light in bonding contact with the top edge of said openable end of said container for sealing the photographic film magazines therein.

5,209,353

DISKETTE FILLING SYSTEM

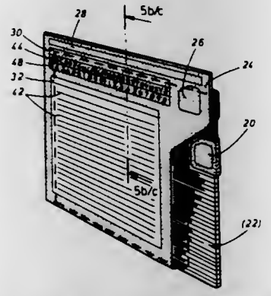
Jorge J. Lehtovaara, 256 Dixon Road, Apt. 1203, Weston, Ontario, Canada M9R 1R7

Filed Oct. 25, 1989, Ser. No. 426,196

Claims priority, application Canada, Oct. 25, 1988, 581123

Int. Cl.[5] B65D 73/00

U.S. Cl. 206—459.5 19 Claims



1. A filing system for computer diskettes comprising an identification label and a filing enclosure having an area printed with lines for writing information, said label including a pressure sensitive adhesive to permit attachment to a diskette and said filing enclosure made of a sheet material comprising a front panel and back panel each having a top portion, bottom portion and side portions, said bottom portion of said front and back panel connected by a transverse fold line to form a closed bottom, said top portion of said front and back panel secured together to form a closed top and at least one of said side portions of said front and back panel each including a cut-out forming an open end with an opposite side portion of said front and back panel secured together to form a closed side, whereby a filing enclosure is formed having a dimension between said closed top and bottom greater than a first dimension of the diskette with the distance between said closed side and said open end less than a second dimension of the diskette such that the diskette projects outwardly beyond the periphery of said filing enclosure to permit viewing of said label, said filing enclosure and said label including indicia means that are visually similar to readily indicate matching placement of a diskette to a filing enclosure.

5,209,354

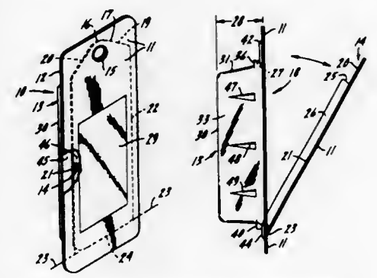
REUSABLE BLISTER PACKAGE

David R. Thornhill, Huevelton, N.Y.; Carol J. Isaminger, Memphis, Tenn.; John M. Pinkerton, Ogdensburg, N.Y.; David R. Roberts, Germantown, Tenn., and James A. Warick, St. Paul, Minn., assignors to Newell Operating Company, Freeport, Ill.

Filed Feb. 11, 1992, Ser. No. 843,862

Int. Cl.[5] B65D 73/00

U.S. Cl. 206—469 10 Claims



1. A resealable dispensing container comprising:

a base member;

a top member;

a label sheet;

the base member having a product containing portion formed therein, the product containing portion including an opening for engaging the top member, the opening being bordered by an upper end portion, a lower end portion, and two opposing side portions,

a peripheral flange extending outward from the upper end portion, lower end portion and opposing side portions of the opening, the peripheral flange further extending beyond the top member when the base member and top member are engaged with one another, the peripheral flange including a front side,

the product containing portion of the base member also including at least one nesting surface disposed inside the product containing portion;

the top member being bordered by an upper end, a lower end, and two opposing sides,

the upper end, lower end and two opposing sides of the top member forming a wall, the wall mateably engaging the opening and engaging the nesting surface of the product containing portion when the top member and base member are engaged with one another, the top member also having a front side; and

the label sheet having an upper end, a lower end and two opposing sides, the label sheet carried by the front side of the top member and the front side of the peripheral flange of the base member that extends beyond the top member,

the label sheet including a separating means, the separating means being in matching registry with the upper end of the top member and the opposing sides of the top member, the label sheet being constructed and arranged to separate along the upper end and the opposing sides of the top

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member and remaining unseparated along the lower end of the top member and the lower end portion of the base member when the upper ends and opposing sides of the top member and label sheet are pulled away from the base member, the unseparated portion of the label sheet providing a hinge at the front side of the lower end of the top member and the front side of the peripheral flange at the lower end portion of the base member.

5,209,355

METHOD AND AN APPARATUS FOR SORTING SOLIDS

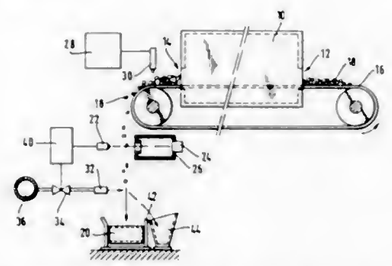
Kurt-Henry Mindermann, Eggerscheidter Str. 112, D-4030 Ratingen 6, Fed. Rep. of Germany

Filed Jun. 10, 1991, Ser. No. 713,361

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1990, 4018757; Jul. 11, 1990, 4021882

Int. Cl.[5] B07C *5/34*; G01N *3/06*

U.S. Cl. 209—3.1 **7 Claims**



1. An apparatus for sorting solid impurities out of a mixture of solids primarily constituted of particular solids, comprising:

a microwave furnace having means to heat said mixture so that its constituents assume different temperatures depending upon their respective dielectric properties;

means for conveying said mixture through said furnace;

means for detecting said temperatures;

a background radiation generator disposed opposite said detecting means, with said mixture falling between said detecting means and said generator, said background radiation generator includes means for producing a background radiation responsive to heat radiation of said mixture due primarily to said particular solids having a relatively high electric conductivity, and said detecting means distinguishing said solid impurities having a relatively low electric conductivity against said background radiation; and

means for sorting said mixture of solids in response to the respective detected temperatures of the constituents thereof.

5,209,356

ACOUSTIC RACK

Thomas M. Chaffee, 50 Shell St., Beachwood, N.J. 08722

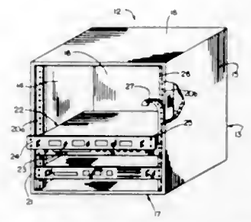
Filed Feb. 5, 1992, Ser. No. 831,469

Int. Cl.[5] A47F *7/00*

U.S. Cl. 211—26 **13 Claims**

1. A rack for mounting electronic components comprising,

a box-like rack case with an open front, two vertical, parallel spaced-apart rack rails positioned within and supported by said rack case near the open front, said rack rails having a



front face, and a layer of resilient, insulative material covering said front face of said rack rails.

5,209,357

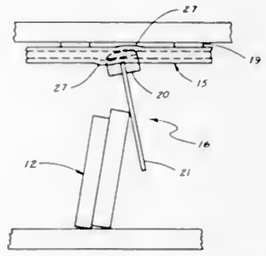
HANGING BOOK END DEVICE

Robert H. Cannon, 5449 Van Buren St., Merrillville, Ind. 46410

Filed Feb. 10, 1992, Ser. No. 832,951

Int. Cl.[5] A47B *65/00*

U.S. Cl. 211—43 **1 Claim**



1. For use with an ordinary bookcase, a hanging book end device for supporting books stored in an upright position on a shelf which is immediately below said device, said device comprising:

(a) a single linear slotted track made of a resilient material having a C-shaped cross-section which defines an open slot with two opposing turned-in coplanar lips, said track adapted for mounting on and parallel to a horizontal flat surface above said books with said slot facing downward, said track being mounted with several pieces of foam type double-sided adhesive tape which also function as resilient spacers between said flat surface and said track, said pieces of tape being spaced at equal intervals along the length of said track; and

(b) a book end removably and slidably engaged in said track and pending from and transverse to said track, said book end comprising of a thin and relatively stiff flat panel to engage and support said books, and a slide piece to slidably engage said panel to said track, said slide piece having:

(1) a T-shaped cross-section as viewed in a vertical plane transverse to said track, with the top cross-member of said slide piece forming two coplanar flanges which fit into said slot of said track; (2) a width across said flanges slightly less than the width of said slot;

(3) a thickness of said flanges slightly greater than the vertical clearance within said slot to provide a frictional fit to resist shifting of said book end when a lateral force is exerted by said books leaning from either side; and

(4) a top with beveled and sloped edges forming a somewhat convex curved shape symmetrical about the vertical center line of said slide piece as viewed in a vertical plane parallel to said track, whereby said slide piece will coact with said track when the lateral force exerted on said book end by said books leaning from either side is sufficient to tilt or rock said book end and cause twisting and deformation of said track, making said track non-linear, thereby resulting in the wedging and locking of said book end within said track.

5,209,358

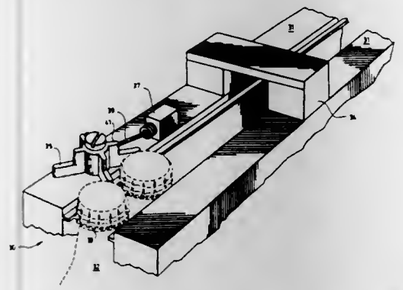
BOTTLE DISPENSING RACK FOR BAR

Gilbert Simard, Beauport, Canada, assignor to Azbar Inc., Canada

Filed Jun. 8, 1992, Ser. No. 894,267

Int. Cl.[5] A47F *7/00*

U.S. Cl. 211—74 **3 Claims**



1. A bottle dispenser rack for use in a bar system, comprising:

a pair of rails on which an annular lip on a neck of the bottle can slide;

turnstile means mounted at an entrance end of the rails, the turnstile means being rotated by one position in a first direction as the bottle is removed from the rails and in a second direction as the bottle is moved onto the rails past the turnstiles; and

signal means for generating a first signal each time the turnstile means are rotated by said one position in said first direction, whereby each time a bottle is removed from the rails, the first signal is generated.

5,209,359

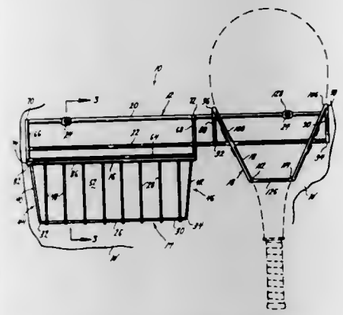
TENNIS EQUIPMENT SUPPORT RACK

William D. Arnold, St. Louis, Mo., assignor to Lee/Rowan Company, St. Louis, Mo.

Filed Mar. 9, 1992, Ser. No. 848,716

Int. Cl.[5] A47F *7/00*

U.S. Cl. 211—106 **21 Claims**



1. A tennis equipment support rack comprising:

a basket having a front, a back, two opposite side walls and flange portions which extend outwardly from and have inner edges joined to the side walls, and

a fixed frame for attaching to the front of a mounting structure and for removably supporting the basket, said fixed frame comprising:

first means for removably supporting the basket by said flange portions,

second means for removably and uprightly supporting a plurality of rackets, and

third means for attaching to the mounting structure and for securely supporting said first and second means.

5,209,360

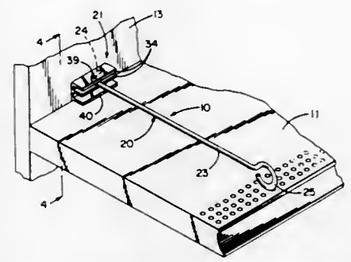
SHELF DIVIDER

Stanley C. Valiulis, Rockford, Ill., assignor to Southern Imperial, Inc., Rockford, Ill.

Filed May 11, 1992, Ser. No. 881,233

Int. Cl.[5] A47F *5/00*

U.S. Cl. 211—184 **7 Claims**



1. A divider for use with a generally horizontal shelf extending outwardly from an upright wall and having a rear edge located adjacent and extending laterally of the wall, said divider comprising a mounting bracket adjacent the rear edge of said shelf and further comprising an elongated dividing member attached to and extending forwardly from said bracket, said bracket being made of a single piece of resiliently yieldable material and comprising an upright strip having a portion adapted to be inserted between said wall and the rear edge of said shelf, first means integral with and projecting forwardly from said strip and engageable with the upper side of said shelf adjacent the rear edge thereof to prevent downward movement of said bracket relative to said shelf, and second means integral with and hinged to said strip and adapted to be resiliently loaded between said wall and the rear edge of said shelf to frictionally restrict upward movement and lateral movement of said bracket relative to said shelf.

5,209,361

MULTIPLE-CABLE LIFTING HEAD WITH LOAD WEIGHING MECHANISM FOR AERIAL BOOMS AND CRANES

Lloyd T. Grubb, Jr., Rte. 7, Box 250, Apex, N.C. 27502

Filed Oct. 31, 1991, Ser. No. 785,555

Int. Cl.[5] B66C *13/16*

U.S. Cl. 212—158 **23 Claims**

10. A load weighing lifting head for use in combination with knuckle boom and crane-type lifting arms, said lifting head comprising:

a support frame adapted for mounting to the free end of said lifting arm and defining a front end and a rear end;

a plurality of double acting hydraulic cylinders mounted on said support frame wherein each of said cylinders includes a reciprocating piston arm;

hydraulic control means for selectively actuating said hydraulic cylinders;

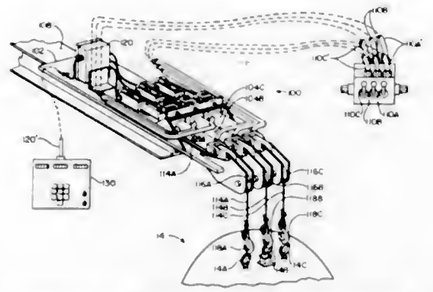
a plurality of sheave means wherein each of said sheave means is operatively connected to a respective one of said

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piston arms of said plurality of hydraulic cylinders for being extended and retracted relative to said cylinders;

a plurality of force detection means mounted on said support frame and each being operatively associated with a respective one of said plurality of hydraulic cylinders;

a plurality of load support cables wherein each of said cables is operably movable by a respective one of said sheave means so as to be extended when said sheave means is



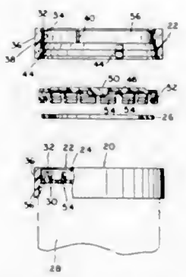
extended and retracted when said sheave means is retracted, said load support cables each being secured at one end thereof to a respective one of said plurality of force detection means and the other end thereof being free to secure a load; and

circuit means electrically connected to said plurality of force detection means for measuring the weight of the load supported by said load support cables.

5,209,362
CAN RESEALER

Robert S. Lutzker, 10 Woodstone Ct., South Huntington, N.Y. 11746

Filed Jan. 24, 1992, Ser. No. 825,388
Int. Cl.[5] B65D *55/02*
U.S. Cl. 215—225 10 Claims



1. A closure for resealing the partially consumed contents of a can having a vertical axis and a top rim comprising:

an outer vertically and linearly shiftable locking member shiftable axially between an upper position and a lower position and having an inner face and inner circumferentially extending camming means;

an inner vertically and linearly shiftable latching cap member shiftable axially between an upper position and lower position disposed interiorly of the outer locking member having a closed top and adapted to be linearly and vertically depressed and raised relative to said outer locking member, the inner latching cap member having a plurality of downwardly depending fingers that are adapted to flex radially outwardly when the outer locking member is raised vertically relative to the inner latching cap member, radially inwardly extending lugs on the fingers adapted to ride over the can top rim as the inner latching cap member is forced downwardly about the can top to assume a latched position, the inner latching cap member and outer locking member having interengaging surfaces that cause the inner latching cap to be raised vertically when the outer locking member is raised vertically,

sealing means associated with the inner latching cap member for engaging with the can top rim to seal the can contents when the inner latching cap member is in the latched position,

the closure being placed in a releasable locked sealed position upon vertically depressing the outer locking member relative to the inner latching cap member when it is in the latched position, the vertical depressing of the outer locking member causing the camming means to engage with the fingers to urge then inwardly for releasable locking the lugs about the can top rim,

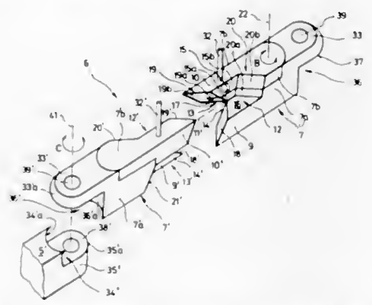
the closure is adapted to be removed from the can top upon raising vertically the outer locking member to permit the inner latching cap member to assume an unlatched position by the fingers flexing outwardly and the lugs disengaging from the can top rim as the inner latching cap member is raised by raising vertically the outer locking member, and

guide means comprising vertically extending lugs on said inner face of said outer locking member which engage in slots between pairs of said fingers on said inner latching cap member for linearly and vertically guiding the outer locking member relative to said inner cap member.

5,209,363
MECHANICAL COUPLING FOR OVERHEAD TROLLEYS WITH COOPERATIVELY MATING PRIZMATIC PROJECTIONS

Robby Enderlein, Landsberg/Lech., Fed. Rep. of Germany, assignor to RSL Logistik GmbH & Co., Landsberg/Lech., Fed. Rep. of Germany

Filed Jan. 16, 1992, Ser. No. 821,369
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1991, 9101000[U]
Int. Cl.[5] B61G *3/00*
U.S. Cl. 213—100 R 17 Claims

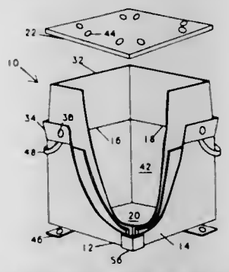


1. A coupling device for rigidly coupling together two spaced and elongated conveyor units that are aligned with each other and are adapted to be moved longitudinally in a direction of transport, said coupling device comprising two coupling members each being connected at one end to a conveyor unit, each of said coupling members having at least one prismatic projection that extends away from said one end of the member in the direction of transport of the units and at least one prismatic recess adapted to receive therein the prismatic projection of the other member, each prismatic projection having a first flat stop face that extends in a direction parallel to said direction of transport and that faces in a first direction perpendicular to said direction of transport and a coupling face that projects outwardly from said first flat stop face in a direction perpendicular to said direction of transport, the coupling face of at least one of said projections being movable relative to the coupling face of the other of said projections in a direction transverse to the direction of transport, and a second flat stop face on each of said coupling members that extends parallel to and is remote from said first stop face and that faces in a second direction opposite from said first direction, whereby when said coupling members are engaged and, said prismatic projections are received in said prismatic recesses, said first stop face of one projection abuts the first stop face of the other projection, the second stop face of one coupling member abuts the second stop face of the other coupling member and the coupling faces of each projection are engaged with each other to thereby couple the members together in the longitudinal direction of transport and prevent the coupling members from being offset with respect to each other in any direction transverse to said direction of transport.

5,209,364
COLLAPSIBLE CONTAINMENT SYSTEM

John LaPoint, Jr., P.O. Box 1667, Lewiston, Me. 04241-1667

Filed Oct. 10, 1991, Ser. No. 774,622
Int. Cl.[5] B65D *25/14*
U.S. Cl. 220—4.28 5 Claims



1. A collapsible containment system for handling materials having a non-stable consistency, such as a slurry, said system comprising:

a container having at least four side assemblies each joined to each other along their adjacent edges, each said side assembly having top, bottom and side edges formed by inner and outer layers of woven liquid tight material, each side assembly joined along the bottom and side edges defining a pocket therebetween, said layers joined to each other on an upper seam spaced from the top edges of the respective layers, the inner layer having greater length than the outer layer on the top edges, said inner layer is joined to form a loading sleeve, said outer layer having a first plurality of grommets spaced therealong in a patterned array and is joined to form a closure flap;

a stiffening member of three ply material positioned in each respective pocket of each said side assembly;

a bottom formed of two plys of said woven material and joined to the bottom edge of each said side assembly, said bottom and said side assemblies defining therebetween a material receiving cavity; and

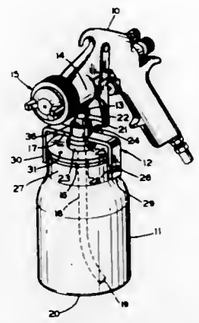
a top member having a second plurality of grommets spaced along the entire periphery thereof, each said grommet of said second plurality being aligned with a respective grommet of said first plurality on a respective side assembly closure flap;

whereby said container is collapsed by moving one corner diagonally through the cavity and folding the side assemblies together.

5,209,365
PAINT CUP LID ASSEMBLY

Mark W. Wood, Jackson, Tenn., assignor to DeVilbiss Air Power Company, Jackson, Tenn.

Filed Sep. 1, 1992, Ser. No. 938,630
Int. Cl.[5] B65D *41/56*
U.S. Cl. 220—212 4 Claims

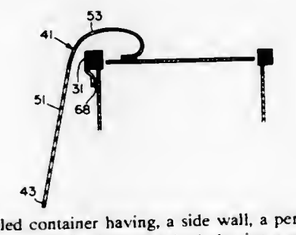


1. A lid assembly for a paint cup of the type including a lid for closing the paint cup, a yolk for attachment to the cup, a paint feed tube extending from said lid through an opening in said yolk to a nut for securing said lid assembly to a paint spray gun, the improvement comprising a socket formed in said yolk opening, said socket having a size and shape for engaging said nut and means on said socket for preventing rotation between said socket and said nut when said socket engages said nut.

5,209,366
CAN CONSTRUCTION

William J. Timson, Pocassett, Mass., assignor to Wellesley Research Associates, Inc., Wellesley, Mass.

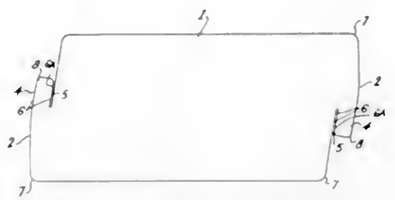
Division of Ser. No. 722,525, Jun. 27, 1991, Pat. No. 5,143,240, and a continuation-in-part of Ser. No. 606,564, Oct. 31, 1990, abandoned. This application May 26, 1992, Ser. No. 888,147
Int. Cl.[5] B65D *17/00*
U.S. Cl. 220—260 8 Claims



1. A sealed container having, a side wall, a peripheral rim and a permanently fixed top to a body having a volume containing a material, at least one strip means positioned on said top having a first end adhered to said fixed top and the second end adhered to said sidewall, said at least least one strip having a stress bias such that when said top is severed from said container, one end of said strip becomes positioned away from contact with said top and extends outwardly away from said peripheral rim thereby supporting said can top and preventing said top from sinking into the material.

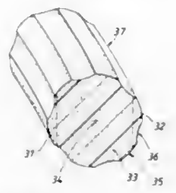
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5,209,367
SLEEVE FOR A CONTAINER
Ronald F. Van Musscher, 15 Disraeli Street, Mount Eden, Auckland, and Barry V. James, 11 Brookview Court, Hamilton, both of New Zealand
Continuation-in-part of Ser. No. 517,156, May 1, 1990, abandoned. This application Oct. 18, 1991, Ser. No. 780,733
Claims priority, application New Zealand, May 3, 1989, 228964
Int. Cl.[5] B65D 65/08
U.S. Cl. 220—401 2 Claims



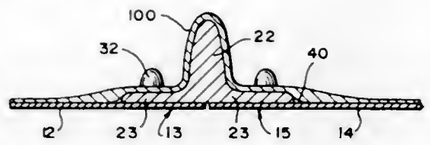
1 An insulating cover for a container, said cover comprising a sheet material of sufficient area to cover substantially all parallel side surfaces of the container, wherein ends for the sheet material have complementary joining means comprising vertically inclined open-ended slots flanked by fingers which can be interlocked and overlapped to form the sheet material into an open ended cylinder of selected diameter, said slots extending parallel to each other in non-perpendicular relation to top and bottom edges of the sheet material so that sliding interengagement of said slots relative to each other is other than in a solely axial direction of said cylinder, said complementary joining means allowing the cylinder ends to fan out to facilitate the application of the cover over said container and being effective to prevent subsequent circumferential expansion of the cover, and prevent unintentional removal of said cover when applied to said container.

5,209,368
INSULATED TANK CONSTRUCTION AND IMPROVED SELF POSITIONING SEALING DEVICE FOR USE THEREIN
Kenneth A. Bradenbaugh, 7018 Turtle Rock Ct., Charlotte, N.C. 28277
Filed Jun. 9, 1992, Ser. No. 896,115
Int. Cl.[5] B65D 90/00
U.S. Cl. 220—448 12 Claims



1. An insulated tank assembly comprising:
a cylindrical tank having an outer wall and a central axis:
a cylindrical shell having an inner wall coaxial with and radially spaced apart from the cylindrical tank for forming an annular space between the walls of the tank and the shell; and
a foam dam comprising a ring-shaped body of resilient, compressible material circumferintially disposed within the annular space, in a plane normal to the central axis of the tank, and in sealing engagement with the shell inner wall and the tank outer wall, defining an annular chamber for receiving foam insulation in the upper portion of the annular space, wherein the ring-shaped body comprises:
an inner circumferential portion with a circumference less than the circumference of the tank outer wall; and
an outer circumferential portion with a circumference greater than the circumference of the shell inner wall;
such that when the ring-shaped body is disposed about the cylindrical tank in the annular space between the tank and the shell, the inner circumferential portion is compressed against the tank wall and the outer circumferential portion is compressed against the shell inner wall to form a liquid seal in the annular space without substantially deforming the cross section of the uncompressed portion of the body which is not in contact with either of the walls,
and wherein the ring-shaped body further comprises: a circumferential axis;
and a many sided cross-section substantially symmetrical about the circumferential axis; and
circumferential bands of different radial dimensions, such that the ring shaped body will rotate about its circumferential axis and roll, in the annular space, in a plane normal to the tank central axis without substantial twist or misalignment, with respect to both the shell inner wall and the tank outer wall responsive to the longitudinal movement of the shell relative to the tank.

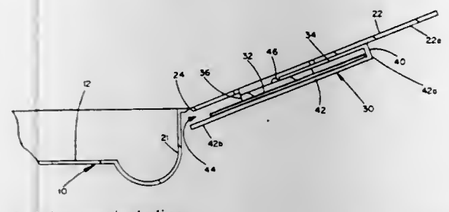
5,209,369
APPLICATION OF SEALANT MEMBRANE BY SPRAYING AND RESULTANT MEMBRANE
Domenico Della-Penna, Huntington Beach, Calif., assignor to Rockwell International Corporation, Seal Beach, Calif.
Filed May 28, 1991, Ser. No. 706,457
Int. Cl.[5] B65D 90/08; B05D 7/22
U.S. Cl. 220—456 10 Claims



1. A method of sealing the juncture of structural components from which a fluid-containment tank is fabricated, said method comprising:
preparing a diluted mixture of a polysulfide material and a solvent, and
depositing droplets of said mixture on surfaces of said structural components at and about said juncture on the interior surface of said tank to form a leak-proof membrane, whereby
the juncture and adjacent regions thereof are covered with a varying thickness, continuous, coherent layer of said mixture having maximum thickness in the vicinity of said juncture where the greatest structural deflections can occur and minimum thickness at a distance most remote from said juncture.

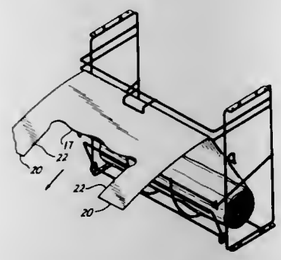
8. A graduated thickness sealing membrane for preventing leakage of fluid from the interior of a fluid-containing tank through joint structures, said sealing membrane comprising:
a coherent continuous coating of sealant material formed by spraying and then at least partially curing each of a plurality of layers of a solvent-diluted mixture of the composition onto selected areas of surfaces of said joint structures,
said coating being deposited on the interior surfaces of the tank and delimiting a ramp for minimizing the eroding effects of slushing fluid and having a maximum thickness at the region of maximum deflection associated with said joint structures, and a minimum thickness at a region removed a predetermined distance from said region of maximum deflection.

5,209,370
LAP TRAY
Ralph E. Pickett, 225 W. 3rd St., #415, Long Beach, Calif. 90802, and Barton A. Hornstein, 17742 Steiner Cir., #A, Huntington Beach, Calif. 92647
Filed Jul. 16, 1992, Ser. No. 916,063
Int. Cl.[5] B65D 6/12
U.S. Cl. 220—575 20 Claims



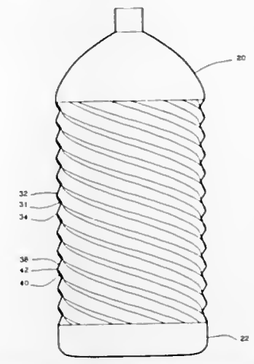
1. A lap tray including
a panel adapted to be placed on the lap of a user, said panel having a raised perimeter,
an opening in the panel which is adapted to receive a cup, said opening having a raised perimeter,
a guard member attached by a hinge member to the panel which may be folded inward towards the panel and unfolded outward towards a user, and
a clip element on the guard member which is adapted to be attached to a lap belt worn by a user.

5,209,371
METHOD AND APPARATUS FOR DISPENSING T-SHIRT STYLE MERCHANDISE BAGS
Mark E. Daniels, Redondo Beach, Calif., assignor to The Avantage Group, Inc., Redondo Beach, Calif.
Continuation-in-part of Ser. No. 871,857, Apr. 21, 1992, abandoned. This application May 15, 1992, Ser. No. 884,744
Int. Cl.[5] B65H 1/00
U.S. Cl. 221—63 10 Claims



1. A method of dispensing from a plurality of T-shirt plastic shopping bags detachably joined together in a series, at a cashier's or other packer's station, each bag being formed by a pair of facing panels, joined at their bottoms and sides, the sides terminating at their upper ends in a pair of top straps spaced from each other, each strap having a transverse closed upper edge, a transverse open top extending between the straps below their upper edges, and the first bag being detachably joined to the next ensuing bag at the bottom of the first bag by the upper edges of the top straps of the next ensuing bag, and the subsequent bags in the series each being detachably joined to its preceding bag by the upper edges of its top straps to the bottom of its preceding bag; said method comprising:
(a) rolling up said series of bags concentrically about a first axis starting with the bottom of the initial bag of the series to form a roll of said series of bags, said roll having the pair of top straps of the outermost bag of the roll as the starting portion of the roll;
(b) providing a support for the roll from which support bags may be serially unrolled upwardly and detached;
(c) providing a pair of bars spaced slightly apart from each other one bar above the other, said bars being parallel to the roll axis and disposed above and in line with the roll to establish a first direction of travel for the series of bags between the roll and spacing between the bars, at least one of said bars being provided with a snagging element transverse to said first direction of travel of the series of bags, said snagging element, however, permitting passage of the panel portions of each bag past said snagging element in the first direction, but snagging the transverse open top of each bag when pulled in said first direction by releasing said open top only when it is drawn between the bars in a second direction transverse to the first direction;
(d) grasping the leading portion of the outermost bag and pulling the outermost bag through the spacing between the bars and the snagging element in the first direction until the transverse open top of the next ensuing bag reaches the snagging element, whereupon further passage of said ensuing bag will be initially restrained;
(e) further pulling the outermost bag against such restraint, thereby detaching the bottom of the outermost bag from the top edges of the straps of said ensuing bag; and
(f) pulling the transverse open top of the said ensuing bag first in the second direction past the snagging element and then, in the first direction until the open top of the second ensuing bag is snagged by the snagging element, for a repetition of the previous steps.

5,209,372
COLLAPSIBLE SPIRAL CONTAINER
Peter M. Norwood, 600 Plaza Middlesex, Middletown, Conn. 06457
Filed Apr. 8, 1992, Ser. No. 865,061
Int. Cl.[5] B65D 1/40
U.S. Cl. 220—666 5 Claims



1. A collapsible container having a top and a bottom spaced apart along a longitudinal axis, connected by a generally cylindrical sidewall;
the sidewall having a plurality of raised, adjacent spirals running from the bottom to the top, the adjacent spirals joined together and defining a groove therebetween;
each spiral comprised of a top side and a bottom side joined at a fold line at the diametrically outermost part of the spiral;
the spiral top side facing upwardly toward the top of the container, having a first vertical cross section plane length;
the spiral bottom side facing downwardly toward the

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bottom of the container, having a second vertical cross section plane length less than said first vertical cross section plane length;

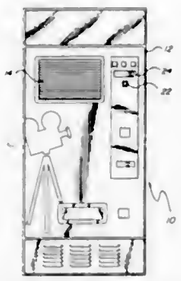
wherein each bottom side of each spiral folds inwardly under the top side of each said spiral when force is applied longitudinally or rotationally to the container top and bottom, to thereby collapse the spiral and shorten the length of the sidewall.

5,209,373

VENDING MACHINE WITH SELF-CONTAINED, LIMITED ACCESS MICROWAVE OVEN

Charlene Gondek, Boca Raton; Trevor Nicholson, Fort Lauderdale; Leon Zetekoff, Boca Raton, and Robert Waszak, Pompano Beach, all of Fla., assignors to Vendtron, Inc., Pompano Beach, Fla.

Filed May 20, 1992, Ser. No. 886,790
Int. Cl.[5] G07F *11/72*
U.S. Cl. 221—150 HC 10 Claims



1. A restricted access vending device with included microwave oven, said device comprising:

a vending machine including a cabinet having a refrigerated compartment for containing a plurality of product selections, a compressor associated with said refrigerated compartment, and means for vending a particular product selection from said compartment to a user upon the insertion of a credit item;

a microwave oven disposed inside said cabinet;

a power connection for providing power to said compressor and said microwave oven;

an access door disposed in said cabinet between said user and said microwave oven for limiting access thereto, said door operative to open upon the vending of said product selection for a first preset period of time so that said vended selection may be inserted by the user into the oven during said first time period; and

a user activatable cooking switch which, when activated, closes the access door and turns the microwave oven on for a second preset period of time to heat said selection.

5,209,374

LABEL DISPENSER FOR SELF-ADHESIVE LABELS ARRANGED ON SEPARATE SHEETS

Johanna Seidl-Lichthardt, Hugo von Hofmannsthal-strasse 2, 8000 Munchen 81, Fed. Rep. of Germany

Filed Mar. 3, 1992, Ser. No. 845,047
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1991, 4107669
Int. Cl.[5] B65H *5/28*
U.S. Cl. 221—73 14 Claims

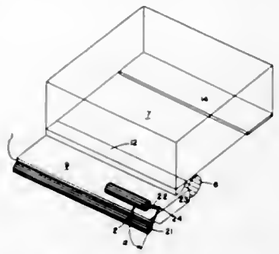
1. A label dispenser for self-adhesive labels arranged on separate sheets, with a stack holder for the sheets, characterized by

a sheet feed device (8) for the sheets, which draws them from the stack holder (7) and advances them sequentially, with the labels upwardly, over a support (9) in a feed direction toward a bending edge (1);

a deflector device which, as viewed in the feed direction of the sheet, is movable immediately beyond the bending edge (1) downwardly from a position above the labels, taking with it a part of the sheet located beyond the bending edge, into contact with a draw-off device;

a drive for the draw-off device, which pulls the sheet in contact with it at an angle to said feed direction;

and a control for the sheet feed device (8), the deflector device (2) and the draw-off device (5) such that each sheet lying on the support (9) is firstly advanced with its leading edge so far



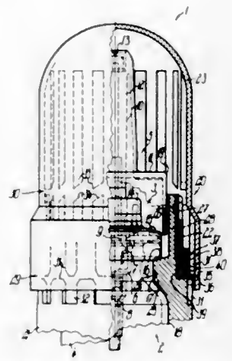
beyond the bending edge (1) that the leading edge of the first label or of the first row of labels is located in the vicinity of the bending edge (1), that the deflector device (2) is then actuated and subsequently the draw-off device (5) feeds the sheet transferred to it to release and advance the first label or the first row of labels beyond the bending edge until the trailing label edge is located substantially in the vicinity of the bending edge (1), then interrupts the further withdrawal until the removal of the label or all of the labels of the first row and continues the feeding and the withdrawal of each sheet in steps, corresponding to the first label or the first row of labels, as far as the last label or the last row of labels on each sheet.

5,209,375

MEDIA DISPENSER WITH INDEXING CAP

Karl-Heinz Fuchs, Radolfzell, Fed. Rep. of Germany, assignor to Ing. Erich Pfeiffer GmbH & Co. KG, Fed. Rep. of Germany

Filed Aug. 28, 1991, Ser. No. 751,882
Claims priority, application Fed. Rep. of Germany, Aug. 31, 1990, 4027669
Int. Cl.[5] B67D *5/26*
U.S. Cl. 222—38 22 Claims



1. A dispenser for media having a storage vessel for the media and an outlet, said dispenser comprising:

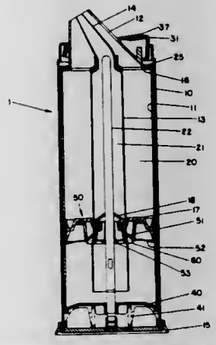
at least one discharge actuating means for actuating a discharge of the media from the storage vessel to the outlet and at least one memory device for registering exposure of said discharge actuating means, said memory device being controllable by means of at least one memory actuator, wherein said at least one memory actuator for said at least one memory device is provided separately from said at least one discharge actuating means, whereby said memory actuation can be actuated independently of manipulation of said discharge actuating means.

5,209,376

CO-DISPENSING PUMP FOR FLUENT MATERIALS

Robert S. Dirksing, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 13, 1992, Ser. No. 850,757
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—80 17 Claims



1. A dispensing package for containing and simultaneously dispensing a plurality of fluent materials which remain substantially separated from one another until they are dispensed from said package, said dispensing package comprising:

(A) a first reservoir for storing a first fluent material, said first reservoir comprising a first elongated tubular wall portion having a first outlet means located at one end thereof and a first piston located at the other end thereof, said first piston being in contact with said first fluent material;

(b) a second reservoir for storing a second fluent material concentrically about said first reservoir, said second reservoir being formed by said first elongated tubular wall portion and a second elongated tubular wall portion which is concentric about an coextensive with said first elongated tubular wall portion along at least a portion of its length, said second reservoir including a second outlet means located at the end of said second reservoir which is nearest said first outlet means in said first reservoir, said second reservoir further including a second piston at the other end of said second reservoir, said second piston being in contact with said second fluent material;

(c) coupling means mounted behind said first and second pistons for securing said pistons to one another in a manner that will cause them to simultaneously advance toward their respective outlet means and simultaneously dispense said first and second fluent materials at a substantially constant predetermined ratio, said coupling means comprising a plurality of radially oriented spokes, the forwardmost portion of each of said spokes including a knife edge, said knife edge being oriented at an acute angle relative to the longitudinal axis of said first and second reservoirs, whereby said knife edges engage, outwardly expand and rupture said elongated tubular wall portion of said first reservoir as said piston coupling means and said pistons are advanced toward said first and second outlet means; and

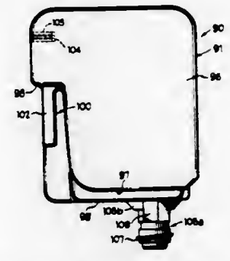
(d) actuating means for unidirectionally advancing said piston coupling means and said pistons toward said first and second outlet means in response to external forces applied to said package by the user.

5,209,377

DISPOSABLE REFILL CARTRIDGE FOR A LIQUID SOAP DISPENSING SYSTEM

Robert L. Steiner, 990 N. Lake Shore Dr., Chicago, Ill. 60611; Charles R. Holzner, Sr., 3545 N. Sheffield, Chicago, Ill. 60657, and Allan J. Voth, 133 N. Humphrey Ave., Oak Park, Ill. 60302

Division of Ser. No. 696,070, May 6, 1991, Pat. No. 5,174,476.
This application Aug. 6, 1992, Ser. No. 925,095
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—189 6 Claims



1. A disposable refill cartridge for a liquid soap dispenser, said cartridge comprising: a closed container having a bottom wall portion and a rear wall portion and two opposed side wall portions, an outlet opening formed in a cylindrical neck extending from said bottom wall portion, a frustoconical portion intermediate said bottom wall portion and said cylindrical neck, at least one boss extending outwardly from said frustoconical portion and said cylindrical neck, two elongated recesses respectively formed in said side wall portions adjacent to said rear wall portion, each of said recesses extending downwardly to said bottom wall portion, said container having stepped retaining surfaces at the upper end of said rear wall portion and at the lower ends of said side wall portions, and a receptacle formed in the rear wall portion having an apertured end wall and a plastic filter within said receptacle.

5,209,378

LIQUID AERATING APPARATUS

Peter Wiseburgh, Jerusalem, Israel, and Peter Hulley, Peterborough, England, assignors to Soda Club Holdings N.V., Curacao, Netherlands Antilles

Filed Aug. 15, 1991, Ser. No. 746,113
Claims priority, application Israel, Aug. 17, 1990, 95413
Int. Cl.[5] B65D *83/00*
U.S. Cl. 222—397 6 Claims

1. An apparatus for aerating liquids contained in bottles, comprising:

a frame;

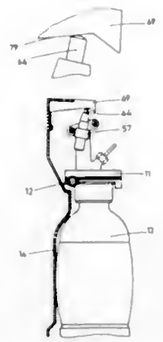
a reference surface contained in said frame;

bottle receiving means, contained in said frame, for securing a bottle to said frame at an open top end of said bottle, said bottle having a central axis that intersects said open end;

means for urging said bottle in contact with said reference

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surface such that said axis is parallel to said reference surface; and



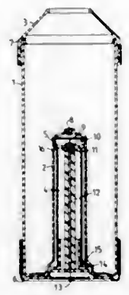
means for preventing build-up of pressure in said bottle if said axis is displaced with respect to said reference surface.

5,209,379

METHOD OF ASSEMBLING A PRESSURIZED DISPENSER AND A PRESSURIZED DISPENSER FOR CARRYING OUT SAID METHOD

Arne S. Dahlin, Ludvika, Sweden, assignor to Inter Airspray Sweden Aktiebolag, Stockholm, Sweden

PCT No. PCT/SE89/00704, § 371 Date Jun. 11, 1991, § 102(e) Date Jun. 11, 1991, PCT Pub. No. WO90/06814, PCT Pub. Date Jun. 28, 1990
PCT Filed Nov. 30, 1989, Ser. No. 689,239
Claims priority, application Sweden, Dec. 15, 1988, 8804531
Int. Cl.[5] B65D *83/14*
U.S. Cl. 222—401 6 Claims



1. A method of assembling a pressurized dispenser provided with a pump device for pressurizing the interior of the dispenser, said dispenser comprising a plastic container (**1**) with a cylindrical tube (**2**) integral therewith and a handle provided with a piston (**5**) which is mounted on a piston stem (**4**) and is displaceable in the cylindrical tube (**2**), said piston (**5**) having an abutment surface (**16**) for determining an outer end position of the piston, said method comprising: inserting a mandrel into the cylindrical tube (**2**) prior to assembly thereby bending towards the interior of the cylindrical tube a plurality of projections (**14**) arranged on the inner surface of the cylindrical tube and directed substantially towards the central axis of the tube, thereafter removing the mandrel and inserting the piston (**5**) mounted on said piston stem (**4**) into the cylindrical tube (**2**), whereby the projections resiliently recover until they are in contact with the piston stem (**4**) to center the same and determine together with the abutment surface (**16**) the outer end positions of the piston (**5**).

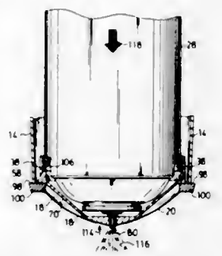
3. Pressurized dispenser comprising: a plastic container (**1**) with a cylindrical tube (**2**) integral therewith and a handle (**6**) provided with a piston (**5**) mounted on a piston stem (**4**) and displaceable in the cylindrical tube (**2**), said piston (**5**) having an abutment surface (**16**) for determining an outer end position of the piston, a plurality of projections (**14**) directed substantially towards a central axis of the tube and arranged on the inner surface of the cylindrical tube, said projections being bendable towards the interior of the cylindrical tube and having a resilient recovery towards their original position which is sufficiently slow to permit the insertion of the piston (**5**) past the projections (**14**) while said projections are still bent towards the interior of the cylindrical tube, without damaging the piston.

5,209,380

GARBAGE DISPOSAL CLEANER COMPRISED OF AN AEROSOL DISPENSER

Keith E. Williams, Rochester, N.Y., assignor to Htiek Company, Inc., Rochester, N.Y.

Filed Oct. 15, 1991, Ser. No. 780,272
Int. Cl.[5] B65D *83/00*
U.S. Cl. 222—402.13 15 Claims



1. A device for spraying disinfectant foam into a garbage disposal, wherein said device is comprised of an aerosol propellant container of substantially cylindrical shape and a substantially cylindrical adaptor removably attached to said container, and wherein:

(a) said aerosol propellant container is comprised of an inverted vertical action valve comprising a valve stem and a foam-forming composition and propellant, wherein said foam-forming composition comprises a disinfecting agent, a malodor counteractant, and a detergent;

(b) said substantially cylindrical adaptor is comprised of a top rim section and, integrally joined to said top rim section, a downwardly and inwardly extending bottom section, wherein:

1. the bottom portion of said downwardly and inwardly extending bottom section is comprised of an orifice;

2. said top rim section is compised of three upwardly-extending flange sections wherein each of said upwardly-extending flange sections is separated from an adjacent flange section by an vertically-extending slot, and wherein:

(a) each of said upwardly-extending flange sections is attached to a portion of said downwardly and inwardly-extending bottom section,

(b) at least a portion of each of said upwardly-extending flange sections is separated from said downwardly and inwardly extending bottom section by a substantially horizontally-extending arcuate slot, and

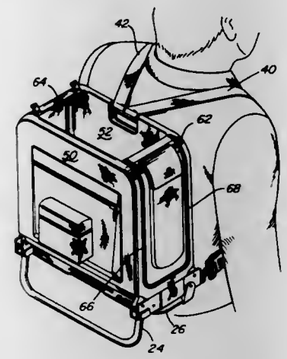
(c) a vertically-extending movable tab is disposed within each of said verticallyextending slots, and said movable tab is attached to said downwardly and inwardly extending bottom section.

5,209,381

BACKPACK CONVERTIBLE CHAIR

John C. Jay, 18 Sea St., Manchester, Mass. 01944

Continuation-in-part of Ser. No. 482,637, Feb. 21, 1990, Pat. No. 5,016,792. This application May 17, 1991, Ser. No. 702,233
Int. Cl.[5] A45F *4/02, 4/06*
U.S. Cl. 224—155 18 Claims



1. A backpack assembly which is convertible to a multiposition chair comprising:

front and rear backpack sections that are essentially the same size and each including an inverted U-shaped frame lying in a common plane and having a rigid, top horizontal cross bar with a central portion and a pair of rigid, parallel side bars with top ends connected to and extending downwardly from the ends of the top bar, said U-shaped frame being free of any direct rigid connections between the lower ends of the bars in the common plane,

said front and rear sections being substantially parallel and coextensive with one another when the assembly is in the backpack configuration,

flexible front and back panels that are part of the front and back sections and carried by each of the two U-shaped frames and respectively essentially filling the area described by the cross bar and side bars of each frame,

a first rail made of rigid material pivotally connected at its ends to the lower ends of one side bar of each U-shaped frame and a second rail parallel to the first rail and also made of rigid material and pivotally connected at its ends to the lower ends of the other side bars of the frames, each of said U-shaped frames being pivotable to an obtuse angle to the rails about axes defined by the pivotal connections of the U-shaped frames to the rails when the assembly is in a chair configuration so as to serve as a backrest and leg rest for the chair,

a flexible bottom panel connected to the front and back panels and extending between the two rails and forming a bottom wall for the assembly when the assembly is in the backpack configuration and forming a seat for the chair when the assembly is in the chair configuration,

said bottom panel measured from the front to the back panel being approximately half the length of the back and front panels measured from the top bars to the bottom ends of the side bars,

side panels detachably connected to the edges of the front and rear sections adjacent the side bars, said side panels forming the sides of the backpack in the backpack configuration and being detached from the front and rear sections in the chair configuration,

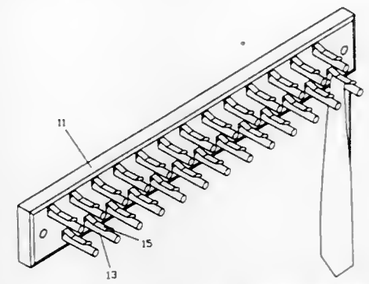
and backpack straps connected to the central portion of the top cross bar of the front section and the rails.

5,209,382

GARMENT HANGER FOR NECKTIES WITH SUPPORTING RODS AND SNAP LEAF CLIP

Ching-Chao Chang, No. 202-1, Tachou Rd., Shen Kang Village, Taichung County, Taiwan

Filed Oct. 28, 1992, Ser. No. 967,423
Int. Cl.[5] A47G *25/74*
U.S. Cl. 223—85 4 Claims



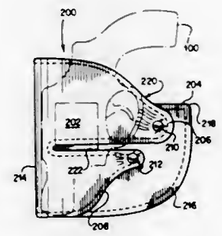
1. A necktie hanger comprising: a rectangular shaped set board having a plurality of mortises, a plurality of tenons to be used as supporting rods, and a plurality of L-shaped snap leafs each having a lower leg with a round hole therein, each tenon being inserted through the round hole and into a mortise in the seat board to provide a supporting rod to suspend a necktie, each snap leaf having an upper leg extending substantially parallel to said tenons to form a clip to retain the necktie.

5,209,383

WEAPON HOLSTERS HAVING ONE-PIECE CONSTRUCTION

Paris Theodore, New York, N.Y., assignor to Thundercloud Corporation, Wilmington, Del.

Filed Feb. 20, 1992, Ser. No. 837,968
Int. Cl.[5] F41C *33/00*
U.S. Cl. 224—193 7 Claims



1. A holster, comprising:

an outer face having outward and inward surfaces;

an inner face having outward and inward facing surfaces, said inner face being connected to said outer face, said outer and inner faces being spaced along portions thereof to form a gap therebetween for receipt of a weapon, said outer and inner faces defining an upper opening for receipt of a weapon and a lower opening for receipt therethrough of one of a weapon barrel and a weapon's forwardmost slide portion, said lower opening being smaller than and opposed to said upper opening, said inner facing comprising two arms, said two arms each having extensions which extend substantially parallel to one another, said two arms comprising an upper arm and a lower arm, said upper arm having a lower edge and an upper edge and said lower arm having a lower edge and an upper edge, said upper

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arm lower edge and said lower arm upper edge being located next to one another, said lower arm upper edge providing a rest upon which one of a face of a weapon's cylinder and a trigger guard's front strap is adapted to rest; and

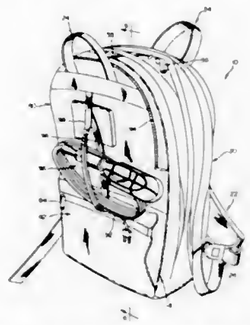
fastening means for fastening an end of said at least one arm to said inward facing surface of said outer face, wherein when a weapon is inserted into said holster between said outer and inner faces said one of the weapon's cylinder face and the trigger guard's front strap rests on said arm upper edge.

5,209,384

PORTABLE TOOL KIT

Scott M. Anderson, 911 State St., #2, Kirkland, Wash. 98033

Filed Aug. 31, 1990, Ser. No. 575,596
Int. Cl.[5] A45F *3/04;* **B65D** *25/10*
U.S. Cl. 224—209 **4 Claims**



1. A portable tool kit rucksack, comprising:

a rucksack main body having flexible front, rear, top, bottom and side panels connected together so as to define an interior volume, the main body also having two arm straps connected to the back panel so that a user can carry the rucksack in a conventional manner:

an internal, flexible panel connected to the top, bottom and side panels together with the front and rear panels defining first and second internal compartments for containing tools;

a first zipper located in the side and top panels between the front and internal panels permitting access to the first internal compartment;

a second zipper located in the side and top panels permitting access to the second internal compartment; and,

a tool holding structure on any selected one of four interior walls defined by either the front, back or internal panels and the interior volume, the tool holding structure having upper and lower tool holding pockets connected to the selected interior wall, each pocket further having open upper and lower ends, the tool holding structure further including an elongated flap having a free lower edge and a fixed upper edge connected to the selected interior wall between the upper and lower pockets so as to form a moveable top closure for the lower pocket and a relatively fixed bottom closure for the upper pocket, the pockets being located with respect to the selected interior wall so that the top panel of the main body forms a relatively moveable top closure for the upper pocket and the bottom panel of the main body forms a relatively fixed bottom closure for the lower pocket, whereby the rucksack remains substantially flexible to follow the motion of the user even when the pockets are loaded with a plurality of different sized tools.

5,209,385

SHOPPING BAG KIT

Carl J. Ledesma, 121 Philadelphia Ave., Northvale, N.J. 07647

Filed Aug. 29, 1991, Ser. No. 751,518
Int. Cl.[5] A45F *3/00*
U.S. Cl. 224—224 **8 Claims**



1. A shopping bag kit for the compact carrying on the person of a plurality of shopping bags for use and reuse in connection with marketing, the shopping bag kit comprising:

a compact carrying case constructed of a flexible collapsible material and having an interior and divider means for dividing the interior into a plurality of compartments placed laterally adjacent one another and extending longitudinally essentially parallel to one another throughout the interior;

a corresponding plurality of shopping bags, each shopping bag being constructed of a relatively thin, foldable reusable material capable of being folded over upon itself about a generally longitudinal axis to establish a compact reinforcing column when the shopping bag is not in use; and

securing means including a strap affixed to the carrying case for extending horizontally around the person so as to selectively secure the carrying case upon the person with the axes of the reinforcing columns oriented in the vertical direction said strap being the sole securing means so as to provide ready access to the compartments of the carrying case from vertically above the compartments when the carrying case is secured upon the person;

the compartments of the carrying case each being essentially complementary to a corresponding reinforcing column for reception of the reinforcing columns within corresponding compartments in the carrying case with the axes of the reinforcing columns aligned longitudinally generally parallel with one another such that the reinforcing columns cooperate with the compartmented carrying case to assist in maintaining the assembled shopping bags and carrying case erect for facilitating carrying the shopping bag kit and the selective withdrawal of each shopping bag for deployment and use with the carrying case secured upon the person such that removal of the carrying case from the person is unnecessary to accomplish said selective withdrawal of the shopping bags from the carrying case.

5,209,386

FILING AND ORGANIZING DEVICE FOR MOTOR VEHICLES

John C. Allison, 16718 Firth La., Houston, Tex. 77084

Filed Nov. 25, 1991, Ser. No. 797,186
Int. Cl.[5] B60R *7/00*
U.S. Cl. 224—275 **16 Claims**

1. A filing and organizing device for use in vehicles comprising:

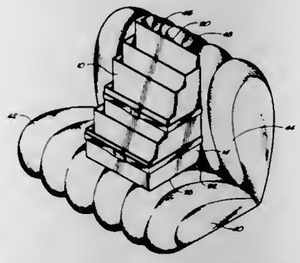
a front panel;

a rear panel;

a first flexible side wall extending from said front panel to said rear panel;

a second flexible side wall extending from said front panel to said rear panel, said panels and said side walls defining a central receiving area;

a plurality of dividers removably affixed to said first and second side walls, said divider panels positioned in generally parallel relationship to said front and rear panels, and plurality of dividers positioned within said central receiving area, said first flexible side wall having a first plurality of tracks extending vertically parallel along an inner surface of said first flexible side wall, said second flexible side



wall having a second plurality of tracks extending vertically parallel along an inner surface of said second flexible side wall, said first plurality of tracks aligned in parallel relationship with said second plurality of tracks, each of said dividers having a first slot extending vertically along one edge and a second slot extending vertically along an opposite edge, said first slot slidably engaging one of said first plurality of tracks, said second slot slidably engaging one of said second plurality of tracks; and

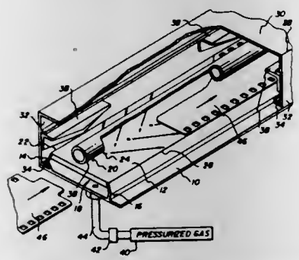
attachment means connected to said rear panel for removably attaching to a seat.

5,209,387

GAS FILM CONVEYOR FOR ELONGATED STRIPS OF WEB MATERIAL

Michael Long; Thomas W. Palone, both of Rochester, and Paul Kemp, Churchville, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 20, 1990, Ser. No. 586,093
Int. Cl.[5] B65G *51/02;* **B65H** *20/14*
U.S. Cl. 226—97 **20 Claims**



1. A gas film conveyor for moving elongated strips of web material, said conveyor comprising:

an elongated track plate having side edges and an upper surface;

a pneumatic pressure chamber positioned beneath and bounded on its upper side by said track plate;

means for directing pressurized gas into said pressure chamber;

at least one first row of gas flow apertures arranged along said track plate substantially at the center thereof, each of said apertures being defined by a bore extended at a compound angle through said track plate from said pressure chamber in the direction of movement of such strips along said conveyor, each of said apertures having said bore thereof at a first acute angle to said upper surface, said apertures also having said bores thereof at a second acute angle from said direction of movement, said second acute angle being alternately toward one and then the other of said side edges, said first and second acute angles being such that gas flowing through said apertures will support such strips above said upper surface while propelling such strips in said direction of movement; and

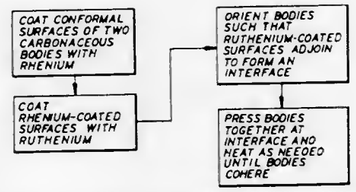
means for directing gas escaping from beneath the side edges of such strips back onto the upper surface of such strips to flatten such strips as they are propelled through said conveyor.

5,209,388

PROCESS FOR BONDING CARBONACEOUS BODIES

Donald L. Mittendorf, Mesa, Ariz., and Gary A. West, Dover, N.J., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Sep. 26, 1991, Ser. No. 766,466
Int. Cl.[5] C03C *27/08;* **B23K** *20/16*
U.S. Cl. 228—121 **17 Claims**



1. A diffusion bonding process for bonding a first carbonaceous body to a second carbonaceous body at an interface formed between substantially conformal bonding surfaces formed on the bodies, comprising the steps of:

depositing a first coating that comprises rhenium onto the bonding surfaces to form a rhenium-coat surface on each of the bodies;

depositing a second coating that comprises ruthenium onto the rhenium-coat surfaces to form a ruthenium-coat surface on each of the bodies;

orienting the bodies so that the ruthenium-coat surfaces are in adjoining relation, whereby the interface is formed; and

pressing the bodies together at the interface and simultaneously heating the bodies until the bodies cohere at the interface.

5,209,389

SOLDER PUMP BUSHING SEAL

Kyle C. Sullivan, Worcester, Mass., and Paul J. Caine, Smithfield, R.I., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Feb. 26, 1992, Ser. No. 841,671
Int. Cl.[5] B23K *1/08*
U.S. Cl. 228—37 **6 Claims**

1. An apparatus for circulating a body of molten solder in a container during soldering operations comprising:

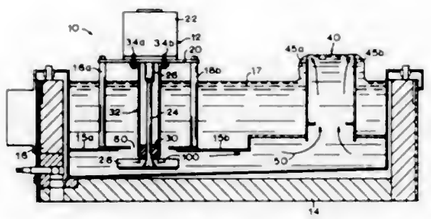
an enclosure having an interior space with an exit opening located below the surface of said body of molten solder in said container during operations;

a rotatably mounted shaft extending through said interior space of said enclosure and terminating beyond said exit opening;

only a bushing seal at said exit opening to provide a seal and rotational stabilization of said shaft, said seal having a passageway through which said shaft extends, the cross sectional area of said passageway being greater than the cross sectional area of said rotatable shaft at room temper-

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ature, said seal comprised of a material which enlarges at molten soldering temperatures, the amount of enlargement and the cross sectional area of the passageway being matched such that under the influence of the heat of said molten solder said material enlarges sufficiently to form a sealing relationship between said seal and said shaft while permitting rotation thereof and to form a sealing relationship between said seal and the interior wall surface of said enclosure, the sealing relationship between said seal and



said shaft and between said seal and said interior wall surface of said enclosure being effective to prevent entrance of molten solder therebetween;

means for rotating said shaft comprising a flexible coupling device to compensate for alignment offset between said passageway and said shaft; and

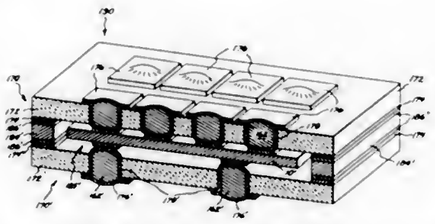
an impeller carried by said rotatable shaft outside said enclosure, said impeller being rotated by said shaft to circulate said body of molten solder.

5,209,390

HERMETIC PACKAGE AND PACKAGED SEMICONDUCTOR CHIP HAVING CLOSELY SPACED LEADS EXTENDING THROUGH THE PACKAGE LID

Victor A. K. Temple; Donald L. Watrous, both of Clifton Park; Constantine A. Neugebauer; James F. Burgess, both of Schenectady, and Homer H. Glascock, II, Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 375,636, Jul. 3, 1989, Pat. No. 5,166,773.
This application Aug. 27, 1992, Ser. No. 935,805
Int. Cl.[5] H01L *21/603*
U.S. Cl. 228—180.2 5 Claims



1. A method of fabricating a packaged semiconductor chip comprising the steps of:

providing a ceramic lid having first and second opposed major surfaces and a plurality of apertures therein;

placing a conductive pellet in each of said apertures;

compressing said conductive pellets in a direction substantially perpendicular to said first major surface to expand said pellets in a direction parallel to said first major surface and into intimate contact with the wall of said aperture; and

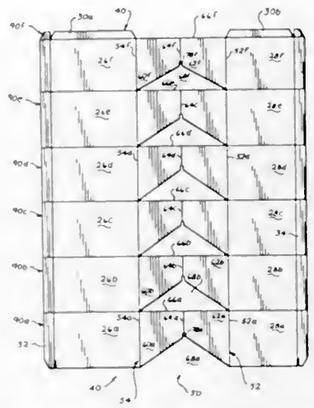
bonding contact pads on said chip to said pellets and bonding said lid to a package base to seal said package.

5,209,391

COLLAPSIBLE PAPERBOARD CONTAINER

Richard G. Krautsack, North Barrington, Ill., assignor to Comark Merchandising, Inc., Elk Grove Villange, Ill.

Filed Mar. 5, 1992, Ser. No. 847,650
Int. Cl.[5] B65D *5/36, 5/56*
U.S. Cl. 229—104 1 Claim



1. A paperboard blank which is folded to form a tubular body having a pair of opposed, open ends and a hollow passageway therebetween divided by an internal divider wall, comprising:

a consecutive series of wall panel sections, disposed end-to-end and with adjacent wall panel sections joined together by a fold line;

each wall panel section including first and second sidewall panels with a pair of divider panels there between, the pair of divider panels joined together by a fold line and cooperating with an adjacent wall panel section to form a triangular cutout, each wall panel section defining a recess located along the fold line and opening toward the triangular cutout; and

the divider panels foldably connected to each other and to the sidewall panels so that upon folding the divider panels of respective ones of said wall panel sections against each other, the sidewall panels of respective ones of said wall panel sections are butted against one another to form respective continuous sidewalls.

5,209,392

RECYCLABLE PIZZA BOX

Walter Anatro, 12 Shady La., Totowa, N.J. 07512

Filed Aug. 19, 1992, Ser. No. 932,213
Int. Cl.[5] B65D *5/36, 5/42*
U.S. Cl. 229—117.01 4 Claims

1. A box comprising:

an upper panel including a rear side wall,

a lower panel,

a fold line connecting said rear side wall to said lower panel,

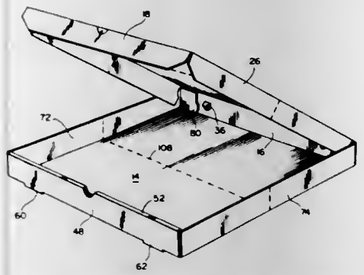
a first score line extending across said upper panel substantially parallel to said fold line,

a second score line extending across said lower panel substantially parallel to said fold line,

said upper panel being collapsible along said first score line into two overlying, parallel extending portions,

said lower panel being collapsible along said second score line into two overlying, parallel extending portions,

said upper panel and said lower panel being folded along said fold line so that said two portions of said upper panel and said two portions of said lower panel overlie each



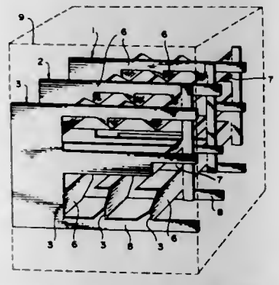
other in a stacked arrangement for recycling purposes while minimizing required storage area.

5,209,393

SEPARATOR FOR FOLDABLE CARDBOARD BOXES

Ma J. P. Xapelli, Barcelona, Spain, assignor to Separinter Sociedad Limitada Separacion Integrada Poligono Industrial Can Casablancas, Barcelona, Spain

Filed Jan. 17, 1992, Ser. No. 822,129
Claims priority, application Spain, Jan. 17, 1991, 9100106
Int. Cl.[5] B65D *25/04*
U.S. Cl. 229—120.27 3 Claims



1. A multi-sheet separator for use in dividing a foldable box having at least two opposing sidewalls comprising:

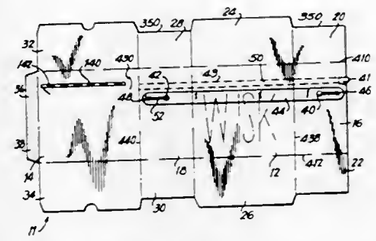
at least first and second separator sheets adapted to be shifted between folded and unfolded positions, each of said first and second separator sheets including first and second strip groups that are hingedly interconnected by first and second flap groups, said first strip group including a plurality of longitudinally extending and laterally spaced strip members which are interconnected by a first laterally extending strip, said second strip group including a plurality of longitudinally extending and laterally spaced strip members which are interconnected by a second laterally extending strip, each of said first and second separator sheets being arranged such that its respective said strip and flap groups are positioned in a substantially common plane when said separator sheet is in its folded position and said first and second strip groups are positioned in substantially parallel planes which are spaced a distance defined by said flap groups when said separator sheet is in its unfolded position, said first and second separator sheets being adapted to be attached between opposing sidewalls of a foldable box so as to be foldable in unison with the box.

5,209,394

CARTON FOR DETERGENT

Jeannine D. Griffiths, Tannersville, Pa.; Edward J. Giblin, Finksburg, Md., and James G. Covington, East Windsor, N.J., assignors to Lever Brothers Company, N.Y.

Continuation of Ser. No. 459,023, Dec. 29, 1989, abandoned.
This application Dec. 9, 1991, Ser. No. 806,851
Int. Cl.[5] B65D *5/46, 5/54*
U.S. Cl. 229—225 28 Claims



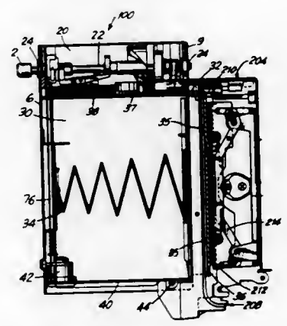
1. A carton comprising a) a first side panel, b) a front panel adjacent thereto, c) a second side panel adjacent to said front panel on the side opposite said first side panel, d) a rear panel between said first and second side panels, e) said front and rear panels being broader than said side panels, f) bottom closure flaps, g) top closure flaps, h) a tear tape extending at least from said front panel across one of said side panels to said rear panel, said tear tape not fully traversing the other of said side panels so that said other side panel serves as a hinge when said tear tape is removed, a liner including at least three walls, and further comprising hinge means on said other side panel including a perforated line within a score line.

5,209,395

METHOD AND APPARATUS FOR A LOCKABLE, REMOVABLE CASSETTE, FOR SECURELY STORING CURRENCY

John Zouzoulas, West Chester; Raymond D. Regan, Downingtown, and Robert Clauser, Coatesville, all of Pa., assignors to Mars Incorporated, McLean, Va.

Filed May 23, 1991, Ser. No. 704,787
Int. Cl.[5] G07B *15/00;* E05G *1/04*
U.S. Cl. 232—15 41 Claims



1. A lockable, removable cassette apparatus for securely storing bills accepted by a bill validator, comprising:

a housing containing a bill compartment and a locking means;

a mounting means for lockably attaching the housing to the bill validator; and

a pusher plate for loading bills through a bill opening into the bill compartment, wherein the pusher plate is con-

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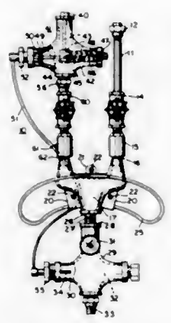
nected to the locking means such that when the cassette is removed from the bill validator the pusher plate automatically covers the bill opening and locks in place.

5,209,396

STEAM WATER MIXING HOSE STATION

Robert N. Cooney, West Goshen, Pa., assignor to Cooney Brothers, Inc., Philadelphia, Pa.

Filed Mar. 9, 1992, Ser. No. 848,158
Int. Cl.[5] G05D *23/13*
U.S. Cl. 236—12.14 3 Claims



1. A steam and water mixing hose station that does not require electricity for operation, which is connected to a source of steam under pressure and a source of cold water under pressure, which provides a mixture of steam and water at a controlled temperature which does not require the water or steam to be maintained at a constant pressure, which comprises

steam flow control valve means connected to said source of steam,

a manually operated steam shut-off valve connected to said steam flow control valve means,

a check valve connected to said manually operated steam shut-off valve,

mixing chamber means having a steam inlet, a water inlet and a steam/water mixture outlet,

said steam check valve connected to said mixing chamber steam inlet,

a manually operated water shut-off valve connected to said source of water,

a check valve connected to said water shut off valve and to said mixing chamber water inlet,

sensing chamber means connected to said steam/water mixture outlet of said mixing chamber,

a liquid filled temperature sensing bulb in said sensing chamber means,

a tube connecting said bulb to said steam flow control valve means to signal it to control the steam flow through said control valve means in response to the sensed temperature of the steam water mixture, and to maintain the mixture output temperature at a safe level,

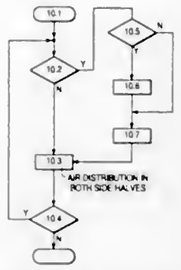
said sensing chamber means having an outlet, and a hose adapter connected to said sensing chamber outlet.

5,209,397

PROCESS FOR THE CLOSED-LOOP AND OPEN-LOOP CONTROL OF AN AIR-CONDITIONING SYSTEM AND AUTOMATIC AIR-CONDITIONING SYSTEM FOR A MOTOR VEHICLES

Klaus Arold, Sindelfingen, and Erich Kubsch, Weil der Stadt, both of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Jun. 19, 1991, Ser. No. 717,667
Claims priority, application Fed. Rep. of Germany, Jul. 25, 1990, 4023554
Int. Cl.[5] F24F *7/00*
U.S. Cl. 236—49.3 1 Claim



1. A process for closed-loop and open-loop control of an air-conditioning system and an automatic air-conditioning system having an operating unit for a vehicle passenger compartment having two side halves in a motor vehicle including a plurality of setting elements for setting one of a plurality of alternative working programs for at least one of temperature control and air distribution, at least one of said setting elements being provided for switching on an automatic mode for the automatic air-conditioning system; one temperature selection element for manually presetting a desired value of the temperatures to be set in each of the two side halves; and air distribution setting elements for air distribution in the two side halves of the vehicle passenger compartment, the process comprising the steps of:

operating a single channel temperature control when said automatic mode is switched on using said at least one setting element by:

overriding said desired value of temperatures manually preset using said one temperature selection element; setting said desired value manually preset for one side half equal to said desired value manually preset for the other side half; using said desired value manually preset for one side half as a control variable;

operating a two-channel temperature control when said automatic mode is switched off using said at least one setting element in accordance with said manually preset desired values at the temperature selection elements; and

using the setting elements common to both of said two side halves to provide air distribution in the two side halves of the vehicle passenger compartment with a single channel.

5,209,398

MODEL-BASED THERMOBALANCE WITH FEEDBACK

Kirk H. Drees, West Lafayette, Ind., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Sep. 2, 1992, Ser. No. 940,089
Int. Cl.[5] G05D *23/00*
U.S. Cl. 236—91 F 14 Claims

1. A system for maintaining, at a room temperature setpoint, the temperature of air within an enclosure comprising a supply duct and an exhaust duct, said system comprising:

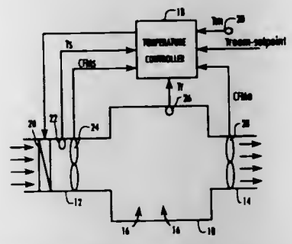
heating means for heating the air in said supply duct responsive to a control signal;

a first temperature sensor for generating a room temperature signal indicative of the temperature of the air in said enclosure;

a second temperature sensor for generating a supply air temperature signal indicative of the temperature of the air heated by said heater means;

a first air flow sensor for generating a supply air flow signal indicative of the air flow in said supply duct;

a second air flow sensor for generating an exhaust air flow signal indicative of the air flow in said exhaust duct; and



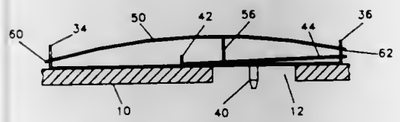
a temperature controller coupled to said first temperature sensor, said second temperature sensor, said first air flow sensor, and said second air flow sensor, said temperature controller being further coupled to said heating means for providing said heating means with said control signal in response to said room temperature signal, said supply air temperature signal, said supply air flow signal, said exhaust air flow signal, and said room temperature setpoint.

5,209,399

AUTOMOTIVE OIL LEVEL CONTROL VALVE APPARATUS

Joseph M. Gondusky, Warwick, R.I.; Eric J. Giasson, Somerset, Mass., and Alfred J. White, North Providence, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 11, 1992, Ser. No. 897,185
Int. Cl.[5] G05D *23/08*
U.S. Cl. 236—93 R 12 Claims



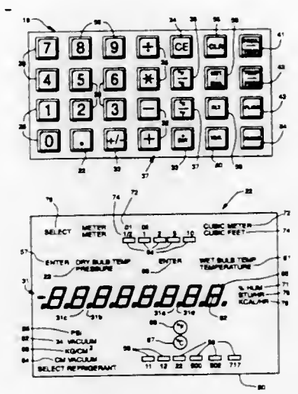
1. An oil level control valve for controlling oil flow in a transmission housing having a drain passage aperture comprising a generally elongated base member, an aperture in said base member in alignment with the drain passage aperture, attachment means associated with said base member for attachment of said control valve to said transmission housing by engagement with said drain passage aperture, bracket means extending from each of the two ends of the base member away from said transmission housing, a cover member received over the aperture in the base member and being adapted to move toward and away from said base member aperture, a post member extending from said cover member away from said transmission housing positioned between said bracket members, and a generally flat thermostatic strip in the unassembled state having precisely controlled preselected dimensions in which each end of said strip is received in said bracket means with a portion of said strip intermediate both ends in contact with said post member thereby providing a preselected biasing force on the cover member which varies with the temperature of the thermostatic strip.

5,209,400

PORTABLE CALCULATOR FOR REFRIGERATION HEATING AND AIR CONDITIONING EQUIPMENT SERVICE

John M. Winslow, 27496 Whitcomb Dr., Livonia, Mich. 48154; Henry D. Winslow, 9375 Dale, Redford Township, Wayne County, Mich. 48239, and Walter Rubinstein, Southfield, Mich., assignors to John M. Winslow, Livonia and Henry D. Winslow, Redford Township, Wayne County, both of Mich.

Filed Mar. 7, 1991, Ser. No. 666,130
Int. Cl.[5] G05D *23/00*
U.S. Cl. 236—94 7 Claims



1. A conversion and measuring apparatus characterized by:

a flow-energy rate conversion means for determining the energy rate supplied by a fuel flow said conversion means including;

selection means for selecting units of fuel flow;

input key means;

a timer mechanism constructed to be turned on and off by the input key means to measure elapsed time for said selected units of fuel flow;

calculation means for determining the energy rate based on said elapsed time and said selected units of fuel flow; and

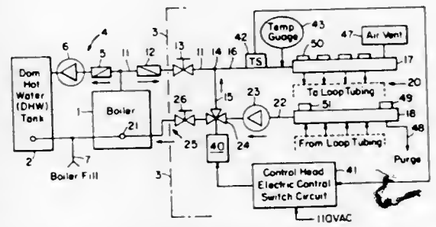
a display means for displaying said energy rate.

5,209,401

HYDRONIC HEATING WATER TEMPERATURE CONTROL VALVE

Joachim Fiedrich, 20 Red Pine Dr., Carlisle, Mass. 01741

Filed Dec. 13, 1991, Ser. No. 807,457
Int. Cl.[5] F24D *3/00*
U.S. Cl. 237—8 C 14 Claims



1. In a hydronic heating system having a source of hot supply water and a reservoir of cooler return water, a supply water line from said source, a return water line to said reser-

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voir and one or more heating loops through which water flows from said supply line to said return line, a three way diverting valve in said return line for diverting water from said return line to said supply line so that said supply water to said heating loop is diluted with said diverted return water, reducing the temperature thereof, said valve having a stem that positions said valve and a spring that urges said stem toward the valve position of less diverted water flow and a valve controller for controlling the position of said valve stem, said valve stem and spring being contained in a housing from which said valve stem projects to said valve controller through an opening in said housing, the improvement comprising:

(a) means for limiting the movement of said valve stem in said direction toward the valve position of less diverted water flow including,

(b) a stop plug that fits into said opening in said housing providing a mechanical block that limits the movement of said valve stem in said direction toward the valve position of less diverted water flow,

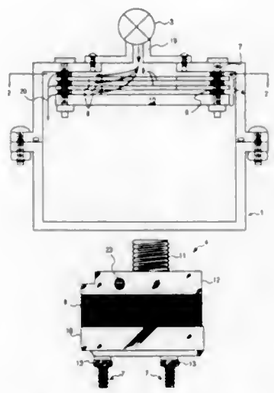
(c) whereby said valve stem cannot be positioned for no diverted water flow.

5,209,402

LAMINAR FLOW GAS DIFFUSER

Daniel B. DeBra, Los Altos, and William A. Eckes, Castro Valley, both of Calif., assignors to Etec System, Inc., Castro Valley, Calif.

Filed May 24, 1991, Ser. No. 705,227
Int. Cl.[5] B05B *1/26*
U.S. Cl. 239—1 **14 Claims**



9. A diffuser for diffusing a fluid into a chamber via a passage in a wall of said chamber comprising:

a bottom plate interior to said chamber;

diffusing means positioned intermediate said passage in said wall and said bottom plate; and

means for positioning said bottom plate and said diffusing means to said wall adjacent said passage,

wherein said means for diffusing comprises a plurality of circular plates each having a central bore therein and being spaced apart with spacers,

wherein said means for positioning comprises a plurality of bolts, and

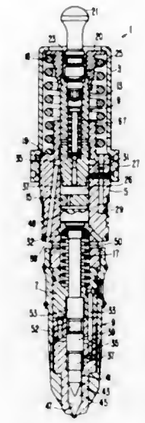
wherein a ratio of a dimension defined by a distance between a periphery of said central bore and an outside diameter of said circular plates to a thickness of said spacers is about 100 to about 1,000, thereby creating said laminar flow.

5,209,403

HIGH PRESSURE UNIT FUEL INJECTOR WITH TIMING CHAMBER PRESSURE CONTROL

Yul J. Tarr, and Laszlo Tikk, Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Jul. 12, 1991, Ser. No. 729,500
Int. Cl.[5] F02M *45/02*
U.S. Cl. 239—91 **21 Claims**



1. A fuel injector for periodically injecting fuel of a variable quantity on a cycle to cycle basis as a function of the pressure of fuel supplied to the injector from a source of fuel and at a variable time during each cycle as a function of the pressure of a timing fluid supplied to the injector from a source of timing fluid, comprising:

an injector body containing a central bore and an injector orifice at a lower end of the injector body;

a reciprocating plunger assembly including an upper plunger and a lower plunger mounted within the central bore, a variable volume injection chamber being defined between said lower plunger and the lower end of said injector body containing said injector orifice, said variable volume injection chamber communicating during a portion of each injector cycle with the source of fuel, and a variable volume timing chamber located below said upper plunger, said timing chamber communicating for a portion of each injector cycle with a source of timing fluid; and

valve means for opening a timing chamber draining passage means in response to an opening pressure corresponding to a predetermined pressure of the timing fluid in said timing chamber, said valve means being formed in said upper plunger above said timing chamber.

5,209,404

SPEED ADJUSTMENT DEVICE FOR A SPLATTER ARM IN A GARDEN SPRINKLER

Mei-Be Jun, Changhua Hsien, Taiwan, assignor to Ting Yang Enterprise Co., Ltd., Changhua Hsien, Taiwan

Filed Jun. 25, 1992, Ser. No. 904,268
Int. Cl.[5] B05B *3/14*
U.S. Cl. 239—230 **1 Claim**

1. The A speed adjustment device for control of the operation frequency of a splatter arm in a garden sprinkler, comprising:

a sprinkler means having a rotatable main body, a pivotal splatter arm, a bias spring, a rotation angle limiting stop, a swivel control means and a pivot axis to which is secured the pivotal splatter arm; and

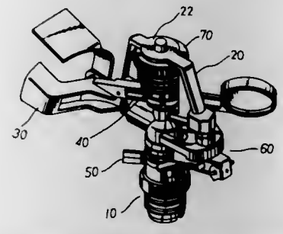
an adjustment knob having a plurality of spaced stop protrusions disposed on the underside thereof; and a first peripheral groove adjacent to said stop protrusions being disposed on the underside of said adjustment knob for receiving the top of said bias spring; and a fixing groove being disposed inside of said first peripheral groove for securing one end of said bias spring; and a second peripheral groove being disposed on the top side of said adjustment knob for receiving an urging spring;

said urging spring being in abutment against the top of said rotatable main body at one end and in abutment against said adjustment knob at the other end so as to urge said adjustment knob downward;

a pair of stop members disposed right under said adjustment knob and being located on said rotatable main body so as to permit said plurality of spaced stop protrusions to be in selective engagement with said stop members, thereby said adjustment knob can be held in place with respect to the main body without turning;

said splatter arm being connected to said bias spring and being able to be forced to pivot by the discharged water from said main body;

said bias spring being connected to said adjustment knob at one end and to said splatter arm at the other end so that turning the adjustment knob can vary the tension of said bias spring and make the pivot span and operation frequency of said splatter arm changed accordingly.

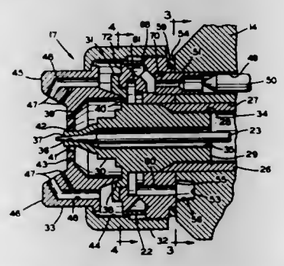


5,209,405

BAFFLE FOR HVLP PAINT SPRAY GUN

Frank A. Robinson, Toledo, Ohio; Albert S. Orr, Indianapolis, Ind.; Marvin D. Burns, Millbury, and Alan H. Fritz, Toledo, both of Ohio, assignors to Ransburg Corporation, Indianapolis, Ind.

Filed Apr. 19, 1991, Ser. No. 687,977
Int. Cl.[5] B05B *1/28*
U.S. Cl. 239—296 **12 Claims**



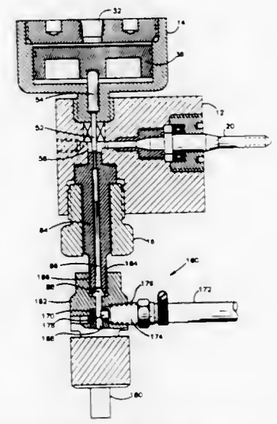
1. In a fluid spray gun of the type operated from a source of high pressure air and using a high volume low pressure flow of air at a nozzle for fluid atomization and for pattern shaping, said spray gun nozzle having a first chamber for receiving atomization air and a second chamber for receiving pattern shaping air, the improvement comprising a replaceable baffle located in said spray gun between the high pressure air source and said nozzle, said baffle including at least one first calibrated orifice between the source of high pressure air and said first chamber, said at least one first orifice reducing the pressure of a first flow of the high pressure air for atomization from the high pressure source to no greater than a predetermined low pressure lower than the high pressure and delivering such first flow to said first chamber, and wherein said baffle includes at least one second calibrated orifice between the source of high pressure air and said second chamber, said at least one second orifice reducing the pressure of a second flow of the high pressure air for pattern shaping from the high pressure source to no greater than a predetermined low pressure lower than the high pressure and delivering such second flow to said second chamber.

5,209,406

SWIVEL VALVE FOR FLUID JET CUTTING

Jack L. Johnson, Joplin, Mo., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Apr. 20, 1990, Ser. No. 512,218
Int. Cl.[5] B05B *15/06*
U.S. Cl. 239—434 **6 Claims**



4. In a fluid activated valving apparatus for controlling a very high pressure liquid being adapted for serving as a focused liquid cutting jet stream assembly including hydraulic switching means, a piston responsive to the switching means, a valving stem pinned to the piston, an expansion chamber associated with the stem, a liquid conduit delivery means for receiving a high pressure liquid stream and directing same to the chamber, a valved liquid outlet means disposed spaced apart in the expansion chamber cooperating with the stem to valve high pressure liquid outflow from the chamber, a nozzle means at a distal end of the liquid outflow means for forming a focused liquid jet stream for use as a cutting means, all located within or connected to a valve body, the improvement comprising:

an axially-aligned spindle means located sealingly in the liquid conduit delivery means of the valve body for introducing the high pressure liquid into the chamber, and a bearing means disposed slidably about the free end of the spindle means enclosed within the valve body for making sealing engagement therewith, but also permitting unstressed rotation of the spindle means in response to torsional stresses being intermittently exerted on said exposed free end of the spindle means, wherein the nozzle means is modified to receive a fluid injection means for introduction of a particulate abrasive material into the cutting stream before emerging from said assembly.

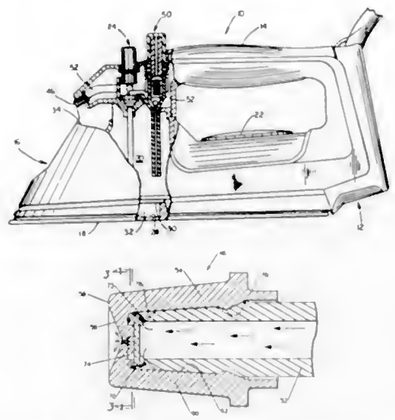
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,407

SPRAY NOZZLE FOR ELECTRIC IRON

Richard I. Farrington, Seymour, Conn., assignor to Black & Decker Inc., Newark, Del.

Filed Jan. 21, 1992, Ser. No. 822,807
Int. Cl.[5] B05B *1/34*; D06F *75/22*
U.S. Cl. 239—491 4 Claims



1. A spray nozzle for an electric iron comprising:
a nozzle cap having an outlet orifice formed in an end wall thereof, said cap including an axially extending cylindrical wall defining an axially extending bore; the inside surface of said end wall of said nozzle cap including at least two circumferentially spaced raised pads having radially extending sides, with sides of adjacent pads defining slots therebetween;
a substantially flat disc-like member disposed in said bore adjacent to said pads, the diameter of said disc-like member being somewhat less than the diameter of said bore to define a circumferentially extending groove therebetween, the opposed surfaces of said end wall and said disc-like member defining a cavity therebetween, said pads defining the circumferentially radially inner border of said cavity, the slots formed between adjacent pads being disposed on a line tangent to the cavity; and
fluid delivery means provided in said bore, said fluid delivery means comprising a tube, with the end of the tube adjacent to said disc-like member being notched to define "V"-shaped surfaces, the ends of the legs of the "V" contacting the confronting surface of the disc-like member to move the member into engagement with the pads.

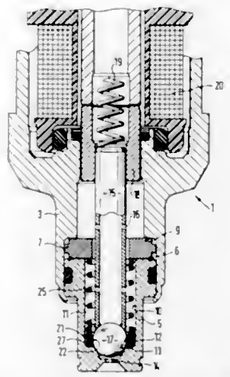
5,209,408

ELECTROMAGNETICALLY OPERATED FUEL INJECTION VALVE

Ferdinand Reiter, Markgröningen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Apr. 2, 1992, Ser. No. 852,171
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1989, 3935148
Int. Cl.[5] B05B *1/30*
U.S. Cl. 239—585.4 5 Claims

1. Electromagnetically operated fuel injection valve having a valve housing, a valve seat body arranged in the valve housing a longitudinal hole formed in said valve seat body, the wall of said hole having an end portion which narrows into a valve seat with an outlet opening, a valve closing member extending in said hole and being axially movable between a closing position and an opening position, said valve closing member carrying a valve closing body which, in said closing position, rests on said valve seat and, in said opening position, is spaced a definite distance from said valve seat, comprising
a separate guide ring positioned on said end portion around said valve seat, the outer diameter of said guide ring being smaller than the diameter of said hole to allow displacement of said guide ring in radial direction, the inner wall



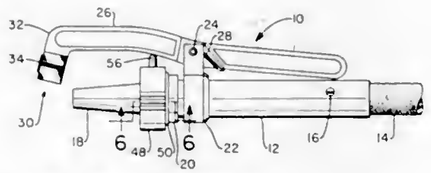
of said guide ring forming a cylindrical guideway for guiding said valve closing body into said closing position; and means for tensioning said guide ring against said end portion with holding forces which are greater than the forces exerted on the guide ring during operation of the fuel injection valve.

5,209,409

SANDBLAST NOZZLE WITH WEAR RESISTANT SEALING DEVICE AND LOCK-ON MECHANISM

Lynn R. Neiss, 4680 Alabama Ave. SW., Navarre, Ohio 44662

Filed Dec. 4, 1991, Ser. No. 803,341
Int. Cl.[5] B24C *5/02*
U.S. Cl. 239—586 16 Claims



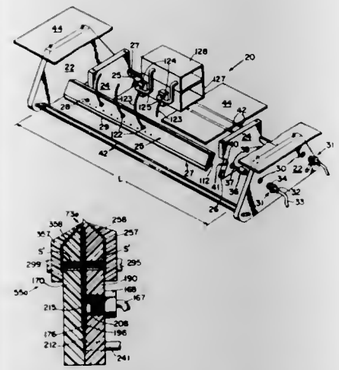
1. A sandblast valve, comprising:
a nozzle in communication with a source of sand under pressure and adapted to pass such sand therethrough;
a lever arm; and
a sealing member at an end of said lever arm, said lever arm being adapted to move said sealing member into and out of sealing engagement with said nozzle, said sealing member comprising a resilient rectangular block having a wear piece attached thereto, said wear piece comprising a plate received on one end of said rectangular block, said rectangular block being selectively rotatable about a pin extending therethrough and said rotation exposing selected sides of said block to said nozzle, wherein said nozzle emits said sand in a stream, said wear piece being positioned to engage said stream before said resilient block engages said stream upon sealing actuation of said sealing member.

5,209,410

ELECTROSTATIC DISPENSING NOZZLE ASSEMBLY

Frederick R. Wichmann, Cincinnati, and Donald R. Henry, Middletown, both of Ohio, assignors to United Air Specialists, Inc., Cincinnati, Ohio

Filed Mar. 5, 1992, Ser. No. 846,599
Int. Cl.[5] B05B *5/02*
U.S. Cl. 239—696 31 Claims



28. A nozzle assembly for electrostatically dispensing a flowable material onto a predetermined target in a controllable and uniform manner, said assembly comprising:
a nozzle having a housing with a predetermined longitudinal length and a substantially continuous dispensing edge spanning a substantial portion of said longitudinal length, and front and rear members joined together to provide a substantially continuous longitudinal slot adjacent to said dispensing edge;
a plurality of substantially hydraulically independent distribution chambers arranged serially along said longitudinal length of said housing, each of said chambers being in fluid communication with said slot and comprising a material inlet port through which flowable material can be selectively supplied;
means located at least partially within each chamber for providing an electrical charge to said flowable material therewithin and adjacent to aid slot to cause said material to be electrostatically dispensed from said nozzle assembly in use; and
an integral field gate at each of the opposite ends of the longitudinal length of said housing, wherein no fluid communication with a source of said flowable material is provided, but wherein means for providing electrical charge to flowable material is provided adjacent said dispensing edge.

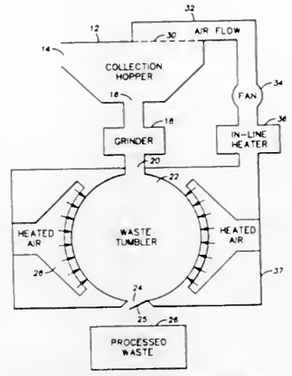
5,209,411

DECONTAMINATION OF MEDICAL WASTE

Christopher P. Dineley, Toronto, Canada, and Robert A. Kolstad, Mesquite, Tex., assignors to Cox Sterile Products, Inc., Dallas, Tex.

Continuation of Ser. No. 589,185, Sep. 27, 1990, abandoned. This application Dec. 17, 1992, Ser. No. 808,978
Int. Cl.[5] B02C *23/00*
U.S. Cl. 241—17 1 Claim

1. A method for decontaminating medical waste comprising:
comminuting the waste to an extent that substantially all surfaces of the waste are available for contact by an antimicrobial agent,
passing a gaseous antimicrobial agent countercurrently to and through the comminuted waste while tumbling the waste sufficient to intimately contact the comminuted waste with the antimicrobial agent,
then passing the antimicrobial agent countercurrently to and through the uncomminuted waste,



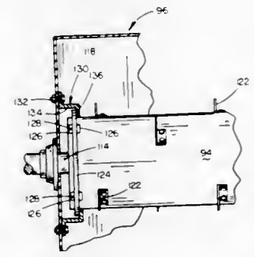
then regenerating the antimicrobial agent, and
passing the regenerated antimicrobial agent through comminuted waste.

5,209,412

DEVICE FOR SHREDDING CYLINDRICAL BALES

Paul Dwyer, and Mark A. Dwyer, both of HC60, Box 63, Bartlett, Nebr. 68622

Filed Oct. 16, 1992, Ser. No. 962,398
Int. Cl.[5] B02C *13/31*
U.S. Cl. 241—101.7 5 Claims



1. A device for shredding hay bales having twine wrapped therearound, comprising,
a first upstanding support means having inner and outer surfaces,
a second upstanding support means horizontally spaced from said first support means and having inner and outer surfaces,
an elongated, horizontally disposed cylindrical bale shredding drum means positioned between the inner surfaces of said first and second support means, said drum means having opposite ends,
said drum means having said opposite ends spaced from said inner surfaces of said first and second support means,
first and second shafts extending from said opposite ends of said drum means,
said first and second shafts being operatively rotatably secured to said first and second support means respectively,
a first annular ring means secured to said drum means adjacent one end thereof and extending outwardly therefrom,
a second annular ring means secured to said drum means

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adjacent the other end thereof and extending outwardly therefrom,

a first annular, ring-shaped collar means secured to said inner surface of said first support means and extending and rotatably receiving said one end of said drum means,

said first collar means being angular in section and including a first collar portion which extends transversely inwardly from the inner surface of said first support means and a second collar portion which extends towards said drum means from the inner end of said first collar portion, said second collar portion being positioned inwardly of said first annular ring means to prevent twine from wrapping around said first shaft,

a second annular ring-shaped collar means secured to said inner surface of said second support means and extending around and rotatably receiving the other end of said drum means,

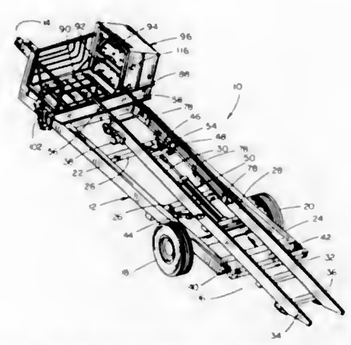
said second annular ring-shaped collar means being angular in section and including a first collar portion which extends transversely inwardly from the inner surface of said second support means and a second collar portion which extends toward said drum means from the inner end of said first collar portion, said second collar portion being positioned inwardly of said second annular ring means to prevent twine from wrapping around said second shaft.

5,209,413

DEVICE FOR SHREDDING CYLINDRICAL BALES

Paul Dwyer, and Mark A. Dwyer, both of HC60, Box 63, Bartlett, Nebr. 68622

Filed Oct. 16, 1992, Ser. No. 962,288
Int. Cl.[5] B02C *13/286*
U.S. Cl. 241—101.7 **14 Claims**



1. A device for shredding cylindrical bales comprising,

a wheeled frame means having rearward and forward ends and opposite sides,

an elongated first bale conveyor means pivotally mounted on said frame means and having rearward and forward ends,

means for pivotally moving said first bale conveyor means between a substantially horizontally disposed position to an inclined position wherein the rearward end of said first bale conveyor means is positioned adjacent the ground for facilitating the loading of one or more cylindrical bales on said first bale conveyor means whereby the ends of said bales are arranged in a fore and aft relationship on said first bale conveyor means,

means for operating said first bale conveyor means for conveying the bales from the rearward end of said first bale conveyor means towards the forward end thereof,

a bale shredding apparatus at the forward end of said wheeled frame means at one side thereof and forwardly of the forward end of said first bale conveyor means,

a bale receiving means on said frame means forwardly of the forward end of said first bale conveyor means and laterally of said bale shredding apparatus for receiving a bale thereon from the forward end of said first bale conveyor means,

means for moving the bale on said bale receiving means laterally towards said bale shredding apparatus,

and bale engagement means at the forward end of said first bale conveyor means,

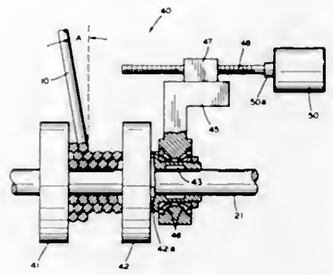
said bale engagement means being movable from a first position to a second position for selectively moving a bale positioned on the forward end of said first bale conveyor means onto said bale receiving means.

5,209,414

APPARATUS FOR PRECISELY WINDING A COIL OF WIRE

Douglas J. Clemens, Garrett, and John H. Wall, Columbia City, both of Ind., assignors to Dana Corporation, Toledo, Ohio

Filed Oct. 30, 1991, Ser. No. 785,044
Int. Cl.[5] B65H *54/10, 54/28*
U.S. Cl. 242—25 R **11 Claims**



1. An apparatus for winding a filament into a free standing coil having an approximate desired axial length comprising:

a shaft adapted to have one end of the filament secured thereto;

first and second flanges mounted about said shaft, said second flange being axially movable relative to said shaft and said first flange;

means for rotating said shaft so as to wind the filament thereabout;

means for guiding the filament between said first and second flanges as it si wound about said shaft;

means for generating a signal which is representative of the diameter of the filament as it wound about said shaft;

means for generating a signal which is representative of a desired axial length for the coil;

control means responsive to said filament diameter signal and said desired axial length signal for generating a signal which is representative of an approximate desired axial length for the coil which is dependent upon variations in the diameter of the filament as it is wound upon said shaft; and

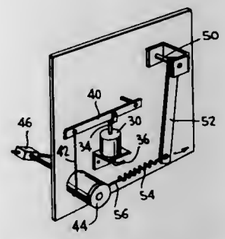
means responsive to said control means signal for moving said second flange axially along said shaft so that it is separated from said first flange by the approximate desired axial length.

5,209,415

AIR TENSION FOR TAKE-UPS

Charles W. Brouwer, Greensboro; Larry C. Cowan, and Thomas W. Perrino, both of Burlington, all of N.C., assignors to John Brown, Inc., West Warwick, R.I.

Continuation-in-part of Ser. No. 186,291, Sep. 26, 1988, abandoned. This application Apr. 17, 1989, Ser. No. 338,779
Int. Cl.[5] B65H *59/38*
U.S. Cl. 242—45 **1 Claim**



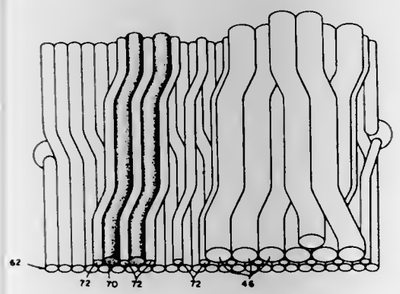
1. A take-up unit or winding strand material comprising a strand-tensioning device having a compensator arm, a compensator wheel at a free end of said compensator arm for carrying a strand material to be wound, an air cylinder having means for receiving air under pressure, means interconnecting said air cylinder and compensator arm whereby the air cylinder applies a tension to the strand material being wound; said means interconnecting said air cylinder and compensator arm including a circular member and a force-relieving means comprising shaft means constructed and arranged to rotate as the brand material package is being wound and as the package diameter grows, a lever connected at one end to said shaft means and connected at the other end to a spring, said spring being interconnected with the said circular member.

5,209,416

HIGH DENSITY FILAMENT WINDING AND METHOD FOR PRODUCING IMPROVED CROSSOVERS AND INSIDE PAYOUT

George W. LeCompte, Tucson, Ariz., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Divislon of Ser. No. 737,818, Jul. 29, 1991, Pat. No. 5,154,366. This application Jul. 20, 1992, Ser. No. 915,224
Int. Cl.[5] B65H *54/00, 55/04, 75/02*
U.S. Cl. 242—47 **3 Claims**



1. A method of forming a densely packed winding from a filament of given diameter, comprising the steps of:

providing a mandrel with a radially extending flange;

wrapping a base wire on the mandrel to form a first layer;

wrapping a second layer over the first layer using first and second guide wires in side-by-side relation;

removing the second guide wire leaving a space between adjacent turns of the first guide wire; and

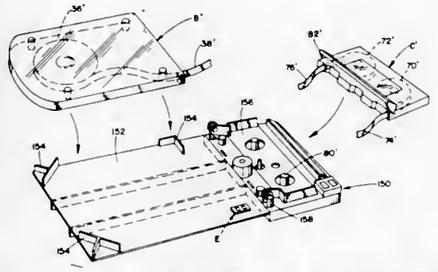
wrapping a first layer of the filament nesting in the spaces between the first guide wire turns, and subsequent layers formed by reversing the direction of wrapping over the underlying layer, an outermost turn of each layer contacting the flange.

5,209,417

APPARATUS FOR BULK LOADING MAGNETIC TAPE

Anthony E. Benes, Erie, Pa., assignor to Mitchell C. Radov, Erie, Pa.

Filed Jan. 7, 1991, Ser. No. 638,217
Int. Cl.[5] B65H *19/26*
U.S. Cl. 242—56 R **30 Claims**



7. An apparatus for loading magnetic tape from a magnetic tape cartridge onto a magnetic tape cassette having a first leader attached to a first rotatable reel and a second leader attached to a second rotatable reel, the apparatus comprising:

a housing;

cassette stage means formed by the housing for closely receiving the magnetic tape cassette at a first position allowing for the first and second leaders to extend in a first direction from an opening in the cassette;

first stage means formed by the housing for closely receiving the magnetic tape cartridge at a second position allowing for an end of the magnetic tape to extend from an opening int eh cartridge in a second direction substantially in parallel alignment with the first direction;

drive means for selectively engaging the first rotatable reel when the cassette is in the first position;

motivation means, connected to the drive means, for urging the first rotatable reel into rotational motion when the drive means is engaged; p1 follower means for tracking progression of the magnetic tape when spliced with the first leader and spooled onto the first rotatable reel as the reel rotates; and,

optoelectronic counter means, responsive to the follower means, for counting a quantity of the bulk tape loaded as an incremental value.

5,209,418

WEB UNWINDING APPARATUS AND METHOD

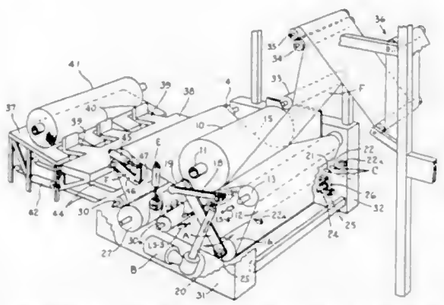
William J. Alexander, III, Mauldin, S.C., assignor to Alexander Machinery, Inc., Mauldin, S.C.

Continuation of Ser. No. 615,408, Nov. 19, 1990, abandoned, which is a continuation of Ser. No. 349,328, May 8, 1989, abandoned, which is a continuation-in-part of Ser. No. 185,787, Apr. 26, 1988, abandoned, which is a continuation-in-part of Ser. No. 102,257, Sep. 29, 1987, abandoned, which is a continuation of Ser. No. 726,800, Apr. 24, 1985, abandoned. This application Jan. 2, 1992, Ser. No. 816,173
Int. Cl.[5] B65H *16/10, 18/22, 19/30*
U.S. Cl. 242—58.6 **13 Claims**

1. Apparatus for unwinding a web from a web roll comprising:

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a pair of spaced transverse substantially level upper rolls;
at least one transverse aligned lower roll;
an endless belt forming a loop, having a width in excess of the width of said web, extending about said upper and lower rolls which are thus disposed within said loop formed by said endless belt;
said belt having a substantially horizontal upper run between said level upper rolls forming a cradle between said upper rolls for supporting and at all times during unwinding maintaining said web roll out of contact with portions of is ad belt engaging either of said upper rolls and for unwinding the web therefrom;
means driving at least one of said rolls for driving said belt;



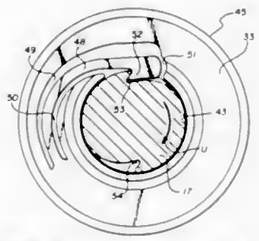
a mounting for guiding said transverse lower roll within said loop formed by said endless belt for pivoted oscillatory movement of at least one end thereof in a predetermined path for exerting a guiding action upon said belt by engaging an inner surface of said belt in such a path as to exert a force similar to that which would ten to stretch said belt substantially equally at each edge thereof;
power operated means moving said transverse lower roll over which the belt passes in open width for said oscillatory movement in said predetermined path; and
sensing means actuated by said belt for actuating said power operated means adjusting the position of said mounting oscillating said transverse lower roll for guiding said belt.

5,209,419

FILM CASSETTE WITH FLANGED FILM SPOOL

Dennis R. Zander, Penfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 4, 1991, Ser. No. 787,803
Int. Cl.[5] G03B *17/26*
U.S. Cl. 242—71.1 **3 Claims**



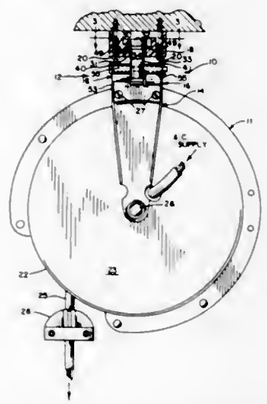
1. A film cassette wherein a flange has a central opening into which a spool core extends to allow rotation of said spool core relative to said flange in film unwinding and film winding directions, and respective engagement means are located on said flange and said spool core for engaging the flange with the spool core responsive to rotation of the spool core relative to the flange in the unwinding direction to then make the flange rotate with the spool core in the unwinding direction to advance a filmstrip off the spool and for disengaging the flange and the spool core responsive to rotation of the spool core relative to the flange in the winding direction to allow the spool core to rotate independently of the flange in the winding direction to wind a filmstrip onto the spool core, and wherein the improvement comprises:
said engagement means located on said spool core is defined by a cut-out in the periphery of the spool core within said central opening in said flange; and
said engagement means located on said flange is a locking pawl supported on a resilient cantilever of the flange which biases said locking pawl into said central opening to move from the periphery of said spool core into said cut-out to engage with the spool core when the spool core is rotated relative to the flange in the unwinding direction and to allow the locking pawl to move out of the cut-out to disengage the spool core when the spool core is rotated relative to the flange in the winding direction.

5,209,420

DUAL MODE REEL MOUNTING MECHANISM

Louis P. Simmons, Valparaiso, and John A. Stuhlmacher, Crown Point, both of Ind., assignors to McGill Manufacturing Company, Inc., Valparaiso, Ind.

Continuation of Ser. No. 551,944, Jul. 12, 1990, abandoned. This application Dec. 23, 1991, Ser. No. 814,324
Int. Cl.[5] F16M *13/00*
U.S. Cl. 242—106 **10 Claims**



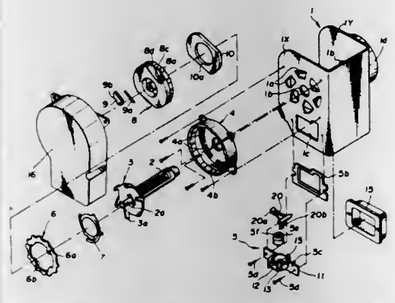
1. A universal mounting mechanism operable in two modes for suspending a reel selectively from either horizontally, in a first mode, or vertically disposed supporting surfaces, in a second mode, said mechanism comprising in combination:
a reversible mounting bracket having opposing first and second sides, said first side defining a cavity with an aperture located therein and having an axis, said first side being formed with a first surface for mounting in face-to-face relation with a horizontally disposed supporting surface, said axis being substantially perpendicular to said surface and said second side being formed with a second surface for mounting in face-to-face relation with a vertically disposed supporting surface, said bracket having an aligned pair of opposed pin receiving openings communicating with said cavity and having their axis disposed perpendicularly to the axis of said aperture;
a removable fitting having shank and head portions, said aperture being dimensioned for receiving said shank portion of said fitting and for retaining said head portion thereof within said cavity with said shank portion projecting outwardly therefrom, said shank portion having a through hole extending transversely therethrough and
a double clevis having first and second sets of jaws and a connecting pin for connecting said second set of jaws, said first set of jaws being dimensioned to receive said reel, and said connecting pin being dimensioned for insertion in said through hole when said first surface of the bracket is mounted on said horizontally disposed supporting surface, said connecting pin being dimensioned for insertion through said opposed openings for retaining said second set of jaws within the cavity of said bracket when said second surface of the bracket is mounted on said vertically disposed supporting surface, wherein when said fitting is removed, said connecting pin is disposed in said opposed openings.

5,209,421

NOISELESS EMERGENCY LOCKING TYPE RETRACTOR

Ryoichi Fujiwara, and Masanori Murata, both of Shizuoka, Japan, assignors to Fuji-Autolib Co., Ltd., Japan

Filed Sep. 20, 1991, Ser. No. 763,247
Claims priority, application Japan, Sep. 27, 1990, 2-101166[U]; Sep. 27, 1990, 2-101167[U]
Int. Cl.[5] B60R *22/40*
U.S. Cl. 242—107.4 A **10 Claims**



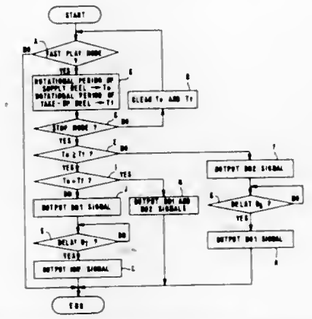
1. An emergency locking type retractor for a seat belt, comprising:
a housing;
a shaft rotatably received in said housing for selectively winding and unwinding the seat belt thereabout and therefrom;
emergency locking means including a stand-man holder tightly held by said housing, a stand-man operatively held by said holder and a pivotal lever member, said pivotal lever member locking said shaft against rotation in a direction to draw the seat belt therefrom when said stand-man is inclined relative to said stand-man holder; and
a structure mounted to said housing to define a sound insulating enclosed space in which said stand-man and said pivotal lever member are installed, said structure comprising;
a box-like part of said stand-man holder in which said stand-man is operatively installed, said box-like part being of a double wall construction;
a dust cover fixed to an inside surface of a wall of said housing for covering an opening formed in said wall of said housing, said opening being an opening through which a part of said emergency locking means is projected into said housing, said dust cover being of a double wall construction; and
a sensor cover fixed to an outside surface of said wall for covering essential parts of said emergency locking means, said sensor cover being of a double wall construction.

5,209,422

TAPE TENSION AND BRAKING CONTROL DEVICE AND METHOD

Chun-Sung Lee, Inchon, Rep. of Korea, assignor to SamSung Electronics, Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 25, 1990, Ser. No. 603,301
Claims priority, application Rep. of Korea, Oct. 26, 1989, 1989-15440
Int. Cl.[5] G11B *15/18*; B65H *77/00*
U.S. Cl. 242—191 **15 Claims**



1. A method for keeping an appropriate tape tension according to amounts of a tape wound on a supply reel and a take-up reel when a fast play mode is changed to a stop mode in a tape recording and/or reproducing apparatus having a microcomputer for controlling system operation, and direction of supply and take-up reel motors according to a reel on/off control signal and a reel direction control signal, a first speed sensor for providing a supply frequency generator signal to the microcomputer and a second speed sensor for providing a take-up frequency generator signal to the microcomputer by determining the revolution speed of the reel motors, and first and second brake controlling parts for stopping said reel motors when brake control signals are generated from the microcomputer, said method comprising the steps of:
determining a supply reel period of said supply reel and a take-up reel period of said take-up reel;
braking the supply reel a first delay interval after braking the take-up reel when the take-up reel period is longer than the supply reel period;
braking the take-up reel a second delay interval after braking the supply reel when the supply reel period is longer than the take-up reel period; and
braking the supply reel and the take-up reel simultaneously when the supply reel period is equal to the take-up reel period.

5,209,423

FISHING LINE SPOOL HOLDER

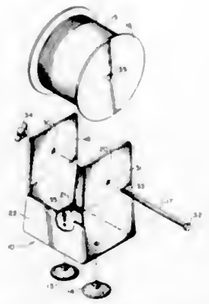
Larry Barginear, 922 Emerald St., Muskegon, Mich. 49442

Filed Feb. 14, 1992, Ser. No. 835,418
Int. Cl.[5] B65H *59/04*
U.S. Cl. 242—129.8 **1 Claim**

1. A spool device for dispensing a quantity of fishing line comprising:
a yoke-like bracket having bendable upright end plates with separated and opposing bearing surfaces adapted to be moved towards and away from each other;
a spool rotatably carried on said bracket between said plate bearing surfaces;
a supply of fishing line disposed on said spool adapted to be withdrawn from said spool as said spool rotates;
adjustable means operably coupling said spool and said bracket for applying frictional tension on said spool via

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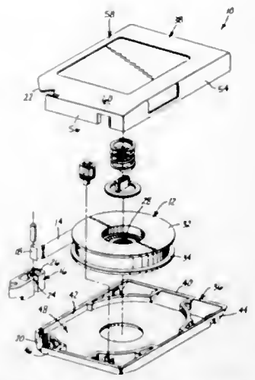
said plate bearing surfaces when moved towards each other;
mounting means detachably connecting said bracket to a supporting member;
said yoke-like bracket is a U-shaped member having an integral cross member joined at its opposite ends by said spaced-apart bendable end plates;
a shaft disposed between said end plates;
said spool rotatably carried on said shaft between said end plates and having end flanges slidably bearing against said opposing end plate bearing surfaces;



said adjustable means includes a movable wing nut mounted exteriorly of a selected one of said end plates on said shaft and adapted to adjustably bear against said selected end plate to control the rate of fishing line withdrawal and tension;
said mounting means includes a pair of suction cups attached to said cross member along its central longitudinal axis;
a guide plate fixedly carried on said cross member and said end plates ahead of said spool;
said end plates opposing bearing surfaces engageable with opposite end flanges of said spool and responsive to said adjustable means to frictionally bear against said spool to control said rate of fishing line withdrawal and tension.

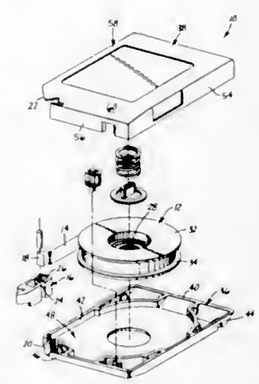
5,209,424
SINGLE REEL CARTRIDGE WITH THINNER COVER AND DEEP LABEL RECESS
Steven J. Fischer, Wahpeton, N. Dak.; Steven E. Krabbenhoft, Breckenridge, Minn.; Curtis G. LeNoue, Wahpeton, N. Dak.; Navnit C. Patel, Wahpeton, N. Dak., and Saurin J. Shah, Wahpeton, N. Dak., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Sep. 6, 1991, Ser. No. 756,068
Int. Cl.[5] G11B *33/00*
U.S. Cl. 242—197 **20 Claims**

9. An injection molded cartridge cover for use in a tape cartridge insertable into a tape drive apparatus, the cartridge cover comprising:
a rear wall;
two opposing side walls;
a front wall;
an upper wall connecting the rear, front, and side walls, wherein the upper wall has an upper surface and a lower surface; and
a substantially rectangular recessed portion located on the upper surface of the upper wall, wherein the recessed portion is adapted to receive an identifying label and is adapted to receive ribs on the base of an adjacent cartridge when a plurality of cartridges are stacked one on top of the other, wherein the depth of the recessed portion varies, wherein the depth of the recessed portion is greater adjacent its edges than at its center, and wherein the depth



of every point in the recessed portion is less than the depth of the upper wall outside the area of the recessed portion.

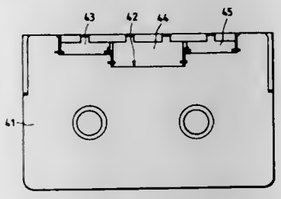
5,209,425
SINGLE REEL CARTRIDGE WITH THINNER COVER AND LEADER BLOCK AREA DIMENSIONAL STABILITY
Steven E. Krabbenhoft, Breckenridge, Minn.; Curtis G. LeNoue, Wahpeton, N. Dak.; Saurin J. Shah, Wahpeton, N. Dak., and Steven J. Fisher, Wahpeton, N. Dak., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Sep. 6, 1991, Ser. No. 756,073
Int. Cl.[5] G11B *33/00*
U.S. Cl. 242—197 **10 Claims**



1. A cartridge cover for use in a single reel tape cartridge insertable into a tape drive apparatus, the cartridge cover comprising:
a rear wall;
two opposing side walls;
a front wall;
a substantially rectangular upper wall connecting the rear, front, and side walls, wherein the upper wall has an upper surface, a lower surface, and four corners;
a leader block area formed in one of the corners of the upper wall; and
a strengthening rib formed on the lower surface of the upper wall adjacent the leader block area;

wherein the portion of the upper wall adjacent the strengthening rib and outside of the leader block area is at least as thick as the portion of the upper wall in the leader block area.

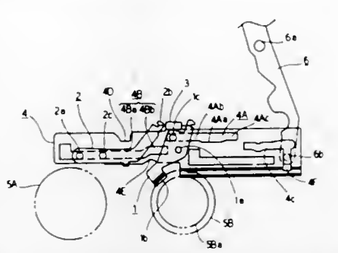
5,209,426
MAGNETIC TAPE CASSETTE WITH A PLURALITY OF INDEPENDENTLY MOVABLE PROTECTIVE PLATE MEMBERS
Kimio Ogawa, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan
Filed Jun. 26, 1991, Ser. No. 720,992
Claims priority, application Japan, Jun. 27, 1990, 2-68047[U]; Jun. 28, 1990, 2-69197[U]
Int. Cl.[5] G11B *23/08*
U.S. Cl. 242—199 **9 Claims**



9. A magnetic tape cassette of a type having an upper shell and a lower shell assembled together to hold therein a magnetic tape wound on a pair of tape reels, and a guard panel provided on a front side of the tape cassette for enclosing a segment of the tape extending along the front side of the tape cassette, the guard panel being pivotally movable between an open position in which the tape segment is exposed, and a closed position in which the tape segment is enclosed in said tape cassette between the front side and said guard panel, said guard panel being normally disposed in the closed position, wherein the improvement comprises:
(a) an elongate mouth provided in said lower shell along said front side of said tape cassette for receiving therein a loading pole for withdrawing the segment of the magnetic tape from said tape cassette; and
(b) a protective plate pivotally mounted on said lower shell behind said guard panel to extend longitudinally along the mouth and being arranged to lockingly engage with the guard panel to hold the same in the closed position against displacement to protect the segment of the magnetic tape, wherein said protective plate is composed of a plurality of protective plate members disposed in juxtaposition along said mouth and movable independently from one another.

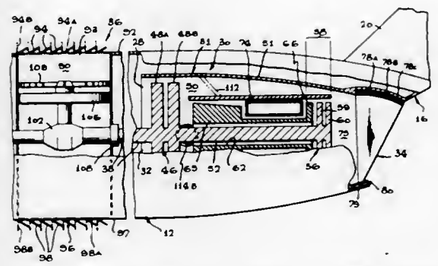
5,209,427
BRAKE MECHANISM OF MAGNETIC RECORDING AND REPRODUCING APPARATUS
Katsumi Yamaguchi; Shinichiro Terada; Katsuya Nozawa; Toshiyuki Asanuma, and Yukio Ito, all of Saitama, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan
Filed Apr. 10, 1991, Ser. No. 683,422
Claims priority, application Japan, Apr. 16, 1990, 2-97584
Int. Cl.[5] G11B *15/22*
U.S. Cl. 242—204 **3 Claims**

1. A brake mechanism of a magnetic recording/reproducing apparatus for applying to a reel a predetermined plurality of stages of brake torque by urging forces of an elastic member, comprising:
a brake member provided so as to be pivotable, including a pressing part for applying a brake torque to the reel by pressing, and being movable between a pressing position where a brake torque is applied to the reel and a releasing position where the reel is released;
an urging force switching member provided so as to be pivotable and movable among a plurality of specified action positions when the brake member is stopped at the pressing position or releasing position;
an elastic member provided between said brake member and said urging force switching member for applying a different urging force to the brake member according to the action position of said urging force switching member; and



a drive and control member for independently driving said urging force switching member to any particular one of the plurality of specified action positions when the brake member is stopped at either of the pressing position or releasing position, and for independently driving said brake member either to the pressing position or the releasing position when the urging force switching member is stopped at one of the plurality of specified action positions.

5,209,428
PROPULSION SYSTEM FOR A VERTICAL AND SHORT TAKEOFF AND LANDING AIRCRAFT
Paul M. Bevilaqua, Santa Clarita, and Paul K. Shumpert, Valencia, both of Calif., assignors to Lockheed Corporation, Calabasas, Calif.
Filed May 7, 1990, Ser. No. 521,211
Int. Cl.[5] B64C *29/00*
U.S. Cl. 244—12.3 **11 Claims**



1. A propulsion system for a V/STOL aircraft comprising:
a turbofan engine including a fan section, a compressor section, a combustion section, turbine section and nozzle section, said turbine section having a low-pressure turbine portion coupled to and driving said fan section and a high-pressure turbine portion coupled to and driving said compressor section, said engine having a selectable operating point wherein a portion of the power generatable by said low-pressure turbine at a selected operating power setting is extracted to drive said fan section;
a lift fan;
a drive shaft means coupling said fan section to said lift fan;
clutch means for detachable coupling said fan section to said lift fan; and
means to shift said selectable operating point of said engine to a second operating point at the selected power setting

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increasing the power extracted by said low-pressure turbine portion of said turbine section;

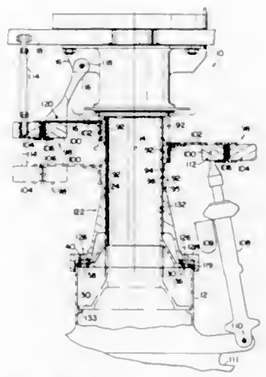
such that power extracted by said low-pressure turbine portion and applied to said fan section can be increased without changing the selected power setting.

5,209,429

HELICOPTER WITH RETRACTABLE ROTOR FOR TRANSPORT

Leonard J. Doolin, Southbury, and Thomas J. Toner, Milford, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed May 16, 1991, Ser. No. 701,256
The portion of the term of this patent subsequent to Sep. 22, 2009, has been disclaimed.
Int. Cl.[5] B64C *27/32*
U.S. Cl. 244—17.11 16 Claims



6. A helicopter having:

a. a fuselage;

b. a rotor projecting therefrom for rotation about an axis of rotation, said rotor comprising:

1) a rotor hub mounted for rotation about the axis of rotation, and

2) a plurality of blades connected to and extending radially outwardly from the rotor hub for rotation therewith;

c. a support mast positioned concentrically about the rotor axis of rotation, and having a cylindrical outer surface and operable to support said rotor for rotation;

d. a support member supported from the fuselage and operatively connected to the support mast to fixedly position the support mast concentrically about the rotor axis of rotation and so that the rotor is supported for rotation about the axis of rotation;

e. a swashplate including:

1) a uniball bearing enveloping the support mast and supported therefrom,

2) an inner ring supported from the uniball for axial motion therewith along the support mast and for tilting about the rotor axis of rotation, and

3) an outer ring operatively supported from the inner ring so as to be rotatable with the rotor;

f. pitch change rods pivotally connected to the swashplate outer ring and to each blade so that as the swashplate moves axially along the rotor axis of rotation the blades are caused to change pitch collectively, and so that when the swashplate tilts about the uniball and the axis of rotation, the blades are caused to change pitch cyclically;

g. a plurality of hydraulic flight control servos positioned about the rotor mast and each pivotally connected to the fuselage and to the swashplate inner ring; and

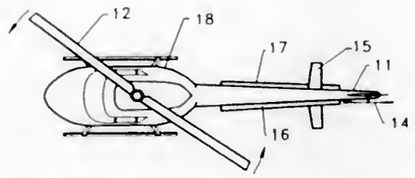
h. means to cause said hydraulic servos to be actuated in unison to cause said swashplate, pitch change rods and rotor to move in unison between an extended position in which the rotor is in flight mode of operation, and a retracted position in which the rotor is in a stowed mode.

5,209,430

HELICOPTER LOW-SPEED YAW CONTROL

John C. Wilson, Newport News, Va.; Cynthia A. Crowell, APO AE, N.Y., and Henry L. Kelley, Newport News, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administratinn, Washington, D.C.

Filed Nov. 7, 1991, Ser. No. 788,908
Int. Cl.[5] B64C *27/00*
U.S. Cl. 244—17.19 12 Claims



1. A helicopter yaw control system comprising:

a helicopter;

said helicopter having a main rotor attached thereto;

said helicopter having a fuselage extending rearward through rotor downwash;

helicopter yaw control means consisting of a combination of exactly two strake devices arranged asymmetrically about the fuselage, the combination including an upper strake being located above a lower strake, the upper strake being located along the side of the fuselage which faces the retreating rotor blade and the lower strake being located along the side of the fuselage which faces the advancing rotor blade; and

supplemental control means to assist in controlling main rotor torque.

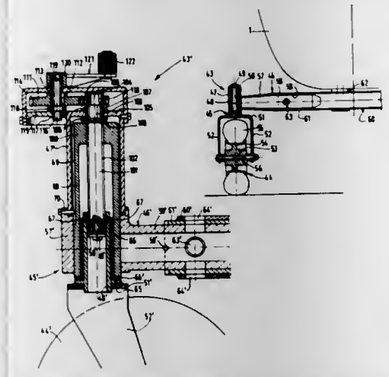
5,209,431

DEVICE FOR INCREASING THE STABILITY OF HELICOPTERS PLACED ON BOARD AND SET DOWN, HAVING A TRICYCLE LANDING GEAR, AND HELICOPTER EQUIPPED WITH SUCH A DEVICE

Louis A. Bernard, Saint Victoret, and René Thomassin, Velaux, both of, France, assignors to Aerospatiale Society Nationale Industrielle, Paris, France

Division of Ser. No. 297,521, Jan. 17, 1989, Pat. No. 4,995,574.
This application Jan. 24, 1991, Ser. No. 627,181
Claims priority, application France, Jan. 15, 1988, 88 00443
Int. Cl.[5] B64C *25/06*
U.S. Cl. 244—17.17 4 Claims

1. A device for increasing the stability of a helicopter having a tricycle landing gear (2, 6) constituted by two main and lateral undercarriages (6) and one auxiliary undercarriage (2) when said helicopter is set down on a moving platform, said device comprising an auxiliary stabilizing gear operative only when said helicopter is landing with a rotor thereof rotating or stopped, said stabilizing gear comprising at least two lateral stabilizers (13), each of said lateral stabilizers comprising a rigid support (17, 27) having an end part which supports at least one stabilizing wheel (16) for contact with said platform, said rigid support (17, 27), at least in position of use, being integral with a stable structure of said helicopter at a lower part of a fuselage (1) of said helicopter, said rigid supports being offset laterally one on each side of a vertical and median longitudinal plane (PP) of said helicopter, in the direction turned towards and auxiliary undercarriage (2) in relation to said main an lateral undercarriages (6) of said tricycle landing gear, in such a manner that said at least one stabilizing wheel (16) is supported on said moving platform, on both sides of said longitudinal and median plane of said helicopter (PP) when said helicopter rests on said platform with said tricycle landing gear (2, 6), wherein each lateral stabilizer (13, 43) comprises a mechanism for regulating the height of at least one stabilizing wheel (44') in relation to the fuselage, said mechanism comprising a toothed wheel (111) operated by a crank (121) and in engagement with a pinion (109) for entrainment in rotation of an endless screw (101), in an axial position fixed in relation too the tubular shaft (47') in which it is at least partially accommodated and in engagement with a slider (68) guided in axial translation in said tubular shaft (47') and in which a spindle (48') supporting the stabilizing wheel or wheels (44') is mounted so as to turn.

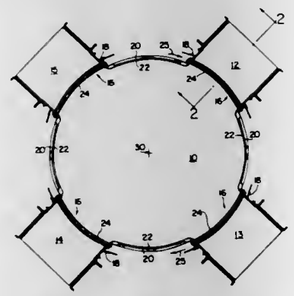


5,209,432

AIRCRAFT REVERSER PORT DOOR

Gary D. Roberge, Jupiter, and Edward B. Thayer, Palm Beach Gardens, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jul. 2, 1992, Ser. No. 908,138
Int. Cl.[5] B64C *25/68*
U.S. Cl. 244—110 B 6 Claims



1. A port door assembly for an aircraft having a gas turbine engine comprising:

a circular gas turbine exhaust passage;

a plurality of reverser ducts extending outwardly from said exhaust passage, each duct having an inlet port with a surrounding inlet port structure;

an arcuate door disposed at each inlet port and circumferentially movable away from said port around a door center of rotation at the axial centerline of said exhaust passage;

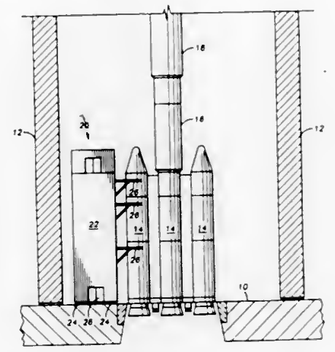
an arcuate peripheral duct seal surface on the port structure surrounding each port, having two linear sides and two arcuate sides, the center of curvature of each arcuate side being offset from said center of rotation in the direction of door movement to open said duct, whereby said door has increasing clearance from said seal surface as said door rotates toward the open position.

5,209,433

MOBILE ROCKET SERVICE TOWER

Walter L. Alexander; James E. Dailey, and John P. Porter, all of Houston, Tex., assignors to Brown & Root U.S.A., Inc., Houston, Tex.

Filed Jan. 28, 1991, Ser. No. 646,249
Int. Cl.[5] B64F *1/00*
U.S. Cl. 244—114 R 2 Claims



1. A rocket assembly apparatus comprising:

a vertical assembly building comprising a floor, walls and a roof and adapted to house a multi-stage rocket in a vertical position,

said vertical assembly building being free of any fixed internal structure adjacent to said rocket, so that an unobstructed work space is provided around the entire circumference of the rocket for substantially the entire vertical height of the rocket;

a mobile rocket service tower adapted to operate in said unobstructed work space for providing personnel access to said rocket at a plurality of vertical and circumferential locations, said tower comprising,

an elongated rigid body,

wheels for supporting said body on the floor of said vertical assembly building for movement around the entire circumference of the rocket,

a positive locking mechanism on said body engageable with said floor of said vertical assembly building for selectively locking said tower into a fixed position on said floor,

a plurality of cantilevered access platforms extending outwardly from at least one side of said tower body,

at least some of said access platforms having arcuate outer edges adapted to conform to the outer surface of said rocket at a selected vertical elevation, and

vertical access means in said body for providing vertical access to each of said platforms,

whereby personnel working on the rocket may have access to desired portions of the rocket by moving the tower to a desired circumferential position with respect to the rocket and accessing the rocket by means of one or more of the cantilevered access platforms.

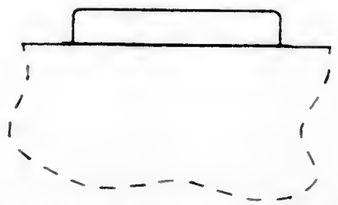
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,434

AERODYNAMIC FAIRING FOR REDUCING DRAG OF STRUCTURAL OPENINGS

Leroy P. Lo Presti; James R. Lo Presti, and Curt Lo Presti, all of Vero Beach, Fla., assignors to Roy Lo Presti, Vero Beach, Fla.

Filed Sep. 10, 1991, Ser. No. 757,323
Int. Cl.[5] B64C 7/00
U.S. Cl. 244—130 1 Claim



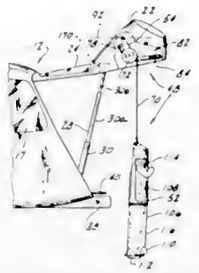
1. In an aircraft having an external skin and a structural opening in said skin, the improvement comprising: a fairing means for reducing the aerodynamic drag associated with said structural opening, said fairing means being located on said external skin immediately downstream of said structural opening and protruding outwardly from said external skin into the airflow past said external skin, said fairing means has a rounded lip adjacent said structural opening followed by an airfoil shape to allow the airflow to accelerate followed by a gradual taper to a sharp trailing edge downstream of said structural opening which lets the airflow exit smoothly; and the external skin upstream of said structural opening remains unaltered.

5,209,435

PASSSENGER CAR WITH EMERGENCY EXIT

Lawrence K. Edwards, Falls Church, Va., assignor to Futrex, Inc., Fairfax County, Va.

Continuation-in-part of Ser. No. 426,322, Oct. 24, 1989, abandoned. This application Dec. 6, 1991, Ser. No. 803,023
Int. Cl.[5] B60D 5/00; B61D 17/14; B64C 1/22; B66C 23/10
U.S. Cl. 244—137.2 15 Claims



1. An elevated passenger car adapted for emergency exit therefrom, the car being of the type adapted to be supported in its elevated position such that there are substantially no obstructions between at least a portion of the underside of the car and the ground below, the car comprising

a body having a passenger compartment therein,

an opening through the body generally at one end thereof defining an exit from the passenger compartment to outside the body,

a debarking platform at said one of the body,

an end section pivotally mounted on the body at said one end,

means for swinging the end section between a closed position in which the end section closes said exit and an open position in which said exit is opened to the outside, said means for swinging the end section comprising at least one strut pivotally mounted at one end on the body and pivotally attached to the end section at an opposite end thereof, the strut being extensible and retractable for motion between a retracted position in which the end section is in said closed position and an extended position in which the end section is in said open position,

an elevator supported by the end section for lowering passengers from the elevated car to below the elevated car, the elevator including which means mounted on the underside of the end section for lowering passengers therefrom and an escape pod adapted to be suspended from said winch means, said winch means swinging conjointly with said end section to a position above the debarking platform in which there is sufficient clearance to allow passengers to walk thereunder, said winch means comprising a frame pivotally attached to the underside of the end section at a first side of the frame for pivoting about a first axis, means mounted on the frame generally at a second side generally opposite said first side of the frame for holding at least two lengths of cable at laterally spaced apart locations, the cables being adapted to be attached at one end to the escape pod at locations spaced laterally of one another for suspending it generally below said cable holding means and preventing the pod from rotating about its vertical axis, said cable holding means being rotatable about a second axis for raising and lowering the pod, and

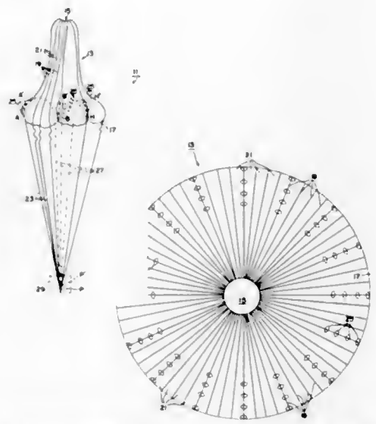
means for moving the elevator between a loading position in which a passenger may board the escape pod from the debarking platform and a descent position in which the pod is clear of the car body for descent to below the elevated car.

5,209,436

RADIAL REEFING MEANS FOR USE IN PACKING AND OPENING A PARACHUTE CANOPY IN A CONTROLLED MANNER

Calvin K. Lee, Needham, Mass., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 30, 1992, Ser. No. 860,653
Int. Cl.[5] B64D 17/36
U.S. Cl. 244—152 2 Claims



1. A parachute for the controlled airdrop of a payload comprising:

a) a canopy of generally circular shape, said canopy having a peripheral skirt and a plurality of radials spaced evenly apart;

b) a plurality of suspension lines, each of which is attached at one end to said skirt at a radial and is joined at the opposite end in a bundle, said bundle of suspension lines being attachable to the payload; and

c) radial reefing means for use in packing and opening said canopy in a controlled manner, said radial reefing means comprising

i) a plurality of sets of at least three reefing rings, said sets being attached only to non-adjacent radials evenly spaced apart by a distance equal to about 25% to about 40% of the length of a radial, one reefing ring of each set being attached to its respective radial at said skirt and the remaining reefing rings of each set being evenly spaced apart by not more than about 2 feet over about 25% to about 40% of the length of a radial,

ii) a plurality of reefing lines, each of which is attached at one end to said skirt at a radial to which a set of at least three reefing rings is attached, is threaded through its corresponding set of at least three reefing rings, and is joined at the opposite end in a bundle, said bundle of reefing lines being positioned over said bundle of suspension lines and being adapted to be pulled downwardly and coupled to said bundle of suspension lines in such a way as to cause said canopy to be radially reefed at said radials to which said sets of reefing rings are attached by the distance over which said reefing rings are spaced, and

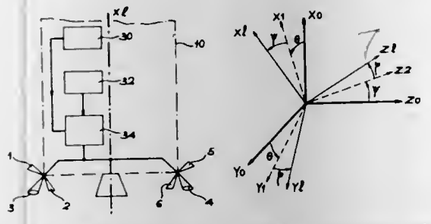
iii) means for decoupling said bundle of reefing lines from said bundle of suspension lines at an appropriate time so as to cause said canopy to be disreefed.

5,209,437

PROCESS FOR THE CONTROL OF A SPACE CRAFT PERFORMING A PRECESSION MOVEMENT AND APPARATUS FOR THE REALIZATION THEREOF

Fahem Fantar, De Gaulle Sartrouville, France, assignor to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Sep. 4, 1991, Ser. No. 754,977
Claims priority, application France, Sep. 6, 1990, 90 11072
Int. Cl.[5] B64G 1/24
U.S. Cl. 244—164 6 Claims



1. A process for position control of a spacecraft undergoing a predetermined precession movement about its longitudinal axis in preparation for release of at least one payload therefrom, said craft having displacement means capable of imparting driving thrust and torque to said craft, said process comprising the steps of:

a. predetermining and recording successive desired positions to be occupied by said craft at corresponding successive time intervals, driving torques impartable by said displacement means, and at least one minimum impulsion bit, said desired positions being determined relative to an inertial reference frame; and

b. for each said successive time interval and corresponding desired position performing the following steps:

i. determining said craft's actual angular velocity and actual position relative to said reference frame;

ii. deriving from said craft's actual angular velocity and actual position a desired transverse velocity to be imparted to said craft to permit said craft to move into desired position;

iii. determining from among said recorded driving torques one driving torque to be imparted to said craft and determining a driving time which permit said craft to achieve said transverse velocity;

iv. actuating, for said driving time, said displacement means such that said displacement means imparts said one driving torque to said craft; and

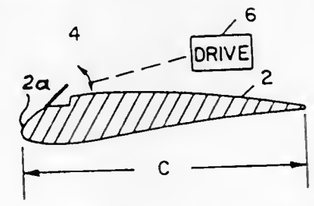
v. repeating steps i-iv until said craft moves into desired position.

5,209,438

METHOD AND APPARATUS FOR DELAYING THE SEPARATION OF FLOW FROM A SOLID SURFACE

Israel Wygnanski, 4559 N. Placita de las Charcras, Tucson, Ariz. 85718

Filed Jun. 20, 1988, Ser. No. 208,529
Int. Cl.[5] B64C 21/00, 23/00
U.S. Cl. 244—203 20 Claims



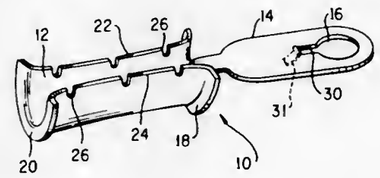
1. An active method of delaying the separation of the flow from a solid surface to higher angles of divergence or incidence characterized in that a perturbation-producing element on the solid surface is driven by an active drive at a predetermined frequency dependent on the air stream velocity but independent of the fluctuations existing locally in the flow, to induce travelling oscillations in the boundary layer of the fluid stream substantially perpendicular to the solid surface to enhance mixing of the boundary layer with the fluid stream outside the boundary layer.

5,209,439

DROP WIRE CLAMP

Gene P. Coll, Cranford, N.J., assignor to Diamond Communication Products, Inc., Garwood, N.J.

Filed Mar. 11, 1992, Ser. No. 849,234
Int. Cl.[5] F16L 3/08
U.S. Cl. 248—65 11 Claims



1. A drop wire clamp for a cable which includes a support strand and a signal-carrying strand, the clamp comprising:

an open trough for accepting the cable without threading, wherein the open portion of the trough is defined by edges, the edges of the trough being provided with means for retaining support strand which has been separated

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from the cable and wrapped around the trough to contain the cable in the trough; and

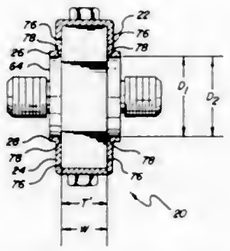
means for engaging a support so that the clamp can be supported from a desired structure, wherein a plate extends from one end of the trough and carries the means for engaging.

5,209,440

HEXAGONAL JUNCTION ADAPTER WITH RETAINING SHOULDER

William R. Walker, Rochester, Mich., assignor to Hydro-Craft, Inc., Rochester Hills, Mich.

Filed Jul. 22, 1991, Ser. No. 733,344
Int. Cl.[5] F16L 3/22
U.S. Cl. 248—68.1 3 Claims



1. A junction adapter for a plural line clamping assembly of the type having (1) a plurality of channels each of generally U-shaped cross-section and each provided with two leg sections and a connecting section therebetween, said leg sections having interior wall surfaces separated by a predetermined distance, said leg sections provided with semi-cylindrical collar portions formed in said leg sections at the outermost extent thereof, said collar portions each including a semi-cylindrical surface and a radiused surface extending between the semi-cylindrical surface and an adjoining interior wall surface, (2) stacking nut means, disposed between and for separating said channels in a position such that the U-shapes of said channels face each other and pairs of semi-cylindrical collar portions oppose each other encompass a diameter, and (3) bolt means extending through said channel members and into engagement with said stacking nuts for causing said channel members to bear against said stacking nut means, said adapter comprising:

a hexagonally-shaped central support portion sized to span said predetermined distance between said leg sections and to be received snugly within said channels, whereby said central support portion generally abuts said leg sections thereof;

two cylindrical collar support portions each formed radially smaller than said central support portion and each located at an opposite axial side thereof and sized to span the diameter encompassed by one pair of the opposed semi-cylindrical collar portions and adapted to be received therebetween;

two retaining shoulder portions one positioned between the central support portion and a first of the cylindrical collar support portions and the other positioned between the central support portion and a second of the cylindrical collar support portions, said retaining shoulder portions forming radiused surfaces operable to fit snugly against the radiused surfaces of a pair of the semi-cylindrical collar portions such that the adapter is more rigidly secured between the leg sections within the clamping assembly against movement in an axial direction; and

two connection portions each located at the end of said collar support portions opposite said central support portion and provided with connector means to sealingly receive a fluid line connection, and wherein

said central support portion, said collar support portions, and said connection portions are formed from a single piece of hexagonal bar stock material, and have a common fluid passage extending therethrough,

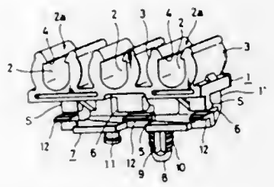
whereby, when said junction adapter is installed in said plural line clamping assembly and said bolt means are tightened into said stacking nut members, said junction adapter is captured and snugly secured between said stacking nut means and the radiused surfaces of said channel members to secure the junction adapter against movement in any direction including an axial direction.

5,209,441

CLAMP FOR ROD-LIKE ARTICLES

Tomoaki Satoh, Utsunomiya, Japan, assignor to NIFCO, Inc., Yokohama, Japan

Filed Feb. 28, 1992, Ser. No. 842,959
Claims priority, application Japan, Mar. 1, 1991, 3-16996[U]
Int. Cl.[5] F16L 3/08
U.S. Cl. 248—74.2 12 Claims



1. A clamp for rod-like articles to be mounted upon a support means, comprising:

a substantially planar clamp plate disposed within a first plane and having at least one clamp body for housing a rod-like article, said clamp body extending away from a first surface of said planar clamp plate, and said clamp plate having first and second edge portions;

a substantially planar fastening plate disposed within a second plane inclined at a predetermined angle with respect to said first plane of said clamp plate and having anchor means for insertion within said support means so as to secure said clamp within said support means, said anchor means extending away from a first surface of said planar fastening plate, and said fastening plate having first and second edge portions;

means for fixedly interconnecting said first edge portions of said clamp plate and said fastening plate so as to dispose said first edge portions of said two plates at a predetermined distance with respect to each other; and

first means provided upon a second surface of said clamp plate and at said second edge portion thereof, sand second means provided upon a second surface of said fastening plate and at said second edge portion thereof, for interlocking said planar clamp plate and said planar fastening plate together such that said fastening plate is disposed at said predetermined angle with respect to said clamp plate.

5,209,442

GRIPPER

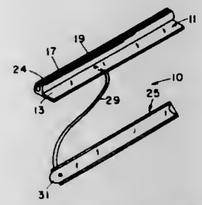
Hugh E. Buck, Box 063, Ferrysburg, Mich. 49409; John Buck, deceased, late of Columbus, and by Dorothy I. Buck, executor, 4757 Stiles Ave., Columbus, both of Ohio 43228

Filed Jun. 23, 1992, Ser. No. 902,873
Int. Cl.[5] B65B 67/04
U.S. Cl. 248—99 7 Claims

1. A gripper for holding a plastic trash bag in place in a receptacle so that the trash bag can cover and protect the edge about the opening in a receptacle and the interior of the receptacle from contamination by refuse being placed in the receptacle comprising:

an elongated first member having a first and a second side, a pair of spaced, substantially parallel upstanding walls forming a locking channel extending the full width of said first member;

a layer of adhesive material on said second side of said first member for attaching said said first member to the outside of a receptacle at a position spaced from an opening in a receptacle;



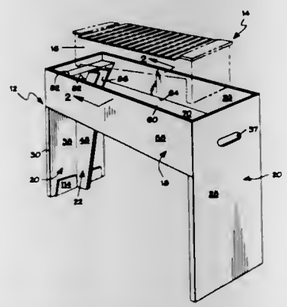
an elongated second member having an elongated locking portion for insertion into said locking channel on said first member for holding a portion of a plastic trash bag between said first and second members enabling a plastic bag to extend upwardly from a position where said first member is attached to the outside of a receptacle over the edge bounding the opening in the receptacle and down into the receptacle.

5,209,443

FOLDABLE STAND FOR HOLDING MUSICAL INSTRUMENTS AND BLANKS FOR FORMING SAME

Ralph L. Maddox, 1829 Scarborough, Olathe, Kans. 66062

Filed Nov. 2, 1991, Ser. No. 788,794
Int. Cl.[5] F16M 11/00
U.S. Cl. 248—165 16 Claims



1. A stand formed of folded-paperboard or similar material and having a tray supported by spaced apart legs, said stand comprising:

generally flat outer end panels forming first and second ends of the tray and at least a portion of said legs, said outer end panels formed by folding a unitary blank of paperboard or similar material;

front and back panels connected to the outer end panels along fold lines and forming a front and back of the tray;

a bottom panel connected to one of said front and back panels along a fold line and forming at least a portion of a bottom of the tray;

inner leg panels joined to the outer end panels and folded against a lower portion of the outer end panels along fold lines; and

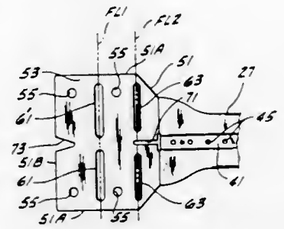
a reinforcing panel underlying said bottom panel, said reinforcing panel formed from folding a second blank of paperboard or similar material, said reinforcing panel including downwardly folded tuck flaps inserted into a recess formed between said folded inner leg panels and said outer end panels.

5,209,444

SUPPORT FOR AN ELECTRICAL BOX

Eric R. Rinderer, Highland, Ill., assignor to B-Line Systems, Inc., Highland, Ill.

Continuation of Ser. No. 570,037, Aug. 20, 1990, abandoned, which is a continuation of Ser. No. 441,884, Nov. 27, 1989, Pat. No. 4,967,990, which is a continuation of Ser. No. 302,792, Jan. 26, 1989, abandoned. This application Jan. 24, 1992, Ser. No. 825,134
Int. Cl.[5] E04G 3/00
U.S. Cl. 248—205.1 6 Claims



1. A support for an electrical box, comprising a bar adapted to be mounted between two spaced-apart wall studs or the like, said bar comprising an elongate web of sheet metal forming a front face of the bar and having side edges extending lengthwise of the bar, and elongate extensions of the bar projecting generally forwardly from said web at opposite ends of the bar and having free outer end portions bent to form fastening flaps extending laterally outwardly away from one another and generally parallel to the web of the bar, said flaps being adapted for engagement with said studs and securement thereto by fasteners, each extension having first narrow slot means spaced inwardly from its free outer end and defining a first fastening flap bend line extending generally transversely of the extension, and second narrow slot means spaced inwardly from said first bend line and defining a second fastening flap bend line extending generally transversely of the extension whereby, if a relatively deep electrical box is to be attached to the bar, the extensions are adapted to be bent along said first slot means to form relatively short fastening flaps, and if a shallower electrical box is to be attached to the bar, the extensions are adapted to be bent along said second slot means to form longer fastening flaps, said electrical box being adapted to be attached to the bar in a selected position lengthwise of the bar by placing the back wall of the box flush against the front face of the web and then fastening the box to the bar.

5,209,445

TELEVISION SUPPORT MEMBER SECURITY MOUNTING ASSEMBLY

Carl A. Bergetz, 7805 Greenfield St., River Forest, Ill. 60305

Filed Sep. 16, 1991, Ser. No. 760,098
Int. Cl.[5] F16M 13/00
U.S. Cl. 248—551 20 Claims

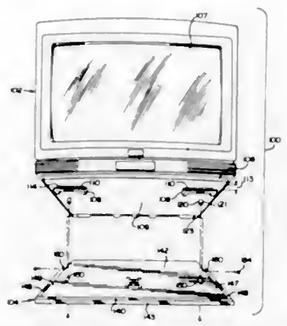
1. A security assembly for securely mounting an electrical appliance to a support member, the mounting assembly comprising:

an exterior cabinet receiving the appliance therein, said cabinet having engagement means integrally formed therein, the engagement means projecting outwardly from said cabinet, said cabinet including at least first and second fastening holes integrally formed therein and spaced apart from said engagement means, each of said first and second fastening holes being adapted to receive a fastener therein, said second fastening hole being spaced apart from said

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first fastening hole and said engagement means, and further being angularly disposed with respect to said first fastener hole,

a support member including a base portion dimensioned to receive said cabinet thereon, the support member including retaining means including a flange disposed along an edge portion of said support member, the flange further being spaced apart from the support member edge portion to thereby define a recess for receiving said engagement means of said cabinet, said support member further including first and second apertures operatively associated with said first and second cabinet fastening holes, said support member first apertures being disposed in said support member base portion and being aligned with said cabinet



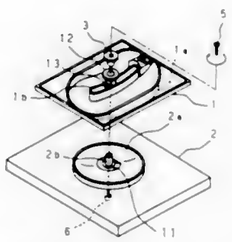
first fastening hole, said support member first aperture and said cabinet first fastening hole each permitting the passage of a first fastener therethrough, said support member further including at least one skirt flange which is angularly spaced apart from said retaining flange, said support member second aperture being disposed in said skirt flange and being aligned with said cabinet second fastening hole, said cabinet second fastening hole and said support member second aperture permitting the passage of a second fastener therethrough, whereby said cabinet engagement means is held in place within said support member retaining means when said first and second fastener holes are respectively aligned with said support member first and second apertures.

5,209,446

ROTARY STAND

Makoto Kawai, Nagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 14, 1992, Ser. No. 835,389
Claims priority, application Japan, Feb. 18, 1991, 3-45905
Int. Cl.[5] A47B *91/00*
U.S. Cl. 248—349 5 Claims



1. A rotary stand, comprising:

a base having a circular face, an axis projecting on said circular face, and a guide groove formed in a predetermined area of said circular face in the periphery of said axis;

a turntable having an elongated hole to which said axis is inserted, and another circular face mounted on said circular face;

a spacer being outfitted to said axis inserted into said elongated hole and having a projection which is restricted to turn within said elongated hole and is allowed to turn in said predetermined area within said guide groove; and

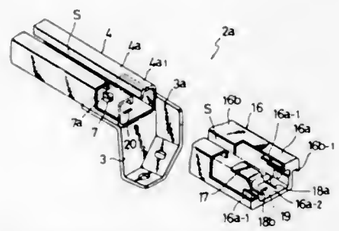
a connecting member for connecting said base and turntable in a manner that said base and turntable become slidable at said respective circular faces.

5,209,447

COVER STRUCTURE FOR SLIDE RAIL IN SEAT ADJUSTER

Masaaki Yokota, Akishima, Japan, assignor to Tachi-S Co., Ltd., Akishima, Japan

Filed Nov. 15, 1991, Ser. No. 780,363
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—429 4 Claims



1. A cover structure for a slide rail of a seat adjuster, wherein said slide rail includes an upper rail on which a seat is mounted and a lower rail slidably fitted to said upper rail such that said upper rail may be moved forwardly and backwardly along said lower rail, said lower rail being fixed via a support leg member on a floor side, wherein said support leg member is fixed to a rearward end portion of said lower rail by means of a rivet, and wherein a cover member is provided at said rearward end portion of said lower rail which is to be left exposed when said upper rail is moved forwardly along said lower rail, characterized in that said cover member i$ integrally formed with a means for overlaying said rivet to prevent the same from being viewed from outside.

5,209,448

FLAT DISPLAY HOLDING MECHANISM

Sunao Hatanaka, and Hideaki Noda, both of Iwate, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

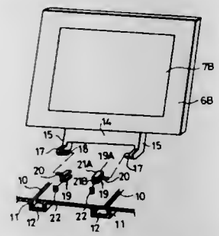
Filed Dec. 5, 1990, Ser. No. 622,675
Claims priority, application Japan, Dec. 29, 1989, 1-151342[U]
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—455 4 Claims

1. A flat display holding mechanism for holding a flat display on a main body such that said flat display may be opened or closed, comprising:

a link for pivotably supporting said flat display on said main body;

first and second legs formed at a lower part of said flat display;

first and second guide grooves having a substantially L-shaped cross-section provided in said main body in proximity to said lower part of said flat display for guiding said first and second legs, respectively, such that, when said flat display is opened, said lower part of said flat display moves toward a front part of said main body; and



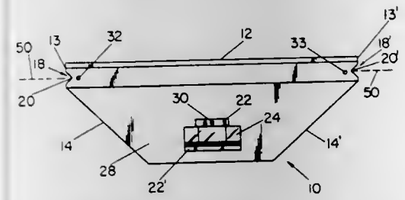
first and second retaining mechanisms connected to said first and second legs, respectively, for retaining said flat display in any desired position.

5,209,449

APPARATUSES AND METHODS FOR HANGING FRAMES

Hoyt E. Hart, 4900-C Jefferson, NE., Albuquerque, N. Mex. 87109

Filed Jan. 14, 1992, Ser. No. 822,061
Int. Cl.[5] A47F *7/14*
U.S. Cl. 248—475.1 18 Claims



1. An apparatus for hanging on a surface a frame assembled from members having a universal assembly channel defined by a generally C-shaped cross section which opens outwardly to the rear of the frame, said apparatus comprising:

a body having a front, a back, sides and a top;

an elongated planar supporting member disposed on said front of said body;

means for removeably slidably attaching said elongated planar supporting surface within the universal assembly channel of the frame;

means for aligning said body on the surface;

means for providing attachment of said body to the surface;

wherein said body alignment means comprises at least two horizontally disposed alignment notches; and

said alignment notches are disposed on said sides of said body.

5,209,450

CHRISTMAS TREE STAND

Jacklyn O. Grapes, 344 School St., Romney, W. Va. 26757

Filed Jul. 8, 1992, Ser. No. 910,769
Int. Cl.[5] F16M *13/00*
U.S. Cl. 249—523 2 Claims

1. A Christmas tree stand, comprising,

a base plate, the base plate having a top surface coextensive with a bottom surface, and

a support cylinder mounted fixedly and medially to the top surface, with the support cylinder defined symmetrically about an axis, with the axis orthogonally oriented relative to the top surface, and

a plurality of abutment members radially directed through the support cylinder spaced equally relative to one another in an annular array, with each abutment member having a threaded rod radially directed threadedly through the support cylinder in threaded interengagement with the support cylinder, with the threaded rod having an inner end and an outer end, with the inner end positioned interiorly of the support cylinder, and each inner end including an abutment plate, and each outer end including a rod handle, and

a plurality of height leveling externally threaded rods orthogonally and threadedly directed through the base plate, with each of the height leveling rods spaced equally relative to one another adjacent a periphery of the base plate, and

each height leveling rod including a rod lower end positioned below the bottom surface, and each height leveling rod lower end including a support pad mounted thereon, and



each of the abutment plates are of a semi-cylindrical configuration having a concave interior wall in confronting relationship relative to the axis, and

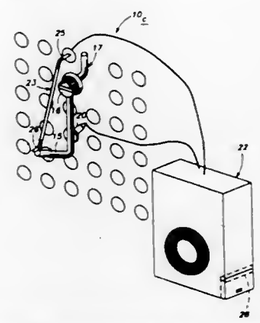
each interior wall includes a plurality of engagement plates, each engagement plate including an engagement plate upper end, and each engagement plate upper end mounted to the interior wall, and each engagement plate having an engagement plate lower edge arranged in a biased relationship relative towards the interior wall, and each engagement plate includes a first pin fixedly mounted to an exterior face of each respective engagement plate oriented towards the axis, and a second pin mounted to an interior face of each engagement plate oriented towards the interior wall of the abutment plate, wherein each engagement plate defines an acute included angle between the engagement plate and the interior wall.

5,209,451

SELF-LOCKING PEG BOARD HOOK

Frank R. Vierling, 37 Jordan La., Raymond, Me. 04071

Filed Sep. 4, 1991, Ser. No. 754,635
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—551 2 Claims



1. A self-locking peg board hook for use in combination with a peg board, the peg board including a matrix apertures, the

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apertures including at least a first aperture spaced from a second aperture, the peg board hook comprising,

a central body leg, the central body leg including a body leg upper terminal end and a body leg lower terminal end, the body leg lower terminal end including a hook projection extending forwardly of the central body leg integrally and fixedly mounted to the body leg lower terminal end defining an acute included angle between the hook projection and the central body leg,

and

the body leg including lock means rotatably mounted to the body leg upper terminal end, with the lock means directed through the second aperture spaced above the first aperture,

and

wherein the central body leg includes an alignment leg integrally and orthogonally mounted to the central body leg extending rearwardly of the central body leg and directed through the first aperture, wherein the hook projection extends forwardly of the central body leg and the alignment leg extends rearwardly of the central body leg,

and

wherein the hook means includes a torroidal head fixed mounted to the central body leg upper terminal end, with the torroidal head rotatably receiving a lock first leg therethrough, the lock first leg is oriented orthogonally relative to the central body leg and arranged parallel to the alignment leg, the lock first leg including a second leg fixedly and orthogonally mounted to a rear distal end of the lock first leg, with the lock first leg directed through the second aperture, and a rotation head fixedly and coaxially mounted to the first leg at a forward end of the lock first leg,

and

the second leg is arranged parallel to the central body leg, and wherein the second leg is rotated from a first position projecting above the central body leg upper terminal end to a second position extending downwardly of the central body leg upper terminal end,

and

the rotation head includes an indicator arrow, wherein the indicator arrow is aligned with the second leg,

and

including an "S" shaped contact leg positioned forwardly and above the central body leg, with the "S" shaped contact leg including a top leg positioned above the first leg, with a bottom leg extending forwardly of the central body leg and terminating in a spaced relationship relative to the hook projection, wherein the bottom leg defines a switch gap between a forward distal end of the bottom leg and a free terminal end of the hook projection, and alarm means in electrical communication with the switch gap, whereupon electrical communication between the bottom leg and the hook projection effects actuation of the audible alarm.

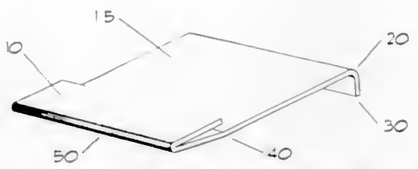
5,209,452

ERGONOMIC SUPPORT PLATFORM FOR PORTABLE COMPUTERS

Stephen Goldberg, 301 Race St. Unit 206, Philadelphia, Pa. 19106

Filed Apr. 3, 1992, Ser. No. 862,775
Int. Cl.[5] F16M *1/00*
U.S. Cl. 248—676 **3 Claims**

1. A support platform for supporting a portable computer on a horizontal surface to enable a user of said computer to comfortably use said computer, said portable computer comprising a case having a bottom surface and a top surface including a keyboard, said support platform being a integral member formed of a rigid material and comprising a computer support portion, a wrist support portion, and a leg portion, said computer support portion being planar, having a rear edge and a front edge and being configured for receipt of said bottom surface of said computer thereon between said edges, said leg portion extending downward from said rear edge and engaging said horizontal surface, said front edge also engaging said horizontal surface, whereupon said computer support portion is inclined at a small acute angle to said horizontal surface so that said keyboard is disposed in an ergonomically desirable orientation, said wrist support portion comprising first and second generally planar sections, said first section of said wrist



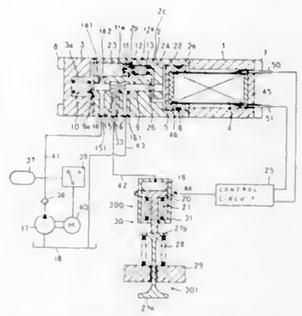
support portion extending from said front edge of said computer support portion and at a large obtuse angle so that said first section extends at a small acute angle to said horizontal surface, said second section of said wrist support portion extending at a small acute angle to said first section thereof, whereupon said second section of said wrist support portion is disposed generally parallel to said computer support portion and at an ergonomically desirable height for supporting the wrist of the user of the keyboard.

5,209,453

LAMINATED TYPE PIEZOELECTRIC APPARATUS

Hiroyuki Aota, and Masatoshi Kuroyanagi, both of Kariya, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Nov. 19, 1990, Ser. No. 615,709
Claims priority, application Japan, Nov. 20, 1989, 1-301578
Int. Cl.[5] F16K *31/02*; F01L *9/02, 9/04*
U.S. Cl. 251—57 **9 Claims**



1. A piezoelectric apparatus comprising:

a piezoelectric device expanded by applying a voltage to said piezoelectric device and contracted when said voltage is removed;

a fluid pressure providing means for providing a fluid with a fluid force, which comprises a pump to pressurize said fluid, an accumulator to accumulate said pressure and maintaining means for maintaining said pressure in said accumulator by controlling said pump;

a first passage means for guiding said fluid force of said fluid to press said piezoelectric device toward a contracted direction thereof;

driven means driven by a pressure of said fluid force of said fluid;

a second passage means for providing said fluid force of said fluid to said driven means;

valve means for opening said first passage means and shutting said second passage means, when said piezoelectric device is contracted by eliminating a voltage, and for shutting said first passage means and opening said second passage means, when said piezoelectric device is expanded by applying a voltage; and

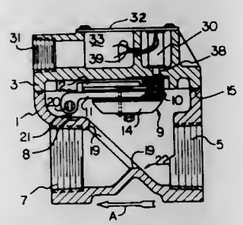
check valve means provided between said fluid pressure providing means and said first passage means, for maintaining said fluid force of said fluid in said first passage means when a voltage is applied to said piezoelectric device to open said second passage means.

5,209,454

AUTOMATIC SAFETY SHUTOFF VALVE

Paul D. Engdahl, 3101 Fairview, Space 113, Santa Ana, Calif. 92704, and Roger P. Engdahl, Costa Mesa, Calif., assignors to Paul D. Engdahl, Costa Mesa, Calif.

Filed Jul. 29, 1992, Ser. No. 921,074
Int. Cl.[5] F16K *17/36*
U.S. Cl. 251—65 **7 Claims**



1. A safety shutoff valve comprising:

a valve body adapted for insertion into a fluid-carrying line;

a valve seat partitioning said body and disposed at an angle to the axis of flow therethrough;

a reset shaft passing transversely through said body and having exposed end portions;

a flapper assembly pivoted on said shaft and freely swingable therearound between an open position and a closed position,

said assembly having a primary flapper arm and a sealing element on said arm adapted to seal said valve seat in said closed position;

a permanent holding magnet attached to said primary flapper arm; and

controllable magnetic means disposed to be attracted by said holding magnet to hold said primary flapper arm in said open position.

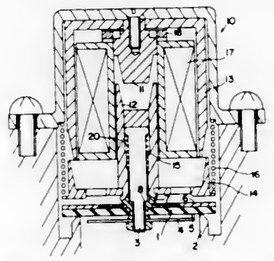
5,209,455

VALVE AND SOLENOID VALVE OPERATED BY VERY SMALL FORCE

Tokio Uetsuhara, Urawa; Kenji Iio, Kurate; Masaki Kouzu, Kurate, and Yuichi Andoh, Kurate, all of Japan, assignors to Mitsubishi Materials Corporation, Tokyo and MIC Co., Ltd., Fukuoka, both of Japan

Filed Nov. 12, 1991, Ser. No. 790,437
Claims priority, application Japan, Nov. 19, 1990, 2-311625; Mar. 7, 1991, 3-41632; May 29, 1991, 3-125959
Int. Cl.[5] F16K *1/48, 31/06*
U.S. Cl. 251—129.19 **4 Claims**

1. A solenoid valve operated by a very small force, comprising: a yoke; a fixed iron core fixed to said yoke; a movable iron core capable of moving into contact with and away from said fixed iron core, said movable iron core having a valve stem disposing hole; an electric winding wound round a magnetic path constituted by said yoke and said movable and fixed iron cores, said electric winding when electrified functioning to move the movable iron core; a first spring interposed between said movable and fixed iron cores and urging the movable iron core away from the fixed iron core; a valve seat having a circular opening with an inside diameter encircled by a circular rim portion; a valve body capable of moving into contact with and away from said valve seat, thereby assuming an open state or a closed state to control the flow of fluid; a valve stem disposed within the valve stem disposing hole of said movable iron core whose central axis is positioned within the inside diameter of said valve seat, moved along said central axis together with said valve body and for pushing said valve body against said valve seat so that said valve seat is pushed with an equal force over the entire rim portion of said valve seat when the valve is closed; and a second spring interposed between said valve stem and said movable iron core so that in initial



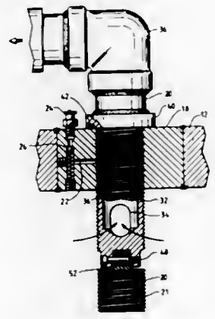
electrified stage of said electric winding, said movable iron core is attracted to said fixed iron core against the urging force of said first spring while said valve body is kept attracted to said valve seat by the pressure of the fluid, wherein there is provided an attraction releasing member fixed to said valve stem which attraction releasing member moves up a part of said valve body positioned near the rim portion of said valve seat in accordance with movement of said valve stem in said initial electrified stage to partially release said attracted state, and said valve stem is disposed through a clearance with respect to a circumferential wall of said valve stem disposing hole except circumferential linear contact portion thereof with said circumferential wall.

5,209,456

TANK VALVE

Clyde H. Chronister, 6115 Bermuda Dunes, Houston, Tex. 77069

Filed Jun. 15, 1992, Ser. No. 898,368
Int. Cl.[5] F16K *5/04*
U.S. Cl. 251—144 **10 Claims**



1. A valve for use on a tank comprising,

said tank having at least one opening, said opening having a threaded inteior,

a valve inserted into the opening for loading, unloading, or sealing the tank including,

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a threaded blocking plug threadable into said opening, said plug sealing and closing the opening when positioned in said opening,

a pipe connected to the top of the plug, said pipe including threads on the exterior of the pipe for threading the pipe into and out of the opening, and

said pipe including a port adjacent the lower end of the pipe whereby the tank may be emptied or filled through the pipe when the port is positioned in the tank.

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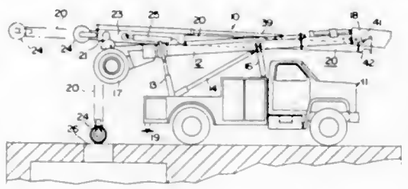
EXTENSIBLE BOOM MECHANISM FOR USE WITH MOBILE CABLE SALVAGE APPARATUS

Arthur K. McVaugh, 2009 Old Sumneytown Pike, P.O. Box 694, Green Lane, Pa. 18054

Division of Ser. No. 584,906, Sep. 19, 1990. This application Apr. 7, 1992, Ser. No. 864,528

Int. Cl.[5] B23Q *3/08*

U.S. Cl. 254—134.3 R **11 Claims**



1. Apparatus for moving cable into or out of underground and overhead installations, comprising:

a mobile platform having a cable guiding assembly thereon, including cable pulling wheel means;

sheave means positionable proximate the location of said cable installation;

extensible means for movably presenting said sheave means to provide a straight path between said installation and said sheave and a second straight path from said sheave to said wheel;

said extensible means including first hydraulic means having a fixed reference for movement in an extension direction and a retraction direction;

second hydraulic means moveable in both of said directions; and

means for actuating said first and second hydraulic means in series, whereby actuation in said extension direction sequentially moves said first and second hydraulic means and actuation in said retraction direction reverses the sequential order of movement of said two hydraulic means.

5,209,458

FLEXIBLE LEVELING DEVICE AND METHOD OF USE

Mark A. Eubank, 700 Willowood, Longview, Tex. 75604, and Michael P. Eubank, 237 Mosley Cir. South, Longview, Tex. 75601

Filed Feb. 25, 1991, Ser. No. 661,428

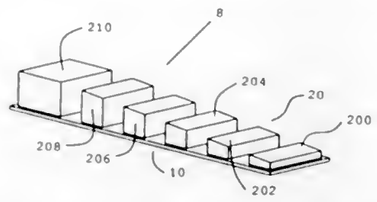
Int. Cl.[5] E02C *3/00*

U.S. Cl. 254—88 **30 Claims**

1. A flexible leveling device comprising:

an elongate flexible member of substantially greater length than width and of substantially greater width than thickness, said elongate member having first and second ends, a longitudinal axis, and an upper face and a lower face; and

a multiplicity of discrete bodies, the number of said bodies being not less than three, each having a base parallel to said longitudinal axis of said elongate member, two first sides extending upwardly from said base, two second sides extending upwardly from said base with edges of said second sides interconnected to adjacent edges of said first sides, and a top, each said base of each of said bodies being disposed on and interconnected to said upper face of said elongate member so as to provide a space between adjacent bodies, said bodies being of varying height with the



shortest of said bodies being disposed near said first end of said elongate member and said bodies increasing in height from said first end of said elongate member to said second end thereof.

5,209,459

CHEMICAL PROCESS

Raymond V. H. Jones, West Lothian, Scotland, and John M. Bloomer, Farncome, England, assignors to Imperial Chemical Industries PLC, Millbank, United Kingdom

Filed Jun. 29, 1992, Ser. No. 906,248

Claims priority, application United Kingdom, Jul. 16, 1991, 9115246

Int. Cl.[5] C07F *3/02*

U.S. Cl. 260—665 G **10 Claims**

1. A process for the preparation of compounds of formula (I):

$$Y—Mg—X \quad (I)$$

wherein Y is an unsubstituted or substituted phenyl or benzyl, and X is a halogen, by reaction of a compound of formula (II):

$$Y—X \quad (II)$$

wherein Y and X have the meanings given above, with magnesium in a solvent, characterised in that the solvent is an acetal of formula (III):

$$R^1—O—CH(R^3)—O—R^2 \quad (III)$$

wherein R^1 and R^2 are independently alkyl having from 1 to 6 carbon atoms or when taken together form a dioxolane ring, and R^3 is hydrogen or alkyl having from 1 to 6 carbon atoms.

5,209,460

HYDRAULIC ANTI VIBRATORY SUPPORTS

Jean-Paul Bouhours, Arrou, and Daniel Dubos, Asnieres, both of France, assignors to Hutchinson, France

Filed Jun. 7, 1991, Ser. No. 710,430

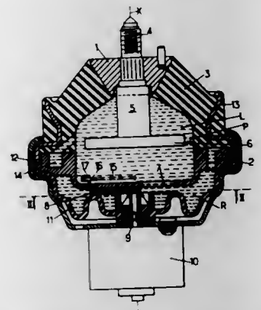
Claims priority, applicatinn France, Jun. 7, 1990, 90 07088

Int. Cl.[5] F16F *13/00*; B60K *5/12*

U.S. Cl. 267—140.14 **8 Claims**

1. Hydraulic anti-vibratory device designed to be inserted for the purposes of support and damping between two rigid elements, constituted by a sealed box comprising a rigid core fixedly attachable to one of the two rigid elements, a rigid base which is fixedly attachable to the other rigid element, and an annular supporting elastic wall connecting the core to the base in sealed manner, the inner space of said box being filled with a liquid and the core being extended, inside the box, by a rigid foot which terminates at a piston, the liquid being provided on first and second opposite sides of the piston, and the outer contour of the piston being shaped to define with the opposite

wall of the box a throttled annular passage for throttling flow of the liquid between said first and second opposite sides of the piston, the base outside the box being capped by a flexible and sealed bellows sealingly connected to the base to form with the



base a pocket of variable volume for the liquid and said base being perforated by at least one port whose length is very much less than the mean diameter of the port, said port connecting between one another the inner spaces of the box and of the pocket.

5,209,461

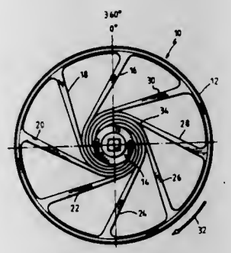
ELASTOMERIC TORSIONAL SPRING HAVING TANGENTIAL SPOKES WITH VARYING ELASTIC RESPONSE

Gary L. Whightsil, Sr., Kennedale, Tex., assignor to LTV Energy Products Company, Houston, Tex.

Continuation of Ser. No. 556,893, Jul. 23, 1990. This application Jun. 12, 1992, Ser. No. 898,242

Int. Cl.[5] F16F *1/06*

U.S. Cl. 267—155 **15 Claims**



1. A torsional spring, comprising:

a cylinder having an inner and outer circumferential surface;

a hub positioned substantially centrally within said cylinder; and

a plurality of elastomeric spokes extending radially between said inner circumferential surface of said cylinder and said hub, each of said elastomeric spokes being formed from first and second elastomeric radial segments wherein the first radial segment has a lower elastic modulus than the second radial segment, said elastomeric spokes being adapted for resisting rotational movement of said hub relative to said cylinder throughout the entire range of motion of said hub relative to said cylinder by being placed in tension.

5,209,462

HYDROELASTIC SUPPORT

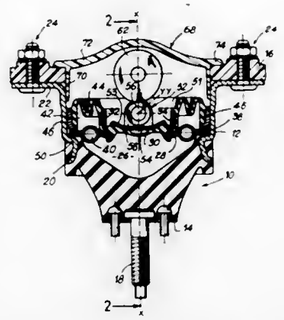
Marcel Le Fol, Domloup, and Pascal Robic, Rennes, both of France, assignors to Automobiles Peugeot, Paris and Automobiles Citroen, Neuilly Sur Seine, both of France

Filed Nov. 26, 1991, Ser. No. 798,659

Claims priority, application France, Dec. 10, 1990, 90 15439

Int. Cl.[5] B60G *13/00*

U.S. Cl. 267—219 **6 Claims**



1. Hydroelastic support intended to be interposed between two assemblies to be suspended with respect to one another, for example the suspension of an engine in a motor vehicle, comprising two armatures connected respectively to the two assemblies, these two armatures being joined by a block of elastomer material, the support comprising at least one working chamber delimited at least in part by the block of elastomer material, and an expansion chamber, these two chambers being filled at least partially with liquid and linked together by a communication passage, the working chamber being delimited in part by a movable diaphragm of elastic material having an external face comprising a cam follower with which a cam of a drive device for the movable diaphragm cooperates in order to apply to the latter displacements controlled in such a way as to create in the working chamber pressure forces synchronous with the harmonics of the vibrations of one of the said two assemblies, wherein a rotational drive shaft of the cam is mounted rotatably in a bearing fixed to one of the two armatures

wherein said one armature has a generally cylindrical form with a first axial extremity connected to the block of elastomer material and with a second axial extremity receiving a closing cover in which is arranged the bearing of the drive shaft of the cam.

5,209,463

SIGNATURE PILE LIFT MECHANISM FOR DEMOGRAPHIC BINDERY LINE

Donald R. Gleason, and Michael A. Barenklau, both of Waseca, Minn., assignors to Brown Printing Company, a Division of Gruner & Jahr Printing and Publishing Co., Waseca, Minn.

Filed Aug. 25, 1992, Ser. No. 934,974

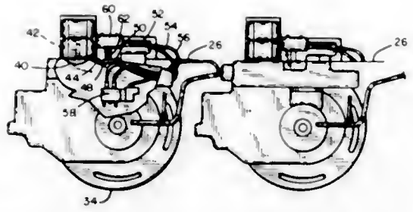
Int. Cl.[5] B65H *3/08*

U.S. Cl. 271—11 **6 Claims**

1. In a hopper mechanism for use in a demographic book bindery line including a book conveyor, said hopper being of the type including a signature support tray for holding a plurality of signatures in a stacked relation thereon, a rotatable drum having gripping means on the periphery thereof, said drum being disposed beneath said signature support tray and journaled for rotation about a generally horizontal axis, a separator disc disposed proximate one end of said support tray and journaled for rotation about a generally vertical axis, said separator disc having a radial opening formed through its thickness dimension, and a cam actuated vacuum sucker synchronized to

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the rotation of said drum and said separator disc for periodically extending through said radial opening in said separator disc for grasping and deflecting the leading edge of the bottommost signature in the stack to allow said leading edge to be



engaged by said gripping means on said rotating drum, the improvement comprising:

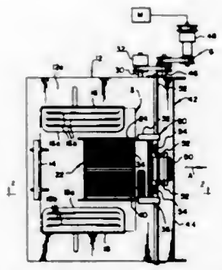
(a) means coupled to said support tray for selectively preventing engagement of said bottommost signature by said separator disc.

5,209,464

BOTTOM SCUFF SHEET FEEDER

Alexandra D. Bermel, Spencerport; Larry J. Mortellaro, Batavia; Steven M. Russel, Pittsford, and Robert H. Shea, Victor, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 23, 1992, Ser. No. 855,966
Int. Cl.[5] B65H 3/04
U.S. Cl. 271—35 16 Claims



1. Apparatus for transporting sheets seriatim from a stack located on the surface of a tray, said apparatus comprising:

retard means, located in contact with the lead edge, in the direction of sheet feed, of a sheet stack, for preventing double feeding of sheets from said sheet stack; and

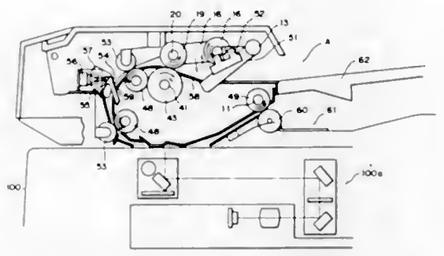
a scuff feed belt having a plurality of grooves oriented in the direction of sheet feed, said scuff feed belt located to have a run extending in the direction of sheet feed substantially above the surface of said tray and below said retard means to form a sheet separation nip with said retard means, said run of said belt presenting an area of contact with said sheet stack to carry about 50% of the weight of said sheet stack.

5,209,465

SHEET FEEDING APPARATUS

Hideaki Sayama, Yokohama, and Junichi Sata, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 458,395, Dec. 28, 1989, abandoned.
This application Jan. 29, 1992, Ser. No. 826,668
Claims priority, application Japan, Dec. 28, 1988, 63-332644; Dec. 29, 1988, 63-330984; Dec. 29, 1988, 63-330985
Int. Cl.[5] B65H 7/08
U.S. Cl. 271—110 21 Claims



1. A sheet feeding apparatus comprising:

a supporting means for supporting stacked sheets;

a feed means for feeding the sheets stacked in said supporting means when contacted therewith;

a separating means for separating the sheets fed by said feed means so that the sheets are fed one by one;

a shifting means for shifting said feed means between a first position where said feed means contacts a sheet stacked in said supporting means to feed it and a second position where said feed means is separated from the sheet to form a gap therebetween;

a drive means for driving said shifting means;

a detecting means disposed upstream of said feed means for detecting the fact that the sheet is being stacked in said supporting means; and

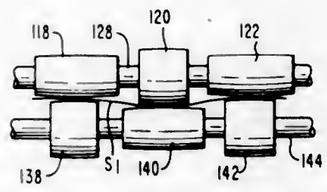
a control means for controlling said shifting means so that said feed means is shifted to said second position for facilitating advancement of a leading edge of the sheet from said supporting means when said detecting means detects the sheet.

5,209,466

APPARATUS AND METHOD FOR FORMING SIGNATURE INTO A V-CONFIGURATION

Leonard A. Watts, North Miami Beach, and Medardo Espinosa, Hialeah, both of Fla., assignors to Eds Technologies, Inc., Hialeah, Fla.

Continuation of Ser. No. 301,905, Jan. 26, 1989, Pat. No. 4,964,627, which is a division of Ser. No. 876,490, Jun. 20, 1986, Pat. No. 5,024,569. This application Apr. 24, 1991, Ser. No. 690,877
Int. Cl.[5] B65H 29/12, 29/70
U.S. Cl. 271—188 28 Claims



1. Apparatus for transporting signatures along a path between two conveyors from an upstream location to a downstream location and forming the signatures into a V-shaped configuration, comprising:

a first conveyor having a first plurality of rollers coaxially mounted along a first axis transverse to the path, the first plurality of rollers having circumferential surfaces and different diameters which define a V-shape, and a first plurality of endless loop members having a generally flat configuration mounted to travel along the path and pass respectively over the circumferential surfaces of the first plurality of rollers for transporting the signatures along the path;

a second conveyor having a second plurality of rollers coaxially mounted along a second axis transverse to the path, the second plurality of rollers having respective circumferential surfaces opposed to the respective circumferential surfaces of the first plurality of rollers, the second plurality of rollers having diameters complementary to the first plurality of rollers to also define the V-shape, and a second plurality of endless loop members having a generally flat configuration opposed to the first plurality of endless loop members and mounted to travel along the path and pass respectively over the circumferential surfaces of the second plurality of rollers for transporting the signatures along the path;

wherein the first and second plurality of rollers include opposed pairs of rollers in which one roller of the pair has a different axial length than the other roller of the pair; and

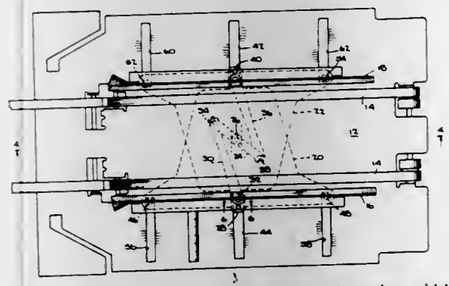
driving means for driving the first and second endless loop members at substantially identical speeds.

5,209,467

SIDE GUIDE ADJUSTMENT PLATE

Roderick N. Schmaling, Brookfield, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Sep. 28, 1992, Ser. No. 952,276
Int. Cl.[5] B65H 9/04
U.S. Cl. 271—240 6 Claims



1. Apparatus for conveying flat articles of varying width, comprising:

a deck to support said flat articles;

means for moving said flat articles across said deck in a path from an upstream position to a downstream position, said deck having a pair of opposing slots extending perpendicular to said path;

an arm below said deck pivotably secured with a center pin to said deck between said deck slots;

a pair of links pivotably secured to said arm;

a pair of guide plates pivotably secured to said links, each of said guide plates having a slot extending perpendicular to said path and slidingly engaging said center pin;

a projecting member extending from each of said guide plates and slidingly engaging said deck slots; and

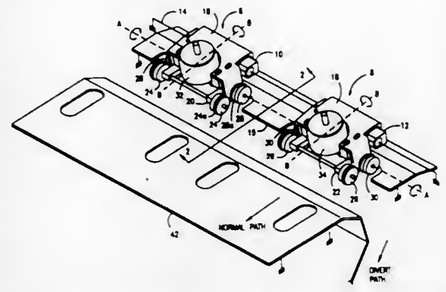
a side guide fixedly secured to each of said guide plates, whereby movement of one of said guide plates in a direction closer or further from said path causes the other of said guide plates to move simultaneously closer or further from said path while said guides retain a parallel relationship.

5,209,468

ARTICULATED DOCUMENT FEEDER

James N. Driscoll, Perkasie, and Michael R. Drago, Easton, both of Pa., assignors to Bell & Howell Phillipsburg Company, Allentown, Pa.

Filed Feb. 14, 1992, Ser. No. 835,412
Int. Cl.[5] B65H 5/06
U.S. Cl. 271—274 9 Claims



1. In document feeding apparatus including idle rollers cooperating with drive roller means, said idle rollers spaced along the axis of rotation of the idle rollers and transversely to the document feed direction, the improvement comprising:

first housing means for supporting a first set of transversely spaced idle rollers, and

first means, including a pivot bearing, allowing the first housing means and the first set of idle rollers supported thereby to pivot about an axis that is perpendicular to the axis of rotation of said first set of idle rollers, and

drive roller means cooperating with said first set of idle rollers whereby each one of said first set of idle rollers retains a cooperative relationship with the drive roller means despite unevenness in a contact face between an idle roller and the drive roller means, and

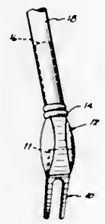
resilient compliance means disposed as to adapt to said unevenness in the contact face.

5,209,469

GOLFER'S TOOL

Danny Laskowitz, and Marlene Laskowitz, both of 2015 Bob O'Link La., Palm Springs, Calif. 92264

Division of Ser. No. 568,966, Aug. 17, 1990, Pat. No. 5,029,854.
This application Jul. 2, 1991, Ser. No. 724,875
Int. Cl.[5] A63B 57/00
U.S. Cl. 273—32 B 4 Claims



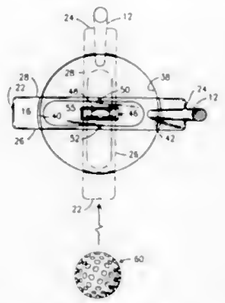
1. An elongated multi-directional leverage tool for golf tasks, comprising:

a rigid fulcrum head, having top, bottom and side surfaces,

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said side surfaces of said fulcrum head sloping upwardly and outwardly from said bottom surface to said top surface,
said fulcrum head having a lower and upper end,
a plurality of tines protruding from said lower end, each tine having a top surface and a bottom surface, said bottom surface of said fulcrum head extending below a lowermost bottom surface of said plurality of tines to provide leverage when said tines are inserted into the ground and manipulated during a golf repair task, and
an elongated shaft being attached to the upper end of said fulcrum head, said bottom surface of said fulcrum head sloping toward said lowermost bottom surface of said plurality of tines at said lower end and forming an obtuse angle with respect to said lowermost bottom surface to provide for a smooth transition between said bottom surface of said fulcrum head and said lowermost bottom surface of said plurality of tines.

5,209,470
GOLF GREEN SLOPE READING METHOD
Sam E. Cimaroli, and Harriett L. Cimaroli, both of 170 Mariner La. Rotunda West, Placida, Fla. 33947
Filed Jul. 20, 1992, Ser. No. 916,650
Int. Cl.[5] A63B *69/36, 53/04, 57/00*
U.S. Cl. 273—32 H **5 Claims**

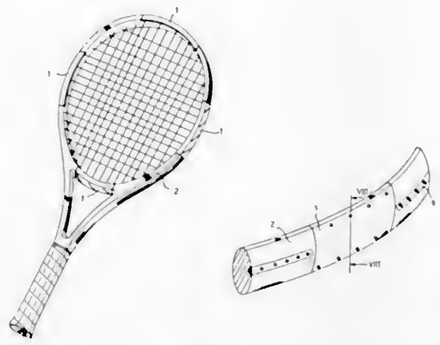


1. A method for reading the slope of a green in the game of golf, comprising the steps of:
using a clubhead having a longitudinal extent greater than the diameter of a golf hole in a putting green to be played;
marking a top surface of said clubhead with a pair of indicia members that are spaced apart from one another by a distance equal to the diameter of said golf hole;
positioning a spirit level having a bubble therein on said clubhead so that the bubble is centered in said spirit level when it is exactly midway between said indicia members; and positioning said clubhead in diametrically bridging relation to said golf hole so that said indicia members are in vertical alignment with the peripheral boundary of said golf hole, said positioning causing said spirit level to provide information concerning the slope of the green encircling said hole.

5,209,471
PRESSURELESS TENNIS BALL
Kuniyasu Horiuchi, Kobe, and Yoshinobu Nakamura, Nishinomiya, both of Japan, assignors to Sumitomo Rubber Industries, Ltd., Kobe, Japan
Filed May 31, 1991, Ser. No. 708,317
Claims priority, application Japan, Jun. 1, 1990, 2-145226
Int. Cl.[5] A63B *39/00*
U.S. Cl. 273—61 C **3 Claims**

1. A pressureless tennis ball comprising a hollow spherical core and a cover affixed thereon, said core being made of a rubber composition comprising a rubber being at least one member selected from the group consisting of natural rubber, cis-1,4-polybutadiene and a styrene-butadiene rubber, and 5 to 60 parts by weight of a polyethylene per 100 parts by weight of said rubber, said polyethylene having an average molecular weight of at least 30,000, a shore D hardness of 45 to 75 and a flexural rigidity of 2,000 to 7,000 kg/cm^2.

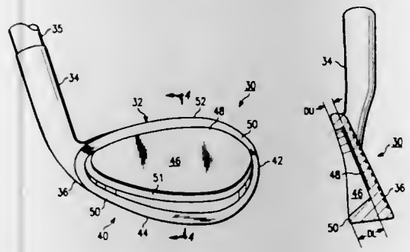
5,209,472
RACKET WITH FRAME ATTACHMENTS
Kuni Tseng, 6F-1, No. 342, Keelung Road, Sec. 1, Taipei, Taiwan
Filed May 15, 1992, Ser. No. 883,790
Int. Cl.[5] A63B *51/06, 49/02*
U.S. Cl. 273—73 C **6 Claims**



1. A racket comprising:
a handle; and
a frame head including four removable attachments mounted on the frame head at 90° intervals, the attachments being centered at the 0°, 90°, 180° and 270° positions, 0° being the center of the attachment point of the handle to the frame head;
the attachments having a U-shaped cross-section and comprising a central recessed surface and two thickened opposing lateral rims, the attachments being constructed to fit snugly on the corresponding portion of the frame head, and
each attachment including two rows of stringing means to secure the strings of the racket, one row on each lateral rim, the rows being offset so that a line between one of the stringing means in a first row and a corresponding stringing means in a second row is not normal to the horizontal plane of the racket. and
the frame head having only one row of stringing means in those areas not covered by the attachments.

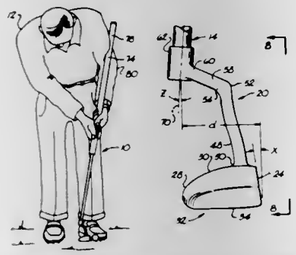
5,209,473
SET OF GOLF CLUBS HAVING OVAL SHAPE CAVITY BACK
Lin Fisher, Dallas, Tex., assignor to Foxbat, Inc., Dallas, Tex.
Filed Apr. 23, 1990, Ser. No. 512,950
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—77 A **17 Claims**

1. A set of iron-type golf clubs including a predetermined number of clubs, each club including a shaft and a club head, each club head comprising:
a hosel portion; and
a blade portion attached to said hosel portion; said blade portion comprising:
a substantially planar face portion for striking a ball which is generally oval in shape;
a back portion which is generally oval in shape and is disposed opposite said substantially planar face, said back portion including a cavity which is generally oval in shape, having an upper central portion and a lower central portion and includes a floor portion;
a torsion ring which is generally oval in shape and completely surrounds said cavity and evenly distributes the weight thereof around said cavity;



whereby the substantially planar face, upon striking a golf ball, will flex and distribute energy forces out to the torsion ring which will return the energy forces back to the substantially planar face to propel the golf ball from the substantially planar face.

5,209,474
ELONGATED GOLF PUTTER AND PUTTING METHOD
Paul J. Voyer, Greenville, S.C., assignor to VH Golf, Inc., Greenville, S.C.
Filed May 4, 1992, Ser. No. 878,055
Int. Cl.[5] A63B *53/02*
U.S. Cl. 273—80 C **16 Claims**



1. A golf club for use by a golfer to putt a golf ball, said golf club comprising:
an elongated shaft defining a first end, and a second end opposite said first end; said elongated shaft including a medial stabilization portion and an upper stabilization portion spaced from said medial stabilization portion;
a club head having a substantially planar putting face, a rear face opposite said putting face, an upper surface, and a lower surface opposite said upper surface; said club head defining a central axis approximately midway between said putting face and said rear face and extending substantially parallel to said putting face;
an offset connector connected to said club head and to said first end of said elongated shaft, said offset connector offsetting said first end of said elongated shaft from said central axis of said club head in a direction perpendicular to said central axis away from said putting face toward said rear face of said club head; and
said first end of said elongated shaft being attached to said offset connector such that said elongated shaft extends at an angle with respect to said lower surface of said club head in a direction towards said planar putting face; said elongated shaft extending in a direction away from said rear face of said club head towards said planar putting face and projecting through a plane coplanar with said planar putting face of said club head, such that when using said golf club for putting, said medial stabilization portion of said elongated shaft is receivable in the crook of the golfer's leading arm, and the upper stabilization portion of said elongated club is contactable with the outer portion of an upper arm portion of the golfer's leading arm to portion of the golfer's upper arm, such that the club head of the golf putter contacts the golf ball in accomplishing a putt.

5,209,475
PUTTER UTILIZING COMPOUND SHAFT AS MOUNTING FOR UPPER SWIVEL HANDLE SUPPORT
Ovie Loman, 1394 Yearling Trail, Port Orange, Fla. 32119
Filed May 18, 1992, Ser. No. 887,675
Int. Cl.[5] A63B *53/14*
U.S. Cl. 273—81 C **14 Claims**



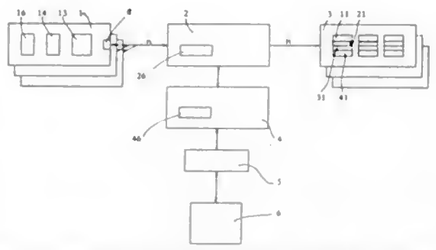
1. A golf club having a head equipped with a compound shaft, said head having a face portion and said compound shaft having lower and upper ends, with the lower end of said compound shaft attached to said club head, and the upper end of said compound shaft having dual, spaced-apart upper portions that can be separated only for a limited extent, a rotatable handle disposed between said upper portions of said compound shaft, which rotatable handle is disposed parallel to said face portion of said club head, whereby the golfer holding said rotatable handle with one hand in a perpendicular relationship to the golf ball is able to swing with his other hand, the face portion of said head toward the ball in a highly accurate, well-aimed manner.

5,209,476
GAMING MACHINE AND OPERATING METHOD THEREFOR
Peter Eiba, Neuburger Strasse 144, D-8900 Augsburg, Fed. Rep. of Germany
Filed Dec. 18, 1991, Ser. No. 809,120
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1990, 4042094
Int. Cl.[5] A63F *9/00*
U.S. Cl. 273—138 A **18 Claims**

1. A gaming machine operable by a player to initiate and perform a game with the machine comprising:
computing means for controlling said game;

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indicating means for indicating data about courses and results of previous games;



time means connected to said computing means and enabling said computing means to set said data into relation to time; and

display means for displaying said time-related data.

5,209,477

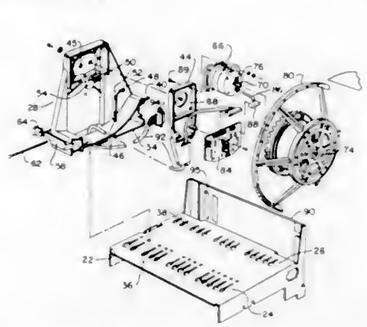
SLOT MACHINE REEL MOUNTING ASSEMBLY

Raymond Heidel, Henderson, Nev.; Walerian Kojro, Glenview; Herbert Hausmann, Prairie View, both of Ill., and Kenneth B. Turnbaugh, Las Vegas, Nev., assignors to Bally Manufacturing Corporation, Chicago, Ill.

Division of Ser. No. 650,356, Feb. 4, 1991, Pat. No. 5,102,136. This application Oct. 21, 1991, Ser. No. 779,685

Int. Cl.[5] G07F *17/34*; A63F *5/04*

U.S. Cl. 273—143 R 7 Claims



2. A slot machine reel mounting structure comprising a base plate configured with a first plurality of slots aligned in a first row across said base plate and a plurality of slots aligned in a second row across said plate, said slots in said first row being aligned with said slots in said second row and a support member for rotatably securing a reel engaged to said base plate through said slots; wherein said slots in said first and second rows are arranged in sets corresponding to a plurality of different support member arrangements having uniform spacing on said base plate.

5,209,478

GAME CONTROLLER BOARD HOLDER

Ronald E. Simpson, 2370 Flamingo Dr., Florissant, Mo. 63031

Filed Jan. 13, 1992, Ser. No. 819,833

Int. Cl.[5] A63B *71/04*

U.S. Cl. 273—148 B 13 Claims

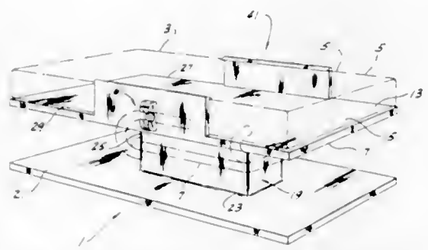
1. A game controller board holder for a game controller board having a housing and a cord extending from the housing, the holder comprising:

a generally planar platform for supporting the game controller board housing placed on the platform, the platform having first and second surfaces on opposite sides of the platform, the first surface adapted to engage the game controller board housing;

means for releasably securing the housing to the platform;

means for holding the cord generally adjacent the platform, said cord holding means comprising a column extending from the platform, the column depending from an interior region of the second surface and being generally perpendicular to the second surface and adapted to receive and hold coils of the cord wrapped therearound;

said means for releasably securing the board to the platform comprising two spaced apart resilient walls extending from the platform, the walls are adapted to engage and hold the controller board housing and extend generally along longitudinal edges of the platform and project upwardly from the platform, each wall having extending



from the top end therefrom a generally inwardly projecting detent, each detent being adapted to retain the controller board housing on the platform, the detents each include a ramped surface sloping downwardly generally in planes intersecting the planes of the corresponding walls at an acute angle, the detents being spaced apart a lesser distance than the width of the game controller board housing, such that as the housing is moved generally downwardly toward the first surface of the platform, lower portions of the housing engage the ramped surfaces of the detents pushing the detents and resilient walls apart to a flexed position, thereafter the housing clearing the detents and the walls snapping back substantially to their relaxed position with the detents disposed over an upper surface of the housing for retaining the housing on the platform.

5,209,479

SLOT MACHINE

Yuji Nagao, Tokyo, and Yoshihiro Kinoshita, Chofu, both of Japan, assignors to Sigma, Incorporated, Tokyo, Japan

Continuation of Ser. No. 593,281, Oct. 5, 1990, abandoned, which is a continuation of Ser. No. 370,022, Jun. 22, 1989, abandoned. This application Apr. 2, 1992, Ser. No. 863,479

Claims priority, application Japan, Aug. 12, 1988, 63-201702

Int. Cl.[5] A63F *7/00*; G07F *17/34*

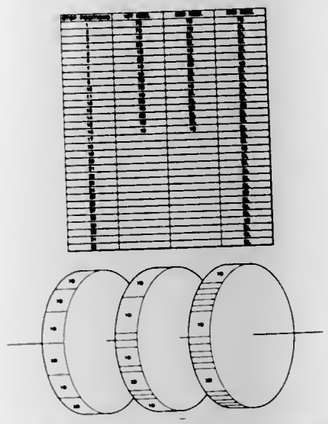
U.S. Cl. 273—143 R 8 Claims

1. A slot machine comprising:

a random number generator which generates a random number, having the highest number of random numbers satisfying 2^n wherein n is a positive integer, each random number corresponding to one of a plurality of symbol combinations stored in memory means;

reels, each having a plurality of symbols arranged thereon, at least one of said reels having a different number of symbols than the other reels, said symbols corresponding to those in the symbol combinations stored in the memory means; and

memory means which stores all the symbol combinations and the likelihood of the selection of each symbol combination, the total number of combinations being $L \times M \times N$, wherein L is the number of symbols on a first reel, M is the number of symbols on a second reel and N is the number of symbols on a third reel;



wherein 2^n and the number of symbol combinations are equal to each other.

5,209,480

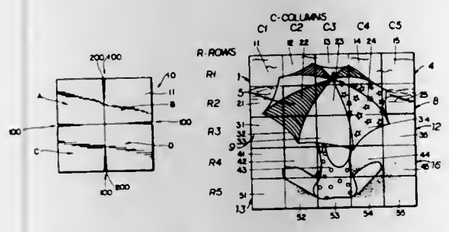
PUZZLE WITH PLANER OVERLAPPING SLOTTED PIECES

Daniel S. Katz, 531 E. 20th St., New York, N.Y. 10010

Continuation of Ser. No. 455,226, Dec. 22, 1989, abandoned, which is a continuation-in-part of Ser. No. 434,877, Nov. 13, 1989, abandoned. This application Jan. 28, 1991, Ser. No. 647,685

Int. Cl.[5] A63F *9/10*

U.S. Cl. 273—157 R 15 Claims



1. An assembled puzzle comprising a plurality of pieces each having a plurality of edges and each piece bearing indicia thereon and being formed with at least one slit in each of said edges, the slits in each piece collectively delineating a plurality of areas of said piece, and the pieces being assembled by engaging a slit of one piece with a slit of another piece in such a manner that selected ones of said areas are either hidden or exposed in order to form at least one composite image.

5,209,481

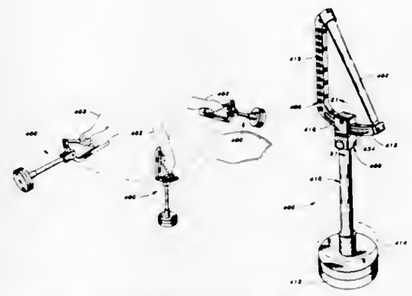
GOLF SWING MUSCLE STRENGTHENER AND SWING DEVELOPER DEVICE

James A. DeBack, 3443 Baywood Cir., Antoich, Calif. 94509

Continuation-in-part of Ser. No. 776,680, Oct. 11, 1991, abandoned, which is a continuation of Ser. No. 561,018, Jul. 31, 1990, abandoned, which is a continuation-in-part of Ser. No. 463,552, Jan. 11, 1990, Pat. No. 4,984,801. This application Nov. 15, 1991, Ser. No. 793,507

Int. Cl.[5] A63B *69/36*

U.S. Cl. 273—186.2 37 Claims



32. Golf stroke training apparatus, comprising:

handle means having an axis and being of sufficient length to be grasped by both of the hands to an adult golfer in an interlocked hand grip;

handgrip means covering at least part of said handle means;

weight means which are adjustable in weight and are symmetrical about an axis of symmetry; and

weight supporting means capable of supporting said weight means in a fixed position and orientation with respect to said handle means so that said axis of symmetry passes through said handgrip and the angle between said handle axis and said axis of symmetry remains fixed when said golf stroke training apparatus is swung by a golfer in practice, and said angle lies between 25 degrees and 40 degrees.

5,209,482

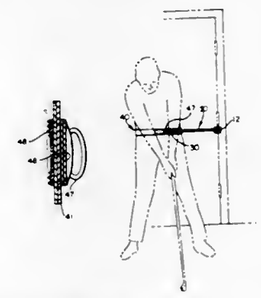
GOLF SWING TRAINING AND EXERCISING DEVICE

William W. Hopfer, Rockwall, Tex., assignor to Swingflex Systems, Inc., Dallas, Tex.

Filed Jan. 22, 1992, Ser. No. 824,016

Int. Cl.[5] A63B *69/36*, *21/04*, *21/12*

U.S. Cl. 273—187.2 2 Claims



1. A golfer's exercising device which attaches to a door and frame in a house to exercise muscle groups and perfect the technique of a proper golf swing while executing a golf club swing comprising: an elongated, resilient, variable resistance

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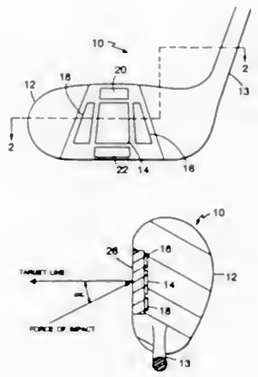
means having two ends; anchor means for fitting between a door and frame and for securing one end of the variable resistance means thereto; a snap clamp secured to the other end of the variable resistance means; a waist belt having a pair of ends and an outer and inner surface means for operably securing the ends of the waist belt together around the golfer such that the length of the belt may be varied; said ring being secured to said belt in the center between the ends thereof and on the outer surface and away from the inner surface next to the golfer as the belt is worn, said ring being adapted to be secured to said snap clamp; and a strip of rubber secured to the inner surface of the waist belt opposite the ring on the outer surface, said strip of rubber having pyramid shaped teeth formed thereon and the strip being positioned such that the teeth face inward and contact the waist of the golfer at or near the navel of the golfer when said belt is worn by the golfer with the center of the belt located at or near the golfer's navel, and the length of said variable resistance means being such that with said belt worn as aforesaid and the golfer's back to a door and frame and said anchor means and snap clamp attached as aforesaid, the golfer may execute a back swing with a golf club while putting tension on the variable resistance means, and as the golfer continues his down swing, said tension encourages the golfer's hips to first move laterally forward and the golfer's weight to shift from the rearward leg to the forward leg prior to swinging through the impact position of the ball.

5,209,483

TRANSDUCING AND ANALYZING FORCES FOR INSTRUMENTED SPORTING DEVICES AND THE LIKE

Charles J. Gedney, Sudbury, and Philip A. Abbot, Lexington, both of Mass., assignors to G&A Associates, Lexington, Mass.

Filed Apr. 19, 1991, Ser. No. 687,830
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—187.4 22 Claims



1. A device, designed for use in conjunction with a piece of sporting equipment held or worn by a user, for characterizing a trajectory followed by a movable object after an object-striking face of said piece of sporting equipment comes into contact with said movable object, comprising

an impact sensor comprising a plurality of impact force sensing elements, said impact sensor being incorporated into said object-striking face of said piece of sporting equipment in a manner such that each of said impact force sensing elements can experience compressional or tensile force upon impact between said piece of sporting equipment and said movable object, each of said impact force sensing elements providing a respective signal representing the intensity of said compressional or tensile force when said contact between said movable object and said piece of sporting equipment occurs, said plurality of impact force sensing elements being arranged to be positioned at differing locations on said piece of sporting equipment at which said impact force sensing elements receive differing compressional or tensile forces due to impact between said piece of sporting equipment and said movable object,

an electrical processing circuit arranged to receive said signals from said impact force sensing elements and to process said signals to produce an output characterizing said trajectory of said movable object, and

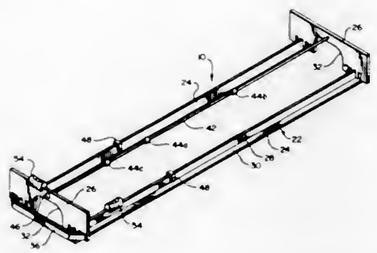
a user notification device arranged to receive said output from said electrical processing circuit and to present to said user information characterizing said trajectory, said information characterizing said trajectory comprising the direction of travel of said movable object relative to said piece of sporting equipment.

5,209,484

GOLF PUTTING IMPROVEMENT AND TEACHING APPARATUS AND METHOD

Charles R. Randall, 283 W. Lake Samish Dr., Bellingham, Wash. 98225

Filed Nov. 14, 1991, Ser. No. 794,725
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—192 24 Claims



15. A golf putting improvement and/or teaching apparatus, comprising:

a. a frame having a longitudinal axis and adapted to be positioned on a putting surface and having side rails and end members defining a putting area in which can be positioned a head of a putter and a golf ball, with the side rails defining a putting path;

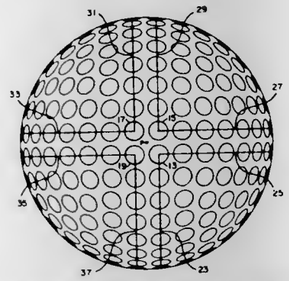
b. a locating means extending along said path, said locating means being provided with at least two moveable locating members which can be selectively positioned at two longitudinally spaced locations along said longitudinal axis to identify stroke locations.

5,209,485

RESTRICTED FLIGHT GOLF BALL

R. Dennis Nesbitt, Westfield, Mass., and Terence Melvin, Somers, Conn., assignors to Lisco, Inc., Tampa, Fla.

Filed Sep. 23, 1991, Ser. No. 763,895
Int. Cl.[5] A63B *37/00, 37/14, 37/12*
U.S. Cl. 273—218 12 Claims



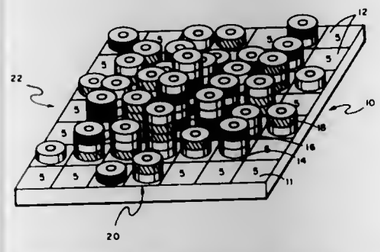
1. A restricted flight golf ball having a coefficient of restitution of 0.670 or less, a Riehle compression from 0.040 to 0.070 inches, a weight from 45.0 to 46.0 grams, and a diameter from 1.67 to 1.69 inches.

5,209,486

MAGNETIC GAME

Gregory R. Brotz, P.O. Box 1322, Sheboygan, Wis. 53081

Filed Sep. 25, 1991, Ser. No. 765,542
Int. Cl.[5] A63F *3/00*
U.S. Cl. 273—239 2 Claims



1. A game for two or more players comprising:

a game board of magnetic field permeable material having a surface area and a plurality of adjacent areas defined on said surface, each of said areas having a scoring value associated therewith;

a plurality of magnets each disposed under one of said areas;

a plurality of magnetic game pieces each having different indicea for each player;

means to propel one of said plurality of said magnetic game pieces by a player toward said game board such that in a first mode said magnetic game piece is attracted by magnetic attraction to one of said areas and positions itself over the magnet beneath said area and in a second mode said magnetic game piece is attracted by magnetic attraction to a magnetic game piece previously positioned over one of said areas with said magnetic game pieces stackable on one another by magnetic attraction wherein the player having the most magnetic game pieces stacked over the areas with the highest scoring values being the winner of the game: and

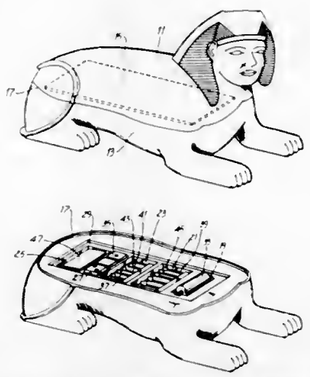
wherein said means to propel said magnetic game pieces is a repeller having a handle and a top end with magnetic means affixed thereto adapted to repel a magnetic game piece placed at said top end by having the downward-facing side of said magnetic game piece be of the opposite magnetic pole to the magnetic pole of said magnetic means of the repeller to propel said magnetic game piece toward the game board by the player aiming the repeller toward a desired one of said areas having a high scoring value.

5,209,487

BOARD GAME BOX

John J. Rizzo, Staten Island, N.Y., assignor to Pyram Enterprises Inc., Richmond Hill, N.Y.

Filed Nov. 7, 1991, Ser. No. 789,097
Int. Cl.[5] A63F *3/00*
U.S. Cl. 273—248 5 Claims



1. In combination, a box in the form of the sphinx and a game board for storage in said box, said box comprising a top member and a bottom member, said bottom member having a plurality of compartments for holding a plurality of game pieces in the form of shafts having the heads of hounds and jackals, on one end thereof a plurality dice, a scroll having game rules set forth thereon, and a brochure having set forth thereon a history of said sphinx, hounds and jackals, said bottom member of said box being provided with a pair of spaced, longitudinal grooves located above said compartments along the sides of said bottom member for the reception of a rectangular game board which also acts as a closure means for said compartments, and said top member having a shape which mates with the shape of said bottom member and a downwardly depending skirt which fits over the upper edge of said bottom member.

5,209,488

THREE PLAYER CHESS-LIKE GAME

Mark R. Kimball, 407 N. Adair St., Clinton, S.C. 29325

Filed Apr. 9, 1992, Ser. No. 866,192
Int. Cl.[5] A63F *3/02*
U.S. Cl. 273—261 7 Claims

1. A board game apparatus for a three player chess game which comprises:

a central flat board member having three sides which define an equilateral triangle, said central flat board member being divided into a plurality of geometric playing positions including:

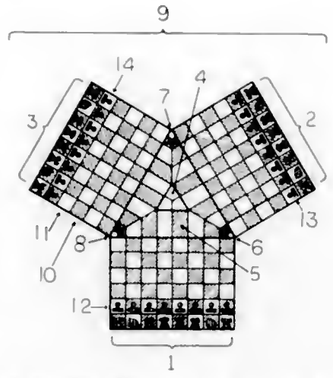
i) a central equilateral triangle having three sides which are parallel to and evenly spaced apart from the sides of the central flat board member, said central equilateral triangle being further divided into three playing positions by converging lines which are perpendicular to and bisect each of said three sides of said central equilateral triangle; and

ii) a peripheral playing area defined between the three sides of said central equilateral triangle and the three sides of

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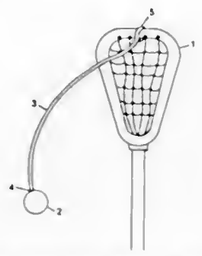
said central flat board member, said peripheral playing area being divided into a plurality of playing positions each of which consists of a four-sided polygon; and

three flat rectangular shaped board members each being aligned with and adjoining one of said three sides of said



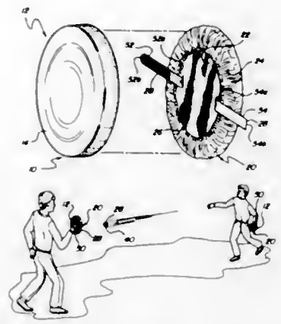
central flat board member, each of said three flat rectangular shaped board members being divided into a plurality of substantially square playing positions which are aligned in perpendicular rank and file rows and define a checkerboard pattern.

5,209,489
BALL RETURN DEVICE
Christopher M. Dorny, C-2107 Helaman Halls, Brigham Young University, Provo, Utah 64604, and Scott N. Dorny, 2 Park Pl. #25G, Hartford, Conn. 06106
Filed Dec. 2, 1991, Ser. No. 801,406
Int. Cl.[5] G09B *67/20*
U.S. Cl. 273—321 **9 Claims**



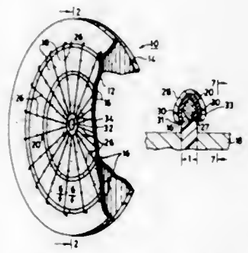
1. A device for attaching a ball to a catching and throwing apparatus, said catching and throwing apparatus having a substantially rigid peripheral portion, comprising:
a flexible, elastic connector;
ball attachment means for attaching said ball to a first end of said flexible, elastic connector; and
connector attachment means for attaching a second end of said flexible, elastic connector to said peripheral portion of said catching and throwing apparatus, including
a loop in said second end of said flexible, elastic connector, and
a flexible material, disposed within said loop in said second end of said flexible, elastic connector, for releasably attaching said flexible, elastic connector to said throwing and catching apparatus.

5,209,490
MULTI-PURPOSE TOY
Raymo Dallavecchia, Bloomfield Hills, Mich., assignor to Poof Toy Products, Inc., Plymouth, Mich.
Filed Mar. 13, 1992, Ser. No. 850,889
Int. Cl.[5] A63B *67/00*; **A63H** *27/00*
U.S. Cl. 273—346 **7 Claims**



1. A multipurpose toy comprising:
a ball;
a substantially planar aerodynamic plate having a front face and a back face;
a removable plate cover fabricated from a flexible material and having an interior surface, an exterior surface, and an at least partially elasticized perimeter, said cover capable of covering at least the front face of said plate;
a separable hook and loop fastener comprising a section of hook material and a section of loop material, a first one of said sections being attached to a portion of the exterior surface of said plate cover, and the other of said sections being attached to the ball such that the hook and loop material sections interact to enable the ball to attach to the exterior surface of said plate cover upon contact therewith; and
a handle attached to the perimeter of said plate cover;
whereby said multipurpose toy may be used with said plate cover positioned upon said plate to act as a catching implement to receive said ball in a throwing game, or in the alternative, said plate cover may be removed and said aerodynamic plate may be used as an object to be thrown.

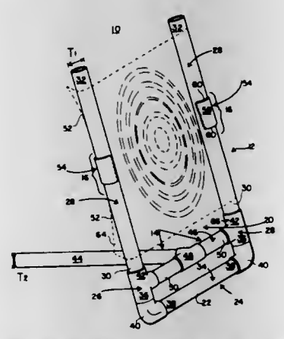
5,209,491
TARGET APPARATUS
Meldon A. Dodge, Oswego, N.Y., assignor to Top Dart Systems, Inc., Rochester, N.Y.
Filed Mar. 30, 1992, Ser. No. 859,944
Int. Cl.[5] F41J *5/04*
U.S. Cl. 273—371 **22 Claims**



1. A target in which projectiles may be embedded, said target including a target face, said target face being divided

into a plurality of beds, the beds being conductive at least on the outer surfaces and being insulated from adjacent beds by an insulating web, conductive means are provided connected to each of said beds to enable a separate signal to be applied to each bed, aerial means are provided to respond to a signal from a dart protruding from any bed, said aerial means comprising a wire framework mounted on said target face and being in superimposed alignment with said web, means are provided for securing said wire framework to said insulating web such that said wire framework remains in superimposed alignment with said web, said means for securing said wire framework to the web being resistant against breakage due to repeated hitting by metal tipped darts.

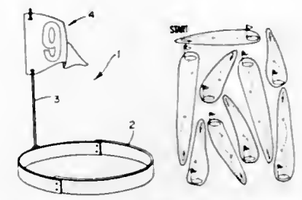
5,209,492
SHOOTING TARGET STAND
Phillip D. Hamilton, 8917 Butte Rd., Sweet, Id. 83670
Filed Jun. 22, 1992, Ser. No. 902,948
Int. Cl.[5] F41J *1/10*
U.S. Cl. 273—407 **11 Claims**



1. A shooting target stand for placement on the ground for supporting a generally planar target with outer perimeter edges, the shooting target stand comprising:
a generally two-dimensional frame defining a plane, the frame having an opening through the plane, for receiving a target in generally coplanar relationship to the frame, and the frame having a perimeter bottom base edge for resting on the ground;
attachment means for detachably fastening the edges of the target to the frame; and
a pivotal member pivotally and lockably connected to the frame near the base edge and extending from the frame to contact the ground, for supporting the frame at an adjustable angle relative to the stand member and relative to the ground,
whereby the target stand holds the target at a variety of angles and does not cross directly in back of the target.

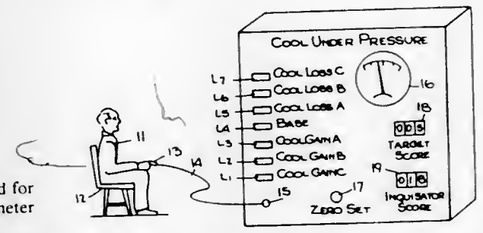
5,209,493
PORTABLE SAUCER GOLF GAME
Frank Chernek, Fairview, Pa., assignor to BWI, Inc., Fairview, Pa.
Filed Mar. 4, 1992, Ser. No. 847,714
Int. Cl.[5] A63B *67/00*
U.S. Cl. 273—411 **12 Claims**

1. A method of playing a game comprising the steps of:
forming a circular member having a diameter;
extending a visual indicating device from said circular member in a direction intersecting a plane formed by said diameter of said circular member;
placing said circular member on a surface within an available space to divide said space into a first area within said circular member and a second area outside of said circular area, wherein a successful throw comprises landing a plate-shaped saucer onto said surface completely within said first area;
throwing said plate-shaped saucer through the air toward said first area with the intent of attaining a successful throw;



repeating said throwing step until a successful throw is attained; and
counting the number of throws employed to attain a successful throw.

5,209,494
BIOFEEDBACK GAME
Donald Spector, 380 Mountain Rd., Union City, N.J. 07087
Filed Feb. 24, 1992, Ser. No. 840,023
Int. Cl.[5] A63F *9/24*
U.S. Cl. 273—460 **9 Claims**



1. A cool-under-pressure biofeedback game in which a target player is assailed by questions put to him by an inquisitor player calculated to induce stress by embarrassing or otherwise upsetting the target player and causing him to lose his cool, said game comprising:
(a) a biofeedback unit coupled to the target player to monitor an involuntary psychological function and to indicate the target player's state of stress at the start of play;
(b) means to present to the inquisitor player a subject matter category requiring that any question he puts to the target player lie within this category; and
(c) zero setting means included in the unit to establish a base level reflecting the initial state of stress of the target player at the start of play and indicating means to indicate the base level and degree to which the target player's stress in reaction to the question deviates in one direction from the base level should the target player be unable to exercise control over his reaction and in another direction should the target player succeed in exercising such control, said unit including an analyzer to measure the reaction of the target player to a series of questions put to him by the inquisitor player to determine, as to each of these questions, the degree to which the target player has succeeded in exercising control over his reaction thereto or has failed to exercise control, the analyzer including means for awarding score points to the target player whose number depends on his degree of success and means for awarding score points to the inquisitor player whose number depends on the target player's degree of failure, the total number of points scored by the target player relative to the number scored by the inquisitor player in response to

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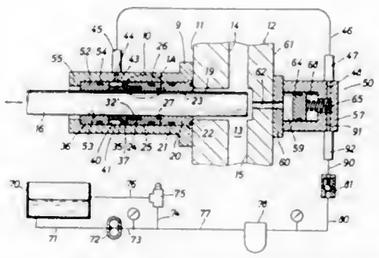
said series of questions determining the outcome of the game.

5,209,495

RECIPROCATING ROD PUMP SEAL ASSEMBLY

Harold H. Palmour, Rte. 8, Box 428, Livingston, Tex. 77351

Continuation-in-part of Ser. No. 577,018, Sep. 4, 1990, abandoned. This application Mar. 12, 1992, Ser. No. 849,988
Int. Cl.[5] F16J 15/32
U.S. Cl. 277—3 22 Claims



1. An assembly for use in sealing against fluid leakage along the plunger or rod of a pumping apparatus having intake and discharge passages and valve means for controlling the direction of the flow of fluids through said passages, said rod reciprocating axially within a body during pump strokes, comprising: primary seal means in said body engaging said rod to prevent fluid leakage; secondary seal means in said body axially spaced with respect to said primary seal means and engaging said rod to prevent fluid leakage, said secondary seal means being subject on one side to the pressure of a fluid being pumped; chamber means between said primary and secondary seal means, said chamber means being filled with a lubricating oil so that secondary seal means is subject on its other side to the pressure of the lubricating oil; and pressure transmitter means for transmitting the pressure of fluids in said body between said valve means to said lubricating oil to substantially equalize the pressures across said secondary seal means to thereby prevent leakage into said cavity of said fluid during pumping.

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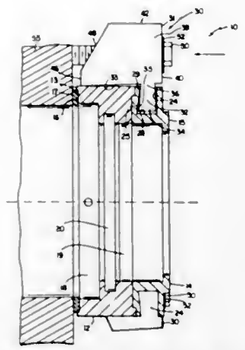
UNIVERSAL SEAL OR PACKING GLAND

Henri V. Azibert, Windham; Margaret B. Willbrant, Derry, both of N.H.; Marlen S. Clark, Newburyport, and Ann T. Attenasio, Revere, both of Mass., assignors to AWChesterton Company, Stoneham, Mass.

Continuation of Ser. No. 619,751, Jan. 28, 1990, abandoned. This application Jul. 24, 1992, Ser. No. 918,887
Int. Cl.[5] F16J 15/34
U.S. Cl. 277—9 34 Claims

1. A universal gland body defining a central opening, said gland body for mounting, coaxially about a machine shaft, to a machine housing through which said shaft extends, the mounting done with a plurality of bolts at fixed bolt positions in said housing, said gland body characterized in that

said gland body is adapted to be mounted to said machine housing via mounting tabs and comprises a mounting surface for placement adjacent said housing, at least one tab-engaging means having a tab-engaging surface facing away from said mounting surface, means for application of pressure from a location extending radially beyond the periphery of said gland body to secure said gland body to said housing via a plurality of said mounting tabs engaged with said tab-engaging surface, said application mans configured to engage said tabs at circumferentially adjustable positions relative to said gland body with said tabs extending radially beyond the periphery of said gland



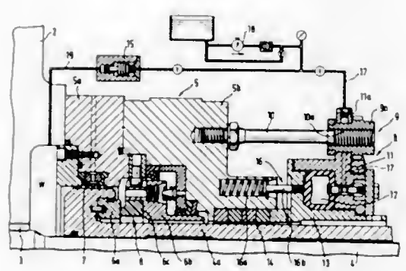
body for application of pressure from said bolts to secure said gland body to said housing via said tabs.

5,209,497

SEALING APPARATUS FOR ROTATING SHAFTS, IN PARTICULAR STERN TUBE SEAL FOR THE PROPELLER SHAFTS OF A SHIP

Ernst-Peter Von Hergen, Ahlefeld, and Günter Pietsch, Hamburg, both of Fed. Rep. of Germany, assignors to Hlohm+Voss AG, Hamburg, Fed. Rep. of Germany

Filed Sep. 5, 1991, Ser. No. 755,001
Claims priority, application Fed. Rep. of Germany, Sep. 5, 1990, 4028048
Int. Cl.[5] F16J 15/46, 15/34
U.S. Cl. 277—28 11 Claims



1. A stern tube seal for a rotating propeller shaft of a ship, the propeller shaft having an axial direction, said stern tube seal comprising:

a first seal for functioning as a main seal; and

a backup seal, said backup seal being for use when said first seal fails, said backup seal comprising:

compressible sealing means for sealing out an outside medium from around the propeller shaft, the outside medium to be sealed out comprising outside water about the ship at a selected point, the outside water having a variable pressure;

a gland member for moving in the axial direction for compressing and decompressing said compressible sealing means to vary sealing;

a guide member for directing said gland member in the axial direction;

an expandable body located between a portion of said gland member and a portion of said guide member, said expandable body for moving said gland member in the axial direction relative to said guide member for compressing and decompressing said compressible sealing means;

a pressurized medium for acting upon said expandable body;

a pressure control mechanism comprising:

sensing means for sensing the pressure of said variable water pressure at said selected point;

means for varying the pressure of said pressurized medium; and

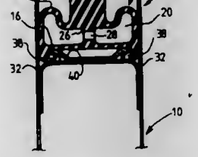
said pressured control mechanism for increasing and decreasing the pressurized medium directly in relation to at least the pressure of the outside water at said selected point and wherein a portion of said gland member telescopes into said guide member to form a piston-cylinder unit; and said expandable body is always completely contained within said piston-cylinder unit.

5,209,498

INFLATABLE GASKET SEALING DEVICE FOR A DOOR OR A MOVING PANEL

Olivier Colin, Argenteuil, France, assignor to Le Joint Francais, Paris, France

PCT No. PCT/FR91/00556, § 371 Date Mar. 19, 1992, § 102(e) Date Mar. 19, 1992, PCT Pub. No. WO92/01179, PCT Pub. Date Jan. 23, 1992
PCT Filed Jul. 10, 1991, Ser. No. 838,416
Claims priority, application France, Jul. 10, 1990, 90 08726
Int. Cl.[5] F16J 15/46
U.S. Cl. 277—34 4 Claims



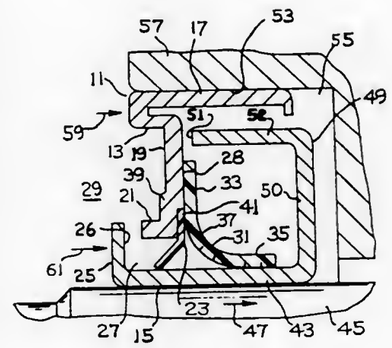
1. An inflatable gasket sealing device for a moving panel which is movable relative to a fixed surface, the device comprising an inflatable tubular gasket which is mounted on the panel and a shoe for pressing against the fixed surface, a solid wall which is secured to the panel and covers the inflatable tubular gasket and which includes a longitudinal slot through which the shoe passes, said slot being narrower than the inflatable gasket and slightly wider than the shoe, said inflatable tubular gasket comprising a base secured to the moving panel and an elastically deformable wall which connects the base of the gasket to the shoe and is movable between a rest position where said elastically deformable wall is at a distance from said slot in the solid wall and said shoe is at a distance from the fixed surface, the tubular gasket being not inflated, and a working position where said elastically deformable wall is pressed against said solid wall and said shoe is pressed against the fixed surface, the tubular gasket being inflated, said tubular gasket further comprising a longitudinal internal partition which connects the said shoe to the base of the tubular gasket and constitutes means for returning the shoe to the rest position when the tubular gasket is deflated.

5,209,499

UNITIZED POLYTETRAFLUOROETHYLENE RADIAL LIP SEAL

Donald N. Ruff, Jr., Sylvania, Ohio, and Mark M. Migda, Ann Arbor, Mich., assignors to Mather Seal Company, Southfield, Mich.

Filed May 26, 1992, Ser. No. 888,956
Int. Cl.[5] F16J 15/32
U.S. Cl. 277—50 9 Claims



1. An annular lip seal assembly, comprising:

an outer annular metal case insertable into an annular recess in a housing;

an inner annular metal wear sleeve installable onto a shaft;

said outer annular case comprising a radially outer axial wall adapted to fit within the housing recess, and a radial wall extending from said axial wall, said radial wall defining a free end portion formed into an axially directed rim;

said wear sleeve comprising a tubular wall having a leading end portion and a trailing end portion;

said wear sleeve further comprising a first rigid, substantially non-deformable abutment structure comprising a first radial flange extending radially outwardly from the leading end of said tubular wall, and a second rigid, substantially non-deformable abutment structure comprising a second radial flange extending radially outwardly from the trailing end of said tubular wall beyond said axially-directed rim, said second radial flange being engageable with said axially directed rim of said radial wall so as to provide a metal-to-metal engagement;

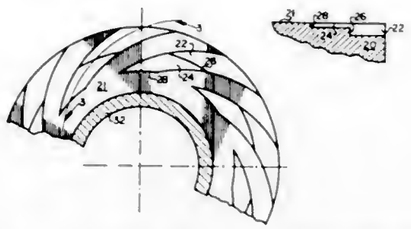
a pair of annular sealing elements each of which comprises an annular wafer of fluorinated resin material connected to the same side of said radial wall of said outer annular case for sealing engagement with said tubular wall, a first one of said sealing elements extending toward said leading end portion of said wear sleeve and a second one of said sealing elements extending toward said trailing end portion of said wear sleeve;

said radial wall of said outer annular case having a portion thereof trapped between said first and second abutment structures so that said outer annular cae and said wear sleeve are loosely interlocked prior to insertion into said recess in said housing; and

said first and second abutment structures being axially spaced from each other so that said annular wear sleeve can shift a limited axial distance relative to said outer annular case to provide an axial clearance therebetween so that, during use, said radial wall of said outer annular case may avoid direct contact with said wear sleeve, and said sealing elements are prevented from contacting said first and second radial flanges on said wear sleeve.

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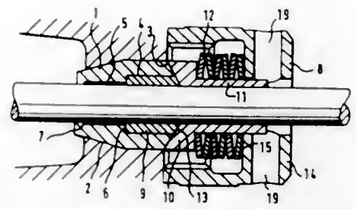
5,209,500
SPIRAL GROOVE FACE SEAL
Josef Sedy, 1612 Greenwood Dr., P.O. Box 441, Mount Prospect, Ill. 60056
Filed Feb. 26, 1992, Ser. No. 841,578
Int. Cl.[5] F16J 15/34
U.S. Cl. 277—96.1 9 Claims



1. Device for sealing a fluid at a space between a housing and a rotatable shaft, comprising
a first seal ring, mounted on said shaft for rotation therewith and having a planar front sealing surface,
a second seal ring, being substantially coaxial with said first seal ring and having a planar sealing surface defining a clearance with said first seal ring planar front sealing surface,
one of said seal rings being axially movable,
said axially movable seal ring being acted upon by said fluid to close said clearance,
an elastic means, connected between said housing and said axially movable seal ring for biasing said axially movable seal ring towards other said seal ring to close said clearance,
one of said planar sealing surfaces having a plurality of grooves formed therein, said grooves arranged in spaced relation to each other, having a first relatively deep and substantially spiral portion extending inwardly from a first circumference of said planar surface and a second relatively shallow portion in an abutment with said first relatively deep portion,
said abutment being an abrupt step-like change in groove depth,
maximal depth of said relatively deep portion not exceeding 0.001 inches,
said relatively shallow portion being separated by an annular ungrooved surface from a second circumference of said grooved planar sealing surface,
said first circumference communicating with said fluid.

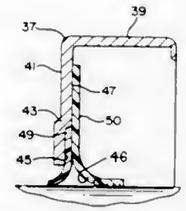
5,209,501
NEEDLE PACKING ASSEMBLY
Rowland C. Smith, Wimborne, United Kingdom, assignor to ITW Limited, Berkshire, United Kingdom
Filed May 24, 1991, Ser. No. 703,116
Claims priority, application United Kingdom, Feb. 5, 1990, 9002525
Int. Cl.[5] F16J 15/18
U.S. Cl. 277—102 12 Claims

1. An improved needle packing assembly for sealing a valve needle of a spray gun, said spray gun having a body, comprising an annular seal mounted in said spray gun body coaxial with said valve needle, said seal having an axial opening with an interior surface forming a sealing lip at one end of said opening, said sealing lip slidably engaging said valve needle to prevent passage of fluid past said seal, an annular liner coaxial with and abutting said seal and said valve needle, and means forcing said liner against said seal to expand said liner against



said valve needle, said liner forming a self-lubricating bearing for said valve needle.

5,209,502
DUAL LIP SEAL AND METHOD OF FORMING THE SEAL
Michael A. Savoia, Manchester, Mich., assignor to Mather Seal Company, Southfield, Mich.
Filed Jun. 23, 1992, Ser. No. 903,019
Int. Cl.[5] F16T 15/32
U.S. Cl. 277—152 6 Claims

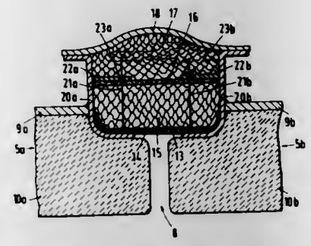


1. A dual lip seal, comprising:
an annular case that includes a radial wall having an axial step defining a radially outer mounting surface and a radially inner mounting surface respectively located in first and second axially-spaced radially-extending planes, said inner and outer mounting surfaces being defined on the same side of said radial wall;
a first sealing disk seated on and bonded to said inner mounting surface; and
a second sealing disk seated on and bonded to said outer mounting surface such that said second disk extends radially outwardly beyond said axial step.

5,209,503
HOT GAS ELASTIC JOINT SEAL
Jürgen Heibel, Frankfurt am Main; Peter Brinkmann, Maintal, and Peter Schmäing, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Mar. 23, 1992, Ser. No. 855,908
Claims priority, application Fed. Rep. of Germany, Mar. 23, 1991, 4109637
Int. Cl.[5] F16J 15/32
U.S. Cl. 277—229 4 Claims

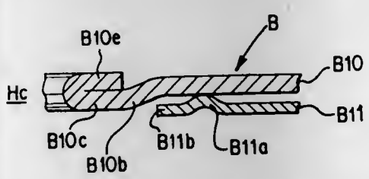
1. A joint seal between two ducts traversed by hot gas, comprising:
respective seats formed on each of said ducts at a joint between said ducts, each seat comprising an angled metal element;
a woven wire cloth bridging said seats and said metal elements;
a metal foil disposed on said wire cloth;

a packing of ceramic fibers spanning said seats and being disposed on said metal foil;
a wire net disposed on said packing of ceramic fibers;
a mineral wool layer disposed on said wire net;
a respective retaining plate welded to at least one of said angled metal elements and provided with throughgoing holder;



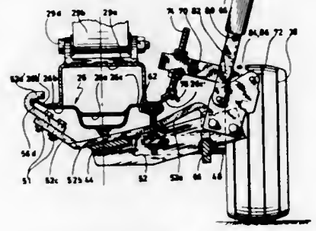
a plurality of pointed metal rods secured to each seat and extending radially therefrom through said wire cloth, said metal foil, said packing of ceramic fibers and said wire net, said metal rods extending through said holes in said retaining plate; and
a compensator strip at the outside of said seal and spanning said seats while enabling relative movement of said seats.

5,209,504
METAL LAMINATE GASKET
Tsunekazu Udagawa, Ichikawa; Susumu Inamura, and Yoshio Yamada, both of Tokyo, all of Japan, assignors to Ishikawa Gasket Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 683,430, Apr. 10, 1991, which is a continuation-in-part of Ser. No. 193,215, May 11, 1988, Pat. No. 5,054,795, which is a continuation of Ser. No. 928,937, Nov. 10, 1986, abandoned. This application Feb. 25, 1992, Ser. No. 840,827
Int. Cl.[5] F16J 15/08
U.S. Cl. 277—235 B 9 Claims



1. A metal laminate gasket for an internal combustion engine having at least one hole therein comprising:
a first metal plate including at least one first hole corresponding to the hole of the engine, first sealing means situated around the first hole to define and seal around the first hole, said first sealing means including a lower section and an upper section situated above the lower section and having an upper outer surface, a base section having an upper outer surface and extending substantially throughout an entire area of the gasket, and an inclined portion situated between the lower section of the first sealing means and the base section and having a height less than a thickness of the first sealing means so that the upper outer surface of the base section is located below the upper outer surface of the upper section of the first sealing means, and
a second metal plate situated under the base section of the first plate, said second plate having at least one second hole, a diameter of the second hole being larger than an outer diameter of the first sealing means to permit the second plate to be compressed by the base section without laminating the first sealing means when the gasket is assembled, and second sealing means situated around the second hole and having a height between a top of the second sealing means and a bottom of the second metal plate greater than a thickness of the first metal plate so that when the first and second plates are assembled to contact with each other, a part of the second plate is located below a lower surface of the lower section of the first sealing means, and when the gasket is tightened, the inclined portion is initially expanded in a direction away from the second metal plate, and the second sealing means is compressed by tightening force and a counter force relative to expansion of the inclined portion to equally tighten the second sealing means throughout the entire area of the second sealing means.

5,209,505
SNOWMOBILE SKI LIFT CARRIAGE
Romain Bastille, 2, rue Mère Anthier, Rivière-du-Loup, Québec, Canada G5R 3W9 , and Adélard Vaillancourt, 324, Boulevard Thériault, Rivière-du-Loup, Quebec, Canada G5R 3X8
Filed Mar. 23, 1992, Ser. No. 855,912
Int. Cl.[5] B62B 3/02
U.S. Cl. 280—8 7 Claims



1. A lift carriage adapted to movably support over ground a front ski of a snowmobile, the ski consisting of a main elongated body, first and second ski portions adjacent and on each side of said main elongated body and which are upwardly offset relative to said main body, and first and second opposite lengthwise ski edges bordering said first and second ski portion, respectively, the carriage comprising:
a) a rigid frame, defining a frame upper surface on which said ski main body is adapted to rest;
b) rolling means carried by said frame to freely displace the latter over ground;
c) an abutment member secured to said frame and projecting above said frame upper surface and adapted to engage and support said first ski portion;
d) a lever member, pivoted to said frame about an axis generally parallel to the rolling direction of said rolling means, the lever member pivotable between an inoperative position and an operative position, and carrying a stopper adjacent and above said abutment member, and adapted to engage from above said first ski and in operative position of said level member; and
e) hook means carried by said frame to releasably anchor said second ski edge to said frame; whereby actuation of said lever member to its operative position causes said stopper to engage said first ski edge and wedge said first ski portion against said abutment member.

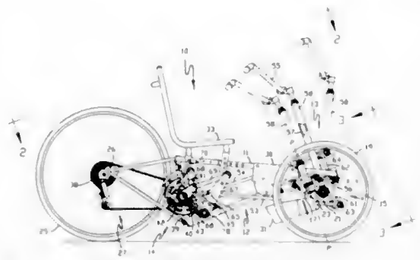
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5,209,506

VEHICLE WITH COMBINED PROPULSION AND STEERING MECHANISM

King L. Klopfenstein, 10 Drake Terrace, Prospect Heights, Ill. 60070

Filed Mar. 24, 1992, Ser. No. 856,497
Int. Cl.[5] B62K *21/00*; A61G *5/02*
U.S. Cl. 280—240 18 Claims



1. A vehicle comprising the combination of:

a frame, two laterally spaced right and left front wheels and at least one rear wheel, means supporting the wheels to rotate relative to the frame about generally horizontal axes, and means supporting the front wheels to steer about generally vertical steering axes;

a column and means supporting the column relative to the frame for oscillation about a laterally extended pivot axis, and means operatively coupling the column, at locations spaced from the pivot axis thereof, to the rear wheel, operable for powering the rear wheel upon column oscillation relative to the frame; and

a steering member rotatably mounted within the column and presenting an arm, and elongated laterally extended rigid right and left links connected pivotally at inboard ends thereof to the steering member arm at locations having a radially spacing from the column and connected at outboard ends thereof to the respective right and left front wheels, operatively joining the front wheels to the steering member;

the inboard link ends moving along an arcuate path concentrically of the column, upon steering member rotation in steering the vehicle;

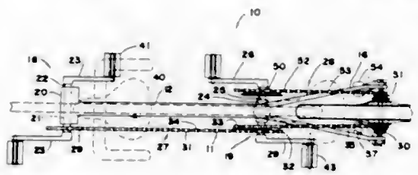
said arcuate path and said column pivot axis being located relative to one another to provide that said pivot axis generally intersects the arcuate path at two spaced intermediate axis-path intersections symmetrically disposed generally of a midpoint position of the steering member when oriented to provide for straight ahead vehicle movement.

5,209,507

TRANSMISSION SYSTEM FOR TANDEM BICYCLES

Alberto Domenge, Fuente de las Aguilas 194, Tecamachalco 53950, Edo de Mex., Mexico

Continuation of Ser. No. 593,959, Oct. 9, 1990, abandoned. This application Feb. 18, 1992, Ser. No. 837,108
Int. Cl.[5] B62M *1/02*
U.S. Cl. 280—231 18 Claims



1. A transmission system for tandem bicycle having a frame on which are mounted a front steerable ground engaging wheel, and a rear, driven, ground engaging wheel, and having front and rear pedal systems each of which includes a shaft rotatably mounted in a hub carried by the frame, each shaft having axial ends to which pedal cranks are connected for rotating the shaft in response to pedal rotation of said cranks, said system comprising:

a) first means for coupling the shaft of said front pedal system to said rear wheel so that pedal rotation of the cranks connected to the last mentioned shaft imparts rotation to said driven wheel;

b) second means for coupling the shaft of said rear pedal system to said rear wheel so that pedal rotation of the cranks connected to the last mentioned shaft imparts rotation to said driven wheel;

c) said first and second means being constructed and arranged so that pedal rotation of the cranks connected to one of the shafts imparts rotation to said driven wheel without imparting rotation to the other of the shafts;

d) said first means including a first sprocket wheel rigidly connected to the shaft of said front pedal system, a first free-wheel cluster mechanism operatively associated with one side of said driven wheel, and sprocket chain means operatively connecting said first sprocket wheel to said first free-wheel cluster mechanism; and

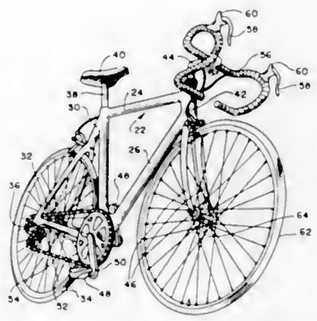
e) said second means including a second sprocket wheel rigidly connected to said shaft of said rear pedal system, a second free-wheel cluster mechanism operatively associated with the other side of said driven wheel, and second sprocket chain means operatively connecting said second sprocket wheel to said second free-wheel cluster.

5,209,508

BICYCLE, HANDLEBAR AND ADAPTER SYSTEM

Dan C. Lennon, 4940 Stuckey, Bozeman, Mont. 59715

Continuation of Ser. No. 501,687, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 428,373, Oct. 27, 1989, abandoned, which is a continuation-in-part of Ser. No. 173,765, Mar. 28, 1988, Pat. No. 4,878,397, which is a continuation-in-part of Ser. No. 1,616, Jan. 9, 1987, Pat. No. 4,750,754. This application Sep. 12, 1991, Ser. No. 758,187
Int. Cl.[5] B62M *1/02*
U.S. Cl. 280—261 32 Claims



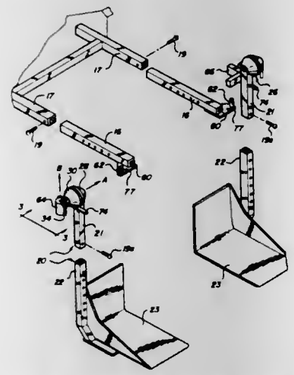
1. A bicycle comprising a frame, a rear wheel journaled to the frame, a steering post journaled to the frame, a front fork attached to the steering post, a front wheel journaled to the fork, a saddle affixed to the frame at a predetermined position above the frame, and a handlebar connected to the steering post, said handlebar including a crosspiece having a central region connectable with the steering post and having sideways portions extending sideways therefrom, a pair of intermediate drop portions each having a first generally forwardly and downwardly extending portion extending from said crosspiece and extending therefrom a second downwardly and rearwardly extending portion, and at least one lower drop portion extending from the intermediate drop portions or the sideways portions and extending on opposite sides of the steering post and generally beneath the steering post to define a pair of hand gripping positions located generally beneath the steering post to allow the rider to assume a narrow frontal profile.

5,209,509

WHEELCHAIR FOOTREST ASSEMBLY

Dwight S. Gay, Fenton, and John W. Hoornstra, Vassar, both of Mich., assignors to Gunnell, Inc., Millington, Mich.

Filed May 26, 1990, Ser. No. 528,152
Int. Cl.[5] B62K *15/00*
U.S. Cl. 280—304.1 21 Claims



1. Apparatus for mounting a footrest on an incapacitated person's support having a main frame and a seat frame movably mounted on said main frame, said apparatus comprising a footrest; a compound pivot structure; first coupling means coupling said footrest to said structure for pivotal adjustments of said footrest relative to said seat frame about a first axis; and second coupling means coupling said footrest to said seat frame for conjoint movement therewith and for pivotal movements of said footrest relative to said seat frame about a second axis substantially normal to said first axis.

5,209,510

AIRBAG RESTRAINT SYSTEM FOR MOTOR VEHICLE

Kiyoshi Mamiya, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jul. 31, 1991, Ser. No. 738,374
Claims priority, application Japan, Jul. 31, 1990, 2-203054; Aug. 9, 1990, 2-210718
Int. Cl.[5] B60R *21/22*
U.S. Cl. 280—732 14 Claims

1. An airbag restraint system for a motor vehicle, comprising:

an instrument panel defining a recess space and formed with an opening through which said space is communicable with a passenger compartment;

a lid by which said opening is substantially closeable;

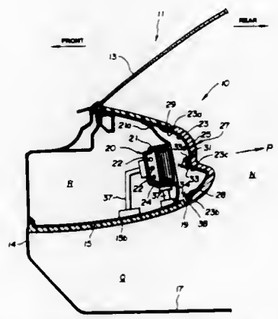
means for detecting a speed of the vehicle and outputting a vehicle speed signal representative of the detected speed;

a collision sensor for generating a collision signal when a collision of the vehicle occurs;

an airbag unit disposed in said space inside said instrument panel, said airbag unit including a plurality of inflators for generating a high pressure gas in response to the collision signal, and an airbag stored in its folded state and inflatable to be projectable into the passenger compartment through said lid; and

means for causing said airbag to inflate in a first inflating pressure, a first primary direction of inflation, and a first inflation contour in response to a concurrence of the collision signal and the vehicle speed signal being higher than a predetermined level, and in a second inflating pressure, a second primary direction of inflation, and a second inflation contour in response to a concurrence of the collision signal and the vehicle speed signal being lower than said predetermined level,

said causing means including a means for operating all of said inflators in response to a concurrence of the collision



signal and the vehicle speed signal being higher than the predetermined level, and a predetermined subset from among said inflators in response to a concurrence of the collision signal and the vehicle speed signal being lower than the predetermined level; and

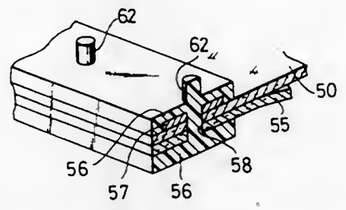
means for selectively interfering with a portion of the airbag so as to control the airbag to inflate in the first primary direction of inflation and the first contour of inflation in response to the collision signal when the vehicle speed signal is higher than the predetermined level and in the second primary direction of inflation and the second contour of inflation in response to the collision signal when the vehicle speed signal is lower than the predetermined level.

5,209,511

AIR BAG FOR A PASSENGER'S SEAT

Kazuo Morita, Shiga, Japan, assignor to Takata Corporation, Tokyo, Japan

Filed Nov. 6, 1991, Ser. No. 788,608
Claims priority, application Japan, Nov. 30, 1990, 2-334591
Int. Cl.[5] B60R *21/16*
U.S. Cl. 280—743 2 Claims



1. A passenger's air bag, comprising:

a body made of fabric, said body having an inlet port with an edge portion, a plurality of openings around the edge portion, and inner and outer sides at the edge portion;

synthetic resin plates formed on the inner and outer sides of

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the edge portion to sandwich the body therebetween, said synthetic resin plates at the inner and outer sides being integrally molded and connected together through the openings of the body and being impregnated into the fabric to interconnect therewith, said one of the synthetic resin plates having a plurality of projections integrally formed with the resin plates and extending outwardly from an outer surface of the resin plate to mount and connect the air bag to a housing, said synthetic resin having rigidity around the inlet port so that the edge portion of the body is easily assembled with fastening means of the air bag and is not disengaged from the fastening means when force is applied to the fastening means from the air bag; and

a reinforcing metal plate embedded inside one of the synthetic resin plates to strengthen the edge portion of the body.

5,209,512

APPARATUS FOR CONNECTING ADJUSTABLE REACH STEERING COLUMN TO ACTUATING MEANS

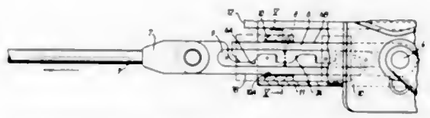
Michael T. Hancock, Coventry, and Laurence G. Barton, Leamington, both of England, assignors to The Torrington Company, Torrington, Conn.

Filed Jan. 13, 1992, Ser. No. 819,698

Claims priority, application United Kingdom, Jan. 28, 1991, 9101801

Int. Cl.[5] B62D *1/18*

U.S. Cl. 280—775 **7 Claims**



1. In combination, a coupling for an adjustable reach steering column for a vehicle, the coupling connecting the steering column to an actuating means, the coupling comprising:

a first member slidably connected to the steering column, in such a manner as to allow axial adjustment of the steering column relative to the first member;

a second member connected to the actuating means; the first member and the second member being flat legs, each leg having serrations along at least part of the length of one edge thereof and ramp portions along the opposite edge, one leg being inverted relative to the other so that the legs mate with the ramps of one leg nesting between the ramps of the other leg; and

a locking means for preventing axial movement of the steering column relative to the first member, the locking means operating upon actuation of the actuating means.

5,209,513

METHOD FOR PREVENTING COUNTERFEITING OF SALES RECEIPTS

Orlando C. Batelli, Houston, and Michael A. Repp, Cypress, Tex., assignors to Wallae Computer Services, Inc., Hillside, Ill.

Filed Dec. 9, 1991, Ser. No. 803,567

Int. Cl.[5] B42D *15/00*

U.S. Cl. 283—67 **2 Claims**

1. A method of preventing counterfeiting of sales receipts comprising the steps of:

providing at a manufacturing site a first ink having as a component one that is visible only under ultraviolet light,

providing at said manufacturing site an elongated web of receipt paper convolutely wound into a roll,

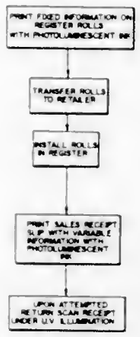
unwinding said roll and printing fixed information with said first ink in a plurality of longitudinally spaced places on said roll,

rewinding the printed paper into a roll,

transferring the printed roll to a point of sales site, providing at said sales site a ribbon having a second ink having as a component one that is visible only under ultraviolet light,

installing said ribbon in register means equipped with means adapted to print variable information through said ribbon on said roll,

creating different variable information for each of said longitudinally spaced places on said roll and introducing said variable information into said register means,



printing different variable information on each of said longitudinally spaced places on said roll,

detaching a portion of said roll carrying both said fixed and variable information relative to purchased merchandise and giving it as a sales receipt to the purchaser, and

upon attempted return of the merchandise subjecting the said sales receipt to ultraviolet light examination to determine the presence of both said fixed and variable information.

5,209,514

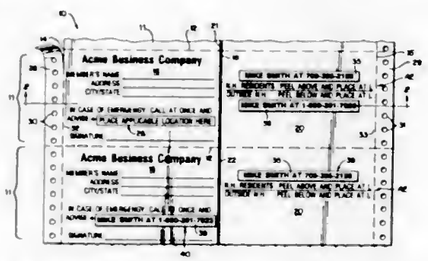
I D CARD WITH BLOW ON LABEL

David L. Hebert, Suncook, N.H., assignor to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Aug. 10, 1992, Ser. No. 926,707

Int. Cl.[5] B42D *15/00*

U.S. Cl. 283—81 **20 Claims**



1. An identification card intermediate comprising:

a transparent plastic substrate having first and second edges parallel to each other, and third and fourth edges perpendicular to said parallel edges, and having first and second faces;

a base stock having first, third, and fourth edges in substantial alignment with said substrate first, third, and fourth edges, respectively; and having first and second faces;

indicia printed on said first face of said base stock;

a release liner having second, third, and fourth edges in substantial alignment with said substrate second, third, and fourth edges, respectively, and having first and second faces;

an adhesive layer substantially covering said first face of said substrate, and connecting said second face of each of said base stock and said release liner to said substrate;

the length of said third and fourth edges of each of said release liner and said base stock being approximately one half the length of said substrate third and fourth edges; and

a sticker having dimensions substantially less than the dimensions of said release liner, and having first and second faces, with releasable adhesive removably attaching said sticker second face to said release liner, and indicia printed on said first face.

5,209,515

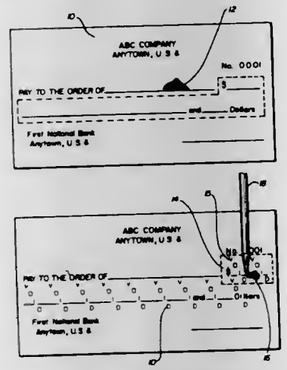
SOLVENT AND/OR PRESSURE SENSITIVE SECURITY DOCUMENT

Mark D. Dotson; A. Dale Lakes, and William H. Mowry, Jr., all of Dayton, Ohio, assignors to The Standard Register Company, Dayton, Ohio

Filed Feb. 8, 1991, Ser. No. 652,614

Int. Cl.[5] B42D *15/00*

U.S. Cl. 283—95 **31 Claims**



1. A solvent sensitive security document comprising a document substrate having a first and second major surfaces, at least one of said major surfaces having coated or printed thereon a composition comprising solvent soluble, water insoluble dye particles having a diameter of between about 0.3–50 μm, and a binder, said dye particles solubilizing when contacted with a solvent to form a colored visible stain or image on said substrate to indicate an attempted alteration of said document.

5,209,516

SAFETY SKI BINDING

Joel Arduin, Annecy-Le-Vieux, and Pascal Thomas, Chambery, both of France, assignors to Salomon S. A., Chavanod, France

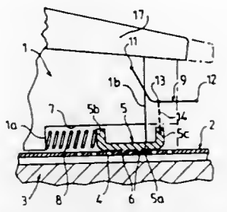
Filed Feb. 10, 1992, Ser. No. 833,163

Claims priority, application France, Feb. 8, 1991, 91 01481

Int. Cl.[5] A63C *9/084*

U.S. Cl. 280—633 **8 Claims**

1. Ski safety binding comprising a body (1) carrying, on a first frontal surface, a movable jaw adapted for locking an end of a boot on a ski, said body being mounted so as to slide on a longitudinal slide-track (2) attached on said ski and capable of being locked in an adjustable longitudinal position on said slide-track (2) by means of a locking device (5) mounted so as to pivot about a horizontal axis on said body (1), said locking device (5) being acted upon elastically by a spring (8) and comprising at least one lower tooth (6) capable of being engaged, in the locked position, in one of several holes (4) formed in said longitudinal slide-track (2) and spaced apart longitudinally, wherein said safety binding comprises, on a second frontal surface (1*b*) opposite said first frontal surface on which said jaw is positioned, a control lever (9) having a free gripping end and being constituted by a substantially C-shaped rigid wire loop whose end portions comprise horizontal, transverse sections (9*b*) extending toward each other and engaged in respective housings (15) forming bearings in said body (1) and giving material form to a transversc pivoting axis (11) of said



control lever (9), said control lever (9) having an intermediate point (13) connected, by connection means (14 to an end part (5*c*) of said locking device (5) located adjacent said second frontal surface (1*b*) of said body (1), so that raising said control lever (9) by applying a force beneath said free, gripping end (12) causes said locking device (5) to pivot upward and to move from a locked position to an unlocked position.

5,209,517

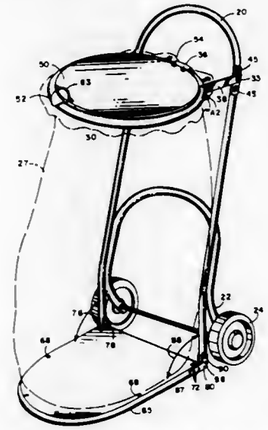
WHEELED VEHICLE

Paul B. Shagoury, 48 Fairmount Ave., Hyde Park, Mass. 02136

Continuation of Ser. No. 900,597, Aug. 27, 1986, abandoned, which is a continuation-in-part of Ser. No. 567,554, Jan. 3, 1984, abandoned. This application Jan. 18, 1989, Ser. No. 299,239

Int. Cl.[5] B62B *1/04*

U.S. Cl. 280—654 **4 Claims**



1. The improvement in a mobile bag holder comprising a frame,

a ring having a stationary segment affixed to the frame in a preselected position to accommodate a cover and a movable segment for mating with said stationary segment pivotally connected to the frame that can be swung out of the way for storage or placed parallel to the floor to receive a laundry bag in an open configuration thereby forming a hamperstand,

a base having a solid flat surface which will not permit a wet laundry bag to contact the floor foldably connected to the frame,

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two wheels rotatably attached at preselected positions on the frame whereby it can be tilted to be movable on said wheels or placed erect so that the wheels disengage with the floor rendering the stand stationary.

a removable, openable and clasped closeable cover having,

two clamps of preselected material and shape for serving separate purposes of hinge and clasp affixed to said cover at preselected positions for engaging the bag receiving ring,

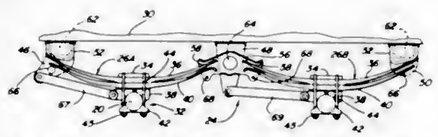
one of said clamps for engaging the stationary segment forming a rotatable hinge and the other for engaging the bag covered movable segment forming a clasp whereby the cover can be entirely removed for replacing a bag and cleaning and held open for filling a bag and clasped closed when not in use.

5,209,518

DUAL-STAGE TAPERED LEAF SPRING FOR A TRAILER

Mark A. Heckenliable, Logansport; Dewayne B. Williams, Kewanna, and Robert J. Dooley, Indianapolis, all of Ind., assignors to Detroit Steel Products Co., Inc., Morristown, Ind.

Filed Mar. 11, 1991, Ser. No. 667,524
Int. Cl.[5] B60G *11/04, 5/047*
U.S. Cl. 280—680 14 Claims



1. In a suspension system for a trailer having axle means and a chassis frame, first and second hanger means mounted on each side of said chassis frame, and a dual-stage tapered leaf spring operably coupled to said axle means and disposed between said first and second hanger means for damping the relative movement between said axle means and said chassis frame, said dual-stage tapered leaf spring comprising:

a first leaf member having its upper end surfaces in sliding contact with cam surface means provided on said first and second hanger means, said first leaf member having a first tapered thickness profile; and

a second leaf member disposed below and coupled to said first leaf member such that its upper end surfaces are adapted to move between positions of disengagement and engagement with lower end surfaces of said first leaf member in response to deflection of said leaf spring means, said second leaf member having a second tapered thickness profile;

wherein each of said first and second tapered thickness profiles include a series of more than three successive linearly tapered increments which each define a different amount of thickness taper per unit of length measurement, said linearly tapered increments having different incremental tapers sequentially arranged and configured to track a modified parabolic taper profile.

5,209,519

VEHICLE OCCUPANT PROTECTION AIR BAG MODULE

Masayuki Shiga; Kanichi Fukuda; Kazuhiro Seki; Yukio Hiruta, and Masanori Takagawa, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 17, 1991, Ser. No. 716,452
Claims priority, application Japan, Jun. 18, 1990, 2-159572
Int. Cl.[5] B60R *21/16*
U.S. Cl. 280—728 6 Claims

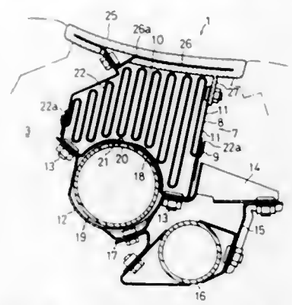
1. An air bag module comprising:

a retainer case installed on a vehicle body such that an open end faces a passenger compartment;

an air bag having a stem secured to and supported by said retainer case and accommodated in a folded state therein; and

an inflator provided at an end of said retainer case opposite said open end serving to issue gas into said air bag to cause inflation and deployment of said air bag;

said retainer case including two separate parts, one being an open end side part terminating in said open end and the



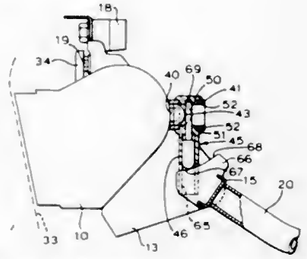
other being an inflator-secured end side part with said inflator secured thereto, said inflator-secured end side part being supported by said vehicle body, said open end side part being made to be less rigid than said inflator-secured end side part, wherein said open end side part of said retainer case is thinner than said inflator-secured end side part, and is thereby less rigid than said inflator-secured end side part.

5,209,520

AIR BAG RESTRAINT SYSTEMS

Gerald P. Skidmore, Nuneaton, and Mark A. Lambert, Rugby, both of United Kingdom, assignors to Jaguar Cars Limited, United Kingdom

Filed Jun. 8, 1992, Ser. No. 895,356
Claims priority, application United Kingdom, Jun. 14, 1991, 9112921
Int. Cl.[5] B60R *21/16*
U.S. Cl. 280—732 13 Claims



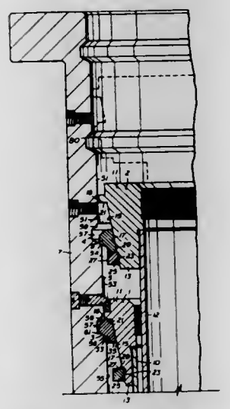
1. An air bag restraint system comprising an air bag module having an inflator with an arming plunger which must be depressed to arm the inflator, the air bag module being mounted between a pair of side plates of a bracket assembly for pivotal movement between inoperative and operative positions, means for releasably securing the air bag module in its operative position, an arming mechanism comprising a pin mounted with respect to the arming plunger for transverse movement with respect thereto between a disarmed and an armed position, the pin being adapted to engage a contoured end face of the arming plunger to depress the arming plunger as it moves from its disarmed to its armed position, the pin being biased to its disarmed position and an anvil associated with the bracket assembly being provided for engagement of the pin to move it from its disarmed to its armed position as the air bag module is pivoted from its inoperative to its operative position.

5,209,521

EXPANDING LOAD SHOULDER

Roger S. Osborne, Houston, Tex., assignor to Cooper Industries, Inc., Houston, Tex.

Continuation of Ser. No. 647,672, Jan. 24, 1991, abandoned, which is a continuation of Ser. No. 371,741, Jun. 26, 1989, abandoned. This application Jun. 3, 1992, Ser. No. 894,176
Int. Cl.[5] F16L *35/00*
U.S. Cl. 285—3 11 Claims



1. A self-actuating, releasable weight support system, comprising:

a generally circular cylindrical structural support member having a central bore therethrough, said bore having an annular groove with a recessed load support surface therein and a no-go shoulder adjacent thereto;

a generally circular cylindrical weight support member insertable within said bore, said weight support member having an actuating portion with a tapered outer surface and an annular stop shoulder at the larger diameter end of said tapered outer surface;

an annular retainer ring attached to the smaller diameter end of said tapered outer surface;

an expandable split load ring slidably disposed on said weight support member between said retainer ring and said top shoulder and supported by said annular retainer ring when aid releasable weight support system is assembled, said load ring including landing means for landing on said no-go shoulder and tapered actuating surface means engageable with said tapered outer surface of aid actuating portion of said weight support member as said weight support member moves further into said bore, for camming and expanding said load ring onto said load support surface as said weight support member is inserted further into said bore;

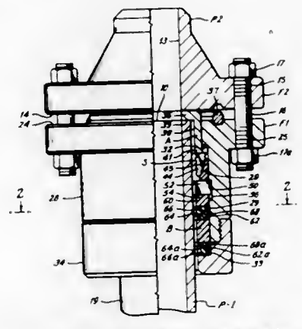
shearable connection means disposed between said split load ring and said retainer ring for releasably connecting said split load ring to said retainer ring and for preventing the premature expansion of said split load ring in said bore prior to said load ring landing on said no-go shoulder, said shearable connection means including actuation means responsive to the weight of said weight support member applied to said split load ring after landing on said no-go shoulder for causing said shearable means to shear for separating said split load ring from said retainer ring, and wherein further movement of said weight support member into said bore causes said tapered actuating surface means of said split load ring to further engage with and slide along said tapered surface of said weight support member until said split load ring abuttingly engages said annular stop shoulder, said annular stop shoulder including means engageable with said load ring for supporting said weight support member on said load ring and preventing further travel of said weight support member past said groove when said split road ring is fully cammed onto said groove.

5,209,522

ANTI-EXTRUSION APPARATUS FOR AN INWARDLY COMPRESSED SEAL

James R. Reaux, Lafayette, La., assignor to Oceaneering International, Inc., Houston, Tex.

Filed Apr. 13, 1992, Ser. No. 867,956
Int. Cl.[5] F16L *55/18*
U.S. Cl. 285—15 10 Claims



1. An anti-extrusion apparatus for a seal sealing on the outside diameter of a conduit comprising, a seal,

a body having a bore therethrough for receiving said conduit,

said seal positioned in the body and said seal having a bore therethrough for receiving said conduit,

means on opposite ends of the seal for compressing the seal inwardly into a sealing engagement with the conduit,

anti-extrusion means between the compressing means and each end of the seal, each said anti-extrusion means including, a metal ring in the body coaxial with the bore having an outside engaging the inside of the body and having a wedge shaped inside, a plurality of accurate ring segments forming a closed ring having an inner diameter equal to the outside diameter of the conduit, said segments having a wedge shaped outside coacting with the wedge shaped inside of the metal ring whereby the ring segments may be expanded outwardly to allow admission of the conduit therethrough, but which are wedged inwardly against the conduit on actuation of the compressing means for reducing extrusion of the seal as it is compressed.

5,209,523

CONNECTING DEVICE PARTICULARLY FOR THE ASSEMBLY OF A HOSE WITH A HEAT EXCHANGER OF AN AUTOMOTIVE VEHICLE

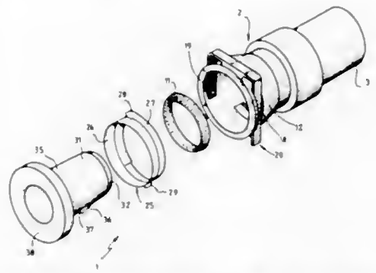
Denis Godeau, Vieilles Maison sur Joudry, France, assignor to Hutchinson, Paris, France

Filed Nov. 21, 1991, Ser. No. 795,514
Claims priority, application France, Nov. 27, 1990, 90 14787
Int. Cl.[5] F16L *35/00*
U.S. Cl. 285—93 9 Claims

1. A connecting device for the assembly of a hose to a waterbox of a heat exchanger of an automotive vehicle, said connecting device comprising, in combination:

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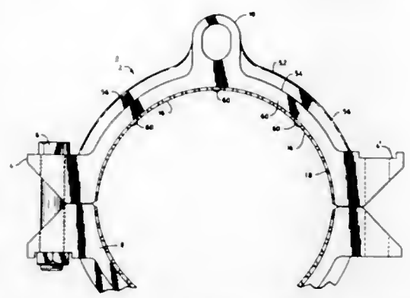
a first connector element in the form of a socket carried by the waterbox;
a second connector element in the form of a tubular component having a passage opening therethrough and being capable of being fit onto said socket;
a removable elastic link in the form of a U-shaped clip having arms which are adapted to be housed in the passage opening of said tubular component for holding said tubular component onto said socket;
a gasket positioned between said tubular component and said socket for sealing engagement therewith;
two transverse notches, mutually parallel and diametrically opposed, provided in the wall of one of said first or second connector elements for receiving the arms of the U-shaped clip when the connecting device is assembled; and abutment means on the other of said first or second connector elements for engagement with said arms for retaining said connector elements assembled;
a movable ring having on its periphery at least one tab which



is elastically deformable in the radial direction, said ring being housed inside of said one connector element in the transverse plane of said notches and being so positioned that a portion thereof masks said notches, and so that said tab(s) are under compression against a surface of said one element to hold the movable ring in place; and
slits, in a number equal to that of the tabs, provided on said one element, said slits being positioned in such a way that when the connecting device is assembled, said tabs are positioned opposite said slits and emerge from them to act as a latch indicator;
said movable ring serving to hold the arms of said U-shaped clip separated by engagement therewith when the connecting device is unassembled, but wherein upon assembling the connecting device, said ring is displaced in the tubular component as the socket is inserted into the tubular component, thereby allowing the arms of said U-shaped clip to move into an operating position engaging said abutment means for holding the connector elements in the assembled relationship.

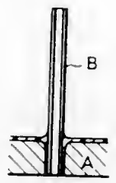
5,209,524
PIPE RESTRAINING COLLAR MEMBER HAVING PROTRUSIONS OF DIFFERENT SIZES
Michael E. Corwon, Texarkana, Tex.; Edwin A. Bird, Ashdown, Ark., and Kirby L. Shaddix, Texarkana, Tex., assignors to M&FC Holding Company, Inc., Wilmington, Del.
Filed Nov. 6, 1991, Ser. No. 788,455
Int. Cl.[5] F16L *13/04*
U.S. Cl. 285—114 **14 Claims**

1. A pipe restraining member comprising a collar member, flange means disposed on said collar member and adapted to receive first connecting means for connecting said collar member to support means, said collar member and said support means being adapted cooperatively to substantially encircle a first pipe member, lug means disposed on said collar member and adapted to receive second connecting means for connecting said collar member to a collar assembly substantially encircling a second pipe member, and first and second protrusions extending inwardly from an inside surface of said collar member and adapted to engage an external surface of said first pipe, said protrusions having elongated bases and smaller free ends, said first protrusions being disposed such that said free ends



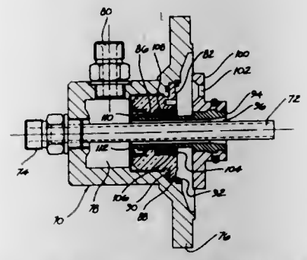
form interrupted inwardly extending lands along the length of said inside surface, said second protrusions being taller than said first protrusions and being disposed such that each of said second protrusions is proximate only first protrusions and is remote from the nearest other second protrusion.

5,209,525
BONDED CERAMIC STRUCTURE
Kazuhiko Ito, Seto, Japan, assignor to NGK Insulators, Ltd., Japan
Filed Mar. 26, 1991, Ser. No. 674,924
Claims priority, application Japan, Mar. 28, 1990, 2-80084; Mar. 28, 1990, 2-80085; Mar. 28, 1990, 2-80086; Mar. 28, 1990, 2-80087; Mar. 28, 1990, 2-80088
Int. Cl.[5] F16L *39/00*
U.S. Cl. 285—137.1 **18 Claims**



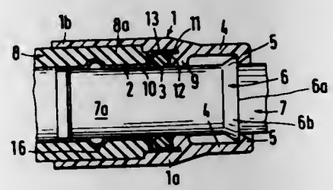
1. A bonded ceramic structure having a high positional accuracy and a high bonding strength comprising:
a perforated ceramic plate member having a plurality of holes;
ceramic tubular members each having at least one end inserted in said holes each with a predetermined clearance between an outer circumference thereof and a surface of the corresponding hole, wherein each of the clearances is filled with an inorganic bonding material forming an inorganic bonding layer so that the ceramic tubular members are fixedly bonded to the plate member; and
a second inorganic bonding layer consisting essentially of said inorganic bonding material provided on the surface of the side of said perforated ceramic plate member facing said ceramic tubular members, said second inorganic bonding layer being continuously connected to said inorganic bonding layer, and said second inorganic bonding layer having a thickness of 0.2-2.5 mm.

5,209,526
ROTARY JOINT ASSEMBLY
Ferdinando Beccia, Berkeley; Alfredo Conti, Mt. Ousley, and Sam Yertutan, Dapto, all of Australia, assignors to Glastonbury Engineering Pty. Limited, Unanderra, Australia
Filed Sep. 17, 1991, Ser. No. 760,951
Int. Cl.[5] F16L *39/04*
U.S. Cl. 285—134 **7 Claims**



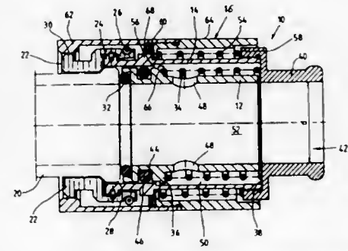
1. A rotary joint assembly, comprising a stator and a rotor, said stator having stationary conduit means for supplying a coolant through a joint to a rotary body and said rotor begin rotatable with respect to said stator and accommodating motion of said rotary body, said rotary body having stationary and rotating parts;
said stator further comprising a housing having integral means for fixing said rotary joint assembly to a stationary part of said rotary body;
said rotor further comprising carrier mean, within said housing, coaxial with and surrounding said conduit means, for attaching said rotary joint assembly to a rotating part of said rotary body; and,
stationary seal and bearing means being secured to said stator and extending between said stator and said rotor for providing a stationary seal for said rotary joint assembly against coolant and providing bearing means for allowing rotation of said rotor with respect to said stator for accommodating ht motion of said rotary body.

5,209,527
HOSE COUPLING
Ralf Hohmann; Ralf Spors, both of Bruchköbel, and Gerhard Winterstein, Bad Vilbel, all of Fed. Rep. of Germany, assignors to Rasmussen GmbH, Maintal, Fed. Rep. of Germany
Filed Nov. 7, 1991, Ser. No. 788,822
Claims priority, application Fed. Rep. of Germany, Nov. 23, 1990, 4037306
Int. Cl.[5] F16L *33/20*
U.S. Cl. 285—242 **10 Claims**



1. A device for separably coupling a terminal portion of a first tubular component with a terminal portion of a second tubular component, particularly with a deformable hose, comprising a tubular connector having a first portion for reception of the terminal connector of the first component and a second portion for reception of the terminal portion of the second component, said first portion having an annular internal wall arranged to surround the terminal portion of the first component and provided with an annular socket having an open end facing said second portion; a sleeve including a first section having a first diameter and being receivable in the terminal portion of the second component and a second section having a second diameter larger than said first diameter and a free end receivable in said socket after having passed through said second portion, said connector and said sleeve defining an annular compartment which is surrounded by said second section and is adjacent said wall when said free end of said second section is received in said socket; and at least one annular sealing element receivable in said compartment to sealingly engage one of said sleeve and said wall as well as the terminal portion of the first component when the terminal portion of the first component is received in said connector.

5,209,528
PRESSURE-TIGHT PLUG COUPLING
Erwin Weh, and Wolfgang Weh, both of Siemensstr. 5, D-7918 Illertissen, Fed. Rep. of Germany
PCT No. PCT/EP88/00352, § 371 Date Jan. 16, 1990, § 102(e) Date Jan. 16, 1990, PCT Pub. No. WO89/00655, PCT Pub. Date Jan. 26, 1989
PCT Filed Apr. 27, 1988, Ser. No. 457,801
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1987, 8709818[U]; Sep. 23, 1987, 8712845[U]
Int. Cl.[5] F16L *37/18*
U.S. Cl. 285—315 **8 Claims**

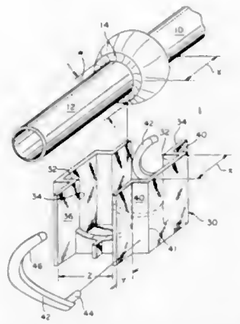


1. A plug coupling for providing a pressure-sealed flow connection to a conduit member provided with an essentially cylindrical, radially outwardly protruding rim for engagement with said plug coupling, comprising:
a tube-like support element having a longitudinal axis, a rear portion with an inlet part and a front portion for receiving the cylindrical rim of the conduit member;
elongated clamping jaws having rear and front ends, the rear ends being linked to said front portion of said support element and extending in a generally axial direction, said clamping jaws being concentrically arranged around the longitudinal axis of said support element, said front ends of said clamping jaws being radially displaceable;
a sleeve essentially surrounding said support element and shiftable parallel to said longitudinal axis relative to said support element between a released position and an engaged position;
means for radially displacing said front ends of said clamping jaws upon shifting said sleeve into said released position;
means for holding said sleeve in said engaged position; and
a sealing cylinder separated from said support element, shiftable parallel to said longitudinal axis relative to said support element and biased in a direction from the rear portion to the front portion of said support element by a spring supported between said support element and said sealing cylinder, said sealing cylinder being sealed against said support element by a sealing ring;
said sealing cylinder being provided with radial openings for permitting a pressure fluid which flows through said plug coupling to flow into a pressure space formed between said support element and said sealing cylinder, said sealing

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cylinder having a wall portion extending into the pressure space formed between said sealing cylinder and said support element, said wall portion of said sealing cylinder acting as a piston area loaded with the pressure fluid for securing the pressure-sealed connection of said plug coupling to the conduit member.

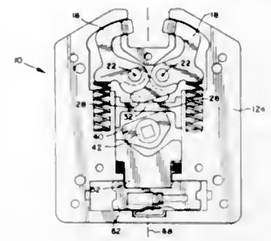
5,209,529
SECONDARY RETENTION CLIP WITH PIVOTING CLAMPING JAWS
Yingli Yan, Shelby Township, and Timothy J. Burns, St. Clair, both of Mich., assignors to Emhart Inc., Newark, Del.
Filed Feb. 18, 1992, Ser. No. 838,583
Int. Cl.[5] F16L *35/00*
U.S. Cl. 285—320 3 Claims



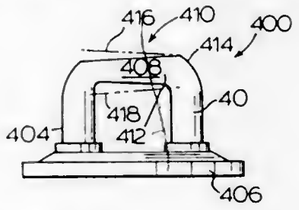
1. A secondary retention clip for preventing the complete separation of the female end of an air conditioning hose from a connected male end of the air conditioning hose, wherein the female end is outwardly flared and the male end includes a coupling flange for receiving the flared end comprising
a box like housing including opposed side walls selectively spaced apart a distance substantially equal to the width of the coupling flange, said housing being open at the top for receiving the coupling flange,
said opposed side walls each having an opening communicating at the open top of the box for receiving the male and female ends of the connected hose,
opposed stop means projecting outwardly from said side walls for preventing the placement of the flared end of the female end in said opening, and
pivotally displaceable clamping jaws for forcefully engaging the male and female ends when said coupling flange is located in said box.

5,209,530
LATCH
Terry Kolloch, Kenosha, Wis., assignor to A. L. Hansen Mfg. Co., Waukegan, Ill.
Filed Sep. 2, 1992, Ser. No. 938,998
Int. Cl.[5] E05C *3/34*
U.S. Cl. 292—27 2 Claims

1. In a latch of the type comprising first and second pivotable latch arms; said latch arms each defining a latching end and pivotable between a latching position, in which the latching ends are positioned closer to one another to engage a striker, and a release position, in which the latching ends are positioned farther from one another to release the striker; the improvement comprising:
a manually rotatable cam;
a linkage interposed between the cam and the latch arms to move the latch arms from the latching to the release positions in response to rotation of the cam; and
a housing comprising first and second housing parts, said housing parts both being formed with a single set of molds in a molding operation, said housing parts defining substantially identical locating features for the latch arms and recesses for the latch arms and the linkage.



5,209,531
U-SHAPED STRIKER HAVING TAPERING SIDES
Wolfgang Thau, Concord, Canada, assignor to Magna International Inc., Markham, Canada
Continuation of Ser. No. 643,102, Jan. 22, 1991, Pat. No. 5,125,698, Division of Ser. No. 20,909, Mar. 2, 1987, abandoned.
This application Mar. 2, 1992, Ser. No. 844,747
Claims priority, application Canada, Dec. 17, 1986, 525664
Int. Cl.[5] E05C *3/24*
U.S. Cl. 292—216 4 Claims

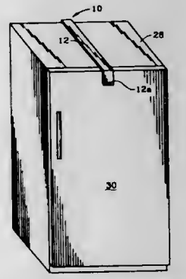


1. A striker comprising a substantially U-shaped rod providing first and second legs anchored to a base and a flattened connector wire connecting the legs, the connector wire and portions of the first and second legs of the U-shaped rod providing a head for the striker, the flattened connector wire presenting at least two sides, between said legs, symmetrically tapering in a direction from proximate said first leg to proximate said second leg towards a latch housing in use.

5,209,532
DOOR LOCK DEVICE
Hitoshi Nakamura, and Tatsuyuki Takaishi, both of Yokohama, Japan, assignors to Ohi Seisakusho Co., Ltd., Yokohama, Japan
Filed Apr. 28, 1992, Ser. No. 876,019
Claims priority, application Japan, Apr. 30, 1991, 3-38695[U]
Int. Cl.[5] E05C *3/26*
U.S. Cl. 292—216 11 Claims

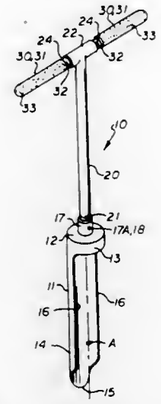
1. A door lock device for latching a door to a fixed member having an opening adapted to be closed by the door, said door lock device comprising:
a striker secured to one of the fixed member and the door, said striker having a base portion, first and second leg portions extending from the base portion, a bridge portion extending between and interconnecting the first and second leg portions, and a projection portion which extends from the bridge portion and extends on the outboard side of the first leg portion by a length which is substantially the same as one half the thickness of the first leg portion in a longitudinal direction of the bridge portion, the bridge portion and the projection portion having substantially rectangular sections, respectively, which are arranged perpendicular to the longitudinal direction of the bridge portion; and
a latch member which is pivotally secured to the other of the fixed member and the door, said latch member having first and second engaging portions defining therebetween a recess portion in which the first leg portion of said striker is receivable, the first engaging portion being arranged to overlap the projection portion and the second engaging portion being arranged to overlap said bridge portion;
wherein said projection portion is monolithically formed on said striker by forging.

5,209,533
REFRIGERATOR DOOR GUARD
Louise G. Menard, 1936 Thomas St., Hollywood, Fla. 33020
Filed Jun. 12, 1990, Ser. No. 536,424
Int. Cl.[5] E05C *17/54*
U.S. Cl. 292—288 5 Claims



1. A door guard for securing a refrigerator door in a closed position to prevent a small child from opening the refrigerator door while at the same time not impeding adult access to the refrigerator consisting of:
a rigid bar, said bar having a middle portion and first and second flanges at each end substantially at ninety degrees to the middle portion of the bar, the distance between the flanges sized to engage the rear wall of a refrigerator and the front door surface of a refrigerator door and when engaged across the top of a refrigerator, preventing the door from being opened, said bar includes first and second sections and a means for adjustably locking the bar sections together at a predetermined position for allowing adjustment of the bar in length to accommodate refrigerators of different depths as measured between the front door surface and the rear wall surface of the refrigerator, said locking means includes a bolt and nut, said bar sections including first and second apertures for receiving said bolt which when said bolt is disposed through said first and second bar apertures and said nut is tightened, said first bar section is fastened relative to said second bar section.

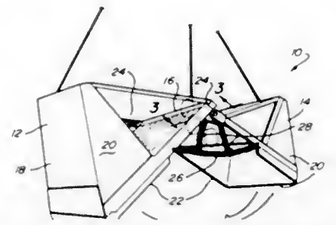
5,209,534
TAKE-APART POST HOLE DIGGING TOOL
Dewey L. Crenshaw, Rte. 2, Box 420, 916 Ave. J., Dickinson, Tex. 77539, and Roland G. Cartier, 8002 Shady Willow, Tomball, Tex. 77375
Filed Feb. 18, 1992, Ser. No. 836,239
Int. Cl.[5] A01B *1/00*
U.S. Cl. 294—50.6 1 Claim



1. A take-apart post hole digging tool comprising:
a hollow semi-cylindrical blade member having a top wall at its upper end with a cylindrical reinforcing ring portion extending a short distance downwardly therefrom, parallel longitudinal side edges extending downwardly from said ring portion and terminating in a downwardly curved bottom edge, said longitudinal side edges and bottom edge defining a longitudinal blade surface semi-circular in transverse cross section about a central longitudinal axis, said longitudinal side edges and said bottom edge sharpened to provide soil penetrating surfaces,
an internally threaded collar secured on said top wall in axial alignment with said central longitudinal axis,
an elongate handle member having an internally threaded tee-shaped portion at its upper end and an externally threaded portion at its bottom end threadedly received and removably connected to said collar and having a longitudinal axis coaxial with said central longitudinal axis,
releasable lock means operatively connected with said handle and said collar threaded connection to prevent accidental unthreading upon rotation, and
a pair of hand grip members each having an externally threaded portion at one end threadedly received and removably connected in said handle tee-shaped portion to extend laterally outward therefrom and each having an outer covering of resilient material for providing a comfortable gripping surface for the hand of a user,
said longitudinal blade surface being rotatable about said central longitudinal axis and said coaxial handle axis upon turning said hand grip members in clockwise or counterclockwise direction about said handle axis and said cylindrical reinforcing ring portion reinforcing and reducing torque stress forces on said semi-cylindrical longitudinal blade surface when rotated in soil, and
said blade member, handle member, and hand grip members being selectively disconnected from one another whereby said tool may be disassembled and stored or transported in a compact configuration.

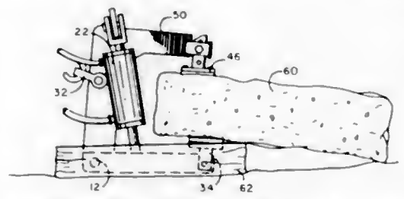
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5,209,535
POWER BUCKET
Raymond E. Bergeron, 3452 W. Jefferson, Trenton, Mich. 48183
Filed Sep. 17, 1991, Ser. No. 761,274
Int. Cl.[5] B66C *3/02*
U.S. Cl. 294—68.23 7 Claims



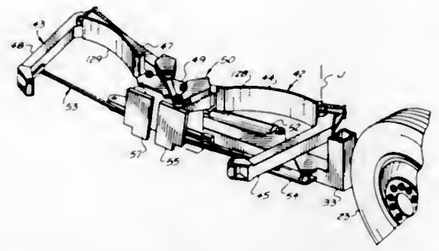
1. A bucket for loading and unloading cargo comprising:
a first bucket half and a second bucket half, each bucket having a top, a closed bottom, an open inside end and a pair of spaced apart sidewalls,
means for pivotally securing the tops of said bucket halves together so that the bucket halves are movable between an open and a closed position, wherein in said closed position, said open ends of said bucket halves register with each other to contain cargo within an interior of said bucket and wherein in said open position, said open ends of said bucket halves are spaced apart from each other,
wherein said pivotal securing means comprises a pair of spaced apart balls secured to said first bucket half, a spherical recess member secured to the second bucket half, each spherical recess member adapted to receive one of said balls, and means for removably securing said balls to their respective spherical recess member,
a head,
means for suspending said bucket halves from said head,
means for moving said bucket halves between said open and said closed position.

5,209,536
HYDRAULIC GRAPPLE CLAMP
Albert B. Rogers, Sr. deceased, late of Saco, Me., and legal representative Rogers, 495 Buxton Rd., Saco, Me. 04072
Filed Feb. 3, 1992, Ser. No. 829,720
Int. Cl.[5] B66C *1/44*
U.S. Cl. 294—88 4 Claims



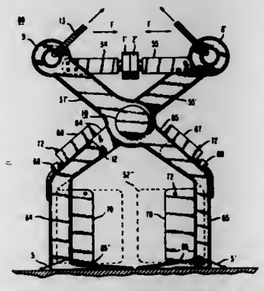
1. A hydraulic grapple clamp to be lifted by a host machine, comprising:
an L-shaped frame having a crossbeam, said crossbeam having a first and second end and a front and rear, and a lower leg extending at a right angle from the second end of said crossbeam at the junction thereof, said crossbeam having defined thereon attachment means to be affixed to said host machine, said lower leg having a base with mounting means thereon;
an adjustable clamp member adjustably mounted to the mounting means at the base of said lower leg;
a movable arm having a top, a central portion and a bottom; means to rotatably attach the top of said movable arm to the first end of said crossbeam of said frame;
an upwardly and downwardly movable clamp member disposed at the bottom of said movable arm, said movable clamp member facing said adjustable clamp member;
a hinge base disposed at the junction of said crossbeam and said lower leg, said hinge base extending around from the front to the rear of said lower leg, said hinge base disposed at an angle of approximately 11 degrees to said crossbeam;
a hydraulic ram having a first and second end and a piston therein, the first end of said hydraulic ram being pivotally attached to said movable arm; the second end of said hydraulic ram affixed to said hinge base; and
a strong back welded integrally to and extending along a portion of the rear of said crossbeam interconnected to the portion of said hinge base extending around from the front of said L-shaped frame, said device operable by hydraulic action with a first hydraulic line extending to one side of a piston within said hydraulic ram and a second hydraulic line extending to the other side of said piston, each hydraulic line disposed on an opposite side of said piston within said ram such that said movable arm can be moved back and forth by the operation of said hydraulic ram.

5,209,537
GRIPPING APPARATUS FOR OMNIFARIOUS CONTAINERS
Fred P. Smith; Fred T. Smith, both of Alpine, and Kevin L. McAllister, Orem, all of Utah, assignors to The Heil Co., Chattanooga, Tenn.
Filed Jul. 10, 1991, Ser. No. 728,186
Int. Cl.[5] B65F *3/04*; B66C *1/44*
U.S. Cl. 294—111 1 Claim



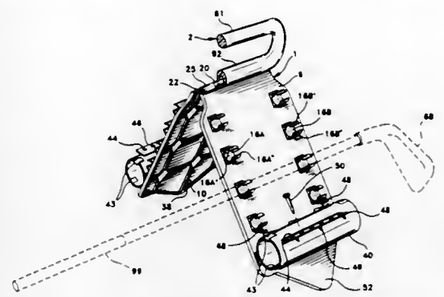
1. A gripping apparatus for use in combination with a refuse collection vehicle having a lifting member and for alternately engaging and holding at least a first container and a second container of differing parametric configurations, said gripping apparatus comprising:
a) a first segmented gripping member including
i) an inner arm movably affixed to said lifting member, and
ii) an outer arm having an inner end and an outer end, movably extending from said inner arm;
b) a second segmented gripping member including
i) an inner arm movably affixed to said lifting member, and
ii) an outer arm having an inner end and an outer end, movably extending from said inner arm;
c) actuating means carried by said lifting member for moving said first and said second gripping members between
i) a retracted position in which said inner arms extend in substantially opposed directions, and
ii) an extended position in which said inner arms extend in substantially the same direction; and
d) tensioning means coupled to each of said outer arms intermediate said inner end and said outer end for moving said outer arm of said first segmented gripping member and said second segmented gripping member inwardly relative to said inner arm of said first segmented gripping member and said second segmented gripping member, respectively.

5,209,538
AUTOMATICALLY ACTUATED, AUTOMATICALLY-ADJUSTABLE CARGO AND PERSONNEL SCOOPING AND REALEASING APPARATUS
Edwin Z. Gabruel, 91 Mt. Tabor Way, Ocean Grove, N.J. 07756
Filed Nov. 18, 1991, Ser. No. 795,938
Int. Cl.[5] B66C *1/38*
U.S. Cl. 294—118 18 Claims



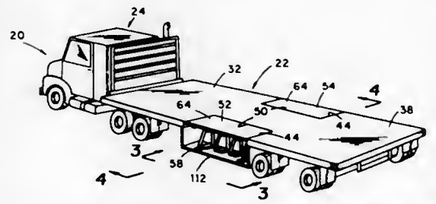
1. An automatically-actuated lifting apparatus, capable of scooping up and unloading various sizes and shapes of containerized cargo and personnel from a supporting platform automatically, comprising a structure having two elongated lightweight members with upper and lower portions having inside surfaces, said portions pivoted at a selected distance from the top end of said apparatus with a pivot pin, for use with hoist cables, being adapted for attachment to said upper portions having weights on top and having less width than said lower portions, said lower portions being vertical and curved on their insides for engaging said cargo; each of said upper portions having a bar inwardly-extending from its inside surface, each bar having a hammerhead at one end, and each said hammerhead extending inward toward each other, said hammerheads, when abutting, receiving the major structural compressive stresses imposed by the horizontal components of said hoist cables, when supporting said cargo, said hammerheads being adjustable in length to permit variations in the separation between said lower portions when engaging various size loads, therby said cargo being spared possible damaging compressive forces; said lower portions being of sufficient large size in width and height to scoop up cargo within specified limits in their dimensions; wherein the improvements to said lower portions including having extended protrusions with selectively sharp ends at their bottoms extending a selected distance toward the apparatus' horizontal center; for automatic space adaptability to said various sizes and shapes of cargo, said lower portions having inflatable, air-tight, lightweight pillows attached firmly to said inside surfaces, said pillows having no air supplies external to said apparatus, said pillows to engage said cargo when said lower portions come together on lift-off of said apparatus, said pillows shaping themselves to securely embrace said cargo's shape and size, thus firmly holding said cargo within said curved inner walls of said lower portions while suspended in air, said protrusions capable of supporting the weight of said cargo, said ends assisting in snatching and lifting up said cargo.

5,209,539
PORTABLE GOLF CLUB CARRIER AND SUPPORT
Michael Atalay, Yorktown, Va., assignor to Edge Technologies, Inc., Burlington, Vt.
Filed Jan. 17, 1992, Ser. No. 822,331
Int. Cl.[5] A63B *55/10*
U.S. Cl. 294—143 19 Claims



1. A portable, collapsible device for supporting and retaining a plurality of golf clubs and capable of being stored in a conventional golf bag, comprising:
a) a pair of downwardly extending, planar leg support members, each having a top and bottom portion, pivotally engaged with each other along the top portions thereof, the bottom portion of each leg support member having contoured means for resting upon a ground surface when said device is deployed thereon;
b) a handle pivotally and operatively engaged with the top portions of said leg support members; and
c) a pair of retention clips joined to the outer surface of each leg support member for detachably receiving and securing the shaft of a golf club to said device;
whereby
i) said leg support members are movable between a collapsed position wherein they are adjacent to each other, and a predetermined deployed position wherein they are in a triangular relationship with said ground surface;
ii) said handle comprises means for maintaining said leg support members at said predetermined deployed position; and
iii) said leg support members and the shaft of said golf club form a tripod.

5,209,540
FOLDABLE CARRIER SYSTEM FOR TRANSPORT OF FRANGIBLE SHEET MATERIAL
Alois A. Metler, Knoxville, Tenn., assignor to A. J. Metler Hauling & Rigging, Inc., Knoxville, Tenn.
Filed Feb. 19, 1992, Ser. No. 838,564
Int. Cl.[5] B60P *3/42*
U.S. Cl. 296—3 20 Claims



1. A carrier system with which frangible sheet material can be transported, said system comprising:

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a wheeled frame adapted for movement along a highway including means providing a bed surface having two opposite side edges and a cutout opening out of at least one side edge of the bed surface;

a side section providing a bed surface section and which is hingedly connected to the wheeled frame for pivotal movement relative thereto between a first position at which the bed surface section is positioned within the cutout so that the areas of the bed surface and bed surface section contribute to the area of a bed for the carrier system and a second position;

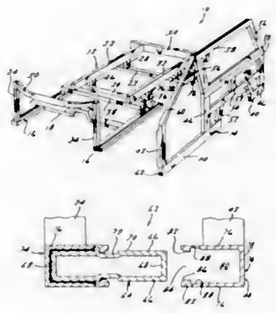
a frame structure connected to the side section for movement therewith as the side section si moved between its first and second positions so that when the side section is positioned in its first position, the frame structure is positioned in an out-of-the-way condition for use of the bed of the carrier system and so that when the side section is positioned in its second position, the frame structure extends generally upwardly from the bed surface of the wheeled frame for supporting frangible sheet material in a near-vertical orientation for transport.

5,209,541

SPACE FRAME JOINT CONSTRUCTION

Adam M. Janotik, Grosse Ile, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 13, 1992, Ser. No. 867,565
Int. Cl.[5] B62D *27/02*
U.S. Cl. 296—29 **16 Claims**



1. A space frame for an automotive vehicle comprising:

a plurality of longitudinally extending structural members, each of said structural members having means forming a channel;

a connector disposed in said channel of each of said structural members; and

joint means for joining said connector and said structural members together, said joint means comprising means forming a groove on each of a pair of opposed sides of said connector, and means forming a tab on each of a pair of opposed sides of each of said structural members adjacent said channel thereof, said tabs being disposed in said grooves.

5,209,542

WINDSHIELD FOR AUTOMOBILES

Hideo Yoshizawa, Osaka, Japan, assignor to Nippon Sheet Glass Co., Ltd., Osaka, Japan

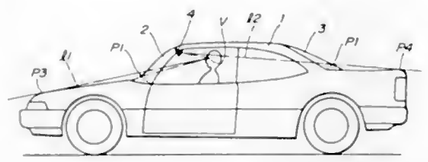
Filed May 17, 1990, Ser. No. 525,326
Claims priority, application Japan, May 18, 1989, 1-57301[U]; May 18, 1989, 1-57302[U]; May 19, 1989, 1-57920[U]
Int. Cl.[5] B60J *1/02*
U.S. Cl. 296—84.1 **9 Claims**

1. A windshield device for an automobile, comprising:

an automobile body having a window frame; and

a windshield fixed to said window frame;

said windshield having vertical cross sections having profile lines represented by curves, except at opposite sides of the windshield, each of said curves having a minimal point in an orthogonal coordinate system having a horizontal axis



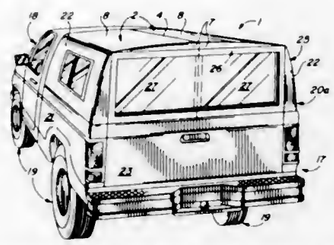
represented by a straight line connecting upper and lower ends of the windshield in a vertical cross section thereof, said minimal point being positioned in a visual area in which a portion of the automobile body is seen through the windshield from a driver's eye point in the automobile.

5,209,543

TOP OPENING APPARATUS FOR VEHICLES

Lee L. Harkins, Jr., 903 Stuart La., Marshall, Tex. 75670

Filed Apr. 6, 1992, Ser. No. 863,800
Int. Cl.[5] B60J *7/10*
U.S. Cl. 296—100 **11 Claims**



1. A top opening apparatus for a vehicle, comprising a pair of panel means defining the top of the vehicle in folded configuration, hinge means connecting said panel means to the vehicle in spaced, limited panel extension relationship, carrying frame means carried by the vehicle and window assembly frame means slidably and removably carried by said carrying frame means for mounting a rear window in the vehicle, whereby said panels are selectively extendible away from each other on said hinge means to a substantially vertical orientation in spaced, substantially parallel relationship.

5,209,544

CONVERTIBLE AUTOMOBILE

Carmelo Benedetto, and Alberto Bertelli, both of Milan, Italy, assignors to Fiat Auto S.p.A., Turin, Italy

Continuation-in-part of Ser. No. 743,767, Aug. 12, 1991, abandoned. This application Mar. 30, 1992, Ser. No. 859,757
Claims priority, application Italy, Sep. 21, 1990, 21536 A/90
Int. Cl.[5] B60J *7/08, 7/20*
U.S. Cl. 296—107 **3 Claims**

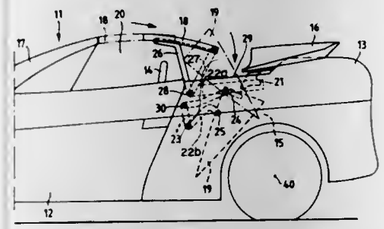
1. A convertible automobile having a windscreen in which the body is provided with a housing, said automobile comprising:

a cover element located to the rear of a pair of seats in proximity to the rear axle and connected to said body by slide means for sliding said cover rearwardly with respect to said body;

a rear window connected to said body by first linkage means

for moving said rear window upwardly and rotatively downwardly with respect to said vehicle body, and

a roof panel connected to said body by second linkage means for moving said roof panel rearwardly and rotatively downwardly with respect to said vehicle body, said roof panel connecting the windscreen to the rear window, said roof panel, said windscreen, said rear window and said body defining a passenger compartment of said automobile, wherein, said roof panel and said rear window are two rigid elements which are separate from each other and are mobile between a first position in which they define the passenger compartment roof and a second position in which said passenger compartment is uncovered, said first linkage means being adapted to move said rear window upwardly with respect to said automobile body, and said cover element of said housing being slidingly movable on said slide means from a forward position substantially within said passenger compartment towards a rearward position on said body to clear a rearmost portion of said rear window and enable said rear window first linkage means to rotate downwardly towards the rear axle of the automobile, said roof panel being movable rearwardly on said body by said second linkage means to a position above said rear window and being rotatable downwardly towards the rear axle of said automobile so that said roof panel and rear window disappear into said housing by means of said first and second linkage means.

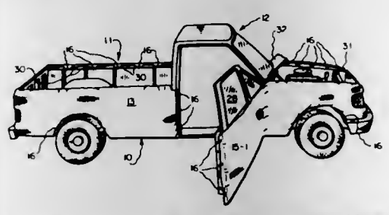


5,209,545

PROTECTIVE OFF-HIGHWAY COVERING FOR EXTERIOR SIDEWALL SURFACES OF BODY OF AUTOMOTIVE VEHICLE

Dorothy L. Slaugh, 8017 N. Dry Fork, Vernal, Utah 84078

Continuation of Ser. No. 670,572, Mar. 18, 1991, abandoned. This application Mar. 18, 1992, Ser. No. 852,907
Int. Cl.[5] B60J *11/00*
U.S. Cl. 296—136 **5 Claims**



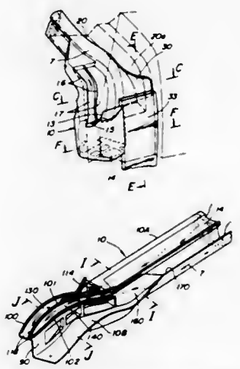
1. A protective covering for close fitting and quickly attachable and detachable application to and along exterior, longitudinal, panel surfaces at opposite sides of an automotive vehicle of pickup truck type which has windowed doors at opposite sides, respectively, of the truck and hinged to open and close, comprising substantially similar but separate cover sets of preformed, tough and strong, flexible sheet material for opposite sides, respectively, of the truck, each cover set being made up of two separate pieces of said sheet material cut to fit closely against and along corresponding areas of a side of the truck, said pieces being serially related longitudinally of the body of the truck and adapted to extend substantially from bottom to top of the said exterior panel surfaces of the corresponding side of the truck, the forward piece of each set being adapted to fit around the forward end of the front fender of the truck and to extend backwardly of the truck, covering the door hinge thereof for articulation with said hinge when the door is opened and closed and terminating at the rearward edge of said door, and the rearward piece of each set being adapted to have its forward end fastened to the door post against which the door of the truck closes and to otherwise extend backwardly along the corresponding paneled side of the bed of the truck to attachment at its rear end to the back end of the rear fender of the truck, while covering the corresponding paneled side of the bed of the truck from top to bottom thereof, with the upper margin of said piece adapted to be dropped over the top rail of said bed of the truck to terminate inwardly of said bed; and fastening means for holding the respective cover sets of sheet material in quickly attachable and detachable positions against and along said opposite sides of the vehicle, respectively, said fastening means comprising pockets formed longitudinally in and along lower margins of the sheet material of said pieces, respectively, to extend longitudinally between front and rear fenders of the truck for engaging and receiving projecting lower structure of the truck between the front and rear fenders thereof including projecting lower structure of the doors, and fasteners secured to and marginally of the sheet material of said pieces along portions thereof other than said pockets for engaging the truck or other complementary fastening means secured to the truck when said pieces are applied to the truck.

5,209,546

STRUCTURE FOR DRAINING LIQUID FOR A VEHICLE AND METHOD FOR FORMING THE STRUCTURE

Minekazu Hasegawa; Keiichi Ikeda, and Junichi Fujihira, all of Chiba, Japan, assignors to Kinugawa Rubber Industrial Co., Ltd., Chiba, Japan

Division of Ser. No. 463,887, Jan. 11, 1990, Pat. No. 5,009,464, which is a continuation of Ser. No. 77,370, Jul. 24, 1987, abandoned. This application Oct. 15, 1990, Ser. No. 597,401
Claims priority, application Japan, Jul. 25, 1986, 61-175092; Aug. 11, 1986, 61-188171; Aug. 12, 1986, 61-189180; Jan. 14, 1987, 62-7149
Int. Cl.[5] B60J *10/12*
U.S. Cl. 296—213 **10 Claims**



1. A structure for draining liquid from a vehicle, comprising:

a) a plate like member attachable to a peripheral opening edge of a vehicle roof, said peripheral opening edge defining an opening in said roof;

b) a first weatherstrip disposed along said peripheral opening edge of said vehicle roof and disposed along a center pillar

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of said vehicle, said first weatherstrip defining a first draining passage with said peripheral opening edge;

c) a finisher disposed along said center pillar, said finisher defining a second draining passage with said center pillar;

d) a flange integral with said first weatherstrip and extending in a rearward direction of said vehicle, said flange defining a third draining passage between said first draining passage and said second drawing passage, a width dimension of said first draining passage being aligned with a width dimension of said second draining passage at the position of said third draining passage; and

e) a second weatherstrip disposed along a side edge of said plate like member opposite a glass window in a door of said vehicle,

said second weatherstrip having one end joining an intermediate portion of said first weatherstrip in the bridge area where said center pillar is connected to said vehicle roof when said plate like member is attached to said peripheral opening edge,

said one end of said second weatherstrip having a V-shaped cross section and said intermediate portion of said first weatherstrip having a groove for receiving said V-shaped cross section as a tongue to form a tongue and groove joint when said one end joins said intermediate portion;

said first weatherstrip including at least two bead portions longitudinally extending along said first weatherstrip from said groove toward said opening,

said first weatherstrip further including a hollow portion longitudinally extending from said groove in a direction toward a lower end of said center pillar,

said bead portions and said hollow portion defining a fourth draining passage.

6. The structure for draining liquid from a vehicle, comprising:

a plate like member attachable to a peripheral opening edge of a vehicle roof, said peripheral opening edge defining an opening in said roof;

a first weatherstrip disposed along said peripheral opening edge of said vehicle roof and disposed along a center pillar of said vehicle, said first weatherstrip defining a first draining passage with said peripheral opening edge;

a flange integral with said first weatherstrip and extending in a rearward direction of said vehicle, said flange defining a second draining passage; and

a second weatherstrip disposed along a side edge of said plate like member opposite a glass window in a door of said vehicle,

said second weatherstrip having one end joining an intermediate portion of said first weatherstrip in the bridge area where said center pillar is connected to said vehicle roof when said plate like member is attached to said peripheral opening edge,

said one edge of said second weatherstrip having a V-shaped cross section and said intermediate portion of said first weatherstrip having a groove for receiving said V-shaped cross section as a tongue to form a tongue and groove joint when said one end joins said intermediate portion;

said first weatherstrip including at least two bead portions longitudinally extending along said first weatherstrip from said groove toward said opening,

said first weatherstrip further including a hollow portion longitudinally extending from said groove in a direction toward a lower end of said center pillar,

said bead portions and said hollow portion defining a third draining passage.

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Patent Not Issued For This Number

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CHAIR, IN PARTICULAR OFFICE CHAIR

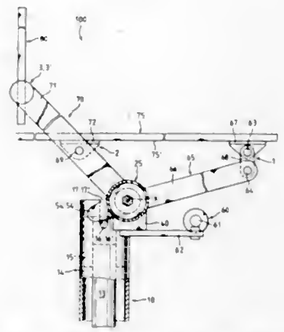
Hermann Locher, Dornach, Switzerland, assignor to Giroflex Entwicklungs AG, Koblenz, Switzerland

Filed Nov. 14, 1991, Ser. No. 792,118

Claims priority, application Switzerland, Nov. 14, 1990, 03620/90

Int. Cl.[5] A47C *3/00*

U.S. Cl. 297—301 **13 Claims**



1. A chair which is of adjustable height and inclination, comprising:

a seat support (**75**);

a backrest support (**80**);

a standing column (**10**) having a first spring element (**20**);

a support member (**25**) arranged on the standing column (**10**) in a horizontal plane, the seat and backrest supports being swingable rearwardly about a horizontal axis (X) of the support member (**25**);

first guide rod means (**65**) connecting a front part of the seat support (**75**) to the support member (**25**);

at least one second spring element (**60**) provided at a distance from the horizontal axis (X) so as to oppose rearward swinging of the seat and backrest supports;

second guide rod means (**70**) including two struts (**71, 71'**) arranged on the support member (**25**) so as to be swingable about the horizontal axis (X); and

two transmission means arranged in the support member (**25**), a torsion rod (**45**) connecting the two transmission means and having operatively connected tensioning means (**50**), each of the struts (**71, 71'**) being operatively connected to a different one of the transmission means (**35, 35'**) so that swinging movement of the struts (**71, 71'**) is transmitted synchronously by the two transmission means (**35, 35'**) to the at least one second spring element (**60**) and, via the torsion rod (**45**) and tensioning means (**50**), to the first spring element (**20**).

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ADJUSTABLE ROTATION CHAIR

I-Shan Chang, No. 184, Pu Tze Pu, Wan Chao Ts'un, Chu Chee Hsiang, Chiayi Hsien, Taiwan

Filed May 28, 1991, Ser. No. 705,993

Int. Cl.[5] A47C *1/032*

U.S. Cl. 297—320 **1 Claim**

1. A rotatable and adjustable chair, comprising:

a base for stabilizing said chair on a floor;

a frame rotatable on a shaft engaged in a bearing on said base;

said frame comprising:

a lower bar having an axis parallel to the plane of said floor and a connecting plate at a center of said lower bar rotatably engaged to said shaft;

a first end of each of two v-shaped arms integrally engaged to each end of said lower bar;

said v-shaped arms rising above said lower bar at an acute angle to said plane of said floor;

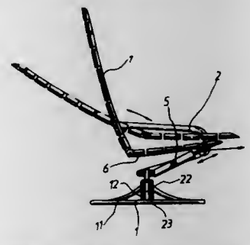
a first reinforcing bar parallel to said lower bar fixedly engaged at its ends respectively to each of said two v-shaped arms;

a first tubular member fixedly engaged to said connecting plate and a center of said first reinforcing bar; and

a second tubular member, disposed in said first tubular member having a pair of bearings disposed therein at both ends;

a first end of a slidable bar slidably engaged within said pair of bearings;

said slidable bar having a pair of transverse pins limiting slidable movement of said first end of said slidable bar within said second tubular member;



control means threadingly engaged through said first tubular member and said second tubular member for fixing said slidable bar relative to said second tubular member;

a first edge of each of a back and a seat of said chair being rotatably engaged to each other;

a second end of said slidable bar being rotatably engaged to a bottom of said seat;

a second end of each of said two v-shaped arms rotatably engaged to side edges of said back;

wherein, when said control means is disengaged from said slidable bar, a user can adjust the inclination of said back and said seat to a desirable angle and then fix said back and said seat at said angle by fixing said control means to said slidable bar.

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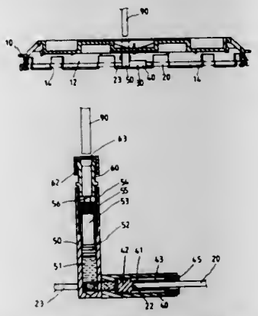
PISTON-ACTUATED WHEEL COVER

Sheng-Kuo Liu, 58, Ma Yuan West St., Taichung, Taiwan

Filed Aug. 30, 1991, Ser. No. 753,615

Int. Cl.[5] B60B *7/06*

U.S. Cl. 301—37.1 **4 Claims**



1. A wheel cover comprising a body having a plurality of fins extended axially from a peripheral portion thereof, slot being formed in a free end portion of each of said fins, a ring engaged in said slots of said fins, a notch being formed in said ring so that said ring has a first end and a second end, and an expanding device including two tubes each having first ends which are integrally formed together, a bore being formed in each of said tubes for containing hydraulic oil, said bores being communicated with each other, second ends of each of said tubes being open, a piston being slidably received in each of said bores, said first end of said ring being engaged with said piston of said first tube, said second end of said ring being engaged with said second end of said first tube, an inner thread being formed in said second end of a second tube, a head being integrally coupled to said piston of said second tube and having an outer thread formed thereon for threaded engagement with said inner thread of said second tube, whereby said piston of said second tube can be caused to move into said second tube when said head rotates in one direction so that said piston of said first tube can be urged to move outward of said first tube and so that said ring can be expanded and so that said fins can be expanded, and said piston of said first tube can be pushed inward of said first tube by said ring when said head is rotated in a reverse direction.

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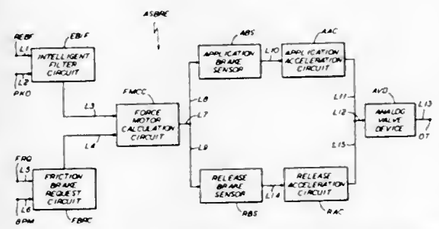
ANALOG SERVICE BRAKE RESPONSE ENHANCING CIRCUIT FOR RAILWAY VEHICLES

James A. Wood, Spartanburg; Richard J. Mazur, Greer, both of S.C., and John W. Drake, Cincinnati, Ohio, assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed May 28, 1991, Ser. No. 706,473

Int. Cl.[5] B60T *13/00*

U.S. Cl. 303—7 **10 Claims**



1. An analog service brake response enhancing circuit comprising, means for filtering voltage spikes appearing on an input feedback signal terminal, means for converting input signals appearing on a brake command request signal terminal, said converting obtaining friction brake command signals appearing on a P-wire trainline terminal and obtaining an operating mode signal appearing on a power/brake trainline terminal, means for calculating a given amount of service brake which is to be applied on a vehicle, said calculating means is a force motor logic circuit which produces an output proportional to the friction brake command signals received from said converting means, means for controlling whether an application and a release mode of braking should be instituted said control means including an application brake sensor for comparing the present output of said force motor logic circuit with a previous output of said force motor logic circuit and for causing an application accelerating circuit to produce a first logic output signal when the difference of said present output of said force motor logic circuit and said previous output of said force motor logic circuit is greater than a predetermined setpoint, and means for accelerating the operation of an analog valve means to produce a full service brake signal for a predetermined time period.

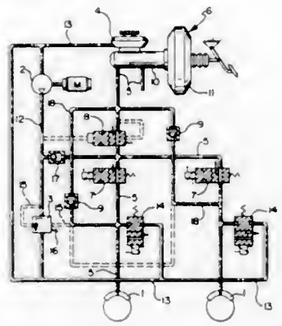
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5,209,552

ABS PUMP PRESSURE CONTROLS PRESSURE LIMITING VALVE AND LOADING VALVE

Hans-Dieter Reinartz, Frankfurt am Main, and Helumut Steffes, Hattersheim, both of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 699,546, May 14, 1991, abandoned.
This application Aug. 27, 1992, Ser. No. 936,876
Claims priority, application Fed. Rep. of Germany, May 17, 1990, 4015884
Int. Cl.[5] B60T *8/44, 8/48*
U.S. Cl. 303—116.2 5 Claims



1. An anti-lock controlled vehicle brake system including a wheel brake, comprising:

an operator actuated braking pressure generator interconnected with said at least one wheel brake through a main pressure line;

an auxiliary hydraulic pressure pump operable during anti-lock control to discharge pressurized fluid into an auxiliary pressure line, said auxiliary pressure line connected to said main pressure line;

a low pressure fluid storage reservoir and a return line connecting said wheel brake to said low pressure fluid storage reservoir;

an electromagnetically operable normally open inlet valve connected to said main and auxiliary pressure lines controlling communication of both said pressure generator and said auxiliary hydraulic pressure pump with said wheel brake;

an electromagnetically operable normally closed outlet valve in said return line;

a locking valve interposed in said main pressure line operable to isolate said pressure generator form said auxiliary pressure line upon operation of said auxiliary hydraulic pressure pump; and

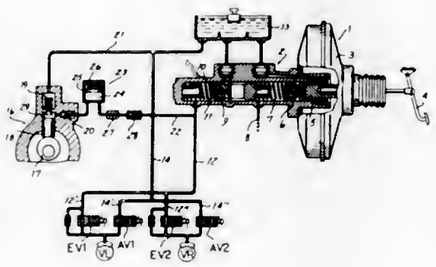
a pressure limiting valve having an inlet connected to said auxiliary hydraulic pressure pump, an outlet connected to and in fluid communication with said return line, and first and second control lines connected to said auxiliary pressure line upstream of said pressure limiting valve and to said wheel brake, respectively, said first and second control lines establishing controlled hydraulic communication of said auxiliary pressure line with said return line to effect control of auxiliary hydraulic pressure pump pressure supplied to said main pressure line in correspondence with said auxiliary hydraulic pressure pump pressure and said wheel brake pressure, said pressure limiting valve including means for establishing a predetermined pressure from said auxiliary hydraulic pressure pump to said main pressure line at a level equal to a fixed difference over said pressure at said wheel brake irrespective of the pressure generated by said braking pressure generator.

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ANTI-LOCKING HYDRAULIC BRAKE SYSTEM

Jochen Burgdorf, Offenbach-Rumpenheim; Anton David, Stuttgart; Georg Obersteiner, Koenigstein; Hans-Albrecht Guse, Homburg; Ulrich Zutt, Niedernhausen, and Bernd Schweighoefer, Schmitten, all of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

PCT No. PCT/EP90/00131, § 371 Date Nov. 13, 1990, § 102(e) Date Nov. 13, 1990, PCT Pub. No. WO90/11212, PCT Pub. Date Oct. 4, 1990
PCT Filed Jan. 24, 1990, Ser. No. 613,797
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1989, 3909209; Apr. 20, 1989, 3912935
Int. Cl.[5] B60T *13/14*
U.S. Cl. 303—116.1 22 Claims



1. An anti-locking hydraulic brake system comprising:

a brake pedal; a master cylinder having a working chamber adapted to be pressurized by actuation of said brake pedal; at least one wheel brake; a rake conduit; said wheel brake in communication with said master brake cylinder through said brake conduit; a pump having an inlet and an outlet; and a pump chamber; a pressure conduit communicating said pump outlet with said master brake cylinder; a fluid reservoir in communication with said master cylinder working chamber with said brake pedal non actuated; a relief conduit communicating said wheel brake with said fluid reservoir, said pump inlet communicating with said relief conduit; modulation valves for the control of the pressure in said wheel brake, including an outlet valve means in said relief conduit causing pressure fluid to be discharged from said wheel brake for a pressure decrease, and including an inlet valve means in said brake conduit causing pressure fluid to be supplied to said wheel brake for a pressure increase; a throttle restriction provided in said pressure;

damping means including a damping chamber having a wall; a check valve combined with said damping means and interposed before said master cylinder blocking flow back towards said pump; said check valve formed by an overflow collar having a sealing lip, said sealing lip in abutment with said wall of said damping chamber;

said pump a piston-type pump including a piston actuated by an eccentric, with a suction valve being provided in communication with said inlet and a pressure valve provided in communication with said outlet and located between said damping means and said pump chamber;

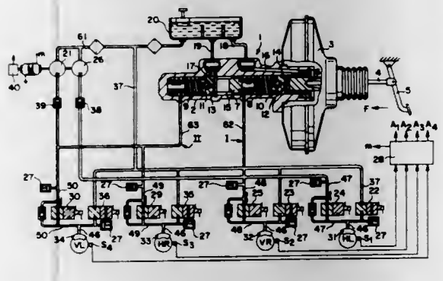
said check valve and pressure valve combined in a single assembly together with said damping means.

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SLIP-CONTROLLED BRAKE SYSTEM, ESPECIALLY FOR USE WITH AUTOMOTIVE VEHICLES

Hans J. Beilfuss, Adolph-Koping Strasse 14, 6238 Hofeim/Ts; Frank Goebring, Frauenlobstrasse 23, 6000 Frankfurt am Main 90, both of Fed. Rep. of Germany, and Michael Vogt, 1569 Streamwood Ct., Rochester Hills, Mich. 48309

PCT No. PCT/EP90/00266, § 371 Date Dec. 21, 1990, § 102(e) Date Dec. 21, 1990, PCT Pub. No. WO90/12713, PCT Pub. Date Nov. 1, 1990
PCT Filed Feb. 17, 1990, Ser. No. 635,162
Claims priority, application Fed. Rep. of Germany, Apr. 22, 1989, 3913332; May 6, 1989, 3914953
Int. Cl.[5] B60T *8/32, 8/44, 8/48, 13/12*
U.S. Cl. 303—116.1 3 Claims



1. A slip-controlled brake system for a vehicle having wheels and wheel brakes, said system comprising:

a pedal-actuated brake pressure generator including a master cylinder;

means for sensing wheel rotational behavior of said wheels and for generating signals representative of said wheel rotational behavior;

electronic circuit means, responsive to said signals representative of said wheel rotational behavior, for generating actuating signals;

hydraulic valves responsive to said actuating signals and operable to modulate brake pressure to effect wheel slip control, said hydraulic valves including:

(a) inlet valves, in fluid communication with said master cylinder, operable to permit brake pressure fluid flow to said wheel brakes, each said inlet valve having a pressure side through which pressure fluid enters said inlet valve from said master cylinder, and

(b) outlet valves operable to permit brake pressure fluid flow from said wheel brakes, each said outlet valve having a pressure side through which pressure fluid enters said outlet valve from said wheel brakes;

an auxiliary pressure pump for delivering pressure fluid to said inlet valves during wheel slip control;

a hydraulic circuit interconnecting said generator and said hydraulic valves and said auxiliary pressure pump; and

pressure attenuation means, operable to attenuate pressure pulsations within said circuit caused by said hydraulic valves and caused by said auxiliary pressure pump, said pressure attenuation means including:

(a) a first resilient elastomeric element, displaceable in response to hydraulic pressure fluctuations, and disposed on said pressure side of said inlet valves, and

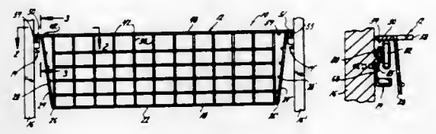
(b) a second resilient elastomeric element, displaceable in response to hydraulic pressure fluctuations, and disposed on said pressure side of said outlet valves.

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DRAWER AND ROLLER SLIDE COMBINATION

Charles Camilleri, St. Louis, Mo., assignor to Lee Rowan Company, St. Louis, Mo.

Filed Mar. 26, 1992, Ser. No. 857,946
Int. Cl.[5] A47B *88/00*
U.S. Cl. 312—334.18 19 Claims



1. A drawer and roller slide combination including mounting hardware for supporting the drawer in sliding relation to a mounting structure, comprising:

a drawer having at least two opposite side walls for retaining articles;

each side wall having an upper rim and an upper margin adjacent the upper rim, the upper rim providing a generally horizontal bearing surface positioned to ride on a roller;

the upper margins of the side walls gaining stiffness from the upper rims;

a pair of first rollers supported by the drawer;

a pair of roller slides and second pair of rollers for attaching to the mounting structure;

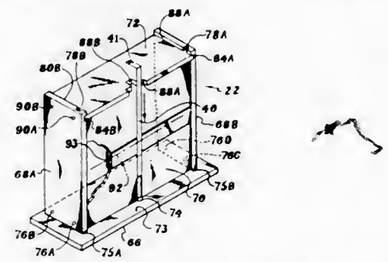
the lengths and orientations of the bearing surfaces and roller slides permitting continual rolling contact between the bearing surfaces and the second rollers and continued rolling contact between the roller slides and first rollers when the drawer slidably travels relative to the mounting structure in a generally horizontal plane between open and closed positions.

5,209,556

DRAWER ASSEMBLY

Robert F. Anderson, 5300 13th St., Menominee, Mich. 49858

Divisioo of Ser. No. 678,644, Apr. 1, 1991, Pat. No. 5,099,529.
This application Feb. 3, 1992, Ser. No. 829,490
Int. Cl.[5] A47B *88/04*
U.S. Cl. 312—334.27 6 Claims

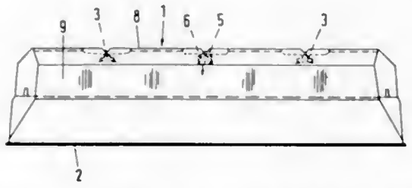


1. A drawer assembly which comprises in combination a front, two sides, a bottom, a back and a drawer slide, the drawer front containing a depression near the bottom at the center of the interior face to hold one end of one half of a drawer slide member, said interior face also having vertical grooves at predetermined distances inwardly from its ends, one end of each of the sides fitting snugly but slidably within said vertical grooves, each of said sides having narrow grooves in its interior face near the bottom edge extending horizontally along the length of each side, said grooves slidably engaging the drawer bottom and each of said drawer sides defining a vertical groove near the end opposite that which fits into the

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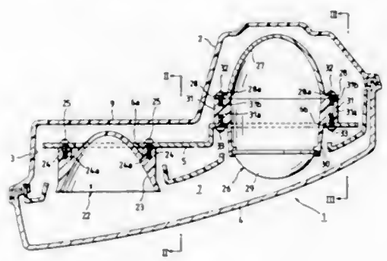
grooves in the drawer face, said grooves in the sides holding the back of the drawer, the back of said drawer defining a notch and slot centrally positioned in its bottom, said slot extending upwardly from the center of the upper extent of the notch and locating and holding the mating second end of said slide, said second end of said slide having a right angle tail, said tail fitting snugly into said slot and being fastened to the back of said drawer and said notch being of a size and configuration allowing passage along a mating drawer slide in a drawer frame.

5,209,557
PHOTOGRAPHIC LIGHT
Jean-Philippe Larboulette, Allschwil, and Walter Haberthür, Hofstetten, both of Switzerland, assignors to Hron Elektronik AG, Allschwil, Switzerland
Continuation of Ser. No. 590,083, Sep. 28, 1990, abandoned. This application Jun. 5, 1992, Ser. No. 895,174
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1989, 8911689[U]
Int. Cl.[5] G03B *15/02*
U.S. Cl. 362—11 9 Claims



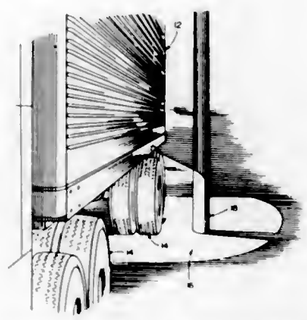
1. A photographic light having a main reflector that is disposed in a casing and has a light aperture closed by a diffuser onto which luminous rays are emitted by first light sources that are arranged within said main reflector, said photographic light further comprising at least one second light source that is disposed within said casing, with luminous rays of said second light source reaching a portion of said diffuser in addition to luminous rays of at least one of said first light sources, with said diffuser being irregularly illuminated by said light sources first and said at least one second light source.

5,209,558
VEHICULAR HEADLAMP
Takanori Suzuki, and Kiyoshi Sato, both of Shizuoka, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan
Filed Mar. 26, 1992, Ser. No. 857,846
Claims priority, application Japan, Apr. 5, 1991, 3-099758
Int. Cl.[5] B60Q *1/06*
U.S. Cl. 362—66 10 Claims



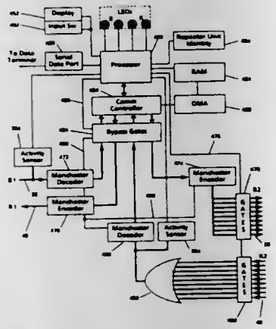
1. A vehicular headlamp, comprising:
a box-like lamp body;
an outer cover mounted on said body for defining a lamp room with said body;
a main beam unit accommodated in said lamp room for radiating a main beam;
a sub-beam unit accommodated in said lamp room for radiating a sub-beam, said sub-beam unit being constituted by a first projection type lamp having an elliptic reflector, a projection lens and a holder connecting said reflector to said projection lens;
means for supporting said main beam unit and said sub-beam unit, said supporting means pivots within said lamp room together with said main beam unit and said sub-beam unit; and
an aiming means for vertically and laterally pivoting said supporting means, said aiming means comprising a first aiming mechanism for vertically pivoting said supporting means and a second aiming mechanism for laterally pivoting said supporting means, said first vertical aiming mechanism comprises:
a pivot axis fixedly connected on a back wall of said lamp body at an upper and substantially center position in the lateral direction thereof;
a receiving member having a concave part fixed to said supporting means at an upper center position thereof;
a ball member unitary formed with a front end of said pivot axis, said ball member being rotatably fitted in said concave part of said receiving member;
an adjusting shaft having a threaded portion at a front half thereof rotatably supported on said back wall of said lamp body at a position lower than the position on which said pivot axis is supported; and
a nut member fixed to said supporting means at a position lower than the position on which said receiving member is fixed, and said threaded portion of said adjusting shaft is threadably engaged with said nut,
and said second lateral aiming mechanism comprising:
an adjusting shaft having a threaded portion at a front half thereof rotatably supported on said back wall of said lamp body at a right most position thereof horizontally spaced apart from the position on which said pivot axis is fixed; and
a nut member secured to said supporting means, said nut member being threadably engaged with said threaded portion of said adjusting shaft.

5,209,559
TRAILER LIGHT SYSTEM
Raymond A. Ruppel, Rte. 5, Box 200, Vincennes, Ind. 47591
Filed Dec. 4, 1991, Ser. No. 802,218
Int. Cl.[5] B60Q *1/26*
U.S. Cl. 362—80 10 Claims



1. In combination with a vehicle including a load carrying body having a rear wheel assembly at each side of the rear portion of the body, said vehicle including front steerable wheels spaced a substantial distance from the rear wheel assemblies whereby the rear wheel assemblies do not track in the same path as the front path steerable wheels when the vehicle makes a turn, the improvement comprising illuminating means mounted on the load body above but forwardly and/or rearwardly of each rear wheel assembly, each illuminating means including a lamp assembly and means mounting the lamp assembly from the load body to direct a continuous light beam, when energized, downwardly and outwardly at a small angle to illuminate the rear wheel assembly and surface areas adjacent thereto to enable an operator of the vehicle to observe the position of the rear wheel assemblies and the areas adjacent to the rear wheel assemblies during nighttime operation of the vehicle without binding other vehicle operators and pedestrians.

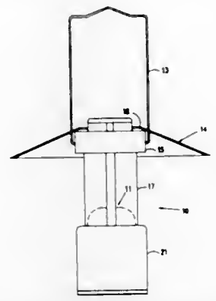
5,209,560
COMPUTER CONTROLLED LIGHTING SYSTEM WITH INTELLIGENT DATA DISTRIBUTION NETWORK
Brooks W. Taylor, and Thomas E. Walsh, both of Dallas, Tex., assignors to Vari-Lite, Inc., Dallas, Tex.
Continuation of Ser. No. 766,029, Sep. 26, 1991, abandoned, which is a continuation-in-part of Ser. No. 555,946, Jul. 19, 1990, abandoned, which is a continuation of Ser. No. 249,225, Sep. 22, 1988, Pat. No. 4,980,806, which is a continuation of Ser. No. 120,743, Nov. 12, 1987, abandoned, which is a continuation of Ser. No. 887,178, Jul. 17, 1986, abandoned. This application Jun. 9, 1992, Ser. No. 898,385
Int. Cl.[5] F12V *33/00*
U.S. Cl. 362—85 33 Claims



1. A lighting system comprising: a plurality of multiple parameter lamp units each with a least one associated lamp and respective processor control means for adjusting parameters of the associated lamp; a remote control console system for exercising control over said lamp units; a communication control system for controlling communication between said console and said lamp units; and a data link network between said communication control system and said lamp units, said data link network including a plurality of signal repeater units each having a processor coupled to said data link for monitoring data link network signals.

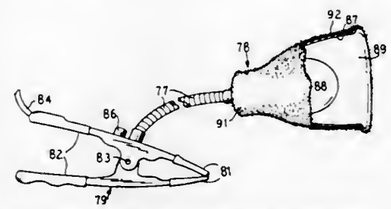
5,209,561
FLAT-PACK CONICAL LANTERN REFLECTOR
Joseph N. Bond, 28 Sarina Dr., Commack, N.Y. 11725
Filed Jan. 8, 1992, Ser. No. 818,234
Int. Cl.[5] F21L *19/00*
U.S. Cl. 362—163 3 Claims

1. A removable, frusto-conical reflector for reflecting light from a lantern, comprising in combination:
two separable, flat, resilient sheets of material, each sheet having at least one light reflective surface;
fasteners that allow the two flat sheets to be easily and repeatably joined and separated, said fasteners comprising four discrete fasteners, two male fasteners on each sheet and two female fasteners on each sheet, each of said female fasteners comprising an opening with a peripheral rim in each sheet, and each of said male fasteners comprised of a rivet secured to said sheet having a post extending from one surface of a sheet to which it is attached and a head carried by said post which is enlarged with respect to said post to form a shoulder that engages said peripheral rim when said sheets are joined;



said fasteners disposed on each of said sheets to hold said two flat sheets in a conical configuration when said fasteners are aligned and joined.

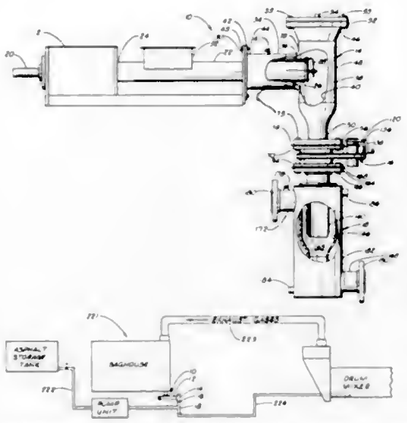
5,209,562
UTILITY LIGHT
Joseph B. Glassford, 620 N. Arbogast St., Griffith, Ind. 46319
Continuation-in-part of Ser. No. 585,476, Sep. 20, 1990, Pat. No. 5,101,333. This application Mar. 31, 1992, Ser. No. 861,237
Int. Cl.[5] F21V *15/00*
U.S. Cl. 362—378 15 Claims



1. A utility light device comprising in combination:
(a) a light source subassembly comprising
an electric socket means,
impact resistant bulb protective means in association with said socket means, and
coating means associated with said bulb protective means for shock absorption and heat dissipation;
(b) an elongated, manually positionable but position retentive tubular means with opposing ends, one said end being functionally connected to said socket means;
(c) removable mounting means for holding said device, the other of said ends being functionally connected thereto; and
(d) electric wire means connected to said socket means and extending therefrom through said tubular means and out from said mounting means, and including on-off switch

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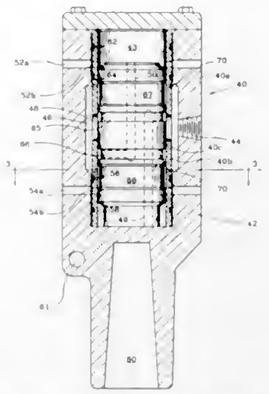
5,209,563
DUST RETURN SYSTEM
George W. Swisher, Jr., Oklahoma City, and Stuart W. Murray, Edmond, both of Okla., assignors to CMI Corporation, Oklahoma City, Okla.
Filed Oct. 2, 1989, Ser. No. 416,374
Int. Cl.[5] B28C *5/46*; B01F *15/02*
U.S. Cl. 366—22 14 Claims



1. An apparatus for mixing a particulate additive with liquid asphalt comprising:
means for receiving the particulate additive;
means for mixing the particulate additive with a stream of liquid asphalt wherein the means for mixing comprises, a cylinder having a first end and a second end and a cylinder opening intersecting said ends, and wherein the cylinder is further characterized as having an expanded portion extending from the first end and terminating at an intermediate location on the cylinder and a reduced portion extending from the expanded portion and terminating at the second end of the cylinder;
means for dispensing the particulate additive from the means for receiving to the means for mixing the particulate additive with the liquid asphalt such that the particulate additive is dispensed generally into the center of the stream of liquid asphalt; and
wherein the combination of the means for receiving, the means for dispensing and the means for mixing form a closed, pressurized environment.

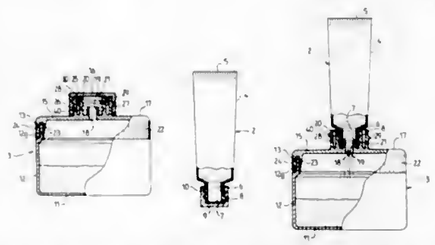
5,209,564
VIBRATOR
Lewis H. Manci, Spring, and Mark H. Neundorfer, Houston, both of Tex., assignors to National Air Vibrator Company, Houston, Tex.
Filed Jan. 21, 1992, Ser. No. 822,679
Int. Cl.[5] B01F *11/00*
U.S. Cl. 366—124 10 Claims

6. A pneumatic vibrator comprising a tubular housing having closed ends, an inlet port in the housing through which air flows into the housing, a free-floating piston mounted within the housing having two passageways through which air entering the said housing through the said inlet port flows to act alternately against opposite ends of the piston and cause the said piston to reciprocate within the said housing, a source of pressurized air for supplying pressurized air to said inlet port, exhaust ports in the said housing through which pressurized air ahead of the moving piston is exhausted from the said housing, a plurality of relatively small radial openings in the said housing in a circumferential pattern through which pressurized air



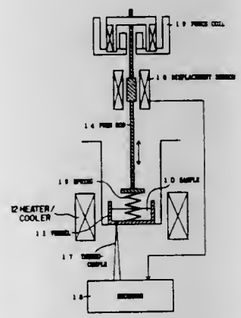
flows into the said housing and provides an air bearing between said piston and said housing.

5,209,565
ASSEMBLY ADAPTED FOR THE MIXING OF TWO DIFFERENT PRODUCTS STORED SEPARATELY
Antonin Goncalves, Montmorency, France, assignor to L'Oreal, Paris, France
Filed Dec. 23, 1991, Ser. No. 811,436
Claims priority, application France, Dec. 20, 1991, 9115929
Int. Cl.[5] B65D *25/08*, *81/32*
U.S. Cl. 366—130 12 Claims



1. An assembly for the mixing of two different products stored separately, said assembly comprising a first and a second container each capable of containing a separate product,
said first container having a neck and a body, said neck having a tearable cap fixed thereon and a removable stopper on said neck protecting said tearable cap, said body being responsive to manual pressure to effect dispensing of the product from said first container after said cap is torn,
said second container having a substantially rigid body and a neck, a first cap is attachable to said neck of said second container and having an attachment means for cooperating with said neck of said first container, said first cap having an opening extending therethrough and an edge surrounding said opening, said edge having perforating means disposed adjacent thereto,
a removable second cap attachable about said attachment means and said opening in said first cap to close said opening and to protect said perforating means, said attachment means cooperable with said neck of said first container after removal of said removable stopper of said first container and removal of said second cap of said second container, so that said first container is attachable about said opening of said first cap of said second container with said perforating means perforating said tearable cap of said first container, said neck of said first container having an external thread for fixing said removable stopper thereon, said attachment means of said first cap of said second container comprising a first cylindrical skirt surrounding said perforating means and having an internal thread thereon for cooperating with said external thread of said neck of said first container.

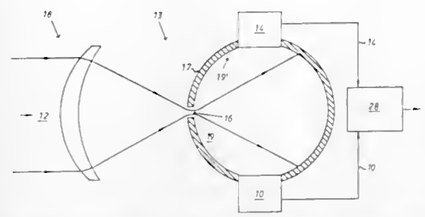
5,209,566
DYNAMIC THERMOMECHANICAL ANALYZER
Hiroji Kuwata, Kyoto, Japan, assignor to Shimadzu Corporation, Kyoto, Japan
Filed Mar. 23, 1992, Ser. No. 855,557
Claims priority, application Japan, Mar. 28, 1991, 3-64316
Int. Cl.[5] G01N *25/12*
U.S. Cl. 374—16 10 Claims



1. An apparatus for analyzing a change of the state of a sample from a fluid state to a solid state, the apparatus comprising:
a) a vessel in which the sample is set;
b) a spring standing in the vessel, the top of the spring rising above the surface of the sample;
c) an oscillator means for oscillating the spring including a push rod placed on the top of the spring and a solenoid means for driving the push rod; and
d) a displacement detector coacting with a portion of said push rod for detecting the displacement of the spring.

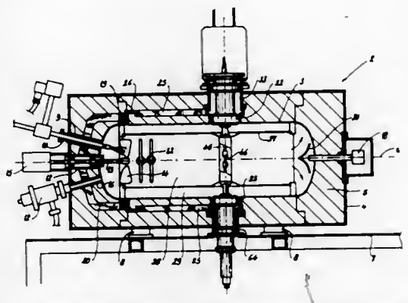
5,209,567
APPARATUS FOR MEASURING THE RADIATION CAPACITY OF LASERS
Peter Loosen, Aachen; Volker Sturm, Würselen, and Alexander Drenker, Aachen, all of Fed. Rep. of Germany, assignors to Fraunhofer Gesellschaft zur Forderung der angewandten Forschung e.V., Fed. Rep. of Germany
PCT No. PCT/DE89/00402, § 371 Date Feb. 12, 1991, § 102(e) Date Feb. 12, 1991, PCT Pub. No. WO89/12806, PCT Pub. Date Dec. 28, 1989
PCT Filed Jun. 16, 1989, Ser. No. 623,929
Claims priority, application Fed. Rep. of Germany, Jun. 17, 1988, 3820619
Int. Cl.[5] G01K *17/00*
U.S. Cl. 374—32 20 Claims

1. Apparatus for measuring the radiation power of a laser having a thermal detector, which supplies a measurement signal indicative of radiation power, comprising: a device which locally integrates the laser radiation and to which is connected at least one further detector, which is able to detect radiation power changes with a larger band width than the



band width detectable by the thermal detector and a circuit combining the measurement signals of the detectors.

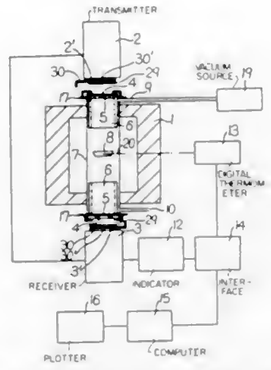
5,209,568
MACHINE FOR MONITORING THE CHARACTERISTICS OF MATERIALS EXHIBITING A PHASE TRANSFORMATION, REVERSIBLE OR OTHERWISE
Laurent Buffard, Saint Cyr Sur Mer; Michel Raymond, La Ciotat; Renee-Paule Girones, and Eric Weynant, both of Cadenet, all of France, assignors to Imago, Ajaccio, France
Filed Oct. 1, 1991, Ser. No. 769,231
Claims priority, application France, Oct. 9, 1990, 90 12765
Int. Cl.[5] G01N *3/18*
U.S. Cl. 374—49 15 Claims



1. A machine for monitoring the characteristics of materials having a phase transformation, comprising:
a thermally insulated enclosure having a longitudinal axis;
a temperature changing source for changing the temperature within the enclosure;
a device for making the temperature within the enclosure uniform;
a specimen holder disposed inside the enclosure;
measurement instrumentation associated with the specimen holder; and
mounting means uncoupled from the enclosure for mounting the specimen holder and the measurement instrumentation fixed relative to the enclosure, with the specimen holder being movable transverse to the longitudinal axis of the enclosure, for permitting thermal expansion of the thermally insulated enclosure relative to and independent of the mounting means due to temperature differences.

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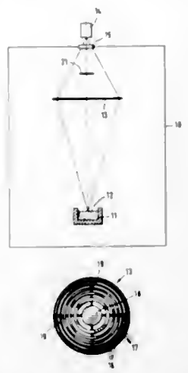
5,209,569
APPARATUS FOR MEASURING THERMAL DIMENSIONAL CHANGE OF CERAMICS OR THE LIKE
Teiichi Fujiwara; Toshisada Mimura, both of Okayama, and Toshiaki Hisanari, Bizen, all of Japan, assignors to Shinagawa Refractories Co., Ltd., Japan
PCT No. PCT/JP90/01044, § 371 Date Feb. 14, 1992, § 102(e) Date Feb. 14, 1992, PCT Pub. No. WO91/02968, PCT Pub. Date Mar. 7, 1991
PCT Filed Aug. 16, 1990, Ser. No. 834,267
Claims priority, application Japan, Aug. 21, 1989, 1-213027
Int. Cl.[5] G01N 25/16
U.S. Cl. 374—55 7 Claims



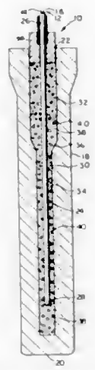
1. An apparatus for measuring thermal dimensional change of ceramics and the like, comprising a furnace for heating a specimen to be tested, a furnace core pipe passing through said furnace for receiving the specimen to be tested and including end faces at opposite ends thereof and measuring windows provided at said end faces, a laser dimensional change measuring instrument for measuring thermal dimensional change including a laser-beam transmitting section arranged at one end of said furnace core pipe and a laser beam-receiving section arranged outside the other end of said core pipe, a within-the-furnace radiation heat and light shielding slit metal fixture provided inside each of said measuring windows, a heat insulating material disposed inside said slit metal fixture and including a within-the-furnace radiation heat and light shielding slit, and a within-the-furnace radiation heat shielding slit plate and an optical filter arranged respectively at the end faces of said laser beam-transmitting section and said laser beam-receiving section.

5,209,570
DEVICE FOR MEASURING THE RADIATION TEMPERATURE OF A MELT IN VACUUM
Dietmar Neuhaus, Duesseldorf, Fed. Rep. of Germany, assignor to Raumfahrt e.V. Deutsche Forschungsanstalt fur Luft- und, Cologne, Fed. Rep. of Germany
Division of Ser. No. 529,969, May 29, 1990, Pat. No. 5,106,201. This application Apr. 17, 1992, Ser. No. 870,474
Claims priority, application Fed. Rep. of Germany, May 30, 1989, 3917504; Mar. 15, 1990, 4008327
Int. Cl.[5] G01J 5/06
U.S. Cl. 374—131 7 Claims

1. A device for measuring the radiation temperature of a radiation generating melt in a vacuum, comprising:
a pyrometer,
a matter permeable grating, arranged substantially between the melt and the pyrometer, for concentrating the radiation from the melt onto the pyrometer and shielding the pyrometer from molecules of the melt, the grating defining a radial extension and comprising a zone plate having concentric rings, and
a shielding screen arranged along the optical axis, the shielding screen defining a radial extension which is smaller than the radial extension of the grating,
wherein the melt, the grating and the pyrometer are arranged along a substantially straight optical axis.

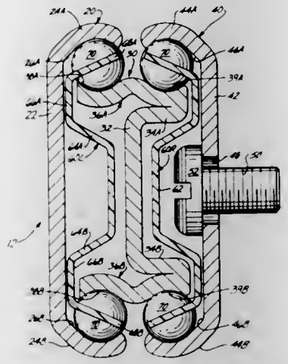


5,209,571
DEVICE FOR MEASURING THE TEMPERATURE OF A MOLTEN METAL
Martin Kendall, Sheffield, England, assignor to Heraeus Electro-Nite International N.V., Antwerp, Belgium
Filed Jul. 9, 1992, Ser. No. 910,964
Int. Cl.[5] G01K 1/12
U.S. Cl. 374—139 18 Claims



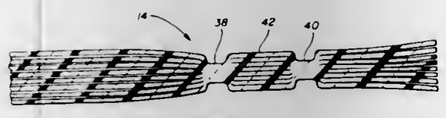
1. A device for measuring the temperature of a molten metal, said device comprising a thermocouple element, a housing comprised of a heat-resistant material, and a retainer member for receiving the thermocouple element, said retainer member having an open end and a closed end, said thermocouple element having a hot junction located proximate said closed end of said retainer member, said retainer member being positioned within said housing and being smaller in size than said housing to define a cavity therebetween, said cavity being substantially filled by a protective material comprising a metal oxide component and an oxygen reducing component.

5,209,572
THIN DRAWER SLIDE
Kent A. Jordan, Long Beach, Calif., assignor to Accuride International, Inc., Santa Fe Springs, Calif.
Filed Nov. 8, 1991, Ser. No. 790,239
Int. Cl.[5] F16C 29/04
U.S. Cl. 384—18 6 Claims



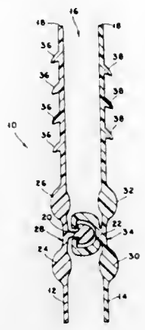
1. A full-extension slide apparatus for slidably supporting a drawer, comprising:
left and right channels for mounting the apparatus to a drawer and an article of furniture; and
a plurality of bearings slidably retained in the channels by an "I"-shaped central member having a single vertical wall of a single thickness unitarily formed with top and bottom pairs of raceways for guiding the bearings, the central member having a homogenous cross section, whereby the thickness of the slide apparatus is minimized.

5,209,573
TRASH CAN LINER
Scott T. Freeman, Fairport, N.Y., assignor to Mobil Oil Corporation, Fairfax, Va.
Filed Jun. 17, 1991, Ser. No. 716,161
Int. Cl.[5] B65D 30/02, 30/08, 30/10
U.S. Cl. 383—109 3 Claims



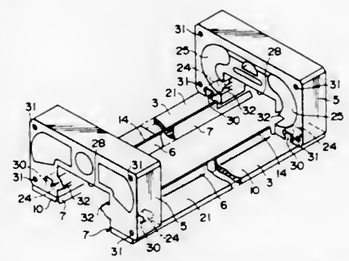
1. A trash can liner comprising:
a body portion formed from a tube of coextruded, thermoplastic film, the film including an outer layer and an inner layer, the outer layer being a different opaque color than the inner layer, both the outer and inner layers being comprised of high density polyethylene, the tube being folded along a plurality of longitudinal fold lines to form at least eight overlapping walls;
said body portion including a closed end, said closed end including a first continuous heat seal extending transversely across the tube and formed through all of the overlapping walls of the tube and a second continuous heat seal extending transversely across the tube and formed through all of the overlapping walls of the tube, said first heat seal extending substantially parallel to and adjacent to said second heat seal, and an unsealed area defined between said first and second heat seals;
said body portion including an open end opposite from said closed end.

5,209,574
RECLOSABLE PLASTIC BAG WITH SLIDERLESS ZIPPER
Paul A. Tilman, New City, N.Y., assignor to Minigrip, Inc., Orangeburg, N.Y.
Filed Nov. 22, 1991, Ser. No. 797,464
Int. Cl.[5] B65D 33/16
U.S. Cl. 383—63 9 Claims



1. A reclosable bag comprising:
a front wall and a rear wall joined to form an enclosure with a mouth defined by top edges of said walls;
a pair of interlocking profiles on internal surfaces of said walls for selectively locking said front and rear walls together to prevent or permit opening and closing said mouth; and
guide means disposed on external surfaces of said walls for guiding fingers of a user to remain in a position aligned with said profiles, said guide means including a first pair of guide ribs disposed on said front wall straddling one of said profiles and a second pair of guide ribs disposed on said rear wall straddling the other of said profiles.

5,209,575
LINEAR MOTION GUIDE UNIT HAVING AN ADJUSTABLE RETAINER PLATE
Masaichi Ohtake, Tokyo, Japan, assignor to Nippon Thompson Co., Ltd., Japan
Filed Aug. 12, 1992, Ser. No. 928,908
Int. Cl.[5] F16C 29/06
U.S. Cl. 384—15 8 Claims



1. A linear motion rolling contact guide unit, comprising:
a rail extending straight over a desired length;
a slider slidably mounted on said rail in a straddling manner;
a plurality of rolling members interposed between said rail and said slider;
sealing means for sealing a gap between said rail and said slider at a mouth of said gap for preventing undesired matter from entering into the interior of said guide unit; and mounting means for mounting said sealing means on

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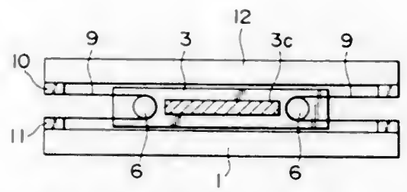
said slider such that said mounting means absorbs a change in size of said sealing means relative to said slider so as to keep an intended sealing effect substantially unchanged even if said sealing means changes in size.

5,209,576

LINEAR MOTION GUIDE UNIT HAVING A SYNCHRONIZED RETAINER

Naomi Kasai, Tokyo, Japan, assignor to Nippon Thompson Co., Ltd., Japan

Filed Dec. 20, 1991, Ser. No. 811,522
Claims priority, application Japan, Dec. 20, 1990, 2-403802[U]
Int. Cl.[5] F16C *29/04*
U.S. Cl. 384—49 8 Claims



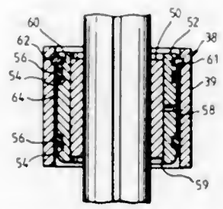
1. A linear motion guide unit, comprising:
a bed elongated in shape and provided with first guiding means extending in parallel with a longitudinal axis of said unit;
a table elongated in shape and provided with second guiding means which is located opposite to and in parallel with said first guiding means to thereby define a guide channel;
a plurality of rolling members provided in said guide channel partly received in said first and second guiding means to thereby provide a rolling contact between said bed and said table;
a retainer elongated in shape, but shorter in length than each of said bed and said table for retaining said plurality of rolling members in position;
a pair of engaging means provided at respective ends of said retainer; and
a pair of flexible coupling means, each of which has one end fixedly attached to said bed and other end fixedly attached to said table with its intermediate portion extending into a space defined between said bed and said table and passed around a corresponding one of said pair of engaging means.

5,209,577

DOWNHOLE ROTATING MACHINE HAVING COMPLIANT RADIAL BEARINGS

Mike A. Swatek, Bartlesville, Okla., assignor to Camco International, Inc., Houston, Tex.

Filed Nov. 13, 1991, Ser. No. 791,197
Int. Cl.[5] F16C *27/00*
U.S. Cl. 384—97 17 Claims



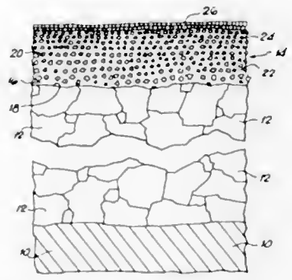
1. A downhole rotating assembly for use in a subterranean well environment, said downhole rotating assembly comprising:
a first assembly;
a second assembly, said first and second assemblies cooperatively arranged for relative rotation; and
a bearing assembly cooperatively associated with said first and second assemblies for facilitating said rotation, said bearing assembly having a plurality of members, comprising,
a bearing housing operatively engaging said first assembly,
a bearing sleeve operatively engaging said second assembly, and
a bearing bushing disposed between said bearing housing and said bearing sleeve,
wherein one of said bearing assembly members is operatively associated with a resilient member to at least partially define a fluid chamber, said fluid chamber also being at least partially defined by an adjacent surface of another member selected from the group of said bearing assembly members and said first and second assemblies, said fluid chamber having a variable dimension to facilitate relative movement between said bearing assembly member and said adjacent surface.

5,209,578

BEARINGS HAVING AN OVERLAY COATING CONTAINING DISPERSED PHASE OF A SECOND MATERIAL

David R. Eastham, Hemel Hempstead, and Alan D. Pope, Rugby, both of England, assignors to T & N Technology Limited, Rugby, England

PCT No. PCT/EP90/00970, § 371 Date Jan. 30, 1991, § 102(e) Date Jan. 30, 1991, PCT Pub. No. WO91/00375, PCT Pub. Date Jan. 10, 1991
PCT Filed Jun. 18, 1990, Ser. No. 640,365
Claims priority, application United Kingdom, Jul. 3, 1989, 8915254.0
Int. Cl.[5] F16C *33/12, 33/24*
U.S. Cl. 384—276 12 Claims



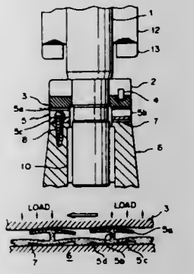
1. A journal bearing including a strong backing material having thereon a relatively thick layer of a bearing material, and having a relatively thin overlay coating, the overlay coating comprising a first material constituting the coating matrix and having therein a dispersed phase of a second material wherein the dispersed phase of the second material has a relatively low content adjacent the bearing material layer and has a relatively high content at the coating surface, the total thickness of said overlay coating being in the range from 10 to 50 micrometers.

5,209,579

THRUST BEARING DEVICE

Kozo Matake, Kanagawa, Japan, assignor to Ebara Corporation, Tokyo, Japan

Filed Jul. 5, 1989, Ser. No. 375,345
Claims priority, application Japan, Jul. 19, 1988, 63-95536[U]
Int. Cl.[5] F16C *17/06, 32/06*
U.S. Cl. 384—308 8 Claims



1. A thrust bearing device of an electric motor lubricated by liquid within a casing, comprising:
a rotary disk fixed on a primary shaft of said motor, said rotary disk defining a sliding surface thereon; and
a metal one-piece unitary sliding shoe member comprising an annular base having a bottom surface, a plurality of ribs extending from said base, and a plurality of segmental shoes spaced from each other in a circumferential direction of said base and extending directly from said ribs so as to be supported over said base by said ribs,
said ribs spacing said segmental shoes apart from one another in said circumferential direction above said base,
said segmental shoes defining sliding surfaces thereon in sliding contact with the sliding surface of said rotary disk, and
said unitary sliding shoes member fixed to a bracket of the motor so as to be disposed on a retaining surface of the bracket, said device defining gaps between said retaining surface and the bottom surface of said base at respective locations corresponding to the positions at which said shoes are supported over said base by said ribs to prevent local contact of the sliding surfaces of said segmental shoes owing to manufacturing tolerances of the sliding surface of the rotary disk and the retaining surface of the bracket.

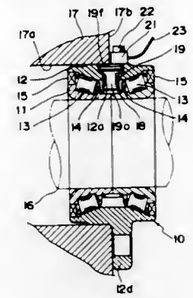
5,209,580

BEARING DEVICE FOR A VEHICLE AXLE

Katsuhiko Nakayama, Higashiosaka, Japan, assignor to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Sep. 18, 1991, Ser. No. 761,453
Claims priority, application Japan, Nov. 6, 1990, 2-116867[U]
Int. Cl.[5] F16C *33/30*
U.S. Cl. 384—448 5 Claims

1. A bearing device for a vehicle axle, comprising:
an outer ring having at least one flange at approximately the middle in the axial direction of said outer ring on an outside circumferential surface of the outer ring and with a mounting face facing in a first axial direction and adapted to abut a corresponding mounting face on a support, and a detecting member receiving hole extending radially at approximately the middle in the axial direction at a position circumferentially spaced around said outer ring from said mounting flange;
an inner ring means having a center opening through which an axle passes;
a pulser ring mounted at approximately the middle in the axial direction of the inner ring means on an outside circumferential surface of the inner ring means;
rolling elements positioned between the outer ring and the inner ring means; and
a rotation sensor consituted by a detecting member inserted in the hole in the outer ring and a mounting member orthogonally extending from the detecting member in a direction opposite said first axial direction and secured to the outside surface of said outer ring;
the face of the mounting member facing in the first axial direction being spaced slightly in said direction opposite said first axial direction from said mounting face of said flange.

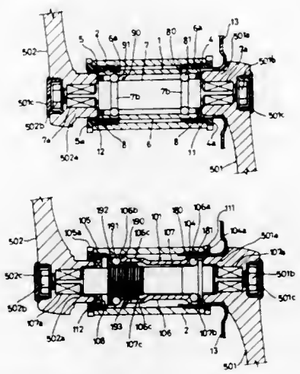


5,209,581

CRANK ARM MOUNTING APPARATUS FOR A BICYCLE

Masashi Nagano, Izumi, Japan, assignor to Shimano, Inc., Osaka, Japan

Filed Nov. 12, 1991, Ser. No. 789,973
Claims priority, application Japan, Nov. 14, 1990, 2-119543[U]
Int. Cl.[5] B62K *19/34*
U.S. Cl. 384—545 11 Claims

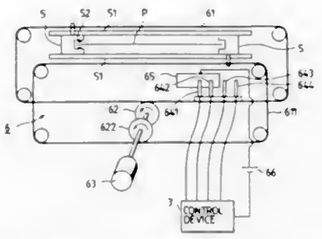


1. An apparatus for rotatably mounting bicycle crank arms, said crank arms having respective bosses with inside walls, said apparatus comprising:
a crank shaft unit including:
a crank shaft having connecting projections formed at opposite ends thereof for engaging with the inside walls of the respective bosses of said crank arms,
a cylindrical member surrounding said crank shaft said cylindrical member having inside walls, and
adapter means for maintaining said crank shaft unit in position relative to said bottom bracket, said adapter means having inside walls;

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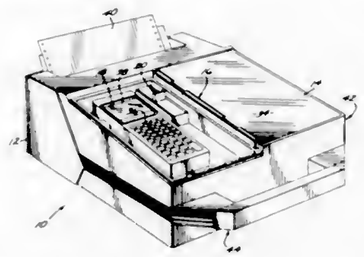
wherein at least part of said bosses of said crank arms extend into annular spaces formed between the inside walls of said adapter means and said crank shaft.

5,209,582
THERMAL PRINTER
Kazuya Bessho; Takayasu Hongo, and Kenichi Fujii, all of Hyogo, Japan, assignors to Kanzaki Paper Manufacturing Co., Ltd., Tokyo, Japan
Filed Jan. 28, 1992, Ser. No. 826,592
Claims priority, application Japan, Jan. 29, 1991, 3-102136
Int. Cl.[5] B41B *27/26*; G01N *21/86*
U.S. Cl. 400—50 5 Claims



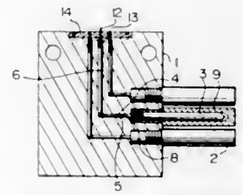
1 A thermal printer comprising:
paper edge detecting means for moving in a width, or lateral, direction of a paper to detect side edges of said paper, said paper edge detecting means comprising two side edge detecting units each including a forked shape portion, at least one of said forked shape portions having a sensor which detects said side edges of said paper;
distance detecting means for detecting a moving distance of said paper edge detecting means from a reference position thereof to an edge position of said paper side edge one said sensor has detected said side edge, and generating a corresponding signal; and
control means for receiving said signal and correspondingly inhibiting power supply to portions of a thermal head disposed outside of said side edges of said paper, said signal being generated from said distance detecting means corresponding to said moving distance of said side edge detecting means.

5,209,583
COMPACT PRINTER FOR PORTABLE COMPUTER
Kim R. Lewis, Stow; Gary L. Elston, Akron, both of Ohio; Jack P. Hall, Palo Alto, and Dennis Kerkhof, Rio del Mar, both of Calif., assignors to Telxon Corporation, Akron, Ohio
Filed Apr. 1, 1992, Ser. No. 862,628
Int. Cl.[5] B41J *3/36*
U.S. Cl. 400—88 14 Claims



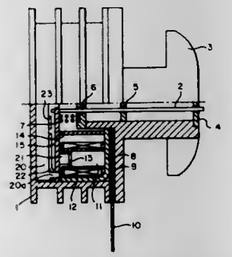
1. A printer system, for use with a portable computer having a connector, comprising:
a housing;
a printer, contained within the housing, for receiving data and for printing characters representing the data onto a readable medium;
a printer connector, coupled to the printer, that can be engaged with the computer connector to send and receive data from the portable computer to the printer; and
sliding means, adapted to slide relative to the housing, for moving the portable computer relative to the printer connector such that the orientation of the computer relative to the printer connector cannot be changed unless the computer connector is completely disengaged from the printer connector.

5,209,584
DEVICE FOR USE IN BRAILLE PRINTING OR PAPERLESS BRAILLE COMMUNICATION
Roland Galarneau, 48 Brady Street, Hull, Quebec, Canada J8Y 5L4
Filed Jul. 19, 1991, Ser. No. 732,627
Claims priority, application Canada, Mar. 1, 1991, 2037388
Int. Cl.[5] B41J *3/12*
U.S. Cl. 400—122 8 Claims



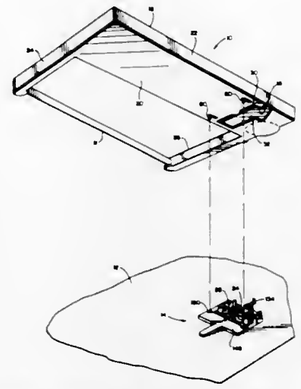
1. A device for forming Braille characters for tactile sensation or impression onto an embossable substrate including:
i) a substantially block-like main body having a flat upper surface, said main body being elongated in the direction beneath said upper surface, said body being provided with an array of first cylindrical bores extending downwardly from said upper surface, each said first bore having a lower end which is remote from said upper surface, and with an array of second cylindrical bores, each said second bore being associated with a respective first bore, extending transversely to the associated first bore and intersecting the lower end of the associated first bore;
ii) at least one array of six Braille printing pins contained in said body in two parallel rows each having three pins to constitute a 2×3 Braille cell, each said pin having a tip and being contained in a respective first cylindrical bore and being movable between a retracted position whereby said pin does not protrude from said body, and an extended position whereby the tip of said pin protrudes from said upper surface of said body;
iii) a plurality of means each associated with a respective pin for maintaining the respective pin in an extended position, each said means (iii) comprising a first rod movable in a respective second bore to a position beneath said pin to push said pin to its extended position and hold it there;
iv) an array of second rods, each said second rod being disposed in a respective first bore for movement along the respective first bore and having a lower end which is directed toward the lower end of the respective first bore and an upper end which is directed away from the lower end of the respective first bore, wherein each said second rod has a larger diameter than each said pin and each said pin extends co-axially upwardly and outwardly from said upper end of a respective second rod;
v) a flat plate secured against said upper surface of said main body and provided with an array of apertures aligned with said first bores so that each said pin extends through a respective aperture at least when said pin is in the extended position; and
vi) a plurality of springs each located in a respective first bore and extending from said upper end of a respective second rod, around a respective pin and against said flat plate;
wherein each said first rod comprises a flat, ramp-like cam surface that bears against the lower end of a respective second rod, whereby forward motion of said first rod causes said second rod to move up.

5,209,585
PRINT HEAD FOR A DOT MATRIX PRINTER
Tetsuya Yamamoto; Yukihisa Kato, and Masao Kunita, all of Tanashi, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan
Filed Jun. 18, 1990, Ser. No. 539,688
Claims priority, application Japan, Jun. 19, 1989, 1-70742[U]
Int. Cl.[5] B41J *2/235*
U.S. Cl. 400—124 2 Claims



1. A print head for a dot matrix printer of an armature attracting type, comprising
a plurality of print needles slidably mounted in said print head at a central portion thereof,
a plurality of armatures pivotally mounted in said print head, a front side face at an end portion of each of said armatures being adjacent a rear end of a corresponding print needle,
a plunger secured to the front side of each armature,
a plurality of electromagnets each having a core surrounded by a coil, each core corresponding to each respective plunger, so that said plunger of said armature is attracted to said core, thereby moving the corresponding needle for printing a dot,
a residual sheet made of non-magnetic metal, mounted on each of said cores of each of said electromagnets, and
a center ring made of non-magnetic metal provided at a central portion of said print head adjacent to an end portion of each armature for stopping said armature when said armature strikes the center ring responsive to the attraction of said electromagnet, said residual sheet having a thickness such that when said armature strikes said center ring, said plunger of said armature is spaced from said residual sheet, said plunger subsequently contacting said residual sheet due to deflection of said armature caused by inertia thereof responsive collision of said armature against said center ring, said center ring and said residual sheet prevention said armature from sticking to said core of said electromagnet.

5,209,586
RIBBON CARTRIDGE AND PRINTER DRIVE SYSTEM FOR THE RIBBON
Edward D. Furrow, and Gerald S. Cox, both of Waynesboro, Va., assignors to Genicom Corporation, Waynesboro, Va.
Filed Aug. 10, 1992, Ser. No. 926,645
Int. Cl.[5] B41J *32/00*
U.S. Cl. 400—196.1 27 Claims



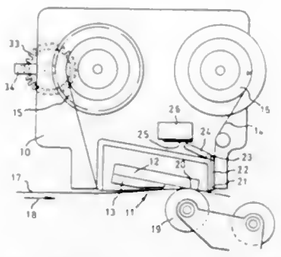
1. A ribbon cartridge for a printer having a ribbon drive mechanism including a pair of rollers for engaging a print ribbon therebetween, comprising:
an elongated cartridge housing having top, bottom, and side walls and a pair of arms projecting to one side of said housing adjacent opposite ends thereof, respectively;
said walls in part defining a storage chamber for receiving and storing the print ribbon, said arms defining entrance and exit paths, respectively, for receiving the ribbon for delivery to the storage chamber and supplying the ribbon from the storage chamber for spanning between said arms, said bottom wall having an opening therein for receiving the pair of rollers substantially within the confines of the cartridge housing when the cartridge is loaded into the printer;
a stripper having stripper elements and carried by said cartridge housing for movement between a first retracted position and a second extended position with the stripper elements disposed adjacent the pair of rollers for stripping the ribbon from the rollers;
said bottom wall including a pair of openings having an extent in the direction of the housing substantially at least equal to the range of movement of said stripper in said cartridge between said first and second positions;
said stripper including a pair of pins projecting through said openings below said bottom wall for engagement of at least one pin thereof by a drive carried by the printer for displacing said stripper from one of said first and second positions into the other of said first and second positions.

5,209,587
INK RIBBON FEED
Raymond J. Herbert, Leigh-on-Sea, and Thomas D. Williams, Billericay, both of United Kingdom, assignors to Alcatel Business Systems Limited, Essex, United Kingdom
Filed Dec. 30, 1991, Ser. No. 814,454
Claims priority, application United Kingdom, Dec. 31, 1990, 9028224
Int. Cl.[5] B41J *33/14*
U.S. Cl. 400—225 11 Claims

1. A ribbon feed mechanism including means for drawing an ink ribbon from a spool of wound ribbon past a print head first

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means responsive to movement of the ribbon past the print head to produce first signals representing increments of movement of the ribbon; second means responsive to rotation of the spool to produce second signals representing increments of



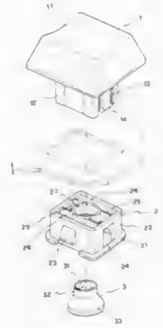
angular rotation of the spool and control means operative to count the number of first signals occurring during an interval defined by said second signals and to compare said count with a predetermined reference value.

5,209,588

COMPUTER KEY SWITCH

Pao-Chin Chen, 3F, No. 129, Sec. 5, Roosevelt Road, Taipei, Taiwan

Filed Jun. 9, 1992, Ser. No. 895,627
Int. Cl.[5] B41J *5/12*
U.S. Cl. 400—490 1 Claim



1 A key switch for a computer keyboard comprising

a key cap, said key cap which comprises a cap head, two opposite bottom walls and two opposite bottom strips vertically extended from said cap head at right angles around the four sides of said cap head, said bottom strips having each a bottom edge terminated into a hook-like bevel flange, and a hollow cylindrical plunger vertically extending from said cap head in the center thereof,

a key base made of substantially rectangular shape fastened in a hole on a frame inside a keyboard, said key base comprising a bottom flange around a bottom border thereof, said bottom flange having two notches at two opposite sides, a closed surrounding vertical wall around the four sides thereof, two substantially triangle blocks on said closed surrounding vertical wall at two opposite sides spaced above said bottom flange for positioning on the frame of the keyboard, two openings on said closed surrounding vertical wall at the other two opposite sides into which said two vertical bottom strips are inserted, two longitudinal division walls in the interior of said key base defining with said closed vertical surrounding wall two spaced elongated chambers for receiving said two opposite bottom walls of said key cap, and a ring-shaped holder located between said two longitudinal division walls for receiving said hollow cylindrical plunger, said ring-shaped holder having a bottom edge formed into a substantially horn-shaped orifice;

said keyboard having a membrane in the interior thereof and a frame, said membrane housing a switch;

a rubber cone fastened in the interior of said keyboard below said frame and above said membrane thereof to support said key base, said rubber cone comprised of a top ring inserted into said ring-shaped holder through said horn-shaped orifice, a horn-shaped bottom ring supported on said membrane inside said keyboard, a transverse division wall blocked between said top ring and said horn-shaped bottom ring, and a solid stub rod extended downwardly from said transverse division wall at the center of said rubber cone; and

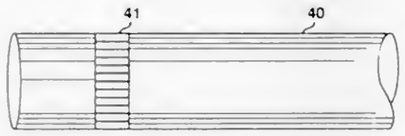
wherein when said rubber cone is squeezed by said cylindrical plunger, said horn-shaped bottom ring is deformed, said stub rod is moved down to connect with a switch in the interior of said membrane, and a circuit is triggered.

5,209,589

APPARATUS AND METHOD FOR MINIMIZING PRINTER SCAN ERROR

Anitta L. Bliss, San Jose, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Oct. 25, 1991, Ser. No. 782,674
Int. Cl.[5] B41J *19/92*
U.S. Cl. 400—568 15 Claims



1 For use in a printer assembly including a printhead which moves in a first direction for printing on a sheet of paper, roller means having an outer cylindrical periphery that engages said sheet of paper at successive tangent points on said periphery for moving the paper in a second perpendicular direction, and driving means for rotating said roller means, an arrangement for determining certain pre-established errors in the positioning of said sheet of paper by said roller means, comprising:

light reflecting means coupled to said roller means;

measuring means including light emitting and sensing means projecting a beam of light onto said light reflecting means and sensing the light reflected back from said beam while said roller means is rotating for measuring the radii of said roller means at said successive tangent points on the entire periphery of said roller mens to determine said pre-established errors;

storage means for storing data corresponding to said pre-established errors measured by said light emitting and sensing means.

5,209,590

PAPER BAILING APPARATUS FOR PRINTER

Yasunori Tsukuda, and Hidetoshi Sakurai, both of Shizuoka, Japan, assignors to Star Micronics Co., Ltd., Shizuoka, Japan

Filed Jul. 13, 1992, Ser. No. 912,839
Claims priority, application Japan, Jul. 25, 1991, 3-186483; Mar. 30, 1992, 4-71924
Int. Cl.[5] B41J *13/02*
U.S. Cl. 400—636.1 8 Claims

1. A paper bailing apparatus for a printer comprising:

a platen for mounting paper thereon;

a paper feed gear for rotating said platen;

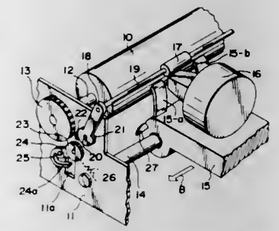
a carriage for carrying a printing head and reciprocating in the axial direction of said platen;

a bail roller supported by a rockable bail lever so as to hold said paper against the surface of the platen;

a toggle spring for setting said bail lever either at the bailing position at which said bail roller is held against said platen or at the release position at which said bail roller is apart from said platen and for maintaining said bail lever at that position;

a bail gear provided at the rocking supporting portion of said bail lever so as to receiver the bail lever rocking force;

an idle gear supported by a rotatable idle lever so as to be moved either to the driving position at which said idle



gear meshes with both said paper feed gear and said bail gear or to the waiting position at which said idle lever is apart from both said paper feed gear and said bail gear;

a return spring for urging said idle lever to return to said waiting position of said idle gear; and

a compression piece provided on said carriage so as to engage said idle lever and move said idle gear to said driving position when said carriage is moved beyond the printing range;

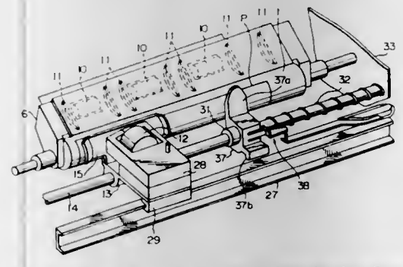
wherein when said carriage is moved beyond said printing range, the driving force of said paper feed gear is transmitted to said bail gear through said idle gear, and said idle gear is self-held at the driving position by the gear driving force until said bail gear is moved to said bailing position.

5,209,591

SHEET GUIDE MECHANISM FOR A PRINTER

Minoru Mizotani; Shyoichi Watanabe, and Takeshi Asaba, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Jun. 18, 1991, Ser. No. 716,961
Claims prinrity, application Japan, Jun. 22, 1990, 2-162798
Int. Cl.[5] B41J *13/16*
U.S. Cl. 400—645 18 Claims



1 A printer for use with a printing sheet having first and second parallel edges, comprising:

a rotatably mounted platen for supporting the printing sheet and for feeding the printing sheet in a feed direction;

an elongated member disposed parallel to the platen;

a carriage slidably mounted on the elongated member for movement in a printing direction which is transverse to the feed direction and the edges of the printing sheet;

drive means for moving the carriage in the printing direction;

a printing head mounted on the carriage;

a sheet guide for guiding the printing sheet, the sheet guide being disposed closer to the second edge of the printing sheet than to the first edge, the sheet guide additionally being aligned with the carriage and being disposed further than the carriage from the first edge of the printing sheet, the sheet guide being mounted for movement in the printing direction between a rest position and a remote position, the sheet guide facing the printing sheet when in the rest position and being spaced apart from the printing sheet in the printing direction when in the remote position;

a resilient member to urge the sheet guide toward its rest position; and

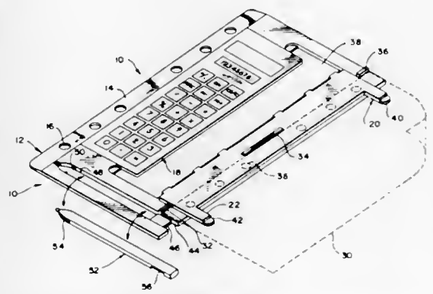
holding means for latching the sheet guide at a withdrawn position when the carriage pushes it to the withdrawn position, the withdrawn position being located between the rest position and the remote position and being close to the remote position, and for unlatching the sheet guide when the carriage subsequently pushes it to the remote position.

5,209,592

NOTEBOOK INSERT WITH CALCULATOR AND HOLEPUNCH

Mark A. Bedol, 6980 Fabriano Pl., Rancho Cucamonga, Calif. 91701

Filed Dec. 9, 1991, Ser. No. 804,762
Int. Cl.[5] B42F *3/00*
U.S. Cl. 402—1 6 Claims



1. A notebook insert, comprising:

a) a housing having a periphery with a plurality of holes therethrough, said holes being adapted for engagement with the rings of a ringed notebook;

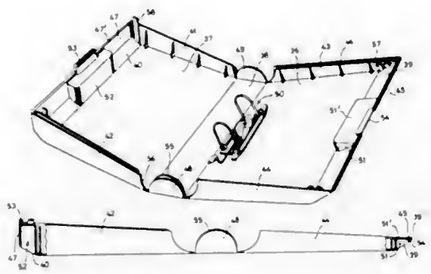
b) an electronic calculator attached to said housing; and,

c) a holepunch assembly attached to said housing, said housing, calculator and holepunch assembly being sufficiently thin for convenient use of the notebook insert in a ringed notebook,

wherein said housing includes a plurality of spaced openings, said holepunch assembly comprising a rigid plate having spaced projections formed thereon and hinges attached to an edge thereof, said hinges for securely attaching said rigid plate to said housing, said rigid plate being so positionable with respect to an upper surface of said housing such that said spaced extensions may be aligned with said openings so as to provide a holepunching capability when paper is inserted therebetween.

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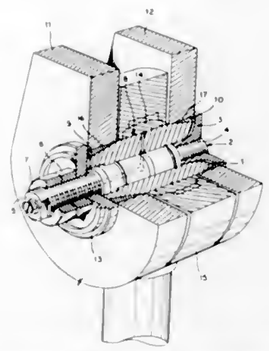
5,209,593
DEVICE FOR STORING DOCUMENTS
Johannes F. Ros, Paris, France, assignor to Office Data Europe (ODE) B.V., Netherlands
Filed Oct. 2, 1991, Ser. No. 770,109
Claims priority, application Netherlands, Oct. 12, 1990, 9002226; Jul. 5, 1991, 9101174
Int. Cl.[5] B42F *13/00*
U.S. Cl. 402—77 9 Claims



1. A portable file including:
an elongated spine and generally rectangular first and second main panels each including first and second spaced parallel relatively short sides and third and fourth spaced parallel relatively long sides disposed at opposite ends of said first and second sides;
said panels at their said third sides being pivotally connected to said spine along opposite long sides thereof, each of said panels also including raised first and second edges along the respective first and second sides;
said panels and said spine being constructed of plastic, said panels and said spine being foldable relative to one another between a closed and open position;
when in said open position said panels extending in opposite directions from said spine;
when in said closed position said panels confronting one another, said first edges engaging each other, said second edges engaging each other, and said panels cooperating with said spine to define a generally closed container;
a document fixing means secured to one of said panels in operative position to be disposed inside of said generally closed container;
said first and second edges of said first panel being of a height that tapers gradually, being taller near said spine than near said fourth side of said first panel;
said first and second edges of said second panel being of a height that tapers gradually, being shorter near said spine than near said fourth side of said second panel.

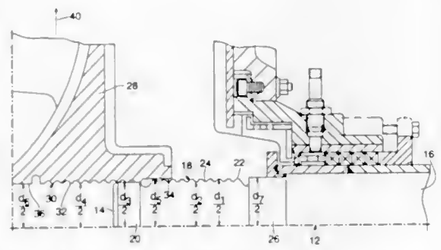
5,209,594
ARRANGEMENT FOR LOCKING A SHAFT TO A MACHINE MEMBER
Roger Svensson, Bondegatan 8B, and Evert Svensson, Malmvägen 1D, both of Atvidaberg, Sweden S-59700
PCT No. PCT/SE90/00360, § 371 Date Nov. 19, 1991, § 102(e) Date Nov. 19, 1991, PCT Pub. No. WO90/15262, PCT Pub. Date Dec. 13, 1990
PCT Filed May 29, 1990, Ser. No. 773,598
Claims priority, application Sweden, May 31, 1989, 8901956
Int. Cl.[5] B25G *3/00*
U.S. Cl. 403—11 13 Claims

1. An arrangement for locking a shaft or an axle to a machine member, said shaft being intended to carry a bearing on a central cylindrical part (8) thereof, said arrangement comprising first and second expander sleeves (9, 10) which have a conical internal form and each of which is intended to be mounted on a respective end of a corresponding configuration on the shaft, said expander sleeves (9, 10) functioning an annular wedges with the apex of the wedge facing towards the cylindrical part (8) of the shaft or axle and when tightened with the aid of fastener and tightening means (6) are caused to expand against the machine member and therewith lock the shaft thereto, and the shaft comprising an outer sleeve (1) which presents the conically shaped end-parts, and a pin (2) which is arranged coaxially with and within the outer sleeve (1) and one end of which has an outwardly curved, mushroom-



headed end-part (3) having a radially extending inward surface that is intended to abut said second expander sleeve, and the other end (5) of which pin (2) carries the fastener means (6) with which the first and second expander sleeves (9, 10) are caused to expand into clamping contact width the machine member and said mushroom-headed end-part being dimensioned and arranged so as to facilitate the locking of the shaft to the machine member solely through manipulation of the fastener and tightening means positioned at one end of said pin.

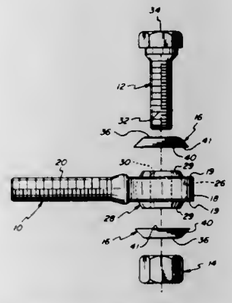
5,209,595
DRIVE SHAFT, DRIVE ASSEMBLY AND RELATED METHOD
John Hyll, Sandy, Utah, assignor to Baker Hughes Incorporated, Houston, Tex.
Filed May 1, 1992, Ser. No. 877,416
Int. Cl.[5] B25G *3/00*
U.S. Cl. 403—13 12 Claims



1. A drive assembly comprising:
a drive shaft having a driving end and a driven end, said shaft being provided at said driving end with said thread and said driving end, said thread having a flat crest and a flat trough; and
a driven member attached to said shaft at said driving end, said driven member having an internal helical thread matingly engaging said external helical thread, said driven member being provided with an internal surface at least partially surrounding and in contact with said pilot sur-

face, said external helical thread having a flat crest and a flat trough.

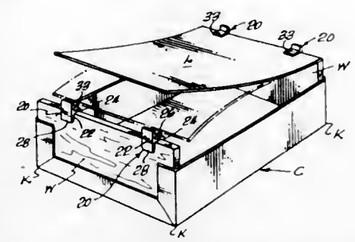
5,209,596
SEAL COMPONENT AND ROD END ASSEMBLY UTILIZING SAME
Stanley E. Matczak, 16 Kibbe Rd., Ellington, Conn. 06029, and Joseph A. Matczak, Taylor St., Talcottville, Conn. 06066
Continuation-in-part of Ser. No. 476,154, Feb. 7, 1990, Pat. No. 5,069,571. This application Dec. 3, 1990, Ser. No. 620,573
Int. Cl.[5] F16C *11/00*
U.S. Cl. 403—134 21 Claims



1. A spherical rod end assembly comprising: a spherical rod end having a head portion with an opening of spheric cross section therewithin, and with exterior surfaces on opposite sides of said head portion surrounding said opening; a ball pivotably seated within said opening of said rod end head portion, said ball having a bore therethrough; and fastener means comprised of a plurality of components, a first of said components of said fastener means having a shank portion extending through said bore of said ball, and a second of said components being engaged on said shank portion of said first component, at least one component of said fastener means being a seal component comprised of a rigid body element with a peripheral marginal portion, and a sealing element having an inner portion continuously surrounding said marginal portion of said body element and sealingly affixed thereto, and having a flexible, resilient composite wall portion extending from about said inner portion, said wall portion being outwardly flared and terminating at a flexible peripheral lip in movable sealing engagement with said exterior surface of said head portion adjacent thereto, and being comprised of an outside shell made of a tough, dense, nonporous material, and a lining made of a foraminous material integral with said shell and at least substantially covering the interior face of said wall portion.

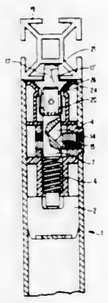
5,209,597
FASTENER
Paul Flaming, 6470 Avenue 424, Dinuba, Calif. 93618
Filed Oct. 21, 1991, Ser. No. 779,836
Int. Cl.[5] F16B *1/00*
U.S. Cl. 403—205 20 Claims

1. A fastener for removably securing a lid, or the like, to a container of the type having relatively rigid end walls;
said fastener comprising a vertically disposed spine having upper and lower terminal ends, a leg member disposed in spaced relation with respect to said spine, connector means disposed between and interconnecting said spine and said leg between the terminal ends of said spine, so as to form, in cooperation with said spine member, a downwardly extending relatively wide receptacle for gripping engagement with a side wall of said container;
a protuberance projecting inwardly from said spine from a point immediately above said connector means and parallel thereto, such that said protuberance and said connector means together form an inwardly extending relatively narrow slot for receipt of a lid, and said spine, leg member,



connector means, and protuberance each being of generally equal thickness.

5,209,598
CLAMPING DEVICE FOR RELEASABLY CONNECTING TWO PROFILED PARTS
Kurt Züllig, Kirchberg, Switzerland, assignor to Syma Intercontinental AG, Kirchberg, Switzerland
Filed Feb. 18, 1992, Ser. No. 835,842
Claims priority, application Switzerland, Mar. 25, 1991, 903/91; Nov. 6, 1991, 3234/91
Int. Cl.[5] B25G *3/00*
U.S. Cl. 403—255 15 Claims



1. A clamping device for releasably connecting two profiled parts (1,19) wherein an insert core (2) intended to be inserted and fixed in one of the profiled parts (1) has an axially movable bolt (7) having an end portion which comprises a projection (21) intended to be introduced at least partially in an opening of a second profiled part (19) in order to exert a force against an area of a portion of said second profiled part (19) partially covering said opening, wherein a screw (5) received in a threaded bush (4) engages the bolt (7) by means of a system of sliding surfaces (14,15) in order to displace the bolt axially, wherein the bolt (7) has supporting means (27,28) for pivotally supporting at least one holding piece (17,17',18,18') and wherein said holding piece and at least one of the interior walls of the insert core (2) have a second system of sliding surfaces (24,26) which owing to the axial movement of the bolt (7) cause a deviation of the holding piece (17) having in its free end area said projection (21) intended to exert said force.

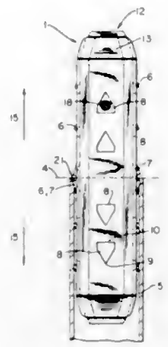
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5,209,599

PLUG CONNECTOR FOR HOLLOW SPACER PROFILES OF INSULATING GLASS PANES

Max Kronenberg, Solingen, Fed. Rep. of Germany, assignor to Helmut Lingemann GmbH & Co., Wuppertal, Fed. Rep. of Germany

Filed Feb. 12, 1991, Ser. No. 654,225
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1990, 9010884
Int. Cl.[5] F16B *2/20*
U.S. Cl. 403—298 6 Claims



1. A plug connector for making a connection joint between an axially aligned pair of hollow spacer profiles of insulating glass panes, said plug connector defining a longitudinal axis and a center transverse axis transverse thereto and being configured as an essentially box-type cross section with a center web and a pair of side webs extending from said center web, with a plurality of essentially triangular openings being located in said center web on both sides of the center transverse axis, each of said openings defining an apex pointing to the nearest end of said plug connector, said plug connector further being configured as a stamped and bent component made from sheet steel with an essentially U-shaped cross section, with said openings in said center web being configured as wall perforations fully circumscribed by said center web, and with said side webs having a plurality of bent-out elastic retainer catches, two of said elastic retainer catches being located immediately adjacent to one another on each said web side in the region of a profile connection joint and pointing in opposite directions to form a stop for one of the profiles.

5,209,600

METHOD AND APPARATUS FOR REPAIRING CASINGS AND THE LIKE

Charles H. Koster, Alvin, Tex., assignor to Nu-Bore Systems, Alvin, Tex.

Division of Ser. No. 460,810, Jan. 4, 1990, Pat. No. 5,046,558, which is a division of Ser. No. 295,290, Jan. 10, 1989, Pat. No. 4,913,758. This application Aug. 9, 1991, Ser. No. 743,022
Int. Cl.[5] B25G *3/00*
U.S. Cl. 403—344 4 Claims

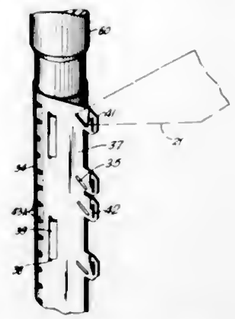
1. A wrap-around collar for fastening the ends of a plurality of overlapping strips to an elongated cylindrical element to permit the spiral wrapping of said strips around and along the length of said element, each of said strips having an end portion adapted to be connected to said collar, said collar being formed of:

a sheet of material of substantially rectangular shape having a front edge comprising a flap portion and an edge disposed rearwardly thereof for applying to said cylindrical element during wrap-around of said sheet about said element,

a first collar attachment means disposed adjacent and along said rearward edge,

a complementary second collar attachment means disposed intermediate said edge and adjacent said front edge for attachment to said first attachment means,

the distance between said attachment means corresponding substantially to the circumference of said cylindrical element such that when said sheet is wrapped around said



cylindrical element and the attachment means connected to each other to form a collar about said element, the collar is firmly held to said element with the edge of said flap portion freely extending,

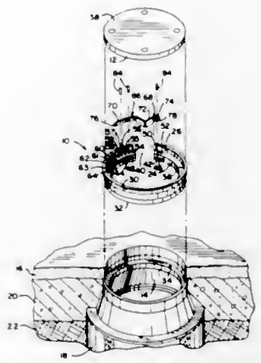
and a plurality of connecting means disposed along said freely extending edge to which the ends of said plurality of strips are separately connected in overlapping relationship to permit spiral wrapping thereof along the length of said cylindrical element.

5,209,601

MANHOLE GRADE ADJUSTING RING AND METHOD

Frank J. Odill, West Allis, and Ronald E. Anderson, Fort Atkinson, both of Wis., assignors to Cretex Companies, Inc., Elk River, Minn.

Filed Aug. 14, 1991, Ser. No. 743,615
Int. Cl.[5] E02B *29/14*
U.S. Cl. 404—26 15 Claims



1. A manhole grade adjusting ring for installation in a manhole frame to raise the level of a manhole cover, comprising:

a ring including circular bar and skirt portions, said bar portion having a base surface for being supported on the manhole frame and a platform surface above said base surface for supporting the manhole cover, and said skirt portion extending above said platform surface;

wherein said ring is split so as to define first and second ends adjacent to one another;

an expansion lock having a first end, a second end and a V-shaped expansion joint between said first and second ends;

means for securing the first end of the expansion lock to the first end of the ring with the expansion lock bridging the first and second ends of the ring and the V-shaped expansion joint pointing inward of said ring; and

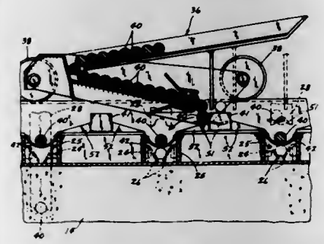
adjustable means for securing the second end of the expansion lock to the second end of the ring, said adjustable means allowing said second end of the lock to be releasably secured to the second end of the ring at different positions on said second end of the ring so as to vary the position of the first and second ends of the ring relative to one another.

5,209,602

METHOD AND APPARATUS FOR INSERTING DOWEL BARS FOR A CONCRETE SLIP FORMING MACHINE

Gary L. Godbersen, Ida Grove, Iowa, assignor to Gomaco Corporation, Ida Grove, Iowa

Filed Jun. 10, 1991, Ser. No. 712,697
Int. Cl.[5] E01C *23/02*; B28B *1/00*
U.S. Cl. 404—88 31 Claims



1. A dowel bar inserting apparatus for concrete slip forming machines comprising:

a frame having a longitudinal axis, said frame being adapted to be moved in a forward direction;

pan means attached to said frame for shaping uncured concrete into a continuous concrete slab;

a plurality of openings disposed through said pan means and spaced across said pan means;

a dowel bar retainer means disposed in each of said openings for holding a dowel bar in readiness to be inserted into the concrete slab;

inserter means disposed above each of said dowel bar retainer means, said inserter means being operatively attached to the frame for pushing a dowel bar disposed in one of said retainer means through a respective one of said openings and into the concrete slab; and

means for independently actuating each one of said inserter means at a predetermined place in said concrete slab whereby respective ones of said dowel bars disposed in respective ones of said retainer means can be positioned in the concrete in a predetermined pattern across the concrete slab and wherein each of said inserter means can be actuated at times different than other of said inserter means.

25. A dowel bar inserting apparatus for concrete slip forming machines comprising:

a frame having a longitudinal axis, said frame being adapted to be moved in a forward direction, said frame having a front portion, a rear portion and an intermediate portion;

pan means attached to the front portion of said frame for shaping uncured concrete into a continuous concrete slab, said pan means having a front end and a rear end;

vibrator means operably attached to the front portion of said frame for extending into and vibrating uncured concrete placed at the front of said frame prior to the time said uncured concrete enters the front end of said pan means;

a dowel bar retainer means operatively attached to said frame between said vibrator means and the rear of said pan means for holding a dowel bar in readiness to be inserted into the concrete slab;

inserter means disposed above said dowel bar retainer means, said inserter means being operatively attached to the frame for pushing dowel bars disposed in said retainer means into the concrete slab; and

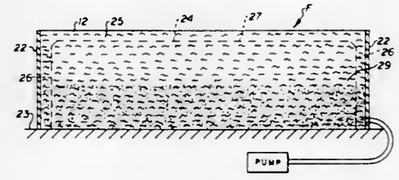
means for actuating said inserter means at a predetermined place in said concrete slab whereby said dowel bars disposed in said retainer means can be positioned in the concrete in a predetermined pattern across the concrete slab.

5,209,603

SECONDARY CONTAINMENT STRUCTURE AND METHOD OF MANUFACTURE

J. P. Pat Morgan, P.O. Box 1089, St. George, Utah 84771

Filed Sep. 11, 1991, Ser. No. 757,813
Int. Cl.[5] B65G *5/00*
U.S. Cl. 405—52 26 Claims



1. An improved secondary containment structure of the type used in isolating material storage containers and containing materials leaked therefrom, the improved structure comprising;

a fiber concrete composite bottom wall, at least one fiber concrete composite side wall, and a removable top wall defining an interior volume configured to receive and enclose a container of hazardous material and the interior volume exceeding the volume capacity of the hazardous material container, and

said fiber concrete composite bottom wall and said fiber concrete composite side wall each containing a uniform continuous mass of individual interlocked fibers completely infiltrated by and embedded in a cementious matrix mixture of Portland cement, fly ash, water, and a water-reducing superplasticizer and having a fiber volume density in the range of from about 5% to about 20%.

5,209,604

SOIL DECONTAMINATION

Charles C. Chou, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

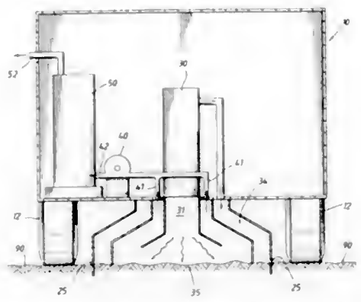
Filed Apr. 9, 1991, Ser. No. 682,172
Int. Cl.[5] E02D *3/00*; B09B *3/00*
U.S. Cl. 405—128 13 Claims

1. A method for remediating soil contaminated by the presence therein of organic contaminants which comprises the steps of:

placing a portable heating and pressure-reducing module in sealing contact with said contaminated soil, said soil having a moisture content of no more than 0.5% by weight and a clay content of at least 5% by weight;

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enclosing said contaminated soil with said portable heating and pressure-reducing module; and



heating said contaminated soil to a temperature of from 150° C. to 300° C.

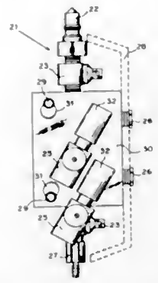
5,209,605
GRAVEL-PACKED PIPELINE AND METHOD AND APPARATUS FOR INSTALLATION THEREOF
Martin D. Cherrington, Fair Oaks, Calif., assignor to EVI Cherrington Enviromental, Inc., Houston, Tex.
Filed Nov. 8, 1991, Ser. No. 789,272
Int. Cl.[5] F16L *1/028*
U.S. Cl. 405—184 24 Claims



1. Apparatus for placing a porous pipe surrounded by filtering material in a horizontal subsurface hole, comprising:
a liner pipe for containing the porous pipe during placement of the porous pipe in the hole;
apparatus for removing the liner pipe from the hole while maintaining the porous pipe in a desired position within the hole; and
a material conveyor pipe coupled to the liner pipe for conveying the filtering material to the hole during removal of the liner pipe.

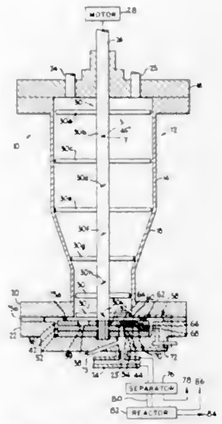
5,209,606
SHORING SHIELD
Michael J. Plank, Friendswood, Tex., assignor to Speed Shore Corp., Houston, Tex.
Division of Ser. No. 590,143, Sep. 28, 1990, Pat. No. 5,096,334. This application Jan. 3, 1992, Ser. No. 817,468
Int. Cl.[5] E02D *17/04*
U.S. Cl. 405—303 8 Claims

1. Combination manifold and valve means for use with hydraulic excavation shoring devices comprising:
(a) manifold means providing fluid communications passage means connecting a first inlet aperture, at least one cylinder supply aperture, and a relief aperture;
(b) a first valve means connected to said inlet aperture; a second valve means connected to said relief aperture, and cylinder supply valve means connected to said supply aperture;
(c) attachment means for attachment of said combination manifold means and valve means to said excavation shoring device; and,



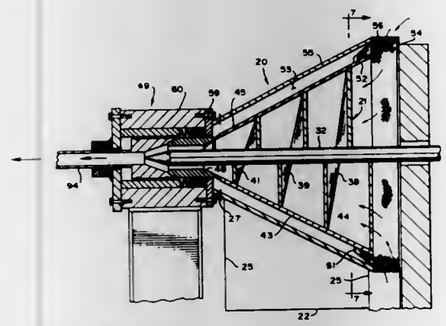
(d) armor means for protection of said combination manifold and valve means.

5,209,607
POWDER FEEDER APPARATUS
Nan Wei; Philip M. Rose, both of Naperville; Chi-Hung Lin; David R. Kreider, both of Wheaton, and Ronald P. Stark, Oswego, all of Ill., assignors to Amoco Corporation, Chicago, Ill.
Filed Aug. 24, 1989, Ser. No. 397,988
Int. Cl.[5] B65G *53/08, 53/10;* B01J *8/00*
U.S. Cl. 406—66 7 Claims



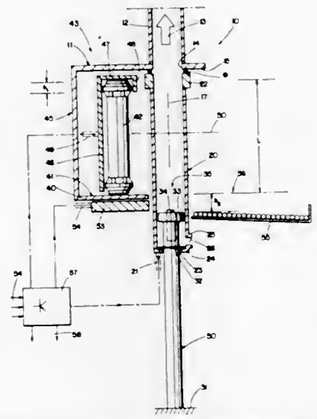
1. A powder feeder apparatus, comprising:
a) a container for powder including an upper portion and a lower portion having a chamber;
b) a vertical rotatable shaft substantially in alignment with an axial axis and further substantially in alignment with, and at least contained partially in said container, wherein said rotatable shaft includes agitating means extending substantially radially and outwardly from said shaft in said container for agitating and preventing clumping of said powder in said container;
c) metering means for selectively metering predetermined amount of said powder to said chamber of said container, said metering means disposed in said lower portion of said container and operatively attached to said rotatable shaft, said chamber being a vertically elongated cavity in the aforesaid lower portion with the top end thereof open and disposed beneath the metering means to receive by gravitational force powder from the metering means and with the bottom end thereof open to permit discharge from the container of the powder therein by gravitational force; and wherein said metering means comprises a stationary section having an exit cavity and a rotatable section having a metering port, said rotatable section being rotable horizontally from a first position filling said metering port with said powder by gravitational force when said exit cavity of said stationary section and said metering port of said rotatable section are in substantial alignment, to a second position emptying said powder from said metering port by gravitational force when said metering port of said rotatable section and the upper end of said chamber in said lower portion of said container are in substantial alignment;
d) means for selectively purging said powder downward from said metering means and downward through said chamber in said lower portion of said container disposed in said lower portion of said container, wherein said purge means includes stationary conduit means extending radially along a portion of said stationary section of said metering means including a downwardly facing entrance and exit, and rotatable conduit means extending radially along a portion of said rotatable section including an outwardly facing entrance and upwardly facing exit being moveable from a first-non-purge position when said stationary conduit means is not in substantial alignment with said rotatable conduit means and said metering port of said rotatable section and said chamber of said container are not in substantial alignment, to a second-purge position when said upwardly facing exit of said rotatable conduit means is in substantial alignment with said downwardly facing entrance of said stationary section and said metering port of said rotatable section and said chamber of said container are in substantial alignment thereby allowing a gaseous material to substantially evacuate said powder in said metering port and said chamber in said second-purge position.

5,209,608
AIR GRAIN CONVEYOR SYSTEM
Kevin Edwards, P.O. Box 1570, 105 S. Mount Auburn Rd., Cape Girardeau, Md. 63702-1570
Filed Oct. 18, 1991, Ser. No. 779,267
Int. Cl.[5] B65G *53/58*
U.S. Cl. 406—100 10 Claims



1. An air grain conveyor comprising:
a high velocity air generator;
an exit seal on said generator;
means for adjusting said exit seal to minimize air leakage in said seal;
a grain ejector section having a housing for receiving high velocity air from the air generator;
a hopper for grain on the ejector section;
means connecting the air generator to the housing wherein a negative pressure draws grain from the hopper into the housing;
a convey section on the housing whereby a positive pressure from the high velocity air conveys the grain in a convey line extending away from said convey section; and
a discharge section for the grain connected to said convey line.

5,209,609
PNEUMATIC TUBE CONVEYOR STATION
Hartmut Lang, Plochingen, Fed. Rep. of Germany, assignor to Infotronic Vertriebsgesellschaft fuer Kommunikationssysteme mbH, Plochingen, Fed. Rep. of Germany
Filed Aug. 13, 1991, Ser. No. 744,334
Int. Cl.[5] B65G *51/26*
U.S. Cl. 406—112 12 Claims

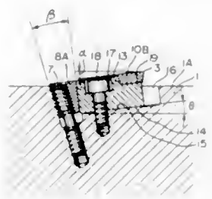


1. A pneumatic tube conveyor station for dispatching or receiving a conveying case of a predetermined length (L), comprising:
a housing comprising an upper horizontal member having a first opening therein, a lower horizontal support member, and a vertical member having a second opening therein slightly larger than said predetermined length (L), said second opening defining an axis;
a pneumatic conveyor tube connected to the upper surface of said upper horizontal member in alignment with said first opening;
sealing means arranged around said first opening on the lower surface of said upper horizontal member;
a displaceable tube section arranged adjacent said second opening and aligned underneath said first opening, said tube section comprising an upper end adapted for mating said sealing means;
first displacing means for displacing said tube section along said axis, said tube section abutting said first opening and said upper end of said tube section mating with said sealing means when in a first operational position and said tube section being separated from said first opening by a distance greater than said predetermined length (L) when in second and third operational positions;
axial stop means arranged coaxially with said axis for stopping an arriving conveying case in an axial position;
second displacing means for displacing a conveying case in a direction perpendicular to said axis between a load position wherein said conveying case is located parallel to said axis and at a distance therefrom and a dispatch position wherein said conveying case is located coaxially to said axis, and between a receive position wherein said conveying case is located coaxially to said axis and an

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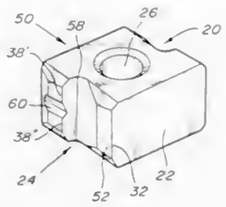
unload position wherein said conveying case is located parallel to said axis and at a distance therefrom.

5,209,610
THROWAWAY MILLING CUTTER
Tatsuo Arai, and Takayoshi Saito, both of Ibaraki, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan
Filed Feb. 12, 1992, Ser. No. 834,195
Claims priority, application Japan, Feb. 14, 1991, 3-21081; Feb. 22, 1991, 3-8392[U]; Mar. 22, 1991, 3-17606[U]; Mar. 22, 1991, 3-17607[U]; Mar. 22, 1991, 3-17608[U]
Int. Cl.[5] B23C *5/24*
U.S. Cl. 407—36 11 Claims



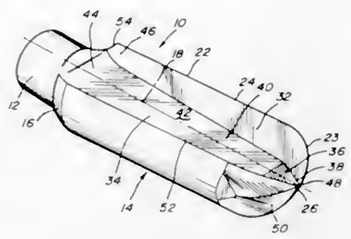
1. A throw-away milling cutter comprising:
a cutter body rotatable about an axis, said cutter body having a rear face and a front face directed toward a workpiece;
at least one recess formed at the front face of the cutter body, said recess having a bottom wall and side walls;
an inclined face formed at the bottom wall, said inclined face being inclined toward a given direction with respect to the front face when the front face is directed upwardly;
a cartridge inserted in the recess movably along said given direction of the inclined face;
a wiper cutting insert removably mounted to the cartridge, said wiper cutting insert having a wiper cutting edge generally parallel to a plane perpendicular to the axis of the cutter body and a front flank face disposed adjacent to the wiper cutting edge;
a wedge inserted between the side wall and the cartridge, said wedge being capable of moving the cartridge along said given direction of the inclined face; and
a means for clamping the cartridge to the recess.

5,209,611
CUTTING INSERT HAVING DUAL CUTTING EDGES ON ONE SURFACE AND HOLDING BODY FOR INSERT
Albert A. Drescher, St. Clair Shores, Mich., assignor to Duramet Corporation, Warren, Mich.
Filed Sep. 20, 1991, Ser. No. 763,431
Int. Cl.[5] B23D *61/04*; B23C *5/20*
U.S. Cl. 407—48 20 Claims



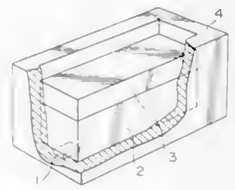
1. A cutting tool insert comprising:
a body having a top surface and a bottom surface; and four edge faces disposed between said top and said bottom surfaces,
at least two of said edge faces being opposite to each other and equally spaced from a centerline of said body; each of said at least two opposite edge faces having at least a first and a second cutting projection;
a groove in said second cutting projection.

5,209,612
CUTTING TOOL
William S. Kish, Riverview, Mich., assignor to The Hudd Company, Troy, Mich.
Filed Mar. 27, 1992, Ser. No. 858,896
Int. Cl.[5] B23C *5/10*
U.S. Cl. 407—54 11 Claims



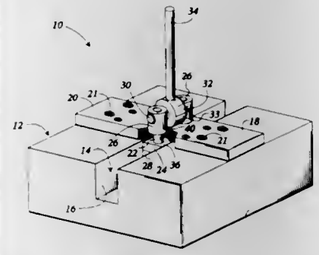
1. A cutting tool, comprising:
an elongated tool body having a shank attachable to means of rotation; and
a head portion having a plurality of cutting edges; a central longitudinal axis occurring along an intersection of first and second longitudinal planes; a web on a forward end of the head portion; and a flute defined by an area located between mutually orthogonal first and second walls, said first wall diverging from said web rearwardly at an angle of about 10° relative to said first longitudinal plane, the first wall terminating at the outer surface to provide a first cutting edge having a forward cutting portion and an axial cutting portion, the forward cutting portion being defined by an arc of a given radius extending from the web to the axial cutting portion, the axial cutting portion extending rearwardly and converging toward the longitudinal axis at an angle of about 10° relative to said first longitudinal plane, said second wall terminating at an outer non-cutting surface which is relieved radially inwardly relative to the cutting edge of the first wall

5,209,613
DIAMOND TOOL AND METHOD OF PRODUCING THE SAME
Noriyuki Nishio, Sendai, Japan, assignor to Nihon Cement Co. Ltd., Tokyo and Nihon Ceratec Co. Ltd., Sendai, both of Japan, part interest to each
Filed Oct. 7, 1991, Ser. No. 772,241
Claims priority, application Japan, May 17, 1991, 3-141478
Int. Cl.[5] B23B *27/20*
U.S. Cl. 407—119 20 Claims



1. A diamond tool comprising:
a diamond chip; and
a shank having a portion thereof bonded to said diamond chip, said shank comprising a reaction-sintered silicon carbide material containing diamond granules so that at least said portion of said shank bonded to said diamond chip has a thermal expansion coefficient close to the thermal expansion coefficient of said diamond chip.

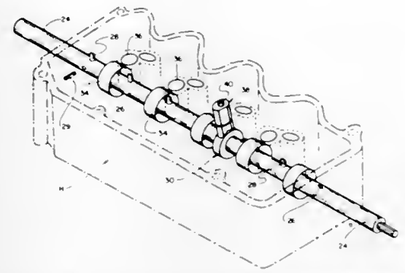
5,209,614
TEMPLATE POSITIONING JIG
Thomas E. Matthews, Lilburn, Ga., assignor to Kawneer Company, Norcross, Ga.
Continuation of Ser. No. 326,602, Mar. 21, 1989, abandoned.
This application Sep. 30, 1991, Ser. No. 769,328
Int. Cl.[5] B23B *49/02*
U.S. Cl. 408—1 R 15 Claims



10. A method of operating a self-positioning jig relative to a reference member defining a channel-shaped cavity having a reference member surface portion, said jig including a tool guiding template defining a drill guide bore said jig also including, a force exerting member, and a deformable member positioned between said tool guiding template and said force exerting member, comprising the steps of:
positioning said jig in sliding contact with said reference member such that an outside surface portion of said deformable member is positioned adjacent to said surface portion of said reference member,
squeezing said deformable member between said template and said force exerting member along a first axis to cause said deformable member to expand radially relative to a second axis substantially parallel to said first axis such that said outside surface portion of said deformable member is in contact with said surface portion of said reference member with a force sufficient to cause relative sliding movement between said template member and said reference member; and
guiding said tool with the aid of said tool guiding template in order to fabricate said reference member with said tool, while said deformable member is in said squeezed state.

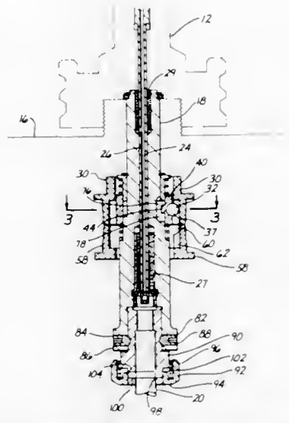
5,209,615
BORING BAR SUPPORT MEANS
Charles L. Davis, St. Louis, Mo., assignor to Sunnen Products Company, St. Louis, Mo.
Filed Apr. 14, 1992, Ser. No. 869,140
Int. Cl.[5] B23B *41/12*
U.S. Cl. 408—54 14 Claims

1. Means for supporting a boring bar within a workpiece during a boring operation wherein the workpiece includes spaced aligned bores at least one of which bores is to be re-bored, the workpiece further including at least one passageway extending radially therein relative to the axis of the aligned bores, said radial passageway being spaced axially from the bore to be re-bored, means for supporting the boring bar at least two locations along the length thereof including a member positionable on the boring bar and constructed to enable the boring bar to rotate freely therein, a locking assembly positionable within said radial passageway including means for attaching the locking assembly to said member positionable on



the boring bar, and means to lock the locking assembly in said radial passageway.

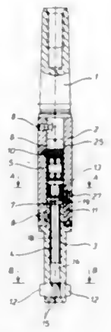
5,209,616
DRIVE IN TAPPING ATTACHMENTS
Allan S. Johnson, Newport Beach, Calif., assignor to Tapmatic Corporation, Irvine, Calif.
Filed Jun. 27, 1991, Ser. No. 724,547
Int. Cl.[5] B23B *47/14*
U.S. Cl. 408—139 10 Claims



7. An improvement in tapping attachments utilizing ball drive comprising:
driving means connectable to a source of rotational drive;
drive transmitting means engagable in driving engagement with said driving means, said drive transmitting means including at least one driving ball member for driving engagement with said driving means;
tap holding means engagable in driving engagement with said drive transmitting means, said tap holding means including at least one extending member for driving contact with said drive transmitting means such that driving contact will be at two or more points, said at least one driving ball member being movable on inclined means upon driving contact such that driving contact between said at least one ball member and said driving means is cushioned.

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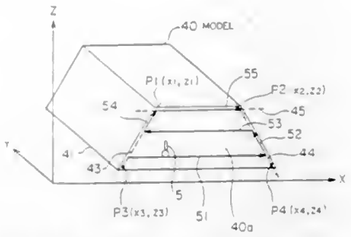
5,209,617
DEBURRING TOOL
Heinrich Heule, Kristallstrasse 6, Au, Switzerland 9434
Filed Nov. 26, 1991, Ser. No. 798,657
Claims priority, application Fed. Rep. of Germany, Nov. 27, 1990, 4037649
Int. Cl.[5] B23B *51/00*
U.S. Cl. 408—178 5 Claims



1. A deburring tool comprising:
an elongated housing having an upper end portion and a lower end portion of diameter less than said upper end portion;
the housing having an axial through bore and a transverse guide slot in the lower end portion of the housing;
a pair of cutter members slidably supported in said guide slot for movement between a retracted position and an extended position projecting radially outwardly from said housing, each cutter member having an upwardly directed recess;
an elongated intermediate member rotatably mounted in said axial bore, said intermediate member having spaced upper and lower portions rotatably supported in said bore and a reduced diameter portion extending between said upper and lower portions;
torsion spring means in the upper portion of said housing for engagement with the upper end portion of said intermediate member; and
said lower portion having pins projecting form its lower end for engagement in respective recesses in said cutter members,
whereby said cutter members are moved inwardly and outwardly by rotation of said intermediate member in opposite directions.

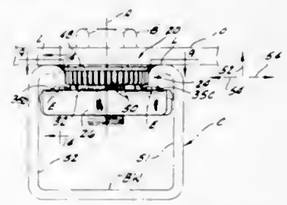
5,209,618
METHOD OF SETTING TRACING ZONE
Hitoshi Matsuura, Hachioji, and Tetsuji Okamoto, Minamitsuru, both of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan
PCT No. PCT/JP91/00235, § 371 Date Oct. 25, 1991, § 102(e) Date Oct. 25, 1991, PCT Pub. No. WO91/12928, PCT Pub. Date Sep. 5, 1991
PCT Filed Feb. 22, 1991, Ser. No. 773,867
Claims priority, application Japan, Mar. 2, 1990, 2-51440
Int. Cl.[5] B23Q *35/12*
U.S. Cl. 409—84 3 Claims

1. A method of setting a tracing zone in a contour tracing in which a surface of a model is traced by a contour tracing to thereby machine a workpiece, comprising:
(a) setting a contour tracing zone using a plurality of straight lines forming a nonrectangular polygonal shape, at least one of said straight lines defined by designating coordinate values of end points of two other of said straight lines;
(b) performing contour tracing with a pick feed each time a stylus reaches one of said straight lines forming the polygonal shape; and



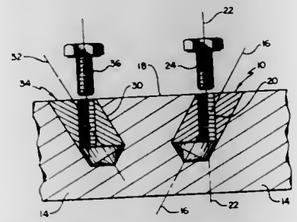
(c) machining the workpiece in dependence upon the contour tracing performed in step (b).

5,209,619
CHANNEL NUT FASTENER
Eric R. Rinderer, Highland, Ill., assignor to B-Line Systems, Inc., Highland, Ill.
Filed Jun. 9, 1992, Ser. No. 895,628
Int. Cl.[5] F16B *21/00, 27/00*
U.S. Cl. 411—85 33 Claims



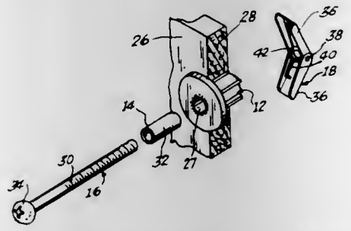
1. For use with a channel having a bottom and a pair of side walls with inwardly directed lips formed thereon defining a slot therebetween extending the length of the channel, said lips terminating in edges extending lengthwise of the slot at opposite sides of the slot, a fastener for securing an object to the channel, said fastener comprising a nut having a first face constituting an outside face, an opposite face constituting an inside face, opposite ends, a width less than the width of the channel slot and a length greater than the width of the channel slot whereby the nut may be aligned with the slot, entered into the slot and passed inwardly through the slot from the outside to the inside of the channel and then turned about an axis of rotation to extend in a generally crosswise position relative to the slot for engagement of portions of the outside face of the nut at locations generally adjacent opposite ends of the nut with said channel edges, said nut further having a hole therethrough for receiving a fastener for fastening said object to the channel when the nut is in its said crosswise position, wherein the improvement comprises
a retainer on the outside face of the nut for retaining the nut in its said crosswise position prior to and during fastening of said object to the channel,
said retainer having a body with an opening therethrough generally coaxial with the hole through the nut to enable insertion of a fastener through the opening and into and through the hole in the nut, and flange means integrally formed as one piece with said body and extending laterally from the body for engagement with the channel lips at opposite sides of the channel slot when the nut is passed through the slot and turned to its said crosswise position, said flange means being substantially inflexible for preventing the retainer from being pushed inwardly completely through the slot when the nut is turned to its said crosswise position and when an object is being fastened to the channel, and resiliently deformable spring elements on the body of the retainer between said flange means and the outside face of the nut, said spring elements being integrally connected to the body at closely spaced intervals circumferentially of the body and being so sized and dimensioned as to be engageable with the channel lips when the nut is turned to its said crosswise position for exerting a spring force against the channel lips tending to hold the nut in its said crosswise position against slippage lengthwise of the channel slot, and
means for holding the retainer in assembly with the nut.

5,209,620
FASTENER WITH DIFFERENTIALLY INCLINED AXES
Vahid Zare-Ardestani, Corona, Calif., assignor to VSI Corp., Carson, Calif.
Filed Aug. 28, 1991, Ser. No. 751,034
Int. Cl.[5] F16B *37/00, 37/02, 37/04*; B21D *39/00*
U.S. Cl. 411—104 18 Claims



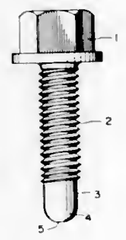
1. A fastener for use with a panel having a top surface and a bottom surface with a receiving hole in the top surface into which the fastener is inserted, wherein:
the fastener has a generally cylindrical body with a longitudinal axis and a straight bore passing therethrough, such that the longitudinal axis of the fastener body is inclined relative to the axis of the straight bore;
the receiving hole has a longitudinal axis that is aligned with the longitudinal axis of the fastener body; and
the fastener body has a top end and a bottom end, with the top end forming a substantially continuous plane with the top surface with the panel, and with the straight bore passing through the top end.

5,209,621
TOGGLE BOLT STABILIZER
Myron L. Burbidge, 58 Chadwick #106, Halifax, Nova Scotia, Canada B3M 3N2
Filed Aug. 27, 1991, Ser. No. 750,527
Int. Cl.[5] F16B *21/00*
U.S. Cl. 411—340 3 Claims



1. An apparatus for fastening an object to a hollow wall for greater dimensional stability, said wall having an outer and inner wall surface, and an aperture therebetween comprising:
a bolt including an elongated shaft having a first end and a second end, said bolt having a bolt head at its first end and a threaded circumferential shank surface portion extending from its second end towards said first end;
toggle means threadably mounted on said bolt shank, said toggle means including a spring means for holding said toggle means in an open position perpendicular to said bolt shaft or permitting a collapsed position against spring tension which permits insertion through said hole in said wall extending from said outer wall surface to said inner wall surface;
a cylindrical body mounted mountable on said bolt shaft, said cylindrical body having an outer surface and a hollow central longitudinal passage therethrough for accepting said bolt shaft therein, said cylindrical body having a first and a second end, whereby said toggle means can be inserted through said hole in said wall and extended to bear against said inner wall surface, and said cylindrical body outer cylindrical surface securely engages said wall aperture and said cylindrical body rigidly secures and stabilizes said bolt relative to said wall, said cylindrical outer surface diameter being substantially equal to the collapsed toggle means diameter and the wall aperture diameter providing a snug fit of said cylindrical body in said wall; and
a bolt head spacer comprising a thin walled hollow tube sized in diameter to fit around said bolt and in length to separate said bolt head from said cylindrical body by a prescribed amount to act as a seat to mount or hang an object from said bolt shaft, disposed on said bolt shaft, abutting said bolt head at one end and said cylindrical body at the other end, when said cylindrical body is mounted in said wall, said hollow tube having an inside surface of a smaller diameter then the bolt head and an outside surface of a diameter less than the bolt head, the outer surface of said hollow tube having a larger diameter than the hollow passage of said cylindrical body; said cylindrical body first end having a circumferentially disposed lip flange for stopping the inward axial movement of said cylindrical body into said wall hole; said lip flange being disposed at a predetermined angle relative to the axial longitudinal centerline of said cylindrical body to facilitate mounting said bolt at an angle relative to the outer wall surface.

5,209,622
BOLT HAVING SPHERICALLY TIPPED THREAD FREE CYLINDRICAL COLUMN
Hiroshi Kazino, Komaki, and Muneyuki Onogi, Nakamigahara, both of Japan, assignors to K.K. Aoyama Seisakusho, Nagoya, Japan
Filed Nov. 29, 1991, Ser. No. 798,758
Int. Cl.[5] F16B *25/00*
U.S. Cl. 411—386 1 Claim



1. A bolt comprising:
a head;
a threaded portion projecting from said head;
a short, cylindrical, thread-free column portion extending from an end of said threaded portion remote from said head;
said short, cylindrical, thread-free column portion having a

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diameter which is greater than a root diameter of said threaded portion and less than a thread diameter of said threaded portion;

said short, cylindrical, thread-free column portion terminating in a spherical tip portion.

5,209,623

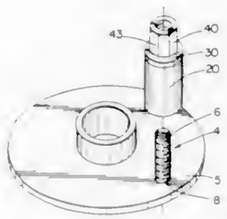
WHEEL STUD INSTALLATION APPARATUS

Michael E. Krehnovi, 214 Summerfield Dr., Baden, Pa. 15005

Continuation of Ser. No. 564,809, Aug. 8, 1990, abandoned. This application Oct. 4, 1991, Ser. No. 771,613

Int. Cl.[5] F16B *37/08*; B23P *19/04*; B60B *1/00*

U.S. Cl. 411—432 10 Claims



1. In combination with the spindle of a vehicle wheel, said spindle having at least one hole therein adapted to receive a threaded wheel stud having threads at one extended end section and a knurled portion adjacent a shoulder at the other end, which shoulder of the stud abuts against the inside surface of the spindle and which stud is maintained in the spindle hole in an interference fit between the knurled portion and the hole, an apparatus for installing the wheel stud in the hole comprising:

(A) a collar having a bearing surface at one end and a support surface at the other end positioned on the outside surface of the spindle, the collar including a longitudinal bore therethrough, said bore defining a central axis in alignment with the hole in the spindle and being adapted to receive therein the lower section of a puller;

(B) a puller having a lower section inserted into and removable from the bore of the collar and an upper section which extends transversely beyond the bore of the collar to the area of the bearing surface of the collar, the puller including an interiorly threaded bore having threads corresponding to the threads of the wheel stud such that the threaded end section of the stud can be inserted into and maintained therein;

the upper section of the puller having means for receiving a rotational force input and having an abutment surface at the location thereon which extends beyond the bore of the collar, said abutment surface of the upper section of the puller being capable of engagement with the bearing surface of the collar,

said puller being rotatable in the bore of the collar as the abutment surface engages the bearing surface of the collar,

and in which combination the threaded bore of the puller, the bore of the collar and the hole in the spindle are in substantially concentric alignment.

5,209,624

METHOD OF INTERCONNECTING TWO SHEETS OR PLATES, ESPECIALLY A METHOD OF COVERING A BOOK

Soren K. Nicolaisen, Holbak, Denmark, assignor to CREA TO ApS, Copenhagen, Denmark

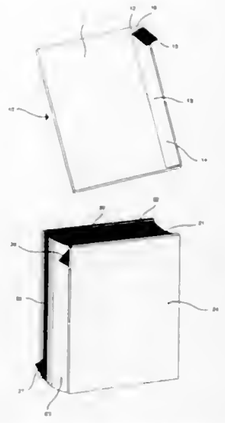
PCT No. PCT/DK90/00012, § 371 Date Jul. 18, 1991, § 102(e) Date Jul. 18, 1991, PCT Pub. No. WO90/08044, PCT Pub. Date Jul. 26, 1990

PCT Filed Jan. 15, 1990, Ser. No. 721,628

Claims priority, application Denmark, Jan. 13, 1989, 162/89

Int. Cl.[5] B42C *11/00*; B42D *1/00*

U.S. Cl. 412—4 19 Claims



1. A sheet for interconnecting with a sheet member in a face to face relationship, comprising:

a sheet having a front and back face, a top edge, a bottom edge, and first and second side edges;

an adhesive layer applied to a narrow side surface zone on the back face of the sheet extending along and adjacent to the first side edge thereof;

a protective peel-off strip covering the adhesive layer, the protective strip having a longitudinal axis and extending beyond at least the top edge of the sheet to form a free end portion thereof, the free end portion of the protective strip being folded along a fold line defining an acute angle with the longitudinal axis so that the free end portion extends beyond the first side edges of the sheet to define an accessible gripping end whereby the sheet may be adhered to the sheet member by arranging the sheet and sheet member such that the protective strip is located therebetween and the protective strip is remove by pulling the gripping end of the protective strip to expose the adhesive.

10. A method for interconnecting first and second sheets in a face to face relationship, the sheets having a front and back face, a top edge, a bottom edge, and first and second side edges, comprising the steps of:

a) applying an adhesive layer to a narrow side surface zone on the back face of the first sheet extending along and adjacent to the first side edge thereof;

b) covering the adhesive layer with a protective peel-off strip extending beyond at least the top edge of the first sheet to form a free end portion thereof, the protective strip having a longitudinal axis;

c) folding the free end portion of the protective strip along a fold line defining an acute angle with the longitudinal axis so that the free end portion extends beyond the first side edges of the sheet to define an accessible gripping end;

d) positioning the first and second sheets into a predetermined relationship so that at least part of the protective strip is located between the back faces of the first and second sheet;

e) pressing the first and second sheets into a tight mutual engagement at a location distinct from the adhesive strip; and

f) pulling the free end portion of the protective strip so as to remove the protective strip from its position between the first and second sheets while maintaining the mutual engagement therebetween, so that the first and second sheets are interconnected by the adhesive layer.

5,209,625

APPARATUS FOR ROUNDING AND CONVEYING ONWARDS SHEET-METAL BLANKS FOR CAN BODIES

Othmar Stieger, Kindhausen, Switzerland, assignor to Elpatronic AG, Zug, Switzerland

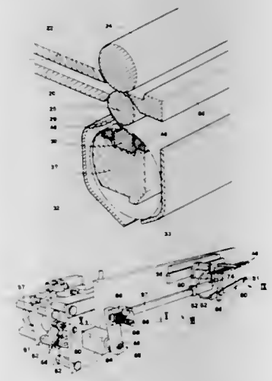
Continuation of Ser. No. 557,935, Jul. 25, 1990, Pat. No. 5,120,177. This application Apr. 21, 1992, Ser. No. 872,097

Claims priority, application Switzerland, Aug. 22, 1989, 3-044/89-4

The portion of the term of this patent subsequent to Jun. 9, 2009, has been disclaimed.

Int. Cl.[5] B21D *5/12*, *51/26*

U.S. Cl. 413—72 2 Claims



1. Apparatus for rounding and conveying sheet-metal blanks for can bodies comprising: first and second bending rolls between which a sheet-metal blank can be moved and bent into a rounded sheet-metal blank, the rounded blank being stopped in its movement by a catch ledge adjacent the second roll with the rounded blank substantially encircling a guide rail along which the blank is moved axially onward, and at least one pair of conveying members for the axial onward movement of the rounded sheet-metal blank, characterized in that the pair of conveying members are a pair of bars which extend along the guide rail, one at each side of the guide rail in a first position in which the bars are encircled jointly with the guide rail by the rounded sheet-metal blank after the blank passes between the bending rolls, each of said bars being movable between the first position adjacent the guide rail and encircled by the rounded blank and a second position withdrawn from the encircling blank rearward of the blank with respect to the direction of onward blank movement and with each bar located behind the blank with one end of each bar adjacent to the rearward edge of the blank in order to entrain the blank and move the blank axially onward during a subsequent forward movement of the members.

5,209,626

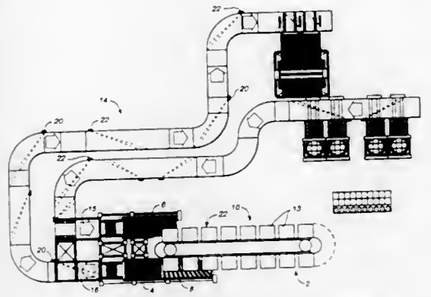
ORGANIZER SYSTEM FOR A ROTATABLE STORAGE STRUCTURE

Robert Lichti, Sr., Lake Almanor Peninsula; Clay Bernard, II, Pt. Richmond; Daniel C. Perry, San Jose, and Stanley H. Lukken, San Francisco, all of Calif., assignors to Computer Aided Systems, Inc., Hayward, Calif.

Continuation of Ser. No. 515,908, Feb. 16, 1990, abandoned, which is a division of Ser. No. 192,419, Apr. 29, 1988, Pat. No. 4,983,091, which is a continuation-in-part of Ser. No. 031,989, Mar. 30, 1987, abandoned, which is a continuation-in-part of Ser. No. 732,927, May 13, 1985, abandoned, and Ser. No. 824,718, Jan. 31, 1986, abandoned, and Ser. No. 821,257, Jan. 22, 1986, Pat. No. 4,752,175. This application Apr. 20, 1992, Ser. No. 871,576

Int. Cl.[5] B65G *1/10*

U.S. Cl. 414—331 10 Claims



1. A control system for a storage system, comprising:

a storage facility controller for controlling operation of the storage system, the storage system including a rotary storage carousel having multiple tiers and container support racks arranged in side-by-side fashion, means for rotating the support racks about a continuous track, said container support racks including attachment means for releasably securing a container thereto, the container adapted to receive material goods, and an extractor assembly and inserter assembly disposed adjacent the carousel for removing a selected container from its associated support rack and for inserting a selected container onto an associated support rack, respectively, while the carousel remains in continuous motion, and the storage facility controller including means for maintaining a storage record that records an identity and storage position of each container on the carousel within its control, and means for receiving requests for particular material goods that may be in a container on the carousel;

a carousel controller for controlling the operation of the carousel and the extractor assembly and inserter assembly, said storage facility controller communicating with said carousel controller over a first local area communications network; and

means in electrical communication with the carousel controller for controlling operation of the carousel and the extractor assembly and inserter assembly.

5,209,627

APPARATUS FOR SORTING CUT GLASS SHEETS

Peter Lisec, Bahnhofstrasse 34, A-3363 Amstetten-Hausmening, Austria

Filed Sep. 12, 1991, Ser. No. 758,006

Claims priority, application Austria, Sep. 18, 1990, 1897/90; Fed. Rep. of Germany, Apr. 19, 1991, 9104816[U]

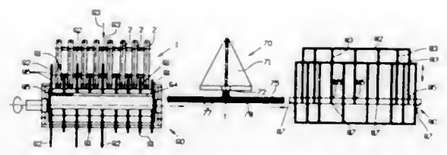
Int. Cl.[5] B65G *47/84*, *49/06*, *65/16*

U.S. Cl. 414—398 20 Claims

1. In an apparatus for sorting cut glass sheets comprising a

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lifting device for cut glass sheets fed thereto on a conveying table, wherein the lifting device can be swiveled about an axis extending in parallel to a rim of the cut glass sheets and includes a conveyor means for transporting the cut glass sheets along one rim, and at least one rack cart having several racks for receiving respectively one cut glass sheet and movable transversely to the direction wherein cut glass sheets are deliv-



ered thereto, the improvement wherein at least one rack of the rack cart is associated with a linear conveyor for inserting a cut glass sheet in a rack; the remaining racks are associated with rotatable support elements for engaging with the rim of the cut glass sheets; and the rack cart is associated with a holder with supporting rollers, which can be brought into contact with a lateral surface of the cut glass sheets.

5,209,628

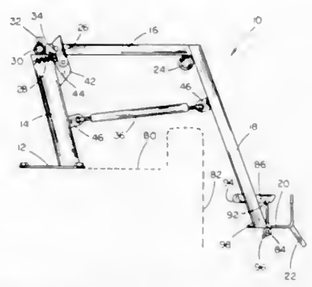
SELF-LOADING DOLLY MOUNT APPARATUS

Curtis C. Hassell, 791 Highway 238, Jacksonville, Oreg. 97530

Filed Sep. 9, 1991, Ser. No. 756,696

Int. Cl.[5] B60R *9/00*

U.S. Cl. 414—462 **6 Claims**



1. A self-loading dolly mount apparatus for storing and removably extending a towing dolly, comprising:
- a generally vertical support stand;
- a means for securing said support stand to a bed of a motor vehicle adapted for towing automotive equipment;
- a horizontal arm pivotally connected to said support stand and capable of moving from a substantially horizontal loading position to a generally vertical storage position;
- a vertical arm pivotally connected to said horizontal arm;
- a gas spring, said gas spring having one end thereof pivotally connected to said support stand and the opposing end thereof connected to said vertical arm and having a generally parallel spaced apart relationship to said horizontal arm when said horizontal arm is in said loading position, and said gas spring maintaining said parallel relationship with said horizontal arm as said horizontal arm pivotally moves between said loading and storage positions;
- said vertical arm being pivotally movable with respect to said horizontal arm and said gas spring such that said vertical arm attains a position generally parallel to said horizontal arm when said horizontal arm is in the storage position; and
- means attached to said vertical arm for releasably securing a towing dolly to said vertical arm.

5,209,629

PILE-HANDLING APPARATUS

Ib H. Rasmussen, Hjortshoej, Denmark, assignor to Inframatic, Hjortshoej, Denmark

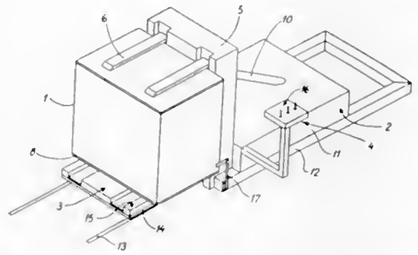
PCT No. PCT/DK89/00256, § 371 Date May 14, 1991, § 102(e) Date May 14, 1991, PCT Pub. No. WO90/05099, PCT Pub. Date May 17, 1990

PCT Filed Nov. 2, 1989, Ser. No. 678,306

Claims priority, application Denmark, Nov. 3, 1988, 6119/88

Int. Cl.[5] B65H *15/02*

U.S. Cl. 414—772 **3 Claims**



1. An apparatus for aligning an adjacent side edge of a plurality of sheet-shaped materials positioned in a pile on a pallet and for thereafter conveying the pile to a production machine, said apparatus comprising:
- a first carriage which includes a first frame that is movable along tracks, a fork tower which mounts upper and lower forks that are movable towards and away from each other so as to grip or release a pile of sheet-shaped materials positioned on a pallet, and means connecting said fork tower to said first frame to move said fork tower between a vertical orientation and a horizontal orientation and to cause said fork tower to rotate around a first vertical axis when horizontally oriented,
- a second carriage which is movable along tracks and which includes a second frame and a pallet-supporting surface which is movably mounted on said second frame so as to be rotatable about a second vertical axis and horizontally movable relative to said second frame, and
- control means for controlling said first and second carriages, said control means including tracks along which said first and second frames are movable, said control means causing (1) said first frame to move along said tracks with said fork tower vertically oriented so that said upper and lower forks can grip a pile of sheet-like materials positioned on a pallet, (2) said fork tower to reorient into a substantially horizontal orientation, (3) the grip of said upper and lower forks to loosen on said pile of sheet-like materials and pallet and said fork tower to rotate about said first vertical axis so that an adjacent side edge of each of said plurality of sheet-like materials moves against said fork tower and become aligned with each other, (4) the grip of said upper and lower forks to tighten on said aligned sheet-like materials in said pile and pallet, (5) said second carriage to move along tracks to a pick-up position, (6) said fork tower to reorient into a vertical position such that said pile of aligned sheet-like materials and pallet are deposited on said pallet-supporting surface of said second carriage at said pick-up position, (7) said pallet-supporting surface to rotate around said second vertical axis and to move horizontally relative to said second frame, and (8) said second carriage to move along said tracks away from said first carriage and towards said production machine such that the aligned adjacent side edge of each of said plurality of sheet-like materials faces said production machine.

5,209,630

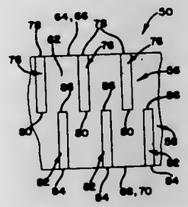
PUMP IMPELLER

Robert A. Roth, Grand Blanc, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 2, 1992, Ser. No. 907,999

Int. Cl.[5] F01D *3/00*

U.S. Cl. 415—55.1 **7 Claims**



1. An open-vane impeller for a regenerative turbine pump comprising:
- a hub having a cylindrical outer ring centered on a rotational axis of said impeller,
- means defining a first stage of open-vane impeller vanes on said cylindrical outer ring extending radially out therefrom, and
- means defining a second stage of open-vane impeller vanes on said cylindrical outer ring extending radially out therefrom in side-by-side and phase shifted relationship to said first stage of open-vane impeller vanes on said cylindrical outer ring.

5,209,631

ARRANGEMENT FOR FLOODING HIGH SPEED VACUUM PUMPS

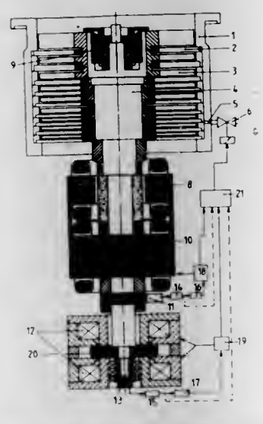
Helmut Bernhardt, Wetzlar, Fed. Rep. of Germany, assignor to Arthur Pfeiffer Vakummtechnik Wetzlar GmbH, Asslar, Fed. Rep. of Germany

Filed Jul. 11, 1991, Ser. No. 728,644

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1990, 4022523

Int. Cl.[5] F04D *19/04, 27/00*

U.S. Cl. 415—90 **7 Claims**



1. An arrangement for flooding high speed vacuum pumps comprising:
- a rotor;
- a controllable flood valve connected by means of a gas inlet stub at a housing of said vacuum pumps for permitting flooding gas to enter;
- a control device provided for actuating said flood valve as a function of forces acting upon said rotor in one of its axial and radial directions; and
- a magnetic bearing support means including an actively regulated, magnetic bearing with which at least one degree of freedom of said rotor is stabilized wherein a constant spacing exists between said rotor and a pump stator and further wherein additional forces acting upon said rotor are compensated for by a current change in said actively regulated magnetic bearing and further wherein said control device comprises a limit value monitor for actuating said flood valve when the current in said magnetic bearing exceeds predetermined limit values.

5,209,632

HYDROELECTRIC POWER GENERATION EQUIPMENT

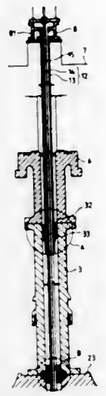
Takashi Ito, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 25, 1991, Ser. No. 765,237

Claims priority, application Japan, Sep. 25, 1990, 2-251967

Int. Cl.[5] F03B *03/06*

U.S. Cl. 415—129 **9 Claims**



1. A hydroelectric power generation equipment comprising:
- a hydraulic turbine including a runner with a plurality of blades each having an adjustable opening, and an axially extending hollow turbine shaft connected to said runner;
- an electric power generator having a hollow shaft aligned with and connected to said hollow turbine shaft to transmit a rotation of said runner to said electric power generator, said hollow turbine shaft and said hollow shaft of the electric power generator connected thereto forming a shaft assembly;
- drive means, disposed in said runner, for driving said blades to adjust the opening of the blades;
- feed means for feeding pressurized liquid;
- passage means for defining a liquid passage through which the pressurized liquid is transferred between said feed means and said drive means, said passage means being disposed so as to pass through said shaft assembly and supported by said feed means and said runner; said passage means comprising a first passage means for defining a first liquid passage and a second passage means for defining a second liquid passage, said first passage means including a cylindrical member fitted in said shaft assembly at both ends thereof and an inner tubular member disposed axially to said cylindrical member, said inner tubular member being connected to said cylindrical member so that an inner surface of said inner tubular member aligns with an inner surface of said cylindrical member, thereby forming said first liquid passage, said second passage means comprising said cylindrical member, said inner tubular mem-

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ber being connected thereto, an outer tubular member surrounding said inner tubular member with an annular gap therebetween to form a first portion of said second liquid passage and a part of an inner wall of said shaft assembly surrounding said cylindrical member with an annular gap therebetween so as to form a second portion of said second liquid passage between said part of said inner wall of said shaft assembly and said cylindrical member, said first portion of said second liquid passage communicating with said second portion of said second liquid passage; and

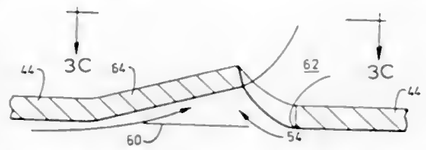
wherein radial movement of said outer tubular member of the passage means is restricted by said cylindrical member and said inner wall of said shaft assembly supporting said cylindrical member.

5,209,633

HIGH PRESSURE COMPRESSOR FLOWPATH BLEED VALVE EXTRACTION SLOT

William F. McGreehan, West Chester; Bradley W. Fintel, Fairfield, and Andrew J. Lammas, Maineville, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Continuation of Ser. No. 615,676, Nov. 19, 1990, abandoned.
This application Feb. 25, 1992, Ser. No. 839,275
Int. Cl.[5] F01D *17/00*
U.S. Cl. 415—144 1 Claim



1. An energy efficient compressor air bleed structure for use in an axial flow compressor including a compressor casing having an outer band, said air bleed structure comprising:

a) a means for recovering and converting a portion of a gas stream dynamic pressure into a manifold static pressure rise;

b) wherein said means for recovering and converting comprises an articulated diffuser slot including an articulated portion of said compressor casing outer band; and

c) wherein said articulated portion

i) is articulated at an angle of approximately 10–20 degrees from a compressor casing outer band baseline, and

ii) includes an angled recessed surface which acts as a diffuser to decelerate bleed air as it passes through said articulated diffuser slot, and wherein said articulated portion comprises a punched-out portion of said compressor casing outer band.

5,209,634

ADJUSTABLE GUIDE VANE ASSEMBLY FOR THE EXHAUST FLOW PASSAGE OF A STEAM TURBINE

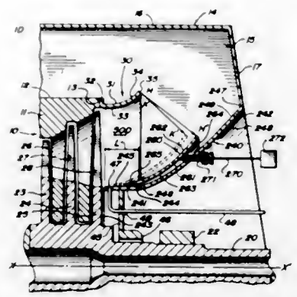
Jerzy A. Owczarek, 2345 Overlook Dr., Bethlehem, Pa. 18017

Filed Feb. 20, 1991, Ser. No. 658,224
Int. Cl.[5] F01B *25/02*
U.S. Cl. 415—150 9 Claims

1. An adjustable vane system for use in a condensing steam turbine having a casing, a shaft extending longitudinally of said turbine, a plurality of rows of turbine blades mounted transversely of said turbine shaft, a bearing cone surrounding an outer portion of said shaft and having an outer surface, an exhaust flow passage, a fixed guide vane extending outwardly from said casing for at least a portion of the outer circumference thereof and forming at least a portion of the outer wall of said exhaust flow passage, comprising:

(A) movable vane means supported by said bearing cone, forming at least a portion of the inner wall of said exhaust flow passage; and

(B) positioning means connected to said vane means for



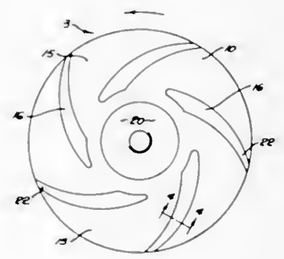
movement thereof to change the cross-sectional area of the exhaust flow passage to modify the pressure of steam adjacent the exit of the last row of turbine blades in response to varying operating conditions of said turbine.

5,209,635

SLURRY PUMP

Ian Stewart; Robert Eaton, and Maximillian A. Vella, all of Mount Isa, Australia, assignors to M.I.M. Holdings Limited, Australia

Filed Sep. 23, 1991, Ser. No. 763,468
Int. Cl.[5] F04D *29/08*
U.S. Cl. 415—171.1 8 Claims



1. An impeller for use in a centrifugal pump, said impeller including a plurality of vanes disposed intermediate a pair of spaced apart side walls, at least one of said side walls having a substantially smooth generally planar outer surface and a plurality of channels recessed into said surface, each said channel spiralling progressively outwardly and rearwardly relative to an intended direction of rotation and having a cross sectional

flow area reducing substantially uniformly from a central region towards a respective rearwardly directed peripheral discharge port.

5,209,636

METHOD AND APPARATUS FOR SETTING CLEARANCE BETWEEN FLUID DISPLACEMENT HOUSING AND ROTORS

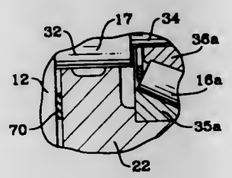
Heimir Fannar, Davidson, N.C., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Dec. 5, 1991, Ser. No. 802,596
Int. Cl.[5] F04D *29/60*
U.S. Cl. 415—174.4 10 Claims

1. A method for setting a clearance of an end face of a fluid displacement device rotor relative to an end plate of a fluid displacement device housing, including the steps of:

locating a spacer of a desired thickness on said end face, the spacer being discrete and incapable of any sealing action;

positioning the end face adjacent said end plate;



axially displacing the rotor relative to the housing to a desired position wherein the spacer is in contact with the end plate; and

securing the rotor in said desired position.

5,209,637

HYPOCYCLOIDAL TRAIN MECHANISM FOR A VEHICLE SEAT INCLUDING A BRAKE WITH DIFFERENTIAL TORQUE AND ANTI-REVERSING PROPERTIES

Yann Reubeuze, Flers, France, assignor to Bertrand Faure Automobile "BFA", Massy, France

Filed Mar. 19, 1992, Ser. No. 853,905
Claims priority, application France, Mar. 19, 1991, 91 03322
Int. Cl.[5] B60N *02/02*; F16H *01/32, 03/70*
U.S. Cl. 475—176 3 Claims

1. A hypocycloidal train mechanism for a vehicle seat with a seat back to be raised and lowered, including a brake with differential torque and anti-reversing properties, said mechanism comprising:

a control shaft;

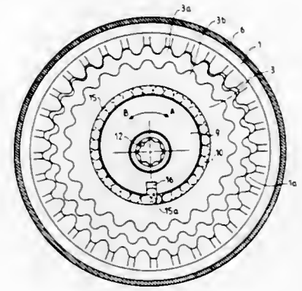
a control cam connected to said control shaft;

a fixed flange with an inner toothing, said fixed flange receiving said cam;

a double satellite with first and second outer toothings, positioned inside said fixed flange, said inner toothing of said fixed flange intermeshing with said first outer toothing, said double satellite having a central opening for receiving said cam;

a first ball bearing arranged between an inner wall surface of said central opening and a circumferential portion of said cam;

a mobile flange with an inner toothing, said inner toothing of said mobile flange intermeshing with said second outer toothing;



a crimped ring connecting said fixed flange and said mobile flange at their radially outer peripheries;

a second ball bearing arranged between said mobile flange and said crimped ring;

an annular spring with a curved first end and a second end, said annular spring being arranged axially outwardly of said fist ball bearing on a face of said first ball bearing facing said mobile flange and with a radially outwardly oriented surface of said spring resting on said inner wall surface of said central opening of said double satellite, said annular spring having a semi-circular cross-section; and

said control cam having a cutout along one of the centering axes of said train mechanism, with said curved fist end being inserted into said cutout, while said second end is free, so that upon rotation of said mechanism ia friction is generated between said spring an said inner wall surface of said opening of said satellite for insuring a jerk-free continuous rotation and a constant rotation speed of said mobile flange.

5,209,638

Patent Not Issued For This Number

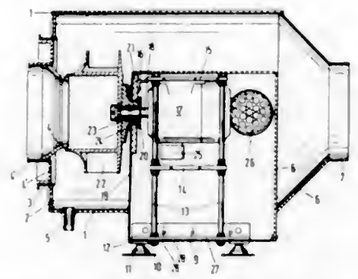
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,639

RADIAL FAN WITH AN AXIAL HOUSING

Rudolf Neuber, Siegburg, and Karl Reither, Troisdorf-Spich, both of Fed. Rep. of Germany, assignors to KT Kunststofftechnik GmbH, Fed. Rep. of Germany

Filed Aug. 6, 1991, Ser. No. 740,699
Claims priority, application Fed. Rep. of Germany, Aug. 10, 1990, 9011652[U]
Int. Cl.[5] F04D *29/42*
U.S. Cl. 415—213.1 13 Claims



1. A radial fan comprising an outer housing and an inner housing housed generally within said outer housing; said outer housing having a top wall, a bottom wall, opposite end walls and an inlet and an outlet in respective ones of said opposite end walls; an impeller between one of said inlet and outlet and said inner housing, a motor within said inner housing for rotating a shaft projecting through said inner housing and being in turn connected to said impeller for rotting said impeller to convey a fluid medium from said inlet to said outlet, means for rigidly connecting and unifying said inner and outer housings to each other, a base plate, a plurality of columns within said inner housing projecting upwardly from and being supported by said base plate, said columns in turn supporting said motor, and means removably securing said base plate relative to said inner housing whereby said inner and outer housings are lifted and removed as a unit from said base plate without moving said motor to gain access to said motor

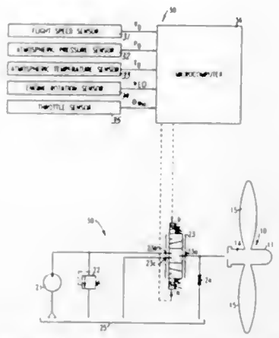
5,209,640

PITCH CONTROL APPARATUS FOR VARIABLE PITCH PROPELLER

Yoshihito Moriya, Takahama, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Dec. 28, 1990, Ser. No. 635,360
Claims priority, application Japan, Dec. 30, 1989, 1-343578; Apr. 25, 1990, 2-109275; May 17, 1990, 2-127795; May 17, 1990, 2-127796
Int. Cl.[5] B64C *11/30*
U.S. Cl. 416—27 5 Claims

1. A pitch control apparatus for a variable pitch propeller in drive connection to an engine of an aircraft, comprising:
- a flight speed sensor for detecting a flight speed of the aircraft and for producing a first electric signal indicative of the detected flight speed;
- a throttle sensor for detecting an opening degree of a throttle of the engine and for producing a second electronic signal indicative of the detected opening degree of the engine throttle;
- an engine rotation sensor for detecting a rotation number of the engine and for producing a third electric signal indicative of the detected rotation number of the engine;
- means for detecting the density of atmospheric air in flight of the aircraft;
- means responsive to said first and second electric signal for calculating an optimum rotation number of the engine in relation to the flight speed, the opening degree of the engine throttle and the density of atmospheric air for maximizing a thrust force acting on the aircraft; and



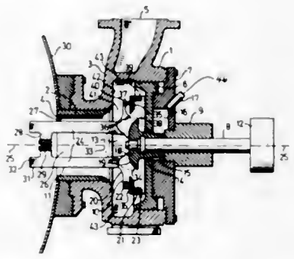
means responsive to said third electric signal for controlling a pitch angle of a propeller blade in such a manner that the rotation number of the engine becomes substantially equal to the calculated optimum rotation number.

5,209,641

APPARATUS FOR FLUIDIZING, DEGASSING AND PUMPING A SUSPENSION OF FIBROUS CELLULOSE MATERIAL

Ronny Höglund, Skoghall, and Ulf Jansson, Karlstad, both of Sweden, assignors to Kamyr AB, Karlstad, Sweden

Continuation of Ser. No. 416,466, Oct. 3, 1989, Pat. No. 5,039,320. This application May 29, 1991, Ser. No. 707,053
Claims priority, application Sweden, Mar. 29, 1989, 8901082
Int. Cl.[5] F01D *25/32, 5/14*
U.S. Cl. 416—223 B 9 Claims



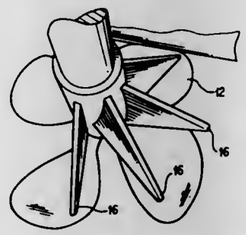
1. An impeller for use in an apparatus for fluidizing, degassing and pumping a suspension of fibrous cellulose material, comprising:
- a hub;
- a wall means surrounding said hub; and a means for exerting a pumping action on the suspension to increase the head acting thereon, said means comprising:
- a plurality of forward blade means, said forward blade means disposed to extend from one side of said wall means and a plurality of rear blade means disposed to extend from said wall means on the opposite side thereof from said forward blade means,
- and means defining an annular opening in said wall means to allow for continuously supplying suspension to said rear blade means to be pumped thereby, said rear blade means having an axial extension at a radial portion located radially outside said means defining said annular opening which is greater than the axial extension of the forward blade means located radially outside said means defining said annular opening, said means defining said annular opening comprising said wall means having an inner, concentric flange and an outer concentric ring which is located at a distance from the inner flange to define therebetween said annular opening.

5,209,642

MODIFIED OPTIMUM PITCH PROPELLER

Gary E. Larimer, Sterling, Va., and Donald H. VanLiew, Severna Park, Md., assignors to The United States of America as represented by the Secretary of Transportation, Washington, D.C.

Division of Ser. No. 504,528, Mar. 14, 1990, abandoned, which is a division of Ser. No. 163,878, Mar. 3, 1988, Pat. No. 4,932,908.
This application Feb. 8, 1991, Ser. No. 652,410
Int. Cl.[5] B63H *1/26*
U.S. Cl. 416—223 R 8 Claims



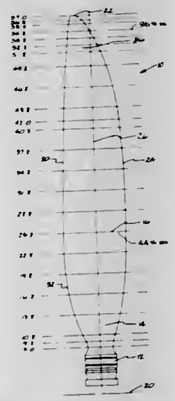
1. An improved propeller for a marine vessel, the blades of said propeller being designed by calculating the pitch for a constant pitch propeller for that vessel and then decreasing the pitch at the roots of the blades by approximately 10% and increasing the pitch at the tips by approximately 10%, with the change in pitch being a smooth curve such that the pitch at approximately 70% radius remains unchanged from that of the constant pitch propeller.

5,209,643

TAPERED PROPELLER BLADE DESIGN

Gregory M. Cole, Huber Heights, Ohio, assignor to The Cessna Aircraft Company, Wichita, Kans.

Filed Mar. 27, 1991, Ser. No. 677,626
Int. Cl.[5] B63H *1/26*
U.S. Cl. 416—223 R 6 Claims



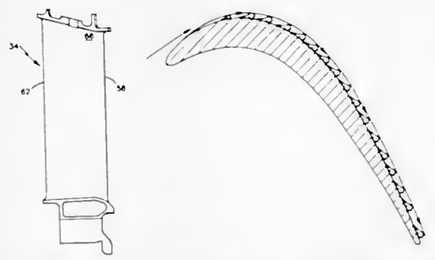
1. An aerial propeller blade utilized in subsonic flight regions comprising:
- a blade having leading and trailing edges, a tip, a cylinder shank having a rotational longitudinal axis, and a transition area between the shank and the blade, in plan form the blade is tapered from both ends with a maximum chord substantially in a range between the 44% and 50% blade radius stations, the leading edge of the blade being swept behind the rotational longitudinal axis of the blade and the trailing edge is convex and substantially straight from its maximum chord outward to the tip and inclined toward the longitudinal axis.

5,209,644

FLOW DIRECTING ELEMENT FOR THE TURBINE OF A ROTARY MACHINE AND METHOD OF OPERATION THEREFOR

Thomas E. Dorman, South Windsor, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jan. 11, 1991, Ser. No. 639,856
Int. Cl.[5] F01D *5/14*
U.S. Cl. 416—235 10 Claims



1. A flow directing element for the turbine of a rotary machine having an airfoil which includes a leading edge and a trailing edge which extend spanwisely and a convex side surface and a concave side surface which extend chordwisely from the leading edge to the trailing edge, the improvement which comprises:
- a convex side surface having a critical roughness characteristic, and a roughened surface having a surface roughness that is greater than 60 AA microinches, that is within twenty percent of the critical roughness characteristic for the airfoil and that is spaced chordwisely from the leading edge and the trailing edge;

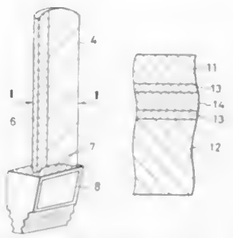
wherein the roughened convex side surface decreases aerodynamic flow losses and the spacing of the convex side surface with respect to the leading edge and trailing edge avoids the decrease in fatigue life of the element which is associated with like flow directing elements having increased roughness in the suction side surface and increased roughness in the leading edge and trailing edge region, and wherein the flow directing element has a leading edge region formed by an elliptical surface having a major axis which is generally oriented to extend in the same direction as the convex side surface and the concave side surface and a trailing edge region which is formed by a circular surface and wherein the suction surface has a surface tangent to the trailing edge region on the suction side and wherein the roughened surface of the suction side surface lies between the leading edge region and the trailing edge region and does not extend into these regions of the airfoil to avoid roughness which weakens the leading edge of the airfoil and the trailing edge of the airfoil.

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5,209,645
CERAMICS-COATED HEAT RESISTING ALLOY MEMBER

Yoshitaka Kojima, Hitachi; Akira Mebata, Kitaibaraki; Noriyuki Ohnaka, Katsuta; Akihiko Chiba, Morioka; Ryoichiro Ohoshima, Hitachi; Norio Watanabe, Tokyo, and Yukiyoshi Hara, Ageo, all of Japan, assignors to Hitachi, Ltd. and The Tokyo Electric Power Company, Ltd., both of Tokyo, Japan

Filed Jun. 15, 1990, Ser. No. 538,759
Claims priority, application Japan, May 6, 1988, 63-109025; Jun. 16, 1989, 1-154044
The portion of the term of this patent subsequent to Oct. 30, 2007, has been disclaimed.
Int. Cl.[5] B63H *1/26*
U.S. Cl. 416—241 B 35 Claims



1. A gas turbine bucket applied with a ceramic coating comprising:
- a base material of said bucket made of a heat resisting alloy the main component of which is selected from at least one of nickel, cobalt and iron; and
- a plurality of coating layers for the front portion of said bucket which is applied to a region extending from the leading edge of said bucket to the suction surface and the pressure surface of said bucket in substantially a quarter length of the overall length of the profile of said bucket,

said plurality of coating layers for the front portion consisting of
- a mixture layer which comprises a ceramic material and a metal and which is formed on said base metal;
- an alloy layer which comprises an alloy material superior to said base material of said bucket with respect to its resistance to high temperature oxidation and resistance to high temperature corrosion and which is formed on said mixture layer; and
- a ceramic layer which comprises a ceramic material and which is formed on said alloy layer,

said ceramic material of said ceramic layer comprising ZrO_2 as a main component and at least one of CaO, Y_2O_3 and MgO;

wherein said mixture layer prevents said ceramic layer from any damage owing to a thermal stress associated with the difference in the coefficients of thermal expansion between said ceramic material and said base material, and wherein said alloy layer prevents said mixture layer from oxidation and corrosion occurring therein through said ceramic layer.

5,209,646
ELECTROMAGNETIC INDUCTION PUMP FOR PUMPING LIQUID METALS AND OTHER CONDUCTIVE LIQUIDS

Robert K. Smither, Hinsdale, Ill., assignor to The University of Chicago, Chicago, Ill.

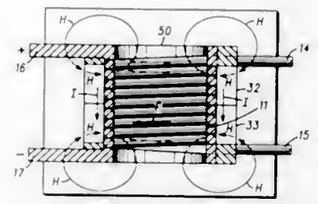
Filed Oct. 16, 1991, Ser. No. 778,456
Int. Cl.[5] H02K *44/02*
U.S. Cl. 417—50 14 Claims

1. A magnetic induction pump for pumping liquid metals and other electrical current conductive liquids, comprised of:

a tubing assembly comprised of a plurality of turns of electrically conductive tubing, suitably disposed for conveying an electrically conductive liquid through said conductive tubing;

permanent magnet means for creating a constant magnetic field within said tubing assembly; and

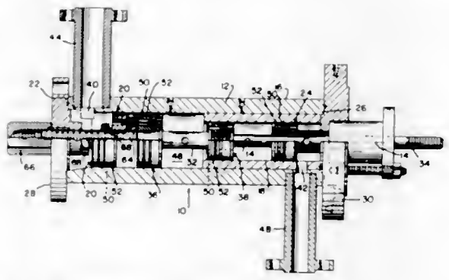
means for applying a voltage across said tubing thereby inducing a DC current to flow through said tubing substantially perpendicular to the direction of flow of said conductive liquid, and causing a current to interact with said magnetic field having its field direction substantially perpendicular to the direction of current flow, creating a force along the direction of flow of said conductive liquid which moves said conductive liquid through said tubing with a pressure of about 100–900 psi/1000 amps and up to about 5 gallons/minute liquid flow.



5,209,647
STRAIGHT CYLINDER GAS COMPRESSOR WITH A REDUCED DIAMETER COMPRESSION CHAMBER

Robert A. Bennitt, Painted Post, N.Y., assignor to Dresser-Rand Company, Corning, N.Y.

Filed Jun. 17, 1992, Ser. No. 899,805
Int. Cl.[5] F04B *23/00, 25/00*
U.S. Cl. 417—261 10 Claims



1. A gas compressor, comprising:
- a straight cylinder having (a) a longitudinal axis, and (b) a circumferential wall;
- a cylindrical sleeve, within said cylinder, extending from one axial end of said cylinder to substantially a mid-length of said cylinder;
- a first, one-way valve assembly removably set within said cylinder, in adjacency to one axial end thereof;
- a second, centrally-bored, one-way valve assembly removably set within said sleeve, in adjacency to the opposite axial end of said cylinder;
- a piston rod reciprocably disposed within said cylinder and said sleeve, and in slidable penetration of said second valve assembly; wherein

said rod has a terminal, drive end extending outwardly from said cylinder;
- a third, one-way valve assembly coupled to an innermost end of said rod;
- a fourth, one-way valve assembly coupled to, and intermediate the length of, said rod;
- radial porting formed in said wall for admitting gas to said first valve assembly; and
- radial porting formed in said wall and said sleeve for discharging compressed gas from said second valve assembly; wherein

said first and third valve assemblies comprise means cooperative with reciprocation of said rod for compressing admitted gas to a first stage of compression;

said second and fourth valve assemblies comprise means cooperative with such reciprocation of said rod for compressing admitted gas to a second stage of compression;

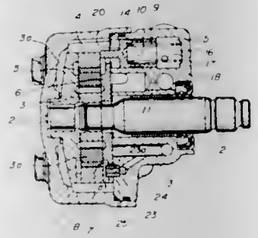
said third valve assembly is sealingly engaged with the inner surface of said cylinder; and

said fourth valve assembly is sealingly engaged with the inner surface of said sleeve.

5,209,648
ROTARY-VANE PUMP

Kazuyoshi Ishizaki, and Masahiko Hara, both of Kanagawa, Japan, assignors to Atsugi Unisia Corporation, Kanagawa, Japan

Filed Mar. 11, 1991, Ser. No. 667,427
Claims priority, application Japan, Mar. 14, 1990, 2-63446
Int. Cl.[5] F04B *49/08*
U.S. Cl. 417—310 2 Claims



1. A rotary-vane pump, comprising:
- a casing with two end plates in spaced relationship;
- a cover connected to and closing said cover;
- a cam ring disposed between said two end plates and secured thereto against rotation;
- a driving shaft,
- a cylindrical rotor connected to said driving shaft and arranged in said cam ring, said cylindrical rotor having a plurality of vanes guided in radially slots thereof and radially movable;

said cam ring having an outer periphery which cooperates with said cover to define between said outer periphery of said cam ring and said cover a pressure chamber;

one of said two end plates having a pump outlet port and a pressure passage having one end communicating with said pump outlet port and an opposite end communicating with said pressure chamber;

said casing having a spool bore with one end directly opening to said pressure chamber and an opposite end closed;

a pressure responsive spool received in said spool bore, said pressure responsive spool defining a back-up chamber within said spool bore between said pressure responsive spool and said closed opposite end of said spool bore;

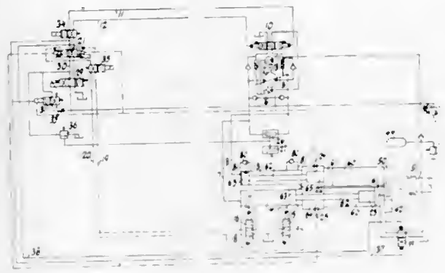
a hollow cylindrical throttling insert fitted to said casing through said one of said two end plates and having an axial bore which has one end opening directly to said pressure passage and an opposite end; and

means for establishing flow communication between said opposite end of said hollow cylindrical insert and said back-up chamber.

5,209,649
CONTROL SYSTEM FOR A TWO-CYLINDER THICK MATTER PUMP

Rolf Dose, Filderstadt, and Hartmut Beneckert, Leinfeld-Echterdingen, both of Fed. Rep. of Germany, assignors to Putzmeister-Weck Maschinenfabrik GMBH, Aichtal, Fed. Rep. of Germany

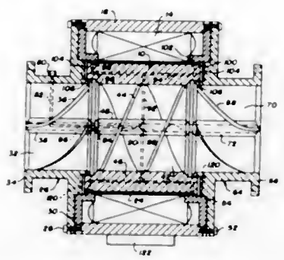
PCT No. PCT/EP89/00273, § 371 Date Nov. 27, 1990, § 102(e) Date Nov. 27, 1990, PCT Pub. No. WO89/11037, PCT Pub. Date Nov. 16, 1989
PCT Filed Mar. 15, 1989, Ser. No. 613,491
Claims priority, application Fed. Rep. of Germany, May 2, 1988, 3814824
Int. Cl.[5] F04B *35/02*
U.S. Cl. 417—342 11 Claims



1. A control system for a pump, the pump having two hydraulic drive cylinders, two pistons supported and driven within each respective drive cylinder, and two feed cylinders, each feed cylinder being adapted to receive a respective piston therein, the pistons being adapted to feed matter from a material vessel through the feed cylinders and a pipe switch and, in turn, into a feed line, the pipe switch being pivotable so as to be open to the feed line during the pressure stroke and be open to the vessel during the suction stroke, comprising:
- first means for delivering hydraulic fluid to the drive cylinders to drive the pistons therein;
- second means coupled to the first means for actuating the pipe switch;
- a reversing valve coupled to the first means and second means and adapted to be actuated upon a respective piston reaching the end of its stroke to, in turn, reverse the direction of hydraulic fluid flowing to or from each respective drive cylinder and the pipe switch;
- a pressure equalizing line extending from one end of one of the drive cylinders towards the other end of the cylinder, and including a check valve therein for correcting the stroke of the piston driven within the respective drive cylinder;
- two pressure switching valves, each pressure switching valve being coupled to one end of the other drive cylinder and to the reversing valve for actuation thereof in response to a change in pressure in the respective end of the drive cylinder; and
- third means supported near the ends of the feed cylinders adjacent to the drive cylinders and electrically coupled to the reversing valve for actuating the reversing valve in parallel with the pressure switching valves, the third means being responsive to the triggering elements coupled to each respective piston to actuate the reversing valve upon one of the pistons reaching the end of its stroke in the direction toward the respective drive cylinder.

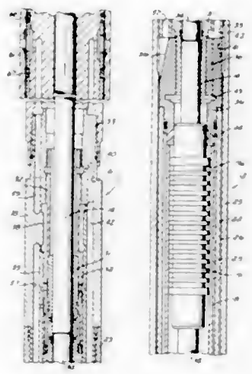
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5,209,650
INTEGRAL MOTOR AND PUMP
Guy B. Lemieux, 14326 Greenerest Drive, Surrey, B.C., Canada V4P 1M1
Continuation-in-part of Ser. No. 662,057, Feb. 28, 1991, abandoned. This application Apr. 27, 1992, Ser. No. 874,449
Int. Cl.[5] F04B 35/04
U.S. Cl. 417—356 17 Claims



1. An integral motor and pump comprising:
a stator having windings therein, integral with a pump casing, the pump casing having an axial liquid entry;
a rotor mounted for rotation on a fixed axial shaft within the stator, the rotor integral with impeller means for pumping liquid;
passage means through the fixed axial shaft for supplying seal liquid;
at least one liquid duct in the rotor, extending radially from the fixed axial shaft to pressurize seal liquid centrifugally when the rotor rotates within the stator, and
hydrostatic thrust bearings supplied with the pressurized seal liquid to axially position the rotor relative to the stator.

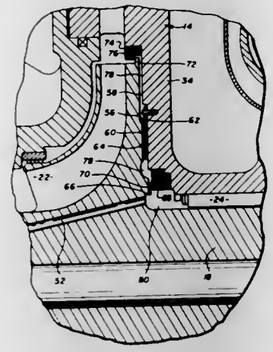
5,209,651
MULTIPLE ENGINE DEEP WELL PUMP
John M. Kelleher, La Palma, Calif., and David B. Dillon, Anchorage, Ak., assignors to Trico Industries, Inc., Huntington Park, Calif.
Division of Ser. No. 501,595, Mar. 29, 1990, Pat. No. 5,064,355. This application Sep. 3, 1991, Ser. No. 753,852
Int. Cl.[5] F04B 35/02
U.S. Cl. 417—404 6 Claims



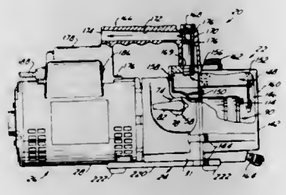
1. In a deep well pump having at least one fluid pump with a pump cylinder and a pump piston reciprocating in said pump cylinder and carried on a piston rod, for positioning in a bottom hole assembly for a closed power fluid system and having an inner wall, the improvement including in combination:
first and second fluid powered motors, with each of said motors having a motor cylinder and a motor piston reciprocating in the motor cylinder, with said first and second motor pistons carried on said piston rod;
first means for delivering a power fluid to one end of said first motor cylinder;
second means for delivering a power fluid to one end of said second motor cylinder;
a first sleeve positioned around said first motor cylinder defining a power fluid path between said first sleeve and said first cylinder from said one end of said first cylinder to said one end of said second cylinder;
a second sleeve positioned around said first sleeve defining a first exhaust fluid path between said second sleeve and said first sleeve from the other end of said first motor cylinder;
a third sleeve positioned around said second motor cylinder defining a second exhaust fluid path between said third sleeve and said second cylinder from the other end of said second cylinder;
coupling means interconnecting said first and second exhaust fluid paths;
annular seal groove means in the outer periphery of the pump for receiving seal ring means for sealing engagement of the pump with said bottom hole assembly inner wall at a single location;
third means for defining a third exhaust fluid path from said first and second exhaust fluid paths, said third exhaust fluid path including a path between said second and third sleeves and said bottom hole assembly inner wall, and means defining an outlet opening through said bottom hole assembly at said seal ring means in said annular seal groove means for flow of spent power fluid from said motors into a well casing,
with the only seal below said seal ring means being at the lower end of said deep well pump below the fluid pump thereof, and with said annular seal groove means including a pair of annular seal grooves in the outer periphery of said first means for a pair of seal rings for sealing engagement with said bottom hole assembly inner wall at a location adjacent the top of the pump.

5,209,652
COMPACT CRYOGENIC TURBOPUMP
Richard L. Fischer, Rolling Hills Estates; Terence P. Emerson, Hermosa Beach, and Alston L. Gu, Rancho Palos Verdes, all of Calif., assignors to Allied-Signal, Inc., Morris Township, Morris County, N.J.
Filed Dec. 6, 1991, Ser. No. 804,345
Int. Cl.[5] F04B 17/00
U.S. Cl. 417—409 16 Claims

1. A turbopump having utility particularly for pumping cryogenic process fluid, said turbopump comprising: a housing defining a first flow path therethrough for communicating a flow of motive fluid and a second flow path therethrough for communicating a flow of said process fluid, said housing journaling a rotating assembly in said first and said second flow paths, said rotating assembly including a turbine section in said first flow path rotationally extracting mechanical shaft power from said motive fluid and a pump rotor in said second flow path receiving said shaft power to rotationally impel said process fluid, said housing and said pump rotor cooperatively bounding an annular thrust balance cavity as well as defining both a radially inner and a radially outer axial metering gaps each opening and closing oppositely in response to axial relative movement of said rotating assembly, one of said metering gaps communicating discharge process fluid while the other of said metering gaps communicates with inlet process fluid pressure, and a fluid dynamic foil thrust bearing disposed in said thrust balance cavity for cooperation with an annular thrust runner surface of said pump rotor, whereby said foil bearing hydrodynamically reacts rotating assembly thrust forces below a certain pump operating speed and pump discharge pressure and said rotating assembly dithers axially to meter process fluid into and from said cavity achieving an equilibrium of thrust forces to hydrostatic pressure force in said cavity at higher speeds and pressures, sharing said thrust forces with said foil bearing.

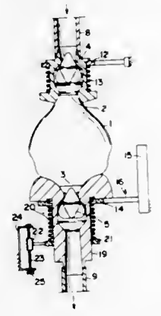


5,209,653
VACUUM PUMP
Gary P. Murray, Montpelier; Harold E. Lyons, Bryan, both of Ohio, and Richard D. Parks, Horton, Mich., assignors to SPX Corporation, Muskegon, Mich.
Filed Jan. 17, 1992, Ser. No. 822,408
Int. Cl.[5] F04B 35/04
U.S. Cl. 417—410 R 30 Claims



1. A vacuum pump that comprises:
an electric motor having a housing and an output shaft that extends from one end of said housing,
a pump module including rotary pumping means, means mounting said module to said one motor housing end and means coupling said rotary pumping means to said motor output shaft,
pump inlet means coupled to said pump module, including an inlet port and valve means selectively movable between an open position in which said inlet port is coupled to said pumping means and a closed position in which said inlet port is isolated from said pumping means, and
pump outlet means including an outlet port and outlet passage means coupling said pumping means to said output port,
said means mounting said module to said motor housing comprising an adapter, said inlet port and said valve means being carried by said adapter, said adapter including inlet passage means extending within said adapter from said inlet port to said pumping means, said valve means being disposed in said inlet passage means and including a handle disposed externally of said adapter for manually moving said valve means between said open position and said closed position.

5,209,654
FLUID PUMP WITH FLEXIBLE PUMP CHAMBER
Erling Löfsjögård Nilsson, Vitmåravägen 77, S-194 60 Upplands Väsby, and Jorge Inacio, Björnstigen 105, S-171 72 Solna, both of Sweden
PCT No. PCT/SE90/00585, § 371 Date Feb. 24, 1992, § 102(e) Date Feb. 24, 1992, PCT Pub. No. WO91/04063, PCT Pub. Date Apr. 4, 1991
PCT Filed Sep. 14, 1990, Ser. No. 834,291
Claims priority, application Sweden, Sep. 15, 1989, 8903039; Sep. 15, 1989, 8903040
Int. Cl.[5] F04B 43/08
U.S. Cl. 717—478 14 Claims



1. A fluid pump, particularly for connection to the blood circulatory system of a living being, comprising a pump chamber (1) having an inlet opening (2) at one end thereof and an outlet opening (3).at the opposite end thereof, a first non-return valve (4) connected to the inlet opening and permitting a fluid flow only in the direction into the pump chamber (1) through the inlet opening, and a second non-return valve (5) connected to the outlet opening and permitting a fluid flow only in the direction out from the pump chamber (1) through the outlet opening, the inlet and the outlet (2, 3) being movable in relation to each other in the direction of the extension of the pump chamber (1) between the inlet and the outlet (2, and being connected to controllable drive means (6; 12, 3, 14, 15) for periodic movement thereof alternately towards and away from each other in said direction of extension, the interior volume existing in the pump chamber (1) between the inlet (2) and outlet (3) being variable in correspondence with the relative distance between them in said direction of extension, characterized in that the pump chamber (1) on the outside thereof is acted upon by the surrounding pressure, that it has a wall at least partially of a flexible material, and that it under the influence of a pressure difference, which is caused by the surrounding pressure exceeding the interior pressure of the pump chamber (1) and which is greater than the required opening pressure difference for the first non-return valve (4) connected to the inlet (2), is collapsible by a volume at least corresponding to the maximum increase of said interior volume of the pump chamber when the inlet (2) and the outlet (3) are moved away

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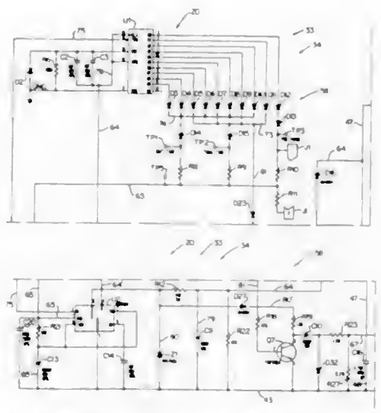
from each other, said collapsibility being provided by one or more defined wall portions (11) having a reduced wall thickness.

5,209,655

HEAT EXCHANGER SYSTEM, FUEL CONTROL SYSTEM THEREFOR, AND METHODS OF MAKING THE SAME

Frederick J. Geary, Holland, Mich., assignor to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 816,400, Dec. 27, 1991, Pat. No. 5,141,431.
This application Jun. 18, 1992, Ser. No. 900,891
Int. Cl.[5] F23N *5/20*
U.S. Cl. 431—6 12 Claims



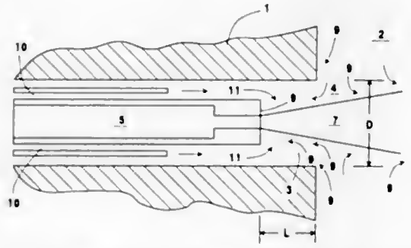
1. In a fuel control system for a heat exchanger system that comprises a thermostat, a pilot burner means, a main burner means, and electrically operated igniter means for igniting fuel that issues from said pilot burner means, said pilot burner means when ignited being adapted to ignite fuel that issues from said main burner means, said fuel control system comprising electrical circuit means that comprises an ignition trail portion for operating said igniter means, a flame sense control portion for operating said pilot burner means and said main burner means, and a timer portion adapted on each cycle of a closing of said thermostat and before the next opening thereof to cause said ignition trial portion to tend to operate said igniter means for a first certain period of trial time, said flame sense control portion being adapted to terminate said operation of said igniter means during said first certain period of trial time if said flame sense portion senses that fuel issuing from said pilot burner means has been ignited, said timer portion being adapted to terminate the operation of said igniter means upon the termination of said first certain period of trial time if no flames appear at said pilot burner means and to provide a first certain period of wait time before causing said ignition trial portion to tend to operate said igniter means for a second certain period of trial time during that said cycle, said flame sense control portion being adapted to terminate said operation of said igniter means during said second certain period of trial time if said flame sense control portion senses that fuel issuing from said pilot burner means has been ignited, the improvement wherein said timer portion comprises a counter having a plurality of outputs and a timer that cocks the output of said counter on each discharge of said timer, a capacitor for causing said timer to discharge and discharge said capacitor to a discharged condition thereof upon each charging of said capacitor to a certain voltage, trial time resistor means, and wait time resistor means, said counter when clocked to a first output thereof by said timer being adapted to place said trial time resistor means and said capacitor in series at the start of said first trial time period so that said trial time resistor means determines the time period said capacitor charges from its said discharged condition to said certain voltage thereof and that time period comprises said first certain trial time period, said counter when clocked to a second output thereof by said timer being adapted to place said wait time resistor means and said capacitor in series at the start of said wait time period so that said wait time resistor means determines the time period said capacitor charges from said discharged condition thereof to said certain voltage thereof and that time period comprises said wait time period, said counter when clocked to a third output thereof by said timer being adapted to place said trial time resistor means and said capacitor in series at the start of said second trial time period so that said trial time resistor means determines the time period said capacitor charges from its said discharged condition to said certain voltage thereof and that time period comprises said second certain trial time period.

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COMBUSTION SYSTEM FOR HIGH VELOCITY GAS INJECTION

Hisashi Kobayashi, Putnam Valley, and Arthur W. Francis, Jr., Monroe, both of N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.

Filed Aug. 29, 1991, Ser. No. 751,967
Int. Cl.[5] F23C *7/02*
U.S. Cl. 431—187 9 Claims



1. A combustion system comprising at least one gas injection means for injecting fuel and at least one gas injection means for injecting oxidant into a combustion zone at least one of said gas injection means comprising:

(A) a cavity having an opening with a diameter D communicating with the combustion zone;

(B) a nozzle for injecting high velocity main gas into the cavity toward the opening positioned at a recess from the opening, said recess having a length L such that L/D is not more than 3.0; and

(C) means for providing low velocity protective gas having a composition substantially the same as that of the high velocity main gas into the cavity at a point further recessed from the opening than is the nozzle, for flow of protective gas around and past the nozzle.

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DEVICE FOR INJECTING PREHEATED AIR INTO A SHAFT FURNACE AND PROCESS OF MANUFACTURING BALL-AND-SOCKET JOINTS

Jean Benck, Dudelange, and Pierre Mailliet, Howald, both of Luxembourg, assignors to Paul Wurth S.A., Luxembourg

Filed Nov. 8, 1991, Ser. No. 790,405
Claims priority, application Luxembourg, Nov. 9, 1990, 87383
Int. Cl.[5] F23L *5/00*; F27D *1/08*
U.S. Cl. 432—99 12 Claims

1. A device for injecting preheated air into a shaft furnace, comprising:

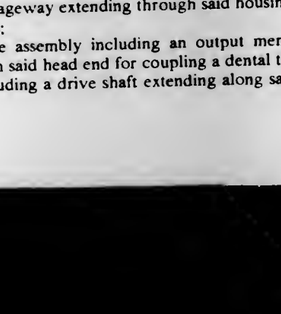
tubular conduit means for directing the preheated air from an outlet end of an air feeding bustle pipe to the furnace, said conduit means comprising;

at least one central tubular conduit member of a first diameter for directing the preheated air, said central tubular conduit means extending from an inlet end to an outlet end and including a steel outer sheath and a refractory inner lining;

an upstream tubular conduit member of the first diameter, extending from the outlet end of the bustle pipe to an upstream outlet end, said upstream outlet end having a profile complementary to that of the inlet end of the tubular conduit member and including a steel outer sheath and a refractory inner housing,

first connector means, comprising a first ball-and-socket joint and a first expansion joint, for connecting the inlet end of the central tubular member to the upstream outlet end;

a downstream tubular conduit member of the first diameter extending from a downstream inlet end, said downstream inlet end having a profile complementary to that of the



outlet end of the central tubular member, to the shaft furnace and including a steel outer sheath and a refractory inner lining;

second connector means, comprising a second ball-and-socket joint and a second expansion joint for connecting the outlet end of the central tubular member to the downstream inlet end;

said first and second ball-and-socket joints each including;

a tubular convex ball portion, formed on one of said respective ends to be connected,

a tubular concave socket portion, formed on the other of said respective ends to be connected, for pivotably contacting convex ball portion; and

a soft refractory annular insert interposed between the ball portion and the socket portion,

wherein each of the ball portions and socket portions exhibit a radius of curvature equal to about half the diameter of the respective tubular conduit members connected by the respective ball-and-socket joints; and

wherein each of the convex ball portions include a steel outer sheath and an inner refractory lining.

5,209,658

DENTAL PROPHY ANGLE

George R. Brahler, Lawrence, Kans., assignor to Brahler Products, Inc., Lawrence, Kans.

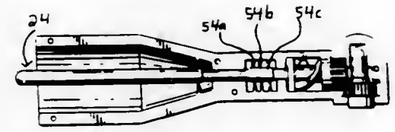
Filed Jul. 13, 1992, Ser. No. 912,494
Int. Cl.[5] A61C *3/06*
U.S. Cl. 433—125 13 Claims

1. A dental prophy angle comprising:

a housing presenting a head end and a shank end with a passageway extending through said housing between said ends;

a drive assembly including an output member extending from said head end for coupling a dental tool thereto and including a drive shaft extending along said passageway,

said passageway being subject to the entry of matter thereinto from a patient's mouth by way of said head end; and



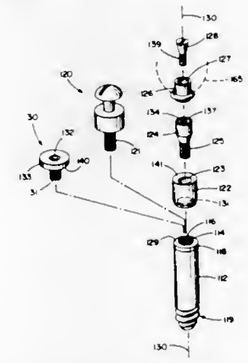
means for ejecting said matter from said passageway and out through said head end.

5,209,659

METHOD FOR INSTALLING A DENTAL IMPLANT

Kurt E. Friedman, Plantation; James E. Davis, Ft. Lauderdale; Bruce L. Nickerson, and Richard A. Smolowitz, both of Davie, all of Fla., assignors to Impla-Med Incorporated, Sunrise, Fla.

Continuation-in-part of Ser. No. 577,789, Sep. 5, 1990, Pat. No. 5,100,323. This application Jun. 19, 1991, Ser. No. 718,348
Int. Cl.[5] A61C *8/00*
U.S. Cl. 433—173 4 Claims



1. A method of inserting a dental implant into a pre-drilled osteotomy site in a maxilla or mandible bone of a patient, said pre-drilled osteotomy site having a first wider portion proximal the gingiva or alveolar mucosa of the patient and a second coaxial narrower portion apical the gingiva or alveolar mucosa of the patient, said dental implant having an integral body having an extended generally cylindrical portion of a first diameter, and an apical portion having sharp cutting threads on the outer surface thereof, said threads having an outer diameter not exceeding said first diameter of said extended cylindrical portion, said integral body further including a threaded central bore extending from a first end of and at least partially through said cylindrical portion toward said apical portion, said dental implant having a protective cap means screwed into said threaded central bore of said dental implant, said method comprising:

(a) placing said implant, apical portion first into engagement with said first wider portion of said pre-drilled osteotomy site;

(b) tapping and/or pushing said protective cap means to force said dental implant into said pre-drilled osteotomy site until said apical portion of said dental implant reaches said second coaxial narrower portion of said pre-drilled osteotomy site; and

(c) gripping and turning said protective cap means while placing pressure on said protective cap means, thereby screwing said apical portion of said dental implant into said narrower portion of said pre-drilled osteotomy site

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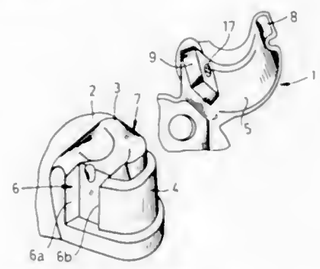
until said extended generally cylindrical portion reaches said narrower portion of said predrilled osteotomy site.

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DENTAL APPLIANCE WITH IMPROVED CONNECTING ELEMENT

Jürgen Speckmann, Hagen, Fed. Rep. of Germany, assignor to Si-tec GmbH Dental-Spezial-Artikel, Gevelsberg, Fed. Rep. of Germany

Filed Mar. 6, 1992, Ser. No. 847,897
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1991, 9102797[U]
Int. Cl.[5] A61C *13/12, 13/225*
U.S. Cl. 433—181 8 Claims



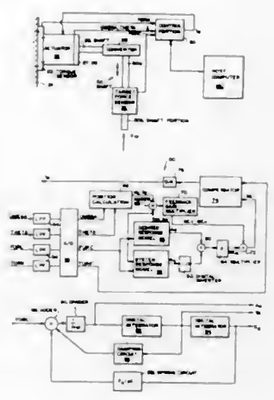
1. A dental prosthesis, comprising:
a first member fixed in a jaw of a patient,
a second member axially insertable over said first member and adapted to be removably mounted thereon; and
coupling means for anchoring said second member on said first member, said coupling means including:
an axially and laterally open groove formed in said first member and having a pair of axially extending flanks,
a shaped surface in the form of a substantially cylindrical surface segment adjoining said groove and formed on said first member,
a complementary surface in the form of another substantially cylindrical surface segment on said second member form-fittingly engaging said shaped surface upon assembly of said second member on said first member,
a substantially rectangular clamping rib on said second member adjacent said complementary surface, substantially complementary to and receivable in said groove, and having
a base lying substantially in a plane of said complementary surface,
four wall portions extending away from said base and including two longitudinal wall portions juxtaposed with said flanks,
means separating said longitudinal wall portions from said base proximal to said base whereby said longitudinal wall portions can flex outwardly,
a threaded bore formed centrally of said base between said longitudinal wall portions, and
a threaded screw threaded into said bore and having a head bearing against said longitudinal wall portions to flex said longitudinal wall portions outwardly,
said longitudinal wall portions defining a substantially conical inner surface engaged by said head.

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MOTOR CONTROL DESIRED DYNAMIC LOAD OF A SIMULATING SYSTEM AND METHOD

Bruce L. Hildreth, Lexington Park, Md.; Thomas L. Trankle, Cupertino, Calif.; William A. Hart, Lexington Park, Md.; Upton T. Norris, III, Hollywood, Md., and Roger E. Eyermann, Waldorf, Md., assignors to Systems Control Technology, Inc., Palo Alto, Calif.

Filed Oct. 29, 1990, Ser. No. 604,479
Int. Cl.[5] G09B *9/08, 19/16*
U.S. Cl. 434—45 7 Claims



1. An apparatus for simulating a physical response from a member of a desired dynamic system to an applied force thereon, comprising:
a member responsive to an applied force thereon;
means for detecting said applied force on said member and outputting a force signal;
an actuator for generating a motor torque in response to a control signal;
means for coupling said motor torque to said member;
means for detecting said motor torque of said actuator and outputting a torque signal; and
means for generating said control signal so that said member simulates a physical response of a desired dynamic system, said generating means comprising:
desired response means for outputting a desired response signal in response to said force signal and in accordance with physical parameters of said desired dynamic system,
system response means for outputting a system response signal in response to said force signal and in accordance with a physical system response of the apparatus for simulating said physical response,
torque command generating means for generating a torque command signal in response to a combination of said desired response signal and said system response signal, and
correction means for outputting said control signal in response to said torque command signal and said torque signal.

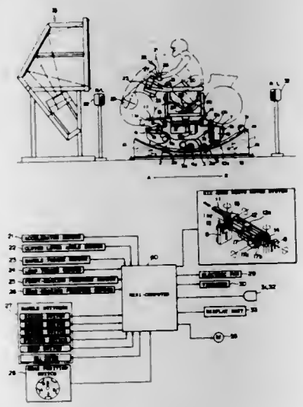
6. A method for simulating a physical response from a member of a desired system, comprising the steps of:
detecting a force applied to a member of a control system including an actuator, said member being coupled to said actuator;
detecting a torque generated by said actuator;
determining a desired response in accordance with said detected force and the physical parameters of the desired system;
determining an actual response in accordance with said detected force and the physical characteristics of said control system; and
causing said member to simulate a physical response of said desired system by controlling said actuator to cause said detected torque to approach a corrected system response in accordance with said desired response and said actual response.

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RIDING SIMULATION SYSTEM OF MOTORCYCLE

Isao Fujita; Takaji Mukumoto; Toshihiro Hijikata; Takashi Ichizawa; Kazuyuki Iwata, all of Saitama; Yukio Miyamaru; Hirotoshi Kizawa, both of Tokyo; Katsuhito Aoki, Saitama; Keigo Yoshida, Saitama; Goro Yamasaki, Saitama; Hiroshi Ohtsuka, Saitama, and Hitoshi Kashiwagi, Saitama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 545,525, Jun. 28, 1990, abandoned.
This application Aug. 12, 1992, Ser. No. 928,687
Claims priority, application Japan, Jun. 30, 1989, 1-166931; Jun. 18, 1990, 2-158939; Jun. 18, 1990, 2-158940; Jun. 18, 1990, 2-158941; Jun. 18, 1990, 2-158942; Jun. 18, 1990, 2-158943; Jun. 18, 1990, 2-158944; Jun. 28, 1990, 2-170582
Int. Cl.[5] G09B *9/058*
U.S. Cl. 434—61 16 Claims



1. A motorcycle riding simulation system to be ridden on by a person, comprising:
(a) a base and a movable carriage mounted on said base;
(b) driving means for driving said movable carriage to move in a desirable direction;
(c) a model motorcycle having model controls, on which the person can ride and which can be operated by the person, said model motorcycle being mounted on said moveable carriage;
(d) detecting means for sensing operation of the model motorcycle including operation of said model controls by the person; and
(e) control means for controlling said driving means in response to said detecting means to thereby control a rolling movement about a center-of-rotation and a pitching movement of said model motorcycle, said control means raising said center-of-rotation with a simulated increase in running speed of said model motorcycle sensed by said detecting means.

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CRAFT PAINT SYSTEM FOR FORMING FINE DESIGNS

Reed N. Wilcox, Littletoo; Richard L. George, Englewood; William K. Thiess, Aurora, all of Colo.; John T. Loftus, Jr., Milton, and Timothy F. O'Meara, Somerville, both of Mass., assignors to The Flagship Group, Inc., Englewood, Colo.

Filed May 22, 1992, Ser. No. 887,289
Int. Cl.[5] G09B *11/10*
U.S. Cl. 434—84 10 Claims



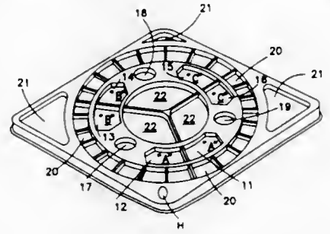
8. A pattern on a surface carrying a design, said pattern comprising:
(a) a plurality of spaced circles forming said design, said plurality of spaced circles having a count density C_D of about 4.5 to 8.5 circles per linear inch when formed in a continuous line with each of said spaced circles having a diameter D between about 0.8 C to 0.4 C, where C is the center point spacing equal to the inverse of the count density, each of said spaced circles in said continuous line having a spacing S between adjacent circles wherein S=C−D;
(b) a plurality of symbols, each of said symbols assigned to represent a different color;
(c) each of said symbols having a darkness value corresponding to the darkness of the assigned color; and
(d) each of said plurality of spaced circles containing one of said symbols, said design in said pattern on said surface being visually represented by said amount of darkness of one or a plurality of said contained symbols in said plurality of spaced circles.

5,209,664

ARTIST'S PALETTE

Michael A. J. Wilcox, 18 Edmondson Crescent, Karrinyup, Western Australia, Australia

PCT No. PCT/AU89/00553, § 371 Date Aug. 22, 1991, § 102(e) Date Aug. 22, 1991, PCT Pub. No. WO90/07431, PCT Pub. Date Jul. 12, 1990
PCT Filed Dec. 22, 1989, Ser. No. 691,023
Claims priority, application Australia, Dec. 23, 1988, PJ2113
Int. Cl.[5] G09B *11/10*
U.S. Cl. 434—103 24 Claims



1. An artist's palette of any suitable configuration having at least three pairs of designated areas in an adjacent relationship;
each of said pairs of designated areas being provided to receive a first colour;
each designated area of each of said pairs having directional indicia towards the adjacent pair of designated areas,
each designated area of each of said pairs being provided to receive a first colour with an second colour bias wherein

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adjacent designated areas of adjacent pairs have said directional indicia towards each other and receive a first colour having a common second colour bias;

said palette having at least three, each of said areas positioned between adjacent pairs of designated areas;

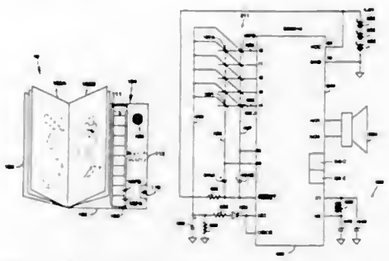
each of said areas being provided to receive a second colour created by combining the first colours having a common second colour bias in said adjacent designated areas.

5,209,665

INTERACTIVE AUDIO VISUAL WORK

Zeb Billings, Hartland, Wis.; Harold D. Pierce, Woodland Hills, Calif., and Martin R. J. Moore, Sr., Cedarburg, Wis., assignors to Sight & Sound Incorporated, New Berlin, Wis.

Filed Oct. 12, 1989, Ser. No. 420,264
Int. Cl.[5] G09B 5/00
U.S. Cl. 434—169 27 Claims



3. The work of claim 1 wherein

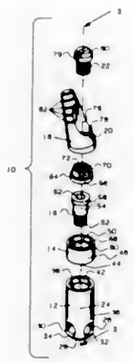
said sound generator means includes means for controlling said generating of said selected sound so that said selected sound is generated a predetermined number of times for each time one of said switches is activated.

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ENDOSSEOUS IMPLANT SYSTEM WTIH CAPTURED SCREW

Alan R. Balfour, Oceanside, and Donald E. Hendricks, San Diego, both of Calif., assignors to Calcitek, Inc., Carlsbad, Calif.

Continuation of Ser. No. 523,213, May 15, 1990, abandoned. This application Oct. 2, 1991, Ser. No. 770,740
Int. Cl.[5] A61C 8/00
U.S. Cl. 433—173 14 Claims



1. A prosthetic dental implant attachment system for mounting a prosthetic device in fixed relationship to a jaw of a patient comprising:

a root member having an axis, a first end with securing means for securing the root member to the jaw, and a second end with first indexing means for mounting an intermediate member on said root member and for preventing angular rotation of said intermediate member about said axis,

said intermediate member having a first mating indexing means on a first end of said intermediate member for cooperating with said first indexing means for preventing angular rotation of said intermediate member and for constraining said intermediate member to a discrete number of angular orientations with respect to said root member, and second indexing means on a second end of said intermediate member for mounting a coronal member and for preventing angular rotation of said coronal member about said axis,

said coronal member having a second mating indexing means on a first end of said coronal member for cooperating with said second indexing means for preventing angular rotation of said coronal member and for constraining said coronal member to a discrete number of angular orientations with respect to said intermediate member and second securing means on a second end of said coronal member for securing the prosthetic device in fixed relationship thereto,

said intermediate member further comprising an internal cavity, a bore into said cavity from said first end of said intermediate member and an access bore from said second end of said intermediate member into said cavity,

a screw having a head captured rotatably within said internal cavity of said intermediate member and a threaded shank extending through said bore for engaging said root member, said screw being manipulable through said access bore, and

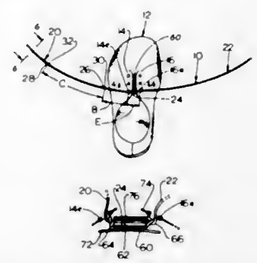
means for attaching said coronal member to said intermediate member.

5,209,667

TEACHING SHOELACE

James S. Stanfield, P.O. Box 1983, Santa Monica, Calif. 90406

Filed Mar. 12, 1990, Ser. No. 491,560
Int. Cl.[5] G09B 19/24
U.S. Cl. 434—260 3 Claims



1. A combination of a shoe and shoelace for use by young children or the handicapped to help learn to tie a bow comprising:

a flexible porous shoelace core having first and second opposite end portions;

a solidified originally-liquid stiffening material penetrating and coating said first end portion and making said first end portion stiffer than said flexible shoelace core without said stiffening material, said first end portion being stiff enough to retain a loop shape when a pair of locations spaced a plurality of inches apart along said first end portion are held together to form a loop shape between them;

a shoe having two rows of eyelet devices, including an uppermost eyelet in each row that are spaced apart by no more than about two inches;

said shoelace has a middle portion lying between said end portions, said middle portion of said shoelace has a length no more than about three inches and extends directly between said uppermost eyelets, with said opposite and portions projecting from said uppermost eyelets;

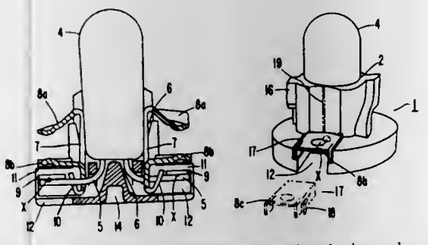
a tube having opposite ends and lying between said uppermost eyelets, said middle portion of said shoelace projecting through said tube and said shoelace being tied in a knot between each end of said tube and a corresponding one of said uppermost eyelets.

5,209,668

SOCKET WITH A LAMP WITHOUT A METALLIC BASE

Masato Higano, Tochigi; Munehiko Yanagida, Utsunomiya; Tetsuya Sato, Utsunomiya, and Masakazu Yanagiya, Utsonomiya, all of Japan, assignors to Moriyama Sangyo Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP91/00895, § 371 Date Feb. 11, 1992, § 102(e) Date Feb. 11, 1992, PCT Pub. No. WO92/01320, PCT Pub. Date Jan. 23, 1992
PCT Filed Jul. 3, 1991, Ser. No. 834,530
Claims priority, application Japan, Jul. 6, 1990, 2-179305
Int. Cl.[5] H01K 1/46
U.S. Cl. 439—57 12 Claims



1. A contact strip for use with lamp socket devices whereby an electrical connection is made by the contact strip between a lamp lead and a circuit board conducting surface when the contact strip is assembled in a lamp socket device and mounted on the circuit board, the contact strip comprising:

at least one welding area at which a lead of a lamp is welded during assembly of the contact strip in a lamp socket device; and

upper and lower electricity receiving strip portions for receiving a circuit board therebetween and for making electrical contact with at least one of upper and lower conducting surfaces of the circuit board.

5,209,669

PLUG-IN PROXIMITY SWITCH

Helmut Fuchs, Halver, Fed. Rep. of Germany, assignor to Karl Lumberg GmbH & Co., Schalksmuhle, Fed. Rep. of Germany

Filed Mar. 19, 1992, Ser. No. 854,411
Claims priority, application Fed. Rep. of Germany, Mar. 19, 1991, 4108887
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—59 5 Claims

1. A plug-in proximity-switch assembly comprising:

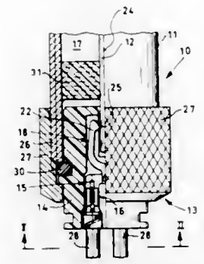
a tubular housing having a hollow interior and an open end;

a circuit board in the housing interior having an edge adjacent the end and a face provided adjacent the edge with a plurality of circuit paths;

a mass of hard potting compound filling the housing interior around the board at least at the edge thereof and rigidly holding the board in the housing;

a socket fittable with the open housing end;

a socket body in the socket adjacent the board edge; and



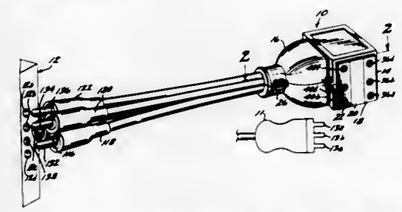
a plurality of connector elements fixed in and projecting inward from the body, and directly engaging the circuit paths of the board.

5,209,670

POWER DISTRIBUTION DEVICE

William H. Meurer, Toluca Lake, Calif., assignor to Gunner Lighting Incorporated, a California corporation, North Hollywood, Calif.

Filed Aug. 7, 1991, Ser. No. 741,324
Int. Cl.[5] H01R 4/66
U.S. Cl. 439—101 8 Claims



1. A power distribution device for receiving alternating electrical current supplied by a power source and for distributing alternating electrical current to a plurality of electrical connectors, each of which has an electrical ground prong, a neutral prong and a current supply prong which together retain the connector within the device, the power source containing an electrical ground connection, a neutral connection and a current supply connection, the device comprising:

a housing;

a plurality of sets of electrical sockets secured within the housing and each adapted to receive and retain a separate one of the electrical connectors, each set of sockets including an electrical ground socket, a neutral socket and a current supply socket; and

assembly means, associated with the power source, for transmitting to each current supply socket alternating electrical current supplied by the power source and for providing an electrical ground connection for each electrical ground socket and for providing an alternating current retain connection for each neutral socket, the assembly means including,

(a) fuse means, contained within the housing and connected to the current supply connection of the power source and to each supply socket, for providing overcurrent protection for each supply socket, the fuse means including,

(i) an electrically conductive first fuse bar which is contained within the housing and is connected to the current supply connection,

(ii) a first plurality of fuses, each of which is secured to

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a separate one of the current supply sockets and is retained within the fuse bar and

(iii) first means, disposed within the fuse bar, for retaining the plurality of fuses within the fuse bar,

(b) a first jumping bar, contained within the housing and connected to the electrical ground connection of the power source and to each electrical ground socket, and

(c) a second jumping bar, contained within the housing and connected to the neutral connection of the power source and to each electrical neutral socket.

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ELECTRIC CONNECTION STRUCTURE BETWEEN CIRCUIT BOARDS

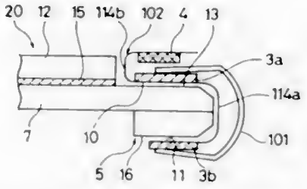
Shinichi Sugimoto, Tenri, and Hisao Kawaguchi, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 27, 1992, Ser. No. 858,489

Claims priority, application Japan, Mar. 28, 1991, 3-64539

Int. Cl.[5] H01R *9/09*

U.S. Cl. 439—67 **20 Claims**



1. An electric connection structure comprising:

a first circuit board having a terminal on one side thereof and terminal free sides;

a second circuit board having a terminal on one side thereof and terminal free sides with said first and second circuit boards being in face-to-face contact with each other at said terminal free sides;

a flexible wiring device having a flexible base and a wiring portion on said base said flexible wiring device located to electrically connect the terminal of said first circuit board with the terminal of said second circuit board; and

holding means, for removably clamping said first and second circuit boards together with said wiring portion of said flexible wiring device sandwiched by said holding means and said first and second circuit boards.

5,209,672

TWO-PIECE CONNECTOR AND METHOD OF PRESS-CONNECTING FLAT CABLES TOGETHER

Mutsuo Hatanaka, Tama, Japan, assignor to KEL Corporation, Tokyo, Japan

Continuation of Ser. No. 617,312, Nov. 23, 1990, abandoned, which is a division of Ser. No. 493,251, Mar. 14, 1990, Pat. No. 5,017,149. This application Nov. 20, 1991, Ser. No. 798,039

Claims priority, application Japan, Mar. 18, 1989, 1-66529

Int. Cl.[5] H01R *13/62*

U.S. Cl. 439—157 **19 Claims**

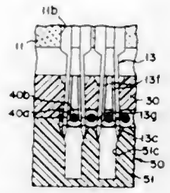
1. A method of press-connecting a flat cable, comprising the steps of:

forming a receptacle body by inserting press-type contacts into a plurality of holes formed in an insulator having upper and lower faces joined by end faces and projections protruding from the end faces, such that press-contacting portions of said press-type contacts project from said insulator;

placing a second cover in grooves formed in a press-contact jig, said cover having engaging frame portions on both end portions, and cable locating grooves in one surface;

placing a flat cable in said cable locating grooves of said second cover supported on said press-contact jig, said flat cable comprising a layer made of electrically insulating material and a plurality of parallel insulated cores embedded in the layer;

placing a first cover such that said engaging frame portions of said second cover are fitted in guiding grooves formed in both end portions of the first cover, and that cable locating grooves made in that surface of the first cover which opposes the said second cover oppose the flat cable, said first cover having a plurality of holes for receiving the press-contacting portions and aligning the press-contacting portions with respective cable locating grooves;



engaging said engaging frame portions of said second cover with the projections of said receptacle insulator thereby preliminarily clamping the flat cable with the insulated cores aligned by the respective cable locating grooves with the respective press-contacting portion receiving holes, and inserting the press-contacting portions of said press-type contacts into the holes of said first cover; and

cutting the layer of said flat cable by said press-contacting portions of said press-type contacts by pushing said receptacle body towards said second cover, thereby electrically connecting said cores with the press-contacting portions of said press-type contacts.

5,209,673

SUBSEA ELECTRICAL CONDUCTIVE INSERT COUPLING

Frank Mohn, Fjosanger, and Bjorn G. Bjornsen, Sandnes, both of Norway, assignors to Framo Developments (UK) Limited, London, England

PCT No. PCT/GB90/00082, § 371 Date Sep. 13, 1991, § 102(e) Date Sep. 13, 1991, PCT Pub. No. WO90/08406, PCT Pub. Date Jul. 26, 1990

PCT Filed Jan. 18, 1990, Ser. No. 721,626

Claims priority, application United Kingdom, Jan. 18, 1989, 8901096

Int. Cl.[5] H01R *4/60*

U.S. Cl. 439—199 **24 Claims**

1. An apparatus for electrically coupling together a subsea installation and a subsea module landed on said subsea installation, said apparatus comprising:

a first receiver mounted on said module;

a first electrical terminal set in said first receiver;

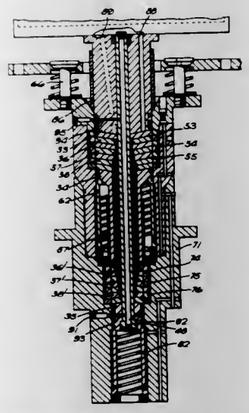
a second receiver mounted on said installation;

a second electrical terminal set on said second receiver;

an insert stab mandrel;

a spaced pair of electrical terminal sets on said insert stab mandrel;

means carried by said insert stab mandrel electrically connecting together respective terminals of said spaced pair of electrical terminal sets, said first and second receivers each being adapted to receive said insert stab mandrel therein with each of said spaced pair of electrical terminal sets located in electrical contact with a respective one of said first and second terminal sets, thereby providing electrical connection between said first and second electrical terminal sets, and



means for moving said insert stab mandrel into and out of said receivers independently of movement of said subsea installation and said subsea module.

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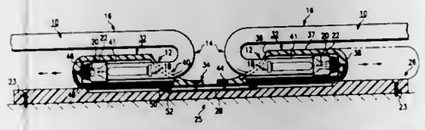
END-TO-END NEON TUBE CONNECTOR

Ronald A. Foster, 1330 Deer Ridge, Duncanville, Tex. 75135, and Ruben A. Reyes, 3527 Rio Grande Cir., Dallas, Tex. 75233

Continuation-in-part of Ser. No. 788,148, Nov. 6, 1991, abandoned. This application Feb. 6, 1992, Ser. No. 831,007

Int. Cl.[5] H01R *33/02*

U.S. Cl. 439—235 **14 Claims**



1. A connector assembly for a pair of neon tubes supported in an end-to-end manner, each of the tubes having a reversely bent end, comprising:

a support base formed of insulating material;

an electrical conducting strip supported in the support base; and

first and second electrode housings supported in opposed relation, each of the electrode housing slidably mounted on the support base and including a spring-biased contactor connectable with the electrical conducting strip when the electrode housing is located in a first position and disengaged from contact with the electrical conducting strip when the electrode housing is located in a second position, wherein when both the first and second electrode housings are in their first positions an electrical connection between the neon tubes is completed and wherein when either the first or second electrode housing is reciprocated on the support base from the first position to the second position the spring-biased contactor in the reciprocated electrode housing is disengaged from contact with the electrical conducting strip to thereby interrupt the electrical connection between the neon tubes.

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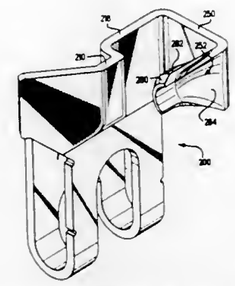
ELECTRONIC MODULE SOCKET WITH RESILIENT LATCH

Iosif Korsunsky, Harrisburg, Pa., assignor to The Whitaker Corporation, Wilmington, Del.

Continuation of Ser. No. 724,683, Jul. 2, 1991, abandoned. This application Oct. 19, 1992, Ser. No. 963,248

Int. Cl.[5] H01R *13/62*

U.S. Cl. 439—326 **28 Claims**



1. A socket for interconnecting an electronic module to a circuit board, the socket comprising:

an insulative housing, having a module receiving recess which extends from proximate one end of the housing to proximate the opposite end of the housing;

a plurality of terminals positioned within the insulative housing, the terminals being configured to establish electrical contact with the module upon rotation of the module from a first position to a second position, the terminals applying a moment to the module when the module is in the second position;

a separate resilient latching means, located proximate one end of the housing, for holding the module in the second position and resisting the moment applied to the module by the terminals;

the resilient latching means has an integral wedge portion and an integral securing tab, the wedge portion deflects as the electronic module is rotated between the first position and the second position, the securing tab extends in a direction which is essentially perpendicular to the longitudinal axis of the module receiving recess and is positioned in an opening in the electronic module when the electronic module is provided in the second position to prevent the electronic module from being improperly removed from the socket when the electronic module is in the second position.

5,209,676

CONNECTOR WITH TERMINAL RETAINER

Takayoshi Endo; Sakai Yagi; Masanori Tsuji, and Motohisa Kashiyama, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Mar. 24, 1992, Ser. No. 856,739

Claims priority, application Japan, Mar. 26, 1991, 3-018476[U]

Int. Cl.[5] H01R *13/436, 13/40*

U.S. Cl. 439—595 **8 Claims**

1. A connector comprising:

a plurality of metal terminals;

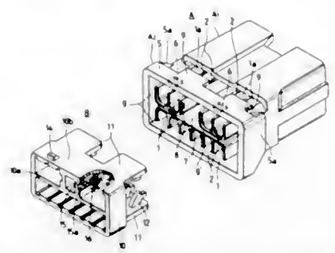
a connector housing for receiving said metal terminals therein;

a terminal holder movably engaged with said connector housing in two steps, provisionally and completely, said terminal holder including a plurality of flexible deformable plates each of which has a terminal retaining member, each of said flexible deformable plates being deflected to allow an insertion and withdrawal of a corresponding metal terminal in the provisionally-connected condition,

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and said terminal retaining member urging and fixing said corresponding metal terminal in the completely-connected condition, said deflection of each of said deformable plates for permitting withdrawal of said corresponding metal terminal being caused by an external jig inserted into said terminal holder; and

means for preventing an excessive deflection of each of said flexible deformable plates by said jig.

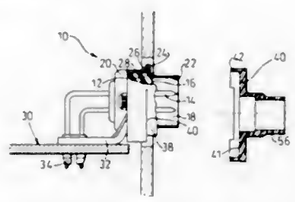


5,209,677

SHIELDED ELECTRICAL CONNECTOR ELEMENT

Hervé Bricaud, Dole, France, assignor to ITT Composants et Instruments, Hagneux, France

Filed Apr. 16, 1992, Ser. No. 869,754
Claims priority, application France, Apr. 30, 1991, 9105306
Int. Cl.[5] H01R *13/648*
U.S. Cl. 439—607 3 Claims



1. An electrical conductor element (10) of the type comprising an insulating block (12) which has a front region and which receives electrical contact elements (14) that extend through the insulating block, and a metal shielding cover which at least partially surrounds said front region of said insulating block and which is designed to be joined with the corresponding part of a complementary connector element, characterized in

said connector element comprises a cap (36) of insulating material which is attached to the front part (18) of the said shielding cover;

said metal shielding cover comprises a front half-shell (18) and a rear half-shell (20), with said insulating cap (36) surrounding said front half-shell (18);

said front half-shell (18) comprises an axial, skirt-shaped portion (22) which extends substantially from the front face (16) of the insulating block (12) to surround the connection region of the electrical contact elements (14) and a radial, plate-shaped portion (24) which extends in a plane perpendicular to the axes of the electrical contact elements, said plate-shaped portion (24) being connected to a complementary plate (26) of the rear half-shell (20), and said insulating cap (36) comprises axial, skirt-shaped (38) and radial, plate-shaped (40) parts which surround corresponding parts of the front half-shell (18);

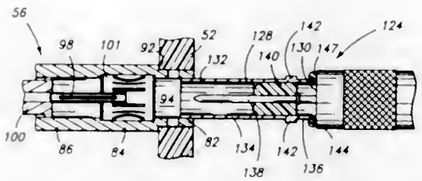
said plate-shaped radial part (40) of said insulating cap (36) comprises a rear axial edge (42) which surrounds the peripheral edges of the radial portions (24, 26) of the front half-shell (18) and of the rear half-shell, and said axial edge (42) comprises radial lugs (44) for fastening the cap (36) which interact with the rear face of the plate-shaped portion (26) of the rear half-shell (20).

5,209,678

TELECOMMUNICATIONS FRONT ACCESS COAXIAL JACK AND PLUG ASSEMBLY WITH RELEASABLE LOCKING FEATURE

Brian J. Allen, Spokane, and Duane B. Kutsch, Otis Orchards, both of Wash., assignors to Telect, Inc., Liberty Lake, Wash.

Filed Jan. 9, 1992, Ser. No. 818,699
Int. Cl.[5] H01R *13/625*
U.S. Cl. 439—672 8 Claims



1. A telecommunication front access cross connect jack module and plug assembly, comprising:

a front panel having a plurality of front access apertures;

a rear panel having a plurality of rear coaxial connectors;

a plurality of coaxial jacks aligned with corresponding front panel access apertures;

each of the coaxial jacks having a jack housing with an elongated barrel comprising (1) a forward barrel section projecting into a corresponding front panel access apertures, (2) an intermediate barrel section rearward of the front panel, and (3) a rear barrel section rearward of the front panel;

said forward barrel section having a front surface substantially flush with the front panel access aperture;

said jack housing barrel having an elongated plug receiving cylindrical cavity formed therein extending along a cavity axis from a front access opening formed in the forward barrel section rearward through the intermediate barrel section and into the rear barrel section;

each of the coaxial jacks having a female electrically conductive connector element mounted coaxially in the cylindrical cavity at the rear barrel section;

each of the coaxial jacks having a plug grounding element projecting into the cylindrical cavity at the intermediate barrel section;

said forward barrel section having a releasable bayonet locking groove formed therein communicating with the cylindrical cavity forward of the intermediate barrel section;

a coaxial plug having a plug housing with a projecting elongated sleeve for insertion into the plug receiving cylindrical cavity of the barrel;

said coaxial plug having a male electrically conductive connector element coaxially mounted in the sleeve for mating with the female coaxial connector element of the jack when the sleeve is fully inserted into the barrel cavity;

said plug sleeve having (1) a rear sleeve section for projecting into the forward section of the jack housing, (2) an intermediate sleeve section for projecting into the intermediate jack housing section and engaging the grounding element to electrically ground the sleeve, and (3) a forward sleeve section for projecting into the rear jack housing section with the male connector element mating with the female connector element to transmit telecommunication electrical signals; and

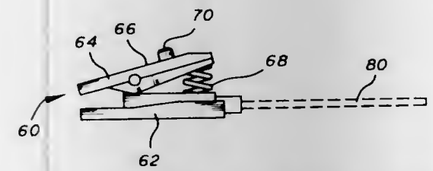
said rear sleeve section having a bayonet prong formed thereon for projecting into the bayonet groove of the forward barrel section to releasable secure the plug to the front panel to prevent unintentional release of the plug from the front panel.

5,209,679

ADAPTIVE MEDICAL ELECTRODE CONNECTOR WITH MALE STUD

Donald P. Quinlan, Orchard Park, N.Y., assignor to Graphic Controls Corporation, Buffalo, N.Y.

Continuation of Ser. No. 749,543, Aug. 23, 1991, abandoned.
This application May 15, 1992, Ser. No. 884,613
Int. Cl.[5] H01R *4/48*
U.S. Cl. 439—822 6 Claims



1. A disposable medical electrode connector for releasably and electrically connecting either (a) a thin, flexible, disposable, studless, tab-type medical electrode or (b) a medical electrode having a male stud, the electrode secured on the skin of a patient, to a monitor either through a lead cable or through a conventional female couple and lead wire assembly, said disposable medical electrode connector being entirely separate from the electrode, connected to the electrode and not the patient, and comprising:

a base having an electrically conducting portion;

a top having a top surface and an electrically conducting portion facing said electrically conducting portion of said base;

means disposed between said base and said top for mechanically forcing said electrically conducting portion of said base toward said electrically conducting portion of said top to mechanically and electrically engage, between said electrically conducting portion of said base and said electrically conducting portion of said top, either the tab of a tab-type medical electrode or the male stud of a medical electrode having a male stud;

means for electrically connecting a lead cable to said electrically conducting portion of said base, the lead cable being attached to a monitor; and

a male stud electrically connected to said electrically conducting portion of said top and integrally formed with and projecting from said top surface of said top for mechanically and electrically engaging a conventional female couple and lead wire assembly, said assembly being attached to said monitor.

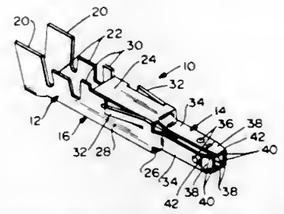
5,209,680

MALE ELECTRICAL TERMINAL WITH ANTI-OVERSTRESS MEANS

Rupert J. Fry, Des Plaines, Ill., assignor to Molex Incorporated, Lisle, Ill.

Filed Jan. 10, 1992, Ser. No. 819,422
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—825 11 Claims

1. In a male electrical terminal stamped and formed from sheet metal material and including a rear terminating portion and a front mating portion, the mating portion being formed by at least three cantilevered beams extending forward from said rear portion to allow inward flexing movement of the beams relative to each other, wherein the improvement comprises anti-overstress portions formed at the free ends of the cantilevered beams positioned and configured relative to each other such that a surface of each anti-overstress portion is engageable with a longitudinally extending edge of at least another anti-overstress portion when any beam is over-flexed inwardly to provide complementarily interengaging anti-overstress means between the beams.

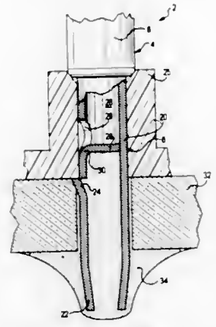


5,209,681

ELECTRICAL CONTACT WITH THE ANTI-SOLDER WICKING TAB

Garry L. Brown, Kernersville, N.C., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 26, 1992, Ser. No. 858,192
Int. Cl.[5] H01R *4/02*
U.S. Cl. 439—876 11 Claims



1. An electrical terminal comprising:

a mating portion and a mounting portion, the mounting portion has a passage which extends from proximate an end thereof toward the mating portion;

a tab is provided in the mounting portion to completely block the passage, the tab is dimensioned to be slightly larger than the passage, such that as the tab is placed in engagement with the inner wall of the mounting portion, the tab will deform;

whereby as the terminal has solder positioned on the mounting portion, the tab will prevent the solder from flowing through the passage from the mounting portion to the mating portion.

5,209,682

SPEED AND DIRECTION INDICATOR FOR SHIPS

Ulrich Duning, Koblenz; Reinhold Knecht, Rhens, and Siegfried Lais, Spay, all of Fed. Rep. of Germany, assignors to Schottel-Werft Josef Becker GmbH & Co. KG, Spay, Fed. Rep. of Germany

Filed Jan. 31, 1991, Ser. No. 648,595
Int. Cl.[5] B63H *25/42*; G06F *15/50*
U.S. Cl. 440—2 13 Claims

1. A speed and direction indicator for a ship having first and second drive means, each for steering and propelling said ship, comprising

first steering response means operatively connected to said

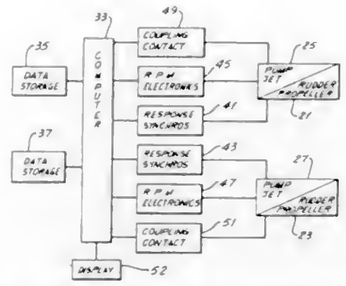
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first drive means for producing signals indicative of the steering effect of said first drive means on said ship,

second steering response means operatively connected to said second drive means for producing signals indicative of the steering effect of said second drive means on said ship,

first propulsion response means operatively connected to said first drive means for producing signals indicative of the propelling effect of said first drive means on said ship,

second propulsion response means operatively connected to said second drive means for producing signals indicative



of the propelling effect of said second drive means on said ship,

computer means operatively connected to said first and second steering response means and to said first and second propulsion response means for computing the resultant steering and propulsion effect of said first and second drive means on said ship, and

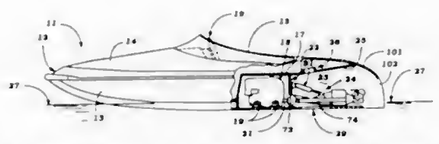
optical display means operatively connected to said computer means for providing a graphic display of the effect of said first and second drive means on the steering and propulsion of said ship.

5,209,683

REMOVABLE JET PROPULSION UNIT FOR WATERCRAFT

Hirofumi Imaeda, and Yoshiki Futaki, both of Iwata, Japan, assignors to Yamaha Hatsoduki Kabushiki Kaisha, Iwata, Japan

Filed Jul. 17, 1991, Ser. No. 731,538
Claims priority, application Japan, Jul. 17, 1990, 2-189174
Int. Cl.[5] B63H *11/00*
U.S. Cl. 440—38 13 Claims



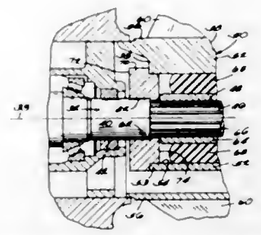
1. A water jet propelled boat comprised of a hull defining a tunnel at the rear under side thereof, said tunnel being defined between a pair of side walls and a top wall, a jet propulsion unit mounted within said tunnel for propelling said boat, the transom of said hull having a portion extending in a fixed position between said side and top walls for substantially closing the rear of said tunnel and defining a relatively small fixed opening at the lower portion thereof through which the jet propulsion unit may be removed from within said hull so as to provide a relatively rigid transom of the jet propelled boat.

5,209,684

MARINE PROPULSION DEVICE

Martin J. Mondek, Wonder Lake, and Lawrence E. Zdanowicz, Waukegan, both of Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Jul. 1, 1991, Ser. No. 726,157
Int. Cl.[5] B63H *5/06*
U.S. Cl. 440—83 10 Claims



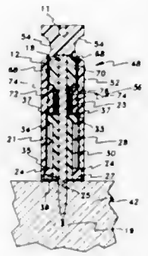
1. A marine propulsion device comprising a lower unit, a propeller shaft rotatably supported by said lower unit and adapted to be driven by an engine and including a longitudinal axis, a forward, generally cylindrical surface, a rearward, generally cylindrical surface, and a shoulder surface which is intermediate said forward and rearward cylindrical surfaces and which is substantially normal to said axis, a propeller supported by said propeller shaft and including a hub having a forward transverse surface and a forwardly located inner cylindrical surface, and a thrust washer engaged between said forward transverse surface of said hub and said shoulder surface of said propeller shaft for transmitting thrusting force from said propeller to said propeller shaft, engaged between said inner cylindrical surface of said hub and said forward cylindrical surface of said propeller shaft for transmitting bending force from said propeller to said propeller shaft, and spaced from said rearward cylindrical surface of said propeller shaft to prevent transmission of bending force from said propeller to said propeller shaft through said second cylindrical surface.

5,209,685

ICE LIFESAVING DEVICE

Robert B. Hammes, 2910 Knollcrest Dr., Burlington, Wis. 53105

Filed Mar. 18, 1992, Ser. No. 853,143
Int. Cl.[5] B63C *9/32*
U.S. Cl. 441—82 8 Claims



1. An ice lifesaving device comprising:

at least one ice piercing device which includes:

a substantially vertically directed outer casing forming a hand gripping handle;

at least one elongated, vertically disposed recessed area on an outer surface of said hand gripping handle to facilitate hand gripping of said handle;

a pair of grooves on said outer surface of said handle

disposed above said elongated, vertically disposed recessed area to facilitate gripping of said handle by a thumb and index finger under adverse conditions;

a pick having an upper end secured within a cylinder located at a top portion of said casing;

said casing having a first axially aligned inner bore therein encompassing said cylinder and having a first diameter, and a second counterbore axially aligned with and connected to said first inner bore, said second counterbore having a diameter greater than said first diameter, said first inner bore having an upper and lower end;

a molded floatation plug inserted into said first inner bore to increase buoyancy of said casing, said floatation plug having a third bore therein to receive said cylinder and means to engage fins formed between said first inner bore and said cylinder to retain said floatation plug within said first inner bore;

a pick guard positioned below the molded floatation plug for reciprocation within said first inner bore, said pick guard having a passage extending therethrough and being reciprocably mounted on the pick;

a frusto-conical member formed on the cylinder intermediate the upper and lower end of the first inner bore;

a spring encircling the pick and interposed between the frusto-conical member and the guard for normally urging the guard downwardly;

means within the casing for limiting the downward travel of the guard; and

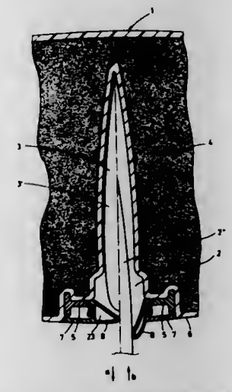
said pick having an ice piercing pointed nose at its lower end.

5,209,686

SEALING LIP OF PLASTIC FOR THE INLET OPENING FOR THE DAGGER BOARD HOUSING AND DAGGER BOARD, PARTICULARLY OF SAILBOARDS

Marc Namur, Darmstadt, Fed. Rep. of Germany, assignor to Schutz-Werke GmbH & Co. KG, Selters, Fed. Rep. of Germany

Filed Sep. 9, 1991, Ser. No. 756,967
Claims priority, applicatioo Fed. Rep. of Germany, Sep. 8, 1990, 9012804[U]
Int. Cl.[5] B63B *35/79*
U.S. Cl. 441—79 3 Claims



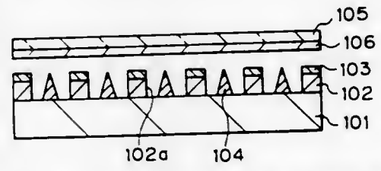
1. A lip seal assembly for a bottom closure of an inlet opening in a board hill for dagger board housing and dagger board, comprising: one mounting strip of a hard synthetic resin attached respectively on each side of the inlet opening in the board hull and being flush with the profile of the hull, and a sealing lip of an elastic synthetic resin, manufactured together with said mounting strip as an extruded profile, said sealing lips forming an clastic closure for the inlet opening for the dagger board housing and the dagger board, as well as with a supporting strip of a synthetic resin countersunk into the board hull on each side of the inlet opening and fastened to said board hull, for fixedly clamping a mounting strip with a sealing lip, said mounting strip having an L-profile, and including one long leg adjoining one short leg, and one perpendicular bent-away clamping leg formed at an end edge of the long leg and another perpendicularly bent away clamping leg formed at an end edge of the short leg, said sealing lip adjoining said long leg of the mounting strip being shaped, on a longitudinal side facing away from the mounting strip, into a rounded sealing edge passing over into an elastic support leg, said supporting leg being oriented obliquely upwardly and being attached to a terminal edge of the short leg and constituting with said short leg and with said sealing lip an elastic hollow-profile strip; and said mounting strip being fixedly clamped with said clamping legs onto the supporting strip.

5,209,687

FLAT PANEL DISPLAY APPARATUS AND A METHOD OF MANUFACTURING THEREOF

Morikazu Konishi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 815,061, Dec. 30, 1991. This application Jun. 23, 1992, Ser. No. 902,736
Claims priority, application Japan, Dec. 28, 1990, 2-417501; Dec. 28, 1990, 2-417502
Int. Cl.[5] H01J *9/02*
U.S. Cl. 445—6 5 Claims



1. In a method of manufacturing a flat panel display apparatus in which a plurality of cone-shaped cathodes having rounded tips of differing radius of curvature are formed on a conductive substrate opposite a fluorescent screen, the improvement comprising the steps of:

applying a predetermined voltage to said plurality of cathodes after the plurality of cathodes are formed, said predetermined voltage having a polarity opposite to that which is applied for operation of the flat panel display; and

causing a field evaporation from tips of the plurality of cathodes until all of the rounded tips of the cathodes have a substantially same radius of curvature.

5,209,688

PLASMA DISPLAY PANEL

Susumu Nishigaki; Syozo Ohtomo; Rikiya Kamimura, and Kazunari Tanaka, all of Nagoya, Japan, assignors to Narumi China Corporation, Aichi, Japan

Division of Ser. No. 451,335, Dec. 15, 1989, abandoned. This application Mar. 20, 1991, Ser. No. 672,765
Claims priority, application Japan, Dec. 19, 1988, 63-321590; Dec. 19, 1988, 63-321591; Dec. 19, 1988, 63-321592; Feb. 22, 1989, 1-42790
Int. Cl.[5] H01J *9/02*
U.S. Cl. 445—24 15 Claims

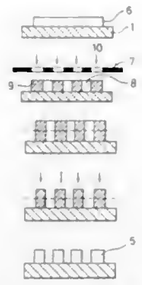
1. In a process for producing a plasma display panel comprising a pair of insulating substrates with a predetermined space therebetween; a group of anode electrodes and a group of cathode electrodes formed on an inner side of each of said insulating substrates in such a manner that said groups of anode and cathode electrodes are normal to each other; and barriers formed on said insulating substrate which has said anode electrodes formed thereon, the improvement comprising said barri-

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ers being formed by a photolithography process using an ultraviolet-curable resin comprising the steps of:

(1) applying a slip comprising an ultraviolet-curable resin and ceramic powder for forming said barrier onto said insulating substrate or said insulating substrate having said electrodes, thereby forming a coating layer;

(2) exposing portions of said coating layer to ultraviolet light through a mask in such a pattern as to correspond to a pattern of said barriers, thereby curing said ultraviolet-curable resin;



(3) repeating steps (1) and (2) at least once and until the thickness of said coating layer reaches the desired thickness;

(4) developing the exposed portions of said coating layer and removing the unexposed portions to form said pattern of said barriers; and

(5) firing said exposed portions to form said barriers, whereby the developing and firing steps are not performed until the coating has reached the desired thickness.

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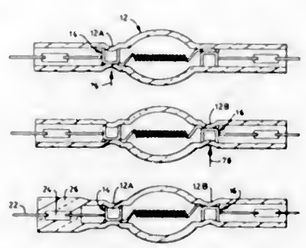
METHODS FOR MOUNTING FILAMENTS IN TUBULAR INCANDESCENT LAMP CAPSULES

Robert M. Griffin, Hamilton; Peter R. Gagnon, Topsfield; Stephen J. Leadvaro, Salem, and Roy C. Martin, Peabody, all of Mass., assignors to GTE Products Corporation, Danvers, Mass.

Filed Dec. 27, 1991, Ser. No. 814,739

Int. Cl.[5] H01J *9/26*

U.S. Cl. 445—27 **13 Claims**



1. A method for making a double-ended incandescent lamp capsule having an elongated lamp envelope comprising a central region, first and second seal regions in each end thereof, a first filament-support region between said first seal region and said central region, and a second filament-support region between said second seal region and said central region, said method comprising the steps of:

positioning a filament assembly within said lamp envelope, said filament assembly comprising a filament and first and second filament supports attached to each end of said filament, such that said filament is within said central region of said lamp envelope, said first filament support is within said first filament-support region of said lamp envelope, and said second filament support is within said second filament-support region of said lamp envelope;

heating said first filament-support region of said lamp envelope sufficiently to cause said first filament-support region to deform into contact with said first filament support so as to securely retain said first filament support within said lamp envelope; and

sealing said lamp envelope by closing at least one of said seal regions of said lamp envelope.

5,209,690

METHOD OF VAPOR DESPOSITING AN INTERFERENCE FILTER LAYER ON THE INSIDE OF A DISPLAY WINDOW, A DISPLAY WINDOW, A PROJECTION CATHODE RAY TUBE AND A PROJECTION TELEVISION APPARATUS

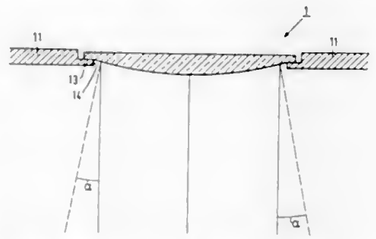
Leendert Vriens; André van der Voort, and Antonius P. van de Langenberg, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 403,542, Sep. 5, 1989, abandoned. This application Jul. 20, 1992, Ser. No. 917,731

Claims priority, application Netherlands, Sep. 8, 1988, 8802210

Int. Cl.[5] H01J *9/22*

U.S. Cl. 445—52 **14 Claims**



1. A method of manufacturing a projection cathode ray tube comprising a display window, the method comprising vapour depositing a multilayer interference filter on an inside surface of the display window, characterized by surrounding the display window with an edge having a height above the inside surface which is from about 1/10 to about 1/5 of the minimum distance between the centre and the edge of the display window.

5,209,691

CHILDREN'S TOY AND GARMENT

Penny Ekstein, 577 Second Ave., New York, N.Y. 10016

Filed May 14, 1992, Ser. No. 882,881

Int. Cl.[5] A63H *33/00;* **A63B** *69/00*

U.S. Cl. 446—28 **18 Claims**

1. A child's toy comprising:

a padded front body panel for covering the front of a child,

two sleeves having padded boxing mitts for said child's hands,

elastic material drawing said sleeves toward said padded front body panel,

said padded front body panel comprising first and second fabric layers enclosing a shock absorbing padding material having a thickness of greater than about one inch and having, on one of said layers of fabric, a rendering of a boxer, said rendering comprising a brightly colored and quilted demarcation of the facial features of said boxer,



including a protruding nose containing a sound making device.

5,209,693

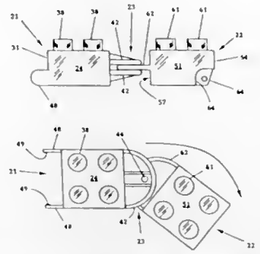
TOY BLOCK SET WITH DIVERSE FLEXIBLE CONNECTORS ON OPPOSING ENDS

Ronald L. Lyman, Folsom, Calif., assignor to Fantasy Toys, Inc., Berkeley, Calif.

Filed Feb. 3, 1992, Ser. No. 829,302

Int. Cl.[5] A63H *33/12, 33/06, 33/08;* **F16D** *1/12*

U.S. Cl. 446—104 **15 Claims**



1. A toy building block set having a plurality of interlockable blocks including a first block and a second block; each of said first and second blocks having opposite principal faces, opposite sides and opposite ends, an array of projections which extend outward from one of said principal faces and a matching array of sockets which extend inward from the other of said principal faces, said projections and sockets having configurations which enable engagement of the block with other blocks which have similar projections and sockets; wherein the improvement comprises:

said first and second blocks having first pivotable engagement means for temporarily fastening said first and second blocks together in an end to end relationship and which enables alignment of said first and second blocks and also enables sideward pivoting of said first block relative to said second block away from an aligned condition in each of two opposite directions, said pivoting being about a first pivot axis that extends in a direction that is orthogonal to said principal faces of said blocks.

5,209,692

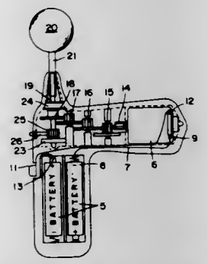
COMBINATION, A NOVELTY TOY AND A CANDY HOLDING DEVICE

Thomas J. Coleman, 89 Winding Way Rd., Bristol, Va. 24201, and William K. Schlotter, IV, 175 Toluca Rd., Stafford, Va. 22554

Filed Jan. 8, 1992, Ser. No. 818,127

Int. Cl.[5] A63H *33/00, 1/00, 1/06;* **A47B** *91/00*

U.S. Cl. 446—71 **8 Claims**



1. A novelty candy holding device in combination with a piece of candy supported on a stick which comprises;

a housing,

an electrical source in said housing,

an electric motor in said housing,

an electrical circuitry including said electrical source for operating said electric motor,

a switch means in said electrical circuitry for controlling current to said electric motor,

a spindle shaft including first and second ends, each of which are confined and supported within said housing,

a gearing system in said housing in operative conjunction with said electric motor which rotates said spindle shaft,

said second end of said spindle shaft engaging one end of said stick upon which the piece of candy is supported.

5,209,694

COMBINED FASHION DOLL AND DOLL SUPPORT

William W. Utt, Jr., 1719 Shenandoah Heights Rd., Front Royal, Va. 22630

Filed Feb. 26, 1992, Ser. No. 841,501

Int. Cl.[5] A63H *3/00*

U.S. Cl. 446—73 **5 Claims**

1. In combination:

[i] a doll representing the human figure in a three dimensional form, said doll comprising;

a body with upper extremities, lower extremities, and head attached, said doll having a maximum dimension of 15 inches;

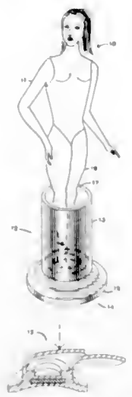
[ii] a doll support comprising:

a tubular receptacle portion, said tubular receptacle portion having a first end and a second end, said first end including an aperture, said aperture adapted to receive and allow passage therethrough at least a portion of the lower extremities of said doll, said second end adapted to be mounted on a base portion, said tubular receptacle portion having an uninterrupted circumference and comprised of a resilient material; and

said base portion extends from proximal said second end

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transverse to the longitudinal axis of said tubular receptacle portion to a base perimeter;

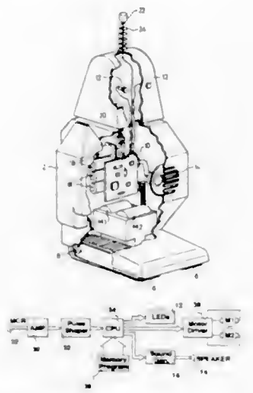


wherein said base portion has sufficient moment of inertia about axes transverse to said longitudinal axis to resist overturning of said doll.

5,209,695
SOUND CONTROLLABLE APPARATUS PARTICULARLY USEFUL IN CONTROLLING TOYS AND ROBOTS

Omri Rothschild, 4 Abraham Lev Street, 64 283 Tel Aviv, Israel

Filed May 13, 1991, Ser. No. 699,015
Int. Cl.[5] A63H *30/00, 30/04*
U.S. Cl. 446—175 12 Claims

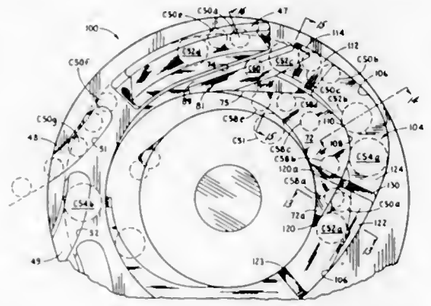


8. A toy robot comprising:
a drive for driving the robot over a surface;
a microphone carried by the robot for receiving different sound commands;
a processor for analyzing the received sound commands and for determining the number of interrupted sounds in a received sound command;
said processor including means for measuring the time of interruption between the received sounds and means for determining that the end of a sound has occurred if the interruption is above a first predetermined time period, and that the end of a command has occurred if the interruption is above a second, larger, predetermined time period;
and control system for controlling said drive in accordance with the number of interrupted sounds in the received sound command.

5,209,696
COIN SORTING MECHANISM

James M. Rasmussen, Chicago; Joseph J. Geib, Des Plaines, and Douglas U. Mennie, Barrington, all of Ill., assignors to Cummins-Allison Corp., Mt. Prospect, Ill.

Continuation of Ser. No. 614,611, Nov. 13, 1990, Pat. No. 5,106,338, which is a continuation-in-part of Ser. No. 323,271, Mar. 14, 1989, Pat. No. 5,009,627. This application Jan. 30, 1992, Ser. No. 828,375
Int. Cl.[5] G07D *3/06*
U.S. Cl. 453—10 8 Claims

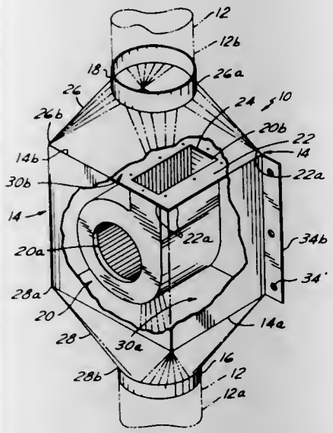


1. A coin sorter for sorting coins, including coins of at least first and second denominations, in terms of their denomination, wherein said first denomination defines coins which are thicker and wider than the coins of the second denomination, the sorter comprising:
a rotatably mounted coin-carrying disc having a resilient surface onto which coins may be fed;
means for rotating said disc;
a guide plate having a central opening and a configured surface positioned closely adjacent to said disc and over said resilient surface, wherein said configured surface includes:
inner recess means for receiving coins of all denominations from the central opening and allowing the coins to move radially outward,
a coin-path area, having a first recessed region which receives the outwardly moving coins and having a second recessed region which receives coins from the first recessed region, said first recessed region including an area that is less shallow than said second recessed region,
a coin-stripping region bordered by a coin-guiding wall which is arranged adjacent said second recessed region;
wherein nonstacked coins of the first denomination move through the second recessed region under pressure by the resilient surface along said coin-guiding wall, and stacked coins of the first denomination which are in the second recessed region are moved to the coin-guiding wall where said stacked coins are unstacked such that one of said stacked coins is moved to the coin-stripping region while another of said stacked coins is engaged against said coin-guiding wall.

5,209,697
BLOWER SYSTEM FOR A DUCT

Donald P. Hurst, 21179 Panama, Warren, Mich. 48091, and Billy H. Finley, 6412 Genaw, Algonac, Mich. 48001

Filed Feb. 10, 1992, Ser. No. 832,967
Int. Cl.[5] F24F *7/06;* F24C *15/20*
U.S. Cl. 454—341 3 Claims

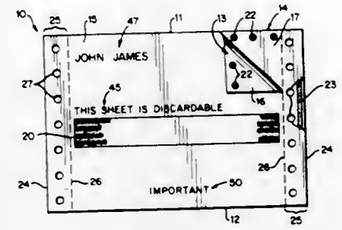


1. A blower system for being connected with a duct, the duct having a first portion and a second portion, said blower system comprising:
a housing having a first end and a second end;
an inlet adapter having a first end and a second end, said first end of said inlet adapter being sealably connected with said first end of said housing, said second end of said inlet adapter being structured to form an inlet port for sealably connecting to the first portion of the duct;
an outlet adapter having a first end and a second end, said first end of said outlet adapter being sealably connected with said second end of said housing, said second end of said outlet adapter being structured to form an outlet port for sealably connecting to the second portion of the duct, said outlet adapter having a shape that is aerodynamically tapered smoothly between said second end of said housing and said outlet port;
a baffle sealably connected to said second end of said housing, said baffle having an aperture defined by a perimeter, said baffle providing an air inlet chamber on one side thereof which fluidically communicates with said inlet port, said baffle further providing an air outlet chamber on the other side thereof which fluidically communicates with said outlet port;
a standard totally enclosed high capacity centrifugal blower located within said inlet chamber, said blower having at least one air inlet fluidically connected with said inlet chamber and one air outlet, said air outlet having an air passage and a mounting structure adjacent said air passage for providing mounting of said blower to said baffle at said perimeter of said aperture so as to provide fluidic connection of said air outlet with said outlet chamber, said aperture and said air passage having substantially identical dimensions; and
electrical connection means for providing connection of said blower means to a source of electrical power;
wherein said shape of said outlet adapter provides minimal air back pressure at said outlet port when said blower is actuated.

5,209,698
PIGGYBACK LABEL WITH CF OR SELF-CONTAINED COATING

David J. Dolan, Goffstown, N.H., assignor to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Jan. 30, 1992, Ser. No. 828,175
Int. Cl.[5] B41L *1/20*
U.S. Cl. 462—17 20 Claims

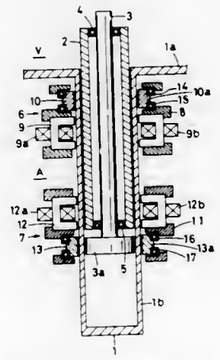


1. A business form comprising:
top and bottom sheets of printable material, each having a top surface and a bottom surface, and releasably retained together with said top sheet substantially coextensive with and covering said bottom sheet, with said top sheet bottom face abutting said bottom sheet top face;
a label affixed to the top surface of said bottom sheet, said label having dimensions significantly less than the dimensions of said top and bottom sheets;
blockout printing provided on said top sheet top surface, said blockout printing substantially overlapping said label; and
carbonless imaging means for imaging on label characters formed on said blockout printing.

5,209,699
MAGNETIC DRIVE DEVICE

Taisaku Hashimoto, Kasbiwara; Sbigemi Miki; Hiroshi Ii, both of Yokohama, and Ryuji Sugimoto, Tokyo, all of Japan, assignors to Koyo Seiko Co., Ltd and Anelva Corporation, both of Japan

Filed Feb. 21, 1992, Ser. No. 838,696
Claims priority, application Japan, Feb. 26, 1991, 3-30912; Feb. 26, 1991, 3-30913
Int. Cl.[5] F16D *27/00;* H02K *7/02;* B25J *11/00*
U.S. Cl. 464—29 6 Claims

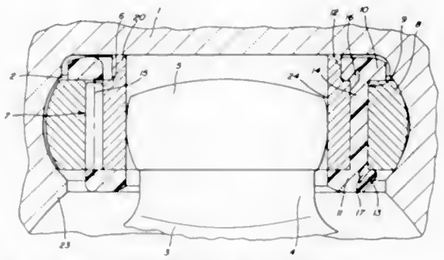


1. A magnetic drive device comprising a hollow cylindrical outer rotor, an inner rotor inserted in the outer rotor so as to project at least at one end thereof beyond an end of the outer rotor and supported rotatably relative to the outer rotor, two

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magnetic bearings arranged around the outer rotor and spaced apart axially thereof for holding the outer rotor radially thereof, a first magnetic coupling having a drive portion disposed around the outer rotor for transmitting a torque to the outer rotor, and a second magnetic coupling having a drive portion disposed around the inner rotor at a portion thereof projecting beyond the end of the outer rotor for transmitting a torque to the inner rotor.

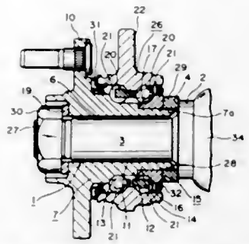
5,209,700
CONSTANT-VELOCITY JOINT
Jürg Bensinger, Hennef; Werner Krude, Neunkirchen-Wolperath, and Manfred Tröster, Bad Kissingen, all of Fed. Rep. of Germany, assignors to GKN Automotive AG, Siegburg and FAG Kugelfischer, Schwinfurt, both of Fed. Rep. of Germany
Filed Apr. 3, 1991, Ser. No. 679,794
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1990, 4011363
Int. Cl.[5] F16D *3/205*; F16C *33/56*
U.S. Cl. 464—111 7 Claims



1. A tripod constant-velocity joint comprising:
an external joint component having three circumferentially spaced axial guide tracks with bearing surfaces opposite each other in the circumferential direction;
an interior joint component having three circumferentially spaced radial trunnions formed to engage in the guide tracks, said trunnions having spherical heads;
a roller carrier having a radial internal recess engaging said trunnions and said trunnions being slidable and having angular mobility in said recess;
one roller unit on each of the trunnions supported in the guide tracks, each roller unit is substantially held at constant angles, and, relative to the trunnions, is movable with angular mobility, and said roller units are each mounted, free to rotate, on said roller carriers;
a needle bearing assembly having a cage located between each roller carrier and roller unit;
and means for radially inwardly supporting the roller carrier, relative to the joint axis, by the roller unit via the cage, while said roller unit is in turn radially inwardly directly supported by the external joint component.

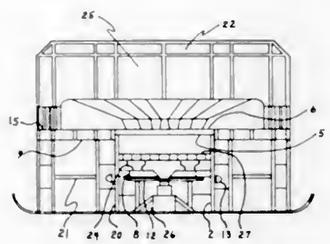
5,209,701
HUB UNIT BEARING APPARATUS WITH IMPROVED PRE-LOADING ARRANGEMENT
Shuuichi Ishikawa, Naka; Junshi Sakamoto, and Hiroya Miyazaki, both of Fujisawa, all of Japan, assignors to Nikon Corporation, Tokyo, Japan
Filed Dec. 3, 1991, Ser. No. 801,869
Claims priority, application Japan, Dec. 7, 1990, 2-401769[U]
Int. Cl.[5] F16C *13/00, 43/04*
U.S. Cl. 464—178 3 Claims

1. A hub unit bearing apparatus rotatably supporting a constant velocity joint (**34**) and a wheel (**58**) on a vehicle body, comprising:
a shaft (**1**) extending from the constant velocity joint (**34**) and having a first reduced diameter portion (**3**) at free end thereof;
a cylindrical hub (**7**) fitted on said first reduced diameter portion of said shaft and having one end which is near said constant velocity joint and on which a second reduced diameter portion (**14**) is formed, and having another end connected to the wheel;
a bearing including an outer race (**26**) attached to the vehicle body, rolling members (**21**), and an inner race (**15**) fitted on said second reduced diameter portion of said hub and cooperating with said outer race through said rolling members;



a first nut (**29**) threaded on said second reduced diameter portion of said hub so as to protrude from an end face of said second reduced diameter portion axially and urging said inner race against a body portion f said hub; and
a second nub (**30**) threaded on said first reduced diameter portion of said shaft and urging said hub, said inner race and said first nut against said constant velocity joint;
wherein a predetermined pre-load is applied to said bearing by said first nut, and said first nut is prevented from loosening by a force applied by said second nut.

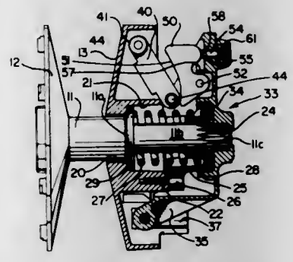
5,209,702
FREEFALL SIMULATOR
Frank Arenas, P.O. Box 1178, Zephyrhills, Fla. 33539
Filed Apr. 30, 1991, Ser. No. 693,374
Int. Cl.[5] G01N *9/00*; A63G *31/16*
U.S. Cl. 472—136 10 Claims



1. A freefall simulator, for simulating the effects, and the feelings of freefall to a person, and training the person to maneuver during the freefall period, comprising:
a building, said building containing,
an air accelerating means, said air accelerating means having,
a large horsepower electric motor, said motor driving a pair of two hydraulic pumps,
said hydraulic pumps providing controlled power means for powering a large hydraulic motor, one of said pumps being driven at full capacity by said electric motor and said other pump being controllingly driven at a variable power output,
a controlled pitch propeller, said propeller being driven a predetermined of speed by said fair of hydraulic pumps;

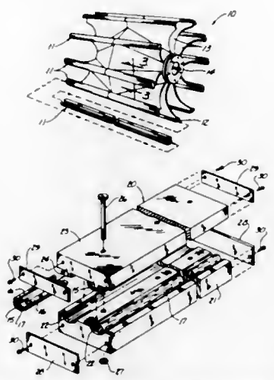
and at said speed of said propeller being controlled by the combined output of said two hydraulic pumps, and said large hydraulic motor.

5,209,703
DRIVE PULLEY
Brian H. Mastine, Richmond; Gaetan Lecours, Valcourt, and Duceppe Daniel, Sherbrooke, all of Canada, assignors to Bombardier Inc., Canada
Filed Apr. 24, 1991, Ser. No. 690,362
Claims priority, application Canada, Jun. 29, 1990, 2020262
Int. Cl.[5] F16H *61/00*
U.S. Cl. 474—14 15 Claims



1. A variable ratio drive pulley comprising:
two opposed frusto-conical flanges arranged coaxially with respect to a drive shaft to rotate therewith and impart a variable ratio drive to a transmission belt arranged between the flanges;
one said flange comprising a fixed flange that is fixed axially relatively to said shaft, and the other said flange being a movable flange that is movable axially of said shaft so that the frusto-conical front face thereof moves towards and away from the confronting frusto-conical face of the fixed flange;
biasing means operatively arranged between said shaft and said movable flange to urge the latter axially away from said fixed flange;
centrifugally responsive thrust means operative upon rotation of said drive pulley to generate an axially directed thrust force acting to urge said movable flange towards said fixed flange, the magnitude of said thrust force increasing with the speed of rotation of said drive pulley;
said thrust means comprising a plurality of weighted levers equiangularly spaced about the axis of said shaft, and a corresponding plurality of cooperating ramps, each lever being pivotally mounted at one end in the movable flange and having its opposite end positioned to cooperate with a respective range that is carried in a part that is fixed with respect to said drive shaft, and
adjustment means accessible from the exterior of said drive pulley and operative to alter the attitude of said ramps and thus the dynamic response of said thrust means, wherein each said ramp is supported at one point in its length upon an abutment mounted in said carrier, and at a second point spaced from said first point is carried upon a pivot mounting, said abutment being configured for engagement by a tool to be adjustable to alter the attitude of said ramp by moving it angularly about said pivot mounting, said adjustment being possible while said drive pulley remains fully assembled.

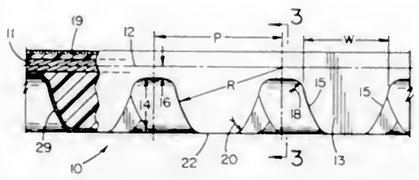
5,209,704
METHOD OF CONSTRUCTION A REPLACEABLE PULLEY LAGGING DEVICE
Karl C. Valster, and Allen V. Reicks, both of Pella, Iowa, assignors to Precision Pulley, Inc., Pella, Iowa
Division of Ser. No. 688,449, Apr. 22, 1991. This application Sep. 17, 1992, Ser. No. 946,399
Int. Cl.[5] F16H *55/00*
U.S. Cl. 474—185 2 Claims



1. A method of constructing a replaceable pulley lagging device for attachment to a wing pulley of a type including a hub adapted for rotation about an axis, a plurality of radially extending wings having an inward end, an outward end and two side edges, said wings being attached at said inward ends thereof to said hub, said outward end of each of said wings having an exterior portion having a substantially continuous cross-sectional shape along a major portion of its length and being thicker at said outward end than the portion of the wing radially inwardly therefrom for permitting said replaceable lagging device to be selectively retained on or to be slid off of and onto said outward end, utilizing an apparatus for shaping a replaceable lagging for wing pulleys prior to vulcanization of a portion of said replaceable lagging comprising: a first member having a an elongated depression therein for receiving an elastomeric substance in a plastic condition; a second member; holding means connected to said second member for selectively holding a backing member in a predetermined position with respect thereto; means for selectively securing said second member to said first member so that said backing member extends into the elongated depression in said first member, thereby forming said elastomeric substance into the shape of said depression prior to and during a vulcanization process; and an autoclave means for vulcanizing elastomeric substances, said method comprising:
forming a backing member into a shape having an interior portion with a substantially uniform cross-sectional shape along the length thereof which is complementary to the cross-sectional shape of the exterior portion of the outward ends of said wings;
placing said backing member onto said holding means;
placing an elastomeric substance in a plastic or liquid condition into said elongated depression in such first member;
using said securing means to hold the backing member into the depression to form said elastomeric substance into the shape of said depression;
placing said first and second members with said backing member and elastomeric material therein into said autoclave means; and
applying appropriate amounts of heat, steam and pressure to said autoclave to vulcanize said elastomeric material and cause it to be secured to said backing member.

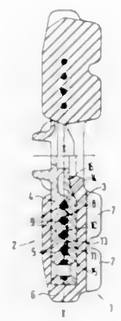
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,705
SYNCHRONOUS DRIVE BELT WITH OBLIQUE AND OFFSET TEETH
Michael J. W. Gregg, Lincoln, Nebr., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 29, 1992, Ser. No. 890,203
Int. Cl.[5] F16G *1/28*
U.S. Cl. 474—204 4 Claims



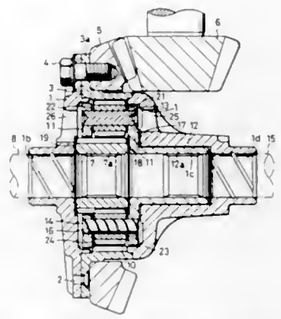
1. A synchronous drive belt comprised of a resilient elastomer, reinforced with one or more reinforcing members extending along and thereby defining a pitch line, with at least two transversely adjacent rows of teeth having centerlines uniformly spaced apart in the longitudinal direction by their Pitch P and extending obliquely to the longitudinal direction such that the teeth in the transversely adjacent rows are at oppositely balanced angles and the centerlines of said adjacent teeth are offset from each other by a distance of from 10% to 90% of the Pitch P.

5,209,706
RUBBER BELT CRAWLER CHAIN
Utz Richter, Markgröningen; Jürgen Hawener, Möglingen; Volker Kramer, Erdmannhausen, and Friedrich Depfenhart, Heimsheim, all of Fed. Rep. of Germany, assignors to Dr. Ing. H.C.F. Porsche AG, Fed. Rep. of Germany
Filed Jul. 15, 1992, Ser. No. 913,687
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1991, 4123332
Int. Cl.[5] F16G *3/02*
U.S. Cl. 474—253 14 Claims



1. A rubber belt crawler chain for a vehicle, comprising:
chain guiding members which are slidingly guided inside one another and are connected with a cross-piece adapted to accommodate steel cables of a rubber bearing body surrounding the cross-piece between one another, wherein the cross-piece has two clamping elements which form a receiving device for the steel cables between one another, and wherein groove-shaped guides for the cables are arranged in one of said clamping elements and are covered in a web-shaped manner by the other of said clamping elements.

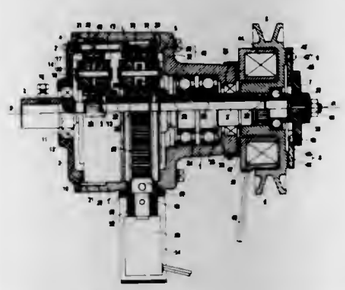
5,209,707
PLANETARY DIFFERENTIAL ASSEMBLY
Masao Teraoka, Tochigi, Japan, assignor to Tochigifujisangyo Kabushiki Kaisha, Tochigi, Japan
Filed Jul. 17, 1991, Ser. No. 731,566
Claims priority, application Japan, Jul. 18, 1990, 2-188136
Int. Cl.[5] F16H *1/44*
U.S. Cl. 475—249 4 Claims



1. A planetary differential assembly for use with a vehicle having a plurality of drive shafts comprising:
an internal gear fixedly mounted on a driven gear and a differential case;
a sun gear which is coaxially arranged with said internal gear while rotatably arranged with respect to said differential case, said sun gear being connected to one of said plurality of drive shafts;
a first planet gear meshed with said internal gear;
a second planet gear meshed with said first planet gear and with said sun gear; and
a planet-gear carrier for rotatably carrying said first planet gear and said second planet gear, said planet-gear carrier being rotatably arranged with respect to said differential case while being connected to another of said plurality of drive shafts; and
a differential limiting means including a circular bore formed in each of said first and said second planet gears and a first pin and a second pin fixedly mounted on said planet-gear carrier, said first and second pins being inserted respectively in said circular bore of said first planet gear and that of said second planet gear, and each of said first and said second pins being provided with an oil groove in its outer peripheral surface.

5,209,708
APPARATUS FOR CHANGING THE SPEED
Shoji Igaku, Nara, Japan, assignor to Matex Co., Ltd., Osaka, Japan
Filed Nov. 27, 1990, Ser. No. 618,633
Claims priority, application Japan, Nov. 27, 1989, 1-308198
The portion of the term of this patent subsequent to Dec. 24, 2008, has been disclaimed.
Int. Cl.[5] F16H *01/46, 03/44, 57/10*
U.S. Cl. 475—156 6 Claims

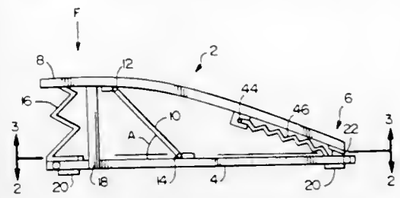
1. An apparatus for changing the rotational speed of a mechanism comprising:
an input shaft for receiving an input rotation,
a plurality of planetary gear units, each having a sun gear, a plurality of planetary gears meshing with the sun gear, an internal gear meshing with the planetary gears and a carrier for rotatably supporting the planetary gears, the planetary gear units being positioned from first to last, respectively in an axial direction toward an output side of the apparatus around the input shaft, the carrier of a unit being connected to the sun gear of a next unit, the sun gear of the first unit being connected to the input shaft,
an output rotor rotatably mounted on the input shaft without preventing relative rotation thereof,
a casing containing the input shaft and all the planetary gear units, the casing rotatably supporting the input shaft and the internal gear of the last of the planetary gear units and fixing the internal gears of the other planetary gear units,
a rotating disc fixed to the input shaft near the output rotor,
a disc-contacting device for bringing the rotating disc into contact with the output rotor,
an internal gear stopping device for stopping rotation of the internal gear being rotatably supported by the casing, and
a connecting cylinder being pierced by the input shaft for connecting the carrier of the last planetary gear unit with the output rotor, wherein the internal gear stopping device and the disc-contacting device are operable in a complementary manner such that: the internal gear stopping device is engaged while the disc-contacting device is disengaged and the disc-contacting device is engaged



while the internal gear stopping device is disengaged, the output rotor rotates at a high speed when the disc-contacting device engages the rotating disc with the output rotor, and the output rotor rotates at a low speed when the internal gear stopping device is engaged, and wherein the internal gear stopping device comprises:
a solenoid having a plunger which extends or retracts in an axial direction,
a stopper piece attached to the plunger,
a guide for guiding the stopper piece in the axial direction, and
a bracket for fixing the solenoid to the casing,
an outer surface of the internal gear of the planetary gear unit being permitted rotation in the casing includes an outer toothed surface, such that: when the solenoid is excited to one direction, the stopper piece is brought into engagement with the outer toothed surface of the internal gear and the internal gear is stopped; and
when the solenoid is excited to the other direction, the stopper piece disengages from the outer toothed surface and the internal gear can rotate freely.

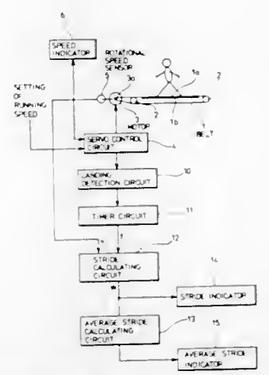
5,209,709
SLIDABLE HINGE VAULTING BOARD
Waldorf C. Eyman, Jr., 12 Woodburn St., Keene, N.H. 03431
Filed Mar. 25, 1991, Ser. No. 675,575
Int. Cl.[5] A63B *5/08*
U.S. Cl. 482—30 20 Claims

1. A device, for use by a gymnast in vaulting, comprising:
a base member defining a longitudinal axis;
a top member being located adjacent said base member with resilient springs extending substantially perpendicularly from said base member and directly interconnecting a first end of said top member and a first end of said base member for biasing the first end of said top member away from a first end of said base member;
means for retaining a second end of said top member adjacent a second end of said base member and for allowing said top member to pivot toward said base member and to slide along said axis relative to said base member during compression and expansion strokes of said device; and



control means interconnecting said base member with said top member for controlling the relative sliding movement between said top member and said base member during the compression and the expansion strokes of said device.

5,209,710
TREADMILL
Masaharu Shimizu, and Harutoshi Terasawa, both of Tokyo, Japan, assignors to Nihon Kohden Corporation, Tokyo, Japan
Filed Mar. 20, 1992, Ser. No. 853,972
Claims priority, application Japan, Mar. 28, 1991, 3-26491
Int. Cl.[5] A63B *23/00*
U.S. Cl. 482—54 10 Claims



1. A treadmill comprising:
a belt provided with a running surface and rotated in a predetermined direction at a set running speed;
landing detection means for detecting foot landings on said running surface;
timer means for measuring the landing time distance between the landing times detected;
stride calculating means for calculating a stride from the running speed of said running surface and said landing time distance measured; and
output means for outputting the calculated stride.

5,209,711
LEG STRETCHING MACHINE
Nick Scrima, 4944 E. 111th St., Garfield Heights, Ohio 44125
Filed Mar. 30, 1992, Ser. No. 860,059
Int. Cl.[5] A63B *22/00*
U.S. Cl. 482—70 7 Claims

1. An apparatus for stretching the muscles of a person having a first and second foot, comprising:
center stand means, having horizontal base means for resting

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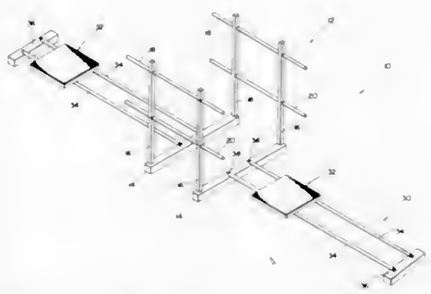
on the ground, and vertical extension means attached to said horizontal base means extending upwards approximately vertically therefrom,

first foot translation bar means attached to said horizontal base means and extending horizontally therefrom in a first direction approximately parallel to the ground;

first foot support means disposed on said first foot translation bar means for supporting the first foot, wherein said first foot support means translates on said first foot translation bar means for permitting the first foot to be extended away from said center stand means;

second foot translation bar means attached to said horizontal base means and extending horizontally therefrom approximately parallel to the ground in a direction approximately 180 degrees from said first direction;

second foot support means disposed on said second foot translation bar means for supporting the second foot, wherein said second foot support means translates on said second foot translation bar means for permitting the second foot to be extended away from said center stand means;



crossbar means attached to said vertical extension means for providing a means for the person to hold, wherein the person holds onto said crossbar means and extends his/her feet away from his/her torso by moving either or both of his/her feet on said first and second foot support means along said first and second foot translation bar means,

wherein said first and second foot translation bar means are comprised of two approximately parallel bars; and,

wherein said first and second foot support means are comprising: a) foot pad means having a top for placing the foot thereon and a bottom; b) two bracket means attached to said bottom and extending below said foot pad means; c) two roller means connected to each of said two bracket mean and disposed on top of each of said two approximately parallel bars for rolling ons said approximately parallel bars; and, d) holding means attached to each of said two bracket means below each of said two approximately parallel bars for preventing said foot pad means from coming off of said foot translation bar means.

5,209,712

PROPRIOCEPTIVE EXERCISE, TRAINING AND THERAPY APPARATUS

Frederic Ferri, 1013 Fountain St., Ann Arbor, Mich. 48103

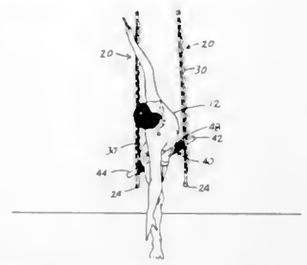
Filed Jun. 24, 1991, Ser. No. 720,270
Int. Cl.[5] A63B *21/02*
U.S. Cl. 482—91 22 Claims

1. A proprioceptive exercise, training and therapy apparatus for precisely supporting and stabilizing at least a portion of the user's body and limbs from a selected structural support, which comprises:

a) a strap attachment means releasably secured to the structural support;

b) at least one elongated strap support member releasably secured by the strap attachment means to the selected structural support, the strap support member having a plurality of discrete strap attachment loops secured in sequential linear alignment thereon, and a continuously adjustable alignment member secured to the strap support member between the strap attachment means and the discrete strap attachment loops;

c) at least one user engagement member releasably secured to a selected discrete strap attachment loop on the strap



support member to support at least a portion of the user's weight thereon, and

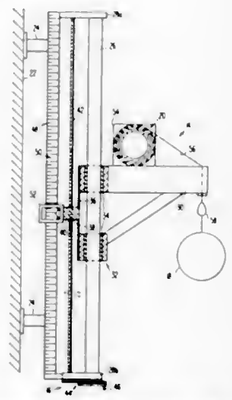
d) a continuously adjustable alignment member adapted to a adjustably position the height of the selected user engagement member is in relation to the strap support member to provide precise, selective alignment to a selected portion o the user engagement member with a selected portion of the user's body or limbs in a selected one of a desired series of user body positions.

5,209,713

METHOD AND APPARATUS FOR USE IN ENHANCING EXPLOSIVE LEG POWER

Barry S. Brown; Paul D. Reagan; Rosalie DiBrezzo; Inza L. Fort; Dean R. Gorman, and Allen H. Hanna, all of Fayetteville, Ark., assignors to Instructional Fitness Programs, Inc., Fayetteville, Ark.

Filed Jun. 25, 1990, Ser. No. 542,828
Int. Cl.[5] A63B *21/00*
U.S. Cl. 482—92 8 Claims



1 An apparatus for use in enhancing explosive jumping leg power of an individual comprising:

object supporting means vertically movable to a plurality of discrete vertical positions so as to accommodate different jumping heights related to maximum jumping heights of the individual;

means operable for supporting and displacing said object support means vertically to the plurality of discrete positions;

a sport object selected to be grasped and displaced by the individual while jumping;

first means including cable means connected to said object for allowing the individual to displace said object from an initial at-rest position upon the individual successfully jumping and displacing said object and for allowing active automatic mechanical retraction of said object to said initial at-rest position upon release of said object by the individual so as to allow for repetitive jumps;

said first means being connected to and vertically movable with said object supporting means so as to enhance selective vertical adjustment of said object;

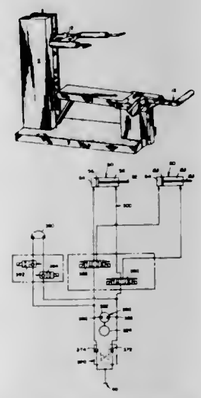
said supporting end displacing means includes a rotatable shaft and a linear actuator operatively connected thereto, said actuator also being connected to said object supporting means and being operable in response to rotation of said shaft to convert the rotary motion to vertical motion of said actuator to vertically displace said object supporting means.

5,209,714

AUTOMATIC FORCE GENERATING AND CONTROL SYSTEM

Robert L. Sainte, Winchester, Ky.; Steven E. Sarns, Arvada, and Steven R. Frank, Golden, both of Colo., assignors to Walker Fitness Systems, Inc., Reston, Va.

Continuation of Ser. No. 439,932, Nov. 13, 1989, Pat. No. 5,064,193. This application Oct. 21, 1991, Ser. No. 780,117
Int. Cl.[5] A63B *21/008*
U.S. Cl. 482—113 11 Claims



1. A method of providing resistance to movement of an exercise arm, comprising the steps of:

moving a first exercise arm in a first direction;

flowing a hydraulic fluid from a first end of a first hydraulic cylinder connected to said first exercise arm when said first exercise arm is moved;

pumping said hydraulic fluid with a pump in a pumping direction;

routing said hydraulic fluid flow from said first end of said first hydraulic cylinder through said pump into a second end of said first hydraulic cylinder;

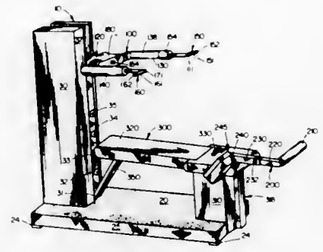
wherein said flow from said first end is opposite to said pumping direction of said pump, said pump being connected in series to said first end and said second end of said first hydraulic cylinder.

5,209,715

AUTOMATIC FORCE GENERATING AND CONTROL SYSTEM

Christopher W. Walker, Middleburg; Michael M. Szafranski, Fairfax, both of Va.; Sung H. Kim, Palo Alto; Howell F. Hsiao, Mountain View, both of Calif., and Steven R. Frank, Golden, Colo., assignors to Walker Fitness Systems, Inc., Reston, Va.

Continuation of Ser. No. 436,191, Nov. 13, 1989, Pat. No. 5,058,888. This application Sep. 26, 1991, Ser. No. 765,968
The portion of the term of this patent subsequent to Oct. 22, 2008, has been disclaimed.
Int. Cl.[5] A63B *21/00*
U.S. Cl. 482—137 10 Claims



1. An exercise machine, comprising:

a base which remains substantially stationary;

an exercise member having a base end and an exercise end, said exercise member being pivotally connected to said base at its base end and said exercise member being sized to be forced to pivot with respect to said base;

adjusting means for adjusting the length of said exercise member;

locking means for releasably locking said exercise member at the length substantially conducive to the physique of a user and such exercise to be performed;

resistance means for resisting said force to pivot said exercise member with respect to said base and thereby exercise such user upon moving said exercise member;

positioning means for positioning said exercise member under substantially no resistance to an angle in its pivot conductive to the physique of such user and such exercise to be performed at the start of such exercise wherein said positioning means provides force to said exercise member to overcome the weight and friction of said exercise member while it is being positioned; and

exercise motion transmission means for transmitting the pivoting motion of said exercise member to linear motion.

4. A system for positioning an exercise machine, comprising:

two arms, said arms each connected at one end to one end of an exercise member, said exercise member pivotally connected at another end to a base; and

two handles, each of said handles pivotally connected at one end to another end of each of two said arms such that said handles, arms and exercise member may be pivoted relative to each other to a particular width and height of a point of contact with a user, said arms and handles being pivotally connected along an axis substantially parallel to the longitudinal axis of said exercise member in such a manner so as to allow the handles to be pivoted independently of the arms;

wherein said handles and arms remain substantially stationary with respect to said exercise member while said exercise member with a set position of arms and handles is pivoted with respect to said base during exercise.

6. A machine for performing exercises by a user, comprising:

a base which remains substantially stationary;

an exercise member connected to said base and being sized to be forced to move with respect to said base;

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resistance means for resisting said force to move said exercise member with respect to said base;

said base including:

an upright structure from which said exercise member projects;

a platform which is substantially flat and is connected to said upright structure and resides below said upright structure; and

a bench connected to and above said platform and sized and positioned with respect to said exercise member and upright structure to support a user on said bench and interact with said exercise member, said bench further including a seat portion and a back portion, said seat portion having a first side and a second side and said back portion having a first side, second side and underside, said first side of said seat portion being pivotally connected to said first side of said back portion;

adjustment means for adjusting the angle between said back portion and said seat portion and releasably positioning said back portion at various angles while said seat portion remains substantially stationary with respect to said base;

said adjustment means comprising:

a stand having a back end and a notch end, pivotally connected at said back end to said underside of said back portion; and

a plurality of notches disposed at various heights upon said upright structure such that as said back portion is pivoted with respect to said seat portion to the desired angle to substantially accommodate the physique of such user and such exercise to be performed, said stand may be pivoted with respect to said back portion and said notch end of said stand may be releasably secured in said notch in said upright structure appropriate to the desired angle;

said stand further comprising:

two pegs each disposed on opposite sides of said notch end of said stand which slides into said notches;

said notches each comprising:

a first slanting slot which extends from an outer surface of said upright structure at an angle down and into said upright structure; and

a vertical wall at the end of said first slanting slot and inside said upright structure.

7. An exercise machine, comprising.

a base;

an exercise lever including a head, an arm, a handle, a first locking means for releasably locking said arm relative to said head, and a second securing means for releasably locking said handle relative to said arm, wherein said exercise lever pivots relative to said base when said arm is locked relative to said head;

said head having an arm end and a base end, and being moveably connected at its base end to said base;

said arm having a first end and a second end, and being pivotally connected at its first end to said arm end of said head;

said handle having a first end and an second end, said first end of said handle being pivotally connected to said second end of said arm; and

resistance means for resisting a force applied to move said exercise lever.

5,209,716

RESISTIVE EXERCISE DEVICE

Larry G. Frydman, Thornhill, and Jerry N. Moscovitch, Toronto, both of Canada, assignors to Larry Frydman, Ontario, Canada

Filed Dec. 19, 1991, Ser. No. 810,474

Int. Cl.[5] A63B *21/02*

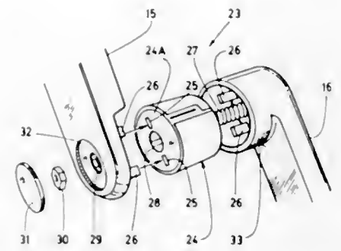
U.S. Cl. 482—124 **24 Claims**

1. An exercise device for use on a limb having a first part, a second part and a joint therebetween, the joint having a pivot axis, the exercise device comprising:

a first framework for grasping the first part of the limb;

a second framework for grasping the second part of the limb;

a single resistive tension pivot connection between the first and second frameworks on one side of the limb which tends to resist pivoting of the frameworks about substantially the same axis as the joint, the resistive tension pivot connection having a neutral resting position and being



disposed intermediate between the two frameworks along the axis, and the resistance being provided at the axis of the joint by a tension mechanism;

wherein the neutral resting position can be set; and wherein resistance is provided in both directions of movement of the joint from the neutral resting position.

5,209,717

METHOD AND DEVICE FOR LOCAL APPLICATION AND REMOVAL OF ACTIVE SUBSTANCES AGAINST SOLID TUMORS

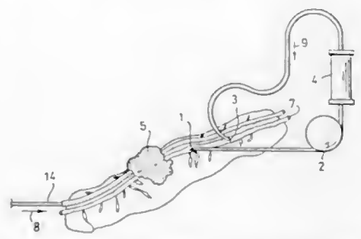
Hans-Joachim Schmoll; Ekkehard Schmoll, both of Hannover, and Edmund R. Lax, Essen, all of Fed. Rep. of Germany, assignors to Pharma Biotechnologie Hannover GmbH, Hannover, Fed. Rep. of Germany

Filed Jul. 26, 1988, Ser. No. 224,319

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1987, 3705637

Int. Cl.[5] A61M *37/00*

U.S. Cl. 604—5 **12 Claims**



1. A method for the treatment of solid tumors, wherein a therapeutically effective amount of active substances against the solid tumors are locally injected, characterized in that (a) the active substance is infused into an afferent blood vessel of a tumor-containing organ, (b) a second active substance, which is capable to inactivate the effect of the first active substance, is infused distally to the tumor-containing organ, and (c) both active substances are filtered out of the patient's blood, wherein the blood is withdrawn distally to the tumor, pumped through a container containing substances, which are capable to bind the active substances, and returning the blood into the patient's body.

5,209,718

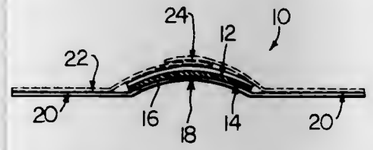
PRESSURE APPLYING BANDAGE OR DRSSSING FOR SUPERFICIAL WOUNDS

William R. McDaniel, 9158 Saddle Bow Dr., Brentwood, Tenn. 37027

Filed Oct. 28, 1991, Ser. No. 783,230

Int. Cl.[5] A61F *13/00, 15/00, 5/28, 5/30*

U.S. Cl. 602—53 **6 Claims**



1. A pressure applying bandage for self adhesion to a skin surface of a patient, comprising:

a flexible pad for positioning on the skin surface;

a flexible resilient arcuate member having a periphery and opposed convex and concave surfaces, the convex surface in contact with said flexible pad;

a length of pressure adhesive material extending over said arcuate member and beyond the periphery of said arcuate member, and in adhesive contact with the concave surface;

said pressure adhesive material extending beyond the periphery of said member forming attachment means for adhesion to said skin surface at said periphery of said arcuate member to attach and flex said arcuate member to apply pressure to said pad.

5,209,719

ULTRASONIC RECANALIZATION SYSTEM

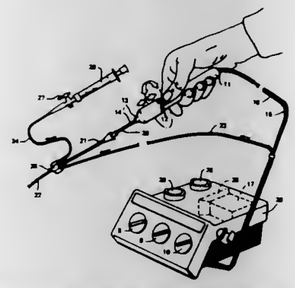
David Baruch, Tel Aviv, and Shmuel Einav, Hertzlia, both of Israel, assignors to Urcan Medical Ltd., Tel-Aviv, Israel

Filed Jan. 22, 1991, Ser. No. 643,427

Claims priority, application Israel, Jan. 23, 1990, 093141

Int. Cl.[5] A61B *17/20*

U.S. Cl. 604—22 **15 Claims**



1. An ultrasonic recanalization system comprising an ultrasonic transducer in a handle and energized by a switch, said transducer connected at its proximal end to a console containing control means of the ultrasonic energy level applied, determined by a measuring device of the frequency and amplitude provided at the distal end of the transducer, a triple lumen catheter that can be entered into a patient, and a hollowed tube which can be entered into the patient's artery through said catheter, said hollowed tube operatively connected to said transducer for receiving ultrasonic energy and transferring such energy into the patient's artery, said tube having an ending with a bent portion having a flexible tip, and said catheter having a flow blocking device on its outer circumference which includes means for inflating when required to secure said tip in position and obstruct the flow of blood near a stenosis blockage site in the artery, and said catheter having a concentric canal passage for surrounding said hollowed tube through which a liquid solution can be pumped in from a reservoir by a pump provided in said console, said hollowed tube including aspiration means whereby said solution can then flow out after washing off the stenosis splinters and blood into a second reservoir provided in said console, through said hollowed tube.

5,209,720

METHODS FOR PROVIDING LOCALIZED THERAPEUTIC HEAT TO BIOLOGICAL TISSUES AND FLUIDS USING GAS FILLED LIPOSOMES

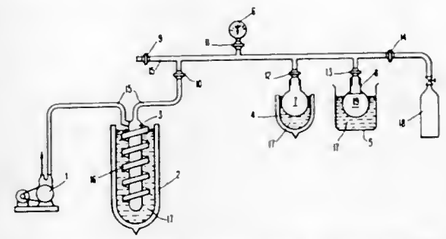
Evan C. Unger, 13365 E. Camino La Cebadilla, Tucson, Ariz. 85749

Continuation-in-part of Ser. No. 581,027, Sep. 11, 1990, and a continuation-in-part of Ser. No. 569,828, Aug. 20, 1990, Pat. No. 5,088,499, which is a continuation-in-part of Ser. No. 455,707, Dec. 22, 1989, abandoned. This application Jun. 18, 1991, Ser. No. 716,793

The portion of the term of this patent subsequent to Sep. 22, 2009, has been disclaimed.

Int. Cl.[5] A61B *17/20*

U.S. Cl. 604—22 **16 Claims**



1. A method for heat treating biological tissues and fluids which comprises:

(i) administering to the tissue or fluid to be treated a therapeutically effective amount of a hyperthermia potentiator comprising gas filled liposomes prepared by a vacuum drying gas instillation method; and

(ii) applying ultrasound to said tissue or fluid.

5,209,721

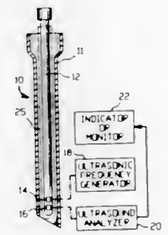
LAPAROSCOPIC SURGICAL DEVICE AND RELATED METHOD

Peter J. Wilk, 185 W. End Ave., New York, N.Y. 10023

Filed Jan. 31, 1992, Ser. No. 830,117

Int. Cl.[5] A61M *37/00*

U.S. Cl. 604—26 **7 Claims**



1. A method for use in performing a laparoscopic surgical operation, comprising the steps of:

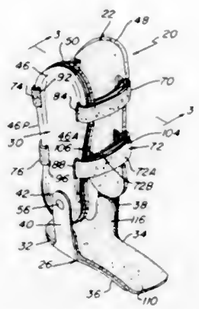
inserting a Veress needle through an abdominal wall of a patient;

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during said step of inserting, automatically monitoring pressure at a distal end of said needle; and

upon detecting a drop in pressure at said distal end of said needle, connecting said needle to a pressure source for inflating an abdominal cavity of the patient, thereby commencing abdominal insufflation prior to a laparoscopic procedure.

5,209,722
ANKLE BRACE
Jeffry A. Miklaus, Mission Viejo; Richard J. Farr, Tustin, and Kyle R. Tolly, Jr., Laguna Hills, all of Calif., assignors to Joint Solutions, Inc., Tustin, Calif.
Filed Mar. 26, 1992, Ser. No. 858,274
Int. Cl.[5] A61F *3/00*
U.S. Cl. 602—27 15 Claims

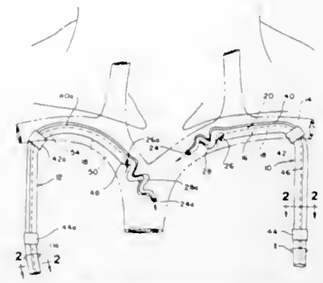


11. An ankle brace for a person, said brace comprising an elongate medial support member, an elongate lateral support member, releasably securable connector means for said support members, and a footpiece, each of said support members being substantially rigid and configured to extend along a respective side of the leg of the person from a point just below the malleolus to a point substantially thereabove, said footpiece comprising a base portion having a medial side and a lateral side and a pair of upstanding members projecting therefrom and pivotally connected to respective ones of said support members adjacent said malleoli, said base portion of said footpiece extending from the heel of the foot of the person to beyond the metatarsal heads of the foot of the person, said base portion being substantially rigid and generally conforming to the bottom of the foot of the person, said releasably securable means comprising a first strap connecting the medial support member to the lateral support member on the anterior side of the leg of the person at a first height slightly above the malleoli, a second strap connecting the medial support member to the lateral support member on the anterior side of the leg of the person at a second height adjacent the top of said support members, a third strap connecting the medial support member to the lateral support member on the posterior side of the leg of the person at said first height, and a fourth strap connecting the medial support member to the lateral support member on the posterior side of the leg of the person at said second height.

5,209,723
MULTIPLE LUMEN CATHETER FOR HEMODIALYSIS
Zbylut J. Twardowski; John C. Van Stone, and W. Kirt Nichols, all of Columbia, Mo., assignors to The Curators of the University of Missouri, Columbia, Mo.
Continuation of Ser. No. 461,684, Jan. 8, 1990, abandoned. This application Oct. 8, 1991, Ser. No. 772,613
Int. Cl.[5] A61M *3/00*
U.S. Cl. 604—43 17 Claims

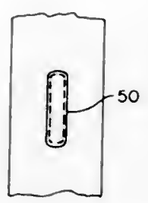
1. In a multiple lumen catheter for hemodialysis or the like, said catheter having a distal end portion in which at least a pair of the catheter lumens each communicate with the exterior through separate aperture means, the improvement comprising, in combination:

the aperture means of one of said lumens defining a first port at essentially the distal catheter end, and the aperture means of the other of said lumens defining a second port spaced proximally along the catheter from said distal end



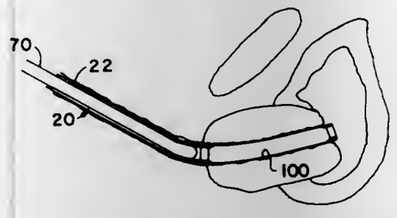
and first port, said second port being defined by a substantially annular wall having an outer portion relative to the catheter axis that is positioned slightly closer to said distal end than an inner portion of said substantially annular wall, whereby the axis of said second port is angled inwardly at an acute angle to catheter axis.

5,209,724
COMPOSITE ANESTHETIC ARTICLE AND METHOD OF USE
Avtar S. Dhaliwal, and Shabir Z. Masih, both of Suite 43, 408 State of Franklin Rd., Johnson City, Tenn. 37604
Continuation-in-part of Ser. No. 179,877, Apr. 11, 1988, abandoned. This application Mar. 6, 1989, Ser. No. 319,343
Int. Cl.[5] A61M *31/00*
U.S. Cl. 604—49 2 Claims



1. A chemical composition having anesthetic properties and suitable for immediate injection at the time of medical procedure into the human body, said composition consisting of water, a local parenteral anesthetic dissolved therein and which, in non-buffered form, gives an acid pH of from about 2.5 to about 6.9, wherein said anesthetic comprises from about 0.5 to about 2.0% by weight of the composition, said composition being buffered with sufficient $NaHCO_3$ to maintain the pH thereof between about 7.0 and about 7.6, and further containing from about 0.0004 moles of dissolved CO_2 per ml of composition up to the saturation level of dissolved CO_2 at a CO_2 head pressure of up to about 2.5 atmospheres.

5,209,725
PROSTATIC URETHRA DILATATION CATHETER SYSTEM AND METHOD
Robert A. Roth, 29 Hyslop Rd., Brookline, Mass. 02146
Filed Apr. 11, 1991, Ser. No. 683,725
Int. Cl.[5] A61M *31/00*
U.S. Cl. 604—53 12 Claims

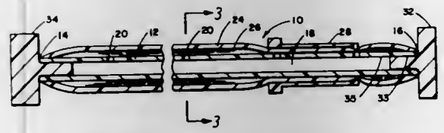


6. An improved instrument for performing a transurethral balloon dilatation procedure of the prostate, said instrument comprising, in combination:

a hollow catheter including (a) a shaft having at least its distal end portion made of an optically transparent material, (b) a substantially non-compliant, inflatable optically transparent balloon attached to the distal end portion of the shaft and sized to dilate the prostatic urethra so as to post-operatively open the latter, and (c) at least one suitable visible marking (i) disposed on said catheter and (ii) positioned relative to said balloon such that the marking can be visualized in a transverse direction from within said distal end portion relative to a predetermined anatomical landmark so as to properly position said balloon relative to the prostatic urethra prior to and during the dilation of the prostatic urethra with said ballon; and

optical viewing means, slidable within said catheter, for visibly viewing said marking intraluminally from within said catheter transversely through said distal end portion of said shaft relative to said predetermined anatomical landmark prior to and during the dilation of the prostatic urethra with said balloon so as to insure the proper positioning of the balloon relative to the anatomical landmark prior to and during said dilation.

5,209,726
SELF-LUBRICATING URETHRAL CATHETER AND METHOD FOR SELF-CATHETERIZATION
Carl C. Goosen, 253 E. Webster Ave., Winter Park, Fla. 32789
Filed May 4, 1992, Ser. No. 877,994
Int. Cl.[5] A61M *25/00*
U.S. Cl. 604—54 16 Claims



1. A self-lubricating catheter for insertion into a urethra comprising:

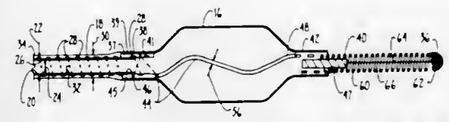
an elongated tube defining a conduit, said tube containing a fluid, said tube having an insertion end and a discharge end;

an elongated flexible outer sheath at least partially covering said tube and having a cavity disposed between said tube and said outer sheath said cavity also containing said fluid, and said outer sheath operative to collapse toward said tube when the insertion end is inserted into the urethra;

a removable plug engaging its discharge end of said tube to prevent said fluid from flowing through said discharge end when the outer sheath collapses; a removable plug engaging the insertion end of said tube and

at least one aperture disposed between said conduit and said cavity, said aperture permitting said fluid to flow from the cavity through said conduit and out said insertion end upon removal of said plug engaging said insertion end to lubricate the catheter when said outer sheath collapses during insertion.

5,209,727
GUIDE WIRE WITH INTEGRAL ANGIOPLASTY BALLOON
Herbert R. Radisch, Jr., San Diego, and Andrew F. Farr, Spring Valley, both of Calif., assignors to Interventional Technologies, Inc., San Diego, Calif.
Filed Jan. 29, 1992, Ser. No. 827,330
Int. Cl.[5] A61M *29/00*
U.S. Cl. 604—96 24 Claims



1. An apparatus for applying pressure to a stenosis in the lumen of a body vessel which comprises;

a fluid inflatable means;

a hollow tubular guide wire attached to said inflatable means with an open end of said hollow tubular guide wire in fluid communication with said inflatable means;

a guide extension fixedly attached to said inflatable means interconnecting said guide extension and said guide wire;

a helical structural member bonded to said wire for strengthening said wire, said helical member defining a plurality of coils; and

an elongated flexible structural member disposed inside said fluid inflatable means and fixedly attached to said guide extension and said guide wire.

5,209,728
LOW PROFILE, HIGH PERFORMANCE INTERVENTIONAL CATHETERS
Jeff Kraus, San Jose, and Robert D. Lashinski, Cupertino, both of Calif., assignors to Danforth Biomedical, Inc., Menlo Park, Calif.
Continuation of Ser. No. 430,702, Nov. 2, 1989, abandoned. This application Sep. 16, 1992, Ser. No. 946,828
Int. Cl.[5] A61M *29/00*
U.S. Cl. 604—96 16 Claims



1. A seal for a catheter comprising:

a first region of selected material disposed on a first portion of the catheter, the first region having a first surface contour;

a second region of desired material disposed on a second portion of the catheter, the second region having a second surface contour corresponding to the first surface contour, the second region being movable with respect to the first region;

said first and second regions being positioned such that said first and second contours are facing each other to define a facing portion, wherein said facing portion separates first

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and second volumes and wherein at least one of said first and second volumes containing a liquid; and

wherein the first region and the second region are spaced apart by a distance sufficiently small to prevent said liquid from flowing therebetween.

5,209,729

DILATATION CATHETER

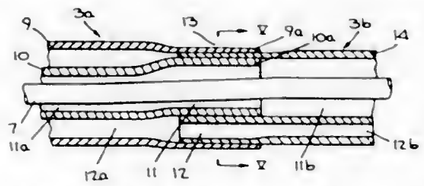
Eugen Hofmann, Zurich; Susanne Pfenninger, Uster, and Werner Niederhauser, Zurich, all of Switzerland, assignors to Schneider (Europe) AG, Zurich, Switzerland

Filed Aug. 5, 1991, Ser. No. 740,363

Claims priority, application Switzerland, Aug. 9, 1990, 2596/90

Int. Cl.[5] A61M *29/00*

U.S. Cl. 604—96 10 Claims



1. A dilation catheter for percutaneous transluminal recanalization of chronic arterial occlusions comprising a shaft having proximal and distal ends and a first shaft lumen extending therebetween, a dilatation balloon located proximate said distal end, with said first shaft lumen being adapted to receive a guide wire and with said shaft having a second shaft lumen for pressurizing said balloon, said shaft comprising at least two separately produced segments connected to one another wherein said segments include a proximal portion having two coaxial tube pieces defining inner and outer lumens and a more flexible distal portion having a two-lumen tube piece, said portions being connected to one another such that a first lumen of the distal portion is connected to said inner lumen of the proximal portion, and a second lumen of the distal portion is connected to said outer lumen of the proximal portion.

5,209,730
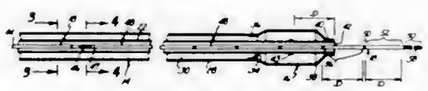
METHOD FOR PLACEMENT OF A BALLOON DILATATION CATHETER ACROSS A STENOSIS AND APPARATUS THEREFOR

Daniel J. Sullivan, Plymouth, Minn., assignor to SciMed Life Systems, Inc., Minneapolis, Minn.

Filed Dec. 19, 1989, Ser. No. 452,710

Int. Cl.[5] A61M *29/00*; A61B *5/00*

U.S. Cl. 604—96 10 Claims



1. For use in combination with an over-the-wire balloon catheter having a reference radiopaque marker thereon at a known distance from a distal end of the catheter, the improvement which comprises:

an elongated flexible guide wire having a plurality of longitudinally spaced radiopaque markers on a distal portion thereof, with adjacent markers on the guide wire being longitudinally spaced by a distance equal to the known distance between the distal end of the catheter and its reference radiopaque marker.

5,209,731

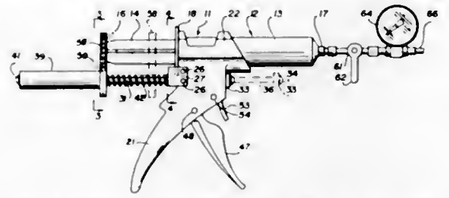
HAND-HELD GUN FOR INFLATING AND ASPIRATING LARGE VOLUME BALLOONS

Wesley D. Sterman, San Francisco; Ronald G. Williams, Menlo Park, and Alec A. Piplani, Mountain View, all of Calif., assignors to Endovascular Technologies, Inc., Menlo Park, Calif.

Filed Dec. 13, 1991, Ser. No. 807,455

Int. Cl.[5] A61M *29/00*

U.S. Cl. 604—97 4 Claims



1. In a hand-held gun for inflating and deflating large volume balloons by the use of a syringe having a barrel and a syringe plunger having a head and slidably mounted in the barrel, a handle adapted to be grasped by the hand, housing means carried by the handle adapted to receive and retain the barrel of the syringe, a plunger rod having proximal and distal extremities slidably mounted in said handle for movement in a direction parallel to the movement of the syringe plunger between forward and rearward positions, a sleeve secured to the proximal extremity of the plunger rod and extending coaxially for at least a portion of the plunger rod, spring means mounted on the plunger rod for yieldably urging said plunger rod in a direction axially of the plunger rod toward the rearward position, means secured to the sleeve and adapted to be removably secured to the head of the syringe plunger, gripper means pivotally mounted on said handle and engaging said plunger rod for progressively advancing said plunger rod towards a forward position against the force of the spring means to advance said syringe plunger in the barrel for causing an inflating liquid to be discharged from the barrel for inflation of the balloon, and trigger means pivotally mounted on the handle for releasing said plunger rod from a forward position to permit said spring means to return said plunger rod to a rearward position and to carry with it the syringe plunger to aspirate fluid from the balloon to cause deflation of the balloon.

5,209,732

LOCKING SYRINGE WITH THREAD-RELEASE LOCK

Fred P. Lampropoulos; Philip M. Triolo, both of Salt Lake City, and William Padilla, Bennion, all of Utah, assignors to Merit Medical Systems, Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 434,461, Nov. 13, 1989, Pat. No. 5,047,015, which is a continuation-in-part of Ser. No. 325,561, Mar. 17, 1989, Pat. No. 5,057,078. This application Mar. 4, 1991, Ser. No. 664,984

Int. Cl.[5] A61M *29/00*

U.S. Cl. 604—99 75 Claims

1. A locking syringe for maintaining therewithin a predetermined pressure created by relative movement of components of the syringe, the locking syringe comprising:

(a) a barrel;

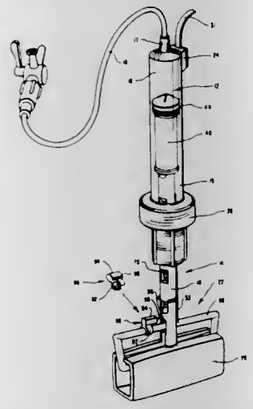
(b) a plunger at least partially disposed within said barrel engaging the interior thereof and being capable of reciprocating sliding movement therein;

(c) plunger position maintenance means for selectively restricting reciprocating sliding movement of said plunger to hold said plunger in a selected position against the predetermined pressure created within said barrel, said plunger position maintenance means comprising:

(i) internal restricting means located on a portion of said interior of said barrel; and

(ii) external restricting means located along at least a portion of the longitudinal axis of said plunger, said external restricting means being moveable between an engaged position in which said external restricting means engages said internal restricting means to restrict reciprocating sliding movement of said plunger and a disengaged position in which said external restricting means is free of said internal restricting means and said plunger is capable of reciprocating sliding movement,

(d) trigger means for selectively retracting said external



restricting means between said engaged and said disengaged position thereof, said trigger means being capable of assuming a first position in which said external restricting means is placed in said engaged position thereof and a second position in which said external engagement means is placed in said disengaged position thereof; and

(e) locking means for preventing movement of said trigger means into said first position thereof, thereby to maintain said external restricting means in said disengaged position thereof and to permit reciprocating sliding movement of said plunger.

5,209,733

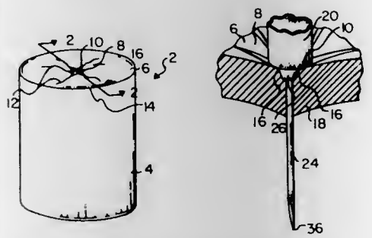
CONTAMINATED SYRINGE GUARD WITH FLEXIBLE ASTERISK APERTURE

Peter G. Lever, 3329 Oak Dr., Hollywood, Fla. 33021, and Helen T. Whitehouse, 18125 NW. 5th Ct., Miami, Fla. 33169

Filed Jun. 8, 1992, Ser. No. 895,994

Int. Cl.[5] A61M *5/50, 5/32*; B65D *83/10*

U.S. Cl. 604—110 4 Claims



1. A contaminated syringe guard comprising:

a cylindrical wall;

ends attached about their periphery to the cylindrical wall, forming a cavity with the cylindrical wall and between the ends and at least one end including a recess disposed in a substantially central position in the end;

an asterisk aperture disposed in at least one end at a base of the recess, which aperture is comprised of a plurality of cuts in the end radiating outward from the aperture and extending toward, but not reaching, the periphery of the end wherein the cuts terminate in proximity to the asterisk aperture in aperture points which are adapted to flex downwardly when a syringe needle hub is inserted into the asterisk aperture thereby lockingly engaging the syringe needle hub; and

a seal disposed within the cavity in proximity to the asterisk aperture, said seal being adapted to be readily penetrated by a syringe needle, but resisting leaks of fluid from within the cavity after penetration by the needle.

5,209,734

CONTINUOUS SPINAL ANESTHESIA ADMINISTERING APPARATUS

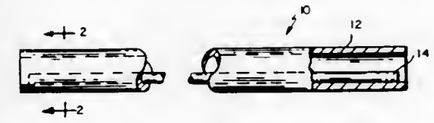
Ronald J. Hurley, Norwell, Mass.; Kenneth W. Larson, Keene, N.H.; Douglas F. Reed, Lithonia, Ga., and Donald H. Lambert, Westwood, Mass., assignors to Brigham and Women's Hospital, Inc., Boston, Mass.

PCT No. PCT/US89/01172, § 371 Date Dec. 19, 1990, § 102(e) Date Dec. 19, 1990

PCT Filed Mar. 21, 1989, Ser. No. 576,455

Int. Cl.[5] A61M *5/178, 25/00*

U.S. Cl. 604—158 30 Claims



1. A continuous spinal anesthesia administering apparatus comprising a polymeric microcatheter having an external diameter less than about 0.0130 inch (0.330 mm) and further comprising a reinforcing member extending substantially the length of the microcatheter and fixed so that the reinforcing member is maintained within the microcatheter during infusion of the anesthetic.

5,209,735

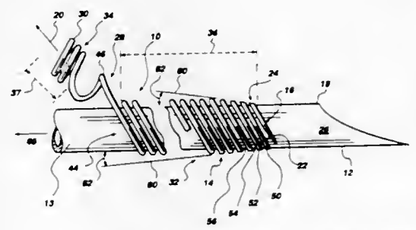
EXTERNAL GUIDE WIRE AND ENLARGEMENT MEANS

Harrison M. Lazarus, 324 10th Ave., Ste. #260, Salt Lake City, Utah 84103

Continuation-in-part of Ser. No. 610,349, Nov. 2, 1990, abandoned, which is a continuation of Ser. No. 448,977, Dec. 12, 1989, abandoned, which is a continuation of Ser. No. 270,661, Nov. 7, 1988, Pat. No. 4,886,500. This application Aug. 27, 1991, Ser. No. 750,210

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—164 19 Claims



1. A method of inserting a guide wire into a patient comprising:

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providing structure for insertion into the tissue of a patient comprising needle-like structure having an elongated portion, said elongated portion having an exterior surface, a proximal end and a distal end defining piercing means for inserting said needle-like structure into the tissue of a patient, and a guide wire having a body, said body having a distal end, a proximal end, and a lumen sized and shaped for positioning slidably and snugly about said exterior surface of said elongated portion of said needle-like structure, said body being sized in length to extend from interior a patient to exterior said patient;

positioning said piercing means proximate said tissue of said patient for insertion therethrough;

inserting said elongated portion and said distal end of said body into said tissue of said patient to form an opening therethrough;

removing said elongated portion from said distal end of said body; and

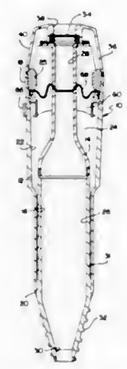
urging said body of said guide wire into said opening a selected distance.

5,209,736

TROCAR METHOD AND APPARATUS

Randy R. Stephens, Fairfield; Dale R. Schulze, Lebanon; Gregory D. Bishop, Hamilton; Narinderjit Sambi, Maineville, all of Ohio; John M. Collins, Ipswich, Mass.; George E. Selecman, Salem, and Randall Sword, Danvers, both of Mass., assignors to Ethicon, Inc., Cincinnati, Ohio

Filed Oct. 18, 1991, Ser. No. 779,040
Int. Cl.[5] A61M *29/00*
U.S. Cl. 604—164 17 Claims



1. A method of positioning a large diameter trocar tube in an anatomical cavity, comprising the steps of:

(a) directing a first trocar assembly having a small diameter trocar tube through the skin and into the anatomical cavity;

(b) directing an elongated member through the trocar tube of the first trocar assembly and into the anatomical cavity;

(c) removing the first trocar assembly from the anatomical cavity while maintaining the elongated member in the anatomical cavity;

(d) directing a second trocar assembly having a large diameter outer trocar tube and a small diameter inner trocar tube around the elongated member through the skin and into the anatomical cavity; and

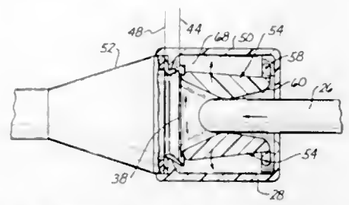
(e) removing the elongated member and the inner trocar tube from the anatomical cavity through the outer trocar tube of the second trocar assembly while maintaining the outer trocar tube in the anatomical cavity.

5,209,737

LEVER ACTUATED SEPTUM SEAL

Mark A. Ritchart, Murrieta; Robert P. Cooper, Yorba Linda; Charles C. Hart, and Donald L. Gadberry, both of Huntington Beach, all of Calif., assignors to Applied Medical Resources, Inc., Laguna Hills, Calif.

Filed Jul. 18, 1991, Ser. No. 732,141
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—167 32 Claims



1. A trocar assembly having a channel defined along an elongate axis, the trocar assembly being adapted to receive an instrument having a particular cross-sectional dimension, said trocar assembly comprising:

an elastomeric septum disposed in said channel and including portions defining an orifice having in a relaxed state a first cross-sectional area and in an expanded state a second cross-sectional area; and

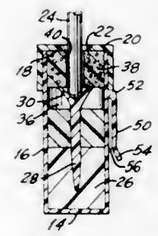
means responsive to the particular dimension of the instrument for expanding said orifice to the second cross-sectional area.

5,209,738

METHOD AND APPARATUS FOR ENABLING SAFE RECAPPING OF HYPODERMIC NEEDLES

John Bruno, 77-83 Second Ave., Paterson, N.J. 33431

Continuation of Ser. No. 546,181, Jun. 28, 1990, abandoned.
This application Mar. 10, 1992, Ser. No. 849,995
Int. Cl.[5] A61M *5/32*
U.S. Cl. 604—192 30 Claims



1. A recapping device to assist in recapping the needle of a hypodermic needle/syringe by a one-handed operation, comprising:

a housing having top and bottom ends, said housing having at least its top end open;

a ballast material generally at the bottom end of said housing for stabilizing said recapping device in an upright position; and

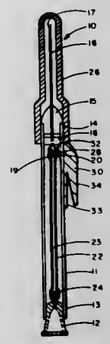
a sheath gripper disposed in said housing for releasably supporting a needle sheath, said sheath gripper formed from a strip of a resilient material such as rubber or foam and folded about a plurality of fold lines so as to form an expandable, roughly triangularly shaped sheath supporting opening for resiliently supporting said needle sheath in an upright position in such a way that a used needle can be recapped by re-inserting the needle tip into the sheath held by said recapping device yet said gripper allows withdrawal of the sheath once reattached to the needle.

5,209,739

HYPODERMIC NEEDLE

Leon Talalay, 1 Chestnut La., Woodbridge, Conn. 06525

Filed Jun. 23, 1992, Ser. No. 903,038
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—195 24 Claims



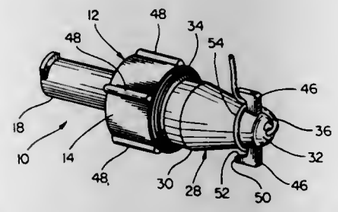
1. A hypodermic needle assembly comprising a tubular barrel member, a cannula extending from said barrel member, an elastomeric tube connected between said cannula and a fitting at the distal end of the barrel member providing a fluid passage therebetween, said tube being stressed along its length between said cannula and said fitting, releasable means holding said elastomeric tube in a stressed state and means for actuating said releasable means whereby said elastomeric tube retracts said cannula within said barrel.

5,209,740

CATHETER ADAPTER HAVING RETENTION NOTCHES

Peter L. Bryant, Libertyville, and Nicolaos A. Drivas, Des Plaines, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Nov. 22, 1991, Ser. No. 796,149
Int. Cl.[5] A61M *25/00*
U.S. Cl. 604—243 4 Claims



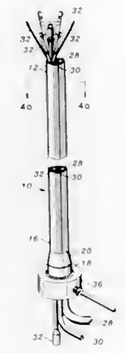
1. An improvement in an adapter of the type having an axially bored female housing portion with an internally threaded section, a bored externally threaded male housing portion having a conically tapered inner bore, a bored generally conically shaped resilient grommet disposed against the conically tapered inner bore of the male housing portion and adapted to be squeezed against the outer surface of the end of a catheter inserted into the adapter as the male body portion is threadedly tightened into said female body portion to provide a retention force thereon, and wherein the male body portion is provided with a pair of diametrically opposite radially disposed finger-engageable wing members which serve as an aid in tightening the male body portion into the female body portion, the improvement comprising notch means formed in at least one of said wing members for receiving the catheter after same exits from the end of said male body portion and to facilitate wrapping said catheter about said male housing portion in frictional contact therewith whereby to improve said retention force, wherein said notch means faces in the same direction that said male body portion is tightened.

5,209,741

SURGICAL ACCESS DEVICE HAVING VARIABLE POST-INSERTION CROSS-SECTIONAL GEOMETRY

Edmund E. Spaeth, Orange, Calif., assignor to EndoMedix Corporation, Irvine, Calif.

Filed Jul. 8, 1991, Ser. No. 726,496
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—264 15 Claims



1. A surgical access device comprising:

a tubular member having a distal end portion for insertion through an insertion opening into a body cavity, organ or blood vessel and an extracorporeal proximal end portion for the introduction of at least one throughput device into said tubular member; and

means for facilitating the introduction of the at least one throughput device into said extracorporeal proximal and portion of said tubular member;

said tubular member being formed of flexible wall material forming said tubular member and having longitudinal stiffening elements incorporated therein to permit non-buckling rotation of the tubular member when it is inserted into the body cavity, organ or blood vessel, and said tubular member being radially deformable, with a substantially constant circumference, to permit the tubular member to optimize cross-sectional area of the insertion opening by conforming to the outer surface configuration of at least one throughput device introduced into said tubular member;

whereby tissue trauma is reduced at the insertion opening by reducing the size of the opening.

5,209,742

CURVED CATHETER WITH ECCENTRIC LUMEN

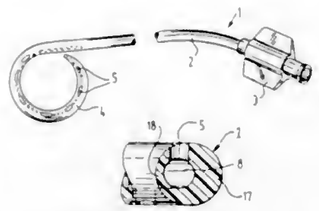
Hendrik J. Venema, PD Roden, and Arnoldus C. J. M. Wijkamp, AW Roden, both of Netherlands, assignors to Cordis Corporation, Miami Lakes, Fla.

Filed Sep. 10, 1990, Ser. No. 579,823
Claims priority, application Netherlands, Sep. 13, 1989, 8902286
Int. Cl.[5] A61M *25/00*
U.S. Cl. 604—281 2 Claims

1. A catheter comprising a flexible, tubular basic catheter body defining a single lumen which carries at one end a coupling hub and which defines at the opposed end a curved tip in its natural, unstressed condition; and side-opening means defined in said curved tip connecting the lumen to the exterior, the improvement comprising, in combination:

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the lumen in said curved tip being positioned eccentrically toward the inside of the curve of said curved tip, whereby the sidewall portion of said catheter body on the inside of the curve of said curved tip is thinner than the sidewall portion of said catheter body on the outside of the curve of said curved tip, and, upon straightening of said catheter tip in use, the thinner sidewall portion on the inside of said



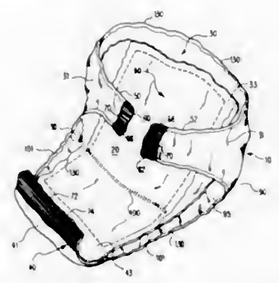
curved tip is placed into tension, while the thicker sidewall portion is placed into compression, with the result that buckling of the catheter wall adjacent said side opening means upon such straightening is suppressed, said side-opening means comprising side holes positioned on said curved tip in a lateral area between the thinnest and the thickest wall portions of said catheter tip.

5,209,743

REUSABLE DIAPER AND THE LIKE

Christine Hardison, Somerset, N.J., assignor to General Health Care Corp., Piscataway, N.J.

Filed Aug. 23, 1991, Ser. No. 749,198
Int. Cl.[5] A61F *13/15, 13/20*; A41B *9/00, 9/04*
U.S. Cl. 604—391 **18 Claims**



1. A reusable infant garment comprising a cover member having a panel with an impervious front portion, an absorbent rear portion, and a periphery including an inner surface and an outer surface;

first and second tab means affixed to the rear portion and extending away therefrom, each tab means having an outer and inner surface with at least portions of the inner surface of each tab means being adapted to abut the outer surface of the front portion of the cover member;

first loop means affixed to the outer surface of the first tab means;

second loop means affixed to the outer surface of the second tab means;

third loop means affixed to the outer surface of the front portion of the cover member; and at least one separate detachable hook coupling means for detachably engaging said first, second, and third loop means;

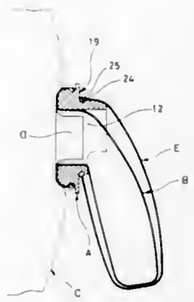
whereby when the cover member is folded so that the first and second tab means are opposite each other and contiguous to the third loop means, said separate detachable hook coupling means is applied to the first, second and third loop means to fasten said first tab means and said second tab means of the rear portion to the front portion of said cover member, and said hook coupling means being removable so as to facilitate washing of a plurality of said reusable infant garments.

5,209,744

ARTIFICIAL ANUS DEVICE

Shosaburo Abe, and Yoshikatsu Abe, both of 6-5, Shichirigahama Higashi 3-chome, Kamakura-shi, Kanagawa-ken, Japan

Filed Jun. 10, 1991, Ser. No. 712,276
Claims priority, application Japan, Jun. 13, 1990, 2-152650; Sep. 12, 1990, 2-240057
Int. Cl.[5] A61F *5/44*
U.S. Cl. 604—342 **10 Claims**



1. An artificial anus device comprising:

an excreta receptacle bag comprising a flexible bag body made from a thin film and having an opening at one end thereof;

a device body for securing said receptacle bag to an abdomen, said device body comprising a through hole, one side of said device body comprising an abdomen pressure contacting portion disposed around said through hole and a locking portion comprising an annular recess disposed around an outer circumference of said device body;

wherein said one side of said receptacle bag is inserted through said through hole and an edge of said opening is detachably engaged in said annular recess such that said thin film covers said abdomen pressure contacting portion and an inner surface of said through hole and said annular recess has a depth deeper on one side of said outer circumference of said device body than on the other side of said outer circumference of said device body.

5,209,745

BLOOD CRYOPRESERVATION CONTAINER

Joseph D. Irr, 386 Briar La., Newark, Del. 19711; John D. Walker, 107 Hanover Way, New Castle, Del. 19720; George F. Dunn, Jr., 306 W. Mantua Ave., Wenonah, N.J. 08090, and Viet X. Nguyen, 22 Silverwood Blvd., Newark, Del. 19711

Continuation-in-part of Ser. No. 475,604, Feb. 6, 1990. This application Oct. 23, 1990, Ser. No. 601,637
Int. Cl.[5] B65D *33/16*
U.S. Cl. 604—415 **13 Claims**

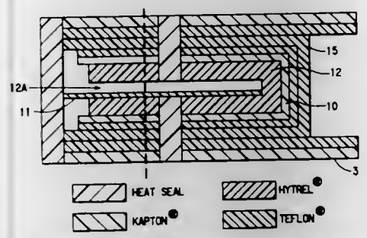
1. In a container comprising a body of a laminate film (3) having a layer of a polyimide film facing the outside of the container and a fluoropolymer film layer facing the inside of the container, a filling port (2), and a transfusion port sealed between said laminate film (3), the improvement comprising the transfusion port being incorporated into a transfusion port tab insert (1) comprising:

(a) a fluoropolymer film layer (15) being bonded to the fluoropolymer film layer of (3) which is facing the inside of the container;

(b) a laminate film (10) having a polyimide layer and a fluoropolymer film layer, the fluoropolymer film layer of (10) being bonded to the fluoropolymer film layer (15);

(c) at least one strip of piercable spike-through material (12) made of a thermoplastic polyester elastomer film, the spike-through material (12) being bonded to the polyimide layer of (10), said spike-through material having a high degree of resilience; and

(d) a strip of material (11) being non-bondable to the spike-through material (12);



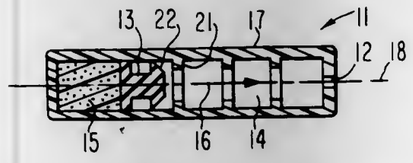
wherein (12), (10), and (15) are bonded thereby forming peripheral seals (13) made on each side of the tab insert (1), such that the spike-through material (12) is sealed to itself, except to the extent that the non-bondable strip of material (11) prevents such bonding, and the film (10) is sealed to the spike-through material (12) and optionally an additional seal is made across the width of the spike port tab insert (1) perpendicular to the peripheral seals (13).

5,209,746

OSMOTICALLY DRIVEN DELIVERY DEVICES WITH PULSATILE EFFECT

Stephen M. Balaban, Chesterfield; James B. Pike, St. Peters; Jonathan P. Smith, St. Louis, and Clifton A. Baile, Chesterfield, all of Mo., assignors to ALZA Corporation, Palo Alto, Calif.

Filed Feb. 18, 1992, Ser. No. 837,183
Int. Cl.[5] A61K *9/22*
U.S. Cl. 604—892.1 **27 Claims**



1. An osmotically driven device for placement in an aqueous environment for pulsatile delivery of a beneficial agent to said environment, said device comprising:

an elongate enclosure having a longitudinal axis, first and second ends, an inner wall surface and an orifice at said first end, at least a portion of said enclosure adjacent to said second end being permeable to moisture;

a partition dividing the interior of said enclosure into first and second compartments adjacent to said first and second ends, respectively, for retention of said beneficial agent and an osmotically active agent, respectively, said partition capable of moving longitudinally within said enclosure;

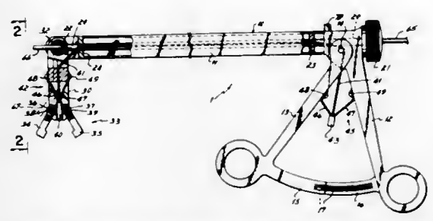
a plurality of resistance means on said inner wall surface, said resistance means spaced longitudinally and each preventing movement of said partition toward said first end of said enclosure until a threshold pressure differential across said partition is exceeded.

5,209,747

ADJUSTABLE ANGLE MEDICAL FORCEPS

Dennis J. Knoepfler, 1383 Whitaker La., Amelia, Ohio 45101

Continuation of Ser. No. 626,908, Dec. 13, 1990, abandoned. This application Jun. 5, 1992, Ser. No. 895,188
Int. Cl.[5] A61B *17/28*
U.S. Cl. 606—16 **15 Claims**



1. An adjustable angle medical forceps adapted for a laparoscopic procedure comprising:

a first tubular housing,

a second tubular housing,

a movable jaw pair,

a handle,

angle adjustment means, and

jaw actuation means;

said handle attached to a first end of said first tubular housing, said handle being operable to open and close said jaw pair via said jaw actuation mans, said first tubular housing having a second end to which is pivotally connected a first end of said second tubular housing, said angle adjustment means being operable to pivot said second tubular housing with respect to said first tubular housing, said second tubular housing having a second end to which is attached said jaw pair, the portion of said jaw actuation means and angle adjustment means near a distal end of said instrument being disposed substantially within said second tubular housing so that neither of said jaw actuation and angle adjustment means is exposed to surrounding tissue, said forceps thereby being adapted to bluntly dissect with said distal end thereof,

whereby said forceps, initially configured generally straight, may be inserted through a cannula, placing said second tubular housing and moveable jaw pair within a patient's abdomen, and after insertion thereof said angle adjustment means may be manipulated externally of the cannula and the patient's abdomen, to articulate said second tubular housing and jaw pair into a desired angular configuration within the patient's abdomen, said jaw actuation means then being operable to actuate said jaw pair for grasping, suturing and dissecting, said second tubular housing spacing said jaw pair from said first tubular housing and providing, when angled with respect to said first tubular housing, increased leverage, maneuverability and dexterity for suturing, dissecting and the like.

5,209,748

LASER LIGHT IRRADIATION APPARATUS

Norio Daikuzono, Chiba, Japan, assignor to S.L.T. Japan Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 568,124, Aug. 16, 1990, abandoned. This application Jun. 16, 1992, Ser. No. 899,043
Claims priority, application Japan, Aug. 24, 1989, 1-217869
Int. Cl.[5] A61B *17/36*
U.S. Cl. 606—16 **13 Claims**

1. A laser light irradiation apparatus comprising:

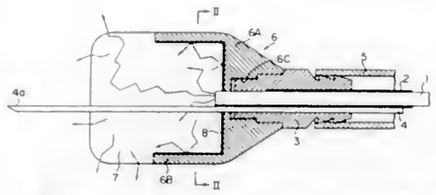
a light emitting member formed of a molded laser light transmissive synthetic resin;

light scattering particles dispersed throughout said synthetic

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resin, wherein the light scattering particles have a larger refractive index than that of the synthetic resin;

at least one transmitting member, through which laser light is transmitted so as to be applied to said light emitting member, wherein said laser light transmitting member is an optical fiber and a fore end portion of a core of said



optical fiber is embedded in the synthetic resin of said light emitting member; and

a laser light scattering layer formed on the surface of the embedded part of said core, said laser light scattering layer being fabricated from heat resistant ceramic particles, a portion of which are fused together and a portion of which remain in a particle state.

5,209,749

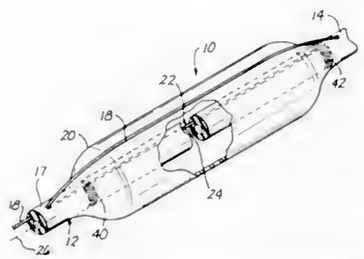
FLUOROSCOPICALLY ALIGNABLE CUTTER ASSEMBLY AND METHOD OF USING THE SAME

Terrence J. Buelna, Rancho Santa Margarita, Calif., assignor to Applied Urology Inc., Laguna Hills, Calif.

Continuation of Ser. No. 522,240, May 11, 1990, abandoned. This application Jan. 22, 1992, Ser. No. 824,897

Int. Cl.[5] A61B *17/39*

U.S. Cl. 606—45 **32 Claims**



25. A fluoroscopically alignable assembly adapted for operative disposition in a vessel, orifice, conduit or other body cavity, comprising:

an elongate support having a longitudinal axis extending between a distal end portion and a proximal end portion of the support, the support being rotatable about the axis when disposed in the body cavity;

a radiopaque cutting element having a predetermined width, the cutting element being carried by the distal end portion of the support about the axis such that rotation of the support moves the cutting element through a multiplicity of locations within the body cavity, the locations including a particular location associated with a desired angular orientation of the cutting element within the body cavity;

a radiopaque marker pattern, having a fixed relationship with the cutting element, the pattern including a plurality of indicators, each having a predetermined width which is not appreciably greater than the width of the cutting element and having a radiopaque characteristic which is different than the radiopaque characteristic of the other indicators, each indicator having properties for being oriented relative to the cutting element to present a visual characteristic representative of an associated one of the locations;

means disposed at the proximal end portion of the support for rotating the support to achieve the particular visual orientation; whereby

the cutting element is disposed at the particular location associated with the desired angular relationship between the cutting element and the body cavity.

5,209,750

EXTERNAL HOLDING AND REDUCING BRACE FOR BONE FRACTURES

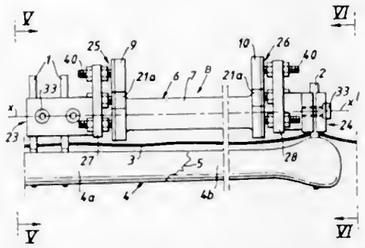
Francine Stef, Charleville Mezieres, France, assignor to Compagnie General de Materiel Orthopedique, France

Filed Oct. 11, 1991, Ser. No. 775,197

Claims priority, application France, Oct. 12, 1990, 90 12856

Int. Cl.[5] A61B *17/56*

U.S. Cl. 606—54 **27 Claims**



1. External holding and reducing brace for bone fractures, of the type comprising an elongated support (**6**) made up of two telescopic components (**7, 8**), a device (**11**) for adjusting and locking those telescopic components, two end flanges (**23, 24**) fitted to the opposite ends of those components by means of position-adjusting devices (**25, 26**) and movable pins (**1, 2**) gripped by the flanges to point in a direction different from that if axis x—x' of the elongated support and designed to be screwed from outside the limb into the fractured bone (**4**) and on either side of the line of fracture (**5**), characterized by the fact that:

the telescopic components (**7, 8**) are made of an X-ray transparent material and form two transverse plates (**9** and **10**) at their opposite ends;

the locking device (**11**) is composed of a slide (**12**) working in conjunction with two chucks (**13** and **14**) adapted to the periphery of the plates;

the position-adjusting devices, for each flange, are made up of three threaded rods (**40**), angularly equidistant, individually adjustable in length and mounted by means of three ball-and-socket joints in the corresponding plate.

5,209,751

SPINAL FIXATION SYSTEM

Robert A. Farris, Memphis, Tenn., and David L. Brumfield, Nesbit, Miss., assignors to Danek Medical, Inc., Memphis, Tenn.

Filed Feb. 19, 1992, Ser. No. 838,498

Int. Cl.[5] A61B *17/56, 17/00*

U.S. Cl. 606—61 **17 Claims**

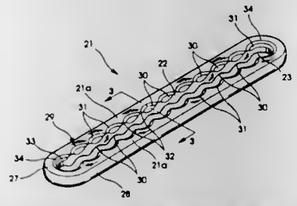
1. An apparatus for use with bone engaging fasteners for maintaining the vertebrae in a desired relationship, comprising:

substantially rigid plate means for being placed over the vertebrae, said plate means having a lower surface for facing the vertebrae and an opposite upper surface;

a number of slot openings defined through said plate means between said upper surface and said lower surface, each of said number of slot openings being sized to receive a bone engaging fastener therethrough; and

scallop means for blocking sliding movement of a bone

engaging fastener relative to said plate means, said scallop means including a first set of scallops and a second set of scallops, each set of scallops being formed by a number of depressions defined in at least one of said lower surface



and said upper surface of said plate across said number of slot openings, wherein said first set of scallops is defined at a spherical radius that is different from said second set of scallops.

5,209,752

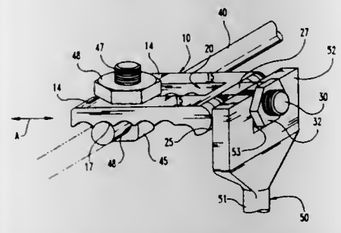
LATERAL OFFSET CONNECTOR FOR SPINAL IMPLANT SYSTEM

Richard B. Ashman, Dallas, Tex., and Michael C. Sherman, Memphis, Tenn., assignors to Danek Medical, Inc., Memphis, Tenn.

Filed Dec. 4, 1991, Ser. No. 803,325

Int. Cl.[5] A61B *17/56*

U.S. Cl. 606—61 **4 Claims**



4. An assembly for use in a spinal implant system to connect a plurality of vertebral fixation element to a spinal rod extending adjacent the vertebral column in a patient in which the plurality of fixation elements are non-colinear, the assembly comprising:

a lateral offset connector including;

a head portion;

a pair of parallel arms integrally extending from said head portion along a longitudinal axis, said pair of arms being displaced from each other perpendicular to said longitudinal axis to define a slot opening therebetween;

a plurality of grooves defined in a surface of each of said pair of arms, each of said plurality of grooves being aligned between said pair of arms and each of said plurality of grooves being formed at a radius configured to receive the spinal rod therein perpendicular to said longitudinal axis;

a threaded post integrally extending from said head portion along said longitudinal axis in a direction opposite said pair of parallel arms; and

a nut for engaging said threaded post, whereby the vertebral fixation element is clamped between said head portion and said nut when said nut is engaged on said threaded post;

means, disposed within said slot opening, for clamping said pair of arms to the spinal rod with the spinal rod disposed within one of said plurality of grooves in each of said pair of arms, whereby the spinal rod can be adjustably disposed within said one of said plurality of grooves with said pair of arms spanning the distance between the spinal rod and the vertebral fixation element.

5,209,753

BONE SCREW

Lutz Biedermann, Berta-Suttner-Str.23, D-7730 VS-Schwenningen, and Jürgen Harms, Belchenweg 9, D-7517 Waldbronn-Reichenbach, both of Fed. Rep. of Germany

PCT No. PCT/EP90/01835, § 371 Date Jun. 28, 1991, § 102(e) Date Jun. 28, 1991, PCT Pub. No. WO91/06252, PCT Pub. Date May 16, 1991

PCT Filed Nov. 2, 1990, Ser. No. 679,085

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1989, 3936703

Int. Cl.[5] A61B *17/56*

U.S. Cl. 606—72 **6 Claims**



1. A bone screw comprising: an elongated shaft having an external thread for engaging bone material with a head on one end and a point with its apex facing the opposite end, a longitudinal bore extending along the longitudinal axis of said screw, one end of said bore opposite said head being provided with a tapered portion, and said screw also having slits extending parallel to the longitudinal direction of said screw, an internal thread being provided in said longitudinal bore, a second shaft insertable into said longitudinal bore and having a threaded portion cooperating with said internal thread in said bore, an expander part forming the point of said bone screw, said expander part and said shaft being connected by thread means, said expander part axially movable within said longitudinal bore as said second shaft is rotated.

5,209,754

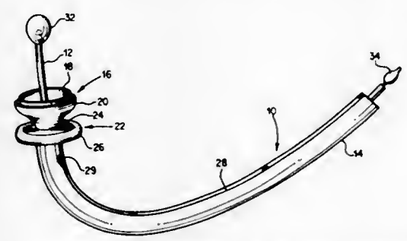
VAGINAL CERVICAL RETRACTOR ELEVATOR

Prabhat K. Ahluwalia, 4 Fowler Dr., St. Johnsville, N.Y. 13452

Filed Apr. 2, 1992, Ser. No. 862,371

Int. Cl.[5] A61M *29/00*

U.S. Cl. 606—119 **9 Claims**



1. A device for the manipulation of the uterus comprising:

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an elongated inner tube having a distal end and a proximal end;

an outer cervical cap having a top portion of a first diameter and a bottom portion having a second diameter less than said first diameter, said bottom portion of said outer cap provided with a hole therein;

an inner cervical cap having a top portion of a third diameter and a bottom portion having a fourth diameter less than said third diameter, said bottom portion of said inner cap provided with a hole therein, said inner cap joined to, and provided within said outer cap to form a retractor elevator, said elevator movable on said elongated inner tube; and

an outer hollow shaft having a distal end and a proximal end, provided with a longitudinal groove having a distal end and a proximal end extending from the distal end of said outer shaft to immediately prior to the proximal end of said shaft, said elongated inner tube inserted into said outer shaft during uterine manipulation;

wherein when said device is utilized, said inner cap would surround and support the cervix and said outer cap would stretch the upper vaginal canal.

5,209,755

DERMAL EXCISER

Stella Abrahan, and Enrique Vallota, both of 2260 Brentford Rd., San Marino, Calif. 91108

Filed Jun. 5, 1992, Ser. No. 893,731

Int. Cl.[5] A61B *10/00*

U.S. Cl. 606—132 **8 Claims**



1. A skin cutter for removing an ellipsoid-shaped sample of skin from a patient, comprising:

(a) an elongated tube with a longitudinal bore, an inner wall and an external surface;

(b) a moveable rod disposed within the bore of the tube, the rod having a first end and a second end;

(c) a stop bar attached to the first end of the rod, the stop bar acting to prevent the first end of the rod from entering the bore of the tube;

(d) a compressible spring within the bore of the tube, the spring being attached to the rod at a location near the first end of the rod;

(e) a flap secured to the inner wall of the elongated tube, the flap being adapted for holding the spring in place when the spring is in a compressed state.

(f) a lip attached to the external surface of the tube adapted for supporting an index finger of a user of the dermal exciser;

(g) a plurality of blades, each blade having a cutting surface capable of cutting the skin; and

(h) an assembly for coordinating movement of the blades, the assembly having a first part attached to the second end of the rod, and a second part of the assembly attached to the first part of the assembly, the second part of the assembly also being attached to the blades,

whereby the skin cutter can remove an ellipsoid-shaped sample of skin from a patient.

5,209,756

LIGAMENT FIXATION STAPLE

Bahaa B. Seedhom, Roundabout Farm, Padside, Thornthwaite, Harrogate, HG3 4AL; Simon Collins, Mapplewell, and Anthony C. Swann, Chapeltown, all of England, assignors to Bahaa Botros Seedhom, Leeds, United Kingdom

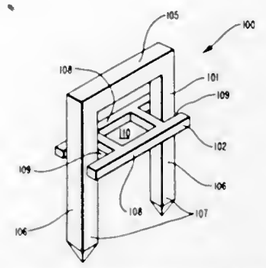
PCT No. PCT/GB90/01694, § 371 Date Jul. 10, 1991, § 102(e) Date Jul. 10, 1991, PCT Pub. No. W091/06249, PCT Pub. Date May 16, 1991

PCT Filed Nov. 5, 1990, Ser. No. 720,833

Claims priority, application United Kingdom, Nov. 3, 1989, 8924806

Int. Cl.[5] A61B *17/00*

U.S. Cl. 606—151 **17 Claims**



1. A ligament fixation device for securing a ligament to a bone and which comprises a bone staple having a head portion by which the staple can be driven into the bone, and a pair of legs extending away from the head portion and having ends engageable into the bone, characterized by a stirrup for guiding the driving movement of the staple and co-operable with the staple in order to anchor the ligament to the bone, characterized in that the stirrup has guides to engage the legs of the staple and thereby guide the driving movement of the staple, and an aperture formed in the stirrup and defined between a pair of opposed side edges, said aperture permitting the ligament to be received by the stirrup in serpentine manner with a first portion to be located between the stirrup and the bone, a second portion to pass around one of said side edges of the aperture, through the aperture and around the other side edge, and a third portion to be located between the head portion of the staple and the stirrup, whereby to anchor the ligament to the bone when the staple is driven into the bone.

5,209,757

ILLUMINATED EAR CLEANING DEVICE

John A. Krug, 2689 N. Galley St., Orange, Calif. 92665; Romeo S. Ortiz, and Marylin R. Ortiz, both of 1004 Vine St., Paso Robles, Calif. 93446

Filed Jul. 15, 1991, Ser. No. 730,281

Int. Cl.[5] A61F *11/00*

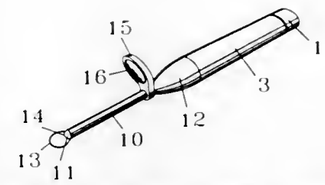
U.S. Cl. 606—162 **1 Claim**

1. A hand held, illuminated ear cleaning device comprising;

a main housing containing a power source and capable of being utilized as a handle for the device;

a flexible, enlongated tube having proximal and distal ends, said proximal end connected to the housing and an ear cleaning tip and an illumination means are attached to the distal of the tube;

an electrical conducting means in a lumen of said tube to connect the illumination means and the power source;



said illumination means consist of either a light bulb or a light emitting diode;

said power source comprising a battery.

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5,209,758

PASTY OR SOLID DYE MELTS: DISPERSE DYE AND NONIONIC AND/OR CATIONIC SURFACTANTS

Rainer H. Traber, Reinach, and Ulrich Strahm, Aesch, both of Switzerland, assignors to Ciba-Geiby Corporation, Ardsley, N.Y.

Filed Dec. 4, 1991, Ser. No. 802,676
Claims priority, application Switzerland, Dec. 11, 1990, 3904/90
Int. Cl.[5] C09B *67/10, 67/38, 67/42*
U.S. Cl. 8—526 **10 Claims**

1. A pasty or solid dye melt which contains, per 1 part of a disperse dye for which the melting point is higher than 150° C., 2 to less than 5 parts of a nonionic surfactant with a melting point of 25°–100° C. and having an HLB value of 13 to 19, wherein the nonionic surfactant is a reaction product of 5 to 100 mol of ethylene oxide and/or propylene oxide with 1 mol of a compound selected from the group consisting of

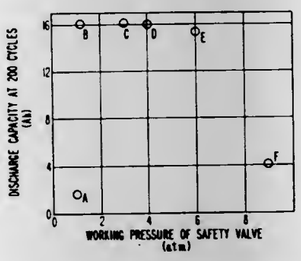
a) a low molecular, aliphatic polyol,
b) a saturated and/or unsaturated fatty alcohol of 8 to 22 carbon atoms,
c) an alkylphenol containing 4 to 12 carbon atoms in the alkyl moiety,
d) a hydroxybiphenyl,
e) a saturated and/or unsaturated fatty amine containing 8 to 22 carbon atoms,
f) a saturated and/or unsaturated fatty acid containing 8 to 22 carbon atoms, and
g) a saturated and/or unsaturated fatty acid (N,N-bishydroxyalkyl)amide or of a cationic surfactant with a melting point of 25°–100° C., or a mixture of said surfactants.

5,209,759

METHOD FOR PRODUCING A METALLIC OXIDE-HYDROGEN SECONDARY BATTERY

Kohei Suzuki; Hiroshi Kawano, both of Ibaraki; Nobuyuki Yanagihara, Hirakata, and Akira Ota, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 31, 1991, Ser. No. 738,336
Claims priority, application Japan, Mar. 22, 1991, 3-58533
Int. Cl.[5] H01M *6/14*
U.S. Cl. 29—623.1 **6 Claims**



1. A method for producing a metallic oxide-hydrogen secondary battery including positive electrodes containing one or more metallic oxides, negative electrodes containing hydrogen-absorbing alloys which electrochemically absorb and desorb hydrogen, separators, an alkaline electrolyte, a closed-type case having a plurality of cell chambers, each said cell chamber having different capacity, which accommodate said positive electrodes, said negative electrodes, said separators, and said electrolyte, and safety valves provided on respective said cell chambers in said closed-type case, wherein said method comprises the steps of:

disposing said positive electrodes, said negative electrodes, and said separators in said cell chambers in said closed-type case;

pouring said electrolyte in a predetermined amount or more into said cell chambers; and

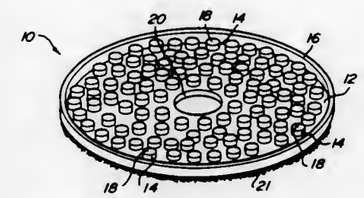
repeating charge and discharge cycles on condition that said safety valves work at pressure G in the range of $1 < G \leqq 6$ atm so that the amount of said electrolyte reaches an equilibrium amount at which the amount of gas generated at the positive electrodes is in equilibrium with the amount of gas absorbed at the negative electrodes and the amount of said electrolyte in each said cell chamber is subsequently kept constant.

5,209,760

INJECTION MOLDED ABRASIVE PAD

Ronald C. Wiand, 1494 Heatherwood Dr., Troy, Mich. 48098

Continuation-in-part of Ser. No. 526,055, May 21, 1990, abandoned. This application Jul. 18, 1991, Ser. No. 732,503
Int. Cl.[5] B24D *3/00*
U.S. Cl. 51—293 **9 Claims**



1. A one-piece abrasive pad comprising:

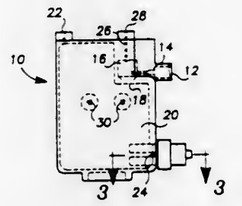
a flexible planar sheet portion having a plurality of abrasive protrusions extending therefrom, said pad being produced by injection molding such that said protrusions are intimately molded with said sheet portion from a single flexible material said material including an abrasive material interspersed homogeneously therethrough such that as the pad wears down, abrasive material will be exposed.

5,209,761

LIQUID TRAP WITH PURGE PORT

Paul A. Ivester, Seattle, and Jeffrey M. Payne, Snohomish, both of Wash., assignors to SpaceLabs Medical, Inc., Redmond, Wash.

Filed Jun. 3, 1992, Ser. No. 894,057
Int. Cl.[5] B01D *45/12*
U.S. Cl. 55—21 **9 Claims**



8. In a liquid trap for removing liquid from gas in a sampled airstream from a patient and temporarily collecting the liquid, a method comprising:

separating liquid from gas in a sampled airstream from a patient using a separation chamber;

transmitting continuously the liquid from the separation chamber to a collection chamber;

allowing the liquid to collect in the collection chamber;

periodically applying a pressure differential across an opening in the collection chamber with the pressure inside the collection chamber being greater than the pressure outside

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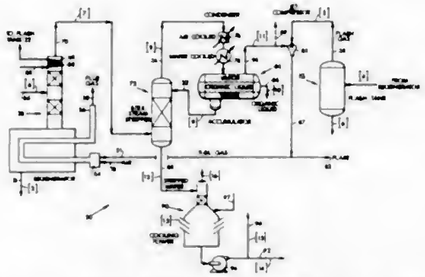
the collection chamber thereby drawing the liquid from the collection chamber through the opening.

5,209,762

METHOD AND SYSTEM FOR CONTROLLING EMISSIONS FROM GLYCOL DEHYDRATORS

Philip S. Lowell, Austin, Tex., assignor to Gas Research Institute, Chicago, Ill.

Filed Jan. 24, 1992, Ser. No. 825,540
Int. Cl.[5] B01D *53/14*
U.S. Cl. 55—31 **25 Claims**



1. In the method for extracting water from a gas stream containing quantities of water and of volatile organic compounds by contacting said gas stream with a glycol to absorb the water, and then regenerating the glycol for further use in said extracting by heating the moist glycol in a glycol regenerator to vaporize the water contained in same as steam and venting the steam and gasified volatile organics which have been absorbed by the glycol during contact with the gas stream; the improvement enabling control of emissions of said volatile organic compounds which have been absorbed by the glycol during contact with said gas stream, while minimizing contaminants in the produced water streams; comprising:

flowing the vented steam and gasified volatile organics from the glycol regenerator as input to the bottom of a steam stripper column;

flowing the vapors from the top of the steam stripper column to a colling condenser to produce a condenser water stream having a relatively high content of said organic compounds; and

passing said condenser water stream to the top of said steam stripper and then through said stripper in countercurrent relation to said vented steam and gasified volatile organics, whereby said condenser water steam is stripped of substantial parts of its organics content and emerges from the bottom of said stripper column as a stripper water stream having relatively low content of said organics.

5,209,763

METHOD OF BOOSTING THE EFFICIENCY OF REMOVING NONCONDENSABLE GASES FROM VAPORS

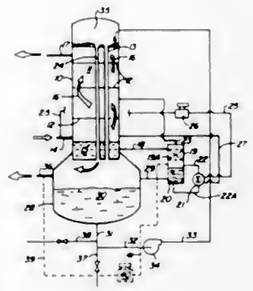
Garrett E. Pack, Laguna Beach, Calif., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Nov. 4, 1988, Ser. No. 267,417
Int. Cl.[5] B01D *19/00*
U.S. Cl. 55—39 **31 Claims**

1. In a method for removing noncondensable gases from a vapor comprising the step of bringing said vapor as incoming vapor into a condensing zone of heat exchanging means into countercurrent heat exchange relationship with a liquid,

whereby noncondensable gases are separated from said vapor as said vapor forms a condensate;

the improvement comprising the steps of (1) continuously conducting said condensate into a stripping means whereby said condensate and residual noncondensable gases contained therein are separated through exposure of said condensate to vapor having a lower concentration of noncondensable gases than vapor in contact with said condensate when formed in said condensing zone; and



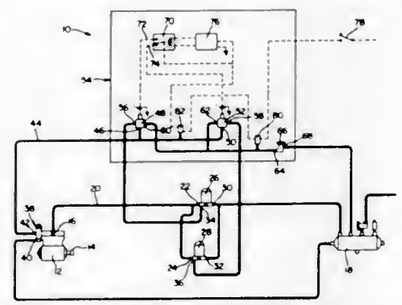
(2) vaporizing at least a portion of the condensate from said stripping means to form vapor essentially free of noncondensable gases.

5,209,764

COMPRESSED AIR SYSTEM WITH TWIN AIR DRYERS

Charles E. Eberling, Wellington, Ohio, assignor to Allied Signal Inc., Morristown, N.J.

Filed Aug. 20, 1991, Ser. No. 747,779
Int. Cl.[5] B01D *53/00*
U.S. Cl. 55—162 **6 Claims**



1. Compressed air system comprising an air compressor for compressing air, a reservoir for storing compressed air, a governor responsive to the pressure level in the reservoir for enabling and disabling said air compressor to maintain the pressure level in the reservoir within a predetermined limit, and a pair of air dryers connected in parallel between the air compressor and the reservoir for removing moisture entrained in the air, control means for initiating an air drying cycle in one of said air dryers and a purging cycle in the other air dryer and switching the drying and purging cycles between said air dryers periodically until said air compressor is disabled by said governor, said control means including means responsive to disabling of said air compressor for simultaneously purging both of said air dryers after said air compressor is disabled by said governor, said control means includes a pair of electrically actuated valve means, each of said electrically actuated valve means being connected to a corresponding air dryer for communicating a dryer purge control pressure signal to the latter when an electrical signal is transmitted to the corresponding electrically actuated valve means, said corresponding air dryer including means responsive to said dryer purge control pressure signal for causing purging of said corresponding air dryer, and a timer for switching said control signal between said

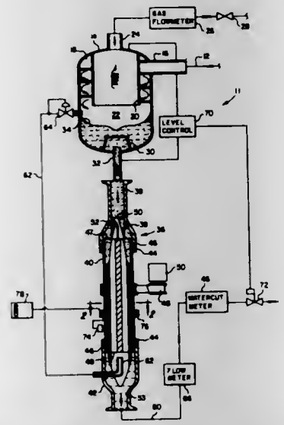
electrically actuated valve means on a regular periodic timed basis.

5,209,765

CENTRIFUGAL SEPARATOR SYSTEMS FOR MULTI-PHASE FLUIDS

Miroslav M. Kolpak, and Steven G. Petermann, both of Plano, Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed May 8, 1991, Ser. No. 697,148
Int. Cl.[5] B01D *19/00*
U.S. Cl. 55—168 **27 Claims**



1. A system for separating liquid from a gas-liquid mixture in oil well production comprising:

a separator vessel for receiving a gas-liquid mixture from a production flowstream and including means for effecting primary separation of at least a portion of gas entrained in said mixture from said liquid, said vessel having a gas-liquid mixture inlet conduit, a gas outlet conduit and liquid outlet means; and

centrifuge means connected to said vessel for receiving liquid from said liquid outlet means and for imposing centrifugal forces on said liquid to cause substantially radial outward flow of liquid and separation of gas remaining entrained in said liquid after said primary separation to provide a substantially gas-free liquid flowstream for measurement of at least one of composition and flow rate of said liquid, said centrifuge means including a rotating centrifuge member having a plurality of separation chambers formed therein for imposing centrifugal forces on liquid to force liquid radially outward in said chambers while permitting gas to remain radially inward of said liquid and without substantial intermixing of gas and liquid in said chambers.

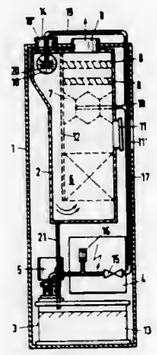
5,209,766

LABORATORY GAS SCRUBBER

Karl Reither, Freiheitsstrasse 45, D-5210 Troisdorf-Spich, Fed. Rep. of Germany

Filed Dec. 30, 1991, Ser. No. 814,158
Claims priority, application Fed. Rep. of Germany, Feb. 8, 1991, 9101439
Int. Cl.[5] B01D *47/08, 47/14*
U.S. Cl. 55—223 **8 Claims**

1. A laboratory gas scrubber for removing soluble contaminant gases from the exhaust air of a laboratory extractor hood comprising a cabinet (1) which is adapted to be used in conjunction with a laboratory extractor hood, said cabinet (1) having upper and lower portions, pump means (5) for pumping scrubbing liquid from a scrubbing liquid tank (3), said pump means (5) and said scrubbing liquid tank (3) being located in said cabinet lower portion, means defining an inner housing (2) in said cabinet upper portion, partition means (12) for defining within said inner housing (2) a first inner housing chamber and a second inner housing chamber, first inlet means (10) for introducing exhaust air emerging from a laboratory extractor hood into said first inner housing chamber which subsequently flows into said second inner housing chamber, outlet means (9) for exhausting air from the second inner housing chamber; said



second inner housing chamber including in succession a packing zone (6), a spraying zone (7) and an agglomeration zone (8) with the agglomeration zone (8) being most closely adjacent said outlet means (9) and said packing zone (6) being most remote from said outlet means (9); said agglomeration zone (8) being located generally above said spray zone (7) and said spray zone (7) being located generally above said packing zone (6), means (17, 18) for conducting scrubbing liquid from said scrubbing liquid tank (3) to said spraying zone (7) through and upon energization of said pump means (5), and means for energizing said pump means (5).

5,209,767

GLASS SHEET ANNEALING LEHR HAVING GAS SUPPORT CONVEYOR

Robert E. Maltby, Jr., Wayne; Harold A. McMaster, Perrysburg; Philip J. Breno, Oregon, and James W. Buckingham, Pemberville, all of Ohio, assignors to Glasstech, Inc., Perrysburg, Ohio

Filed Mar. 19, 1991, Ser. No. 671,505
The portion of the term of this patent subsequent to Jan. 7, 2009, has been disclaimed.
Int. Cl.[5] C03B *25/093*
U.S. Cl. 65—182.2 **17 Claims**

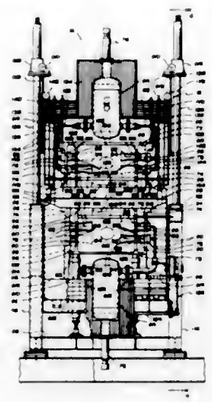
1. A glass sheet strip annealing lehr comprising:

a housing defining a heated chamber and having an entry end for receiving a continuous hot glass sheet strip having lower and upper surfaces just after forming of the strip prior to cooling below the annealing point, said housing having an exit end from which the strip exits the heated chamber, and the heated chamber having a decreasing temperature from the entry end of the housing toward the exit end thereof to provide cooling that anneals the strip; and

a conveyor including a gas support means that delivers upwardly directed pressurized gas to provide the sole support of the glass sheet strip within the housing until the surfaces of the strip are cooled below the strain point, the gas support means including at least one lower manifold having (a) supply openings through which the pressurized gas is fed for impingement with the glass sheet strip and (b) exhaust openings through which the gas is exhausted

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after impingement with the glass sheet strip, each manifold including at least one mixing plenum and a gas burner, each manifold including a pair of gas jet pumps for receiving the heated products of combustion from the gas burner thereof for mixing with gas returned from the exhaust openings to provide gas flows to the mixing plenum which feeds the supply openings, the pair of gas jet pumps being mounted at different elevations and arranged



to provide the gas flows therefrom in opposite directions with respect to each other to enhance gas mixing of the gas flows from the pair of jet pumps within the mixing plenum, and the conveyor including a drive for engaging the strip after the surfaces thereof are cooled below the strain point to pull the strip from the entry end of the housing toward the exit end thereof over the gas support means.

5,209,768

METHOD OF IMPROVING SOD GROWTH

John Hughes, Arlington Heights, Ill., assignor to American Colloid Company, Arlington Heights, Ill.

Filed Jun. 14, 1991, Ser. No. 715,607

Int. Cl.[5] H01N *33/00*

U.S. Cl. 504—313 **23 Claims**

1. A method of increasing the yield of a germinating sod crop comprising contacting a root of a grass plant with an aqueous gel comprising from about 0.4% to about 0.7% by weight of a mixed potassium and ammonium salt of a crosslinked, copolymerized or homopolymerized acrylate and covering the root of the grass plant and the aqueous gel with soil; wherein the mixed potassium and ammonium salt of a crosslinked, copolymerized or homopolymerized acrylate is prepared by mixing a monomer solution of (A) acrylic acid neutralized 70–100 mole percent with a potassium alkali and an ammonium alkali; (B) styrene in an amount of 0% to 25% based on the weight of acrylic acid and (C) a water-miscible to water-soluble polyvinyl monomer in a combined concentration of (A), (B) and (C) of at least 30 wt. %; with water to form a mixed monomer solution and initiating polymerization of monomers (A), (B) and (C) such that during polymerization, the exothermic heat of reaction is substantially the only heat energy used to accomplish polymerization, crosslinking and to drive off sufficient water to obtain a solid crosslinked resin having a water content of 15 percent by weight or less.

5,209,769

SUBSTITUTED TRIAZOLINONES

Kurt Findeisen; Dietmar Kuhnt, both of Leverkusen; Klaus-Helmut Müller, Düsseldorf; Michael Haug, Bergisch Gladbach; Klaus König, Odenthal; Klaus Lürssen, Bergisch Gladbach; Hans-Joachim Santel, Leverkusen, and Robert R. Schmidt, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

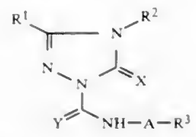
Filed May 4, 1992, Ser. No. 878,149

Claims priority, application Fed. Rep. of Germany, May 14, 1991, 4115618

Int. Cl.[5] A01N *43/653*; C07D *249/12*

U.S. Cl. 504—273 **11 Claims**

1. A substituted triazolinone of the formula (I)

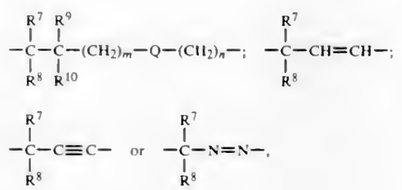


(I)

in which
R^1 is



or —S—R^6,
R^2 is alkyl having 1 to 6 carbon atoms,
R^3 is cycloalkyl which has 3 to 7 carbons atoms and which is optionally stubstituted by identical or different substituents selected from the group consisting of halogen, cyano, and alkyl or halogenoalkyl having 1 to 4 carbon atoms and 1 to 9 identical or different halogen atoms; or is aryl which has 6 to 10 carbon atoms and which is optionally substituted by identical or different substituents selected from the group consisting of halogen, cyano, nitro, alkyl, alkoxy or alkylthio having 1 to 4 carbon atoms, halogenoalkyl, halogenoalkoxy or halogenoalkylthio having 1 to 4 carbon atoms and 1 to 9 identical or different halogen atoms, alkoxycarbonyl or alkoximinoalkyl having 1 to 4 carbon atoms in the individual alkyl moieties, dialkylamino having 1 to 4 carbon atoms in each alkyl moiety, N-alkanoylamino having 1 to 5 carbon atoms in the alkanoyl moiety, divalent dioxyalkylene which has 1 to 3 carbon atoms and is optionally substituted by identical or different substituents, and phenyl, phenoxy, α-naphthyl or β-naphthyl, each of which is optionally substituted by identical or different substituents selected from the group consisting of halogen and alkyl or alkoxy having 1 to 4 carbon atoms,
is



X is oxygen or sulphur and
Y is oxygen or sulphur,
where
R^4 is hydrogen or alkyl, having 1 to 6 carbon atoms,

R^5 and R^6 independently of one another is alkyl, having 1 to 6 carbon atoms,
R^7 is hydrogen, cyano or alkyl, having 1 to 8 carbon atoms, and
R^8, R^9 and R^{10} independently of one another is hydrogen or alkyl having 1 to 6 carbon atoms or
R^7 R^8 together are a divalent radical of the formula —$(CH_2)_p$—,
Q is oxygen, sulphur, a sulphinyl group, a sulphonyl group or a radical of the formula >N—R^{11},
R^{11} is hydrogen, or alkyl, hydroxyalkyl, alkoxyalkyl, cyanoalkyl or alkanoyl, having 1 to 8 carbon atoms in the individual alkyl moieties
m is 0, 1 or 2,
n is 0, 1 or 2 and
is 2, 3, 4, 5 or 6.

5,209,770

HERBICIDAL PYRIDINESULFONYLUREAS

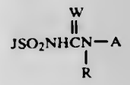
Paul H. Liang, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 507,926, Apr. 12, 1990, Pat. No. 5,102,444, which is a continuation-in-part of Ser. No. 399,485, May 26, 1989, abandoned. This application Dec. 13, 1991, Ser. No. 806,749

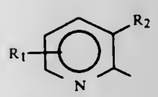
Int. Cl.[5] C07D *401/12*; A01N *43/54*

U.S. Cl. 504—215 **3 Claims**

1. A compound of formula I

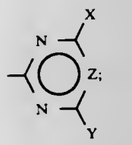


wherein
J is



J-1

W is O;
R is H or CH_3;
R_1 is R_f or R_g;
R_f is C_1 haloalkyl, halogen or OCH_3;
R_g is C_1–C_2 haloalkyl or W_2R_{11};
R_2 is CN, CO_2R_9, $CO_2R'_9$;
R_9 is $CH_2CH_2R_{10}$, CH_2CF_3, C_3–C_4 haloalkyl, C_3–C_4 alkynyl, C_2–C_4 alkylthioalkyl, C_3–C_5 cycloalkyl or C_4–C_7 cycloalkylalkyl;
R'_9 is C_1–C_4 alkyl, C_3-alkenyl, CH_2CH_2Cl, CH_2CH_2Br, $CH_2CH_2OCH_3$ or $CH_2CH_2OC_2H_5$;
R_{10} is OH, F, CN, $OSO_2(C_1$–C_3 alkyl) or $OSO_2(C_1$–C_3 haloalkyl);
R_{11} is $C_{alkyl\ or\ C1}$–C_3 haloalkyl; and
A is



A-1

X is C_1–C_2 alkyl, C_1–C_2 alkoxy, Cl, F, Br, I, CH_2F, CF_3, OCH_2CH_2F, OCH_2CHF_2, OCH_2CF_3, CH_2Cl or CH_2Br;
Y is H, C_1–C_2 alkyl, C_1–C_2 alkoxy, CH_2OCH_3, $CH_2OCH_2CH_3$, $NHCH_3$, $N(OCH_3)CH_3$, $N(CH_3)_2$, CF_3, SCH_3, $OCH_2CH{=}CH_2$, OCH_2CCH, $OCH_2CH_2OCH_3$, $C(O)R_a$, cyclopropyl, C≡CH or C≡CCH_3;
R_a is H or CH_3; and
Z is CH;
and their agriculturally suitable salts; provided that
1) when X is halogen, then Y is OCH_3, OC_2H_5, $NHCH_3$, $N(CH_3)_2$ or $N(OCH_3)CH_3$; and
2) when R_2 is $CO_2R'_9$ then R_1 is R_g and when R_2 is other than $CO_2R'_9$, then R_1 is R_f.

5,209,771

SULFONYLUREAS

Willy Meyer, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

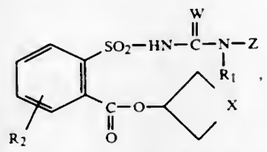
Filed Jan. 21, 1992, Ser. No. 823,515

Claims priority, application Switzerland, Jan. 25, 1991, 220/91

Int. Cl.[5] A01N *43/66, 43/68*; C07D *405/12, 409/12*

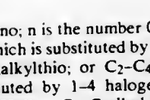
U.S. Cl. 504—178 **15 Claims**

1. A compound of the formula I



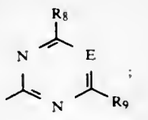
(I)

in which X is oxygen, sulfur, SO or SO_2; W is oxygen or sulfur; R_1 is hydrogen or methyl; R_2 is hydrogen, fluorine, chlorine, bromine, iodine, $(X)_nR_3$, NO_2, NR_4R_5, —C≡CR_6,



J-1

or cyano; n is the number 0 or 1; R_3 is C_1–C_4alkyl or C_1–C_4alkyl which is substituted by 1–4 halogen atoms, C_1–C_3alkoxy or C_1–C_3alkylthio; or C_2–C_4alkenyl or C_2–C_4alkenyl which is substituted by 1–4 halogen atoms; R_4 is hydrogen, CH_3O, CH_3CH_2O or C_1–C_3alkyl; R_5 is hydrogen or C_1–C_3alkyl; R_6 is hydrogen, methyl or ethyl; R_7 is hydrogen or methyl; Z is



Z1

E is nitrogen; R_8 is C_1–C_4alkyl, C_1–C_4alkoxy, C_1–C_4haloalkoxy, C_1–C_4haloalkyl, C_1–C_4haloalkylthio, C_1–C_4alkylthio, C_2–C_5alkoxyalkoxy, amino, C_1–C_3alkylamino or di(C_1–C_3alkyl)amino and R_9 is C_1–C_4alkyl, C_1–C_4alkoxy, C_1–C_4haloalkoxy, C_1–C_4haloalkylthio, C_1–C_4alkylthio, C_2–C_5alkoxyalkyl, C_2–C_5alkoxyalkoxy, C_2–C_5alkylthioalkyl or cyclopropyl, with the proviso that R_8 or R_9 is not $OCHF_2$ or $SCHF_2$; or a salt thereof.

5,209,772

DISPERSION STRENGTHENED ALLOY

Raymond C. Benn; Gaylord D. Smith, and John J. Fischer, all of Huntington, W. Va., assignors to Inco Alloys International, Inc., Huntington, W. Va.

Continuation of Ser. No. 897,745, Aug. 18, 1986, abandoned. This application Oct. 5, 1988, Ser. No. 254,318

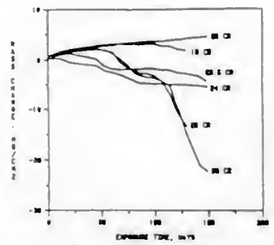
Int. Cl.[5] C22C *29/12, 29/00*

U.S. Cl. 75—233 **4 Claims**

1. A flat rolled product such as sheet and strip characterized by good fabricability and enhanced resistance to oxidation at

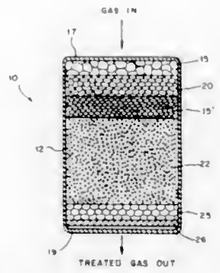
VOL 1150 ISS 2 MY 11 1993 UMI

temperatures as high as 1300° C., said product being formed from an alloy consisting of about 23 to 30% chromium, about 5 to 6.25% aluminum, a small but effective amount of at least one dispersoid to enhance strength and selected from the group of materials having a melting point in excess of 1510° C. and consisting of oxides, nitrides, borides and refractory metals, up to 1% each of titanium, niobium, zirconium, hafnium,



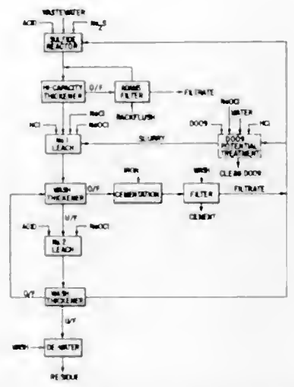
and vanadium, up to 6% each of molybdenum and tungsten, up to 0.5% silicon and niobium, up to 0.05% each of calcium, yttrium and rare earth metals, up to 0.2% boron, the balance being essentially iron, said product, by virtue of the respective percentages of chromium and aluminum, affording resistance to the onset of slagging attack and/or accelerated oxidation when subjected to operating environments at temperatures up to at least 1300° C.

5,209,773
DUAL FUNCTION MERCURY TRAP/PARTICULATE FILTER BEDS
Costandi A. Audhe, Princeton, and Gray W. Kirker, Sewell, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Dec. 4, 1991, Ser. No. 802,173
Int. Cl.[5] C22B *43/00*
U.S. Cl. 75—388 17 Claims



1. A process for the simultaneous removal of mercury and entrained particulate matter from a gas, comprising:
providing a guardbed comprising a container having an entrance region and an exit region, a first porous substrate impregnated with a mercury amalgamable material disposed in the area of said entrance region, a second porous substrate having a particle size less than that of said first porous substrate and impregnated with a mercury amalgamable material, and
contacting said gas with said guardbed at a pressure and temperature sufficient to reduce the level of mercury and entrained particulate matter from said gas.

5,209,774
HYDROMETALLURGICAL PROCESS FOR TREATING MERCURY CONTAMINATED MUDS
Michael A. Rockandel, Richmond, Canada, and Larry G. Twidwell, Butte, Mont., assignors to Universal Dynamics Limited, Vancouver, Canada
Filed Apr. 28, 1992, Ser. No. 875,100
Int. Cl.[5] C22B *43/00*
U.S. Cl. 75—742 30 Claims



1. A hydrometallurgical process for the removal of mercury and mercury compounds from solid materials containing mercury and mercury compounds comprising:
(a) treating the solid materials in a first leach with acid and sodium hypochlorite for a sufficient length of time to produce a first leached product having a reduced mercury and mercury compound content and a first by-product having an elevated mercury and mercury compound content;
(b) transferring the first leached product from the first leach to a first wash thickener and thickening the first leached product from the first leach in order to generate a first thickened product and an overflow product;
(c) transferring the first thickened product from the first wash thickener to a second leach and treating the first thickened product with acid and sodium hypochlorite for a sufficient length of time to produce a second leached product having a reduced mercury and mercury compound content and a second by-product having an elevated mercury and mercury compound content;
(d) transferring the second leached product to a second wash thickener and thickening the second leached product from the second leach in order to generate a second thickened product and an overflow product; and
(e) transferring the second thickened product from the second wash thickener to a final dewatering process to yield a low mercury content residue.

5,209,775
WATER REPELLENTS CONTAINING ORGANOSILICON COMPOUNDS
Howard M. Bank, Freeland; Dipak Narula, and Lori A. Stark, both of Midland, all of Mich., assignors to Dow Corning Corporation, Midland, Mich.
Filed Jan. 23, 1992, Ser. No. 824,271
Int. Cl.[5] C07G *1/06*
U.S. Cl. 106—2 30 Claims

1. A composition comprising the product obtained by combining water, (i) an alkyltrialkoxysilane selected from the group consisting of alkyltrialkoxysilanes with C_1 to C_6 alkyl groups on silicon and blends of alkyltrialkoxysilanes with C_1 to C_6 alkyl groups on silicon, (ii) a water soluble silane coupling agent or hydrolysis product thereof, (iii) an amino resin, and (iv) a quaternary ammonium silane having a formula selected from the group consisting of:

$$Y_{3-a}SiR''N^+R'''R''''R^VX^- \quad (I)$$
$$\quad\quad |$$
$$\quad\quad R'_a$$

$$Y_{3-a}SiR''P^+R'''R''''R^VX^- \quad (II)$$
$$\quad\quad |$$
$$\quad\quad R'_a$$

$$Y_{3-a}SiR''S^+R''''R^VX^- \text{ and} \quad (III)$$
$$\quad\quad |$$
$$\quad\quad R'_a$$

$$Y_{3-a}SiR''ZX^- \quad (IV)$$
$$\quad\quad |$$
$$\quad\quad R'_a$$

wherein in each formula (I)-(IV):
Y is RO where R is alkyl radical of one to four carbon atoms;
a has a value of zero, one or two;
R' is a methyl or ethyl radical;
R'' is an alkylene group of one to four carbon atoms;
R''', R'''' and R^V are each independently selected from the group consisting of alkyl radicals of one to eighteen carbon atoms, $-CH_2C_6H_5$, $-CH_2CH_2OH$, $-CH_2OH$, and $-(CH_2)_xNHC(O)R^{VI}$ wherein x has a value of from two to ten and R^{VI} is a perfluoroalkyl radical having from one to twelve carbon atoms;
X is chloride, bromide, fluoride, iodide, acetate or tosylate; and
Z is a positively charged aromatic pyridinium ring of the formula $C_5H_6N^+-$.

5,209,776
TISSUE BONDING AND SEALING COMPOSITION AND METHOD OF USING THE SAME
Lawrence S. Bass, Little Neck; Steven K. Libutti, Lido Beach, and Alexander M. Eaton, New York, all of N.Y., assignors to The Trustees of Columbia University in the City of New York, New York, N.Y.
Filed Jul. 27, 1990, Ser. No. 560,069
Int. Cl.[5] C08L *89/00*
U.S. Cl. 106—124 22 Claims

1. A composition for bonding separated tissues together or for coating tissues or prosthetic materials comprising:
(a) at least one first component in an amount of at least 4.2% by weight based on the total weight of the composition, said first component being selected from the group consisting of naturally occurring peptides, synthetic peptides, and mixtures thereof; and
(b) At least one second component adapted to support the first component to form a matrix, sol or gel with the first component.

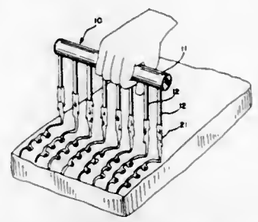
5,209,777
ADHESIVE AGENT FOR DENTURES OR THE LIKE AND PROCESS FOR THE PRODUCTION THEREOF
Oskar Altwirth, Oberach 37, A-4950 Altheim, Austria
Continuation of Ser. No. 400,283, Aug. 29, 1989, abandoned. This application Apr. 1, 1991, Ser. No. 678,753
Int. Cl.[5] C09K *3/00*
U.S. Cl. 106—35 10 Claims

1. An adhesive agent for dentures consisting of a spreadable compound of
(a) 75 parts of a mixture of carboxymethyl cellulose and sodium alginate, and
(b) 25 parts of an alcoholic solution of polyvinyl acetate containing an anionic water- and alcohol-soluble cellulose ether and an emulsifying and stabilizing gel comprised of a neutral oil and an organically modified montmorillonite.

5,209,778
HIGH SOLIDS CONTENT CALCIUM STEARATE DISPERSIONS
Patrick G. Malloy, Menasha, Wis., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Continuation-in-part of Ser. No. 277,748, Nov. 30, 1988, abandoned. This application Dec. 11, 1989, Ser. No. 448,787
Int. Cl.[5] C08L *91/00*
U.S. Cl. 106—243 10 Claims

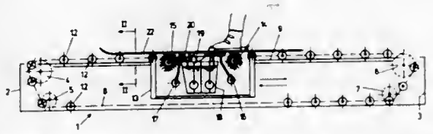
1. Aqueous calcium stearate dispersion having a solids content of from about 60 to about 80 weight percent, the balance being water, the solids portion of the dispersion consisting essentially of from about 35 to about 50 weight percent calcium stearate, from about 10 to about 40 weight percent urea and from about 5 to about 30 weight percent starch syrup.

5,209,779
ICING SPREADER
Robert Talerico, 7485 Oak Grove, Justice, Ill. 60458
Filed Jun. 12, 1991, Ser. No. 713,509
Int. Cl.[5] B05C *5/00*
U.S. Cl. 118—24 3 Claims



1. A bakery icing spreader comprising in combination:
an elongate generally cylindrical handle having a diameter between about ¾ inch and about 2 inches for ease of grasping by a user thereof and a length shorter than about 20 inches;
a plurality of tines positioned in spatial relation substantially along the length of said handle and extending generally perpendicularly therefrom in like direction; each of said tines being between about 5 inches and about 10 inches long and having a diameter between about 3/16 inch and about ¾ inch and having a rounded distal end, and
said bakery icing spread being made of food safe material.

5,209,780
APPARATUS FOR TREATING THE UNDERSIDE TRAVEL FACES OF SKIS
Georg Partel, Gardis 14, A-6833 Weiler, Austria
PCT No. PCT/EP90/00911, § 371 Date Feb. 1, 1991, § 102(e) Date Feb. 1, 1991, PCT Pub. No. WO90/15646, PCT Pub. Date Dec. 27, 1990
PCT Filed Jun. 11, 1990, Ser. No. 640,379
Claims priority, application Austria, Jun. 15, 1989, 1467/89; Jul. 4, 1989, 1631/89
Int. Cl.[5] B05C *5/02, 9/14, 13/02*
U.S. Cl. 118—59 14 Claims



3. An apparatus for treating a traveling underside of skis comprising:

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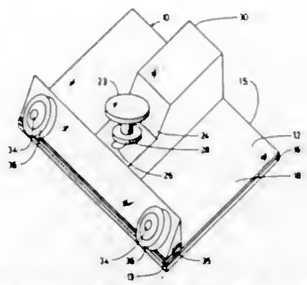
a housing which can be mounted by a skier with strapped-on skis which further comprises:
a treatment arrangement for cleaning, drying, applying wax to, and heating an underside of said skis;
support arrangements which support said skis during a treatment of said underside of said skis, wherein a drive arrangement, for generation of relative motion between said traveling undersides of said skis in a longitudinal direction, and of said treatment arrangement is provided, with said treatment arrangement comprising:
at least one heatable reservoir for wax storage;
a heated plate which can be applied to said underside of said skis which is provided for wax application, with at least one wax outlet aperture being arranged at a top side of said heated plate, wherein said at least one outlet is connected with at least one of said heatable reservoirs for wax storage through one of a tubing and hose lines and a pump, and further wherein support organs are formed by several rotatable rollers arranged to be parallel to each other, wherein sad rollers are arranged upstream as well as downstream of said treatment arrangement,
wherein said rollers are supported so as to be freely rotatable with the axes of rotation of said rollers being supported at their ends in essentially horizontal guides and are connected with conveyor members which are one of cables, bands and chains and further wherein one of said treatment arrangement and a frame carrying said treatment arrangement is also connected with said conveyor members and that said rollers and one of said treatment arrangement and said frame is displaceable along said guides by means of said conveyor members.

5,209,781

PAINT APPLICATOR

Terry H. Milkie, 3 Burtree Dr., Brampton, Ontario, L6Z 3K3, Canada

Continuation-in-part of Ser. No. 683,842, Apr. 3, 1991, Pat. No. 5,117,527. This application Jul. 10, 1991, Ser. No. 727,851
Int. Cl.[5] B05C *17/00*
U.S. Cl. 118—264 **3 Claims**



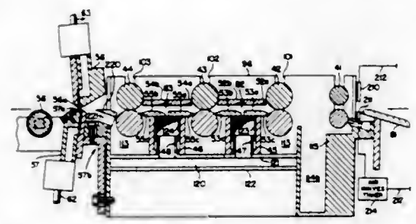
1. A paint applicator for applying paint to the edge of a first surface which forms an inside corner with a second surface, comprising the following:
a frame having a flat front face for carrying a paint absorbent pad and a back face;
a handle on the back face of said frame;
a pair of rollers spaced along the handled back face of said frame having generally parallel axes of rotation inclined toward one margin of said frame such that said rollers project beyond said margin of said frame and forwardly of said flat front face, the rolling face of each of said rollers comprising a knife edge, whereby, when a paint absorbent pad is carried by said flat front face of said frame and such pad abuts a first surface proximate an inside corner with a second surface, the knife edged rolling face of each of said rollers is intended to abut said inside corner where said first and second surfaces meet to thereby support said absorbent pad in spaced relation to said second surface.

5,209,782

SYSTEM FOR SOLDERING PRINTED CIRCUITS

Gilbert V. Morris, Amherst, N.H., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Division of Ser. No. 433,681, Nov. 8, 1989, Pat. No. 5,038,706, which is a division of Ser. No. 199,604, May 27, 1988, Pat. No. 4,903,631. This application Jan. 25, 1991, Ser. No. 646,702
Int. Cl.[5] B05C *3/10, 3/18;* **B23K** *1/08*
U.S. Cl. 118—603 **4 Claims**



1. Apparatus for soldering printed circuit panels comprising means forming a solder immersion chamber defined by two pairs of rolls for conveying the printed circuit panels horizontally through the chamber, a solder sump and return channels leading to the sump, an overflow pipe in the sump, a constant level skim solder section at least partially around and below the solder immersion chamber and having walls at a level slightly below the level of the overflow pipe, heating means for maintaining molten solder in the sump, the return channels and the skim section at a desired temperature, an oil layer provided on the molten solder in the sump, return channels and skim section when the system is in a hot idle condition, pump means to flow solder from the sump to the solder immersion chamber in which solder is maintained at a first operating level, means for flowing solder overflow from the chamber to the constant level skim section at a second level and then to the return channels and sump at a third variable solder level, whereby initial operation of the pump means which changes the system condition from hot idle condition to solder coating condition lowers the level of oil covered solder in the sump to the third variable solder level, means for conveying flux coated printed circuit panels to the rolls defining the solder immersion chamber, the flux including an oil to be added to the oil layer on the solder, whereby flux is washed from the panels in the immersion chamber and oil from the flux is added to the oil layer on the solder, the oil layer combining with dross and other impurities and gradually increasing in depth until the oil overflows into the pipe, thereby continuously removing dross and impurities from the soldering system during the soldering of printed circuit panels.

5,209,783

METHOD FOR SIMULTANEOUSLY CLEANING, DECOLORIZING AND THERMALLY DISINFECTING CONTACT LENSES

Stanley W. Huth, Newport Beach; Sam W. Lam, Laguna Niguel, and Abraham M. Espiritu, Oceanside, all of Calif., assignors to Allergan, Inc., Irvine, Calif.

Continuation of Ser. No. 633,596, Dec. 21, 1990, abandoned. This application Jan. 3, 1992, Ser. No. 816,860
Int. Cl.[5] B08B *3/10, 7/00*
U.S. Cl. 134—19 **35 Claims**

1. A method for removing yellow contact lense discoloration from a contact lense which method comprises contacting the lense with a solution comprised of a reducing agent and an enzyme and then heating the lense above ambient temperature

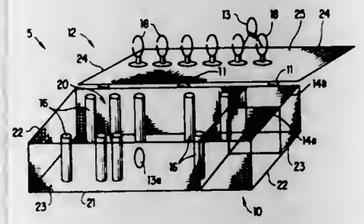
for a time and at a temperature so as to remove substantially all of the yellow lense discoloration.

5,209,784

METHOD AND APPARATUS FOR JEWELRY AND SMALL PARTS CLEANING

David H. Beliman, 1650 Elm St., Manchester, N.H. 03101

Division of Ser. No. 572,689, Aug. 24, 1990, abandoned. This application Jan. 30, 1992, Ser. No. 830,767
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—25.4 **6 Claims**



1. A method for cleaning jewelry using a cleaning apparatus, having a main cavity therein and adapted to removably and nondamagingly contain jewelry pieces to be cleaned within said main cavity when said apparatus is placed within an automatic dishwashing machine which provides a quantity of turbulent and a high velocity cleaning fluid, said method comprising the steps of:
placing said jewelry pieces into a main cavity of said cleaning apparatus, each of said jewelry pieces within said main cavity held in a substantially fixed location and position using hooks and posts in a manner which permits said turbulent and high velocity cleaning fluid to impinge onto said jewelry pieces contained within said main cavity;
covering said main cavity of said apparatus using a covering means adapted to permit said turbulent and high velocity cleaning fluid to impinge onto said jewelry pieces contained within said main cavity of said apparatus;
wherein said main cavity and said means for covering are made from at least one of the materials selected from the group consisting of nylon mesh, metallic mesh, plastic mesh, fiberglass mesh, fabric mesh, woven wood and plastic having a plurality of apertures therethrough;
attaching said means for covering to said apparatus; and placing said apparatus within a machine which provides said turbulent and high velocity cleaning fluid and permitting said turbulent and high velocity cleaning fluid to impinge onto said jewelry pieces for a predetermined period of time.

5,209,785

NON-CHLORINATED SOLVENT DEWAX PROCESS

Susan Brewe, Coventry; Robert W. Dean, North Branford; Mark R. Jaworski, Manchester; Timothy J. Lorette, Colchester; Louis L. Packer, Enfield, and John P. Zavodjancik, Columbia, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Oct. 30, 1991, Ser. No. 785,576
Int. Cl.[5] C23G *5/00*
U.S. Cl. 134—40 **4 Claims**

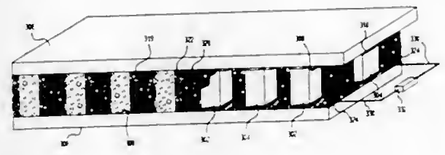
1. A method for dewaxing a wax-coated substrate, which comprises the steps of:
a. melting the wax coating on the wax-coated substrate to remove the wax coating;
b. immersing said dewaxed substrate in at least one mineral oil bath to remove any remaining wax, forming an oily substrate;
c. immersing said oily substrate in semi-aqueous cleaner to remove said mineral oil;
d. immersing said oil free substrate in alkaline-base cleaner to remove said semi-aqueous cleaner and to cleaned said substrate; and
e. rinsing said cleaned substrate in at least one rinsing tank with a rinsing solution to remove said alkaline-base cleaner.

5,209,786

INTEGRITY-ENHANCED THERMOELECTRICS

Jonathan L. Rolfe, North Easton, and John S. Beaty, Belmont, both of Mass., assignors to Thermo Electron Technologies Corporation, Waltham, Mass.

Filed Oct. 9, 1990, Ser. No. 594,850
Int. Cl.[5] H01L *35/28*
U.S. Cl. 136—211 **13 Claims**



1. An integrity-enhanced thermoelectric device comprising:
a first plate and a second plate spaced apart from each other (opposing plates);
a couple including a p-doped leg and a n-doped leg, and means for electrically interconnecting a first end of said p-doped leg to a first end of said n-doped leg;
means for connecting opposite ends of said p-doped leg and of said n-doped leg to said plates;
said plates comprising ceramic material, and said means for electrically connecting said p-doped leg to said n-doped leg, comprising a metal pad bonded to the surface of the plate defining the interspace, and in electrical connection with a first end of said p-doped leg and a first end of said n-doped leg;
at least two of said couples electrically connected in series and having opposed ends connected to the opposing plate;
said plates and said legs defining an interspace between said plates;
syntactic foam occupying said interspace and in kinematic association with said legs and plates to form an embedded thermoelectric device; and
said syntactic foam comprising resin and hollow glass balloons which have about 180 to about 250μ diameter and comprising at least about 30% by weight of the mixture of balloons and resin, said hollow glass balloons being filled with one of inactive gases or mixtures thereof.

5,209,787

SURFACE MODIFICATION OF COPPER ALLOYS

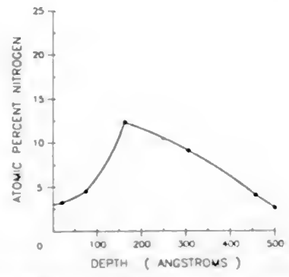
John F. Breedis, Trumbull, and George J. Muench, Hamden, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Division of Ser. No. 563,766, Jul. 27, 1990, Pat. No. 5,096,508. This application Dec. 23, 1991, Ser. No. 812,543
Int. Cl.[5] C22C *9/00;* **B22D** *23/00*
U.S. Cl. 148—238 **8 Claims**

1. A multi-phase copper alloy comprising;
a copper alloy matrix CuQ where Q is an element or combi-

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nation of elements both soluble in copper and reactive with nitrogen;



and a second phase precipitate QN intragranularly dispersed within said copper alloy matrix.

5,209,788
NON-CHROME FINAL RINSE FOR PHOSPHATED METAL

Mark W. McMillen, Oxford, and F. Leon Bergeron, Dearborn, both of Mich., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 21, 1990, Ser. No. 616,523
Int. Cl.[5] C23C *22/80*
U.S. Cl. 148—247 9 Claims

1. A process for treating a phosphated metal surface comprising contacting said phosphated metal surface with a water-based composition comprising:

(a) an amino compound present at a level about 50 to 100,000 parts per million, which is an amino acid or an amino alcohol, said amino acid being selected from the group consisting of glycine, sarcosine, iminodiacetic acid, leucine, tyrosine, taurine, N-methyl taurine, aminobenzoic acid, gamma-aminobutyric acid and salts thereof; said amino alcohol being selected from the group consisting of imidazoline, oleyl imidazoline, choline, triethanolamine, diethanol glycine, ethanol diglycine, 2-amino-2-ethyl-1,3-propanol and amino-propanol; and

(b) a group 1VB metal compound.

5,209,789
PERMANENT MAGNET MATERIAL AND METHOD FOR MAKING

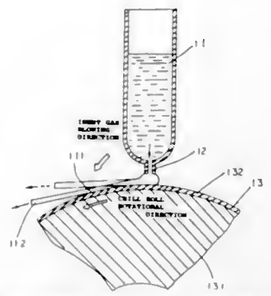
Tetsuhito Yoneyama, Chiba; Hideki Nakamura, Narita, and Akira Fukuno, Chiba, all of Japan, assignors to TDK Corporation, Tokyo, Japan

Filed Sep. 5, 1991, Ser. No. 755,188
Claims priority, application Japan, Aug. 29, 1991, 3-244476
Int. Cl.[5] H01F *1/053*
U.S. Cl. 148—302 16 Claims

1. A permanent magnet material prepared by melting an alloy composition comprising R which is at least one rare earth element including Y, Fe or Fe and Co, and B, and contacting the melt with at least one chill roll on the melt surface, thereby quenching the melt from one direction or two opposite directions,

wherein the permanent magnet material has a surface in contact with said at least one chill roll, a region D disposed remotest from the surface in contact with said chill roll in a thickness direction, and a region P disposed adjacent the surface in contact with said chill roll, and

said region D has an average grain diameter d and said region P has an average grain diameter p wherein $d/p \leqq 10$ and,



wherein the permanent magnetic material has a surface in contact with said chill roll, said surface having a center line average roughness Ra of 0.05 to 4.5 μm.

5,209,790
PRODUCTION OF TI-V-CR HOMOGENEOUS ALLOY WITHOUT VANADIUM INCLUSIONS

Chester C. Wojcik, Salem, Oreg., assignor to Teledyne Industries, Inc., Albany, Oreg.

Continuation of Ser. No. 409,505, Aug. 15, 1989, Pat. No. 5,124,122. This application Feb. 11, 1992, Ser. No. 833,661
Int. Cl.[5] B21D *21/00*
U.S. Cl. 148—421 7 Claims



1. A method of producing a high strength Titanium, Vanadium and Chromium alloy comprising the steps of:

(1) providing a compactable mixture of Vanadium and Chromium;

(2) alloying the mixture of Vanadium and Chromium to product a stable phase alloy consisting essentially of Vanadium and Chromium which is substantially free of unalloyed Chromium or vanadium;

(3) subdividing the Vanadium-Chromium alloy;

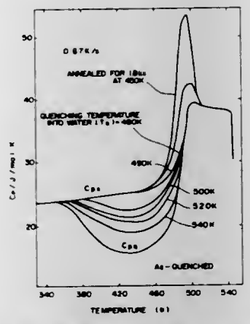
(4) mixing preselected proportions of the subdivided Vanadium-Chromium alloy with a preselected amount of subdivided Titanium metal; and

(5) melting the mixture of Titanium and Vanadium-Chromium alloy to provide a high strength Titanium-Vanadium-Chromium alloy substantially free of Titanium-Chromium phases and inclusions of undissolved Vanadium.

5,209,791
PROCESS FOR PRODUCING AMORPHOUS ALLOY FORMING MATERIAL

Tsuyoshi Masumoto, 3-8-22, Kamisugi, Aoba-ku, Sendai-shi, Miyagi; Akihisa Inoue, Sendai; Junichi Nagahora, Yokohama, and Kazuhiko Kita, Sendai, all of Japan, assignors to Tsuyoshi Masumoto, Sendai and Yoshida K.K., Tokyo, both of Japan

Filed Dec. 30, 1991, Ser. No. 816,709
Claims priority, application Japan, Jan. 10, 1991, 3-18207
Int. Cl.[5] C22F *1/04, 1/16*
U.S. Cl. 148—561 6 Claims



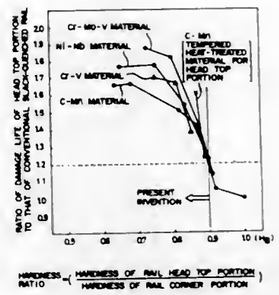
1. A process for producing an amorphous alloy product comprising the steps of subjecting an amorphous alloy material having a supercooled liquid region to a first stage treatment in which said amorphous alloy material is maintained in a temperature range of from the amorphous alloy material's glass transition temperature minus 100°K to the amorphous alloy material's glass transition temperature for a period of time of from the minimum time necessary to result in embrittlement in the amorphous alloy material due to structural relaxation therein to 3000 seconds; subsequently subjecting the amorphous alloy material to a second-stage treatment in which said amorphous alloy material is maintained in a temperature range of from higher than the amorphous alloy material's glass transition temperature to the amorphous alloy material's crystallization temperature for 4 to 40 seconds; and quenching said amorphous alloy material to produce an amorphous alloy product having at least 50% by volume of an amorphous phase.

5,209,792
HIGH-STRENGTH, DAMAGE-RESISTANT RAIL

Gordon O. Besch, Lenexa; John A. Hovland, Overland Park, both of Kans.; Jun Furukawa, Yokohama, Japan; Hideyuki Yamanaka, Hiroshima, Japan; Kozo Fukuda, Miyagi, Japan; Tomoo Horita, Hiroshima, Japan; Yuzuru Katsoka, Hiroshima, Japan; Masahiro Ueda, Hiroshima, Japan; Tetsunari Ide, Hiroshima, Japan; Atsushi Ito, Yokohama, Japan, and Takao Gino, Kanagawa, Japan, assignors to NKK Corporation, Japan and Burlington Northern Railroad Company, Fort Worth, Tex.

Continuation of Ser. No. 559,628, Jul. 30, 1990, abandoned. This application Apr. 7, 1992, Ser. No. 866,129
Int. Cl.[5] C21D *1/18*
U.S. Cl. 148—581 4 Claims

4. A method for manufacturing a high strength damage-resistant rail, comprising the steps of: preparing a rail stock consisting essentially of about 0.6 to 0.85 wt. % of C; about 0.1 to 1 wt. % of Si; about 0.5 to 1.5 wt. % of Mn; not more than about 0.035 wt. % of P to prevent degradation of ductility, not more than about 0.04 wt. % of S; not more than about 0.05 wt. % of Al to avoid degradation of the rail, at least one about 0.05 to 1.5 wt. % of Cr, about 0.01 to 0.20 wt. % of Mo, about 0.01 to 1.0 wt. % of V, about 0.1 to 1 wt. % of Ni, and 0.005 to 0.05 wt. % of Nb; and a balance being Fe and indispensable impurities by hot rolling such that cooling the head of the rail stock by supplying a coolant from nozzles of a cooling header to the head of the rail stock in a state where the head of the rail stock maintains an austenite temperature, said cooling step being carried out such that the cooling rate of the head top portion of the rail stock is lower than that of the head side portion of the rail stock by adjusting at least one of: the number of nozzles

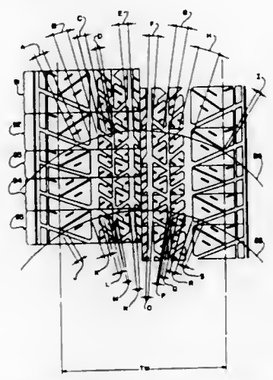


provided for the cooling header; the diameter of the nozzle; and the coolant supply pressure, wherein a rail comprising corner and head side portions having a Brinell hardness H_B of 341 to 405 and a head top portion having a hardness which ranges from about 0.6 to 0.9 of the Brinell hardness of the corner and head side portions is obtained by said cooling step.

5,209,793
LOW NOISE PNEUMATIC TIRE TREAD WITH VOIDS BALANCED OVER EACH HALF TREAD REGION

Fred J. Cusimano, II, Akron, Ohio, assignor to Bridgestone/-Firestone, Inc., Akron, Ohio

Filed May 15, 1991, Ser. No. 701,427
Int. Cl.[5] B60C *11/11*
U.S. Cl. 152—209 R 6 Claims



1. A pneumatic tire with a tread for engaging a road surface at a footprint having non-linear leading and trailing edges, the tread comprising a plurality of repeating design cycles placed continuously about the circumference of said tire, each said design cycle including a respective portion of a plurality of circumferential rows of tread block elements and transverse grooves defining the shape of said tread block elements, each of said grooves commencing on a projection of one of the leading and trailing edges at which a corresponding other one of said grooves of substantially equal width terminates, such that the void across said one of the leading and trailing edges is substantially balanced about the circumference of said tire,

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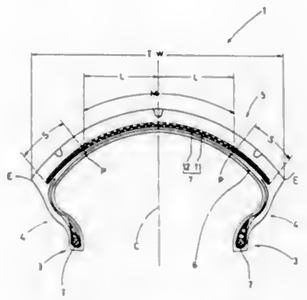
and wherein at least one of said grooves in each design cycle and its corresponding groove are located respectively in different said circumferential rows of tread block elements, and wherein the void across said one of the leading and trailing edges over each half arc of the tread is substantially balanced about the circumference of said tire.

5,209,794

TIRE FOR MOTOR CYCLES INCLUDING A SPIRALLY WOUND AROMATIC POLYAMIDE CORD BELT

Eiji Nakasaki, Kakogawa, Japan, assignor to Sumitomo Rubber Industries, Ltd., Hyogo, Japan

Filed Oct. 9, 1990, Ser. No. 594,167
Claims priority, application Japan, Oct. 13, 1989, 1-267239
Int. Cl.[5] B60C *9/18, 9/22*
U.S. Cl. 152—527 1 Claim



1. A motor cycle tire comprising a carcass composed of at least one carcass ply extending from a tread through sidewalls and folded at each edge around bead cores of bead regions, and a belt layer composed of at least one belt ply arranged radially outside the carcass,

said tread having an outer periphery extending from a tire equator, outwardly in the tire axial direction along a circular arc and defining a tire maximum width by the distance between tread ends,

said carcass ply containing carcass cords of aromatic polyamide fiber laid at an angle of 60° to 90° with respect to the equator of the tire,

said belt ply containing belt cords made of an aromatic polyamide fiber spirally wound so as to be substantially parallel to the equator of the tire, wherein

said belt layer having a central region (M) which is positioned between border points (P) and shoulder regions (S) positioned axially outside said border points (P), each border point (P) being spaced apart in the axial direction by a distance of 0.25 times to 0.35 times the tread width (TW) from the tire equator and containing belt cords having an initial modulus of elasticity which is larger than that of belt cords laid in the shoulder regions (S),

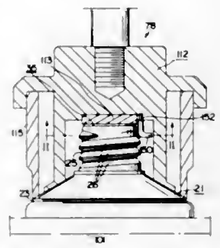
said belt cords in the central region (M) having a twist number of between 30×30T/10 cm and 35×35T/10 cm, and the belt cords in said shoulder region (S) having a twist number of between 35×35T/10 cm and 40×40T/10 cm, whereby the first and second twist numbers are always the same for the belt cord.

5,209,795

METHOD OF FORMING A SEAL REMOVAL TAB ON A COLLAPSIBLE TUBE

Richard F. DeRosa, Newtown Square, and Carl B. Schartner, Wallingford, both of Pa., assignors to Teledyne Industries, Inc., Chester, Pa.

Filed Aug. 9, 1991, Ser. No. 743,472
Int. Cl.[5] B65B *7/00*
U.S. Cl. 156—69 1 Claim



1. The method of forming a tab on a seal of a laminate of plastic and metal across the dispensing orifice of a collapsible tube having

(a) a separately made rigid plastic head portion with a neck and a dispensing opening therein, and

(b) a separately made tube body of a laminate of plastic and metal foil,

the head and tube body being welded together with radio frequency waves;

wherein the seal was formed by

(1) applying the seal to the dispensing orifice of the head before the head is welded to the tube body by

(a) moving a file of heads past a first station;

(b) stopping each head intermittently at the first station;

(c) continuously applying a vacuum to the head and dispensing orifice from below the head at the first station;

(d) passing a web of laminate over the head adjacent the dispensing orifice at the first station;

(e) cutting a seal from the web of laminate adjacent the dispensing orifice;

(f) keeping the seal of laminate positioned on the head over the dispensing orifice by means of the vacuum;

(g) applying a hot press to the seal, by reciprocating upward and downward motion, to fuse the seal to the head; and

(h) terminating the vacuum below the head to the dispensing orifice, and

(2) inserting a heat sink adjacent the seal during the welding by radio frequency waves of the head to the tube body, whereby any buildup of heat in the laminate seal is dissipated away from the seal to prevent damage to the seal;

the improvement comprising:

1. cutting a tab that is integral with and extends radially beyond the seal, when cutting the seal from the web of laminate adjacent the dispensing orifice, as set forth in step (e) above; and

2. bending said radially extending tab so that it extends substantially normal to the plane of the seal and along the neck of the head when applying the seal to the head, as set forth in step (g) above by;

contacting said radially extending tab with a tab-bending finger,

wherein said tab-bending finger is fixed in, and extends below, the hot press, and reciprocates vertically therewith, such that:

on the downward motion of said hot press, said tab-bending finger contacts said radially extending tab before said hot press contacts the seal.

5,209,796

METHOD OF MAKING A BURNED PATTERN

Takafumi Sakuramoto; Takashi Tominaga, and Megumi Ashida, all of Osaka, Japan, assignors to Nitto Denko Corporation, Osaka, Japan

Continuation of Ser. No. 537,962, Jun. 13, 1990, abandoned.
This application Jul. 29, 1992, Ser. No. 919,392
Claims priority, application Japan, Jun. 16, 1989, 1-154856; Oct. 17, 1989, 1-271472
Int. Cl.[5] B32B *7/12*
U.S. Cl. 156—89 6 Claims

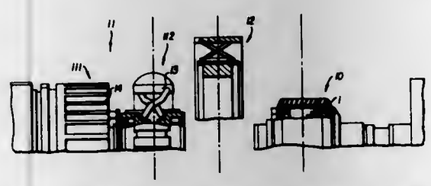
1. A method of producing a burned pattern comprising the steps of: bonding a burning sheet composed of an inorganic powder sheet produced by shaping an inorganic powder into a sheet with a resin binder and having a burning pattern on one side thereof to an aluminum-containing iron alloy substrate prepared by heat-treating an aluminum-containing iron alloy so as to modify the aluminum into alumina and increase the alumina concentration in the surface layer thereof, by the adhesive force of said resin binder under heating, pressurizing, or heating and pressurizing; and burning said burning sheet.

5,209,797

PROCESS FOR MANUFACTURING PNEUMATIC TIRES HAVING A TORIC PROFILE AT HIGH TRANSVERSAL CURVATURE

Guido Giancola, Milan, and Michele Orlandi, Vaprio d'Adda, both of Italy, assignors to Pirelli Coordinamento Pneumatici S.P.A., Milan, Italy

Filed Dec. 19, 1990, Ser. No. 630,168
Claims priority, application Italy, Dec. 19, 1989, 22730 A/89
Int. Cl.[5] B29D *30/44*
U.S. Cl. 156—127 4 Claims



1. A process for manufacturing pneumatic tires having a toric profile of high transverse curvature, said tire having a carcass, a tread band around said carcass and a reinforcing annular structure interposed between said carcass and said tread band, said structure having radially superimposed layers of parallel rubberized cords inclined with respect to a mid-circumferential plane of said annular structure,

said process comprising the steps of separately forming each of said carcass, said tread band and said reinforcing annular structure so that each is in annular form,

said tread band and said annular reinforcing structure each being in cylindrical shape, with the cords of said annular structure lying at a first angle of inclination with respect to the mid-circumferential plane of said annular structure,

assembling said tread band to said reinforcing annular structure so as to form an annular element in a cylindrical configuration,

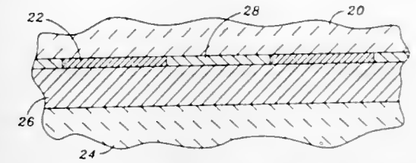
then shaping said annular element into its final toric configuration with a high transverse curvature so as to move said cords from said first angle of inclination to a second angle of inclination with respect to the mid-circumferential plane of the annular element, then assembling said carcass to said toric shaped annular element to form a complete green pneumatic tire, then vulcanizing said green pneumatic tire inside a mold.

5,209,798

METHOD OF FORMING A PRECISELY SPACED STACK OF SUBSTRATE LAYERS

Allen L. Solomon, Fullerton; Wei H. Koh, Irvine, and Alan E. Ingall, Costa Mesa, all of Calif., assignors to Grunman Aerospace Corporation, Bethpage, N.Y.

Filed Nov. 22, 1991, Ser. No. 796,592
Int. Cl.[5] B32B *18/00, 31/06*
U.S. Cl. 156—153 9 Claims



1. The method of forming a precisely spaced stack of substrate layers such that detector elements disposed upon the edge portions of the layers will be precisely aligned to form a detector array, the method comprising the steps of:

(a) forming a first glass coating upon the top surface of a first substrate layer;

(b) removing a portion of said first glass coating such that the sum of the thicknesses of said first substrate layer and said first glass coating is a desired thickness;

(c) disposing an adhesive layer upon said first glass coating;

(d) forming a second glass coating upon the top surface of a second substrate;

(e) removing a portion of said second glass coating such that the sum of the thickness of said second substrate layer and said second glass coating is a desired thickness;

(f) disposing the bottom surface of said second glass coated substrate layer upon said adhesive layer;

(g) curing said adhesive layer to bond said first and second substrate layers together, using a curing temperature below said glass coating fusion temperature such that said glass layer does not soften;

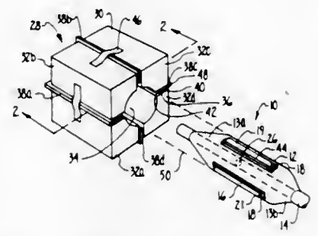
(h) whereby the presence of said adhesive layer permits bonding of the stacked substrate layers without the need to heat the substrate layers to glass fusion temperatures, thereby avoiding intersubstrate layer spacing inconsistencies resulting from glass flow and also avoiding gaps and voids in the glass.

5,209,799

METHOD FOR MANUFACTURING A FOLDING BALLOON CATHETER

Dennis Vigil, San Diego, Calif., assignor to InverVentional Technologies, Inc., San Diego, Calif.

Filed Apr. 17, 1992, Ser. No. 870,149
Int. Cl.[5] B32B *3/26;* A61M *25/10*
U.S. Cl. 156—156 18 Claims



1. A method of manufacturing a folding balloon catheter having an elongated balloon enclosing an expandable chamber

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and a hollow catheter tube attached to the balloon in fluid communication with the chamber, the method comprising the steps of:

introducing fluid into said chamber to inflate said balloon;

applying a plurality of patches of an elastomeric material to the exterior of said balloon; partially curing said inflated balloon by heating said balloon to a predetermined partial curing temperature and maintaining said partial curing temperature for a predetermined partial curing time;

withdrawing fluid from said chamber to collapse said balloon at said patches to form rounded furrows thereat, so as to fold said balloon and create flaps between said patches; and

curing said collapsed balloon by heating said material to a predetermined final curing temperature and maintaining said final curing temperature for a predetermined final curing time.

5,209,800

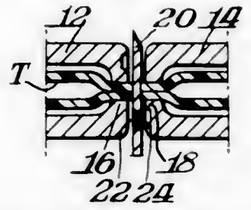
TOTAL CONTAINMENT WELDING OF PLASTIC TUBES

Dudley W. C. Spencer; John B. Shaposka, and Robert J. Beird, all of Wilmington, Del., assignors to Denco, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 682,977, Apr. 10, 1991, which is a continuation-in-part of Ser. No. 604,979, Oct. 29, 1990, which is a continuation-in-part of Ser. No. 569,855, Aug. 20, 1990. This application Sep. 23, 1991, Ser. No. 764,249

Int. Cl.[5] B29C *57/10, 65/20*

U.S. Cl. 156—158 34 Claims



1. A sterile disconnect method for cutting a plastic tube and producing two sealed ends comprising placing the plastic tube in a pair of spaced clamp members, closing the clamp members to flatten a section of the tube, cutting through the flattened tube section to create a pair of tube ends, heating the tube ends to their molten state, inserting each tube end in a snug fitting depression, quenching each tube end by its depression being at a temperature below the molten state temperature of the tube end, removing each tube end from its depression with the tube end being sealed, and the depressions being in the tool for heating the tube ends.

5,209,801

METHOD OF FORMING A DISPOSABLE ELASTIC STRUCTURE

Carol L. Smith, Federal Way, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Continuatinn of Ser. No. 472,600, Feb. 20, 1990, abandoned, which is a continuation of Ser. No. 245,492, Sep. 19, 1988, Pat. No. 4,977,011. This application Aug. 6, 1991, Ser. No. 742,223

Int. Cl.[5] B32B *3/22, 5/04, 5/12, 5/26, 7/14*

U.S. Cl. 156—161 26 Claims

1. A method of forming a breathable elastic structure having substantially unidirectional elastic properties, comprising the steps of:

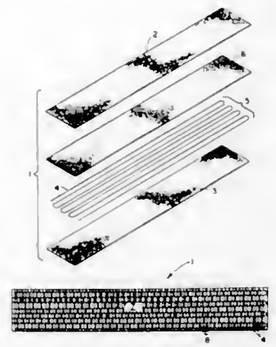
providing a nonwoven low basis weight first breathable outside layer, a nonwoven low basis weight second breathable outside layer, and a first elastic layer having a multiplicity of nonintersecting elastic strands;

stretching the first elastic layer by stretching the nonintersecting elastic strands of the first elastic layer;

positioning the stretched nonintersecting elastic strands of the first elastic layer between the first and second outside layers;

adhering the first and second outside layers together with the stretched first elastic layer therebetween to form a substantially unitary structure; and

forming a breathable elastic structure having a nonuniformity which is substantially regularly distributed throughout



the elastic structure, the forming step comprising the step of relaxing the stretching of the first elastic layer to cause the first elastic layer to contract and to draw the outside layers into pleats having a controlled irregularity with the pleats on opposing sides of each elastic strand substantially having different periods and amplitudes, and the pleats, when drawn apart, having substantially unidirectional elastic properties so as to allow the elastic structure to be drawn apart in a direction substantially parallel with at least one the nonintersecting elastic strands.

5,209,802

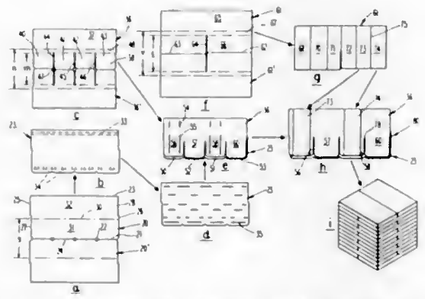
METHOD OF MAKING A MULTI-LAYER SHINGLE

Marcia G. Hannah, Wayne; George W. Mehrer, Jenkintown; Michael J. Noone, Wayne; Kermit E. Stahl, North Wales, and Joseph Quaranta, Yardley, all of Pa., assignors to Certain-Teed Corporation, Valley Forge, Pa.

Continuation of Ser. No. 515,601, Apr. 27, 1990, which is a continuation-in-part of Ser. No. 110,801, Oct. 20, 1987, Pat. No. Des. 314,628, and a continuation-in-part of Ser. No. 174,023, Mar. 28, 1988. This applicatinn Sep. 9, 1991, Ser. No. 756,489

Int. Cl.[5] B32B *11/00*

U.S. Cl. 156—250 29 Claims



1. A method of making a laminated shingle comprising:

(a) providing a base layer of bituminous-coated web having top and bottom surfaces with granules applied to the top surface, and having a butt portion and a tab portion;

(b) providing a secondary layer of bituminous-coated web having top and bottom surfaces with granules applied to the top surface, and having a butt portion and a tab portion and having its butt portion and tab portion substantially overlying said butt and tab portions respectively of said base layer; and providing a plurality of substantially spaced-apart slots in the tab portion defining spaced shingle tabs; and

(c) providing at least one shingle strip portion comprising a top shingle layer of bituminous-coated web having top and bottom surfaces with granules applied to the top surface, applying and covering at least a portion of at least one tab of said secondary shingle layer with the top shingle layer; and

laminating the base, secondary and top shingle layers together with granules sandwiched between the laminated layers.

5,209,803

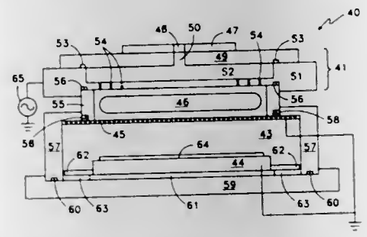
PARALLEL PLATE REACTOR AND METHOD OF USE

Gary B. Powell, Petaluma, Calif., assignor to Matrix Integrated Systems, Inc., Richmond, Calif.

Division of Ser. No. 566,860, Aug. 10, 1990, which is a continuation of Ser. No. 238,642, Aug. 30, 1988, abandoned. This application Jan. 18, 1991, Ser. No. 643,197

Int. Cl.[5] H01L *21/00*

U.S. Cl. 156—345 43 Claims



10. An apparatus for etching substrates comprising:

an upper electrode having a first surface, a second surface and defining an opening therein extending from said first surface to said second surface, said upper electrode electrically clamped to said grid, being coupled to a power source;

a lid coupled to said first surface of said upper electrode, said lid and said upper electrode defining a gas mixing chamber therebetween;

a first insulator having a first end coupled to said second surface of said upper electrode and a second end;

a conductive grid coupled to said second end of said first insulator, said conductive grid, first insulator, and upper electrode defining a plasma chamber therebetween;

a lower wall having a first end coupled to said second end of said first insulator and a second end;

a base having a first surface coupled to said lower wall, wherein said base, lower wall, and conductive grid define a lower chamber;

a lower electrode coupled to said first surface of said base and disposed in said lower chamber; and

a reactant gas source coupled to said lid to provide a reactant gas to said gas mixing chamber.

5,209,804

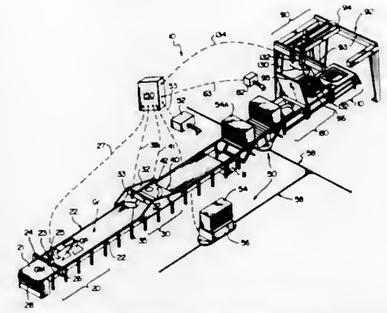
INTEGRATED, AUTOMTED COMPOSITE MATERIAL MANUFACTURING SYSTEM FOR PRE-CURE PROCESSING OF PREIMPREGNATED COMPOSITE MATERIALS

Allen E. Trudeau, Ansonia, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Apr. 30, 1991, Ser. No. 693,748

Int. Cl.[5] B32B *31/00*

U.S. Cl. 156—364 14 Claims



1. An integrated, automated composite material manufacturing system for pre-cure processing of preimpregnated composite material having at least one tacky surface, comprising:

control subsystems means for controlling and synchronizing the pre-cure processing operations effected by said integrated, automated composite material manufacturing system;

cutting means operative in response to first control signals from said control subsystems means for controlled cutting of the preimpregnated composite material into individual composite plies of predetermined size and shape based upon predetermined composite ply configurations stored in said control subsystem means;

ply loading means operative in response to second control signals from said control subsystems means for providing automatic pickup, transfer and placement operations to load the individual composite plies, said ply loading means including

a numerically controlled carriage subassembly having a ply transfer end effector that includes an array of bi-functional transfer feet, and

a numerically controlled tray handling apparatus disposed in combination with and movable with respect to said numerically controlled carriage subassembly, said numerically controlled tray handling apparatus having a stacking tray mounted in combination therewith,

said numerically controlled carriage subassembly and said ply transfer end effector being operative in response to said second control signals to position said ply transfer end effector over the individual composite plies,

said ply transfer end effector being operative in response to said second control signals to selectively activate a multiplicity of said bi-functional transfer feet to form a predetermined combination corresponding to the predetermined size and shape of the individual composite plies, said selectively activated bi-functional transfer feet being operative to engage and retain and to mechanically disengage and release the tacky surface of the individual composite plies to load the individual composite plies onto said stacking tray, and wherein

said numerically controlled tray handling apparatus is operative in response to said second control signals for synchronized movement with respect to said ply transfer end effector for positioning said numerically controlled tray handling apparatus beneath said ply transfer

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end effector to load the individual composite plies onto said stacking tray;

means for automatically transferring said loaded stacking tray of individual composite plies for subsequent precure processing;

ply conforming subsystem means operative in response to fourth control signals from said control subsystems means for conforming layed-up individual composite plies, said ply conforming subsystem means including

a support table,

said support table including a composite article mold having a predetermined mold surface,

a frame member having a flexible impervious membrane disposed in combination therewith, and

a mounting assembly structurally and functionally interconnecting said frame member with said support table,

said mounting assembly being alternatively operative in response to said fourth control signals to rotate said frame member to a contact position wherein said flexible impervious membrane is adjacent said predetermined mold surface and operative to conform layed-up individual composite plies to said predetermined mold surface and to rotate said frame member to a displaced position wherein said frame member is stowed below said predetermined mold surface to facilitate lay-up of the individual composite plies; and

ply transfer/layup means operative in response to third control signal means from said control subsystem means for providing automatic pickup, transfer and placement operations to lay-up the individual composite plies from said loaded stacking tray onto said predetermined mold surface of said composite article mold, said ply transfer/-layup means including

a ply transfer end effector having an array of bi-functional transfer feet, and

means operative in response to said third control signals for positioning said ply transfer end effector with respect to the individual composite plies from said loaded stacking tray, wherein

said ply transfer end effector is operative in response to said third control signals to selectively activate a multiplicity of said array of bi-functional transfer feet to form a predetermined combination corresponding to the predetermined size and configuration of the individual composite plies from said loaded stacking tray, said selectively activated bi-functional transfer feet being operative to engage and retain and disengage and release the individual composite plies in layed-up combination with said predetermined mold surface of said composite article mold.

5,209,805

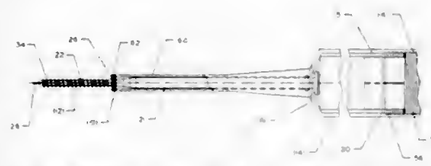
METHOD AND FASTENER SYSTEM FOR JOINING LIGHTWEIGHT PANELS

Michael R. Spraggins, 13201 Stairock, San Antonio, Tex. 78248

Filed Jan. 8, 1992, Ser. No. 816,218

Int. Cl.[5] B29C *65/52;* **B32B** *7/08;* **F16B** *39/02*

U.S. Cl. 156—423 **6 Claims**



1. A drill driven system for fastening lightweight panels together with epoxy, the system comprising:

a hollow, cylindrical, threaded pin having a body, a closed-ended nose portion and an open end with a flared head, the pin having dispersion jets therein and the head having first attachment means thereon;

an epoxy cartridge having a piston driven resin reservoir and a piston-driven hardener reservoir;

a mixing nozzle attached to said epoxy cartridge and in communication with the reservoirs of said epoxy cartridge for mixing the resin and the hardener;

housing means dimensioned to accept the epoxy cartridge with the mixing nozzle attached thereto, said housing means having a first end and a second end, the second end for receiving the mixing nozzle, the second end having a second attachment means thereon, the second attachment means for coupling with the first attachment means on the head of said pin;

plunger means capable of engaging the pistons of said epoxy cartridge, said plunger means capable of releasably engaging a drill said drill having a drill chuck and

clutch means for operatively engaging said housing means and said plunger means such that rotation of the drill chuck with said clutch engaged rotates said housing means with said pin mounted thereon into the lightweight panels to be joined and that rotation of the drill chuck with the clutch disengaged rotates the plunger means without rotating said housing means, thereby forcing epoxy through the mixing nozzle, through the pin, and through the dispersion jets of the pin and into the panels to be joined.

5,209,806

ENVELOPE SEALING DEVICE

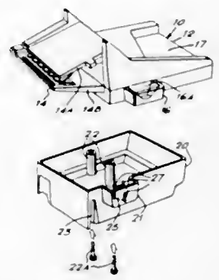
Christopher V. Hibberd, Essex, England, assignor to Pitney Bowes PLC, Harlow, United Kingdom

Filed May 1, 1991, Ser. No. 694,181

Claims priority, application United Kingdom, May 3, 1990, 9009961

Int. Cl.[5] B43M *5/00*

U.S. Cl. 156—441.5 **2 Claims**



1. An envelope sealing and feeding device comprising upper and lower interfitting parts defining a reservoir for a liquid to be used in the sealing operation and further defining a recess communicating with the reservoir and containing a hollow member which both indicates the level of liquid in the reservoir and acts as a closure valve if the device is inverted or substantially tilted;

said hollow member being a floating ball located by a number of upstanding posts within the recess; and

a substantially horizontal slot through which an envelope to be sealed can be fed, these parts cooperating with a wetter assembly which includes a wetter blade extending across the slot and a tubular structure containing wicking material and extending substantially vertically downwardly through the upper part and into the liquid reservoir.

5,209,807

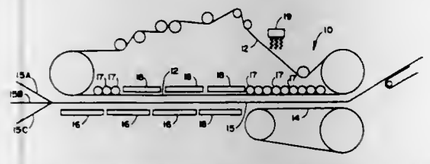
PAPERMAKERS FABRIC FOR CORRUGATION MACHINES

Ted Fry, Summerville, S.C., assignor to Asten Group, Inc., Charleston, S.C.

Continuation of Ser. No. 351,717, May 15, 1989, Pat. No. 5,050,646. This application Jul. 22, 1991, Ser. No. 733,319

Int. Cl.[5] B31F *5/00;* **D03D** *11/00*

U.S. Cl. 156—470 **4 Claims**



3. A corrugator apparatus for manufacturing corrugated paper products, the apparatus having a series of heat element means spaced from and associated with pressure application means to facilitate the processing of the corrugated paper product, a papermakers fabric which traverses between said heat element means and said pressure application means to transport the paper product across the heat element means, and wherein the papermakers fabric comprises a system of monofilament warp yarns interwoven with a top layer of bulky filling yarns, a bottom layer of bulky filling yarns and at least two intermediate layers of bulky filling yarns in a repeat pattern with selected monofilament warp yarns weaving knuckles over the top layer of filling yarns and with selected monofilament warp yarns weaving knuckles under the bottom layer of filling yarns such that the top layer of bulky filling yarns in conjunction with monofilament warp yarn knuckles define the top surface of the fabric and such that the bottom layer of the bulky filling yarns in conjunction with the monofilament warp yarn knuckles define the bottom surface of the fabric.

5,209,808

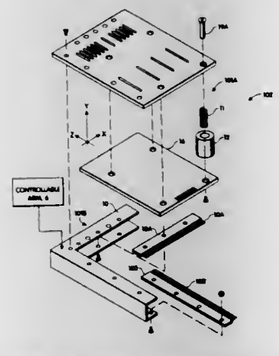
CORNER LABEL APPLICATOR SYSTEM AND METHOD

Kenneth N. Booth, Chester, Vt., assignor to Imtec, Inc., Bellows Falls, Vt.

Filed Feb. 26, 1991, Ser. No. 661,390

Int. Cl.[5] B65C *9/00*

U.S. Cl. 156—487 **3 Claims**



1. For use in an application system for applying an adhesive label having a central body and two outward extending flaps to a polygonal rectilinear object, that object having two major surfaces and four minor surfaces contiguous to the two major surfaces thereof, wherein adjoining surfaces of the object are orthogonal to one another;

a wiping mechanism comprising two elongated brushes whose bristles are electrically conductive disposed with the elongate (or longitudinal) dimension of each brush disposed substantially orthogonal to the like dimension of the other brush, the place of each brush, including the bristles thereof, between wipes, being disposed essentially parallel to said two major surfaces, and

an applicator head to receive the adhesive label, said applicator head including a tamping plate mechanically secured through compressive spring means to a backing structure and further mechanically attached to the wiping mechanism to cause the tamping structure to move in a direction orthogonal to a major surface of the polygonal rectilinear object to apply the label there and to cause the wiping mechanism to move over the two flaps of the label to press the same onto the said major surface and adhere the said two flaps to the said minor surface of the object.

5,209,809

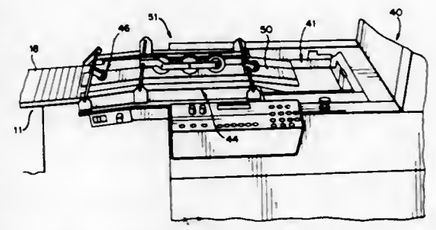
DETACHER TO FOLDER OR PRESSURE SEALER SHINGLE CONVEYOR

George E. Walter, Tonawanda, and John E. Traise, Niagara Falls, both of N.Y., assignors to Moore Business Forms, Inc., Grand Island, N.Y.

Division of Ser. No. 604,858, Oct. 26, 1990, Pat. No. 5,139,597. This application Apr. 15, 1992, Ser. No. 868,656

Int. Cl.[5] B65M *9/04*

U.S. Cl. 156—539 **13 Claims**



1. A distinct conveyor assembly for operatively connecting a distinct detacher, comprising a first business forms handling machine, to a distinct second business forms handling machine for transforming continuous configuration business forms into individual business forms, comprising:

a substrate having first and second ends;

conveying means mounted in association with said substrate for conveying forms along said substrate in a first direction;

means for registering the forms during conveyance in said first direction;

means for releasably mounting said substrate between the distinct detacher and the distinct second business forms handling machine so that said first end of said substrate is adjacent the detacher, and said second end is adjacent the second business forms handling machine, so that forms are conveyed to the second business forms handling machine from the detacher across said substrate.

5,209,810

METHOD AND APPARATUS FOR LAYING UP ADHESIVE BACKED SHEETS

Carl R. Marschke, Phillips, Wis., assignor to Converex, Inc., Madison, Wis.

Filed Aug. 19, 1991, Ser. No. 747,788

Int. Cl.[5] B32B *31/00*

U.S. Cl. 156—563 **12 Claims**

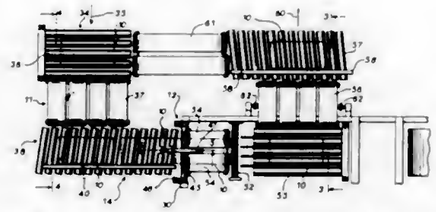
1. A system for laying up multi-layer stacks of sheets, each

VOL 1150 ISS 2 MY 11 1993 UMI

sheet having an adhesive coating on one side to cause each succeeding sheet to adhere to the sheet preceding it, said system comprising:

means for circulating in series a plurality of independent sheet receiving backing members in multiple lay-up cycles through a sheet lay-up station to serially receive on each member an initial layer and successive layers of sheets with a single layer received in each cycle;

means for feeding a continuous web from which said sheets are formed into said lay-up station;



application means in said lay-up station for providing end-to-end registration between adjacent backing members and for applying said initial layer and said successive layers from said web to said backing members and the immediately preceding one of each of said successive layers; and,

means for receiving each backing member from said lay-up station and for separating each applied layer from said continuous web.

5,209,811

METHOD FOR HEAT-TREATING GALLIUM ARSENIDE MONOCRYSTALS

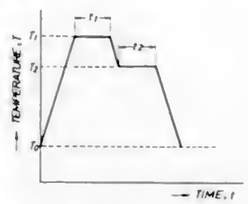
Yutaka Kitagawara; Susumu Kuwahara, and Takao Takenaka, all of Gunma, Japan, assignors to Shin-Etsu Handotai Company Limited of Japan, Tokyo, Japan

Continuation of Ser. No. 327,491, Mar. 23, 1989, abandoned. This application Dec. 18, 1991, Ser. No. 810,362

Claims priority, application Japan, Mar. 25, 1988, 63-69733

Int. Cl.[5] **C30B** *33/02, 15/00*

U.S. Cl. 156—603 **1 Claim**



1. A heat-treating method for producing a semiconducting indium-doped dislocation-free gallium arsenide monocrystal having a resistivity of 10^7 Ωcm or greater, said heat-treating method comprising conducting the following steps after a monocrystal having a low carbon concentration of 2×10^{15} cm^{-3} or lower is grown in a liquid encapsulated Czochralski method:

(i) heating the monocrystal to a temperature between 1050° C. and 1200° C. for at least 30 minutes;

(ii) cooling the monocrystal at a cooling rate of from 10° C. per minute to 200° C. per minute;

(iii) heating the monocrystal at a temperature between 750° C. and 950° C. for at least 30 minutes; and

(iv) cooling the monocrystal until the temperature reaches 300° C. or lower at a cooling rate of from 10° C. per minute to 200° C. per minute.

5,209,812

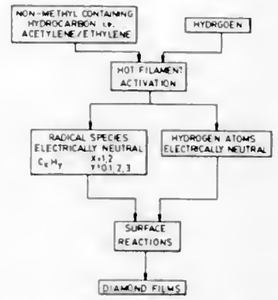
HOT FILAMENT METHOD FOR GROWING HIGH PURITY DIAMOND

Ching-Hsong Wu, Farmington Hills, Mich.; Michael A. Tamor, Toledo, Ohio, and Timothy J. Potter, Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 9, 1990, Ser. No. 506,633

Int. Cl.[5] **C30B** *25/06*

U.S. Cl. 156—613 **14 Claims**



1. A method of growing high purity diamond crystallite structures at high growth rates on a substrate that can withstand high temperatures, comprising the steps of:

(a) flowing diamond producing feed gases at low pressures through a reaction chamber containing said substrate, said feed gases being substantially devoid of methyl group gases; and

(b) raising the temperature of said substrate to 600°–1000° C. and concurrently thermally activating said feed gases by use of a hot filament located within said chamber and upstream as well adjacent said substrate, said filament being heated to a temperature above 1900° C. that is effective to generate substantial neutral radicals or diamond precursors.

5,209,813

LITHOGRAPHIC APPARATUS AND METHOD

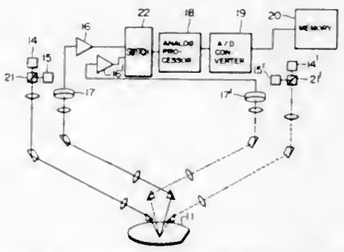
Yoshitada Oshida, Fujisawa; Genya Matsuoka, Ome; Teruo Iwasaki, Tokyo; Toshio Kaneko, Katsuta; Hiroyuki Takahashi, Yokohama; Hiroyoshi Ando, Katsuta; Hidenori Yamaguchi, Kokubunji, and Katsuhiro Kawasaki, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 24, 1991, Ser. No. 781,879

Claims priority, application Japan, Oct. 24, 1990, 2-284244; Oct. 26, 1990, 2-287008; Dec. 1, 1990, 2-400009; Jan. 30, 1991, 3-009612; Mar. 29, 1991, 3-065973; Apr. 18, 1991, 3-086542

Int. Cl.[5] **B44C** *1/22;* **B23K** *15/00;* **G01J** *4/00;* **G01B** *11/06*

U.S. Cl. 156—626 **55 Claims**



13. A method of forming a predetermined pattern on an object of lithography by irradiating a lithographic beam on the object, comprising the steps of:

activating means for irradiating the lithographic beam on the object on the basis of a first data corresponding to the predetermined pattern;

irradiating a second light beam on the object; and

correcting the first data by use of at least one of the first and second light beams reflected on the object thereby to regulate the irradiation of the lithographic beam.

5,209,814

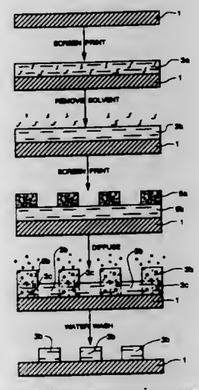
METHOD FOR DIFFUSION PATTERNING

John J. Felten, Chapel Hill, N.C., and Sheau-Hwa Ma, Chadds Ford, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 30, 1991, Ser. No. 768,504

Int. Cl.[5] **B44C** *1/22;* **B29C** *37/00*

U.S. Cl. 156—628 **9 Claims**



1. A method for making patterns in organic polymer layers comprising the sequential steps:

A. Applying to a substrate an unpatterned first layer comprising a solid dispersion of solid acidic organic polymer having an acid number of 20–600 in a first plasticizer;

B. Applying to the unpatterned first layer a patterned second layer comprising a liquid solution of organic base and volatile solvent;

C. Heating the patterned second layer to effect removal of the volatile solvent from the layer and diffusion of the organic base into the underlying areas of the first layer whereby the acidic polymer in the underlying areas of the first layer becomes solubilized by reaction with the organic base; and

D. Washing the layers with aqueous solution having a pH of 5–8.5 to remove the solubilized acidic polymer from the patterned areas of the layers.

5,209,815

METHOD FOR FORMING PATTERNED FILMS ON A SUBSTRATE

Robert J. Fleming, Hopewell Junction; Margaret J. Lawson, Newburgh; Edward J. Leonard, Fishkill, and Bryan N. Rhoads, Pine Bush, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 6, 1991, Ser. No. 711,224

Int. Cl.[5] **H01L** *21/00*

U.S. Cl. 156—629 **18 Claims**

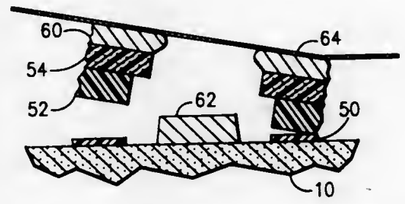
1. A method of forming a patterned film of a desired film material onto a substrate according to a predetermined film pattern and under film deposition conditions corresponding to the desired film material, said method comprising the steps of:

a) depositing a release layer of a release material onto a surface of the substrate, wherein said release material is thermally stable under the film deposition conditions and is soluble in at least a first or a second solution;

b) depositing an underlayer onto said release layer, wherein said underlayer is thermally stable under the film deposition conditions and said underlayer is mechanically bonded to said release layer by a first mechanical bonding strength;

c) patterning the predetermining film pattern through said underlayer and said release layer thereby forming a patterned underlayer and a patterned release layer and further exposing the substrate surface according to the predetermined film pattern;

d) depositing film layer onto said patterned underlayer and the exposed substrate, thereby forming the patterned film onto the exposed surface of the substrate according to the predetermined film pattern and wherein said film layer is



mechanically bonded to said patterned underlayer by a second mechanical bonding strength;

e) weakening the first mechanical bonding strength of said release layer, wherein the weakened first mechanical bonding strength is weaker than the second mechanical bonding strength;

f) applying an adhesive backed tape to the top of said film layer, said adhesive backed tape not contacting the patterned film;

g) applying a pulling force to said tape to break the mechanical bond between said underlayer and said release layer, thereby stripping said film layer and said patterned underlayer away from said patterned release layer, while leaving said patterned film and said patterned release layer on the substrate; and,

h) removing said patterned release layer.

5,209,816

METHOD OF CHEMICAL MECHANICAL POLISHING ALUMINUM CONTAINING METAL LAYERS AND SLURRY FOR CHEMICAL MECHANICAL POLISHING

Chris C. Yu; Trung T. Doan, and Alan E. Laulusa, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Jun. 4, 1992, Ser. No. 893,449

Int. Cl.[5] **H01L** *21/00*

U.S. Cl. 156—636 **17 Claims**

1. A semiconductor processing method of chemical mechanical polishing an aluminum containing metal layer on a semiconductor substrate comprising the following steps:

providing a chemical mechanical polishing slurry comprising H_3PO_4 at from about 0.1% to about 20% by volume; H_2O_2 at from about 1% to about 30% by volume; H_2O; and a solid abrasive material; and

chemical mechanical polishing an aluminum containing metal layer on a semiconductor substrate with the slurry.

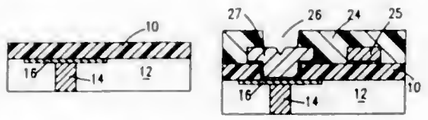
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,817

SELECTIVE PLATING METHOD FOR FORMING INTEGRAL VIA AND WIRING LAYERS

Umar M. Ahmad, Hopewell Junction; Daniel G. Berger, Poughkeepsie; Ananda Kumar, Hopewell Junction; Susan J. LaMaire, Yorktown Heights; Keshav B. Prasad, New Paltz; Sudipta K. Ray, Wappingers Falls, and Kwong H. Wong, Croton-On-Hudson, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 22, 1991, Ser. No. 748,445
Int. Cl.[5] B44C *1/22*; B29C *37/00*; C23F *1/00*
U.S. Cl. 156—643 10 Claims



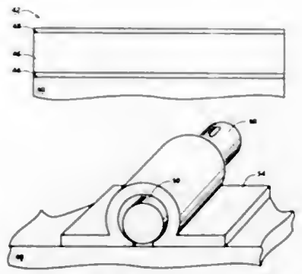
1. A method of fabricating wiring and via conductors comprising:
forming a via opening in a dielectric layer extending from an upper surface of the dielectric layer through said dielectric layer with said dielectric layer forming a wall of said via;
forming a thin conductive seed layer over the upper surface of said dielectric layer and the wall defining said via opening;
forming a masking layer on said seed layer;
forming openings in said masking layer that expose said seed layer in the wall of the via opening and in a desired wiring pattern;
electroplating conductive material onto the exposed portions of said seed layer so that isotropic deposition of said conductive material fills said via opening in said dielectric layer with the upper surface of the conductive material that fills said via opening co-planar with the upper surface of the conductive material in said wiring pattern.

5,209,818

MANUFACTURE OF A MICROMECHANICAL ELEMENT WITH TWO DEGREES OF FREEDOM

Igor I. Bol, Sherman Oaks, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Jul. 3, 1991, Ser. No. 725,173
Int. Cl.[5] H01L *21/306*; B44C *1/22*; C03C *15/00*; C23F *1/00*
U.S. Cl. 156—651 5 Claims



1. A process for making a micromechanical device on a member comprising:
providing a member;
forming a first layer of material upon said member that is different from the member material;
forming a wall of material upon said first layer that is different than said first layer;
forming a cylindrical bumper onto a portion of said first layer and into said wall forming a convexo-concave relationship with said wall;
etching said wall and a portion of said first layer to remove the same from said member, from said cylindrical bumper and from a portion of said first layer which is interposed between said cylindrical bumper and said member to which the cylindrical bumper is attached;
forming a sacrificial layer on said portion of said first layer interposed between said cylindrical bumper and said member, on said cylindrical bumper and on a portion of said member;
forming a structural layer on said sacrificial layer and said member;
patterning said structural layer to form a casing structure for movement of said cylindrical bumper relative to said casing structure and to expose portions of said sacrificial layer; and
etching said sacrificial layer and said first layer interposed between said cylindrical bumper and said member to release said cylindrical bumper from said casing structure, to release said cylindrical bumper from said member, and providing for relative movement between said cylindrical bumper and said casing structure.

5,209,819

PROCESS FOR PRODUCING MOLDING FOR PRECISION FINE-LINE CIRCUIT

Yoshiharu Suzuki, Chiba, and Tomoyuki Aketa, Shizuoka, both of Japan, assignors to Polyplastics Co., Ltd., Osaka, Japan

Filed Jul. 3, 1990, Ser. No. 547,237
Claims priority, application Japan, Jul. 3, 1989, 1-171368
Int. Cl.[5] H05K *3/00*
U.S. Cl. 156—656 21 Claims

1. An improved process for producing a metal coated molding capable of forming a precision fine-line circuit by the substractive method comprising providing a base molding formed from a composition comprising (a) a melt-processable polyester which is capable of forming an anisotropic melt phase and (b) an inorganic filler in a concentration of approximately 5 to 80 percent by weight based upon the total weight of the composition; etching at least a portion of said base molding; and applying a metallic surface coating having line and space widths of 0.25 mm or below and a peeling strength of at least one kg/cm to said etched portion of said base molding by a dry metal coating technique selected from the group consisting of sputtering, ion plating, and vacuum deposition while maintaining said base molding at a temperature of approximately 20° to 45° C., in a reduced pressure chamber.

5,209,820

BATHS AND PROCESS FOR THE CHEMICAL POLISHING OF STAINLESS STEEL SURFACES

Daniel Tytgat, Brussels, and Nathalie Barthelemy, Orp-Jauche, both of Belgium, assignors to Solvay & Cie (Societe Anonyme), Brussels, Belgium

Filed Jun. 10, 1991, Ser. No. 712,961
Claims priority, application Belgium, Jun. 19, 1990, 09000625
Int. Cl.[5] B44C *1/22*; C23F *1/00*
U.S. Cl. 156—664 13 Claims

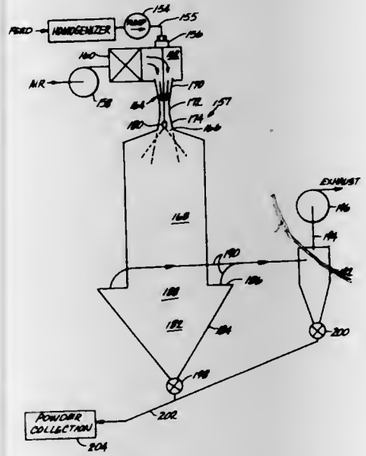
1. A bath for the chemical polishing of stainless steel surfaces, comprising a mixture of hydrochloric acid, nitric acid and phosphoric acid, and a substituted or unsubstituted hydroxybenzoic acid in aqueous solution, characterised in that they comprise a water-soluble amine in the aqueous solution.

5,209,821

APPARATUS FOR REMOVING VOLATILES FROM, OR DEHYDRATING, LIQUID PRODUCTS

Alexander J. Shaw, Vancouver, Canada; Jay S. Marks, Battle Ground, and Hayes E. Gahagan, Indianapolis, both of Ind., assignors to Purdue Research Foundation and JSDC, Ltd., West Lafayette, Ind., part interest to each

Continuation-in-part of Ser. No. 28,619, Mar. 20, 1987, abandoned, which is a continuation-in-part of Ser. No. 861,041, May 8, 1986, abandoned, which is a continuation-in-part of Ser. No. 732,444, May 9, 1985, abandoned. This application Jan. 23, 1989, Ser. No. 299,399
Int. Cl.[5] B01D *1/18*
U.S. Cl. 159—4.01 6 Claims



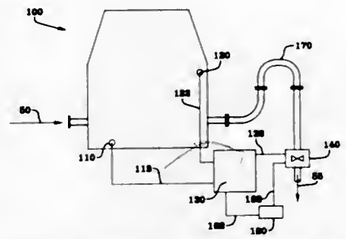
1. A dehydrator comprising:
an elongated, substantially upright vessel having an inlet at its upper end and an outlet at its lower end, said vessel defining a dehydration chamber;
an orifice in the vessel inlet;
a discharge opening at the vessel outlet;
means for generating and directing hot gases at a temperature above about 145° F. through the orifice, through the chamber and out the discharge opening;
means for generating acoustical waves in said chamber, said hot gases and acoustical waves defining a dehydrating environment in the chamber;
a spray nozzle in the chamber downstream from the orifice and above the vessel outlet arranged to spray a substantially conical spray pattern of a liquid product to be dehydrated into the chamber downstream of the orifice as droplets, the droplets encountering the dehydrating environment and dehydrating;
an elongated and substantially upright annular membrane in the chamber between the inlet and outlet and having a substantially vertical longitudinal axis to provide a substantially vertical annular membrane wall in the chamber to receive droplets of at least partially dehydrated liquid product from the spray nozzle, the annular wall being permeable to air;
means for supplying air to the exterior of the annular wall so the supplied air flows through the permeable annular wall and into the chamber to form an interior annular air curtain which impedes impingement of droplets against the interior surface of the permeable annular wall; and
means for separating the dehydrated product from the environment.

5,209,822

METHOD FOR CONTROLLING LIQUID LEVEL IN A KNOT DRAINER

Ian J. H. Clarke-Pounder, and Douglas L. G. Young, both of Nashua, N.H., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Oct. 21, 1991, Ser. No. 780,675
Int. Cl.[5] B07B *1/18*
U.S. Cl. 162—55 4 Claims



1. A method for controlling liquid level in a knot drainer, including the steps of:
establishing an acceptable liquid level setpoint for said knot drainer;
monitoring and sensing liquid level in the knot drainer;
comparing the liquid level setpoint and the sensed liquid level, and generating a control signal having an appropriate sign and a magnitude proportional to the difference, if any, between the levels;
providing, in an accepts discharge line, means for maintaining a minimum liquid level in the knot drainer irrespective of variations of liquid feed flow and accepts liquid outflow; and
adjusting a valve means in said accepts discharge line, said valve means being responsive to said control signal, for regulating outflow of accepts liquid from an accepts chamber of said knot drainer.

5,209,823

WATER-SOLUBLE DISPERSANT WHICH AIDS IN THE DISPERSION OF POLYESTER FIBERS DURING THE PREPARATION OF A WET-LAID NONWOVEN FIBER MAT

Roger H. Jansma, Park Forest, and James H. Smith, Lisle, both of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Division of Ser. No. 417,538, Oct. 5, 1989, abandoned. This application Dec. 10, 1990, Ser. No. 627,550
Int. Cl.[5] D21H *21/08*
U.S. Cl. 162—146 12 Claims

1. A process for forming a wet-laid nonwoven fiber mat comprising:
adding a water-soluble dispersant to water, said water-soluble dispersant is a terpolymer formed from the distillation product of the monomers consisting of: (a) polyethylene glycol in an amount greater than about 80% by weight of said water-soluble dispersant; (b) a phthalic ester moiety derived from either a phthalic ester or a phthalic acid; and (c) a simple glycol selected from the group consisting of ethylene glycol, propylene glycol, neopentyl glycol and diethylene glycol, wherein said phthalic ester moiety and said simple glycol are present in an amount less than about 20% by weight of said water-soluble dispersant;
adding fibers to said water subsequent to addition of said water-soluble dispersant, thereby forming a fiber slurry;
mixing said fiber slurry; and
forming a wet-laid nonwoven web from said mixed fiber slurry.

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5,209,824

GLUTARALDEHYDE PLUS DITHIOCARBAMATES FOR CONTROLLING MICROORGANISMS IN PAPER MILLS

Judy G. La Zonby, Crystal Lake, Ill., assignor to Nalco Chemical Company, Naperville, Ill.

Filed Nov. 12, 1991, Ser. No. 790,994
Int. Cl.[5] D21H *21/02*
U.S. Cl. 162—161 3 Claims

1. A method for controlling the microorganisms, *Pseudomonas aeruginosa* and spore forming bacteria, present in aqueous paper mill systems which comprises treating such systems with a biocidal amount of a composition comprising:

a) Glutaraldehyde, and

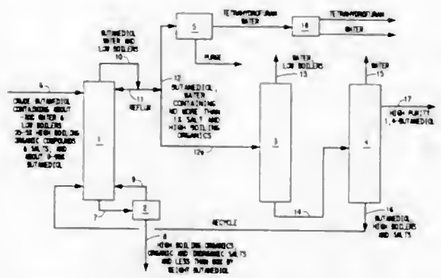
b) a biocidally active dithiocarbamate and mixtures thereof: with the weight ratio of a:b being greater that 1:10 but less than 15:1.

5,209,825

PREPARATION OF PURIFIED CONCENTRATED BDO

Hashim M. Badat, Houston, Tex.; Peter G. Gelblum, Philadelphia, Pa., and Robert E. Trotter, Hockessin, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 252,967, Oct. 4, 1988, abandoned. This application Apr. 24, 1991, Ser. No. 691,155
Int. Cl.[5] B01D *3/10, 3/14*
U.S. Cl. 203—29 17 Claims



1. A process of purifying crude 1,4-butanediol to purified concentrated 1,4-butanediol, said crude butanediol containing about 1 to about 30% by weight of water and organic impurities that boil lower than 1,4-butanediol, about 0.05 to about 5% by weight of high boiling organic compounds and inorganic and organic salts, and about 70 to 99% by weight of 1,4-butanediol, which consisting essentically of:

fractionating said crude butanediol feed stream at a temperature of no more than 210° C. into a purified concentrated 1,4-butanediol fraction and a bottom fraction;

separating as bottoms a fraction having a weight of not greater than 6% of the weight of said feed stream, said bottoms fraction containing high boiling organic compounds, inorganic and organic salts and not more than 60% by weight of 1,4-butanediol, and

separating as overhead said purified concentrated 1,4-butanediol fraction which contains about the same amount of water as, and less high boiling organic compounds and inorganic and organic salts than, were in said crude butanediol feed stream, the amount of said high boiling organic compounds and said salts in said overhead fraction being not more than 0.1% by weight, based on the total organics.

5,209,826

METHOD OF SEPARATING SESAMIN AND EPISESAMIN

Tatsuhiko Ozaki; Yasunari Hoshii, and Hirokazu Matsueda, all of Aichi, Japan, assignors to Takemoto Yushi Kabushiki Kaisha, Aichi, Japan

Continuation of Ser. No. 661,061, Feb. 26, 1991, abandoned. This application Jul. 28, 1992, Ser. No. 920,653
Int. Cl.[5] B01D *3/12, 3/38;* C12P *7/64*
U.S. Cl. 203—38 2 Claims

1. A method of separating sesamin and episesamin, said method comprising the steps of blowing steam into a sesame seed oil by a steam stripping process to thereby collect a steam stripping fraction with an increased concentration of sesamin and episesamin, and of carrying out molecular distillation of said steam stripping fraction to thereby obtain a product fraction containing more than 70 weight % of sesamin and episesamin, said step of blowing steam being carried out under such conditions of the temperature (t° C.) of said sesame seed oil and the pressure (P mmHg) for said process that:

$$\{(4.24\times10^3)/(9.41-\log P)\}-273\leq t\leq 280$$

and

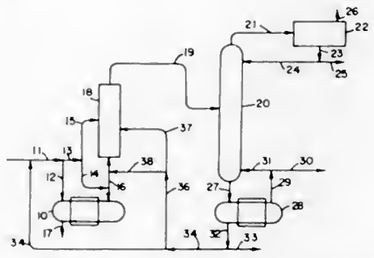
$$0.5\leq P\leq 20.$$

5,209,827

PROCESS FOR THE PURIFICATION OF HYDROXYPIVALYL HYDROXYPIVALATE

Gerald E. Butler; Garrett C. Luce, and Don L. Morris, all of Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 604,277, Oct. 29, 1990, abandoned. This application Aug. 12, 1991, Ser. No. 743,639
Int. Cl.[5] B01D *1/22;* C07C *69/66*
U.S. Cl. 203—72 2 Claims



1. Process for the recovery of hydroxypivalyl hydroxypivalate from a crude mixture comprising hydroxypivalyl hydroxypivalate, low-boiling components, high-boiling components and inorganic catalyst residues, by the steps comprising:

(1) feeding the crude mixture to a first distillation zone comprising:

(A) a first wiped film evaporator operated at about 150° to 250° C. and 1 to 100 torr; and

(B) a partial condenser column operated at about 150° to 175° C. and 5 to 30 torr in which the temperature and pressure at the column head are about 1° to 5° C. and 1 to 5 torr lower than that existing at the base of the column;

wherein (i) a liquid effluent comprising high boiling components and inorganic residues is removed from the first wiped film evaporator and (ii) a vapor effluent comprising hydroxypivalyl hydroxypivalate, low-boiling components and high-boiling components is removed from the partial condenser column;

(2) feeding the vapor effluent of step (1) to a second distillation zone comprising:

(A) a low-boiler column operated at a column head temperature and pressure of about 90° to 120° C. and about 5 to 30 torr and a column base temperature and pressure of about 160° to 190° C. and about 10 to 30 torr;

(B) condenser means; and

C) a second wiped film evaporator operated at about 160° to 190° C. and about 10 to 30 torr;

wherein (i) a vapor effluent comprising low-boiling components is removed from the low boiler column and is fed to and condensed in the condenser means; (ii) a liquid effluent comprising hydroxypivalyl hydroxypivalate and high-boiling components is removed from the low boiler column and fed to the second wiped film evaporator; and (iii) a liquid effluent comprising high-boiling components is removed from the second wiped film evaporator; and

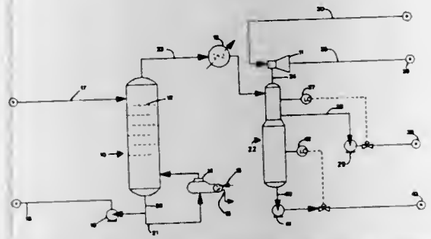
(3) recovering a vapor effluent comprising purified hydroxypivalyl hydroxypivalate from the second wiped film evaporator.

5,209,828

SYSTEM FOR CONCENTRATING A SPENT CAUSTIC STREAM

Tai-Sheng Chou, Pennington, N.J., and Manuel Gonzalez, Newtown, Pa., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Dec. 23, 1991, Ser. No. 812,313
Int. Cl.[5] B01D *3/06, 3/10*
U.S. Cl. 203—88 16 Claims



1. A system for concentrating spent caustic at a chemical facility comprising:

a multi-stage flash drum for separating a spent caustic stream into at least (1) an overhead output stream including vaporized water and volatile organic compounds, and (2) a concentrated spent caustic output stream;

means for condensing said overhead output stream;

means for separating said condensed overhead output stream into at least a volatile organic compound stream, and a water stream;

means for applying a vacuum (1) to said multi-stage flash drum to vaporize said spent caustic stream at a reduced temperature and (2) to said separating means to remove said volatile organic compound stream;

means for recycling a portion of said concentrated spent caustic output stream to said multi-stage flash drum; and

means for heating the recycled portion to provide sufficient heat to maintain the temperature of said concentrated caustic stream at the output of said multi-stage flash drum at less than 65° C., and the temperature of said overhead output stream at less than 60° C.

10. A method of concentrating spent caustic at a chemical facility comprising the steps of:

separating in a multi-stage flash drum a spent caustic stream into at least (1) an overhead output stream including vaporized water and volatile organic compounds, and (2) a concentrated spent caustic output stream;

condensing said overhead output stream;

separating in a vessel said condensed overhead output stream into at least a volatile organic compound stream and a water stream; and

applying a vacuum (1) to said multi-stage flash drum to vaporize said spent caustic stream at a reduced temperature, and (2) to said vessel to remove said volatile organic compound stream.

recycling a portion of said concentrated spent caustic output stream to said multi-stage flash drum, and

heating the recycled portion to provide sufficient heat to maintain the temperature of said concentrated caustic stream at the output of said multi-stage flash drum at less than 65° C., and the temperature of said overhead output stream at less than 60°

5,209,829

ACID ETCHING BATH FOR TITANIUM ALLOY OF COMPONENTS

Claude G. G. Gondel, Beaumont sur Oise, and Christian P. H. G. Hennebelle, Paris, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "S.N.E.C.M.A.", Paris, France

Filed Jun. 5, 1992, Ser. No. 894,564
Claims priority, application France, Jun. 12, 1991, 91 07148
Int. Cl.[5] C25F *3/08*
U.S. Cl. 204—129.75 4 Claims

1. An acid etching bath comprising:

(i) 75±5 ml/l of sulfuric acid (H_2SO_4) having a density of about 1.83;

(ii) 11-15 g/l of sodium fluoride (NaF), and

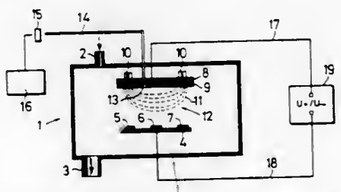
(iii) water.

5,209,830

ARRANGEMENT FOR MEASURING THE LIGHT RADIATION OF A PLASMA

Thomas Martens, Krombach, Fed. Rep. of Germany, assignor to Leybold Aktiengesellschaft, Hanau, Fed. Rep. of Germany

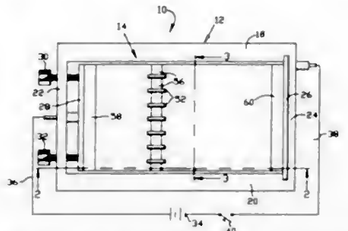
Filed Sep. 6, 1991, Ser. No. 756,340
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1991, 4123589
Int. Cl.[5] C23C *14/34*
U.S. Cl. 204—298.03 13 Claims



1. Arrangement for measuring the light radiation of a plasma which is generated with the aid of at least one electrode comprising: a light-sensitive sensor which is acted upon by a luminance proportional to luminance of the plasma, an electrode (8) provided with a bore (13), an end of an optical fiber (14) being disposed in the bore 13, another end of the optical fiber being guided to the light-sensitive sensor (15), a target (9) with a sputtering crater (29) and being disposed on the electrode (8) and having a bore aligned with the bore 13 of the electrode (8), the bore of the target being disposed between the sputtering crater (29) and a site of the target (9) into which a magnetic field enters or from which it exits and the bore of the target being no larger than a dark zone.

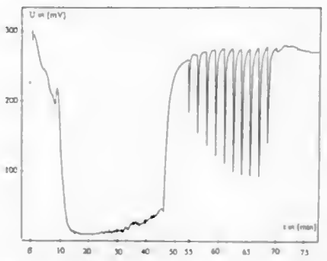
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,831
BUFFERLESS ELECTROPHORESIS SYSTEM AND METHOD
William P. MacConnell, 1849 Rubenstein Dr., Cardiff, Calif. 92007
Filed Jun. 14, 1991, Ser. No. 715,392
Int. Cl.[5] B01D *61/42*; C25D *13/00*; C25B *1/00*
U.S. Cl. 204—299 R 20 Claims



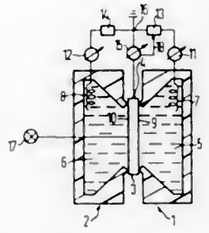
1. A disposable electrophoresis apparatus comprising:
a housing having opposed top, bottom and side walls defining a three dimensional chamber having opposed open ends;
a three dimensional body of gel disposed in said chamber and exposed at said open ends;
means in said top wall for introducing a sample into said body of gel;
an electrically conductive thin film disposed in conductive contact with each end of said body of gel and sealingly covering said open ends; and
vent means at said ends.

5,209,832
PROCESS FOR THE PREPARATION OF METAL COMPLEX DYES
Wilhelm Schmidt, Lörrach, and Gerhard Beck, Rheinfelden, both of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Dec. 11, 1991, Ser. No. 805,428
Claims priority, application Switzerland, Dec. 18, 1990, 4011/90
Int. Cl.[5] G01N *27/26*
U.S. Cl. 204—434 13 Claims



1. A process for the preparation of a metal complex dye under production conditions, which comprises reacting at least one dye with a metal donor, adding said metal donor or said dye discontinuously before the end point of the metallising is reached, and determining the end of the metallising voltametrically.

5,209,833
METHOD AND APPARATUS FOR LARGE-AREA ELECTRICAL CONTACTING OF A SEMICONDUCTOR CRYSTAL BODY WITH THE ASSISTANCE OF ELECTROLYTES
Helmut Foell, and Volker Lehmann, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed May 22, 1990, Ser. No. 527,277
Claims priority, application Fed. Rep. of Germany, May 31, 1989, 3917723
The portion of the term of this patent subsequent to Jun. 20, 2006, has been disclaimed.
Int. Cl.[5] G01R *31/26*
U.S. Cl. 205—91 10 Claims

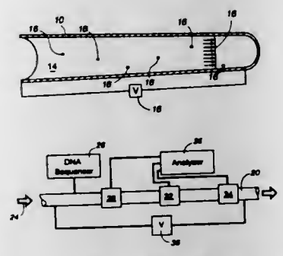


1. A method of establishing large-area electrical contacting of a semiconductor crystal body which includes a first side with a first surface and a second side with a second surface, comprising the steps of: applying a first cell having a first electrode therein to the first side such that the first
surface is exposed to the interior of the first cell; applying a second cell having a second electrode therein to the second side such that
the second surface is exposed to the interior of the second cell; filling at least the second cell with an electrolyte to contact the second surface and the
second electrode;
applying a voltage between the first and second electrodes and polarizing the first cell in the conducting direction and polarizing the second cell in the non-conducting direction;
illuminating the second surface; and
controlling the intensity of illumination as a current-flow parameter and to establish a current flow between said first and second electrodes through the semiconductor crystal body.

5,209,834
ORDERED TRANSPORT AND IDENTIFICATION OF PARTICLES
E. Brooks Shera, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Mar. 9, 1992, Ser. No. 848,582
Int. Cl.[5] G01N *27/26, 27/447*
U.S. Cl. 204—183.3 9 Claims

1. A method for determining the identity of particles having known electrophoretic velocities, comprising the steps of:
establishing an electroosmotic flow rate of an electrolytic solution in a transport tube where said electrolytic solution and said transport tube are effective to obtain an electroosmotic radius of at least 100 to provide a plug flow velocity profile of said electrolytic solution in said transport tube;
introducing said particles into said flow of said electrolytic solution;
detecting the passage of each one of said particles along said transport tube to provide a measure of the electrokinetic velocity of each one of said particles; and

determining the electrophoretic velocity of each one of said particles from said measured electrokinetic velocity of

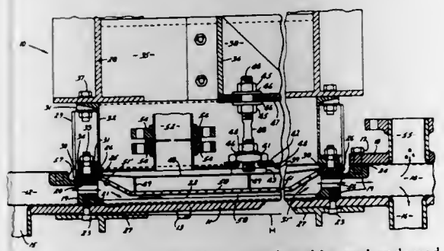


each one of said particles and said electroosmotic flow rate, said electrophoretic velocity serving to identify each one of said particles.

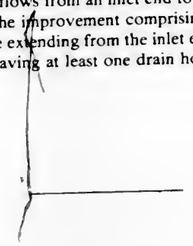
5,209,835
METHOD FOR PRODUCING A SPECIFIED ZIRCONIUM-SILICON AMORPHOUS OXIDE FILM COMPOSITION BY SPUTTERING
Ichiro Makino, Machida; Akira Mitsui, Yokohama; Mikio Takehara, Yokohama; Eiichi Ando, Yokohama; Junichi Ebisawa, Tokyo; Koichi Suzuki, Yokohama; Kiyoshi Matsumoto, Tokyo; Toru Iseda, Yokohama, and Susumu Suzuki, Kawasaki, all of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 318,330, Mar. 3, 1989,. This application Mar. 7, 1990, Ser. No. 489,954
Claims priority, application Japan, Mar. 3, 1988, 63-48765; Mar. 31, 1988, 63-76202; Jun. 14, 1988, 63-144827; Oct. 21, 1988, 63-264163; Mar. 7, 1989, 1-53009; Mar. 1, 1990, 2-47138
Int. Cl.[5] C23C *14/00*; C03C *3/155, 3/112*
U.S. Cl. 204—192.16 2 Claims

1. A method for producing an amorphous oxide film composed mainly of ZrB_xO_y, wherein the atomic ratio x of boron to zirconium is $0.1<x<2.3$ and the atomic ratio y of oxygen to zirconium is $2<y<5.5$, which comprises sputtering a target composed mainly of a substance comprising from 11 to 91 atomic % of zirconium, from 3 to 70 atomic % of boron, and from 0 to 67 atomic % of oxygen.

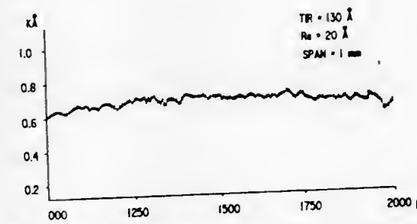
5,209,836
BASEPLATE FOR ELECTROLYTIC CELL WITH A LIQUID METAL CATHODE
James M. Ford; Sanders H. Moore, and David W. Cawlfield, all of Cleveland, Tenn., assignors to Olin Corporation, Cheshire, Conn.
Filed Dec. 19, 1991, Ser. No. 810,059
Int. Cl.[5] C25B *1/40, 9/00*
U.S. Cl. 204—251 23 Claims



1. An electrolytic cell having opposing sides and ends and a flowable liquid metal cathode, an anode and a membrane with a major portion thereof positioned in an extended plane therebetween, the membrane and a top surface of the liquid metal cathode defining a gap in a cathode compartment through which catholyte flows from an inlet end to an opposing outlet end of the cell, the improvement comprising:
a cell baseplate extending from the inlet end to the opposing outlet end having at least one drain hole therethrough.



5,209,837
PROCESS FOR PREPARING MAGNETIC DISK
Noboru Tsuya, 3-13-11, Hachimanyama, Setagaya-ku, Tokyo; Tadao Tokushima, 1-18-1, Izumi, and Toshiro Takahashi, 350-29, Ose-cho, both of Hamamatsu-shi, Shizuoka-ken, all of Japan
Continuation-in-part of Ser. No. 483,895, Feb. 23, 1990, Pat. No. 5,074,971, which is a continuation-in-part of Ser. No. 250,088, Sep. 28, 1988, Pat. No. 4,925,738. This application Jul. 25, 1991, Ser. No. 735,945
Claims priority, application Japan, Sep. 30, 1987, 62-248771
The portion of the term of this patent subsequent to Dec. 24, 2008, has been disclaimed.
Int. Cl.[5] C25D *11/20*; B05D *5/02, 5/08*
U.S. Cl. 205—162 1 Claim



1. A process for preparing a magnetic disk having a magnetic continuous thin film on a concavo-convex roughened surface of an anodized aluminum film, consisting essentially of
(a) subjecting a substrate having an anodized aluminum film having a thickness of at least 4 µm and a three-layered structure comprising crystalline alumina, amorphous alumina and amorphous alumina containing an acid or alkali ion to mirror surface finishing,
(b) treating the anodized aluminum to chemical dissolution treatment thereby widening pores of the anodized aluminum film so that total area of pores become from 20 to 80% of the entire surface area, thereby retaining a alumina of the anodized aluminum film extruding after the chemical dissolution treatment, whereby a concavo-convex surface is formed on said anodized aluminum film,
(c) coating the concavo-convex surface with a protective layer selected from the group consisting of C and Cr,
(d) coating said concavo-convex surface with magnetic continuous thin film on said anodized aluminum film subjected to chemical dissolution treatment and protective layer coating,
(e) packing the pores after the coating with lubricant, thereby retaining the depth of said pores from 50 to 500 Å.

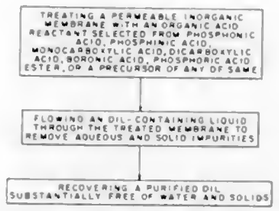
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,838

PURIFICATION OF AN OIL-CONTAINING LIQUID USING A SURFACE TREATED PERMEABLE INORGANIC MEMBRANE

William C. Sleppy, New Kensington; Larry F. Wieserman, Apollo; Kenneth M. Thomas, Mars, and Kenneth P. Goodboy, Wexford, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Oct. 7, 1991, Ser. No. 772,205
Int. Cl.[5] C10M *175/00;* C10G *33/06;* B01D *61/00*
U.S. Cl. 208—179 31 Claims



1. A process for purifying an oil-containing liquid to remove aqueous and solid impurities which comprises:

(a) maintaining an oil-containing liquid within a temperature range of from just above the freezing point of the liquid to just below its boiling point;

(b) passing said liquid through a permeable inorganic membrane comprising a metal selected from the group consisting of Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Tc, Re, Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Au, Zn, Cd, Hg, B, Al, Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, elements in the lanthanide series and the actinide series, mixtures thereof, mixtures of Groups IIa (Be, Mg, Ca, Sr and Ba) and VIb (Se and Te), and a ceramic selected from the group consisting of an oxide, sulfide, boride, carbide, or nitride of one or more of said metals which has been previously treated by contacting the membrane with an organic reactant selected from the group consisting of a phosphonic acid, a phosphinic acid, a monocarboxylic acid, a dicarboxylic acid, a boronic acid, a phosphoric acid ester and a precursor which decomposes upon contact with said inorganic membrane to from one of said organic reactants to form a layer of said organic reactant thereon; and

(c) maintaining a pressure on said oil-containing liquid within a range of form about 2 psig to about 1200 psig as said liquid passes through said treated inorganic membrane.

5,209,839

METHOD OF REMOVING HYDROPEROXIDES FROM LUBRICATING OILS USING SODIUM HYDROXIDE AND A METAL THIOPHOSPHATE

Harold Shaub, Berkeley Heights; Darrell W. Brownawell, Scotch Plains, and Arthur DiBenedetto, Rahway, all of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 619,570, Nov. 29, 1990, Pat. No. 5,112,482, which is a continuation of Ser. No. 404,250, Sep. 7, 1989, Pat. No. 4,997,546. This application Mar. 5, 1992, Ser. No. 846,368
The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.
Int. Cl.[5] C10M *175/02*
U.S. Cl. 208—183 14 Claims

1. In a method of decomposing hydroperoxides present in a lubricating oil which comprises contacting the lubricating oil with a heterogenous hydroperoxide decomposer for a period of time sufficient to cause a reduction in the amount of hydroperoxides present in the oil, the hydroperoxide decomposer being immobilized when contacting the oil so as not to pass into the oil, the improvement which comprises adding a metal thiophosphate to the oil when the hydroperoxide decomposer is NaOH to obtain the reduction in hydroperoxides.

5,209,840

SEPARATION OF ACTIVE CATALYST PARTICLES FROM SPENT CATALYST PARTICLES BY AIR ELUTRIATION

David E. Sherwood, Jr., Port Arthur, Tex.; Johnnie R. Hardee, Jr., Arkadelphia, Ark., and John A. Lemen, Port Arthur, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Oct. 2, 1991, Ser. No. 769,697
Int. Cl.[5] C10G *45/08;* B01J *38/72, 38/56;* B07B *7/00*
U.S. Cl. 208—210 9 Claims

1. A hydrodesulfurization process which comprises passing a metals contaminated hydrocarbon residuum feedstock having a metals content of from about 50 to about 500 wppm and a sulfur content in excess of 4.0 weight percent through multiple reaction zones in an upflow manner with internal recycle of reactor liquid contents under hydrogenation conditions of temperature and pressure in the presence of an alumina-supported catalyst containing one or more metals with hydrogenating activity selected from the group comprising cobalt, molybdenum, tungsten and nickel which is ebullated in the liquid environment, adding fresh particulate high activity catalyst to the final reaction zone, withdrawing spent catalyst particles from the final reaction zone, reactivating the said spent catalyst by:

a) passing the spent catalyst particles to a stripping unit in which process oils are removed form the spent catalyst particles thus rendering the spent catalyst particles free flowing by washing with a solvent comprising about 5 to about 35% by weight of N-methyl-2-pyrrolidone with the balance being a light hydrocarbon selected from the group consisting of toluene, naphtha, pentane, kerosene and mixtures of the said light hydrocarbons at a temperature of about 150° to about 300° F. and drying the washed, free-flowing, spent hydrotreating catalyst particles at a temperature of less than 250° F. in air or air diluted with an inert gas,

b) passing said free-flowing spent catalyst particles to an air elutriation zone comprising a single generally vertical column, said vertical column having a length to diameter ratio (L/D) of at least 4 to 1, fluidizing the catalyst bed by flowing air upwardly through the catalyst at non-reaction conditions and at a velocity sufficient to expand the bed at least about 25% over its settled height and for a time sufficient to accomplish substantial segregation of the catalyst particles into a high-activity, upper, less contaminated fraction and lower more contaminated fraction according to their particle density,

c) recovering the high-activity, upper fraction catalyst from the air elutriation zone, and

d) backstaging the recovered high activity, alumina-supported catalyst to said preceding reaction zones in reverse flow relative to the residuum and introducing make-up hydrogen directly to the final reaction zone whereby the desulfurization rate is maintained at a maximum.

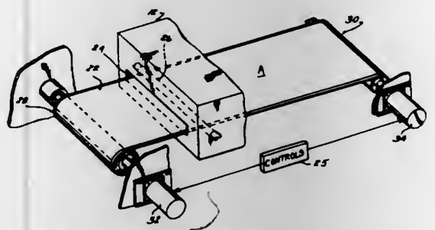
8. A process for deoiling spent, hydrotreating catalyst particles which comprises washing the said catalyst particles at a temperature of about 150° to 300° F. with a solvent comprising about 5 to about 35 weight percent of N-methyl-2-pyrrolidone with the balance being a light hydrocarbon selected from the group consisting of toluene, naphtha, pentane, kerosene and mixtures of the light hydrocarbons.

5,209,841

FILTER BELT ARRANGEMENT FOR PRESSURIZED CHAMBER FILTER

Jack R. Bratten, 5970 St. James Dr., West Bloomfield, Mich. 48322

Filed Sep. 27, 1991, Ser. No. 766,182
Int. Cl.[5] B01D *29/09, 29/64*
U.S. Cl. 210—107 9 Claims



1. A filter for a liquid comprising:

a filter housing;

a filter chamber defined within said filter housing;

inlet means for directing a liquid to be filtered into said filter chamber;

an elongate opening at each of opposite sides of said housing entering into said filter chamber, said elongate openings being substantially parallel to one another;

an elongate inflatable seal within each said elongate opening and extending across said elongate opening;

control means for inflating said inflatable seals preparatory to a filter cycle;

a support plate mounted in said housing extending across said filter chamber, said support plate having pattern of through openings, said support plate having an inlet side facing said inlet means and an outlet side opposite said inlet side, the inlet side of said support plate and elongate openings being substantially aligned in a common plane;

a flow collection chamber in said housing disposed adjacent said outlet side of said support plate;

outlet means for directing filtered liquid in said flow collection chamber out of said filter to a utilizing system;

a filter belt extending into one of said elongate openings, across said support plate to cover said through openings, and out of the other of said elongate openings, said filter belt having a pair of opposed ends;

a first roller disposed outside said housing parallel to and opposite to one of said elongate openings to be substantially adjacent to said common plane, and a second roller disposed outside said housing parallel and opposite the other of said elongate openings to be substantially adjacent to said common plane;

first attachment means for attaching one of said ends of said filter belt to said first roller;

second attachment means for attaching the other of said ends of said filter belt to said second roller means;

said filter belt being of a predetermined fixed length sufficient to enable different sections along the length thereof to be alternately disposed in said housing while the other section is wound up on one of said first or second rollers;

filter belt scraper means positioned adjacent an outwardly facing surface of a portion of said filter belt wound upon each of said first and second rollers to remove accumulated solids from the surface of said filter belt as said respective sections are wound up on said first or second roller respectively; and,

drive means for alternately rotating one of said first and second rollers in opposite directions while the other is idled;

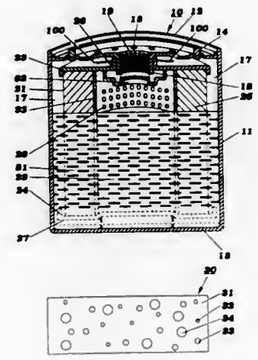
said control means including means for deflating said seals, and means for controlling said drive means upon deflation of said seals to enable alternative wind up of one or another section of said filter belt on said first or second roller respectively while the other of said filter belt sections is moved into said housing prior to said filter cycle.

5,209,842

OIL ENHANCING MULTIFUNCTION FILTER

Stephen E. Moor, 816 Fay Ct., Point Pleasant, N.J. 08742

Continuation-in-part of Ser. No. 564,329, Aug. 8, 1990, abandoned. This application Feb. 3, 1992, Ser. No. 830,386
Int. Cl.[5] B01D *27/00*
U.S. Cl. 210—168 4 Claims



1. An improved oil filter cartridge, for an internal combustion engine, of a type having a container with an input port for connection to an output of an oil circulating system of the engine to receive unfiltered oil from said engine, and an output port for connection to an input of said oil circulating system of said engine to discharge filtered and reconditioned oil back into said oil circulating system, said container having filter means positioned between said input port and said output port for removing particulate contaminants above about 20 microns in circulating through said cartridge from said engine oil, said filter cartridge including an input side adjacent the input port and the filter means, wherein said improvement comprises: said input side of said cartridge being filled with a liquid lubricating vehicle having dispersed therein from about ½ ounce to about 1 ounce of agglomerated masses of particles of solid polytetrafluoroethylene, said particles having an average size of about 3 microns, said agglomerated masses ranging in size from about 60 to about 20 microns; said lubricating vehicle providing means for circulating said agglomerated masses of about 20 microns through said engine; whereby said agglomerated masses of about 20 microns are added to the oil circulating system as soon as the cartridge is connected into said oil circulating system, and, as the engine is operated, the agglomerated masses having a size above of about 20 microns gradually break apart to a size capable of passing through said filter means to provide constant addition of lubricating polytetrafluoroethylene particles to enhance lubrication of said engine by the oil circulating system during the life of said cartridge.

5,209,843

PROCESS AND APPARATUS FOR WASTE WATER TREATMENT

John Wese, c/o A-1 Radiator Service, Inc., 6004 E. Virginia Beach Blvd., Norfolk, Va. 23502

Filed Apr. 17, 1991, Ser. No. 686,614
Int. Cl.[5] B01D *21/02*
U.S. Cl. 210—195.1 1 Claim

1. An apparatus for treating waste water from a cleaning

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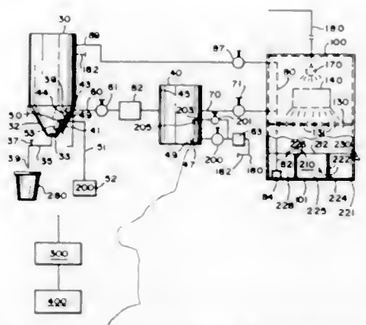
apparatus having a cleaning fluid inlet and a waste water outlet comprising:

a first feed line having a valve therein for conveying waste water from the cleaning apparatus;

a treatment tank, having a top connected to said feed line, for receiving said waste water from the cleaning apparatus;

said treatment tank having a cone-shaped bottom for receiving settled sludge from said waste water, said cone-shaped bottom having an inlet line and a nozzle on said inlet line extending into said cone shaped bottom whereby said nozzle delivers compressed air to agitate said waste water;

a first outlet in said cone-shaped bottom of said treatment tank for conveying waste water to clean water storage tank;



a first outlet in a lower portion of said clean water storage tank for delivering clean water through a second feed line to the cleaning apparatus fur use therein;

means associated with said clean water storage tank to deliver to said treatment tank water from said clean water storage tank which water is too contaminated to deliver through said second feed line to said cleaning apparatus;

means for pressurizing said clean water in said second feed line whereby said clean water is delivered under pressure to said cleaning apparatus;

a second outlet line in said cone-shaped bottom of said treatment tank for discharging of settled sludge from said cone-shaped bottom; and

means for receiving said discharged sludge for storage.

5,209,844

HOT GAS FILTER WITH JET PULSE CLEANING

James F. Zievers; Elizabeth C. Zievers, both of 1240 Carriage La., LaGrange, Ill. 60525; Peter Aguilar, 1238 S. 55th Ct., Cicero, Ill. 60650, and Paul Eggerstedt, 25054 W. Pauline Dr., Plainfield, Ill. 60544

Filed Aug. 8, 1991, Ser. No. 741,956

Int. Cl.[5] B01D *29/39, 29/68*

U.S. Cl. 210—232 **10 Claims**

1. A filter for removing particulates from a fluid in which said particulates are entrained, comprising in combination,

a filter tank having a fluid inlet and a fluid outlet,

a support member extending across said tank to separate said tank into first and second chambers,

said fluid inlet opening into said first chamber and said fluid outlet opening into said second chamber,

a plurality of through holes in said support member,

a plurality of porous tubular filter elements each having an open end and a closed end,

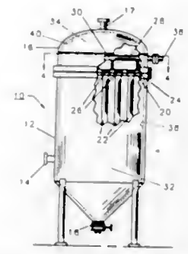
said filter elements being respectively and sealably mounted in said holes and extending into said first chamber with said closed ends being disposed in said first chamber,

a hold down member mounted over said open ends of said filter elements,

a plurality of nozzle means mounted to said hold-down member and respectively disposed over said open ends of said filter elements for directing cleaning fluid into said filter elements,

at least one manifold passageway extending through said support member,

a plurality of branch passageways extending through said



support member between said manifold passageway and said nozzle members,

said hold-down member having a plurality of through holes aligned with said through holes in said support member through which fluid may flow from said filter elements into said second chamber.

5,209,845

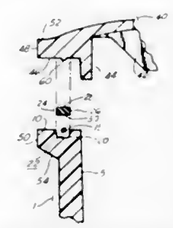
SEAL FOR INJECTION MOLDED FILTER BODY

Charles Sims, P.O. Box 2787, Gulfport, Miss. 39503

Filed Jun. 11, 1991, Ser. No. 713,668

Int. Cl.[5] B01D *27/08*

U.S. Cl. 210—232 **9 Claims**



1. A pressurized, injection molded Filter of the paper roll type comprising:

A body molding defining a circular top edge;

a lid molding for closing said body molding, defining a circular seal face opposingly juxtaposed to said top edge;

a seal comprising:

a circular groove, having inwardly tapering sides, within said top edge;

a lathe cut gasket within said groove, extending a distance above said top edge; and

a circular ridge extending below said seal face opposing said lathe cut gasket;

said seal face and said ridge both being in contacting relationship with said gasket to close said seal.

5,209,846

FILTER VESSEL PROVIDED WITH A RINSING TROUGH

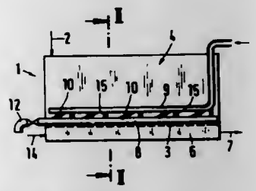
Steffen Bertram, Frankfurt am Main, and Karlheinz Schmitt, Kriftel, both of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Nov. 1, 1991, Ser. No. 786,432

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1990, 4036357

Int. Cl.[5] B01D *41/02*

U.S. Cl. 210—269 **3 Claims**



1. In a filter vessel, which serves to contain granular filter material, and comprises a sieve or nozzle bottom for carrying the filter material, at least one open-topped trough being positioned on said bottom, said trough having two top edges and an outlet adapted to be closed, a pipe for feeding a rinsing liquid into the trough to wash out the filter material, said pipe being connected to means for feeding the rinsing liquid into the pipe, the pipe extending over the trough, the pipe being fastened to the edges of the trough by supporting means, the pipe being provided with nozzles, said nozzles having a spraying direction directed into the trough, said nozzles being forwardly inclined toward the outlet of the trough, said pipe having a longitudinal axis extending above said top edges, the angle between said axis and said spraying direction being 10° to 50°, the vertical distance A measured between the top edges and said axis being 0.2 to 2 times the outside diameter D of the pipe, and the distance B between the two top edges of the trough being 2 to 8 times the outside diameter D of the pipe.

5,209,847

ULTRATHIN MEMBRANE OF POLYMETHACRYLATE OR POLYCROTONATE AND DEVICE PROVIDED WITH ULTRATHIN MEMBRANE

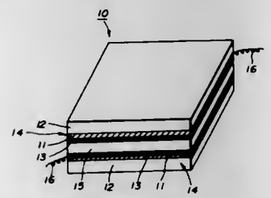
Noribiro Kaiya; Naoyuki Amaya; Yoshishige Murata, all of Tsukuba; Mikio Takagi, Okazaki; Kazuichi Tsuda, Nagoya; Kiyotaka Shigehara, Tokyo; Akira Yamada, Kamifukuoka, and Takayuki Otsu, Nara, all of Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan and Rikagaku Kenkyusho, Saitama, Japan

Filed Oct. 1, 1990, Ser. No. 590,908

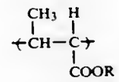
Claims priority, application Japan, Oct. 3, 1989, 1-257104; Oct. 3, 1989, 1-257105; Oct. 3, 1989, 1-257106; Nov. 15, 1989, 1-295121; Nov. 15, 1989, 1-295122; Nov. 15, 1989, 1-295123

Int. Cl.[5] B01D *67/00*

U.S. Cl. 210—490 **17 Claims**



1. An ultrathin polymeric membrane having a membrane thickness of 10 to 1,000 Å, the membrane being constituted of polycrotonate and obtained by forming a coating of said polycrotonate by subjecting said polycrotonate to the spin coating method, said polycrotonate comprising recurrent units represented by the formula (I)



(I)

wherein R represents a hydrocarbon group selected from the group consisting of a branched alkyl group having 3 to 12 carbon atoms, a cycloalkyl group having 3 to 12 carbon atoms, a substituted alkyl group having 2 to 6 carbon atoms and containing a ring structure having 3 to 14 carbon atoms, a substituted cycloalkyl group having 3 to 10 carbon atoms and containing a ring structure substituent having 3 to 14 carbon atoms and a siloxanic hydrocarbon group containing a ring structure substituent having 3 to 14 carbon atoms with or without each of said hydrocarbon groups containing a hetero atom and being substituted by a halogen atom.

5,209,848

XYLYLENE BASED POLYETHER MEMBRANES FOR GAS SEPARATION

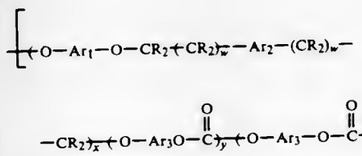
Thomas O. Jeanes, Antioch, and Ritchie A. Wessling, Berkeley, both of Calif., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 22, 1991, Ser. No. 748,479

Int. Cl.[5] B01D *69/08, 69/12*

U.S. Cl. 210—490 **22 Claims**

1. A semi-permeable gas separation membrane comprising a thin discriminating region of a xylylene based polyether polymer possessing a backbone structure corresponding to the formula:



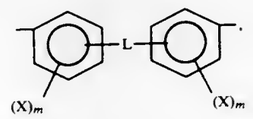
wherein

R is individually in each occurrence a hydrogen radical, a monovalent C_{1-12} hydrocarbyl radical, a C_{1-12} halohydrocarbyl radical, and a halogen,

Ar_1, Ar_2, Ar_3, and Ar_4 are individually in each occurrence a divalent aromatic residue selected from the group consisting of:

A. an unsubstituted or inertly substituted phenylene, or an unsubstituted or inertly substituted naphthylene;

B. a bisphenylene of the formula:



wherein

L is individually in each occurrence selected from the group consisting of a direct bond, a divalent C_{1-15} hydrocarbyl radical, a divalent C_{1-8} halohydrocarbyl radical, —O—, —CO—, —S—, —SO_2—, and —SS—,

X is individually in each occurrence selected from the group consisting of a hydrogen radical, a monovalent

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C_{1-4} hydrocarbyl radical, a C_{1-4} halohydrocarbyl radical, and a halogen, and

m is individually in each occurrence a positive integer between 1 and 4 inclusive; and

C. a divalent bisphenyl fluorenyl or spiro indanyl radical;

w is a positive integer between 0 and 3 inclusive;

x is a positive integer between 1 and about 500 inclusive,

y is a positive integer between 0 and about 500 inclusive, and

z is a positive integer between 0 and about 500 inclusive, wherein the ratio of

$$\frac{x}{(x+y+z)}$$

is between about 0.002 and 1 inclusive; and

n is a positive integer representing a degree of polymerization which provides a number-average molecular weight of at least about 3,000.

5,209,849

HYDROPHILIC MICROPOROUS POLYOLEFIN MEMBRANE

Hopin Hu, Ann Arbor, and Zhihua Cai, Ypsilanti, both of Mich., assignors to Gelman Sciences Inc., Ann Arbor, Mich.

Filed Apr. 24, 1992, Ser. No. 874,480

Int. Cl.[5] B01D *71/78*

U.S. Cl. 210—490 **14 Claims**

1. A composite microporous membrane structure comprising:

a hydrophobic polyolefin microporous precursor membrane having external surfaces and having pores with internal pore surfaces; and

a water soluble hydrophilic polymer comprising polyethylene glycol diacrylate co-extensively applied to said surfaces in a thin liquid coating that is permanently photografted in solid state form onto the internal pore surfaces of the precursor membrane so that the thus grafted membrane structure is hydrophilic, essentially retains the same microporosity as the precursor membrane and is water wettable, and non-leachable.

5,209,850

HYDROPHILIC MEMBRANES

Dilip R. Abayasekara, Newark, and Robert L. Henn, Wilmington, both of Del., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Filed Jun. 19, 1992, Ser. No. 901,318

Int. Cl.[5] B01D *71/36*

U.S. Cl. 210—500.36 **7 Claims**

1. A water-permeable hydrophilic membrane comprising a porous fluoropolymeric membrane having continuous pores from one side to the other, in which the membrane interior is coated with a mixture of a fluoroaliphatic surfactant and a hydrophilic, substantially water insoluble polyurethane.

7. Process for preparing a hydrophilic membrane which comprises subjecting a hydrophilic fluoropolymeric membrane having continuous pores from one side to the other to a solution of a fluoroaliphatic surfactant and a hydrophilic, substantially waterinsoluble polyurethane in an organic solvent and then drying the resulting membrane to remove solvent.

5,209,851

REMEDIATION METHODS FOR TOXIC MATERIALS

Frank C. Hume, 2905-15th Avenue, Prince George, B.C., Canada V2N 1T3 , and Alan A. Downie, 2140 West 6th Avenue, Vancouver, B.C., Canada V6K 1V6

Filed Jun. 11, 1991, Ser. No. 713,913

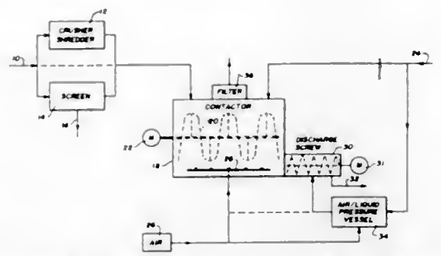
Int. Cl.[5] C02F *3/00*

U.S. Cl. 210—610 **15 Claims**

1. A process for treating toxic waste materials contaminated with organic substances comprising the steps of:

contact mixing toxic waste materials, which include indigenous microorganisms, with protein nutrients in water,

air entraining the toxic waste materials and protein nutrients during mixing to form a bioactive structure, and



exposing the bioactive structure to cure in air until the toxic waste materials are remediated to a predetermined innocuous level.

5,209,852

PROCESS FOR SCRUBBING POROUS HOLLOW FIBER MEMBRANES IN HOLLOW FIBER MEMBRANE MODULE

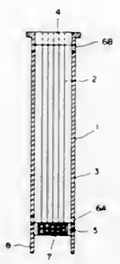
Yoshio Sunaoka, Higashimatsuyama; Keisuke Kitazato, Kumamoto, and Satoru Tsuda, Niiza, all of Japan, assignors to Japan Organo Co. Ltd., Tokyo, Japan

Filed Aug. 19, 1991, Ser. No. 747,057

Claims priority, application Japan, Aug. 31, 1990, 2-228106

Int. Cl.[5] B01D *65/02*

U.S. Cl. 210—636 **8 Claims**



6. A plural stage process for scrubbing including sequentially removing an outer layer of easier to remove particles and then an inner layer of harder to remove particles from porous hollow fiber membranes fouled by power plant water in a hollow fiber membrane module including a large number of hollow fibers bundled together therein as said porous hollow fiber membranes: comprising the filtration step of passing raw water containing fine particles through the pores of said hollow fibers from the outsides thereof to the insides thereof to trap said fine particles on the outer surfaces of said hollow fibers while draining filtrate obtained on the insides of said hollow fibers out of said hollow fiber membrane module, the scrubbing step of charging bubbles into water around the outer surfaces of said hollow fibers dipped in water to agitate said water around the outer surfaces of said hollow fibers to vibrate said hollow fibers, thereby exfoliating said fine particles trapped on the outer surfaces of said hollow fibers, and the drain step of draining the resulting waste water containing the exfoliated fine particles out of said hollow fiber membrane module;

wherein the preliminary drain step of draining waste water containing fine particles exfoliated off the outer surfaces of said hollow fibers in the initial stage of said scrubbing step is added in the course of said scrubbing step to simultaneously effect scrubbing of said porous hollow fiber membranes and drain of said waste water in the initial stage of said scrubbing step.

5,209,853

LIQUID CHROMATOGRAPHY

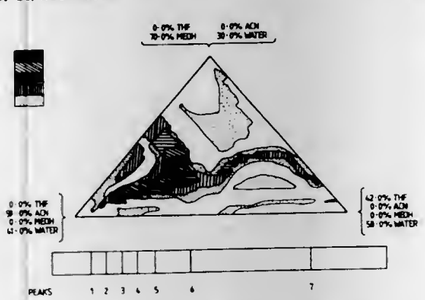
Roderick J. Lynch, Ely; Gregory J. Measures, and Charles V. Perkins, both of Cambridge, all of United Kingdom, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 513,351, Apr. 19, 1990, abandoned. This application Apr. 9, 1992, Ser. No. 865,737

Claims priority, application United Kingdom, Apr. 20, 1989, 8908934

Int. Cl.[5] B01D *15/08*

U.S. Cl. 210—656 **10 Claims**



1. A method of optimizing solvent compositions for the analysis of a sample by liquid chromatography comprising the steps of:

(a) defining a plurality of solvent compositions,

(b) performing a plurality of chromatographic analyses using the defined solvent compositions,

(c) storing the chromatograms produced,

(d) labeling each peak in each of said chromatograms

(e) modelling the retention time of each peak with changing solvent composition,

(f) modelling a quality of the chromatograms across a surface and producing and displaying the quality across the surface,

(g) selecting a point on the surface,

(h) displaying a predicted chromatogram corresponding to the selected point.

5,209,854

PULP WASTE COLOR REMOVAL WITH DIALLYL DIMETHYL AMMONIUM CHLORIDE COPOLYMERS

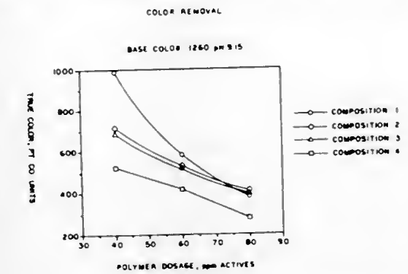
Peter E. Reed, Naperville; Chandrashekar S. Shetty, Lisle, and Martha R. Finck, Countryside, all of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Jun. 29, 1992, Ser. No. 905,686

Int. Cl.[5] C02F *1/56*

U.S. Cl. 210—734 **5 Claims**

1. A process for decoloring pulp mill waste waters by the use of a water soluble cationic coagulant in an amount sufficient to coagulate a portion of the color: the improvement which comprises using as the cationic coagulant a polydiallyl dimethyl ammonium chloride which contains from between 1-30 mole percent of an anionic vinyl co-monomer from the group consisting of 3-acrylamido-3-methylbutanoic acid and 2-acrylamido-2-methyl propane sulfonic acid and has an intrinsic viscosity of at least 0.5.



5,209,855

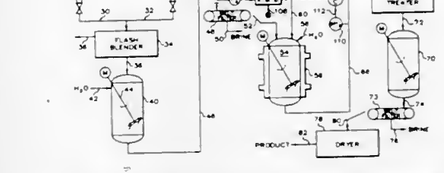
CONTINUOUS ACID WASHING OF POLYMER RESIN WITH CONTROLLED METERING OF ACID

Dale M. Solaas; Donald E. Cummins; Glenn F. Kile, all of Burger, and George W. Long, Fritch, all of Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 10, 1991, Ser. No. 805,405

Int. Cl.[5] B01D *17/12*; **C08F** *283/00*

U.S. Cl. 210—743 **14 Claims**



1. In a batch-type method for acid washing a polymer resin for purification of the resin, wherein:

a batch of polymer slurry is passed in a slurry feed stream to a continuous liquid-solids filter and the filtered batch of polymer solids is passed to an acid wash vessel for accumulating a known volume of solids in said acid wash vessel;

said known volume of solids is reslurried and stirred in said wash vessel;

a predetermined volume of acid is rapidly emptied into said wash vessel while stirring for adjusting the pH of the slurry to a value no higher than 6 pH units; and

the adjusted pH slurry is withdrawn from said wash vessel in a slurry effluent stream for further processing;

the improvement comprises:

(a) continuously delivering said polymer solids to and slurrying said polymer solids in said wash vessel;

(b) providing an acid delivery stream having a metering pump operably located therein for injecting a controlled amount of acid to the polymer slurry in said wash vessel;

(c) manipulating the flow rate of acid in said acid delivery stream responsive to a pH control signal by:

(aa) establishing a first signal representative of the actual flow rate of said slurry feed stream;

(bb) establishing a second signal representative of the

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actual pH of slurry flowing in said slurry effluent stream;

(cc) establishing a third signal representative of a desired pH value for said slurry effluent stream;

(dd) establishing a pH feedback signal responsive to the difference between said second signal and said third signal wherein said pH feedback signal is scaled so as to be representative of the flow rate of said acid delivery stream required to maintain the actual pH value of said slurry effluent stream represented by said second signal substantially equal to the desired pH value represented by said third signal;

(ee) multiplying said first signal by a flow ratio coefficient which is representative of a desired flow ratio between said slurry feed stream and said acid delivery stream to form a flow ratio signal, and combining said flow ratio signal and said pH feedback signal to establish said pH control signal; and

(ff) manipulating the flow rate of acid in said acid delivery stream responsive to said control signal.

5,209,856

PROCESS AND DEVICE FOR CONTINUOUS CRYSTALLIZATION OF A MASSECUITE

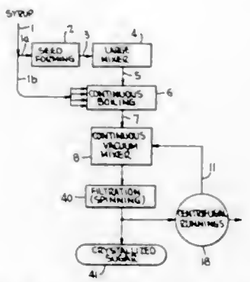
Jacques Cuel, Paris, and Claude Longue-Epee, La Neuville, both of France, assignors to Beghin-Say, S.A., Paris, France

Continuation of Ser. No. 858,034, May 1, 1986, abandoned, which is a continuation of Ser. No. 625,830, Jun. 18, 1984, abandoned. This application Sep. 26, 1990, Ser. No. 588,472

Claims priority, application France, Oct. 18, 1982, 82 17408

Int. Cl.[5] C13F *1/06, 1/12*

U.S. Cl. 210—774 **16 Claims**



1. A process for crystallization of sugar syrup comprising subjecting said syrup to cooking to provide a massecuite; subjecting all of said massecuite to at least one stage of continuous mixing under vacuum so as to promote crystallization of said massecuite, subjecting all of said crystallized massecuite to a separation step so as to separate crystals from its mother liquor, dividing said mother liquor into a first discharge which is water syrup poor and a second discharge which is water syrup rich, and recycling substantially all of the first discharge to said stage of continuous mixing under vacuum; all of said massecuite and all of said crystals thereby being subjected to treatment having continuity during said mixing under vacuum so as to maintain homogeneity of the sugar crystals.

5,209,857

FABRIC SOFTENING DETERGENT COMPOSITIONS CONTAINING SMECTITE CLAYS HAVING A LATTICE CHARGE DEFICIENCY

Ian R. Kenyon, Gayton; Robin S. Heslam, Wallasey; William D. Emery, Bromborough, and Hermes J. Murakami, Port Sunlight, all of Great Britain, assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jun. 29, 1989, Ser. No. 373,761

Claims priority, application United Kingdom, Jul. 6, 1988, 8816112

Int. Cl.[5] C11D *3/12*

U.S. Cl. 252—8.6 **4 Claims**

1. A detergent composition for washing and softening fabrics consisting essentially of from 2% to 50% by weight of at least one detergent active material and, as a fabric softening agent, a smectite clay mineral which is a 2:1 layer phyllosilicate possessing a lattice charge deficiency in the range of 0.2 to 0.4 g equivs. per half unit cell, and which falls into the formula:

$$(Si_{4-y}Al_y)\,(Al_{2-a-b}M^{III}_aN^{II}_b)O_{10}(OH)_2X^I_{y+b}$$

in which

M^{III} is a trivalent metal ion,

N^{II} is a divalent metal ion,

X^I is a balancing exchangeable cation,

y is O or a positive number less than 4, and

a and b are positive numbers less than 2 such that y+b is from 0.2 to 0.4.

5,209,858

STABILIZATION OF CHOLINE AND ITS DERIVATIVES AGAINST DISCOLORATION

George E. Heinsohn, Elkton, Md., and Rudolf E. Svadlenak, Sunriver, Oreg., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 6, 1991, Ser. No. 652,035

Int. Cl.[5] C07C *213/00*; C09K *3/00, 15/20*

U.S. Cl. 252—1 **11 Claims**

1. A stabilized choline solution comprising choline or a salt thereof; a solvent selected from the group consisting of water, alkanols of 1 to 8 carbon atoms and mixtures thereof; and a stabilizing concentration of an unsubstituted hydroxylamine salt to prevent decomposition of said choline or salt thereof.

10. The process of stabilizing a choline salt when stored in an admixture with a hydroxyl containing compound which comprises adding to the solution of said choline salt stored, an unsubstituted hydroxylamine salt at levels of less than 1% and a solvent selected from the group consisting of water, alkanols of C_1 to C_8 and mixtures thereof.

5,209,859

INHIBITED ACID SYSTEM FOR ACIDIZING WELLS

Dennis A. Williams; Phyllis K. Holifield; James R. Looney, and Lee A. McDougall, all of Houston, Tex., assignors to Exxon Chemical Patents, Inc., Linden, N.J.

Continuation of Ser. No. 494,673, Mar. 16, 1990, Pat. No. 5,089,153. This application Feb. 12, 1992, Ser. No. 835,704

The portion of the term of this patent subsequent to Mar. 26, 2008, has been disclaimed.

Int. Cl.[5] E21B *43/27*; C11D *7/48*; C23F *11/16*

U.S. Cl. 252—8.555 **6 Claims**

1. A liquid system for use in the treatment of a subterranean formation comprising

(a) an aqueous acid solution; and

(b) a nonacetylenic corrosion inhibitor comprising

(i) a complex formed by reacting from 0.04 to 2.0 wt % of an antimony compound with from 0.2 to 10 wt % of a quaternary ammonium compound, said complex being dispersed in the aqueous acid solution; and

(ii) from 0.1 to 25 wt % of a surfactant dissolved in the aqueous solution, said surfactant being capable of water wetting metal, said wt % being based on the weight of the aqueous acid solution.

5,209,860

ACRYLATE POLYMER-FATTY TRIGLYCERIDE AQUEOUS DISPERSION PRELUBES FOR ALL METALS

Robert L. Trivett, Aurora, Ill., assignor to Nalco Chemical Company, Naperville, Ill.

Filed Aug. 2, 1991, Ser. No. 739,371

Int. Cl.[5] C10L *173/02*

U.S. Cl. 252—19 **4 Claims**

1. A solid film prelube comprising a polyacrylic acid—fatty acid triglyceride composition in the form of an aqueous dispersion having the formula:

INGREDIENTS	% BY WEIGHT
A. Polyacrylic acid salt-MW 10,000 to 200,00 comprising a mixture of 2-amino-2-methyl-1-propanol and ammonium hydroxide	10–20
B. 2-amino-2-methyl-1-propanol as salt of A	2–6
C. Free 2-amino-2-methyl-1-propanol	0.05–1
D. Ammonium Benzoate	0.05–1
E. Alkyl C_{10} to C_{20} betaine	0.1–5
F. C_{14}–C_{22} Fatty Triglyceride	1–5
G. Ammonium hydroxide	Sufficient to form a partial Salt of Ingredient A
H. Ammonia-Zinc Oxide Complex	0.1–2.0
I. Water	Balance

5,209,861

HIGH TEMPERATURE NONFLAMMABLE HYDRAULIC FLUID

Lois J. Gschwender, Kettering, and Carl E. Snyder, Jr., Trotwood, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 13, 1992, Ser. No. 882,399

Int. Cl.[5] C10M *105/50, 135/10*

U.S. Cl. 252—33.2 **2 Claims**

1. A high temperature, nonflammable working fluid consisting essentially of about 0.1 to 5.0 w/o of a zinc-based rust inhibitor and about 0.01 to 1.0 w/o of a sulfonamide, balance a chlorotrifluoroethylene oligomer base oil; wherein said sulfonamide has the formula $C_8F_{17}SO_2N(C_2H_5)CH_2CH_2O(CH_2CH_2O)_nH$, wherein n has a value of 0 to 15; and wherein said rust inhibitor comprises a blend of zinc dinonylnaphthalene sulfonate and a zinc salt of a high molecular weight succinate ester in a weight ratio of about 99:1 to 20:80.

5,209,862

VI IMPROVER AND COMPOSITION CONTAINING SAME

Vivek K. Soni, Peabody, Mass.; Dale L. Handlin, Jr., and Carl L. Willis, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 30, 1991, Ser. No. 650,376

The portion of the term of this patent subsequent to Mar. 26, 2008, has been disclaimed.

Int. Cl.[5] C10M *143/12*

U.S. Cl. 252—56 R **17 Claims**

1. An oil composition comprising a selectively hydrogenated, block copolymer to which has been grafted carboxyl functional groups comprising at least one monoalkenyl aromatic hydrocarbon unit polymer block and at least one hydrogenated conjugated diolefin polymer block as a viscosity index improver, said block copolymer being functionalized in the monoalkenyl aromatic hydrocarbon polymer block.

5,209,863

LINEAR VISCOELASTIC AQUEOUS LIQUID AUTOMATIC DISHWASHER DETERGENT COMPOSITION HAVING IMPROVED ANTI-FILMING PROPERTIES

Nagaraj S. Dixit, Plainsboro; Makarand Shevade, Hamilton, and Fahim U. Ahmed, Dayton, all of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 353,712, May 18, 1989, Pat. No. 5,064,553, and Ser. No. 730,315, Jul. 15, 1991, abandoned, which is a continuation-in-part of Ser. No. 444,250, Dec. 1, 1989, abandoned, which is a continuation-in-part of Ser. No. 323,138, Mar. 13, 1989, Pat. No. 4,968,445, which is a continuation of Ser. No. 102,250, Sep. 29, 1987, Pat. No. 5,005,285, and Ser. No. 323,136, Mar. 13, 1989, Pat. No. 4,889,653, which is a continuation of Ser. No. 113,562, Oct. 28, 1987, abandoned, and Ser. No. 323,134, Mar. 13, 1989, Pat. No. 4,970,016, which is a continuation of Ser. No. 114,911, Oct. 30, 1987, abandoned, and a continuation of Ser. No. 323,137, Mar. 13, 1989, Pat. No. 4,968,446, which is a continuation of Ser. No. 117,184, Nov. 5, 1987, abandoned. This application Nov. 8, 1991, Ser. No. 789,580

The portion of the term of this patent subsequent to Oct. 1, 2008, has been disclaimed.

Int. Cl.[5] C11D *9/02, 3/395, 1/04, 1/34*

U.S. Cl. 252—94 **14 Claims**

1. A linear viscoelastic aqueous liquid automatic dishwasher composition comprising approximately by weight:

(a) 10 to 40% of at least one alkali metal detergent builder salt, said alkali metal detergent builder salt being selected from the group consisting of alkali metal tripolyphosphate, alkali metal pyrophosphate, alkali metal metaphosphate, alkali metal carbonate, alkali metal citrate and alkali metal nitrilotriacetate and mixtures thereof;

(b) 0 to 20% alkali metal silicate;

(c) 0 to 8% alkali metal hydroxide;

(c) 0 to 5.0% chlorine bleach stable, water-dispersible, organic anionic detergent active material;

(e) 0 to 1.5% chlorine bleach stable foam depressant;

(f) chlorine bleach compound in an amount to provide 0.2 to 4% of available chlorine;

(g) 0.1 to 2.0% of at least one cross-linked polyacrylic acid thickening agent having a molecular weight of from about 1,000,000 to 4,000,000;

(h) 0.005 to 1.75 of a long chain fatty acid or an alkali metal salt of a fatty acid;

(i) 0 to 15% of a non-cross-linked polyacrylate having a molecular weight of about 1,000 to 100,000; and

(j) 0.1 to 5% of an inorganic anti-filming agent; and

(k) balance being water, wherein said polyacrylic acid thickening agent being selected from the group consisting of acrylic acid or methacrylic acid, water-dispersible or water-soluble salts, esters, or amides thereof, and water-soluble copolymers of these acids or their salts, ester, or amides with each other or with one or more other ethylenically unsaturated monomers, wherein substantially all of the normally solid components of the composition are present dissolved in the aqueous phase, except the inorganic anti-filming agent and substantially all of the water in the composition is tightly bound to the cross-linked polyacrylic acid thickening agent, said composition having a bulk density of from 1.26 g/cm^3 to 1.42 g/cm^3 and said composition does not exhibit phase separation and remains homogenous, when said composition is centrifuged at 1000 rpm for 30 minutes.

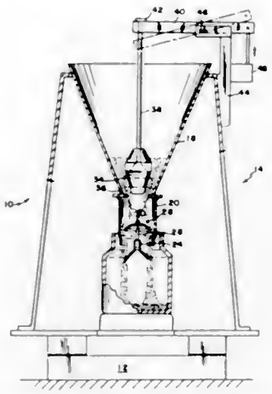
VOL 1150 ISS 2 MY 11 1993 UMI

5,209,864

CAKE-LIKE DETERGENT AND METHOD OF MANUFACTURE

Hubert A. Perry, Jr., and Kenneth E. Perry, both of Wellesley, Mass., assignors to Winbro Group, Ltd., Woburn, Mass.

Filed Jul. 3, 1991, Ser. No. 725,278
Int. Cl.[5] C11D *17/00, 3/04, 7/06*
U.S. Cl. 252—134 32 Claims



1. A method of making a solid cake-like detergent for ware and hard surface washing, which cake-like detergent is the product of hydration and sequestration reactions, which includes:

blending an alkali metal hydroxide and a hardness sequestering agent to form a dry powdered detergent mixture;

flowing the mixture to form a particulate stream;

moistening the particulate stream to form moistened particulates;

depositing the moistened particulates in a receptacle; and

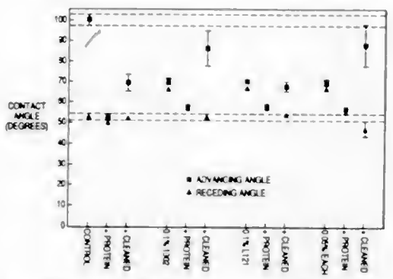
forming the solid cake-like detergent in said receptacle.

5,209,865

CONDITIONING SOLUTION FOR CONTACT LENSES AND A METHOD OF USING THE SAME

Lynn C. Winterton, Roswell, and Kai C. Su, Alpharetta, both of Ga., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jan. 25, 1990, Ser. No. 470,105
Int. Cl.[5] C11D *1/44*
U.S. Cl. 252—174.22 14 Claims



1. A contact lens conditioning solution which comprises a carrier vehicle and as active ingredients (a) an effective amount of up to about 1.0% (weight/volume) of a polyoxyethylene-polyoxypropylene substituted ethylenediamine nonionic surfactant (poloxamine type) having a hydrophile-lipophile balance of seven or below and having a polyoxyethylene concentration between about 10% and about 20% by weight and (b) an effective amount of up to about 1.0% (weight/volume) of a polyoxyethylene-polyoxypropylene nonionic surfactant (poloxamer type) having a hydrophile-lipophile balance of seven or below and a polyoxyethylene concentration of less than about 20% by weight of said polyoxypropylene-polyoxyethylene nonionic surfactant.

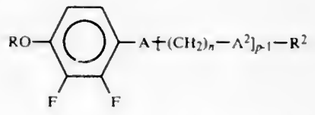
5,209,866

HETEROCYCLIC 1,2-DIFLUOROBENZENE DERIVATIVES

Volker Reiffenrath, Rossdorf; Joachim Krause, Dieburg; Andreas Wächtler, Griesheim, and Thomas Geelhaar, Mainz, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

Filed May 15, 1989, Ser. No. 363,904
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1988, 3807871
The portion of the term of this patent subsequent to Mar. 30, 2010, has been disclaimed.
Int. Cl.[5] C09K *19/34, 19/12;* C07D *211/70*
U.S. Cl. 252—299.61 9 Claims

1. A heterocyclic 1,2-difluorobenzene derivative of the formula I2



in which R is a straight chain alkyl group having 1 to 15 C atoms in which, in addition, one or more CH_2 may be replaced by a divalent radical selected from —O—, —S—, —CO—, —O—CO—, —CO—O—, —CH=CH— or —C≡C—, where two heteroatoms are not linked directly to one another, P is 1 or 2, n is 0 or 2,

R^2 is a straight chain alkyl group having 1-15 C atoms in which, in addition, one or more CH_2 groups may be replaced by a divalent radical selected from —O—, —S—, —CO—, —O—CO—, —CO—O, or —C≡C—, where two heteroatoms are not linked directly to one another,

A^2 is a 1,4-phenylene group which is unsubstituted or monosubstituted or polysubstituted by fluorine, or a trans-1,4-cyclohexylene group, and

A is a 1,3,4-thiadiazole-2,5-diyl- or pyridine 2,5-diyl.

5,209,867

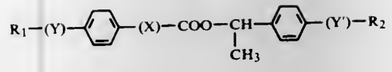
DERIVATIVES OF α-(4-SUBSTITUTED PHENYL)ETHYL ALCOHOLS AND LIQUID CRYSTAL COMPOSITIONS CONTAINING THE SAME

Mitsuhiro Koden; Tomoaki Kuratate, both of Nara, and Fumiaki Funada, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 701,346, May 5, 1991, abandoned, which is a continuation of Ser. No. 321,079, Mar. 9, 1989, abandoned. This application Dec. 30, 1991, Ser. No. 815,580
Claims priority, application Japan, Mar. 10, 1988, 63-57295; Jul. 6, 1988, 63-169951; Jul. 22, 1988, 63-183924; Jul. 29, 1988, 63-191165
Int. Cl.[5] C09K *19/12, 19/20;* C07C *69/76*
U.S. Cl. 252—299.65 12 Claims

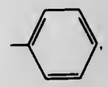
1. A liquid crystal composition comprising:

at least one α-(4-Substituted phenyl)ethyl alcohol compound of the formula (I):



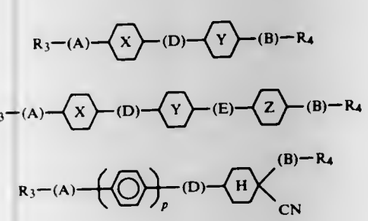
(I)

wherein R_1 and R_2 are the same or different and are a straight or branched chain alkyl group having 1 to 12 carbon atoms, X is



Y is —O— and Y' is a single bond; and

one or more liquid crystal compounds exhibiting smectic C phase represented by the following formula (IV), (V) or (VI):

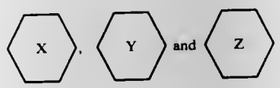


(IV)

(V)

(VI)

wherein A and B are each a single bond or the group —COO—, —OCO—, —CH=CH—COO, —O-CO—CH=CH—, —O—, —S—,—OCOO— or —CO; D and E are each a single bond or the group —COO—, —OCO—, —CH=N—, —N=CH, —CH=CH—, —C≡C—, —CH=CH—COO—, —OCO—CH=CH—, —CHCH$_2$—, —OCH$_2$—, —CH$_2$O—, —COS— or—S-CO—;



are each a 6-membered ring such as benzene ring, pyridine ring, pyrimidine ring, pyrazine ring, pyridazine ring, piperazine ring, cyclohexane ring, pyran ring, dioxacyclohexane ring, thiapyran ring, dithian ring, thiadizaine ring, bicyclo (2.2.2) octane ring or tetrazine ring, such a 6-membered ring having or not having a fluorine, chlorine or bromine atom, cyano, nitro, lower alkyl or lower alkoxy group or deuterium (D) substituting for the hydrogen atom in the ring; R_3 and R_4 are each a straight-chain or branched-chain alkyl or alkoxy group having 1 to 12 carbon atoms; and p is an integer of 1 or 2.

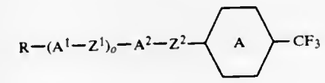
5,209,868

TRIFLUOROMETHYLCYCLOHEXANE DERIVATIVES

Volker Reiffenrath, Rossdorf; Eike Poetsch, Mühltal; Hans-Adolf Kurmeier, Seeheim-Jugenheim; Georg Weber, Erzhausen; Reinhard Hittich, Modautal; Hans-Michael Kompter, Weiterstadt, and Herbert Plach, Darmstadt, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

PCT No. PCT/EP90/00513, § 371 Date Jun. 15, 1990, § 102(e) Date Jun. 15, 1990, PCT Pub. No. WO90/12073, PCT Pub. Date Oct. 18, 1990
PCT Filed Mar. 31, 1990, Ser. No. 499,414
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1989, 3911621; Sep. 9, 1989, 3930119
Int. Cl.[5] C09K *19/30, 19/52;* C07D *319/06;* C07C *19/08*
U.S. Cl. 252—299.63 10 Claims

1. A liquid-crystalline medium having at least two components, wherien one or more component is a trifluoromethylcyclohexane compound of the formula I



I

wherein

R is an alkyl or alkenyl radical having up to 18 C atoms which is unsubstituted or substituted by CN or by at least one halogen, and in which one or more non-adjacent CH_2 groups may be replaced by a radical selected from the group comprising —O—, —S—, —CO—, —O—CO—, —CO—O— and —C≡C—,

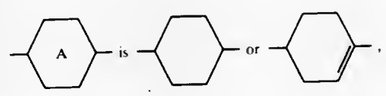
A^1 and A^2 are each, independently of one another,

a) a 1,4-phenylene radical, in which one or two CH groups may be replaced by N,

b) a 1,4-cyclohexylene radical, in which one or two non-adjacent CH_2 groups may be replaced by —O— or —S—,

c) a 1,4-cyclohexenylene, piperidine-1,4-diyl, 1,4-bicyclo[2,2,2]-octylene or naphthalene-2,6-diyl radical,

it being possible for the radicals a) and b) to be monosubstituted or polysubstituted by halogen atoms or cyano and/or methyl groups,



Z^1 and Z^2 are each, independently of one another, —CH_2C-H_2—, —CH(CN)—CH_2—, —CH_2—CH(CN)—, —CH=CH—, —OCH_2—, —CH_2O—, —CH=N—, —N=CH—, —NO=N—, —N=NO—, —N=N— or a single bond, and

o is 0or 1.

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5,209,869

VAPOR PHASE CORROSION INHIBITOR-DESSICCANT MATERIAL

Boris A. Miksic, North Oaks; Tsi-Zong Tzou, Woodbury, and Joseph M. Foley, Maplewood, all of Minn., assignors to Cortec Corporation, St. Paul, Minn.

Continuation-in-part of Ser. No. 594,357, Sep. 27, 1990, Pat. No. 5,139,700, which is a continuation-in-part of Ser. No. 417,238, Oct. 5, 1989, abandoned, which is a continuation-in-part of Ser. No. 235,120, Aug. 23, 1988, abandoned. This application Jun. 29, 1992, Ser. No. 905,953

Int. Cl.[5] C23F *11/18*

U.S. Cl. 252—389.54 8 Claims



1. A vapor phase corrosion inhibitor-desiccant formulation comprising a mixture of the following composition:

(a) the vapor phase corrosion inhibitor constituent comprising the following:

Component	Percent by Weight Range
Sodium nitrite	22%–27%
Benzotriazole	4%–6%
An anhydrous molybdate selected from the group consisting of sodium molybdate, ammonium dimolybdate, amine molybdates and mixtures thereof	65%–75%; and

(b) the desiccant constituent consisting essentially of granular silica gel.

5,209,870

STABLE ALKALINE LABIATAE ANTIOXIDANT EXTRACTS

Paul H. Todd, Jr., Kalamazoo, Mich., assignor to Kalamazoo Holdings, Inc., Kalamazoo, Mich.

Continuation-in-part of Ser. No. 396,530, Aug. 21, 1989, Pat. No. 5,023,017. This application Jul. 17, 1990, Ser. No. 554,018

The portion of the term of this patent subsequent to Oct. 29, 2008, has been disclaimed.

Int. Cl.[5] A61K *35/28*

U.S. Cl. 252—398 8 Claims

1. A process of preparing a stable alkaline solution of Labiatae antioxidants essentially free of lipids comprising the steps of:

(1) extracting a Labiatae herb with an organic solvent, (2) decolorizing the extract with an absorbent, (3) removing acetone-insoluble materials and absorbent therefrom by filtration at about ambient temperature using an excess of acetone, deodorizing the product, (4) agitating said solvent extract of the herb from step 3 with an aqueous alkaline lower-aliphatic alcoholic or polyol or alkaline water solution thereof, (5) separating the aqueous phase from the upper insoluble phase by the effect of gravity thereby concentrating lipids in the insoluble phase and then removing said insoluble phase, and (6) concentrating and adjusting the alkaline phase to less than about 75% water in the solvent to give a stable solution having an antioxidant strength (AOS) of above about 0.2 when compared with a BHT standard having an AOS of one (1) and a pH above about 8.4 and below about 11.8, which does not lose its antioxidant strength (AOS) at ambient temperatures for at least six months.

4. A process for preparing a stable alkaline solution containing essentially all of the antioxidant principles of a Labiatae extract and essentially free of lipids, comprising (1) extracting a Labiatae herb with an organic solvent, (2) decolorizing the extract with an absorbent, (3) removing acetone-insoluble materials and absorbent therefrom by filtration at about ambient temperature using an excess of acetone, deodorizing the product, (4) preparing a solution of the extract from step 3 in a medium selected from the group consisting of an aqueous alkaline lower-aliphatic alcohol and a polyol media by admixing the organic solvent extract of the herb with such alkaline solution, (5) removing insoluble lipids and resins by separation and removal of an upper fat phase containing the same, (6) concentrating and adjusting the aqueous alkaline phase to provide a stable solution having a pH above about 8.7 and below about 11.2, a water content of less than 75%, and an antioxidant strength (AOS) of above about 0.2 when compared with a BHT standard having an AOS of one (1), which stable solution does not lose its antioxidant strength (AOS) at ambient temperatures for at least six months.

5,209,871

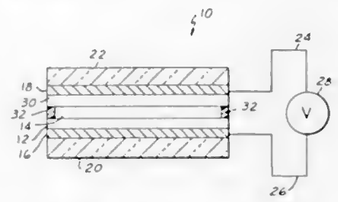
SELF-SEALING LIQUID ELECTROLYTE USEFUL IN ELECTROCHROMIC DEVICE

Claude F. Mason, Ypsilanti, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 28, 1990, Ser. No. 620,518

Int. Cl.[5] H01B *1/00*

U.S. Cl. 252—500 21 Claims



1. A self-sealing, polyether-functional liquid electrolyte which comprises an alkali metal salt incorporated into the reaction product of materials comprising:

(i) liquid polyether diamine having two reactive amine groups and containing polyether groups, and

(ii) liquid mono-epoxide hydrolyzable silane having at least one hydrolyzable group attached to a silicon atom.

5,209,872

RUBBER COMPOSITION AND METHOD FOR MAKING

Masaharu Takahashi; Tsutomu Nakamura, both of Annaka, and Kazuo Numata, Usui, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Dec. 18, 1990, Ser. No. 628,877

Claims priority, application Japan, Dec. 25, 1989, 1-337949; Dec. 25, 1989, 1-337950

Int. Cl.[5] H01R *1/06*; C08K *8/04*

U.S. Cl. 252—511 11 Claims

1. A rubber composition for preparing a rubber article having a variation of electric resistivity of about one order of magnitude in the range of from 10^3 to 10^{10} Ω-cm comprising in admixture, two separate phases (A) and (B) macroscopically dispersed in one another wherein,

phase (A) is a rubber composition comprising natural rubber, synthetic rubber, or mixtures thereof, and conductive carbon black, said synthetic rubber being ethylene-propylene rubber, ethylene-propylene-diene rubber, styrene-butadiene rubber, acrylonitrile-butadiene rubber, hydrogenated acrylonitrile-butadiene rubber, butadiene rubber, isoprene rubber, chloroprene rubber, acrylic rubber, silicone-modified EPDM rubber, silicone-modified acrylic rubber, ethylene-acrylate rubber, ethylene-vinyl acetate rubber, urethane rubber, polysulfide rubber, chloro-sulfonated polyethylene rubber, chlorinated polyethylene rubber, fluorinated rubber, epichlorohydrin rubber, or mixtures thereof, and

phase (B) is a silicone rubber composition comprising an organopolysiloxane having the average composition formula (1):

$$R_nSiO_{(4-n)/2} \quad (1)$$

wherein R is a substituted or unsubstituted monovalent hydrocarbon group having 1 to 10 carbon atoms, and n is a positive number of from 1.95 to 2.05, and containing essentially no carbon black,

wherein rubber compositions (A) and (B) are combined in a weight ratio of 5:95 to 95:5.

5,209,873

ELECTRICALLY CONDUCTIVE PASTE AND COATING

Yuzo Yamamoto, Wakayama; Hiromoto Mizushima, Saitama, and Yumi Rakue, Wakayama, all of Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Jun. 3, 1991, Ser. No. 709,153

Claims priority, application Japan, Jul. 6, 1990, 2-178682

Int. Cl.[5] H01B *1/00*

U.S. Cl. 252—512 7 Claims

1. An electrically conductive paste composition which comprises 50 to 95 percent by weight of an electrically conductive powder, a solvent and 5 to 50 percent by weight of an organic binder comprising one or more monohydric phenol adduct compounds selected from the group consisting of:

(a) a monohydric phenol adduct of an unsaturated fatty acid, its metal salt or an unsaturated fatty acid ester,

(b) a saturated or unsaturated fatty acid ester of said phenol adduct (a),

(c) a sulfonation product of said phenol adduct (a) and

(d) an amination product of said phenol adduct (a).

5,209,874

LIQUID SURFACE ACTIVE COMPOSITIONS

Louis Kravetz, Houston, and Kirk H. Raney, Sugar Land, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 572,300, Aug. 27, 1990, abandoned, which is a continuation of Ser. No. 343,227, Apr. 26, 1989, abandoned. This application May 18, 1992, Ser. No. 887,572

Int. Cl.[5] C11D *1/12, 1/68, 1/83*

U.S. Cl. 252—550 36 Claims

1. A liquid surface active composition which comprises: a) from about 15 percent by weight to about 50 percent by weight of an alcohol ethoxylate having a formula R—O—$(CH_2CH_2O)_n$—H, wherein R is an alkyl group having from about 8 to about 18 carbon atoms or an alkylaryl group having an alkyl moiety having from about 8 to about 12 carbon atoms, and n represents the average number of oxyethylene groups per molecule and is a number in the range of from about 1 to about 12, b) from about 15 percent by weight to about 80 percent by weight of a salt of an alcohol ethoxysulfate having a formula R'—O—$(CH_2CH_2O)_x$—SO_3M, wherein R' is a substantially straight-chain alkyl group having from about 8 to about 18 carbon atoms or an alkylaryl group having an alkyl moiety having in the range of from about 8 to about 12 carbon atoms, M is a cation selected from the group consisting of an alkali metal ion, an ammonium ion and mixtures thereof, and x represents the average number of oxyethylene groups per molecule and is a number in the range of from about 1 to about 12, and c) from about 0.01 percent by weight to about 15 percent by weight water, wherein the percent by weight of component (b) is in excess of the percent by weight of component (a) and wherein components (a) and (b) comprise at least about 85 percent by weight of said composition.

2. A liquid surface active composition which comprises: a) from about 15 percent by weight to about 50 percent by weight of an alcohol ethoxylate having a formula R—O—$(CH_2CH_2O)_n$—H, wherein R is an alkyl group having from about 8 to about 18 carbon atoms or an alkylaryl group having an alkyl moiety having from about 8 to about 12 carbon atoms, and n represents the average number of oxyethylene groups per molecule and is a number in the range of from about 1 to about 12, b) from about 15 percent by weight to about 80 percent by weight of a salt of an alcohol ethoxysulfate having a formula R'—O—$(CH_2CH_2O)_x$—SO_3M, wherein R' is a substantially straight-chain alkyl group having from about 8 to about 18 carbon atoms or an alkylaryl group having an alkyl moiety having from about 8 to about 12 carbon atoms, M is a cation selected from the group consisting of an alkali metal ion, an ammonium ion and mixtures thereof, and x represents the average number of oxyethylene groups per molecule and is a number in the range of from about 1 to about 12, and c) from about 0.01 percent by weight to about 10 percent by weight water, wherein the percent by weight of component (b) is in excess of the percent by weight of component (a) and wherein components (a) and (b) comprise at least about 90 percent by weight of said composition.

5,209,875

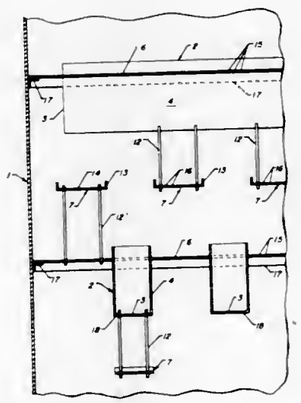
MULTIPLE-DOWNCOMER CONTACTING TRAY WITH ANTIPENETRATION DEVICES

Robert J. Miller, Niagara Falls; Michael R. Resetarits, Depew, and Daniel R. Monkelbaan, Amherst, all of N.Y., assignors to UOP, Des Plaines, Ill.

Filed Dec. 30, 1991, Ser. No. 814,541

Int. Cl.[5] B01F *3/04*

U.S. Cl. 261—114.1 4 Claims



1. A vapor-liquid contacting tray having a generally circular circumference and comprising:

(a) a perforated disk-shaped vapor-liquid contacting deck having an upper first side and a lower second side;

(b) at least two trough-shaped downcomer means each formed by two opposing sidewalls and two opposing end walls which are shorter than the side walls, with the sidewalls and end walls oriented perpendicular to the plane of the tray, each downcomer means having a substantially open inlet located on the first side of the contacting deck and a liquid sealable outlet means located on the second side of the contacting deck, the outlet means comprising sets of spaced apart openings in a seal plate attached to end walls and side walls;

(c) a plurality of antipenetration pans associated with each individual downcomer means and aligned with said openings of the outlet means in the downcomer means such that liquid descending from said openings will impinge upon an antipenetration pan, with each antipenetration

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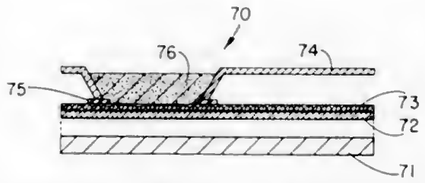
pan comprising a perforated plate substantially parallel to said contacting deck and two raised lips projecting from the perforated plate toward the downcomer means and located on the two opposing sides of the antipenetration pan which are parallel to the end walls of the downcomer means.

5,209,876

CLOTH-LINED INTERCEPTOR MOTOR INSULATION FOR STRONG INSULATION-TO-PROPELLANT INTERLOCK

David C. Sayles, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 14, 1992, Ser. No. 944,596
Int. Cl.[5] C06B *21/00*
U.S. Cl. 264—3.3 **4 Claims**



1. A method of providing a very strong mechanical interlock between the insulator in a composite interceptor rocket motor and the solid composite interceptor propellant composition to thereby obviate the need for a liner, said method comprising:

(i) providing a mandrel shell with a boss, said mandrel shell with a boss provided with a clean, release liner on the outer surface thereof, said release liner including a perforated bleeder to permit excess resin to be removed from insulator during curing process and to permit easy release of mandrel shell with a boss from lay-up materials placed on said release liner with perforated bleeder;

(ii) placing a cloth mat of a first lay-up material over said release liner with bleeder;

(iii) applying a second lay-up material comprising an uncured rubber insulator composition over said cloth mat, said uncured rubber insulator composition curable by a predetermined vulcanization cycle at high temperature and pressure;

(iv) subjecting said first and second lay-up materials, said mandrel shell with boss, and said release liner including perforated bleeder to a vacuum bag and autoclave curing environment to complete a vulcanization cycle at a predetermined temperature of about 300° F., predetermined pressure from about 100–150 psi, and for a predetermined curing time period from about 20 to about 30 minutes, said predetermined temperature, pressure, and curing time sufficient to achieve vulcanization to consolidate said first and said second lay-up materials to form vulcanized insulator cloth mat cured to a state of cure which enables said second lay-up material to be ground to fit contour and shape of said composite interceptor rocket motor into which said vulcanized insulator/cloth mat is to be inserted;

(v) removing from said vacuum bag and autoclave curing environment, said mandrel shell with a boss with said vulcanized insulator/cloth mat which is supported by said mandrel shell with a boss;

(vi) grinding said outer surface of said vulcanized insulator/-cloth mat to said contour and shape of said composite interceptor rocket motor;

(vii) removing said ground vulcanized insulator/cloth mat from said release liner or said mandrel shell with a boss;

(viii) inserting said ground vulcanized insulator/cloth mat into an interceptor rocket motor case and adhesively securing the outer surface of said ground vulcanized insulator/cloth mat to the inside of said interceptor rocket motor case;

(ix) casting an uncured solid composite interceptor propellant composition onto the cloth mat side of said vulcanized insulator/cloth mat; and,

(x) curing said solid composite interceptor propellant composition to said vulcanized/cloth mat to form a very strong mechanical interlock between said insulator in said composite interceptor rocket motor and said cured solid composite interceptor propellant composition.

5,209,877

METHOD OF MAKING FIBRIDS

Arnold Frances, Wilmington, Del.; Lee J. Hesler, Richmond, Va.; James E. Van Trump, Wilmington, Del., and Rita M. Vasta, Vienna, W. Va., assignors to E.I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 725,859, Jul. 2, 1991. This application Mar. 19, 1992, Ser. No. 854,746
Int. Cl.[5] B29B *9/00*
U.S. Cl. 264—9 **3 Claims**



1. A process to make dry fibrids of an organic polymer exhibiting, en masse, a surface area of 50 to 150 m^2/g, a largest-dimension particle size of 10 to 1000 microns, a largest-to-smallest dimension ratio of 40 to 20,000, and a Critical Concentration of 0.015 to 1% comprising the steps of:

a) adding, with vigorous agitation, a solution of an organic polymer in a solvent to a liquid which is a nonsolvent for the polymer and is at least partially miscible with the solvent of the solution to cause coagulation of polymer fibrids;

b) wet milling the coagulated fibrids;

c) separating the wet milled fibrids from the liquid;

d) drying the separated fibrids by adding a surfactant to the coagulated fibrids and then evaporating the solvent from the fibrids to yield clumps of fibrids having high surface area; and

e) opening the clumps to obtain a particulate fibrid product.

5,209,878

SURFACE RESOLUTION IN THREE-DIMENSIONAL OBJECTS BY INCLUSION OF THIN FILL LAYERS

Dennis R. Smalley, Baldwin Park; Hop D. Nguyen, Little Rock; Kris A. Schmidt, Granada Hills; Herbert E. Evans, Valencia; Ray S. Freed, Northridge, and Paul J. Jacobs, La Crescenta, all of Calif., assignors to 3D Systems, Inc., Valencia, Calif.

Filed Oct. 30, 1990, Ser. No. 605,979
Int. Cl.[5] B29C *35/08, 41/02*
U.S. Cl. 264—22 **69 Claims**

1. An improved stereolithographic method for forming a three-dimensional object on substantially a layer by layer basis from a material capable of selective physical transformation upon exposure to synergistic stimulation comprising the steps of forming successive layers of unsolidified material of desired thickness in preparation of forming layers of structure of said three-dimensional object and exposing said layers of unsolidified material to synergistic stimulation to form said layers of structure of said three-dimensional object, including forming a last layer of unsolidified material and exposing said last layer to synergistic stimulation to form a last layer of structure thereby completing formation of all layers of said three-dimensional object, the improvement comprising the step of:

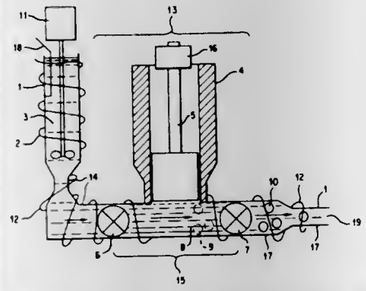
reducing at least part of an up-facing surface discontinuity between two layers by selectively exposing said unsolidified building material within at least part of said discontinuity to synergistic stimulation wherein the synergistic stimulation impinges on a surface of said material with an orientation close to perpendicular prior to exposing said last layer of structure of said three-dimensional object.

5,209,879

METHOD FOR INDUCING TRANSFORMATIONS IN WAXES

Bruce K. Redding, Jr., 8514 Lyons Pl., Philadelphia, Pa. 19018

Filed Apr. 6, 1990, Ser. No. 505,849
Int. Cl.[5] B29B *13/08*; B29K *91/00*
U.S. Cl. 264—23 **38 Claims**



1. A method for transforming a polymorphic wax from its alpha to its beta form comprising the following steps:

a. melting the wax;

b. placing and confining the wax in a chamber wherein it may be subjected to the action of a piston;

c. subjecting the wax in the chamber to at least one stroke of the piston prior to solidification; and

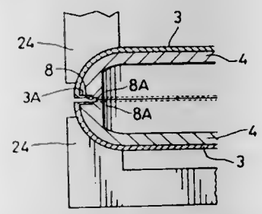
d. permitting the wax to solidify.

5,209,880

PROCESS FOR MAKING A SUN VISOR BY MOLDING A PAIR OF SHELLS AND BONDING THEM TOGETHER

Norimichi Miwa, Toyoda, Japan, assignor to Neo-Ex Lab. Inc., Toyoda, Japan

Division of Ser. No. 736,620, Jul. 26, 1991, Pat. No. 5,108,143. This application Mar. 17, 1992, Ser. No. 852,721
Claims priority, application Japan, Jul. 27, 1990, 2-200142
Int. Cl.[5] B29C *43/18, 53/02, 65/08*
U.S. Cl. 264—23 **4 Claims**



1. A process for manufacturing a sun visor having a pair of shells bonded to each other, comprising the steps of:

providing a first female die member and a first male die member adapted to form a forming cavity corresponding to the configuration of a first shell therebetween;

positioning between said first female and first male die members a first sheet material for forming a first sheet member and a resin material for forming a first dish-like base member having a first annular end surface;

closing said first female and first male die members to form said first sheet member and said first base member, thereby forming said first shell composed of said first base member and said first sheet member adhered to the outer surface of said first base member;

folding the end portion of said first sheet member along said first annular end surface of said first base member to form a folded portion extending therealong, thereby forming a first mating surface composed of said first annular end surface of said first base member and the outer surface of said folded portion of said first sheet member;

providing a second female die member and a second male die member adapted to form a forming cavity corresponding to the configuration of a second shell therebetween;

positioning between said second female and second male die members a second sheet material for forming a second sheet member and a resin material for forming a second dish-like base member having a second annular end surface;

closing said second female and second male die members to form said second sheet member and said second base member, thereby forming said second shell composed of said second base member and said second sheet member adhered to the outer surface of said second base member;

folding the end portion of said second sheet member along said second annular end surface of said second base member to form a folded portion extending therealong, thereby forming a second mating surface composed of said second annular end surface of said second base member and the outer surface of said folded portion of said second sheet member;

mating said first mating surface of said first shell and said second mating surface of said second shell; and

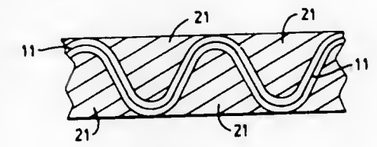
melting said first annular end surface of said first base member and said second annular end surface of said second base member to bond said first and second mating surfaces.

5,209,881

HIGH ACCURACY CONTROL SYSTEM AND METHOD FOR PANEL LINE PRODUCTION

Derrick Charbonnet, Arlington, Tex., assignor to W.R. Grace & Co.-Conn., New York, N.Y.

Filed Dec. 5, 1991, Ser. No. 802,959
Int. Cl.[5] B29C *35/10*
U.S. Cl. 264—25 **20 Claims**



1. A system for controlling the location of an FRP resin gelation zone in a continuous line production, comprising:

means for moving the resin-wetted substrate through said oven;

at least three sensors located within said oven, said at least three sensors being spaced apart from each other along the direction of substrate movement through said oven, one of said sensors located and thereby operative to provide an output corresponding to temperature of the resin-impregnated substrate prior to resin gelation, and another of said sensors located and thereby operative to provide an output corresponding to temperature of the resin-impregnated substrate after resin gelation whereby the location

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of the gelation zone of the resin with respect to the location of said sensors is detected; and

means for adjusting said moving means whereby the location in said oven of the resin gelation zone can be controlled.

11. A method for controlling the location of an FRP resin gelation zone in a continuous line production, comprising the steps of:

moving a resin-wetted fiberglass substrate through a curing oven having at least one heater operative to initiate curing of the resin-wetted substrate;

detecting temperatures of the resin-wetted fiberglass substrate in at least three spaced-apart locations within the curing oven by providing at least three sensors along the direction of substrate movement within said oven, one of said sensors located and thereby operative to detect the temperature of the resin before gelation, and another of said sensors located and thereby operative to detect the temperature of the resin after gelation; and

adjusting the speed at which the substrate moves through the oven to maintain the location of the resin gelation zone at a specific place within the oven.

5,209,882

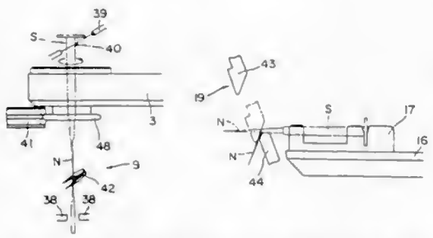
MEANS AND METHOD FOR FORMING SYRINGE

Takeshi Hattori, Tokyo; Kuniyuki Onzuka, Oita, and Yoshiyuki Ichizawa, Saitama, all of Japan, assignors to Sunstar Kabushiki Kaisha, Osaka and Yoshino Kogyosho Co., Ltd., Tokyo, both of Japan

Filed Jun. 4, 1991, Ser. No. 710,000

Int. Cl.[5] B29C *53/08, 55/24*

U.S. Cl. 264—40.2 **4 Claims**



4. Method for forming a syringe, comprising the steps of:

a first heating step, wherein a bottom portion of a syringe is heated and softened;

a stretching step, wherein said bottom portion of said syringe is stretched a certain amount along a longitudinal axis of said syringe, said bottom portion being formed as a needle portion of said syringe and said needle portion being cut to a certain length;

a second heating step, wherein the base portion of said needle portion is heated and softened;

a bending step, wherein said softened needle portion is bent at a certain angle;

a cutting step, wherein said bent needle portion is cut to a certain length;

and a reading step, wherein an angle reader and an outside diameter reader are arranged to read an angle and an outside diameter of said needle portion of said syringe, respectively.

5,209,883

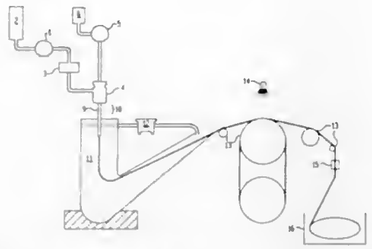
FABRICATION OF FLUOROPOLYMER HOLLOW FIBERS FOR ASYMMETRIC MEMBRANES

Tai-Shung Chung, Randolph; Edward R. Kafchinski, Winfield, and Paul Foley, Oldwick, all of N.J., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Apr. 17, 1991, Ser. No. 686,739

Int. Cl.[5] D01D *5/247*

U.S. Cl. 264—41 **13 Claims**



1. A process for making asymmetric hollow fiber comprising the steps of:

preparing a dope having a viscosity of at least about 3000 poise at 25° C. by dissolving a fluoropolymer in a solvent consisting essentially of NMP and a second liquid in a ratio in the approximate range of from 90/10 to 40/60;

spinning said dope through a hollow fiber die while simultaneously passing a core solvent through the center of said die to form a hollow fiber having an outer layer that is denser and less porous than the interior, wherein said outer layer is no more than about one micron thick;

passing said fiber through an air gap and into a methanol bath;

removing said fiber from said bath and collecting said fiber; and,

subsequently coating said fiber with a composition that is highly permeable to gases.

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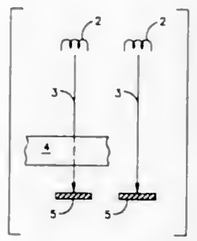
PROCESS FOR PRODUCING A MULTI-LAYER HIGH OPACITY FILM STRUCTURE OF IMPROVED WHITENESS AND MACHINABILITY

Ronald C. Wood, Jr., Pittsford, N.Y., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Oct. 11, 1991, Ser. No. 776,520

Int. Cl.[5] B29C *67/20, 55/12*

U.S. Cl. 264—41 **10 Claims**



1. A process for preparing a three-layer opaque, biaxially oriented polymeric film structure, comprising the steps of:

(a) mixing a major proportion of a first thermoplastic polymeric material with a minor proportion of a first material of higher melting point or having a higher glass transition

temperature than the first thermoplastic polymeric material to produce a core layer mixture;

(b) heating the core layer mixture produced in step (a) to a temperature of at least above the melting point of the first thermoplastic polymeric material;

(c) dispersing the first material of higher melting point or higher glass transition temperature of the mixture produced in step (a) uniformly throughout the molten first thermoplastic polymeric material in the form of microspheres;

(d) mixing a second thermoplastic polymeric material with titanium dioxide contact pigment to produce a first skin layer mixture;

(e) heating the first skin layer mixture produced in step (d) to a temperature of about the melting point of the second thermoplastic polymeric material;

(f) mixing a third thermoplastic polymeric material with a finely divided, inorganic material to produce a second skin layer mixture;

(g) heating the second skin layer mixture produced in step (f) to a temperature of about the melting point of the third thermoplastic polymeric material;

(h) coextruding a three-layer film structure from the core layer mixture, the titanium dioxide-containing first skin layer mixture and the inorganic material-containing second skin layer mixture; and

(i) biaxially orienting the three-layer film coextruded in step (h), said biaxially orienting step conducted at a temperature and to a degree to form a strata of opacifying voids within the core layer;

wherein the inorganic material of the second skin layer imparts antiblocking characteristics and reduced inherent film-to-film coefficient of friction at its surface.

5,209,885

AQUEOUS EXTRUSION OF SILICON NITRIDE

Tariq Quadir, Columbia, Md., and Ahmad Arfaei, Milford, N.H., assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Jun. 28, 1991, Ser. No. 724,558

Int. Cl.[5] C04B *35/58*

U.S. Cl. 264—63 **17 Claims**

2. The method of claim 1 further comprising step

e) drying said extrudate.

5,209,886

COMPOSITION AND METHOD FOR THE MANUFACTURE OF A BOARD

Michael W. Simons, Pretoria, South Africa, assignor to Plascon Technologies (Proprietary) Limited, Transvaal, South Africa

Filed Mar. 2, 1992, Ser. No. 843,082

Claims priority, application South Africa, Mar. 1, 1991, 91/1519

Int. Cl.[5] D04H *1/70;* **B27N** *3/00*

U.S. Cl. 264—109 **23 Claims**

1. A method of preparing a natural fibrous material particle composition for use in forming a natural fibrous material particle board includes the steps of:

(a) impregnating a major amount of weight of the composition of natural fibrous material particles with a compound selected from the group consisting of coal tar, pitch, asphalt and bitumen, dissolved in a solvent therefor;

(b) applying a suitable amount by weight of the composition of a novolac resin including a cross-linking agent in finely divided powder form to the impregnated particles so that the resin adheres to the impregnated particles; and

(c) recovering the solvent.

12. A method of manufacturing a natural fibrous material board in a platen press includes the steps of:

(a) impregnating a major amount by weight of the composition of natural fibrous material particles with a compound selected from the group consisting of coal tar, pitch, asphalt and bitumen, dissolved in a solvent therefor;

(b) applying a suitable amount by weight of the composition of a novolac resin including a cross-linking agent in finely divided powder form to the impregnated particles so that the resin adheres to the impregnated particles;

(c) recovering the solvent;

(d) coating the platens of the platen press with a layer of a novolac resin including a cross-linking agent; and

(e) placing the composition of step (c) between the platens and subjecting the composition to suitable conditions of temperature and pressure to cause the novolac resin to cross-link to form the board.

5,209,887

PROCESS FOR MANUFACTURING MICROSPHERULES OF ACTIVATED CARBON

Hubert Von Blücher, Freytagstr. 45; Hasso Von Blücher, Columbusstr. 58, both of 4000 Düsseldorf, 1, and Ernest De Ruiter, Höhenstr. 57a, 5090 Leverkusen 1, all of Fed. Rep. of Germany

Continuation of Ser. No. 351,674, May 12, 1989, abandoned, which is a division of Ser. No. 138,240, Dec. 24, 1987, Pat. No. 4,857,243, which is a division of Ser. No. 855,195, Apr. 23, 1986, abandoned, which is a continuation-in-part of Ser. No. 788,279, Oct. 17, 1985, abandoned. This application Feb. 25, 1991, Ser. No. 662,337

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1985, 3510209; European Pat. Off., Feb. 15, 1986, 86101960.2

Int. Cl.[5] B29C *67/02*

U.S. Cl. 264—117 **2 Claims**

1. A method of manufacturing microspherules from activated carbon comprising placing active-carbon particles of less than 100 μm in size in a pelletizer equipped with a vortexer, incrementally adding an aqueous dispersion of a water-insoluble synthetic resin until microspherules of desired size, form, turning off the vortexer but allowing the pelletizer to continue operating, immediately powdering the microspherules off, and drying the microspherules

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5,209,888

METHOD FOR PRODUCING FRP SCREW-LIKE FASTENING ELEMENTS

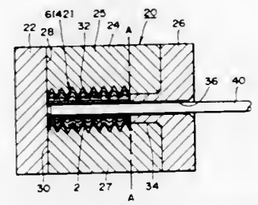
Shusaku Shimada, and Kazuhiro Saito, both of Fukui, Japan, assignors to Fukuvi Chemical Industry Co., Ltd., Fukui, Japan

Filed Aug. 9, 1989, Ser. No. 391,473

Claims priority, application Japan, Dec. 16, 1988, 63-318219; Dec. 16, 1988, 63-318220; Dec. 16, 1988, 63-318221; Apr. 27, 1989, 1-108698

Int. Cl.[5] B28B *7/20*

U.S. Cl. 264—250 **39 Claims**



1. A method of producing a fiber-reinforced plastic screw, the method comprising the steps of:

(a) preparing a rod material including an elongated matrix formed of a thermoplastic resin material and a plurality of elongated parallel fiber elements embedded within the matrix along the length of the matrix, the fiber elements having melting points substantially higher than the softening point of the matrix material;

(b) placing the prepared rod material within a cylindrical mold wall in such a manner that the longitudinal axis of the rod material is generally aligned with the axis of the

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mold wall, the mold wall having an internal thread formed thereon;

(c) heating the placed rod material to a temperature equal to or greater than the softening point of the matrix material;

(d) inserting a stick member into the heated rod material along the longitudinal axis of the rod material so as to laterally expand the rod material and to bring the peripheral face of the rod material into contact with the entire mold wall, thereby forming an external thread on the peripheral face of the rod material;

(e) cooling the thread-formed rod material to a temperature lower than the softening point of the matrix material; and

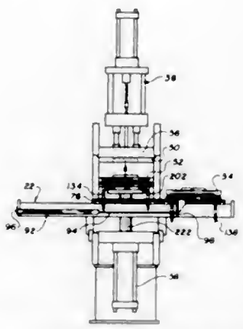
(f) removing the cooled rod material from the mold wall.

5,209,889

METHOD FOR OPERATION OF SHUTTLE ASSEMBLY FOR USE IN AN INJECTION MOLDING MACHINE

Robert L. Brown, Hartville, and Edward F. Huff, Wadsworth, both of Ohio, assignors to GenCorp Inc., Fairlawn, Ohio

Filed Oct. 10, 1991, Ser. No. 774,448
Int. Cl.[5] B29C *45/04*
U.S. Cl. 264—297.2 **6 Claims**



1. A method of injection molding comprising the steps of:

securing a stationary mold platen unit in a field position;

situating a first movable mold platen unit in a clamping position aligned with the stationary mold platen unit at a shuttling level;

situating a second movable mold platen unit in a second unloading position in the same plane as said shuttling level but offset from the stationary mold platen unit;

moving the first movable mold platen unit from the plane of the shuttling level to an injection level where said movable mold platen unit is joined together with the stationary mold platen unit to form a first mold cavity while the second movable mold platen unit remains in the plane of the shuttling level,

injecting an injection material into the first mold cavity;

curing the injection material injected into the mold cavity to form a first molded product;

moving the first movable mold platen unit from the plane of the injection level to the plane of the shuttling level;

shuttling the first movable mold platen unit from the clamping position to a first unloading position in the same plane as said second unloading position and shuttling level; and

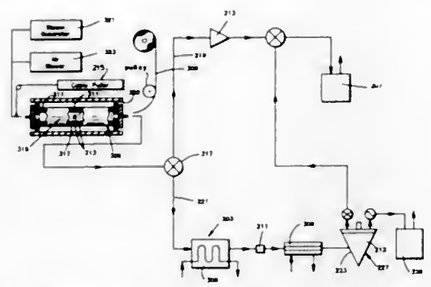
shuttling the second movable mold platen unit from the second unloading position to the clamping position.

5,209,890

STYRENE SCRUBBING PROCESS FOR PIPE AND SEWER LINER METHOD

Robert J. Follini, New York, and Eugene J. Camali, Oyster Bay, both of N.Y., assignors to Superliners USA, Inc., Brooklyn, N.Y.

Filed Oct. 25, 1991, Ser. No. 782,556
Int. Cl.[5] B29C *63/34*; B29D *23/22*
U.S. Cl. 264—516 **4 Claims**



1. A method of lining a surface at least partially defining a passageway wherein a laminate of non woven felt sandwiched between an outer membrane and an inner membrane of plastic sheet material that is at least partially closed up to an urging fluid selected from the group consisting of air and steam is urged by fluid pressure so that said outer membrane lies against said surface, said method including the additional steps of totally impregnating the felt with an uncured thermosetting resin so as to completely immerse the felt in the resin, and curing the resin while the laminate is held against said surface so as to form a hard, cured and self-supporting resin lining having embedded felt reinforcement, said inner and outer membranes comprising linings, and at least said resin containing styrene, and removing and capturing at least some of said styrene that is volatilized and released as a gas during at least a portion of the curing time and wherein the resin is cured by steam that volatilizes the styrene so it is entrained in the steam, and in which the steam is condensed, trapped, cooled and filtered to capture and remove at least a portion of the styrene.

5,209,891

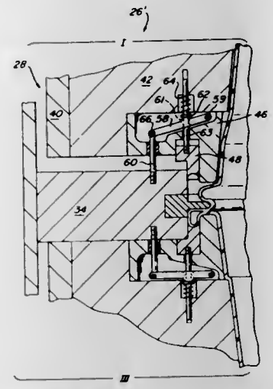
REVERSE LIP BLOW MOLDING

Henry J. Guarriello; Joseph A. Guarriello, and Theodore J. Guarriello, all of 9 Woodland Rd., Newtown, Pa. 18940

Division of Ser. No. 462,178, Jan. 8, 1990, Pat. No. 5,051,084, which is a continuation-in-part of Ser. No. 265,163, Oct. 31, 1988, Pat. No. 4,972,963. This application Jun. 19, 1991, Ser. No. 717,732
Int. Cl.[5] B29C *49/04, 49/30, 49/56*
U.S. Cl. 264—526 **8 Claims**

1. A method for blow molding a deep recessed lip onto a molded part comprising the steps of: providing a molding apparatus having a first mold section and a second mold section adapted to move toward a fixed member during a portion of the molding process; extruding a parison into a mold cavity within the molding apparatus; closing the molding apparatus and sealing the parison air tight within the cavity; pressurizing the parison and thereby forcing a portion of the parison into engagement with the mold cavity; moving the first mold section and the second mold section to form a U-shaped cross-sectional portion spaced from a side wall of the parison in engagement with the mold cavity and an outwardly extending flange portion between the side wall and the U-shaped portion; and controlling the rate of speed of the mold sections relative to one another toward the fixed member so as to evenly distribute

the parison within the U-shaped cross-sectional portion; depressurizing the parison; moving the mold sections away from



one another; and removing the molded parison from the cavity of the molding apparatus.

5,209,892

PROCESS FOR PRODUCING THERMOFORMABLE POLYPROPYLENE FILMS AND SHEETS

Peter Breidt, Jr., Webster, and John R. Wagner, Jr., Rochester, both of N.Y., assignors to Mobil Oil Coproration, Fairfax, Va.

Continuation of Ser. No. 362,535, Jun. 7, 1989, abandoned. This application Mar. 1, 1991, Ser. No. 663,761
Int. Cl.[5] B29C *51/04*
U.S. Cl. 264—544 **19 Claims**

1. A process for producing a polyolefin sheet for thermoforming with minimal sag, comprising the steps of:

(a) providing a polyolefin sheet, said sheet produced from a resin selected from the group consisting of random copolymers of propylene monomer and ethylene monomer and mixtures of homopolymers of propylene and random copolymers of propylene monomer and ethylene monomer; and

(b) stretching said sheet in at least one direction to obtain a partial orientation of a degree effective to minimize sag when thermoforming said sheet;

wherein said ethylene monomer of said random copolymer is present in an amount effective to minimize sag when thermoforming said sheet.

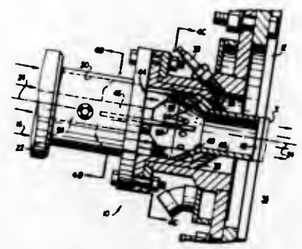
5,209,893

ADJUSTABLE BURNER INSERT AND METHOD OF ADJUSTING SAME

Kerim Askin, and John D. Butler, both of Carroll County, Ga., assignors to Southwire Company, Carrollton, Ga.

Filed Nov. 18, 1991, Ser. No. 794,091
Int. Cl.[5] C22B *9/16*
U.S. Cl. 266—47 **22 Claims**

1. A burner apparatus for a metal processing furnace comprising a burner body having an axial bore therethrough and an inlet for supplying a premixed gaseous fuel to the base of the burner body, the bore of said burner body having an outlet into said furnace, a burner insert disposed in said bore adjacent said outlet, said premixed fuel flowing from said inlet through said burner insert and into the furnace for combustion and means coupled to the burner insert and operable from outside the burner body for adjusting the axial position of the burner insert in relation to the outlet whereby the point at which the premixed gaseous fuel flows into the furnace can be varied to



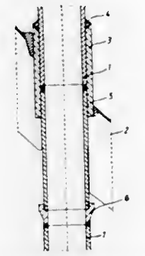
thereby alter the performance of the burner during operation of the furnace.

5,209,894

METHOD FOR SEALING A LEAK FROM A CONTROL ROD DRIVE STUB TUBE IN A NUCLEAR POWER REACTOR

Bo Borrman; Hans Kornfeldt; Lars-Ake Körnvik; Per Sundlöf, and Lars Törnblom, all of Västerås, Sweden, assignors to ABB Atom AB, Västerås, Sweden

Filed Oct. 3, 1991, Ser. No. 770,486
Int. Cl.[5] G21C *13/28*
U.S. Cl. 376—203 **6 Claims**



1. A method for sealing a leak between a CRD stub tube (3) arranged around a hole through a reactor vessel wall (2) and a tubular CRD housing (1) extending through the CRD stub tube (3) and the vessel wall (2), characterized in that part of the CRD housing (1) which is positioned in the hole is cut away and removed; that a first sleeve (5) of memory metal, which above the transition temperature of the memory metal has substantially the same dimensions as the removed part of the CRD housing (1) but at least along part of the sleeve (5) has a larger outside diameter than the inside diameter of the hole, below the transition temperature of the memory metal is deformed into an outside diameter substantially equal to the outside diameter of the removed part, whereupon the sleeve (5) is inserted into the place of the removed part and heated to above the transition temperature such that the outer wall of the sleeve (5) is sealingly pressed against the surrounding vessel wall (2).

5,209,895

METHOD OF REPAIRING A NUCLEAR ASSEMBLY

Adrian P. Wivagg, Tolland, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed May 29, 1990, Ser. No. 530,035
Int. Cl.[5] G21C *19/00*
U.S. Cl. 376—260 **7 Claims**

1. A method of repairing a nuclear power facility metal

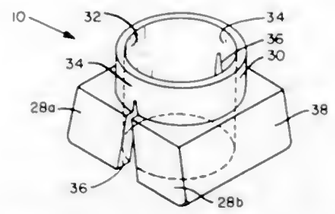
VOL 1150 ISS 2 MY 11 1993 UMI

component assembly with a fastening between hard metal parts comprising the combination of the steps of:

providing aligned openings in a plurality of hard metal parts to be assembled;

creating a non-cylindrically shaped-cavity which is an enlarged opening portion with a flat base surrounding an exposed end of one of the aligned openings, said cavity being machined to provide a cavity opening smaller than the cavity base;

inserting a locking collar with weakened zones of deformation and having a flange surrounded central aperture to receive a bolt head through the cavity opening;



inserting a headed and threaded bolt into the central aperture of the locking collar and into the aligned opening in one of the parts;

providing threads in another of the hard metal parts to mate the bolt threads;

torquing the bolt in the provided mating threads to draw the bolt head toward the non-cylindrically shaped cavity base;

deforming the locking collar at its weakened zones of deformation to cause it to expand to an overall dimension which prevents its passage out of the cavity opening; and,

deforming the flange to interfere with rotation of the bolt.

5,209,896

HEAT SHIELD

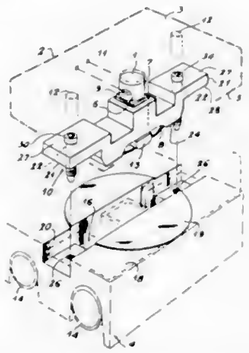
Manfred Lipa, Venelles; Claude Deck, and Pierre Deschamps, both of Aix en Provence, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Mar. 25, 1991, Ser. No. 674,583

Claims priority, application France, Mar. 30, 1990, 90 04108

Int. Cl.[5] G21C *11/08*

U.S. Cl. 376—289 5 Claims



1. A heat shield comprising a support structure made from a heat conducting material and cooled by an internal cooling fluid flow, parallelepipedic protective tiles made from a heat resistant material and affixed to the support structure via elastic fixing means with a shaping layer therebetween, wherein the elastic fixing means comprise for each tile a tie rod fixed at a first end to the rear face of the tile, a plate spring fixed at its center perpendicular to the second end of the tie rod, and a mobile locking arm slidably mounted around the tie rod between the spring and the tile, and having at each end a bearing surface against which respectively abut each of the ends of the plate spring tensioned by a locking means, wherein the locking means comprise at least two locking screws screwed into the support structure and into fixing holes contained within said support structure, said locking screws each having a head which bears on the locking arm at the ends of said arm facing the rear face of the tile, the heads of the locking screws being accessible by the front face of the tile by a small diameter locking orifice.

5,209,897

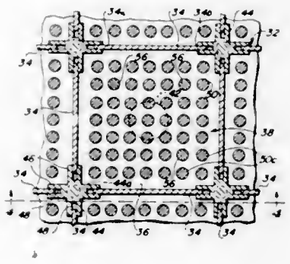
BWR CORE ASSEMBLY

Steven P. Congdon, Los Gatos, and Irvin R. Kobsa, San Jose, both of Calif., assignors to General Electric Company, San Jose, Calif.

Filed Feb. 18, 1992, Ser. No. 836,480

Int. Cl.[5] G21C *3/00*

U.S. Cl. 376—352 7 Claims



1. A nuclear reactor core having a longitudinal centerline axis comprising:

a support plate having a plurality of inlets for receiving water;

a core lattice joined to said support plate and having a plurality of longitudinally extending flow channels disposed in flow communication with respective ones of said inlets for channeling therethrough said water received from said inlets, said core lattice including:

a plurality of longitudinally extending flow dividers laterally spaced apart to define said flow channels therebetween; and

means for joining together adjacent ones of said dividers for allowing unrestrained expansion and contraction of said joined together dividers, said divider joining means comprising a plurality of posts fixedly joined to said support plate, each of said posts having a plurality of longitudinally extending grooves, and each of said dividers including an edge slidably disposed in a respective one of said post grooves; and

a plurality of fuel bundles, each fuel bundle being disposed in a respective one of said flow channels, and being effective for boiling said water.

5,209,898

FUEL ELEMENT OF A PRESSURIZED-WATER-NUCLEAR REACTOR AND FUEL ROD

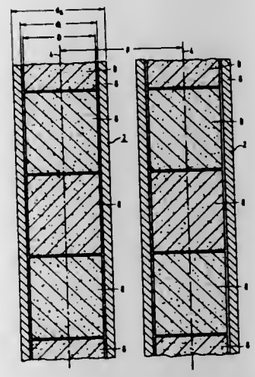
Heinz-Peter Holley, Forchheim; Rolf Holzer, Erlangen; Guenther Lill, Herzogenaurach; Alfred Neufert, Langensendelbach; Wolfgang Schricker, Schwaig, and Peter Suchy, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Dec. 12, 1989, Ser. No. 448,926

Claims priority, applicatioo Fed. Rep. of Germany, Dec. 12, 1988, 8815433[U]

Int. Cl.[5] G21C *3/34*

U.S. Cl. 376—438 11 Claims



1. In a pressurized water nuclear reactor, a fuel assembly having at least two adjacent fuel rods, at least one of said fuel rods comprising a cladding tube of given outer and inner diameters and pellets of given outer diameter received in said cladding tube, the fuel rods being disposed in the fuel assembly at a given mutual spacing of center points thereof, a ratio of said given mutual spacing of said center points of the fuel rods to said outer diameter of said cladding tube being in a range between 1.35 and 1.37.

5,209,899

COMPOSITE SPACER WITH INCONEL GRID AND ZIRCALOY BAND

Eric B. Johansson, Wrightsville, N.C.; Bruce Matzner, and Gerald M. Latter, both of San Jose, Calif., assignors to General Electric Company, San Jose, Calif.

Continuation-in-part of Ser. No. 633,046, Oct. 25, 1990, Pat. No. 5,089,221. This application Sep. 4, 1991, Ser. No. 754,825

The portion of the term of this patent subsequent to Feb. 18, 2009, has been disclaimed.

Int. Cl.[5] G21C *3/34*

U.S. Cl. 376—442 1 Claim

1. A spacer for use in an uclear fuel bundle having a plurality of fuel rods, said spacer comprising in combination:

a plurality of spring metal spacer cells, each cell having;

at least one spring leg, said spring leg inwardly deflected at the medial portion thereof for spring contact with a fuel rod within said spacer cell;

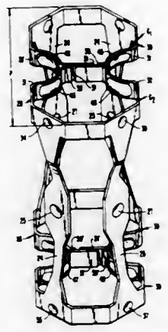
at least two rod encircling arms affixed at remote ends of said spring legs;

each rod encircling arm defining stops for abutting a fuel rod whereby said spring leg can bias an encircled fuel rod within said cells into said stops;

said rod encircling arms having differential length including an upper pair of rod encircling arms having a first end of said arms having a relatively longer length and a second end of said arms having a relatively shorter length and a lower pair of rod encircling arms having a first end of said arms having a relatively shorter length and a second end of said arms having a relatively longer length;

said first end of said upper pair of rod encircling arms overlying said first end of said lower pair of rod encircling arms and said second end of said upper pair of rod encircling arms overlying said second end of said lower pair of rod encircling arms whereby said long end of said arms confronts said short end of said arms upon rotation of one said cell with respect to the other of said cell;

said cells confronted into cell pairs with said spring legs remote from one another;



said rod encircling arms affixed to one another adjacent the end fo said rod encircling arms; each said arm of one cell at one end thereof fastens to a rod arm of an adjacent cell with said relatively longer rod arm of one cell of said cell pair fastening to a relatively shorter arm of the other cell of said cell pair whereby said cell pair forms a unitary rigid substructure;

a unitary grid formed from said cell pairs, each cell pair joined to adjoining cell pairs by welding at said rod encircling arms.

5,209,900

HIGH-FINENESS SHADOW MASK MATERIAL AND PROCESS FOR PRODUCING THE SAME

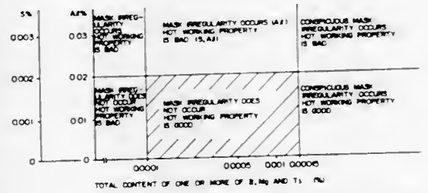
Shuichi Nakamura, Yasugi, and Hakaru Sasaki, Matsue, both of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed May 29, 1992, Ser. No. 889,996

Claims priority, application Japan, May 30, 1991, 3-127234

Int. Cl.[5] C22C *38/08*

U.S. Cl. 420—94 3 Claims



1. A high-fineness shadow mask material comprising 33–40% by weight of Ni, 0.0001–0.0015% by weight of one or more of boron, magnesium and titanium, and the remainder consisting essentially of Fe, wherein the contents of sulfur and aluminum are confined to not more than 0.0020% and not more than 0.020%, respectively and the {100} orientation integration of the rolled surface is 70–95%.

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5,209,901

AGENT FOR THE TREATMENT OF CAST IRON MELTS

Karl-Josef Reifferscheid, Karben, Fed. Rep. of Germany, and Dieter H. Gumbinger, Marietta, Ga., assignors to SKW Trostberg AG, Trostberg, Fed. Rep. of Germany

Filed Apr. 1, 1992, Ser. No. 861,575

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1991, 4124159

Int. Cl.[5] C22C *29/00, 35/00*

U.S. Cl. 420—578 21 Claims

1. An agent for the treatment of cast iron melts before the treatment with spheroidal graphite-inducing elements, comprising: ferrosilicon, calcium, aluminum, manganese, zirconium, cerium and lanthanum, wherein the content of iron plus silicon of the agent is at least 75 wt.-% with reference to the weight of all components and the elements zirconium, cerium and manganese additively constitute at least 5 wt.-%.

5,209,902

STERILIZING PROCEDURES AND EQUIPMENT

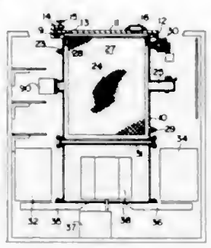
Ian P. Matthews, 6 Boelyn Walk, Penylan, Cardiff, and Alan H. Samuel, 22, Foreland Road, Whitchurch, Cardiff, both of United Kingdom

Continuation of Ser. No. 893,544, Jul. 7, 1986, abandoned. This application Feb. 25, 1991, Ser. No. 662,325

Claims priority, application United Kingdom, Nov. 10, 1984, 8428470; PCT Int'l Appl., Nov. 8, 1985, PCT/GB85/00509

Int. Cl.[5] A61L *2/12*

U.S. Cl. 422—21 13 Claims



1. A method of sterilising an article, comprising the steps of placing the article in a chamber, sealing the chamber, releasing a sterilising gas or vapour in the sealed chamber to contact and sterilise the article, thereafter removing the sterilising gas or vapour from the chamber, then irradiating the sterilised article in the sealed chamber with high frequency electromagnetic radiation to desorb sterilising gas or vapour from the article, removing the desorbed sterilising gas or vapour from the sealed chamber, and then opening the chamber and removing the sterilised article from the chamber.

8. A sterilising apparatus comprising:

a single chamber having an opening;

a closure means for closing said opening;

gas seal means for effecting a substantially gas-tight seal between said closure means and said opening;

radiation seal means for effecting a substantially radiation tight seal between said closure means and said opening;

means for releasing a sterilising gas or vapour into the chamber after said closure is closed to contact and sterilise an article in the chamber;

means for removing the said gas or vapour from said chamber when required whilst the chamber is otherwise sealed;

means for propagating high frequency electromagnetic radiation in said chamber to irradiate the sterilised article to desorb sterilising gas or vapour therefrom, whereafter said removing means is adapted also to remove the desorbed gas from the chamber.

5,209,903

SYNTHETIC APPARATUS FOR INSPECTION OF BLOOD

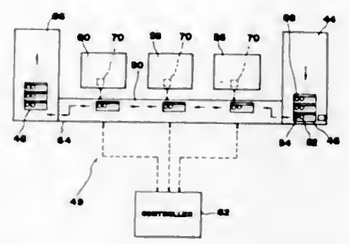
Shigeo Kanamori; Kensaku Aota, both of Hyogoken; Takashi Demachi, Kobe, and Takahiro Inoue, Hyogoken, all of Japan, assignors to Toa Medical Electronics, Co., Ltd., Kobe, Japan

Filed Sep. 4, 1990, Ser. No. 577,689

Claims priority, application Japan, Sep. 6, 1989, 1-230675; Oct. 6, 1989, 1-118146[U]

Int. Cl.[5] G01N *21/00*

U.S. Cl. 422—65 8 Claims



1. Apparatus for automatic processing of blood, comprising:

a conveyor for transporting a plurality of blood samples;

at least one blood analyzer disposed along said conveyor for analyzing said blood samples;

a blood processing device disposed along said conveyor after said at least one blood analyzer;

first means for actuating said blood processing device in response to a result from said at least one blood analyzer;

said blood processing device including a smear generator means for producing a smear of blood on a slide;

said first means for actuating including means for bypassing said smear generator means in response to a first result of said at least one blood analyzer; and

said first means for actuating further including means for operating said smear generator means to produce a smear in response to a second result of said at least one blood analyzer.

5,209,904

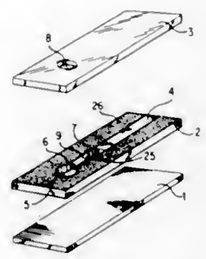
AGGLUTINATION REACTION DEVICE UTILIZING SELECTIVELY IMPREGNATED POROUS MATERIAL

Kevin J. Forney, Chicago; Robert G. Parsons, Green Oaks, both of Ill.; Paul J. Ropella, Racine, Wis.; Bob O. Basore, Evanston, and Michael B. O'Connell, Waukegan, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 138,253, Dec. 23, 1987, abandoned. This application Nov. 16, 1990, Ser. No. 614,762

Int. Cl.[5] G01N *21/03*

U.S. Cl. 422—73 20 Claims



1. A device for performing agglutination reactions comprising: in adherent relationship, a first hydrophilic layer, a second layer parallel to and overlying said first layer, and a third layer parallel to and overlying said second layer and having a window for observing agglutinated particles, said second layer interposed between and in adherent relationship to said first and third layers, said second layer comprising a liquid-absorbent material selectively impregnated with a substance to form an impregnated region and a non-impregnated region wherein said non-impregnated region is liquid-absorbent and said impregnated region is liquid-occlusive, said second layer including means defining a slot in said impregnated region and defining a channel for directing liquid conducted by capillary action through a chamber defined by said slot in conjunction with said first and third layers and within which chamber agglutination reactions can be performed, said chamber having a proximate zone and a distal zone and means for controlling overall rate of liquid flow through said chamber, said means for controlling comprising said non-impregnated region of said second layer which non-impregnated region is in liquid communication with said chamber and wherein a portion of the non-impregnated region is positioned within the distal zone of said chamber.

5,209,905

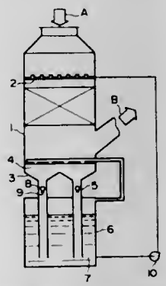
WET-TYPE EXHAUST GAS DESULFURIZATION SYSTEM HAVING A MEANS FOR SUPPLYING AIR

Masakazu Onizuka; Kenji Inoue; Naohiko Ukawa; Susumu Okino, and Toru Takashina, all of Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 5, 1991, Ser. No. 803,172

Int. Cl.[5] B01D *50/00;* C10B *17/00*

U.S. Cl. 422—168 7 Claims



1. In a wet exhaust gas desulfurization system having a vertical absorption tower and means for supplying air thereto in which an exhaust gas desulfurization is performed by gas-liquid contact between the exhaust gas containing sulfur oxides and an absorbing solution containing a calcium compound in the absorbing tower, the improvement which comprises said system having:

a) a reservoir in fluid communication with and below the tower for trapping the absorbing solution which has absorbed sulfur oxides from the exhaust gas;

b) an absorbing solution circulating tank in fluid communication with and below the reservoir;

c) open ended pipe means extending from the reservoir to a lower portion of the tank for transporting absorbing solution from the reservoir to the tank, and positioned such that an open end of the pipe means extends into the tank below the surface of any absorbing solution therein;

d) water aspirator vacuum air supply means in the open ended pipe means for drawing outside air into the absorbing solution as it passes from the reservoir to the tank.

5,209,906

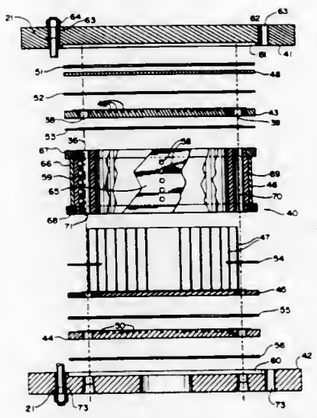
MODULAR ISOTHERMAL REACTOR

David S. Watkins, Coquitlam; Eric G. Pow, and Donald A. Lines, both of Vancouver, all of Canada, assignors to Her Majesty the Queen as represented by the Minister of National Defence of Her Majesty's Canadian Government, Ottawa, Canada

Filed May 10, 1991, Ser. No. 698,666

Int. Cl.[5] F28D *7/00, 3/12*

U.S. Cl. 422—200 21 Claims



1. A modular isothermal rector for catalytically converting a feedstock into a fuel useable in a power generation system comprising:

a. a sealing plate;

b. a baffle plate having heat transfer structures extending substantially perpendicularly from one surface thereof;

c. a housing interposed between said sealing plate and said baffle plate, said housing having an interior surface substantially circumscribing said heat transfer structures, whereby the cooperating surfaces of said sealing plate, said baffle plate, said heat transfer structures, and said housing define a labyrinthine channel for containing a suitable quantity of solid catalyst and accommodating the flow of feedstock and fuel therethrough;

d. a fluid flow plate adjacent to said baffle plate, the cooperating surfaces of said fluid flow plate and said baffle plate defining a flow passage therebetween for carrying a thermal fluid, said flow passage fluidly separated from the labyrinthine channel carrying the feedstock.

5,209,907

FLUID FLOW CONTROL AND ISOLATION

Keith W. Hovis, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 632,819, Dec. 24, 1990. This application Jun. 4, 1992, Ser. No. 894,370

Int. Cl.[5] F28D *21/00*

U.S. Cl. 422—208 3 Claims

1. A method for separating an admixture of two immiscible fluids having different densities, comprising the steps of:

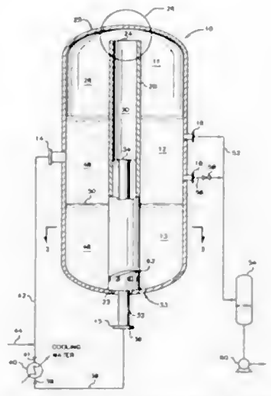
providing a vessel defining a volume comprising a top zone, a medial zone and a bottom zone, said vessel having (1) an inlet means for accepting said admixture into said volume, said volume sufficient to allow said admixture to separate, and (2) an outlet means in said medial zone for withdrawing a separated liquid having lesser density;

providing said vessel with baffle means extending upwardly within the volume of said vessel defining a space within said baffle means from the bottom of said vessel to the top

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of said vessel with means for permitting fluid flow through said baffle means from outside said baffle means to inside said baffle means only in the top zone and the bottom zone of said volume;

providing said vessel with standpipe conduit means extending through said vessel and terminating in open communication with said medial zone within the space defined by said baffle means to thereby convey a separated liquid having greater density from said vessel to the exterior of said vessel; and



feeding an admixture of two immiscible fluids having different densities to said vessel;

separating said admixture into a separated liquid having lesser density and a separated liquid having greater density; and

conveying said separated liquid having greater density through said standpipe conduit means from said vessel to the exterior of said vessel.

5,209,908

RADIAL FLOW REACTOR WITH DOUBLE PERFORATED SCALLOPS

William J. Koves, Hoffman Estates; Roger L. Throndson, Schaumburg, and Kenneth D. Peters, Elmhurst, all of Ill., assignors to UOP, Des Plaines, Ill.

Continuation-in-part of Ser. No. 412,051, Sep. 25, 1989, abandoned. This application Jul. 15, 1991, Ser. No. 729,977

Int. Cl.[5] B01J *8/02*; C01G *11/00*

U.S. Cl. 422—218 **4 Claims**



1. In a method of contacting a fluid with solid particles wherein fluid is passed through a vertically arranged and elongated vessel having a fluid inlet and a fluid outlet and retaining therein a bed of particles, said fluid is distributed to or collected from said particles by at least one longitudinally extending conduit, said conduit has an oblong shape and a horizontally extended back side and at least said horizontally extended back side is positioned against the wall of said vessel; said improvement comprising passing a portion of said fluid through a plurality of apertures in said horizontally extended back side of said conduit to maintain fluid flow between said horizontally, extended back side of said conduit and said vessel wall to prevent at least one of coking between said vessel wall and said conduit and transient thermal gradients between said vessel wall and said conduit.

5,209,909

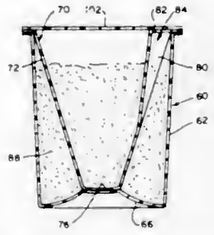
TWO COMPARTMENT CUP FOR POWDERED STERILANT REAGENT COMPONENTS

Norman L. Siegel, Mentor; Raymond C. Kralovic, Ashtabula, and Kenneth E. Scheckelhoff, Mentor, all of Ohio, assignors to Steris Corporation, Mentor, Ohio

Continuation-in-part of Ser. No. 681,118, Apr. 5, 1991, and Ser. No. 342,189, Apr. 24, 1989, Pat. No. 5,116,575, which is a continuation-in-part of Ser. No. 229,917, Aug. 8, 1988, Pat. No. 5,077,008, which is a continuation-in-part of Ser. No. 165,189, Mar. 17, 1988, Pat. No. 5,037,623, and Ser. No. 140,388, Jan. 4, 1988, Pat. No. 4,892,706, said Ser. No. 165,189, and Ser. No. 140,388, each is a continuation-in-part of Ser. No. 826,730, Feb. 6, 1986, Pat. No. 4,731,222, said Ser. No. 681,118, is a continuation-in-part of Ser. No. 342,189, Feb. 6, 1986, and Ser. No. 349,304, May 9, 1989, Pat. No. 5,091,343, which is a continuation-in-part of Ser. No. 140,388, May 9, 1989. This application Nov. 18, 1991, Ser. No. 793,589

Int. Cl.[5] A61L *2/18*

U.S. Cl. 422—292 **22 Claims**



1. A frangible, two compartment package for holding powdered reagents which interact in water to form an antimicrobial solution, the package comprising:

an outer first cup portion having a first peripheral wall which has an opening at a first outer end and is closed by a first base portion at a first base end;

an inner, second cup portion having a second peripheral wall, a flange means integrally connected at a second outer end of the second peripheral wall and a second base portion integrally connected to a second base end of the second peripheral wall, the first and second cup portions being configured such that the second cup portion flange means abuts and is sealed to the first cup portion first outer end and the first and second base portions are contiguous, the first and second peripheral walls being configured such that a first annular, powdered reagent receiving chamber is defined therebetween, the second cup portion defining a second chamber therein;

a closure means which is selectively sealed to the second cup portion flange means closing the second chamber.

5,209,910

PROCESS FOR THE RECOVERY AND SEPARATION OF TANTALUM AND NIOBIUM

Walter Bludssus, Vienenburg, and Joachim Eckert, Bad Harzburg, both of Fed. Rep. of Germany, assignors to Hermann C. Starck GmbH & Co. KG, Berlin, Fed. Rep. of Germany

Filed Jun. 24, 1991, Ser. No. 719,973

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1990, 4021207

Int. Cl.[5] C22B *34/20*; C01G *33/00, 35/00*

U.S. Cl. 423—63 **2 Claims**

1. In a process for the joint extraction of tantalum and niobium from raw materials containing both of these elements by digestion with pure hydrofluoric acid, said digestion forming solutions of complex fluoro compounds of tantalum and niobium, removal of accompanying substances which do not contain these two elements, and separation of the two elements by methyl isobutyl ketone (MIBK) solvent extraction of the tantalum fluoro and niobium fluoro complex compounds from the solutions containing tantalum and niobium and washing of the loaded MIBK phase with water or dilute sulfuric acid,

the improvement wherein:

the loaded MIBK phase is washed in two separate steps first with dilute sulfuric acid, said dilute sulfuric acid picking up contaminants from said MIBK phase and then with a liquid selected from the class consisting of water and dilute hydrofluoric acid,

the contaminant containing dilute sulfuric acid produced is discharged separately from the extraction process and separately processed, apart from the extraction process, for the recovery of hydrofluoric acid and gypsum from the sulfuric acid, and

the fluorine-containing raffinate from the tantalum/niobium extraction is separately processed, apart from the extraction process for the recovery of hydrogen fluoride from the raffinate.

5,209,911

METHOD OF MAKING METAL STANNATES

David J. Randall, London, England, assignor to Alcan International Limited, Montreal, Canada

PCT No. PCT/GB90/01121, § 371 Date Feb. 27, 1992, § 102(e) Date Feb. 27, 1992, PCT Pub. No. WO91/01273, PCT Pub. Date Feb. 7, 1991

PCT Filed Jul. 20, 1990, Ser. No. 778,192

Claims priority, application United Kingdom, Jul. 21, 1989, 8916653

Int. Cl.[5] C01G *19/00*

U.S. Cl. 423—92 **8 Claims**

1. A method of making an at least 95% pure metal stannate, which method comprises mixing a solid metal oxide, hydroxide or carbonate with an aqueous stannate solution and recovering an at least 95% pure precipitated metal stannate, the solid metal oxide, hydroxide or carbonate being added in an amount which is stoichiometrically not more than the amount of tin.

5,209,912

PROCESS FOR SEPARATING OUT NOXIOUS SUBSTANCES FROM GASES AND EXHAUST GASES

Hermann Suchenwirth, Grafrath, Fed. Rep. of Germany, assignor to FTU GmbH, Fed. Rep. of Germany

Filed May 2, 1990, Ser. No. 517,934

Int. Cl.[5] B01D *47/00*; B01J *8/00*; C01B *7/00*; C10H *23/00*

U.S. Cl. 423—210 **14 Claims**

1. A process for separating heavy metals from an exhaust gas stream comprising adding a calcium hydroxide composition to the gas stream,

said calcium hydroxide composition comprises a finely divided dry calcium hydroxide, or a finely powdered calcium hydroxide having a water content of 0.1 to 5% by weight, and an effective amount of at least one sulfur-containing compound to remove heavy metals from the gas stream wherein the at least one sulfur-containing compound is selected from among water-soluble salts of sulfur-containing substances, surfaceactive substances on which either water-soluble salts of sulfur-containing substances or sulfur have been applied, or surface-active substances which are mixed with sulfur, wherein the water-soluble salt of a sulfur-containing substance is selected from the group consisting of mercaptans, sulfides, polysulfides, polythionates, and/or thiosulfates while the surface-active substances are selected from the group consisting of active carbon, open hearth lignite coke, activated aluminum oxide, silica gel and/or crystalline silica; and

separating out the sulfidized heavy metals from the gas stream.

5,209,913

PROCESS FOR THE PRODUCTION OF NATURAL GAS CONDENSATE HAVING A REDUCED AMOUNT OF MERCURY FROM A MERCURY-CONTAINING NATURAL GAS WELLSTREAM

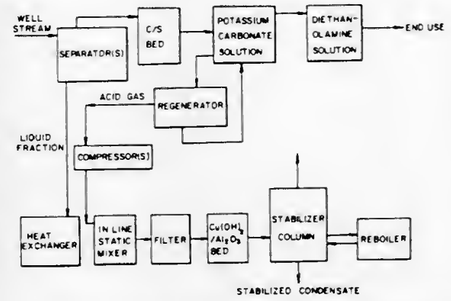
Costandi A. Audeh, Princeton, N.J.; Barry E. Hoffman, Duncanville, Tex., and Garry W. Kirker, Washington Township, Bergen County, N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Apr. 27, 1989, Ser. No. 343,693

The portion of the term of this patent subsequent to Jul. 14, 2009, has been disclaimed.

Int. Cl.[5] B01D *53/14*; C07C *7/17*

U.S. Cl. 423—210 **22 Claims**



1. A process for the production of a natural gas condensate having a reduced amount of mercury from a mercury-containing natural gas wellstream comprising the steps of:

separating said wellstream into a gaseous fraction and a liquid fraction,

purifying said gaseous fraction with a carbonate solution which has the ability to absorb carbon dioxide and hydrogen sulfide,

heating the resulting carbonate solution to expel an acid gas comprising carbon dioxide and hydrogen sulfide,

mixing a portion of said acid gas with said liquid fraction,

passing said mixture through a filter to remove mercuric sulfide,

passing said filtered mixture over a substance capable of removing hydrogen sulfide, and

separating said mixture into a first stream comprising light hydrocarbon components and a second stream comprising a natural gas condensate.

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5,209,914

LIQUID ABSORBING ACIDIC GASES AND USE THEREOF OF IN DEACIDIFICATION OF GASES

Jean-Louis Peytavy; Philippe Le Coz, and Olivier Oliveau, all of Lescar, France, assignors to Elf Aquitaine Production, Paris, France

PCT No. PCT/FR89/00243, § 371 Date Jan. 18, 1990, § 102(e) Date Jan. 18, 1990, PCT Pub. No. WO89/11327, PCT Pub. Date Nov. 30, 1989

PCT Filed May 23, 1989, Ser. No. 460,958

Claims priority, application France, May 24, 1988, 88 06880; May 24, 1988, 88 06881; Dec. 8, 1988, 88 16130

Int. Cl.[5] C01B *31/20;* C09K *3/00*

U.S. Cl. 423—228 23 Claims

1. An absorbent liquid for improved absorption capacity for CO_2 in a gas due to the presence of an activator for CO_2 absorption from said gas, the absorbent liquid comprising a mixture of one or more tertiary alkanolamines and the activator of improved CO_2 absorption by said tertiary alkanolamines, said activator having the general formula $R_1—NH—(C_pH_{2p})—OH$ in which R_1 is a C_2–C_6 monovalent hydrocarbon radical, and p is an integer of 1 to 6, and which said activator of said tertiary alkanolamines is present in an activating amount, said activated amines having improved CO_2 absorption capacity.

13. A process for improved CO_2 absorption from a gas by an absorbent liquid which has an improved absorption capacity for CO_2 which process comprises contacting said gas and the absorbent liquid in an absorption zone having an upper and lower part, thereby obtaining a treated gas with a reduced content of CO_2 and the absorbent liquid with increased CO_2 content, and regenerating the absorbent liquid which has an increased CO_2 content, thereby releasing the CO_2 and producing at least one gaseous fraction containing the released CO_2 and at least one portion of the regenerated absorbent liquid and recycling said regenerated absorbent liquid to the absorption zone, the absorbent liquid being a mixture of one or more tertiary alkanolamines and an activator of improved CO_2 absorption by said tertiary alkanolamines, said activator having the general formula $R_1—NH—(C_pH_{2p})—OH$ in which R_1 is a C_2–C_6 monovalent hydrocarbon radical, and p is an integer of 1 to 6, the activator of the tertiary alkanolamines being present in an activating amount to increase CO_2 absorption by said activated amines.

5,209,915

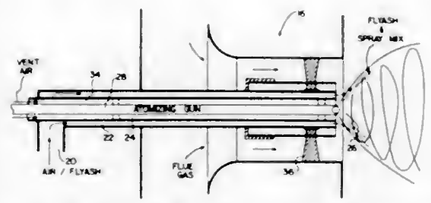
METHOD FOR FLYASH RECYCLING IN A DRY SO_2 SCRUBBER

John H. Kidwell, Uniontown, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Oct. 10, 1990, Ser. No. 595,162

Int. Cl.[5] C01B *17/00, 17/20, 7/00;* B01J *8/00*

U.S. Cl. 423—243.01 3 Claims



1. A method of removing sulfur oxide from flue gas, comprising the steps of:

forming a wet alkali slurry;

atomizing the slurry with an atomizer into a slurry spray;

supplying a vent air in a first annular conduit around the atomizer;

pneumatically supplying a dry reactive recycled flyash in a second annular conduit around the first annular conduit to inject and mix the dry flyash simultaneously with the wet slurry spray; and

supplying dry flue gas in an annular pattern around the mixture of slurry spray and flyash.

5,209,916

CONVERSION OF FULLERENES TO DIAMOND

Dieter M. Gruen, 1324 59th St., Downers Grove, Ill. 60515

Filed Nov. 25, 1991, Ser. No. 797,590

Int. Cl.[5] C01B *31/06*

U.S. Cl. 423—446 4 Claims

1. A method of forming synthetic diamond on a coated substrate surface having an initial coating selected from the group consisting of fullerene and diamond comprising the step of:

(a) supplying fullerenes to an ionization source;

(b) creating a vapor of said fullerenes by heating said fullerenes in said ionization source in a vacuum chamber;

(c) ionizing fullerene molecules in said vapor of fullerenes by at least one of the procedures of laser ablation, electron bombardment, electron attachment or photoionization to fullerene ions;

(d) accelerating said fullerene ions to energies of about 250 eV to 2.5 keV to form a fullerene ion beam;

(e) impinging said fullerene ion beam on said substrate surface and fragmenting said fullerene ions; and

(f) continuing said steps (a)-(e) to grow a diamond film on said coated substrate surface.

5,209,917

LITHIUM NIOBATE SINGLE CRYSTAL THIN FILM AND PRODUCTION METHOD THEREOF

Satoshi Ohno; Ryo Enomoto, and Masaya Yamada, all of Ibigawa, Japan, assignors to Ibiden Co., Ltd., Ogaki, Japan

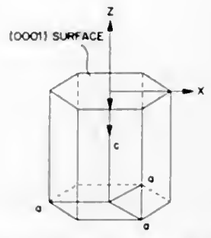
PCT No. PCT/JP90/01207, § 371 Date May 17, 1991, § 102(e) Date May 17, 1991, PCT Pub. No. WO91/04360, PCT Pub. Date Apr. 4, 1991

PCT Filed Sep. 20, 1990, Ser. No. 700,169

Claims priority, application Japan, Sep. 20, 1989, 1-242285; Dec. 29, 1989, 1-342355; Dec. 29, 1989, 1-342356; Dec. 29, 1989, 1-342357; Apr. 26, 1990, 2-112148

Int. Cl.[5] C30B *29/30, 19/02*

U.S. Cl. 423—592 19 Claims



10. A method for producing a lithium niobate single crystal thin film comprising contacting a lithium tantalate substrate with a molten composition to epitaxially grow a lithium niobate single crystal thin film, said molten composition comprising Li_2O, V_2O_5, Nb_2O_5, Na_2O and M_gO, thereby growing said lithium niobate single crystal thin film having an a-axis lattice constant of 99.81 to 100.07% that of said lithium tantalate substrate on a (0001) surface of said lithium tantalate substrate.

5,209,918

SYNTHESIS OF CRYSTALLINE ZSM-5-TYPE MATERIAL

Stuart D. Hellring, Yardley, Pa., and Randy F. Striebel, Mt. Holly, N.J., assignors to Mobil Oil Corp., Fairfax, Va.

Filed Oct. 4, 1991, Ser. No. 771,717

Int. Cl.[5] C10B *33/34;* B01J *29/28*

U.S. Cl. 423—706 18 Claims

7. A mixture capable of forming crystals of ZSM-5 structure upon crystallization, said mixture comprising sources of alkali or alkaline earth metal (M), trivalent element (X) oxide selected from the group consisting of oxide of aluminum, boron, iron, gallium, indium and mixtures thereof; tetravalent element (Y) oxide selected from the group consisting of oxide of silicon, germanium, tin and mixtures thereof; water and 2-methylcyclohexylamine directing agent (R), and having a composition, in terms of mole ratios, within the following ranges:

YO_2/X_2O_3	>50
H_2O/YO_2	10 to 100
OH^-/YO_2	0 to 0.5
M/YO_2	0 to 2.0
R/YO_2	0.01 to 2.0.

5,209,919

METHOD OF MEASUREMENT IN BIOLOGICAL SYSTEMS

Kenneth W. Turteltaub, Livermore; John S. Vogel, Union City; James S. Felton, Danville; Barton L. Gledhill, Alamo; Jay C. Davis, and Larry H. Stanker, both of Livermore, all of Calif., assignors to Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 553,080, Jul. 13, 1990, abandoned. This application Apr. 26, 1991, Ser. No. 693,248

Int. Cl.[5] A61K *43/00;* C01G *21/14;* A61N *5/00*

U.S. Cl. 424—1.1 29 Claims

1. A method of quantifying molecules in biological substances, comprising:

a. selecting a biological host comprising biological substances in which radioisotopes are present in concentrations equal to or less than the concentration in the ambient biosphere,

b. preparing a radioisotope-labeled reactive chemical specie,

c. administering said chemical specie to said biological host in doses sufficiently low to avoid significant damage to the host's biological system,

d. allowing a period of time to elapse sufficient for dissemination and reaction of said chemical specie with said host throughout said biological system of said host,

e. isolating a reacted fraction of a sample of biological substance from said host in a manner sufficient to avoid contamination of the fraction from extraneous sources of the radioisotope,

f. converting said fraction of biological substance to a product material which efficiently produces charged ions in an ion source without introduction of significant isotopic fractionation, and

g. measuring the radioisotope concentration in the product material using an accelerator mass spectrometer.

5,209,920

EVALUATIVE MEANS FOR DETECTING INFLAMMATORY REACTIVITY

Esther M. Sternberg, Chevy Chase; Ronald L. Wilder, Derwood, both of Md.; Philip W. Gold, Washington, D.C., and George P. Chrousos, Bethesda, Md., assignors to The United States of America as represented by the United States Department of Health and Human Services, Washington, D.C.

Continuation-in-part of Ser. No. 365,735, Jun. 14, 1989, which is a continuation-in-part of Ser. No. 277,708, Nov. 30, 1988, Pat. No. 5,006,330. This application Sep. 25, 1989, Ser. No. 412,294 The portion of the term of this patent subsequent to Apr. 9, 2008, has been disclaimed.

Int. Cl.[5] G01N *1/00, 33/48;* A61K *37/60, 45/05*

U.S. Cl. 424—9 41 Claims

1. A method for testing the susceptibility of a mammal to inflammatory diseases which comprises the steps of:

administering to a mammal a compound which is effective in stimulating the hypothalamic-pituitary-adrenal (HPA) axis; and

measuring the level of at least one hormone secreted by the pituitary or adrenal glands of said mammal.

5,209,921

AEROSOL COMPOSITIONS

Susan E. Brobyn, and Robert D. Mackie, both of Weybridge, England, assignors to Beecham Group plc, United Kingdom

Continuation of Ser. No. 525,330, May 17, 1990, abandoned. This application Mar. 17, 1992, Ser. No. 852,347

Claims priority, application United Kingdom, May 19, 1989, 8911529; Nov. 13, 1989, 8925605

Int. Cl.[5] A61L *9/04*

U.S. Cl. 424—45 14 Claims

1. An aerosol composition comprising:

(i) isopentane, n-pentane, diethyl ether or methylene chloride, or mixtures of any two or more thereof having a boiling point within the range of from 10° C. to 40° C., and

(ii) dimethyl ether, a hydrocarbon or a partially hydrogenated chlorofluorocarbon, or mixture of any two or more thereof having a boiling point within the range of from −45° C. to −10° C., or having a vapor pressure within the range of from 15 to 115 psig (pounds per square inch; at 20° C.);

in a ratio of from 2.5 to 6 parts by volume of component (i) per 1 part by volume of component (ii) (or from 3 to 7 parts by weight of component (i) per 1 part by weight of component (ii)).

5,209,922

WATER SOLUBLE POLYMERS HAVING ANTIFUNGAL PROPERTIES

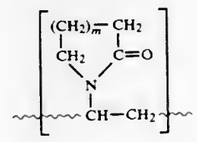
John J. Merianos, Middletown; Herbert A. Lieberman, Livingston, and Paul Garelick, South Plainfield, all of N.J., assignors to ISP Investments Inc., Wilmington, Del.

Filed Mar. 19, 1992, Ser. No. 855,358

Int. Cl.[5] A61K *9/12, 31/785*

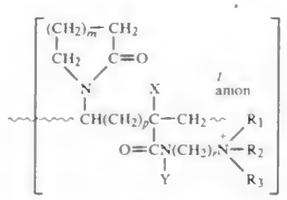
U.S. Cl. 424—46 17 Claims

1. The antifungal quaternized block polymer consisting essentially of between about 75 and about 85 wt. % poly (vinyl lactam) units of the formula



and between about 15 and about 25 wt. % of quaternized amino alkyl acrylamide lactam units defined as

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wherein said anion is between about 10 and about 90 wt. % halide and the balance of between about 90 and about 10 wt. % is $\overline{O}CO(CH_2)_sCH{=}CHZ$ and wherein m has a value of from 1 to 3; p has a value of from 1 to 5; r has a value of from 2 to 6; s has a value of from 4 to 14; each of X, Y and Z is independently hydrogen or C_1 to C_4 alkyl and each of R_1, R_2 and R_3 is independently C_1 to C_4 alkyl

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5,209,923

SUNSCREEN COMPOSITION

Larry D. Nichols, Arlington, Mass., assignor to Moleculon, Inc., Elizabeth, N.J.

Continuation of Ser. No. 619,737, Nov. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 358,690, May 30, 1989, Pat. No. 5,000,947. This application Apr. 14, 1992, Ser. No. 869,105

Int. Cl.[5] A61K *7/42, 9/14*

U.S. Cl. 424—59 **6 Claims**

1. A sunscreen composition for the delivery of a topical sunscreen, the composition comprising a formulation of a frangible, liquid-containing, cellulosic powder formed by spray evaporation and having particles ranging in average diameter from about one to about 500 micrometers, the particles further characterized by being microporous with a plurality of interconnecting pores ranging in size from about one to about 500 nanometers; and a liquid sunscreen preparation loaded within the pores of the powder particles, such that the liquid-containing powder has a liquid content ranging from about 50 percent to about 95 percent by weight and, upon application and rubbing, the rubbed powder breaks up and the sunscreen preparation is readily released.

5,209,924

POLYSILOXANE-GRAFTED COPOLYMER TOPICAL BINDER COMPOSITION WITH NOVEL FLUOROCHEMICAL COMONOMER AND METHOD OF COATING THEREWITH

James E. Garbe, Inver Grove Heights; Steven S. Kantner, St. Paul; Kanta Kumar, Maplewood, and Smarajit Mitra, West St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 602,678, Oct. 24, 1990, abandoned, which is a division of Ser. No. 390,227, Aug. 7, 1989, Pat. No. 4,972,037. This application Sep. 9, 1991, Ser. No. 756,977

Int. Cl.[5] A61K *7/11, 9/00*

U.S. Cl. 424—71 **7 Claims**

1. A composition of matter for application to the hair or body of an animal comprising

(a) a composition comprising

(i) a copolymer comprising repeating A, B, and C monomers wherein:

A is at least one free radically polymerizable acrylic or methacrylic acid ester of 1,1-dihydroperfluoroalkanols or homologs of 1,1-dihydroperfluoroalkanols, omegahydridofluoroalkanols, fluoroalkylsulfonamide alcohols, cyclic fluoroalkyl alcohols, and fluoroether alcohols present as up to 99% by weight of all monomer present;

B is at least one reinforcing monomer copolymerizable with A, the amount by weight of a B monomer being from 0.01 to 30% of the total weight of all monomers in said copolymer; and

C is a monomer present as from 0.01 to 50% by weight of all monomer present and having the general formula

$$X(Y)_nSi(R)_{3-m}Z_m$$

wherein:

X is a vinyl group copolymerizable with the A and B monomers;

Y is a divalent linking group;

R is hydrogen, lower alkyl, aryl, or alkoxy;

Z is a monovalent siloxane polymeric moiety having a number average molecular weight of at least about 500 and is essentially unreactive under copolymerization conditions;

n is zero or 1;

m is an integer of from 1 to 3; and

(ii) from 0 to about 500 parts by weight of compatible solvent or plasticizer per 10 parts copolymer as a solution, dispersion or emulsion in a liquid carrying medium; and

(b) a medically effective amount of a medicament.

5,209,925

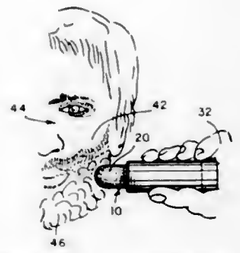
STICK SHAVE FORMULATION AND ARTICLE EMPLOYING SAME

Jerome L. Lindauer, Hillsdale, and Elizabeth M. Banko, South Amboy, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 805,020, Dec. 11, 1991, Pat. No. 5,174,992. This application Aug. 14, 1992, Ser. No. 929,831

Int. Cl.[5] A61K *7/15*

U.S. Cl. 424—73 **4 Claims**



1. A solid phase shaving stick formulation for use in forming a solid phase shaving stick article, said article being in the solid phase prior to, during and subsequent to use thereof, consisting essentially of:

(i) from about 1 up to about 10% by weight of a nonionic wetting agent which is a polyethylene glycol nonyl phenyl ether;

(ii) from about 1 up to about 15% by weight of a silicone copolymer;

(iii) from about 0.1 up to about 1% by weight of a polyoxyethylene polymer slip agent;

(iv) from about 1 up to about 30% of a synthetic detergent selected from the group consisting of sodium methyl cocoyl taurate and sodium cocoyl isethionate;

(v) from about 2 up to about 10% by weight of a titanium dioxide whitening agent; and

(vi) from about 5 up to about 20% by weight of an emollient moisturizer selected from the group consisting of:

(a) a polyethylene glycol;

(b) glyceryl monostearate; and

(c) a mixture of petrolatum and lanolin alcohol with the remainder being a mixture of stearic acid and triethanolamine.

5,209,926

AMINOSTEROIDS FOR OPHTHALMIC USE

John C. Babcock, Olga, Wash.; Jon R. Polansky, Mill Valley, Calif.; Lyle M. Bowman, Pleasanton, Calif.; Sheng-Wan Tsao, San Carlos, Calif.; Erwin C. Si, Alameda, Calif., and Santosh K. Chandrasekaran, Moraga, Calif., assignors to InSite Vision Incorporated, Alameda, Calif.

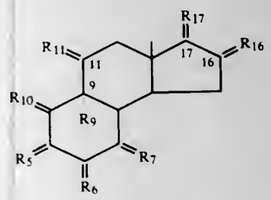
Continuation of Ser. No. 838,875, Feb. 19, 1992, abandoned, which is a division of Ser. No. 537,062, Jun. 12, 1990, Pat. No. 5,124,154. This application Aug. 24, 1992, Ser. No. 933,574

Int. Cl.[5] A61K *47/28, 31/58, 37/52*

U.S. Cl. 424—78.04 **20 Claims**

1. A method for preventing or treating an ophthalmic disease or disorder, comprising: administering to a human or other animal which is subject to intraocular damage, and in need of improved visual function or prevention of its loss from such damage, an ophthalmically effective amount of of amino-substituted steroid therapeutic agent selected from the C_{20} through C_{26} aminosteroids of the following formula XI in an inert vehicle, to arrest processes damaging to the eye;

(XI)



where:

(A-I) R_6 is α-R_{61}:β-R_{62}, R_{10} is α-R_{101}:β-R_{102} and R_7 is α-H:β-H, where one of R_{61} and R_{62} is —H, and the other is —H, —F, or C_1-C_3 alkyl, R_{102} is $-CH_3$, R_{101} and R_5 taken together are $-(CH_2)_2-C(-R_{33})-CH=$ or $-CH=-CH-CO-CH=$, where R_{33} is =O or α-H:β-OR_{34} or α-OR_{34}:β-H, where R_{34} is —H, $-P(=O)(OH)_2$, —CO—CH_3, —CO—C_2H_5, —CO—C_6H_5, —CO—O—CH_3 or —CO—O—C_2H_5;

(A-II) R_5 is α-R_{53}:β-R_{54}, R_6 is α-R_{63}:β-R_{64}, R_{10} is α-R_{103}:β-R_{104} and R_7 is α-H:β-H, where one of R_{63} and R_{64} is —H, and the other taken together with one of R_{53} and R_{54} forms a second bond between C_5 and C_6, R_{104} is $-CH_3$, R_{103} and the other of R_{53} and R_{54} taken together are $-(CH_2)_2-C(H)(OH)-CH_2-$ or $-(CH_2)_2-C[H][OP(=O)-(OH)_2]-CH_2-$;

(A-III) R_{10} and R_5 taken together are $=CH-CH=C(OR_3)-CH=$ where R_3 is —H, $-P(=O)(OH)_2$, C_1-C_3 alkyl, —CO—H, C_2-C_4 alkanoyl or benzyl, R_6 is α-R_{65}:β-R_{66} where one of R_{65} and R_{66} is —H, and the other is —H, —F, or C_1-C_3 alkyl and R_7 is α-H:β-H;

(A-IV) R_5 is α-R_{57}:β-R_{58}, R_6 is α-R_{67}:β-R_{68}, R_7 is α-H:β-H and R_{10} is α-R_{107}:β-R_{108}, where one of R_{57} and R_{58} is —H, R_{107} and the other of R_{57} and R_{58} taken together are $-(CH_2)_2-C(=R_{33})-CH_2$, where R_{33} is as defined above, R_{104} is $-CH_3$, where one of R_{67} and R_{68} is —H and the other is —H, —F, or C_1-C_3 alkyl;

(A-V) R_6 is R_{69}:R_{610}, R_7 is R_{79}:R_{710}, R_{10} is α-R_{109}:R_{1010}, where one of R_{69} and R_{610} is —H and the other taken together with one of R_{79} and R_{710} forms a second bond between C_6 and C_7, and the other of R_{79} and R_{710} is —H, R_{1010} is $-CH_3$, R_{109} and R_5 taken together are $-(CH_2)_2-C(=R_{33})-CH=$ or $-CH=CH-CO-CH=$, where R_{33} is as defined above; where:

(C-I) R_{11} is α-R_{111}:β-R_{112}, where one of R_{111} and R_{112} is taken together with R_9 to form a second bond between C_9 and C_{11} and the other of R_{111} and R_{112} is —H;

(C-II) R_9 is —Cl and R_{11} is =O or α-H:β-R_{114} where R_{114} is —Cl or —OH;

(C-III) R_9 is —H or —F and R_{11} is =O or α-R_{115}:β-R_{116}, where one of R_{115} and R_{116} is —H, and the other of R_{115} and R_{116} is —H, —OH or C_1-C_{12} alkoxy;

(C-IV) R_9 is —H or —F and R_{11} is α-O—CO—R_{117}:β-H, where R_{117} is (A) C_1-C_3 alkyl, (B) C_1-C_{12} alkoxy, (C) furanyl, (D) $-NR_{122}R_{123}$, where one of R_{122} and R_{123} is —H, methyl or ethyl and the other is —H, C_1-C_4 alkyl or phenyl, (E) $-X_3$-X_1, where X_3 is —O— or a valence bond, where X_1 is phenyl optionally substituted with 1 through 2 —Cl, —Br, C_1-C_3 alkoxy, —COOH, $-NH_2$, C_1-C_3 alkylamino, di(C_1-C_3)alkylamino, where the alkyl groups are the same or different, 1-pyrrolidinyl-, 1-piperidinyl, 1-hexamethylenimino-, 1-heptamethylenimino-, C_2-C_4 acylamino and —NH—CHO or with 1 —F or $-CF_3$; where:

(D-I) R_{16} is R_{161}:R_{162} and R_{17} is R_{171}:R_{172}, where one of R_{161} and R_{162} is —H or $-CH_3$ and the other taken together with one of R_{171} and R_{172} forms a second bond between C_{16} and C_{17}, and the other of R_{171} and R_{172} is $-C(=Z)-(CH_2)_n-NR_{21}R_{210}$, where Z is =O, $=CH_2$ or R_{179}:—H where R_{179} is —H or $-CH_3$, where n is 0 through 6, where

(A) R_{21} is

(1) $-(CH_2)_m-NR_{211}-X_2$, where m is 2, 3 or 4, where R_{211} is —H or C_1-C_3 alkyl, where X_2 is: [A]

(a) pyridin-2-, 3- or 4-yl or the N-oxide thereof optionally substituted by 1 or 2 R_{212}, being the same or different, where R_{212} is (i) —F, (ii) —Cl, (iii) —Br, (iv) C_1-C_5 alkyl, (v) $-CH_2-CH=CH_2$, (vi) $-X_1$, where X_1 is as defined above, (vii) $-NR_{213}R_{213}$ where the R_{213}'s are the same or different and are —H, C_1-C_3 alkyl or $-CH_2-CH=CH_2$, (viiiα) $\bullet CH_2-(CH_2)_q-CH_2-N\bullet$—where the atoms marked with an asterisk (*) are bonded to each other resulting in the formation of a ring, where q is 1 through 5, (viiiβ) $\bullet CH_2-CH_2-(CH_2)_c-G-(CH_2)_d-CH_2-CH_2-N\bullet$—where the atoms marked with an asterisk (*) are bonded to each other resulting in the formation of a ring, where G is —O—, —S—, —SO—, $-SO_2-$ or $-NHR_{214}$, where R_{214} is —H, C_1-C_3 alkyl, or X_1 as defined above, where c and d are the same or different and are 0 through 2 with the proviso that the total number of ring carbon atoms is 4, 5 or 6, [a] (ix) 3-pyrrolin-1-yl, [b] (x) pyrrol-1-yl optionally substituted with C_1-C_3 alkyl, [c] (xi) piperidin-1-yl optionally substituted with 1 or 2 C_1-C_3 alkyl, [d] (xii) 1,2,3,6-tetrahydropyridin-1-yl, [e] (xiii) 1-hexamethyleneimino containing a 3- or 4- double bond or 3- and 5- double bonds, [f] (xiv) 1,4-dihydro-1-pyridinyl substituted in the 4 position by two C_1-C_3 alkyl being the same or different, [g] (xv) —OH, (xvi) C_1-C_3 alkoxy, (xvii) $-NR_{217}-(CH_2)_e-Q$ where Q is 2-pyridinyl where R_{217} is —H or C_1-C_3 alkyl and e is 0 through 3 (1) (xviii) pyridin-2-, 3- or 4-yl,

(b) 1,3,5-triazin-4-yl or the N-oxide thereof optionally substituted at the 2- and/or 6- position with R_{212} is as defined above, (4)

(c) pyrimidin-4-yl or the N-oxide thereof optionally substituted at the 2- and/or 6-position with R_{212} is as defined above, (5)

(d) pyrimidin-2-yl optionally substituted at 4- and/or 6-position with 1 or 2 R_{212} as is defined above, (6)

(e) pyrazin-2-yl optionally substituted with 1 or 2 R_{212} as is defined above, (7)

(f) imidazol-2-yl optionally substituted in the 1 position with C_1-C_3 alkyl or $-X_1$, where X_1 is as defined above, and further optionally substituted with 1 or 2 R_{212} as defined above, (8)

(g) 1,3,4-triazol-2-yl optionally substituted in the 1 position with C_1-C_3 alkyl or $-X_1$, where X_1 is as defined above, and further optionally substituted with R_{212} as defined above, (9)

(h) imidazol-4- or 5-yl optionally substituted in the 1 position with C_1-C_3 alkyl or $-X_1$, where X_1 is as defined above, and further optionally substituted with 1 or 2 R_{212} as defined above, (10)

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(i) benzo[b][thien-2-yl, (12a)
(j) indol-2-yl, (12b)
(k) benzo[b]thiazol-2-yl, (12c)
(l) benzimidazol-2-yl, (12d)
(m) 4-[2-[4-[2,6-bis(1-pyrrolidinyl)-4-pyrimidinyl]-1-piperazinyl]ethyl]piperazinyl, (13)
(n) 1,2,4-triazin-3-yl optionally substituted at the 5- and/or 6- position with R_{212} as is defined above, (14)
(2) (1-piperazinyl)-(C_2-C_4)alkyl optionally substituted in the 4- position with $-X_1$ or $-X_2$ as defined above, [B]
(3) $-X_2$, as defined above, [O]
(4) $-(CH_2)_m-X_4$ where m is as defined above and where X_4 is (a) $-O-CH_2CH_2-Y$, where Y is C_1-C_3 alkylamino, di(C_1-C_3)alkylamino where the alkyl groups are the same or different, C_3-C_6 alkyleneimino, optionally substituted with 1 or 2 C_1-C_3 alkyl, (b) $-NR_{220}CH_2CH_2-Y$, where R_{220} is —H or C_1-C_3 alkyl and Y is as defined above, (c) $-(CH_2)_g-N(R_{220})-X_2$, where g is 2, 3 or 4, and where R_{220} and X_2 are as defined above, [H]
(5) $-(CH_2)_m-NR_{222}R_{223}$, where R_{222} is —H or C_1-C_3 alkyl and R_{223} is $-X_1$ or $-X_2$ as defined above, or R_{222} and R_{223} are taken together with the attached nitrogen atom to form a saturated mono-nitrogen C_3-C_6 heterocyclic ring and where m is as defined above, [I]
(6) $-(CHCH_3)_b-(CH_2)_f-R_{224}$, where b is 0 and f is 1 through 3 or b is one and f is 0 through 3, where R_{224} is phenyl substituted with 1 through 3 —OH, C_1-C_3 alkoxy, $-NR_{225}R_{226}$ where R_{225} and R_{226} are the same or different and are —H, C_1-C_3 alkyl or are taken together with the attached nitrogen atom to form a C_4-C_7 cyclicamino ring, [J]
(7) $-(CH_2)_i-X_2$, where i is 1 through 4 and X_2 is as defined above, [K]
(8) (1-piperazinyl)acetyl substituted in the 4-position by X_2 where X_2 is as defined above, [L]
(9) (1-piperazinyl)carbonylmethyl substituted in the 4-position by $-X_2$ where X_2 is as defined above, and [M]
(B) R_{210} is (1) —H, (2) C_1-C_3 alkyl, (3) C_5-C_7 cycloalkyl, (4) $-(CH_2)_m-NR_{211}-X_2$, where m, R_{211} and X_2 are as defined above, [A]
(5) (1-piperazinyl)-(C_2-C_4)alkyl optionally substituted in the 4- position with $-X_1$ or $-X_2$ as defined above, [B]
(6) $-(CH_2)_m-X_4$, where m and X_4 are as defined above, [H]
(7) $-(CH_2)_m-NR_{222}R_{223}$, where m, R_{222} and R_{223} are as defined above, [I]
(8) $-(CHCH_3)_b-(CH_2)_f-R_{224}$, where b, f and R_{224} are as defined above, [J]
(C) R_{21} and R_{210} are taken together with the attached nitrogen atom to form a heterocyclic ring selected from the group consisting of
(1) 2-(carboxy)-1-pyrrolidinyl optionally as the C_1-C_3 alkyl ester or as a pharmaceutically acceptable salt, [C-1]
(2) 2-(carboxy)-1-piperidinyl optionally as the C_1-C_3 alkyl ester or as a pharmaceutically acceptable salt [C-2]
(3) 2-(carboxy)-1-hexamethyleneimino optionally as the C_1-C_3 alkyl ester or as a pharmaceutically acceptable salt, [C-3]
(4) 2-(carboxy)-1-heptamethyleneimino optionally as the C_1-C_3 alkyl ester or as a pharmaceutically acceptable salt, [C-4]
(5) 1-piperazinyl substituted in the 4- position with $R_{228}-CO-(CH_2)_j-$ where R_{228} is $-X_1$, $-NR_{229}X_1$ and 2-furanyl, where R_{229} is —H or C_1-C_3 alkyl, where j is 0 through 3 and X_1 is as defined above, [D]
(6) 1-piperazinyl substituted in the 4- position with $X_2-(CH_2)_j-$, where X_2 and j are as defined above, [E]
(7) 1-piperazinyl substituted in the 4- position with $X_1-(CH_2)j-$, where X_1 and j are as defined above, [F]
(8) 4-hydroxy-1-piperidinyl substituted in the 4- position with X_1 as defined above, [G]
(9) 1-piperazinyl substituted in the 4- position with $X_2-NR_{229}-CO-(CH_2)_i-$, where X_2, R_{229} and i are as defined above; [N]
(D-II) R_{16} is α-R_{163}:β-R_{164} where one of R_{163} and R_{164} is —H and the other is —H, —F, $-CH_3$ or —OH, and R_{17} is $-CH-(CH_2)_p-NR_{21}R_{210}$, where p is 1 or 2, where R_{21} and R_{210} are as defined above;
(D-III) R_{16} is α-R_{165}:β-R_{166} and R_{17} is α-R_{175}:β-R_{176}, where R_{165} is —H, —OH, —F or $-CH_3$ and R_{166} is —H, —OH, —F, or $-CH_3$, with the proviso that at least one of R_{165} and R_{166} is —H, where R_{175} is —H, —OH, $-CH_3$, $-CH_2CH_3$, C_2-C_7 alkanoyloxy or $-O-CO-X_1$, where X_1 is as defined above, and where R_{176} is $-C(=Z)-(CH_2)n-NR_{21}R_{210}$, where Z, n, R_{21} and R_{210} are as defined above;
(D-IV) the 16,17-acetonide of a compound where R_{165} is —OH, R_{166} is —H, R_{175} is —OH and R_{176} is $-C(=Z)-(CH_2-)_n-NR_{21}R_{210}$, where Z, n, $-R_{21}$ and R_{210} are as defined above;
and pharmaceutically acceptable salts thereof,
and hydrates and solvates thereof;
with the following overall provisos that:

(I) one of R_{161} or R_{162} is taken together with one of R_{171} or R_{172} to form a second bond between C_{16} and C_{17}, only when R_{10} is α-R_{101}:β-R_{102}, α-R_{103}:β-R_{104}, α-R_{107}:β-R_{108} or α-R_{109}:β-R_{1010}.
(II) R_{17} is $-CH-(CH_2)_p-NR_{21}R_{210}$, only when R_{10} is α-R_{101}:β-R_{102}, a-R_{103}:β-R_{104}, α-R_{107}:β-R_{108} or α-R_{109}:β-R_{1010}.

(III) R_5 and R_{10} taken together are $=CH-CH=C(OR_3-)-CH=$, only when R_{17} is α-R_{175}:β-R_{176} or the 16,17-acetonide of a compound where R_{16} is α-OH:β-H and R_{17} is α-OH:β-$C(=Z)-(CH_2)_n-NR_{21}R_{210}$, and

(IV) R_5 is α-R_{57}:β-R_{58}, only when R_{17} is α-R_{175}:β-R_{176} or α-OH:β-$C-(=Z)-(CH_2)_n-NR_{21}R_{210}$, or the 16,17-acetonide thereof.

5,209,927
OPHTHALMIC SOLUTION
Philip D. Gressel, Everman; Robert E. Roehrs, and Robert G. Harris, both of Fort Worth, all of Tex., assignors to Alcon Laboratories, Inc., Ft. Worth, Tex.
Continuation of Ser. No. 331,478, Mar. 31, 1989, abandoned, which is a continuation of Ser. No. 908,469, Dec. 5, 1986, abandoned, which is a continuation of Ser. No. 700,861, Jan. 23, 1985, abandoned. This application Jun. 17, 1991, Ser. No. 716,426
The portion of the term of this patent subsequent to Dec. 24, 2008, has been disclaimed.
Int. Cl.[5] A61K *31/74*
U.S. Cl. 424—78.04 **10 Claims**

1. A method of treating dry eye syndrome in mammalian hosts which comprises applying topically to the affected eye a therapeutically effective amount of a sterile, aqueous ophthalmic solution, said ophthalmic solution consisting essentially of 0.05% to 0.25% by weight of a carboxy vinyl polymer having a molecular weight in the range of 400,000 to 6,000,000, and water, said solution having a yield value in the range of 50 to 1,500 dyne/cm^2.

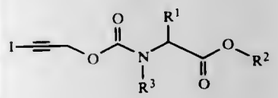
5,209,928
Patent Not Issued For This Number

5,209,929
IMMUNIZATION AGAINST BABESIOSIS USING PURIFIED MEROZOITE SURFACE ANTIGENS OF *BASESIA BIGEMINA*
Travis McGuire, Pullman, Wash.; Terry McElwain, Gainsville, Fla.; Lance Perryman, and William Davis, both of Pullman, Wash., assignors to Washington State University Research Foundation, Pullman, Wash.
Continuation of Ser. No. 31,328, Mar. 19, 1987. This application Mar. 1, 1991, Ser. No. 663,255
Int. Cl.[5] A61K *39/018*
U.S. Cl. 424—88 **11 Claims**

1. A method of treating a bovid to reduce the severity of babesiosis caused by *Babesia bigemina* consisting essentially of inoculating the bovid with a substantially purified *Babesia bigemina* protein immunogen selected from the group consisting of the merozoite surface proteins with the approximate molecular weights of 58,000, 55,000 and 45,000 Da.

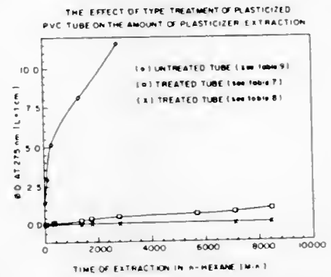
5,209,930
PREPARATION AND USE OF N-IODOPROPARGYL OXYCARBONYL AMINO ACID ESTERS AND DERIVATIVES AS ANTIMICROBIAL AGENTS
Margaret M. Bowers-Daines, and Barry C. Lange, both of Lansdale, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.
Filed Dec. 10, 1990, Ser. No. 625,264
Int. Cl.[5] A61K *7/00*
U.S. Cl. 424—401 **9 Claims**

1. Compounds of the formula



wherein R^1 is selected from the group consisting of H, lower (C_1-C_4)alkyl, alkyl aryl, CH_2OR, CH_2SR, and $CH(CH_3)OR$; and
R, R^2, and R^3 are independently selected from H, (C_1-C_4)alkyl, aryl, arylalkyl, alkaryl, and halopropargyl.

5,209,931
STABILIZED PVC PRODUCTS AND THEIR PRODUCTION
Gideon Levin, Rehovot, Israel, assignor to Yeda Research and Development Co. Ltd., Rehovot, Israel
Filed Sep. 19, 1991, Ser. No. 762,118
Claims priority, application Israel, Sep. 19, 1990, 95732
Int. Cl.[5] A01N *25/00;* **A61K** *9/14;* **C08J** *3/24*
U.S. Cl. 424—405 **24 Claims**



1. A crosslinked PVC product characterized by a gradient crosslinking density, with a high crosslinking density on the outer surface and/or near the surface and a low or none crosslinking density at the bulk of the product.

5,209,932
FOOT CARE COMPOSITIONS
Larry D. Nichols, Arlington, Mass., assignor to Moleculon, Inc., Elizabeth, N.J.
Continuation of Ser. No. 619,727, Nov. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 358,690, May 30, 1989, Pat. No. 5,000,947. This application Apr. 24, 1992, Ser. No. 875,197
Int. Cl.[5] A01N *25/12, 59/16;* **A61K** *9/14*
U.S. Cl. 424—409 **15 Claims**

1. A foot-care composition for the delivery of a foot-care preparation, the composition comprising a formulation of a frangible, liquid-containing, cellulosic powder formed by spray evaporation and having particles ranging in average diameter from about 1 to about 500 micrometers, the particles further characterized by being microporous with a plurality interconnecting pores ranging in size from about 1 to about 500 nanometers and having a structure which is readily fragmented; and a liquid foot-care preparation loaded within the pores of the powder particles, such that the liquid-containing powder has a liquid content ranging from about 50 percent to 95 percent by weight and, upon application and rubbing, the rubbed particles fragment and the foot-care preparation is readily released.

5,209,933
LONG ACTING CALCIUM CHANNEL BLOCKER COMPOSITION
Calum B. MacFarlane, Linlitchgow; Alastair B. Selkirk; John R. Langridge, both of Edinburgh, and Michael J. Dey, East Calder, all of Scotland, assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.
Continuation of Ser. No. 463,103, Jan. 10, 1990, abandoned. This application Sep. 13, 1991, Ser. No. 759,792
Int. Cl.[5] A61K *9/16*
U.S. Cl. 424—494 **8 Claims**

1. In an improved long acting sustained release pharmaceutical composition for administration of a therapeutically effective amount of a dihydropyridine calcium channel blocking agent, useful in the treatment of disease conditions that may be alleviated by the administration of calcium channel blocking agents, which comprises essentially spherical, non-coated,

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non-rugose particles having diameters up to 1.2 millimeter, comprising a therapeutically effective amount of calcium channel blocking agent in intimate admixture with at least about 3 weight percent of a pH-dependent binder, which is less soluble below about pH 4.5 and more soluble above about pH 5.5;

the improvement comprising providing said composition with a single pH-dependent coating applied to said particles containing said calcium channel blocking agent, which is less soluble below about pH 4.5 and more soluble above about pH 5.5, to obtain slow, sustained release of a safe, therapeutically effective amount of the calcium channel blocking agent from said particles over a period of at least about 24 hours.

5,209,934

ZEBRA MUSSEL CONTROL CHEMICAL

Edward W. Ekis, Jr., Naperville, Ill., and Andrew J. Kern, Youngstown, Ohio, assignors to Nalco Chemical Company, Naperville, Ill.

Continuation of Ser. No. 591,201, Oct. 1, 1990, Pat. No. 5,141,754. This application Jun. 9, 1992, Ser. No. 895,746

The portion of the term of this patent subsequent to Aug. 25, 2009, has been disclaimed.

Int. Cl.[5] A01N *59/08, 59/00;* C02F *1/68*

U.S. Cl. 424—661 4 Claims

1. A method for controlling and preventing the growth and attachment of Zebra mussels to piping, heat exchange cooling water surfaces, and other cooling system materials constructed in contact with water containing Zebra mussels, the method comprising the step of intermittently treating the water with a low molecular weight, nonionic surface active biodispersant and a combination of chlorine and water-soluble bromide salts, the chlorine and bromide salts being added to the waters in a concentration of from 0.05 to 10 milligrams per liter of water, where the ratio of bromide salt to chlorine as hypochlorous acid is from about 0.25 to about 1.5 equivalent, whereby the intermittent addition of the surface active biodispersants, chlorine and bromide salts prevent the growth and attachment of a juvenile Dreissena Polymorpha form of the Zebra mussel on said surfaces.

5,209,935

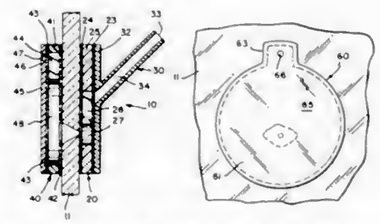
PLATE GLASS REPAIR APPARATUS PLATE GLASS STRUCTURE AND METHOD

Gerald Jacino, 85-19 118 St., Kew Gardens, N.Y. 11415, and Anthony Jacino, 17 Normandie La., East Moriches, N.Y. 11940

Continuation of Ser. No. 505,053, Apr. 5, 1990, abandoned. This application Jun. 15, 1992, Ser. No. 899,011

Int. Cl.[5] B32B *35/00*

U.S. Cl. 425—12 19 Claims



1. In a system for casting in the repair of a substantially conical break through plate glass and to provide a peripheral rim beyond the perimeter of said break and over the outline of said break, said system usable when said plate glass is in a substantially vertical position and when said conical break is in the form of a void extending through said plate glass, said plate glass having openings from said void on each side, one said opening larger than the other, a mold, said mold comprising a body, said body of a size selected to be in excess of the perimeter of said void opening on a selected side of said plate glass, said body having a back wall and a wall depending therefrom, said depending wall and said back wall connected, a substantially flat hollow defined within said walls, the perimeter of said hollow selected to be greater than the perimeter of said void opening on said selected side of said plate glass and said hollow defining a substantially flat peripheral rim over said plate glass within said perimeter, said rim having an edge, sprue means between said body and said hollow to direct a hardenable liquid resin therethrough, said sprue means opening into said hollow at a point on said edge of the perimeter of said rim and above said opening of said void in said plate glass on said selected side to access said void, said sprue means having an upper end, said upper end extending to a level at least above said edge of said rim above said larger opening of said conical glass break in said vertically positioned plate glass, vent means between said hollow and said body, said vent means opening from said hollow and located at a point selected to be above a level at least above said edge of said rim above said larger opening of said void in said vertically positioned plate glass, said vent means to vent air replaced by said resin when repair resin is introduced, affixing mean, said affixing means to removably affix said body affixed to said selected side of said plate glass, said affixing means further maintaining said liquid resin against leakage from said hollow and free to exit through said vent means, whereby said resin is hardened into a casting in said void including a bead in the form of a peripheral rim conforming to the shape of said hollow and said rim over said plate glass extending beyond the periphery of said glass break on said selected side.

5,209,936

INJECTION MOLDING MACHINE HAVING A LOAD CELL FOR DETECTING A PRESSURE APPLIED TO A SCREW COUPLING

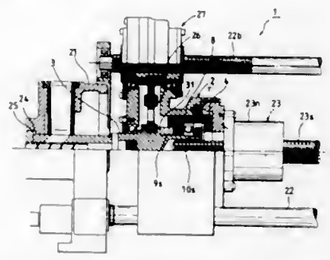
Hirokazu Ihara, and Yukihiko Nakamura, both of Nagano, Japan, assignors to Nissei Jushi Kogyo K.K., Nagano, Japan

Filed Jul. 17, 1991, Ser. No. 731,247

Claims priority, application Japan, Jul. 18, 1990, 2-190105

Int. Cl.[5] B29C *45/77*

U.S. Cl. 425—149 15 Claims



1. An injection molding machine comprising:

a guide coupling for transmitting a linear movement to an injection screw;

a screw coupling for transmitting a rotary movement to said injection screw;

a load cell, disposed between said guide coupling and said screw coupling, for detecting a pressure applied to said screw coupling; and

a transmission link having a first end thereof coupled to said screw coupling so as to be rotatable relative to said screw coupling and axially fixed relative to said screw coupling,

said transmission link being rotationally fixed relative to said guide coupling and axially slidable relative to said guide coupling.

5,209,937

INSERT FOR BARREL EXTRUDERS

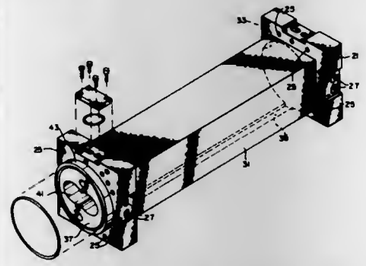
Waino J. Kangas, P.O. Box 502, Milford, Del. 19963

Continuation-in-part of Ser. No. 772,209, Oct. 7, 1991, abandoned, which is a continuation-in-part of Ser. No. 627,974, Dec. 17, 1990, Pat. No. 5,054,932. This application Apr. 7, 1992, Ser. No. 864,504

The portion of the term of this patent subsequent to Oct. 8, 2008, has been disclaimed.

Int. Cl.[5] B29C *47/82*

U.S. Cl. 425—183 9 Claims



1. A segmented barrel extruder device for extrusion along a longitudinal axis, said device having a plurality of segments enclosing an extruder barrel aligned on said longitudinal axis, said segments comprising:

a pair of axially perpendicular rectangular end flanges for each segment, each said pair of end flanges having exposed sides and a central portion for housing said extruder barrel, each said pair of end flanges having a plurality of aligned straight line paths for fluid flow into and out of said flanges in a plane perpendicular to said longitudinal axis, wherein said straight line paths each intersect two of said exposed sides without intersecting said central portion, and port means for providing access for fluid flow to each straight line path from at least one of said sides of said flange;

an extruder barrel between each of said pair of flanges for enclosing an extruder means, including an outer housing having a plurality of straight axial channels and connected to said straight line paths in said end flanges to conduct fluid from a plurality of points along one path in each of said straight line paths in one of said pair of end flanges to a plurality of points along a corresponding straight line path in the other of said pair, said barrel further including an axially centered portion aligned with said central portion of said flanges;

an extruder barrel insert sized to fit in said axially centered portion of said barrel and having means for preventing rotational movement of said insert, said insert having at least one extruder bore for engagement with an extruder screw and having high resistance to wear compared to the wear resistance of said extruder barrel; and

an inlet means and an outlet means for introducing fluid into and removing fluid from selective straight line paths and straight axial channels though said port means.

5,209,938

METHOD FOR RETARDING STALING OF BAKED GOODS

J. Kevin Kraus, Tenafly, N.J., and Ronald E. Hebeda, Naperville, Ill., assignors to CPC International Inc., Englewood Cliffs, N.J.

Filed Sep. 13, 1989, Ser. No. 406,657

Int. Cl.[5] A21D *8/04*

U.S. Cl. 426—20 17 Claims

1. In a process for retarding the staling of baked goods by incorporating an enzyme in the ingredients used to prepare the baked goods, the improvement which comprises incorporating in the ingredients an enzyme derived from *Bacillus megaterium* which has a Phadebas activity above 100% at a temperature of about 65° to 72° C. at a pH of about 5.5 to 6.5 and retains less than 50% of said Phadebas activity at a temperature above about 70° C.

5,209,939

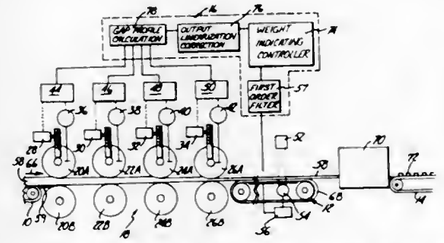
METHOD FOR CONTROLLING THE WEIGHT OF CUT PIECES OF DOUGH

Thomas P. Kempf, Brooklyn Park, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Filed Sep. 25, 1992, Ser. No. 951,223

Int. Cl.[5] A21D *8/00;* G01N *33/00*

U.S. Cl. 426—231 9 Claims



1. A method of controlling the weight of dough pieces cut from a strip of dough, the dough strip passing through at least one pair of calendar rollers prior to passing through a cutting device, the method comprising:

determining a target mass loading of a dough strip;

measuring an actual mass loading of a portion of the dough strip after passing through the pair of calendar rollers nearest to the cutting device;

comparing the target and actual mass loading data;

calculating a calendar roller gap distance for the pair of calendar rollers nearest to the cutting device that compensates for the rheological properties of the dough; and

adjusting the gap distance of the last pair of calendar rollers in a manner which equalizes the actual mass loading and target mass loading values.

5,209,940

STABILIZING UNMILLED BROWN RICE BY ETHANOL VAPORS

Elaine T. Champagne, Mandeville; Robert J. Hron, Sr., New Orleans, and George Abraham, Metairie, all of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Continuation-in-part of Ser. No. 557,822, Jul. 26, 1990. This application May 2, 1991, Ser. No. 694,964

Int. Cl.[5] A23B *9/18, 9/26*

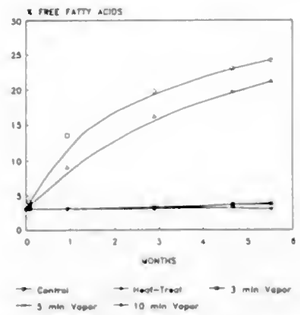
U.S. Cl. 426—320 20 Claims

1. A process comprising:

contacting unmilled or partially milled brown rice with ethanol vapor under conditions providing no substantial loss of oil from said unmilled or partially milled brown rice by said ethanol vapor in order to produce stabilized

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unmilled or partially milled brown rice and ethanol having rice extracts therein; and



separating said stabilized unmilled or partially milled brown rice from said ethanol having rice extracts therein.

5,209,941

PROCESS AND DEVICE FOR PREPARING MEALS

Ernst Wuest, Abtwil, Switzerland, assignor to Menu System Wuest & Co., Switzerland

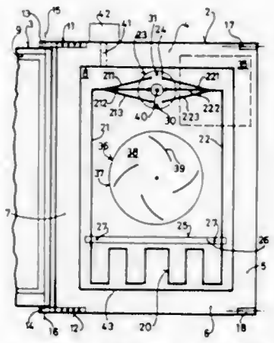
PCT No. PCT/CH90/00187, § 371 Date Apr. 30, 1991, § 102(e) Date Apr. 30, 1991, PCT Pub. No. WO91/01674, PCT Pub. Date Feb. 21, 1991

PCT Filed Aug. 3, 1990, Ser. No. 656,157

Claims priority, application Switzerland, Aug. 3, 1989, 2883/89

Int. Cl.[5] A23L *1/00*; F24D *1/00*

U.S. Cl. 426—510 33 Claims



1. A process for the preparation of foodstuff, said process comprising the steps of:

placing the foodstuff in a cooking space;

hermetically sealing the cooking space; and

producing bursts of steam in the cooking space so as to cause a sudden increase in pressure within the cooking space of sufficient magnitude that steam penetrates the foodstuff.

5,209,942

LOW FAT/NO FAT SALAD DRESSING HAVING MIMETIC FUNCTIONAL PROPERTIES FAT AND A PROCESS THEREFOR

Roland Bauer, West Milford; Jo Ann Cuccurullo, Cresskill; Philip E. Dazo, Edison Township, Middlesex County; Daniel J. Kochakji, West Milford; Steven M. Rikon, Ringwood, and Richard E. Rubow, Ridgefield Park, all of N.J., assignors to Thomas J. Lipton, Co., Division of Conopco, Inc., Englewood Cliffs, N.J.

Filed Nov. 27, 1991, Ser. No. 799,583

Int. Cl.[5] A23C *1/24, 1/05*

U.S. Cl. 426—573 8 Claims

1. A fat mimetic composition comprising an intimate admixture of:

30%-70% colloidal microcrystalline cellulose;

30%-70% cold water swelling starch;

1%-15% of gum selected from the group consisting of xanthan gum, carrageenan gum, locust beam gum, guar gum and mixtures thereof;

0%-5% of alginate or alginate derivatives;

0%-5% opacifier selected from the group consisting of TiO_2, milk solids and mixtures thereof;

whereby the mimetic imparts organoleptic properties similar to fat when formulated at an amount of 1% to 10% in a dressing containing up to about 7% fat.

5,209,943

PROCESS FOR MAKING BULK CHEESE

Allen J. Pittelko, Oakfield, Wis., assignor to Damrow Company, Inc., Fond du Lac, Wis.

Filed Aug. 7, 1991, Ser. No. 741,320

Int. Cl.[5] A23C *19/024*

U.S. Cl. 426—582 8 Claims



1. A method of continuously making large blocks of bulk cheese from a curds and whey mixture in a vertical tower having a top, a bottom, an internal peripheral wall defined by a peripheral screen and a separate central, hollow tubular screen, comprising the steps of:

a. introducing the curds and whey mixture at the top of the tower;

b. gravity feeding the curds and whey mixture toward the bottom of the tower within the peripheral wall and around the central hollow tubular screen to form a unitary cheese;

c. selectively moving portions of the whey in the curds and whey mixture outwardly toward the peripheral wall and inwardly toward the central tubular screen for separating the whey from the curds by drawing a vacuum on the tower at the outside of the peripheral wall and on the inside of the central tubular screen;

d. gravity feeding and collecting the separated whey toward the bottom of the tower;

e. selectively removing the collected whey from the tower;

f. selectively discharging the formed cheese from the bottom of the tower; and,

g. serially cutting the cheese into blocks as the cheese is discharged.

5,209,944

PROCESS FOR COATING A SUBSTRATE USING A PULSED LASER BEAM

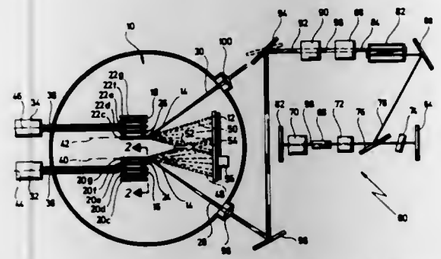
Hans Opower, Krailling, and Manfred Klose, Stuttgart, both of Fed. Rep. of Germany, assignors to Deutsche Forschungsanstalt fuer Luft- und Raumfahrt e.V., Bonn, Fed. Rep. of Germany

Filed Jul. 16, 1991, Ser. No. 730,550

Claims priority, application Fed. Rep. of Germany, Jul. 18, 1990, 4022817

Int. Cl.[5] B05D *5/12, 3/06*; B23K *26/04, 26/00*

U.S. Cl. 427—569 25 Claims



1. A process for the manufacture of a layer on a substrate, wherein by means of a pulsed laser beam a coating material is ablated from a source, transported in the form of a stream of particles to the substrate and deposited on the latter to form the layer, and wherein said layer is produced by selecting a pulse duration and pulse intensity for said laser beam such that ionization and heating-up of said coating material take place essentially only in a zone of interaction of light from the laser beam with said coating material so that said stream of particles is formed as cluster-free plasma containing single, non-coherent ions or atoms.

5,209,945

METHOD OF MAKING NITRIDE AND OXIDE ELECTRODES ON A SOLID ELECTROLYTE

Neill Weber, Murray, Vt., assignor to Beta Power, Inc., Salt Lake City, Utah

Division of Ser. No. 438,067, Nov. 20, 1989, Pat. No. 5,114,743. This application Apr. 3, 1992, Ser. No. 863,249

Int. Cl.[5] B05D *5/12*

U.S. Cl. 427—77 15 Claims

1. A method of forming an oxide film electrode on a surface of a solid electrolyte substrate, comprising the steps of:

suspending a metallic powder in a liquid having a binder dissolved therein;

forming a coating of the liquid suspension on the surface of the electrolyte, the liquid and binder being evaporable without substantial carbonization as it is heated past a first elevated-temperature;

heating the coating in a hydrogen atmosphere to a selected second elevated temperature in a range from 800° C. to 1100° C. and higher than the first elevated temperature for converting the coating to a bonded film and for increasing bondability of the film to the electrolyte without the electrolyte losing ion conducting properties;

subjecting the film in the hydrogen atmosphere to the selected second elevated temperature for a first time period to effect a required degree of bonding of the film to the electrolyte; and

subjecting the film at the expiration of the first time period to an oxygen atmosphere for a second time period effective to convert the bonded film to an oxide film.

5,209,946

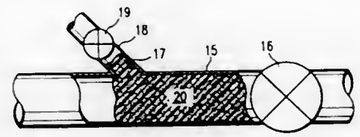
TREATMENT OF TUBULARS WITH GELATIN CONTAINING MAGNETIC PARTICLES

Frank E. Lowther, Plano, and Alden W. Olsen, Allen, both of Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Continuation of Ser. No. 705,456, May 24, 1991, abandoned. This application Mar. 18, 1992, Ser. No. 853,874

Int. Cl.[5] B05D *5/12*

U.S. Cl. 427—128 14 Claims



1. A method for treating a tubular comprising:

passing an ablating mass of gelatin through said tubular wherein said mass contacts the interior wall of said tubular and ablates to deposit a layer of gelatin and magnetic particles on said wall; said mass comprising;

a mixture of (a) common gelatin of the type derived from collagen and used in foods, glues, and the like, (b) a heated liquid, and (c) magnetic particles wherein said mixture is then cooled to allow said gelatin mixture to gel and form said ablating mass of gelatin.

5,209,947

PROCESS FOR THE PRODUCTION OF RECORD MATERIAL

David J. Taylor, Monks Risborough, England, and Kenneth J. Shanton, Neenah, Wis., assignors to The Wiggins Teape Group Limited, Basingstoke, England

Continuation of Ser. No. 627,756, Dec. 14, 1990, abandoned. This application May 26, 1992, Ser. No. 888,297

Claims priority, application United Kingdom, Dec. 16, 1989, 8928455

Int. Cl.[5] B41M *3/12*

U.S. Cl. 427—150 10 Claims

1. A process for the production of record material carrying a colour developer composition incorporating a hydrated silica/hydrated alumina composite in which hydrated silica predominates, in which process the composite is precipitated from an aqueous medium containing a solution of a metal silicate and an aluminum salt, and a coating composition incorporating the precipitated composite is formulated and then applied to a substrate which is subsequently dried to produce said record material, the process comprising the steps of:

(a) gradually adding a metal silicate solution to a solution of an aluminum slat which is initially at a pH below 4 until the pH of the resulting mixture is approximately 4, thereby to induce some precipitation and to form a sol;

(b) gradually adding alkali to said sol to raise the pH to approximately 7,thereby to induce further precipitation and gel the sol or further gel the sol, said gelled sol being a hydrated silica/hydrated alumina composite;

(c) separating the gel from the aqueous medium and washing the resulting product to remove dissolved salts; and

(d) drying the washed product to an extent effective to collapse the structure of the gel and convert the gel structure form a hydrogen to a xerogel, and reducing it in particle size before formulation into the coating composition,

with the proviso that if hydrated zirconia is also present in the precipitated composite, the zirconia content is less

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than about 10% on a dry basis, based on the total dry weight of alumina, silica and zirconia in the composite.

5,209,948

METHOD FOR FLUIDIZING, CONVEYING AND/OR ATOMIZING SOLID AND LIQUID COATING MATERIALS

Radovan Talacko, St. Gallen, Switzerland, assignor to Wagner International AG, Switzerland

Filed May 28, 1991, Ser. No. 706,255

Claims priority, application Fed. Rep. of Germany, May 31, 1990, 4017603

Int. Cl.[5] B05D *1/06*

U.S. Cl. 427—185 6 Claims

1. A method of providing pressurized fluid to a coating system having a pressurized fluid supply line, said method comprising the following steps:

providing a source of pure inert gas maintained at substantially ambient temperature, and at a pressure substantially higher than an operating pressure of said coating system;

reducing the pressure of said inert gas approximately to said operating pressure, thereby causing the temperature of the inert gas to fall below ambient temperature; and

supplying the reduced-pressure, cooled inert gas as a compressed gas in said pressurized fluid supply line for fluidizing, conveying, and/or atomizing a coating material.

5,209,949

METHOD FOR TREATING A STRUCTURAL SURFACE WITH A COATING OF STONES

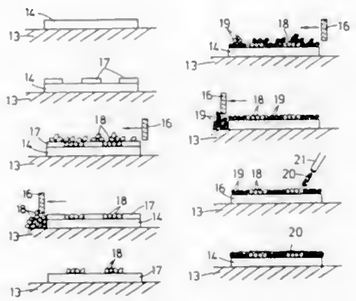
Hideharu Osada, 12-1, Tomiokita 2-chome, Nara-Shi Nara, Japan

Continuation of Ser. No. 389,628, Aug. 4, 1989, abandoned. This application Oct. 10, 1991, Ser. No. 776,677

Claims priority, application Japan, Aug. 12, 1988, 63-201487; Nov. 25, 1988, 63-297331

Int. Cl.[5] B05D *5/00*

U.S. Cl. 427—198 3 Claims



1. A method for treating a structural surface including at least one of a wall and pavement, comprising the steps of:

spreading an adhesive on said structural surface;

applying a mold frame to said adhesive surface;

closely adhering first granular stones of a first appearance on the portions of said adhesive not covered by said mold frame;

removing said mold frame to expose portions of said adhesive surface on said structural surface;

closely adhering second granular stones of a second appearance to said portions of said adhesive surface previously covered by said mold frame to form a substantially planar patterned surface;

covering said first and second granular stones with a coating of synthetic resin;

drying said synthetic resin.

5,209,950

COMPOSITION FOR SIC PACK CEMENTATION COATING OF CARBONACEOUS SUBSTRATES

Ira C. Schwartz, Marina Del Rey; Orlando L. Noche, Gardena, and Keith Klein, Torrance, all of Calif., assignors to BP Chemicals (Hitco) Inc., Gardena, Calif.

Filed Jun. 19, 1989, Ser. No. 368,501

Int. Cl.[5] C23C *16/22, 16/40*

U.S. Cl. 427—252 14 Claims

1. A method for protecting a carbonaceous substrate from degradation at temperatures above about 800° F. comprising:

a) preparing a pack mixture composition of from about 15% to about 50% Si, 0% up to about 25% B, from about 0.01% to about 3% SiO_2 and from about 40% to about 85% SiC, all by total weight of said pack mixture composition;

b) coating said carbonaceous substrate with a release agent;

c) surrounding said release agent-coated carbonaceous substrate with said pack mixture composition; and

d) firing said carbonaceous substrate for a period of time sufficient to effectuate the formation of a protective SiC pack cementation coating on said carbonaceous substrate.

5,209,951

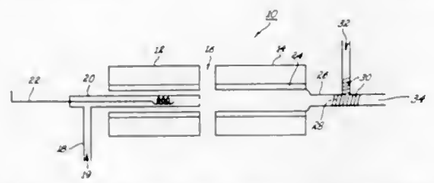
ELEVATED TEMPERATURE METHOD TO ADHERE WEAR RESISTANT POLYMER COATING TO CERAMIC ARTICLE

Edgar E. Graham, Lyndhurst, Ohio, and James F. Makki, Naperville, Ill., assignors to Cleveland State University, Cleveland, Ohio

Continuation-in-part of Ser. No. 732,921, Jul. 19, 1991, abandoned. This application Jul. 13, 1992, Ser. No. 912,307

Int. Cl.[5] C23C *16/00*

U.S. Cl. 427—255 6 Claims



1. A method for applying a coating to a ceramic article providing improved resistance of the coated ceramic article to mechanical wear at elevated temperatures of 500° and above which comprises:

(a) chemically treating the uncoated ceramic surface at elevated temperatures of at least 300° C. with a metal compound of a transition metal element which is converted to an oxide product of said transition metal element and deposited on the ceramic surface, and

(b) exposing the treated ceramic surface to a vaporized polymer-forming organic reactant selected from of petroleum hydrocarbon compounds and the group of synthetic lubricants consisting of polybutenes, diesters, polyglycols, chlorinated hydrocarbons, phosphate esters and silicate esters at elevated temperatures of at least 300° C. whereby an adherent solid organic polymer is produced on the treated surface which is substantially devoid of said oxide product and resists mechanical wear of the ceramic article at elevated temperatures of at least 500° C.

5,209,952

USE OF ORGANOMETALLIC COMPOUNDS TO DEPOSIT THIN FILMS FROM THE GAS PHASE

Dietrich Erdmann, Mühltal-Traisa; Ludwig Pohl, and Martin Hostalek, both of Darmstadt, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft Mit Beschraenkter Haftung, Darmstadt, Fed. Rep. of Germany

PCT No. PCT/EP90/00356, § 371 Date Sep. 6, 1991, § 102(e) Date Sep. 6, 1991, PCT Pub. No. WO90/10726, PCT Pub. Date Sep. 20, 1986

PCT Filed Mar. 3, 1990, Ser. No. 752,697

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1989, 3907579

Int. Cl.[5] C23C *16/00*

U.S. Cl. 427—255.6 16 Claims

1. In a process for the deposition of epitactic layers employing an organometallic compound for the deposition of thin films or layers form the gas phase, the improvement comprising said organometallic compound being a compound of formula I

$$(R^1)_{3-n}M-Y_n \qquad I,$$

wherein

M is aluminum, alllium or indium;

n is 1, 2 or 3;

Y is $-NR^2R^3$, $-RP^2R^3$, $-ASR^2R^3$;

R^1, R^2, R^4 and R^5, in each case independently of one another, are H, an alkyl group having 1–8 C atoms, where the alkyl group may be partly or fully fluorinated, a cycloalkyl, alkenyl or cycloalkenyl group, in each case having 3–8 C atoms, or an aryl group, R^1 is alternatively $1,2-(CH_2)_p-C_6H_4-(CH_2)_q-Z$, $1,2-(CH_2)_p-C_6H_{10}-(CH_2)_q-Z$, $1,2-(CH_2)_p-C_6H_8-(CH_2)_q-Z$, $1,2-(CH_2)_p-C_6H_6-(CH_2)_q-Z$, $1,2-(CH_2)_p-C_5H_8-(CH_2)_q-Z$, $1,2-(CH_2)_p-C_5H_6-(CH_2)_q-Z$, $1,2-(CH_2)_p-C_5H_4-(CH_2)_q-Z$, or $1,2-(CH_2)_p-C_4H_6-(CH_2)_q-Z$;

p and q, in each case independently of one another, are 0, 1, 2 or 3;

Z is $-NR^4R^5$, $-PR^4R^5$, $-AsR^4R^5$ or $-SbR^4R^5$; and is a branched alkyl or alkenyl group, in each case having 3–8 C atoms, it being possible for these groups to be partly or fully fluorinated, a cycloalkyl or cycloalkenyl group, in each case having 3,–8 C atoms, or an aryl group.

5,209,953

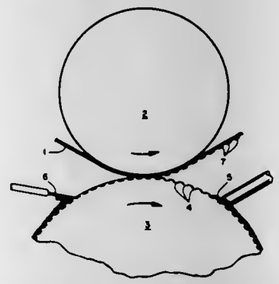
OVERALL PRINTING OF TISSUE WEBS

Edward H. Grupe, Appleton; Lee P. Garvey, Little Chute, and Mike T. Goulet, Appleton, all of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Continuation of Ser. No. 515,982, Apr. 27, 1990, abandoned, which is a continuation-in-part of Ser. No. 389,034, Aug. 3, 1989, abandoned. This application Oct. 7, 1992, Ser. No. 958,433

Int. Cl.[5] B05D *5/00;* D06P *7/00*

U.S. Cl. 427—276 12 Claims



1. A method of making a colored creped tissue web comprising printing the surface of one side of a dry, creped tissue web with a colorant applied in a pattern of small colored areas such that substantially the entire surface of the printed side of the creped tissue web macroscopically appears to be a solid color while the unprinted side of the creped tissue web appears to be substantially uncolored, wherein the percentage of the surface area of the printed side of the creped tissue web covered by the small colored areas is from about 5 to about 25 percent and wherein the properties of the creped tissue web are substantially unaffected.

5,209,954

METHOD FOR APPLYING A COATING LIQUID TO A WEB

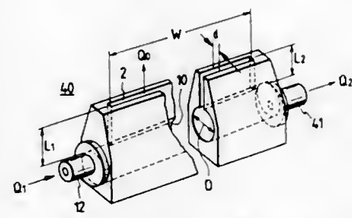
Shinsuke Takahashi, and Norio Shibata, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 636,470, Dec. 31, 1990, abandoned. This application Jun. 18, 1992, Ser. No. 899,592

Claims priority, application Japan, Dec. 29, 1989, 1-340394

Int. Cl.[5] B05D *1/18;* B05C *3/02*

U.S. Cl. 427—430.1 6 Claims



1. A method for applying a coating liquid onto a web, comprising the steps of:

selecting a coating liquid;

forming a liquid reservoir and a slot with an outlet portion in accordance with the formula:

$$\left| \frac{\frac{12\eta_S}{d^3W}(Q_1 - Q_2)(L_1 - L_2) - \frac{64\eta_P W}{D^4}(Q_1 + Q_2)}{\frac{6\eta_S}{d^3W}(Q_1 - Q_2)(L_1 + L_2) + \frac{32\eta_P W}{D^4}(Q_1 + Q_2)} \right| \leqq 0.05$$

wherein D is the internal diameter of the liquid reservoir, d is the internal width of the slot, L_1 is the internal depth of the slot from the reservoir to the outlet portion at a liquid supply location of the reservoir, L_2 is the internal depth of the slot from the reservoir to the outlet portion at a liquid drain location of the reservoir, W is the internal length of the outlet portion, η_p is the viscosity of the liquid while flowing through the reservoir, η_s is the viscosity of the liquid while flowing through the slot, Q_1 is the quantity of the liquid supplied to the reservoir at the liquid supply location, and Q_2 is the quantity of the liquid drained from the reservoir at the liquid drain location;

supplying the quantity Q_1 of the liquid to the reservoir;

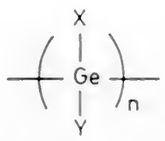
draining the quantity Q_2 of the liquid from the reservoir, the quantity Q_2 being less than the quantity Q_1;

feeding the remaining quantity of the liquid through the slot to the outlet portion; and

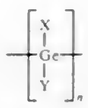
continuously moving a surface of the web along the outlet portion of the slot while discharging the remaining quantity of the liquid from the outlet portion of the slot onto the surface of the web, so as to form a film of the liquid on the surface.

VOL 1150 ISS 2 MY 11 1993 UMI

5,209,955
PHOTOCONDUCTIVE POLYMER BASED SPATIAL LIGHT MODULATOR
Dominique Broussoux, Marcoussis; Jean-Luc Ayral, Paris, and Marc Lagarde, Strasbourg, all of France, assignors to Thomson-CSF, Puteaux, France
Filed Apr. 25, 1991, Ser. No. 695,591
Claims priority, application France, May 2, 1990, 90 05542
Int. Cl.[5] C09K *19/00*
U.S. Cl. 428—1 6 Claims

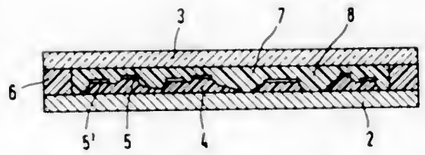


1. A spatial light modulator of the type justaposing a liquid crystal layer with a layer of an intrinsic photoconductive thin film material having a mobility of 10^{-4} cm^2/Vs and high spatial resolution, wherein the photoconductive material is based on polygermane of the following chemical formula:



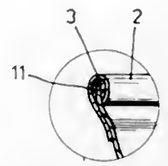
wherein X and Y are each alkyl, allyl or aryl radicals, and n represents the degree of polymerization.

5,209,956
DECORATIVE PANEL AND A METHOD OF PRODUCING IT
Martin Poll, Fritzens, Austria, assignor to D. Swarovski & Co., Wattens, Austria
Continuation of Ser. No. 714,201, Jun. 12, 1991, abandoned. This application Jul. 1, 1992, Ser. No. 908,857
Claims priority, application Fed. Rep. of Germany, Jun. 18, 1990, 4019400
Int. Cl.[5] B32B *33/00*
U.S. Cl. 423—13 16 Claims



1. A decorative panel comprising:
a lower carrier plate,
a structured plastic layer applied to at least a portion of said carrier plate, said structured plastic layer having a variable height so that said structured plastic layer includes raised portions,
an effect layer disposed on said raised portions of said structured plastic layer, said effect layer being capable of providing a visual effect, and
an upper glass plate spaced from said effect layer.

5,209,957
METHOD TO SEAL THE LEADING EDGE OF AN ENAMEL POT
Sheng-Chang Lin, No. 59, Ta-Jen Miao, Ta-Miao Village, Kuei-Jen Hsiang, Tainan Hsien, Taiwan
Filed Aug. 27, 1991, Ser. No. 750,248
Int. Cl.[5] A47G *19/22*
U.S. Cl. 428—34.7 2 Claims



2. A sealing arrangement for an upper leading edge of an enamel pot comprising a stainless steel hoop and a thermoplastic silicone sealing material, said stainless steel hoop being adapted to cap the upper leading edge of the enamel pot with said thermoplastic silicone sealing material therebetween such that the possibility of the leading edge being subjected to oxidation is minimized.

5,209,958
MULTILAYER LAMINATES FROM BLOW MOLDABLE THERMOPLASTIC POLYAMIDE AND POLYVINYL ALCOHOL RESINS
James D. Katsaros, Beaumont, Tex., and Vinodkumar Mehra, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Jun. 2, 1992, Ser. No. 892,306
Int. Cl.[5] B32B *1/02, 27/08*
U.S. Cl. 428—36.91 17 Claims

1. A multi-layer laminate comprising at least two layers, wherein a first layer is a flexible thermoplastic blow moldable polyamide composition which comprises a substantially homogeneous blend of
(a) about 40–60 weight percent thermoplastic polyamide,
(b) about 20–58 weight percent of a first ethylene copolymer selected from the group consisting of copolymers of ethylene and at least one α,β ethylenically-unsaturated carboxylic acid having 3–8 carbon atoms, and ionomers of said ethylene copolymers,
(c) about 1–20 weight percent of a second ethylene copolymer having interpolymerized units of ethylene and an α,β ethylenically-unsaturated aliphatic epoxide, and
a second layer is a vinyl alcohol composition selected from the group consisting of polyvinyl alcohol and copolymers of vinyl alcohol.

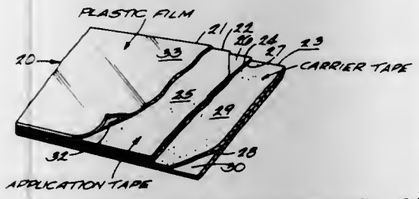
15. Articles made from the laminate of claim 1.

16. The laminar article of claim 15 in the form of a container.

5,209,959
SURFACE PRINTABLE POLYVINYL CHLORIDE LAMINATE WITH CARRIER AND APPLICATION TAPE
Eric C. McNaul, New Berlin; Mary J. Janicek, Milwaukee, and Brenda J. Anderson, Cedarburg, all of Wis., assignors to Brady Coated Products Co., Milwaukee, Wis.
Filed Mar. 28, 1991, Ser. No. 676,611
Int. Cl.[5] A61F *13/02*
U.S. Cl. 428—40 13 Claims

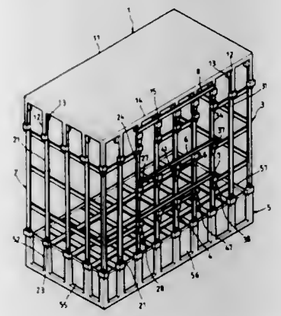
1. A subsurface printable, laminated sheet material for use in forming a wear-resistant printed laminate, the sheet material comprising:
a carrier tape including a substrate of plastic film or paper having an exposed surface and having an opposite, adhesive-carrying surface, and a low tack adhesive layer on the adhesive-carrying surface of the substrate;

an application tape including a plastic film or paper substrate having a release surface contacting and releasable from the adhesive layer on the carrier tape when the carrier tape is removed from the application tape and having an opposite, adhesive-carrying surface, and a low tack adhesive layer on the adhesive-carrying surface;
a layer of polyvinyl chloride film having a release surface contacting and releasable from the adhesive layer on the application tape when the application tape is removed from the layer of polyvinyl chloride film;



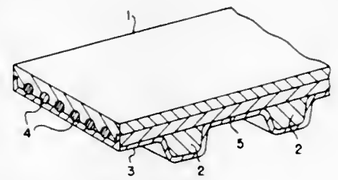
wherein the adhesive on the adhesive-carrying surface of the application tape is releasably adhered to the release surface of the polyvinyl chloride film, and wherein the adhesive layer on the adhesive-carrying surface of the carrier tape is releaseably adhered to the release surface of the application tape, and
wherein the polyvinyl chloride film has a printable subsurface opposite its release surface for printing with graphics or reverse image printing with text, and adherence to a supporting surface.

5,209,960
ANTI-QUAKE FURNITURE
Jan F. Ping, 19 Alley 24 Lane 284 Wu-Hsing street, Taipei, Taiwan
Filed Jun. 11, 1991, Ser. No. 713,307
Int. Cl.[5] B32B *1/04, 7/06*
U.S. Cl. 428—119 1 Claim



1. An anti-quake piece of furniture comprising:
a rectangular top lid having four edges, a first plurality of vertical poles extending downwardly from the lid edges at spaced points therealong; each pole having a lower end located below the lid plane; first tubular connectors (13) carried on said first vertical poles in near proximity to said lid;
a rectangular base frame (5) having four edges; second tubular connectors (52) extending upwardly from the base frame edges at spaced points therealong; each said second tubular connector having one wall thereof extending upwardly beyond the end of the connector to form a prong;
a plurality of fence structures extending between said lid and said base frame; each fence structure comprising a second plurality of vertical poles, and a plurality of horizontal rods extending transversely across said last mentioned poles;
each vertical pole in a given fence structure having a lower end and an upper end; an upper connector sleeve mounted on each pole of a given fence structure near the pole upper end; a lower connector sleeve mounted on each pole of a given fence structure near the pole lower end;
said fence structures being rigidly attached to said lid so that the lower ends of said first poles extend downwardly into said upper sleeves, and the upper ends of said second poles extend upwardly into said first tubular connectors;
said fence structures being rigidly attached to said base frame so that the lower ends of said second poles extend downwardly into said second tubular connectors, and said prongs extend upwardly into said lower sleeves;
selected ones of said fence structures being L-shaped in plan configuration so as to form high strengh furniture corners;
the space between one edge of the lid and the corresponding edge of the base frame being open to form an access opening for a person desiring to move into the space circumscribed by said fence structures for safety during an earthquake.

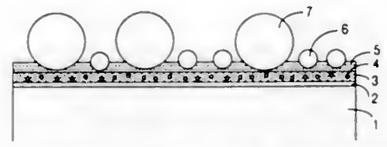
5,209,961
TOOTHED BELT
Junji Yokoi, Nara, Japan, assignor to Unitta Co., Ltd., Osaka, Japan
Filed Jun. 12, 1991, Ser. No. 714,391
Claims priority, application Japan, Jun. 13, 1990, 2-156520
Int. Cl.[5] B32B *3/00*; F16G *1/00*
U.S. Cl. 428—161 6 Claims



1. A tooth belt comprising:
a back surface section;
a plurality of teeth spaced apart and disposed on one side of said back surface section, whereby a tooth land is formed between two adjacent teeth,
wherein said back surface section and each of said teeth are made of an acrylonitrile-butadiene copolymer (NBR) having a hydrogenation rate of 90% or more;
core fibers contacting and interposed between said back surface section and said plurality of teeth, the core fibers having a core diameter of 0.63 to 0.85 mm and comprising twisted bundles of glass fibers; and
a tooth cloth covering the surface of each of said teeth and each of said tooth lands, said tooth cloth being made of an industrial nylon raw fiber with a viscosity relative to sulfuric acid of 2.45 to 2.53, a tensile strength of 5 g/denier or more, and a fineness of single fibers of 5 denier or less, said tooth cloth being treated with resorcinol-formaldehyde-latex (RFL) liquid in which a resorcinol-formaldehyde resin is mixed with a hydrogenated NBR as a latex component.

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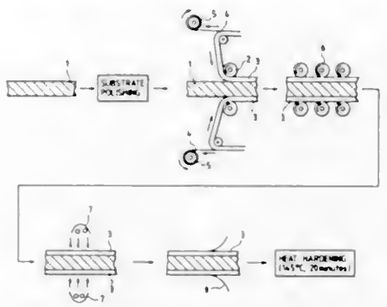
5,209,962
THERMAL IMAGE TRANSFER PROCESS USING IMAGE RECEIVING SHEET
Takashi Sakai, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 12, 1991, Ser. No. 805,974
Claims priority, application Japan, Dec. 12, 1990, 2-401514
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—195 13 Claims



1. A thermal image transfer process comprising applying heat, in a pattern corresponding to an image, to a heat-sensitive sheet containing a wax to transfer the wax from the heat-sensitive sheet to an image receiving sheet, which comprises a support and an image receiving layer provided thereon on at least one side of the support to receive an image, said image receiving layer containing a polyolefin resin as a binder,

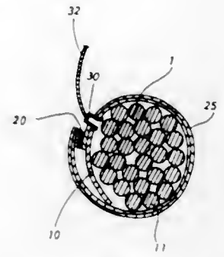
wherein the image receiving layer further contains hydrophobic particles having an average particle size in the range of 2 μm to 15 μm.

5,209,963
ADHESIVE AGENT FOR SUBSTRATE OF ELECTROLESS PLATING, PRINTED CIRCUIT BOARD USING SAME, AND METHOD OF PRODUCING SAME
Mineo Kawamoto; Haruo Akahoshi, both of Hitachi; Akio Takahashi, Hitachioota; Akio Mukoh, Mito; Kazuo Tanje, Katsuta; Toyofusa Yoshimura, Naka; Tokihito Suwa, Katsuta; Iwao Kaminaga, Hitachi, and Toshiyuki Chida, Naka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 25, 1991, Ser. No. 674,691
Claims priority, application Japan, Mar. 27, 1990, 2-77830
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—209 25 Claims



1. A substrate for printed circuit board, comprising an adhesive layer on a circuit forming plane, the adhesive layer being composed of a hardened body of a composition including (a) a mixture of 15–40 parts by weight epoxy resin, 40–60 parts by weight synthetic rubber, and 20–40 parts by weight phenolic resin, as main components, per 100 parts by weight of the mixture; (b) hardener of the epoxy resin, said hardener being an aromatic onium salt and being included in the composition in an amount of 0.2–5 parts by weight per 100 parts by weight of the mixture; and (c) 3–20 parts by weight inorganic filler having hydroxyl group per 100 parts by weight of the mixture.

5,209,964
CONDUCTIVE SHEET FOR SHIELDING ELECTROMAGNETIC WAVES
Asaharu Nakagawa, Yokkaichi, Japan, assignor to Kitagawa Industries Co., Ltd., Japan
Filed Sep. 26, 1991, Ser. No. 766,046
Claims priority, application Japan, Nov. 20, 1990, 2-314886
Int. Cl.[5] D03D *3/00*
U.S. Cl. 428—225 18 Claims



1. A conductive sheet for forming a sleeve wrappable around at least one electric wire, for shielding electromagnetic waves from said at least one electric wire comprising:

a warp running in the axial direction of the at least one electric wire and comprising at least a plurality of coaxial conductive thread strands made from a fibrous substance having flexibility in the axial direction of said strands and said at least one electric wire; and

a weft running in a direction perpendicular to the axis of the wire and the warp, and comprising at least a plurality of metal wires, wherein said warp and said weft are interwoven so as to form a continuous sheet which may be wrapped to form a sleeve around said at least one electric wire.

5,209,965
INTERNALLY COATED WEBS
J. Michael Caldwell, Escondido, Calif., assignor to Sili-Tex, Inc., Encinitas, Calif.
Continuation of Ser. No. 319,778, Mar. 10, 1989, Pat. No. 5,004,643, which is a continuation-in-part of Ser. No. 167,630, Mar. 14, 1988, abandoned, and a continuation-in-part of Ser. No. 167,643, Mar. 14, 1988, abandoned, and a continuation-in-part of Ser. No. 167,797, Mar. 14, 1988, abandoned, and a continuation-in-part of Ser. No. 167,869, Mar. 14, 1988, abandoned. This application Apr. 2, 1991, Ser. No. 680,645
Int. Cl.[5] B32B *5/32*; D06M *15/643, 15/70*
U.S. Cl. 428—260 4 Claims

1. A flexible porous web which has an internally located coating that is comprised of a curable silicone thixotropic shear thinning composition, said coating being positioned in an approximately planar region extending through the web in a direction generally parallel to and spaced from at least one major surface thereof, said web, upon curing the said curable composition thereof, being breathable and highly water repellant and exhibiting a hand and flexibility comparable to the hand flexibility of an untreated web.

5,209,966
TREATED POLYMER FABRICS
Richard M. Lange, Euclid, and Arturs Grava, Mayfield Heights, both of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio
Filed Mar. 15, 1990, Ser. No. 494,063
Int. Cl.[5] D06M *13/322*; B05D *3/02*; C11D *1/28*
U.S. Cl. 428—272 45 Claims

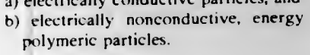
1. An article comprising:

(A) a hydrophobic polymer fabric treated with (B) a wetting agent which comprises at least one compound of the formula



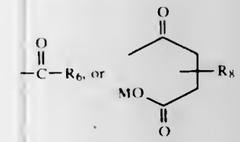
wherein R_1 is a hydrocarbyl group having about 8 to about 150 carbon atoms; R_2 is a hydrocarbylene group, or a hydroxy substituted or hydroxyalkyl substituted hydrocarbylene; each R_3 is independently hydrogen, an alkyl group, a hydroxyalkyl group, a hydrocarbylcarbonyl or a polyoxyalkylene group; each R_4 is independently a hydrocarbylene group; each n is independently 1 to 150; m is zero or one; m' is zero or one; M is a hydrogen, an ammonium cation or a metal cation, and

when m' is zero, X is —H, —Ar, —OH, —OR_5,





when m' is one, X is —H, —R_5,



wherein each R_5, R_6 and R_8 is independently a hydrocarbyl group having up to 100 carbon atoms; R_7 is hydrogen or an alkyl group having from 1 to about 8 carbon atoms and Ar is a phenyl group.

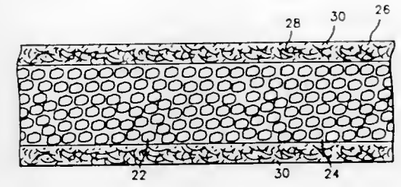
5,209,967
PRESSURE SENSITIVE MEMBRANE AND METHOD THEREFOR
Robin E. Wright, Inver Grove Heights, and William V. Balsimo, Afton, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Jan. 31, 1992, Ser. No. 828,513
Int. Cl.[5] B32B *27/02, 5/16*
U.S. Cl. 428—283 21 Claims

14. A pressure sensitive element comprising a polytetrafluoroethylene fibril matrix, having enmeshed therein

a) electrically conductive particles, and

b) electrically nonconductive, energy expanded hollow polymeric particles.

5,209,968
COMPOSITE STRUCTURE WITH WASTE PLASTIC CORE AND METHOD OF MAKING SAME
Jeff S. Sweeney, Conyers, Ga., assignor to Diversitech Corporation, Conyers, Ga.
Filed Jul. 22, 1991, Ser. No. 733,632
Int. Cl.[5] B32B *5/16, 5/24, 13/02*; F16M *5/00*
U.S. Cl. 428—312.4 8 Claims



1. A composite structural material comprising a core constructed of lightweight particles mixed with a cementitious slurry binder, an outer layer constructed of the same cementitious slurry binder reinforced with fibers, said core and outer layer being co-formed and cured monolithically with the same cementitious slurry binder forming a rigid matrix extending substantially continuously throughout the composite material to form a lightweight, low cost, high strength, insulative, fire resistant composite material having high toughness and ductility properties.

5,209,969
CARBAMATE/URETHANE COMPOSITION AND TEXTILE LAMINATION PROCESS
Glenn W. Crowther, Newark, Del., assignor to W. L. Gore & Associates, Inc., Newark, Del.
Filed Feb. 7, 1992, Ser. No. 832,258
Int. Cl.[5] C08G *18/10*
U.S. Cl. 428—317.5 3 Claims

1. Process for laminating a fabric to a polymeric membrane, which comprises

A) applying a storage stable adhesive mixture of

a) hexamethylenediamine carbamate, and

b) the reaction product of

i) ethylene/propylene oxide polyol, and

ii) a polyurethane prepolymer of

a) diphenyl methane diisocyanate

b) polytetramethylene glycol, and optionally,

c) 1,4-butanediol

to a fabric,

B) causing the membrane to be placed against the fabric on the side the mixture is on,

C) heating the resulting combination at 150°–180° C. whereby the heat causes the carbamate to decompose forming hexamethylenediamine and releasing CO_2 which causes foaming and forces the composition to spread, and which causes the hexamethylenediamine to react with —NCO groups of said reaction product.

5,209,970
MAGNETIC RECORDING MEDIA
Manfred Ohlinger, Frankenthal, and Jenoe Kovacs, Hessheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany
Filed Aug. 13, 1990, Ser. No. 567,066
Claims priority, application Fed. Rep. of Germany, Aug. 22, 1989, 3927622
Int. Cl.[5] G11B *23/00*
U.S. Cl. 428—329 1 Claim

1. A magnetic recording medium consisting essentially of a non-magnetic substrate and a magnetizable layer arranged

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thereon said magnetizable layer consisting essentially of a magnetic material from the group consisting of the cobalt-modified iron oxides and of the hexagonal ferrites in combination with acircular ferromagnetic chromium dioxide particles dispersed in organic binders, wherein said acicular ferromagnetic chrómium dioxide particles have a coercive force of greater than 24 kA/m and a specific surface area of from 20 to 60 m^2/g and are present in an amount of from >10 to 20%, based on the total amount of magnetic material.

5,209,971

RADIATION CURABLE POLYOLEFIN PRESSURE SENSITIVE ADHESIVE

Gaddam N. Babu, Woodbury, Minn.; Susan S. Christopher, Spring City, Wis.; Bruce C. Copley, Shoreview, Minn., and Thomas S. Overstreet, Austin, Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 403,662, Sep. 6, 1989, Pat. No. 5,112,882.
This application Feb. 3, 1992, Ser. No. 829,968
Int. Cl.[5] B32B *7/12, 15/08*
U.S. Cl. 428—343 **22 Claims**

1. An article comprising an ultraviolet radiation curable poly(α-olefin) adhesive composition coated on a substrate, said composition comprising:

a) at least one polymer comprising the reaction product of from 85 to 100 mole percent C_6 to C_{10} α-olefin and 15 to 0 mole percent of one or more polyene monomer; and

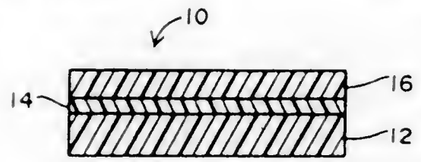
b) an effective amount of an ultraviolet radiation activatable crosslinking agent.

5,209,972

MULTIPLE LAYER PACKAGING FILM

Scott S. Super, 2612 Wessex Rd., Winston-Salem, N.C. 27106; Jerry F. Jesse, 237 Alcott Dr., and Joseph C. Hsu, 1116 Oxford Ct., both of Neenah, Wis. 54956

Continuation of Ser. No. 491,350, May 4, 1983, abandoned. This application Nov. 3, 1988, Ser. No. 266,716
Int. Cl.[5] B32B *7/12*
U.S. Cl. 428—349 **18 Claims**



1. A uniaxially oriented three layer film wherein all three layers are uniaxially oriented, said film comprising, in order, a first uniaxially oriented heat sealable layer, a second uniaxially oriented layer of a modified polyolefin or olefin copolymer adhesive, and a third uniaxially oriented layer of polyethylene terephthalate, said first, second, and third layers being bonded to each other at their respective layer interfaces without the use of intervening adhesives.

5,209,973

ADHESIVE PAPER TAPES

Romanus Wille, Zell am Harmersbach, and Herbert Knolle, Reinbek, both of Fed. Rep. of Germany, assignors to Beiersdorf Aktiengesellschaft, Hamburg, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 420,970, Oct. 13, 1989, abandoned. This application Sep. 30, 1991, Ser. No. 767,954
Claims priority, application Fed. Rep. of Germany, Oct. 19, 1988, 3835507
Int. Cl.[5] B32B *29/06, 7/12;* **D06N** *7/04*
U.S. Cl. 428—352 **5 Claims**

1. An unsized adhesive paper tape produced by

(a) compressing between a rotating roller and a rotating elastic web a still moist freshly prepared paper, to produce a microcrêped paper,

(b) drying,

(c) impregnating said paper with a latex,

(d) coating said paper on at least one side with a primer composition,

(e) coating one side of said paper with a release adhesive to form a release coat, and

(f) coating the other side of said paper with an adhesive composition,

said paper having

a mean weight of 45–80 g/m^2,

a mean extensibility of 8–20%,

a mean tensile strength of at least 35N/15 mm and

a mean thickness of at most 0.13 mm.

5,209,974

COPOLYMERIC YARNS FOR TEXTURED CARPETS

Donald H. Martin, Gulf Breeze; Walter J. Nunning, Pensacola; Scott E. Osborn, Pensacola; James S. Ridgway, Pensacola; Rupert J. Snooks, Jr., Gulf Breeze, and John H. Southern, Pensacola, all of Fla., assignors to Monsanto Company, St. Louis, Mo.

Filed Oct. 15, 1991, Ser. No. 776,935
Int. Cl.[5] D02G *3/00*
U.S. Cl. 428—357 **4 Claims**

1. A heatset, stuffer-box textured, carpet yarn consisting of two singles yarns cabled together with from 3.5 to 7.5 turns of twist per inch (2.54 cm), wherein each said singles yarn consisting essentially of bulked continuous ;filaments composed of a nylon copolymer consisting of recurring units selected from the group consisting of:

$$-NH-R^1-NHC(O)-R^2-C(O)-, \quad \text{(i)}$$

$$-NH-R^3-C(O)- \quad \text{(ii)}$$

and

$$-NH-(CH_2)_6-NHC(O)-(CH_2)_4-C(O) \quad \text{(iii)}$$

wherein R^1, R^2 and R^3 are divalent organic radicals with the proviso that R^1 and R^2 are selected such that (i) units are different from (iii) units and wherein from 75% to 93% of the recurring units are (iii) units.

5,209,975

HIGH ELONGATION, HIGH STRENGTH PITCH-TYPE CARBON FIBER

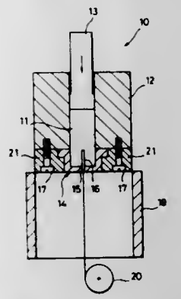
Makoto Miyazaki; Kikuji Komine, and Takashi Hino, all of Tokyo, Japan, assignors to Tonen Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 22, 1990, Ser. No. 601,486
Claims priority, application Japan, Oct. 30, 1989, 1-282387; Oct. 30, 1989, 1-282389
Int. Cl.[5] D02G *3/00*
U.S. Cl. 428—364 **2 Claims**

1. A high elongation, high strength pitch-type carbon fiber comprising:

a crystalline structure arranged in such a manner that the angle (ϕ), stack height (Lc) and interlayer spacing (d_{002}) of the X-ray structural parameter are 25° to 38°, 19 to 35 Å and 3.45 to 3.50 Å, respectively, wherein the atomic

ratio (O/C) of oxygen to carbon on the surface of said fiber measured by X-ray photoelectron spectrometry is



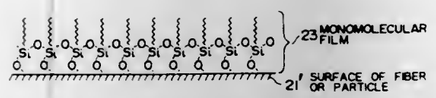
0.1 to 0.35, the total content of oxygen in said fiber is 0.01 to 0.2 wt. % and the elongation is 1.0% or more.

5,209,976

STRUCTURE HAVING A SURFACE COVERED WITH A MONOMOLECULAR FILM

Kazufumi Ogawa, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 373,186, Jun. 29, 1989, abandoned.
This application Oct. 24, 1991, Ser. No. 781,673
Claims priority, application Japan, Jul. 4, 1988, 63-166128; Jul. 4, 1988, 63-166130
Int. Cl.[5] B32B *1/00, 25/20*
U.S. Cl. 428—391 **16 Claims**



1. A metal or metal oxide fiber having a surface covered with a monomolecular film having an outward arrangement of hydrophobic groups, wherein a monomolecular film of a chlorosilane surface active agent is formed on the surface of a metal or metal oxide fiber, said metal or metal oxide fiber containing OH group groups on its surface, by a chemical adsorption reaction between the silicon atoms of the chlorosilane surface active agent and the OH groups of the metal or metal oxide fiber, the monomolecular film being chemically adsorbed directly to the surface of the metal or metal oxide fiber so that the resultant monomolecular film has an outward arrangement of hydrophobic groups.

5,209,977

CROSSLINKABLE ETHYLENE COPOLYMER POWDERS AND PROCESSES

Manfred Heimberg, Cincinnati, and Daniel J. Oudrus, West Chester, both of Ohio, assignors to Quantum Chemical Corporation, New York, N.Y.

Filed Nov. 26, 1991, Ser. No. 797,834
Int. Cl.[5] C08F *255/02, 230/08*
U.S. Cl. 428—402 **9 Claims**

1. A crosslinkable microfine olefin copolymer powder having a melt flow rate greater than 1 produced in an aqueous dispersion process and comprised of particles which are spherical or substantially spherical in shape with 80 percent or more of the particles ranging in size from 10 microns to 500 microns, said olefin copolymer comprised of 80 to 99.75 weight percent f an α- olefin having from 2 to 8 carbon atoms and 0.25 to 20 weight percent of an unsaturated alkoxysilane of the formula

$$R-Si(R^*)_n(Y)_{3-n}$$

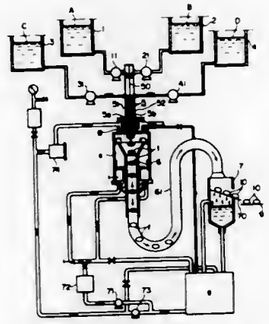
where R is an ethylenically unsaturated hydrocarbon radical having from 2 to 6 carbon atoms, R^* is a hydrocarbon radical having from 1 to 10 carbon atoms, Y is an alkoxy group having from 1 to 4 carbon atoms and n is an integer from 0 to 2.

5,209,978

SEAMLESS SOFT CAPSULE AND PRODUCTION THEREOF

Tadashi Kosaka, Ageo; Kazuki Omata, Tokyo; Tatsuo Hashimoto, Ageo; Teruaki Yamazaki, Ageo; Kazuo Hayashi, Ageo; Tomiya Hosoi, Saitama, and Kenichi Ikuta, Okegawa, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Japan

Division of Ser. No. 296,377, Dec. 28, 1987, abandoned, which is a continuation of Ser. No. 942,690, Dec. 17, 1986, abandoned.
This application Oct. 10, 1991, Ser. No. 774,325
Claims priority, application Japan, Dec. 26, 1985, 297182
Int. Cl.[5] A61K *9/64;* **B01J** *13/06;* **B29C** *39/10*
U.S. Cl. 428—402.2 **8 Claims**



1. A process for producing a soft capsule composed of a plurality of cells coalesced to each other and filling substances encapsulated in the individual cells, the wall of at least one of the cells being formed of a material different from a material forming the wall of at least a second of the cells, and said capsule being seamless, said method comprising:

(a) preparing a plurality of parallel, side by side composite jet streams, each of said composite jet streams having a central longitudinal axis and forming one of said plurality of cells, each of said composite jet streams consisting of a stream of a film-forming liquid substance for forming a cell wall and, within and surrounded by said stream of a film-forming liquid substance, a single stream, or a plurality of independent streams, of a filling substance, the film-forming liquid substance in at least one of the composite jet streams being different from the film-forming liquid substance in at least one of the other composite jet streams,

(b) advancing the plurality of composite jet streams, with their respective central longitudinal axes in a spaced and parallel relationship, into and through a liquid medium substantially incapable of dissolving the film-forming liquid substance,

(c) coalescing the film-forming streams of adjacent composite jet streams to each other to form a unitary composite jet stream in the liquid medium,

(d) cutting the unitary composite jet stream to a predetermined length successively from its leading end in the liquid medium and,

(e) solidifying the cell walls of the resulting cut pieces to form the soft capsule.

6. A unitary seamless capsule containing plural cells coalesced together, each of said cells containing a filling sub-

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stance encapsulated by a cell wall completely surrounding the filling substance, the cell wall of at least one of the cells being formed of a material different from a material forming the wall of at least a second of said cells, said cell walls being melded together with each of said cell walls defining in part the outermost surface of said seamless capsule, said capsule having one cross-section cutting through all of said plural cells.

5,209,979

SILICON CARBIDE COATED ARTICLE WITH CERAMIC TOPCOAT

William E. Moehle, Baton Rouge, La., and Leonard M. Niebylski, Birmingham, Mich., assignors to Ethyl Corporation, Richmond, Va.

Filed Jan. 17, 1990, Ser. No. 466,215
Int. Cl.[5] B32B 9/04
U.S. Cl. 428—408 7 Claims

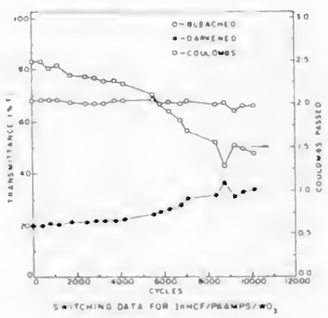
1. An article comprising (1) a silicon carbide-coated carbonaceous substrate which is normally susceptible to oxidative deterioration and (2) a ceramic topcoat derived by the application, drying, and pyrolysis of an organoborosilazane polymer solution containing 0–60% by weight of dispersed ceramic or preceramic powdered solids; said polymer being the product obtained by reacting about 0.25–20 parts by weight of a trialkoxy-, triaryloxy-, or tri(arylalkoxy)boroxine with one part by weight of a polysilazane in an organic solvent.

5,209,980

TRANSPARENT COUNTERELECTRODES

Ralph E. Spindler, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 26, 1990, Ser. No. 633,894
Int. Cl.[5] B32B 17/06
U.S. Cl. 428—432 9 Claims



1. An article having variable transmittance in response to an electric field comprising:

a. a transparent substrate;

b. a transparent electroconductive electrode material;

c. a transparent electrochromic material;

d. a transparent proton-conducting polymer electrolyte;

e. a transparent complementary electroconductive material of the general formula $[M^1]_4[M^2(CN)_6]_3$ wherein M^1 is selected from the group consisting of indium, gallium, gadolinium, lanthanum, nickel, copper and vanadium, and M^2 is selected from the group consisting of iron and ruthenium.

5,209,981

POLYIMIDESILOXANE EXTENDED BLOCK COPOLYMERS

Sergio Rojstaczer, Amherst, N.Y., assignor to Occidental Chemical Corporation, Niagara Falls, N.Y.

Filed Jun. 13, 1991, Ser. No. 714,532
Int. Cl.[5] B32B 9/04
U.S. Cl. 428—447 28 Claims

1. In a method of making a polyimidesiloxane extended block copolymer from a polyamic acid-siloxane extended block copolymer that contains at least one amic acid block made by reacting a dianhydride with a diamine that does not contain a siloxane group, and at least one siloxane-amic acid block made by reacting a dianhydride with a diamine that contains at least one siloxane group, the improvement which comprises

(A) preparing, in any order,

(1) at least one siloxane-amic acid block by reacting a dianhydride with a diamine that contains at least one siloxane group, where the molar ratio of dianhydride present to said diamine is more than 1 and less than 2, so that no unreacted dianhydride is present and said siloxane-amic acid block is anhydride terminated; and

(2) at least one amic acid block by reacting a diamine that does not containa siloxane group wtih a dianhydride, where the molar ratio of dianhydride present ot said diamine that does not containa siloxane group is less than 1, so that said amic acid block is amine terminated, where either said siloxane amic acid block or said amic acid block or both are prepared in the absence of dianhydride and diamine used to prepare the other block, and where the total number of moles of dianhydride is approximately equal to the total number of moles of diamine; and

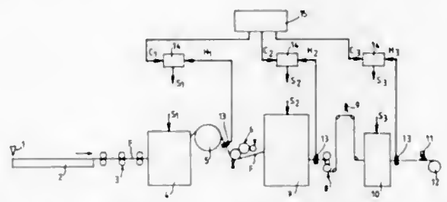
(B) imidizing amic acid groups.

5,209,982

METHOD OF MANUFACTURING PAPER FOR BOTTLE LABELS

Daniel Defrenne, Loupoigne, Belgium, assignor to Intermills Industrie Pont-de-Warche S.A., Malmedy, Belgium

PCT No. PCT/BE89/00005, § 371 Date Oct. 22, 1990, § 102(e) Date Oct. 22, 1990, PCT Pub. No. WO90/08223, PCT Pub. Date Jul. 26, 1990
PCT Filed Jan. 18, 1989, Ser. No. 474,840
Int. Cl.[5] B32B 23/08, 27/10
U.S. Cl. 428—511 18 Claims



1. A method of manufacturing a coated paper suitable for use as a coated label to be applied to a bottle, said label includes a fibrous base and a first coating and a second coating, said method including the steps of:

a. forming said fibrous base, wherein:

1. said fibrous base has a front face and a reverse face,

2. said front face is visible when said label is applied to said bottle;

3. said reverse face is in direct contact with said bottle when said label is applied to said bottle;

b. applying a hydrophilic coating slip to said reverse face of said fibrous base, said hydrophilic coating slip having a rapid reaction with water to accelerate a reaction therewith as a first step in forming said coated label;

c. applying a coating mixture to said front face of said fibrous base, said mixture comprising a cross-linkable latex and a soft latex as a second step in forming said coated label;

d. subjecting sad coated label to at least one controlled drying-rewetting cycle to adjust a moisture content of said label to a predetermined set of characteristics; and

e. recovering said label.

5,209,983

ADHESIVES FOR LAMINATING VINYL TO VARIOUS SUBSTRATES

Ronald B. Case, Newark, Del., and Robert J. Statz, Kennett Square, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jun. 26, 1992, Ser. No. 904,725
Int. Cl.[5] B32B 21/08, 27/28; C08L 23/08, 27/06
U.S. Cl. 428—514 9 Claims

1. An adhesive for polyvinyl chloride and polyvinyl chloride copolymers, comprising:

a) 5-65 weight percent of polyvinyl chloride or a polyvinyl chloride copolymer;

b) 15-75 weight percent of a first ethylene copolymer, said first copolymer being a direct copolymer containing 30–95 weight percent ethylene, and (i) 0–50 weight percent of a moiety derived from a comonomer consisting of at least one alkyl acrylate, alkyl methacrylate, alkyl vinyl ether, vinyl acetate or mixtures thereof, where the alkyl radical contains 1–8 carbon atoms, and also containing (ii) 1–20 weight percent of a moiety derived from a comonomer consisting of carbon monoxide or sulfur dioxide, provided that (i) is present to an extent equal or greater than [50 – (10×(ii)] weight percent, and

c) 2–25 weight percent of a second direct ethylene copolymer containing from 0–50 weight percent of a moiety derived from at least one alkyl acrylate, alkyl methacrylate, alkyl vinyl ether, vinyl acetate or mixtures thereof, where the alkyl radical contains 1–8 carbon atoms, and also contains 1–15 weight percent of a moiety derived from glycidyl acrylate, glycidyl methacrylate or glycidyl vinyl ether.

5,209,984

FILMS OF RADIATION RESISTANT HEAT SEALABLE POLYMER BLENDS HAVING A SURFACE ADHESION LAYER GRAFTED THERETO

Richard J. Rolando, and Dennis L. Krueger, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 371,713, Jun. 26, 1989, Pat. No. 5,140,073.
This application Jun. 26, 1992, Ser. No. 905,271
Int. Cl.[5] B32B 25/04, 25/08, 27/32; C08L 23/26
U.S. Cl. 428—516 2 Claims

1. A film comprising a polymer blend film and a surface adhesion grafted to said polymer blend film,

the polymer blend comprising non-crystalline mesomorphous polypropylene and at least a discernable amount of polybutylene.

5,209,985

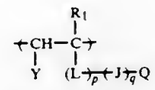
ANTISTATIC PLASTIC FILM

Elichi Ueda, and Masahito Takada, both of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Jul. 8, 1991, Ser. No. 727,062
Claims priority, application Japan, Jul. 10, 1990, 2-181852
Int. Cl.[5] B30B 27/08
U.S. Cl. 428—518 11 Claims

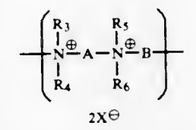
1. A plastic film comprising a plastic base film and provided thereon a layer containing a polyvinylidene chloride and an antistatic layer containing an ionic polymeric compound in that order, wherein the ionic polymeric compound is a polymer having a structure unit represented by the following Formula I, II-A or II-B:

Formula I

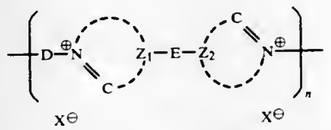


wherein R_1 represents an alkyl group having 1 to 4 carbon atoms, a hydrogen atom, a halogen atom or $—CH_2COOM$; Y represents a hydrogen atom or —COOM, wherein M represents a hydrogen atom or a cation; L represents —CONH—, —COO—, —CO— or —O—; J represents an alkylene group having 1 to 12 carbon atoms, an arylene group, an arylenealkylene group or an alkylenearylene group; Q represents an ionic group; and p and q each represent 0 or 1;

Formula II-A



Formula II-B



wherein R_3, R_4, R_5, and R_6 each represent an alkyl group having 1 to 4 carbon atoms, provided that R_4 and R_6 may bond together to form a nitrogen-containing hetero cyclic ring; A, B and D each represent an alkylene group having 2 to 10 carbon atoms, an arylene group, an alkenylene group, an arylenealkylene group, an alkylenearylene group, $—R_7COR_8—$, $—R_9COOR_{10}OCOR_{11}—$, $—R_{12}OCOR_{13}COOR_{14}—$, $—R_1—(OR_{16})m—$, $—R_{17}CONHR_{18}NHCOR_{19}—$, $—R_{20}OCONHR_{21}NHCOR_{22}—$, $—R_{23}NHCONHR_{24}NHCONHR_{25}—$ wherein R_7, R_8, R_9, R_{11}, R_{12}, R_{14}, R_{15}, R_{16}, R_{17}, R_{19}, R_{20}, R_{22}, R_{23} and R_{25} each represent an alkyl group, R_{10}, R_{13}, R_{14}, R_{21} and R_{24} each represent an alkylene group, an arylene group, an alkenylene group, an arylenealkylene group, an alkylenearylene group, and m represents an integer of 1 to 4; E represents an alkylene group having 2 to 10 carbon atoms, an arylene group, an alkenylene group, an arylenealkylene group, an alkylenearylene group, $—R_7COR_8—$, $—R_8COOR_{10}OCOR_{11}—$, $—R_1.{}_2OCOR_{13}COOR_{14}—$, $—R_{15}—(OR_{16})m—$, $—R_{17}CONHR_{18}NHCOR_{19}—$, $—R_{20}OCONHR_{21}NHCOR_{22}—$, $—R_{23}NHCONHR_{24}NHCONHR_{25}—$, $—NHCOR_{26}CONH—$ wherein R_7, R_8, R_9, R_{11}, R_{12}, R_{14}, R_{15}, R_{16}, R_{17}, R_{19}, R_{20}, R_{22}, R_{23} and R_{25} each represent an alkyl group, R_{10}, R_{13}, R_{14}, R_{21}, R_{24} and R_{26} each represent an alkylene group, an arylene group, an alkenylene group, an arylenealkylene group, an alkylenearylene group, and m represents an integer of 1 to 4; Z_1 and Z_2 represent a non-metallic atomic group necessary to form a 5 or 6 membered ring together with —N=C—; X represents an anion; and n represents an integer of 5 to 300.

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5,209,986

POLYMER COMPOSITES

Jers-Dieter Fischer, Bickenbach; Thomas Rhein, Stadecken-Elsheim, and Manfred Stickler, Seeheim-Jugenheim, all of Fed. Rep. of Germany, assignors to Rohm GmbH Chemische Fabrik, Darmstadt, Fed. Rep. of Germany

Division of Ser. No. 693,535, Apr. 30, 1991. This application Apr. 16, 1992, Ser. No. 869,164

Claims priority, application Fed. Rep. of Germany, May 18, 1990, 4016011

Int. Cl.[5] C08L *33/10, 25/12;* B32B *27/30*

U.S. Cl. 428—520 5 Claims

5. A composite comprising:

AA) a first layer comprising a polymer blend comprising:

(A) a copolymer comprising:

(a1) C_1-C_{10}-alkyl methacrylates, C_5-C_8-cycloalkyl methacrylates or mixtures thereof,

(a2) maleic acid anhydride, fumaric acid anhydride or maleimide, and

(a3) vinyl aromatics which may be unsubstituted or substituted on the aromatic ring by 1 or 2 C_1-C_4-alkyl groups, wherein the component (a1) is present in an amount of 50 to 99 wt. %, based on the total wt. of (A), the component (a2) is present in an amount of 0.5 to 20 wt. %, based on the total wt. of (A), and the component (a3) is present in an amount of 0.5 to 40 wt. %, based on the total wt. of (A), and

(B) a copolymer comprising:

(b1) styrene, α-methyl styrene or mixtures thereof, and

(b2) acrylonitrile, methacrylonitrile or mixtures thereof,

wherein said component (b1) is present in an amount of 99.5 to 50 wt. %, based on the total wt. of (B), and said component (b2) is present in an amount of 0.5 to 50 wt. %, based on the total wt. of (B);

wherein said copolymer (A) is present in an amount of 0.5 to 99.5 wt. %, based on the total wt. of (A)+(B), and said copolymer (B) is present in an amount of 99.5 to 0.5 wt. %, based on the total wt. of (A)+(B) and

BB) a second layer comprising a polymer blend comprising a polymerizate selected from the group consisting of polyalkyl(meth) acrylates, copolymers containing an amount of 50 to 100 wt. % of alkyl(meth)acrylate units and being different from said copolymers (A) and (B) of said polymer blend (AA), and copolymers containing an amount of 50 to 99.5 wt. % of styrene and/or α-methylstyrene units and being different from said copolymers (A) and (B) of said polymer blend (AA);

a plurality of said layers (AA) and (BB) being alternatively layered together to form a structure for a composite material.

5,209,987

WIRE AND CABLE

Richard J. Penneck, Lechlade; James M. O'Brien, Swindon; Stephen J. Duckworth, Swindon, and Nicholas J. G. Smith, Swindon, all of England, assignors to Raychem Limited, United Kingdom

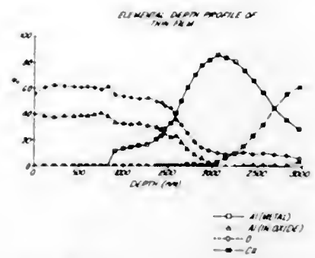
Division of Ser. No. 818,854, Jan. 14, 1986, Pat. No. 4,985,313, and a continuation-in-part of Ser. No. 711,537, Mar. 7, 1985, abandoned. This application Oct. 30, 1990, Ser. No. 605,868

Claims priority, application United Kingdom, Jul. 8, 1983, 8318612; Jan. 14, 1985, 8500816; Jan. 14, 1985, 8500817; Jan. 14, 1985, 8500818; Jan. 14, 1985, 8500819; Jan. 30, 1985, 8502316

Int. Cl.[5] H01B *1/02, 7/18*

U.S. Cl. 428—610 27 Claims

1. An electrical wire which comprises an elongate metallic electrical conductor having an adherent coating of a refractory compound of a metal or semi-metal that is bonded to the conductor by a metallic or refractory intermediate layer, the stoichiometry of the refractory coating varying throughout its thickness such that the proportion of metal or semi-metal in the coating decreases toward the outer surface of the coating, and,



surrounding the coated conductor, a layer of polymeric insulation.

5,209,988

STEEL PLATE FOR THE OUTSIDE OF AUTOMOBILE BODIES ELECTROPLATED WITH A ZINC ALLOY AND A MANUFACTURING METHOD THEREFOR

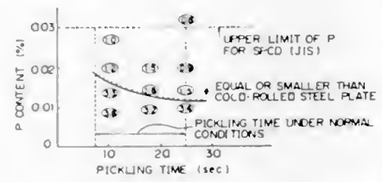
Tatsuo Kurimoto, Wakayama; Yoshihiko Hoboh, Osaka, and Tadashi Nonaka, Wakayama, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 259,799, Oct. 19, 1988. This application Sep. 26, 1990, Ser. No. 588,162

Claims priority, application Japan, Oct. 19, 1987, 62-262995

Int. Cl.[5] C25D *5/36*

U.S. Cl. 428—659 2 Claims



1. Steel plate having improved resistance to creeping upon impact at a low temperature and useful for automobile bodies and being electroplated with an alloy, characterized in that said steel plate contains 0.02～0.03 weight % of P as an alloying element and in that said alloy has Zn as a primary component, a total amount of Cu, Ni, Cr and Mo in the steel plate being about 0.05 to about 0.07 weight %.

5,209,989

SOLID OXIDE FUEL CELL

Takeshi Ishihara; Hidenobu Misawa, both of Toyoake, and Satoru Yamada, Nagoya, all of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Feb. 11, 1991, Ser. No. 653,283

Claims priority, application Japan, Feb. 15, 1990, 2-32380; Feb. 20, 1990, 2-37151

Int. Cl.[5] H01M *8/10*

U.S. Cl. 429—30 13 Claims

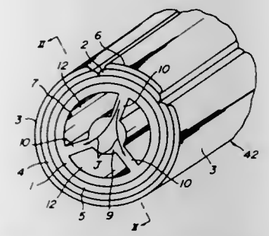
1. A solid oxide fuel cell comprising:

a pluralty of elongate, tube-shaped solid oxide fuel cell elements arranged in parallel and defining external spaces between adjacent fuel cell elements;

a gas flow passage defined in each fuel cell element for receiving therein one of an oxidizing gas or a fuel gas, wherein the other one of said oxidizing gas or fuel gas flows in said external spaces between said fuel cell elements;

means for electrically connecting electrodes of adjacent fuel cell elements;

means for converting gas flow in said external spaces into turbulent flow at surfaces of fuel cell element electrodes exposed to said external spaces, said converting means



comprising elongate bodies arranged in said external spaces and extending in a longitudinal direction of said fuel cell elements.

5,209,990

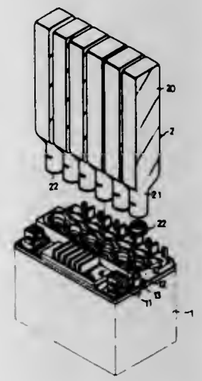
BATTERY ASSEMBLY

Juei-Liu Wang, No. 12, Lane 114, Nankung St., and Chao-Tung Cheng, No. 999, Chungcheng N. Rd., both of, Yungkang Hsiang, Tainan Hsien, Taiwan

Filed Sep. 13, 1991, Ser. No. 759,238

Int. Cl.[5] H01M *2/38*

U.S. Cl. 429—63 1 Claim



1. A battery assembly comprising a battery case for accommodating battery acid via a plurality of sockets thereof, a cover means for sealing said sockets, and a battery acid container for filling battery acid into said case through said sockets, said battery assembly is characterized in that:

said battery acid container comprising a plurality of vessels adjacent to each other and an air vent formed between a respective pair of said adjacent vessels for ventilating air between said vessels, each said vessel having a mouth and a plug mounted on said mouth, said plug comprising a flange surrounding an opening thereof and a bottom including a weak portion able to be torn apart upon insertion into said battery case and a reinforced portion for retaining said weak portion affixed to said plug.

5,209,991

CONTAINER FOR LEAD-ACID STORAGE BATTERIES

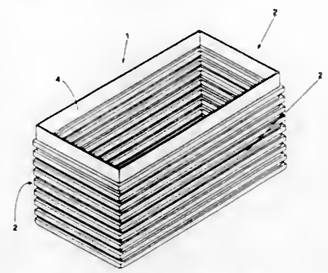
Olimpio Stocchiero, 5 Via Kennedy, 36050 Montorso Vincentino (VI), Italy

Filed Jan. 23, 1991, Ser. No. 644,590

Claims priority, application Italy, Jan. 24, 1990, 85510 A/90

Int. Cl.[5] H01M *4/00*

U.S. Cl. 429—66 4 Claims



1. A container for a lead-acid storage battery, comprising:

essentially vertical walls forming a quadrilateral, said vertical walls having internal surfaces and external surfaces;

a plurality of low-relief external and internal perimetric recesses formed in said external surfaces and said internal surfaces of said vertical walls, said external perimetric recesses having a constant pitch and said internal recesses having a constant pitch, the two pitches being essentially equal in value;

an upper perimetric edge formed on said vertical walls;

a lid received on said upper perimetric edge; and

a plate bottom joining said vertical walls opposite said upper perimetric edge;

said external and internal recesses permitting said vertical walls to lengthen during battery operation.

5,209,992

WATER BY-PASSING, FLAME RETARDANT BATTERY VENT PLUG

Fred F. Feres, Auburn Hill, Mich., assignor to Exide Corporation, Reading, Pa.

Continuation of Ser. No. 630,565, Dec. 20, 1990, Pat. No. 5,108,853. This application Dec. 10, 1991, Ser. No. 805,555

The portion of the term of this patent subsequent to Apr. 28, 2009, has been disclaimed.

Int. Cl.[5] H01M *2/12*

U.S. Cl. 429—86 5 Claims

1. A water by-passing flame-retardant vent plug adapted for use in storage batteries of the type containing a liquid electrolyte, comprising:

(a) a vent body adapted for insertion into a filler orifice in a battery cover such that the body closes the orifice against liquid and gas leakage between the body and the sides of the orifice;

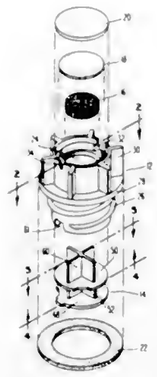
(b) a vent path through the body for allowing gasses to pass through the plug to the atmosphere outside the battery, said path comprising one or more inlet slots disposed on the body which are open to the interior of the battery, one or more outlet slots disposed on the body which are open to the outside atmosphere, and a hollow portion of the body's interior which provides a gas communication path between the inlet slots and the outlet slots;

(c) a flame arrester of porous material of sufficient porosity and thickness such that gasses may pass through the pores but a flame will be extinguished before propagating through the arrester, said flame arrester being disposed in the interior of the body across the gas communication path between the inlet and outlet slots; and

(d) a seat disposed in the interior of the body across the gas communication path between the flame arrester and the

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outlet slots, said seat positioned with respect to said outlet slot or slots, such that water entering from the exterior of



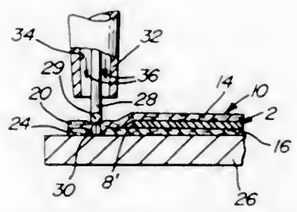
the battery is prevented from flowing into the battery through the gas communication path, but rather is by-passed out through a slot.

5,209,993

METHOD OF ENVELOPING BATTERY PLATES

Renard E. Mix, Yorktown, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 24, 1990, Ser. No. 571,812
Int. Cl.[5] H01M *2/18*
U.S. Cl. 429—136 6 Claims



1. A method of enveloping a battery plate in a heat-fusible, fibrous separator material, said plate having a pair of opposing faces defined by a plurality of edges, said method comprising the steps of:

a. overlying each said face of a said plate with a sheet of said separator material such that each said sheet has at least one perimetrical portion extending outboard a said edge of said plate and lies adjacent the perimetrical portion of the other of said sheets;

b. pressing said adjacent perimetrical portions together between a set of electrodes;

c. striking an electric arc between said electrodes sufficient to fuse said perimetrical portions together at the situs of said arc; and

d. holding said perimetrical portions together until said fused perimetrical portions cool sufficiently to bond said perimetrical portions together.

5,209,994

LITHIUM-IODINE ELECTROCHEMICAL CELLS WITH IMPROVED END OF LIFE CHARACTERISTICS

David L. Blattenberger, Coon Rapids; William D. Helgeson, Minneapolis; John C. Strohkirch, Coon Rapids, and Bernard Heller, Fridley, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Dec. 13, 1990, Ser. No. 628,292
Int. Cl.[5] H01M *4/60, 6/18, 4/36*
U.S. Cl. 429—213 16 Claims

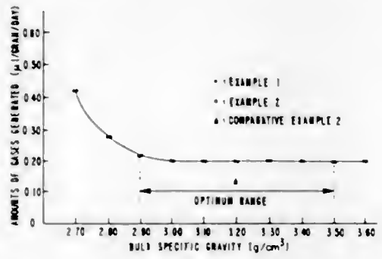
1. An electrochemical cell comprising a lithium anode and an iodine-containing cathode, the lithium anode having a first operative portion and a second operative portion, said first operative portion having a weight of polymeric organic donor material thereon and said second operative portion having a lesser weight of polymeric organic donor material thereon, whereby desirable end-of-life characteristics are provided.

5,209,995

ZINC ALKALINE CELLS

Kinya Tada; Masaaki Kurimura; Mutsumi Yano, all of Osaka; Eiichiro Mieno, Gunma; Wataru Sekiguchi, Gunma; Junzo Nakagawa, Gunma, and Takanori Akazawa, Gunma, all of Japan, assignors to Sanyo-Denki Kabushikigaisha; Sanyo-Ekuseru Kabushikigaisha and Toho-Aen Kanushikigaisha, all of Japan

Filed Aug. 21, 1991, Ser. No. 747,957
Claims priority, application Japan, Mar. 12, 1991, 3-72338
Int. Cl.[5] H01M *4/42*
U.S. Cl. 429—229 4 Claims



1. A zinc alkaline cell comprising an anode active material which contains a non-amalgamated zinc alloy powder having a bulk specific gravity ranging from approximately 2.90 to 3.50 (grams per cm^3) and containing indium coated on a surface of the non-amalgamated zinc alloy powder containing aluminum and/or calcium as a zinc alloy powder component.

5,209,996

MEMBRANE CONSISTING OF SILICON CARBIDE AND SILICON NITRIDE, METHOD FOR THE PREPARATION THEREOF AND MASK FOR X-RAY LITHOGRAPHY UTILIZING THE SAME

Meguru Kashida; Yoshihiro Kubota, and Yoshihiko Nagata, all of Gunma, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 555,722, Jul. 19, 1990, abandoned. This application Mar. 11, 1992, Ser. No. 850,691
Claims priority, application Japan, Jul. 26, 1989, 1-192977
Int. Cl.[5] G03F *9/00*
U.S. Cl. 430—5 1 Claim

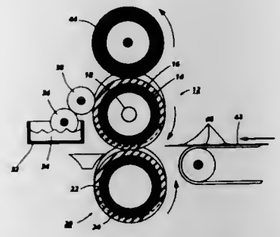
1. A membrane composite consisting of a homogenous single phase of silicon carbide and silicon nitride in a molar ratio in the range from 95:5 to 30:70.

5,209,997

THREE ROLL FUSER

Paul M. Fromm, Rochester; Rabin Moser, Fairport, and James E. Mathers, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 18, 1991, Ser. No. 793,751
Int. Cl.[5] G03G *13/20, 15/20*
U.S. Cl. 430—99 12 Claims



2. Apparatus according to claim 1 wherein said means for effecting uniform pressure and velocity in said nip comprises means for effecting deflection of said roll structures.

5,209,998

COLORED SILICA PARTICLES

Tom A. Kavassalis, Waterdown, and Francoise M. Winnik, Toronto, both of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 25, 1991, Ser. No. 797,596
Int. Cl.[5] G03G *9/135, 9/093*
U.S. Cl. 430—106 37 Claims

14. A liquid developer composition comprising an organic liquid vehicle, a polymer soluble in the organic liquid vehicle, a charge control agent, and silica particles containing a water soluble dye entrapped therein, said silica particles being coated with a surfactant, wherein said silica particles are dispersed within the organic liquid vehicle.

5,209,999

ELECTROPHOTOGRAPHIC TOWER FOR NEGATIVE CHARGING

Noriaki Tsubota, Himeji; Masahiko Kubo, Yao; Kazuo Fuji, Higashi-osaka; Akihiro Watanabe, Kawai-cho, and Yoshihisa Kuramae, Hirakata, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Nov. 27, 1991, Ser. No. 798,746
Claims priority, application Japan, Nov. 28, 1990, 2-328358; Nov. 28, 1990, 2-328359; Nov. 28, 1990, 2-328360; Nov. 28, 1990, 2-328364
Int. Cl.[5] G03G *9/097*
U.S. Cl. 430—110 14 Claims

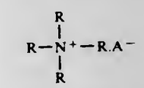
1. An electrophotographic toner for negative charging, comprising

a fixing resin,

a colorant,

a charge-controlling agent for negative charging, and

a charge-controlling assistant, wherein the charge-controlling assistant is a positive charge-controlling substance which is incompatible with the fixing resin and has a dispersibility in the fixing resin, said charge-controlling assistant being a compound represented by the formula



wherein at least one of groups R represents a long chain alkyl or long-chain alkenyl group having at least 8 carbon atoms, other groups R represent a lower alkyl group, a benzyl group, a long-chain alkyl group or a long-chain alkenyl group, with the proviso that at least 2 of these groups R represent a lower alkyl group having up to 4 carbon atoms or a benzyl group, and A represents an oxyacid anion.

5,210,000

PHOTORESIST AND METHOD FOR FORMING A RELIEF IMAGE UTILIZING COMPOSITION WITH COPOLYMER BINDER HAVING A MAJOR PROPORTION OF PHENOLIC UNITS AND A MINOR PROPORTION OF NON-AROMATIC CYCLIC ALCOHOLIC UNITS

James Thackeray, Braintree; George W. Orsula, Tewksbury, and Roger Sinta, Woburn, all of Mass., assignors to Shipley Company Inc., Newton, Mass.

Continuation of Ser. No. 354,800, May 22, 1989, Pat. No. 5,128,232. This application Feb. 6, 1992, Ser. No. 832,004
Int. Cl.[5] G03F *7/023, 7/30*
U.S. Cl. 430—165 20 Claims

1. An article of manufacture comprising a substrate with a photoresist composition coating layer, the photoresist composition comprising an admixture of a resin binder and a light sensitive component, the resin binder comprising a copolymer having a major proportion of phenolic units and a minor proportion of non-aromatic cyclic alcohol units, said cyclic alcohol units being present in a concentration of less than 50 mole percent of the total of said binder and being insufficient to prevent development of an exposed coating of the photoresist in a developer for said photoresist, said light sensitive component being present in an amount capable of generating a latent image by imagewise exposure of the coating layer of said photoresist to activating radiation.

8. A method for forming a relief image, comprising:

(a) applying a coating layer of a photoresist composition on a substrate, the photoresist composition comprising an admixture of a resin binder and a light sensitive component, the resin binder comprising a copolymer having a major proportion of phenolic units and a minor proportion of non-aromatic cyclic alcohol units, said cyclic alcohol units being present in a concentration of less than 50 mole percent of the total of said binder and being insufficient to prevent development of an exposed coating of the photoresist in a developer for said photoresist, said light sensitive component being present in an amount capable of generating a latent image by imagewise exposure of the coating layer of said photoresist to activating radiation;

(b) imagewise exposing the coating layer to activating radiation; and

(c) developing the exposed coating layer to form a relief image.

5,210,001

PROCESS FOR THE PREPARATION OF IMAGES ON TONABLE, LIGHT-SENSITIVE LAYERS

Helmut Fröhlich, Heusenstamm, Fed. Rep. of Germany, and Michael Fryd, Moorestown, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 620,891, Dec. 3, 1990, Pat. No. 5,126,226. This application Apr. 6, 1992, Ser. No. 863,897
Claims priority, application Fed. Rep. of Germany, Dec. 15, 1989, 3941446
Int. Cl.[5] G03C *1/82*
U.S. Cl. 430—252 7 Claims

1. A process for preparing images on tonable, light-sensitive layers which comprises:

(a) imagewise exposing a light-sensitive layer so that tacky and non-tacky areas are produced;

(b) contacting the exposed layer with a light-insensitive transfer layer on a support, said transfer layer having:

(i) a binder containing at least one core/shell polymer

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wherein the core comprises 5–95 percent by weight of the polymer and has a glass transition temperature above 50° C. and the shell comprises 5–95 percent by weight of a polymer and has a glass transition temperature below 40° C.;

(ii) at least one toner; and

(c) separating the exposed layer from the transfer layer.

5,210,002

NUCLEATED HIGH CONTRAST PHOTOGRAPHIC ELEMENTS CONTAINING UREA COMPOUNDS WHICH ENHANCE SPEED AND INCREASE CONTRAST

Anthony Adin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 25, 1991, Ser. No. 735,979

Int. Cl.[5] G03C *1/06*

U.S. Cl. 430—264 **19 Claims**

1. A silver halide photographic element adapted to form a high contrast image when developed with an aqueous alkaline developing solution; said element comprising:

(1) surface latent image forming high-chloride silver halide grains,

(2) a hydrazine compound that functions as a nucleator,

(3) an amino compound that functions as an incorporated booster,

(4) a gold compound that functions as a chemical sensitizer, and

(5) a urea compound that functions as a chemical sensitizer, said urea compound being a 1,1,3,3-tetra-substituted middle chalcogen urea compound in which at least one substituent comprises a nucleophilic center.

5,210,003

ACID LABILE DISSOLUTION INHIBITORS AND POSITIVE- AND NEGATIVE-ACTING PHOTOSENSITIVE COMPOSITION BASED THEREON

Ulrich Schädeli, Granges-Paccot, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

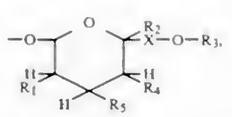
Filed Sep. 9, 1991, Ser. No. 756,631

Claims priority, application Switzerland, Sep. 13, 1990, 2971/90

Int. Cl.[5] G03C *1/492*

U.S. Cl. 430—270 **7 Claims**

1. A composition comprising (1) a non-polymeric compound which contains at least one aromatic ring system carrying one or more tetrahydropyranyloxy substituents of formula I



(I)

wherein

R_1 is hydrogen, halogen, alkyl, cycloalkyl, aryl, alkoxy or aryloxy,

R_2 is hydrogen, alkyl, cycloalkyl or aryl,

R_3 is a saturated or unsaturated hydrocarbon radical,

R_4 and R_5 are each independently of the other hydrogen, halogen, alkyl, alkoxy or aryloxy, and

X is a direct single bond or a methylene or ethylene bridge,

(2) a compound which generates acid when exposed to actinic radiation, and (3) a binder.

5,210,004

PHOTOPOLYMERIZABLE PRINTING PLATE FOR FLEXOGRAPHIC PRINTING

Werner Abele, Neu-Isenburg, Fed. Rep. of Germany, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 8, 1991, Ser. No. 726,680

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1990, 4022979

Int. Cl.[5] G03F *7/11*

U.S. Cl. 430—272 **8 Claims**

1. A photopolymerizable printing element comprising:

(a) a support;

(b) a photopolymerizable layer containing at least one elastomeric binder, at least one ethylenically unsaturated monomer addition-polymerizable by actinic radiation, and a photoinitiator or photoinitiator system;

(c) an elastomeric layer containing at least one thermoplastic, elastomeric block copolymer; and

(d) a cover sheet, wherein the elastomeric layer (c) further contains at least one compound produced by (i) reacting rosins with at least one compound selected from the group consisting of ethylenically unsaturated monocarboxylic acids, ethylenically unsaturated monocarboxylic acid anhydrides, ethylenically unsaturated polycarboxylic acids, and ethylenically unsaturated polycarboxylic acid anhydrides, (ii) reacting the compound produced by (i) with at least one polyol to esterify a part of the carboxylic acid groups of the compound produce by (i), and (iii) reacting the compound partially esterified by (ii) with at least one epoxide resin.

5. The photopolymerizable printing element of claim **1**, wherein the elastomeric layer (c) contains at least one radial $(polystyrene/polybutadiene)_4Si$ block copolymer with 15–30 percent by weight polystyrene content.

8. A process for preparing a photopolymerizable printing element comprising:

(a) feeding into the nip of a calender, a photopolymerizable composition containing at least one elastomeric binder, at least one ethylenically unsaturated monomer additionally polymerizable by actinic radiation, and a photoinitiator or photoinitiator system;

(b) calendering the photopolymerizable composition between a support (a) and a multilayer cover element thereby forming a photopolymerizable layer (b) between them, said multilayer cover element comprising an elastomeric layer (c) and a cover sheet (d),

wherein the elastomeric layer (c) further comprises at least one thermoplastic elastomeric block copolymer and at least one compound produced by (i) reacting rosins with at least one compound selected from the group consisting of ethylenically unsaturated monocarboxylic acids, ethylenically unsaturated monocarboxylic acid anhydrides, ethylenically unsaturated polycarboxylic acids, and ethylenically unsaturated polycarboxylic acid anhydrides, (ii) reacting the compound produced by (i) with at least one polyol to esterify a part of the carboxylic acid groups of the compound produced by (i), and (iii) reacting the compound partially esterified by (ii) with at least one epoxide resin.

5,210,005

METHOD AND APPARATUS FOR DEVELOPING PHOTOSENSITIVE LITHOGRAPHIC PLATE

Tomoaki Takekoshi; Sho Nakao; Hisao Ohba, and Seiji Shigetaka, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 14, 1989, Ser. No. 393,190

Claims priority, application Japan, Aug. 16, 1988, 63-203398; Aug. 16, 1988, 63-203399; Aug. 16, 1988, 63-203402

Int. Cl.[5] G03F *7/26;* **G03D** *3/08*

U.S. Cl. 430—302 **17 Claims**

1. A method of developing photosensitive lithographic plate by applying developer to a photosensitive lithographic plate

with at least one layer which has been exposed with an image, comprising the steps of:

(a) conveying the photosensitive lithographic plate with one layer facing substantially downward;

(b) applying a predetermined amount of substantially unused developer to at least said one layer of the photosensitive lithographic plate which is being conveyed; and

(c) retaining the developer on said one layer by bringing a point-contact roller into point contact with said one layer.

8. An apparatus for developing photosensitive lithographic

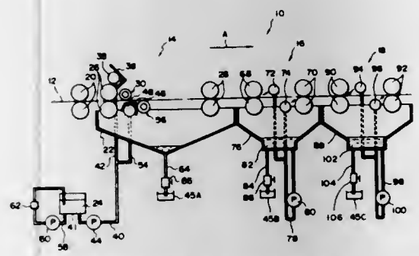


plate capable of developing, by a developer, a photosensitive lithographic plate with at least one layer which has been exposed with an image while the photosensitive lithographic plate is being conveyed with said one layer facing substantially downwards, comprising:

supply means for supplying a predetermined amount of substantially unused developer to said one layer; and

retaining means for retaining the developer on said one layer, wherein said retaining means is provided with a flat portion retaining the developer on the upper surface thereof.

5,210,006

PROCESS FOR PREPARING MOUNTING TAPES FOR AUTOMATIC MOUNTING OF ELECTRONIC COMPONENTS

Manfred Sondergeld, Mühlheim/Main, Fed. Rep. of Germany, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed May 31, 1991, Ser. No. 708,277

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1990, 4017863

Int. Cl.[5] G03F *7/00;* **C23F** *1/02*

U.S. Cl. 430—312 **10 Claims**

1. Process for preparing a mounting tape with metallic conductive tabs having metallic bumps on at least one of their ends, comprising the following process steps:

a) coating a metal surface of a mounting tape with a light-sensitive composition, thereby forming process electroplating resist;

b) exposing the light-sensitive composition through a transparency with a pattern corresponding to the metallic bumps to be formed,

c) removing the exposed area corresponding to the metallic bumps to be formed,

d) forming the metallic bumps by electrodeposition of a metal,

e) removing the electroplating resist,

f) re-applying a light-sensitive composition layer on the metal surface of the mounting tape, covering the already-formed metallic bumps, thereby forming an etching resist,

g) exposing the light-sensitive layer through a transparency with a pattern corresponding to the metallic conductive tabs to formed,

h) removing the exposed layer areas corresponding to the metal areas to be removed,

i) removing the exposed metal, and

j) removing the etching resist.

5,210,007

IMAGE INTENSIFICATION CHEMISTRY WITH BLOCKED INCORPORATED DEVELOPERS

John Texter; David Southby; Jared Mooberry, and Roland Willis, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 19, 1991, Ser. No. 810,322

Int. Cl.[5] G03C *7/388, 7/407, 5/42, 1/42*

U.S. Cl. 430—373 **18 Claims**

14. A process of forming and amplifying a photographic color image in an exposed color photographic element comprising developing the element in the presence of a dinucleophile reagent, wherein the element comprises a support bearing at least one photographic silver halide emulsion layer and an image dye-forming coupler wherein:

(a) the photographic silver halide in the emulsion layer comprises at least about 70 mole percent chloride;

(b) the concentration of silver in the emulsion layer is within the range of about 0.1 mg/m^2 to 2000 mg/m^2; and

(c) the element includes a blocked color developing agent capable of being unblocked by means of reaction with the dinucleophile reagent.

5,210,008

PHOTOGRAPHIC PROCESS

Ubbo Wernicke, Rösrath Kleineichen, and Egon Bachem, Burscheid, both of Fed. Rep. of Germany, assignors to Agfa Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 20, 1992, Ser. No. 871,286

Claims priority, application Fed. Rep. of Germany, May 4, 1991, 4114591

Int. Cl.[5] G03C *5/395*

U.S. Cl. 430—398 **9 Claims**

1. In a method of processing of photographic material wherein development is followed by

at least one further chemical treatment which is preceded and followed by washing operations, the steps comprising removing liquid from the region of entry of photographic material into the following washing operation and

supplying liquid to the region of discharge of material of the preceding washing operation.

5,210,009

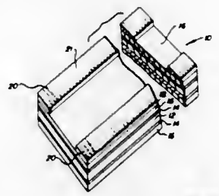
SILVER RECOVERY ELEMENT AND PROCESS

Hugh G. McGuckin, and John S. Badger, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 28, 1991, Ser. No. 724,393

Int. Cl.[5] G03C *5/31;* **C22B** *3/44*

U.S. Cl. 430—399 **18 Claims**





9. A process of recovering silver from a photographic devel-

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oper solution containing silver ions, said process comprising contacting said solution with a silver recovery element, said element comprising: a support having two opposed surfaces; a hydrophilic colloid layer containing physical development nuclei on at least one of said two opposed surfaces; a raised portion on at least one of the opposed outer surfaces of said element for spacing adjacent surfaces, and wherein said element has an active surface to volume ratio in excess of the outer surface to volume ratio defined by the geometric configuration of said element; and said contacting being for a time sufficient to reduce the concentration of silver in said solution to a desired level.

5,210,010

SILVER HALIDE DEVELOPING SOLUTIONS

Ross Fielding, Knutsford Cheshire, United Kingdom, assignor to Ilford Limited, Knutsford Cheshire, United Kingdom

Filed Apr. 30, 1992, Ser. No. 876,834

Claims priority, application United Kingdom, May 15, 1991, 9110482

Int. Cl.[5] G03C *5/30*

U.S. Cl. 430—466 12 Claims

1. A concentrated developer solution which comprises from about 20 to about 60 g/l of a dihydroxybenzene, from about 0.5 to about 3.0 g/l of an auxiliary developing agent, from about 300 to about 500 g/l of potassium sulphite and which is buffered to a pH of from about 8 to about 10 with a buffering agent other than an alkanolamine and which comprises an organic solvent other than an alkanolamine sufficient to dissolve the dihydroxybenzene.

5,210,011

SILVER HALIDE PHOTOGRAPHIC PHOTOSENSITIVE MATERIAL CONTAINING TWO TYPES OF CYAN DYE FORMING COUPLERS

Jiro Tsukahara, and Hidetoshi Kobayashi, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

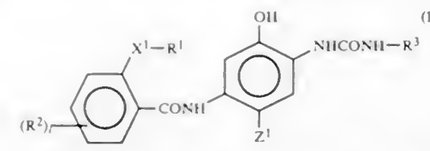
Filed Dec. 11, 1990, Ser. No. 625,481

Claims priority, application Japan, Dec. 15, 1989, 1-325012

Int. Cl.[5] G03C *7/34*

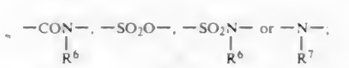
U.S. Cl. 430—549 18 Claims

1. The silver halide color photographic photosensitive material comprising a support having thereon at least one silver halide emulsion layer, wherein at least one cyan dye forming coupler represented by the formula (I) indicated below



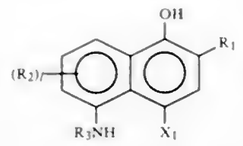
(I)

wherein R^1 represents a substituted or unsubstituted alkyl group, alkenyl group, alkynyl group, cycloalkyl group or aryl group; X^1 represents a single bond, —O—, —S—, —SO—, SO_2, —COO—,



wherein R^6 represents a hydrogen atom, an acyl group having 1 to 36 carbon atoms or a group with the same meaning as R^1; R^7 is a hydrogen atom or a linear, branched chain or substituted alkyl group;

R^2 represents a group which can be substituted on a benzene ring; l represents an integer of 0 to 4; R^3 represents a substituted or unsubstituted aryl group; and Z^1 represents a hydrogen atom or a coupling-off group and at least one cyan dye forming coupler which can be represented by the formula (C) indicated below



(C)

wherein R_1 represents $-CONR_4R_5$, $-SO_2NR_4R_5$, $-NHCOR_4$, $-NHCOOR_6$, $-NHSO_2R_6$, $-NHCONR_4R_5$ or $-NHSO_2NR_4R_5$; R_2 represents a group which can be substituted on a naphthalene ring; l represents an integer of 0 to 3; R_3 represents a substituent group; X_1 represents a coupling-off group; R_4 and R_5, which may be the same or different, each represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group; and R_6 represents an alkyl group, an aryl group or a heterocyclic group; and when l is 2 or 3, the R_2 groups may be the same or different, or they may combine and form a ring; R_2 and R_3, or R_3 and X_1, may combine and form a ring; and dimers or larger oligomers formed by joining together via di- or higher valent groups at R_1, R_2, R_3 or X_1, are present in the same layer or in a different layer.

5,210,012

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Michio Ono; Kouichi Hanaki; Kei Sakanoue; Shigeo Hirano, and Mitsuru Yamamoto, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

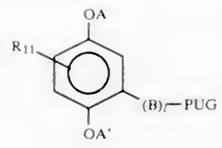
Filed Jan. 31, 1991, Ser. No. 648,894

Claims priority, application Japan, Jan. 31, 1990, 2-21127; Jan. 31, 1990, 2-21128; Jan. 31, 1990, 2-21129; May 10, 1990, 2-120822

Int. Cl.[5] G03C *7/20, 7/26, 7/32, 1/42*

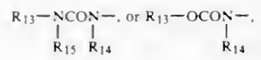
U.S. Cl. 430—566 7 Claims

1. A silver halide color photographic material comprising on a support at least one silver halide emulsion layer containing at least one of the compounds represented by formula (IB):



(IB)

wherein R_{11} represents



in which R_{13} represents an alkyl, aryl or heterocyclic group, R_{14} represents hydrogen; and R_{15} each represents hydrogen, an alkyl group or an aryl group; B represents a timing group which releases PUG after being separated from a hydroquinone nucleus; PUG represents a development inhibitor; l represents an integer; and A and A' each represents a hydrogen atom or a group capable of being removed by an alkali; R_{11} and A or A' may together form a ring.

5,210,013

VERY LOW COEFFICIENT OF VARIATION TABULAR GRAIN EMULSION

Allen K. Tsaur, and Mamie Kam-Ng, both of Fairport, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 14, 1991, Ser. No. 699,855

Int. Cl.[5] G03C *1/015, 1/035*

U.S. Cl. 430—567 43 Claims

1. A photographic emulsion containing a coprecipitated grain population exhibiting a coefficient of variation of less than 10 percent, based on the total grains of said population, said grain population containing at least 50 mole percent bromide, based on silver, and consisting essentially of tabular grains having a mean thickness in the range of from 0.080 to 0.3 μm and a mean tabularity of greater than 8.

5,210,014

MID-GREEN SENSITIZING DYES FOR PHOTOGRAPHIC MATERIALS

Richard B. Anderson, Fairport; Robert E. Dickerson, Rochester; Steven G. Link, Rochester; Fred M. Macon, Rochester, and Wayne W. Weber, II, Honeoye Falls, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

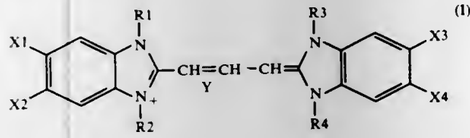
Filed Mar. 28, 1991, Ser. No. 676,913

The portion of the term of this patent subsequent to Mar. 23, 2010, has been disclaimed.

Int. Cl.[5] G03C *1/18*

U.S. Cl. 430—588 18 Claims

1. A photographic element comprising a support having thereon a silver halide emulsion layer sensitized with a benzimidazolocarbocyanine dye according to the following formula I:



(I)

wherein

R1 and R3 are methyl or ethyl, at least one of R1 and R3 being methyl;

R2 and R4 are substituted or unsubstituted C_1 to C_6 alkyl, provided that R2 and R4 are not both methyl;

X1, X2, X3, and X4 are each independently methyl, methylthio, fluoro-substituted methyl or methylthio, or hydrogen, provided that at least one of X1 and X2 and at least one of X3 and X4 are not hydrogen;

Y represents an ion as needed to balance the charge of the molecule; and wherein the adsorbed dye forms on the emulsion a J-aggregate with a maximum absorption between 540 to 556 nm, and the combination of substituents R1-R4 and X1-X4 are selected to fit the following equation (i);

$$0.455\Sigma\sigma_i(R1\text{-}R4)+0.144\Sigma\sigma_p(X1\text{-}X4)+0.610>0.68 \quad \text{(i)}$$

where the small sigmas are electronic substituent constants, σ_i being Taft's sigma (inductive) constant, and σ_p being Hammett's sigma(para) constant.

5,210,015

HOMOGENEOUS ASSAY SYSTEM USING THE NUCLEASE ACTIVITY OF A NUCLEIC ACID POLYMERASE

David H. Gelfand; Pamela M. Holland, both of Oakland; Randall K. Saiki, Richmond, and Robert M. Watson, Berkeley, all of Calif., assignors to Hoffman-La Roche Inc., Nutley, N.J.

Filed Aug. 6, 1990, Ser. No. 563,758

Int. Cl.[5] C12Q *1/68;* C07H *21/00*

U.S. Cl. 435—6 38 Claims



1. A process for the detection of a target nucleic acid sequence in a sample, said process comprising:

(a) contacting a sample comprising single-stranded nucleic acids with an oligonucleotide containing a sequence complementary to a region of the target nucleic acid and a labeled oligonucleotide containing a sequence complementary to a second region of the same target nucleic acid sequence strand, but not including the nucleic acid sequence defined by the first oligonucleotide, to create a mixture of duplexes during hybridization conditions, wherein the duplexes comprise the target nucleic acid annealed to the first oligonucleotide and to the labeled oligonucleotide such that the 3' end of the first oligonucleotide is upstream of the 5' end of the labeled oligonucleotide;

(b) maintaining the mixture of step (a) with a template-dependent nucleic acid polymerase having a 5' to 3' nuclease activity under conditions sufficient to permit the 5' to 3' nuclease activity of the polymerase to cleave the annealed, labeled oligonucleotide and release labeled fragments; and

(c) detecting and/or measuring the release of labeled fragments.

5,210,016

ALLELIC ASSOCIATION OF THE HUMAN DOPAMINE (D_2) RECEPTOR GENE IN COMPULSIVE DISORDERS SUCH AS ALCOHOLISM

Kenneth Blum, San Antonio, Tex.; E. P. Noble, Los Angeles, Calif., and P. J. Sheridan, San Antonio, Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex. and Regents of the University of California, Berkeley, Calif.

Continuation of Ser. No. 477,057, Feb. 7, 1990, abandoned. This application Jan. 23, 1992, Ser. No. 826,222

Int. Cl.[5] C12Q *1/68;* G01N *33/566*

U.S. Cl. 435—6 6 Claims

1. A method of detecting a genetic potential susceptibility to alcoholism in a human subject, comprising:

obtaining DNA from a subject; and

detecting, in said DNA, a human dopamine D_2 receptor gene A1 allele, wherein said A1 allele indicates a potential susceptibility to alcoholism.

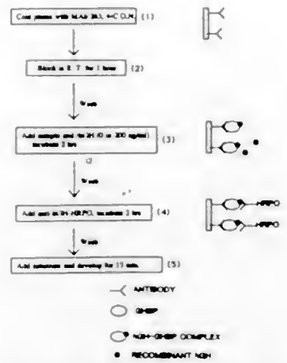
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,017

LIGAND-MEDIATED IMMUNOFUNCTIONAL HORMONE BINDING PROTEIN ASSAY METHOD

Lena M. S. Carlsson, San Francisco; Ross G. Clark, Pacifica, and Wai L. T. Wong, Los Altos, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Filed Nov. 19, 1990, Ser. No. 615,538
Int. Cl.[5] G01N *33/543, 33/566, 33/577*
U.S. Cl. 435—7.8 24 Claims



1. A ligand-mediated immunofunctional method for determining the amount of polypeptide hormone binding protein in a liquid sample comprising:

(a) contacting said liquid sample with: 1) a first antibody attached to a solid phase carrier, wherein said first antibody is specific for epitopes on said polypeptide hormone binding protein such that in the presence of antibody the hormone binding sites remain available on the binding protein for binding to the ligand polypeptide hormone, thereby forming a complex between said first antibody and said polypeptide hormone binding protein; and 2) said ligand polypeptide hormone for a period of time sufficient to saturate all available ligand hormone binding sites on said hormone binding protein thereby forming a saturated complex;

(b) contacting said saturated complex with a detectably labeled second antibody which is specific for epitopes on said ligand polypeptide hormone which are available for binding when said ligand polypeptide hormone is bound to said hormone binding protein; and

(c) quantitatively analyzing the amount of said second labeled antibody bound as a measure of said polypeptide hormone binding protein in said liquid sample.

5,210,018

IMMUNOENZYMATIC METHOD IN HOMOGENEOUS PHASE FOR THE DETERMINATION OF ANTI-PLASMODIUM FALCIPARUM-SPOROZOITE ANTIBODIES IN HUMAN BLOOD

Carlo A. Nuzzolo, Rome; Adriano Bernardi, Monterotondo; Antonello Pessi, Rome, and Antonio S. Verdini, Monterotondo, all of Italy, assignors to Eniricerche S.p.A., Milan, Italy

Filed Apr. 20, 1989, Ser. No. 341,041
Claims priority, application Italy, May 13, 1988, 20561 A/88
Int. Cl.[5] G01N *33/539, 33/569*
U.S. Cl. 435—7.22 10 Claims

1. Immuno-enzymatic method for the determination of anti-*P. falciparum*-sporozoite antibodies in a sample of blood, which comprises:

(a) separately incubating two aliquots, (i) and (ii), of a same sample with a synthetic antigen-enzyme conjugate (P-E), wherein the synthetic antigen (P) of the conjugate is capable of reacting with anti-*P. falciparum*-sporozoite antibodies present in the sample to form an antisporozoite-synthetic antigen-enzyme complex and the enzyme (E) of the conjugate is capable of catalyzing a colormetric reaction, in phosphate buffer at a pH value within the range of from 6.5 to 8.00, in the presence of a non-ionic and/or weak anoinic detergent at a concentration now lower than 0.05% (weight/volume or volume/volume) (w/w or v/v), and at a temperature within the range of from 15° C. to 35° C., wherein one aliquot (i) of the sample has been previously admixed with the same synthetic antigen (P) not labeled with the enzyme at such a concentration as to completely inhibit the formation of the antisporozoite antibody-synthetic antigen-enzyme complex (Ab-P-E);

(b) adding to the samples treated as reported in step (a), PEG 6000 as an inert substance capable of quantitatively precipitating the antisporozoite antibody-synthetic antigen-enzyme complex at an end concentration within the range of 13% to 17% (W/V);

(c) separating precipitate from the reaction mixtures obtained in step (b), either by filtration by centrifugation;

(d) repeatedly washing precipitate obtained in step (c) with a buffer solution to which the PEC 6000 is added, up to an end concentration within the range of from 13% to 17% (W/V);

(e) dissolving the so obtained precipitate in a buffer solution at a small pH value within the range of from 4.0 to 5.5, containing a non-ionic and/or weak anionic detergent at an end concentration not lower than 0.05% (w/v or v-v), in the presence or not of the PEG 6000, at an end concentration within the range of from 3% to 5% (w/v);

(f) adding to the so obtained solutions, a colorless enzymatic substrate, specific for the enzyme used and capable of generating, at a pH within the range of 4.0 to 5.5, in case the sample under examination is positive, a colored product; and

(g) finally determining the intensity of the color by comparative absorbance spectrophotometry between aliquot (i) and aliquot (ii).

5,210,019

PSEUDOMONAS SCREENING ASSAY

Ruth Margalit, San Marino, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronauties and Space Administration, Washington, D.C.

Filed Mar. 30, 1990, Ser. No. 501,908
Int. Cl.[5] G01N *33/569*
U.S. Cl. 435—7.32 15 Claims

11. A method for screening a body fluid for the presence of Pseudomonas bacteria utilizing Azurin as a marker for said bacteria comprising;

obtaining a test body fluid sample from a patient;

centrifuging said sample to isolate the bacteria therein and extracting the Azurin from said bacteria;

immobilizing the resulting Azurin extracted from said sample on a membrane;

contacting the membrane with an Azurin-specific, enzymatically labelled antibody solution; and

reacting the antibody with a color-producing substrate specific for said enzyme and capable of developing a color distinct from that of Azurin and reading the results to determine whether Pseudomonas bacteria were present in the test sample as evidenced by the presence of said color on the membrane.

5,210,020

IMMUNOASSAY UTILIZING ALGINATE TO ENHANCE SIGNAL TO NOISE RATIO

Koichi Kondo, Sohraku, and Marvin A. Motsenbocker, Amagasaki, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

PCT No. PCT/JP91/00220, § 371 Date Apr. 8, 1991, § 102(e) Date Apr. 8, 1991, PCT Pub. No. WO91/13357, PCT Pub. Date Sep. 5, 1991
PCT Filed Feb. 22, 1991, Ser. No. 651,261
Claims priority, application Japan, Feb. 28, 1990, 2-050213
Int. Cl.[5] G01N *33/53*
U.S. Cl. 435—7.94 6 Claims

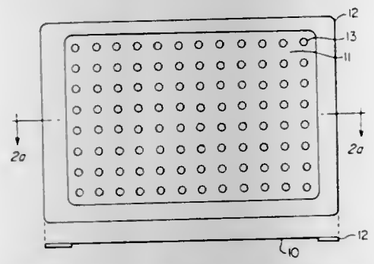
1. In an immunoassay which comprises forming two specific binding reactions of (1) the first binding of a sample analyte molecule to an antibody immobilized to a solid phase support and (2) the second binding of a labeled antibody to the sample analyte molecule and determining the amount of the signal developed from the label, wherein the improvement resides in subjecting the labeled antibody to the second specific binding reaction to the analyte in the presence of an alginate, at a concentration of about 0.1% to 0.5% a partially hydrolyzed alginate, or a mixture thereof at a concentration of about 0.1% to 10%.

5,210,021

MULTIPLE-SITE CHEMOTACTIC TEST APPARATUS AND METHOD

Richard H. Goodwin, Jr., Bethesda, Md., assignor to Neuro Probe, Inc., Cabin John, Md.

Filed Mar. 20, 1991, Ser. No. 672,561
Int. Cl.[5] C12Q *1/02, 1/24;* C12M *1/34*
U.S. Cl. 435—29 43 Claims



1. A method for performing chemotactic tests comprising:

(a) providing at least one membrane filter having a top and bottom side;

(b) placing drops of chemotactic factor at a first set of preselected locations on the top side of said at least one membrane filter;

(c) placing drops of controls at a second set of preselected locations on the top side of said at least one membrane filter;

(d) turning said at least one membrane filter over such that the top side of said at least one membrane filter is now considered the bottom side of the at least one membrane filter wherein the chemotactic factors and controls are now on the bottom side of said at least one membrane filter;

(e) placing drops of cell suspensions on the top side of said at least one membrane filter, said drops of cell suspensions being placed opposite to the drops of chemotactic factors and controls;

(f) waiting an amount of time sufficient to allow the surface tension forces to equal the gravitational forces, thus stabilizing the chemotactic factors, controls, and cell suspensions and allowing a concentration gradient of the chemotactic factor to form;

(g) incubating said at least one membrane filter; and

(h) determining the response of the cell suspensions to the chemotactic factor concentration gradients and the controls.

5,210,022

METHOD TEST MEDIA AND CHROMOGENIC COMPOUNDS FOR IDENTIFYING AND DIFFERENTIATING GENERAL COLIFORMS AND ESCHERICHIA COLI BACTERIA

Jonathan N. Roth, Goshen, Ind., and Wilfred J. Ferguson, Lakewood, Ohio, assignors to RCR Scientific, Inc., Goshen, Ind.

Filed Apr. 20, 1990, Ser. No. 512,188
Int. Cl.[5] C12Q *1/04, 1/02, 1/00;* G01N *33/53*
U.S. Cl. 435—34 16 Claims

1. A method for testing the presence of and quantitatively identifying and differentiating general coliforms and *E. coli* in a test sample, comprising the steps of

inoculating a test medium substrate capable of forming a solid matrix or solid surface with said test sample, said test medium comprising a chromogenic β-galactosidase substrate capable of forming a first water insoluble precipitate of a first color upon reacting with β-galactosidase, a chromogenic β-glucuronidase substrate capable of forming a second water insoluble precipitate of a second color contrasting with said first color upon reacting with β-glucuronidase, and a nutrient base medium, said first and second colors being visibly distinguishable in daylight,

incubating said test medium as a solid to produce colonies of said general coliforms and *E. coli* and first and second colored precipitates corresponding to said colonies,

examining said test medium for the presence of colonies having said first color, such colonies being colonies of general coliforms having β-galactosidase but not β-glucuronidase activity, and the presence of colonies having said second color, such colonies being colonies of *E. coli* having β-glucuronidase activity, and

enumerating said colonies having β-galactosidase activity and said colonies having β-glucuronidase activity.

5,210,023

METHOD OF PURIFYING FERMENT-PRODUCED RIBOFLAVIN

Johannes Grimmer, Ludwigshafen; Hans Kiefer, Wachenbeim, and Christoph Martin, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellshaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jul. 1, 1991, Ser. No. 724,056
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1990, 4021274
Int. Cl.[5] C12P *25/00;* C12N *1/16;* C07D *475/14*
U.S. Cl. 435—66 6 Claims

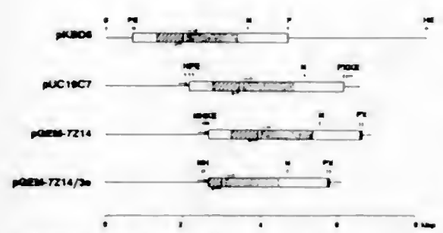
1. A method of purifying ferment-produced riboflavin, wherein the impure riboflavin obtained after fermentation is suspended in water or dilute aqueous acid in an amount of 10 to 30 times the weight of the riboflavin without dissolving the riboflavin, and the resulting suspension is heated at a temperature of from 75° to 130° C. for from 0.3 to 3 hours with stirring while maintaining the suspension, and the crystals formed on cooling are isolated.

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5,210,024
ISOLATION OF STRAINS OF *SACCHAROMYCES CEREVISIAE* HAVING ALTERED ALPHA-ACETYLTRANSFERASE ACTIVITY
John A. Smith, Scotch Plains, N.J., and Fang-Jen S. Lee, Bethesda, Md., assignors to The General Hospital Corporation, Boston, Mass.
Continuation of Ser. No. 426,381, Oct. 25, 1989, which is a continuation-in-part of Ser. No. 284,344, Dec. 14, 1988, Pat. No. 4,966,848, and a continuation-in-part of Ser. No. 153,361, Feb. 8, 1988, abandoned. This application Dec. 9, 1991, Ser. No. 803,734
Int. Cl.[5] C12P *21/02*; C12N *15/54, 9/10*
U.S. Cl. 435—68.1 **8 Claims**

1. A prokaryotic or eukaryotic cell which expresses an altered AAA1-encoded N^{α}-acetyltransferase.

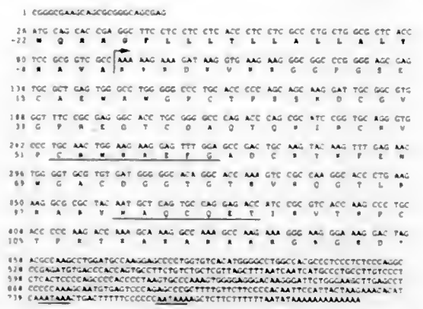
5,210,025
REPRESSOR PROTEIN GENE FOR REGULATING EXPRESSION OF POLYPEPTIDES AND ITS USE IN THE PREPARATION OF 2,2-DIALKYLGLYCINE DECARBOXYLASE OF PSEUDOMONAS CEPACIA
John W. Keller, Fairbanks, Ak., assignor to University of Alaska, Fairbanks, Ak.
Filed Mar. 30, 1990, Ser. No. 501,814
Int. Cl.[5] C12N *15/00, 15/54, 15/70*
U.S. Cl. 435—69.1 **3 Claims**



1. A process for obtaining *Pseudomonas cepacia* 2,2-dialkylglycine decarboxylase, which comprises:
(A) providing a biomass comprised of *E. coli* cells transformed or transfected with the recombinant expression vector pKBD6; and
(B) culturing said *E. coli* cells in the presence of a transcriptional inducing agent selected from the group consisting of L-2-aminobutanoic acid and 1-aminocyclopentanecarboxylic acid;
wherein said agent is employed in said biomass in an amount sufficient to induce transcription of said *Pseudomonas cepacia* 2,2-dialkylglycine decarboxylase gene.

5,210,026
HUMAN MK GENE AND METHOD OF EXPRESSION
Imre Kovesdi, Pearl River, and Peter Bohlen, Peekskill, both of N.Y., assignors to American Cyanamid Company, Wayne, N.J.
Continuation-in-part of Ser. No. 568,573, Aug. 20, 1990, abandoned. This application Feb. 5, 1991, Ser. No. 650,795
Int. Cl.[5] C12P *21/02*; C12N *15/12, 1/21, 15/70*
U.S. Cl. 435—69.1 **14 Claims**

1. A purified and isolated nucleic acid sequence encoding a human MK protein, wherein the sequence is hybridizable under standard high stringency conditions with a nucleic acid



sequence encoding the amino acid sequence depicted in FIG. 1.

5,210,027
DNA ENCODING NOVEL ANTIMICROBIAL POLYPEPTIDE AND METHODS FOR OBTAINING SUCH POLYPEPTIDE
Craig G. Wilde; Joseph E. Griffith, both of Foster City; Marian N. Marra, San Mateo, and Randal W. Scott, Sunnyvale, all of Calif., assignors to INCYTE Pharmaceuticals, Inc., Palo Alto, Calif.
Division of Ser. No. 199,206, May 26, 1988, Pat. No. 5,032,574. This application Jul. 15, 1991, Ser. No. 730,341
Int. Cl.[5] C12N *15/12, 1/21*; C12P *21/02*
U.S. Cl. 435—69.1 **5 Claims**

1. A recombinant DNA molecule which encodes a purified polypeptide having the N-terminal amino acid sequence val-cys-ser-cys-arg-leu-val-phe-cys-arg-arg-thr-glu-leu-arg-val-gly-asn-cys-leu-ile-gly-gly-val-ser-phe-thr-tyr-cys-cys-thr-arg-val.

5,210,028
PROCESS FOR THE PRODUCTION OF UNFUSED IGF-II PROTEIN IN *E. COLI*
Albert Schmitz, Basel, and Walter Märki, Möhlin, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Nov. 21, 1990, Ser. No. 616,470
Claims priority, application United Kingdom, Nov. 29, 1989, 8927008
Int. Cl.[5] C12N *15/17, 15/18, 1/21*
U.S. Cl. 435—69.4 **15 Claims**

1. A process for the production of a recombinant IGF-II without a covalently attached foreign protein moiety and without N-terminal attached methionine or a derivative of methionine, said process comprising:
a) transforming a suitable strain of *E. coli*, said strain being a lon^- and $htpR^-$ double mutant, with a hybrid vector comprising an expression cassette consisting of the following elements in the 5' to 3' direction, said elements which are operably linked: an inducible promoter, a ribosomal binding site, and the codon for the amino acid methionine linked in proper reading frame to a DNA sequence encoding a human IGF-II having the amino acid sequence of SEQ ID NO. 1,
b) culturing said transformed strain under conditions suitable for production of a recombinant IGF-II from said expression cassette.

5,210,029
METHOD OF PRODUCING INTERLEUKIN-2
Kazuaki Kitano, Sakai, and Shigeru Fujimoto, Hikari, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
Continuation of Ser. No. 302,098, Jan. 24, 1989, abandoned, which is a continuation of Ser. No. 185,305, Apr. 20, 1988, abandoned, which is a continuation of Ser. No. 858,454, May 1, 1986, abandoned. This application Jun. 18, 1990, Ser. No. 539,612
Claims priority, application Japan, Oct. 3, 1985, 60-221517; Mar. 3, 1986, 61-45667
Int. Cl.[5] C12P *21/02*; C12N *1/38*
U.S. Cl. 435—69.52 **15 Claims**

1. In a method for producing the physiologically active protein interleukin-2 by cultivating *Escherichia coli* having an expression vector which contains the structural gene for the protein at the downstream end of a translational starting codon, the improvement comprising cultivating the *Escherichia coli* in a medium to which is added:
(1) an iron ion source, a manganese ion source, or a mixture thereof, at a concentration of from about 1×10^{-6} to about 1×10^{-3} moles per liter; and
(2) a nitrogen source derived from natural original at a concentration of from about 1 gram per liter to about 50 grams per liter;
to increase the yield of the protein, free of methionine corresponding to a translational starting codon ATG at the N-terminus.

5,210,030
PROCESS FOR SELECTIVELY ACYLATING IMMUNOMYCIN
Brian R. Petuch, Florence; Shieh-shung T. Chen, Morganville, and Byron H. Arison, Watchung, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Filed Jun. 25, 1990, Ser. No. 542,849
Int. Cl.[5] C12P *17/18, 17/16, 7/40*; C12N *9/20*
U.S. Cl. 435—119 **3 Claims**

1. A process for selectively acylating the C-32 position in a macrolide which comprises:
(a) contacting a macrolide which is a member selected from the group consisting of FK-506, FK-520, FK-523 and FK-525,
(b) with an acyl donor which is a member selected from the group consisting of acetic anhydride, propionic anhydride, butyric anhydride, trifluoroacetic anhydride and mixtures thereof,
(c) in the presence of fungal AMANO lipase N enzyme immobilized on a solid support,
(d) in an inert, dry organic solvent which is a member selected from the group consisting of aromatic hydrocarbons, linear ethers, branched ethers, halogenated paraffins, and lower carboxylic acid esters,
(e) at a temperature range of 10° to 50° C.,
(f) for a period of time sufficient to obtain said C-32 acylated product; and,
(g) recovering said C-32 acylated product.

5,210,031
PROCESS FOR THE PRODUCTION OF R(-)-4-HALO-3-HYDROXYBUTYRONITRILE
Tetsuji Nakamura, and Fujio Yu, both of Kanagawa, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 554,766, Jul. 20, 1990, abandoned. This application Feb. 3, 1992, Ser. No. 830,516
Claims priority, application Japan, Jul. 20, 1989, 1-185992
Int. Cl.[5] C12P *13/00, 1/00, 7/02*; C12N *19/14*
U.S. Cl. 435—128 **3 Claims**

1. A process for the production of R(-)-4-halo-3-hydroxybutyronitrile which comprises reacting an epihalogydrin with a halohydrin hydrogen-halide-lyase originating from a microorganism selected from the group consisting of: Corynebacterium sp. N-2354 FERM BP-2726 and Microbacterium sp. N-4701 FERM BP-2644, in the presence of an alkali cyanide to thereby convert said epihalohydrin into R(-)-4-halo-3-hydroxybutyronitrile and recovering the product thus formed.

5,210,032
DEGENERATION-RESISTANT SOLVENTOGENIC CLOSTRIDIA
Eva R. Kashket, Newton, Mass., assignor to Trustees of the Boston University, Boston, Mass.
Filed Jan. 21, 1992, Ser. No. 822,802
Int. Cl.[5] C12P *7/28, 7/36, 7/16*; C12R *1/142*
U.S. Cl. 435—150 **1 Claim**

1. A process for producing butanol and acetone comprising the step of:
growing a mutant strain of *Clostridium acetobutylicum* ATTC 55245 which is resistant to degeneration in a growth medium containing at least one sugar and recovering butanol and acetone from said growth medium wherein said mutant strain reproduces for at least 150 generations.

5,210,033
PROCESS FOR PREPARING AND SELECTING HYPERPRODUCING MICROORGANISM STRAINS USED FOR THE PROCESS FOR PRODUCING STREPTOVARICIN C
Kaname Inoue, Kanagawa; Motohide Yamazaki; Kanji Murofushi, both of Niigata, all of Japan, and Richard W. Armentrout, La Jolla, Calif., assignors to Shin-Etsu Bio, Inc., San Diego, Calif. and Shin-Etsu Chemical Co., Ltd., Tokyo, Japan
Division of Ser. No. 776,989, Oct. 16, 1991. This application Apr. 23, 1992, Ser. No. 872,519
Int. Cl.[5] C12N *1/16, 1/36*; C12P *17/18, 17/08*
U.S. Cl. 435—172.1 **6 Claims**

1. A method for the selection of a hyperproducing strain of *Streptomyces spectabilis* comprising:
a) subjecting a wild-type strain of *Streptomyces spectabilis* to conditions to eliminate non-streptovaricin resistant organisms and to induced mutagenesis;
b) culturing the streptovaricin resistant strain obtained from step a);
c) growing a multiplicity of colonies from the culture of step b), and selecting those colonies which are asporogenous;
d) culturing each asporogenous colony in a separate liquid fermentation mixture so as to form pellets of the strains from each colony; and
e) selecting from the fermentation mixture containing non-homogeneous pellets, the smallest pellet visible to the naked eye.

5,210,034
HYBRIDOMA OF ZYGOSACCHAROMYCES ROUXII AND TORULOPSIS VERSATILIS WHICH PRODUCES AROMAS OF SOY SAUCE
Jong Kyu Kim, 201-502, Garden Heitz, Whanggum-Dong 100, Soosung-ku, Taeku-shi, Rep. of Korea
Filed May 28, 1991, Ser. No. 706,411
Int. Cl.[5] C12N *15/00, 1/16*; C12R *1/645*
U.S. Cl. 435—172.2 **3 Claims**

1. A hybridoma of *Zygosoccharomyces rauxii* producing 4-hydroxy-2-ethyl-5-methyl-3-(2H)-furanose and 4-hydroxy-5-ethyl-2-methyl-3-(2H)-furanose (HEMF) and *Torulopsis versatilis* producing 4-ethylguaiacol (4-EG) which produces HEMF and 4-EG as well as other characteristic aroma components of soy sauce produced by said *Zygosaccharomyces rouxii* and *Torulopsis versatilis*.

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5,210,035

NON-REVENTING LIVE VACCINES

Bruce A. D. Stocker, Portola Valley, Calif., assignor to Board of Trustees of Leland Stanford Jr. University, Palo Alto, Calif.

Continuation of Ser. No. 170,727, Mar. 21, 1988, Pat. No. 5,077,044, which is a continuation-in-part of Ser. No. 798,052, Nov. 14, 1985, Pat. No. 4,837,151, which is a continuation-in-part of Ser. No. 675,381, Nov. 27, 1984, Pat. No. 4,735,801, which is a continuation-in-part of Ser. No. 415,291, Sep. 7, 1982, Pat. No. 4,550,081, which is a continuation-in-part of Ser. No. 151,002, May 19, 1980, abandoned. This application Aug. 16, 1991, Ser. No. 745,876

The portion of the term of this patent subsequent to Apr. 5, 2005, has been disclaimed.

Int. Cl.[5] C12N *15/00*

U.S. Cl. 435—172.3 21 Claims

1. A method for preparing a live non-virulent vaccine from a virulent pathogenic microorganism, which vaccine is substantially incapable of reverting to virulence in a vertebrate host susceptible to said microorganism, which comprises:

subjecting a virulent strain of said microorganism to mutating conditions resulting in a mutated microorganism having at least two non-reverting mutations involving at least five nucleotides each and resulting in a block in at least one biosynthetic pathway which renders said organism auxotrophic with a requirement for a metabolite normally unavailable in a host susceptible to said microorganism, wherein said mutations comprise at least one of deletion, insertion or inversion; and

selecting for said non-reverting mutated microorganism.

5,210,036

PURIFIED THERMOSTABLE DNA POLYMERASE OBTAINABLE FROM THERMOCOCCUS LITORALIS

Donald G. Comb, and Rebecca B. Kucera, both of Beverly, Mass., assignors to New England Biolabs, Inc., Beverly, Mass.

Filed Apr. 26, 1990, Ser. No. 513,994

Int. Cl.[5] C12N *9/12, 9/10*

U.S. Cl. 435—194 7 Claims

1. A purified thermostable enzyme obtainable from *Thermococcus litoralis* which catalyzes the polymerization of DNA, wherein said enzyme has a molecular weight of 90,000 to 95,000 daltons, a 3'-5' exonuclease activity and is substantially free of *Thermococcus litoralis* nucleic acid.

5,210,037

METHOD TO ENHANCE TPA PRODUCTION

Randall G. Rupp, La Honda, and John C. Lane, Foster City, both of Calif., assignors to Centocor Incorporated, Malvern, Pa.

Continuation of Ser. No. 171,666, Mar. 22, 1988, abandoned. This application Feb. 2, 1990, Ser. No. 474,651

Int. Cl.[5] C12N *9/64, 5/10*

U.S. Cl. 435—226 8 Claims

1. A method to improve production of tissue plasmiogen activator (tPA) in a culture of a tPA-producing cell line which tPA-producing cell line is a transformed mammalian cell line that produces tPA by virtue of a recombinant expression system,

which method comprises culturing said transformed cell line capable of producing tPA in a basal medium which is specifically suitable for said cell line wherein said basal medium further contains an amount of a preparation of brain/heart infusion (BHI) effective to improve tPA production by said cell line.

5,210,038

MULTIPLATE SUBCULTURE SOLID MEDIA DEVICES

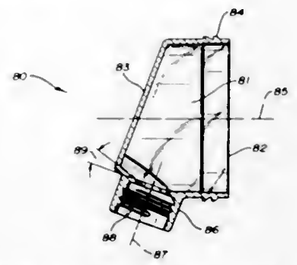
Thomas J. Jaeger, St. Louis, Mo.; Raymond T. Wasek, Jamesburg, N.J., and Joan D. Wiseman, Bernardsville, N.J., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 288,548, Dec. 22, 1988, Pat. No. 4,999,303. This application Jan. 9, 1991, Ser. No. 639,615

The portion of the term of this patent subsequent to Mar. 12, 2008, has been disclaimed.

Int. Cl.[5] C12N *1/00;* C12Q *1/00*

U.S. Cl. 435—300 4 Claims



1. An assembly for culturing microorganisms, wherein

(a) a liquid culture medium bottle;

(b) said bottle having a closed end and an open end;

(c) a neck on said bottle adjacent the open end;

(d) external threads on said neck; and

(e) a device for connection to said external threads, said device comprising

(1) an elongated body defining a solid growth medium chamber;

(2) a solid wall forming one end of said elongated body;

(3) an opening forming the end of said elongated body opposite said solid wall;

(4) a transparent cap for said open end;

(5) a plurality of solid medium plates positioned on the internal surface of said transparent cap;

(6) cooperating connecting means on said open end of said elongated body and said transparent cap for holding said cap in sealing engagement with said open end of said elongated body;

(7) an extension extending integrally from said elongated body between said solid wall and said open end thereof wherein the axis of said elongated body and the axis of said extension are positioned at an acute angle to each other;

(8) a bore extending through said extension and in flow communication with said chamber;

(9) internal screw threads in said extension for connection to the external threads on the said neck of said liquid culture bottle.

5,210,039

WASH COMPOSITION, TEST KIT AND THEIR USE TO DETERMINE A HERPES SIMPLEX VIRAL ANTIGEN

Thomas J. Cummins, Rochester, and Sheryl S. Sullivan, Hilton, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 308,844, Feb. 9, 1989, Pat. No. 5,124,245. This application Feb. 10, 1992, Ser. No. 832,874

Int. Cl.[5] G01N *31/00, 33/571*

U.S. Cl. 436—17 4 Claims

1. An aqueous wash solution useful in an assay for herpes simplex virus having a pH of from about 9 to about 11.5, and consisting essentially of from about 0.1 to about 1 molar of an alcoholamine or a salt thereof and a nonionic surfactant.

5,210,040

PROCESS FOR COUPLING ANTIBODIES OR ANTIBODY FRAGMENTS TO LIPOSOMES

Yi-Her Jou, Vernon Hills; Roger C. Hu, Libertyville, and Peter A. Lagocki, Park Ridge, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 312,430, Feb. 17, 1989, Pat. No. 4,971,916, which is a continuation of Ser. No. 85,918, Jul. 29, 1987, abandoned. This application Feb. 22, 1990, Ser. No. 485,395

Int. Cl.[5] G01N *33/544, 33/563*

U.S. Cl. 436—528 4 Claims

1. A method for coupling antibody to thiol-containing lipid vesicles which reduces reducing lipid vesicle aggregation during the antibody lipid vesicle conjugation comprising:

adding said antibody and said thiol-containing lipid vesicles to a composition capable of forming a heat reversible gel,

cooling said antibody and thiol-containing lipid vesicles in said composition to form a gelate containing antibody-lipid vesicle conjugates,

alkylating said antibody-lipid vesicle conjugates in said gelate, and

washing and placing said gelate, containing said antibody-lipid vesicle conjugates, into buffer.

5,210,041

PROCESS FOR MANUFACTURING SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE

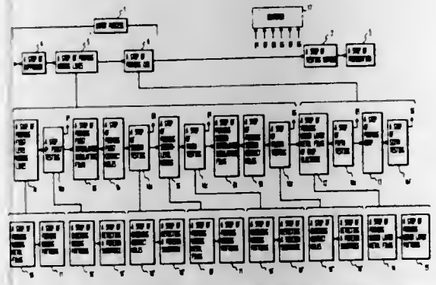
Tsuneo Kobayashi, Tokorozawa, and Kensuke Nakata, Sayama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 18, 1991, Ser. No. 732,280

Claims priority, application Japan, Jul. 24, 1990, 2-195424

Int. Cl.[5] H01L *21/66, 21/304*

U.S. Cl. 437—8 12 Claims



1. In a wafer process for manufacturing a semiconductor integrated circuit device by subjecting a semiconductor wafer to a plurality of treating steps,

a process for manufacturing a semiconductor integrated circuit device, comprising the repeated steps of:

testing said semiconductor wafer at a unit of chip each time a predetermined one of said treating steps is ended;

preparing control data for loading another semiconductor wafer on the basis of the data of each of said chips and feeding the control data back to a predetermined treating step of the wafer process if it is decided in accordance with the data of each chip based upon the test results that the number of non-defective chips at the testing stage is short of the necessary number for the testing step;

performing said tests of the semiconductor wafers including said another one; and

monitoring the data of the chips of the initially loaded semiconductor wafer and the added semiconductor wafer synthetically and feeding control data for loading another semiconductor wafer, each time it is decided that the number of non-defective chips is short of the necessary number for the testing step in its entirety, back to a predetermined treating step of the wafer process.

5,210,042

METHOD OF PRODUCING SEMICONDUCTOR DEVICE

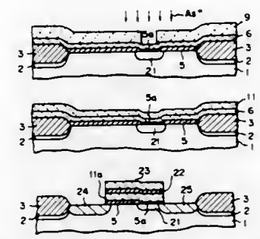
Yoshihiro Oshikawa, Mizusawa, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 654,629, Sep. 26, 1984, abandoned. This application Jan. 29, 1991, Ser. No. 648,323

Claims priority, application Japan, Sep. 26, 1983, 58-177259

Int. Cl.[5] H01L *21/266*

U.S. Cl. 437—28 8 Claims



1. A method for producing a semiconductor device without deteriorating an insulating layer, said method comprising the steps of:

forming said insulating layer on a semiconductor substrate having a single conductivity type, the insulating layer having a specified thickness;

forming a first layer of an electrode material on the insulating layer, the first layer having a selected thickness;

forming a masking layer having an opening on said first layer;

selectively introducing impurities into the semiconductor substrate via said opening and through said first layer and said insulating layer by using opposite conductivity type ion implanting to form an impurity region having an opposite conductivity type from that of said semiconductor substrate;

forming a second layer of an electrode material on the first layer and in direct contact therewith, said second layer having, with said first layer, a sufficient thickness to form an electrode; and

forming, on the impurity region, an electrode pattern, which comprises the first and second layer of the electrode material coextending over the insulating layer and forming a single level electrode or wiring, by selectively etching the second and first layer of the electrode material, said specified thickness of said insulating layer and said selected thickness of said first layer having a combined thickness to permit passage of boron ions and arsenic ions therethrough to achieve a specified depth of a boron region and a selected depth of an arsenic region in said substrate, wherein said first and second layers consist essentially of the same material; and wherein in said step of forming a first layer of an electrode material on the insulating layer, said first layer of an electrode material is formed with a thickness in the range of 500 to 700 Å.

5,210,043

PROCESS FOR PRODUCING SEMICONDUCTOR DEVICE

Takashi Hosaka, Tokyo, Japan, assignor to Seiko Instruments Inc., Tokyo, Japan

Filed Sep. 26, 1990, Ser. No. 588,553

Claims priority, application Japan, Sep. 26, 1989, 1-249632

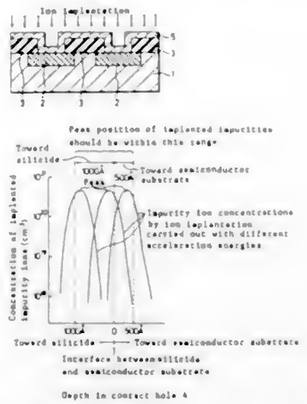
Int. Cl.[5] H01L *21/44, 21/265*

U.S. Cl. 437—30 3 Claims

3. A process for producing a semiconductor comprising:

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providing a semiconductor substrate having an exterior surface; forming impurity diffusion layer sin the substrate so that the layers extend to the exterior surface; forming a film of insulating material on the exterior surface and providing contact holes in the film to expose at least a portion of each impurity diffusion layer; forming a silicide film upon the film of insulating material nd in the contact holes; forming a thin layer



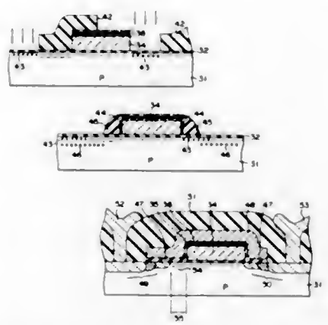
of material on the silicide film; and performing an ion implantation for implanting ions of an impurity element of the same conductivity type as that of said impurity diffusion layers with an implantation energy selected so that the implanted ions have a concentration peak between a location which is 1000 Å away from the interface between the impurity diffusion layer sand the silicide film toward the silicide film and 500 Å away from the interface toward the impurity diffusion layers.

5,210,044

METHOD OF MANUFACTURING A FLOATING GATE TYPE NONVOLATILE MEMORY CELL HAVING AN OFFSET REGION

Kuniyoshi Yoshikawa, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 2, 1991, Ser. No. 694,674
Claims priority, application Japan, May 9, 1990, 2-117456
Int. Cl.[5] H01L *21/266*
U.S. Cl. 437—43 **28 Claims**



1. A method of manufacturing a floating gate type nonvolatile memory cell having an offset region, comprising the steps of:

forming a first insulating film on a substrate of a first conductivity type;

forming a first gate electrode on said first insulating film;

forming a second insulating film on said first gate electrode;

forming an injection blocking film for blocking impurity injection on the side wall of said first gate electrode and a surface portion of said substrate adjacent thereto, a lateral extent of said blocking film defining an offset region;

injecting an impurity of a second conductivity type into said substrate, using said injection blocking film and said first gate electrode as a mask;

removing said injection blocking film;

forming a third insulating film on said substrate and said first gate electrode;

forming a second gate electrode on said third insulating film on at least said first gate electrode and a portion of said substrate adjacent thereto; and

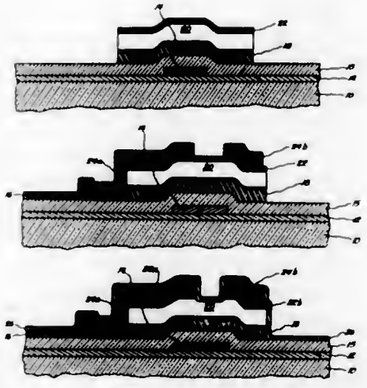
injecting an impurity of the second conductivity type into said substrate, using said second gate electrode as a mask.

5,210,045

DUAL DIELECTRIC FIELD EFFECT TRANSISTORS FOR PROTECTED GATE STRUCTURES FOR IMPROVED YIELD AND PERFORMANCE IN THIN FILM TRANSISTOR MATRIX ADDRESSED LIQUID CRYSTAL DISPLAYS

George E. Possin, Schenectady; Harold G. Parks, Scotia, and Jack D. Kingsley, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 303,091, Jan. 26, 1989, Pat. No. 5,148,248, which is a continuation of Ser. No. 104,918, Oct. 6, 1987, abandoned. This application May 18, 1992, Ser. No. 862,474
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—42 **13 Claims**



1. A process for the fabrication of thin film field effect transistors in active matrix liquid crystal display devices, said process comprising the steps of:

disposing a gate metallization layer pattern on an insulative substrate, said pattern including gate electrodes and gate drive lines;

disposing a layer of silicon oxide over said insulative substrate and said gate metallization pattern;

disposing a layer of protective insulative material over said silicon oxide;

disposing a layer of intrinsic amorphous silicon over said protective insulative material;

disposing a layer of N^+ amorphous silicon over said intrinsic amorphous silicon;

patterning said N^+ amorphous silicon, said intrinsic amorphous silicon and said said protective insulative material down to the level of said silicon oxide, so as to form islands, whereby each island formed includes an N^+ amorphous silicon layer, an intrinsic amorphous silicon layer and a protective insulative material layer;

disposing a pixel electrode pattern on said silicon oxide;

disposing a source and drain metallization layer over said island, said pixel electrode pattern and said silicon oxide; and

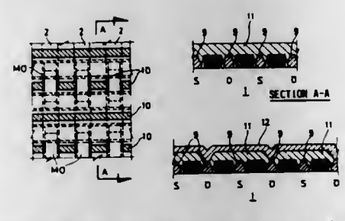
patterning said source and drain metallization layer and said N^+ amorphous silicon layer so as to form field effect transistor devices in electrical connection with said pixel electrode pattern.

5,210,046

METHOD OF FABRICATING EPROM DEVICE WITH METALLIC SOURCE CONNECTIONS

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Filed Dec. 20, 1990, Ser. No. 632,101
Claims priority, application Italy, Dec. 22, 1989, 83651 A/89
Int. Cl.[5] H01L *21/70, 21/265*
U.S. Cl. 437—43 **1 Claim**



1. Process for the fabrication of an integrated EPROM device comprising an array of unitary memory cells, each having a gate structure between a source area or source region and a drain area or drain region of a semiconductor substrate, arranged in pairs in rows and columns, the control gates of the cells of the same row being electrically connected together by a respective continuous gate line, the drain area of the cells being individually contacted through drain contacts and the drain contacts of cells belonging to the same column being electrically connected together by a respective drain line, the source regions of adjacent cells of the same column and belonging to pairs of cells of two distinct adjacent rows of the array being electrically connected in common, a field isolation structure separating the drain areas and gate structures of one cell from those of an adjacent cell positioned on the same row, characterized in that it comprises the following steps:

forming field isolation structures between cells of the same row of the array in the form of continuous isolation strips, spaced apart and parallel, which extend uninterrupted along the whole column length of said array of cells;

forming gate structures in the form of gate lines, spaced apart and parallel, running perpendicularly in relation to the isolation strips below and having dielectric spacers formed along side walls,

conformally depositing a matrix metal layer;

depositing a layer of planarization material;

blanket maskless etching the layer of planarization material until the peaks of the metal layer below previously deposited in a comformal manner are exposed while leaving residual strips of said planarization material within hollows of said metal layer;

forming a photoresist drain separation mask having openings in the areas where the strips of residual planarization material running over the drain areas of cells belonging to each row of said array cross over the isolation strips;

removing by etching the residual planarization material of said strips through said openings of the mask and removing the latter;

etching, under essentially isotropic conditions, said metal layer using said residues of planarization material as a mask, leaving pillar shaped contact metal residues of said metal layer, self-aligned in relation to adjacent gate structures, over drain areas of all the unitary cells and a seam-like metal residue, having a pillar shaped cross-section, in the form of a continuous line, self-aligned in relation to adjacent gate structures, running over the source areas of all the cells belonging to the each row of said array;

removing said residues of planarization material used as a mask during the previous etching step;

depositing an insulation layer of dielectric material;

forming a photoresist mask and etching the said isolation layer of dielectric material through said mask, to expose the peaks of said pillar shaped contact metal residues formed over the drain area of the cells and removing said mask;

depositing a second metallic layer to interconnect said pillar shaped, drain contact metal residues;

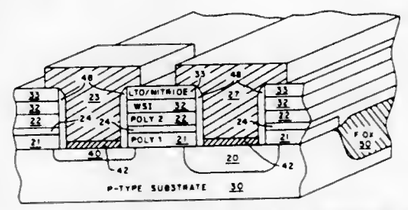
forming a mask to define interconnection drain lines respectively for the cells belonging to each column of said array and removing said mask.

5,210,047

PROCESS FOR FABRICATING A FLASH EPROM HAVING REDUCED CELL SIZE

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Filed Dec. 12, 1991, Ser. No. 809,282
Int. Cl.[5] H01L *21/266*
U.S. Cl. 437—43 **16 Claims**



1. A method of fabricating an electrical programmable read-only memory device in a silicon substrate, said device comprising an array of memory cells, said method comprising the steps of:

(a) forming a gate oxide over said substrate;

(b) forming floating gate members for each of said cells over said gates oxides;

(c) forming a plurality of elongated, parallel, spaced-apart vertical stacks over said floating gate members,

each of said stacks comprising a polysilicon wordline, said polysilicon wordline being insulated from said floating gate members by a dielectric layer;

(d) implanting a first dopant into said substrate in the spaces separating said stacks from one another to form source and drain regions within said substrate wherein adjacent source regions are electrically isolated from one another;

(e) forming sidewall insulative layers on said stacks;

(f) filling said spaces with a metal layer;

(g) patterning said metal layer to form self-aligned contacts to said source and drain regions, said patterning step also forming electrical interconnects between said adjacent source regions, said interconnects extending between adjacent memory cells.

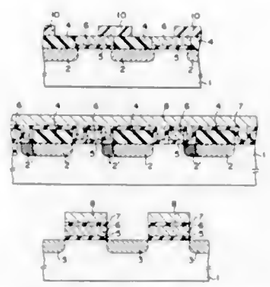
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5,210,048

NONVOLATILE SEMICONDUCTOR MEMORY DEVICE WITH OFFSET TRANSISTOR AND METHOD FOR MANUFACTURING THE SAME

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Division of Ser. No. 734,109, Jul. 24, 1991, Pat. No. 5,153,684, which is a continuation of Ser. No. 423,023, Oct. 17, 1989, abandoned. This application Aug. 4, 1992, Ser. No. 924,521
Claims priority, application Japan, Oct. 19, 1988, 63-263166
Int. Cl.[5] H01L *21/70, 21/265*
U.S. Cl. 437—43 10 Claims



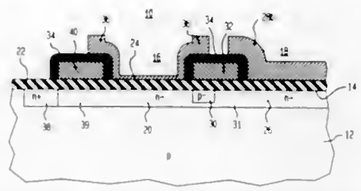
1. A method for manufacturing semiconductor memory devices comprising the steps of:
forming a first insulation film on a semiconductor substrate of a first conductivity type;
forming a first conductive layer on said first insulation film;
patterning said first conductive layer and said first insulation film into a stripe form;
forming source and drain regions of a second conductivity type in a stripe form by doping impurity of the second conductivity type into the main surface area of said semiconductor substrate with the remaining portions of said first conductive layer and said first insulation film used as a mask;
forming a second insulation film on the entire surface of the semiconductor structure;
coating first photoresist on said second insulation film;
etching said first photoresist and said second insulation film to have the same surface level as the upper surface of said first conductive layer so as to leave portions of said second insulation film between said first conductive layer portions formed in the stripe form;
coating second photoresist on the entire surface of the semiconductor structure;
patterning said second photoresist;
selectively removing portions of said first conductive layer and said first insulation film with the remaining portion of said second photoresist used as a mask so as to expose part of the surface area of said semiconductor substrate;
forming a third insulation film on the entire surface of the semiconductor structure;
forming a second conductive layer on said third insulation film;
patterning said second conductive layer, third insulation film, first conductive layer and first and second insulation films into a stripe form extending in a direction which intersects said source and drain regions formed in the stripe form; and
forming an impurity region of the first conductivity type for element isolation by doping impurity of the first conductivity type into the main surface area of said semiconductor substrate with those portions of said second conductive layer, third insulation film, first conductive layer and first and second insulation films which are left behind in the patterning step used as a mask.

5,210,049

METHOD OF MAKING A SOLID STATE IMAGE SENSOR

Constantine N. Anagnostopoulos, Mendon, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 28, 1992, Ser. No. 874,880
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—53 14 Claims



1. In a method of making an image sensor having a charge-coupled device shift register and at least one photocapacitor the steps of:
forming in a body of a semiconductor material a conductive region;
forming a layer of a dielectric material on the body and over the conductive region;
forming a layer of conductive polycrystalline silicon on the dielectric layer over the conductive region hereby forming a top plate of the photocapacitor and at least a gate electrode of the shift register; and
thinning the polycrystalline silicon layer to a thickness which reduces absorption and interferences losses of the incident light so as to improve the light reaching the conductive region and the region of the body directly beneath the conductive region.

5,210,050

METHOD FOR MANUFACTURING A SEMICONDUCTOR DEVICE COMPRISING A SEMICONDUCTOR FILM

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Filed Oct. 11, 1991, Ser. No. 774,852
Claims priority, application Japan, Oct. 15, 1990, 2-277134; Oct. 15, 1990, 2-277135
Int. Cl.[5] H01L *21/203*
U.S. Cl. 437—101 16 Claims



1. A method for manufacturing a semiconductor device comprising:
forming an amorphous semiconductor film containing oxygen impurity at a concentration not higher than 7×10^{19} atoms·cm^{-3} by sputtering a semiconductor target containing oxygen impurity at a concentration not higher than 5×10^{18} atoms·cm^{-3} in an atmosphere comprising hydrogen at not less than 10% in terms of partial pressure; and
crystallizing said amorphous semiconductor film at a temperature of 450° C. to 700° C.

5,210,051

HIGH EFFICIENCY LIGHT EMITTING DIODES FROM BIPOLAR GALLIUM NITRIDE

Calvin H. Carter, Jr., Raleigh, N.C., assignor to Cree Research, Inc., Durham, N.C.

Division of Ser. No. 499,960, Mar. 27, 1990, abandoned. This application Jun. 5, 1991, Ser. No. 710,827
Int. Cl.[5] H01L *21/205*
U.S. Cl. 437—107 15 Claims

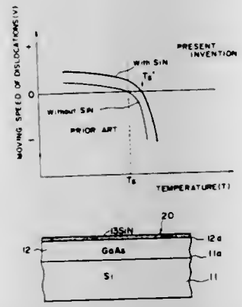
1. A method of forming an epitaxial layer of p-type gallium nitride suitable for producing p-n junctions and junction diodes, the method comprising:
directing a molecular beam of nitrogen from an electron cyclotron resonance plasma containing nitrogen atoms onto the growth surface of a single crystal of silicon carbide that provides an acceptable lattice match for gallium nitride; while
directing a molecular beam of gallium in the substantial absence of any other compounds onto the same silicon carbide growth surface; while
maintaining the surface at a temperature of less than about 650° C. but that is otherwise high enough to provide sufficient surface mobility for gallium atoms and nitrogen atoms to form a single crystal epitaxial layer of gallium nitride on the silicon carbide; while
directing an acceptor species onto the surface until a desired epitaxial layer is formed; and
irradiating the epitaxial layer with an electron beam at an energy that is sufficient to activate the acceptor ions in the epitaxial layer, but that is less than the energy that would cause atomic displacement in the epitaxial layer thereby producing the epitaxial layer of p-type gallium nitride.

5,210,052

METHOD FOR FABRICATING A SEMICONDUCTOR SUBSTRATE

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Continuation of Ser. No. 525,057, May 18, 1990, abandoned. This application May 13, 1992, Ser. No. 884,284
Claims priority, application Japan, May 18, 1989, 1-125104
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—132 9 Claims



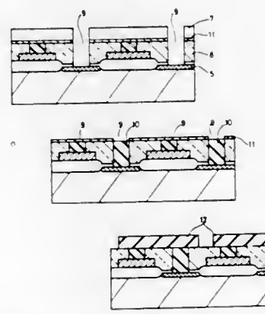
9. A method for fabricating a heteroepitaxial semiconductor substrate used as a substrate of a compound semiconductor device, said heteroepitaxial semiconductor substrate comprising a substrate of a first semiconductor material and an epitaxial layer of a second semiconductor material grown heteroepitaxially on said substrate of said first semiconductor material, said method comprising steps of:
growing the epitaxial layer on the substrate of the first semiconductor material heteroepitaxially to form a heteroepitaxial semiconductor substrate body;
depositing a stress inducing layer on a top surface of the epitaxial layer so as to induce a stress of at least 1.7×10^{8} dyn/cm^2 in the epitaxial layer;
applying a cyclic annealing process to the heteroepitaxial semiconductor substrate body for repeatedly and alternately holding the heteroepitaxial semiconductor substrate body including the stress inducing layer deposited on the epitaxial layer at a first temperature and at a second temperature lower than the first temperature while applying said stress to the epitaxial layer by the stress inducing layer; and
removing the stress inducing layer from the epitaxial layer after the step of applying the cyclic annealing is completed.

5,210,053

METHOD FOR FABRICATING SEMICONDUCTOR DEVICE

Yasushi Yamagata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 5, 1992, Ser. No. 846,083
Claims priority, application Japan, Mar. 6, 1991, 3-039654
Int. Cl.[5] H01L *21/441*
U.S. Cl. 437—192 8 Claims



1. A method for fabricating a semiconductor device, comprising the steps of:
forming first wirings over a main surface of a semiconductor substrate with a plurality of diffused layers;
forming a first insulating film having a flat surface over its entirety;
forming, in said first insulating film, a first group of contact holes having substantially the same depth reaching one of said diffused layers and said first wirings;
embedding a first selectively grown conductive layer in said first group of contact holes;
depositing a second insulating film on the entire surface;
forming, in said first insulating film and said second insulating film, a second group of contact holes having substantially the same depth reaching the other of said diffused layers and said first wirings; and
embedding a second selectively grown conductive layer in said second group of contact holes.

5,210,054

METHOD FOR FORMING A CONTACT PLUG

Yujiro Ikeda, Ikoma, and Takao Kinoshita, Tenri, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 13, 1991, Ser. No. 791,274
Claims priority, application Japan, Nov. 16, 1990, 2-312149
Int. Cl.[5] H01L *21/44*
U.S. Cl. 437—195 5 Claims

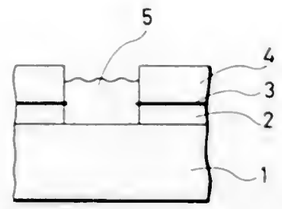
1. A method for forming a contact plug comprising:
depositing on a semiconductor substrate provided with a base device an interlayer insulator comprising lowermost, intermediate and uppermost layers in which the intermedi-

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ate layer is less sensitive to an etchant which is capable of dissolving the lowermost layer;

subjecting the resulting substrate to a thermal treatment to planarize the surface of the uppermost layer;

forming a contact hole in said lowermost, intermediate and uppermost layers by dry-etching at an intended contact region of the interlayer insulator;



subjecting the contact hole to set-etching with the etchant which is capable of dissolving the edges of the lowermost layer of said interlayer insulator to form a stepped portion between the edges of the lowermost layer and the intermediate layer in the contact hole; and

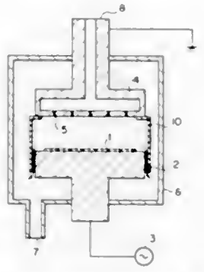
depositing a metal in the resulting contact hole to form a contact plug.

5,210,055

METHOD FOR THE PLASMA TREATMENT OF SEMICONDUCTOR DEVICES

Shinji Nakaguma, and Toshinobu Banjyo, both of Fukuoka, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1990, Ser. No. 601,914
Claims priority, application Japan, May 18, 1990, 2-126982
Int. Cl.[5] H01L *21/00, 21/02, 21/302*
U.S. Cl. 437—225 1 Claim



1. A method for the plasma treatment of a semiconductor wafer comprising:

placing a semiconductor wafer on a lower electrode provided within a vacuum vessel;

ejecting processing gas toward the wafer from a plurality of gas ejection holes in the lower surface of an upper electrode disposed within the vessel opposite the lower electrode;

providing a cover on the periphery of the upper electrode, extending toward the lower electrode, enclosing the wafer, and having a gap at the periphery of the lower electrode, thereby confining processing gas ejected from the gas ejection holes of the region between the upper and lower electrodes and limiting the flow of processing gas out of the region between the upper and lower electrodes to the gap at the periphery of lower electrode; and

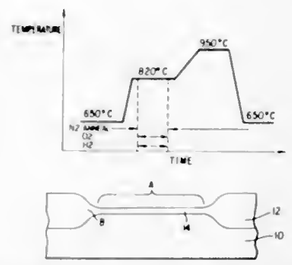
applying a high-frequency voltage between the upper and lower electrodes, thereby generating a plasma and treating the semiconductor wafer with the plasma.

5,210,056

METHOD FOR FORMING A GATE OXIDE FILM OF A SEMICONDUCTOR DEVICE

Chil-kun Pong, Seoul; Myeon-koo Kang, Suwon; Yang-koo Lee, and Dong-ho Shin, both of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea

Filed Nov. 27, 1991, Ser. No. 799,052
Claims priority, application Rep. of Korea, Aug. 22, 1991, 91-14534
Int. Cl.[5] H01L *21/02*
U.S. Cl. 437—239 6 Claims



1. In a process of forming a gate oxide film on a semiconductor substrate, a method for forming a gate oxide film of a semiconductor device, comprising the steps of:

first-annealing said semiconductor substrate in a nitrogen (N_2) atmosphere while the substrate temperature is increased from approximately 650° C. to approximately 820° C.;

forming a gate oxide film by wet-oxidizing said annealed semiconductor substrate at approximately 820° C. in a mixed gas atmosphere of oxygen (O_2) and hydrogen; and

second-annealing said semiconductor substrate where the gate oxide film has been formed, in a nitrogen (N_2) atmosphere while said substrate temperature increased from approximately 820° C. to approximately 950° C., and then decreased to 650° C.

5,210,057

PARTIALLY CRYSTALLIZABLE GLASS COMPOSITIONS

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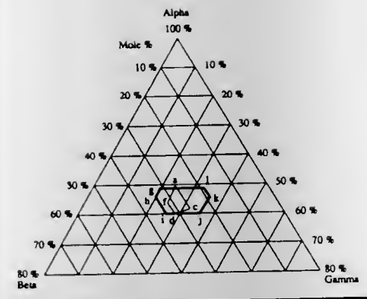
Continuation-in-part of Ser. No. 653,872, Feb. 8, 1991, abandoned. This application May 13, 1992, Ser. No. 883,817
Int. Cl.[5] C03C *3/085*
U.S. Cl. 501—69 13 Claims

1. An amorphous partially crystallizable alkaline earth zinc silicate glass consisting essentially of a composition falling within the area defined on a weight points g-l of FIG. 2 of the drawing, in which:

(1) alpha is SiO_2 in admixture with a glass former or conditional glass former selected from the group consisting of no more than 3% Al_2O_3, 6% HfO_2, 4% P_2O_5, 10% TiO_2, 6% ZrO_2 and mixtures thereof, with the proviso that the composition contains at least 0.5% ZrO_2;

(2) beta is an alkaline earth selected from CaO, SrO, MgO, BaO and mixtures thereof, with the proviso that the composition contain no more than 15% MgO and no more than 6% BaO; and

(3) gamma is ZnO, the loci of points g-l being as follows:



Point	Alpha	Beta	Gamma
g	48.0	32.0	20.0
h	46.0	34.0	20.0
i	40.0	34.0	26.0
j	40.0	24.0	36.0
k	46.0	18.0	36.0
l	48.0	19.0	33.0

5,210,058

METHOD FOR PREPARING ORGANIC SILAZANE POLYMERS AND METHOD FOR PREPARING CERAMICS FROM THE POLYMERS

Yoshihumi Takeda, Jouetsu; Akira Hayashida, Higashimurayama, and Toshinobu Ishihara, Jouetsu, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Jul. 8, 1991, Ser. No. 726,578
Claims priority, application Japan, Jul. 9, 1990, 2-181131
Int. Cl.[5] C04B *35/56, 35/58*
U.S. Cl. 501—97 10 Claims

1. A method for preparing an organic silazane polymer comprising the steps of:

reacting ammonia gas at a temperature of from −20° to 150° C. with a mixture of 10 to 45 mol % of an organic silicon compound of the general formula (I):

$$R^1SiX_3 \quad (I)$$

wherein R^1 is selected from the group consisting of a hydrogen, methyl, ethyl, phenyl and vinyl, and X is chlorine or bromine and 90 to 55 mol % of another organic silicon compound of the general formula (II):

$$R^2R^3R^4SiX \quad (II)$$

wherein R^2, R^3 and R^4 are independently selected from the group consisting of hydrogen, methyl, ethyl, phenyl and vinyl, and X is chlorine or bromine in an organic solvent to form a silazane compound, and

heating the silazane compound at a temperature of 200° to 350° C. for 1 hour to 5 hours in the absence of packing to polymerize the silazane compound.

5,210,059

MULTILAYERED CATALYST FOR CONTROLLED TRANSPORT OF REACTANT

Michael G. Matturo, Lambertville; Harry W. Deckman, Clinton; James A. McHenry, Washington, and Robert P. Reynolds, Jr., Clinton, all of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Oct. 10, 1991, Ser. No. 775,657
Int. Cl.[5] B01J *35/02*
U.S. Cl. 502—4 7 Claims

1. A multilayered surface catalyzed membrane for reacting a reactant and a feed material to form a product comprising:

(a) a semi-permeable non-microporous support membrane which transports a reactant incident from one side of said support membrane,

(b) a thin-film first catalytic activating material adjacent to said non-microporous support membrane on the side away from said incident reactant, wherein said feed material is incident on said catalyst membrane from the side opposite said reactant,

(c) a thin-film non-porous inorganic protective transport overlayer adjacent said first catalytic activating material.

5,210,060

CATALYST FOR CONVERTING SYNTHESIS GAS TO PARAFFIN WAX

Cecelia A. Radlowski, Riverside, and Mark P. Kaminsky, Winfield, both of Ill., assignors to Amoco Corporation, Chicago, Ill.

Division of Ser. No. 737,476, Jul. 30, 1991, Pat. No. 5,135,958. This application May 28, 1992, Ser. No. 890,445
Int. Cl.[5] B01J *21/02, 23/02, 23/36*
U.S. Cl. 502—202 20 Claims

1. A catalyst comprising a partially sulfided catalyst precursor which comprises rhenium, porous aluminum borate, and a compound of an alkali metal or alkaline earth metal.

5,210,061

RESID HYDROPROCESSING CATALYST

Howard D. Simpson, Irvine; Marvin J. Schwedock, and John W. Ward, both of Yorba Linda, all of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Filed Sep. 24, 1991, Ser. No. 764,814
Int. Cl.[5] B01J *21/12, 23/85*
U.S. Cl. 502—254 21 Claims

1. A catalyst composition comprising at least one Group VIB hydrogenation metal component supported on an amorphous, porous refractory oxide containing alumina and silica, said catalyst composition containing between 1.8 and 7.8 weight percent of silica, calculated as SiO_2, and said composition having a median pore diameter between 120 and 140 angstroms.

4. The composition defined in claim 1 further comprising at least one Group VIII hydrogenation metal component.

5,210,062

ALUMINUM OXIDE CATALYST SUPPORTS FROM ALUMINA SOLS

Chaitanya K. Narula, Ann Arbor, Mich.; William L. H. Watkins, Toledo, Ohio, and Mordecai Shelef, Birmingham, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 26, 1991, Ser. No. 750,174
Int. Cl.[5] B01J *37/02, 35/10*
U.S. Cl. 502—304 18 Claims

1. A method of providing a washcoat uniformly comprising oxides uniformly distributed in γ-alumina on a channeled substrate as a supporting structure for an exhaust gas conversion catalyst comprising:

(a) applying a coating of a reactive mixture, consisting of aluminum alkoxide, at least one salt of barium and cerium, a solvent, and a complexing acid to promote a clear sol to said channeled substrate, said aluminum alkoxide having a chemical formula of $Al(OR)_3$, wherein R comprises an alkyl group of branched alkyl group having between 3 and 6 carbon atoms;

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(b) after removing excess coating from said channels by blowing gas through said channels, hydrolizing said coating;

(c) drying said coating on said channeled substrate at a temperature sufficient to remove solvent; and

(d) calcining said coating at a temperature to density said coating to form said washcoat comprising γ-alumina.

8. The method according to claim 1 wherein said washcoat on said substrate is impregnated with a catalyst.

10. An article resulting from the practice of the method of claim 8.

5,210,063

CRUSH-RESISTANT/ADSORPTIVE AGGLOMERATES OF ACTIVATED ALUMINA

Thierry Chopin, Saint Denis; Patrick Fourre, Paris; Philippe Jaeger, Salindres, and Bernard Taxil, Ales, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

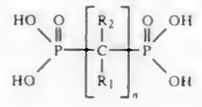
Continuation of Ser. No. 659,881, Feb. 25, 1991, abandoned. This application Jan. 10, 1992, Ser. No. 818,904

Claims priority, application France, Feb. 23, 1990, 90 02273

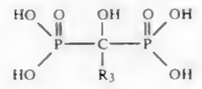
Int. Cl.[5] B01J 20/08

U.S. Cl. 502—415 12 Claims

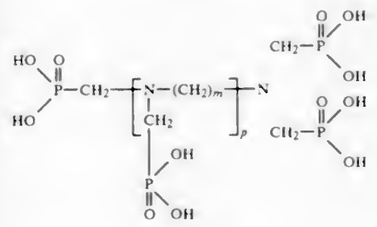
1. A process for the preparation of activated alumina agglomerates having a crush resistance of at least 12 daN, measured on that fraction thereof having a mean diameter ranging from 3 to 4 mm, and an adsorptive capacity greater than 18% by weight, comprising agglomerating activated alumina particulates, maturing the resulting agglomerates in the presence of a complexing agent for the cation Al^{3+}, and then thermally treating the matured agglomerates at a temperature ranging from about 100° to 500° C., said complexing agent comprising a phosphorus acid having one of the following formulae (I) to (III):



(I)



(II)



(III)

in which formulae (I) to (III), n and m are integers ranging from 1 to 6; p is an integer ranging from 0 to 5; and R_1, R_2 and R_3, which may be identical or different, each represents a hydrogen atom or an alkyl, aryl, aralkyl, hydroxy or amino radical.

5,210,064

STABILIZATION OF THERMAL IMAGES

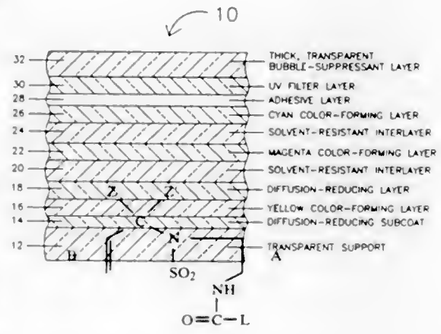
Rita S. Shon Baker, Brookline, and Larry C. Takiff, Arlington, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Nov. 20, 1991, Ser. No. 795,102

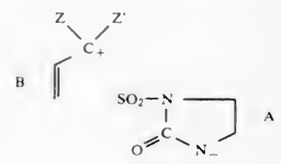
Int. Cl.[5] B41M 5/30

U.S. Cl. 503—201 36 Claims

1. A thermal imaging medium comprising at least one imaging layer, the imaging layer comprising a binder and a color-forming compound which undergoes a change of color upon heating above a color-forming temperature for a color-forming time, the color-forming compound being of the formula:



and forming after its change in color a dye compound of the formula:



in which formulae:

rings A and B are aromatic nuclei;

Z and Z', which may be linked other than via the meso carbon atom, represent the moieties sufficient to complete the auxochromophoric system of a diarylmethane or a triarylmethane dye in the dye compound, Z and Z' being such that the dye compound has absorption in the visible region;

L is a leaving group which is removed on heating; and

the broken line between the SO_2 group and ring B denotes that the sulfonamide ring in the color-forming compound may be 5- or 6-membered,

the imaging layer further comprising a quinone or hydroquinone.

5,210,065

COLOR-FORMING RECORDING MATERIAL

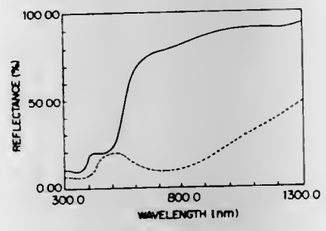
Michio Tanaka, Hatsukaichi; Koji Kawai, Ohtake; Hiroyoshi Tarumoto, Iwakuni; Hisaya Miki, Hiroshima; Keiki Kishikawa, Yamaguchi; Masato Kawamura, Iwakuni; Masatoshi Nitabaru, Yamaguchi, and Terunori Fujita, Ohtake, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Oct. 2, 1991, Ser. No. 769,737

Claims priority, application Japan, Oct. 4, 1990, 2-268184; Oct. 4, 1990, 2-268186; Apr. 22, 1991, 3-116679; Jun. 26, 1991, 3-154271

Int. Cl.[5] B41M 5/30

U.S. Cl. 503—202 13 Claims



1. A color-forming recording material having a substrate and containing:

(a) an aromatic diamine,

(b) an oxidizing agent, and

(c) an acidic substance.

5,210,066

HEAT-SENSITIVE RECORDING MATERIAL

Shinziro Sakurai; Akihiro Yamazaki; Takeshi Yanagihara; Makoto Nakano, and Masaya Kusumoto, all of Kanagawa, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Dec. 21, 1990, Ser. No. 631,933

Claims priority, application Japan, Dec. 28, 1989, 1-338213; Jul. 4, 1990, 2-176620; Aug. 10, 1990, 2-210247

Int. Cl.[5] B41M 5/40

U.S. Cl. 503—214 5 Claims

1. A heat-sensitive recording material wherein the heat-sensitive recording material comprises (i) a substrate, (ii) an intermediate layer formed on the substrate and (iii) a heat-sensitive recording layer formed on the intermediate layer, said heat-sensitive recording layer comprising a coloring agent and a developer capable of color developing the coloring agent and wherein at least one of the intermediate layer and the heat-sensitive recording layer comprise a polymer emulsion (e) as a binder, the polymer emulsion being obtained by polymerizing 2.5 to 1000 parts by weight of a monomer component (b) which comprises 50 to 100% by weight of (meth)acrylamide (c) and 50 to 0% by weight of an unsaturated monomer component (d) copolymerizable with (meth)acrylamide in the presence of 100 parts by weight of the solid content of a seed emulsion (a) serving as a nucleating particle.

5,210,067

HEAT TRANSFER-RECEIVING SHEETS

Noritaka Egashira, and Osamu Shimizu, both of Tokyo, Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Japan

PCT No. PCT/JP90/00779, § 371 Date Feb. 11, 1991, § 102(e) Date Feb. 11, 1991, PCT Pub. No. WO90/15720, PCT Pub. Date Dec. 27, 1990

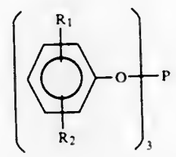
PCT Filed Jun. 14, 1990, Ser. No. 651,416

Claims priority, application Japan, Jun. 16, 1989, 1-152300; Aug. 29, 1989, 1-222633

Int. Cl.[5] B41M 5/035, 5/38

U.S. Cl. 503—227 12 Claims

1. A heat transfer image-receiving sheet comprising a substrate sheet and a dye-receiving layer formed on one, surface of said substrate sheet, said dye-receiving layer comprising a resin containing an antioxidant expressed by the following structural formula (I):



(I)

wherein R_1 and R_2 each represent a hydrogen atom or a substituted or unsubstituted alkyl group.

5,210,068

IMAGE-RECEIVING SHEET

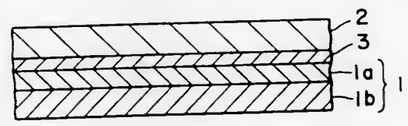
Noritaka Egashira, Ichikawa; Yoshikazu Ito, Tokyo; Tatsuya Kita, Tokyo; Masahisa Yamaguchi, Tokyo; Masaki Kutsukake, Fujimi, and Kazunobu Imoto, Tokyo, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Japan

Continuation of Ser. No. 612,994, Nov. 15, 1990, abandoned, which is a continuation of Ser. No. 168,908, Mar. 19, 1988, Pat. No. 5,001,106. This application Nov. 21, 1991, Ser. No. 798,354

Claims priority, application Japan, Mar. 20, 1987, 66879; Mar. 20, 1987, 66880

Int. Cl.[5] B41M 5/035, 5/38

U.S. Cl. 503—227 4 Claims



1. An image-receiving sheet for use in heat transfer recording, comprising a base sheet and a receiving layer provided on one surface of said base sheet for receiving a dye or a pigment migrating from a heat transfer sheet during said heat transfer recording,

said receiving layer comprising a resin for receiving the thus migrated dye or pigment from the heat transfer sheet,

said base sheet comprising a laminate of (i) a first layer having a porous structure or formed structure and being substantially non-dyeable and (ii) a second layer comprising a non-foamed plastic film, said first layer being disposed between said second layer and said receiving layer.

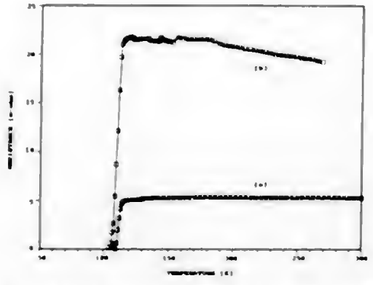
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,069

PREPARATION METHOD OF HIGH PURITY 115 K TL-BASED SUPERCONDUCTOR

Chung-Kwang Chiang, and Cheng-Yie Shei, both of Taipei, Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Oct. 16, 1991, Ser. No. 777,573
Int. Cl.[5] H01L *39/12*; H01B *1/08*
U.S. Cl. 505—1 5 Claims



1. A preparation method of high purity 115K Tl-based superconductor comprising the steps of:

(a) preparing an aqueous solution of thallium (+3) oxide and metal nitrates of Bi, Pb, Sr, Ca and Cu in composition ratio of $(Tl_aPb_bBi_c)Sr_{2-x}Ca_{2+x}Cu_yO_z$, wherein $(a+b+c)=1$, $0.55 \leqq a \leqq 0.65$, $0.15 \leqq b \leqq 0.25$, $0.15 \leqq c \leqq 0.25$, $0 < x \leqq 1$ and $2 \leqq y \leqq 4$;

(b) adding oxalic acid as a chelating agent into the prepared aqueous solution, which equals half the molar amount of total nitrate anions;

(c) adjusting pH = 5–8 of the solution containing metal salts and chelating acid by adding ammonia water, ethylenediamine or triethylamine;

(d) stirring vigorously and heating the solution to a temperature of about 100° to about 120° C. to form a gel;

(e) heating the obtained gel of step (d) for organic decomposition at 200°–750° C. to form precursors in flaky shapes, then grinding to fine precursor powders; and

(f) calcinating and sintering the precursor powders to obtain the superconductor product.

5,210,070

PROCESS FOR PREPARING A SINGLE PHASE BI-CONTAINING SUPERCONDUCTING THIN OXIDE FILM BY LASER ABLATION

Tatsuoki Nagaishi; Hisao Hattori, and Hideo Itozaki, all of Hyogo, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Nov. 14, 1991, Ser. No. 792,179
Claims priority, application Japan, Nov. 15, 1990, 2-309453; Nov. 15, 1990, 2-309454; Oct. 24, 1991, 3-305215
Int. Cl.[5] B05D *3/06, 5/12*
U.S. Cl. 505—1 5 Claims

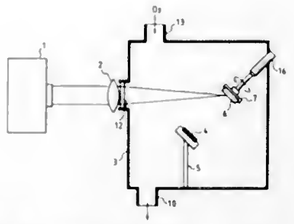
1. A process of preparing a single phase superconducting oxide film, comprising the steps of:

preparing a target of an oxide containing Bi, Sr, Ca and Cu, the atomic ratio of Bi:Sr:Ca:Cu in the target being 2:2:2:3;

positioning said target to face a substrate in a chamber;

adjusting an atmosphere in said chamber to have an oxygen partial pressure of 0.01–1 Torr;

heating a surface of said substrate;



irradiating said target with a laser beam; and

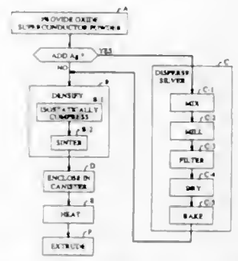
depositing a single phase superconducting oxide film of Bi, Sr, Ca and Cu on said substrate.

5,210,071

METHOD OF FORMING SUPERCONDUCTIVE ARTICLES BY HYDROSTATIC EXTRUSION

Dominic N. LoIacono, Franklin Lakes, and John T. Plewes, Madison, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 620,975, Nov. 30, 1990, abandoned. This application Feb. 27, 1992, Ser. No. 845,511
Int. Cl.[5] H01L *39/12*; B29C *43/10*
U.S. Cl. 505—1 15 Claims



1. A method for making a superconducting article, comprising the steps of:

a) providing a hollow cylinder comprising cladding material;

b) providing core material comprising metallic oxide superconductor material, the metallic oxide superconductor material being characterized by a fused density;

c) enclosing the core material within the cylinder; and

d) elongating the cylinder and core material such that a first cross sectional area is associated with the core material just prior to the elongating step, a second cross sectional area is associated with the core material after the elongating step, and the first cross sectional area is greater than the second cross sectional area, characterized in that

e) the core material is substantially free of organic materials and elemental carbon;

f) the elongating step comprises hydrostatically extruding the cylinder and the core material such that a composite extrudate, comprising core material and cladding metal, is produced, and the first cross sectional area is at least 30 times the second cross sectional area;

g) the core material comprises at least one sintered slug or pellet, the slug or pellet having an equivalent density that is at least 55% of the fused density of the metallic oxide superconductor material;

h) the method further comprises, before the hydrostatic extrusion step, the step of heating the core material to a temperature which, at the commencement of the hydrostatic extrusion step, is at most about 450° C.; and

i) the cladding material comprises a dispersion hardened metal or a dispersion hardened metal alloy.

5,210,072

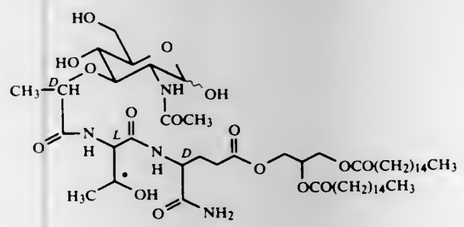
MURAMYL DIPEPTIDE DERIVATIVES

Louis Chedid, Paris, France; Peter Dukor, Vienna, Austria; Pierre Lefrancier, Gif-sur-Yvette, France, and Peter Stütz, Vienna, Austria, assignors to Sandoz Ltd., Basel, Switzerland

Filed Jun. 27, 1990, Ser. No. 544,287
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1989, 3921246; Jun. 29, 1989, 3921248; Jul. 27, 1989, 3924874; Jul. 27, 1989, 3924875
Int. Cl.[5] A61K *37/02*; C07K *9/00*
U.S. Cl. 514—8 7 Claims

1. The forms of the compound of formula I

1



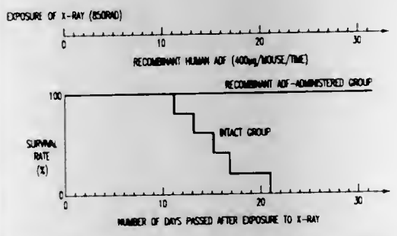
wherein the carbon atom marked with an asterisk * has the R or, respectively, the S configuration.

5,210,073

METHOD FOR TREATING CANCER THERAPY RADIATION DAMAGE OR ARTERIOSCLEROSIS USING HUMAN ADF

Junji Yodoi, Kitashirakawa Nishisenouchi-cho 39, Kyoto-fu, Kyoto-shi, Sakyo-ku; Atsushi Uchida, Uji; Yutaka Tagaya, Kobe; Akira Mitsui, and Tadashi Hirakawa, both of Kawasaki, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo and Junji Yodoi, Kyoto, both of Japan

Filed Sep. 28, 1990, Ser. No. 589,616
Claims priority, application Japan, Sep. 29, 1989, 1-256369
Int. Cl.[5] C07K *13/00*; A61K *37/02*
U.S. Cl. 514—12 5 Claims



1. A method for treating cancer therapy radiation damage or arteriosclerosis which comprises administering a therapeutically effective amount of human adult T cell leukemia-derived factor to an individual in need of treatment for cancer therapy radiation damage or arteriosclerosis.

5,210,074

METHOD FOR PREPARING A DRIED COMPOSITION OF INSULIN-LIKE GROWTH FACTOR I

Shigeo Nakanishi, Neyagawa, and Iwao Yamanaka, Osaka, both of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Filed Dec. 26, 1990, Ser. No. 633,984
Claims priority, application Japan, Jan. 5, 1990, 2-886; Jun. 20, 1990, 2-162362
Int. Cl.[5] A61K *37/24*; C07K *3/12*
U.S. Cl. 514—12 4 Claims

1. A method for preparing a dried composition comprising insulin-like growth factor I which comprises drying a solution comprising insulin-like growth factor I together with a strong acid selected from the group consisting of hydrochloric acid, hydrobromic acid, nitric acid, methanesulfonic acid, sulfuric acid, phosphoric acid and oxalic acid.

5,210,075

INTERLEUKIN 6 ANTAGONIST PEPTIDES

Wolfgang Scholz; Shiu-Lang Chiang; Gobi Nagarajan, all of San Diego, and Thomas J. Lobl, Encinitas, all of Calif., assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Feb. 16, 1990, Ser. No. 480,868
Int. Cl.[5] A61K *37/02*; C07K *1/06, 1/08*
U.S. Cl. 514—14 15 Claims

1. A peptide of the formula

$$X^2\text{—}(X^1\text{—})7\text{—}8\text{—}9\text{—}10\text{—}11\text{—}12\text{—}14(\text{—}Y^1)\text{—}Y^2 \quad (II)$$

and pharmaceutically acceptable salts thereof, wherein

7 is selected from L; I and A; and V, Nle, Sar, β-Ala and Aib;

8 is selected from A; L and I; and V, Nle, Sar, β-Ala and G;

9 is selected from E; pyro-Glu; and D, S, T, Y, β-Asp and 3-Glu;

10 is selected from N; Q, M, W and F; and Y;

11 is selected from N; Q, M, W and F; and Y;

12 is selected from L; I and A; and V, Nle, Sar, β-Ala and Aib;

13 is selected from N; Q, M, W and F; and Y; and

14 is selected from L; I and A; and V, Nle, Sar, β-Ala and Aib;

X^1 is optional and, where present, is selected from

6—
5—6—
4—5—6—
3—4—5—6—
2—3—4—5—6— and
1—2—3—4—5—6—

wherein

1 is selected from E; pyro-Glu; and D, S, T, Y, β-Asp and 3-Glu;

2 is selected from S; A and M; and T, HomoSer and Y;

3 is selected from S; A and M; and T, HomoSer and Y;

4 is selected from K; and R, Orn, HomoArg and H;

5 is selected from E; G and pyro-Glu; and D, S, T, Y, β-Asp and 3-Glu;

6 is selected from A; L and I; and V, Nle, Sar, β-Ala and G;

wherein one or more D-amino acids may be employed among residues 1 to 6;

Y^1 is optional and, where present, is selected from

—15
—15—16
—15—16—17
—15—16—17—18
—15—16—17—18—19 and
—15—16—17—18—19—20

wherein

VOL 1150 ISS 2 MY 11 1993 UMI

15 is selected from P; L and I; and V, Aib, hydroxy-Pro and HomoPro;

16 is selected from K; and R, Orn, HomoArg and H;

17 is selected from M; W, F and Q; and N, Y, H, α-naphthylalanine and β-naphthylalanine;

18 is selected from A, L and I, and V, Nle, Sar, β-Ala and G;

19 is selected from E; pyro-Glu; and D, S, T, Y, β-Asp and 3-Glu;

20 is selected from K; and R, Orn, HomoArg and H, and wherein one or more D-amino acids may be employed among residues 15 to 20;

X^2 is a N^{α}-substituent selected from hydrogen, R'CO— and R'—;

Y^2 is a carboxyl-terminal substituent selected from hydroxyl, —NH_2, —NHR', —NR'_2, —OR' and —$NHNH_2$; and

wherein each R' is individually a pharmaceutically suitable substituent group.

5,210,076

METHODS OF TREATING PARKINSON'S DISEASE USING MELANIN

David L. Berliner, 380 Selby La., Atherton, Calif. 94025; Robert L. Erwin, 336 Summerfield Dr., and David R. McGee, 1990 Marshall Rd., both of Vacaville, Calif. 95687

Continuation-in-part of Ser. No. 331,123, Mar. 31, 1989, abandoned, which is a continuation-in-part of Ser. No. 243,736, Sep. 13, 1988, abandoned. This application Nov. 5, 1990, Ser. No. 609,311

Int. Cl.[5] A61K *37/00*

U.S. Cl. 514—21 5 Claims

1. A method for treating a mammal having Parkinson's disease, comprising administering to the mammal an effective amount of an active substance which causes an increase in the concentration of melanin in the tissue, said active substance being selected from the group consisting of melanin, melanin derivatives, melanin analogs, melanin variants, and combination thereof, and wherein said active substance is administered in a manner to effectively reduce the effects of Parkinson's disease.

5,210,077

ANTIBODIES TO CYTOKININS HAVING A GLYCOSYLATED ISOPRENOID SIDE CHAIN AND IMMUNOASSAY METHODS

David L. Brandon, Berkeley, and Joseph W. Corse, Lafayette, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Apr. 6, 1989, Ser. No. 334,069

Int. Cl.[5] H01N *43/04*; C07G *3/00*

U.S. Cl. 514—25 9 Claims

1. Antibody which is specific for a cytokinin, said cytokinin possessing a glycosylated isoprenoid side chain, that is, it is able to simultaneously recognize a purine ring, an isoprenoid side chain, and a 4'-O-glycoside.

5,210,078

TRIFLUOROMETHYL ANALOGS OF FUCOSE AND USES THEREOF

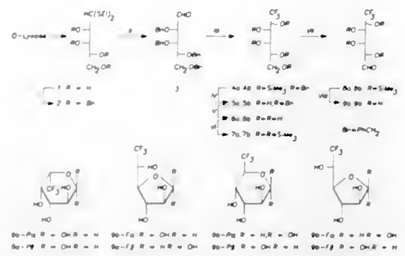
Tatsushi Toyokuni, Seattle, and Sen-itiroh Hakomori, Mercer Island, both of Wash., assignors to The Biomembrane Institute, Seattle, Wash.

Filed Apr. 30, 1991, Ser. No. 693,292

Int. Cl.[5] A61K *31/70, 31/715*; C07H *1/00*

U.S. Cl. 514—54 6 Claims

3. A trifluorofucose analog of a fucose-containing oligosaccharide comprising an oligosaccharide selected from the group consisting of Le^a, sialyl Le^a, disialyl Le^a, dimeric Le^a, sialyl-dimeric Le^a, trifucosyl Le^a, and Le^y, wherein at least one of the fucoses has been substituted with 6,6,6-trifluorofucose.



4. A composition comprising an oligosaccharide according to claim 3 in combination with a pharmaceutically acceptable carrier or diluent.

5,210,079

TREATMENT OF CHRONIC RENAL FAILURE WITH IMIDAZOLE ANGIOTENSIN-II RECEPTOR ANTAGONISTS

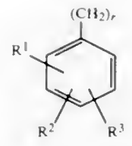
David J. Carini, Wilmington; John Jonas V. Duncia, Newark, and Pancras C. Wong, Wilmington, all of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 542,351, Jun. 22, 1990, abandoned, which is a continuation-in-part of Ser. No. 279,194, Dec. 6, 1988, Pat. No. 5,138,069, which is a continuation-in-part of Ser. No. 142,580, Jan. 7, 1988, abandoned, which is a continuation-in-part of Ser. No. 373,755, Jun. 30, 1989, abandoned. This application Feb. 7, 1992, Ser. No. 832,638

Int. Cl.[5] A61K *31/41, 31/44, 31/64, 31/415*

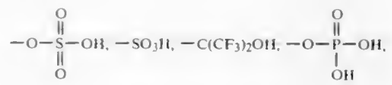
U.S. Cl. 514—94 31 Claims

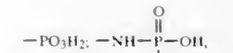
1. A method of treating chronic renal failure mediated by AII in a mammal comprising administering to the mammal a therapeutically effective amount of a pharmaceutical composition having the formula (I):



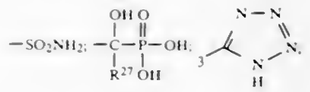
wherein

R^1 is 4—CO_2H; 4—CO_2R^9;

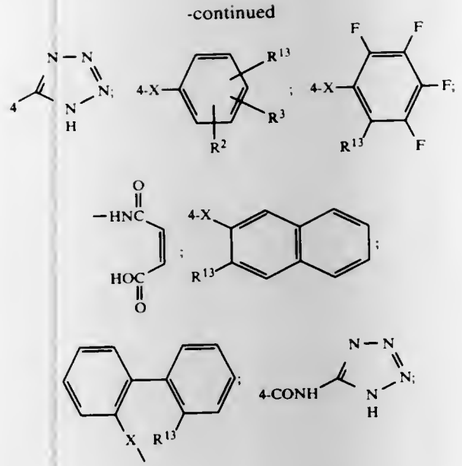


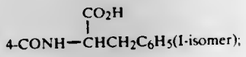
—PO_3H_2; 

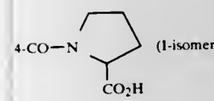
4-$NHSO_2CH_3$; 4-$NHSO_2CF_3$; —$CONHOR^{12}$;

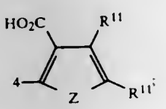


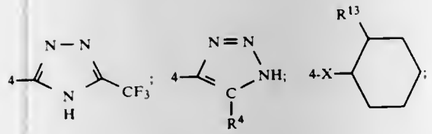
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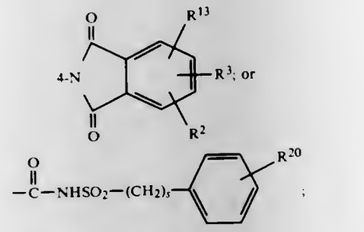


4-$CONHNHSO_2CF_3$; 4-  (1-isomer);

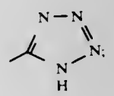


(1-isomer); 





R^2 is H; Cl; Br; I; F; NO_2; CN; alkyl of 1 to 4 carbon atoms; acyloxy of 1 to 4 carbon atoms; alkoxy of 1 to 4 carbon atoms; CO_2H; CO_2R^9; $NHSO_2CH_3$; $NHSO_2CF_3$; $CONHOR^{12}$; SO_2NH_2;



aryl; or furyl;

R^3 is H; Cl, Br, I or F; alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms;

R^4 is CN, NO_2 or CO_2R^{11};

R^5 is H, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, alkenyl or alkynyl of 2 to 4 carbon atoms;

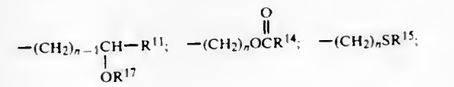
R^6 is alkyl of 2 to 10 carbon atoms, alkenyl or alkynyl of 3 to 10 carbon atoms or the same groups substituted with F or CO_2R^{14}; cycloalkyl of 3 to 8 carbon atoms, cycloalkylalkyl of 4 to 10 carbon atoms; cycloalkylalkenyl or cycloalkylalkynyl of 5 to 10 carbon atoms; $(CH_2)_sZ(CH_2)_mR^5$ optionally substituted with F or CO_2R^{14}; benzyl or benzyl substituted on the phenyl ring with 2 or 2 halogens, alkoxy of 1 to 4 carbon atoms, alkyl of 1 to 4 carbon atoms or nitro;

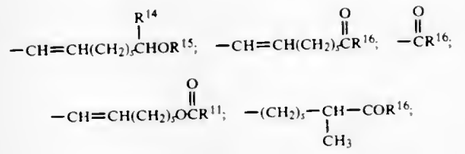
R^7 is H, F, Cl, Br, I, NO_2, C_vF_{2v+1}, where v=1–6; C_6F_5; CN;

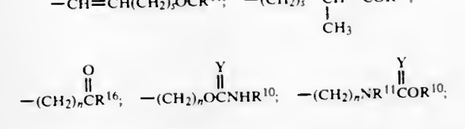


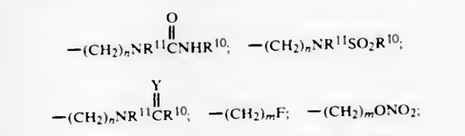
straight or branched alkyl of 1 to 6 carbon atoms; phenyl or phenylalkyl, where alkyl is 1 to 3 carbon atoms; or substituted phenyl or substituted phenylalkyl, where alkyl is 1 to 3 carbon atoms, substituted with one or two substituents selected from alkyl of 1 to 4 carbon atoms, F, Cl, Br, OH, OCH_3, CF_3, and COOR, and R is H, alkyl of 1 to 4 carbon atoms, or phenyl;

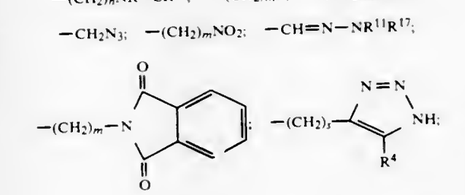
R^8 is H, CN, alkyl of 1 to 10 carbon atoms, alkenyl of 3 to 10 carbon atoms, or the same groups substituted with F; phenylalkenyl wherein the alkenyl portion is 2 to 6 carbon atoms; $—(CH_2)_m$-imidazol-1-yl; $—(CH_2)_m$-1,2,3-triazolyl optionally substituted with one or two groups selected from CO_2CH_3 or alkyl of 1 to 4 carbon atoms; $—(CH_2)_r$-tetrazolyl;

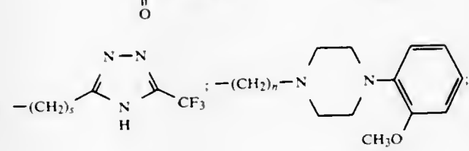






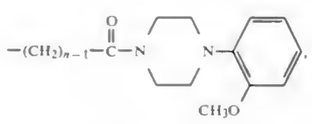


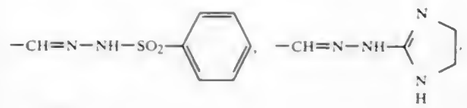




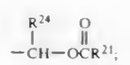
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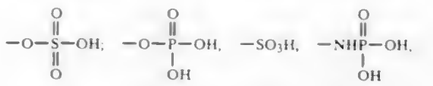




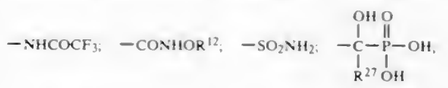
R^9 is

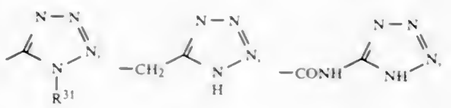


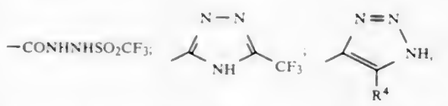
R^{10} is alkyl of 1 to 6 carbon atoms or perfluoroalkyl of 1 to 6 carbon atoms, 1-adamantyl, 1-naphthyl, 1-(1-naphthyl-)ethyl, or $(CH_2)_pC_6H_5$;
R^{11} is H, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl or benzyl;
R^{12} is H, methyl or benzyl;
R^{13} is $-CO_2H$; $-CO_2R^9$; $-CH_2CO_2H$, $-CH_2CO_2R^9$;



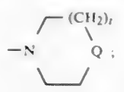
$-PO_3H_2$, $-C(CF_3)_2OH$, $-NHSO_2CH_3$; $-NHSO_2CF_3$;





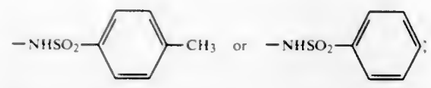


R^{14} is H, alkyl or perfluoroalkyl of 1 to 8 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl or benzyl;
R^{15} is H, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl, benzyl, acyl of 1 to 4 carbon atoms, phenacyl;
R^{16} is H, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, $(CH_2)_pC_6H_5$, OR^{17}, or $NR^{18}R^{19}$;
R^{17} is H, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl or benzyl;
R^{18} and R^{19} independently are H, alkyl of 1 to 4 carbon atoms, phenyl, benzyl, α-methylbenzyl, or taken together with the nitrogen form a ring of the formula

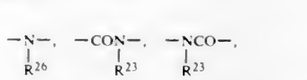


Q is NR^{20}, O or CH_2;
R^{20} is H, alkyl of 1-4 carbon atoms, or phenyl;
R^{21} is alkyl of 1 to 6 carbon atoms, $-NR^{22}R^{23}$, or

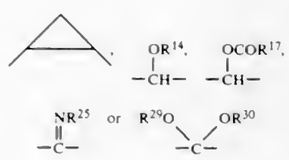
R^{22} and R^{23} independently are H, alkyl of 1 to 6 carbon atoms, benzyl, or are taken together as $(CH_2)_u$ where u is 3–6;
R^{24} is H, CH_3 or $-C_6H_5$;
R^{25} is $NR^{27}R^{28}$, OR^{28}, $NHCONH_2$, $NHCSNH_2$,



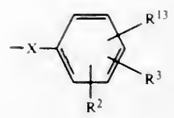
R^{26} is hydrogen, alkyl with from 1 to 6 carbon atoms, benzyl, or allyl;
R^{27} and R^{28} are independently hydrogen, alkyl with from 1 to 5 carbon atoms, or phenyl;
R^{29} and R^{30} are independently alkyl of 1-4 carbon atoms or taken together are $-(CH_2)_q-$;
R^{31} is H, alkyl of 1 to 4 carbon atoms, $-CH_2CH=CH_2$ or $-CH_2C_6H_4R^{32}$;
R^{32} is H, NO_2, NH_2, OH or OCH_3;
X is a carbon-carbon single bond, —CO—, $-CH_2-$, —O—, —S—, —NH—,



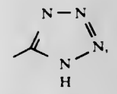
$-OCH_2-$, $-CH_2O-$, $-SCH_2-$, $-CH_2S-$, $-NHC(R^{27})(R^{28})-$, $-NR^{23}SO_2-$, $-SO_2NR^{23}-$, $-C(R^{27})(R^{28})NH-$, $-CH=CH-$, $-CF=CF-$, $-CH=CF-$, $-CF=CH-$, $-CH_2CH_2-$, $-CF_2CF_2-$,



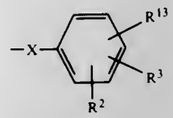
Y is O or S;
Z is O, NR^{11}, or S;
m is 1 to 5;
n is 1 to 10;
p is 0 to 3;
q is 2 to 3;
r is 0 to 2;
s is 0 to 5;
t is 0 or 1;
and pharmaceutically acceptable salt of these compounds; provided that:
(1) the R^1 group is not in the ortho position;
(2) when R^1 is



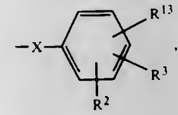
X is a single bond, and R^{13} is CO_2H, or



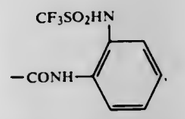
then R^{13} must be in the ortho or meta position; or when R^1 and X are as above and R^{13} is $NHSO_2CF_3$ or $NHSO_2CH_3$, R^{13} must be ortho;
(3) when R^1 is



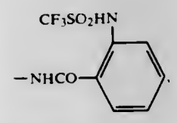
and X is other than a single bond, then R^{13} must be ortho except when $X=NR^{23}CO$ and R^{13} is $NHSO_2CF_3$ or $NHSO_2CH_3$, then R^{13} must be ortho or meta;
(4) when R^1 is 4—CO_2H or a salt thereof, R^6 cannot be S-alkyl;
(5) when R^1 is 4—CO_2H or a salt thereof, the substituent on the 4-position of the imidazole cannot be CH_2OH, CH_2O-$COCH_3$, or CH_2CO_2H;
(6) when R^1 is



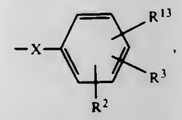
X is $-OCH_2-$, and R^{13} is 2—CO_2H, and R^7 is H then R^6 is not C_2H_5S;
(7) when R^1 is



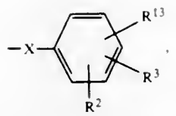
and R^6 is n-hexyl, then R^7 and R^8 are not both hydrogen;
(8) when R^1 is



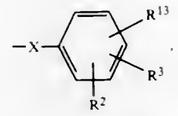
R^6 is not methoxybenzyl;
(9) the R^6 group is not $-CHFCH_2CH_2CH_3$ or CH_2OH;
(10) when r=O, R^1 is



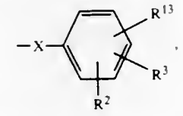
X is —NH—CO—, R^{13} is 2—$NHSO_2CF_3$, and R^6 is n-propyl, then R^7 and R^8 are not $-CO_2CH_3$;
(11) when r=0, R^1 is



X is —NH—CO—, R^{13} is 2—COOH, and R^6 is n-propyl, then R^7 and R^8 are not $-CO_2CH_3$;
(12) when r=1, R^1=



X is a single bond, R^7 is Cl, and R^8 is —CHO, then R^{13} is not 3-(tetrazol-5-yl);
(13) when r=1, R^1=



X is a single bond, R^7 is Cl, and R^8 is —CHO, then R^{13} is not 4-(tetrazol-5-yl).

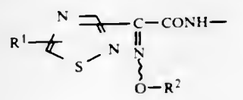
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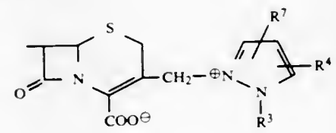
CEPHEM COMPOUNDS

Takao Takaya, Kawanishi; Kazuo Sakane, Kawanishi; Kenzi Miyai, Kawanishi, and Kohji Kawabata, Osaka, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 238,136, Aug. 30, 1988, abandoned. This application Apr. 9, 1991, Ser. No. 683,473
Claims priority, application United Kingdom, Sep. 7, 1987, 8721016
The portion of the term of this patent subsequent to Apr. 9, 2008, has been disclaimed.
Int. Cl.[5] **C07D** *501/46;* **A61K** *31/545*
U.S. Cl. 514—202 **8 Claims**

1. A compound of the formula :





wherein
R^1 is amino or protected amino,
R^2 is lower alkyl or lower alkenyl,
R^3 is lower alkyl, hydroxy(lower)alkyl or protected hydroxy(lower)alkyl,
R^4 is amino, protected amino, lower alkylamino, protected lower alkylamino, carboxy(lower)alkylamino, N-[protected carboxy(lower)alkyl]amino and

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R^7 is hydrogen or lower alkyl, and a pharmaceutically acceptable salt thereof.

5,210,081

ALKALI METAL 8,9-DEHYDROESTRONE SULFATE ESTERS

Panolil C. Raveendranath, Plattsburgh, N.Y., and John A. Wichtowski, Albans, Vt., assignors to American Home Products Corporation, New York, N.Y.

Filed Feb. 26, 1992, Ser. No. 841,694
Int. Cl.[5] A61K *31/56; C07J 53/00, 31/00*
U.S. Cl. 514—179 **10 Claims**

1. A composition of matter consisting essentially of an alkali metal salt of 8,9-dehydroestrone-3-sulfate ester.

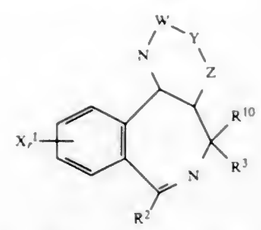
5,210,082

2-BENZAZEPINES WITH 5- AND 6-MEMBERED HETEROCYCLIC RINGS TO TREAT PAIN AND ANXIETY DISORDERS

Mark G. Bock, Hatfield; Ben E. Evans, and Roger M. Freidinger, both of Lansdale, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed May 16, 1991, Ser. No. 701,275
Int. Cl.[5] A61K *31/55*
U.S. Cl. 514—213 **3 Claims**

1. A method of treating panic disorder or anxiety disorder in a mammal which comprises administering to said mammal a therapeutically effective amount of a compound of the formula:

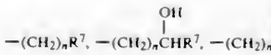


(I)

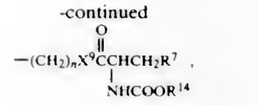
R^1 is H, C_1–C_4alkyl, cyclo-C_3–C_7-alkyl,

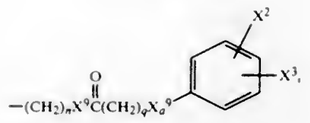
NR^4R^5, C_1–C_4-alkoxy, thio-C_1–C_4alkoxy, OH, or SH;
R^2 is H; C_1–C_4alkyl; mono- or disubstituted or unsubstituted phenyl, where the substitutent(s) is/are independently selected from the group consisting of halo, C_1–C_4-alkyl, C_1–C_4alkoxy, C_1–C_4alkylthio, carboxyl, carboxy-C_1–C_4alkyl, nitro, $—CF_3$,

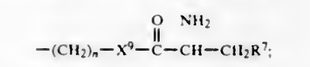
and hydroxy; 2-, 3- or 4-pyridyl; or $—(CH_2)_mCOOR^6$;



-continued



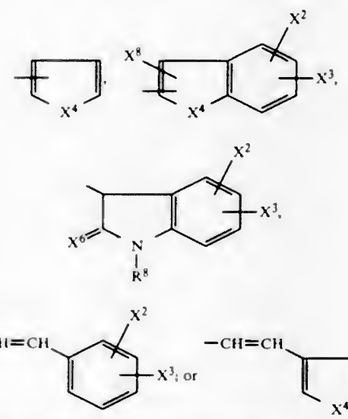




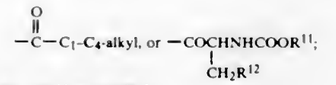
R^4 and R^5 are independently H, C_1–C_4alkyl, or cyclo-C_3–C_7alkyl or are connected to form a hetero ring of the structure $—N(CH_2)_k$, wherein k is 2 to 6;

R^6 is H, C_1–C_4-alkyl, cyclo-C_3–C_7-alkyl, unsubstituted or mono- or disubstituted phenyl, wherein the substituent(s) is/are independently selected from the group consisting of halo, C_1–C_4alkyl, C_1–C_4alkoxy, nitro, and CF_3, or unsubstituted or mono- or disubstituted phenyl-C_1–C_4-alkyl, wherein the substituent(s) is/are selected from the group consisting of halo, C_1–C_4alkyl, C_1–C_4-alkoxy, nitro, and CF_3;

R^7 is α- or β-naphthyl, unsubstituted or mono- or disubstituted phenyl, wherein the substituent(s) is/are independently selected from the group consisting of halo, $—NO_2$, $—OH$, $—NR^4R^5$, C_1–C_4alkyl, cyano, phenyl, trifluoromethyl, acetylamino, acetyloxy, C_1–C_4alkylthio, SCF_3, $C{\equiv}CH$, CH_2SCF_3, $OCHF_2$, S-phenyl, and C_1–C_4-alkoxy.

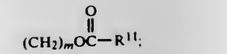


R^8 is H, C_1–C_4-alkyl, cyclo-C_3–C_7-alkyl, $—(CH_2)_n$-cyclo-C_3–C_7-alkyl,

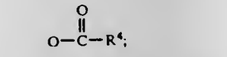


R^9 is OH, OR^{11} or NR^4R^5;
R^{10} is H, —OH, or $—CH_3$;
R^{11} and R^{12} are independently C_1–C_4-alkyl or cyclo-C_3–C_7-alkyl;

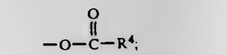
R^{13} is



R^{14} is C_1–C_4-alkyl or phenyl-C_1–C_4-alkyl;
R^{18} is H, C_1–C_4-alkyl, formyl, acetyl, propionyl or butyryl;
m is 1 to 4;
n is 0 to 4;
q is 0 to 4;
r is 1 to 2;
X^1 is H, $—NO_2$, CF_3 CN, OH, C_1–C_4-alkyl, halo, C_1–C_4-alkylthio, C_1–C_4-alkoxy, $—(CH_2)_nCOOR^6$, $—NR^4R^5$, or



X^2 and X^3 are independently H, —OH, $—NO_2$, halo C_1–C_4-alkylthio, C_1–C_4-alkyl, C_1–C_4-alkoxy or



X^4 is S, O, CH_2, or NR^8;
X^6 is O or HH;
X^8 is H or C_1–C_4-alkyl;
X^9 and $X^9{}_a$ are independently NR^{18} or O;
W is CR^1, N or NH;
Y is N, S, or O;
Z is C—H or absent; and
—is a saturated (single) or unsaturated (double) bond;
or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.

5,210,083

PHARMACEUTICAL COMPOSITIONS

Rolf W. Pfirrmann, Lucerne, Switzerland, assignor to Ed. Geistlich Sohne A.G. fur Chemische Industrie, Lucerne, Switzerland

Continuation of Ser. No. 552,359, Jul. 12, 1990, abandoned, which is a continuation of Ser. No. 408,425, Sep. 14, 1989, abandoned, which is a continuation of Ser. No. 298,857, Jan. 19, 1989, abandoned, which is a continuation of Ser. No. 74,875, Jul. 17, 1987, abandoned. This application Mar. 19, 1991, Ser. No. 672,010
Claims priority, application United Kingdom, Jul. 17, 1986, 8617482
Int. Cl.[5] A61K *31/54*
U.S. Cl. 514—222.5 **10 Claims**

1. A liquid pharmaceutical composition for parenteral infusion or injection into a patient comprising a liquid aqueous solution containing a bactericide selected from the group consisting of 1-5 weight % of taurolidine and 1-7.5 weight % of taurultam, together with 3-40 weight % of a parenterally acceptable polyol.

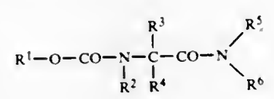
5,210,084

FUNGICIDAL SUBSTITUTED AMINO ACID AMIDES

Detlef Wollweber, Wuppertal; Thomas Seltz, Monheim, and Wilhelm Brandes, Leichlingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 25, 1990, Ser. No. 514,919
Claims priority, application Fed. Rep. of Germany, May 13, 1989, 3915755
Int. Cl.[5] A01N *43/84, 43/40, 43/36, 37/22*
U.S. Cl. 514—237.5 **4 Claims**

1. A method of combating fungi which comprises applying to such fungi or to a fungus habitat a fungicidally effective amount of a substituted amino acid amide derivative of the formula



(I)

in which
R^1 represents alkyl, alkenyl, alkinyl, halogenoalkyl, halogenoalenyl, halogenoalkinyl, cycloalkyl or cycloalkenyl,
R^2, R^3, R^4 and R^5 are identical or different and represent hydrogen, cycloalkyl or alkyl, or
R^3 and R^4, together with the carbon atom to which they are bonded, form a cycloalkyl ring, and
R^6 represents hydrogen, alkyl, alkenyl, alkinyl, cyanoalkyl, unsubstituted or substituted phenylalkyl, unsubstituted or substituted phenyl or unsubstituted or substituted cycloalkyl, or represents unsubstituted or substituted heterocyclyl or heterocyclylalkyl having 4 or 5 carbon atoms in the heterocyclyl part and one or two nitrogen atoms, or
R^5 and R^6, together with the nitrogen atom to which they are bonded, represent a 5- or 6-membered heterocyclyl radical, which can optionally contain oxygen or nitrogen as further hetero atoms.

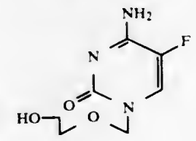
5,210,085

METHOD FOR THE SYNTHESIS, COMPOSITIONS ASND USE OF 2'-DEOXY-5-FLUORO-3'-THIACYTIDINE AND RELATED COMPOUNDS

Dennis C. Liotta, Stone Mountain; Raymond F. Schinazi, Decatur, both of Ga., and Woo-Baeg Choi, North Brunswick, N.J., assignors to Emory University, Atlanta, Ga.

Continuation-in-part of Ser. No. 473,318, Feb. 1, 1990. This application Feb. 22, 1991, Ser. No. 659,760
Int. Cl.[5] A61K *31/505;* **C07D** *411/04*
U.S. Cl. 514—274 **21 Claims**

1. A method for treating a human having an HIV infection comprising administering to the human an effective HIV-treatment amount of a compound of the formula:



S

5,210,086

2-AMINOPYRIMIDINE-4-CARBOXAMIDE DERIVATIVES, THEIR PREPARATION AND THEIR USE IN THERAPY

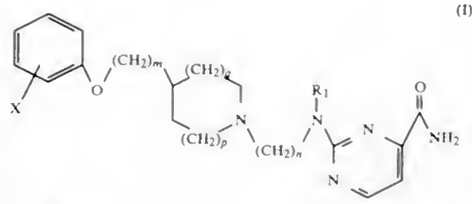
Pascal George, St. Arnoult en Yvelines; Christian Maloizel, Meudon, and Benoit Marabout, Massy, all of France, assignors to Synthelabo, Paris, France

Filed Oct. 1, 1991, Ser. No. 769,218
Claims priority, application France, Oct. 2, 1990, 90 12094
Int. Cl.[5] A61K *31/505;* **C07D** *239/02*
U.S. Cl. 514—275 **5 Claims**

1. A compound which is a 2-aminopyrimidine-4-carboxamide derivative of the formula (I)

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(I)



in which
m is 0 or 1;
p is 0 or 1;
q is 1 or 2;
p+q equals 2,
n is 2 or 3;
R_1 represents a hydrogen atom or a methyl group; and X represents at least one substituent selected from hydrogen, fluorine, chlorine, methoxy, methyl and isopropyl;
or a pharmaceutically acceptable acid addition salt thereof.

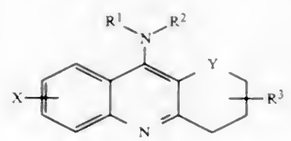
5,210,087

9-AMINOTETRAHYDROACRIDINES AND RELATED COMPOUNDS

Gregory M. Shutske, Flemington; Kevin J. Kapples, Little York, both of N.J., and John D. Tomer, Perkasie, Pa., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Filed Feb. 13, 1991, Ser. No. 654,691
Int. Cl.[5] C07D *219/10;* A61K *31/44*
U.S. Cl. 514—297 **7 Claims**

1. A compound of the formula



wherein Y is C=O; R^1 is hydrogen or loweralkyl; R^2 is hydrogen, loweralkyl, or phenylloweralkyl; R^3 is OR^4 wherein R^4 is hydrogen, COR^5 wherein R^5 is loweralkyl, X is hydrogen, loweralkyl, halogen, loweralkoxy, hydroxy, or trifluoromethyl, the geometric or optical isomers thereof, N-oxides thereof, or the pharmaceutically acceptable acid addition salts thereof.

5,210,088

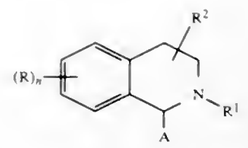
METHOD OF TREATMENT AND HETEROCYCLIC COMPOUNDS USED THEREIN

Michael C. W. Minchin, Oxford; Alan C. White, Englefield Green, and John F. White, Woosehill, all of England, assignors to John Wyeth & Brother, Limited, Maidenhead, England

Continuation of Ser. No. 780,372, Oct. 21, 1991, Pat. No. 5,118,690, which is a continuation of Ser. No. 584,216, Sep. 18, 1990, abandoned. This application May 27, 1992, Ser. No. 888,665
Claims priority, application United Kingdom, Sep. 20, 1989, 8921304
Int. Cl.[5] A61V *31/47*
U.S. Cl. 514—307 **17 Claims**

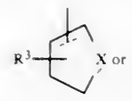
1. A method of treating pain in a mammal so afflicted which comprises administering to said mammal an effective amount of a compound having the formula

(I)

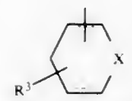


$(R)_n$ represents optional substitution on the benzene ring in one or more of the vacant ring positions by one or more substituents the same or different selected from lower alkyl, lower alkoxy, halogen, hydroxy, nitro, carboxy, lower alkylthio, SH, NH_2, or mono- or diloweralkylamino or $(R)_n$ represents disubstitution by an alkylenedioxy radical;
R^1 represents hydrogen, lower alkyl, aryl, or aryl lower alkyl, the aryl and aryl lower alkyl groups being optionally substituted by one or more substituents the same or different selected form hydroxy, halogen, lower alkyl, lower alkoxy, NO_2, CN, carboxy, lower alkylthio, SH, NH_2 and mono- or di-loweralkylamino or by alkylenedioxy;
R^2 represents hydrogen or lower alkyl;
and A represents phenyl, furanyl, pyrrolyl, thienyl, pyranyl, pyridyl, or thiazolyl optionally substituted as for R^1 when phenyl, furanyl, pyrrolyl, thienyl, pyranyl, pyridyl, or thiazolyl or a group of the formula

(Ia)



(Ic)



wherein the dotted lines represent optional bonds, X represents NH, oxygen, or sulphur and R^3 represents hydrogen or lower alkyl; or a pharmaceutically acceptable salt thereof.

5,210,089

D-RHAMNONO-1,5-LACTONE

George W. J. Fleet, Oxford, and Bryan G. Winchester, London, both of United Kingdom, assignors to Monsanto Company, St. Louis, Mo.

Filed Feb. 4, 1992, Ser. No. 830,826
Int. Cl.[5] C07D *211/42;* A01N *43/40*
U.S. Cl. 514—315 **3 Claims**

1. D-Rhamnono-1,5-lactone.

5,210,090

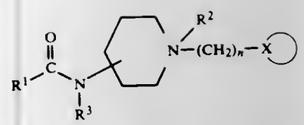
SUBSTITUTED N-BENZYLPIPERIDINE AMIDES AND CARDIAC REGULATORY COMPOSITIONS THEREOF

Bipinchandra N. Desai, Vernon Hills, and Mark A. Russell, Skokie, both of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Continuation-in-part of Ser. No. 403,205, Sep. 5, 1989, Pat. No. 5,098,915. This application Aug. 27, 1990, Ser. No. 571,911
The portion of the term of this patent subsequent to Mar. 24, 2009, has been disclaimed.
Int. Cl.[5] A61K *31/445;* C07D *401/12*
U.S. Cl. 514—320 **9 Claims**

1. A compound of the formula

I



the pharmaceutically acceptable nontoxic salts thereof or the hydrated forms thereof, wherein R^1 is substituted or unsubstituted benzofuranyl wherein said substituent is alkylsulfonamido wherein the alkyl portion is 1 to 4 carbon atoms with the proviso that R^1 is unsubstituted benzofuranyl only when



is alkyl sulfonamido substituted phenyl;
n is an integer of from one to ten;
R^2 is unsubstituted or is alkyl of from one to ten carbon atoms or oxygen that is present as an N-oxide;
R^3 is hydrogen, carboxyalkyl of from one to ten carbon atoms or alkoxycarbonylalkyl of from one to ten carbon atoms;



is hydrogen; pyridinyl; cycloalkyl of three to eight carbon atoms or hydroxy substituted cycloalkyl of three to eight carbon atoms; furanyl; or unsubstituted or substituted phenyl wherein said phenyl substituent is one or more of alkyl, halogen substituted alkyl of one to ten carbon atoms, alkoxy from one to ten carbon atoms, nitro, amine, mono or dialkylamine, acetyl amine, acetylamide, halogen, alkylsulfonamido wherein the alkyl portion is 1 to 4 carbon atoms, alkoxy itself substituted by halogen substituted phenyl.

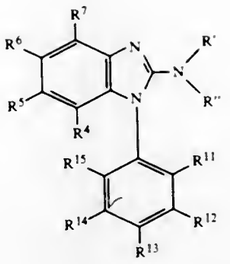
5,210,091

IMIDAZOLE COMPOUNDS AND THEIR USE

Oskar Axelsson, Malmö ; Mikkel Thaning, Hjärup, both of Sweden, and Peter Moldt, Humlebæk, Denmark, assignors to NeuroSearch A/S, Glostrup, Denmark

Continuation-in-part of Ser. No. 720,021, Jun. 24, 1991, abandoned. This application May 22, 1992, Ser. No. 888,036
Int. Cl.[5] A61K *31/445, 31/415;* C07D *401/10, 235/30*
U.S. Cl. 514—322 **10 Claims**

1. A method of treating a disorder of a mammal, including a human, which is responsive to the blockade of N-type and/or L-type of calcium channels, which comprises administering to a patient in need thereof a therapeutically effective amount of a compound having the formula:



wherein
R' and R'' independently are hydrogen or C_{1-4}-alkyl which may be straight or branched, or R' and R'' together form an alkylene chain of 2–6 carbon atoms;
R^4, R^5, R^6, R^7 independently of each other are hydrogen, halogen, CF_3, or CN;
R^{11} is hydrogen, halogen, CF_3, hydroxy or OR^I wherein R^I is C_{1-4}-alkyl which may be straight or branched;
R^{12}, R^{13} and R^{14} independently are hydrogen, halogen, CF_3, C_{1-4}-alkyl which may be straight or branched, OH, OR^{16} wherein R^{16} is C_{1-4}-alkyl which may be straight or branched, phenyl, piperidyl, pyrrolidyl, or phenyl which may be substituted one or more times with halogen, CF_3, CN, C_{1-4}-alkyl which may be straight or branched, OH, NO_2, CO_2H, NH_2, OR^{II} wherein R^{II} is C_{1-4}-alkyl which may be straight or branched, CO_2R^{III} wherein R^{III} is C_{1-4}-alkyl which may be straight or branched, $NR^{IV}R^V$ wherein R^{IV} and R^V independently are hydrogen, C_{1-6}-alkyl which may be straight or branched, acyl, or wherein R^{IV} and R^V together form an alkylene chain of 2–6 carbon atoms; R^{15} is hydrogen or together with R^{14} form an extra benzo ring; or a pharmaceutically acceptable addition salt thereof.

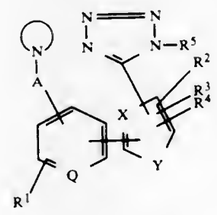
5,210,092

ANGIOTENSIN II ANTAGONIZING HETEROCYCLIC DERIVATIVES

Teruo Oku; Hiroyuki Setoi; Hiroshi Kayakiri; Shigeki Satoh; Takayuki Inoue; Yuki Saitoh; Akio Kuroda, all of Tsukuba, and Hirokazu Tanaka, Tsuchiura, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Filed Aug. 23, 1991, Ser. No. 748,954
Claims priority, application United Kingdom, Sep. 25, 1990, 9020838; Oct. 29, 1990, 9023467; Dec. 31, 1990, 9028216; Feb. 25, 1991, 9103874; Apr. 3, 1991, 9106956; Apr. 5, 1991, 9107231; Jun. 14, 1991, 9112803
Int. Cl.[5] A61K *31/415;* C07D *403/00*
U.S. Cl. 514—338 **9 Claims**

1. A compound of the formula:



wherein
R^1 is hydrogen, halogen, nitro, lower alkyl, lower alkoxy, amino or acylamino,

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R^2, R^3 and R^4 are each hydrogen, halogen, nitro, cyano, lower alkyl, lower alkenyl, lower alkylthio, mono or di or trihalo(lower)alkyl, oxo(lower)alkyl, hydroxy(lower)alkyl, or optionally esterified carboxy; or

R^2 and R^3 are linked together to form 1,3-butadienylene,

R^5 is hydrogen or an imino-protective group,

A is lower alkylene,

Q is CH or N,

X is N or CH,

Y is NH, O or S, and



is 1H-imidazol-1-yl which is condensed at the 4,5-positions with an aromatic ring, which may have lower alkyl, halogen, lower alkoxy, hydroxy(lower)alkyl or optionally esterified carboxy substituents,

provided that Y=NH when X=CH, and a pharmaceutically acceptable salt thereof.

5,210,093

α-METHYLENE-5-THIAZOLACETIC ACID ESTERS

Jean-Louis Brayer, Nanteuil le Haudoin; Jean-Pierre Demoute, Neuilly Plaisance, and Gilles Mourioux, Gemenos, all of France, assignors to Roussel Uclaf, France

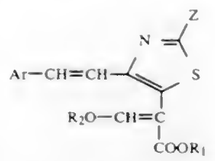
Filed Mar. 16, 1992, Ser. No. 851,926

Claims priority, application France, Mar. 21, 1991, 91 03432

Int. Cl.[5] A01N *43/78;* C07D *277/30*

U.S. Cl. 514—365 12 Claims

1. A compound of the formula



I

wherein Ar is phenyl optionally substituted with at least one member of the group consisting of halogen, methylenedioxy, phenyl, phenoxy, —CF_3 and alkyl, alkoxy and alkylthio of 1 to 6 carbon atoms, Z is selected from the group consisting of hydrogen, chlorine, —CF_3 and alkyl, alkoxy and alkylthio of 1 to 6 carbon atoms, R_1 and R_2 are individually alkyl of 1 to 6 carbon atoms and the exocyclic double bonds independently have (E) or (Z) geometry.

5,210,094

SULPHUR-BASED STABILIZERS FOR 3-ISOTHIAZOLONES

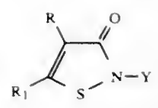
Paul F. D. Reeve, Le Plan de Grasse, France, assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Mar. 25, 1991, Ser. No. 674,832

Int. Cl.[5] A01N *43/80*

U.S. Cl. 514—372 10 Claims

1. A method of protecting against chemical degradation an isothiazolone of the formula:



wherein

Y is (C_1-C_{18})alkyl or (C_3-C_{12})cycloalkyl each optionally substituted with one or more of hydroxy, halo, cyano, alkylamino, dialkylamine, arylamino, carboxy, carbalkoxy, alkoxy, aryloxy, alkylthio, arylthio, haloalkoxy, cycloaklylamino, carbamoxy, or isothiazolonyl; an unsubstituted or halo-substituted (C_2-C_8) alkenyl or alkynyl; a (C_7-C_{10})aralkyl optionally substituted with one or more of halogen, (C_1-C_4)alkyl or (C_1-C_4)alkoxy; or an aryl optionally substituted with one or more of halogen, nitro, (C_1-C_4)alkyl, (C_1-C_4)alkyl-acylamino, carb(C_1-C_4)alkoxy or sulfamyl; and

R and R^1 are each independently H, halogen, (C_1-C_4) alkyl, (C_4-C_8) cycloalkyl or joined together to form a phenyl;

comprising incorporating therewith an organic sulphur-containing compound, or an alkaline metal or amine salt thereof, capable of forming an adduct with said isotiazolone which is reversible upon hydrolysis, said sulfur-containing compound being selected from the group consisting of mercaptobenzothiazole, the sodium salt of 2-mercaptopyridine-N-oxide, 2-mercaptopyridine, 4-mercaptopyridine, benzothiazole, 2-thiohydantoin, L-cystin, methylenebis-thiocyante, 2-methylthiobenzothiazole, 4-methyl 4-H-1,2,4-triazole-3-thiol, 4-R-(thiazolidinethione)-4-carbonic acid, and 2-mercaptopyrimidine.

5,210,095

CHROMONYL/CHROMONYLALKYL-N-TERMINAL AMINO HYDROXY

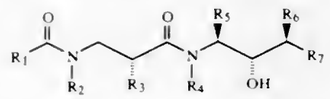
Gunnar J. Hanson, Skokie; John S. Baran, Winnetka; Dave Weissing, Lisle, and Mark Russell, Skokie, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Division of Ser. No. 445,257, Dec. 4, 1989, abandoned. This application Jul. 29, 1991, Ser. No. 736,866

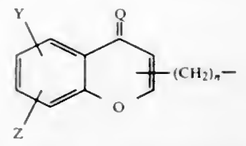
Int. Cl.[5] A61K *31/35;* C07D *311/32*

U.S. Cl. 514—456 18 Claims

1. Compound of the formula



wherein R_1 is selected from heteroaryl and heteroaralkyl groups represented by



wherein each of Y and Z is independently selected from hydrido, lower alkyl, hydroxy, halo, alkoxy, carboxy, amino, alkylamino, dialkylamino, aryl, sulfhydryl and thioalkyl; wherein Q is selected from oxygen atom and sulfur atom; wherein n is a number selected from zero through five, inclusive; wherein each of R_2 and R_4 is independently selected form hydrido and lower alkyl; wherein R_3 is selected from hydrido, alkyl, benzyl, cycloalkyl, cycloalkylalkyl, alkoxyalkyl and alkylthioalkyl; wherein R_5 is selected form cycloalkyl, phenyl, lower alkyl, cycloalkylalkyl and phenylalkyl; wherein R_6 is selected from hydrido, hydroxy, alkoxy, amino, alkylamion, dialkylamino, lower alkyl and cycloalkyl; wherein R_7 is selected from hydrido, alkyl, haloalkyl, cycloalkylalkyl, alkylcycloalkyl, alkylcycloalkenyl and alkoxycarbonyl; wherein R_6 and R_7 may be further taken together to form a carbocyclic ring consisting of from three to about eight ring members; and wherein any of the foregoing R_1 through R_7 substituents having a substitutable position may be substituted with one or more groups selected from alkyl, alkoxy, halo, haloalkyl, alkenyl, alkynyl and cyano; or a pharmaceutically-acceptable salt thereof.

5,210,096

ANTIVIRAL COMPOSITIONS AND METHOD FOR THEIR USE

David I. Scheer, Guilford, Conn., assignor to Chai-Tech Corporation, Greenvale, N.Y.

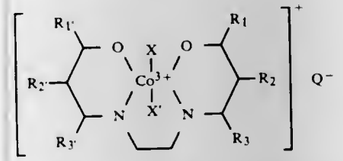
Continuation of Ser. No. 502,294, Mar. 30, 1990, Pat. No. 5,106,841, which is a continuation-in-part of Ser. No. 279,417, Dec. 2, 1988, Pat. No. 5,049,557, which is a continuation-in-part of Ser. No. 147,713, Jan. 25, 1988, Pat. No. 4,866,054, and Ser. No. 147,714, Jan. 25, 1988, Pat. No. 4,866,053, which is a continuation-in-part of Ser. No. 862,804, May 13, 1986, abandoned. This application Jul. 10, 1991, Ser. No. 728,896

The portion of the term of this patent subsequent to Sep. 17, 2008, has been disclaimed.

Int. Cl.[5] A61K *34/295*

U.S. Cl. 514—501 34 Claims

1. An antiviral composition comprising a suitable carrier and a compound in anti-herpesvirus effective amount, the compound having the structure



wherein R_1 and R_1, are the same or different and each is an alkyl group, a phenyl group or a substituted derivative of a phenyl group;

wherein R_2 and R_2, are the same or different and each is hydrogen, an unbranched alkyl group, a halide or a group having the structure



wherein R is hydrogen, an alkoxide group, an alkyl group, or OH;

wherein R_3 and R_3, are the same or different and each is hydrogen or an alkyl group;

wherein X and X' are the same or different and each is a water soluble group having weak to intermediate ligand field strength; and

Q^- is a soluble, pharmaceutically acceptable negative ion.

5,210,097

XANTHOCILLIN X MONOMETHYL ETHER DERIVATIVE AND ANTITUMOR AGENT CONTAINING THE SAME

Hiroshi Kurihara; Hiromi Watanabe; Masao Koyama; Masaji Sezaki; Tsutomu Tsuruoka; Harumi Fukuyasu, and Haruo Yamamoto, all of Kanagawa, Japan, assignors to Meiji Seika Kaisha Ltd., Tokyo, Japan

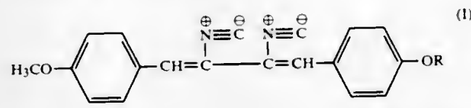
Filed May 18, 1990, Ser. No. 524,954

Claims priority, application Japan, May 18, 1989, 1-122991

Int. Cl.[5] A61K *31/275;* C07C *265/06*

U.S. Cl. 514—525 3 Claims

1. A xanthocillin X monomethyl ether derivative represented by the following formula (I):



(I)

wherein R represents (a) a propenyl group (b) an ethoxycarbonyl group (c) a benzyl group, (d) an ethyl group substituted with a halogen atom, (e) a benzyl group substituted with a methyl group or a halogen atom, or (f) a benzoyl group.

5,210,098

USE OF PYRUVATE TO TREAT ACUTE RENAL FAILURE

Karl A. Nath, St. Louis Park, Minn., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

Continuation of Ser. No. 585,984, Sep. 21, 1990, abandoned. This application Feb. 26, 1992, Ser. No. 841,879

Int. Cl.[5] A61K *31/18, 31/12*

U.S. Cl. 514—557 11 Claims

1. A therapeutic method comprising parenterally administering an amount of a pyruvate salt to a patient experiencing the abrupt decline in renal function associated with acute renal failure, which amount is effective to treat said renal failure.

5,210,099

ANALGESIC COMPOSITIONS

Dhiraj S. Mody; Robert G. Blank, both of Hammonton; Gary R. Agisim, Cherry Hill, and Gloria Y. Chen, Hammonton, all of N.J., assignors to American Home Products Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 741,011, Aug. 6, 1991, abandoned, which is a continuation-in-part of Ser. No. 654,117, Feb. 11, 1991, abandoned. This application Jan. 8, 1992, Ser. No. 814,995

Int. Cl.[5] A61K *31/19*

U.S. Cl. 514—557 8 Claims

1. A topical anagesic composition consisting essentially of an oil-in-water emulsion containing about 5% to about 12% by weight of ibuprofen, the emulsion containing about 60% to about 90% by weight of water and having minimum ibuprofen solubility characteristics in both the water and oil phases, the composition having a pH of about 4 to about 7.2 such that at least about 70% by weight of the ibuprofen is suspended in the emulsion in substantially solid crystalline form.

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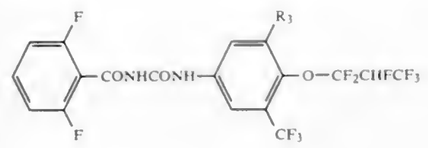
5,210,100

PHENYLBENZOYLUREAS

Josef Ehrenfreund, Allschwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 302,052, Jan. 25, 1989, abandoned, which is a continuation of Ser. No. 767,985, Aug. 21, 1985, abandoned. This application Oct. 25, 1989, Ser. No. 427,940
Claims priority, application Switzerland, Aug. 31, 1984, 4179/84
Int. Cl.[5] A01N *47/28*; C07C *275/30*
U.S. Cl. 514—594 4 Claims

1. A compound of the formula I



(I)

wherein R_3 is fluorine, chlorine or bromine.

5,210,101

Patent Not Issued For This Number

5,210,102

EMOLLIENT DURABILITY ENHANCING SILOXANES

Helen M. Klimisch, Midland County, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Continuation of Ser. No. 488,159, Mar. 5, 1990, abandoned. This application Apr. 22, 1991, Ser. No. 689,201
Int. Cl.[5] A61K *47/00*
U.S. Cl. 514—784 18 Claims

1. A method of enhancing the durability of an emollient material on human skin comprising forming a mixture of an emollient material and an effective amount of an organosilicon compound, and applying the mixture to the skin to be treated, the organosilicon compound being a carboxyfunctional polysiloxane having the formula

$$QMe_2SiO(Me_2SiO)_x(MeRSiO)_ySiMe_2Q$$

wherein Me is a methyl radical, R is a carboxyfunctional radical, said carboxyfunctional radical being selected from the group consisting of carboxyalkyl radicals and carboxythioalkyl radicals, Q is selected from the group consisting of R, Me and OH groups, x has a value of 1 to 1000, and y has a value of 1 to 100.

5,210,103

VOLATILE SILICONE OIL-BLOWN INTEGRAL SKIN FOAM

Valeri L. Valoppi, Riverview; Oscar M. Grace, Troy, and Joe C. Wilson, Woodhaven, all of Mich., assignors to BASF Corporation, Parsippany, N.J.

Filed Sep. 2, 1992, Ser. No. 939,753
Int. Cl.[5] C08J *9/34*
U.S. Cl. 521—51 6 Claims

1. An integral skin polyurethane foam, comprising:
A) an organic isocyanate; and,
B) a resin component, comprising:
i) a polyol selected from the group consisting of polyoxyalkylene polyether polyols, polyester polyols, graft copolymer dispersions, non-graft polymer dispersions, and mixtures thereof;
ii) a chain extender and/or crosslinker;
iii) a catalyst and/or mixture of catalysts capable of promoting urethane formation and optionally isocyanurate formation;
iv) a co-blowing agent comprising water and a volatile silicone fluid having a boiling point at 760 mm of 100° C. and an average kinematic viscosity of 0.65 centistokes; and,
v) optionally a surfactant, fillers, flame retardants, and mixtures thereof.

5,210,104

PROCESS FOR PREPARING LOW DENSITY POROUS CROSSLINKED POLYMERIC MATERIALS

Ronald M. Bass, and Thomas F. Brownscombe, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Oct. 15, 1992, Ser. No. 961,603
Int. Cl.[5] C08J *9/28*
U.S. Cl. 521—64 20 Claims

1. A process for the preparation of a porous crosslinked polymeric material comprising the steps of:
(a) providing an aqueous stream comprising water and an electrolyte,
(b) providing a monomer stream comprising a mixture of polymerizable monomers comprising at least one vinyl monomer and from about 2 to about 70 weight percent, based on the mixture, of a difunctional unsaturated crosslinking monomer,
(c) providing a surfactant to the aqueous stream, the monomer stream, or both the aqueous and the monomer stream,
(d) combining and mixing said aqueous stream and said monomer stream in a mixing vessel under conditions effective to produce a water-in-oil high internal phase emulsion having at least 90 weight percent, based on the emulsion, of water as the internal phase,
(e) then adding to at least a portion of said water-in-oil high internal phase emulsion an effective amount of a polymerization catalyst to cure the polymerizable monomers thereby producing a curable water-in-oil high internal phase emulsion, and
(f) then polymerizing the curable water-in-oil high internal phase emulsion at a temperature of at least about 25° C. for a time effective to cure the monomers.

5,210,105

CARBON BLACK-CONTAINING BIMODAL FOAM STRUCTURES AND PROCESS FOR MAKING

Andrew N. Paquet, and Kyung W. Suh, both of Granville, Ohio, assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 896,025, Jun. 9, 1992, abandoned. This application Sep. 18, 1992, Ser. No. 947,855
Int. Cl.[5] C08J *9/12, 9/14*
U.S. Cl. 521—99 11 Claims

1. An insulative styrenic polymer foam structure, comprising: a foam of a styrenic polymer material of greater than 50 percent by weight of styrenic monomeric units, the foam having relatively larger primary cells with an average cell size range of 0.05 to 1.2 millimeters and relatively smaller secondary cells ranging in cell size from about 5 percent to about 50 percent of the average cell size of the primary cells, the primary and secondary cells displacing at least about 90 percent of the total cell volume within the foam structure, the foam having an amount of carbon black sufficient to reduce the thermal conductivity of the foam below that of a corresponding foam without carbon black.

5,210,106

FINE-CELLED PLASTIC FOAM CONTAINING FLUOROCHEMICAL BLOWING AGENT

Rudolf J. Dams, Antwerpen, Belgium; Richard M. Flynn, Mahtomedi, Minn.; Koen Focquet, Antwerpen, Belgium, and John G. Owens, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 4, 1991, Ser. No. 771,442
Int. Cl.[5] C08G *18/14*
U.S. Cl. 521—110 28 Claims

1. A blowing agent emulsion comprising:
(a) at least one high molecular weight compound with at least two reactive hydrogen atoms,
(b) blowing agent mixture, wherein said mixture comprises
(1) one or more low boiling, hydrochlorofluorocarbon, and/or one or more low boiling, hydrofluorocarbon, and
(2) one or more low boiling, chlorine-free perfluorinated compound, and
(c) fluorochemical surfactant.

5,210,107

FOAMED LIQUID CRYSTAL POLYMER FILM/SHEET HAVING IMPROVED FLEXIBILITY AND CELL UNIFORMITY

Randy D. Jester, and Detlef K. M. Frank, both of Greer, S.C., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Jan. 17, 1991, Ser. No. 642,495
Int. Cl.[5] C08J *9/08, 9/12*
U.S. Cl. 521—182 14 Claims

1. A flexible liquid crystal polymer foam comprising foam cells wherein substantially all of said cells do not exceed 250 microns in diameter and said cells have a cell diameter distribution such that substantially all of said cell diameters are within about 20% of the average cell diameter.

5,210,108

DEGRADABLE FOAM MATERIALS

Maria Spinu, Wilmington, and Thomas M. Ford, Greenville, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 29, 1992, Ser. No. 922,269
Int. Cl.[5] C08J *9/14, 9/28*
U.S. Cl. 521—182 19 Claims

1. A rigid resin foam which is degradable by hydrolysis having a density of less than 20 pounds per cubic feet comprising cells having thin walls comprised of at least 50 molar % of star-shaped polymer having a central residue of a polyfunctional compound having 3–100 amino and/or hydroxyl groups and 5–10,000 carbon atoms, the central residue having polymeric arms with a number average molecular weight of 1,000–50,000 attached to the amino and/or hydroxyl groups which arms are formed of polylactide, polyglycolide, polycaprolactone or mixtures thereof, at least 50% of which cells are closed and contain a significant amount of inert environmentally benign blowing agent.

5,210,109

INTERPENETRATING POLYMER NETWORK COMPOSITIONS EMPLOYING RUBBER-MODIFIED POLYMERS

Louis H. Tateosian, and W. Donald Wilson, both of York, Pa., assignors to Dentsply Research & Development Corp., Milford, Del.

Continuation of Ser. No. 341,085, Apr. 20, 1989, abandoned, which is a division of Ser. No. 119,130, Nov. 10, 1987, Pat. No. 4,863,977, which is a division of Ser. No. 654,860, Sep. 25, 1984, Pat. No. 4,711,913, which is a continuation-in-part of Ser. No. 552,300, Nov. 16, 1983, Pat. No. 4,551,486. This application Sep. 21, 1992, Ser. No. 948,627
Int. Cl.[5] C08F *2/50, 291/00*; C08K *9/06*; C08L *31/06*
U.S. Cl. 522—14 35 Claims

1. A polymerizable composition comprising:
a) from about 10 to about 70 weight percent of multifunctional crosslinking composition that comprises at least about 50 percent oligomeric material;
b) from about 3 to about 70 wight percent of polymer composition comprising crosslinked polymer in the form of discrete particles that are not swellable in said multifunctional crosslinking composition at 24° C., said particles have been swollen by imbibing said crosslinking composition at temperatures above about 39° C.

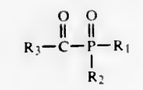
5,210,110

SILYLATED ACYLPHOSPHINE OXIDES

Werner Rutsch, Fribourg, and Rinaldo Hüsler, Wünnewil, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

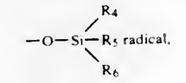
Filed Nov. 18, 1991, Ser. No. 793,759
Claims priority, application Switzerland, Nov. 21, 1990, 3689/90-0
Int. Cl.[5] C08F *2/50*; C07F *9/02, 9/06*; C07D *330/00*
U.S. Cl. 522—64 15 Claims

1. A photopolymerisable composition comprising
(a) at least one ethylenically unsaturated, photopolymerisable compound and
(b) as photoinitiator at least one compound of the formula I



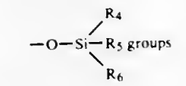
(I)

in which
R_1 is the



radical,

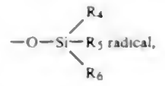
R_2 is as defined for R_1, it being possible for R_1 and R_2 as



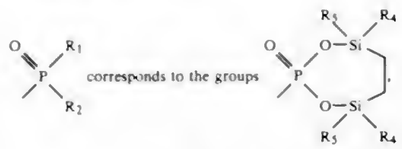
groups

to be identical or different, or R_2 is C_1–C_{18}alkyl, phenyl-, C_1–C_{12}alkoxy- or halogen-substituted C_1–C_8alkyl, C_2–C_{18}alkenyl, unsubstituted or C_1–C_{12}alkyl-, C_1–C_{12}alkoxy-, phenyl- or halogen-substituted C_5–C_8cycloalkyl, unsubstituted or halogen-, C_1–C_{12}alkyl- or C_1–C_{12}alkoxy-substituted C_6–C_{12}aryl, an aromatic, O-, S- and/or N-containing 5- or 6-membered heterocyclic radical, which may be substituted by halogen, C_1–C_4alkyl or C_1–C_4alkoxy, or is C_1–C_{12}alkoxy, phenoxy or benzyloxy, and, if R_2 is a

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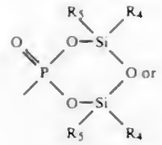


R_6 can link the silicon atoms to form 6-, 7- or 8-membered rings, in which case



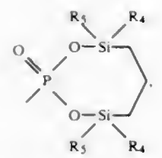
(IIa)

corresponds to the groups



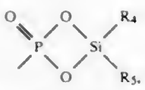
(IIb)

or



(IIc)

or R_1 and R_2, together with the —P═O group, can form a 4-membered ring of the formula



(III)

R_3 is C_1–C_{18}alkyl, halogen-, phenyl- or C_1–C_{12}alkoxy-substituted C_1–C_8alkyl, C_2–C_6alkenyl, unsubstituted or C_1–C_{12}alkyl-, C_1–C_{12}alkoxy- or halogen-substituted C_5–C_8cycloalkyl, unsubstituted or C_1–C_{12}alkyl-, C_1–C_{12}alkoxy-, C_2–C_{12}alkoxyalkyl-, C_1–C_4alkylthio- or halogen-substituted C_6–C_{12}aryl, or a 5- or 6-membered, aromatic, O-, S- and/or N-containing heterocyclic radical, which may be substituted by halogen, C_1–C_4alkyl or C_1–C_4alkoxy, and R_4, R_5 and R_6, independently of one another, are hydrogen, C_1–C_{18}alkyl, C_5–C_8cycloalkyl, C_1–C_{12}alkoxy or unsubstituted or C_1–C_8alkyl-substituted phenyl, at least two of the radicals R_4, R_5 and R_6 being other than hydrogen.

5,210,111

CROSSLINKED HYDROGELS DERIVED FROM HYDROPHILIC POLYMER BACKBONES

Merrill S. Goldenberg, Teaneck, N.J., and Ellen Rennwantz, N. Tarrytown, N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Aug. 22, 1991, Ser. No. 748,578
Int. Cl.[5] C08F *271/02*
U.S. Cl. 523—108 **1 Claim**

1. A wettable, clear, oxygen permeable contact lens prepared from a hydrogel which is the homopolymerization product of

(a) a precursor polymer or copolymer containing two or more pendant or terminal hydroxyl groups, said precursor polymer or copolymer being the polymerization product of (1) one or more ethylenically unsaturated monomers selected from the group consisting of 2-hydroxyethyl methacrylate, N-vinyl-2-pyrrolidone, N,N-dimethylacrylamide, 2-ethylhexyl acrylate, cyclohexyl methacrylate, 2-hydroxypropyl methacrylate, isobornyl methacrylate, methyl methacrylate, styrene and allyl alcohol;

reacted with (2) one or more monoisocyanates selected from the group consisting of 2-isocyanatoethyl methacrylate, styrene isocyanate, cyclohexyl isocyanate, m-isopropenyl-α,α-dimethylbenzyl isocyanate and phenyl isocyanate where at least one of the monoisocyanates must contain an ethylenically unsaturated moiety;

with the proviso that the hydrogel has a percent water content of at least 15%.

5,210,112

SOIL-STABILIZING AGENT AND A METHOD FOR SOIL-STABILIZING TREATMENT

Tetsuya Shimoda, Hachioji; Katuaki Ishikawa, Yokohama; Teruo Urano, Sano; Hiroshi Miyaji, Utsunomiya, and Masatsune Ogura, Ichikawa, all of Japan, assignors to Nippon Hodo Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 530,435, Jun. 1, 1990, abandoned, which is a continuation of Ser. No. 259,374, Oct. 18, 1988, abandoned. This application Jul. 8, 1991, Ser. No. 728,030
Claims priority, application Japan, Oct. 19, 1987, 62-261838
Int. Cl.[5] C09K *17/00*
U.S. Cl. 523—132 **3 Claims**

1. A soil-stabilizing agent comprising:

a) not less than 90 weight percent of quick lime and/or calcined dolomite;

b) 0–10 weight % of slaked lime and/or hydrated calcined dolomite; and

c) partially fibrillated polytetrafluoroethylene resin in an amount of 0.01–1.0 percent by weight of the material mainly composed of quick lime and/or calcined dolomite which has been added for dust control.

5,210,113

COMPOSITE PARTICLE DISPERSIONS

Julian A. Waters, Goring-on-Thames, England, assignor to Imperial Chemical Industries PLC, London, United Kingdom

Filed Jul. 20, 1990, Ser. No. 555,024
Claims priority, application United Kingdom, Jul. 25, 1989, 8916944.5
The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.
Int. Cl.[5] C08K *9/12*; C08J *3/03*
U.S. Cl. 523—205 **13 Claims**

1. A process for preparing a stable aqueous dispersion of composite particles, which process comprises mixing an aqueous dispersion of first polymer particles, where the particle surfaces include covalently attached ionic groupings to give the particles colloidal stability prior to the mixing, with an aqueous colloidally stable dispersion of second polymer particles, and wherein the mixing takes place at a temperature above the operative glass transition temperature of the second polymer particles and under a condition where

$$\frac{\gamma_{1\text{-}3} - \gamma_{1\text{-}2}}{\gamma_{2\text{-}3}} \geq \frac{1 - v_p}{v_c}$$

Where $\gamma_{1\text{-}3}$ is the interfacial energy of-the first polymer particle surface/aqueous liquid interface

$\gamma_{1\text{-}2}$ is the interfacial energy of the first polymer particle surface/second polymer particle interface

$\gamma_{2\text{-}3}$ is the interfacial energy of the second particle surface/aqueous liquid interface

V_p and V_c represent the relative volumes of, respectively, the average second polymer particle and the average first polymer particle, with $V_p + V_c = 1$

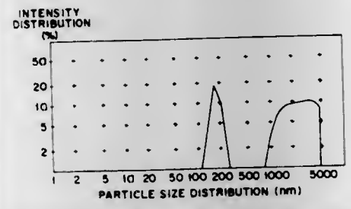
and where the first polymer particles are able to make contact with the surfaces of the second polymer particles so that when contact occurs between first polymer particles and second polymer particles, composite particles are produced as a stable dispersion in the aqueous phase, the composite particles having colloidal stability.

5,210,114

PROCESS FOR PREPARING STABLE DISPERSIONS USEFUL IN TRANSPARENT COATINGS

Boris J. Katsen, Longmeadow, Mass., assignor to Graphics Technology International Inc., South Hadley, Mass.

Filed Oct. 25, 1990, Ser. No. 603,002
Int. Cl.[5] C08K *7/00*
U.S. Cl. 523—220 **20 Claims**



1. A process for preparing a stable dispersion of pigment in diluent useful in transparent coatings, comprising the steps of

(i) dispersing a pigment into a binder resin solution;

(ii) comminuting the dispersion until a bi-modal distribution of pigment particles is obtained; and

(iii) separating the dispersed particles into two fractions of dispersed particles including a stable dispersion of smaller particles in a binder resin solution.

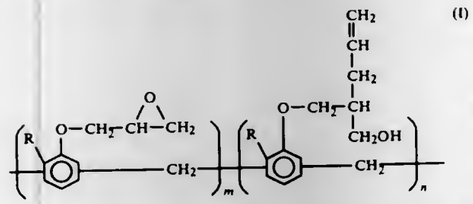
5,210,115

ALLYL MAGNESIUM HALIDE MODIFIED EPOXY RESIN COMPOSITION

Whan G. Kim, Seoul, and Tai Y. Nam, Kyungki, both of Rep. of Korea, assignors to Cheil Industries, Inc., Taegu, Rep. of Korea

Filed Dec. 6, 1991, Ser. No. 803,042
Claims priority, application Rep. of Korea, Feb. 28, 1991, 91-3287; Feb. 28, 1991, 91-3288
Int. Cl.[5] C08F *283/00*; C08G *8/30*
U.S. Cl. 523—443 **15 Claims**

1. Epoxy resin compositions for sealing semiconductor elements comprising an allyl-modified epoxy resin of formula (I) as a heat resistance enhancer



(I)

wherein R represents H or C1–C10 alkyl and m represents an integer of 0 to 100 and n represents an integer of 1 to 100; and an epoxy resin other than said allyl-modified epoxy resin of formula (I).

5,210,116

RESIN COMPOSITE MATERIAL CONTAINING GRAPHITE FIBER

Setsujiro Hashimoto, Numazu; Kiyoshi Yagi, both of Gotenba, and Masahiro Kanda, all of Shizuoka, all of Japan, assignors to Yazaki Corporation, Tokyo, Japan

Continuation of Ser. No. 298,096, Jan. 18, 1989, abandoned. This application Apr. 5, 1991, Ser. No. 681,423
Claims priority, application Japan, Jan. 19, 1988, 63-7623
Int. Cl.[5] C08L *63/00*
U.S. Cl. 523—468 **7 Claims**

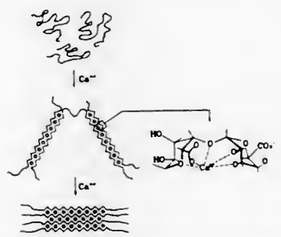
1. A resin composite material containing graphite fibers which comprises a synthetic resin matrix and fibers which are an intercalated compound of graphite fiber and bromine, wherein said graphite fiber comprises a hexagonal network of planes of carbon atoms which are oriented substantially parallel to the axis of the fibers like annual rings.

5,210,117

RESIN COMPOSITION HAVING BIODEGRADABILITY AND HIGH ABSORBENCY, NONWOVEN FABRIC MADE OF THE SAME AND PADS COMPRISING SAID FABRIC

Haibang Lee; Soonhong Yuk, and Byungchul Shin, all of Daejun-si, Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Chungcheongnam-do, Rep. of Korea

Division of Ser. No. 675,146, Mar. 26, 1991, Pat. No. 5,166,231. This application Aug. 19, 1992, Ser. No. 932,372
Claims priority, application Rep. of Korea, Mar. 27, 1990, 90-4118
Int. Cl.[5] C08L *5/04*; D04H *18/00*
U.S. Cl. 524—28 **18 Claims**



1. A nonwoven fabric prepared by the process comprising the steps of:

spinning resin composition comprising sodium alginate and a synthetic polymer electrolyte in a ratio of 20:80 to 99:1;

making the fiber obtained thereby into a nonwoven fabric; and,

washing said fabric with a washing solution.

5,210,118

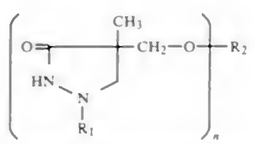
METHOD FOR STABILIZING SYNTHETIC THERMOPLASTIC MATERIALS AGAINST THERMAL DEGRADATION

Roberto Scrima, Bologna, Italy, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 10, 1991, Ser. No. 712,849
Claims priority, application Italy, Jun. 12, 1990, 20629 A/90
Int. Cl.[5] C08K *5/357, 5/3492, 5/3472*; C07D *231/08, 243/00*
U.S. Cl. 524—96 **10 Claims**

1. A method for stabilizing a synthetic thermoplastic material against thermal degradation, which comprises incorporating in said material one or more compounds of the formula (I)

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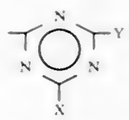
(I)

in which R_1 is phenyl unsubstituted or substituted by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl, C_1-C_4alkoxy and OH; n is 1, 2, 3 or 4 and, when n is 1, R_2 is one of the groups of the formulae (IIa)-(IId)

$$-COR_3, \quad \text{(IIa)}$$

$$-COOR_4, \quad \text{(IIb)}$$

$$-CO-N(R_5)-R_6, \quad \text{(IIc)}$$



(IId)

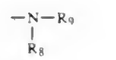
in which R_3 is hydrogen, C_1-C_{18}alkyl, C_5-C_{12}cycloalkyl unsubstituted or mono-, di- or tri-substituted by C_1-C_4alkyl; C_2-C_{18}alkenyl, C_7-C_9phenylalkyl unsubstituted or substituted on the phenyl by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl and OH; phenyl unsubstituted or substituted by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl, C_1-C_4alkoxy and OH; or a 5-membered to 6-membered heterocyclic group, R_4 is C_1-C_{18}alkyl, C_5-C_{12}cycloalkyl unsubstituted or mono-, di- or tri-substituted by C_1-C_4alkyl; C_3-C_{18}alkenyl or C_7-C_9phenylalkyl unsubstituted or substituted on the phenyl by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl and OH; R_5 and R_6 which can be identical or different are hydrogen, C_1-C_{18}alkyl, C_5-C_{12}cycloalkyl unsubstituted or mono-, di- or tri-substituted by C_1-C_4alkyl; C_3-C_{18}alkenyl, C_7-C_9phenylalkyl unsubstituted or substituted on the phenyl by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl and OH; or phenyl unsubstituted or substituted by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl, C_1-C_4alkoxy and OH; or



is a 5-membered to 7-membered heterocyclic group and X and Y which can be identical or different are a group $-OR_7$, $-SR_7$ or



where R_7, R_8 and R_9 which can be identical or different are hydrogen, C_1-C_{18}alkyl, C_5-C_{12}cycloalkyl unsubstituted or mono-, di- or tri-substituted by C_1-C_4alkyl; C_3-C_{18}alkenyl, C_7-C_9phenylalkyl unsubstituted or substituted on the phenyl by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl and OH; phenyl unsubstituted or substituted by 1, 2 or 3 radicals selected from the group consisting of C_1-C_4alkyl, C_1-C_4alkoxy and OH; tetrahydrofurfuryl or C_2-C_4alkyl substituted in the 2-, 3- or 4-position by C_1-C_8alkoxy or by di-(C_1-C_4alkyl)amino; or



is a 5-membered to 7-membered heterocyclic group, and, when n is 2, R_2 is carbonyl or one of the groups of the formulae (IIIa)-(IIId)

$$-CO-R_{10}-C-, \quad \text{(IIIa)}$$

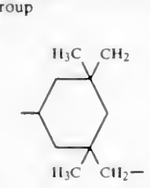
$$-COO-R_{11}-OOC-, \quad \text{(IIIb)}$$

$$-CONH-R_{12}-NHCO-, \quad \text{(IIIc)}$$



(IIId)

in which R_{10} is a direct bond, C_1-C_{12}alkylene, C_2-C_{12}alkylene interrupted by 1, 2 or 3 oxygen atoms or by 1 or 2>N-R_{13} groups with R_{13} being as defined above for R_5 and R_6; C_2-C_{20}alkylidene, phenyl-(C_1-C_{14}alkylidene), cyclohexylene, methylcyclohexylene, cyclohexenylene, phenylene, C_2-C_{18}alkenylene or a 5-membered to 6-membered heterocyclic group, R_{11} is C_2-C_{12}alkylene, C_4-C_{12}alkylene interrupted by 1, 2 or 3 oxygen atoms, cyclohexylene, cyclohexylenedimethylene, methylenedicyclohexylene, isopropylidenedicyclohexylene, phenylene, isopropylidenediphenylene or xylylene, R_{12} is as defined above for R_{11} or is tolylene, methylenediphenylene or a group



and Z is as defined above for X and Y, and, when n is 3, R_2 is aliphatic C_4-C_{18}triacyl, aliphatic C_6-C_{18}triacyl containing a trisubstituted nitrogen atom; aromatic C_9-C_{18}triacyl, heterocyclic triacyl containing up to 18 carbon atoms or 1,3,5-triazine-2,4,6-triyl, and, when n is 4, R_2 is aliphatic C_6-C_{18}tetraacyl, aliphatic C_{10}-C_{18}tetraacyl containing 2 trisubstituted nitrogen atoms; aromatic C_{10}-C_{18}tetraacyl or cycloaliphatic C_{10}-C_{22}tetraacyl.

5,210,119

POLYMER MIXTURE COMPRISING POLYPHENYLENE ETHER, STERICALLY HINDERED AMINE AND EPOXY COMPOUND AND ARTICLES MANUFACTURED THEREFROM

Christianus A. A. Claesen, Bergen op Zoom, Netherlands, and Hideo Koike, Tochigi, Japan, assignors to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 256,936, Oct. 13, 1988, Pat. No. 5,045,578. This application Jul. 3, 1991, Ser. No. 711,004

Int. Cl.[5] **C08K** *5/3435, 5/521;* **C08L** *71/12*

U.S. Cl. 524—99 **12 Claims**

1. A polymer mixture which comprises:

a) at least one polyphenylene ether, or a mixture of polyphenylene ether and polystyrene resin;

b) a sterically hindered amine;

c) and epoxy compound;

d) a salt of a fatty acid, present at a level of 0.1-10 parts by weight per 100 parts by weight of constituent A; and

e) at least one additive selected from the group consisting of

dyes, pigments, reinforcing fibres, thermal stabilization agents, and flame retardants.

5,210,120

SELF-EXTINGUISHING POLYMERIC COMPOSITIONS COMPRISING OLIGOMERIC 2,4-DIAMINO-6-HYDROXY-1,3,5-TRIAZINES AND PHOSPHATES AND/OR PHOSPHONATES

Roberto Cipolli, Novara; Enrico Masarati, Piacenza; Gilberto Nucida, Milan; Roberto Oriani, Milan, and Mario Pirozzi, Milan, all of Italy, assignors to Ministero Dell'Universita' e Della Ricerca Scientifica e Technologica, Rome, Italy

Filed Oct. 31, 1991, Ser. No. 785,813

Claims priority, application Italy, Nov. 2, 1990, 21966 A/90

Int. Cl.[5] **C08J** *5/10;* **C08K** *5/34;* **C08L** *23/00*

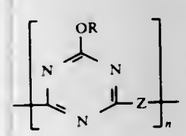
U.S. Cl. 524—100 **23 Claims**

1. Self-extinguishing polymeric compositions comprising:

a) from 89 to 40 parts by weight of a thermoplastic polymer or of a polymer having elastomeric properties;

b) from 8 to 33 parts by weight of one or more phosphates and/or phosphonates of ammonium or of amine;

c) from 3 to 27 parts by weight of one or more oligomeric compounds derived from 2,4-diamino-6-hydroxy-1,3,5-triazine, having the general formula (I):



(I)

wherein:

R = hydrogen; $-C_mH_{2m}-Y$ wherein

m is an integer comprised from 1 and 8;

Y is hydrogen; CN; $-O(C_1$-$C_4)$-alkyl; $-O(C_2$-$C_4)$-alkenyl; (C_6-C_{12})-cycloalkyl or-alkylcycloalkyl; $-O(C_6$-$C_{12})$-aryl;



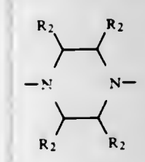
wherein radicals R_1, equal or different among them, are (C_1-C_4)-alkyl or (C_3-C_4)-alkenyl; or the group:



is replaced by a heterocyclic radical bound to the alkyl chain through the nitrogen atom, and optionally containing another heteroatom; (C_2-C_6)-alkenyl; (C_6-C_{12})-cycloalkyl or -alkylcycloalkyl;

n = integer comprised between 2 and 50;

Z is a bivalent or polyvalent radical comprised in one of the following formulae:



(II)

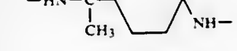
wherein radicals R_2, equal or different among them, are hydrogen or (C_1-C_4)-alkyl;

(III)



(IV)

wherein q is an integer comprised between 2 and 14; R_3 is hydrogen; (C_1-C_4)-alkyl; (C_2-C_6)-alkenyl; (C_1-C_4)-hydroxyalkyl;



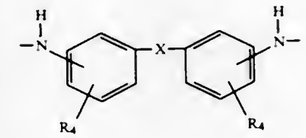
(V)

(VI)

wherein s is an integer comprised between 2 and 5 and t is an integer comprised between 1 and 3;



(VII)

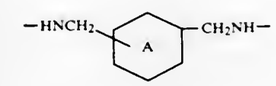


(VIII)

wherein

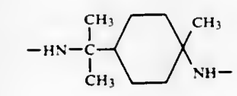
X is a direct bond C—C; O; S; S—S; SO; SO_2; NH; $NHSO_2$; NHCO; N=N; CH_2;

R_4 is hydrogen; hydroxyl; (C_1-C_4)-alkyl; (C_1-C_4)-alkoxy;

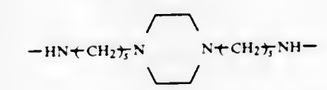


(IX)

wherein A can be a saturated or unsaturated cycle;



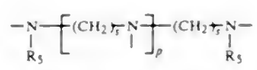
(X)



(XI)

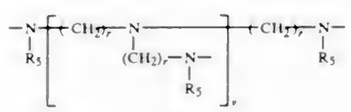
wherein s has the previously defined meaning;

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(XII)

wherein:
R_5 is hydrogen or (C_1-C_4)-alkyl;
p is an integer comprised between 1 and 5;
indexes s, equal or different among them, have the previously defined meaning;



(XIII)

wherein:
R_5 has the previously defined meaning;
r is an integer comprised between 2 and 4,
v is 1 or 2.

5,210,121

HYDROPHOBIC AND/OR ABHESIVE MATERIALS, REACTIVE DILUENTS, AND REACTIVE PLASTICIZERS

Rudolf Hinterwaldner, Munich, Fed. Rep. of Germany, assignor to The Permethyl Corporation, Pottstown, Pa.

Continuation of Ser. No. 529,324, May 29, 1990, Pat. No. 5,061,524, which is a division of Ser. No. 302,124, Jan. 26, 1989, Pat. No. 4,940,846, which is a continuation of Ser. No. 1,936, Jan. 9, 1987, abandoned, which is a continuation-in-part of Ser. No. 726,903, Apr. 18, 1985, abandoned. This application Oct. 28, 1991, Ser. No. 783,049

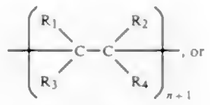
Claims priority, application Fed. Rep. of Germany, Aug. 18, 1983, 3329877

Int. Cl.[5] C08L *75/02*

U.S. Cl. 524—109 **15 Claims**

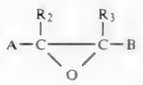
1 A curable composition that after curing renders a substrate hydrophobic or abhesive comprising at least one of:

(I)



, or

(II)



wherein R_1, R_2, R_3 and R_4 are independently hydrogen, CH_3, or C_2H_5; A and B are independently hydrogen, CH_3, C_2H_5, or of the formula (I); n is an integer between 0 and 20,000,000; and wherein each of formula (I) and (II) have from 2.0 to 4.0 methyl side groups per monomer unit.

5,210,122

NEAR-INFRARED STABILIZED COPOLYESTERCARBONATE COMPOSITIONS

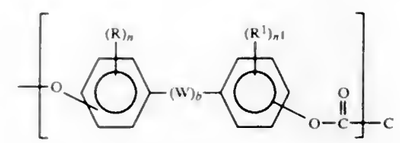
Luca P. Fontana, Evansville; Kenneth F. Miller, and Edgar E. Bostick, both of Mt. Vernon, all of Ind., assignors to General Electric Company, Pittsfield, Mass.

Filed Apr. 24, 1991, Ser. No. 690,747

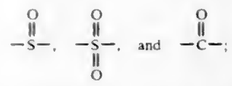
Int. Cl.[5] C08K *5/16, 5/17, 5/33*

U.S. Cl. 524—255 **16 Claims**

1. A composition comprising an admixture of (a)



wherein:
R is independently selected from halogen, monovalent hydrocarbon, and monovalent hydrocarbonoxy radicals;
R^1 is independently selected from halogen, monovalent hydrocarbon, and monovalent hydrocarbonoxy radicals; the weight average molecular weight of (a) being from about 22,400 to 100,000;
W is selected from divalent hydrocarbon radicals, —S—, —S—S—, —O—,



and —C—;

n and n^1 are independently selected from integers having a value of from 0 to 4 inclusive;
b is either zero or one;
X is an aliphatic group of about 6 to 18 carbon atoms, inclusive;
d is from about 2 to 30 mole percent of the total units c + d; and
(b) an effective amount of a near infra red stabilizing screener.

5,210,123

GREASE COMPOSITIONS EMPLOYING A VINYLIDENE FLUORIDE-HEXAFLUOROISOBUTYLENE COPOLYMER THICKENING AGENT

Gerardo Caporiccio, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Oct. 1, 1990, Ser. No. 590,731

Int. Cl.[5] C08J *5/24*

U.S. Cl. 524—263 **16 Claims**

1. A grease composition comprising:
(I) 7 to about 35 parts by weight of a thickening agent comprising a vinylidene fluoridehexafluoroisobutylene copolymer powder having a molar ratio of vinylidene fluoride mer units to hexafluoroisobutylene mer units of about 1:1, said thickening agent being uniformly dispersed in
(II) 93 to about 65 parts by weight of a liquid lubricant selected from the group consisting of
(i) a telomer of chlorotrifluoroethylene having a viscosity of 10 to 1,000 cS at 40° C.;
(ii) a fluorosilicone copolymer having a viscosity of 30 to 10,000 cS at 25° C.; and
(iii) a perfluoropolyether having a viscosity of 30 to 10,000 cS at 20° C.

5,210,124

TRI OR TETRAESTERS OF ALIPHATIC MONOCARBOXYLIC ACIDS OF 6 TO 9 CARBON ATOMS AND PENTAERYTHRITOL AS MOLD RELEASES FOR AROMATIC POLYCARBONATES

Thomas W. Hovatter, Mt. Vernon, Ind.; Christianus A. A. Claesen, and Hermanus B. Savenije, both of Bergen Op Zoom, Netherlands, assignors to General Electric Company, Pittsfield, Mass.

Continuation of Ser. No. 458,474, Dec. 28, 1989, abandoned. This application Jul. 22, 1991, Ser. No. 734,081

Int. Cl.[5] C08K *5/10;* **C08L** *91/00*

U.S. Cl. 524—311 **3 Claims**

1. A composition comprising an aromatic polycarbonate in admixture with a mold release effective amount from about 0.2 to less than about 10 weight percent of the aromatic polycarbonate of a tetraester of an aliphatic monocarboxylic acid of 6 to 9 carbon atoms and pentaerythritol.

5,210,125

THOUGHENED THERMOPLASTIC COMPOSITIONS BASED ON POLYPHENYLENE ETHER AND POLYAMIDE

Roberto Pernice, Mestre-Venezia; Corrado Berto, Dolo; Alessandro Moro, Cazzago, and Roberto Pippa, Noale, all of Italy, assignors to ECP Enichem Polimeri S.r.l., Milan, Italy

Filed Jul. 31, 1992, Ser. No. 923,327

Claims priority, application Italy, Aug. 5, 1991, MI91 A/002206

Int. Cl.[5] C08G *18/42*

U.S. Cl. 524—426 **29 Claims**

1. Thermoplastic toughened composition comprising:
(A) 5-95 parts with respect 100 parts by weight of (A + B), of a polyphenylene ether;
(B) 95-5 parts with respect to 100 parts by weight of (A + B), of a polyamide;
(C) 1-100 parts with respect to 100 parts by weight of (A + B), of an elastomeric copolymer containing a vinyl aromatic polymer grafted on an olefinic elastomer; and
(D) 1-10 parts with respect to 100 parts by weight of (A + B), of an organic diisocyanate.

5,210,126

SILICONE RUBBER COMPOSITION AND METHOD FOR THE PRODUCTION OF SILICONE RUBBER MOLDINGS

Yoshito Ushio, and Akito Nakamura, both of Chiba, Japan, assignors to Dow Corning Toray Silicone Co., Ltd., Tokyo, Japan

Filed Mar. 27, 1991, Ser. No. 676,123

Claims priority, application Japan, Mar. 30, 1990, 2-83985

Int. Cl.[5] C08L *75/00*

U.S. Cl. 524—588 **5 Claims**

1. A silicone rubber composition comprising
(A) 100 weight parts diorganopolysiloxane which contains 0.1 to 5 weight % low-molecular-weight organosiloxane whose vapor pressure at 200° C. is at least 10 mm Hg, wherein at least 90 weight % of this low-molecular-weight organosiloxane comprises low-molecular-weight organosiloxane with a boiling point not exceeding 250° C. at 760 mm Hg
(B) 0 to 300 weight parts filler, and
(C) curing agent in a quantity sufficient to cure the composition wherein the curing agent is an organoperoxide or a combination of organohydrogenpolysiloxane with a platinum catalyst.

5,210,127

FREE-FLOWING, THERMOPLASTICALLY PROCESSIBLE AND POST-CROSSLINKABLE POLYURETHANE POWDERS

Joachim Werner, Dormagen; Walter Meckel, Neuss; Ulrich Liman; Dirk Wegener, both of Monheim; Werner Rasshofer, Cologne, all of Fed. Rep. of Germany, and James W. Rosthauser, Glen Dale, W. Va., assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany and Miles Inc., Pittsburgh, Pa.

Filed Oct. 21, 1992, Ser. No. 964,592

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1991, 4135475; Mar. 25, 1992, 4209709

Int. Cl.[5] C08G *18/81;* **C08L** *75/00;* **C08J** *9/00*

U.S. Cl. 524—589 **3 Claims**

1. A process for production of free-flowing polyurethane powders comprising:
a) producing a non-aqueous emulsion of fine droplets of a first component, stabilized by a surface-active compound, wherein said first component is selected from the group consisting of IA) a component having free NCO groups and IB) a component IB having groups reactive towards NCO groups,
b) reacting said emulsion with a second component reactive with said first component, said second component selected from the group consisting of IIA) a component having an average of two hydrogen atoms reactive towards NCO groups per molecule and IIB) a component having an average of two NCO groups per molecule, with the proviso that if the emulsion of step a) is based upon component IA), then said second component is IIA) and if the emulsion of step a) is based upon component IB), then said second component is IIB), wherein step b) is conducted in the presence of a separately produced component III that contains at least partially blocked isocyanate groups, and in the presence of an inert organic liquid carrier phase in which the components IA or IB and the respective reaction product are insoluble, and
c) separating the reaction product from said inert organic carrier.

5,210,128

POLY(ARYLENE SULFIDE) COMPOSITIONS, COMPOSITES, AND METHODS OF PRODUCTION

Timothy W. Johnson, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 24, 1991, Ser. No. 734,931

Int. Cl.[5] C08G *75/14;* **C08K** *5/00*

U.S. Cl. 524—609 **12 Claims**

1. A method of producing a poly(arylene sulfide) resin composition, said poly(arylene sulfide) resin composition comprising a crystallizable arylene sulfide polymer and a nucleating agent, comprising the steps of:
(a) forming a reaction system, said reaction system initially comprising: (i) polymerization reactants which are reactable to form said crystallizable arylene sulfide polymer and (ii) a solvent;
(b) reacting said polymerization reactants to form said crystallizable arylene sulfide polymer;
(c) after step (a), adding said nucleating agent to said reaction system; and
(d) after steps (b) and (c), recovering said poly(arylene sulfide) resin composition from said reaction system.

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5,210,129

METHOD OF MAKING SILOXANE COMPOSITIONS

Jean de la Croi Habimana, Soignies, Belgium, and Stephen Westall, Barry, Wales, assignors to Dow Corning S.A., Seneffe, Belgium

Filed Mar. 2, 1992, Ser. No. 844,054

Int. Cl.[5] C08K *5/24*

U.S. Cl. 524—731 **20 Claims**

1. A method of making a dispersion of a high viscosity siloxane in a volatile siloxane, which comprises

(I) dispersing at least one organopolysiloxane having at least 2 silicon-bonded groups —OR, wherein R is selected from the group consisting of hydrogen and alkyl groups having up to 6 carbon atoms, in a volatile siloxane, followed by

(II) contacting the dispersion of (I) with a catalyst which is selected from the group consisting of

(A) a phosphonitrile halide having the general formula $\{X(PX_2{=}N)_nPX_3\}^+\{MX_{(v-t+1)}R_t\}^-$ and

(B) a heterogeneous catalyst selected from the group consisting of lithium hydroxide, magnesium hydroxide, calcium hydroxide, strontium hydroxide, barium hydroxide, sodium borate, sodium phosphate, potassium borate, potassium phosphate, rubidium carbonate, caesium carbonate, carboxylates of rubidium and carboxylates of caesium, said carboxylates having the general formula Q.CO.OZ wherein M is an element having a electronegativity of from 1.0 to 2.0 according to Pauling's scale,

Q is selected from alkyl groups having from 1 to 6 carbon atoms or alkenyl groups having from 2 to 5 carbon atoms,

R is an alkyl groups having up to 12 carbon atoms,

X denotes a halide atom,

Z is selected from Cs or Rb,

n has a value of from 1 to 6,

v is the valence or oxidation state of M and

t has a value of from 0 to (v−1).

5,210,130

HOMOGENEOUS, HIGH MODULUS ULTRAHIGH MOLECULAR WEIGHT POLYETHYLENE COMPOSITES AND PROCESSES FOR THE PREPARATION THEREOF

Edward G. Howard, Jr., Hockessin, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 564,144, Aug. 7, 1990. This application Jul. 26, 1991, Ser. No. 736,539

Int. Cl.[5] C08J *5/10;* **C08K** *3/02, 3/34, 11/00;* **C08L** *23/06*

U.S. Cl. 524—789 **10 Claims**

1. A process for preparing a homogeneous composite comprising (a) about 0.5 to 90% by weight of an ultrahigh molecular weight linear polyethylene having a molecular weight of at least about 400,000, a crystalline melting point of greater than 143° C., the reduction of said melting point upon remelting being at least 3° C. and a crystal morphology comprising a bimodal distribution of molecular chain fold spacings reflecting significant populations of both folder and very highly extended molecular chains, and (b) about 0.5 to 90% by weight of at least one filler compound having a neutral-to-acidic surface, said polyethylene being polymerized onto the surface of said filler, and said composite being substantially free of polymer-free filler and of filler-free polymer, comprising:

(a) forming an article of a solid homogeneous particulate composite comprising (i) about 0.5 to 90% by weight of ultrahigh molecular weight polyethylene having a molecular weight of at least about 400,000, and (ii) about 0.5 to 90% by weight of at least one finely-divided filler compound having a neutral-to-acidic surface and having interacted at the surface of said filler a catalytically active amount of transition metal compound, said polyethylene being polymerized onto the surface of said filler, said composite being substantially free of polymer-free filler and of filler-free polymer;

(b) heating said article in an inert atmosphere to a temperature of at least 180° C. sufficient to melt said polyethylene and, at this temperature, compressing said article at a pressure of at least 280 MPa for at least 2 minutes;

(c) reducing the temperature to 175° C. or lower while maintaining a pressure of at least 280 MPa, the rate of reduction of temperature being such that temperature gradients in the shaped article are substantially avoided; and,

(d) rapidly cooling to a temperature below 100° C. while maintaining a pressure of at least 280 MPa, then reducing the pressure in such a manner that remelting of the polyethylene constituent of the article is avoided.

5,210,131

METHOD OF MAKING ORGANOPOLYSILOXANES

Jean-Marc Gilson, Sombreffe, and Jean de la Croi Habimana, Soignies, both of Belgium, assignors to Dow Corning S.A., Seneffe, Belgium

Filed Feb. 6, 1992, Ser. No. 832,145

Claims priority, application United Kingdom, Feb. 21, 1991, 9103666

Int. Cl.[5] C08L *83/04*

U.S. Cl. 524—863 **21 Claims**

1. A method of making organopolysiloxanes which comprises contacting one or more organosilicon compounds having at least one unit of the general formula

$$R^*_aSiO_{\frac{4-a}{2}}$$

wherein R^* is selected from a hydrogen atom, a hydroxyl group, a hydrocarbon group having from 1 to 18 carbon atoms, a substituted hydrocarbon group having from 1 to 18 carbon atoms or a hydrocarbonoxy group having up to 18 carbon atoms and a has a value of from 0 to 4 with a phosphonitrile halide which has the general formula AB, wherein A is a phosphonitrile halide cation of the general formula $[X(PX_2{=}N)_nPX_3]^+$, wherein X denotes a halide atom and n has a value of from 1 to 8 and B is an anion derived from a Lewis acid not containing a P atom.

5,210,132

CONTINUOUS PROCESS FOR PREPARING RUBBER MODIFIED HIGH IMPACT RESIN

Tetsuyuki Matsubara, Yokohama; Norifumi Ito, Kamakura; Mune Iwamoto, Takaishi; Kazuo Sugazaki, Yokohama; Toshihiko Ando, Takaishi; Yasuo Furuta, Hiratsuka; Kouzo Ichikawa, Takaishi, and Hitoshi Ozawa, Tokyo, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Continuation of Ser. No. 455,132, Dec. 22, 1989, abandoned. This application Oct. 14, 1992, Ser. No. 961,026

Claims priority, application Japan, Dec. 28, 1988, 63-334651; Dec. 28, 1988, 63-334652; Jun. 27, 1989, 1-162691; Jun. 27, 1989, 1-162692

Int. Cl.[5] C08F *279/04*

U.S. Cl. 525—53 **7 Claims**

1. In a process for continuously preparing rubber modified high impact resins which employs at least two polymerization reactors and a particle disperser and comprises the steps of (1) forming a starting solution obtained by dissolving a rubbery polymer in a starting monomer in which the rubber polymer is soluble, said starting monomer consisting of at least one aromatic vinyl monomer in an amount of from 47 to 99 parts by weight wherein the amounts of monomer(s) are based on a total amount of 100 parts by weight of the rubbery polymer, the starting monomer(s) and an organic solvent, if used, or a mixture of a radical polymerization initiator, at least one aromatic vinyl monomer and vinyl cyanide monomer with the ratio of aromatic vinyl monomer to cyanide monomer being 50:50 to 95:5, said starting monomer being continuously supplied into the first polymerization reactor; (2) conducting a polymerization reaction of the starting monomer in the first

reactor so as to obtain a reaction liquid until the concentration of the polymer obtained by the polymerization, which concentration is required for converting the polymer into rubber particles dispersed in the reaction liquid, has been reached in the first reactor; (3) continuously removing the reaction liquid containing the particles of the rubbery polymer from the first reactor in an amount corresponding to the amount of the starting solution supplied into the first reactor; (4) feeding the reaction liquid taken out of the first reactor into a particle disperser, in which a shearing stirrer composed of rotatable agitator or cylindrical rotor is provided and rotated at high speed, for subjecting the particles of the rubbery polymer formed in the reaction liquid to the shearing treatment by the shearing stirrer in the particle disperser; (5) feeding the reaction liquid which has been subjected to the shearing treatment in the particle disperser into the second polymerization reactor in which the amount of the polymer formed from the starting monomer is maintained at a value of 25% or more as the conversion ratio of the starting monomer to the product, and continuing the polymerization reaction of the reaction liquid in the second reactor wherein the polymerizing reaction is conducted under conditions of (A) the following formula of

$$V_2/V_1<0.2,$$

wherein V_1 is the volume occupied by the reaction liquid in the first reactor and V_2 is the inner volume of the particle disperser; (B) the peripheral linear velocity of the agitator or rotor being rotated is at a value of 0.5 meter per second or faster; and (C) the following formulas of

$$1<X_1\leqq 20$$

and

$$1.5\,X_1-0.05\,X^2_1<X_2<4.5\,X_1-0.05\,X^2_1$$

wherein X_1 is the proportion of the rubbery polymer to the reaction liquid at the exit of the first reactor by weight percent and X_2 is the ratio of the polymer formed from the starting monomer to the reaction liquid at the exit of the first reactor by weight percent.

5,210,133

SILICONE POLYESTER POLYMERS AS DELIVERY SYSTEMS

Anthony J. O'Lenick, Jr., Lilburn, Ga., assignor to Siltech Inc., Norcross, Ga.

Filed Jun. 15, 1992, Ser. No. 899,087

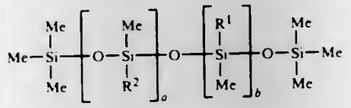
Int. Cl.[5] C08G *63/48*

U.S. Cl. 525—54.1 **20 Claims**

1. A silicone polyester prepared by the esterification reaction of

(a) a hydroxyl containing silicone compound selected from the group consisting of;

dimethicone copolyols conforming to the following structure;



wherein;

Me is methyl;

a is an integer ranging from 2 to 20;

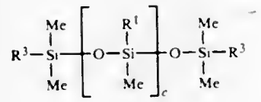
b is an integer ranging from 0 to 200;

R^1 is selected from the group consisting of methyl and phenyl;

R^2 is $(CH_2)_3{-}O{-}(CH_2{-}CH_2{-}O)_x{-}(CH(CH_3)CH_2{-}O)_y{-}(CH_2{-}CH_2{-}O)_z{-}H$

x, y, and z are independently integers ranging from 0 to 20;

terminal Dimethicone copolyols conforming to the following structure;



wherein;

Me is methyl;

c is an integer ranging from 0 to 200;

R^1 is selected from the group consisting of methyl and phenyl;

R^3 is $(CH_2)_3{-}O{-}(CH_2{-}CH_2{-}O)_x{-}(CH(CH_3)CH_2{-}O)_y{-}(CH_2{-}CH_2{-}O)_z{-}H$ and

silanol compounds conforming to the following structure;



wherein;

Me is methyl;

d is an integer ranging from 10 to 1,200;

R^1 is selected from the group consisting of methyl and phenyl;

R^4 is OH;

with

(b) a diacid selected the group consisting of;

$HO{-}C(O){-}(CH_2)_q{-}C(O){-}OH$,

$HO{-}C(O){-}(CH_2)_r{-}CH{=}CH{-}(CH_2)_s{-}C(O){-}OH$;

q is an integer from 2 to 10;

r is an integer from 2 to 10;

s in an integer from 2 to 10;

dimer acid and hydrogenated dimer acid; and

(c) a hydroxyl functional active selected from the group consisting of lanolin, cholesterol, dihydrocholesterol, Vitamin A, Vitamin D-2, Vitamin D-3, Vitamin D-4, Vitamin E, panthenol, cerberosterol and lanosterol; and optionally

(d) a mono functional fatty acid conforming to the following structure;

$$R^5{-}C(O){-}OH$$

R^5 is selected from the group consisting of alkyl and alkylene and has from 6 to 20 carbon atoms.

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5,210,134
HIGH IMPACT, STYRENIC POLYMER/THERMOPLASTIC POLYMER GRAFTED BLENDS

Murali K. Akkapeddi, Morristown; Bruce VanBuskirk, Dover, and Timothy J. Kraft, Pompton Plains, all of N.J., assignors to Allied Signal, Morris Township, Morris County

Division of Ser. No. 587,892, Sep. 25, 1990, Pat. No. 5,115,018, which is a continuation-in-part of Ser. No. 446,893, Dec. 6, 1989, abandoned, which is a division of Ser. No. 262,196, Oct. 19, 1988, Pat. No. 4,902,749, which is a continuation of Ser. No. 88,738, Aug. 24, 1987, abandoned. This application Feb. 12, 1992, Ser. No. 834,441
The portion of the term of this patent subsequent to May 19, 2009, has been disclaimed.
Int. Cl.[5] C08L 67/02, 55/02, 51/04
U.S. Cl. 525—64 11 Claims

1. A blended composition comprising (a) modified styrenic polymer wherein said modified styrenic polymer comprises the reaction product of polybutadiene modified styrene acrylonitrile resin with an ethylenically unsaturated grafting agent, said grafting agent being maleic anhydride and said modified styrenic polymer containing the acid anhydride groups of said maleic anhydride as pendant reactive functionalities and (b) polyester.

5,210,135
ABS MOULDING COMPOUNDS WITH IMPROVED YIELD STRESS

Herbert Eichenauer, Dormagen; Alfred Pischtschan, Kuerten, and Karl-Heinz Ott, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Continuation of Ser. No. 559,847, Jul. 30, 1990, abandoned. This application Aug. 26, 1992, Ser. No. 936,069
Claims priority, application Fed. Rep. of Germany, Aug. 9, 1989, 3926273
Int. Cl.[5] C08L 51/04
U.S. Cl. 525—71 11 Claims

1. Thermoplastic molding compounds, containing
A) 5–95 weight % of a thermoplastic homo-, co- or terpolymer of styrene, alpha-methylstyrene, ring-substituted styrene, methyl methacrylate, acrylonitrile, methacrylonitrile, maleic anhydride, N-substituted maleimide, vinyl acetate or mixtures thereof,
B) 5–95 weight % of a graft polymer of
B.1) 5–90 parts by weight of styrene, alpha-methylstyrene, ring-substituted styrene, methyl methacrylate, acrylonitrile, methacrylonitrile, maleic anhydride, N-substituted maleimide, vinyl acetate or mixtures thereof graft polymerized onto
B.2) 95–10 parts by weight of a polybutadiene, butadiene styrene copolymers, butadiene acrylonitrile copolymers, polyisoprene or alkyl acrylate rubber
C) 0.5–4 parts by weight per 100 parts by weight of A + B of a grafted product of a mixture of styrene and acrylonitrile graft polymerized onto an ethylenepropylene-diene terpolymer rubber with a rubber content of 20–60 weight %.

5,210,136
ELASTOMERIC COMPOSITION

Richard A. Miller, and Herbert T. Zollman, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 16, 1990, Ser. No. 615,734
Int. Cl.[5] C08G 63/91
U.S. Cl. 525—74 5 Claims

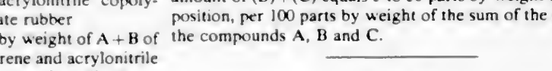
1. A composition comprising:
(a) about 10 to 90 wt. %, based on (a) plus (b), of a maleated amorphous propylene terpolymer containing at least 20 wt. % propylene about 40 to 70 wt. % butene or hexene and up to 20 wt. % ethylene;
(b) about 10 to 90 wt. %, based on (a) plus (b), of an elastomer selected from butyl elastomers and at least partially crosslinked butyl elastomers, styrene ethylene butadiene styrene block copolymers, and mixtures thereof;
(c) about 0 to 70 wt. %, based on the total weight, of a tackifier, and;
(d) about 0 to 80 wt. %, based on the total weight, of a filler.

5,210,137
POLYKETONE POLYMER BLENDS

Joseph M. Machado, Richmond, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Nov. 19, 1990, Ser. No. 615,744
Int. Cl.[5] C08G 67/02; C08L 61/00
U.S. Cl. 525—154 10 Claims

1. A polymer blend composition comprising:
(1) about 45 wt %, based on the total blend, of a linear alternating polyketone polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon, wherein the linear alternating polyketone polymer is represented by repeating units of the formula



wherein G is a moiety of an ethylenically unsaturated hydrocarbon of at least 3 carbon atoms polymerized through the ethylenic unsaturation and the ratio of y:x is no more than about 0.5,
(2) about 10 wt %, based on the total blend, of a polyvinyl phenol polymer; and
(3) about 45 wt %, based on the total blend, of a polyacetal polymer.

5,210,138
IONOMER COMPOSITION

Yoshimasa Yamamoto, and Eisaku Hirasawa, both of Ichihara, Japan, assignors to Dupont-Mitsui Polychemicals Co., Ltd., Tokyo, Japan

Filed Feb. 12, 1991, Ser. No. 653,956
Int. Cl.[5] C08L 35/00
U.S. Cl. 525—183 21 Claims

1. An ionomer composition comprising (A) an ionomer resin having at least a part of the carboxyl group of an ethylene/unsaturated carboxylic acid copolymer neutralized with a transition metal cation, in an amount of 50 to 95 parts by weight, (B) a polyamide resin having a number average molecular weight of at least 8000, in an amount of 2 to 40 parts by weight, and (C) a polyamide oligomer having a primary amino group at one or both of the terminals and an average degree of polymerization of 5 to 35, in an amount of 3 to 30 parts by weight, and the amount of (B) + (C) equals 5 to 50 parts by weight of the composition, per 100 parts by weight of the sum of the amounts of the compounds A, B and C.

5,210,139
THERMOPLASTIC OLEFIN ALLOYS AND METHOD FOR PRODUCING THE SAME

Terrence Huff, Baytown, and James J. McAlpin, Houston, both of Tex., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 354,358, May 23, 1989, Pat. No. 5,023,300, which is a continuation-in-part of Ser. No. 140,462, Jan. 4, 1988, abandoned. This application Feb. 6, 1991, Ser. No. 651,666
Int. Cl.[5] C08L 23/26, 23/16
U.S. Cl. 525—194 2 Claims

1. A thermoplastic olefin alloy produced in accordance with the steps comprising:
feeding propylene, ethylene and a catalyst to a first reactor to at least partially copolymerize said propylene and ethylene to produce a first random propylene/ethylene copolymer, thereby generating an outlet stream comprising said first random copolymer, unreacted propylene, unreacted ethylene and said catalyst;
feeding said outlet stream, additional propylene and additional ethylene into a second reactor to produce a reactor blend of said first random copolymer with a second random propylene/ethylene copolymer which does not contain any substantial amount of block copolymerization product, said reactor blend having an ethylene content of from 3% to 8% by weight and an MFR of less than 1;
blending from 50% to 88% by weight, based upon the weight of said alloy, of said reactor blend, from 12% to 23% by weight, based upon the weight of said alloy, of an olefin copolymer elastomer, and from 0% to 33% by weight based upon the weight of the alloy, of polypropylene; and increasing the MFR of said alloy by blending said alloy in the presence of an organic peroxide.

5,210,140
POLYVINYL CHLORIDE BLENDS

William S. Greenlee, Avon Lake; Philip L. Kinson, Brecksville; Sally A. Kline, Westlake; Murali Rajagopalan, and Charles A. Daniels, both of Avon Lake, all of Ohio, assignors to The B. F. Goodrich Company, Brecksville, Ohio

Continuation-in-part of Ser. No. 698,018, May 9, 1991, Pat. No. 5,143,975. This application Apr. 10, 1992, Ser. No. 867,246
The portion of the term of this patent subsequent to Sep. 1, 2009, has been disclaimed.
Int. Cl.[5] C08L 27/06
U.S. Cl. 525—205 23 Claims

1. A rigid blend composition comprising a first uncrosslinked polyvinyl chloride polymer (PVC) having an inherent viscosity measured per ASTM-D1243 (I.V.) of from about 0.20 to about 1.0, from 0.1 to less than 20 phr weight parts per 100 weight parts combined polyvinyl chloride of a second uncrosslinked polyvinyl chloride polymer having an inherent viscosity of from 0.6 to about 1.05, a polymeric impact modifier, and from 0 to 10 phr of a plasticizer, wherein the inherent viscosity for said second polyvinyl chloride must be form 0.2 to 0.85 inherent viscosity units higher (ΔI.V.) than said inherent viscosity for said first polyvinyl chloride.

5,210,141
DELUSTERED THERMALLY SHRINKABLE FILM

Takeji Yanagisawa, Kashima, and Yasutoshi Soda, Okegawa, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 566,924, Aug. 14, 1990, abandoned. This application Feb. 18, 1992, Ser. No. 836,551
Claims priority, application Japan, Aug. 15, 1989, 1-210401
Int. Cl.[5] C08L 27/02, 27/04, 27/06
U.S. Cl. 525—239 13 Claims

1. A delustered, thermally shrinkable film made from a mixture of (A) a partially crosslinked polyvinyl chloride resin having a tetrahydrofuran-insoluble gel content of 10–35 wt. %, (B) a non-crosslinked polyvinyl chloride resin, and (C) 0 to 20 parts by weight of a plasticizer per 100 parts by weight of (A) plus (B), said mixture being mixed in an (A):(B) weight ratio of from 30:70 to 60:40, in which the average polymerization degree of tetrahydrofuran-soluble portion of the polyvinyl chloride resin (B) is 600–1100 and greater than that of tetrahydrofuran-soluble portion of the polyvinyl chloride resin (A) which is 400–1000, and wherein said film is delustered and thermally shrinkable.

5,210,142
REDUCTION OF MELT FRACTURE IN LINEAR POLYETHYLENE

Lawrence T. Kale, Edmonton; Lionel H. Dagenais, Fort Saskatchewan, both of Canada; Shih-Yaw Lai, Sugarland, Tex.; William R. Van Volkenburgh, Lake Jackson, Tex., and John O. Bieser, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Feb. 13, 1992, Ser. No. 835,162
Int. Cl.[5] C08L 23/06, 23/08, 23/16
U.S. Cl. 525—240 11 Claims

1. A method of reducing melt fracture in melt processing a linear polyethylene comprising the steps of:
(A) blending
(i)a minor amount up to about 15 percent by weight of the final polymer blend of at least one ethylene alpha olefin interpolymer product comprising a higher molecular weight ethylene interpolymer and a lower molecular weight ethylene interpolymer, said interpolymer product having a density of about 0.935 grams/ml or less, a melt index from about 0.1 grams/10 minutes to about 4 grams/10 minutes, a melt flow ratio of at least about 9 and having from about 0.5 percent to about 8 percent by weight of the interpolymer product having a weight average molecular weight of at least about 1,000,000 grams/mole with
(ii) at least one linear polyethylene having a melt flow ratio less than about 9 to form a polymer blend, and
(B) extruding the polymer blend to form a fabricated article, wherein the amount of the ethylene interpolymer product is sufficient to increase the shear rate at the onset of melt fracture of the linear polyethylene by at least about 2 percent.

5,210,143
CONDENSED PHASE POLYMERS

Spencer Silver, White Bear Lake; William R. Bronn, Maplewood, and Eugene G. Joseph, Arden Hills, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 607,838, Oct. 31, 1990, Pat. No. 5,115,034, which is a continuation of Ser. No. 316,016, Feb. 27, 1989, abandoned, which is a division of Ser. No. 107,292, Oct. 9, 1987, Pat. No. 4,857,618. This application Jan. 9, 1992, Ser. No. 819,605
Int. Cl.[5] C08F 297/02, 230/08, 230/10
U.S. Cl. 525—288 24 Claims

1. An elastomeric block copolymer represented by the formula

A—(B/Z)—A

where:
A is a nonelastomeric polymer segment based on a monovinyl aromatic compound;
B/Z is an elastomeric copolymer of conjugated diene compound and a condensing reagent having the general formula

$CH_2=C(R')QY(R)_n(X)_m$

where
X is H, —OR'', Cl, Br or F wherein R'' is a monovalent lower alkyl group having from 1 to 6 carbon atoms;
R is hydrogen or a monovalent lower alkyl group having from 1 to 6 carbon atoms or a phenyl;
Y is tetravalent Si, Ge, Sn or Pb;
Q is phenylene;
R' is hydrogen, a monovalent lower alkyl group having from 1 to 6 carbon atoms or phenyl;
m is an integer of 1, 2 or 3; and
n is an integer equal to 3—m; wherein the mole percentage of Z in the segment B/Z is in the range of about 0.01% to about 1%.

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5. An elastomeric block copolymer represented by the formula

$$[A-(B/Z)]_yL_z$$

where:
A is a nonelastomeric polymer segment based on a monovinyl aromatic compound;
B/Z is an elastomeric copolymer of conjugated diene compound and a condensing reagent having the general formula

$$CH_2=(R')QY(R)_n(X)_m$$

where:
X is H, —OR", Cl, Br or F wherein R" is a monovalent lower alkyl group having from 1 to 6 carbon atoms;
R is hydrogen or a monovalent lower alkyl
group having from 1 to 6 carbon atoms or a phenyl;
Y is tetravalent Si, Ge, Sn or Pb;
Q is phenylene;
R' is hydrogen, a monovalent lower alkyl group having from 1 to 6 carbon atoms or phenyl;
m is an integer of 1, 2 or 3; and
n is an integer equal to 3—m;
L is the residue of a multifunctional linking agent;
y is an integer from 1 to about 50;
z is an integer from zero to about 10 and, when y is 1, z is zero; and
wherein the mole percentage of Z in the segment B/Z is in the range of about 0.01% to about 1%.

15. An elastomeric block copolymer represented by the formula

$$[(A/Z)-(B/Z)]_yL_z$$

where:
A/Z is a nonelastomeric copolymer of a monovinyl aromatic compound and a condensing reagent having the general formula

$$CH_2=C(R')QY(R)_n(X)_m$$

where
X is H, —OR", Cl, Br or F wherein R" is a monovalent lower alkyl group having from 1 to 6 carbon atoms;
R is hydrogen or a monovalent lower alkyl group having from 1 to 6 carbon atoms or a phenyl;
Y is tetravalent Si, Ge, Sn or Pb;
Q is phenylene;
R' is hydrogen, a monovalent lower alkyl group having from 1 to 6 carbon atoms or phenyl;
m is an integer of 1, 2 or 3; and
n is an integer equal to 3—m;
B/Z is an elastomeric copolymer of a conjugated diene compound and said condensing reagent;
L is the residue of a multifunctional linking agent;
y is an integer from 1 to about 50;
z is an integer from zero to about 10 and, when y is 1, z is zero; and
wherein the mole percentage of Z in the segment A/Z is in the range of about 0.1% to about 5% and in the segment B/Z is in the range of about 0.01% to about 1%.

20. An elastomeric block copolymer represented by the general formula

$$[(W)_xZ_q-W']_yL_z$$

wherein:
W is selected from the group consisting of A, B, AB, and BA;
W" is selected from the group consisting of B, BA, and AB;
A is a nonelastomeric polymer segment based on a monovinyl aromatic compound;
B is an elastomeric polymer segment based on a conjugated diene compound;
Z is the residue of a condensing reagent having the general formula

$$CH_2=C(R')QY(R)_n(X)_m$$

wherein:
X is H, —OR", Cl, Br, or F wherein R" is a monovalent lower alkyl group having from 1 to 6 carbon atoms;
R is hydrogen, a monovalent lower alkyl group having from 1 to 6 carbon atoms, or phenyl;
Y is tetravalent Si, Ge, Sn, or Pb;
Q is phenylene;
R' is hydrogen, a monovalent lower alkyl group having from 1 to 6 carbon atoms, or phenyl;
m is an integer of 1, 2, or 3; and
n is an integer equal to 3—m;
q is an integer from 1 to about 10;
L is the residue of a multifunctional linking agent;
x is an integer from 2 to about 10;
y is an integer from 1 to about 50;
z is an integer from zero to about 10 and, when y is 1, z is zero; and
wherein the mole percentage of Z in the segment $(W)_xZ_q$ is in the range of about 0.01% to about 5%.

5,210,144

DIENE POLYMERS HAVING REDUCED HYSTERESIS AND IMPROVED RAW VISCOSITY INCORPORATING PRIMARY PARTIAL COUPLING AND FUSED-RING POLYNUCLEAR AROMATIC TERMINATORS

David F. Lawson, Uniontown; Mark L. Stayer, Jr., Mogadore, and Thomas A. Antkowiak, Rittman, all of Ohio, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Dec. 20, 1991, Ser. No. 812,172
Int. Cl.[5] C08F *8/00*
U.S. Cl. 525—289 28 Claims

1. A method for preparing a diene polymer or copolymer having improved raw viscosity and adapted to form elastomer compositions having reduced hysteresis properties comprising the steps in sequence of:
(a) preparing a living diene polymer or copolymer containing active organoalkali or organoalkaline earth metal terminals by anionically polymerizing a conjugated diene monomer or mixture of a conjugated dene monomer and vinyl aromatic hydrocarbon monomer in a hydrocarbon solvent using an organoalkali metal or organoalkaline earth metal initiator;
(b) coupling from about 10 to about 70 percent by weight of the living diene polymer or copolymer chains by reacting the organoalkali or organoalkaline earth metal terminals thereof with from about 0.1 to about 0.7 equivalents of a tin polyhalide, based on the number of halogen atoms in said tin polyhalide, per mole of said living diene polymer or copolymer chains, said tin polyhalide having the general formula R_aSnX_b wherein R is selected from the group consisting of alkyl, alkenyl, cycloalkyl and aryl groups, X is a halogen atom, a is an integer of 0–2 and b is an integer of 2–4; and
(c) terminating the remaining living diene polymer or copolymer chains by reacting the organoalkali or organoalkaline earth metal terminals thereof with from about 0.3 to about 100 moles of a fused-ring polynuclear aromatic compound capable of reacting with no more than 1 mole of living polymer per mole of said fused-ring polynuclear aromatic compound.

5,210,145

DIENE POLYMERS AND COPOLYMERS TERMINATED BY REACTION WITH FUSED-RING POLYNUCLEAR AROMATIC COMPOUNDS

David F. Lawson, Uniontown; Mark L. Stayer, Jr., Mogadore, and Thomas A. Antkowiak, Wadsworth, all of Ohio, assignors to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Dec. 20, 1991, Ser. No. 812,258
Int. Cl.[5] C08F *8/00*
U.S. Cl. 525—289 18 Claims

1. A terminally functionalized polymer prepared by reacting a living polymer obtained by anionic polymerization of a diene monomer or a mixture of a diene monomer and a vinyl aromatic hydrocarbon monomer with a fused-ring polynuclear aromatic compound capable of reacting with no more than 1 mole of living polymer per mole of said fused-ring polynuclear aromatic compound.

5,210,146

MULTIFUNCTIONAL VISCOSITY INDEX IMPROVER DERIVED FROM POLYAMINE CONTAINING ONE PRIMARY AMINO GROUP AND AT LEAST ONE SECONDARY AMINO GROUP EXHIBITING IMPROVED LOW TEMPERATURE VISCOMETRIC PROPERTIES

Antonio Gutierrez, Mercerville, and David Y. Chung, Edison, both of N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Continuation of Ser. No. 702,255, May 17, 1991, abandoned, which is a continuation of Ser. No. 358,729, May 30, 1989, abandoned. This application Jun. 29, 1992, Ser. No. 908,627
Int. Cl.[5] C08F *255/04, 255/06, 8/32;* C10M *133/04*
U.S. Cl. 525—301 51 Claims

1. Composition of matter comprising reaction product of:
(i) (a) copolymer of ethylene and at least one other alpha-olefin monomer, said copolymer comprising intramolecularly heterogeneous copolymer chains containing at least one crystallizable segment of methylene units and at least one low crystallinity ethylene-alpha-olefin copolymer segment, wherein said at least one crystallizable segment comprises at least about 10 weight percent of said copolymer chain and contains at least about 57 weight percent ethylene, wherein said low crystallinity segment contains not greater than about 53 weight percent ethylene, and wherein said copolymer has a molecular weight distribution characterized by at least one of a ratio of $\overline{M}w/\overline{M}n$ of less than 2 and a ratio of $\overline{M}z/\overline{M}w$ of less than 1.8, and wherein at least two portions of an individual intramolecularly heterogeneous chain, each portion comprising at least 5 weight percent of said chain, differ in composition from one another by at least 7 weight percent ethylene, said copolymer grafted with (b) ethylenically monounsaturated carboxylic acid material having 1 to 2 carboxylic acid groups or anhydride groups to form grafted ethylene copolymer; and
(ii) at least one polyamine containing one primary amino group and at least one secondary amino group and no tertiary amino groups.

5,210,147

100% TRIBLOCK HYDROGENATED STYRENE-ISOPRENE-STYRENE BLOCK COPOLYMER ADHESIVE COMPOSITION

Jeffrey G. Southwick; Earle E. Ewins, Jr., and David J. St. Clair, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed May 20, 1991, Ser. No. 703,068
Int. Cl.[5] C08F *297/04;* C08L *53/02*
U.S. Cl. 525—314 3 Claims

1. A linear 100% triblock sequentially polymerized hydrogenated styrene-isoprene-styrene block copolymer containing essentially no diblock and comprised of linear polymeric blocks wherein the styrene content is 18% by weight, the styrene block molecular weight is from 5600 to 6000 and the residual unsaturation content in the polydiene block is less than 20%.

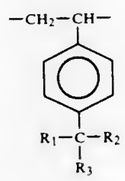
5,210,148

STYRENIC POLYMER CONTAINING POLYISOBUTYLENE SIDE-CHAINS

Jean M. J. Frechet, Ithaca, N.Y., assignor to University of Ottawa, Ottawa, Canada

Division of Ser. No. 152,720, Feb. 5, 1988, Pat. No. 5,084,522. This application Nov. 13, 1991, Ser. No. 774,839
Int. Cl.[5] C08F *257/02*
U.S. Cl. 525—319 10 Claims

1. A styrenic polymer or copolymer which contains, randomly located in the polymer chain, monomer units of the formula:



(IV)

wherein R_1 and R_2 each represents a saturated aliphatic hydrocarbon group and R_3 is a polyisobutylene moiety.

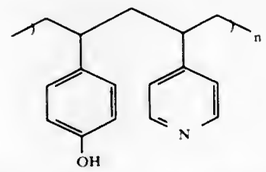
5,210,149

AMPHOTERIC COPOLYMER DERIVED FROM VINYLPYRIDINE & ACETOXYSTYRENE

Apurba Bhattacharya; Kenneth G. Davenport; Michael T. Sheehan, and James R. Sounik, all of Corpus Christi, Tex., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Filed Oct. 30, 1992, Ser. No. 968,741
Int. Cl.[5] C08F *26/06*
U.S. Cl. 525—327.1 1 Claim

1. A copolymer consisting essentially of a member of the group consisting of the structure:



and the intermolecular and intramolecular amphoteric equivalents thereof; where n is from about 4 to about 20,000.

5,210,150

MOISTURE-CURABLE MELT-PROCESSIBLE ETHYLENE COPOLYMER ADHESIVES

George W. Prejean, Orange, Tex., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 22, 1991, Ser. No. 796,508
Int. Cl.[5] C08F *20/02, 8/12;* C08L *83/10*
U.S. Cl. 525—329.7 9 Claims

1. A melt-processible moisture-curable copolymer comprising the reaction product of
(A) a direct copolymer from monomers comprising
(i) ethylene,
(ii) 1-5 wt. % of the direct copolymer of an alpha,beta-ethylenically unsaturated carboxylic acid selected from the group consisting of acrylic acid, methacrylic acid,

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maleic acid, half esters of maleic acid and itaconic acid, and

(iii) 20–40 wt. % of the direct copolymer of a n-alkyl acrylate or methacrylate wherein the n-alkyl group contains 4–8 carbon atoms, and

(B) a substantially stoichiometric amount with respect to the amount of carboxylic acid, of an epoxy-silane, wherein the melt index of the melt-processible, moisture-curable copolymer is from 30 to 1500.

5,210,151

HYDROGENATION OF NITRILE RUBBER

Garry L. Rempel, and Xiang-Yao Guo, both of Waterloo, Canada, assignors to Polysar Rubber Corporation, Sarnia, Canada

Filed Sep. 2, 1992, Ser. No. 939,179
Int. Cl.[5] C08F 8/04
U.S. Cl. 525—338 **9 Claims**

1. An improved process for the production of hydrogenated nitrile rubber wherein a nitrile rubber which is a polymer comprising a conjugated C_4–C_6 diolefin and a C_3–C_5 unsaturated nitrile is hydrogenated in the presence of a divalent ruthenium catalyst selected from compounds of the general formula:

$RuXY(CO)ZL_2$ or $RuDE(CO)M_n$, or $RuGJM_3$ or RuK_2N_2 wherein X is selected from a halogen atom or a carboxylate group, Y is selected from a halogen atom, a hydrogen atom, a phenyl group, a carboxylate group or a styryl group, Z is selected from CO, pyridine, benzonitrile or no ligand and L is selected from the phosphine ligands of the general formula PR_3 in which R is selected from alicyclic or alkyl groups, n is 2 or 3 and when n is 3, D is a halogen atom and E is a hydrogen atom and when n is 2, D is selected from a halogen atom or a carboxylate group and E is selected from a halogen atom, a hydrogen atom, a phenyl group or a carboxylate group, and M is selected from the phosphine ligands of the formula PA_3 in which A is a phenyl group or a C_1 to C_4 alkyl group or an alicyclic group, G is selected from a halogen atom or a hydrogen atom, J is selected from a halogen atom or a carboxylate group, K is a carboxylate group and N is triphenylphosphine, the improvement being that said nitrile rubber is provided in an aqueous emulsion, an organic compound which is miscible with the aqueous phase and is also a solvent for the polymer and for the catalyst is added to said aqueous emulsion and an inorganic additive selected from ferrous sulphate, ammonium sulphate, ferrous ammonium sulphate, nickel sulphate, cobalt sulphate, ammonium chloride, sulphuric acid, hydrochloric acid and phosphoric acid is added t the mixture before hydrogenation is initiated, the weight of said additive per 0.01 parts by weight of ruthenium in the catalyst being from about 0.5 to about 1.5.

5,210,152

PROCESS FOR THE VULCANIZATION OF POLYCHLOROPRENE

Rüdiger Musch, and Rüdiger Schubart, both of Bergisch-Gladbach, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Filed Dec. 10, 1990, Ser. No. 624,967
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1989, 3942463
Int. Cl.[5] C08F 8/42
U.S. Cl. 525—368 **4 Claims**

1. A process for the vulcanization of polychloroprene in the presence of

i) 0.5 to 20% by weight metal oxide and

ii) organic vulcanization accelerator,

characterized in that

a) the metal oxide i) is free from magnesium oxide and

b) the organic vulcanization accelerator contains 0.2 to 0.6% by weight of at least one amidine compound,

the percentages being based on polychloroprene.

5,210,153

THERMOPLASTIC ELASTOMERS HAVING ALTERNATE CRYSTALLINE STRUCTURE FOR US AS HIGH ENERGY BINDERS

Gerald E. Manser, 112 Miller Way, Folsom, Calif. 95630, and Richard S. Miller, 1749 Dana St., Crafton, Md. 21114

Continuation of Ser. No. 370,351, J[illegible]. 22, 1989, abandoned, which is a continuation of Ser. No. 925,660, Oct. 29, 1986, abandoned. This application Jan. 6, 1992, Ser. No. 815,878
Int. Cl.[5] C08G 65/18, 65/20
U.S. Cl. 525—410 **7 Claims**

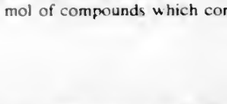
1. A process of forming a thermoplastic, elastomeric ABA triblock polymer with low melt viscosity, comprising,

forming a polymer that is crystalline in structure and has a melting temperature of between about 60° C. and 120° C. to serve as the A blocks;

forming a polymer having a glass transition temperature below about −20° C. to serve as the B block; and

forming an ABA block polymer from the A blocks and B block by cationic polymerization;

wherein the A block is a polymer obtained from polymerizing derivatives of oxetane having the general formula:



wherein n and n' can be 0 to 10 and X and X' are selected from the group consisting of —H, $—NO_2$, —CH, —Cl, —F, —OR, —OH, —I, $—ONO_2$, $—N(NO_2)R$, —C≡CH, —Br, —CH=CHZ, —O—CO—Z, $—CO_2—Z$, —N(H or R)$_2$ and $—O—(CH_2)_{1\text{-}5}—O—(CH_2)_{0\text{-}8}—CH_3$, where R is an alkyl group and Z is H or R, and

wherein the B block is a homopolymer obtained from polymerizing a compound chosen from the group consisting of oxetane, tetrahydrofuran, derivatives of oxetane and derivatives of tetrahydrofuran monomers.

7. A product which is produced by the process of claim 1.

5,210,154

WATER-THINNABLE BAKING PAINTS AND USE THEREOF AS FILLER MATERIAL AND INTERMEDIATE STONE CHIP RESISTANT COAT, AS WELL AS PROCESS FOR PAINTING MOTOR VEHICLE BODIES

Klaus Weidemeier; Winfried Schmidt, both of Münster; Hans-Dieter Hille, Bergisch Gladbach, and Bodo Müller, Würzburg, all of Fed. Rep. of Germany, assignors to BASF Lacke + Farben Aktiengesellschaft, Munster, Fed. Rep. of Germany

PCT No. PCT/EP89/00412, § 371 Date Dec. 10, 1990, § 102(e) Date Dec. 10, 1990, PCT Pub. No. WO89/10387, PCT Pub. Date Nov. 2, 1989
PCT Filed Apr. 18, 1989, Ser. No. 613,473
Claims priority, application Fed. Rep. of Germany, Apr. 23, 1988, 3813866
Int. Cl.[5] C08F 20/00
U.S. Cl. 525—438 **12 Claims**

1. A water-thinnable paint based on a mixture of polyurethane, polyester and, if desired, aminoplast resin as binders, wherein the baking paint comprises as binders a combination of

(I) 20 to 70% by weight of a polyurethane resin which has an acid value of 15 to 35, and is prepared by preparing an intermediate having terminal isocyanate groups from

a) 4.0 to 1.9 mol of polyether and/or polyester diols with a number average molecular weight of 400 to 3000,

b) 5.6 to 11.2 mol of diisocyanates and

c) 1.6 to 3.7 mol of compounds which contain two groups

reactive toward isocyanate groups, at least some of these compounds having at least one group capable of forming anions which are neutralized either before or after the incorporation of the component (Ic) into the polyurethane molecule,

at least some of the free isocyanate groups of which intermediate are subsequently reacted with a polyol containing at least three hydroxyl groups,

(II) 20 to 70% by weight of an epoxy resin-modified water-thinnable polyester which is prepared by

(A) synthesizing a polyester from

(a1) at least one polycarboxylic acid containing at least three carboxyl groups or a reactive derivative of this acid, and/or

(a2) at least one polyol containing at least three carboxyl groups, and

(a3) at least one polycarboxylic acid containing two carboxyl groups or a reactive derivative of this acid and

(a4) at least one polyol,

at least 10 mol % of the components (a1), (a2), (a3), and (a4) (based on (a1)+(a2)+(a3)+(a4)=100 mol %) used containing at least one (cyclo)aliphatic structural unit containing at least six carbon atoms, which polyester has an average molecular weight (number average) below 2000, an acid value of 35–240, a hydroxyl value of 56–320, and in which polyester all (a1) and (a3) components are incorporated via at least two carboxyl groups, and

(B) subsequently reacting this polyester obtained in this manner with 0.3 to 1.5 equivalents per polyester molecule of an epoxy rein having an epoxide equivalent weight of 170 to 1000, based on bisphenol, and/or with a derivative of this epoxy resin containing at least one epoxide group per molecule, under reaction conditions where essentially only carboxyl groups react with epoxide groups, to form an epoxy resin-modified polyester which is present in water-thinnable form after at least some of the free carboxyl groups are neutralized, and

(III) 0 to 20% by weight of a water-thinnable aminoplast resin, the sum of the components (I) to (III) being always 100% by weight.

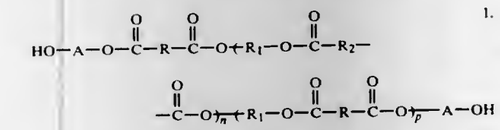
5,210,155

PHENOL TERMINATED DIESTER COMPOSITIONS DERIVED FROM DICARBOXYLIC ACIDS, POLYESTER POLYMERS OR ALKYD POLYMERS, AND CURABLE COMPOSITIONS CONTAINING SAME

Albert I. Yezrielev, Seabrook, Tex.; William E. Wellman, Edison, N.J.; Ralph M. Kowalik, Kingwood, Tex.; George A. Knudsen, Scotch Plains, N.J., and Michael G. Romanelli, Brooklyn, N.Y., assignors to Exxon Chemical Pateots Inc., Linden, N.J.

Filed Aug. 24, 1990, Ser. No. 572,754
Int. Cl.[5] C08L 67/02, 67/03
U.S. Cl. 525—442 **17 Claims**

1. A polymer composition comprising a non-liquid crystalline phenol terminated diester having the structure:



wherein R is an aliphatic divalent organic radical containing from 2 to about 40 carbon atoms or mixtures of such radicals, provided however that R contains at least about 8 carbon atoms when n is O, R_1 is an aliphatic or cycloaliphatic organic radical containing from 2 to about 40 carbon atoms or mixtures of such radicals, R_2 is an aromatic, aliphatic or mixture of aromatic and aliphatic hydrocarbon radicals having from 2 to about 40 carbon atoms, A is a divalent aromatic radical selected from the group consisting of phenylene, naphthalene or bis phenylene, p is 0 or 1, n is O or an integer ranging from 1 to about 40, provided however that p is O when n is O and p is 1 when n is an integer,

said composition further containing a mixture of unreacted dihydric phenol having the formula HO—A—OH and diesters thereof, said composition prepared by forming the esterification product of said HO—A—OH dihydric phenol and a material containing terminal carboxyl groups or ester-forming derivatives thereof.

5,210,156

STABLE, MOISTURE-CURABLE SILICONE PRESSURE SENSITIVE ADHESIVES

Joseph N. Clark, Freeland; Robert H. Krahnke, Midland; Shawn K. Mealey, Midland, and William J. Schoenherr, Midland, all of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Aug. 22, 1991, Ser. No. 748,500
Int. Cl.[5] C08G 77/18
U.S. Cl. 525—477 **10 Claims**

1. A composition comprising:

(A) a silanol-free silicone pressure sensitive adhesive component bearing curing radicals having the formula $(MeO)_3SiC_2H_4SiMe_2O—$ and capping radicals having the formula $Me_3SiO—$ wherein Me denotes methyl;

(B) an effective amount of a catalyst component to accelerate the reaction of the curing radicals with moisture to form siloxane bonds; and

(C) an effective amount of a silane compound, or partial hydrolyzates and/or condensates thereof, bearing a plurality of silicon-bonded alkoxy radicals to improve the shelf life of the composition;

wherein the silanol-free silicone pressure sensitive adhesive component (A) bearing curing radicals has been prepared by a method comprising reacting (i) a silicone pressure sensitive adhesive composition having reactive sites of the formula ≡SiX, and X denotes an alkenyl radical, a hydroxyl radical or a hydrogen atom, substantially all X being OH, with (ii) a moisture-reactive compound having the formula $\{(MeO)_3SiC_2H_4SiMe_2\}_2NH$, and with (iii) a silanol-capping compound having the formula $(Me_3Si)NH$; all other silicon-bonded radicals in (i) being selected from the group consisting of divalent oxygen atoms linking silicon atoms, hydrogen atoms and monovalent hydrocarbon radicals.

5,210,157

INTERPENETRATING NETWORK OF RING-CONTAINING ALLYL POLYMERS AND EPOXY RESIN, AND A LAMINATE PREPARED THEREFROM

Jan A. J. Schutyser, Dieren; Antonius J. W. Buser, Wehl; Pieter H. Zuuring, Nijmegen, and Hendrik J. Slots, Rijssen, all of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Filed Aug. 7, 1990, Ser. No. 563,571
Claims priority, application Netherlands, Aug. 15, 1989, 8902066
Int. Cl.[5] C08L 39/04, 63/02, 63/04
U.S. Cl. 525—502 **12 Claims**

1. A polymeric material comprising an interpenetrating polymer network (IPN) composed of a cyclic moiety-containing polyallyl compound polymerized and cross-linked in the presence of a free radical initiator and an epoxy resin cross-linked with a polyhydric phenol.

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5,210,158

SUSPENSION POLYMERIZATION OF VINYL CHLORIDE WITH HEATING OF REACTOR SURFACES

Tadashi Amano, Kanagawa; Shigehiro Hoshida, Ibaraki, and Yoshihiro Shirota, Gunma, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Aug. 7, 1991, Ser. No. 741,652

Claims priority, application Japan, Aug. 31, 1990, 2-230404

Int. Cl.[5] C08F *2/20*

U.S. Cl. 526—62 **2 Claims**

1. In a process of suspension polymerization of vinyl chloride monomer or a monomer mixture mainly composed of vinyl chloride in an aqueous polymerization medium by introducing water, a suspending agent, a polymerization initiator and the monomer or monomer mixture into a polymerization reactor with accessory equipment to form a polymerization mixture and heating the polymerization mixture under agitation up to a polymerization temperature to start and conduct the polymerization reaction, an improvement which comprises:

(a) heating at least a part of the surfaces of the polymerization reactor and the accessory equipment to the reactor coming into contact with the gaseous phase above the polymerization mixture in the polymerization reactor to an elevated temperature of 55° C. or higher before the temperature of the polymerization mixture reaches 45° C.; and

(b) keeping at least a part of the surfaces of the polymerization reactor and the accessory equipment to the reactor coming into contact with the gaseous phase above the polymerization mixture in the polymerization reactor at an elevated temperature of 55° C. or higher until a moment when conversion of the monomer or monomer mixture into polymer is at least 10% by weight; wherein the elevated temperature in steps (a) and (b) is higher by at least 2° C. than the temperature of the polymerization mixture in the polymerization reactor.

5,210,159

PROCESS FOR PREPARING POROUS AND WATER-ABSORBENT RESIN

Hiroshi Aoyama, Hirakata; Tetsuo Moriya, Takatsuki, and Susumu Kondo, Kyoto, all of Japan, assignors to Nippon Gohsei Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Mar. 27, 1991, Ser. No. 675,832

Claims priority, application Japan, Apr. 3, 1990, 2-89660

Int. Cl.[5] C08F *2/18*; **C08L** *33/02*

U.S. Cl. 526—81 **7 Claims**

1. A process for preparing a porous and water-absorbent resin which comprises:

dispersing an aqueous solution containing at least one of an α,β-unsaturated carboxylic acid monomer, its alkali metal salt and its ammonium salt in a hydrophobic organic solvent in the presence of a dispersing agent, and

conducting a reversed phase suspension polymerization by using a water-soluble radical polymerization initiator, while distilling away the hydrophobic organic solvent together with water to dehydrate, wherein the distillation is begun during continuous or intermittent addition of said aqueous solution to said solvent and wherein said distillation is continued during said polymerization.

5,210,160

PREPARATION OF HOMOPOLYMERS OF ETHENE AND COPOLYMERS OF ETHENE WITH HIGHER A-MONOOLEFINS USING A ZIEGLER CATALYST SYSTEM

Roland Saive, Ludwigshafen; Guido Funk, Worms, and Rainer Hemmerich, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Sep. 19, 1989, Ser. No. 410,047

Claims priority, application Fed. Rep. of Germany, Oct. 7, 1988, 3834088

The portion of the term of this patent subsequent to May 12, 2009, has been disclaimed.

Int. Cl.[5] C08F *4/629, 4/635, 4/636, 10/02*

U.S. Cl. 526—116 **2 Claims**

1. A process for the preparation of homopolymers of ethene and copolymers of ethene with minor amounts of C_3-C_8-a-monoolefins by polymerization of the monomer or monomers at from 30° to 200° C. and under pressure from 0.1 to 200 bar using a Ziegler catalyst system consisting of

(1) a transition metal catalyst component and

(2) an organoaluminum catalyst component of the formula AlR_mX_{3-m}, where X is a radical OR, chlorine, bromine or hydrogen, R is a C_1-C_{18}-hydrocarbon radical and m is from 1 to 3, and

(3) an organohalogen catalyst component with the provisos that the atomic ratio of transition metal from catalyst component (1) to aluminum from catalyst component (2) is from 1:0.1 to 1:500, and the molar ratio of organoaluminum catalyst component (2) to organohalogen catalyst component (3) is from 1:0.0001 to 1:10,

wherein the transition metal catalyst component (1) used is the solid-phase product (VI) which has been obtained by a method in which

(1.1) first

(1.1.1) a finely divided, porous, inorganic oxidic substance (I) which has a particle diameter of from 1 to 1,000 μm, a pore volume of from 0.3 to 3 cm^3/g and a specific surface area of from 100 to 1,000 m^2/g and is of the formula $SiO_2.aAl_2O_3$, where a is from 0 to 2, and

(1.1.2) a solution (II) as obtained on combining (IIa) 100 parts by weight of a saturated aliphatic or partly saturated aliphatic and partly aromatic oxahydrocarbon which has 1 or 2 oxaoxygen atoms and more than 3 but less than 19 carbon atoms and

(IIb) from 0.01 to 50 parts by weight of a mixture of

(IIb1) 100 molar parts of a vanadium trihalide/alcohol complex of the formula $VY_3.nZ\text{-}OH$, where Y is chlorine or bromine, n is from 1 to 6 and Z is a monovalent saturated aliphatic or partly saturated aliphatic and partly aromatic hydrocarbon radical of not more than 10 carbon atoms,

(IIb2) from 0.2 to 200 molar parts of a titanium trihalide, where halogen may be chlorine and/or bromine, or a titanium trihalide complex of the formula $TiY_3.nZ\text{-}OH$, where Y is chlorine or bromine, n is from 1 to 6 and Z is a monovalent saturated aliphatic or partly saturated aliphatic and partly aromatic hydrocarbon radical of not more than 10 carbon atoms, and

(IIc) from 1 to 200 parts by weight of a compound of the type $BXnYmRp$ or $SiXnYmRq$, where X is a radical OR, Y is chlorine, bromine or hydrogen and R is a C_1-C_{18}-hydrocarbon radical, with the proviso that $n>0$ and $n+m+p=3$ or $n+m+q=4$, are brought into contact with one another with formation of a suspension (III), with the proviso that the weight ratio of inorganic oxidic substance (I) to transition metal composition (IIb) is from 1:0.01 to 1:2, the suspension (III) evaporate to dryness at a temperature which is below 200° C. and above the melting point of the oxahydrocarbon (IIa) used, with formation of a solid-phase intermediate (IV), and

(1.2) then

(1.2.1) the solid-phase intermediate (IV) obtained from stage (1.1) and

(1.2.2) an aluminum compound (V) which is dissolved in an organic solvent and is of the formula AlR_mX_{3-m}, where X is a radical OR, chlorine, bromine or hydrogen, R is a C_1-C_{18}-hydrocarbon radical and m is from 1 to 3, are brought into contact with one another with formation of a suspension, with the proviso that the weight ratio of solid-phase intermediate (IV) to aluminum compound (V) is from 1:0.05 to 1:2, the solid-phase product (VI) formed as the suspended substance being the transition metal catalyst component (1).

5,210,161

SUPPORTED VANADIUM DIHALIDE-ETHER COMPLEX CATALYST

Paul D. Smith, Houston, Tex., and Joel L. Martin, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 744,713, Jun. 14, 1985, abandoned, which is a division of Ser. No. 682,726, Dec. 17, 1984, Pat. No. 4,559,318, which is a continuation-in-part of Ser. No. 488,887, Apr. 26, 1983, abandoned. This application Feb. 15, 1990, Ser. No. 480,460

Int. Cl.[5] C08F *4/68, 10/00*

U.S. Cl. 526—129 **17 Claims**

1. A polymerization process comprising:

contacting at least one mono-1-olefin having 2-8 carbon atoms with a catalyst composition consisting essentially of a vanadium dihalide-ether complex on a solid porous carrier in the presence of an organometal compound wherein said vanadium dihalide-ether complex is chosen from the group consisting of $VCl_2.ZnCl_2.2THF$, $VCl_2.ZnCl_2.4THF$ and $2VCl_2.ZnCl_2.6THF$.

5,210,162

PROCESS FOR POLYMERIZING POLAR COMPOUNDS

Herbert Eck, Burghausen; Gerald Fleischmann, Emmerting; Kunigunde Kolbig, Gumpersdorf, and Alfred Prasse, Burghausen, all of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 530,143, May 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 186,989, Apr. 27, 1988, abandoned. This application Dec. 23, 1991, Ser. No. 814,224

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1987, 3714563; Oct. 2, 1987, 3733314

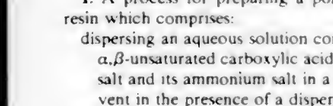
Int. Cl.[5] C08F *4/16*

U.S. Cl. 526—192 **4 Claims**

1. A process for polymerizing polar compounds which have a C=C double bond in the alpha-position to a carbonyl or nitrile group, which comprises polymerizing the polar compounds in the presence of initiators selected from the group consisting of organo-metallic compounds of silicon, germanium and tin with nucleophilic or electrophilic catalysts at temperatures in the range of from −100° C. to +100° C., in which the organo-metallic compounds are selected from the group consisting of

(a) cyclic silazanes,

(b) polymeric silazanes which contain at least three silazanyl units of the formula



(2)

in which R is selected from the group consisting of alkyl, cycloalkyl, alkenyl, aryl, alkaryl, and aralkyl radicals, and the remaining valences of the Si atoms are saturated by radicals represented by R or are linked to NH groups of another units of formula (2) per molecule,

(c) cyclic siloxanes,

(d) polymeric siloxanes which contain at least three siloxanyl units of the formula



(3)

in which R is selected from the group consisting of alkyl, cycloalkyl, alkenyl, aryl, alkaryl and aralkyl radicals and the remaining valences of the Si atoms are saturated by R radicals or are linked to an oxygen atom of another siloxane unit of formula (3) or a unit of the formula



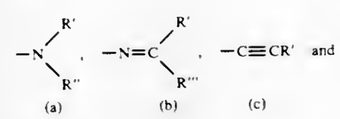
(3')

per molecule, where R is selected from the group consisting of alkyl, cycloalkyl, alkenyl, aryl, alkaryl, and aralkyl radicals,

(e) silanes of the formula

$$R_{4-n}SiX_n \quad (4)$$

where R is selected from the group consisting of alkyl, cycloalkyl, alkenyl, aryl, alkaryl and aralkyl radicals, X is selected from the group consisting of radicals of the formulas



(a) (b) (c)



(d)

where R' is selected from the group consisting of H atoms and R radicals, R'' is selected from the group consisting of radicals of the formulas —COOR, —COR and an oxygen atom in which the unsatisfied valence is satisfied by another silyl group, R''' is selected from the group consisting of radicals of the formulas —OR, —OCOR, —NHCOR, —CONHR, —NHCOOR, NHR, and an oxygen atom in which the unsatisfied valence is satisfied by another silyl group, n is 1 or 2 and m is 0, 1, 2 or 3,

(f) silanes having at least three silyl groups per molecule of the formula

$$R^{IV}O[Si(OR^{V})_2]_x[Si(R^{IV})(OR^{V})]_y[Si(R^{IV})_2]_zOR^{V} \quad (5')$$

wherein R^{IV} is selected from the group consisting of H atoms, alkyl, cycloalkyl, alkenyl, aryl, aralkyl and alkaryl radicals which may be substituted by radicals selected from the group consisting of fluorine, chlorine, alkoxy and acyloxy group, R^{V} is selected from the group consisting of alkyl, cycloalkyl, aryl, aralkyl, alkaryl and alkenyl radicals with the proviso that the oxygen atoms must be bonded to an sp^3-hybridized carbon atom of the alkenyl radical, x, y and z have values of from 0 to 500 and the sum of $x+y+z$ must be at least 2 with the proviso that at least one hydrocarbyloxy group is bonded to each silicon atom,

(g) siloxanes having units of the formula

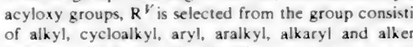
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(6)

in which R^{IV} is selected from the group consisting of H atoms, alkyl, cycloalkyl, alkenyl, aryl, aralkyl and alkaryl radicals which may be substituted by radicals selected from the group consisting of fluorine, chlorine, alkoxy and acyloxy groups, R^V is selected from the group consisting of alkyl, cycloalkyl, aryl, aralkyl, alkaryl and alkenyl radicals, with the proviso that the oxygen atom must be bonded to an sp^3-hybridized carbon atom of the alkenyl radical, c is 0, 1, 2 or 3, with an average of from 0.1 to 2.5, e is 0, 1, 2 or 3, with an average of from 0.1 to 2.5, and the sum of c+e is at most 3 per unit with the proviso that at least one hydrocarbyloxy group is bonded to each silicon atom,

(h) compound of the formula



(4)

where M is selected from the group consisting of Ge and Sn R^{IV} is selected from the group consisting of H atoms, alkyl, cycloalkyl, alkenyl, aryl, aralkyl and alkaryl radicals which may be substituted by radicals selected from the group consisting of fluorine, chlorine, alkoxy and acyloxy groups, R^V is selected from group consisting of alkyl, cyclalkyl, aryl, aralkyl, alkaryl and alkenyl radicals with the proviso that the oxygen atoms must be bonded to an sp^3-hydribrized carbon atom of the alkenyl radical, p is 1, 2 or 3, with the proviso that at least one hydrocarbyloxy group is bonded to each M,

(i) compounds of the formula



(5)

where M is selected from the group consisting of Ge and Sn, R^{IV} is selected from the group consisting of H atoms, alkyl, cycloalkyl, alkenyl, aryl, aralkyl and alkaryl radicals which may be substituted by radicals selected from the group consisting of fluorine, chlorine, alkoxy and acyloxy groups, R^V is selected from the group consisting of alkyl, cycloalkyl, aryl, aralkyl, alkaryl and alkenyl radicals with the proviso that the oxygen atoms must be bonded to an sp^3-hybridized carbon atom of the alkenyl radical, x, y and z each have values of from 0 to 500, with the proviso that the sum of x+y+z must be at least 2 with the proviso that at least one hydrocarbyloxy group is bonded to each M,

(j) germanium compounds which correspond to the siloxanes of formula (6) and

(k) stannoxane compounds which correspond to the siloxanes of formula (6).

5,210,163

PROCESS FOR PREPARING ALTERNATING COPOLYMERS OF OLEFINICALLY UNSATURATED SULFONATE SALTS AND UNSATURATED DICARBOXYLIC ACID ANHYDRIDES

Roger A. Grey, West Chester, Pa., assignor to Arco Chemical Technology, L.P., Wilmington, Del.

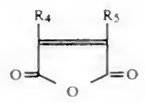
Continuation of Ser. No. 534,802, Jun. 7, 1990, abandoned. This application Sep. 30, 1991, Ser. No. 767,747

Int. Cl.[5] C08F *2/06*

U.S. Cl. 526—216 **1 Claim**

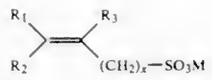
1. A copolymerization process which comprises reacting at a temperature of from about 50° C. to 125° C. in the absence of water approximately equimolar amounts of

(a) an α, β-unsaturated dicarboxylic acid anhydride having the general structure:



wherein R_4 and R_5 are the same or different and are independently selected from the group consisting of hydrogen, aryl, and C_1-C_6 alkyl; and

(b) an olefinically unsaturated sulfonate salt having the general structure:



wherein R_1, R_2, and R_3, are the same or different and are independently selected from the group consisting of hydrogen, aryl and C_1-C_6 alkyl, x is 0, 1, or 2, and M is an alkali metal, alkaline earth, or ammonium;

dissolved in an non-reactive polar organic solvent selected from acetic acid and dimethyl formamide in the presence of an effective amount of an azo initiator to form a substantially alternating copolymer containing approximately equimolar amounts of α, β-unsaturated dicarboxylic anhydride recurring polymerized units and olefinically unsaturated sulfonate salt recurring polymerized units and having a peak molecular weight of from about 1500 to 6000.

5,210,164

ORGANIC PEROXIDE HAVING A POLYMERIZATION-REGULATING ABILITY

Takeshi Komai, Aichi; Kazuo Matsuyama, Gamagori, and Isao Honma, Aichi, all of Japan, assignors to Nippon Oil and Fats Co., Ltd., Japan

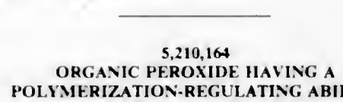
Division of Ser. No. 895,995, Aug. 13, 1986, Pat. No. 4,929,747. This application Sep. 27, 1989, Ser. No. 401,244

Claims priority, application Japan, Aug. 21, 1985, 60-181623; Aug. 21, 1985, 60-181624

Int. Cl.[5] C08F *4/36*

U.S. Cl. 526—230.5 **3 Claims**

1. A process for polymerizing unsaturated monomers, which comprises initiating and regulating the polymerization with an organic peroxide of the formula (I)



(I)

where l is 1, R_1 is an hydrogen atom, R_2 is a 2-position-substituting isopropyl group, and R_3, R_4 and R_5 are methyl groups.

5,210,165

ALKYL VINYLIDENE CYANIDE POLYMERS EXHIBITING NONLINEAR OPTICAL AND PIEZOELECTRIC PROPERTIES

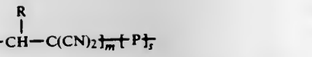
Henry K. Hall, Jr., and Tun F. Way, both of Tucson, Ariz., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Jun. 21, 1991, Ser. No. 718,885

Int. Cl.[5] C08F *222/34*

U.S. Cl. 526—300 **13 Claims**

1. A polymer which is characterized by repeating units corresponding to the formula



where R represents a C1-C6 primary alkyl group, P represents a vinyl monomer moiety, m and s are integers which total at least 50, and the m monomer comprises between about 10–50 mole % of the total (m+s) monomer units

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5,210,166

COPOLYMERS OF ETHYLENE WITH POLYALKYLENE GLYCOL (METH)ACRYLATES

Walter Ziegler, Edingen-Neckarhausen, and Horst Koch, Grosskarlbach, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 927,394, Nov. 6, 1986, abandoned. This application Oct. 5, 1988, Ser. No. 253,896

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1985, 3539469

Int. Cl.[5] C08F *212/00, 18/00*

U.S. Cl. 526—307.5 **6 Claims**

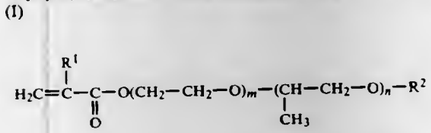
1. A terpolymer of ethylene prepared by a high pressure polymerization process, having a melt flow index of from 50 to 500 g/10 min and a Shore A hardness according to German Industrial Standard (DIN) 53,505 of 20 and which is soluble or swellable in an aqueous medium, comprising

a) from 40 to 60 parts by weight of ethylene,

b) from 2 to 40 parts by weight of a (meth)acrylate,

c) from 1 to 40 parts by weight of an α-β-ethylenically unsaturated carboxylic acid, a carboxylic anhydride or a carboxamide and

wherein the (meth)acrylate (b) is an ω-alkyl-, -cyclo- alkyl- or -aryl-poly-(alkylene oxide-α-yl (meth)-acrylate of the formula (I)



(I)

where R^1 is H or CH_3, R^2 is alkyl, cycloalkyl or aryl and m and n are each equal to or greater than 0, with the proviso that the sum of m and n is always equal to or greater than 2.

5,210,167

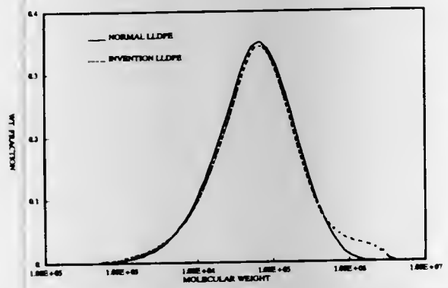
LLDPE FILMS WITH IMPROVED OPTICAL PROPERTIES

Vaseem Firdaus, and Pradeep P. Shirodkar, both of Somerset, N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Nov. 25, 1991, Ser. No. 797,002

Int. Cl.[5] C08F *210/02*

U.S. Cl. 526—348.1 **11 Claims**



1. A blown film, exhibiting a haze, determined by ASTM D-1003, ranging from 6 to about 10; a gloss determination, as measured by ASTM D-2457, ranging from 40 to 95; and a dart impact value, measured by ASTM D-1709, ranging from about 50 to about 800, which is a blown LLDPE comprising ethylene and an alpha olefin of 3 to 10 carbon atoms, which has a density ranging from 0.910 to 0.940 and a Mz/Mw of 4 to 10.

5,210,168

PROCESS FOR FORMING SILOXANE BONDS

Debora F. Bergstrom; Binh T. Nguyen; John L. Speier, and Ming-Shin Tzuo, all of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Apr. 2, 1992, Ser. No. 862,026

Int. Cl.[5] C08G *77/06*

U.S. Cl. 528—12 **10 Claims**

1. A method of forming siloxane bonds from a carboxylic acid and an alkoxysilane comprising mixing ingredients comprising less than or equal to about one equivalent of a carboxylic acid with 2 equivalents of alkoxy groups on an alkoxysilane of the structure $R_nSi(OR')_{(4-n)}$ in the presence of a catalytic amount of a strong acid, wherein each R is independently selected from the group consisting of hydrogen and substituted or unsubstituted alkyl, alkenyl, and aryl groups, R' is a substituted or unsubstituted aliphatic group and n is 1, 2, or 3.

5,210,169

THERMOSETTING COMPOSITION

Andreas Mühlebach, Belfaux, and Erich Gruber, Marly, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

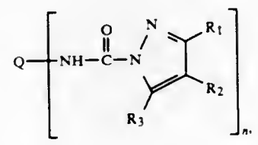
Filed Feb. 19, 1992, Ser. No. 838,128

Claims priority, application Switzerland, Feb. 21, 1991, 526/91

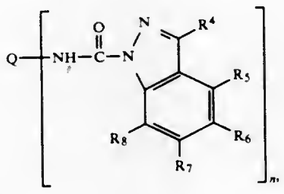
Int. Cl.[5] C08G *18/80*

U.S. Cl. 528—45 **8 Claims**

1. A thermosetting composition which comprises at least one blocked polyisocyanate of formula I or II



(I)



(II)

wherein

n is an integer ≧2,

Q is an organic radical of valency n, and

R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8 are each independently of one another hydrogen, alkyl, aryl, arylalkyl, alkoxy, alkylthio or hydroxyl, and

a primary or secondary polyamine which is liquid at room temperature and is suitable for crosslinking,

which blocked polyisocyanate is essentially insoluble in the polyamine at ambient temperature or moderately elevated temperature.

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5,210,170

PROCESS FOR STABILIZING PLASTICS CONTAINING ESTER GROUPS

Bernd Quiring, Leverkusen; Thomas Münzmay, Dormagen; Wolfgang Henning, Kuerten; Eduard Mayer, Dormagen; Walter Meckel, Neuss, and Wilhelm Goyert, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 31, 1991, Ser. No. 708,590

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1990, 4018184

Int. Cl.[5] C08L *75/02, 77/12;* C09K *15/18;* C08K *5/29*

U.S. Cl. 528—80 17 Claims

1. A process for stabilizing polyester-containing plastics against thermal and/or hydrolytic degradation comprising reacting a polyester having hydroxyl, amine, or hydrazide functional groups or a combination of said functional groups and an incorporable, sterically hindered carbodiimide corresponding to the formula

$$A\left[N=C=N-B\right]_n N=C=N-D$$

wherein

A and D are the same or different substituted $C_{6\text{-}20}$ aromatic or araliphatic hydrocarbon groups wherein in each group A and D

(1) the carbodiimide group is attached to an aromatic ring carbon atom of said $C_{6\text{-}20}$ aromatic or araliphatic hydrocarbon group,

(2) one or two aromatic ring positions of said $C_{6\text{-}20}$ aromatic or araliphatic hydrocarbon group ortho to the carbodiimide group are substituted with an aromatic substituent containing 6 to 15 carbon atoms, an aliphatic substituent containing 2 to 20 carbon atoms, or a cycloaliphatic substituent containing 5 to 20 carbon atoms, or a combination thereof, and

(3) an NCO group is attached to an aromatic ring carbon atom of said $C_{6\text{-}20}$ aromatic or araliphatic hydrocarbon group;

is a substituted $C_{6\text{-}20}$ aromatic or araliphatic hydrocarbon group wherein in each group B

(1) each carbodiimide group is attached to an aromatic ring carbon atom of said $C_{6\text{-}20}$ aromatic or araliphatic hydrocarbon group, and

(2) one or two aromatic ring positions of said $C_{6\text{-}20}$ aromatic or araliphatic hydrocarbon group ortho to either or both carbodiimide groups are substituted with an aromatic substituent containing 6 to 15 carbon atoms, an aliphatic substituent containing 2 to 20 carbon atoms, or a cycloaliphatic substituent containing 5 to 20 carbon atoms, or a combination thereof; and

n is 0 to 3 (on average).

5,210,171

PROCESS TO POLYMERIZE AB-PBO MONOMER PHOSPHATE SALTS

William J. Harris; Zenon Lysenko, both of Midland, and Carl W. Hurtig, Saginaw, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 380,567, Jul. 14, 1989, Pat. No. 4,959,492. This application Jun. 29, 1990, Ser. No. 546,597

Int. Cl.[5] C08G *63/00, 63/02, 79/02*

U.S. Cl. 528—168 13 Claims

1. A process for synthesizing a polybenzazole polymer without a dehydrohalogenation step said process comprising the steps of:

(1) mixing a phosphate salt of an AB-PBO monomer with a polyphosphoric acid containing at least 80 percent P_2O_5 by weight at the commencement of the reaction in a concentration of monomer to polyphosphoric acid that is chosen such that the solution resulting from polymerization contains at least 7 weight percent polymer and less than 30 weight percent polymer under non-oxidizing conditions to form a polymerization mixture: and

(2) maintaining the polymerization mixture at a temperature and under conditions suitable to cause the AB-PBO monomer to form polymer for a period of time sufficient to form a polybenzazole polymer containing AB-PBO mer units.

5,210,172

METHOD FOR THE CONTINUOUS PREPARATION OF CARBONATE OLIGOMERS WITH LOOP REACTOR, STATIC MIXER AND PLUG FLOW

Hendricus H. M. van Hout, Halsteren; Martin H. Oyevaar, Goes, and Bert J. Held, Bergen op Zoom, all of Netherlands, assignors to General Electric Company, Pittsfield, Mass.

Filed Jul. 26, 1991, Ser. No. 736,183

Int. Cl.[5] C08G *64/20*

U.S. Cl. 528—196 8 Claims

1. A method for the continuous preparation of carbonate oligomers by boundary face oligomerisation comprising reacting at least one aromatic dihydroxy compound with phosgene in the presence of less than 200 parts per million of catalyst relative to organic solvent, while adding base, in the absence of chain stopper, in a reactor system comprising a loop-like reactor system at least one static mixer and plug flow, optionally in combination with a stirred tank reactor.

5,210,173

CATALYTIC, INTERFACIAL PREPARATION OF AROMATIC POLYCARBONATES WITH CONTINUOUS DOSING OF CARBONATE PRECURSOR

Henricus H. M. van Hout, Halsteren, Netherlands, assignor to General Electric Company, Pittsfield, Mass.

Filed May 5, 1992, Ser. No. 878,788

Claims priority, application Netherlands, Jun. 24, 1991, 9101081

Int. Cl.[5] C08G *64/24*

U.S. Cl. 528—199 9 Claims

1. A method of preparing aromatic polycarbonates by catalytic interface polymerisation of at least one bivalent phenol and a carbonate precursor in the presence of a polycondensation catalyst, comprising polymerizing in a two-phase system with continuous dosing of the carbonate precursor, which two-phase system is based on water and an organic solvent, in which the quantity of organic solvent at the beginning of polymerization is between 10 and 75% of the quantity of organic solvent which is required at the polymerisation temperature to dissolve the quantity of polycarbonate formed from the quantity of bivalent phenol which is present at the beginning of the polymerization, in that after dosing at least 20% of the carbonate precursor the remaining quantity of organic solvent is added in a quantity which is at least sufficient to maintain formed polycarbonate in solution and wherein the polycondensation catalyst is present from the beginning of polymerization.

5,210,174

PREPARATION PROCESS OF POLYIMIDE

Shoji Tamai; Hideaki Oikawa, both of Kanagawa; Masahiro Ohta, Fukuoka, and Akihiro Yamaguchi, Kanagawa, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Nov. 14, 1990, Ser. No. 612,461

Claims priority, application Japan, Nov. 22, 1989, 1-301868

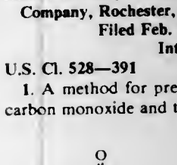
Int. Cl.[5] C08G *69/26, 73/10, 8/02, 14/00*

U.S. Cl. 528—353 13 Claims

1. A process for preparing a polyimide by reacting a diamine compound represented by the formula (I):

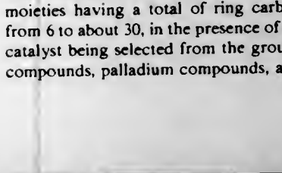
$$H_2N-R_1-NH_2 \qquad (I)$$

wherein R_1 is a divalent radical selected from the group consisting of an aliphatic group, alicyclic group, monocyclic aromatic group, fused polycyclic aromatic radical group and polycyclic aromatic group connected to each other through a direct bond or a bridge member, with a tetracarboxylic dianhydride having the formula (II):



(II)

wherein R_2 is a tetravalent radical selected from the group consisting of an aliphatic group, alicyclic group, monocyclic aromatic group, fused polycyclic aromatic group and polycyclic aromatic group connected to each other through a direct bond or a bridge member, to prepare a polyimide having a recurring units represented by the formula (III):



(III)

wherein R_1 and R_2 are individually selected from the group consisting of an aliphatic group, alicyclic group, monocyclic aromatic group, fused polycyclic aromatic group and polycyclic aromatic group connected to each other through a direct bond or a bridge member, R_1 is a divalent radical and R_2 is a tetravalent radical; comprising the steps of dissolving the diamine compound of the formula (I) and the tetracarboxylic dianhydride of the formula (II) in separate phenol-based solvents selected from the group consisting of phenol, m-cresol, o-cresol, p-cresol, cresylic acid, ethylphenol, isopropylphenol, tert-butylphenol, xylenol, chlorophenol, dichlorophenol, phenylphenol and mixtures thereof, respectively, mixing the resultant monomer solutions and reacting at a temperature of from 100° to 300° C. to prepare the corresponding polyimide.

5,210,175

PREPARATION OF AROMATIC POLYAMIDES FROM CO, AROMATIC, DIAMINE AND DI(TRIFLUOROMETHANE SULFONATE)

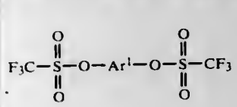
Robert J. Perry, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 25, 1992, Ser. No. 841,929

Int. Cl.[5] C08G *69/00*

U.S. Cl. 528—391 20 Claims

1. A method for preparing polyamide comprising reacting carbon monoxide and the reactant pair



and $H_2N-Ar^2-NH_2$,

wherein $-Ar^1-$ and $-Ar^2-$ are each independently selected from the group consisting of aromatic and heteroaromatic moieties having a total of ring carbons and heteroatoms of from 6 to about 30, in the presence of solvent and catalyst, said catalyst being selected from the group consisting of platinum compounds, palladium compounds, and nickel compounds.

5,210,176

POLYMERIZATION OF CO/NON-CONJUGATED DIOLEFIN

Eit Drent, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed Feb. 10, 1992, Ser. No. 833,202

Claims priority, application Netherlands, Mar. 21, 1991, 9100502

Int. Cl.[5] C08G *67/02*

U.S. Cl. 528—392 18 Claims

1. A process for the production of a polymer having alternating units of carbon monoxide and units derived from at least one non-conjugated diolefinic hydrocarbon which comprises contacting carbon monoxide and non-conjugated diolefinic hydrocarbon under polymerization conditions in the presence of a liquid reaction diluent and a catalytic quantity of a catalyst composition formed from a compound of palladium, the anion of a strong non-hydrohalogenic acid and a bidentate ligand of phosphorus wherein each monovalent phosphorus substituent is aliphatic.

5,210,177

POLYMERIZATION OF CO/OLEFIN WITH TETRA ETHYL DIPHOSPHINE

Eit Drent, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed Feb. 19, 1992, Ser. No. 837,136

Claims priority, application Netherlands, May 31, 1991, 91 00940

Int. Cl.[5] C08G *67/02*

U.S. Cl. 528—392 3 Claims

1. In the process of producing linear alternating polymers of carbon monoxide and at least one ethylenically unsaturated hydrocarbon by contacting the carbon monoxide and hydrocarbon under polymerization conditions in the presence of a liquid reaction diluent and a catalytic quantity of a catalyst composition formed from a compound of palladium, the anion of a strong, non-hydrohalogenic acid with a pKa below about 4 and a bidentate ligand of phosphorus, the improvement wherein the bidentate ligand is a bis(diethylphosphino)alkane.

5,210,178

GAS PHASE POLYKETONE POLYMER PREPARATION WITH PRELIMINARY ADDITION OF WATER

Johannes J. Keijsper, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed Jun. 19, 1992, Ser. No. 901,288

Claims priority, application Netherlands, Jun. 27, 1991, 9101114

Int. Cl.[5] C08G *67/02*

U.S. Cl. 528—392 20 Claims

1. In the process of producing a linear alternating polymer of carbon monoxide and at least one olefinically unsaturated hydrocarbon by contacting the carbon monoxide and hydrocarbon in a reactor under gas phase polymerization conditions and in the presence of a catalyst composition formed from a salt of a Group VIII metal, an acid component having a pKa of at least 2, and a bidentate ligand of phosphorus, nitrogen, or sulfur, the improvement wherein water is added to the reactor prior to commencement of polymerization in an amount of at least about one mole of water per mole of Group VIII metal.

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5,210,179
PROCESS FOR THE PRODUCTION OF POLYETHERS DERIVED FROM OXETANES

Malcolm J. Stewart, Henlow, England, assignor to The Secretary of State for Defense in her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

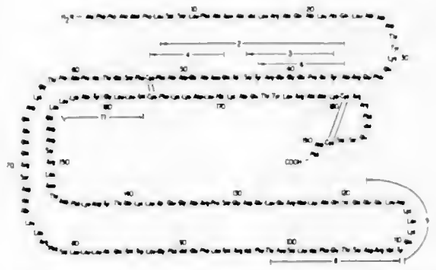
PCT No. PCT/GB90/00838, § 371 Date Jan. 28, 1992, § 102(e) Date Jan. 28, 1992, PCT Pub. No. WO90/15093, PCT Pub. Date Dec. 13, 1990
PCT Filed May 30, 1990, Ser. No. 820,624
Claims priority, application United Kingdom, May 31, 1989, 8912457
Int. Cl.[5] C08G *65/10, 65/18, 65/20;* C07C *43/11*
U.S. Cl. 528—408 7 Claims

1. Process for polymerizing an oxetane monomer comprising the steps of:
(a) mixing together a substantially anhydrous catalyst capable of catalyzing the cationic polymerization of the monomer with a preinitiator precursor to yield an active adduct of the catalyst and precursor, wherein the molar ratio of catalyst to the functional groups of the preinitiator precursor is always at least 1:1;
(b) adding the monomer to a quantity of the adduct in solution over a period of at least 12 hours to cause the adduct to form an initiating species with the monomer and thereafter undergo chain extension polymerization with further monomer; and
(c) allowing the polymerization to proceed substantially to completion; and wherein steps (b) and (c) are each performed at a temperature of between +20 degrees C. and −20 degrees C.

5,210,180
ENCHANCEMENT OF PORCINE SOMATOTROPIN ACTIVITY

Bosco S. Wang, Cranbury; Ian C. Hart, Pennington, both of N.J., and Hong-Ming Shieh, Langhorne, Pa., assignors to American Cyanamid Company, Stamford, Conn.

Filed Oct. 27, 1989, Ser. No. 427,669
Int. Cl.[5] A61K *37/02;* C07K *1/00*
U.S. Cl. 530—328 3 Claims

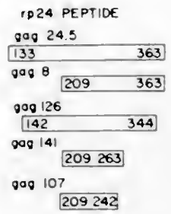


1. A peptide consisting essentially of nine amino acids, said peptide having the amino acid sequence Tyr-Glu-Lys-Leu-Lys-Asp-Leu-Glu-Glu, which corresponds to amino acid residues 110–118 of porcine somatotropin (pST).

5,210,181
T-LYMPHOTROPIC RETROVIRUS PEPTIDE

Bryan T. Butman, Walkersville, and Thomas M. Venetta, Derwood, both of Md., assignors to Akzo N.V., Velperweg, Netherlands

Continuation of Ser. No. 351,882, May 15, 1989, abandoned. This application Jan. 23, 1992, Ser. No. 825,447
Int. Cl.[5] C07K *7/06*
U.S. Cl. 530—328 1 Claim

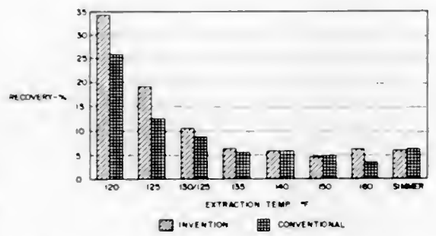


1. A synthetic peptide consisting of the amino acid sequence Ser-Pro-Arg-Thr-Leu-Asn-Ala-Trp-Val-Lys.

5,210,182
EXTRACTION PROCESS FOR GELATIN

Maurice Nasrallah; Parviz Ghossi, both of Tarrytown; Joseph E. Spradlin, Monroe, all of N.Y., and John R. Magnifico, Stoneham, Mass., assignors to Kraft General Foods, Inc., Northfield, Ill.

Filed Feb. 12, 1992, Ser. No. 836,047
Int. Cl.[5] C07K *3/02, 15/06*
U.S. Cl. 530—355 16 Claims

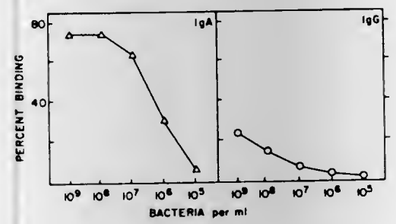


1. A gelatin recovery process of improved gelatin quality and yield comprising the steps of:
(a) conditioning comminuted collagen-containing material with acid over a period of time to swell the material and prepare it for gelatin extraction;
(b) thereafter adjusting the acid-treated collagen-containing material in water to a water phase pH of from 5–8;
(c) washing the pH-adjusted collagen-containing material to remove salt and other impurities until there is reached a cook pH of below 4.0;
(d) thereafter extracting the collagen-containing material in a series of separate water extractions, wherein at least the first two extractions are made below 140° F., for periods of time of 3.5 hours or less and at a water to collagen-containing material weight ratio of equal or greater than 1.5:1 and wherein the collagen-containing material does not come into contact with any water having a temperature above 140° F.;
(e) recovering the gelatin extracts in one or more batches;
(f) concentrating the gelatin extracts;
(g) solidifying and drying the gelatin; and
(h) grinding the dried gelatin to give a quality gelatin product.

5,210,183
PROTEIN ARP, WITH IMMUNOGLOBULIN A BINDING ACTIVITY, THE CORRESPONDING VECTORS AND HOSTS, REAGENT KIT AND PHARMACEUTICAL COMPOSITION

Gunnar Lindahl; Elisabet Fritbz, both of Lund, and Lars-Olof Heden, Dalby, all of Sweden, assignors to HighTech Receptor AB, Malmo, Sweden

Continuation-in-part of Ser. No. 186,097, Apr. 25, 1988, abandoned. This application Nov. 14, 1988, Ser. No. 270,099
Claims priority, application European Pat. Off., May 13, 1987, 878501600
Int. Cl.[5] C07K *13/00;* A61K *37/02;* G01N *33/566*
U.S. Cl. 530—350 6 Claims



1. An Arp4 protein which specifically binds immunoglobulin A and which has the following amino acid sequence beginning with the N-terminus:

AlaGlulle
LysLysProGlnAlaAspSerAlaTrpAsnTrpProLysGluTyrAsnAla

LeuLeuLys

GluAsnGluGluLeuLysValGluArgGluLysTyrLeuSerTyrAlaAsp

AspLysGlu

LysAspProGlnTyrArgAlaLeuMetGlyGluAsnGlnAspLeuArgLys

ArgGluGly

GlnTyrGlnAspLysIleGluGluLeuGluLysGluArgLysGluLysGln

GluArgGln

GluGlnLeuGluArgGlnTyrGlnIleGluAlaAspLysHisTyrGlnGlu

GlnGlnLys

LysHisGlnGlnGluGlnGlnGlnLeuGluAlaGluLysGlnLysLeuAla

LysAspLys

GlnIleSerAspAlaSerArgGlnGlyLeuSerArgAspLeuGluAlaSer

ArgAlaAla

LysLysGluLeuGluAlaGluHisGlnLysLeuLysGluGluLysGlnIle

SerAspAla

SerArgGlnGlyLeuSerArgAspLeuGluAlaSerArgGluAlaLysLys

LysValGlu

AlaAspLeuAlaAlaLeuThrAlaGluHisGlnLysLeuLysGluAspLys

GlnIleSer

AspAlaSerArgGlnGlyLeuSerArgAspLeuGluAlaSerArgGluArg

LysLysLys

-continued

ValGluAlaAspLeuAlaGluAlaAsnSerLysLeuGlnAlaLeuGluLys

LeuAsnLys

GluLeuGluGluGlyLysLysLeuSerGluLysGluLysAlaGluLeuGln

AlaArgLeu

GluAlaGluAlaLysAlaLeuLysGluGlnLeuAlaLysGlnAlaGluGlu

LeuAlaLys

LeuLysGlyAsnGlnThrProAsnAlaLysValAlaProGlnAlaAsnArg

SerArgSer

AlaMetThrGlnGlnLysArgThrLeuProSerThrGlyGluLysAlaAsn

ProPhePhe

ThrAlaAlaAlaAlaThrValMetValSerAlaGlyMetLeuAlaLeuLys

LeuLysGlu

GluAsn

and variants, subfragments or allelic derivates thereof which specifically bind Immunoglobulin A, substantially free of non-immunoglobulin A proteins with which it is naturally associated.

5,210,184
PROCESS FOR ENHANCING SOME FUNCTIONAL PROPERTIES OF PROTEINACEOUS MATERIAL

Daniel Chajuss, Misgav Dov 19, Mobile Post Emek Sorek 76867, Israel

Filed Jun. 18, 1991, Ser. No. 717,014
Claims priority, application Israel, Jun. 19, 1990, 94781
Int. Cl.[5] C07K *3/08*
U.S. Cl. 530—370 11 Claims

1. A process for enhancing the functional properties of denatured proteinaceous material of vegetable origin, said properties including at least one property selected from the group consisting of water absorption, water binding capacity, oil binding capacity, fat binding capacity, and the ability to produce viscous aqueous suspensions, said process comprising:
obtaining said denatured proteinaceous material by treating undenatured proteinaceous material with aqueous alcohol; and
maintaining a slurry of said denatured proteinaceous material in warm aqueous ammonia in which the weight ratio of the aqueous phase to solids is between 3:1 to 15:1 at a temperature between 75° C. to 100° C. and within a pH range of from 8.0 to 9.5.

5,210,185
HUMAN NERVE GROWTH FACTOR

Francesco Della Valle; Lanfranco Callegaro, and Silvana Lorenzi, all of Padova, Italy, assignors to Fidia S.p.A., Abano Terme, Italy

Filed Mar. 13, 1989, Ser. No. 322,729
Claims priority, application Italy, Mar. 18, 1988, 47745 A/88
Int. Cl.[5] A61K *37/00;* C07K *3/02*
U.S. Cl. 530—399 7 Claims

1. A process for preparing a biologically active β subunit of human nerve growth factor from human placenta comprising the steps of:
a) homogenizing the tissue of human placenta,
b) centrifuging the homogenate and recovering the supernatant,
c) dialyzing the supernatant at a pH of from 3.5 to 4.5 in order to dissociate the 7S NGF form,
d) fractionating by chromatography the resultant solution on a three step cation exchange chromatography column, pI

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e) purifying the active fraction obtained by cation exchange chromatography with a gradient of sodium chloride and pH from 5.5 to 6.5 and

f) purifying the active fraction thus obtained by affinity chromatography on polyclonal antibodies, raised against mouse NFG.

5,210,186

METHOD FOR RECOVERY AND SEPARATION OF CHITIN, PROTEINS AND ASTAXANTHIN AND ESTERS THEREOF

Gunnar Mikalsen, deceased, late of Volda, and by Ester Mikalsen, heiress, N-6100, Volda, Norway

PCT No. PCT/NO89/00119, § 371 Date Jul. 15, 1991, § 102(e) Date Jul. 15, 1991, PCT Pub. No. WO90/05765, PCT Pub. Date May 31, 1990

PCT Filed Nov. 15, 1989, Ser. No. 689,767

Claims priority, application Norway, Nov. 18, 1988, 885150

Int. Cl.[5] C09B *61/00;* **A23J** *1/04*

U.S. Cl. 530—418 **15 Claims**

1. A method for recovering astaxanthin and astaxanthin carotenoids, astaxanthin esters, chitin and proteins from a raw material containing such selected from the group consisting of crustacean tissues, said method comprising the steps of extracting the crustacean raw material with boiling lye to form an alkaline extract and an extracted residue,

cooling the alkaline extract to induce separation of the extract into three phases including, respectively, a lowest specific weight phase containing astaxanthin esters, an intermediate specific weight phase containing extracted proteins, and a highest specific weight phase containing astaxanthin and carotenoids, and

separating at least one of the phases and processing it to concentrate the contained raw material extract.

5,210,187

DOUBLE ATTACHMENT REACTIVE DYES HAVING ALKYL- OR ALKENYLSULFONYL AND ALKYL- OR ALKENYLSULFONYLALKYL GROUPS

Manfred Patsch, Wachenheim; Uwe Nahr, Dannstadt-Schauernheim; Friedrich Wirsing; Joerg L. Jessen, both of Speyer; Klaus Pandl, Ludwigshafen; Claus Marschner, Speyer, and Matthias Dust, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

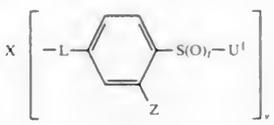
Continuation of Ser. No. 554,860, Jul. 20, 1990, abandoned, which is a continuation of Ser. No. 381,941, Jul. 19, 1989, abandoned. This application Apr. 9, 1992, Ser. No. 865,744

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1988, 3825656

Int. Cl.[5] C09B *62/04, 62/503;* **D06P** *1/384*

U.S. Cl. 534—618 **4 Claims**

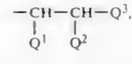
1. A double attachment reactive dye of the formula (I):



(I)

wherein

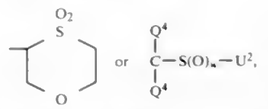
U^1 is C_1-C_4-alkyl, phenyl, C_2-C_{10}-alkenyl or a radical of the formula:



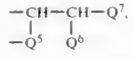
wherein Q^1 and Q^2 are identical or different and each is independently of the other hydrogen or C_1-C_4-alkyl, and

Q^3 is a group which is detachable under alkaline reaction conditions,

Z is the radical of the formula:



wherein Q^4 is, independently of the other, hydrogen or C_1-C_4-alkyl which is unsubstituted or substituted by cyano; U^2 is C_1-C_4-alkyl, phenyl, C_2-C_{10}-alkenyl or a radical of the formula:



wherein Q^5 and Q^6 are identical or different and each is, independently of the other, hydrogen or C_1-C_4-alkyl, and Q^7 is a group which is detachable under alkaline reaction conditions, and w is 2,

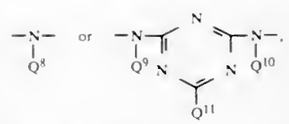
t is 2,

v is 1 or 2,

X is a) a radical of a chromophore which either does not have a further reactive group or which does have a further reactive group, and which is derived from a mono- or disazo dye or a copper formazan, or

b) a radical of a coupling component which additionally may be linked to the radical of a diazo component via an azo bridge and which may additionally have a reactive group, and

L is a) a bridge member of the formula:



wherein Q^8 is hydrogen or C_1-C_4-alkyl, Q^9 and Q^{10} are identical or different and each is independently of the other hydrogen or C_1-C_4-alkyl, and Q^{11} is fluorine, chlorine or bromine; or

b) an azo bridge, with the proviso that at least one of the two radicals U^1 and U^2 is not C_1-C_4-alkyl or phenyl.

5,210,188

DYESTUFFS FOR PERFLUOROPOLYOXYALKYLENES AND COMPOSITIONS BASED ON PERFLUOROPOLYOXYALKYLENES CONTAINING SUCH DYESTUFFS

Ezio Strepparola, Treviglio; Piero Gavezotti, and Giovanni Gavazzi, both of Milan, all of Italy, assignors to Ausimont S.p.A., Milan, Italy

Filed Feb. 11, 1992, Ser. No. 833,524

Claims priority, application Italy, Feb. 15, 1991, 91 A/000395

Int. Cl.[5] C09B *1/36, 11/12, 29/00, 17/00*

U.S. Cl. 534—728 **3 Claims**

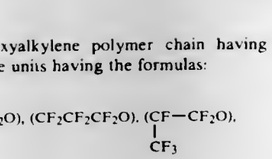
1. A dyestuff for polyfluoropolyoxyalkylenes, said dyestuff having the formula:

$Q[B—(A)_s]_t$ or $[(Q)_s—B]_2A$

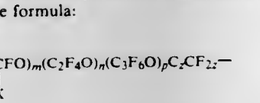
wherein:

Q is selected from the group consisting of azo, stilbene, diphenylmethane, triarylmethane, xanthen, acridine, quinoline, methine, polymethine, indamine, indophenol, azinic, oxazine, thiazine, and anthraquinone dyestuffs;

A is a perfluoroxyalkylene polymer chain having perfluoroxyalkylene units having the formulas:



where X=F or CF_3, said perfluorooxyalkylene polymer chain having the formula:



wherein said units are randomly arranged and wherein

z=an integer from 1 to 3;

m, n and p=integers ranging from 0 to 50, the sum of which is at least 2;

k=1 when said dyestuff has the formula $Q[B—(A)_s]_t$ and 0 when said dyestuff has the formula $[(Q)_s—B]_2A$, the average molecular weight of A ranging from 500 to 15,000;

B is an organic group which is at least divalent;

t=1 or 2;

s=1 or 2.

5,210,189

DNA SEQUENCE ENCODING GLYCEROL 3-PHOSPHATE ACYLTRANSFERASE

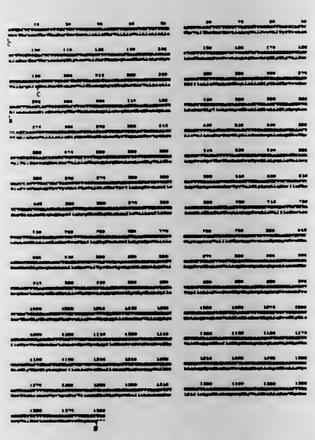
Norio Murata, 14-64, Fubuki-Cho, Okazaki-Shi, Aichi-Ken, Japan

Filed Sep. 25, 1990, Ser. No. 587,676

Claims priority, application Japan, Jan. 12, 1990, 2-4782; Jul. 6, 1990, 2-179088

Int. Cl.[5] C12N *15/29*

U.S. Cl. 536—23.2 **2 Claims**



1. An isolated DNA fragment encoding a polypeptide having glycerol 3-phosphate acyltransferase activity, said polypeptide having an amino acid sequence that corresponds substantially to the amino acid sequence from A to B shown in FIGS. 1(a) and (b), and said glycerol 3phosphate acyltransferase activity having a higher substrate selectivity to oleoyl-(acyl-carrier protein) than to palmitoyl (acyl-carrier protein).

5,210,190

PREPARATION OF TRIAZINYL-BIS-ANTHRAQUINONE DYES BY REACTING ARYLDIHALOTRIAZINE WITH AMINO ANTHRAQUINONE

Reinhard Helwig, Gruenstadt; Helmut Hoch, and Gerhard Epple, both of Weisenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

PCT No. PCT/EP90/01030, § 371 Date Oct. 22, 1991, § 102(e) Date Oct. 22, 1991, PCT Pub. No. WO91/00317, PCT Pub. Date Jan. 10, 1991

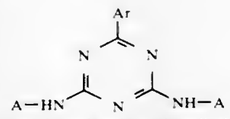
PCT Filed Jun. 27, 1990, Ser. No. 768,943

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1989, 3921451

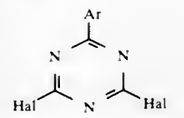
Int. Cl.[5] C09B *1/467, 67/28*

U.S. Cl. 544—187 **4 Claims**

1. A process for preparing an anthrquinone dye of the formula



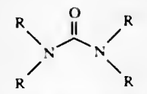
where Ar is aryl and the A radicals are each anthraquinonyl, by reacting an aryldihalotriazine of the formula



where Hal is chlorine or bromine, with an aminoanthraquinone of the formula

$A—NH_2$ [III]

in an organic solvent selected from the group consisting of N-C_1-C_4-alkylpyrrolid-2-one, N-C_1-C_4-alkylpiperid-2-one, N-di-C_1-C_4-alkylacetamide, N-di-C_1-C_4-alkylpropionamide, a urea derivative of the formula



where the radicals R are identical or different alkyl groups of from 1 to 4 carbon atoms, 1,3-di-(C_1-C_4-alkyl)-imidazolidin-2-one and 1,3-di-(C_1-C_4-alkyl)-tetrahydro-2(1H)-pyrimidinone.

5,210,191

SUBSTITUTED TRIAZINE-CAPPED POLYPHENYLENE ETHERS

Otto Phanstiel, Clifton Park, and Sterling B. Brown, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

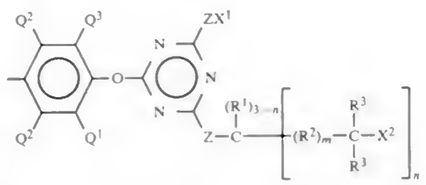
Division of Ser. No. 653,586, Feb. 11, 1991, abandoned, which is a continuation-in-part of Ser. No. 534,595, Jun. 7, 1990, abandoned. This application Nov. 4, 1991, Ser. No. 787,152

Int. Cl.[5] C07D *251/30, 251/38*

U.S. Cl. 544—214 **13 Claims**

1. A substituted alkoxy or alkylthiotriazine-capped polyphenylene ether having end groups of the formula

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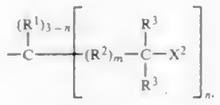
wherein:

each Q^1 is independently halogen, primary or secondary lower alkyl, phenyl, haloalkyl, aminoalkyl, hydrocarbonxy, or halohydrocarbonxy wherein two or more carbon atoms separate the halogen and oxygen atoms;

each Q^2 is independently hydrogen, halogen, primary or secondary lower alkyl, phenyl, haloalkyl, hydrocarbonoxy or halohydrocarbonoxy as defined for Q^1;

X^1 is an alkyl, cycloalkyl or aromatic radical or

(II)



X^2 is chlorine, bromine, iodine, alkylsulfonate, arylsulfonate, carboxylate, phosphate, phosphonate, phosphinate, thiophosphate, thiophosphonate or thiophosphinate;

each Z is independently oxygen or sulfur;

each R^1 is independently hydrogen, C_{1-4} primary or secondary alkyl, acyl, nitro, alkylsulfoxy or alkylsulfone;

R^2 is a C_{1-3} alkylene radical which is unsubstituted or is substituted with moieties selected from the group consisting of C_{1-4} primary or secondary alkyl radicals and nonhydrocarbon substituents as defined for R^1;

each R^3 is independently R^1 or X^2;

m is 0 or 1; and

n is 1-3.

5,210,192

PROCESS FOR THE PREPARATION OF 3,7-DIALKYLXANTHINES

Marius Bugglin; Herbert Gropp, both of Minden; Lothar Janitschke, Kleinniedesheim; Ulrich Karl, Weinheim, and Hans-Heinrich Lenz, Minden, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

PCT No. PCT/EP90/01478, § 371 Date Mar. 2, 1992, § 102(e) Date Mar. 2, 1992, PCT Pub. No. WO91/03477, PCT Pub. Date Mar. 21, 1991

PCT Filed Sep. 4, 1990, Ser. No. 835,455

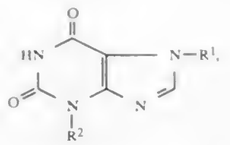
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1989, 3929589

Int. Cl.[5] C07D *473/10*

U.S. Cl. 544—273 1 Claim

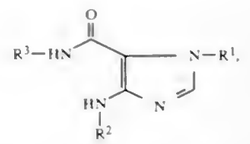
1. A process for the preparation of a 3,7-dialkylxanthine of the formula I

(I)



in which R^1 and R^2 denote C_1-C_4-alkyl, wherein a 1-alkyl-4-alkylamino-5-alkylaminocarbonylimidazole of the formula II

(II)



in which R^3 denotes C_1-C_4-alkyl, is reacted with an alkali metal cyanate in aqueous solution at a pH of from 3 to 5, and the resulting urea derivative is subjected to cyclization at a pH of from 8 to 14 to form the corresponding 3,7-dialkylxanthine (I).

5,210,193

PIPERAZINE DERIVATIVES

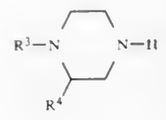
Phaik-Eng Sum, New City; Joseph P. Joseph, Montvale; Carl B. Ziegler, Jr., Congers; Daniel B. Moran, Suffern, and Yang-I Lin, Nanuet, all of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 81,786, Aug. 5, 1987, Pat. No. 4,940,710, which is a continuation-in-part of Ser. No. 940,133, Dec. 17, 1986, abandoned, which is a continuation-in-part of Ser. No. 820,279, Jan. 17, 1986, abandoned. This application Mar. 16, 1990, Ser. No. 494,386

Int. Cl.[5] C07D *403/04*

U.S. Cl. 544—360 30 Claims

1. A compound of the formula



wherein R^3 is hydrogen, alkyl (C_1-C_3), or benzyl; and R^4 is fluoromethyl, difluoromethyl, trifluoromethyl, alkoxy(C_1-C_{18}) methyl, alkyl (C_1-C_3)aminomethyl, dialkyl (C_1-C_3-)aminomethyl, cycloalkyl(C_3-C_6), vinyl, ethynyl, 1-methylpiperazin-4-ylmethyl, 5-chloro-benzofuran-2-yl, 5-chloro-3-methyl-benzo[b]thien-2-yl, 1-phenylsulfonyl-1H-pyrrol-3-yl, benzofuran-2-yl, 1-phenylsulfonyl-1H-indol-3-yl, 1H-pyrrol-1-ylmethyl, pyridinyl, 1H-pyrazol-3(and 5)-yl, or a 5-membered heterocyclic ring of the formula



wherein w is O, S or N, Z is H, halogen or lower alkyl(C_1-C_3), Y is H, halogen or lower alkyl(C_1-C_3).

5,210,194

PROCESS FOR PREPARING ERGOLINE DERIVATIVES

Sergio Mantegani; Gabriella Traquandi, both of Milan; Tiziano Bandiera, Gambolo, and Enzo Brambilla, Mariano Comense, all of Italy, assignors to Farmitalia Carlo Erba S.r.l. An Italian Body Corporate, Milan, Italy

PCT No. PCT/EP91/00104, § 371 Date Sep. 25, 1991, § 102(e) Date Sep. 25, 1991, PCT Pub. No. WO91/11447, PCT Pub. Date Aug. 8, 1991

PCT Filed Jan. 21, 1991, Ser. No. 761,977

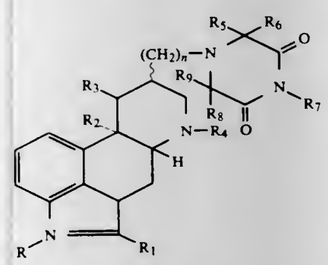
Claims priority, application United Kingdom, Jan. 25, 1990, 9001774; Nov. 28, 1990, 9025849

Int. Cl.[5] C07D *457/02*

U.S. Cl. 544—361 6 Claims

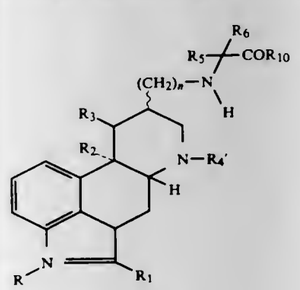
1. A process for preparing an ergoline derivative of the formula I:

I

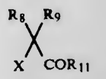


wherein R represents a hydrogen atom or a C_1-C_3 alkyl group; R_1 represents a hydrogen atom, chlorine, bromine atom or a methyl group; either R_2 and R_3 represent hydrogen atoms or R_2 and R_3 together represent a chemical bond; R_4 represents a hydrocarbon group having from 1 to 4 carbon atoms selected from the group consisting of alkyl, cycloalkyl, ethylenically unsaturated and acetylenically unsaturated groups; each of R_5, R_6, R_8 and R_9 independently represents a hydrogen atom or an alkyl group having from 1 to 4 carbon atoms, a phenyl group or a cycloalkyl group having from 3 to 7 carbon atoms and n is 0, 1 or 2, which process comprises reacting an ergoline of the formula II with an α-halogen derivative of the formula III:

II

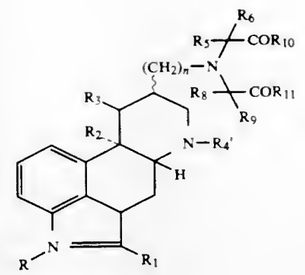


III



wherein n, R, R_1, R_2, R_3, R_5, R_6, R_8 and R_9 have the above given meanings, R_{10} and R_{11} independently represent a C_1-C_4 alkoxy group or an amino group NHR_7 wherein R_7 is as defined above, X represents a halogen atom, R'_4 represents a hydrocarbon group having from 1 to 4 carbon atoms selected having from 1 to 4 carbon atoms selected from the group consisting of alkyl, cycloalkyl, ethylenically unsaturated and acetylenically unsaturated groups or a N-protecting group and, if necessary, converting the resultant compound of the formula IV:

IV



wherein R, R_1, R_2, R_3, R_5, R_6, R_8, R_9 and n are as defined above, R_{10} and R_{11} independently represent a C_1-C_4 alkoxy group or an amino group NHR_7 wherein R_7 is as defined above and R'_4 is a N-protecting group into a compound of the formula IV in which R'_4 is a C_1-C_4 hydrocarbon group selected from the group consisting of alkyl, cycloalkyl, ethylenically unsaturated and acetylenically unsaturated groups by deprotection and alkylation, if necessary converting the compound of the formula IV in which R_{10} and R_{11} both represent an alkoxy group into a compound of the formula IV in which R_{10} and R_{11} are both amino groups by ammonolysis; and cyclizing a said compound of the formula IV in which at least one of R_{10} and R_{11} represents an amino group NHR_7 is as defined above.

5,210,195

BIS(2,2',6,6'-TETRAMETHYL-4-AMINOETHYLENEAMIDOPIPERIDYL) POLYOXYALKYLENE

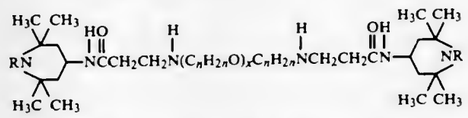
Jiang-Jen Lin, Houston, and George P. Speranza, Austin, both of Tex., assignors to Texaco Chemical Co., White Plains, N.Y.

Filed Nov. 8, 1991, Ser. No. 789,500

Int. Cl.[5] C07D *211/28, 211/32*

U.S. Cl. 546—190 4 Claims

1. A photostabilizer represented by the structural formula:



wherein each pair of n per C_nH_{2n} group are 2 or 3, R is hydrogen or hydrocarbyl having from 1 to about 16 carbon atoms and x is from 1 to about 60.

5,210,196

CHIRAL SULTAMS

Johannes von Oppolzer, Vandoeuvres, Switzerland, assignor to BP Chemicals Limited, London, England

PCT No. PCT/GB90/01567, § 371 Date May 23, 1991, § 102(e) Date May 23, 1991, PCT Pub. No. WO91/05777, PCT Pub. Date May 2, 1991

PCT Filed Oct. 11, 1990, Ser. No. 689,839

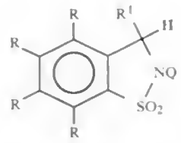
Claims priority, application United Kingdom, Oct. 12, 1989, 8923027; Apr. 17, 1990, 9008620

Int. Cl.[5] C07D *275/06*

U.S. Cl. 548—207 2 Claims

1. Substituted Chiral sultam having the general formula:

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(II)

where the R groups are independently hydrogen or C_1 to C_6 alkyl, R^1 is C_1 to C_{20} alkyl or aryl substituted alkyl and Q is selected from —OCCH(Z)R^4 and —OCC(Z)=CHR^7 wherein Z is hydrogen or C_1 to C_{10} alkyl, R^4 is C_1 to C_{10} alkyl and R^7 is hydrogen or C_1 to C_6 alkyl

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5,210,197

FUNGICIDAL SUBSTITUTED ANIMALS AND FUNGICIDAL USE THEREOF

Winfried Lunkenheimer, Wuppertal, and Wilhelm Brandes, Leichlingen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

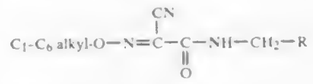
Filed Oct. 12, 1990, Ser. No. 596,251

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1989, 3938287

Int. Cl.[5] C07D *209/48, 207/48, 207/26, 207/40, 263/38;* **A61K** *31/42, 31/40*

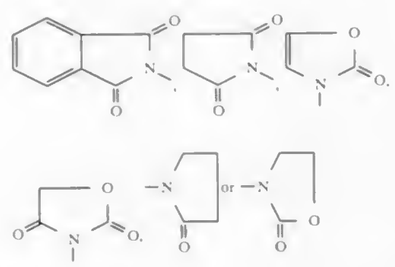
U.S. Cl. 548—231 **6 Claims**

1. An aminal of the formula



C_1-C_6 alkyl-O—N=C(CN)—C(=O)—NH—CH_2—R

on which R represents a heterocyclyl of the formula



5,210,198

FUNGICIDES CONTAINING TRIAZOLE AND OLIGOETHER GROUPS

Jean-Claude Debourge, Champagne au Mt d'Or; Alfred Greiner, Dardilly, and Régis Pepin, Rillieux la Pape, all of France, assignors to Rhone-Poulenc Agrochimie, Lyons, France

Continuation of Ser. No. 391,161, Aug. 8, 1989, abandoned, which is a division of Ser. No. 889,313, Jul. 23, 1986, Pat. No. 4,863,943, and a continuation-in-part of Ser. No. 693,281, Jan. 22, 1985, abandoned. This application Nov. 6, 1991, Ser. No. 787,758

Claims priority, application France, Jan. 26, 1984, 84 01424; Apr. 23, 1986, 86 06075

Int. Cl.[5] C07D *405/06*

U.S. Cl. 548—268.8 **1 Claim**

1. The compound 1-[4-bromo-2-(2,4-dichlorophenyl) tetrahydrofuran-2-ylmethyl]-1H-1,2,4-triazole.

5,210,199

PROCESS FOR THE PREPARATION OF ALKYLIMIDAZOLIDONE (METH) ACRYLATE

Paul Grosius, Forbach, and Didier Vanhoye, Petite-Rosselle, both of France, assignors to Atochem, Paris, France

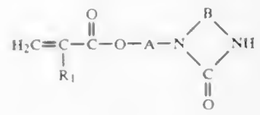
Filed Dec. 14, 1990, Ser. No. 626,107

Claims priority, application France, Dec. 15, 1989, 89 16607

Int. Cl.[5] C07D *233/02, 239/04, 243/04, 245/02*

U.S. Cl. 548—324.1 **24 Claims**

1. A process for the preparation of a compound of formula I:

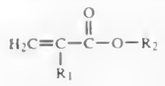


(I)

wherein:

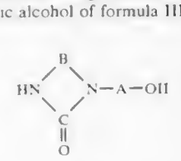
R_1 is hydrogen or methyl, and

A and B are each a straight- or branched chain alkylene group containing 2 to 5 carbon atoms, by reaction of at least one (meth)acrylate of formula II



(II)

wherein R_1 has the above-mentioned meaning and R_2 is an alkyl radical containing from 1 to 4 carbon atoms, with a heterocyclic alcohol of formula III:



(III)

wherein A and B have the above-mentioned meaning, in the presence of a catalytic quantity of at least one catalyst which is a dialkyltin oxide, a dialkyltin dialkoxide, or a dialkyltin diester or mixtures thereof.

5,210,200

HETEROCYCLIC DYE COMPOUNDS

Yasuhiro Shimada; Hisashi Mikoshiba, and Hideo Usui, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

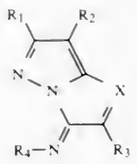
Filed Nov. 27, 1991, Ser. No. 799,192

Claims priority, application Japan, Nov. 29, 1990, 2-325583; Nov. 30, 1990, 2-330774

Int. Cl.[5] C07D *487/04*

U.S. Cl. 548—303.1 **8 Claims**

1. A dye compound of general formula (1):



(I)

wherein

R_1 is selected from a group consisting of a hydrogen atom, a halogen atom, an aliphatic group, an aromatic group, a

heterocyclic group, an alkoxy group, an aryloxy group, an alkenyloxy group, an amino group, an aliphatic, aromatic or heterocyclic acyl group, an aliphatic or aromatic oxycarbonyl group, an aliphatic or aromatic acyloxy group, an aliphatic or aromatic oxysulfonyl group, an aliphatic or aromatic sulfonyloxy group, an acylamino group, a carbamoyl group, a sulfonamido group, a sulfamoyl group, a sulfamido group, an imido group, a ureido group, an aliphatic, aromatic or heterocyclic sulfonyl group, an aliphatic or aromatic thio group, a hydroxyl group, a cyano group, a carboxyl group or a salt thereof, a nitro group and a sulfonic acid group or a salt thereof;

R_2 and R_3 each is a substituent having a Hammett's substituent constant σ_p of 0.10 or more;

X represents a nitrogen atom or



R_5 represents a substituent having a Hammett's substituent constant σ_p of at least 0.35; and

R_4 represent an aromatic group of an unsaturated heterocyclic group bonded to the nitrogen atom in the formula via an unsaturated carbon atom.

5,210,201

OPTICALLY ACTIVE ISOXAZOLE DERIVATIVES AND INTERMEDIATES FOR PREPARATION THEREOF AS WELL AS PROCESSES FOR PRODUCING THE SAME

Takashi Takahashi, Kanagawa, and Kazuhiko Sakaguchi, Osaka, both of Japan, assignors to Daiso Co., Ltd., Osaka, Japan

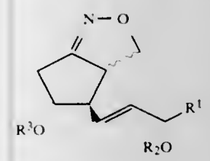
Division of Ser. No. 644,779, Jan. 23, 1991. This application Jun. 30, 1992, Ser. No. 906,348

Claims priority, application Japan, Jan. 25, 1990, 2-15329

Int. Cl.[5] C07D *261/20*

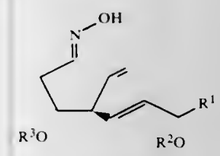
U.S. Cl. 548—110 **8 Claims**

1. A a process for producing an optically active isoxazole derivative represented by general formula:



[XI]

wherein R^1 represents an alkyl group or a cycloalkyl group which may have an alkoxy group or a group shown by —Ra—A—B (wherein Ra is an alkyl group; A is a hetero atom or an single bond; and B is an aromatic or hetero ring which may have a substituent(s)); and R^2 and R^3, which may be the same or different, each represents an aralkyl group, a silyl group or an acyl group, which comprises intramolecularly cyclizing an optically active oxime compound represented by general formula:



[X]

wherein R^1, R^2 and R^3 have the same significances as described above.

5,210,202

CHIRAL PHOSPHOROUS COMPOUNDS, A PROCESS FOR THEIR MANUFACTURE AND THEIR APPLICATION TO THE CATALYSIS OF ENANTIOSELECTIVE SYNTHESIS REACTIONS

Michele Petit, Wasquehal; Andre Mortreux, Hem; Francis Petit, Wasquehal; Gerard Buono, and Gilbert Peiffer, both of Marseille, all of France, assignors to Societe Chimique Des Charbonnages S.A., France

Division of Ser. No. 398,539, Oct. 11, 1989, Pat. No. 5,099,077, which is a division of Ser. No. 107,919, Oct. 13, 1987, Pat. No. 4,877,908, which is a continuation of Ser. No. 698,412, Feb. 5, 1985, abandoned, which is a continuation-in-part of Ser. No. 638,268, Aug. 6, 1984, abandoned. This application Dec. 23, 1991, Ser. No. 811,673

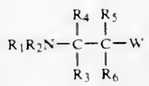
Claims priority, application France, Aug. 5, 1983, 83 12953

Int. Cl.[5] C07F *9/28, 9/02*

U.S. Cl. 548—112 **3 Claims**

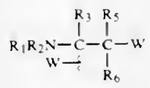
1. A chiral phosphorus-containing ligand comprising at least one amine radical and at least one dihydrocarbylphosphinoxy radical of the formula $W=OP(R)_2$, in which R is a hydrocarbon radical selected from the group consisting of alkyl, aryl, and cycloalkyl radicals, wherein said ligand is selected from the group consisting of:

those of the formula



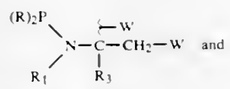
(I)

those of the formula



(II)

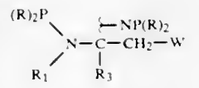
those of the formula



(III)

and

those of the formula



(IV)

in which formulae:

R_1 and R_2 are selected from the group consisting of a hydrogen atom and hydrocarbon radicals;

R_3 and R_4, which must be different from one another, are selected from the group consisting of a hydrogen atom and hydrocarbon radicals that may or may not carry at least one functional group selected from the group consisting of the alcohol, thiol, thioether, amine, imine, acid, ester, amide, and ether functional groups; and

R_5 and R_6 are selected from the group consisting of hydrogen atoms and hydrocarbon radicals that may or may not contain functional groups.

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5,210,203

SULFONAMIDE-DERIVATIVE COMPOUNDS FOR TAGGING NUCLEIC ACID PROBES

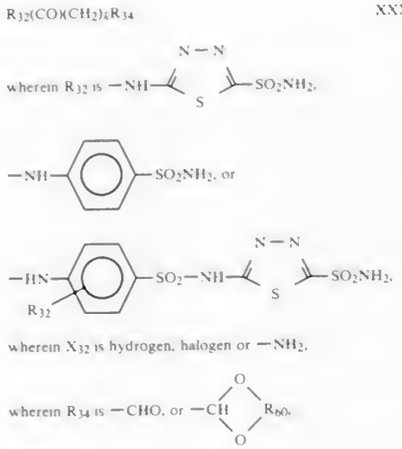
Gary F. Musso; Soumitra Ghosh, both of San Diego, Calif., and Emil T. Kaiser, New York, N.Y., assignors to Siska Diagnostics, Inc., La Jolla, Calif.

Division of Ser. No. 323,433, Mar. 14, 1989, Pat. No. 5,130,446, which is a division of Ser. No. 122,496, Nov. 16, 1987, Pat. No. 4,833,251, which is a continuation of Ser. No. 748,499, Jun. 25, 1985, abandoned. This application May 7, 1992, Ser. No. 879,593

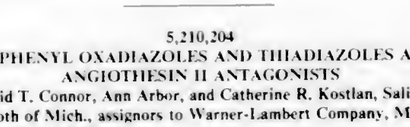
Int. Cl.[5] C07D *285/08, 307/14, 309/04, 417/12*

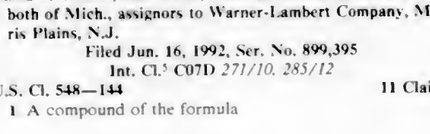
U.S. Cl. 548—130 3 Claims

1. A compound of Formula XXXV

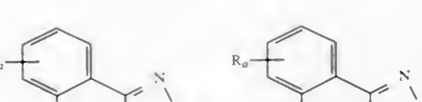


wherein R_{32} is —NH— (N—N ring) —SO_2NH_2,





wherein X_{32} is hydrogen, halogen or $-NH_2$,



wherein R_{34} is —CHO, or —CH(O—R_{60}—O)—,

wherein R_{60} is alkylene of 2 or 3 carbon atoms; and wherein k is 2 to 20.

5,210,204

BIPHENYL OXADIAZOLES AND THIADIAZOLES AS ANGIOTHESIN II ANTAGONISTS

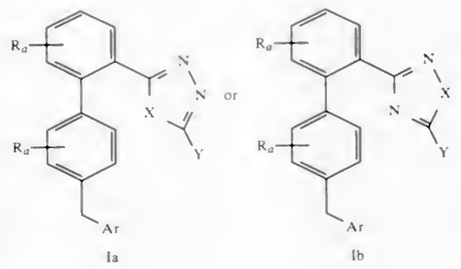
David T. Connor, Ann Arbor, and Catherine R. Kostlan, Saline, both of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Jun. 16, 1992, Ser. No. 899,395

Int. Cl.[5] C07D *271/10, 285/12*

U.S. Cl. 548—144 11 Claims

1. A compound of the formula



Ia Ib

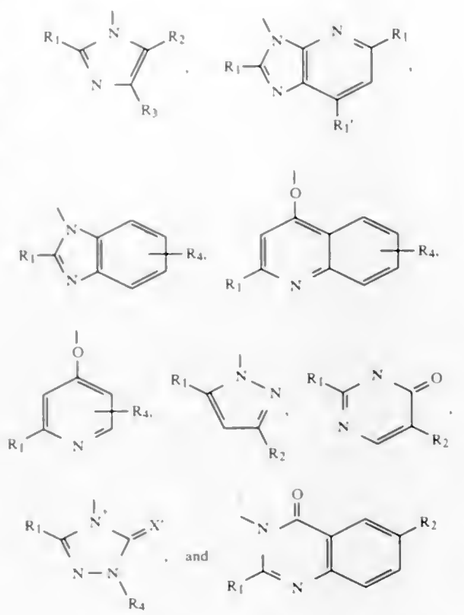
wherein

Ra is independently hydrogen, lower alkyl, lower alkoxy, or halo;

X is oxygen or sulfur;

Y is OH or SH, and

Ar is selected form the group consisting of



wherein X' is oxygen or sulfur; R_1 and R_1' are each independently lower alkyl; R_2 is CH_2OH, CHO, or CO_2R_4; R_3 is hydrogen, halo, or a pyrrole group attached at the nitrogen atom and unsubstituted or substituted by lower alkyl, and R_4 is hydrogen or lower alkyl;

a tautomer thereof and a pharmaceutically acceptable salt thereof

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5,210,205

PESTICIDAL COMPOSITIONS

Adolf Hubele, Magden, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

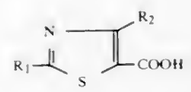
Continuation of Ser. No. 628,772, Dec. 17, 1990, abandoned. This application Mar. 18, 1992, Ser. No. 853,887

Claims priority, application Switzerland, Dec. 21, 1989, 4580/89; Oct. 26, 1990, 3425/90

Int. Cl.[5] C07D *277/56*

U.S. Cl. 548—201 4 Claims

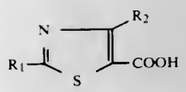
1. Compounds of formula V



(V)

and C_1-C_6 carboxylic acid esters thereof, wherein R_1 is selected from the group consisting of CH_3, C_2H_5, n-C_3H_7, isoC_3H_7, CH_2—O—CH_3, CH_2—O—C_2H_5, CH_2—O—CHF_2 and cyclopropyl and R_2 is cyclopropyl.

2. Compounds of formula V



(V)

and C_1-C_6 carboxylic acid esters thereof, wherein R_1 is selected from the group consisting of CH_2—O—CH_3, CH_2—O—C_2H_5, CH_2—O—CHF_2 and cyclopropyl and R_2 is isopropyl.

5,210,206

1,3-OXAZOLYL SUBSTITUTED BIPHENYL

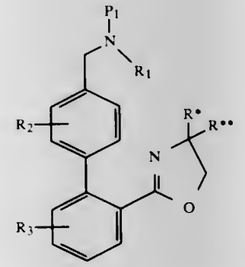
Howard E. Morton, Gurnee; Biswanath De, Buffalo Grove, and Daniel J. Kerkman, Lake Villa, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 744,241, Aug. 15, 1991, which is a continuation-in-part of Ser. No. 580,400, Sep. 10, 1990, abandoned. This application Jan. 10, 1992, Ser. No. 819,537

Int. Cl.[5] C07D *263/10*

U.S. Cl. 548—238 6 Claims

1. A compound of the formula:



wherein R_1 is selected from the group consisting of hydrogen, C_1 to C_7 loweralkyl, C_1 to C_7 loweralkoxy-substituted C_1 to C_7 loweralkyl, C_2 to C_{10} lower alkenyl, C_2 to C_{10} lower alkynyl, C_3 to C_7 cycloalkyl and C_3 to C_7 cycloalkyl substituted C_1 to C_7 loweralkyl; R_2 is selected from the group consisting of hydrogen, C_1 to C_7 loweralkyl, C_1 to C_7 loweralkoxy-substituted C_1 to C_7 loweralkyl, halogen and C_1 to C_7 loweralkoxy; R_3 is selected from hydrogen, C_1 to C_7 loweralkyl, and halogen; R^* and R^{**} are independently selected from C_1 to C_7 loweralkyl and P_1 is hydrogen or an nitrogen-protecting group; or an acid addition salt thereof.

5,210,207

TRANSVINYLATION PROCESS BY REACTIVE DISTILLATION

Morteza Mokhtarzadeh, Charleston, and Rex E. Murray, Cross Lanes, both of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Jan. 31, 1991, Ser. No. 649,661

The portion of the term of this patent subsequent to Jan. 1, 2008, has been disclaimed.

Int. Cl.[5] C07D *236/12*

U.S. Cl. 548—239 16 Claims

1. A transvinylation process which comprises reacting a vinyl derivative of a first Bronsted acid with a second Bronsted acid, in a reaction vessel containing a transvinylation catalyst, to form a conjugate acid of said vinyl derivative reactant and a vinyl derivative product of said second bronsted acid which is less than volatile than said vinyl derivative reactant, said transvinylation reaction being carried out under conditions whereby unreacted vinyl derivative of said first Bronsted acid is volatilized and serves as a stripping agent for removing less volatile product of reaction from the reaction vessel as the reaction progresses.

5,210,208

DISUBSTITUTED ARYL COMPOUNDS EXHIBITING SELECTIVE LEUKOTRIENE B4 ANTAGONIST ACTIVITY

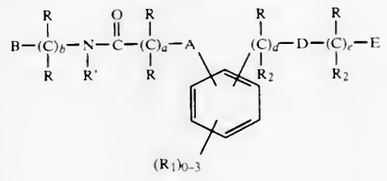
Fu-Chih Huang, Gwynedd; Wan K. Chan, Wayne; Charles A. Sutherland, Greenlane; Robert A. Galemmo, Jr., Collegeville, and Michael N. Chang, Newtown, all of Pa., assignors to Rhone-Poulenc Rorer Pharmaceuticals Inc., Collegeville, Pa.

Filed Sep. 24, 1990, Ser. No. 586,830

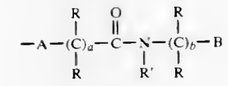
Int. Cl.[5] C07D *257/04;* A61K *31/41, 31/16;* C07E *223/07*

U.S. Cl. 548—253 20 Claims

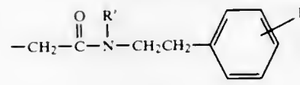
1. A compound of the formula



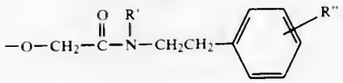
where:



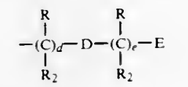
is selected from



and



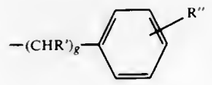
where R' is hydrogen or lower alkyl (having about 1 to about 6 carbon atoms) and R'' is hydrogen, lower alkyl (having about 1 to about 6 carbon atoms) or lower alkoxy (having about 1 to about 6 carbon atoms);



is selected from $(CHR_2)_d$—E where d is 0-4, $-(CR_2{=}CR_2)_x$—E where x is 1-2, —O—$(CHR_2)_d$—E where d is 1-3, —$(CHR_2)_d$—$CR_2{=}CR_2$—E where d is 1-3 and —O—$(CHR_2)_d$—$CR_2{=}CR_2$—R where d is 1-3,

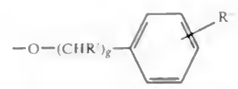
R_1 is hydrogen;

R_2 is hydrogen, lower alkyl (having about 1 to about 6 carbon atoms) and at least one of R_2 is selected from

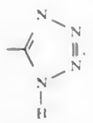


VOL 1150 ISS 2 MY 11 1993 UMI

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and



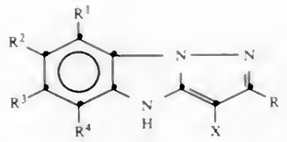
where g is 0-3, R' is hydrogen or lower alkyl (having about 1 to about 6 carbon atoms) and R'' is hydrogen, lower alkyl (having about 1 to about 6 carbon atoms) or lower alkoxy (having about 1 to about 6 carbon atoms); and



E is —COOH or;
or an isomer or a pharmaceutically acceptable salt thereof.

5,210,209
PYRAZOLO(1,5-A)BENZIMIDAZOLE COUPLERS
Michael W. Crawley, Kingwood-Watford, United Kingdom, assignor to Eastman Kodak Company, Rochester, N.Y.
PCT No. PCT/GB90/01192, § 371 Date Jun. 3, 1991, § 102(e) Date Jun. 3, 1991, PCT Pub. No. WO91/01984, PCT Pub. Date Feb. 21, 1991
PCT Filed Aug. 1, 1990, Ser. No. 678,288
Claims priority, application United Kingdom, Aug. 4, 1989, 8917918
Int. Cl.[5] C07D *487/04*
U.S. Cl. 548—302.1 **5 Claims**

1. A method for the production of a pyrazolo (1,5-a) benzimidazole of the formula (A):

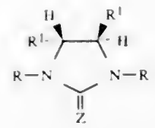


(A)

wherein
R is an alkyl or aryl group;
R^1–R^4 individually are R, H, halogen, or, COOR, CONHR, SO_2, NO_2, NHR, NR_2, or CN; and,
X is hydrogen or a group releasable on coupling with an oxidized color photographic developer, wherein the method comprises reacting a 2-amino or 2-mercapto substituted benzimidazole to form a triazepinone or a thiadiazino derivative respectively, ring contracting said triazepinone or thiadiazino derivative to give the corresponding 2-methylpyrazolobenzimidazole product, and subsequently removing the substituents at the -3 or -4 positions to provide a compound of the formula (A).

5,210,210
CHIRAL AUXILIARIES AND THEIR USE IN THE SYNTHESIS OF CHIRAL MOLECULES
Stephen G. Davies, Oxford, England, assignor to The British Petroleum Company p.l.c., London, England
Filed May 2, 1991, Ser. No. 694,567
Claims priority, application United Kingdom, May 9, 1990, 9010383; Jul. 21, 1990, 9016060; Nov. 30, 1990, 9026084
Int. Cl.[5] C07D *235/02, 233/32*
U.S. Cl. 548—302.7 **6 Claims**

1. Compounds having the formula



wherein
(a) Z is either oxygen or sulphur
(b) the R groups are independently selected from hydrogen or R^2CO where R^2 is selected from C_1 to C_{10} alkyl, C_2 to C_{10} alkenyl or benzyl and
(c) the two R^1 groups are oriented trans and are either (1) identical groups selected from C_1 to C_{10} alkyl, phenyl, or C_1 to C_6 alkyl or alkoxy substituted phenyl or (2) such that together they form an alkylene group of formula $—(CH_2.)_n—$ where n=3 to 8.

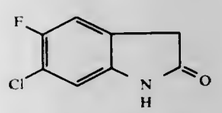
5,210,211
4-(1H-PYRROL-1-YL) IMIDAZOLES WITH ANGIOTENSION II ANTAGONIST ACTIVITY
John C. Hodges, and John G. Topliss, both of Ann Arbor, Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.
Continuation-in-part of Ser. No. 719,271, Jun. 21, 1991, abandoned. This application May 19, 1992, Ser. No. 883,023
Int. Cl.[5] C07D *403/04, 233/88, 233/90*
U.S. Cl. 548—314.7 **1 Claim**

1. A compound selected from
4-amino-2-butyl-5-cyanoimidazole,
4-amino-5-cyano-2-propylimidazole,
2-butyl-5-cyano-4-(1H-pyrrol-1-yl)imidazole,
5-cyano-2-propyl-4-(1H-pyrrol-1-yl)imidazole,
ethyl 2-butyl-4-(1H-pyrrol-1-yl)imidazole-5-carboxylate,
methyl 2-butyl-4-(1H-pyrrol-1-yl)imidazole, 2-butyl-5-(hydroxymethyl)-4-(1H-pyrrol-1-yl)imidazole-5-carboxylate,
5-cyano-4-[2-(1-oxo-2,2,2-trifluoroethyl)-1H-pyrrol-1-yl]-2-propylimidazole,
methyl 1-(5-cyano-2-propylimidazol-4-yl)1H-pyrrole-2-carboxylate,
5-cyano-4-(2,5-dichloro-1H-pyrrol-1-yl)-2-propylimidazole,
methyl 4-[2-(1-oxo-2,2,2-trifluoroethyl)-1H-pyrrol-1-yl]-2-propylimidazole-5-carboxylate,
methyl 2-butyl-4-[2-(1-oxo-2,2,2-trifluoroethyl)-1H-pyrrol-1-yl]imidazole-5-carboxylate,
5-cyano-4-(2,5-dichloro-1H-pyrrol-1-yl)-2-propylimidazole,
methyl 2-cyclopropyl-4-(2,5-dimethyl-1H-pyrrol-1-yl)-imidazole-5-carboxylate,
methyl 4-(2-methyl-5-propyl-1H-pyrrol-1-yl)-2-propylimidazole-5-carboxylate,
4-(2,5-dimethyl-1H-pyrrol-1-yl)-2-propylimidazole-5-carboxaldehyde,
methyl 4-(3-carboxyethyl-1H-pyrrol-1-yl)-2-propylimidazole-5-carboxylate,
methyl 4-(2,5-dimethyl-1H-pyrrol-1-yl)-2-propylimidazole-5-carboxylate,
2-propyl-4-(1H-pyrrol-1-yl)-imidazole-5-carboxaldehyde,
5-(hydroxymethyl)-2 propyl-4-(1H-pyrrol-1-yl)imidazole,
2-butyl-5-(hydroxymethyl)-4-(1H-pyrrol-1-yl)imidazole,
5-cyano-4-(2,5-dimethyl-1H-pyrrol-1-yl)-2-propylimidazole,

methyl 4-(2-methyl-3-carboxymethyl-1H-pyrrol-1-yl)-2-propylimidazole-5-carboxylate,
methyl 2-butyl-4-[2-(1-oxo-2,2,2-trifluoroethyl)-1H-pyrrol-1-yl]imidazole-5-carboxylate,
methyl 2-propyl-4-(2,5-dichloro-1H-pyrrol-1-yl)imidazole-5-carboxylate,
5-(hydroxymethyl)-2-propyl-4-(1H-pyrrol-1-yl)imidazole,
methyl 4-amino-2-cyclopropylimidazole-5-carboxylate,
5-(hydroxymethyl)-2-propyl-4-(2,5-dimethyl-1H-pyrrol-1-yl)imidazole, and
methyl (E)-3-[4-(2,5-dimethyl-1H-pyrrol-1-yl)-2-propylimidazol-5-yl]-2-propenoic acid.

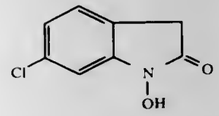
5,210,212
PROCESS FOR 5-FLUORO-6-CHLOROOXINDOLE
Robert W. Dugger, Mystic, Conn., assignor to Pfizer Inc. New York, N.Y.
Division of Ser. No. 720,974, Jun. 25, 1991, Pat. No. 5,166,401. This application Aug. 14, 1992, Ser. No. 930,870
Int. Cl.[5] C07D *209/34*
U.S. Cl. 548—486 **5 Claims**

1. A process for the preparation of a compound of the formula



(III)

which comprises of rearranging a compound of the formula



(IV)

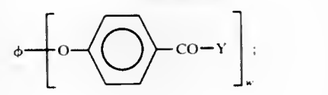
with a hydrogen fluoride source in the presence of an alkyl or aryl nitrile to produce compound (III).

5,210,213
DIMENSIONAL, CROSSLINKABLE OLIGOMERS
Clyde H. Sheppard, Bellevue, Wash., and Hyman R. Lubowitz, Rolling Hills Estates, Calif., assignors to The Boeing Company, Seattle, Wash.
Continuation-in-part of Ser. No. 810,817, Dec. 17, 1985, abandoned, which is a continuation-in-part of Ser. No. 726,258, Apr. 23, 1985, abandoned, which is a continuation-in-part of Ser. No. 519,394, Aug. 1, 1983, abandoned, Ser. No. 673,229, Nov. 20, 1984, Pat. No. 4,584,364, Ser. No. 536,350, Sep. 27, 1983, abandoned, Ser. No. 505,348, Jun. 17, 1983, Pat. No. 4,536,559, and Ser. No. 651,826, Sep. 18, 1984, abandoned, which is a continuation-in-part of Ser. No. 536,350, Sep. 18, 1984, Ser. No. 576,790, Feb. 6, 1984, abandoned, and Ser. No. 505,348, Feb. 6, 1984, said Ser. No. 673,229, is a continuatioo of Ser. No. 576,790, Feb. 6, 1984, which is a continuation-in-part of Ser. No. 321,119, Nov. 13, 1981, abandoned, said Ser. No. 536,350, is a continuation-in-part of Ser. No. 519,394, Nov. 13, 1981. This application Jan. 5, 1987, Ser. No. 605
Int. Cl.[5] C07D *403/12, 519/00*
U.S. Cl. 548—435 **12 Claims**

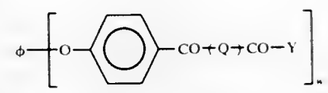
2. An oligomer of the formula:



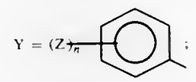
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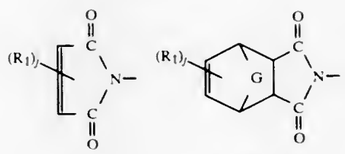
or

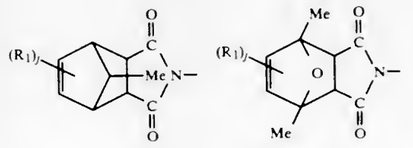


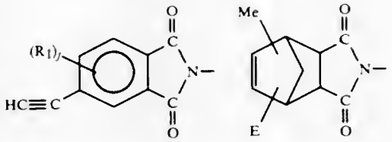
wherein P=—O—, —COO—, —OOC—, —NHCO—, or —OCNH—;
Ø=phenyl
w=an integer greater than 2 and not greater than the available number of substitutable hydrogens on the Ø group;



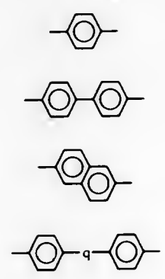
n = 1 or 2;

Z = 



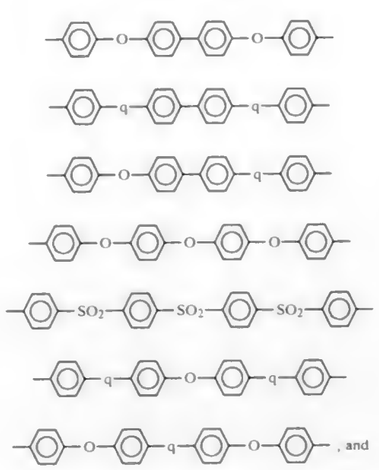


R_1=any of lower alkyl, lower alkoxy, or aryl;
j=0, 1, or 2;
G=—CH_2—, —S—, —O—, or —SO_2—;
E=allyl or methallyl;
Q=a radical selected from the group consisting of:



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q=—SO_2—, —CO—, —S—, or —$(CF_3)_2C$—.

5,210,214

PREPARATION OF INDOLENINES

Klaus Dichl, Hassloch; Martin Fischer, Ludwigshafen, and Manfred Dimmler, Dannstadt-Schauernheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

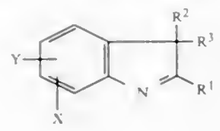
Filed Apr. 10, 1992, Ser. No. 866,586

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1991, 4112841

Int. Cl.[5] C07D *209/08, 209/86, 209/88*

U.S. Cl. 548—439 9 Claims

1. A process for preparing an indolenine of the formula I



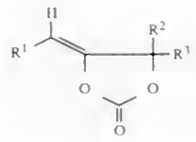
(I)

where

R^1, R^2 and R^3 are independently of one another hydrogen, C_1-C_{20}-alkyl, C_2-C_{20}-alkenyl, C_3-C_8-cycloalkyl, phenyl, 1-naphthyl, 2-naphthyl, C_7-C_{20}-alkylphenyl, C_7-C_{20}-phenalkyl, or R^1 and R^2 or R^1 and R^3 together are an unsubstituted or C_1-C_{12}-alkyl-substituted C_3-C_8-alkylene chain,

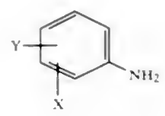
X and Y are independently of one another hydrogen, C_1-C_8-alkyl, C_1-C_8-alkoxy, C_2-C_8-alkoxyalkyl, C_2-C_8-alkoxycarbonyl, C_1-C_4-alkylsulfonyl, halogen, nitro or cyano,

by reacting a 4-methylene-1,3-dioxolan-2-one of the formula II



(II)

where R^1, R^2 and R^3 are each as defined above, with an aniline of the formula III



(III)

where X and Y are each as defined above, in the presence of a Lewis acid and in the presence or absence of a halide of main group 1 or 2 of the Periodic Table at from 100° to 350° C. and at from 1 to 50 bar, the improvement wherein the reaction is carried out in the presence of a polar solvent.

5,210,215

TRYPTOPHANE AND 3-INDOLEPYRUVIC ACID, METHODS OF PRODUCTION THEREFOR

Vincenzo Politi; Giovanna De Luca; Giovanni Di Stazio, and Mario Materazzi, all of Rome, Italy, assignors to Polifarma S.p.A., Rome, Italy

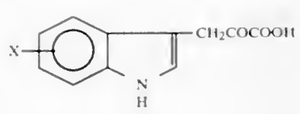
Filed Sep. 18, 1990, Ser. No. 584,128

Claims priority, application Italy, Oct. 4, 1989, 48426 A/89

Int. Cl.[5] C07D *209/18, 209/20*

U.S. Cl. 548—494 7 Claims

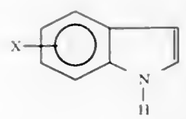
1. A process for the production of 3-indolepyruvic acid derivatives substituted on the benzene moiety, represented by formula I



(I)

in which X is selected from the group consisting of hydrogen, halogen, methyl, methoxy and hydroxyl, comprising steps of:

transforming a substituted indole of the formula



in which X is selected from the group consisting of hydrogen, halogen, methyl, methoxy and hydroxyl, into the corresponding substituted tryptophan by reacting the substituted indole with methylamine and formaldehyde in an aqueous solution, at a temperature not greater than about 5° C. to obtain the corresponding substituted gramine, then condensing said substituted gramine in a catalytic alkaline environment, in a per se known manner, with a derivative of malonic structure to obtain the corresponding substituted tryptophan, and transforming said substituted tryptophan into the corresponding substituted 3-indolepyruvic acid.

5,210,216

CALIXARENE AND OXACALIXARENE DERIVATIVES AND USE THEREOF OF SEQUESTRATION METALS

Stephen J. Harris, Dublin; John Guthrie, County Kildare; Maureen MacManus; Ciaran McArdle, both of Dublin, all of Ireland, and Michael A. McKervey, Belfast, Northern Ireland, assignors to Loctite (Ireland) Limited, Dublin, Ireland

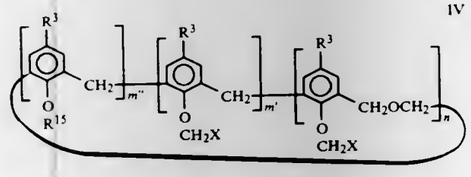
Continuation-in-part of Ser. No. 248,874, Sep. 23, 1988, Pat. No. 5,043,415, which is a continuation-in-part of Ser. No. 20,918, Mar. 2, 1987, Pat. No. 4,882,449, and a continuation-in-part of Ser. No. 145,993, Jan. 20, 1988, Pat. No. 4,855,461, and a continuation-in-part of Ser. No. 100,494, Sep. 24, 1987, abandoned, which is a continuation-in-part of Ser. No. 870,677, Jun. 4, 1986, Pat. No. 4,699,966, which is a continuation-in-part of Ser. No. 717,251, Mar. 28, 1985, Pat. No. 4,642,362, said Ser. No. 20,918, is a continuation-in-part of Ser. No. 870,677, Jun. 4, 1986, Pat. No. 4,699,966, and a continuatioo-in-part of Ser. No. 825,012, Jan. 31, 1986, Pat. No. 4,695,615, which is a continuation-in-part of Ser. No. 145,993, Jan. 31, 1986, and Ser. No. 717,251, Jan. 31, 1986. This application Dec. 10, 1990, Ser. No. 625,573

Claims priority, application Ireland, Dec. 13, 1989, 3982/89

Int. Cl.[5] C07D *207/08, 313/00*

U.S. Cl. 548—518 8 Claims

1. Calixarene and oxacalixarene derivatives of the formula IV;



IV

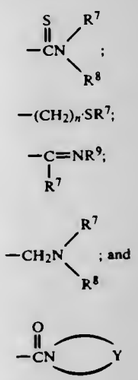
wherein $(m'+m\Delta)=0$–8; $n=0$–8; $m'\geq\frac{1}{4}(m'+m'')$; and $3\leq(m'+m''+n)\leq 8$;

if $n=0$, then $(m'+m'')\geq 4$; provided that m' and n cannot equal zero at the same time;

R^3 is H, halogen, or a C_1–C_{10} hydrocarbyl or C_6–C_{20} aryl hydrocarbylaryl group, any of which may be substituted by one or more halo or oxo groups or interrupted by one or more oxo groups, and R^3 may be the same or different on each aryl group;

R^{15} is H or a C_1–C_{10} hydrocarbyl or C_6–C_{20} aryl or hydrocarbylaryl group, any of which may be substituted by one or more halo or oxo groups or interrupted by one or more oxo groups; and

X is selected from the group consisting of



(A)

—$(CH_2)_{n'}SR^7$; (B)

(C)

(D)

; and

(E)

wherein R^7 and R^8, which may be the same or different, are H or a C_1–C_{10} hydrocarbyl, including a cycloaliphatic ring formed by R^7 and R^8 together, or C_6–C_{20} aryl or hydrocarbylaryl group, any of which may be substituted by one or more halo or oxo groups or interrupted by one or more oxo groups;

R^9 is —OH, —NH_2, —$NHC(O)NH_2$ or —NHAr, wherein Ar is a C_6–C_{20} aryl group which may be substituted with one or more halo or oxo groups or interrupted by one or more oxo groups; Y is a cycloaliphatic ring; and n' is 0 or 1.

5,210,217

SUBSTITUTED BITHIOPHENES AND DITHIENYLPYRROLES

James P. Albarella, Elkhart; J. Oakey Noell; Paul O. Vogelhut, both of Mishawaka, and Frederick E. Ward, deceased, late of Elkhart, all of Ind. by Linda Ward, administrix , assignors to Miles Inc., Elkhart, Ind.

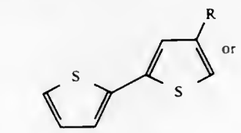
Division of Ser. No. 114,011, Oct. 29, 1987, Pat. No. 4,886,625.

This application Apr. 10, 1989, Ser. No. 335,563

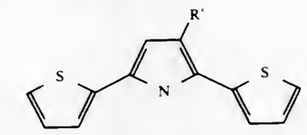
Int. Cl.[5] C07D *409/04, 409/14*

U.S. Cl. 548—527 3 Claims

1. Substituted bithiophenes and dithienylpyrroles characterized by the formulae:



or



wherein R is N-trifluoroacetamidomethyl, 2-hydroxyethyl, 2-phthalimidoethyl, 2-trifluoroacetamidoethyl, acetyl, carboxyethyl, carboethoxyethyl, carbomethoxyethyl, (N-3-carbomethoxypropionyl)aminoethyl, (N-3-carboxypropionyl-)amiomethyl, 2-methyldithioethyl, (N-imidazocarbonyl-)amidomethyl, (4-nitrophenylcarbamoyl)amidomethyl, formylmethyl or carboxymethyl and R' is cyano, aminomethyl, N-trifluoroacetamidomethyl, 2-hydroxyethyl, 2-phthalimidoethyl, 2-aminoethyl, 2-trifluoroacetamidoethyl, acetyl, carboxyethyl, carboethoxyethyl, carbomethoxyethyl, (N-3-carbomethoxypropionyl)aminoethyl, (N-3-carboxypropionyl-)aminomethyl, 2-methyldithioethyl, (N-imidazocarbonyl-)amidomethyl, (4-nitrophenylcarbamoyl)amidomethyl, formylmethyl or carboxymethyl.

5,210,218

2- AND 3-CHLOROPYRROLES AND PROCESS FOR PREPARING THE SAME

Shinzo Kagabu; Itsumi Kawai, both of Gifu, and Katsuaki Wada, Oyama, all of Japan, assignors to Nihon Bayer Agrochem K.K., Tokyo, Japan

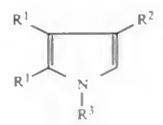
Filed Oct. 15, 1991, Ser. No. 777,879

Int. Cl.[5] C07D *207/34*

U.S. Cl. 548—560 2 Claims

1. A 2- or 3-chloropyrrole of the formula

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in which

R^1 is chlorine and the other one

R^1 is hydrogen, C_{1-6}-alkyl, or phenyl or naphthyl optionally substituted by at least one member selected from the group consisting of C_{1-6}-alkyl, C_{1-6}-alkoxy, C_{1-6}-alkylthio and halogen,

R^2 is phenyl or naphthyl optionally substituted by at least one member selected from the group consisting of C_{1-6}-alkyl, C_{1-6}-alkoxy, C_{1-6}-alkylthio and halogen, and

R^3 is tertiary alkyl of up to 6 carbon atoms optionally substituted by phenyl or is phenyl

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5,210,219

BIS-SULFONIUM SALTS OF 2,5-DIMETHYLSTILBENE

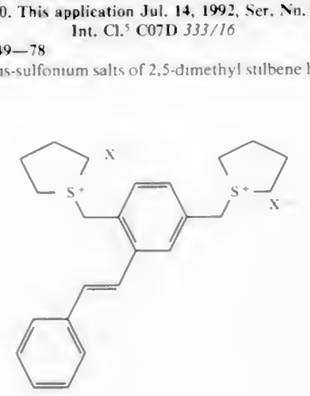
John Stenger-Smith, 1133 Meadowview La., Ridgecrest, Calif. 93555

Continuation of Ser. No. 682,169, Apr. 9, 1991, Pat. No. 5,162,470. This application Jul. 14, 1992, Ser. No. 914,684

Int. Cl.[5] C07D *333/16*

U.S. Cl. 549—78 **2 Claims**

1. The bis-sulfonium salts of 2,5-dimethyl stilbene having the formula:



where X is halogen.

5,210,220

METHOD FOR PREPARING DERIVATIVES OF ASCORBIC ACID

Horst Pauling, Bottmingen, and Christof Wehrli, Witterswil, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

PCT No. PCT/CH91/00049, § 371 Date Oct. 25, 1991, § 102(e) Date Oct. 25, 1991, PCT Pub. No. WO91/13895, PCT Pub. Date Sep. 19, 1991

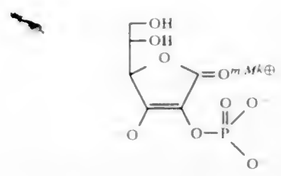
PCT Filed Mar. 1, 1991, Ser. No. 773,874

Claims priority, application Switzerland, Mar. 7, 1990, 731/90

Int. Cl.[5] C07D *307/62;* **C07F** *9/06*

U.S. Cl. 549—222 **10 Claims**

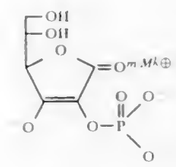
1. A process for producing an ascorbyl phosphate of the formula:



wherein $M^{k\oplus}$ is a cation, $k\oplus$ is the valency of the cation; and m is the number of equivalents of the cation; with the proviso that the product of K and M is 3,

by phosphorylating ascorbic acid comprising mixing ascorbic acid with sodium or potassium dichlorophosphate in an aqueous solution, and phosphorylating said ascorbic acid with said sodium or potassium dichlorophosphate in said aqueous solution in the presence of a water-soluble trialkylamine amine catalyst and at a temperature of at most 10° C. to produce said ascorbyl phosphate.

6. An ascorbyl phosphate of the formula:



wherein $M^{k\oplus}$ is a cation $k\oplus$ is the valency of the cation; and m is the number of equivalents of the cation; with the proviso the product of K and M is 3.

8. NaMg L-ascorbate-2-phosphate.

10. Tris-(−)-3-aminomethylpinane-L-ascorbate-2-phosphate.

5,210,221

CRYSTAL OF FLUORAN COMPOUND AND PREPARATION PROCESS OF THE CRYSTAL

Masakatsu Nakatsuka; Atsuo Otsuji; Kiyoharu Hasegawa, all of Yokohama; Kazuyoshi Kikkawa, and Akihiro Yamaguchi, both of Kamakura, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

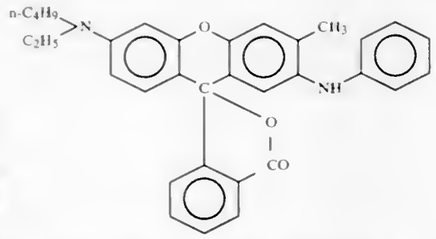
Filed Sep. 10, 1991, Ser. No. 757,160

Claims priority, application Japan, Sep. 17, 1990, 2-243713; Nov. 8, 1990, 2-301073

Int. Cl.[5] C07D *493/10*

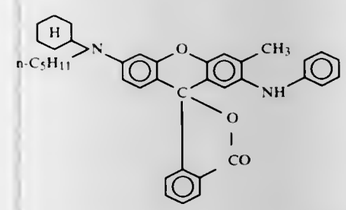
U.S. Cl. 549—226 **13 Claims**

1. A crystalline form of a fluoran compound having the formula (I):



and exhibiting high peaks at diffraction angles (2θ) of 7.5° and 17.0° and relatively high peaks at diffraction angles (2θ) of 15.1°, 19.1°, 21.5° and 25.3° in an X-ray diffraction diagram by the Cu-Kα beam.

2. A crystalline form of a fluoran compound having the formula (II):



and exhibiting high peaks at diffraction angles (2θ) of 5.5° and 19.2° in an X-ray diffraction diagram by the Cu-Kα beam.

5,210,222

PROCESS FOR THE PRODUCTION OF MALONIC ACID ANHYDRIDE

Colm O'Murchu, Visp, Switzerland, assignor to Lonza Ltd., Gampel/Valais, Switzerland

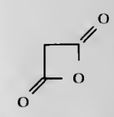
Filed Jan. 21, 1992, Ser. No. 824,004

Claims priority, application Switzerland, Jan. 21, 1991, 156/91

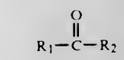
Int. Cl.[5] C07D *305/00;* **C07C** *67/08, 69/66*

U.S. Cl. 549—231 **12 Claims**

1. Process for the production of malonic acid anhydride of the formula:



characterized in that diketene is ozonized at a temperature between −30° and −100° C. in the presence of a carbonyl compound of formula:



wherein R_1 and R_2 are the same or different and are hydrogen, an alkyl group having 1 to 4 carbon atoms, an alkoxy group which is methoxy or ethoxy, or an aryl group which is phenyl or p-toluyl.

5,210,223

ELEVATED PRESSURE PHTHALIC ANHYDRIDE PROCESS

Michael S. Chen, Zionsville; Philip J. Cook, Schnecksville; Harold H. Gunardson, New Tripoli, all of Pa., and Melinda B. Ulrich, Annandale, N.J., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Jun. 17, 1992, Ser. No. 899,797

Int. Cl.[5] C07D *307/89*

U.S. Cl. 549—247 **2 Claims**

1. In a process for the production of phthalic anhydride comprising the consecutive steps of:

(a) introducing a feed stream comprising oxygen and either o-xylene or naphthalene into a reactor to produce a gaseous reactor effluent comprising the phthalic anhydride; and

(b) cooling the reactor effluent in order to condense a crude phthalic anhydride product from the reactor effluent wherein at least a portion of the crude phthalic anhydride product is condensed as a solid;

the improvement comprising operating the reactor in step (a) at a pressure greater than 200 psia in order to condense the crude phthalic anhydride product from the reactor effluent in step (b) exclusively as a liquid.

5,210,224

PROCESS FOR PREPARING LANKACIDIN CARBAMATE DERIVATIVES

Akio Miyake, Hirakata, and Tatsuhiko Kawai, Sanda, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

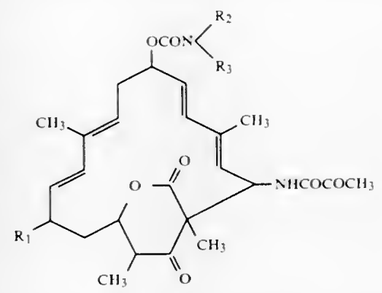
Filed Jul. 11, 1990, Ser. No. 552,687

Claims priority, application Japan, Jul. 25, 1989, 1-191818

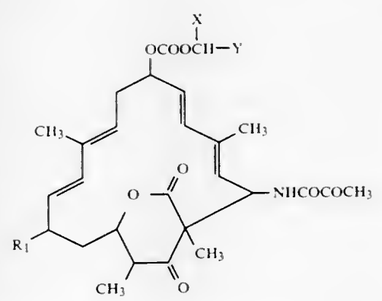
Int. Cl.[5] C07D *315/00*

U.S. Cl. 549—270 **3 Claims**

1. A process for preparing a compound represented by the formula [III]:



wherein R_1 is a hydroxy group or an alkanoyloxy group; and R_2 and R_3 are each (1) a hydrogen atom or (2) a methyl group which is unsubstituted or is substituted by pyridyl; or R_2 and R_3 together with the adjacent nitrogen atom to which they bond form a piperazino group which is unsubstituted or is substituted by methyl, hydroxymethyl, or pyridyl, or a salt thereof, comprising reaction a compound represented by the formula [I]:



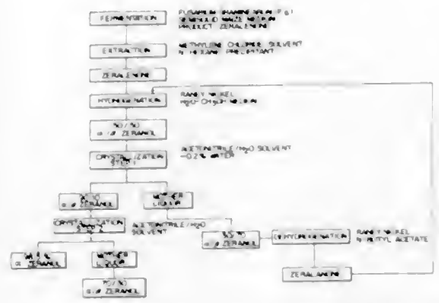
wherein R_1 has the same meaning as above; X is chlorine; and Y is methyl, with a compound represented by the formula [II]:



wherein R_2 and R_3 have the same meaning as above.

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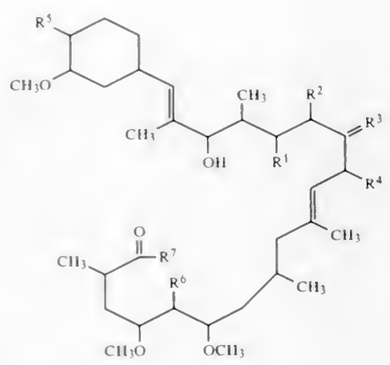
5,210,225
ZERANOL PRODUCTION
Flavio Moimas, Gorizia, and Giuliano Clauti, Udine, both of Italy, assignors to C.R.C. Compagnia di Ricera Chimica S.p.A., Udine, Italy
Division of Ser. No. 614,371, Nov. 16, 1990, Pat. No. 5,136,056, which is a continuation-in-part of Ser. No. 320,942, Mar. 9, 1989, abandoned. This application May 7, 1992, Ser. No. 879,277
Int. Cl.[5] C07D *313/00*
U.S. Cl. 549—270 3 Claims



1. In a process for the production of α-zeranol of high purity from a first mixture of α and β zeranol containing from out 50% to about 60% by weight of α-zeranol in which a second mixture of α and β zeranol containing less than 50% by weight of α-zeranol is produced, the improvement which comprises:
(i) subjecting said second mixture to dehydrogenation in the presence of Raney nickel in an n-butyl acetate medium and terminating said dehydrogenation at a conversion of about 75% to about 80% to provide a dehydrogenation product consisting essentially of zeralanone and a third mixture of α and β zeranol containing more than 50% α-zeranol; and
(ii) hydrogenating said dehydrogenation product with zeralenone in the presence of Raney nickel in a water methanol medium to provide a fourth mixture of α and β zeranol the α-zeranol content of said fourth mixture being greater than the α-zeranol content of said third mixture.

5,210,226
METHOD FOR SEPARATING AND PURIFYING POLYENE MACROLIDE ANTIBIOTICS
Ramesh C. Pandey, Libertyville, Ill., assignor to Xechem Inc., New Brunswick, N.J.
Filed Feb. 2, 1990, Ser. No. 474,465
Int. Cl.[5] C07D *313/00*
U.S. Cl. 549—271 2 Claims
1. A high pressure liquid chromatography method for producing substantially pure dermostatin A and dermostatin B comprising dissolving dermostatin complex in dimethylsulfoxide at a concentration from about 1 to about 100 mg of dermostatin per milliliter of dimethylsulfoxide; injecting the solution into a suitable separation column, using an isocratic solvent system of methanol and water as the mobile phase at a flow rate of from about 10 to about 20 ml per minute; detecting the absorption of the effluent at 390 nm and as a fraction having absorption at 390 nm is detected, recovering said fraction; combining the fractions with identical retention times; concentrating the combined fractions; and recovering the resultant precipitate.

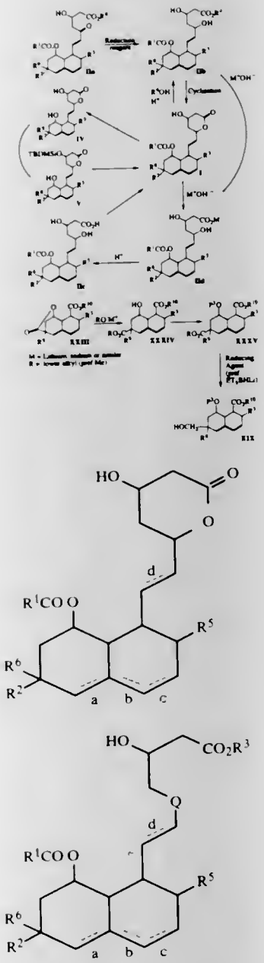
5,210,227
IMMUNOSUPPRESSIVE COMPOUNDS
Hirokazu Tanaka, Ibaraki, Japan; Martin E. Cooper, and David K. Donald, both of Leicestershire, England, assignors to Fisons plc, England and Fujisawa Pharmaceutical Company Limited, Japan
Filed Feb. 27, 1991, Ser. No. 661,802
Claims priority, application United Kingdom, Feb. 27, 1990, 9004396; Apr. 27, 1990, 9009485
Int. Cl.[5] C07D *309/00*
U.S. Cl. 549—273 7 Claims
1. A compound of formula I,



I

wherein
R^1 represents H, OH, protected OH or alkoxy;
R^2 represents H,
R^3 represents O or (H,OH);
R^4 represents methyl, ethyl, propyl or allyl;
R^5 represents OH, protected OH or alkoxy;
R^6 represents OH;
R^7 represents OH, alkoxy or NR^8R^9 where R^8 and R^9 independently represent H, alkyl or aryl;
in addition, R^1 and R^2 may together represent a second bond between the carbon atoms to which they are attached; and
R^6 and R^7 may together represent O;
provided that when R^1 and R^5 each represent OH, R^2 represents H, R^3 represents (H,OH) and R^4 represents allyl, then R^6 and R^7 do not together represent O;
and pharmaceutically acceptable salts thereof.

5,210,228
DECALINE BASED HMG-COA REDUCTASE INHIBITORS WITH TWO C-6 SUBSTITUENTS
Richard S. Todd, Burnham; Christopher N. Lewis, Cowley St. John; Alan H. Davidson, and Alan H. Drummond, both of Witney, all of England, assignors to British Bio-Technology Limited, Oxford, England
Filed Sep. 16, 1991, Ser. No. 760,727
Claims priority, application United Kingdom, Jan. 4, 1991, 9100174
Int. Cl.[5] C07D *309/30;* A61K *31/365*
U.S. Cl. 549—292 6 Claims
1. A compound selected from the group consisting of general formulae I and II:



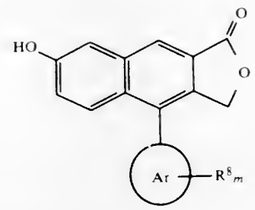
(I)

(II)

wherein:
R^1 represents a C_{1-8} alkyl, C_{3-8} cycloalkyl, C_{3-8} cycloalkyl(C_{1-8})alkyl, C_{2-8} alkenyl, or C_{1-6} alkyl substituted phenyl group;
R^2 represents C_{2-5} alkenyl or C_{2-5} alkenyl substituted with substituted phenyl group;
R^3 represents a hydrogen atom or R^4 or M;
R^4 represents a C_{1-5} alkyl group, or a C_{1-5} alkyl group substituted with a group chosen from substituted phenyl, dimethylamino and acetylamino;
R^5 represents a hydrogen atom or a methyl or ethyl group;
R^6 represents a C_{1-8} alkyl, C_{2-8} alkenyl or a C_{2-8} alkynyl group or a C_{1-5} alkyl, C_{2-5} alkenyl or a C_{2-5} alkynyl group substituted with a substituted phenyl group;
wherein the term "substituted", as applied to the phenyl group, means substituted with up to four substituents each of which independently may be C_{1-6} alkyl, C_{1-6} alkoxy, hydroxy, thiol, amino, halo (including fluoro, chloro, bromo, and iodo), trifluoromethyl or mitro;
M represents a cation capable of forming a pharmaceutically acceptable salt;
Q represents C=O or CHOH; and
each of a, b, c, and d is independently a single or double bond except that when a and c are double bonds then b is a single bond.

5,210,229
PROCESS FOR THE PREPARATION OF GAMMA-BUTYROLACTONE
Tatsumi Ichiki; Kaori Mori; Sadakatsu Suzuki; Hiroshi Ueno, and Kenji Kobayashi, all of Saitama, Japan, assignors to Tonen Chemical Corporation, Tokyo, Japan
Filed Jul. 16, 1992, Ser. No. 915,076
Claims priority, application Japan, Jul. 17, 1991, 3-201066; Nov. 20, 1991, 3-329752; Apr. 8, 1992, 4-114257
Int. Cl.[5] C07D *307/28*
U.S. Cl. 549—295 14 Claims
1. A process for the preparation of γ-butyrolactone by catalytic dehydrogenation of 1,4-butanediol in a gaseous phase in the presence of a catalyst which contains copper, chromium, and at least one member selected from the group consisting of manganese and barium, characterized in that the catalyst further contains at least one member selected from the group consisting of sodium and potassium.

5,210,230
LIGNAN PROCESS
Joseph F. Payack, Somerset, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
Filed Oct. 17, 1991, Ser. No. 777,952
Int. Cl.[5] C07D *307/92*
U.S. Cl. 549—299 4 Claims
1. A process for preparing the compound of Formula I:



I

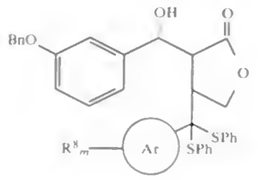
wherein:
R^8 is halogen, lower alkyl, or lower alkoxy;
(Ar) is phenyl or 1- or 2-naphthyl; and
m is 0, 1, or 2;
which comprises:
a) reacting a compound of formula 2:



2

with a strong base in an ethereal solvent, adding butenolide thereto, then quenching with 3-benzyloxybenzaldehyde all at −100° to 0° C., to produce a compound of formula 3

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b) reacting compound 3 with a strong acid in the presence of a cation scavenger at 0°–150° C. to produce said compound of formula I.

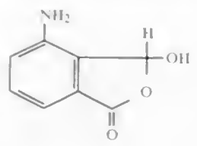
5,210,231

4-AMINO-3-HYDROXY-PHTHALIDE, AND A PROCESS FOR ITS PREPARATION

Jürgen Stoltefuss, Haan, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 11, 1991, Ser. No. 757,865
Claims priority, application Fed. Rep. of Germany, Sep. 20, 1990, 4029807
Int. Cl.[5] C07D *307/83*
U.S. Cl. 549—304 4 Claims

1 4-Amino-3-hydroxy-phthalide of the formula



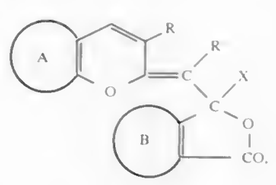
5,210,232

PYRAN-CONTAINING PHTHALIDES

Rox Phaff, Itingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 585,745, Sep. 20, 1990, Pat. No. 5,097,044. This application Jan. 2, 1992, Ser. No. 816,692
Claims priority, application Switzerland, Sep. 27, 1989, 3497/89
The portion of the term of this patent subsequent to Jan. 2, 2009, has been disclaimed.
Int. Cl.[5] C07D *407/04*
U.S. Cl. 549—307 13 Claims

1 A pyran-containing phthalide of the formula



wherein

R is hydrogen, alkyl which has not more than 12 carbon atoms and is unsubstituted or substituted by halogen, cyano, hydroxyl or lower alkoxy, or is cycloalkyl which is unsubstituted or substituted by one or more C_1–C_4alkyl radicals containing a total of 5 to 10 carbon atoms, or phenalkyl or phenyl each of which is unsubstituted or substituted by halogen, cyano, methyl, trifluoromethyl, methoxy or carbomethoxy,

R′ is hydrogen, or R together with R′ is C_2–C_3alkylene which is unsubstituted or substituted by methyl,

X is hydrogen, alkyl having 1 to 12 carbon atoms or a substituted or unsubstituted monocyclic or polycyclic aromatic radical and

the ring A is a benzene or naphthalene ring which is unsubstituted or monosubstituted or polysubstituted by halogen, lower alkyl, lower alkoxy or lower alkoxycarbonyl, and the ring B is a carbocyclic aromatic ring which is unsubstituted or substituted by halogen, nitro, lower alkyl, lower alkoxy, lower alkylthio or an amino group.

5,210,233

CYCLIC PERFLUOROPOLYETHER

William B. Farnham, Hockessin, and Ming-Hong Hung, Wilmington, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 713,911, Jun. 12, 1991, Pat. No. 5,134,211, which is a continuation-in-part of Ser. No. 592,172, Oct. 9, 1990, Pat. No. 5,059,720, which is a division of Ser. No. 473,083, Jan. 31, 1990, Pat. No. 4,982,009. This application Apr. 2, 1992, Ser. No. 864,818
Int. Cl.[5] C07D *323/00*
U.S. Cl. 549—353 7 Claims

1 A cyclic ether of the formula

$$\text{—}[CF_2CFHOR^4CF_2CH_2O]_q\text{—}.$$

wherein R^4 is perfluoroalkylene or perfluoroalkylene containing one or more ether oxygen atoms, and q is 2, 3, or 4.

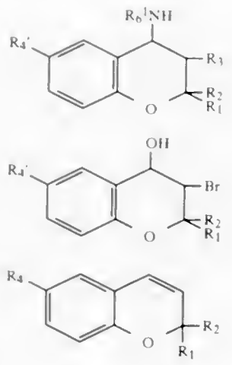
5,210,234

BENZOPYRAN INTERMEDIATES

John M. Evans; Geoffrey Stemp, and Frederick Cassidy, all of Harlow, England, assignors to Beecham Group p.l.c., England

Division of Ser. No. 447,002, Dec. 6, 1989, Pat. No. 4,047,562, which is a division of Ser. No. 45,626, May 1, 1987, Pat. No. 4,943,582. This application Aug. 22, 1991, Ser. No. 748,959
Claims priority, application United Kingdom, May 3, 1986, 8610911; Oct. 3, 1986, 8623768
Int. Cl.[5] C07D *311/22, 311/04*
U.S. Cl. 549—398 10 Claims

1 A compound of the formula



wherein: one of R_1 and R_2 is hydrogen or C_{1-4} alkyl and the other is C_{1-4} alkyl or R_1 and R_2 together are C_{2-5} polymethylene; R_3 is hydroxy, C_{1-6} alkoxy or C_{1-7} alkylcarbonyloxy; R'_4 is ethyl, isopropyl, t-butyl or cyclopentyl, and $R^1{}_6$ is hydrogen or C_{1-6} alkyl; the $R^1{}_6$ NH group being trans to the R_3 group in formula (II) and the bromine atom being trans to the hydroxy group in formula (VIII); provided that in formula (IX) R'_4 is not ethyl.

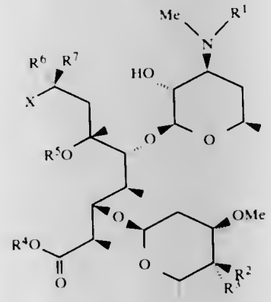
5,210,235

METHODS OF ELABORATING ERYTHROMYCIN FRAGMENTS INTO AMINE-CONTAINING FRAGMENTS OF AZALIDE ANTIBIOTICS

Sherman T. Waddell, Westfield, and Timothy A. Blizzard, Rahway, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

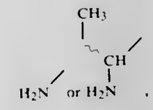
Filed Aug. 26, 1992, Ser. No. 936,176
Int. Cl.[5] C07D *315/00*
U.S. Cl. 549—415 5 Claims

1 A method of synthesizing amine product compounds of the formula



wherein

X is



R^1 is hydrogen, methyl, C_{1-10} alkoxycarbonyl or arylsulfonyl when X is $CH_3CH_2CHNH_2$ and is additionally aralkoxycarbonyl when X is NH_2;

one of R^2 and R^3 is hydrogen and the other is OH, NHR^1 or $NMeR^1$ where R^1 is an defined above;

R^4 is hydrogen or C_{1-10} alkyl when X is $CH_3CH_2CHNH_2$ and is additionally aralkyl when X is NH_2;

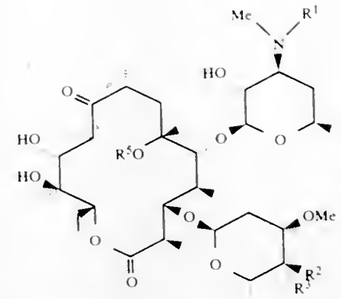
R^5 is hydrogen or C_{1-3} alkyl when X is $CH_3CH_2CHNH_2$;

R^5 is hydrogen when X is NH_2;

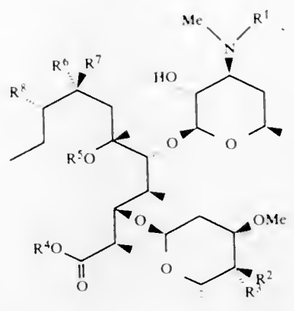
one of R^6 and R^7 is hydrogen and the other is methyl except when X is $CH_3CH_2CHNH_2$ and R^5 is hydrogen, in which case R^6 is methyl and R^7 is hydrogen;

said method comprising the steps of

(1) cleaving an erythromycin-like compound of the formula

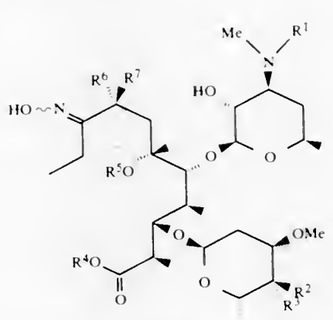


where R^1, R^2, R^3 are as defined before for when X is NH_2 and R^5 is hydrogen or C_{1-3} alkyl, to produce compounds of the formulae



where R^1, R^2, R^3 and R^4 are as defined above for when X is NH_2, R^5 is hydrogen or C_{1-3} alkyl when R^8 is oxo, R^5 is a covalent bond to the C-9 carbon atom when R^8 is hydroxyl, R^6 is methyl and R^7 is hydrogen when R^5 is hydrogen, one of R^6 and R^7 is methyl and the other is hydrogen when R^5 is C_{1-3} alkyl, R^8 is oxo when R^5 is hydrogen or alkyl and R^8 is hydroxyl of either stereochemical orientation when R^5 is a covalent bond to the C-9 carbon atom;

(2) converting the product of step (1) into an oxime of the formula

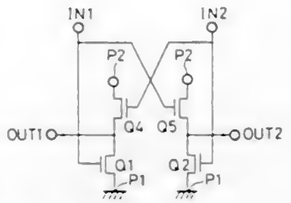


where R^1, R^2, R^3, R^4, R^5, R^6 and R^7 are as defined above; and

(3) elaborating the oxime product of step (2) to said amine product compound, which is as defined above.

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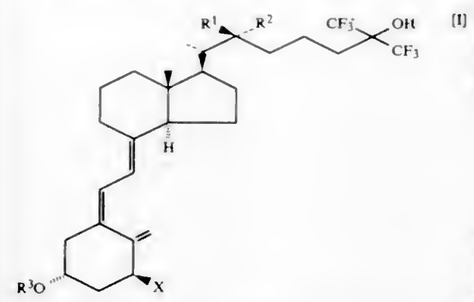
5,210,236
DIFFERENTIAL AMPLIFIER
Toshinari Takayanagi, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 20, 1991, Ser. No. 762,752
Claims priority, application Japan, Sep. 21, 1990, 2-250375
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—253 14 Claims



1. A differential amplifier comprising:
a first potential source;
a second potential source;
a first FET connected .o said first potential source;
a second FET connected to said second potential source;
a third FET connected to said first potential source;
a fourth FET connected to said second potential source;
a first output terminal connected directly to a junction between said first and second FETs;
a second output terminal connected directly to a junction between said third and fourth FETs;
a first input terminal connected to gates of the first and fourth FETs; and
a second input terminal connected to gates of the second and third FETs,
wherein an ON state at said second FET is weakened and an ON state at said fourth FET is strengthened when a high potential and a low potential are loaded in said first input terminal and said second input terminal, respectively, so that a current flows from said second potential source to said second output terminal, thus increasing an amplifying efficiency of said differential amplifier.

5,210,237
VITAMIN D_3 ANALOGUES
Yoshiro Kobayashi, Tokyo; Katsuhiko Iseki; Tadabumi Nagai, both of Tsukuba, all of Japan; Yoko Tanaka, Delmar, N.Y., and Nobuo Ikekawa, Musashino, Japan, assignors to Daikin Industries, Ltd., Osaka, Japan
Filed Aug. 27, 1991, Ser. No. 750,307
Int. Cl.[5] C07J *9/00*
U.S. Cl. 552—653 9 Claims

1. A vitamin D_3 analogue of the formula [I]:

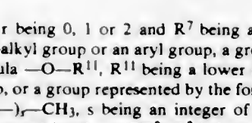


[I]

wherein R^1 is hydrogen atom and R^2 is hydroxy, or R^1 is hydroxy and R^2 is hydrogen atom, X is hydrogen atom, hydroxy or a hydroxy protected by a hydroxy-protecting group, and R^3 is hydrogen atom or a hydroxy-protecting group.

5,210,238
PERFLUORINATED CYCLIC HEMIKETALS, CORRESPONDING PERFLUORODIKETONES AND PROCESS FOR PREPARING THEM
John D. Anderson, South Augusta, Ga.; Darryl D. Desmarteau, Clemson, S.C., and Walter Navarrini, Milan, Italy, assignors to Ausimont S.p.A., Milan, Italy
Filed Jan. 23, 1992, Ser. No. 824,072
Int. Cl.[5] C07D *309/10, 307/20*
U.S. Cl. 549—417 3 Claims

1. Perfluorinated cyclic hemiketal of formula:

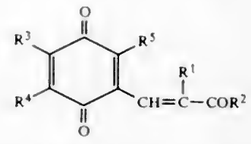


(I)

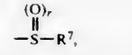
where n is an integer ranging from 1 to 6, m is 2 or 3.

5,210,239
QUINONE DERIVATIVES AND PHARMACOLOGICAL USE
Shinya Abe; Yasushi Okamoto; Katsuya Tagami; Shigeki Hibi; Junichi Nagakawa; Kazuo Hirota; Ieharu Hishinuma; Kaname Miyamoto; Takashi Yamanaka; Hiromitsu Yokohama; Tsutomu Yoshimura; Tohru Horie; Yasunori Akita; Koichi Katayama, and Isao Yamatsu, all of Ibaraki, Japan, assignors to Eisai Co., Ltd., Tokyo, Japan
Filed Aug. 31, 1990, Ser. No. 576,054
Claims priority, application Japan, Sep. 11, 1989, 1-232761
Int. Cl.[5] C07D *265/30, 211/06, 277/04, 333/22*
U.S. Cl. 552—307 26 Claims

1. A quinone derivative represented by the following general formula and pharmacologically acceptable salts thereof:



wherein R^1 is an alkyl group having 2 to 20 carbon atoms, a cycloalkyl group, a cycloalkylalkyl group, an alkenyl group, an alkynyl group, an arylalkyl group, a group represented by the formula $-(-CH_2-)_p-CN$, p being an integer of 1 to 10, a morpholine group, a piperazine group, a thiotolene group, a methyltetrahydropyran group, a methylthiazole group, a piperidine group or a 2-aminothiazole group, a group represented by the formula $-(-CH_2-)_q-B$, q being an integer of 1 to 6 and B being a group of the formula



with r being 0, 1 or 2 and R^7 being a lower alkyl group, a cycloalkyl group or an aryl group, a group represented by the formula $-O-R^{11}$, R^{11} being a lower alkyl group or an aryl group, or a group represented by the formula $-(-CH_2-CH_2-O-)_s-CH_3$, s being an integer of 1 to 3; R^2 is a group represented by the $-OR^8$, R^8 being a hydrogen atom or a lower alkyl group, or a group represented by the formula



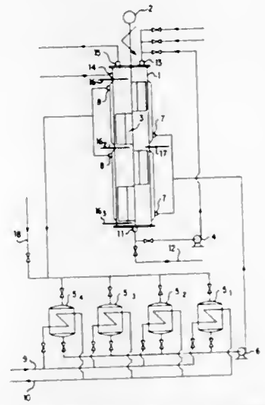
R^9 and R^{10} being the same or different from each other and each being a hydrogen atom, a lower alkyl group, a hydroxyalkyl group, a morpholine group, a piperazine group, a thiotolene group, a methyltetrahydropyran group, a methylthiazole group, a piperidine group or a 2-amino thiazole group, or R^9 and R^{10} may combine with each other to form a heterocyclic group with the adjacent nitrogen atom, said heterocyclic group optionally being substituted; and R^3, R^4 and R^5 are the same or different from each other and each are a hydrogen atom, a lower alkyl group or a lower alkoxy group.

5,210,240
PROCESS FOR THE EXTRACTION OF OIL CONTAINING VEGETABLE MATERIALS
Siegfried Peter, Lindenweg 3, 8525 Uhenreuth-Weiher, and Gerd Brunner, Wallersbacher, Weg 3, 8542 Roth 3, both of Fed. Rep. of Germany
Continuation of Ser. No. 702,353, May 15, 1991, abandoned, which is a continuation of Ser. No. 570,962, Aug. 21, 1990, abandoned, which is a continuation of Ser. No. 456,580, Dec. 26, 1989, abandoned, which is a continuation of Ser. No. 265,331, Oct. 24, 1988, abandoned, which is a continuation of Ser. No. 124,436, Nov. 23, 1987, abandoned, which is a continuation of Ser. No. 764,222, Aug. 9, 1985, abandoned. This application Aug. 20, 1992, Ser. No. 933,594
Claims priority, application Fed. Rep. of Germany, Aug. 9, 1984, 34294163
Int. Cl.[5] C09F *5/00*; C11B *1/00*
U.S. Cl. 554—11 16 Claims

1. A process for the extraction of oils from oil-containing solid vegetable material by means of compressed gases, wherein said vegetable material is extracted with a mixture consisting of a supercritical gas and a subcritical entraining agent selected from the group consisting of propane, butane, pentane, ethanol, ethyl acetate, formaldehydedimethylacetal, CHF_2Cl and mixtures thereof, wherein the conditions of pressure, temperature and composition are selected so as to form a single fluid phase in said mixture of oil, supercritical gas and subcritical entraining agent, said extraction resulting in a loaded extractant which is separated from the extracted material in a separator and converted into an oil-rich liquid phase and a gaseous oil-exhausted phase in a regenerator by temperature increase and/or pressure decrease and said oil rich phase and said oil-exhausted phase are separated and the oil-rich phase is pressure relieved, whereupon, if desired, the entraining agent remaining in the obtained oil is recovered.

5,210,241
PROCESS FOR PREPARING COCOA BUTTER EQUIVALENT FRGM SEMI-REFINED NONTOXIC CHINESE VEGETABLE TALLOW
Yitian Lin, 441 Guang Fu Xi Lu, Shanghai, China
Continuation of Ser. No. 388,770, Aug. 2, 1989, abandoned, which is a continuation-in-part of Ser. No. 2,906, Jan. 13, 1987, abandoned. This application Jan. 3, 1992, Ser. No. 815,605
Claims priority, application China, Jan. 16, 1986, 86100502
Int. Cl.[5] C07C *1/00*; C07B *51/43*
U.S. Cl. 554—8 4 Claims

1. A process for preparing Cocoa Butter Equivalent (CBE) from Chinese Vegetable Tallow (CVT), comprising the steps of:
a) pre-treating said CVT by:
maintaining said CVT at 55°–65° C.;
alkali refining said CVT with an alkali solution maintained at 30°–35° C.;
washing said alkali refined CVT with 0.05–0.1% concentration boiling salt water;
absorbing impurities out of said washed CVT with 0.5–1.0% (by oil weight) white clay to obtain semirefined edible CVT;
b) crystallizing said semi-refined CVT by:
maintaining said semirefined CVT 60°–65° C.;
dissolving said semirefined CVT in petroleum ether which is maintained at 60°–90° C., maintaining the ratio of solvent to solute at the range of 1:1.5–1:6.5 (by weight volume);
crystallizing the CVT solution in a single factional crystallization process intermittently between the temperature of 25°–35° C. and 5°–15° C. for a period of 120–180 minutes, wherein the entire crystallization is completed in a single crystallization tower, said crystallization process comprising a first temperature-decreasing-stage, a second nucleus formation stage, a third crystal growth stage, a fourth crystal maintaining stage, wherein temperature rates of the crystallization are controlled by refrigeration liquid, and wherein different stirring speeds are used in said stages of said crystallization process,
wherein the temperature of the CVT solution is decreased at said stages at the rate of:
i) 0.5°–1.5° C. per minute at said first temperature-decreasing-stage;



ii) 0.1°–0.6° C. per minute at said second nucleus formation stage;
iii) 0.1°–1.0° C. per minute at said third crystal growth stage,
iv) 0.0°–0.2° C. per minute at said fourth crystal maintaining stage,
wherein the temperature decreasing rate is calculated every ten minutes;
wherein the temperature of the refrigerating liquid ranges from 33° C. to 30° C. at said first stage, 20° C. to 10° C. at said second stage, 10° C. to 5° C. at said third stage, and 5° C. to 1° C. at said fourth stage; and
wherein said refrigerating liquid is multi-stage refrigerating liquid and is used to control the speed of the temperature decreasing rate at every stage and to lower the rate of the stirring speed for successive stages of said crystallization process;
after crystallization, separating the crystal solution by vacuum filtration to obtain crystalline filter cake and a first filtrate;
dissolving said crystalline filter cake with petroleum ether vapor and removing the solvent to obtain a by-product of a high melting point filtrate which does not comprise said CBE; and
removing the solvent from said first filtrate; and
c) post treating said first filtrate to obtain the desired CBE by:

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deodorizing said first filtrate with steam distillation at temperature of 170°-245° C. and under a vacuum of 5 mmHg to obtain a final product yield of at least 50% CBE.

5,210,242
PROCESS FOR SOAP SPLITTING USING A HIGH TEMPERATURE TREATMENT

Lutz S. Asbeck, and Walter W. Link, both of Delmenhorst, Fed. Rep. of Germany, assignors to Van den Bergh Foods Co., Division of Conopco, Inc., Lisle, Ill.

Filed Jun. 28, 1990, Ser. No. 546,158
Claims priority, application United Kingdom, Jul. 3, 1989, 8915263
Int. Cl.[5] C11B *13/02*
U.S. Cl. 554—188 8 Claims

1. Process for splitting soapstock, comprising the steps of mixing the soapstock with a soap splitting acid, and of separating the acid water phase formed from the oil phase, characterized in that the mixture of the soapstock and the soap splitting agent are subjected to a high temperature treatment at or above 110° C. during a residence time equal to or more than 2 minutes.

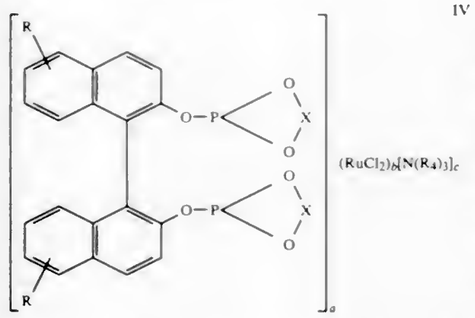
5,210,243
HYDROGENATION OF AROMATIC-SUBSTITUTED OLEFINS USING ORGANOMETALLIC CATALYST

Charles H. Kolich, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 624,571, Dec. 10, 1990, abandoned. This application Nov. 4, 1991, Ser. No. 787,101
Int. Cl.[5] C07F *15/00*
U.S. Cl. 556—18 8 Claims

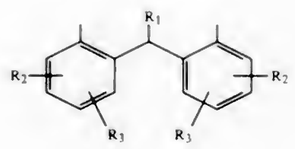
1. A ruthenium-phosphite complex having the formula

IV



$(RuCl_2)_b[N(R_4)_3]_c$

wherein a is from 1 to 3; b is 1 or 2; c is from 0 to 3; and R is hydrogen, alkyl, aryl, halo, amino, acetylamino, or sulfo; and X is



where R_1, R_2, and R_3 are the same or different and are hydrogen or C_1 to C_6 linear or branched alkyl; and R_4 taken together with the nitrogen atom is a straight or branched chain alkyl having 1 to 20 carbon atoms.

5,210,244
PROCEDURE FOR THE PRODUCTION OF VANADIUM BIS-ARENES FROM VANADIUM OXYCHLORIDE

Fausto Calderazzo, Ghezzano; Guido Pampaloni, Pontedera; Francesco Masi, San Donato Milanese; Angelo Moalli, Castelletto Ticino; Maria C. Cassani, Bologna, and Renzo Invernizzi, Milan, all of Italy, assignors to ECP Enichem Polimeri S.r.l., Milan, Italy

Filed Jul. 9, 1992, Ser. No. 911,286
Claims priority, application Italy, Jul. 12, 1991, MI91 A/001934; Jul. 12, 1991, MI91 A/001937
Int. Cl.[5] C07F *17/00, 9/00*
U.S. Cl. 556—43 19 Claims

1. Process for the preparation of a vanadium bis-arene $[V(arene)_2]$, starting from vanadium oxychloride, aluminium metal, aluminium trichloride and an arene, said process comprising:

(a) contacting vanadium oxychloride ($VOCl_3$), active aluminium metal and aluminium trichloride with each other, in a liquid arene, to transform the vanadium oxychloride into the reaction product complex compound $[V(arene)_2]^+[AlCl_4]^-$;

(b) adding a liquid cyclic or acyclic ether to the reaction product of step (a) to reduce the $[V(arene)_2]^+$ to $[V(arene)_2]$; and

(c) recovering the vanadium bis-arene $[V(arene)_2]$ from the reaction product of step (b).

5,210,245
GOLD CARBOXYLATES AND PROCESS FOR PREPARING THE SAME

Thomas E. Nappier, Parma, Ohio, assignor to Mooney Chemicals, Inc., Cleveland, Ohio

Division of Ser. No. 624,652, Dec. 10, 1990. This application Mar. 17, 1992, Ser. No. 852,673
Int. Cl.[5] C07F *1/12*
U.S. Cl. 556—114 25 Claims

1. A method of preparing gold salts of organic acids comprising

(A) preparing a mixture of

(1) at least one alkali or alkaline earth metal salt of an organic carboxylic acid comprising at least 2 carbon atoms,

(2) at least one gold salt having an anion other than the carboxylate anion of (A)(1), and

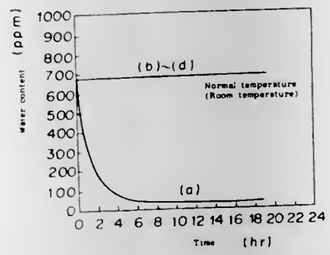
(3) an organic liquid capable of at least partly dissolving the at least one alkali or alkaline earth metal salt of an organic carboxylic acid (1) and the at least one gold salt (2), but wherein a salt formed between the alkali or alkaline earth metal of (1) and the anion of (2) in the mixture is sufficiently insoluble in the organic liquid to drive the reaction in favor of the formation of the gold salt of the carboxylic acid; and

(b) maintaining the mixture (A) at a temperature below the decomposition temperature of components (1), (2) and (3) and gold carboxylated product for a period of time sufficient to form the gold carboxylate.

5,210,246
AMINO GROUP-CONTAINING SILICATE COMPOSITION AND DEHYDRATING AGENT CONTAINING IT

Tetsuya Tanaka, Fujisawa; Hiroaki Katano, and Masaaki Ohtani, both of Yokohama, all of Japan, assignors to Mitsubishi Kasei Corporation and Dow Mitsubhishi Kasei Limited, both of Tokyo, Japan

PCT No. PCT/JP90/01347, § 371 Date Jun. 20, 1991, § 102(e) Date Jun. 20, 1991, PCT Pub. No. WO91/05790, PCT Pub. Date May 2, 1991
PCT Filed Oct. 19, 1990, Ser. No. 688,558
Claims priority, application Japan, Oct. 20, 1989, 1-273021
Int. Cl.[5] C07F *7/10;* C08G *77/02*
U.S. Cl. 556—413 16 Claims



1. An amino group-containing silicate composition obtained by reacting a silicate oligomer obtained by hydrolyzing, dehydrating and polycondensing a tetraalkoxysilane at a degree of hydrolysis within a range of from 0 to 65%, with an amino alcohol having one or two hydroxyl groups.

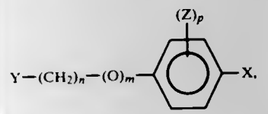
5,210,247
ORGANOSILYLALKYLAROMATIC COMPOUNDS

Norman Häberle, Munich; Wolfgang Haas, Germering; Leonhard Brader, Fischbachau, and Franz-Heinrich Kreuzer, Martinsried, all of Fed. Rep. of Germany, assignors to Consortium für elektrochemische Industrie GmbH, Munich, Fed. Rep. of Germany

Filed Oct. 22, 1990, Ser. No. 600,659
Claims priority, application Fed. Rep. of Germany, Oct. 26, 1989, 3935638
Int. Cl.[5] C07F *7/04, 7/08*
U.S. Cl. 556—413 25 Claims

1. A compound capable of being converted to a liquid crystal having the formula

(II)



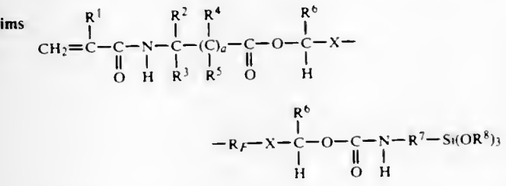
in which n is an integer having a value of at least 2; m is an integer having a value of 1, where the sum of n+m is at least 3; X is a radical selected from the group consisting of the formula —COOH, —CN, —CHO, and —OH, in which the hydroxyl group may be blocked by a protecting group; Y is an organosilicon radical; Z is a substituent in the 2-, 3-, 5- or 6-position to the radical X, and p has a value of from 0 to 4.

5,210,248
FLUORINATED ACRYLAMIDE SILANE MONOMERS AND POLYMERS

Stefan A. Babirad, St. Paul; Dean M. Moren, North St. Paul; Steven M. Heilmann, Afton; Larry R. Krepski, White Bear Lake, and Jerald K. Rasmussen, Stillwater, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 26, 1991, Ser. No. 749,926
Int. Cl.[5] C07F *7/10*
U.S. Cl. 556—420 7 Claims

1. A fluorinated acrylamide silane having the formula



wherein:

R^1 and R^6 are independently hydrogen or methyl;

R^2 and R^3 independently can be an alkyl, cycloalkyl, or aryl groups, or R^2 and R^3 taken together with the carbon to which they are joined can form a carbocyclic ring containing 4 to 12 ring atoms;

R^4 and R^5 are independently hydrogen or lower alkyl;

R^7 is alkylene, cycloalkylene, or arylene;

R^8 is hydrogen or lower alkyl;

a is zero or 1;

X is a carbon-to-carbon single bond, CH_2, CH_2OCH_2, or $CH_2CH_2OCH_2$; and

R_F is a substantially perfluorinated alkyl, cycloalkyl, or aryl group, comprising up to 6 catenary non-peroxidic oxygen atoms.

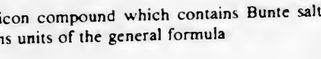
5,210,249
ORGANOSILICON COMPOUNDS CONTAINING S-ALKYLTHIOSULFATE GROUPS, PROCESSES FOR THEIR PREPARATION AND USE OF THE SAME

Rudolf Hager, Altötting, and Bernward Deubzer, Burghausen, both of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Sep. 14, 1992, Ser. No. 944,579
Claims priority, application Fed. Rep. of Germany, Oct. 24, 1991, 4135142
Int. Cl.[5] C07F *7/08, 7/10*
U.S. Cl. 556—428 10 Claims

1. An organosilicon compound which contains Bunte salt groups and contains units of the general formula

(I)



wherein R is a hydrogen atom or a monovalent organic radical, R^1 is a hydrogen atom or a monovalent organic radical, R^2 is a radical $—QS_2O_3M$, where Q is a divalent hydrocarbon radical and M is an alkali metal radical or optionally a substituted ammonium radical, a is 0, 1, 2 or 3, b is 0, 1, 2 or 3, and c is 0, 1, 2 or 3 with the proviso that the organosilicon compound contains at least one radical R^2 and the sum of a, b and c is less than or equal to 3.

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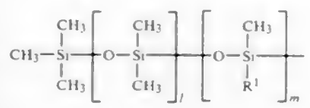
5,210,250
METHOD FOR DECOLORIZING PURIFICATION OF HALOGENATED SILANE
Isao Watanuki; Hiroshi Tsumura; Nobuhiko Kodana, all of Gunma; Kazushi Satoh, Tokyo; Masanori Fukuhira, and Hidehiko Aonuma, both of Gunma, all of Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan
Filed Aug. 27, 1992, Ser. No. 935,797
Claims priority, application Japan, Aug. 28, 1991, 3-242624
Int. Cl.[5] C07F 7/08
U.S. Cl. 556—466 11 Claims

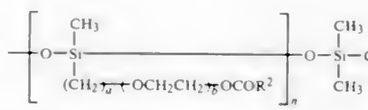
1. A method for the decolorizing purification of a halogenated silane compound, which is liquid at room temperature, represented by the formula $R^1_{4-a}SiX_a$, in which X is an atom of halogen, R^1 is a hydrogen atom or a monovalent hydrocarbon group and the subscript a is 1, 2, 3 or 4, which method comprises the:
(a) bringing the halogenated silane compound into contact with a cationic surface active agent which is solid at room temperature and insoluble in the halogenated silane compound; and
(b) separating the halogenated silane compound from the cationic surface active agent.

5,210,251
ESTER-MODIFIED SILICONE DERIVATIVE AND A COSMETIC COMPOSITION CONTAINING THE SAME
Yukihiro Ohashi; Ken Takeuchi; Mituo Suda; Koji Yoshino; Akira Kawamata, all of Tochigi; Yoko Mastui, and Yuji Suzuki, both of Chiba, all of Japan, assignors to Kao Corporation, Tokyo, Japan
Filed Mar. 13, 1991, Ser. No. 668,646
Claims priority, application Japan, Mar. 15, 1990, 2-65433
Int. Cl.[5] C07F 7/08
U.S. Cl. 556—437 2 Claims

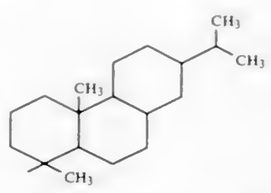
1. An ester-modified silicone derivative of formula (I):

(I)





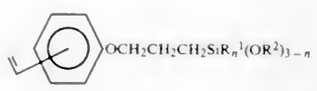
wherein R^1 in formula (I) represents a saturated or unsaturated straight- or branched-chain aliphatic hydrocarbon group having from 2 to 30 carbon atoms, a saturated or unsaturated alicyclic hydrocarbon group having from 3 to 30 carbon atoms or an aromatic hydrocarbon group having from 6 to 30 carbon atoms; and R^2 in formula (I) represents a group of the formula:



l and m each represents a number of from 0 to 100; n represents a number of from 1 to 100; a represents a number of from 3 to 16; and b represents a number of from 1 to 3.

5,210,252
3-(VINYLPHENYLOXY)PROPYLSILANE COMPOUND
Tohru Kubota; Toshinobu Ishihara; Mikio Endo, and Katsuhiro Uehara, all of Joetsu, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Japan
Filed Aug. 24, 1992, Ser. No. 933,665
Claims priority, application Japan, Aug. 26, 1991, 3-213503
Int. Cl.[5] C07F 7/08, 7/18
U.S. Cl. 556—445 3 Claims

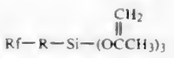
1. A 3-(vinylphenyloxy)propylsilane compound represented by the following general formula [1]:



wherein R^1 and R^2 each represents a hydrocarbon group having 1 to 4 carbon atoms and n is an integer ranging from 0 to 2.

5,210,253
FLUORINE-CONTAINING ORGANOSILICON COMPOUND
Hitoshi Kinami, Annaka; Kouichi Yamaguchi, Takasaki; Hideki Fujii, Annaka, and Shuji Suganuma, Takasaki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan
Filed Oct. 15, 1992, Ser. No. 961,361
Claims priority, application Japan, Oct. 17, 1991, 3-298324
Int. Cl.[5] C07F 7/08, 7/18
U.S. Cl. 556—448 7 Claims

1. A fluorine-containing organosilicon compound of the general formula (I):



(I)

wherein Rf is a perfluoropolyether group having 3 to 17 carbon atoms, R is an alkylene group of 1 to 6 carbon atoms or a group of the formula, $—R^2—O—R^3—$ wherein R^2 and R^3 may be the same or different and are each alkylene groups of 1–6 carbon atoms.

5,210,254
ACIDIC HALIDE NEUTRALIZATION IN ALKOXYSILANES
James S. Ritscher, and Scot M. Turner, both of Marietta, Ohio, assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.
Filed Mar. 31, 1992, Ser. No. 861,273
Int. Cl.[5] C07F 7/08, 7/18
U.S. Cl. 556—466 14 Claims

1. A process for removing acidic halide contained in an alkoxysilane which comprises contacting said alkoxysilane under substantially anhydrous conditions with (i) a base in a stoichiometric excess based on the level of said acidic halide, and (ii) a stoichiometric excess of an acid salt based on the level of residual excess base contained in the alkoxysilane.

5,210,255
PROCESS FOR THE PREPARATION OF METHYLCHLOROSILANES
Wilfried Kalchauer, and Bernd Pachaly, both of Burghausen, Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany
Filed Sep. 14, 1992, Ser. No. 944,575
Claims priority, application Fed. Rep. of Germany, Oct. 17, 1991, 4134422
Int. Cl.[5] C07F 7/08
U.S. Cl. 556—468 5 Claims

1. A process for preparing methylchlorosilanes which comprises reacting methylchlorodisilanes with hydrogen chloride in the presence of a catalytic amount of a metal from subgroup VIII of the Periodic Table.

5,210,256
2-METHYL-3-CHLOROPROPYL-CYCLOHEXYLDI-CHLOROSILANE
Bernhard Lillig, and Claus-Dietrich Seiler, both of Rheinfelden, Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany
Filed Sep. 29, 1992, Ser. No. 954,164
Claims priority, application Fed. Rep. of Germany, Oct. 23, 1991, 4134977
Int. Cl.[5] C07F 7/08, 7/18
U.S. Cl. 556—488 5 Claims

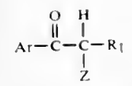
1. 2-methyl-3-chloropropyl-cyclohexyldichlorosilane.

5,210,257
PREPARATION OF ARYL COMPOUNDS CONTAINING CARBOXYL AND SULFONYL GROUPS
William J. Harris, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed Apr. 12, 1991, Ser. No. 685,257
Int. Cl.[5] C07C 65/105, 323/20, 323/21, 309/32
U.S. Cl. 558—49 17 Claims

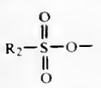
1. A difunctional aryl compound comprising:
i) a carboxylic acid group or its acid halide, alkyl ester, amide, aryl ester, or thioester derivative,
ii) a first aromatic group bonded to the carboxylic acid group or its acid halide, alkyl ester, amide, aryl ester, or thioester derivative,
iii) a second aromatic group linked to the first aromatic group by a non-electron-withdrawing moiety which is an oxygen or sulfur atom,
iv) a third aromatic group linked to the second aromatic group by a non-electron-withdrawing moiety which is an oxygen or sulfur atom, and
v) a sulfonyl group or its acid halide, alkyl ester, amide, aryl ester, or thioester derivative bonded to the third aromatic group.

5,210,258
OPTICALLY ACTIVE ALPHA-NATHTHYLALKYL KETONES
George C. Schloemer, Lyons, Colo., assignor to Syntex Pharmaceuticals International Ltd., Hamilton, Bermuda
Division of Ser. No. 312,367, Feb. 15, 1989, abandoned, which is a division of Ser. No. 191,312, May 6, 1988, Pat. No. 4,912,254, which is a division of Ser. No. 872,561, Jun. 10, 1986, Pat. No. 4,749,804, which is a division of Ser. No. 602,834, Apr. 23, 1984, Pat. No. 4,605,758, which is a continuation of Ser. No. 329,672, Dec. 11, 1981, abandoned. This application Apr. 29, 1992, Ser. No. 875,915
Int. Cl.[5] C07C 309/65, 49/21
U.S. Cl. 558—52 21 Claims

1. A material comprising a compound of the formula:



having an optical purity of greater than 90%, wherein Ar is 6-methoxy-2-naphthyl, R_1 is alkyl or cycloalkyl and Z is halogen, hydroxy, acetoxy, benzoyloxy, dihydropyranyloxy, trialkylsiloxy or a group of the formula:



wherein R_2 is alkyl, cycloalkyl, alkenyl, alkynyl, aryl or aralkyl.

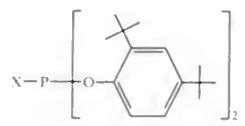
5,210,259
PROCESS FOR THE OXIDATION OF DIALKYL ESTERS OF 2-HYDROXY-ETHYLPHOSPHONIC ACID
Ernst 1. Leupold, Neu-Anspach, and Günter Roscher, Kelkheim/Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
PCT No. PCT/EP90/01980, § 371 Date May 22, 1992, § 102(e) Date May 22, 1992, PCT Pub. No. WO91/08210, PCT Pub. Date Jun. 13, 1991
PCT Filed Nov. 20, 1990, Ser. No. 859,416
Claims priority, application Fed. Rep. of Germany, Nov. 27, 1989, 3939142
Int. Cl.[5] C07F 9/40, 9/6571
U.S. Cl. 558—86 15 Claims

1. A process for the preparation of diesters of carboxymethylphosphonic acid of the formula $(RO)_2P(O)CH_2CO_2H$, in which R is a straight-chain or branched alkyl radical having 1 to 20 carbon atoms, a cycloaliphatic radical having 5 to 8 carbon atoms, a phenyl or naphthyl radical which can be substituted, an aralkyl radical having 7 to 10 carbon atoms, or in which the $(RO)_2P$ group forms a ring which contains 2 to 5 carbon atoms which can be substituted, which comprises: reacting diesters of 2-hydroxyethylphosphonic acid of the formula $(RO)_2P(O)CH_2CH_2OH$, in which R has the above-mentioned meaning, with oxygen in the presence of water and a solid catalyst which contains at least one metal selected from the platinum metals group.

5,210,260
PROCESS FOR OBTAINING BIS(2,4-DI-TERT-BUTYLPHENYL) HALOPHOSPHITES
Manfred Böhshar, Kelkbeim, and Hans-Jerg Kleiner, Kronberg, both of Fed. Rep. of Germany, assignors to Hoechst AG, Frankfurt am Main, Fed. Rep. of Germany
PCT No. PCT/EP90/01843, § 371 Date Jul. 6, 1992, § 102(e) Date Jul. 6, 1992, PCT Pub. No. WO91/07415, PCT Pub. Date May 30, 1991
PCT Filed Nov. 3, 1990, Ser. No. 856,073
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1989, 3937610
Int. Cl.[5] C07F 9/146
U.S. Cl. 558—90 17 Claims

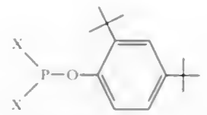
1. Process for obtaining bis(2,4-di-tert-butylphenyl) halophosphites of the formula

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(I)

in which X is a halogen having an atomic weight of at least 35, which comprises heating a 2,4-di-tert-butylphenyl dihalophosphite of the formula (II)



(II)

to 130° to 280° C. in the presence of a catalytically active compound containing nitrogen and/or phosphorus and removing the phosphorus trihalide, formed in this way by disproportionation, from the reaction mixture.

5,210,261

PRODUCTION OF PHOSPHOROTHIOATE SALTS

Barrie D. James, Yarm, and Roger Scattergood, Reading, both of United Kingdom, assignors to Ethyl Petroleum Additives, Ltd., Bracknell, England

Continuation of Ser. No. 451,455, Dec. 15, 1989, abandoned. This application Apr. 8, 1992, Ser. No. 865,679

Claims priority, application United Kingdom, Dec. 19, 1988, 8829597

Int. Cl.[5] C07F 9/165

U.S. Cl. 558—123 19 Claims

1. Process for the preparation of an amine salt of a phosphorothioic acid of formula:

$$(RO)_2PLS^- HN^+R_1R_2R_3$$

in which the radicals R are the same or different and each is a hydrocarbyl radical of up to 20 carbon atoms and R_1, R_2 and R_3 are each hydrogen or hydrocarbyl radicals of up to 22 carbon atoms, not more than two of R_1, R_2 and R_3 being hydrogen, which comprises:

(1) forming a mixture of sulphur and an amine or amine mixture of formula $NR_1R_2R_3$ in the liquid state,

(2) adding to the mixture so obtained a phosphite ester of formula $(RO)_2POH$ in an amount at least equivalent on a molar basis to the amount of sulphur in said mixture under conditions such that the sulphur reacts with the said ester and the reaction temperature does not rise above 130° C., said addition being commenced sufficiently soon after the formation of said mixture of (1) whereby the formation of dark colored bodies from a reaction of said amine and said sulphur is substantially suppressed,

(3) continuing said reaction until solid sulphur has substantially disappeared from the reaction mixture, and, if necessary,

(4) adding additional amine so that the total molar quantity of amine present is at least equivalent to the molar quantity of the phosphite ester used.

5,210,262

METHOD FOR PREPARING A PHOSPHONIC ACID ESTER

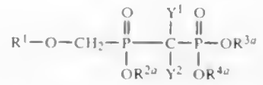
Janak Singh, Lawrenceville, and Richard H. Mueller, Ringoes, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 381,339, Jul. 17, 1989, Pat. No. 5,177,239. This application Sep. 14, 1992, Ser. No. 944,583

Int. Cl.[5] C07F 9/40, 9/38

U.S. Cl. 558—134 9 Claims

1. A method for preparing a compound having the structure

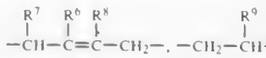


wherein

Y^1 and Y^2 are H or halogen;

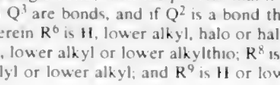
R^{2a}, R^{3a} and R^{4a} may be the same or different and are independently C_1 to C_8 alkyl or C_3 to C_{12} alkenyl;

R^1 is R^5-Q^1-Q^2-Q^3- wherein Q^1, Q^2 and Q^3 are the same or different and are independently



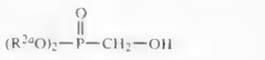
$-CH_2-C\equiv C-CH_2-$

or a single bond, with the proviso that if Q^1 is a bond, then Q^2 and Q^3 are bonds, and if Q^2 is a bond then Q^3 is a bond, and wherein R^6 is H, lower alkyl, halo or haloalkyl; R^7 is H, halogen, lower alkyl or lower alkylthio; R^8 is H, halogen, trimethylsilyl or lower alkyl; and R^9 is H or lower alkyl;



R^5 is $R^{10}-C(R^{11})=C(R^{12})-CH_2-$, $R^{14}-CH(R^{13})-CH_2-CH_2-$,

$CH_3(CH_2)_p$ where p is an integer from 2 to 7 or $R^{16}-C\equiv C-CH_2-$ where R^{16} is H or lower alkyl; R^{10} and R^{11} are the same or different and are independently H, lower alkyl, haloalkyl, halogen or lower alkenyl or R^{10} and R^{11} can be taken together to form $(CH_2)_s$ where s is an integer from 2 to 7; R^{12} is H, lower alkyl, halogen or lower alkenyl; and R^{13} and R^{14} are the same or different and are independently lower alkyl; with the proviso that if all of Q^1, Q^2 and Q^3 are bonds, then both R^{10} and R^{11} cannot be H, and R^5 cannot be $CH_3(CH_2)_p$- with p less than or equal to 4, and including all stereoisomers thereof, which comprises treating a solution of a carbinol of the structure



in an inert organic solvent, with a strong base which has the structure

$$KN[Si(Alkyl)_3]_2$$

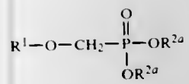
at a temperature of within the range of from about −20° C. to about 20° C., under an inert atmosphere, to form an alkoxide of the structure



reacting an allylic halide of the structure

$$R^1Hal$$

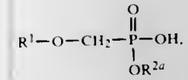
wherein Hal is Cl, Br or I, wherein R^1 is as defined above, with said alkoxide, at a temperature within the range of from about −20° C. to about 20° C., to form the phosphonic acid diester of the structure



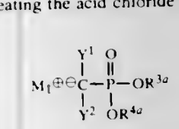
treating the phosphonic acid diester with a strong aqueous base, an alkali metal cyanide or an alkali metal halide or treating said diester with bromotrimethylsilane or iodotrimethylsilane, under an inert atmosphere, in the presence of 2,4,6-collidine, and then treating with an alcohol of the formula

$$R^{2a}OH$$

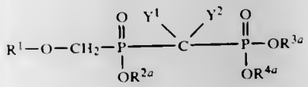
and dicyclohexylcarbodiimide to form the monoester



treating the monoester with diethyl(trimethylsilyl)amine, under an inert atmosphere, treating and resulting reaction product with oxalyl chloride to form the acid chloride, and treating the acid chloride with a metal salt of the structure



where M_1 is Li^+, Na^+, K^+, MgHal, $^+$ZnHal, $Ce(Hal)_2$ or Cu^+, and R^{3a} and R^{4a} are independently selected from C_1-C_8 alkyl or C_3-C_{12} alkenyl, to form the phosphinyl-phosphonate of the formula



5,210,263

INOSITOL PHOSPHATE ANALOGS AND METHODS FOR THEIR USE

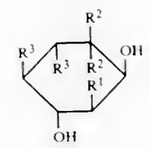
Alan P. Kozikowski, Ponte Verda Beach, Fla., and Garth Powis, Tucson, Ariz., assignors to University of Pittsburgh, Pittsburgh, Pa. and Mayo Foundation For Medical Education and Research, Rochester, Minn.

Filed May 15, 1990, Ser. No. 524,267

Int. Cl.[5] C07F 9/117

U.S. Cl. 558—161 5 Claims

1. A compound represented by the general formula I:



I

wherein:

R^1 is selected from the group consisting of $-OP)_3H_2$ and $-OPO_3^=$;

each R^2 is independently selected from the group consisting of C_{1-8} linear or branched alkyl, —F, —Cl, —Br, —I, NH_2, $-N_3$, —NHOH, $-NHNH_2$, —CN, —NC, —SH, —SeH, —H, and each R^2 can be joined to form $=NOH$, $=NNH_2$,

each R^3 is independently selected from the group consisting of $-OPO_3H_2$, $-OPO_3^=$ and —OH;

with the proviso that at least one of said R^2 is H except when:

(i) each R^2 is joined to form $=NOH$, $=NNH_2$, $=O$ or $=S$; and

(ii) R^2 is —F, —Cl, —Br, or —I, then the other R^2 is —F, —Cl, —Br, —I, or H.

5,210,264

S-(2,4-DICHLOROBENZYL)-B-CYANOETHYL PHOSPHOROTHIOATE DIESTER

Eric K. Yau, Kirkland, Wash., assignor to ISIS Pharmaceuticals, Inc., Carlsbad, Calif.

Filed Jan. 10, 1992, Ser. No. 818,928

Int. Cl.[5] C01B 25/00, 25/14

U.S. Cl. 558—167 1 Claim

1. The compound S-(2,4-Dichlorobenzyl)-β-cyanoethyl phosphorothioate diester or a salt thereof.

5,210,265

REACTIVE COMPOUNDS CONTAINING PERFLUOROCYCLOBUTANE RINGS

Katherine S. Clement; David A. Babb, and Bobby R. Ezzell, all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 364,686, Jun. 9, 1989, Pat. No. 5,021,602. This application Mar. 12, 1991, Ser. No. 668,295

Int. Cl.[5] C07C 327/04, 35/04; C08F 18/02, 12/20

U.S. Cl. 558—230 20 Claims

1. A polymer which is the reaction product of a first compound having at least one perfluorocyclobutane ring and at least two functional groups and at least one second compound having at least two functional groups reactive with the functional groups of the first compound.

VOL 1150 ISS 2 MY 11 1993 UMI

5,210,266

N-SUBSTITUTED MERCAPTOPROPANAMIDE DERIVATIVES

Tetsutaro Mimura, Osaka; Yasuhisa Nakamura, Takatsuki; Junko Nishino, Higashi-Osaka; Tadahiro Sawayama, Kawanishi; Takashi Sasagawa, Ikeda; Takashi Deguchi, Toyonaka, and Hideo Nakamura, Tenri, all of Japan, assignors to Dainippon Pharmaceutical Co., Ltd., Osaka, Japan

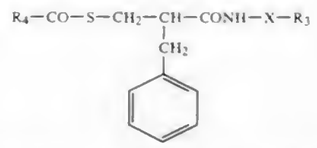
Continuation-in-part of Ser. No. 503,969, Apr. 4, 1990, abandoned, which is a continuation-in-part of Ser. No. 274,843, Nov. 22, 1988, abandoned, and a continuation-in-part of Ser. No. 504,654, Apr. 4, 1990, Pat. No. 5,179,125, which is a division of Ser. No. 274,843, Nov. 22, 1988, abandoned. This application Nov. 5, 1990, Ser. No. 609,450

Claims priority, application Japan, Dec. 3, 1987, 62-306763; Aug. 10, 1988, 63-200697

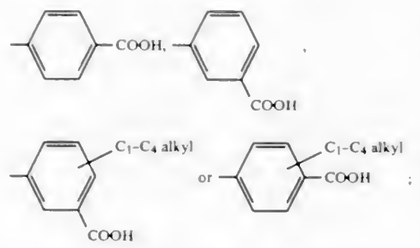
Int. Cl.[5] C07C *323/60, 327/32*; A61K *31/95*

U.S. Cl. 558—254 13 Claims

1. An N-substituted mercaptopropanamide derivative of the formula:



wherein R_4 is a C_1-C_4 alkyl group, and $-X-R_3$ is



or a pharmaceutically acceptable salt thereof.

12. A method for the treatment of mild to moderate pain, which comprises administering an effective amount of the compound as set forth in claim 1 to patients suffering from the pain.

5,210,267

OPTICALLY-ACTIVE ALIPHATIC β-HALOGEN SUBSTITUTED CARBOXYLIC ACID 4'-(4-ALKOXYBENZYLOXY)BIPHENYL THIOESTER COMPOUNDS AND PROCESS FOR THE PREPARATION THEREOF

Youngjae Chun, Euiwang, and Junha Suh, Bucheon, both of Rep. of Korea, assignors to Samsung Electron Devices Co., Ltd., Rep. of Korea

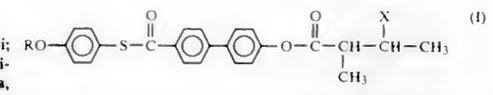
Filed Apr. 16, 1991, Ser. No. 686,743

Claims priority, application Rep. of Korea, Oct. 31, 1990, 90-17641

Int. Cl.[5] C07C *327/16*

U.S. Cl. 558—255 2 Claims

1. Smectic liquid crystal compounds of optically-active aliphatic β-halogen substituted carboxylic acid 4'-(4-alkoxybenzyloxy)biphenyl thioester defined by the general formula:



wherein R represents a straight-chained alkyl radical having C_2 to C_{10} carbon atoms and X represents a halogen atom, said compounds having high spontaneous polarization.

5,210,268

PROCESS FOR CONTINUOUSLY PRODUCING AN AROMATIC CARBONATE

Shinsuke Fukuoka; Masahiro Tojo, both of Kurashiki, and Mamoru Kawamura, Omiya, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

PCT No. PCT/JP90/01734, § 371 Date Jun. 28, 1991, § 102(e) Date Jun. 28, 1991, PCT Pub. No. WO91/09832, PCT Pub. Date Jul. 11, 1991

PCT Filed Dec. 28, 1990, Ser. No. 688,588

Claims priority, application Japan, Dec. 28, 1989, 1-338179; Dec. 28, 1989, 1-338180; Feb. 21, 1990, 2-38436

Int. Cl.[5] C07C *69/96*

U.S. Cl. 558—270 16 Claims

1. In a process for producing an aromatic carbonate which comprises transesterifying a starting material selected from the group consisting of a dialkyl carbonate represented by



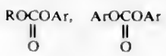
an alkyl aryl carbonate represented by



and a mixture thereof with a reactant selected from the group consisting of an aromatic hydroxy compound represented by Ar^1OH, an alkyl aryl carbonate represented by



and a mixture thereof, wherein each of R^1, R^2 and R^3 independently represents an alkyl group having 1 to 10 carbon atoms, an alicyclic group having 3 to 10 carbon atoms or an aralkyl group having 6 to 10 carbon atoms and each of Ar^1, Ar^2 and Ar^3 independently represents an aromatic group having 5 to 30 carbon atoms, to thereby produce an aromatic carbonate or aromatic carbonate mixture corresponding to the starting material and the reactant and represented by



or a mixture thereof, wherein R and Ar are, respectively, selected from R^1, R^2 and R^3 and selected from Ar^1, Ar^2 and Ar^3 in correspondence to the starting material and the reactant and produce an aliphatic alcohol, a dialkyl carbonate or a mixture thereof corresponding to the starting material and the reactant and represented by ROH,



or a mixture thereof, wherein R is as defined above as a by-product, with the proviso that when R is R^2, Ar is not Ar^2, the improvement in which said starting material and said reactant are continuously fed to a continuous multi-stage distillation column to effect transesterification reaction therebetween in at least one phase selected from a liquid phase and a gas-liquid phase in the presence of a catalyst in said distillation column, while continuously withdrawing a high boiling point reaction mixture containing the produced aromatic carbonate or aromatic carbonate mixture in a liquid form from a lower portion of the distillation column and continuously withdrawing a low boiling point reaction mixture containing the by-product in a gaseous form from an upper portion of the distillation column by distillation, thereby enabling the aromatic carbonate or aromatic carbonate mixture to be produced continuously.

5,210,269

PROCESS FOR PRODUCING DIMETHYL CARBONATE

Nicola Di Muzio, Peschiera Borromeo; Carlo Fusi, Bergamo; Franco Rivetti, Milan, and Giacomo Sasselli, San Donato Milanese, all of Italy, assignors to Enichem Synthesis S.p.A., Palermo, Italy

Filed Jun. 3, 1991, Ser. No. 709,583

Claims priority, application Italy, Jun. 4, 1990, 20530 A/90

Int. Cl.[5] C07C *68/00, 69/96*; B01J *27/122*

U.S. Cl. 558—277 10 Claims

1. Process for the continuous preparation of dimethyl carbonate, which process comprises:

(a) feeding methanol, carbon monoxide and oxygen to a reaction chamber maintained under reaction conditions and containing a liquid reaction mixture consisting of methanol, dimethyl carbonate, water, and a copper catalyst;

(b) vapourising from the reaction mixture a stream of methanol, water and dimethyl carbonate, which is developed together with the carbon-monoxide-containing gas stream; and

(c) recovering from said vapourised mixture water and dimethyl carbonate in amounts substantially equal to the respective amounts thereof formed in the reaction chamber; and recycling the other components to the reaction chamber;

said process being essentially characterized in that the composition and the volume of the liquid reaction mixture are kept substantially constant over time, with methanol concentration and water concentration being respectively kept equal to, or higher than, 30% by weight, and equal to, or lower than, 10% by weight, relatively to the weight of the same mixture.

5,210,270

METHOD FOR SYNTHESIS AND ^{99m}C LABELLING OF 2-ALKOXYISOBUTYLISONITRILE

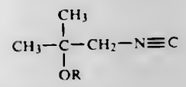
Lee Te-Wei; Ting Gann, both of Taipei; Su Chang-Shinn, and Chyi Shyh-Yi, both of Tau-Yen, all of Taiwan, assignors to Institute of Nuclear Energy Research, Taiwan

Filed Nov. 25, 1991, Ser. No. 797,066

Int. Cl.[5] C07C *249/00*

U.S. Cl. 558—302 7 Claims

1. A method for synthesis of 2-alkoxyisobutylisonitrile using isobutylene as the starting material, said method comprising a haloalkoxylation of said isobutylene to give 2-alkoxyisobutylhalide, converting the 2-alkoxyisobutylhalide to 2-alkoxyisobutylamine, and under basic conditions reacting said 2-alkoxyisobutylamine with chloroform to produce 2-alkoxyisobutylisonitrile, wherein the product 2-alkoxyisobutylisonitrile has a general formula



(I)

wherein R is an alkyl group having 1–4 carbon atoms.

5,210,271

INTERMEDIATES FOR THE PRODUCTION OF DIETHANOLAMINE

Yukio Mizuno, Toyono, and Miichiro Arita, Nara, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

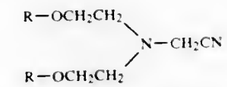
Filed Aug. 23, 1991, Ser. No. 748,964

Claims priority, application Japan, Sep. 3, 1990, 2-234302

Int. Cl.[5] C07C *255/25, 253/04, 271/10, 269/02*

U.S. Cl. 558—442 2 Claims

1. A compound of the formula:



wherein R stands for a C_{1-6} alkylcarbamoyl group.

5,210,272

PROCESS FOR FORMING A FLUOROMETHYL KETONE

James T. Palmer, San Ramon, Calif., assignor to Prototek, Inc., Dublin, Calif.

Division of Ser. No. 481,995, Feb. 16, 1990, Pat. No. 5,101,068. This application Aug. 14, 1991, Ser. No. 744,922

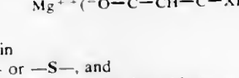
Int. Cl.[5] C07C *315/04, 45/41*

U.S. Cl. 560—13 5 Claims

1. A method for forming a fluoromethyl ketone from a carboxylic acid which comprises the steps of

a. converting the carboxylic acid to give the corresponding imidazolide,

b. reacting the imidazolide with a magnesium fluoromalonate of the formula



wherein

X is —O— or —S—, and

R' is an a hydrogenatively cleavable group

to yield the corresponding beta-keto-alpha-fluoroester of the carboxylic acid, and

c. hydrogenating the beta-keto-alpha-fluoroester of the carboxylic acid thereby causing its decarboxylation and formation of the fluoromethyl ketone.

5,210,273

PROCESS FOR THE PREPARATION OF MONO- AND OLIGOURETHANES

Helmut Reiff, and Dieter Dieterich, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 554,037, Jul. 17, 1990, abandoned. This application May 13, 1991, Ser. No. 698,871

Claims priority, application Fed. Rep. of Germany, Jul. 25, 1989, 3924545; Canada, Jul. 9, 1990, 2020692; European Pat. Off., Jul. 12, 1990, 90113304.1; Japan, Jul. 23, 1990, 2-193205; Grenada, Jul. 24, 1990, 342996

Int. Cl.[5] C07C *269/06, 229/00*

U.S. Cl. 560—24 12 Claims

1. A process for preparing an N,N-disubstituted mono- or oligourethane comprising reacting

(a) an n-aromatically, n-aliphatically, N-cycloaliphatically, or n-araliphatically substituted mono- or oligourethane

(b) with a dialkyl carbonate in the presence of

(c) at least stoichiometrically equivalent quantities of a solid alkali or alkaline earth carbonate in excess dialkyl carbonate, an aprotic organic solvent, or a mixture thereof, and in the presence of a phase transfer catalyst.

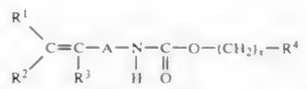
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,274
ETHYLENICALLY UNSATURATED, FLORINE-CONTAINING URETHANE DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Hans-Ullrich Huth, Egelsbach, Fed. Rep. of Germany, assignor to Hoechst AG, Fed. Rep. of Germany

Filed Feb. 25, 1991, Ser. No. 661,052
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1990, 4006097
Int. Cl.[5] C07C *271/14*
U.S. Cl. 560—26 5 Claims

1. An ethylenically unsaturated, fluorine-containing urethane derivative of the Formula I,



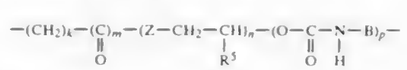
(I)

in which R^1 to R^4, A and the numerical index x have the following meanings:

R^1, R^2 and R^3, which may be identical or different, are H, $-CH_3$,

x is 1 or 2

A is $-(CH_2)_y-$, y is 1 to 6, tert-butylphenylene—[$C_6H_3-C(CH_3)_3$]— or $-C_6H_4C(CH_3)_2-$ or



where

Z is oxygen or NH,

R^5 is H, $-CH_3$, $-C_2H_5$,

B is (C_6-C_{16})arylene which may contain (C_1-C_{10})alkyl radicals, (C_2-C_{12})alkylen or (C_6-C_{10})cycloalkylene,

k, m, p are 0 or 1,

n is 1 to 5,

R^4 is $-(C_2F_4)_qH$, $-(CF_2)_rH$, $-C_rF_{2r}-O-R^6$,

q is 1 to 6,

r is 1 to 9,

R^5 is (C_1-C_{12})alkyl which may be partially or fully substituted by fluorine atoms, or is (C_6-C_{12})aryl or (C_7-C_{12})alkaryl which may be partially or fully substituted by fluorine atoms.

5,210,275
CHROMOPHORES, SUNSCREEN COMPOSITIONS AND METHODS FOR PREVENTING SUNBURN

Anthony D. Sabatelli, Hamilton, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

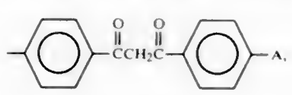
Division of Ser. No. 483,497, Feb. 14, 1990, Pat. No. 5,138,089, which is a division of Ser. No. 54,085, Jun. 2, 1987, Pat. No. 4,937,370, which is a continuation-in-part of Ser. No. 879,724, Jun. 27, 1986, abandoned. This application Jul. 31, 1992, Ser. No. 923,292
Int. Cl.[5] C07C *69/76*
U.S. Cl. 560—36 11 Claims

1. A sunscreen compound having the structure:

X-B-Z

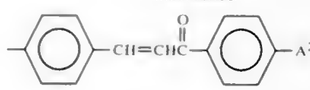
wherein

(a) —X is a UVA-absorbing moiety selected from the group consisting of those having the structures:

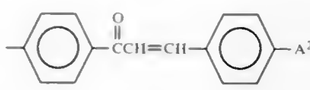


(i)

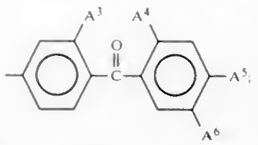
-continued



(ii)

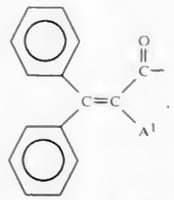


(iii)



(iv)

(b) —Z is a UVB-absorbing moiety having the structure:



(c) —B— is a single bond or a linking group selected from —O— and —NR—;

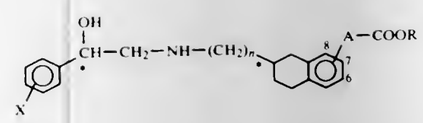
wherein, in the above structures, —A is selected from the group consisting of —R, —OR, $-NR_2$ and $-SO_3H$ or its pharmaceutically-acceptable salt or ester; $-A^1$ is —CN or $-CO_2R^1$; $-A^2$ is —OR or $-NR_2$; $-A^3$ is —H or —OH; $-A^4$ and $-A^5$ are, independently, —R or —OR, and wherein further either $-A^3$ or $-A^4$ must be —OH; $-A^6$ is —H or $-SO_3H$ or its pharmaceutically-acceptable salt or ester; $-R^1$ is straight or branched chain alkyl having from about 1 to about 20 carbon atoms, and each —R is independently selected from the group consisting of —H, straight or branched chain alkyl having from about 1 to about 20 carbon atoms, $-(CH_2CH_2O)_mH$, and $-(CH_2CH(CH_3)O)_mH$, wherein m is an integer from 1 to about 8.

5,210,276
NEW PHENYLETHANOLAMINO- AND PHENYLETHANOLAMINOMETHYL-TETRALINES, PROCESS FOR THE PREPARATION THEREOF, INTERMEDIATES IN SAID PROCESS AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Domenico Badone, Induno Olona; Umberto Guzzi, Milan, and Roberto Cecchi, Lodi Milano, all of Italy, assignors to Elf Sanofi, Paris, France

Filed Feb. 18, 1992, Ser. No. 836,253
Claims priority, application European Pat. Off., Feb. 18, 1991, 91400415.5
Int. Cl.[5] C07C *229/28*
U.S. Cl. 560—42 6 Claims

1. A compound of formula (I)



(I)

wherein

X represents a hydrogen atom, a halogen, a (C_1-C_4)alkyl group, or a trifluoromethyl group,

A represents a bond between the —COOR group and the tetraline ring, a (C_1-C_4)alkylene or a (C_2-C_4)alkenylene group,

R represents a hydrogen atom or a (C_1-C_4)alkyl group, and

n is 0 or 1

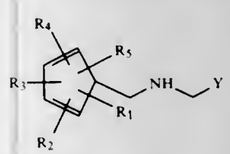
or a salt thereof.

5,210,277
N-[PENTAALKYL-CYCLOPENTADIENYL)METHYL]-GLYCINES

David A. Cortes, Fairless Hills, Pa., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 701,559, May 16, 1991, Pat. No. 5,120,871. This application Mar. 12, 1992, Ser. No. 851,700
Int. Cl.[5] C07C *69/74*
U.S. Cl. 560—121 2 Claims

1. A compound having the structure:



(I)

wherein R_1, R_2, R_3, R_4 and R_5 are C_1-C_4 alkyl and are the same or different; and Y is CO_2R_6, $CONR_7R_8$ or CN wherein R_6, R_7 and R_8 are each independently hydrogen or C_1-C_4 alkyl.

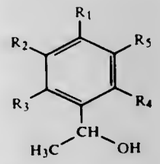
5,210,278
PROCESS FOR THE PREPARATION OF BISARYLALKYL ETHERS

Mohammad Aslam, Corpus Christi, Tex.; Brad L. Smith, Matthews, N.C., and George Kvakovszky, Corpus Christi, Tex., assignors to Hoechst Celanese Corporation, Del.

Division of Ser. No. 701,407, May 14, 1991. This application Aug. 25, 1992, Ser. No. 934,995
Int. Cl.[5] C07C *67/293, 41/09*
U.S. Cl. 560—138 14 Claims

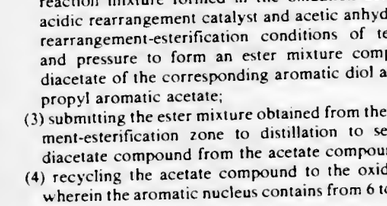
1. A process, comprising the steps of:

contacting an arylalkanol of the formula

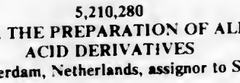


with an acid catalyst; and

heating the arylalkanol catalyst mixture to form a bisarylalkyl ether of the formula



wherein R_1 is



—O—CH_3, —O—CH_2—CH_3, halogen or NO_2; and R_2, R3, R4 and R_5 are independently hydrogen, halogen or C_1-C_4 alkyl.

5,210,279
PROCESS FOR MANUFACTURING AROMATIC DIACETATES

Dale E. Van Sickle, and Brad W. Overturf, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 456,444, Dec. 26, 1989, abandoned, which is a continuation of Ser. No. 190,296, May 4, 1989, abandoned, which is a continuation-in-part of Ser. No. 50,805, May 18, 1987, abandoned. This application Jul. 12, 1990, Ser. No. 551,662
Int. Cl.[5] C07C *69/017*
U.S. Cl. 560—139 5 Claims

1. A continuous process for the preparation of diacetate esters of aromatic diols which comprises the steps of:

(1) contacting in an oxidation zone a feedstock comprising a diisopropyl aromatic compound and recycle isopropyl aromatic acetate with an oxygen-containing gas under hydroperoxide forming conditions of temperature and pressure to form a reaction mixture comprised of the mono- and di-hydroperoxides of the feedstock;

(2) contacting in a rearrangement-esterification zone the reaction mixture formed in the oxidation zone with an acidic rearrangement catalyst and acetic anhydride under rearrangement-esterification conditions of temperature and pressure to form an ester mixture comprising the diacetate of the corresponding aromatic diol and the isopropyl aromatic acetate;

(3) submitting the ester mixture obtained from the rearrangement-esterification zone to distillation to separate the diacetate compound from the acetate compound; and

(4) recycling the acetate compound to the oxidation zone wherein the aromatic nucleus contains from 6 to 14 carbon atoms.

5,210,280
PROCESS FOR THE PREPARATION OF ALKANEDIOIC ACID DERIVATIVES

Eit Drent, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed Feb. 19, 1992, Ser. No. 837,132
Claims priority, application United Kingdom, Mar. 12, 1991, 9105211
Int. Cl.[5] C07C *67/38, 51/12, 51/14, 231/00*
U.S. Cl. 560—204 10 Claims

1. A process for the preparation of alkanedioic acid derivatives which comprises reacting at a temperature in the range of from about 40° C. to about 125° C. and a pressure in the range of from about 2 bar to about 100 bar an alkenoic acid derivative with carbon monoxide and a nucleophilic compound having a

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mobile hydrogen atom selected from the group consisting of an alcohol, an acid, an amine and water, in the presence of a catalyst system comprising a source of a Group VIII metal, a source of a bidentate phosphine ligand, a source of an anion selected from the group consisting of an acid and a salt of an acid and a quinone promoter.

5,210,281

DRY NEUTRALIZATION PROCESS FOR ORGANIC LIQUID PHASES

Wolfgang Ritter, Haan; Hans-Dieter Sitz, Rommerskirchen, and Ludwig Speitkamp, Duesseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf-Holthausen, Fed. Rep. of Germany

PCT No. PCT/EP89/01547, § 371 Date Aug. 23, 1991, § 102(e) Date Aug. 23, 1991, PCT Pub. No. WO90/07484, PCT Pub. Date Jul. 12, 1990

PCT Filed Dec. 15, 1989, Ser. No. 720,444

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1988, 3843843; Nov. 27, 1989, 3939163

Int. Cl.[5] C07C *67/48*

U.S. Cl. 560—218 17 Claims

1. A process for producing essentially neutral, low-volatility, reactive olefinic double bond containing organic compounds from a liquid mixture containing the reactive olefinic double bond containing compounds in admixture with lesser amounts of acid components, which comprises: contacting the liquid mixture comprising esters of polyfunctional alcohols and olefinically unsaturated carboxylic acids with at least one finely divided solid comprising at least one composition selected from the group consisting of alkali metal oxides, alkali metal hydroxides, alkali metal carbonates, alkaline earth metal oxides, alkaline earth metal hydroxides and alkaline earth metal carbonates, under substantially anhydrous conditions, at a temperature above 50° C. to form a neutralized organic liquid phase and a solid phase and separating the neutralizing organic liquid phase from the solid phase.

5,210,282

PERFLUORO(CYCLOALIPHATIC METHYLENEOXYALKYLENE) CARBONYL FLUORIDES AND DERIVATIVES THEREOF

Richard M. Flynn, White Bear Lake, and Patricia M. Savu, Maplewood, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 419,609, Oct. 10, 1989, Pat. No. 5,153,322, which is a division of Ser. No. 116,259, Oct. 30, 1987, Pat. No. 4,889,656. This application Jun. 30, 1992, Ser. No. 906,504

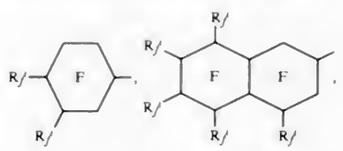
Int. Cl.[5] C07C *69/52*

U.S. Cl. 560—220 6 Claims

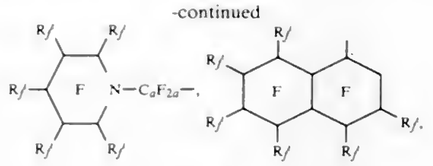
1. Fluorochemical compositions comprising compounds represented by the formula

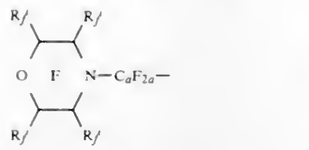


wherein R_f is perfluorocycloaliphatic radical



-continued





wherein each R_f is independently fluorine or a C_1 to C_4 straight or branched chain perfluoroalkyl radical with the proviso that no more than two R_f radicals in an R_f radical are said perfluoroalkyl radicals and

a is an integer of from 1 to 6,

n is 0 to about 10, and

Z is $-COOM_{1/v}$ where M is a metal atom and v is the valence of M and is 1, 2, or 3, CH_2OH or $CH_2O-COR''=CH_2$ where R'' is —H or $-CH_3$.

5,210,283

SYNTHESIS OF TETRAHYDROFURAN POLYMERS USING CALCINED SILICA-ALUMINA OR BEACHING EARTH CATALYSTS

Andrew P. Kahn, Wayne; Robert G. Gastinger, West Chester, and Gangfeng Cai, West Chester, all of Pa., assignors to ARCO Chemical Technology, L.P., Wilmington, Del.

Filed May 18, 1992, Ser. No. 884,677

Int. Cl.[5] C07C *41/38*

U.S. Cl. 560—240 20 Claims

1. A process for producing a tetrahydrofuran polymer, said process comprising polymerizing tetrahydrofuran in the presence of a carboxylic acid anhydride and an effective amount of a solid acid catalyst selected from the group consisting of amorphous silica-aluminas and acid-washed bleaching earths, wherein the catalyst is calcined at a temperature greater than about 600° C. prior to use in the process.

5,210,284

CONTINUOUS PROCESS FOR THE PREPARATION OF ISOCYANATES FROM URETHANES

Franco Mizia, Milan, and Carlo Calderoni, Forli, both of Italy, assignors to Enichem Synthesis S.p.A., Palermo, Italy

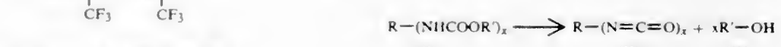
Filed Dec. 19, 1991, Ser. No. 810,143

Claims priority, application Italy, Dec. 21, 1990, 22475 A/90

Int. Cl.[5] C07C *263/04*

U.S. Cl. 560—345 8 Claims

1. A continuous process for the production of an organic mono- or di-isocyanate from the corresponding urethane, according to the following reaction:



(I) (II) (III)

where

R represents a C3-C18 alkyl radical, with a linear or branched chain, optionally having one or more ethylenic unsaturations; a C5-C7 cycloalkyl radical; or a monocyclic or polycyclic aryl radical, with condensed or uncondensed rings; said radicals optionally having one or more substituents chosen from the group consisting of C1-C4 alkyl, C1-C4 alkoxy, nitro, chloro, fluoro and bromo groups;

R' represents a C1-C20 alkyl group; and

x is 1 or 2;

said process being characterized by the fact that:

(a) a flow of urethane (I) is continuously fed to a decomposition reactor containing a liquid mixture, having a substantially constant volume and composition and without any catalytic substances for the decomposition reaction, composed of a high boiling, inert, organic solvent containing unaltered urethane (I) in a concentration of from 0.05 to 1.0 equivalent urethane functions and isocyanate (II) in a concentration of from 0.02 to 0.9 equivalent isocyanate functions for every kg of the liquid mixture, the above reactor being kept at the boiling temperature of the solvent and at the decomposition temperature of the urethane (I) in isocyanate (II) and alcohol (III), the decomposition rate of the urethane (I) corresponding to the rate at which it is fed to the reactor, the alcohol (III) being evaporated at a rate which corresponds more or less to that of its formation;

(b) the liquid mixture is continuously withdrawn from the reactor in (a) at a rate which does not substantially alter the volume of the mixture in (a) and is fed to a flash apparatus kept at a temperature which is lower than the decomposition temperature of the urethane (I), in said apparatus, the isocyanate (II) being partially evaporated at a rate which corresponds to that of its formation in the reactor in (a), the residual liquid mixture of the flash being recycled to the reactor in (a); and

(c) the flow of vapor generated in (b) is continuously withdrawn, condensed and distilled, in a distillation column, to separate the isocyanate (II), which is the product at the head of the column, in a pure or substantially pure form.

5,210,285

PROCESS FOR THE PREPARATION OF BETA-HALOGENO-TERT.-ALKYL ISOCYANATES

Rüdiger Schubart, Bergisch-Gladbach, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

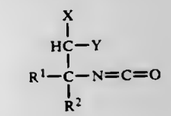
Filed Apr. 2, 1992, Ser. No. 862,042

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1991, 4111905

Int. Cl.[5] C07C *263/16*

U.S. Cl. 560—349 9 Claims

1. A process for the preparation of β-halogeno-tert.-alkyl isocyanates of the formula (I)



(I)

in which

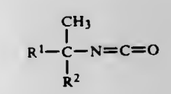
x represents chlorine,

Y represents hydrogen or chlorine,

R^1 represents in each case straight-chain or branched alkyl or halogeno alkyl and

R^2 represents in each case straight-chain or branched alkyl or halogeno alkyl or optionally halogen- and/or trifluoromethyl-substituted phenyl,

which comprises reacting a tert.-alkyl isocyanate of the formula (II)



(II)

in which

R^1 and R^2 have the definition given above, with elemental chlorine.

5,210,286

ALICYCLIC DIAMINES, ALICYCLIC DIISOCYANATES AND POLYISOCYANATO-ISOCYANURATES AND METHOD FOR THE PREPARATION THEREOF

Ryuji Haseyama; Masatoshi Takagi; Kouzou Hayashi; Katsuyoshi Sasagawa; Kazuyuki Kuroda; Taisaku Kano, all of Kanagawa, and Kiyoshi Shikai, Tokyo, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

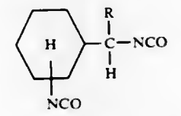
Division of Ser. No. 511,183, Apr. 19, 1990, Pat. No. 5,126,426. This application Apr. 10, 1992, Ser. No. 866,551

Claims priority, application Japan, Apr. 21, 1989, 1-100121; May 8, 1989, 1-113820

Int. Cl.[5] C07C *118/00*

U.S. Cl. 560—347 2 Claims

1. An α-(isocyanatocyclohexyl)alkylisocyanate represented by the following general formula (III):



(III)

wherein R represents hydrogen atom or a lower alkyl group having 1 to 5 carbon atoms, provided that the isocyanato group bonded to the cyclohexyl group may be in either of the 2-, 3- or 4-positions.

5,210,287

2,5-DICHLOROPHENYLTHIOGLYCOLIC ACID DERIVATIVE AND METHOD FOR ITS PRODUCTION

Hiroshi Goda; Nario Kimura; Naohiro Yoshikawa, and Katsuhiko Yoshida, all of Kako, Japan, assignors to Sumitomo Seika Chemicals Co., Ltd., Hyogo, Japan

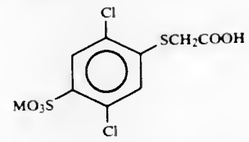
Filed Jan. 23, 1992, Ser. No. 824,313

Claims priority, application Japan, Jan. 24, 1991, 3-024027

Int. Cl.[5] C07C *309/29*

U.S. Cl. 562—55 4 Claims

1. 4-carboxymethylthio-2,5-dichlorobenzenesulfonates represented by the formula:



wherein M represents hydrogen, sodium or potassium.

5,210,288

PROCESS FOR THE PREPARATION OF D-(−)-4-HYDROXYPHENYLGLYCINE AND L-(+)-4-HYDROXYPHENYLGLYCINE, STARTING FROM D.L.-4-HYDROXYPHENYLGLYCINE

Gerard Kessels, Apartado 294, 04630 Garrucha (Almeria), Spain

Filed Mar. 14, 1991, Ser. No. 669,488

Claims priority, application Netherlands, Mar. 21, 1990, 9000653

Int. Cl.[5] C07B *57/00;* C07C *229/42*

U.S. Cl. 562—401 9 Claims

1. A process for the preparation of D-(−)-4-hydroxyphenylglycine and L-(+)-4-hydroxyphenylglycine starting from D.L.-4-hydroxyphenylglycine, comprised of dissolving D.L.-4-hydroxyphenylglycine in a suitable solvent or a mix-

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ture of solvents at an increased temperature of 40° C. to 100° C., which solvent mixture comprises an organic solvent, 0% to 30% water H_2SO_4 in a molar ratio of 1:1 to the added D,L.-4-hydroxyphenylglycine, after which the solution obtained is cooled to 40° C. to 0° C. and to the cooled solution are added D-(−)-4-hydroxyphenylglycine sulphate inoculation crystals at a quantity of 2 weight percent or more of the dissolved D,L.-4-hydroxyphenylglycine for crystallizing the D-(−)-4-hydroxyphenylglycine sulphate, followed by filtering of the formed crystals, while for recovery of L-(+)-4-hydroxyphenylglycine sulphate remaining in the mother liquor, the mother liquor is heated until 40° C. to 100° C., followed by the addition of D,L.-4-hydroxyphenylglycine and H_2SO_4 in water in a molar ratio of 1:0.5, after which the thus obtained solution is cooled down until 40° C. to 0° C. followed by addition of L-(+)-4-hydroxyphenylglycine sulphate inoculation crystals at a quantity of 2 weight percent or more of the dissolved D,L.-4-hydroxyphenylglycine, from which mixture after further cooling the L-(+)-4-hydroxyphenylglycine sulphate crystallizes; whereby one may also act reversely, that is first the L-(+)-4-hydroxyphenylglycine sulphate is crystallized and wherein said crystallized L-(+)-4-hydroxyphenylglycine sulphate the molar ratio of the L-(+)-4-hydroxyphenylglycine to sulphate is 2:1 and thereafter from the mother liquor the D-(−)-4-hydroxyphenylglycine sulphate and, if desired, from the formed sulphates the D-(−)-4-hydroxyphenylglycine and the L-(+)-4-hydroxyphenylglycine, respectively, may be recovered by hydrolysis making a solution of the sulphate in water at a concentration of 10% to 20% by a temperature of 20° C. to 70° C. and neutralizing the obtained solution using an aqueous solution of NaOH, KOH or NH_4OH in a molar ratio of 1 mol sulphate and 2 mol of alkali and recuperating during the neutralization crystallized D(−)-4-hydroxyphenylglycine or L(+)-4-hydroxyphenylglycine by filtration.

5,210,289

CARBOXY CONTAINING MONOMERS

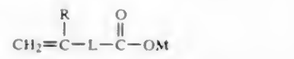
Ignazio S. Ponticello, Pittsford, and Richard C. Sutton, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 654,112, Feb. 12, 1991, Pat. No. 5,149,737, which is a continuation-in-part of Ser. No. 539,768, Jun. 18, 1990, abandoned. This application Mar. 23, 1992, Ser. No. 856,279

Int. Cl.[5] **C07C** *321/00, 229/00, 57/00*

U.S. Cl. 562—426 **5 Claims**

1. A compound represented by the structure:



wherein

R is hydrogen, halo or alkyl of 1 to 3 carbon atoms,

M is hydrogen, an alkali metal ion or an ammonium ion, and

L is a linking group having from 8 to 50 atoms in its linking chain, comprises two or more divalent hydrocarbon groups, and contains one or more nitrogen, oxygen or sulfur atoms, or one or more groups containing said atoms, in the linking chain, provided:

L has a phenylene group directly connected to the vinyl group of said structure, said phenylene not directly connected to the terminal —COOM group, and

further provided that none of said hydrocarbon groups has non-aromatic unsaturation.

5,210,290

FLUOROBENZENESULFONAMIDES

Heinz Gries; Ulrich Niedballa; Hanns-Joachim Weinmann, and Hans Bauer, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

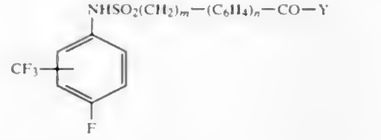
Filed Mar. 12, 1991, Ser. No. 667,309

Claims priority, application Fed. Rep. of Germany, Mar. 12, 1990, 4008179

Int. Cl.[5] **C07C** *317/48, 317/26, 317/28*

U.S. Cl. 562—430 **15 Claims**

1. A fluorobenzenesulfonamide of formula I



(I)

wherein

m is the number 0, 1, 2, 3 or 4,

n is the number 0 or 1, and

Y is the residue of C_{1-30}-aminocarboxylic or aminosulfonic acid, wherein the nitrogen atom forms an amide bond with the carbonyl group of the compound of formula I, the residue has 1-4 acid groups, and the residue has a molecular weight of less than 1000 daltons,

with the proviso that m and n are not simultaneously the number 0 and, optionally the acid groups are present in the form of amides or in the form of a salt with organic or inorganic bases.

5,210,291

METHOD FOR PRODUCING DICHLOROPHENYLTHIOGLYCOLIC ACID

Michio Suzuki; Hiroyuki Hata; Masato Yoshikawa; Toshiyuki Ohe; Hirokazu Kagano; Hiroshi Goda; Masahito Nakano, and Masaki Teramoto, all of Hyogo, Japan, assignors to Sumitomo Seika Chemicals Co., Ltd., Hyogo, Japan

Filed Nov. 20, 1991, Ser. No. 794,906

Claims priority, application Japan, Nov. 28, 1990, 2-332338

Int. Cl.[5] **C07C** *319/12*

U.S. Cl. 562—431 **18 Claims**

1. A method for producing dichlorophenylthioglycolic acid, which comprises reacting monobromodichlorobenzene or trichlorobenzene with a thioglycolate in a ratio of 0.5 to 2.5 mols of the latter to 1 mol of the former in a polar solvent at a reaction temperature of 50° to 220° C.

5,210,292

PROCESS FOR PREPARING POLYMER GRADE TEREPHTHALIC ACID

Sang F. Park; Tae S. Chang; Young K. Lee, all of Taejeon, and Kyu W. Choi, Seoul, all of Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Taejeon, Rep. of Korea

Filed Oct. 12, 1990, Ser. No. 596,914

Claims priority, application Rep. of Korea, Oct. 13, 1989, 89-14689

Int. Cl.[5] **C07C** *51/487*

U.S. Cl. 562—487 **5 Claims**

1. A process for purifying a crude terephthalic acid obtained by neutralizing disodium terephthalate from alkali waste water from a polyester fabric weight-reduction process, comprising:

(a) crushing said crude terephthalic acid to a particle size in the range of 0.1 to 1.500 μm;

(b) thermally treating the crushed crude terephthalic acid particles in a kiln at 150° to 300° C. for oxidizing, decomposing and diffusing to outer surfaces of said particles;

(c) combining the thermally treated particles with ammonia and water to produce an aqueous solution of diammonium terephthalate, containing impurities;

(d) contacting said solution with an adsorbent, and filtering said solution for substantially removing said impurities therefrom; and

(e) deammoniating said filtered solution and recovering terephthalic acid therefrom.

5,210,293

PROCESS AND CATALYST FOR THE PRODUCTION OF ETHYLENE AND ACETIC ACID

Melanie Kitson, Hull, England, assignor to BP Chemicals Limited, London, England

Continuation of Ser. No. 540,262, Jun. 19, 1990, abandoned. This application Jun. 11, 1992, Ser. No. 896,904

Claims priority, application United Kingdom, Jul. 5, 1989, 8915410

Int. Cl.[5] **C07C** *27/14, 5/333, 51/215*

U.S. Cl. 562—512.2 **7 Claims**

1. A process for the production from gaseous ethane and/or ethylene of a product comprising ethylene and/or acetic acid, said process comprising the step of contacting the ethane and/or ethylene and a molecular oxygen-containing gas at elevated temperature with a catalyst composition comprising the elements A, X and Y in combination with oxygen, the gram-atom ratios of the elements A:X:Y being a:b:c, wherein

A = $Mo_dRe_eW_f$,

X represents at least one element selected from the group consisting of Cr, Mn, Nb, Ta, Ti, V and W,

Y represents at least one element selected from the group consisting of Ce, Sb and U,

a = 1

b = 0.05 to 1.0,

c = 0.001 to 1.0,

d + e + f = a,

d is zero or greater than zero,

e is greater than zero, and

f is zero or greater than zero.

5,210,294

PROCESS FOR THE PRODUCTION OF PURIFIED LACTIC ACID AQUEOUS SOLUTIONS STARTING FROM FERMENTATION BROTHS

Giorgio Mantovani, Ferrara; Giuseppe Vaccari, Stienta, and Anna L. Campi, Ferrara, all of Italy, assignors to Himont Incorporated, Wilmington, Del.

Filed Jun. 3, 1992, Ser. No. 893,179

Claims priority, application Italy, Jun. 6, 1991, 91 A 001555

Int. Cl.[5] **C07C** *51/42, 59/08*

U.S. Cl. 562—580 **13 Claims**

1. A process for the production of purified lactic acid aqueous solutions starting from fermentation broths following steps:

A) percolation of the fermentation broth, free of cells, through one or more columns of a strongly anionic ion-exchange resin, in the carbonate form;

B) elution of the lactic acid from the column, or columns, mentioned in (A), by way of an aqueous solution of ammonium carbonate;

C) removal of the ammonium carbonate from the solution obtained from the elution mentioned in (B) by way of heating;

D) percolation of the solution obtained in step (C) through one or more columns of a strongly cationic ion-exchange resin, in the hydrogen form.

5,210,295

PREPARATION OF MALIC ACID

Skippy H. Ramsey, Fenton, and Robert G. Schultz, St. Louis, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed May 24, 1991, Ser. No. 705,418

Int. Cl.[5] **C07C** *59/245*

U.S. Cl. 562—582 **11 Claims**

1. In a process for the synthesis of malic acid comprising the steps of reacting acids selected from the group consisting of maleic acid, fumaric acid, sodium hydrogen maleate and mixtures thereof, in an aqueous reaction mixture, at elevated temperature and pressure, wherein the improvement comprises running said reaction in the presence of a sodium ion catalyst, whereby the rate of production of malic acid is increased above that obtained in the absence of said catalyst.

5,210,296

RECOVERY OF LACTATE ESTERS AND LACTIC ACID FROM FERMENTATION BROTH

Michael C. M. Cockrem, Madison, and Pride D. Johnson, Glenbeulah, both of Wis., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 615,510, Nov. 19, 1990, abandoned. This application Jun. 20, 1991, Ser. No. 718,542

Int. Cl.[5] **C07C** *59/08*

U.S. Cl. 562—589 **9 Claims**

1. A process for recovering high purity lactate ester from a concentrated fermentation broth comprising the steps of:

(1) simultaneously mixing a strong acid, an alcohol, and a concentrated fermentation broth which contains mainly basic salts of lactic acid, which react to form a crystal precipitate comprising basic salts of the strong acid and an impure lactate ester of the alcohol;

(2) removing water from the mixture as a water/alcohol azeotrope which can be accomplished either sequentially or substantially simultaneously with step (1);

(3) removing the crystal precipitate from the mixture; and

(4) distilling the impure lactate ester to remove impurities, and recovering the high purity ester.

5,210,297

WORKUP OF MOTHER LIQUORS RESULTING FROM THE PREPARATION OF ADIPIC ACID

Gerhard Frank, Hirschberg; Guenter Herrmann, Heidelberg; Gert Buerger, Mannheim; Jost H. Manegold, Lambsheim; Stefan Karbach, Neustadt, and Ruediger Schmitz, Lambsheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Dec. 30, 1991, Ser. No. 814,640

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1991, 4100505

Int. Cl.[5] **C07C** *51/42*

U.S. Cl. 562—593 **3 Claims**

1. A process for working up mother liquors resulting from the preparation of adipic acid by oxidation of cyclohexanol or cyclohexanone or mixtures thereof with nitric acid in the presence of copper and vanadium catalysts after removal of the adipic acid, which comprises the following steps

a) removal of the nitric acid by azeotropic distillation with water under reduced pressure to result in a dicarboxylic acid melt containing copper and vanadium ions,

b) heating said melt at from 130° to 180° C. to decompose nitrogen compounds and oxalic acid and result in a dicarboxylic acid melt containing copper and vanadium ions and having a reduced nitrogen content,

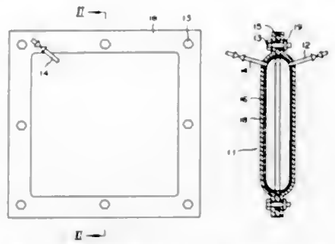
c) dissolving said melt in water to form an aqueous solution containing dicarboxylic acids with a reduced nitrogen content and copper and vanadium ions,

d) contacting said aqueous solution with a cation exchanger to bind the copper and vanadium ions and result in an essentially copper- and vanadium-free dicarboxylic acid solution,

VOL 1150 ISS 2 MY 11 1993 UMI

e) removal of water by distillation from said solution to result in a melt of dicarboxylic acids,
f) heating said melt at from 200° to 240° C. and
g) obtaining a mixture of dicarboxylic acids by distillation.

5,210,298
METHOD FOR PRODUCTION OF ACRYLATE AND ACRYLATE-CONTAINING POLYMER
Tadao Shimomura, Toyonaka; Yoshio Irie, Himeji; Hitoshi Takahashi, Hyogo; Katsuhiro Kajikawa, Himeji; Jyunichi Saga, Himeji; Teruaki Fujiwara, Himeji, and Takumi Hatsuda, Himeji, all of Japan, assignors to Nippon Shokubai Kagaku Kogyo, Co., Ltd., Osaka, Japan
Filed Oct. 27, 1989, Ser. No. 428,350
Claims priority, application Japan, Oct. 28, 1988, 63-270773
Int. Cl.[5] C07C *57/04*; C08F *230/04*
U.S. Cl. 562—598 6 Claims



1. A method for the production of an acrylate by the neutralization reaction of acrylic acid and a basic substance, comprising sequentially (A) a step of supplying acrylic acid and said basic substance to water thereby subjecting them to a neutralization reaction while constantly retaining the neutralization ratio of acrylic acid within the neutralization reaction system in the range of 75 to 100 mol %, (B) a step of adjusting the neutralization ratio of acrylic acid within said neutralization reaction system in the range of 100.1 to 110 mol % by supplying said basic substance to said neutralization reaction system, (C) a step of retaining the neutralization ratio of acrylic acid within said neutralization reaction system in the range of 100.1 to 110 mol % for a period in the range of 1 to 120 minutes thereby allowing the neutralization reaction product to age, and (D) a step of adjusting the neutralization ratio of acrylic acid within said neutralization reaction system in the range of 20 to 100 mol % by supplying acrylic acid to said neutralization reaction system.

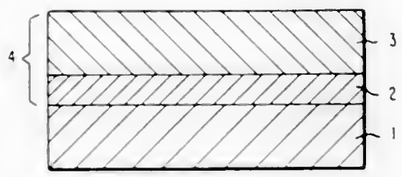
5,210,299
METHOD FOR PRODUCTION OF N-(2-CHLOROETHYL) METHANESULFONAMIDE
Yujiro Goto, Kawasaki; Mitsuaki Yagisawa, Yokohama, and Masao Kitano, Kamakura, all of Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan
Filed Feb. 10, 1992, Ser. No. 833,087
Claims priority, application Japan, Jul. 29, 1991, 3-188736
Int. Cl.[5] C07C *303/36*
U.S. Cl. 564—98 14 Claims

1. A method for the production of N-(2-chloroethyl) methanesulfonamide of high purity, which method comprises causing methanesulfonyl chloride to react with ethyleneimine in the presence of ethylene dichloride, at a reaction temperature commenced and completed in the range 50° to 150° C., and then distilling the resultant reaction mixture thereby separating therefrom N-(2-chloroethyl) methanesulfonamide.

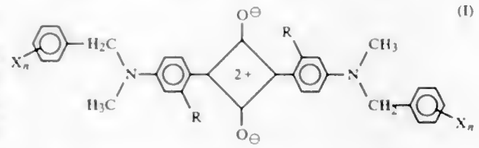
5,210,300
PURIFICATION OF CRUDE IOVERSOL USING CONTINUOUS DEIONIZATION
Mills T. Kneller, University City, Mo., assignor to Malinckrodt Medical, Inc., St. Louis, Mo.
Filed Sep. 25, 1991, Ser. No. 765,605
Int. Cl.[5] C07C *233/64*
U.S. Cl. 564—153 9 Claims

1. A method for the purification of crude Ioversol comprising the steps of:
a) passing said crude Ioversol through a mixed- resin bed contained between a cation permeable membrane which allows the passage of cations and not anions and an anion permeable membrane which allows the passage of anions and not cations; and
b) applying an electrical current to said catio and anion permeable membranes whereby impurities are pumped through said cation and anion permeable membranes to purify Ioversol.

5,210,301
SQUARIUM COMPOUNDS, PROCESS FOR PREPARING THE SAME AND ELECTROPHOTOGRAPHIC PHOTORECEPTORS CONTAINING THE SAME
Satoshi Saeki; Seki Kin; Kaoru Torikoshi; Hiroyuki Tanaka, and Lyong S. Pu, all of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Division of Ser. No. 32,922, Mar. 20, 1987, abandoned, which is a continuation of Ser. No. 733,438, May 13, 1985, abandoned.
This application Aug. 17, 1988, Ser. No. 232,990
Claims prinrity, application Japan, May 11, 1984, 59-92769; May 11, 1984, 59-92771
The portion of the term of this patent subsequent to Oct. 8, 2008, has been disclaimed.
Int. Cl.[5] C07C *211/43*
U.S. Cl. 564—305 1 Claim



1 A squarium compound represented by formula (I)

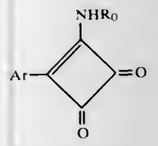


(I)

wherein X represents an electron attractive group, n is 0 or an integer of from 1 to 5 and R represents a methyl group.

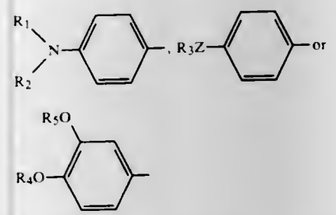
5,210,302
CYCLOBUTENEDIONE DERIVATIVE AND PROCESS FOR PREPARING THE SAME
Lyong Sun Pu, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Sep. 13, 1991, Ser. No. 759,661
Claims priority, application Japan, Nov. 29, 1990, 2-333173; Nov. 29, 1990, 2-333174; Nov. 29, 1990, 2-333175
Int. Cl.[5] C07C *211/49*
U.S. Cl. 564—307 2 Claims

1. A cyclobutenedione derivative, represented by formula (I):

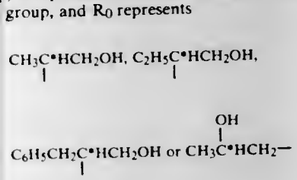


(I)

wherein Ar represents



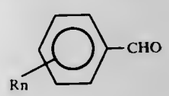
wherein R_1 represents a CH_3 group or a C_2H_5 group; R_2 represents a C_2H_5 group, a C_3H_7 group, a HOC_2H_4 group, a $CH_3OC_2H_4$ group or a CH_3 group; R_3 represents an alkyl group; Z represents O or S; and R_4 and R_5 each represents an alkyl group, and R_0 represents



wherein C* represents an asymmetric carbon atom.

5,210,303
PROCESS FOR PRODUCING BENZYLAMINES
Tatsuo Sugiyama, Shizuoka, Japan, assignor to Ihara Chemical Industry Co., Ltd., Tokyo, Japan
Filed Apr. 18, 1991, Ser. No. 686,932
Claims priority, application Japan, Apr. 20, 1990, 2-103160
Int. Cl.[5] C07C *209/06*
U.S. Cl. 564—407 9 Claims

1. A process for producing a benzylamine which comprises reacting a benzyl halide with an ammonia solution in the presence of an aromatic aldehyde represented by the formula:



(I)

wherein R represents a hydrogen atom, a halogen atom or a lower alkyl group, and n is 1 or 2, separating an oily substance from the reaction mixture, and treating the oily substance with a mineral acid, wherein the aromatic aldehyde is in an amount of not less than 1 mol per mol of the benzyl halide and the ammonia in the aqueous ammonia solution is in an amount of 2 to 10 moles per mole of the benzyl halide.

5,210,304
PROCESS FOR PREPARING HYDROCARBYL AROMATIC AMINES
John F. Balhoff, and Donald E. Balhoff, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.
Filed Mar. 11, 1991, Ser. No. 667,221
Int. Cl.[5] C07C *321/28*
U.S. Cl. 564—440 9 Claims

1. A continuous process for hydrocarbylthiation of aromatic amines which comprises: (i) passing a thin film feed stream comprising a hydrocarbyl disulfide, hydrocarbyl aromatic amine substituted by halogen and a catalytically effective amount of a metal halide selected from the group consisting of aluminum chloride, boron trifluoride, boron trichloride, ferric chloride, zinc chloride and copper(I) iodide along a column and countercurrently introducing into said thin film feed stream an inert gas; and (ii) separating a hydrocarbylthiol as a gaseous effluent and a liquid hydrocarbylthiolated aromatic amine.

5,210,305
PROCESS FOR PREPARING N-ALKYLANILINES AND N-ALLYLANILINES
Jean Desmurs, Communay, and Jean-Pierre Lecouye, Caluire, both of France, assignors to Rhone-Poulenc Chimie, Cedex, France
Continuation of Ser. No. 386,433, Jul. 28, 1989, abandoned. This application Mar. 25, 1991, Ser. No. 674,315
Claims priority, application France, Jul. 29, 1988, 88 10250
The portion of the term of this patent subsequent to Feb. 23, 2010, has been disclaimed.
Int. Cl.[5] C07C *209/10*
U.S. Cl. 564—404 18 Claims

1. A process for the N-monoalkylation or N-monoallylation of an aniline, wherein the aniline and an alkylating or allylating agent, selected from the group consisting of alkyl chlorides, alkyl bromides, alkyl sulfates, allyl chlorides, allyl bromides and allyl sulfates, are brought into contact in an organic solvent in a homogeneous liquid phase in the presence of an onium ion and a stoichiometric amount of a non-quaternizable base.

5,210,306
PROMOTED AMINES CATALYSIS
Arthur R. Doumaux, Jr., Charleston; David J. Schreck, Cross Lanes; Stephen W. King, Scott Depot, all of W. Va., and George A. Skoler, White Plains, N.Y., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.
Filed Aug. 8, 1989, Ser. No. 390,714
Int. Cl.[5] C07C *209/16, 209/64*; C07D *295/023, 295/13*
U.S. Cl. 564—479 39 Claims

1. A process of making polyalkylene polyamines which comprises condensing, in the absence of hydrogen as a reactant,
(i) an alkanolamine with an alkyleneamine,
(ii) an alkanolamine with itself or another alkanolamine, or
(iii) an alkylene glycol with an alkyleneamine,
optionally in the presence of ammonia, under condensation conditions including the presence of a condensation catalyst consisting essentially of a metatungstate and a condensation catalyst promoter free of phosphorus-containing compounds, wherein said condensation catalyst promoter differs from said condensation catalyst and is present in an amount sufficient to promote the condensation catalyst.

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5,210,307

CATALYTIC REFORMING OF ALKYLENEAMINES TO LINEARLY-EXTENDED POLYALKYLENEPOLYAMINES

Robert G. Bowman; David C. Molzahn, and George E. Hartwell, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 611,244, Nov. 9, 1990, Pat. No. 5,118,850, which is a division of Ser. No. 287,189, Dec. 20, 1988, Pat. No. 4,996,363. This application Jan. 31, 1992, Ser. No. 831,259

Int. Cl.[5] C07C *209/16, 209/64;* C07D *295/023, 295/13*

U.S. Cl. 564—479 14 Claims

1. A process for reforming amines comprising contacting an alkyleneamine or mixture thereof with a catalytic amount of a thorium silicate catalyst under reaction conditions such that a mixture of polyalkylenepolyamines if formed which is enriched in linearly-extended homologues, with the proviso that the catalyst is essentially free of aluminum

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5,210,308

PROCESS FOR THE PRODUCTION OF MODIFIED H-MORDENITE, CATALYST COMPRISING SAID H-MORDENITE AND PROCESS FOR THE SYNTHESIS OF METHYLAMINE WITH THE USE OF THE SAME

Kouichi Segawa; Azusa Sugiyama, both of Kanagawa; Hiroyasu Tachibana, Tokyo, and Yasuhiko Kurusu, Kanagawa, all of Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

Division of Ser. No. 596,262, Oct. 12, 1990, Pat. No. 5,137,854. This application Apr. 16, 1992, Ser. No. 868,844

Claims priority, application Japan, Mar. 13, 1990, 2-61417

Int. Cl.[5] C07C *209/16*

U.S. Cl. 564—479 2 Claims

1. A process for the synthesis of methylamines comprising reacting methanol and ammonia in the presence of a catalyst comprising a modified H-mordenite obtained by a process which comprises bringing an alkali metal or alkaline earth metal mordenite into contact with $SiCl_4$ with heating and then converting the treated mordenite into an H-mordenite via ion exchange.

5,210,309

MULTIFUNCTIONAL SYNTHONS AS USED IN THE PREPARATION OF CASCADE POLYMERS OR UNIMOLECULAR MICELLES

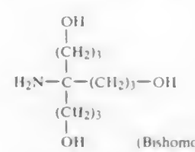
George R. Newkome, and Charles N. Moorefield, both of Temple Terrace, Fla., assignors to University of South Florida, Tampa, Fla.

Continuation of Ser. No. 553,927, Jul. 13, 1990, abandoned, which is a division of Ser. No. 401,323, Aug. 31, 1989, abandoned. This application Mar. 9, 1992, Ser. No. 849,658

Int. Cl.[5] C07C *209/34*

U.S. Cl. 564—495 5 Claims

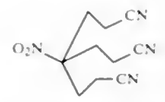
1. A method of preparing a compound of the Formula(A)



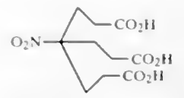
(Bishomotris)

by the steps of:

1) forming a nitroalkylnitrile of the Formula(B)



2) hydrolyzing under acid conditions the nitrile to the corresponding tricarboxylic acid having the Formula(C)



3) reducing the tricarboxylic acid to a nitrotriol; and

4) reducing the nitro portion of the nitrotriol to derive the bishomotris of Formula(A) by a non-tris derivative route.

5,210,310

OPTICALLY ACTIVE DIMETHYLORGANOBORANES

Herbert C. Brown, West Lafayette, Ind., assignor to Aldrich Chemical Co., Inc., Milwaukee, Wis.

Division of Ser. No. 226,080, Jul. 29, 1988, Pat. No. 4,918,224. This application Mar. 26, 1990, Ser. No. 498,823

Int. Cl.[5] C07C *9/02, 209/00*

U.S. Cl. 568—7 16 Claims

1. An optically active dimethylorganoborane represented by the formula R^*BMe_2 wherein R^* is a chiral alkyl, cycloalkyl or aryl group having up to 30 carbon atoms, B is boron and Me is methyl.

5,210,311

AROMATIC TETRADENTATE PHOSPHINE

Pui K. Wong, Katy, Tex., assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 503,414, Mar. 30, 1990, Pat. No. 5,057,599. This application May 28, 1991, Ser. No. 706,429

Claims priority, application Netherlands, Jul. 14, 1989, 8901829

Int. Cl.[5] C07F *9/02*

U.S. Cl. 568—17 5 Claims

1. An aromatic tetradentate phosphine of the formula



wherein R independently is an alkoxy-substituted aryl group of up to 10 carbon atoms, wherein at least one alkoxy substituent is located in a ring position ortho to the carbon atom through which the aryl group is connected to a phosphorus atom, and n is an integer from 0 to about 14

5,210,312

CHEMICAL PROCESS

Glynn Mitchell, Iver, United Kingdom, assignor to Imperial Chemical Industries PLC, London, England

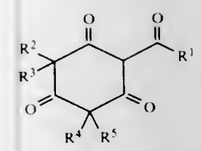
Division of Ser. No. 464,154, Jan. 12, 1990, Pat. No. 5,041,681, which is a division of Ser. No. 164,963, Mar. 7, 1988, Pat. No. 4,912,262. This application Jun. 4, 1991, Ser. No. 709,874

Claims priority, application United Kingdom, Mar. 19, 1987, 8706557

Int. Cl.[5] C07C *45/45*

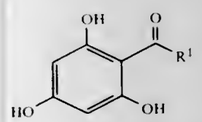
U.S. Cl. 568—315 6 Claims

1. A process for preparing a compound of formula (I)



(I)

or a salt, acylate or sulphonate derivative thereof; wherein R' is an optionally substituted aryl group, in which the optional substitution is up to three groups selected from halogen; C_{1-4} alkyl; C_{1-4} alkoxy; halo (C_{1-4}) alkoxy; cyano; nitro; C_{1-4} haloalkyl; R^7SO_n where n is 0 1 or 2 and R^7 is C_{1-4} alkyl or C_{1-4} alkyl substituted with halogen or cyano, phenyl or benzyl; NH^8R^9 where R^8 and R^9 are independently hydrogen or C_{1-4}alkyl; $R^{10}CO$— where R^{10} is C_{1-4} alkyl or C_{1-4} alkoxy; or $SO_2NR^8R^9$ where R^8 and R^9 are as defined above, R^2, R^3, R^4 and R^5 are C_{1-4} alkyl, which process comprises reacting a compound of formula (XI)



(XI)

with a compound of formula R^2X' in the presence of a base, wherein X' is a leaving group; and thereafter if desired forming a salt, or sulphonate derivative.

5,210,313

PREPARATION OF 2,5-DICHLOROBENZOPHENONES

Ying Wang, San Dimas, and Mark S. Trimmer, Monrovia, both of Calif., assignors to Maxdem Incorporated, San Dimas, Calif.

Filed Jan. 10, 1992, Ser. No. 818,629

Int. Cl.[5] C07C *45/45*

U.S. Cl. 568—323 22 Claims

1. A method for preparing 2,5-dichlorobenzophenones, comprising:

Friedel-Crafts aroylation of 1,4-dichlorobenzene using an aroyl halide or an aromatic anhydride, and at least one Lewis acid present in an amount of at least about 1.5 mole per mole of aroyl halide or aromatic anhydride.

5,210,314

PREPARATION OF CANTHAXANTHIN AND ASTAXANTHIN

Hansgeorg Ernst, Speyer; Joachim Paust, and Werner Hoffmann, both of Neuhofen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

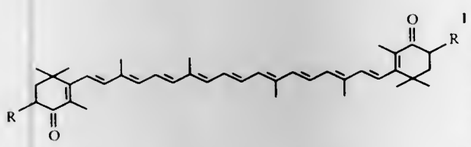
Filed Apr. 29, 1991, Ser. No. 695,336

Claims priority, application Fed. Rep. of Germany, May 3, 1990, 4014203

Int. Cl.[5] C07C *45/61, 45/65*

U.S. Cl. 568—345 8 Claims

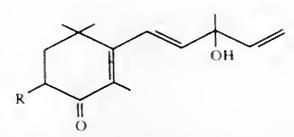
1. A process for preparing canthaxanthin (Ia) and astaxanthin (Ib) of the formula I



(I)

where R is H (a) or OH (b), which comprises

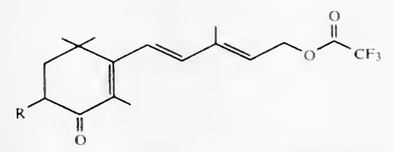
A. reacting a tertiary alcohol of the formula II



(II)

where R is H (a) or OH (b), with trifluoroacetic acid at a temperature of about 0° to 50° C.,

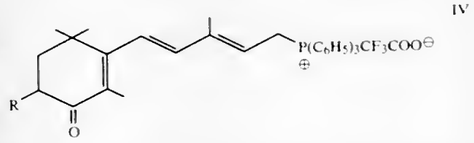
B. reacting the resulting trifluoroacetate of the formula III



(III)

with triphenylphosphine at a temperature of about 50° to 100° C., and

C. reacting the resulting triphenylphosphonium trifluoroacetate of the formula IV



(IV)

where R is H (a) or OH (b), with 2,7-dimethyl-2,4,6-octatriene-1,8-dial, under the conditions of a Wittig synthesis.

5,210,315

PROCESS FOR PRODUCING α-HYDROXYKETONES

Takao Saito; Hidenori Kumobayashi, both of Tokyo, and Shunichi Murahashi, Osaka, all of Japan, assignors to Takasago International Corporation, Tokyo, Japan

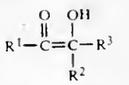
Filed Oct. 18, 1991, Ser. No. 779,529

Claims priority, application Japan, Oct. 20, 1990, 2-280586; Jan. 31, 1991, 3-29341

Int. Cl.[5] C07C *45/27*

U.S. Cl. 568—385 2 Claims

1. A process for producing an α-hydroxyketone represented by formula (I):

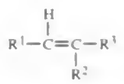


(I)

wherein R' represents a substituted or unsubstituted alkyl group, wherein the substituent for the substituted alkyl group is a benzyloxy group, an acyloxy group, or a benzoyloxy group, a substituted or unsubstituted aralkyl group, wherein the substituent for the aralkyl group is an acyloxy group, or an alkoxycarbonyl group; and R^2 and R^3 each represent a hydrogen atom, a substituted or unsubstituted alkyl group, wherein the substituent for the substituted alkyl group is a benzyloxy group, an acyloxy group, or a benzoyloxy group, or a substituted or unsubstituted aralkyl group, wherein the substituent for the aralkyl group is an acyloxy group, provided that they do not simultaneously represent a hydrogen atom; or a pair of R^1 and R^2, a pair of R^1 and R^3, or a pair of R^2 and R^3 is taken together to form a 5-to 8-membered ring; and the pair of R^1 and R^2 and the pair of R^2 and R^3 may form a 5- to 8-membered

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ring simultaneously, which comprises reacting a compound represented by formula (II):



(II)

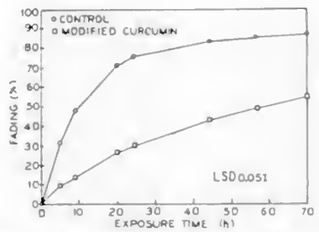
wherein R^1, R^2, and R^3 are as defined above, with a peracid in the presence of a ruthenium compound, water, and a solvent, wherein said ruthenium compound is a compound represented by formula (III): wherein X represents a halogen atom, an acyloxy group of the formula, R^4COO, wherein R^4 represents a lower alkyl group, or an acetylacetonato group, wherein said solvent is selected from acetonitrile, methylene chloride, dichloroethane, chlorobenzene or mixtures thereof, the catalyst is used in an amount of 0.01 to 0.2 mole per mole of the compound represented by formula (II), the peracid is used in an amount of 1 to 8 moles per mole of the compound represented by formula (II), and the reaction temperature is −10° C. to +30° C.

5,210,316

DYE AND METHOD FOR MAKING SAME

Luoqing Yang, Placentia, Calif., and Ron Buescher, Fayetteville, Ark., assignors to University of Arkansas, Little Rock, Ark.

Filed Feb. 4, 1991, Ser. No. 650,230
Int. Cl.[5] C07C *45/00*
U.S. Cl. 568—404 20 Claims



1. A method for modifying a turmeric for use as a dye, comprising the step of:
phosphorylating a turmeric.

5,210,317

METHOD OF PRODUCING ALDEHYDE BY OXIDATION OF PRIMARY ALCOHOL

Hideyuki Kuno; Makoto Shibagaki; Kyoko Takahashi, and Hajime Matsushita, all of Yokohama, Japan, assignors to Japan Tobacco Inc., Tokyo, Japan

PCT No. PCT/JP91/00184, § 371 Date Oct. 17, 1991, § 102(e) Date Oct. 17, 1991, PCT Pub. No. WO91/12226, PCT Pub. Date Aug. 22, 1991
PCT Filed Feb. 15, 1991, Ser. No. 768,769
Claims priority, application Japan, Feb. 19, 1990, 2-36312
Int. Cl.[5] C07C *47/00, 45/27*
U.S. Cl. 568—420 7 Claims

1. A method for producing an aldehyde, comprising reacting a primary alcohol with an oxidizing agent selected from the group consisting of a ketone, an aldehyde, and a quinone, in the presence of a diluent which is inert to said reaction, and in the presence of a partially dehydrated zirconium hydroxide, so as to oxidize said primary alcohol to the corresponding aldehyde.

5,210,318

CATALYSTS AND PROCESSES USEFUL IN PRODUCING 1,3-DIOLS AND/OR 3-HYDROXYLDEHYDES

John R. Briggs; John M. Maher, both of Charleston, and Arnold M. Harrison, South Charleston, all of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 519,273, May 4, 1990, abandoned. This application Mar. 18, 1991, Ser. No. 670,876
The portion of the term of this patent subsequent to Jul. 9, 2008, has been disclaimed.
Int. Cl.[5] C07C *47/19, 29/158*
U.S. Cl. 568—496 34 Claims

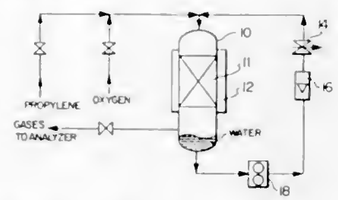
1. A process for producing a 1,3-diol or a 3-hydroxyaldehyde comprising:
contacting a combination of an epoxide, carbon monoxide and hydrogen in the presence of a catalyst composition effective to promote the hydroformylation of said epoxide at conditions effective to form at least one of a 1,3-diol and a 3-hydroxyaldehyde, said catalyst composition comprising an anionic, phosphorus ligand-rhodium containing complex and an electrophile which is a protonic acid, a Lewis acid or mixtures thereof.

5,210,319

ONE STEP CARBOXYLIC ACID PRODUCTION PROCESS

Karl T. Chuang, Dept. of Chemical Engineering, University of Alberta, Edmonton, Canada T6G 2G6 , and Long Fu, 11642 - 76 Ave., Edmonton, AB, Canada T6G 0K8

Filed Mar. 2, 1992, Ser. No. 844,195
Int. Cl.[5] C07C *51/16*
U.S. Cl. 562—546 10 Claims



1. A single step process for the oxidation of a C3 to C6 olefin to its respective α-,β-unsaturated carboxylic acid, comprising reacting the olefin in vapour form, with oxygen in the presence of a noble metal oxidation catalyst on a hydrophobic support and an aqueous solvent.

5,210,320

PREPARATION OF 2,5-DIMETHYLHEXANE-2,5-DIHYDROPEROXIDE AND DERIVATIVES THEREOF

Chung C. Tso, and Joe W. Ryker, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 17, 1992, Ser. No. 930,588
Int. Cl.[5] C07C *409/22*
U.S. Cl. 568—561 10 Claims

1. A one-step process for producing 2,5-dimethylhexane-2,5-dihydroperoxide and alkyl derivative thereof comprising:
(a) adding sulfuric acid to an at least 60% hydrogen peroxide solution to form a first reaction mixture wherein said first reaction mixture is controlled at a temperature in the range of from about −10° C. to about 10° C.;
(b) adding 2,5-dimethyl-2,5-dihydroxy hexane to said first reaction mixture to form a second reaction mixture wherein said second reaction mixture is maintained at a temperature in the range of from about 20° C. to about 50° C. for about 5 minutes to about 5 hours whereby a slurry is formed, wherein said slurry contains the solid product of 2,5-dimethylhexane-2,5-dihydroperoxide;
(c) lowering the temperature of said slurry to the range of from about −10° C. to about 10° C.; thereafter
(d) removing unreacted reactants and impurities from said solid product; and
(e) adding sulfated alkyl alcohol to said solid product to form a third reaction mixture wherein said sulfated alkyl alcohol is prepared by mixing said alkyl alcohol with sulfuric acid and said third reaction mixture is maintained at a temperature in the range of from about 30° C. to about 60° C. for about 1 to about 5 hours to prepare said alkyl derivative.

5,210,321

DIPHENYL OXIDE BROMINATION PROCESS

Bonnie G. McKinnie, and Mark A. Templeton, both of Magnolia, Ark., assignors to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 506,334, Apr. 9, 1990, abandoned. This application Sep. 25, 1991, Ser. No. 766,662
Int. Cl.[5] C07C *41/22*
U.S. Cl. 568—639 12 Claims

1. A process for preparing a mixture of brominated diphenyl oxides having improved color characteristics, said process comprising:
(a) forming a first reaction mass by adding molten diphenyl oxide to a reaction vessel containing bromine and a catalytic amount of zirconium catalyst, the amount of bromine providing a molar ratio of from about 7 to about 8.5 moles of bromine per mole of diphenyl oxide added;
(b) maintaining the first reaction mass for a period of time and at a temperature which are sufficient to yield a mixture of brominated diphenyl oxides having an average bromine number of from about 5.8 to abut 6.5; and
(c) subsequent to the substantial cessation of the bromination reaction in he first reaction mass, forming a second reaction mass by adding an iron catalyst to the first reaction mass, and if needed, additional amounts of bromine, to yield a mixture of brominated diphenyl oxides having improved color characteristics and processing an average bromine number of from about 7.0 to about 7.8.

5,210,322

PROCESSES FOR THE PREPARATION OF ETHERS

Stephen W. King, Scott Depot, and Kurt D. Olson, Cross Lanes, both of W. Va., assignors to Union Carbide Chemicals & Plastics Techeology Corporation, Danbury, Conn.

Filed Sep. 20, 1990, Ser. No. 585,455
The portion of the term of this patent subsequent to Mar. 2, 2010, has been disclaimed.
Int. Cl.[5] C07C *41/00, 69/96*
U.S. Cl. 568—579 65 Claims

28. A process for preparing ethers which comprises (i) contacting an active hydrogen-containing compound with a CO_2 synthon under transesterfication conditions effective to produce a carboxylated ether, and (ii) contacting the carboxylated ether with a metal oxide catalyst under decarboxylation conditions effective to produce the ether. with a metal oxide catalyst under conditions effective to produce the ether.

5,210,323

PROCESS FOR THE PREPARATION OF ALKOXYLATES HAVING A NARROW DISTRIBUTION OF HOMOLOGS USING ANTIMONY PENTAHALIDE COMPLEXES AS THE CATALYST

Ignaz Wimmer, Winhöring, and Rainer Kupfer, Kastl, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengese Ilschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed May 28, 1992, Ser. No. 890,435
Claims priority, application Fed. Rep. of Germany, May 31, 1991, 4117935
Int. Cl.[5] C07C *41/03*
U.S. Cl. 568—615 7 Claims

1. A process for the preparation of alkoxylates having a distribution of homologs by reaction of compounds containing at least one hydroxyl group with alkylene oxide in the presence of an antimony pentahalide complex as the catalyst, which comprises using a complex of antimony pentahalide with a Lewis base having a DS value of 24 to 36 cm^{-1}, in which the DS value of the Lewis base is defined as the difference in value between the symmetrical stretching frequency of the $HgBr_2$molecule in the gas phase and in the Lewis base.

5,210,324

MONOMER PRODUCTION

David Farrar, and Malcolm Hawe, both of West Yorkshire, England, assignors to Allied Colloids Limited, England

Continuation of Ser. No. 308,956, Feb. 6, 1989, abandoned, which is a continuation of Ser. No. 117,365, Oct. 28, 1987, abandoned, which is a continuation of Ser. No. 894,352, Aug. 7, 1986, abandoned. This application Oct. 11, 1989, Ser. No. 421,304
Claims priority, application United Kingdom, Aug. 12, 1985, 8520218; Feb. 14, 1986, 8603656
Int. Cl.[5] C07C *43/11, 43/18, 43/20*
U.S. Cl. 568—616 10 Claims

1. In a process of making a compound of the formula $CH_2{=}CR^2CH_2OX_yR^1$ in which X is alkyleneoxy and y is an integer of from 2 to 100 and R1 is selected from lower alkyl and hydrophobic groups containing 8 to 30 carbon atoms and R2 is selected from hydrogen and methyl
by reaction of an alkali metal alcoholate MOE wherein M is an alkali metal and E is X_yR^1
with a halide of the formula FY in which Y is a halogen and F is $CH_2CR^2{=}CH_2$
in a non-reactive solvent
the improvement consisting of
(a) mixing an alcohol of the fomrula HOE, wherein E is as defined above, with a non-reactive solvent which has a boiling point of below 150° C. and has a polarity Eo of up to 0.5 on the Hildebrand scale,
(b) dehydrating the mixture by azeotropic distillation until it is substantially anhydrous and contains below 0.1% water,
(c) adding an alkali metal alkoxide MOR^3 in which M is as defined above and R^3 is C1–6 alkyl to form the said alklai metal alkylate MOE and an alcohol R^3OH that either forms an azeotrope with the solvent or has a lower boiling point than the solvent,
(d) substantially completely removing the said alcohol R^3OH by distillation and
(e) then reacting the said alcoholate MOE in the resultant solution with the said halide FY.

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ALKOXYLATION PROCESS CATALYZED BY SUPPORTED RARE EARTH ELEMENTS

Richard A. Kemp, Stafford, and Paul R. Weider, Houston, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 738,693, Jul. 31, 1991, abandoned, which is a continuation of Ser. No. 513,469, Apr. 23, 1990, abandoned. This application Aug. 10, 1992, Ser. No. 927,778
The portion of the term of this patent subsequent to Feb. 20, 2007, has been disclaimed.
Int. Cl.[5] C07C *41/03*
U.S. Cl. 568—618 25 Claims

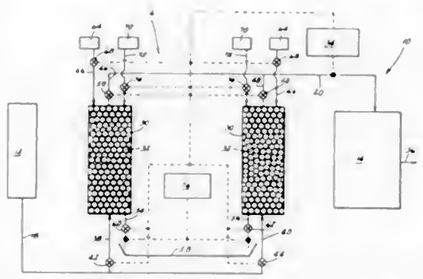
1. A process for the preparation of alkylene oxide adducts of active hydrogen containing organic compounds, which comprises contacting and reacting an alkylene oxide reactant comprising one or more vicinal alkylene oxides with an active hydrogen containing reactant comprising one or more active hydrogen containing organic compounds, in the presence of a catalyst which comprises one or more compounds comprising a rare earth element and phosphorus supported on an inert porous support.

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PROCESS FOR PRODUCTION OF AN ETHER-RICH ADDITIVE

Marco A. Marquez, Caracas; Jose C. Gonzalez; Victor J. Degouveia, both of San Antonio de Los Altos, and Francisco Yanez, Caracas, all of Venezuela, assignors to Intevep, S.A., Caracas, Venezuela

Filed Mar. 6, 1992, Ser. No. 847,194
Int. Cl.[5] C07C *41/06*; B01J *38/56*; C10G *25/00*
U.S. Cl. 568—697 19 Claims



1. A process for the production of an ether-rich additive comprising
(a) providing a liquid hydrocarbon feedstock containing isoalkenes, diolefins, nitrogen compounds, mercaptan and water;
(b) forming a superactivated alumina medium from commercial porous alumina particles by the following steps;
(1) drying said alumina particles by passing an inert gas through said alumina particles at a temperature of not greater than 122° F;
(2) washing said porous alumina particles with an organic solvent at a temperature of less than 122° F. so as to flush polymer precursors from said alumina while avoiding the formation of polymers within the porous alumina;
(3) sensing when the porous alumina is substantially free of said polymer precursors; and
(4) thereafter further flushing said porous alumina particles with an organic solvent at a temperature of about between 140° to 250° F. so as to dissolve polymers within said porous alumina while maintaining said solvent in a liquid phase;
(c) passing said liquid hydrocarbon feedstock through said superactivated alumina medium so as to remove nitrogen compounds, mercaptan and water so as to form a purified feedstock substantially free of nitrogen compounds, mercaptan and water; and
(d) treating said purified feedstock with a catalyst under etherification process conditions so as to produce an ether-rich additive

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5,210,327

ETHERIFICATION WITH SKELETAL OLEFIN ISOMERIZATION

Charles P. Luebke, Mount Prospect; Bipin V. Vora, Darien; David A. Wegerer, Lisle; Joseph E. Zimmermann, Arlington Heights, and Kevin C. Buck, Buffalo Grove, all of Ill., assignors to UOP, Des Plaines, Ill.

Filed May 15, 1992, Ser. No. 883,636
Int. Cl.[5] C07C *41/06*, *5/22*
U.S. Cl. 568—697 16 Claims

1. A process for the production of ether from a feedstream including normal alkene, isoalkene, normal alkane and isoalkane isomers, said process comprising:
(a) mixing an etherification input stream comprising isoalkenes, normal alkenes and normal alkanes with a C_1–C_5 monohydroxy alcohol to produce a combined feed and contacting said combined feed with an etherification catalyst in an etherification zone at etherification conditions to react isoalkenes with said alcohol and produce an etherification effluent stream comprising ether and normal alkane and normal alkene isomers;
(b) passing a distillation input stream comprising at least a portion of said etherification effluent stream and including normal alkane, normal alkene and isoalkane isomers to a distillation zone, separating said distillation input stream and withdrawing from said distillation zone a high boiling fraction comprising said ether, a low boiling fraction comprising said isoalkane, and an intermediate boiling fraction having an average boiling point between said low boiling and said high boiling fraction said intermediate fraction comprising normal alkene and normal alkane isomers of said isoalkane;
(c) passing an isomerization zone feedstream comprising at least a portion of said intermediate boiling stream to an isomerization reaction zone for the skeletal isomerization of normal alkenes and contacting said intermediate boiling stream with an isomerization catalyst at isomerization conditions;
(d) withdrawing an isomerization zone effluent stream comprising isoalkenes from said isomerization zone and passing at least a portion of said isomerization zone effluent to said etherification reaction zone to provide at least a portion of said etherification reaction zone feedstream; and,
(e) passing said feedstream including normal alkene, isoalkene, normal alkane and isoalkane isomers into at least one of said etherification zone, said distillation zone and said isomerization zone.

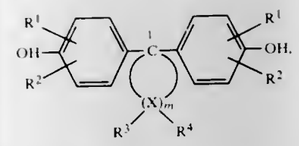
5,210,328

PROCESS FOR THE PREPARATION OF SUBSTITUTED CYCLOALKYLIDENE BISPHENOLS

Dieter Freitag; Claus H. Wulff, both of Krefeld; Alfred Eitel, Dormagen; Helmut Waldmann, Leverkusen; Uwe Westeppe, Mettmann; Manfred Hajek, Leverkusen; Klaus D. Berg, Krefeld; Bernd Griehsel, Bottrop, and Carl Casser, Köln, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

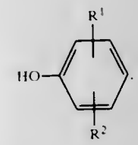
Filed Jun. 25, 1992, Ser. No. 904,186
Claims priority, application Fed. Rep. of Germany, Jul. 2, 1991, 4121791
Int. Cl.[5] C07C *39/17*
U.S. Cl. 568—721 2 Claims

1. A process for the preparation of substituted cycloalkylidene bisphenols corresponding to formula (II)



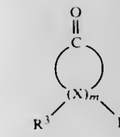
(II)

wherein
R^1 and R^2 denote, independently of one another, hydrogen, halogen, C_1–C_8-alkyl, C_5–C_6-cycloalkyl, C_6–C_{10}-aryl and C_7–C_{12}-aralkyl,
m stands for an integer from 4 to 7,
R^3 and R^4 which may be chosen individually for each X, denote, independently of one another, hydrogen, straight chain or branched C_1–C_6-alkyl, C_6–C_{10}-aryl and C_7–C_{12}-aralkyl and
X denotes carbon
under the condition that on at least one X atom, R^3 and R^4 are not both hydrogen,
by the reaction of phenols corresponding to the formula (III)



(III)

in which
R^1 and R^2 have the meanings given for formula (II)
with ketones corresponding to formula (IV)



(IV)

in which
R^3, R^4, X and m have the meanings indicated for formula (II) in the presence of acid condensation catalysts, wherein the reaction is carried out in the presence of 20 to 700 mol of water per 100 kg of reaction mixture, at a temperature of 20° to 150° C., at a pressure of 1 to 20 bar.

5,210,329

PROCESS FOR PREPARING BISPHENOL-A

Isabel M. Gomes de Matos, Evansville, Ind., and Allen Wai-Kee Ko, Brasschaat, Belgium, assignors to General Electric Company, Pittsfield, Mass.

Filed Feb. 18, 1992, Ser. No. 836,483
Int. Cl.[5] C07C *37/20*, *37/68*, *39/16*
U.S. Cl. 568—727 7 Claims

1. A process which comprises reacting phenol and acetone in the presence of an hydrochloric or ion exchange acidic catalyst and thereafter
a. isolating first major portion of bisphenol-A, therefore forming a purge stream comprising bisphenol-A, bisphenol-A isomers and tar,
b. adding or taking from the said purge stream, if necessary, sufficient phenol so as to bring the purge stream ratio of phenol to bisphenol-A to about 5:1 to 15:1 based on moles, thereby forming an altered purge stream,
c. bringing the temperature of the altered stream to a range of about 30°–50° C.,
d. maintaining the temperature of the altered stream at about 30°–50° C. until about 60–85% of the bisphenol-A crystallizes as a bisphenol-A/phenol 1:1 molar adduct,
e. separating the adduct from its mother liquor.

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PROCESS FOR THE PREPARATION OF PHENYLHYDROQUINONE

Dewey W. Fuller, Jr, Bristol; Bruce L. Gustafson, Kingsport, and Bobby L. Bernard, Rogersville, all of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 22, 1991, Ser. No. 748,592
Int. Cl.[5] C07C *39/12*, *37/06*
U.S. Cl. 568—747 6 Claims

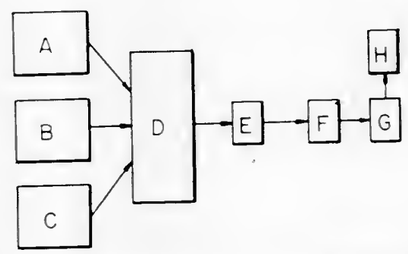
1. Process for the manufacture of phenylhydroquinone comprising the steps of:
(1) alkylating hydroquinone with cyclohexene in an alkylation zone at an alkylating-effective temperature in the presence of a heterogenous, acidic, alkylation catalyst and a solvent comprising diphenyl ether, biphenyl, methyl naphthalene or a mixture thereof to achieve a hydroquinone conversion of not more than about 80 mole percent to produce a crude alkylation product mixture comprising catalyst, hydroquinone, cyclohexylhydroquinone and solvent;
(2) reducing the temperature of the crude alkylation product mixture by at least 50° C. to precipitate hydroquinone therefrom;
(3) separating hydroquinone from the mixture of step (2) to obtain a solution comprising cyclohexylhydroquinone and solvent; and
(4) feeding the solution obtained in step (3) to a dehydrogenation zone wherein the cyclohexylhydroquinone is dehydrogenated in the presence of a dehydrogenation catalyst to obtain a solution of phenylhydroquinone in the solvent.

5,210,331

METHOD FOR THE PREPARATION OF A PHENOL

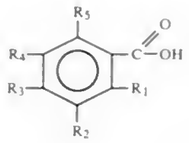
Wim Buijs, Schinnen; Leon H. B. Frijns, Valkenburg, and Matthias R. J. Offermanns, Munstergeleen, all of Netherlands, assignors to DSM NV, Heerlen, Netherlands

Continuation-in-part of Ser. No. 724,173, Jul. 1, 1991, abandoned, which is a continuation of Ser. No. 626,639, Dec. 12, 1990, abandoned. This application Dec. 31, 1991, Ser. No. 814,875
Claims priority, application Netherlands, Dec. 19, 1989, 8903098; Belgium, Jun. 14, 1991, 09100579; Jun. 14, 1991, 09100582; Jun. 14, 1991, 09100583
Int. Cl.[5] C07C *37/56*
U.S. Cl. 568—801 39 Claims



1. A process for the preparation of phenol in high yield and selectivity with substantially no tar formation by an oxidative decarboxylation of a corresponding arylcarboxylic acid having the formula

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wherein R_1 through R_5 can be hydrogen, C_1-C_6 alkyl, cycloalkyl, aryl, aryalkyl, amino, halogen and nitro acid and wherein at least R_1 or R_5 is hydrogen in the presence of a Cu-containing catalyst in which the Cu concentration as a metal and relative to the reaction mixture amounts to 0.5-15 wt.% and in which the degree of oxidation of the copper can be 1^+ and 2^+ which comprises

(a) oxidizing the catalyst at a temperature above the melting point of the arylcarboxylic acid with the temperature, retention time, oxidation agent, arylcarboxylic acid concentration and Cu(I) concentration being controlled so that virtually no tar is formed,

(b) reacting the oxidized catalyst in the presence of water, but in the absence of oxygen, to form a phenol, and

(c) separating the phenol formed.

5,210,332

IRIDIUM-OPTICALLY ACTIVE PHOSPHINE COMPLEX AND PROCESS FOR PRODUCING OPTICALLY ACTIVE ALCOHOLS USING THE SAME

Takanao Taketomi; Susumu Akutagawa; Hidenori Kumobayashi, all of Tokyo; Hidemasa Takaya, Shiga, and Kazushi Mashima, Kyoto, all of Japan, assignors to Takasago International Corporation, Tokyo, Japan

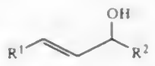
Division of Ser. No. 769,280, Oct. 1, 1991. This application Mar. 20, 1992, Ser. No. 856,403

Claims priority, application Japan, Oct. 1, 1990, 2-263439

Int. Cl.[5] C07C *33/28*

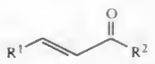
U.S. Cl. 568—813 **8 Claims**

1. A process for producing an optically active allyl alcohol derivative represented by formula (VI):



(VI)

wherein R^1 represents a phenyl group which may be substituted and R^2 represents an alkyl group, comprising enantioselective hydrogenating an α,β-unsaturated ketone represented by formula (V):

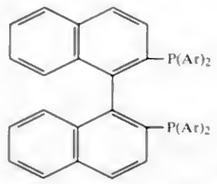


(V)

wherein R^1 and R^2 are as defined above, in the presence of an iridium-optically active phosphine complex represented by formula (I):

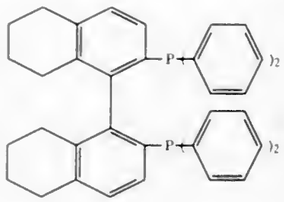
$$[H_2Ir(L^1)(L^2)]Y \quad (I)$$

wherein L^1 represents an optically active phosphine compound represented by formula (II):



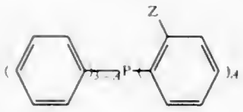
(II)

wherein Ar represents a phenyl group or a p- and/or m-lower alkyl-substituted phenyl group, or formula (III):



(III)

L^2 represents a tertiary phosphine compound represented by formula (IV):



(IV)

wherein Z represents a lower alkoxy group or a di-lower alkylamino group; and A represents an integer of from 1 to 3; Y represents BF_4, PF_6, ClO_4, or BPh_4, wherein Ph represents a phenyl group.

5,210,333

BENZENE REMOVAL FROM HYDROCARBON STREAMS

Richard J. Bellows, Hampton; Gary B. McVicker; Joseph E. Baumgartner, both of Califon, and James P. Dennis, Chatham, all of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Sep. 30, 1992, Ser. No. 953,372

Int. Cl.[5] C07C *7/12, 7/152, 5/00*; C10G *25/00*

U.S. Cl. 585—827 **15 Claims**

15. A continuous process for the substantial separation of benzene from a feed mixture comprising benzene and at least one other hydrocarbon, which process comprises:

(i) contacting the feed mixture with an adsorbent capable of selectively adsorbing benzene from the feed mixture;

(ii) converting the adsorbed benzene to cyclohexane; and

(iii) desorbing the cyclohexane from the adsorbent using as desorbent the feed mixture, the benzene in the feed mixture displacing the cyclohexane from the adsorbent.

5,210,334

PROCESS FOR THE PREPARATION OF ALKALINE EARTH METAL ALKYLATES HAVING A SPHERICAL PARTICLE FORM

Burkhart Standke; Hartwig Rauleder, both of Rheinfelden, Fed. Rep. of Germany; Harald-Jürgen Biangardi, Chesterfield, Mo., and Hans-Joachim Kötzsch, Rheinfelden, Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Dec. 13, 1991, Ser. No. 807,271

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1990, 4040252

Int. Cl.[5] C07C *31/30*

U.S. Cl. 568—851 **7 Claims**

1. The method of preparing an alkaline earth metal compound of the formula

$$M(OR^1)_a(OR^2)_b(CO_2)_x$$

wherein M is an alkaline earth metal selected from the group consisting of magnesium, calcium, strontium and barium;

R^1 and R^2 are identical or different alkyl radicals of 1 to 6 carbon atoms;

$a+b=2$, $0 \leqq a \leqq 2$, $0 \leqq b \leqq 2$, and

$0 \leqq x \leqq 2$,

having a spherical or spheroid particle form, which comprises the sequential steps of forming said particles from a homogeneous solution consisting of an alkaline earth metal lower alkylate or its carbonized form dissolved in a polar protic solvent, to which only one polar or non-polar aprotic solvent has been added which is miscible with the solution of the alkaline earth metal lower alkylate or its carbonized form but wherein said alkaline earth metal lower alkylated or its carbonized form is only sparsely soluble or insoluble, and distilling off the polar protic solvent.

5,210,335

PREPARATION OF LOWER POLYHYDRIC ALCOHOLS

Ludwig Schuster, Limburgerhof, and Walter Himmele, Walldorf, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 785,223, Oct. 28, 1991, abandoned, which is a continuation of Ser. No. 555,663, Jul. 18, 1990, abandoned, which is a continuation of Ser. No. 385,545, May 26, 1989, abandoned. This application Jul. 9, 1992, Ser. No. 912,034

Claims priority, application Fed. Rep. of Germany, May 28, 1988, 3818198.3

Int. Cl.[5] C07C *29/132, 31/20*

U.S. Cl. 568—863 **8 Claims**

1. In a process for the preparation of a lower polyhydric alcohol by catalytic hydrogenolysis of sucrose in an aqueous medium, at elevated temperatures and pressures, the improvement for selectively producing ethylene glycol and 1,2-propylene glycol which comprises:

using a catalyst in which the active material consists essentially of a reduced mixture of the oxides of the metals cobalt, copper and manganese, containing at least 5 up to not more than 80% by weight of manganese and up to not more than 85% by weight of copper, the percentages being based upon a total content of said metals of 100%, said catalyst being prepared by mixing the relevant metals in the form of their aqueous salt solutions and precipitating them together from this mixture by adding a base, then isolating and drying the precipitated material and converting the dried precipitate by calcination into a mixed oxide which is subsequently activated by reduction with hydrogen at an elevated temperature of at least about 200° C.; and

carrying out the hydrogenation reaction at a temperature of from 220° C. to 280° C. and at a hydrogen pressure of from 250 to 700 bar.

5,210,336

OXIDATION OF OLEFIN TO GLYCOL

Anne M. Gaffney, and John A. Sofranko, both of West Chester, Pa., assignors to ARCO Chemical Technology, L.P., Wilmington, Del.

Continuation-in-part of Ser. No. 312,265, Feb. 21, 1989, abandoned. This application Jan. 24, 1992, Ser. No. 825,473

Int. Cl.[5] C07C *29/12, 29/03, 29/48, 31/20*

U.S. Cl. 568—860 **7 Claims**

1. The process for the catalytic conversion of an olefin to the corresponding glycol which comprises reacting the olefin, oxygen, carbon dioxide and water in the presence of a catalyst in a solvent at conditions which are supercritical with respect to the reaction mixture.

5,210,337

FORMALDEHYDE RESISTANT CATALYST FOR HYDROGENATION AND HYDROGENOLYSIS OF ALDEHYDES, ACETALS, AND ESTERS

Jerry A. Broussard, Summit, N.J., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Continuation of Ser. No. 284,609, Dec. 15, 1988, abandoned. This application Mar. 28, 1990, Ser. No. 500,103

Int. Cl.[5] C07C *29/141, 29/149, 29/132, 31/08*

U.S. Cl. 568—881 **11 Claims**

1. In a process for catalytically hydrogenating an organic feed in a reaction medium which includes formaldehyde or formaldehyde precursors which are converted to formaldehyde during reaction, the improvement comprising: said organic feed being selected from the group consisting of an acetal, an ester and acetaldehyde and hydrogenating said organic feed in the presence of a catalyst comprising rhenium oxide or mixture of rhenium oxides.

5,210,338

CATALYZED CHAIN GROWTH PROCESS

Edward G. Samsel, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 782,116, Oct. 25, 1991, abandoned. This application May 12, 1992, Ser. No. 881,928

Int. Cl.[5] C07C *29/54, 2/88, 31/125*; C07F *5/06*

U.S. Cl. 568—911 **26 Claims**

1. In a process for the preparation of an aluminum alkyl chain growth product by the chain growth reaction of α-olefin on an aluminum alkyl, the improvement comprising catalyzing the chain growth reaction with a catalyst system which comprises at least oen of the following: (a) a metallocene of a transition metal and a methylaluminoxane, (b) a cationic transition metal metallocene complex with an inert non-coordinating anion and, (c) a cationic transition metl metallocene complex with an inert non-coordinating anion and a hydrocarbylaluminoxane.

10. In a process for the preparation of linear alpha-olefins by the chain growth reaction of α-olefin on an aluminum alkyl followed by olefin displacement of linear alpha-olefins from the aluminum alkyl chain growth product, the improvement comprisign catalyzing the chain growth reaction with a catalyst system which comprises at lease one of the following: (a) a metallocene of a transition metal and a methylaluminoxane, (b) a cationic transition metal metallocene complex with an inert non-coordinating anion and, (c) a cationic transition metal metallocene complex with an inert non-coordinating anion and a hydrocarbylaluminoxane.

19. In a process for the preparation of linear primary alcohols by the chain growth reactions of α-olefin on an aluminum alkyl followed by oxidation of the aluminum alkyl chain growth product to form alkoxides and acid hydrolysis of the alkoxides to produce linear primary alcohols, the improvement comprising catalyzing the chain growth reaction with a catalyst system which comprises at lease one of the following: (a) a metallocene of a transition metal and a methylaluminoxane, (b) a cationic transition metal metallocene complex with an

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inert non-coordinating anion and, (c) a cationic transition metal metallocene complex with an inert non-coordinating anion and a hydrocarbylaluminoxane

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5,210,339
PROCESS FOR NITRATING BENZOCYCLOBUTENE COMPOUNDS

P. J. Thomas, and R. Garth Pews, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 15, 1992, Ser. No. 868,812
Int. Cl.[5] C07C *205/06, 205/12*
U.S. Cl. 568—929 21 Claims

1. A process for the nitration of a substituted or unsubstituted benzocyclobutene compound in a reaction mixture comprising a nitrating agent, an unhalogenated carboxylic acid anhydride, clay and a solvent to produce a corresponding nitrobenzocyclobutene compound, wherein:
(a) the solvent has a density above that of the nitrating agent or an extractable precursor thereof,
(b) the reaction mixture is heated at a temperature such that solvent is removed from the reaction mixture to a site outside the reaction mixture to extract nitrating agent or extractable precursor thereof, and
(c) the thus-extracted nitrating agent or precursor thereof is fed into the reaction mixture to nitrate the benzocyclobutene compound.

5,210,340
PREPARATION OF POLYFLUOROBUTENES

Dietmar Bielefeldt, Ratingen, and Albrecht Marhold, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 824,691, Jan. 21, 1992, Pat. No. 5,146,019, which is a continuation of Ser. No. 529,770, May 30, 1990, abandoned, which is a continuation of Ser. No. 405,101, Sep. 8, 1989, abandoned, which is a continuation of Ser. No. 218,735, Jul. 13, 1988, abandoned. This application Apr. 10, 1992, Ser. No. 866,930
Claims priority, application Fed. Rep. of Germany, Jul. 30, 1987, 3725213
Int. Cl.[5] C07C *17/20*
U.S. Cl. 570—160 6 Claims

1. A process for the simultaneous preparation of 1,1,1,2,4,4,4- heptafluoro-2-butene and 2-chloro-1,1,1,4,4,4-hexafluoro-2-butene, in which hexachlorobutadiene is reacted with hydrogen fluoride with the addition of catalytic amounts of a titanium tetrahalide in the absence of elemental chlorine.

5,210,341
PROCESSES FOR THE PREPARATION OF OCTAFLUORO-[2,2]PARACYCLOPHANE

William R. Dolbier, Jr.; M. A. Asghar, and He-Qi Pan, all of Gainsville, Fla., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Dec. 20, 1991, Ser. No. 812,575
Int. Cl.[5] C07C *22/00*
U.S. Cl. 570—144 17 Claims

1. A process for the preparation of octafluoro-[2,2]paracyclophane, which comprises contacting a dihalo-tetrafluoro-p-xylene with a reducing agent comprising a reduced form of titanium, chloride ions, lithium ions and aluminum ions at a temperature of less than about 200° C. and effective conditions to promote the formation of a reaction product comprising octafluoro-paracyclophane, wherein the yield of octafluoroparacyclophane is at least 20 mole % based on one-half of the moles of dihalo-tetrafluoro-p-xylene contacted with the reducing agent.

5,210,342
PURIFICATION PROCESS

Geoffrey J. Moore, Weaverham, England, assignor to Imperial Chemical Industries Plc, London, England

Filed Apr. 3, 1992, Ser. No. 862,717
Claims priority, application United Kingdom, Apr. 8, 1991, 9107344
Int. Cl.[5] C07C *17/38*
U.S. Cl. 570—179 6 Claims

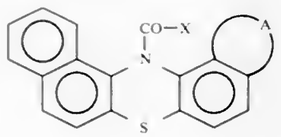
1. A process for the removal of chlorocarbon impurities from difluoromethane which comprises contacting the impure difluoromethane with active carbon at a temperature of from about −50° C. to about 100° C.

5,210,343
PROCESS FOR THE PREPARATION OF P-DICHLOROBENZENE

Franz-Josef Mais, Duesseldorf, and Helmut Fiege, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 19, 1992, Ser. No. 854,121
Claims priority, application Fed. Rep. of Germany, Mar. 27, 1991, 4110051
Int. Cl.[5] C07C *17/12, 25/08*
U.S. Cl. 570—210 10 Claims

1. A process for the preparation of dichlorobenzene having an increased p-content and a very greatly reduced m-content by ring chlorination of benzene or chlorobenzene with chlorine in the presence of a catalytic amount of a Friedel-Crafts catalyst and a co-catalyst in the liquid phase, wherein the co-catalyst has the following formula



in which
X represents fluorine, chlorine, bromine, trifluoromethyl or pentafluoroethyl and
A represents 2 hydrogen atoms or the group —CH=CH—CH=CH—
and wherein the reaction is carried out at a temperature between the solidification point and the boiling point of the reaction mixture.

5,210,344
DEHYDROHALOGENATION OF 1,1,2-TRICHLOROETHANE USING CYCLIC AMINES

Daniel J. Reed, and Tarver G. Snedecor, both of Angleton, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 27, 1992, Ser. No. 889,531
Int. Cl.[5] C07C *17/34*
U.S. Cl. 570—228 14 Claims

1. In a process for dehydrohalogenation of 1,1,2-tirchloroethane to produce vinylidene chloride, an improvement comprising using a cyclic amine having a pK_a greater than about 11 as dehydrohalogenating agent.

5,210,345
PROCESS FOR THE PREPARATION OF VINYL CHLORIDE

Ingolf Mielke, Burgkirchen, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 9, 1992, Ser. No. 959,040
Claims priority, application Fed. Rep. of Germany, Aug. 27, 1992, 4228593
Int. Cl.[5] C07C *17/34*
U.S. Cl. 570—227 4 Claims

1. A process for preparing vinyl chloride, comprising: thermally cleaving 1,2-dichloroethane in the presence of benzotrichloride.

5,210,346
SYNTHETIC LUBRICANT COMPOSITIONS WITH ALPHAOLEFIN DIMER

Thomas J. Dileo, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Feb. 6, 1992, Ser. No. 832,084
Int. Cl.[5] C10M *107/10*
U.S. Cl. 585—10 12 Claims

1. A synthetic oil composition comprising a major portion by weight of synthetic base oil having a kinetic viscosity of from about 1.5 to 2.5 cSt at 100° C. and a minor portion by weight of one or more property enhancing additives for said base oil, said base oil comprising a major portion by weight of dimer of 1-decene, said dimer having a kinetic viscosity of less than 250 cSt at −40° C., a kinetic viscosity of less than 1,000 cSt at −54° C. and a pour point of less than about −65° C.

5,210,347
PROCESS FOR THE PRODUCTION OF HIGH CETANE VALUE CLEAN FUELS

Catherine S. H. Chen, Berkeley Heights; Dennis H. Hoskin, Westampton, and Suzanne E. Schramm, Robinsville, all of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Sep. 23, 1991, Ser. No. 764,258
Int. Cl.[5] C10L *1/16;* C07C *2/02*
U.S. Cl. 585—14 20 Claims

1. A process for the co-production of lubricant range hydrocarbons and aromatics free hydrocarbon fuel having high cetane number, comprising:
a) contacting a feedstream comprising lower olefinic hydrocarbons with surface deactivated acidic, medium pore, shape selective metallosilicate catalyst particles under oligomerization conditions whereby a product stream comprising aromatics-free slightly branched internal olefin oligomers is produced;
b) contacting said aromatics-free slightly branched internal olefin oligomers and a fresh feedstream comprising excess ethylene with metathesis catalyst in a reaction zone under metathesis conditions whereby said internal olefin oligomers are converted to reaction product comprising slightly branched alpha-olefin oligmers and unconverted oligomers;
c) contacting step (b) metathesis reaction product with reduced valence state Group VIB metal catalyst on porous support under oligomerization conditions and recovering a reaction product containing a 350°–650° F. fuel boiling range portion and a 650° F.+ lubricant range portion;
d) separating and hydrogenating step (c) fuel boiling range portion whereby a hydrocarbon fuel having cetane number between 50 and 75 and no aromatics is produced.

5,210,348
PROCESS TO REMOVE BENZENE FROM REFINERY STREAMS

C. Richard Hsieh, and Richard C. Robinson, both of San Rafael, Calif., assignors to Chevron Research and Technology Company, San Francisco, Calif.

Filed May 23, 1991, Ser. No. 704,367
Int. Cl.[5] C07C *5/22, 5/10, 2/64, 7/00*
U.S. Cl. 585—253 67 Claims

1. A process for producing a debenzenated and isomerized product useful as a gasoline blending stock from a benzene-containing refinery stream, comprising:
reacting the benzene-containing refinery stream in an alkylation zone with a C_2–C_4 olefin-containing stream in the presence of an alkylation catalyst under alkylation conditions, alkylating at least about 30% of the benzene initially present in the refinery stream to form an alkylated stream containing both alkylated and non-alkylated benzene;
separating the alkylated refinery stream into a substantially benzene-free heavier fraction and a benzene-containing lighter fraction;
reacting the benzene-containing lighter fraction with both
(a) hydrogen in a hydrogenation zone in the presence of a hydrogenation catalyst under hydrogenation conditions, hydrogenating substantially all of the benzene to form a debenzenated product, and
(b) an isomerization catalyst in an isomerization zone under isomerization conditions, producing the debenzenated and isomerized product;
the sum of the quantities of said debenzenated and isomerized product and said substantially benzene-free heavier fraction being at least equal to that of said refinery stream.

5,210,349
SELECTIVE HYDROGENATION OF CYCLIC POLYENES

Michael S. Matson, and Harold J. Swindell, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 724,069, Jul. 1, 1991, Pat. No. 5,128,296. This application Mar. 4, 1992, Ser. No. 845,907
Int. Cl.[5] C07C *2/74*
U.S. Cl. 585—255 18 Claims

1. A hydrogenation process comprising:
(a) contacting a non-activated ruthenium catalyst with hydrogen, a first cyclic polyene comprising a polyunsaturated olefin having at least 6 carbon atoms and at least 2 ethylenic double bonds, and a first solvent, wherein said first cyclic polyene is present in an amount less than about 50 volume percent and said first solvent is present in an amount greater than 50 volume percent based on the total volume of the components, under hydrogenation conditions to produce an activated ruthenium catalyst and an activation effluent comprising said first solvent and a first cyclic monoene product;
(b) separating said activated ruthenium catalyst from a major portion of said activation effluent; and
(c) contacting said activated ruthenium catalyst with a second cyclic polyene comprising a polyunsaturated olefin having at least 6 carbon atoms and at least 2 ethylenic double bonds, and
hydrogen
under suitable hydrogenation conditions to produce a second cyclic monoene product.

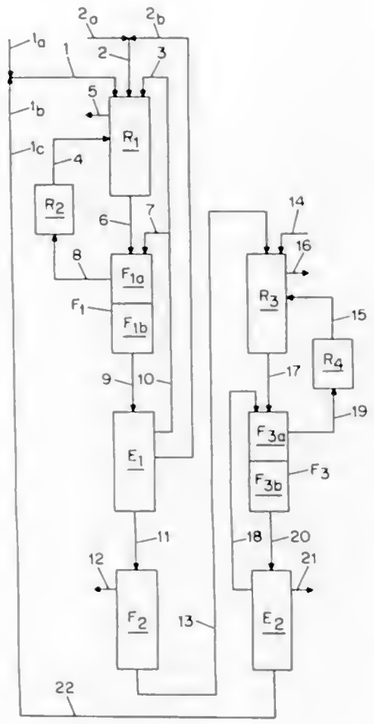
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5,210,350

METHOD OF PREPARING AN ALKYLATED AROMATIC PRODUCT WITH AN ALKYLATION ZEOLITE AND A DEALKYLATION ZEOLITE

Jonis Solofo, Montpellier; Patrice Moreau, Saint-Gely-du-Fesc; Patrick Geneste, and Annie Finiels, both of Montpellier, all of France, assignors to Michelin Recherche et Technique, Fribourg, Switzerland

Filed Mar. 11, 1991, Ser. No. 667,419
Claims priority, application France, Mar. 13, 1990, 90 03309
Int. Cl.[5] C07C *2/00*
U.S. Cl. 585—323 18 Claims



1. A method for preparing a selected alkylaromatic compound comprising the steps of:

(a) reacting an aromatic compound with an alkylating agent in the presence of a first zeolite under conditions such that the first zeolite catalyzes the reaction of the aromatic compound with the alkylating agent to form a plurality of alkylated aromatic products including the selected alkylaromatic compound;

(b) selectively crystallizing the selected alkylaromatic compound;

(c) separating the crystallized alkylaromatic compound from the other uncrystallized alkylated aromatic products;

(d) dealkylating the uncrystallized alkylated aromatic products in the presence of a second zeolite, different from the first zeolite, under conditions such that the second zeolite catalyzes the regeneration of the aromatic compound; and

(e) recycling the regenerated aromatic compound as a feedstock for the reaction of step (a).

5,210,351

PREPARATION OF ALKYLATED CYCLOPENTADIENES

Clifford G. Venier, and Edward W. Casserly, both of The Woodlands, Tex., assignors to Pennzoil Products Company, Houston, Tex.

Continuation-in-part of Ser. No. 660,469, Feb. 25, 1991, Pat. No. 5,144,095, which is a continuation-in-part of Ser. No. 323,749, Mar. 15, 1989, Pat. No. 5,012,022, which is a continuation of Ser. No. 170,654, Mar. 15, 1988, abandoned, which is a division of Ser. No. 112,378, Oct. 22, 1987, Pat. No. 4,849,566, and a continuation-in-part of Ser. No. 323,164, Mar. 15, 1989, Pat. No. 4,929,782, which is a continuation of Ser. No. 170,653, Mar. 15, 1988, abandoned, which is a division of Ser. No. 112,378, Mar. 15, 1988, and a continuation-in-part of Ser. No. 323,906, Mar. 15, 1989, Pat. No. 5,012,023, which is a continuation-in-part of Ser. No. 170,652, Mar. 15, 1988, abandoned, which is a division of Ser. No. 112,378, Mar. 15, 1988, said Ser. No. 112,378, is a continuation-in-part of Ser. No. 909,305, Sep. 19, 1986, Pat. No. 4,721,823. This application Sep. 4, 1991, Ser. No. 754,467
The portion of the term of this patent subsequent to Jan. 26, 2005, has been disclaimed.
Int. Cl.[5] C07C *2/86*
U.S. Cl. 585—375 7 Claims

1. In a process for the preparation of alkylated cyclopentadienes by reacting a dimer of a primary or secondary alcohol with a cyclopentadiene to alkylate the cyclopentadiene and form an alkylated cyclopentadiene product comprising forming said dimer by reacting a primary or secondary alcohol in the presence of an alkali metal hydroxide catalyst at a temperature range of 200°–250½° C. with removal of water to produce said dimer of said primary or secondary alcohol, and reacting said dimer of said primary or secondary alcohol with said cyclopentadiene to alkylate said cyclopentadiene; the improvement comprising:

reacting said dimer of said primary or secondary alcohol with said cyclopentadiene only after the reaction of said primary or secondary alcohol and the removal of said water is complete.

5,210,352

FLUORENE COMPOUNDS

Helmut G. Alt, and Syriac J. Palackal, both of Bayreuth, Fed. Rep. of Germany, assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 697,363, May 9, 1991, Pat. No. 5,191,132. This application May 28, 1991, Ser. No. 705,863
Int. Cl.[5] C07C *1/20*
U.S. Cl. 585—375 8 Claims

1. A method for preparing 1- methyl fluorene from fluoranthene comprising reacting fluoranthene with H_2O_2 and acetic acid under suitable conditions to produce 1-carboxylic acid fluorenone, then reacting said 1-carboxylic acid fluorenone with $LiAlH_4$ and $AlCl_3$ under suitable reaction conditions to produce 1- hydroxymethyl fluorenone, and then reducing said 1-hydroxymethyl fluorenone with hydrogen in the presence of a palladium carbon catalyst under suitable conditions to produce said 1- methyl fluorene.

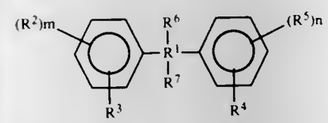
5,210,353

AROMATIC TRANSFORMATION PROCESS

Carl A. Udovich, Joliet; E. William Breder, Jr., Oak Forest; Ibrahim Ghanayem, Downers Grove; Mark W. Meszaros, Batavia; Thomas E. Nemo, and Thomas G. Smith, both of Naperville, all of Ill., assignors to Amoco Corporation, Chicago, Ill.

Filed Nov. 30, 1990, Ser. No. 620,529
Int. Cl.[5] C07C *2/64, 2/70, 2/72, 5/22*
U.S. Cl. 585—446 29 Claims

1. A process for transaralkylating a bis(aryl)alkane which process comprises contacting, under liquid phase conditions, said bis(aryl)alkane with a molar excess of an alkyl-substituted aromatic compound having different alkyl substitution from at least one of the aryl groups of said bis(aryl)alkane, said contacting being carried out in the presence of a catalytically effective amount of a Friedel-Crafts catalyst for a time period sufficient to replace at least some of said aryl groups of said bis(aryl)alkane with said alkylsubstituted aromatic, wherein said bis(aryl) alkane is characterized by the formula:



and wherein:

R^1 is a carbon atom,

R^2 and R^5 are each a lower alkyl radical,

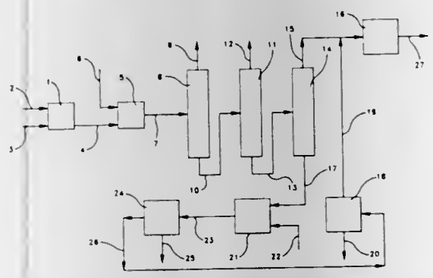
R^3, R^4 and R^6 are each independently selected from the group consisting of hydrogen and a lower alkyl radical, R^7 is a lower alkyl radical and when R^3 is in the 2-position in said formula, R^3 and R^7 together are optionally an alkylene radical containing up to four carbons, inclusive, and m and n each is an integer having a value of 0 through 4, inclusive.

5,210,354

PROPYLENE OXIDE-STYRENE MONOMER PROCESS

Walter S. Dubner, Wilmington, Del., and Robert N. Cochran, West Chester, Pa., assignors to ARCO Chemical Technology, L.P., Wilmington, Del.

Filed May 8, 1992, Ser. No. 880,836
Int. Cl.[5] C07C *1/20*
U.S. Cl. 585—469 3 Claims



1. In a process for the co-production of propylene oxide and styrene monomer wherein ethylbenzene is oxidized to ethylbenzene hydroperoxide, said ethylbenzene hydroperoxide is reacted with propylene to form propylene oxide and 1-phenyl ethanol, unreacted propylene, propylene oxide and 1-phenyl ethanol are separately recovered by distillation leaving a heavy residue containing sodium and oxygen-containing organic materials formed in the process, and the 1-phenyl ethanol is dehydrated to styrene monomer, the improvement which comprises admixing the said heavy residue with aqueous acid, phase separating the resulting admixture into an aqueous sodium-containing phase and an organic phase having a reduced sodium content, and cracking at least a portion of the organic phase having a reduced sodium content to form styrene monomer.

5,210,355

SELECTIVE PRODUCTION OF 2,6-METHYLETHYLNAPHTHALENE

Gary P. Hagen, West Chicago, and Thomas G. Smith, Naperville, both of Ill., assignors to Amoco Corporation, Chicago, Ill.

Filed Jun. 26, 1990, Ser. No. 544,272
The portion of the term of this patent subsequent to Oct. 10, 2006, has been disclaimed.
Int. Cl.[5] C07C *5/22, 5/52*
U.S. Cl. 585—472 15 Claims

1. A method for producing 2,6-methylethylnaphthalene comprising: reacting 2-methylnaphthalene as the feed in the liquid phase with at least one of 1,2,4-triethylbenzene, at least one tetraethylbenzene or pentaethylbenzene as the ethylating agent, at a level of from about 1 to about 10 moles of the ethylating agent per mole of the feed, in the presence of a catalyst comprising a Lewis acid or Bronsted acid alkylation catalyst or mixture thereof that is more acidic than ferric chloride and at least as acidic as ferric bromide, at a level of from about 0.01 to about 1 mole of the catalyst per mole of the feed and at a temperature in the range of from about −10° C. to about 100° C.

5,210,356

TOLUENE DISPROPORTIONATION EMPLOYING MODIFIED OMEGA ZEOLITE CATALYST

Edwar S. Shamshoum; Ashim K. Ghosh, both of Houston, and Thomas R. Schuler, Galena Park, all of Tex., assignors to Fina Technology, Inc., Dallas, Tex.

Filed Dec. 16, 1991, Ser. No. 808,126
Int. Cl.[5] C07C *5/52*
U.S. Cl. 585—475 14 Claims

1. In a transalkylation process for the disproportionation of a toluene containing feedstock over a steam modified and metal-promoted omega zeolite catalyst to produce benzene and xylene(s), the steps comprising:

(a) passing a cofeed of hydrogen gas and substantially pure toluene into a reaction zone and contacting it with a steam-modified and nickel-loaded omega zeolite catalyst, the catalyst having a silica to alumina molar ratio in the range of about 25:1 to 150:1, the feedstock being supplied to the reaction zone at a rate sufficient to provide a toluene LHSV of about 2;

(b) conducting the disporportionation reaction within the reaction zone at a temperature within the range of about 250°–480° C. and at a pressure of at least 600 psig; and

(c) withdrawing the disproportionation product containing benzene and xylene(s) from the reaction zone.

5,210,357

COMPOSITION OF MATTER AND METHOD OF OXIDATIVE CONVERSION OF ORGANIC COMPOUNDS THEREWITH

John H. Kolts, Ochelata, Okla., and James B. Kimble, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla. and Atlantic Richfield Company, Los Angeles, Calif.

Filed Jun. 7, 1985, Ser. No. 742,337
Int. Cl.[5] C07C *2/00, 5/00*
U.S. Cl. 585—500 16 Claims

1. A method for oxidative conversion of feed organic compounds comprising methane to product organic compounds comprising hydrocarbons, comprising:

contacting said feed organic compounds and an oxygen containing gas with a solid contact material comprising lanthanum oxide under conditions sufficient to convert said feed organic compounds to said product organic compounds.

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5,210,358

CATALYST COMPOSITION AND PROCESS FOR THE PREPARATION OF ETHYLENE FROM ETHANE

Angelo J. Magistro, Brecksville, Ohio, assignor to The B.F. Goodrich Company, Akron, Ohio

Division of Ser. No. 691,647, Apr. 25, 1991, Pat. No. 5,112,793, which is a continuation-in-part of Ser. No. 567,510, Aug. 15, 1990, abandoned. This application Feb. 27, 1992, Ser. No. 842,869

Int. Cl.[5] C07C *2/00, 5/00, 5/327, 5/373*

U.S. Cl. 585—500 23 Claims

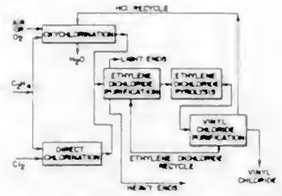


FIG 2



FIG 3



1. An oxydehydrogenation process for producing ethylene from ethane comprising reacting 1 mole of ethane, 0.1 to about 1.5 moles of oxygen, and 0.1 to about 10 moles of hydrogen chloride at a temperature of from 400° C. to 650° C. in the presence of a solid solution catalyst such that said ethane is dehydrogenated to form ethylene and less than 5 moles of vinyl chloride is formed per 100 moles of ethane feed and wherein said solid solution catalyst comprises α-Al_2O_3 catalyst support particles with iron cations substituted for aluminum cations in the host lattice of α-Al_2O_3 catalyst support having an iron content of 0.1 to 20% by weight expressed as the oxide stabilized with a total lanthanide content of 0.1 to 20% by weight expressed as the oxide and modified with at least two metal cations selected from the group consisting of barium, cobalt, chromium, magnesium and manganese, wherein barium is one of said metal cations and wherein said metal cations are present in amounts of 0.05 to 10% of each metal by weight expressed as the oxide; wherein said lanthanide content expressed as the oxide is selected from oxides of the elements 57 to 71 of the Periodic Table, and mixtures thereof, said solid solution catalyst having X-ray diffraction pattern having peak positions different than that of the host lattice.

5,210,359

VULCANIZABLE LIQUID COMPOSITIONS

Thomas S. Coolbaugh, Morrisville; Frederick C. Loveless, Yardley, both of Pa.; Demetreos N. Matthews, Ewing, and Leslie R. Rudnick, Lawrenceville, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Division of Ser. No. 466,135, Jan. 16, 1990, Pat. No. 5,149,895. This application Aug. 6, 1992, Ser. No. 907,959

Int. Cl.[5] C07C *2/40;* C08F *297/02*

U.S. Cl. 585—507 9 Claims

1. A liquid star-branched block polymer comprising at least two alternating blocks

I—B

wherein each free end of the polymer is an I block, and

I is a block of at least one polymerized conjugated diene having at least five (5) carbon atoms and the following formula



(1)

wherein R^1-R^6 are each hydrogen or a hydrocarbyl group, provided that at least one of R^1-R^6 is a hydrocarbyl group and provided that the structure of the residual double bond in the polymerized block I has the following formula

(2)

wherein R^I, R^{II}, R^{III} and R^{IV} are each hydrogen or a hydrocarbyl group, provided that either both R^I and R^{II} are hydrocarbyl groups or both R^{III} and R^{IV} are hydrocarbyl groups;

B is a block of a polymer of at least one conjugated diene different from the diene used to polymerize the block I, having at least four (4) carbon atoms and the following formula



(3)

wherein R^7-R^{12} are each hydrogen or a hydrocarbyl group, provided that the structure of the residual double bond in the polymerized block B has the following formula

(4)

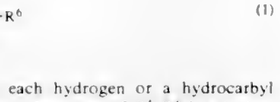
wherein R^a, R^b, R^c and R^d are each hydrogen (H) or a hydrocarbyl group, provided that one of R^a or R^b is hydrogen, one of R^c or R^d is hydrogen and at least one of R^a, R^b, R^c or R^d is a hydrocarbyl group.

4. A liquid star-branched block polymer comprising at least two (2) alternating blocks

A—D

wherein each free end of the polymer is an A block, and

A is a copolymer of at least one aryl-substituted olefin and at least one conjugated diene having at least five (5) carbon atoms and the following formula



(1)

wherein R^1-R^6 are each hydrogen or a hydrocarbyl group, provided that at least one of R^1-R^6 is a hydrocarbyl group and provided that the structure of the residual double bond in the polymerized block I has the following formula

(2)

wherein R^I, R^{II}, R^{III} and R^{IV} are each hydrogen or a hydrocarbyl group, provided that either both R^I and R^{II} are hydrocarbyl groups or both R^{III} and R^{IV} are hydrocarbyl groups;

D is a block polymer of a conjugated diene, different from the diene used to polymerize the block A, having at least four (4) carbon atoms and the following formula

(3)

wherein R^7-R^{12} are each hydrogen or a hydrocarbyl group, provided that the structure of the residual double bond in the polymerized block D has the following formula

(4)

wherein R^a, R^b, R^c and R^d are each hydrogen (H) or a hydrocarbyl group, provided that one of R^a or R^b is hydrogen, one of R^c or R^d is hydrogen and at least one of R^a, R^b, R^c or R^d is a hydrocarbyl group;

A is a copolymer of about 30 to about 70% by mole of at least one aryl-substituted olefin and about 30 to about 70% by mole of at least one conjugated diene of formula (1), different from that used to polymerize the block D, having at least five (5) carbon atoms and the following formula

(1)

wherein R^1-R^6 are each hydrogen or a hydrocarbyl group, provided that at least one of R^1-R^6 is a hydrocarbyl group and provided that the structure of the residual double bond in the polymerized block I has the following formula

(2)

wherein R^I, R^{II}, R^{III} and R^{IV} are each hydrogen or a hydrocarbyl group, provided that either both R^I and R^{II} are hydrocarbyl groups or both R^{III} and R^{IV} are hydrocarbyl groups.

5,210,360

ETHYLENE OLIGOMERIZATION

An-hsiang Wu, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 1, 1992, Ser. No. 937,774

Int. Cl.[5] C07C *2/26*

U.S. Cl. 585—511 13 Claims

1. An ethylene oligomerization process consisting essentially of:

oligomerizing ethylene under oligomerization conditions with an oligomerization catalyst system produced by the process consisting essentially of contacting an organonickel compound, an aromatic acid compound, a phosphine compound;

wherein the nickel component is in the zero valence state or can undergo reduction to the zero valence state, and the organic component is an unsaturated organic group; and

wherein said aromatic acid compound has the following formula

wherein each R is independently selected from the group

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consisting of hydrogen, and hydroxyl (-OH), provided that, at least one R is not hydrogen; and

wherein said phosphine compound has the formula PR_3, wherein each R is independently selected from the group consisting of hydrogen and hydrocarbyl radicals, provided that said hydrocarbyl radical has 1 to about 20 carbon atoms and that any alkenyl substitution be at least 3 carbon atoms removed from the phosphorous atom and at least one R is not a hydrogen.

5,210,361

ALLYL AKLALI METAL ALKENE ADDITION PROCESS

Mark E. Lashier, and Henry L. Hsieh, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 1, 1991, Ser. No. 769,278

Int. Cl.[5] C07C *2/26, 2/34;* **B01J** *31/00*

U.S. Cl. 585—511 **32 Claims**

1. A process to produce an allyl alkali metal alkene addition catalyst and a single alkene addition product said process consisting essentially of contacting:

a hydrocarbyl lithium; with

an alkali metal hydrocarbyloxide wherein said alkali metal is selected form the group consisting of sodium, potassium, cesium, rubidium, and mixtures thereof;

in the presence of propylene; and

recovering said allyl alkali metal alkene addition catalyst and said single alkene addition product.

5,210,362

ALPHA-OLEFIN POLYMERS

Roger L. Sowerby, Mentor, and Curtis R. Scharf, Wickliffe, both of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Filed Jun. 7, 1989, Ser. No. 362,631

Int. Cl.[5] C07C *2/20, 2/22*

U.S. Cl. 585—532 **22 Claims**

1. A process for preparing a liquid polymer comprising contacting at least one alpha-olefin with a catalyst system comprising a secondary organo halide and a Lewis acid catalyst in the presence of a halogenated solvent and in the presence of an activating amount of a protic compound under polymerization conditions thereby obtaining the liquid polymer.

5,210,363

HYDROUS ZIRCONIUM OXIDE DEHYDRATION CATALYST

William A. Sweeney, Larkspur, Calif., assignor to Chevron Research and Technology Company, San Francisco, Calif.

Division of Ser. No. 542,278, Jun. 22, 1990, Pat. No. 5,130,287.

This application Mar. 17, 1992, Ser. No. 852,871

Int. Cl.[5] C07C *1/24*

U.S. Cl. 585—640 **4 Claims**

1. A method for producing a compound having a terminal double bond comprising dehydrating a compound having the general formula



where R is a C_2-C_{20} hydrocarbon group, in the presence of a dehydration catalyst comprising the product produced by the method comprising:

A. dissolving zirconyl nitrate in water;

B. hydrolyzing the zirconyl nitrate with ammonia at elevated temperature until substantially all of the zirconyl nitrate is hydrolyzed to hydrous zirconium oxide;

C. recovering the hydrous zirconium oxide and washing it with aqueous ammonium hydroxide until the hydrous zirconium oxide is essentially free of nitrate ions;

D. washing the hydrous zirconium oxide with water until it is essentially free of ammonium ions; and

E. drying the resulting product at elevated temperature until it is essentially free of water other than water which is chemically bound to the hydrous zirconium oxide.

5,210,364

PROCESS FOR THE PREPARATION OF BRANCHED OLEFINS

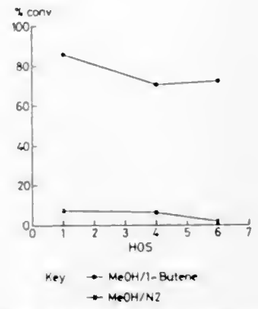
Sami A. I. Barri, Berkshire, and David A. Kidd, Fleet, both of England, assignors to The British Petroleum Co., p.l.c., London, England

Filed Nov. 7, 1991, Ser. No. 790,294

Claims priority, application United Kingdom, Nov. 8, 1990, 9024342

Int. Cl.[5] C07C *1/00*

U.S. Cl. 585—640 **8 Claims**



1. A process for the production of olefins which comprises passing an oxygenate-containing feedstock over a zeo-type catalyst at a temperature greater than 200° C. wherein the oxygenate-containing feedstock comprises C_3 and/or C_4 olefins, the oxygenate is at least one of methanol, formaldehyde or dimethylether, the molar ratio of olefin to oxygenate being greater than 1:20, and the zeo-type catalyst is of a TON-type structure and is selected from the group consisting of aluminosilicates, gallosilicates, zincosilicates, borosilicates, titanosilicates, aluminogermanates, gallogermanates, zincogermanates, borogermanates and titanogermanates.

5,210,365

OLEFIN DISPROPORTIONATION CATALYST AND PROCESS

Jiang-Jen Lin, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 572,571, Aug. 27, 1990, Pat. No. 5,114,899.

This application Jan. 29, 1992, Ser. No. 827,317

Int. Cl.[5] C07C *6/04*

U.S. Cl. 585—647 **33 Claims**

1. A process for the disproportionation of olefinic hydrocarbons having carbon numbers ranging from C_2 to about C_{50} which comprises contacting at least one olefinic hydrocarbon with a catalyst comprising at least one of molybdenum and rhenium supported on an inorganic oxide support promoted with an organosilane compound selected from the group consisting of triethylsilane, tricyclohexylsilane, trimethylsilane, diethylsilane, diphenylsilane, triphenylsilane, hexamethyldisilane, hexaethyldisilane, trimethyltriethyldisilane, hexaphenyldisilane, and mixtures thereof.

5,210,366

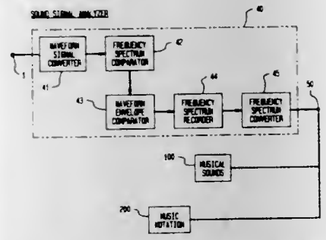
METHOD AND DEVICE FOR DETECTING AND SEPARATING VOICES IN A COMPLEX MUSICAL COMPOSITION

Richard O. Sykes, Jr., 145 E. 2nd St., New York, N.Y. 10009

Filed Jun. 10, 1991, Ser. No. 712,516

Int. Cl.[5] G10H *1/12, 3/18*

U.S. Cl. 84—616 **52 Claims**



51. A method for automatically detecting and separating a single voice in a complex musical composition comprising

(a) converting audible sound waves of the complex musical composition to an electrical waveform signal;

(b) converting the electrical waveform signal to a complex frequency spectrum representation;

(c) comparing the complex frequency spectrum representation to predetermined steady-state, single voice frequency spectrum representations corresponding to notes capable of being produced by a single instrument of the complex musical composition;

(d) detecting the presence of a predetermined steady-state, single-voice frequency spectrum representation corresponding to a note capable of being produced by the single instrument; and

(e) separating the detected frequency spectrum representation and associated complex frequency spectrum representations in the respective growth and decay periods of the note corresponding to the detected frequency spectrum representation.

5,210,367

AUTOMATIC PERFORMANCE DEVICE FOR A KEYBOARD INSTRUMENT

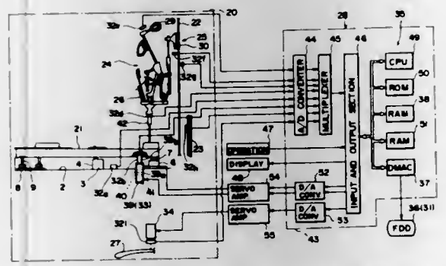
Hanzou Taguchi; Shigeru Muramatsu, and Kiyoshi Kawamura, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Filed Nov. 28, 1990, Ser. No. 619,297

Claims priority, application Japan, Nov. 30, 1989, 1-311081

Int. Cl.[5] G10B *3/14;* **G10C** *3/20, 3/26;* **G10F** *1/16*

U.S. Cl. 84—746 **12 Claims**



1. An automatic performance device for a keyboard instrument comprising:

operators provided in the keyboard instrument for producing sounds;

target performance state designation means for producing target performance information for the keyboard instrument;

real performance state detection means for detecting an operation state of the operators and producing a detection output, wherein said keyboard instrument includes actions, hammers, dampers, strings and a sound board, and said real performance state detection means includes a damper sensor provided at a location on a frame adjacent one of the dampers for detecting transition, velocity or acceleration of the damper and a string sensor provided at a location on the frame adjacent one of the strings for detecting vibration of the string;

actuation means for actuating the operators;

control means for controlling the actuation means comprising error detection means for detecting a difference between the detection output of the real performance state detection means and the target performance information; and

operator actuating signal generation means for generating an operator actuating signal for correcting the target performance information to eliminate the difference and supplying the operator actuating signal to the actuation means.

5,210,368

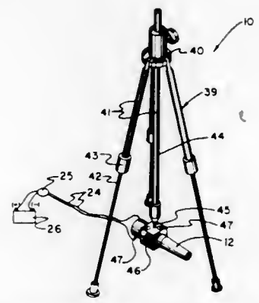
BOMB NEUTRALIZING APPARATUS

James M. Heller, Jr., 17 Old Spring Ct., Cockeysville, Md. 21030; Gerald C. Peterson, 6636 Washington Blvd. #9, Elkridge, Md. 21227, and Michael J. Whalen, 706 Country Village Dr. Apt. 3A, Bel Air, Md. 21014

Filed Apr. 15, 1992, Ser. No. 868,673

Int. Cl.[5] F41A *19/70;* **F42B** *33/06*

U.S. Cl. 86—50 **6 Claims**



1. A bomb neutralizing apparatus, comprising,

a tripod assembly, the tripod assembly having a tripod plate including a plurality of tripod legs, each leg of said tripod legs includes an extension leg telescopingly mounted relative to a respective tripod leg, and

the tripod assembly includes a central support shaft extending medially and downwardly relative to the tripod plate between the tripod legs, and

a lower distal end of the central support shaft includes a shaft lower swivel connection, and

a mounting block mounted to the shaft lower swivel connection, and

the mounting block including a firing assembly mounted within the mounting block, and

the firing assembly includes a forward barrel, the forward barrel having a barrel bore coaxially directed through the forward barrel, including a truncated conical outer periphery merging towards a barrel forward distal end, and the forward barrel having a barrel rear entrance end, with the rear entrance end formed with a barrel chamber therewithin to receive a projectile, and the barrel rear entrance

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end including an annular barrel shoulder flange arranged in surrounding relationship relative to the barrel rear entrance end, and the forward barrel further having an externally threaded barrel boss coaxially aligned with the forward barrel extending rearwardly of the barrel rear entrance end, and a mounting housing having a mounting housing bore of a first diameter, the mounting housing bore coaxially aligned with the mounting housing and the barrel bore when the mounting housing is secured to the forward barrel, with the mounting housing including a mounting housing internally threaded second bore defined by a second diameter greater than the first diameter, the mounting housing second bore coaxially aligned with the mounting housing bore, and the mounting housing bore arranged for threadedly receiving the externally threaded barrel boss.

5,210,369

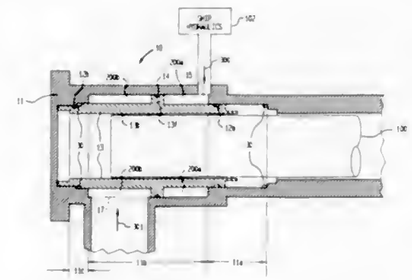
SELF-ACTUATING SLIDE VALVE SYSTEM

James Cassidy, Wakefield, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 8, 1992, Ser. No. 912,954

Int. Cl.[5] F41F *3/10*

U.S. Cl. 89—1.81 8 Claims



1. A self-actuating slide valve system for launching a device in a fluid environment, comprising:

means for forming an interior channel in which the device is positioned, said interior channel means being provided with a first opening and a second opening in radial walls thereof, wherein the first opening is located at least partially behind a tail end of the device and the second opening is located forwardly of the first opening, and wherein pressurized fluid is provided to said interior channel means through the first and second openings; and

a sleeve slidably fitted within a portion of said interior channel means and around at least a portion of the device, said sleeve being movable between at least a first and second position where, in the first position, said sleeve prevents the pressurized fluid from entering said interior channel means through the first opening and where, in the second position, said sleeve allows the pressurized fluid to enter said interior channel means through the first opening whereby the pressurized fluid can act on the tail end of the device to launch same through an axial opening of said interior channel means, said sleeve further having a circumferential extremity in fluid sealed engagement with an inside circumference of said interior channel means between the first and second openings such that said interior channel means, said sleeve and said circumferential extremity define a holding volume in communication with the second opening that is: (1) supplied with the pressurized fluid to maintain said sleeve in its first position and, (2) evacuated of the pressurized fluid to permit said sleeve to attain its second position.

5,210,370

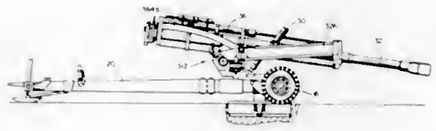
LIGHTWEIGHT WEAPON STABILIZING SYSTEM

William A. Mraz, Middlebury; Martin E. Buttolph, Newport, and Michael J. Farney, Newport Center, all of Vt., assignors to Royal Ordnance, London, England

Continuation-in-part of Ser. No. 463,801, Jan. 11, 1990, abandoned, which is a continuation of Ser. No. 147,317, Jan. 22, 1988, abandoned. This application Nov. 2, 1990, Ser. No. 608,299

Int. Cl.[5] F41A *23/30*

U.S. Cl. 89—40.11 13 Claims



1. A gun system having a firing cycle and a moment of static weight, firing of said gun system producing recoil forces having an instantaneous stabilizing moment and an instantaneous destabilizing moment, said gun system comprising:

a recoiling cannon assembly having a tube axis, a center of mass, an initial prefiring position, and an initial prefiring orientation;

a cradle portion relatively fixed during the firing cycle for elevating said cannon assembly;

a carriage portion supporting said cradle portion, said carriage portion being fixed in ground contact when said gun system is fired and said carriage portion and said cradle portion remaining substantially relatively fixed with respect to each other during the firing cycle of said gun system;

mounting means for movably mounting said cannon assembly with respect to said cradle portion for travel along to two-stage curvilinear path, at least a portion of said first stage having a curved configuration for producing an upward force and vertical acceleration component to said center of mass of said recoiling cannon assembly during said first stage, said upward force causing a reaction resulting in forces having an instantaneous stabilizing moment, and said second stage having a configuration different from that of said first stage for causing controlled vertical deceleration of said cannon assembly during recoil;

recoil braking means for applying a relatively high retarding force to said cannon assembly while said cannon assembly is travelling along said curved configuration portion of said first stage of said curvilinear path and for applying a relatively low retarding force to said cannon assembly while said cannon assembly is travelling along said second stage of said curvilinear path, said relatively high and low retarding forces having magnitudes which are matched to said configurations of said first and second stages, respectively, of said curvilinear path, whereby the instantaneous destabilizing moment of the recoil forces is overcome by the instantaneous stabilizing moment of the forces resulting from the reaction to the upward force of said recoiling cannon assembly in said curved configuration portion of said first stage and the moment of static weight of said gun system; and

return means for returning said cannon assembly to its initial prefiring position at the end of recoil.

5,210,371

MODERN HYDRAULIC TURRET WEAPON SYSTEM

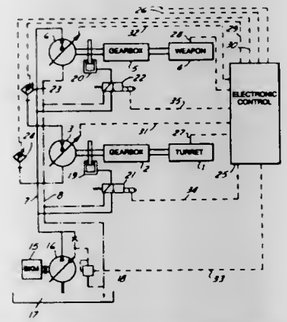
Wolf Schneider, Robbenweg 10, D-2300 Kiel 17, Fed. Rep. of Germany; Siegfried Harder, Moorweg 4, D-2334 Wolfskrug, Fed. Rep. of Germany; Klaus-Dieter Kahl, Landsteiner Strasse 8, D-6395 Weilrod 12, Fed. Rep. of Germany, and Jean J. Schweitzer, 301 Lakeside, Brandon, Mich. 39042

Filed Feb. 4, 1991, Ser. No. 650,297

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1990, 4003256

Int. Cl.[5] F41G *5/04*

U.S. Cl. 89—41.12 6 Claims



1. A hydraulic turret weapon system for armed vehicles that includes:

a turret and a weapon on said turret adapted to be independently directed at a target as a function of directive signals,

hydraulic drive means including a pair of hydraulic motors, means coupling one of said motors for moving said turret, means coupling the other of said motors for moving said weapon, means connecting inlets of said motors in parallel to a source of fluid under pressure, and means connecting outlets of said motors in parallel to a fluid reservoir,

a pair of pressure sensors, one of said sensors being connected to said inlets for providing an electrical signal as a function of hydraulic fluid pressure at said inlets, the other said pressure sensor being connected to said outlets to provide an electrical signal as a function of hydraulic fluid pressure at said outlets, and

electronic control means responsive to said pressure sensor signals and to turret and weapon command signals for generating said directive signals, including means for controlling speed of said motors individually, and means coupled to said fluid source for controlling speed of said motors conjointly.

5,210,372

EJECTION DEVICE

Peter Tripptrap, Langenfeld; Karl-Heinz Vogt, Essen, and Klaus D. Karius, Jüchen, all of Fed. Rep. of Germany, assignors to Rheinmetall, Düsseldorf, Fed. Rep. of Germany

Filed Jun. 17, 1992, Ser. No. 899,843

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1991, 4123649

Int. Cl.[5] F42B *12/58*

U.S. Cl. 102—489 4 Claims

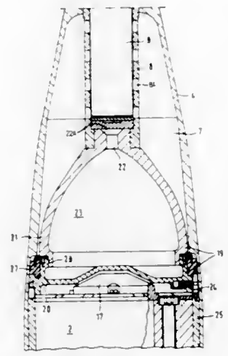
1. An arrangement for ejecting objects from a projectile, comprising:

a hollow projectile body having a nose end;

a plurality of objects disposed in a column within said projectile body;

an ejection charge disposed within said projectile body at said nose end; and

an ejection device including a hood enclosing a hollow cavity and ejectably disposed within said projectile body between said ejection charge and an adjacent object in said column, said hood having a wall with an opening facing said ejection charge and communicating with said hollow cavity so that, after ignition of said ejection charge, resulting powder gases enter into the hollow cavity through the opening to generate a gas pressure



between said hood and the adjacent object and simultaneously exert a force on an exterior portion of the wall of the hood that causes the hood and the column to be ejected from the tail end of said projectile body, whereby the hood separates from the column once the hood and column are free of the projectile due to the pressure in the hollow cavity.

5,210,373

SCREENING COMPARTMENT HAVING A CARRYING SANDWICH STRUCTURE

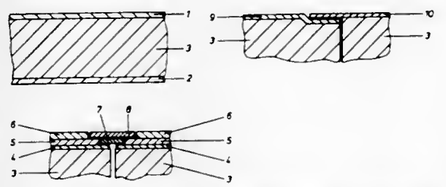
Hartwin Weber, Hanau, Fed. Rep. of Germany, assignor to Vacuumschmelze GmbH, Fed. Rep. of Germany

Filed Sep. 6, 1991, Ser. No. 756,041

Claims priority, application Fed. Rep. of Germany, Sep. 18, 1990, 4029498

Int. Cl.[5] H05K *9/00*

U.S. Cl. 174—35 MS 14 Claims



1. An apparatus for screening a magnetic field comprising:

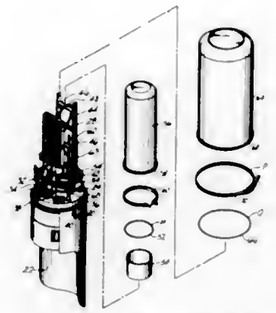
a plurality of self-supporting panels;

each of said plurality of self-supporting panels having a panel core of carrier material; and

each of said plurality of self-supporting panels having at least one screening layer of soft-magnetic material adhered to said panel core, said self-supporting panels being arranged with adjacent panels secured in rigid, self-supporting load-bearing relation to one another, with said at least one screening layer of each of said plurality of self-supporting panels providing support for each of said plurality of self-supporting panels.

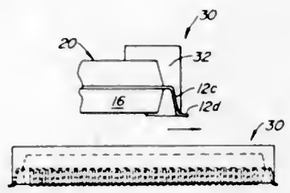
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,374
TERMINAL HOUSING FOR BURIED COMMUNICATION LINES
William H. Channell, 38181 Creek View Cir., Marrietta, Calif. 92362
Filed May 21, 1990, Ser. No. 526,408
Int. Cl.[5] H02G 9/00
U.S. Cl. 174—38 26 Claims



1. A terminal assembly for buried communication lines, such as telephone lines and the like, of the type which include shielded main cable and service wire, the terminal assembly comprising:
a waterproof housing having a base, means below the base for installing the housing in the ground, including separate compartment means below the base for receiving the main cable and the service wire, and an inner support surface above the base and open to the compartment means, leaving a remaining surface area above the base and open to the compartment means;
an opening in the inner support surface to receive the main cable passed from the compartment means through the inner support surface;
means forming a watertight and airtight seal between the main cable and the opening in the inner support surface;
a waterproof inner cover having a hollow interior facing toward the inner support surface, to form an inner splice chamber around the main cable sealed above the inner support surface, the main cable being adapted for making splice connections within the inner splice chamber;
means forming a watertight and airtight seal between the inner cover and the inner support surface to thereby form a sealed watertight and airtight inner splice chamber for the main cable and its splice connections above the inner support surface and within the hollow interior of the inner cover;
a plurality of separate and independent plug means disposed in corresponding holes extending through the base to communicate between the compartment and the remaining surface area above the base adjacent the inner splice chamber;
means forming a watertight and airtight seal between each said plug means and its corresponding hole to seal the remaining surface area above the base from the compartment means, the sealed plug means each being separately removable form the hole through the base so that the service wire can be extended from the compartment means through a corresponding hole in a base and to the remaining surface area above the base;
means for forming a watertight and airtight seal between each service wire and its corresponding hole in the base;
terminal block means above the remaining surface area above the base for connection to the service wire;
a waterproof outer cover having a hollow interior facing toward the base to form a terminal chamber that encloses the sealed inner splice chamber and the terminal block means and service wire connected thereto;
means forming a watertight and airtight seal between the outer cover and the base to seal off the interior of the terminal chamber separate from the sealed inner splice chamber and thereby form a watertight and airtight terminal chamber above the remaining surface area above the base; and
means for removing the sealed outer cover from the base to expose the terminal block for further connection to service wire passing through the corresponding removable plug means sealed in the base, so that said further connection can be made without exposing the interior of the sealed inner splice chamber.

5,210,375
ELECTRONIC DEVICE PACKAGE—CARRIER ASSEMBLY READY TO BE MOUNTED ONTO A SUBSTRATE
Jon M. Long, Livermore, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.
Filed Jun. 28, 1991, Ser. No. 723,136
Int. Cl.[5] H01L 23/02, 23/28
U.S. Cl. 174—52.4 8 Claims

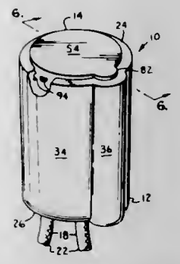


1. A packaged electronic device assembly to be mounted onto a substrate and electrically connected to contacts on the substrate, said assembly comprising:
an electronic element;
a lead structure including a plurality of electrically conductive elongated leads, each lead having a proximal end adjacent and bonded to the electronic element, a distal end away from the electronic element and an intermediate portion between the proximal and distal ends;
a package body enclosing the electronic element and the proximal ends; and
a carrier body surrounding at least a portion of the package body, said carrier body enclosing the intermediate portions of the leads, leaving the distal ends exposed, said carrier body fixing the positions of the intermediate portions;
wherein said distal ends are in predetermined positions to be electrically connected to the contacts without requiring any bending of the leads.

5,210,376
SEALED ELECTRICAL CONNECTION DEVICE AND METHOD
Robert A. Caviar, Leawood, Kans., assignor to Imperial Underground Sprinkler Co., Lenexa, Kans.
Filed Oct. 25, 1991, Ser. No. 782,801
Int. Cl.[5] H01R 4/22
U.S. Cl. 174—87 16 Claims

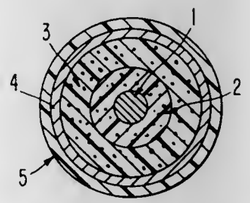
1. An electrical connection device, which comprises:
(a) a body with an open end, a closed end and a body bore open at said body open end and terminating at said body closed end;
(b) wire passage means for passing an electrical wire through said body and into said bore;
(c) body closure means for enclosing at least a portion of said body bore; and
(d) potting compound placed in said body bore prior to enclosure of said body bore by said body closure means, the amount of said potting compound being sufficient to cover a portion of said wire while leaving a sealed air pocket in said body bore after enclosure by said body closure.

13. A method of electrically connecting at least a pair of wires, each wire having a bare end and an insulation layer, which comprises the steps:
(a) providing a connector body with an open end, a closed end and a body bore extending between said ends;
(b) providing multiple wire passages in said body closed end;
(c) partially filling an inner portion of said body bore adjacent to said closed end with potting compound;



(d) inserting said wires through a respective wire passage and through said potting compound whereby said wire bare ends extend beyond said body open end;
(e) providing a crimp sleeve with a receiver;
(f) placing said wire ends in said crimp sleeve receiver;
(g) crimping said crimp sleeve on said wire ends;
(h) retracting said wires to position said crimp sleeve within said body bore;
(i) providing a core with an open end, a closed end and a core bore extending between said core ends;
(j) inserting said core open end into said body bore;
(k) telescopically advancing said core into said body bore;
(l) embedding said core open end in said potting compound;
(m) forming a sealed air pocket within said core bore between said core open end and said core closed end; and
(n) enclosing said crimp sleeve in said sealed air pocket.

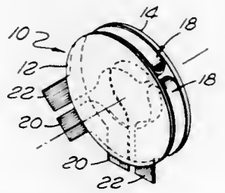
5,210,377
COAXIAL ELECTRIC SIGNAL CABLE HAVING A COMPOSITE POROUS INSULATION
Francis A. Kennedy, Elkton, Md.; William G. Hardie, Newark, and Jack J. Hegenbarth, Wilmington, both of Del., assignors to W. L. Gore & Associates, Inc., Newark, Del.
Filed Jan. 29, 1992, Ser. No. 827,309
Int. Cl.[5] H01B 11/18
U.S. Cl. 174—107 15 Claims



1. A coaxial electric signal cable comprising from inside to outside:
(a) an electrically conductive signal conductor;
(b) a first layer of microporous insulation surrounding said conductor; and
(c) a second layer of closed-cell polymer foam insulation surrounding said first layer of insulation.

14. A process for preparing a coaxial electric signal cable comprising the steps:
(a) enclosing an electrically conductive signal conductor with a first insulation layer of porous expanded polytetrafluoroethylene;
(b) enclosing said first insulation layer with a second insulation comprising a closed-cell polymer foam;
(c) enclosing said second insulation layer with a layer of electrically conductive metal shielding;
(d) optionally positioning an electrically conductive drain wire adjacent to and in contact with said shielding; and
(e) optionally enclosing said shielding layer with a protective polymeric jacket.

5,210,378
JOINT ASSEMBLY FOR POWER AND SIGNAL COUPLING BETWEEN RELATIVELY ROTATABLE STRUCTURES
Alain Tusques, Alta Loma, Calif., assignor to Schaeffer Magnetics, Inc., Chatsworth, Calif.
Filed Jul. 30, 1991, Ser. No. 737,784
Int. Cl.[5] H01B 7/08
U.S. Cl. 174—117 F 24 Claims



1. A joint assembly for allowing relative rotational movement between two structures, comprising:
a first structure;
a first flexible transmitting member having a first surface facing a first direction and second surface facing a second opposite direction, said first flexible transmitting member being constructed in a predefined shape defining a predefined path, said first flexible transmitting member having a first end operatively connected to said first structure and a second end adapted to move in approximately said predefined path such that said first surface of a portion of said first flexible transmitting member faces said second direction; and,
a second structure operatively connected to said second end of said first flexible transmitting member adapted to rotate relative to said first structure such that said second end rotates in said predefined path.

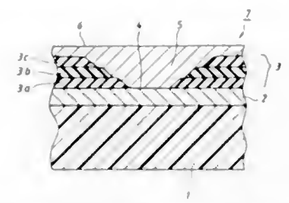
5,210,379
PRINTED WIRING BOARD WITH ELECTROMAGNETIC WAVE SHIELDING LAYER
Hirotaka Okonogi; Katsutomo Nikaido, and Junichi Ichikawa, all of Miyoshi, Japan, assignors to Nippon CMK Corp., Japan
Continuation of Ser. No. 657,453, Feb. 19, 1991. This application Feb. 24, 1992, Ser. No. 841,195
Claims priority, application Japan, Apr. 18, 1990, 2-102147
Int. Cl.[5] H05K 01/00
U.S. Cl. 174—264 11 Claims

1. A printed wiring board comprising:
an electromagnetic wave shielding layer formed on a printed circuit on at least one surface of a substrate over a plurality of successively formed insulative layers having increasingly larger apertures defining a bowl-shaped open-

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ing, the bowl-shaped opening having a bottom defined by the printed circuit and sides inwardly sloping towards the bottom; and

a grounding circuit electrically connected to said electromagnetic wave shielding layer and printed circuit by a bowl-shaped connecting region formed in the bowl-



shaped opening by filling a conductive paste comprising the electromagnetic wave shielding layer into the bowl-shaped opening,

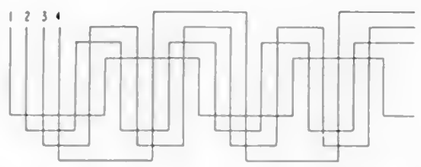
whereby the inwardly sloping sides are effective to facilitate entry of the conductive past into the bowl-shaped opening during the formation of the bowl-shaped connecting region.

5,210,380

DIGITIZER WITH SERPENTINE-TYPE CONDUCTOR GRID HAVING UNIFORM CONDUCTOR REPEAT INCREMENTS

Robert M. McDermott, Weston; Paul D. Smith, New Canann, and Scott McDermott, Weston, all of Conn., assignors to Summagraphics Corporation, Seymour, Conn.

Continuation-in-part of Ser. No. 505,944, Apr. 6, 1990, Pat. No. 5,051,545. This application Aug. 6, 1991, Ser. No. 741,032
Int. Cl.[5] G08C *21/00*
U.S. Cl. 178—19 39 Claims



1. A conductor structure for a position-determining device which includes a movable element and determines the location of said movable element relative to said conductor structure;

said conductor structure comprising;

at least first, second and third conductors each of which includes at least three active portions extending substantially in a first direction substantially in or adjacent a common plane substantially parallel to each other, said conductors each having repeat increments which space adjacent active portions of the same conductor;

said conductors being arranged in a pattern such that:

(a) each of said active portions of all of said conductors or spaces therebetween may be uniquely identified by a unique binary number, respective binary digits of each of said unique binary numbers corresponding to respective conductors, whereby upon interaction between said movable element and respective conductors binary logic signals may be obtained corresponding to said binary digits which are indicative of the location of said movable element relative to said conductor structure;

(b) said conductors each having a uniform repeat increment;

(c) said conductors each having a repeat increment different from that of some of the others of said conductors; and

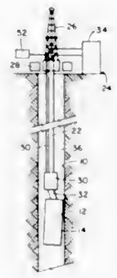
(d) said conductors each having a maximum repeat increment determined in relation to desired noise immunity.

5,210,381

APPARATUS FOR GENERATING VIBRATIONAL ENERGY IN A BOREHOLE

James F. Brett, Tulsa, Okla., assignor to Oil and Gas Consultants International, Inc., Tulsa, Okla.

Continuation-in-part of Ser. No. 704,805, May 23, 1991, Pat. No. 5,159,160. This application May 18, 1992, Ser. No. 885,628
The portion of the term of this patent subsequent to Oct. 27, 2009, has been disclaimed.
Int. Cl.[5] G01V *1/40*
U.S. Cl. 181—106 39 Claims



1. For use in a borehole having a generally cylindrical wall, an apparatus for generating vibrational energy comprising:

a mass having a surface of dimension less than the borehole and having a rotational axis,

means to position said mass in a borehole;

means to rotate said mass about its rotational axis within the borehole in a selected direction of rotation; and

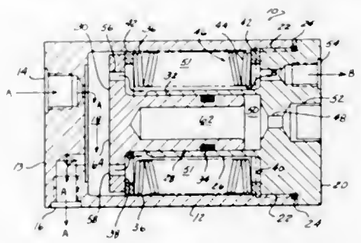
means to cause said surface of said mass to establish frictional contact with the borehole wall to thereby cause said mass to backward whirl in the direction opposite to said direction of rotation of said mass, centrifugal force of the whirling mass serving to generate vibrational energy in the borehole.

5,210,382

BELLEVILLE WASHER SPRING TYPE PULSATION DAMPER, NOISE ATTENUATOR AND ACCUMULATOR

Edward D. Paley, Grosse Pointe; Gregory E. Leemhuis, Auburn Hills, and Kerry A. Machesney, Farmington Hills, all of Mich., assignors to Hydraulic Power Systems, Inc., Oak Park, Mich.

Filed Aug. 23, 1991, Ser. No. 749,272
Int. Cl.[5] F16F *15/00*
U.S. Cl. 181—209 16 Claims



1. A pulsation damper and noise attenuator assembly for use in a fluid flow system comprising.

a housing having an inlet port and an outlet port, said ports

fluidly connecting an interior of said housing to a flow path of said fluid flow system;

a base mounted to said housing and having a vent fluidly connecting said housing interior to the atmosphere, said base having a hollow cylinder extending inwardly from said base to said housing interior; and

a piston slidably received within said housing interior and separating said housing interior into a forward housing area exposed to said fluid flow path and a rearward housing area exposed to said atmosphere, said piston having a boss fixedly mounted to one end, said boss slidably received within said cylinder and means for sealing said boss within said cylinder;

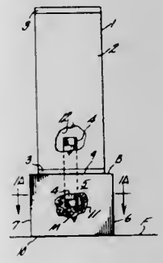
wherein said fluid flow path is directed across an entire forward face of said piston.

5,210,383

SOUND ABSORBENT DEVICE FOR A ROOM

Arthur M. Noxon, 3690 County Farm Rd., Eugene, Oreg. 97401-4616

Filed Jul. 22, 1991, Ser. No. 733,446
Int. Cl.[5] E04B *1/82*
U.S. Cl. 181—290 6 Claims



1. A sound absorbent structure for placement in a room, said structure comprising,

end walls and a continuous wall therebetween defining an elongate chamber, said wall being of a fibrous nature and acoustically permeable to sound wave frequencies below 250 HZ, and

sound wave attentuating means of elongate tubular configuration and spaced inwardly from said continuous wall and at least partially disposed in said chamber and having an orifice in unrestricted communication with the chamber to reduce back pressure in the structure for the purpose of effecting a suitable pressure drop across said continuous wall.

5,210,384

ACCELERATION SENSOR WITH MAGNETIC BIASED MASS AND ENCAPSULATED CONTACT TERMINALS AND RESISTOR

Shigeru Shimozono; Kazuo Yoshimura, and Ryo Satoh, all of Kanagawa, Japan, assignors to Takata Corporation, Tokyo, Japan

Filed Jul. 30, 1991, Ser. No. 737,712
Claims priority, application Japan, Aug. 23, 1990, 2-221999
Int. Cl.[5] H01H *35/14*
U.S. Cl. 200—61.45 M 1 Claim

1. An acceleration sensor comprising:

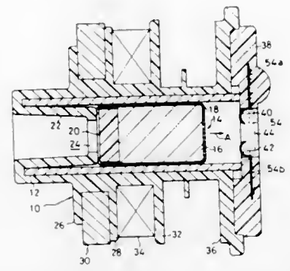
a cylinder made of a conductive material and having first and second longitudinal ends;

a magnetized inertial member slidably mounted in the cylinder so as to be movable in the longitudinal direction of the cylinder;

a conductive member fixed at least on an end surface of the inertial member facing the first longitudinal end of the cylinder;

a pair of electrodes fixed relative to the cylinder at said first longitudinal end of the cylinder, said electrodes, when the conductive member of the inertial member makes contact with the electrodes, being caused to conduct via the conductive member, said electrodes being formed as parts of conductive pieces having terminals adapted to be connected to lead wires and stamped from sheet copper;

an attracting member fixed relative to the cylinder near the second longitudinal end of the cylinder and made of a magnetic material, said attracting member magnetically attracting the inertial member;



an electrical resistor directly bridging between the electrodes, said resistor having a body and a pair of lead electrodes extending from the body, said lead electrodes being joined to said conductive pieces; and

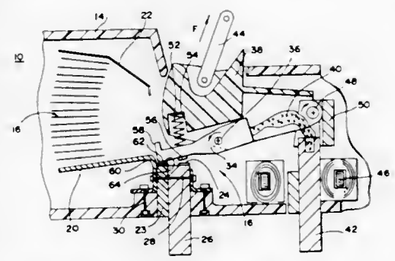
a synthetic resin for enclosing said electrodes and said electrical resistor integrally, said electrodes and said electrical resistor being buried in the synthetic resin by insert molding so that the electrodes and the resistor are protected from being damaged.

5,210,385

LOW VOLTAGE CIRCUIT BREAKER WITH MULTIPLE CONTACTS FOR HIGH CURRENTS

Robert Morel, Eybens; Marc Rival, Virieu; Hubert Garcia, St. Geoires, and Pierre Miguet, Grenoble, all of France, assignors to Merlin Gerin, France

Filed Oct. 16, 1991, Ser. No. 777,124
Int. Cl.[5] H01H *33/12, 33/20, 9/46*
U.S. Cl. 200—146 R 4 Claims



1. A multipole low voltage circuit breaker for high currents, said circuit breaker being housed in an insulating case, each pole comprising:

a plurality of movable contact fingers, each of said contact fingers having the same length, said contact fingers extending parallel to and spaced apart from each other, each of said contact fingers comprising a movable main contact and a front extension extending from said movable main contact, at least one of said contact fingers comprising a movable arcing contact disposed along said front extension;

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a stationary main contact electrically connected to a first connection pad, said stationary main contact positioned to be electrically connected with said movable main contact of each of said contact fingers;

an arcing extinguishing chamber comprising a plurality of stacked metal plates for deionizing an arc, said stacked metal plates being disposed between upper and lower stationary horns, said upper and lower stationary horns being made of a conducting material, said lower stationary horn being electrically connected to said stationary main contact;

a stationary arcing contact fixed between said lower stationary arcing horn and said stationary main contact, said stationary arcing contact being electrically connected to said lower stationary horn and said first connection pad, wherein said stationary arcing contact is fixed in position with respect to said movable contact fingers;

urging means to drive said contact fingers between open and closed positions, wherein said movable and stationary main contacts are electrically connected while said movable and stationary arcing contacts are spaced apart from each other in said closed position, and wherein said movable main contacts and said movable arcing contact are spaced apart from said stationary main contact and said stationary arcing contact, respectively, in said open position;

wherein said lower stationary horn comprises a protrusion which extends past said stationary arcing contact in a direction of movement of said contact fingers towards said open position; and

wherein said movable and stationary arcing contacts are electrically connected with each other at an intermediate position between said open and closed positions.

5,210,386

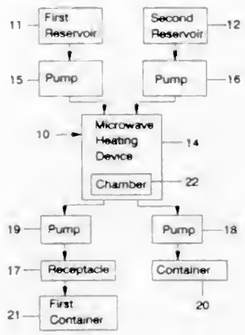
DEVICE FOR MAKING AND WARMING COFFEE BY A MICROWAVE HEATING DEVICE

Powell L. Sprunger, 20 Woodview La., Algonquin, Ill. 60102

Continuation-in-part of Ser. No. 513,715, Apr. 24, 1990, abandoned. This application Sep. 26, 1990, Ser. No. 588,248

Int. Cl.[5] H05B *6/80*

U.S. Cl. 219—10.55 E **5 Claims**



1. A device for making and warming coffee, comprising:

a first reservoir for holding a liquid;

a second reservoir for holding brewed coffee;

a microwave heating device being selectively connected to the first and second reservoirs and having a chamber for heating the liquid or coffee from the first or second reservoir;

means for selectively passing the liquid or coffee from the respective reservoir into the chamber of the microwave heating device where it is heated;

a receptacle being selectively connected to the chamber for holding coffee grounds for the microwave heating device;

a container being selectively connected to the chamber and having a cavity for holding liquid; and

means for selectively passing the heated liquid or coffee from the microwave heating device into the receptacle or container.

5,210,387

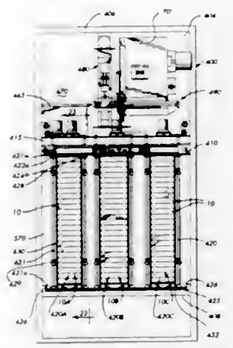
FOOD HANDLING SYSTEM

Donald P. Smith, Dallas; Michael J. Dobie, Double Oak; Alden B. Sparman, Sr.; John R. Norris, both of Plano; Donald P. Lohr, Dallas; Gerald Easterling, Carrollton, and R. W. Taylor, Southlake, all of Tex., assignors to Patentsmith Corporation, Dallas, Tex.

Continuation-in-part of Ser. No. 463,279, Jan. 10, 1990, Pat. No. 5,147,994. This application Jun. 28, 1991, Ser. No. 723,250

Int. Cl.[5] H05B *6/64*

U.S. Cl. 219—10.55 M **25 Claims**



6. An apparatus for moving stacks of packages in a storage compartment so that the stacks of packages are removed from the storage compartment in a same sequence in which the stacks of packages were loaded into the storage compartment, the apparatus comprising: a storage compartment having a side door for loading stacks of packages into the compartment and having a top door movable to permit removable of a package from the top of a stack of packages within said storage compartment; elevator means for indexing a stack of packages toward the top of said storage compartment so that the topmost package of the stack on said elevator means is removed through said top door of said storage compartment; and shuttle means fo indexing the stacks of packages loaded through said side door into said storage compartment toward said elevator means after the last package of the stack on said elevator means has been removed through the top door of said storage compartment, whereby the stacks of packages are moved to said elevator means in the same sequence in which the stacks of packages were loaded into said storage compartment.

5,210,388

INERT GAS FOR TIG, MIG, MAG AND PLASMA WELDING

Alfward Farwer, Meersbusch, Fed. Rep. of Germany, assignor to Messer Griesheim GmbH, Frankfurt, Fed. Rep. of Germany

Filed Mar. 2, 1992, Ser. No. 844,210

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1991, 4106900

Int. Cl.[5] B23K *9/16*

U.S. Cl. 219—74 **8 Claims**

1. In an inert gas for TIG, MIG, MAG and plasma welding consisting of a mixture of argon and of one or more components selected from the group consisting of hydrogen and carbon dioxide, the improvement being an admixture of 80 ppm to 250 ppm of nitrogen to the gas whereby said inert gas consists solely of nitrogen and argon and hydrogen and/or carbon dioxide.

5,210,389

SHIELDING GAS FOR ARC WELDING OF ALUMINUM

Alfward Farwer, Meersbusch, Fed. Rep. of Germany, assignor to Messer Griesheim GmbH, Frankfurt, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 746,984, Aug. 19, 1991, abandoned. This application Sep. 26, 1991, Ser. No. 766,337

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1990, 4028074

Int. Cl.[5] B23K *9/16*

U.S. Cl. 219—74 **6 Claims**



1. In a shielding gas for the arc welding of aluminum, consisting of argon, the improvement being in an admixture of 80 ppm to 250 ppm of nitrogen to the gas whereby said shielding gas consists solely of argon and nitrogen.

5,210,390

APPARATUS FOR BORING PERFORATIONS IN A WEB SHEET

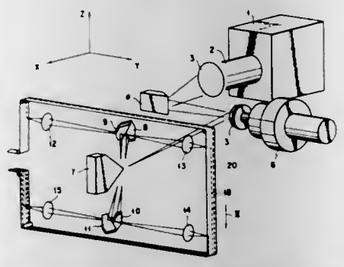
Yutaka Okumoto, Tokyo, Japan, assignor to Japan Tobacco Inc., Machine Technology, Tokyo, Japan

Filed Mar. 3, 1992, Ser. No. 845,041

Claims priority, application Japan, Mar. 6, 1991, 3-40191

Int. Cl.[5] B23K *26/00*

U.S. Cl. 219—121.7 **5 Claims**



1. A boring apparatus for boring perforations in a web sheet, comprising:

generator means for continuously emitting a laser beam;

first converging means for converging the laser beam;

deflecting means for deflecting the convergent laser beam;

splitting/reflecting means adapted to be scanned with the deflected laser beam from the deflecting means and to reflect the laser beam in a manner such that the laser beam is split into two laser beams as the splitting/reflecting means is scanned;

first and second separating means for separating each of the two laser beams from the splitting/reflecting means into two segment beams and directing the segment beams in opposite direction; and

second, third, fourth, and fifth condensing means for condensing the segment beams from the first and second separating means on the web sheet.

5,210,391

APPARATUS FOR MANUFACTURING METAL TUBE COVERED OPTICAL FIBER CABLE AND METHOD THEREFOR

Yasunori Yoshie, and Takashi Tsukui, both of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan

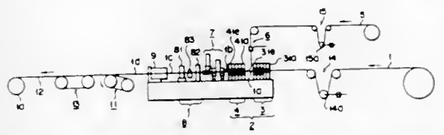
PCT No. PCT/JP90/01578, § 371 Date Jul. 29, 1991, § 102(e) Date Jul. 29, 1991, PCT Pub. No. WO91/08510, PCT Pub. Date Jun. 13, 1991

PCT Filed Dec. 5, 1990, Ser. No. 730,915

Claims priority, application Japan, Dec. 5, 1989, 1-314295; Jul. 20, 1990, 2-190714

Int. Cl.[5] B23K *26/08*

U.S. Cl. 219—121.63 **45 Claims**



1. An apparatus for manufacturing a metal tube covered optical fiber cable, comprising:

optical fiber guide means for guiding an optical fiber into a metal tube while said metal tube is drawn under traction and which metal tube is to be sealed by welding means, said optical fiber guide means comprising:

a guide tube, inserted into said metal tube, for guiding said at least one optical fiber into said metal tube; and

means for elastically urging said guide tube against an inner wall surface of said metal tube at a position opposite to a welding surface of said metal tube.

5,210,392

PLASMA TORCH INITIATED BY SHORT-CIRCUIT

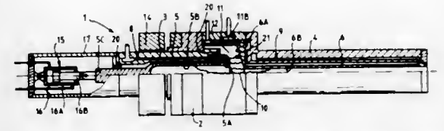
Maxime Labrot; Didier Pineau, and Jean Feuillerat, all of Bordeaux, France, assignors to Societe Anonyme dite: Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Nov. 7, 1990, Ser. No. 610,437

Claims priority, application France, Nov. 8, 1989, 89 14677

Int. Cl.[5] B23K *9/00*

U.S. Cl. 219—121.52 **15 Claims**



1. Plasma torch comprising: two tubular coaxial axially spaced electrodes, each electrode being disposed in a support and at least one of said electrodes being axially movable between one torch-operating position in which said movable electrode is in contact with the other electrode, thus establishing an electric short circuit so as to generate an electric arc between said two electrodes upon rupture of the electric short circuit when said movable electrode is brought back to its operating position;

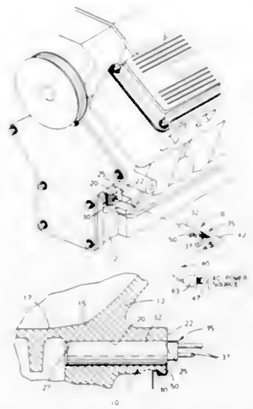
means to inject a plasma gas between the two electrodes;

cooling circuits in said supports for supplying a cooling fluid to exterior of said electrodes, the cooling circuit associated with said axially movable electrode having an effective length in contact with said movable electrode which varies with the position of said movable electrode; and

sealing means for sealing the cooling circuit associated with said axially movable electrode regardless of the position of said axially mobile electrode.

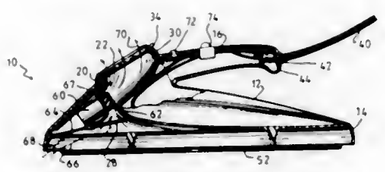
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,393
ENGINE BLOCK HEATER
Richard K. Shier, Livonia, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 8, 1991, Ser. No. 777,696
Int. Cl.[5] H05B *3/06*; B60L *1/02*
U.S. Cl. 219—205 2 Claims



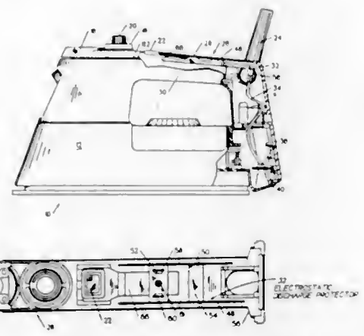
1. In combination, an engine block having passage walls which define a fluid passage, the engine block further having an integral heater socket which extends from the outer surface of the engine block toward its interior, the heater socket being separated from the fluid passage by the passage walls, and an engine block heater inserted in said socket, said heater comprising:
a heater housing having an exterior heating surface, said exterior surface having substantially the same shape as the heater socket enabling substantial heat transfer contact between a substantial portion of said exterior heating surface and the heater socket;
a connector mounting attached to said heater housing, said connector mounting being adapted for connection to an electrical power source, said heater housing having a heating element therein which can be heated by electrical connection of the electrical power source to said connector mounting enabling said heater housing to transfer heat to the engine block; and
quick-release fastening means attached to said heater housing and engaging the outer surface of the engine block enabling said heater housing to be securely retained in the heater socket.

5,210,394
ELECTRIC CARPET SEALING IRON WITH DUAL ODOR AND SMOKE FILTRATION ARRANGEMENT
Frank Kerremans, 28 Bellerose Rd., Sound Beach, N.Y. 11789
Filed Sep. 24, 1990, Ser. No. 587,752
Int. Cl.[5] H05B *3/00*; D06F *75/00, 75/36*
U.S. Cl. 219—245 4 Claims



1. A smokeless carpet seamer for melting an adhesive on a carpet tape wherein non-contaminated air is discharged into the ambient from the seamer, comprising:
a) a hollow housing having an open bottom and a vent head with integral vents for discharge of air into the ambient atmosphere, said housing being made from material chosen from the group consisting of plastic, metal, and composite, said housing containing a first substantially rectangular slot and a second substantially rectangular slot through which filters are insertable into said removable from said housing;
b) a handle on said housing for manipulation of said housing
c) removable filters disposed internally of said housing and being accessible externally of said housing for removal;
d) means disposed internally of said housing for creating heat at said open bottom of said housing for heating a carpet tape disposed below said open bottom;
e) means disposed internally of said housing for creating a suction within said housing for drawing fumes and smoke into said housing through said open bottom, said filters and said suction creating means being so arranged to filter the drawn in air to eliminate smoke particles and fumes therefrom, said suction creating means include a motor and a fan, said fan being rotatably connected to said motor, said filters include a motor filter and a vent filter, said motor filter being removably disposed in said first substantially rectangular slot and said vent filter being removably disposed in said second substantially rectangular slot, said motor filter being positioned in said housing between said open bottom thereof and said motor and said fan of said suction creating means, and said vent filter being located in said head between said motor and fan and said vents;
f) said housing including a vacuum skirt disposed around the entire periphery of said open bottom of said housing and acting as a wall, and
g) said handle, said vent head, said vacuum skirt and said housing being one homogeneous part.

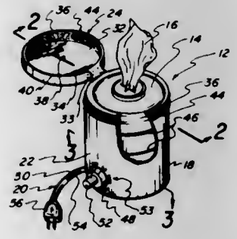
5,210,395
ELECTRIC IRON HAVING ELECTROSTATIC DISCHARGE PROTECTION
Arthur H. Freeman, Huntington, Conn., assignor to Black & Decker Inc., Newark, Del.
Filed Feb. 10, 1992, Ser. No. 833,220
Int. Cl.[5] H05B *1/00*; D06F *75/08, 75/26*; H05F *3/00*
U.S. Cl. 219—250 6 Claims



1. An electric iron having a handle including a first member housing electronic components and a second member overlying the first member; a soleplate; an electrically operated resistance element in heat transfer relation with the soleplate; first electrical conductor means connected to said resistance element for connecting said resistance element to a source of electrical power; and electrostatic discharge protection means

mounted in said second member of said handle, said electrostatic discharge protection means comprising:
a first electrically conductive track extending parallel to and lying adjacent a first section of a seam formed by joining said first and second handle members, a second electrically conductive track parallel to and spaced from said first track and extending parallel to and lying adjacent a second section of said seam, and a third electrically conductive track interconnecting said first and second tracks, and second electrical conductor means connected to a selected one of said first or second tracks and to a portion of said iron normally held at a relatively low potential for transmitting any electrostatic discharge collected by said electrostatic discharge protection means to said low potential iron portion.

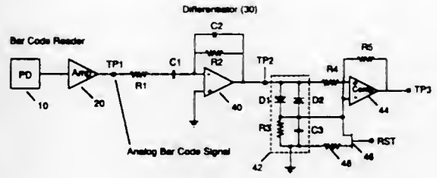
5,210,396
BABY WIPE WARMER APPARATUS
Ronald L. Sanders, 1524 E. Orman Ave., Pueblo, Colo. 81004
Filed May 1, 1992, Ser. No. 877,652
Int. Cl.[5] H05B *3/36*
U.S. Cl. 219—521 15 Claims



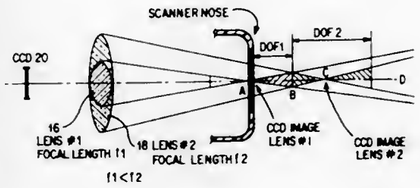
1. A baby wipe warmer apparatus operable to receive and enclose a baby wipe box for heating baby wipes before selective dispensing therefrom, comprising:
a) a wipe container assembly to enclose the baby wipe box and having a container heater assembly mounted therein;
b) said container heater assembly having heating means on all sides of the baby wipe box for efficient, thorough heating of the baby wipes contained therein;
c) said wipe container assembly includes a container body member having a container lid member pivotally connected thereto;
d) said container lid member having an outer peripheral anchor portion operable to selectively engage adjacent upper portions of a side wall of said container body member to prevent heat loss therefrom; and
e) said peripheral anchor portion having a connector member to anchor said container lid member to said container body member in a sealing heat retaining energy efficient manner.

5,210,397
DIFFERENTIATING AND INTEGRATING CIRCUIT FOR TRANSLATING BAR CODE SIGNALS INTO CORRESPONDING PULSES
Jay M. Eastman, Pittsford, N.Y., assignor to PSC, Inc., Webster, N.Y.
Continuation of Ser. No. 518,608, May 3, 1990, abandoned. This application Feb. 10, 1992, Ser. No. 832,878
Int. Cl.[5] G06K *7/00*; H03K *5/153*
U.S. Cl. 235—436 14 Claims

1. In a bar code reader which provides an analog bar code signal from the bars of the code which have edges spaced from each other and which increases and decreases in amplitude as the edges of bars of the code are read, a system for translating said signal into pulses having edges spaced from each other in time corresponding to the spacing of the edges of said bars, said system comprising means for differentiating said analog bar code signal having a time constant sufficient to provide a first signal having peak amplitudes of opposite relative polarity spaced from each other in accordance with the spacing of said edges and in alignment in time therewith, means including means for integrating and thereby delaying said first signal for providing a second signal having peak amplitudes also of opposite relative polarity and less than the peak amplitudes of said first signal, and means for generating said pulses so that the edges thereof occur when the said first signal and said second signal each are of the same one of said relative polarities and are in a first amplitude relationship and when said first signal and said second signal each are of the other of said relative polarities and are in a second amplitude relationship.



5,210,398
OPTICAL SCANNER WITH EXTENDED DEPTH OF FOCUS
Boris Metlitsky, Stony Brook, N.Y., assignor to Symbol Technologies, Inc., Bohemia, N.Y.
Filed Jun. 14, 1991, Ser. No. 717,771
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—462 53 Claims



1. A scanner with an extended depth of focus for electro-optically reading indicia having parts of different light reflectivity, comprising:

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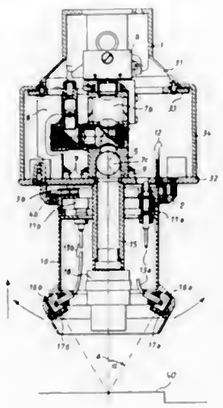
a. means for generating a radiation beam for illuminating a field of view;
b. a multifocal length collection optical system, having at least a first near range focal length and a second long range focal length, for simultaneously collecting radiation reflected from objects in the field view;
c. an optical detector for detecting radiation reflected from the field of view and directed thereto by the multifocal length optical system, and for generating an electrical output signal indicative thereof; and
d. a high pass filter coupled to the electrical output signal of the optical detector for filtering out a low frequency electrical signal to improve the depth of modulation of the signal while passing an electrical output signal resulting from the detection of an indicia having parts of different light reflectivity.

5,210,399

OPTICAL PROBE HEAD WITH MOUNTING MEANS PROVIDING A FREE RECALIBRATION OF THE SENSING HEAD AFTER A COLLISION

Robert Maag, Herrieden, and Lothar Rübl, Aalen, both of Fed. Rep. of Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim, Fed. Rep. of Germany

Filed Apr. 6, 1992, Ser. No. 863,773
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1991, 4134482
Int. Cl.[5] G05B *1/00*
U.S. Cl. 250—202 9 Claims



1. An optical probe head for coordinate measuring apparatus for measuring an object, the apparatus having a measuring arm and the optical probe head comprising:
a first holder attachable to said measuring arm;
a front optic for transmitting an image of the object;
said front optic being fixedly mounted on said first holder and defining an optical axis;
a second holder surrounding said front optic;
an illuminating device for illuminating the object,
said illuminating device being mounted on said second holder; and,
mounting means for mounting said second holder on said first holder so as to permit said second holder and said illuminating device mounted thereon to move relative to said first holder and said front optic in response to an impact load applied to said second holder whereby said front optic is not mechanically stressed by said impact load.

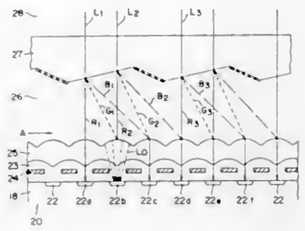
5,210,400

SOLID-STATE IMAGING DEVICE APPLICABLE TO HIGH SENSITIVITY COLOR CAMERA AND USING DIFFRACTION GRATINGS

Toshiro Usami, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 16, 1991, Ser. No. 730,542
Claims priority, application Japan, Jul. 17, 1990, 2-188442
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—208.1 9 Claims

1. A solid-state imaging device comprising:
a semiconductor chip in which a plurality of pixels are arranged in a matrix form in a first direction and in a second direction perpendicular thereto on one surface of a semiconductor substrate, and said pixels in said first direction form a plurality of pixel trains; and
an optical grating body including a plurality of optical gratings which are arranged at a pitch of two or three of the pixel trains in said second direction, having a fixed inclination relative to said substrate surface, and juxtaposed in said first direction, and wherein adjacent two gratings constantly have the same distance and constantly have



said fixed inclination, to separate at each of said gratings, an incident light into rays of light of different wavelengths, thereby supplying the incident light to the pixel trains in said first direction.

5,210,401

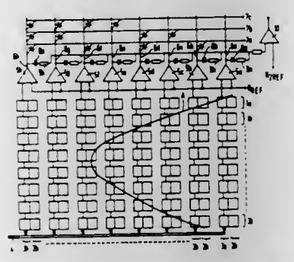
Patent Not Issued For This Number

5,210,402

DETECTION SYSTEM FOR A RADIATION PROFILE LINE

Gijsbert L. Oomen, Pijnacker, Netherlands, assignor to B.V. Optische Industies "De Oude Delft", Oldelft, Netherlands

PCT No. PCT/EP88/00620, § 371 Date Feb. 14, 1990, § 102(e) Date Feb. 14, 1990, PCT Pub. No. WO89/01129, PCT Pub. Date Feb. 9, 1989
PCT Filed Jul. 7, 1988, Ser. No. 458,703
Claims priority, application Netherlands, Aug. 5, 1987, 8701847
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—208.3 9 Claims



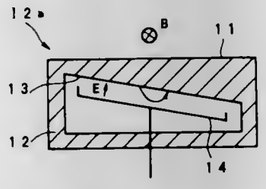
1. A detection system for a radiation profile line which comprises:
a matrix-containing M rows (*1a*, . . . , *1h*) and N columns (*2a*, . . . , *2h*) of photosensitive detection elements;
means for shifting output signals of said detection elements under control clock signals and a read-out circuit having an input connected to an associated detection element, said read-out circuit comprising level detector circuitry, said shifting means shifting output signals of said detection elements row by row in a column direction, said input of said read-out circuit comprising said level detector circuitry, said level detector circuitry being coupled to an Mth detection element of each column, said level detector having N outputs corresponding to a respective column, said outputs of said level detector circuitry being coupled to a circuit delivering a digital code representative of the position of an element in the Mth row receiving the largest amount of light.

5,210,403

RADIATION DETECTING DEVICE WITH A PHOTOCATHODE BEING INCLINED TO A LIGHT INCIDENT SURFACE

Kimitsugu Nakamura; Masuo Ito; Seiji Suzuki, and Yasushi Watase, all of Hamamatsu, Japan, assignors to Hamamatsu Photonics K.K., Hamamatsu, Japan

Filed May 22, 1992, Ser. No. 887,131
Claims priority, application Japan, May 22, 1991, 3-117563; Mar. 19, 1992, 4-063831
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—214.1 17 Claims



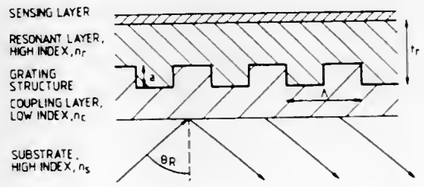
1. A phototube comprising:
a closed container having a light permeable face plate, wherein the outside of said face plate is a light incident surface;
a photocathode disposed in the closed container so that at least a part of a photo-electric surface is inclined to the light incident surface; and
an anode disposed in the closed container so that an electron capturing surface is opposed to the photo-electric surface in parallelism therewith.

5,210,404

OPTICAL SENSOR INCLUDING A BRAGG GRATING STRUCTURE FOR ENHANCED SENSITIVITY

Rosemary Cush, Northampton, and William J. Stewart, Blakesley, both of England, assignors to Gec-Marconi Limited, England

Filed May 19, 1992, Ser. No. 885,481
Claims priority, application United Kingdom, Jun. 7, 1991, 9112262
Int. Cl.[5] H01J *3/14*
U.S. Cl. 250—216 4 Claims



1. An optical sensor comprising a dielectric resonant cavity including a dielectric resonant layer bounded at its opposite plane faces by a sensing layer and a coupling layer; a substrate layer supporting said coupling layer and a Bragg grating provided in any one of said layers to enhance the sensitivity of the optical sensor, the period of the grating, Δ, being selected so that a forbidden band is formed for a range of wavevectors, centered on the wavevector, K, which satisfies the condition $K.\Delta = m\pi$(m is an integer), such that the resonant wavevector of the sensor is outside the forbidden band, in a range adjacent the edge of the forbidden band, the size of the forbidden band being dependent upon amplitude of the grating variation.

5,210,405

PEN-TYPE INPUT DEVICE FOR COMPUTERS HAVING BALL WITH ROTATIONAL SENSORS

Ryuichi Toyoda, Yokohama; Takeshi Masaki, Kawasaki, and Kimikatsu Sato, Sagamihara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 4, 1991, Ser. No. 754,575
Claims priority, application Japan, Sep. 5, 1990, 2-236735
Int. Cl.[5] G01V *9/04*
U.S. Cl. 250—221 10 Claims

1. A pen-type input device for a computer, comprising:
(a) a pen-like elongated handle;
(b) a ball rotatably supported by said handle with a portion of said ball projecting outwardly from an end of said handle;
(c) first and second rotating detection members mounted in said handle and rotatable, upon frictional engagement with said ball, about first and second axes, respectively, said first and second axes being perpendicular to one another, each of said first and second rotating detection members being composed of a core shaft frictionally engageable with said ball for rotating a corresponding one of said first and second rotating detection members, and a pattern pipe firmly fitted over said core shaft;
(d) at least one pattern composed of a series of alternating light-reflecting portions and light-absorbing portions dis-

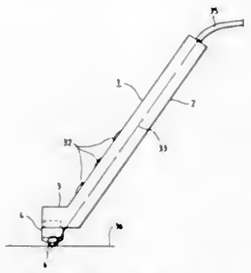
VOL 1150 ISS 2 MY 11 1993 UMI

posed circumferentially along an outer peripheral surface of said pattern pipe of each of said first and second rotating detection members for detecting a direction of rotation of said ball and an amount of movement of said ball;

(e) first and second circuit boards mounted in said handle and each having a detecting circuit;

(f) first and second photodetectors each composed of a light-emitting device and a light-sensitive device and packaged on said first and second circuit boards, respectively, in corresponding relation to said first and second rotating detection members, respectively; and

(g) means associated with each of said first and second photodetectors and defining at least one pair of first and second light paths extending such that light emitted from each respective light-emitting device is guided through said first light path onto said pattern and light reflected back from said pattern is guided through said second light path onto each respective light-sensitive device.



5,210,406

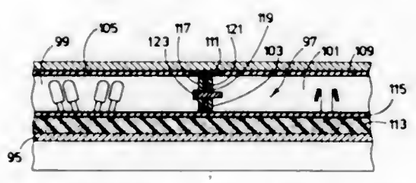
PRESENCE DETECTOR HOUSING AND MOUNT

Mark A. Beran, P.O. Box 71, Niwot, Colo. 80544, and Farro Fattahi, 4730 Park Granada, #226, Calabasas, Calif. 91302

Filed Jun. 10, 1991, Ser. No. 712,585

Int. Cl.[5] G01V *9/04*

U.S. Cl. 250—221 **19 Claims**



1. A housing apparatus for a presence detector, the presence detector including emitter means and receiver means to emit and detect, respectively, selected electromagnetic radiation, said housing apparatus comprising:

mounting means in part defining a chamber for mounting the presence detector therein;

filtering means mountable at one part of said mounting means for filtering the electromagnetic radiation, said filtering means including first and second portions;

isolation means mountable between the emitter means and receiver means in said mounting means for dividing said chamber into first and second compartments, said isolation means including a compressible barrier portion and an adjustable compressing portion having first and second sections, a first part of said barrier portion being compressible between said sections so that a second part deforms to substantially seal said first compartment from said second compartment of said chamber against passage of the selected electromagnetic radiation therebetween; and

bridging means mountable at said one part of said mounting means and made of material which is substantially opaque to the selected electromagnetic radiation, said bridging means for engaging said first and second portions of said filtering means and said isolation means.

5,210,407

ELECTRIC FIELD INTENSITY DETECTING DEVICE HAVING A CONDENSER-TYPE ANTENNA AND A LIGHT MODULATOR

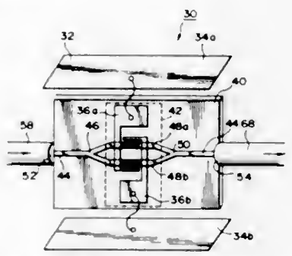
Hiroshi Ito, Kasugai; Tadashi Ichikawa, and Satoru Kato, both of Aichi, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, Japan

Filed May 7, 1992, Ser. No. 879,424

Claims priority, application Japan, May 7, 1991, 3-131930

Int. Cl.[5] H01J *5/16*

U.S. Cl. 250—227.11 **12 Claims**



1. An apparatus for measuring an electric field intensity comprising:

light generating means for generating coherent measuring light;

a sensor disposed in the electric field for modulating a measuring light according to the intensity of the electric field and for outputting said modulated light;

an up-link optical fiber connecting between said light generating means and said sensor for guiding said measuring light into said sensor;

a down-link optical fiber for guiding said modulated light outside said sensor; and

intensity processing means disposed outside said sensor for processing said intensity of the electric field based on the degree of modulation of said measuring light inputted via said down-link optical fiber; wherein

said sensor comprises a condenser-type antenna for detecting the electric field and outputting a voltage according to the intensity of the detected electric field, a waveguide-type optical integrated circuit in which a waveguide for propagating the inputted measuring light is formed, a light modulator, through which said waveguide extends, formed in said optical integrated circuit, and a light modulator electrode for applying the output voltage of said condenser-type antenna to said waveguide of said light modulator, whereby the measuring light is modulated according to the intensity of the electric field while the measuring light is propagated through said waveguide of said light modulator.

5,210,408

ROTATABLE ELECTRO-OPTIC MEASUREMENT TAPPING DEVICE

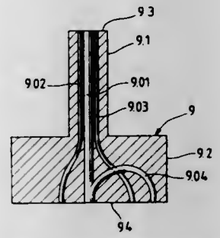
Dietmar Krieger, Zorneding, Fed. Rep. of Germany, assignor to Messerschmitt-Bolkow-Blohm GmbH, Fed. Rep. of Germany

Filed Oct. 18, 1991, Ser. No. 779,337

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1990, 4034980

Int. Cl.[5] G01D *5/34*

U.S. Cl. 250—231.12 **12 Claims**



1. A rotatable electro-optic measurement tapping arrangement for sue with a motion sensor for measuring deflection of said motion sensor form a starting position, said arrangement comprising:

a receptacle, in which said motion sensor is movably arranged, said receptacle being rotatable about a shaft;

a scale affixed to a side of said motion sensor facing said shaft, said scale comprising an optically encoded pattern; and

a fiber-optic light guide arranged in an axial bore of said shaft, a first end of said light guide being directed to the scale and a second end of said light guide being directed to an electro-optic component affixed to a housing bearing said shaft of the receptacle;

wherein said electro-optic component comprises least one photosensitive detector with a ring-shaped receiving surface arranged concentrically with respect to the rotating shaft of the receptacle, and a light source arranged in the center of said ring shaped receiving surface; and

wherein said electro-optic component comprises at least one additional detector with a ring-shaped receiving surface divided into active and non-active segments.

5,210,409

APPARATUS AND METHOD FOR SENSING THE RELATIVE POSITION OF TWO MEMBERS EMPLOYING A VARIABLE WAVELENGTH SOURCE AND WAVELENGTH DEPENDANT SCANNER

Duncan P. Rowe, Chelmsford, United Kingdom, assignor to GEC-Marconi Limited, Stanmore, United Kingdom

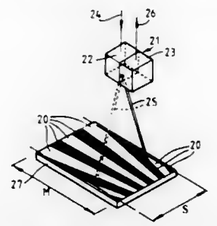
Filed May 6, 1992, Ser. No. 878,785

Claims priority, application United Kingdom, May 8, 1991, 9109890

Int. Cl.[5] H04J *5/16*

U.S. Cl. 250—227.18 **19 Claims**

1. Position sensing apparatus, for sensing the relative position of two members, including an encoded pattern carried by one of said members, means for producing an optical beam of varying wavelength, scanning means for deflecting said beam dependent on its wavelength to scan over said encoded pattern, said encoded pattern being arranged to transmit part of said beam as an optical signal, a readhead secured to said other member to receive said optical signal and an optical position sensor to receive said optical signal from said readhead and to discriminate, from the frequency of said optical signal, the position of said readhead relative to said encoded pattern and consequently the relative position of said members.



5,210,410

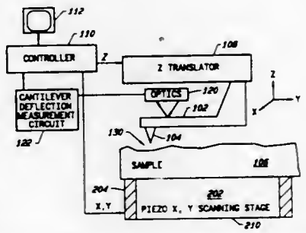
SCANNING PROBE MICROSCOPE HAVING SCAN CORRECTION

Robert Barrett, San Jose, assignor to The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Filed Sep. 26, 1991, Ser. No. 766,656

Int. Cl.[5] G01N *23/00*

U.S. Cl. 250—234 **22 Claims**



1. In a scanning probe microscope, the combination comprising:

a) means for supporting a sample and a probe for relative scanning movement therebetween;

b) means for sensing a multiple number of times during said relative scanning movement, the position of a portion of said support means along a selected coordinate; and

c) means for responding to said sensing by compensating for any difference between the sensed positions of said portion along said coordinate at the time of said sensings and expected positions of the same therealong.

5,210,411

DETECTION MARK AND METHOD AND APPARATUS FOR DETECTING MARK

Toshio Oshima, Osaka; Masato Nishida, Kyoto; Tsunemi Ohiwa, Osaka, and Tsutomu Yamaguchi, Takatsuki, all of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Filed Jun. 27, 1991, Ser. No. 722,186

Claims priority, application Japan, Jun. 29, 1990, 2-173655; Jul. 4, 1990, 2-178207; Oct. 19, 1990, 2-282881

Int. Cl.[5] G06K *7/12*

U.S. Cl. 250—271 **8 Claims**

1. A detection mark comprising:

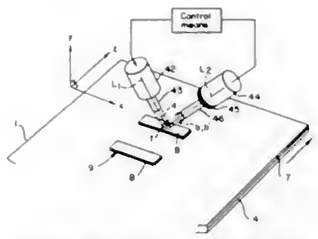
a source of excitation light;

a pattern formed from a thin phosphor layer which emits light having a different wavelength from that of excitation light from said source and irradiated on a surface side of said phosphor layer,

an undercoat layer which is formed on a rear surface side of said phosphor layer and reflects said excitation light;

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said undercoat layer having a selected reflectance characteristic so as to provide a ratio of an output voltage obtained from detected light emitted from said phosphor layer to that of excitation light reflected from said undercoat layer which is at least 1.6;



means for pulsing said source of excitation light to generate pulses of light emitted from said phosphor layer; and

means for detecting and counting said pulses of emitted light to determine a width dimension of said phosphor layer.

5,210,412

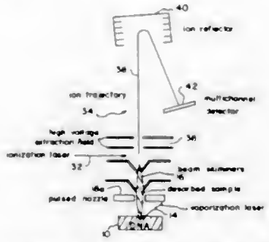
METHOD FOR ANALYZING AN ORGANIC SAMPLE

Robert J. Levis, Grosse Pointe Park, and Louis J. Romano, Detroit, both of Mich., assignors to Wayne State University, Detroit, Mich.

Filed Jan. 31, 1991, Ser. No. 648,282

Int. Cl.[5] B01D *59/44*; H01J *49/40*

U.S. Cl. 250—288 **38 Claims**



32. An apparatus that does analyze nucleic acid material present in a visible light absorbing medium comprising:

an optical source for generating electromagnetic radiation in the visible light region capable of vaporizing the nucleic acid sample material in the visible light absorbing medium which absorbs visible light;

a source of ionizing radiation capable of ionizing the vaporized sample; and

an apparatus, juxtaposed to the vaporized, ionized sample, capable of determining the contents of the vaporized, ionized sample.

5,210,413

PARTIAL PRESSURE GAUGE USING A COLD-CATHODE ION SOURCE FOR LEAK DETECTION IN VACUUM SYSTEMS

Richard Balzer, Birchstrasse 25, 8156 Oberhasli, Switzerland

PCT No. PCT/CH90/00272, § 371 Date Aug. 8, 1991, § 102(e) Date Aug. 8, 1991, PCT Pub. No. WO91/09413, PCT Pub. Date Jun. 27, 1991

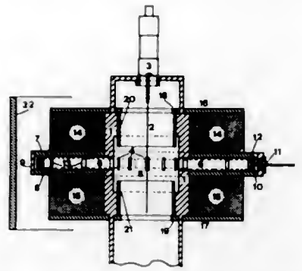
PCT Filed Nov. 27, 1990, Ser. No. 741,457

Claims priority, application European Pat. Off., Dec. 8, 1989, 89810932.7

Int. Cl.[5] H01J *49/30*

U.S. Cl. 250—298 **13 Claims**

1. A partial pressure gauge suitable for leak detection in vacuum systems comprising a mass spectrometer and an ion source; said ion source comprising a cold-cathode discharge generated by an electric field and shaped by an inhomogeneous magnetic field, said inhomogeneous magnetic field being essen-



tially confined to a region of equal electrical potential of said cold-cathode discharge such that all ions emitted form said ion source have essentially equal energy; and said emitted ions being directly separated according to momentum in said mass spectrometer in a magnetic field.

5,210,414

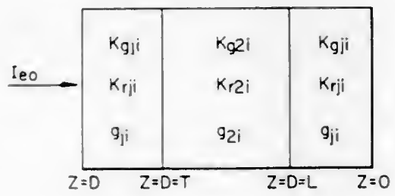
DIFFERENTIAL SURFACE COMPOSITION ANALYSIS BY MULTIPLE-VOLTAGE ELECTRON BEAM X-RAY SPECTROSCOPY

William E. Wallace, and Michael J. Keane, both of Morgantown, W. Va., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Filed Mar. 29, 1991, Ser. No. 676,693

Int. Cl.[5] H01J *37/26*; G01N *23/225*

U.S. Cl. 250—307 **18 Claims**



1. A method of differential surface compositional analysis which comprises:

subjecting a solid material to electron beam-induced X-ray spectroscopic analysis with the electron beam accelerated to a first kinetic energy sufficient to analyze materizl at a first depth below the surface of said solid material without causing surface damage to said solid material;

measuring elemental X-ray signals caused by said electron beam-induced X-ray spectroscopic analysis with the electron beam accelerated to said first kinetic energy;

subjecting said solid material to electron beam-induced X-ray spectroscopic analysis with the electron beam accelerated to a second kinetic energy sufficient to analyze material at a second depth below the surface of said solid material without causing surface damage to said solid material;

measuring elemental X-ray signals caused by said electron beam-induced X-ray spectroscopic analysis with the electron beam accelerated to said second kinetic energy; and

comparing said measured elemental X-ray signals caused by said electron beam-induced X-ray spectroscopic analysis with the electron beam accelerated to said first and second kinetic energies to determine the differential surface composition of said solid material.

5,210,415

METHOD AND APPARATUS FOR FORMING ENERGY SUBTRACTION IMAGES

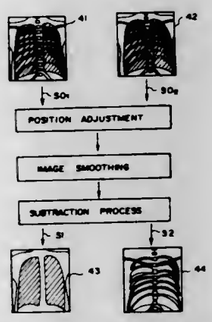
Wataru Ito, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 3, 1991, Ser. No. 680,181

Claims priority, application Japan, Apr. 4, 1990, 2-89367

Int. Cl.[5] G01N *23/04*

U.S. Cl. 250—327.2 **14 Claims**



1. A method for forming an energy subtraction image, which comprises the steps of:

i) after a plurality of radiation images of an object are recorded on recording media by radiation with different energy distributions having passed said object, which is constituted of a plurality of tissues exhibiting different levels of radiation absorptivity and a plurality of image signals representing the plurality of said radiation images are then detected, each of the plurality of said image signals being made up of a series of image signal components,

selecting an image signal from the plurality of said image signals, or generating an image signal, which represents the mean-level image of the plurality of said radiation images, from the plurality of said image signals,

ii) changing the values of parameters, which are used for a subtraction process, in accordance with the values of said image signal, which has been selected from the plurality of said image signals, or in accordance with the values of said image signal, which represents the mean-level image of the plurality of said radiation images, and

iii) subtracting the image signal components of the plurality of said image signals from each other, which image signal components represent corresponding picture elements in the plurality of said radiation images, with the value of each parameter being thus changed for different picture elements in each of the plurality of said radiation images,

whereby a subtraction image signal is obtained which represents a subtraction image, in which only the pattern of a specific tissue of said object is formed or emphasized.

5,210,416

HIGH-SPEED IMAGING STAGE

Hisao Seto, and Tugio Inoue, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 1, 1991, Ser. No. 739,067

Claims priority, application Japan, Aug. 2, 1990, 2-205581

Int. Cl.[5] G03B *42/00*, *42/04*

U.S. Cl. 250—327.2 **4 Claims**

1. A high-speed imaging stage comprising:

a bed having an image window formed therein at a position corresponding to an image site of a subject, said image window being adapted to allow radiation that has penetrated a subject to pass therethrough;

a polygonal holding device rotationally mounted about an axis thereof;

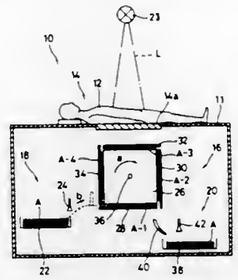
a frame provided on each side of said holding device, said frame having an open portion through which a recording material may be inserted into said frame so as to removably fix a recording material to said sides of said holding device;

an engagement device configured so as to selectively obstruct said open portion so as to hold the recording material in said frame when said engagement device is in a first position and to allow a recording material to freely pass through said open portion when said engagement device is in a second position;

means for intermittently rotating said holding device about said axis so as to cause each of said frames to be successively positioned in opposition to a loading position at said image window whereby a radiation image of the subject can be recorded on the recording materials, and an unloading position;

a supply device, operatively coupled to said engagement device so as to operate in concert therewith, disposed opposite the frame which is in the loading position so as to insert a recording material therein through said one portion of said frame;

an accommodating device, operatively coupled to said engagement device so as to operate in concert therewith, disposed opposite the frame which is in the unloading position so as to detach the recording material contained therein, through said open portion of said frame, to a receiving container after an image has been recorded thereon,



a controller coupled to said rotating means so as to selectively cause said holding device to rotate at a first speed or at a second speed, which is slower than said first speed;

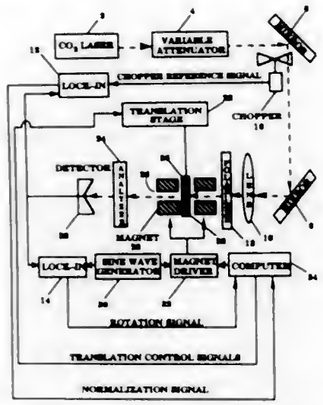
said controller causing said holding device to intermittently rotate at said second speed, while simultaneously activating said supply device and causing said engagement device to assume said second position, so as to insert said recording materials into said frames while holding device intermittently rotates;

said controller causing said holding device to intermittently rotate at said first speed, while causing said engagement device to assume said first position, so as to record a radiation image of the subject on the recording materials while said holding device intermittently rotates; and

said controller causing said holding device to intermittently rotate at said second speed after a desired number of said recording materials have had a radiation image recorded thereon, while simultaneously activating said accommodating device, and causing said engagement device to assume said second position, so as to detach said recording materials and transfer them to said receiving container while said holding device intermittently rotates.

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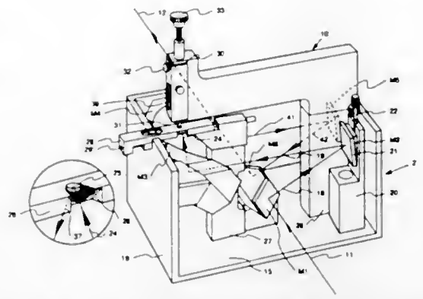
5,210,417
MODULATED HIGH SENSITIVITY INFRARED POLARIMETER
John A. Grisham, Rogersville; Frederick W. Clarke, Madison; Charles R. Christensen, Athens, and John L. Stensby, Madison, all of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Feb. 24, 1992, Ser. No. 839,627
Int. Cl.[5] G01N *21/21*
U.S. Cl. 250—338.1 2 Claims



1. In a high-sensitivity infrared polarimeter system for measuring the amount of Faraday rotation occurring in a polarized beam as the beam passes through a semiconductor wafer sample in the presence of magnetic field; said polarimeter including a chopper revolving at a first frequency to produce a transmission signal; an analyzer, a detector and an electromagnet comprised of two co-axial coils, said coils having a space therebetween, the improvement for measuring the normalization signal and Faraday rotation signal simultaneously, said improvement comprising: a means for modulating the magnetic field at a second frequency concurrently with the revolution of the chopper; a first lock-in amplifier, said first amplifier being coupled between said chopper and said detector for providing a normalization signal; and a second lock-in amplifier, said second amplifier being coupled between said detector and said generator for providing the Faraday rotation signal.

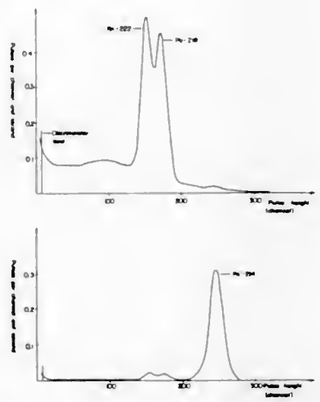
5,210,418
ULTRA-SMALL SAMPLE ANALYZER FOR INTERNAL REFLECTION SPECTROSCOPY
Nicolas J. Harrick, Ossining, and Milan Milosevic, Fishkill, both of N.Y., assignors to Harrick Scientific Corp., Ossining, N.Y.
Filed Sep. 19, 1991, Ser. No. 762,577
Int. Cl.[5] G01N *21/17, 21/01*
U.S. Cl. 250—339 25 Claims

1. An accessory for internal reflection spectroscopy over a useful range of wavelengths, comprising:
(a) an accessory support,
(b) an internal reflection element serving as a sample holder on said support, said internal reflection element comprising a hard, substantially radiation transparent, hemispherical crystal having an exposed flat sampling surface area for receiving a sample to be analyzed,
(c) means on the support for directing an incident beam of radiation containing wavelengths in the useful range onto a portion of the hemispherical surface of the crystal such that the beam internally reflects from the crystal's sampling surface area, said reflected beam exiting the crystal via a portion of the hemispherical surface,
(d) means on the support for receiving and redirecting the exiting reflected beam,
(e) said hemispherical crystal being of a material having an absorption band in the said useful range of wavelengths,



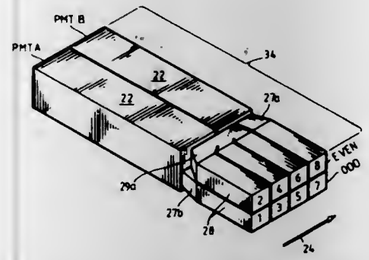
but having a diameter so small that the resultant small path length for the beam in the crystal results in an insignificant amount of absorption of radiation in the useful range passing through the crystal.

5,210,419
METHOD FOR LIQUID SCINTILLATION COUNTING OF RADIOACTIVE NUCLIDES
Ferdinand Buheitel, Eichenstrasse 4, 8077 Reichertshofen 2, Fed. Rep. of Germany
Filed Aug. 9, 1990, Ser. No. 564,875
Claims priority, application European Pat. Off., Aug. 10, 1989, 89114850
Int. Cl.[5] G01T *1/204*
U.S. Cl. 250—362 9 Claims



1. A method for liquid scintillation counting of radioactive nuclides of the natural decay chains of Th-232, U-238 and U-235 by detecting decay events of the short-lived members Po-212, Po-214 and Po-215 of these decay chains by the principle of delayed coincidence, characterized in that a plurality of pulse height spectra are recorded from the delayed coincidence pulses which occur within a plurality of successive fixed time intervals after a gate-opening pulse, and in that each said delayed coincidence pulse counted is assigned to a corresponding one of said plurality of pulse height spectra based on the time interval in which the delayed coincidence pulse occurred.

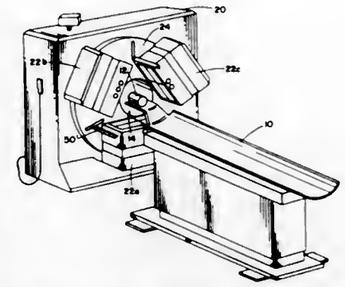
5,210,420
POSITRON EMISSION TOMOGRAPHY SCANNER
Ross K. Hartz; Richard E. Hitchens, both of Houston; David G. Bristow, Sugar Land, and Howard D. Yingst, Houston, all of Tex., assignors to Positron Corporation, Houston, Tex.
Filed Dec. 19, 1991, Ser. No. 811,282
Int. Cl.[5] G01T *1/20, 1/202*
U.S. Cl. 250—363.03 4 Claims



1. In a positron emission tomography scanner having a plurality of detector rings positioned side-by-side around the axis of a patient area to detect radiation from the patient area, each ring containing a plurality of scintillation detectors pointed to the patient area, the improvement in the rings of detectors comprising,
each detector ring including a plurality of paired photomultiplier tubes around the circumference, each ring being in a plane perpendicular to said axis,
two adjacent, columns of equal size scintillation crystals aligned in the axial direction on each pair of photomultiplier tubes, positioned around each ring for detecting radiation from the patient area for converting the radiation into light which is routed to the photomultiplier tubes,
each crystal containing a length in the axial direction which is less than the width of the photomultiplier tube in order to improve the scanner axial resolution, and
first and second one dimensional light guides, the first guide positioned between one of two columns of crystals and the paired photomultiplier tubes and the second guide positioned between the other of the two columns and the paired photomultiplier tubes for mixing the light from said two columns of crystals for employing the relative distribution of light to uniquely identify each crystal.

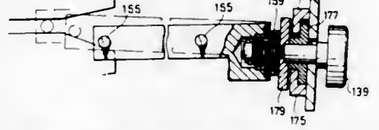
5,210,421
SIMULTANEOUS TRANSMISSION AND EMISSION CONVERGING TOMOGRAPHY
Grant T. Gullberg, Salt Lake City, Utah; Hugh T. Morgan, Highland Heights, Ohio; Chi-Hua Tung, Salt Lake City, Utah; Gengsheng L. Zeng, Salt Lake City, Utah, and Paul E. Christian, Salt Lake City, Utah, assignors to Picker International, Inc., Highland Hts., Ohio
Filed Jun. 10, 1991, Ser. No. 712,676
Int. Cl.[5] G01T *1/166*
U.S. Cl. 250—363.04 24 Claims

1. A gamma camera system comprising:
three gamma camera heads disposed for movement around and facing an examination region, each gamma camera head receiving emission radiation from the examination region and producing output signals indicative thereof;
a transmission radiation source disposed across the examination region and opposite from only a single one of the heads such that only one of the three gamma camera heads is disposed to receive both emission radiation from the examination region and transmission radiation directly from the source and two of the three gamma camera heads



are disposed to receive emission radiation and only scattered transmission radiation from the examination region.

5,210,422
SCINTILLATION CAMERA
Tadakazu Kurakake, and Mikio Igarashi, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Tokyo, Japan
Filed Feb. 14, 1992, Ser. No. 835,581
Claims priority, application Japan, Feb. 14, 1991, 3-20713
Int. Cl.[5] G01T *1/20;* G21K *1/02*
U.S. Cl. 250—363.1 7 Claims



1. A scintillation camera, which comprises:
a plurality of detectors mounted on the camera and arranged so as to provide an opening for allowing an object for examination such as a human being to be inserted into the opening and for radiographing a tomographic image;
a plurality of collimators each attached to the front of the corresponding detectors for collimating X-rays radiating from the object for the examination; and
an exchanger including a carrier and a holding device comprising a spherical bearing for holding said collimators in a swingable manner in any direction within a specified range.

5,210,423
METHOD AND APPARATUS FOR UNPILING PULSES GENERATED BY PILED-UP SCINTILLATION EVENTS
Roger E. Arseneau, Buffalo Grove, Ill., assignor to Siemens Gammasonics, Inc., Hoffman Estates, Ill.
Continuation of Ser. No. 411,346, Sep. 22, 1989, abandoned. This application Aug. 7, 1992, Ser. No. 927,248
Int. Cl.[5] G01T *1/208, 1/161*
U.S. Cl. 250—369 11 Claims

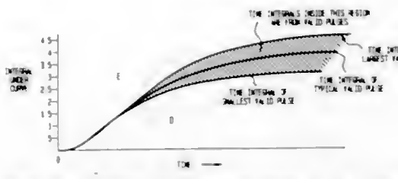
1. A method of processing a train of electrical pulses from a scintillation camera head so as to identify, separate from each other, and energy-validate, pulses which represent scintillation events that substantially overlap, or "pile up", upon each other, comprising the following steps:
monitoring the train of pulses and identifying those pulses

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which meet preestablished criteria defining potentially valid scintillation events;

upon identification of a current such pulse, determining whether said current pulse is piled up upon a previous, energy-validated pulse; and

when such current pulse is determined to be not so piled up, simulating the energy of the scintillation event to which the current pulse corresponds and using such simulated energy for energy-validation;



when such current pulse is determined to be so piled up, simulating, from the previous pulse, by extrapolation, the overlap energy released by the corresponding previous scintillation event between the beginning of the current pulse and the ending of the previous pulse, simulating the energy of the scintillation event to which the current pulse corresponds, subtracting, from the simulated energy of the current pulse, the simulated overlap energy of the previous pulse, and using such difference energy to simulate the energy of the current pulse for energy-validation.

5,210,424

COOLING MEANS FOR COMPONENTS IN A VACUUM CHAMBER

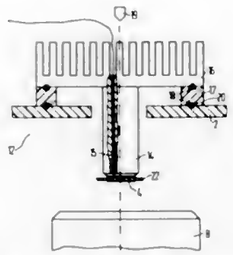
Friedbert Gelzer, and Volker Wuerttenberger, both of Augsburg, Fed. Rep. of Germany, assignors to Siemens Nixdorf Informationssysteme AG, Fed. Rep. of Germany

Filed Dec. 12, 1991, Ser. No. 805,637

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1990, 4041029

Int. Cl.[5] G21K *5/08*

U.S. Cl. 250—443.1 **6 Claims**



1. A cooling system for a heat generating component situated in a vacuum chamber for function testing with focused electron or ion beams, comprising:

at an upper side of the vacuum chamber an opening being provided;

an elongated low thermal resistance heat sink having a lower end designed as a mounting surface to which the component is mounted in thermal low resistance contact, and an upper end projecting up through the opening above the upper side of the vacuum chamber;

the upper end of the heat sink being connected to a relatively large area heat sink having cooling ribs and positioned above the upper side of the vacuum chamber;

sealing means connecting the relatively large area heat sink to the vacuum chamber upper side so that the opening of the vacuum chamber is effectively sealed;

means being provided for blowing temperature-controlled cooling air at the cooling ribs for elimination of heat; and

a temperature sensor means, which is guided through a bore in the heat sink and which is brought up to a point less than 1 mm from a surface of the component to be cooled, being provided for deriving an actual value for temperature control for said component.

5,210,425

ETCHING OF NANOSCALE STRUCTURES

Edward J. Delawski, Newark, Del., and Bruce A. Parkinson, Fort Collins, Colo., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 30, 1991, Ser. No. 718,084

Int. Cl.[5] H01J *37/305*

U.S. Cl. 250—492.2 **13 Claims**



1. A process for etching a nanoscale structure using an atomic force microscope comprising scanning the microscope tip over a two dimensional substrate of at least one metal chalcogenide at a force of from about 10^{-12} to about 10^{-6} newtons to generate the controlled ablation of one or more molecular layers of the metal chalcogenide.

5,210,426

ELECTRON BEAM IRRADIATION DEVICE AND METHOD OF MANUFACTURING AN ELECTRON BEAM PERMEABLE WINDOW

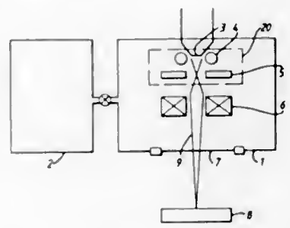
Yoshiyasu Itoh; Yutaka Ishiwata, and Masataka Tamura, all of Kanagawa, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 15, 1991, Ser. No. 774,970

Claims priority, applicatinn Japan, Oct. 12, 1990, 2-273774; Aug. 12, 1991, 3-202023

Int. Cl.[5] H01J *33/04*

U.S. Cl. 250—492.3 **6 Claims**



1. Method of manufacturing an electron beam permeable window for allowing passage of thermions generated inside a chamber maintained under vacuum conditions to outside this chamber, comprising the following steps:

a step of manufacturing a titanium foil, mounted on a window frame, by fixing a titanium foil between an outer window frame and an inner window frame of said electron beam permeable window; a step of coating said window-frame mounted titanium foil with aluminium by converting the aluminium to a metallic vapor state; a step of changing said titanium foil to a material containing a TiAl intermetallic compound by performing thermal diffusion treatment on said window-frame mounted titanium foil that has been coated with aluminium; and a step of finish working said window-frame mounted titanium foil that has been subjected to thermal diffusion treatment.

5,210,427

PORTABLE ELECTRONIC APPARATUS WITH OPTICAL INTER-MODULE COMMUNICATION

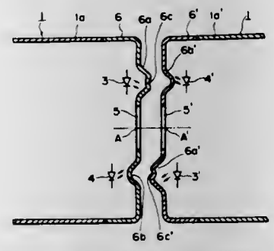
Hiroshi Uchida, and Susumu Itob, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 4, 1991, Ser. No. 787,037

Claims priority, application Japan, Nov. 6, 1990, 2-298983

Int. Cl.[5] G02B *27/00*

U.S. Cl. 250—551 **7 Claims**



1. A portable electronic apparatus comprising:

a rectangularly shaped casing having a connecting surface formed on one exterior side of the casing for connecting to a connecting surface of an external apparatus, the connecting surface having a longitudinal center;

a control unit accommodated in the casing;

a transmitting terminal provided on the connecting surface of the casing at a first corner of the casing for transmitting data as an optical signal generated by the control unit; and

a receiving terminal provided on the connecting surface of the casing at a second corner for receiving data as an optical signal generated by the external apparatus;

wherein the transmitting terminal and the receiving terminal are positioned in symmetrical relationship to each other with respect to the longitudinal center of the connecting surface of the casing; and

further including an auxiliary electronic input port formed between the transmitting and receiving terminals.

5,210,428

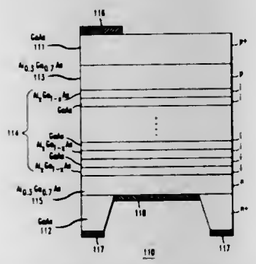
SEMICONDUCTOR DEVICE HAVING SHALLOW QUANTUM WELL REGION

Keith W. Goossen, Aberdeen, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 1, 1991, Ser. No. 786,486

Int. Cl.[5] H01L *27/14*

U.S. Cl. 257—17 **15 Claims**



1. A semiconductor device comprising a quantum well region including first and second barrier layers and a quantum well layer positioned between the first and second barrier layers, the first and second barrier layers comprising wide bandgap semiconductor material and the quantum well layer comprising narrow bandgap semiconductor material so that the first and second barrier layers exhibit an effective bandgap energy greater than the effective bandgap energy of the quantum well layer, said quantum well region exhibiting an exciton absorption energy and a longitudinal optical phonon energy, wherein the improvement comprises each of the first and second barrier layers having their respective effective bandgap energy less than the sum of the longitudinal optical phonon energy and the exciton absorption energy.

5,210,429

STATIC RAM CELL WITH CONDUCTIVE STRAPS FORMED INTEGRALLY WITH THIN FILM TRANSISTOR GATES

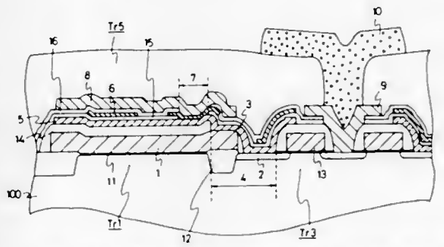
Alberto O. Adan, Tenri, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 723,218, Jun. 28, 1991, abandoned. This application Jul. 22, 1992, Ser. No. 917,682

Claims priority, application Japan, Jun. 29, 1990, 2-173805

Int. Cl.[5] H01L *29/04, 29/78*

U.S. Cl. 257—67 **4 Claims**



1. A static RAM cell comprising a flip-flop circuit having two inverters connected to each other, and two access transistors for connecting nodes of said flip-flop circuit to bit lines;

wherein said inverters are formed on a semiconductor substrate and comprise first and second bulk transistors respectively having gate electrodes extending to a device isolating region, and thin film transistors having gate electrodes, said thin film transistors being formed on said first and second bulk transistors;

wherein said access transistors comprise third and fourth bulk transistors having source/drain regions formed adjacent said device isolating region; and

wherein said gate electrodes of said first and second bulk transistors are connected to said source/drain regions of said third and fourth bulk transistor, respectively through first and second conductive strap layers, said first and second conductive strap layers being formed integrally with the gate electrodes of said thin film transistors.

5,210,430

ELECTRIC FIELD LIGHT-EMITTING DEVICE

Yasushi Taniguchi, Kawasaki; Keiji Hirabayasbi, Tokyo; Noriko Kurihara, Sekimachi, and Keiko Ikoma, Shioiri, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 27, 1989, Ser. No. 457,864

Claims priority, application Japan, Dec. 27, 1988, 63-327884; Dec. 27, 1988, 63-327885; Dec. 27, 1988, 63-327886; Dec. 27, 1988, 63-327887; Nov. 25, 1989, 1-305375

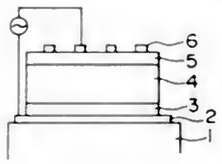
Int. Cl.[5] H01L *33/00*

U.S. Cl. 257—103 **52 Claims**

1. An electric field effect light emitting device comprising first and second conductive members and a light emitting layer

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consisting of a diamond-like carbon film containing oxygen located between said first and second conductive members,



wherein the concentration of oxygen is less than about 5 atomic %.

5,210,431

OHMIC CONNECTION ELECTRODES FOR P-TYPE SEMICONDUCTOR DIAMONDS

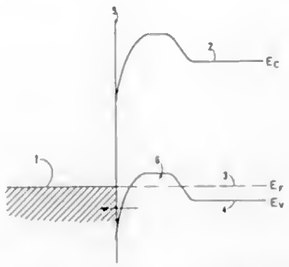
Tunenobu Kimoto; Tadashi Tomikawa; Shoji Nakagama; Masayuki Ishii, and Nobuhiko Fujita, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 548,690, Jul. 6, 1990. This application Feb. 7, 1992, Ser. No. 831,651

Claims priority, application Japan, Jul. 6, 1989, 1-174373

Int. Cl.[5] **H01L** *23/48, 23/40*

U.S. Cl. 257—77 **3 Claims**



1. An ohmic contact electrode for a p-type semiconductor consisting essentially of:

a p-type semiconductor diamond substrate; and

a metal or metallic compound selected from the group consisting of: Au, Pt, Al, Ag, Ni, Ta, Cs, Zr, $TiSi_2$, and containing at least 0.01% and not more than 10% boron formed on said substrate.

5,210,432

INSULATED GATE GTO THYRISTOR

Takashi Shinohe, Yokohama; Masaki Atsuta, Yokosuka, and Akio Nakagawa, Hiratsuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 19, 1990, Ser. No. 615,252

Claims priority, application Japan, Nov. 30, 1989, 1-311372

Int. Cl.[5] **H01L** *29/74, 29/747, 29/10*

U.S. Cl. 257—152 **14 Claims**

1. An insulated gate GTO thyristor comprising:

a first emitter layer of a first conductivity type;

a first base layer of a second conductivity type contacting said first emitter layer;

a second base layer of the first conductivity type in said first base layer, said second base layer having a surface portion which is not in contact with said first base layer;

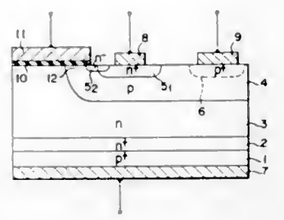
a second emitter layer of the second conductivity type which is not in contact with the first base layer and defining a channel region of the second base layer as a region of the second base layer which is between said first base layer and said second emitter layer;

a first main electrode coupled with said first emitter layer;

a second main electrode coupled with said second emitter layer;

a first gate electrode arranged on said surface portion of said second base layer;

a second gate electrode insulatively disposed above said channel region; and



said second emitter layer comprising a first impurity doped layer immediately below said second main electrode, and a second impurity doped layer smaller in dopant concentration than said first impurity doped layer, said second impurity doped layer being arranged to partially overlap said first impurity doped layer and said channel region.

5,210,433

SOLID-STATE CCD IMAGING DEVICE WITH TRANSFER GAP VOLTAGE CONTROLLER

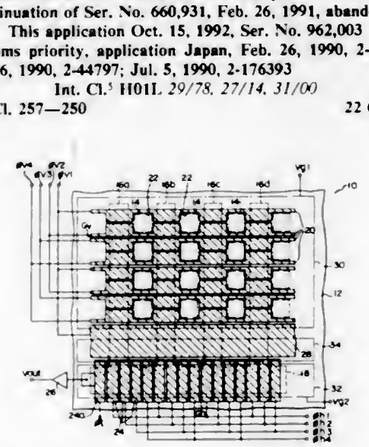
Shinji Ohsawa, Tokyo; Yoshiyuki Matsunaga, Kamakura, and Ryohei Miyagawa, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 660,931, Feb. 26, 1991, abandoned. This application Oct. 15, 1992, Ser. No. 962,003

Claims priority, application Japan, Feb. 26, 1990, 2-44796; Feb. 26, 1990, 2-44797; Jul. 5, 1990, 2-176393

Int. Cl.[5] **H01L** *29/78, 27/14, 31/00*

U.S. Cl. 257—250 **22 Claims**



1. A solid-state imaging device comprising:

a substrate;

photosensitive first semiconductor layers arranged in said substrate as pixel sections;

transfer means arranged in said substrate and coupled to said pixel sections, for transferring charge carriers read out from said pixel sections in a predetermined direction;

said transfer means including (i) a second semiconductive layer in said substrate, for defining a charge transfer channel section, and (ii) an array of spaced-apart transfer electrodes arranged in a single conductive layer insulatively disposed at a first level above said substrate and extending in said direction with gap sections between adjacent ones of said transfer electrodes, for defining a plurality of charge-transfer channel regions located below said transfer electrodes in said second semiconductive layer;

said second semiconductive layer having gap regions located below said gap sections; and

gap potential control means including a charge accelerating conductive layer arranged at a second level over said substrate to insulatively overlie said transfer electrodes and said gap sections among them, for receiving a DC voltage signal externally supplied thereto, and for, when the charge carriers are flowing through a certain charge-transfer channel region in said second semiconductive layer, potentially controlling said gap regions in such a manner that a front gap region is potentially greater than a rear gap region of a certain charge-transfer channel region through which the charge carriers read out from said pixel sections are set at first and second intermediate potential levels between a maximum potential and a minimum potential defined in said second semiconductive layer, thereby to accelerate the forward flow of charge carriers, wherein said charge accelerating conductive layer has an elongated layer section extending in said predetermined direction and receives a DC voltage signal externally supplied thereto.

5,210,434

PHOTOELECTRIC CONVERTER WITH SCANNING CIRCUIT

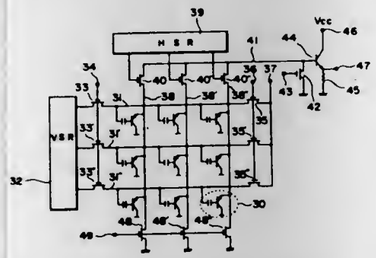
Tadahiro Ohmi, Sendai, and Nobuyoshi Tanaka, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 746,812, Aug. 15, 1991, Pat. No. 5,128,735, which is a continuation of Ser. No. 642,563, Jan. 18, 1991, abandoned, which is a continuation of Ser. No. 437,433, Nov. 16, 1989, abandoned, which is a division of Ser. No. 250,246, Sep. 28, 1988, Pat. No. 4,916,512, which is a division of Ser. No. 1,580, Jan. 8, 1987, Pat. No. 4,791,469, which is a division of Ser. No. 625,130, Jun. 27, 1984, Pat. No. 4,686,554. This application Apr. 24, 1992, Ser. No. 857,592

Claims priority, application Japan, Jul. 2, 1983, 58-120751; Jul. 2, 1983, 58-120752; Jul. 2, 1983, 58-120753; Jul. 2, 1983, 58-120754; Jul. 2, 1983, 58-120755; Jul. 2, 1983, 58-120756; Jul. 2, 1983, 58-120757

Int. Cl.[5] **H01L** *27/14*

U.S. Cl. 257—291 **11 Claims**



1. A photoelectric conversion system, comprising:

a plurality of cells each comprising a transistor including a first semiconductor region of a first conductivity type and second and third semiconductor regions of a second conductivity type different from the first conductivity type, the first semiconductor region being adapted to accumulate photo-generated carriers,

a plurality of output lines each connected to the second semiconductor region of the transistor and having a capacitive load,

an output circuit,

a selection line for reading out signals from the plurality of cells,

control means for supplying a selection signal to the selection line to operate the transistors of the plurality of cells, thus non-destructively reading out signals based on the accumulated photo-generated carriers from the transistors in parallel to the capacitive loads, and

a scanning circuit electrically connected to the output lines for sequentially supplying the signals read out to the capacitive loads to the output circuit.

5,210,435

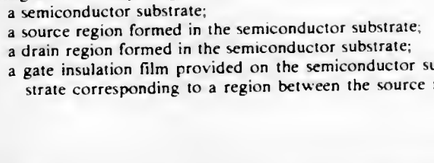
ITLDD TRANSISTOR HAVING A VARIABLE WORK FUNCTION

Scott S. Roth; Carlos A. Mazure; Kent J. Cooper; Wayne J. Ray; Michael P. Woo, and Jung-Hui Lin, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 597,946, Oct. 12, 1990, Pat. No. 5,061,647. This application Aug. 16, 1991, Ser. No. 745,652

Int. Cl.[5] **H01I** *29/94, 31/062*

U.S. Cl. 257—344 **7 Claims**



4. An inverse-T gate electrode having a variable work function comprising:

a semiconductor substrate having a surface;

a monolithic semiconductor body overlying the surface having a relatively thick central portion and relatively thin lateral extensions projecting from the central portion along the surface; and

a work function adjusting material overlying and in intimate contact with at least the extensions wherein the work function adjusting material changes the energy levels in the lateral extensions relative to the central portion of the semiconductor body.

5,210,436

SEMICONDUCTOR DEVICE WITH INPUT PROTECTION CIRCUIT OF HIGH WITHSTAND VOLTAGE

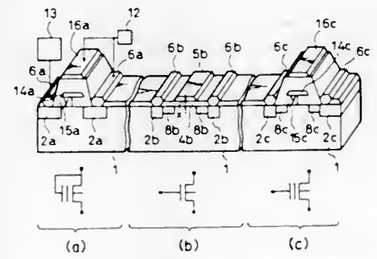
Kazuhiko Kakizoe, and Hiroaki Murakami, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 5, 1991, Ser. No. 725,070

Claims priority, application Japan, Jul. 6, 1990, 2-177467

Int. Cl.[5] **H01L** *29/78, 27/02*

U.S. Cl. 257—361 **22 Claims**



1. An input protection circuit for a semiconductor device using a FET, comprising:

a semiconductor substrate;

a source region formed in the semiconductor substrate;

a drain region formed in the semiconductor substrate;

a gate insulation film provided on the semiconductor substrate corresponding to a region between the source re-

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gion and the drain region, having a thickness greater than that of a gate insulation film in the FET of the semiconductor device;

wherein one of the source region and the drain region is connected with an external input terminal for the semiconductor device, while the gate electrode and the other one of the source region and the drain region are connected with a power source for the semiconductor device.

5,210,437

MOS DEVICE HAVING A WELL LAYER FOR CONTROLLING THERSHOLD VOLTAGE

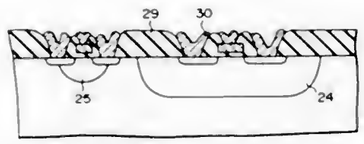
Shizuo Sawada, Yokohama, and Seiko Iwasaki, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 681,927, Apr. 8, 1991, abandoned. This application Aug. 10, 1992, Ser. No. 925,411

Claims priority, application Japan, Apr. 20, 1990, 2-104580

Int. Cl.[5] H01L *29/78*

U.S. Cl. 257—392 **15 Claims**



4. A MOS device comprising:

a semiconductor body having a major surface;

a first insulating film on said major surface to define a MOS transistor region;

a MOS transistor in said MOS transistor region having a source layer and a drain layer formed in said semiconductor body to define a channel region therebetween, and a gate electrode spaced from said channel region by a gate insulating film thinner than said first insulating film; and

at least one well layer formed in and extending below said channel region to control a threshold voltage of said MOS transistor, said well layer having a substantially semicircular and continuously curved cross-section.

5,210,438

SEMICONDUCTOR RESISTANCE ELEMENT AND PROCESS FOR FABRICATING SAME

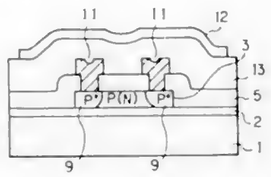
Shunji Nakamura, Yokohama, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 524,615, May 17, 1990, abandoned. This application Dec. 16, 1991, Ser. No. 809,044

Claims priority, application Japan, May 18, 1989, 1-125259

Int. Cl.[5] H01L *27/02, 27/13*

U.S. Cl. 257—536 **9 Claims**



1. A semiconductor device comprising a semiconductor resistance element, said semiconductor resistance element comprising:

a semiconductor region having a first impurity which is a first conductivity type and is introduced into said semiconductor region with a first impurity concentration and a second impurity which is introduced into said semiconductor region with a second impurity concentration, wherein the first impurity is an opposite conductivity type and said first impurity concentration is 3×10^{18} cm^{-3} or more, wherein the second impurity concentration is greater than the first impurity concentration, an entirety of said semiconductor region having the first and second introduced impurity concentrations together therein to thereby form a specific resistance, and further said semiconductor region having opposingly-located first and second ends;

two electrode regions electrically connected to said semiconductor region, each being positioned on one of the first and second ends of said semiconductor region; and

a wiring layer formed above said semiconductor region and extending over an entire length of said semiconductor region from the first to second ends thereof.

5,210,439

POWER TRANSISTOR MONOLITHIC INTEGRATED STRUCTURE

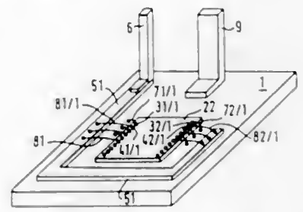
Gerhard Conzelmann, Leinfelden-Oberaichen; Ludger Olbrich, Reutlingen, and Gerhard Fiedler, Neckartailfingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 301,822, Jan. 25, 1989, abandoned. This application Jul. 5, 1991, Ser. No. 728,011

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1988, 3802821

Int. Cl.[5] H01L *23/16*

U.S. Cl. 257—587 **37 Claims**



1. A power transistor structure, comprising a single monolithic integrated chip having an upper surface and including a plurality of transistor cells arranged in two rows, each of said transistor cells containing at least one component transistor and transistor electrode contacts, two rows of connection points mirror symmetrically arranged on the upper surface of said single monolithic integrated chip, branch conductors for connecting consecutive connection points in each row of connection points alternatingly to emitter and collector contacts of an assigned row of transistor cells, and said rows of connection points extending along opposite edges of said single monolithic integrated chip.

5,210,440

SEMICONDUCTOR CHIP COOLING APPARATUS

Jon M. Long, Livermore, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Jun. 3, 1991, Ser. No. 710,740

Int. Cl.[5] H01L *25/04, 23/48*

U.S. Cl. 257—675 **16 Claims**

1. An integrated-circuit cooling apparatus, said apparatus comprising:

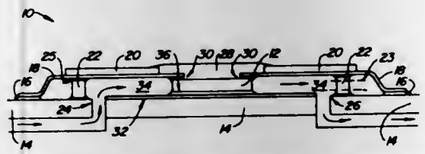
a semiconductor die having bond pads fabricated thereon, said semiconductor die being connected to a tape having leads fabricated thereon, said tape being positioned next to said semiconductor die to permit electrical connections between said leads and said bond pads on said semiconductor die;

a support structure having a surface for supporting said semiconductor die;

a dike connected to said surface and said tape, said dike forming a cavity with said tape, said surface, and a portion of said semiconductor die;

input means and output means connected to said cavity; and

means for cooling said semiconductor die, said cooling means including a cooling fluid and means for circulating



said cooling fluid throughout said cavity and utilizing said input means and said output means to reduce the temperature of said semiconductor die and said support structure during operation of said semiconductor die by causing said cooling fluid to directly contact said portion of said semiconductor die, at least a portion of said leads on said tape, and at least a portion of said surface for supporting said semiconductor die.

5,210,441

LEAD FRAME FORMED OF A COPPER-ZIRCONIUM ALLOY

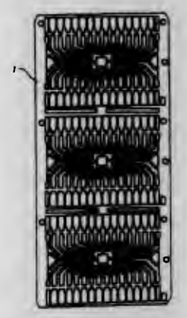
Nobuaki Nakashima, and Shinzo Sugai, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 20, 1991, Ser. No. 810,426

Claims priority, application Japan, Dec. 20, 1990, 2-404416

Int. Cl.[5] H01L *23/54*

U.S. Cl. 257—677 **14 Claims**



1. A lead frame comprising a copper alloy containing 0.1 to 1% by weight of chromium, 0.01 to 0.5% by weight of zirconium and having partial discolored regions caused by unbalanced precipitation of the zirconium distributed thereon at a rate of 2 grains/100cm^2 or less.

5,210,442

PORTABLE TYPE MEMORY DEVICE

Shin-ichi Ishimoto, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 18, 1991, Ser. No. 779,041

Claims priority, application Japan, Oct. 18, 1990, 2-277859

Int. Cl.[5] G06K *19/06;* **H05K** *9/00*

U.S. Cl. 257—679 **5 Claims**

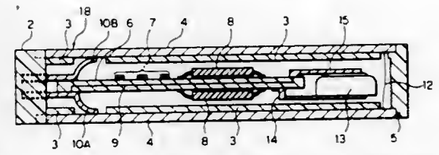
1. A portable memory device comprising:

a substrate having opposed faces and opposed first and second sides and an electrically conductive ground line;

an IC mounted on said substrate;

a pair of conductive covers, each cover having opposed first and second ends, said covers respectively covering said opposed faces of said substrate;

a frame attached to the first end of each of said pair of covers and supporting said pair of covers; and



a connector mounted on the second end of each of said pair of covers for engaging a terminal device, said connector having a plurality of leads including a ground terminal lead and at least one other terminal lead connected to said IC, said ground terminal lead being connected to said ground line, bent away from said substrate toward, extending to, and contacting one of said covers.

5,210,443

PROCESS AND APPARATUS FOR PARALLEL CONTROL OF TAPPED TRANSFORMERS

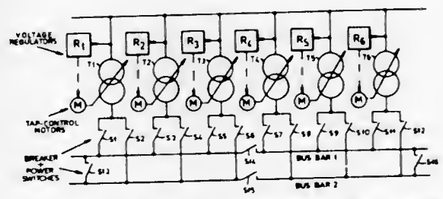
Kurt Kugler, Lappersdorf, Fed. Rep. of Germany, assignor to Maschinenfabrik Reinhausen GmbH, Regensburg, Fed. Rep. of Germany

Filed Oct. 15, 1991, Ser. No. 776,571

Claims priority, applicatioo Fed. Rep. of Germany, Oct. 20, 1990, 4033391

Int. Cl.[5] H02P *13/06*

U.S. Cl. 307—17 **4 Claims**



1. A process for parallel control in selected switched combinations of tap changers of a plurality of mutually parallel transformers switchable under load, said transformers having breaker and section switches in a two bus bar system with configurations representing respective settings of the transformers, each transformer further having a motor for driving the respective tap changer and a respective voltage regulator individual to the respective transformer and responsive to an output of the respective transformer and operatively coupled with the respective motor, said process comprising the steps of:

(a) detecting in a parallel processor the respective configurations of said breaker and section switches from indication contacts thereof, thereby determining the respective settings of the tap changers of said transformers;

(b) measuring in said voltage regulators actual values of amplitude and phase angle of voltage and current outputs of the respective transformer and supplying said values by serial data lines to said parallel processor;

(c) automatically calculating in said parallel processor from said values and said settings of the respective transformers, a partial load current and a circulating reactive current for each transformer and, from the partial load cur-

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rents and circulating reactive currents, an interference variable for each voltage regulator;

(d) transmitting each partial load current and the respective interference variable to the respective voltage regulator from the parallel processor by said serial data lines;

(e) from the partial load current and respective interference variable transmitted to each voltage regulator by said serial data lines from said parallel processor, automatically calculating in each voltage regulator an LDC variable for load-drop compensation; and

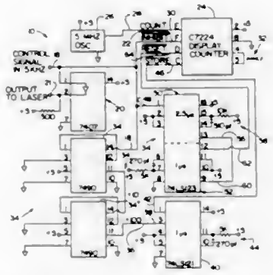
(f) summing in each voltage regulator the respective measured voltage, interference variable and LDC variable to produce a controlled variable and regulating the respective transformer therewith.

5,210,444

DUTY CYCLE METER

Jeffrey W. Johnson, Canal Fulton, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Dec. 20, 1991, Ser. No. 811,555
Int. Cl.[5] H03K *3/017, 17/56, 5/04*
U.S. Cl. 307—265 **20 Claims**



1. A circuit for determining duty cycle of a control signal having a frequency, said circuit comprising an oscillator, counter means for counting cycles produced by said oscillator and for producing a counter means output that corresponds to said counted cycles, said counter means having a count inhibit input with the control signal being connected to said count inhibit input so that said counter means counts said oscillator cycles during predetermined intervals of the control signal, and delay means for resetting said counter means after the control signal intervals, said oscillator frequency being a predetermined multiple higher than the control signal frequency so that the duty cycle is a function of said counter means output.

5,210,445

CHANGE-OVER TYPE LOADING DEVICE ASSEMBLY

Toyoshi Kondoh, Tokyo, Japan, assignor to Tatsumi Corporation, Tokyo, Japan

Filed Aug. 27, 1992, Ser. No. 935,989
Int. Cl.[5] H02J *3/38*
U.S. Cl. 307—57 **1 Claim**

1. A change-over type of loading device assembly including:

a low-voltage small-capacity type of capacity-variable type loading element in which the capacity is incrementally variable by a capacity change-over element,

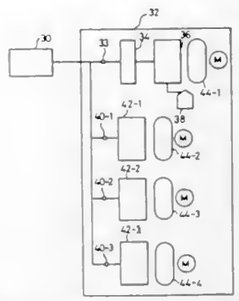
a transformer connected to said capacity-variable type loading element,

a connecting terminal mounted on said capacity-variable type loading element or said transformer, and

a plurality of fixed loading elements having the respective connecting terminals and connected in parallel with each other together with said capacity-variable type loading element,

said fixed loading elements including a circuit formed by connectively combining a plurality of resistors with each other and comprising element bodies, each receiving the output power from a power generator, and change-over devices for changing one of said resistors in said circuit to another depending upon operation so as to allow the withstand voltage of said circuit to correspond to the output power from said power generator,

whereby the load tests of high-voltage large-capacity, high-



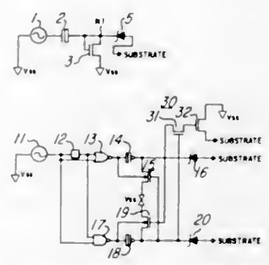
voltage small-capacity, low-voltage large-capacity and low-voltage small-capacity types of power generators can be done by varying the capacity with said capacity change-over element, changing the connection of said capacity-variable loading element and said fixed loading elements and changing the connection of said resistors in said circuit with said change-over devices in said fixed loading elements.

5,210,446

SUBSTRATE POTENTIAL GENERATING CIRCUIT EMPLOYING SCHOTTKY DIODES

Takayuki Niuya, Tsukuba, and Yoshihiro Ogata, Tsuchiura, both of Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 26, 1991, Ser. No. 798,389
Claims priority, application Japan, Nov. 30, 1990, 2-339473
Int. Cl.[5] H03K *3/01, 3/26*
U.S. Cl. 307—296.2 **7 Claims**



1. A semiconductor substrate potential generating circuit comprising:

an oscillating circuit;

a capacitor element including first and second capacitor plate and a dielectric therebetween;

a field-effect transistor having a control gate and a source-drain path connected at a node to one of the capacitor plates of said capacitor element and to a reference potential terminal;

said oscillating circuit being connected to the other capacitor plate of said capacitor element and to the reference potential terminal;

a Schottky barrier diode connected to the semiconductor

substrate whose bias potential is to be controlled on its cathode side and to said one plate of said capacitor element on its anode side with the node associated with the source-drain path of said field-effect transistor being connected between said capacitor element and said Schottky barrier diode; and

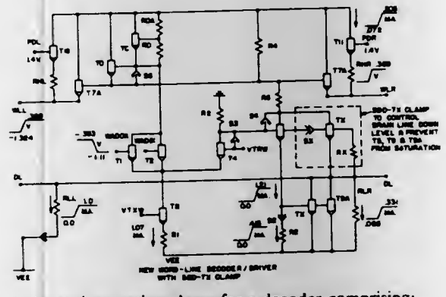
majority charge being pumped directly out of said substrate and into the reference potential terminal via said Schottky barrier diode without an injection of the minority charge into the substrate.

5,210,447

WORD DECODER WITH SBD-T$_x$ CLAMP

Robert C. Wong, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 30, 1991, Ser. No. 784,832
Int. Cl.[5] H03K *3/33, 19/082*
U.S. Cl. 307—463 **17 Claims**



1. An anti-saturation clamp for a decoder comprising:

(a) at least a first transistor operable in a saturated state;

(b) a second transistor coupled to said first transistor for conducting at least a sufficient portion of the base and the collector current of said first transistor through said second transistor through said second transistor to prevent saturation operation of said first transistor; and

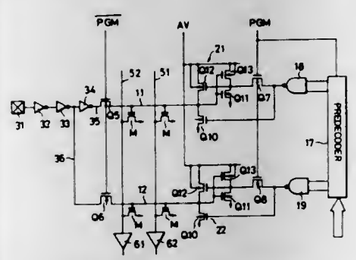
(c) a Schottky Barrier Diode (SBD) coupled between said first and said second transistor.

5,210,448

PROGRAMMABLE LOGIC DEVICE

Akira Takata, Amagasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Jun. 11, 1991, Ser. No. 713,736
Claims priority, application Japan, Jun. 13, 1990, 2-156524
Int. Cl.[5] H03K *19/173;* **G06F** *7/38*
U.S. Cl. 307—465.1 **11 Claims**



1. A programmable logic device comprising:

an AND array provided with a plurality of wordlines, a plurality of bitlines substantially crossing with said plurality of wordlines, and a plurality of non-volatile memory elements, each of said memory elements having data memorized therein and being connected to one of said wordlines and one of said bitlines at each cross point of said bitlines and said wordlines, each of said wordlines having two opposed terminals;

means for reading data from said plurality of non-volatile memory elements;

an OR array for carrying out a predetermined calculation on the basis of data read from said plurality of non-volatile memory elements and coupled to said bitlines;

an input buffer connected to one of said terminals of said wordlines;

a wordline driver connected to the other of said terminals of said wordlines; and

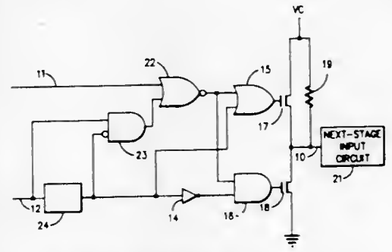
a decoder connected to the other of said terminals of said wordlines through said wordline driver, said wordline driver and said input buffer being at opposite sides of said AND array.

5,210,449

EDGE TRIGGERED TRI-STATE OUTPUT BUFFER

Kiyoshi Nishino, Yamato, and Yasumasa Tomonaga, Sagamihara, both of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 16, 1991, Ser. No. 760,622
Claims priority, application Japan, Oct. 15, 1990, 2-273510
Int. Cl.[5] H03K *19/00, 17/16*
U.S. Cl. 307—473 **8 Claims**



1. A tri-state circuit comprising:

a first input line for receiving a first input signal;

a second input line for receiving a second input signal;

an output switching circuit;

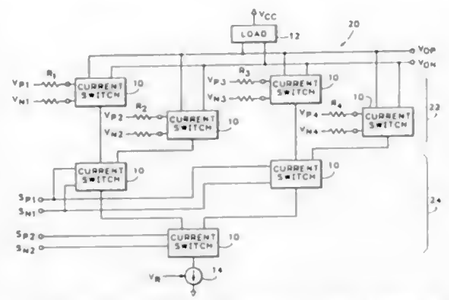
an output line connected to said output switching circuit;

control means responsive to said first and second input signals for causing said switching circuit to adopt one of three states wherein said switching circuit delivers a high logic signal to said output line in a first state, wherein said switching circuit delivers a low logic signal to said output line in a second state, and wherein said switching circuit places said output line in a third state, said third state being a high-impedance state; and

means connected to said switching circuit and said output line for reducing the current in said output line to substantially zero over a transient period when said switching circuit is in said third state, said control means including means for substantially reducing said transient period thereby minimizing the amount of current flowing in said output line when said switching circuit is in said third state.

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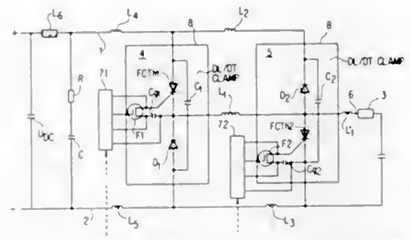
5,210,450
ACTIVE SELECTABLE DIGITAL DELAY CIRCUIT
Peter B. Parkinson, Tigard, Oreg., assignor to Tektronix, Inc., Wilsonville, Oreg.
Continuation of Ser. No. 846,984, Mar. 9, 1992, abandoned, which is a continuation of Ser. No. 742,185, Aug. 2, 1991, abandoned, which is a continuation of Ser. No. 509,273, Apr. 16, 1990, abandoned. This application Jun. 29, 1992, Ser. No. 906,019
Int. Cl.[5] H03K *5/13*; H04J *3/04*
U.S. Cl. 307—603 2 Claims



1. A multiplexer for an active selectable digital delay circuit comprising:
a plurality of current switches separated into a group of input current switches and a group of control current switches,
each input current switch having a differential input for receiving a differential pair of input voltage signals, a differential output for providing a differential pair of output voltage signals and a control input coupled to one of the control current switches, the differential outputs being coupled together to form a single differential output, each input current switch having a charge delay characteristic at the differential input, and
each control current switch having an input for receiving a control signal, wherein the control current switches are coupled to each other in a tree configuration so that a differential pair of output voltage signals from one of the input current switches as determined by the control signal received by the control current switches is selected as a delayed voltage signal at the single differential output; and
resistors coupled between each differential pair of input voltage signals and the respective differential inputs of the input current switches for determining a unique propagation delay interval for each input current switch so that the propagation delay interval between the input and output voltage signals for each input current switch is different.

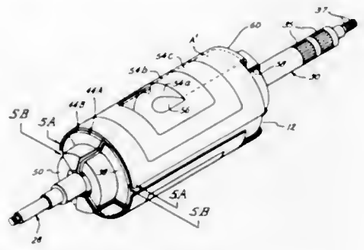
5,210,451
POWER SEMICONDUCTOR CIRCUIT
Horst Grüning, Baden; Hervé de Lambilly, Nussbaumen, and Ferdinand Steinruck, Mosen, all of Switzerland, assignors to Asea Brown Boveri Ltd., Baden, Switzerland
Filed May 28, 1991, Ser. No. 717,091
Claims priority, application Switzerland, Jun. 25, 1990, 2106/90-0
Int. Cl.[5] H03K *17/72, 17/04*
U.S. Cl. 307—633 10 Claims

1. A power semiconductor circuit adapted to be connected to a d.c. power supply voltage U_{DC}, comprising:
a gate-turn-off semiconductor component including a gate-electrode, a cathode, and an anode, wherein the semiconductor component can be turned off by a current pulse at said gate-electrode;
a diode having a cathode and an anode connected in a series circuit with the semiconductor component, wherein in the series circuit either the anode of the diode is connected to the anode of the semiconductor component or the cathode of the diode is connected to the cathode of the semiconductor component;
the series circuit of the diode and the semiconductor component forming a quarter-bridge branch which is one half of a half-bridge, wherein the series circuit of the diode and the semiconductor component is connected via an inductor to the power supply voltage U_{DC};



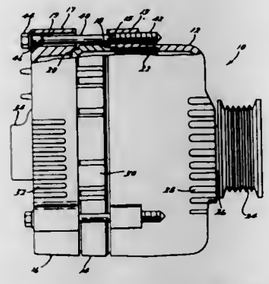
a low inductance blocking capacitor connected in parallel with the series circuit of the semiconductor component and the diode in order to absorb voltage peaks caused by a reverse recovery of the diode; and
the diode and the blocking capacitor arranged immediately next to the semiconductor component such that the connection between the blocking capacitor and the series circuit of the diode and the semiconductor component is low in inductance.

5,210,452
SYMMETRIC ARMATURE FOR HIGH CURRENT, AIR-CORE PULSED ALTERNATORS
Siddharth B. Pratap; Mike L. Spann, and W. Alan Walls, all of Austin, Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.
Filed Aug. 6, 1991, Ser. No. 741,062
Int. Cl.[5] H02K *1/00*
U.S. Cl. 310—12 25 Claims



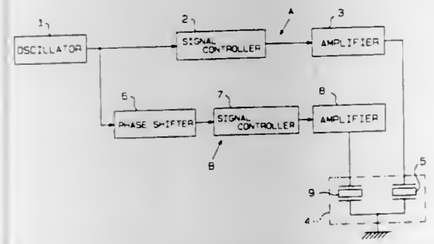
1. A pulsed alternator, comprising:
a rotor having a longitudinal axis of rotation;
a first coil mounted on an outer periphery of said rotor and centered abut a radius of said rotor, said radius being substantially perpendicular to said longitudinal axis; and
a second coil mounted on said outer periphery of said rotor and centered about said radius, said second coil being radially displaced from said first coil;
said first and second coils being connected whereby Lorentz forces generated by said coils along said longitudinal axis are substantially balanced when a high energy current is discharged through said coils.

5,210,453
THROUGH BOLT RESONANCE SUPPRESSION IN AN ALTERNATOR
David A. Nelson, Union Lake, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Jan. 25, 1991, Ser. No. 645,924
Int. Cl.[5] H02K *5/00*; F16B *39/24*
U.S. Cl. 310—51 3 Claims



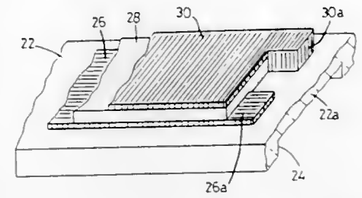
1. An alternator for generating electrical energy for use in an automotive vehicle comprising:
a housing defined by a plurality of hollow cylindrical housing elements that mate along opposing and substantially circular edges;
a plurality of unthreaded apertures in one of said housing elements in axial alignment with threaded apertures in another of said housing elements wherein said plurality of aligned apertures are in parallel alignment with the axis of said cylindrical housing elements;
a plurality of bolts, having threads on one end and a circular flanged tooled mass on the other end, extending through said axially aligned unthreaded and threaded apertures to compress the mating of said plurality of cylindrical housing elements at their opposing edges; and
each of said unthreaded apertures being countersunk to provide a transversely abutting conical surface that is contacted only by the circular flange of the tooled mass on a bolt installed therein to prevent noise from being generated due to lateral movement of said tooled mass with respect to said unthreaded aperture when subjected to vibration.

5,210,454
DRIVING CIRCUIT FOR AN ULTRASONIC MOTOR
Masafumi Naito, Kanagawa, Japan, assignor to Asmo Co., Ltd., Kosai, Japan
Filed Jul. 18, 1991, Ser. No. 732,067
Claims priority, application Japan, Jul. 18, 1990, 2-190085
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—316 7 Claims



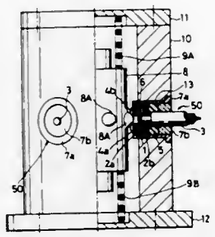
7. A driving circuit according to claim 6, wherein the input means is a switch for driving the reference voltage generator.

5,210,455
PIEZOELECTRIC/ELECTROSTRICTIVE ACTUATOR HAVING CERAMIC SUBSTRATE HAVING RECESS DEFINING THIN-WALLED PORTION
Yukihisa Takeuchi, Nishikamo, and Koji Kimura, Nagoya, both of Japan, assignors to NGK Insulators, Ltd., Japan
Filed Jul. 23, 1991, Ser. No. 734,695
Claims priority, application Japan, Jul. 26, 1990, 2-198374; Feb. 19, 1991, 3-045982
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—328 11 Claims



1. A piezoelectric/electrostrictive actuator comprising:
an integrated ceramic substrate
having at least one recess having a bottom surface which defines a thin-walled portion, said thin-walled portion having an average ceramic particle size of 0.1–2 μm; and
a piezoelectric/electrostrictive portion integrated with said thin-walled portion of said ceramic substrate, said piezoelectric/electrostrictive portion being formed on said thin-walled portion by a film-forming process and subsequent heat treatment for integration with said ceramic substrate.

5,210,456
IMPACT SENSING DEVICE
Otohiko Suzuki, Tokyo, Japan, assignor to Takata Corporation, Tokyo, Japan
Filed Jan. 9, 1992, Ser. No. 818,566
Claims priority, application Japan, Feb. 4, 1991, 3-013328
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—329 5 Claims



1. An impact sensing device comprising:
springs;
an inertia member having a cylindrical structure, upper and lower portions, and at least three semispherical projections disposed equiangularly on an outer peripheral surface thereof;
a housing for accommodating said inertia member therein and having a cylindrical structure with a center axis, said cylindrical housing being disposed such that the center axis thereof is in a vertical direction and the cylindrical inertia member is coaxially retained therein and is suspensively supported at the upper and lower portions by the springs; and
at least three impact sensors disposed in the housing to be

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equiangularly spaced apart from each other, number of said impact sensors being the same as that of the semispherical projections so that respective tip portions of the impact sensors are in contact with the corresponding semispherical projections, each impact sensor including a piezoelectric element for generating a voltage having an amplitude corresponding to an applied stress, and an urging member for urging the piezoelectric sensor against said inertia member so that upon application of an impact force to the impact sensor, said inertia member presses the piezoelectric element with a stress corresponding to the impact force to allow the piezoelectric element to generate a voltage having an amplitude corresponding to the applied impact force.

5,210,457

OUTER ELECTRODE FOR SPARK PLUG AND A METHOD OF MANUFACTURING THEREOF

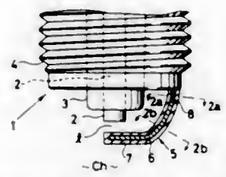
Takafumi Oshima, and Minoru Ando, both of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

Filed Jun. 12, 1991, Ser. No. 714,270

Claims priority, application Japan, Sep. 7, 1990, 2-238224; Sep. 7, 1990, 2-238225

Int. Cl.[5] H01T *13/32, 21/02*

U.S. Cl. 313—11.5 **7 Claims**



1. An outer electrode, a rear end of which is securely connected to a metallic shell of a spark plug by means of welding to form a spark gap between a front end of the outer electrode and a firing tip of a center electrode which is concentrically placed within the metallic shell through an insulator,

the outer electrode comprising:

a middle core which is made of copper to have a heat-conductive property, the middle core being clad by a heat and spark-erosion resistant metal; and

a centermost core clad by the middle core, the centermost core being made of a metal weld-intense to that of the metallic shell, and a rear end of the centermost core being welded to the metallic shell so as to reinforce a welding portion between the metallic shell and the outer electrode.

5,210,458

SPARK PLUG

John A. McDougal, 14388 Harbor Island, Detroit, Mich. 48215

Continuation of Ser. No. 320,107, Mar. 6, 1989, abandoned. This application Mar. 18, 1991, Ser. No. 671,040

Int. Cl.[5] H01T *13/20*

U.S. Cl. 313—130 **39 Claims**

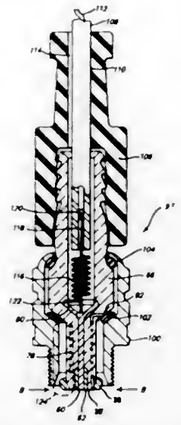
1. A spark plug for producing a spark in an internal combustion engine, comprising:

a high voltage electrode;

a ground electrode completing a spark gap with said high voltage electrode, said spark gap having a first sparking surface which extends radially outwardly from and substantially around a second sparking surface;

insulator means for electrically isolating said high voltage electrode from said ground electrode;

electrically conductive path means connected to one of said electrodes for producing an electromagnetic field from current flow through said connected electrode which is substantially perpendicular to said spark gap to cause the spark produced across said gap to be rotated around at least a portion of said first sparking surface; and



wherein said electrically conductive path means comprises a winding having at least one turn disposed around an elongated portion of said high voltage electrode.

5,210,459

SHADOW MASK STRUCTURE OF A COLOR CATHODE RAY TUBE

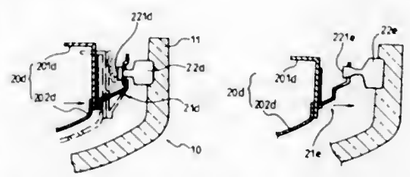
Ok-taek Lee, Anyang, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Kyunggi, Rep. of Korea

Filed Oct. 25, 1991, Ser. No. 782,553

Claims priority, application Rep. of Korea, Oct. 27, 1990, 90-17283

Int. Cl.[5] H01J *29/07*

U.S. Cl. 313—406 **8 Claims**



1. In a color cathode-ray tube panel, an apparatus for supporting a shadow mask comprising:

a shadow mask frame;

a show mask disposed on said shadow mask frame;

a plurality of supports for supporting said shadow mask frame, each support being fixedly attached to the color cathode ray tube panel; and

a plurality of elastic biases, each bias having a first connecting portion and a second connecting portion, each of the first connecting portions being attached to said shadow mask frame and each of the second connection portions being engaged with a respective one of said plurality of supports so that said biases apply pulling forces to the shadow mask.

5,210,460

ELECTRON GUN SUPPORTING MEMBER

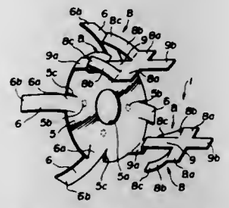
Ichiro Utsumi, and Koichi Furui, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 29, 1991, Ser. No. 800,207

Claims priority, application Japan, Nov. 30, 1990, 2-126426[U]

Int. Cl.[5] H01J *29/82, 29/94*

U.S. Cl. 313—456 **2 Claims**



1. A member for supporting an electron gun in the neck of a cathode ray tube comprising, said member formed with a disc-shaped shield section formed with a central opening through which an electron beam that travels in a first direction can pass and mounted on a grid of said electron gun, a plurality of rectangular supporting tongues integrally formed with said disc-shaped shield section and extending obliquely outward in a direction opposite to said first direction and having distal parts arcuately bent so as to contact the inner surface of said neck at a location where there is no electrically conductive layer on said neck so as to mechanically support said electron gun, a plurality of connecting parts integrally formed with said disc-shaped shield section at locations between said plurality of rectangular supporting tongues and each having first portions which extend in the first direction from said disc-shaped shield section and second portions which extend from said first portions in a direction opposite to said first direction and having ends which engage an electrical conductive layer formed on said neck so as to make an electrical connection therewith.

5,210,461

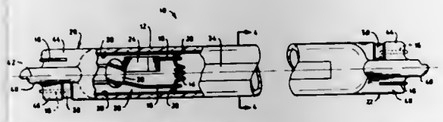
ARC DISCHARGE LAMP CONTAINING MECHANISM FOR EXTINGUISHING ARC AT END-OF-LIFE

Robert Y. Pai; Thomas Haraden, both of Hamilton, and Harold L. Hough, Beverly, all of Mass., assignors to GTE Products Corporation, Danvers, Mass.

Filed Feb. 18, 1992, Ser. No. 837,790

Int. Cl.[5] H01J *61/067, 61/30, 61/42*

U.S. Cl. 313—491 **8 Claims**



1. An arc discharge lamp comprising:

a light-transmissive envelope having a tubular-shaped main body and a press seal disposed at each end of said main body, said main body of said envelope having an internal diameter and containing a fill material for supporting a low pressure discharge;

a layer of phosphor disposed on a surface within said main body of said envelope;

an electrode filament located in each end of said main body and including a pair of electrode filament ends, each electrode filament end being in a contiguous relationship with an inside surface of said envelope; and

a pair of electrical leads attached to each electrode filament and sealed within a respective press seal.

5,210,462

FLAT PANEL DISPLAY APPARATUS AND A METHOD OF MANUFACTURING THEREOF

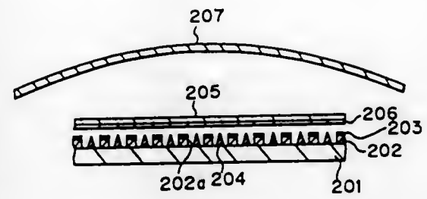
Morikazu Konishi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 30, 1991, Ser. No. 815,061

Claims priority, application Japan, Dec. 28, 1990, 2-417501; Dec. 28, 1990, 2-417502

Int. Cl.[5] H01J *19/24, 29/18*

U.S. Cl. 313—495 **3 Claims**



1. In a flat panel display apparatus having a cathode array formed on a flat substrate, said cathode array comprising thousands of individual cathode tips on the substrate which tips project through apertures in an insulating layer on the substrate, a gate electrode being formed on a surface of the insulating layer, and a fluorescent screen comprising a fluorescent material layer on a glass plate being arranged opposite the cathode array with the fluorescent layer facing the cathode array, the improvement comprising:

a spherical glass plate screen which is formed by a convex glass plate having spherical inner and outer surfaces, the fluorescent screen being positioned between the spherical glass plate screen and cathode array;

said fluorescent screen being flat; and

a space between the flat fluorescent screen and the spherical glass plate screen and a space between the fluorescent screen and the substrate comprising a vacuum.

5,210,463

METAL HALIDE LOW-POWER HIGH-PRESSURE DISCHARGE LAMP

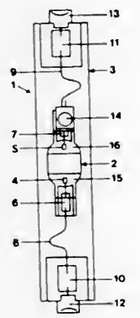
Dietrich Fromm, Warngau, and Andreas Hohlfeld, Berlin, both of Fed. Rep. of Germany, assignors to Patent Treuhand Gesellschaft fur Elektrische Gluhlampen m.b.H., Munich, Fed. Rep. of Germany

Filed Mar. 4, 1991, Ser. No. 664,368

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1990, 4008375

Int. Cl.[5] H01J *61/04*

U.S. Cl. 313—631 **20 Claims**



1. A low-power, high-pressure, essentially flicker-free dis-

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charge lamp suitable for operation at power network frequency, said lamp having

a discharge vessel (2, 23);

a fill of mercury, a noble gas, and a metal halide;

two electrodes (4, 5; 25, 26; 56; 60) in said vessel, each electrode having an electrode shaft (17; 38; 58; 61) and an electrode head (19; 39; 59; 62) at an end portion of the electrode shaft;

sealing foils (6, 7; 27, 28) connected to said electrodes and pressure-sealed into at least one end portion of said vessel, and

comprising an arrangement of the electrodes for obtaining essentially flicker-free operation when operated at power network frequency and low electrode burn-off, wherein

each electrode head (19; 39; 59; 62) has an outer shape which is essentially cylindrical or frusto-conical,

the end or tip of each electrode shaft (17; 38; 58) extends at most only up to the end of the electrode head (19; 39; 59; 62) at the side which is exposed to the discharge arc;

the electrode shaft (17; 38; 58; 60) has a diameter d in millimeters defined by the relationship

$$d = \sqrt{0.083 \times i_L} \quad (1)$$

and wherein the electrode head (19; 39; 59) and that portion of the electrode shaft (17; 38; 58) which is within the electrode head has a mass M in milligrams defined by the relationship

$$M = i_L \times (23 \pm 8) \quad (2)$$

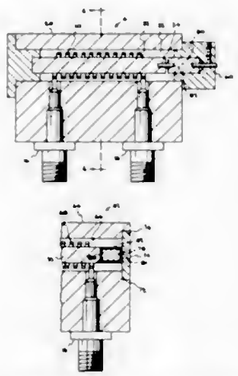
and wherein i_L is the effective value of the lamp current in amperes.

5,210,464

CAVITY RESONANCE ABSORPTION IN ULTRA-HIGH BANDWIDTH CRT DEFLECTION STRUCTURE BY A RESISTIVE LOAD

Mark E. Dunham, Santa Cruz, N. Mex., and Charles L. Hudson, Santa Barbara, Calif., assignors to The United States of America as represented by the Department of Energy, Washington, D.C.

Filed May 15, 1991, Ser. No. 700,286
Int. Cl.[5] H01J *23/10*
U.S. Cl. 315—3 18 Claims



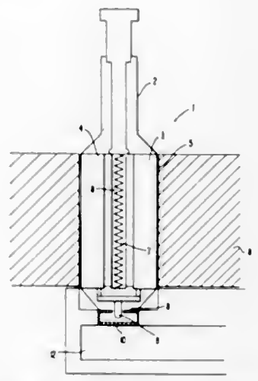
1. In an ultra-high bandwidth helical coil deflection structure for a cathode ray tube comprising a first metal member having a bore therein with a central axis, said bore establishing a first ground plane; a second metal member coaxially mounted, with respect to said central axis, within the bore of said first metal member and establishing a second ground plane; and a helical deflection coil coaxially mounted, with respect to said central axis, within said bore and spaced between said two ground planes, wherein said first and second ground planes establish a coaxial line having a characteristic impedance; the improvement comprising a resistive load coaxially disposed in an end of said bore and electrically coupled between said second metal member comprising said second ground plane and a wall of said bore comprising said first ground plane to inhibit cavity resonance in said structure.

5,210,465

MAGNETRON HAVING AN TM_{01} OUTPUT COUPLING PROBE PASSING THROUGH A COUPLING IRIS

Keith Squibb, Chelmsford, United Kingdom, assignor to EEV Limited, Chelmsford, United Kingdom

Filed Oct. 26, 1990, Ser. No. 604,482
Claims priority, application United Kingdom, Nov. 6, 1989, 8925000
Int. Cl.[5] H01J *23/44, 25/50*
U.S. Cl. 315—39.53 8 Claims



1. An output coupling structure for a magnetron, said magnetron including a cathode and an anode structure having a plurality of cavities arranged to generate microwave radiation in the TM_{01} mode, an output waveguide having an opening in a wall thereof, said output structure being coupled between said cavities and said output waveguide, and comprising:

an elongate output probe connected to said anode structure;

a planar iris disposed substantially perpendicular to said probe, said output probe having a free end projecting through an aperture in said planar iris in non-contacting relationship therewith; and

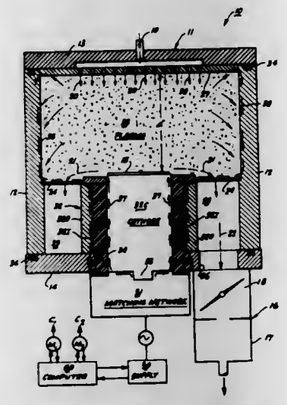
a planar ceramic window positioned substantially in parallel with said iris across the opening in the wall of the output waveguide, the free end of said probe being mounted relative to the output waveguide so that the window does not substantially project into the waveguide through the opening in the wall thereof, whereby radiation generated by the magnetron in the TM_{01} mode is coupled by the probe through the window and into the output waveguide.

5,210,466

VHF/UHF REACTOR SYSTEM

Kenneth S. Collins, Morgan Hill; Craig A. Roderick, San Jose; Chan-Lon Yang, Los Gatos; David N. K. Wang, Saratoga, and Dan Maydan, Los Altos, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation of Ser. No. 559,947, Jul. 31, 1990, abandoned, which is a continuation-in-part of Ser. No. 416,750, Oct. 3, 1989, abandoned. This application Mar. 13, 1992, Ser. No. 852,826
Int. Cl.[5] H05H *1/24*
U.S. Cl. 315—111.21 17 Claims



1. A plasma processing reactor comprising:

a housing having a wall defining a plasma chamber therein;

wafer supporting cylindrical electrode means within the plasma chamber defining a wafer support position;

a gas inlet manifold positioned in the housing for supplying reactant gas to the plasma chamber;

vacuum pumping means; and

an integral transmission line structure adapted to apply ac energy of selected frequency from an external source to the plasma chamber and comprising (1) the cylindrical electrode means; (2) an outer conductor surrounding the cylindrical electrode means; (3) means electrically connecting the outer conductor to the plasma chamber wall; and (4) an insulator between the cylindrical electrode means and the outer conductor, such that ac energy applied to the transmission line structure is coupled in the manner of a co-axial cable along the cylindrical electrode means to the plasma chamber and from the plasma chamber to the outer conductor.

5,210,467

ILLUMINATION CONTROL CIRCUIT USING A PHOTORECEPTOR BUILT-IN A REMOTE CONTROL DEVICE

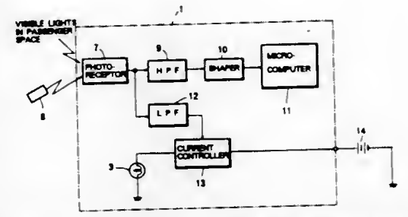
Akira Nagashima, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Apr. 2, 1992, Ser. No. 862,183
Claims priority, application Japan, Aug. 30, 1991, 3-219647
Int. Cl.[5] H05B *37/02*
U.S. Cl. 315—158 4 Claims

1. An illumination control circuit for an on-vehicle apparatus having an optical remote control device, comprising:

a photoreceptor built in the remote control device for receiving a light signal for remote control of the on-vehicle apparatus as well as visible lights in a passenger space of the vehicle, said photoreceptor outputting a remote control signal as well as a background component corresponding to the visible lights in the passenger space;

a low-pass filter for receiving said background component to output a dc and frequency components below a predetermined frequency; and



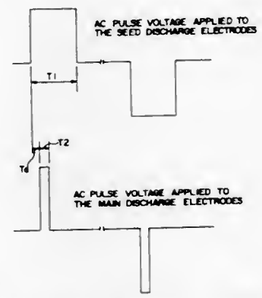
an illumination controller for controlling illumination of said on-vehicle apparatus in accordance with the output of said low pass-filter.

5,210,468

GAS-DISCHARGE DISPLAY ELEMENT DRIVEN BY USING SEED DISCHARGE

Toshihiro Yoshioka, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 23, 1990, Ser. No. 617,206
Claims priority, application Japan, Nov. 22, 1989, 1-304293; Jul. 27, 1990, 2-199653
Int. Cl.[5] G09G *3/10;* H01J *17/49*
U.S. Cl. 315—169.4 17 Claims



1. A gas discharge display element comprising:

a first substrate;

a second substrate formed above said first substrate with a predetermined space therebetween;

a pair of first electrodes formed on said first substrate;

a first dielectric film formed on said first electrodes and on said first substrate;

a pair of second electrodes formed on said first dielectric film in the vicinity of said first electrodes;

a second dielectric film covering said second electrodes;

discharge gas filling a space defined in between said first and second substrates;

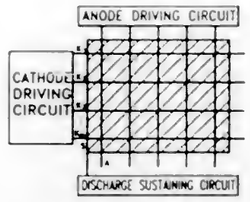
a phosphor member formed on a portion of a lower surface of said second substrate opposing said first and second electrodes pairs;

first power supply means including means for supplying a first voltage pulse to said pair of first electrodes wherein discharge produced between said pair of first electrodes indicates a memory characteristic; and

second power supply means including means for supplying a second voltage pulse to said pair of second electrodes, the second voltage pulse having a shorter width than the first voltage pulse, wherein discharge is produced between said pair of second electrodes using the discharge indicating memory characteristics as seed discharge.

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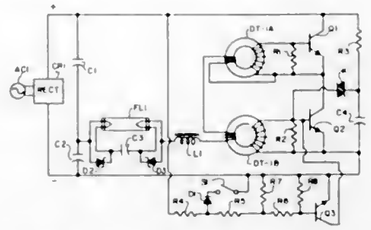
5,210,469
METHOD AND APPARATUS FOR DRIVING A FLAT PANEL DISPLAY
Dae-il Kim, Suwon, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Kyunggi, Rep. of Korea
Filed Feb. 7, 1992, Ser. No. 832,902
Claims priority, application Rep. of Korea, Sep. 28, 1991, 91-17020
Int. Cl.[5] G09G *3/10*
U.S. Cl. 315—169.4 **14 Claims**



1. A method for driving a flat-panel display which includes an anode driving circuit, a cathode driving circuit, and a sustaining electrode driving circuit comprising the steps of:
generating a pulse waveform from the sustaining electrode driving circuit having a predetermined period and an amplitude obtained by subtracting a second voltage from a first voltage;
generating a pulse waveform from the anode driving circuit having an amplitude obtained by subtracting a fourth voltage from a third voltage when the pulse waveform of the sustaining electrode driving circuit represents the second voltage, and maintaining the fourth voltage while writing only;
generating a pulse waveform form the cathode driving circuit sequentially with an amplitude obtained by subtracting a sixth voltage from a fifth voltage when the sustaining electrode driving circuit represents the second voltage;
selecting a voltage for starting cell discharge having a value obtained by subtracting the sixth voltage from the third voltage, the voltage being greater than a discharge firing voltage; and
selecting a voltage which sustains discharge of a discharging cell continuously while maintaining non-discharging cells in a non-discharging state, the voltage having a value obtained by subtracting the fifth voltage from the first voltage, the voltage being greater than a minimum discharge and smaller than the discharge firing voltage.

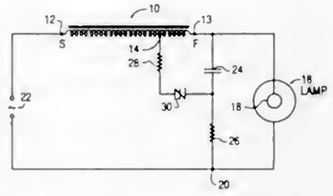
5,210,470
LOW POWER ON-OFF CONTROL OF ELECTRONIC BALLAST
William H. Jones, Villa Park, Ill., assignor to Appliance Control Technology, Inc., Addison, Ill.
Filed Dec. 30, 1991, Ser. No. 814,718
Int. Cl.[5] H05B *41/29, 41/36*
U.S. Cl. 315—209 R **3 Claims**

1. A first electronic ballast connected to a fluorescent lamp including:
an inverter circuit including connections to a direct current power source for converting direct current to high voltage alternating current;
first and second transistors;
and a dual toroid coil assembly functioning with said transistors to form said inverter circuit;
starting means connected between said direct current power source and said second transistor operated to turn said second transistor on thereby initiating operation of said inverter means;
a low power control circuit;
connected between said power source and said second transistor;
operated to inhibit operation of said starting means to prevent operation of said second transistor;
said low power control circuit including a third transistor connected to said second transistor to ground said second



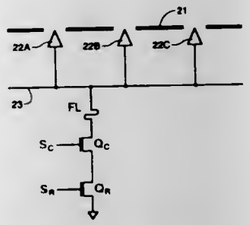
transistor and thereby inhibit operation of said second transistor;
and switching means manually operated to render said third transistor non-operated whereby said second transistor is conditioned for operation and in response to said starting means said second transistor is rendered operated.

5,210,471
CONTROLLED-CURRENT LAMP STARTING CIRUIT
Joe A. Nuckolls, and Isaac L. Flory, IV, both of Blacksburg, Va., assignors to Hubbell Incorporated, Orange, Conn.
Filed Oct. 18, 1991, Ser. No. 778,660
Int. Cl.[5] H05B *37/00*
U.S. Cl. 315—289 **7 Claims**



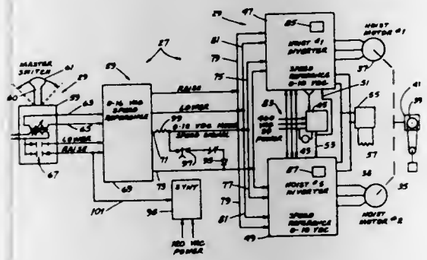
1. A starting circuit for controlled-current starting of a discharge lamp comprising the combination of
a transformer having a winding with first, second and third terminals;
an AC source connected to said first terminal and a common terminal, said second terminal and said common terminal being connectable to a discharge lamp;
a first circuit including a capacitor and a charging resistor connected to said second terminal;
a second series circuit including a discharge device having a breakover voltage and a current limiting resistor connected in a discharge path between said third terminal of said transformer and said capacitor of said first circuit;
whereby said capacitor charges through said charging resistor from said AC supply until said capacitor voltage exceeds said breakover voltage, causing said capacitor to discharge through said second series circuit and a portion of said transformer with substantially all discharge current from said capacitor passing through said current limiting resistor and generate an output pulse applied to said lamp, said current limiting resistor having a value selected to control shape characteristics of said pulse.

5,210,472
FLAT PANEL DISPLAY IN WHICH LOW-VOLTAGE ROW AND COLUMN ADDRESS SIGNALS CONTROL A MUCH PIXEL ACTIVATION VOLTAGE
Stephen L. Casper, and Tyler A. Lowrey, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Filed Apr. 7, 1992, Ser. No. 864,702
Int. Cl.[5] G09G *3/10*
U.S. Cl. 315—349 **24 Claims**



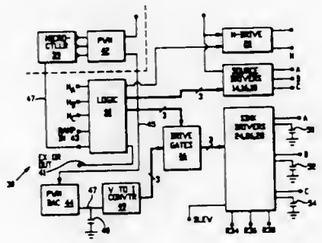
1. A field emission display comprising:
multiple row address lines;
multiple column address lines;
said row address lines intersecting said column address lines, with the intersection of a single row address line with a single column address line being associated with a single pixel within said display;
a grid which is common to the entire display, and which is continuously held at a first potential;
groups of field emission cathodes, each group being associated with a particular pixel, each group being maintained at a second potential during periods of pixel inactivation through at least one current-limited, grid-to-emitter conductive path per pixel, said second potential being close enough to said first potential so as to suppress field emission, and each group being maintained at some other potential during periods of pixel activation, said other potential being sufficiently low, with respect to said first potential, to induce field emission;
means, responsive to signals on a pixel's associated row address line and column address line, for switching the potential on the group of cathodes associated with that pixel between said second potential and said other potential.

5,210,473
SYSTEM WITH DELAY TIMER FOR MOTOR LOAD EQUALIZATION
Jon E. Backstrand, Oak Creek, Wis., assignor to Harnischfeger Corporation, Milwaukee, Wis.
Filed Nov. 19, 1991, Ser. No. 794,196
Int. Cl.[5] H02P *7/00*
U.S. Cl. 318—99 **16 Claims**



1. An improved system for equalizing motor load in an open loop open loop plural-motor drive of the type having a master switch for starting and imposing load on all motors simultaneously, a control circuit providing a motor speed signal and using command ramps to control each of plural AC motors, the improvement comprising:
delay circuit maintaining such signal at a voltage value for at least a delay time;
a separate inverter unit coupled to each motor, monitoring such signal and responsively generating synchronized command ramps,
whereby substantially equal motor speeds are maintained and the motors thereby share load substantially equally.

5,210,474
DIGITAL-ANALOG DRIVER FOR BRUSHLESS D.C. SPINDLE MOTOR
Richard K. Oswald, San Jose, Calif., assignor to Quantum Corporation, Milpitas, Calif.
Filed Feb. 27, 1992, Ser. No. 847,147
Int. Cl.[5] H02P *6/02*
U.S. Cl. 318—254 **13 Claims**



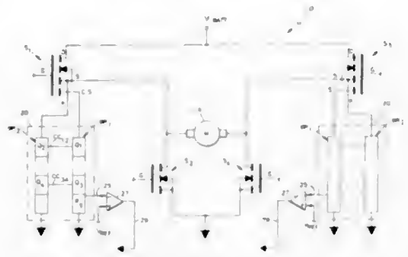
1. A digital-analog driver circuit for a plural-phase-wound, brushless D.C. motor including commutation phase generation means for generating digital commutation control signals for the plural phases, the driver circuit comprising:
logic means responsive to the commutation control signals for generating commutation gating signals,
digital function generation means responsive to a commutation gating signal supplied by the logic means and further responsive to a high frequency clocking signal, for generating a pulse width modulated digital function signal having a base period of the high frequency clocking signal and a timed interval synchronized to the commutation gating signal and for supplying the digital function signal to the logic means,
the logic means including function signal inversion means for generating an inverted digital function signal, and having gating circuit means for selectively putting out the digital function signal and the inverted digital function signal in synchronism with the commutation gating signal,
plural digital to analog conversion means each for converting the digital function signal and the inverted digital function signal into an analog phase driving signal,
plural phase transistor driver means each being responsive to one analog phase driving, for applying a driving current to a phase winding of the brushless D.C. motor.

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5,210,475
CURRENT SENSING CIRCUIT FOR USE WITH A CURRENT CONTROLLING DEVICE IN A POWER DELIVERY CIRCUIT

David L. Juzswik, Dearborn Heights, and Bruce R. Wrenbeck, Dearborn, both of Mich., assignors to United Technologies Automotive, Dearborn, Mich.

Division of Ser. No. 577,823, Sep. 4, 1990, Pat. No. 5,032,774, which is a continuation of Ser. No. 430,916, Oct. 30, 1989, abandoned, which is a cnntinuation of Ser. No. 349,022, May 9, 1989, abandoned. This application Jun. 28, 1991, Ser. No. 723,143
Int. Cl.[5] H02P *1/22*
U.S. Cl. 318—293 24 Claims



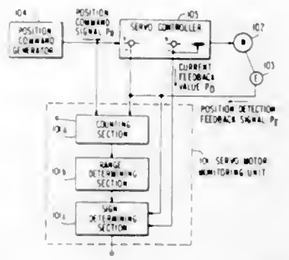
1. A power delivery circuit for supplying load current to a load, comprising:
a power node for connection to a source of electrical power;
a load node for connection to a load;
a high potential current path for supplying electrical current from the power node to the load node and including a current switch whose switching state is controlled by a control signal on an associated control terminal; said current switch having first and second main terminals, a first auxiliary terminal which produces a current which is a predetermined fraction of the total current in the high potential current path, and a second auxiliary terminal connected to one of the main terminals of the current switch; and
a current detection circuit for detecting the current level in the high potential current path; the current detection circuit comprising:
a first branch connected between one of said first and second auxiliary terminals and a reference potential and a second branch connected between the other of said first and second auxiliary terminals and the reference potential,
said first branch having a first semiconductor device and said second branch having a second semiconductor device,
said first and second semiconductor devices being configured to provide a predetermined current ratio in said first and second branches,
impedance matching buffer circuit connected to said first and second semiconductor devices for controlling voltage at said first and second auxiliary terminals, and
an output node for providing a signal approximately proportional to the load current.

5,210,476
SERVO MOTOR MONITORING UNIT

Hirohiko Kazato, Aichi, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Filed Jun. 18, 1991, Ser. No. 717,143
Claims priority, application Japan, Jun. 19, 1990, 2-161097
Int. Cl.[5] G05B *11/01*
U.S. Cl. 318—560 13 Claims

1. A servo motor monitoring unit for monitoring a servo motor controller which controls a servo motor in accordance with a position command signal and a position detection feedback signal from a position detector for detecting the position of the servo motor, said monitoring unit comprising:
first fault determining means for determining fault in servo motor operating status; and

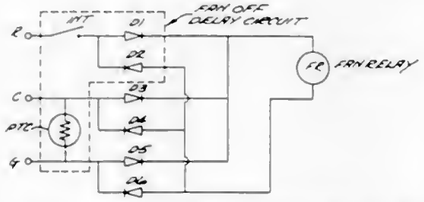


second fault determining means for determining the cause of that fault in accordance with said position command signal, said position detection signal, and the feedback value of a motor current supplied to said servo motor.

5,210,477
FAN CONTROL AND DIODE INTERLOCK FOR ELECTRIC HEATERS

Mitchell R. Rowlette, Berea; Kenneth L. Hayden, Bardstown, both of Ky., and Gary J. Steffes, Monroe, Mich., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 580,747, Sep. 11, 1990. This application Apr. 21, 1992, Ser. No. 871,874
Int. Cl.[5] H05B *1/02*
U.S. Cl. 318—471 6 Claims

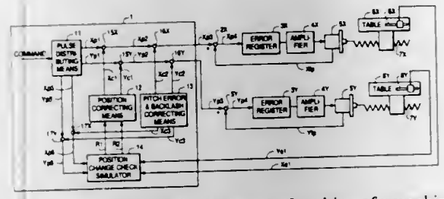


1. A circuit for controlling operation of a fan motor and a plurality of electric heat stages in an air conditioning/heat pump having at least first and second heat stages, an electric heat energization line and terminal for each heat stage, each electric heat energization line connected to a respective electric heat energization terminal, a fan motor energization line, a diode interlock network having an input and an output and a pair of diodes for each electric heat energization line, the anode of the first diode of a respective pair and the cathode of the second diode of the respective pair connected to a respective electric heat energization line and the cathode of the first diode and the anode of the second diode of the respective pair connected to the output of the diode interlock network, adapted to energize the fan motor energization line whenever one of the electric heat energization lines is energized.

5,210,478
METHOD OF CORRECTING MACHINE POSITION CHANGE

Takao Sasaki, Hachioji; Kentaro Fujibayashi, Musashino, and Makoto Haga, Minamitsuru, all of Japan, assignors to Fanuc Ltd, Minamitsuru, Japan

PCT No. PCT/JP90/01461, § 371 Date Jul. 15, 1991, § 102(e) Date Jul. 15, 1991, PCT Pub. No. WO91/08528, PCT Pub. Date Jun. 13, 1991
PCT Filed Nov. 9, 1990, Ser. No. 720,847
Claims priority, application Japan, Nov. 27, 1989, 1-307098
Int. Cl.[5] G05B *23/275*
U.S. Cl. 318—632 4 Claims

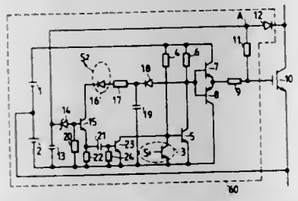


1. A method of correcting a change of position of a machine tool, in a servo system, having at least two control axes, comprising the steps of:
a) generating a correction pulse based on a ratio of actual amount of movement of respective axes;
b) adding the correction pulse to a distribution pulse of respective axes; and
c) outputting a ratio of amounts of movement of the respective axes of the machine tool obtained from output values of position detectors for detecting a position of the machine tool that becomes equal to a ratio of predicted amounts of movement of the respective axes obtained from a machine position predicted on the basis of distribution pulses of the respective axes, the servo system has at least a first order lag.

5,210,479
DRIVE CIRCUIT FOR AN INSULATED GATE TRANSISTOR HAVING OVERCURRENT DETECTING AND ADJUSTING CIRCUITS

Shin Kimura; Norikazu Tokunaga, both of Hitachi; Nobuyoshi Mutoh, Katsuta; Satoshi Ibori, Funabashi; Shuuji Musha, Hitachi; Yasuo Matsuda, Hitachi, and Yutaka Suzuki, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 7, 1989, Ser. No. 390,378
Claims priority, application Japan, Aug. 12, 1988, 63-199888; Feb. 6, 1989, 1-27146
Int. Cl.[5] H03K *17/08, 17/00;* H02M *1/00*
U.S. Cl. 318—727 27 Claims

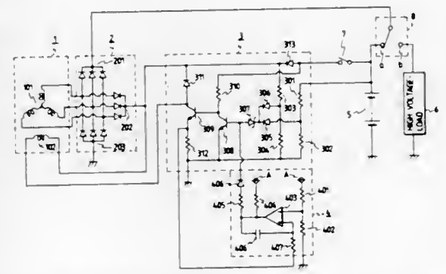


1. A drive circuit for an insulated gate transistor having a gate comprising:
a gate voltage input circuit connected to the insulated gate transistor for converting an input signal which identifies an ON or OFF state of the insulated gate transistor to a gate voltage, and for supplying the gate voltage to the gate of the insulated gate transistor;
an overcurrent adjusting circuit connected to the insulated gate transistor for detecting an overcurrent of the insulated gate transistor and for adjusting the overcurrent of the insulated gate transistor to a predetermined value; and
an ON holding circuit connected to the gate voltage input circuit and the overcurrent adjusting circuit for outputting a signal which identifies the ON state of the insulated gate transistor to the gate voltage input circuit and for inhibiting the gate voltage input circuit from being responsive to the input signal which identifies the OFF state of the insulated gate transistor when the overcurrent adjusting circuit operates continuously;
wherein the gate voltage input circuit is responsive to a logical OR of an output signal of the ON holding circuit and the input signal.

5,210,480
CONTROL DEVICE OF VEHICLE MOUNTED ALTERNATOR

Shiro Iwatani, and Yoshiyuki Iwaki, both of Hyogo, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Continuation of Ser. No. 548,523, Jul. 5, 1990, abandoned. This application Mar. 20, 1992, Ser. No. 859,623
Claims priority, application Japan, Jul. 12, 1989, 1-181032
Int. Cl.[5] H02J *07/14*
U.S. Cl. 322—28 2 Claims



1. A control device for a vehicle-mounted, self-excited alternator having an armature coil (**101**) and a field coil (**102**), and including a rectifier (**2**) for rectifying an a.c. output of said alternator, and for supplying a field current to said field coil and a charging current to a vehicle-mounted storage battery (**5**), a high voltage electric load (**6**) of said vehicle being energizable by a first voltage which is substantially higher than a second voltage, said second voltage being a terminal voltage of said storage battery, and a changeover switch (**8**) for selectively connecting an output of said rectifier to one of said storage battery and said high voltage electric load, said control device comprising:
field current detection means (**312**) for detecting field current flowing through said field coil; and
a field current limiter (**4**) for cutting off said field current when the field current exceeds a predetermined value,
wherein said field current limiter comprises reference means (**401, 402**) for providing a fixed reference value, a comparator (**403**) for comparing the field current detected by said field current detection means with said fixed reference value, and control means responsive to an output of said comparator to control a voltage regulator to cut-off the field current when the field current detected is larger than said reference value, said field current limiter further comprising a resistor (**407**) through which said field current flowing through said field coil is input to said comparator (**403**); and
wherein said voltage regulator receives an input from said storage battery, said input being indicative of said terminal voltage of said storage batter, said changeover switch exclusively connecting the rectifier output to the battery

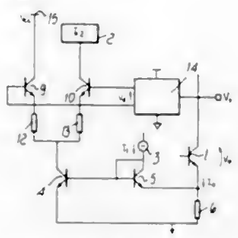
VOL 1150 ISS 2 MY 11 1993 UMI

for the charging thereof in a first position, and exclusively connecting the rectifier output to the high voltage electric load in a second position.

5,210,481
VOLTAGE/CURRENT CHARACTERISTICS CONTROL CIRCUIT PARTICULARLY FOR PROTECTING POWER TRANSISTORS

Davide Brambilla, Rho, and Edoardo Botti, Vigevano, both of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Milan, Italy

Filed Dec. 17, 1991, Ser. No. 808,484
Claims priority, application Italy, Dec. 20, 1990, 22448 A/90
Int. Cl.[5] G05F *3/16*
U.S. Cl. 323—316 **15 Claims**



1. A voltage/current characteristics control circuit particularly for protecting at least one power transistor, said power transistor having a first and second terminal, said circuit having an emitter terminal of a first transistor directly connected to the first terminal of said power transistor, an emitter terminal of a second transistor connected to the first terminal of said power transistor by means of a first resistor, a collector terminal and a base terminal of said first transistor connected to a current source, a base terminal of said second transistor connected to the base terminal connected to the collector terminal of said second transistor through a branch of a differential stage which comprises a third transistor and fourth transistor, said third transistor and fourth transistor having a respective second resistor and third resistor arranged in series, and a divider means interposed between the second terminal of said at least one power transistor and the base terminals of said third transistor and fourth transistor.

5,210,482
DEVICE FOR MEASURING THE ELECTRODE POTENTIAL OF UNDERWATER CONCRETE REINFORCEMENT

Patrick Deeds, Avon; Gilbert Grimaldi, Le Chatelet en Brie, and André Raharinavo, Paris, all of France, assignors to L'Etat Francais représenté par le Laboratoire Central des Ponts, et Chaussees, France

Filed Apr. 25, 1991, Ser. No. 691,137
Claims priority, application France, Apr. 26, 1990, 90 05340
Int. Cl.[5] G01N *27/00*
U.S. Cl. 324—71.1 **10 Claims**

1. A device for measuring the electrode potential of the reinforcement in an underwater concrete structure, the device being of the type comprising:

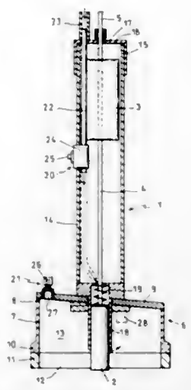
a reference electrode for placing against the concrete facing of said structure while the measurement is being performed; and

a voltmeter connected firstly to said reference electrode and secondly to the reinforcement of said concrete structure;

the device further including:

a bell surrounding said reference electrode having a mouth delimited by a rim comprising a deformable material, said rim being placed against the facing of the concrete structure at least while the measurement is being performed such that said mouth is closed in watertight manner by said facing, and such that said bell defines with said facing a watertight enclosure in which said reference electrode is disposed to bear against said facing;

gas injection means for injecting a gas, into said enclosure so as to expel water therefrom;



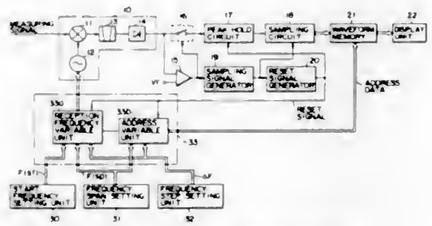
water escape means to enable the water contained in said enclosure to escape therefrom under the action of said gas; and

thrust means for pressing said reference electrode situated inside said enclosure against said facing.

5,210,483
BURST SIGNAL SPECTRUM MEASURING SYSTEM WITH STEPWISE SWEEPING

Narushi Amamoto, Fujisawa; Hiroyoshi Oka; Takehiko Sato, both of Atsugi, and Aiichi Katayama, Isehara, all of Japan, assignors to Anritsu Corporation, Tokyo, Japan

Filed Sep. 26, 1991, Ser. No. 767,074
Claims priority, application Japan, Sep. 29, 1990, 2-261877
Int. Cl.[5] G01R *23/16, 23/173*
U.S. Cl. 324—76.27 **9 Claims**



1. A spectrum analyzing apparatus comprising:

receiving means including:

for receiving a burst signal to be measured, said burst signal having a plurality of burst-on intervals,

means for converting the burst signal into an intermediate frequency signal in accordance with a local oscillation signal having a predetermined swept frequency locked with a single frequency during each burst-on interval of the burst signal and differing among different burst-on intervals, and

means for detecting the intermediate frequency signal, so as to output a signal representing a spectrum of the burst signal;

frequency setting means for setting frequency information for determining a plurality of measuring frequencies from a first measuring frequency to an nth (where n is a natural number) measuring frequency;

measuring time determining means for determining measurement start and end times in association with the burst signal and for outputting measurement start and end signals corresponding to the measurement start and end times;

frequency control means for determining a desired number of measuring frequencies from an ith (where $1 \leqq i < n$) measuring frequency to a kth (where $i < k \leqq n$) measuring frequency in accordance with the frequency information set by sa said frequency setting means, and for stepwise-setting the predetermined swept frequency of the local oscillation signal in said receiving means at timings in accordance with an initialization signal and the measurement end signal from said measuring time determining means so as to sequentially output spectrum signals respectively corresponding to the desired number of measuring frequencies from the ith to kth measuring frequencies from said receiving means and such that the predetermined swept frequency is locked with a single frequency during each burst-on interval of the burst signal and differs among different burst-on intervals;

level detecting means for dating on output signal from said receiving means between reception timings of the measurement start and end signals from said measuring time determining means, and sequentially detecting levels of the ith to kth measuring frequency components included in the burst signal as spectrum data in accordance with the gated output signal;

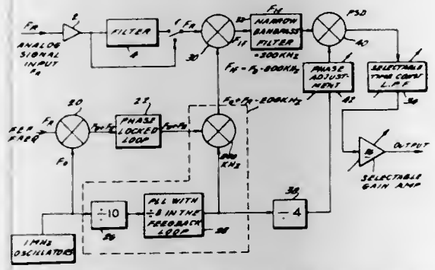
waveform memory means for storing the spectrum data sequentially detected by said level detecting means at an address corresponding to the predetermined swept frequency set by said frequency control means; and

display means for developing and displaying the spectrum data representing the ith to kth measuring frequency component levels stored in said waveform memory means on a frequency axis corresponding to the address.

5,210,484
LOCK-IN AMPLIFIER

Paul A. Remillard, Littleton, Mass., and Michael C. Amorelli, Danville, N.H., assignors to Louis R. Fantozzi, N.H. and Lawrence Kessler, Bethpage, N.Y.

Filed May 15, 1992, Ser. No. 883,552
Int. Cl.[5] G01R *23/16*
U.S. Cl. 324—118 **8 Claims**



1. A lock-in amplifier for measuring a particular component of an input signal at a frequency of interest, comprising:

(a) a first mixer having a first input for receiving an input reference signal having a frequency F_R equal to the frequency of interest in said input signal to be measured and a second input for receiving a signal of a fixed predetermined frequency F_0, said first mixer generating an output having a frequency F_0+F_R equal to the sum of said fixed predetermined frequency F_0 and said input reference frequency F_R;

(b) a second mixer having a first input for receiving the output of said first mixer having a frequency F_0+F_R and a second input for receiving a signal having a frequency F_0x, where $x<1$, said second mixer generating an output having a frequency $F_0+F_R-F_0x$;

(c) a third mixer having a first input for receiving said input signal having said component at said frequency of interest F_R and a second input for receiving the output of said second mixer having a frequency $F_0+F_R-F_{0x}$, said third mixer generating an output having a frequency equal to F_0-F_0x;

(d) a narrow bandpass filter which receives the output generated by said third mixer and filters out signals at frequencies other than F_0-F_0x.

(e) means for generating a second signal having a frequency F_0-F_0x from said signal Fox applied to said second mixer;

(f) an adjustable phase shifting means for shifting the phase of said second signal having a frequency F_0-F_0x to coincide with the phase of the signal F_0-F_0x output from said narrow bandpass filter;

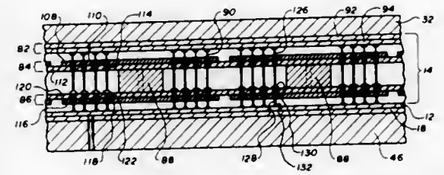
(g) a phase sensitive detector having a first input for receiving the signal F_0-F_0x output from said narrow bandpass filter and a second input for receiving the phase shifted signal F_0-F_0x output from said phase shifter means, said phase sensitive detector generating an output having a dc component corresponding to the magnitude of the input signal at the frequency of interest, said dc component being maximum when the phase of the two signals F_0-F_0x at its inputs are aligned; and

(h) low pass filter for removing any ac signal output from said phase sensitive detector corresponding to frequencies in said input signal other than said frequency of interest.

5,210,485
PROBE FOR WAFER BURN-IN TEST SYSTEM

Walter C. Kreiger, Underhill, and Donald L. Wilder, South Hero, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 26, 1991, Ser. No. 736,899
Int. Cl.[5] G01R *1/04*
U.S. Cl. 324—158 P **24 Claims**



1. A test apparatus for testing over a range of temperatures electronic integrated circuits residing on a test wafer, comprising:

a probe assembly for transmitting test signals to test contacts on the circuits residing on the test wafer, said probe assembly comprising upper and lower guide elements spaced apart from and in fixed relationship to each other, each of said guide elements having a plurality of holes therein and comprising a layer of silicon adjacent to a layer of electrically insulating, photolithographically patternable material, and a plurality of probes extending through and beyond said plurality of holes in each of said guide elements, each probe in said plurality having a first end connected with a source of test signals and a second end adapted to contact the test contacts on the test wafer,

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each of said layers of photolithographically patternable material having an inner surface facing one of said layers of silicon, each of said layers of silicon having an inner surface facing one of said layers of photolithographically patternable material, the adjacent layers of silicon and photolithographically patternable material in each of the upper and lower guide elements being joined by fused layers of metal deposition deposited on each of said inner surfaces of photolithographically patternable material and each of said inner surfaces of silicon;

an alignment mechanism for aligning said probe assembly with the test contacts;

a securing mechanism for securing the position of said test wafer with respect to said probe assembly when said probe assembly and the test contacts are aligned; and

a contacting mechanism for contacting said second ends of said probes with the test contacts.

5,210,486

CIRCUIT TEST METHOD

Alice Wilson, Finchampstead, United Kingdom; Benjamin Rogel-Favila, London, England, and Antony Wakeling, Ashington, United Kingdom, assignors to Schlumberger Technologies Limited, Farnborough, England

Filed Sep. 6, 1991, Ser. No. 755,673

Claims priority, application United Kingdom, Sep. 7, 1990, 9019614; Apr. 9, 1991, 9107484

Int. Cl.[5] G01R *31/28*

U.S. Cl. 324—158 R **12 Claims**

1. A method of testing a circuit comprising nodes connected by circuit modules which impose constraints on signal passing between the nodes, each module comprising an electrical component or group of electric components, the method comprising the steps of

(i) selecting a set of stimuli, including supply signals,

(ii) applying the set of stimuli at first nodes of said circuits,

(iii) taking a set of test measurements from second nodes of said circuit,

(iv) determining, in an analysis cycle, at least two differently derived signal values at each of a number of nodes from the set of stimuli, the set of test measurements, and the constraints on signal values imposed by the modules,

(v) detecting a fault if the differently derived signal values are incompatible, and

(vi) if a fault is detected, repeating one or more times, an analysis cycle which has led to an incompatibility, each time with the constraints on signal values imposed by a different selected module being suspended, to determine that a module may be faulty if suspension of the constraints on a selected module that may be faulty leads to a removal of the incompatibility, and

(vii) taking a further test measurement from at least one further node selected to reduce the number of selected modules which may be faulty in a further analysis cycle said at least one further node being the first node or nodes of a set of previously unselected nodes ranked in order of decreasing level of discrimination between modules which may be faulty.

5,210,487

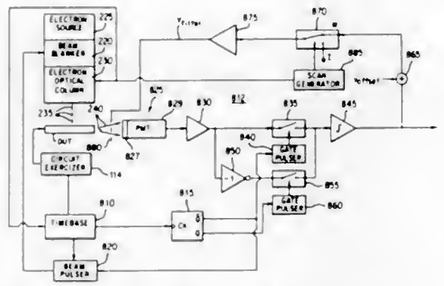
DOUBLE-GATED INTEGRATING SCHEME FOR ELECTRON BEAM TESTER

Hitoshi Takahashi, Tokyo, Japan; Douglas Masnaghetti, San Jose, and Neil Richardson, Palo Alto, both of Calif., assignors to Schlumberger Technologies Inc., Los Altos, Calif.

Filed Jun. 4, 1991, Ser. No. 710,768

Int. Cl.[5] G01R *31/00, 31/02*

U.S. Cl. 324—158 R **16 Claims**



1. Apparatus for measuring voltage of a conductor of an integrated circuit, comprising:

a. exerciser means for exercising an integrated circuit by applying a repetitive signal pattern to the integrated circuit;

b. blanker means for repetitively blanking and unblanking an electron beam synchronously with the repetitive signal pattern to thereby produce electron-beam sampling pulses during periodic first time intervals when the electron beam is unblanked, and wherein blanking of the electron beam is incomplete such that a portion of the electron beam is passed as forward-scattered electrons during periodic second time intervals between the periodic first time intervals;

c. probe means for probing a conductor of the integrated circuit by applying the electron-beam sampling pulses and the forward-scattered electrons to the integrated circuit;

d. detector means for detecting secondary electrons emitted from the integrated circuit to produce a detector signal, the detector signal having periodic first signal portions with levels substantially dependent upon interaction of the electron-beam sampling pulses with said conductor and the detector signal having periodic second signal portions with levels primarily dependent upon interaction of the forward-scattered electrons with said integrated circuit;

e. sampling means for sampling the detector signal during said first signal portions and during said second signal portions; and

f. combining means for combining the sampled first signal portions with the complement of the sampled second signal portions to produce a measured voltage signal representing voltage of said conductor

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5,210,488

PROJECTILE VELOCITY MEASUREMENT SYSTEM AND METHOD

Malcolm F. McKeag, Kingston, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

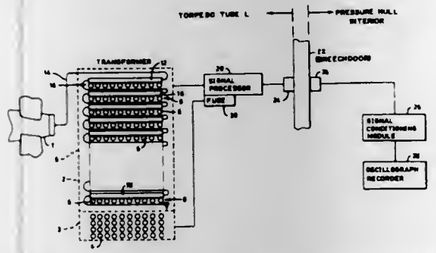
Filed Oct. 21, 1991, Ser. No. 779,671

Int. Cl.[5] G01P *3/42*

U.S. Cl. 324—176 **17 Claims**

1. A projectile velocity measurement system for determining velocity of a launched projectile in a launch tube in an underwater environment, the system comprising a transformer

adapted for disposition in said tube and having primary and secondary coils, said secondary coils being arranged in discrete groups with an increment of insulation shielding each of said groups of coils from the water environment, said insulation increments being connected to each other and being separable each from its associated group of coils, a strand adapted for interconnecting a first of said insulation increments and said projectile, whereby movement of said projectile through said



tube operates to pull said first insulation increment from a first group of said secondary coils, and thereafter successive insulating increments from their respective coils, to expose successively said secondary coils, to cause said secondary coils successively to be disposed in said water and thereby successively shorted out, to reduce the number of active secondary coils to reduce the voltage of said transformer secondary coils, and means for converting the speed of said voltage reduction to velocity of said projectile in said tube.

5,210,489

ARRANGEMENT WITH FIELD CORRECTING STRUCTURE PRODUCING A HOMOGENEOUS MAGNETIC FIELD AT A SENSOR ZONE FOR DETECTING MOVEMENT OF A FERROMAGNETIC ELEMENT

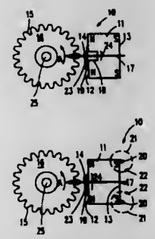
August Petersen, Henstedt-Ulzburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 3, 1991, Ser. No. 709,666

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1990, 4020228

Int. Cl.[5] G01P *3/488*; G01B *7/14*

U.S. Cl. 324—207.12 **3 Claims**



1. An arrangement for detecting a ferromagnetic element moving past said arrangement, comprising

(a) a magnet including a pole face having a mounting zone in a portion of said pole face, said mounting zone being disposed parallel to a direction of movement of a ferromagnetic element moving past said mounting zone,

(b) field correction means for producing a substantially homogeneous magnetic field at said mounting zone with magnetic lines of force at said mounting zone being substantially at right angles to said pole face, said field correction means comprising a groove in said pole face at said mounting zone, said groove extending through a central part of said pole face substantially orthogonal to said direction of movement of said ferromagnetic element, and

(c) a sensor mounted in said mounting zone of said magnet so that said magnetic lines of force are substantially at right angles to both said pole face and said mounting zone, said lines of force also penetrating said sensor at substantially right angles,

wherein said groove has a width exceeding a dimension of said sensor in a direction parallel to said direction of movement.

2. An arrangement for detecting a ferromagnetic element moving past said arrangement, comprising

(a) a magnet including a pole face having a mounting zone in a portion of said pole face, said mounting zone being disposed parallel to a direction of movement of a ferromagnetic element moving past said mounting zone,

(b) field correction means for producing a substantially homogeneous magnetic field at said mounting zone with magnetic lines of force at said mounting zone being substantially at right angles to said pole face, said field correction means comprising at least one electrical conductor carrying current to determine size of said mounting zone, said conductor being disposed at an edge of said magnet, and

(c) a sensor mounted in said mounting zone of said magnet so that said magnetic lines of force are substantially at right angles to both said pole face and said mounting zone, said lines of force also penetrating said sensor at substantially right angles.

5,210,490

LINEAR POSITION SENSOR HAVING COAXIAL OR PARALLEL PRIMARY AND SECONDARY WINDINGS

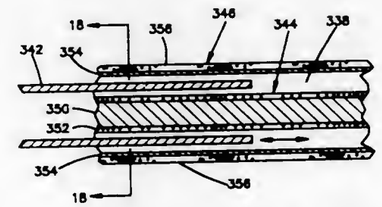
Carl A. Munch, Southfield; Stephen R. W. Cooper, Tustin, and Michael J. Rymut, Cadillac, all of Mich., assignors to Nartron Corporation, Reed City, Mich.

Continuation-in-part of Ser. No. 427,641, Oct. 26, 1989, Pat. No. 5,036,275, which is a continuation-in-part of Ser. No. 296,183, Jan. 11, 1989. This application Jul. 29, 1991, Ser. No. 737,389

The portion of the term of this patent subsequent to Jul. 30, 2008, has been disclaimed.

Int. Cl.[5] G01B *7/14*; H01F *21/02*; G08C *19/06, 19/12*

U.S. Cl. 324—207.17 **28 Claims**



1. Position sensing apparatus for monitoring a relative position between two relatively moveable members comprising:

a) an elongated field producing member coupled to a first of said moveable members and including a first multi-turn conductor would about a field producing member axis and an input for energizing the first multi-turn conductor to produce an electromagnetic field in the vicinity of the elongated field producing member;

b) an elongated field responsive member fixed with respect to the elongated field producing member including a second multi-turn conductor wound about a field responsive member axis, said elongated field responsive member oriented in side by side, generally parallel orientation to the elongated field producing member along a length of the elongated field producing member, and having an output for providing an output signal in response to the

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electromagnetic field produced by the field producing member;

c) a cylindrical shielding member connected to a second of the moveable members for movement with the second moveable member and positioned generally co-axial with one member of the field producing and field responsive members to overlap a portion of said one member that varies with the relative position of the moveable members to alter the response of the field responsive member as the moveable members move relative to each other and thereby change the signal at the output of the field responsive member;

d) exciter means coupled to the input for energizing the field producing member; and

e) circuit means coupled to the output from the field responsive member to correlate changes in the output signal with relative movement of the moveable members.

5,210,491

MEASURING DEVICE FOR THE CONTACTLESS DETERMINATION OF A CHANGE IN LINEAR TRAVEL AND/OR ANGLE OF ROTATION WITH FIXABLE PLACE OF HIGHEST MEASUREMENT ACCURACY AND SMALLEST DRIFT ERRORS

Hansjörg Hachtel, Weissach, and Klaus Dobler, Gerlingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

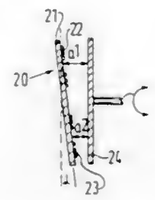
PCT No. PCT/DE89/00458, § 371 Date Dec. 3, 1990, § 102(e) Date Dec. 3, 1990, PCT Pub. No. WO90/01140, PCT Pub. Date Feb. 8, 1990

PCT Filed Jul. 11, 1989, Ser. No. 602,333

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1988, 3824534

Int. Cl.[5] **G01B** *7/14*; **G01R** *27/26*

U.S. Cl. 324—207.19 **10 Claims**



1. A measuring device for contactless determination of a change in at least one of linear travel and angle of rotation, comprising two bodies movable relative to one another; and at least two coils arranged on one of said two bodies and connected in at least one electrical bridge circuit, the other of said two bodies including areas formed of at least one of electrically conductive material and ferromagnetic material assigned to said coils, respective alternating current resistance values of said coils varying in accordance with relative change in a magnitude of respective assigned areas of said other of said bodies, and said coils being arranged so that different eddy current formation of said coils are obtained and therefore said coils have different electrical measurement sensitivities for fixing a place with a highest measurement accuracy and samllest drift errors to be adapted to desired applications of said measuring device.

5,210,492

REMOTE FIELD EDDY CURRENT FLAW DETECTOR FOR METAL PIPES HAVING A PAIR OF RECEIVER COILS PROVIDING A DIFFERENTIAL OFFSET AMPLITUDE SIGNAL

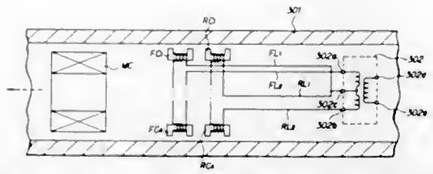
Yasuharu Hosohara; Kiwamu Suzuki, both of Yokohama; Shigeru Fujiwara, and Toshihide Kawabe, both of Kure, all of Japan, assignors to Tokyo Gas Co., Ltd., Tokyo and CXR Co., Ltd., Hiroshima, both of Japan

Filed Aug. 5, 1991, Ser. No. 740,388

Claims priority, application Japan, Apr. 22, 1991, 3-090685; May 27, 1991, 3-121291

Int. Cl.[5] **G01N** *27/90*

U.S. Cl. 324—220 **11 Claims**



1. A remote field eddy current flaw detector for detecting flaws in a metal pipe, comprising:

a plurality of coils inserted axially into said metal pipe including:

an exciting coil for receiving an alternating current and generating field eddy current signals;

a first receiving coil, spaced axially from said exciting coil by a predetermined axial distance, for detecting remote field eddy current signals that have passed through said pipe; and

a second receiving coil, spaced apart from said first coil such that said second coil is spaced from said exciting coil by an axial distance greater than said predetermined distance, for detecting said remote eddy current signals, wherein said first coil has a greater number of turns than said second coil;

means connected to said first and second receiving coils for obtaining a differential signal representing the vectorial difference between detected remote eddy current signals produced in said first and second receiving coils, wherein said greater number of turns of said first coil and said first coil being axially spaced apart from and positioned closer to said exciting coil than said second coil cumulatively provide an offset amplitude to said differential signal; and

means for comparing the phase of said differential signal to that of a reference signal to determined the presence of locally flawed, gradually flawed, and nonflawed regions of said pipe based on said cumulative offset amplitude.

5,210,493

METHOD FOR EMBEDDING WIRES WITHIN A POWDER METAL CORE AND SENSOR ASSEMBLY PRODUCED BY SUCH A METHOD

Thaddeus Schroeder; Chi H. Leung, both of Rochester Hills; Bruno P. B. Lequesne, Troy, all of Mich., and Robert W. Ward, Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 27, 1992, Ser. No. 842,938

Int. Cl.[5] **G01R** *33/06, 3/00*; **H01F** *1/06*; **G01P** *3/488*

U.S. Cl. 324—252 **9 Claims**

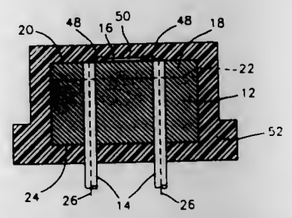
1. A powder metal subassembly for supporting and electrically connecting a magnetic field responsive electrical element, said subassembly comprising:

a compacted powder metal body having opposed end faces; said body predominantly being of a high coercivity permanent magnet material, with one of said opposed end faces of said body being formed of a layer of a high permeability soft magnetic material,

at least one electrically conductive wire having a portion embedded within said powder metal body between said opposed end faces, said wire having one end exposed on and substantially coterminous on said one opposed end face and its other end having a length projecting substantially beyond the other of said opposed end faces;

means on said coterminous end of said wire for making low resistance electrical connection with a magnetic field responsive electrical element,

the length of said embedded wire extending beyond said



other of said opposed end faces being effective to facilitate external connection to said magnetic field sensitive element; and

means for electrically insulating said powder metal body from said embedded at least one electrically conductive wire, effective to make a subassembly that not only exhibits a wave of magnetic flux traveling across said one opposed end face of said body in response to movement of a member to be sensed, but also facilitates support of and electrical connection to a magnetic field sensor element on said one opposed end face.

5,210,494

SAMPLE HEAD FOR NUCLEAR MAGNETIC RESONANCE WHOLE-BODY TOMOGRAPHY OR LOCALIZED IN-VIVO NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

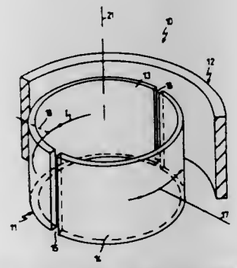
Hermann Brunner, Schriesheim; Karl H. Hausser, and Werner Velth, both of Heidelberg, all of Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Fed. Rep. of Germany

Filed Mar. 5, 1991, Ser. No. 663,915

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1989, 3922034

Int. Cl.[5] **G01R** *33/20*

U.S. Cl. 324—309 **24 Claims**



1. Sample head for nuclear magnetic resonance whole-body tomography or localized in-vivo nuclear magnetic resonance spectroscopy, comprising an RF coil (**11**; **31**; **51**; **81**; **101**, **102**; **111**, **112**; **141** to **144**; **151**, **152**; **171**) having a plurality (n) of inductive sections in the form of metallic strips (**13**, **14**; **33** to **36**; **53** to **60**; **83** to **88**; **114** to **121**; **153** to **160**; **172** to **187**) and capacitive sections arranged alternately one behind the other in the direction of the RF current (I_1), so that the field lines (**20**; **44**; 72; **104**; **125**; **145**, **146**; **162**; **191**, **192**) of the magnetic RF field (H_1) generated by the RF coil (**11**; **31**; **51**; **81**; **101**, **102**; **111**, **112**; **141** to **144**; **151**, **152**; **171**) extend in parallel to an axis (**21**; **45**; **74**; **126**) defined by the RF coil (**11**; **31**; **51**; **81**; **101**, **102**; **111**, **112**; **141** to **144**; **151**, **152**; **171**), wherein the said RF coil (**31**; **51**; **81**; **101**, **102**; **111**, **112**; **141** to **144**; **151**, **152**; **171**) forms a single unit with an outer jacket (**32**; **52**; **82**; **103**; **113**) and the number (n) of inductive and capacitive sections is such as to be just below that limit value (n_k) above which the distribution (**22**; **46**; **74**) of the field lines (**19**; **43**; **71**; **97**) of the electric RF field (E_1) produced by the said RF coil (**11**; **31**; **51**; **81**; **101**, **102**; **111**, **112**; **141** to **144**; **151**, **152**; **171**) changes from a first distribution (**22**; **46**; **75**), where there is a plane (**76**) between each inductive section (strip **55**) and the said axis (**74**) in which the strength of the electric RF field (E_1) is equal to zero, to a second distribution (**98**) where the strength of the said electric RF field (E_1) rises in a substantially rotationally symmetrical pattern around the said axis (**99**), and linearly from the said axis (**99**) toward the said RF coil (**81**), and this irrespective of the number (n) of inductive sections present.

5,210,495

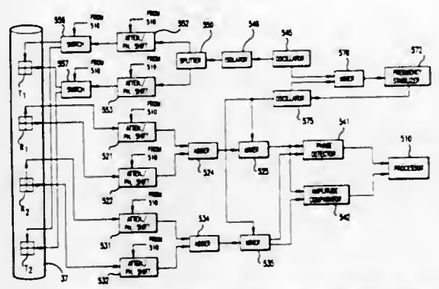
ELECTROMAGNETIC LOGGING METHOD AND APPARATUS WITH SCANNED MAGNETIC DIPOLE DIRECTION

Tarek M. Hapashy, Danbury; Jeffrey A. Beren, Westport, both of Conn., and Kambiz A. Safinya, Jakarta Selatan, India, assignors to Schlumberger Technology Corp., New York, N.Y.

Continuation-in-part of Ser. No. 706,454, May 24, 1991. This application Mar. 9, 1992, Ser. No. 848,576

Int. Cl.[5] **G01V** *3/30*

U.S. Cl. 324—338 **29 Claims**



1. A method for logging formations surrounding an earth borehole, comprising the steps of:

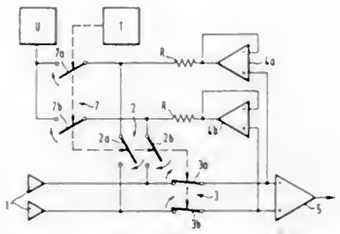
providing a logging device that is moveable through the borehole, said device including a transmitter for transmitting into the formations electromagnetic energy having a magnetic dipole characteristic and a receiver for receiving said electromagnetic energy from the formations;

repeatedly scanning the magnetic dipole direction of said electromagnetic energy to several different directions as said logging device is moved through the borehole; and

recording several logs as a function of the received electromagnetic energy, said logs being recorded for said respectively different magnetic dipole directions of said electromagnetic energy.

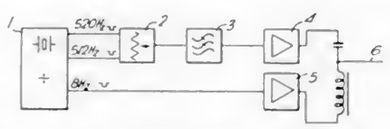
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,496
METHOD AND CIRCUIT ARRANGEMENT FOR INTERMITTENT APPLICATION OF A VOLTAGE TO AN ELECTRODE
Peter Hafner, Liestal, Switzerland, assignor to Endress & Hauser Flowtec AG, Switzerland
Continuation-in-part of Ser. No. 336,220, Apr. 11, 1989, abandoned. This application Oct. 9, 1990, Ser. No. 594,316
Claims priority, application Fed. Rep. of Germany, Apr. 13, 1988, 3812309
Int. Cl.[5] G01N *27/02*
U.S. Cl. 324—439 15 Claims



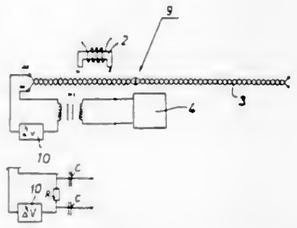
1. An apparatus for cleaning an electrode used to generate a measurement signal, the apparatus comprising:
a voltage source;
one normally open switch including a first terminal coupled to the voltage source and a second terminal;
another normally open switch including a first terminal coupled to the second terminal of the first normally open switch and a second terminal coupled to the electrode;
means for selectively closing the normally open switches for a predetermined time to couple the voltage source to the electrode to clean the electrode; and
an impedance converter including an input having a relatively high input impedance and an output having a relatively low output impedance, the electrode being coupled to the input of the impedance converter, and the output of the impedance converter being coupled to the first terminal of the other normally open switch so that substantially no potential difference exists between the first and second terminals of the other normally open switch, thereby increasing the accuracy of the measurement signal from the electrode.

5,210,497
CABLE FAULT TRACING SYSTEMS
Andrezej Z. Regini, Eastington, United Kingdom, assignor to Radiodetection, Ltd., Briston, United Kingdom
PCT No. PCT/GB90/00990, § 371 Date Dec. 20, 1991, § 102(e) Date Dec. 20, 1991, PCT Pub. No. WO91/00526, PCT Pub. Date Jan. 10, 1991
PCT Filed Jun. 27, 1990, Ser. No. 781,242
Claims priority, application United Kingdom, Jun. 29, 1989, 8914898
Int. Cl.[5] G01R *31/28*
U.S. Cl. 324—521 6 Claims



1. A method of detecting a fault in a cable which cable includes an electrical conductor, the method comprising:
applying a plurality of signals of different frequencies to a first part of the conductor of the cable;
detecting those plurality of signals at a second point of the conductor remote from the first point; and
processing the plurality of signals in order to determine whether there is a fault at or adjacent the second point;
characterised in that;
the plurality of signals comprise a first, a second and a third signal at a first, a second and a third frequency, respectively, with the third frequency being an integer multiple of the difference between the first and second frequencies and being a lower frequency than the first and second frequencies.

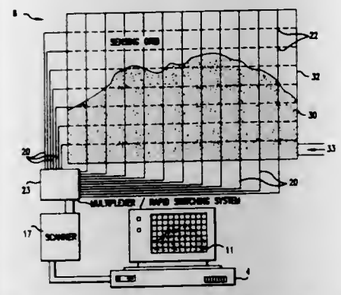
5,210,498
DETECTOR FOR LOCATING UNDERGROUND CABLES AND FAULTS THEREIN USING HIGH-POWERED ELECTROMAGNET
Esa Paananen, Kangasniemi, Finland, assignor to Tipteck Oy, Valtimo, Finland
PCT No. PCT/FI90/00115, § 371 Date Oct. 24, 1991, § 102(e) Date Oct. 24, 1991, PCT Pub. No. WO90/13041, PCT Pub. Date Nov. 1, 1990
PCT Filed Apr. 25, 1990, Ser. No. 768,711
Claims priority, application Finland, Apr. 25, 1989, 891948
Int. Cl.[5] G01R *31/08*
U.S. Cl. 324—529 8 Claims



1. A method for locating from above the ground or water a cable fault in a pair of wires in a cable buried underground or underwater, said method comprising transmitting an indicator signal created by a magnetic field, said magnetic field being generated by a magnet located at an indicator signal transmission point which induces a current in the wires of a cable (3) to be examined, and monitoring the indicator signal by a receiver (4) connected to the cable, characterized in that between the wires of the cable (3) is supplied a direct voltage which induces a current which closes a loop through a faulty location (9), and that the indicator signal is monitored separately from the current produced by said direct voltage.

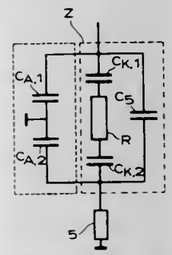
5,210,499
IN-SITU SENSOR METHOD AND DEVICE
Shawn M. Walsh, Lowell, Mass., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Nov. 16, 1990, Ser. No. 614,656
Int. Cl.[5] G01N *27/00;* G01R *27/02*
U.S. Cl. 324—649 15 Claims

1. A method for accurately monitoring the flow and cure rate of a resin material comprising
pumping a resin material into a resistance monitoring device having electrically conductive sensor threads arranged in a non-intersecting, grid-like configuration so as to create a plurality of sensor gaps;
allowing the pumped resin to advance through the grid-like configuration and sensor gaps of said resistance monitoring device;
obtaining and sending an electrical signal received from said sensor gaps as the pumped resin reaches said sensor gaps to a signal interpreting apparatus and a data storage and presentation means; and
interpreting the flow and cure rate of said resin material using said signal interpreting apparatus and said data



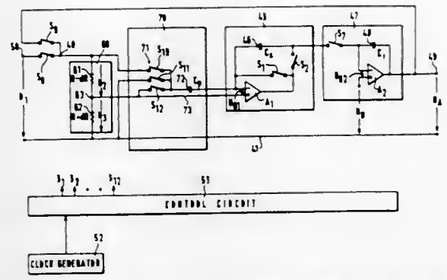
storage and presentation means to interpret said electrical signal and display said interpretation, wherein the ends of said electrically conductive sensor threads serve as leads which are connected to said signal interpreting apparatus which in turn is connected to said data storage and presentation means.

5,210,500
PROCESS FOR CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE OF A TEST MATERIAL
Ulrich Piugel, Marl, and Hans-Henning Nolte, Gelsenkirchen, both of Fed. Rep. of Germany, assignors to Flachglas Aktiengesellschaft, Gelsenkirchen, Fed. Rep. of Germany
Filed Apr. 11, 1991, Ser. No. 683,968
Claims priority, application Fed. Rep. of Germany, Apr. 11, 1990, 4011637; Jul. 16, 1990, 4022563
Int. Cl.[5] G01R *27/26*
U.S. Cl. 324—667 18 Claims



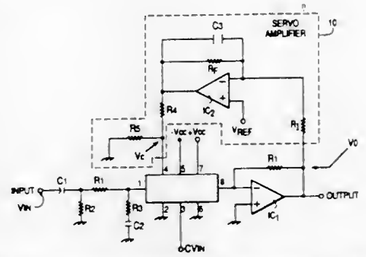
1. Process for contactless measurement of at least one of the electrical resistance and the electrical conductivity of a test material comprising the steps of applying an alternating voltage to the test material by two coupling electrodes and thus, capacitively coupling an alternating current into the test material at at least three different frequencies via the two coupling electrodes, measuring a total impedance that corresponds to a coupling capacitance between the coupling electrodes and the test material, a stray capacitance between the coupling electrodes, and the resistance of the test material, and from the total impedance measured, determining the stray capacitance between the two coupling electrodes, the coupling capacitance between the two coupling electrodes and the test material, as well as the resistance of the test material.

5,210,501
APPARATUS FOR PROCESSING SENSOR SIGNALS HAVING SWITCH-CAPACITOR STRUCTURES
Georg Schneider, Talstrasse 55, D-7860 Schopfheim-Langenau, and Richard Wagner, Hans-Thoma-Strasse 9, D-7864 Maulburg, both of Fed. Rep. of Germany
Filed Nov. 21, 1990, Ser. No. 616,339
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1989, 3940537
Int. Cl.[5] G01R *27/02;* G01L *1/22*
U.S. Cl. 324—720 7 Claims



1. Arrangement for processing sensor signals being furnished by a resistance sensor generating a measuring effect signal representing the dependence of the electrical resistance of said sensor on a physical quantity to be measured in response to the action of said physical quantity, said resistance sensor being fed with a supply signal, the arrangement comprising a signal processing circuit having an input for receiving said measuring effect signal and an output, said signal processing circuit including switch-capacitor structures operating by the principle of quantized charge transport and establishing a charge balance by opposite integration of measuring charge packets dependent on said measuring effect signal and compensation charge packets independent of said measuring effect signal, and means the signal processing circuit furnishing at its output an analog output signal corresponding to the integration result, and said feeding of said resistance sensor with said supply signal being influenced by a feedback signal coupled from the output of said processing circuit to said resistance sensor which is in fixed relationship to said analog output signal to obtain said charge balance.

5,210,502
SERVO DISTORTION TRIM FOR DBX VCA
Alan Flum, Ft. Lauderdale; Michael Zampini, Boca Raton, and Fujio Yasuda, Coral Springs, all of Fla., assignors to Sony Corporation of America, Park Ridge, N.J.
Filed Jan. 12, 1992, Ser. No. 826,522
Int. Cl.[5] H03F *1/34;* H03G *3/18*
U.S. Cl. 330—85 3 Claims



1. In a signal mixing apparatus comprising a voltage con-

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trolled amplifier (VCA) of the dbx 2150 series having a distortion adjustment port and which receives an input signal and a fader control input signal and outputs an output signal susceptible to distortion, an apparatus for automatically providing distortion trimming comprising:

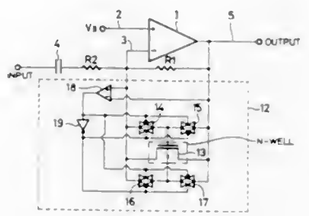
feedback means operatively connected for feeding said output signal back to said distortion adjustment port of said voltage controlled amplifier, said feedback means comprising low pass filter means for low pass filtering said output signal and for providing said low pass filtered signal to said distortion adjustment port of said voltage controlled amplifier to trim distortion of said output signal.

5,210,503

AMPLITUDE LIMITING AMPLIFIER CIRCUIT

Yo Sawamura, Ohtsu, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Jan. 16, 1992, Ser. No. 821,075
Claims priority, application Japan, Jan. 23, 1991, 3-022816
Int. Cl.[5] H03G *11/04*
U.S. Cl. 330—110 **7 Claims**



1. An amplitude limiting amplifier circuit comprising:

an operational amplifier having an inverted input terminal, a non-inverted input terminal and an output terminal;

a MOSFET formed on a substrate having a back gate floating with respect to the substrate;

the MOSFET having a back gate terminal connected to the back gate, a gate terminal, a source terminal and a drain terminal, wherein one of said drain and source terminals is connected to an input terminal, and the other of said drain and source terminals is connected to said output terminal;

a first analog switch connected between the gate terminal and said inverted input terminal;

a second analog switch connected between said gate terminal and said output terminal;

a third analog switch connected between said back gate terminal and said inverted input terminal;

a fourth analog switch connected between said back gate terminal and said output terminal; and

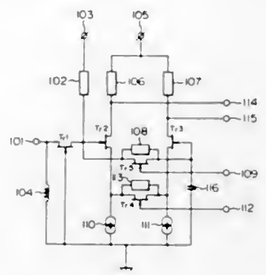
control means for controlling said first, second, third and fourth analog switches dependent upon relative voltages of the output terminal and the inverted input terminal of the operational amplifier.

5,210,504

SEMICONDUCTOR DEVICE FOR TV TUNER AND TV TUNER USING THE SAME

Hideki Yagita, Hirakata; Tadayoshi Nakatsuka, Osaka; Taketo Kunihisa, Neyagawa; Michiaki Tsuneoka, Takatsuki; Yukio Sakai, Sakai, and Kazuhiro Yahata, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 16, 1992, Ser. No. 851,900
Claims priority, application Japan, May 23, 1991, 3-118710
Int. Cl.[5] H03G *3/30*; H04N *5/14*
U.S. Cl. 330—253 **12 Claims**



1. A semiconductor device for a tuner comprising:

a gate grounded circuit using a source electrode of a first FET as an input terminal, connecting a drain electrode of said first FET to a first constant voltage source through a first load and grounding a gate electrode of said first FET; and

a differential amplification circuit connecting a drain electrode of a second FET to a second constant voltage source through a second load, connecting the source electrode of said second FET to a first constant current source, connecting a drain electrode of a third FET to said second constant voltage source through a third load, connecting a source electrode of said third FET to a second constant current source, and interposing a fourth FET between the source electrode of said second FET and the source electrode of said third FET;

wherein the drain electrode of said first FET of said gate grounded circuit is connected to the gate electrode of said second FET of said differential amplification circuit, and a fifth FET is interposed between the gate electrode of said second FET and the gate electrode of said third FET.

5,210,505

APPARATUS AND METHOD FOR AN INPUT STAGE OF AN OPERATIONAL AMPLIFIER

Dennis N. Eddlemon, Tucson, Ariz., assignor to Apex Microtechnology Corporation, Tucson, Ariz.

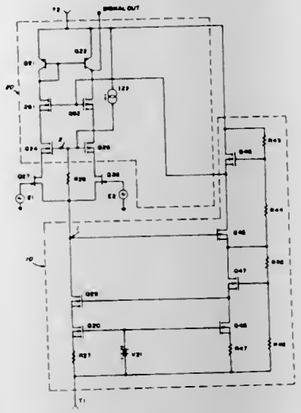
Continuation-in-part of Ser. No. 618,388, Dec. 19, 1990, Pat. No. 5,142,243. This application Mar. 10, 1992, Ser. No. 848,863
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—253 **17 Claims**

1. An input stage for an operational amplifier circuit, said input stage having reduced offset voltage and circuit drift due to changes in the power supply and common mode voltages changes while limiting voltages applied across transistors of said input stage, said input stage comprising:

a pair of transistors coupled as a differential amplifier for receiving input signals;

a bias resistor, said bias resistor having a first terminal coupled between a common terminal of said pair of transistors, said bias resistor having a second terminal coupled to load terminals of said pair of transistors;

a feedback circuit responsive to a voltage of said first bias resistor terminal and to a first voltage level and a second voltage level determined by a power supply for determining a voltage of said first bias resistor terminal and said second bias resistor terminal, respectively.

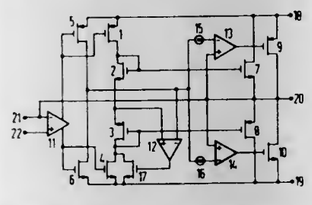


5,210,506

LARGE SWING OUTPUT BUFFER AMPLIFIER

Rudolf Koch, Unterhaching, and Fritz Mistlberger, Moosburg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 15, 1992, Ser. No. 869,474
Claims priority, application European Pat. Off., Apr. 16, 1991, 91106068.9
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—255 **23 Claims**



1. An output buffer amplifier, comprising:

one end stage for small output capacities having two sourcecoupled complementary MOS output transistors, one end stage for large output capacities, said end stages having outputs being connected to one another;

a control stage connected upstream of said end stage for small output capacities, said control stage having one input being triggered by a signal proportional to an input signal of said end stage for large output capacities and another input being triggered by a signal proportional to an output signal of said end stage for small output capacities; and

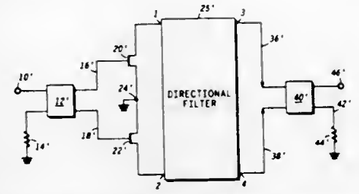
an MOS trigger transistor having a gate terminal and a drain-to-source path, said end stage for small output capacities having MOS input transistors with drain-to-source paths, said control stage being a control amplifier having an output coupled through said MOS trigger transistor to said end stage for small output capacities, the gate terminal of said MOS trigger transistor being connected to the output of said control amplifier and the drain-to-source path of said MOS trigger transistor being connected parallel to the drain-to-source path of one of said MOS input transistors of said end stage for small output capacities, and said MOS input transistors of the same conductivity type in both of said end stages having gate terminals being connected to one another.

5,210,507

METHOD AND APPARATUS FOR HARMONIC REACTION AMPLIFIER VIA DIRECTIONAL FILTER

Michael Dydyk, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 3, 1992, Ser. No. 817,031
Int. Cl.[5] H03F *3/60*
U.S. Cl. 330—286 **16 Claims**



1. A harmonic reaction amplifier (HRA) comprising:

an HRA input for receiving an input signal;

means for dividing the input signal into a first divider signal comprising a zero degree phase shift signal and a second divider signal comprising a ninety degree phase shift signal, the means for dividing coupled to the HRA input;

means for amplifying the first divider signal and the second divider signal coupled to the means for dividing;

a directional filter to filter the first divider signal and the second divider signal to produce a filtered first divider signal and a filtered second divider signal, wherein the directional filter (DF) comprises: first, second, third, and fourth DF ports; a first transmission line coupled between the first DF port and a first port of a first directional coupler (DC); a second transmission line coupled between the second port of the DF and a second port of a second DC; a third transmission line coupled between a second port of the first DC and a first port of the second DC; a third port of the first DC coupled to the third DF port; a fourth transmission line coupled between a fourth port of the first DC and a third port of the second DC; and a fourth port of the second DC coupled to the fourth DF port; and

means for combining the filtered first divider signal and the filtered second divider signal to produce an output signal at an HRA output, the means for combining coupled to the directional filter.

5,210,508

HIGH-FREQUENCY AMPLIFIER OF A RADIO TRANSMITTER

Kauko Yli-Paavola, Saarijärvi, Finland, assignor to Telenokia Oy, Espoo, Finland

PCT No. PCT/FI90/00099, § 371 Date Oct. 24, 1991, § 102(e) Date Oct. 24, 1991, PCT Pub. No. WO90/13173, PCT Pub. Date Nov. 1, 1990
PCT Filed Apr. 10, 1990, Ser. No. 773,872
Claims priority, application Finland, Apr. 24, 1989, 891939
Int. Cl.[5] H03G *3/30*; H03F *3/16*
U.S. Cl. 330—285 **6 Claims**

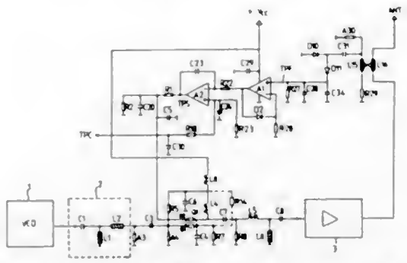
1. A radio transmitter including antenna means for transmitting a radio signal and amplifier means coupled to receive an input signal from a voltage oscillator means for generating an output to said antenna means, said amplifier means comprising:

an amplifier stage having a two-gate field-effect transistor, a first gate of said two-gate transistor being coupled to said

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input signal, wherein the operating point of the two-gate transistor is set by appropriately biasing said first gate; and

control feedback means coupled to a second gate of said two-gate transistor from any subsequent amplifier stage, said control feedback means comprising comparator means having a first input for receiving a feedback signal proportional to the actual transmission power, a second



input for receiving a set value signal corresponding to a desired transmission power; and

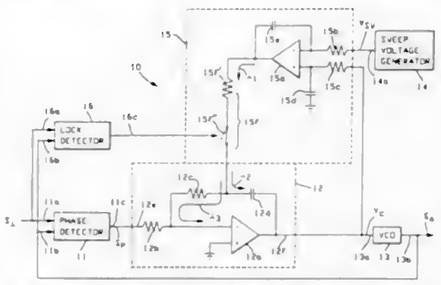
an output for applying a control signal which is a function of the difference between the signals received at said first and second inputs of said comparator means to the second gate of said two-gate transistor for controlling a gate of said transistor.

5,210,509

DUAL LOOP PHASE LOCKED CIRCUIT WITH SWEEP GENERATOR AND COMPENSATION FOR DRIFT

Roy E. Greeff, Salt Lake City; Bruce H. Williams, Sandy, and Mark B. Falslev, South Weber, all of Utah, assignors to Unisys Corporation, Blue Bell, Pa.

Filed May 29, 1992, Ser. No. 891,373
Int. Cl.[5] H03L 7/12
U.S. Cl. 331—4 10 Claims



1. A dual loop phase locked circuit comprising a first loop which includes a phase detector having an input for receiving an external signal, a filter having an input connected to receive an error signal from said phase detector, and a VCO having an input connected to receive a control voltage from said filter plus an output connected to another input of said phase detector; and a second loop which includes:

a sweep voltage generator which generates an analog sweep voltage, separate from said control voltage, for said VCO to track;

A compensation circuit having one input connected to receive said sweep voltage, having another input connected to receive said control voltage, and having a feedback coupling that sends a feedback current to a node in said filter which increases said control voltage as said analog current increases, and vice-versa;

said filter including a non-ideal circuit component with a parameter that drifts and thereby produces variations in said control voltage; and,

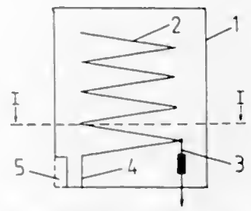
said compensation circuit including a comparator which neutralizes said variations by increasing said feedback current if said control voltage is less than said sweep voltage, and decreasing said feedback current if said control voltage is more than said sweep voltage.

5,210,510

TUNABLE HELICAL RESONATOR

Auvo Karsikas, Kempele, Finland, assignor to LK-Products Oy, Kempele, Finland

Filed Jan. 22, 1991, Ser. No. 644,039
Claims priority, application Finland, Feb. 7, 1990, 900611
Int. Cl.[5] H01P 7/00
U.S. Cl. 333—219 23 Claims



1. A tunable helical resonator comprising:

a helical coil having a first end, a second end and a lead coupled to the helical coil between the first and second end;

a covering encircling the helical coil, so that the first end of said helical coil is connected to the cover and the second end being free and at a first distance from the cover; and

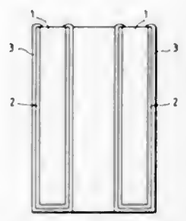
an adjusting element formed in the cover which can be adjusted to vary a second distance between the adjusting element and the first end of the helical coil, the second distance between the adjusting element and the first end of the helical coil, the second distance being perpendicular to the longitudinal axis of the helical coil, wherein the adjusting element is a depression formed in the cover adjacent to the first end of the helical coil and protruding towards the first end.

5,210,511

DIELECTRIC RESONATOR AND PROCESS FOR MANUFACTURING THE SAME

Yasuhiro Izumi; Ryoichi Makimoto; Takehiko Yoneda, and Hiromitsu Taki, all of Miyazaki, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 20, 1991, Ser. No. 795,149
Claims priority, application Japan, Nov. 20, 1990, 2-317263
Int. Cl.[5] H01P 7/04
U.S. Cl. 333—222 6 Claims



1. A dielectric resonator comprising:

a cylindrical substrate comprised of a dielectric ceramic and having an inner surface, outer surface and opposing ends;

a first conductive film comprised of copper, formed on the inner surface, outer surface and one end of said cylindrical substrate; and

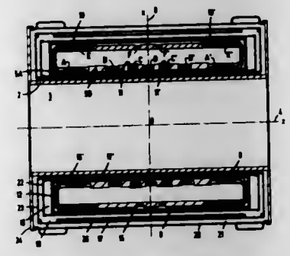
a second conductive film comprised of one of solder or tin, formed on said first conductive film wherein said first conductive film is formed in a layer thickness of not less than 3μ, said second conductive film is formed in a layer thickness of from 1 μm to 5 μm and said substrate has a surface roughness of from 0.1 μm to 15.0 μm.

5,210,512

MAGNET ASSEMBLY

Francis Davies, Oxford, Great Britain, assignor to Oxford Magnet Technology Ltd., Great Britain

Filed Jul. 17, 1991, Ser. No. 731,273
Claims priority, application United Kingdom, Jul. 24, 1990, 9016183
Int. Cl.[5] H01F 1/00
U.S. Cl. 335—216 11 Claims



1. A magnet assembly comprising:

first superconducting coil means for generating a first magnetic field;

second superconducting coil means for generating a second magnetic field, said first and second superconducting coil means being electrically connected in series and respectively generating magnetic fields having corresponding components of substantially the same order of magnitude;

said first and second superconducting coil means, in combination, generating a resultant uniform magnetic field in a working volume with said second magnetic field substantially opposing said first magnetic field in a combined magnetic field externally of said working volume;

said first and second superconducting coil assemblies maintaining said combined magnetic field externally of said working volume within preset limits during normal operation in which the current in said first and second superconducting coils is substantially constant; and

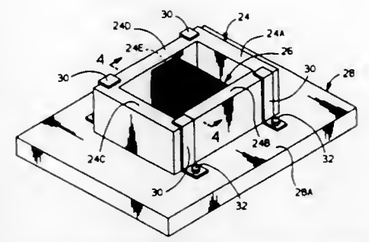
electrically conductive ring means having a size and position relative to said working volume for, during a transient condition in which said current in said first and second superconducting coils is changing, generating a magnetic field opposing magnetic fields created by currents induced in conductive parts surrounding said working volume, for maintaining said combined magnetic field externally of said working volume substantially within said preset limits for normal operation.

5,210,513

COOLING OF ELECTROMAGNETIC APPARATUS

Iftikhar A. Khan, and James W. Wobschall, both of Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 20, 1992, Ser. No. 855,385
Int. Cl.[5] H01F 27/08
U.S. Cl. 336—61 2 Claims



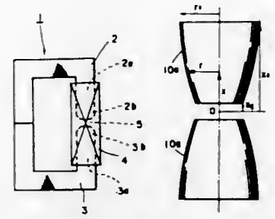
1. An electromagnetic apparatus comprising, a metallic heat sink, a rectangular magnetic core comprised of first, second, third and fourth legs, said first and second legs being parallel to each other, said third and fourth legs being parallel to each other, said core having a fifth leg connecting said first and second legs which is parallel to said third and fourth legs, a radially extending coil winding disposed about and carried by said fifth leg, said first, second, third and fourth legs each having a flat surface having predetermined widths which directly engage a flat surface of said heat sink throughout said predetermined widths to thereby provide a direct heat conductive path between all of said legs and said heat sink, said first, second, third and fourth legs all being located normal to said heat sink, each of said first, second, third and fourth legs having spacer portions extending between said flat surface of said heat sink and a surface of said fifth leg, the length of said spacer portions being such that a space is provided between said surface of said fifth leg and said flat surface of said heat sink, said space being long enough to accommodate the entire radial extent of the radially extending portion of said coil winding that faces said flat surface of said heat sink.

5,210,514

COIL DEVICE

Shinichiro Ito, and Yukiharu Kinoshita, both of Tokyo, Japan, assignors to TDK Corporation, Tokyo, Japan

Continuation of Ser. No. 572,277, Aug. 24, 1990, abandoned.
This application Sep. 30, 1992, Ser. No. 954,428
Int. Cl.[5] H01F 17/06
U.S. Cl. 336—178 8 Claims



5. A coil device having first and second magnetic cores each having a first leg formed longer than a second leg, the first legs of said first and second cores being positioned with each other and the second legs being positioned with each other, respectively, in opposing relationship so as to form a gap between opposing surfaces of the second legs, a coil being wound so as to enclose the gap completely, the improvement comprising:

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each of the second legs forming the gap and opposed from each other being formed such that a fore end of each of the second legs is tapered from the base end to a center of the fore end to become narrow according to a logarithmic curve represented by the equation:

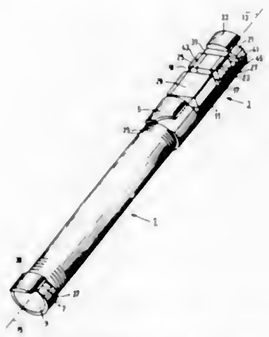
$$r_0 - r = x_0 \log_e(x_e/x)$$

where x_g is a distance from a center of the gap to a surface of the fore end of one of the second legs, x_f is the distance from the center of the gap to the base end of the one second leg, x is a distance from an origin of coordinates of an x-axis along a longitudinal centerline of the second legs wherein the origin is the center of the gap, r_f is a radius of the base end of the one second leg, and r is a radius of the one second leg relative to x along the x-axis.

5,210,515
WINDING SUPPORT

Gerardus P. J. J. Eijndhoven; Franciscus J. Eijsermans, and Petrus C. J. J. Van Loon, all of Tilburg, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 27, 1990, Ser. No. 545,317
Claims priority, application Netherlands, Jun. 30, 1989, 8901663
Int. Cl.[5] H01F *15/10, 27/30*
U.S. Cl. 336—192 2 Claims

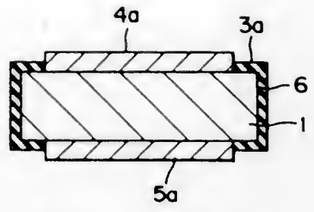


1. A winding support comprising a first, substantially cylindrical portion which comprises a winding space for a coil winding and a second portion which constitutes an extension of the first portion and which comprises a recess for accommodating an electronic component comprising contact pads, characterized in that the first portion of the winding support is provided with a first wire fastening means at its free end, the second portion being shaped mainly as a semi-cylinder which is bounded by a curved surface of a cylinder whose axis coincides substantially with the axis of the first portion and by a flat supporting face for mounting the electronic component, said recess being bounded by said flat supporting face, by a wire guide which is situated between the first and the second portion and by a second wire fastening means which is situated at the free end of the second portion.

5,210,516
PTC THERMISTOR AND PTC THERMISTOR PRODUCING METHOD, AND RESISTOR WITH A PTC THERMISTOR

Takashi Shikama; Yuichi Takaoka; Takayo Katsuki, and Tomoaki Tadokoro, all of Shiga, Japan, assignors to Murata Manufacturing Co., Ltd., Kyoto, Japan

Filed Feb. 22, 1991, Ser. No. 659,832
Claims priority, application Japan, Feb. 22, 1990, 2-43640; Nov. 22, 1990, 2-319723; Nov. 28, 1990, 2-332221
Int. Cl.[5] H01C *7/10*
U.S. Cl. 338—22 R 17 Claims

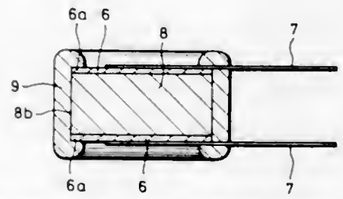


1. A PTC thermistor comprising:
a substrate;
an electrode having silver as its main constituent and being formed on the substrate; and
an insulating glass coating covering the entire surface of the substrate except for the area where the electrode is formed.

5,210,517
SELF-RESETTING OVERCURRENT PROTECTION ELEMENT

Toshiaki Abe, Tokyo, Japan, assignor to Daito Communication Apparatus Co., Ltd., Tokyo, Japan

Filed Jun. 3, 1991, Ser. No. 709,497
Claims priority, application Japan, Jun. 15, 1990, 2-156917
Int. Cl.[5] H01C *7/10, 1/14*
U.S. Cl. 338—22 R 4 Claims

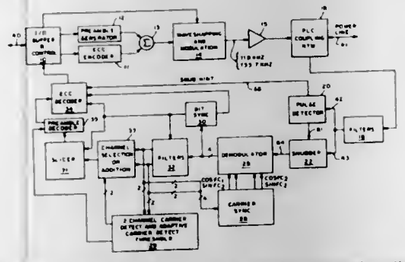


1. A self-resetting overcurrent protection element comprising:
an organic positive temperature characteristic element body;
at least two electrodes connected to said element body;
an insulating sheathing material covering said element body and at least a portion of said at least two electrodes;
said self-resetting overcurrent protection element having an overcurrent switching temperature;
said sheathing material, at said overcurrent switching temperature, requiring a tensile stress of not more than 0.4 kg f/mm^2 to produce an elongation ratio of 10%; and
said sheathing material having an elongation ratio at a fracture point of not less than 5%.

5,210,518
APPARATUS AND METHOD FOR REDUCING ERRORS IN DATA CAUSED BY NOISE

Martin H. Graham, Berkeley; Howard W. Johnson, Sunnyvale; Philip H. Sutterlin; Chin-Chen Lee, both of San Jose, and Amy O. Hurlbut, San Francisco, all of Calif., assignors to Echelon Corporation, Palo Alto, Calif.

Filed May 10, 1991, Ser. No. 698,600
Int. Cl.[5] H04M *11/04*
U.S. Cl. 340—310 R 2 Claims

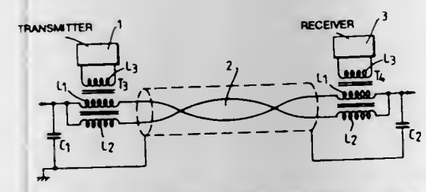


1. In an apparatus for receiving a signal representing digital data, said signal being transmitted over a power line to said apparatus, an improvement comprising:
detection means for detecting noise pulses on said power lines said detecting means including frequency dependent means for detecting noise pulses occurring at and above a first frequency and for preventing said noise pulses at and above said first frequency from blocking detection of noise pulses at frequencies below said first frequency; and,
snubbing means for suppressing said signal representing digital data under control of said detection means, said detection means being coupled to said snubbing means, said snubbing means being controlled by said noise pulses below said first frequency.

5,210,519
DIGITAL DATA TRANSMISSION

Colin Moore, Warton, Great Britain, assignor to British Aerospace Public Limited Company, London, England

Filed May 20, 1991, Ser. No. 702,392
Claims priority, application United Kingdom, Jun. 22, 1990, 9014003
Int. Cl.[5] H04B *3/54*
U.S. Cl. 340—310 R 6 Claims

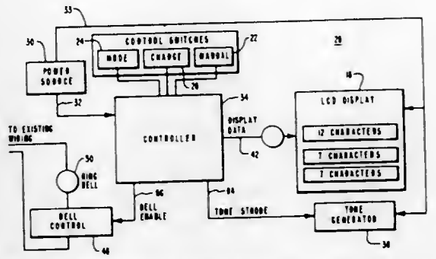


1. Apparatus for transferring digital data from one location to a remote location using electrical power lines to said remote location, said power lines having a pair of lines and a grounded screen, said apparatus comprising:
a transformer for connection to a source of electrical power; and
a transceiver, for transmitting digital data to and for receiving digital data from said transformer, said transformer having first, second and third windings, said first and second windings being wound in opposition and each of said first and second windings are connected in series between said source of electrical power and a respective one of said pair of lines, whereby a net DC magnetic flux generated by a current flowing in one of the pair of lines and through said first winding is opposed by a current flowing in the other of said pair of lines and through said second winding and said third winding is coupled to said transceiver.

5,210,520
PROGRAMMABLE DOORBELL CONTROL

Todd B. Housley, 7605 Mabray Dr., Plano, Tex. 75025

Continuation of Ser. No. 408,613, Sep. 18, 1989, abandoned, which is a continuation-in-part of Ser. No. 73,456, Jul. 15, 1987, Pat. No. 4,868,540. This application Jul. 23, 1991, Ser. No. 735,096
Int. Cl.[5] G08B *27/00*
U.S. Cl. 340—326 20 Claims



10. A self-contained electronic doorbell system for operation with a doorbell which is connected to an existing doorbell switch by existing electrical doorbell wiring, said system replacing said existing doorbell switch and comprising:
means for converting an audible announcement spoken by an occupant into digital signals;
a memory for storing said digital signals;
a pushbutton switch connected to said existing electrical doorbell wiring by said interfacing means to operate said doorbell when depressed;
a means for interfacing the doorbell system with said existing electrical doorbell wiring to generate electrical power for said system from electrical power present on said existing electrical doorbell wiring when the pushbutton switch is not depressed;
a self-contained power supply for providing electrical power for said system when said pushbutton switch is depressed;
means responsive to said stored digital signals and to actuation of said pushbutton switch for generating an audible reproduction of said audible announcement; and
a weather resistant housing for housing the interfacing means, the converting means, the memory, the pushbutton switch and the audible reproduction generating means.

5,210,521
VEHICLE ALARM APPARATUS AND METHOD FOR PREVENTING INJURY TO NEARBY PERSONS

Gary M. Hojell, 752 Ridge Road Ter., Kinnelon, N.J. 07405, and Barry Abilevitz, Brooklyn, N.Y., assignors to Gary M. Hojell, Kinnelon, N.J.

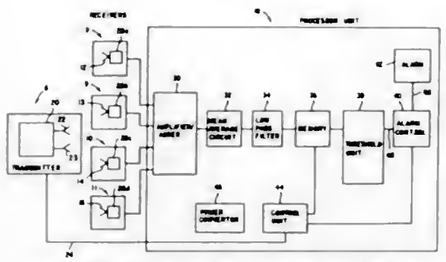
Filed Jul. 26, 1990, Ser. No. 558,167
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 340—436 27 Claims

1. An alarm for a vehicle, comprising:
transmitter means adapted for connection to the vehicle for establishing an energy field near the vehicle in a danger zone;
receiver means adapted for connection to the vehicle for receiving a signal as a result of said energy field;
processor means connected to said receiver means for deter-

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mining an amplitude of said signal when no object is present in said danger zone, for determining a first threshold in accordance with and above said determined amplitude, for determining a second threshold in accordance with and below said determined amplitude, and for monitoring said signal for any amplitude variations either above said first threshold or below said second threshold which occur when the person or object enters said energy field; and

alarm means connected to said processor means for indicating a threshold crossing.

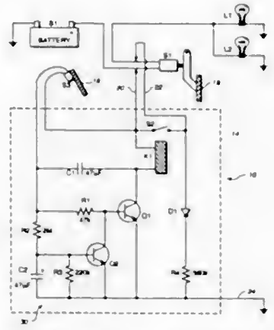


5,210,522

EARLY WARNING BRAKE LIGHT ACTUATED BY THE ACCELERATOR PEDAL

Robert J. Hoekman, 10485 Courtenay La., Truckee, Calif. 96101, and Doneil J. Hoekman, P.O. Box 1803, Gilroy, Calif. 95021

Filed Oct. 9, 1991, Ser. No. 773,223
Int. Cl.[5] B60Q *1/50*
U.S. Cl. 340—467 4 Claims



1. An early warning brake light circuit for a vehicle having an accelerator pedal, and a brake light switch circuit for selectively illuminating a brake light, said early warning brake light circuit comprising:

a sensor switch mechanically attached to said vehicle accelerator pedal, said sensor switch conditioned to temporarily close when said accelerator pedal is quickly released;

early warning circuit means including relay means electrically connected to said sensor switch and across said brake light switch circuit, wherein when said accelerator pedal is quickly released, said sensor switch temporarily closes and activates said relay means to close said brake light switch circuit to illuminate said brake light, and further including capacitance means electrically connected to said sensor switch and said relay means to continue to activate said relay means and close said brake light switch circuit to illuminate said brake light for a first duration of time after said sensor switch has reopened; and

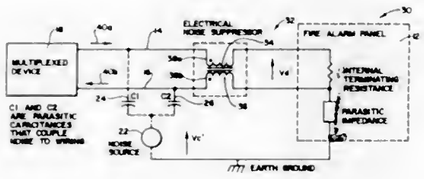
protection circuit means for deactivating said relay means after a second duration of time after said sensor switch has closed.

5,210,523

NOISE SUPPRESSION SYSTEM AND METHOD

David Tipping, Northford, Conn., assignor to Fire-Lite Alarms, Inc., Northford, Conn.

Filed Feb. 27, 1991, Ser. No. 661,871
Int. Cl.[5] G08B *17/06, 25/00*
U.S. Cl. 340—540 8 Claims



1. A low noise fire detection system comprising:

a control panel with first and second input terminals;

a fire detection apparatus displaced from said control panel;

first and second elongated conductors coupled between said panel and said apparatus;

a filter to reduce common mode noise signals wherein said filter is interposed between said conductors and said panel, said filter including:

a first inductive element coupled is series between said first conductor and said first input terminal;

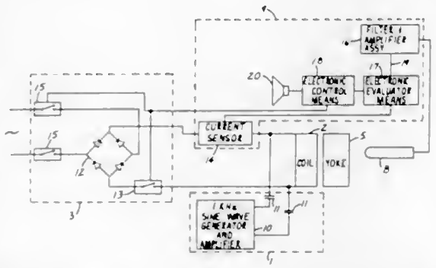
a second inductive element coupled in series between said second conductor and said second input terminal with said elements inductively coupled together and oriented to substantially cancel electrical common mode noise signals but not differential mode signals appearing simultaneously in both of said conductors.

5,210,524

ELECTRO-MAGNETIC DESENSITIZER

Werner Schwarz, and Josef Graessle, both of Nuess, Fed. Rep. of Germany, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 8, 1991, Ser. No. 697,644
Claims priority, application Fed. Rep. of Germany, May 16, 1990, 4015779
Int. Cl.[5] G08B *13/24*
U.S. Cl. 340—551 11 Claims



2. A deactivating apparatus for magnetizing a magnetically responsive marker of an electronic article surveillance system, said system comprising means for producing within an interrogation zone an alternating magnetic field for interrogating a said marker and means for producing an appropriate alarm signal when a characteristic response produced by an activated marker in said zone is detected, said marker comprising at least one magnetizable element which, when magnetized, causes a different response to be produced than that resulting when the magnetizable element is unmagnetized, said deactivating apparatus comprising

a) electronic article surveillance system simulation means comprising a wave generatior (**1**), a coil (**2**) for generating a first magnetic field corresponding to that produced by said system for interrogating said marker, within which first field said marker may be positioned, means (**8, 16**) for detecting the response from the marker and for producing an active marker signal in the event the response corresponds with the characteristic response required by the system to produce a said alarm signal,

b) means (**3**) for generating within said coil a second magnetic field identified by its flux density, and for applying said second field to said magnetizable element to change the magnetic state thereof, thereby altering said response, and

c) means (**9**) for applying a said first magnetic field to said marker, detecting the response therefrom and means (**20**) for producing a deactivated marker signal when said altered response is detected, said apparatus being characterized by

electronic switch means (**13, 15**) responsive to said active marker signal for automatically and gradually applying current through a rectifier means (**12**) directly from a source of alternating electrical power to said coil to gradually build up said second magnetic field, which is directionally constant,

means (**14**) for sensing the current in said coil,

electronic evaluator means (**17**) for responding when said sensed current reaches a current level at which the intensity of said second magnetic field corresponds to that level at which said characteristic response will be altered, and

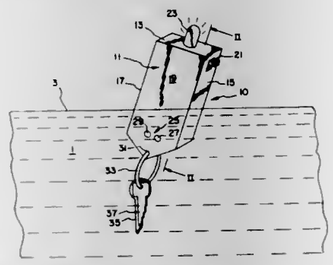
electronic control means (**18**) for automatically opening said switch means (**13, 15**) to disconnect the source of alternating electrical power from the coil when the intensity of said second magnetic field is sufficient to alter said response.

5,210,525

FLOATING KEY FINDER

Geoffrey B. Lennon, 38 Rhode Island Ave., and Scott C. Harvie, 35 Poplar St., both of Newport, R.I. 02840

Filed Jan. 8, 1992, Ser. No. 818,032
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—604 7 Claims



1. A floating key finder, comprising:

a) a buoyant housing having means for holding at least one key thereon;

b) indicator means on said housing;

c) a circuit including moisture responsive switch means on said housing and electrically connected to said indicator means via a battery;

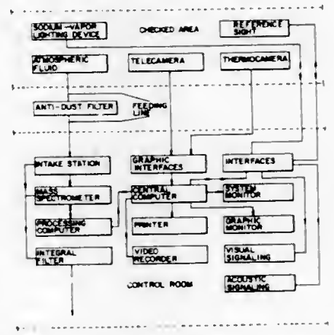
d) whereby when said finder is located in a body of water, said finder floats with said moisture responsive switch means immersed, thereby closing said switch means and activating said indicator means.

5,210,526

AUTOMATIC LEAK DETECTION APPARATUS FOR PROCESS FLUIDS FROM PRODUCTION AND/OR RESEARCH PLANTS, IN PARTICULAR ENERGY PLANTS

Franco Imperiali, Rome, Italy, assignor to Ente per le Nuove Technologie, l'Energia e l'Ambiente (ENEA), Rome, Italy

Filed Oct. 11, 1990, Ser. No. 596,078
Claims priority, application Italy, Oct. 13, 1989, 48455 A/89
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—605 19 Claims



1. An automatic leak detection apparatus for process fluids from an energy production plant or an energy research plant, comprising a plurality of operatively and structurally independent sensors which evaluate different and independent physical parameters, located in predetermined areas and/or in components of the plant to be monitored, data processing means associated with said sensors for processing data supplied by said sensors and for comparing sensor supplied data with reference data, signalling and storing means for generated data from said processing means, and alarm and/or control means actuatable by said generated data, said sensors being formed of a first set of sensors sensing signals in the visual spectrum through a telecamera, a second set of sensors sensing signals in the infrared spectrum through a thermocamera, and a third set of sensors adapted to detect the variations of the composition of the environmental atmosphere by qualitative and quantitative analysis through a chemical-excitation mass spectrometer.

5,210,527

PROGRAMMABLE SPIKE DETECTOR

Dewey W. Smith, Fridley, and Thomas D. Stechmann, White Bear Lake, both of Minn., assignors to Ceridian Corporation, Minneapolis, Minn.

Continuation of Ser. No. 372,731, Jun. 28, 1989, abandoned.
This application Jun. 14, 1991, Ser. No. 715,319
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—659 12 Claims

1. A spike detector to determine if a spike is present in an analog test signal in a circuit under test, the spike detector comprising:

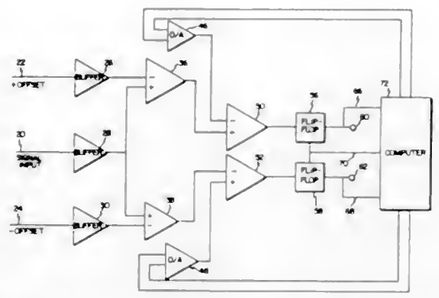
a first input receiving the analog test signal from the circuit under test;

a second input receiving an analog offset signal from the

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circuit under test, the analog offset signal being independent of the test signal;

differential amplifier means connected to the first input and the second input and responsive to the analog offset signal and to the test signal for providing a differential signal representative of the difference between the values of the analog offset signal and the test signal;



reference means providing a reference signal having a preselected value;

comparator means responsive to the differential signal and the reference signal for providing an output signal when the value of the differential signal is greater than the value of the reference signal; and

output means responsive to said output signal for indicating the presence of a spike in said test signal.

5,210,528

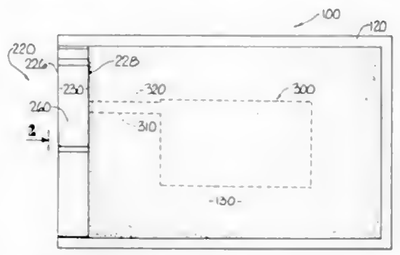
AUDIBLE FLOOR MAT

David S. Schulman; Alan Z. Kessler, both of Kansas City, Mo.; Norman H. Heyder, Olathe, and John Herndon, DeSoto, both of Kans., assignors to DP Technologies, Inc., Kansas City, Mo.

Filed Mar. 26, 1992, Ser. No. 860,737

Int. Cl.[5] G08B *21/00, 23/10*

U.S. Cl. 340—666 **12 Claims**



1. A floor mat comprising:

a mat for placement on a support surface;

a speech module assembly including electrical circuitry for recording and playback of a selected message;

a power source for said circuitry;

a housing on said mat for said speech module;

a speaker in said housing and in communication with said speech module;

a slidable panel in said housing, said panel slidable in a first direction for allowing a user access to said speech module and a second direction for closing said housing;

switch means in said mat for causing a current flow through said speech module upon an exertion of pressure on said mat, whereupon to play back the selected message.

5,210,529

BIT FINDER CIRCUIT

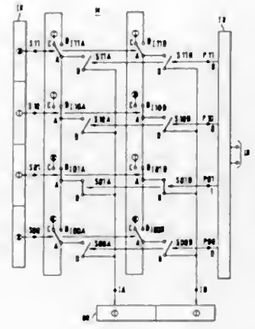
Leon Cloetens, Hasselt; Didier Gonze, Marchienne-Au-Pont, and Karel Adriaensen, Meerle, all of Belgium, assignors to Alcatel N.V., Amsterdam, Netherlands

Filed Sep. 13, 1991, Ser. No. 759,163

Claims priority, application European Pat. Off., Sep. 18, 1990, 90870152.7

Int. Cl.[5] H04Q *1/00;* **H01H** *67/00;* **H04M** *9/00*

U.S. Cl. 340—875.04 **4 Claims**



1. Bit finder circuit for finding the first bit 0/1 in an m-bit input word from a start bit onwards and in a predetermined direction, the positions of said bits in said m-bit word being defined by an n-bit code, characterized in that it includes a crosspoint matrix of m rows and n columns, each crosspoint including a change-over contact means (ABC), with a make contact means (AB) and a break contact means (AC), and another make contact means (AD) all contact means having a common terminal (A) the rows of change-over contact means (ABC) being controlled by respective bits of said m-bit word and the break contact means (AC) of the change-over contact means (ABC) of each row being coupled to respective bits of the n-bit code identifying the bit of the m-bit word controlling these break contact means, and in that the make contact means (AB) of the change-over contact means (ABC) of a same column are connected in series, whilst said other make contact means (AD) of a same column are connected in parallel to a same output terminal (IA, IB), the rows of said other make contact means being controlled by a single-row selection circuit (TR).

5,210,530

NETWORK MANAGEMENT INTERFACE WITH INTERNAL DSD

Gerald A. Kammerer, Wrentham, Mass.; Paul M. Piekarski, Cranston, R.I., and Robert W. Coia, North Attleboro, Mass., assignors to Codex Corporation, Mansfield, Mass.

Filed Jan. 4, 1991, Ser. No. 638,297

Int. Cl.[5] H04Q *5/00*

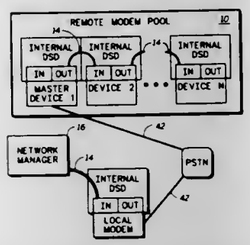
U.S. Cl. 340—825.08 **12 Claims**

1. Apparatus for interfacing a network manager to a network of communication devices over a single communications channel of a plurality of signals, each communication device of the network being uniquely assigned a poll address for communication selection by said network manger, said network manger operative to establish communication with a communication device of the network by transmitting the poll address thereof over the single communications channel, said apparatus comprising:

subapparatus of each communication device including:

input port means, where input refers to a logical control direction rather than hardware signal direction;

output port means, where output refers to a logical control direction rather than hardware signal direction, said network of communication devices being coupleable together in a daisy chain through the input and output port means thereof to form the single communications channel, said input port means for receiving and transmitting signals from and to said single communications channel upstream of its position in the daisy chain and said output port means for receiving and transmitting signals from and to said single communications



channel downstream of its position in the daisy chain, said input port means of the communication device in first position of the daisy chain being coupleable to the network manager for receiving signals, including said poll address, therefrom and for transmitting signals thereto; and

control means, coupled to both the input and output port means, for governing the receiving and transmitting operations of each based on the poll address transmitted over the single communications channel by the network manager.

5,210,531

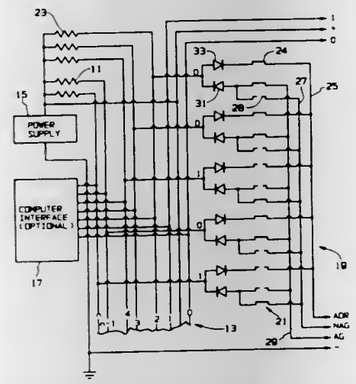
MONITORING AND CONTROL SYSTEM WITH BINARY ADDRESSING

Richard J. Fordham, 1201 Tennyson Dr. #79, Deming, N. Mex. 88030

Filed Mar. 2, 1991, Ser. No. 487,139

Int. Cl.[5] H04Q *1/00*

U.S. Cl. 340—825.59 **24 Claims**



1. The method of preprogramming and addressing a module which has at least three address input leads to respond to a unique one only of a set of possible multi-bit binary signals where each binary digit corresponds to one of a high voltage level and a low voltage level, the method comprising the steps of effecting exactly one of the following two provisions for connections for each of the individual bit positions of the multi-bit signal:

providing for the connection a selected one of the two voltage levels to one of the three address input leads with a first asymmetrical polarity and to a second of the address input leads with a second and opposite asymmetrical polarity; and

providing for the connection of a selected one of two the voltage levels to the third address input lead only with one of the first and second polarities.

5,210,532

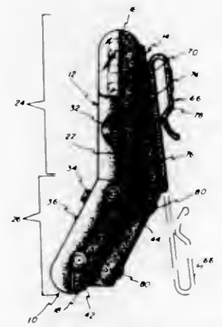
BABY MONITOR RECEIVER HAVING INDICATOR DISPLAY AND DUAL POSITION CLIP

Roy E. Knoedler; Ted F. Kelley, both of Boulder, and Jack W. Renforth, Aurora, all of Colo., assignors to Gerry Baby Products Company, Denver, Colo.

Filed Sep. 3, 1991, Ser. No. 753,718

Int. Cl.[5] G08B *7/06, 5/22, 5/36;* **H04B** *1/08*

U.S. Cl. 340—825.69 **17 Claims**



12. A receiver for use in monitoring a baby, said receiver comprising:

a housing defining front and rear sides,

opposing upper and lower edges and opposing first and second lateral edges connecting said front and rear sides,

upper and lower housing portions located to said upper and lower edges, respectively, said upper and lower portions being disposed at an obtuse angle relative to each other,

said upper edge defining an arcuate shape and including means defining a groove adjacent to said front side,

a plurality of light emitting diodes located within said groove and spaced substantially uniformly across said arcuate upper edge for being sequentially illuminated to indicate the strength of a signal received by said receiver,

a lens portion covering said groove, said lens portion having opposing first and second longitudinal edges and defining an arcuate cross-section between said front side and said upper edge such that an outer surface of said lens portion adjacent to said first longitudinal edge lies substantially tangential to said front side of said housing and said outer surface of said lens portion adjacent said second longitudinal edge lies substantially tangential to an outer surface of said upper edge,

a clip member having first and second legs extending substantially parallel to each other, and an arcuate portion connecting said first and second legs,

pivot means attached to said rear side at said upper portion, said pivot means connecting said clip member to said housing for pivotal movement between two positions in a plane substantially parallel to said rear side at said upper portion, and wherein said clip member may be positioned in a first position extending substantially adjacent to said upper portion whereby said clip member may support said transmitter on a belt, and said clip may be positioned in a

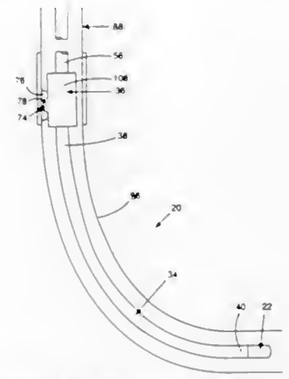
VOL 1150 ISS 2 MY 11 1993 UMI

second position extending substantially adjacent to said lower portion whereby said clip operates as a support leg for cooperating with said lower edge to support said transmitter on a horizontal surface with said upper portion in a substantially vertical position.

5,210,533
APPARATUS AND METHOD FOR POSITIONING A TOOL IN A DEVIATED SECTION OF A BOREHOLE

Marcus A. Summers; Warren J. Winters, both of Tulsa, and Tommy M. Warren, Coweta, all of Okla., assignors to Amoco Corporation, Chicago, Ill.

Division of Ser. No. 642,487, Feb. 8, 1991. This application Sep. 27, 1991, Ser. No. 766,875
Int. Cl.[5] G01V *1/00*
U.S. Cl. 340—853.4 21 Claims



1. An apparatus for positioning an inclinometer portion of a wellbore examination tool at a known rotational orientation in a deviated section of a subterranean wellbore when the inclinometer portion of the wellbore examination tool is lowered into a drill string positioned in the deviated section, the apparatus comprising:

a transversely flexible and torsionally inflexible rod having sufficient length to extend into a deviated section of a subterranean wellbore, the rod having an uphole end and a downhole end, the inclinometer portion of the wellbore examination tool being connectable to the downhole end of the rod; and

orienting means for (a) rotationally orienting the rod in the drill string, (b) fixing the rotational orientation of the rod and tool with respect to a predetermined reference location on the interior surface of the drill string, and (c) limiting the downhole travel of the rod and tool within the drill string.

5,210,534
ENCODING METHOD FOR ANTI-COLLISION SYSTEM FOR SEA NAVIGATION

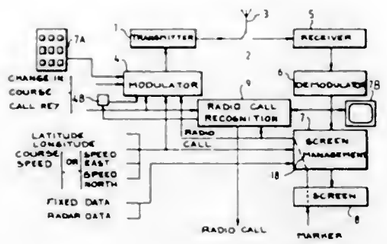
Albert Janex, Cachan, France, assignor to Thomson-CSF, Puteaux, France

Filed Apr. 10, 1991, Ser. No. 682,950
Claims priority, application France, Apr. 27, 1990, 90 05396
Int. Cl.[5] G01S *13/00*
U.S. Cl. 340—984 10 Claims

1. An anti-collision system for sea navigation, wherein each ship implementing said system comprises:

transmitting means for repetitively transmitting, on a channel common to all ships implementing said system, information comprising data pertaining to the ship's geographic position, course and speed, and an identification code, said identification code being changeable for preventing a unique identification of each ship and having a distinctive portion automatically generated by the system;

receiving means for receiving homologous information from surrounding ships implementing said system; and

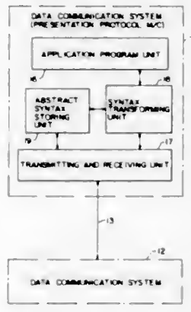


display means for displaying the received homologous information by symbols on a panoramic type screen.

5,210,535
O S I DATA COMMUNICATION FOR DEALING WITH ABSTRACT SYNTAXES WHICH ARE AND ARE NOT PRELIMINARILY NEGOTIATED

Tomoo Fujita, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 14, 1991, Ser. No. 654,975
Claims priority, application Japan, Feb. 14, 1990, 2-35008
Int. Cl.[5] H03M *7/00*
U.S. Cl. 341—51 5 Claims



1. A method of carrying out data communication between presentation layers defined by open systems interconnection standardized by the International Organization for Standardization, said method being for use in each of said presentation layers and including the steps of:

producing abstract syntaxes;

negotiating between each of said presentation layers and a different one of said presentation layers to decide a set of abstract syntaxes as negotiated syntaxes;

encoding said negotiated syntaxes into primary transfer syntaxes with said primary transfer syntaxes accompanied by first information indicative of said negotiated syntaxes;

sending said primary transfer syntaxes to said different one of said presentation layers together with said first information;

storing in a memory said first information as memorized information;

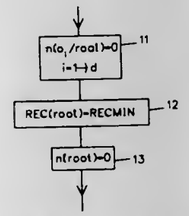
said encoding step being for encoding, with reference to said memorized information, different syntaxes into secondary transfer syntaxes with said secondary transfer syntaxes accompanied by second information indicative of said different syntaxes, said different syntaxes being included in said abstract syntaxes besides said negotiated syntaxes; and

said sending step being for additionally sending said secondary transfer syntaxes to said different one of the presentation layers together with said second information.

5,210,536
DATA COMPRESSION/CODING METHOD AND DEVICE FOR IMPLEMENTING SAID METHOD

Gilbert Furlan, San Jose, Calif., assignor to International Business Machines Corp., Armonk, N.Y.

Filed Aug. 7, 1991, Ser. No. 741,372
Claims priority, application European Pat. Off., Oct. 9, 1990, 90480158.6
Int. Cl.[5] H03M *7/30*
U.S. Cl. 341—107 16 Claims



1. An improved coding method for adaptively encoding a flow of data symbols $x(t)=x_1, x_2, \ldots, x_t$ taken within a "d" long symbol family, into a compressed bit string c(s), said method including so-called modelling operations whereby the number of times or counts each symbol of the flow occurs, is collected in a tree architecture denoting past symbols of the flow considered in a predefined order according to a reordering context function f(t), said tree including at least one node (root) from which tree branches might be derived, said method being characterized by:

providing each node with:

"d" symbol counters respectively assigned to each symbol of the family and to be selectively incremented according symbol occurrences within the flow being currently processed ;

a Relative Efficiency Counter (REC) to store the considered node efficiency, i.e. so-called difference of coding length, to coding versus parent node ;

reading sequentially the flow of symbols ;

searching for each currently considered symbol xt the optimal coding node, by climbing the tree and visiting successive nodes, based on said predefined order consideration, and up to an optimal coding node being the first decreasing REC node preceding a node with an increasing REC ;

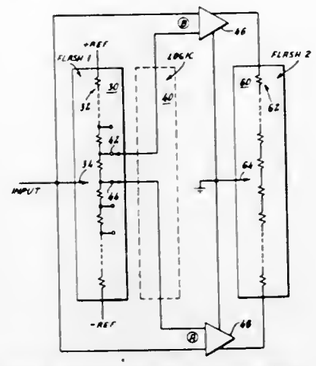
coding x_t by feeding a so-called arithmetic coding device with the optimal node counts ;

updating the visited node counts and extending the tree from the coding node.

5,210,537
MULTI-STAGE A/D CONVERTER

Christopher W. Mangelsdorf, Reading, Mass., assignor to Analog Devices, Incorporated, Norwood, Mass.

Division of Ser. No. 652,583, Feb. 8, 1991. This application Jul. 2, 1992, Ser. No. 907,526
Int. Cl.[5] H03M *1/68*
U.S. Cl. 341—156 11 Claims



1. A multi-stage A-to-D converter, comprising:

a first A/D stage arranged to receive an analog input signal to be converted to a first digital signal;

first reference signal means for said first stage arranged to produce a set of reference signal levels of different magnitudes for comparison with said analog input signal to provide for producing said first digital signal of at least one most-significant bit responsive to the value of said analog input signal;

residue means forming part of said first A/D stage for developing first and second residue signals representing, respectively, the differences between said analog input signal and two of said reference levels;

a second A/D stage for producing a second digital signal comprising at lest one bit of less significance than said most-significant bit corresponding to at least one of said residue signals;

said second A/D stage including mean responsive to both said first and said second residue signals for developing said second digital signal.

5,210,538
GLITCH DETECTION CIRCUIT AND METHOD

Masahiko Kuroiwa, Kawasaki, Japan, assignor to Kikusui Electronics Corporation, Kanagawa, Japan

Filed Sep. 12, 1991, Ser. No. 758,617
Claims priority, application Japan, Sep. 26, 1990, 2-257869
Int. Cl.[5] H03M *1/34*
U.S. Cl. 341—160 8 Claims

1. A glitch detection circuit comprising:

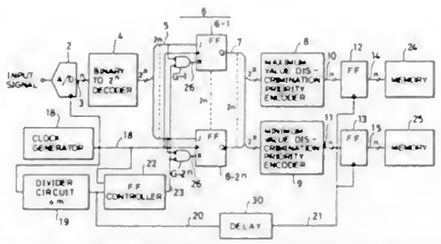
A/D converting means for sampling an input signal at predetermined sampling intervals during a predetermined acquisition interval which is longer than or equal to the sampling interval to produce digital data;

state holding means connected to output terminals of said A/D converting means for holding a superimposed state of a distribution of each value of the input signal sampled during the predetermined acquisition interval as digital data;

discrimination means for detecting a maximum value and a minimum value of the input signal sampled during the acquisition interval by detecting the maximum value and

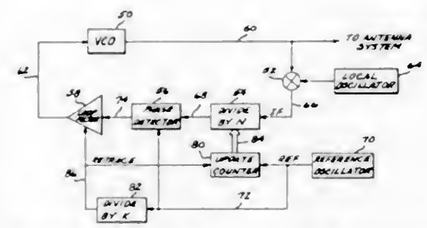
VOL 1150 ISS 2 MY 11 1993 UMI

the minimum value of the digital data held in said state holding means; and



storing means for storing the maximum value and the minimum value detected by said discrimination means for each acquisition interval.

5,210,539
LINEAR FREQUENCY SWEEP SYNTHESIZER
Kenneth G. Voyce, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Sep. 30, 1986, Ser. No. 913,777
Int. Cl.[5] G01S *13/32*
U.S. Cl. 342—83 18 Claims



10. In an FM CW radar system comprising an RF source for producing a periodic output signal having an output frequency that varies linearly with time, an antenna, a mixer having first and second input terminals, means for coupling the output signal to the antenna and to the first input terminal of the mixer, and means for coupling a return signal received at the antenna to the second input terminal of the mixer, whereby the mixer produces a range signal having a frequency corresponding to target range, an improved RF source comprising:

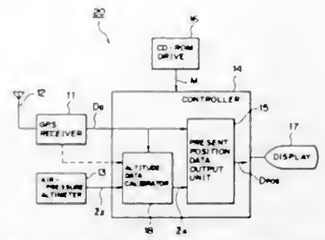
a voltage controlled oscillator having input and output terminals, and means for producing the output signal at its output terminal at the output frequency such that the output frequency corresponds to the voltage of a tuning signal applied to the input terminal;

a comparison signal generator including division means responsive to the output signal for producing a periodic comparison signal having a comparison frequency such that when the output frequency varies by Δf, the comparison frequency varies by $\Delta f/N$ where N is a positive integer, and update means for periodically causing the value of N to change by a predetermined integer amount in response to a fixed periodic reference frequency signal;

phase detection means for comparing the comparison signal to the fixed periodic reference frequency signal, and for producing a correction signal corresponding to the difference between the phases of the comparison and reference signals; and

filter means for filtering the correction signal to produce the tuning signal.

5,210,540
GLOBAL POSITIONING SYSTEM
Yutaka Masumoto, Kawagoe, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed Jun. 12, 1992, Ser. No. 897,710
Claims priority, application Japan, Jun. 18, 1991, 3-146039
Int. Cl.[5] H04B *7/185*; G01S *5/02*
U.S. Cl. 342—357 10 Claims



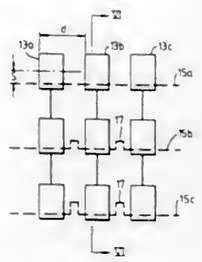
1. A global positioning system for positioning a mobile object in a global geometric region, comprising:

receiving means for receiving radio waves from a plurality of satellites and outputting one of (1) two-dimensional position indicative of the present position of the mobile object in a two-dimensional position measurement mode and (2) three-dimensional position data indicative of the present position of the mobile object in a three-dimensional position measurement mode, said two-dimensional position data comprising latitude and longitude data;

memory means for storing altitude data corresponding to said latitude and longitude data; and

calculating means for reading said altitude data from said memory means based on said latitude and longitude data and outputting present position data indicative of the present position of the mobile object when said receiving means outputs the two-dimensional position data in the two-dimensional position measurement mode.

5,210,541
MICROSTRIP PATCH ANTENNA ARRAYS
Peter Hall, Swindon, and Stephen Vetterlein, Devon, both of England, assignors to Secretary of State for Defence in Her Britannic Majesty's Government The United Kingdom of Great Britain and Northern Ireland, London, England
PCT No. PCT/GB90/00141, § 371 Date Sep. 20, 1991, § 102(e) Date Sep. 20, 1991, PCT Pub. No. WO90/09042, PCT Pub. Date Aug. 9, 1990
PCT Filed Jan. 31, 1990, Ser. No. 762,006
Claims priority, application United Kingdom, Feb. 3, 1989, 89024210
Int. Cl.[5] H01Q *1/380, 11/020, 3/300, 21/060*
U.S. Cl. 343—700 MS 10 Claims



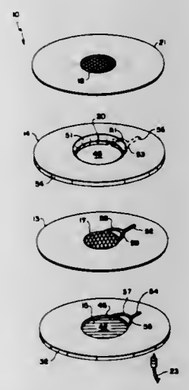
1. A multiple beam microstrip patch antenna array comprising:

a plurality of microstrip radiating elements, said radiating elements arranged into N substantially parallel columns and n substantially parallel rows elements (13), each of said N columns having n elements; and

n feed lines, each of said feed lines coupled to a corresponding one of the n parallel rows of elements;

means for electrically connecting all of said n elements in a respective N column in series forming N linear arrays and said linear arrays are terminated so that a voltage standing wave is produced along each linear array when an appropriate excitation signal is applied to at least one of the n feed lines, wherein each element in a row is separated from an adjacent element by a length of feed line and lengths of feed line between adjacent elements along one row differ from the lengths of feed line between adjacent elements along at least one other row.

5,210,542
MICROSTRIP PATCH ANTENNA STRUCTURE
Todd A. Pett, Longmont, and Steven C. Olson, Broomfield, both of Colo., assignors to Ball Corporation, Muncie, Ind.
Filed Jul. 3, 1991, Ser. No. 725,333
Int. Cl.[5] H01Q *1/38*
U.S. Cl. 343—700 MS 29 Claims



1. An antenna structure, comprising:

a support member, having:

a recess formed in an upper surface; and

an electrically conductive reference surface at the bottom of said recess;

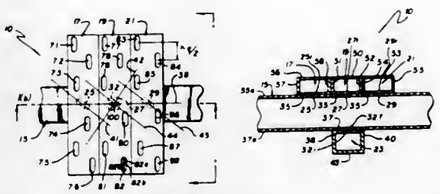
radiating means for transmitting/receiving radio frequency signals, having:

a first microstrip patch element within said recess free from contact with said support member, positioned above and substantially parallel to said reference surface and separated therefrom by a first dielectric layer;

a second microstrip patch element positioned above said first patch element and separated therefrom by a second dielectric layer said second patch element being substantially flush with said upper surface of said support member and free from contact therewith and being substantially parallel to said first patch element; and

feed means for conducting radio frequency signals to/-from said radiating means, said feed means including transmission means electrically connected to one of said first and second patch elements to permit electromagnetic coupling between said first and second patch elements.

5,210,543
FEED WAVEGUIDE FOR AN ARRAY ANTENNA
Louis A. Kurtz, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Continuation of Ser. No. 287,364, Dec. 20, 1988, abandoned.
This application Dec. 16, 1991, Ser. No. 807,336
Int. Cl.[5] H01R *13/10*
U.S. Cl. 343—771 1 Claim



1. A planar array antenna comprising:

at least one radiating waveguide having a first broadwall with a first elongate slot therethrough having a first longitudinal axis passing through a center of said first elongate slot;

a feed waveguide having first and second parallel walls along the length thereof, said first parallel wall having a second elongate slot therethrough positioned adjacent to said first elongate slot and having a second longitudinal axis passing through a center of said second elongate slot and parallel with said first longitudinal axis and said second parallel wall having a third elongate slot therethrough located opposite said second elongate slot and having a third longitudinal axis passing through a center of said third elongate slot;

an input waveguide having a broadwall with a fourth elongate slot therethrough positioned adjacent to said third elongate slot and having a fourth longitudinal axis passing through a center of said fourth elongate slot, wherein the centers of said first, second, third and fourth elongate slots are aligned along a vertical z-axis such that the first, second, third and fourth slots are in alignment permitting the coupling of energy from said input waveguide to said feed waveguide without an impedance; and

said fourth longitudinal axis of said fourth elongate slot in said input waveguide is orthogonal to said second longitudinal axis of said second elongate slot in said feed waveguide.

5,210,544
MOUNTING MEANS FOR AN ANTENNA INSTALLATION
William E. Jones, Beebe, and Perry Reed, Cabot, both of Ark., assignors to Universal Antenna Manufacturing, Inc., Ward, Ark.
Filed Oct. 31, 1991, Ser. No. 785,472
Int. Cl.[5] H01Q *19/12*
U.S. Cl. 343—840 4 Claims

2. In a mounting means for a satellite antenna dish having radial rib means made of lightweight aluminum,

the improvement comprising a pair of elongated flat wear-resistant steel plates forming reinforcement brackets and disposed on opposite sides of one of said rib means,

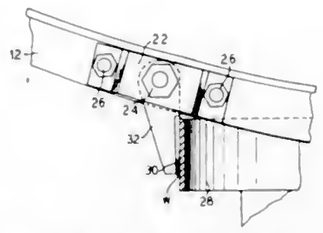
said plates each having three openings including a first and a second opening at opposite ends for receiving a first and a second bolt and nut to clamp the plates to the rib means in firm assembly therewith, and

said plates each having a third intermediate opening between said first and second openings to receive a third mounting bolt and nut;

a cradle bracket for connection to a support post and connected to said rib and to said reinforcement brackets by

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said third mounting bolt and nut; whereby the third mounting bolt is pivotally carried by said reinforcement



brackets rather than by said lightweight aluminum rib means.

5,210,545

IMAGE FORMING METHOD AND SYSTEM WHEREIN A DOT IS RECORDED FOR EACH SET OF THREE CONSECUTIVE PICTURE ELEMENTS

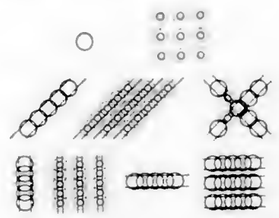
Satoru Tomita, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Feb. 15, 1991, Ser. No. 655,831

Claims priority, application Japan, Feb. 26, 1990, 2-45144; Feb. 26, 1990, 2-45145; Feb. 26, 1990, 2-45146; Nov. 20, 1990, 2-316509

Int. Cl.[5] G01D *9/00, 15/14*

U.S. Cl. 346—1.1 **11 Claims**



1. An image forming method for forming an image on a recording medium as an array of non-blank dots and blank dots a line at a time, in which a plurality of picture elements are aligned along each said line, the method comprising the steps of:

a) for each said line, detecting a content of the picture elements for every set of three consecutive picture elements included along the line, each said set of three consecutive picture elements being defined by:

1) an aimed picture element located at a first end of a row that includes the three consecutive picture elements and carrying a content representing a recording of a dot,

2) a second picture element located adjacent to said first picture element, and

3) a third picture element located adjacent to the second picture element at a second end of the row away from the first end;

wherein the step a) of detecting the content of the picture elements is conducted while moving the aimed picture element by one picture element each time the content of the aimed picture element is detected;

b) recording one of said non-blank and blank dots for each said set of three consecutive picture elements by:

1) recording a non-blank dot for the aimed picture element while setting a size of the recorded dot at a first predetermined size, when both:

i) the second picture element represents a blank dot, and

ii) the third picture element represents a non-blank dot;

2) recording a non-blank dot for the aimed picture element while setting the size of the recorded dot at a second predetermined size larger than the first predetermined size when neither:

i) the second picture element represents a blank dot, nor

ii) the third picture element represents a non-blank dot; and

3) disabling recording of a non-blank dot when the aimed picture element has a content representing a blank dot,

wherein the recording step b) is conducted while moving the aimed picture element by one picture element each time the aimed picture element is recorded.

7. An image recording system for recording an input image on a recording medium, comprising:

a shift register supplied with binary input image signals sequentially one horizontal scanning line by one horizontal scanning line, said shift register having three columns for holding the binary image signals of three consecutive picture elements included in one said horizontal scanning line at a time;

an image processor supplied with the binary image signals from each of the columns of the shift register for producing an output control signal in response to a combination of the binary image signals held in the columns of the shift register;

a driver circuit supplied with the control signal from the image processor for producing an output drive signal under control of the control signal; and

a light source supplied with the output drive signal from the driver circuit for producing an optical beam in response to the drive signal;

said image processor controlling the light source such that the optical beam has a reduced intensity when an image signal for an aimed picture element located at a first end of the three consecutive picture elements has a first logic value representing a recording of a dot by an irradiation of the optical beam, a neighboring picture element included in the three consecutive picture elements at a location adjacent to the aimed picture element has a second logic value representing a non-recording of another dot by the optical beam, and a picture element included in the three consecutive picture elements at a second opposing end of the three consecutive picture elements has the first logic value.

5,210,546

METHOD AND AN APPARATUS TO RECORD WITH PLURAL GRADATION FOR MAGNETIC PRINTING MACHINE

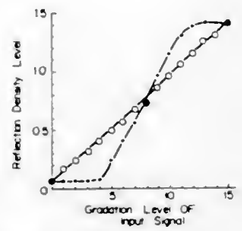
Norio Kokaji, Hino, Japan, assignor to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed Nov. 18, 1991, Ser. No. 793,826

Claims priority, application Japan, Nov. 22, 1990, 2-315793

Int. Cl.[5] G11B *9/00*

U.S. Cl. 346—74.2 **6 Claims**



1. A method of recording a magnetic printing machine which records an image on a recording drum with one recording head, comprising the steps of:

determining a first recording frequency based on a digital signal that represents a certain gradation level of an original pixel;

determining a second recording frequency which is close to said first recording frequency based on said digital signal; and

switching a recording frequency from said first recording frequency to said second recording frequency, or vice versa, at every time when a predetermined number of pixels have been recorded.

5,210,547

IMAGE PRINTING METHOD AND SYSTEM

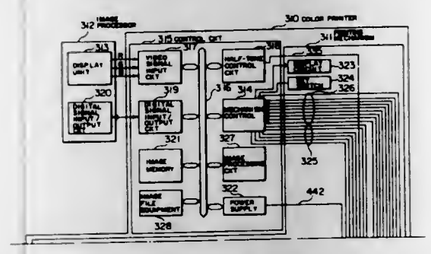
Katsumi Watanabe; Takashi Yoshida; Isao Shimizu; Yusuhiro Matsuda, all of Ibaraki; Akira Shimizu, Katsuta, and Masashi Yoshida, Nakaminato, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 7, 1990, Ser. No. 578,460

Claims priority, application Japan, Sep. 8, 1989, 1-231608

Int. Cl.[5] B41J *2/32, 11/36*

U.S. Cl. 346—76 PH **3 Claims**



1. An image printing system, comprising:

image signal inputting means for inputting an image signal; and

a printing mechanism which includes:

a control circuit responsive to inputting of an image signal for outputting a head control signal for controlling printing density based on said image signal and outputting a motor drive signal for controlling transportation of an ink sheet and a printing sheet,

a thermal head responsive to said head control signal for adjusting heat generating states of heat generating elements,

drive motor means for generating a driving power for transporting said ink sheet and said printing sheet in response to said motor drive signal, and

driving mechanism for transporting said ink sheet and said printing sheet by utilizing said driving power generated by said drive motor; and

said printing system further comprising command means for commanding a size of a sheet used for printing, position of an image to be printed and a size of said image;

wherein said control circuit incorporates a function for determining a transportation quantity for transporting said printing sheet based on said printing sheet size, said image printing position and said image size and determining arithmetically said motor drive signal corresponding to said transportation quantity, a function for discriminatively deciding a printing area where said image is to be printed and a non-printing area where said image is not to be printed based on said printing sheet size, said image printing position and said image size, and a function for determining a printing start timing based on a result of said discriminative decision and said drive motor signal and outputting said head control signal based on said image signal.

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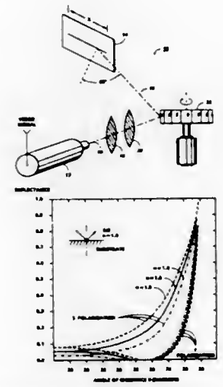
METHOD AND SYSTEM FOR REDUCING SURFACE REFLECTIONS FROM A PHOTOSENSITIVE IMAGING MEMBER

Edward E. Grabowski, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 1, 1991, Ser. No. 738,771

Int. Cl.[5] H04N *1/21*

U.S. Cl. 346—108 **6 Claims**



1. A method for exposing a layered photoreceptor member to coherent light, so as to reduce light reflectance from the surface of said member, thereby increasing transmission into said member, comprising the steps of:

generating beams of higher intensity modulated coherent light polarized in the plane parallel to the plane of the incident light, and

optically directing said beam onto the surface of said imaging member at an angle Θ whose value is defined by the relationship

$$\text{tangent } \Theta = (n'/n)$$

where n is the index of refraction of a first media through which the beams travel prior to being incident at the surface of the imaging member and n' is the index of refraction of a second photosensitive media adjacent the first media, n' being greater than n,

whereas the incident light is almost totally absorbed within said photoreceptor member.

5,210,549

INK JET RECORDING HEAD HAVING RESISTOR FORMED BY OXIDIZATION

Hiroto Takahashi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 367,327, Jun. 16, 1989, abandoned. This application Jun. 5, 1991, Ser. No. 711,419

Claims priority, application Japan, Jun. 17, 1988, 63-148173

Int. Cl.[5] B41J *2/05*

U.S. Cl. 346—140 R **12 Claims**

1. An ink jet recording head comprising:

a substrate having a plurality of electricity-heat convertors, each electricity-heat convertor comprising a heat-generating resistor for generating heat utilized for discharging ink, said heat-generating resistors being made from an electroconductive material;

plural pairs of electrodes, each pair corresponding to one of said heat-generating resistors and being made from the electroconductive material, each of said plural pairs of

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electrodes and each of said heat-generating resistors being formed in a continuous layer;

a plurality of flow paths for supplying ink to a position of each of said heat-generating resistors; and

discharge openings for providing an ink discharge, wherein a resistance value of each of said heat-generating resistors



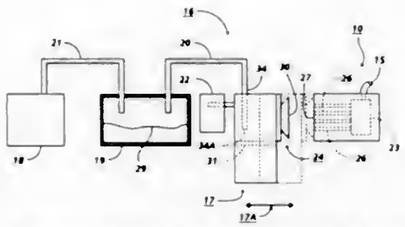
is made greater than the resistance value of said corresponding pair of electrodes by oxidizing a part of said electroconductive material and wherein said electricity-heat convertors having said heat-generating resistors and said pairs of electrodes formed as the continuous layer are insulatedly separated by an oxidized layer of the electroconductive material.

5,210,550

MAINTENANCE STATION FOR INK JET PRINTERS

Almon P. Fisher, Rochester, and Herman A. Hermanson, Penfield, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 23, 1991, Ser. No. 812,088
Int. Cl.[5] B41J *2/165*
U.S. Cl. 346—140 R 8 Claims



1. Maintenance station for use in a thermal ink jet printer having a printhead movable between an operating position and a maintenance position, the printhead having a substantially planar face with a linear array of orifices therein through which ink is selectively ejected, the maintenance station being located adjacent to the maintenance position periodically occupied by the printhead and being positionable towards and away from the printhead face, the maintenance station comprising:

a chamber having an interior and a relatively rigid wall confronting the face of the printhead, the chamber wall having at least one aperture therein to provide an inlet to said chamber interior;

a resilient seal means having a resilient base with borders therearound secured to the chamber wall in a fluid-tight manner and with an opening therein substantially aligned with the chamber wall aperture and having resilient lips surrounding and extending from the base opening, said lips being adapted to come into sealing engagement with the face of the printhead when the printhead is in the maintenance position and the chamber is moved from a position spaced from the printhead toward and into contact with the printhead face, whereby the interior of the chamber is placed in fluid-tight communication with the array of printhead orifices, even when there is some misalignment between the printhead face and the chamber;

means for reducing the pressure in the chamber interior selectively to below atmospheric when the seal means is in sealing engagement with the printhead face, so that ink may be sucked from within the printhead through the ejection orifices and into the chamber in order to remove air from the printhead and thereby prime said printhead;

means for maintaining a humid environment in the chamber interior to prevent the ink in said array of orifices from drying out when the seal means lips are in fluid-tight engagement with the printhead face and surrounding the orifices; and

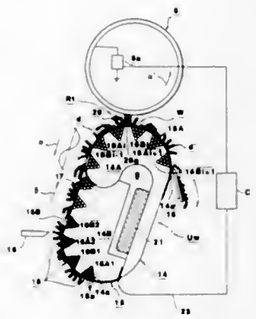
means for moving the chamber from a position spaced from the printhead towards the printhead, when the printhead is in the maintenance position, so that the seal lips come into fluid-tight engagement with the printhead face and surround the array of orifices without the need for the chamber wall being parallel to the printhead face or in close alignment therewith.

5,210,551

ELECTROSTATIC RECORDING APPARATUS WITH AN ELECTRODE DRIVE MEANS WITHIN THE DEVELOPER CIRCULATING PATH

Hideaki Inoue, Tokyo; Eiichi Takeuchi; Shigeru Shimizu, both of Iruma; Tadao Yamamoto, Tokyo; Yasuhito Sato, Tokyo; Kenji Nakayama, Tokyo; Hideki Takahashi, Tokyo; Toshiro Honda, Tokyo, and Kenichiro Asako, Tokyo, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Jun. 5, 1991, Ser. No. 710,684
Claims priority, application Japan, Jun. 18, 1990, 2-159349; Oct. 11, 1990, 2-272994
Int. Cl.[5] G01D *15/06*
U.S. Cl. 346—155 14 Claims



1. An electrostatic recording apparatus comprising:

a fixed developing agent carrying member having a surface for carrying a developing agent thereon;

a plurality of recording electrodes arranged on the surface of said developing agent carrying member in parallel to each other at predetermined gaps, while being electrically insulated from each other;

an electrode cylinder opposing said plurality of recording electrodes at a predetermined gap;

developing agent convey means for conveying the developing agent substantially unidirectionally to said gap so as to form a circulating convey path along the surface of said developing agent carrying member;

voltage control means for outputting a control signal including recording data;

recording electrode drive means, provided inside a space defined by said circulating convey path, for applying, upon reception of the control signal from said voltage control means, a recording voltage to said plurality of recording electrodes in accordance with the recording data, thereby selectively transferring the developing agent conveyed by said developing agent convey means to said electrode cylinder, thus forming a recording image; and

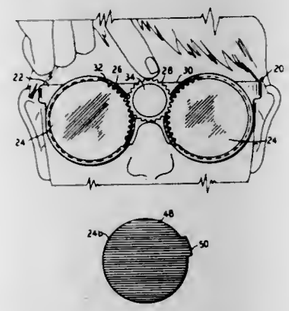
means for applying a predetermined recovery electric field on said electrode cylinder in order to recover the developing agent remaining on said recording electrodes to said electrode cylinder between a timing at which a first sheet is conveyed and a second timing at which a second sheet is conveyed.

5,210,552

VARIABLE LIGHT TRANSMITTING SUNGLASSES

Patrick Baran, Chicago; Sam Cottone, Wooddale, and George W. Lamping, Barrington, all of Ill., assignors to HLM Sales, Inc., Barrington, Ill.

Filed Nov. 18, 1991, Ser. No. 795,005
Int. Cl.[5] G02C *7/10, 7/12*
U.S. Cl. 351—49 3 Claims



1. Variable density sunglasses, comprising:

a frame including:

first and second temple pieces for engagement with the ears of a wearer,

a frame body having said first and second temple pieces mounted on either side thereof, said frame body including first and second lens frame portions joined by a nose bridge, said first and second lens frame portions each having a substantially circular channel;

a stationary lens fixedly mounted in each of said first and second lens frame portions, said stationary lens being of a polarized optical material;

a rotatable lens mounted for rotating movement in said substantially circular channel in each of said first and second lens frame portions, said rotatable lenses being of a polarized optical material, said rotatable lenses being in registration with said stationary lenses, said rotatable lenses each having edge portions formed with gear teeth;

a gear mounted for rotation on said nose bridge of said frame body, said gear having gear teeth around the periphery of said gear, said gear teeth being meshed with said gear teeth on said rotatable lenses, a portion of the periphery of said gear extending beyond said frame body for access by a finger of a wearer to rotate said gear and thereby rotate said rotatable lenses relative to said stationary lenses; and

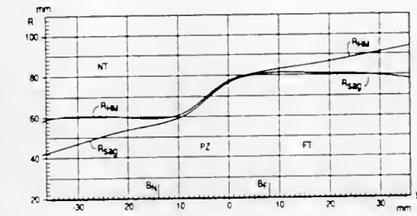
wherein said first and second lens frame portions include recesses extending in a direction of said nose bridge, and said stationary lenses each include tabs extending from the edges thereof, said tabs being contained in said recesses.

5,210,553

PROGRESSIVE OPHTHALMIC LENS WITH POSITIVE DISTANCE POWER

Rudolf Barth, Pasenbach, and Klaus Wehmeyer, Erdweg-Guggenberg, both of Fed. Rep. of Germany, assignors to Optische Werke G. Rodenstock, Munich, Fed. Rep. of Germany

PCT No. PCT/DE90/00535, § 371 Date Mar. 18, 1991, § 102(e) Date Mar. 18, 1991, PCT Pub. No. WO91/01508, PCT Pub. Date Feb. 7, 1991
PCT Filed Jul. 17, 1990, Ser. No. 671,896
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1989, 3923576
Int. Cl.[5] G02C *7/02*
U.S. Cl. 351—169 10 Claims



1. A progressive opthalmic lens having positive distance portion power, in which at least one surface is designed as a progressive area, and a distance portion (FT) intended for distant vision having practically constant distance portion power and a near portion (NT) intended for near vision having practically constant near portion power including a progression zone (PZ), in which the surface refractive power increases from the surface refractive power (D_F) present at the distant reference point (BN_F) along a curved of plane main meridian (HM) to the surface refractive power (D_N) present at a near reference point (B_N), having the following features:

in the lower region of the progression zone and in the near portion, the radius of curvature of the intersecting lines of horizontal planes (y = const) with the progressive surface becomes

larger, if said progressive surface is the convex front surface, respectively

smaller, if said progressive surface is the concave surface facing the eye,

at least within a strip extending on both sides of said main meridian (HM) with increasing distance from said main meridian (HM),

for the reduction of the thickness of said opthalmic lens is provided a vertical prism having a size ranging from approx. 0.25 cm/m to approx. 3.00 cm/m, which has a subjacent base so that the optical axis is moved in the direction of the near portion (NT),

for the compensation of the oblique light bundle astigmatism said progressive surface has at least in the upper region of the distance portion and in the plower region of the near portion a surface astigmatism, with the following relationships being true for the radius of curvature R_{HM} of said progressive surface along the main meridian (HM) and the radius of curvature R_{sag} perpendicular to the main meridian if said progressive surface is

said front surface:

$$R_{HM}(y_{BN} - 15 < y < y_{BN}) \geqq R_{HM}(y = y_{BN})$$
$$R_{sag}(y < y_{BN}) < R_{sag}(y = y_{BN}) < R_{HM}(y = y_{BN})$$
$$|dR_{sag}/dl| \approx \text{const} > 0 \text{ for } y < y_{BN}$$

said surface facing the eye:

$$R_{HM}(y_{BN} - 15 < y < y_{BN}) \leqq R_{HM}(y = y_{BN})$$
$$R_{sag}(y < y_{BN}) > R_{sag}(y = y_{BN}) > R_{HM}(y = y_{BN})$$

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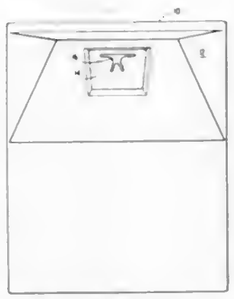
$|dR_{sag}/dl| \approx \text{const} > 0$ for $y < y_{BN}$

with $|dR_{sag}/dl|$ being the variation of said curvature perpendicular to said main meridian in points on said main meridian and y_{BN} the y-coordinates of said near reference point.

5,210,554
PUPIL PATHWAY ANALYZER

Tom N. Cornsweet, Irvine; Michael Rothberg, Foot Hill Ranch, both of Calif.; George Homsy, Eindhoven, Netherlands, and Robert W. Sibley, San Francisco, Calif., assignors to Pulse Medical Instruments, Rockville, Md.

Division of Ser. No. 448,718, Dec. 11, 1989, Pat. No. 5,042,937.
This application Oct. 23, 1990, Ser. No. 602,137
Int. Cl.[5] A61B *3/14*
U.S. Cl. 351—206 19 Claims



1. In an ophthalmological instrument for examination of pupillary responses and extrinsic eye muscle balance including pupil imaging optics, a video camera having a photosensitive image plane on which images of a patient's pupils are focussed by the pupil imaging optics, a programmed computer, light stimulus devices for selectively stimulating the retinas of a patient's eyes under the control of said computer, and a display screen connected to said video camera for providing a display of a patient's pupils as they react to said light stimulus devices and also displaying text and graphics generated by said computer, said computer being programmed to perform the method comprising the steps of:

tracking a patient's pupils by moving said imaging optics to maintain images of the patient's pupils on selected portions of said photosensitive image plane;

displaying a graphical user interface on said display screen providing a user of said instrument with a selection of choices of commands or actions;

monitoring a user input for a selection of one of said choices and, in response to a user selection, displaying a menu of options for the selected choice;

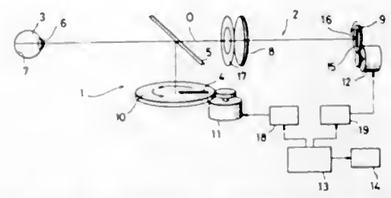
running a test selected by the user by controlling said light stimulus devices and measuring a patient's pupillary responses to light stimulation; and

analyzing the patient's pupillary response data and displaying in graphical and tabular form the analyzed data for the test.

5,210,555
OCULAR REFRACTING POWER MEASURING SYSTEM

Yasuhisa Ishikura, and Ikuo Kitao, both of Tokyo, Japan, assignors to Kabushiki Kiasha TOPCON, Tokyo, Japan

Filed Sep. 20, 1991, Ser. No. 763,226
Claims priority, application Japan, Sep. 29, 1990, 2-262766
Int. Cl.[5] A61B *3/10, 3/14*
U.S. Cl. 351—211 8 Claims

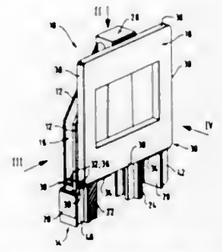


1. An ocular refracting power measuring system, comprising a projector system having a measuring light source emitting light beam rotatable around optical axis and for projecting an image of light source of said measuring light source on retina of an eye to be tested, a light receiving system having a fixed light blocking member for blocking a part of light beam reflected from retina of said eye to be tested by a circular edge whose center is in correspondence with the optical axis of said light receiving system, defining meridian lines at right angles thereto and having a photodetector capable of measuring the distribution of light amount along a line and being placed at a position approximately conjugate with a pupil of said eye to be tested through said fixed light blocking member, whereby said light beam reflected from retina of said eye to be tested impinges onto said photodetector, said photodetector having a plurality of meridian lines thereon, and a controller adapted to calculate ocular refracting power based on the distribution of light amount on a meridian line at right angles to said circular edge on said photodetector corresponding to arbitrary position of said measuring light source and to calculate the astigmatic condition based on said ocular refracting power on a plurality of meridian lines.

5,210,556
SLIDE MAGAZINE

Hermann Kronbauer, Aschheim, and Christian Rehm, Munich, both of Fed. Rep. of Germany, assignors to reflecta GmbH foto film projektion, Schwabach, Fed. Rep. of Germany

Filed Jul. 31, 1992, Ser. No. 922,852
Claims priority, application European Pat. Off., Aug. 22, 1991, 91114039.0
Int. Cl.[5] G03B *23/02*
U.S. Cl. 353—120 6 Claims

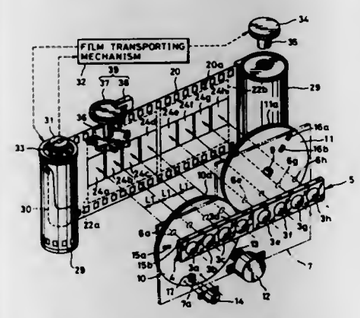


5. A slide magazine for accommodating a plurality of slide frames, comprising: a base portion; an array of partitioning walls on the base portion at spacings from each other to define a plurality of compartments for receiving respective slide frames, the partitioning walls having free ends disposed at a spacing from the base portion which is adapted to the slide frames; a holding portion which extends over the array of partitioning walls and connects said free ends of the partitioning walls together, thereby to hold the slide frames in the respective compartments by preventing them from falling out in a direction away from the base portion while being adapted to permit respective compartments to be loaded and unloaded from both sides of the slide magazine; and retaining means at each side of each compartment for retaining the respective slide frame therein by preventing it from falling out sidwways in relation to the slide magazine, the retaining means being adapted to resiliently deflect from the operative retaining position to an inoperative position permitting insertion of a slide frame into a respective compartment and release of the slide frame from the compartment in which it is inserted.

5,210,557
CAMERA WITH PLURAL LENSES FOR TAKING SEQUENTIAL EXPOSURES

Nobuyuki Kameyama, and Ko Aosaki, both of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 19, 1991, Ser. No. 746,889
Claims priority, application Japan, Aug. 17, 1990, 2-216594; Aug. 27, 1990, 2-225502
Int. Cl.[5] G03B *1/00*
U.S. Cl. 354—120 20 Claims



2. A continuous taking camera comprising:

means defining two exposure chamber groups each including four exposure chambers disposed linearly in the direction of advance of a photographic film such that at least one full size original frame of said photographic film is divided into two series of four sub-frames each;

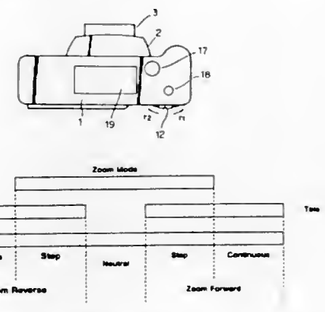
eight taking lenses one disposed in front of each of the eight exposure chambers; and

shutter means for sequentially taking scenes for the eight sub-frames, said shutter means comprising two shutter discs one for each of said exposure chamber group, said shutter discs each having an axis of rotation, a fixed plate for rotatably supporting said shutter discs, said shutter discs each having two movable shutter openings, said fixed plate having eight stationary shutter openings linearly formed to register one with each of said eight exposure chambers, said two movable shutter openings lying on a straight line passing through the associated said axis and differing in distance from said associated axis, and each said movable shutter opening passing before two of said stationary shutter openings.

5,210,558
ELECTRONICALLY CONTROLLED CAMERA

Takeo Kobayshi, Tokyo; Yasushi Tabata, Ichikawa; Norio Numako, Nogi, and Katsutoshi Nagai, Kawaguchi, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 14, 1991, Ser. No. 655,105
Claims priority, application Japan, Feb. 14, 1990, 2-32983
Int. Cl.[5] G03B *1/18*
U.S. Cl. 354—195.1 5 Claims



1. An electronically controlled camera having a zoom lens that is capable of being driven to move in a direction of an optical axis of said zoom lens between a tele extremity and a wide extremity, said camera further comprising:

a single operation member; and

control means for driving said zoom lens to move either stepwisely or continuously between said tele extremity and said wide extremity in accordance with an operation of said single operation member, said control means comprising:

first means for determining said direction in which said zoom lens is moved in accordance with an operated direction of said operation member; and

second means for determining whether said zoom lens is to be moved stepwisely or continuously, in accordance with an operated amount of said operation member, and wherein said operation member is neutrally placed in its neutral position, and is capable of being displaced in first and second directions, and wherein said first determining means determines a direction in which said zoom lens is moved in such a fashion that said zoom lens is moved to a tele side when said operation member is displaced in said first direction, while said zoom lens is moved to a wide side when said operation member is displaced in said second direction.

5,210,559
CAMERA SHAKE CORRECTING DEVICE

Mitsuharu Ohki, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Mar. 17, 1992, Ser. No. 852,714
Claims priority, application Japan, Mar. 19, 1991, 3-055013
Int. Cl.[5] G03B *7/08;* H04N *7/18*
U.S. Cl. 354—202 8 Claims

1. A camera shake correcting device comprising:

a memory for storing a representative image data representing an arbitrary n-th field, where n represents a positive integer;

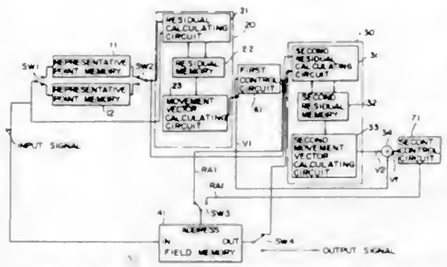
a first movement vector detecting circuit for searching a corresponding image data corresponding to said representative image data with a first search point density in an (n+i)-th field, where i represents a positive integer, during a signal inputting period as a dynamic image data of said (n+i)-th field and for outputting a displacement of

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said corresponding image data with respect to said representative image data as a first movement vector;

a field memory for storing said dynamic image data of said (n+i)-th field during said signal inputting period; and

a second movement vector detecting circuit for searching said corresponding image data with a second search point density higher than said first search point density in the



vicinity of an end of said first movement vector during a vertical blanking period just after said signal inputting period and for outputting a displacement of said corresponding image data with respect to said representative image data as a final movement vector;

wherein said dynamic image data of said (n+i)-th field stored in said field memory is read by using a reading address shifted according to said final movement vector.

5,210,560

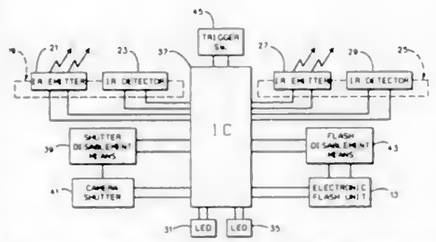
CAMERA WITH FINGER OVER THE TAKING LENS/FLASH UNIT SENSOR

Peter Labaziewicz, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 23, 1992, Ser. No. 872,578

Int. Cl.[5] G03B *17/38, 15/03, 13/02*

U.S. Cl. 354—268 **9 Claims**



6. A photographic camera comprising a camera body having a front face, a taking lens inset in said camera body to not project outwardly substantially from said front face, and an electronic flash unit inset in said camera body to not project outwardly substantially from said front face, is characterized in that:

first photosensor means is located in the vicinity of said taking lens for emitting a light beam towards a camera user's finger that may be positioned over the taking lens and for detecting reflection of the light beam from the camera user's finger;

second photosensor means is located in the vicinity of said flash unit for emitting a light beam towards a camera user's finger that may be positioned over the flash unit and for detecting reflection of the light beam from the camera user's finger; and

alarm means is connected to said first photosensor means and to second photosensor means for providing a warning that a camera user's finger may be positioned over said taking lens when the first photosensor means detects reflection of a light beam from the camera user's finger or that a camera user's finger may be positioned over said flash unit when photosensor means detects reflection of a light beam from the camera user's finger.

5,210,561

LENS-FITTED PHOTOGRAPHIC FILM PACKAGE AND FILM FEEDER AND PACKAGE HOLDER FOR FILM PROCESSOR

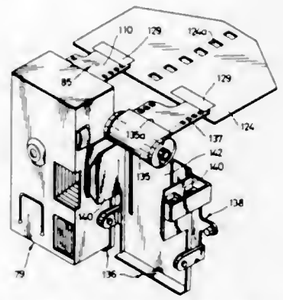
Norihiro Nakai; Tatsuya Mochizuki; Toshiyuki Ogura, and Takashi Sugimoto, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Division of Ser. No. 717,344, Jun. 18, 1991. This application Aug. 5, 1992, Ser. No. 924,996

Claims priority, application Japan, Jun. 18, 1990, 2-159341; Jul. 9, 1990, 2-180992; Jul. 13, 1990, 2-75110; Jul. 30, 1990, 2-81074

Int. Cl.[5] G03D *13/00*

U.S. Cl. 354—297 **4 Claims**



1. A film package holder for a film processor comprising:

a film package holding portion for holding a lens-fitting photographic film package thereon, from which an end of an exposed film is pulled out through a film removal opening; and a cassette arresting portion for supporting a peripheral surface of a film cassette thereby to position a said film cassette at a film entrance of said film processor while an end of an exposed film contained in said film cassette is connected to film draw-out means.

5,210,562

MOTOR DRIVING CONTROL APPARATUS WITH MOVEMENT DISTANCE ESTIMATING FUNCTION

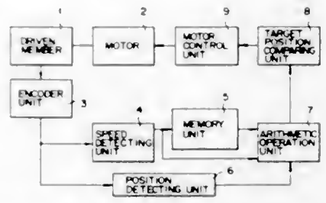
Azuma Miyazawa, Mitaka, and Kozi Mizobuchi, Hachioji, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Sep. 4, 1991, Ser. No. 755,020

Claims priority, application Japan, Sep. 17, 1990, 2-246440

Int. Cl.[5] G03B *1/00, 13/36;* **G05B** *19/29*

U.S. Cl. 354—400 **36 Claims**



1. A motor driving control apparatus comprising:

a motor for driving a driven member;

target position output means for outputting stop target position information of said driven member;

encoder means for generating pulses in accordance with a movement of said driven member;

speed detecting means for detecting a speed of said driven member by using the pulses from said encoder means and for outputting speed data;

memory means for storing the speed data output by said speed detecting means;

movement distance arithmetic operation means for estimating and calculating a movement distance of said driven member until stopping by using the speed data stored in said memory means and current speed data detected by said speed detecting means when a motor stop operation is immediately started;

position detecting means for detecting current position information of said driven member by counting the pulses from said encoder means;

stop position arithmetic operating means for calculating estimated stop position information of said driven member by adding the current position information of said driven member, which is detected by said position detecting means, with the movement distance until stopping which is calculated by said movement distance arithmetic operating means;

comparing means for comparing stop target position information output by said target position output means with the estimated stop position information calculated by said stop position arithmetic operating means; and

motor control means for controlling said motor in accordance with a result of said comparing means.

5,210,563

CAMERA CAPABLE OF CORRECTING BLURRING

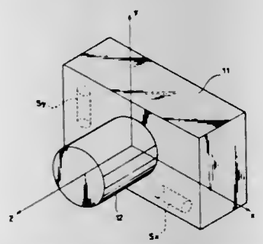
Masataka Hamada, Osakasayama; Hiroshi Ootsuka; Hisayuki Masumoto, both of Sakai, and Tougo Teramoto, Wakayama, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 618,961, Nov. 28, 1990, abandoned. This application Aug. 28, 1991, Ser. No. 758,309

Claims priority, application Japan, Nov. 29, 1989, 1-312028; Nov. 29, 1989, 1-312029; Nov. 29, 1989, 1-312030

Int. Cl.[5] G03B *7/00*

U.S. Cl. 354—400 **21 Claims**



1. A camera capable of correcting fluttering of an object image due to camera-shake, comprising:

camera-shake detecting sensor for detecting said camera-shake and for outputting camera-shake information;

taking lens for forming said object image;

correcting means for shifting a position of the object image based on the camera-shake information such that the object image remains stationary during an exposure;

driving means for driving an optical member in said taking lens; and

control means for controlling said correcting means so that said correcting means does not use an output of said camera-shake detecting sensor when said optical member is being driven.

5,210,564

AUTOMATIC FOCUSING DEVICE EMPLOYING A FREQUENCY DOMAIN REPRESENTATION OF A DIGITAL VIDEO SIGNAL

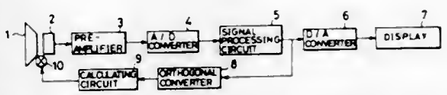
Hiroshi Takemoto, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 21, 1990, Ser. No. 631,455

Claims priority, application Japan, Jan. 22, 1990, 2-12155

Int. Cl.[5] G03B *13/36;* **H04N** *5/232*

U.S. Cl. 354—402 **6 Claims**



1. An automatic focusing device comprising:

an A/D converter for converting a supplied video signal to a digital signal;

orthogonal conversion means for converting the digital signal from the A/D converter to a two-dimensional frequency domain representation;

control means for producing a focusing control output based on a plurality of frequency components included in the two-dimensional frequency domain representation; and

a focusing circuit responsive to the focusing control output for performing a focusing operation such that all of said plurality of frequency components are maximized.

5,210,565

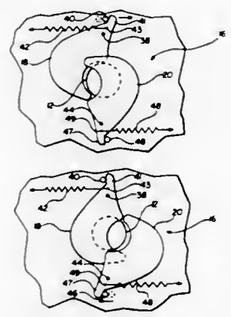
OSCILLATING PUPIL AUTOFOCUS METHOD AND APPARATUS

Richard E. Albrecht, Honeyoye Falls, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 21, 1991, Ser. No. 719,280

Int. Cl.[5] G03B *13/18*

U.S. Cl. 354—402 **27 Claims**



1. A camera having a sensor array, a lens, and first and second shutter blades that can be opened to expose photographic film in the camera, the camera further comprising:

(a) first oscillating means for opening and closing said first shutter blade to define a first pupil that permits image light to strike the sensor array;

(b) second oscillating means for opening and closing said second shutter blade to define a second pupil that permits image light to strike the sensor array;

(c) control means, responsive to said first and second oscillating means, for controlling said sensor array to sample the image light received through the first and second pupils, respectively;

(d) signal means for comparing the sensed light from the first and second pupils with each other and producing a focus

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adjustment signal representative of a direction of focus error; and

(e) focus means, responsive to said focus adjustment signal, for focusing said lens according to the focus error.

5,210,566

PHOTOGRAPHIC OPTICAL SYSTEM CONTROLLING APPARATUS

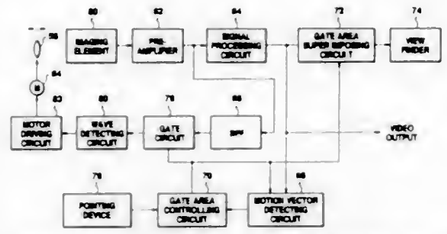
Yoshihiro Nishida, Nagaokakyo, Japan, assignor to Mitsubishi Denki Kabushiki, Tokyo, Japan

Filed Apr. 17, 1991, Ser. No. 686,354

Claims priority, application Japan, Apr. 19, 1990, 2-103607; Nov. 1, 1990, 2-296391

Int. Cl.[5] G03B *3/10*; H04N *5/232*

U.S. Cl. 354—402 **15 Claims**



1. An automatic focusing apparatus for automatically controlling the focusing operation of an optical system on the basis of image signals obtained in a focusing detecting area designated on a photographic screen, said apparatus comprising:

(a) motion vector detecting means for detecting uniform motion of an image by correlating pixel density values of two time continuous image data and accumulatively adding the correlated pixel density values to create a uniform motion vector; and

(b) focus detecting area controlling means for detecting the main object from the uniform motion vector and for varying the focus detecting area to follow the detected motion of the main object.

5,210,567

CAMERA CONTROL DEVICE

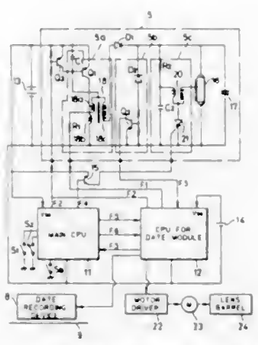
Minoru Takahashi, Saitama, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 22, 1991, Ser. No. 748,822

Claims priority, application Japan, Aug. 22, 1990, 2-220435

Int. Cl.[5] G03B *15/05, 17/24, 17/04*

U.S. Cl. 354—412 **11 Claims**



1. A control device for a camera of the type having a main control unit for controlling electric elements of the camera, a flash unit, and a date module for recording at least the date of photographing on a film, said control device comprising:

a secondary control unit disposed in said date module; and

charge control means for controlling charging of said flash unit so as to maintain the charge of the flash unit at a predetermined level such as to emit a sufficient flash, said charge control means being incorporated in said secondary control unit.

5,210,568

CAMERA HAVING A CHARGING OPERATION WHICH IS INHIBITED DURING AN OPERATION OF THE CAMERA FUNCTION SECTION AND A BATTERY CHECK FUNCTION WHICH IS INHIBITED DURING THE CHARGING FUNCTION

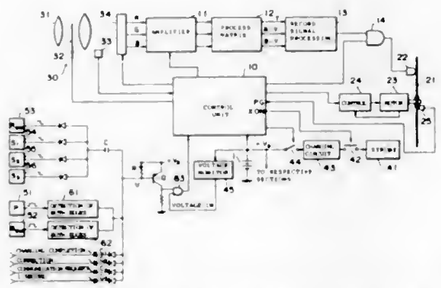
Izumi Miyake; Kiyotaka Kaneko; Hiroshi Shimaya; Masanaga Yamamoto, and Masanori Yoshida, all of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 611,911, Nov. 13, 1990, abandoned. This application Jul. 20, 1992, Ser. No. 915,876

Claims priority, application Japan, Nov. 13, 1989, 1-294537

Int. Cl.[5] G03B *7/26, 15/05, 17/38*

U.S. Cl. 354—418 **7 Claims**



1. A camera having a battery check function comprising:

a power source commonly used for a charging circuit associated with a strobe emission and a camera function section other than the charging circuit;

battery check means for achieving a battery check on said power source;

shooting operation inhibiting means for inhibiting a shooting operation when said battery check means detects that a volatage outputted from said power source is equal to or less than a predetermined value;

processing detect means for detecting an initiation and a termination of an operation of said camera function section;

power source inhibiting means for inhibiting said power source from charging said charging circuit during a period of time from when said processing detect means detects the initiation of said camera function section to when said processing detect means detects the termination thereof;

charging detect means for detecting a state in which the charging is being conducted onto said charging circuit;

battery check inhibiting means for inhibiting said battery check means from accomplishing the battery check while a charging operation onto said charging circuit is being detected by said charging detect means; and

control means for causing said power source inhibiting means to inhibit said power source from charging said charging circuit until a camera function processing is completed and for causing said camera function section to execute a requested camera function processing when a camera function is requested while said charging detect means is detecting the state in which the charging is being conducted onto said charging circuit.

5,210,569

CAMERA HAVING A DISPLAY WHICH VARIES ACCORDING TO AN EXPOSURE CONTROL MODE

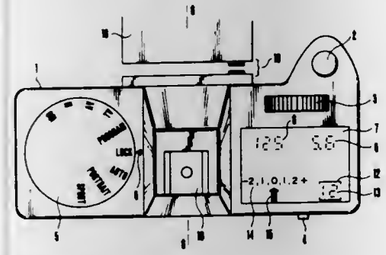
Yoshihito Harada, Kanagawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 25, 1991, Ser. No. 735,799

Claims priority, application Japan, Jul. 27, 1990, 2-199779

Int. Cl.[5] G03B *17/18*

U.S. Cl. 354—442 **35 Claims**



1. A camera comprising:

a) exposure control means arranged to permit exposure control in a first exposure control mode and in a second exposure control mode;

b) a selection member being movable and arranged to permit selection of either said first exposure control mode or said second exposure control mode on the basis of each position to which said selection member is moved;

c) display means arranged to change over contents of a display according to a moving position of said selection member, said display means being arranged to display an exposure control value when said first exposure control mode is selected and not to display said exposure control value when said second exposure control mode is selected;

wherein said selection member is a rotary diai having marks attached thereto indicating various modes respectively, and wherein each of said modes is selectable by rotating said dial to adjust the position of a specific mark to an index, so that a selected mode is discernible by a photographer; and

wherein a third mark which indicates information irrelative to exposure control is arranged between a first mark which indicates said first exposure control mode and a second mark which indicates said second exposure control mode.

5,210,570

METHOD FOR DETERMINING AN EXPOSURE FOR PRINTING

Kiyoshi Minamisawa; Akemi Kosugi; Yasuaki Satoh, and Yoshiaki Yamanaka, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed May 11, 1992, Ser. No. 881,399

Claims priority, application Japan, May 21, 1991, 3-145536

Int. Cl.[5] G03B *27/80*

U.S. Cl. 355—38 **3 Claims**

1. A method for determining an exposure for printing an original image of a photographic film on to a photographic paper, comprising the steps of:

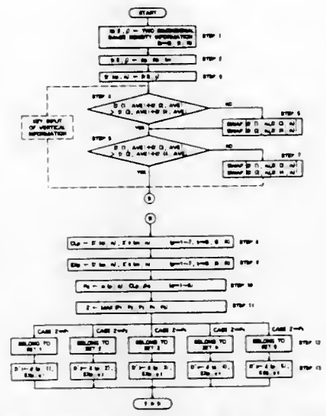
scanning an image on a photographic film to obtain an image data;

obtaining a plurality of region characteristic values from said image data;

obtaining a plurality of image characteristic values from said region characteristic values;

calculating a linear first order sum of said image characteristic values; and

selecting one of a plurality of predetermined sets of original images according to the result of said calculating step;



wherein said exposure is determined with a regression equation predetermined for one of said predetermined sets of original images.

5,210,571

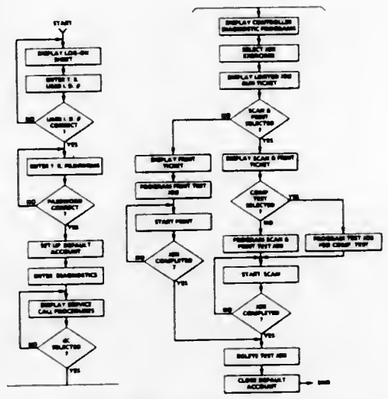
SYSTEM FOR SERVICING ELECTRONIC PRINTERS AND PRINTING SYSTEMS

Brad D. Peloquin, Rochester; James R. Reno, Walworth, both of N.Y., and Karen L. Dahlby, Minneapolis, Minn., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 26, 1991, Ser. No. 766,231

Int. Cl.[5] G03G *21/00*; G06F *11/00*

U.S. Cl. 355—203 **12 Claims**



11. A process for enhancing diagnosing of faults by a service technician when servicing an electronic printing system, said system including a printer for making prints, an input station providing print jobs in the form of electronic pages for printing, memory means for storing said electronic pages, and a user interface for establishing an operator dialog between system users and the system to enable a user to input print program instructions for printing said print jobs on said system, said user interface including an interactive screen for displaying pro-

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gram selections for use in inputting print program instructions for print jobs, comprising the steps of:

a) enabling said technician to enter said system for servicing said system and correcting system faults;

b) while in said system, allowing said technician to run customer type print jobs in order to provide test print jobs for use in diagnosing system faults; and

c) limiting the print program selections allowed to said technician in said operator dialog when inputting print program instructions for said test print jobs to program selections required for diagnosing system faults.

5,210,572

TONER DISPENSING RATE ADJUSTMENT USING THE SLOPE OF SUCCESSIVE IRD READINGS

Daniel W. MacDonald, Farmington, and Mark A. Scheuer, Williamson, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 5, 1991, Ser. No. 755,279

Int. Cl.[5] G03G *15/08, 21/00*

U.S. Cl. 355—208 **10 Claims**



6. Apparatus for creating tri-level images on a charge retentive surface, apparatus comprising:

means for moving said charge retentive surface past a plurality of process stations including a charging station where said charge retentive surface is uniformly charged;

means for forming a tri-level image on said charge retentive surface, said tri-level image comprising two images at different voltage levels and a background voltage level;

means for forming test patches on said charge retentive surface;

means having a relatively long mean residence time for developing said test patches with toner to form developed test patches;

toner dispensing structure for replenishing toner used for developing said test patches;

means for sensing the voltage levels of said developed test patches and generating signals representative of said voltage levels wherein the time interval for sensing successive test patch voltage levels is relatively short compared to said mean residence time; and

means for processing said signals and adjusting the dispensing rate of said toner dispensing structure in a manner which compensates for the time oscillations in toner concentration attributable to the relative values of said mean residence time and said time interval.

5,210,573

IMAGE FORMING APPARATUS

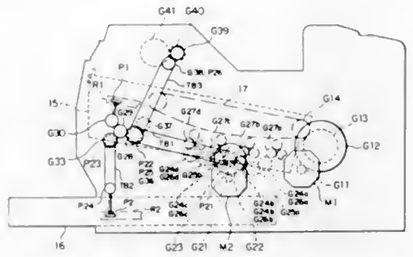
Masakazu Fukuchi; Shizuo Morita; Satoshi Haneda; Hisao Satoh, and Tadayoshi Ikeda, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Jul. 23, 1991, Ser. No. 734,521

Claims priority, application Japan, Jul. 26, 1990, 2-200787; Sep. 7, 1990, 2-238473; Oct. 20, 1990, 2-282591

Int. Cl.[5] G03G *5/00*

U.S. Cl. 355—211 **6 Claims**



1. An image forming apparatus comprising:

an image carrying body for forming a latent image on a surface thereof;

developing means for forming a developed image from the latent image;

means for transferring the developed image to a recording sheet;

means for cleaning the surface of the image carrying body after the developed image has been transferred from the surface of the image carrying body to the recording sheet;

a process-cartridge including the image carrying body and at least one of the developing means and the cleaning means, said process-cartridge being insertable into a main body of the image forming apparatus by a movement in an insertion direction until a first position is reached where image forming can occur, said process-cartridge being releasable in a release direction which is opposite in direction to the insertion direction by a movement from the first position to a second position so as to form an open space that provides room for an operator to have manual access to the transferring means;

driving means responsive to a first moving signal for driving the process-cartridge to move in the release direction from the first position to the second position;

an upper cover rotatably provided on an upper portion of the main body;

detecting means responsive to an opening of the upper cover by the rotation thereof for generating an open cover position signal; and

control means responsive to the open cover position signal for generating the first moving signal for transmission to the driving means for moving the process-cartridge from the first position to the second position.

5,210,574

PHOTOSENSITIVE DRUM BODY-MOUNTING MECHANISM INCLUDING A DRIVE COUPLING MEMBER WITH A COUPLING PROTRUSION ADAPTED TO BITE INTO THE INNER SURFACE OF THE MECHANISM'S PHOTOSENSITIVE DRUM

Hideki Kita, Suita, Japan, assignor to Mita Industrial Co., Ltd., Japan

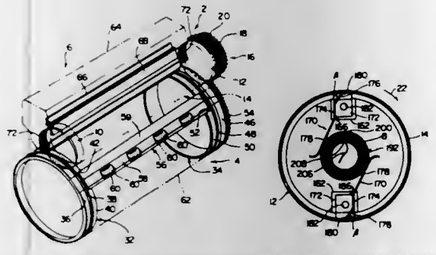
Filed Feb. 28, 1992, Ser. No. 843,256

Claims priority, application Japan, Mar. 8, 1991, 3-67647; Mar. 8, 1991, 3-67648

Int. Cl.[5] G03G *15/00*

U.S. Cl. 355—211 **6 Claims**

1. A photosensitive drum body-mounting mechanism in an image-forming machine in which a cylindrical photosensitive drum body having a photosensitive material disposed on the peripheral surface thereof is detachably mounted to flange members that rotate in a predetermined direction so as to be rotated together with said flange members, wherein a drive coupling member made of a resilient metal and having a coupling protrusion is secured to said flange members, said coupling protrusion of said drive coupling member having an



acute angle relative to an inner peripheral surface of said photosensitive drum body on the upstream side as viewed in the direction of rotation of said flange members and a tip of said coupling protrusion is pressed onto said inner peripheral surface of said photoconductive drum body, so that when said flange members are rotated, said tip of said coupling protrusion bites into said inner peripheral surface of said photosensitive drum body causing said photosensitive drum body and said flange members to rotate together.

5,210,575

DEVELOPING APPARATUS INCLUDING A BLADE FOR FORMING A TONER LAYER

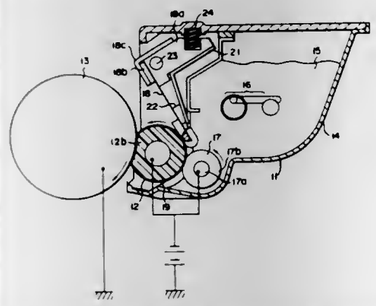
Kazuhiko Kikuchi, Yokobama, Japan, assignor to Kabushiki Kaisha Toshiba, Tokyo, Japan

Filed Feb. 13, 1991, Ser. No. 654,959

Claims priority, application Japan, Feb. 14, 1990, 2-32692

Int. Cl.[5] G03G *15/06*

U.S. Cl. 355—259 **7 Claims**



2. A developing apparatus for developing an image on an image carrying body, comprising:

a developing roller for supplying a developing agent to the image carrying body, the developing roller being located to face the image carrying body;

a developing agent supplying roller for supplying the developing agent to the developing roller; and

means for forming a developing agent layer of the developing agent supplied to the image carrying body on the developing roller, the forming means having an elastic member for controlling a thickness of the developing agent layer on the developing roller and a supporting member for supporting the elastic member, the elastic member having a semicircular cross section, and the supporting member having a free end portion facing the developing roller and a supporting portion supporting the elastic member thereon, the longitudinal width of the elastic member being less than that of the supporting member, the longitudinal width Lc of the supporting member and the longitudinal width Lp of the elastic member satisfying the formula $30\ (mm) > Lc - Lp \geq 4\ (mm)$, in which there are regions at both end portions of the supporting member, where the elastic member is not provided.

5,210,576

IMAGE FORMING APPARATUS HAVING A FIRST MODE FOR FORMING A MULTICOLOR IMAGE OF RESTRICTED LENGTH AND A SECOND MODE FOR FORMING A MONOCOLOR IMAGE OF UNRESTRICTED LENGTH

Satoshi Haneda; Masakazu Fukuchi; Shizuo Morita, and Shunji Matsuo, all of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

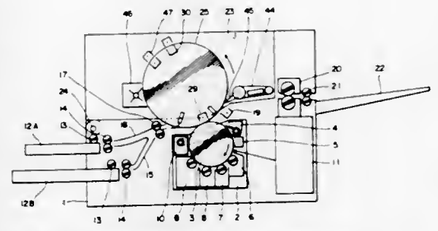
Continuation of Ser. No. 661,119, Feb. 27, 1991, abandoned, which is a continuation-in-part of Ser. No. 439,708, Nov. 20, 1989, Pat. No. 4,998,145. This application Apr. 2, 1992, Ser. No. 863,329

Claims priority, application Japan, Mar. 2, 1990, 2-52430

The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.

Int. Cl.[5] G03G *15/14*

U.S. Cl. 355—271 **6 Claims**



1. A color image forming apparatus comprising:

a rotatable image retainer for forming a monochromatic toner image thereon, said rotatable image retainer facing an image retainer charging means, an exposure means, and a developing means arranged at respective spaced apart positions;

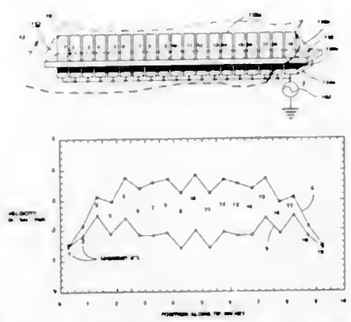
a rotatable transfer member facing said rotatable image retainer and having a predetermined circumferential length;

transfer means for transferring said monochromatic toner image from said image retainer to said transfer member whenever said monochromatic toner image is formed on said image retainer; and

control means for selecting either a monochromatic mode for forming a monochromatic toner image or a multicolor mode for forming a multicolor toner image composed of a plurality of monochromatic toner images and for limiting the maximum length of a multicolor toner image to be formed on said transfer member to said circumferential length of said transfer member irrespective of the circumferential length of said image retainer when said multicolor mode is selected, the maximum length of a monochromatic toner image to be formed on said image retainer and transferred to said transfer member not being limited by said circumferential length of said image retainer and transfer member when said monochromatic mode is selected.

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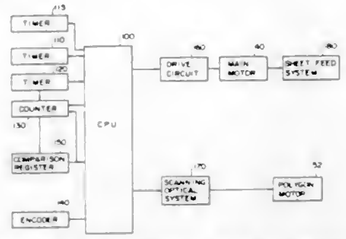
5,210,577
EDGE EFFECT COMPENSATION IN HIGH FREQUENCY VIBRATORY ENERGY PRODUCING DEVICES FOR ELECTROPHOTOGRAPHIC IMAGING
William J. Nowak, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed May 22, 1992, Ser. No. 887,037
Int. Cl.[5] G03G *15/14*
U.S. Cl. 355—273 9 Claims



1. In an imaging device having a non-rigid member with a charge retentive surface moving along an endless path, means for creating a latent image on the charge retentive surface, means for imagewise developing the latent image with toner, means for electrostatically transferring the developed toner image to a copy sheet, and a resonator for enhancing toner release from the charge retentive surface, producing relatively high frequency vibratory energy and having a portion thereof adapted for contact across the non-rigid member, generally transverse to the direction of movement thereof, the resonator comprising:
an energy transmitting horn member, for applying high frequency vibratory energy to the non-rigid member, having a platform portion, a horn portion including a set of linearly arranged horn elements, each horn element having a contacting portion for contacting the non-rigid member;
a voltage source producing a voltage signal;
a plurality of vibratory energy producing means, each corresponding to a horn element to drive said horn elements to vibrate, each vibratory energy producing means producing a vibration responsive to an applied voltage signal directed to each from said voltage source;
said plurality of vibratory energy producing means including at least two groups thereof, each group having a vibration response to said applied voltage signal directed thereto distinct from the other, to provide a substantially uniform vibration response to the applied voltage signal across the resonator.

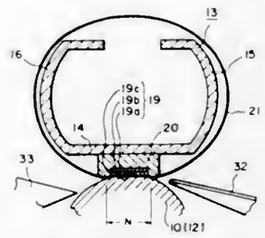
5,210,578
FEEDING DEVICE
Yoshimi Saito, and Kiyoshi Negishi, both of Saitama, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 19, 1992, Ser. No. 901,165
Claims priority, application Japan, Jun. 19, 1991, 3-245297; Jul. 9, 1991, 3-264253
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—285 7 Claims

1. A feeding device for feeding a sheet-shaped member, comprising:
a pair of rollers being driven to feed said sheet-shaped member which is nipped between said pair of rollers;
driving means for driving one of said pair of rollers;
detecting means for detecting the feeding speed of said sheet-shaped member, wherein the feeding speed may vary due to deformation of at least one of said rollers in its radial direction during feed operation; and



controlling means for controlling said driving means in such a fashion that the rotational speed of said at least one of said pair of rollers varies in order to maintain the feeding speed of said sheet-shaped member constant.

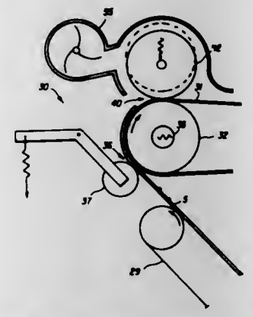
5,210,579
IMAGE FIXING APPARATUS HAVING A PARTING RESIN LAYER FOR REDUCING FRICTIONAL RESISTANCE OF THE FILM THROUGH WHICH THE IMAGE IS HEATED
Takeshi Setoriyama, and Akira Kuroda, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 26, 1991, Ser. No. 798,546
Claims priority, application Japan, Nov. 30, 1990, 2-339896; Nov. 30, 1990, 2-339899; Jul. 10, 1991, 3-170073
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—285 19 Claims



1. An image heating apparatus, comprising:
a heater;
an endless film slidably contactable to said heater;
a back-up rotatable member cooperative with said heater to form a nip therebetween with said film therebetween;
driving means for driving said back-up rotatable member;
wherein said film is driven only by a driving force of said back-up rotatable member; and
a resin layer, having a parting property, on a portion of said heater which is slidably contactable to said film.

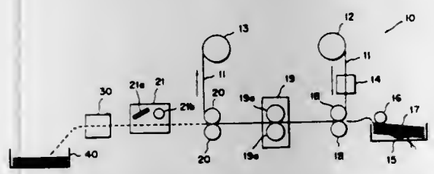
5,210,580
TONER IMAGE FIXING METHOD AND DEVICE IN WHICH A PRESSURE MEMBER IS COOLED
Muhammad Aslam, and Michael K. Baskin, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Sep. 3, 1991, Ser. No. 754,819
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—290 5 Claims

1. An image forming method comprising:
forming a toner image on a first side of a receiving sheet having first and second opposite sides, said first side having an outside heat softenable layer upon which the toner image is formed,
feeding said receiving sheet into a nip between said first and second pressure members,
said first pressure member contacting the image and being heated to a temperature sufficient to soften said heat softenable layer and to fix said toner image by at least partially embedding said toner image in said heat softenable layer as a result of the pressure in said nip, and



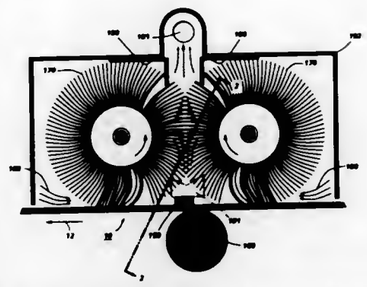
said second pressure member contacting the second side of said receiving sheet, and
maintaining said second pressure member at a temperature substantially below the temperature of the first pressure member at least while the receiving sheet is in the nip to provide a temperature gradient greater than 40° C. between the first and second sides of the receiving sheet.

5,210,581
IMAGE RECORDING APPARATUS HAVING IMAGE SURFACE LAMINATING CAPABILITY
Susumu Kuzuya, Gihu, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 4, 1990, Ser. No. 592,817
Claims priority, application Japan, Oct. 4, 1989, 1-259328
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—290 13 Claims



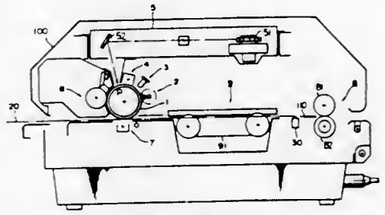
1. An image recording apparatus for recording an image on an image receiving member in cooperation with a photosensitive pressure-sensitive member, the image receiving member having first and second surfaces, comprising:
exposure means for exposing the photosensitive pressure-sensitive member to an imaging light to form a latent image thereon;
pressure developing means for pressure developing the latent image and forming a visible image on the first surface of the image receiving member;
thermal fixing means for thermally fixing the visible image formed on the first surface of the image receiving member, wherein the image receiving member is heated to an elevated temperature; and
lamination means for laminating a film member on at least one of the first and second surfaces of the image receiving member, wherein said image receiving member at substantially said elevated temperature alone provides heat to the lamination means.

5,210,582
STRETCHABLE CLEANER BAND DISTURBER
Douglas A. Lundy, Webster; Kenneth S. Palumbo, Rochester, and Robert E. Roedahl, Jr., Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Sep. 4, 1992, Ser. No. 941,279
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—297 8 Claims



1. An apparatus for removing residual particles from a moving imaging surface, comprising:
a housing defining an open ended chamber;
a pair of cleaner brushes, disposed in the chamber of said housing with a portion of each cleaner brush extending outwardly from the open end of the chamber of the housing into engagement with the imaging surface; and
means, interposed between said cleaner brushes, for disturbing the residual particles, said disturbing means having a tension force applied thereto in a direction transverse to the direction of movement of the imaging surface in a plane substantially parallel to the imaging surface.

5,210,583
ELECTROPHOTOGRAPHIC PRINTER WHICH POSITIONS THE LEADING EDGE OF A RECORDING SHEET
Yoshio Monma, Saitama, Japan, assignor to Asahi, Kogaku, Kogyo, Kabushiki, Kaisha, Tokyo, Japan
Continuation of Ser. No. 563,200, Aug. 6, 1990, abandoned. This application May 9, 1991, Ser. No. 700,323
Claims priority, application Japan, Aug. 8, 1989, 1-93157[U]
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—309 23 Claims



1. A printing device operable in one of a sheet setting mode and an image forming mode, said printing device employing a continuous-form recording sheet on which an image is to be formed, said printing device comprising:
feeding means for feeding the continuous-form recording sheet along a predetermined feeding path; and
stopping means, operable during said sheet setting mode, for

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stopping a feeding operation by said feeding means before a leading edge of the continuous-form recording sheet reaches a fixing unit located in said predetermined feeding path, said stopping means comprising detecting means provided at an upstream side of said fixing unit, for detecting a presence of the continuous-form recording sheet and controlling means for controlling said feeding means to not feed the continuous-form recording sheet when said presence is detected by said detecting means, whereby the feeding operation by said feeding means is stopped when the leading edge of the continuous-form recording sheet reaches a position at which said detecting means is located.

5,210,584

MULTI-COLORED IMAGE FORMING APPARATUS HAVING A MOVABLE SUPPORT MEMBER FOR THE DEVELOPING DEVICE

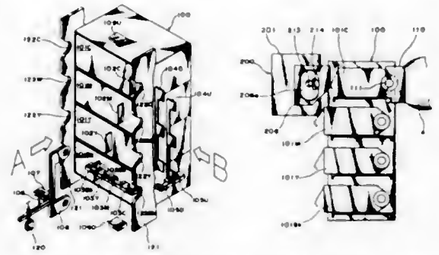
Shigeo Ogino, and Kazuaki Shiotsuka, both of Toyokaw Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Dec. 10, 1990, Ser. No. 625,062

Claims priority, application Japan, Dec. 12, 1989, 1-321837; Dec. 12, 1989, 1-321838; Dec. 12, 1989, 1-321839; Dec. 12, 1989, 1-321840; Dec. 12, 1989, 1-321841

Int. Cl.[5] G03G *15/01, 15/08*

U.S. Cl. 355—327 **18 Claims**



1. An image forming apparatus having a plurality of developing devices, mounted on a movable supporting member, for performing a multi-color development comprising:

driving means for driving said movable supporting member in a predetermined direction;

developing device detecting means for detecting a developing device at a developing position in which a developing operation is performed;

developing device moving means for moving said developing device at the developing position between a first position, adjacent to an image holding member, in which a developing operation can be carried out and a second position a certain distance away from said image holding member; and

control means for prohibiting the movement of said movable supporting member if said developing device is not detected by said developing device detecting means a predetermined period of time after said developing device moving means starts the operation for moving said developing device away from said first position toward said second position.

5,210,585

RANGE FINDER HAVING A PLURALITY OF SIGNAL RECEPTION MEANS

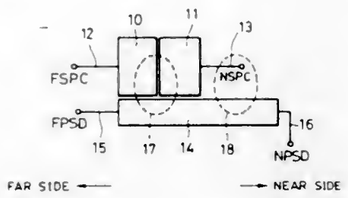
Ryoichi Suzuki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 26, 1991, Ser. No. 692,199

Claims priority, application Japan, Apr. 26, 1990, 2-114600

Int. Cl.[5] G01C *3/00, 5/00*; G03B *3/00*

U.S. Cl. 356—1 **23 Claims**



1. A range finder that measures a distance to an object by projecting a signal and receiving a reflected signal back comprising:

signal projection means for projecting said signal;

first signal reception means for receiving a reflected signal of the projected signal which is reflected from the object when the object is at a point in a range from a relatively near distance to a relatively far distance from said range finder; and

second signal reception means for receiving only a reflected signal of the projected signal which is reflected from the object when the object is located at a point which is at the relatively far distance.

5,210,586

ARRANGEMENT FOR RECOGNIZING OBSTACLES FOR PILOTS OF LOW-FLYING AIRCRAFT

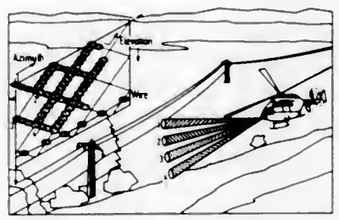
Ludger Grage, Eichenau, and Wolfgang Kranz, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jun. 12, 1991, Ser. No. 713,876

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1990, 4020469

Int. Cl.[5] G01C *3/08*; G01B *11/26*; H04N *7/18*

U.S. Cl. 356—5 **28 Claims**



1. In an arrangement for recognizing obstacles for pilots of low-flying aircraft, of the type having a pulsed laser range finder including a transmitter and a receiver for scanning a given field of view and a display, the improvement comprising:

said transmitter being formed by a plurality semiconductor laser diodes arranged in an array and means for operating said semiconductor laser diodes for establishing a scanned field of view of focused laser pulses from said semiconductor laser diodes in a coarse grid having a mesh-like scan pattern;

said receiver being formed by a plurality of receiving detectors arranged in an array and means for operating said receiving detectors to receive reflections of the laser pulses and to generate received signals corresponding thereto; and

means for generating a representation on said display, from said received signals, of the course of a recognized obstacle in said scanned field of view.

5,210,587

OPTICAL DISTANCE MEASURING APPARATUS

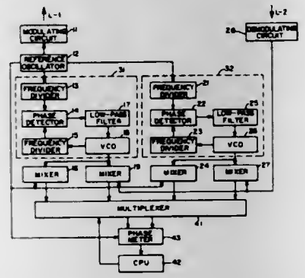
Yukio Ohmamyuda, Sagamihara; Shigeru Kimura, Yokohama; Toru Tanabe, Machida; Kazuhisa Iwasaki, Yokohama; Takao Seto, Yokohama; Hideki Kitamura, Yokohama; Kazubiko Sugimura, Yokohama, and Yasushi Senoo, Yokohama, all of Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan

Filed Mar. 4, 1992, Ser. No. 845,681

Claims priority, application Japan, Mar. 12, 1991, 3-72599

Int. Cl.[5] G01C *3/08*

U.S. Cl. 356—5 **7 Claims**



1. An optical distance measuring apparatus operable in accordance with a phase difference detecting process, comprising:

a light emitting portion including a light source from which a distance measuring light beam is emitted toward an object to be measured, and including means for allowing said distance measuring light beam to be oriented relative to said object to be measured, said distance measuring light beam being reflected from said object in the form of a reflected light beam;

a light receiving portion for receiving a reflected light beam reflected from said object to be measured;

a processing system including a central processing unit coupled to at least two local oscillating circuits for detecting and calculating a phase difference between an electrical phase of a modulated signal outputted from a reference oscillator electrically connected to said light emitting portion via a modulating circuit and an electrical phase of a demodulated signal outputted from a demodulating circuit electrically connected to said light receiving portion so as to determine a distance between said distance measuring apparatus and said object to be measured based on the detected phase difference with reference to the electrical phase of a reference signal outputted from said reference oscillator;

said at least two local oscillating circuits comprising a first local oscillating circuit from which a first local oscillating signal is outputted and a second local oscillating circuit from which a second local oscillating signal is outputted;

a first mixer and a second mixer electrically coupled to an output of said first local oscillating circuit; and

a third mixer and a fourth mixer electrically coupled to an output of said second local oscillating circuit.

5,210,588

FINGERPRINT IDENTIFICATION APPARATUS FOR ENHANCING IDENTIFICATION PERFORMANCE BY FORMING AN ILLUMINATION SOURCE AND A LIGHT CONDUCTING PANEL IN A SINGLE BODY

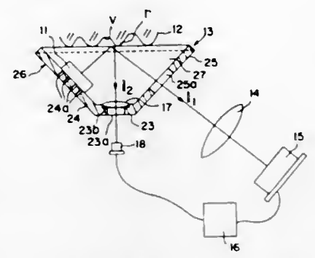
Ho-Gyu Lee, Seoul, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Nov. 15, 1991, Ser. No. 792,700

Claims priority, application Rep. of Korea, Nov. 17, 1990, 90-17681[U]

Int. Cl.[5] G06K *9/28*

U.S. Cl. 356—71 **5 Claims**



1. A fingerprint identification apparatus, comprising:

a housing having an illumination source for illuminating a fingerprint by radiating light, said illumination source including,

a plurality of ultra-luminance chips,

a diffuser coating layer for diffusing light radiation from said plurality of ultra-luminance chips,

a rheostat for maintaining a uniform brightness by controlling a resistance value to form a clear image of said fingerprint;

a light conducting panel for placing said fingerprint thereon and being illuminated from the light by the light radiated from said illumination source, and

a light concentration lens for concentrating the light diffused from the fingerprint;

an imaging lens for forming a fingerprint image from said light totally reflected from said fingerprint placed on said light conducting panel;

a CCD for converting said fingerprint image formed by said imaging lens to an electrical signal;

a signal processor for analyzing and identifying said fingerprint image converted to said electrical signal by said CCD; and

a sensor for detecting said light concentrated by said light concentration lens and activating said signal processor.

5,210,589

APPARATUS FOR MEASURING OPTICAL-AXIS DEFLECTION ANGLE OF HEADLIGHT

Toshiyuki Kaya; Osamu Takao, and Nobuo Matsushita, all of Hiroshima, Japan, assignors to Chuo Electronic Measurement Co., Ltd., Hiroshima, Japan

Filed Dec. 16, 1991, Ser. No. 808,351

Int. Cl.[5] G01J *1/00*

U.S. Cl. 356—121 **4 Claims**

1. An apparatus for measuring the deflection angle of the optical axis of a light beam projected from the headlight of a car under inspection, comprising:

a screen positioned to face said headlight, so that the beam from said headlight is projected on said screen;

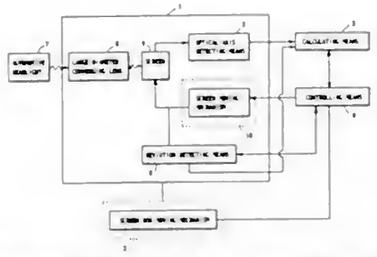
means for detecting the position of the optical axis of the light beam projected onto said screen;

a mechanism for shifting the screen from one location to another along with said means of detecting the position of the optical axis, as one united body;

means for detecting a deviation of optical-axis position

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caused by shifting of said screen by said shifting mechanism; and



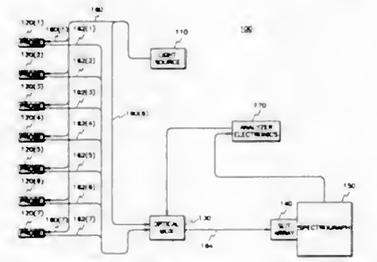
means for calculating the deflection angle of optical axis from the spacing between said locations of said screen and said deviation.

5,210,590

RAPID SCANNING SPECTROGRAPHIC ANALYZER

Isaac J. Landa, Potomac, and Michael M. Anthony, Gaithersburg, both of Md., assignors to L. T. Industries, Inc., Rockville, Md.

Filed Feb. 18, 1992, Ser. No. 836,403
Int. Cl.[5] G01J *3/08, 3/18, 3/42*
U.S. Cl. 356—319 **14 Claims**



1. An apparatus for optically analyzing a plurality of samples, the apparatus comprising:

(a) light source means for generating a source light having a preselected spectrum of wavelengths;

(b) spectrograph means for receiving incident light and for separating said incident light into individual wavelengths for analysis, said spectrograph means including a light entrance, a diffraction grating and an optical detector, said detector producing an electrical signal representative of the spectral contents of said incident light;

(c) optical multiplexing means having a plurality of multiplexer channels for the selective transmission of incident light through one multiplexer channel at a time, each said multiplexer channel including an input opening for receiving said incident light and an output opening for transmitting said incident light; and

(d) a plurality of analysis channels, each analysis channel including:

(i) optical probe means adapted to receive said source light, to focus said source light on a sample material to produce a sample convoluted light, and to collect said sample convoluted light;

(ii) first optical interconnect means for guiding said source light from said source means to said optical probe means;

(iii) second optical interconnect means for guiding said sample convoluted light from said optical probe means to one of said multiplexer channels; and

(iv) third optical interconnect means for guiding said sample convoluted light from said one of said multiplexer channels to said light entrance of said spectrograph means, said third optical interconnect means having a first end and a second end, said first end being connected to said output opening of said multiplexer channel;

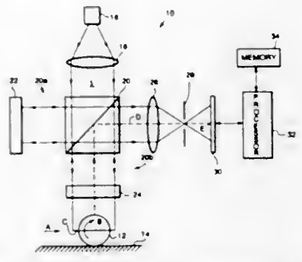
said second ends of said third optical interconnect means of said plurality of analysis channels being arranged to form an entrance slit array, said entrance slit array being coupled to said light entrance of said spectrograph means for focusing said sample convoluted light on said diffraction grating.

5,210,591

INTERFEROMETRIC BALL BEARING TEST STATION

Peter J. DeGroot, Seattle, Wash., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Aug. 2, 1991, Ser. No. 739,628
Int. Cl.[5] G01B *9/02*
U.S. Cl. 356—357 **20 Claims**



1. Apparatus for determining if a spherical surface of an object has a radius of curvature within a predetermined tolerance, comprising:

interferometer means including a reference beam and a single measurement beam, the measurement beam being disposed for illuminating a portion of a surface of the object with a substantially linear radiation pattern while the object is in rolling motion, the measurement beam reflecting from the surface of the object;

means, optically coupled to an output of the interferometer means, for recording at least one interferogram that results from a change in an optical path length of the measurement beam relative to an optical path length of the reference beam, the change in optical path length being due to the rolling motion of the object; and

means, coupled to an output of the recording means, for comparing the interferogram recorded by the recording means to a reference interferogram previously recorded from a surface of an object known to have a radius of curvature within the predetermined tolerance.

5,210,592

METHOD AND APPARATUS FOR DETERMINING THE OPTICAL QUALITY OF A TRANSPARENT PLATE

Joachim Bretschneider, Weiden, Fed. Rep. of Germany, assignor to Flachglas Aktiengesellschaft, Fürth, Fed. Rep. of Germany

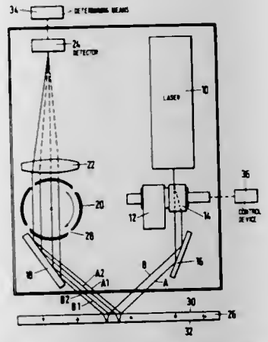
Filed Nov. 5, 1991, Ser. No. 788,082
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1990, 4035168
Int. Cl.[5] G01N *21/88*
U.S. Cl. 356—371 **22 Claims**

1. A method of determining the optical quality of a transparent plate, comprising:

directing two parallel incident light beams A, B having a reciprocal spacing onto the plate at an acute angle, relative to the plate normal, said plate having two surfaces for

reflecting said two incident light beams A, B to produce reflected beams A1, A2, B1, B2;

adjusting the reciprocal spacing and the angle of incidence ϵ_0 of the incident light beams A, B as a function of the thickness of the plate such that each of said reflected beams A1, A2, B1, B2 impact detecting means in a spatially separated manner, said detecting means comprising a photosensitive detector, said detector being position-sensitive;



detecting the impact points of each of the reflected light beams A1, A2, B1, B2 on the position-sensitive detector;

evaluating the respective directions in which the reflected light beams A1, A2, B1, B2 have been reflected by the surfaces of the plate from said impact points; and

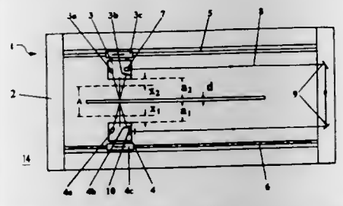
calculating, from said respective directions, parameters to quantitatively determine the optical quality of the plate.

5,210,593

GAUGE FOR MEASURING THE THICKNESS OF AN UNSUPPORTED WEB

Werner Krämer, Unterlindelbach, Fed. Rep. of Germany, assignor to Fag Kugelfischer Georg Schafer KGAA, Fed. Rep. of Germany

Filed Nov. 1, 1991, Ser. No. 786,373
Claims priority, application European Pat. Off., Nov. 19, 1990, 90122068
Int. Cl.[5] G01B *11/06*
U.S. Cl. 356—381 **20 Claims**



1. A gauge for measuring the thickness of a web, the gauge comprising:

a first sensor located above one side of the web and a second sensor located below the opposite side of the web;

each sensor having a laser which is aimed to direct a laser beam onto the respective side of the web adjacent to which the sensor is disposed, each sensor also having a detector which is positioned in relation to the web and to the respective laser so that the beam from the laser will be reflected from the web to the detector, and each detector including means for determining triangulation measurements of the distance between the respective sensor and the web;

means for defining a respective path of travel for each sensor spaced from the respective surface of the web and across the web;

a further laser for emitting a further laser beam and a further detector disposed in the path of the further laser beam, the further laser and the further detector being so located in the gauge that deviation in the vertical motion of at least one of the sensors in a direction toward or away from the web while the sensor is traveling along the path of travel across the web, shifts the further laser beam over the further detector responsive to the deviation of the motion of the sensor;

a zero calibration detector supported in the gauge, wherein the further laser beam emitted by the further laser is directed not only at the further detector, but also directed at the zero calibration detector for detecting deviations in the vertical motion of each of the sensors for determining zero calibration of the further detector; and

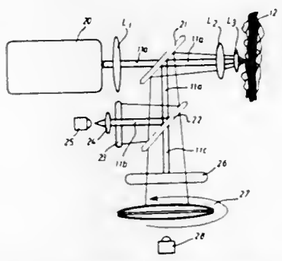
means for combining the information from each of the detectors for adjusting the web thickness triangulation measurements dependent upon the deviating motion of the sensors along the path of travel.

5,210,594

PROCESS AND DEVICE FOR MEASURING THE TWIST OF A TEXTILE YARN

Bernard Durand, Pfastatt, France, assignor to Passap Knitting Machines Inc., Salt Lake City, Utah

PCT No. PCT/FR91/00078, § 371 Date Oct. 15, 1991, § 102(e) Date Oct. 15, 1991, PCT Pub. No. WO91/12490, PCT Pub. Date Aug. 22, 1992
PCT Filed Feb. 5, 1991, Ser. No. 768,933
Claims priority, application France, Feb. 6, 1990, 90 01393
Int. Cl.[5] G01D *11/26*
U.S. Cl. 356—429 **4 Claims**



1. A process for optically measuring the angle twist of a textile yarn fibers comprising the steps of:

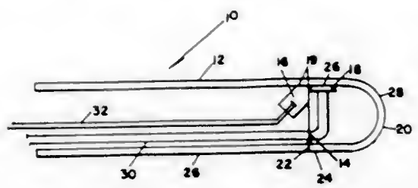
a) projecting a parallel beam of monochromatic coherent light, circular cross-section having a diameter smaller than the of the yarn onto a lateral surface of the yarn;

b) sensing the light of the beam after diffraction by the surface fibers of the yarn forms an oblong pattern of diffracted light defining a major axis and a minor axis with the major axis perpendicular to the lengthwise extension of the fibers, the major axis being disposed to an angle to the length of the yarn which is complementary to the angle of twist; and

c) ascertaining the angle of the major axis to the length of the yarn, thereby to provide a measure of the angle of twist.

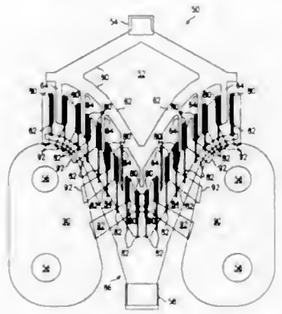
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,595
SOLIDS CONCENTRATION DETECTOR
James A. Devore, Monongahela; Gary F. Meenan, Bethel Park, both of Pa., and Hayward B. Oblad, Ponca City, Okla., assignors to Consolidation Coal Company, Pittsburg, Pa.
Filed Nov. 12, 1991, Ser. No. 790,835
Int. Cl.[5] G01N *21/53*
U.S. Cl. 356—442 3 Claims



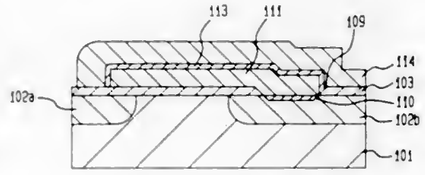
1. An optoelectric detector responsive to the change in solids concentration in a coal slurry comprising:
a. a pair of open ended spaced sections with transparent walls;
b. a thin wall opaque barrier attached to the open end of each spaced section with said spaced sections being separated by said barrier and not in contact with one another;
c. a light source enclosed in one spaced section adjacent said barrier for transmitting light into the slurry;
d. a photoconductor enclosed in the other spaced section adjacent said barrier for receiving reflected light from said slurry; and
e. said barrier attachment to the spaced sections prohibiting light transmittance from one section to the other through the spaced sections so that only light reflected from the slurry solids is transmitted to the photoconductor.

5,210,596
THERMALLY OPTIMIZED INTERDIGITATED TRANSISTOR
Samuel D. Pritchett, Flower Mound, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 374,422, Jun. 30, 1989, abandoned.
This application Nov. 1, 1990, Ser. No. 608,119
The portion of the term of this patent subsequent to Oct. 5, 2008, has been disclaimed.
Int. Cl.[5] H01L *29/80, 23/58, 27/19, 23/48*
U.S. Cl. 257—280 17 Claims



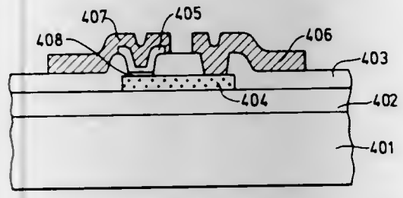
1. A high frequency amplifying transistor formed in a face of a layer of semiconductor comprising:
a drain terminal;
a gate terminal;
a plurality of subtransistors, each subtransistor comprising:
a source diffused region formed in said face of a selected conductivity type;
a drain diffused region formed in said face of said selected conductivity type and having an associated drain contact finger;
a channel region of said substrate spacing said source and drain regions of said subtransistor; and
a gate disposed adjacent said channel region;
a drain manifold electrically coupling said drain of each of said plurality of subtransistors with said drain terminal, said drain manifold including at lease one arcuate arm coupled to each said drain contact finger;
a gate manifold electrically coupling said gate of each of said plurality of subtransistors with said gate terminal, said gate manifold including at least one arcuate arm coupled to each said gate; and
a signal path associated with each said subtransistor, said signal path starting at said gate terminal, continuing through a respective gate, channel region, drain region and drain contact finger of a respective said subtransistor and terminating at said drain terminal, each of said signal paths having substantially the same time delay.

5,210,597
NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE AND A METHOD FOR FABRICATING THE SAME
Takao Kakiuchi, and Kazuo Sato, both of Takatsuki, Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan
Filed Mar. 4, 1991, Ser. No. 664,207
Claims priority, application Japan, Mar. 8, 1990, 2-57192
Int. Cl.[5] H01L *29/68, 29/34;* G11C *11/34*
U.S. Cl. 257—321 4 Claims



1. A non-volatile semiconductor memory device comprising:
a semiconductor substrate having a source region and a drain region each formed by a diffusion layer;
a first gate insulating film formed on said semiconductor substrate, said first gate insulating film having a window;
a second gate insulating film formed on said semiconductor substrate within said window;
a floating gate formed on said first gate insulating film, said floating gate covering a portion of said second gate insulating film;
a third gate insulating film formed on said floating gate; and
a control gate formed on said third gate insulating film,
wherein said floating gate has a first portion positioned on said first gate insulating film, a second portion positioned on said second gate insulating film, and spaced at a distance from said first portion, the direction perpendicular to a line therebetween being referred to as the channel width direction, and a third portion interconnecting said first and second portion, said second portion being positioned within said window, the length of said third portion along the channel width direction being shorter than that of said second portion.

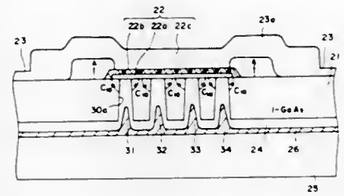
5,210,598
SEMICONDUCTOR ELEMENT HAVING A RESISTANCE STATE TRANSITION REGION OF TWO-LAYER STRUCTURE
Yasunori Nakazaki, and Kazuki Hirakawa, both of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Continuation of Ser. No. 397,523, Aug. 23, 1989, abandoned.
This application Oct. 31, 1990, Ser. No. 609,109
Claims priority, application Japan, Aug. 23, 1988, 63-209034; May 19, 1989, 1-124486; Jul. 18, 1989, 1-185387
Int. Cl.[5] H01L *45/00, 27/02, 29/04*
U.S. Cl. 257—530 8 Claims



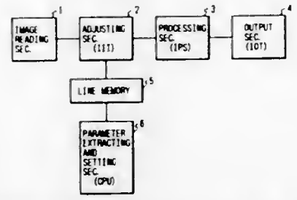
1. A semiconductor element formed on a semiconductor substrate and comprising: a lower electrode disposed on said substrate; a resistance-state transition region disposed on said lower electrode, and an upper electrode disposed on said resistance-state transition region, wherein said resistance-state transistor region comprises a silicon oxide insulation film and an amorphous silicon body forming a two-layer structure between said electrodes, with said film interposed between said body and one of said electrodes, said silicon oxide insulation film is a deposited film discrete from each electrode and from said amorphous silicon body, said amorphous silicon body is a deposited body discrete from each said electrode and from said silicon oxide insulation film and said resistance-state transition region is of a composition capable of undergoing a transition, upon exposure to electrical current from a voltage applied between said lower and upper electrodes, from a high resistance state to a lower resistance state, wherein said silicon oxide insulation film is disposed on said lower electrode and said amorphous silicon body is interposed between said silicon insulation film and said upper electrode, and wherein said amorphous silicon body contains an impurity element selected from Group III or V of the Periodic Table.

5,210,599
SEMICONDUCTOR DEVICE HAVING A BUILT-IN CAPACITOR AND MANUFACTURING METHOD THEREOF
Takahisa Kawai, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Continuation of Ser. No. 707,298, May 29, 1991, abandoned, which is a continuation of Ser. No. 413,749, Sep. 28, 1989, abandoned. This application Mar. 5, 1992, Ser. No. 844,914
Claims priority, application Japan, Sep. 30, 1988, 63-248852
Int. Cl.[5] H01L *27/02, 29/06, 29/12, 39/02*
U.S. Cl. 257—534 7 Claims

1. A semiconductor device having a built-in capacitor, comprising:
a substrate having upper and lower main surfaces;
an internal electrode formed on said upper main surface of said substrate, said internal electrode comprising a unitary segment of a conductive material, of a given configuration and area in a plane parallel to said upper main surface and having a lower surface on said upper main surface of said substrate and an upper surface;
a dielectric film formed on an covering said internal electrode;
a surface electrode formed on said dielectric film and in contact therewith, said surface electrode including at least a portion of a corresponding said configuration and area, in opposed relationship to the internal electrode and separated therefrom by the dielectric film when viewed in a plane transverse to the upper main surface of the substrate, said potion of the surface electrode together with said dielectric film and said internal electrode establishing a single capacitor;
an array of plural through holes formed in the substrate in correspondence to the single capacitor, said plural through holes extending in substantially parallel and spaced relationship from the lower main surface to the upper main surface of said substrate in a common direction substantially transverse to the lower and upper main surfaces and disposed within said configuration and area of said internal electrode and through which a corresponding array of portions of the lower surface of the internal electrode are exposed; and
a back-side electrode formed as a layer on said lower main surface of said substrate and including an array of plural, integral portions thereof extending through the respective through holes of said array thereof and into contact with the lower surface of the internal electrode at said array of exposed portions thereof.



5,210,600
EXTRACTION OF FILM IMAGE PARAMETERS IN IMAGE PROCESSING APPARATUS
Kunio Hirata, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Jan. 3, 1991, Ser. No. 637,126
Claims priority, application Japan, Jan. 8, 1990, 2-1283
Int. Cl.[5] H04N *1/46, 3/36*
U.S. Cl. 358—76 5 Claims

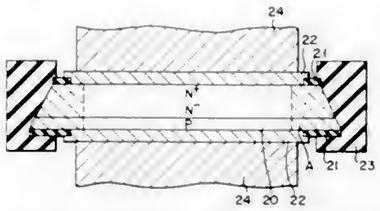


1. An image processing apparatus comprising:
image reading means for reading an image of a film to produce color decomposition data by scanning a plurality of lines on the film image in a stepped prescanning operation;
memory means; and
parameter extracting and setting means for, during the prescanning operation, sampling and adding the color decomposition data of a plurality of pixels at each of a first plurality of sampling points on a line-by-line basis and averaging the added color decomposition data, corrections including a shading correction being performed concurrently with the adding and averaging of the color decomposition data, and for, during a period of from an end of the prescanning operation to a start of a main scanning operation, from the averaged color decomposition data, determining a density correction amount and

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responsive to said density correction amount calculating parameters to be used for correcting the film image in a succeeding actual image processing operation, and setting the calculated parameters in the memory means.

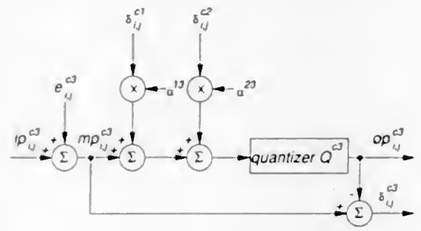
5,210,601
COMPRESSION CONTACTED SEMICONDUCTOR DEVICE AND METHOD FOR MAKING OF THE SAME
Mitsuhiko Kitagawa; Yoshio Yokota, both of Tokyo, and Kazuo Watanuki, deceased, late of Yokohama, all of Japan by Tetsu Watanuki, heir , assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 604,501, Oct. 29, 1990, abandoned. This application Jan. 6, 1992, Ser. No. 817,952
Claims priority, application Japan, Oct. 31, 1989, 1-283736
Int. Cl.[5] H01L *27/02, 23/32*
U.S. Cl. 257—727 **12 Claims**



1. A compression contacted semiconductor device having an alloy-free structure, comprising:
a semiconductor pellet including a reverse conducting gate turn off (GTO) thyristor located at a center portion thereof, a fly-wheel diode located at a peripheral portion thereof, and an isolating region located between the reverse conducting GTO thyristor and the fly-wheel diode, the semiconductor pellet having a beveled structure and having first and second major surfaces on each of which an electrode is formed;
first and second electrode members arranged respectively on the first and second major surfaces of the semiconductor pellet; and
first and second electrode posts between which the first and second electrode members and the semiconductor pellet are sandwiched, thus compressing the semiconductor pellet, the first and second electrode posts having a smaller width than the semiconductor pellet,
wherein a crystal defect density of a first heat generating portion of the semiconductor pellet, which is not in contact with the first and second electrode members, is approximately 1.5 times that of a second heat generating portion of the semiconductor pellet, which is in contact with the first and second electrode members, so that a carrier lifetime of the first heat generating portion is shorter than that of the second heat generating portion.

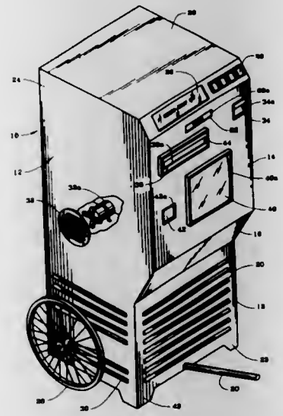
5,210,602
COUPLED-COLOR ERROR DIFFUSION
Frederick C. Mintzer, Shrub Oak, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 25, 1991, Ser. No. 660,776
Int. Cl.[5] G03F *3/08*
U.S. Cl. 358—80 **18 Claims**

12. A computerized method for producing improved quality output representations of full-color images on devices that produce a comparatively small number of output colors, by processing the signals representing the input pixels of the color image, in order, according to the steps comprising:
providing a source of output signals corresponding to the possible output-pixel values for the output colors;
receiving input signals representing at least two color components of the input pixels at each pixel position of the color image;
choosing an initial pixel position amoung said pixel positions and selecting, in accordance with said input signals at said initial position, output-pixel values from amoung the possible output pixel-values for each of the color components, and providing signals indicative of said selected output-pixel values to said output source;
computing, at the first pixel position following said initial pixel position, the modified-pixel values of said color components;
selecting the output-pixel value for the first color component from amoung the possible output-pixel values near the modified-pixel value for the first color component;
computing the quantization error for the first color component as the difference between said modified-pixel value for the first color component and said selected output-pixel value for the first color component;
selecting the output-pixel value for the second color component from amoung the possible output-pixel values near the sum of the modified-pixel value of the second color component and the product of a first constant and said quantization error for the first color component;
computing the quantization error for the second color component as the difference between said modified-pixel value for the second color component and said output-pixel value for the second color component;
selecting the output-pixel value for a next color component from amoung the possible output-pixel values near the sum of the modified-pixel value for said next color compo-



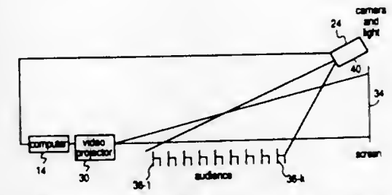
nent and the product of a second constant and said quantization error for the first color component and the product of a third constant and said quantization error for the second color component;
computing the quantization error for said next color component as the difference between said modified-pixel value and said output-pixel value of said next color component; and
selecting ouput pixel values for futher color components using the repective modified-pixel value summed with the products of successive constants and the repective quantization errors of said first color component and successive preceding color components, with the respective quantization errors being computed as the difference between the modified-pixel value and the output-pixel value of the respective color component; and
incrementing, at pixel positions not yet processed, the diffused error for said first color component at each such pixel position by an amount computed from the product of one of a first set of coefficients and said quantization error for said first color component at said first pixel position, incrementing the diffused error for said second color component at each such pixel position by an amount computed from the product of one of a second set of coefficients and said quantization error for said second color component at said first pixel position, and incrementing the diffused error for a next color component at each such pixel position by an amount computed from the product of one of a third set of coefficients and said quantization error for said next color components at said first pixel position;
incrementing the diffused error for further color components at each such pixel position by an amount computed from the product of one of a respective set of coefficients and the respective quantization error for the respective further color component at said first pixel position;
processing the signals representing the input pixels at the remaining pixel positions by repreating the computing, selecting, and incrementing steps in the same manner as the processing of the input pixel signals at said first pixel position; and
producing output corresponding to the selected output-pixel values for the output colors at each pixel position to reproduce the color image.

5,210,603
AUTOMATED VIDEO RECORDING DEVICE FOR RECORDING A GOLF SWING
Donald C. Sabin, 1255 Van Buren St., Hollywood, Fla. 33019
Filed Jan. 21, 1992, Ser. No. 824,237
Int. Cl.[5] H04N *7/18*
U.S. Cl. 358—93 **6 Claims**



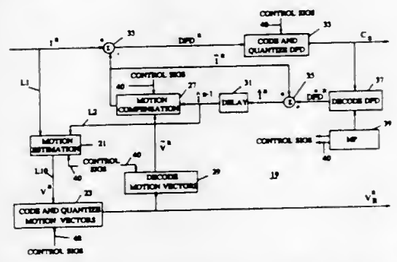
1. A portable vended video camera and recording system for recording a golf swing or similar activity comprising:
a rigid weather resistant housing;
a video camera mounted within said housing, said camera having a lens facing outward from said housing, said camera optically aligned and directed through a clear window disposed along the front wall of said housing;
a video cassette recorder mounted in said housing, having a cassette access mounted through the front wall of said housing near said camera outlet;
a TV monitor mounted in said housing and having a display screen visually mounted and vertically disposed through the front wall of said housing;
a money vending machine mounted inside said housing;
a first prompt message center LCD display device mounted in said front wall of said housing;
an LED time display having a visual display on said first wall housing; and
a microprocessor control circuit connected to said vending apparatus, said video camera, said video monitor, said VCR, said LED time display, and said LCD message center display for controlling sequential operation of said system whereby the user can, through the insertion of paper money, record on a video cassette a golf swing for a predetermined time period.

5,210,604
METHOD AND APPARATUS FOR AUDIENCE PARTICIPATION BY ELECTRONIC IMAGING
Loren C. Carpenter, 82 Queva Vista, Novato, Calif. 94947
Filed Dec. 10, 1991, Ser. No. 806,051
Int. Cl.[5] H04N *7/18*
U.S. Cl. 358—93 **15 Claims**



1. A method for collecting data from at least one person, comprising the steps of:
providing each person with a radiation source capable of defining at least two states;
scanning all the radiation sources with a detector thereby determining the state of each scanned source; and
aggregating the determined states into data.

5,210,605
METHOD AND APPARATUS FOR DETERMINING MOTION VECTORS FOR IMAGE SEQUENCES
André Zaccarin, Quebec City, Canada, and Bede Liu, Princeton, N.J., assignors to Trustees of Princeton University, Princeton, N.J.
Filed Jun. 11, 1991, Ser. No. 714,010
Int. Cl.[5] H04N *7/18*
U.S. Cl. 358—105 **25 Claims**



1. A method for determining motion vectors in an imaging system producing successive frames and/or fields each of a lattice of pixels, said method comprising the steps of:
dividing each frame or field into blocks of pixels;
forming a pattern of first and second groups of said blocks for each of said frames or fields;
selecting one of said first and second groups of said blocks in said pattern of a current frame or field for further processing;
identifying for each selected block a block from a previous frame or field representative of said selected block; and
calculating from the difference in position of each of said selected blocks and associated representative blocks, respectively, the motion vectors for each of said selected blocks in the current frame or field.

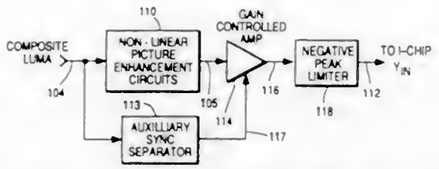
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,606

APPARATUS FOR CORRECTING DISTORTED SYNC IN A COMPOSITE VIDEO SIGNAL

William A. Lagoni, and Roger L. Lineberry, both of Indianapolis, Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed Apr. 30, 1990, Ser. No. 516,152
Int. Cl.[5] H04N 5/04
U.S. Cl. 358—148 7 Claims



1. In a television system, apparatus comprising:

means for providing an input composite video signal including an image component and a synchronization pulse component;

means for non-linearly processing said composite video signal including both of said image and synchronization pulse components to produce a non-linearly processed composite video signal including a non-linearly processed image component and a non-linearly processed synchronization pulse component; said non-linearly processed synchronization pulse component being subject to distortion due to the non-linear processing and thereby being rendered unreliable;

means for separating said synchronization pulse component of said input composite video signal before it is processed by said non-linear processing means to produce an undistorted synchronization pulse signal; and

means, including a gain controlled amplifier, responsive to both said non-linearly processed composite video signal, including said non-linearly processed synchronization pulse component, and said undistorted synchronization pulse signal for selectively amplifying individual synchronization pulses of said non-linearly processed synchronization pulse component in response to respective individual synchronization pulses of said undistorted synchronization pulse signal to produce a further composite video signal including a non-linearly processed image component and a reliable synchronization pulse component.

5,210,607

GHOST REDUCTION DEVICE FOR REMOVING GHOST COMPONENTS OF A TELEVISION SIGNAL

Toshiyuki Sakamoto, Fujisawa; Tsutomu Noda, Yokohama, and Keiro Shinkawa, Hiratsuka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

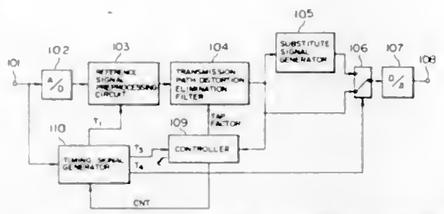
Filed May 14, 1991, Ser. No. 699,917
Claims priority, application Japan, May 14, 1990, 2-121349; Oct. 19, 1990, 2-279340
Int. Cl.[5] H04N 5/21
U.S. Cl. 358—166 17 Claims

1. A ghost reduction device for reduction of ghost components in a television (TV) signal, comprising:

reference signal preprocessing means for receiving an input of the TV signal transmitted with a periodic reference signal to be used for the reduction of the ghost components, wherein said preprocessing means is comprised of one of noise elimination means for eliminating noise from the reference signal and decode means for decoding a predetermined sequence of the periodic reference signal, thereby outputting a preprocessed output signal representative of the reference signal;

transmission path distortion elimination filter, having a controllable filtering characteristic and coupled to said preprocessing means for receiving the preprocessed output signal to suppress the ghost components thereof and to output therefrom a ghost-suppressed signal; and

control means for receiving the ghost-suppressed signal from said filter in order to extract from the received ghost-suppressed signal a ghost-suppressed reference signal



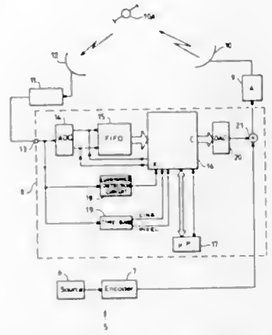
including one having residual ghost components of said preprocessed output signal and for detecting any residual ghost components, wherein the filtering characteristic of said transmission path distortion elimination filter is controllably in accordance with the detection of residual ghost components.

5,210,608

METHOD FOR THE CORRECTION OF TELEVISION SIGNALS AT TRANSMISSION, AND IMPLEMENTATION DEVICE

Michel Leduc, Boersch, France, assignor to Laboratoire Europeen de Recherches Electroniques Avancees Societe en Nom Collectif, Courbevoie, France

Filed Jul. 24, 1991, Ser. No. 735,296
Claims priority, application France, Aug. 3, 1990, 90 09971
Int. Cl.[5] H04N 5/213, 9/64
U.S. Cl. 358—167 9 Claims



1. A method for correction of defects occurring in a video signal during transmission comprising the steps of:

(a) transmitting, in a portion of the video signal corresponding to a portion of frames of the video signal not visible on a display screen, at least one reference line having defects included therein;

(b) sampling said at least one reference line at a plurality of points along said line;

(c) calculating an error signal resulting from a difference between the reference line having defects and a line representing an ideal reference line having no defects;

(d) calculating a correction coefficient from the error signal for each of said plurality of samples;

(e) applying said correction coefficient to portions of the video signal during frames following said portion of the frames of the video signal not visible on the display screen; and

(f) receiving, at a transmission station which includes a calibrated receiver, said transmitted video signal;

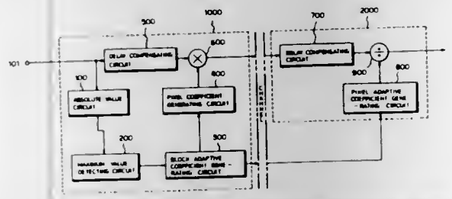
said step of calculating said correction coefficient including applying a weighting function to said error signal based on a luminance level of said video signal.

5,210,609

NOISE REDUCTION CIRCUIT FOR HIGH DEFINITION VIDEO SIGNAL

Phil H. Yu, Suweon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 27, 1991, Ser. No. 721,947
Claims priority, application Rep. of Korea, Jun. 30, 1990, 90-9875
Int. Cl.[5] H04N 7/14, 5/04
U.S. Cl. 358—167 27 Claims



1. A noise reduction circuit for high definition video signals, comprising:

absolute value generating means for successively generating absolute values of high frequency component video signals;

maximum value detecting means for successively forming two-dimensional blocks of said absolute values and providing maximum values for each of said two-dimensional blocks;

block adaptive factor generating means receiving said maximum values and providing a channel peak value as block adaptive factors if said maximum values are zero and providing said channel peak value divided by said maximum values as said block adaptive factors if said maximum values are non-zero;

first pixel adaptive factor generating means for generating first pixel adaptive factors by interpolating said block adaptive factors in a horizontal direction and by averaging said block adaptive factors between lines in a vertical direction;

multiplier means for generating transmitting signals by multiplying said high frequency component video signals by said first pixel adaptive factors to amplify a level of video pixel signals for transmission through a channel;

second pixel adaptive factor generating means for generating second pixel adaptive factors by interpolating said block adaptive factors in the horizontal direction and by averaging said block adaptive factors between lines in the vertical direction; and

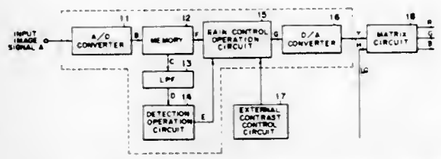
divider means for reconstructing said high-frequency component video signals by dividing the transmitting signals received from said multiplier means through said channel by said second pixel adaptive factors.

5,210,610

IMAGE SIGNAL CORRECTION PROCESSING APPARATUS

Masaaki Kanashiki, and Nobuo Minoura, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 18, 1991, Ser. No. 687,454
Claims priority, application Japan, Apr. 26, 1990, 2-114592; Apr. 26, 1990, 2-114595; Apr. 27, 1990, 2-111962
Int. Cl.[5] H04N 5/57
U.S. Cl. 358—169 21 Claims



1. An image signal processing apparatus which processes image signals, comprising:

(A) level distribution information generating means for receiving an image signal, detecting the level distribution state of image signals received over a predetermined period and generating information indicative of the level distribution state detected; and

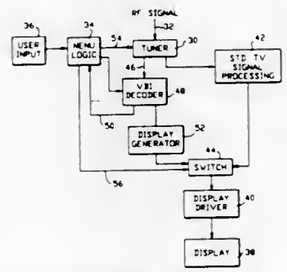
(B) level control means for controlling the level of the image signal according to the information generated by said level distribution information generating means so that a dynamic range indicative of the level distribution state of the image signal detected by said level distribution information generating means becomes wider than a predetermined level range.

5,210,611

AUTOMATIC TUNING RADIO/TV USING FILTERED SEEK

Keen Y. Yee, 16 Deer Ridge, Millwood, N.Y. 10546, and Gary W. Kibble, Ossining, N.Y., assignors to Keen Y. Yee, Millwood, N.Y.

Filed Aug. 12, 1991, Ser. No. 743,865
Int. Cl.[5] H04N 5/50, 7/04
U.S. Cl. 358—191.1 14 Claims



1. An apparatus for automatic tuning control in a receiver which receives broadcast signals, said tuning control being by a filtered seek operation, wherein said apparatus includes:

receiving means for receiving incoming broadcast signals and providing an output to a tuner, each of said signals having associated therewith coded data characterizing the subject matter content of the associated broadcast signals,

a tuner for selecting a frequency or frequency range from the output of said receiving means and for providing an output to a reading means.

reading means for reading said coded data accompanying a

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broadcast signal in said frequency or frequency range from said tuner, and for providing an output to a comparison means,

a user input device enabling a user to interact with said apparatus to make a selection of a subject matter topic,

comparison means for comparing the use's selection of a subject matter topic with the coded data from said reading means characterizing the subject matter content of a broadcast signal corresponding to said frequency or frequency range,

means for advancing said tuner in a seek mode to a plurality of frequencies, and

control means between said means for advancing and said comparison means for deciding whether to advance said tuner based on whether a match is made between said coded data from said reading means and said user's selection of a subject matter topic.

5,210,612

CIRCUIT FOR READING A PLURALITY OF CCD SENSORS DURING RESPECTIVE NON-OVERLAPPING OUTPUT PERIODS

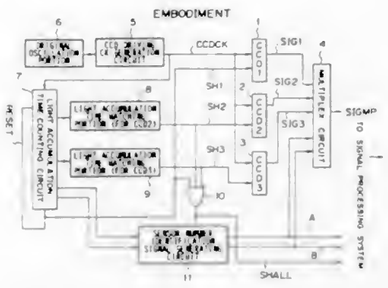
Toshiyuki Furuta; Yasuhiko Yokomori, both of Yokohama; Masato Ohta, Kawasaki; Hideo Suda, Yokohama; Naoki Ozawa, and Shogo Kida, both of Kawasaki, all of Japan, assignors to Suzuki Motor Corporation, Shizuoka, Japan

Filed May 24, 1991, Ser. No. 705,637

Claims priority, application Japan, May 25, 1990, 2-136021

Int. Cl.[5] H04N *5/335*

U.S. Cl. 358—213.11 **5 Claims**



1. A CCD driving circuit comprising circuit means for reading and outputting data from a plurality of CCD sensors which are each actuable to convert an image into said data by first optically sensing the image during a first time period and thereafter generating said data based on the optically-sensed image during a second time period, said circuit means including driving means for actuating said plurality of CCD sensors such that the first time periods of said CCD sensors are staggered so that the second time periods of said CCD sensors will not overlap each other, and multiplexing means for multiplexing and outputting said data read from each of said CCD sensors, wherein said driving means includes a counting circuit for periodically generating a first read starting signal which is applied to a first of said CCD sensors, and a plurality of time watching circuits which are each responsive to said counting circuit and which each supply to a respective said CCD sensor other than said first CCD sensor a respective further read starting signal at a point in time delayed by a respective unique time interval from each said first read starting signal.

5,210,613

ZIGZAG INTERLINE TRANSFER TYPE CCD IMAGE SENSOR

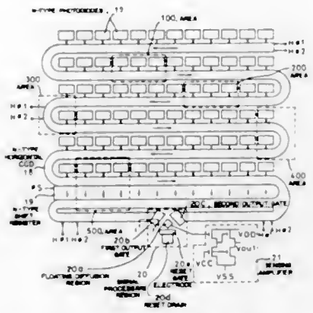
Sung M. Lee, Seoul, Rep. of Korea, assignor to Goldstar Electron Co., Ltd., Chungcheongbuk, Rep. of Korea

Filed Oct. 10, 1991, Ser. No. 774,627

Claims priority, application Rep. of Korea, Oct. 13, 1990, 16260/1990[U]

Int. Cl.[5] H04N *5/335*

U.S. Cl. 358—213.23 **12 Claims**



1. A charge coupled device image sensor comprising:

a plurality of uniformly spaced photodetecting means arranged in series in the vertical and horizontal directions, for producing signal charges corresponding to incident light incoming along a predetermined path,

horizontal signal transferring means formed integrally in a zigzag form between adjacent sets of said plurality of uniformly spaced photodetecting means in series in the horizontal direction for transferring the signal charges being applied from said plurality of uniformly spaced photodetecting means in a single direction in response to first and second external clock signals,

signal flowing direction changing means formed under the last set of said plurality of uniformly spaced photodetecting means in series in the horizontal direction and at output of said horizontal signal transferring means for selectively reversing a flow of the signal charges outputted from said horizontal signal transferring means in the opposite direction in response to a third external clock signal,

signal processing means for storing temporarily the signal charges from said horizontal signal transferring means or the signal charges from said signal flowing direction changing means and then resetting the signal charges, and

sense amplifying means for sensing states of the signal charges being temporarily stored in said signal processing means and amplifying the sensed states of the signal charges by a predetermined amplification degree;

wherein said plurality of uniformly spaced photodetecting means, said horizontal signal transferring means and said signal flowing direction changing means are of the same conductive type as that of a substrate.

5,210,614

DISPLAY INTERFACE FOR HIGH RESOLUTION CCD VIDEO SENSOR

Ram Kannegundla, Rochester, and Win-Chyi Chang, Penfield, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 28, 1991, Ser. No. 705,848

Int. Cl.[5] H04N *3/14, 5/335*

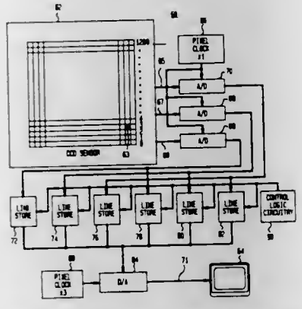
U.S. Cl. 358—213.28 **10 Claims**

1. A system for increasing the data readout rate from a high resolution CCD video sensor by a factor of n, where n is an integer greater than one and said video sensor produces a

sequence of frames, each frame comprising a multiplicity of lines of pixels, said system comprising:

n analog to digital converters connected to said video sensor to receive the pixels of successive lines in each frame from said video sensor into sequential ones of said analog to digital converters at a predetermined pixel clock frequency;

a separate pair of first-in first-out line stores for each of said analog to digital converters connected to respective ones of said analog to digital converters to receive the contents



of successive lines in each of said analog to digital converters in alternate ones of its respective pair of line stores in sequence;

a digital to analog converter connected to all of said line stores to receive the contents of successive lines from all of said line stores into said digital to analog converter in sequence; and

means connected to said digital to analog converter for reading analog data out of said digital to analog converter at n times said pixel clock frequency.

5,210,615

FRAME LINE INSERTING CIRCUIT FOR PRINTER

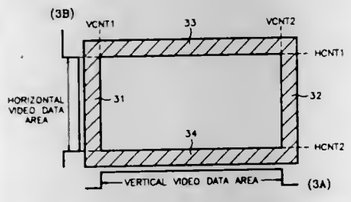
Sang-Chul Kwon, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 12, 1991, Ser. No. 684,204

Claims priority, application Rep. of Korea, Apr. 16, 1990, 5248/1990

Int. Cl.[5] H04N *1/21*

U.S. Cl. 358—296 **11 Claims**



1. A frame line insertion circuit in a printer having a line memory for storing input video data line by line, for printing the line video data, comprising:

first counter means coupled to receive column pixels for counting a number of vertical synchronization signals of said video signal to produce therefrom a first logic signal, said number of vertical synchronization signals corresponding to a period for inserting a vertical frame-line;

second counter means coupled to receive row pixels, for counting a number of horizontal synchronization signals of said video signal to produce therefrom a second logic signal, said number of horizontal synchronization signals corresponding to a period for inserting a horizontal frame-line;

gating means coupled to said first and second counter means for producing a third logic signal from a combination of said first and second logic signals;

analog-to-digital converter means for converting digital data;

memory means having at least one data set prepared to designate selected color for use in said vertical and horizontal frame-lines upon printing said digital video data in a printer; and

switching means coupled to a line memory, for selecting an input to said line memory under control of said third logic signal, said input corresponding to either one of the digital video data from said analog-to-digital converter means or at lest one data set from said memory means.

5,210,616

SHEET CARRIER APPARATUS AND A PICTURE IMAGE RECORDING APPARATUS

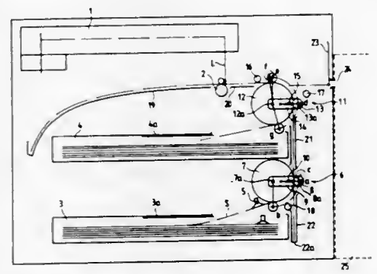
Keiichi Kawasaki, Tokyo; Keiji Ohkoda; Tomohiro Kudo, both of Yokohama, and Satoshi Shimizu, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 26, 1990, Ser. No. 543,413

Claims priority, application Japan, Jun. 30, 1989, 1-169425; Dec. 15, 1989, 1-325004; Dec. 15, 1989, 1-326926; Mar. 2, 1990, 2-50854; Mar. 2, 1990, 2-50856; Mar. 26, 1990, 2-77654; Apr. 25, 1990, 2-109327; Apr. 27, 1990, 2-111969

Int. Cl.[5] H04N *1/21*

U.S. Cl. 358—296 **78 Claims**



1. A sheet carrier apparatus, comprising:

a first and a second rotary members, at least one of said rotary members having a rotary driving force by first dirving means and capable of carrying a sheet grasped between the rotary members, said second reotary member being rotatable around said first rotary member by second driving means; and

control means for carrying a sheet grasped between the rotary members by controlling said first dirving means and for selectively setting a direction in which the sheet is to be moved from among a plurlity of directions by controlling said second driving means to rotate said second rotary member around said first rotary member while the sheet is grasped between them.

VOL 1150 ISS 2 MY 11 1993 UMI

5,210,617

DEVELOPER FOR DEVELOPING ELECTROSTATIC IMAGES AND IMAGE FORMING APPARATUS

Koichi Tomiyama, Kawasaki; Tsuyoshi Takiguchi, Yokohama; Tsutomu Kukimoto, Tokyo; Hiroshi Yusa, Yokohama, and Elichi Imai, Narashino, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 557,757, Jul. 26, 1990, Pat. No. 5,139,914. This application Jun. 5, 1992, Ser. No. 894,579

Claims priority, application Japan, Jul. 28, 1989, 1-194011; Jul. 28, 1989, 1-194012; Jul. 28, 1989, 1-194023; Jul. 28, 1989, 1-194027; Nov. 30, 1989, 1-309241; Dec. 22, 1989, 1-331300

Int. Cl.[5] H04N *1/29*

U.S. Cl. 358—300 83 Claims

48. A facsimile apparatus, comprising: an electrophotographic apparatus and a receiving means for receiving image data from a remote terminal, wherein said electrophotographic apparatus comprises:

a contact-charging means for charging a photosensitive member for bearing an electrostatic image while contacting the photosensitive member, and

a developing means for developing an electrostatic image formed on the photosensitive member with a developer which comprises a toner, and negatively chargeable spherical resin particles having an average particle size of 0.03–1.0 micron and a volume resistivity of 10^6–10^{12} ohm.cm.

5,210,618

METHOD, APPARATUS AND RECORD CARRIER FOR VIDEO SIGNAL RECORDING AND READING WHEREIN SIGNAL BLOCKS OCCURRING DURING SWITCHING ARE REPOSITIONED AND PRESERVED

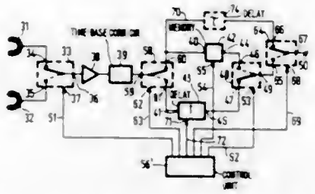
Gerard De Haan, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, Del.

Continuation of Ser. No. 530,688, May 30, 1990, abandoned, which is a continuation of Ser. No. 8,704, Jan. 29, 1987, abandoned. This application Aug. 6, 1991, Ser. No. 741,971

Claims priority, application Netherlands, Feb. 3, 1986, 8600254

Int. Cl.[5] H04N *9/79, 5/78*

U.S. Cl. 358—314 31 Claims



1. A method of recording a video signal in tracks which are inclined relative to the longitudinal direction of a magnetic record carrier in the form of a tape by means of a plurality of write heads mounted on a rotatable head drum, in which said write heads are cyclically changed over from one to another during the recording of the video signal, the video signal comprising a sequence of lines each having a first signal block containing a line synchronizing signal and a second block containing chrominance and luminance information of the video signal, the first signal blocks each containing at least one additional signal in addition to the line synchronizing signal, characterized in that for preserving at least the additional signal that would otherwise be lost during time when said write heads are cyclically changed over from one to another, said method of recording a video signal comprises the steps:

storing in a memory the at least one additional signal occurring in a specific first signal block of the video signal;

inserting said stored at least one additional signal in one or more specific second signal blocks associated with one or more non-relevant lines in the video signal, thereby forming a modified video signal, said non-relevant lines corresponding to lines in the video signal which occur outside of the display interval of a television picture signal; and

recording said modified video signal on said magnetic record carrier, wherein said specific second signal blocks containing said at least one additional signal are recorded in a track on the record carrier.

5,210,619

CHROMA PHASE MODULATOR

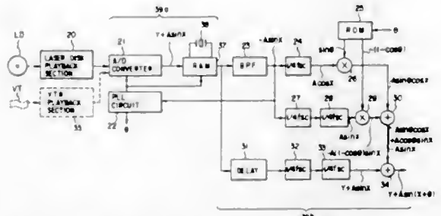
Kouichi Inoue, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 28, 1992, Ser. No. 889,386

Claims priority, application Japan, May 29, 1991, 3-124299

Int. Cl.[5] H04N *9/89, 9/64*

U.S. Cl. 358—320 16 Claims



1. A chroma phase modulator comprising:

first phase shift means for shifting the phase of a chroma signal-A sinX extracted from a composite video signal (Y + A sinX) by 90° to output a chroma signal A cosX;

output means responsive to application of a phase modulation amount θ (θ is any value to satisfy $-\pi/2 < \theta < \pi/2$) thereto for outputting coefficients $-(1-\cos\theta)$ and $\sin\theta$;

first multiplying means for multiplying the chroma signal A cosX output from said first shifting means and the coefficient $\sin\theta$ read from said outputting means in accordance with the phase modulation amount θ for the chroma signal extracted from the composite video signal;

second shifting, means for shifting the phase of the chroma signal A sinX extracted from the composite video signal by a predetermined amount to output a chroma signal A sinX;

second multiplying means for multiplying the chroma signal A sinX output from said second shifting means and the coefficient $-(1-\cos\theta)$ read from said outputting means in accordance with the phase modulation amount θ for the chroma signal extracted from the composite video signal; and

adding means for adding outputs of said first and second multiplying means and the composite video signal.

5,210,620

METHOD AND APPARATUS OF CONTROLLING A CAMCORDER BY PROVIDING AN ALARM AND REWINDING A TAPE TO PREVENT UNDESIRED RECORDING

Know-Jin Kim, Suweon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Sep. 27, 1991, Ser. No. 766,776

Claims priority, application Rep. of Korea, Dec. 11, 1990, 90-20338

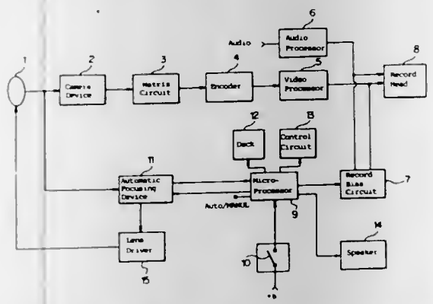
Int. Cl.[5] H04N *5/70*

U.S. Cl. 358—335 9 Claims

6. A recording control device for a video recorder, said recording control device comprising:

temperature sensing means for, during recording of video signals by the video recorder, providing a temperature sensed signal corresponding to a temperature at a part of the video recorder, by providing a first logic state for the temperature sensed signal in response to a range of temperatures including a bodily temperature of a user and a second logic state for the temperature sensed signal corresponding to said temperature not being within said range;

control mean for providing when a mis-alignment signal from a focussing device of the video recorder for a predetermined period of time during occurrence of the second logic state of the temperature sensed signal:



a stop-recording signal to stop said recording by the video recorder upon a recording medium within the video recorder, and

a rewind signal to return the recording medium to a frame of the video signal corresponding in time to one of a time when the second logic state of the temperature sensed signal first occurred and a time when the mis-alignment signal was first provided.

5,210,621

FACSIMILE APPARATUS

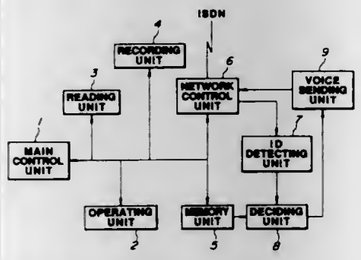
Haruki Kinoshita, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 18, 1990, Ser. No. 584,129

Claims priority, application Japan, Sep. 22, 1989, 1-246888

Int. Cl.[5] H04N *1/00*

U.S. Cl. 358—440 10 Claims



1. A facsimile apparatus comprising:

network control means connected to a digital line wherein said digital line is an ISDN line having at least two channels;

incoming signal detecting means for detecting an incoming facsimile signal when said facsimile signal is issued to said network control means over said digital line;

identification information detecting means for detecting incoming identification information of a caller facsimile apparatus, said incoming identification information being informed over said digital line when said facsimile signal is received;

memory means for storing identification information of at least one caller facsimile apparatus to communicate with and at least one telephone number of at least one destination terminal associated with said stored identification information;

judging means for comparing said incoming identification information detected by said identification information detecting means with said identification information stored in said memory means and for judging whether or not said incoming identification information corresponds to said stored identification information of at least one caller facsimile apparatus; and

voice sending means, when said judging means judges that said incoming identification information corresponds to identification information stored in said memory means, for automatically calling, by controlling said network control means, the destination terminal on the basis of said telephone number associated with said stored identification information and for sending to said destination terminal a voice message stating that the facsimile signal has been received, wherein said network control means automatically calls said destination terminal through a first channel of said ISDN line, which is different from a second channel through which said facsimile signal is received.

5,210,622

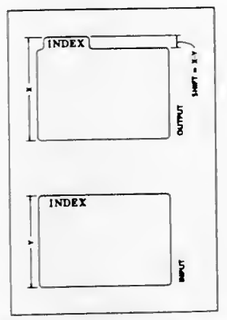
AUTOMATIC VARIABLE IMAGE SHIFT FOR PRECUT TABS

Timothy J. Kelley, Farmington; Alane H. Rowold, Rochester; Mike W. Barrett, Rochester, and Carol P. Parsons, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 28, 1990, Ser. No. 589,762

Int. Cl.[5] H04N *1/393*

U.S. Cl. 358—451 17 Claims



1. An electronic reprographic printing system for printing on output sheets of a print job, comprising:

means for scanning images of a set of original documents comprising a print job;

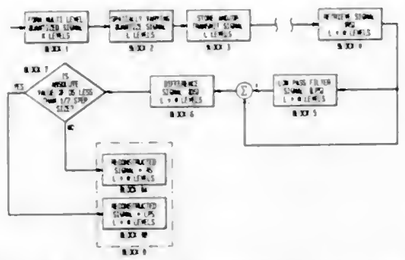
means for electronically storing in memory images of the scanned documents;

means for variably shifting the image of at least one of said stored electronic images for subsequent printing a distance equal to a dimensional difference between the original document from which the electronic image is scanned and the output sheet onto which the image is printed; and

means for converting the images to a corresponding set of output sheets for printing with a portion of said at least one image to be printed being printed in a region of an output sheet which is defined at least in part by said dimensional difference.

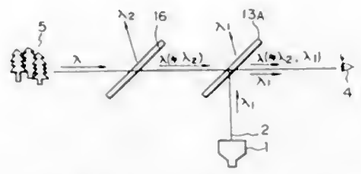
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,623
APPARATUS AND METHOD FOR QUANTIZING AND/OR RECONSTRUCTING MULTI-DIMENSIONAL DIGITAL IMAGE SIGNALS
John A. Weldy, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 21, 1989, Ser. No. 454,551
Int. Cl.[5] H04N *1/40*
U.S. Cl. 358—458 21 Claims



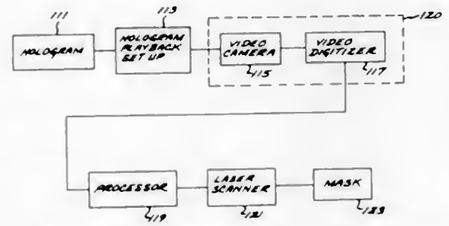
1. A method for quantizing multi-dimensional digital image signals comprising the steps of:
a) forming a multi-leveled quantized digital image signal;
b) reducing the number of quantization levels by further quantizing, in a spatially varying manner, the quantized digital image signal of step a) by selecting quantizers based upon the sample location indices value of each image pixel represented by said digital image signals, wherein each coordinate of each image pixel is a sample location indice value and by applying the quantized digital image signal to the selected quantizers;
c) storing and/or transmitting the digital image signal resulting from step b);
d) retrieving the digital image signal resulting from step c); and
e) reconstructing the digital image from step d) in a manner that increases the number of levels in the digital image signal.

5,210,624
HEADS-UP DISPLAY
Tsuyoshi Matsumoto, Atsugi; Reiko Watanabe, Kani; Shin Eguchi; Hirokazu Aritake, both of Isehara; Takashi Morihara, Kawasaki, and Fumio Yamagishi, Ebina, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Continuation of Ser. No. 584,619, Sep. 19, 1990, abandoned. This application Oct. 3, 1991, Ser. No. 770,157
Claims priority, application Japan, Sep. 19, 1989, 1-240706; Dec. 8, 1989, 1-319702
Int. Cl.[5] G02B *5/32, 27/10*
U.S. Cl. 359—13 19 Claims



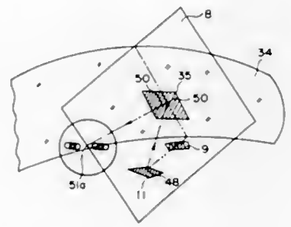
1. A heads-up display, comprising:
a holographic optical element located along a field of view and having diffraction characteristics sufficient to reflect a predetermined first wavelength, to reflect a second wavelength corresponding to a substantially complementary color of the predetermined first wavelength and to pass therethrough wavelengths of a background light other than the first and second wavelengths; and
an information source which emits an information light having the predetermined first wavelength and configured so that the background light transmitted through said holographic optical element and the information light reflected by the holographic optical element can be simultaneously viewed along the field of view.

5,210,625
HOLOGRAPHIC EFFICIENCY ADJUSTMENT
Gaylord E. Moss, Marina del Rey; Kevin Yu, Temple City, and John E. Wreede, Azusa, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.
Filed Mar. 29, 1991, Ser. No. 677,224
Int. Cl.[5] G03H *1/08*
U.S. Cl. 359—1 3 Claims



1. A method for controlling the diffraction efficiency of a hologram, comprising the steps of:
reconstructing a hologram that is or is representative of the hologram to be adjusted;
video scanning the hologram from a plurality of predetermined positions to provide brightness video data for each of the predetermined positions;
producing from the brightness video data for all of the predetermined positions brightness vs. position information;
producing from the brightness vs. position information a pattern that defines the areas of the hologram that are to be removed to achieve the desired reduction in diffraction efficiency; and
etching the hologram in accordance with the pattern.

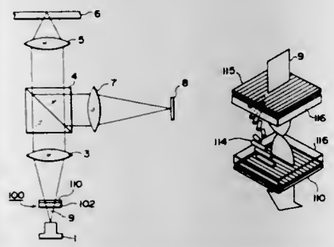
5,210,626
HEAD-UP DISPLAY DEVICE
Tetsuro Kumayama, Yokohama; Toshiaki Majima, Tokyo; Naosato Taniguchi, Atsugi; Yoko Yoshinaga, Machida; Hiroyoshi Kishi, Atsugi, and Nobuo Kushibiki, Yamato, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 21, 1990, Ser. No. 585,918
Claims priority, application Japan, Sep. 27, 1989, 1-251283
Int. Cl.[5] G02B *5/32, 27/14*
U.S. Cl. 359—13 18 Claims



1. A head-up device, comprising:

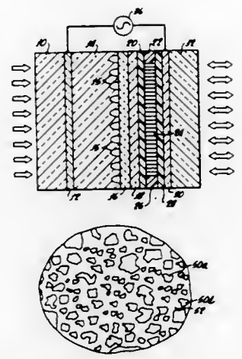
an image generator for emitting light;
a beam combiner having a first light receiving surface for receiving light from said image generator and diffracting light in an emitting direction toward an observer, wherein said beam combiner is tilted laterally with respect to the emitting direction and extends in a viewing plane not perpendicular to the emitting direction; and
a compensator having a second light receiving surface for receiving the light generated by said image generator and directing the light to the first light receiving surface of said beam combiner to correct an aberration created by said beam combiner,
said compensator being arranged such that a second axis perpendicular to a center of the second light receiving surface and a first axis perpendicular to a center of the first light receiving surface of said beam combiner are substantially in a common plane.

5,210,627
OPTICAL RECORD AND REPRODUCTION APPARATUS WITH LIQUID CRYSTAL PANEL THAT ROTATES LIGHT FOLLOWED BY A POLARIZER OR BIREFRINGENT PLATE
Eiichi Toide, and Toru Yoshihara, both of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed May 30, 1991, Ser. No. 707,909
Claims priority, application Japan, May 31, 1990, 2-144847; Jun. 22, 1990, 2-164623; Mar. 13, 1991, 3-48010
Int. Cl.[5] G02F *1/1335;* G11B *7/00*
U.S. Cl. 359—40 11 Claims



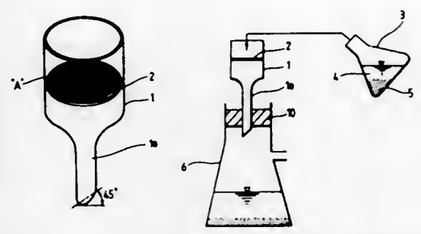
1. An optical recording and reproducing apparatus, comprising:
light source means for generating a light beam;
means for concentrating the light beam onto an information recording medium;
light detector means for receiving the light beam reflected by the information recording medium to obtain a tracking error signal;
a liquid crystal panel arranged between the light source means and the concentrating means, the liquid crystal panel including a first transparent electrode having a striped form;
a polarizing plate arranged between the liquid crystal panel and the concentrating means; and
a voltage application means for selectively applying a voltage to the first transparent electrode such that the liquid crystal panel rotates the polarizing direction of the light beam when no voltage is applied to the first transparent electrode,
said polarizing plate passing the polarizing directionally rotated light beam to the concentrating means when the voltage application means supplies no voltage to the first transparent electrode and blocking the non-polarizing directionally rotated light beam from the concentrating means when the voltage application means supplies voltage to the first transparent electrode.

5,210,628
LIQUID CRYSTAL LIGHT VALVE WITH PHOTOSENSITIVE LAYER HAVING IRREGULAR DIODE PATTERN
Steven E. Shields, San Diego, and Ogden J. Marsh, Carlsbad, both of Calif., assignors to Hughes-JVC Technology Corporation, Carlsbad, Calif.
Filed Oct. 21, 1991, Ser. No. 780,177
Int. Cl.[5] G02F *1/1343, 1/135, 1/1333*
U.S. Cl. 359—72 43 Claims



1. A liquid crystal light valve comprising:
a layered assembly including:
a pair of transparent conductive electrodes,
a liquid crystal layer,
a mirror layer, and
a photosensitive layer having an irregular pattern of diodes formed thereon,
said liquid crystal, mirror and photosensitive layers all being sandwiched together between said transparent conductive electrodes.

5,210,629
METHOD OF MAKING LIQUID CRYSTAL DISPLAY ELEMENTS USING CERAMIC FILTER TO DETERMINE SPACER SIZE
Taek S. Kim, Seoul, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea
Filed Dec. 6, 1991, Ser. No. 803,230
Claims priority, application Rep. of Korea, Dec. 6, 1990, 20038
Int. Cl.[5] G02F *1/1335, 1/1339*
U.S. Cl. 359—81 8 Claims



2. A method of making liquid crystal display elements comprising the steps of:
preparing a glass spacer mixture by mixing glass spacers in a dilution solution,
preparing a liquid crystal orientation solution mixture by

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adding a liquid crystal orientation solution in said glass spacer mixture,

selecting glass spacers having a predetermined size by passing the liquid crystal orientation solution mixture through a ceramic filter having a plurality of rectangular apertures, and

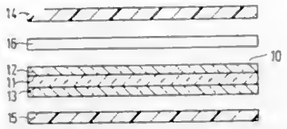
coating the liquid crystal orientation solution mixture containing selected glass spacers on a glass substrate.

5,210,630

LIQUID-CRYSTAL DISPLAY DEVICE

Ingrid E. J. R. Heynderickx, Eindhoven, Netherlands; Dirk J. Broer, Wilmington, Del., and Rifat A. M. Hikmet, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 598,320, Oct. 16, 1990, abandoned.
This application Aug. 13, 1992, Ser. No. 929,848
Claims priority, application Netherlands, Oct. 18, 1989, 8902578
Int. Cl.[5] C09K *19/54;* G02F *1/13*
U.S. Cl. 359—106 2 Claims



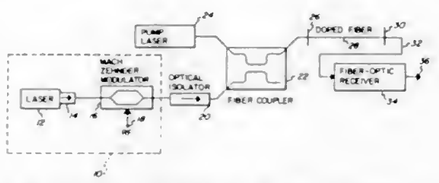
1. A liquid-crystal display device comprising a liquid-crystal cell having a twisted nematic liquid-crystal material arranged between two electrodes, said electrodes being provided on transparent substrates, opposing polarizers arranged on the outside of said cell and opposing said substrates and a layer of an optically anisotropic material provided between one of said polarizers and said cell, said layer of optically anisotropic material being a cross-linked synthetic resin composition comprising a polymer network having a helicoidal order and formed by polymerization of mixture of liquid crystalline monomers or oligomers, each of said monomers or oligomers having mesogenic groups and at least two polymerizable functional groups selected from the group consisting of acrylate ester, epoxy vinyl ether and thiolene moieties and a chiral dopant.

5,210,631

TRANSMISSION OF AM-VSB VIDEO SIGNALS OVER AN OPTICAL FIBER

David R. Huber, Warrington, Pa.; Douglas W. Hall, Corning, and Edward F. Murphy, Painted Post, both of N.Y., assignors to General Instrument Corporation, Hatboro, Pa. and Corning Incorporated, Corning, N.Y.

Filed Dec. 22, 1989, Ser. No. 454,772
Int. Cl.[5] H04J *14/02;* H01S *3/00*
U.S. Cl. 359—132 22 Claims



1. Apparatus for transmitting an amplitude modulated vestigial-sideband (AM-VSB) signal over an optical fiber comprising:

a light source for providing light at a wavelength λ;

means for modulating light from said source with a signal having an AM-VSB subcarrier, said SM-VSB subcarrier having a periodic waveform defining a period;

means for passing the modulated light through a doped optical fiber amplifier having an excited state lifetime which is greater than the period of said AM-VSB subcarrier and said amplifier exhibiting gain at said wavelength λ; and

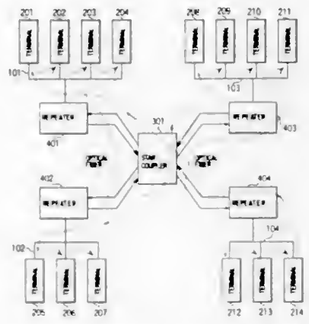
means for introducing the amplified modulated light output from said amplifier to an optical fiber.

5,210,632

SIGNAL TRANSMISSION SYSTEM HAVING A STAR COUPLED REPEATER

Toshiyuki Murakami, Hitachi; Sadao Mizokawa, Katsuta; Hisayuki Maruyama, Ebina; Masato Satake, Ibaraki; Masanori Kogawa, Hitachi, and Naomasa Hanano, Ibaraki, all of Japan, assignors to Hitachi, Ltd. Hitachi Cable, Ltd., Tokyo and Hitachi Process Computer Engineering, Inc., Hitachi, both of Japan

Filed May 22, 1990, Ser. No. 526,713
Claims priority, application Japan, May 26, 1989, 1-131274
Int. Cl.[5] H04B *10/02*
U.S. Cl. 359—178 20 Claims



1. A star coupled repeater comprising at least two signal input terminals and at least two signal output terminals, for repeating a frame signal by receiving said frame signal at one input terminal of said at least two signal input terminals, transmitting said frame signal from one output terminal of said at least two signal output terminals, receiving said transmitted frame signal being returned at another input terminal of said at least two signal input terminals and transmitting said returned frame signal from another output terminal of said at least two output terminals, comprising:

monitoring means for obtaining delay information indicative of a delay from a transmission of said frame signal from said one output terminal to a first reception of said frame signal transmitted from said one output terminal at said other input terminal, comprising:

a first frame detector for detecting a second reception of said signal by detecting said trailing edge of said frame signal received at said one input terminal of said at least two signal input terminals;

a second frame detector for detecting a third reception of said signal by detecting said trailing edge of said frame signal received at said other input terminal of said at least two input terminals; and

counting means for counting up at a first detection of said second reception of said signal by said first frame detector and for counting down at a second detection of said third reception of said signal by said second frame detector; and

means for controlling a transmission of said signal from said other output terminal of said at least two signal output terminals corresponding to said delay information from said monitoring means,

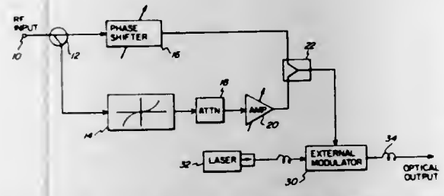
wherein, said counting means are maintained at a first predetermined value before a predetermined frame signal is received, and after said predetermined frame signal is received and transmitted, said frame signal being received at said other input terminal of at least two signal input terminals is not transmitted from said other output terminal until said counting means becomes said first predetermined value.

5,210,633

APPARATUS AND METHOD FOR LINEARIZING THE OPERATION OF AN EXTERNAL OPTICAL MODULATOR

Yudhi Trisno, Newtown, Pa., assignor to General Instrument Corporation, Hatboro, Pa.

Filed Sep. 12, 1990, Ser. No. 581,015
Int. Cl.[5] G02B *6/10;* G02F *1/01;* H04B *10/12*
U.S. Cl. 359—194 17 Claims



1. External optical intensity modulator apparatus having reduced third order distortion products comprising:

means for splitting an analog input signal into first and second paths;

phase shift means coupled to said first path for shifting the input signal phase;

distortion generator means coupled to said second path for introducing distortion components into said input signal;

means for combining the phase shifted input signal from said first path with the distorted input signal from said second path to provide a predistorted analog modulation signal; and

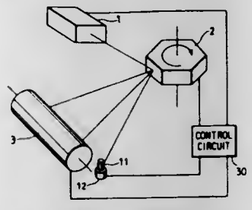
an external optical intensity modulator having an input for receiving said predistorted analog modulation signal for use in modulating a light source.

5,210,634

LIGHT BEAM SCANNER

Masatoshi Iwama, Tokyo, Japan, assignor to Asahi Kogaku Kogyo K.K., Tokyo, Japan

Continuation of Ser. No. 431,066, Nov. 3, 1989, abandoned. This application May 13, 1991, Ser. No. 701,013
Claims priority, application Japan, May 16, 1989, 1-121795
The portion of the term of this patent subsequent to May 14, 2008, has been disclaimed.
Int. Cl.[5] G02B *26/08;* H01J *5/16*
U.S. Cl. 359—196 7 Claims



1. A light beam scanner, comprising:

light source means for generating a light beam;

recording means for receiving said light beam emitted from said light source means;

scanning means for scanning said recording means in a predetermined position thereof by deflecting said light beam emitted from said light source means;

a fluorescent optical fiber, arranged to be aproximately perpendicular to a scanning direction of the light beam as defined by said scanning means, for generating fluorescent light in response to said light beam, said fluorescent optical fiber being arranged in a predetermined position on a scanning plane of said scanning means, wherein said fluorescent optical fiber is positioned forward of said recording means with respect to a scanning direction of said light beam; and

photodetector means, arranged on at least one end face of said fluorescent optical fiber, for receiving said fluorescent light generating within said fluorescent optical fiber, said photodetector generating an output at least indicative of said predetermined position of said recording means being scanned,

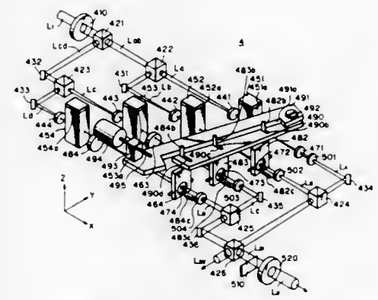
wherein a scanning operation by said scanning means is controlled based on at least said output of said photodetector means.

5,210,635

MULTIBEAM SCANNING SYSTEM

Shinichi Nagata, and Yoshio Ono, both of Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Japan

Filed Apr. 7, 1990, Ser. No. 510,466
Claims priority, application Japan, Apr. 17, 1989, 1-96957; Jul. 14, 1989, 1-183308
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—198 12 Claims



1. An optical beam scanning system for scanning a recording surface with a plurality of optical beams, the system comprising:

means for producing a plurality of optical beams each of which is a non-parallel bundle of rays;

means for receiving said plurality of optical beams, said receiving means comprising at least one beam interval adjusting means, each said beam interval adjusting means being associated with a respective optical path of said plurality of optical beams to adjust an interval between beam spots on a recording surface, each said adjusting means comprising: (a) a plane parallel plate disposed in its associated optical path and (b) turning means for turning said plane parallel plate on a turning axis associated with said plate which is perpendicular to its respective associated optical path;

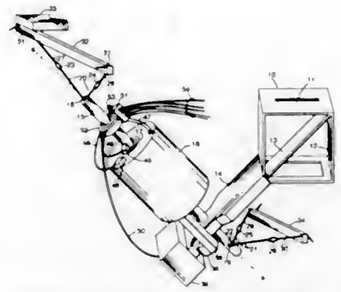
means for combining said optical beams to form a composite optical beam;

periodical deflection means for periodically deflecting said composite optical beam; and

an image formation lens system for focusing said composite optical beam on said recording surface.

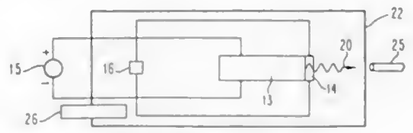
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,636
ROTATIONAL OSCILLATORY OPTICAL SCANNING DEVICE
Stephen C. Baer, 10 Poplar Rd., Cambridge, Mass. 02138
Filed Jul. 19, 1991, Ser. No. 732,599
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—200 20 Claims



1. In scanning apparatus including a base frame, a scanned element reciprocally rotated with respect to said base frame in an arc about a rotation axis external to said element, and a counterrotating counterbalance adapted to rotate in a rotational direction opposite that of said element, means for scanning said element including:
an arm for spacing said element from said rotation axis;
a second counterbalance;
means for connecting at least said second counterbalance, said arm and said element so as to form a superassembly of components adapted to rotate as unit about said rotation axis, said superassembly having a center of mass, the center of mass of said element and the center of mass of said second counterbalance being located on opposite sides of said rotation axis, and said second counterbalance being located such that said rotation axis passes through the center of mass of said superassembly thereby to provide balancing of said superassembly on said rotation axis;
bearing means allowing said superassembly to rotate about said rotation axis while substantially preventing movement of said rotation with respect to the axis of rotation of said counterrotating counterbalance, so that said superassembly and said counterrotating counterbalance can coact to produce vibration cancellation; and
power transducing means for applying a time varying torque to said element such that said element rotates reciprocally about said rotation axis thereby resulting in substantial reduction in the transmission of vibration to said base frame.

5,210,637
HIGH SPEED LIGHT MODULATION
Kenneth A. Puzey, Poughkeepsie, N.Y., assignor to International Business Machines Corp., Armonk, N.Y.
Filed Nov. 12, 1991, Ser. No. 790,974
Int. Cl.[5] G02F *1/01, 1/03;* G02B *26/00;* H01B *12/00*
U.S. Cl. 359—263 8 Claims

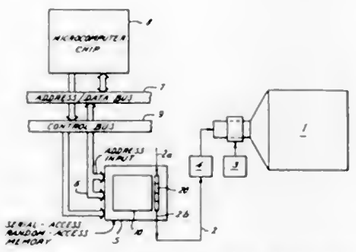


1. A light modulation device comprising:
a light source supplying light to be modulated, said light source having a light output;
a layer of material deposited on the light output of said light source, said material having a first, superconducting state wherein light is not transmitted therethrough and a second state wherein light is transmitted therethrough; and
a modulation circuit for controlling electrical current flow through said layer of material for switching said material between its first, superconducting state and its second state thereby modulating light from said light source.

5,210,638
ELECTROLYTE MATERIAL AND LIGHT MODULATION DEVICES USING THE SAME
Bernard Eid, Champagne/Seine; Pascal Marque, Fontainebleau, and Jean-Pierre Themont, Montigny/Loing, all of France, assignors to Corning Incorporated, Corning, N.Y.
Filed Dec. 19, 1991, Ser. No. 810,192
Claims priority, application France, Jan. 10, 1991, 91 00223
Int. Cl.[5] G02F *1/15, 1/153, 1/00;* H01M *6/04*
U.S. Cl. 359—265 15 Claims

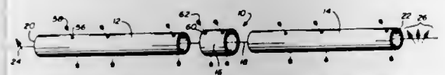
1. An electrolytic material for use in light modulation devices consisting essentially of a homogeneous solution of:
(A) at least one organic solvent; and
(B) at least one salt of an electrodepositable metal; characterized in that it further contains
(C) at least one organic acid, and
(D) at least one salt of a non-electrodepositable metal facilitating the dissolution of the salt (B).

5,210,639
DUAL-PORT MEMORY WITH INHIBITED RANDOM ACCESS DURING TRANSFER CYCLES WITH SERIAL ACCESS
Donald J. Redwine, Houston, and Raymond Pinkham, Stafford, both of Tex., assignors to Texas Instruments, Inc., Dallas, Tex.
Continuation of Ser. No. 630,407, Dec. 19, 1990, abandoned, which is a continuation of Ser. No. 534,297, Jun. 5, 1990, abandoned, which is a continuation of Ser. No. 285,434, Dec. 16, 1988, abandoned, which is a division of Ser. No. 64,290, Jun. 18, 1987, Pat. No. 4,897,818, which is a division of Ser. No. 567,039, Dec. 30, 1983, Pat. No. 4,689,741. This application Apr. 10, 1992, Ser. No. 870,721
Int. Cl.[5] G11C *19/00, 7/00*
U.S. Cl. 395—425 15 Claims



1. An integral memory device having random and serial access capability, comprising the following elements: an internal array of rows and columns of addressable memory cells;
a plurality of address input terminals for receiving an address from external of said memory device;
address circuitry for selecting a memory cell in said array responsive to said address input terminals receiving an address;
random access input circuitry for writing externally received data to said memory cell selected by said address circuitry;
random access output circuitry for accessing the contents of said memory cell selected by said address circuitry and presenting it externally of said memory device;
a register comprised of a plurality of memory cells internal of said device;
memory transfer circuitry for transferring the contents of selected memory cells of said array into the memory cells of said register;
serial output circuitry coupled to at least one memory cell in said register for presenting the contents of said memory cell in said register to external of said device;
transfer control circuitry, responsive to a transfer control signal and internal of said device, for selectively enabling and disabling said memory transfer circuitry so that, while said memory transfer circuitry is disabled, data may be randomly written to and read from any of said memory cells in said array independently from the presentation of data by said serial output circuitry;
serial transfer circuitry responsive to a serial clock signal for transferring to said serial output circuitry the contents of another memory cell in said register so that, upon a series of said serial clock signals, the contents of a series of memory cells in said register will be presented externally of said device by said serial output circuitry; and
a buffer circuit, internal of said device, coupled to said random access output circuitry and responsive to said transfer control circuitry, for selectively inhibiting said random access output circuitry from externally presenting the contents of said memory cell selected by said address circuitry during such time as said memory transfer circuitry is enabled;
wherein all of said elements are included in said integral memory device.

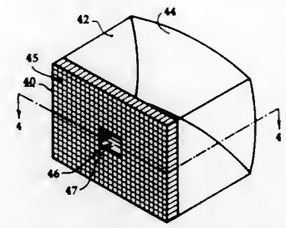
5,210,640
IMAGE ROTATION DEVICE
E. C. George Sudarshan, Austin, and Randall G. Hulet, Houston, both of Tex., assignors to Quantum Optical Devices, Phoenix, Ariz.
Filed Oct. 7, 1991, Ser. No. 772,105
Int. Cl.[5] G02B *3/06, 27/22*
U.S. Cl. 359—434 10 Claims



1. An afocal image rotation device for translating a three dimensional image of an object along, and selectively rotating the image about, an optical axis comprising:
means for inverting the image about a first axis normal to the optical axis;
means for inverting the image about a second axis normal to the optical axis;
means for optically coupling the first inverting means and the second inverting means in series along the optical axis; and
means for selectively rotating the first and second inverting means relative to one another about the optical axis,
wherein all rays exiting the device bear precisely the same angular and spatial relationship to one another as they did as they entered the device.

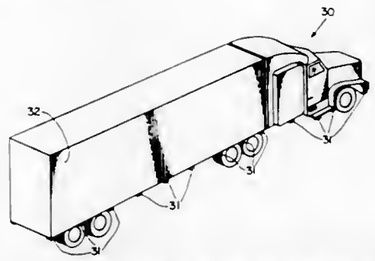
5,210,641
HIGH CONTRAST FRONT PROJECTION DISPLAY SCREEN
Richard B. Lewis, 7086 Salmon Cr. Rd., Williamson, N.Y. 14589
Filed May 1, 1992, Ser. No. 877,659
Int. Cl.[5] G03B *21/60*
U.S. Cl. 359—448 5 Claims

1. A projection screen (23) for displaying optical images projected onto the front thereof by a projector, comprising a multiplicity of optical cells, each of said cells (FIG. 3) comprising:
a. means (44) for converging light from said projector at a determined focal region (47) within said cell, and
b. directional filter means (40) covering substantially all of



the face of said cell, said directional filter means comprising a transparent return aperture (46) located at said focal region and light propagation control means (45) to pass a substantial fraction of light incident from the direction of said projector and to absorb substantially all light incident from other directions.

5,210,642
VEHICLE REFLECTOR UNIT
George Coligionis, Brakpan, South Africa, assignor to Peter John Cowling, South Africa, a part interest
Filed Sep. 13, 1991, Ser. No. 759,467
Claims priority, application South Africa, Sep. 14, 1990, 90/7341
Int. Cl.[5] G02B *5/136*
U.S. Cl. 359—548 6 Claims



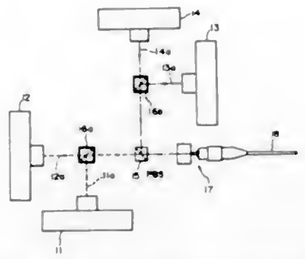
1. A vehicle having a plurality of reflector units each having at least one reflective surface operative to reflect incident light towards each of the rear, side and front of the vehicle, said reflectors being attached along at least one of the sides of said vehicle, said reflectors being spaced apart from one another at a predetermined distance of approximately 1 meter, so as to provide an indication to other road users as to the relative length of said vehicle.

5,210,643
WAVE COMBINING APPARATUS FOR SEMICONDUCTOR LASERS
Yoshiaki Fujii; Michihiko Sakurai, and Yujiro Ito, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Aug. 29, 1991, Ser. No. 751,527
Claims priority, application Japan, Aug. 31, 1990, 2-231355
Int. Cl.[5] G02F *27/10*
U.S. Cl. 359—638 12 Claims

1. A wave combining apparatus comprising:

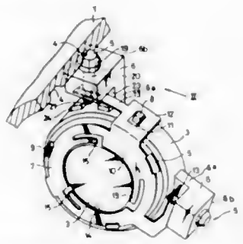
VOL 1150 ISS 2 MY 11 1993 UMI

first laser beam means for producing a plurality of P polarized laser beams;
second laser beam means for producing a plurality of S polarized laser beams;
first waveform division means for performing waveform division on said plurality of said P polarized laser beams to produce a first resultant laser beam;



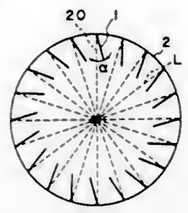
second waveform division means for performing waveform division on said plurality of S polarized laser beams to produce a second resultant beam; and
waveform combination means for combining said first and second resultant laser beams to produce a combined waveform.

5,210,644
CAM MECHANISM OF LENS
Hiroshi Nomura, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 20, 1990, Ser. No. 616,260
Claims priority, application Japan, Nov. 20, 1989, 1-301230
The portion of the term of this patent subsequent to Aug. 11, 2009, has been disclaimed.
Int. Cl.[5] G02B *15/14, 7/02*
U.S. Cl. 359—694 **28 Claims**



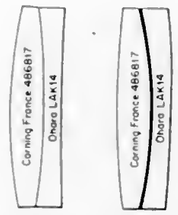
1. A cam mechanism of a lens having a cam groove having a conical side face, formed in an inner peripheral surface of a cam ring, and a cam follower which is provided on a holder and which is fitted in said cam groove, so that said cam follower can be moved in an optical axis direction by the movement of said cam ring, comprising:
spring means provided on said holder to elastically support said cam follower in the radial direction of said cam ring; and
mounting means provided on said spring means for engaging with said cam follower in said radial direction;
wherein said spring means comprises a leaf spring.

5,210,645
LIGHT BLOCKING DEVICE FOR OPTICAL LENSES
Kanjo Orino, Kawasaki, and Shigeru Oshima, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 22, 1991, Ser. No. 673,454
Claims priority, application Japan, Mar. 24, 1990, 2-74789
Int. Cl.[5] G02B *9/00*
U.S. Cl. 359—738 **13 Claims**



1. An optical apparatus comprising:
a plurality of optical lenses provided on an optical axis; and
a plurality of light blocking plates for eliminating harmful light fluxes, said light blocking plates being inclined to a plurality of imaginary planes including said optical axis, by an angle α, respectively.

5,210,646
COLOR-CORRECTED OPTICAL SYSTEMS AND METHOD OF SELECTING OPTICAL MATERIALS THEREFOR
Romeo I. Mercado, San Jose, and Paul N. Robb, Sunnyvale, both of Calif., assignors to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.
Continuation of Ser. No. 519,343, Apr. 16, 1990, abandoned, which is a continuation of Ser. No. 758,626, Jul. 24, 1985, abandoned, which is a division of Ser. No. 419,705, Sep. 20, 1982, abandoned. This application Nov. 19, 1990, Ser. No. 617,305
Int. Cl.[5] G02B *9/04*
U.S. Cl. 359—793 **28 Claims**



1. A method of manufacturing an optical system that is color-corrected at a number of discrete wavelengths, said manufacturing method including a process for selecting compatible optical materials from among available optical materials for fabricating optical elements of said system, each of said available optical materials having a characteristic dispersive power, said process for selecting compatible optical materials comprising:
a) representing the dispersive power of each available optical material by a polynomial expression in a variable that is a function of wavelength, the polynomial expression for each available optical material being of a degree that is numerically one less than the number of wavelengths for which color correction of said system is required;
b) comparing a ratio of coefficients in the polynomial expression for one of said available optical materials with corresponding ratios of coefficients in the polynomial expressions for others of said available optical materials;
c) identifying particular optical materials from among said others of said available optical materials for which said corresponding ratios of coefficients are substantially equal to said ratio of coefficients for said one of said available optical materials; and
d) choosing said compatible optical materials from among those particular optical materials for which said corresponding ratios of coefficients are substantially equal, said compatible optical materials so chosen being used for fabricating said optical elements as specified in a design form that provides color correction for said system at said discrete wavelengths.

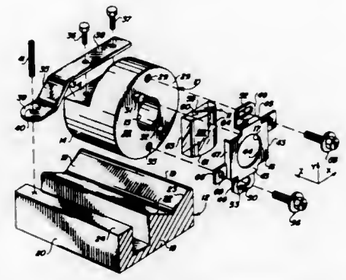
5,210,647
FIBER VIEWER
Heinz Hartnagel, Leander; Raymond J. Kastens, and Charles M. Mansfield, both of Austin, all of Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Sep. 20, 1991, Ser. No. 763,192
Int. Cl.[5] G02B *7/00*
U.S. Cl. 359—802 **19 Claims**



1. An instrument for visually inspecting the end face of an optical fiber located in a cleaving device, the instrument comprising:
a generally cylindrical body;
lens means located in said body for optically magnifying the end face of the optical fiber; and
adaptor means for attaching said body to the cleaving device, said adaptor means including a socket for receiving one end of said body, and a base attached to said socket, said base having a plurality of leg members for attachment to the cleaving device.

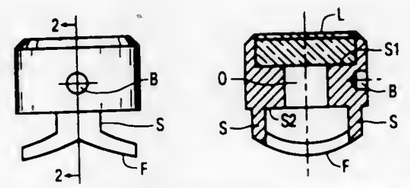
5,210,648
ADJUSTABLE MOUNT FOR CYLINDRICAL LENS WITH INDEPENDENT ROTATIONAL FEATURE
Mark Bedzyk, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Continuation-in-part of Ser. No. 765,161, Sep. 24, 1991. This application Oct. 31, 1991, Ser. No. 785,559
Int. Cl.[5] G02B *7/02*
U.S. Cl. 359—813 **12 Claims**

1. A device for positioning a cylindrical lens or the like translationally with respect to x, y, z orthogonal axes directions and rotationally with respect to θ_x, θ_y, θ_z directions respectively angularly about said x, y, z axes directions in an optical system having a source for projecting a beam of light along a path in said z axis direction, onto said lens positioned by said device, and onto a receiving medium; said lens including a curved cylindrical surface for providing magnification in one of said x and y axes directions; said device including a base; a lens carrier mounted on said base; means for angularly positioning said lens relative to said θ_x and θ_y directions; means for translationally positioning said lens relative to said other of said x and y axes directions; means for translationally positioning said lens relative to said z axis direction; means for adjustably translationally positioning said lens relative to said one of said x and y directions; and means for adjustably angularly positioning said lens relative to said θ_z direction; and said device being characterized in that:
said device further comprises a lens retainer for retaining said lens on said carrier, said lens retainer having a recess for receiving a portion of said lens;
a fixture for applying a push-pull mechanism to said retainer to apply a biasing torque on said lens, said torque having a force component in said one of said x and y directions, and for adjustably translationally positioning said lens in



said one of said x and y directions relative to said carrier in opposition to said biasing force component; and
means mounting said fixture on one of said base and carrier;
said fixture comprising a main body portion, means attached to said main body portion and selectively movable into pushing contact against a first point of said retainer, and means attached to said main body portion and to said retainer at a second point of said retainer removed from said first point in a direction transverse to said one of said x and y directions, said means acting at said second point comprising means for exerting a pulling force on said retainer, to apply a torque on said retainer in the θ_z direction.

5,210,649
MOUNT FOR AN OPTICAL ELEMENT
Gerhrad Weissmann, Villingen-Schwenningen, Fed. Rep. of Germany, assignor to Deutsche Thomson-Brandt GmbH, Villingen-Schwenningen, Fed. Rep. of Germany
Filed Jan. 28, 1992, Ser. No. 827,045
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1989, 3924189
Int. Cl.[5] G02B *7/02*
U.S. Cl. 359—819 **4 Claims**



1. A mount for mounting a lens in an optical scanning device comprising:
a tubular portion having a first surface for rotatably supporting said lens and a second surface including a plurality of arcuate supports;
an annular spring supported by said arcuate supports, said

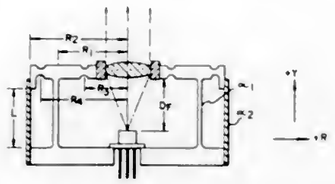
VOL 1150 ISS 2 MY 11 1993 UMI

spring being bent at the points of contact with said supports to extend outwardly beyond said supports to bias said mount and said lens against said scanning device.

5,210,650
COMPACT, PASSIVELY ATHERMALIZED OPTICAL ASSEMBLY

Michael J. O'Brien, and William B. Smith, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 31, 1992, Ser. No. 860,936
Int. Cl.[5] G02B *7/02*
U.S. Cl. 359—820 **12 Claims**

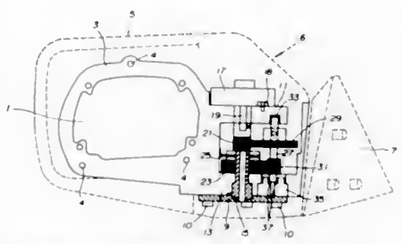


1. Apparatus for providing athermalized collimation of a beam source by a beam collimating means, comprising:
support means for fixing the beam source at a predetermined position thereon and for thereby defining a light beam optical axis;
flexure plate adapted for aligning the collimating means at a beam collimating means position on the optical axis, and having a kinematic hinge operable to displace the collimating means along the optical axis;
thermal compensation means operatively connected between the support means and the flexure plate, the thermal compensation means having a selected thermal response and being located with respect to the kinematic hinge so as to operate the kinematic hinge and thereby displace the collimating means.

5,210,651
MOTOR DRIVEN RETRACTABLE OUTSIDE MIRROR FOR VEHICLE

Hideyuki Shibuya, Zama; Shigeki Yoshioka, Yokohama; Satoru Ichikawa, and Masayuki Touda, both of Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Japan

Filed Nov. 15, 1990, Ser. No. 612,692
Claims priority, application Japan, Nov. 17, 1989, 1-297691
Int. Cl.[5] G02B *7/18;* **B60R** *1/06*
U.S. Cl. 359—841 **22 Claims**

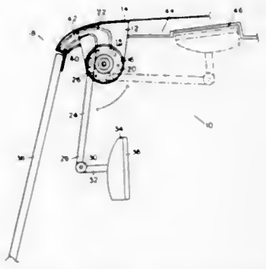


1. A vehicle door mirror assembly comprising:
a base unit for mounting said mirror assembly on a vehicle body;
a mirror unit mounted on said base unit for swinging movement about a swing axis on the base unit;
an ultrasonic motor, mounted on said mirror unit, for supplying power to force said mirror unit to swing, said ultrasonic motor including a drive shaft, a rotor for rotating said drive shaft, and a stator having an elastic member and a piezoelectric vibrator for generating a circular traveling wave, and a biasing means for pressing said rotor on said stator, said stator being fixed to said mirror unit;
a fixed gear fixed to said base unit; and
a speed reducing gear arrangement mounted on said mirror unit, said speed reducing gear arrangement including a driving gear driven by said drive shaft of said ultrasonic motor, and a driven gear means for being driven by said driving gear at a rotational speed lower than a rotational speed of said driving gear and said driven gear means is in engagement with said fixed gear to thereby rotate around said fixed gear and cause said mirror unit to rotate about said swing axis.

5,210,652
FOLD-UP TWO-POSITION REAR VIEW MIRROR FOR A VEHICLE

Walter E. Perkinson, 301 La Casa Dr., Kerrville, Tex. 78028

Filed Apr. 28, 1992, Ser. No. 875,067
Int. Cl.[5] G02B *7/18;* **B60R** *1/04*
U.S. Cl. 359—841 **8 Claims**

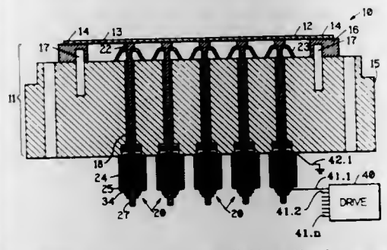


1. In combination with a motor vehicle an interior, electronically-operated, foldable, rear view mirror system located inside the passenger compartment of a motor vehicle, the system comprised of:
a metal base having a first leg and a second leg, the first and the second legs generally perpendicular to one another;
first attachment means for attaching the first leg of said metal base at or near the upper end of a windshield;
a rotary-action solenoid with a rotating mounting plate thereon;
second attachment means for attaching said rotary action solenoid to the second leg of said metal base;
a mounting arm with a first end and a second end including means to attach at the first end thereof said mounting arm to the mounting plate of said solenoid;
a rotatable joint attached to the second end of said mounting arm;
a mirror housing for attachment to said rotatable joint;
a mirror dimensioned to engage said housing; and
a headliner having walls defining a storage pocket dimensioned to receive said mirror housing;
wherein said solenoid maintains said mirror in a normally stowed position with said mirror against a headliner of the interior of the vehicle and when activated rotates said mirror to a down or use position the rotation of said mirror being in an arc, the plane of which is parallel to a plane bisecting the motor vehicle laterally.

5,210,653
EXTERNAL ACTUATOR FOR A DEFORMABLE MIRROR

John D. Schell, 1206 Mohican Blvd., Jupiter, Fla. 33458

Filed Jun. 8, 1992, Ser. No. 895,486
Int. Cl.[5] G02B *5/08, 7/18*
U.S. Cl. 359—846 **17 Claims**



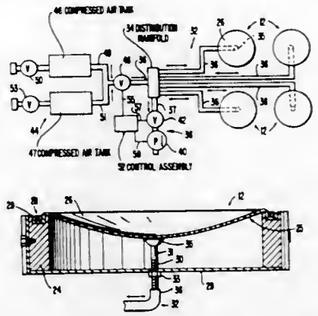
1. An acuator device for controllably adjusting a spacing taken along an axis between a predetermined zone of a mirror faceplate and a substrate, said substrate having front and back surfaces facing axially toward and away from the faceplate, respectively, and a passage extending axially through the substrate substantially normal to the front and back surfaces, comprising
an active element having front and back faces facing toward and away from the back surface of the substrate, respectively, and an opening passing axially therethrough to form an extension of said passage of said substrate, and capabel of undergoing dimensional changes when exposed to at least one of electric and magnetic fields;
means for subjecting said active element to compression, including
an end element juxtaposed with said predetermined zone of said faceplate,
resiliently yieldable spring means interposed between said end element and said front surface of said substrate,
an elongated preloading element extending through the passage and said opening and having one end portion secured to said end element to constitute a preloading unit therewith, and another end portion remote form said one end portion, at least said other end portion having an external thread, and
tensioning means juxtaposed with said back face of said active element around said other end portion of said preloading element and having an internal thread in meshing engagement with said external thread of said preloading element for deforming said spring means to the extent necessary for a restoring force of said spring means to exert a preload pressure of a desired magnitude to said back face of said active element; and
means for applying to said active element at least said one of said electric and magnetic fields of a controllably variable magnitude for adjusting the spacing to the desired extent.

5,210,654
RAPID DEFOCUSING SYSTEM FOR ELECTROMAGNETIC RADIATION REFLECTIVE CONCENTRATOR

Carl L. Williams, Abilene, Tex., assignor to LaJet, S.A., Bulle, Switzerland

Filed Oct. 31, 1991, Ser. No. 784,945
Int. Cl.[5] G02B *5/10*
U.S. Cl. 359—847 **25 Claims**

1. A reflector assembly comprising:
a hollow housing having a top opening;
a flexible, elastic reflective membrane;
coupling means for coupling said membrane over said top opening in a gas-tight manner;
evacuation means, coupled to said housing, for creating a partial vacuum in said housing and causing said membrane to deflect into said housing to a focused position from an unfocused position; and
inflation means, coupled to said housing, for rapidly restoring pressure in said housing and causing said membrane to

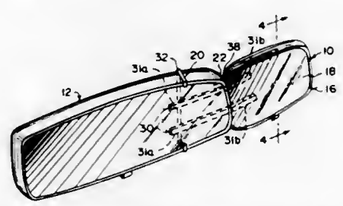


move from said focused position to said unfocused position, said inflation means including compressed fluid means for rapidly supplying a fluid with a pressure greater than atmospheric pressure to said housing.

5,210,655
MULTI-VISION MIRROR FOR A REARVIEW MIRROR IN A MOTOR VEHICLE

Moti M. Mishali, 109 Brighton Way, South Merrick, N.Y. 11566

Filed Feb. 10, 1992, Ser. No. 833,131
Int. Cl.[5] G02B *5/08*
U.S. Cl. 359—850 **8 Claims**



1. A multi-vision mirror for a rearview mirror having an image reflector in a motor vehicle which comprises:
a) a housing, said housing is fabricated out of a durable material, typically plastic, said housing is elongated to retain both the first image reflector and said second image reflector therein;
b) a second image reflector mounted within said housing, said second image reflector is fabricated out of a durable material, typically silver coated glass;
c) means for connecting said housing with said second image reflector therein to the right side of the rearview mirror in the motor vehicle, so that a blind spot on the right side and right side behind the motor vehicle will be eliminated to allow the driver to increase an overall vision at all times, the rearview mirror is set at an angle of approximately fourteen degrees, while said housing of said multi-vision mirror is set back at an angle of approximately between five to seven degrees from the rearview mirror for optimum viewing by the driver of the motor vehicle, said connecting means includes a pair of spaced apart arms, each having a long segment and a short segment bent back at the angle of approximately five to seven degrees, whereby said short segment is permanently affixed horizontally to the rear surface of said housing, while said long

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segment is placed against the rear surface of the rearview mirror, an elastic clip to snap onto the rear surface of the rearview mirror, so as to hold said long segments of said arms thereto, and the right side of said multi-vision mirror having two arms molded to the rear surface thereof bent backward at an angle of five to seven degrees, with these two said arms attached to the rearview mirror by an elastic clip that snaps onto the rear surface of the rearview mirror, and a hinge between the right side of the first image reflector and the left side of said second image reflector; and

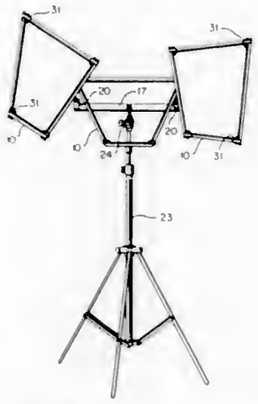
d) an angle adjustment lever mounted through a slot in the bottom of said elongated housing and connected to a bottom edge of said second image reflector, so that the angle of said second image reflector can be angularly adjusted thereto.

5,210,656

LIGHT REFLECTING DEVICE

Stuart G. Williamson, 5 Union Place, Truro, Cornwall TR1 1EP, England

Filed Nov. 19, 1991, Ser. No. 794,874
Int. Cl.[5] G02B *7/18*
U.S. Cl. 359—855 9 Claims



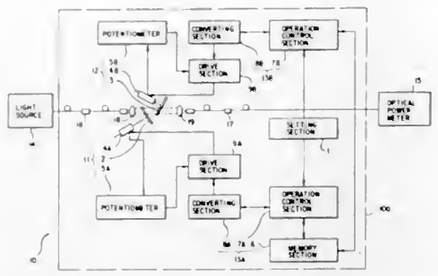
1. A light-reflecting device incorporating several light-reflecting frames is characterized in that a central light-reflecting frame (**10**) of polygonal shape is fitted with a cross bar (**17**) carrying at the centre a universal joint assembly (**24**) one element (**21**) of which is fixed to the cross bar (**17**) and the other relatively movable element (**29**) is formed for attachment to a supporting rod (**25**) and there are provided adjacent each end of the cross bar (**17**) a universal joint assembly (**20**) one element of which is fastened to the cross bar and the other relatively movable element (**21**) of which is attached to an edge of a respective outer light-reflecting frame (**10**) also of polygonal shape.

5,210,657

OPTICAL ATTENUATOR APPARATUS WITHOUT STEEP LEVEL VARIATION

Hiroshi Komazawa; Fuminobu Ito; Kenichiro Umesaki, all of Atsugi; Yuuichi Watanabe, Odawara, and Yoshiharu Sasaki, Fujinomiya, all of Japan, assignors to Anritsu Corporation, Tokyo, Japan

Filed Feb. 11, 1992, Ser. No. 834,168
Claims priority, application Japan, Feb. 15, 1991, 3-42176; Feb. 25, 1991, 3-50147; Dec. 17, 1991, 3-353000
Int. Cl.[5] G02B *5/22*
U.S. Cl. 359—885 16 Claims



1. An optical attenuator apparatus comprising:

incident means for guiding light to be attenuated to a predetermined optical path;

first optical attenuation filter means, arranged in the predetermined optical path, for attenuating the light to be attenuated incident through said incident means by a first variable attenuation amount, said first optical attenuation filter means being capable of being driven in forward and reverse directions and having an attenuation characteristic which changes monotonously in both the forward and reverse directions;

second optical attenuation filter means, arranged in the predetermined optical path, for attenuating, by a second variable attenuation amount, the light which has been transmitted through said first optical attenuation filter means using the first variable attenuation amount, said second optical attenuation filter means being capable of being driven in the forward and reverse directions and having an attenuation amount characteristic which changes monotonously in both the forward and reverse directions;

optical output means, arranged in the predetermined optical path, for causing light which has been transmitted through said first and second optical attenuation filter means to emerge under a condition using an algebraic sum of the first and second variable attenuation amounts;

attenuation amount setting means for setting a desired attenuation amount by which the light to be attenuated which is incident through said incident means is attenuated;

first drive means coupled to drive said first optical attenuation filter means in the forward and reverse directions;

second drive means coupled to drive said second optical attenuation filter means in the forward and reverse directions; and

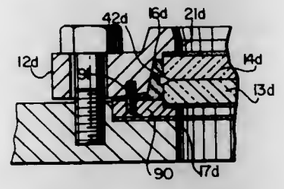
control means for controlling driving directions and driving amounts of said first and second optical attenuation filter means through said first and second drive means in accordance with the desired attenuation amount set by said attenuation amount setting means so that the algebraic sum of the first and second attenuation amounts finally becomes equal to the desired attenuation amount and a variation in attenuation amount is decreased as a whole, thereby providing a smooth attenuation characteristic.

5,210,658

SIGHT GLASS ASSEMBLY

Robert J. Foster, Leawood, Kans., assignor to PresSure Products Company, Inc., Charleston, W. Va.

Filed Feb. 18, 1992, Ser. No. 836,364
Int. Cl.[5] G02B *5/00, 7/00;* G01F *23/02*
U.S. Cl. 359—894 21 Claims



1. A sight glass assembly comprising:

a first housing section having an opening therethrough, mountable on a vessel wall having an opening therein communicating with a fluid contained therein so that said first housing section opening registers with said vessel wall opening;

a second housing section having an opening therethrough registrable with said first housing section opening when said first housing section is disposed in assembled condition relative to said second housing section;

at least one of said housing section openings having an enlarged section providing a lens seating surface and a packing bearing surface;

at least two lenses disposed in at least one of said housings section openings, said lenses having beveled adjoining surfaces, being seated on at least one of said lens seating surfaces and having annular end walls disposed in opposed relation to at least one of said packing bearing surfaces;

a packing disposed between said annular side walls of said lenses and at least one of said packing bearing surfaces, said packing having an inner annular wall engaging the annular side wall of said lenses, said inner annular wall of said packing having a recess registrable with the adjacent beveled surfaces of said lenses when said packing is disposed in an assembled condition between said lenses and at least one of said packing bearing surfaces; and

clamp means for urging said housing sections together, said packing occupying a portion of said recess when urged by said clamp means, whereby said packing is caused to be compressed and expanded laterally to place said lenses in radial compression and provide a fluid tight seal between at least one of said housing sections and at least one of said lenses, and said packing material is prevented from being forced between said lenses to wedge said lenses apart.

5,210,659

VIDEO SIGNAL RECORDING AND EDITING APPARATUS

Akira Oguri, Kanagawa, and Nobuyuki Sato, Shizuoka, both of Japan, assignors to Sony Corporation, Japan

Filed Apr. 5, 1990, Ser. No. 505,042
Claims priority, application Japan, Apr. 12, 1989, 1-92346
Int. Cl.[5] G11B *5/02, 15/18, 5/09*
U.S. Cl. 360—27 4 Claims

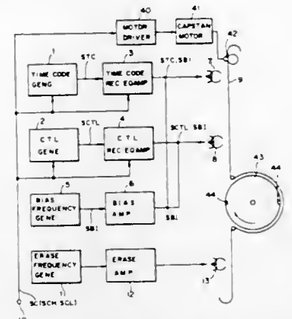
1. A video signal recording and reproducing apparatus having an editing function for editing a video signal reproduced by said recording an reproducing apparatus based on a prerecorded position control signal recorded on a longitudinal track of a recording tape, said apparatus comprising:

speed control means for generating a recording speed control signal;

driving means for driving said recording tape at a first tape speed or at a higher tape speed corresponding to a low value or a high value of said recording speed control signal, respectively, said higher tape speed being N times higher than said first tape speed when said recording speed control signal is at said high value, wherein N is a number greater than 1;

signal generating means for generating said position control signal which has a higher or lower frequency corresponding to the low value or the high value respectively of said recording speed control signal, said higher frequency being N times higher than a first frequency of said position control signal, said first frequency being generated when said recording tape is driven at said first tape speed;

amplifier means for amplifying said position control signal;



gain control means for controlling the gain of said amplifier means corresponding to the low value or the high value of said recording speed control signal;

first recording means for first recording at said higher tape speed said position control signal amplified by said amplifier means on a longitudinal track on said recording tape;

means for reproducing said position control signal recorded on said longitudinal track of said recording tape; and

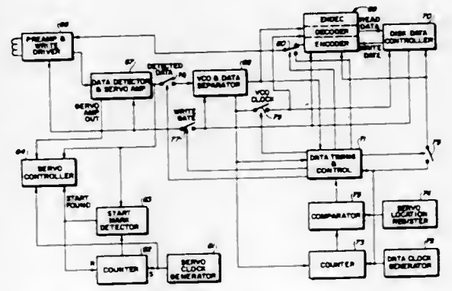
second recording means for next recording a video signal on slant tracks on said recording tape at said first tape speed in accordance with said position control signal previously recorded at said higher speed and reproduced with said reproducing means.

5,210,660

SECTORED SERVO INDEPENDENT OF DATA ARCHITECTURE

Steven R. Hetzler, Sunnyvale, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 17, 1990, Ser. No. 466,194
Int. Cl.[5] G11B *5/012*
U.S. Cl. 360—51 14 Claims



1. A fixed block architecture disk drive comprising:

a rotatable, rigid magnetic recording disk having a plurality

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of concentric tracks divided into angular sectors of fixed blocks, each block containing a data field for the recording of magnetically written data, and a plurality of generally equally angularly spaced servo sectors containing servo position information extending in a generally radially straight line across the tracks, at least some of the servo sectors being located within the data fields and splitting the data fields into at least two portions;

a head for writing data to and reading data from the data fields in the fixed blocks, and for reading servo position information from the servo sectors;

an actuator attached to the head for positioning the head across the tracks and for following specific tracks, the actuator being responsive to servo position information read by the head at an essentially constant servo sample rate determined by the rotational speed of the disk and the angular spacing of the servo sectors;

means coupled to the head for clocking write data to and read data from the data fields at an essentially constant data rate for all tracks;

means coupled to the head and responsive to a clock signal from the data clocking means for encoding data to and decoding data from the head; and

means coupled to the encoding and decoding means for stopping the transfer of data to and from the encoding and decoding means when the head is reading servo position information from the servo sectors located within the data fields.

5,210,661

METHOD OF SKIPPING UNRECORDED AREAS WHILE PLAYING BACK A RECORD MEDIUM ON A DRIVE

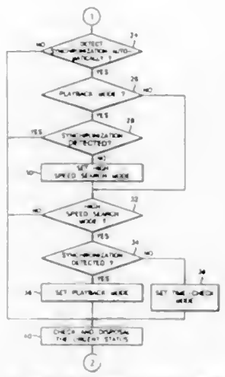
Jong-Sam Woo, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki, Rep. of Korea

Filed Sep. 7, 1990, Ser. No. 579,596

Claims priority, application Rep. of Korea, Sep. 8, 1989, 1989-13039

Int. Cl.[5] G11B *15/18*

U.S. Cl. 360—71 9 Claims



1. A method of skipping unrecorded areas while playing back a record medium by operating a record medium drive, said method comprising the steps of:

(a) checking whether an automatic detection mode for a synchronization signal is on;

(b) playing back normally the record medium until no synchronization signal is detected when said automatic detection mode for synchronization signal is on;

(c) playing back the record medium at a high speed while checking for the presence of video and audio signals by checking for the detection of a synchronization signal if no synchronization signal is detected in said step (b), and going back to said step (a) if a synchronization is detected; and

(d) cutting off power supply to stop playback operation if no synchronization signal is detected over a certain length of time in said step (c).

5,210,662

TRACKING CONTROL APPARATUS FOR MAGNETIC DISK

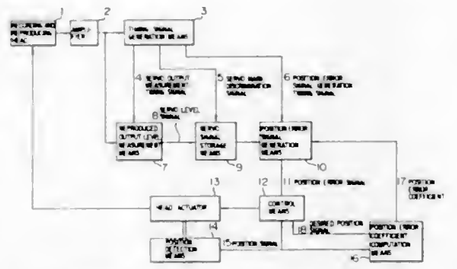
Hisanao Nishijima, Morioka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 6, 1991, Ser. No. 665,998

Claims priority, application Japan, Mar. 9, 1990, 2-58298

Int. Cl.[5] G11B *5/596*

U.S. Cl. 360—77.04 1 Claim



1. A tracking control apparatus comprising:

a tracking control apparatus proper for controlling the position of a recording and reproducing head with respect to a recording track by detecting a plurality of kinds of servo marks disposed at fixed intervals from the center line of a recording track on a rotating magnetic recording disk;

position error coefficient computation means responsive to position error values in a plurality of positions of said recording and reproducing head on said track and position signals at those times to correct a coefficient to be used for calculating a position error; and

an actuator responsive to an output signal of said computation means to move said recording and reproducing head.

5,210,663

TRACKING CONTROL DEVICE AND MAGNETIC RECORDING AND REPRODUCING APPARATUS USING THE DEVICE

Hiromi Nakase, Osaka, and Toshiyuki Kohri, Neyagawa, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 5, 1990, Ser. No. 504,831

Claims priority, application Japan, Apr. 10, 1989, 1-090129; Jun. 1, 1989, 1-140490

Int. Cl.[5] G11B *5/592*

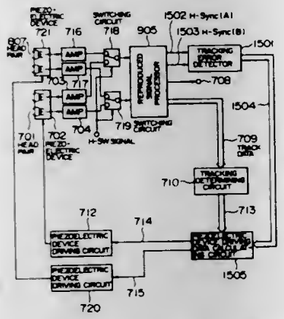
U.S. Cl. 360—77.16 10 Claims

1. A tracking control device for a magnetic recording and reproducing apparatus for recording and reproducing information on and from a magnetic recording medium having a plurality of information tracks uniformly arranged at a given track pitch and including a predetermined number of different track information sets coded and recorded thereon in a predetermined order, said device comprising:

(a) track information detecting means including a first pickup head mounted on a first electro-mechanical transducer and a second pickup head mounted on a second electro-mechanical transducer, said first pickup head and said second pickup head respectively for, in a normal mode, alternately scanning a first one and a second one of said plurality of information tracks and detecting said predetermined number of different track information sets,

said detecting means outputting track information data representing said predetermined number of different track information sets detected by said first pickup head and said second pickup head;

(b) a tracking determining circuit including a first memory means for storing a first portion of said track information data relating to said first one of said tracks scanned by said first pickup head, a second memory means for storing a second portion of said track information data relating to said second one of said tracks scanned by said second pickup head, and a comparison means for comparing said first portion stored in said first memory means with said second portion stored in said second memory means and outputting a comparison result based thereon;



(c) deviation determination means for detecting whether said first pickup head and said second pickup head are scanning in said normal mode by determining, based on said comparison result, a deviation amount, if any, of a scanning position of said first pickup head from a particular one of said tracks having a predetermined relationship with said second one of said tracks scanned by said second pickup head and for outputting a driving signal representing an integral number of track pitches corresponding to said deviation amount; and

(d) transducer position driving means, receiving said driving signal, for moving said first transducer in a direction normal to a scanning direction of said first pickup head by an amount equal to said integral number of track pitches.

5,210,664

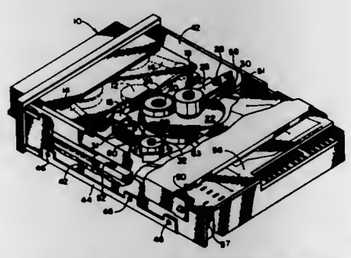
LOW PROFILE TAPE DRIVE FOR DRIVING A MINI-DATA CARTRIDGE

Mark W. Perona, San Diego, Calif., assignor to Iomega Corporation, Roy, Utah

Filed May 28, 1991, Ser. No. 706,213

Int. Cl.[5] G11B *15/32, 5/55, 5/56*

U.S. Cl. 360—93 9 Claims



1. A magnetic tape drive for driving magnetic tape in a cartridge of the type in which a driven roller in said cartridge moves said tape past a read/write head in said driven, said drive comprising:

a motor;

a drive roller driven by said motor; an idler capstan engaged by said drive roller and engaging said driven roller through an opening in said cartridge when said cartridge is inserted into said drive to move said tape past said read/write head; and

a pivoted arm, said idler capstan being mounted on said arm, said arm being biased so that said idler capstan is biased into engagement with said driven roller when said cartridge is inserted into said drive.

5,210,665

FLOPPY DISK APPARATUS HAVING AN IMPROVED DISK ROTATING MECHANISM

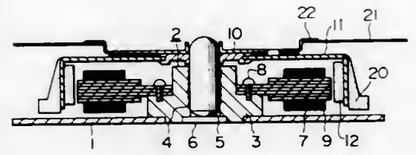
Hiroshi Nishizawa, Hanamaki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 11, 1991, Ser. No. 666,517

Claims priority, application Japan, Mar. 16, 1990, 2-67747

Int. Cl.[5] G11B *17/02*

U.S. Cl. 360—99.08 25 Claims



1. A floppy disk apparatus comprising:

a rotating shaft for rotating a disk-like magnetic recording medium;

a pivot bearing member for supporting said rotating shaft in a thrust direction;

a dynamic pressure type radial fluid bearing having a sleeve and rotatably supporting said rotating shaft through a lubricant inside said sleeve;

a stator attached to said radial fluid bearing;

coil means provided on said stator;

a rotor fixed to said rotating shaft; and

magnet means attached to said rotor wherein the dynamic pressure of said lubricant enables said rotating shaft to be supported with high accuracy and without contracting said sleeve.

5,210,666

SELF-LOADING AIR BEARING SLIDER WITH A RELIEVED LEADING EDGE

Robert E. Chapin, Burnsville, and Peter Crane, Minneapolis, both of Minn., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation-in-part of Ser. No. 528,925, May 25, 1990, Pat. No. 5,128,822. This application Jun. 14, 1991, Ser. No. 715,404

Int. Cl.[5] G11B *21/21*

U.S. Cl. 360—103 8 Claims

1. A self-loading air bearing disc head slider configured for supporting a transducer proximate a rotating disc, the slider comprising:

a slider body having a leading edge, a trailing edge, and first and second side edges;

first and second side rails positioned along the first and second side edges, respectively, the first and second side rails each forming an air bearing surface;

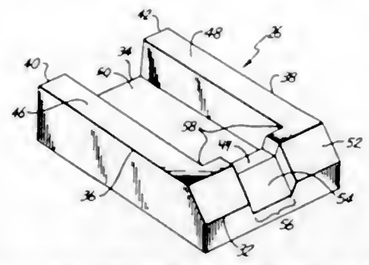
a cross rail positioned at the leading edge and extending from the first side rail to the second side rail, the cross rail having a trailing edge;

a negative pressure cavity extending from the trailing edge of the cross rail toward the trailing edge of the slider body

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and having a maximum width that is measured between the side rails; and

a relief formed within the cross rail and extending from the leading edge of the slider body to the trailing edge of the cross rail, the relief having a first tapered surface positioned at the leading edge of the slider body, and a planar surface positioned between the first tapered surface and the trailing edge of the cross rail, wherein the first tapered surface and the planar surface have widths which are measured between the side rails and are substantially less than the maximum width of the negative pressure cavity.



5,210,667

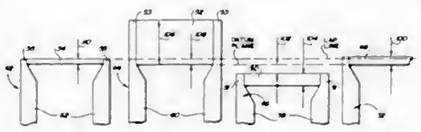
MAGNETIC RECORDING HEADS EMPLOYING MULTIPLE LAPPING GUIDES

Robert P. Zammit, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 656,666, Feb. 19, 1991. This application Aug. 15, 1991, Ser. No. 745,165

Int. Cl.[5] G11B *5/39, 5/187, 5/29*

U.S. Cl. 360—113 **12 Claims**



7. In an interleaved magnetic head having a substrate and a closure block of magnetic ferrite material with individual pole pieces formed therebetween a plurality of alternating magneto-resistive elements, having a stripe height alterable by lappings and write conductors being deposited on the substrate, the improvement comprising:

a lapping guide system deposited at each end of the substrate encompassing the alternating magneto-resistive elements and write conductors;

each lapping guide system including a finish lapping guide and a resistive lapping guide, each lapping guide system capable of altering the stripe height of the magneto-resistive elements to a specific stripe height during said lapping by measuring a resistance only of the finish lapping guide, said finish lapping guide having a stripe height after said lapping equal to the specified stripe height of the magneto-resistive elements, said resistive lapping guide having a stripe height greater than the stripe height of the finish lapping guide after said lapping.

5,210,668

MAGNETIC HEAD HAVING SOFT-MAGNETIC MATERIAL CLADDED CORE LIMB FACES

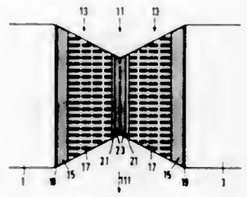
Cornelis W. M. P. Sillen; Franciscus W. A. Dirne; Jacobus J. M. Ruigrok, all of Eindhoven, Netherlands; Wolfgang Binder-Krieglstein, Vienna, and Ulrich Traxlmayr, Laxenburg, both of Austria, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 19, 1991, Ser. No. 688,016

Claims priority, application Netherlands, Feb. 4, 1991, 9100192

Int. Cl.[5] G11B *5/235*

U.S. Cl. 360—120 **7 Claims**



1. A magnetic head for recording and/or reproducing magnetic information in a track of a magnetic information carrier, comprising

a magnetic core having two core limbs formed from a ferrite, which core limbs constitute two opposing core faces located opposite each other, each of said opposing core faces having a cladding of a soft-magnetic material having a higher saturation magnetization than the ferrite,

a tape contact face along which the information carrier is movable,

a non-magnetic transducing gap present between the cladding of each opposing core face and terminating in the tape contact face, which gap has at least one layer of a first metallic material on each cladding and bonded layers of a second metallic material, the first metallic material being chosen from the group of Mo, Ti, Cr and NiCr, and

an electric coil passing through a winding aperture and surrounding a part of the magnetic core,

characterized in that each cladding comprises a first cladding layer of an alloy based on Ni-Fe on which a second cladding layer of an amorphous alloy based on Co-Ti and/or Zr and/or Hf-Nb and/or Ta is provided, each first metallic material of the transducing gap being directly provided on each second amorphous alloy layer of the cladding.

5,210,669

METHODS OF IMPROVED SERVO HEAD PASSIVE NOISE CANCELLATION BY PLACEMENT AND ORIENTATION OF MULTIPLE SERVO TRANSDUCERS

Gerald L. Weispfenning, St. Paul, and John Bortins, Bloomington, both of Minn., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Aug. 27, 1990, Ser. No. 573,878

Int. Cl.[5] G11B *5/17*

U.S. Cl. 360—124 **19 Claims**

9. A data storage system, comprising:

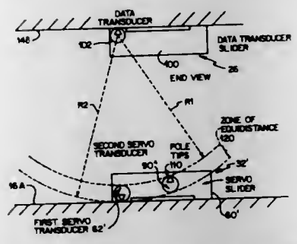
a spindle;

a first magnetic disk mounted on the spindle for storing information;

a second magnetic disk mounted on the spindle for storing information;

a first head, positioned between the first and second magnetic disks and adjacent the first magnetic disk, the first head including a slider and a first transducer mounted on the slider for writing information onto the first magnetic disk; and

a second head, positioned between the first and second magnetic disks and adjacent the second magnetic disk, for producing an output signal as a function of the information stored on the second magnetic disk, the second head including a slider, a second transducer mounted on the slider for reading information stored on the second magnetic disk, and a third transducer mounted on the slider,



the second and third transducers being essentially equidistant from the first transducer and coupled together to produce the output signal so that noise signals induced in the second transducer by operation of the first transducer tend to be canceled by noise signals induced in the third transducer by operation of the first transducer.

5,210,670

REEL BRAKE OPERABLE FROM BOTH SIDES OF MAGNETIC TAPE CASSETTE

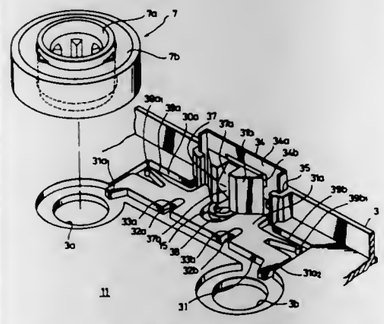
Masato Tanaka, and Kiyotaka Yanaka, both of Tokyo, Japan, assignors to Sony Corporation, Japan

Filed Dec. 5, 1990, Ser. No. 622,649

Claims priority, application Japan, Dec. 6, 1989, 1-317026

Int. Cl.[5] G11B *23/02;* **G03B** *1/04*

U.S. Cl. 360—132 **2 Claims**



1. A magnetic tape cassette comprising:

a cassette casing having upper and lower parts, each part having a respective insertion aperture formed therein, the insertion apertures being in mutual axial alignment; and

braking means provided within said cassette casing in such a manner that said braking means can be brought in contact with or come away from peripheral surfaces of a pair of real hubs arranged in said casing and around which a magnetic tape is wrapped and said braking means is spring-biased in a locking direction in which first and second front protruding members integrally formed with and rigidly extending from said braking means are respectively urged against said reel hubs, and said braking means having integrally formed therewith inclined cam surfaces on upper and lower sides relative to said upper and lower parts of the cassette casing and said inclined cam surfaces being aligned with said insertion apertures, so as to be pushed by a pin inserted through any one of said insertion apertures formed through said upper and lower parts of said cassette casing, whereby a hub lock releasing operation by said braking means is performed and wherein said braking means is provided with a pair of integrally formed, oppositely arranged rear protruded portions extending substantially perpendicular from a direction in which said first and second front protruding members extend, so that when the braking means is moved in a skewed fashion in the hub lock releasing operation one of the pair of rear protruded portions is brought in contact with a portion of said lower part of said cassette casing and the braking means is returned to an unskewed position in the hub lock releasing operation.

5,210,671

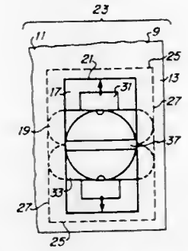
WRITE PROTECTION FOR MEMORY DISKETTES

Mark D. Blackston, Charlotte, N.C., assignor to Verbatim Corporation, Charlotte, N.C.

Filed Aug. 29, 1991, Ser. No. 752,091

Int. Cl.[5] G11B *7/26*

U.S. Cl. 360—133 **5 Claims**



1. A diskette cartridge for a magnetic disk that is disposed for rotation within a housing, the diskette cartridge comprising:

a recess near a peripheral edge of the housing having selected length and width dimensions and including an aperture for access thereto having an opening width dimension smaller than the recess width dimension; and

a slide component having a width dimension smaller than the width dimension of the aperture, and having a length dimension larger than the width dimension of the aperture and substantially equal to the width dimension of the recess for admitting insertion of the slide component through the aperture in one orientation and rotation thereof within the recess to an orthogonal orientation with the length of the slide component traversing the width of the recess to support slideable movement of the slide component in said orthogonal orientation within the aperture and recess.

5,210,672

MAGNETICALLY INDELIBLE MEDIA TYPE IDENTIFICATION SYSTEM

Michael L. Ivers, San Jose; Andrew M. Rose, Mountain View, and Alton B. Otis, Jr., San Francisco, all of Calif., assignors to Insite Peripherals, Inc., San Jose, Calif.

Filed Nov. 9, 1990, Ser. No. 612,095

Int. Cl.[5] G11B *5/82*

U.S. Cl. 360—135 **7 Claims**

1. A very high density diskette comprising:

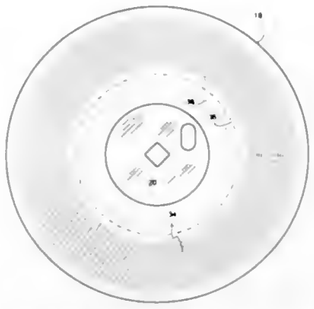
a jacket having a liner material disposed within the jacket;

a flat circular media having two surfaces and a magnetic coating on both of said surfaces, the media disposed within the liner material; and

a media type code that is magnetically readable and not

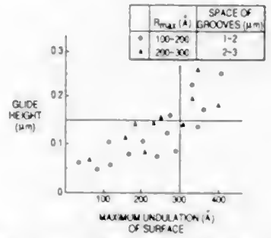
VOL 1150 ISS 2 MY 11 1993 UMI

magnetically erasable on at least one of said surfaces of the media comprising data and for encoding the physical



properties of the media important to the proper operation of a disk drive in communication with the media.

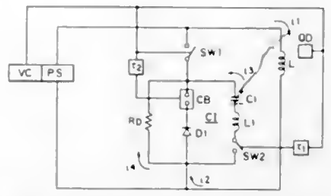
5,210,673
THIN-FILM HARD DISK MAGNETIC MEDIUM
Motoyuki Ito, Tsuchiura, and Tadashi Shinohara, Chiyoda, both of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan
Filed Sep. 9, 1991, Ser. No. 758,874
Int. Cl.[5] G11B *5/82*
U.S. Cl. 360—135 **3 Claims**



1. A thin-film hard disk magnetic medium comprising a magnetic recording film made from a magnetic metal alloy formed on a circumferentially textured surface of a substrate, characterized in that the surface of the magnetic recording layer is provided with a surface roughness, Rmax of 100 Å to 400 Å, and adjacent grooves form a space of 0.5 μm to 3 μm measured in the radial direction of the substrate.

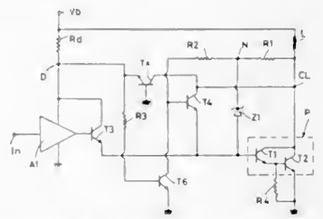
5,210,674
SUPERCONDUCTING COIL PROTECTIVE SYSTEM
Satarou Yamaguchi, and Tadanori Tsukamoto, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed May 29, 1991, Ser. No. 707,326
Claims priority, application Japan, May 31, 1990, 2-140022; Jun. 29, 1990, 2-169880; Jun. 29, 1990, 2-169887
Int. Cl.[5] H02H *7/00*
U.S. Cl. 361—19 **30 Claims**

1. A superconducting coil protective system comprising:
a power source;
a super conducting coil connected to said power source;
quenching detecting means for detecting occurrence of quenching in said superconducting coil and for transmitting and generating a quenching signal indicative of the occurrence of quenching;
voltage control means for reducing output voltage from said power source in response to the quenching signal;
current interrupting means connected to said superconducting coil for causing a first commutation of a current from said superconducting coil to said current interrupting means upon the reduction of the output voltage from said power source to a first voltage and for interrupting said first-commutated current;



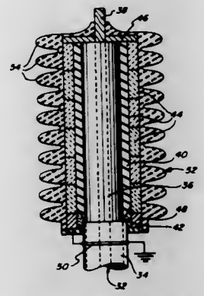
a first switch connected in series with said current interrupting means and with said superconducting coil, said first switch being closed in response to the quenching signal; and
a protective resistor connected in parallel to said current interrupting means which causes energy dissipation when the first-commutated current is interrupted.

5,210,675
CIRCUIT FOR PROTECTION AGAINST NEGATIVE OVERVOLTAGES ACROSS THE POWER SUPPLY OF AN INTEGRATED CIRCUIT COMPRISING A POWER DEVICE WITH RELATED CONTROL CIRCUIT
Sergio Palara, Aicastello, Italy, assignor to SGS-Thomson Microelectronics s.r.l., Milan, Italy
Continuation of Ser. No. 547,233, Jul. 3, 1990, abandoned. This application Aug. 17, 1992, Ser. No. 928,670
Claims priority, application Italy, Jul. 11, 1989, 21150 A/89
Int. Cl.[5] H02H *7/09*
U.S. Cl. 361—91 **8 Claims**



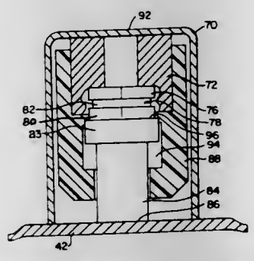
7. In a protection circuit for protecting the parasite transistor formed in an integrated circuit between a supply terminal of a power device, having a control terminal, and a power supply, against negative overvoltages in the power supply, the combination comprising:
a parasite transistor having one of its terminals connected to said supply terminal of the power device and another one of its terminals connected to the power supply;
a switch interposed between the supply terminal and the control terminal of the power device; and
switching means responsive to the negative overvoltage of the power supply to cause said switch to actuate said power device to thereby simultaneously reduce the voltages on the supply terminal of the power device and said one of the terminals of the parasite transistor.

5,210,676
ELECTRICAL PROTECTIVE DEVICE
Matthew S. Mashikian, 525 Gurleyville Rd., Storrs, Conn. 06268
Filed Mar. 13, 1991, Ser. No. 668,867
Int. Cl.[5] H02G *15/06;* **H01F** *27/34*
U.S. Cl. 361—117 **11 Claims**



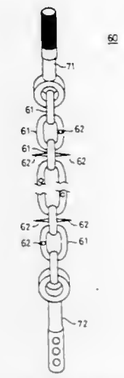
1. An electric protective device for a high voltage cable termination from an overhead transmission line comprising:
(a) a tubular insulator through the center of which a voltage carrying conductor passes and which, when in service, will be exposed to the voltage of the conductor at one of its ends and to a ground voltage at its other end; and
(b) a surge arrester concentrically disposed about said tubular insulator, said insulator and surge arrester having common terminals at their ground and high voltage ends.

5,210,677
SOLID STATE STATION PROTECTORS
Thomas J. Smith, Bay Shore, N.Y., assignor to Tii Industries, Inc., Copiague, N.Y.
Division of Ser. No. 524,740, May 17, 1991, abandoned. This application Aug. 17, 1992, Ser. No. 930,288
Int. Cl.[5] H02H *9/06*
U.S. Cl. 361—119 **3 Claims**



1. A miniature solid state surge protection device suitable for insertion into an electrically conductive hollow housing having a closed end and an open end disposed proximate a ground, comprising independent components assembled in combination:
a) electrically conductive fusible pellet means having a top surface and a bottom surface disposed within said housing, said pellet means top surface being in electrically conductive contact with the closed end of said housing;
b) an unsealed solid state device having a first electrode and a second electrode, said first electrode being in electrically conductive contact with the bottom surface of said pellet means;
c) movable electrode means having a top surface and a bottom surface, said top surface being in electrically conductive contact with the second electrode of said solid state device, said bottom surface being in electrically conductive contact with said ground, said housing moving relative to said movable electrode means coming into electrically conductive contact with said ground when said pellet means melts, said melted pellet means additionally shorting said first and said second electrode of said solid state device; and
d) insulation means adapted to receive said movable electrode means therein permitting the bottom surface of said movable electrode to extend therethrough.

5,210,678
CHAIN-TYPE DISCHARGE WIRE FOR USE IN AN ELECTROSTATIC PRECIPITATOR
Yeong-Chang Lain; Rey-Chein Chang, and Ching-I Juch, all of Hsinchu, Taiwan, assignors to Industrial Technology Research Institute, Taiwan
Filed Dec. 16, 1991, Ser. No. 807,711
Int. Cl.[5] B03C *3/41;* **H01J** *27/22;* **H01T** *19/04, 23/00*
U.S. Cl. 361—226 **1 Claim**



1. A discharge wire for use in an electrostatic precipitator which is used for collecting pollutant particles contained in a flow of exhaust gas, the electrostatic precipitator having a collecting member made of conductive material and a means for impressing an electric field across said discharge wire and the collecting member;, said discharge wire comprising:
a chain having a plurality of chain links made of conductive material, said chain being disposed near said collecting member;
at least one needle-like member made of conductive material provided on at least one of the chain links; and
wherein as the electric field is impressed across said chain and the collecting member, said needle-like member will discharge corona current such that pollutant particles nearby are charged and thereby attracted by and accumulated on the collecting member.

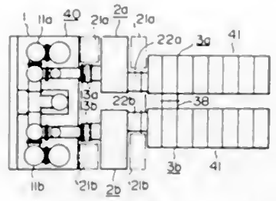
5,210,679
CUSTOMER'S POWER RECEIVING AND TRANSFORMING SYSTEM
Manabu Takamoto; Toyokazu Tanaka, both of Hitachi, and Satoshi Miwada, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 9, 1992, Ser. No. 848,057
Claims priority, application Japan, Mar. 14, 1991, 3-073717
Int. Cl.[5] A02B *1/04*
U.S. Cl. 361—335 **6 Claims**

1. A power receiving and transforming system comprising:
a gas insulated switch gear;
transformers disposed adjacent said gas insulated switchgear; and

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a plurality of metal-enclosed switch gears disposed on a side of said transformers opposite to said gas insulated switch gear,

wherein said metal-enclosed switchgears are divided into first and second sections each of said first and second sections comprising a plurality of metal enclosed switch gear units arranged in rows and juxtaposed with fronts of the respective metal enclosed switchgear units facing in the same direction, the direction of said rows of said first



section and the direction of said rows of said second section are in parallel to each other and correspond to a direction in which said gas insulated switchgear and said transformers are juxtaposed, said first and second sections being disposed such that, in a direction perpendicular to the direction of said rows, said fronts of said first and second sections confront each other or surfaces of said first and second sections opposite to said fronts confront each other.

5,210,680

CARD CAGE HAVING AN AIR COOLING SYSTEM

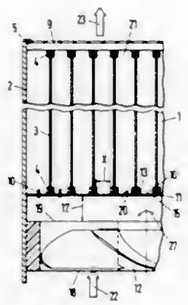
Edy Scheibler, Wetzikon, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Jul. 3, 1991, Ser. No. 725,561

Claims priority, application Switzerland, Aug. 7, 1990, 02575/90

Int. Cl.[5] H05K *7/20*

U.S. Cl. 361—384 **4 Claims**



1. A card cage comprising

a housing defining an upper compartment and a lower compartment which are separated by a sheet member, wherein the upper compartment defines a chamber receiving a plurality of vertically disposed spaced apart parallel printed circuit cards having heat-developing electrical components;

a plurality of openings in said sheet member, each opening defining an air inlet having a minimum cross-sectional area and communicating with a space between a respective pair of printed circuit cards, wherein each inlet is located adjacent to a first end of each of said respective pair of printed circuit cards;

a plurality of plate members, each plate member being disposed in a respective air-inlet to limit the cross-sectional area of the respective air-inlet, the position of each plate member being adjustable to vary the cross-sectional area of a respective air-inlet, and wherein each plate member is integrally formed from said sheet member;

at least one fan for blowing air into the lower compartment and through each said air-inlet into said chamber to flow across the printed circuit cards such that the air passes from the first end of each printed circuit card received in said chamber to a second end of each printed circuit card, said second end being opposite said first end, said fan being in fluid communication with each said air-inlet; and

an outlet in said housing communicating with said chamber to exhaust air therefrom after passing over the printed circuit cards, said outlet being located adjacent to the second end of the printed circuit cards.

5,210,681

EXPANSION DEVICE FOR EXPANDING FUNCTIONS OF COMPACT ELECTRONIC APPARATUS

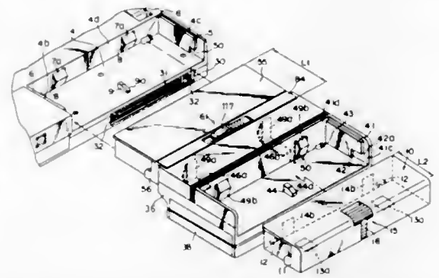
Takashi Hosoi, Tokyo; Toshio Kikukawa, Hanno; Keizo Ohgami, and Takaichi Kobayashi, both of Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 653,402, Feb. 8, 1991, Pat. No. 5,153,817. This application Aug. 10, 1992, Ser. No. 926,507

Claims priority, application Japan, Feb. 9, 1990, 2-30587; Jul. 10, 1990, 2-181730; Jul. 10, 1990, 2-181731

Int. Cl.[5] H05K *7/10, 5/02;* **G06F** *1/16;* **H01M** *2/10*

U.S. Cl. 361—393 **8 Claims**



1. An electronic system comprising:

a first electronic apparatus having a first fitting portion and an engaging portion provided at the first fitting portion;

a second electronic apparatus having a second fitting portion; and

a coupling unit for mechanically coupling the first and second electronic apparatus, the coupling unit including a first portion removably fitted to the first fitting portion, a second portion removably fitted to the second fitting portion, and a lock mechanism for locking the first portion of the coupling unit in the first fitting portion,

the locking mechanism including:

a lock member movable between an engaging position wherein the lock member engages the engaging portion of the first electronic apparatus so as to lock the first portion in the first fitting portion and a disengaging position wherein the lock member disengages from the engaging portion to allow the first portion of the coupling unit to be removed from the first fitting portion,

an operating member connected to the lock member, for moving the lock member between the engaging the disengaging positions, the operating member being movable between a lock position wherein the operating member moves the lock member to the engaging position and a release position wherein the operating member moves the lock member to the disengaging position, and

a holding mechanism for temporarily holding the operating member in the release position when the operating member is moved from the lock position to the release position.

5,210,682

RADIAL TYPE OF PARALLEL SYSTEM BUS STRUCTURE HAVING PAIRS OF CONDUCTOR LINES WITH IMPEDANCE MATCHING ELEMENTS

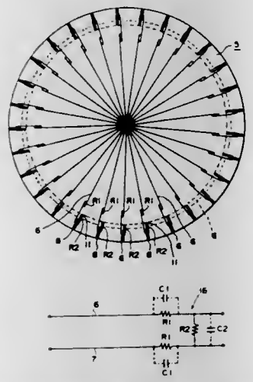
Tokuhei Takashima, Tokyo, Japan, assignor to Graphico Co., Ltd., Tokyo, Japan

Filed Oct. 11, 1991, Ser. No. 774,812

Claims priority, application Japan, Oct. 19, 1990, 2-282366; Nov. 16, 1990, 2-308847

Int. Cl.[5] H05K *7/00*

U.S. Cl. 361—396 **4 Claims**



1. A radial-and-parallel bus structure comprising a stack assembly of bus-printed disks whose centers are arranged on a common center axis, each bus-printed disk comprising:

a disk of dielectric material bearing on each of its opposite major surfaces, a printed radial pattern including a plurality of printed signal conductors of equal length radially extending from the center of the disk, each signal conductor on one of the opposite major surfaces of the disk being coupled to a corresponding signal conductor on the other major surface to make up a signal conductor pair;

a plurality of impedance matching elements each connected to each signal conductor pair; and

means to connect each of said impedance matching elements to selected ones of a plurality of central processing the CPU boards standing upright around said stack assembly of bus-printed disks.

5,210,683

RECESSED CHIP CAPACITOR WELLS WITH CLEANING CHANNELS ON INTEGRATED CIRCUIT PACKAGES

Tom Ley, Santa Clara, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Aug. 22, 1991, Ser. No. 749,128

Int. Cl.[5] H05K *1/14*

U.S. Cl. 361—414 **8 Claims**

4. A semiconductor device package comprising:

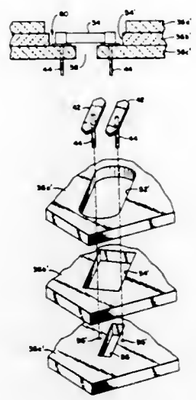
a body having an external surface and formed of a series of alternating ceramic layers and conductive layers, one of which layers is a first topmost ceramic layer;

a die-receiving opening extending from the external surface through at least the first topmost ceramic layer in the series;

a first hole extending from the external surface through at least the first topmost ceramic layer in the series;

conductive attachment pads within the first hole;

a capacitor disposed within the first hole and attached to the conductive attachment pads, such that the capacitor fits at least partially within the body; and



conductive vias extending from the pads to one or more of the conductive layers.

5,210,684

APPARATUS AND METHOD FOR CONTROLLING THE OPERATING FREQUENCY OF COMPRESSOR IN AIR CONDITIONING APPARATUS

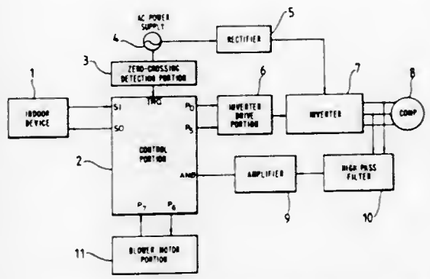
Dong Y. Nam, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Dec. 18, 1991, Ser. No. 809,326

Claims priority, application Rep. of Korea, Dec. 18, 1990, 90-20913

Int. Cl.[5] H02P *7/36;* **H02M** *1/12*

U.S. Cl. 363—37 **8 Claims**



1. An air conditioning apparatus including a rectifier and an inverter in an outdoor device for controlling the speed of a compressor by controlling the frequency of a three phase AC outputted from the inverter, said air conditioning apparatus comprising:

high pass filter, connected to two phases of the three phase AC outputted from the inverter, for detecting low order harmonic frequencies of the two phases as a line voltage;

amplifier for amplifying said line voltage output from the high pass filter and outputting said amplified line voltage; and

a controller which receives said amplified line voltage for determining whether the line voltage is below a first set value, between the first set value and a second set value or above the second set value, said controller operating the compressor in a previous operation state if the line voltage is below the first set value, operating the compressor in an

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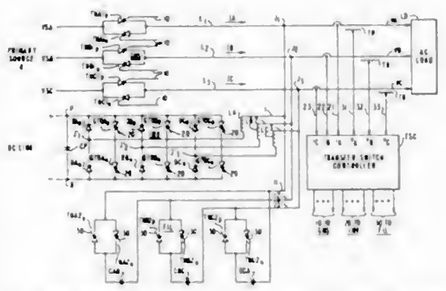
operation state which is one step lower than the previous speed if the line voltage is between the first set value and the second set value, or operating the compressor in a lowest operation state if the line voltage is above the second set value.

5,210,685

UNINTERRUPTIBLE POWER SUPPLY SYSTEM AND LOAD TRANSFER STATIC SWITCH FOR SUCH A SYSTEM

John Rosa, Penn Hills Twp., Allegheny County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 8, 1985, Ser. No. 709,880
Int. Cl.[5] H02H *9/00, 7/122;* H02J *9/06*
U.S. Cl. 363—109 16 Claims



1. A UPS system including, a primary AC power supply connected to an AC load through a first static-controlled transfer switch, an auxiliary inverter and a standby DC voltage-source connected to said inverter, a second static-controlled transfer switch for connecting said inverter to said AC load, and means responsive to a critical event for disabling said first transfer switch and for enabling said second transfer switch;

the inverter comprising gating means operative first in a commutation mode concurrently with said critical event responsive means for applying, through said inverter and through said second transfer switch, to said first transfer switch the voltage of said DC-source as a commutation voltage thereof;

said inverter gating means being operative in a UPS mode after said commutation mode to generate an auxiliary AC power supply to the AC load.

5,210,686

MULTILEVEL BILL OF MATERIAL PROCESSING

John M. Jernigan, Roswell, Ga., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 19, 1990, Ser. No. 600,455
Int. Cl.[5] G06F *15/24*
U.S. Cl. 364—403 12 Claims

EXPLOSION CONTROL TABLE 36

ITEM NO	BOM LEVEL NO	COMPONENT SEQUENCE NO
A	0	1
B	1	1
C	1	2
D	2	1
E	2	2
F	2	3
G	3	1
H	3	2

1. A method for processing a hierarchical bill of material component data file stored in a relational database on a data processing system having a processor, a memory and an external storage device, said hierarchical bill of material component data file having a plurality of levels defining components of a product structure assembly in increasing detail in proceeding from the highest level to the lowest level in said product structure assembly, said method comprising:

adding an item identifier for said product structure assembly to an explosion control table to initiate processing of said hierarchical bill of material component data file;

incrementing a current level counter in said memory to indicate the level in said hierarchical bill of material component data file to be processed next;

retrieving each component at the level indicated by the current level counter and inserting said each component in an explosion control table;

sequentially processing each component retrieved at the level indicated by the current level counter to determine if said each component contains a lower level component in said hierarchical bill of material component data file;

for each lower level component found, repeating said steps of incrementing the current level counter, retrieving each component at the level indicated, and sequentially processing each component retrieved until each component at the lowest level along a branch in said hierarchical bill of material component data file has been processed;

removing each component at the current level from said explosion control table after the lowest level along the branch has been processed and decrementing said current level counter to indicate the level in said hierarchical bill of material component data file to be processed next; and

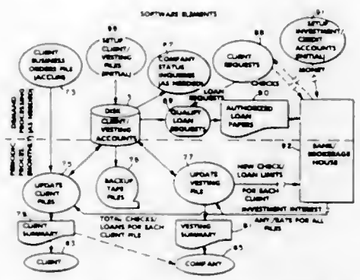
terminating processing of said hierarchical bill of material component data file when said current level counter has been decremented to a negative value.

5,210,687

BUSINESS TRANSACTION AND INVESTMENT GROWTH MONITORING DATA PROCESSING SYSTEM

Larry Wolfberg, Honolulu, Hi.; Brent A. Wolfberg, Los Angeles, Calif., and Jan E. Rhoads, Virginia Beach, Va., assignors to L & C Family Partnership, Century City, Calif.

Continuation of Ser. No. 39,196, Apr. 16, 1987, Pat. No. 4,994,904. This application Feb. 15, 1991, Ser. No. 655,990
The portion of the term of this patent subsequent to Feb. 19, 2008, has been disclaimed.
Int. Cl.[5] G06F *15/42*
U.S. Cl. 364—408 27 Claims



1. A transaction tracking data processing system comprising:

a data entry and display terminal for entering client business transaction data and client account identification data;

a read/write memory for storing business transaction data in a plurality of client account files, each client account file being identifiable by said client account identification data;

a central processing unit for processing said business transaction data, said central processing unit including means for accessing at least one of said client account files and for retrieving client business transaction data relating to a predetermined time period, means for determining a cumulative business transaction elated total for said predetermined time period for a plurality of client accounts, means for comparing a predetermined transaction related threshold with said transaction related to data;

means for determining a predetermined percentage of said business transaction total for said predetermined time period, and

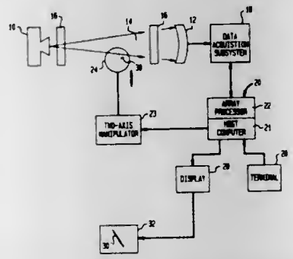
means, responsive to said means for comparing, for storing in said read/write memory an indication of an amount of funds to be credited to at least one client account corresponding to said predetermined percentage of the business transaction total for said predetermined time period when said client business transaction total exceeds said predetermined threshold.

5,210,688

SINOGRAPHY METHOD AND APPARATUS

Yen F. Cheu, Rochester Hills, and August F. Scarpelli, Warren, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 21, 1990, Ser. No. 526,263
Int. Cl.[5] G06F *15/42, 15/66*
U.S. Cl. 364—413.19 3 Claims



1. A method for displaying an image of an enhanced sinogram corresponding to an internal area of a body, comprising the steps of:

relatively moving the body with respect to an irradiation zone formed by a source of radiation and an array of detectors such that a beam of radiation from the radiation source passes through a cross section of the body to the array of detectors;

deriving from the array of detectors, at a series of successive positions of the body in the irradiation zone, a series of data representing received radiation intensity;

mapping the series of data onto a two dimensional array representing a raw sinogram of radiation transmission characteristics of the body at the series of successive positions;

convoluting the two dimensional array with a 1×5 kernel to enhance discontinuities within the body;

smoothing the convoluted two dimensional array by averaging groups of contiguous lines in the array;

transforming the smoothed array into a frequency domain through a two dimensional Fourier transform procedure;

filtering the transformed array through a low pass filter;

transforming the filtered array into a space domain through an inverse Fourier transform procedure, the transformed, filtered array representing an enhanced sinogram; and

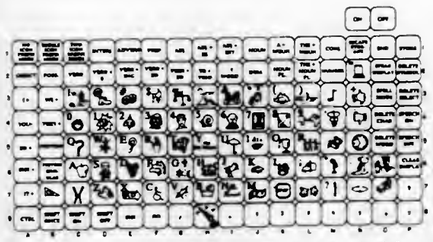
displaying an image of the enhanced sinogram.

5,210,689

SYSTEM AND METHOD FOR AUTOMATICALLY SELECTING AMONG A PLURALITY OF INPUT MODES

Bruce R. Baker; Robert V. Conti, both of Pittsburgh, Pa.; David Hershberger, Millersburg, Ohio; Donald M. Spaeth, Bethel Park, Pa.; D. Jeffrey Higginbotham, Buffalo, N.Y., and Clifford Kushler, Wooster, Ohio, assignors to Semantic Compaction Systems, Pittsburgh, Pa.

Filed Dec. 28, 1990, Ser. No. 633,535
Int. Cl.[5] G09B *21/04*
U.S. Cl. 364—419 62 Claims



1. A continuous input device for use in a sequential word generation system, the continuous input device providing input of a plurality of polysemous symbols, in selected sequences, to access prestored words and concurrently providing input of a plurality of alphabetic characters, in selected sequences, corresponding to non-prestored words, without the need of a mode selection key utilizable solely for selection among a plurality of input modes, the device comprising:

key input means, including a plurality of keys corresponding to both polysemous symbols and alphabetic characters, for, upon key activation, inputting corresponding polysemous symbols and alphabetic characters;

storage means, operatively connected to said key input means, for sequentially storing input polysemous symbols as a symbol sequence and for separately and concurrently sequentially storing input alphabetic characters as a character string;

comparison means, operatively connected to said storage means, for comparing said stored symbol sequence, upon storage of each polysemous symbol in the stored symbol sequence, to a plurality of predetermined symbol sequences to determine a symbol sequence match; and

input mode automatic selection means, operatively connected to said storage means, comparison means, and key input means, for automatically selecting a symbol mode and utilizing said stored input symbol sequence to subsequently access stored information for subsequent output upon said comparison means determining a symbol sequence match and for automatically selecting a character mode and utilizing said stored input character string upon the input symbol sequence being of a predetermined length and upon said comparison means not determining a symbol sequence match.

5,210,690

ANTI-SKID CONTROL SYSTEM FOR VEHICLE

Fumio Kageyama; Haruki Okazaki; Toru Onaka, and Toshiaki Tsuyama, all of Hirosbima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Apr. 9, 1991, Ser. No. 682,086
Claims priority, application Japan, Apr. 10, 1990, 2-94656
Int. Cl.[5] B60T *8/66*
U.S. Cl. 364—426.02 8 Claims

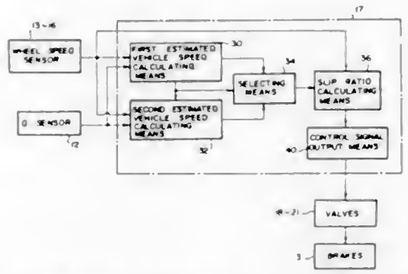
1. An anti-skid brake control system for a vehicle comprising a wheel speed detecting means which detects the speeds of wheels of the vehicle,

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a deceleration detecting means which detects the deceleration of the vehicle,

a first estimated vehicle speed calculating means which calculates a first estimated vehicle speed on the basis of the highest of the speeds of the wheels as detected by the wheel speed detecting means and the deceleration of the vehicle as detected by the deceleration detecting means,

a second estimated vehicle speed calculating means for calculating a second estimated vehicle speed which begins to reduce from a predetermined value at a predetermined rate independent from the change in the highest of the speeds of the wheels from the time the first estimated vehicle speed as calculated by the first estimated vehicle speed calculating means falls to the predetermined value,



a selecting means which adopts the first estimated vehicle speed as a final estimated vehicle speed when the first estimated vehicle speed is not lower than the predetermined value and adopts the second estimated vehicle speed as the final estimated vehicle speed when the first estimated vehicle speed is lower than the predetermined value,

a slip ratio calculating means which calculates the slip ratio of each wheel on the basis of the final estimated vehicle speed determined by the selecting means and the speed of the wheel as detected by the wheel speed detecting means, and

a braking force control means which controls the braking force applied to each wheel so that the slip ratio of the wheel as calculated by the slip ratio calculating means converges on a target slip ratio.

5,210,691

METHOD AND APPARATUS FOR PRODUCING A MORE ACCURATE RESISTIVITY LOG FROM DATA RECORDED BY AN INDUCTION SONDE IN A BOREHOLE

Robert Freedman, Houston, and Gerald N. Minerbo, Missouri City, both of Tex., assignors to Schlumberger Technology Corporation, Houston, Tex.

Continuation of Ser. No. 521,049, May 8, 1990, abandoned. This application May 9, 1991, Ser. No. 698,378

Int. Cl.[5] G01V *1/00, 3/10*

U.S. Cl. 364—422 **7 Claims**

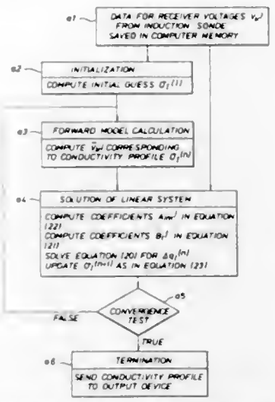
1. An apparatus responding to voltage signal data developed by a well tool when said well tool is disposed in a borehole for generating a conductivity profile and for recording said conductivity profile on an output record medium, comprising:

receiving means for receiving said voltage signal data and determining an initial estimate of said conductivity profile;

model voltage determination means responsive to said initial estimate of said conductivity profile for determining model voltages corresponding to said initial estimate of said conductivity profile;

conductivity profile update means responsive to said model voltages and to said initial estimate of said conductivity profile for determining an incremental value (delta) and updating said initial estimate of said conductivity profile in accordance with said incremental value and producing an updated conductivity profile;

convergence testing means for determining if said updated conductivity profile when compared with said initial estimate of said conductivity profile satisfies a convergence test criterion; and



recording means for recording said updated conductivity profile on said output record medium when said updated conductivity profile satisfies said convergence test criterion.

5,210,692

PROCESS AND CIRCUIT CONFIGURATION FOR ANALYZING THE WHEEL SPEED SIGNALS FOR USE WITH AN ANTI-LOCKING OR TRACTION SLIP CONTROL

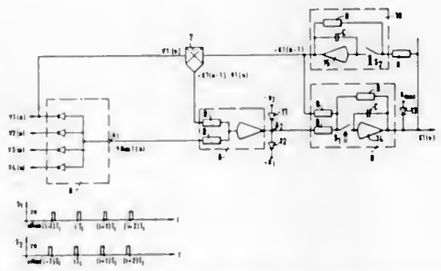
Helmut Fennel, Bad Soden, and Michael Latarnik, Friedrichsdorf, both of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed May 4, 1990, Ser. No. 518,910

Claims priority, application Fed. Rep. of Germany, May 16, 1989, 3915879

Int. Cl.[5] B60T *8/58*

U.S. Cl. 364—426.02 **14 Claims**



13. A system for modifying wheel speed signals of an automotive vehicle, said system comprising:

means for supplying a plurality of wheel speed signals representative of the rotational behavior of the wheels of said automotive vehicle;

means responsive to said wheel speed signals for generating a basic speed signal representative of a basic speed of said vehicle;

means for repetitively developing successive correction signals in successive cycles to correct said wheel speed signals including:

(a) means for storing a previously developed correction signal,

(b) means for developing a product signal representative of the product of said wheel speed signals and said previously developed and stored correction signal,

(c) means for developing a difference signal representative of the difference between said basic speed signal and said product signal, and

(d) means responsive to:

(1) said wheel speed signals,

(2) said difference signal, and

(3) said previously developed and stored correction signal

for developing said successive correction signals;

means for limiting the change in value of the difference signals of said successive cycles; and

means for limiting the change in value of the correction signals of said successive cycles.

5,210,693

ANTI-SKID CONTROL SYSTEM

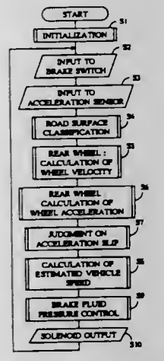
Kazutaka Kuwana; Kuniaki Okamoto; Tsuyoshi Yoshida; Hiroyuki Ichikawa; Masaru Kamikado; Nobuyasu Nakanishi, all of Aichi; Tatsuo Sugitani, Shizuoka, and Kazunori Sakai, Aichi, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Aug. 6, 1990, Ser. No. 562,992

Claims priority, application Japan, Aug. 4, 1989, 1-203492

Int. Cl.[5] B60T *8/60*

U.S. Cl. 364—426.02 **3 Claims**



1. An anti-skid control system for a vehicle which is provided with wheels including driving wheels, comprising:

wheel velocity detectors each of which detects a wheel velocity of a corresponding driving wheel;

estimated vehicle speed calculation means for calculating an estimated vehicle speed on the basis of the wheel velocity at the time, when the braking operation is started;

acceleration slip estimating means for estimating an acceleration slip when a decline ratio of the wheel velocity is large and a braking operation is not established;

acceleration slip judging means for judging occurrence of an acceleration slip when the estimated vehicle speed continues to exceed the wheel velocity for a period of time after establishment of the braking operation subsequent to the estimation of the acceleration slip; and braking force control means for controlling a braking force for each of the wheels while the braking operation is being established in such a manner that the braking force is set to be controlled in accordance with the magnitude of the braking operation, is set to be decreased when the wheel velocity is less than the estimated vehicle speed, and is set to be increased when the vehicle speed is being decreased after the judgment of the occurrence of an acceleration slip.

5,210,694

EMBROIDERY DATA PROCESSING APPARATUS

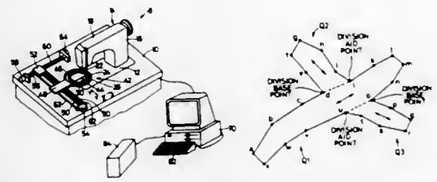
Atsuya Hayakawa, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jan. 14, 1991, Ser. No. 640,881

Claims priority, application Japan, Jan. 20, 1990, 2-11175

Int. Cl.[5] G06F *15/46;* **D05B** *21/00*

U.S. Cl. 364—470 **9 Claims**



1. An apparatus for processing embroidery data and utilizing the embroidery data for filling an embroidery area with stitches, comprising:

first means for selecting a division base point from a plurality of defining points predetermined on an outline of said embroidery area, based on outline data representative of said outline of the embroidery area;

second means for selecting, based on said outline data, a division aid point from said defining points, so that said division aid point cooperates with said division base point to define a division line which divides said embroidery area into two subareas such that the outline of at least one of said two subareas satisfies a requirement predetermined with respect to smoothness at said division line;

data producing means for dividing said embroidery area into said two subareas by said division line, and producing said embroidery data for filling each of said subareas with stitches; and

data utilization means for utilizing said embroidery data to form said stitches.

5,210,695

SINGLE BLOCK MOUNTING SYSTEM FOR SURFACING AND EDGING OF A LENS BLANK AND METHOD THEREFOR

Kenneth O. Wood, Stafford Springs, Conn., assignor to Gerber Optical, Inc., South Windsor, Conn.

Filed Oct. 26, 1990, Ser. No. 604,052

Int. Cl.[5] G06F *15/46;* **B24B** *7/00*

U.S. Cl. 364—474.06 **15 Claims**

1. A method for making a prescription eyeglass lens for a particular user and for a particular selected eyeglass frame having two lens openings each having a vertical reference line and a horizontal reference line, and which two lens openings are horizontally spaced from one another by a horizontal distance measured between said vertical reference lines, said method comprising the steps of:

providing a lens blank and block assembly including a lens blank having a block fixed to it, said lens blank having a generally spherical front surface and a rear surface, said block being fixed to said front surface, and said block having mounting means for engagement by a holding means which mounting means locates a first reference axis fixed relative to said lens blank and block assembly extending through the center of curvature of said spherical front surface of said lens blank and a second reference axis fixed relative to said lens blank and block assembly and located in a plane perpendicular to said first reference axis and intersecting said first reference axis,

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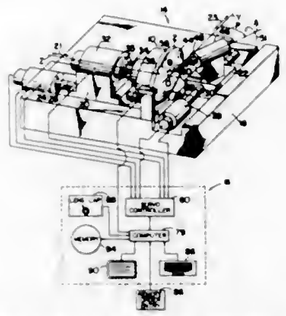
providing a set of prescription information defining the optical characteristics of a lens to be produced from said lens blank,

providing a set of frame opening shape data defining the edged shape of the lens to be produced from said lens blank to suit it to the associated lens opening of said selected frame,

providing data defining the interpupilary spacing of the particular user,

providing data defining said horizontal spacing between said two lens openings of said selected frame,

processing the aforesaid data in a computer to generate a first set of machine operating data defining with reference to said first and second reference axes a shape to be given



to said rear surface of said lens to cause said lens blank to have the optical characteristics specified by said prescription data and to also generate a second set of machine operating data defining with reference to said first and second reference axes the edged shape to be given the lens cut from said lens blank while it remains fixed to the same block used to support the lens blank when said shape is given to said rear surface of said lens,

and relating said first and second sets of machine operating data to one another such that the lens defined by said first and second machine operating data when fitted into the associated lens opening of said selected frame will have its optical characteristics properly located relative to the associated eye of the particular user when said frame is worn by said user.

5,210,696

ELECTRON BEAM EXPOSURE DATA PROCESSING METHOD, ELECTRON BEAM EXPOSURE METHOD AND APPARATUS

Keiko Yano, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Feb. 8, 1990 Ser. No. 476,860

Claims priority, application Japan, Feb. 10, 1989, 1-31563

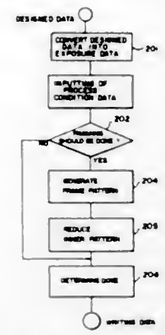
Int. Cl.[5] G06F *15/20*

U.S. Cl. 364—488 **30 Claims**

28. An electron beam exposure apparatus comprising:

first means for inputting exposure data relating to a pattern to be written, a plurality of ranges of dimensions of pattern being predetermined;

means operatively coupled to said first means, for determining which one of the ranges of dimensions said pattern belongs, said means providing a plurality of processing modes equal in number to the plurality of ranges of dimensions, each of the plurality of processing modes defining a framing process by which said pattern is partitioned into a) a frame pattern and b) an inner pattern surrounded by said frame pattern, said means reducing said inner pattern by a reduction rate while not reducing said frame pattern, the reduction rate is increased with an increase in dimensions of said pattern, said means exposing said frame pattern to a first exposure dose, and exposing said reduced inner pattern to a second exposure dose, said second exposure dose being less than said first exposure dose; and



third means operatively connected to said second means, for selecting one of said processing modes which correspond to one of the ranges to which said pattern belongs.

5,210,697

NUMERICALLY CONTROLLED FEEDING APPARATUS HAVING FEEDING ERROR CORRECTING SYSTEM

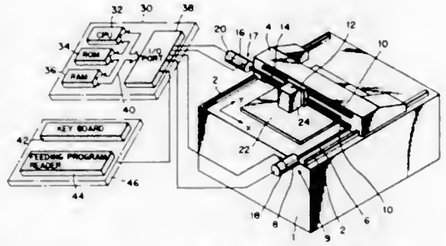
Tasuku Kawanabe, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Jan. 29, 1991, Ser. No. 647,230

Claims priority, application Japan, Jan. 30, 1990, 2-19409

Int. Cl.[5] G06F *15/46; G05B 19/18*

U.S. Cl. 364—474.35 **7 Claims**



1. A numerically controlled feeding apparatus having at least two linear feeding devices having intersected feeding directions for performing a numerical feeding control in a feedign space defining a plurality of feeding areas on the basis of an instruction value representing a desired feeding position, comprising:

memory means for storing representative correction vectors for representative instruction values indicating a predetermined number of reference feeding positions in the feeding space, each representative correction vector having information on deviation amount and deviation direction between a reference feeding position indicated by each of the representative instruction values and a real feeding position corresponding to each of the representative instruction values, the deviation amount and deviation direction being indicative of an error of each said linear feeding device caused by at least one component of a feeding error of the other feeding devices;

correcting means for calculating a correction vector for an instruction value indicating any desired feeding position on the basis of a correction vector group of representative correction vectors for representative instruction values indicating plural feeding positions located in adjacent feeding areas of the desired feeding position, the correction vector group being read out of said memory means, and the instruction value indicating the desired feeding position, thereby to obtain a corrected feeding amount; and

control means for controlling a feeding operation of said linear feeding devices on the basis of the corrected feeding amount.

5,210,698

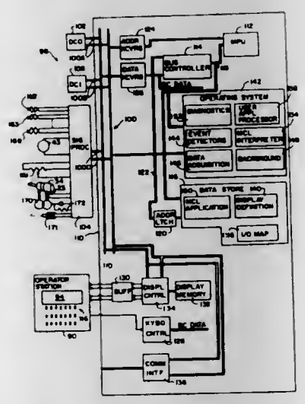
SERVO CONTROL FOR MOLDING MACHINE

David A. Topmiller, Ft. Wright, Ky., assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Jan. 18, 1991, Ser. No. 643,977

Int. Cl.[5] G06F *15/46*

U.S. Cl. 364—476 **29 Claims**



1. An apparatus for servo-control of injection molding machine devices including machine mechanisms and heaters, the machine having transducers for producing measured parameter signals representing measured temperatures and measured values of selected machine conditions, the apparatus producing device control signals in response to command input signals, representing set point values defining desired operation of the devices, the apparatus comprising:

a. means for periodically sampling measured parameter signals representing mechanism conditions at a first predetermined loop closure interval and periodically sampling measured condition signals representing temperature at a second loop closure interval; and

b. a processor responsive to the command input signals and the sampled values of the measured parameter signals for periodically executing analogue loop algorithms relating first selected set point values, the first predetermined loop closure interval and the mechanism condition values to produce mechanism control signals at the first loop closure interval and periodically executing temperature loop algorithms relating second selected set point values, the second loop closure interval and the measured temperatures to produce heater control signals at the second loop closure interval.

5,210,699

PROCESS FOR EXTRACTING LOGIC FROM TRANSISTOR AND RESISTOR DATA REPRESENTATIONS OF CIRCUITS

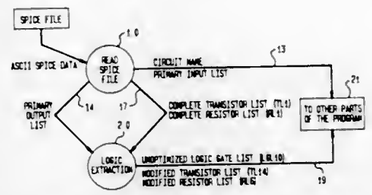
Brian K. Harrington, Santa Clara, Calif., assignor to Siemens Components, Inc., Iselin, N.J.

Continuation of Ser. No. 452,927, Dec. 18, 1989, abandoned.

This application Sep. 10, 1991, Ser. No. 759,190

Int. Cl.[5] G06F *15/60*

U.S. Cl. 364—488 **12 Claims**



1. A computer implemented method for producing a logic circuit diagram from a netlist representation of a bipolar semiconductor logic circuit including a plurality of interconnected circuit elements in the form of transistors and resistors, the logic circuit diagram being suitable for logic simulation purposes to verify the actual logic function provided by the netlist, the method comprising the steps of:

(a) selectively eliminating from the netlist representation those circuit elements failing to contribute to the logic functionality of the bipolar circuit, including all resistors connected to a supply voltage, to provide a simplified data output;

(b) analyzing the simplified data output for representations of remaining circuit elements of the bipolar circuit to determine their respective logic function by the way they are connected wherein resistor and transistor interconnections are analyzed and a first set of corresponding primitive logic elements are generated said first set of primitive logic elements consisting of buffers and OR gates;

(c) detecting interconnections between the remaining circuit elements in the contracted data output and generating a second set of corresponding primitive logic elements including inverters, OR, NOR, AND and NAND gates; and

(d) developing a logic circuit diagram to have a structure corresponding to the interconnection of circuit elements represented by the netlist.

5,210,700

AUTOMATIC DELAY ADJUSTMENT FOR STATIC TIMING ANALYSIS

David Tom, Menlo Park, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 20, 1990, Ser. No. 482,234

Int. Cl.[5] G06F *15/60*

U.S. Cl. 364—489 **14 Claims**

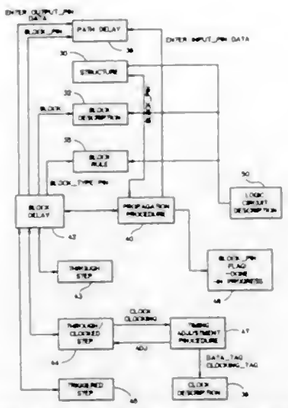
1. In a programmed computer apparatus for analyzing timing delays in a multi-phase-clock logic network under static conditions, an improvement for analyzing signal delay through the logic network, the improvement comprising:

simulating means for providing a logical counterpart of the logic network which represents a multi-phase clock, elements of the logic network and connections between those elements, the elements including clocked elements which respond to the multi-phase clock by storing data signals;

a data object representing a data signal propagating in the logic network, the data object including a first data field representing a phase of the multi-phase clock during which a data signal is clocked by the logic network and a second data field representing a time by which the data signal is delayed by propagation in the logic circuit;

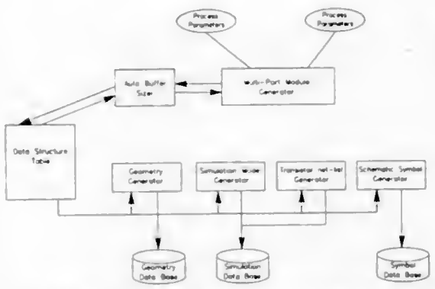
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propagating means for applying the data object to a representation of a clocked element in the logic network, the clocked element being triggered by a particular phase of the multi-phase clock; and



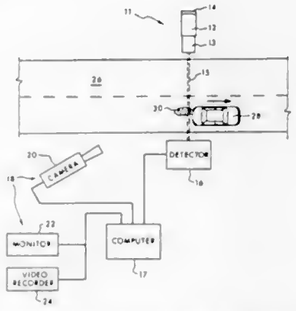
delay means connected to the propagating means for comparing the phase represented by the first data field with a representation of the particular phase to change the second field to a path delay value representing the cumulative delay of the data signal through the clocked element.

5,210,701
APPARATUS AND METHOD FOR DESIGNING INTEGRATED CIRCUIT MODULES
Haytham H. Hana, Milton, and Syed J. Hussain, Bellevue, both of Wash., assignors to Cascade Design Automation Corporation, Bellevue, Wash.
Continuation of Ser. No. 351687, May 15, 1989, abandoned. This application May 14, 1991, Ser. No. 701,624
Int. Cl.[5] G06F *15/20*
U.S. Cl. 364—491 **28 Claims**



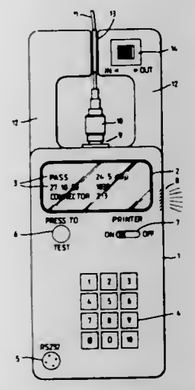
1. An apparatus for generating an integrated circuit module, said apparatus comprising:
input means for accepting a plurality of parameters designating the characteristics of said integrated circuit module;
memory means for storing a plurality of respective cells for a variety of integrated circuit subcomponent types, each type of said cells corresponding to a respective subcomponent of the integrated circuit module; and
generator means operatively connected to said input means and said memory means to selectively receive said parameters from said input means and said cells from said memory means, said generator means combining a plurality of said cells to form said integrated circuit module, the number and type of said cells used in the integrated circuit module varies according to said parameters, said generator means further arranging the topology and interconnection pattern of at least some of said cells as a function of a characteristic of another of said cells.

5,210,702
APPARATUS FOR REMOTE ANALYSIS OF VEHICLE EMISSIONS
Gary Bishop, Louisville, and Donald H. Stedman, Englewood, both of Colo., assignors to Colorado Seminary, Denver, Colo.
Filed Dec. 26, 1990, Ser. No. 633,952
Int. Cl.[5] G01N *21/00*
U.S. Cl. 364—496 **18 Claims**



1. A gas analysis device for detecting and measuring levels of gases in the exhaust of moving motor vehicles in the ambient atmosphere selected from the group consisting of carbon monoxide, carbon dioxide, hydrocarbons, nitrogen oxides and water vapor levels, said device comprising:
a. source means for producing collimated infrared and ultraviolet radiation and transmitting such radiation through a portion of said motor vehicle exhaust;
b. means for splitting said infrared and ultra-violet radiation into separate infrared and ultraviolet beams;
c. means for receiving said ultraviolet beam and generating a first electrical signal indicative of the absorption of ultraviolet radiation by nitrogen oxides in said exhaust;
d. means for splitting said infrared beam into at least two separate infrared beam components;
e. means for receiving a first infrared beam component and generating a second electrical signal indicative of the absorption of said infrared beam by carbon dioxide in said exhaust;
f. means for receiving a second infrared beam component and generating at least a third electrical signal therefrom indicative of the absorption of said infrared beam by gases in said exhaust selected from the group consisting of carbon monoxide, hydrocarbons and water vapor; and
g. means responsive to said electrical signals for computing and producing output signals indicative of the amount of gases selected from the group consisting of carbon monoxide, hydrocarbons and water in the path of said collimated infrared and ultraviolet radiation in said exhaust.

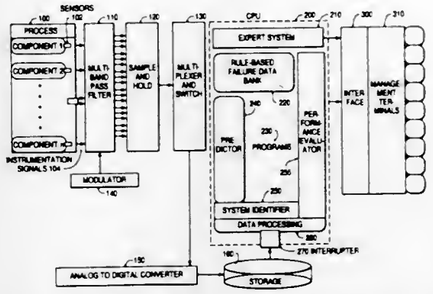
5,210,703
APPARATUS AND METHODS FOR TESTING OPTICAL COMMUNICATIONS NETWORKS
Derek G. Hodgson, British Aerospace (Military Aircraft) Limited, HU15 1 EQ Brough, United Kingdom
Filed Oct. 24, 1990, Ser. No. 602,145
Claims priority, application United Kingdom, Oct. 24, 1989, 8923933
Int. Cl.[5] G06F *15/20*
U.S. Cl. 364—525 **7 Claims**



1. An optical communications network test equipment for testing parameters of light transmitted and received via a plurality of fibre optic cabled light paths, said test equipment including:
an optical transmitter means for transmitting light with parameters determined by test stimulus data;
an optical receiver means for receiving light in response to actions of said transmitter means and for producing actual response data;
an optical coupler means for coupling light between said transmitter means and said receiver means and said cabled light paths;
programmable data storage means for storing said test stimulus data, and expected and actual response data for each of said light paths, said storage means having an output connected to said transmitter means, and an input connected to said receiver means; and
comparator means, connected to said storage means, for comparing said actual response data with said expected response data.

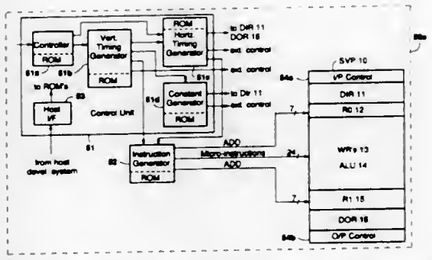
5,210,704
SYSTEM FOR PROGNOSIS AND DIAGNOSTICS OF FAILURE AND WEAROUT MONITORING AND FOR PREDICTION OF LIFE EXPECTANCY OF HELICOPTER GEARBOXES AND OTHER ROTATING EQUIPMENT
Abdo A. Husseiny, LaPlace, La., assignor to Technology International Incorporated, LaPlace, La.
Filed Oct. 2, 1990, Ser. No. 592,057
Int. Cl.[5] G01H *17/00*
U.S. Cl. 364—551.01 **71 Claims**

1. A wearout monitor and control device for failure prognostics comprising:
a component susceptible to failure;
a system data acquiring means for acquiring system data relating to the operation of said component;
a data processing means for processing data received from said system data acquiring means relating to the operation of said component, said data processing means including a performance evaluation means for evaluating the performance of said component and a failure predicting means for predicting failure of said component;
a failure indicating means for indicating a failure predicted by said failure predicting means; and



means for regulating further operation of said component in response to a failure being predicted by said failure predicting means.

5,210,705
DIGITAL FILTERING WITH SINGLE-INSTRUCTION, MULTIPLE-DATA PROCESSOR
Gerard Chauvel, Antibes, France; Hiroshi Miyaguchi, Tokyo, Japan, and Jimmie D. Childers, Missouri City, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 559,469, Jul. 30, 1990, abandoned. This application May 20, 1992, Ser. No. 887,414
Claims priority, application France, Feb. 28, 1990, 90 400560
Int. Cl.[5] G06F *15/62;* **H03H** *15/00*
U.S. Cl. 364—572 **13 Claims**



1. A digital processing system for implementing a horizontal digital filter, comprising:
a single-instruction multiple-data processor having a number of processing elements for receiving data samples in an ordered sequence, and having an arithmetic unit associated with each processing element of performing computations, and having next-neighbor communications between said processing elements, wherein said processor is programmed to perform computations to implement said filter by using said processing elements as taps of said filter, such that said data samples are output from said processing elements in said ordered sequence;
a processor control unit for providing timing and control signals to said processor; and
an instruction generator for providing instructions to said processor said instructions including instructions for performing said computations.

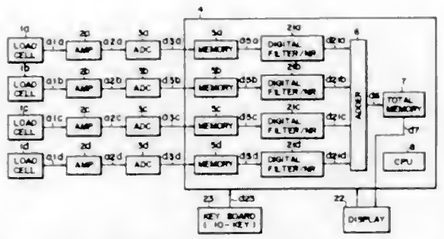
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,706

DEVICE FOR MEASURING A PHYSICAL FORCE

Yoshihisa Nishiyama, Shizuoka, Japan, assignor to Tokyo Electric Co. Ltd., Tokyo, Japan

Continuation of Ser. No. 571,774, Aug. 22, 1990, abandoned.
This application Aug. 20, 1992, Ser. No. 932,911
Claims priority, application Japan, Aug. 25, 1989, 1-219336
Int. Cl.[5] G06F *15/31*
U.S. Cl. 364—574 8 Claims



1. A force measuring device comprising:

means for converting force into a plurality of digital signals respectively corresponding to different points at which the force is detected, and including a plurality of load cells respectively positioned at said different points to provide analog output signals, means for transmitting force to each of said load cells, means for respectively converting said analog output signals provided by said plurality of load cells into said plurality of digital signals, and a memory coupled to receive said plurality of digital signals;

means coupled to said memory for reducing noise components contained in digital signals retrieved from said memory, and including a plurality of digital filters for respectively receiving said plurality of digital signals retrieved from said memory to generate therefrom a plurality of low noise digital signals, said digital filters having attenuation characteristics respectively corresponding to noise components of said retrieved digital signals; and

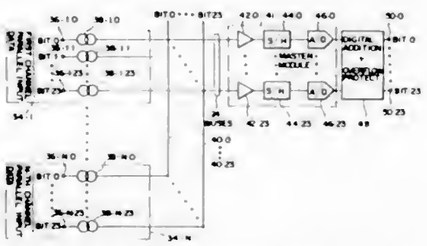
means for combining said plurality of low noise digital signals to provide a combined signal representing said force.

5,210,707

SIGNAL MIXING APPARATUS FOR PROCESSING PARALLEL DIGITAL DATA ON A TIME SHARED BASIS USING ANALOG ADDITION

Hiroshi Hamamatsu, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Aug. 28, 1990, Ser. No. 573,999
Claims priority, application Japan, Aug. 31, 1989, 1-225215
Int. Cl.[5] G06J *7/12*
U.S. Cl. 364—602 12 Claims



1. A signal mixing apparatus utilizing digital signal processing technology comprising:

input means for inputting digital signals as a plurality of parallel data bits within each of a plurality of channels;

analog addition means for adding, in analog, data of the same one of the plurality of parallel data bits within each of the plurality of channels to produce an analog sum for each of the plurality of parallel data bits;

analog-to-digital conversion means for converting the analog sum for each of the plurality of parallel data bits to digital data; and

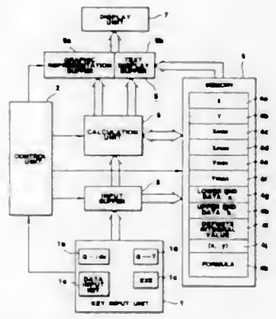
digital addition means for adding, in digital, the converted analog sums for all of the plurality of parallel data together to produce a single sum and outputting the single sum.

5,210,708

COMPACT ELECTRONIC CALCULATOR EQUIPPED WITH GRAPHIC DISPLAY FUNCTION

Osamu Negishi, Akishima, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Nov. 26, 1991, Ser. No. 798,518
Claims priority, application Japan, Nov. 28, 1990, 2-326720
Int. Cl.[5] G06F *15/66, 3/14*
U.S. Cl. 364—710.14 5 Claims



1. A compact calculator comprising:

display means, having a dot-matrix type display panel, for graphically displaying a functional formula;

display range data storage means for storing values of "X_{min}", "X_{max}", "Y_{min}" and "Y_{max}" corresponding to a representation range of a graph displayed on said display means;

input means for inputting a functional formula and an integral range corresponding to a definite integral;

formula storage means for storing the functional formula entered by the input means;

integral range storage means for storing the integral range inputted by the input means;

ΔX-determining means for determining a variation value ΔX corresponding to 1 dot of said display panel along an X-direction based upon the values of "X_{min}" and "X_{max}" stored in the display range data storage means;

X-value storage means for storing an X-value given to the functional formula stored in the formula storage means;

adding means for adding said X-value with said value ΔX to produce an addition result and for inputting said addition result into the X-value storage means, said adding operation being executed while the X-value is between "X_{min}" and "X_{max}";

Y-value calculating means for substituting the X-value into the functional formula and for calculating a Y-value, every time the X-value stored in said X-value storage means is added by the value ΔX;

designating means for designating a dot on the display panel corresponding to said X-value and Y-value in order to turn on the dot;

judging means for judging whether or not said X-value is located within the integral range stored in said integral range storage means when said designating means designates a dot on the display panel; and

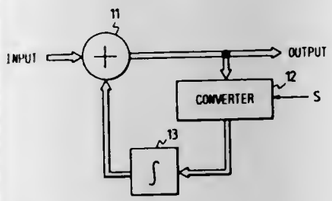
drawing means for turning on the dots of the display panel between the dot designated by the designating means and the X-axis when said judging means judges that the X-value is present within the integral range.

5,210,709

DIGITAL FILTER FOR REMOVING DC COMPONENTS

Yasunori Tani, Osaka; Tetsuhiko Kaneaki, Ashiya, and Akira Sobajima, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 28, 1992, Ser. No. 875,176
Claims priority, application Japan, May 8, 1991, 3-102442
Int. Cl.[5] G06F *15/31*
U.S. Cl. 364—724.03 2 Claims



1. An offset reducer comprising:

an adder for adding an input signal and an offset cancel signal to reduce an offset component of the input signal;

a converter for measuring a difference between a sum of past periods during which an output signal of the adder was positive and a sum of past periods during which the output signal of the adder was negative, for outputting an offset detection signal of a given value which depends on a sign of the measured difference when an absolute value of the measured difference exceeds a given difference, and for initializing the measured difference to a given initial difference when the offset detection signal is outputted; and

an integrator for accumulating the offset detection signal outputted from the converter, and for generating the offset cancel signal in accordance with a result of the accumulating the offset detection signal;

wherein the output signal of the adder constitutes an offset-free signal corresponding to the input signal.

5,210,710

MODULO ARITHMETIC PROCESSOR CHIP

Jimmy K. Omura, Cupertino, Calif., assignor to Cylink Corporation, Sunnyvale, Calif.

Filed Oct. 17, 1990, Ser. No. 599,177
The portion of the term of this patent subsequent to Jan. 2, 2007, has been disclaimed.
Int. Cl.[5] G06F *7/00*
U.S. Cl. 364—746.1 13 Claims

1. A modulo arithmetic processor chip for adding a first integer X having a plurality of groups of bits to a second integer Z having a plurality of groups of bits, wherein the first integer X plus the second integer Z equals a third integer Y, modulo a fourth integer p having n-bits, whereby $Y=(X+Z) \bmod p$, comprising:

first register means for storing the first integer X;

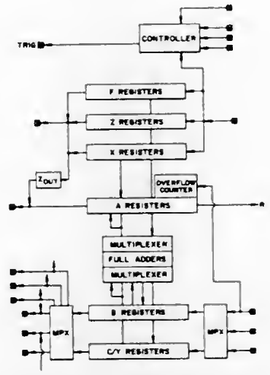
second register means for storing the second integer Z;

feedback means for generating and storing a feedback number F, wherein the feedback number F is the two's complement of the fourth integer p and thereby $F=2^n-p$;

arithmetic means coupled to said first register means and said second register means, for generating the third integer Y by sequentially adding each group of bits of the first integer X to a corresponding group of bits of the second integer Z during a time period, wherein each group of bits of the first integer X and the corresponding group of bits of the second integer Z are added asynchronously during the time period;

accumulator means coupled to said arithmetic means for storing the third integer Y;

overflow means coupled to said accumulator means for storing an overflow integer;



means coupled to said overflow means and said second register means and responsive to the overflow integer, for fetching the feedback number F into said second register Z and adding the feedback number F using arithmetic means to the third integer Y in said accumulator means; and

means coupled to the accumulator means and responsive to the third integer Y being greater than the fourth integer p, for reducing the third integer Y modulo the fourth integer p.

5,210,711

VERY FAST VARIABLE INPUT MULTI-BIT ADDER

David Rossmere, San Jose, and Patrice Capitant, Los Altos, both of Calif., assignors to Sony Corporation of America, Park Ridge, N.J.

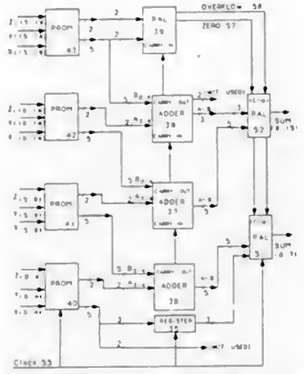
Filed Feb. 26, 1992, Ser. No. 842,220
Int. Cl.[5] G06F *7/50*
U.S. Cl. 364—786 36 Claims

1. A circuit to produce an output sum of M N-bit input numbers, where M and N are integers greater than two, each of said M N-bit input numbers represented as N input bit signal lines wherein a voltage level on each of the input bit signal lines represents a value of either zero or one, each of the M N-input bit signal lines organized in ascending order of magnitude, said circuit comprising:

a plurality of first stage X-bit adder subcircuits for adding M input addends, the first stage adder subcircuits, Y in number, where Y is a positive integer of value equal to the quotient formed by dividing X into N for a predetermined integral value of X, and where X has a value at least as large as the base two logarithm of M, each of the first stage X-bit adder subcircuits coupled to X contiguous ordered input signal bit lines of each of the N bit input numbers, such that each of the first stage X-bit adder subcircuits adds X equal-ordered bit clusters of each of the M input numbers different in order from each of the other first stage X-bit adder subcircuits, each of the first stage X-bit adder subcircuits outputting X first stage sum bit signals and Z first stage carry bit signals, where Z is the smallest positive integer at least equal to the base two logarithm of M;

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a second stage K-bit adder subcircuit for adding an addend and an augend, where K is a positive integer at least equal to {(N+Z)−X}, the K-bit adder having as input a K bit addend signal and a K bit augend signal, and having as output a K bit final sum signal, such that the output signal represents the K most significant bits of the output sum of the M N-bit input numbers, the K-bit adder coupled to each X-bit adder of the plurality of X-bit adders, except the X-bit adder which adds the least significant equal-ordered bit cluster of the M N-bit input numbers, in a manner whereby the ((Y−1)X) least significant bits of the



K bit addened signal are formed by the first stage sum bit signals, and ((Y−1)Z) bits of the K bit augend signal are formed by the first stage carry bit signals, each of the first stage carry bit signals input to the K bit augend signal in the bit position that corresponds to the order associated with the first stage carry bit signal;

such that the N+Z bit output sum of M N-bit input numbers comprises the X first stage sum bit signals of the X-bit adder which adds the least significant X bit cluster of the M N-bit input numbers and the K bit final sum signal of the second stage K-bit adder subcircuit.

5,210,712

WAVEFORM SHAPING CIRCUIT AND DIGITAL SIGNAL ANALYZING APPARATUS USING THE SAME

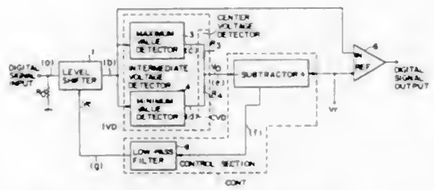
Sumio Saito, Atsugi, Japan, assignor to Anritsu Corporation, Tokyo, Japan

Filed Sep. 20, 1991, Ser. No. 764,158

Claims priority, application Japan, Sep. 29, 1990, 2-261875; Sep. 29, 1990, 2-261876

Int. Cl.[5] G06G *7/02*

U.S. Cl. 364—825 **21 Claims**



1. A waveform shaping circuit comprising:

a level shifter for variably controlling a direct current (DC) offset voltage of an input digital signal;

a comparator for comparing a digital signal output from said level shifter with a predetermined reference voltage so as to shape a waveform of the input digital signal and outputting a shaped digital signal;

intermediate voltage detecting means for detecting and outputting an intermediate voltage between high- and low-level voltages of a digital signal output from said level shifter; and

control means for receiving the intermediate voltage output from said intermediate voltage detecting means and the predetermined reference voltage and outputting a control signal for changing the DC offset voltage to equalize the intermediate voltage to the predetermined reference voltage, to said level shifter.

5,210,713

DATA STORAGE METHOD AND FIRST-IN FIRST-OUT MEMORY DEVICE

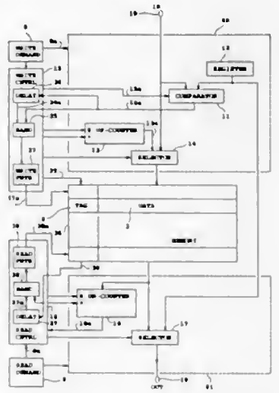
Ichiro Okabayashi, Takatsuki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 30, 1991, Ser. No. 752,788

Claims priority, application Japan, Sep. 3, 1990, 2-233539

Int. Cl.[5] G11C *13/00, 15/00*

U.S. Cl. 365—49 **10 Claims**



10. A data network comprising:

(I) a plurality of first-in first-out memory devices each for storing a series of numeral signals comprising:

a comparator means for comparing between each input numeral signal and a preselected numeral signal, and for producing a matching signal when said input numeral signal is the same as said preselected numeral signal, and an unmatching signal when said input numeral signal is not the same as said preselected numeral signal;

a first counter means for counting the number of repetition of said matching signal; and

an encoding means for encoding said series of input numeral signals to a tag signal and a corresponding data signal such that:

said tag signal discriminates between a numeral signal and a repetition number signal, and

said data signal represents a value of a numeral signal other than the preselected numeral signal when said tag signal is representing the numeral signal, and represents a number of repetition of the preselected numeral signal when said tag signal is representing the repetition number signal;

(II) a multilevel connection network connected to said plurality of first-in first-out memory devices;

(III) a plurality of reading devices each for reading data from one of said first-in first-out memory device through said multilevel connection network, each reading device comprising:

a memory area for storing tag signal and data signal,

a detecting means for detecting whether said tag signal is representing the numeral signal or the repetition number signal;

a second counter means for counting a number equal to said repetition number represented by said data signal when said tag signal is detected as representing the repetition number signal; and

a decoding means for decoding said tag signal and the corresponding data signal to said series of input numeral signals such that:

said data signal is produced as it is when said tag signal is detected as representing the numeral signal, and

said preselected numeral signal is produced during the counting by said second counter means when said tag signal is detected as representing the repetition number signal.

5,210,714

DISTANCE-CONTROLLED TUNNELING TRANSDUCER AND DIRECT ACCESS STORAGE UNIT EMPLOYING THE TRANSDUCER

Wolfgang D. Pohl, Adliswil, Switzerland, and Conrad W. Schneiker, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

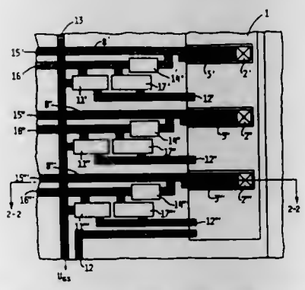
Division of Ser. No. 421,207, Oct. 13, 1989, Pat. No. 5,043,577.

This application Mar. 25, 1991, Ser. No. 674,264

Claims priority, application European Pat. Off., Oct. 14, 1988, 88810704

Int. Cl.[5] G11C *11/00, 7/00;* H01L *27/22;* G01N *23/00*

U.S. Cl. 365—157 **1 Claim**



1. A direct access storage unit comprising a recording medium; a plurality of tunnel tips arranged on a transducer in proximity to said recording medium, and means for generating a mutual periodic displacement between said recording medium and said transducer, wherein each tip is operated as a detector for the current flowing across a gap (Z_G) between said tip and a surface of said recording medium, and wherein each tip is attached to a respective cantilever beam with the mutual distance between said tip and the surface of the recording medium being adjustable by electrostatic means, characterized in that each tip is associated with an active control circuit integrated on said transducer in proximity to the respective cantilever beam associated with a particular tip and comprising a transistor, a load resistance, and a capacitance, and that the circuit is connected such that the supply voltage (U_0) creating the current across the gap between said tip and the surface of said recording medium also serves to adjust, during operation, the gap distance (Z_G) between said tip and the surface of said recording medium.

5,210,715

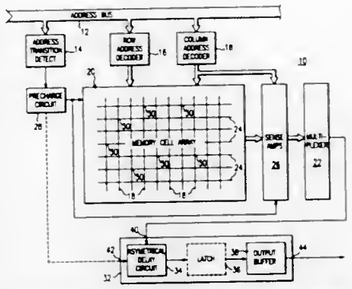
MEMORY CIRCUIT WITH EXTENDED VALID DATA OUTPUT TIME

Theodore W. Houston, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 211,619, Jun. 27, 1988, Pat. No. 4,953,130. This application Aug. 27, 1990, Ser. No. 573,598

Int. Cl.[5] G11C *7/00*

U.S. Cl. 365—194 **1 Claim**



1. An output buffer including an asymmetrical delay circuit, said buffer being operable such that said buffer responds slower to input transitions from a first state to a second state than said buffer responds to input transitions from said second state to said first state.

5,210,716

SEMICONDUCTOR NONVOLATILE MEMORY

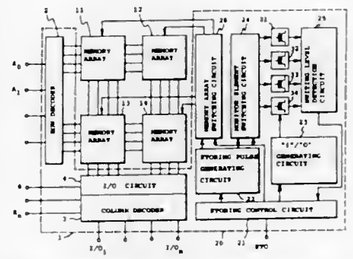
Ryoji Takada, Tokyo, Japan, assignor to Seiko Instruments Inc., Japan

Filed Jul. 23, 1990, Ser. No. 557,403

Claims priority, application Japan, Jul. 24, 1989, 1-193367

Int. Cl.[5] G11C *7/00, 16/00, 16/02, 29/00*

U.S. Cl. 365—200 **5 Claims**



1. A semiconductor nonvolatile memory device comprising:

a plurality of memory arrays for effecting nonvolatile data storage in terms of two different stable states corresponding to a binary signal in the form of "1" and "0";

a peripheral circuit for driving selectively each memory array to effect addressing and reading; and

a control circuit operative when a selected memory array reaches an operational limit of rewriting cycle number to switch to another memory array to thereby ensure continuous operation of the device, the control circuit comprising:

(a) a storing control circuit for receiving a data writing signal from a data store terminal to generate signals,

(b) a storing pulse generating circuit responsive to one of the signals from the storing control circuit for generating a storing pulse,

(c) a memory array switching circuit responsive to the

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storing pulse for relaying the storing pulse and responsive to one of the signals from the storing control circuit for switching memory arrays,

(d) a "1"/"0" generating circuit responsive to one of the signals from the storing control circuit for generating a "1" or "0" data signal alternatively,

(e) monitor elements responsive to the "1" or "0" signal from the "1"/"0" generating circuit for generating a writing level,

(f) a writing level detection circuit for detecting the writing level of one of the monitor elements and outputting a signal to the storing control circuit according to the writing level of said one of the monitor elements, and

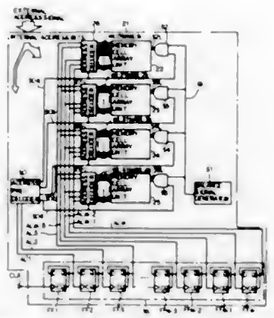
(g) a monitor element switching circuit for relaying the storing pulse to one of the monitor elements and responsive to one of the signals from the storing control circuit for switching monitor elements.

5,210,717

DYNAMIC RANDOM ACCESS MEMORY DEVICE WITH IMPROVED REFRESHING UNIT

Satoshi Tamaki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 27, 1991, Ser. No. 799,331
Claims priority, application Japan, Nov. 30, 1990, 2-340105
Int. Cl.[5] G11C *8/00*
U.S. Cl. 365—222 **5 Claims**



1. A dynamic random access memory device fabricated on a single semiconductor chip, comprising:

a) a plurality of memory cell arrays each implemented by a plurality of dynamic random access memory cells arranged in rows and columns;

b) a plurality of word line groups respectively associated with said plurality of memory cell arrays, and each having a plurality of component word lines respectively coupled with the dynamic random access memory cells in said rows for allowing data bits to be selectively read out from said dynamic random access memory cells;

c) a plurality of bit line pair groups respectively associated with said plurality of memory cell arrays, and each having a plurality of bit line pairs respectively coupled with said dynamic random access memory cells of said columns for propagating said data bits;

d) a plurality of transfer gate groups respectively associated with said plurality of bit line pair groups, and each having a plurality of transfer gates for transferring said data bits;

e) a plurality of sense amplifier groups respectively associated with said plurality of memory cell arrays, and each having a plurality of sense amplifier circuits respectively coupled with said bit line pairs of said associated bit line pair group, each of said plurality of sense amplifier circuits being operative to increase the magnitude of a differential voltage level indicative of one of said data bits read out from said dynamic random access memory cells;

f) a plurality of row address decoding units respectively coupled with said plurality of word line groups, and each responsive to first internal address bits for selectively driving said component word lines of said associated word line group;

g) an address predecoding unit responsive to second internal address bits for allowing one of said row address decoding units to respond to said first internal address bits; and

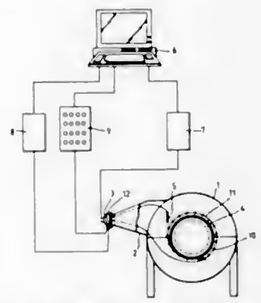
h) a refresh address counter responsive to a clock signal for incrementing a refresh address having low-order address bits serving as said second internal address bits and high-order address bits serving as said first internal address bits.

5,210,718

CALIBRATION OF SEISMIC STREAMERS IN A HELMHOLZ RESONATOR

Cato Bjelland, Indalsto, and Jan-Age Langeland, Garnes, both of Norway, assignors to Geco A.S., Stavanger, Norway

Filed May 13, 1992, Ser. No. 882,548
Claims priority, application Norway, May 31, 1991, 912112
Int. Cl.[5] H04B *17/00*; H04R *29/00*
U.S. Cl. 367—13 **15 Claims**



1. A method for calibrating hydrophone groups in seismic streamers and sections of seismic streamers comprising:

providing a Helmholtz resonator comprising a vessel having a cavity therein with a resonance frequency, an opening in said vessel communicating with said cavity, and a sound source at said opening;

placing said hydrophone groups in said cavity of said vessel;

connecting said hydrophone groups to a hydrophone group selector;

connecting said hydrophone group selector to a signal analyzer;

providing a reference transducer in said cavity of said vessel for producing a reference signal;

connecting said reference transducer to said signal analyzer;

driving said sound source with a white noise signal of a frequency close to said resonance frequency of said resonator to produce an isotropic acoustic pressure field in said resonator;

selecting said hydrophones to be calibrated by said selector; and

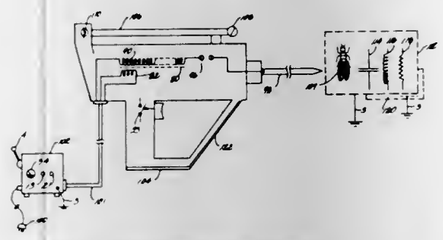
determining the sensitivity of individual hydrophones in respective hydrophone groups selected to be calibrated by comparing signals from said hydrophones with said reference signal from said reference transducer, produced by said acoustic pressure field, in said signal analyzer.

5,210,719

SWEEP FREQUENCY PEST CONTROL APPARATUS

Lucas G. Lawrence, San Bernardino, Calif., assignor to Daniel J. Bondy, Las Vegas, Nev.

Filed Nov. 12, 1991, Ser. No. 791,091
Int. Cl.[5] H04B *1/02*; H03B *1/00*
U.S. Cl. 367—139 **9 Claims**



1. A pest control apparatus comprising:

an electricity source,

a power transformer with a primary winding coupled to the source, a first secondary winding driving a driver section, and a second secondary winding driving a frequency generator section inductively coupled to the driver section, and

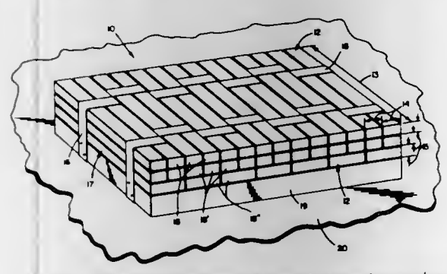
an applicator inductively coupled to the driver section.

5,210,720

COMPLIANT TUBE BAFFLE

Samuel J. Caprette, Jr., Chagrin Falls; Lawrence J. Howard, Jr., Uniontown, both of Ohio, and Bernie Fink, Laguna Hills, Calif., assignors to The B. F. Goodrich Company, Akron, Ohio

Continuation of Ser. No. 51,799, May 20, 1987, abandoned. This application Jul. 24, 1989, Ser. No. 383,679
Int. Cl.[5] H04R *1/44*
U.S. Cl. 367—176 **23 Claims**



1. A sonic reflector, configured for use in a marine environment, comprising:

a plurality of discrete rectangular hollow box-like structures each formed of at last two discrete longitudinal plate-like mechanical elements supported only along their lengthwise edges and an unattached closure plate at each end thereof which does not support the ends of the longitudinal elements, the plate-like longitudinal elements being free to move by bending motion along the entire length thereof, each box-like structure having a length substantially in excess of a width and thickness thereof;

the box-like structures being arranged generally in at least one rank, box-like structures at least within a particular rank having essentially equal lengths oriented substantially parallelly; and

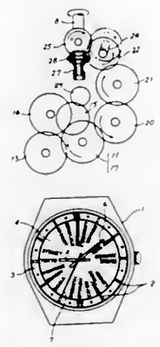
means for providing imperviousness to water penetration comprising an elastomeric encapsulant surroundingly encapsulating the box-like structures individually.

5,210,721

ANALOG UNIVERSAL TIMEPIECE

Tadahiro Kikuchi, Tokyo, Japan, assignor to Orient Watch Co., Ltd., Tokyo, Japan

Filed Feb. 3, 1992, Ser. No. 829,238
Claims priority, application Japan, Feb. 4, 1991, 3-035553
Int. Cl.[5] G04B *19/22*
U.S. Cl. 368—21 **3 Claims**



1. An analog universal watch comprising:

a minute wheel for rotating a minute hand spindle supporting a minute hand;

an hour wheel for rotating an hour hand spindle supporting an hour hand;

a geographic area dial wheel for rotating a geographic area dial spindle which supports a geographic area dial which indicates different geographic time zones;

a minute wheel transmission coupling said minute wheel to said geographic area dial wheel;

a clutch mechanism coupling said hour wheel with said geographic area dial wheel which rotates said hour wheel in one direction, and permits said hour wheel to be advanced in said one direction with respect to said geographic area dial wheel;

an hour correcting wheel coupled to said hour wheel through an idler gear, said idler gear rotating said hour wheel in only said one direction; and,

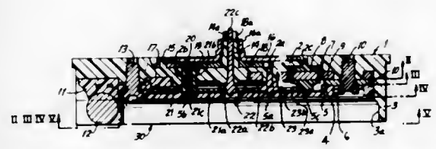
a time correcting means which rotates said idler wheel into engagement with said hour correction wheel, whereby said hour hand is advanced in said one direction.

5,210,722

ANALOG TIMEPIECE MOVEMENT FOR LARGE DIAMETER ENERGY CELL

Herbert Schwartz, Wurmberg, Fed. Rep. of Germany, assignor to Timex Corporation, Middlebury, Conn.

Filed Apr. 30, 1992, Ser. No. 876,318
Int. Cl.[5] G04B *37/00*; G04F *5/00*
U.S. Cl. 368—88 **5 Claims**



1. An analog timepiece movement adapted for powering by a large diameter thin energy cell, said movement comprising:

a molded frame of insulating material having a top central wall, having depending peripheral side wall portions together defining a movement-side cavity,

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a substantially flat bridge member of insulating material extending between said peripheral side walls, so as to divide said movement-side cavity into an inner cavity and an outer cavity,

said frame and bridge member together defining a plurality of pairs of coaxial bores, each bore of a pair defined in frame and bridge member respectively to provide bearings,

a stepping motor having a rotor and a stator disposed in said inner cavity, said rotor having a pinion of insulating material rotatably journaled in said bearings,

a dial-side gear train rotatably mounted on said top central wall on the side thereof opposite said inner cavity,

a movement-side gear train disposed in said inner cavity and having a plurality of gear reduction wheel assemblies coupled to one another and to said stepping motor rotor, at least one of said wheel assemblies coupling the movement side gear train to the dial-side gear train, and at least two of said wheel assemblies having journals of insulating and non-magnetic material, rotatably journaled in said bearings,

said peripheral wall portions and said bridge member together defining a circular envelope in said outer cavity adapted to fit and contain said energy cell, said energy cell being supported by said bridge member.

5,210,723

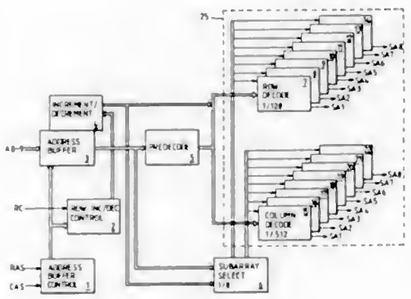
MEMORY WITH PAGE MODE

Matthew D. Bates, Southampton; Adrian C. Gay, Fareham; Roderick M. West, Chandler's Ford, all of Great Britain, and Todd Williams, Essex, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 1990, Ser. No. 606,262

Int. Cl.[5] G11C *8/00*

U.S. Cl. 365—238.5 **12 Claims**



3. A memory having a plurality of rows and columns and operable in a given page mode cycle such that a row address is selected for a row cycle and within said row cycle a plurality of column cycles are performed to access the memory at selected column addresses, wherein said memory additionally comprises control means for stepping the row address for selected column cycles within said given page mode cycle.

5,210,724

OPTOMAGNETIC RECORDING METHOD AND APPARATUS WHICH PRECLUDES AN INTERFACE MAGNETIC WALL WITHIN BLOCK MAGNETIC WALL

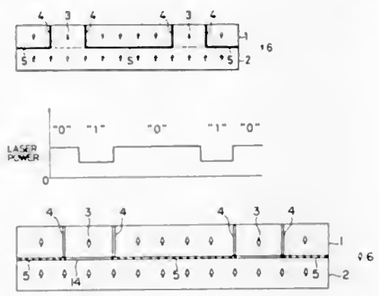
Tadashi Kobayashi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 320,090, Mar. 7, 1989, abandoned. This application Dec. 10, 1991, Ser. No. 804,508

Claims priority, application Japan, Mar. 7, 1988, 63-51537

Int. Cl.[5] G11B *13/04, 11/12, 11/10*

U.S. Cl. 369—13 **10 Claims**



1. A method of magneto-optical recording information comprising the steps of:

using an optical-magnetic recording medium including a first magnetic layer and a second magnetic layer having a higher Curie point and lower coercive force at room temperature than that of said first magnetic layer;

initializing said medium to align the magnetization direction of said second magnetic layer in one direction;

irradiating said medium with an optical beam that is modulated with information to be recorded on the medium between two non-zero values, to thereby record the information in the form of magnetic domains onto the medium; and

re-initializing after said recording of said information, wherein the medium is formed in such a way that during said re-initializing: (i) no interface magnetic wall exists between said first and second magnetic layers inside each of said magnetic domains which is surrounded by Bloch magnetic walls, and (ii) an interface magnetic wall exists between said first and second magnetic layers at portions other than said recorded magnetic domains.

2. A method of magneto-optical recording information comprising the steps of:

using an optical magnetic recording medium comprising a first magnetic layer and a second magnetic layer, said second magnetic layer having a higher Curie point and a lower coercive force at room temperature than said first magnetic layer;

initializing said medium to align the magnetization direction of said second magnetic layer in one direction; and

irradiating said medium with an optical beam that is modulated with information to be recorded on the medium between two non-zero values, to thereby record the information in the form of magnetic domains onto the medium, whereby when the recording medium is reinitialized after said recording of information, the medium is formed in such a way that during said reinitializing: (i) no interface magnetic wall will exist between said first and second magnetic layers inside each of said magnetic domains which is surrounded by Bloch magnetic walls, and (ii) an interface magnetic wall will exist between said first and second magnetic layers at portions other than said recorded magnetic domains.

5,210,725

TRAY LOADING APPARATUS FOR DISC PLAYERS

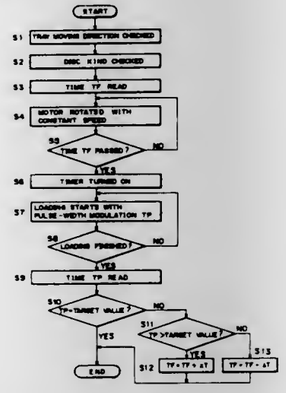
Masao Kase; Ryo Matsuura, and Nobuhiro Suzuki, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Division of Ser. No. 599,574, Oct. 18, 1990, Pat. No. 5,164,934. This application Jan. 6, 1992, Ser. No. 817,077

Claims priority, application Japan, Dec. 20, 1989, 1-328134

Int. Cl.[5] G11B *17/04*

U.S. Cl. 369—19 **4 Claims**



1. A method for loading a disc in a disc player, said method comprising:

drawing a tray into or out of said disc player at a constant speed for a previously calculated period of time;

gradually decreasing the speed of drawing in the drawing step after said calculated period of time has elapsed;

terminating the drawing step when the tray is in a terminal position in the disc player;

measuring the time that has elapsed from the start of said gradually decreasing step to said terminating step; and

calculating a new value for said calculated period of time based upon a target value and the time measured in said measuring step.

5,210,726

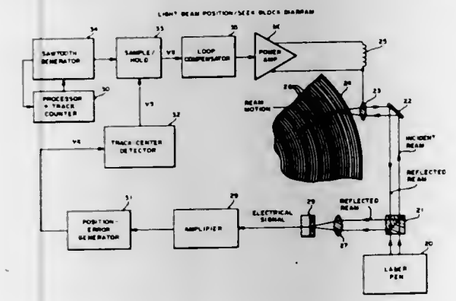
TRACK SEEK METHOD UTILIZING AN IDEAL SIGNAL

Robert Jackson, Union City, and Alan Burroughs, San Jose, both of Calif., assignors to Maxoptix Corporation, San Jose, Calif.

Filed Feb. 7, 1992, Ser. No. 833,460

Int. Cl.[5] G11B *17/22, 7/00*

U.S. Cl. 369—32 **23 Claims**



1. In a disk storage system comprising a rotating disk having a plurality of tracks for storing digital data which can be accessed by a transducer for reading and writing said digital data to and from said disk, a method for performing a seek wherein said transducer is moved from a starting track to a destination track, said method comprising the steps of:

determining a location of said starting track;

generating a first periodic electrical signal which is not derived from any information stored by said disk;

moving said transducer at a velocity according to a period of said first signal;

generating a second periodic electrical signal having an amplitude proportional to a distance of said transducer to a track center;

sampling said first signal when said transducer is positioned over said track center as specified by said second signal;

adjusting said velocity of said transducer based on a sampled value of said first signal determined in said sampling step;

counting a number of track crossings according to said first signal;

stopping said transducer on said destination track once an appropriate number of track crossings have been counted.

5,210,727

COMPACT DISK PLAYERS

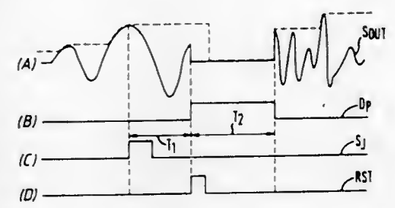
Kazutoshi Shimizume, Kanagawa, and Junichi Aramaki, Chiba, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 4, 1991, Ser. No. 664,630

Claims priority, application Japan, Mar. 7, 1990, 2-055525

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—32 **6 Claims**



1. A compact disk player comprising:

a demodulation circuit for demodulating a signal outputted from a pickup to produce demodulated data;

an error detection correction circuit for error correcting said demodulated data to produce output data;

an interpolation circuit for interpolating said output data from said error detection correction circuit according to a result of said error correction effected by said error detection correction circuit to thereby output a digital audio signal;

a level setting circuit for setting a signal level of data, which has not been error corrected in a peak search, to a zero level, according to said error correction result of said error detection correction circuit, and outputting said digital audio signal; and

a peak level detection circuit for detecting a peak level of said digital audio signal outputted by said level setting circuit.

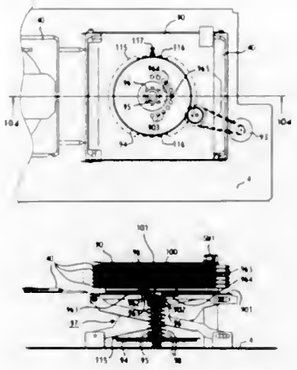
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,728

ELEVATION MECHANISM IN DISK PLAYER WITH DISK CHANGER FUNCTIONS INCLUDING AN ADJUSTABLE DRIVE NUT WHICH RAISES AND LOWERS DISCS

Yasuhiro Noguchi, Tokorozawa, and Kazuhiro Musashi, Kodaira, both of Japan, assignors to Nakamichi Corporation, Tokyo, Japan

Filed May 29, 1991, Ser. No. 706,957
Claims priority, application Japan, May 31, 1990, 2-143216; May 31, 1990, 2-143217
Int. Cl.[5] G11B *17/22, 17/26*
U.S. Cl. 369—36 1 Claim



1. In a disk player having a main body, disk-storage means elevatably mounted in the main body and adapted to receive a plurality of disks, a disk-reading device for playback of the disk, a disk-conveying device for conveying a disk between a first position wherein it is stored in one of stairs in the disk-storage means and a second position wherein it can be read by said disk-reading device and a mechanism for elevation of said disk-storage means relative to said main body comprising:

a driving source;

a threaded shaft rotated by said driving source;

a nut movable together with said disk-storage means in engagement with said threaded shaft to move said disk-storage means in response to rotation of said threaded shaft; and

adjusting means for rotational adjustment of the fixed position of said nut relative to said disk-storage means, wherein said adjusting means comprises a plurality of apertures concentrically arranged on said disk-storage means, a projection extending in an axial direction from said nut at a point offset from a center thereof for engagement with one of said apertures.

5,210,729

COMPUTER DISK TRANSFER APPARATUS

Terence J. Schmidt, St. Paul, and Robert L. Skubic, Chanhassen, both of Minn., assignors to Rimage Corporation, Minneapolis, Minn.

Filed Jun. 14, 1991, Ser. No. 715,778
Int. Cl.[5] G11B *17/22*
U.S. Cl. 369—36 14 Claims

1. An apparatus for transferring a disk from one station to another station, the disk comprising a first set of opposing edges, a second set of opposing edges, and a lower surface, the apparatus comprising:

a) bin means disposed between the stations for minimizing side-to-side movement of the disks and comprising:

1) an inlet adjacent one of the stations for receiving the disk;

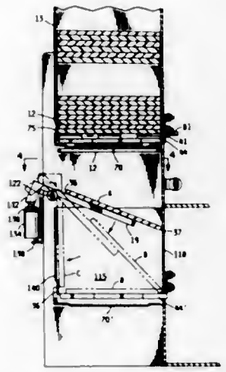
2) an outlet adjacent the other station for discharging the disk;

3) a pair of first and second opposing elongate retainer means disposed between the inlet and outlet for engaging the first set of opposing edges of the disk to minimize movement of the disk in one direction; and

4) a third elongate retainer means disposed between the inlet and outlet for engaging one edge of the second set of opposing edges of the disk; and

5) a stop disposed adjacent to the outlet, for engaging against one of the edges of the disk;

b) a swing arm pivotally mounted on the bin between the inlet and outlet and transversely of the third retainer means for engaging the lower surface and another edge of the second set of opposing edges of the disk to cooperate



with the third elongate retainer means to minimize movement of the disk in another direction and to pivotally transfer the disk to the outlet, the swing arm being at least partially bridgeable between the opposing retainer means; and

c) control means connectable to the swing arm for selectively stabilizing the swing arm against pivoting and for selectively allowing pivoting of the swing arm away from the third retainer means to open up the outlet; whereby the disk falls through the inlet to engage the swing arm which is pivoted downwardly while at least one of the edges of the disk slides against one of the retainer means to stabilize the disk, the disk engaging the stop and being pivotally transferred by the swing arm until the swing arm opens the outlet to permit the disk to disengage from the swing arm and fall into the outlet.

5,210,730

TRACKING ERROR DETECTING APPARATUS FOR USE IN MULTIBEAM OPTICAL DISK DEVICE

Akio Hayashi; Koichi Okabe, and Shozo Nakagawa, all of Tokyo, Japan, assignors to Asaca Corporation, Tokyo, Japan

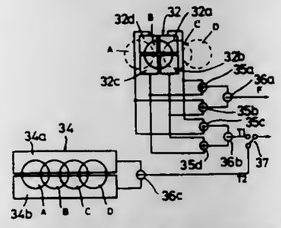
Filed Jan. 17, 1991, Ser. No. 640,353
Claims priority, application Japan, May 18, 1989, 1-125504
Int. Cl.[5] G11B *7/13*
U.S. Cl. 369—44.37 4 Claims

1. A tracking error detecting apparatus for use in a multibeam optical beam device comprising:

an optical means for deriving a plurality of light beams emanating from an optical disk having grooves;

a first tracking error detecting means including a first photoelectric converting element having at least two light receiving regions for receiving a single light beam incident thereto selected from said plurality of light beams derived from said optical means and a first circuit means for processing output signals from said first photoelectric converting element to produce a first tracking error signal;

a second tracking error detecting means including a second photoelectric converting element having two light receiving regions for receiving all of said plurality of light beams derived by said optical means arranged incident thereto



and a second circuit means for processing output signals from said second photoelectric converting element to produce a second tracking error signal; and

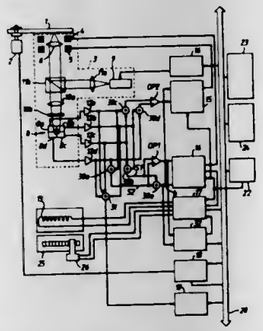
a switching means for receiving said first and second tracking error signals and selectively supplying said first tracking error signal during recording and reproducing and said second tracking error signal during a track jump.

5,210,731

INFORMATION PROCESSING APPARATUS WITH MISSING PULSE DETECTION AND CORRECTION

Makoto Katumata, Chiba, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Filed Dec. 29, 1989, Ser. No. 456,784
Claims priority, application Japan, Jun. 1, 1989, 64-460
Int. Cl.[5] G11B *7/00, 21/08*
U.S. Cl. 369—44.28 8 Claims



1. An information processing apparatus for a disc-shaped information recording medium having a plurality of information recording tracks formed thereon with substantially equal distance therebetween in a spiral or concentric fashion, comprising:

recording/reproducing means for recording and reproducing information on and from said information recording track;

means for moving said recording/reproducing means at substantially a constant speed in a radial direction with respect to said medium;

detecting means for detecting information from said medium when said recording/reproducing means is moved in said radial direction of said medium;

track detection pulse signal extracting means for extracting an analog signal from the information detected by said detecting means when said recording/reproducing means is moved in said radial direction, said extracted analog signal being a series of pulses indicating each time said recording/reproducing means crosses one of said tracks;

speed signal generating means responsive to said analog signal from said track detection pulse signal extracting means for generating a speed signal corresponding to the radial speed of said recording/reproducing means;

missing pulse detecting means for detecting a missing pulse in the analog signal, wherein said missing pulse detecting means responds to the pulses of said analog signal from said track detection pulse signal extracting means and responds to the speed signal from said speed signal generating means to detect said missing pulse by an output signal;

pulse generating means for generating a digital pulse signal corresponding to the missing pulse, wherein said pulse generating means receives the output signal from said missing pulse detecting means to generate said pulse signal corresponding to the missing pulse; and

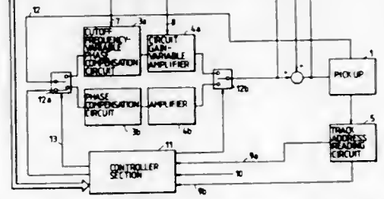
correcting means for synthesizing a new analog signal from the extracted analog signal and the pulse signal generated by said pulse generating means.

5,210,732

OPTICAL DISK APPARATUS

Kiyoyuki Suenaga, Kasuga; Hiroyuki Gondo, Chikushino; Makoto Taromaru, Fukuoka; Koji Muraoka, and Shingo Sagata, both of Kasuga, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 12, 1991, Ser. No. 790,842
Claims priority, application Japan, Nov. 27, 1990, 2-328619; Apr. 4, 1991, 3-71506
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—44.29 26 Claims



1. A track servo control system for an optical disk apparatus, comprising:

an objective lens for converging light from a light source onto a track formed on an optical disk, said objective lens being arranged to be movable;

error detecting means for detecting a difference in position between the light converged by said objective lens and said track on said optical disk;

amplifier means having an amplification factor for amplifying an output signal of said error detecting means, said amplifier means being arranged such that said amplification factor thereof is changeable;

moving means for moving said objective lens on the basis of said output signal of said error detecting means, amplified by said amplifier means, so as to reduce the difference in position between the converged light and said track; and

control means for storing amplification factors for said amplifier means which are predetermined in correspondence with distances between said objective lens and a rotational center of said optical disk so as to select one of said stored amplification factors in accordance with the distance between said objective lens and said optical disk rotational center to change said amplification factor of said amplifier means to the selected amplification factor so that the

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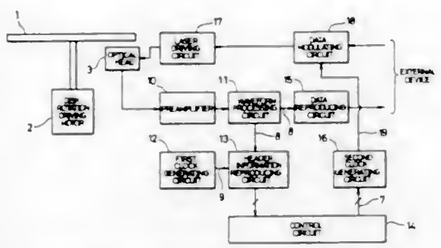
difference in position between the converged light and said track is optimally reduced.

5,210,733

INFORMATION RECORDING AND REPRODUCING DEVICE EMPLOYING VARIABLE DATA RECORDING CLOCK RATES

Takeshi Yamaguchi, Osakasayama; Takashi Iwaki; Hiroshi Fuji, both of Nara, and Shigeo Terashima, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 13, 1991, Ser. No. 714,249
Claims priority, application Japan, Jun. 13, 1990, 2-158066
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—48 **4 Claims**



1. An information recording and reproducing device for recording and reproducing data in a data area of a disk-shaped recording medium in accordance with clock signals whose frequencies increase from an innermost zone of the recording medium towards an outermost zone thereof,

the recording medium being divided into a plurality of ring-shaped zones of concentric circles, the number of sectors per track being uniform in each zone, the number of sectors composing one track increasing from the innermost zone towards the outermost zone, each sector having a header area wherein header information including address information is recorded and the data area wherein data is recorded, the recording medium being rotated at a constant angular velocity, comprising:

first clock generating means for generating a first clock signal of a fixed frequency;

second clock generating means for generating a second clock signal having a frequency which varies in each zone;

header information reproducing means for reproducing the header information in accordance with the first clock signal, said header information reproducing means comprising:

pattern detecting means for detecting a pattern used as a sector mark for indicating a leading position of a sector according to the number of clock pulses of the first clock signal counted between pulse edges of reproduced digital signal from the recording medium, and outputting detection pulses;

majority logic means for counting the detection pulses, detecting a sector mark by verifying if the counted value of the detection pulses exceeds a predetermined value, and outputting sector mark detection pulses;

timing generating means for outputting timing pulses for reproducing the address information according to the sector mark detection pulses; and

address information reproducing means for reproducing the address information from the reproduced digital signal according to the timing pulses, and outputting it to a controlling means; and

controlling means for controlling the frequency of the second clock signal so as to correspond to a zone wherein data being recorded or reproduced, according to the reproduced header information,

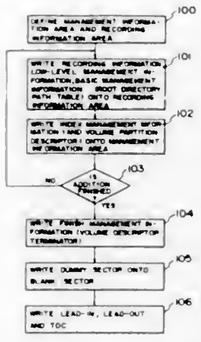
wherein the header information is recorded in the header area in accordance with the first clock signal, and data is recorded and reproduced in the data area in each zone in accordance with the second clock signal.

5,210,734

INFORMATION MANAGEMENT METHOD FOR APPENDAGE TYPE ADDITIONAL INFORMATION RECORDING MEDIUM

Yukimitsu Sakurai, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Aug. 29, 1990, Ser. No. 574,154
Claims priority, application Japan, Aug. 30, 1989, 1-223472
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—49 **1 Claim**



1. A method for recording information intermittently on an appendage type additional information recording medium to enable reproduction from said recording medium in a read only reproduction device, the method comprising the steps of:

providing on said recording medium a volume management area and a data area;

recording data information to the data area and recording management information to the volume management area, said management information for managing the data information recorded on said recording medium;

recording additional data information to the data area;

renewing the management information for managing the data information previously recorded to generate updated management information for managing the data information and writing the updated management information to the volume management area; and

filling with dummy data a non-recorded area on said recording medium between a last position of the updated management information and a start position of the data area for making the volume management area and the data area immediately adjacent;

writing a descriptor terminator in the volume management area representing the termination of the volume management area.

5,210,735

OPTICAL RECORDING/REPRODUCING SYSTEM, HAVING FUNCTION OF DETECTING DIRT DEPOSITION ON OPTICAL PICKUP

Takashi Hoshino, Yokohama, and Takashi Takeuchi, Fujisawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 25, 1990, Ser. No. 542,824
Claims priority, application Japan, Jun. 23, 1989, 1-161735
Int. Cl.[5] G11B *7/00, 20/10*
U.S. Cl. 369—54 **22 Claims**

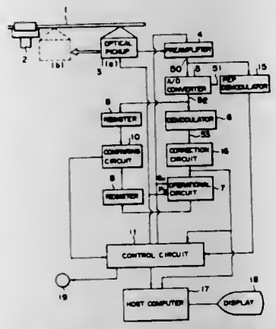
1. An optical recording/reproducing system for recording/reproducing data with respect to an optical recording medium, comprising:

an optical pickup;

means for recording/reproducing data with respect to the optical recording medium using the optical pickup;

driving means for moving the optical recording medium relative to the optical pickup;

operational means for computing a reference level for detection of dirt deposition on the optical pickup using reflection factor information and signal amplitude information



provided in association with the optical recording medium; and

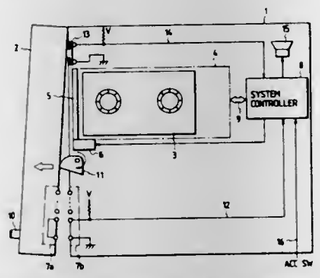
comparing means for comparing the reference level computed by the operational means with a peak reproduction signal level obtained from the optical recording medium to output a signal indicative of whether the dirt on the optical pickup exceeds the reference level.

5,210,736

MOBILE RECORDING-MEDIUM PLAYING APPARATUS

Akira Hayama; Toshiyuki Fukami, both of Saitama, and Tomohito Mizuno, Tokyo, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Oct. 10, 1991, Ser. No. 774,228
Claims priority, application Japan, May 13, 1991, 3-107649
Int. Cl.[5] G11B *1/00*
U.S. Cl. 369—75.1 **9 Claims**



1. A mobile recording-medium playing apparatus comprising:

a player means for playing a recording medium supplied thereto; a housing arranged to enclose said player means and having an opening portion formed in a front surface thereof for receiving said recording medium;

a conveyer means for conveying said recording medium inserted into said opening portion to said player means in accordance with a loading command and for ejecting said recording medium from said player means to the outside of said housing in accordance with an ejection command;

an operation panel removably provided on said front surface;

a control means for controlling said player means in cooperation with said operation panel, and for supplying said conveyer means with said loading command and said ejection command, wherein said control means includes a separation detection means for generating a separation detection signal upon detecting separation of said operation panel from said housing, and said playing apparatus; and

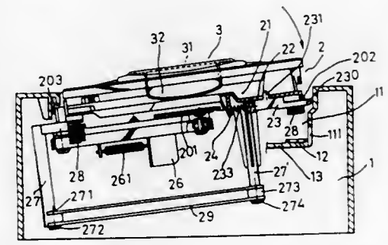
an ejection command generation means for supplying said conveyer means with said ejection command in response to said separation detection signal.

5,210,737

SEPARABLE COMPACT DISC PLAYER WITH AN ELASTIC HOLD-DOWN MEMBER

Ping-Hsiung Liu, Tainan Hsien, Taiwan, assignor to Hanpin Electron Co., Ltd., Tainan Hsien, Taiwan

Filed Oct. 29, 1991, Ser. No. 783,772
Int. Cl.[5] H05K *7/00*
U.S. Cl. 369—75.1 **4 Claims**



1. A separable compact disc player with an elastic hold-down member comprising:

a cabinet defining a hollow container and including a central chamber, two partition members and a longitudinally contoured through hole, each said partition member having a circular hole on one end of said partition member and an arcuate hole on the other end of said partition member, said longitudinally contoured through hole disposed on a side wall of said central chamber;

a base including a central depressed portion, an elliptical slot, a hold-down member, an under wall, a plateform, a motor, posts, spring members and printed circuit boards, said hold-down member being beneath one side of said base, said plateform including a longitudinally contoured aperture, a laser member and a turntable spindle, said laser member being disposed in said longitudinally contoured aperture, said motor, said posts and said spring members being disposed beneath said base, said printed circuit boards being mounted at the lower portions of said posts; and

said dust cover including a viewer, an eye shield member and a spindle cover;

the improvement which comprises:

said hold-down member including a hold-down block disposed at the external end of said hold-down member, a rod protruding out of said elliptical slot of said base and a blind hole disposed in the internal end of said hold-down member, said blind hole being capable of being inserted and pushed by one end of a spring member whose the other end is fastened on said under wall of said base, said hold-down member being capable of easily protruding into or being withdrawn from said longitudinal contoured through hole of said cabinet under the elasticity of said spring member so as to assemble or disassemble said base and said cabinet rapidly.

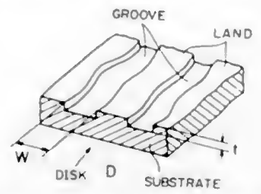
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,738

OPTICAL INFORMATION RECORDING MEDIUM

Hiroki Iwata, and Yutaka Murakami, both of Yamanashi, Japan, assignors to Pioneer Electronic Corporation, Tokyo and Pioneer Video Corporation, Yamanashi, both of Japan

Filed Apr. 11, 1991, Ser. No. 683,914
Claims priority, application Japan, Jun. 15, 1990, 2-155126
Int. Cl.[5] B32B *9/00*
U.S. Cl. 369—275.1 3 Claims



1. An optical information recording medium having a meandering guide groove on its recording surface for writing information optically in the guide groove or between the adjoining guide grooves, being characterized in that:

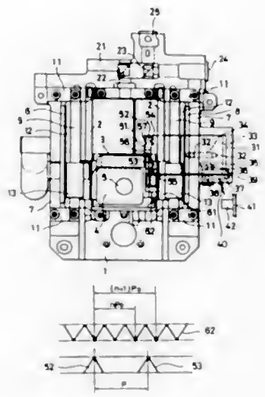
a period of meandering of the guide groove is varied by first additional information which comprises a digital address signal, and an amplitude of meandering of the guide groove is varied by second additional information and is kept within a range of 3–15% of the track pitch.

5,210,739

CARRIAGE LOCK APPARATUS

Toshio Nakagishi, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 437,971, Nov. 8, 1989, Pat. No. 5,008,876. This application Feb. 12, 1991, Ser. No. 653,925
Claims priority, application Japan, Nov. 14, 1988, 63-287410
The portion of the term of this patent subsequent to Apr. 16, 2008, has been disclaimed.
Int. Cl.[5] G11B *17/00, 21/16*
U.S. Cl. 369—244 22 Claims



1. A head lock apparatus, comprising:

a head for recording or playing back information on a rotating disk;

means for moving said head in a radial direction on said rotating disk;

first engaging means, said first engaging means having a first engaging portion with a first pitch that moves in association with a movement of said head in said radial direction of said rotating disk;

second engaging means, said second engaging means having a second engaging portion with a second pitch that is different from said first pitch of said first engaging portion, said second engaging portion being located at a specific position so that said second engaging portion can engage said first engaging portion; and

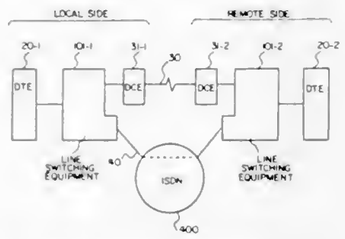
means for engaging or disengaging said first and second engaging portions.

5,210,740

LINE SWITCHING EQUIPMENT FOR SWITCHING A PERSONAL LINE TO A BACKUP ISDN LINE

Takeo Anzai; Shigeyuki Mitani, and Tomohiro Kuroda, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jun. 21, 1991, Ser. No. 717,833
Claims priority, application Japan, Jun. 21, 1990, 2-163801; Jul. 31, 1990, 2-202661
Int. Cl.[5] H04J *3/02;* H04L *12/26;* H04M *3/22*
U.S. Cl. 370—16 9 Claims



1. Line switching equipment comprising:

DTE interface means connected to a data processing unit;

DCE interface means connected to a data line terminating service of a personal line;

terminal adapter means connected to an ISDN line for performing call sending control and call receiving control with respect to said ISDN line and performing interface conversion between input signals thereto and output signals therefrom;

switching means for selectively connecting said DTE interface means to either said DCE interface means or said terminal adapter means; and

control means, responsive to an externally inputted signal and a control signal supplied from said ISDN line through said terminal adapter means, for controlling operations of said terminal adapter means and said switching means to send a confirmation signal associated with said control signal to said ISDN line through said terminal adapter means.

5,210,741

LOW COST ISDN SWITCH

Robert J. Grochmal, Derry, N.H., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Jun. 29, 1990, Ser. No. 546,420
Int. Cl.[5] H04L *12/56;* H04Q *11/04*
U.S. Cl. 370—56 42 Claims

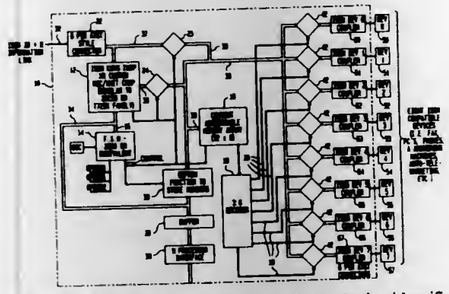
1. A switch for selecting, from among a plurality of devices, a device to be coupled to a data line, said switch comprising:

a data line receiver, for coupling to a data line;

a data line interrogator and switch controller, coupled to the data line receiver;

a device identifier, coupled to the data line receiver and the data line interrogator and switch controller, the device identifier including a content addressable memory containing device information; and

a plurality of buffers, each buffer having an enabling input coupled to the device identifier, each buffer being coupled to the data line, and each buffer for coupling to a device; such that when information is received by the data line receiver and evaluated by the data line interrogator and switch controller to be device identification information, the data line



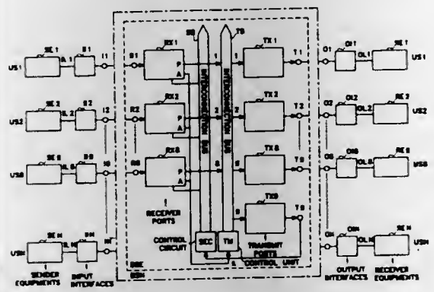
interrogator and switch controller signals the device identifier to utilize the content addressable memory to identify a device from the device identification information, the device identifier enabling a buffer associated with the identified device to provide for an operative coupling of the data line and the identified device.

5,210,742

COMMUNICATION PROCESS AND SWITCHING ELEMENT FOR CARRYING OUT THIS PROCESS

Peter I. A. Barri, Bonhelden, and Luc O. Beyne, Lochristi, both of Belgium, assignors to Alcatel N.V., Amsterdam, Netherlands

PCT No. PCT/EP88/00482, § 371 Date Oct. 31, 1990, § 102(e) Date Oct. 31, 1990, PCT Pub. No. WO89/11764, PCT Pub. Date Nov. 30, 1989
PCT Filed May 28, 1988, Ser. No. 613,511
Int. Cl.[5] H04Q *11/04;* H04L *12/56*
U.S. Cl. 370—54 25 Claims



1. A switching network comprising

a plurality of switching nodes including first and second inside nodes and first and second outside nodes,

interconnecting means for selectively establishing a plurality of interconnected communication path segments including an upstream said communication path segment connecting an inside node to an upstream switching node, and a downstream said communication path segment connecting the inside node to a downstream switching node, to thereby form a communication path extending in a downstream direction from the first outside node to the second outside node and extending in an upstream direction from the second outside node to the first outside node,

exploring means associated with the upstream switching node for transmitting a path release explorer signal in the downstream direction via a previously established said upstream communication path segment,

path checking means associated with the inside node and responsive to the reception of said path release explorer signal on said previously established upstream communication path segment for checking for any established said downstream communication path segments, and for selectively either transmitting said path release explorer signal in said downstream direction via a previously established said downstream communication path segment or for transmitting a path release signal in the upstream direction via said previously established upstream communication path segment if no such established downstream path segments exist, and

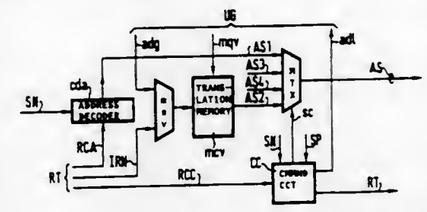
upstream node releasing means associated with the upstream switching node and responsive to the reception of said path release signal on said upstream communication path segment for releasing said upstream communication path segment.

5,210,743

SWITCHING ELEMENT WITH MULTIPLE OPERATING MODES AND SWITCHING NETWORK INCORPORATING A PLURALITY OF SUCH SWITCHING ELEMENTS, IN PARTICULAR FOR SWITCHING ASYNCHRONOUS TIME-DIVISION MULTIPLEX PACKETS

Gert Eilenberger; Karl Schrodi; Bodo Pfeiffer, all of Allemagne Federale, Fed. Rep. of Germany, and Jean-Michel Delmas, Montrouge, France, assignors to Alcatel N.V., Amsterdam, Netherlands

Filed Mar. 12, 1991, Ser. No. 668,993
Claims priority, application France, Mar. 14, 1990, 90 03244; Mar. 14, 1990, 90 03245
Int. Cl.[5] H04Q *11/04;* H04J *3/24*
U.S. Cl. 370—60 11 Claims



1. Switching element with a plurality of modes of operation for switching asynchronous time-division multiplexed packets, said switching element comprising:

at least one input,

a plurality of outputs,

selective retransmission means for retransmitting a packet received on said at least one input to one or more of the outputs on a basis of routing data associated with said packet, said selective retransmission means having a plurality of modes of operation, and

retransmission control means for determining one of the modes of operation of said selective retransmission means, said retransmission control means comprising

direct routing means for receiving from a label of a packet received on said at least one input, a destination indication and for using a fixed routing algorithm to decode the destination indication into a single output identifier corresponding to at least one of the outputs in order to retransmit the packet to an output designated by said output identifier,

translated routing means for receiving from the label of the packet received on said at least one input, a virtual circuit

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reference number and for using virtual circuit data temporarily stored in a translation memory to translate the virtual circuit reference number into one or more output identifiers each corresponding to at least one output, for retransmitting the packet to one output for each output identifier designated by said one or more output identifiers,

a non-selective routing means in which a particular one or more outputs to which the packet is retransmitted is selected independently of any destination identification or virtual circuit reference numbers included in the received packet, and

routing mode selector means for receiving routing mode data included in the label of a packet received on said at least one input for selectively commanding, in accordance with the received routing mode data, the use of a routing device selected from a group comprising said direct routing means, said translated routing means, and said non-selective routing means.

5,210,744

CELL EXCHANGE APPARATUS

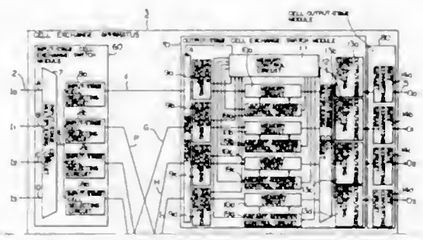
Hideaki Yamanaka; Kazuyoshi Oshima; Toshihiro Shikama, and Shigeru Aoyama, all of Kanagawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Jun. 22, 1990, Ser. No. 542,244

Claims priority, application Japan, Jun. 28, 1989, 1-165645; Jul. 14, 1989, 1-182215

Int. Cl.[5] H04Q *11/04*; H04J *3/24*

U.S. Cl. 370—60 **7 Claims**



2. A cell exchange apparatus that outputs cells, which are inputted through a plurality of input ports, each cell having a header section and a data section, to respective output ports which are designated by the header sections of said cells, comprising:

an input-stage cell exchange switch module to which are connected said input ports, said input-stage cell exchange switch module having an input-stage cell mutiplixing means for time-division multiplexing cells which are inputted to said input ports, and an input-stage cell selecting means for selecting from among cells which are outputted from said input-stage cell multiplexing means a cell which is directed to a predetermined destination and outputting said selected cell;

at least one output-stage cell exchange switch module which is connected to said input-stage cell exchange switch module, said output-stage cell exchange switch module having a space switch which effects switching by spatially disposing contacts with respect to cells which are outputted from either said input-stage cell selecting means in said input-stage cell exchange switch module or an output-stage cell selecting means which is provided in another output-stage cell exchange switch module that is disposed in the prestage, a header processing means which analyzes the destination of each cell which is outputted from said space switch, a memory means which enables cells that are outputted from said header processing means to be written therein and read out therefrom by designating respective addresses, a memory control means including an address exchange section which distributes the addresses of said cells written in said memory means to the corresponding destinations by referring to said header processing means, an outgoing line corresponding address memory section which enables addresses that are outputted from said address exchange section to be written therein and read out therefrom in the order of arrival and according to the destination, a read enable section which successively outputs addresses that are outputted from said outgoing line corresponding address memory section to enable reading of cells from said memory means, and a memory circuit counter that counts the number of cells being held in said memory means and delivers the counted number to said space switch, a vacant address control means which reads out cells from said memory means by use of addresses that are outputted from said memory control means and which stores said addresses as being vacant addresses and outputs each vacant address as being a write address when a new cell is to be written into said memory means, an output-stage cell multiplexing means for multiplexing cells that are read out from said memory means, and an output-stage cell selecting means for selecting from among cells that are outputted from said output-stage cell multiplexing means a cell which is directed to a predetermined destination and outputting the selected cell; and

a cell output-stage module which is connected to said output-stage cell exchange switch module in the final stage and to which are connected said output ports, said cell output-stage module having a rate converting means which is connected to said output-stage cell selecting means of said output-stage cell exchange switch module in the final stage to convert the rate of time-division multiplexed cells into a rate of said output ports.

5,210,745

FRAME RESTRUCTURING INTERFACE FOR DIGITAL BIT STREAMS MULTIPLEXED BY TIME-DIVISION MULTIPLEXING DIGITAL TRIBUTARIES WITH DIFFERENT BIT RATES

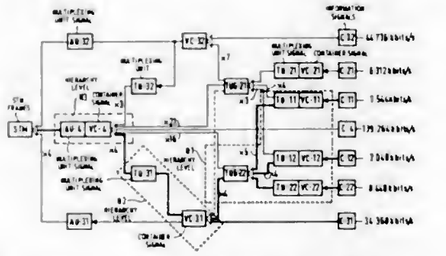
Jacques Guinand, Saint Remy les Chevreuse; Jean-Loup Ferrant, Boulogne Billancourt; Jean-Claude Faye, Gif Sur Yvette, and Hervé Roux, Massy, all of France, assignors to Alcatel Cit, Paris, France

Filed Jan. 25, 1991, Ser. No. 647,628

Claims priority, application France, Jan. 29, 1990, 90 00991

Int. Cl.[5] H04L *29/10*

U.S. Cl. 370—79 **8 Claims**



1. A frame restructuring apparatus for digital bit streams multiplexed by time-division multiplexing digital tributaries at different bit rates according to a synchronous multiplexing hierarchy, said synchronous multiplexing hierarchy including various hierarchy levels at which tributaries can be introduced, said tributaries being constituted by signal entities referred to hereinafter as containers and multiplexing units, the multiplexing units being formed by associating justification and indexing signals to containers constituted at the same hierarchy level for

indexing and justifying said containers relative to said multiplexing units, the containers at a given hierarchy level being formed by one of (i) multiplex signals obtained by multiplexing the multiplexing units constituted by a hierarchy level lower than said given hierarchy level and (ii) signals from said tributaries at said given hierarchy level, frames being formed by adding service signals to one of (i) the multiplexing units constituted at a highest one of said hierarchy levels and (ii) a multiplex signal of the multiplexing units constituted at a lower hierarchy level, said apparatus operable with equipment for processing said frames by containers referred to hereinafter as containers to be processed, and said apparatus comprising:

extracting means for extracting from incoming frames signals constituting said containers to be processed; and

restructuring means for constituting, and for multiplexing into restructured frames subdivided into sections of the same length, restructured multiplexing units respectively representing said containers to be processed, by inserting signals constituting said containers to be processed, as well as indexing and justification signals for adapting extraction and insertion timing rates of the signals constituting said containers to be processed, at locations which for a given container to be processed have ranks within each restructured frame section defined relative to the start of the restructured frame section, said ranks being invariant from one frame section to another and from one frame to another, and each of a set of locations corresponding to the same rank of the restructured frame section being assigned to at most one restructured multiplexing unit.

5,210,746

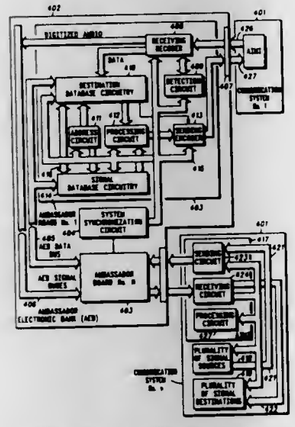
COMMUNICATION SYSTEM NETWORK HAVING COMMUNICATION SYSTEM FALLBACK OPERATION

John W. Maher, Woodstock; Laura Christensen, Mt. Prospect, and Jeffrey Lobrbach, Elgin, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 509,915, Apr. 16, 1990, Pat. No. 5,175,727. This application Aug. 27, 1990, Ser. No. 573,421

Int. Cl.[5] H04J *3/02*; H04L *12/52*

U.S. Cl. 370—79 **3 Claims**



1. In a communication system network that comprises a plurality of communication systems and a processing multiplexer, wherein each of the plurality of communication systems are operably coupled to at least one corresponding ambassador board of the processing multiplexer via at least a source interface bus and a destination interface bus, wherein each of the plurality of communication systems comprises at least one processing multiplexer interface module, a plurality of local processing multiplexers, a plurality of signal sources that produce audio signals, and a plurality of signal destinations, a method for the communication system network to operate when a communication system is no longer operably coupled to the processing multiplexer, the method comprises the steps of:

a) determining, by the ambassador board operably coupled to the communication system, when the communication system is no longer operably coupled to the processing multiplexer;

b) generating, by the ambassador board of step (a), a signal that indicates that the communication system is not actively coupled to the processing multiplexer;

c) transmitting, by the ambassador board of step (a), the signal to the other ambassador boards;

d) within each of the ambassador boards, generating mute signals; and

e) within each of the ambassador boards, storing the mute signals in a signal database in place of signals produced by the communication system of step (a) such that the communication system network operates without the communication system of step (a).

5,210,747

COMMUNICATIONS CONTROLLER FOR USE WITH A COMPUTER AND A PLURALITY OF ISDN TERMINALS

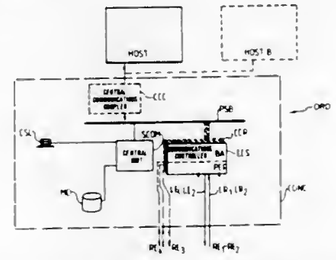
Bernard Gauthier, Montesson; Marc Lebreton, Le Port-Marly, and Remy Le Gallo, Le Chesnay, all of France, assignors to Bull S.A., Paris, France

Filed Aug. 7, 1991, Ser. No. 741,765

Claims priority, application France, Aug. 9, 1990, 90 10179

Int. Cl.[5] H04J *3/02*

U.S. Cl. 370—85.1 **10 Claims**



1. A communications controller (CCS) for connection between a bus (PSB) associated with at least one host system (HOST) and a plurality of terminals of at least one network (RE_1-RE_2) which are connected together through at least one time-multiplexed digital link (S_0) that includes a plurality of data channels (C_1 to C_6) for transferring frames, the data channels being managed according to specific protocols and being supported by at least one transmission line (LE_1-LR_1, LE_2-LR_2), said communications controller comprising:

a base unit (BA), connected to said bus (PSB), for managing and effecting the transfer of frames (TR_1 to TR_2 . . .) over each one of said plurality of data channels (C_1 to C_6); and

a peripheral unit (PER) connected both to said base unit (BA) and to said transmission line, for ensuring time-multiplexing and demultiplexing of various data channels of the link, and for transmitting data to the network and receiving data from the network,

wherein said base unit (BA) includes:

a first memory (MV_1) for storing frames before they are transferred, and for managing transfer of the frames to various channels assigned thereto;

a first control processor (MP_1), for transferring frames from the host to the network (RE_1-RE_2) and vice versa, connected to the bus and associated with said first memory (MV_1),

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said first control processor (MP_1) executing a communications program (CNS) which is written in said first memory (MV_1) when the communications controller (CCS) is initialized;

a second processor (MP_2), communicating with the first control processor (MP_1), for transferring each of frames (TR_1, TR_{11}), channel by channel, from said first memory (MV_1) to the peripheral unit and then to the network, and vice versa; and

a second memory (MV_2) associated with said second processor (MP_2),

said second processor (MP_2) executing a microprogram architecture (AML) which is written into said second memory (MV_2) at the time the controller is initialized,

said microprogram architecture (AML) having a nucleus (NY), a communications interface (IC) for dialogues between the communications program (CNS) and the microprogram architecture (AML), and at least as many microprogram modules (TC_0, TC_1, . . ., TC_7) as there are channels.

each channel being associated with a microprogram module which transfers frame assigned to this channel from the first memory (MV_1), to the network via the peripheral part, and vice versa,

each microprogram module being independent of other microprogram modules, its sequencing being organized in real-time by the nucleus (NY),

and wherein said peripheral part (PER) includes:

a coupler (CO, CO_1-CO_2) for all the channels, controlled by said second processor (MP_2) and connected to the transmission line, coming from or going to said first memory (MV_1), and for providing multiplexing or demultiplexing of the data upon sending or upon receiving.

5,210,748

ADDRESS FILTER UNIT FOR CARRYING OUT ADDRESS FILTER PROCESSING AMONG PLURALITY OF NETWORKS AND METHOD THEREOF

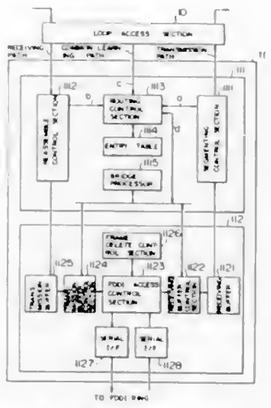
Katsuyoshi Onishi, Yokohama; Osamu Takada, Sagamihara; Koichi Kimura, Yokohama; Mitsuhiro Yamaga, Kawasaki; Toshihiko Ogura, Ebina, and Yasushi Shibata, Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 520,712, May 8, 1990. This application Feb. 4, 1991, Ser. No. 652,044

Claims priority, application Japan, Feb. 9, 1990, 2-030942; Jun. 22, 1990, 2-165442

Int. Cl.[5] H04J *3/08*

U.S. Cl. 370—85.13 21 Claims



1. An address filter unit for carrying out an address filter processing between a plurality of networks by using address information extracted from an incoming information frame and registered in an entry table, said address filter unit comprising:

timers corresponding to each registration of address information; timer updating means for sequentially and intermittently advancing each timer value; starting means for starting said timer updating means at a predetermined cycle ΔT, wherein said timer updating means intermittently advances each timer value at a time interval Δt, where Δt is less than or equal to ΔT divided by a maximum registration number in the entry table; and means for deleting the registration from said entry table of address information corresponding to said timers when its corresponding timer value becomes equal to or greater than a predetermined value.

5,210,749

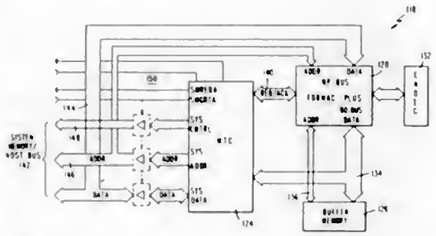
CONFIGURATION OF SRAMS AS LOGICAL FIFOS FOR TRANSMIT AND RECEIVE OF PACKET DATA

Farzin Firoozmand, Cupertino, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed May 29, 1990, Ser. No. 529,363

Int. Cl.[5] H04J *3/02, 3/24*

U.S. Cl. 370—85.1 48 Claims



48. For a Fiber Distributed Data Interface (FDDI) network having a plurality of processors, each including a system memory means for storing frames of data arranged in queues and having a plurality of different transmit priorities, and an optical medium forming a digital data communication path among said processors, a network controller, comprising:

first means implementing a timed token data protocol for accessing said optical medium;

a random access memory forming a buffer memory; and

second means for configuring in said random access memory a plurality of logical FIFOs for storing therein said queued frames of data having respectively said plurality of different transmit priorities;

means for controlling flow of said framed data to corresponding logical FIFOs in said buffer memory, said framed data flow controlling means including first means for controlling flow of said framed data, one queue at a time in order of priority, from said system memory means to corresponding logical FIFOs in said buffer memory, and second means for transmitting said framed data, stored in said logical FIFOs to said medium while data is incoming from said system memory means to said FIFOs in said buffer memory;

wherein each said logical FIFO is defined by START and END pointers and including a READ pointer and a WRITE pointer respectively for reading data to and writing data from said logical FIFO and a SHADOW WRITE pointer pointing to the end of a full frame stored in said logical FIFO, and wherein said data flow controlling means includes means for detecting when said SHADOW WRITE pointer exceeds said READ pointer.

5,210,750

METHOD AND APPARATUS FOR DISTRIBUTED QUEUE MULTIPLE ACCESS IN A COMMUNICATION SYSTEM

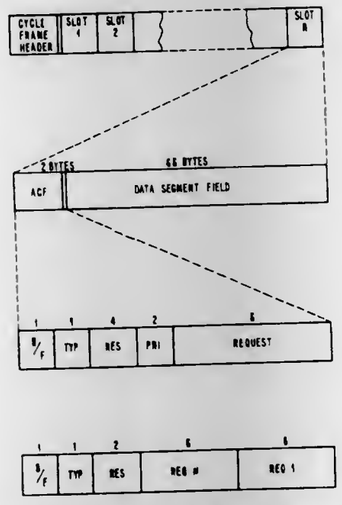
Mehdi M. Nassehi, Adliswil; Johann R. Muller, Langnau; Erwin A. Zurfluh, Feldmeilen; Pitro A. Zafiropulo, Ruschlikon, and Werner K. Bux, Richterswil, all of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 485,394, Feb. 26, 1990, Pat. No. 5,081,622. This application Aug. 1, 1991, Ser. No. 739,064

Claims priority, application Switzerland, Mar. 23, 1989, 89810229

Int. Cl.[5] H04J *3/02, 3/24*

U.S. Cl. 370—85.2 11 Claims



4. In a communication network having two unidirectional counterflowing transmission busses, at least one headend station for generating timeslots on one of said busses and a plurality of user stations, with each user station connected to both busses, a method for transporting data on the busses comprising the steps of:

(a) generating in said at least one headend station, at least one slot having a data segment field for receiving user data and an Access Control Field (ACF) segment for receiving control information, said ACF segment further including a Busy/Free (B/F) Bit for indicating whether or not data is in the Data Segment Field, a Type Field for receiving a bit value indicating a type to which the slot belongs, a Priority Field for receiving priority bits indicating the priority to which the slot belongs and a multibit Request Field for receiving bit values indicating a number of slots which a user station requires for transmitting data;

(b) transmitting said slot onto one of the two unidirectional counterflowing transmission busses (31);

(c) receiving the slot from another of the two busses (33);

(d) examining the Request Field to ascertain if any other station had inserted a value within said Request Field, if the value is zero and the station which is examining said request field has data to be transmitted, insert a value, in said Request Field, which indicates the number of slots which the user station wishes to reserve in order to transmit the data; and

(e) transmitting the slot which is prepared in step (d) onto said another of the two busses.

5,210,751

SIGNAL TRANSMISSION SYSTEM CAPABLE OF PERFORMING RE-TRANSMISSION CONTROL IN UNITS OF SLOTS

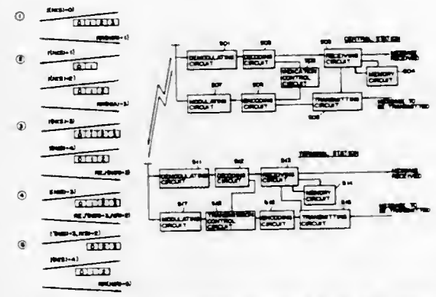
Seizo Onoe, Yokohama; Kimitoshi Funakawa, Hoya; Narumi Umeda, and Tamami Suzuki, both of Yokohama, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 584,354, Sep. 18, 1990, abandoned. This application Feb. 18, 1992, Ser. No. 839,031

Claims priority, application Japan, Sep. 19, 1989, 1-240500

Int. Cl.[5] G08C *25/02;* H04J *3/24*

U.S. Cl. 370—94.1 5 Claims



1. A signal transmission system for use in a digital communication system wherein a message is transferred between a central station and a terminal station, with one of said central and terminal stations serving as a message sender and the other as a message receiver at a given time, said system comprising:

means in said message sender for providing a message transfer signal (I') used for transmission of a message by the message sender and which includes: a sequence number N(S) for controlling retransmission performed in units of one message, a sequence number n(S) for controlling retransmission performed in units of one data unit, and an identification code (ID) of a terminal station;

means in said message sender for providing a retransmission request signal (REJ') used for requesting retransmission of data units by the message receiver and which includes: a sequence number (N(R)) for controlling retransmission performed in units of one message, a sequence number (n(R)) for controlling retransmission performed in units of one data unit, and an identification code (ID) of a terminal station;

means in said message sender for dividing a message into a plurality of said data units, encoding each of the data units for use by the message receiver to detect and correct errors included therein, if any, and sequentially retransmitting the plurality of data units of said message; and

means in said message receiver for receiving the message, decoding each of the plurality of data units thereof while detecting and correcting errors included therein, if any, and determining whether the message has been correctly received;

wherein said message receiver includes control means for first checking the plurality of data units of the message by examining the sequence number (N(S)) for controlling retransmission performed in units of one message, the terminal station identification code (ID), and a result of determining whether said message has been correctly received, and when transmitting to the message sender a retransmission request signal (REJ') such that the retransmission request signal (REJ') includes: a sequence number (n(R)) for controlling retransmission performed in units of one or more messages, and a sequence number (n(R)) used for controlling retransmission performed in units of one or more data units; and

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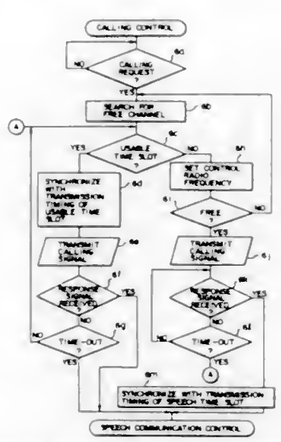
wherein said message sender, to which the retransmission request signal (REJ') is transmitted, includes retransmission means for first checking the retransmission request signal (REJ') and then starting retransmission of either an entire message in accordance with the sequence number (N(R)) used for controlling retransmission performed in units of one or more messages, and one or more data units in accordance with the sequence number (n(R)) used for controlling retransmission performed in units of one or more data units.

5,210,752

RADIO TELE-COMMUNICATION SYSTEM USING MULTICHANNEL ACCESS SCHEME

Koichi Ito; Masayuki Tanaka, and Yuji Umemoto, all of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Filed Jul. 12, 1991, Ser. No. 729,203
Claims priority, application Japan, Jul. 12, 1990, 2-184612
Int. Cl.[5] H04J *3/16, 3/12;* **H04Q** *7/00;* **H04B** *7/00*
U.S. Cl. 370—95.1 **12 Claims**



12. A radio tele-communication system comprising:

a plurality of base stations connected to a network through wire lines, respectively;

a plurality of mobile stations connected to said base stations through radio channels;

a plurality of speech radio channels and at least one control radio channel being shared by said base and mobile stations; and

each of said mobile stations including;

first free state determining means for checking whether the control radio frequency can be used;

second free state determining means for checking whether a free channel is present in the plurality of speech radio channels; and

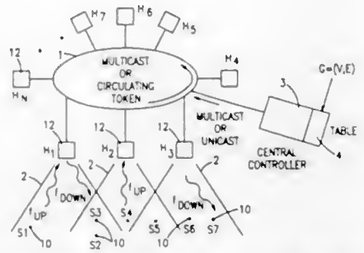
calling control means for performing a calling operation by selecting a radio channel used for the calling operation on the basis of determination results from said first and second free state determining means.

5,210,753

ROBUST SCHEDULING MECHANM FOR EFFICIENT BAND-WIDTH USAGE IN MULITICELL WIRELESS LOCAL NETWORKS

Kadathur S. Natarajan, Millwood, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 1991, Ser. No. 785,643
Int. Cl.[5] H04J *3/16*
U.S. Cl. 370—95.1 **8 Claims**



1. A method of dynamically managing wireless communications in a wireless communications network comprised of a local area network connected to a plurality of nodes defined as base stations, each of which has a geographic area, defined as a cell, within which mobile stations can communicate with a node, with at least two of the cells overlapping with one another, with each such node being capable of performing bidirectional wireless communication with one or more of said mobile stations under control of a controller, said method comprising the steps of:

reading a cell interference graph G=(V, E) into said controller, where V is the plurality of nodes and E is the set of all adjacent nodes;

determining a maximal independent set of the nodes V, where a set of nodes in G is independent if no pair of nodes in the set is adjacent in the graph, and is maximally independent if the addition of another node in the set will make the set not independent;

activating said maximal independent set of nodes for performing wireless communication with mobile stations in their respective cells, with said maximal set of nodes being in a set termed ACTIVE; and

putting nodes which are not in said maximal independent set of nodes in a set termed WAITING to wait for permission to enter the set ACTIVE.

5,210,754

PATTERN SYNCHRONIZING CIRCUIT

Toshiro Takahashi, Kumagaya; Takayuki Nakajima, Gyoda; Tetsuo Sotome, Tatebayashi, and Noboru Akiyama, Kumagaya, all of Japan, assignors to Advantest Corporation, Tokyo, Japan

Filed Jun. 4, 1991, Ser. No. 710,522
Claims priority, application Japan, Jun. 6, 1990, 2-147629
Int. Cl.[5] H04L *7/08*
U.S. Cl. 370—105.4 **11 Claims**

1. A pattern synchronizing circuit comprising:

pre-clock eliminating means for eliminating one clock pulse from a high-speed clock input thereto upon each application thereto of a pre-clock pulse eliminating signal;

clock dividing means for frequency dividing the high-speed clock output from said pre-clock eliminating means to 1/N;

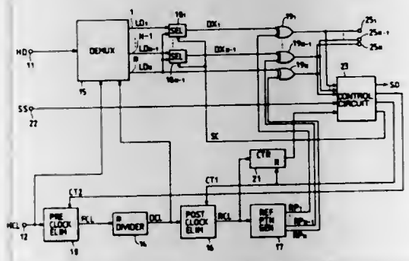
demultiplexing means for sequentially demultiplexing consecutive bits of high-speed input data into N parallel low-speed sequences on N output lines in synchronization with said high-speed clock and said N sequences of low-speed data are output in synchronization with said frequency

divided clock, N being an integer equal to or greater than 2;

post-clock pulse eliminating means, supplied with said frequency divided clock, for eliminating one pulse from said frequency divided clock upon each application thereto of a post-clock pulse eliminating signal and outputting an output clock;

reference pattern generating means for generating N parallel sequences of reference patterns, sequentially displaced apart in phase, in synchronization with the output clock of said post-clock pulse eliminating means;

N comparators, whereby an Nth sequence of low-speed data, composed of data of every Nth bit of N-bit data being sequentially demultiplexed by said demultiplexing means into N parallel sequences and output upon each occurrence of said frequency divided clock is compared with said N parallel sequences of reference patterns, each



of said N comparators outputting an agreement or disagreement signal;

asynchronism detecting means for generating said post-clock pulse eliminating signal upon detecting that each of said N comparators has output said disagreement signal; and

synchronization setting means for detecting one of said N parallel sequences of reference patterns with which an Nth sequence of low-speed data is synchronized and for generating said pre-clock pulse eliminating signals of a number corresponding to a line position of said sequence of reference patterns synchronized with said Nth sequence of low-speed data, whereby line positions of said N parallel sequences of low-speed data are sequentially shifted by said corresponding number in said demultiplexing means so that said Nth sequence of low-speed data assumes the same line position as that of said synchronized reference pattern.

5,210,755

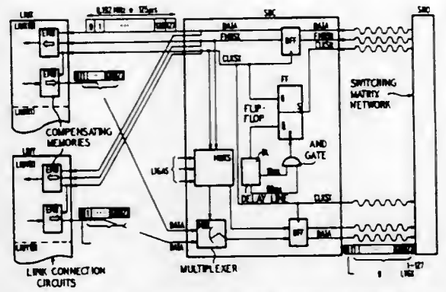
CIRCUIT ARRANGEMENT FOR CLOCK REGENERATION IN CLOCK-CONTROLLED INFORMATION PROCESSING SYSTEMS

Werner Nagler, Hohenschaeftlarn, and Lothar Schmidt, Fuersteneldbruck, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Nov. 13, 1990, Ser. No. 611,731
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1989, 3939457
Int. Cl.[5] H04J *3/06;* **H04L** *7/02*
U.S. Cl. 370—108 **8 Claims**

1. A circuit arrangement for clock regeneration in a clock-controlled information-processing system comprising:

a flip-flop including a set input connected to receive an incoming clock to be regenerated and having a predetermined clock period, a reset input, and output means including a first output for providing a first output signal and a second output for providing a second output signal which is inverted with respect to said first output signal; and



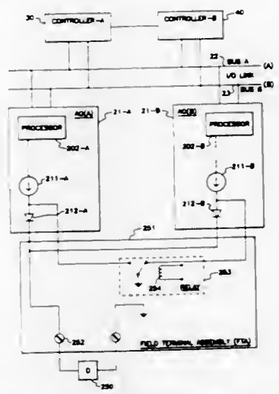
delay means connected between said output means and said reset input of said flip-flop and having a delay time which is shorter than said predetermined clock period.

5,210,756

FAULT DETECTION IN RELAY DRIVE CIRCUITS

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Filed Sep. 26, 1990, Ser. No. 588,387
Int. Cl.[5] G06F *11/00*
U.S. Cl. 371—8.1 **6 Claims**



1. In a system having at least one output device (21A), the output device having n output terminals, where n=1 to N, for outputting information, and wherein each output device has a corresponding redundant output device (21B), the corresponding redundant output device having corresponding n' output terminals, where n'=1' to N' for outputting information, the n and n' output terminals each being operatively connected to a corresponding m field device (250), where m=1 to N, through an apparatus, such that only the information outputted from one of the corresponding n and n' output terminals is coupled to the corresponding field device m, said apparatus comprising:

a) at least one fist current source means (211A) for outputting a current, each first current source means being connected to the corresponding output terminal (n) of the output device (21A), the current outputted from each first current source means containing the information output-

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ted from each corresponding output terminal (n) of the output device (21A);

b) at least one second current source means (211B) for outputting a current, each second current source means being connected to the corresponding output terminal (n') of the corresponding redundant output device (21B), the current outputted from each second current source means containing the information outputted from each corresponding output terminal (n') of the redundant output device (21B);

c) at least one first diode (212A), each first diode connected to the corresponding first current source means (211A) and to corresponding first connector terminals (11A), and further wherein each connection between the first diode and the corresponding first current source means are each connected to corresponding second connector terminals (12A);

d) at least one second diode (212B), each second diode connected to the corresponding second current source means (211B) and to corresponding first redundant connector terminals (11B), and further wherein each connection between the second diode and the corresponding second current source means are each connected to corresponding second redundant connector terminals (12B), and further wherein each first redundant connector terminal (11B) is connected to the corresponding first connector terminal (11A), and further connected to the corresponding field device (250-1, 250-2, . . . , 250-8), thereby providing a path for coupling information from the output terminals (n) of the output device and the output terminals (n') of the redundant output device to the corresponding field devices;

e) at least one switching means (253) for switching, the number of switching means being from 1 to n, each switching means having corresponding n first contact points (256) and n second contact points (257), each second connector terminals (12A, 22A, . . . 82A), being connected to corresponding first contact points (256-1, 256-2, . . . , 256-8), and each second redundant connector terminals (12B, 22B, . . . 82B) being connected to corresponding second contact points (257-1, 257-2, . . . 257-8); and

f) activating means (254), operatively connected to the output device (21A) and the redundant output device (21B), for activating each switching means in response to control signals, control signal A and control signal B, CONTA and CONTB, respectively, from the output device and the redundant output device, such that the information outputted from the output terminals of the output device or the information outputted from the output terminals of the redundant output device is caused to be bypassed by the switching means resulting in the unbypassed information being coupled to the corresponding field device.

5,210,757

METHOD AND APPARATUS FOR PERFORMING HEALTH TESTS OF UNITS OF A DATA PROCESSING SYSTEM

George J. Barlow, Tewksbury; Richard C. Zelley, North Chelmsford, both of Mass., and James W. Keeley, Nashua, N.H., assignors to Bull HN Information Systems Inc., Billerica, Mass.

Filed Oct. 5, 1990, Ser. No. 593,408
Int. Cl.[5] G06F *9/38, 11/00, 13/00*
U.S. Cl. 371—16.1 18 Claims

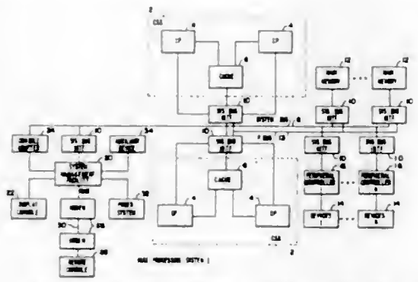
1. In a data processing system having at least one data processing unit for performing data processing operations, a system manager unit for performing administrative functions of the system, the administrative functions including system fault testing and detection, and a system bus connected between the data processing units and the system manager unit for performing bus operations, the system manager unit and each data processing unit including bus control means for asserting a request for a bus operation, the system manager unit having priority of access to the bus and each data processing unit bus control means being responsive to requests for bus operations asserted on the bus by the system manager unit and by other data processing units and responsive to the state of operation of the data processing unit for responding to the bus operation requests, a method for periodically testing the basic state of operation of a data processing unit during operation of the data processing system, comprising the steps of:

(a) in the system manager unit and by operation of a timer means, periodically generating a timing signal initiating a test of the basic state of operation of the data processing units,

(b) in the system manager unit and responsive to the timing signal,

(c) selecting a data processing unit to be tested and asserting a request to the selected data processing unit for a bus operation,

(d) in the selected data processing unit, providing on the bus



a response to the bus operation request, the response being dependent upon the state of operation of the data processing unit, and

(e) in the system manager unit, testing the response provided on the bus by the selected data processing unit in response to the bus operation request asserted by the system manger unit, and

(f) in the system manager unit, determining when the response provided by the selected data processing unit in response to the bus operation request indicates that the selected data processing unit is at least operation for receiving and responding to bus operation requests, and

(g) in the system manager unit,

returning to step (c) and selecting a next data processing unit to be tested when the selected data processing unit is not the last data processing unit to be tested, and

returning to step (a) when the selected data processing unit is the last data processing unit to be tested.

5,210,758

MEANS AND METHOD FOR DETECTING AND CORRECTING MICROINSTRUCTION ERRORS

Alejandro Gomez, Walnut, Calif., assignor to Unisys Corporation, Blue Bell, Pa.

Continuation of Ser. No. 205,989, Jun. 13, 1988. This application Jan. 3, 1992, Ser. No. 816,791
Int. Cl.[5] G06F *11/00*
U.S. Cl. 371—16.1 10 Claims

1. In a data processing system, the combination comprising:

addressable microinstruction memory means for storing microinstructions;

execution means for executing a microinstuction applied thereto;

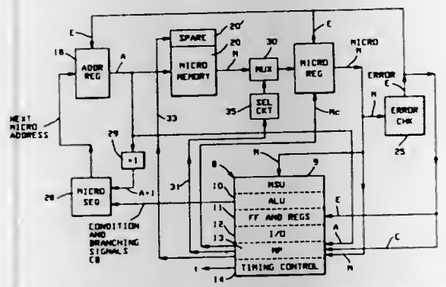
means for accessing a microinstruction from said microinstruction memory means;

means for applying an accessed microinstruction to said execution means;

microinstruction error detection means to which an accessed microinstruction is applied concurrently with the application of the accessed microinstruction to said execution means, said microinstruction error detection means being operative to abort execution of the accessed microinstruction when an error is detected therein; and

microinstruction error correction means responsive to the detection of a microinstruction error by said error detection means for causing a correct microinstruction to be applied to said execution means, said microinstruction error correction means including means for detecting whether a detected microinstruction error is a hard error;

wherein said microinstruction memory means includes a microinstruction memory arranged in bit-storing columns and having at least one spare column of bits, wherein said means for accessing a microinstruction includes an address register for applying a microinstruction address to said microinstruction memory for producing microinstruction output bits including at least one output bit from said spare column of bits, wherein said means for applying an accessed microinstruction



includes a microinstruction register for concurrently applying an accessed microinstruction to said execution means and to said microinstruction error correction means, wherein said microinstruction error correction means is operative in response to the detection of a hard error in a microinstruction memory column for storing correct data in a corresponding column of said additional microinstruction memory portion, wherein said microinstruction error correction means includes a multiplexer which determines the manner in which said microinstruction output bits are applied to said microinstruction register which in the absence of a hard error does not include an output bit from a spare column of said additional microinstruction memory portion, and wherein said microinstruction error correction means is operative in response to the detection of a hard error to reconfigure said multiplexer such that each time a microinstruction is subsequently addressed by said address register the output bit from said corresponding column is substituted for the column which produced the hard error.

5,210,759

DATA PROCESSING SYSTEM HAVING SCAN TESTING USING SET LATCHES FOR SELECTIVELY OBSERVING TEST DATA

Bernard C. DeWitt, and Michael G. Gallup, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 19, 1990, Ser. No. 615,190
Int. Cl.[5] G06F *11/22;* G01R *31/28*
U.S. Cl. 371—22.3 13 Claims

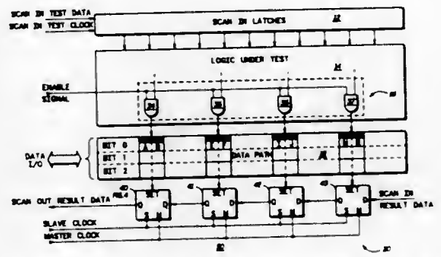
1. A data processing system having scan testing for observing test data related to transistor structural testing of the system, comprising:

a plurality of test scan latches for receiving and storing predetermined input scan data and having a plurality of outputs, each output providing a predetermined test data value;

logic circuit means for performing predetermined data processing functions in the data processing system, the logic circuit means being coupled to the test scan latches and having a plurality of output driver circuits for selectively providing output control signals during each of a functional mode of operation and a test mode of operation, the test mode of operation being entered in response to receipt of the predetermined test data value from each of the test scan latches;

a data path formed by a plurality of data registers coupled to the logic circuit means, each of the data registers being controlled by a selected one of the output control signals; and

a plurality of scannable latch circuits, each of the latch circuits having a control input connected to the data path and receiving a predetermined one of the output control signals, each of the output control signals being routed to



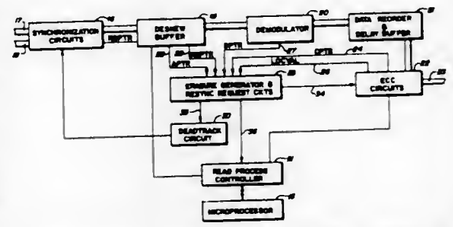
at least one of the data registers in the data path prior to being connected to a predetermined one of the latch circuits, each of the latch circuits being placed in a first logic state prior to receiving the output control signals in the test mode of operation, each of the output control signals either setting a predetermined one of the latch circuits to a second predetermined logic state or allowing the predetermined one of the latch circuits to remain in the first logic state, each of the latch circuits providing a test signal in response to clocking the scannable latch circuits, the test signal indicating transistor fault information of transistors in the logic circuit means including the output driver circuits and indicating electrical continuity from the driver circuits to each control input of the scannable latch circuits.

5,210,760

OPTIMIZED POINTER CONTROL SYSTEM

Steven R. Bentley, Tucson, Ariz.; Gary W. Callsen, Centreville, Va.; James M. Karp, and Stephen C. West, both of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 15, 1991, Ser. No. 657,223
Int. Cl.[5] H03M *13/00*
U.S. Cl. 371—38.1 28 Claims



1. Pointer control logic apparatus including registers for holding pointer parameters, said logic apparatus for generating

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erasure signals for use in error correcting code (ECC) circuits comprising:

microprocessor means connected to all other means in said pointer control logic apparatus for supervising said pointer control logic;

mode selection means for signalling entry into a read-while-write mode wherein data just written to a storage medium is read to ascertain that it was written successfully;

comparison means connected to said mode selection means for comparing the location value (PLOC) in already loaded pointer registers to the location value (LOCVAL) of data currently in process in said ECC circuits;

signal generation means for supplying pointer signals when data for said LOCVAL is in error;

first processing means connected to said comparison means and to said signal generation means for designating a pointer register for said LOCVAL in the case where no already loaded pointer register was found to correspond to said LOCVAL by said comparison means, said first processing means also including means for loading an initializing count (CNTW) into a "pointer off" circuit (POFF) located in the LOCVAL pointer register, said initializing count being a programmable value under the control of said microprocessor means;

second processing means connected to said LOCVAL register for decrementing the count in said POFF circuit each time said location value contains an error free data byte until said count equals zero, in which case said LOCVAL pointer register is dropped; and

third processing means for resetting said count in said POFF circuit to its initial value, CNTW, whenever said location value contains a data byte in error.

5,210,761

DIGITAL SIGNAL PROCESSING CIRCUIT

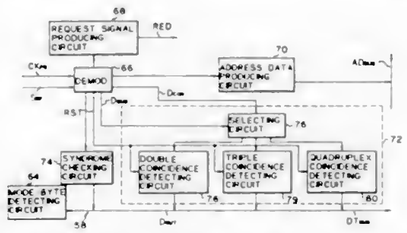
Tadashi Fukami, and Tsutomu Kajiwara, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 1, 1990, Ser. No. 607,706

Claims priority, application Japan, Dec. 30, 1989, 1-340262

Int. Cl.[5] G11B *5/09*

U.S. Cl. 371—40.1 **2 Claims**



1. A digital signal processing circuit having a memory circuit to store reproduction data and recording information,

a reproduction signal processing circuit for demodulating a reproduction signal to thereby obtain reproduction data and recording information and for storing said reproduction data and said recording information into said memory circuit,

an error detecting and correcting circuit for executing an error detecting and correcting process on said reproduction data, and

a data output circuit for outputting the reproduction data stored in said memory circuit on the basis of said recording information, comprising:

a plurality of multiplex coincidence detecting circuits for sequentially detecting whether the recording information coincides or not, and for outputting the recording information in which the coincidence result is respectively obtained by only a predetermined number of times to said memory circuit; and

a selecting circuit for selectively outputting the recording information to the plurality of multiplex coincidence detecting circuits in accordance with the kind of recording information.

5,210,762

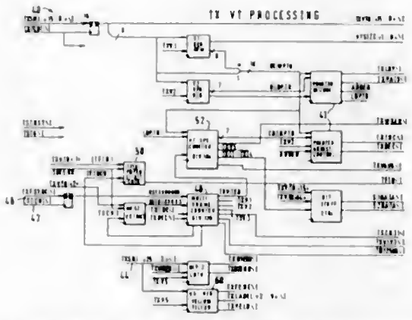
SONET POINTER INTERPRETATION SYSTEM AND METHOD

William B. Weeber, Apex, and Dale L. Krisher, Raleigh, both of N.C., assignors to Alcatel Network Systems, Inc., Richardson, Tex.

Filed Oct. 2, 1991, Ser. No. 771,038

Int. Cl.[5] H04L *1/08*

U.S. Cl. 371—69.1 **8 Claims**



1. A system for performing pointer interpretation, in which the pointer can be interpreted in one of three states; namely, normal (NORM), Loss of Pointer (LOP) of a second type, or Alarm Indication Signal (AIS) of a second type, wherein the pointer contains a pointer value which is considered valid when within a predetermined range and invalid otherwise, and a New Data FLAG (NDF) having a plurality of bits such that NDF is considered active if its bit pattern is in a first configuration and is considered normal if its bit pattern is in a second configuration, said system comprising:

A) means for receiving a pointer value and for decoding the presence of a valid pointer;

B) means for storing at least a portion of the two most recently received pointer values;

C) means for maintaining an accepted pointer value, wherein the acceptance criteria is defined as three consecutive matching incoming valid pointers or NDF active;

D) means for entering a first type of AIS state if three consecutive pointers are received with each pointer in a predetermined state;

E) means connected to the storing means, for comparing three consecutive pointer values so as to generate a 2MATCH true signal if said three pointer values are matching and not invalid;

F) means for entering a NO AIS state (AIS of the first type) if:

1) a valid pointer is received and NDF is active, or

2) the three most recently received pointers are each not in said predetermined state;

G) means interfaced with the comparison means, for entering a first type of LOP state if eight consecutive occurrences of either NDF not normal or 2MATCH true has not occurred;

H) means (CLR input to flipflop with LOP output in FIG. 11A) for entering a NO LOP (LOP of the first type) state if;

1) a valid pointer and NDF active and AIS of the first type is detected, or

2) 2MATCH true and three NDF's normal have been detected; and

1) means, interfaced with the AIS state of the first type, NO AIS state of the first type, LOP state of the first type, and NO LOP state of the first type, for converting said states into an AIS state of the second type, an LOP state of the second type, and the NORM state.

5,210,763

OSCILLATOR

Meirion F. Lewis, and David R. Wight, both of Worcs, England, assignors to State for Defence in Her Britannic Majecty's Government of the United Kingdom of Great Britain and Northern Ireland, The A Corp. of Britain, London

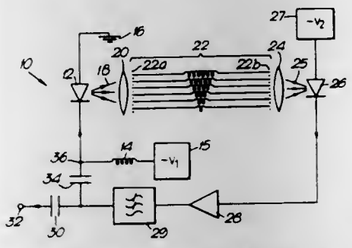
PCT No. PCT/GB90/01539, § 371 Date May 6, 1992, § 102(e) Date May 6, 1992, PCT Pub. No. WO91/05403, PCT Pub. Date Apr. 18, 1991

PCT Filed Oct. 5, 1990, Ser. No. 855,031

Claims priority, application United Kingdom, Oct. 9, 1989, 8922681.5

Int. Cl.[5] H01S *3/10*

U.S. Cl. 372—26 **7 Claims**



1. An oscillator for generating an operating frequency, and comprising a light source (**12**), means for modulating the light source output at the operating frequency, and a feedback loop responsive to the light modulation and arranged to provide positive feedback to the modulating means, characterised in that the feedback loop includes:

a) optical delay line filtering means (**22**) having a plurality of optical fibres with differing lengths arranged to define a fundamental frequency and associated harmonic frequencies,

b) secondary filtering means (**29**) arranged to select one of the fundamental and harmonic frequencies to be the operating frequency of the oscillator.

5,210,764

METHOD AND APPARATUS FOR GENERATING LASER RADIATION HAVING MULTIPLE WAVELENGTHS WITH SYNCHRONIZED AND SPATIALLY OVERLAPPING BEAM PROPAGATION

Hermann Bücher, Aachen; Werner Fuss, and Wolfram E. Schmid, both of Garching, all of Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft Zur Förderung Der Wissenschaften E.V., Göttingen, Fed. Rep. of Germany

Filed Jul. 25, 1991, Ser. No. 735,635

Claims priority, application Fed. Rep. of Germany, Jul. 25, 1990, 4023571

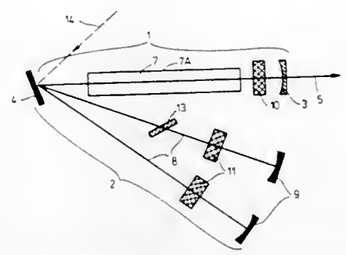
Int. Cl.[5] H01S *3/10*

U.S. Cl. 372—23 **10 Claims**

1. A method for producing pulsed laser radiation having a plurality of wavelengths on a common beam axis comprising the steps of:

exciting a laser medium in a laser resonator which is tuned simultaneously to different wavelengths, the laser medium having a plurality of laser levels between which energy exchange time constants are long compared to the duration of pulsed laser emission;

suppressing, during excitation of the laser medium, the oscillation of the laser using a resonator Q switch located in the resonator, until inversion of a plurality of laser levels has been realized; and p1 switching the resonator Q switch



after said suppression step to produce simultaneously the pulsed laser radiation having a plurality of wavelengths on a common beam axis of the laser resonator.

5,210,765

LASER MICROSCOPY

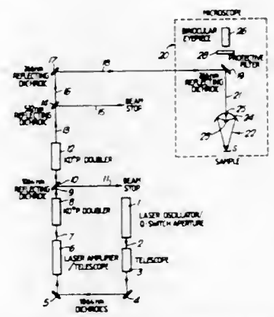
Colin D. Flint, Essex; Simon Chenery, Leicestershire, and Philip O'Grady, London, all of United Kingdom, assignors to Birkbeck College, London, United Kingdom

Filed Mar. 25, 1992, Ser. No. 857,065

Claims priority, application United Kingdom, Mar. 25, 1991, 9106337

Int. Cl.[5] H01S *3/10*

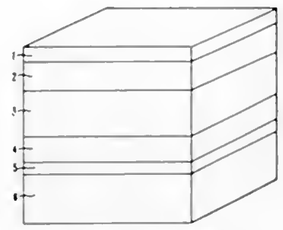
U.S. Cl. 372—23 **4 Claims**



1. Laser microscopy apparatus comprising a laser system for generating a laser beam comprising light of two wavelengths, the light of one wavelength being in the visible spectrum, the light of the other wavelength being outside the visible spectrum, the light of shorter wavelength being derived from the light of longer wavelength as a harmonic thereof, a first wavelength-dependant reflector in the beam path for separating almost all of the visible light from the non-visible light so as to produce two light beams extending in different directions, and a microscope having a reflective, non-refractive objective for forming an image of a specimen under investigation, an eyepiece for examining the image and a reflector in the microscope positioned to receive the beam of non-visible light and to divert it onto the objective for focussing by the latter on a specimen under investigation.

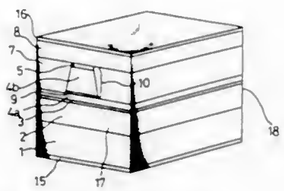
VOL 1150 ISS 2 MY 11 1993 UMI

5,210,766
LASER CRYSTALLIZED CLADDING LAYERS FOR IMPROVED AMORPHOUS SILICON LIGHT-EMITTING DIODES AND RADIATION SENSORS
Kris A. Winer, Livermore, and Robert L. Thornton, East Palo Alto, both of Calif., assignors to Xerox Corporation, Stamford, Conn.
Division of Ser. No. 634,896, Dec. 27, 1990, Pat. No. 5,162,239.
This application Apr. 10, 1992, Ser. No. 866,737
Int. Cl.[5] H01S *3/17*
U.S. Cl. 372—40 8 Claims



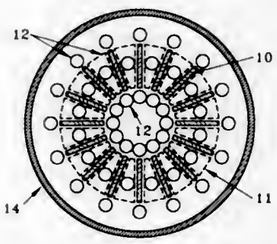
1. A large are p-i-n device comprising:
an amorphous substrate;
a first substantially amorphous silicon alloy doped layer on the amorphous substrate, said first substantially amorphous silicon alloy doped layer having a first substantially continuous layer of crystallized amorphous silicon alloy therein having a known thickness;
an intrinsic substantially amorphous silicon alloy layer formed on the first substantially amorphous silicon alloy doped layer; and
a second substantially amorphous silicon alloy doped layer formed on the intrinsic layer, the second substantially amorphous silicon alloy doped layer having a second substantially continuous layer of crystallized amorphous silicon alloy therein having a known thickness.

5,210,767
SEMICONDUCTOR LASER
Satoshi Arimoto, and Naohito Yoshida, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 11, 1991, Ser. No. 757,808
Claims priority, application Japan, Sep. 20, 1990, 2-252708; Oct. 5, 1990, 2-268822
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 11 Claims



1. A semiconductor laser comprising:
a first conductivity type semiconductor substrate;
a first conductivity type semiconductor first cladding layer disposed on the substrate;
a semiconductor active layer disposed on the first cladding layer;
a second conductivity type semiconductor second cladding layer disposed on the active layer;
current concentration and collection means for confining current flow to part of the active layer comprising a second conductivity type ridge structure disposed on the second cladding layer and a first conductivity type semiconductor current blocking layer disposed directly on the second cladding layer and adjacent to and contacting the ridge structure, the ridge structure including a semiconductor etch stopping layer different in composition from and disposed on the second cladding layer, a second conductivity type semiconductor third cladding layer disposed on and different in composition from the etch stopping layer, and a second conductivity type semiconductor transition layer disposed on the third cladding layer;
a second conductivity type semiconductor contacting layer disposed on and contacting the current concentration and collection means; and
first and second electrodes respectively disposed on the substrate and the contacting layer.

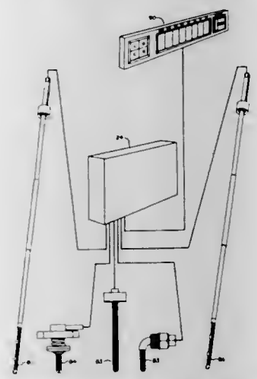
5,210,768
MULTI-SLAB SOLID STATE LASER SYSTEM
Herb J. J. Seguin, 12639 - 52 Ave., Edmonton, Alberta, Canada T6H 0P6
Filed Feb. 21, 1992, Ser. No. 838,038
Int. Cl.[5] H01S *3/08*
U.S. Cl. 372—92 20 Claims



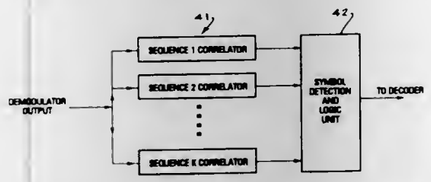
1. A laser system having a first set of plural solid state gain channels mounted within an enclosure, each individual gain channel being conduction cooled by means for cooling the gain channels, means adjacent each gain channel for providing laser excitation energy to material within the gain channel, characterized in that:
the solid state gain channels are arranged about and extend radially from a first common central axis, and have optical extraction means having a second central axis coincident with the first common central axis disposed about the gain channels for producing a common resonator mode for all of the gain channels and for extracting laser energy from all of the gain channels simultaneously; and further including
phase lock means for providing phase-locking of the laser energy extracted simultaneously from the gain channels.

5,210,769
LIQUID LEVEL MEASURING SYSTEM
William W. Seidel, Fond du Lac, and Lance C. Tagliapietra, Eden, both of Wis., assignors to The Great American Company, Fond du Lac, Wis.
Filed Dec. 30, 1991, Ser. No. 814,554
Int. Cl.[5] G01F *23/24*
U.S. Cl. 73—295 36 Claims

1. A system for measuring the level of a liquid in a container, a liquid level probe having,
an insulating support member,
a positive temperature coefficient conductor mounted on said insulating support member, and extending into the liquid, such that the portion of said positive temperature coefficient conductor immersed in the liquid is dependent on the level of the liquid in the container,
a microprocessor for receiving an input signal from said liquid level probe,
a display means for receiving an output signal from said microprocessor and displaying an indication of the liquid level as determined by said liquid level probe,
a main power supply circuit energized by an unregulated power source, which provides a regulated power output,
a constant current power supply circuit energized by said main power supply circuit for supplying a constant current to the positive temperature coefficient conductor, whereby the supply of current to said positive temperature coefficient conductor causes the voltage across said conductor to rise, the voltage rising at a rate which is dependent on the level of the liquid in the container, the rate of change of said voltage appearing across said conductor being processed by said microprocessor to supply a digital signal indicative of said liquid level to said display means which in response thereto provides a display indicative of the liquid level in the container.

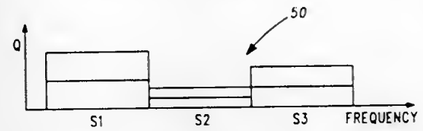


5,210,770
MULTIPLE-SIGNAL SPREAD-SPECTRUM TRANSCEIVER
Bart F. Rice, Santa Cruz, Calif., assignor to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.
Filed Sep. 27, 1991, Ser. No. 766,372
Int. Cl.[5] H04L *9/00, 27/30*
U.S. Cl. 375—1 46 Claims



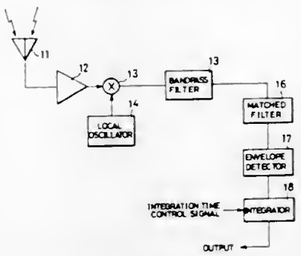
1. A method for communicating information between a transmitting node and a receiving node of a multi-node communication network, said method comprising:
a) assigning blocks of bits embodying said information to corresponding subsets of a set of binary spreading-code sequences, at least one of said subsets of said set of binary spreading-code sequences containing more than one of said binary spreading-code sequences; and
b) transmitting simultaneous signals containing selected subsets of said set of binary spreading-code sequences from said transmitting node to said receiving node.

5,210,771
MULTIPLE USER SPREAD-SPECTRUM COMMUNICATION SYSTEM
Dennis R. Schaeffer, and Michael D. Kotzin, both of Buffalo Grove, Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Aug. 1, 1991, Ser. No. 739,037
Int. Cl.[5] H04K *1/00*
U.S. Cl. 375—1 38 Claims



1. A communication system comprising:
a site having a first communication channel associated therewith, said first communication channel having a first received signal strength threshold assigned thereto, and a second communication channel associated therewith, said second communication channel having a second received signal strength, different from said first received signal strength threshold, threshold assigned thereto, said first and second communication channels serving substantially a single coverage area; and
means for selecting one of said first and second communication channels for use by a subscriber unit.

5,210,772
APPROXIMATE FIGURES MEASURING SYSTEM
Yoshikatsu Nakagawa, Yamato, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
Filed Mar. 1, 1991, Ser. No. 663,301
Claims priority, application Japan, Mar. 16, 1990, 2-63955
Int. Cl.[5] H04L *27/30*
U.S. Cl. 375—1 14 Claims



1. A system for measuring an approximate number among a number of known objects in a particular place, comprising:
a signal transmission means arranged in each of the objects to be measured for emitting a PN signal of a specific group, wherein a peak of the PN signal can be generated at a receiving device in a predetermined period; and
a signal receiving means for receiving the PN signal transmitted from said signal transmission means, said signal receiving means having a peak detection means and a calculation means for obtaining an output corresponding to the quantity of the peaks of the PN signal emitted from said objects and for counting the peaks of self-correlation of the PN signal.

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5,210,773

PROCESS FOR THE INTERMEDIATE AMPLIFICATION OF DIGITAL SIGNALS AND INTERMEDIATE AMPLIFIERS FOR DIGITAL SIGNALS

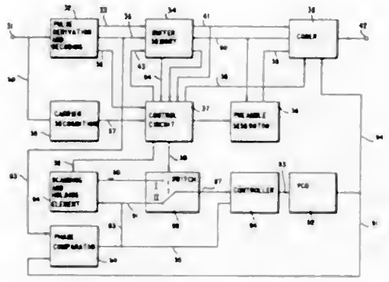
Bernhard Schmid, Stuttgart, and Rainer Schenkyr, Reichenbach, both of Fed. Rep. of Germany, assignors to Richard Hirschmann GmbH & Co., Fed. Rep. of Germany

Filed Aug. 22, 1990, Ser. No. 570,924

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1989, 3927681

Int. Cl.[5] H04L *25/52*

U.S. Cl. 375—4 28 Claims



19. A digital signal repeater comprising:

an amplitude and pulse regeneration circuit for data packets, wherein said regeneration circuit includes a receiving timing signal deriver,

a buffer memory connected to said receiving timing signal deriver,

a control circuit connected to said buffer memory and said receiving timing signal deriver,

a local transmission timing signal generator,

a phase comparator connected to said receiving timing signal deriver and said local transmission timing signal generator, and

a synthetic preamble generator responsive to said control circuit.

5,210,774

ADAPTIVE EQUALIZATION SYSTEM AND METHOD FOR EQUALIZING A SIGNAL IN A DCE

Jean-Claude Abbiate, La Gaude; Gerard Richter, and Jean-Pierre Vaudaux, both of Nice, all of France, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Oct. 10, 1991, Ser. No. 774,496

Claims priority, application European Pat. Off., May 31, 1991, 91480089.3

Int. Cl.[5] H03H *7/30*

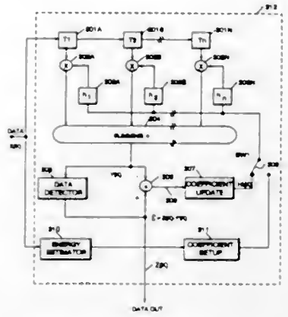
U.S. Cl. 375—14 8 Claims

1. An adaptive equalization system for allowing the equalization of incoming signals from a telecommunication line in a Data Circuit Terminating Equipment (DCE) within a predetermined attenuation range, said system including an adaptive equalizer capable of continuously deriving its coefficients in accordance with a predetermined adaptive algorithm and characterized in that it further includes:

means for storing a plurality of sets of initial coefficients (Hinit) for said equalizer corresponding to the attenuations of a plurality of telecommunication lines,

means for measuring the energy of an incoming signal from a said telecommunication line,

means responsive to said means for measuring for deriving one set of initial derived coefficients (Hinit) to be loaded into said equalizer,



means for loading said coefficients in said equalizer and means for initiating said adaptive algorithm.

5,210,775

π/4 SHIFT QPSK MODULATOR AND COMMUNICATION APPARATUS

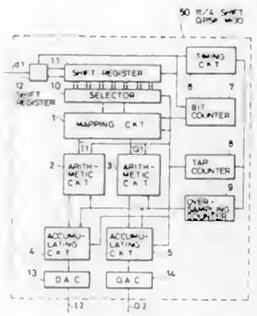
Yasuaki Takahara; Tomohiro Ezaki; Shigeyuki Sudo, and Teiji Okamoto, all of Kanagawa, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 12, 1991, Ser. No. 653,895

Claims priority, application Japan, Feb. 13, 1990, 2-29579

Int. Cl.[5] H04L *27/20*

U.S. Cl. 375—67 15 Claims



1. A π/4 shift QPSK modulator for receiving digital signals and for outputting a modulated signal therefrom in accordance with each of the inputted digital signals, comprising:

counting means for counting the number of the inputted digital signals;

phase information arithmetic means for receiving a value of an output from the counting means and a value of each of the inputted digital signals for outputting phase information of the signal to be modulated;

arithmetic means for performing an arithmetic operation on values representing an impulse response of the output phase information from the phase information arithmetic means and outputting impulse response values in accordance therewith; and

accumulating means for accumulating impulse response values outputted from the arithmetic means and for performing an arithmetic operation for enabling generation of a π/4 shift QPSK modulated signal.

5,210,776

COUNTER CIRCUIT FOR CONTROLLING AN ABSOLUTE POSITION OF A ROBOT SYSTEM

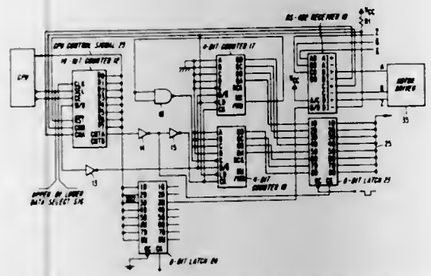
Sung-Kwon Kim, Seoul, and Hak-Seo Oh, Kyonggi, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Oct. 10, 1991, Ser. No. 774,305

Claims priority, application Rep. of Korea, Oct. 12, 1990, 90-16205

Int. Cl.[5] H03K *21/40*; G06M *3/02*

U.S. Cl. 377—17 9 Claims



1. A counter circuit for controlling an absolute position of a robot system, the counter circuit comprising:

receiver means for receiving encode signals from a motor driver;

first counter means for receiving rotated-number data of the motor supplied from said receiver and counting data to output a first counted value to a central processing unit (CPU) via a bus means;

second counter means for counting signals when overflow or underflow is produced at said first counter means and outputting a second counter value;

a first latch circuit for receiving the second counted values from said second counter means and outputting the second counted values to said CPU; and,

an origin generating means for controlling an output state of said receiver means on the basis of a control signal supplied through said bus means when a zero pulse control signal is inputted for searching an origin of said robot system.

5,210,777

CHARGE COUPLED DEVICE HAVING SWITCHED INVERTING AND NON-INVERTING INPUT SIGNAL PATHS, INPUT BIASSING CIRCUIT AND TEMPERATURE COMPENSATION

Tadakuni Narabu; Tetsuya Kondo; Yasuhito Maki, and Katsunori Noguchi, all of Kanagawa, Japan, assignors to Sony Corporation, Japan

Filed Apr. 16, 1990, Ser. No. 509,205

Claims priority, application Japan, Apr. 17, 1989, 1-97208; Apr. 17, 1989, 1-97209

Int. Cl.[5] G11C *27/04*, *19/28*

U.S. Cl. 377—60 14 Claims

1. A control circuit for a charge coupled device (CCD) comprising:

(a) a CCD delay line having an input and an output;

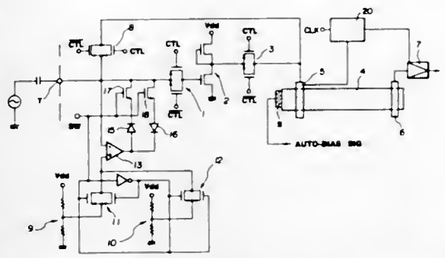
(b) an input signal source for supplying an input signal;

(c) a first input circuit connected to said input signal source and to the input of said CCD delay line;

(d) a second input circuit connected to said input signal source and to the input of said CCD delay line via an inverting amplifier;

(e) said first and second circuits each including a switching means for selectively connecting said input signal source to said CCD delay line via one of said first and second input circuits and disconnecting said input signal source to said CCD delay line via the other of said first and second input circuits; and

(f) an input bias point setting means consisting of a first setting circuit for setting an input bias for said CCD delay



line at a first bias point, a second setting circuit for setting said input bias at a second bias point different from said first bias point, and bias switching means for selectively connecting one of said first and second setting circuits to said input signal source.

5,210,778

ANALYTICAL INSTRUMENT AND METHOD OF CALIBRATING AN ANALYTICAL INSTRUMENT

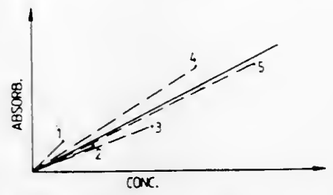
Desire J. L. Massart, Gent, Belgium, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 12, 1991, Ser. No. 685,266

Claims priority, application United Kingdom, Apr. 20, 1990, 9008922

Int. Cl.[5] G01D *18/00*

U.S. Cl. 378—53 12 Claims



1. An atomic absorption spectrophotometer comprising means for storing measured absorbance values of a plurality of standards in association with the concentration values of corresponding standards, means for determining, using statistical techniques, a best straight calibration line, means for determining the quality of the calibration line, means for determining the ratio of absorbance to concentration for each of the measured standards and means for determining whether the ratios have a given order, whereby it can be determined whether a calibration line which is not of acceptable quality is caused by lack of measurement precision.

5,210,779

APPARATUS AND METHOD FOR FOCUSING HARD X-RAYS

Victor Vali, Laguna Hills; David B. Chang, Tustin, and Albert F. Lawrence, San Diego, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jul. 26, 1991, Ser. No. 736,153

Int. Cl.[5] G06M *1/00*

U.S. Cl. 378—84 17 Claims

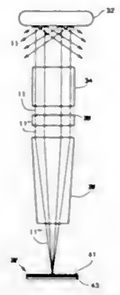
1. An apparatus for forming an image comprising:

a first substantially dislocation-free crystal having a constant

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lattice constant over a length thereof for receiving and collimating hard X-ray or gamma ray radiation;

image forming means aligned with said first crystal for receiving the collimated radiation and for providing an image therefrom; and



a second substantially disclocation-free crystal spatially aligned with said image means and having a lattice constant that decreases over a length thereof for receiving said collimated hard X-ray or gamma ray image and for propagating and converging said collimated hard X-ray or gamma ray image along said length thereof to focus said hard X-ray or gamma ray image.

5,210,780

LOW RIPPLE X-RAY GENERATOR

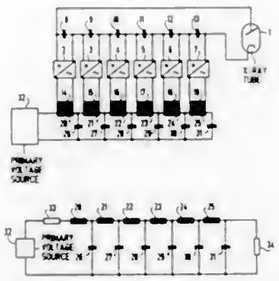
Peter Schweighofer, Obermichelbach, and Peter Tichy, Uttenreuth, both of Fed. Rep. of Germany, assignors to Siemens Aktiengeseilschaft, Munich

Filed Feb. 13, 1992, Ser. No. 834,772

Claims priority, application Fed. Rep. of Germany, Mar. 6, 1991, 4107199

Int. Cl.[5] H05G *1/70*

U.S. Cl. 378—105 4 Claims



1. A high-frequency x-ray generator having an x-ray tube fed by a power supply including a high-voltage transformer, said high-voltage transformer comprising:

a plurality of secondary windings;

a plurality of high-voltage rectifiers respectively connected to said secondary windings;

a plurality of capacitors respectively connected in parallel with said high-voltage rectifiers, said capacitors being connected in series for forming a voltage, for said x-ray tube;

a plurality of primary windings respectively associated with said secondary windings; and

a plurality of delay capacitors connected to said primary windings forming a delay line for a traveling wave generated by a primary voltage source connected across said capacitors.

5,210,781

ROTARY ANODE TYPE X-RAY TUBE HAVING A JACKET TO PREVENT LUBRICANT FROM BEING SCATTERED

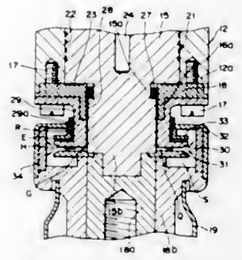
Katsuhiro Ono, Utsunomiya; Hidero Anno; Hiroyuki Sugiura, both of Ootawara; Takayuki Kitami, Tochigi, and Hiroaki Tazawa, Ootawara, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 30, 1991, Ser. No. 767,652

Claims priority, application Japan, Oct. 5, 1990, 2-266267; Nov. 28, 1990, 2-323284

Int. Cl.[5] H01J *35/10*

U.S. Cl. 378—125 7 Claims



1. A rotary anode type X-ray tube comprising:

an anode target,

a rotary structure, said rotary structure comprising a rotating shaft to which the anode target is fixed;

a stationary structure coaxially arranged with the rotary structure with a clearance opening between said rotary structure and said stationary structure,

a slide bearing section provided between the rotary structure and the stationary structure and having spiral grooves;

a liquid metal lubricant applied to the slide bearing section between the rotary structure and the stationary structure;

a vacuum envelope defining a space in which the anode target, the rotary structure, the stationary structure, the slide bearing section and the liquid metal lubricant are arranged;

enclosing means, having a hollow space communicating with the clearance opening, for enclosing the clearance opening to prevent the lubricant from being scattered into the vacuum space from the hollow space;

wherein one of the rotary structure and the stationary structure is of cylindrical shape having a wall section, a closed bottom section and an open top section so as to receive another of the rotary structure and the stationary structure, and the other of the rotary structure and the stationary structure is shaped like a column and fitted within the one of the rotary structure and the stationary structure.

5,210,782

METHOD AND APPARATUS FOR SPLIT RADIOGRAPHY

Ronald J. Geluk, Nootdorp, and Hugo Vlasbloem, Maasland, both of Netherlands, assignors to B.V. Optische Industrie "De Oude Delft" , Delft, Netherlands

PCT No. PCT/EP90/00338, § 371 Date Aug. 28, 1991, § 102(e) Date Aug. 28, 1991, PCT Pub. No. WO90/10939, PCT Pub. Date Sep. 20, 1990

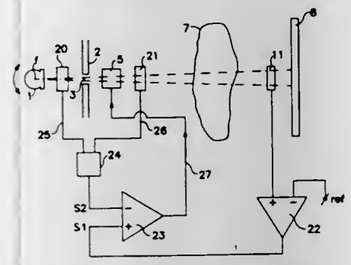
PCT Filed Feb. 26, 1990, Ser. No. 752,636

Claims priority, application Netherlands, Mar. 7, 1989, 8900553

Int. Cl.[5] G21K *5/10*

U.S. Cl. 378—146 18 Claims

1. Method for slit radiography in which, with the aid of an X-ray source and a slit-type diaphragm placed in front of the X-ray source, a fan-type X-ray beam is formed, with which beam a body under examination is scanned at least partially in a direction transverse to the longitudinal direction of the slit of the slit-type diaphragm in order to form an X-ray shadow image on an X-ray detector placed behind the body, which fan-type X-ray beam is formed by a multiplicity of sectors situated adjacently to one another, the transmitted X-ray radiation being influenced instantaneously during the scanning movement per sector of the fan-type beam, while in operation, by means of controllable beam sector modulators interacting with the slit diaphragm, the quantity of radiation transmitted through the body being measured with the aid of detection means instantaneously per sector of the X-ray beam during the



scanning movement and the measurement result being used to control the beam sector modulators, characterized in that, during operation, the instantaneous position of each beam sector modulator is continuously detected, in that an electrical signal representing the instantaneous position is generated for each beam sector modulator, in that the electrical signal representing the instantaneous position is compared with the measurement result provided by the detection means and associated with the respective beam sector, and in that a control signal for the respective beam sector modulator is formed from the measurement result and the signal representing the instantaneous position.

5,210,783

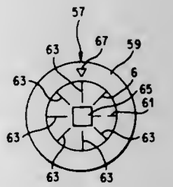
PENETRAMETER AND METHOD OF USE

Harry L. Wallace, Kennesaw, Ga., assignor to Lockheed Corporation, Calabasas, Calif.

Filed Jun. 3, 1992, Ser. No. 892,880

Int. Cl.[5] G01D *18/00*

U.S. Cl. 378—207 12 Claims



12. A method of determining the resolution of an x-ray inspection system comprising the steps of:

generating a radiographic image of a penetrameter including a plurality of filaments having different diameters, at least one of the filaments being a broken filament broken by a gap of predetermined size;

determining if the broken filament is visible; and

if the broken filament is visible, determining if the gap is visible.

5,210,784

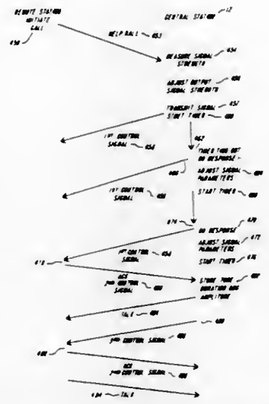
ADAPTIVE SPEAKERPHONE SYSTEM

William Wang, Lexington, and Richard M. Reich, Westwood, both of Mass., assignors to Lifeline Systems, Inc., Watertown, Mass.

Filed Jun. 28, 1991, Ser. No. 722,921

Int. Cl.[5] H04M *11/04, 1/00*

U.S. Cl. 379—37 5 Claims



1. A method for adjusting a central station control signal transmitted from a central station to a remote station including a speakerphone controllable by said central station control signal, said method comprising the steps of:

receiving a request signal from said remote station;

measuring a strength of said request signal from said remote station received by said central station;

sending a first control signal from said central station to said remote station, said first control signal having a signal strength and a signal duration, said signal strength of said first control signal (So) being determined according to the equation:

$$So = Sd + Sl - Sr$$

wherein,

(Sd) is a desired signal strength of said first control signal received at said remote station,

(sl) is an actual signal strength of said request signal transmitted by said remote station and

(sr) is said strength of said request signal from said remote station as received at said central station from said remote station;

starting a central timer to measure a predetermined amount of time;

determining if an acknowledge signal has been received from said remote station prior to said central timer measuring said predetermined amount of time;

sending a next control signal from said central station to said remote station upon said determining step indicating that said acknowledge signal has not been received within said predetermined amount of time, said next control signal having at least one of:

a signal strength greater than a strength of a previous control signal and

a duration greater than a duration of said previous control signal;

repeating said steps of starting a central timer, determining if an acknowledge signal has been received, and sending a next control signal, until a first one of:

said remote station responds with said acknowledge signal; and

said steps of starting a central timer, determining if an

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acknowledge signal has been received and sending a next control signal have been repeated a predetermined number of times; and

sending an additional control signal from said central station to said remote station, said additional control signal having signal strength and duration equal to a signal strength and a signal duration of a control signal sent from said central station to which said remote station has responded thereto.

5,210,785

WIRELESS COMMUNICATION SYSTEM

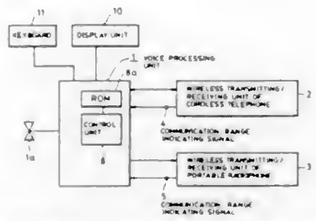
Hideaki Sato, Yokohama, and Toshihiko Myojo, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 27, 1989, Ser. No. 316,486

Claims priority, application Japan, Feb. 29, 1988, 63-44572; May 16, 1988, 63-116847

Int. Cl.[5] H04Q *7/04*

U.S. Cl. 379—58 **11 Claims**



1. A communication terminal device comprising:

plural wireless communication means for communicating using respective different communication protocols including first wireless communication means for preforming wireless communication with a direct exchange using a first communication protocol for long distance and second wireless communication means for performing wireless communication with a base unit connected to a communication line from an exchange using a second communication protocol for a short distance;

selection means for selecting one of the first and second wireless communication means in accordance with the reception states of said plural wireless communication means; and

communication means for performing communication using the wireless communication means selected by said selecting means.

5,210,786

PORTABLE TELEPHONE SYSTEM USING STRATIFIED EXCHANGE SYSTEM

Sadao Itoh, Yokohama, Japan, assignor to Iwatsu Electric Co. Ltd., Tokyo, Japan

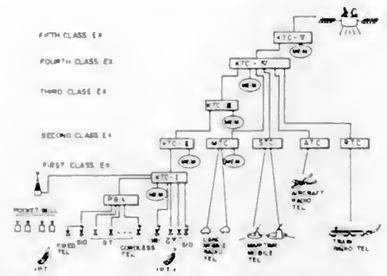
Continuation of Ser. No. 506,473, Apr. 9, 1990, abandoned, which is a continuation of Ser. No. 387,394, Jul. 28, 1989, abandoned, which is a continuation of Ser. No. 126,913, Nov. 25, 1987, abandoned, which is a continuation of Ser. No. 107,418, Oct. 9, 1987, abandoned. This application May 10, 1991, Ser. No. 700,998

Claims priority, application Japan, Oct. 15, 1986, 61-243130; May 20, 1987, 62-121005

Int. Cl.[5] H04Q *7/04*

U.S. Cl. 379—59 **2 Claims**

1. A channel setting system in a portable telephone system, in which a plurality of i-th class exchanges, which accommodate directly or through at least one (i−1)th exchange, at least one key service unit of a plurality of portable telephone sets present in each service area, and at least one (i+1)th class exchange, which accommodates the plurality of i-th class exchanges through junction lines, are stratified to form an exchange system so that i=2, 3, 4, 5 [1, 2 3, . . . ,] and so that the (i+1)th class exchange covers all of the service areas through the i-th class exchanges, said number i being equal to a number of stratified steps minus one, said exchange system having a function whereby information which specifies a home area predetermined from the service areas for each of the portable telephone sets and the portable telephone sets in distinction from each other is registered in a memory in each of the i-th class exchanges and in a memory in the (i−1)th class and (i+1)th class exchange which administer the home area; and in which a wide area communication i-th radio base station is provided for a plurality of portable telephone sets which are connected to one of the i-th class exchanges and are capable of being called and receiving a communication signal in the same area as the service area of said one of the i-th class exchanges; self-identification information of each of the plurality of portable telephone sets contains self-identification information corresponding to the i-th and (i+1)th class exchanges; in a case where any one of the portable telephone sets is called from a calling party of an incoming call in the service area of said one of the (i−1) class or i-th class exchanges and does not answer to an incoming call signal from the key service unit in which the position of the called one of the portable telephone sets has been registered, the i-th radio base station performs wide area calling; and when the called one of the portable telephone sets has sent back an answer signal to said one of the (i−1)th class or i-th class exchanges through the key service unit in the service area or through some other transmitting means during a fixed period time, communication channels are set up between said one of the i-th class exchanges or any one of the (i−1), (i−2), . . . exchanges and first class radio base stations and the called one of the portable telephone sets and between the key service unit and the called one of the portable telephone sets.



5,210,787

SUBSCRIBER INTERROGATION POINT

John Hayes, St. Laurent, Quebec, Canada, and Glen H. Schmid, Dusseldorf, Fed. Rep. of Germany, assignors to Telefonaktiebolaget L. M Ericsson, Sweden

Filed Feb. 5, 1991, Ser. No. 651,297

Int. Cl.[5] H04M *11/00*

U.S. Cl. 379—60 **21 Claims**

1. In a cellular radio communications network including a plurality of mobile switching centers each having a plurality of base stations with which a mobile subscriber identified by a mobile identification number can be connected,

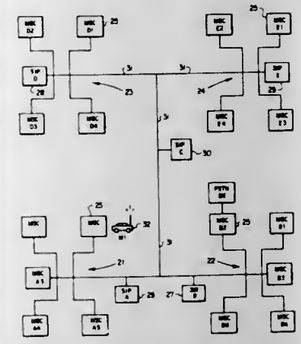
a plurality of mobile switching centers which serve as the home exchange for a plurality of mobile subscribers and store within a memory of each, preselected information associated with each mobile subscriber for which it is the home exchange;

a plurality of mobile switching centers which can serve as the visited exchange for a plurality of mobile subscribers for which each is not the home exchange thereof and store within the memory of each preselected information associated with each mobile subscriber within the network capable of roaming into said visited exchange;

a data network interconnecting each of said mobile switching centers for the communication of information therebetween; and

a subscriber interrogation point connected to the data network for communications therewith and being associated with either other subscriber interrogation points or a group of mobile subscribers the home exchanges of which are located in a particular geographic area, said subscriber interrogation point having a memory containing information associated with a mobile identification number corresponding to each mobile subscriber in said group identifying either the home exchange of that particular subscriber or other subscriber interrogation points able to identify such home exchange; and,

means for storing in the memory of each of said plurality of mobile switching centers which can serve as a visited exchange, information associated with the mobile identification number of each mobile subscriber in the network which identifies a subscriber interrogation point with which that mobile station is associated and not its home exchange so that when the home exchange of a mobile station is changed that information need only be modified in the memory of the mobile station's associated subscriber interrogation point and not in the memory of each visited exchange into which it can roam.



5,210,788

TELEPHONE INSTRUMENT AND DISTRIBUTION SYSTEM

Ole K. Nilssen, Caesar Dr., Barrington, Ill. 60010

Continuation of Ser. No. 627,189, Dec. 13, 1990, abandoned, which is a continuation-in-part of Ser. No. 562,897, Aug. 6, 1990, Pat. No. 5,068,890, which is a continuation-in-part of Ser. No. 397,266, Aug. 23, 1989, Pat. No. 5,070,522, which is a continuation-in-part of Ser. No. 136,505, Dec. 23, 1987, Pat. No. 4,866,757, which is a continuation of Ser. No. 921,381, Oct. 22, 1986, abandoned. This application Mar. 27, 1992, Ser. No. 860,234

Int. Cl.[5] H04M *1/274*

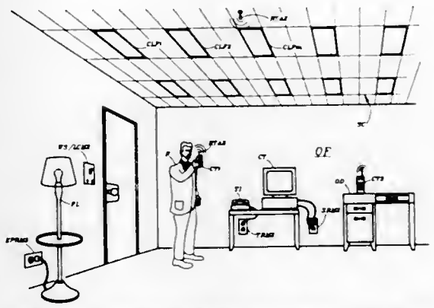
U.S. Cl. 379—61 **17 Claims**

1. In an office or similar room having a ceiling, the improvement comprising:

signal conduction means connected with a telephone or similar communication system;

a first transceiver means having a first antenna means mounted at or near the ceiling; the transceiver means being functionally connected with the telephone or similar communication system by way of the signal conduction means;

a second transceiver means having a second antenna means; the second transceiver means being disposed within the room and, via its second antenna means, being in wireless connection with the first transceiver means; and



signal source and utilization means connected with the second transceiver means and, by way of wireless connection with the first transceiver means, being in functional connection with the telephone utility system.

5,210,789

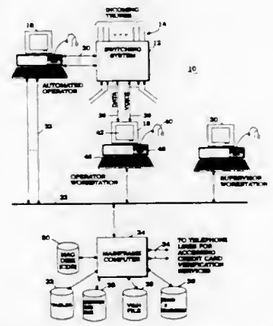
INTERACTIVE TELEPHONE OPERATOR TERMINAL

Stanley E. Jeffus, Garland; Barry D. Brown, Mesquite; Rockett O. Crawford, and Michael L. Roerick, both of Carrollton, all of Tex., assignors to International Telecharge, Inc., Dallas, Tex.

Filed Jun. 28, 1991, Ser. No. 723,232

Int. Cl.[5] H04M *3/60, 3/64*

U.S. Cl. 379—127 **47 Claims**



1. A system for controlling telephone operator terminals, comprising:

a plurality of operator terminals, each having audio facilities, a display and a keyboard;

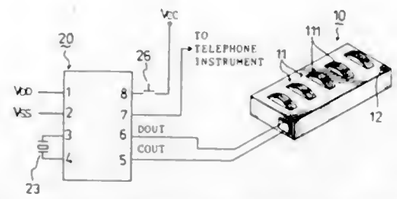
a telephone switching system for receiving incoming requests for service and associated automatic number identification (ANI) numbers, and for connecting incoming calls to idle operator terminals so that an operator can communicate with a calling party to provide assistance; and

a computer data base accessible by each said operator terminal for providing information to said operator terminals, said data base having stored therein information cross-referenced by the ANI numbers associated with telephones of calling parties, said data base information defining actions allowed for calls associated with the respective ANI number, whereby when an ANI number is transferred from an operator terminal to the data base, said operator terminal causes access of data related to the ANI

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number and causes display of the data on the respective operator terminal, and wherein progress of the incoming calls is carried out in accordance with said data base information cross-referenced to the respective ANI numbers, whereby the operator has available visual information concerning the telephone set of the calling party.

5,210,790
DEVICE FOR SETTING AND TONE DIALING A SINGLE TELEPHONE NUMBER
Jing-Yaun Lin, Hsinchu, Taiwan, assignor to Winbond Electronics Corp., Taiwan
Filed Feb. 5, 1991, Ser. No. 650,916
Int. Cl.[5] H04M *1/26*
U.S. Cl. 379—368 10 Claims



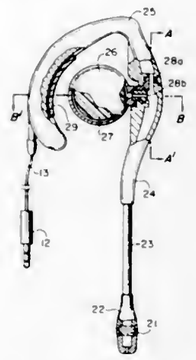
1. A device for setting a group of digits and for generating dual-tone multi-frequency signals corresponding to said group of digits, comprising:
means for generating a digital signal corresponding to the binary equivalent of said group of digits;
means for grouping said digital signal into a predetermined number of bit groups, each said bit group corresponding to one of the digits of said digit group;
means for accessing said bit groups one at a time; and
means for generating a dual tone multi-frequency signal corresponding to the digit represented by the accessed said bit group.

5,210,791
TELEPHONE HEADSET ON-LINE INDICATOR
Michael Krasik, 1849 N. 53rd St., Seattle, Wash. 98103
Filed Dec. 13, 1990, Ser. No. 626,979
Int. Cl.[5] H04M *1/05*
U.S. Cl. 379—377 13 Claims



1. A telephone headset on-line indicator for use with a telephone of the type having a base unit connected to the headset by two transmitting lines and two receiving lines, comprising:
a boom having a mouthpiece for positioning the mouthpiece adjacent to the mouth of a user, and also having a light emitting device for visually indicating to others that the telephone base unit is in an on-line condition;
an ear piece connected to the boom for positioning by the boom adjacent to one of the user's ears;
support means, connected to the ear piece for supporting the boom and ear piece on the user's head; and
electronic means, electrically associated with the light emitting device for sensing from the two transmitting lines only, when the base unit is in the on-line condition and for illuminating the light emitting device when the on-line condition is sensed.

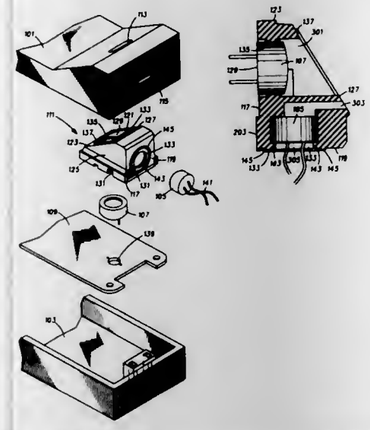
5,210,792
EAR-HANG TYPE HEADSET
Kazuhiko Kajihara, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jul. 29, 1991, Ser. No. 736,776
Claims priority, application Japan, Aug. 13, 1990, 2-214505; Apr. 4, 1991, 3-071507; May 17, 1991, 3-112802
Int. Cl.[5] H04M *1/05*
U.S. Cl. 379—430 7 Claims



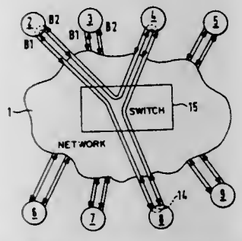
1. An ear-hang type headset comprising:
(a) a microphone case having a microphone supported therein;
(b) a microphone arm having a first end and a second end, said microphone case being disposed at said first end;
(c) an ear hanger formed in a shape engageable with an outer periphery of a pinna of a an ear of a user of the headset;
(d) an earphone formed in a shape receivable in a concha of the ear of the user and having a receiver unit supported therein;
(e) a microphone arm base connected to said second end of said microphone arm;
(f) a first rotation mechanism interconnecting said ear hanger with said microphone arm base to enable said ear hanger to rotate about a first axis with respect to said microphone arm base; and
(g) a second rotation mechanism interconnecting said earphone with said microphone arm base to enable said earphone to rotate with respect to said microphone arm base about a second axis which is approximately perpendicular to said first axis, whereby said ear hanger and said earphone are adapted to hold the pinna of the ear of the user therebetween.

5,210,793
APPARATUS FOR MOUNTING TRANSDUCERS
Kenneth W. Carlson, Hawthorn Woods; John C. Laugal, Hoffman Estates, and Kenneth R. Haddad, Arlington Heights, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Nov. 7, 1990, Ser. No. 610,186
Int. Cl.[5] H04M *1/00*; H04R *25/00*
U.S. Cl. 379—433 11 Claims

1. An apparatus for mounting at least a first and a second transducer in electronic equipment having a housing, the apparatus comprising:
a flexible wedge-shaped receptacle including a first, second and third surface, said third surface disposed at an acute angle to said first surface, said second surface disposed between said first and third surfaces;
a first aperture extending from said first surface, through said receptacle, to said third surface to hold the first transducer; and
a second aperture extending from said second surface, through said receptacle, to said third surface to hold the second transducer.

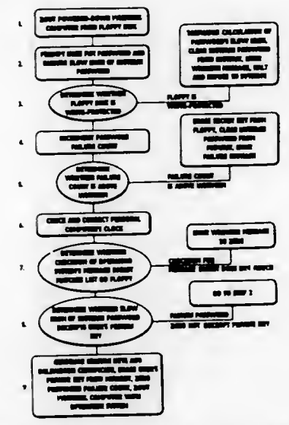


5,210,794
APPARATUS AND METHOD FOR ESTABLISHING CRYPTO CONFERENCES ON A TELECOMMUNICATIONS NETWORK
Bente H. Brunsgard, Oslo, Norway, assignor to Alcatel, N.V., Amsterdam, Netherlands
Filed Dec. 21, 1990, Ser. No. 633,240
Claims priority, application Norway, Dec. 22, 1989, 895210
Int. Cl.[5] H04K *1/02*; H04M *3/42*; H04Q *11/04*
U.S. Cl. 380—9 19 Claims



1. Method to establish a speech conference connection between a group of conference participating nodes (2, 4, 8) which can freely be selected among a greater plurality of nodes (2–9) having conference facilities, and which can be interconnected by at least one telecommunication network (1) having at least one switching exchange (10) for establishing at least one conference ring, the method including the steps of:
providing conference participating nodes with completely identical designs so that each node (2, 4, 8), can perform all signal processing including amplification and speech-coding/decoding in a decentralized manner, while routing and switching of information takes place in the at least one network exchange (10);
connecting all the conference participating nodes (2, 4, 8) in series in a conference ring, which only includes these conference participating nodes (2, 4, 8) for each new conference ring to be established;
sending a digitally represented sound information from an active sending node as one of the conference participating nodes (2, 4, 8) to other conference participating nodes;
subjecting the digitally represented sound information to no other signal processing than ordinary copying in each node;
circulating the digitally represented sound information in the conference ring before it returns back to the active sending node; and
deleting the digitally represented sound information in the active sending node so the conference ring is terminated.

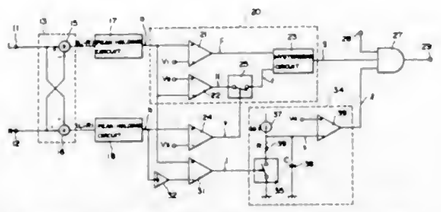
5,210,795
SECURE USER AUTHENTICATION FROM PERSONAL COMPUTER
Steven B. Lipner, Wellesley; Morrie Gasser, Saugus, and Butler W. Lampson, Cambridge, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.
Filed Jan. 10, 1992, Ser. No. 818,855
Int. Cl.[5] H04K *1/00*
U.S. Cl. 380—23 14 Claims



1. A method for authenticating a user possessing a storage medium for a computing machine having memory, the storage medium tangibly embodying machine executable instructions, a password for the user, and an encrypted long-term secret for the user, the method comprising the steps of:
(a) receiving from the user the storage medium and booting the computing machine from machine executable instructions thereon;
(b) receiving from the user a password;
(c) initiating a one-way hash of the password according to machine executable instructions embodied on the storage medium; and
(d) decrypting the user's encrypted long-term secrete using the hashed password as an decryption key thereby authenticating the user.

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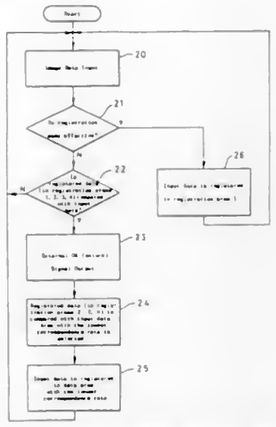
5,210,796
STEREO/MONAURAL DETECTION APPARATUS
Atsushi Hirabayashi; Kenji Komori, both of Tokyo, and Kyoichi Murakami, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Oct. 31, 1991, Ser. No. 785,758
Claims priority, application Japan, Nov. 9, 1990, 2-302483
Int. Cl.[5] H04H 5/00
U.S. Cl. 381—12 11 Claims



1. A stereo/monoaural detection apparatus comprising:
two-channel input terminals respectively supplied with two-channel audio signals;
a substracting circuit for subtracting one of said two-channel audio signals from the other and producing a difference signal; and
hysteresis discriminating means supplied with the difference signal from said subtracting circuit for performing level discrimination on the difference signal and detecting when a level of the difference signal is above a first threshold level and detecting when a level of the difference signal is below a second, lower threshold level and including a hysteresis circuit for performing said level detecting with a hysteresis effect so that every crossing by the difference signal of the first and second thresholds does not produce a corresponding change in an output signal of said hysteresis discriminating means, said output signal having a first level when two-channel audio signals are stereo signals and a second level when said two-channel audio signals are monaural signals.

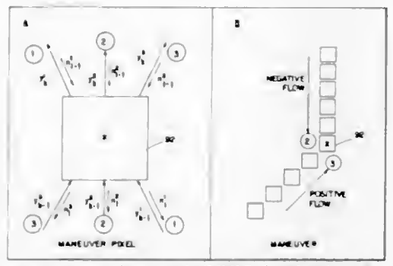
5,210,797
ADAPTIVE DICTIONARY FOR A FINGERPRINT RECOGNIZER
Toshiyuki Usui, and Saburou Kaneko, both of Tokyo, Japan, assignors to Kokusan Kinzoku Kogyo Kabushiki Kaisya, Tokyo, Japan
Filed Oct. 29, 1990, Ser. No. 605,541
Claims priority, application Japan, Oct. 30, 1989, 1-279778; Apr. 27, 1990, 2-44508[U]
Int. Cl.[5] G06K 9/00, 9/62
U.S. Cl. 382—4 7 Claims

1. A method for fingerprint recognition including a registration means having a write mode and a read mode comprising the steps of:
receiving an initial fingerprint pattern of light beams reflected on a surface of a finger;
storing said initial fingerprint pattern in a first storage area of a plurality of storage areas within a memory when said registration means is in the write mode;
receiving a second fingerprint pattern of light beams reflected on the surface of the finger when said registration means is in the read mode;
comparing segments of fingerprint pattern already stored with segments of the second fingerprint pattern when said registration switch is in the read mode;
providing a correspondence signal when at least a predetermined number of segments correspond;
storing said segments of the second fingerprint pattern in a second storage area of the memory;
computing the number of occurrences of correspondence between the segments of fingerprint pattern stored in the memory and the segments of the second fingerprint pattern;
receiving a third fingerprint pattern of light beams reflected on the surface of the finger when said registration switch is in the read mode;
comparing the segments of fingerprint pattern already stored in the storage areas of the memory with segments of the third fingerprint pattern;



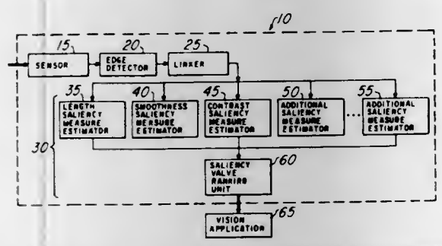
providing a correspondence signal when at least a predetermined number of segments correspond; and
storing the third fingerprint pattern in the memory in place of a fingerprint pattern with the lowest number of occurrences of correspondence among the fingerprint patterns already stored in the registration areas of the memory whereby all of the storage areas store different fingerprint patterns.

5,210,798
VECTOR NEURAL NETWORK FOR LOW SIGNAL-TO-NOISE RATIO DETECTION OF A TARGET
Leon K. Ekchian, Northridge; David D. Johnson, Simi Valley, and William F. Smith, Los Angeles, all of Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Continuation-in-part of Ser. No. 554,371, Jul. 19, 1990. This application Mar. 11, 1991, Ser. No. 667,633
Int. Cl.[5] G06K 9/62
U.S. Cl. 382—14 3 Claims



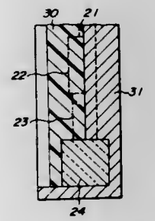
1. A vector neural network (VNN) for the detection of a potential target where the energy of the target is insufficient in reference to a determinable signal-to-noise ratio (SNR) operating condition CHARACTERIZED IN THAT THE VNN comprises:
a) first means to establish operating control parameters for the VNN in response to the SNR where said control parameters include
(1) postulating a plurality of target tracks,
(2) propagating said tracks in a network of interconnected neurons,
(3) encoding said tracks to directional target energies,
b) second means to integrate target energies along at least one target track to develop a continuous target track over a function of both time and space,
c) third means to declare a target location by deferred thresholding of said integrated target energies relative to the SNR, and
d) fourth means to determine target direction by a backflow process with associated switching of said integrated target energies along said continuous target track.

5,210,799
SYSTEM AND METHOD FOR RANKING AND EXTRACTING SALIENT CONTOURS FOR TARGET RECOGNITION
Kashi Rao, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Mar. 28, 1991, Ser. No. 676,650
Int. Cl.[5] G06K 9/46
U.S. Cl. 382—22 20 Claims



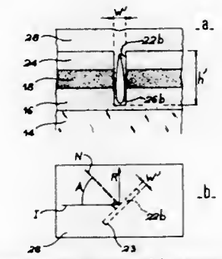
1. A method for obtaining salient contours from two-dimensional images acquired by a sensor, comprising the steps of:
processing said two-dimensional images with an edge detector to produce edgels from each of said images;
linking said edgels into lists known as contours;
computing a saliency value for each of said contours;
ranking said contours in decreasing order of saliency; and
selecting predetermined ones from said ranked contours.

5,210,800
OPTICAL SENSOR AND METHOD FOR PRODUCING THE SAME
Yuji Asai, Chita, and Masanobu Yamamoto, Handa, both of Japan, assignors to NGK Insulators, Ltd., Japan
Filed Mar. 17, 1992, Ser. No. 852,646
Claims priority, application Japan, Mar. 20, 1991, 3-080636
Int. Cl.[5] G02B 6/12
U.S. Cl. 385—12 15 Claims



1. A method for producing an optical sensor comprising a plurality of optical elements including one of a Faraday element and a Pockels element, whereby light is transmitted through said optical elements to optically measure one of an applied voltage, an electric field and a magnetic field acting upon said one of a Faraday element and a Pockels element, comprising steps of:
arranging the optical elements on a first base plate for adjusting optical axes of the optical elements so that the optical elements are in close contact with a first synthetic resin interposed between adjacent optical elements;
filling a second synthetic resin around the optical elements, the second synthetic resin being of the same material as said first synthetic resin;
solidifying the second synthetic resin;
removing from the bas plate the optical elements together with the second synthetic resin after solidification;
turning the optical elements and the second synthetic resin upside down and arranging said optical elements and said second synthetic resin on a second base plate having a flat bottom surface;
filling a third synthetic resin of the same material as the first synthetic resin around the optical elements;
solidifying the third synthetic resin; and
removing the optical elements together with the second and third synthetic resins from the second base plate.

5,210,801
ENVIRONMENTALLY PROTECTED INTEGRATED OPTICAL COMPONENT AND ITS PRODUCTION PROCESS
Adeline Fournier, Vizille; Pierre Gidon, Echirolles, and Serge Valette, Grenoble, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed Mar. 22, 1991, Ser. No. 673,386
Claims priority, application France, Apr. 3, 1990, 90 04255
Int. Cl.[5] G02B 6/10, 6/26
U.S. Cl. 385—14 53 Claims



1. An environmentally protected integrated optical component having at least one sealed cavity isolated from the environment and formed in at least one layer by a light guide, said cavity being filled with a material having a refractive index which can be electrically and/or optically made different than the refractive index of said layer, and having means for modifying the refractive index of said material.

5,210,802
ACOUSTIC IMAGING
J. Richard Aylward, West Newton, Mass., assignor to Bose Corporation, Framingham, Mass.
Filed Apr. 30, 1990, Ser. No. 516,270
Int. Cl.[5] H04R 3/12
U.S. Cl. 381—61 9 Claims

1. An audio-visual system, comprising
an image production device for producing an image on a display surface,
and at least one acoustic imaging device for producing a

VOL 1150 ISS 2 MY 11 1993 UMI

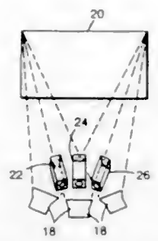
virtual acoustic image on an acoustic image surface, said acoustic imaging device comprising,

a support structure,

a first driver mounted on a first face of said support structure in fixed relationship therewith, for projecting sound output in a first direction toward said acoustic image surface,

and a second driver mounted on a second face of said support structure in fixed relationship therewith, for projecting sound output in a second direction other than said first direction, said sound output of said second driver being substantially 180° out of phase with sound output of said first driver, and being at a level calculated to reduce substantially sound output from said first driver in a direction other than said first direction,

wherein said display surface comprises said acoustic image surface.



5,210,803

HEARING AID HAVING A DATA STORAGE

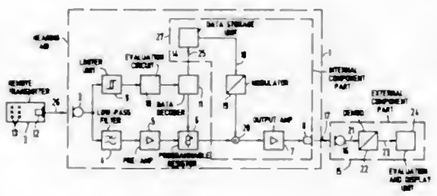
Raimund Martin, Erlangen, and Jürgen Wagner, Kueps, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 2, 1991, Ser. No. 769,731

Claims priority, application European Pat. Off., Oct. 12, 1990, 90119638.6

Int. Cl.[5] H04R *25/00*

U.S. Cl. 381—68 **17 Claims**



1. A hearing aid, comprising:

a microphone, an amplifier connected to the microphone, and an earphone connected to an output of the amplifier;

first means for identifying the hearing aid, said identification means having a data storage containing at least one hearing aid feature which provides information for a person to identify the hearing aid and thus allow that person to match the hearing aid to a particular hearing impairment of a user who will be wearing the hearing aid;

and second means for wirelessly outputting to said person the at least one hearing aid feature.

5,210,804

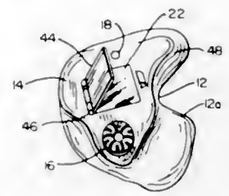
SOLAR POWERED HEARING AID AND REENERGIZER CASE

Guenther W. Schmid, 126-06 Jamesville Ave., Syracuse, N.Y. 13210

Filed Mar. 18, 1991, Ser. No. 670,574

Int. Cl.[5] H04R *25/00*

U.S. Cl. 381—69.2 **7 Claims**



1. An in-the-ear hearing aid of the type in which a shell is shaped to fit in a wearer's outer ear, the shell having a canal portion extending into the auditory canal of the wearer and a back plate facing outwards, the back plate being colored to match the skin color of the wearer, the aid comprising pickup transducer means in the shell for converting ambient sounds to an electrical signal, electrical amplifier means within the case for amplifying said electrical signal, acoustic output transducer means in the canal portion of the case coupled to an output of the amplifier means for delivering amplified sound into the auditory canal of the wearer, a rechargeable electrical storage cell permanently situated within said shell below said back plate, a photocell carried on said back plate and permanently connected in parallel with said storage cell and of sufficient power capacity to power the amplifier means in full sunlight and to contribute a substantial portion of the operating current for said amplifier means when said hearing aid is being worn in ambient outdoor daytime light conditions and to recharge said storage cell when the photocell is exposed to light when the aid is not in use, and comprising the improvement wherein a door formed of a semitransparent material is disposed on said back plate and colored to match the color of the back plate, said door being operable fully to expose the photocell there beneath and closable over said photocell for concealing and covering the photocell when the aid is being worn yet permitting a significant portion of incident light to penetrate to the photocell, and which can be opened to expose the photocell fully for reenergizing the storage cell when the aid is not being worn.

5,210,805

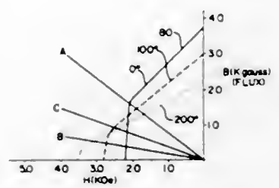
TRANSDUCER FLUX OPTIMIZATION

Earl R. Geddes, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 6, 1992, Ser. No. 864,094

Int. Cl.[5] G10K *11/16;* **H04R** *25/00*

U.S. Cl. 381—71 **7 Claims**



1. Method for constructing an audio transducer;

selecting a predetermined material for a magnet;

determining a B/H load at which the flux and the demagnetizing force increase as a function of temperature throughout a predetermined temperature range and;

constructing a magnet with the selected material having a central pole and a spaced outer pole section separated by a gap wherein the ratio of the area of the gap to the length of the gap, divided by the ratio of the area of the magnet to the length of the magnet, corresponds to the determined load.

5,210,806

DIGITAL AUDIO SIGNAL PROCESSING APPARATUS

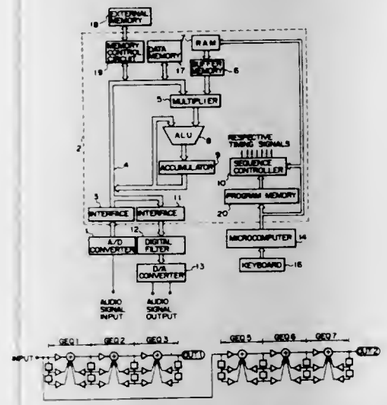
Hisashi Kihara; Shinjiro Kato; Fumio Tamura, and Shuichi Mori, all of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Oct. 16, 1990, Ser. No. 598,380

Claims priority, application Japan, Nov. 7, 1989, 1-289246

Int. Cl.[5] H03G *5/00*

U.S. Cl. 381—103 **4 Claims**



1. A digital audio signal processing apparatus, comprising:

storing means for storing therein an input digital audio signal subjected to sampling as data;

arithmetic operation means for implementing a graphic equalizer supplied with the data stored in said storing means and comprising a plurality of filters connected in series to one another, and subjecting said data to arithmetic operation processing for each sampling period so as to define said graphic equalizer for thereby outputting the result of its arithmetic operation as output data therefrom; and

output means for supplying said output data to at least two output terminals;

said apparatus being characterized in that when a change-over command is generated, one filter out of said plurality of series connected filters, except for filters positioned at both ends of the series, operates as data supply means for supplying not only output data issued from a filter immediately before said one filter to one of said two output terminals but also the data stored in said storing means is applied to the input of a filter immediately after said one filter and said output means supplies output data issued via a final filter of said series and at least said filter immediately following said one filter to the other of said two output terminals.

5,210,807

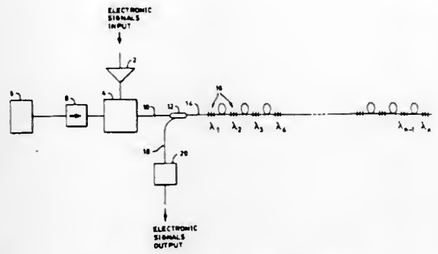
VARIABLE WIDE BAND FIBER OPTIC DELAY LINE

Gregory H. Ames, Gales Ferry, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 29, 1992, Ser. No. 905,705

Int. Cl.[5] G02B *6/28*

U.S. Cl. 385—24 **4 Claims**



1. A variable fiber optic delay line comprising:

a wavelength tunable laser adapted to produce a constant light level signal having a user selected wavelength;

an optical intensity modulator adapted to receive said constant light level signal from said laser to convert an electronic input signal to an output light intensity signal that corresponds to said electronic input signal;

a fiber optic 2×2 port coupler adapted to receive said output light intensity signal from said modulator via a first optical fiber and to pass said output light intensity signal to a delay optical fiber;

a plurality of reflectors disposed at predetermined intervals in said delay optical fiber with each of said reflectors having a different reflection wavelength so that said output light intensity signal travels a distance to one of said plurality of reflectors that reflects said output light intensity signal having the user selected wavelength back to said fiber optic 2×2 port coupler; and

a detector adapted to receive said reflected output light intensity signal from said fiber optic 2×2 port coupler via a second optical fiber and convert said reflected output light intensity signal to an electronic signal corresponding to said electronic input signal which has been delayed for a period of time dependent on said distance between said fiber optic 2×2 port coupler and said one reflector.

5,210,808

UNIT FOR AMPLIFYING LIGHT SIGNALS IN OPTICAL FIBER TRANSMISSION LINES

Giorgio Grasso, Monza, and Aldo Righetti, Milan, both of Italy, assignors to Pirelli Cavi S.p.A., Milan, Italy

Continuation-in-part of Ser. No. 552,918, Jul. 16, 1990, abandoned. This application May 14, 1991, Ser. No. 699,920

Claims priority, application Italy, Jul. 17, 1989, 1207 A/89; May 25, 1990, 20434

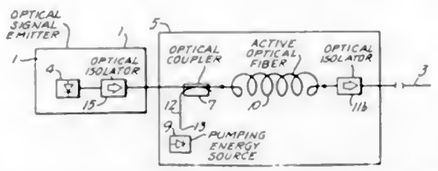
Int. Cl.[5] H04B *9/00;* **G02B** *6/26*

U.S. Cl. 385—27 **31 Claims**

1. An optical fiber telecommunication system, comprising an optical signal transmission station having an optical signal source for transmitting optical signals at a predetermined wavelength and an optical signal receiving station and an optical fiber line interconnecting said transmission station and said receiving station, said optical fiber line including at least one optical amplifier intermediate and interconnecting portions of said line for amplifying optical signals received by said amplifier and thereby providing amplifier gain without converting said optical signals to another form, said optical amplifier including an active fiber with a core doped with a fluorescing substance and a pumping source coupled thereto by means

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of a further optical fiber for providing energy to said active fiber, said active fiber having an input end coupled to the portion of said optical fiber line which is coupled to said transmission station and an output end coupled at least to another portion of said fiber line which is coupled to said receiving station, at least one said active fiber end being coupled to said further optical fiber, the improvement comprising at least energy reflection limiting means for reducing the energy reflected toward said active fiber by way of said portions of said optical fiber line and said further optical fiber, said energy reflection limiting means including a first energy refection limiting means intermediate said output end of said active fiber and said another portion of said optical fiber line, a second



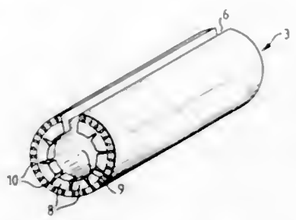
energy reflection limiting means intermediate said optical signal source and said input end of said active fiber and at least in the event that said further optical fiber is coupled to a said end of said active fiber without an energy reflection limiting means intermediate the point of coupling of said further optical fiber to the last-mentioned said end, said further optical fiber includes energy reflection limiting means which includes an end surface thereof spaced from said point of coupling and extending at an oblique angle to the optical axis of said further optical fiber, and each of said energy reflection limiting means has an energy reflectivity toward said active fiber which is at least 10 db lower than the energy reflectivity of said optical fiber line due to Rayleigh scattering at said predetermined wavelength.

5,210,809

DEVICE FOR THE OPTICALLY CONDUCTIVE CONNECTION OF TWO OPTICAL WAVEGUIDES

Bernd Staudte, Berlin, Fed. Rep. of Germany, assignor to Krone Aktiengesellschaft, Berlin, Fed. Rep. of Germany

Filed Oct. 28, 1991, Ser. No. 783,421
Claims priority, application Fed. Rep. of Germany, Nov. 3, 1990, 4035259
Int. Cl.[5] G02B 6/00
U.S. Cl. 385—70 16 Claims



1. A device for optically conductively connecting two optical waveguides, comprising:

a sleeve body overlapping ends of the two optical waveguides, said sleeve body being composed of a material means which is twistable and plastically deformable for clamping the ends of the two optical waveguides, said sleeve body comprising an outer sleeve jacket defining a continuous longitudinal slot and, on an inner side of said sleeve jacket a plurality of support crosspieces forming segments of a cross section of said sleeve body, said sleeve jacket defining a central through opening for receiving the ends of the optical waveguides.

5,210,810

HERMAPHRODITIC CONNECTOR FOR SINGLE FIBER OPTICAL CABLE

Bruce V. Darden, Lawrenceville, and Dean R. Frey, Dunwoody, both of Ga., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 19, 1991, Ser. No. 812,240
Int. Cl.[5] G02B 6/38
U.S. Cl. 385—78 20 Claims



13. A single optical fiber cable which is terminated with a single optical fiber connector, the terminated cable comprising:

an optical fiber cable which includes a single optical fiber and non-metallic filamentary strength members; and

a single optical fiber connector, said connector comprising:

a shell through which an optical fiber end portion is adapted to extend;

force transfer means disposed at an opposite end of said shell for receiving an optical fiber cable at one end thereof and for transferring forces which may be applied to said cable to portions of said connector displaced from a connection with another said single optical fiber hermaphroditic connector;

a ferrule which is adapted to terminate the end portion of the optical fiber and which is disposed adjacent to one end of said shell;

supporting means disposed adjacent said one end of said shell for holding said ferrule, said supporting means including diametrically opposed portions which extend longitudinally along and beyond a portion of said ferrule;

a sleeve in which are received said shell, said ferrule, said force transfer means and said supporting means, said sleeve including diametrically opposed longitudinally extending fingers each of which is disposed outside and aligned with an associated one of said longitudinally extending portions of said supporting means; and

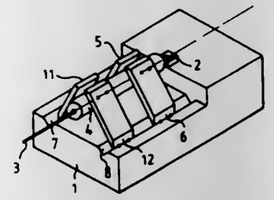
securing means engaging said sleeve adjacent to said ferrule for causing another identical single optical fiber hermaphroditic connector to be held in aligned juxtaposition with said connector such that each longitudinally extending portion and associated finger of the other connector are received between the adjacent longitudinally extending portions and associated fingers of said connector and such that an end face of the ferrule of the other connector is disposed in optical connective engagement with the ferrule of said connector.

5,210,811

METHOD FOR THE ALIGNMENT OF THE OPTICAL AXES OF AN OPTICAL FIBER AND OF AN OPTOELECTRONIC COMPONENT, AND DEVICE OBTAINED BY THIS METHOD

Gérome Avelange, Barbizon, and Alain Tournereau, Chalette, both of France, assignors to Thomson Hybrides, Puteaux, France

Filed Oct. 18, 1991, Ser. No. 779,260
Claims priority, application France, Oct. 19, 1990, 90 12957
Int. Cl.[5] G02B 6/42
U.S. Cl. 385—91 5 Claims



4. An optoelectronic device, comprising:

an optical fiber aligned on an optical axis of an optoelectronic semiconductor component, said optical fiber being provided with a metal sleeve;

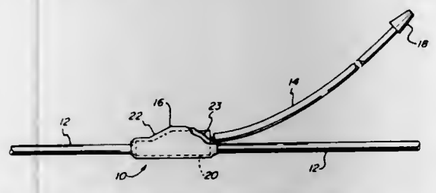
at least two metal plates for positioning said optical fiber provided in said metal sleeve wherein said metal plates rest firstly in grooves along a respective first and second line with said grooves being hollowed out in a base of said device and, secondly, said metal plates rest against said sleeve of said fiber along a respective third and fourth coplanar lines with said base, said plates and said sleeve being fixedly joined by laser soldering along said first, second, third and fourth lines which are all parallel.

5,210,812

OPTICAL FIBER CABLE HAVING SPLICED FIBER BRANCH AND METHOD OF MAKING THE SAME

Richard C. Nilsson; Gary W. Edmundson, and John C. Nelson, all of Hickory, N.C., assignors to Alcatel NA Cable Systems, Inc., Claremont, N.C.

Continuation-in-part of Ser. No. 680,991, Apr. 5, 1991, Pat. No. 5,125,060, and Ser. No. 681,156, Apr. 5, 1991, Pat. No. 5,121,458. This application Jun. 8, 1992, Ser. No. 895,361
Int. Cl.[5] G02B 6/26
U.S. Cl. 385—100 25 Claims



1. An optical fiber cable assembly, comprising:

a distribution cable having a predetermined length and having first and second ends, said distribution cable further having a branch point being positioned along the length thereof, said distribution cable including at least one optical fiber and an optical fiber retaining means for at least partially retaining said at least one optical fiber;

a branch cable having a first portion being coincident with said distribution cable at said branch point and a second portion being spaced from said branch point and being continuous with said first portion, said first portion having a branching optical fiber, said branching optical fiber being optically connected to a selected one of said at least one optical fiber through a splice connection; and

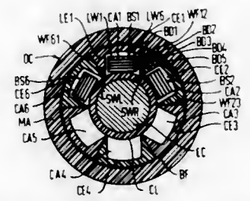
means secured to said distribution cable and to said branch cable for encompassing said branch point, branch point encompassing means includes a branch module having a branch module body defining an enclosure means for receiving and retaining said splice connection.

5,210,813

OPTICAL CABLE AND METHOD FOR MANUFACTURING THE OPTICAL CABLE

Ulrich Oestreich, Munich, and Reiner Schneider, Ebersdorf, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Dec. 9, 1991, Ser. No. 803,617
Claims priority, application Fed. Rep. of Germany, Jan. 17, 1991, 4101271
Int. Cl.[5] G02B 6/44
U.S. Cl. 385—105 17 Claims



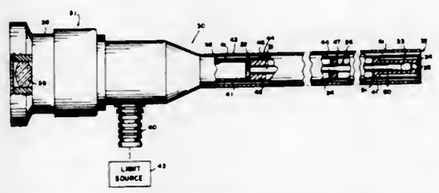
1. In an optical cable comprising a core element with a layer surrounding the core element, said layer having sub-elements with at least one chamber and said sub-element being distributed over the circumference, each of said chambers accepting a band stack, each band stack being composed of a plurality of bands with each band comprising a plurality of light waveguides, said chambers being separated by walls, the improvement comprising the chambers being opened radially inward and the walls of the chambers having their smallest thickness adjacent the core element, said sub-element being arranged segment-shaped around the core element and said sub-elements forming a closed, ring-shaped structure in an outward direction.

5,210,814

HIGH RESOLUTION OPTICAL DEVICE WITH RIGID FIBER OPTIC BUNDLE

A. David McNally, Holden, Mass., assignor to Precision Optics Corporation, Gardner, Mass.

Filed Mar. 31, 1992, Ser. No. 861,258
Int. Cl.[5] G02B 6/06
U.S. Cl. 385—116 20 Claims



1. In an optical system having means for forming an image and means for viewing the image at a position displaced from the image forming means, the improvement of rigid image guide means for transferring the image from the image forming means to the image viewing means, said image guide means comprising:

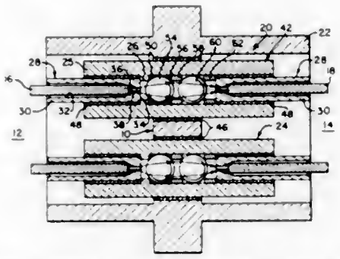
A. a fiber optic bundle including a plurality of substantially

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rigid optical fibers having a given length, each of said optical fibers having a central light transmitting and a concentric light reflecting layer for reflecting light into said central core, and encapsulating means encapsulating each of said optical fibers throughout said bundle for maintaining said plurality of optical fibers as a rigid bundle, and

B. housing means for containing said rigid bundle of optical fibers with opposite ends thereof proximate the image forming means and image viewing means.

5,210,815
HERMETICALLY SEALED OPTICAL FIBER FEEDTHROUGH
Wasserman Alexander, West Halls, Calif., and Kucherov Yakov, Sherman Oaks, Calif., assignors to G & H Technology, Inc., Camarillo, Calif.
Filed Apr. 9, 1992, Ser. No. 865,844
Int. Cl.[5] G02B *6/26, 6/32*
U.S. Cl. 385—138 **9 Claims**

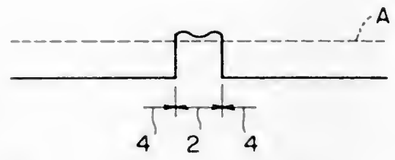


1. A panel opening feedthrough device for first and second optical fibers located on opposite sides of the panel, comprising:
- a guide tube sealed within the panel opening with its two ends located on opposite sides of the panel, said tube having an integral annular flange on its inner wall with a central opening therethrough;
- a separate terminus provided on the end of each optical fiber;
- a first sleeve press fit into an end of the guide and abutting against one side of the guide tube flange, the internal bore being such as to enable fitting receipt of the terminus of one of the fibers;
- a first annular sealing means abutting against the flange other side;
- first lens means having a first surface contacting the first annular sealing means;
- a second annular sealing means contacting a further surface of the first lens means;
- first washer spacer contacting the second annular sealing means;
- second lens means contacting the first washer spacer;
- second washer spacer contacting the second lens means; and
- a second sleeve press fit into the guide tube against the second washer spacer for receiving the other terminus therein.

5,210,816
OPTICAL FIBER AND PROCESS OF PRODUCING SAME
Akira Iino, and Masahide Kuwabara, both of Ichihara, Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan
Filed Jun. 17, 1992, Ser. No. 899,864
Claims priority, application Japan, Jun. 24, 1991, 3-178705
Int. Cl.[5] G02B *6/02, 6/00*; C03C *25/02*
U.S. Cl. 385—142 **8 Claims**

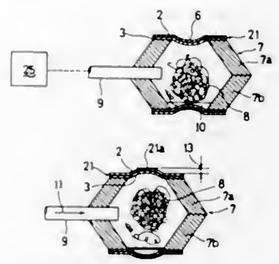
1. An optical fiber preform including a core portion and a cladding portion provided on the outside of the core portion and having a refractive index smaller than the refractive index of the core portion, said optical fiber preform characterized in that at least the core portion is doped with fluorine and an oxide and in that the fluorine contained in the core portion is doped more toward the center in the radial direction than the outer circumferential portion.

4. A process of producing an optical fiber preform characterized by forming a core portion doped with an oxide and



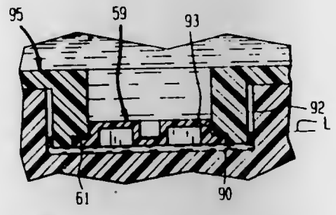
having a higher soot density at the outer circumferential portion of the core portion compared with the center portion and heat treating the core portion in a fluorine gas atmosphere, thereby doping the fluorine in the core portion so that the concentration of fluorine at the center portion of the core portion becomes relatively larger compared with the outer circumferential portion.

5,210,817
ACTUATOR
Yoshihiro Naruse, Ichikawa; Tomokimi Mizuno, Chiryu; Mitsuhiro Ando, and Naomasa Nakajima, both of Tokyo, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Mar. 16, 1992, Ser. No. 851,526
Claims priority, application Japan, Mar. 19, 1991, 3-78343
Int. Cl.[5] G02B *6/26*
U.S. Cl. 385—147 **3 Claims**



1. An actuator comprising:
- a main body having an opening at its one side;
- an inner space defined within the main body and filled with an amount of thermally expansive gas;
- a substance for converting the light into the heat which is accommodated in the inner space;
- guide means for guiding light into the second portion of the inner space; and
- a membrane connected to the side of the main body for closing the opening and deflected previously toward the inner space so as to establish a snap action toward outward of the main body when the inner pressure exceed a set value.

5,210,818
LEAK PROOF HUMIDIFIER
Jui-Shang Wang, Taipei, Taiwan, assignor to Duracraft Corporation, Whitinsville, Mass.
Division of Ser. No. 624,850, Dec. 10, 1990, Pat. No. 5,086,494.
This application Dec. 23, 1991, Ser. No. 812,781
Int. Cl.[5] F22B *1/28*
U.S. Cl. 392—405 **10 Claims**



1. A humidifier comprising:

base means defining a reservoir;

humidifier means for inducing dispersal of water retained by said reservoir;

a tank removably supported by said base means and having a bottom wall defining discharge opening means communicating with said reservoir and adapted to provide a controlled discharge of liquid from said tank to said reservoir so as to maintain a given liquid level therein; said bottom wall further defining an inlet opening for filling said tank;

a removable cap closing said inlet opening; and

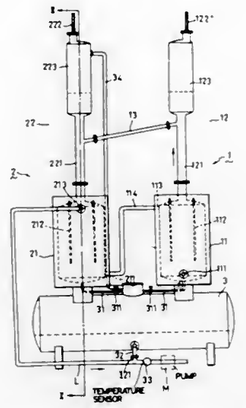
leakage control means comprising a cavity communicating with said inlet opening and said reservoir, and wall means enclosing said inlet opening and projecting downwardly from said bottom wall into said cavity, said wall means having a lower periphery disposed entirely below a predetermined level not substantially above said given level so as to form with liquid in said cavity a liquid seal that prevents leakage flowing between said cap and said tank from substantially increasing the liquid level in said reservoir above said given level.

5,210,819
HEATING DEVICE FOR A HEAT TRANSFER MEDIUM
Chih-Lien Huang, No. 308, Chung-Cheng S. Rd., Yung-Kang Hsiang, Tainan Hsien, Taiwan
Filed Apr. 22, 1992, Ser. No. 872,631
Int. Cl.[5] F24H *1/20*
U.S. Cl. 392—450 **4 Claims**

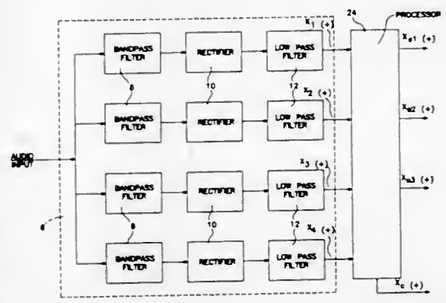
1. A heating device for a circulating heat transfer medium, comprising:

first and second heating stages, each of said first and second heating stages having a first chamber and a second chamber disposed above and communicated with the corresponding said first chamber, said first chamber having an inlet, an outlet and at least one electric heating unit provided therein; and

a conduit having two ends respectively connected to said outlet of said first chamber of said first heating stage and to said inlet of said first chamber of said second heating stage; a second conduit communicating said second chambers of said first and second heating stages; whereby, heat transfer medium which enters said inlet of said first chamber of said first heating stage is heated by said electric heating unit inside said first chamber before flowing through said outlet and into said conduit; heat transfer medium which flows through said conduit enters said inlet of said first chamber of said second heating stage and is heated by said electric heating unit inside said first chamber before flowing through said outlet of said first chamber of said second heating stage.



5,210,820
SIGNAL RECOGNITION SYSTEM AND METHOD
Stephen C. Kenyon, Stafford, Va., assignor to Broadcast Data Systems Limited Partnership, Kansas City, Mo.
Filed May 2, 1990, Ser. No. 517,835
Int. Cl.[5] G01L *9/00*
U.S. Cl. 395—2 **80 Claims**



1. A method of broadcast signal recognition, comprising the steps of:
- receiving a broadcast signal and converting it into a plurality of electrical signals having different frequency bands;
- sampling each of the plurality of electrical signals at a plurality of sampling points to produce a plurality of signal values for each frequency band;
- calculating a plurality of statistical moments corresponding to the plurality of frequency bands, each statistical moment being calculated according to the formula:

$$(1/N)\sum_{n}\frac{(X(n)-\mu)^k}{\sigma^k}$$

where:

n=the number of sampling points;

n=1<n<N

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X=the signal value of said electrical signal at a sampling point;

μ=a mean of the signal values;

σ=a standard deviation of the signal values; and

k=an integer greater than 1;

recognizing the received signal as similar to at least one of said stored signal identifications when said comparison step produces an indication that the calculated statistical moments are similar to the at least one stored signal identifications, and outputting a signal indicating that the received broadcast signal is similar to the at least one stored signal identification.

5,210,821

CONTROL FOR A GROUP OF ROBOTS

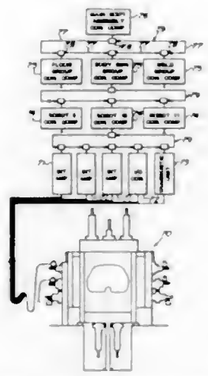
Kazuhiko Yazaki; Hiroyuki Ono, both of Yokohama; Hiroyuki Kanno, Tokyo; Toru Nishiyama, Ayase, and Minoru Nomaru, Yokohama, all of Japan, assignors to Nissan Motor Company, Yokohama, Japan

Continuation of Ser. No. 329,711, Mar. 28, 1989, abandoned. This application Jun. 20, 1991, Ser. No. 723,724

Claims priority, application Japan, Mar. 28, 1988, 63-71775; Mar. 28, 1988, 63-71782; Jun. 13, 1988, 63-143482

Int. Cl.[5] **B05B** *19/00*; **G06F** *9/00*

U.S. Cl. 395—83 **5 Claims**



1. A hierarchically controlled robot system comprising:

a supervisory control unit;

a plurality of group control units connected to said supervisory control unit, said group control units each having means for storing a set of robot instructions and outputting from said stored set in accordance with instructions from said supervisory control unit;

a plurality of robots, each including a plurality of arm positioning mechanisms for positioning said arm along respective paths, respective drive means operatively associated with a corresponding one of said arm positioning mechanisms for driving said corresponding arm positioning mechanisms along said respective paths, and a robot control unit for controlling said drive means operatively connected to said drive means, wherein said robot control units are divided into a plurality of respective groups, each respective group of the robot control units being connected to a corresponding one of the group control units, each robot control unit within each said group controlling corresponding arm positioning mechanisms in accordance with instructions output from the corresponding group control unit, said instructions being output in accordance with instructions from said supervisory control unit; and

means for locating a malfunction occurring within at least one of said robots, said locating means including:

a diagnostic means, operatively connected to said at least one of said robots, for detecting the occurrence of any from among a predetermined group of error conditions within said robot and supplying a first signal indicative of any detected error condition to the robot control unit of said at least one of said robots;

means, on a group control unit connected to said robot control unit of said at least one of said robots, for generating and transmitting a second signal, indicative of said any detected error condition, to said supervisory control unit;

processing means within said supervisory control unit for reading, in response to said second signal, data associated with said at least one of said robots from the group control unit to which said robot is connected, and determining the location of said malfunction within said robot, utilizing information contained within said data.

5,210,822

STORAGE CONTROL SYSTEM FOR PRINT IMAGE DATA

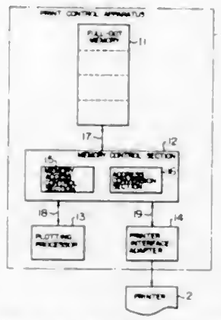
Tadashi Tsuchiya; Hirro Fujisaki, and Masayuki Kanda, all of Hadano, Japan, assignors to Hitachi, Ltd., Chiyoda; Hitachi Information Network, Ltd., Tokyo and Hitachi Computer Engineering Co., Ltd., Kanagawa, all of Japan

Filed Nov. 27, 1991, Ser. No. 799,147

Claims priority, application Japan, Nov. 28, 1990, 2-326502

Int. Cl.[5] **G06K** *15/00*

U.S. Cl. 395—115 **5 Claims**



1. A print image data storage system comprising:

means for generating digital print image data representing a plurality of dots to be printed on a sheet of paper, each of the dots being represented by one bit of the digital print image data and having a two-dimensional address associated therewith, the two-dimensional address including an x-address representing an abscissa of the dot on the sheet of paper and a y-address representing an ordinate of the dot on the sheet of paper;

a first register for designating y-addresses of the dots to be printed on the sheet of paper;

a second register for designating x-addresses of the dots to be printed on the sheet of paper;

a third register for designating information about the sheet of paper;

address conversion means responsive to the first register, the second register, and the third register for converting two-dimensional addresses specified by the y-addresses designated by the first register and the x-addresses designated by the second register to one-dimensional addresses based on the y-addresses designated by the first register, the x-addresses designated by the second register, and the information about the sheet of paper designated by the third register; and

a one-dimensional full-dot memory receiving the digital print image data from the digital print image data generating means and responsive to the one-dimensional addresses from the address conversion means for storing the digital input image data at the one-dimensional addresses.

5,210,823

PRINTING CONTROL APPARATUS IN PAGE PRINTER

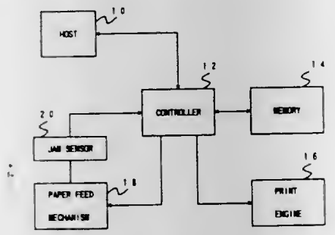
Shohei Moroi, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 24, 1992, Ser. No. 933,663

Claims priority, application Japan, Aug. 26, 1991, 3-213364

Int. Cl.[5] **G06K** *15/00*

U.S. Cl. 395—116 **5 Claims**



1. A printing control apparatus in a page printer for making prints based on print data supplied from an external unit page by page, said apparatus comprising:

first determination means for determining whether or not the page printer is in an idling state which is a state where the page printer is waiting for a first page print data in one print job to be supplied from the external unit;

first control means, coupled to said first determination means, for controlling the page printer so that a printout corresponding to the print data supplied from said external unit is made when said first determination means determines that the page printer is in the idling state, said first control means comprising conversion means for directly converting the print data supplied from said external unit into dot image information, so that the print is made based on the dot image information; and

second control means, coupled to said first determination means, for controlling said page printer so that a printout corresponding to the print data supplied from said external unit is made when said first determination means determines that said page printer is in the idling state, said second control means comprising first conversion means for converting the print data supplied from said external unit into descriptors while a prior printout is being made by the page printer, said descriptors being intermediate information used for converting the print data to dot image information, and second conversion means for converting the descriptors obtained by said first conversion means into dot image information, so that the printout is made based on the dot image information.

5,210,824

ENCODING-FORMAT-DESENSITIZED METHODS AND MEANS FOR INTERCHANGING ELECTRONIC DOCUMENT AS APPEARANCES

Steven B. Putz, Cupertino; Mark D. Weiser, Palo Alto; Alan J. Demers, Woodside, and A. Lawrence Spitz, Palo Alto, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 318,587, Mar. 3, 1989, abandoned. This application Mar. 28, 1991, Ser. No. 680,592

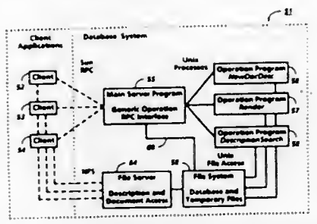
Int. Cl.[5] **G06F** *15/20*

U.S. Cl. 395—145 **6 Claims**

1. A database system for servicing client applications residing on computers having diverse hardware configurations and diverse software operating environments, said client applications being interfaced with said database systems via a distributed network, with different ones of said computers utilizing respective ones of a plurality of different encoding formats for reading and writing fully formatted electronic documents of arbitrary content; said database system comprising

an appearance database for accumulating and persistently storing electronic documents written in any of said encoding formats upon request of any of said client applications;

rendering means coupled to said database for accessing any of the electronic documents stored therein upon request of



any of said client applications, said rendering means including means for converting the encoding formats of at least some of the documents stored in said database into other encoding formats for client applications residing on computers utilizing said other encoding formats, thereby providing psychophysically equivalent renderings of such documents for retrieval by the computers utilizing said other encoding formats.

5,210,825

METHOD AND AN APPARATUS FOR DISPLAYING GRAPHICAL DATA RECEIVED FROM A REMOTE COMPUTER BY A LOCAL COMPUTER

Robert Kavaler, Berkeley, Calif., assignor to Teknekron Communications Systems, Inc., Berkeley, Calif.

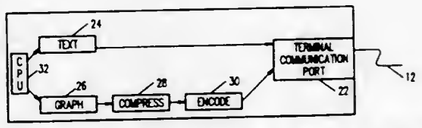
Filed Apr. 26, 1990, Ser. No. 514,590

Int. Cl.[5] **G06F** *15/62*

U.S. Cl. 395—147 **18 Claims**

MICROFICHE APPENDIX INCLUDED

(72 Microfiche, 2 Pages)



11. A method of displaying graphical data on a local computer received from a remote computer, wherein said local computer having an alphanumeric communication program for communicating with said remote computer by transmitting data in an alphanumeric format to and receiving data in said alphanumeric format ("received data") from said remote computer, a first memory means for storing said received data, and a display means for displaying said received data from said first memory means, said method comprising:

transmitting a query signal in alphanumeric data format from said remote computer to said local computer;

periodically interrupting said alphanumeric communication program by comparing said received data to a stored data;

causing said local computer to transmit an image capable signal, in said alphanumeric data format, in response to a true comparison;

encoding graphical data in said alphanumeric data format into an encoded graphical data by said remote computer;

transmitting said encoded graphical data from said remote computer to said local computer;

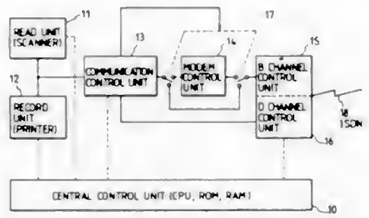
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receiving said encoded graphical data by said alphanumeric communication program;
decoding said encoded graphical data; and
displaying said graphical data.

5,210,826
DATA COMMUNICATION APPARATUS HAVING BANDWIDTH SELECTION CAPABILITIES

Takashi Takeda; Hiroshi Hamada; Haruo Ishizuka, all of Tokyo; Kanichi Yoshino, Yokohama; Yoshihisa Tadokoro, Yokohama, and Naoyuki Matsumoto, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 18, 1990, Ser. No. 553,568
Claims priority, application Japan, Jul. 20, 1989, 1-186114
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—200 11 Claims



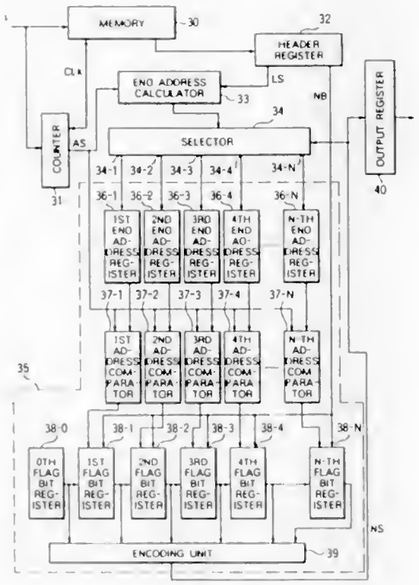
1. A data communication apparatus for communicating data over a line operable at a plurality of bearer capabilities, said apparatus comprising:
a modem having a bearer capability;
command receiving means for receiving a command for setting up a call with a transmitter of the command over the line, said command including a bearer capability of the transmitter;
discriminating means for discriminating the bearer capability included in the command received by said command receiving means to produce a discrimination result indicating whether the included bearer capability corresponds to the bearer capability of said modem; and
selecting means for selecting whether said modem is to be used or not in the call corresponding to the command, in accordance with the discrimination result of said discriminating means.

5,210,827
NEST LEVEL JUDGING DEVICE FOR JUDGING THE STARTING AND THE END ADDRESSES

Kousuke Takahashi, and Tetsuya Yamazaki, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Dec. 5, 1990, Ser. No. 621,715
Claims priority, application Japan, Dec. 5, 1989, 1-316653
Int. Cl.[5] G06F *15/00, 7/04*
U.S. Cl. 395—200 2 Claims

1. A nest level judging device supplied with a plurality of tokens from a memory for memorizing each of said tokens starting at a starting address and ending at an end address, each of said tokens having a nest level selected from first through N-th nest levels as a selected level, where N represents a predetermined natural number, said first through said N-th nest levels being a lowest through a highest nest level, respectively, each of said tokens comprising a header and a data set, said data set having a data length and being for nesting one of said tokens that has a higher nest level than said selected level, said header comprising a data length code representative of said data length and a data identifier code which includes a nest bit indicative of whether or not said one of the tokens is nested in said data set, said nest level judging device being for judging said selected level and comprising:
address specifying means for specifying said starting and said end addresses and a varying address varying from said starting address to said end address to make said memory produce said tokens as read-out tokens;
a header register supplied with the header of each of said read-out tokens as a supplied header for memorizing the data length code and the data identifier code of said supplied header to produce a data length signal representative of the last-mentioned data length code and a nest bit signal having a binary value of one, which represents that said each of the read-out tokens is nested in the data set thereof;
end address calculating means supplied with said varying address and said data length signal for calculating the end address of said each of the read-out tokens as a calculated address;
selecting means having first through N-th output ports in correspondence to said first through said N-th nest levels, respectively, and supplied with said calculated address

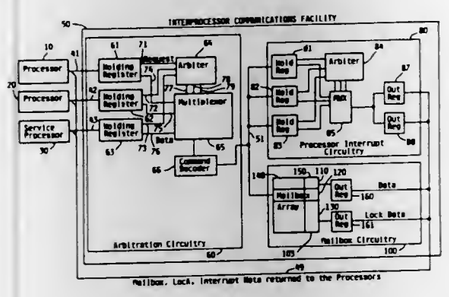


and with each of successively supplied selection signals for selecting said first through said N-th output ports one at a time as a selected port to deliver the calculated address to said selected port, said selecting means thereby delivering the calculated address of said read-out tokens to said first through said N-th output ports as first through N-th selected addresses when successively supplied with said selection signals; and
decision means connected to said address specifying means, said header register, and said selecting means for deciding in response to said varying address, said nest bit signal, and said first through said N-th selected addresses a decided nest level indicative of one of said first through said N-th nest levels that is selected as said selected level, said decision means producing a decided level signal representative of said decided nest level as one of said selection signals that is supplied to said selecting means next following said each of the selection signals.

5,210,828
MULTIPROCESSING SYSTEM WITH INTERPROCESSOR COMMUNICATIONS FACILITY

Timothy V. Bolan, Endwell; Josephine A. Boston, Endicott, both of N.Y.; George A. Fax, Rochester, Minn.; Donald J. Hanrahan, Endwell, N.Y.; Bernhard Laubli, Schönaich, Fed. Rep. of Germany; David A. Ring, Endicott; Alfred T. Rundle, Endwell, both of N.Y., and David J. Shippy, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 291,890, Dec. 29, 1988, abandoned.
This application Apr. 4, 1990, Ser. No. 504,764
Int. Cl.[5] G06F *13/14*
U.S. Cl. 395—200 4 Claims

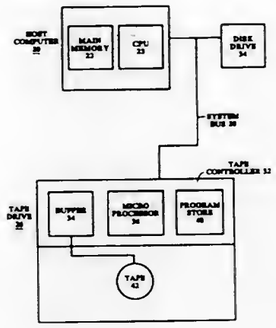


1. A communication system comprising:
a first processor;
a second processor;
a first holding register dedicated and independently coupled to said first processor to receive from said first processor interrupt commands, write messages and read requests;
a second holding register dedicated and independently coupled to said second processor to receive from said second processor interrupt commands, write messages and read requests, each of the holding registers receiving the respective interrupt commands, messages and requests independently of the interrupt commands. messages and requests received by the other holding register;
a first interrupt storage register coupled and dedicated to said first processor to supply interrupts thereto, said interrupts being sent by said second processor to notify said first processor of a message sent by said second processor;
a second interrupt storage register coupled and dedicated to said second processor to supply interrupts thereto, said interrupts being sent by said first processor to notify said second processor of a message sent by said first processor;
mailbox means for storing a multiplicity of messages sent by said first and second processors, said messages being transmitted to said second and first processors, respectively, upon request by said second and first processors;
decode means, coupled to said mailbox means and said first and second interrupt storage registers, for routing interrupt commands stored in said first and second holding registers to said second and first interrupt storage registers, respectively, routing messages from said first and second processors to said mailbox means, and processing read requests by directing said mailbox means to output the requested message to the requesting processor; and
means, coupled between said holding registers and said decode means, for arbitrating access to said decode means between interrupt commands, messages, and requests stored in said first and second holding registers.

5,210,829
ADJUSTABLE THRESHOLD FOR BUFFER MANAGEMENT

Haim Bitner, Framingham, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Dec. 12, 1990, Ser. No. 626,793
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—250 53 Claims



1. A tape drive for storing data and adapted for delaying the transmission of data through a read or write transaction, said tape drive comprising:
a tape for recording data said tape being mechanically moved whenever data is written to said tape by a host computer, or whenever data is read from said tape by the host computer;
an electronic buffer coupled to said tape for temporarily storing data, said buffer having a threshold level for determining the amount of data in said buffer which initiates the mechanical movement of said tape so that said tape can ramp up to the velocity of which data can be transferred between said tape and said buffer;
means for controlling the operation of said buffer and the mechanical movement of said tape, including controlling the transfer of data between said buffer and said tape; and
means for responsively adjusting said threshold level, the adjustment being made on the basis of the occurrence or nonoccurrence of a delay in the transmission of data between said tape drive and the host computer.

5,210,830
DYNAMIC RECONFIGURATION OF UART POLLING LOOP WITH A JUMP TABLE

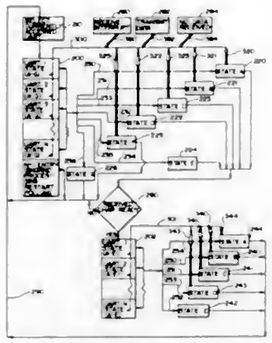
Gene H. Olson, Minneapolis, Minn., assignor to Digi International, Inc., St. Louis Park, Minn.

Filed Sep. 4, 1990, Ser. No. 579,895
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—325 23 Claims

1. In a system for servicing a plurality of Universal Asynchronous Receiver-Transmitters (UARTs) using a polling loop, each UART having a receive function and a transmit function and also having a dynamic servicing requirement, a method of optimizing data throughput comprising:
a) causing the polling loop to select current UARTs in such a manner whereby each UART is eventually selected as the current UART;
b) providing a first jump table having one entry for each UART served by the system, each entry pointing to a routine for servicing the entry's UART according its servicing requirements;

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c) executing the routines pointed to by the first jump table entry for the selected current UART; and



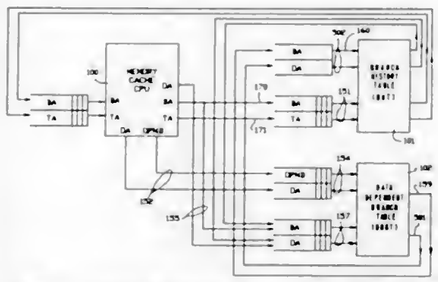
d) modifying the entries in the first jump table when the dynamic servicing requirements of the UARTs change.

5,210,831

METHODS AND APPARATUS FOR INSULATING A BRANCH PREDICTION MECHANISM FROM DATA DEPENDENT BRANCH TABLE UPDATES THAT RESULT FROM VARIABLE TEST OPERAND LOCATIONS

Philip G. Emma, Danbury, Conn.; Joshua W. Knight, Mohegan Lake, N.Y.; James H. Pomerene, Chappaqua, N.Y.; Rudolph N. Rechtschaffen, Scarsdale, N.Y., and Frank J. Sparacio, Sarasota, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 30, 1989, Ser. No. 429,922
Int. Cl.[5] G06F *9/32, 11/34*
U.S. Cl. 395—375 9 Claims



1. In a computing machine, apparatus for predicting the outcome of branch instructions, comprising:

a processor;

memory for storing information for said processor, said information including instructions and operands;

first means for performing history based branch prediction, including means for recording prior branch actions of branch instructions processed by said processor;

second means for detecting occurrences of modifications to operands upon which at least some of said recorded prior branch instruction actions depended and correcting at least some of said recorded prior branch instruction actions which would have been recorded differently if said modifications to operands had occurred before said recorded prior branch instruction actions were recorded;

third means for detecting occurrences of said recorded prior branch instruction actions which have been corrected by said second means and which still fail to correctly predict future outcome of said branch instructions corresponding thereto; and

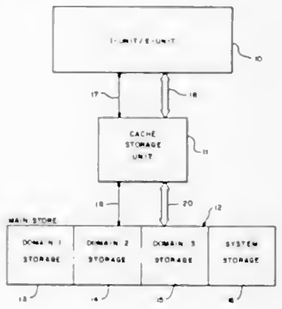
fourth means for preventing further corrections to be made by said second means to said recorded prior branch instruction actions detected by said third means.

5,210,832

MULTIPLE DOMAIN EMULATION SYSTEM WITH SEPARATE DOMAIN FACILITIES WHICH TESTS FOR EMULATED INSTRUCTION EXCEPTIONS BEFORE COMPLETION OF OPERAND FETCH CYCLE

Robert M. Maier; John C. Andob; Arno S. Krakauer, San Jose; Richard J. Tobias, Palo Alto, and Allan J. Zmyslowski, Sunnyvale, all of Calif., assignors to Amdahl Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 245,978, Sep. 19, 1988, abandoned, which is a continuation of Ser. No. 918,483, Oct. 14, 1986, abandoned. This application Jul. 3, 1991, Ser. No. 725,905
Int. Cl.[5] G06F *9/455*
U.S. Cl. 395—375 10 Claims



1. In a data processing system having logic means for executing a predefined set of machine instructions, the system operating between at least two states, including a user state wherein user programs are distributed among multiple user domains each with user domain storage facilities within the system including user domain storage space for operating as an individual one of multiple logical computers, and a control state operating in a control domain with control domain facilities within the system including a system storage space, an apparatus for processing a plurality of emulated instructions among the user programs, the emulated instructions not belonging to the predefined set of machine instructions, the apparatus comprising:

decoding means receiving an emulated instruction from the multiple user domains for generating a control code from the emulated instruction in a decoding cycle, said control code including a branch signal and a branch test signal;

first means responsive to said branch test signal for testing for at least one program exception of said emulated instruction during said decoding cycle;

second means coupled to said decoding means and said first means for branching to the control state to execute a fast program of said machine instructions in said control domain in response to the branch signal if no program exception is detected, said fast program emulating the emulated instruction without instructions for testing for said at least one program exception;

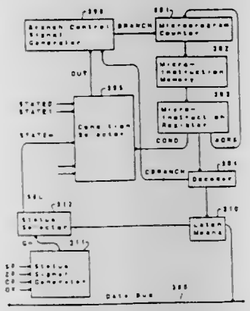
third means coupled to said decoding means and said first means for branching to the control state to execute an alternate program of said machine instructions in said control domain in response to the branch signal if a program exception is detected; wherein the data processing system has a pipeline structure executing instructions in a plurality of pipeline machine cycles, including an Instruction Decode (D) cycle, an Address Generation (A) cycle, and an Operand Fetch (B) cycle, wherein said decoding means decodes said emulated instruction in a D cycle and said first means tests for program exceptions in or before a B cycle.

5,210,833

SYSTEM FOR SELECTIVELY MASKING DATA IN A BRANCH ADDRESS REGISTER AND REPLACING THE MICROINSTRUCTION ADDRESS REGISTER BY THE MASKED DATA

Hiroaki Kaneko, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 928,421, Nov. 10, 1986, Pat. No. 4,907,192. This application Jan. 25, 1990, Ser. No. 470,259
Claims priority, application Japan, Nov. 8, 1985, 60-250055; Nov. 8, 1985, 60-250059
The portion of the term of this patent subsequent to Mar. 6, 2007, has been disclaimed.
Int. Cl.[5] G06F *9/00*
U.S. Cl. 395—375 10 Claims



3. A microprogram control system for a processor, which includes a micro-instruction address register, comprising:

first means coupled to an internal data bus through which data for controlling internal circuits of said processor is transmitted and for latching at least a portion of said data only on said internal data bus in response to execution of a data transfer micro-instruction,

second means for simply extracting a portion of said data latched by said first means,

third means for selectively masking a portion of said data extracted by said second means and replacing a portion of a content of said micro-instruction address register by said selectively masked data; and

fourth means coupled to receive a given micro-instruction for decoding said given micro-instruction and for generating a write signal to said first means thereupon, so that said first means latches said portion of said data; and

wherein said first means is a branch register coupled to said data bus and configured to latch said portion of said data on said data bus in response to said write signal from said fourth means; and

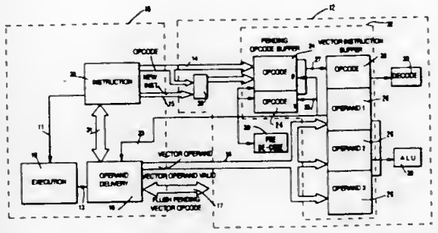
wherein said branch register is configured to latch a less significant bit portion of said data on said data bus.

5,210,834

HIGH SPEED TRANSFER OF INSTRUCTIONS FROM A MASTER TO A SLAVE PROCESSOR

John H. Zurawski, Stow, and Walter A. Beach, Bedford, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 200,841, Jun. 1, 1988, abandoned. This application Feb. 20, 1992, Ser. No. 840,607
Int. Cl.[5] G06F *15/16*
U.S. Cl. 395—375 40 Claims



1. A first device which is coupled to and receives a plurality of instructions from a second device, said instructions each having an opcode and a set of operands, the first device comprising:

a) a first buffer to store each of the opcodes;

b) means for moving one of the opcodes from the first buffer to a second buffer when a fist operand in the set of operands associated with the one of the opcodes is delivered to the first device from the second device indicating that the set of operands is valid;

c) means for receiving the set of operands from the second device and executing each of the instructions,

d) means for receiving a signal from the second device which indicates whether a set of operands is invalid; and

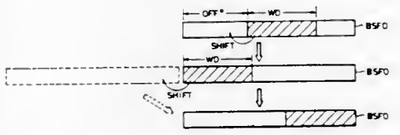
e) means for invalidating any opcodes in the first buffer having a set of operands which are identified as invalid by said means for receiving a signal.

5,210,835

DATA PROCESSING SYSTEM HAVING APPARATUS FOR INCREASING THE EXECUTION SPEED OF BIT FIELD INSTRUCTIONS

Ken Sakamura, No. 105, 12-30, Shiroganedai 3-chome, Minato-ku, Tokyo; Takuichiro Nakazawa, Kodaira; Atsushi Hasegawa; Ikuya Kawasaki, both of Koganei, and Kazuhiko Iwasaki, Hachiohji, all of Japan, assignors to Ken Sakamura; Hitachi, Ltd., both of Tokyo and Hitachi Microcomputer Engineering Co., Ltd., Kodaira, all of Japan

Continuation of Ser. No. 87,308, Aug. 20, 1987, Pat. No. 4,941,085. This application Jan. 2, 1990, Ser. No. 460,003
Claims priority, application Japan, Aug. 27, 1986, 61-198870
The portion of the term of this patent subsequent to Jul. 10, 2007, has been disclaimed.
Int. Cl.[5] G06F *9/30, 9/308*
U.S. Cl. 395—375 20 Claims



1. A data processing system comprising:

execution means for executing instructions, said instructions including an instruction for causing said execution means to perform a bit processing operation on a field which

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contains two or more words within a memory and an instruction for causing said execution means to perform a bit processing operation on a field which is contained within one word of said memory, each instruction including operation codes for indicating whether said each instruction is an instruction for causing said execution means to perform a bit processing operation on a field which contains two or more words or an instruction for causing said execution means to perform a bit processing operation on a field which is contained within one word, and

said execution means including means for calculating a bit width of each field to be processed to determined the number of bits in said each field;

wherein said execution means, when executing an instruction, determines based on operation codes included in said instruction, whether said instruction is an instruction for causing said execution means to perform a bit processing operation on a field which is contained within one word and wherein if said instruction is an instruction for causing said execution means to perform a bit processing operation on a field which is contained within one word, a calculation of a bit width by said means for calculating is not performed

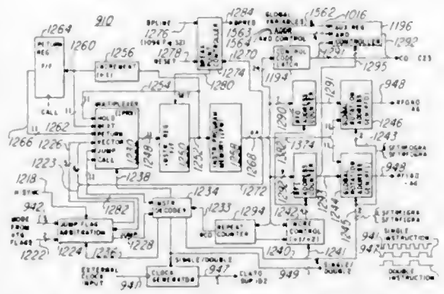
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5,210,836

INSTRUCTION GENERATOR ARCHITECTURE FOR A VIDEO SIGNAL PROCESSOR CONTROLLER

Jim Childers, Fort Bend; Peter Reinecke, Lockhart, both of Tex.; Moo-Taek Chung, Seoul, Rep. of Korea, and Hiroshi Miyaguchi, Tokyo, Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 13, 1989, Ser. No. 421,500
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—375 9 Claims



1. An instruction generator circuit having inputs for receiving operating mode signals from an external source and an output for supplying instructions to a video signal processing device having a plurality of one-bit parallel operating processor elements, each processor element having inputs for receiving the instructions and executing instruction in accordance with the corresponding control code and register address, each instruction consisting of a control code and a register address, the control code of at least one instruction indicating that instruction is a repeat instruction, the instruction generator circuit comprising:

an instruction program memory having a plurality of instructions stored in addressable memory locations, said instruction program memory supplying an instruction including the control code and the register address at an instruction output in response to receipt of a corresponding address at an address input;

a program counter connected to said address input of said instruction program memory and having a mode input receiving the operating mode signals from the external source, said program counter supplying an address to said address input of said instruction program memory corresponding to the received operation mode signal;

a control code latch having an input connected to said instruction output of said instruction program memory and an output connected to the video signal processing device for temporarily storing the control code of an instruction recalled from said instruction program memory and supplying the control code stored therein to the video signal processing device;

a register output of said instruction program memory and an output connected to the video signal processing device for temporarily storing the register address of an instruction recalled from said instruction program memory and supplying the register address stored therein to the video signal processing device;

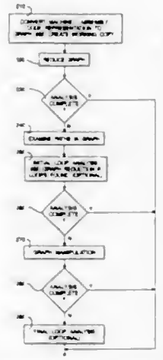
an instruction decoder circuit connected to said instruction output of said instruction program memory, said control code latch and said register address latch, said instruction decoder circuit for controlling said control code latch to again supply said control code stored therein to the video signal processing device and controlling said register address latch to increment the register address stored therein and supply the incremented register address to the video signal processing device upon detection that the control code of said instruction recalled from said instruction program memory indicates a repeat instruction.

5,210,837

METHODS AND APPARATUS FOR TRANSFORMING MACHINE LANGUAGE PROGRAM CONTROL INTO HIGH-LEVEL LANGUAGE CONSTRUCTS BY MANIPULATING GRAPHICAL PROGRAM REPRESENTATIONS

Cheryl A. Wiecek, Westford, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Jun. 15, 1990, Ser. No. 538,906
Int. Cl.[5] G06F *9/45*
U.S. Cl. 395—375 57 Claims



1. A method of automatically transforming an initial program flow representation of a computer program into a modified program flow representation, the computer program containing sequentially-ordered blocks of consecutive instructions written in a first computer language, and the initial program flow representation including a plurality of nodes each representing a different one of the blocks of instructions, wherein the nodes in the initial program flow representation are connected in paths reflective of the possible sequences which the blocks of instructions may be executed in accordance with the computer program, and wherein the connection, in any of the paths, of a first one of the nodes representing a first block of instructions to a second one of the nodes representing a second block of instructions to reflect the execution in the computer program of the first block of instructions immediately prior to the execution of the second block of instructions makes the first node a predecessor node of the second node and the second node a successor node of the first node, the method comprising the steps, performed by a computer, of:

examining the paths in the initial program flow representation to identify the ones of the nodes which are members of loops and the ones of the nodes which are path search exit nodes,

loops including ones of the paths that reflect sequences of repetitive instruction block execution, and the ones of the nodes lying in the paths in loops being deemed members of a loop, and path search exit nodes being the ones of the nodes which occur at the exit of a control substructure in the program flow representation and in the modified program flow representation;

selecting the ones of the nodes which have multiple predecessor nodes and a single successor node, which are not loop members or successor nodes of loop members, and which are not path search exit nodes;

replicating selected ones of the selected nodes such that a different copy of each selected node is formed to correspond to each predecessor node of that selected node;

replacing each of the selected nodes in the initial program flow representation with the copies of that selected node; and

connecting each of the copies of each of the selected nodes to the single successor node and to the predecessor node corresponding to that selected node,

the replication of selected ones of the selected nodes and the connection of the copies forming a modified program flow representation.

5,210,838

METHOD AND APPARATUS FOR PREDICTING THE EFFECTIVE ADDRESSES OF FUTURE MEMORY LOAD OPERATIONS IN A MICROPROCESSOR

Eric H. Jensen, Livermore, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed May 15, 1990, Ser. No. 523,718
Int. Cl.[5] G06F *9/34, 9/38*
U.S. Cl. 395—400 6 Claims

1. A method for loading a data value from a memory into a microprocessor for a future LOAD instruction, said microprocessor having a program counter containing an address of a current instruction and having a memory array comprising a plurality of memory lines, each of said memory lines comprising a last effective address field storing a last effective address and a next-to-last effective address field storing a next-to-last effective address, said method comprising the steps of:

a) updating said memory array during execution of a current LOAD instruction by said microprocessor, said updating step comprising the substeps of:

i) indexing into said memory array to select a first one of said memory lines using a set of low order bits from a memory address of a first instruction located before said current LOAD instruction,

ii) moving the last effective address in the last effective address field of said first memory line to the next-to-last effective address field of said first memory line, and

iii) storing a current effective address of the current LOAD instruction in the last effective address field of said first memory line;

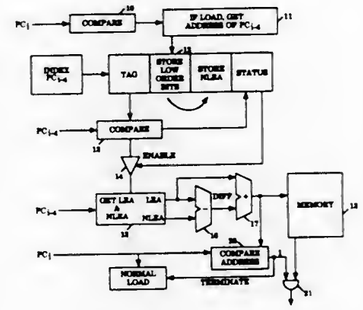
b) loading a data value from said memory for a future LOAD instruction, said loading step comprising the substeps of:

i) indexing into said memory array to select a second one of said memory lines using a set of low order bits from said program counter,

ii) predicting an effective address by adding the last effective address of said second memory line to a difference between the last effective address of said second memory line and the next-to-last effective address of said second memory line, and

iii) loading said data value from said memory using said predicted effective address; and

c) using said data value if the predicated effective address matches an effective address of the future LOAD instruction.

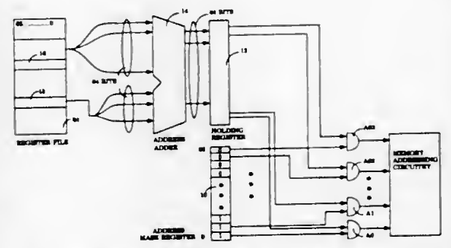


5,210,839

METHOD AND APPARATUS FOR PROVIDING A MEMORY ADDRESS FROM A COMPUTER INSTRUCTION USING A MASK REGISTER

Michael Powell, Palo Alto; Robert Cmelik, Sunnyvale; Shing Kong, Mountain View; David Ditzel, Los Altos Hills, and Edmund Kelly, San Jose, all of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 631,967, Dec. 21, 1990, abandoned.
This application Jul. 8, 1992, Ser. No. 912,077
Int. Cl.[5] G06F *12/04*
U.S. Cl. 395—400 13 Claims



1. In a computer system which performs a plurality of instructions when executing a program, said program utilizing a memory having a maximum memory address size of a first word size, said computer system comprising a plurality of multi-bit registers, each multi-bit register having a second word size greater than said first word size, said plurality of instructions comprising a first instruction that designates a first set of at lest two of said plurality of multi-bit registers to be added to form an access address for accessing memory, said access address being a sum of contents of a first subset of bits of said first set of registers to be added, an apparatus for providing said access address comprising:

addition means for adding contents of a set of said registers to be added, said addition means coupled to each of said registers to be added, and outputting a sum of said contents of said set of registers;

valid bit specification means for specifying a set of valid bits of said output sum to be used to provide said access ad-

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dress, said set of valid bits being equal in size to said first word size if said first instruction is being performed;

valid bit extraction means coupled to said addition means and said valid bit specification means for extracting said contents of said set of valid bits from the sum to provide said access address, said valid bit extraction means responsive to said valid bit specification means;

memory addressing circuitry for accessing said memory coupled to said valid bit extraction means;

means for outputting said access address directly from said valid bit extraction means to said memory addressing circuitry to responsively access said memory at said access address;

wherein a first instruction having a word size less than the work size utilized by the computer system can be executed without being affected by data present in bits of said plurality of multi-bit registers which are not valid bits.

5,210,840

ADDRESS SPACE CONTROL APPARATUS FOR VIRTUAL MEMORY SYSTEMS

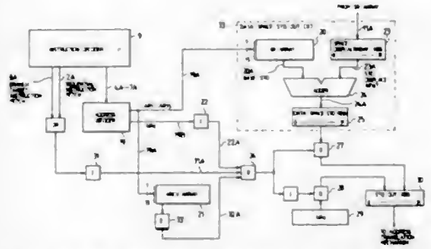
Masakazu Fukagawa; Yasuhiko Hatakeyama, both of Hadano; Toshiyuki Kinoshita, Sagamihara, and Toshiaki Arai, Kawasaki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 26, 1989, Ser. No. 412,504

Claims priority, application Japan, Sep. 28, 1988, 63-240854

Int. Cl.[5] G06F *12/00, 12/06, 12/08, 12/10*

U.S. Cl. 395—400 **8 Claims**



2. An address space control apparatus in a virtual memory system having a storage means and a plurality of general-purpose register means usable as registers which supply data for address calculation, wherein address information specified by an instruction is used to calculate a logical address in an address space, said logical address being combined with an address space identifier defining the address space for translation into a real address in said storage means, said address space control apparatus comprising:

a first component information register means for containing first component information for determining an address space, said first component information including a plurality of address space identifiers contained in a plurality of entries within said first component information register means;

a means for reading, in response to designation of a first general-purpose register means as a base register by an instruction, second component information, out of a second general-purpose register means corresponding to said first general-purpose register means, for determining an address space; and

a means for determining, by use of said first and second component information, an address space identifier to be combined with a logical address, including an entry designator register means for containing an entry designator designating one of said plurality of entries, and an adder means for producing an entry selection signal by adding said entry designator and said second component information.

5,210,841

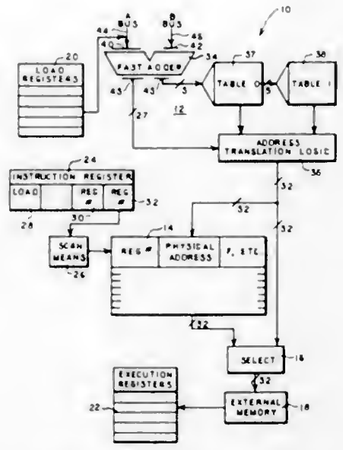
EXTERNAL MEMORY ACCESSING SYSTEM

William M. Johnson, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jan. 30, 1990, Ser. No. 472,099

Int. Cl.[5] G06F *12/00, 12/10, 9/34*

U.S. Cl. 395—400 **20 Claims**



1. In a processor of the type which processes instructions in serial stages including a fetch stage, a decode stage, an execute stage, and a write-back stage, and which includes an external memory for storing data to be executed upon, said external memory including a plurality of storage locations with each said location having a unique physical storage address, and wherein said processor further includes a first plurality of registers, each said first plurality of registers having a unique address and being arranged for storing an untranslated address corresponding to one of said external memory locations, and a second plurality of registers, each said second plurality of registers having a unique address and being arranged for storing data to be executed upon by said processor, and wherein the addresses stored in said first plurality of registers require translation to said physical external memory location addresses to permit said external memory locations to be accessed, a new and improved system for efficiently accessing the data stored in one of said external memory locations and providing said data to one of said second plurality of registers responsive to a currently fetched load instruction including the address of one of said first plurality of registers, said system comprising:

a physical address cache for storing a plurality of entries including the addresses of said first plurality of registers and the corresponding translated external memory address locations for those ones of said first plurality registers which were used for the execution of previous load instructions;

means responsive to said currently fetched load instruction for determining, during said decode stage of said load instruction, if the address of said one of said first plurality of registers contained in said currently fetched load instruction is stored in said physical address cache; and

means for conveying to said external memory at the beginning of said execution stage of said load instruction, the previously translated physical address of said memory location corresponding to said address of said one of said first plurality of registers if said address of said one of said first plurality of registers is contained in said physical address cache.

5,210,842

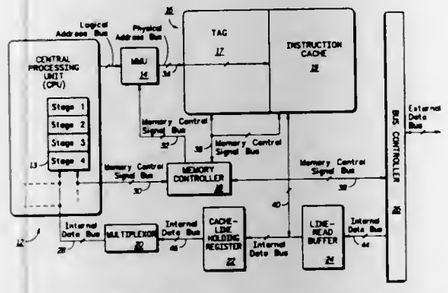
DATA PROCESSOR HAVING INSTRUCTION VARIED SET ASSOCIATIVE CACHE BOUNDARY ACCESSING

Lal C. Sood, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 4, 1991, Ser. No. 650,108

Int. Cl.[5] G06F *12/08, 12/04;* **G11C** *7/00*

U.S. Cl. 395—425 **5 Claims**



1. A data processor having instruction varied set associative cache boundary accessing, comprising:

instruction processing and decoding means for receiving a plurality of successive instructions and decoding the successive instructions, the instruction decoding means providing a set associative cache boundary control signal for a subsequent set associative cache access;

set associative cache control means having an input coupled to the instruction processing and decoding means for receiving the set associative cache boundary control signal and providing an encoded enable signal;

a set associative cache coupled to set associative cache control means for receiving the encoded enable signal and having a predetermined number of lines of information of predetermined bit length, said set associative cache using the encoded enable signal to dynamically select one of a plurality of predetermined lengths of a line of information to be accessed in the set associative cache and provided by the set associative cache, the set associative cache normally providing only one-half line of information in response to the encoded enable signal in order to conserve power in the data processor and providing a full line of information only in response to the data processor requiring the complete line of information;

a holding register having an input coupled to the set associative cache and having an output, the holding register storing information from the set associative cache; and

a multiplecor having an input coupled to the output of the holding register, and having an output coupled to the instruction processing and decoding means for providing a selected portion of information provided by the set associative cache.

5,210,843

PSEUDO SET-ASSOCIATIVE MEMORY CACHING ARRANGEMENT

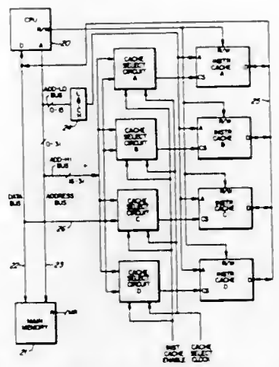
David J. Ayers, Carp, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Continuation of Ser. No. 174,276, Mar. 25, 1988, abandoned. This application Jun. 24, 1992, Ser. No. 902,805

Int. Cl.[5] G06F *12/08*

U.S. Cl. 395—425 **19 Claims**

1. A data processing system comprising a central processor and a hierarchical memory system comprising at least one main large memory having a relatively long access time and a pseudo set-associative cache memory comprising a plurality of cache memory banks each comprising a plurality of addressable locations defined by cache addresses comprising n least significant bits of a main memory address, a plurality of cache select circuits each one associated with a respective one of the cache memory banks and each one being responsive to m most significant bits of a main memory address and predetermined



control signals for asserting an enable signal to its respective cache memory bank when said m most significant bits correspond to an address within a predetermined respective range of contiguous addresses in main memory.

5,210,844

SYSTEM USING SELECTED LOGICAL PROCESSOR IDENTIFICATION BASED UPON A SELECT ADDRESS FOR ACCESSING CORRESPONDING PARTITION BLOCKS OF THE MAIN MEMORY

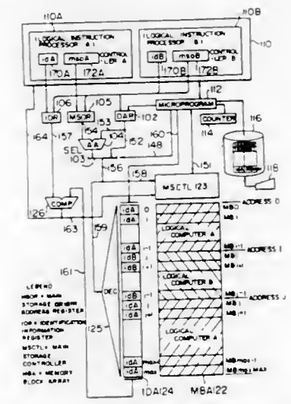
Nobuyuki Shimura; Kazuo Hibi, and Yosbio Oshima, all of Hadano, Japan, assignors to Hitachi, Ltd. and Hitachi Computer Engineering Co., Ltd., both of Tokyo, Japan

Filed Sep. 26, 1989, Ser. No. 412,508

Claims priority, application Japan, Sep. 29, 1988, 63-242523

Int. Cl.[5] G06F *12/06, 12/00*

U.S. Cl. 395—425 **11 Claims**



1. An information processing apparatus having at least one processor which is logically partitioned into a plurality of processor units, each having unique identification information, and a main storage connected to the processor units and accessed by the processor, the information processing apparatus comprising:

said main storage being selectively partitioned into a plural-

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ity of memory areas, each of said memory areas being assigned to one of said plurality of processor units, at least one of said memory areas being discontinuously disposed in said main storage;

first storage means for storing the identification information for identifying one of said processor units allocated to one of said memory areas;

means for selecting identification information stored in said first storage means corresponding to one of said memory areas based upon a selected address;

read means for reading, during an access to said main storage by one of said plurality of processor units, the selected identification information from said first storage means;

comparison means for comparing said selected identification information read by said read means with said identification information of said one processor unit accessing said main storage;

means for determining if said access to said main storage is allowed, in accordance with a comparison result by said comparison means;

means for accessing said main storage in accordance with the access from said one processor unit if said determining means determines said access allowable; and

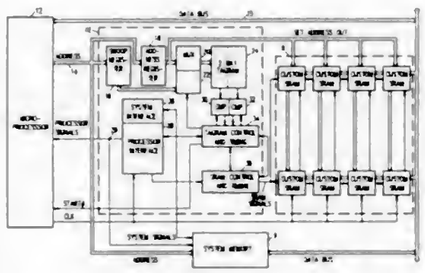
cancel means for canceling said access by said one processor unit if said determining means determines said access not allowable.

5,210,845

CONTROLLER FOR TWO-WAY SET ASSOCIATIVE CACHE

John H. Crawford; Sundaravarathan R. Iyengar, and James Nadir, all of Santa Clara, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Nov. 28, 1990, Ser. No. 618,708
Int. Cl.[5] G06F *12/00, 13/14;* G11C *15/04*
U.S. Cl. 395—425 **3 Claims**



1. In a data processing system in which a processor (**12**) communicates over a CPU bus (**14, 15, 29**) with a main memory (**9**), said CPU bus including an address bus having a number of address bits, the combination comprising:

a cache controller (**10**);

said cache controller including CPU bus control logic (**28**) connected to said CPU bus for controlling access to said CPU bus,

a cache data-array (**8**) connected to said cache controller (**10**) and to said CPU bus;

said number of address bits comprised of a line select bit, a tag portion, a set portion, and a line portion, a line consisting of a plurality of data bytes, said line being the basic unit of data transferred between said cache (**8**) and said main memory;

control logic in said cache controller for controlling references to said cache data-array (**8**);

said control logic including a cache directory, said cache directory including an address store (**24**) for storing tag fields, each tag field identifying a memory location in said main memory that is associated with an address block stored in said data-array cache (**8**);

said directory including means (**36**) for generating a cache data-array address comprised of a set portion identical to said set portion of aid address bus, a line portion identical to said line portion of said address bus, and a way portion;

a plurality of address blocks stored in said address store (**24**), each address block describing a physical address of a number of contiguous lines of data stored in said cache data-array (**8**);

a plurality of valid bits stored in said address store (**24**), each valid bit being associated with each one of said lines of data within said address block in said address store, such that if a particular line of data is present in said cache (**8**), then the valid bit for that line is on, and if a particular line is not present in said cache, then the valid bit for that line is off;

said cache directory being capable of being configured into at least two ways (WAY0, WAY1), each way providing storage for said tag fields and said valid-bits for facilitating the associative searching of said directory for a particular tag field;

each of said ways containing tags, each tag including at least two of said plurality of valid bits such that when said cache is configured as an n-byte cache, each tag references a single, multi-byte line and when configured as a 2n-byte cache, each tag references two consecutive multi-byte lines, to effectuate sectoring wherein said cache contains at least two sectors per tag, said line select bit of said address bus being used to determine which sector of each tag is being selected;

said directory including a decoder connected to said address bus and to said address store,

said address store being divided into a plurality of sets (SET 0–SET 63), each set being a grouping of said address blocks consisting of one address block from each way, all of the address blocks in a set being simultaneously selected by said decoder in response to the decoding of said set portion of said bus address; and,

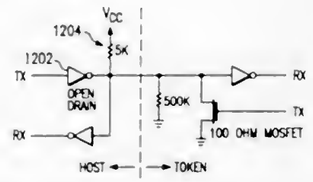
means for activating said line select bit to thereby select sectored cache operation or non-sectored cache operation.

5,210,846

ONE-WIRE BUS ARCHITECTURE

Robert D. Lee, Denton, Tex., assignor to Dallas Semiconductor Corporation, Dallas, Tex.

Filed May 15, 1989, Ser. No. 352,581
Int. Cl.[5] G06F *13/18;* G06K *19/06*
U.S. Cl. 395—425 **6 Claims**



1. A system, comprising:

one or more portable data modules, each including: exactly two mutually isolated conductive portions accessible on the exterior of said each module; memory; input logic, operatively connected to first and second ones of said conductive portions, and configured to detect whether said first portion is at a first or at a second voltage relative to said second portion; and output logic connected to selectably pull said first portion toward said second voltage; wherein no part of said each module can pull said first portion toward said first voltage during normal operation;

one or more host systems, each including: contacts positioned to contact said conductive portions of any one of said modules which may be positioned in a predetermined location; and output circuitry connected to selectably pull said first portion of said any one of said modules toward said first or second voltage;

wherein said each data module contains a time delay circuit to produce a predetermined time delay;

and wherein said each module can selectably operate in a read mode or in a write mode, and is configured to, upon detecting a transition of the voltage of said first portion from said first voltage toward said second voltage:

in said read mode, conditionally pull said first portion toward said second voltage, depending on the value of a data bit being read from said memory, and then release said conditional pull after a predetermined delay, determined by said time delay circuit, has elapsed;

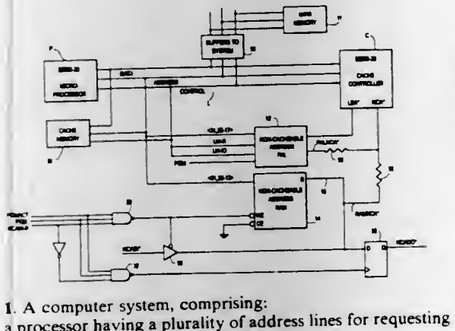
in said write mode, wait for the duration of a predetermined delay, determined by said time delay circuit, to elapse, and then test the voltage of said first portion, and store a data bit in said memory according to results of said test.

5,210,847

NONCACHEABLE ADDRESS RANDOM ACCESS MEMORY

Gary W. Thome; James H. Nuckols, both of Houston; Paul R. Culley, Cypress, and Gary L. Brasher, Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed May 19, 1989, Ser. No. 354,513
Int. Cl.[5] G06F *12/06, 13/00*
U.S. Cl. 395—425 **12 Claims**



1. A computer system, comprising:

a processor having a plurality of address lines for requesting stored information;

cache memory for storing information and coupled to said address lines;

a cache memory controller coupled to said address lines to determine if said requested stored information is stored in said cache memory and having a noncacheable address input for receiving a signal indicating whether said requested information is cacheable;

random access memory not forming a portion of said cache controller and having a plurality of address inputs, a write enable input, a data input and a data output for storing data values representing the cacheable status of a memory block, said address inputs of sad random access memory coupled to said address lines for addressing said data values and said data output of said random access memory coupled to said noncacheable address input;

means for indicating a write request of said random access memory; and

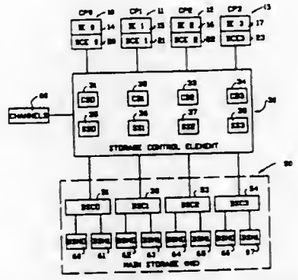
means for storing said cacheable status data values in said random access memory, wherein said storing means includes means for storing a value indicative of a programming mode request, means for storing said cacheable status data values prior to being stored in said random access memory and means responsive to a memory write operation, said programming mode request value and said write request indication for enabling said stored data value to said random access memory data input and for providing a value to said random access memory write enable input to allow said random access memory to store said stored data value.

5,210,848

MULTI-PROCESSOR CACHES WITH LARGE GRANULARITY EXCLUSIVITY LOCKING

Lishing Liu, Pleasantville, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 313,695, Feb. 22, 1989, abandoned. This application Jul. 9, 1992, Ser. No. 912,133
Int. Cl.[5] G06F *12/14*
U.S. Cl. 395—425 **9 Claims**



1. In a tightly coupled multi-processor system of the type comprising a plurality of central processors, a main storage and a storage control element connected to said main storage, each central processor having a buffer control element including a store through cache, a method for providing large granularity locking of exclusivity of a block of data in caches of said central processors comprising the steps of:

reading from or writing to said main storage units of data under the control of said storage control element by said buffer control elements in response to requests by said central processors;

storing by said buffer control elements in their respective caches a plurality of blocks of data read from said main storage, each of said blocks of data comprising a plurality of cache lines and each cache line having a plurality of units of data;

establishing by said storage control element three possible states on a block of data, said states including a temporarily invalid state, a read only state and an exclusive state, the temporarily invalid state being the initial state for all blocks of data in caches of said central processors;

recording by said storage control element states of blocks of data for the central processors at the storage control element and the buffer control elements, said recording at the storage control element being in lock tables, one for each central processor, to keep track of ownerships of exclusive states of blocks of data, and said recording at the buffer control elements being in local lock tables to maintain a subset of a corresponding lock table exclusive status of blocks of data for that central processor;

enforcing by said storage control element a unique access right to a block of data in a cache for one of said central processors by giving other central processors said temporarily invalid state on said block of data, even though some lines in the block of data may still be resident in caches of said other central processors; and

for any central processor trying to access said block of data in a temporarily invalid state, communicating by the ac-

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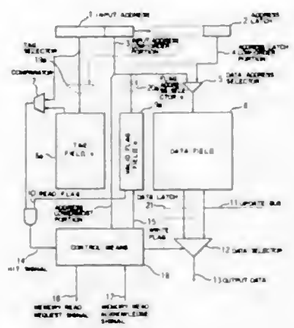
cessing central processor with the storage control element to obtain proper authorization, the storage control element changing the temporarily invalid state on the block of data for the accessing central processor to a read only or exclusive state to grant authorization to the accessing central processor.

5,210,849

CACHE MEMORY SIMULTANEOUSLY UPDATING FOR A MISS AND DECIDING ON HIT OR MISS OF NEXT ADDRESS

Kazunori Takahashi, Neyagawa, and Tokuzo Kiyohara, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 18, 1990, Ser. No. 539,910
Claims priority, application Japan, Jun. 20, 1989, 1-157787
Int. Cl.[5] G06F *9/32, 12/00*
U.S. Cl. 395—425 **3 Claims**



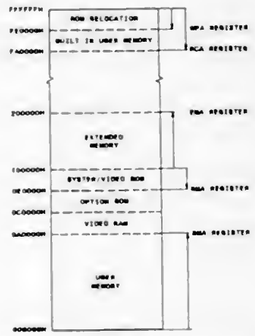
1. A cache memory comprising:
address latch means for storing an input address, the input address including tag data and a tag address;
tag field means for storing a plurality of tag data;
tag selector means, operatively coupled to said address latch means and said tag field means, for selectively receiving the input address and an output of said address latch means, and for outputting to said tag field means a tag address for accessing tag data from said tag field means;
comparing means, operatively coupled to said tag field means, for comparing tag data, read out of said tag field means in response to the tag address, with the tag address of the input address, said comparing means outputting a match signal when a match is obtained as a result of the comparison;
data field means for storing corresponding data for tag data in said tag field means;
data address selector means, operatively coupled to said address latch means and said data field means, for selectively receiving the input address and an output of said address latch means, and for outputting to said data field means an address for accessing the data from said data field means;
valid flag field means for storing a flag indicative of the validity of the data stored in said data field means corresponding to tag data in said tag field means;
flag address selector means, operatively coupled to said valid flag field means and said address latch means, for selectively receiving the input address and an output of said address latch means, and for outputting to said valid flag field means an address for accessing a flag from said valid flag field means;
hit decision indicating means, operatively coupled to said comparing means and said valid flag field means, for receiving the match signal output from said comparing means and a flag read out from said valid flag field means, and for deciding and indicating a cache hit/miss; and
data latch means, operatively coupled to said data field means, for storing data output from said data field means;
wherein, when a preceding cache access is decided to be a miss by said hit decision means, the contents of said tag field means and said valid flag field means corresponding to the miss of the preceding cache access are changed, and, while an access to an external memory is being made, said data address selector means selects the input address so that a subsequent cache access is made to said data field means and data thereby obtained is held in said data latch means, and, when a subsequent cache access is decided to be a hit by said hit decision means, the data held in said data latch means is output.

5,210,850

MEMORY ADDRESS SPACE DETERMINATION USING PROGRAMMABLE LIMIT REGISTERS WITH SINGLE-ENDED COMPARATORS

Philip C. Kelly, Houston, and Michael J. Collins, Tomball, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Jun. 15, 1990, Ser. No. 538,724
Int. Cl.[5] G06F *12/14*
U.S. Cl. 395—425 **13 Claims**



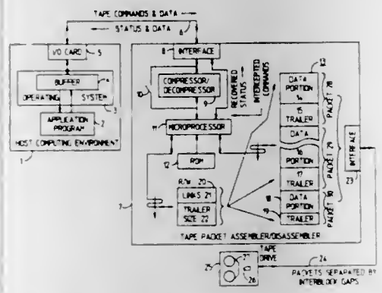
1. An apparatus for determining if a memory address value developed in a computer system is within a plurality of memory address regions, the computer system including a microprocessor, system memory, and a system memory address space comprising a predefined intermediate memory address value, the apparatus comprising:
means for generating a signal which indicates whether said developed memory address value is greater than the intermediate memory address value;
a first storing means for storing a first memory address value which serves as a first boundary of a first memory address region;
a second storing means for storing a second memory address value which serves as a first boundary of a second memory address region;
a third storing means for storing a third memory address value which serves as a first boundary of a third memory address region;
a first comparing means coupled to said first storing means for comparing said developed memory address value with said first memory address value, wherein said first comparing means only determines whether said developed memory address value is less than the memory address value stored in said first storing means and generates a first signal indicative thereof, said first indicating signal indicating that said developed memory address value resides in said first memory address region based only on whether said developed memory address value is less than said first memory address value stored in said first storing means;
a second comparing means coupled to said second storing means for comparing said developed memory address value with said second memory address value, wherein said second comparing means only determines whether said developed memory address value is greater than or equal to said second memory address value stored in said second storing means and generates a second signal indicative thereof, said second indicating signal indicating that said developed memory address value resides in said second memory address region based only on whether said developed memory address value is greater than or equal to said second memory address value stored in said second storing means; and
a third comparing means coupled to said third storing means for receiving said intermediate address indicating signal and for comparing said developed memory address value with said third memory address value, wherein said third comparing means determined whether said developed memory address value resides between the memory address value stored in said third storing means and the intermediate memory address value using only the third memory address value stored in said third storing means and said intermediate address indicating signal and generates a third signal indicative thereof, said third indicating signal indicating that said developed memory address value resides in said third memory address region if said developed memory address value resides between the memory address value stored in said third storing means and the intermediate memory address value.

5,210,851

HIGH CAPACITY TAPE DRIVE TRANSPARENTLY WRITES AND READS LARGE PACKETS OF BLOCKED DATA BETWEEN INTERBLOCK GAPS

Jeff J. Kato; David W. Ruska, both of Greeley, and David J. Van Maren, Fort Collins, all of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 142,180, Jan. 8, 1988, Pat. No. 4,891,784.
This application Aug. 22, 1989, Ser. No. 396,879
Int. Cl.[5] G06F *3/06*
U.S. Cl. 395—425 **8 Claims**



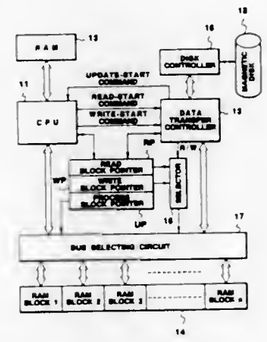
1. A method of storing information on a sequentially accessed mass storage device comprising the steps of:
sending to the sequentially accessed mass storage device a plurality of collections of information delimited by first signals that cause the mass storage device to separate consecutive collections of recorded information;
determining where in the plurality of collections any first signals occur;
preventing first signals located by the determining step from reaching the mass storage device;
storing in an index portion of a memory indications of where amongst the plurality of collections the first signals occurred;
storing in a predetermined location in the index portion a count indicative of the number of entries in the index portion;
storing in a data portion of the memory the plurality of collections of information;
writing on the medium of the sequentially accessed mass storage device a packet comprising the concatenated contents of the data and index portions of the memory; and
delimiting the packet with first signals sent to the mass storage device.

5,210,852

MEMORY CONTROL SYSTEM FOR CONTROLLING A FIRST AND SECOND PROCESSING MEANS TO INDIVIDUALLY ACCESS A PLURALITY OF MEMORY BLOCKS

Tetsuya Sato, Tokyo, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Oct. 23, 1990, Ser. No. 602,097
Claims priority, application Japan, Nov. 1, 1989, 1-285658
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—425 **4 Claims**



4. A memory control system, comprising:
external memory means for storing a plurality of data blocks;
internal memory means including a plurality of memory blocks which are individually accessible block by block;
pointer memory means for storing a first pointer, a second pointer, and a third pointer;
data transfer control means; and
data updating means;
said data transfer control means including read out means for reading out one of the data blocks from the external memory means, storing means for storing said read out data block into a memory block which corresponds to the first pointer, first increasing means for increasing the first pointer when said storing is completed, and first repeating means for causing said readout means, said storing means and said first increasing means to repeat said reading out, said storing, and said increasing until there exists an absence of a data block to be read out;
said data updating means including updating means for updating, when the second pointer is smaller than the first pointer, a data block stored, a memory block which corresponds to the second pointer, second increasing means for increasing, when said updating is completed, the second pointer, and second repeating means for causing said updating means and said second increasing means to repeat said updating and said increasing until the second pointer coincides with the first pointer; and
said data transfer control means further including writing

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means for writing the updated data block, which is stored in a memory block corresponding to the third pointer, into the external memory means, third increasing means for increasing, when said writing is completed, the third pointer, and third repeating means for causing said writing means and said third increasing means to repeat said comparing and said increasing until the third pointer coincides with the first pointer.

5,210,853

ELECTRONIC DEVICE/DICTIONARY WITH IMPROVED INFORMATION STORAGE: MEMORY CAPACITY RATIO

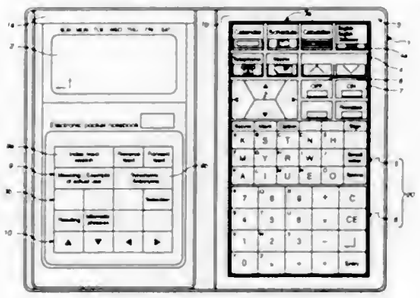
Masataka Nakasuji, Yamatokoriyama; Toshiaki Fujiwara, and Yoshiro Kihara, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 15, 1989, Ser. No. 437,431

Claims priority, application Japan, Nov. 18, 1988, 63-293020; Nov. 18, 1988, 63-293021; Nov. 18, 1988, 63-293022; Nov. 30, 1988, 63-304815

Int. Cl.[5] G06F *12/00, 15/20*

U.S. Cl. 395—425 26 Claims



1. An information searching apparatus, comprising:

an information memory means for storing a plurality of types of information to be searched , the information memory means having a plurality of banks, each bank serving as a memory unit;

a secondary table memory means for storing a plurality of numbers of changed banks, and a real address for each information to be searched, each number of changed banks being a difference between (a) a base bank No. indicating a top bank No. of an area containing a first information to be searched of a block wherein information to be searched is contained and (b) each top bank No. of an area where respective information to be searched other than the first information to be searched are stored, each real address indicating a top address of the area wherein each information to be searched is stored, with each block having a predetermined number of types of information to be searched;

a primary table memory means for storing a secondary table bank No., a secondary table address, and the base bank No. for each block, the secondary table bank No. and the secondary table address indicating a top bank No. and a real address respectively of an area wherein a first number of changed banks of each block and real address of each block are stored in said secondary table memory means;

a primary table reading means for reading from the primary table memory means (a) the base bank No. of the block wherein the information to be searched is contained, (b) the secondary table bank No., and (c) the secondary table address according to a block No. indicating the block wherein the information to be searched is contained;

a secondary table reading means for reading the number of changed banks and the real address from the secondary table memory means according to (a) the secondary table bank No., (b) the secondary table address, and (c) an in-block information number indicating where the real address of said information to be searched is stored in the block to which the information to be searched belongs; and

an information reading means for reading from the information memory means the information to be searched according to the base bank No., the number of changed banks and the real address, the base bank No. being added to the number of changed banks.

5,210,854

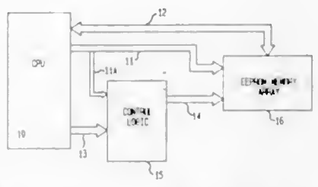
SYSTEM FOR UPDATING PROGRAM STORED IN EEPROM BY STORING NEW VERSION INTO NEW LOCATION AND UPDATING SECOND TRANSFER VECTOR TO CONTAIN STARTING ADDRESS OF NEW VERSION

Arthur J. Beaverton, Maynard, Mass., and Thomas E. Hunt, Brookline, N.H., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Jun. 14, 1989, Ser. No. 366,168

Int. Cl.[5] G06F *12/02*

U.S. Cl. 395—500 7 Claims



1. A digital computer memory system comprising:

an electrically erasable programmable read-only memory containing firmware, having a plurality of address and data inputs and a plurality of locations, each location having an address, and a control input which permits writing to the electrically erasable programmable read-only memory, the electrically erasable programmable read-only memory is partitioned into a protected area and an unprotected area, the unprotected area having a conditionally writable area;

a central processing unit having a plurality of data outputs, a plurality of address outputs, a control output and an update enable output;

an address bus coupling the plurality of address inputs in the electrically erasable programmable read-only memory to the plurality of address outputs of the central processing unit;

a data bus coupling the plurality of data inputs in the electrically erasable programmable read-only memory to the plurality of data outputs of the central processing unit; and

a control logic device having a plurality of address inputs, a control input, an update enable input and an output, the plurality of address inputs coupled to at least a portion of the address bus, the output coupled to the control input of the electrically erasable programmable read-only memory, the control input coupled to the control output of the central processing unit, and the update enable input coupled to the update enable output of the central processing unit;

the control logic device responsive to the control output of the central processing unit and an address transmitted on the at least a portion of the address bus, generating a write enable signal when the address is within the unprotected area of the electrically erasable programmable read-only memory and inhibiting the write enable signal when the address is within the protected area of the electrically erasable programmable read-only memory;

the control logic device generating in response to the control input, the update enable input and the address transmitted on the at least a portion of the address bus, a write enable signal when the address is within the conditionally writable area of the electrically erasable programmable read-only memory and inhibiting the write enable signal when the address is within the protected area of the electrically erasable programmable read-only memory.

5,210,855

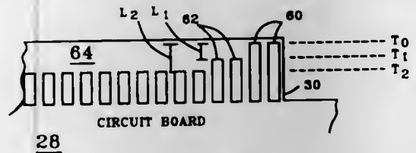
SYSTEM FOR COMPUTER PERIPHERAL BUS FOR ALLOWING HOT EXTRACTION ON INSERTION WITHOUT DISRUPTING ADJACENT DEVICES

Thomas M. Bartol, Hillsborough, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 364,742, Jun. 9, 1989, abandoned. This application Oct. 7, 1992, Ser. No. 957,746

Int. Cl.[5] G06F *13/00*

U.S. Cl. 395—500 6 Claims



1. A data processing system comprising

a computer having an SCSI bus;

a plurality of peripheral device controllers coupled to the computer by the bus, each controller including control logic circuits and a voltage regulator for applying voltage to said logic circuits and having no delay, reset or degating circuits interposed between the logic circuits and the bus, said logic circuits selected from a class of devices having differing electrical characteristics but complying with the requirements of a defined specification for said class;

said bus providing both power to and data transfer with the voltage regulator and logic circuits of each controller; and

apparatus for the hot plugging of each peripheral device controller to the SCSI computer bus without disrupting data transfers on an active bus and without the use of delay, reset or degating circuits in the controller, comprising:

edge connector means attached to the bus for interconnection of the bus with a corresponding receptacle in a respective controller having parallel arrangement of plural conductors, of three different lengths, for establishing predetermined sequential electrical interconnections with the applications of a reasonable insertion force;

at least one longest length of conductor being coupled to voltage regulator and logic circuit ground terminals of the respective controller for providing a first electrical interconnection;

at least one intermediate length conductor being coupled to a power terminal of the voltage regulator of the respective controller to provide a second electrical interconnection which occurs subsequent to said first interconnection, the relative lengths of the longest length conductor and the intermediate length conductor being chosen so that, with reasonable insertion force, a sufficient time delay is provided between the first and second electrical interconnections to allow for stabilization of voltage transients induced into the bus by the first interconnection; and

the shortest length conductors being coupled to the data input/output terminals of the controller circuit to provide a third electrical interconnection which occurs subsequent to said second interconnection, the relative lengths of the intermediate length conductor and the shortest length conductors being chosen such that, with a reasonable insertion force, a sufficient time delay is provided between the second electrical interconnection and the third electrical interconnection to stabilize the voltage output of the controller voltage regulator and establish a high impedance state in the regulator prior to the third electrical connection.

5,210,856

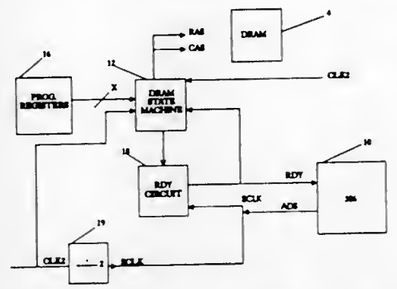
NON-ALIGNED DRAM STATE MACHINE FOR PAGE-MODE DRAM CONTROL

Stuart Auvinen, Santa Cruz, and Richard Sowell, San Jose, both of Calif., assignors to Chips and Technologies, Inc., San Jose, Calif.

Filed Aug. 7, 1991, Ser. No. 741,778

Int. Cl.[5] G06F *1/04*

U.S. Cl. 395—550 11 Claims



1. In a microprocessor system including a microprocessor operating according to a first clock, and having a component controller operating according to a second clock having a frequency m times the frequency of the first clock, an apparatus for synchronizing said component controller to said first clock at the completion of a component access cycle comprising:

means, coupled to a state machine of said component controller, and adapted to receive signals identifying an n-1 through n-m states of a component access cycle having n state transitions, for sampling for said n-1 through n-m states on a given edge of said first clock; and

means, coupled to said means for sampling, for asserting a ready signal having a period of at least one first clock pulse to synchronize said component controller to said first clock, when one of said n-1 through n-m states is detected.

5,210,857

DATA PROCESSING APPARATUS WITH NOISE AVOIDANCE

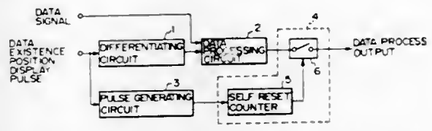
Yoshinobu Takamura, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed May 16, 1991, Ser. No. 700,808

Claims priority, application Japan, Nov. 28, 1990, 2-331492

Int. Cl.[5] G06F *11/00*

U.S. Cl. 395—550 2 Claims



1. A data processing apparatus to which a data existence position pulse indicative of an input of a data signal is supplied and which generates a trigger signal in response to a leading edge of the supplied data existence position pulse, starts processing of the supplied data signal in response to said trigger

VOL 1150 ISS 2 MY 11 1993 UMI

signal and generates an output data signal indicative of a result of the processing, comprising:

pulse generating means for generating a pulse signal of a predetermined width when said supplied data existence position pulse exists after the elapse of only a first predetermined time from the leading edge of said supplied data existence position pulse, and

switching means for blocking the generation of said output data signal during a generating period equal to said pulse signal, and relaying and transmitting said output data signal for only a second predetermined time from an extinguishment of said pulse signal.

5,210,858

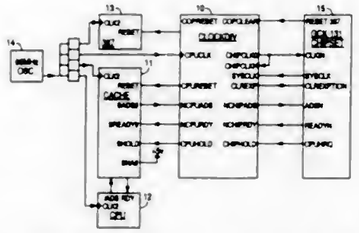
CLOCK DIVISION CHIP FOR COMPUTER SYSTEM WHICH INTERFACES A SLOWER CACHE MEMORY CONTROLLER TO BE USED WITH A FASTER PROCESSOR

Jan E. B. Jensen, 6090 Farmstead Land, Mississauga, Ontario; Keith S. K. Lee, 164 Westminsiter Ave., Toronto, Ontario; J. David Mulvenna, 3098 Keynes Crescent, Mississauga, Ontario, and Keith B. Riley, 65 Cotton Drive, Port Credit, Ontario, all of Canada

Filed Oct. 17, 1989, Ser. No. 422,839

Int. Cl.[5] G06F *13/00*

U.S. Cl. 395—550 **8 Claims**



1. A clocking control circuit for a computer system, said computer system having a microprocessor, a cache controller operatively connected to said microprocessor for controlling cache memory, and support interface circuitry operatively connected to said cache controller, said clocking circuit comprising:

means for increasing the time duration of signals transmitted to said support interface circuitry from said cache controller wherein said means for increasing the time duration is coupled to said cache controller and to said support interface circuitry;

means for decreasing the time duration of signals transmitted to said cache controller from said support interface circuitry; and

means for receiving a clock signal which drives said microprocessor and said cache controller and for supplying to said support interface circuitry a support clock signal having a frequency lower than that of said clock signal.

5,210,859

PROGRAM DEBUGGING SUPPORT METHOD AND APPARATUS

Toshihisa Aoshima, Tokyo; Nobuyuki Takeichi, Kodaira, and Masaaki Kurosu, Chofu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 10, 1990, Ser. No. 507,391

Claims priority, application Japan, Apr. 14, 1989, 1-092840

Int. Cl.[5] G06F *11/00*

U.S. Cl. 395—575 **29 Claims**

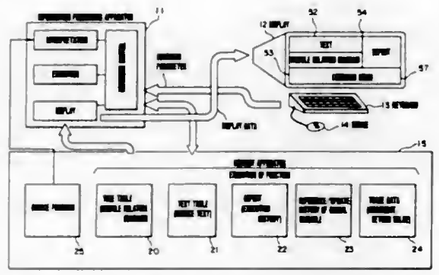
1. A program debugging support method using a computer having a display device and a memory, the method comprising the steps of:

executing a program stored in said memory, the program comprising modules; and,

when an error occurs in said program,

displaying on said display device a source text of said program;

displaying on said display device a diagram showing a relationship between said modules comprising said program, said relationship being made from said source text before executing said program;



showing on said display device a first position of said text distinctively on said source text displayed on said display device;

showing on said display device a second position of said diagram distinctively on said diagram displayed on said display device, said first and second positions corresponding to said error which occurs in said executing program.

5,210,860

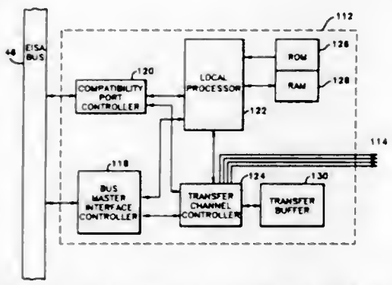
INTELLIGENT DISK ARRAY CONTROLLER

Scott M. Pfeffer, and Stephen M. Schultz, both of Houston, Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Jul. 20, 1990, Ser. No. 556,646

Int. Cl.[5] G11C *29/00*

U.S. Cl. 395—575 **9 Claims**



1. For use with a computer system having a fault tolerant, intelligent mass storage disk array subsystem having individual disk and disk array parameters and associated status information for the disk and disk array, a method for performing disk sector analysis for all drives within the disk array, the steps comprising:

(a) initializing a current disk memory location based upon the disk array and disk drive status information and current disk parameters;

(b) determining whether the disk array is in the process of carrying out disk operations, and if carrying out such operations, suspending operation of the method of the present invention for a predetermined period of time and

repeating this step (b) until disk operations are not being carried out;

(c) performing a read operation on the current disk memory location;

(d) checking the results of the read operation to determine if the read operation has failed and upon detection of a failure, indicating the disk media failure for the current disk memory location;

(e) incrementing to a successive disk memory location; and

(f) continuously performing steps (b) through (e) for all disk memory locations for all disks located within the disk array.

5,210,861

METHOD FOR VERIFYING A SERIALIZING FUNCTION IN A SYSTEM INCLUDING PROCESSORS AND A TEST SYSTEM INCLUDING PROCESSORS FOR VERIFYING THE SERIALIZING FUNCTION

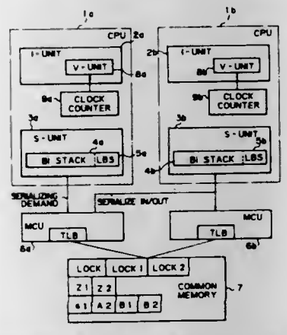
Akira Shimoda, Kanagawa, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed May 30, 1990, Ser. No. 530,327

Claims priority, application Japan, May 30, 1989, 01-136524

Int. Cl.[5] G06F *11/00*

U.S. Cl. 395—575 **12 Claims**



10. A test system having a plurality of processors in which data of predetermined areas in a common storage are transferred to an internal storage provided in a first processor the data is accessed by the plurality of processors, said test system verifying normality of a serializing function of inhibiting access to the data by a second processor during execution of a serializing instruction indicating a set of data read and write processings, said processor comprising:

synchronizing means for synchronizing an execution status of the first processor with an execution status of the second processor;

delay means for delaying execution by the first processor for a predetermined changeable period selected at random after completion of processing by said synchronizing means;

serializing means for executing said serializing instruction after completion of said delaying means to read a first area set for the first processor and write a given data in the first area, reading a second area set for the second processor to determine a write status of data by the second processor, and repeatedly reading the second area to determine the write status where the second area is in a non-write status;

error detection means for monitoring an execution status of the second processor and, where the second processor is still reading the second area to determine the write status after a lapse of predetermined time, indicating occurrence of an error; and

initializing means for initializing the internal storage and the common storage to control repetition of each processing from the synchronizing initially performed by said synchronizing means.

5,210,862

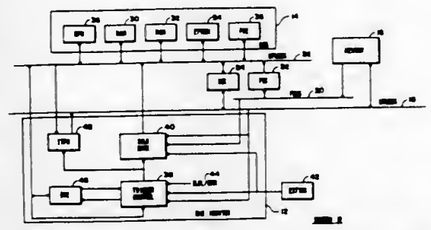
BUS MONITOR WITH SELECTIVE CAPTURE OF INDEPENDENTLY OCCURING EVENTS FROM MULTIPLE SOURCES

Douglas J. DeAngelis, Woburn; Henry W. J. Maddox, Franklin; Arthur Peters, Sudbury; Donald J. Rathbun, Methuen, and William L. Saltmarsh, Brockton, all of Mass., assignors to Bull HN Information Systems Inc., Billerica, Mass.

Filed Dec. 22, 1989, Ser. No. 455,667

Int. Cl.[5] G06F *11/34*

U.S. Cl. 395—575 **30 Claims**



1. Monitoring means for use in a computer system for selectively detecting and recording conditions at selected points within the system during operation, comprising:

means for storing a plurality of selectable trigger enabling codes, each enabling code corresponding to a trigger signal representing the occurrence of a corresponding condition to be detected,

means connected from a first plurality of selected points within the system and responsive to selected conditions occurring at the first points for generating trigger signals representing the occurrence of corresponding selected conditions,

means responsive to the trigger enabling codes and to the trigger signals for providing trigger outputs upon the occurrence of a trigger signal corresponding to a selected trigger enabling code, and

silo bank means connected from a second plurality of selected points within the system and responsive to the trigger outputs for recording the conditions present at the second points.

5,210,863

MULTI-PROCESSOR SYSTEM FOR DETECTING A MALFUNCTION OF A DUAL PORT MEMORY

Hiroshi Tomita, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Feb. 2, 1990, Ser. No. 473,818

Claims priority, application Japan, Feb. 3, 1989, 1-24957

Int. Cl.[5] G06F *11/00*

U.S. Cl. 395—575 **15 Claims**

1. A multi-processor system, comprising:

two processors;

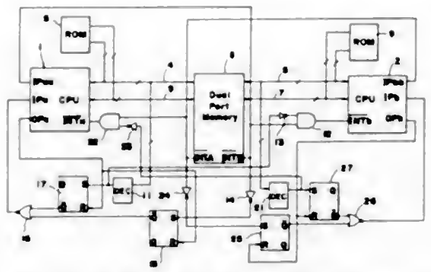
a dual port memory means for receiving from one of the processors an interrupt request signal together with data to be transmitted to the other processor and for transmitting an interrupt signal to said other processor;

said other processor having means for fetching said data from said dual port memory means during an interrupt procedure responsive to said interrupt signal; and

means, in said one processor and responsive to said interrupt signal transmitted from the dual port memory means to

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said other processor in response to said interrupt request signal generated from said one processor, for confirming



the status of the interrupt signal generating function of said dual port memory means.

5,210,864

PIPELINED MICROPROCESSOR WITH INSTRUCTION EXECUTION CONTROL UNIT WHICH RECEIVES INSTRUCTIONS FROM SEPARATE PATH IN TEST MODE FOR TESTING INSTRUCTION EXECUTION PIPELINE

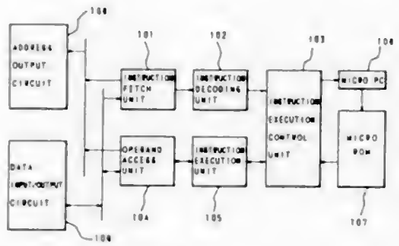
Toyohiko Yoshida, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 31, 1990, Ser. No. 531,482

Claims priority, application Japan, Jun. 1, 1989, 1-141512; Jun. 1, 1989, 1-141542

Int. Cl.[5] G06F *11/00*

U.S. Cl. 395—575 **4 Claims**



1. A microprocessor comprising:

an instruction fetch unit which fetches instructions belonging to a first instruction set from storage external to the microprocessor; and

an instruction decoding unit which decodes instructions fetched by said instruction fetch unit and outputs decoded results;

a data operation unit which operates on data in accordance with instructions belonging to said first instruction set and instructions belonging to a second instruction set different from said first instruction set; and

a first instruction path passing through said instruction fetch unit, said instruction decoding unit, and said data operation unit;

a second instruction path passing through neither through said instruction fetch unit nor said instruction decoding unit;

an instruction execution control unit, which, in a first mode, receives the decoded results of instructions belonging to said first instruction set from said first instruction path, and performs pipeline processing by coordinating the operation of said instruction fetch unit, said instruction decoding unit and said operation unit

and which, in a second mode receives instructions belonging to said second instruction set from said second instruction path, and

then, while in said second mode, diagnoses at least one of said instruction fetch unit, said instruction decoding unit and said operation unit in accordance with the received instructions of said second instructions set.

5,210,865

TRANSFERRING DATA BETWEEN STORAGE MEDIA WHILE MAINTAINING HOST PROCESSOR ACCESS FOR I/O OPERATIONS

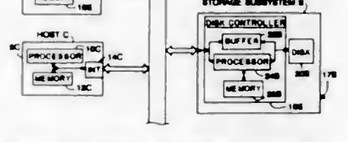
Scott H. Davis, Merrimack; William L. Goleman, Nashua, and David W. Thiel, Amherst, all of N.H., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 374,528, Jun. 30, 1989, abandoned.

This application Aug. 4, 1992, Ser. No. 925,307

Int. Cl.[5] G06F *13/00, 11/16*

U.S. Cl. 395—575 **23 Claims**



1. A method of transferring data between a first storage medium and a second storage medium, at least said first storage medium being accessible to one or more host processors for I/O operations that include writing data to said first storage medium, each of said storage media including data blocks with at least some data blocks of said first storage medium having corresponding data blocks in said second storage medium, said method comprising the steps of:

(a) reading data stored in a first data block in said first storage medium, the first data block initially constituting a current data block;

(b) comparing the data read in said current data block to data stored in a corresponding data block in said second storage medium;

(c) if the data compared in step b are identical, reading data stored in another data block in said first storage medium, said another data block becoming the current data block, and returning to step b;

(d) if the data compared in step b are not identical, modifying the data stored in one of said storage media by transferring data between said storage media to cause the data in said current data block and the data in said corresponding data block in said second storage medium to be identical while maintaining access to said first storage medium for said I/O operations by said one or more of said host processors; and

(e) rereading the data in said current data block and returning to step b.

5,210,866

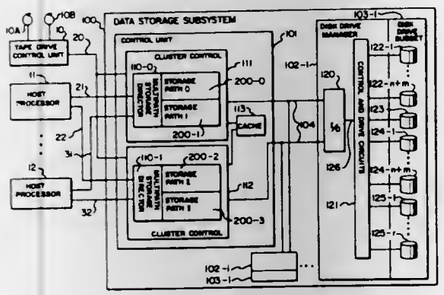
INCREMENTAL DISK BACKUP SYSTEM FOR A DYNAMICALLY MAPPED DATA STORAGE SUBSYSTEM

Charles A. Milligan, Golden; George A. Rudeseal, Boulder, and Jay S. Belsan, Nederland, all of Colo., assignors to Storage Technology Corporation, Louisville, Colo.

Filed Sep. 12, 1990, Ser. No. 582,260

Int. Cl.[5] G06F *11/20*

U.S. Cl. 395—575 **31 Claims**



1. Apparatus for backing up data records in a dynamically mapped data storage subsystem that stores data records for a host processor, said apparatus comprising:

a plurality of data storage devices, a subset of said plurality of data storage devices being configured into a plurality of redundancy groups, each redundancy group consisting of at least two data storage devices;

means for writing a stream of data records received from said host processor and redundancy data associated with said received stream of data records in a first memory location in a selected one of said redundancy groups;

means for storing a data record pointer indicative of said first memory location used to store said received stream of data records;

cache memory means;

means, responsive to receipt from said host processor of a request for access to one of said data records stored in said first memory location, for writing said requested data record into said cache memory means;

means, responsive to receipt of modifications to said requested data record received from said host processor, for writing said modified data record in a second memory location in a selected one of said redundancy groups;

means, responsive to said writing means, for indicating in said data record pointer said one data record stored in said first memory location as obsolete;

means for storing a modified data record pointer indicative of said second memory location of said written modified data record;

means, responsive to creation of a modified data record pointer, for storing a copy of a data record whose identity is defined by said modified data record pointer, comprising:

means for generating a duplicate data record pointer that identifies said second memory location of said modified data record; and

means for storing said duplicate data record pointer as the identity of a backup copy of said modified data record.

5,210,867

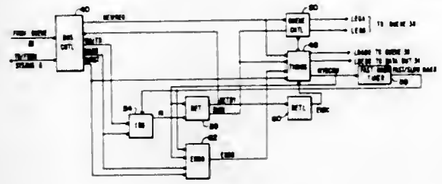
METHOD AND APPARATUS FOR MEMORY RETRY

George J. Barlow; Raymond D. Bowden, III, both of Tewksbury, Mass., and Michelle A. Pence, Nashua, N.H., assignors to Bull HN Information Systems Inc., Billerica, Mass.

Filed Oct. 5, 1990, Ser. No. 593,182

Int. Cl.[5] G06F *11/14*

U.S. Cl. 395—575 **9 Claims**



1. In a data processing system having a memory for storing and providing data, system elements for operating on the data, and a system bus connected between the memory and the system elements, each bus transfer including a request for a bus transfer operation and a response to a bus transfer operation and either a request for memory data or the requested data, each system element including a means for generating requests for data form the memory, the memory including a memory control means including a bus control means connected to the system bus for generating and providing on the system bus requests for bus transfers and for responding to requests provided on the system bus by system elements for bus transfers, the memory including a memory operation retry means, comprising:

memory timing means connected from the bus control means and responsive to a memory request on the system bus for generating a bus transfer signal for indicating the occurrence of a request for a bus transfer of memory data to a system element requesting memory data,

the bus control means connected from the system bus and responsive to the system element responses on the system bus to memory requests for bus transfers for asserting an improper response signal when the memory bus control means has received an improper response to a memory request for a bus transfer, and

retry means connected from the memory timing means and the memory bus control means and responsive to the improper response signal and to the bus transfer signal when the memory has asserted a request for a bus transfer of the memory data for generating a retry signal, wherein the memory control means is connected form the retry means and is responsive to the retry signal to latch the present memory request and the corresponding requested data in the memory, and

to attempt to retry to transmit the requested data to the requesting system element.

5,210,868

DATABASE SYSTEM AND MATCHING METHOD BETWEEN DATABASES

Shigeru Shimada, Kodaira; Kazuyuki Suzuki, Toride; Naoki Yamamoto, Funabashi; Nobuyuki Chikada, Tama, and Sirou Takei, Konosu, all of Japan, assignors to Hitachi Ltd. and The Tokyo Electric Power Co., Inc., both of Tokyo, Japan

Filed Dec. 19, 1990, Ser. No. 630,328

Claims priority, application Japan, Dec. 20, 1989, 1-328515; Feb. 9, 1990, 2-028561

Int. Cl.[5] G06F *15/40*

U.S. Cl. 395—600 **17 Claims**

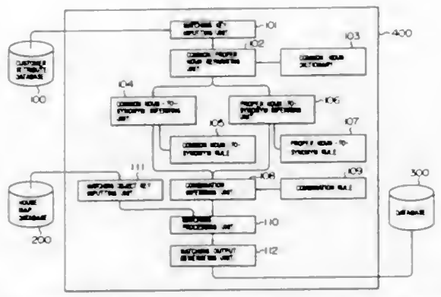
1. A database system comprising:

a first database for storing a matching keyword;

a second database for storing a matching object keyword;

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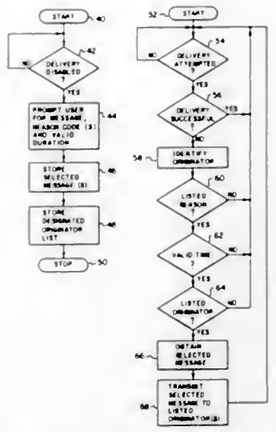
first inputting means for inputting the matching keyword from said first database;
separating means for separating the matching keyword into a common noun part and a proper noun part in accordance with a common noun dictionary;
first inferring means for inferring first noun parts associated with the separated common noun part in accordance with a first rule;
second inferring means for inferring second noun parts associated with the separated proper noun part in accordance with a second rule;



a combination inferring means for combining each of the first noun parts with each of the second noun parts to form combinations and for inferring candidates associated with the matching keyword from the combinations in accordance with a combination rule;
second inputting means for inputting the matching object keyword from said second database;
matching means for performing a matching process of the matching object keyword to each of the candidates; and
output means for generating and outputting a matching output based on a result of the matching process.

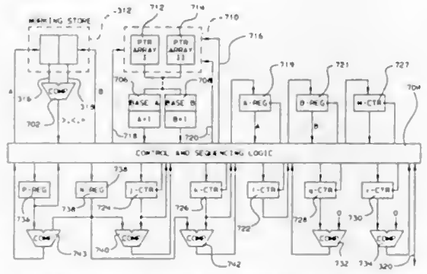
5,210,869
METHOD AND SYSTEM FOR AUTOMATED TRANSMISSION OF FAILURE OF DELIVERY MESSAGE IN A DATA PROCESSING SYSTEM
Marvin L. Williams, Lewisville, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 24, 1990, Ser. No. 528,678
Int. Cl.[5] G06F *3/00, 13/00*
U.S. Cl. 395—600 **3 Claims**

1. A method in a data processing system having an electronic mail delivery system for transmitting and receiving electronic documents between users within said data processing system for the automated transmission of specific failure of delivery message, said method comprising the data processing system implemented steps of:
prompting a first user within said data processing system to enter a specific message within said data processing system in response to an occurrence of a selected action among a plurality of actions which disables delivery of an electronic document to said first user, said specific message setting forth selected details regarding said selected action;
monitoring within said data processing system an attempted delivery of an electronic document from a second user within said data processing system to said first user; and
automatically transmitting said specific message to said second user in response to an unsuccessful attempt to delivery said electronic document to said first user



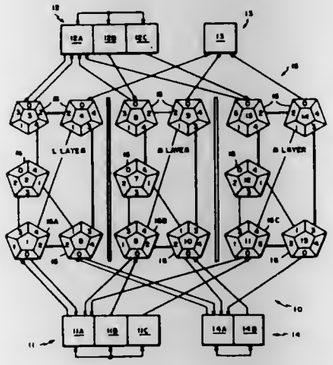
wherein said second user will automatically receive selected details regarding said action.

5,210,870
DATABASE SORT AND MERGE APPARATUS WITH MULTIPLE MEMORY ARRAYS HAVING ALTERNATING ACCESS
Richard I. Baum, Poughkeepsie; Glen A. Brent, Fishkill; Donald H. Gibson, Salt Point, and David B. Lindquist, Poughkeepsie, all of N.Y., assignors to International Business Machines, Armonk, N.Y.
Filed Mar. 27, 1990, Ser. No. 499,844
Int. Cl.[5] G06F *7/08*
U.S. Cl. 395—600 **1 Claim**



1. An apparatus for sorting and merging a plurality of keys, comprising:
first memory array means for storing the keys at respective memory addresses, the first memory array means having first and second addressable areas therein, the first and second addressable areas being independently and simultaneously accessible;
second memory arrays means for storing the memory addresses of the keys;
third memory array means for storing the memory addresses of the keys;
write enable means for alternately reading and write enabling the second and third memory array means for reading and writing said addresses from one of said second and third memory array means to the other memory array means in alternating fashion for each sorting pass until said keys are sorted and merged;
comparator means coupled with the first memory means, for comparing a first key from one of the first addressable areas with a second key from one of the second addressable areas; and
control means, coupled with the first memory array means, the second memory array means, the third memory array means, the write enable means, the counter means, and the comparator means, for:
reading first and second addresses of first and second ones of the keys from a non-write enabled one of the second and third memory means,
causing addressing the first and second addressable areas of the first memory means with the first and second addresses for comparing said keys, and
writing each winning key into the write-enabled one of the second and third memory array means, responsive to a comparison of the keys by the comparator means.

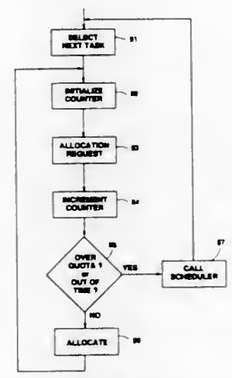
5,210,871
INTERPROCESSOR COMMUNICATION FOR A FAULT-TOLERANT, MIXED REDUNDANCY DISTRIBUTED INFORMATION PROCESSING SYSTEM
Jaynarayan H. Lala, Wellesley, and Stuart J. Adams, Medford, both of Mass., assignors to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.
Continuation of Ser. No. 219,987, Jul. 15, 1988, abandoned. This application Jul. 31, 1990, Ser. No. 561,362
Int. Cl.[5] G06F *9/46, 15/16*
U.S. Cl. 395—650 **9 Claims**



1. A method for use in a system which includes a plurality of processing sites for performing tasks having criticality levels which range from a highest criticality level to lower criticality levels, said processing sites having priority levels which range from a highest priority level to lower priority levels, and means for providing shared communication among the processing sites, the processing sites having the same or different redundancies, said method providing a process for resolving contentions among more than one processing site for access to the shared communication means and comprising the steps of
(1) providing a starting signal from each processing site contending for access to each other processing site to synchronize the start of the process for resolving access contention;
(2) determining which of the contending processing sites have the same highest redundancy for performing tasks having the highest criticality levels;
(3) determining the highest priority level of the processing sites determined in step (2); and

(4) providing access to said shared communication means to the processing site having said highest priority level.

5,210,872
CRITICAL TASK SCHEDULING FOR REAL-TIME SYSTEMS
Edward E. Ferguson, Plano, and Dexter S. Cook, Carrollton, both of Tex., assignors to Texas Instruments Inc., Dallas, Tex.
Filed Jun. 28, 1991, Ser. No. 722,776
Int. Cl.[5] G06F *9/46*
U.S. Cl. 395—650 **20 Claims**



1. A method of scheduling tasks to be executed by a real time embedded computer system having a resource that is consumed in bits per unit of time, comprising:
associating a currently executing task with a maximum allocation value, wherein said maximum allocation value represents the maximum number of bits that said task may consume per activation;
counting, in terms of bits, the consumption of said resource, at intervals as said task executes;
comparing said consumption value with said maximum allocation value; and
delivering a signal to a scheduler, if said counter value exceeds said maximum allocation value, which indicates that said task must discontinue execution.

5,210,873
REAL-TIME COMPUTER SYSTEM WITH MULTITASKING SUPERVISOR FOR BUILDING ACCESS CONTROL OR THE LIKE
Kirk W. Gay, Grand Prairie, and Dan Selari, Grapevine, both of Tex., assignors to CSI Control Systems International, Inc., Carrollton, Tex.
Filed May 25, 1990, Ser. No. 529,227
Int. Cl.[5] G06F *9/38, 9/46*
U.S. Cl. 395—650 **3 Claims**

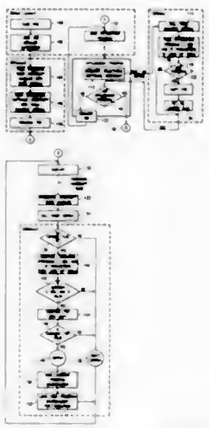
3. In a computer having a processor and a memory, a method of real-time concurrent progressing in which time-sliced task switching occurs responsive to an interrupt timer of said computer among multiple independent reentrant programs and other independent nonreentrant programs all stored in said memory, each said program including a program segment prefix also stored in said memory, said method comprising the computer-implemented steps of:
storing a set of code segment and instruction pointer parameters for each of said reentrant programs in a look-up table of said memory during loading of said programs;
storing in a look-up table of said memory said program segment prefix for the last of said reentrant programs to be loaded;

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comparing in said processor the code segment and instruction pointer parameters of said reentrant or nonreentrant program currently executing in said processor with said stored code segment and instruction pointer parameters;

comparing in said processor the program segment prefix currently associated with said currently executing program with said stored program segment prefix; and

switching said processor from execution of the program currently executing in said processor to execution of the next said reentrant or nonreentrant program responsive to



said interrupt timer when the code segment and instruction pointer parameters of said currently executing program match with a set of said stored code segment and instruction pointer parameters and when said current program segment prefix matches said stored program segment prefix, such that said switching from execution responsive to said interrupt timer is permitted prior to completion of said program tasks only for said reentrant programs, and only when said current program segment prefix is intact.

5,210,874

CROSS-DOMAIN CALL SYSTEM IN A CAPABILITY BASED DIGITAL DATA PROCESSING SYSTEM

Paul A. Karger, Acton, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 226,381, Jul. 29, 1988, abandoned. This application Apr. 8, 1992, Ser. No. 865,699

Claims priority, application United Kingdom, Mar. 22, 1988, 8806754

Int. Cl.[5] G06F *9/46*

U.S. Cl. 395—650 **51 Claims**

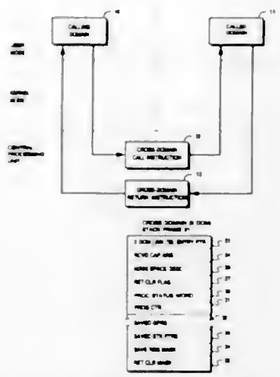
1. In a digital data processing system including a calling program and an associated first domain and a called program and an associated second domain, a cross-domain transfer system comprising:

A. cross-domain stack means having a plurality of stack frames including a stack frame that corresponds to said first domain and a stack frame that corresponds to said second domain, each stack frame having a return clear flag;

B. cross-domain call means including:

i. capability generating means associated with said calling program for selectively generating a capability for transmission to said called program, said capability identifying information to be used by the called program, and, if a capability is generated, for storing said capability in the stack frame that corresponds to said second domain of said called program during a cross-domain call operation;

ii. return clear flag condition establishment means responsive to said capability generating means for selectively conditioning the return clear flag in the stack frame that corresponds to said first domain of said calling program to a condition that indicates whether said capability is to



be erased from said stack frame that corresponds to said second domain; and

C. cross-domain return means associated with said called program for erasing or not erasing said capability from said stack frame that corresponds to said second domain in response to said condition of the return clear flag in said stack frame that corresponds to said first domain of said calling program during a cross-domain return operation.

5,210,875

INITIAL BIOS LOAD FOR A PERSONAL COMPUTER SYSTEM

Richard Bealkowski, Delray Beach; John W. Blackledge, Jr., Boca Raton; Doyle S. Cronk, Boca Raton; Richard A. Dayan, Boca Raton; Scott G. Kinnear, Boca Raton; George D. Kovach, Boca Raton, all of Fla.; Matthew S. Palka, Jr., Raleigh, N.C.; Robert Sachsenmaier, Boca Raton, Fla., and Kevin M. Zyvoloski, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 25, 1989, Ser. No. 398,865

The portion of the term of this patent subsequent to Jun. 4, 2008, has been disclaimed.

Int. Cl.[5] G06F *9/06*

U.S. Cl. 395—700 **27 Claims**

1. An apparatus for loading an operational interface into a personal computer system, the personal computer system including a system processor and a random access memory electrically coupled thereto, said apparatus comprising:

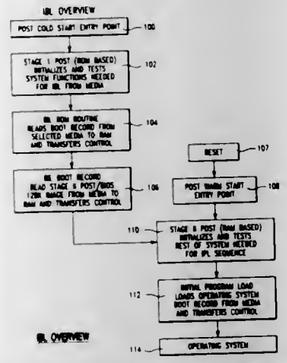
a direct access storage device being electrically coupled to the system processor, said direct access storage device being capable of storing a plurality of data records;

a master boot record stored on the direct access storage device, said master boot recording including an executable code segment;

a read only memory being electrically coupled to the system processor;

a first portion of the operational interface stored in the read only memory starting at a particular address, said first portion of the operational interface initializing the system and the direct access storage device to load in said master boot record into random access memory; and

a remaining portion of the operational interface stored on the direct access storage device, wherein the first portion of the operational interface transfers control to the executable code segment of the master boot record in order to effect the loading of the remaining portion of the operational interface into the random access memory, said remaining portion of the operational interface being



stored starting at said particular address and superseding the first portion of the operational interface and initializing the rest of the personal computer system in order to load in an operating system to begin operation of the personal computer system.

5,210,876

METHOD FOR CALLING INTERPRETER LANGUAGE PROCEDURE FROM COMPILER LANGUAGE PROCEDURE

Seiji Uchida, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 5, 1989, Ser. No. 361,056

Claims priority, application Japan, Jun. 6, 1988, 63-137397

Int. Cl.[5] G06F *9/45*

U.S. Cl. 395—700 **1 Claim**

1. An interpreter system comprising:

a main memory in which an interpreter function is stored;

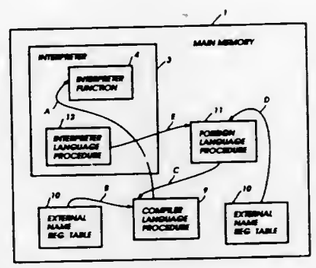
an auxiliary memory for storing an object file containing a foreign language procedure and a plurality of other procedures;

compiler language procedure generating means coupled to said main memory for generating a compiler language procedure in said main memory in accordance with a function name of said interpreter function, a name of said foreign language procedure for calling said interpreter function, a return data type name of said interpreter function and an argument data type name, said compiler language procedure being linked to said interpreter function;

external name registration means responsive to the generation of said compiler language procedure for generating in said main memory an external name registration table containing data for addressing said foreign language procedure and said compiler language procedure;

first dynamic linking means operable in response to the generation of said external name registration table for reading said object file from said auxiliary memory and the contents of said external name registration table;

second dynamic linking means responsive to said first dynamic linking means reading said object file and said contents of said external name registration table for establishing reference relationships between said foreign language procedure and said plurality of other procedures in accordance with said external name registration table;



third dynamic linking means responsive to said second dynamic linking means establishing said reference relationships for transferring said foreign language procedure and said other procedures from said auxiliary memory to said main memory, and linking said transferred procedures to said compiler language procedure and to said external name registration table; and

interpreter language procedure generating means for generating an interpreter language procedure in said main memory and linking the interpreter language procedure to said foreign language procedure;

whereby the transferred procedures are able to call said interpreter function by way of said compiler language procedure.

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DESIGN PATENTS

GRANTED May 11, 1993

ERRATA

For CLASS	See PATENT NO.
D08-068	335,474

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1150
ISS
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11
1993
UMI

335,383
DRESSED BIRD SHAPE
Georg J. Freudensprung, West Vancouver, Canada, assignor to European Technology Transfer Inc., Canada
Filed Jul. 25, 1991, Ser. No. 738,733
Term of patent 14 years
U.S. Cl. D1—199



335,384
COVER FOR A HELMET
Julie Y. Beitscher, and Warren S. Beitscher, both of 2930 Cimarron Ct., Ft. Collins, Colo. 80526
Filed May 9, 1991, Ser. No. 697,474
Term of patent 14 years
U.S. Cl. D2—250



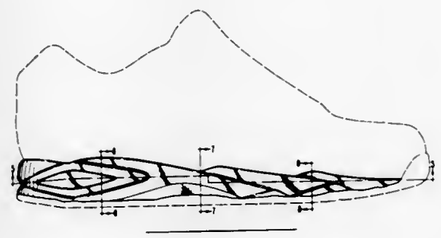
335,385
SPORT SHOE
Kazuma Kawabata, Okegawa, Japan, assignor to Kanechika Co., Ltd., Saitama, Japan
Filed Mar. 17, 1989, Ser. No. 325,353
Term of patent 14 years
U.S. Cl. D2—309



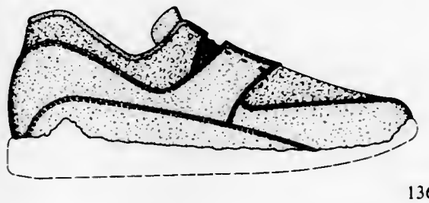
335,386
SHOE UPPER
Pamela S. Greene, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Feb. 27, 1992, Ser. No. 841,455
Term of patent 14 years
U.S. Cl. D2—314



335,387
SHOE SOLE FOOT FRAME
Wilson W. Smith, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed May 6, 1992, Ser. No. 879,228
Term of patent 14 years
U.S. Cl. D2—314

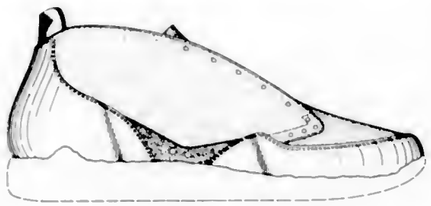


335,388
SHOE UPPER
Tinker L. Hatfield, and Alexander W. Bodecker, both of Portland, Oreg., assignors to Nike, Inc., Beaverton, Oreg.
Filed Jan. 10, 1992, Ser. No. 818,974
Term of patent 14 years
U.S. Cl. D2—314



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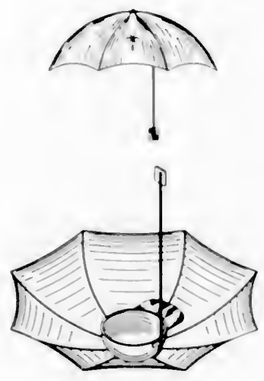
335,389
SHOE UPPER
Tinker L. Hatfield, and Alexander W. Bodecker, both of Portland, Oreg., assignors to Nike, Inc., Beaverton, Oreg.
Filed Jan. 10, 1992, Ser. No. 818,975
Term of patent 14 years
U.S. Cl. D2—314



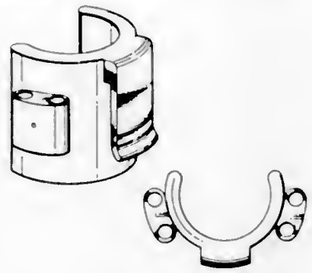
335,390
ORNAMENTAL HAIRBOW—HAIRPIECE COMBINATION
Hyo J. Yim, 33-80 161 St., Flushing, N.Y. 11358
Filed Sep. 20, 1991, Ser. No. 763,070
Term of patent 14 years
U.S. Cl. D2—501



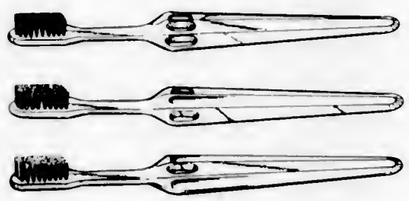
335,391
HEAD MOUNTED UMBRELLA
Raymond R. Boos, 1138 Florence Ave., Galesburg, Ill. 61401
Filed Jun. 15, 1990, Ser. No. 539,518
Term of patent 14 years
U.S. Cl. D3—5



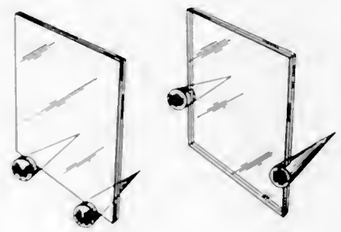
335,392
MINI CADDY
Ned Topic, Hamilton, Canada, and Mike Demeter, 700 Upper Kenilworth, Apt. 720, Hamilton, Ontario L8T 4W1, Canada, assignors to Ned L. Topic and Mike Demeter, both of Hamilton, Canada
Filed Nov. 27, 1990, Ser. No. 618,829
Term of patent 14 years
U.S. Cl. D3—104



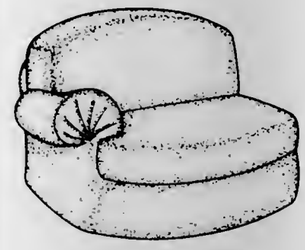
335,393
TOOTHBRUSH
Saree Pakarnseree, 885 Sukumvit, Klongton, Prakanong Bangkok 10110, Thailand
Filed Mar. 23, 1989, Ser. No. 328,346
Term of patent 14 years
U.S. Cl. D4—104



335,394
PICTURE FRAME
Maral Chamlian, Montreal, Canada, assignor to Zanazan U.S.A. Inc., Montréal, Canada
Filed Dec. 21, 1990, Ser. No. 633,436
Term of patent 14 years
U.S. Cl. D6—310



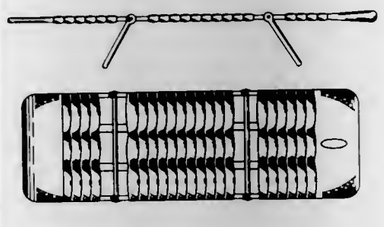
335,395
SECTIONAL SOFA END PIECE
Andrew C. Gibson, Greensboro, N.C., assignor to Henredon Furniture Industries, Inc., Morganton, N.C.
Filed Oct. 2, 1990, Ser. No. 591,843
Term of patent 14 years
U.S. Cl. D6—334



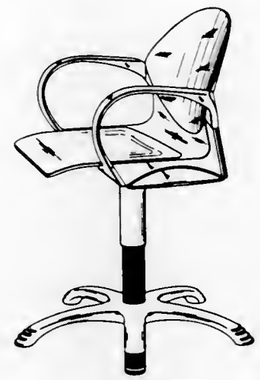
335,396
COMBINATION SEAT AND COVER FOR HUNTERS
David A. Keadle, 2869 Barnesville Hwy., Thomastoo, Ga. 30286
Filed Jan. 23, 1991, Ser. No. 645,016
Term of patent 14 years
U.S. Cl. D6—335



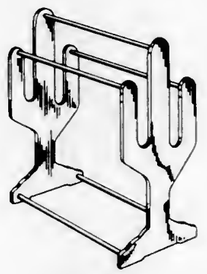
335,397
LOUNGE CHAIR
Gerry D. Fox, 2294 Otranto Rd., North Charleston, S.C. 29418
Filed Oct. 19, 1990, Ser. No. 600,072
Term of patent 14 years
U.S. Cl. D6—361



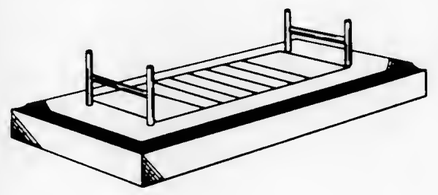
335,398
ARMCHAIR
Charles Heidmann, Strasbourg, France, assignor to Steelcase Strafor, Strasbourg, France
Filed Oct. 16, 1990, Ser. No. 597,842
Claims priority, application France, Apr. 20, 1990, 902813
Term of patent 14 years
U.S. Cl. D6—366



335,399
BLANKET RACK
Timothy R. Hubbard, 6759W 450N, Michigan City, Ind. 46360
Filed Sep. 30, 1991, Ser. No. 764,935
Term of patent 14 years
U.S. Cl. D6—412



335,400
DISPLAY STAND FOR SPORTS TROPHIES
Frank J. Reich, 537 Hemlock La., Labanon, Pa. 17042
Filed Apr. 8, 1991, Ser. No. 681,386
Term of patent 14 years
U.S. Cl. D6—450

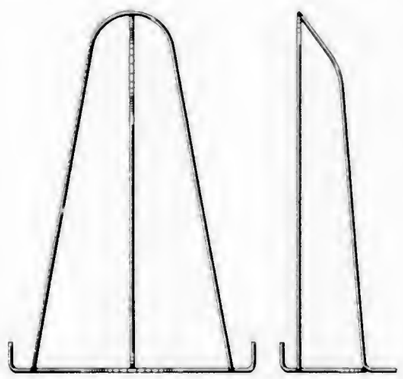


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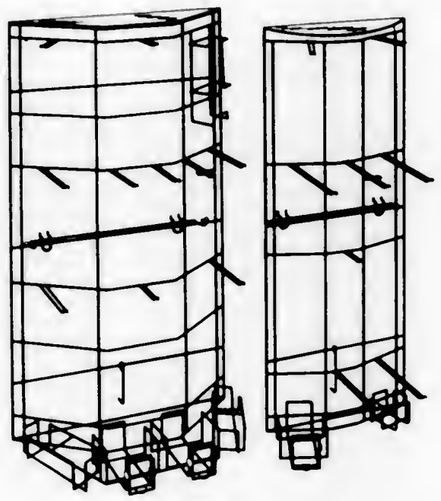
335,401
DISPLAY STAND
Judith E. Nations, Rte. 2 Box 17-B1, Noel, Mo. 64854
Filed May 25, 1990, Ser. No. 528,781
Term of patent 14 years
U.S. Cl. D6—462



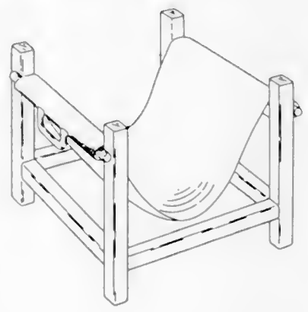
335,402
CLOTHES HANGER CADDY
William E. Eckner, 200 North Broadway, Broken Bow, Okla. 74728
Filed Oct. 17, 1991, Ser. No. 778,609
Term of patent 14 years
U.S. Cl. D6—462



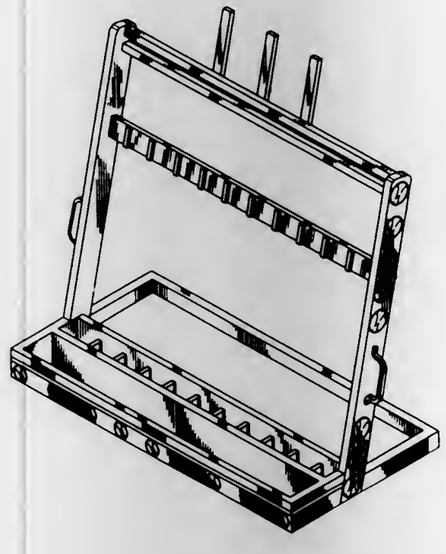
335,403
DISPLAY RACK
Gerry Rittenberg, Mamaroneck, N.Y., assignor to Amscan Incorporated, Harrison, N.Y.
Filed Feb. 5, 1992, Ser. No. 832,755
Term of patent 14 years
U.S. Cl. D6—464



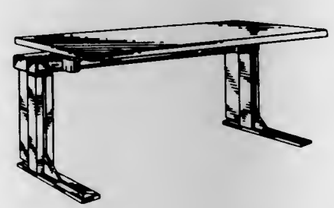
335,404
LOG HOLDER
Judy Fleury, RR #2, Arthur, Ontario, Canada N0G 1A0
Filed Sep. 14, 1990, Ser. No. 583,767
Term of patent 14 years
U.S. Cl. D6—466



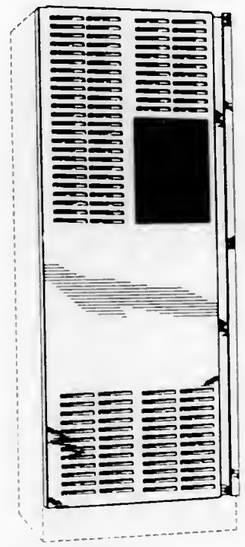
335,405
LITTLE LEAGUE EQUIPMENT STAND
William F. Tiedge, 380 McKinley St., West Hempstead, N.Y. 11552
Filed Apr. 9, 1991, Ser. No. 682,222
Term of patent 14 years
U.S. Cl. D6—467



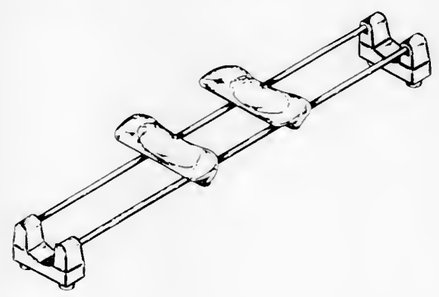
335,406
TABLE
Robert Vonhausen, Giessen, Fed. Rep. of Germany, assignor to Vermogensverwaltung Franz Vogt Familienstiftung KG, Fed. Rep. of Germany
Division of Ser. No. 222,734, Jul. 22, 1988. This application Jul. 20, 1992, Ser. No. 914,737
Claims priority, application Fed. Rep. of Germany, Jan. 25, 1988, 21 MR 609
Term of patent 14 years
U.S. Cl. D6—484



335,407
CABINET DOOR
Jenna P. C. Ngian, Pacific Mansion, Singapore; Steven B. Davis, New Hartford, and William Weirsman, Shelton, both of Conn., assignors to Otis Elevator Company, Farmington, Conn.
Filed Apr. 9, 1990, Ser. No. 506,656
Term of patent 14 years
U.S. Cl. D6—492

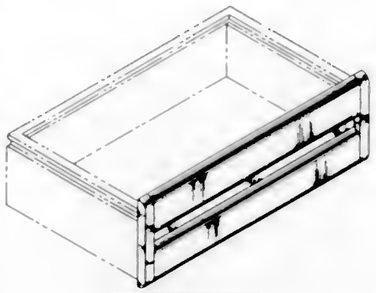


335,408
FREE SLIDING HAND REST
Tony Nespor, 2515 Glencoe Rd., Baltimore, Md. 21234, and Walter Dandy, III, 12 E. Eager St., Baltimore, Md. 21202
Filed Nov. 14, 1990, Ser. No. 612,877
Term of patent 14 years
U.S. Cl. D6—501

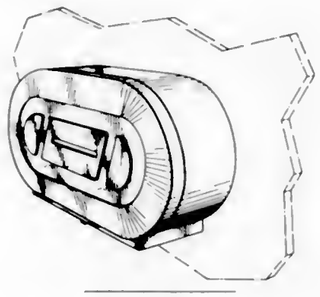


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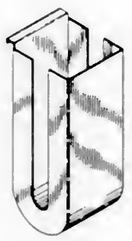
335,409
DRAWER FRONT
Kenneth K. Kellems, Costa Mesa, Calif., assignor to The Stanley Works, New Britain, Conn.
Filed Aug. 10, 1990, Ser. No. 566,228
Term of patent 14 years
U.S. Cl. D6—510



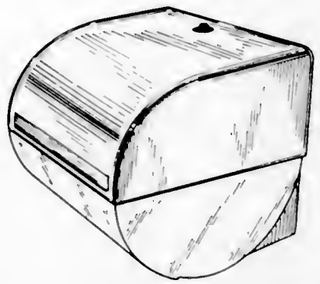
335,410
TOILET TISSUE DISPENSER
Paul C. Abel, Northridge, and Marvin C. Wells, Thousand Oaks, both of Calif., assignors to Bobrick Washroom Equipment, Inc., North Hollywood, Calif.
Filed Sep. 10, 1991, Ser. No. 757,119
Term of patent 14 years
U.S. Cl. D6—520



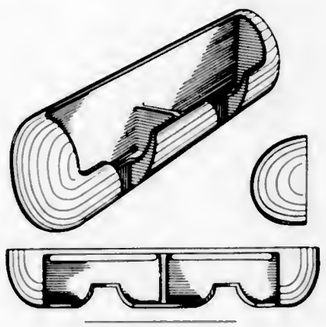
335,411
TOILET PAPER HOLDER
David J. Martens, 2592 E. Bourquin Crescent, Abbotsford, British Columbia, Canada V2S 1Y4
Filed Sep. 24, 1991, Ser. No. 764,470
Term of patent 14 years
U.S. Cl. D6—520



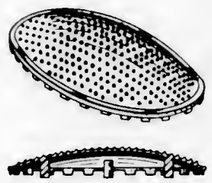
335,412
ROLL TOWEL DISPENSER
James M. Howard, Dover, and Tom R. Uhl, Colonia, both of N.J., assignors to Scott Paper Company, Philadelphia, Pa.
Filed Sep. 30, 1991, Ser. No. 768,483
Term of patent 14 years
U.S. Cl. D6—522



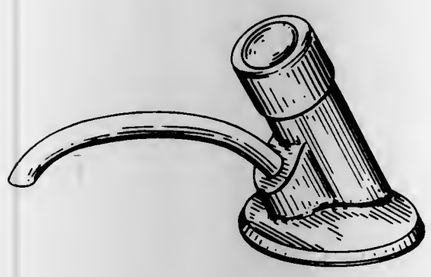
335,413
RAZOR HOLDER FOR SHOWER OR BATH
Glen M. Lizanetz, 3674 Mathias Ct., Verona, Wis. 53913-9574, and Geoffrey Fancher, 4240 Beverly Road, Madison, Wis. 53711
Filed Jul. 31, 1991, Ser. No. 738,933
Term of patent 14 years
U.S. Cl. D6—526



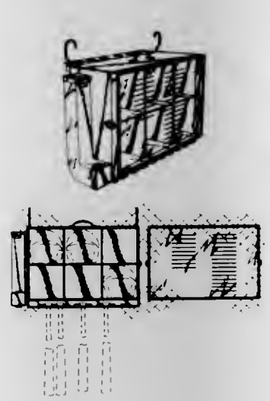
335,414
SOAP HOLDER
Athar Ali, 4698 Highway 124, Hoschton, Ga. 30548
Filed Jul. 31, 1990, Ser. No. 560,976
Term of patent 14 years
U.S. Cl. D6—536



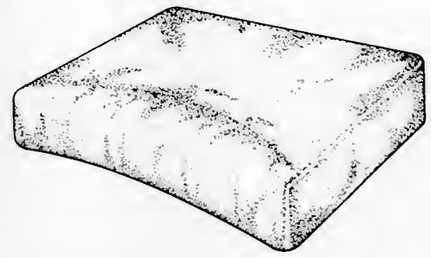
335,415
LIQUID SOAP DISPENSER
Allen E. Brandenburg, Austin, Tex., assignor to Scott Paper Company, Philadelphia, Pa.
Filed Jun. 10, 1991, Ser. No. 712,802
Term of patent 14 years
U.S. Cl. D6—542



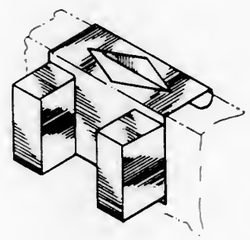
335,416
BASEBALL EQUIPMENT STORAGE AND ORGANIZER CASE
Christopher A. Shaw, 8733 Tracy Dr., Oklahoma City, Okla. 73132
Filed Aug. 23, 1991, Ser. No. 749,414
Term of patent 14 years
U.S. Cl. D6—552



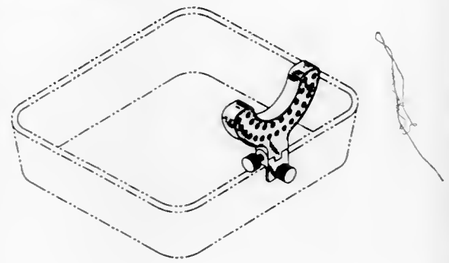
335,417
CUSHION
Bonny Jonasson, Postlada 3129, S-343 00 Älmhult, Sweden
Filed Aug. 27, 1990, Ser. No. 572,788
Claims priority, application Sweden, Feb. 28, 1990, 90-0437
Term of patent 14 years
U.S. Cl. D6—601



335,418
PORTABLE TRANSPORTATION HEADREST
Anita G. Bowes, 97 Berlin St., Barre, Vt. 05641, and Susan A. Weber, R.R. #1, Box 8612, Waterbury Center, Vt. 05677
Filed Oct. 4, 1990, Ser. No. 592,873
Term of patent 14 years
U.S. Cl. D6—601

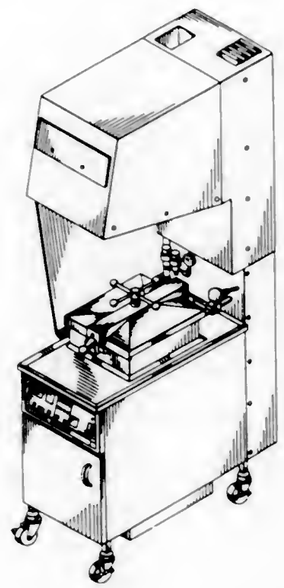


335,419
SALON NECK REST
Debbie L. Michalek, 1200 Wimbledon Dr., Lodi, Calif. 95240
Filed Jan. 4, 1991, Ser. No. 637,496
Term of patent 14 years
U.S. Cl. D6—601

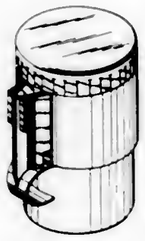


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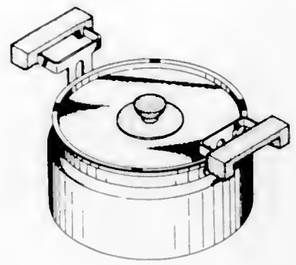
335,420
DEEP FAT FRYER WITH A VENTLESS HOOD
David O. Moore, Eaton, Ohio, assignor to Henny Penny Corporation, Eaton, Ohio
Filed Jan. 25, 1990, Ser. No. 471,237
Term of patent 14 years
U.S. Cl. D7—347



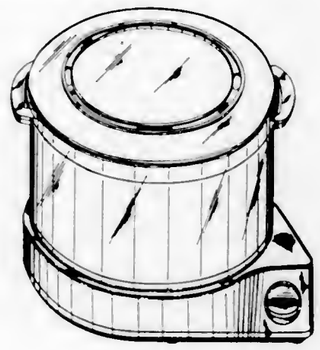
335,421
ELECTRIC COFFEE MAKING MACHINE
Bernd Glassen, Solingen, Fed. Rep. of Germany, assignor to Robert Krups AG, Solingen, Fed. Rep. of Germany
Filed Jan. 7, 1991, Ser. No. 638,411
Term of patent 14 years
U.S. Cl. D7—309



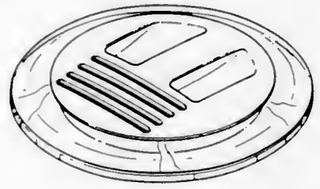
335,422
COOK POT WITH COVER
Kaori Mano, and Nobuyuki Enomoto, both of Kyoto, Japan, assignors to Japan Oxygen Co., Ltd., Tokyo, Japan
Filed Jan. 30, 1990, Ser. No. 472,673
Term of patent 14 years
U.S. Cl. D7—360



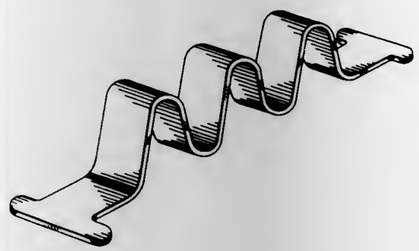
335,423
FOOD STEAMER
Stuart Naft, Stratford, and Bryan P. deBlois, West Haven, both of Conn., assignors to Black & Decker Inc., Newark, Del.
Filed Mar. 1, 1991, Ser. No. 683,621
Term of patent 14 years
U.S. Cl. D7—360



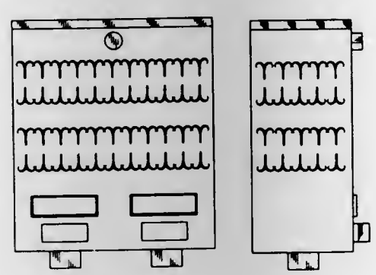
335,424
MULTI-COOKER COVER
Kwei T. Chang, No. 14, Lane 54, Luong Chuan St., Panchiao, Taipei Hsien, Taiwan
Filed Apr. 4, 1990, Ser. No. 505,109
Term of patent 14 years
U.S. Cl. D7—391



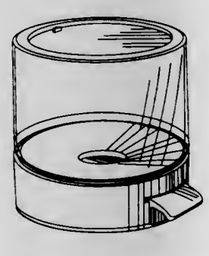
335,425
TACO HOLDER
Jackie N. Shular, 407 W. Plum St., Georgetown, Ohio 45121
Filed May 24, 1991, Ser. No. 705,167
Term of patent 14 years
U.S. Cl. D7—504



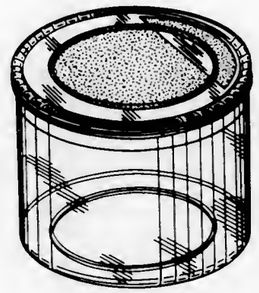
335,426
CONDIMENT DISPENSER
Mark A. Nowak, 10333 Scott Ave., Whittier, Calif. 90603
Filed Jun. 15, 1990, Ser. No. 538,468
Term of patent 14 years
U.S. Cl. D7—589



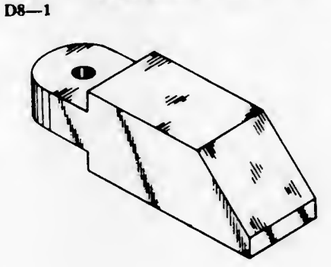
335,427
DRY FOOD STORAGE CONTAINER
Wayne D. Husted, 2960 Scott St., San Francisco, Calif. 94123
Filed Jun. 20, 1991, Ser. No. 718,849
Term of patent 14 years
U.S. Cl. D7—589



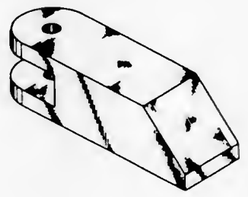
335,428
COVERED CANISTER
Augusto A. Picozza, Orlando, Fla.; and Stig Lillelund, Gentofte, Denmark, assignors to Dart Industries Inc., Deerfield, Ill.
Filed Mar. 28, 1991, Ser. No. 677,273
Term of patent 14 years
U.S. Cl. D7—612



335,429
MALE END CAP FOR LANDSCAPING TERRACING
Harry W. Scott, Jr., Dover; Randall W. Britt, and Kenneth L. Renfroe, both of Russellville, all of Ark., assignors to Thompson Industrial Inc., Russellville, Ark.
Filed Jul. 1, 1991, Ser. No. 724,358
Term of patent 14 years
U.S. Cl. D8—1

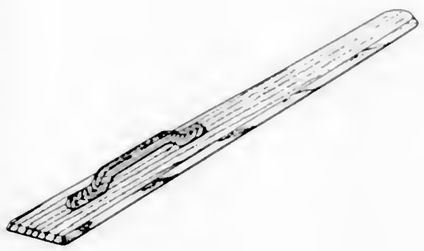


335,430
FEMALE END CAP FOR LANDSCAPING TERRACING
Harry W. Scott, Jr., Dover; Randall W. Britt, and Kenneth L. Renfroe, both of Russellville, all of Ark., assignors to Thompsoo Industries Inc., Russellville, Ark.
Filed Jul. 1, 1991, Ser. No. 724,359
Term of patent 14 years
U.S. Cl. D8—1

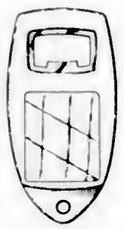


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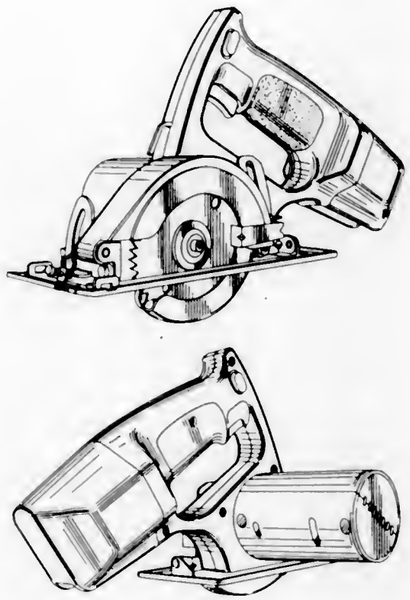
335,431
FLOAT FOR REMOVING AIR POCKETS FROM WATER BEDS
Debra J. Robinson, 6409 Meadowlark Dr. SW., Cedar Rapids, Iowa 52404
Filed Apr. 1, 1991, Ser. No. 679,571
Term of patent 14 years
U.S. Cl. D8—14



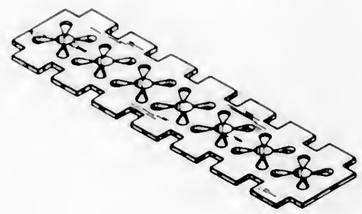
335,432
COMBINED KEY FOB AND BOTTLE OPENER
Peter R. Vaughan, Flat 10, Hillcliffe Court 95-97 South Promenade, St. Annes Lancs., United Kingdom
Filed Jan. 28, 1991, Ser. No. 648,441
Claims priority, application United Kingdom, Jul. 28, 1990, 2008619
Term of patent 14 years
U.S. Cl. D8—34



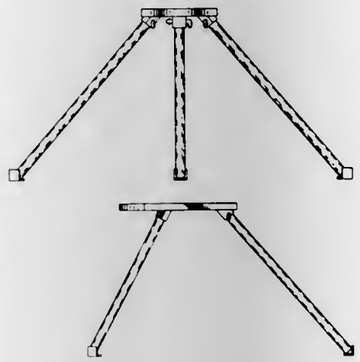
335,433
PORTABLE CIRCULAR SAW
William H. Schultz, Northbrook, and C. Robert Moon, Joliet, both of Ill., assignors to Skil Corporation, Chicago, Ill.
Filed Mar. 1, 1991, Ser. No. 664,644
Term of patent 14 years
U.S. Cl. D8—66



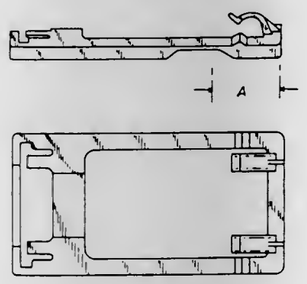
335,434
SCREW HOLDING BELT
Makoto Someya, Tokyo, Japan, assignor to Santomi Shoji Co., Ltd., Tokyo, Japan
Filed Dec. 4, 1990, Ser. No. 622,090
Claims priority, application Japan, Jul. 13, 1990, 2-19964
Term of patent 14 years
U.S. Cl. D8—71



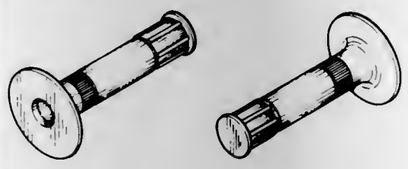
335,435
STAND FOR A VISE
Russell Lawson, 574 Wrights Mill Rd., Aiken, S.C. 29801
Filed Mar. 7, 1991, Ser. No. 665,727
Term of patent 14 years
U.S. Cl. D8—71



335,436
CLAMP FOR WIRE
Katsuyuki Morita, Kasugai, Japan, assignor to Kitagawa Industries Co., Ltd., Japan
Filed May 22, 1991, Ser. No. 704,008
Claims priority, application Japan, Nov. 26, 1990, 2-39380
Term of patent 14 years
U.S. Cl. D8—72



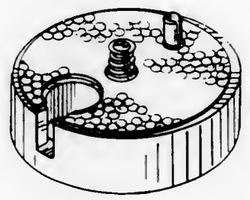
335,437
MOTORCYCLE HANDLEBAR GRIP
Ken Wilson, 9926 Prospect Ave., Santee, Calif. 92071
Filed Nov. 4, 1991, Ser. No. 786,976
Term of patent 14 years
U.S. Cl. D8—303



335,438
LATCH FOR A SLIDING WINDOW
Harry M. Riegelman, Arlington, Tex., assignor to M & C Manufacturing Company, Waukee, Iowa
Filed Feb. 1, 1991, Ser. No. 649,823
Term of patent 14 years
U.S. Cl. D8—331

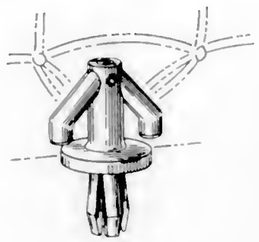


335,439
SECURITY CABLE ANCHOR
Roger J. Leyden, Willow Springs, and Terrance Surma, Bloomingdale, both of Ill., assignors to Se-Kure Controls, Inc., Chicago, Ill.
Filed Feb. 21, 1991, Ser. No. 664,641
Term of patent 14 years
U.S. Cl. D8—332

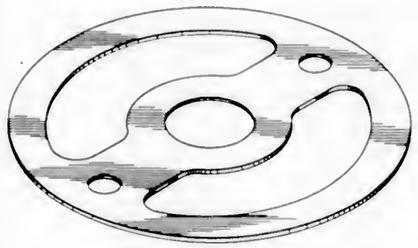


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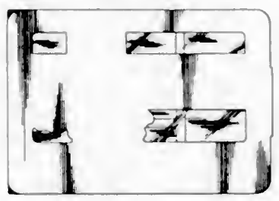
335,440
HOOK FOR ATTACHING THE NET TO THE FRAME OF A PORTABLE GOAL
John Wilson, 101 John Street, Worksop, Nottinghamshire, S80 1TH, England
Filed Sep. 6, 1990, Ser. No. 578,867
Term of patent 14 years
U.S. Cl. D8—367



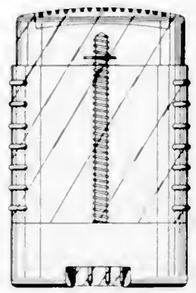
335,441
DRAPERY BOW RING
Stuart R. Fraker, Arlington; Michael R. Loupe, Fort Worth, and Kitty M. Milliorn, Arlington, all of Tex., assignors to Home Furnishings Discount Club of America Inc., Arlington, Tex.
Filed Jul. 18, 1991, Ser. No. 734,318
Term of patent 14 years
U.S. Cl. D8—369



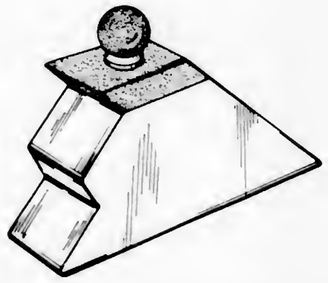
335,442
FOOD PACKAGE
Kenneth M. Detert, Madison, Wis., and Theodore J. Hasler, Chicago, Ill., assignors to Oscar Mayer Foods Corporation, Madison, Wis.
Filed Dec. 11, 1990, Ser. No. 625,524
Term of patent 14 years
U.S. Cl. D9—418



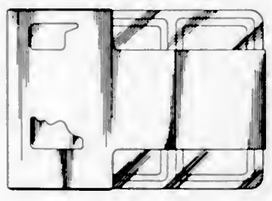
335,443
COSMETIC PACKAGE
Kenneth W. Hirst, New York, N.Y., assignor to The Gillette Company, Boston, Mass.
Filed Jun. 26, 1991, Ser. No. 724,313
Term of patent 14 years
U.S. Cl. D9—338



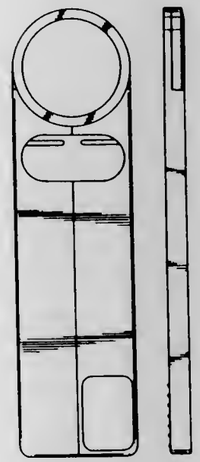
335,444
COMBINED BOTTLE AND CLOSURE
Giuliana Marchini, Cattolica, Italy, assignor to Gilmar S.p.A., Forli, Italy
Filed Dec. 8, 1989, Ser. No. 447,877
Claims priority, application Italy, Jun. 9, 1989, 53162/89[U]
Term of patent 14 years
U.S. Cl. D9—544



335,445
FOOD PACKAGE
Kenneth M. Detert, Madison, Wis., and Theodore J. Hasler, Chicago, Ill., assignors to Oscar Mayer Foods Corporation, Madison, Wis.
Filed Dec. 11, 1990, Ser. No. 625,526
Term of patent 14 years
U.S. Cl. D9—418



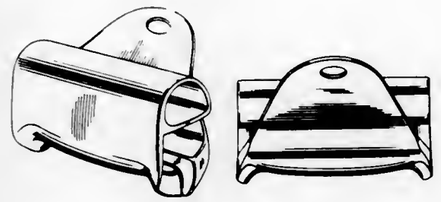
335,446
PACKAGING-DISPLAY UNIT
Daniel J. Bolvin, Franois, France, assignor to Cobra, Bescancon, France
Filed Feb. 27, 1991, Ser. No. 661,625
Claims priority, application France, Aug. 29, 1990, 90 5436
Term of patent 14 years
U.S. Cl. D9—418



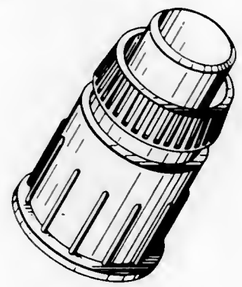
335,447
PACKAGING DISPLAY FOR WRIST WATCH BANDS
Daniel J. L. Boivin, Franois, France, assignor to Cobra, Bescancon, France
Filed Feb. 27, 1991, Ser. No. 661,626
Claims priority, application France, Aug. 29, 1990, 905436
Term of patent 14 years
U.S. Cl. D9—418



335,448
CARRY HANDLE
Reynold Laferla, 199 Robertson Street, Guildford, New South Wales 2161, Australia
Filed Dec. 12, 1991, Ser. No. 805,913
Claims priority, application Australia, Jun. 14, 1991, 1707/91
Term of patent 14 years
U.S. Cl. D9—434



335,449
DISPENSER
Constandinos Appla, Suite 17, 25 Martin Street, Thornbury, Victoria, 3071, Australia
Filed Dec. 27, 1990, Ser. No. 634,312
Term of patent 14 years
U.S. Cl. D9—447



335,450
BOTTLE
Paul A. Pezzoli, Worthington; Thomas D. Loughrin, Columbus, and James C. Lierman, Dublin, all of Ohio, assignors to Abbott Laboratories, Abbott Park, Ill.
Filed Dec. 13, 1990, Ser. No. 626,875
Term of patent 14 years
U.S. Cl. D9—500

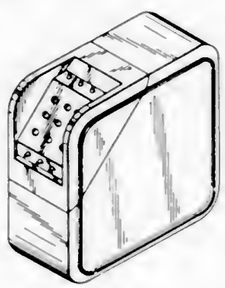


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335,451
COMBINED CONTAINER AND CAP
Peter Schmidt, Hamburg, Fed. Rep. of Germany, assignor to Wella Aktiengesellschaft, Darmstadt, Fed. Rep. of Germany
Filed Nov. 8, 1990, Ser. No. 611,342
Claims priority, application Fed. Rep. of Germany, May 9, 1990, 9003259
Term of patent 14 years
U.S. Cl. D9—502



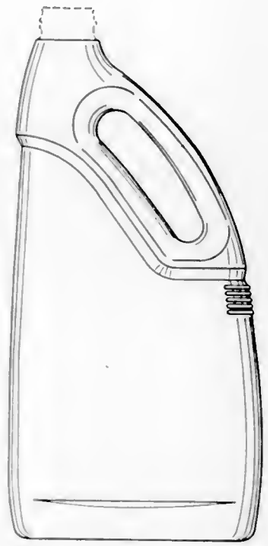
335,452
COMBINED BOTTLE AND DISPENSING CAP
John C. Crawford, Lake Mahopac, N.Y., and Althea A. Lee, Hoboken, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.
Filed Jun. 27, 1990, Ser. No. 545,447
Term of patent 14 years
U.S. Cl. D9—515



335,453
COMBINED PERFUME BOTTLE AND CAP
Joaquin B. Marti, Viladecans, Spain, assignor to Codibel SA, Viladecons, Spain
Filed Apr. 23, 1991, Ser. No. 690,123
Term of patent 14 years
U.S. Cl. D9—523



335,454
BOTTLE
Craig I. W. McLean, Pinole; Daniel B. Klitsner, Oakland, and Robert P. De Vito, San Anselmo, all of Calif., assignors to The Clorox Company, Oakland, Calif.
Filed Jun. 7, 1991, Ser. No. 712,807
Term of patent 14 years
U.S. Cl. D9—528



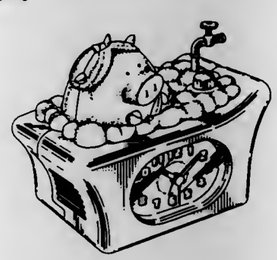
335,455
BOTTLE
Harvey J. Brown, Hauppauge, N.Y., assignor to Get A Gripp II, Inc., Hauppauge, N.Y.
Filed Feb. 6, 1991, Ser. No. 651,507
Term of patent 14 years
U.S. Cl. D9—537



335,456
BOTTLE
Harvey J. Brown, Hauppauge, N.Y., assignor to Get a Gripp II, Inc., Hauppauge, N.Y.
Filed Feb. 6, 1991, Ser. No. 651,506
Term of patent 14 years
U.S. Cl. D9—537



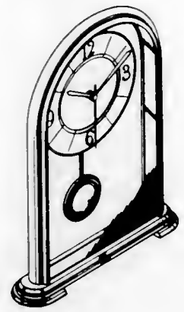
335,457
TABLE CLOCK
Yuki Mizuno, Tokyo, Japan, assignor to Rhythm Watch Co., Ltd., Tokyo, Japan
Filed Dec. 7, 1990, Ser. No. 624,253
Claims priority, application Japan, Sep. 7, 1990, 2-30280
Term of patent 14 years
U.S. Cl. D10—6



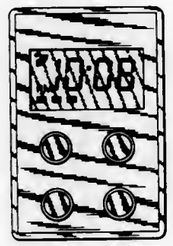
335,458
GOLF THEME CLOCK
Stephen F. Balaban, 2 Buckfield La., Hilton Head, S.C. 29928
Filed Dec. 30, 1991, Ser. No. 816,093
Term of patent 14 years
U.S. Cl. D10—6



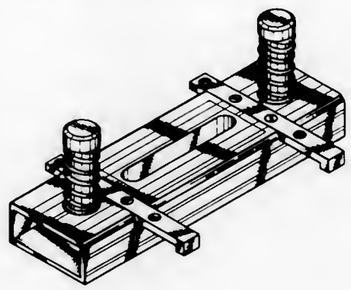
335,459
CLOCK
Don-Sen Moore, Taichung, Taiwan, assignor to Centre Clock Industry Co., Ltd., Taiwan
Filed May 1, 1991, Ser. No. 695,030
Term of patent 14 years
U.S. Cl. D10—28



335,460
TIMER
Makoto Tanaka, Tokyo, Japan, assignor to Seikosha Co. Ltd., Japan
Filed Jan. 11, 1991, Ser. No. 640,017
Term of patent 14 years
U.S. Cl. D10—40

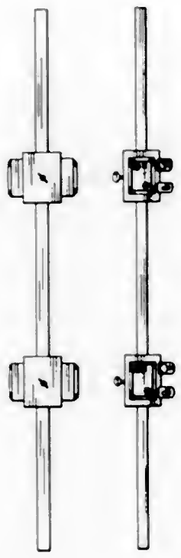


335,461
STRAIGHT EDGE FOR ALIGNING SIDING OR ROOF SHINGLES
Harry Horsley, Jr., 11 Lyon Rd., Pembroke, Mass. 02359
Filed Jul. 8, 1991, Ser. No. 726,517
Term of patent 14 years
U.S. Cl. D10—64

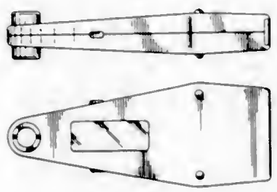


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335,462
ELECTRICAL BOX ALIGNMENT TOOL
Franklin D. R. Shaw, 1075 W. Springbank Ave., Orange City, Fla. 32763
Filed Jul. 1, 1991, Ser. No. 724,348
Term of patent 14 years
U.S. Cl. D10—65



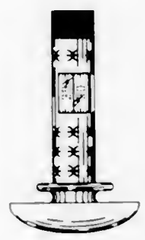
335,463
PORTABLE ELECTRONIC THICKNESS MEASURING INSTRUMENT
Norbert Nix, Robert-Perthel-Str. 2, 5000 Koln 60, Fed. Rep. of Germany
Filed Jan. 2, 1991, Ser. No. 636,974
Claims priority, application Fed. Rep. of Germany, Jul. 10, 1990, M9004660.9
Term of patent 14 years
U.S. Cl. D10—78



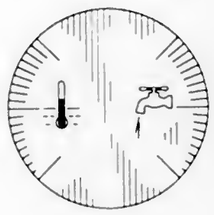
335,464
ANALYTICAL INSTRUMENT FOR TESTING PARAMETERS OF POOL WATER
Colin E. Marks, Tyne & Wear, England, assignor to Palintest Ltd., Tyne & Wear, England
Filed May 24, 1990, Ser. No. 528,740
Claims priority, application United Kingdom, Nov. 28, 1989, 2002952
Term of patent 14 years
U.S. Cl. D10—81



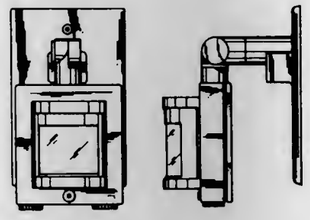
335,465
AIR GAUGE TIRE VALVE
Edmund E. Garrison, III, 909 Johnson Rd., Maryville, Tenn. 37201
Filed Aug. 15, 1990, Ser. No. 567,655
Term of patent 14 years
U.S. Cl. D10—86



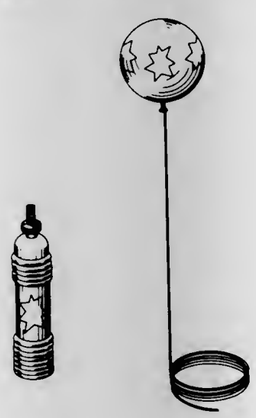
335,466
DIAL FOR FLUID TEMPERATURE AND FLOW CONTROL
John V. Stewart, 1308 Henry Balch Dr., Orlando, Fla. 32810
Filed Apr. 24, 1989, Ser. No. 342,376
Term of patent 14 years
U.S. Cl. D10—102



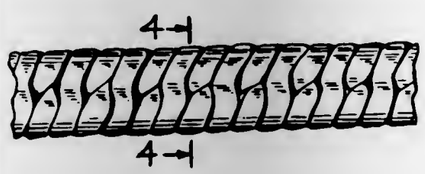
335,467
MOTION SENSOR
Willis Cheng, Taipei, Taiwan, assignor to Wood Far East, Inc., Taipei, Taiwan
Continuation-in-part of Ser. No. 216,985, Jul. 11, 1988, Pat. No. D. 311,877. This application Jul. 16, 1990, Ser. No. 553,148
The portion of the term of this patent subsequent to Nov. 6, 2004, has been disclaimed.
Term of patent 14 years
U.S. Cl. D10—106



335,468
BALLOON DISTRESS SIGNAL KIT
Douglas W. Cumming, Box 196 R.R. 3, Nogales, Ariz. 85621
Filed May 31, 1991, Ser. No. 708,616
Term of patent 14 years
U.S. Cl. D10—109



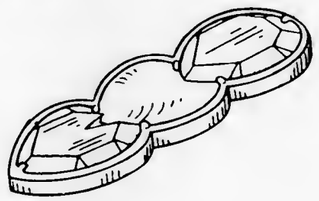
335,469
ORNAMENTAL CHAIN
Pasquale Bichi, Arezzo, Italy, assignor to M.G.Z. S.p.A., Arezzo
Filed Jan. 31, 1991, Ser. No. 648,388
Claims priority, application Italy, Aug. 3, 1990, 11658 B/90
Term of patent 14 years
U.S. Cl. D11—3



335,470
JEWELRY CHAIN
Alessandra Gradi, Milan, Italy, assignor to Fabrique Ebel, S.A., Switzerland
Filed Apr. 26, 1989, Ser. No. 343,786
Claims priority, application Switzerland, Nov. 18, 1988, DM/012,213
Term of patent 14 years
U.S. Cl. D11—13



335,471
JEWELRY FINDING
Sammy L. Coleman, 5125 Highway 16, Rapid City, S. Dak. 57701
Filed Jul. 12, 1991, Ser. No. 728,995
Term of patent 14 years
U.S. Cl. D11—79



335,472
SEAT BELT COVER
Richard P. Ward, 173 State Park Ave., Salamanca, N.Y. 14779
Filed Oct. 4, 1990, Ser. No. 592,862
Term of patent 14 years
U.S. Cl. D11—201



335,473
DOUBLE CHAIN COLLAR KEEPER
Richard H. Sprick, Rural Rte. 3, Box 105, Lake City, Minn. 55041
Filed Jul. 8, 1991, Ser. No. 726,562
Term of patent 14 years
U.S. Cl. D11—213



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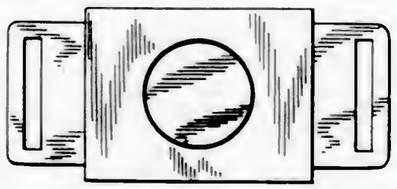
335,474
LOUDSPEAKER ENCLOSURE
James K. Patterson, Jr., and Robert L. Patterson, both of 5059 Osceola, Denver, Colo. 80212
Filed Mar. 23, 1990, Ser. No. 498,366
Term of patent 14 years
U.S. Cl. D14—211



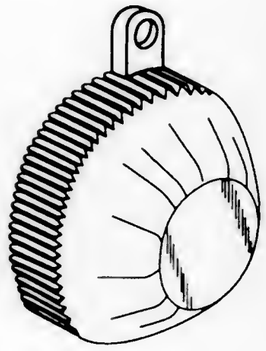
335,475
DOUBLE CHAIN COLLAR KEEPER
Richard H. Sprick, R.R. 3, Box 105, Lake City, Minn. 55041
Filed Jul. 8, 1991, Ser. No. 726,510
Term of patent 14 years
U.S. Cl. D11—213



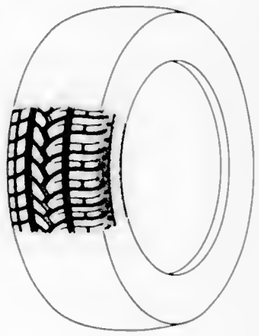
335,476
BUCKLE
James A. Stathis, Morris Plains, N.J., assignor to Buck-L-Its Marketing, Inc., Bloomfield, N.J.
Filed Nov. 1, 1990, Ser. No. 608,663
Term of patent 14 years
U.S. Cl. D11—216



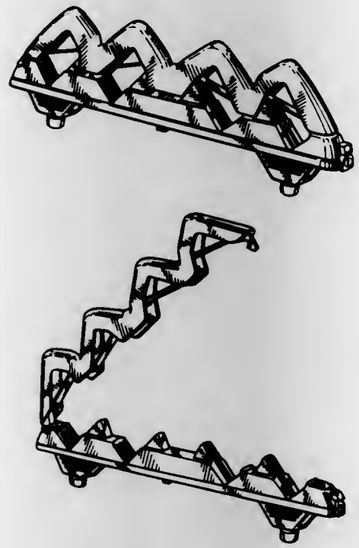
335,477
WEATHER COVER FOR BICYCLE HANDLEBAR LOCK
Laroy J. Van Dyke, Audubon, Pa., assignor to Innovative Bicycle Products, Inc., Huntingdon Valley, Pa.
Filed Feb. 22, 1991, Ser. No. 659,129
The portion of the term of this patent subsequent to Feb. 2, 2007, has been disclaimed.
Term of patent 14 years
U.S. Cl. D12—117



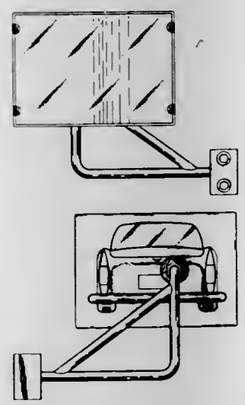
335,478
VEHICLE TIRE
Mark D. Slingluff, North Canton; Lance R. Wilkinson, Mogadore, and Thomas A. Williams, N. Canton, all of Ohio, assignors to General Tire, Inc., Akron, Ohio
Filed Aug. 2, 1991, Ser. No. 740,205
Term of patent 14 years
U.S. Cl. D12—146



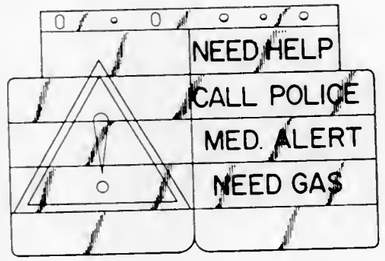
335,479
VEHICULAR SKI CARRIER
Teruaki Yamamoto, Tokyo, Japan, assignor to Piaa Design International Corporation, Tokyo, Japan
Filed Aug. 23, 1991, Ser. No. 748,907
Term of patent 14 years
U.S. Cl. D12—157



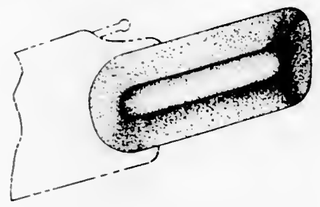
335,480
VEHICLE REAR VIEW MIRROR
Edward D. Creech, Jr., P.O. Box 17, Bloomingdale, Ga. 31302
Filed Apr. 1, 1991, Ser. No. 677,875
Term of patent 14 years
U.S. Cl. D12—187



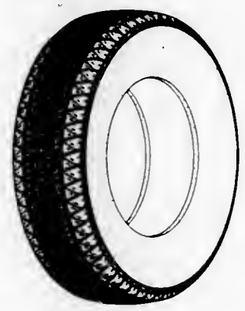
335,481
AUTOMOBILE SUNSHADE
Ezra D. Eskandry, 1925 Brickell Ave. D901, Miami, Fla. 33131
Continuation-in-part of Ser. No. 616,007, Nov. 11, 1990, Pat. No. D. 327,046, which is a division of Ser. No. 266,364, Nov. 12, 1988, abandoned. This application Apr. 17, 1991, Ser. No. 686,574
Term of patent 14 years
U.S. Cl. D12—191



335,482
AUXILIARY VISOR PANEL
Michael M. Warsaw, Holland, Mich., assignor to Prince Corporation, Holland, Mich.
Filed Sep. 19, 1991, Ser. No. 762,916
Term of patent 14 years
U.S. Cl. D12—191

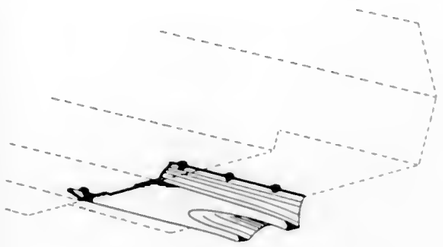


335,483
TIRE
Fred J. Cusimano, II; James G. Guspodin, both of Akron, and Daniel P. Dougherty, Uniontown, all of Ohio, assignors to Bridgestone/Firestone, Inc., Akron, Ohio
Filed May 15, 1991, Ser. No. 702,195
Term of patent 14 years
U.S. Cl. D12—147

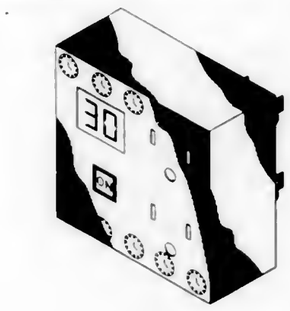


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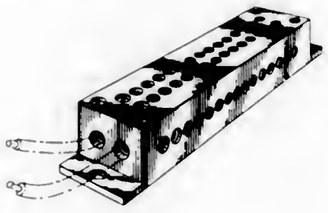
335,484
WATERCRAFT SKID PLATE
Don R. Moyle, Route 1, box 1762, and Glendon L. Dilworth, 1215 E. 16th St., both of Burley, Id. 83318
Filed Oct. 7, 1991, Ser. No. 772,010
Term of patent 14 years
U.S. Cl. D12—317



335,485
SAFETY TIMER OUTLET
Robert G. McPate, R.R. 1 Box 465, Brownfield, Me. 04010
Filed Feb. 22, 1991, Ser. No. 659,134
Term of patent 14 years
U.S. Cl. D13—142



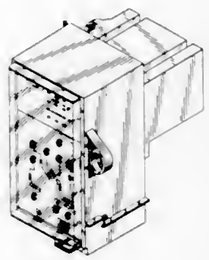
335,486
ELECTRICAL TERMINAL STRIP
Peter Fatalo, 132 Chestnut Cir., Randolph, Mass. 02368
Filed Dec. 9, 1991, Ser. No. 802,755
Term of patent 14 years
U.S. Cl. D13—147



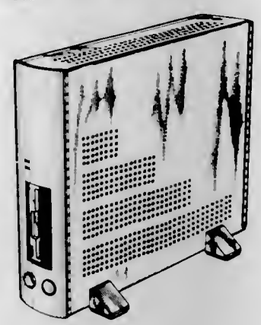
335,487
ENVIRONMENTALLY SEALED INSULATION DISPLACEMENT CONNECTOR TERMINAL BLOCK
Thomas G. Volk, Grayslake, and Ben Farb, Buffalo Grove, both of Ill., assignors to Reliance Comm/Tec Corporation, Chicago, Ill.
Filed Jun. 26, 1991, Ser. No. 721,672
Term of patent 14 years
U.S. Cl. D13—147



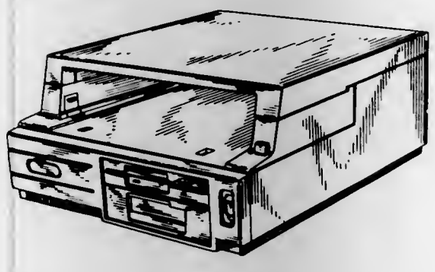
335,488
ELECTRONIC TRIP RELAY
Masakatsu Suzuki, Kamakura; Kazuhiro Ishii, Fukuyama; Shingo Akita, Fukuyama; Koji Hirotsune, Fukuyama, and Ichiro Arinobu, Fukuyama, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 31, 1991, Ser. No. 815,370
Claims priority, application Japan, Jul. 1, 1991, 3-19740
Term of patent 14 years
U.S. Cl. D13—159



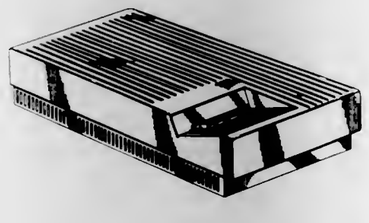
335,489
COMPUTER
Armin Sander, Nürnberg, Fed. Rep. of Germany, assignor to Kyocera Corporation, Kyoto, Japan
Filed Apr. 29, 1991, Ser. No. 694,015
Claims priority, application Japan, Oct. 30, 1990, 2-36634
Term of patent 14 years
U.S. Cl. D14—100



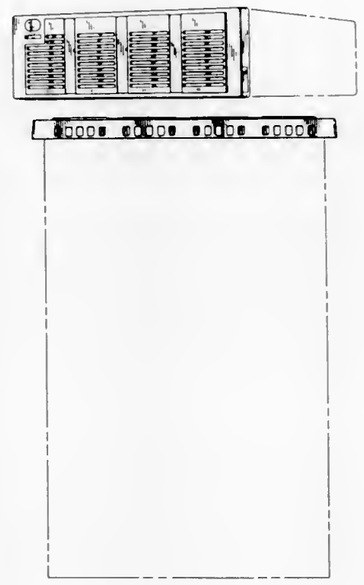
335,490
DESKTOP EXPANSION UNIT FOR EXPANDING THE FUNCTIONS OF A PERSONAL NOTEBOOK COMPUTER
Teodros Mesfin; Jon Kolas, and John E. Youens, all of Houston, Tex., assignors to Compaq Computer Corporation, Houston, Tex.
Filed Oct. 15, 1990, Ser. No. 597,769
Term of patent 14 years
U.S. Cl. D14—107



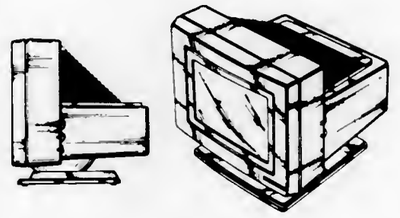
335,491
ELECTRONIC SCANNER
Peter Rolicki, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Mar. 18, 1991, Ser. No. 670,927
Term of patent 14 years
U.S. Cl. D14—107



335,492
FRONT PANEL FOR DATA STORAGE UNIT
Michael H. Sharp, Winchester, England, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jun. 19, 1990, Ser. No. 540,417
Claims priority, application United Kingdom, Dec. 20, 1989, 2003494
Term of patent 14 years
U.S. Cl. D14—115

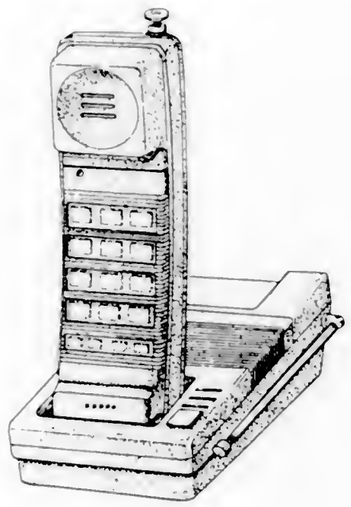


335,493
CRT MONITOR FOR COMPUTER
Kim Soodong, Seoul, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Hwasung, Rep. of Korea
Filed Oct. 23, 1990, Ser. No. 602,085
Claims priority, application Rep. of Korea, Apr. 24, 1990, 90-5771
Term of patent 14 years
U.S. Cl. D14—113

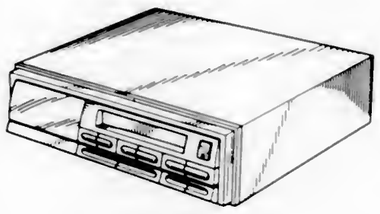


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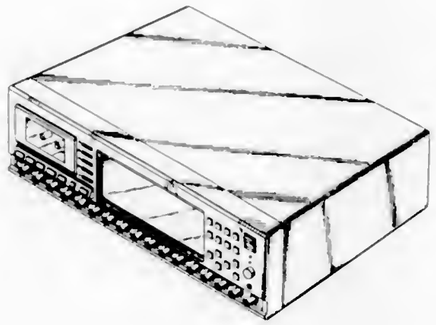
335,494
COMBINATION CORDLESS TELEPHONE HANDSET AND BASE
George P. Roegner, Vero Beach, Fla., assignor to North American Foreign Trading Corporation, New York, N.Y.
Filed Dec. 26, 1991, Ser. No. 813,419
Term of patent 14 years
U.S. Cl. D14—138



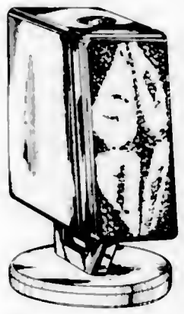
335,495
CAR AUDIO SYSTEM
Jong B. Lee, Inchon, Rep. of Korea, assignor to Gold Star Co., Ltd., Seoul, Rep. of Korea
Filed Aug. 13, 1990, Ser. No. 567,331
Claims priority, application Rep. of Korea, Feb. 13, 1990, 1604/1990
Term of patent 14 years
U.S. Cl. D14—157



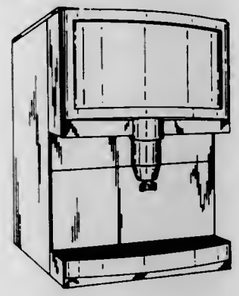
335,496
COMBINED DATA RECORDING AND REPRODUCING INSTRUMENT
Masafumi Ito; Shigeru Hasegawa; Minoru Sube, all of Tokyo, and Katsuhiro Takashima, Yokohama, all of Japan, assignors to TEAC Corporation, Japan
Filed Jul. 14, 1989, Ser. No. 380,158
Claims priority, application Japan, Jan. 19, 1989, 1-1521
Term of patent 14 years
U.S. Cl. D14—164



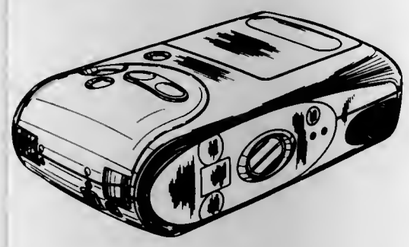
335,497
LOUDSPEAKER ENCLOSURE
James K. Patterson, Jr., and Robert L. Patterson, both of 5059 Osceola, Denver, Colo. 80212
Filed Mar. 23, 1990, Ser. No. 499,071
Term of patent 14 years
U.S. Cl. D14—211



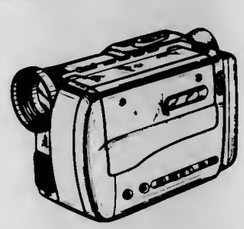
335,498
COUNTERTOP ICE DISPENSER
Paul P. Kolada, Bexley, and Gregory M. Davis, Columbus, both of Ohio, assignors to Scotsman Group, Inc., Vernon Hills, Ill.
Filed Nov. 27, 1990, Ser. No. 618,822
Term of patent 14 years
U.S. Cl. D15—80



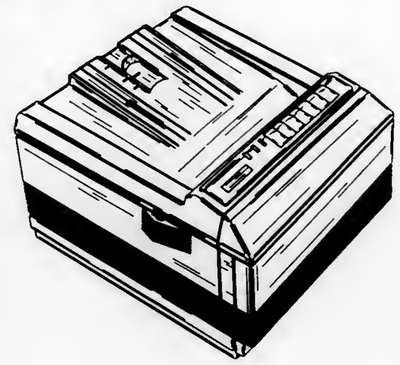
335,499
STILL VIDEO CAMERA
Masahiro Koinuma, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 18, 1990, Ser. No. 554,032
Claims priority, application Japan, Jan. 18, 1990, 2-1116; Jan. 18, 1990, 2-1117
Term of patent 14 years
U.S. Cl. D16—202



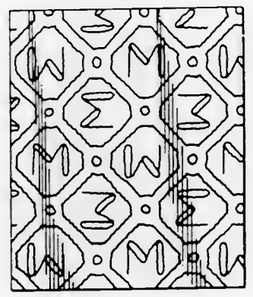
335,500
VIDEO CAMERA WITH VIDEO TAPE RECORDER
Masakazu Mori, and Koya Kurokawa, both of Ehime, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jun. 24, 1991, Ser. No. 721,379
Claims priority, application Japan, Dec. 27, 1990, 2-44018
Term of patent 14 years
U.S. Cl. D16—202



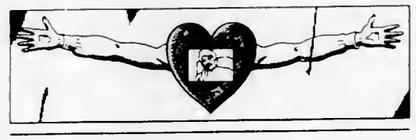
335,501
PRINTER ENCLOSURE
Robert T. Faranda, Acton, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.
Filed Jan. 9, 1991, Ser. No. 639,167
Term of patent 14 years
U.S. Cl. D18—55



335,502
SAFETY PAPER
Robert P. Coe, Grand Island, N.Y., assignor to Moore Business Forms, Inc., Grand Island, N.Y.
Filed Jul. 29, 1991, Ser. No. 736,804
Term of patent 14 years
U.S. Cl. D19—5

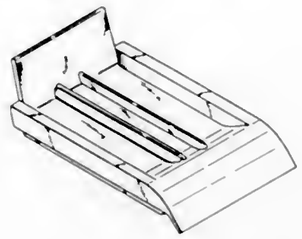


335,503
GREETING CARD
Stephen R. Germeroth, 53 Heather Hill Rd., Catonsville, Md. 21228
Filed Apr. 26, 1991, Ser. No. 692,067
Term of patent 14 years
U.S. Cl. D19—8

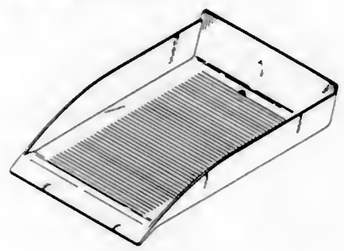


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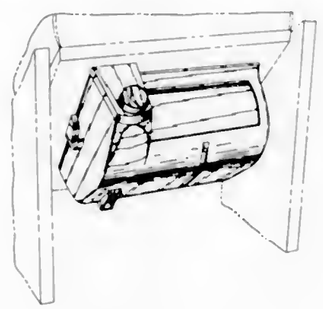
335,504
CARD FILE
Eric P. Chan, New York, N.Y., assignor to American Trading & Production Corporation, Baltimore, Md.
Filed Dec. 26, 1991, Ser. No. 814,278
Term of patent 14 years
U.S. Cl. D19—76



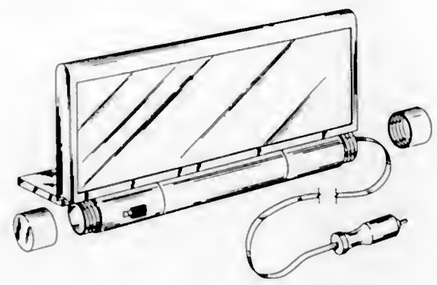
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DESK TRAY
Eric P. Chan, New York, N.Y., assignor to American Trading & Production Corporation, Baltimore, Md.
Filed Dec. 26, 1991, Ser. No. 814,282
Term of patent 14 years
U.S. Cl. D19—92



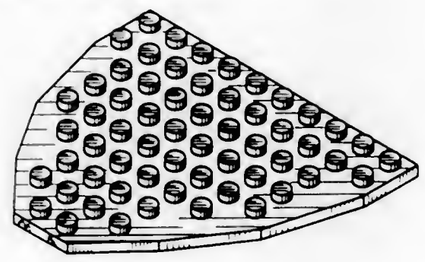
335,506
BINOCULAR VENDING MACHINE HOUSING
David J. Tacke, Polson, Mont., and Leslie Perhacs, Fallbrook, Calif., assignors to Binoptic International Systems Incorporated, Polson, Mont.
Continuation of Ser. No. 649,220, Jan. 25, 1991, abandoned, and a continuation of Ser. No. 340,017, Apr. 18, 1989, abandoned.
This application Sep. 20, 1991, Ser. No. 762,642
Term of patent 14 years
U.S. Cl. D20—1



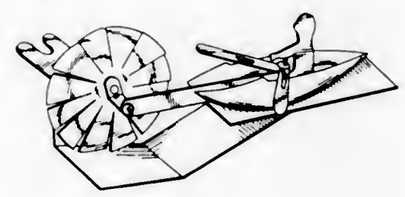
335,507
EMERGENCY ROAD SIGN
Robert M. Kleiman, 6238 Ohm Ct., San Diego, Calif. 92122
Filed Jul. 11, 1991, Ser. No. 728,933
Term of patent 14 years
U.S. Cl. D20—10



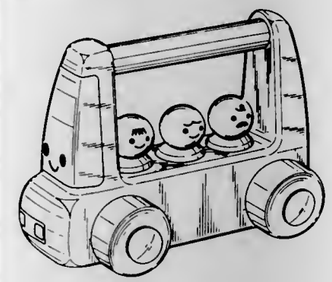
335,508
ELEMENT FOR A TOY BUILDING SET
Ib T. Skov, Billund, Denmark, assignor to Interlego A.G., Baar, Switzerland
Filed Dec. 4, 1990, Ser. No. 621,952
The portion of the term of this patent subsequent to Mar. 10, 2006, has been disclaimed.
Term of patent 14 years
U.S. Cl. D21—108



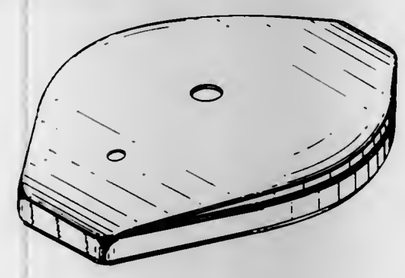
335,509
WIND-OPERATED TOY OARSMAN
John H. Friend, 10200 Arno Rd., Galt, Calif. 95632
Filed Dec. 26, 1989, Ser. No. 456,246
Term of patent 14 years
U.S. Cl. D21—93



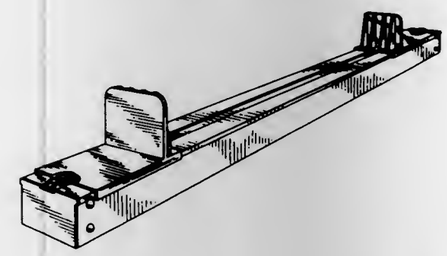
335,510
TOY VEHICLE
Masami Shiraishi, Tokyo, Japan, assignor to Combi Corporation, Tokyo, Japan
Filed Nov. 29, 1991, Ser. No. 799,627
Claims priority, application Japan, Jun. 5, 1991, 3-16292
Term of patent 14 years
U.S. Cl. D21—134



335,511
HOUSING FOR A RESISTANCE UNIT ON AN EXERCISE MACHINE
Timothy S. Engel, Bloomington, and Robert A. Iverson, Eden Prairie, both of Minn., assignors to NordiTrack, Inc., Chaska, Minn.
Filed Aug. 31, 1990, Ser. No. 575,996
Term of patent 14 years
U.S. Cl. D21—191



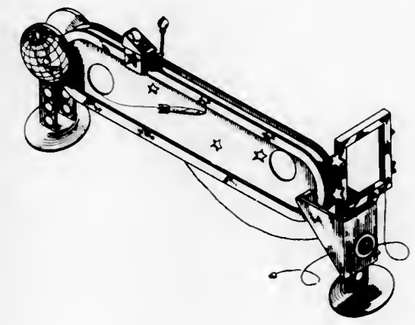
335,512
PHYSICAL EXERCISER
Ned Gvoich, Beamsville, Canada, assignor to Kordun Limited, Beamsville, Canada
Filed May 31, 1991, Ser. No. 710,899
Term of patent 14 years
U.S. Cl. D21—191



335,513
PUNCHING BAG STAND
John Gaetano, Suite 201, 1035 E. Hillsdale Blvd., Foster City, Calif. 94404
Filed Oct. 17, 1990, Ser. No. 585,819
Term of patent 14 years
U.S. Cl. D21—199



335,514
AUTOMATIC PITCHING MACHINE
Aubrey Ramirez, 728 Ridge Dr., Sand Springs, Okla. 74063
Filed Jun. 5, 1990, Ser. No. 533,708
Term of patent 14 years
U.S. Cl. D21—210



335,515
SPHERICAL POOL TABLE
Erich Caron, 5555 Roswell Rd., Apt. H-12, Atlanta, Ga. 30342
Filed Sep. 27, 1991, Ser. No. 766,587
Term of patent 14 years
U.S. Cl. D21—232

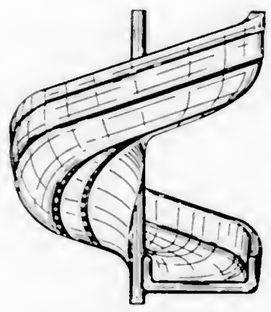


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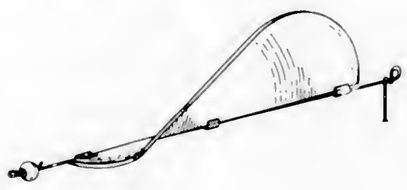
335,516
BILLIARD TABLE LEG
Rick Flathers, 20032 Clark St., Orange, Calif. 92669
Filed Sep. 3, 1991, Ser. No. 767,939
Term of patent 14 years
U.S. Cl. D21—232



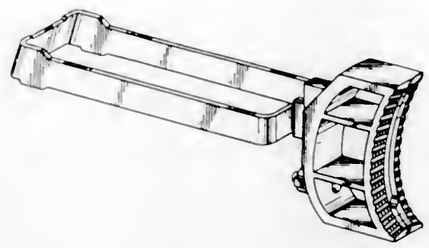
335,517
SPIRAL SLIDE
Ralph O. Vatterot, Farmington, Mo., assignor to Iron Mountain Forge, Farmington, Mo.
Filed Jul. 13, 1990, Ser. No. 552,594
Term of patent 14 years
U.S. Cl. D21—244



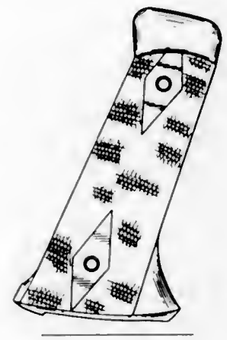
335,518
ROTATING FISHING LURE
Robert L. Greve, P.O. Box 322, Adrian, Minn. 56110
Filed Jul. 13, 1990, Ser. No. 552,293
Term of patent 14 years
U.S. Cl. D22—129



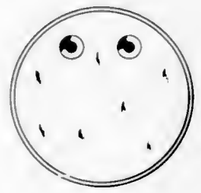
335,519
FIREARM TRIGGER DEVICE
Virgil Tripp, 8907 Sparkling Creek Cir., Austin, Tex. 78729
Filed Oct. 10, 1989, Ser. No. 419,441
Term of patent 14 years
U.S. Cl. D22—108



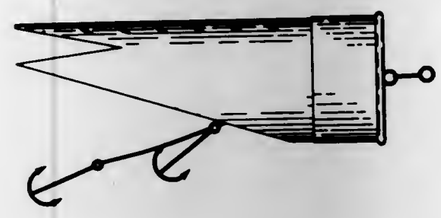
335,520
PISTOL GRIP WITH FUNNEL WELL AND THUMB GUARD
Arnold Capone, 9764 Sunland Blvd., Sunland, Calif. 91040
Filed May 17, 1990, Ser. No. 524,821
Term of patent 14 years
U.S. Cl. D22—108



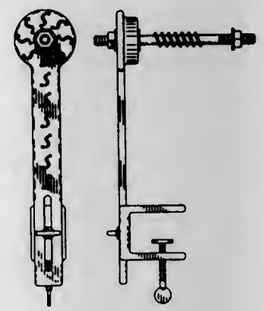
335,521
COVER FOR TAMPER RESISTANT BAIT TRAY
Bryan E. Petersen, Westwood, and Michael Kanceljak, Bloomingdale, both of N.J., assignors to The Clorox Company, Oakland, Calif.
Continuation of Ser. No. 54,157, Oct. 1, 1987, abandoned. This application Sep. 13, 1990, Ser. No. 582,809
Term of patent 14 years
U.S. Cl. D22—119



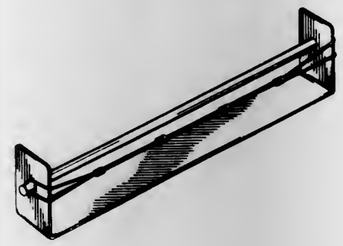
335,522
CARTRIDGE CASE LURE
Raymond O. Tarbell, East Hill Rd., Box 123, Townshend, Vt. 05353
Filed Sep. 3, 1991, Ser. No. 754,415
Term of patent 14 years
U.S. Cl. D22—132



335,523
WINDER FOR FISHING REEL LINE
Lester W. Henslee, and Kathy S. Henslee, both of P.O. Box 148, Hickman, Calif. 95323
Filed Jan. 18, 1991, Ser. No. 643,677
Term of patent 14 years
U.S. Cl. D22—134



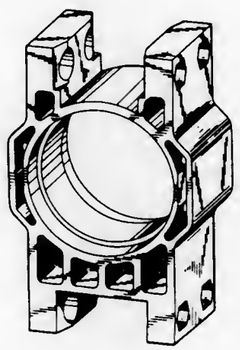
335,524
MULTIPLE SPOOL FISHING LINE DISPENSER
John T. Dillashaw, 1357 Merrimac Dr., Marco Island, Fla. 33937
Filed Feb. 25, 1991, Ser. No. 660,585
Term of patent 14 years
U.S. Cl. D22—134



335,525
SPINNING REEL SEAT FOR A FISHING ROD
John W. Chapman, Tulsa, Okla., assignor to Zebco Corporation, Tulsa, Okla.
Filed Jul. 13, 1990, Ser. No. 552,417
Term of patent 14 years
U.S. Cl. D22—142



335,526
VALVE HOUSING
Bruce G. Biltoft, and Michael R. L. Selbie, both of New South Wales, Australia, assignors to Memtec Limited, Australia
Filed Mar. 29, 1990, Ser. No. 500,850
Claims priority, application Australia, Sep. 29, 1989, 3224/89
Term of patent 14 years
U.S. Cl. D23—233

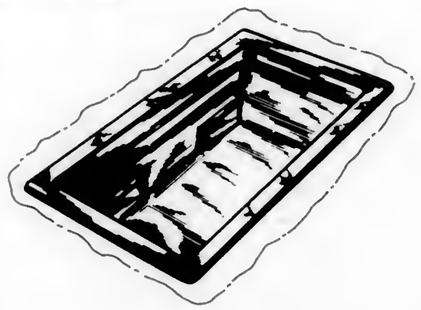


335,527
BATHTUB
Robin H. Levien, London, England, assignor to American Standard Inc., New York, N.Y.
Division of Ser. No. 554,031, Jul. 17, 1990, Pat. No. Des. 330,934. This application Jul. 30, 1992, Ser. No. 921,497
Claims priority, application World Int. Prop. O., Jan. 23, 1990, DM/015663
Term of patent 14 years
U.S. Cl. D23—277

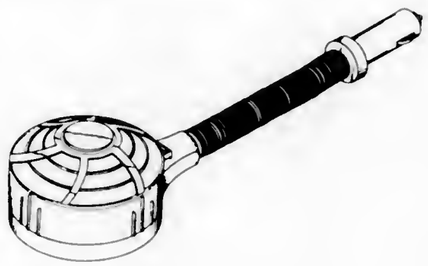


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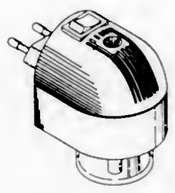
335,528
BATHTUB
Herbert V. Kohler, Jr., Kohler, Wis., assignor to Kohler Co., Kohler, Wis.
Filed Jan. 11, 1991, Ser. No. 641,014
Term of patent 14 years
U.S. Cl. D23—280



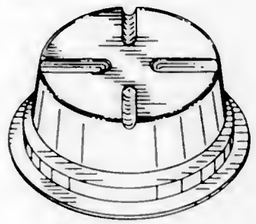
335,529
FAN FOR USE IN AN AUTOMOBILE
Wen San-Jou, P.O. Box 82-144, Taipei, Taiwan
Filed Apr. 13, 1992, Ser. No. 867,401
Term of patent 14 years
U.S. Cl. D23—324



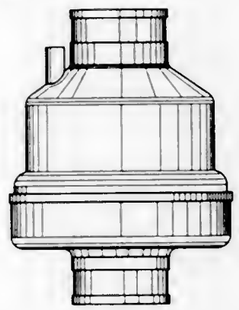
335,530
ELECTRICAL EVAPORATOR
Georg Schimanski, Hagen, Fed. Rep. of Germany, assignor to Globol GmbH, Neuburg, Fed. Rep. of Germany
Filed Feb. 21, 1991, Ser. No. 659,186
Claims priority, application World Int. Prop. O., Jan. 8, 1991, DM/018525
Term of patent 14 years
U.S. Cl. D23—366



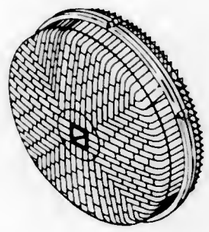
335,531
EXTENDED RELEASE FRAGRANCE DISPENSING CARTRIDGE
Walter A. Kunze, Southington, and Robert J. Semanchik, Oxford, both of Conn., assignors to Waterbury Companies, Inc., Waterbury, Conn.
Filed Apr. 5, 1991, Ser. No. 681,203
Term of patent 14 years
U.S. Cl. D23—366



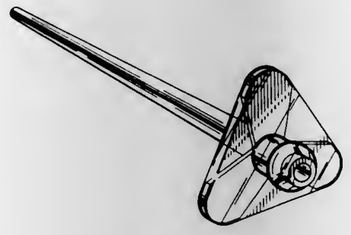
335,532
ELECTRIC BLOWER HOUSING FOR SPAS, HYDROTHERAPY BATHS, AND ABOVE-GROUND SKID PACKS
Robert Lopez, 1219 S. Bonview Ave., Ontario, Calif. 91761
Filed Mar. 27, 1991, Ser. No. 676,231
Term of patent 14 years
U.S. Cl. D23—383



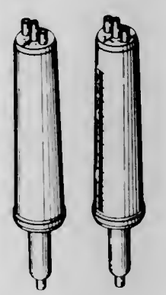
335,533
COVER FOR AN ELECTRIC FAN
Ying-Fu Chen, No. 140-66, Che Lu Chien, Pao An Tsun, Jen Te Hsiang, Tainan Hsien, Taiwan
Filed Apr. 29, 1992, Ser. No. 875,730
Term of patent 14 years
U.S. Cl. D23—412



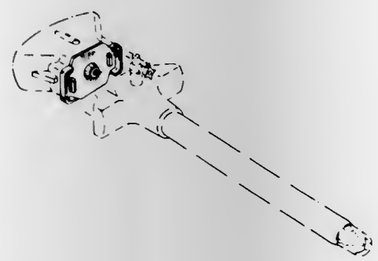
335,534
GASTROSTOMY TUBE
William H. Hirsch, Columbus, Ohio, and Kent E. Iversen, Freehold, N.J., assignors to Abbott Laboratories, Abbott Park, Ill.
Filed Jan. 28, 1991, Ser. No. 648,435
Term of patent 14 years
U.S. Cl. D24—108



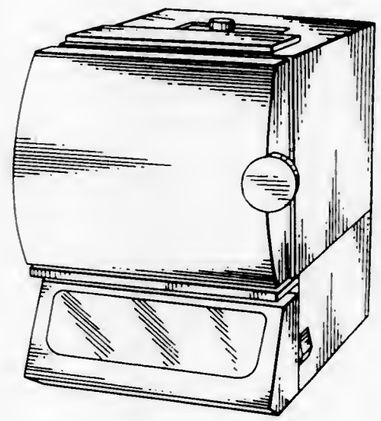
335,535
CYLINDER WITH DRIP CHAMBER FOR INFUSION
Tetsuya Arioka, and Masashi Yoshikawa, both of Tokyo, Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 16, 1990, Ser. No. 495,293
Claims priority, application Japan, Sep. 19, 1989, 1-33909; Sep. 19, 1989, 1-33910
Term of patent 14 years
U.S. Cl. D24—117



335,536
REDUCER CAP FOR A SAFETY TROCAR
Randy R. Stephens, Fairfield, Ohio, assignor to Ethicon, Inc., Somerville, N.J.
Filed Nov. 26, 1990, Ser. No. 618,325
Term of patent 14 years
U.S. Cl. D24—146



335,537
CRYSTALLIZATION FURNACE FOR DENTAL PROSTHESES
Yasuharu Hakamatsuka; Kazuhiro Watanabe; Mamoru Aihara; Manabu Takahashi, all of Tokyo, and Toshio Shimizu, Kyoto, all of Japan, assignors to Olympus Optical Company, Ltd., Tokyo and Denken Co., Ltd., Kyoto, both of Japan
Filed Jan. 23, 1991, Ser. No. 645,279
Claims priority, application Japan, Jul. 31, 1990, 2-25943
Term of patent 14 years
U.S. Cl. D24—176

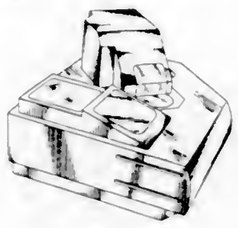


335,538
INTRAVENOUS MEDICAL FLUID HEATER
Robert C. Deutsch, Oakridge, and David H. Dabney, Wyckoff, both of N.J., assignors to Advanced Warming Systems, Inc., Lubbock, Tex.
Filed Oct. 15, 1990, Ser. No. 597,029
Term of patent 14 years
U.S. Cl. D24—169



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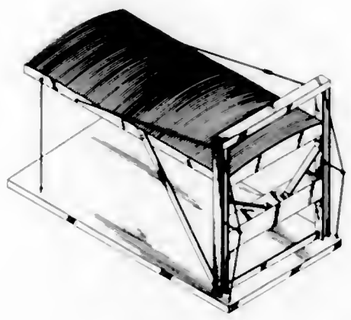
335,539
CASTING MACHINE FOR DENTAL PROSTHESES
Yasuharu Hakamatsuka; Kazuhiro Watanabe; Mamoru Aihara; Manabu Takahashi, all of Tokyo, and Toshio Shimizu, Kyoto, all of Japan, assignors to Olympus Optical Company, Ltd., Tokyo and Denken Co., Ltd., Kyoto, both of Japan
Filed Jan. 23, 1991, Ser. No. 645,009
Claims priority, application Japan, Jul. 31, 1990, 2-25941
Term of patent 14 years
U.S. Cl. D24—176



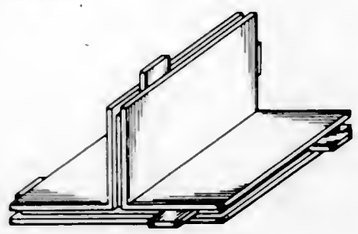
335,540
TREE STAND
Kim E. Elliott, P.O. Box 2, Loda, Ill. 60948
Filed Aug. 9, 1990, Ser. No. 564,962
Term of patent 14 years
U.S. Cl. D25—64



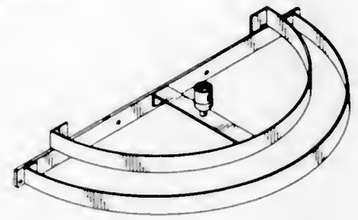
335,541
CARPORT
Victor Rosario-Cartagena, San Juan, P.R., assignor to Commonwealth of Puerto Rico, San Juan, P.R.
Filed Jan. 8, 1991, Ser. No. 639,154
Term of patent 14 years
U.S. Cl. D25—56



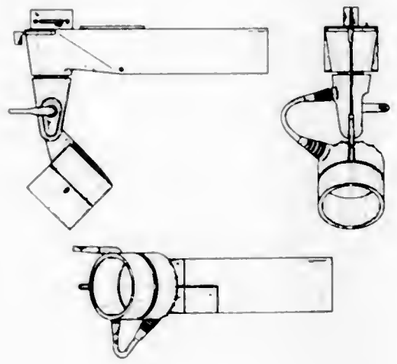
335,542
BLOCK FOR CONSTRUCTING MINIATURE STRUCTURES
Roy F. Bird, 1631 Garfield, Idaho Falls, Id. 83401
Filed Dec. 17, 1990, Ser. No. 628,669
Term of patent 14 years
U.S. Cl. D25—113



335,543
COMBINED LIGHT SUPPORT AND FORM FOR ROUNDING OUT DRAPERIES INTO A COLUMNAR SHAPE
Donna Sessions, 440 E. 940 North, Ogden, Utah 84404
Filed Sep. 17, 1990, Ser. No. 583,716
Term of patent 14 years
U.S. Cl. D26—51



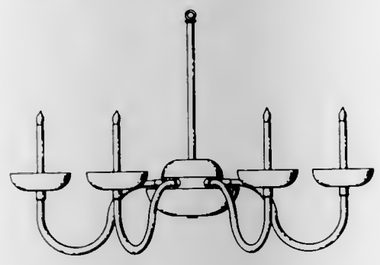
335,544
ADJUSTABLE TRACK LIGHT
Alberto Meda, and Paolo Rizzatto, both of Milan, Italy, assignors to Artemide Litech S.r.l., Milan, Italy
Filed Mar. 22, 1991, Ser. No. 674,719
Claims priority, application Italy, Sep. 25, 1990, 53257/90[U]
Term of patent 14 years
U.S. Cl. D26—63



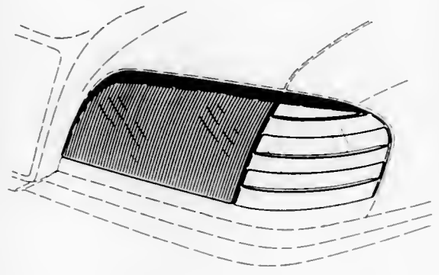
335,545
OUTDOOR LIGHTING FIXTURE
Charles R. Metchear, III, Wellesley, Mass., assignor to Stonelight Corporation, Wellesley, Mass.
Filed Feb. 13, 1990, Ser. No. 479,642
Term of patent 14 years
U.S. Cl. D26—68



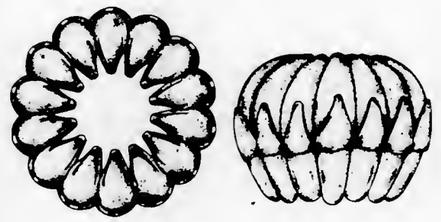
335,546
CHANDELIER
Arnold Schonbek, Plattsburgh, N.Y., assignor to A. Schonbek & Co., Ltd., Plattsburgh, N.Y.
Filed Jul. 8, 1991, Ser. No. 726,541
Term of patent 14 years
U.S. Cl. D26—81



335,547
FRONT HEADLIGHT LENS OF A MOTOR VEHICLE
Bruno Sacco; Joseph Gallitzendörfer, and Peter Pfeiffer, all of Sindelfingen, Fed. Rep. of Germany, assignors to Mercedes Benz AG, Fed. Rep. of Germany
Filed Jun. 19, 1991, Ser. No. 717,702
Claims priority, application Fed. Rep. of Germany, Dec. 19, 1990, 9008365
Term of patent 14 years
U.S. Cl. D26—122

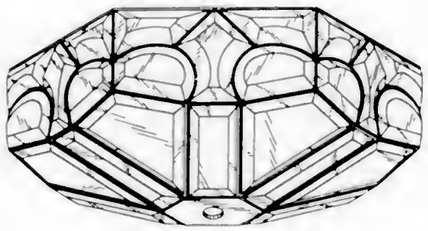


335,548
SHADE FOR A CELING LIGHT
Sherry Linda, P.O. Box 10074, San Bernardino, Calif. 92423, assignor to Sherry Linda, San Bernardino, Calif.
Filed Mar. 6, 1991, Ser. No. 665,166
Term of patent 14 years
U.S. Cl. D26—127

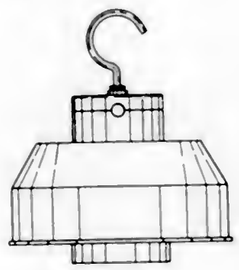


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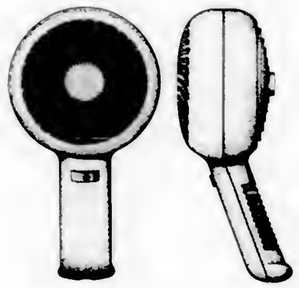
335,549
LAMP SHADE
David Porter, Chagrin Falls, Ohio, assignor to L. D. Kichler Co., Cleveland, Ohio
Filed Jun. 4, 1991, Ser. No. 710,170
Term of patent 14 years
U.S. Cl. D26—136



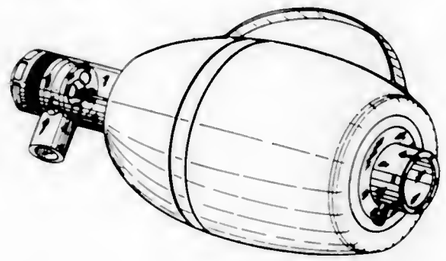
335,550
COMBINED LAMP SOCKET AND GLOBE HOLDER FOR A SUSPENDED ELECTRIC LIGHT FIXTURE
Jerome Neustadt, 5 Holly Ave., Florida, N.Y. 10921
Filed Mar. 7, 1991, Ser. No. 665,741
Term of patent 14 years
U.S. Cl. D26—138



335,551
BLOW DRYER
James G. Montagnino; Richard A. Gibson, Jr., both of El Paso, Tex., and Vidal Sassoon, Los Angeles, Calif., assignors to Helen of Troy Corporation, El Paso, Tex.
Filed Feb. 15, 1991, Ser. No. 655,656
Term of patent 14 years
U.S. Cl. D28—13

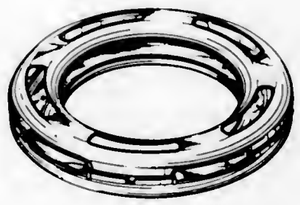


335,552
DISPOSABLE RESUSCITATOR
Ole B. Kohnke, Lyngby, Denmark, assignor to AMBU International A/S, Glostrup, Denmark
Filed Jan. 31, 1989, Ser. No. 304,112
Claims priority, application Denmark, Nov. 4, 1988, 1322/88
Term of patent 14 years
U.S. Cl. D29—7

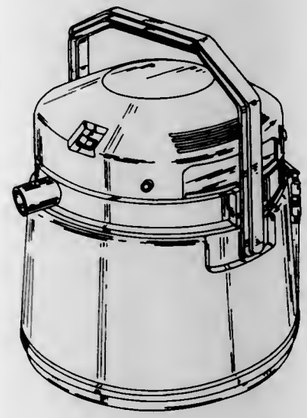


335,553
TOY FOR ENTERTAINING A CAT
Melaney L. Conner, Arlington, Tex., assignor to Doskocil Manufacturing Company, Inc., Arlington, Tex.
Filed Jan. 7, 1992, Ser. No. 818,712
Term of patent 14 years
U.S. Cl. D30—160

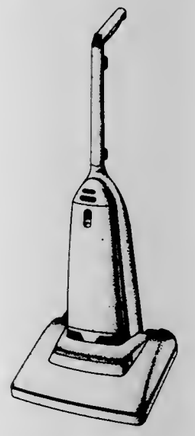
335,554
TOY FOR ENTERTAINING A CAT
Melaney L. Conner, Arlington, Tex., assignor to Doskocil Manufacturing Company, Inc., Arlington, Tex.
Filed Jan. 7, 1992, Ser. No. 817,879
Term of patent 14 years
U.S. Cl. D30—160



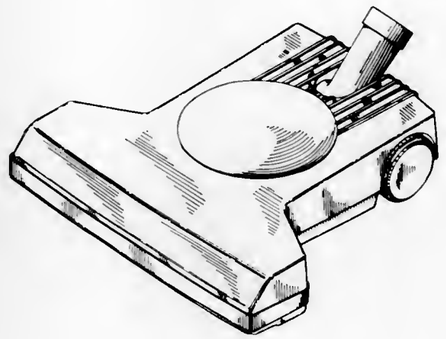
335,555
SELF CONTAINED COMPACT VACUUM AND EXTRACTOR
Brenda L. Reath, Grand Rapids, Mich., assignor to Bissell Inc., Grand Rapids, Mich.
Filed Sep. 3, 1991, Ser. No. 753,683
Term of patent 14 years
U.S. Cl. D32—21



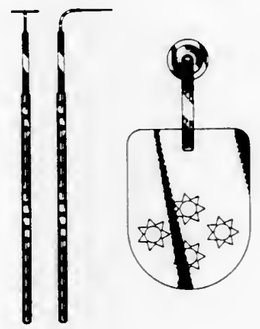
335,556
VACUUM CLEANER
Chikashi Kuriya, Osaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Dec. 23, 1991, Ser. No. 811,434
Claims priority, application Japan, Jun. 26, 1991, 3-19265
Term of patent 14 years
U.S. Cl. D32—22



335,557
POWERHEAD FOR VACUUM CLEANER
Colin Overy, North Augusta; Michael D. Dolson, Brockville; Ian F. Norton, Toronto, all of Canada, and Donald V. Bailey, Canton, Ohio, assignors to Black & Decker Inc., Newark, Del.
Filed Oct. 19, 1990, Ser. No. 600,355
Claims priority, application Canada, May 15, 1990, 15-05-90-8
Term of patent 14 years
U.S. Cl. D32—32

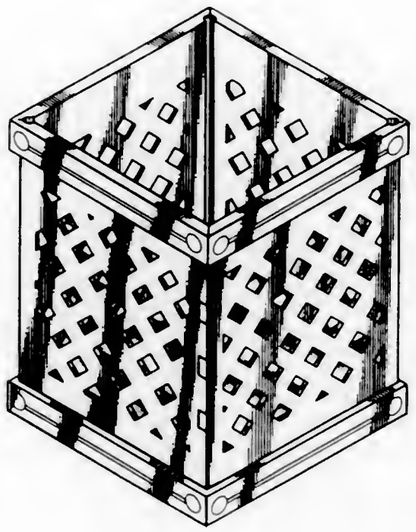


335,558
GUTTER CLEANING TOOL
Clinton D. Boothe, 504 S. Beltline Blvd. Rosewood Apts. #A-14, Columbia, S.C. 29205
Filed Oct. 12, 1990, Ser. No. 596,600
Term of patent 14 years
U.S. Cl. D32—49

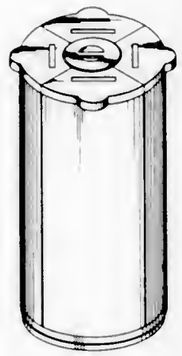


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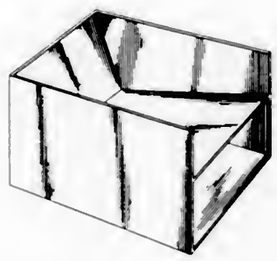
335,559
FOLDABLE TRASH CONTAINER FOR USE ON A CAR
William S. Land, 1210 Morning Sun Dr., Birmingham, Ala. 35242
Filed Jun. 14, 1991, Ser. No. 715,222
Term of patent 14 years
U.S. Cl. D34—1



335,561
WASTE RECEPTACLE
Linda Mihyar, 1820 Grendon Ct., Lithonia, Ga. 30058
Filed Nov. 1, 1990, Ser. No. 607,477
Term of patent 14 years
U.S. Cl. D34—7



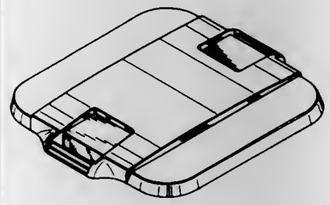
335,560
NEWSPAPER BAGGING STATION WITH INTEGRAL COMPARTMENT FOR FOLDED BAGS
Francis X. Fennell, Jr., 238 Bayard Rd., Lothian, Md. 20711
Filed Jun. 6, 1991, Ser. No. 711,444
Term of patent 14 years
U.S. Cl. D34—5



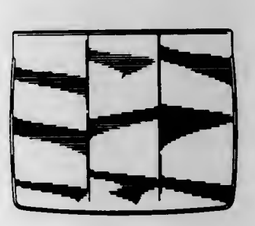
335,562
TRASH CONTAINER
David Evans, Acton, Mass., assignor to Tucker Housewares, Inc., Leominster, Mass.
Filed Jul. 30, 1991, Ser. No. 738,287
Term of patent 14 years
U.S. Cl. D34—7

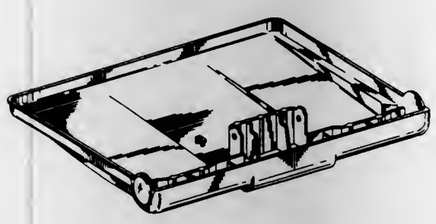


335,563
CONTAINER LID
David A. Juergens, Winchester, Va., assignor to Rubbermaid Commerical Products Inc., Winchester, Va.
Filed Oct. 31, 1990, Ser. No. 607,088
Term of patent 14 years
U.S. Cl. D34—11

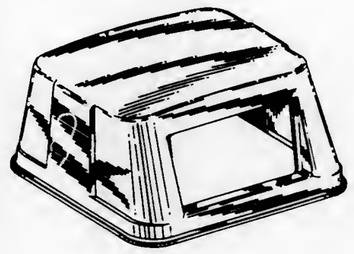


335,564
CONTAINER COVER WITH HINGE PIN
Paul E. Delmerico, Winchester, Va., assignor to Rubbermaid Commerical Products Inc., Winchester, Va.
Filed Jun. 25, 1991, Ser. No. 721,226
Term of patent 14 years
U.S. Cl. D34—11





335,565
DOMED LID FOR TRASH CONTAINER
David A. Juergens, Winchester, Va., assignor to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Oct. 29, 1991, Ser. No. 784,030
Term of patent 14 years
U.S. Cl. D34—11



335,566
CART FOR DISPENSER ASSEMBLY
John R. Spriggs, Minneapolis; James D. Decker, Apple Valley; James L. Copeland, Burnsville, and Daniel K. Boche, Eagan, all of Minn., assignors to Ecolab, Inc., St. Paul, Minn.
Filed Oct. 23, 1991, Ser. No. 781,289
Term of patent 14 years
U.S. Cl. D34—14



335,567
GOLF CART
Horace J. Young, Calgary, Canada, assignor to Arthur James, Drumheller, Canada
Filed Dec. 16, 1991, Ser. No. 807,557
Term of patent 14 years
U.S. Cl. D34—15



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Abbot, Philip A.: *See*—
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Abe, Shosaburo; and Abe, Yoshikatsu. Artificial anus device. 5,209,744, Cl. 604-342.000.

Abe, Toshiaki, to Daito Communication Apparatus Co., Ltd. Self-resetting overcurrent protection element. 5,210,517, Cl. 338-22.00R.

Abe, Yoshikatsu: *See*—
Abe, Shosaburo; and Abe, Yoshikatsu, 5,209,744, Cl. 604-342.000.

Abele, Werner, to Du Pont de Nemours, E. I., and Company. Photopolymerizable printing plate for flexographic printing. 5,210,004, Cl. 430-272.000.

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Champagne, Elaine T.; Hron, Robert J., Sr.; and Abraham, George, 5,209,940, Cl. 426-320.000.

Abrahan, Stella; and Vallota, Enrique. Dermal exciser. 5,209,755, Cl. 606-132.000.

Accuride International, Inc.: *See*—
Jordan, Kent A., 5,209,572, Cl. 384-18.000.

Acenbrack, Donald F. Neck-less neckwear. 5,208,917, Cl. 2-113.000.

Active Noise and Vibration Technologies Inc.: *See*—
Harper, Mark F. L., 5,209,326, Cl. 188-378.000.

Adachi, Michio; and Obata, Haruyuki, to Nippondenso Co., Ltd. Variable valve timing apparatus. 5,209,194, Cl. 123-90.170.

Adams, Stuart J.: *See*—
Lala, Jaynarayan H.; and Adams, Stuart J., 5,210,871, Cl. 395-650.000.

Adan, Alberto O., to Sharp Kabushiki Kaisha. Static RAM cell with conductive straps formed integrally with thin film transistor gates. 5,210,429, Cl. 257-67.000.

Adin, Anthony, to Eastman Kodak Company. Nucleated high contrast photographic elements containing urea compounds which enhance speed and increase contrast. 5,210,002, Cl. 430-264.000.

Adkison, Frank L., to Oscar Mayer Foods Corporation. Method of cleaning metal mesh gloves. 5,209,244, Cl. 134-6.000.

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Aerospatiale Society Nationale Industrielle: *See*—
Bernard, Louis A.; and Thomassin, Rene, 5,209,431, Cl. 244-17.170.

Agarwal, Naval K.; Maddalon, Dal V.; and Mangalam, Siva M., to United States of America, National Aeronautics and Space Administration. Method of measuring cross-flow vortices by use of an array of hot-film sensors. 5,209,111, Cl. 73-147.000.

Agfa Gevaert Aktiengesellschaft: *See*—
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Agisim, Gary R.: *See*—
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Ahmad, Umar M.; Berger, Daniel G.; Kumar, Ananda; LaMaire, Susan J.; Prasad, Keshav B.; Ray, Sudipta K.; and Wong, Kwong H., to International Business Machines Corporation. Selective plating method for forming integral via and wiring layers. 5,209,817, Cl. 156-643.000.

Ahmed, Afif; and Hauet, Bertrand, to Regie Nationale des Usiness Renault. Two-cycle engine. 5,209,192, Cl. 123-65.0PE.

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Dixit, Nagaraj S.; Shevade, Makarand; and Ahmed, Fahim U., 5,209,863, Cl. 252-94.000.

Air Products and Chemicals, Inc.: *See*—
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Yapp, Martin G.; Van Houten, Robert; and Hickey, Robert I., 5,209,638, Cl. 415-208.100.

Aisan Kogyo Kabushiki Kaisha: *See*—
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Kuwana, Kazutaka; Okamoto, Kuniaki; Yoshida, Tsuyoshi; Ichikawa, Hiroyuki; Kamikado, Masaru; Nakanishi, Nobuyasu; Sugitani, Tatsuo; and Sakai, Kazunori, 5,210,693, Cl. 364-426.020.
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Tada, Kinya; Kurimura, Masaaki; Yano, Mutsumi; Mieno, Eiichiro; Sekiguchi, Wataru; Nakagawa, Junzo; and Akazawa, Takanori, 5,209,995, Cl. 429-229.000.

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Akiba, Jyuji; Sugibuchi, Hiroyuki; Kojima, Kazuyuki; and Satoh, Hiroshi, to Junkosha Co., Ltd. Liquid dispensing apparatus and method by sensing the type of liquid vapors in the receiver. 5,209,275, Cl. 141-83.000.

Akita, Yasunori: *See*—
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Cipolli, Roberto; Masarati, Enrico; Nucida, Gilberto; Oriani, Roberto; and Pirozzi, Mario, to Ministero Dell'Universita' e Della Ricerca Scientifica e Technologica. Self-extinguishing polymeric compositions comprising oligomeric 2,4-diamino-6-hydroxy-1,3,5-triazines and phosphates and/or phosphonates. 5,210,120, Cl. 524-100.000.

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Claesen, Christianus A. A.; and Koike, Hideo, to General Electric Company. Polymer mixture comprising polyphenylene ether, sterically hindered amine and epoxy compound and articles manufactured therefrom. 5,210,119, Cl. 524-99.000.

Claesen, Christianus A. A.: *See—*
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Clark, Joseph N.; Krahnke, Robert H.; Mealey, Shawn K.; and Schoenherr, William J., to Dow Corning Corporation. Stable, moisture-curable silicone pressure sensitive adhesives. 5,210,156, Cl. 525-477.000.

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Grisham, John A.; Clarke, Frederick W.; Christensen, Charles R.; and Stensby, John L., 5,210,417, Cl. 250-338.100.

Clarke-Pounder, Ian J. H., and Young, Douglas L. G., to Ingersoll-Rand Company. Method for controlling liquid level in a knot drainer. 5,209,822, Cl. 162-55.000.

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Clemens, Douglas J.; and Wall, John H., to Dana Corporation. Apparatus for precisely winding a coil of wire. 5,209,414, Cl. 242-25.00R.

Clement, Katherine S.; Babb, David A.; and Ezzell, Bobby R., to Dow Chemical Company, The. Reactive compounds containing perfluorocyclobutane rings. 5,210,265, Cl. 558-230.000.

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Cloetens, Leon; Gonze, Didier; and Adriaensen, Karel, to Alcatel N.V. Bit finder circuit. 5,210,529, Cl. 340-875.040.

Clydesdale, Graham, to Diamant Boart Stratabit Limited. Corebarrel. 5,209,310, Cl. 175-244.000.

Cmelik, Robert: *See—*
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Coll, Gene P., to Diamond Communication Products, Inc. Drop wire clamp. 5,209,439, Cl. 248-65.000.

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Stephens, Randy R.; Schulze, Dale R.; Bishop, Gregory D.; Sambi, Narinderjit; Collins, John M.; Selecman, George E.; and Sword, Randall, 5,209,736, Cl. 604-164.000.

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Fujita, Nobuhiko: *See—*
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Fujita, Tomoo, to NEC Corporation. O S I data communication for dealing with abstract syntaxes which are and are not preliminarily negotiated. 5,210,535, Cl. 341-51.000.

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Fujiwara, Ryoichi; and Murata, Masanori, to Fuji-Autolib Co., Ltd. Noiseless emergency locking type retractor. 5,209,421, Cl. 242-107.40A.

Fujiwara, Shigeru: *See—*
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Fujiwara, Teiichi; Mimura, Toshisada; and Hisanari, Toshiaki, to Shinagawa Refractories Co., Ltd. Apparatus for measuring thermal dimensional change of ceramics or the like. 5,209,569, Cl. 374-55.000.

Fujiwara, Teruaki: *See—*
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Fukagawa, Masakazu; Hatakeyama, Yasuhiko; Kinoshita, Toshiyuki; and Arai, Toshiaki, to Hitachi, Ltd. Address space control apparatus for virtual memory systems. 5,210,840, Cl. 395-400.000.

Fukami, Tadashi; and Kajiwara, Tsutomu, to Sony Corporation. Digital signal processing circuit. 5,210,761, Cl. 371-40.100.

Fukami, Toshiyuki: *See—*
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Fukuchi, Masakazu; Morita, Shizuo; Haneda, Satoshi; Satoh, Hisao; and Ikeda, Tadayoshi, to Konica Corporation. Image forming apparatus. 5,210,573, Cl. 355-211.000.

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Fukuno, Akira: *See—*
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Fukuoka, Shinsuke; Tojo, Masahiro; and Kawamura, Mamoru, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for continuously producing an aromatic carbonate. 5,210,268, Cl. 558-270.000.

Fukuvi Chemical Industry Co., Ltd.: *See—*
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Fukuyasu, Harumi: *See—*
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Fuller, Dewey W., Jr; Gustafson, Bruce L.; and Bernard, Bobby L., to Eastman Kodak Company. Process for the preparation of phenylhydroquinone. 5,210,330, Cl. 568-747.000.

Funada, Fumiaki: *See—*
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Funakawa, Kimitoshi: *See—*
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Furlan, Gilbert, to International Business Machines Corp. Data compression/coding method and device for implementing said method. 5,210,536, Cl. 341-107.000.

Furrow, Edward D.; and Cox, Gerald S., to Genicom Corporation. Ribbon cartridge and printer drive system for the ribbon. 5,209,586, Cl. 400-196.100.

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Geluk, Ronald J.; and Vlasbloem, Hugo, to B.V. Optische Industrie "De Oude Delft". Method and apparatus for split radiography. 5,210,782, Cl. 378-146.000.

Gelzer, Friedbert; and Wuerttenberger, Volker, to Siemens Nixdorf Informationssysteme AG. Cooling means for components in a vacuum chamber. 5,210,424, Cl. 250-443.100.

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Gilson, Jean-Marc; and de la Croi Habimana, Jean, to Dow Corning S.A. Method of making organopolysiloxanes. 5,210,131, Cl. 524-863.000.

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Goldenberg, Merrill S.; and Rennwantz, Ellen, to Ciba-Geigy Corporation. Crosslinked hydrogels derived from hydrophilic polymer backbones. 5,210,111, Cl. 523-108.000.

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Harris, William J.; Lysenko, Zenon; and Hurtig, Carl W., to Dow Chemical Company, The. Process to polymerize AB-PHO monomer phosphate salts. 5,210,171, Cl. 528-168.000.

Harris, William J., to Dow Chemical Company, The. Preparation of aryl compounds containing carboxyl and sulfonyl groups. 5,210,257, Cl. 558-49.000.

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Hartnagel, Heinz; Kastens, Raymond J., and Mansfield, Charles M., to Minnesota Mining and Manufacturing Company. Fiber viewer. 5,210,647, Cl. 359-802.000.

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Haruta, Kazumi: *See*—
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Hasegawa, Minekazu; Ikeda, Kenichi, and Fujihira, Junichi, to Kinugawa Rubber Industrial Co., Ltd. Structure for draining liquid for a vehicle and method for forming the structure. 5,209,546, Cl. 296-213.000.

Haseyama, Ryuji; Takagi, Masatoshi; Hayashi, Kouzou; Sasagawa, Katsuyoshi; Kuroda, Kazuyuki, Kano, Taisaku, and Shikai, Kiyoshi, to Mitsui Toatsu Chemicals, Inc. Alicyclic diamines, alicyclic diisocyanates and polyisocyanato-isocyanurates and method for the preparation thereof. 5,210,286, Cl. 560-347.000.

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Hasha, Malvern M.; Hasha, Brian B.; and Hasha, Bruce B. Method and apparatus for externally and internally testing for leaks in connections between tubular members. 5,209,105, Cl. 73-49.100.

Hashimoto, Setsujiro; Yagi, Kiyoshi; and Kanda, Masahiro, to Yazaki Corporation. Resin composite material containing graphite fiber 5,210,116, Cl. 523-468.000.

Hashimoto, Taisaku; Miki, Shigemi; Ii, Hiroshi; and Sugimoto, Ryuji, to Koyo Seiko Co., Ltd; and Anelva Corporation. Magnetic drive device. 5,209,699, Cl. 464-29.000.

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Kasai, Naomi, to Nippon Thompson Co., Ltd. Linear motion guide unit having a synchronized retainer. 5,209,576, Cl. 384-49.000.

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Nakagawa, Yoshikatsu, to Ricoh Company, Ltd. Approximate figures measuring system. 5,210,772, Cl. 375-1.000.

Nakagishi, Toshio, to Asahi Kogaku Kogyo Kabushiki Kaisha. Carriage lock apparatus. 5,210,739, Cl. 369-244.000.

Nakaguma, Shinji; and Banjyo, Toshinobu, to Mitsubishi Denki Kabushiki Kaisha. Method for the plasma treatment of semiconductor devices. 5,210,055, Cl. 437-225.000.

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Nishida, Yoshihiro, to Mitsubishi Denki Kabushiki. Photographic optical system controlling apparatus. 5,210,566, Cl. 354-402.000.

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Nishio, Noriyuki, to Nihon Cement Co. Ltd.; and Nihon Ceratec Co. Ltd., part interest to each. Diamond tool and method of producing the same. 5,209,613, Cl. 407-119.000.

Nishiyama, Kimito, to Honda Giken Kogyo Kabushiki Kaisha. Riding-type working machine. 5,209,314, Cl. 180-68.600.

Nishiyama, Toru: *See*—
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Nishiyama, Yoshihisa, to Tokyo Electric Co. Ltd. Device for measuring a physical force. 5,210,706, Cl. 364-574.000.

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Onishi, Katsuyoshi; Takada, Osamu; Kimura, Koichi; Yamaga, Mitsuhiro; Ogura, Toshihiko; and Shibata, Yasushi, to Hitachi, Ltd. Address filter unit for carrying out address filter processing among plurality of networks and method thereof. 5,210,748, Cl. 370-85.130.

Onizuka, Masakazu; Inoue, Kenji; Ukawa, Naohiko; Okino, Susumu; and Takashina, Toru, to Mitsubishi Jukogyo Kabushiki Kaisha. Wet-type exhaust gas desulfurization system having a means for supplying air. 5,209,905, Cl. 422-168.000.

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Ono, Katsuhiro; Anno, Hidero; Sugiura, Hiroyuki; Kitami, Takayuki; and Tazawa, Hiroaki, to Kabushiki Kaisha Toshiba. Rotary anode

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type x-ray tube having a jacket to prevent lubricant from being scattered. 5,210,781, Cl. 378-125.000.

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Reed, Daniel J.; and Snedecor, Tarver G., to Dow Chemical Company, The. Dehydrohalogenation of 1,1,2-trichloroethane using cyclic amines. 5,210,344, Cl. 570-228.000.

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Reeve, Paul F. D., to Rohm and Haas Company. Sulphur-based stabilizers for 3-isothiazolones. 5,210,094, Cl. 514-372.000.

reflecta GmbH foto film projektion. *See*—
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Reiff, Helmut; and Dieterich, Dieter, to Bayer Aktiengesellschaft. Process for the preparation of mono- and oligourethanes. 5,210,273, Cl. 560-24.000.

Reiffenrath, Volker; Krause, Joachim; Wachtler, Andreas; and Geelhaar, Thomas, to Merck Patent Gesellschaft mit beschrankter Haftung. Heterocyclic 1,2-difluorobenzene derivatives. 5,209,866, Cl. 252-299.610.

Reiffenrath, Volker; Poetsch, Eike; Kurmeier, Hans-Adolf; Weber, Georg; Hittich, Reinhard; Kompter, Hans-Michael; and Plach, Herbert, to Merck Patent Gesellschaft mit beschrankter Haftung. Trifluoromethylcyclohexane derivatives. 5,209,868, Cl. 252-299.630.

Reifferscheid, Karl-Josef, and Gumbinger, Dieter H., to SKW Trostberg AG. Agent for the treatment of cast iron melts. 5,209,901, Cl. 420-578.000.

Reinartz, Hans-Dieter; and Steffes, Helumut, to Alfred Teves GmbH. ABS pump pressure controls pressure limiting valve and loading valve. 5,209,552, Cl. 303-116.200.

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Shimada, Shusaku; and Saito, Kazuhiro, to Fukuvi Chemical Industry Co., Ltd. Method for producing FRP screw-like fastening elements. 5,209,888, Cl. 264-250.000.

Shimada, Yasuhiro; Mikoshiba, Hisashi; and Usui, Hideo, to Fuji Photo Film Co., Ltd. Heterocyclic dye compounds. 5,210,200, Cl. 548-303.100.

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Shimizu, Osamu: *See—*
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Shimoda, Akira, to Fujitsu Limited. Method for verifying a serializing function in a system including processors and a test system including processors for verifying the serializing function. 5,210,861, Cl. 395-575.000.

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Shimura, Nobuyuki; Hibi, Kazuo; and Oshima, Yoshio, to Hitachi, Ltd.; and Hitachi Computer Engineering Co., Ltd. System using selected logical processor identification based upon a select address for accessing corresponding partition blocks of the main memory. 5,210,844, Cl. 395-425.000.

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Taniguchi, Yasushi; Hirabayashi, Keiji; Kurihara, Noriko; and Ikoma, Keiko, to Canon Kabushiki Kaisha. Electric field light-emitting device. 5,210,430, Cl. 257-103.000.

Tanje, Kazuo: *See—*
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Tanno, Shogo; Kashioka, Toru, Mamishin, Etsuro; and Kawamura, Kenji, to Mitsubishi Cable Industries, Ltd.; and Nippon Reinz Co., Ltd. Apparatus for assembling ring-shaped articles. 5,208,972, Cl. 29-788.000.

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Taylor, Julian S. Emergency shutoff valve and regulator assembly. 5,209,253, Cl. 137-67.000.

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Yamazaki, Tetsuya: *See—*
Takahashi, Kousuke; and Yamazaki, Tetsuya, 5,210,827, Cl. 395-200.000.

Yan, Yingli; and Burns, Timothy J., to Emhart Inc. Secondary retention clip with pivoting clamping jaws. 5,209,529, Cl. 285-320.000.

Yanagida, Munehiko: *See—*
Higano, Masato; Yanagida, Munehiko; Sato, Tetsuya; and Yanagiya, Masakazu, 5,209,668, Cl. 439-57.000.

Yanagihara, Nobuyuki: *See—*
Suzuki, Kohei; Kawano, Hiroshi; Yanagihara, Nobuyuki; and Ota, Akira, 5,209,759, Cl. 29-623.100.

Yanagihara, Takeshi. *See—*
Sakurai, Shinziro; Yamazaki, Akihiro; Yanagihara, Takeshi; Nakano, Makoto; and Kusumoto, Masaya, 5,210,066, Cl. 503-214.000.

Yanagisawa, Takeji; and Soda, Yasutoshi, to Shin-Etsu Chemical Co., Ltd. Delustered thermally shrinkable film. 5,210,141, Cl. 525-239.000.

Yanagiya, Masakazu: *See—*
Higano, Masato; Yanagida, Munehiko; Sato, Tetsuya; and Yanagiya, Masakazu, 5,209,668, Cl. 439-57.000.

Yanaka, Kiyotaka: *See—*
Tanaka, Masato; and Yanaka, Kiyotaka, 5,210,670, Cl. 360-132.000.

Yanez, Francisco: *See—*
Marquez, Marco A.; Gonzalez, Jose C.; Degouveia, Victor J.; and Yanez, Francisco, 5,210,326, Cl. 568-697.000.

Yang, Chan-Lon: *See—*
Collins, Kenneth S.; Roderick, Craig A.; Yang, Chan-Lon; Wang, David N. K.; and Maydan, Dan, 5,210,466, Cl. 315-111.210.

Yang, Luoqing; and Buescher, Ron, to University of Arkansas. Dye and method for making same. 5,210,316, Cl. 568-404.000.

Yano, Keiko, to Fujitsu Limited. Electron beam exposure data processing method, electron beam exposure method and apparatus. 5,210,696, Cl. 364-488.000.

Yano, Mutsumi: *See—*
Tada, Kinya; Kurimura, Masaaki; Yano, Mutsumi; Mieno, Eiichiro; Sekiguchi, Wataru; Nakagawa, Junzo; and Akazawa, Takanori, 5,209,995, Cl. 429-229.000.

Yasuda, Fujio: *See—*
Flum, Alan; Zampini, Michael; and Yasuda, Fujio, 5,210,502, Cl. 330-85.000.

Yau, Eric K., to ISIS Pharmaceuticals, Inc. S-(2,4-dichlorobenzyl)-B-cyanoethyl phosphorothioate diester. 5,210,264, Cl. 558-167.000.

Yazaki Corporation: *See—*
Endo, Takayoshi; Yagi, Sakai; Tsuji, Masanori; and Kashiyama, otohisa, 5,209,676, Cl. 439-595.000.
Hashimoto, Setsujiro; Yagi, Kiyoshi; and Kanda, Masahiro, 5,210,116, Cl. 523-468.000.

Yazaki, Kazuhiko; Ono, Hiroyuki; Kanno, Hiroyuki; Nishiyama, Toru; and Nomaru, Minoru, to Nissan Motor Company. Control for a group of robots. 5,210,821, Cl. 395-83.000.

Yechem Inc.: *See—*
Pandey, Ramesh C., 5,210,226, Cl. 549-271.000.

Yeda Research and Development Co. Ltd.: *See—*
Levin, Gideon, 5,209,931, Cl. 424-405.000.

Yee, Keen Y.; and Kibble, Gary W., to Yee, Keen Y. Automatic tuning radio/TV using filtered seek. 5,210,611, Cl. 358-191.100.

Yeh, Charles S.: *See—*
Donlon, William P.; Jones, Lloyd G.; Strom, E. Thomas; and Yeh, Charles S., 5,209,296, Cl. 166-276.000.

Yertutan, Sam: *See—*
Beccia, Ferdinando; Conti, Alfredo; and Yertutan, Sam, 5,209,526, Cl. 285-134.000.

Yeznelev, Albert I.; Wellman, William E.; Kowalik, Ralph M.; Knudsen, George A.; and Romanelli, Michael G., to Exxon Chemical Patents Inc. Phenol terminated diester compositions derived from dicarboxylic acids, polyester polymers or alkyd polymers, and curable compositions containing same. 5,210,155, Cl. 525-442.000.

Yingst, Howard D.: *See—*
Hartz, Ross K.; Hitchens, Richard E.; Bristow, David G.; and Yingst, Howard D., 5,210,420, Cl. 250-363.030.

Yli-Paavola, Kauko, to Telenokia Oy. High-frequency amplifier of a radio transmitter. 5,210,508, Cl. 330-285.000.

Yodoi, Junji; Uchida, Atsushi; Tagaya, Yutaka; Mitsui, Akira; and Hirakawa, Tadashi, to Ajinomoto Co., Inc.; and Yodoi, Junji. Method for treating cancer therapy radiation damage or arteriosclerosis using human ADF. 5,210,073, Cl. 514-12.000.

Yokohama, Hiromitsu: *See—*
Abe, Shinya; Okamoto, Yasushi; Tagami, Katsuya; Hibi, Shigeki; Nagakawa, Junichi; Hirota, Kazuo; Hishinuma, Ieharu; Miyamoto, Kaname; Yamanaka, Takashi; Yokohama, Hiromitsu; Yoshimura, Tsutomu; Horie, Tohru; Akita, Yasunori; Katayama, Koichi; and Yamatsu, Isao, 5,210,239, Cl. 552-307.000.

Yokoi, Junji, to Unitta Co., Ltd. Toothed belt. 5,209,961, Cl. 428-161.000.

Yokomori, Yasuhiko: *See—*
Furuta, Toshiyuki; Yokomori, Yasuhiko; Ohta, Masato; Suda, Hideo; Ozawa, Naoki; and Kida, Shogo, 5,210,612, Cl. 358-213.110.

Yokota, Masaaki, to Tachi-S Co., Ltd. Cover structure for slide rail in seat adjuster. 5,209,447, Cl. 248-429.000.

Yokota, Yoshio: *See—*
Kitagawa, Mitsuhiko; Yokota, Yoshio; and Watanuki, Kazuo, deceased, 5,210,601, Cl. 257-727.000.

Yoneda, Takehiko: *See—*
Izumi, Yasuhiro; Makimoto, Ryoichi; Yoneda, Takehiko; and Taki, Hiromitsu, 5,210,511, Cl. 333-222.000.

Yonemura, Masao: *See—*
Okamoto, Masakatsu; Yonemura, Masao; and Yumoto, Hideaki, 5,209,284, Cl. 165-32.000.

Yoneyama, Tetsuhito; Nakamura, Hideki; and Fukuno, Akira, to TDK Corporation. Permanent magnet material and method for making. 5,209,789, Cl. 148-302.000.

Yoshida K.K.: *See—*
Masumoto, Tsuyoshi; Inoue, Akihisa; Nagahora, Junichi; and Kita, Kazuhiko, 5,209,791, Cl. 148-561.000.

Yoshida, Katsuhiko: *See—*
Goda, Hiroshi; Kimura, Nario; Yoshikawa, Naohiro; and Yoshida, Katsuhiko, 5,210,287, Cl. 562-55.000.

Yoshida, Keigo: *See—*
Fujita, Isao; Mukumoto, Takaji; Hijikata, Toshihiro; Ichizawa, Takashi; Iwata, Kazuyuki; Miyamaru, Yukio; Kizawa, Hirotoshi; Aoki, Katsuhito; Yoshida, Keigo; Yamasaki, Goro; Ohtsuka, Hiroshi; and Kashiwagi, Hitoshi, 5,209,662, Cl. 434-61.000.

Yoshida Kogyo K. K.: *See—*
Ishikawa, Kiichiro, 5,208,970, Cl. 29-768.000.

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Yoshida, Masanori: *See*—
Miyake, Izumi, Kaneko, Kiyotaka, Shimaya, Hiroshi; Yamamoto, Masanaga; and Yoshida, Masanori, 5,210,568, Cl. 354-418.000.

Yoshida, Masashi: *See*—
Watanabe, Katsumi; Yoshida, Takashi, Shimizu, Isao; Matsuda, Yusuhiro; Shimizu, Akira; and Yoshida, Masashi, 5,210,547, Cl. 346-76.0PH.

Yoshida, Naohito: *See*—
Arimoto, Satoshi; and Yoshida, Naohito, 5,210,767, Cl. 372-46.000.

Yoshida, Takashi: *See*—
Watanabe, Katsumi; Yoshida, Takashi; Shimizu, Isao; Matsuda, Yusuhiro; Shimizu, Akira; and Yoshida, Masashi, 5,210,547, Cl. 346-76.0PH.

Yoshida, Toyohiko, to Mitsubishi Denki Kabushiki Kaisha. Pipelined microprocessor with instruction execution control unit which receives instructions from separate path in test mode for testing instruction execution pipeline. 5,210,864, Cl. 395-575.000.

Yoshida, Tsuyoshi: *See*—
Kuwana, Kazutaka; Okamoto, Kuniaki; Yoshida, Tsuyoshi; Ichikawa, Hiroyuki; Kamikado, Masaru, Nakanishi, Nobuyasu, Sugitani, Tatsuo; and Sakai, Kazunori, 5,210,693, Cl. 364-426.020.

Yoshie, Yasunori; and Tsukui, Takashi, to NKK Corporation. Apparatus for manufacturing metal tube covered optical fiber cable and method therefor. 5,210,391, Cl. 219-121.630.

Yoshihara, Toru: *See*—
Toide, Eiichi; and Yoshihara, Toru, 5,210,627, Cl. 359-40.000.

Yoshikawa, Kuniyoshi, to Kabushiki Kaisha Toshiba. Method of manufacturing a floating gate type nonvolatile memory cell having an offset region 5,210,044, Cl. 437-43.000.

Yoshikawa, Masato: *See*—
Suzuki, Michio; Hata, Hiroyuki, Yoshikawa, Masato, Ohe, Toshiyuki; Kagano, Hirokazu; Goda, Hiroshi; Nakano, Masahito; and Teramoto, Masaki, 5,210,291, Cl. 562-431.000.

Yoshikawa, Naohiro: *See*—
Goda, Hiroshi, Kimura, Nario; Yoshikawa, Naohiro; and Yoshida, Katsuhiko, 5,210,287, Cl. 562-55.000.

Yoshimura, Kazuo: *See*—
Shimozono, Shigeru; Yoshimura, Kazuo, and Satoh, Ryo, 5,210,384, Cl. 200-61.45M.

Yoshimura, Toyofusa: *See*—
Kawamoto, Mineo; Akahoshi, Haruo, Takahashi, Akio; Mukoh, Akio; Tanje, Kazuo, Yoshimura, Toyofusa; Suwa, Tokihito, Kaminaga, Iwao; and Chida, Toshiyuki, 5,209,963, Cl. 428-209.000.

Yoshimura, Tsutomu: *See*—
Abe, Shinya, Okamoto, Yasushi, Tagami, Katsuya, Hibi, Shigeki, Nagakawa, Junichi, Hirota, Kazuo; Hishinuma, Ieharu; Miyamoto, Kaname; Yamanaka, Takashi; Yokohama, Hiromitsu; Yoshimura, Tsutomu; Horie, Tohru, Akita, Yasunori; Katayama, Koichi; and Yamatsu, Isao, 5,210,239, Cl. 552-307.000.

Yoshinaga, Yoko: *See*—
Kumayama, Tetsuro, Majima, Toshiaki; Taniguchi, Naosato; Yoshinaga, Yoko; Kishi, Hiroyoshi, and Kushibiki, Nobuo, 5,210,626, Cl. 359-13.000.

Yoshino, Kanichi: *See*—
Takeda, Takashi, Hamada, Hiroshi, Ishizuka, Haruo; Yoshino, Kanichi; Tadokoro, Yoshihisa, and Matsumoto, Naoyuki, 5,210,826, Cl. 395-200.000.

Yoshino Kogyosho Co., Ltd.: *See*—
Hattori, Takeshi, Onzuka, Kuniyuki, and Ichizawa, Yoshiyuki, 5,209,882, Cl. 264-40.200.

Yoshino, Koji. *See*—
Ohashi, Yukihiro; Takeuchi, Ken; Suda, Mituo; Yoshino, Koji; Kawamata, Akira, Mastui, Yoko; and Suzuki, Yuji, 5,210,251, Cl. 556-437.000.

Yoshioka, Shigeki: *See*—
Shibuya, Hideyuki; Yoshioka, Shigeki; Ichikawa, Satoru, and Touda, Masayuki, 5,210,651, Cl. 359-841.000.

Yoshioka, Toshihiro, to NEC Corporation. Gas-discharge display element driven by using seed discharge. 5,210,468, Cl. 315-169.400.

Yoshizawa, Hideo, to Nippon Sheet Glass Co., Ltd. Windshield for automobiles. 5,209,542, Cl. 296-84.100.

Young, Douglas L. G.: *See*—
Clarke-Pounder, Ian J. H.; and Young, Douglas L. G., 5,209,822, Cl. 162-55.000.

Yu, Chris C.; Doan, Trung T.; and Laulusa, Alan E., to Micron Technology, Inc. Method of chemical mechanical polishing aluminum containing metal layers and slurry for chemical mechanical polishing. 5,209,816, Cl. 156-636.000.

Yu, Fujio: *See*—
Nakamura, Tetsuji; and Yu, Fujio, 5,210,031, Cl. 435-128.000.

Yu, Kevin: *See*—
Moss, Gaylord E.; Yu, Kevin, and Wreede, John E., 5,210,625, Cl. 359-1.000.

Yu, Phil H., to SamSung Electronics Co., Ltd. Noise reduction circuit for high definition video signal. 5,210,609, Cl. 358-167.000.

Yuk, Soonhong: *See*—
Lee, Haibang; Yuk, Soonhong; and Shin, Byungchul, 5,210,117, Cl. 524-28.000.

Yumoto, Hideaki: *See*—
Okamoto, Masakatsu; Yonemura, Masao; and Yumoto, Hideaki, 5,209,284, Cl. 165-32.000.

Yusa, Hiroshi: *See*—
Tomiyama, Koichi; Takiguchi, Tsuyoshi; Kukimoto, Tsutomu, Yusa, Hiroshi; and Imai, Eiichi, 5,210,617, Cl. 358-300.000.

Zaccarin, Andre ; and Liu, Bede, to Princeton University, Trustees of. Method and apparatus for determining motion vectors for image sequences. 5,210,605, Cl. 358-105.000.

Zafiropulo, Pitro A.: *See*—
Nassehi, Mehdi M.; Muller, Johann R., Zurfluh, Erwin A., Zafiropulo, Pitro A.; and Bux, Werner K., 5,210,750, Cl. 370-85.200.

Zammit, Robert P., to International Business Machines Corporation. Magnetic recording heads employing multiple lapping guides. 5,210,667, Cl. 360-113.000.

Zampini, Michael: *See*—
Flum, Alan, Zampini, Michael; and Yasuda, Fujio, 5,210,502, Cl. 330-85.000.

Zander, Dennis R., to Eastman Kodak Company. Film cassette with flanged film spool. 5,209,419, Cl. 242-71.100.

Zapf, Werner: *See*—
Rittershaus, Erhard; Zapf, Werner; Base, Horst; and Kitzing, Walter, 5,209,247, Cl. 131-58.000.

Zare-Ardestani, Vahid, to VSI Corp. Fastener with differentially inclined axis. 5,209,620, Cl. 411-104.000.

Zavodjancik, John P.: *See*—
Brewe, Susan; Dean, Robert W.; Jaworski, Mark R.; Lorette, Timothy J., Packer, Louis L.; and Zavodjancik, John P., 5,209,785, Cl. 134-40.000.

Zdanowicz, Lawrence E.. *See*—
Mondek, Martin J.; and Zdanowicz, Lawrence E., 5,209,684, Cl. 440-83.000.

Zelley, Richard C.. *See*—
Barlow, George J.; Zelley, Richard C.; and Keeley, James W., 5,210,757, Cl. 371-16.100.

Zeng, Gengsheng L.: *See*—
Gullberg, Grant T.; Morgan, Hugh T.; Tung, Chi-Hua; Zeng, Gengsheng L.; and Christian, Paul E., 5,210,421, Cl. 250-363.040.

Zetekoff, Leon: *See*—
Gondek, Charlene; Nicholson, Trevor; Zetekoff, Leon; and Waszak, Robert, 5,209,373, Cl. 221-150.0HC.

Zexel USA Corporation. *See*—
Arneson, Dean A., and Hindle, Clive R., 5,209,292, Cl. 165-176.000.

Zhang, Hongyong: *See*—
Yamazaki, Shunpei; and Zhang, Hongyong, 5,210,050, Cl. 437-101.000.

Ziegler, Carl B., Jr.: *See*—
Sum, Phaik-Eng; Joseph, Joseph P.; Ziegler, Carl B., Jr.; Moran, Daniel B.; and Lin, Yang-I, 5,210,193, Cl. 544-360.000.

Ziegler, Walter, and Koch, Horst, to BASF Aktiengesellschaft. Copolymers of ethylene with polyalkylene glycol (meth)acrylates. 5,210,166, Cl. 526-307.500.

Zievers, Elizabeth C.: *See*—
Zievers, James F.; Zievers, Elizabeth C.; Aguilar, Peter; and Eggerstedt, Paul, 5,209,844, Cl. 210-232.000.

Zievers, James F., Zievers, Elizabeth C.; Aguilar, Peter; and Eggerstedt, Paul. Hot gas filter with jet pulse cleaning. 5,209,844, Cl. 210-232.000.

Zimmermann, Joseph E.: *See*—
Luebke, Charles P.; Vora, Bipin V.; Wegerer, David A., Zimmermann, Joseph E.; and Buck, Kevin C., 5,210,327, Cl. 568-697.000.

Zinsmeyer, Thomas M., to Carrier Corporation. Refrigerant flow control device. 5,209,080, Cl. 62-216.000.

Zmyslowski, Allan J.: *See*—
Maier, Robert M.; Andoh, John C.; Krakauer, Arno S.; Tobias, Richard J., and Zmyslowski, Allan J., 5,210,832, Cl. 395-375.000.

Zollman, Herbert T.. *See*—
Miller, Richard A.; and Zollman, Herbert T., 5,210,136, Cl. 525-74.000.

Zouzoulas, John, and Regan, Raymond D., to Mars Incorporated. Method and apparatus for a lockable, removable cassette, for securely storing currency. 5,209,395, Cl. 232-15.000.

Zouzoulas, John: *See*—
Shuren, Thomas; and Zouzoulas, John, 5,209,335, Cl. 194-200.000.

Zullig, Kurt, to Syma Intercontinental AG. Clamping device for releasably connecting two profiled parts. 5,209,598, Cl. 403-255.000.

Zurawski, John H.; and Beach, Walter A., to Digital Equipment Corporation. High speed transfer of instructions from a master to a slave processor. 5,210,834, Cl. 395-375.000.

Zurfluh, Erwin A.: *See*—
Nassehi, Mehdi M.; Muller, Johann R., Zurfluh, Erwin A.; Zafiropulo, Pitro A.; and Bux, Werner K., 5,210,750, Cl. 370-85.200.

Zutt, Ulrich: *See*—
Burgdorf, Jochen; David, Anton; Obersteiner, Georg; Guse, Hans-Albrecht; Zutt, Ulrich; and Schweighoefer, Bernd, 5,209,553, Cl. 303-116.100.

Zuuring, Pieter H.: *See*—
Schutyser, Jan A. J.; Buser, Antonius J. W.; Zuuring, Pieter H., and Slots, Hendrik J., 5,210,157, Cl. 525-502.000.

Zyvoloski, Kevin M.: *See*—
Bealkowski, Richard; Blackledge, John W., Jr.; Cronk, Doyle S.; Dayan, Richard A.; Kinnear, Scott G.; Kovach, George D.; Palka, Matthew S., Jr.; Sachsenmaier, Robert; and Zyvoloski, Kevin M., 5,210,875, Cl. 395-700.000.

3D Systems, Inc.: *See*—
Smalley, Dennis R.; Nguyen, Hop D.; Schmidt, Kris A.; Evans, Herbert E.; Freed, Ray S.; and Jacobs, Paul J., 5,209,878, Cl. 264-22.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 11TH DAY OF MAY, 1993

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Achatz, Manfred; Hofer, Peter; and Strobel, Jurgen, to Storz Instrument Company. Multifocal, especially bifocal, intraocular, artificial ophthalmic lens. Re. 34,251, Cl. 623-6.000.

AT&T Bell Laboratories: *See*—
Atal, Bishnu S.; and Martins Trancoso, Isabel M., Re. 34,247, Cl. 381-41.000.

Atal, Bishnu S.; and Martins Trancoso, Isabel M., to AT&T Bell Laboratories. Digital speech processor using arbitrary excitation coding. Re. 34,247, Cl. 381-41.000.

Bell Communications Research, Inc.: *See*—
Dyer, Christopher K., Re. 34,248, Cl. 429-33.000.

Chevron Research and Technology Company: *See*—
Van Leirsburg, Dean A.; Mohr, Donald H.; Tamm, Paul W.; Jacobson, Robert L.; Hughes, Thomas R.; and Wilson, Charles R., Re. 34,250, Cl. 502-37.000.

Crowther, Cossette M., surviving spouse, Russell L. Crowther, III, Eric J. Crowther, co-trustees: *See*—
Crowther, Russell L., deceased; and Johansson, Eric B., Re. 34,246, Cl. 376-443.000.

Crowther, Russell L., deceased (by Crowther, Cossette M., surviving spouse, Russell L. Crowther, III, Eric J. Crowther, co-trustees); and Johansson, Eric B., to General Electric Company. Thin walled channel. Re. 34,246, Cl. 376-443.000.

Dimac Medical Inc.: *See*—
Divis, Boris; and McColgan, Colin, Re. 34,249, Cl. 433-18.000.

Divis, Boris; and McColgan, Colin, to Dimac Medical Inc. Interdental immobilization device. Re. 34,249, Cl. 433-18.000.

Dyer, Christopher K., to Bell Communications Research, Inc. Primary source of electrical energy using a mixture of fuel and oxidizer. Re. 34,248, Cl. 429-33.000.

General Electric Company: *See*—
Crowther, Russell L., deceased; and Johansson, Eric B., Re. 34,246, Cl. 376-443.000.

Hagiwara, Takahashi, to Sigma Enterprises, Inc. Multiline slot machine. Re. 34,244, Cl. 273-138.00A.

Hofer, Peter: *See*—
Achatz, Manfred; Hofer, Peter; and Strobel, Jurgen, Re. 34,251, Cl. 623-6.000.

Hughes, Thomas R.: *See*—
Van Leirsburg, Dean A.; Mohr, Donald H.; Tamm, Paul W.; Jacobson, Robert L.; Hughes, Thomas R.; and Wilson, Charles R., Re. 34,250, Cl. 502-37.000.

Jacobson, Robert L.: *See*—
Van Leirsburg, Dean A.; Mohr, Donald H.; Tamm, Paul W.; Jacobson, Robert L.; Hughes, Thomas R.; and Wilson, Charles R., Re. 34,250, Cl. 502-37.000.

Johansson, Eric B.: *See*—
Crowther, Russell L., deceased; and Johansson, Eric B., Re. 34,246, Cl. 376-443.000.

Martins Trancoso, Isabel M.: *See*—
Atal, Bishnu S.; and Martins Trancoso, Isabel M., Re. 34,247, Cl. 381-41.000.

Matsutani, Kiyoshi; and Ohnishi, Ken, to Mitsubishi Denki Kabushiki Kaisha. Two stage coding method. Re. 34,245, Cl. 371-38.100.

McColgan, Colin: *See*—
Divis, Boris; and McColgan, Colin, Re. 34,249, Cl. 433-18.000.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Matsutani, Kiyoshi; and Ohnishi, Ken, Re. 34,245, Cl. 371-38.100.

Mohr, Donald H.: *See*—
Van Leirsburg, Dean A.; Mohr, Donald H.; Tamm, Paul W.; Jacobson, Robert L.; Hughes, Thomas R.; and Wilson, Charles R., Re. 34,250, Cl. 502-37.000.

Ohnishi, Ken: *See*—
Matsutani, Kiyoshi; and Ohnishi, Ken, Re. 34,245, Cl. 371-38.100.

Sigma Enterprises, Inc.: *See*—
Hagiwara, Takahashi, Re. 34,244, Cl. 273-138.00A.

Storz Instrument Company: *See*—
Achatz, Manfred; Hofer, Peter; and Strobel, Jurgen, Re. 34,251, Cl. 623-6.000.

Strobel, Jurgen: *See*—
Achatz, Manfred; Hofer, Peter; and Strobel, Jurgen, Re. 34,251, Cl. 623-6.000.

Tamm, Paul W.: *See*—
Van Leirsburg, Dean A.; Mohr, Donald H.; Tamm, Paul W.; Jacobson, Robert L.; Hughes, Thomas R.; and Wilson, Charles R., Re. 34,250, Cl. 502-37.000.

Van Leirsburg, Dean A.; Mohr, Donald H.; Tamm, Paul W.; Jacobson, Robert L.; Hughes, Thomas R.; and Wilson, Charles R., to Chevron Research and Technology Company. Process for regenerating sulfur contaminated reforming catalysts. Re. 34,250, Cl. 502-37.000.

Wilson, Charles R.: *See*—
Van Leirsburg, Dean A.; Mohr, Donald H.; Tamm, Paul W.; Jacobson, Robert L.; Hughes, Thomas R.; and Wilson, Charles R., Re. 34,250, Cl. 502-37.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Ampex Corporation: *See*—
Gallo, Luigi C., B1 4,349,832, Cl. 358-17.000.

Barmazel, Howard A.: *See*—
Jenks, James E., Jr.; and Barmazel, Howard A., B1 4,999,845, Cl. 2-2.10R.

Boots Company plc, The: *See*—
Jeffery, James E.; Kozlik, Antonin; and Wilmshurst, Eric C., B1 4,522,828, Cl. 514-646.000.

Bran, Mario E., to Verteq, Inc. Megasonic cleaning apparatus. B1 4,869,278, 5-11-93, Cl. 134-184.000.

Bran, Mario E., to Verteg, Inc. Megasonic cleaning apparatus. B1 4,998,549, 5-11-93, Cl. 134-184.000.

Bran, Mario E., to Verteq, Inc. Megasonic cleaning method. B1 5,037,481, 5-11-93, Cl. 134-1.000.

Flanagan, Denise M.: *See*—
Martin, Lawrence L.; Flanagan, Denise M.; and Payack, Joseph F., B1 5,102,889, Cl. 514-292.000.

Gallo, Luigi C., to Ampex Corporation. Digital data rate corrector and time base corrector. B1 4,349,832, 5-11-93, Cl. 358-17.000.

Hamamoto, Masato: *See*—
Usami, Mitsuo; Shiozawa, Noboru; Yamada, Toshio; Katoh, Hiromasa; Satoh, Kazuyoshi; Kobayashi, Tohru; Kimura, Tatsuya; Hamamoto, Masato; Shimizu, Atsushi; and Koyu, Kaoru, B1 4,999,520, Cl. 307-456.000.

Hitachi, Ltd.: *See*—
Usami, Mitsuo; Shiozawa, Noboru; Yamada, Toshio; Katoh, Hiromasa; Satoh, Kazuyoshi; Kobayashi, Tohru; Kimura, Tatsuya; Hamamoto, Masato; Shimizu, Atsushi; and Koyu, Kaoru, B1 4,999,520, Cl. 307-456.000.

Hoechst-Roussel Pharmaceuticals Incorporated: *See*—
Martin, Lawrence L.; Flanagan, Denise M.; and Payack, Joseph F., B1 5,102,889, Cl. 514-292.000.

Iwasaki, Hiroshi, to Kabushiki Kaisha Toshiba. Semiconductor integrated circuit apparatus having programmable logic device. B1 5,068,549, 5-11-93, Cl. 307-465.100.

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Vonhausen, Robert, 335,406, Cl. D6-484.000.
Volk, Thomas G.; and Farb, Ben, to Reliance Comm/Tec Corporation. Environmentally sealed insulation displacement connector terminal block. 335,487, 5-11-93, Cl. D13-147.000.
Vonhausen, Robert, to Vermogensverwaltung Franz Vogt Familienstiftung KG. Table. 335,406, 5-11-93, Cl. D6-484.000.
Ward, Richard P. Seat belt cover. 335,472, 5-11-93, Cl. D11-201.000.
Warsaw, Michael M., to Prince Corporation. Auxiliary visor panel. 335,482, 5-11-93, Cl. D12-191.000.
Watanabe, Kazuhiro: *See*—
Hakamatsuka, Yasuharu; Watanabe, Kazuhiro; Aihara, Mamoru; Takahashi, Manabu; and Shimizu, Toshio, 335,537, Cl. D24-176.000.
Hakamatsuka, Yasuharu; Watanabe, Kazuhiro; Aihara, Mamoru; Takahashi, Manabu; and Shimizu, Toshio, 335,539, Cl. D24-176.000.
Waterbury Companies, Inc.: *See*—
Kunze, Walter A.; and Semanchik, Robert J., 335,531, Cl. D23-366.000.
Weber, Susan A.: *See*—
Bowes, Anita G.; and Weber, Susan A., 335,418, Cl. D6-601.000.
Weirsman, William. *See*—
Ngian, Jenna P. C.; Davis, Steven B.; and Weirsman, William, 335,407, Cl. D6-492.000.
Wella Aktiengesellschaft: *See*—
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Wells, Marvin C.: *See*—
Abel, Paul C.; and Wells, Marvin C., 335,410, Cl. D6-520.000.
Wilkinson, Lance R.: *See*—
Slingluff, Mark D.; Wilkinson, Lance R.; and Williams, Thomas A., 335,478, Cl. D12-146.000.
Williams, Thomas A.: *See*—
Slingluff, Mark D.; Wilkinson, Lance R.; and Williams, Thomas A., 335,478, Cl. D12-146.000.
Wilson, John. Hook for attaching the net to the frame of a portable goal. 335,440, 5-11-93, Cl. D8-367.000.
Wilson, Ken. Motorcycle handlebar grip. 335,437, 5-11-93, Cl. D8-303.000.
Wood Far East, Inc.: *See*—
Cheng, Willis, 335,467, Cl. D10-106.000.
Yamamoto, Teruaki, to Piaa Design International Corporation. Vehicular ski carrier. 335,479, 5-11-93, Cl. D12-157.000.
Yim, Hyo J. Ornamental hairbow—hairpiece combination. 335,390, 5-11-93, Cl. D2-501.000.
Yoshikawa, Masashi: *See*—
Arioka, Tetsuya; and Yoshikawa, Masashi, 335,535, Cl. D24-117.000.
Youens, John E.: *See*—
Mesfin, Teodros; Kolas, Jon; and Youens, John E., 335,490, Cl. D14-107.000.
Young, Horace J., to James, Arthur. Golf cart. 335,567, 5-11-93, Cl. D34-15.000.
Zanazan U.S.A. Inc.: *See*—
Chamlian, Maral, 335,394, Cl. D6-310.000.
Zebco Corporation: *See*—
Chapman, John W., 335,525, Cl. D22-142.000.

LIST OF PLANT PATENTEES

Fides Beheer B.V.: *See*—
van der Knapp, Jacques C. M., 8,227, Cl. 82.200.
VandenBerg, Cornelis P., to Yoder Brothers, Inc. Chrysanthemum plant named Dark Brioso. 8,223, 5-11-93, Cl. 74.100.
VandenBerg, Cornelis P., to Yoder Brothers, Inc. Chrysanthemum plant named Light Brioso. 8,224, 5-11-93, Cl. 74.100.
VandenBerg, Cornelis P., to Yoder Brothers, Inc. Chrysanthemum plant named Bronze Melosa. 8,225, 5-11-93, Cl. 79.000.
VandenBerg, Cornelis P., to Yoder Brothers, Inc. Chrysanthemum plant named Yellow Brioso. 8,226, 5-11-93, Cl. 82.200.
VandenBerg, Cornelis P., to Yoder Brothers, Inc. Chrysanthemum plant named Bronze Brioso. 8,228, 5-11-93, Cl. 82.300.
van der Knapp, Jacques C. M., to Fides Beheer B.V. Chrysanthemum plant — ALHA cultivar. 8,227, 5-11-93, Cl. 82.200.
Yoder Brothers, Inc.: *See*—
VandenBerg, Cornelis P., 8,223, Cl. 74.100.
VandenBerg, Cornelis P., 8,224, Cl. 74.100.
VandenBerg, Cornelis P., 8,225, Cl. 79.000.
VandenBerg, Cornelis P., 8,226, Cl. 82.200.
VandenBerg, Cornelis P., 8,228, Cl. 82.300.

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CLASSIFICATION OF PATENTS

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NOTE.—First number, class; second number, subclass; third number, patent number

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134 5,209,864
174.22 5,209,865
299.61 5,209,866
299.63 5,209,868
299.65 5,209,867
389.54 5,209,869
398 5,209,870
500 5,209,871
511 5,209,872
512 5,209,873
550 5,209,874

CLASS 254

88 5,209,458
134.3 R 5,209,457

CLASS 257

17 5,210,428
67 5,210,429
77 5,210,431
103 5,210,430
152 5,210,432
250 5,210,433
280 5,210,596
291 5,210,434
321 5,210,597
344 5,210,435
361 5,210,436
392 5,210,437
530 5,210,598
534 5,210,599
536 5,210,438
587 5,210,439
675 5,210,440
677 5,210,441
679 5,210,442
727 5,210,601

CLASS 260

665 G 5,209,459

CLASS 261

114.1 5,209,875

CLASS 264

3.3 5,209,876
9 5,209,877
22 5,209,878
23 5,209,879
5,209,880
25 5,209,881
40.2 5,209,882
41 5,209,883
5,209,884
63 5,209,885
109 5,209,886
117 5,209,887
250 5,209,888
297.2 5,209,889
516 5,209,890
526 5,209,891
544 5,209,892

CLASS 266

47 5,209,893

CLASS 267

140.14 5,209,460
155 5,209,461
219 5,209,462

CLASS 271

11 5,209,463
35 5,209,464
110 5,209,465
188 5,209,466
240 5,209,467
274 5,209,468

CLASS 273

32 B 5,209,469
32 H 5,209,470
61 C 5,209,471
73 C 5,209,472
77 A 5,209,473
80 C 5,209,474
81 C 5,209,475
138 A Re.34,244
5,209,476
143 R 5,209,477
5,209,479
148 B 5,209,478
157 R 5,209,480
186.2 5,209,481
187.2 5,209,482
187.4 5,209,483
192 5,209,484
218 5,209,485
239 5,209,486
248 5,209,487
261 5,209,488
321 5,209,489
346 5,209,490
371 5,209,491
407 5,209,492
411 5,209,493
460 5,209,494

CLASS 277

3 5,209,495
9 5,209,496
28 5,209,497
34 5,209,498
50 5,209,499
96.1 5,209,500
102 5,209,501
152 5,209,502
229 5,209,503
235 B 5,209,504

CLASS 280

8 5,209,505
231 5,209,507
240 5,209,506
261 5,209,508
304.1 5,209,509
633 5,209,516
654 5,209,517
680 5,209,518
728 5,209,519
732 5,209,510
5,209,520
743 5,209,511
775 5,209,512

CLASS 283

67 5,209,513
81 5,209,514
95 5,209,515

CLASS 285

3 5,209,521
15 5,209,522
93 5,209,523
114 5,209,524
134 5,209,526
137.1 5,209,525
242 5,209,527
315 5,209,528
320 5,209,529

CLASS 292

27 5,209,530
216 5,209,531
5,209,532
288 5,209,533

CLASS 294

50.6 5,209,534
68.23 5,209,535
88 5,209,536
111 5,209,537
118 5,209,538
143 5,209,539

CLASS 296

3 5,209,540
29 5,209,541
84.1 5,209,542
100 5,209,543
107 5,209,544
136 5,209,545
213 5,209,546

CLASS 297

301 5,209,548
320 5,209,549

CLASS 301

37.1 5,209,550

CLASS 303

7 5,209,551
116.1 5,209,553
5,209,554
116.2 5,209,552

CLASS 307

17 5,210,443
57 5,210,445
265 5,210,444
296.2 5,210,446
456 B1 4,999,520
463 5,210,447
465.1 B1 5,068,549
473 5,210,449
603 5,210,450
633 5,210,451

CLASS 310

12 5,210,452
51 5,210,453
316 5,210,454
328 5,210,455
329 5,210,456

CLASS 312

334.18 5,209,555
334.27 5,209,556

CLASS 313

11.5 5,210,457
130 5,210,458
406 5,210,459
456 5,210,460
491 5,210,461
495 5,210,462
631 5,210,463

CLASS 315

3 5,210,464
39.53 5,210,465
111.21 5,210,466
158 5,210,467
169.4 5,210,468
5,210,469
209 R 5,210,470
289 5,210,471
349 5,210,472

CLASS 318

99 5,210,473
254 5,210,474
293 5,210,475
471 5,210,477
560 5,210,476
632 5,210,478
727 5,210,479

CLASS 322

28 5,210,480

CLASS 323

316 5,210,481

CLASS 324

71.1 5,210,482
76.27 5,210,483
118 5,210,484
158 P 5,210,485
158 R 5,210,486
5,210,487
176 5,210,488
207.12 5,210,489
207.17 5,210,490
207.19 5,210,491
220 5,210,492
252 5,210,493
309 5,210,494
338 5,210,495
439 5,210,496
521 5,210,497
529 5,210,498
649 5,210,499
667 5,210,500
720 5,210,501

CLASS 330

85 5,210,502
110 5,210,503
253 5,210,236
5,210,504
5,210,505
255 5,210,506
285 5,210,508
286 5,210,507

CLASS 331

4 5,210,509

CLASS 333

219 5,210,510
222 5,210,511

CLASS 335

216 5,210,512

CLASS 336

61 5,210,513
178 5,210,514
192 5,210,515

CLASS 338

22 R 5,210,516
5,210,517

CLASS 340

310 R 5,210,518
5,210,519
326 5,210,520
436 5,210,521
467 5,210,522
540 5,210,523
551 5,210,524
604 5,210,525
605 5,210,526
659 5,210,527
666 5,210,528
825.08 5,210,530
825.59 5,210,531
825.69 5,210,532
853.4 5,210,533
875.04 5,210,529
984 5,210,534

CLASS 341

51 5,210,535
107 5,210,536
156 5,210,537
160 5,210,538

CLASS 342

83 5,210,539
357 5,210,540

CLASS 343

700 MS 5,210,541
5,210,542
771 5,210,543
840 5,210,544

CLASS 346

1.1 5,210,545
74.2 5,210,546
76 PH 5,210,547
108 5,210,548
140 R 5,210,549
5,210,550
155 5,210,551

CLASS 351

49 5,210,552
169 5,210,553
206 5,210,554
211 5,210,555

CLASS 353

120 5,210,556

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CLASS 354

5,210,557
5,210,558
195.1 5,210,559
202 5,210,560
268 5,210,561
297 5,210,562
400 5,210,563
5,210,564
402 5,210,565
5,210,566
5,210,567
412 5,210,568
418 5,210,569
442

CLASS 355

5,210,570
38 5,210,571
203 5,210,572
208 5,210,573
211 5,210,574
5,210,575
259 5,210,576
271 5,210,577
273 5,210,578
285 5,210,579
5,210,580
290 5,210,581
5,210,582
297 5,210,583
309 5,210,584
327

CLASS 356

5,210,585
1 5,210,586
5 5,210,587
5,210,588
71 5,210,589
121 5,210,590
319 5,210,591
357 5,210,592
371 5,210,593
381 5,210,594
429 5,210,595
442

CLASS 358

B1 4,349,832
17 5,210,600
76 5,210,602
80 5,210,603
93 5,210,604
5,210,605
105 5,210,606
148 5,210,607
166 5,210,608
167 5,210,609
5,210,610
169 5,210,611
191.1 5,210,612
213.11 5,210,613
213.23 5,210,614
213.28 5,210,615
296 5,210,616
5,210,617
300 5,210,618
314 5,210,619
320 5,210,620
335 5,210,621
440 5,210,622
451 5,210,623
458

CLASS 359

5,210,625
1 5,210,624
13 5,210,626
5,210,627
40 5,210,628
72 5,210,629
81 5,210,630
106 5,210,631
132 5,210,632
178 5,210,633
194 5,210,634
196 5,210,635
198 5,210,636
200 5,210,637
263 5,210,638
265 5,210,640
434 5,210,641
448 5,210,642
548 5,210,643
638 5,210,644
694 5,210,645
738 5,210,646
793 5,210,647
802 5,210,648
813 5,210,649
819 5,210,650
820 5,210,651
841 5,210,652
5,210,653
846 5,210,654
847 5,210,655
850 5,210,656
855 5,210,657
885 5,210,658
894

CLASS 360

27 5,210,659
51 5,210,660
71 5,210,661
77.04 5,210,662
77.16 5,210,663
93 5,210,664
99.08 5,210,665
103 5,210,666
113 5,210,667
120 5,210,668
124 5,210,669
132 5,210,670
133 5,210,671
135 5,210,672
5,210,673

CLASS 361

19 5,210,674
91 5,210,675
117 5,210,676
119 5,210,677
226 5,210,678
335 5,210,679
384 5,210,680
393 5,210,681
396 5,210,682
414 5,210,683

CLASS 362

11 5,209,557
66 5,209,558
80 5,209,559
85 5,209,560
163 5,209,561
378 5,209,562

CLASS 363

37 5,210,684
109 5,210,685

CLASS 364

403 5,210,686
408 5,210,687
413.19 5,210,688
419 5,210,689
422 5,210,691
426.02 5,210,690
5,210,692
5,210,693
470 5,210,694
474.06 5,210,695
474.35 5,210,697
476 5,210,698
488 5,210,696
5,210,699
489 5,210,700
491 5,210,701
496 5,210,702
525 5,210,703
551.01 5,210,704
572 5,210,705
574 5,210,706
602 5,210,707
710.14 5,210,708
724.03 5,210,709
746.1 5,210,710
786 5,210,711
825 5,210,712

CLASS 365

49 5,210,713
157 5,210,714
194 5,210,715
200 5,210,716
222 5,210,717
238.5 5,210,723

CLASS 366

22 5,209,563
124 5,209,564
130 5,209,565

CLASS 367

13 5,210,718
139 5,210,719
176 5,210,720

CLASS 368

21 5,210,721
88 5,210,722

CLASS 369

13 5,210,724
19 5,210,725
32 5,210,726
5,210,727
36 5,210,728
5,210,729
44.28 5,210,731
44.29 5,210,732
44.37 5,210,730
48 5,210,733
49 5,210,734
54 5,210,735
75.1 5,210,736
5,210,737
244 5,210,739
275.1 5,210,738

CLASS 370

16 5,210,740
34 5,210,742
56 5,210,741
60 5,210,743
5,210,744
79 5,210,745
5,210,746
85.1 5,210,747
5,210,749
85.13 5,210,748
85.2 5,210,750
94.1 5,210,751
95.1 5,210,752
5,210,753
105.4 5,210,754
108 5,210,755

CLASS 371

8.1 5,210,756
16.1 5,210,757
5,210,758
22.3 5,210,759
38.1 Re.34,245
5,210,760
40.1 5,210,761
69.1 5,210,762

CLASS 372

23 5,210,764
5,210,765
26 5,210,763
40 5,210,766
46 5,210,767
92 5,210,768

CLASS 374

16 5,209,566
32 5,209,567
49 5,209,568
55 5,209,569
131 5,209,570
139 5,209,571

CLASS 375

1 5,210,770
5,210,771
5,210,772
4 5,210,773
14 5,210,774
67 5,210,775

CLASS 376

203 5,209,894
260 5,209,895
289 5,209,896
352 5,209,897
438 5,209,898
442 5,209,899
443 Re.34,246

CLASS 377

17 5,210,776
60 5,210,777

CLASS 378

53 5,210,778
84 5,210,779
105 5,210,780
125 5,210,781
146 5,210,782
207 5,210,783

CLASS 379

37 5,210,784
58 5,210,785
59 5,210,786
60 5,210,787
61 5,210,788
127 5,210,789
368 5,210,790
377 5,210,791
430 5,210,792
433 5,210,793

CLASS 380

9 5,210,794
23 5,210,795

CLASS 381

12 5,210,796
41 Re.34,247
61 5,210,802
68 5,210,803
69.2 5,210,804
71 5,210,805
103 5,210,806

CLASS 382

4 5,210,797
14 5,210,798
22 5,210,799

CLASS 383

63 5,209,574
109 5,209,573

CLASS 384

15 5,209,575
18 5,209,572
49 5,209,576
97 5,209,577
276 5,209,578
308 5,209,579
448 5,209,580
545 5,209,581

CLASS 385

12 5,210,800
14 5,210,801
24 5,210,807
27 5,210,808
70 5,210,809
78 5,210,810
91 5,210,811
100 5,210,812
105 5,210,813
116 5,210,814
138 5,210,815
142 5,210,816
147 5,210,817

CLASS 392

405 5,210,818
450 5,210,819

CLASS 395

2 5,210,820
83 5,210,821
115 5,210,822
116 5,210,823
145 5,210,824
147 5,210,825
200 5,210,826
5,210,827
5,210,828
250 5,210,829
325 5,210,830
375 5,210,831
5,210,832
5,210,833
5,210,834
5,210,835
5,210,836
5,210,837
400 5,210,838
5,210,839
5,210,840
5,210,841
425 5,210,839
5,210,842
5,210,843
5,210,844
5,210,845
5,210,846
5,210,847
5,210,848
5,210,849
5,210,850
5,210,851
5,210,852
5,210,853
500 5,210,854
5,210,855
550 5,210,856
5,210,857
5,210,858
575 5,210,859
5,210,860
5,210,861
5,210,862
5,210,863
5,210,864
5,210,865
5,210,866
5,210,867
600 5,210,868
5,210,869
5,210,870
650 5,210,871
5,210,872
5,210,873
5,210,874
700 5,210,875
5,210,876

CLASS 400

50 5,209,582
88 5,209,583
122 5,209,584
124 5,209,585
196.1 5,209,586
225 5,209,587
490 5,209,588
568 5,209,589
636.1 5,209,590
645 5,209,591

CLASS 402

1 5,209,592
77 5,209,593

CLASS 403

11 5,209,594
13 5,209,595
134 5,209,596
205 5,209,597
255 5,209,598
298 5,209,599
344 5,209,600

CLASS 404

26 5,209,601
88 5,209,602

CLASS 405

52 5,209,603
128 5,209,604
184 5,209,605
303 5,209,606

CLASS 406

66 5,209,607
100 5,209,608
112 5,209,609

CLASS 407

36 5,209,610
48 5,209,611
54 5,209,612
119 5,209,613

CLASS 408

1 R 5,209,614
54 5,209,615
139 5,209,616
178 5,209,617

CLASS 409

84 5,209,618

CLASS 411

85 5,209,619
104 5,209,620
340 5,209,621
386 5,209,622
432 5,209,623

CLASS 412

4 5,209,624

CLASS 413

72 5,209,625

CLASS 414

331 5,209,626
398 5,209,627
462 5,209,628
772 5,209,629

CLASS 415

55.1 5,209,630
90 5,209,631
129 5,209,632
144 5,209,633
150 5,209,634
171.1 5,209,635
174.4 5,209,636
208.1 5,209,638
213.1 5,209,639

CLASS 416

27 5,209,640
223 B 5,209,641
223 R 5,209,642
5,209,643
235 5,209,644
241 B 5,209,645

CLASS 417

50 5,209,646
261 5,209,647
310 5,209,648
342 5,209,649
356 5,209,650
404 5,209,651
409 5,209,652
410 R 5,209,653

CLASS 420

94 5,209,900
578 5,209,901

CLASS 422

21 5,209,902
65 5,209,903
73 5,209,904
168 5,209,905
200 5,209,906
208 5,209,907
218 5,209,908
292 5,209,909

CLASS 423

13 5,209,956
63 5,209,910
92 5,209,911
210 5,209,912
5,209,913
228 5,209,914
243.01 5,209,915
446 5,209,916
592 5,209,917
706 5,209,918

CLASS 424

1.1 5,209,919
9 5,209,920
45 5,209,921
46 5,209,922
59 5,209,923
71 5,209,924
73 5,209,925
78.04 5,209,926
5,209,927
85.8 5,209,928
88 5,209,929
401 5,209,930
405 5,209,931
409 5,209,932
494 5,209,933
661 5,209,934

CLASS 425

12 5,209,935
149 5,209,936
183 5,209,937

CLASS 426

20 5,209,938
231 5,209,939
320 5,209,940
510 5,209,941
573 5,209,942
582 5,209,943

CLASS 427

77 5,209,945
128 5,209,946
150 5,209,947
185 5,209,948
198 5,209,949
252 5,209,950
255 5,209,951
255.6 5,209,952
276 5,209,953
430.1 5,209,954
569 5,209,944

CLASS 428

1 5,209,955
34.7 5,209,957
36.91 5,209,958
40 5,209,959
119 5,209,960
161 5,209,961
195 5,209,962
209 5,209,963
225 5,209,964
260 5,209,965
272 5,209,966
283 5,209,967
312.4 5,209,968
317.5 5,209,969
329 5,209,970
343 5,209,971
349 5,209,972
352 5,209,973
357 5,209,974
364 5,209,975
391 5,209,976
402 5,209,977
402.2 5,209,978
408 5,209,979
432 5,209,980
447 5,209,981
511 5,209,982
514 5,209,983
516 5,209,984
518 5,209,985
520 5,209,986
610 5,209,987
659 5,209,988

CLASS 429

30 5,209,989
33 Re.34,248
63 5,209,990
66 5,209,991
86 5,209,992
136 5,209,993
213 5,209,994
229 5,209,995

CLASS 430

5 5,209,996
99 5,209,997
106 5,209,998
110 5,209,999
165 5,210,000
252 5,210,001
264 5,210,002
270 5,210,003
272 5,210,004
302 5,210,005
312 5,210,006
373 5,210,007
398 5,210,008
399 5,210,009
466 5,210,010
549 5,210,011
566 5,210,012
567 5,210,013
588 5,210,014

CLASS 431

6 5,209,655

187 5,209,656

CLASS 432

99 5,209,657

CLASS 433

18 Re.34,249
125 5,209,658
173 5,209,659
5,209,666
181 5,209,660

CLASS 434

45 5,209,661
61 5,209,662
84 5,209,663
103 5,209,664
169 5,209,665
260 5,209,667

CLASS 435

6 5,210,015
5,210,016
7.22 5,210,018
7.32 5,210,019
7.8 5,210,017
7.94 5,210,020
29 5,210,021
34 5,210,022
66 5,210,023
68.1 5,210,024
69.1 5,210,025
5,210,026
5,210,027
69.4 5,210,028
69.52 5,210,029
119 5,210,030
128 5,210,031
150 5,210,032
172.1 5,210,033
172.2 5,210,034
172.3 5,210,035
194 5,210,036
226 5,210,037
300 5,210,038

CLASS 436

17 5,210,039
528 5,210,040

CLASS 437

8 5,210,041
28 5,210,042
30 5,210,043
42 5,210,045
43 5,210,044
5,210,046
5,210,047
5,210,048
53 5,210,049
101 5,210,050
107 5,210,051
132 5,210,052
192 5,210,053
195 5,210,054
225 5,210,055
239 5,210,056

CLASS 439

57 5,209,668
59 5,209,669
67 5,209,671
101 5,209,670
157 5,209,672
199 5,209,673
235 5,209,674
326 5,209,675
595 5,209,676
607 5,209,677
672 5,209,678
822 5,209,679
825 5,209,680
876 5,209,681

CLASS 440

2 5,209,682
38 5,209,683
83 5,209,684

CLASS 441

79 5,209,686
82 5,209,685

CLASS 445

6 5,209,687
24 5,209,688
27 5,209,689
52 5,209,690

CLASS 446

28 5,209,691
71 5,209,692
73 5,209,694
104 5,209,693
175 5,209,695

CLASS 453

10 5,209,696

CLASS 454

341 5,209,697

CLASS 462

17 5,209,698

CLASS 464

29 5,209,699
111 5,209,700
178 5,209,701

CLASS 472

136 5,209,702

CLASS 474

14 5,209,703
185 5,209,704
204 5,209,705
253 5,209,706

CLASS 475

156 5,209,708
176 5,209,637
249 5,209,707

CLASS 482

30 5,209,709
54 5,209,710
70 5,209,711
91 5,209,712
92 5,209,713
113 5,209,714
124 5,209,716
137 5,209,715

CLASS 492

7 5,208,956
12 5,208,955

CLASS 501

69 5,210,057
97 5,210,058

CLASS 502

4 5,210,059
37 Re.34,250
202 5,210,060
254 5,210,061
304 5,210,062
415 5,210,063

CLASS 503

201 5,210,064
202 5,210,065
214 5,210,066
227 5,210,067
5,210,068

CLASS 504

178 5,209,771
215 5,209,770
273 5,209,769
313 5,209,768

CLASS 505

1 5,210,069
5,210,070
5,210,071

CLASS 514

8 5,210,072
12 5,210,073
5,210,074
14 5,210,075
21 5,210,076
25 5,210,077
54 5,210,078
94 5,210,079
179 5,210,081
202 5,210,080
213 5,210,082
222.5 5,210,083
237.5 5,210,084
274 5,210,085
275 5,210,086
292 B1 5,102,889
297 5,210,087
307 5,210,088
315 5,210,089
320 5,210,090
322 5,210,091
338 5,210,092
365 5,210,093
372 5,210,094
456 5,210,095
501 5,210,096
525 5,210,097
557 5,210,098
5,210,099
594 5,210,100
646 B1 4,522,828
762 5,210,101
784 5,210,102

CLASS 521

51 5,210,103
64 5,210,104
99 5,210,105
110 5,210,106
182 5,210,107
5,210,108

CLASS 522

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64 5,210,110

CLASS 523

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132 5,210,112
205 5,210,113
220 5,210,114
443 5,210,115
468 5,210,116

CLASS 524

28 5,210,117
96 5,210,118
99 5,210,119
100 5,210,120
109 5,210,121
255 5,210,122
263 5,210,123
311 5,210,124
426 5,210,125
588 5,210,126
589 5,210,127
609 5,210,128
731 5,210,129
789 5,210,130
863 5,210,131

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64 5,210,134
71 5,210,135
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154 5,210,137
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194 5,210,139
205 5,210,140
239 5,210,141
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288 5,210,143
289 5,210,144
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301 5,210,146
314 5,210,147
319 5,210,148
327.1 5,210,149
329.7 5,210,150
338 5,210,151
368 5,210,152
410 5,210,153
438 5,210,154
442 5,210,155
477 5,210,156
502 5,210,157

CLASS 526

62 5,210,158
81 5,210,159
116 5,210,160
129 5,210,161
192 5,210,162
216 5,210,163
230.5 5,210,164
300 5,210,165
307.5 5,210,166
348.1 5,210,167

CLASS 528

12 5,210,168
45 5,210,169
80 5,210,170
168 5,210,171
196 5,210,172
199 5,210,173
353 5,210,174
391 5,210,175
392 5,210,176
5,210,177
5,210,178
408 5,210,179

CLASS 530

328 5,210,180
5,210,181
350 5,210,183
355 5,210,182
370 5,210,184
399 5,210,185
418 5,210,186

CLASS 534

618 5,210,187
728 5,210,188

CLASS 536

23.2 5,210,189

CLASS 544

187 5,210,190
214 5,210,191
273 5,210,192
360 5,210,193
361 5,210,194

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190 5,210,195

CLASS 548

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130 5,210,203
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231 5,210,197
238 5,210,206
239 5,210,207
253 5,210,208
268.8 5,210,198
302.1 5,210,209
302.7 5,210,210
303.1 5,210,200
314.7 5,210,211
324.1 5,210,199
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494 5,210,215
518 5,210,216
527 5,210,217
560 5,210,218

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226 5,210,221
231 5,210,222
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270 5,210,224
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271 5,210,227
273 5,210,228
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295 5,210,230
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304 5,210,232
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398 5,210,235
415 5,210,238
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653 5,210,237

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188 5,210,242

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349 5,210,285

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512.2 5,210,293
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582 5,210,295
589 5,210,296
593 5,210,297
598 5,210,298

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495 5,210,309

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CLASS 602

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53 5,209,718

CLASS 604

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132 5,209,755
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CLASS 717

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501 335,390

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D6— 310 335,394
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335 335,396
361 335,397
366 335,398

412 335,399
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462 335,401
335,402
464 335,403
466 335,404
467 335,405

484 335,406
492 335,407
501 335,408
510 335,409
520 335,410
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522 335,412
526 335,413

536 335,414
542 335,415
552 335,416
601 335,417
335,418
335,419
D7— 309 335,421
347 335,420

360 335,422
335,423
391 335,424
504 335,425
589 335,426
335,427
612 335,428

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D8—	1	335,429		528	335,454	D12—	117	335,477	D16—	202	335,499		132	335,522		68	335,545
		335,430		537	335,455		146	335,478			335,500		134	335,523		81	335,546
	14	335,431			335,456		147	335,483	D18—	55	335,501			335,524		122	335,547
	34	335,432		544	335,444		157	335,479	D19—	5	335,502		142	335,525		127	335,548
	66	335,433	D10—	6	335,457		187	335,480		8	335,503	D23—	233	335,526		136	335,549
	71	335,434			335,458		191	335,481		76	335,504		277	335,527		138	335,550
		335,435		28	335,459			335,482		92	335,505		280	335,528	D28—	13	335,551
	72	335,436		40	335,460		317	335,484	D20—	1	335,506		324	335,529	D29—	7	335,552
	303	335,437		64	335,461	D13—	142	335,485		10	335,507		366	335,530	D30—	160	335,553
	331	335,438		65	335,462		147	335,486	D21—	93	335,509			335,531			335,554
	332	335,439		78	335,463			335,487		108	335,508		383	335,532	D32—	21	335,555
	367	335,440		81	335,464		159	335,488		134	335,510		412	335,533		22	335,556
	369	335,441		86	335,465	D14—	100	335,489		191	335,511	D24—	108	335,534		32	335,557
D9—	338	335,443		102	335,466		107	335,490			335,512		117	335,535		49	335,558
	418	335,442		106	335,467			335,491		199	335,513		146	335,536	D34—	1	335,559
		335,445		109	335,468		113	335,493		210	335,514		169	335,538		5	335,560
		335,446	D11—	3	335,469		115	335,492		232	335,515		176	335,537		7	335,561
		335,447		13	335,470		138	335,494			335,516			335,539			335,562
	434	335,448		79	335,471		157	335,495		244	335,517	D25—	56	335,541		11	335,563
	447	335,449		201	335,472		164	335,496	D22—	108	335,519		64	335,540			335,564
	500	335,450		213	335,473		211	335,474			335,520		113	335,542			335,565
	502	335,451			335,475			335,497		119	335,521	D26—	51	335,543		14	335,566
	515	335,452		216	335,476	D15—	80	335,498		129	335,518		63	335,544		15	335,567
	523	335,453															

CLASSIFICATION OF PLANTS

P—	74.1	8,223			8,224		79	8,225		82.2	8,226			8,227		82.3	8,228

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PATENTS

01 :	5,209,876		5,209,481		5,210,348		5,210,532		5,209,059		5,209,169
	5,210,417		5,209,572		5,210,363		5,210,542		5,209,097		5,209,184
02 :	5,209,004		5,209,589		5,210,374		5,210,702		5,209,215		5,209,187
	5,209,005		5,209,592		5,210,375		5,210,851		5,209,243		5,209,287
	5,210,025		5,209,597		5,210,378		5,210,866		5,209,274		5,209,327
04 :	5,209,047		5,209,605		5,210,410	09 :	5,209,031		5,209,344		5,209,347
	5,209,117		5,209,616		5,210,440		5,209,042		5,209,373		5,209,360
	5,209,388		5,209,620		5,210,466		5,209,133		5,209,432		5,209,377
	5,209,416		5,209,626		5,210,474		5,209,231		5,209,434		5,209,391
	5,209,438		5,209,651		5,210,518		5,209,291		5,209,466		5,209,444
	5,209,720		5,209,652		5,210,522		5,209,372		5,209,470		5,209,445
	5,210,165		5,209,666		5,210,536		5,209,407		5,209,475		5,209,500
	5,210,505		5,209,667		5,210,543		5,209,429		5,209,533		5,209,506
	5,210,507		5,209,670		5,210,554		5,209,467		5,209,659		5,209,607
	5,210,667		5,209,693		5,210,604		5,209,596		5,209,702		5,209,619
	5,210,760		5,209,722		5,210,625		5,209,644		5,209,726		5,209,646
05	5,208,976		5,209,727		5,210,628		5,209,739		5,209,733		5,209,680
	5,209,713		5,209,728		5,210,646		5,209,785		5,209,974		5,209,684
	5,210,321		5,209,731		5,210,660		5,209,787		5,210,263		5,209,696
	5,210,544		5,209,737		5,210,664		5,209,804		5,210,309		5,209,740
06 :	Re.34,246		5,209,741		5,210,672		5,209,895		5,210,341		5,209,768
	5,208,920		5,209,749		5,210,683		5,210,096		5,210,502		5,209,779
	5,208,927		5,209,755		5,210,699		5,210,212		5,210,603		5,209,823
	5,208,988		5,209,757		5,210,700		5,210,380		5,210,653		5,209,824
	5,209,056		5,209,763		5,210,710		5,210,395		5,210,875		5,209,844
	5,209,057		5,209,783		5,210,711		5,210,495	13 :	5,208,970		5,209,854
	5,209,093		5,209,798		5,210,719		5,210,523		5,208,985		5,209,860
	5,209,112		5,209,799		5,210,726		5,210,676		5,209,090		5,209,904
	5,209,115		5,209,803		5,210,749		5,210,695		5,209,127		5,209,908
	5,209,118		5,209,818		5,210,758		5,210,807		5,209,306		5,209,916
	5,209,134		5,209,831		5,210,766		5,210,831		5,209,345		5,209,934
	5,209,173		5,209,848		5,210,770	10 :	5,209,745		5,209,614		5,210,040
	5,209,176		5,209,878		5,210,779		5,209,770		5,209,865		5,210,060
	5,209,186		5,209,897		5,210,798		5,209,800		5,209,893		5,210,090
	5,209,190		5,209,919		5,210,815		5,209,850		5,209,968		5,210,095
	5,209,224		5,209,950		5,210,824		5,209,877		5,210,085		5,210,206
	5,209,226		5,209,965		5,210,825		5,209,937		5,210,133		5,210,226
	5,209,230		5,210,015		5,210,832		5,209,969		5,210,238		5,210,327
	5,209,235		5,210,017		5,210,838		5,209,983		5,210,686		5,210,353
	5,209,241		5,210,019		5,210,839		5,210,079		5,210,783		5,210,355
	5,209,242		5,210,027		5,210,845		5,210,108		5,210,810		5,210,386
	5,209,250		5,210,035		5,210,856		5,210,130	15 :	5,210,687		5,210,423
	5,209,252		5,210,037		4,349,832		5,210,233	16 :	5,209,492		5,210,470
	5,209,336		5,210,047		4,869,278		5,210,354		5,209,508		5,210,552
	5,209,348		5,210,061		4,998,549		5,210,425		5,209,816		5,210,746
	5,209,349		5,210,075		4,999,845	12 :	5,208,917		5,210,472		5,210,771
	5,209,369		5,210,076		5,037,481		5,208,923	17 :	5,208,978		5,210,788
	5,209,370		5,210,077	08	5,209,106		5,208,926		5,209,021		5,210,793
	5,209,371		5,210,203		5,209,663		5,208,957		5,209,022	18 :	5,208,924
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	5,209,428		5,210,272		5,210,258		5,209,013		5,209,102		5,209,023
	5,209,454		5,210,313		5,210,396		5,209,029		5,209,152		5,209,122
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PATENTS

May 18, 1993



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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1149 O.G. 36, on Apr. 20, 1993.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed, effective May 1, 1993, due to changes in the exchange rate of the U.S. dollar to the German mark, and was announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

International fees were changed, effective on May 1, 1993, due to changes in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective Oct. 1, 1992, and were announced in the *Official Gazette* at 1141 O.G. 68, on Aug. 25, 1992.

The schedule of PCT fees (in U.S. dollars), effective May, 1, 1993, is as follows:

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U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	620.00
—Corresponding prior U.S. national application filed	410.00
—Supplemental search fee, per additional invention	170.00
European Patent Office as ISA	1512.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	450.00
—Additional examination fee, per additional invention	140.00
—ISA not the USPTO	670.00
—Additional examination fee, per additional invention	230.00
International fees	
Basic fee	530.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	128.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	162.00

U.S. National Stage fees	Small Entity	Regular
USPTO was IPEA	320.00	640.00
USPTO was ISA but not IPEA	355.00	710.00
USPTO was neither ISA nor IPEA	475.00	950.00
Filing with an EPO or JPO search report	415.00	830.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	45.00	90.00
—For each independent claim in excess of 3	37.00	74.00
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—Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Mar. 17, 1993

MICHAEL K. KIRK,
Acting Assistant Secretary and Acting Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d) provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on May 15, 1990 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,924,525 through 4,926,500
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on May 13, 1986 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,587,671 through 4,589,145
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after December 12, 1980, but before August 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months and eleven years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1992, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after after Dec. 12, 1980 , in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9f) $465.00
By other than a small entity $930.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9f) $935.00
By other than a small entity $1,870.00

(g) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity(§ 1.9(f)) $1,410.00
By other than a small entity $2,820.00

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(h), and (i), which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months , seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980

By a small entity (§ 1.9f) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been

(1) unavoidable $620.00
(2) unintentional $1,500.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED MARCH 7, 1993
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,502,156	06/556,675	3/05/85
4,502,169	06/401,354	3/05/85
4,502,170	06/384,107	3/05/85
4,502,174	06/452,553	3/05/85
4,502,175	06/470,607	3/05/85
4,502,179	06/534,532	3/05/85
4,502,181	06/523,934	3/05/85
4,502,183	06/460,182	3/05/85
4,502,191	06/504,301	3/05/85
4,502,192	06/513,825	3/05/85
4,502,195	06/427,407	3/05/85
4,502,196	06/527,356	3/05/85
4,502,197	06/477,832	3/05/85
4,502,199	06/387,269	3/05/85
4,502,230	06/431,974	3/05/85
4,502,234	06/402,597	3/05/85
4,502,235	06/566,116	3/05/85
4,502,237	06/446,179	3/05/85
4,502,239	06/452,936	3/05/85
4,502,242	06/428,343	3/05/85
4,502,249	06/519,498	3/05/85
4,502,253	06/407,656	3/05/85
4,502,259	06/338,234	3/05/85
4,502,261	06/382,805	3/05/85
4,502,266	06/539,843	3/05/85
4,502,267	06/369,013	3/05/85
4,502,270	06/576,342	3/05/85
4,502,271	06/589,843	3/05/85
4,502,278	06/555,052	3/05/85
4,502,282	06/513,868	3/05/85
4,502,283	06/422,892	3/05/85
4,502,288	06/413,374	3/05/85
4,502,291	06/450,391	3/05/85
4,502,296	06/593,375	3/05/85
4,502,297	06/554,306	3/05/85
4,502,303	06/546,847	3/05/85
4,502,305	06/470,907	3/05/85
4,502,306	06/398,752	3/05/85
4,502,310	06/253,524	3/05/85
4,502,317	06/538,186	3/05/85
4,502,320	06/400,157	3/05/85
4,502,321	06/477,228	3/05/85
4,502,323	06/509,514	3/05/85
4,502,328	06/406,874	3/05/85
4,502,331	06/532,159	3/05/85
4,502,333	06/536,285	3/05/85
4,502,339	06/418,063	3/05/85
4,502,340	06/466,470	3/05/85
4,502,342	06/349,033	3/05/85
4,502,352	06/450,171	3/05/85
4,502,356	06/362,108	3/05/85
4,502,362	06/532,355	3/05/85
4,502,363	06/513,466	3/05/85
4,502,365	06/414,291	3/05/85
4,502,368	06/523,106	3/05/85
4,502,373	06/478,542	3/05/85
4,502,374	06/487,183	3/05/85
4,502,383	06/475,283	3/05/85
4,502,392	06/505,333	3/05/85
4,502,400	06/438,803	3/05/85
4,502,403	06/518,841	3/05/85
4,502,413	06/512,782	3/05/85
4,502,417	06/618,568	3/05/85
4,502,421	06/598,901	3/05/85
4,502,423	06/555,194	3/05/85
4,502,427	06/472,208	3/05/85
4,502,429	06/433,262	3/05/85
4,502,435	06/529,669	3/05/85
4,502,440	06/605,067	3/05/85
4,502,441	06/433,912	3/05/85
4,502,444	06/515,695	3/05/85
4,502,445	06/483,195	3/05/85
4,502,447	06/542,066	3/05/85
4,502,451	06/527,989	3/05/85
4,502,455	06/524,433	3/05/85
4,502,456	06/410,082	3/05/85
4,502,458	06/459,217	3/05/85
4,502,464	06/577,982	3/05/85
4,502,466	06/556,685	3/05/85
4,502,468	06/394,291	3/05/85
4,502,469	06/402,144	3/05/85
4,502,476	06/409,091	3/05/85
4,502,477	06/525,074	3/05/85
4,502,481	06/466,375	3/05/85
4,502,482	06/522,091	3/05/85
4,502,490	06/314,413	3/05/85
4,502,491	06/360,465	3/05/85
4,502,495	06/571,201	3/05/85

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Patent Number	Serial Number	Issue Date
4,502,506	06/452,123	3/05/85
4,502,509	06/573,041	3/05/85
4,502,512	06/512,913	3/05/85
4,502,516	06/492,181	3/05/85
4,502,517	06/485,588	3/05/85
4,502,519	06/478,778	3/05/85
4,502,522	06/413,372	3/05/85
4,502,532	06/593,963	3/05/85
4,502,540	06/463,699	3/05/85
4,502,542	06/532,589	3/05/85
4,502,543	06/554,741	3/05/85
4,502,545	06/510,625	3/05/85
4,502,551	06/364,491	3/05/85
4,502,552	06/461,216	3/05/85
4,502,555	06/532,851	3/05/85
4,502,557	06/429,970	3/05/85
4,502,559	06/474,185	3/05/85
4,502,561	06/445,952	3/05/85
4,502,565	06/543,948	3/05/85
4,502,569	06/370,208	3/05/85
4,502,571	06/444,556	3/05/85
4,502,572	06/528,328	3/05/85
4,502,579	06/350,518	3/05/85
4,502,583	06/448,019	3/05/85
4,502,587	06/486,112	3/05/85
4,502,590	06/614,116	3/05/85
4,502,592	06/417,662	3/05/85
4,502,594	06/301,017	3/05/85
4,502,598	06/323,647	3/05/85
4,502,600	06/462,759	3/05/85
4,502,602	06/405,290	3/05/85
4,502,604	06/520,995	3/05/85
4,502,608	06/534,758	3/05/85
4,502,612	06/414,878	3/05/85
4,502,617	06/462,160	3/05/85
4,502,618	06/342,928	3/05/85
4,502,628	06/458,385	3/05/85
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4,502,632	06/558,568	3/05/85
4,502,642	06/343,703	3/05/85
4,502,643	06/403,034	3/05/85
4,502,644	06/286,599	3/05/85
4,502,648	06/505,315	3/05/85
4,502,656	06/464,123	3/05/85
4,502,659	06/563,794	3/05/85
4,502,669	06/522,530	3/05/85
4,502,672	06/420,289	3/05/85
4,502,681	06/290,711	3/05/85
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4,502,728	06/433,415	3/05/85
4,502,730	06/497,874	3/05/85
4,502,733	06/502,089	3/05/85
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4,502,736	06/287,050	3/05/85
4,502,740	06/409,950	3/05/85
4,502,741	06/380,221	3/05/85
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4,502,757	06/395,438	3/05/85
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4,502,810	06/532,376	3/05/85
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4,502,817	06/372,626	3/05/85
4,502,822	06/467,425	3/05/85
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4,502,830	06/304,267	3/05/85
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4,502,848	06/427,652	3/05/85
4,502,856	06/503,106	3/05/85
4,502,862	06/571,011	3/05/85
4,502,864	06/603,863	3/05/85
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4,502,882	06/437,366	3/05/85
4,502,883	06/361,561	3/05/85
4,502,886	06/455,990	3/05/85
4,502,890	06/439,980	3/05/85
4,502,893	06/369,164	3/05/85
4,502,895	06/364,846	3/05/85
4,502,903	06/616,897	3/05/85
4,502,905	06/431,059	3/05/85
4,502,918	06/385,286	3/05/85
4,502,921	06/408,966	3/05/85
4,502,922	06/537,404	3/05/85
4,502,925	06/619,105	3/05/85
4,502,928	06/559,602	3/05/85
4,502,930	06/584,739	3/05/85
4,502,934	06/499,789	3/05/85
4,502,938	06/366,722	3/05/85
4,502,941	06/575,349	3/05/85
4,502,946	06/594,131	3/05/85
4,502,953	06/529,134	3/05/85
4,502,957	06/441,334	3/05/85
4,502,960	06/562,354	3/05/85
4,502,961	06/562,355	3/05/85
4,502,962	06/416,952	3/05/85
4,502,969	06/367,824	3/05/85
4,502,980	06/442,396	3/05/85
4,502,981	06/475,996	3/05/85
4,502,987	06/426,365	3/05/85
4,502,988	06/521,197	3/05/85
4,502,993	06/379,781	3/05/85
4,502,994	06/448,116	3/05/85
4,502,997	06/472,187	3/05/85
4,503,010	06/513,479	3/05/85
4,503,012	06/486,330	3/05/85
4,503,015	06/543,122	3/05/85
4,503,020	06/546,486	3/05/85
4,503,022	06/410,199	3/05/85
4,503,025	06/518,899	3/05/85
4,503,027	06/518,720	3/05/85
4,503,044	06/488,496	3/05/85
4,503,047	06/470,997	3/05/85
4,503,050	06/500,410	3/05/85
4,503,052	06/494,830	3/05/85
4,503,057	06/474,402	3/05/85
4,503,059	06/496,776	3/05/85
4,503,061	06/515,799	3/05/85
4,503,064	06/576,499	3/05/85
4,503,075	06/441,101	3/05/85
4,503,089	06/576,234	3/05/85
4,503,109	06/488,938	3/05/85
4,503,125	06/270,686	3/05/85

Patent Number	Serial Number	Issue Date
4,503,127	06/558,350	3/05/85
4,503,132	06/473,036	3/05/85
4,503,133	06/613,196	3/05/85
4,503,135	06/443,596	3/05/85
4,503,141	06/592,485	3/05/85
4,503,142	06/392,308	3/05/85
4,503,143	06/410,157	3/05/85
4,503,149	06/501,480	3/05/85
4,503,151	06/443,646	3/05/85
4,503,158	06/484,581	3/05/85
4,503,162	06/591,731	3/05/85
4,503,167	06/592,304	3/05/85
4,503,170	06/400,526	3/05/85
4,503,173	06/563,126	3/05/85
4,503,176	06/454,939	3/05/85
4,503,184	06/511,466	3/05/85
4,503,188	06/506,165	3/05/85
4,503,195	06/317,019	3/05/85
4,503,198	06/492,023	3/05/85
4,503,199	06/576,064	3/05/85
4,503,201	06/573,161	3/05/85
4,503,206	06/452,393	3/05/85
4,503,215	06/568,066	3/05/85
4,503,219	06/489,558	3/05/85
4,503,220	06/408,674	3/05/85
4,503,222	06/571,405	3/05/85
4,503,230	06/294,665	3/05/85
4,503,235	06/474,410	3/05/85
4,503,244	06/560,582	3/05/85
4,503,245	06/548,364	3/05/85
4,503,249	06/420,780	3/05/85
4,503,252	06/441,777	3/05/85
4,503,256	06/390,415	3/05/85
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4,503,262	06/520,470	3/05/85
4,503,263	06/414,434	3/05/85
4,503,264	06/408,207	3/05/85
4,503,273	06/427,219	3/05/85
4,503,275	06/532,821	3/05/85
4,503,276	06/569,065	3/05/85
4,503,278	06/574,638	3/05/85
4,503,286	06/510,331	3/05/85
4,503,288	06/298,105	3/05/85
4,503,295	06/605,976	3/05/85
4,503,299	06/404,493	3/05/85
4,503,303	06/472,033	3/05/85
4,503,307	06/505,584	3/05/85
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4,503,316	06/407,489	3/05/85
4,503,317	06/548,790	3/05/85
4,503,321	06/440,733	3/05/85
4,503,326	06/528,257	3/05/85
4,503,327	06/395,162	3/05/85
4,503,330	06/329,499	3/05/85
4,503,336	06/388,010	3/05/85
4,503,344	06/366,906	3/05/85
4,503,358	06/384,053	3/05/85
4,503,359	06/529,127	3/05/85
4,503,365	06/433,396	3/05/85
4,503,383	06/337,836	3/05/85
4,503,392	06/285,556	3/05/85
4,503,393	06/308,749	3/05/85
4,503,397	06/389,212	3/05/85
4,503,403	06/536,588	3/05/85
4,503,409	06/454,311	3/05/85
4,503,415	06/501,406	3/05/85
4,503,417	06/388,124	3/05/85
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4,503,433	06/330,293	3/05/85
4,503,438	06/411,187	3/05/85
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4,503,450	06/603,981	3/05/85
4,503,451	06/404,264	3/05/85
4,503,468	06/309,977	3/05/85
4,503,473	06/475,454	3/05/85
4,503,475	06/415,802	3/05/85
4,503,476	06/551,502	3/05/85
4,503,477	06/380,290	3/05/85
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4,503,484	06/546,209	3/05/85
4,503,487	06/541,250	3/05/85
4,503,493	06/363,474	3/05/85
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4,503,503	06/315,890	3/05/85
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4,503,533	06/294,745	3/05/85
4,503,538	06/390,291	3/05/85
4,503,541	06/440,685	3/05/85
4,503,549	06/399,154	3/05/85
4,503,551	06/373,514	3/05/85
4,503,552	06/449,740	3/05/85
4,503,555	06/370,490	3/05/85
4,503,558	06/580,255	3/05/85
4,809,367	07/074,671	3/07/89
4,809,371	07/127,496	3/07/89
4,809,372	06/165,815	3/07/89
4,809,376	07/167.957	3/07/89
4,809,377	07/024,009	3/07/89
4,809,379	07/057,526	3/07/89
4,809,380	07/118,367	3/07/89
4,809,386	07/122,278	3/07/89
4,809,388	07/156,760	3/07/89
4,809,390	07/198,008	3/07/89
4,809,392	07/059,862	3/07/89
4,809,395	07/114,790	3/07/89
4,809,396	07/067,374	3/07/89
4,809,398	07/143,648	3/07/89
4,809,399	06/867,930	3/07/89
4,809,400	07/151,102	3/07/89
4,809,403	07/180,506	3/07/89
4,809,404	07/169,689	3/07/89
4,809,423	06/789,704	3/07/89
4,809,431	07/116,460	3/07/89
4,809,434	07/092,064	3/07/89
4,809,439	07/110,873	3/07/89
4,809,441	07/165,943	3/07/89
4,809,445	07/161,858	3/07/89
4,809,454	07/132,588	3/07/89
4,809,455	07/039,712	3/07/89
4,809,456	07/109,596	3/07/89
4,809,457	07/198,331	3/07/89
4,809,464	07/172,433	3/07/89
4,809,465	07/130,399	3/07/89
4,809,468	07/042,018	3/07/89
4,809,471	07/202,697	3/07/89
4,809,474	07/176,629	3/07/89
4,809,477	07/058,862	3/07/89
4,809,479	07/222,492	3/07/89
4,809,480	06/853,654	3/07/89
4,809,481	07/122,195	3/07/89
4,809,483	07/189,975	3/07/89
4,809,491	07/150,886	3/07/89
4,809,496	07/069,756	3/07/89
4,809,503	07/087,845	3/07/89
4,809,506	07/192,126	3/07/89
4,809,510	07/018,596	3/07/89
4,809,514	07/153,424	3/07/89
4,809,519	07/177,668	3/07/89
4,809,521	07/082,444	3/07/89
4,809,541	07/118,306	3/07/89
4,809,547	07/111,297	3/07/89
4,809,551	06/761,249	3/07/89
4,809,555	06/903,461	3/07/89
4,809,559	07/179,982	3/07/89
4,809,564	07/094,003	3/07/89
4,809,570	07/111,776	3/07/89
4,809,582	07/200,107	3/07/89
4,809,583	07/141,053	3/07/89
4,809,590	06/905,748	3/07/89
4,809,592	07/103,602	3/07/89
4,809,613	07/103,811	3/07/89
4,809,619	07/080,338	3/07/89
4,809,620	06/658,222	3/07/89
4,809,628	07/076,245	3/07/89
4,809,629	07/132,411	3/07/89

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4,809,640	07/094,735	3/07/89
4,809,643	07/025,258	3/07/89
4,809,655	06/827,927	3/07/89
4,809,658	07/102,113	3/07/89
4,809,665	07/127,430	3/07/89
4,809,674	06/575,184	3/07/89
4,809,675	07/095,741	3/07/89
4,809,678	07/085,500	3/07/89
4,809,683	07/173,740	3/07/89
4,809,685	07/111,190	3/07/89
4,809,689	06/923,926	3/07/89
4,809,692	07/058,683	3/07/89
4,809,694	07/051,966	3/07/89
4,809,699	07/053,784	3/07/89
4,809,700	07/024,996	3/07/89
4,809,707	06/722,772	3/07/89
4,809,710	07/142,435	3/07/89
4,809,715	07/076,897	3/07/89
4,809,716	07/176,204	3/07/89
4,809,718	07/046,491	3/07/89
4,809,721	07/103,493	3/07/89
4,809,722	07/157,599	3/07/89
4,809,723	07/157,463	3/07/89
4,809,724	07/172,062	3/07/89
4,809,728	07/154,973	3/07/89
4,809,730	06/474,536	3/07/89
4,809,740	07/141,958	3/07/89
4,809,744	07/105,572	3/07/89
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4,809,747	07/080,431	3/07/89
4,809,748	06/568,780	3/07/89
4,809,767	07/211,023	3/07/89
4,809,771	07/041,956	3/07/89
4,809,772	07/067,157	3/07/89
4,809,779	07/128,413	3/07/89
4,809,784	07/154,658	3/07/89
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4,809,794	07/023,865	3/07/89
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4,809,813	07/032,578	3/07/89
4,809,815	07/183,630	3/07/89
4,809,820	07/159,348	3/07/89
4,809,832	07/135,063	3/07/89
4,809,833	07/015,446	3/07/89
4,809,835	07/098,065	3/07/89
4,809,836	07/093,731	3/07/89
4,809,839	07/128,206	3/07/89
4,809,853	07/151,174	3/07/89
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4,809,858	07/109,750	3/07/89
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4,809,881	07/039,587	3/07/89
4,809,887	07/116,207	3/07/89
4,809,891	07/124,161	3/07/89
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4,809,902	07/125,212	3/07/89
4,809,903	06/935,363	3/07/89
4,809,907	07/189,481	3/07/89
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4,809,993	07/063,195	3/07/89
4,809,996	07/238,268	3/07/89
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4,810,001	07/079,894	3/07/89
4,810,007	07/078,664	3/07/89
4,810,008	07/064,409	3/07/89
4,810,012	07/087,043	3/07/89
4,810,013	07/145,134	3/07/89
4,810,014	07/087,337	3/07/89
4,810,018	07/158,525	3/07/89
4,810,030	07/221,507	3/07/89
4,810,031	07/240,260	3/07/89
4,810,034	07/125,694	3/07/89
4,810,036	07/127,834	3/07/89
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4,810,120	07/143,048	3/07/89
4,810,122	06/865,080	3/07/89
4,810,126	07/214,962	3/07/89
4,810,129	07/055,792	3/07/89
4,810,131	07/205,134	3/07/89
4,810,140	07/106,264	3/07/89
4,810,142	07/026,147	3/07/89
4,810,146	07/047,107	3/07/89
4,810,149	07/186,352	3/07/89
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4,810,183	07/119,041	3/07/89
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4,810,199	07/125,251	3/07/89
4,810,202	07/139,176	3/07/89
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4,810,228	07/069,872	3/07/89
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4,810,313	07/167,339	3/07/89
4,810,315	06/881,138	3/07/89
4,810,316	07/093,157	3/07/89
4,810,319	06/899,662	3/07/89
4,810,324	07/201,942	3/07/89
4,810,327	06/724,721	3/07/89
4,810,330	07/159,432	3/07/89
4,810,339	07/219,403	3/07/89

Patent Number	Serial Number	Issue Date
4,810,347	07/170,753	3/07/89
4,810,350	07/122,442	3/07/89
4,810,361	07/050,446	3/07/89
4,810,370	07/239,022	3/07/89
4,810,375	07/173,798	3/07/89
4,810,376	06/866,164	3/07/89
4,810,379	07/029,262	3/07/89
4,810,380	07/047,368	3/07/89
4,810,384	07/066,983	3/07/89
4,810,387	06/912,424	3/07/89
4,810,389	07/020,828	3/07/89
4,810,392	07/134,401	3/07/89
4,810,406	07/169,320	3/07/89
4,810,407	07/094,064	3/07/89
4,810,410	07/130,959	3/07/89
4,810,421	07/031,078	3/07/89
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4,810,424	07/107,616	3/07/89
4,810,425	07/165,082	3/07/89
4,810,436	07/096,186	3/07/89
4,810,441	06/843,584	3/07/89
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4,810,482	06/644,722	3/07/89
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4,810,491	07/069,239	3/07/89
4,810,504	07/145,961	3/07/89
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4,810,546	07/104,976	3/07/89
4,810,553	06/932,281	3/07/89
4,810,559	07/036,341	3/07/89
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4,810,615	07/059,634	3/07/89
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4,810,656	06/947,133	3/07/89
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4,810,688	07/112,802	3/07/89
4,810,692	07/052,388	3/07/89
4,810,693	07/049,646	3/07/89
4,810,695	06/861,706	3/07/89
4,810,697	06/434,572	3/07/89
4,810,700	06/495,221	3/07/89
4,810,701	06/852,459	3/07/89
4,810,703	06/882,743	3/07/89
4,810,705	07/062,341	3/07/89
4,810,706	06/811,568	3/07/89
4,810,711	07/005,823	3/07/89
4,810,712	07/139,000	3/07/89
4,810,723	07/135,236	3/07/89
4,810,730	07,047,250	3/07/89
4,810,737	07/121,272	3/07/89
4,810,738	07/041,649	3/07/89
4,810,751	06/872,666	3/07/89
4,810,757	07/049,753	3/07/89
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4,810,779	06/870,161	3/07/89
4,810,782	07/115,386	3/07/89
4,810,785	07/074,846	3/07/89
4,810,787	06/890,333	3/07/89
4,810,805	06/943,484	3/07/89
4,810,808	07/077,994	3/07/89
4,810,811	07/088,773	3/07/89
4,810,814	06/911,848	3/07/89
4,810,821	06/739,723	3/07/89
4,810,832	07/101,725	3/07/89
4,810,843	07/219,899	3/07/89
4,810,848	07/117,815	3/07/89
4,810,851	07/064,259	3/07/89
4,810,852	07/176,638	3/07/89
4,810,857	07/062,949	3/07/89
4,810,859	07/108,682	3/07/89
4,810,861	07/079,776	3/07/89
4,810,877	06/917,627	3/07/89
4,810,881	07/041,020	3/07/89
4,810,891	07/115,048	3/07/89
4,810,892	06/881,044	3/07/89
4,810,897	07/068,349	3/07/89
4,810,916	07/133,552	3/07/89
4,810,917	07/158,659	3/07/89
4,810,922	07/145,813	3/07/89
4,810,925	07/047,106	3/07/89
4,810,944	07/170,369	3/07/89
4,810,950	06/886,350	3/07/89
4,810,952	06/880,232	3/07/89
4,810,953	07/024,690	3/07/89
4,810,956	07/136,040	3/07/89
4,810,957	07/055,315	3/07/89
4,810,970	06/945,438	3/07/89
4,810,988	07/208,711	3/07/89
4,810,993	06/905,812	3/07/89
4,810,994	06/859,098	3/07/89
4,810,997	06/841,966	3/07/89
4,811,001	07/120,640	3/07/89
4,811,005	07/013,660	3/07/89
4,811,007	07/098,709	3/07/89
4,811,008	07/056,057	3/07/89
4,811,014	06/890,117	3/07/89
4,811,017	07/075,449	3/07/89
4,811,026	07/120,657	3/07/89
4,811,028	07/006,811	3/07/89
4,811,031	07/045,367	3/07/89
4,811,033	07/118,995	3/07/89
4,811,063	07/110,453	3/07/89
4,811,071	07/096,218	3/07/89
4,811,072	06/863,262	3/07/89
4,811,074	07/228,866	3/07/89
4,811,080	07/151,331	3/07/89
4,811,088	07/072,495	3/07/89
4,811,089	07/041,802	3/07/89
4,811,095	07/151,325	3/07/89
4,811,106	07/047,719	3/07/89
4,811,113	07/063,426	3/07/89
4,811,125	06/927,091	3/07/89
4,811,132	06/912,935	3/07/89
4,811,136	07/137,575	3/07/89
4,811,144	07/128,132	3/07/89
4,811,150	07/126,722	3/07/89
4,811,158	07/208,860	3/07/89
4,811,162	07/043,116	3/07/89
4,811,163	07/003,064	3/07/89
4,811,170	06/832,032	3/07/89
4,811,173	07/138,302	3/07/89
4,811,175	06/883,555	3/07/89
4,811,176	07/186,550	3/07/89
4,811,180	07/141,059	3/07/89
4,811,182	06/939,348	3/07/89
4,811,188	06/942,220	3/07/89
4,811,193	06/491,463	3/07/89
4,811,195	07/021,673	3/07/89
4,811,196	07/003,683	3/07/89
4,811,200	07/049,769	3/07/89
4,811,215	06/941,085	3/07/89
4,811,227	06/918,315	3/07/89
4,811,236	06/926,303	3/07/89
4,811,237	07/065,998	3/07/89
4,811,246	06/837,801	3/07/89
4,811,248	07/020,889	3/07/89
4,811,249	06/828,848	3/07/89

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4,811,256	06/931,230	3/07/89
4,811,287	06/923,783	3/07/89
4,811,308	06/924,707	3/07/89
4,811,310	07/048,660	3/07/89
4,811,311	07/107,163	3/07/89
4,811,327	07/134,782	3/07/89
4,811,332	06/856,640	3/07/89
4,811,333	07/032,780	3/07/89
4,811,355	07/205,999	3/07/89
4,811,374	06/930,802	3/07/89
4,811,394	07/122,642	3/07/89
4,811,398	06/934,302	3/07/89
4,811,407	06/821,283	3/07/89
4,811,415	06/948,303	3/07/89
4,811,418	07/071,324	3/07/89

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,518,508, Re. S.N. 07/925,315, Filed July 27, 1992, Cl. 210, METHOD FOR TREATING WASTES BY SOLIDIFICATION, Jesse R. Conner, Owner of Record: *Environmental Design, Inc., Cincinnati, Ohio,* Attorney or Agent: William H. Holt, Ex. Gp.: 1308

4,883,527, Re S.N. 08/002,090, Filed Jan. 8, 1993, Cl. 65, GLASS SHEET BENDING AND TEMPERING APPARATUS, Harold A. McMaster, et. al., Owner of Record: *Glass Tech, Inc., Perrysburg, Ohio,* Attorney or Agent: Christopher J. Fildes, Ex. Gp.: 1303

5,012,305, Re. S.N. 08/036,935, Filed Mar. 25, 1993, Cl. 257/22, HIGH SPEED JUNCTION FIELD EFFECT TRANSISTOR FOR USE IN BIPOLAR INTEGRATED CIRCUITS, Wadie N. Khadder, et. al., Owner of Record: *Linear Technology Corp., Milpitas, Calif.,* Attorney or Agent: Aldo J. Test, Ex. Gp.: 2503

5,078,127, Re. S.N. 08/036,750, Filed Mar. 25, 1993, Cl. 128/800, KNEE BRACE WITH ARTICULATING BRACE HINGE AXIS, Alexis G. Daneman, et. al., Owner of Record: *Orthopedic Technology, Inc., Tracy, Calif.,* Attorney or Agent: William Michael Hynes, Ex. Gp.: 3302

5,095,349, Re. S.N. 08/035,248, Filed Mar. 22, 1993, Cl. 257/108, SEMICONDUCTOR PRESSURE SENSOR AND METHOD OF MANUFACTURING SAME, Tetsuo Fujii, et. al., Owner of Record: *Hippondenso Co., Ltd., Aichi, Japan,* Attorney or Agent: Scott C. Harris, Ex. Gp.: 2508

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,839,039, Reexam. No. 90/003,010, Requested Apr. 5, 1993, Cl. 210/143, AUTOMATIC FLOW-CONTROL DEVICE, Natan E. Parsons, et. al., Owner of Record: *Recurrent Solutions Limited Partnership, Cambridge, Mass.,* Attorney or Agent: Joseph H. Born, Cesari & McKenna, Boston, Mass., Ex. Gp.: 1306, Requester: Owner

4,884,331, Reexam. No. 90/003,012, Requested Apr. 5, 1993, Cl. 029/558, METHOD OF MANUFACTURING HEAT SINK APPARATUS, Howard G. Hinshaw, Owner of Record: *Thermalloy, Inc., Dallas, Tex.,* Attorney or Agent: Jack A. Kanz, Goodwin & Carlton, Dallas, Tex., Ex. Gp.: 3206, Requester: Owner

4,931,482, Reexam. No. 90/003,011, Requested Mar. 24, 1993, Cl. 521/131, USE OF 1,1,1,4,4,4-HEXAEFLUOROBUTANE AS A BLOWING AND INSULATING GAS FOR THE PRODUCTION OF FOAM PLASTICS, Wilhelm Lamberts, et. al., Owner of Record: *Bayer Aktiengesellshcaft, Leverkusen, Germany,* Attorney or Agent: Joseph C. Gil, Miles, Inc., Pittsburgh, Pa., Ex. Gp.: 1503, Requester: Owner

Notice of Expiration of Trademark Registrations Due to Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED APRIL 12, 1993 DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
38,571	70/038,571	7/08/1902
87,356	71/062,305	7/09/1912
87,364	71/061,203	7/09/1912
87,369	71/057,302	7/09/1912
295,439	71/321,099	7/05/1932
295,452	71/323,125	7/05/1932
295,461	71/323,858	7/05/1932
295,487	71/324,433	7/05/1932
295,496	71/324,518	7/05/1932
295,508	71/324,643	7/05/1932
295,523	71/324,772	7/05/1932
295,527	71/324,806	7/05/1932
295,530	71/324,836	7/05/1932
295,541	71/324,949	7/05/1932
295,563	71/315,493	7/05/1932
295,603	71/325,156	7/05/1932
295,608	71/325,313	7/05/1932
295,611	71/295,168	7/05/1932
295,641	71/323,795	7/05/1932
295,648	71/324,876	7/05/1932
295,649	71/324,878	7/05/1932
295,650	71/324,879	7/05/1932
295,663	71/322,157	7/05/1932
561,030	71/536,167	7/08/1952
561,032	71/538,163	7/08/1952
561,034	71/542,657	7/08/1952
561,039	71/546,802	7/08/1952
561,048	71/555,514	7/08/1952
561,053	71/561,297	7/08/1952
561,064	71/570,492	7/08/1952
561,066	71/592,178	7/08/1952
561,071	71/595,170	7/08/1952
561,072	71/595,487	7/08/1952
561,084	71/598,497	7/08/1952
561,086	71/599,672	7/08/1952
561,089	71/600,648	7/08/1952
561,095	71/601,560	7/08/1952
561,096	71/601,931	7/08/1952
561,100	71/602,754	7/08/1952
561,107	71/604,096	7/08/1952
561,108	71/604,173	7/08/1952
561,115	71/605,470	7/08/1952
561,116	71/605,553	7/08/1952

Reg. Number	Serial Number	Reg. Date
561,119	71/606,506	7/08/1952
561,120	71/606,567	7/08/1952
561,124	71/607,178	7/08/1952
561,144	71/609,766	7/08/1952
561,156	71/611,865	7/08/1952
561,162	71/612,222	7/08/1952
561,164	71/612,495	7/08/1952
561,166	71/612,567	7/08/1952
561,168	71/612,621	7/08/1952
561,179	71/614,427	7/08/1952
561,185	71/614,984	7/08/1952
561,186	71/615,080	7/08/1952
561,192	71/615,340	7/08/1952
561,195	71/615,462	7/08/1952
561,196	71/615,473	7/08/1952
561,200	71/615,637	7/08/1952
561,201	71/615,665	7/08/1952
561,205	71/616,123	7/08/1952
561,207	71/616,138	7/08/1952
561,210	71/616,189	7/08/1952
561,217	71/616,567	7/08/1952
561,218	71/616,618	7/08/1952
561,223	71/616,788	7/08/1952
561,225	71/616,834	7/08/1952
561,239	71/618,120	7/08/1952
561,244	71/618,497	7/08/1952
561,248	71/618,862	7/08/1952
561,250	71/618,906	7/08/1952
561,252	71/619,016	7/08/1952
561,270	71/620,386	7/08/1952
561,275	71/621,712	7/08/1952
561,284	71/600,514	7/08/1952
561,291	71/571,985	7/08/1952
561,301	71/598,083	7/08/1952
561,852	71/606,644	7/22/1952
929,793	72/368,379	2/22/1972
931,527	72/380,778	3/28/1972
936,883	72/384,428	7/04/1972
936,890	72/392,123	7/04/1972
936,891	72/392,124	7/04/1972
936,895	72/362,970	7/04/1972
936,898	72/376,521	7/04/1972
936,899	72/378,467	7/04/1972
936,900	72/386,593	7/04/1972
936,901	72/386,736	7/04/1972
936,907	72/406,583	7/04/1972
936,916	72/374,583	7/04/1972
936,918	72/377,209	7/04/1972
936,919	72/377,717	7/04/1972
936,922	72/388,513	7/04/1972
936,923	72/390,837	7/04/1972
936,924	72/392,249	7/04/1972
936,929	72/386,733	7/04/1972
936,930	72/389,150	7/04/1972
936,932	72/397,398	7/04/1972
936,933	72/397,607	7/04/1972
936,937	72/409,438	7/04/1972
936,940	72/410,259	7/04/1972
936,942	72/410,582	7/04/1972
936,946	72/298,323	7/04/1972
936,947	72/353,176	7/04/1972
936,950	72/369,751	7/04/1972
936,951	72/369,752	7/04/1972
936,952	72/369,753	7/04/1972
936,954	72/372,457	7/04/1972
936,956	72/391,025	7/04/1972
936,958	72/342,945	7/04/1972
936,959	72/348,899	7/04/1972
936,962	72/388,326	7/04/1972
936,963	72/350,415	7/04/1972
936,965	72/379,447	7/04/1972
936,966	72/364,570	7/04/1972
936,968	72/366,227	7/04/1972
936,969	72/372,368	7/04/1972
936,970	72/372,555	7/04/1972
936,972	72/378,989	7/04/1972
936,973	72/381,588	7/04/1972
936,986	72/372,360	7/04/1972
936,996	72/372,129	7/04/1972
936,998	72/380,379	7/04/1972
937,002	72/354,670	7/04/1972
937,008	72/371,384	7/04/1972
937,010	72/377,026	7/04/1972
937,011	72/377,444	7/04/1972
937,012	72/377,536	7/04/1972
937,016	72/380,242	7/04/1972
937,019	72/385,548	7/04/1972
937,027	72/392,182	7/04/1972
937,028	72/392,201	7/04/1972
937,039	72/393,014	7/04/1972
937,040	72/393,025	7/04/1972
937,041	72/393,026	7/04/1972
937,051	72/369,790	7/04/1972
937,053	72/373,531	7/04/1972
937,055	72/373,692	7/04/1972
937,056	72/373,908	7/04/1972
937,057	72/375,520	7/04/1972
937,058	72/376,726	7/04/1972
937,059	72/377,949	7/04/1972
937,061	72/380,501	7/04/1972
937,065	72/384,945	7/04/1972
937,066	72/384,946	7/04/1972
937,067	72/388,081	7/04/1972
937,068	72/411,018	7/04/1972
937,071	72/358,469	7/04/1972
937,073	72/359,617	7/04/1972
937,075	72/369,122	7/04/1972
937,076	72/369,456	7/04/1972
937,077	72/370,383	7/04/1972
937,078	72/371,038	7/04/1972
937,082	72/384,689	7/04/1972
937,085	72/390,969	7/04/1972
937,087	72/389,259	7/04/1972
937,088	72/383,204	7/04/1972
937,092	72/389,863	7/04/1972
937,093	72/390,111	7/04/1972
937,094	72/390,156	7/04/1972
937,095	72/316,441	7/04/1972
937,096	72/377,318	7/04/1972
937,098	72/354,618	7/04/1972
937,099	72/360,589	7/04/1972
937,101	72/378,005	7/04/1972
937,104	72/395,267	7/04/1972
937,105	72/334,600	7/04/1972
937,107	72/373,168	7/04/1972
937,108	72/374,394	7/04/1972
937,116	72/387,168	7/04/1972
937,119	72/389,287	7/04/1972
937,123	72/366,148	7/04/1972
937,124	72/368,792	7/04/1972
937,128	72/375,408	7/04/1972
937,130	72/376,995	7/04/1972
937,131	72/377,002	7/04/1972
937,132	72/377,038	7/04/1972
937,136	72/384,987	7/04/1972
937,137	72/385,246	7/04/1972
937,138	72/385,998	7/04/1972
937,139	72/387,866	7/04/1972
937,142	72/388,679	7/04/1972
937,146	72/392,232	7/04/1972
937,153	72/391,211	7/04/1972
937,157	72/381,567	7/04/1972
937,159	72/337,341	7/04/1972
937,160	72/373,383	7/04/1972
937,169	72/398,149	7/04/1972
937,174	72/382,906	7/04/1972
937,176	72/387,110	7/04/1972
937,177	72/391,425	7/04/1972
937,178	72/411,516	7/04/1972
937,181	72/411,519	7/04/1972
937,186	72/358,830	7/04/1972
937,193	72/381,022	7/04/1972
937,200	72/392,805	7/04/1972
937,201	72/393,068	7/04/1972
937,203	72/393,164	7/04/1972
937,205	72/393,634	7/04/1972

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Reg. Number	Serial Number	Reg. Date
937,214	72/394,722	7/04/1972
937,215	72/394,830	7/04/1972
937,218	72/367,151	7/04/1972
937,219	72/381,470	7/04/1972
937,224	72/379,610	7/04/1972
937,225	72/390,448	7/04/1972
937,226	72/391,893	7/04/1972
937,227	72/392,141	7/04/1972
937,229	72/377,977	7/04/1972
937,230	72/386,822	7/04/1972
937,231	72/387,172	7/04/1972
937,233	72/387,173	7/04/1972
937,236	72/390,218	7/04/1972
937,238	72/349,970	7/04/1972
937,251	72/396,232	7/04/1972
937,254	72/331,570	7/04/1972
937,255	72/356,433	7/04/1972
937,256	72/358,541	7/04/1972
937,258	72/368,770	7/04/1972
937,261	72/375,407	7/04/1972
937,262	72/380,761	7/04/1972
937,264	72/388,610	7/04/1972
937,270	72/394,808	7/04/1972
937,272	72/362,705	7/04/1972
937,274	72/362,708	7/04/1972
937,275	72/365,563	7/04/1972
937,281	72/358,686	7/04/1972
937,284	72/379,180	7/04/1972
937,285	72/383,487	7/04/1972
937,286	72/395,091	7/04/1972
937,289	72/382,782	7/04/1972
937,297	72/373,595	7/04/1972

Survey of Registered Practitioners in Patent Cases

Pursuant to 37 CFR 10.11(b), a survey letter was mailed on Jan. 15, 1993 from the Office of Enrollment and Discipline (OED) to all practitioners in patent cases whose last names began with E through J. Enclosed with the letter was a data sheet which should have been completed and returned to OED as soon as possible. All data sheets returned to OED were acknowledged.

If your last name begins with E through J and you did not receive a data sheet, or if you returned the data sheet to OED, and you have not received an acknowledgement from OED, please contact Shirley B. Rasheed at (703) 308-9617.

Apr. 6, 1993 CAMERON WEIFFENBACH, *Director*
Office of Enrollment and Discipline

Service by Publication

A petition to cancel each of the registrations identified below having been filed, and the notice of such proceedings sent by registered mail to each registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days from the date of this publication, the cancellation will be proceeded with as in the case of default.

Shelton Industries, Inc., San Martin, Calif., Reg. No. 972,212 for the mark "VACATIONEER", Canc. No. 20,954.

Class 5, Inc., Emeryville, Calif., Reg. No. 996,213 for the mark "CLASS-5", Canc. No. 21,005.

Veritas Electronics Corp., Farmingdale, N.Y., Reg. Nos. 962,570 and 962,571 for the marks "VERITAS and DESIGN" and "VERITAS ELECTRONICS CORP. and DESIGN," Canc. No. 21,128.

William Odle, North Hollywood, Calif., Reg. No. 1,588,523 for the mark "MAGNUM", Canc. No. 21,152.

Boutique La Mendola, New York, N.Y., Reg. No. 973,457 for the mark "LA MENDOLA", Canc. No. 21,164.

Worldsource Industries, Inc., North Palm Beach, Fla., Reg. No. 1,611,587 for the mark "WORLDSOURCE" and design, Canc. No. 21,358.

JEAN BROWN
Administrator, Trademark
Trial and Appeal Board
For ROBERT M. ANDERSON
Acting Assistant Commissioner
for Trademarks

Registration To Practice

The following list contains the names of persons applying for registration to practice before the United States Patent and Trademark Office. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the person seeking registration is of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of any of the following applicants on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before July 2, 1993.

Kemeny, Emanuel S., 1400 S. Joyce St., Arlington, Va. 22202
Moffitt, James W., 9001 Beatty Dr., Alexandria, Va. 22308
Watkins, Donald E., 4304 Bushie Ct., Alexandria, Va. 22312

Apr. 20, 1993 CAMERON WEIFFENBACH, *Director*
Office of Enrollment and Discipline

Registration To Practice

The following person successfully passed the registration examination that was held Oct. 14, 1992. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the person seeking registration is of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of the following applicant on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before July 2, 1993.

Guerrero, Karen J., P.O. Box 8763, Stanford, Calif. 94309

Apr. 20, 1993 CAMERON WEIFFENBACH, *Director*
Office of Enrollment and Discipline

Patent Certificates of Correction For Week of May 18, 1993

Des. 311,604	5,013,670	5,052,242	5,075,513
Des. 315,128	5,013,817	5,053,565	5,075,680
Des. 315,129	5,013,858	5,054,544	5,075,689
4,486,877	5,014,444	5,055,141	5,076,016
4,749,724	5,017,084	5,055,286	5,076,228
4,759,099	5,018,169	5,055,796	5,076,551
4,760,054	5,019,534	5,055,868	5,076,726
4,801,597	5,021,959	5,055,993	5,077,948
4,818,416	5,024,358	5,056,494	5,078,017
4,848,463	5,024,750	5,057,530	5,078,235
4,863,596	5,024,912	5,057,965	5,078,396
4,863,812	5,025,153	5,058,069	5,078,412
4,874,857	5,027,421	5,059,186	5,079,309
4,893,319	5,027,758	5,059,447	5,079,402
4,899,290	5,028,166	5,059,530	5,080,025
4,899,540	5,028,396	5,059,765	5,081,090
4,906,533	5,031,595	5,059,860	5,081,630
4,921,803	5,032,543	5,059,924	5,081,794
4,939,347	5,033,277	5,060,196	5,081,928
4,940,184	5,034,599	5,060,525	5,082,292
4,950,601	5,035,994	5,061,511	5,082,652
4,950,718	5,036,819	5,061,768	5,082,909
4,951,602	5,037,159	5,062,392	5,083,343
4,952,196	5,037,787	5,062,632	5,084,257
4,954,515	5,037,826	5,063,763	5,085,086
4,955,011	5,038,486	5,064,048	5,085,655
4,958,378	5,039,663	5,065,182	5,085,674
4,959,908	5,039,797	5,065,319	5,085,892
4,965,816	5,040,078	5,066,124	5,085,921
4,973,578	5,040,237	5,066,558	5,085,926
4,977,594	5,040,877	5,068,068	5,085,992
4,981,861	5,042,629	5,068,204	5,086,611
4,984,277	5,043,376	5,068,267	5,087,727
4,986,155	5,045,016	5,068,967	5,088,079
4,988,607	5,045,634	5,069,537	5,088,089
4,988,785	5,045,977	5,069,680	5,088,938
4,989,091	5,047,005	5,069,936	5,089,830
4,989,599	5,047,113	5,070,193	5,090,050
4,989,606	5,047,608	5,070,208	5,090,495
4,992,433	5,047,704	5,070,507	5,090,496
4,996,352	5,047,803	5,070,677	5,091,173
4,999,663	5,047,876	5,071,319	5,094,905
5,005,112	5,047,976	5,072,259	5,099,371
5,005,337	5,050,552	5,073,002	5,169,487
5,005,863	5,050,663	5,073,505	5,174,285
5,006,454	5,051,494	5,073,572	5,185,112
5,007,878	5,051,517	5,073,687	
5,009,425	5,051,959	5,074,914	

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Summary of Final Decisions
Issued by the
Trademark Trial and Appeal Board
April 5 - 9, 1993

Date Issued	Type of Proceeding[1]	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods of Registration Cited by Examining Atty.	Recommended for Publication
4-5	EX	74/136,980	Interactive Inc.	2(e) (1)	Refusal Affirmed		"INTERACTIVE SOUND" [computer software programs for use in connection with data representing sound]		No

(1) EX= EX PARTE APPEAL; OPP= OPPOSITION; C= CANCELLATION; CU= CONCURRENT USE; (R)= REQ. FOR RECONSIDERATION

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Box 15	Mail for the Advisory Commission on Patent Law Reform.
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Box 17	Invoices directed to the Office of Finance.
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Box Reexam	Requests for Reexamination for *original* request papers *only*.
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Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 747-4450
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette: Siegesmund Engineering Library, Purdue University	(317) 494-2873
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 689-3155
Kentucky	Louisville Free Public Library	(502) 561-8617
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Maryland	College Park: Engineering and Physical Sciences Library, University of Maryland	(301) 405-9157
Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Engineering Library, University of Michigan	(313) 764-5298
	Big Rapids: Abigail S. Timme Library, Ferris State University	(616) 592-3602
	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library and Information Center	(612) 372-6570
Mississippi	Jackson: Mississippi Library Commission	(601) 359-1036
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada, Reno Library	(702) 784-6579
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7782
	Piscataway: Library of Science and Medicine, Rutgers University	(908) 932-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 473-4636
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 714-8529
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280

Reference Collections of U.S. Patents and Trademarks
Available for Public Use in Patent and Trademark Depository Libraries—Continued

State	*Name of Library*	*Telephone Contact*
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Cincinnati and Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Center for International Trade Development	(405) 744-7086
Oregon	Salem: Oregon State Library	(503) 378-4239
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Charleston: Medical University of South Carolina Library	(803) 792-2372
	Clemson University Libraries	Not Yet Operational
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8877
	Nashville: Stevenson Science Library,Vanderbilt University	(615) 322-2775
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-3826
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext.2587
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 367-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
West Virginia	Morgantown: Evansdale Library, West Virginia University	(304) 293-2510
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 278-3247

VOL 1150 ISS 3 MY 18 1993 UMI

PATENT EXAMINING CORPS

STEPHEN G. KUNIN, Acting Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 1100 — D. E. TALBERT, Director	308-0661	5/09/92
ORGANIC CHEMISTRY, GROUP 1200 — JOHN F. TERAPANE, JR., Director	308-1235	8/06/92
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300 — EDWARD E. KUBASIEWICZ, Director	308-0651	6/12/92
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 1500 — J. O. THOMAS, Director	308-2351	6/12/92
BIOTECHNOLOGY, GROUP 1800 — BARRY S. RICHMAN, Director	308-0196	10/03/91
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100 — D. G. KELLY, Director	308-1782	10/15/91
SPECIAL LAWS ADMINISTRATION, GROUP 2200 — ROBERT E. GARRETT, Director	308-0511	9/28/91
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 2300 — GERALD GOLDBERG, Director	308-0754	1/02/91
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 2400 — CARLTON CROYLE, Director	308-0771	4/24/92
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500 — JOSEPH J. ROLLA, Director	308-0956	9/03/91
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 2600 — BOBBY R. GRAY, Director	305-4700	9/21/91
DESIGN, GROUP 2900 — ROBERT E. GARRETT, Director	308-0511	12/16/90
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100 — F. R. SCHMIDT, Director	308-1113	3/14/92
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200 — N. GODICI, Director	308-1148	6/30/92
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 3300 — J. J. LOVE, Director	308-0858	6/02/92
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400 — JOHN KITTLE, Director	308-0861	7/10/92
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500 — A.L. SMITH, Director	308-1021	3/17/92

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during April 1993 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

Patents ..... Numbers 3,947,896 to 3,953,891 inclusive
Plant Patents ..... 3,856 to 3,875

TRADEMARK OPERATION

Robert M. Anderson, Acting Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Operation
Condition of Trademark Applications as of April 1993

Law Office	Oldest Date New*	Oldest Date Amendment Filed
Law Office 3—Kathryn A. Dobbs, Managing Attorney, (703) 308-9103 Scientific Equipment, Furniture, Houseware and Glass—Int. Classes 9, 20, 21 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/19/93	3/05/93
Law Office 4—Sharon Marsh, Managing Attorney, (703) 308-9104 Scientific Equipment. Furniture, Houseware and Glass—Int. Classes 9, 20, 21 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/04/93	2/02/93
Law Office 5—Mary Sparrow, Managing Attorney, (703) 308-9105 Cosmetics, Cleaning Preparations, Paper Products and Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/30/92	1/04/93
Law Office 6—Myra Kurzbard, Managing Attorney, (703) 308-9106 Scientific Equipment, Furniture, Houseware and Glass—Int. Classes 9, 20, 21 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/19/93	1/03/93
Law Office 7—David Shallant, Managing Attorney, (703) 308-9107 Lubricants, Fuels, Industrial Equipment & Materials—Int. Classes 4, 6, 11, 14, 19 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/21/93	1/04/93
Law Office 8—Thomas Lamone, Managing Attorney, (703) 308-9108 Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/21/93	2/01/93
Law Office 9—Sidney Moskowitz, Managing Attorney, (703) 308-9109 Lubricants, Industrial Equipment, Materials & Musical Instruments-Int. Classes 4, 6, 7, 8, 12, 13, 15, 16, 17, 18, 19, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/28/92	1/29/93
Law Office 10—Jean Logan, Managing Attorney, (703) 308-9110 Cordage, Fibers, Yarns, Threads, Fabrics, Clothing & Floor Covering-Int. Classes 22, 23, 24, 25, 26, 27 Services-Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/19/93	1/25/93
Law Office-11—Thomas Howell, Managing Attorney, (703) 308-9111 Paints, Pharmaceuticals & Medical Apparatus—Int. Classes 2, 5, 10 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/21/93	1/21/93
Law Office 12—Deborah Cohn, Managing Attorney, (703) 308-9112 Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/09/92	2/25/93
Law Office 13—Craig Morris, Managing Attorney, (703) 308-9113 Chemicals, Food, Beverages, Wines & Spirits—Int. Classes 1, 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/13/93	2/10/93
Law Office 14—Ron Williams, Managing Attorney, (703) 308-9114 Chemicals, Food, Beverages, Wines & Spirits—Int. Classes 1, 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/13/93	2/03/93
Law Office 15—Paul Fahrenkopf, Managing Attorney, (703) 308-9115 Rubber, Leather Goods & Clothing—17, 18, 25 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/22/93	11/06/92
** Collective Marks—Class 200		
** Certification Marks—Classes A & B		
Office of Trademark Services—Jodi Rush, Director (703) 308-9000		
Post Registration Section—Jacqueline Cole, Managing Attorney, (703) 308-9500		
Affidavits Under Sections 8 & 15 (All Classes)	12/22/92	—0—
Renewals (All Classes)	2/11/93	—0—
Section 12(C) Publications (All Classes)	—0—	—0—

** Assigned to each law office

Applicants with inquiries concerning the status of their applications and a touch tone telephone should call (703) 305-8747 through 305-9752 from 6:30 A.M. to Midnight Est, Monday thru Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquires concerning the status of their applications. See Section 411 of the *Trademark Manual of Examining Procedure.*

* These dates identify the oldest unassigned new case in each law office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examiner.

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REEXAMINATIONS

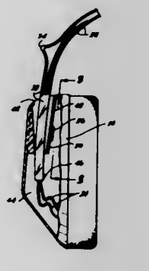
MAY 18, 1993

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,065,645 (2007th)
HEADSET

Donald E. Warner, North Hollywood, and George C. Oyama, Northridge, both of Calif., assignors to Audiotronics Corporation, North Hollywood, Calif.

Reexamination Request No. 90/002,703, Apr. 27, 1992.
Reexamination Certificate for Patent No. 4,065,645, issued Dec. 27, 1977, Ser. No. 735,896, Oct. 26, 1976.
Int. Cl.[5] H04M *1/05*
U.S. Cl. 381—183



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

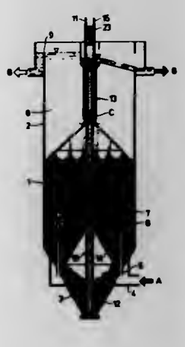
Claims **1-7** are cancelled.

2. The headset of claim **1** wherein the head strap is formed of two elongated molded members each having a longitudinal recessed portion and with the two molded members joined together to have the recessed portions forming an enclosed cavity for the wires.

B1 4,126,546 (2008th)
METHOD FOR THE FILTRATION OF A SUSPENSION OR EMULSION

Ulf R. Hjelmnér, Nynäshamn, and Hans F. Larsson, Västerhaninge, both of Sweden, assignors to Axel Johnson Engineering AB, Nynaeshamn, Sweden

Reexamination Request No. 90/002,246, Jan. 7, 1991.
Reexamination Certificate for Patent No. 4,126,546, issued Nov. 21, 1978, Ser. No. 771,138, Feb. 23, 1977.
Int. Cl.[5] B01D *24/46*
U.S. Cl. 210—741



AS A RESULT OF REEXAMINATION, IT THAS BEEN DETERMINED THAT:

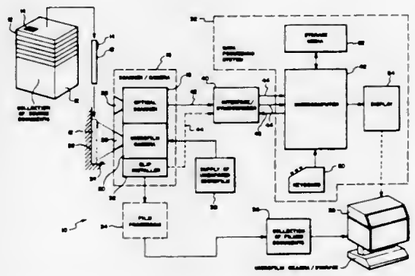
The patentability of claims **1-10** is confirmed.

1. In a method for filtering wherein a suspension or emulsion to be filtered is supplied to a zone of particle filter medium forming a filter bed, the suspension being filtered flows, during the filtration thereof, in an upward direction through the filter bed and is discharged from the filter bed as filtrated liquid phase, and wherein the filter medium during the filtration flows in a downward direction through the filter bed in counter-current to the suspension past the inflow of the suspension and thereafter is transported separated from the filter bed to a wash path for washing the dirty filter medium during flow along the wash path in counter-current to a wash liquid, whereupon the washed filter medium is returned to the filter bed zone to its top surface, the improvement wherein at least a part of the filtrated liquid phase which is discharged from the filter bed zone is maintained above this zone as a zone of filtrated liquid phase in direct contact with the filter bed zone, said separated transport of the dirty filter medium takes place upwards through the filter bed zone, and said counter-current washing of the dirty filter medium along the wash path takes place during flow of the dirty filter medium in counter-current to a portion of said filtrated liquid phase utilized as wash liquid, said portion of said filtrated liquid phase being supplied to the wash path from said zone of filtrated liquid phase.

B1 4,283,621 (2009th)
APPARATUS AND METHOD OF STORING AND RETRIEVING INFORMATION

Robert Pembroke, Salt Lake City, Utah, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Reexamination Request No. 90/002,790, Jul. 21, 1992.
Reexamination Certificate for Patent No. 4,283,621, issued Aug. 11, 1981, Ser. No. 103,501, Dec. 14, 1979.
Int. Cl.[5] G06F *15/20;* **G03B** *23/12, 27/465;* **G06K** *7/10*
U.S. Cl. 235—375



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **2**, **3**, **14** and **16** are cancelled.

Claims **1**, **4**, **15** and **17** are determined to be patentable as amended.

Claims **5-13** and **18-24**, dependent on an amended claim, are determined to be patentable.

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1. A system for storir g and retrieving information contained in a plurality of source documents, said system comprising in combination

identifying means of uniquely identify each of said plurality of source documents, *the identifying means including a plurality of labels, each label preprinted with a bar code and capable of being selectively affixed to each of the plurality of source documents;*

scanning means for randomly reading each of said identifying means and producing a unique identifying signal as a function thereof;

capturing means for sequentially preserving an image of each of said plurality of source documents immediately subsequent to the random reading of each of said identifying means by said scanning means;

addressing means for annotating each of said images preserved by said capturing means with an address symbol to indicate the relative sequential position where said image is preserved within said capturing means;

indexing means for aligning each of said unique identifying signals generated by said scanning means, which identifying signals correspond to a unique source document, with a corresponding address signal generated by said indexing means, which address signal corresponds to the address symbol annotated on the preserved image of said unique source document by said addressing means, said indexing means thus producing a unique index signal that indicates where the image of any one of said plurality of source documents is preserved within said capturing means;

synchronization means to synchronize said indexing means with said addressing means, thereby permitting said address signal generated by said indexing means to correspond to said address symbol annotated on said preserved images by said addressing means;

storage means for storing each of said unique index signals, thereby *automatically* producing index data that can be retrieved for subsequent reference thereto;

data viewing and sorting means for selectively retrieving and viewing said index from said storage means and sorting therethrough to locate the address of an image preserved in said capturing means corresponding to a desired source document; and

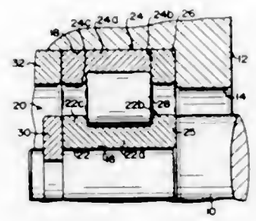
image display means for selectively displaying one of said images preserved in said capturing means.

B1 4,634,300 (2010th)

ROTATING MEMBER SUPPORTING APPARATUS

Hiroaki Takebayashi, Oosaka; Fujio Harumi, Hirakata; Kiyoshi Nakamura, Yokohama, and Koichi Inoue, Tokyo, all of Japan, assignors to Koyo Seiko Company Limited, Osaka and Kabushiki Kaisha Toshiba, Kawasaki, both of Japan

Reexamination Request No. 90/002,188, Oct. 31, 1990.
Reexamination Certificate for Patent No. 4,634,300, issued Jan. 6, 1987, Ser. No. 717,883, Mar. 29, 1985.
Claims priority, application Japan, Mar. 30, 1984, 59-64844
Int. Cl.[5] F16C *19/26*
U.S. Cl. 384—548



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1**, **5–17** is confirmed.

Claims **2–4** are cancelled.

New claims **18**, **19**, **20** are added and determined to be patentable.

19. A rotating member supporting apparatus comprising:
an outer member having a bore therein;
an inner member inserted in the bore and capable of rotation relative to the outer member, one of said outer and inner members constituting a rotating member, and the other constituting a supporting member for supporting the rotating member; and
a rolling bearing interposed between the outer and inner members and rotatably supporting the rotating member, said rolling bearing including an inner ring having resistance to heat and corrosion and fitted on the outer peripheral surface of the inner member, an outer ring having resistance to heat and corrosion and fitted in the bore so as to face the inner ring, and a plurality of ceramic rolling elements rollably arranged between the outer peripheral surface of the inner ring and the inner peripheral surface of the outer ring, wherein said rolling elements are formed of a sintered compact mainly composed of silicon nitride admixed with rare-earth compounds and aluminum nitride.

B1 4,643,949 (2011th)

MAGNETIC RECORDING TAPE

Edmond G. Kolycheck, Lorain, and Lawrence Ondercin, Brook Park, both of Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Reexamination Request No. 90/002,253, Jan. 15, 1991.
Reexamination Certificate for Patent No. 4,643,949, issued Feb. 17, 1987, Ser. No. 483,399, Apr. 8, 1983.
Int. Cl.[5] G11B *5/00*
U.S. Cl. 428—425.9

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–5** having been finally determined to be unpatentable, are cancelled.

1. A magnetic recording medium having high tensile strength and improved hydrolytic stability comprising a substrate, magnetic particles, and a binder bonding said magnetic particles to said substrate, said binder consisting essentially of a reaction product of a diisocyanate and a blend of a hydroxyl terminated polycarbonate and a chain extender.

B1 4,659,309 (2012th)

ORTHODONTIC BRACKET WITH RHOMBOIDAL PROFILE

Daniel A. Merkel, and Lee H. Tuneberg, both of Sheboygan, Wis., assignors to American Orthodontics Corporation, Sheboygan, Wis.

Reexamination Certificate for Patent No. 4,659,309, issued Apr. 21, 1987, Ser. No. 784,794, filed Oct. 4, 1985.
Continuation-in-part of Ser. No. 727,331, Apr. 25, 1985, abandoned.
Certification of Correction issued Sep. 1, 1987
Int. Cl.[5] A61C *3/00*
U.S. Cl. 433—9

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

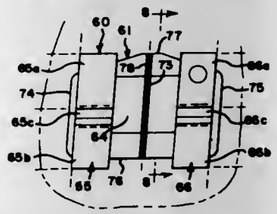
The patentability of claims **1–10** and **12** is confirmed.

Claim **11** having been finally determined to be unpatentable, is cancelled.

1. An orthodontic bracket for use with an archwire to impart corrective forces to a tooth comprising,

a base portion having a backside for attachment to the tooth,

a plurality of parallel tie wings integral with and extending from the base portion, said tie wings having parallel mesial and distal sides, parallel occlusal and gingival sides, outer labiobuccal faces extending substantially parallel to a plane common to the four corners of said base portion backside, gingival and occlusal tips with outer parallel



gingival and occlusal edges, aligned labiobuccally opening archwire slots disposed centrally between the tips and having parallel opposed walls extending parallel to said occlusal and gingival edges, said labiobuccal faces forming an obtuse angle to one of the occlusal or gingival sides, whereby the buccolingual profile of the bracket defines a rhomboidal configuration and diagonal torque built into the bracket, one of said mesial or distal sides forming an obtuse angle with one of said gingival or occlusal sides thereby defining a rhomboidal labiobuccal profile for diagonal angulation.

B1 4,720,342 (2013th)

HOLLOW-FIBER FILTER MODULE WITH FILTRATE CONDUIT

Tohru Takemura, Hiroshima; Haruhiko Yoshida, Yamaguchi; Hiroshi Takahashi, Hiroshima; Yoshikazu Fujinaga, Toyohashi, and Masashi Okamoto, Hiroshima, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Reexamination Request No. 90/002,761, Jun. 23, 1992.
Reexamination Certificate for Patent No. 4,720,342, issued Jan. 19, 1988, Ser. No. 736,240, May 21, 1985.
Claims priority, application Japan, May 21, 1984, 59-100572; Oct. 29, 1984, 59-225982
Int. Cl.[5] B01D *63/02, 63/04*
U.S. Cl. 210—321.79



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim **1** is determined to be patentable as amended.

Claims **2–5**, dependent on an amended claim, are determined to be patentable.

1. A hollow-fiber filter module assembly comprising a plurality of hollow-fiber filter modules connected in series, each said hollow-fiber filter module comprising:

a bundle of parallel hollow fibers having two open ends *to comprise means for reducing pressure loss through said fibers;*

means for forming a filtrate collection chamber at one of said open ends; and

filtrate conduit means for conducting filtrate from said one of said open ends to the other of said open ends;

wherein said assembly includes fastening means at ends of each said bundle for fixing adjacent ones of said bundles to one another,

wherein said fibers are rectilinear and said filtrate conduit means comprises a conduit which extends parallel to said fibers,

wherein said conduit of said filter module connects said collection chamber of said filter module with said other of said open ends thereof, and

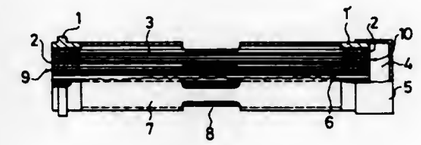
wherein said means for forming a filtrate collection chamber of said filter module comprises a partitioning member adapted for connection relative to said other end of an adjacent hollow-fiber bundle not having said filtration collection chamber.

B1 4,781,832 (2014th)

HOLLOW-FIBER FILTER MODULE

Tohru Takemura, Hiroshima; Haruhiko Yoshida, Yamaguchi; Hiroshi Takahashi, Hiroshima; Yoshikazu Fujinaga, Aichi, and Masashi Okamoto, Hiroshima, all of Japan, assignors to Mitsubishi Rayon Co. Ltd., Tokyo, Japan

Reexamination Request No. 90/002,762, Jun. 23, 1992.
Reexamination Certificate for Patent No. 4,781,832, issued Nov. 1, 1988, Ser. No. 58,877, Jun. 5, 1987.
Continuation of Ser. No. 736,240, May 21, 1985, Pat. No. 4,720,342
Claims priority, application Japan, May 21, 1984, 59-100572; Oct. 29, 1984, 59-225982
The portion of the term of this patent subsequent to Jan. 19, 2005, has been disclaimed.
Int. Cl.[5] B01D *63/02*
U.S. Cl. 210—321.8



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** and **7** are determined to be patentable as amended.

Claims **2–6** and **8**, dependent on an amended claim, are determined to be patentable.

1. A hollow fiber filter module comprising:

a bundle of parallel hollow fibers having two open ends *with fastening members thereat;*

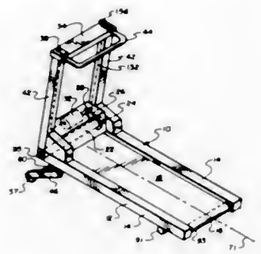
means for forming a filtrate collection chamber at one of said open ends;

filtrate conduit means comprising a conduit extending through said bundle for conducting filtrate from said one of said open ends to the other of said open ends *and through said fastening members*; and

a reinforcing ring comprising means for holding the position of said filtrate conduit means in said bundle *and minimizing the transmission of stresses from said filtrate conduit means to said fastening members.*

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B1 4,913,396 (2016th)
ADJUSTABLE INCLINE SYSTEM FOR EXERCISE EQUIPMENT
William T. Dalebout; S. Ty Measom, and Scott R. Watterson, all of Logan, Utah, assignors to Weslo, inc., Logan, Utah
Reexamination Request Nos. 91/001,998, Apr. 12, 1990 and 91/002,250, Apr. 12, 1990.
Reexamination Certificate for Patent No. 4,913,396, issued Apr. 3, 1990, Ser. No. 256,486, Oct. 12, 1988.
Int. Cl.[5] F16M *11/00*
U.S. Cl. 248—649



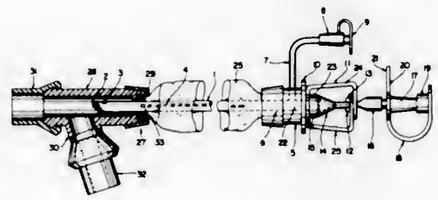
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–19** are cancelled.

New claims **20–25** are added and determined to be patentable.

20. An adjustable incline system in combination with a treadmill, said adjustable incline system being adapted to lift and support said treadmill above an underlying floor-like support surface in different angular orientations relative to said underlying floor-like support surface, said combination comprising:
said treadmill having a pair of spaced apart siderails and a cross-member mounted to each of said siderails to extend between said siderails;
a pair of support legs spaced apart one from the other, each of said pair of support legs having a first end pivotally mounted to a respective said spaced apart siderail of said treadmill, each of said pair of said support legs having a second opposite end with means secured thereto for engaging said underlying floor-like support surface and supporting said treadmill above said underlying floor-like support surface;
a connection bar mounted to said pair of support legs and to extend therebetween;
a shaft mounted on said cross-member to extend upwardly therefrom;
an adjustable pneumatic spring pivotedly mounted on said shaft, said adjustable pneumatic spring having a piston rod movably extending therefrom and pivotedly mounted to said connection bar, said adjustable pneumatic spring having an actuation means to control movement of said piston rod; and
a control means mounted on said treadmill to control said actuation means.

B1 5,083,561 (2015th)
TRACHEAL SUCTION CATHETER
Ronald D. Russo, 8 Candleberry Rd., Barrington, R.I. 02806
Reexamination Request No. 90/002,645, Feb. 14, 1992.
Reexamination Certificate for Patent No. 5,083,561, issued Jan. 28, 1992, Ser. No. 538,250, Jun. 14, 1990.
Int. Cl.[5] A61M *16/00*
U.S. Cl. 128—207.16



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–9** are confirmed.

New claims **10–30** are added and determined to be patentable.

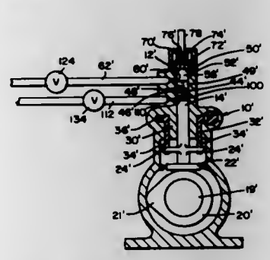
11. A suction device for removing material from the trachea of a patient during ventilation comprising a catheter having an internal lumen and opposed front and rear ends with the front end including a suction opening, front and rear couplings supporting said catheter and a protective sleeve normally enclosing said catheter and in turn connected with said front and rear couplings, said catheter fixedly connectedat its rear end to said rear coupling, said front coupling including an internal seal for slidable receipt of the outer surface of said catheter whereby said catheter front end may be inserted into and withdrawn from the trachea of said patient, and said rear coupling including an irrigation port in turn communicating with said catheter lumen at said rear coupling whereby lavage fluid may be injected into said port sa as to directly wash said lumen in a rear to front catheter flow direction and to directly irrigate the patient's trachea by passing out of the catheter through said suction opening.

REISSUES

MAY 18, 1993

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

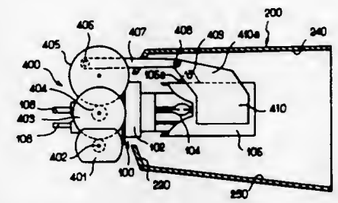
Re. 34,252
MULTI-FUEL COMPRESSION-IGNITION ENGINE AND FUEL INJECTION PUMP THEREFOR
Pao C. Pien, 1105 Marbelle Club, 840 S. Collier Blvd., Marco Island, Fla. 33937
Original No. 5,024,195, dated Jun. 18, 1991, Ser. No. 536,016, Jun. 7, 1990. Application for reissue Dec. 27, 1991, Ser. No. 813,827
Int. Cl.[5] F02D *19/08*
U.S. Cl. 123—304 **22 Claims**



1. A multi-fuel compression-ignition internal combustion engine comprising a first source of primary fuel, a second source of secondary fuel, injection pump means including a body means having a bore therein, plunger means movably mounted within said bore, said plunger means having an end portion defining with a portion of said bore a mixing chamber *in the interior of said bore*, first supply means *including first inlet port means opening into the interior of said bore* for supplying primary fuel from said first source to said mixing chamber, second supply means *including second inlet port means opening into the interior of said bore* for supplying secondary fuel from said second source to said mixing chamber so that said primary and secondary fuels are mixed in said mixing chamber to provide a mixture of the primary and secondary fuels, said second supply means including means spaced from said end portion in a direction away from said mixing chamber for providing a seal between said bore and said plunger means to prevent leakage of primary fuel past the seal, valve means permitting flow of fuel from said mixing chamber but substantially preventing flow of fuel back into said mixing chamber, a cylinder having a piston reciprocably mounted therein and defining with said cylinder a combustion chamber, fuel injection means for injecting fuel into said combustion chamber, and means connecting said fuel injection means with said valve means so that said injection pump means provides fuel under high pressure to said fuel injection means.

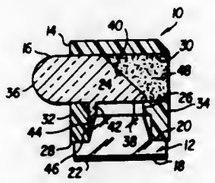
Re. 34,253
MOTOR VEHICLE HEADLIGHT INCLUDING A SINGLE LIGHT SOURCE FOR GENERATING TWO DIFFERENT BEAMS
Hector Fratty, Paris, and Joel Leleve, Epinay Sur Seine, both of France, assignors to Valeo Vision, Bobigny Cedex, France
Original No. 4,987,521, dated Jan. 22, 1991, Ser. No. 467,860, Jan. 22, 1990. Application for reissue Jun. 21, 1991, Ser. No. 719,338
Claims priority, application France, Jan. 23, 1989, 89 00754
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 362—61 **10 Claims**

1. A motor vehicle headlight of the type comprising a single light source, a reflector including two zones suitable for generating two different respective light beams, a closure glass, masking means situated in the vicinity of the source and capable of being displaced for selectively masking the light rays delivered by the source and propagating toward at least one of the two zones, said two zones disposed side-by-side, each zone extending over the entire height of the reflector, each zone of the reflector comprising a portion of a reflecting surface capable of generating associated beam, said masking means comprising [at least one screen] *two screens*, said [screen] *screen-*sin [its] masking [position] *positions*situated [to one] *on either* side of the source, at least one of the two zones of the



reflector comprising a surface for generating a beam beneath a cut-off extending generally horizontally, the other zone of the reflector comprising a surface suitable for generating a concentrated beam in the vicinity of the optical axis, and said [screen] *screens* adapted to mask the rays propagating from the source toward the [first zone] *two zones* of the reflector and *one screen* having at least one small orifice therethrough in order to allow a determined quantity of light to pass through said screen toward said first zone.

Re. 34,254
SURFACE MOUNTED LED PACKAGE
Daniel Dragoon, Fairfield, Conn., assignor to Dialight Corporation, Manasquan, N.J.
Original No. 4,935,856, dated Jun. 19, 1990, Ser. No. 417,469, Oct. 5, 1989. Application for reissue Jun. 12, 1991, Ser. No. 714,226
Int. Cl.[5] E21V *7/00*
U.S. Cl. 362—307 **32 Claims**



11. A surface mounted LED package comprising:
(a) an LED having:
(i) a first surface;
(ii) a second surface opposite to said first surface;
(iii) two electrical contacts; and
(iv) a light emitting portion;
(b) a housing mounted on said LED, said housing having:
(i) a first passageway extending from a first surface of said housing part way through said housing, said first passageway being sized, shaped, and positioned to receive said second surface of said LED such that said light emitting portion of said LED faces into said first passageway, and
(ii) a second passageway extending from a second surface of said housing at least part way through said housing and communicating with said first passageway; and

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(c) a lens received in said second passageway, said lens having:
(i) a radiating surface and
(ii) an internal reflecting surface located inside said housing in position to reflect light from said light emitting portion of said LED toward said radiating surface.

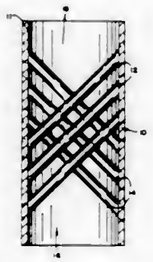
Re. 34,255
STATIC MIXING DEVICE

Juergen Friedrich, Conyngham, Pa., assignor to Krup Corporation, Hazleton, Pa.

Original No. 4,865,460, dated Sep. 12, 1989, Ser. No. 188,909, May 2, 1988. Continuation of Ser. No. 658,262, Feb. 20, 1991, abandoned. Application for reissue May 13, 1992, Ser. No. 882,325

Int. Cl.[5] **B01F** *5/06;* **B29B** *1/06*

U.S. Cl. 366—337 **6 Claims**



1. A static mixing device comprising a tubular conduit *consisting of a tubular wall defining a hollow tubular cross section* through which a viscous product to be maintained within a given temperature range is fed under substantial pressure, a plurality of rows of tubes extending across and filling a major portion of the cross section of said conduit through which a heat transfer medium flows to provide a greater interface between the heat transfer medium and viscous product to maintain said product within the preselected temperature range to help retain its homogeneity, *each tube extending through the tubular wall of the conduit at an individual heat transfer medium entrance point for that tube and an individual heat transfer medium exit point for that tube, each tube being substantially linear between its entrance point and exit point,* each of said rows of tubes extending in a longitudinal direction relative to said conduit, the tubes in each of the rows abutting an adjacent row and extending at an angle relative to adjacent rows so that the product flowing through said conduit under high pressure is directed in a tortuous path around said tubes to effect uniform mixing of the product and prevent accumulation of the product on the tubes while the product is being maintained within the prescribed temperature range by the application of uniform heat to the viscous product to provide a more uniformly reacted viscous product flowing through the conduit.

Re. 34,256
TOOL FOR METAL CUTTING

Bengt N. G. Strand, and Sven L. Eklund, both of Fagersta, Sweden, assignors to Seco Tools AB, Fagersta, Sweden

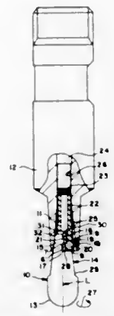
Original No. 4,958,965, dated Sep. 25, 1990, Ser. No. 365,903, Jun. 15, 1989, Division of Ser. No. 204,284, Jun. 9, 1988, Pat. No. 4,850,759. Application for reissue Sep. 17, 1991, Ser. No. 760,991

Claims priority, application Sweden, Jul. 8, 1987, 87027990

Int. Cl.[5] **B23B** *31/10*

U.S. Cl. 408—239 A **10 Claims**

8. A cutter adapted to be rotated about a front-to-rear extending longitudinal axis and comprising a front portion having a cutting edge and a rear portion for mounting said cutter, said rear portion having a conical outer periphery, the shortest radius of which is defined by a rearmost end of said rear portion, said rear portion including a hook-shaped projection formed by a laterally open recess in said outer periphery, said recess including a generally rearwardly facing first surface extending laterally inwardly from said outer periphery, and an additional surface facing generally toward said first surface, said additional surface including laterally inner and outer ends and extending generally laterally outwardly and rearwardly from said laterally inner end to said laterally outer end, said laterally outer end of said additional surface being disposed laterally inwardly of an imaginary extension of said outer periphery.



Re. 34,257
CRANK ANGLE DETECTING SYSTEM FOR ENGINES

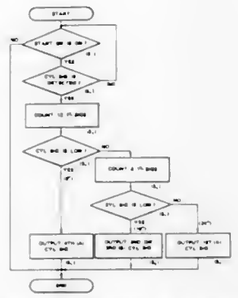
Haruo Yuzawa; Masafumi Nishiyama, both of Yokohama; Katsuyuki Nakamura, Yokosuka, and Kazuhiro Ishigami, Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Original No. 4,656,993, dated Apr. 14, 1987, Ser. No. 709,665, Mar. 8, 1985. Application for reissue Apr. 14, 1989, Ser. No. 338,166

Claims priority, application Japan, Mar. 14, 1984, 59-37182

Int. Cl.[5] **F02P** *5/04, 7/073, 7/067*

U.S. Cl. 123—643 **12 Claims**



5. A crank angle detecting system for a multicylinder engine, comprising:

a) a plurality of engine cylinders in which spark plugs are installed respectively, said cylinders being classified into a plurality of groups and each group being constituted by a pair of cylinders such that while the one of the cylinders is in an explosion stroke, the other is in an exhaust stroke;

b) indicating means disposed so as to synchronize with a rotation of an engine crankshaft and formed with a large number of slits for detecting crankshaft angular positions and a small number of slits, the large number of slits being provided for indicating crankshaft angular positions and the small number of slits being provided for indicating predetermined stroke angular positions of respective cylinder pistons and wherein respective widths of said small number of slits with respect to the crankshaft angular position are at least different between those belonging to said groups;

c) sensing means for detecting crankshaft angular positions in cooperation with the large number of slits of the indicating means and outputting a crank angle signal representing each of the crank angular positions and for detecting the predetermined stroke angular positions in cooperation with the small number of slits of the indicating means and outputting the predetermined stroke angular signals having different widths corresponding to those of the small number of slits; and

d) discriminating means for identifying each cylinder group and outputting cylinder group identification signals on the basis of the crank angle signal and the predetermined stroke angular signals derived form said sensing means.

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PLANT PATENTS

GRANTED MAY 18, 1993

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

8,229

ROSE PLANT JACTUTTI

Jack E. Christensen, Ontario, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.

Filed Oct. 10, 1991, Ser. No. 775,245
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—7.1 **1 Claim**

1. A new and distinct variety of rose plant of the miniature class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its novel striping and color change in the flower, the presence of glands on the stipules, peduncle, petiole and rachis, its resistance to powdery mildew and rust, its upright but dwarf growth habit and its dark green glossy foliage.

8,230

ROSE PLANT—POULBERO VARIETY

Mogens Olesen, and Pernille Olesen, both of Fredensborg, Denmark, assignors to The Conard-Pyle Company, West Grove, Pa.

Filed Oct. 21, 1991, Ser. No. 779,995
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—11 **1 Claim**

1. A new and distinct variety of Grandiflora rose plant characterized by the following combination of characteristics:

(a) forms in abundance on a continuous basis attractive long-lasting fully double blossoms which exhibit brilliant coloration comprising a combination of red, orange, yellow, and pink tones,
(b) exhibits vigorous vegetation,
(c) exhibits an upright and bushy growth habit,
(d) exhibits good winter hardiness,
(e) exhibits above-average resistance to diseases, and
(f) is particularly suited for growing in parks and gardens;

substantially as herein shown and described.

8,231

HEBE 'MARGRET'

G. Dennis Potter, Pickering, England, assignor to Blooms of Bressingham, Ltd., Norfolk, England

Filed Nov. 25, 1991, Ser. No. 802,003
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—67.2 **1 Claim**

1. A new and distinct cultivar of 'Hebe' substantially as shown and described, characterized by semi-dwarf to dwarf compact habit, profuse blooming in late May to early June with later flushes in late summer and fall, upstanding flower spikes appearing well above the foliage, the sky blue flowers fading to pale blue and then white giving a distinctive bicolor effect.

8,232

CARNATION PLANT NAMED CFPC DAYDREAM

Walter H. Jessel, Jr., Salinas, Calif., assignor to California Florida Plant Co., L.P., Salinas, Calif.

Filed Sep. 11, 1991, Ser. No. 757,832
Int. Cl.[5] H01H *5/00*
U.S. Cl. Plt.—70.1 **1 Claim**

1. A new and distinct variety of carnation plant, substantially as shown and described.

8,233

CARNATION PLANT NAMED CFPC GRENADA

Walter H. Jessel, Jr., Salinas, Calif., assignor to California Florida Plant Co., L.P., Salinas, Calif.

Filed Sep. 11, 1991, Ser. No. 757,907
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—70.7 **1 Claim**

1. A new and distinct variety of carnation plant, substantially as shown and described.

8,234

"SOMMERFELD" APPLE TREE

August E. Sommerfeld, III, 21713 Lake Rd., La Grange, Calif. 95329

Filed Feb. 10, 1992, Ser. No. 833,120
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—34.1 **1 Claim**

1. A new and distinct variety of apple tree substantially as illustrated and described which is similar to the "Royal Gala" apple tree (U.S. Plant Pat. No. 4,121) and "Fuji" apple tree (unpatented) from which it is believed derived and with which it is most closely similar, but from which it is distinguished by producing fruit which are mature for commercial harvesting and shipment approximately three-and-one half weeks later than the fruit of the "Royal Gala" apple tree and about five weeks prior to the fruit of the "Fuji" apple tree in the central valley of California and which is very sweet and of excellent quality.

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433-072 5,211,556
408-224 5,211,635
002-203 5,211,668
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029-890 5,211,671
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ERRATA—Continued

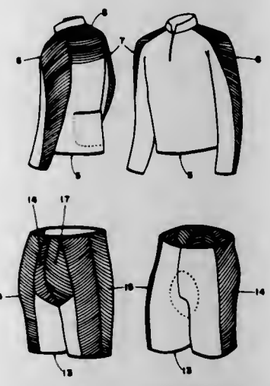
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175-058	5,211,715
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360-085	5,212,820
395-022	5,212,821

PATENTS

GRANTED MAY 18, 1993

GENERAL AND MECHANICAL

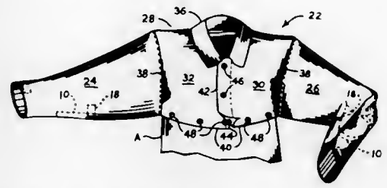
5,210,877
ABRASION AND CUT RESISTANT PROTECTIVE CLOTHING FOR BICYCLING
Howard J. Newman, 1705 Locust Hill Rd., Richmond, Va. 23233
Filed Oct. 4, 1991, Ser. No. 771,240
Int. Cl.[5] A41D *13/00*
U.S. Cl. 2—2 **5 Claims**



4. Protective outerwear worn for bicycling comprising:
separate, single layer, lightweight, abrasion resistant, woven, knit, or knit-woven protective fabric panels comprising ultra high molecular weight polyethylene fiber of approximately 215 denier, for protection of a bicyclist's body from abrasion due to moving contact with a road surface;
wherein said protective outerwear is bicycling shorts having two tubular leg portions, a front portion, a rear buttocks portion, a waist opening, and two leg openings located above the knees of a wearer, further comprising at least one said protective panel in the buttocks portion of the shorts, said at least one panel extending laterally to cover the width of the wearer's lower back and hips and extending downwardly to cover the buttocks; at least two said protective panels, each in an outer thigh portion of each leg portion of the shorts, each said panel extending downwardly from the waist opening to the leg opening and covering the hips and outer thighs of the wearer; and said buttocks portion and outer thigh portions of the outerwear consist of a single layer of fabric;
wherein the protective panels are located only in said buttocks portion and outer thigh portion of the shorts.

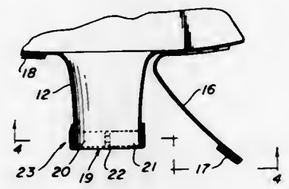
5,210,878
WELDER'S PROTECTIVE ARTICLES
Freddie J. Triche, 1537 Bernice St., Morgan City, La. 70380
Filed Mar. 13, 1992, Ser. No. 851,484
Int. Cl.[5] A41D *13/00*
U.S. Cl. 2—16 **7 Claims**

1. An article for the protection of the upper body and upper and lower arms of a person engaged in welding and similar fields, said article comprising;
a cape including left and right front portions, a back portion, and a left and a right sleeve,
said left sleeve joined to said left front portion and said back portion and said right sleeve joined to said right front portion and said back portion,
each said sleeve having an interior including a pad disposed therein, with said pad having pocket means and said pocket means receiving an insulating material therein,
a left and a right forearm securing strap disposed respectively within each said sleeve and transversely directly overlying each said pad,
each said pad positioned adjacent the ulnar side of the lower arm of the person when each said sleeve is worn by the person, whereby



each said sleeve provides protection from heat and other welding hazards for the upper and lower arm of the person wearing each said sleeve and further protection is provided by means of said left and right front portion and said back portion.

5,210,879
FISHING WADERS HAVING A CLOSEABLE, INTEGRALLY FORMED EXTENDABLE TUBULAR MEMBER AT THE CROTCH
Glenn W. Miller, 914 Diamond St., Sellersville, Pa. 18960
Filed May 6, 1991, Ser. No. 696,142
Int. Cl.[5] A41D *13/00*
U.S. Cl. 2—82 **6 Claims**



1. A loose fitting garment impervious to water comprising:
a) first and second leg and foot coverings;
b) an approximately chest high body section joined to said first and second coverings;
c) means for holding said garment in position upon a person;
d) an integrally formed extendible means located in proximity to a crotch location of said garment to allow expelling of liquid waste from the wearer without removal of said garment and wherein said extendible tubular member and said garment are one piece and meet at a seamless juncture;
e) a leaf spring means located upon said extendible means at a distal end to maintain said means in a closed position and to assist in the winding of said tubular means into a relatively tight spiral to prevent moisture from entering into the interior of said garment;
f) a single covering means for placement over said tubular means to cover and retain said tightly would tubular means in place when not in use.

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5,210,880
DISPOSABLE PROTECTIVE OVERGLOVES
Joyce K. Yale, 428 31st St., Hermosa Beach, Calif. 90254-2135
Filed Aug. 23, 1991, Ser. No. 749,174
Int. Cl.[5] A41D *19/00*
U.S. Cl. 2—159 1 Claim



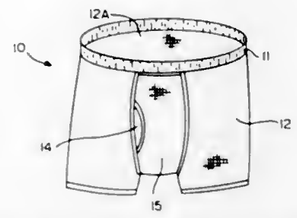
1. A transparent protective overglove for use over a hand wearing a tight fitting patient glove comprising:
an overglove made from thin plastic material having a back side, a palm side, a digit portion having five finger portions, a wrist portion and interior and exterior surfaces, said overglove being dimensioned to be substantially larger than a gloved hand to be covered by the overglove, said overglove having a first length extending from a tip of the digit portion to the wrist on the back side of the overglove and having a second length extending from a tip of the digit portion to the wrist on the palm side of the overglove, and wherein said first length is less than said second length so that a wearer's hand may readily enter the wrist of the glove; and
a plurality of adhesive strips, wherein each strip is located only on a tip end of a finger portion on the exterior side of the palm side of the overglove.

5,210,881
COMBINATION GARMENT POCKET AND OBJECT
George R. Stocker, Jr., 4555 N. Malden Ave., Chicago, Ill. 60640, and Howard Kenneth, 8809 Golf #11-H, Des Plaines, Ill. 60016
Filed Nov. 29, 1991, Ser. No. 800,274
Int. Cl.[5] A41D *27/08*
U.S. Cl. 2—247 15 Claims



1. A combination garment pocket and object comprising a pocket secured on a garment, said pocket having openings therein, and an object removably secured in said pocket with portions of said object extending outside of said pocket through a plurality of said openings, said portions of said object being visible when said object is positioned in said pocket, said pocket having a top and side seams, said openings being positioned along said side and top seams and arranged on opposed sides of said pocket, at least one opening in said pocket through which one of said portions extends being arranged on a side of said pocket angularly disposed to another opening therein through which another portion of said object extends.

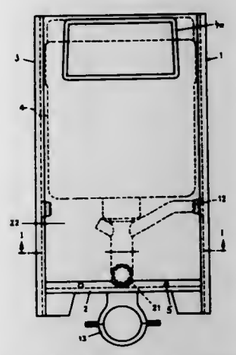
5,210,882
UNDERGARMENT WITH COMBINATION OF LOOSE FITTING SEAT, UPPER ABDOMEN AND LEG AREAS AND SUPPORTING CROTCH AREA
Herbert L. Moretz, 20205 Lola Cir., Davidson, N.C. 28036, and Daniel L. Brier, 33 Angelfish Cay Dr., Key Largo, Fla. 33037
Continuation-in-part of Ser. No. 791,066, Nov. 12, 1991. This application Feb. 26, 1992, Ser. No. 842,224
Int. Cl.[5] A41B *9/02*
U.S. Cl. 2—404 7 Claims



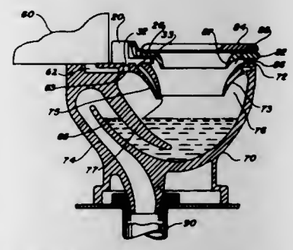
1. An undergarment characterized by a loose comfortable fit in the seat, upper abdomen and leg areas and by a snug, supporting fit in the crotch area, said undergarment comprising:
(a) a relatively narrow expansible waistband component for encircling the waist of the wearer;
(b) a relatively loose, woven non-stretch fabric seat, upper abdomen and leg component attached to and carried by said waistband component for providing a loose, comfortable fit in the seat, upper abdomen and leg areas of the wearer;
(c) a relatively stretchable crotch component attached to and positioned in relation to said leg, upper abdomen and seat component to snugly support the crotch of the wearer, wherein said crotch component includes a multilayer moisture absorbing panel, said moisture absorbing panel comprising:
(1) an inner hydrophobic fiber layer for being positioned next to the skin of the wearer;
(2) an intermediate hydrophilic fiber layer for wicking moisture from said inner hydrophobic fiber layer and away from the skin of the wearer;
(3) an outer hydrophilic fiber layer for trapping and holding moisture from said intermediate hydrophilic layer; and
(4) a shell fabric defining the outermost layer of the crotch component.

5,210,883
INSTALLATION BLOCK FOR A SANITARY DEVICE
Peter Weber, and René Dolder, both of Jona, Switzerland, assignors to Geberit AG, Jona, Switzerland
Filed Jun. 7, 1991, Ser. No. 711,912
Claims priority, application Switzerland, Jun. 8, 1990, 1935/90
Int. Cl.[5] E03D *11/00*
U.S. Cl. 4—252.2 5 Claims

1. An installation block for a sanitary device, the block comprising:
a support frame surrounding first elements of the sanitary device, said support frame having fastening means for supporting said support frame and fastening second sanitary device elements to said support frame; and
an expanded polystyrene molding surrounding said first elements of said sanitary device within said support frame, said expanded polystyrene molding having an outer surface portion which is denser and harder than an inner portion of said expanded polystyrene molding.

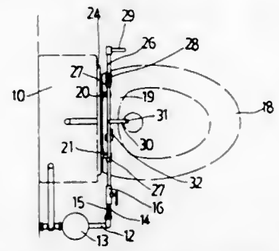


5,210,884
ENVIRONMENTALLY CONTROLLED TOILET
Daniel S. Redford, 5270 Elvira Rd., Woodland Hills, Calif. 91364
Continuation-in-part of Ser. No. 570,341, Aug. 20, 1990, abandoned. This application Aug. 19, 1991, Ser. No. 746,934
Int. Cl.[5] E03D *9/05*
U.S. Cl. 4—348 8 Claims



1. An environmentally controlled toilet bowl connected to a sewer line and having an upper rim and a circular bowl-skirt integral with said rim and extending downwardly into the said bowl to form a primary air trapping cavity within said bowl, said bowl-skirt having at least one exhaust passage and at least one inlet window therein,
b) a bowl flushing means permitting water to enter said bowl and flush matter therefrom, and
c) an air circulating means for lowering the temperature of the contaminated air inside said bowl and for providing a flow of air through said at least one exhaust passage, moving air inside said bowl, and returning to said air circulation means through said at least one inlet window, wherein the moving air inside said bowl resembles a cyclone-type air circulation that generates secondary air currents that move radially from said bowl center, carrying airborne contaminants from the bowl center to said primary air trapping cavity, and mixing them with the air sweeping tangentially inside said primary air rapping cavity comprising: a toilet bowl having a bowl top, a bowl rim and inside walls, said bowl being connected to a sewer line; a bowl flushing means permitting water to enter said bowl and flush matter therefrom; an air circulation means for recirculating air inside said bowl; and a sanitizer/conditioner means for dispensing odor conditioning and sanitizing agents into recirculating air returning to said bowl, wherein said bowl has an upper rim and a circular bowl-skirt integral with said rim extending downwardly into said bowl to form a primary air trapping cavity between said bowl walls and said bowl skirt, said bowl having at least one exhaust passage positioned inside said air trapping cavity allowing a flow of air generated by said air circulation means to enter tangentially inside said air trapping cavity and to generate a circular air movement inside said circular air trapping cavity and further said bowl having at least one inlet window positioned inside said air trapping cavity to return the recirculated air from within said bowl to said air circulation means, wherein the moving air inside said air trapping cavity resembles a cyclone-type air circulation that generates secondary air currents with said bowl that move radially from a center of said bowl, wherein said secondary air currents carry warmer and contaminated air from the bowl center to said air trapping cavity to neutralize and mix said contaminated air with said odor conditioning and sanitizing agents dispensed by said air circulation means in he air moving tangentially inside said air trapping cavity thus reducing bacteria count and conditioning the odor within said bowl, furthermore the cyclone-type air circulation inside said air trapping cavity mixes cooler air sweeping along the toilet bowl walls with said warmer and contaminated air to lower the temperature of said warmer contaminated air and to force condensation of vapors present in said contaminated by bringing the vapors into contact with the cooler toilet bowl walls.

5,210,885
ANAL REGION RINSING SYSTEM
Kui-Piao Ruo, Feng Yuan, Taiwan, assignor to Min-Yang Ruo; Jan-Ling Ruo and Hui-Ping Ruo, all of Taichung Haien, Taiwan
Filed Jun. 10, 1992, Ser. No. 896,609
Int. Cl.[5] E03D *9/08*
U.S. Cl. 4—420.2 3 Claims



1. An anal region rinsing system comprising a three-way pipe, said three way pipe having a water intake port connected to a water supply, a first water outlet port connected to a water tank, and a second water outlet port; an electric water heater, said electric water heater having an water intake port connected to the second water outlet port of said three-way pipe, and a water outlet port; a pressure reducing pipe, said pressure reducing pipe having a water intake port at one end connected to the water outlet port of said electric water heater, and a water outlet port at an opposite end; a lavatory bowl disposed below said water tank; a lavatory seat pivoted to said lavatory bowl at the top and covered with a lavatory cover: two axle holders mounted on said lavatory seat at the bottom, said axle holders having each a side pin at an inner side, on which said lavatory cover is pivoted, and a curved strip pressed on said lavatory seat; a water outlet pipe, said water outlet pipe connected to the water outlet port of said pressure reducing pipe through a control valve, and movably retained to said lavatory seat at the bottom by said curved strip; and
characterized in that: said water outlet pipe comprises two

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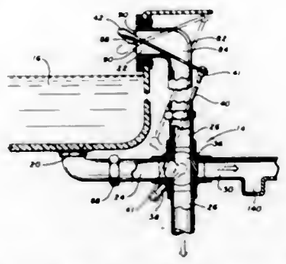
locating rings mounted around a peripheral outside surface thereof at two opposite locations near said axle holders respectively, a water intake port at one end connected to said control valve, a lever at an opposite end, a return spring near said lever, said return spring having one end connected to said water intake port and an opposite end connected to the axle holder which is near said lever, a water outlet port coupled with a nozzle tube at right angle and protected by a guard, wherein rotating said lever and moving it outwards relative to said lavatory bowl causes said nozzle tube to be moved out of said guard, permitting a continuous ejection of water to be discharged out of said nozzle tube, after the opening of said control valve, for cleaning the anal region of the person who sits on said lavatory seat; releasing said lever causes said return spring to move back said water outlet pipe, permitting said nozzle tube to be received inside said guard.

5,210,886

DUAL OUTLET BATHTUB DRAIN VALVE FOR WATER CONSERVATION SYSTEM

John A. Coe, III, 615 Marquette Street, Pacific Palisades, Calif. 90272

Filed Oct. 10, 1991, Ser. No. 775,706
Int. Cl.[5] E03C *1/232*; F04B *49/00*; F16K *31/44*; F17D *1/13*
U.S. Cl. 4—665 **3 Claims**



1. A manually operated water drain control valve for use with a bathtub/shower having a used potable water drain line, an overflow line, a sewer line and a water storage tank line, said valve alternatively directing water from said drain line and/or said overflow line flowing by gravity to either said sewer line or said water storage tank line, the valve comprising:

a first inlet adapted to be connected to said drain line for accepting water from said used potable water drain line;

a second inlet adapted to be connected to said overflow line for accepting water from said overflow line;

a first outlet adapted to be connected to said sewer line;

a second outlet adapted to be connected to said water storage tank line;

each of said first inlet, first outlet and second outlet having full port inlets and outlets, respectively, which are of the same internal diameter as the line to which the same can be connected;

ball portion means for alternatively blocking the first outlet and the second outlet, such that water from the first inlet and the second inlet flows out the second outlet when the first outlet is blocked, and the water from the first inlet and the second inlet flows out the first outlet when the second outlet is blocked, said ball portion means including a three-directional passage which is fully open to three of said inlets and outlets when either of said first outlet or second outlet is blocked;

wherein there is an intersection of the first inlet, the second inlet, the first outlet and the second outlet, and the ball portion means comprises:

a ball-shaped element having said three-directional passage therethrough, said ball-shaped element being disposed within the intersection of the first inlet, the second inlet, the first outlet and the second outlet;

a handle connected to the ball-shaped element for rotating the ball-shaped element within the valve;

a lever adapted to be located in the bathtub/shower accessible to a user thereof, the lever having a first position and a second position; and

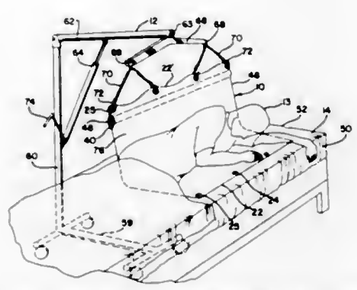
linkage connecting the lever and the handle, such that switching the lever from a first position to a second position causes the ball-shaped element to shift from a first position to a second position whereby said user can select the direction of water flow while water is flowing to said water drain line.

5,210,887

METHODS OF TURNING A BEDRIDDEN INVALID

Juanita Kershaw, 1515 Grace, Kankakee, Ill. 60901

Division of Ser. No. 749,918, Aug. 26, 1991, Pat. No. 5,155,874.
This application Jul. 7, 1992, Ser. No. 909,687
Int. Cl.[5] A61G *7/10*
U.S. Cl. 5—81.1 **4 Claims**



1. A method of turning a bedridden patient from a back rest position to a side rest position, the method comprising the steps of:

providing a bed, a turn sheet and a lift device having an arm extending to a free end, the lift device being of the type which provides an upward force,

the turn sheet including a pair of parallel side edges with a row of reinforced holes near each side edge, each side edge having a length greater than the length of the patient's torso;

laying the sheet on the bed so that the turn sheet side edges are substantially parallel to the side edges of the bed;

laying the patient in a back rest position on the turn sheet so that the patient's spinal column is substantially parallel to the turn sheet side edges, the turn sheet side edges extending from below the patient's hips to above the patient's shoulders:

connecting the free end of the arm of the lift device to the reinforced holes of the turn sheet near, one side edge of the turn sheet; and

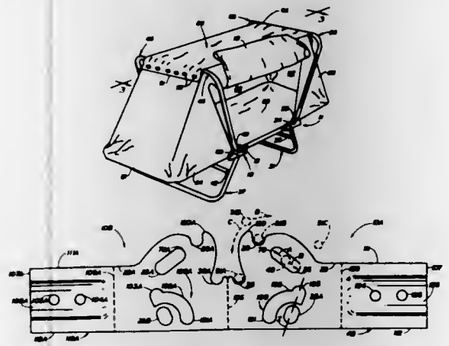
using the lift device to apply an upward lifting force near the side edge of the turn sheet to raise the side edge of the turn sheet to a height to turn the patient to the side rest position so that a portion of the turn sheet extends upwardly behind the patient's back toward the free end of the lift device arm when the patient is in the side rest position to support the patient's back in the side rest position while leaving the patient's arms and shoulders free for movement.

5,210,888

PORTABLE TENT—COT

Michael A. Canfield, 10412 N. 45th Pl., Phoenix, Ariz. 85028

Filed Jun. 25, 1992, Ser. No. 904,184
Int. Cl.[5] A47C *17/64*
U.S. Cl. 5—113 **2 Claims**



1. A bed including

(a) bedding means defining a surface for an individual to recline on;

(b) pliable tent means at least partially covering said bedding means;

(c) frame means for supporting said bedding means and tent means above the ground and including

(i) first (**38**) and second (**39**) spaced apart legs, each of said legs having an upper end and a lower ground contacting end,

(ii) a U-shaped upright tent support having first and second lower ends and supporting a portion of said tent means above and spaced apart from said bedding means,

(iii) a first hinge member connected to said upper end of said first leg and to said first lower end such that said tent support and said first leg can be pivoted with respect to said first hinge member, said first hinge member including

a first arcuate slot (**100, 100A**) extending through said hinge member,

a first pin (**121**) slidably carried in said slot for displacement along said slot when said first leg is moved through an arc from a first storage position to a second extended ground engaging position, said pin extending through and outwardly from said first hinge member and connected to said upper end of said first leg, an aperture (**25A**) extending through said hinge member,

a second pin (**40**) mounted for rotation in said aperture when said first leg is moved from said first position to said second position, spaced apart from said first pin, extending through and outwardly from said first hinge member, and connected to said upper end of said first leg.

5,210,889

MATTRESS SUPPORT

Rolf Wesemann, Stift 8, 3320 Salzgitter 31; Are Ahrens, Im Winkel 6, 3171 Hillerse, and Ruediger Baretti, Kaiserstrasse 54, 4830 Guetersloh, all of Fed. Rep. of Germany

Filed Feb. 21, 1992, Ser. No. 838,682
Int. Cl.[5] A47C *23/047, 31/12*
U.S. Cl. 5—236.1 **17 Claims**

1. A mattress support comprising:

lifting elements (**6**);

a forced parallel guide (**7, 8, 9**);

a kinematic coupling (**11, 15, 16**); and

a slatted frame for a bed, having individually mounted support slats (**1**) which are arranged transversely relative to a lying surface and together form a resting surface for a mattress, wherein

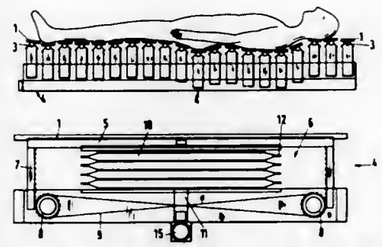
each support slat (**1**) rests centrally on only one lifting element (**6**);

at times when the resting surface is not loaded, each support slat (**1**) is in a position of equilibrium;

each support slat (**1**) is displaceable vertically from its position of equilibrium upward or downward within the forced parallel guide (**7, 8, 9**);

all the lifting element (**6**) are connected to one another via the kinematic coupling (**11, 15, 16**);

a) the lifting element (**6**) of each support slat (**1**) includes a self-supporting and upright bellows (**10**), having an air-receiving space which is constructed to be rigid in its cross-sectional contour and variable only with respect to its height and, in its effective length relative to the support slat (**1**), is proportional to an associated load;



b) the kinematic coupling (**11, 15, 16**) is a pneumatic coupling which connects all the lifting elements (**6**) to one another and which comprises an air distributor (**15, 16**) provided with an integrated damping (**17, 18, 19**), to which air distributor all the bellows (**10**) are connected via an air connection (**11**);

c) each support slat (**1**) rests directly on its associated bellows (**10**) via a support slat bearer (**5**), which bellows (**10**) is of slightly narrower construction than the support slat bearer (**5**); and

d) each support slat bearer (**5**) is guided in the forced parallel guide (**7, 8, 9**) which ensures its parallel displacement relative to itself.

5,210,890

MATTRESS FOUNDATION WITH SPRINGS AND FOAM ELEMENTS

John E. Hagglund, Newberg, Oreg., assignor to Tualatin Sleep Products, Tualatin, Oreg.

Filed Sep. 21, 1992, Ser. No. 949,034
Int. Cl.[5] A47C *27/20, 23/30*
U.S. Cl. 5—239 **11 Claims**

1. A mattress foundation having an outer periphery assembly comprising:

a substantially rigid lower frame assembly having lower peripheral members;

a substantially rigid upper frame assembly having upper peripheral members, said upper peripheral members overlying said lower frame peripheral members, said upper frame assembly having a plurality of cross-support members situated between the said upper peripheral members;

a resilient foam structure in supporting contact with said upper and lower peripheral members to provide resilient support for said upper peripheral members;

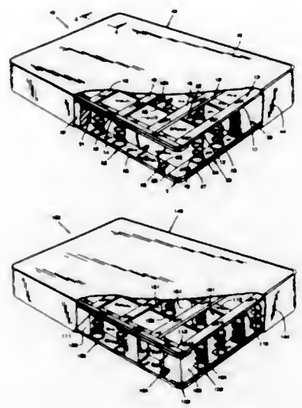
a plurality of springs in supporting contact with said upper and lower peripheral members to provide resilient support for said upper peripheral members;

the foam structure including an elongate piece of foam which extends substantially around said outer periphery

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to supportively engage the upper and lower peripheral members for substantially their entire length;

the springs having a predetermined configuration and spaced relationship relative to the upper and lower peripheral members, and said foam structure having slits



complementary to said configuration and relationship to permit the foam structure to substantially envelop the springs; and

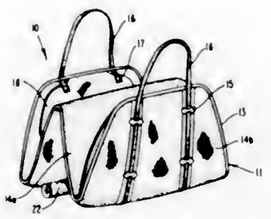
the springs including plural coil springs and plural torsion springs.

5,210,891

PORTABLE MATTRESS AND ACCESSORY KIT

Noni Avital, and Iko Avital, both of 30 Wingate St., Raanana, Israel

Filed Jan. 17, 1991, Ser. No. 642,442
Claims priority, application Israel, Jan. 22, 1990, 93116
Int. Cl.[5] A47G *9/06*
U.S. Cl. 5—420 **15 Claims**



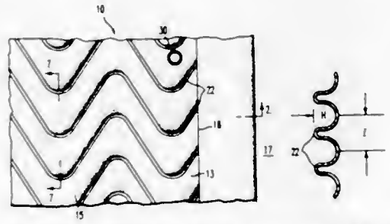
1. A portable foam mattress and accessory kit apparatus comprising a foam pad-like member capable of assuming a first travel shape and a second substantially planar shape, wherein the length of said member defined between the ends thereof varies between maximum and minimum dimensions when said member assumes a respective one of said planar and travel shapes, said pad-like member being contained within a flexible covering material substantially enclosed it therein, at least one storage means being attached to said covering material for storage of personal items, said covering material having attached thereto a strap for carrying said member when assuming said travel shape and retaining it therein, said carrying strap being provided as a continuous loop attached to said covering material by a set of guides through which it passes in sliding fashion, the overall length of said carrying strap loop being slightly greater than said maximum member length, such that when said member assumes said travel shape by folding on each of a plurality of axes transverse to its length, said carrying strap slides in relation thereto and provides an excess carrying strap loop length enabling said member to be carried as a shoulder bag, said pad-like member comfortably supporting a user in a reclined position when assuming said planar shape.

5,210,892

SCULPTURED, STRETCHABLE WATERBED MATTRESS WITH AESTHETIC APPEARANCE

John B. Jobenning, Los Angeles, and Charles P. Hall, Santa Rosa, both of Calif., assignors to Land and Sky Manufacturing, Inc., Lincoln, Nebr.

Continuation of Ser. No. 717,461, Jun. 24, 1991, Pat. No. 5,195,196, which is a continuation of Ser. No. 810,081, Dec. 17, 1985, Pat. No. 5,175,898, which is a continuation-in-part of Ser. No. 591,013, Mar. 19, 1984, Pat. No. 4,583,254. This application Sep. 15, 1992, Ser. No. 945,144
The portion of the term of this patent subsequent to Mar. 23, 2010, has been disclaimed.
Int. Cl.[5] A47C *27/08*
U.S. Cl. 5—451 **34 Claims**



1. A waterbed mattress having a polymeric top wall providing a sleeping surface, a bottom wall, and side walls, and first and second portions of the top wall being more stretchable than the remainder of the top wall, the shape of each portion of increased stretchability conforming generally to the human anatomy with one portion of increased stretchability on each side of the mattress, the portions of increased stretchability having a plurality of expandable folds formed therein so that the portions of increased stretchability stretch when a user lies on the mattress.

5,210,893

COUCH APPARATUS FOR MEDICINE

Yasuhiro Uosaki, and Takuhiro Osawa, both of Tochigi, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 4, 1991, Ser. No. 754,624
Claims priority, applicatioo Japan, Sep. 4, 1990, 2-236832
Int. Cl.[5] A61G *13/00, 13/02, 13/06*
U.S. Cl. 5—601 **10 Claims**

1. A couch apparatus for medical use, comprising:

a tabletop having a first end portion and a second end portion, wherein the second end portion is separated from the first end portion along a longitudinal axis;

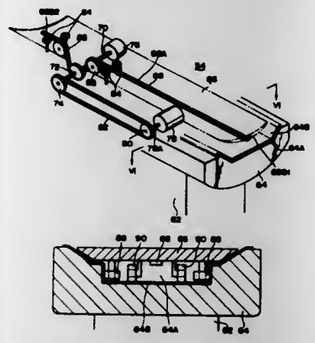
a base structure on which the tabletop is slidably mounted;

a belt means having a first end fixed to the first end portion of the tabletop and a second end fixed to the second end portion of the tabletop, wherein the belt means extends along the longitudinal axis and has a slack intermediate portion between the first end and the second end;

at least one pair of belt guide members attached to the base structure in positions for restricting motion of the belt means in directions perpendicular to the longitudinal axis as a drive pulley means translates the belt means;

a drive pulley means mounted on the base structure in engagement with said intermediate portion of the belt means; and

a driving means mounted on the base structure in engagement with the drive pulley means, for rotating the drive pulley means, thereby causing the drive pulley means to



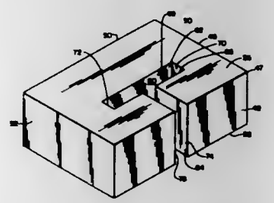
translate the belt means along the longitudinal axis relative to the base structure as said drive pulley means rotates.

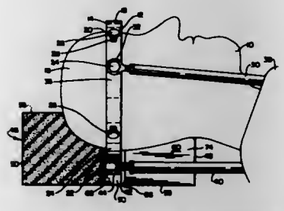
5,210,894

PILLOW FOR SUPPORTING THE HEAD OF A HALO WEARING USER

Trilby M. Minton, 132 Loxley Dr., Columbus, Ohio 43207

Filed Nov. 18, 1992, Ser. No. 978,352
Int. Cl.[5] A47G *9/00*
U.S. Cl. 5—637 **6 Claims**





1. A pillow for use by the user of a head immobilizing device known as a halo having a circular member and a plurality of longitudinally extending support struts comprising:

a unitary body of resilient material with a top surface and a bottom surface, having a T-shaped slot extending between said top and bottom surfaces thereof with the leg of the T-shaped slot being adapted to extend generally parallel with the longitudinal axis of the body of a user and defining an opening in a peripheral wall of said pillow;

the cross bar of T-shaped slot extending laterally to the longitudinal axis of the body of a user and being of a length and depth sufficient to freely accommodate the circular member of said device without putting undue pressure thereon;

the leg of said T-shaped slot being of a length and depth to freely accommodate a support strut of the device without putting undue pressure thereon; and

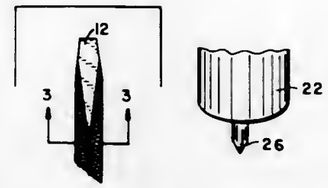
wherein the unslotted portion of said pillow bears against and supports the user's head whether the user is lying on his back or his side.

5,210,895

COMBINED SCREWDRIVER AND FILE

Harold L. Hull, 401 Canyon Way #43, Sparks, Nev. 89434, and Dominic A. Letizia, 719 Pat La., Carson City, Nev. 89701

Filed Mar. 2, 1992, Ser. No. 844,164
Int. Cl.[5] B25F *1/00*
U.S. Cl. 7—165 **2 Claims**



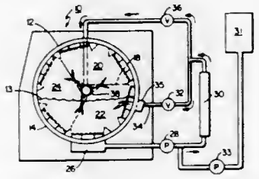
1. A combination screwdriver and file comprising; a handle, said handle having first and second ends, multiple removable shanks carried by said first end of said handle, said multiple removable shanks being configured on their free ends for mating insertion into a cavity in the head of a threaded fastener, said multiple removable shanks being configured on their handle mating ends for mating insertion into said first end of said handle, said multiple removable shanks being configured on their outer surfaces by a multiplicity of single cut teeth forming files of various shapes and sizes, said second end of said handle having a cavity, multiple bits, said cavity cooperating with said bits to releaseably hold said bits in a working relationship with said handle, whereby, said multiple removable shanks, said configurations on said free end of said shanks, said configurations on the outer surfaces of said shanks forming files of various sizes and shapes and said multiple bits, cooperate together to form a tool with multiple combinations of files, screwdrivers and bits.

5,210,896

CENTER SHAFT DYE INJECTION PROCESS

Daniel M. Hertig, and Grzegorz Osinski, both of Syracuse, N.Y., assignors to G. A. Braun, Inc., Syracuse, N.Y.

Division of Ser. No. 763,279, Sep. 20, 1991. This application Oct. 26, 1992, Ser. No. 967,684
Int. Cl.[5] D06B *5/24*
U.S. Cl. 8—158 **7 Claims**



1. In an apparatus for wet processing goods of the type having a compartmented perforated drum rotatably mounted in a liquid containing vessel, the method of introducing liquid dye materials to the processing apparatus which comprises:

injecting a first quantity of dye material into the liquid containing vessel through a wall thereof at points below the liquid level maintained in the vessel;

injecting a second quantity of dye material from both ends of the perforated rotatable drum into the liquid containing

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vessel at points above the liquid level along the axis of the drum; and

controlling the injection of said first and second quantities of dye material to achieve uniform treatment of goods in the wet processing apparatus in a minimum of time.

5,210,897

PULLING OVER AND TOE LASTING MACHINES

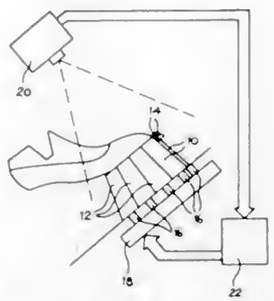
David C. Reedman, Wartnaby, and Frank C. Price, Leicester, both of England, assignors to DVSG Engineering und Patentverwaltungs GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 10, 1992, Ser. No. 833,359

Claims priority, application United Kingdom, Feb. 12, 1991, 9102926

Int. Cl.[5] A43D *21/00*

U.S. Cl. 12—7 5 Claims



1. Pulling over and toe lasting machine comprising

a last support, arranged at an operating locality of the machine, for supporting a shoe comprising a shoe upper on a last and an insole on the last bottom,

an array of pincers, comprising at least one pincer and two sets of side pincers, arranged in a generally U-shaped configuration about the last support, by which pincers the shoe upper of a shoe supported by the last support can be gripped in the region of the lasting margin thereof,

motor means, comprising individual n.c. motors one associated with each of the pincers, for effecting heightwise movement of the pincers, independently of one another, relative to the last support whereby a shoe upper gripped as aforesaid can be tensioned over its last,

optical means, including a plurality of linescan cameras each arranged to scan a selected topline portion region of the shoe upper on its last and to detect a boundary point between the upper and its last at the selected portion, each of said cameras serving to generate a signal representative of the actual boundary point detected thereby and thus of the actual position of each selected topline region portion in relation to the operating locality of the machine,

a memory in which a set of taught data representative of a desired position of each selected topline region portion is stored, and

processor means by which the signals generated by the cameras are compared with the stored set of taught data and, if, and to the extent that, any such signal has a value which does not equal that of the taught data with which it is being compared, a correction signal is generated by the processor means, in response to which correction signal at least one of the n.c. motors is actuated appropriately to bring the selected topline region portion associated with the signal the value of which does not equal that of the taught data into a position in which said signal equals that of the taught data and thus to bring the topline region of the shoe upper into a position as represented by the taught region.

5,210,898

WOODEN BROOM ASSEMBLY AND ADAPTER MEANS THEREFOR

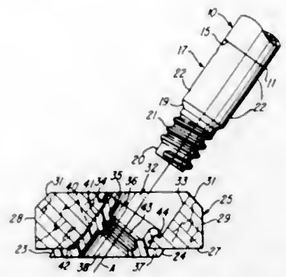
Thomas J. Carey, Urbana, Ohio, assignor to Vining Industries, Inc., Springfield, Ohio

Continuation of Ser. No. 392,437, Aug. 11, 1989, abandoned.

This application Aug. 12, 1991, Ser. No. 743,722

Int. Cl.[5] F16B *9/00*

U.S. Cl. 15—176.2 13 Claims



1. Apparatus useful for surface clean up, maintenance and other applications requiring the connection thereto of a handle for the manipulation thereof comprising:

an operating head formed of wood or other material having like properties mounting means for application to clean up, maintenance and similar procedures, said operating head having top and bottom surface portions respectively intercepted by the respective opposite ends of a throughbore said throughbore having a longitudinal axis which is inclined with respect to said surface portions and an upper portion of said throughbore is a counter bore of a slightly greater diameter than the remainder of said throughbore to thereby create a shoulder;

adapter means including a short tubular body portion which is press fit within and to a portion of the axial length of said throughbore, said adapter is inserted into said operating head from its said bottom surface portion,

said tubular body portion of said adapter means having a plurality of circularly spaced bars on its outer surface which are compressible and which create a pressured bearing relation to and lodge against those portions of a wall of said throughbore which are in bounding relation thereto;

said tubular portion having a first end which is capable of deformation and is inserted into said throughbore and which, when inserted into said throughbore, deforms to create a lip which draws down against said throughbore shoulder to prevent said adapter from translating away from said top portion of said operating head;

said tubular portion further having at its other end a flange extending about the circumference of said tubular body portion and angled at the same angle to said tubular body portion as said throughbore is to said operating head to prevent said tubular portion from further translating toward said top portion of said operating head, and which is drawn against said bottom portion by the creation of said lip in tight abutment to reinforce said operating head bottom portion;

said spaced bars, lip, and shoulder interacting to preclude axial and rotative movement of said adapter means relative to said operating head;

and the inner surface of said tubular body portion having means integral therewith for a quick and secure insertion therein and threaded attachment thereto including the upper surface of said lip which acts as a seat for one end of a handle to be used for the manipulation of said apparatus during the application thereof to its intended use.

5,210,899

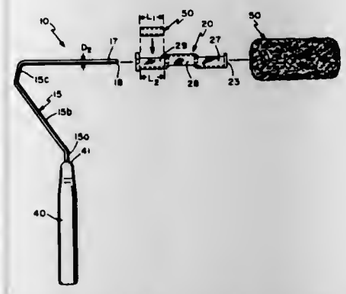
PAINT ROLLER BEARINGS

Edward J. Goldstein; Richard A. Linn, both of Minneapolis, and Wade H. Krinke, Marine on St. Croix, all of Minn., assignors to Padco, Inc., South East Minneapolis, Minn.

Filed Sep. 25, 1991, Ser. No. 765,304

Int. Cl.[5] B05C *17/02*

U.S. Cl. 15—230.11 24 Claims



1. A paint roller bearing for rotatably supporting a paint roller on the axle of a paint roller applicator comprising:

a one-piece bearing housing having a central axis, said bearing housing having a partial cylindrical chamber therein, said bearing housing having a central opening extending therethrough to permit said bearing housing to rotate freely around an axle of a paint roller frame, said bearing housing having an outer surface for engaging an interior surface of a paint roller to hold a paint roller on said bearing housing, said partial cylindrical chamber having a length L2 and an interior diameter D3, said bearing housing made from a rigid material with said bearing housing having exterior partial cylindrical surfaces for intermittently engaging the core of a paint roller, with each of said exterior partial cylindrical surfaces having substantially no corresponding diametrically opposite partial cylindrical surface for engaging the core of a paint roller; and

an axle-engaging member, said axle-engaging member located in said partial cylindrical chamber, said axle-engaging member having a length L1 and an exterior diameter D4, said axle-engaging member comprising a resilient material to permit frictional mounting of said axle-engaging member on the axle of a paint roller frame, so that the co-action between said partial cylindrical chamber and said axle-engaging member prevents said bearing housing from substantial lateral displacement but permits said bearing housing to rotate freely around the central axis extending through said bearing housing.

5,210,900

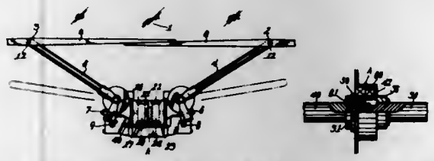
ROTARY WINDOW CLEANER

Shosaku Saito, Shizuoka, Japan, assignor to Saito Motors Co., Ltd., Shizuoka, Japan

Filed May 2, 1991, Ser. No. 694,938

Int. Cl.[5] B60S *1/44*

U.S. Cl. 15—250.22 4 Claims



1. A rotary window cleaner including a first motor having a rotary driving shaft, a first wiper connected to said driving shaft for conjoint rotation, a second motor having a rotary driving shaft, a second wiper connected to said driving shaft of of said second motor for conjoint rotation, said second wiper being proximate to said first wiper, a coupling mechanism having means for connecting said driving shaft of said first motor to said driving shaft of said second motor when said wipers are rotatively driven and means for disconnecting said driving shaft of said first motor from said driving shaft of said second motor when said wipers are stopped, whereby said coupling mechanism permits the generation of a lag angle in one of said wipers relative to the other when said wipers are driven and eliminates the lag angle when said wipers are stopped.

5,210,901

GAS CYLINDER CLEANSING APPARATUS

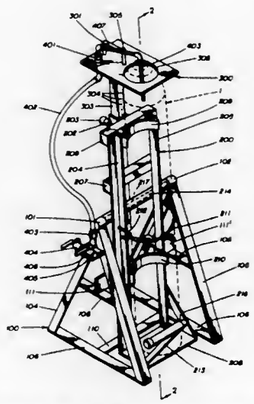
Jay Cooper, 313 Regeucey Dr., Deerpark, Tex. 77536

Continuation of Ser. No. 615,806, Nov. 19, 1990, abandoned.

This application Jan. 7, 1992, Ser. No. 818,480

Int. Cl.[5] A47L *5/38*

U.S. Cl. 15—302 2 Claims



1. A gas cylinder handling apparatus comprising;

(a) a first frame for mounting on a surface

(b) a second frame for holding a gas cylinder said second frame being rotatably mounted on to said first frame for rotation within said frame, said second frame having an upper and lower end,

(c) stop means to prevent rotation of said second frame beyond the vertical inverted position,

(d) a means to removable clasp a gas cylinder to said second frame

(e) a first horizontally extending planar plate at the lower end of said second frame on which to seat an upright cylinder,

(f) a second horizontally extending flat plate positioned at the upper end of said second frame, a cradle member attached to said second frame, a vertically adjustable member which is slidable within said cradle and adjustable along the vertical axis of said second frame, said second plate attached to said adjustable member and said second plate having an opening therein which is adapted to fit over and received therein the upper end of an upright gas cylinder, said member additionally comprising means to releasably lock said member and said second plate in selected vertical positions relative to said cradle and said second frame,

(g) a fluid inlet tube mounted to second plate and extending through said opening toward said first plate for extending into open upright gas cylinder, mounted in said second frame and engaged said opening of said second plate,

(h) a water/air dual valve means mounted on said first frame

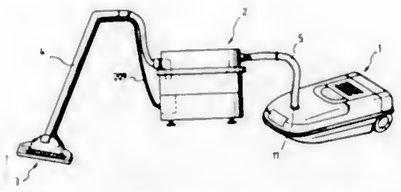
VOL 1150 ISS 3 MY 18 1993 UMI

(i) a flexible conduit fluidly connecting said water/air valve to said fluid inlet tube and
(j) a handle extending outwardly and upwardly from the first plate for manual rotation of said second frame.

5,210,902
VACUUM CLEANER

Young C. Lee; Seong B. Lee, and Deok K. Park, all of Seoul, Rep. of Korea, assignors to Goldstar, Co., Ltd., Seoul, Rep. of Korea

Filed May 29, 1991, Ser. No. 706,932
Claims priority, application Rep. of Korea, May 31, 1990, 8008/1990
Int. Cl.[5] A47L 5/36, 7/00
U.S. Cl. 15—321 16 Claims



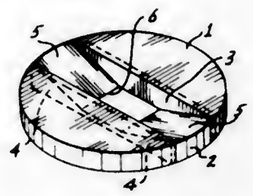
16. A vacuum cleaner comprising:
a cleaning head including a cleaning head body having front and rear walls, a top wall and opposite side walls, and having a cleaning head outlet providing contaminated liquid as a result of cleaning by the cleaning head;
a water extraction cleaning device including an extraction inlet for receiving contaminated liquid, a main chamber for collecting contaminated liquid, and an extraction outlet for providing dry air after cleaning of the contaminated liquid, and including a liquid detergent chamber for providing liquid detergent;
a dry suction cleaning device including a dry suction inlet, a motor generating air suction at the dry suction inlet, and a filter assembly for filtering air sucked into the dry suction inlet;
a first hose segment connected between the cleaning head output and the extraction inlet for transporting the contaminated liquid from the cleaning head to the extraction unit,
a second hose segment connected between the extraction outlet and the dry suction inlet for connecting the dry air from the extraction outlet of the water extraction cleaning device to the dry suction input of the dry suction cleaning device; and
a liquid detergent tube connected between the cleaning head and the liquid detergent chamber for providing liquid detergent to the cleaning head.

5,210,903
FURNITURE CASTER STOP AND PROCESS OF IMMOBILIZING A CASTER

Jerry L. Horning, 1540 NE. 76th St., Seattle, Wash. 98115

Filed Dec. 16, 1991, Ser. No. 808,144
Int. Cl.[5] E02C 3/00; B60B 33/00
U.S. Cl. 16—18 R 4 Claims

1. A furniture caster stop for immobilizing a caster on which an article of furniture is mounted, comprising a flat body having two spaced parallel upright walls forming an upwardly opening slot therebetween for receiving the wheel of a furniture-mounting caster with its axle extending transversely of said slot, and said slot between said walls having a width slightly greater than the axial thickness of such wheel, said slot having an aperture in its bottom between said walls for enabling the wheel of a caster received in said slot to engage and rest on the floor through said aperture, and said body having opposed ramps sloping oppositely upward from said aperture

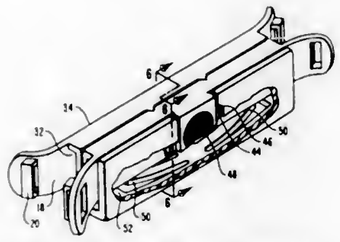


for engagement of either ramp by a caster wheel rolling from the floor out of said aperture.

5,210,904
INTERENGAGING HANDLE ASSEMBLY

Michael J. Pratt, Park City, Utah, assignor to Ogio International, Inc., Salt Lake City, Utah

Filed Aug. 2, 1991, Ser. No. 739,818
Int. Cl.[5] B65D 25/28
U.S. Cl. 16—111 R 10 Claims

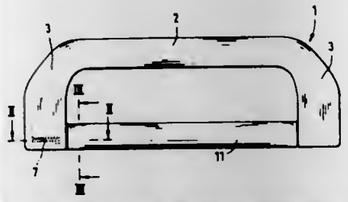


1. An interengaging handle assembly comprising:
(a) a first handle member having two side members and a longitudinal bore passing through the first handle member, the longitudinal bore being configured so as to receive a flexible connecting strap;
(b) a second handle member having a longitudinally disposed channel for cooperatively receiving the first handle member, the longitudinally disposed channel having channel side surfaces for opposing the side members of the first handle member, and a longitudinal bore passing through the second handle member;
(c) flange means formed on the first handle member and the second handle member for stabilizing a flexible connecting strap;
(d) an alignment element in one handle member and a mating alignment element in the other handle member;
(e) a recess formed in the wall member of the second handle member;
(f) a locking tab attached to the side member of the first handle member, the locking tab being configured so as to assume an engaged position in the recess when the handle members are fully engaged.

5,210,905
PIVOT CONTROL FOR HAND GRIP USEFUL FOR VEHICLES

Gunter Dietz, Wuppertal, and Klaus P. Kaiser, Wermelskirchen, both of Fed. Rep. of Germany, assignors to Gebr. Happich GmbH, Fed. Rep. of Germany

Filed Mar. 19, 1992, Ser. No. 854,300
Claims priority, application Fed. Rep. of Germany, Apr. 4, 1991, 4110822
Int. Cl.[5] E05B 3/00
U.S. Cl. 16—124 9 Claims



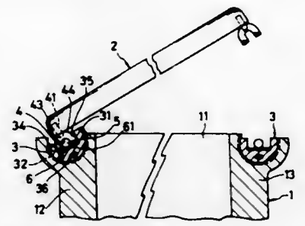
1. A pivotable hand grip for pivotable connection to a body, with return movement of the hand grip being braked, the hand grip comprising:
the grip comprising a grippable web and two spaced apart arms which are connected to the web and are moveable with the web, each arm having a free end away from the web, a bearing pin connected with the arm free end for moving with the arm free end as the grip is pivoted around the bearing pins as a pivot;
a bracket fastenable to the body, and the bearing pin also being connected with the bracket to pivot around the axis of the bearing pin with respect to the bracket as the grip is pivoted with the bearing pin around the axis of the bearing pin;
a return spring connected with the grip to bias the grip to return to a position of non-use when the grip arm is pivoted around the bearing pin to a position of use and the return spring being positioned to be tensioned as the grip is pivoted to the position of use;
a friction brake for preventing sudden movement of the grip to the position of non-use under the bias of the return spring by decelerating the turning movement of the grip, the brake comprising a molding of wear resistant material having a bore defined in it at a position to receive and the bore receiving an axial region of the bearing pin, the axial region of the bearing pin and the bore in the wear resistant molding being of respective diameters as to enable the bearing pin and the grip with it to pivot with respect to the molding while decelerating the return movement of the grip under the bias of the spring to prevent the grip from banging the body to which the bracket is attached as the grip returns to the position of non-use.

5,210,906
RELEASABLE DOUBLE-HINGE DEVICE FOR AN AUTOMOBILE CONSOLE BOX

Masahiro Aihara, and Hiroyuki Suzuki, both of Yokohama, Japan, assignors to Kato Hatsujo Kaisha, Ltd., Yokohama, Japan

Filed Aug. 28, 1991, Ser. No. 750,584
Claims priority, application Japan, Dec. 14, 1990, 2-410790
Int. Cl.[5] E05D 15/50
U.S. Cl. 16—232 3 Claims

1. A releasable double-hinge device for an automobile console box constituted by a box main body having at the top an opening and a box lid for removably covering the opening of the box main body, said device comprising:
two sets of an identical number of pivotal members rotatably arranged along lateral edges of the box main body;
two sets of the same number of connectors arranged at respective corresponding positions under and along lateral edges of the box lid, each connector having an inverted U-shaped engaging groove arranged for mating with the corresponding pivotal member;
a set of shafts each having a circular cross section and running through centers of rotation of a pair of pivotal members arranged on the opposite lateral edges of the box main body to rigidly connect them;
each of the pairs of said pivotal members and connectors of the releasable double-hinge device arranged to mate with each other and provided with a release-connect mechanism for releasably connecting the connector to the corresponding pivotal member;



each of said shafts being releasably received by the U-shaped engaging grooves of the related connectors when the pivotal member is held in an upright stationary position so that the box lid may be swung open around a lateral edge of the box lid when the other lateral edge is moved away from the corresponding edge of the box main body by releasing the release-connect mechanisms arranged along said edge and closed as said other edge of the box lid is brought into contact with the corresponding edge of the box main body.

5,210,907
HINGE HAVING QUICKLY DETACHABLE PARTS

Hiroaki Toyama, Tokyo, Japan, assignor to Kabushiki Kaisha Murakoshi Seiko, Tokyo, Japan

PCT No. PCT/JP90/01671, § 371 Date Sep. 10, 1991, § 102(e) Date Sep. 10, 1991, PCT Pub. No. WO91/10031, PCT Pub. Date Jul. 11, 1991
PCT Filed Dec. 21, 1990, Ser. No. 761,367
Claims priority, application Japan, Dec. 25, 1989, 1-336068; Sep. 1, 1990, 2-232001
Int. Cl.[5] E05D 7/10, 11/00
U.S. Cl. 16—258 25 Claims

1. A hinge having quickly detachable parts, comprising:
a base for mounting to a side panel of an article of furniture;
a base body of predetermined longitudinal extent and of predetermined breadth formed in said base and projecting upwardly therefrom;
a hinge main body;
said hinge main body including a cup part for mounting to a door of an article of furniture and a hinge body part for detachable engagement with said base body, said cup part and said hinge body part being hingedly interconnected to one another;
a connecting means for releasably interconnecting said hinge body part and said base body;
said connecting means including a connector and a clip, said connector and clip being disposed in sliding engagement to one another;
said connector including a top wall and a pair of parallel, transversely spaced apart side walls, said side walls having a first pair of elongate, longitudinally extending guide slots formed in a leading end thereof;
said side walls of said connector overlying side walls of said base body when the hinge is assembled;
said clip having a pair of parallel, transversely spaced apart

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connecting pieces, and each of said connecting pieces having a bore formed in its leading end;

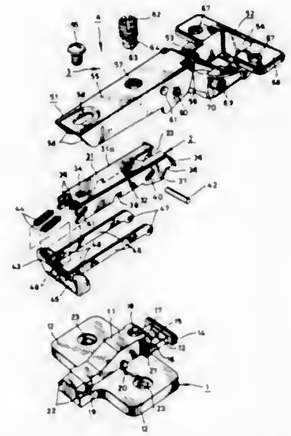
said clip further including a transversely disposed operating member that interconnects the trailing ends of said connecting pieces;

a transverse hooking bar having its opposite ends slidably disposed in said first pair of elongate guide slots, said opposite ends also being received and retained by said bores formed in the respective leading ends of said connecting pieces;

a bias means for urging said clip and hence said transverse hooking bar rearwardly relative to said connector so that said transverse hooking bar is positioned in a trailing end of said first pair of guide slots when said bias means is in repose;

a stopper formed on said base body, said stopper being provided in the form of an upwardly projecting protuberance positioned near the leading end of the base body, said protuberance defining an overhang means for releasably capturing said transverse hooking bar when said hinge is assembled and when said bias means is in repose;

said overhang means defining a recess thereunder for receiving said transverse hooking bar when the hinge is assembled and when the bias means is in repose;



said overhang means including a downwardly and forwardly inclined upper surface that constrains said transverse hooking bar and hence said clip to displace forwardly with respect to said connector when said is initially pressed against said base body;

said overhang means further including a downwardly and rearwardly inclined lower surface that is positioned below said downwardly and forwardly inclined upper surface so that said transverse hooking bar slidably engages said downwardly and rearwardly inclined lower surface when a continuation of said initial pressing is accomplished, said transverse hooking bar being guided against said downward and rearward sloping lower surface into said recess under the bias of said bias means;

whereby pressing said connector onto said base body results in engagement of said stopper by said transverse hooking bar; and

whereby said transverse hooking bar is released from said engagement by pressing forwardly on said clip to overcome the bias of said bias means and to displace said transverse hooking bar forwardly so that it is released from said recess.

5,210,908

WINDOW STAY

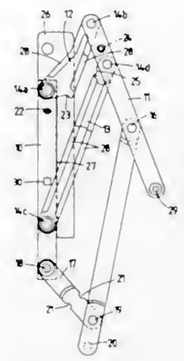
Albert G. Bucher, Masterton, New Zealand, assignor to Interlock Industries Limited, Miramar, New Zealand

Filed Apr. 9, 1992, Ser. No. 865,486

Claims priority, application Netherlands, Apr. 9, 1991, 237761

Int. Cl.[5] E05D *11/00, 15/00*

U.S. Cl. 16—368 **14 Claims**



1. A window stay comprising:

a frame mounting plate;

a sash mounting plate;

a first arm pivotally coupled between the frame and sash mounting plates;

a second arm, longer than said first arm, pivotally coupled between the frame and sash mounting plates;

a third am pivotally coupled to the sash mounting plate such that said second arm is pivotally coupled to the sash mounting plate between said first arm and said third arm; and

a fourth arm pivotally coupled to both said frame mounting plate and said third arm.

5,210,909

PROCESS FOR OPTIMIZING YARN QUALITY

Sergej Toedtli, Wollerau, Switzerland, assignor to Siegfried Peyer AG, Wollerau, Switzerland

PCT No. PCT/CH91/00096, § 371 Date Dec. 20, 1991, § 102(e) Date Dec. 20, 1991, PCT Pub. No. WO91/16480, PCT Pub. Date Oct. 31, 1991

PCT Filed Apr. 23, 1991, Ser. No. 784,420

Claims priority, application Switzerland, Apr. 25, 1990, 01393/90 2

Int. Cl.[5] D01G *13/00, 37/00*

U.S. Cl. 19—145.5 **17 Claims**

1. A method for automatically mixing fibers from bales of fibers of varying qualities and for optimizing and keeping constant the fiber quality in the mixed fibers comprising the steps of

(a) moving a series of bales (1*a*, . . . 1*k*, . . . 1*n*) of different qualities of textile fibers into a conveyance path (3) of a fiber removal member (4) of a bale fiber-removal device (2),

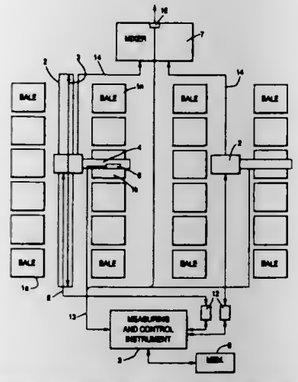
(b) selectively removing fibers from the bales with a removal member (4);

(c) automatically removing a fiber sample from each bale (1*k*) from which fibers have been removed by the removal member (4) and automatically analyzing the sample in a measuring and control instrument (5) to obtain analytical values representative of fiber quality,

(d) continuously comparing the analytical values measured in (c) with preselected values by a program in the measuring and control instrument (5),

(e) mixing the fibers removed from the selected bales; and

(f) establishing and maintaining mixing values in accordance with the comparison measurements continuously carried



out in step (d) by instructing the bale-removing device (2) to remove determined quantities of textile fiber material from selected bales (1*a*, . . . 1*k*, . . . 1*n*) of different qualities.

5,210,910

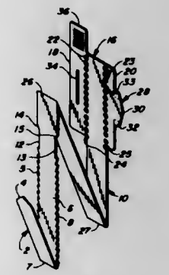
BUNDLING STRAP EMPLOYING FLAT BLANK WITH ONE END HAVING SIDE TOOTH AND OTHER END FOLDABLE INTO SLOT WITH TOOTH-ENGAGING THROUGH HOLE

John W. Hellwig, 2838 Woolsey St., Berkeley, Calif. 94705

Filed Jul. 23, 1991, Ser. No. 734,472

Int. Cl.[5] B65D *63/10*

U.S. Cl. 24—17 A **20 Claims**



1. A bundling strap for bundling various objects, including newspapers, comprising:

an elongated flat member having opposite insertion and grasping ends, a pair of opposed flat sides, and a pair of opposite edges, said flat sides being between said opposite edges,

at least one tooth on at least one of said edges of said flat member at said insertion end thereof;

said grasping end of said elongated flat member comprising a portion having a pair of opposite edges, said portion being widened with respect to said insertion end so as to form a widened portion, said widened portion having at least one bendable flap on one of said edges thereof,

said grasping end of said elongated flat member having at least one through hole, said through hole being sized so that said tooth can be inserted therein,

retaining means on said widened portion of said flat member for retaining said widened portion of said flat member in a slot configuration when said bendable flap has been folded so that said widened portion has said slot configuration,

whereby said bundling strap can be stamped from a flat blank and said grasping end thereof can be folded into a retaining slot without the need for the use of plastic material or an expensive molding process, thereby enabling said bundling strap to be made of cardboard and to be made economically enough to be disposable.

5,210,911

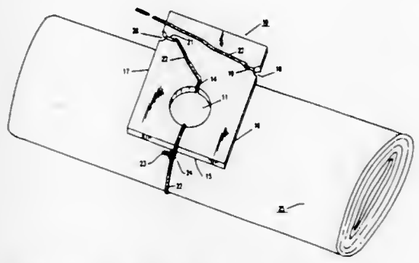
WRAPPING DEVICE

Douglas T. Brown; David D. Brown, both of East Brunswick, and Virginia M. Brown, Irvington, all of N.J., assignors to Zel Products Inc., East Brunswick, N.J.

Filed Jul. 21, 1992, Ser. No. 918,629

Int. Cl.[5] B65D *63/16*

U.S. Cl. 24—18 **4 Claims**



1. A wrapping device, comprising:

a plate having opposed major surfaces, a hole through said major surfaces, a first edge adjacent said hole, and second and third opposed edges,

said second and third edges being approximately perpendicular to said first edge,

said second and third edges each having a funnel-like string-guiding recess therein,

first, second and third string-receiving slits communicating with respective ones of said hole and said recesses, said second and third slits being substantially collinear and approximately perpendicular to said first string-receiving slit,

said string-receiving slits being arranged in a generally triangular configuration with respect to each other; and

string means having one end secured to said plate adjacent said first edge and said hole,

the widths of said slits being less than the diameter of said string, said that portions of said string remote from said one end thereof may be secured to said plate by wedging said portions into said slits.

5,210,912

COUPLING MEMBER AND CLEAT

Heiner J. Hoefkes, 4218 Melia Drive, Mississauga, Ontario, Canada L5C 4J5

Filed Jun. 9, 1992, Ser. No. 895,653

Int. Cl.[5] A44B *11/00*

U.S. Cl. 24—131 R **5 Claims**

1. Rope coupling member, comprising,

a curved rod-like member defining a median plane

when viewed in such median plane having an upper first extent extending laterally between left and right,

the rod, at each end of said upward extent curving downwardly to form convex outward first bight,

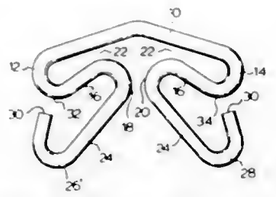
second rod extents from the lower portion of said first bights extending toward each other and at their proximate ends curved to form convex inward second bights,

said respective second bights being laterally spaced for

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upward entrance of a rope in a direction which is lateral with respect to said rope,

said first and second rod extents being spaced to allow entrance of a rope into either of said first bights in a direction which is sideways with respect to said rope,



the rod extents leading to said second bights being spaced to allow entrance of a rope into either of said second bights in a direction sideways with respect to said rope,

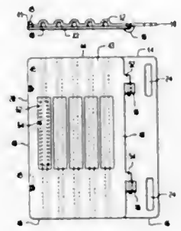
said upper first extent sloping upwardly toward the middle and each said second extents sloping upwardly between said first bight and said second bight.

5,210,913

INVASIVE LINE SEPARATOR

Deborah K. Clark, Palm Bay, Fla., assignor to 2-RN Corporation

Filed Nov. 12, 1991, Ser. No. 791,585
Int. Cl.[5] A44B *21/00*; F16L *3/00*
U.S. Cl. 24—518 **10 Claims**



1. A device for organizing and separating a plurality of sections of patient treatment tubing relative to a patient and the patient's surroundings, a respective section of patient treatment tubing, comprising:

a first plate having a first, generally flat surface in which are formed a plurality of longitudinal channels that extend between first and second ends of said first plate in a generally linear parallel arrangement and are spaced apart from one another by generally flat surfaced longitudinal land areas of said first plate therebetween, said longitudinal channels being sized and configured to receive respective sections of patient treatment tubing, so that when sections of tubing are placed within said longitudinal channels, said sections of tubing lie beneath said first surface of said first plate and are retained thereby in a generally longitudinal parallel arrangement; and

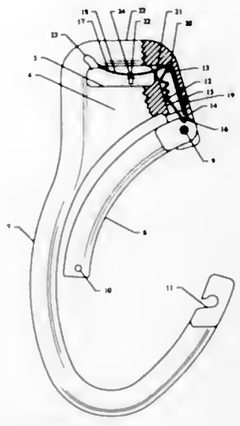
a second plate having a first generally flat surface and being fixedly engageable with said first plate so that the first generally flat surface of said second plate, when brought into face-to-face abutment with the generally flat surfaced longitudinal land areas of the first surface of said first plate, provides a cover for said channels of said first plate between said generally flat surfaced longitudinal land areas of said first surface of said first plate, without effectively constricting sections of tubing placed in the longitudinal channels of said first plate, and maintaining said sections of tubing spaced apart from one another to prevent tangling of said tubes.

5,210,914

AUTOMATICALLY CLOSING CARABINER

Robert W. Katsma, 615 Scenic View Dr., College Place, Wash. 99324

Filed Apr. 30, 1992, Ser. No. 876,960
Int. Cl.[5] A63B *29/00*
U.S. Cl. 24—573.5 **18 Claims**



1. A carabiner comprising:

a generally C-shaped body,

a gate hinged at one end thereof to one end of said body, so as to be movable between open and closed positions, and said gate having an engagement means at its other end for engaging the second end of said body, to form a closed loop,

a biasing means for biasing said gate and said body away from a partially open position, toward either a fully open or a fully closed position, and

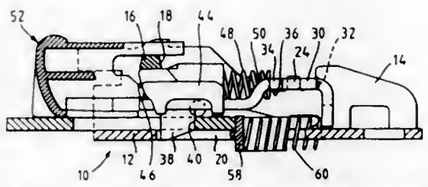
a load-activated gate-closing means to move said gate and said body from an open position toward a closed position a sufficient distance so that said biasing means reverses the direction of bias of said gate so as to bias said gate toward a fully closed position.

5,210,915

SEAT BELT BUCKLE

Ron Clarke, Dundonald, Ireland, assignor to European Components Corporation, United Kingdom

Continuation-in-part of Ser. No. 687,890, Sep. 3, 1991, abandoned. This application Sep. 29, 1992, Ser. No. 954,535
Claims priority, application United Kingdom, Nov. 6, 1989, 8925036; PCT Int'l Appl., Nov. 2, 1990, PCT/GB90/01681
Int. Cl.[5] A44B *11/26*
U.S. Cl. 24—641 **5 Claims**



1. In a seat belt buckle adapted to releasably engage a latch plate having an aperture therein, said buckle comprising a rigid frame including a base having an opening therein, upstanding side walls adapted to guide the latch plate longitudinally of the

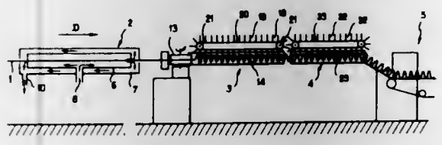
frame, upper edges of said side walls, a bar extending transversely of the frame between said side walls, said bar being spaced above the base, a locking member pivotally mounted on the frame and pivotal between a lower latched position and an upper unlatched position, a downwardly projecting locking element on said locking member engageable in said opening in the latch plate effective to retain the latch plate in place and passing into said opening, the locking element, in the lower latching position of the locking member, having its forward edge spaced from the rearward edge of said opening by a given distance under normal conditions, a slider slidable longitudinally of the locking member between a first position in which it is located under said bar, to retain the locking member in the lower latched position and a second position in which it is resiliently engaged against the rear of the bar to retain the locking member in its upper unlatched position, a push button positioned to push the slider from its first position to its second position, a slider spring positioned to urge the slider towards its first position and, a pair of wings extending laterally from said locking member and engaging in said side walls to pivotally and resiliently mount the locking member for movement between its upper and lower positions said wings being capable of elastic flexing, upon axial loading of said locking member by said latch plate, the improvement consisting of abutments on said rigid frame, and a pair of arms extending laterally from said member, said a pair of arms engaging, at least in the lower position of the latching member, said abutments on said rigid frame to prevent flexing of said wings beyond their elastic limit, and said pair of arms having their forward edges spaced from their associated abutment by a spacing less than said given distance, whereby the load bearing capacity of said pair of arms and their associated abutment are enhanced by engagement of the forward edge of the locking element with the rearward edge of the opening.

5,210,916

MACHINE FOR CRIMPING YARNS WITH POSITIVE DRIVING OF THE YARNS

Robert Enderlin, Morschwiller le Bas, France, assignor to Superba, Mulhouse, France

Filed Sep. 15, 1992, Ser. No. 944,992
Claims priority, application France, Sep. 18, 1991, 1 11488
Int. Cl.[5] D02G *1/14*
U.S. Cl. 28—278 **10 Claims**



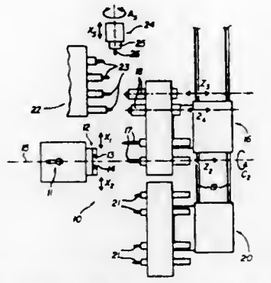
1. Machine for crimping yarn comprising an elongate chamber (14) having, at one end, an opening (15) for introducing yarn (1) to be crimped and at another end, an opening (16) for exiting crimped yarn, means for subjecting the yarn to an axial compression directed in an opposite direction to a direction of progression of the yarn, wherein one of the walls (17) of the chamber (14) includes an elongate opening (18) parallel to a central axis of the chamber, fingers (19) uniformly distributed along and through the opening (18), and means (20) for moving the fingers (19) so as to move the crimped yarn positively towards the exit opening (16) of the chamber (14).

5,210,917

MULTIPLE STATION MACHINE FOR BAR MACHINING

Pierre-Louis Piguet, La Chaux-de-Fonds, and Hubert Rossetti, Les Geneveys-sur-Coffrane, both of Switzerland, assignors to Esco S.A., Switzerland

PCT No. PCT/CH91/00069, § 371 Date Nov. 20, 1991, § 102(e) Date Nov. 20, 1991, PCT Pub. No. WO91/14534, PCT Pub. Date Oct. 3, 1991
PCT Filed Mar. 21, 1991, Ser. No. 776,285
Claims priority, application France, Mar. 26, 1990, 90 03992
Int. Cl.[5] B23B *15/00*
U.S. Cl. 29—36 **9 Claims**



1. A metal-working machine for machining a metal part comprising:

a first machining unit, defining a longitudinal first axis (15), comprising a machining head and means for holding, locating and axially displacing a part to be machined,

a principal turret equipped with at least one front machining station for machining a front surface of a said part to be machined, and

a second machining unit for machining a rear surface of a said part to be machined,

wherein said at least one front machining station is located opposite said machine head (12) and said principal turret (16) is a revolving lathe-type turret, revolving around a second axis lying parallel to said first axis (15), and further comprises at least two receiving stations (18) movable in a direction parallel to said first axis, for receiving, holding and transferring a said part machined by at least one of said first machining unit and said at least one front machining station, and

said second machining unit (22) is located opposite said principle turret and comprising a rear machining station (23) defining a third axis lying parallel to said first axis whereby a further said part to be machined can be located in said first machining unit (11, 12, 13, 14) and machined by at least one of said first machining unit (11, 12, 13, 14) and said at least one front machining station (17, 21) while a rear surface of a first said part to be machined, held at one of said receiving stations can be simultaneously machined by said second machining unit (22).

5,210,918

PNEUMATIC SLIDE HAMMER

Walter E. Wozniak, 18606 Oakwood Dr., and Terry C. Ernst, 16349 Stewart Rd., both of Prairieville, La. 70769

Filed Oct. 29, 1991, Ser. No. 784,554
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—254 **6 Claims**

1. A pneumatic slide hammer for removing a plug from a tube comprising:

a. a housing means for connection to said plug,

b. a sliding hammer means slidably contained in said housing means for impacting against said housing means to remove said plug from said structure,

c. an air supply means connected to said housing means for providing air under superatmospheric pressure to said

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housing means to slide said sliding hammer means to impact against said housing means,

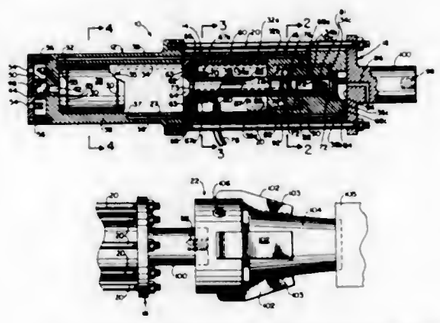
d. a generally cylindrical slidable valve means contained in said housing means for controlling the flow of air under superatmospheric pressure to slide said sliding hammer means in said housing means, said housing means including:

i. a hammer housing means for slidably receiving said sliding hammer means, said hammer housing means having a two ended first cylindrical air chamber means having a base means at one end for receiving the impact from said sliding hammer means and a wall means located at the other end of said first cylindrical air chamber against which said sliding hammer means slides after impacting said base means, said wall means having air passage means therein, said base means having check valve means to exhaust air from said hammer housing means to the atmosphere as said sliding hammer is sliding toward impact with said base means,

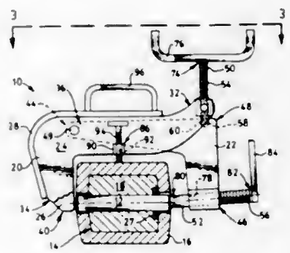
ii. a first intermediate housing means connected to said hammer housing means in axial alignment therewith for slidably receiving said slidable valve means, said air supply means being connected to said first intermediate housing means to supply air under superatmospheric pressure to said first intermediate housing means, said first intermediate housing means containing second cylindrical air chamber means for receiving superatmospheric air from said air supply means and supplying air under superatmospheric pressure to said first cylindrical chamber means through a slotted flanged cylinder means and said air passage means, when said slidable valve means slides to a selected position, to slide said sliding hammer means within said first cylindrical chamber means to impact against said base means,

iii. a second intermediate housing means connected to said first intermediate housing means in axial alignment therewith for slidably receiving said slidable valve means, said second intermediate housing means having first air channel means for connecting said second cylindrical air chamber means to a third generally cylindrical chamber means in said second intermediate housing means and conveying superatmospheric air from said second cylindrical air chamber means to said third generally cylindrical chamber means, said second cylindrical air chamber means having located therein said slotted flanged cylinder means connected to said wall means for receipt of said sliding valve means, said second intermediate housing means having second air channel means connecting said first generally cylindrical air chamber means to said third generally cylindrical chamber means for conveying superatmospheric air from said third generally cylindrical chamber means to said first cylindrical air chamber means between said base means and said sliding hammer means to slide said sliding hammer means from said base means to said wall means, said second intermediate housing means having third air channel means connecting said first generally cylindrical air chamber means to a fourth cylindrical air chamber means locate in said second intermediate housing means for receiving superatmospheric air from said first cylindrical air chamber means to slide said sliding valve means away from said wall means to permit air in said first air chamber means to flow through said wall means into said first generally cylindrical air chamber means to slide said sliding hammer means toward said base means into impact with said base means, said second intermediate housing means having fourth air channel means connecting said first cylindrical air chamber means to said fourth cylindrical air chamber means to slide said slidable valve means toward said wall means to block the flow of superatmospheric air from said second cylindrical air chamber means through said wall means into said first air chamber means, and

iv. a flange means connected to said second intermediate housing means for connection to said plug to be removed from said tube.



5,210,919
TOOL ASSEMBLY
James A. Garman, Eureka, Ill., assignor to Caterpillar Inc., Peoria, Ill.
Filed Apr. 27, 1992, Ser. No. 874,147
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—257 **13 Claims**



1. A tool assembly for installing and removing a replaceable retaining pin in a joint between a plurality of elements, said tool assembly comprising:

a first lever member having first and second spaced apart walls and a connecting plate, each of said walls having first and second end portions and an intermediate portion, said connecting plate being connected to said walls to maintain a predetermined space therebetween;

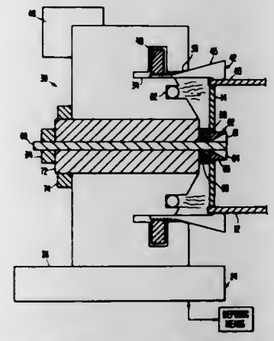
a second lever member having first and second end portions and an intermediate portion, said first end portion being positioned within said space and pivotably connected to the intermediate portions of said first and second walls;

a first screw member having a threaded portion threadably connected to said first lever member at said first end portions of said first and second walls;

a second screw member having a threaded portion threadably connected to said second end portion of said second lever member; and

a handle connected to said connecting plate.

5,210,920
APPARATUS AND METHOD FOR PRECISION ASSEMBLY OF PHOTORECEPTOR DRUMS
Richard J. Manzolati, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Aug. 29, 1991, Ser. No. 751,904
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—281.5 **20 Claims**



1. An apparatus for precision assembly of a drum, such as a photoreceptor drum, wherein the drum to be assembled has a predetermined axial length and includes a hollow tube and a first end bell of corresponding shape to be concentrically mounted on a first end of the hollow tube, the apparatus comprising:

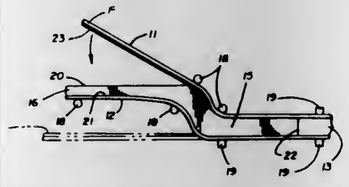
first gripping means for truing and holding the outer peripheral surface of said first end of the hollow tube;

means for locating a reference location representing an extreme distal end of the drum to be assembled opposite said first end of the hollow tube;

first supporting means cooperating with said first gripping means for supporting the first end bell concentric with said first end of the hollow tube; and

first positioning means cooperating with said first supporting means and said locating means for selectively positioning the first end bell supported by said first supporting means at said predetermined axial length from said reference location.

5,210,921
METHOD OF EXTRUDED ALUMINUM CONTOURED BEAM FABRICATION
Howard Boober, 1871 State Rte. 44, Randolph, Ohio 44265
Filed Jul. 13, 1992, Ser. No. 912,248
Int. Cl.[5] B21K *21/16*; B23P *17/00, 17/04*; B23K *1/20*
U.S. Cl. 29—401.1 **1 Claim**



1. A method of fabricating a contoured extruded aluminum I-beam having a contiguous upper and lower cord with an integral web therebetween from an extruded aluminum I-beam having a top and bottom cord and a beam web portion therebetween, comprising the steps of:

a. removing a portion of the beam web portion from the extruded aluminum I-beam inwardly from its distal end, thereby freeing said top and bottom cords, and leaving a remaining portion of the beam web portion abutting said top and bottom cords,

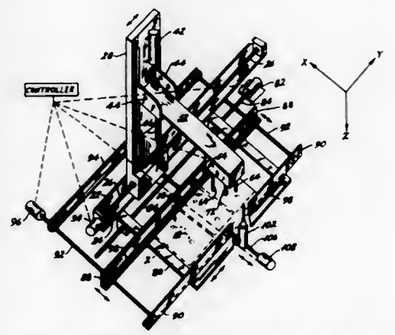
b. bending one of said top and bottom cords away from the other of said top and bottom cords,

c. positioning a contoured offset replacement web portion having a tapered end portion and a web abutting portion between said top and bottom cords, such that the web abutting portion is abutted against an end of the remaining portion of the beam web portion,

d. removably securing said top and bottom cords, said contoured offset replacement web portion, and the remaining portion of the beam web portion within a bending jig, said bending jig having movable beam engagement points and fixed beam engagement points,

e. bending said free top and bottom cords within said bending jig against said contoured offset replacement web portion and continuously welding said free top and bottom cords to said contoured offset replacement web portion.

5,210,922
ACQUIRING AND MAINTAINING SUPPORT FOR AND REGISTRATION WITH EACH BOARD DURING DEPANELING AND TRANSFERRING OF EACH LIBERATED BOARD TO A SUBSEQUENT STATION
D. Patrick Carr, Longmont, Colo., assignor to Cencorp, Inc., Longmont, Colo.
Filed Dec. 6, 1991, Ser. No. 802,819
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—426.3 **24 Claims**



1. In a method of handling a panel having an array of substrates or boards interconnected with said panel so as to constitute a multi-board panel, and comprising the steps of liberating at elast one board from said panel and transferring said board to a subsequent station, the improvement comprising the steps of:

providing a transfer arm;

registering said transfer arm with said board;

supporting said board by said transfer arm as said board is liberated from said panel; and

retaining registration between said transfer arm and said board during and after said liberating of said board from said panel.

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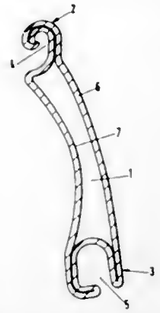
5,210,923
METHOD FOR ATTACHING TABS TO ELECTRIC WIRE ENDS
Katsuhisa Mori, Osaka, and Hideo Miyata, Neyagawashi, both of Japan, assignors to Nichifu Terminal Manufacture Co., Ltd., Osaka, Japan
Division of Ser. No. 633,533, Dec. 27, 1990, Pat. No. 5,092,030. This application Nov. 15, 1991, Ser. No. 793,078
Claims priority, application Japan, Dec. 29, 1989, 1-341997
Int. Cl.[5] B23P 11/02
U.S. Cl. 29—453 4 Claims



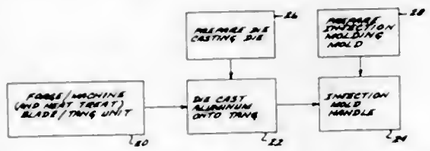
1. A method for attaching a wire-identifying tab to an end portion of an electric wire, the tab having a marking portion (3) to which an identification mark (4) is applied and being of a cylindrical shape having a slit (2) extending axially along a fully length of the tab, the method comprising the steps of: mounting the wire-identifying tab (1) onto upper portions of a pair of thin rigid sheets (11) disposed in parallel and substantially in contact with each other at said upper portions by sliding the tab along the slit from one end onto the upper portions so that opposite surfaces of the upper portions are gripped together by the slit after the tab is completely inserted to the sheets (11) from their one ends and in parallel with the upper portions; subsequently forcing the end of the electric wire (K) into the wire-identifying tab between the upper portions of the sheets in a direction perpendicular to the tab (1) while the upper portions of the pair of the rigid sheets (11) are relatively separated from each other so as to increase the width of the slit (2) of the tab; and finally pulling the rigid sheets (11) away from the wire-identifying tab (1) so as to disengage the sheets (11) from the tab (1), thereby securing an outer peripheral surface of the end of the electric wire in the wire-identifying tab (1).

5,210,924
METHOD FOR THE MANUFACTURE OF A ROLLER SHUTTER SLAT
Helmuth Schneider, Grevenbroich, Fed. Rep. of Germany, assignor to Vereinigte Aluminium Werke AG, Bonn, Fed. Rep. of Germany
Division of Ser. No. 662,932, Mar. 1, 1991. This application Feb. 28, 1992, Ser. No. 843,382
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1990, 4007777; Nov. 15, 1990, 4036410
Int. Cl.[5] B21D 35/00
U.S. Cl. 29—469.5 9 Claims

1. A method for manufacturing a dimensionally stable roller shutter slat from an aluminum strip having a plastic coating along one of its sides, comprising
roll forming said aluminum strip into a generally rod-shaped structure having a hollow section with said plastic coating facing said hollow section, and upper and lower connecting areas wherein said aluminum strip is arranged in a double layer with a double layer of said plastic coating between individual layers of said double layer of aluminum strip, and
bonding said individual layers of said double layer of aluminum strip in at least one of said upper and lower connecting areas to each other by heating said plastic coating so as to form a consolidated plastic layer.

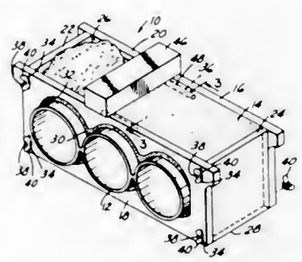


5,210,925
PROCESS FOR MANUFACTURING A KNIFE
Mark Morgulis, San Diego, Calif., assignor to Buck Knives, Inc., El Cajon, Calif.
Filed Feb. 21, 1992, Ser. No. 841,972
Int. Cl.[5] B22D 11/126
U.S. Cl. 29—527.4 20 Claims



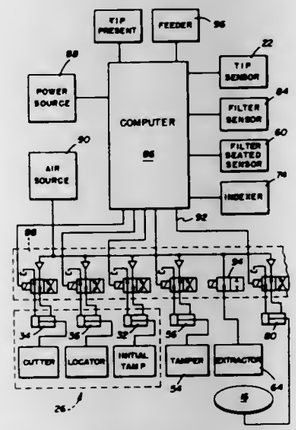
1. A process of manufacturing a knife, comprising the steps of:
providing a knife blade with an attached tang;
casting metal onto at least a portion of the tang; and
molding a nonmetallic material overlying at least a portion of the tang.

5,210,926
METHOD FOR FIXTURING A WORKPIECE
Orrin A. Newton, Northville, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Mar. 9, 1992, Ser. No. 848,560
Int. Cl.[5] B25B 1/00
U.S. Cl. 29—559 19 Claims



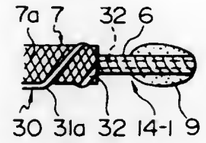
1. A method for manufacturing a machined workpiece comprising the steps of:
providing a core box with a locator surface and at least a first mixture receiving opening therein;
positioning a workpiece against the locator surface in the core box;
placing an uncured curable mixture in the core box through the first mixture receiving opening around the workpiece;
curing the mixture around the workpiece to form a workholder for securing the workpiece;
positioning the workholder relative to a machining apparatus
machining the workpiece; and
applying mechanical forces to the workholder to remove the workholder from the machined workpiece;
wherein the curing step and the removal step are performed free of the application of heat from an exogenous source.

5,210,927
PIPETTE TIP FILTER INSERTER AND METHOD THEREFORE
Peter L. Lamont, Santa Rosa, and Ali Vafaei, Berkeley, both of Calif., assignors to Ways & Means, Inc., San Rafael, Calif.
Filed Jun. 17, 1991, Ser. No. 716,819
Int. Cl.[5] B23Q 17/22; B23P 21/00
U.S. Cl. 29—564.2 15 Claims



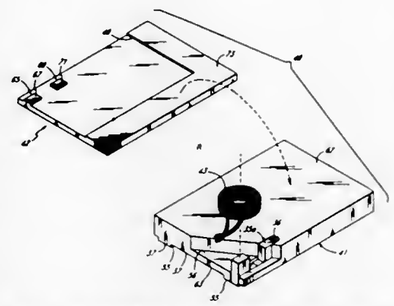
5. A device for cutting and inserting filters in pipette tips comprising:
conveying means for transporting a pipette tip from a first position to at least one subsequent later position,
an elongated fiber filter,
cutting means for cutting a predetermined length of said elongated fiber filter,
inserting means for inserting said predetermined length of said elongated fiber filter into the pipette tip,
filter sensing means for determining if the pipette tip arriving in said subsequent later position has received a filter, removal means for removing only those pipette tips from the conveying means that have received a filter, and
tamper means for seating an inserted filter at a predetermined location in said pipette tip before said pipette tip arrives at said subsequent later position.

5,210,928
METHOD OF MANUFACTURING AN ELECTRIC MOTOR
Takashi Seshita, and Noriyuki Nimura, both of Shimotsuga, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 13, 1991, Ser. No. 744,400
Claims priority, application Japan, Aug. 15, 1990, 2-214257
Int. Cl.[5] H02K 15/06
U.S. Cl. 29—596 9 Claims



1. A method of manufacturing an electric motor comprising the steps of:
preparing at least one winding formed of an enameled wire having a first conductor and an insulating enamel coating on an outer peripheral surface of the conductor;
preparing a lead for electrically connecting an end of the enameled wire to a terminal of the motor, the lead having a second conductor and an insulating layer formed on an outer peripheral surface of the second conductor, the insulating layer being removed at an end of the lead so that an end portion of the second conductor is exposed;
heating the enamel coating on the end portion of the enameled wire of the winding by a high-frequency current to separate the enamel coating on the end portion from the first conductor;
removing the thus separated enamel coating to expose the corresponding end portion of the first conductor;
winding the exposed end portion of the second conductor around an outer peripheral surface of the exposed end portion of the first conductor to form a connection between the enameled wire and the lead; and
bonding the first and second conductors at said connection by one of welding and soldering.

5,210,929
METHOD OF MAKING A FERRITE CAPPED WINCHESTER-STYLE SLIDER
Marc J. von Huene, Goleta; Jerry C. Hanlon, Santa Barbara, and David M. Sherwood, Oxnard, all of Calif., assignors to Applied Magnetics Corporation, Goleta, Calif.
Filed Mar. 18, 1991, Ser. No. 671,199
Int. Cl.[5] G11B 5/42
U.S. Cl. 29—603 8 Claims



1. A met..od of making a magnetic head slider system, comprising:

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forming a hollow tube of generally rectangular cross-section from a generally C-shaped bar of magnetically conductive material and a generally I-shaped bar of magnetically conductive material, wherein the junction between the front of said bars forms a front gap and the junction between the back of said bars forms a back gap;

removing all of the back of said hollow tube at or above said junction between said back of said bars forming said back gap to form a generally U-shaped bar;

slicing said U-shaped bar into a series of U-shaped partial cores including a generally I-shaped portion defining a top surface and a generally L-shaped portion having a horizontal section and a vertical section, said vertical section defining a top surface;

mounting at least one of said series of partial cores on a slider body having an upper surface, a lower surface, a leading edge and a trailing edge;

mounting a pre-wound coil of electrically conductive material around one of said portions;

mounting a substantially solid cap sized and shaped to conform to the peripheral shape of said slider body to shield said upper surface of said slider body from magnetic flux, having an upper surface and a lower surface, on said upper surface of said body so that said lower surface of said cap directly contacts said top surface of said I-shaped portion and said top surface of said vertical section of said L-shaped portion, thereby forming a continuous core from said horizontal section of said L-shaped portion to said horizontal section of said I-shaped portion around said front gap; and

securing said upper surface of said cap to a suspension assembly connected to an actuator for suspending said slider adjacent a rotating magnetic medium.

5,210,930

METHOD OF MANUFACTURING WOUND CORE

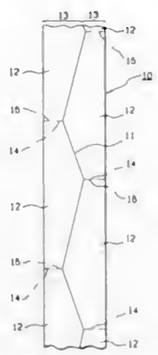
Tadatoshi Watabe, Tokyo, and Shoichi Miyasaka, Chino, both of Japan, assignors to Denki Tetsushin Industries Co., Ltd., Tokyo, Japan

Filed Nov. 18, 1991, Ser. No. 793,986

Claims priority, application Japan, Aug. 5, 1991, 3-284249

Int. Cl.[5] H01F *41/02*

U.S. Cl. 29—609 **7 Claims**



1. A method of manufacturing a wound core comprising the steps of:

(a) cutting one belt shaped strip of magnetic material along one polygonal line that extends in a longitudinal direction of said strip so as to form two continuous strips of said material, each said continuous strip consisting of a sequential connection of individual long pentagonal shaped portions wherein the width of each pentagonal shaped portion changes to be narrow at a leading end thereof, and to be wide in a middle part and narrow again at a trailing end; and

(b) forming a wound core by continuous winding of one of said pentagonal shaped portions so as to maintain a center line thereof at a fixed position in the width direction of said portion to form a wound core with a hexagonal cross section.

5,210,931

APPARATUS FOR ATTACHING AND DETACHING TRUNK OR A HOOD TO AND FROM A VEHICLE BODY

Shougo Ozawa, Hanno; Toru Yamamoto, Saitama; Yasuji Watanabe; Mituyoshi Obata, botb of Kobe; Masahiko Yomota, Nishinomiya, and Shizuo Maeda, Kobe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo and Kabushiki Kaisha Kobe Seiko Sho, Kobe, both of Japan

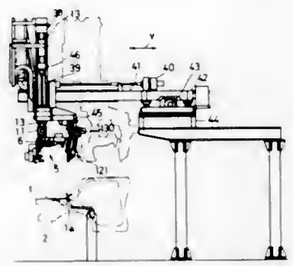
Division of Ser. No. 509,520, Apr. 13, 1990, Pat. No. 5,079,832.

This application Oct. 28, 1991, Ser. No. 783,203

Claims priority, application Japan, Apr. 18, 1989, 1-97867; Apr. 18, 1989, 1-97868; Apr. 18, 1989, 1-97869

Int. Cl.[5] B23P *21/00*

U.S. Cl. 29—712 **1 Claim**



1. An apparatus for attaching and detaching a trunk or a hood to and from a vehicle body, wherein said trunk or hood is mounted to the vehicle body by means of a hinge mechanism which is fixed to the vehicle body with screw members, the apparatus comprising:

opening and closing means for opening and closing a trunk or a hood of a vehicle body;

holding means for holding said trunk or hood after said trunk or hood is opened by said opening and closing means, said holding means comprising holding members slidably disposed on opposite sides of a base plate and driving means positioned on the base plate for moving said holding members in a direction toward a front end portion, a rear end portion and side portions of said opened trunk or hood for holding said opened trunk or hood;

screw position detection means for detecting the position of the screw members in the vehicle body; and

nut runner means for tightening and loosening said screw members, the position of the nut runner means being adjusted in response to the position of each screw member detected by the screw position detection means.

5,210,932

TUBE EXPANDER

Kenji Tokura, Osaka, Japan, assignor to Kyoshin Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Feb. 10, 1992. Ser. No. 833,248

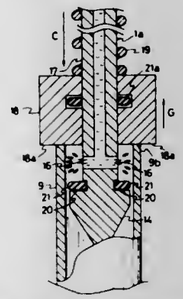
Claims priority, application Japan, Oct. 4, 1991, 3-080913[U]

Int. Cl.[5] B23P *15/26*

U.S. Cl. 29—727 **16 Claims**

1. A tube expander for expanding tubes of a heat exchanger arranged on the tube expander, the heat exchanger having a plurality of radiating fins and a plurality of said tubes inserted into said fins, the tube expander comprising a plurality of tube-expanding mandrels for insertion into said tubes from one

end thereof, and an oil-discharging device for discharging a predetermined amount of oil into said tubes mounted between said mandrels and tubes for reciprocal movement in an axial direction of said tubes, said oil-discharging device having a plurality of oil-discharging nozzles each individually including a movable pipe-shaped nozzle main body having an expander bullet for insertion into one of said tubes and a discharging hole for discharging oil filled within said oil-discharging nozzle into said one tube, a movable annular sleeve arranged around a



circumferential surface of said nozzle main body, said annular sleeve and nozzle main body being movable relative to each other in the axial direction of said tubes for opening and closing said discharging hole, said annular sleeve having a contact part for abutting against an end opening of said one tube, a resilient member provided on said oil-discharging device for urging said contact part of said annular sleeve against said end opening of said one tube, and a stopper provided on an end of said expander bullet for receiving said sleeve on said end of said expander bullet.

5,210,933

CIRCUIT ASSEMBLY ROBOT

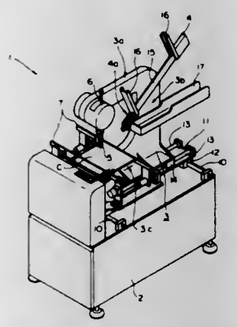
Sbuichi Miyanishi, and Eiki Nakatani, both of Komatsu, Japan, assignors to Komatsu Giken Co., Ltd., Ishikawa, Japan

Filed Oct. 17, 1991, Ser. No. 778,251

Claims priority, application Japan, Oct. 30, 1990, 2-113889[U]

Int. Cl.[5] H05K *3/30*

U.S. Cl. 29—741 **13 Claims**



1. A robot for automated assembly of electronic circuits on a circuit board supplied to a predetermined assembly space defined relative to said robot by means of a circuit board conveyor system, said robot comprising:

a) a base;

b) a frame mounted over at least two sets of guide rails mounted on said base, whereby said frame is movable relative to said base in two dimensions in a horizontal plane;

c) at least one component supplying device mounted on said frame for storing electronic components which are to be mounted on said printed circuit board, and supplying said electronic components to said predefined assembly space;

d) component manipulating device mounted on said frame including at least one component grasping mechanism for grasping electronic components supplied to said assembly space by said component supplying device, said at least one component grasping mechanism corresponding to said at least one component supplying device respectively, such that a component grasping portion of said component grasping mechanism is pivotable in a vertical plane within said assembly space about a predetermined axis, and capable of receiving an electrical component from said component supplying device and seating said component on circuit board so that each lead of said component passes through a respective component lead mounting hole in said circuit board; and

e) at least one component lead securing device mounted at a fixed position on said frame such that said component lead securing device moves in concert with said component manipulating device and such that said component lead securing device is in a position substantially vertically aligned with said component grasping mechanism of said component manipulating device when said component grasping mechanism seats a component on said circuit board, said fixed position lying below said horizontal plane in which a printed circuit board supplied to said robot lies, said component lead securing device capable of bending leads of an electrical component at a point on each lead distal to a point at which said lead exits from a corresponding component lead mounting hole in said circuit board.

5,210,934

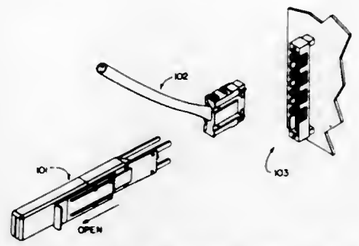
EXTRACTION TOOL FOR HIGH DENSITY CABLE CONNECTORS

George Lenzi, Wheaton, and John B. Portzer, Elmhurst, both of Ill., assignors to AG Communication Systems Corporation, Phoenix, Ariz.

Filed Nov. 25, 1991, Ser. No. 797,658

Int. Cl.[5] H01R *43/00*

U.S. Cl. 29—764 **11 Claims**



1. A tool for extracting a cable connector from a cable shroud, said cable connector having engagement holes, said tool comprising:

a handle having a first side and a second side;

a first set of guides having an end firmly attached to said first side of said handle;

a second set of guides having an end firmly attached to said second side of said handle, said second set of guides having a set of holes extending laterally through said second set of guides, said set of holes align with said engagement holes;

a locking plate having an end firmly attached to said second side of said handle, said end of said second set of guides and said end of said locking plate being commonly attached to said side of said handle, said locking plate extending over said second set of guides, said locking plate

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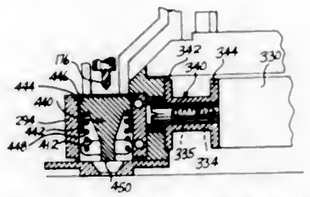
having a set of engagement pins aligned to mate with said set of holes in said second set of guides; and

an actuator plate attached to said second side of said handle, whereby moving said actuator plate longitudinally along said second side of said handle moves said locking plate laterally forcing said engagement pins through said set of holes in said second set of guides and into said engagement holes in said cable connector thereby providing a mechanical connection between said tool and said cable connector, said mechanical connection allowing for proper extraction of said cable connector from said cable shroud.

5,210,935
CURVED RIVET FEED CHUTE

Gregory C. Givler, Issaquah, Wash., assignor to The Boeing Company, Seattle, Wash.

Division of Ser. No. 632,445, Dec. 21, 1990, abandoned. This application Dec. 20, 1991, Ser. No. 811,525
Int. Cl.[5] B23Q *7/10*; B65G *53/52*
U.S. Cl. 29—818 **10 Claims**



1. A rivet feed chute for feeding a rivet around a small radius curve, comprising:

a rivet guide shoe having a curved slot with an outside periphery, said outside periphery of said slot having an outwardly arched cross section slightly larger in width largest diameter section of said rivet, and constituting a sector of an annular curved guide surface around and along which said rivet slides in a path of travel along a curved axis of said outside periphery of said slot when fed into said slot, said slot having an inlet end into which rivets can be blown, and an outlet end out of which rivets emerge;

a guide tube connected to said guide shoe at said outlet end of said slot, said guide tube having an inlet end and an exit end, and having an axial passage therethrough tangentially aligned with said curved axis of said slot, said axial passage having an internal diameter substantially equal to the width of said outwardly arched cross section of said slot;

said guide tube having an ear which protrudes from said inlet end into said slot, said ear having a flared surface which tapers smoothly from the extreme end of said ear to merge with said axial passage through said guide tube.

5,210,936
METHOD AND APPARATUS FOR THE EXCISE AND LEAD FORM OF TAB DEVICES

Richard L. Simmons, Jonestown; James D. Wehrly, Jr., and Michael J. Bertram, both of Austin, all of Tex., assignors to Microelectronics And Computer Technology Corporation, Austin, Tex.

Filed Jan. 6, 1992, Ser. No. 817,214
Int. Cl.[5] H01R *43/00*; B23P *23/00*
U.S. Cl. 29—827 **20 Claims**

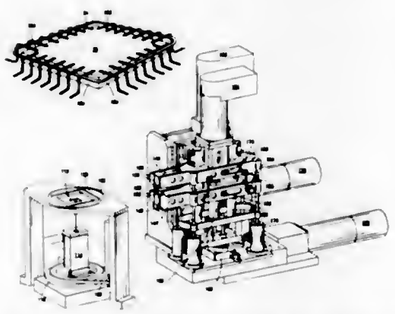
1. A method of excising and forming a plurality of metal leads connected at inner ends to an electronic device which extend beyond a sidewall of the device, comprising the steps of:

clamping a first portion of the leads spaced from the device by contacting the top of the first portion with the bottom surface of a first lead clamp and the bottom of the first portion with the top surface of a form anvil, said form anvil further comprising a forming edge between the top surface and a forming surface on the side opposite the device;

clamping a second portion of the leads further from the device than the first portion and spaced from the first portion by contacting the top of the second portion with the bottom surface of an excise/form tool and contacting the bottom of the second portion with the top surface of a second lead clamp, said excise/form tool further comprising a forming surface on the side facing the device, an outer surface on the side opposite the device and a forming edge between the bottom surface and the forming surface, and said second lead clamp further comprising an outer surface on the side opposite the device, wherein the outer surfaces of the excise/form tool and second lead clamp are aligned;

excising a third portion of the leads further from the device than the second portion which extends beyond the outer surfaces of the excise/form tool and second lead clamp, thereby forming outer lead ends;

moving the excise/form tool and second lead Clamp downwards and toward the device until a fourth portion of the leads between the first and second portions is moved through an arc between the forming surfaces of the form anvil and the excise/form tool, thereby bending the leads at the forming edge of the form anvil to form a first corner



in the leads and at the forming edge of the excise/form tool to form a second corner in the leads; and

releasing the leads from the first lead clamp, form anvil, form/excise tool, and second lead clamp.

19. An apparatus for excising and forming a plurality of metal leads connected at inner ends to an electronic device which extend beyond a sidewall of the device, comprising the steps of:

means for clamping a first portion of the leads spaced from the device by contacting the top of the first portion with the bottom surface of a first lead clamp and the bottom of the first portion with the top surface of a form anvil, said form anvil further comprising a forming edge between the top surface and a forming surface on the side opposite the device;

means for clamping a second portion of the leads further from the device than the first portion and spaced from the first portion by contacting the top of the second portion with the bottom surface of an excise/form tool and contacting the bottom of the second portion with the top surface of a second lead clamp, said excise/form tool further comprising a forming surface on the side facing the device and an outer surface on the side opposite the device and a forming edge between the bottom surface and the forming surface, and said second lead clamp further comprising an outer surface on the side opposite the device, wherein the outer surfaces of the excise/form tool and second lead clamp are aligned;

means for excising a third portion of the leads further from the device than the second portion which extends beyond the outer surfaces of the excise/form tool and second lead clamp for forming outer lead ends;

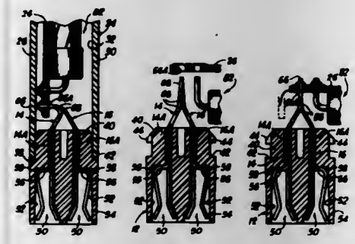
means for moving the excise/form tool, second lead clamp and excise blade downwards and toward the device in a curved path until a fourth portion of the leads between the first and second lead corners is moved through an arc between the forming surfaces of the form anvil and the excise/form tool in order to bend a first corner in the leads at the forming edge of the form anvil and a second corner of the leads at the forming edge of the excise/form tool; and

means for releasing the leads from the first lead clamp, form anvil, form/excise tool, and second lead clamp.

5,210,937
METHOD OF FORMING A TELEPHONE LINE OVERVOLTAGE PROTECTION DEVICE

Murray I. Delamoreaux, Hoffman Estates, Ill., assignor to Oneac Corporation, Libertyville, Ill.

Filed Mar. 13, 1992, Ser. No. 851,070
Int. Cl.[5] H01R *9/09*
U.S. Cl. 29—839 **6 Claims**



1. A method of forming an overvoltage protection device comprising the steps of:

providing a first terminal guard housing for defining a plurality of terminal receiving channels;

providing a second housing for containing a printed wiring board; said first terminal guard housing arranged for mating engagement with said second housing;

inserting a plurality of terminals in said terminal receiving channels; each of said terminals including an outwardly extending terminal portion extending outside said first terminal guard housing;

aligning said outwardly extending terminal portions with a corresponding plurality of aligned terminal receiving apertures in said printed wiring board by bending adjacent outwardly extending terminal portions toward each other;

inserting said aligned terminal portions in said aligned terminal receiving apertures and soldering said terminal portions to said printed wiring board; and

bending said terminals to position said printed wiring board and a mating portion of said first terminal guard housing for insertion into said second housing.

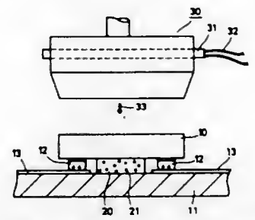
5,210,938
METHOD OF ASSEMBLING AN ELECTRONIC PART DEVICE

Minoru Hirai, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Aug. 4, 1992, Ser. No. 924,703
Claims priority, application Japan, Aug. 5, 1991, 3-221010
Int. Cl.[5] H05K *3/34*
U.S. Cl. 29—840 **5 Claims**

1. A method of assembling an electronic part device and a circuit board, wherein:

an electrode formed on said electronic part device and a conductive pattern formed on said circuit board so as to be opposite to said electrode are positioned; and

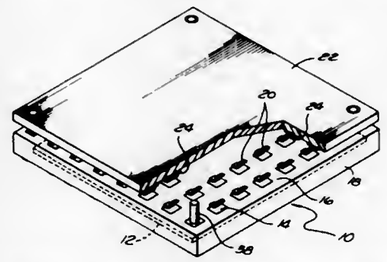


a thermosetting resin sheet including a thermally shrinkable particle and provided between said electronic part device and said circuit board is hardened and shrunk.

5,210,939
LEAD GRID ARRAY INTEGRATED CIRCUIT

Debeadra Mallik, and Bidyut K. Bhattacharyya, both of Chandler, Ariz., assignors to Intel Corporation, Santa Clara, Calif.

Filed Apr. 17, 1992, Ser. No. 870,542
Int. Cl.[5] H05K *3/34*
U.S. Cl. 29—840 **21 Claims**



1. A method of constructing an integrated circuit package, comprising the steps of:

a) providing a module having a plurality of contact pads;

b) providing a sheet of electrically conductive material;

c) removing portions of said sheet so that there is created a two dimensional array of beams;

d) bending said beams;

e) placing said sheet adjacent to said module so that all of said beams are aligned with said contact pads;

f) attaching base portions of said beams to said contact pads;

g) cutting said base portions to separate said beams from said sheet; and,

h) removing said sheet from said module.

5,210,940
METHOD OF PRODUCING A PRINTED CIRCUIT BOARD

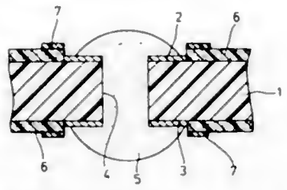
Shin Kawakami; Hirotaka Okonogi, and Junichi Ichikawa, all of Saitama, Japan, assignors to Nippon CMK Corp., Japan

Filed Jul. 22, 1991, Ser. No. 734,253
Claims priority, application Japan, Jul. 24, 1990, 2-195704
Int. Cl.[5] H01K *3/10*
U.S. Cl. 29—852 **9 Claims**

1. A method of manufacturing a printed circuit board, comprising: providing an insulative substrate having two opposed major surfaces; forming a through-hole in the substrate between the two major surfaces; forming two conductive lands, one on each major surface of the substrate, surrounding the opposite ends of the through-hole; filling the through-hole with conductive paste and spreading the conductive paste over the two conductive lands to provide an electrically conductive

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path between the two major surfaces of the substrate; and preventing outward spreading of the conductive paste beyond the outer peripheries of the conductive lands by forming a layer of solder resist around the outer periphery of the conductive land on each major surface of the substrate, and forming annular frames of insulative material, one on each of the respective solder resist layer, around the outer peripheries of the conductive lands before the spreading of the conductive paste.

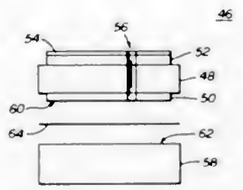


5,210,941

METHOD FOR MAKING CIRCUIT BOARD HAVING A METAL SUPPORT

Joseph A. Turek, Downers Grove; Joel S. Dryer, Morton Grove, both of Ill., and Harold L. Sexson, Glendora, Calif., assignors to Poly Circuits, Inc., Bensenville, Ill.

Filed Jul. 19, 1991, Ser. No. 732,665
Int. Cl.[5] H01K *3/10*
U.S. Cl. 29—852 10 Claims



1. A method for manufacturing a circuit board having a metal support, the circuit board including a dielectric having a first and a second conductive foil affixed to opposing sides of the dielectric, said method comprising the steps of:

forming a plurality of plated through holes in the circuit board;

positioning an electrically conductive silicone adhesive between a surface of the first foil and a surface of the metal support, the first foil surface being exposed and free of any coating material, and the first foil surface being configured to substantially conform to the metal support surface; and

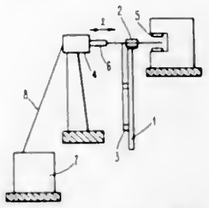
bonding the exposed first foil surface to the metal support surface utilizing the electrically conductive adhesive, wherein the bonding step functions to cover and protect the exposed surface of the first foil and provide a highly conductive bond between the metal support and the first foil.

5,210,942

METHOD FOR PRODUCING CABLE HARNESSES

Herbert Emmerich, Waiblingen/Neustadt, and Gerd Schlaich, Rutesheim, both of Fed. Rep. of Germany, assignors to MERZ Metall-und Kunststoffverarbeitungs GmbH, Frankfurt am Main, Fed. Rep. of Germany

PCT No. PCT/DE89/00395, § 371 Date Dec. 17, 1990, § 102(e) Date Dec. 17, 1990, PCT Pub. No. WO89/12900, PCT Pub. Date Dec. 28, 1989
Continuation of Ser. No. 623,931, Dec. 17, 1990, abandoned.
This PCT application Jun. 16, 1989, Ser. No. 876,897
Claims priority, application Fed. Rep. of Germany, Jun. 18, 1988, 3820637
Int. Cl.[5] H01R *43/04*
U.S. Cl. 29—863 8 Claims



1. A method of producing cable harnesses, wherein individual conductors are provided with terminal contacts, in which there are disposed edgewise on a laying board plug housing holding means from which or to which the individual conductors are laid with the help of guide means, comprising the steps of:

1) disposing the plug housing holding means on one edge surface of the laying board in a line while the guide means are disposed on the actual working surface of the laying board;

2) laying a conductor by moving the laying board in two directions parallel to the plane defined by said laying board; and

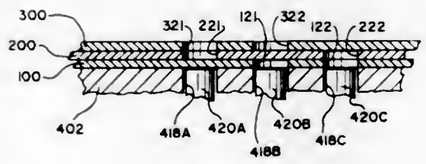
3) effecting the attachment of at least one conductor end to a terminal contact by moving the conductor end together with the laying board to a rigidly disposed attachment means.

5,210,943

METHOD OF VERIFYING THE CORRECT SEQUENCE OF ASSEMBLY OF A MULTILAYER GASKET

Chadd Berkun, Highland Park; Thomas J. Justus, Prospect Heights; Glen Schwerdtfeger, Oswego, and David Verson, Highland Park, all of Ill., assignors to Fel-Pro Incorporated, Skokie, Ill.

Filed Oct. 15, 1991, Ser. No. 776,831
Int. Cl.[5] B21D *53/00*
U.S. Cl. 29—888.3 5 Claims



1. A method of verifying the correct assembly of a multilayer gasket having at least two superposed gasket layers secured in a preselected sequence comprising the steps of:

providing at least two different gasket layers, each defining at least one service opening and at least one utility aperture smaller than said service opening, with each said gasket layer defining a sensing zone which, when the gasket is assembled, is aligned in a superposed array with the sensing zones of the other gasket layers, each said sensing zone defining at least one sensing formation and each said gasket layer having at least one sensing formation which is laterally offset and out of superposed alignment with a sensing formation in each next adjacent superposed gasket layer, providing a stacking surface and an array of laterally offset sensors positioned in locating corresponding to said sensing zones,

locating a first gasket layer on said stacking surface with its sensing zone in superposed alignment with said sensors and automatically sensing whether its sensing formations correctly correspond to a position of at least one sensor,

then stacking each next gasket layer over said first and next preceding gasket layers with its sensing zone in superposed alignment with said sensors and automatically sensing whether its sensing formations correctly correspond to a position of at least one sensor, and

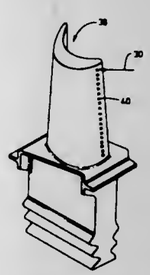
providing an electrical signal that the gasket layers have been correctly stacked in the preselected sequence.

5,210,944

METHOD FOR MAKING A GAS TURBINE ENGINE COMPONENT

Paul J. E. Monson, Loveland; Todd J. Rockstroh, Maineville; Seetha R. Mannava, Cincinnati, and Robert E. Baeumel, West Chester, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Division of Ser. No. 614,367, Nov. 13, 1990, Pat. No. 5,113,582.
This application Nov. 27, 1991, Ser. No. 799,232
Int. Cl.[5] B23K *27/00*
U.S. Cl. 29—889.2 11 Claims



1. A method for fabricating a gas turbine engine component, comprising the steps of:

(a) providing a sheet of composite material including a multiplicity of fibers therein;

(b) coating the composite material sheet with a mold release agent;

(c) inserting the composite material sheet into a mold to form a desired shape of the engine component;

(d) removing the engine component from the mold;

(e) curing the engine component;

(f) removing the mold release agent by focusing a laser beam on a surface of the engine component for a selected duration;

(g) removing a layer of composite material from a selected area of the component surface to expose at least a portion of the multiplicity of fibers nearest the component surface in the selected area by focusing the laser beam on the selected area for a chosen duration; and

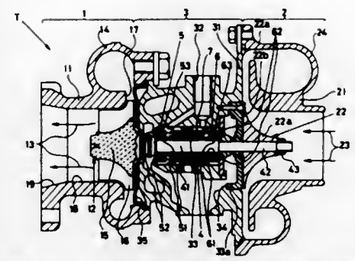
(h) depositing at least one layer of material on the selected area.

5,210,945

METHOD OF ASSEMBLY OF A ROTARY SHAFT IN A BALL-BEARING TYPE TURBOCHARGER

Osamu Suzuki, Nagoya, Japan, assignor to NGK Spark Plug Co., Ltd., Nagoya, Japan

Filed May 22, 1991, Ser. No. 704,126
Int. Cl.[5] B21D *53/00*
U.S. Cl. 29—889.21 8 Claims



1. In a method of assembling a ball-bearing type turbocharger which comprises a turbine housing in which a turbine impeller is disposed to be driven by exhaust gas emitted from an internal combustion engine; a compressor housing in which a compressor impeller is disposed to compress intake air for the internal combustion engine; a center housing air-tightly connected between the turbine housing and the compressor housing, the center housing having a rotary shaft which is rotatably supported by first and second ball bearings, one end of the rotary shaft being securely connected to the turbine impeller through a turbine impeller boss portion and the other end of the rotary shaft being connected to the compressor impeller, extending through the compressor impeller, and having a screw nut to secure the compressor impeller against removal; and a sleeve enclosing the rotary shaft between the first and second ball bearings to position the two bearings in place;

the assembly method of the rotary shaft comprising the steps of:

inserting inner and outer races of the first ball bearing onto the rotary shaft to locate the races in proximity to the turbine impeller prior to disposing the rotary shaft in the center housing;

inserting the sleeve onto the rotary shaft prior to mounting the second ball bearing on the rotary shaft;

applying a compensation force axially to the inner race of the first ball bearing by way of the sleeve so as to bring one side of the inner race into a tight engagement with the boss portion of the turbine impeller, a magnitude of the compensation force falling within a range from 20% to 120% inclusive of an axial force applied in the direction along the rotary shaft when the compressor impeller is secured to the rotary shaft by tightening the screw nut at the time of assemblage;

releasing the compensation force from the inner race of the first ball bearing and carrying out imbalance-correction of the turbine impeller to form a combination body; and

disposing the combination body into the center housing.

5,210,946

LEADING EDGE PROTECTION FOR FAN BLADE

Robert C. Monroe, Houston, Tex., assignor to Hudson Products Corporation, Houston, Tex.

Division of Ser. No. 904,935, Jun. 26, 1992, Pat. No. 5,165,859.
This application Sep. 8, 1992, Ser. No. 941,627
Int. Cl.[5] B23P *15/06*
U.S. Cl. 29—889.71 4 Claims

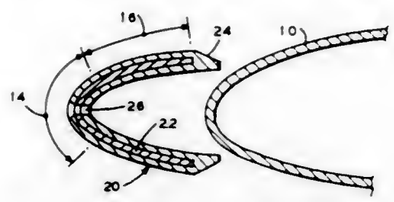
1. A method of protecting the leading edge of a fan blade having an area of maximum erosion and a selected curvature, comprising the steps of:

a. bending a continuous strip of spring steel to have a greater

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curvature than the curvature of the leading edge of the fan blade thereby causing said spring steel to compress against the leading edge of the fan blade when applied;

b. applying anti-erosion means over at least an external surface of said strip for preventing erosion of this said surface, said anti-erosion means comprises extruding an



elastomer over said strip before fixing said strip to the blade;

c. pressing said strip onto the blade by at least partly biasing said strip so that when released, said strip tightly grips or compresses against an outer surface of the blade; and

d. permanently fixing said strip to the leading edge of the blade.

5,210,947

METHOD OF MANUFACTURING AN IMPROVED DUCT

William J. Donnelly, 371 Commonwealth Ave., Boston, Mass. 02116

Filed Nov. 27, 1991, Ser. No. 800,502
Int. Cl.[5] B23P *11/02*
U.S. Cl. 29—890.144 **3 Claims**



1. For producing a duct, a process comprising the steps of:

(a) extruding a substantially tubular casing composed of a polymeric foam;

(b) coiling a continuous elongated reinforcing element composed of an electrically conductive metal helically about a split mandrel, said split mandrel having parts that are operable to contract to a normal mandrel diameter and expand to a slightly greater diameter, said parts having been expanded to said slightly greater than normal diameter;

(c) inserting said expanded mandrel with said helically coiled element thereon into said tubular casing;

(d) contracting said split mandrel and removing it from within said helically coiled element and said tubular casing; and

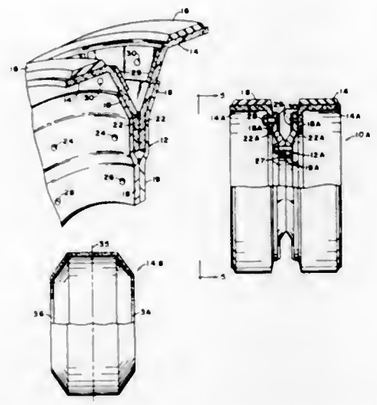
(e) passing an electrical current through said elongated reinforcing element in order to heat said elongated reinforcing element above the softening point of said tubular casing and to embed said reinforcing element into the inner surface of said tubular casing.

5,210,948

METHOD OF MAKING A LOW INERTIA WHEEL

Dinesh C. Seksaria, Murrysville, and Jan L. Teply, Monroeville, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Division of Ser. No. 728,332, Jul. 11, 1991, Pat. No. 5,171,074. This application Apr. 27, 1992, Ser. No. 873,782
Int. Cl.[5] B21D *53/26*
U.S. Cl. 29—894 **2 Claims**



1. A method of making a low inertia wheel for a track laying vehicle, comprising:

securing together two center metal discs provided with peripheral offset portions that form a continuous groove when the discs are secured together,

securing respectively inner wall portions of two circular fiber-reinforced composite rim members to the peripheral offset portions of said metal discs, said rim members having laterally extending rim portions supporting solid elastomer tires, and

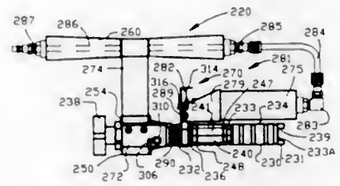
securing segmented, light weight wear pads on opposed inside surfaces of said continuous groove.

5,210,949

HOSE TRIMMING APPARATUS

Wayne B. Hockett, Tampa, Fla., assignor to Sandroid Systems, Inc., Tampa, Fla.

Continuation-in-part of Ser. No. 445,963, Dec. 4, 1989, Pat. No. 5,022,155. This application Dec. 31, 1990, Ser. No. 635,964
The portion of the term of this patent subsequent to Jun. 11, 2008, has been disclaimed.
Int. Cl.[5] B23D *21/06*
U.S. Cl. 30—93 **9 Claims**



1. An improved hose trimming apparatus for trimming a flexible hose, the hose having an internal bore encompassed by a sidewall, comprising in combination:

a support member adapted to be at least partially inserted within the internal bore of the hose;

said support member comprising a centering support for centering said support member within the internal bore of the hose;

securing means including an expandable means disposed on said support member;

means for expanding said expandable means within the internal bore of the hose for securing said support member to the hose;

said support member defining an undercut between said centering support and said expandable means:

a motor assembly comprising a revolving cutting head mounted on an axis of a motor, said motor for rotating said revolving cutting head about said axis;

said motor assembly rotatably mounted relative to said support member with said revolving cutting head being aligned with said undercut; and

means for rotating said motor assembly about said support member enabling said revolving cutting head to sever the sidewall of the hose adjacent said undercut as said motor assembly is rotated about said support member with said centering support and said expandable means supporting the sidewall of the hose immediately adjacent said undercut to inhibit flexing of the sidewall of the hose when said revolving cutting head is severing the sidewall of the hose.

5,210,950

POCKET OR CLASP KNIFE

Christian Rankl, Possenhofenerstr. 33, München 71, Fed. Rep. of Germany 8000

Filed Mar. 18, 1992, Ser. No. 853,398
Claims priority, application Fed. Rep. of Germany, Mar. 18, 1991, 9103272
Int. Cl.[5] B26B *3/06*
U.S. Cl. 30—161 **6 Claims**



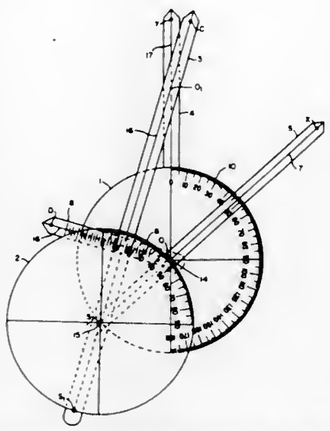
1. A foldable pocket knife comprising a handle part (**11**) and a blade part (**12**), which is mounted with its rear end at a front end of the handle part (**11**) for pivoting about a transverse axis (**13**), such that the blade part can be selectively extended or pivoted back against the handle part (**11**), with a spring bar (**14**) made of spring material which extends in a longitudinal direction of the handle part being mounted in the handle part so as to be manually pivotable against a spring force about a pivot axis (**15**) which extends parallel to the transverse axis (**13**), said spring bar being provided at its front end with an abutment (**16**) which cooperates with a counter-abutment (**17**) at a rear end of the blade part (**12**) in such a manner that when the blade part (**12**) is extended the abutment (**16**) is brought by the spring force into contact with the counter-abutment (**17**) and the blade part (**12**) is thereby fixed in the extended position, and in such a manner that the abutment (**16**) and the counter-abutment (**17**) can be brought out of contact by manually pivoting the spring bar (**14**) against the spring force, wherein the spring bar (**14**) is provided in a region of the pivot axis (**15**) with an elongated slot (**18**) which extends through the spring bar in a direction of the pivot axis (**15**), with abutment faces (**19, 20**), fixed with respect to the handle part, being provided in the elongated slot and on opposite edges (**21, 22**) of the elongated slot (**18**) in front of and behind the pivot axis (**15**) and spaced from an end of the elongated slot (**18**) location on a side of the pivot axis (**15**) such that by manually pivoting the spring bar (**14**) in order to bring the abutment (**16**) and the counter-abutment (**17**) out of contact, the abutment faces (**19, 20**) elastically spread apart the edges (**21, 22**) of the elongated slot (**18**).

5,210,951

TRISECTOR

Fen Chen, P.O. Box 16707, Alexandria, Va. 22302

Filed Aug. 25, 1992, Ser. No. 934,279
Int. Cl.[5] B43L *9/08*
U.S. Cl. 33—1 AP **3 Claims**



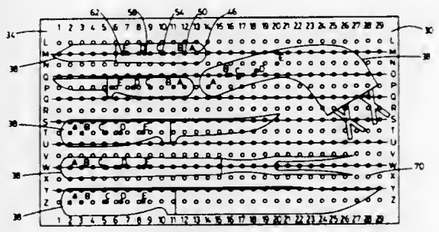
1. A trisecting instrument for trisecting an angle having two circular-shaped members of equal diameter; said two plates are rotatably connected by a long first pointer at the centers of the two circular plates; such that the centers of said first and second plates rotate about the circumference of said second and first plates respectively; said first pointer defining one side of said angle; a second pointer rotatably connected to the center of the second plate, a third pointer rotatably connected to the center of the first plate; and reference means for defining the other side of said angle.

5,210,952

METHOD OF AND APPARATUS FOR MANUFACTURING GIFT SET PACKAGING

Harry W. Hoffman, Sheboygan Falls, Wis., assignor to Bemis Manufacturing Company, Sheboygan Falls, Wis.

Filed Oct. 25, 1991, Ser. No. 783,553
Int. Cl.[5] G01B *3/00*; B26D *7/01*
U.S. Cl. 33—1 G **16 Claims**



1. An apparatus for use in the design and manufacturing of a package including a portion having therein a recessed area adapted to house an article, said apparatus comprising:

a model of the package portion, said package model having thereon a grid including a plurality of pairs of indicia, said package model having thereon symbols defining means for describing the location of each indicium on said model, and for providing a unique location description for each indicium; and

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a model of the article, said article model being locatable on said package model, said article model having thereon a first indicium and a second indicium spaced from the first indicium, one indicium of each pair of said package model being capable of being aligned with said first indicium of said article model while the other indicium of said pair of aligned with said second indicium of said article model, said article model further having thereon symbols defining means for identifying each of said indicia on said article model;

such that said indicia on said package model and said indicia on said article model can be used for identifying, in two dimensions, the position and orientation of said article model on said package model by identifying which of said grid indicia are aligned with each of said article model indicia when said article model is located on said package model; and

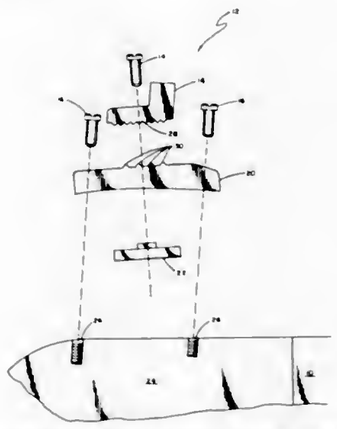
said apparatus further comprising a cutter assembly including a cutter that is a scale replica, at least in two dimensions and at least in outline, of said article model, and that has thereon first and second indicia that are respectively aligned with said first and second indicia on said article model if said article model is aligned with said cutter, and said cutter assembly further including means for supporting said cutter, said supporting means including a stamping plate having thereon a plurality of indicia, at least some of said indicia on said stamping plate being respectively aligned with indicia on said grid if said package model is aligned with said stamping plates.

5,210,953

DURABLE SIGHT SYSTEM FOR A FIREARM

Roger E. Small, 178 Second Ave. North, Nashville, Tenn. 37201

Filed Sep. 6, 1991, Ser. No. 755,751
Int. Cl.[5] F41G *1/22*
U.S. Cl. 33—258 **3 Claims**



1. A rear sight for a firearm having a receiver, said rear sight comprising:

a. a sight base having a top side and a bottom side, said top side having plural base ridges, said base having a base orifice proximate to said top side and an encapsulator proximate to said bottom side;

b. means for attaching said sight base to said firearm;

c. an aperture platform placeable on said top side of said base, said aperture platform having an upper side and a lower side, said lower side having plural platform ridges mateable with said plural base ridges, said aperture platform having an adjustment orifice;

d. a lock plate having a threaded orifice, said lock plate receivable by said encapsulator;

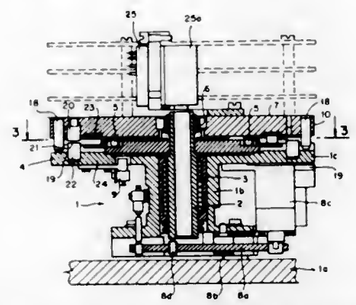
e. an adjustment screw received by said adjustment orifice, said base orifice, and said threaded orifice, respectively such that said screw is receivable by said threaded orifice and to provide a single step to achieve omni-directional adjustment for elevation and windage.

5,210,954

CLINOMETER

Reinhard Schafler, Wasserburg, Fed. Rep. of Germany, assignor to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

PCT No. PCT/EP91/00087, § 371 Date Nov. 27, 1991, § 102(e) Date Nov. 27, 1991, PCT Pub. No. WO91/11684, PCT Pub. Date Aug. 8, 1991
PCT Filed Jan. 18, 1991, Ser. No. 768,069
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1990, 4002493
Int. Cl.[5] G01C *9/16*
U.S. Cl. 33—366 **18 Claims**



1. Gradient indicator for determining the inclination of structures, systems or machines sensitive to inclination, comprising:

a base having bearing faces;

a carrier plate on said base carrying at least one clinometer which is supported by three bearing feet in measurement positions which are rotated by 180° in each case;

measurement axes X+ and X−, and Y+ and Y−;

guide devices assigned to the base which guide the bearing feet of the carrier plate into defined, reproducible positions when they are set on the bearing faces of the base;

said carrier plate comprising a turntable which is mounted on said base so as to rotate around an axis of rotation, and tilt relative to the axis of rotation, and to be raised and lowered in a longitudinal direction of the axis of rotation;

motor-drive means for rotation of said turntable and lifting device for raising and lowering the turntable;

said base having further bearing faces to support the turntable in two additional measurement positions, offset from one another by 180°, in the direction of calibration measurement axes K+ and K−, which forms an angle with the measurement axes X+ and X−, and Y+ and Y−;

means for raising or lowering the bearing faces lying in alignment with the calibration measurement axes K+ and K− relative to all other bearing faces lying in a common plane, by a fixed amount, and run parallel to the common plane; and

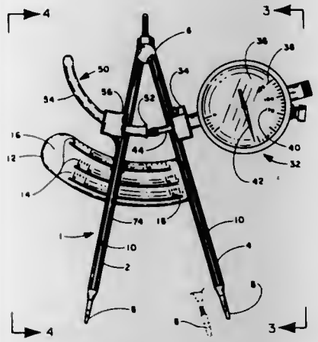
a microprocessor to which are connected the rotation device, the lifting device and the clinometer to control the movements of the turntable in the different measurement positions and to record and evaluate the measurement values measured by the clinometer.

5,210,955

CYLINDER BORE MEASURING APPARATUS

Glenn A. Lewis, 8838 W. Elm, Phoenix, Ariz. 85037

Filed Mar. 13, 1992, Ser. No. 850,558
Int. Cl.[5] G01B *5/12, 3/16*
U.S. Cl. 33—558.01 **14 Claims**



1. A measuring apparatus comprising:

a bifurcated tool having first and second legs wherein each of said legs has a top portion and a bottom portion and wherein the top portions of said legs are operatively connected thereby allowing the legs to move relative to each other;

a scale member operatively connected to one of said legs of said tool and wherein said scale member includes a plurality of spaced measurement indicia;

a dial indicator means operatively connected to said first leg of said tool wherein said dial indicator means includes a movable plunger, a pointer means and measurement indicia wherein movement of said plunger causes a corresponding movement of said pointer means relative to the indicia of the dial indicator means;

an arcuately-shaped follower means slidably connected to said second leg of said tool by an adjustable securing means, said follower means having an elongated curved body and a flat head portion wherein said securing means can be adjusted to allow the head portion of said follower means to be moved to contact the plunger of the dial indicator means at a plurality of different orientations of the legs of said tool.

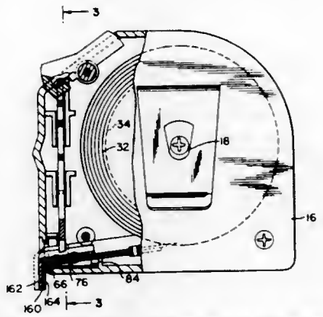
5,210,956

RETRACTABLE TAPE MEASURE

Barry Knispel, Hillsdale, N.J., and Sandor Goldner, Brooklyn, N.Y., assignors to Arrow Fastener Company, Inc., Saddle Brook, N.J.

Filed Mar. 3, 1992, Ser. No. 845,255
Int. Cl.[5] G01B *3/10*
U.S. Cl. 33—761 **14 Claims**

1. A tape measure assembly comprising a housing, a coiled tape mounted in the housing and adapted to be extended therefrom, said coiled tape having a free end extending from the housing, a pull tab secured to said free end of the tape, and a bumper mounted in the housing for contact by said pull tab when the tape is retracted into the housing, said bumper including a front surface for contacting the pull tab, a tape support surface behind said front surface and extending generally perpendicular thereto, an integral generally oval shaped spring behind said support surface, and means for limiting compression of the spring, said housing including a stop engaging said



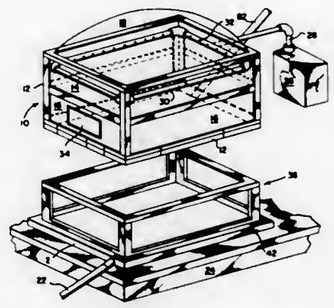
spring whereby when the tape is retracted the spring is compressed to absorb stress from the tab.

5,210,957

SYSTEM, APPARATUS AND METHODS FOR THE CONSERVATION OF FIBROUS MATERIAL

Marilyn Kemp Weidener, 612 Spruce St., Philadelphia, Pa. 19106

Filed Jun. 24, 1991, Ser. No. 719,374
Int. Cl.[5] F26B *5/04*
U.S. Cl. 34—15 **3 Claims**



1. In a system for the treatment of fibrous material, which comprises:

(a) an enclosed treatment zone;

(b) a vacuum zone disposed beneath said treatment zone;

(c) means between said vacuum zone and said treatment zone to support the fibrous material to be treated;

(d) means to provide a vacuum in said vacuum zone;

(e) means to introduce an aqueous treatment fluid to said treatment zone and to contact said fibrous material;

(f) inlet filter mans to permit filtered air to enter said treatment chamber and pass through said fibrous material into said vacuum zone;

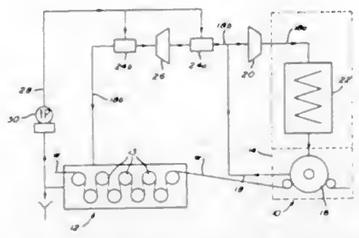
(g) the improvement which comprises;

(h) employing an ultrasonic humidifier means to introduce said treatment fluid to said treatment zone and to further apply said treatment fluid

to said fibrous material to be treated in a controlled and uniform manner thus preventing dripping of said treatment fluid through said material being treated.

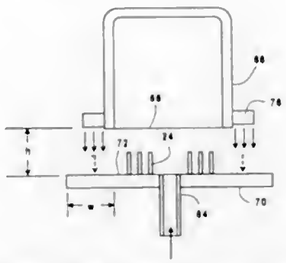
VOL 1150 ISS 3 MY 18 1993 UMI

5,210,958
PAPER WEB DRYING APPARATUS AND PROCESS
Jean F. Bond, Montreal; Reinhold H. Crotogino, Ponte Claire, and W. J. Murray Douglas, Baie d'Urfé, all of Canada, assignors to McGill University, Montreal and Pulp & Paper Research Institute of Canada, Pointe Claire, both of Canada
Filed Jul. 15, 1991, Ser. No. 729,316
Int. Cl.[5] F26B *3/04*
U.S. Cl. 34—18 11 Claims



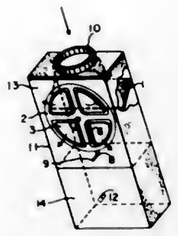
1. A process for drying a web of paper in a paper-making machine comprising the steps of directly contacting the paper web with superheated steam to evaporate the water in the paper web, exhausting the steam, feeding and superheating a major portion of the exhausted steam to recirculate it in a closed, air impervious system to be reapplied to the paper web, diverting the remaining portion of the exhausted steam, compressing it and cooling it to a saturated steam condition and passing the saturated steam through a cylinder-dryer for drying the web of a paper passing on the cylinder-dryer.

5,210,959
AMBIENT-FREE PROCESSING SYSTEM
Dennis F. Brestovansky, Danbury; Mark S. Nowotarski, Stamford, both of Conn., and Walter Plante, Auburn, Mass., assignors to Praxair Technology, Inc., Danbury, Conn.
Filed Aug. 19, 1991, Ser. No. 746,755
Int. Cl.[5] F26B *1/00, 25/06*
U.S. Cl. 34—22 29 Claims



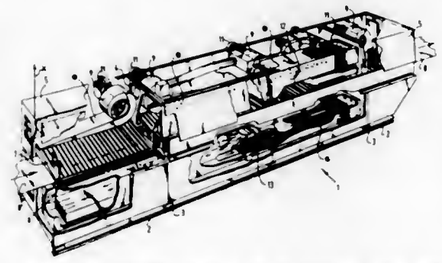
29. A method for providing in a processing vessel a selected atmosphere for processing of a workpiece on a workpiece carrier plate having a workpiece location and a surface for mating with an opening to said processing vessel, said method comprising:
(a) issuing laminarly from a diffuser surrounding said opening a curtain flow of selected gas in a direction approximately normal to and away from said opening;
(b) placing said carrier workpiece location within the curtain flow emanating from said diffuser;
(c) placing the workpiece in said carrier workpiece location;
(d) bringing said processing vessel opening and said carrier plate mating surface into coincidence; and
(e) discharging selected gas into said processing vessel.

5,210,960
LINT FILTER
Len LaRue, 6970 Pembroke Dr., Reno, Nev. 89502
Filed Sep. 14, 1992, Ser. No. 944,532
Int. Cl.[5] F26B *21/06*
U.S. Cl. 34—82 5 Claims



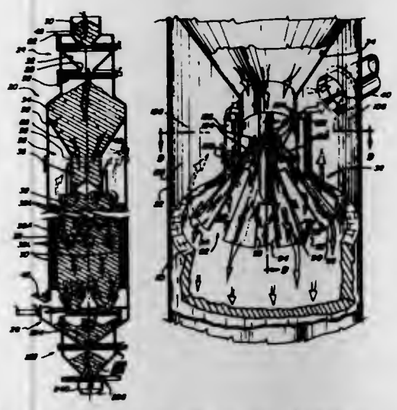
1. A lint filter in combination with a dryer having an air circulation system, said system having an exhaust blower and a discharge vent comprising; a chamber, said chamber having an input vent, means to attach said input vent of said chamber to said discharge vent of said dryer, a baffle, said baffle being disposed within said chamber forming first and second compartments, said second compartment being located below said first compartment, said second compartment having means to remove accumulated materials, said first compartment having an exhaust vent, a disc filter, means to rotateably mount said disc filter in a working relationship with said exhaust vent, a wiper blade, said wiper blade having mounting means, said wiper blade being in communication and having a working relationship with said disc filter, said wiper blade being substantially mounted in a vertical position in relationship to said disc filter, means to rotate said disk filter, whereby,
when exhaust air from said exhaust blower of said dryer is directed into said input vent of said chamber of said lint filter, said baffle directs said exhaust air thru substantially the top half of said disc filter and when said disc is rotated, said wiper blade wipes material accumulated on said disc filter into said second compartment.

5,210,961
DRIER WITH IMPROVED CONFIGURATION OF THE AIR DUCTS
Thomas G. M. Jacobs, Cuijk, and Clemens J. M. de Vroome, Beugen, both of Netherlands, assignors to Stork Contiweb B.V., Boxmeer, Netherlands
Filed Nov. 14, 1990, Ser. No. 614,852
Claims priority, application Netherlands, Nov. 15, 1989, 8902825
Int. Cl.[5] F26B *13/00*
U.S. Cl. 34—155 19 Claims



1. A drier for elongate strips of carrier material comprising: a row of nozzles extending in the transverse direction of the strips for drying, each of said nozzles having a feed opening on at least one side for supplying a gas mixture, said nozzles having a first end and a second end, said side positioned between said first end and said second end, said first end is spaced apart from said second end in a longitudinal direction and said first end positioned closer to the strip than the second end wherein a nozzle region is defined between said first end and said second end;
a feed duct extending at least partially adjacently to said nozzles and side-by-side to said nozzles, and in fluid communication with said nozzles through said feed openings; and
a fan for supplying the drying gas mixture having an outflow opening, said feed duct in fluid communication with and directly connected to said fan through said outflow opening wherein said fan is located outside the nozzle region in the longitudinal direction.

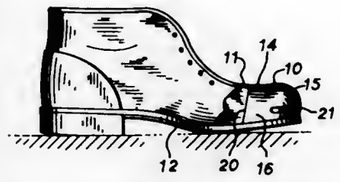
5,210,962
VERTICAL SHAFT PROCESSOR
John B. Jones, Jr., 12557 E. Kentucky Pl., Aurora, Colo. 80012
Filed Sep. 13, 1991, Ser. No. 759,462
Int. Cl.[5] F26B *17/12*
U.S. Cl. 34—168 48 Claims



28. In a vertical shaft processor having a substantially cylindrical shell with a central vertical longitudinal axis, an exhaust port in an upper portion thereof and feed means at the top of said shell for introducing particulate material to the shell that is to be treated therein, wherein the improvement comprises:
a material separator mounted in said shell beneath said feed means to receive particulate material from said feed means, said material separator having a downwardly divergent wall onto which said particulate, material is deposited, said wall ahving a peripheral lower edge and slots formed therein, said slots opening through said peripheral edge so that some particular material can pass through said slots and drop beneath said separator while other particulate material can pass over said peripheral edge and drop to the side of said material separator.

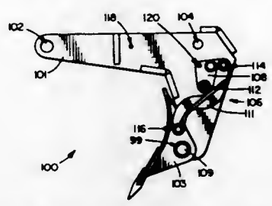
5,210,963
MOLDED PLASTIC TOE CAP
John M. Harwood, 15140 Irene Ct., Elm Grove, Wis. 53122
Filed Nov. 26, 1991, Ser. No. 798,387
Int. Cl.[5] A43C *13/14*
U.S. Cl. 36—77 R 12 Claims

1. An injection molded toe cap for a protective shoe of the type having a rearwardly opening shoe toe-shaped body including a roof which blends smoothly into opposite lateral generally vertical side walls and a generally vertical front wall, and an open rear end defined by a rear edge including the rear edges of the roof and side walls, said toe cap comprising:
a fiber-filled plastic resin body having a major portion of the fibers contained in the part of the resin body forming the roof oriented in a generally lateral direction between the side walls; and,



means for increasing the strength of the roof of the toe cap relative to the front wall to provide a controlled vertical collapse of the body under a vertical load imposed on the roof, said means comprising an elongate generally horizontal slot defining a region in said front wall of substantially reduced cross section relative to the thickness of the roof.

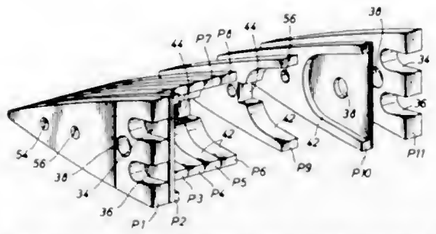
5,210,964
SPOT MOUNDER METHOD AND APPARATUS
Samuel F. Lam; James A. Maxwell, both of Victoria, and James M. Ewart, North Vancouver, all of Canada, assignors to The Province of British Columbia, Ministry of Forests, Victoria, Canada
Continuation-in-part of Ser. No. 321,283, Mar. 9, 1989, abandoned. This application Sep. 26, 1990, Ser. No. 589,493
Int. Cl.[5] E02F *3/00*; A01B *61/04*
U.S. Cl. 37—118 R 9 Claims



2. A method of constructing mounds from earth comprising the steps of inserting a digging blade connected to a digging blade frame in a first position into the ground at a predetermined time and location by simultaneously rotating said digging blade, said digging blade frame and a connecting linkage between said digging blade and said digging blade frame about a first pivotal connection between said digging blade frame and said support frame, applying downwards force to said digging blade frame while maintaining said digging blade in said first position relative to said digging blade frame, releasing said connecting linkage between said digging blade and said digging blade frame which constrains said digging blade in said first position such that a link member of said connecting linkage rotates around an off center position and moves a link arm pivotally connected at one end to said link member and at the opposite end to said digging blade, rotating said digging blade to a second position relative to said digging blade frame by said movement of said link arm while raising said digging blade frame and said connecting linkage and rotating said digging blade from said second to said first position by reverse movement of said link arm and said link member.

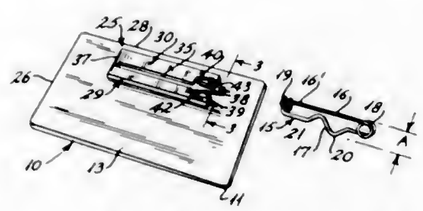
VOL 1150 ISS 3 MY 18 1993 UMI

5,210,965
FABRICATED BUCKET TOOTH
Charles F. Funk, Sr., and Charles F. Funk, Jr., both of Gulfport, Miss., assignors to Metal Parts, Inc., Gulfport, Miss.
Filed Jan. 23, 1990, Ser. No. 469,036
Int. Cl.[5] E02F 9/28
U.S. Cl. 37—454 5 Claims



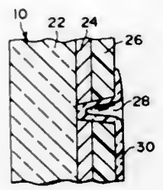
1. A replaceable point having a cavity to receive a nose of an adapter to provide a tooth for an earth digging and moving bucket comprising a plurality of flat-said, rolled steel plates, said plates being generally triangular shaped having an apex and a base opposite the apex, means for holding the plates in vertical, side-by-side relationship with the apexes of the plates aligned to form a cuting edge and the bases having recesses therein that combine to form a cavity to receive the nose of the adapter.

5,210,966
INDENTIFICATION TAG
Charles Fuehrer, Scarsdale, N.Y., assignor to Stoffel Seals Corporation, Tuckahoe, N.Y.
Filed Oct. 18, 1991, Ser. No. 778,654
Int. Cl.[5] A44C 3/00
U.S. Cl. 40—1.5 9 Claims



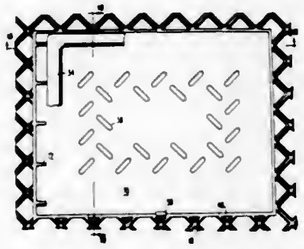
1. An identification tag for use with a crimp pin assembly, wherein the crimp pin assembly includes a base connected to a straight pin by way of a coiled spring and which also includes a hooked end extending outwardly of the base opposite the coiled spring, the tag comprising, a body having front and rear surfaces, a channel defined along said rear surface of said body by a pair of spaced flanges, said flanges having first and second ends and intermediate portions which extend generally parallel to said rear surface of said body, said intermediate portions of said flanges having opposing edges defining a slot therebetween which communicates with said channel, said channel being substantially wider than said slot, an opening into said channel at said first ends of said flanges of a size to permit the base of the pin assembly to be slidingly received within said channel with the hooked end thereof extending outwardly through said slot, a notch formed in one of said flanges, said notch communicating with said slot at a point spaced from said first end of said flanges, said notch being offset with respect to an axis taken along said slot and being of a size to permit the coiled spring of the crimp pin assembly to be seated therein, and protrusion members extending outwardly from each of said flanges adjacent said first end thereof for engaging the coiled spring when the coiled spring is seated within said notch and which thereby prevent the crimp pin assembly from being removed from the tag.

5,210,967
HIDDEN DISPLAY MIRROR
William D. Brown, 3040 SW. 50th St., Ft. Lauderdale, Fla. 33312
Filed Dec. 31, 1990, Ser. No. 636,111
Int. Cl.[5] G09F 13/12
U.S. Cl. 40—219 8 Claims



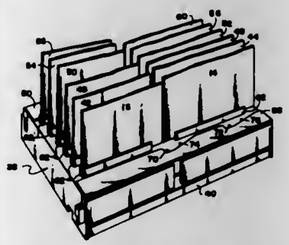
1. A device comprising:
a) a transparent sheet;
b) a reflecting sheet, said reflecting sheet affixed to the rear surface of said transparent sheet, said reflecting sheet having a narrow groove passing therethrough, the narrow groove describing a graphic design;
c) a light source, the brilliance of said light source being manually controllable, the light source being positioned behind said sheets, so that when the light source has a low level of brilliance the groove is so narrow as to be sufficiently inconspicuous that the graphic design is hidden from view upon casual inspection so that the device may function as an ordinary mirror, and when the light source has a high level of brilliance sufficient light therefrom passes through the groove so that the device acts as a light emitting display of said graphic design.

5,210,968
ADVERTISING PANEL FOR SHOPPING CARTS
Houston Rehrig, Richmond, Va., assignor to Rehrig International, Inc., Richmond, Va.
Continuation of Ser. No. 636,014, Jan. 4, 1991, abandoned, which is a continuation of Ser. No. 333,680, Apr. 6, 1989, abandoned, which is a continuation-in-part of Ser. No. 190,065, May 4, 1988, Pat. No. 4,922,639. This application Dec. 2, 1991, Ser. No. 807,761
The portion of the term of this patent subsequent to May 8, 2007, has been disclaimed.
Int. Cl.[5] G09F 3/00
U.S. Cl. 40—308 15 Claims



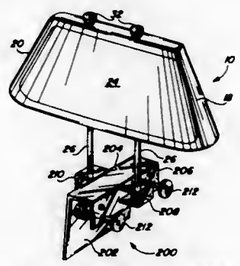
1. Advertising panels for mounting on a basket of a cart, wherein the basket walls are formed of an open latticework construction, two said advertising panels are mounted back-to-back on the front wall of the basket, one said advertising panel being mounted on the outside of the front wall and the other said advertising panel being mounted on the inside of the front wall, and each said advertising panel comprises:
a rectangular flat plate element, said plate element being symmetrical around a central horizontal axis and having peripheral edge walls extending around at least a portion of the perimeter of and protruding from the front side of said plate element, said edge walls extending completely across three sides of said plate element, the remaining of said plate element serving as a receiving opening for an advertisement, said plate element comprises a stepped retaining lip disposed along at least a portion of said remaining side of said plate element that retains the advertisement within said advertising panel and permits the advertisement to be inserted easily in said advertising panel while preventing tampering with or loss of the advertisement, and each said plate element has a plurality of projections mounted on its back side, said projections fitting within openings in the latticework of the front wall of the basket, and projections on one said advertising panel corresponding in location to projections on the other said advertising panel;
mounting means comprising screws for mounting said advertising panels on the front wall of the basket, wherein said screws are threadedly mounted between respective pairs of said projections;
a rectangular frame element being symmetrical around a central horizontal axis, having dimensions corresponding to said plate element, and being releasably mountable on said plate element; and
retaining means for holding said frame element on said plate element, wherein said retaining means comprises a plurality of tabs disposed on the outer edges of said frame element and a plurality of openings disposed in corresponding locations on the inner edges of said edge walls of said plate element, said tabs engaging said openings when said frame element is mounted on said plate element;
wherein each said advertising panel secures an advertisement therein when said frame element is mounted on said plate element.

5,210,969
MOVING ADVERTISING DISPLAY
Fernando Suarez, 979 Cgetenne St., Costa Mesa, Calif. 92626
Filed Dec. 24, 1990, Ser. No. 632,879
Int. Cl.[5] G09F 11/30
U.S. Cl. 40—509 12 Claims



1. A moveable display apparatus comprising:
first and second spaced apart longitudinal track means communicating with first and second transverse spaced apart track means extending between said first and second longitudinal track means;
a plurality of pairs of panel carriers for travel in said longitudinal tracks means and said transverse track means;
a plurality of pairs of display panels, each panel mounted on a panel carrier;
said pairs of display panels having a preferred display face whereby each pair of display panels located on one of said longitudinal track means display a desired advertising message;
drive means for sequentially advancing said carriers in a given direction along said longitudinal and transverse means to display a pair of panels comprising an advertising message; and
means for preventing said carriers from jamming when being moved from the longitudinal track to the transverse track; and
means for preventing said carriers from twisting while in said transverse tracks.

5,210,970
REMOVABLE TRUCK-MOUNTED ADVERTISING SIGNS AND METHOD
William A. Elmer, 1010 Temple Grove Ct., Winter Park, Fla. 32789
Continuation-in-part of Ser. No. 546,714, Jul. 2, 1990, Pat. No. 5,084,994. This application Jan. 31, 1992, Ser. No. 830,563
The portion of the term of this patent subsequent to Dec. 4, 2009, has been disclaimed.
Int. Cl.[5] G09F 21/04
U.S. Cl. 40—591 12 Claims



1. Apparatus for removably mounting an advertisement to a trunk having a vertical panel, such as a vertical tailgate or a vertical side, comprising:
an aerodynamic member having a leading surface, a trailing surface and advertising spaces between those surfaces, the member having a longitudinal dimension between the surfaces and lateral dimensions between the advertising spaces with the longitudinal dimension being substantially greater than the lateral dimensions;
a unitary mounting means including upstanding brace means for releasably attaching the aerodynamic member to a vertical panel of a trunk with the advertising spaces extending generally vertically, the mounting means including a portion dimensioned to pass across a top surface of a vertical panel of a truck;
the upstanding brace means rigidly joined with the mounting means at spaced points and joined with the aerodynamic member at spaced points, so as to prevent rotation of the aerodynamic member and maintain the longitudinal dimension extending in a predetermined direction.

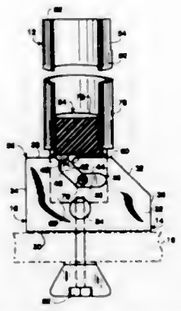
5,210,971
FISHING ROD HOLDER
John Efantis, 3257 E. 136th St., Chicago, Ill. 60603
Filed Jan. 23, 1992, Ser. No. 824,545
Int. Cl.[5] A01K 97/10
U.S. Cl. 43—21.2 19 Claims

1. A fishing rod holder apparatus, comprising:
a base including an upstanding wall means having a pair of opposed spaced-apart major side surfaces and an outer convex edge surface therebetween comprising a series of generally planar support surface portions which are angularly displaced from one another, said base defining a pin-receiving aperture extending adjacent the planar sup-

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port surface portions through the base between the side surfaces;

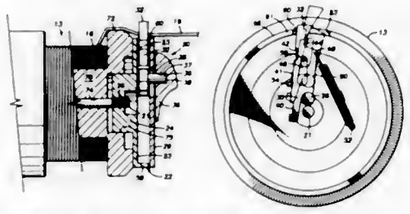
a holder member for engaging a fishing rod, comprising a tube and a mounting clevis extending from the tube, the mounting clevis having a pair of spaced legs depending from a generally planar stop surface, the planar stop surface cooperating with the legs to define a channel for receiving at least a portion of the convex edge surface of said base so that the planar stop surface is positioned immediately adjacent the convex edge surface of the wall means;



pin means extending through said pin-receiving aperture so as to couple at least one of said legs to said wall means so as to constrain movement of the planar stop surface into and out of abutting engagement with the series of planar support surface portions, with the planar stop surface being moved from one planar support surface portion to another as the holder member is moved with respect to said base; and

said pin means, said pin-receiving aperture and said holder member cooperating to bring the planar stop surface into abutting engagement with said planar support surface portions to provide a positive stop for the holder member with respect to the base.

5,210,972
FISHING LINE RELEASE DEVICE
James R. Collins, 7710 Windswept La., Houston, Tex. 77063
Filed Apr. 27, 1992, Ser. No. 874,644
Int. Cl.[5] A01K *87/00*
U.S. Cl. 43—25 **21 Claims**



1. A fishing apparatus for casing a lure, comprising:

a flexible rod including a reel and a rod tip;

a fishing line wound at one end onto the reel, supported on the rod between the reel and the rod tip, and affixed at its other end to the lure;

means for preventing unwinding of the line from the reel as long as there is tension in the line; and

means for automatically releasing the line when tension is removed from the line.

5,210,973
TRELLIS CLIP
Bernard A. Kratky, and Gailiane Maehira, both of Hilo, Hi., assignors to University of Hawaii, Honolulu, Hi.
Filed May 7, 1991, Ser. No. 697,025
Int. Cl.[5] A01G *17/06*
U.S. Cl. 47—44 **1 Claim**



1. A method of supporting stems of growing plants comprising attaching a first end of a cord to one leg of a self-adjusting trellis clip having at least three parallel legs joined on alternating sides through 180° turns, extending the cord upward and over a support wire, and downward from the wire slidingly inserting the cord laterally into spaces between the legs of the trellis clip and extending the cord downwardly from the clip, tying a second end of the cord to a plant stem, growing the plant and extending the stem, tipping the clip, sliding the clip upward along the cord and creating slack in a portion of the cord below the clip, looping the slack portion around an extended portion of the stem and lowering the clip along the cord for tensioning the cord and supporting the extended stem without untying and retying the cord on the stem.

5,210,974
SNAIL/SLUG ERADICATION STAKE
Eric S. Pence, 204 Hygeia Ct., Leucadia, Calif. 92024
Filed May 4, 1992, Ser. No. 878,214
Int. Cl.[5] A01M *25/00*
U.S. Cl. 43—131 **3 Claims**



1. A ground inserted stake device for the eradication of garden snail and slug pest comprising,

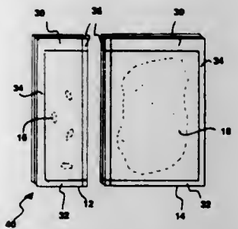
a substantially triangular planer climbing body portion having a pointed terminus for the insertion into the ground and an upper body portion opposite the pointed terminus,

an awning integrally formed to said upper body potion and extending outwardly from the upper body portion and downwardly towards the ground, said awning having a protective underside,

wherein the underside of said awning defines an inverted J-shaped void attractive to said pest and having a bait molluscicide substance therein,

said planer climbing body and said awning being integrally formed by extrusion molding.

5,210,975
SEED-SPROUTING KIT
Jerold L. Beckerman, 5339 Bevis Ave., Sherman Oaks, Calif. 91411
Filed Jan. 17, 1992, Ser. No. 822,386
Int. Cl.[5] A01G *9/02, 9/10*
U.S. Cl. 47—56 **11 Claims**



11. A method for sprouting seeds, comprising the steps of:

(A) forming a sprouter pocket having a rim portion and a pocket portion, comprising the steps of:

(1) opposing a first and second panel, each panel being constructed of a sheet material and each having outer edges;

(2) sealing together side and bottom portions of said first edges to side and bottom portions of said second edges opposing said portions of the first edges to form side and bottom seals defining said pocket portion; and

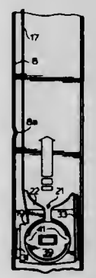
(3) severing portions of said side and bottom seals to form intake/drainage holes to form said sprouter pocket from said pocket portion;

(B) filling said sprouter pocket with prepared soil;

(C) positioning prepared seeds in said soil within said sprouter pocket; and

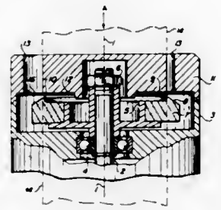
(D) positioning said sprouter pocket in water.

5,210,976
WINDOW BALANCE ASSEMBLY
Ken Cripps, Bramalea, Canada, assignor to Vinyl Concepts Incorporated, Woodbridge, Canada
Continuation of Ser. No. 745,728, Aug. 16, 1991, abandoned. This application Jun. 26, 1992, Ser. No. 904,678
Int. Cl.[5] E05D *15/22*
U.S. Cl. 49—181 **3 Claims**



1. A sash window balance assembly comprising a top opening balance shoe fitted within a window jamb channel having channel walls between which said shoe is trapped, a top opening in said shoe leading downwardly to a cam opening, a cam rotatably fitted in said cam opening, both said cam opening and said cam having small and large diameter regions, said shoe having outer brake pads to opposite sides thereof and being made of a flexible material which, when unstressed, by aligning the small diameter regions on said shoe and said cam with one another holds said shoe in a preset release position in which said shoe is movable along said window channel, said shoe being expandable from said preset release position to a brake position in which said brake pads engage said channel walls by rotating said cam such that said small diameter regions on said cam and said cam opening are out of alignment with one another, said brake pads being tapered upwardly along said shoe inwardly away from said channel walls whereby when said shoe is moved to said brake position and said shoe flexes outwardly from said top opening in said shoe, there is a flush contact at least substantially entirely along said brake pads with said channel walls, the small diameter region on said shoe being of a lesser diameter than the small diameter region of said cam opening whereby said shoe is additionally collapsible inwardly of said preset release position around said cam if subjected to interference in said window jamb channel.

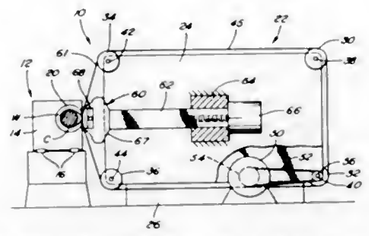
5,210,977
DRILL GRINDING DEVICE
Folke Werner, Kommendantsvagen 36, S-291, 36 Kristianstad, Sweden
Filed Nov. 27, 1991, Ser. No. 800,618
Claims priority, application Fed. Rep. of Germany, Dec. 3, 1990, 4038524
Int. Cl.[5] B24B *7/00*
U.S. Cl. 51—129 **2 Claims**



1. Device for grinding twist drills having undercut ground surfaces (**18**) and a chip groove (**20**) for each undercut ground surface, said device comprising a center axis (**1**), a grinding wheel (**7**) disposed rotatably around said center axis, said grinding wheel having a cone-shaped grinding surface (**8**), said device further comprising a drill guide piece (**11, 12**) disposed opposite said grinding surface and around and provided with guide channels (**13**) extending parallel to said center axis, said center axis, with guide projections (**16**) engaging with the chip grooves for the axial guidance of the undercut ground surfaces (**18**) of the drill relative to the grinding surface and for the radial guidance of said undercut ground surfaces (**18**) of the drills relative to the grinding surface, the guide channels being tangent at least approximately to an imaginary cylinder circumference (**14**) which is coaxial with the center axis, which cylinder circumference encounters the end of said grinding surface, which is closest to the drill guide piece (**11, 12**), characterized in that an acute-angled edge (**10**) is formed by the grinding surface (**8**) at its end which is closest to said drill guide piece (**11, 12**) together with the following surface portion (**9**) of the grinding wheel (**7**).

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5,210,978
NOSE PIECE RETAINER FOR ABRASIVE BELT BACKING SHOE
James D. Phillips, Posen, Mich., assignor to J. D. Phillips Corporation, Alpena, Mich.
Filed May 26, 1992, Ser. No. 888,143
Int. Cl.[5] B24B *21/18*
U.S. Cl. 51—141 7 Claims

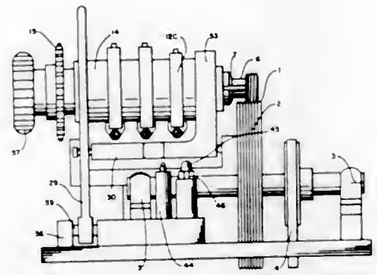


1. In apparatus for grinding a part such as a cam which includes a linearly-driven elongated abrasive belt having a part-contacting abrasive surface on one side and a backing surface on the opposite side, and a shoe for holding said belt in grinding contact with said part, the improvement wherein said shoe has a head provided with a separable nose piece engageable with the backing surface of the belt, said nose piece being generally T-shaped having a cross member provided with opposite side portions and a stem between said opposite side portions projecting laterally from said cross member, said head having a surface facing said backing surface of the abrasive belt formed with a stem-receiving recess and locating shoulders also facing said abrasive belt on opposite sides of said recess, said nose piece being mounted on said head in operative position with said stem disposed in said recess and said opposite side portions of said cross member overlying said respective shoulders, and releasable means for securing said nose piece in said operative position comprising a pin, said head having spaced openings and said stem having an opening between and aligned with said spaced openings, said pin having a flexibly resilient shank extending through said head and stem openings, said shank having an offset in said stem opening, said pin being rotatable to a locking position in which said offset presses inwardly on said stem opening to force said side portions of said cross member firmly into bearing engagement with said shoulders, and means for releasably retaining said pin in said locking position.

5,210,979
CUTTING METHOD WITH A ROTARY SHEET HONE
Taizo Shimomura, Kawasaki, Japan, assignor to Kabushiki Kaisha Shimomura Seisakusho, Kanagawa, Japan
Continuation of Ser. No. 614,250, Nov. 15, 1990, abandoned. This application Sep. 20, 1991, Ser. No. 762,791
Claims priority, application Japan, Nov. 17, 1989, 1-299145
Int. Cl.[5] B24B *49/08*
U.S. Cl. 51—165.9 2 Claims

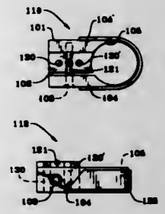
1. A method of performing work on a workpiece employing a tool adapted to engage the workpiece, comprising the steps of oscillating the tool into and out of maximum engagement with the workpiece, said oscillation being performed so as to cause said tool to constantly reciprocate between a condition of less than disengagement and a condition of maximum engagement with said workpiece and thereby constantly varying the force at which said tool is urged in each direction to maintain said tool in engagement with said workpiece to provide a uniform cutting of the workpiece.

5,210,980
DIAMOND GRINDING MACHINE FOR THREADING AND FORMING HARD MATERIALS SUCH AS CERAMICS, CARBIDE AND GLASS OBJECTS
Edwin D. Phillips, 170 Albert St., N. Plainfield, N.J. 07060
Filed Nov. 8, 1990, Ser. No. 610,252
Int. Cl.[5] B24B *49/00*
U.S. Cl. 51—165.77 7 Claims



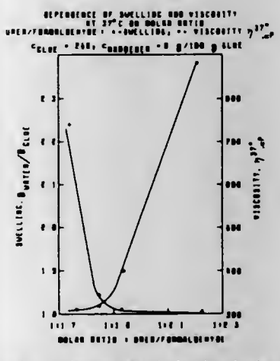
1. In a thread grinding machine comprising
a grinding wheel having a first axis of rotation, and a periphery with plural concentric tooth forms thereon having a given pitch,
means for supporting the grinding wheel on an axis of rotation,
means for rotating the wheel about said axis,
a work spindle having a second axis of rotation,
means for supporting said work spindle for rotation about said second axis, and
a chuck, supported by said work spindle for rotation a workpiece, the improvement comprising
means for both rotating said work spindle and feeding said workpiece laterally with respect to said grinding wheel various integral multiples of said grinding wheel pitch per work spindle revolution, whereby threads of said given pitch, but different leads, may be produced by a single grinding wheel.

5,210,981
BELT SANDER MOUNTING BLOCK AND GUARD ASSEMBLY
Paul Urda, South Waverly, Pa., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.
Filed Feb. 3, 1992, Ser. No. 829,824
Int. Cl.[5] B24B *23/06*
U.S. Cl. 51—170 EB 6 Claims



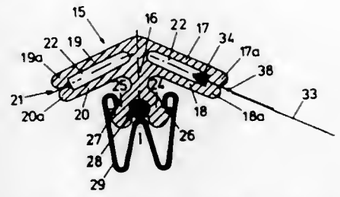
1. A mounting and guard device for a belt sander sanding belt engaging and driving means or the like comprising:
a mounting block means for mounting a belt sanding device to a rotary power source;
a guard means attached to said mounting means and at least partially encircling the sanding belt engaging and driving means for limiting user contact with the sanding belt engaging and driving means; and
wherein said mounting block means and said guard means are provided with a cooperating arcuate surface and a cooperating diagonal surface for fixing the position of said guard means on said mounting block means.

5,210,982
ANIMAL GLUE HARDENING COMPOSITION AND ARTICLE AND METHOD OF MANUFACTURING THEREOF
Ronald S. Kormanek, 11 Ashlor Dr., Middle Grove, N.Y. 12850, and Ilie V. Mandru, 54 Saratoga Blvd., Gloversville, N.Y. 12078
Filed Jan. 22, 1991, Ser. No. 644,305
Int. Cl.[5] C09K *3/14*
U.S. Cl. 51—298 17 Claims



1. An animal or collagen based glue hardening composition consisting essentially of a product of the reaction between urea and formaldehyde and a stabilizer comprising a latex polymer or a polyhydroxylic compound, wherein the molar ratio of urea to formaldehyde is between approximately 1:1.7 to 1:2.4 moles of urea to formaldehyde.

5,210,983
EXTRUDED SECTION FOR USE AS A RIDGE OR GUTTER SECTION IN A FOIL GREENHOUSE, AND FOIL GREENHOUSE PROVIDED WITH SUCH AN EXTRUDED SECTION
Hans J. P. Kolk, Meezenstraat 42,, 9271 EZ Zwaagwesteinde, Netherlands
Filed Nov. 15, 1990, Ser. No. 612,965
Claims priority, application Netherlands, Nov. 16, 1989, 8902836
Int. Cl.[5] E04B *1/12*
U.S. Cl. 52—63 13 Claims



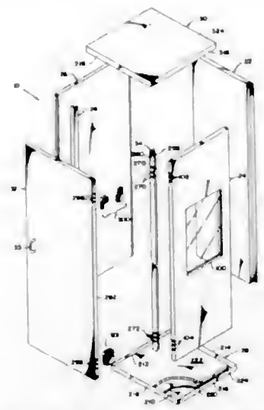
1. An extruded section for use as a ridge or gutter section in a foil greenhouse, said extruded section comprising at least one hollow extending in the longitudinal direction of the section, said hollow being accessible from the exterior via a slot and adapted for receiving a thickened rim of a foil material, characterized in that the hollow is bounded by two arms arranged above each other, at least one of said arms being so resilient that said arms can be bent apart sufficiently to permit the thickened rim of a foil material to pass into said hollow, and that said extruded section comprises another hollow extending in the longitudinal direction of the section, for mounting an elongate metal element, characterized in that said extruded section comprises a body with said arms extending outwardly from the body, at least one of the arms having an end remote from the body with a thickened rim turned towards an oppositely arranged end of the other arm of said pair and characterized in that the body further comprises two legs which enclose said another hollow.

5,210,984
AUDIOMETRIC BOOTH
Alan Eckel, Westford, Mass., assignor to Eckel Industries, Inc., Cambridge, Mass.
Continuation of Ser. No. 517,944, May 2, 1990, abandoned. This application Jun. 30, 1992, Ser. No. 906,816
Int. Cl.[5] E04B *1/343*
U.S. Cl. 52—79.5 25 Claims

1. A sound proof enclosure of modular construction comprising:
a back panel having opposed side edges;
two opposed side panels;
said back panel comprising inner and outer mutually spaced plates, a sound absorbing medium between said plates, and first and second tabs projecting from the opposite side edges of said back panel, said tabs being integral parts of the outer one of said mutually spaced plates;
each of said two opposed side panels having first and second opposite side edges extending parallel to the opposite side edges of said back panel, each of said side panels comprising inner and outer mutually spaced plates, a sound absorbing medium between said plates, and first and second flanges located at said first and second opposite side edges of said side panels respectively, said first flange forming a first channel between itself and said side panel and said second flange forming a second channel between itself and said side panel;
said first tab of said back panel projecting into said first channel of said first side panel and said second tab of said

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back panel projecting into said first channel of said second side panel, said first and second tabs each making a friction



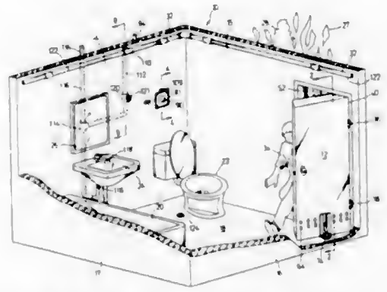
fit with said side panels so as to secure said side panels to said back panel.

5,210,985

FIRE ESCAPING ROOM

Chi-Lin Hsu, 5F-5, No. 245, Pa-Der Road Section 2, Taipei, Taiwan

Filed Feb. 15, 1991, Ser. No. 655,748
Int. Cl.[5] E04H *9/00*
U.S. Cl. 52—169.6 2 Claims



1. A fire-escaping room comprising:

several vertical room walls, a floor and a roof constructed by fire-proof material and together defining said fire-escaping room;

a metal door frame firmly disposed on one of said vertical room walls, said door frame having an inner peripherial surface formed with an inward perpendicularly projecting step portion into which a continuous frame-shaped sealing member being inserted;

a horizontally openable fire-proof door hinged to said door frame and serving as an only entrance/exit of said fire-escaping room whereby when closed, said fire-proof door airtightly abuts against said frame-shaped sealing member to form a completely closed space, said fire-proof door including a metal outer casing and an inner compartmentalizing board which together define an upper chamber and a lower chamber, said upper chamber being filled up with a thermally insulating layer, said lower chamber being formed with several vent holes for ventilating said fire-escaping room, said fire-proof door further including a manually operated slide block set located in said lower chamber, said slide block set being operable inside said fire-escaping room to slide between a first vent hole-closing position and a second vent hole-opening position;

a manually operated air pump embedded in one of said vertical room walls, including a housing having an open end, an elastic soft wovable diaphragm sealedly covering said open end, a manually operated pull button fixedly mounted on said movable diaphragm, an inlet formed on a lower portion of said housing and communicated with a ventilating pipe extending externally, an outlet formed on an upper portion of said housing and communicated with a discharging pipe extending into said fire-escaping room, a first steel ball placed on said inlet to block said inlet and a second steel ball placed on said outlet to block said outlet, said housing and movable diaphragm together defining an air chamber whereby by means of repeatedly pulling/pushing said pull button disposed on said movable diaphragm, the volume of said air chamber is changed to suck external air through said ventilating pipe into said air chamber and then the air in said air chamber is compressed to discharge from said discharging pipe into said fire-escaping room intermittently;

an endless sprinkling pipe disposed around said vertical room walls, said sprinkling pipe being formed with a plurality of sprinkling holes and connected with a water supply incoming pipe by a connecting pipe, a manually operated controlling valve being disposed on said connecting pipe to conduct/interrupt the water flow whereby when said controlling valve is located at a water flow conducting position, the water supplied from said incoming pipe flows into said sprinkling pipe to be sprinkled onto said vertical room walls and said floor; and

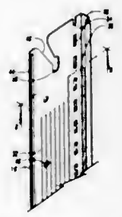
a draining hole formed on said floor.

5,210,986

WINDOW UNIT NAILING FIN AND CORNER LOCK

Bruce A. Hagemeyer, Pella; Mearl Minter, Oskaloosa; Merlan J. Rolffs, and Jay T. Scripter, both of Pella, all of Iowa, assignors to Rolscreen Company, Pella, Iowa

Filed Feb. 4, 1991, Ser. No. 650,232
Int. Cl.[5] E06B *1/04*
U.S. Cl. 52—211 48 Claims



1. A window unit adapted to be mounted in an opening in a wall of a building, comprising,

a window unit in a plane having a frame including top and opposite side members, each of said members having an outside face perpendicular to said plane and a front face parallel to said plane,

a frame fin in a closed position extending along the outside face of each of said members pivotable to an open position,

attachment means for securing said frame fins to each of said members, and

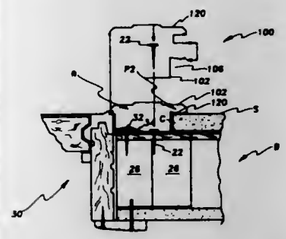
the outside face of each member having a recess in which said frame fin is received when in said closed position, said frame fins in said closed position being in a plane inwardly of and parallel to the outside faces of said members.

5,210,987

MOLDING SYSTEM FOR REPLACEMENT DOORS AND WINDOWS

Brian J. Larkowski, 1952 Stanley Ave., Signal Hill, Calif. 90806

Filed Aug. 4, 1992, Ser. No. 924,644
Int. Cl.[5] E06B *1/04*
U.S. Cl. 52—211 7 Claims



1. A molding system for use about the periphery of an article, the article being attached to and disposed within an opening in a supporting structure, said molding system comprising:

a) a first member having a tab and being fastenable about the periphery of the article;

b) fastening means for fastening said first member about the periphery of the article;

c) a second member having a first return engagable with said tab in said first member and having a second return engagable with a groove about the periphery of the article;

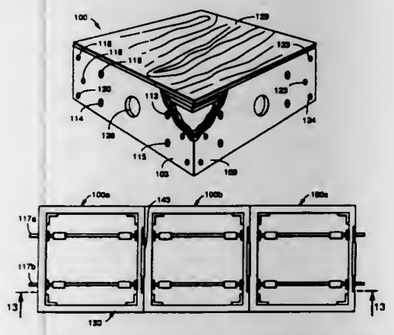
said first member having a substantially Z-shaped configuration, having one end insertable within a recess about the periphery of the article, and having an opposite end tensioned against the supporting structure adjacent to the periphery of the article, whereby said tab is disposed on said opposite end and directed inwardly toward the supporting structure, whereby said first return is slidably insertable between said opposite end of said first member and an opposing surface of the supporting structure, and whereby said second member conceals a joint between the article and the supporting structure associated therewith.

5,210,988

GRIDBEAM

Donald R. Shaifer, 3171 Loma Verde Pl., Palo Alto, Calif. 94303

Filed Mar. 15, 1991, Ser. No. 670,064
Int. Cl.[5] E04C *3/10*
U.S. Cl. 52—223.7 7 Claims



1. A modular-constructed, horizontal load-bearing surface spanning and resting upon at least two vertical support columns comprising a plurality of modular panel units each said modular panel unit adapted for use in constructing a horizontal, load-bearing surface in a building comprising a four-sided box frame having two pairs of parallel solid walls of equal and substantial height with adjacent walls joined to one another to give four orthogonal corners and a rectangular or square flat-top surface and bottom surface to said box frame,

a rectangular or square top panel corresponding in dimensions to the perimeter of the box frame and affixed to the top surface of the box frame to give a rigid, closed-top, open-bottom rectangular or square box of substantial height with

a plurality of apertures in each pair of parallel walls, said apertures being located at about one-third and about two-thirds of the substantial height of said walls from the bottom surface and positioned so as to define passages perpendicular to the pair of walls in which they are located and parallel to the pair of walls adjacent thereto,

said plurality of modular panel units disposed in successive abutting relationship such that the apertures in adjacent units align to define linear passages through said plurality of modular units, and

at least one threaded joining rod passing through at least one of said linear passages formed from apertures located about one-third of the substantial height of said wall from the bottom surface,

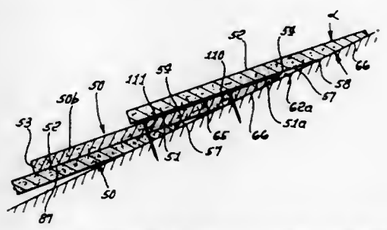
said threaded joining rod having threaded coupling nuts on opposite asides of each pair of abutting walls of adjacent units tightened against one another, thereby joining adjacent units into post-tensioned relationship with one another and creating with at least a portion of said plurality of modular panel units a rigid span between two of the support columns.

5,210,989

LIGHTWEIGHT CEMENTITIOUS ROOFING, TAPERED AND RECESSED

Karl W. Jakel, 3924 Park Pl. #4, Montrose, Calif. 91120

Filed May 12, 1992, Ser. No. 881,845
Int. Cl.[5] E04D *1/22*
U.S. Cl. 52—518 11 Claims



1. Roof shakes which are alike, there being, for each shake, a next-below shake, and each having:

a) an elongated cementitious body with top and bottom surfaces that extend lengthwise of the body, said body having laterally spaced, elongated edges, and opposite ends,

b) the body bottom surface having a tapered end portion angled to flatly engage the roof near an upper end of the shake, whereby the shake may be nailed to the roof in spaced relation to said end so that said bottom surface tapered end portion engagement with the roof provides leverage resisting wind up-lift forces exerted on the shake near a lower end of the shake installed in spaced relation to the roof,

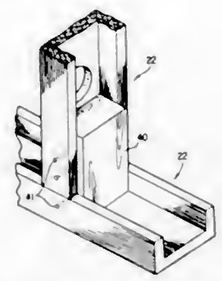
c) said bottom surface tapered end portion extending from said upper end of the shake to a bottom surface region which is closer to said upper end of the shake than to the lower end of the shake, the shake being rectangular in outline,

d) each shake having an untapered mid-portion between said opposite ends, the mid-portion of each shake overlying the tapered end portion of the next-below shake,

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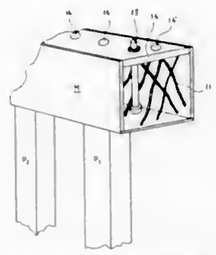
e) and a fastener extending through the mid-portion of each shake and through the bottom surface tapered end portion of the next-below shake,
f) the shake having constant overall thickness from said lower end to said tapered end portion,
g) the entire upper surfaces of said shakes being parallel

5,210,990
C-CHANNEL CONSTRUCTION MEMBER
James D. Kirk, Jr., Elkhart, Ind., assignor to Concept Resources Group, Ltd., River Forest, Ill.
Filed Jun. 28, 1989, Ser. No. 372,913
Int. Cl.[5] E04B *9/00*
U.S. Cl. 52—664 12 Claims



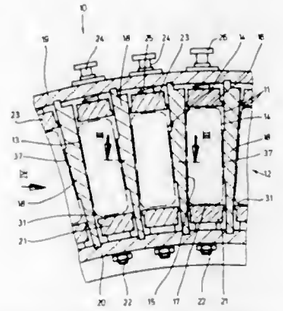
1. A frame for supporting wall, floor or ceiling panels in a building construction, said frame including a plurality of C-channel construction members of wood composite construction, each member having a web and two flanges,
said frame including at least one C-channel base member and at least one C-channel intersecting member wherein the flanges of the base member abut the flanges of said intersecting member;
and a splice element received between said abutting flanges to rigidly connect said base and intersecting members.

5,210,991
METHOD FOR MAKING THE FOUNDATION SLABS OF A PAPER MACHINE BEFORE THE INSTALLATION PROPER OF THE MACHINE
Jaakko Hakala, Korpilahti, and Eero Savolainen, Jyväskylä , both of Finland, assignors to Valmet Paper Machinery Inc., Finland
Filed May 30, 1991, Ser. No. 707,464
Claims priority, application Finland, Jun. 7, 1990, 902838
Int. Cl.[5] E04B *1/08*
U.S. Cl. 52—743 4 Claims



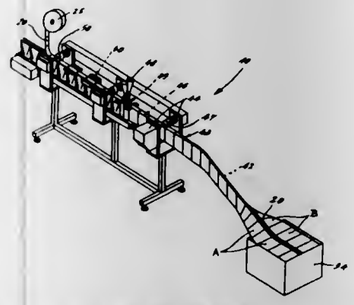
1. A method for making the foundation slabs of a paper machine comprising
casting a base beam in a mold and fitting reinforcement strands into the base beam inside said mold,
installing a base slab having a plurality of foundation bolts onto said reinforcement strands such that a face of said base slab lies in a horizontal plane with an accuracy of about ±5 mm of a sufficiently desirable planar position such that said base slab defines an upper surface of said mold, and thereafter
concreting said mold by pouring a casting material into said mold through filling-casting holes provided in said base slab or through a space between said base slab and a wall of said mold
allowing the concrete cast to dry and then tightening said foundation bolts to a final tightened position, and
carrying out the ultimate machining of said base slab by passing a machining device support by guides which have been adjusted to a horizontal level, along faces of said base slab.

5,210,992
APPARATUS FOR SHAPING AND FOR SETTING THE GLUE OF CUBOIDAL (CIGARETTE) PACKS
Heinz Focke, Verden, Fed. Rep. of Germany, assignor to Focke & Co., Verden, Fed. Rep. of Germany
Filed Nov. 20, 1991, Ser. No. 794,949
Claims priority, application Fed. Rep. of Germany, Nov. 27, 1990, 4037692
Int. Cl.[5] B65B *61/24, 5/10, 5/12*
U.S. Cl. 53—387.3 2 Claims



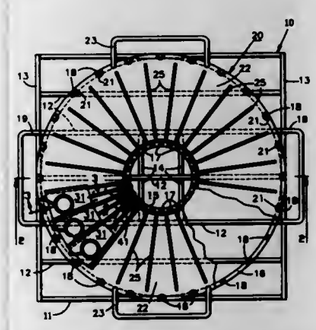
1. An apparatus for shaping cuboidal cigarette packs of the hinge-lid type immediately after their completion and for setting spaced-apart glue spots (**33, 34**) in a region of a collar (**32**) connected to a front panel (**14**) of each pack and in a region of an inner tab (**36**) connected to an inner side of a front panel (**35**) of the lid of each pack, said apparatus comprising:
a) a plurality of pockets (**11**) disposed next to one another on a common conveyor (**10**),
b) each pocket (**11**) having a cross-section that corresponds to the cuboidal shape of a pack and being designed to receive one pack; and
c) a plurality of pairs of stationary partition walls (**18**) defining said pockets, each partition wall (**18**) having a first side resting against a pack front panel (**14**), and a second side resting against a rear panel (**15**) of the pack,
d) each pocket (**11**) comprising an insert orifice (**27**) for one pack and a pocket bottom (**28**) located opposite said orifice;
e) said first side of each partition wall (**18**) having a strip-like shoulder (**37**) which projects inwardly of the pocket and which rests against the pack front panel (**14**);
f) said strip-like shoulder (**37**) having a width that is slightly greater than that of a pack front panel middle region defined by the spaced-apart glue spots (**33, 34**);
g) the strip-like shoulder (**37**) extending from said insert opening (**27**) to said pocket bottom (**28**).

5,210,993
METHOD AND APPARATUS TO IMPLEMENT DOUBLE OPPOSED CONTAINERS FED AS A CONTINUOUS BAND TO FILLING STATIONS AND TO BE SEALED BY WELDING, AS WELL AS PACKAGES THUS OBTAINED
G. J. M. van Boxtel, Tilburg, Netherlands, assignor to Crescent Holding H.V., Netherlands
Filed Nov. 25, 1991, Ser. No. 797,310
Claims priority, application European Pat. Off., Nov. 28, 1990, 90203147
Int. Cl.[5] B65B *43/04*
U.S. Cl. 53—455 15 Claims



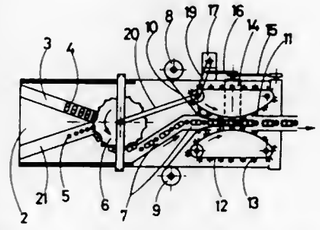
9. A method for filling and sealing a plurality of pairs of containers, comprising the steps of:
feeding a band of the plurality of pairs of containers along a support, the band forming two parallel rows of containers separated by a center strip;
centering the center strip of the band of the plurality of paris of containers along the support, the containers being vertically suspended form either side of the support with apertures of the containers facing upward;
divaricating edges of the apertures of the containers to open the apertures;
filling the containers at a filling station;
heat sealing the apertures of the containers;
separating the center strip from the parallel rows of containers;
recovering the separated strip; and
collecting the filled and sealed containers.

5,210,994
COLLECTOR FOR A FLUID SAMPLING DEVICE
Lewis G. Lynn, 65 Hillhurst La., Rochester, N.Y. 14617
Filed Jan. 24, 1992, Ser. No. 825,140
Int. Cl.[5] B65B *3/06, 39/00*
U.S. Cl. 53—469 20 Claims



1. A fluid sample collector for storing liquid samples from an associated liquid sample dispenser in a plurality of like, plastic bags each of which has an opening in one end thereof, comprising
a bag divider rack having thereon a bottom wall, and a plurality of dividers projecting vertically upwardly from said bottom wall in radially spaced relation to a centerline thereof, and angularly spaced from each other about said centerline,
first bag supporting means for releasably supporting one of said plastic bags in each of the angular spaces formed between said angularly spaced dividers, and
second bag supporting means including a plurality of filler spouts removably mounted on said dividers, and each of said spouts having therethrough an axial bore disposed to be releasably secured in communication with said opening in an adjacent one of said bags operatively to support said opening in position to register with said dispenser to receive a liquid sample therefrom.

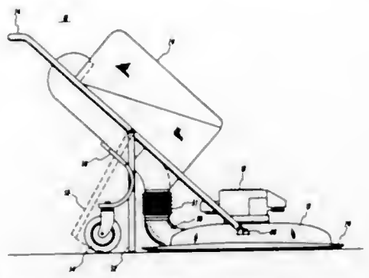
5,210,995
MACHINE DESIGNED FOR PACKAGING OBJECTS, PARTICULARLY CONTAINERS
Francisco A. Vico, Barcelona, Spain, assignor to Doboy Iberica S.A., Valencia, Spain
Filed Jul. 1, 1991, Ser. No. 723,582
Claims priority, application Spain, Jul. 3, 1990, 9001829
Int. Cl.[5] B65B *11/50, 35/54, 41/16, 51/10*
U.S. Cl. 53—591 9 Claims



1. Apparatus for combining articles in the form of a package, such as a plurality of containers, comprising:
a frame having a driven conveying belt, said conveying belt forming a horizontal platform for supplying said container articles, a pair of tracks disposed above said conveying belt for directing and feeding at least two container articles to about a center zone of said conveying belt, rotatable wheel means having a plurality of cavities disposed above said conveying belt for feeding said two container articles in an alternating in line fashion to an opening in a third track disposed above said conveying belt and downstream of said pair of tracks; said third track comprising substantially two straight portions extending from about a side edge area of said conveying belt to a central area of said conveying belt; oppositely disposed reel means for supplying tape material in the form of endless strips to opposite sides of said container articles; and thermowelding means for applying said strips of tape material to opposite sides of said container articles and for cutting said strips of tape material, such that at least two container articles are united in a packaged format.

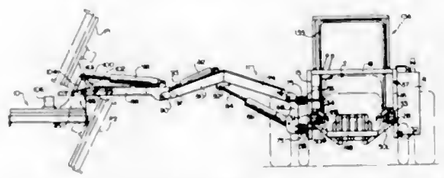
VOL 1150 ISS 3 MY 18 1993 UMI

5,210,996
AIR-FLOATED APPARATUS
Arthur L. Fassauer, 420 Foster La., Canyon, Tex. 79015
Division of Ser. No. 528,718, May 24, 1990, Pat. No. 5,101,615, and a continuation-in-part of Ser. No. 395,799, Aug. 18, 1989, abandoned. This application Apr. 6, 1992, Ser. No. 864,469
Int. Cl.[5] A01D *35/00*
U.S. Cl. 56—12.8 13 Claims



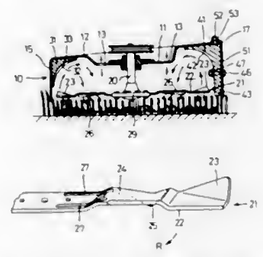
1. An apparatus, comprising, in combination:
a housing having an open bottom and an air intake opening, said housing being adapted to cooperate with a support surface beneath said housing to define a substantially enclosed chamber;
pressurizing means for pressurizing air in said chamber sufficient to float said housing above the support surface;
support means adapted to contact the support surface; and
coupling means for coupling said support means to said housing to allow said housing to float with respect to said support means, whereby said housing is floatable above the support surface by air pressure in said chamber when said support means is in contact with the support surface.

5,210,997
ARTICULATED BOOM TRACTOR MOUNTED CUTTER ASSEMBLY
Deliston L. Mountcastle, Jr., 1034 Rosemary Ave., Roanoke, Va. 24014
Continuation-in-part of Ser. No. 701,822, May 17, 1991, abandoned. This application May 4, 1992, Ser. No. 878,433
Int. Cl.[5] A01D *34/64, 34/86*
U.S. Cl. 56—15.2 18 Claims



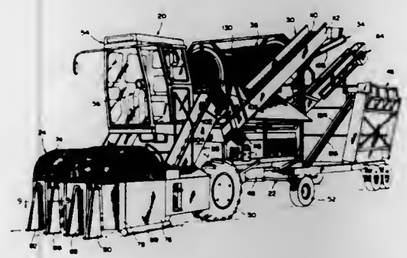
1. A tractor mountable power driven vegetation cutting means comprising:
A. A boom support frame including:
(1) a right front to rear extending horizontal side frame having right rear connection permitting means adjacent its rear extent for permitting rigid connection to the right rear axle housing and right front connection permitting means provided at its front extent;
(2) a left front to rear extending horizontal side frame having left rear connection permitting means adjacent its rear extent for permitting rigid connection to the left rear axle housing and left front connection permitting means provided at its front extent;
(3) a generally U-shaped front frame including a forward transverse front plate having a right end and a left end and including supporting central connection permitting means for permitting fixed connection to a forward portion of the tractor ahead of the front axle of the tractor, a right hand trailing frame extending rearwardly from said right end portion of said forward transverse plate frame and including right side frame connection permitting means for permitting rigid connection of a rear portion of said right hand trailing frame to said right front connection permitting means of said right front-to-rear extending horizontal side frame and a left hand trailing frame extending rearwardly from said left end of said forward transverse connector frame and including left side frame connection permitting means for permitting rigid connection of a rear portion of said left hand trailing frame to said left front connection permitting means of said left front-to-rear extending horizontal side frame;
(4) a bridge frame comprising vertically extending right leg means having upper and lower ends, vertically extending left leg means having upper and lower ends, a transverse horizontal coupling beam having right and left ends respectively connected to said upper ends of said right vertically extending leg means and said left vertically extending leg means and right and left medial connection permitting means in lower portions of said right and left vertically extending leg means for permitting rigid connection of said right and left vertically extending leg means respectively to medial portions of said right and left front to rear extending horizontal side frames;
B. an articulated support boom having an inner end and an outer end;
C. a housing pivot means on the outer end portion of said articulated support boom, a rotary cutter blade and a cutter blade housing pivotally mounted on said housing pivot means; and
D. swing bracket means for permitting connection of said inner end of said articulated support boom to one of said vertically extending leg means for providing support for said articulated boom for both horizontal and vertical swinging movement.

5,210,998
LAWN MOWER WITH DETACHABLE INNER MEMBERS IN CUTTER HOUSING
Hiroshi Hojo; Yasuhiro Sugimoto; Kazuhiro Sakamoto; Masanori Takeishi, all of Saitama; Dai Koumoto, Okayama; Akira Amano, and Yasuji Hashimoto, both of Saitama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 21, 1992, Ser. No. 822,739
Claims priority, application Japan, Jan. 18, 1991, 3-018389; Jan. 18, 1991, 3-018390
Int. Cl.[5] A01D *35/73, 35/82*
U.S. Cl. 56—255 14 Claims



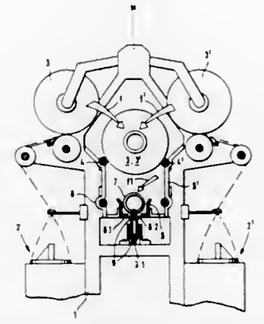
3. A cutter blade which is rotatable in a substantially horizontal plane to cut off grass clippings, comprising:
an elongate cutter blade member;
a cutting edge extending along a marginal edge of the cutter blade member from an end thereof toward an intermediate portion thereof near a center of rotation thereof;
an air impeller for producing upward air flows, said air impeller being disposed on said end of the cutter blade member behind said cutting edge in a direction in which the cutter blade rotates; and
a lowering member for directing air flows downwardly, said lowering member being disposed on the intermediate portion more closely to said center of rotation than to said air impeller;
said air impeller being uniformly inclined toward said center of rotation, said lowering, member having a surface facing in said direction and uniformly inclined toward said center of rotation.
12. A lawn mower comprising:
a cutter blade rotatable in a substantially horizontal plane;
a cutter housing, said cutter blade being rotatably accommodated in said cutter housing, said cutter housing comprising an upper wall having a raised scroll, and a circumferential wall having a discharge port contiguous to said scroll and defining a discharge port;
a first inner member detachably disposed along inner surfaces of the upper and circumferential walls of said cutter housing, said first inner member having an inner surface of arcuate cross section; and
said first inner member having at least one rib on said inner surface located to guide grass clippings cut off by said cutter blade upwardly and radially inwardly of the cutter housing.

5,210,999
CHILI HARVESTER
Robert O. Cosimati, Las Cruces, N. Mex., assignor to Crown Farming Systems, Inc., Las Cruces, N. Mex.
Filed Feb. 24, 1992, Ser. No. 840,272
Int. Cl.[5] A01D *45/24*
U.S. Cl. 56—327.1 18 Claims



1. A harvester for removing vegetative pods from row plants and separating the pods from trash such as leaves, stems and other unwanted material and discharging the separated pods into receptacle means, said harvester comprising a self-propelled steerable vehicle, pod picking means located forwardly of the vehicle for removing pods from the plants as the vehicle moves forwardly, conveyor means on the vehicle for conveying removed pods and other material received from the picking means rearwardly and upwardly in relation to the vehicle, a separating drum mounted on the vehicle for rotation about an inclined axis with the conveying means discharging pods and other material into an upper end of the inclined drum, said separating drum being rotatably driven about an inclined axis and including peripheral openings capable of discharging material smaller than the pods therethrough as the drum is rotated and conveyor means at a lower end of the separating drum for receiving separated pods therefrom and conveying the separated pods to the receptacle means.

5,211,000
CONVEYING MECHANISMS FOR DOFFED TAKE-UP PACKAGES OF PROCESSED YARN AND EMPTY YARN SUPPLY PACKAGE BOBBINS IN A TEXTILE YARN PROCESSING MACHINE
Heinz Fink, Krefeld, and Wolfgang Leupers, Monchen-Gladbach, both of Fed. Rep. of Germany, assignors to Palitex Project Company GmbH, Krefeld, Fed. Rep. of Germany
Filed Jul. 16, 1991, Ser. No. 730,665
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1990, 4023221
Int. Cl.[5] D01H *9/02, 9/18*
U.S. Cl. 57—281 12 Claims



1. A two-for-one twister textile yarn processing machine having a plurality of yarn processing stations positioned in side-by-side relationship in at least one row extending in the longitudinal direction of said machine, each of said yarn processing stations including a spindle assembly containing one or more supply packages of yarn wound on bobbins to be processed in said station and a take-up mechanism for winding yarn processed in said station onto bobbins to form take-up packages; wherein the improvement comprises:
first conveying means mounted to extend longitudinally and generally the full length of said machine and positioned to receive take-up packages of processed yarn from said take-up mechanism at each yarn processing station and convey such take-up packages to one end of said machine, said first conveying means including two driven endless conveyor belts laterally spaced from each other and defining generally horizontally-extending upper and lower runs of each of said belts for receiving take-up packages on said upper runs; and
second conveying means mounted to extend longitudinally generally the length of said machine in the space between said lower runs of said spaced conveyor belts forming said first conveying means to receive empty yarn supply package bobbins from said spindle assembly at each yarn processing station and convey such bobbins to one end of said machine.

5,211,001
SPINNING APPARATUS
Shigeki Mori, Ohtsu, Japan, assignor to Murata Kikai Kabushiki Kaisha, Kyoto, Japan
Filed Sep. 16, 1991, Ser. No. 760,168
Claims priority, application Japan, Sep. 18, 1990, 2-97655[U]
The portion of the term of this patent subsequent to Sep. 15, 2009, has been disclaimed.
Int. Cl.[5] D01H *1/115*
U.S. Cl. 57—328 8 Claims

1. A spinning apparatus for spinning a fiber bundle provided by a draft device, the draft device including rollers defining a nip point, the fiber bundle including a plurality of fibers defining an average fiber length L_o, the apparatus comprising:

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a nozzle block for imparting a turning air stream to the fiber bundle;

a spindle defining an axis and an inlet; and

a guide member secured to the nozzle block, the guide member defining an axis and an end portion, the guide member arranged substantially coaxially with the spindle such that the end portion is substantially adjacent to the inlet;

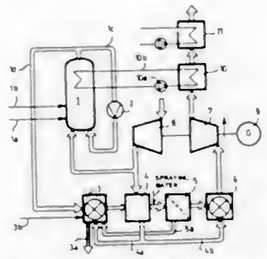
wherein a distance from the inlet to the nip point is substantially between ½ L_o and 1½ L_o.

5,211,002

PROCESS AND AN EQUIPMENT FOR THE RECOVERY OF ENERGY AND CHEMICALS IN A SULPHATE PROCESS

Seppo Ruottu, Karhula, Finland, assignor to Tampella Power Oy, Tampere, Finland

Filed Feb. 10, 1992, Ser. No. 832,891
Claims priority, application Finland, Feb. 14, 1991, 910730
Int. Cl.[5] F23G 5/12; F02G 3/00
U.S. Cl. 60—39.02 19 Claims



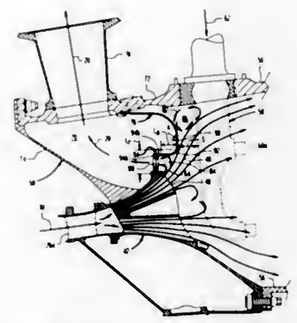
1. A process based on the use of a gas turbine and a compressor operated by the gas turbine for the recovery of energy and chemicals in a sulphate process, wherein black liquor having a dry solids content of typically 60 to 80% is passed into a gasification reactor in which it is gasified at a pressure above the atmospheric pressure in the presence of an amount of oxygen smaller than the stoichiometric amount by introducing hot air into the gasification reactor in such a way that the temperature of the gasification reactor ranges between 800° and 1,200° C., the air being compressed to a pressure above the atmospheric pressure by the compressor, whereafter sodium sulphide and sodium carbonate compounds thus converted into molten state are passed out of the gasification reactor as a molten mixture of the sodium sulphide and the sodium carbonate; the hot gases still containing molten and vaporized sodium are passed from the gasification reactor into a particle cooler which contains solid particles as heat transfer and nucleation material and through which the air from the compressor, compressed to a pressure above the atmospheric pressure, is passed so that the temperature of the particle cooler is between 300° and 600° C., whereby the sodium compounds are brought into solid state in the particle cooler; at least part of the air heated in the particle cooler is passed into the gasification reactor; and the gases cooled in the particle cooler are purified in a filter and then passed into the gas turbine.

5,211,003

DIFFUSER CLEAN AIR BLEED ASSEMBLY

Billy P. Samuel, Madeira, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Feb. 5, 1992, Ser. No. 831,707
Int. Cl.[5] F02C 6/18; F02G 3/00
U.S. Cl. 60—39.02 8 Claims



1. A method of bleeding compressed air downstream from a diffuser outlet and upstream from a fuel injector in a gas turbine engine comprising the steps of:

blocking recirculation flow of compressed diffuser discharge air discharged from said diffuser outlet and recirculating from adjacent said fuel injector by interposing a wall having a crest between said diffuser outlet and said fuel injector to create a sheltered zone disposed upstream of a recirculation zone containing said recirculation flow and in direct flow communication with said diffuser outlet without obstructing flow of said diffuser discharge air over said fuel injector, said sheltered zone being characterized by the absence of said recirculation flow and any fuel contained therein which may leak from said fuel injector; and

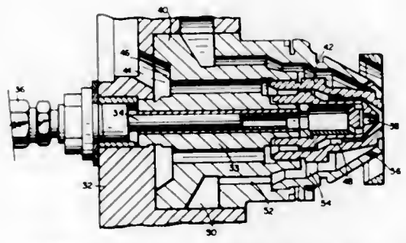
channeling a portion of said diffuser discharge air directly from said sheltered zone as bleed air.

5,211,004

APPARATUS FOR REDUCING FUEL/AIR CONCENTRATION OSCILLATIONS IN GAS TURBINE COMBUSTORS

Stephen H. Black, Duanesburg, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 27, 1992, Ser. No. 888,847
Int. Cl.[5] F02C 7/22
U.S. Cl. 60—39.27 3 Claims



1. Apparatus for stabilizing combustion in a gas turbine combustor operable in a lean premixed mode, and having a premixer zone, comprising:

an air supply system including an opening for delivering air into the premixer zone of the combustor and having a predetermined pressure upstream of said opening;

a nozzle including a fuel passage for passing fuel into the premixer zone of the combustor;

said fuel passage having a discharge orifice for delivering fuel into the premixer zone; and

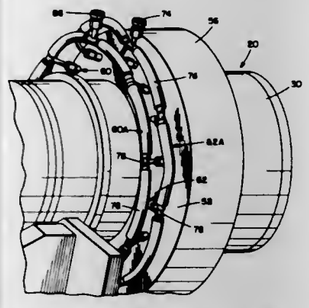
means upstream of said fuel discharge orifice for reducing the fuel pressure upstream of said fuel discharge orifice to approximately said predetermined pressure, said air supply opening and said fuel discharge orifice having substantially the same pressure drop, whereby pressure fluctuations in the premixer zone resulting from fuel/air concentration oscillations are substantially minimized or eliminated.

5,211,005

HIGH DENSITY FUEL INJECTION MANIFOLD

Camer V. Hovnanian, Fairfield, Conn., assignor to Avco Corporation, Providence, R.I.

Filed Apr. 16, 1992, Ser. No. 870,619
Int. Cl.[5] F23R 3/28; F02C 7/22
U.S. Cl. 60—39.32 13 Claims



1. A fuel injection system for use in the combustor section of a gas turbine engine, said fuel injection system comprising:

a first manifold of substantially toroidal configuration for supplying fuel to a plurality of first fuel injectors positioned at spaced circumferential locations including first outlet nozzles lying in a common plane at similar radial distances from a centerline of the engine, said first manifold including:

first fitting means associated with each of the first fuel injectors and in communication therewith; and

a plurality of first flexible tubular members, pliant at room temperature, interconnecting, respectively, each adjacent pair of said first fitting means; and

a second manifold of substantially toroidal configuration for supplying fuel to a plurality of second fuel injectors positioned at spaced circumferential locations including second outlet nozzles lying in the common plane at similar radial distances from the centerline of the engine, the second outlet nozzles being positioned intermediate the first outlet nozzles, said second manifold including:

second fitting means associated with each of the second fuel injectors and in communication therewith; and

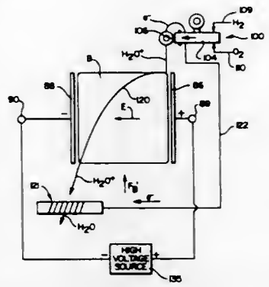
a plurality of second flexible tubular members, pliant at room temperature, interconnecting, respectively, each adjacent pair of said second fitting means.

5,211,006

MAGNETOHYDRODYNAMIC PROPULSION SYSTEM

Michael J. Sohnly, 17723 - 160th Ave., SE., Renton, Wash. 98058

Filed Nov. 12, 1991, Ser. No. 791,789
Int. Cl.[5] F03H 1/00
U.S. Cl. 60—202 34 Claims



1. A magnetohydrodynamic propulsion system for a vehicle, said propulsion system comprising, in combination:

a) means defining an endless closed-loop vehicle housing;

b) means mounted on said vehicle housing for generating a plurality of discrete spaced apart electric fields equally spaced about said endless closed-loop vehicle housing;

c) means mounted on said vehicle housing intermediate said discrete spaced apart electric field generating means for generating an endless closed-loop segmented magnetic field essentially contained within said housing and intersecting said discrete spaced apart electric fields substantially at right angles with respect thereto;

d) means for generating a plurality of plasma streams each containing a multiplicity of positively charged particles and free electrons; and,

e) means for directing said free electrons away from said plurality of spaced electric fields while simultaneously directing said positively charged particles through said plurality of spaced apart electric fields and said intersecting endless closed-loop segmented magnetic field whereby said particles are accelerated through said magnetic field by said electric fields and Lorentz forces applied to said particles as said particles pass through said magnetic field result in an equal and opposite reaction force applied directly to said magnetic field and indirectly to said endless closed-loop vehicle housing for propelling said vehicle in the direction of said equal and opposite reaction force.

5,211,007

METHOD OF PRESSURE-RATIO CONTROL OF GAS TURBINE ENGINE

Ira E. Marvin, Russell Springs, Ky., assignor to General Electric Company, Cincinnati, Ohio

Division of Ser. No. 683,162, Apr. 10, 1991. This application Sep. 23, 1992, Ser. No. 948,553
Int. Cl.[5] F02K 3/02
U.S. Cl. 60—204 12 Claims

1. A method for controlling a gas turbine engine, the gas turbine engine comprising:

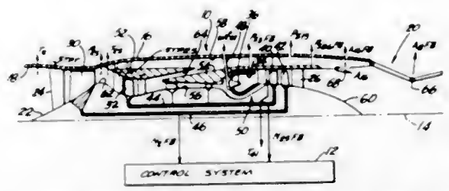
a core engine having a turbine means, a combustion chamber, and an exhaust plenum disposed at an end of said turbine means opposite said combustion chamber, said exhaust plenum receiving exhaust gas expelled from a combustion chamber via the turbine means;

compressor means driven by said turbine means for directing air into said combustion chamber, said compressor means including a low-pressure compressor and a high-pressure compressor;

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a bypass duct extending from an outlet of said low-pressure compressor to said exhaust plenum; and

entraining means connected to a downstream end of said exhaust plenum for entraining bypass air of said bypass duct with gas expelled from said combustion chamber and said turbine means, the entraining means being adjustable for varying flows of the bypass air and of the gas, said bypass duct serving as a first conduit of air past said core



engine, there being a second conduit of air in said compressor means for conducting air from the outlet of said low-pressure compressor to an inlet of said high-pressure compressor; and wherein

said method comprises a step of adjusting said entraining means in response to a ratio of pressure in one of said conduits to pressure in said exhaust plenum for control of flow of the bypass air and the exhaust gas.

5,211,008

GAS EJECTION NOZZLE FOR A JET ENGINE AND A JET ENGINE FITTED WITH THIS NOZZLE, IN PARTICULAR AN ENGINE OF THE SEPARATE FLOW TYPE

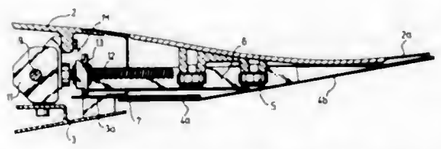
Etienne Fage, Ramatuelle, France, assignor to Conception Aeronautique du Sud Ouest, Blagnac, France

Filed Nov. 27, 1991, Ser. No. 798,807

Claims priority, application France, Nov. 28, 1990, 90 14984

Int. Cl.[5] F02K *1/09*

U.S. Cl. 60—226.2 **11 Claims**



1. An ejection nozzle with a variable outlet section for a jet engine, of the type comprising a fixed wall having an inner jacket (2) whose shape converges towards the nozzle outlet, characterized in that it comprises:

an axially movable annular skirt (4) disposed about the inner jacket (2) and comprising a cylindrical upstream portion (4*a*) guided by the fixed nozzle wall and a downstream portion (4*b*) whose shape converges towards the nozzle outlet, the end of this downstream portion having a diameter greater than that of the outlet section of the inner jacket,

means for guiding and axially displacing the moving skirt (5–7, 9–12), disposed about and externally to the inner jacket (2) and adapted to allow this skirt to be moved in axial translation between an upstream position in which the skirt is fully retracted about the inner jacket and a downstream position in which the downstream position of the skirt is disposed to the rear of the outlet section of the inner jacket, and

a semi-flexible crown (8) connecting the moving skirt (4) and the fixed inner jacket (2), this semi-flexible crown being connected to the skirt so as to be displaced therewith and bearing elastically about the inner jacket so as to remain in contact with the outer surface thereof during its displacement.

5,211,009

METHOD FOR THE REGENERATION OF PARTICULATE-FILTER SYSTEMS

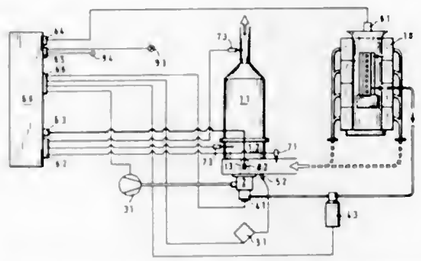
Hans Houben, Wuerselen; Heinrich Berendes, Cologne; Reinhard Pusch, Leverkusen, and Axel Rodemeister, Balingen-Engstlatt, all of Fed. Rep. of Germany, assignors to Kloeckner-Humboldt-Deutz AG, Cologne, Fed. Rep. of Germany

Filed Dec. 10, 1991, Ser. No. 805,115

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1990, 4040279; Mar. 8, 1991, 4107388

Int. Cl.[5] F01N *3/02*

U.S. Cl. 60—274 **13 Claims**



1. A method for the regeneration of a particulate-filter system for the exhaust gases of a diesel engine, said system including a burner (2) having an air-delivery pump (3.1), a fuel-delivery pump (4.3), a fuel metering valve (4.1), a pressure sensor (8.2) measuring the exhaust gas back pressure at said burner (2), a particulate filter (1.1), and a control device (6.0), wherein said burner (2) is locate in the exhaust-gas stream ahead of said particulate filter (1.1) and regeneration takes place by means of burning off of the deposited soot particles in said exhaust-gas stream and said control device (6.0) activates said burner (2) during a certain burning period in dependence on at least the exhaust-gas back pressure that prevails ahead of said particulate filter (1.1), said method comprising the steps of:

attaining a stable operating condition of said diesel engine (1.0) within a predetermined time period after the starting of said diesel engine (1.0), said stable operating condition being detected by said control device (6.0) receiving rotation-speed signals of predetermined magnitude,

testing said pressure sensor (8.2) through a command by said control device (6.0) which causes running of said air-delivery pump (3.1), said command being delivered automatically upon said engine attaining said stable operating condition,

detecting a loaded condition of said particulate filter by said control device (6.0) sensing an exhaust gas backpressure in excess of a predetermined value and a combustion chamber temperature in excess of a predetermined value,

operating said burner (2) to heat said combustion chamber (1.2) by said command device (6.0) activating delivery of fuel and air to said burner (2) and causing ignition of the latter and

stopping operation of said burner (2) by said command device (6) in response to a passage of a predetermined time period and to the combustion chamber temperature being lower than the exhaust gas temperature and lower than a predetermined temperature.

5,211,010

EXHAUST GAS PURIFICATION SYSTEM FOR A DIESEL ENGINE

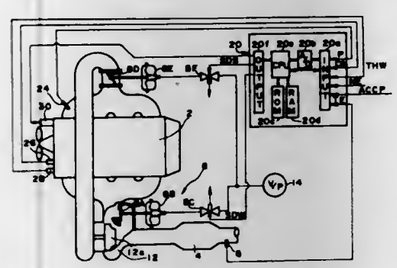
Shinya Hirota, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Dec. 18, 1991, Ser. No. 810,727

Claims priority, application Japan, Dec. 26, 1990, 2-413901

Int. Cl.[5] F01N *3/02, 3/22*

U.S. Cl. 60—280 **7 Claims**



1. An exhaust gas purification system for a diesel engine comprising:

a diesel engine having an exhaust conduit;

a catalyst installed in the exhaust conduit of the diesel engine and constructed of zeolite carrying at least one kind of metal selected from the group consisting of transition metals and noble metals to reduce nitrogen oxides included in exhaust gas from the diesel engine under oxidizing gas conditions and in the presence of hydrocarbons, wherein, when a temperature of said catalyst is within a predetermined temperature range, said catalyst reduces NO_x at a rate which is relatively higher than the rate at which NO_x is reduced when the temperature of said catalyst is outside the predetermined temperature range;

detecting means for detecting one of a catalyst temperature and a temperature corresponding to the catalyst temperature;

excess air ratio changing means for changing an excess air ratio of the diesel engine independently of a fuel injection amount of the diesel engine so that an exhaust gas temperature is changed independently of an engine torque; and

control means for controlling the excess air ratio changing means so as to increase the excess air ratio when the catalyst temperature detected by the detecting means is higher than an upper limit of the predetermined temperature range in order to decrease the exhaust gas temperature and, consequently to decrease the catalyst temperature independently of the engine torque and to decrease the excess air ratio when the temperature detected by the detecting means is lower than a lower limit of the predetermined temperature range to increase the exhaust gas temperature and, consequently, to increase the catalyst temperature independently of the engine torque, so that the catalyst temperature is maintained within the predetermined temperature range.

5,211,011

CONTROL APPARATUS FOR RAPIDLY WARMING UP CATALYST IN INTERNAL COMBUSTION ENGINE

Selithirou Nishikawa; Toshiaki Kikuchi, and Masumi Kinugawa, all of Okazaki, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Feb. 11, 1992, Ser. No. 833,651

Claims priority, application Japan, Feb. 12, 1991, 3-18695; Jun. 21, 1991, 3-150640

Int. Cl.[5] F01N *3/20*

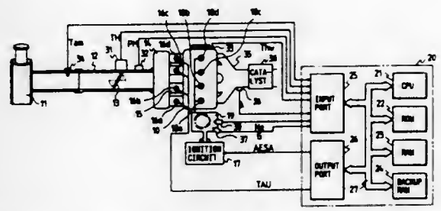
U.S. Cl. 60—284 **17 Claims**

1. An internal combustion engine control apparatus comprising:

engine operating condition detecting means for detecting an operating condition of an internal combustion engine;

fuel injection amount determining means for determining an appropriate fuel injection amount to obtain an appropriate air-fuel ratio based on said engine operating condition detected by said engine operating condition detecting means;

temperature condition determining means for determining if a temperature of a catalyst disposed within an exhaust pipe coupled to said engine for purifying emissions generated from said engine reaches an operating temperature at which said catalyst effectively purifies said emissions; and



adjusting means for alternately adjusting said fuel injection amount when said temperature condition determining means determines that said catalyst temperature is lower than said operating temperature to alternately adjust said fuel injection amount to a rich amount and a lean amount with respect to said air-fuel ratio to supply to said catalyst excessive oxygen when lean combustion occurs in said engine and excessive carbon monoxide when rich combustion occurs in said engine, respectively, to cause an oxidative reaction within said catalyst to increase said temperature of said catalyst.

5,211,012

CATALYTIC CONVERTER HOUSING, PARTICULARLY FOR STARTING CATALYTIC CONVERTERS, AND ASSOCIATED CATALYST CARRIER BODY

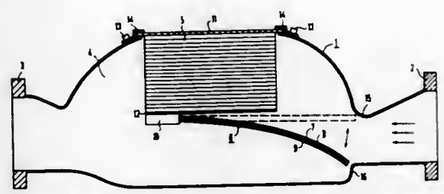
Helmut Swars, Bergisch Gladbach, Fed. Rep. of Germany, assignor to Emitec Gesellschaft für Emissionstechnologie mbH, Lohmar, Fed. Rep. of Germany

Filed Feb. 26, 1991, Ser. No. 661,489

Claims priority, application Fed. Rep. of Germany, Aug. 26, 1988, 8810816[U]

Int. Cl.[5] F01N *3/28*

U.S. Cl. 60—295 **5 Claims**



1. A catalyst carrier assembly, comprising a metal catalyst carrier body for installation in a housing, said catalyst carrier body having a metal jacket tube, said metal jacket tube having an extended portion forming a retaining plate, and said catalyst carrier body having an approximately semi-circular or semi-oval cross section with a flat side forming said extended portion with said retaining plate.

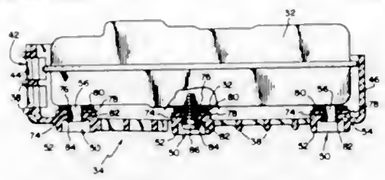
VOL 1150 ISS 3 MAY 18 1993 UMI

5,211,013

MUFFLER HEAT SHIELD AND METHOD OF ATTACHMENT

Kevin G. Bonde, Kiel, and Joseph C. Palof, St. Cloud, both of Wis., assignors to Tecumseh Products Company, Tecumseh, Mich.

Filed Sep. 17, 1991, Ser. No. 761,259
Int. Cl.[5] F01N 7/14
U.S. Cl. 60—323 20 Claims



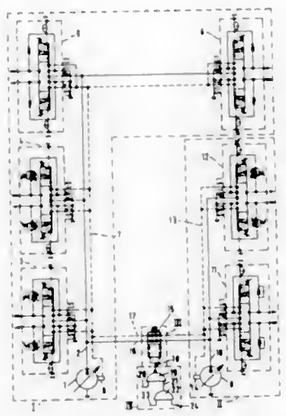
1. An internal combustion engine comprising:
an exhaust system including a muffler having an outer shell; a nonmetallic heat shield; and
mounting means for removably mounting said shield to said shell, said mounting means including a nonmetal spacer disposed between said shield and said shell, said mounting means further including fastener means for fastening said shield to said shell, whereby upon heating of said shell during engine operation, said spacer thermally insulates said shield sufficiently to inhibit thermal degradation of said shield.

5,211,014

HYDRAULIC DRIVE SYSTEM

Walter Kropp, Sulzbach, assignor to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed Jan. 6, 1992, Ser. No. 817,452
Claims priority, application Fed. Rep. of Germany, Jan. 15, 1991, 4100988
Int. Cl.[5] F16H 39/48
U.S. Cl. 60—421 5 Claims



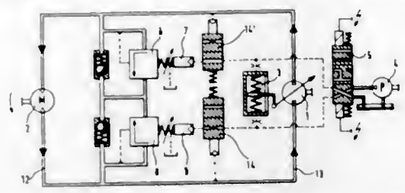
1. Hydraulic drive system of the load-sensing type comprising:
first partial system and a second partial system, where the partial systems each comprises a pump, hydraulic power consumers each having specific operating requirements connected to its delivery lines, and a load pressure line carrying the highest load pressure;
a coupling device for joining the delivery line and the load pressure line of the first partial system with the delivery line and the load pressure line of the second partial system; and
control means for activating said coupling device as a function of the operating requirements of specific consumers, said control means including a circuit logic (IV) that supervises whether said first partial system, said second partial system or both will drive a specific consumer,
wherein when the consumers are not actuated the partial systems (I, II) are connected together by the coupling device (III) and the circuit logic (IV) has a not-and-element (19) whose first input (20) is connected with a signal transmitter of at least one consumer, whose power supply is provided through the coupled partial systems (I, II) and whose second input (21) is connected with the output of an and-element (22), to the inputs (23, 24) of which signal transmitters of the consumers of both partial systems (I, II) are connected, the supplying of which with hydraulic power with simultaneous actuation is provided by the proper partial system (I, II), in which case a signal transmitter of at least one consumer of the first partial system (I) is connected to the one input (23) of the and-element (22) and a signal transmitter of at least one consumer of the second partial system (II) is connected to the other input (24).

5,211,015

HYDRAULIC CIRCUIT FOR LIMITING THE TORQUE OF A HYDROSTATIC HYDRAULIC MOTOR CONNECTED IN CLOSED CIRCUIT TO A HYDRAULIC PUMP

Klaus Schroeder, Kirchdorf/Iller, Fed. Rep. of Germany, assignor to Liebherr-Werk Bischofshofen Ges.mbH, Bischofshofen, Fed. Rep. of Germany

PCT No. PCT/EP90/01746, § 371 Date Jun. 13, 1991, § 102(e) Date Jun. 13, 1991, PCT Pub. No. WO91/05966, PCT Pub. Date May 2, 1991
PCT Filed Oct. 15, 1990, Ser. No. 688,626
Claims priority, application Fed. Rep. of Germany, Oct. 17, 1989, 3934641
Int. Cl.[5] F16D 31/02
U.S. Cl. 60—444 6 Claims



1. A hydralic circuit for limiting the torque of a hydrostatic hydraulic motor, said hydraulic motor connected in closed circuit to a hydraulic pump, said hydraulic motor operating in the braking mode as a hydraulic pump, with pressure control valves being connected before and after the hydraulic motor, characterized in
that the pressure control valves consist of pilot-operated pressure control valves (6, 7, 8, 9) having a first pressure side and an opposed pressure side and that at least one distributing valve (5) is provided which, when the hydraulic motor (2) is in said motor mode, switches the pilot-operated pressure control valve of the first pressure side to a higher maximum pressure and in the braking mode switches the pilot-operated pressure control valve of the opposed pressure side to a lower maximum pressure, further characterized in that a throttle valve (14, 14'), being swichable to a flowing-through position or to a throttle position, is provided in each of the pilot lines of the pilot-operated pressure control valves (6–9), so that when there is a pressure increase in pressure lines (11–13) provided in said hydraulic circuit the throttle valve switches to said throttle position so that the pilot-operated pressure control valve in cooperative relationship with a respective pressure line will be switched to the higher pressure stage with a predetermined time delay.

5,211,016

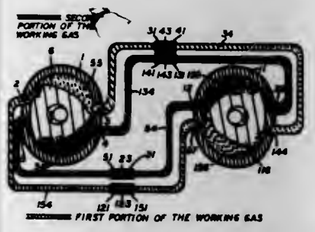
Patent Not Issued For This Number

5,211,017

EXTERNAL COMBUSTION ROTARY ENGINE

Pavo Pusic, 164 McKinley Ave., East Hanover, N.J. 07936

Continuation-in-part of Ser. No. 585,291, Sep. 19, 1990, abandoned. This application Feb. 25, 1992, Ser. No. 840,824
Int. Cl.[5] F02G 1/044
U.S. Cl. 60—519 17 Claims



1. An external combustion rotary engine comprising:
a plurality of housings each having an oval chamber shaped in the form of an epitrochoid curve;
at least one rotor enclosed inside each housing, each rotor having substantially triangular shape forming three rotor lobes which separate the housing into four distinct chambers, and each rotor rotatably received within these housings so as to vary the volume of said chambers;
four fluid passages, each fluid passage connecting one of the chambers of each housing to a respective chamber of another housing;
a working fluid sealed within the housings and fluid passages;
at least one heat generating unit for heating the working fluid;
at least one heat absorbing and heat discharging unit for selectively cooling the working fluid and heating the working fluid;
wherein the heat generating unit and the heat absorbing and discharging unit are arranged so as to provide a heater, a preheater and a cooler in each of the fluid passages so as to selectively heat the working fluid to increase the pressure of the working fluid and cool the working fluid to decrease the pressure of the working fluid so as to cause a rotary motion of the rotors within the housings.

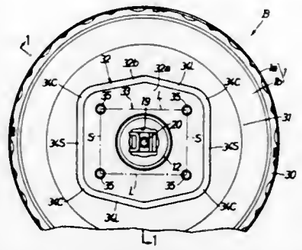
5,211,018

PEDESTAL MOUNT FOR BRAKE

Takayoshi Sbinohara, and Toshiyuki Suwa, both of Nagano, Japan, assignors to Nissin Kogyo Co., Ltd., Nagano, Japan

Filed Oct. 29, 1991, Ser. No. 784,188
Claims priority, application Japan, Dec. 25, 1990, 2-401746[U]
Int. Cl.[5] B60T 13/00
U.S. Cl. 60—547.1 2 Claims

1. A vacuum booster comprising a pedestal which is formed bulged on an end wall of a booster shell and to which four connecting bolts are secured at four apexes of a rectangle surrounding an axis of the booster shell, said pedestal being attached to a vehicle body through said connecting bolts, wherein
said pedestal has a peripheral wall comprised of a pair of shorter side walls parallel to shorter sides of said rectangle, a pair of longer side walls with each side wall bent to be gradually separated farther from a corresponding one of the longer sides of said rectangle at a central portion that at an end portion thereof, and four arcuate corner walls with each corner wall connecting adjacent shorter and longer side walls.

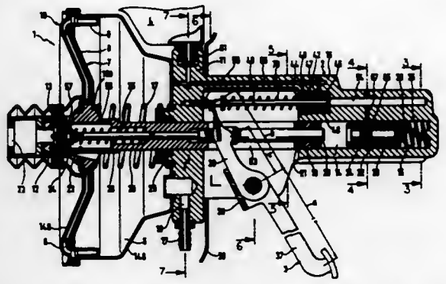


5,211,019

ACTUATING UNIT FOR A HYDRAULIC AUTOMOTIVE VEHICLE BRAKE SYSTEM

Jürgen Bauer, Wiesbaden, Fed. Rep. of Germany, assignor to Alfred Teves GmbH, Frankfurt Am Main, Fed. Rep. of Germany

PCT No. PCT/EP90/00815, § 371 Date Mar. 13, 1991, § 102(e) Date Mar. 13, 1991, PCT Pub. No. WO91/01236, PCT Pub. Date Feb. 7, 1991
PCT Filed May 21, 1990, Ser. No. 671,760
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1989, 3923459
Int. Cl.[5] B60T 13/20
U.S. Cl. 60—550 18 Claims



1. An actuating unit arrangement of a hydraulic brake system, for an automotive vehicle having an engine compartment defined by a splashwall, said arrangement comprising:
a brake pedal;
a master cylinder including a master cylinder housing formed with a bore, a primary piston slid ably mounted in said bore and defining therein a primary pressure chamber; a supply means for filling said primary pressure chamber with hydraulic fluid;
a power booster comprising a booster housing aligned and mounted to said master cylinder housing, said booster housing defining an interior space, a movable wall dividing said interior space into a power chamber and a vacuum chamber;
fluid connection means for applying a vacuum in said vacuum chamber;
control valve means for alternatively communicating vacuum or air pressure into said power chamber to create a controllable differential pressure between said vacuum chamber and said power chamber and a corresponding boosting force on said movable wall, said control valve means including a control housing fixed to said movable

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wall and a control piston slidably mounted within said control housing, advance of said control piston towards said master cylinder causing increased differential pressures and consequent increased boosting forces;

said primary piston comprising an external piston slidable in said master cylinder bore and an internal piston slidable within said external piston;

said control valve housing including an extension portion connected to said external piston;

an axially extending member slidable within said control valve housing extension portion connecting said control piston to said internal piston;

an elongated opening extending into said control valve housing extension portion at a point intermediate said booster housing and said master cylinder, exposing said axial extension member; and

an operating element movable by said brake pedal extending into said elongated opening and driveingly engaging said axially extending member to enable pushing advance of said internal piston into said master cylinder and pulling advance of said control piston to generate a boosting force exerted on said external piston by said control valve housing extension portion.

5,211,020

PROCESS FOR SEPARATING HFA 134A

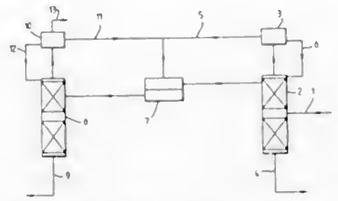
Andrew M. Taylor, Huntingdon, and Robert W. Wheelhouse, Runcorn, both of England, assignors to Imperial Chemical Industries, PLC, London, England

Filed Jul. 2, 1991, Ser. No. 724,927

Claims priority, application United Kingdom, Jul. 4, 1990, 9014851; Jul. 4, 1990, 9014852

Int. Cl.[5] F25J *3/00*

U.S. Cl. 62—11 **10 Claims**



1. A method for the separation of 1,1,1,2-tetrafluoroethane (HFA 134a) from a HFA 134a-rich mixture thereof with at least one member of the group consisting of HF and 1-chloro-2,2-difluoroethylene (CFC 1122) which comprises passing said mixture through a distillation column and thereby separating an azeotrope or near-azeotrope of HFA 134a and said member from a residue comprising essentially pure HFA 134a and collecting said residue from the distillation column.

5,211,021

APPARATUS FOR RAPIDLY FILLING PRESSURE VESSELS WITH GAS

Robert M. Pierson, 1560 Barlow Rd., Hudson, Ohio 44236

Filed Feb. 28, 1991, Ser. No. 647,732

The portion of the term of this patent subsequent to Jan. 29, 2008, has been disclaimed.

Int. Cl.[5] F17C *9/02*

U.S. Cl. 62—50.2 **7 Claims**

1. An apparatus for rapidly converting cryogenic liquid at a pressure of no more than 5 atmospheres to a gas at a pressure greater than 40 atmospheres comprising:

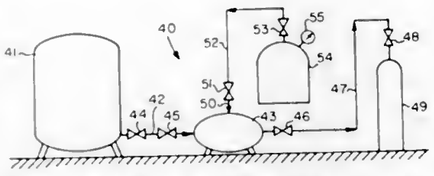
(A) a reservoir for containing cryogenic liquid;

(B) a pressure vessel with a working pressure of at least 40 atmospheres;

(C) insulated conduit means connecting the reservoir and the pressure vessel to permit the flow of cryogenic liquid from the reservoir to the pressure vessel;

(D) valve means operatively mounted along the conduit means, to control the flow of cryogenic liquid from the reservoir to the pressure vessel; and

(E) a liquid transfer means operatively connected into the conduit means, to cause a measured amount of cryogenic



liquid to flow through the conduit means to the pressure vessel;

(F) said liquid transfer means being set to provide to the pressure vessel, a measured amount of cryogenic liquid which will convert to gas at the design working pressure of the pressure vessel when warmed to a temperature in the range of 0° to 100° F. (−17.8 to 37.7° C.)

5,211,022

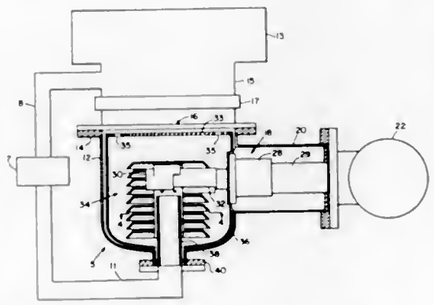
CRYOPUMP WITH DIFFERENTIAL PUMPING CAPABILITY

Allen J. Bartlett, Milford, Mass., and Douglas F. Aitken, Bedford, N.H., assignors to Helix Technology Corporation, Mansfield, Mass.

Filed May 17, 1991, Ser. No. 702,597

Int. Cl.[5] B01D *8/00*

U.S. Cl. 62—55.5 **35 Claims**



1. A cryopump comprising:

a refrigerator having first and second stages;

a first stage cryopanel in thermal contact with a heat sink on the first stage and held at a temperature higher than the second stage to condense higher condensing temperature gases;

a second stage cryopanel surrounded by a radiation shield and comprising an array of baffles coupled to and in close thermal contact with a heat sink on the second stage to condense low condensing temperature gases, the baffles having surfaces with an adsorbent adhered thereon, the adsorbent being a solid at room temperature; and

a member extending through the radiation shield into a region surrounded by the second stage array, the member having a port for accessing said region, there being no physical seal between said region and a region surrounding the array.

5,211,023

APPARATUS AND METHOD FOR HEATING AND COOLING WITH A REFRIGERANT

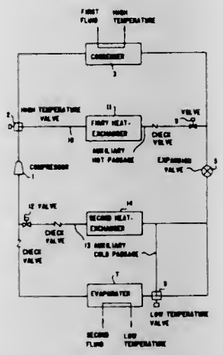
Takaaki Matsuura, Ibaraki, Japan, assignor to Union Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jul. 12, 1991, Ser. No. 729,289

Claims priority, application Japan, Aug. 30, 1990, 2-230036

Int. Cl.[5] F25B *5/02*

U.S. Cl. 62—117 **2 Claims**



1. A method for heating and cooling with a refrigerant comprising the steps of:

compressing a refrigerant by a compressor;

circulating the refrigerant to and from the compressor through a condenser, an expansion valve and an evaporator, in this order;

heating a first fluid with the heat generated in the condenser;

cooling a second fluid with the cooling effect or cold generated in the evaporator;

when heat is low and a temperature of the first fluid is decreased, changing the flow passages of the refrigerant from entering into the evaporator to entering into a second heat-exchanger wherein the refrigerant is heated, and the heated refrigerant is entered into the compressor and circulated; and

when the cold is low and a temperature of the second fluid is increased, changing the flow passages of the refrigerant from entering into the condenser to entering into a first heat exchanger wherein the refrigerant is cooled, and the cooled refrigerant is entered into the evaporator and circulated.

5,211,024

REFRIGERANT FILTRATION SYSTEM WITH FILTER CHANGE INDICATION

Kenneth W. Manz, Paulding, and Christopher M. Powers, Bryan, both of Ohio, assignors to SPX Corporation, Muskegon, Mich.

Filed Apr. 20, 1992, Ser. No. 870,812

Int. Cl.[5] F25B *43/00*

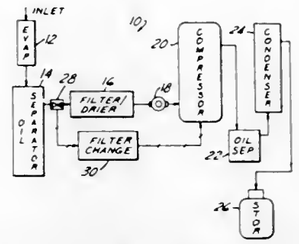
U.S. Cl. 62—126 **7 Claims**

1. Apparatus for purification of refrigerant apparatus comprising:

replaceable filter/drier means for removing water from refrigerant passing therethrough,

refrigerant pumping means for pumping refrigerant through said filter/drier means,

a flow meter coupled to said filter/drier means for measuring volumetric flow of refrigerant passing through said filter/drier means, and



means coupled to said flow meter for indicating when to replace said filter/drier means as a function of mass of refrigerant pumped through said filter/drier means.

5,211,025

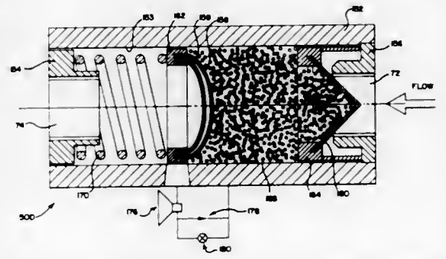
SLUG SURGE SUPPRESSOR FOR REFRIGERATION AND AIR CONDITIONING SYSTEMS

Shimao Ni, Westmont, and Phillip C. Heitz, South Elgin, both of Ill., assignors to H.A. Phillips & Co., St. Charles, Ill.

Continuation-in-part of Ser. No. 487,682, Mar. 2, 1990, Pat. No. 5,058,395. This application Jul. 18, 1991, Ser. No. 732,189

Int. Cl.[5] G01K *13/00*

U.S. Cl. 62—129 **15 Claims**



9. In a refrigeration and defrost system including a refrigerant compressor connected in closed circuit with a condenser and an evaporator by a pipe assembly, the improvement comprising:

a) a slug surge suppressor disposed in said pipe assembly and including:

1) a plurality of capillary passages operative to resist liquid flow by viscous effects and allow gas flow without significant pressure drop; and

2) a first perforated screen movably located inside said slug surge suppressor;

b) said plurality of capillary passages and said first perforated screen are configured to define means whereby said first perforated screen absorbs the shock from the rapid impact of a slug, thereby preventing shock damage to said slug surge suppressor and system components downstream of said slug surge suppressor.

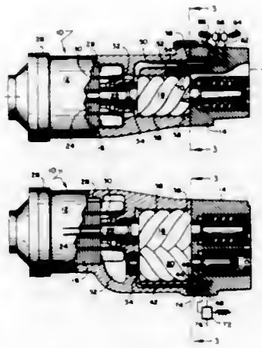
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,026

COMBINATION LIFT PISTON/AXIAL PORT UNLOADER ARRANGEMENT FOR A SCREW COMPRESSER

Peter J. Linnert, La Crosse, Wis., assignor to American Standard Inc., New York, N.Y.

Filed Aug. 19, 1991, Ser. No. 747,894
Int. Cl.[5] F04B *49/2*; F04C *18/16, 29/08*; F25B *7/00*
U.S. Cl. 62—175 51 Claims



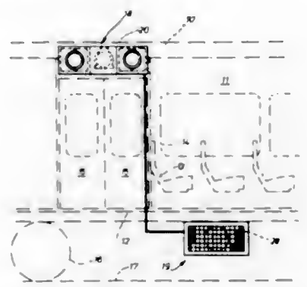
1. A screw compressor comprising:
a housing defining a working chamber;
a first rotor disposed in said working chamber;
a second rotor disposed in said working chamber; and
means, independently interacting with said first and said second rotors, for unloading said compressor in a continuous fashion over a first portion of the capacity range of said compressor and discontinuous fashion over a second portion of the capacity range of said compressor.

5,211,027

TEMPERATURE CONTROL SYSTEMS FOR VEHICLES

Alan R. Lofting, Sandown, and James G. Burlison, Southampton, both of United Kingdom, assignors to Temperature Limited, Dewar Close, United Kingdom

PCT No. PCT/GB90/00971, § 371 Date Jan. 17, 1992, § 102(e) Date Jan. 17, 1992, PCT Pub. No. WO91/00205, PCT Pub. Date Jan. 10, 1991
PCT Filed Jun. 22, 1990, Ser. No. 781,132
Claims priority, application United Kingdom, Jun. 23, 1989, 8914423
Int. Cl.[5] B60H *1/32*
U.S. Cl. 62—244 7 Claims



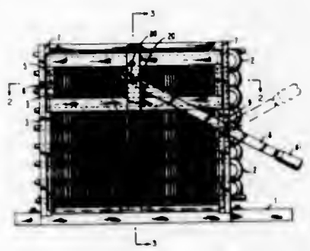
1. In a vehicle, a system for controlling the temperature of the interior of the vehicle by supplying air through one or more outlets into said interior, wherein the system comprises a refrigerant circuit, said refrigerant circuit being thermally-linked to a second liquid-containing circuit, and said refrigerant circuit comprising at least the following elements: a compressor, at least one evaporator, a condenser, and interconnecting refrigerant pipes; all said refrigerant circuit elements being relatively closely located to each other, and said condenser constituting said thermal link between said refrigerant circuit and said second liquid-containing circuit, said second liquid-containing circuit incorporating a liquid/air heat exchanger and pipes interconnecting said condenser and said heat exchanger, all said refrigerant circuit elements being carried by or adjacent to either the roof or the floor of the vehicle and said heat exchanger being carried by or adjacent to the other of the roof and floor of the vehicle, and said second liquid-containing circuit pipes extending over a substantial part of the height of the vehicle.

5,211,028

DEVICE FOR THE CLEANING OF THE CONDENSOR OF A REFRIGERATING OR CONDITIONING UNIT OR PLANT

Dall'Anese Remo, Via Garibaldi, 114, Pietrasanta, Lucca, Italy

Filed Aug. 30, 1991, Ser. No. 753,345
Int. Cl.[5] F28G *15/02, 7/00*
U.S. Cl. 62—303 9 Claims



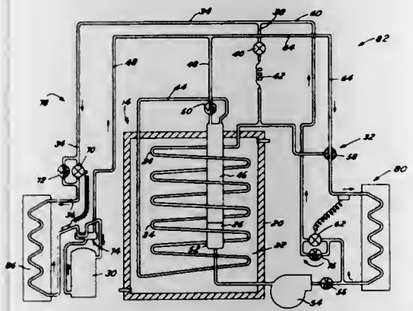
1. A manual cleaning device for cleaning fins of a condenser of a refrigeration unit, the device comprising:
a first guide mounted on one side of the condensor and a second guide mounted on an opposite side of the condensor from said first guide, said first and second guide being aligned substantially in parallel with the fins of the condensor;
a brush support extending from said first guide to said second guide, said brush support including slide means for connecting said brush support to said first and second guides and for sliding said brush support in said first and second guides along a length of the condensor in a direction substantially parallel with the fins;
a brush mounted on said brush support and extending onto said in between the fins for cleaning the fins;
a drive lever pivotably mounted on the condensor with a drive lever pin, said drive lever pin being positioned between first and second side of said drive lever, said drive lever pin positioning said first end of said drive lever on said brush support and positioning said second end away from the condensor for manual activation of the lever; and
slipping means, connecting said drive lever to said brush support, and for converting pivotable movement of said first end of said drive lever into linear movement of said brush support in said direction substantially parallel to the fins, said linear movement moving said bush along the fins and removing dirt from between the fins.

5,211,029

COMBINED MULTI-MODAL AIR CONDITIONING APPARATUS AND NEGATIVE ENERGY STORAGE SYSTEM

Robert B. Uselton, Lancaster; William J. Dean, Grapevine, and Michael G. Longman, Flower Mound, all of Tex., assignors to Lennox Industries Inc., Dallas, Tex.

Filed May 28, 1991, Ser. No. 706,057
Int. Cl.[5] F25D *11/00*; F25B *27/00*
U.S. Cl. 62—324.5 15 Claims



1. In a combined multi-modal air conditioning apparatus and negative energy storage system, the air conditioning apparatus having a condensing unit, an evaporating unit, and including a refrigerant for circulation therebetween, the negative energy storage system having a tank for disposition of negative heat energy storage material therein, and refrigerant conduits disposed therewithin for circulating the refrigerant therethrough alternatively to cool the negative heat energy storage material during a first time period, and to impart heat energy to the negative heat energy storage material during a second time period for time-shifted air conditioning use, the improvement comprising:
tank by-pass means for directly connecting said condensing unit and said evaporating unit during a third time period including valve means for isolating the tank from the condensing unit and evaporating unit for avoidance of circulation during the third time period of the refrigerant within the refrigerant conduits disposed within the negative heat energy storage material contained within said tank,
whereby, during said third time period, heat energy is not imparted to said negative heat energy storage material by said circulating refrigerant.

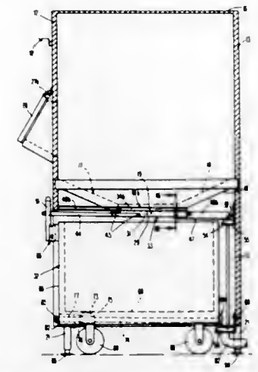
5,211,030

APPARATUS FOR STORING AND DISPENSING ICE

William M. Jameson, Coopersburg, Pa., assignor to Follett Corporation, Easton, Pa.

Filed Aug. 23, 1991, Ser. No. 749,114
Int. Cl.[5] F25C *5/18*
U.S. Cl. 62—344 18 Claims

1. An apparatus for storing and dispensing ice comprising:
a) first means disposed in said apparatus for storing manufactured ice therein;
b) a zone in the apparatus below said first means, for accommodating a second means to be disposed in said apparatus for storing manufactured ice therein;
c) wherein said first ice storing means is provided with drainage means carried thereby for removing melted ice therefrom, and means for connecting a said second storing means when the second storing means is disposed in said zone, for melted ice from the second storing means to drain into the drainage means of the first sorting means; and
d) wherein said second storing means is included as part of said apparatus, and wherein said second storing means includes a movable receptacle having a floor with an



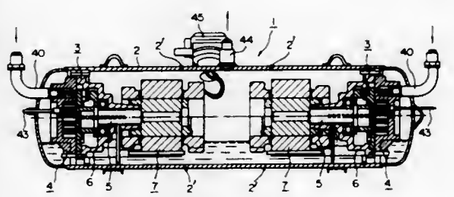
opening therein to permit the flow of melted ice to exit from said receptacle.

5,211,031

SCROLL TYPE COMPRESSOR AND REFRIGERATION CYCLE USING THE SAME

Akira Murayama; Tadashi Fukuishi; Sigeaki Kuroda; Toshiaki Koyama, all of Shimizu; Tadao Ochiai, Fujieda; Toshio Hirai, Shimizu; Shintaro Sado, Shimizu; Yasushi Izunaga, Shimizu; Shouji Kikuchi, Shimizu, and Fumio Yoshinaga, Shimizu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 22, 1991, Ser. No. 704,204
Claims priority, application Japan, May 24, 1990, 2-134315
Int. Cl.[5] F25B *1/00, 1/10*; F04B *41/06*
U.S. Cl. 62—498 9 Claims



1. A scroll type compressor comprising:
a hermetic casing having a lubricating oil reservoir formed on a bottom portion thereof;
a pair of compression units encased in said casing and having the same construction and specification, each of said compression units including a scroll type compression element composed of revolving and stationary scrolls each having a base plate and a spiral wrap perpendicularly protruding from said base plate, said scrolls being assembled together with their wraps meshing with each other, each of said compression units further including a drive shaft for driving said revolving scroll, a frame supporting said scroll type compression element and said drive shaft, and an electric motor for driving said drive shaft, said compression units being disposed horizontally in said casing coaxially with respect to each other, with the electric motors of the pair of compressor units being disposed in opposition to each other;
means for supplying a lubricating oil to both compression units from said lubricating oil reservoir; and
a discharge passage provided in each of the compression units for enabling a discharge of compressed refrigerant to

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an area around the electric motor so as to cool the electric motor prior to discharge from the compressor; and

electric power supply for supplying electrical power to said electric motor of said compression units such that each of said electric motors is driven directly by commercial electric power or through a frequency-variable inverter for driving said motors at various speeds.

5,211,032

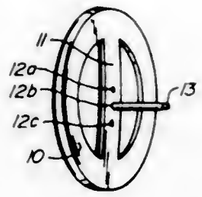
ADJUSTABLE EARRING POST

Mark Cheng, San Francisco, Calif., assignor to Peony Fine, Jewelry, Inc., San Francisco, Calif.

Continuation-in-part of Ser. No. 564,014, Aug. 7, 1990, abandoned. This application Oct. 3, 1991, Ser. No. 771,282

Int. Cl.[5] A44C *7/00*

U.S. Cl. 63—12 **3 Claims**



1. An improved earring construction for pierced ears of the type having a display side adapted to overlie at least a portion of the outer side of an ear lobe to which it is attached, the combination comprising:

a support body having an outer display side and an inner side adapted to overlie at least a portion of the outer side of a user's pierced ear lobe to which it is attached;

said support body comprising a ring type main body and a diametrically oriented frame member attached for mounting and supporting an outwardly facing display object;

a post projecting from the inner side of said frame adapted to be extended through a user's pierced ear lobe from the outside to the inner side of said lobe;

means located on the inner side of said diametrically oriented frame member for supporting said post in a plurality of alternative vertically spaced positions relative to the ear lobe to permit positioning of the display side of the earring relatively upwardly or downwardly in reference to and overlying at least a portion of said pierced ear lobe through which the said post projects.

5,211,033

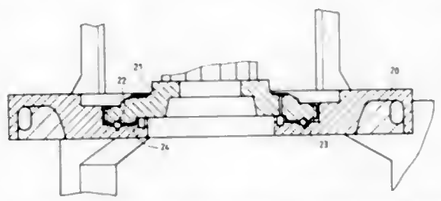
PLATE MECHANISM OF THE PATTERN WHEEL KNITTING MACHINE

Chun-Chung Chen, 35-2, Kuang Wu St., Shu-lin, Taipei, Taiwan

Filed Jul. 8, 1992, Ser. No. 910,511

Int. Cl.[5] D04B *15/00*; **B61F** *17/00*; **F16C** *19/10*

U.S. Cl. 66—8 **1 Claim**



1. An improved plate mechanism for a pattern wheel knitting machine having a lower surface of a gear member in juxtaposition with an upper surface of a plate member, comprising:

a plurality of ball members disposed in a circularly shaped recess formed between said gear member and said plate member, said circularly shaped recess being defined by, a first groove formed in said lower surface of said gear member extending circumferentially adjacent a perimeter portion thereof, and a second groove formed in said upper surface of said plate member in displaced vertically aligned relation with said first groove;

a flat liner ring member disposed between said lower surface of said gear member and said upper surface of an interior of said plate member to said circularly shaped recess, said flat liner ring member having an annular contour; and,

an oil flow passage formed in said gear member for providing fluid communication between an oil groove formed on an upper surface of said gear member and said circularly shaped recess, said oil flow passage extending between said gear member and the plate member interior to said circularly shaped recess for maintaining said flat liner ring soaked with oil.

5,211,034

DEVICE FOR PRODUCING A YARN USING FIBERS RETAINED IN A TUBULAR KNITTED MANUFACTURED ARTICLE

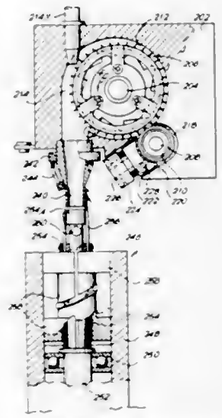
Emanuele Berti, Sesto Fiorentino, Italy, assignor to Compagnia Meccanotessile S.r.l., Vaiano, Italy

Filed Aug. 20, 1991, Ser. No. 747,676

Claims priority, application Italy, Aug. 23, 1990, 9472 A/90

Int. Cl.[5] D04B *9/44*

U.S. Cl. 66—9 A **7 Claims**



1. A device for producing yarn, the device comprising:

feed means for transporting a plurality of loose open fibers in a stream of fluid, said feed means having an exit neck for receiving and for transporting said plurality of fibers; and

knitting means including a needle operated around an exterior of said exit nozzle, said knitting means forming a tubular knitted article around said exit neck with said needle and incorporating a portion of said plurality of fibers inside said tubular knitted article during formation of the article, said feed means is spaced from a transport means allowing a portion of said stream of fluid to escape, wherein another portion of said plurality of fibers are carried by the escaping stream of fluid and are trapped in the knitted article.

5,211,035

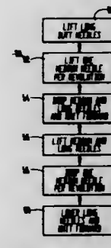
METHOD OF MANUFACTURING SPLIT-HEEL SOCK

Norman M. Hanson, II, Rockford, Ill., assignor to Drassel, Inc., Osage, Iowa

Division of Ser. No. 499,778, Mar. 27, 1990, Pat. No. 5,103,656. This application Apr. 13, 1992, Ser. No. 867,734

Int. Cl.[5] D04B *9/20, 9/06, 9/38*

U.S. Cl. 66—51 **2 Claims**



2. A method of manufacturing a heel portion of a sock using a circular hosiery knitting machine having short, medium and long butt needles, a knitting track, and means for lifting and dropping selected needles in and out of the knitting track, wherein the knitting machine is knitting on all needles in a forward motion as the heel portion of the sock is reached, comprising the steps of:

a) lifting substantially all of the long butt needles out of the knitting track while maintaining the short and medium butt needles in the knitting track;

b) placing the knitting machine into reciprocating motion and lifting on medium butt needle out of the knitting track per revolution until substantially all of the medium butt needles have been lifted out of the knitting track;

c) placing the knitting machine back into forward motion and lowering substantially all medium and long butt needles back into the knitting track;

d) knitting on substantially all needles for a predetermined number of revolutions of the knitting machine to create a band;

e) lifting substantially all of the medium and long butt needles out of the knitting track while maintaining the short butt needles in the knitting track;

f) placing the knitting machine back into reciprocating motion and dropping on medium butt needle into the knitting track per revolution until substantially all of the medium butt needles have been dropped into the knitting track; and

g) placing the knitting machine back in to forward motion and lowering substantially all medium and long butt needles back into the knitting track.

5,211,036

DEVICE FOR REMOVAL OF A ROLL OF TUBULAR FABRIC

Werner Engelfried, Sindelfingen, and Gerhard Müller, Esslingen, both of Fed. Rep. of Germany, assignors to Terrot Strickmaschinen GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 18, 1992, Ser. No. 837,869

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1991, 4107690

Int. Cl.[5] D04B *15/88*

U.S. Cl. 66—151 **3 Claims**

1. A device for removing tubular fabric from a circular knitting machine while forming a roll of said fabric comprising

a machine frame,

at least one driven take-up roller around which said fabric is partially wrapped,

means mounting said take-up roller on said frame,

a rotatable winding rod on which said roll of tubular fabric is formed,

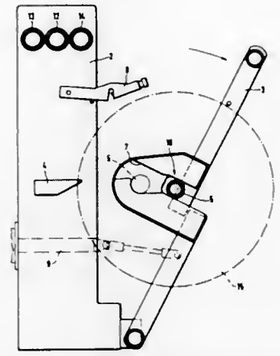
said rod having ends,

means mounting said rod on said frame in spaced relationship to said take-up roller,

means for guiding said tubular fabric from the take-up roller to the roll of tubular fabric and from the roll of tubular fabric back to the take-up roller and from the take-up roller back again to the roll of tubular fabric,

said rod-mounting means comprising levers formed with grooves for receiving the ends of said rod,

means mounting said levers on said frame for pivotal movement between an operative position at which said roll of tubular fabric is formed on said rod and a doffing position at which said rod and a roll formed thereon are removed,



said grooves being angled such that in the operative position of the levers the ends of the winding rod are held in the grooves by gravity and in the doffing position of the levers the ends of the winding rod exit freely from the grooves,

respective bolts rotatably mounted at the ends of said rod in coaxial relationship thereto,

locking means on said frame for locking said ends of said rod in said grooves and said levers in said operative position,

said locking means comprising stationary wedge-shaped locking elements for engaging said bolts.

5,211,037

CONTROLLER FOR WASHING MACHINE WITH ALTERNATELY REVERSING DRIVE MOTOR

Joseph R. Adamski, Sudbury; Christopher Ferguson, Framingham; J. Scott Petty, Hanover, all of Mass., and William J. Quandt, Ripon, Wis., assignors to Raytheon Company, Lexington, Mass.

Filed Aug. 13, 1990, Ser. No. 566,739

Int. Cl.[5] D06F *33/02*

U.S. Cl. 68—12.16 **14 Claims**

1. A washing machine comprising:

a clothes basket having a clothes agitator;

a reversible motor having first and second stator windings;

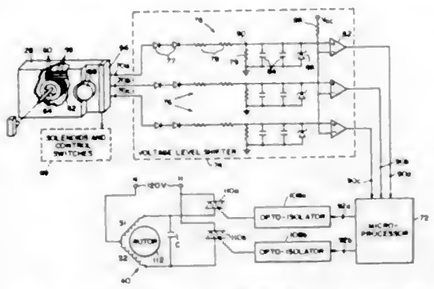
means for linking said motor to said agitator;

an electromechanical timer having a plurality of switches actuated by a rotatable cylinder with timed cams, said electromechanical timer comprising means for switching a signal to an output terminal for a predetermined time duration corresponding to a cycle of said agitator;

means responsive to said signal for alternately switching line voltage to said first motor in alternately reversing directions, said alternately switching means comprising a microprocessor providing a switching rate substantially faster than the switching rate of said electromechanical timer; and

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said signal from said electromechanical timer comprising voltages on a plurality of lines collectively providing a



binary encoded signal corresponding to a motor stroke profile.

5,211,038

BALLASTED TUB FOR WASHING MACHINES

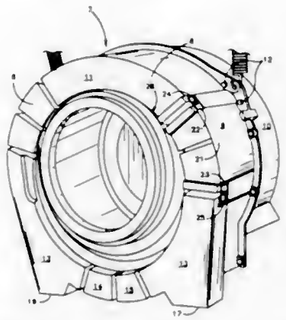
Lucio Valent, Pordenone, Italy, assignor to Zanussi Elettrodomestici S.p.A., Pordenone, Italy

Filed Jan. 29, 1992, Ser. No. 827,360

Claims priority, application Italy, Jan. 30, 1991, 000004 A/91

Int. Cl.[5] D06F *37/22*

U.S. Cl. 68—23.2 **1 Claim**



1. A ballasted tub for a washing machine comprising two shells made of plastic material which shells are connectable to each other, the first shell having a front wall and the second shell having a rear wall to which walls a plurality of ballast masses can be fastened, characterized in that each of said ballast masses (**8**) comprises a preformed block having at least two grooves (**19, 20**) extending transversely across said block and being removably fitted against said tub by fastening means (**22, 23, 24, 25, 27, 31, 32**), said fastening means comprising a metal plate having a hole therein (**22, 23**), a threaded bolt (**24, 25**), a metal band (**27**) having a plurality of holes therein and applied against said ballast masses (**8**), said threaded bolt (**24, 25**) being insertably located through substantially concentric holes in said metal plate (**22, 23**) and in said metal band (**27**), as well as through one of said transverse grooves (**19, 20**) provided in each ballast mass (**8**), said bolt being secured in place by a washer (**31**) and a lock nut (**32**) to hold the block between the metal plate and the metal band.

5,211,039

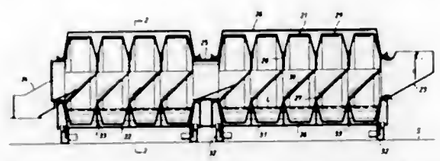
CONTINUOUS BATCH TYPE WASHING MACHINE

Norvin L. Pellerin, New Orleans, La., assignor to Pellerin Milnor Corporation, Kenner, La.

Filed Mar. 12, 1991, Ser. No. 668,046

Int. Cl.[5] D06F *23/02*

U.S. Cl. 68—27 **8 Claims**



1. A continuous batch type washing machine of the top transfer type, comprising

an elongate outer housing having an inlet at one end, an outlet at the other end, and lateral walls dividing at least its bottom portion into individual bath sections,

a continuous elongate inner housing comprising a plurality of generally cylindrically shaped drums each having a perforated outer wall, an inlet in one end wall through which goods may enter the drum, and an outlet in its other end wall connected to the inlet of an adjacent drum, so as to provide a through opening therebetween, or opening to the outside end of the outer housing,

means rotatably supporting only the outer ends of end drums of the continuous elongate inner housing which are external to the bath sections of the outer housing so as to suspend the lower portion of each drum within an individual bath section, and

drive means engaging only the outer ends of the end drums for rotating the inner housing in opposite directional senses,

each drum having a scoop extending between its side walls and so constructed and arranged relative to the inlet and outlet of the drum as to permit the circulation of liquid within the bath section through the goods, while preventing transfer of the goods through the drum outlet, in response to rotation of the inner housing in one directional sense or limited oscillation of the inner housing, but transfer goods through the outlet, in response to rotation of the inner housing in the opposite directional sense.

5,211,040

COMBINATION LOCK

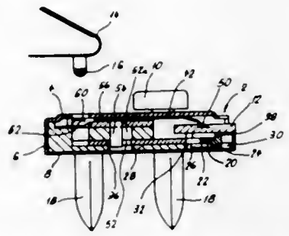
Urs Gisiger, Selzach, Switzerland, assignor to Amiet AG, Oberdorf, Switzerland

Filed May 18, 1992, Ser. No. 884,018

Claims priority, application Switzerland, May 21, 1991, 1494/91

Int. Cl.[5] E05B *37/12*

U.S. Cl. 70—71 **6 Claims**



1. A combination lock comprising a housing, a mount supporting a first slide member and a second slide member coupled thereto, the first slide member being capable of sliding in a plane from a first position to a second position and being biased towards the first position and having a stud capable of securing a closing lug, the second slide member capable of sliding in a plane parallel or substantially parallel to the first slide member and having one or more recesses each capable of accommodating a tumbler disc, the tumbler disc being capable of being moved by the second slide member only when a protrusion on a first face of the tumbler disc is aligned with a groove in the mount, the tumbler disc further comprising one or more than one tooth on a second face, each tooth being capable of cooperating with a respective hollow on a first face of a setting disc, wherein the combination lock further comprises a spring in the form of a plate formed of a resiliently flexible material having on one edge region one or more first finger tending to force the setting disc against the tumbler disc and one or more second finger each capable of protruding into one of a plurality of catch recesses on a second face of the setting disc, wherein the number of catch recesses corresponds to the number of secret codes on the setting disc, and wherein the opposite edge region of the plate has one or more third finger biased to act on the closing lug to tend to eject it.

5,211,041

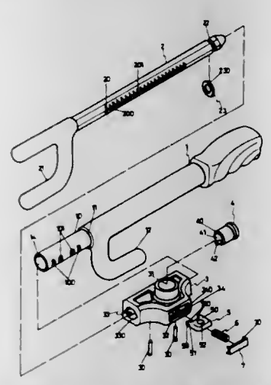
AUTOMOBILE STEERING LOCK

Lih-Tsai Hsu, Tainan, Taiwan, assignor to Kuo Kuang Industrial Co., Ltd., Tainan, Taiwan

Filed Oct. 23, 1992, Ser. No. 965,992

Int. Cl.[5] B60R *25/02*

U.S. Cl. 70—209 **4 Claims**



1. An automobile steering lock for attachment to the steering wheel of an automobile comprising;

an elongate tubular member made of a round tube, having a first hook with its opening facing to the right, its outer surface enveloped with plastics, a central passageway extending axially in the tube for said elongate rod member to telescope freely therein, and an inner end portion fixed with a lock housing;

said elongate rod member having a generally hexagonal cross-section having a second hook with its opening facing to the left, a plurality of generally V-shaped grooves provided axially in longitudinal series, each groove consisting of a vertical face and a declined face;

said lock housing having a locking member hole for fixing a locking member therein, a locating means hole provided vertical both to the locking member hole and to a central passageway having a hexagonal opening, a rectangular opening on the locating means hole and four small holes at four corners of said rectangular opening for four feet of a rectangular cap to fit therein; and

said locking member having a key hole body provided with an eccentric oval actuator at its bottom, said actuator fitting in a round hole in a flat body of a locating means having two parallel feet extending from an inner side, each said foot having a declined face at the right and a vertical face at the left, a coil spring provided between an outer side of said flat body and said rectangular cap, said actuator of the key hole body being rotated by a key to allow movement of the locating means so that its two feet move down to engage two of the grooves in said rod member to lock this lock.

5,211,042

STEERING LOCKING APPARATUS WITH TILTABLE STEERING MECHANISM

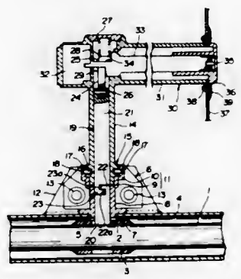
Yoshio Watanuki, Kanagawa, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 25, 1992, Ser. No. 857,562

Claims priority, application Japan, Mar. 29, 1991, 3-66107; Nov. 25, 1991, 3-308180

Int. Cl.[5] B60R *25/02*

U.S. Cl. 70—252 **13 Claims**



1. A vehicle steering locking apparatus comprising:

a column disposing a steering shaft therein, said column being tiltable together with the steering shaft;

an ignition key cylinder in which an ignition switch is arranged, an end portion of said ignition key cylinder having a key hole exposed to a passenger compartment at a preselected position;

an operating rod arranged in said ignition key cylinder for activating the ignition switch in response to ignition key operation;

a locking rod responsive to operation of said operating rod to selectively engage with and disengage from the steering shaft for locking and unlocking steering shaft operation;

a locking rod housing, disposing said locking rod therein, connecting between said column and said ignition key cylinder; and

means for allowing said locking rod housing to rotate relative to said column according to tilting motion of said column to allow said ignition key cylinder to pivot on the end portion of said ignition key cylinder having the key hole while maintaining said end portion at said preselected position.

5,211,043

SPARE TIRE LOCKING DEVICE

James H. Langdon, 26688 Club Dr., Madera, Calif. 93638

Filed Jun. 29, 1992, Ser. No. 905,448

Int. Cl.[5] B62D *43/04;* **E05B** *65/12*

U.S. Cl. 70—259 **3 Claims**

1. A spare tire locking device arranged for projection through a vehicular bumper aperture for reception within a jack socket, wherein the device comprises,

an elongate cylindrical lock body, the lock body having a conical forward end, and

an abutment plate integrally mounted to the body at a rear

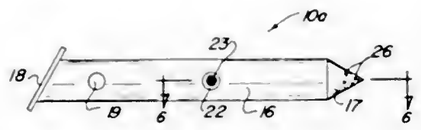
VOL 1150 ISS 3 MY 18 1993 UMI

distal end of the body spaced from the conical forward end, and

a lock receiving bore directed through the cylindrical lock body in spaced adjacency to the abutment plate, and

the conical forward end includes a polymeric outer wall to prevent damage to the jack socket, and

the cylindrical lock body includes an outer surface and a body cavity is directed into the cylindrical lock body



extending from the outer surface into the cylindrical lock body, with a grease fitting positioned within the body cavity below the outer surface, and a grease conduit in fluid communication with the grease fitting directed through the cylindrical lock body extending into the conical forward end, and a plurality of outlet ports directed through the conical forward end, with the outlet ports in fluid communication with the grease conduit.

5,211,044

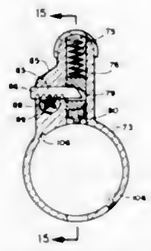
UNIVERSAL LOCK AND KEY

Kwon W. Kim, 1500 3rd Ave., #64, Chula Vista, Calif. 91911

Filed Jan. 14, 1992, Ser. No. 820,235

Int. Cl.[5] E05B *25/00, 19/18*

U.S. Cl. 70—371 **10 Claims**



1. A universal lock and key system in which the lock is re-keyable and the key is re-keyable comprising:

a combination top pin housing and tubular sleeve assembly having a top pin housing portion and a tubular sleeve portion and they each have a front end and a rear end;

said top pin housing portion having a longitudinal axis, a top end and a bottom end, a plurality of top pin bore holes are formed in said top pin housing portion and they extend upwardly from its bottom end, said top pin bore holes being aligned with said longitudinal axis, a top pin and spring removably received in most of said bore holes;

means for locking said top pins in said top pin housing portion comprising a longitudinally extending control sheet slot that extends horizontally into said top pin housing from its outer surface to said top pin bore holes and a control sheet that is moveable in and out of said control sheet slot from a position where it engages said top pins to a position where said top pins are completely disengaged;

said tubular sleeve portion being formed on the bottom end of said top pin housing portion and they have aligned longitudinal axes, said bore holes of said top pin housing portion being in communication with the interior of said tubular sleeve portion;

a bottom pin cylinder having a longitudinal axis, a front end, a rear end, a top surface and a bottom surface; a key slot extends longitudinally a predetermined distance into said bottom pin cylinder from its front end, a plurality of longitudinally aligned bottom pin bore holes extend from said top surface into said key slot, a plurality of bottom pins are removably mounted in said bottom pin bore holes; and

said bottom pin cylinder being removably mounted in said tubular sleeve portion.

5,211,045

APPARATUS FOR DETERMINING CORRECT MOUNTING OF DIE ASSEMBLY ON PRESS BRAKE

Hidekazu Shimizu, Ishikawa, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

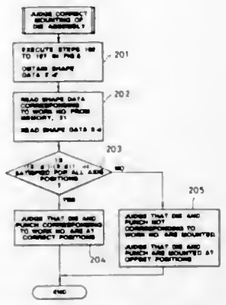
PCT No. PCT/JP91/00242, § 371 Date Oct. 17, 1991, § 102(e) Date Oct. 17, 1991, PCT Pub. No. WO91/12908, PCT Pub. Date Sep. 5, 1991

PCT Filed Feb. 25, 1991, Ser. No. 773,643

Claims priority, application Japan, Feb. 23, 1990, 2-16749[U]

Int. Cl.[5] B21D *1/22*

U.S. Cl. 72—22 **7 Claims**



1. An apparatus for determining a correct mounting of a die on a press brake for bending a work selected from among different works, said die being selected from among a plurality of dies respectively corresponding to said different works, said selected work being inserted into a space defined between a punch and said selected die until said selected die work collides with back-gauges, said punch being displaced toward said selected die to bend said selected work when said selected work reaches an insertion position restricted by said back-gauges, said apparatus comprising:

distance sensors means provided on work-collision surfaces of said back-gauges for detecting a distance between said work-collision surfaces and a side surface of said die facing said work-collision surfaces;

back-gauge displacing means for displacing said back-gauges toward and away from said die in a horizontal direction along a horizontal axis X and in upward and downward directions along a vertical axis Z;

position detecting means for detecting positions on said back-gauges on said horizontal axis X from a mounting reference point C of said die on said press brake when said back-gauges are displaced along said horizontal axis X and for detecting positions of said back-gauges on said vertical axis Z when said back-gauges are displaced along said vertical axis Z;

driving means, operating when said die is mounted on said brake, for driving said back-gauge displacing means for displacing said back-gauges to predetermined locations on said horizontal axis X and for displacing said back-gauges in said upward and downward directions along said vertical axis Z within a range from an uppermost position of said die to a lowermost position of said die;

calculating means for calculating, based an outputs from said distance sensors means and outputs from said position detecting means, respective distances from said mounting reference point C on said press brake to said die surface of said die at predetermined positions on said vertical axis Z, prior to carrying out said bending of said selected work by said press brake and while said back-gauges are being displaced in said upward and downward directions by said driving means, said calculating being carried out for all of said plurality of dies which are sequentially mounted on said press brake in such a manner that a center of each die coincides with said mounting reference point C on said press brake;

distance data memorizing means for memorizing respective distances from said mounting reference position C to said side surface of said die calculated by said calculating means at said predetermined positions on said vertical axis Z for each of said different works;

determining means, operating when said selected die is mounted on said press brake, for calculating distances from said mounting reference position C to a side surface of said selected die at said predetermined positions on said vertical axis Z based on outputs from said distance sensors means and said position detecting means while said back-gauges are displaced in said upward and downward directions by said driving means, for calculating deviations between calculated distances for said selected die and said respective distances memorized in said distance data memorizing means corresponding to said selected work, and for determining whether said mounted die is correct for said selected work based on whether a variance of said deviations is less than a predetermined value.

5,211,046

METHOD FOR FORMING MULTISTAGE HOLLOW PIPE

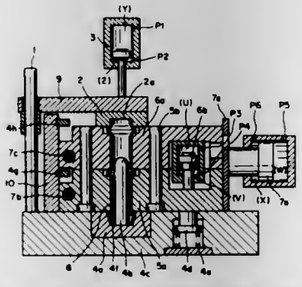
Masayuki Inagaki, Ibaraki, Japan, assignor to Kyosan Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 475,129, Feb. 2, 1990, abandoned. This application May 7, 1991, Ser. No. 700,344

Claims priority, application Japan, Feb. 6, 1989, 1-26971

Int. Cl.[5] B21D *15/06*

U.S. Cl. 72—306 **1 Claim**



1. An apparatus for forming multistage hollow pipe comprising:

a plurality of molds arranged in generally vertical relationship and including an upper old positioned vertically above a first forming mold, a second forming mold and a third forming mold as disposed in vertically ascending order, said second and hired forming molds being split and composed of relatively movable mold parts, said plurality of molds being disposed in predetermined spaced relationship and defining an upwardly opening mold cavity for receiving a hollow pipe;

a first pressure cylinder for pressing the hollow pipe downward with an open lower end of the hollow pipe abutting downwardly against the first mold;

a second pressure cylinder for moving the split mold parts of the second and third forming molds and for clamping the hollow pipe therein;

vertical biasing means cooperating with as said first, second and third forming molds for creating vertical spaced intervals between adjacent said molds;

stopper means for stopping upward movement of each of the second and third forming molds independently of the other, including fist and second separate and independent stopped positioned for contacting respective upwardly facing surfaces of said second and third molds during upward movement thereof; and

a guide pin mounted on the first forming mold for guiding the hollow pipe, said guide pin being received in the open lower end of the hollow pipe when the hollow pipe is positioned in the mold cavity;

wherein said apparatus is free of means for producing a pressure differential between the interior and exterior of the hollow pipe.

5,211,047

DIE FOR BENDING A COMPOSITE FLANGE HAVING A STRETCH PORTION AND A STRAIGHT PORTION

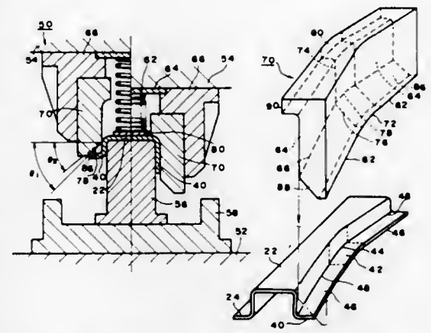
Toshiaki Kaneyuki, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Mar. 9, 1992, Ser. No. 848,048

Claims priority, application Japan, Mar. 12, 1991, 3-70405

Int. Cl.[5] B21D *7/00, 53/88*

U.S. Cl. 72—313 **6 Claims**



1. A bending die for forming an elongated open-ended semi-channel member with a hat-like transverse cross section into a full channel member with a substantially inverted U-shaped transverse cross section by bending a brim of the semi-channel member with a hat-like cross section, the brim comprising a composite flange which extends in a longitudinal direction of the semi-channel member and includes a stretch portion to be bent along a curved bending line and straight portions, connected to each longitudinal end of the stretch portion, to be bent along a straight bending line, the bending die comprising:

a first die portion for bending the stretch portion of the composite flange along the curved bending line, the first die portion including a first vertical surface, a first inclined surface, and a first connecting portion defined between the first vertical surface and the first inclined surface, each of the first vertical surface, the first inclined surface and the first connecting portion extending in the longitudinal direction and being substantially smoothly curved in the longitudinal direction of the bending die, and the first inclined surface being inclined at a first angle with respect to a horizontal direction, said first inclined surface being defined by a straight line in vertical cross-section; and

second die portions for bending the straight portions of the composite flange along the straight bending line, each second die portion including a second vertical surface, a second substantially flat inclined surface, and a second connecting portion defined between the second vertical surface and the second inclined surface, the second vertical surface extending straight in the vertical direction and

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in the longitudinal direction of the bending die and constituting an extension of the first vertical surface of the first die portion in the longitudinal direction of the bending die, and the second inclined surface being connected substantially smoothly to the first inclined surface in the longitudinal direction of the bending die and being inclined at a second angle with respect to the horizontal direction, the second connecting portion being a straight extension in the longitudinal direction of the first connecting portion of the first die portion, the second angle being smaller than the first angle so that the first inclined surface of the first die portion begins to contact the stretch portion before the second inclined surface of the second die portion contacts the straight portion when the bending die is moved vertically toward the brim of the semi-channel member.

5,211,048

METHOD OF FORMING SHAPED CONFIGURATION AT END OF LONG ELEMENT

Katsuo Takahara, Oota; Shigeru Okajima, Isesaki, and Tugio Onodera, Sawa, all of Japan, assignors to Mitsuba Electric Mfg. Co., Ltd., Gumma, Japan

Continuation of Ser. No. 757,228, Sep. 10, 1991, abandoned, which is a continuation of Ser. No. 522,261, May 11, 1990, Pat. No. 5,065,605. This application Apr. 13, 1992, Ser. No. 869,207
Claims priority, application Japan, May 17, 1989, 1-123297
Int. Cl.[5] B21D *45/00*
U.S. Cl. 72—344 **5 Claims**



1. A method of forming a shaped configuration at an end of a long element, comprising the steps of:

(a) placing a material with a uniform cross section along its length in an inside of a die which is provided therein with a section for forming a shaped configuration and a section for forming a body of a long element, said shaped configuration forming section lying at a front end portion of said die with respect to a direction in which the material is forced, said long element body forming section having step shaped inner surfaces, the diameters of the inner surfaces gradually increasing from the shaped configuration section to a rear end portion of said die so as to provide a gap between an outer surface of said material and an inner surface of said die gradually increasing from said shaped configuration section to said rear end portion of said die when said material is placed inside said die, said material having a length smaller than that of said long element body forming section and a diameter larger than that of said shaped configuration forming section, wherein when said material is placed within said die the forward end of said material abuts against the forward end of said long element body forming section;

(b) pressingly inserting a punch into said die so as to forge said material to extrude the front end portion thereof into the shaped configuration forming section, thereby forming a shaped configuration at the forward end of the material and simultaneously forcing the rest of the material to bulge according to the shape of the inner surfaces of the long element body forming section of the die; and

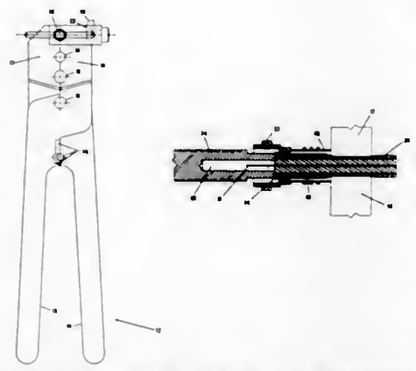
(c) subsequently pushing said forged material out of said die by a knock-out pin which is inserted in said die from an opposite direction to the direction in which said material is extruded.

5,211,049

JOINING-CRIMPING DEVICE FOR ASSEMBLY OF TYPE F CONNECTORS TO COAX CABLE

David J. Lucas, 12044 Moran, Hamtramck, Mich. 48212

Filed May 26, 1992, Ser. No. 888,514
Int. Cl.[5] H01R *43/042*
U.S. Cl. 72—410 **6 Claims**



1. A joining-crimping device for assembly of type F connectors to coax cable comprising:

tool-jaws positioned by relatively movable plural handles, said tool-jaws having a coax cable gripping station to grip and hold a coax cable, said tool-jaws include stations for crimping F connector ferrules to said coax cable;

a clamp bracket with means of attachment to said tool-jaws where an end of said clamp bracket extends generally over said cable gripping station;

a clamp screw threaded through said end of said clamp bracket where said clamp screw is parallel to said coax cable as said coax cable is being held by said cable gripping station by closure of said plural handles, an end of said clamp screw contacts an F connector that is loosely fitted over a prepared end of said coax cable that is held in said cable gripping station, said end of said clamp screw being hollow to allow clearance for a center conductor of said prepared end;

a handle with means of attachment to said end of said clamp screw opposite said F connector that turns by hand moving said clamp screw and said F connector longitudinally toward said coax cable forcing said F connector's barb under the outer jacket of said coax cable thus forming an F connector coax cable assembly.

5,211,050

DETENT MECHANISM FOR CONTROLLING POSITION OF ROTATABLE DIE

David P. Gouveia, Chester; Armand Montminy, and Gary E. Schrader, both of Manchester, all of N.H., assignors to Burndy Corporation, Norwalk, Conn.

Filed Oct. 11, 1991, Ser. No. 774,803
Int. Cl.[5] H01R *43/042*
U.S. Cl. 72—410 **5 Claims**

1. A crimping tool comprising:

a) a first handle having a forward end and a rearward end,

b) a die wheel, with recesses of different sizes defined about its periphery rotatably secured about a transverse axis at the forward end of said first handle,

c) a second handle having a forward end and a rearward end,

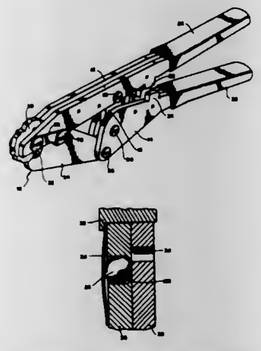
d) a jaw with a crimping surface secured to the forward end of said second handle in alignment with said die wheel,

e) said crimping surface and said die wheel defining an aperture therebetween adapted to receive a connector therewithin for the crimping operation,

f) means for securing said handles together so that said handles can pivot relative to one another,

g) the invention being characterized in that a plurality of transversely opening passageways are defined within said die wheel to permit indexing of said die wheel,

h) a chamber is defined within the forward end of said first handle in proximity to said die wheel, the chamber opening onto opposite sides of the first handle,



i) a ball movable generally parallel to said transverse axis within said chamber,

j) a separate resilient metal strap is secured to the forward end of said first handle adjacent to said chamber and overlying the opening on one side of said first handle,

k) said metal strap constantly urging said ball within said chamber toward the opening on the other side of said first handle, and toward said passageways in said die wheel to engage said passageways and retain said die wheel in its indexed position and

l) said ball is movable relative to, and in direct contact with, said strap.

5,211,051

METHODS AND APPARATUS FOR IMPROVING SENSOR PERFORMANCE

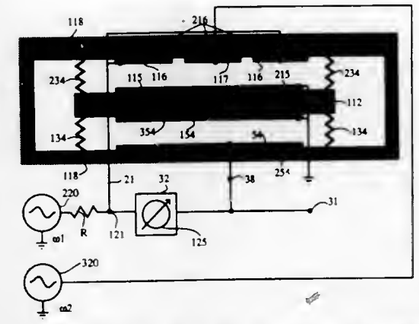
William J. Kaiser, West Covina; Thomas W. Kenny, Glendale, both of Calif.; Joseph K. Reynolds, Austin, Tex.; Thomas R. Van Zandt, Redondo Beach, Calif., and Steven B. Waltman, Boulder, Colo., assignors to California Institute of Technology, Pasadena, Calif.

Continuation-in-part of Ser. No. 685,553, Apr. 15, 1991, and a continuation-in-part of Ser. No. 118,733, Nov. 9, 1987, abandoned. This application Jul. 25, 1991, Ser. No. 735,628
Int. Cl.[5] G01P *15/08*
U.S. Cl. 73—1 D **21 Claims**

1. A method for operating a sensor having a sensor proof mass elastically suspended at an initial equilibrium position by a suspension force, comprising in combination:

providing a tunable force opposing said suspension force;

presetting said proof mass with said tunable force to a second equilibrium position less stable than said initial equilibrium position; and



operating said sensor from the preset second equilibrium position of said proof mass short of instability.

5,211,052

AEROACOUSTIC GAS COMPOSITION MONITOR

Parthasarathy Shakkottai, Duarte, and Eug Y. Kwack, Walnut, both of Calif., assignors to Sparktech, Duarte, Calif.

Filed Oct. 11, 1990, Ser. No. 598,017
Int. Cl.[5] G01N *37/00*
U.S. Cl. 73—23.2 **6 Claims**

1. A system for processing signals and deriving the mole fraction of a chosen gas in a mixture of gases flowing in a large pipe, the arrangement comprising:

an aeoracoustic ring source located on a round nosed body installed at the center of said pipe, said source containing a sharp edge and a ring cavity producing periodic oscillations in said cavity, said oscillations being generated by said flow; means to isolate heat and pressure at said ring source and to conduct solid-borne sound from the back of said cavity to a diaphragm, in the form of a poorly heat conducting rod, said rod being located within a long drilled hole within a support sting welded to said ring source; said diaphragm enclosing a small volume of air within which an uncooled microphone is mounted to sense air-borne pressure fluctuations generated in said volume of air by said diaphragm vibrating in response to said solid-borne sound; an arrangement of springs to keep said rod pressed lightly to said ring source; electronic amplifying means to amplify signals from said micro-

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phone; a frequency meter or counter to measure frequencies of said signals; thermocouple means for measuring the average temperature of said mixture of gases;

output means for calculating and displaying the desired temperature, speed of sound and mole fraction for use as control signals for process control.

5,211,053

HOT GAS SENSOR DEVICE WITH IMPROVED THERMAL ISOLATION FROM CARRIER PLATE

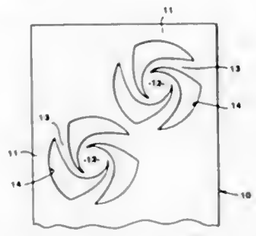
Peter Nolting, Buehlertal; Martin Holland, Merzhausen; Botho Ziegenbein, Reutlingen; Guenther Stecher, Leonberg, and Detlef Baresel, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 19, 1992, Ser. No. 838,545

Claims priority, application Fed. Rep. of Germany, Feb. 19, 1991, 4105025

Int. Cl.[5] G01N *27/12*

U.S. Cl. 73—31.05 17 Claims



1. An electrical hot gas sensor device, comprising:

a carrier plate of an electrically insulating material selected from the group consisting of ceramics and other heat-withstanding solid materials, said carrier plate having an upper surface and a lower surface and having an outer region and at least one middle region surrounded by said outer region but separated from said outer region by gaps bridged by a plurality of connecting strips;

at least one sensor element mounted on said at least one inner region, having two electrodes on said carrier plate separated from each other by a gap and having a sensitive layer providing a conductive connection between said electrodes;

at least one electrical heating element for said at least one sensor element and electrically conducting paths on said connecting strips, some electrically connected to said at least one sensor element and others electrically connected to said at least one heating element and all connected to circuits located in part on said outer region of said carrier plate, characterized in that:

said connecting strips (**13**) extend outward from said at least one middle region (**12**) in a spiral configuration extending around said at least one middle region (**12**);

said at least one sensor element (**1**) with its two electrodes (**201**, **202**) and sensitive layer (**21**) is applied to said upper carrier surface within said at least one middle region (**12**);

said two electrodes of a said at least one sensor element lie flat on said middle region of said carrier plate and have, together, an interdigital configuration defining a meandering gap between them, each of said two electrodes of a said sensor having the configuration of a comb with teeth extending in between the teeth of the other; and

said at least one heating element (**25**) is affixed to said lower surface of said at least one middle region (**12**) of said carrier plate.

5,211,054

METHOD AND SYSTEM FOR ANALYZING A GELATION REACTION BY UTILIZING A PIEZOELECTRIC RESONATOR

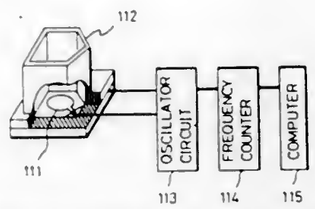
Hiroshi Muramatsu, Tokyo, and Isao Karube, Kawasaki, both of Japan, assignors to Seiko Instruments Inc., Japan

Continuation of Ser. No. 234,305, Aug. 9, 1988, abandoned. This application Sep. 26, 1991, Ser. No. 767,532

Claims priority, application Japan, Aug. 19, 1987, 62-205747; Aug. 19, 1987, 62-205748; Aug. 19, 1987, 62-205749; Aug. 27, 1987, 62-213591; May 10, 1988, 63-112961

Int. Cl.[5] G01N *11/16*

U.S. Cl. 73—64.42 21 Claims



1. A method for analyzing a gelation reaction by utilizing a viscosity measuring system comprised of a piezoelectric resonator for detecting the viscosity of liquid, the gelation reaction being a reaction involving a viscoelastic change, the method comprising the steps of:

(a) contacting the piezoelectric resonator with the liquid;

(b) adding said particles into the liquid to amplify a variation of a resonator characteristic which varies in accordance with gelation of the liquid; and

(c) monitoring the resonant frequency shift indicating the shift from resonant frequency measured in air while allowing the gelation reaction to proceed.

5,211,055

APPARATUS FOR THE SELECTIVE DETERMINATION OF THE CONCENTRATION OF A SUBSTANCE DISSOLVED IN A SOLVENT

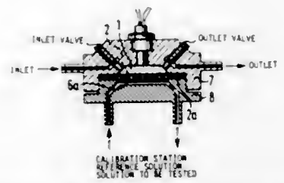
Ernst Steudle, Eckersdorf; Gerd Böling, Inden, and Josef Zilliken, Jülich, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Lülich Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Division of Ser. No. 263,422, Oct. 27, 1988, Pat. No. 5,141,873. This application Jul. 2, 1991, Ser. No. 724,792

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1987, 3736230

Int. Cl.[5] G01N *13/04*

U.S. Cl. 73—64.47 11 Claims



1. Apparatus for the selective determination of a substance in a liquid, said apparatus comprising:

an osmotic cell with an osmotic membrane;

said cell comprising first and second chambers;

said osmotic membrane being disposed between and dividing said cell into said first and second chambers;

said osmotic membrane being rigid and permeable to at least a first substance;

said second chamber having a pressure measurement head disposed therein measuring an osmotic pressure of a liquid in said second chamber;

means for introducing a reference solution into said first chamber;

means for removing the reference solution from said first chamber;

means for introducing a calibration solution into said first chamber;

means for removing a calibration solution from said first chamber;

means for introducing a solution to be tested into said first chamber;

means for removing the solution to be tested from said first chamber;

means for introducing an osmometer solution into said second chamber;

means for removing the osmometer solution from said second chamber;

a second substance being disposed in said second chamber;

said second substance for reacting with at least said first substance permeating through said membrane from said first chamber to said second chamber to produce at least a third substance; and

said reacting of said second substance to produce said at least a third substance resulting in a greater change in osmotic pressure in said second chamber than a change in osmotic pressure by said first substance itself permeating into said second chamber.

5,211,056

THERMAL TYPE INTAKE AIR FLOW MEASURING INSTRUMENT

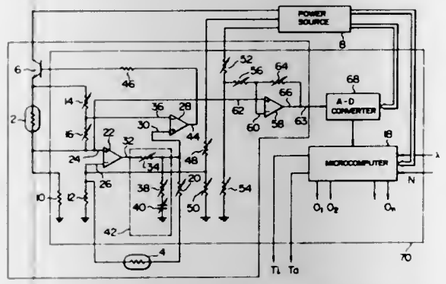
Yuusuke Takamoto, Hitachi; Junichi Makino; Yutaka Nishimura, both of Katsuta; Tomoji Inui, Tokyo, and Seiji Suda, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 507,508, Apr. 11, 1990, Pat. No. 5,107,812. This application Jan. 3, 1992, Ser. No. 816,584

Claims priority, application Japan, Apr. 14, 1989, 1-92860

Int. Cl.[5] G01M *15/00*

U.S. Cl. 73—118.2 7 Claims



1. A thermal intake air measuring instrument comprising:

first detecting means for detecting a physical quantity;

driver means coupled to said first detecting means for converting said physical quantity detected by said first detecting means into an electrical signal;

memory means for storing a relation between the output of said driver means and the output of the thermal type intake air flow measuring instrument;

output means for generating an electric signal to be sent out; and

control means for calculating a target value of output of the terminal type intake air flow measuring instrument on the basis of said relation, and for controlling said output means so that said electric signal to be sent out agrees with said target value.

5,211,057

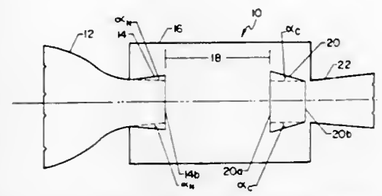
NOZZLE DIFFUSER FOR USE WITH AN OPEN TEST SECTION OF A WIND TUNNEL

P. Stephen Barna, Norfolk, Va., assignor to The United States of America as represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 8, 1991, Ser. No. 743,468

Int. Cl.[5] G01M *9/00*

U.S. Cl. 73—147 14 Claims



13. In a wind tunnel comprising an open test chamber, a test chamber inlet, and a test chamber outlet, the improvement wherein a nozzle diffuser is provided at the test chamber inlet, said nozzle diffuser defining a passageway having an inlet which is in fluid communication with said test chamber inlet and an outlet in fluid communication with test chamber, the passageway having an internal cross-sectional area which increases from the passageway inlet to the passageway outlet; and

a collector provided at the test chamber outlet having an inlet in fluid communication with the test section outlet, said collector having an internal cross-sectional area which decreases from the collector inlet to the collector outlet, wherein said collector comprises oppositely located top and bottom walls and two oppositely located side walls, the top and bottom walls each defining an isosceles trapezoid having a predetermined flare angle, the side walls each defining an isosceles trapezoid having another predetermined flare angle.

5,211,058

CAPACITIVE PRESSURE SENSOR AND METHOD OF MANUFACTURING THE SAME

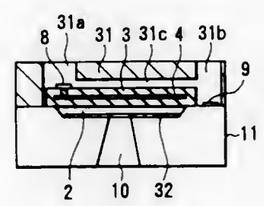
Takeshi Fukiura; Shigeo Kimura; Yoshiyuki Ishikura, and Ikuo Nishimoto, all of Kanagawa, Japan, assignors to Yamatake-Honeywell Co., Ltd., Japan

Filed Oct. 4, 1991, Ser. No. 771,508

Claims priority, application Japan, Oct. 5, 1990, 2-266688

Int. Cl.[5] G01L *7/08, 9/12*

U.S. Cl. 73—724 7 Claims



1. A capacitive pressure sensor comprising:

a substrate having a first film electrode formed on one surface thereof;

a hollow portion formed on a first electrode side of said substrate;

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a diaphragm covering said hollow portion in said substrate and integrally formed by sandwiching a second film electrode between insulating films opposite to said first film electrode to be sandwiched; and

a pressure introducing hole formed through said substrate to communicate with said hollow portion.

5,211,059

ACOUSTIC MICROSCOPE SYSTEM

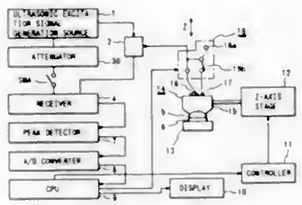
Yasuo Hayakawa; Sakae Takeda; Tosio Nonaka; Katsumi Miyaki; Hiroshi Yamamoto, and Kazuo Fujishima, all of Ibaraki, Japan, assignors to Hitachi Construction Machinery Co., Ltd., Tokyo, Japan

Filed Nov. 29, 1991, Ser. No. 800,117

Claims priority, application Japan, Nov. 29, 1990, 2-331647; Nov. 29, 1990, 2-331648; Jan. 31, 1991, 3-032003

Int. Cl.[5] G01N *29/000*

U.S. Cl. 73—606 **24 Claims**



23. An acoustic microscope system for evaluating a material utilizing a V(z) curve obtained from waves returning from the material while radiating an ultrasonic wave toward the material, comprising:

means for generating an ultrasonic excitation signal;

an ultrasonic probe connected to said ultrasonic excitation signal generating means for converting said ultrasonic excitation signal into an ultrasonic wave and radiating said ultrasonic wave toward the material, said ultrasonic probe receiving waves returning from the material, said ultrasonic probe comprising:

an acoustic lens for focusing said ultrasonic wave; and

transducing means, provided on said acoustic lens, for radiating said ultrasonic wave toward the material and for receiving a leaky surface skimming compressional wave irradiating from the material and a leaky surface acoustic wave irradiating from the material, separately from said leaky surface skimming compressional wave;

means for moving said ultrasonic probe towards and away from the material;

means for constructing the V(z) curve in accordance with at least one of said leaky surface skimming compressional wave and said leaky surface acoustic wave received by said transducing means.

5,211,060

BIDIRECTIONAL FORCE SENSOR

Michael J. O'Brien, and William B. Smith, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 21, 1992, Ser. No. 822,817

Int. Cl.[5] G01L *5/16*

U.S. Cl. 73—862.044 **10 Claims**

1. An electromechanical transducer assembly for converting mechanical movement of two relatively movable parts of a mechanical device comprising:

a sensor block having upper and lower surfaces, front and rear surfaces, and first and second side surfaces;

a first hole extending from said first side surface to said second side surface and being proximate said upper and rear surfaces;

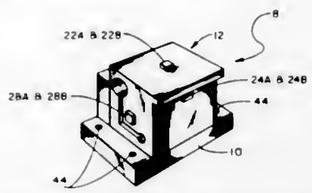
a second hole extending from said first side surface to said second side surface and being proximate said lower and front surfaces;

a relief slot extending from said first side surface to said second side surface and connecting said first and second holes;

a portion of said upper surface extending in a cantilevered fashion beyond said front surface;

a first pair of strain gauges mounted on said upper surface and midway between said first and second side surfaces.

a second pair of strain gauges mounted on said front surface proximate said cantilevered upper surface midway between said first and second side surfaces;



third and fourth pairs of strain gauges mounted on said first and second side surfaces respectively, each pair being located between said relief slot and said upper and front surfaces and proximate said lower and rear surfaces;

first and third strain gauge pairs forming a bridge circuit to measure strain in the direction from front to rear in said block; and

second and fourth strain gauge pairs forming a bridge circuit to measure strain in the direction from said upper to said lower surface.

5,211,061

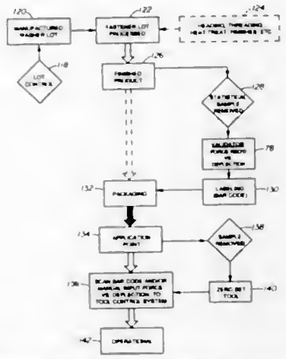
BOLT CLAMPING FORCE SENSOR AND CLAMPING FORCE VALIDATION METHOD

Jerry J. Goodwin, 812 Denice, Westland, Mich. 48185

Filed Jul. 16, 1991, Ser. No. 730,643

Int. Cl.[5] G01L *5/00*

U.S. Cl. 73—862.541 **6 Claims**



1. A fastener clamping force validation method comprising the steps of:

selecting a sample of deflectable fastener components from a manufactured lot of the components,

determining the clamping force versus deflection relationship for each selected sample component,

applying a statistical analysis technique to the set of clamping force versus deflection relationships for the sample to arrive at a clamping force versus deflection relationship that statistically represents the clamping force versus deflection relationship for the entire manufactured lot of the components,

calibrating a drive tool sensing means to the statistical clamping force versus deflection relationship of the manufactured lot of the components, and

installing the fasteners with the drive tool to meet the deflection specified in the relationship thereby assuring that the clamping force has been obtained on a statistical basis.

5,211,062

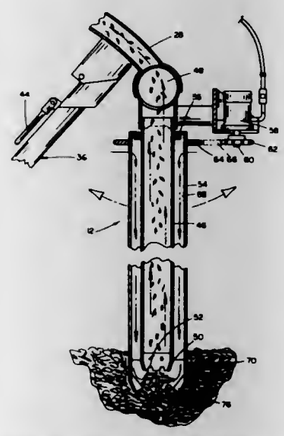
CHIP SAMPLING DEVICE

Robert H. Moser, Omaha, Nebr., assignor to InterSystems, Inc., Omaha, Nebr.

Filed Oct. 1, 1991, Ser. No. 769,468

Int. Cl.[5] G01N *1/00*

U.S. Cl. 73—864.33 **8 Claims**



1. A chip sampling system for taking samples from a load of wood chips, the sampling system comprising,

a substantially vertically disposed sampling tube means adapted to be lowered downwardly into the load of wood chips,

said sampling tube means comprising an outer tube having an inner tube positioned therein, said inner and outer tubes defining an annular space therebetween,

vacuum means in communication with the upper end of said inner tube for drawings chips into the interior of said inner tube,

means for rotating said outer tube with respect to said inner tube,

and a chip agitator means on the lower end of said outer tube for agitating the chips being drawn into said inner tube.

5,211,063

MEASURING DEVICE WITH SEVERAL SENSORS IN MULTIPLEX

Daniel Hobmaier, La Rippe, and José Barros, Geneva, both of Switzerland, assignors to Baumer Electric AG, Frauenfeld, Switzerland

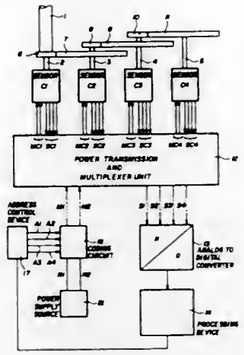
Filed Dec. 6, 1990, Ser. No. 623,015

Claims priority, application Switzerland, Dec. 6, 1989, 4381/89-5

Int. Cl.[5] G01D *21/00*; G01B *21/00*

U.S. Cl. 73—866.1 **9 Claims**

1. A measuring device comprising at least two sensors for at least one value to be measured, each of said sensors being arranged so as to be connected to an electric power supply and to provide through respective output lines signals which are a function of the value to be measured, said measuring device further comprising a power transmission and multiplexer unit connected to said sensors and further connected, on the one hand, to a signal processing device by means of a number of lines at least approximately equal to the number of output lines of a single sensor and, on the other hand, to a power supply and



multiplexer control device, said power supply and multiplexer control device comprising means for modulating supply voltage to be transmitted to the sensor by a multiplexer control signal, and said power transmission and multiplexer unit comprising means for discriminating said control signal.

5,211,064

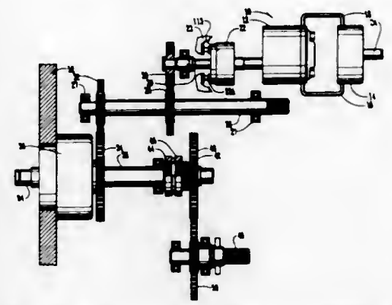
POWER TAKE-OFF DRIVE

Michael A. Betz, Huxley, and Patric N. Chamberlain, Ankeny, both of Iowa, assignors to Sauer Inc., Ames, Iowa

Filed May 20, 1991, Ser. No. 703,161

Int. Cl.[5] F16H *37/00*

U.S. Cl. 74—15.8 **19 Claims**



1. A drive arrangement for a vehicle propulsion system including a hydraulic drive unit for transmitting vehicle drive torque and a power take-off shaft for driving external implements comprising:

a power input shaft;

a hydraulic pump having a pump shaft driven in an axially offset manner by the power input shaft such that the torque capacity of the power input shaft may be greater than if said pump shaft were driven coaxially;

a hydraulic motor connected in closed circuit to the hydraulic pump and having a motor output shaft, the hydraulic pump and the hydraulic motor together defining the hydraulic drive unit for transmitting vehicle drive torque between the power input shaft and the motor output shaft; and

an intermediate shaft driven by the power input shaft and driving the power take-off shaft.

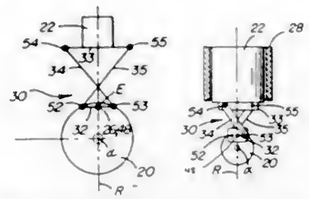
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,065

APPARATUS FOR TRANSLATING ROTATIONAL MOTION TO HARMONIC LINEAR MOTION

Michael Mandella, 998 Bidwell Ave., Sunnyvale, Calif. 94086

Filed Sep. 19, 1991, Ser. No. 762,498
Int. Cl.[5] F16H *21/34*
U.S. Cl. 74—51 32 Claims



1. An apparatus for translating rotational motion to reciprocal linear motion, comprising:

first means for moving in rotational motion about a rotational axis;

second means for moving in reciprocal linear motion along a reciprocal axis, said second means having first and second attachment positions spaced apart by a distance B; and

third means for connecting said first means and said second means so that said second means moves in essentially simple harmonic linear motion with respect to said rotational axis in response to uniform rotational motion of said first means, said third means comprising:

a first member rotatably connected to said first means at a first attachment position, said first member having second and third attachment positions spaced apart by a distance A,

a second member having first and second attachment positions spaced apart by a distance C, said first and second attachment positions of said second member being rotatably connected to respective ones of said second attachment position of said first member and said second attachment position of said second means, and

a third member having first and second attachment positions spaced apart by a distance substantially equal to the distance C, said first and second attachment positions of said third member being rotatably connected to respective ones of said third attachment position of said first member and said first attachment position of said second means,

said second and third members being arranged in a crossing relationship,

the ratio A:B being between 1.5:4 (0.375) and 3.5:4 (0.875) and the ratio B:C being between 4:4.5 (0.888) and 4:5.5 (0.727).

5,211,066

CAM GEAR CONTROLLING MECHANISM

Noriyuki Koga, Chiba, and Jun Ishikawa, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 12, 1991, Ser. No. 790,546
Claims priority, application Japan, Nov. 13, 1990, 2-306770; Nov. 14, 1990, 2-308163; Nov. 15, 1990, 2-309951
Int. Cl.[5] F16H *29/00, 55/17*
U.S. Cl. 74—122 3 Claims

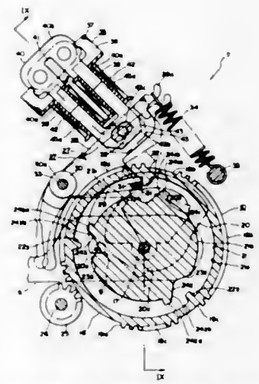
1. A cam gear controlling mechanism, comprising:

a cam gear having a plurality of alternate toothed and non-toothed portions, a controlling cam portion having a required mode-changing controlling function, and means rigidly connected to and coaxial with said controlling cam portion and defining a cam groove, said cam groove being separate from said controlling cam portion and including a first cam face formed on a first side of said cam groove on which a plurality of stopper projections are formed and a second cam face on which a plurality of pressure receiving faces and pushing back faces are formed in pair individually in a substantially opposing relationship to said stopper projections, said second cam face being formed on a second side of said cam groove opposite said first side;

a trigger lever having an engaging projection fitted in said cam groove and movable between an arresting position at which said engaging projection is positioned on a locus of movement of said stopper projections upon rotation of said cam gear and a non-arresting position at which said engaging projection is outside the locus of movement of said stopper projections;

spring means for biasing said trigger lever to the non-arresting position; and

electromagnetic means for releasably holding said trigger lever at the arresting position;



wherein said cam gear is rotated in one direction when any of said toothed portions thereof is brought into engagement with a driving gear, but when said driving gear is opposed to any of said non-toothed portions, one of said stopper projections is abutted with said engaging projection to lock said cam gear at the position; and

when holding of said trigger lever at the arresting position is cancelled while said cam gear is in a locked condition, said trigger lever is moved to the non-arresting position to cancel locking of said cam gear while said engaging projection thereon presses one of said pressure receiving faces to rotate said cam gear to a position at which one of said toothed portions is engaged with said driving gear, whereafter one of said pushing back faces paired with the one pressure receiving face presses said engaging projection to return said trigger lever to the arresting position.

5,211,067

TWO PART SHIFTER SHAFT

Roland L. von Kaler, Tecumseh, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Mar. 6, 1992, Ser. No. 847,929
Int. Cl.[5] F16H *3/08*
U.S. Cl. 74—371 21 Claims

1. A transmission comprising:

a housing;

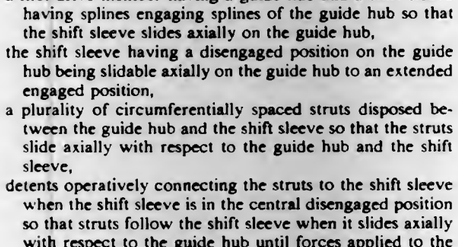
an axle supported by said housing;

a plurality of shafts rotatably disposed within said housing, one of said shafts being a shift shaft defining an axial channel and having a plurality of gears disposed thereon, said plurality of shafts drivingly connected to said axle;

a key slidably disposed in said axial channel and adapted to engage one of said gears; and

shifting means for axially moving said key within said axial channel and thereby selectively engaging one of said gears of said shift shaft;

said shift shaft comprising a first shaft axial portion, a second shaft axial portion, and means for axially connecting proximal ends of said first shaft portion and said second shaft portion, said first shaft portion consisting essentially of a



first material and supporting said plurality of gears, said second shaft portion consisting essentially of a second material and supporting said shifting means, said second material being less durable than said first material whereby the cost of said shift shaft is reduced;

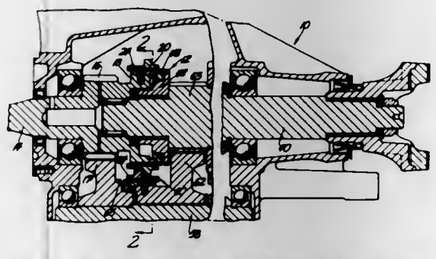
said shift shaft spaced apart and separate from said axle.

5,211,068

ONE-WAY SYNCHRONIZER

Ralph J. Spitale, West Bloomfield, and Lance M. Tobey, Livonia, both of Mich., assignors to Borg-Warner Automotive Inc., Sterling Heights, Mich.

Filed Aug. 10, 1992, Ser. No. 927,442
Int. Cl.[5] F16H *3/38*
U.S. Cl. 74—339 12 Claims



1. A one-way synchronizer for a gear transmission comprising:

a first drive member having a guide hub and a shift sleeve having splines engaging splines of the guide hub so that the shift sleeve slides axially on the guide hub,

the shift sleeve having a disengaged position on the guide hub being slidable axially on the guide hub to an extended engaged position,

a plurality of circumferentially spaced struts disposed between the guide hub and the shift sleeve so that the struts slide axially with respect to the guide hub and the shift sleeve,

detents operatively connecting the struts to the shift sleeve when the shift sleeve is in the central disengaged position so that struts follow the shift sleeve when it slides axially with respect to the guide hub until forces applied to the struts exceed a predetermined limit,

a second coaxial drive member having a cone clutch surface and a ring of clutch teeth that are engaged by the splines of the shift sleeve when the shift sleeve is in extended engaged position, and

a blocker ring between the guide hub and the ring of clutch teeth of the second drive member, the blocker ring having a cone clutch surface juxtaposed the cone clutch surface of the second drive member, cam clutch teeth that cooperate with the splines of the shift sleeve as it translates from the central disengaged position to the extended engaged position, and axial drive slots for indexing the blocker ring circumferentially with respect to the second drive member,

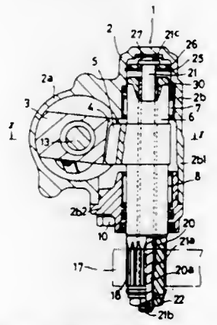
the struts having drive lugs that are disposed in the drive slots for indexing the blocker ring circumferentially with respect to the second drive member and stops that engage the first drive member to limit axial translation of the struts with respect to the guide hub when the shift sleeve is retracted from the extended engaged position.

5,211,069

STEERING DEVICE

Shunichi Wada, and Minoru Kawabata, both of Nara, Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Mar. 31, 1992, Ser. No. 861,019
Claims priority, application Japan, Apr. 19, 1991, 3-036082[U]
Int. Cl.[5] F16H *55/28, 35/08;* B62D *5/22*
U.S. Cl. 74—400 10 Claims



1. A steering device comprising:

a housing, a rack movable according to steering operation, a sector gear meshed with the rack, an output shaft which is united with the sector gear, and a steering mechanism member which is mounted on one end of the output shaft, wherein the movement of the output shaft in its own axis direction with respect to the housing adjusts the meshing between the rack and the sector gear, a through hole is formed along the axis center line of the output shaft, a threaded shaft is inserted into the through hole, the threaded shaft is screwed into the output shaft, one end of the threaded shaft is accessible to rotate from a side where the steering mechanism member is mounted, and the other end of the threaded shaft is connected to the housing in a manner that the threaded shaft is rotatable around its own axis but that the threaded shaft is unmovable in its own axis direction.

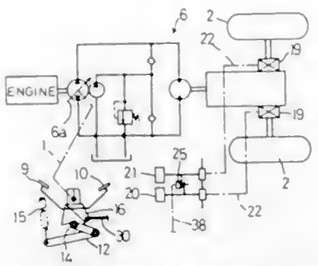
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,070

SPEED CONTROL SYSTEM FOR A VEHICLE HAVING A BRAKING DEVICE AND A STEPLESS TRANSMISSION

Kazuo Hirata, and Taichi Fujiwara, both of Sakai, Japan, assignors to Kubota Corporation, Osaka, Japan

Filed Feb. 10, 1992, Ser. No. 832,976
Claims priority, application Japan, Jun. 13, 1991, 3-141562; Sep. 24, 1991, 3-242300
Int. Cl.[5] G05G 11/00
U.S. Cl. 74—477 14 Claims



1. A speed control system for a vehicle having a braking device and a stepless transmission, comprising:

a change speed member mounted in said stepless transmission to be shiftable between a forward drive zone and a backward drive zone across a neutral position;

neutralizing means for urging said change speed member to said neutral position;

a change speed pedal operatively connected to said change speed member;

a shift lever shiftable between a first shift position and a second shift position for adjusting a vehicle speed and lockable to any selected shift position for a cruising run at a speed corresponding to said selected position; and

interlocking means for operatively interconnecting said change speed member and said shift lever, said interlocking means including:

a first interlocking member connected to said change speed member,

a second interlocking member connected to said shift lever and maintaining a position corresponding to said selected shift position of said shift lever,

connecting means having a connecting member operatively connected to said braking device, said connecting member being shiftable between a connection enable position for enabling connection between said first interlocking member and said second interlocking member and a connection prohibit position for disconnecting the connection between said first interlocking member and said second interlocking member, said connecting member being shifted to said connection prohibit position in response to operation of said braking device.

5,211,071

MODULAR BRAKE SYSTEM ASSEMBLY PROCEDURE

Kristen K. Hedstrom, Romeo, Mich., assignor to Handy & Harman Automotive Group, Auburn Hills, Mich.

Continuation-in-part of Ser. No. 822,801, Jan. 21, 1992. This application Mar. 20, 1992, Ser. No. 855,181
Int. Cl.[5] F16C 1/22
U.S. Cl. 74—501.5 R 30 Claims

1. A method for assembling a modular brake system on a vehicle which comprises:

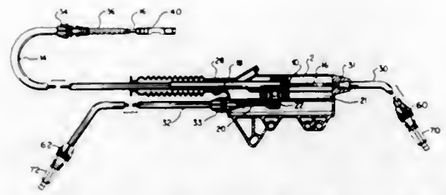
preparing a reactive slide member having means to facilitate reciprocal movement and a bore therein for receiving a cable strand;

operatively associating a first cable conduit having a first cable strand disposed therein with the reactive slide member such that the first cable strand can slidably move through the conduit and reactive slide member;

preparing a housing having inner walls which define a cavity, an opening for receiving the slide member, openings for allowing cable strands to enter or exit the cavity and means on the inner walls for receiving the reciprocal movement means of the reactive slide member;

affixing a second cable conduit to one of the openings of the housing for receiving a cable strand which exits the housing cavity through that opening;

preparing a third cable conduit having a third cable strand slidably disposed therein;



placing the reactive slide member into the housing through its respective housing opening;

passing a first end of the first cable strand from the reactive slide member through a housing opening and into the second cable conduit;

attaching a first end of the third cable strand to the reactive slide member; and

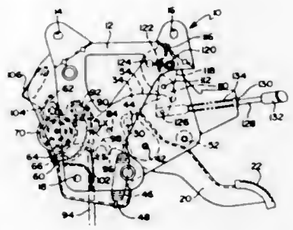
configuring the first end of the first cable strand and a second end of the third cable strand for transmitting forces to first and second vehicle brakes, respectively.

5,211,072

VARIABLE RATIO PARK BRAKE WITH SLACK ADJUST

Serge A. Barlas, Westland, and Paul D. Nordstrom, Redford, both of Mich., assignors to Dura Mechanical Components, Inc., Troy, Mich.

Filed Jul. 26, 1990, Ser. No. 557,751
Int. Cl.[5] G05G 1/04
U.S. Cl. 74—512 3 Claims



1. A brake operator for a vehicle having a cable-operated brake mechanism comprising

a mounting bracket on the vehicle,

a lever pivotally mounted on the mounting bracket for movement between a brake-released position and a range of brake applied positions,

lever latch means for selectively releasably latching the lever in any selected brake-applied position, and

variable ratio cable attachment means attaching the cable to the lever so that lever movement effects a predetermined variable ratio of cable travel per unit of lever movement as the lever is moved to a brake-applied position, characterized

by the cable attachment means being a take-up reel having a circular cable-engaging surface, the reel being pivotally mounted on the lever eccentrically of the lever pivot and being pivotable to wrap the cable onto the circular surface to move the cable relative to the level to remove slack, such that the cable tangentially engages the reel surface at the same location on the lever in all positions of the reel to provide the same predetermined variable ratio of cable travel per unit of lever movement in all positions of the reel, and

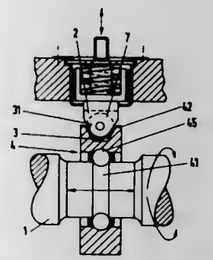
by slack take-up means movably mounting the cable attachment means on the lever for movement to automatically remove cable slack, while maintaining the same predetermined variable ratio of cable travel per unit of lever movement in all positions of the cable attachment means upon movement of the lever from brake-released position to brake-applied position.

5,211,073

APPARATUS FOR GENERATING A PREFERABLY CONTROLLABLE AXIAL COUNTERFORCE IN A ROTATING SHAFT THAT IS AXIALLY DISPLACEABLE BY AN AXIAL FORCE

Horst Nikl, Wolfsburg, and Alfons Weissbrich, Ganting, both of Fed. Rep. of Germany, assignors to Volkswagen AG, Fed. Rep. of Germany

PCT No. PCT/EP89/00755, § 371 Date Jan. 2, 1991, § 102(e) Date Jan. 2, 1991, PCT Pub. No. WO90/00130, PCT Pub. Date Jan. 11, 1990
PCT Filed Jul. 3, 1989, Ser. No. 635,178
Claims priority, application Fed. Rep. of Germany, Jul. 1, 1988, 3822219
Int. Cl.[5] G05G 5/06; F16C 33/58
U.S. Cl. 74—527 5 Claims



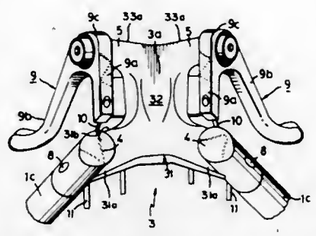
1. Apparatus for generating an axial counterforce in a shaft supported for rotation and axial displacement with respect to the location of a detent means comprising a shaft having an axis and being supported for rotation and for axial displacement, ball bearing means comprising a plurality of balls, inner race means fixed in position on the shaft, and outer race means retained by the plurality of balls in axially fixed position with respect to the shaft, recess means in the outer race means having sides which are inclined outwardly with respect to the axis of the shaft, detent means engaging the inclined sides of the recess means and supported for radial motion with respect to the shaft and in fixed position in the axial direction of the shaft, and force-applying means for urging the detent means toward the recess means.

5,211,074

HANDLE DEVICE FOR BICYCLES

Kenichi Yoshigai, Osaka, Japan, assignor to Yosbigai Kikai Kinzoku Co., Ltd., Osaka, Japan

Continuation of Ser. No. 608,342, Nov. 2, 1990, abandoned. This application Jun. 24, 1992, Ser. No. 902,423
Claims priority, application Japan, Nov. 22, 1989, 1-135682[U]
Int. Cl.[5] B62K 21/12; B62M 1/02
U.S. Cl. 74—551.8 9 Claims



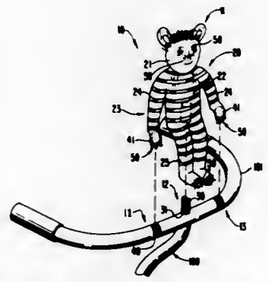
1. A handle device for bicycles including a handle bar, the handle bar comprising a horizontal straight portion for connection at its center to a steering column by means of a stem having a lower end for fixing to the column, a pair of U-shaped portions bent downward and outward slantingly from both ends of the straight portion forming first grip-holders, and a pair of elongated portions slanting upward from the U-shaped portions toward a front center, tips of the elongated portions being connected with a connecting member, said connecting member having a rear part which extends crosswise between the tips of the elongated portions and forms second grip-holders and having a projecting part which projects forwardly relative to a front side of the rear part of the connecting member, and the handle bar in its entirety being a substantial isosceles triangle seen from the above, wherein a pair of brake lever mount portions is provided on laterally opposite sides of the projecting part of the connecting member and a pair of brake levers are mounted on said projecting part forwardly of the handle bar and the crosswise extending rear part of the connecting member.

5,211,075

HANDLEBAR MOUNTED BIKE ACCESSORY

Linda D. Martin-Rossman, 7950 Hunterasknoll Ct., Cincinnati, Ohio 45242

Filed Apr. 24, 1992, Ser. No. 873,140
Int. Cl.[5] B62K 21/12; B62J 39/00
U.S. Cl. 74—551.8 4 Claims



4. An accessory for use on the handlebar of a bicycle; wherein, the accessory consists of

a figurine member having a head, a torso having a recess formed in the bottom portion of the torso and a plurality

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of upper and lower appendages depending downwardly from the torso; wherein, at least the upper appendages are provided with means for releasably securing the upper appendages to said handlebar; and,

spring means dimensioned to be received in said recess in the bottom portion of the torso wherein said spring means forms an operative connection between the torso of the figurine member and said handlebar; whereby said figurine member will reciprocate in a vertical orientation relative to said handlebar.

5,211,076

CYCLE PEDAL ARRANGEMENT

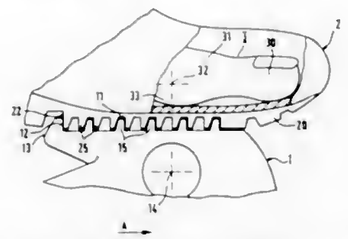
Hugues Baume, St. Benin D'Azy, and Jean-Louis Chretien, Cour les Barres, both of France, assignors to Look S.A., Nevers cedex, France

Filed Jul. 1, 1991, Ser. No. 724,028

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1990, 4021356; Jul. 5, 1990, 4021357

Int. Cl.[5] G05G *1/14*; A43B *5/00*

U.S. Cl. 74—594.6 **16 Claims**



1. A bicycle pedal arrangement comprising:

a bicycle pedal pivotable about a transverse axis having a front end, a rear end and a first contoured side and a second side between the ends, said first contoured side including a plurality of transversely extending bars forming a plurality of grooves therebetween, said bars having a semi-trapezoidal cross-section and defining a vertical surface and an inclined surface when said first side is horizontally disposed and faces upwardly; and

a bicycle shoe having an upper portion and a lower portion, said lower portion including a sole having a lower surface including a contoured region formed by a plurality of transversely extending bars, the bars defining a plurality of grooves therebetween and having a semi-trapezoidal cross-section defining an inclined bar side and a vertical bar side sized to releasably engage the bars on the pedal when said sole is placed on said first pedal side in an interlocking, force-transmitting manner.

5,211,077

HYDROSTATIC TRANSMISSION CENTER SECTION

Joseph E. Louis, and Alan W. Johnson, both of Ames, Iowa, assignors to Sauer, Inc., Ames, Iowa

Continuation of Ser. No. 482,656, Feb. 21, 1990, abandoned, which is a continuation of Ser. No. 319,164, Mar. 3, 1989, Pat. No. 4,903,545. This application May 24, 1991, Ser. No. 705,117

The portion of the term of this patent subsequent to Feb. 27, 2007, has been disclaimed.

Int. Cl.[5] F16H *57/02*; F16D *39/00*

U.S. Cl. 174—606 R **9 Claims**

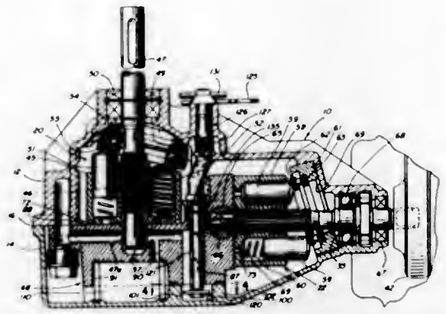
1. An integrated hydrostatic transaxle having a common housing for a hydrostatic transmission and a pair of oppositely-extending differentially-connected axles to provide a common sump, said hydrostatic transmission comprising

a pair of hydraulic displacement units, each having a rotatable cylinder block with reciprocal pistons with at least one of said units being an over-center variable displacement unit to provide forward and reverse drive of said axles,

said rotatable cylinder blocks having their axes of rotation generally normal to each other,

a one-piece generally L-shaped center section separate from said housing and having first and second faces generally at right angles to each other,

said center section being positioned to have said first face engage an end of one rotatable cylinder block and the second face engage an end of the other rotatable cylinder block,



arcuate fluid ports at the first and second faces of said center section,

and first and second fluid passages intersecting and connecting said arcuate fluid ports at each face in pairs whereby said first fluid passage may provide delivery of high pressure fluid from one fluid port of a pair to the other fluid port of said pair in one direction of drive of the axles and the second fluid passage may provide delivery of high pressure fluid from one fluid port of the other pair to the other fluid port of said other pair in an opposite direction of drive of the axles.

5,211,078

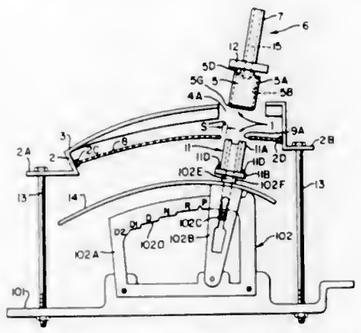
REMOVABLE GEAR SHIFT LEVER

William D. McCarthy, Islip, and Kevin P. Boydston, Holbrook, both of N.Y., assignors to Global Decisions, Inc., East Islip, N.Y.

Filed May 12, 1992, Ser. No. 882,448

Int. Cl.[5] B60K *20/00*

U.S. Cl. 74—850 **28 Claims**



1. A removable gear shift lever assembly for use by a vehicle operator in operating a vehicle having a gear shift mechanism, said gear shift mechanism having at least one position which allows the vehicle to move under its engine power and at least another position which does not allow the vehicle to move under its engine power, the assembly comprising:

a gear shift lever having a first end adapted to engage the gear shift control mechanism;

and means adapted to cooperate with said gear shift lever to permit said gear shift lever to be non-releasably maintained in engagement with said gear shift mechanism in all said positions of said gear shift mechanism in which said gear shift mechanism allows the vehicle to move under its own power and to be releasably maintained in engagement with said gear shift mechanism in at least one position in which said gear shift mechanism does not allow the vehicle to move under its own power.

5,211,079

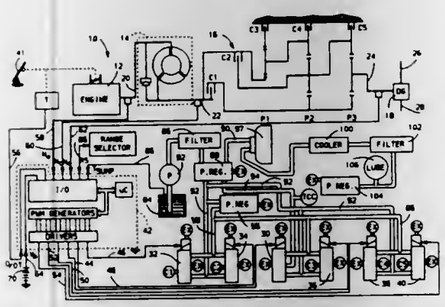
METHOD OF ADAPTIVE CONTROL FOR CLOSED THROTTLE DOWNSHIFT IN AN AUTOMATIC TRANSMISSION

Jeffrey K. Runde, Indianapolis, Ind.; John A. Hibner, Coldwater, Ohio, and Joseph H. Hunter, Carmel, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 11, 1990, Ser. No. 463,718

Int. Cl.[5] F16H *61/06*

U.S. Cl. 74—866 **11 Claims**



1. In a vehicular automatic transmission having an input and an output, a turbine connected to the input to couple driving torque thereto, in which a closed throttle downshift from one transmission speed ratio to another is carried out through concurrent disengagement of an off-going fluid pressure operated torque transmitting device associated with the lower of such speed ratios and engagement of an on-coming fluid pressure operated torque transmitting device associated with the higher of such speed ratios, and further having turbine and output speed sensing means, a method of operation comprising the steps of:

disengaging the off-going torque transmitting device by reducing its pre-shift engagement pressure according to a predefined schedule to complete such disengagement;

engaging the on-coming torque transmitting device by successively supplying it with hydraulic pressure for a predefined fill period, then setting the commanded pressure to an initial pressure and subsequently controlling the pressure by a closed-loop control to effect a progressive engagement of the same;

detecting a significant increase in commanded pressure to the on-coming torque transmitting device during the period of the closed-loop control;

testing the validity of the closed-loop increase determination; and

subject to the validity test, adaptively adjusting a stored parameter corresponding to the setting of the initial pressure in a manner to increase such setting in response to the occurrence of a significant increase in the on-coming pressure during the closed-loop control.

5,211,080

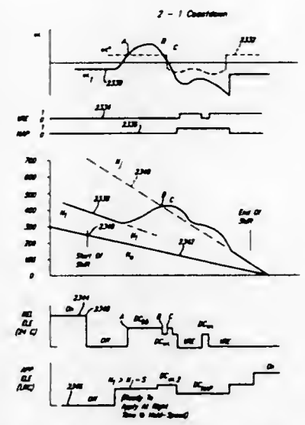
METHOD OF SHIFT CONTROL DURING A COASTDOWN SHIFT FOR AN ELECTRONIC AUTOMATIC TRANSMISSION SYSTEM

Maurice B. Leising, Clawson, and Howard L. Benford, Bloomfield Hills, both of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Continuation of Ser. No. 188,601, Apr. 29, 1988, abandoned. This application May 24, 1990, Ser. No. 529,697

Int. Cl.[5] B60K *41/06*

U.S. Cl. 74—866 **4 Claims**



4. In a vehicle having an engine and a transmission system including an input member, an output member, a torque converter assembly for transmitting torque between the engine and the input member, the torque converter assembly having a turbine operatively connected to the input member, a gear assembly for changing the ratio of torque between the input member and output member, a plurality of friction elements for shifting the gear assembly, a fluid actuating device being moveable axially for applying at least one friction element, at least one solenoid-actuated valve being moveable and having logical operating states in response to the presence or absence of electrical power to the solenoid-actuated valve for directing fluid flow between a fluid source and the fluid actuating device, input sensors providing input signals representative of certain parameters, a controller having memory for storing predetermined values and relationships and for processing the input signals and providing output signals to control the solenoid-actuated valve, a method of controlling a speed change during a coastdown shift, said method comprising the steps of:

detecting whenever slip of a release element for the shift momentarily exists by speed calculations of the turbine for the torque converter assembly;

if the slip is not detected, maintaining the release friction element in an OFF logical state by the controller;

detecting whenever an instantaneous volume of the release friction element is less than a fill volume for the release friction element;

if the instantaneous volume of the release friction element is not less than the fill volume for the release friction element, maintaining the release friction element in an OFF logical state by the controller; and

if the slip is detected and the instantaneous volume of the release friction element is less than the fill volume of the release friction element, duty cycling the release friction element between ON and OFF logical state with a predetermined minimum percent ON time by the controller to reduce venting of the release friction element.

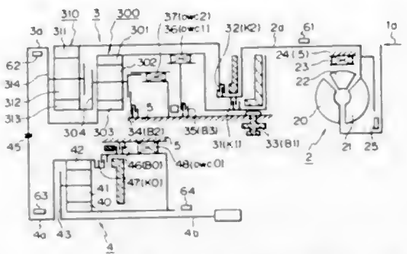
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,081

CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

Keiji Bota; Hidehiko Mishima; Hiroto Kawano; Takuro Sbigemura; Toshibisa Marusue, and Kotaro Ninomiya, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Dec. 24, 1991, Ser. No. 812,814
Claims priority, application Japan, Dec. 30, 1990, 2-417305
Int. Cl.[5] B60K *41/18*
U.S. Cl. 74—866 10 Claims



1. A control system for an automatic transmission including a main transmission and a subtransmission whose shift operation is carried out hydraulically, said control system comprising;

first means for adjusting a gear ratio advance of the main transmission, said gear ratio advance corresponding to a gear ratio change during the shift operation;

second means for adjusting a gear ratio advance of the subtransmission, said gear ratio advance corresponding to a gear ratio change during the shift operation; and

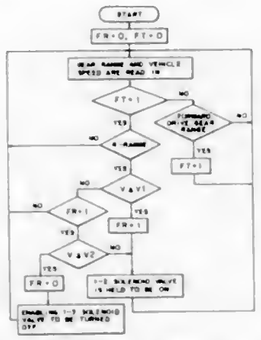
means for controlling said first adjusting means and said second adjusting means during concurrent shift operations of the main transmission and the subtransmission so that the gear ratio advances of the main transmission and the subtransmission become equal to respective predetermined target gear ratio advances.

5,211,082

CONTROL APPARATUS FOR AUTOMATIC TRANSMISSION

Kazuo Sasaki; Takuji Fujiwara, and Tatsutoshi Mizobe, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Dec. 19, 1991, Ser. No. 810,154
Claims priority, application Japan, Dec. 27, 1990, 2-407838
Int. Cl.[5] F16H *61/12*
U.S. Cl. 74—878 4 Claims



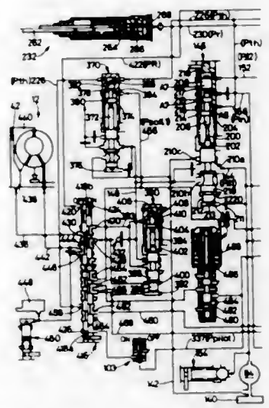
1. A control apparatus for an automatic transmission comprising a control unit which, in the case where a selector lever is shifted from one of forward drive gear ranges to a reverse gear range when a vehicle speed is not lower than a first predetermined speed, prevents a gear stage from being changed to that corresponding to a reverse gear range, until the vehicle speed has fallen to a speed not greater than a second predetermined speed lower than the first predetermined speed, and allows the gear stage to be changed to that corresponding to the reverse gear range if the selector lever is shifted to the reverse gear range when the vehicle speed is lower than the first predetermined speed.

5,211,083

HYDRAULIC CONTROL APPARATUS FOR POWER TRANSMITTING SYSTEM INCLUDING BELT-AND-PULLEY TYPE CONTINUOUSLY VARIABLE TRANSMISSION AND TORQUE CONVERTER EQUIPPED WITH LOCK-UP CLUTCH

Yuji Hattori; Yoshinobu Soga; Masami Sugaya, and Nobuyuki Kato, all of Susono, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Dec. 18, 1991, Ser. No. 809,164
Claims priority, application Japan, Dec. 28, 1990, 2-416145
Int. Cl.[5] B60K *41/14*; F16H *61/14*
U.S. Cl. 74—890 9 Claims



1. A hydraulic control apparatus for controlling a power transmitting system of a motor vehicle, said hydraulic control apparatus including a hydraulically operated continuously variable transmission and a torque converter provided with a lock-up clutch, said transmission including a first and a second shaft, a pair of variable-diameter pulleys provided on said first and second shafts, respectively, a transmission belt connecting the pair of pulleys, and a pair of hydraulic actuators for changing effective diameters of said pulleys for continuously variably changing a speed ratio of the transmission, one of said pair of hydraulic actuators receiving a belt tensioning pressure for controlling a tension of said transmission belt, said torque converter having an engaging chamber which receives a first pressure for engaging said lock-up clutch, and a releasing chamber which receives a second pressure for releasing the lock-up clutch, said hydraulic control apparatus comprising:

a lock-up clutch control valve which is placed in an engaging position and a releasing position for engaging and releasing said lock-up clutch, respectively, said lock-up clutch control valve controlling said first and second pressures to be applied to said engaging chamber and said releasing chamber, to selectively engage and release said lock-up clutch;

a slip control valve for regulating a difference between said first and second pressures for a predetermined period of time after said lock-up clutch control valve is operated to said engaging position, so as to control an amount of slipping of said lock-up clutch until the clutch is fully engaged;

pressure control means for raising said belt tensioning pressure so as to increase said tension of said transmission belt; and

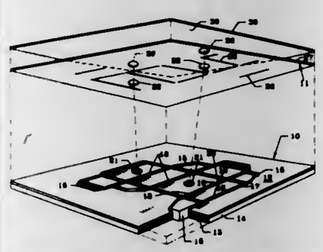
pilot-pressure generating means for applying a pilot pressure simultaneously to said slip control valve and said pressure control means for said predetermined period of time after said lock-up clutch control valve is operated to said engaging position, so that said belt tensioning pressure is raised while said slip control valve controls the amount of slipping of said lock-up clutch.

5,211,084

METHOD OF MAKING A STEEL RULE DIE

George L. Holliday, Greensboro; Brightman K. Holliday, High Point, and Herbert G. Shimer, Jr., Greensboro, all of N.C., assignors to Ameritek, Inc., Greensboro, N.C.

Continuation of Ser. No. 201,322, May 25, 1988, Pat. No. 5,140,872, which is a continuation of Ser. No. 701,659, Feb. 15, 1985, abandoned, which is a continuation of Ser. No. 567,942, Jan. 4, 1984, abandoned, which is a continuation-in-part of Ser. No. 299,672, Sep. 8, 1981. This application May 8, 1992, Ser. No. 879,944
Int. Cl.[5] B26D *7/00*
U.S. Cl. 76—107.8 10 Claims



1. The method of forming a steel rule die counter plate comprising the steps of:

(a) selecting a desired width for a finished elongated, precision slot in a plate;

(b) adjusting the width of a laser beam for cutting a slot in the plate with a width less than the desired finished slot width;

(c) focusing the laser beam on the surface of the plate;

(d) traversing the laser beam over the plate surface in parallel and overlapping oscillation to cut the plate in increments of width during each oscillation less than the desired finished slot width; and

(e) continually traversing the laser beam over the plate surface until the desired finished slot width is achieved.

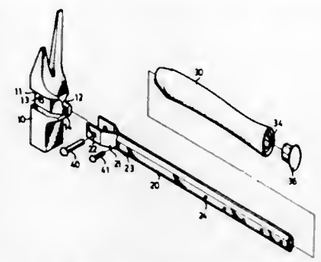
5,211,085

HAMMER

Mou T. Liou, No. 25, Lane 86, Tawei Rd, Tali Tsun, Tali Hsiang, Taichung Hsien, Taiwan

Filed Mar. 31, 1992, Ser. No. 861,012
Int. Cl.[5] B25D *1/00*
U.S. Cl. 81—20 2 Claims

1. A hammer comprising a head including two side portions each having a slot formed therein, the slot extending across the entire width of the head, the head defining an opening extending laterally through said head between said slots in said side portions of said head; an extension integrally formed on said head so as to extend therefrom and defining an aperture therein; a handle having a first bifurcated end portion formed therein and a second end portion having a grip disposed thereon, said bifurcated portion of said handle defining two panels engaged in said slots of said head and each having an orifice formed thereon and aligned with said opening of said head, said handle including a hollow interior for receiving said extension of said head when said head is engaged in said bifurcated portion of said handle, said hollow interior of said handle having a cross section corresponding to a cross section of said extension such that said extension is snugly engaged in said



hollow interior of said handle; a hold defined by said first end portion of said handle aligned with said aperture in said extension; a first engaging means engaged through said opening of said head and said orifices of said panels of said bifurcated portion of said handle; and a second engaging means engaged through said hole of said handle and said aperture of said head; whereby, said head and said handle are solidly coupled together.

5,211,086

TOOL WITH SLIDING SLEEVE FOR RATCHET DIRECTION CONTROL

Zu S. Shu, No.11 Lane 11-1, Kuo Chung Rd., Ta Yuan Village, Ta Li Hsiang, Taichung Hsien, Taiwan

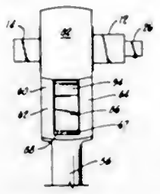
Filed Jul. 7, 1992, Ser. No. 909,665
Int. Cl.[5] B25B *13/46*
U.S. Cl. 81—58.1 2 Claims



1. A tool comprising a handle, an barrel coupled to said handle, a shaft including a first end engaged in said barrel, a plurality of first teeth longitudinally disposed on said shaft, and a second end including an engaging recess for engaging a bolt, a knob extending outwardly from said barrel and movable for controlling a direction of ratcheting engagement of said handle and said shaft, a sleeve slidable along said shaft and including an annular groove for engagement with said knob, a ring element on one end of said sleeve, a plurality of second teeth in said ring element for engagement with said first teeth on said shaft, whereby said shaft is rotated in concert with said sleeve, and said knob is moved when said sleeve is moved along said shaft.

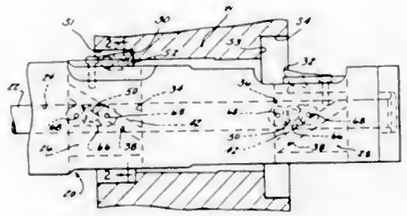
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5,211,087
MULTIPLE DRIVE RATCHET WRENCH
Raymon Thomason, 3415 Danbury, Amarillo, Tex. 79109
Filed Oct. 19, 1992, Ser. No. 962,668
Int. Cl.[5] B25B *13/46*
U.S. Cl. 81—63.2 10 Claims



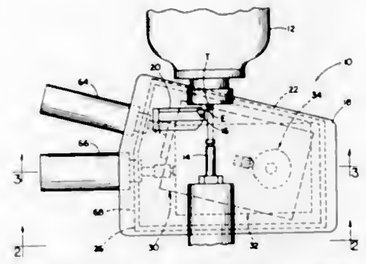
1. A ratchet wrench having multiple-size socket drive shafts, comprising:
a rotational drive shaft formed to extend a smaller and a larger square drive shaft coaxially from respective first and second ends, and having a first bearing wheel and an interior square drive shaft formed therebetween, said larger drive shaft having an axially aligned square hole formed therein;
a third drive shaft of square cross-section and elongated having inner and outer ends that is slidingly received and maintained within said axially aligned square hole against spring pressure;
a ratchet gear having a central square hole that is retained on said interior square drive shaft adjacent said first bearing wheel;
a second bearing wheel with central square hole retained on said smaller square drive shaft adjacent said ratchet gear;
a bifurcated head member having a bifurcation space and a handle extending therefrom, said head member supporting said first and second bearing wheels rotatively with the ratchet gear disposed in the bifurcation space; and
a ratchet pawl movably retained within said bifurcation space that is manipulable to contact said ratchet gear and control permissible rotation of the drive shaft relative to the handle.

5,211,088
ANTI-BACKLASH DEVICE FOR CUTTING TOOL
David A. Gifford, Roseville, Mich., assignor to J. P. Tool, Inc., Warren, Mich.
Filed Oct. 31, 1991, Ser. No. 785,519
Int. Cl.[5] B23B *3/26*
U.S. Cl. 82—1.2 7 Claims



1. In a cutting tool including a main body having a longitudinal axis, a cutter carrying slide slidably received within a slide receiving slot in said body for sliding movement relative to said body along a first slide path extending generally normal to said axis, and slide positioning means for shifting said cutter carrying slide along said slide path between a retracted position wherein a cutter carried by said slide is retracted into said body and a cutting position wherein a cutter carried by said slide projects outwardly from said body;
the improvement comprising means defining a guide passage extending from said slot into said body along a guide path perpendicular to said slide path, a pin slidably received in said guide passage for movement along said guide path, spring means resiliently biasing said pin toward said slide, and opposed parallel cam surfaces on said slide and on said pin inclined relative to said slide path and said guide path to urge said pin away from said slot into said guide passage against the biasing action of said spring means in response to movement of said slide toward said cutting position, and means engageable between said pin and said body to establish an end limit of movement of said pin toward said slide, wherein said guide passage extends from an outer end opening at the exterior of said body to an inner end opening into said slot, a cover plate detachably mounted on said body in overlying relationship to said outer end of said guide passage, and said spring means includes compression spring means engaged between said cover plate and the adjacent end of said pin.

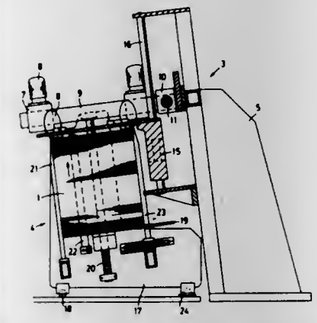
5,211,089
CAM-CONTROLLED TUBE END FINISHING APPARATUS AND METHOD
Albert B. Cady, New Alexandria, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed May 31, 1991, Ser. No. 708,573
Int. Cl.[5] B23B *1/00, 5/16*
U.S. Cl. 82—47 22 Claims



1. An apparatus for finishing an end of a rotating hollow tube, said finishing apparatus comprising:
(a) a cutting bit;
(b) means for supporting the cutting bit adjacent to the end of the rotating tube; and
(c) means for moving the supporting means and thereby the cutting bit relative to the end of the rotating tube along a closed polygonal path of travel;
(d) said moving means being capable of moving said supporting means and cutting bit along said path of travel from a home position and in a direction from the outside to the inside of the tube in which an initial portion of the rotating tube is severed at an angle to a plane normal to the rotational axis of the tube so as to define an initial cut face on the tube end extending in inclined relation to the rotational axis of the tube;
(e) said moving means being further capable of moving said supporting means and cutting bit along said path of travel in a direction from the inside to the outside of the tube and back to the home position in which a final portion of the rotating tube is severed at another angle to the normal plane so as to define a final cut face on the tube end extending normal to the rotational axis of the tube.

19. A method for finishing an end of a rotating hollow tube, said finishing method comprising the steps of:
(a) supporting a cutting bit adjacent to the end of the rotating tube; and
(b) moving the cutting bit relative to the end of the rotating tube along a closed polygonal path of travel, initially, in a direction from the outside to the inside of the tube in which an initial portion of the rotating tube is severed at an angle to a plane normal to the rotational axis of the tube so as to define an initial cut face on the tube end extending in inclined relation to a plane normal to the rotational axis of the tube, and, thereafter, in a direction from the inside to the outside of the tube in which a final portion of the rotating tube is severed at an another angle to the normal plane so as to define a final cut face on the tube end extending in a plane normal to the rotational axis of the tube.

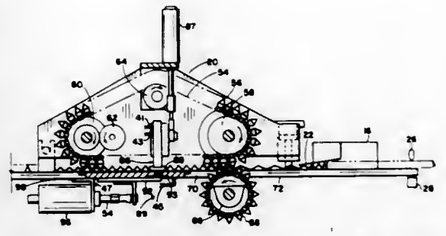
5,211,090
METHOD OF AND APPARATUS FOR SHAPING THE CORNERS OF STACKED SHEET MATERIAL
Horst Rathert, Minden, Fed. Rep. of Germany, assignor to Kolbus GmbH & Co. KG, Rahden, Fed. Rep. of Germany
Filed Apr. 16, 1991, Ser. No. 686,423
Claims priority, application Fed. Rep. of Germany, Apr. 21, 1990, 4012721; Feb. 2, 1991, 4104428
Int. Cl.[5] B26D *7/06*
U.S. Cl. 83—24 21 Claims



21. The method of claim 20 further comprising:
positioning the stack of sheets to be shaped in a magazine on a carrier, the carrier having a planar stack support surface;
moving the carrier in a first direction to place it in registration with the knives; and
imparting movement in a second direction to the stack of sheets to advance the stack of sheets toward the moving knives, said second direction being generally transverse to the planar support surface.

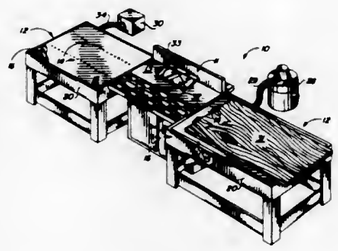
5,211,091
PLEAT PACK CUTTER
Everett A. Cole, Fayetteville, N.C., assignor to Purolator Products Company, Tulsa, Okla.
Filed Jul. 2, 1992, Ser. No. 907,874
Int. Cl.[5] B26D *5/34, 5/42*
U.S. Cl. 83—69 8 Claims

1. An apparatus for shearing the knuckles of pleated paper which comprises:
a table with a slit;
two paralleled toothed roller chains supported along the top of the table; motor means to drive said chains;
two parallel tooth sprockets directly under the roller chains with teeth meshing with the teeth of the teeth of the chain so that when the chain is moved paper can be pulled;
means to push one pleat at a time through said slit; and



knife means operable to cut off the knuckle of said pushed pleat.

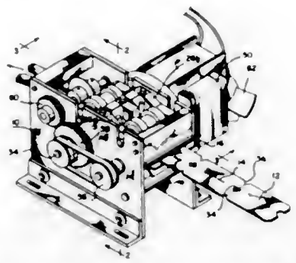
5,211,092
CUTTING FACILITY WITH AIR FLOAT TABLE
John Blasi, 332 S. Grand Dr., Apache Junction, Ariz. 85220
Filed Aug. 28, 1992, Ser. No. 937,984
Int. Cl.[5] B27G *21/00;* B26D *7/06*
U.S. Cl. 83—98 10 Claims



1. An improved cutting facility comprising, in combination:
a table saw for cutting boards and sheet stock;
a source of air useful for clearing away wood chips and saw dust;
a first table saw extension table for supporting said boards and said sheet stock;
said table saw extension table having a table top having a plurality of openings therethrough;
an air plenum beneath said table top, said plurality of openings being output orifices for air from said plenum;
an air input for coupling air into said plenum, said source of air being coupled to said air input;
said first table saw extension table being positioned adjacent an input end of said table saw; and
at least one of said sheet stock and said board buoyantly supported by air exiting said output orifices;
whereby said at least one of said sheet stock and said board may be readily and easily fed into said table saw and maintained at a proper cutting aspect because of said buoyant support.

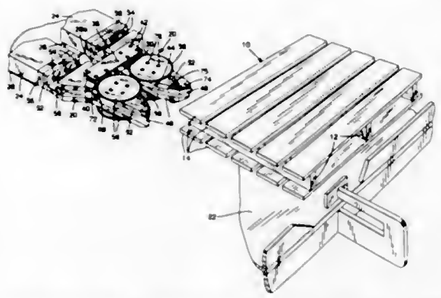
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5,211,093
APPARATUS FOR COUNTING AND DISPOSING OF TICKETS AND METHOD OF USING SAME
Stephen Horniak, 424 Cedar Hill Rd., Ambler, Pa. 19002
Filed Oct. 22, 1990, Ser. No. 602,418
Int. Cl.[5] B26D *01/143*
U.S. Cl. 83—426 13 Claims



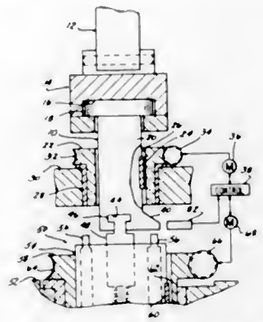
1. An apparatus for high speed counting and disposal of tickets which comprises:
an assembly housing providing a substantially straight ticket path from a reception end to a disposal end;
first and second sets of wheel members, each set including a drive wheel mounted on one side of the ticket path and an idler wheel mounted on the opposite side of the ticket path, the first set of wheel members being located at the reception end;
sensor means mounted between the first and second sets of wheel members for detecting the number of tickets which pass through the ticket path;
means for permanently defacing the tickets comprising a rotating cutting blade mounted in the ticket path which severs the tickets after passing through both sets of wheel members;
a motor and transmission for rotating each of the drive wheels and the cutting blade.

5,211,094
CUTTER HEAD FOR PALLET DISMANTLING MACHINE
John L. Johnson, 934 NE. 77th Ave., Portland, Oreg. 97213
Filed Nov. 15, 1991, Ser. No. 792,701
Int. Cl.[5] B23P *19/04*
U.S. Cl. 83—495 1 Claim



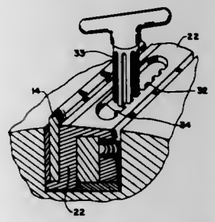
1. A cutter head for a machine for dismantling pallets of the type having longitudinal stringers and cross deck boards nailed to at least one edge of the stringers, said cutter head comprising:
first and second pairs of mounts having forward and rearward ends and also having opposite face surfaces and side edges,
said pair of mounts each comprising a base mount and a secondary mount in surface facing relation,
circular cutter discs supported on a forward portion of said mounts,
bridge plate means disposed rearwardly adjacent said cutter discs and securing said pairs of mounts together in laterally spaced relation to form a space for a pallet stringer to be moved therethrough in a dismantling operation,
laterally extending hinge means disposed rearwardly adjacent said bridge plate means hingedly connecting said secondary mounts to and also supporting said secondary mounts on said base mounts,
the rearward end of said base mounts extending integrally and rearwardly beyond the rearward mounted engagement of said secondary mounts therewith,
an angular integral flange extension on the rearward end of said base mounts adjacent said hinge means,
an adapter plate capable of welding to an existing pallet dismantling machine,
and attaching means on said flange capable of removably supporting said flange and base mounts to a pallet dismantling machine frame.

5,211,095
ARRANGEMENT ENABLING VARIABLY ORIENTED PUNCHING WITH EACH TOOL IN A MULTIPLE TOOL HOLDER
Victor Chun, Holland, and James R. Hunter, Chadds Ford, both of Pa., assignors to Murata Machinery, Limited, Japan
Filed Aug. 20, 1992, Ser. No. 933,399
Int. Cl.[5] B26F *1/08*
U.S. Cl. 83—552 9 Claims



1. A punching tool selection and orienting arrangement for a punch press having a vertically movable actuator member, a punch press frame, and a tool support structure comprising:
a tool holder mounted in said tool support structure for rotation about an axis thereof, said tool holder having an array of elongated punching tools disposed about said axis of rotation, said punching tools each having a stem portion protruding above said tool holder and supported to allow downward punching motion with said stem portion engaged to be driven downwardly;
orienting drive means for controllably rotating said tool holder about said axis to orient said tools in any angular orientation thereof;
an elongated rotary ram adapted to be aligned beneath one end of said actuator member to enable said rotary ram to be advanced thereby;
support means supporting said rotary ram on said punch press frame for rotation about a longitudinal axis of said rotary ram while allowing sliding movement in the direction of said longitudinal axis;
the other end of said rotary ram having a radially projecting feature adapted to be aligned with each individual punch tool stem respectively in correspondence to a rotated position of said rotary ram; and
selection drive means independent of said orienting drive means controllably rotating said rotary ram to respective indexed positions, each of said indexed positions corresponding to an alignment of said radial feature with each one of said punch tool stem, whereby each of said tools can be oriented in a selected angular orientation by operation of said orienting drive means and any punch tool can be selectively aligned with said radial feature of said rotary ram by operation of said selection drive means.

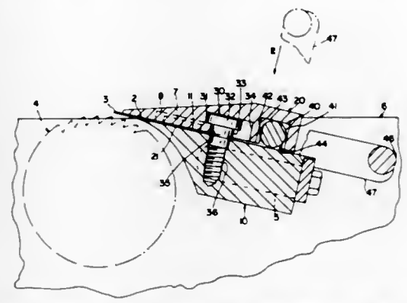
5,211,096
APPARATUS FOR CUTTING
Donald J. Steldinger, Barrington, Ill., assignor to Tamarack Products, Inc., Wauconda, Ill.
Continuation-in-part of Ser. No. 627,214, Dec. 13, 1990, Pat. No. 5,086,683. This application Jan. 30, 1992, Ser. No. 828,187
Int. Cl.[5] B26D *1/62*
U.S. Cl. 83—674 9 Claims



1. Apparatus for cutting web material comprising a frame, a blade roll rotatably mounted on said frame, an impression roll rotatably mounted on said frame adjacent said blade roll,
said blade roll being equipped with an axially-extending slot having a radially inward generally circumferentially-extending bottom wall and spaced generally radially-extending side walls,
blade-supporting bar means mounted in said slot having a bottom wall adjacent said slot bottom wall, said bar means being equipped with generally circumferentially-extending integral ledge means adjacent said bar bottom wall, and
a blade mounted on said ledge means and interposed between said bar means and one sidewall of said slot,
said bar means including axially extending generally chordally disposed ramp means for adjusting the blade height relative to said impression roll, said ramp means including cooperating surfaces which extend axially and are movable axially relative to one another to support said bar means for radial movement without substantially affecting clamping of said blade by said bar means.

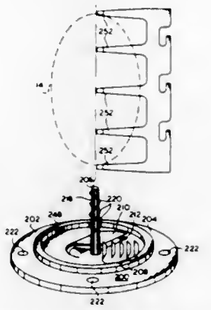
5,211,097
BLADE-HOLDING DEVICE
Giorgio Grasselli, Via a, Varisco 1, 42020 Albinea Reggio Emilia, Italy
Continuation-in-part of Ser. No. 637,159, Jan. 3, 1991, abandoned. This application Nov. 18, 1991, Ser. No. 793,575
Claims priority, application Italy, Jan. 16, 1990, 46804 A/90
Int. Cl.[5] B26D *7/02*
U.S. Cl. 83—698 11 Claims

1. A blade holder comprising in combination a top piece, a bottom piece, at least one connecting means to connect the top and bottom pieces and a cylindrical cam means, said top piece being movable and having an inner surface which abuts an inner surface of said bottom piece, the inner surfaces of said top piece and said bottom piece forming thereby a clamping means to hold a blade therebetween, at least one cavity or openings provided in said inner surface of said top piece having an open portion abutting said inner surface of said bottom piece, said connecting means fixed to and extending upwardly from said inner surface of said bottom piece, said connecting means fitting through and locked within said openings of said top piece when in a locked position, and when said connecting means are disengaged from said openings said top piece is removable from its connecting mode with said bottom piece, said top and bottom pieces having said clamping means at their front portion to hold a blade therebetween, the inner surfaces of said top and bottom pieces in contact with tightening cam means at their rear sections to move said top and bottom pieces



together at their front portions to thereby tightly hold said blade therebetween, said connecting means providing a fulcrum upon which said top piece and said bottom piece will move to form a clamping means in their front section, said cam means comprising a substantially cylindrical rod with a flat portion or face on its circumference which extends throughout the length of said rod, said rod fitted in between the rear sections of the inner surfaces of said top and bottom pieces, said rod being rotatable therein to force said top and bottom pieces apart and to bring them toward each other.

5,211,098
APPARATUS FOR FORMING A HELICAL SPIRAL FOOD PRODUCT
George A. Mendenhall, Boise, Id., assignor to Lamb-Weston, Inc., Tri-Cities, Wash.
Continuation-in-part of Ser. No. 696,180, May 6, 1991, Pat. No. 5,097,735. This application Mar. 17, 1992, Ser. No. 854,877
Int. Cl.[5] B26D *3/11, 1/11*
U.S. Cl. 83—865 13 Claims



3. A cut food piece formed in the shape of a helical spiral cut of a predetermined number of radians of spiral from a whole

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food product having a longitudinal axis by use of the process of:

piercing a plurality of spaced apart longitudinal penetration slots into the whole food product, said slots being longitudinally aligned with and radially extending into and along the longitudinal axis of said whole food product using a penetration blade assembly having a pair of concentric cam gears operable for synchronized rotation in the same direction, a pitman arm operably attached to each of said concentric cam gears for translating circular motion of the concentric cam gears to sinusoidally related linear motions in first and second directions, a penetration blade having a plurality of spaced apart piercing blades for insertion into a food product, the penetration blade being attached to an end of the pitman arm, means for synchronizedly rotating the pair of concentric cam gears in the same direction operatably attached to said cam gears, and positioning means for aligning pitman arm motion in the first direction with food product motion in the first direction and pitman arm motion in the second direction into the moving food product;

aligning the longitudinal axis of the whole food product coincident to a central axis of a cutter blade assembly; and

moving the aligned and slotted whole food product into cutting engagement with a cutter blade assembly having a wheel plate having a planar surface for rotation about a central axis, a plurality of ring cutters attached to and extending normally out from the planar surface of the wheel plate for cutting continuous concentric helical spirals int he whole food product, a sheer blade attached to and extending angularly out from the planar surface for cutting concentric helical rings of cut food product of a predetermined thickness off the whole food product, and said wheel plate further having a transport hole positioned adjacent to the sheer blade for passage of sheered concentric spiral rings of cut food product through the cutter blade assembly.

5,211,099

SLAVE CYLINDER FOR A HYDRAULIC ACTUATING SYSTEM OF A MOTOR VEHICLE FRICTION CLUTCH

Wolfgang Grosspietsch, Schweinfurt; Gottfried Mader, Ebelsbach; Herbert Voit, Schweinfurt, and Karl Müller, Poppenhausen, all of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Mar. 19, 1992, Ser. No. 853,826

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1991, 4109125

Int. Cl.[5] F01B *31/00*

U.S. Cl. 92—107 **21 Claims**

1. A slave cylinder for a hydraulic actuating system of a motor vehicle friction clutch, comprising:

an annular cylinder with an outer cylinder wall, an inner cylinder wall coaxial with the outer cylinder wall and an end wall hermetically connecting the cylinder walls at one end;

an annular piston arranged to slide axially between the outer cylinder wall and the inner cylinder wall;

a grooved sealing ring able to slide axially together with the annular piston and bearing by radially resilient sealing lips coaxial with an annular groove radially therebetween, both against the outer cylinder wall as well as against the inner cylinder wall, at the end of the annular piston facing the end wall, which piston together with the cylinder walls and the end wall encloses a hydraulic pressure chamber;

a pressure medium connection opening into the hydraulic pressure chamber; and

means which are at least one of provided on the annular cylinder and in addition to the sealing lips on the grooved sealing ring, said means increasing the sealing action of the sealing lips one of in a predetermined position of the annular piston relative to the annular cylinder and when applying a vacuum to the hydraulic pressure chamber,

wherein in the region of one of the end positions of the annular piston, the annular cylinder is provided with annular bearing surfaces, against which the sealing lips bear in the end position of the annular piston and which increase the radial pressure by which the sealing lips bear against the cylinder walls, and further

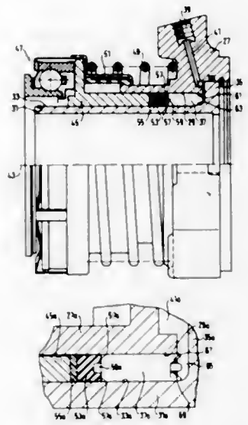
wherein the annular bearing surfaces are constructed as conical surfaces.

13. A slave cylinder for a hydraulic actuating system of a motor vehicle friction clutch, comprising:

an annular cylinder with an outer cylinder wall, an inner cylinder wall, coaxial with the outer cylinder wall, and an end wall tightly connecting the cylinder walls at one end;

an annular piston arranged so as to be axially displaceable between said outer cylinder wall and said inner cylinder wall;

a grooved sealing ring which is arranged at the end of said annular piston facing said end wall of said annular cylinder, which is displaceable together with said annular piston and, together with the cylinder walls and said end wall of said annular cylinder encloses a hydraulic pressure chamber, wherein said grooved sealing ring further comprises:



an annular base body;

radially resilient sealing lips, which project away from said base body toward said end wall and encloses an annular groove between them;

a first sealing lip contacting said outer cylinder wall;

a second sealing lip contacting said inner cylinder wall;

sealing beads for increasing the sealing action when a vacuum is applied to said hydraulic pressure chamber, which sealing beads project radially from said base body and are arranged on a side of said sealing lips remote of said end wall of said annular cylinder,

wherein a first sealing bead projects from an outer circumference of said base body toward said outer cylinder wall and a second sealing bead projects from an inner circumference of said base body toward said inner cylinder wall, and further wherein, in an absence of said grooved sealing ring, installed in said annular cylinder, diameters of said first and said second beads have a smaller radial overlap, with a diameter of said cylinder wall intended for contact, than a diameter of said sealing lip intended for contact at a same cylinder wall, and further wherein annular gaps exist axially between said sealing beads and said sealing lips and radially between said base body and the cylinder walls; and

a pressure medium connection opening into said hydraulic pressure chamber.

5,211,100

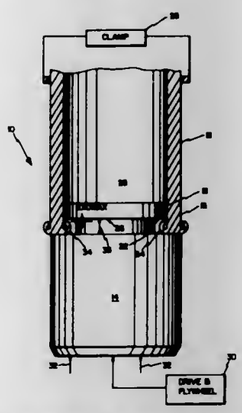
INERTIAL WELDED CYLINDER AND METHOD OF MAKING SAME

Dennis A. Fuller, and Patrick Heidrich, both of Bismarck, N. Dak., assignors to Clark Equipment Company, South Bend, Ind.

Filed Dec. 18, 1991, Ser. No. 809,941

Int. Cl.[5] F16J *10/00*

U.S. Cl. 92—169.1 **4 Claims**



1. A method of assembling an inertial welded cylinder tube to a base that effectively traps a welding kerf formed between the cylinder tube and the base during inertial welding by trapping an internal weld kerf formed at the end of the cylinder tube during inertial welding, comprising the steps of providing said base with a shoulder surface forming a center head member, the shoulder surface receiving an end surface of said cylinder tube to be welded thereto; providing a groove extending radially inwardly from an outer surface of the head member, the head member fitting inside the cylinder tube; placing said cylinder tube around the head member and against the shoulder; rotating the base relative to the cylinder tube under force to fuse the cylinder tube and base and to form a weld kerf inside the groove, and continuing the rotation to cause the kerf to flow and curl toward a surface of the groove facing in a direction toward the shoulder to effect a closure relative to said surface of the groove facing in direction toward the shoulder; and determining the kerf size formed by the inertial welding of the end of the cylinder tube to the shoulder on the base and selecting a groove having an axial length measured parallel to one axis of rotation of the base relative to the cylinder tube which provides for no greater gap than 0.010 inch any place between the kerf and the groove surface which is spaced from and facing the shoulder; and providing a clearance spacing relative to a circular surface defining the inner end of the groove which insures that the kerf will not contact such inner end circular surface.

5,211,101

PISTON WITH OVAL SHAPED LANDS

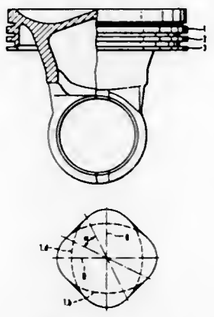
Thomas Letsch, Pluderhausen; Jorn Welpert, Lorch, and Eduart Steppat, Kirchheim/Teck, all of Fed. Rep. of Germany, assignors to Mahle GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 20, 1991, Ser. No. 718,018

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1990, 4019917

Int. Cl.[5] F16J *1/00, 1/04*

U.S. Cl. 92—177 **7 Claims**



1. In an improved piston for an internal combustion engine including a head with at least one upper land and a bottom land and a separate skirt which are joined by a pin and which operate within a cylinder, the improvement comprising:

at least one of the upper lands has a reduced diametrical clearance with the cylinder wall in an area perpendicular to the pin direction; and

the bottom land has a reduced diametrical clearance with the cylinder wall in the pin direction.

5,211,102

KNOCK PIN ARRANGEMENT FOR PISTON RING

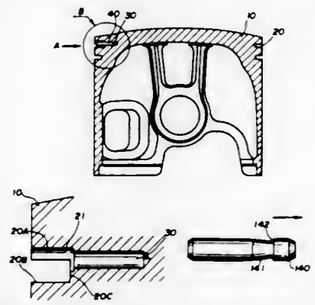
Hisakazu Muta, Kanagawa, Japan, assignor to Atsugi Unisia Corp., Kanagawa, Japan

Filed Nov. 21, 1991, Ser. No. 795,705

Claims priority, application Japan, Nov. 27, 1990, 2-124520[U]

Int. Cl.[5] F16J *1/04*

U.S. Cl. 92—208 **9 Claims**



1. A piston comprising:

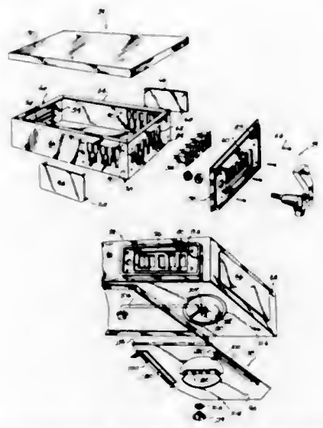
a piston head formed with a piston ring groove and a knock pin bore, said piston ring groove having upper and lower walls and an inner wall which cooperatively define said piston ring groove, said knock pin bore being communicated with said piston ring groove;

a knock pin received in said knock pin bore and having an emergent portion protruding into said piston ring groove;

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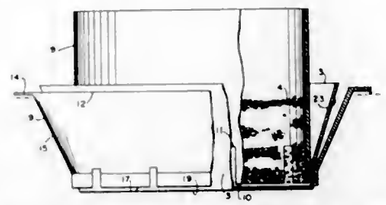
means for preventing mechanical interference between said emergent portion and said upper, lower, and inner walls of said piston ring groove, wherein said means for preventing mechanical interference includes a recessed gap portion circumferentially surrounding a longitudinal shaft portion of said knock pin where said knock pin is emergent from said knock pin bore.

5,211,103
CONVERTIBLE BREWER
James H. Anson, Auburn, Ill., assignor to Bunn-O-Matic Corporation, Springfield, Ill.
Continuation of Ser. No. 673,683, Mar. 22, 1991, abandoned. This application Jun. 26, 1992, Ser. No. 906,034
Int. Cl.[5] A47J *31/44*
U.S. Cl. 99—284 **14 Claims**



1. A reconfigurable beverage brewing apparatus having independently configurable funnel support means and control mounting means for orienting said apparatus in a plurality of operational configurations; said apparatus including an overhanging hood portion with said funnel support means attached thereto for supporting a funnel under the hood portion for retaining a brewing substance therein, a discharge portion in said hood portion proximate to said funnel for delivering heated water to said funnel; said funnel support means comprising an independently removable base member, two channel members attached to said base member, a laterally extending gap along one edge of each of said channel members, and anchoring means for attaching said funnel support means underneath said hood portion, said laterally extending gap of each of said channel members being positioned opposing each other and spaced apart a distance for receiving and retaining a funnel therebetween; said control mounting means including a panel portion removably overlying a surface of said apparatus, said panel portion having multiple openings therethrough, said apparatus having individual slots extending through a side wall of the apparatus for receiving and retaining removable control devices, said openings in said panel portion cooperatively aligning with and overlying said removable control devices which are retained in said slots, said removable control devices being accessible through said openings, and device retaining means attached to a surface of said panel portion abutting said control devices proximate to said openings for removably retaining said control devices in a desired position behind said panel portion when said panel portion is attached to said apparatus.

5,211,104
COFFEE FLOW CONCENTRATOR FOR COFFEEMAKER
John B. Arpin, 3251 N. Andrews Ave., Fort Lauderdale, Fla. 33309
Filed Oct. 7, 1992, Ser. No. 957,373
Int. Cl.[5] A47J *31/06*
U.S. Cl. 99—295 **6 Claims**



1. Apparatus for use with a coffee maker and a filter for containing coffee grounds from which flavoring components are separated by a vertical hot liquid stream, and permitting the discharge of liquid with extracted components therefrom while blocking the passage of ground coffee along with the extracted components, the apparatus comprising:

A) a right cylinder having an upper edge and a lower edge and a thin wall, said lower edge being castellated with a plurality of slots extending upward from said lower edge to provide a resilient edge whose diameter may be elastically reduced by inward pressure thereon, said slots further providing for passage of liquid therethrough;

B) a frustum of a cone having an upper margin and a lower margin and a thin wall, said lower margin having a lesser diameter than said upper margin and being castellated with a plurality of slot means extending upward therefrom to provide a resilient edge whose diameter may be elastically altered by pressure thereon;

C) said castellated cylinder arranged within said castellated frustum to elastically retain a filter therebetween, said castellated edge elastically engaging an inner surface of a central portion of a filter and said castellated margin elastically engaging an outer surface of said central portion of said filter, whereby a space is provided between said cylinder and said frustum to securely retain a peripheral portion of said filter; and

D) said cylinder holding said coffee grounds in a cylindrical configuration for more uniform and efficient extraction thereof.

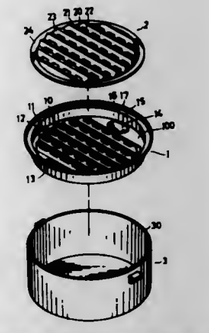
5,211,105
SMOKELESS AND SCORCHLESS GRILL PAN
I-Wen Liu, 5F, No. 52, Lane 286 Section 1, Cheng Kou S. Road, Taipei, Taiwan
Filed Nov. 16, 1992, Ser. No. 977,105
Int. Cl.[5] A47J *27/00, 37/07*
U.S. Cl. 99—446 **1 Claim**

1. A smokeless and scorchless grill pan comprising;

an oil pan having a bottom corrugated with guide grooves, upper straight ridges, a plurality of holes along the upper straight ridges, at least two opposite oil gathering recesses for oil near a circumferential edge to drip down therein, a lower vertical circumferential wall, a circumferential flat wall extending outward from the top of the lower circumferential wall, and a upper vertical circumferential wall extending upward from said flat circumferential wall;

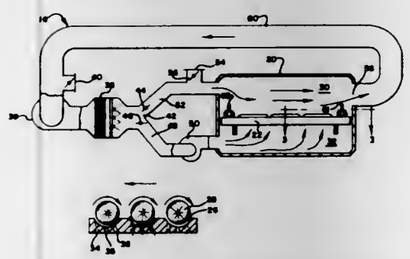
a food plate to be placed on said oil pan for placing thereon food to be grilled, shaped as corrugated as the oil pan with lower straight lines, upper straight ridges, a plurality of oil holes along said lower straight lines, sloped surfaces between each said line and each said upper ridges, a flat circumferential rim to fit and sit on said flat circumferential wall of said oil pan;

a lower pan to be placed under said oil pan, having a proper height for burning a fire on its bottom and an upper circumferential edge for the flat circumferential wall of the oil pan to sit thereon, and for the lower circumferential wall to fit around the inner circumferential surface thereof; and said lower pan serving as a stove to burn a fire therein for supplying heat, which rises up through the holes in the oil pan, flowing around the hollow space between the oil pan and the food plate and heating up the



air therein to heat the food plate and the heated air passing through the oil holes in the food plate to grill food placed on the food plate, said oil holes in the food plate permitting the oil coming out of the food to drip through to flow along the lower guide grooves into said two opposite recesses on the oil pan so that said oil may not drop down into the fire on the lower pan so as to avoid oil burning and oil explosion to give out smoke.

5,211,106
APPARATUS AND METHOD FOR COOKING CASINGLESS SHAPED FOOD PRODUCTS
Donald E. Lacke, Madison, Wis., assignor to Oscar Mayer Foods Corporation, Madison, Wis.
Filed May 22, 1991, Ser. No. 703,933
Int. Cl.[5] A47J *43/18*
U.S. Cl. 99—441 **9 Claims**



1. An apparatus for cooking a casingless food product, comprising:

a housing;

a tray positionable within said housing for supporting at least one casingless food product thereon, said tray separating the interior of said housing into a first space above said tray and a second space below said tray;

said tray having a plurality of grooves shaped to nest at least one casingless food product therein;

a plurality of openings extending through said tray and within said grooves for the passage of air between said second space and said first space, said casingless food product positionable within said grooves and over said openings;

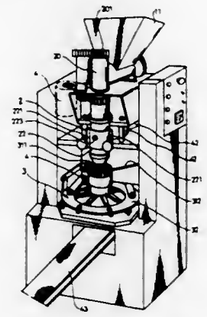
said openings provided within said grooves in an ordered arrangement having a first row, a second row and a third row, said first row and said second row of said openings extending through said tray in a substantially vertical orientation, said third row of said openings extending through said tray at an acute angle with respect to said first row and said second row;

heating means for heating the air within at least said second space; and

pressure means for pressurizing the air within said second space to a pressure greater than the pressure within said first space;

whereby the heated and pressurized air in said second space passes through said openings to simultaneous lift said food product above said support means and to cook said food product.

5,211,107
APPARATUS FOR MAKING STUFFED BUNS
Shih C. Tsay, No. 62, Lane 313, Wen Hsien Rd., Tainan, Taiwan
Filed Nov. 5, 1992, Ser. No. 972,221
Int. Cl.[5] A21C *9/00, 11/00*; A23G *3/00*; A23P *1/00*
U.S. Cl. 99—450.6 **7 Claims**



1. An apparatus for making stuffed buns comprising a tube having an upper end for receiving stuff to be stuffed in said buns, means for driving said stuff downward along said tube, a barrel disposed on an outer and lower portion of said tube, an opening formed in said barrel for receiving a strip of dough, means for forming said dough into a column of dough and for moving said dough downward beyond said barrel, said stuff leaving said tube being contained within said column of dough, and a shaping mechanism disposed below said barrel for cutting and shaping said column of dough into said buns.

5,211,108
TRUSS ASSEMBLY APPARATUS WITH VERTICALLY ADJUSTABLE PRESS ROLLER
Charles E. Gore, Colleyville; Edward Hardee, Bedford; Frank E. Fairley, Jr., and Harry E. Berney, Jr., both of Arlington, all of Tex., assignors to Truswal Systems Corporation, Arlington, Tex.
Filed Nov. 2, 1990, Ser. No. 608,244
Int. Cl.[5] B30B *15/16, 3/02*
U.S. Cl. 100—48 **8 Claims**

1. Apparatus for assembling truss members into a completed truss, the truss members including a plurality of wood members and a plurality of connector plates for joining the wood members, said apparatus comprising, in combination:

support means for supporting the truss members with the connector plates at respective positions on the wood members;

a pressing roller mounted for rotation about its own axis above said support means, said roller being moveable along a vertical axis between a first predetermined posi-

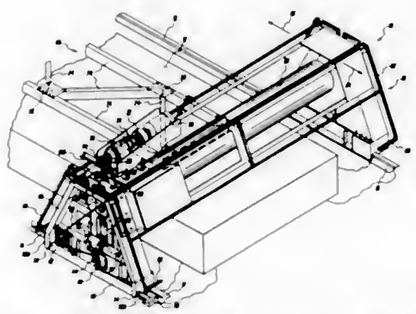
VOL 1150 ISS 3 MY 18 1993 UMI

tion for engaging the connector plates and a second predetermined position at a predetermined distance above said first predetermined position;

first and second bearings at respective opposite ends of said roller for supporting said roller and for allowing said roller to rotate about its own axis, each of said first and second bearings having a pair of recesses on respective opposite sides of said first and second bearings;

moving means for moving said roller over the top of the truss members, said roller being adapted to embed the connector plates into the wood members as said roller is moved over the top of the truss members, to form the completed truss;

retaining means for retaining said roller in said first predetermined position when said roller is in pressing engagement with the connector plates, said retaining means including a plurality of pin members insertable into the respective recesses of said first and second bearings to maintain said roller in said first predetermined position, said pin members being retractable from the respective recesses of said first and second bearings to permit said roller to be lifted to said second predetermined position;



arresting means for automatically arresting the movement of said moving means in response to said pressing roller reaching a predetermined position with respect to said support means;

lifting means responsive to the cessation of movement of said roller over the top of the truss members for lifting said roller, to permit the completed truss to be moved along said support means and beneath said roller, said lifting means including means for automatically disabling said retaining means in response to the cessation of movement of said roller over the top of the truss members to release said roller for movement to said second predetermined position; and

engagement means for automatically enabling said retaining means to engage said roller when said roller is lowered to said first predetermined position.

5,211,109

BEVERAGE CAN CRUSHER

Jerome A. Determan, 219 Sylvan Dr., Fairmont, Minn. 56031

Filed Sep. 27, 1991, Ser. No. 767,119

Int. Cl.[5] B30B *9/32, 3/04*

U.S. Cl. 100—98 R **12 Claims**

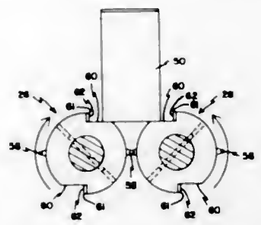
1. A beverage can crusher, comprising:

(a) a frame;

(b) a pair of spaced, generally cylindrical rollers rotatably mounted in said frame on parallel horizontal shafts;

(c) each said roller having a pair of oppositely disposed axially extending can engaging surfaces lying in a plane extending through a longitudinal axis of each roller, wherein a first can engaging surface on each roller comprises a first set of can engaging surfaces and a second can engaging surface on each roller comprises a second set of can engaging surfaces, said rollers being disposed on said shafts so that said first set of said can engaging surfaces face each other in a first can accepting position at the top of the rollers once per revolution and said second set thereof face each other at said can accepting position when said first set is disposed at the bottom of said rollers;

(d) each of said rollers having a pair of oppositely disposed flat surfaces extending perpendicular to corresponding ones of said can engaging surfaces, wherein a first flat surface on each roller comprises a set of flat surfaces and a second flat surface on each roller comprises a set of flat surfaces, so that in said can accepting positions one set of said flat surfaces are co-planar to support and accept a



beverage can placed thereon, each of said rollers having can crushing surfaces between said other surfaces;

(e) means for rotating said rollers in opposite directions to draw the can down between said rollers with said can engaging surfaces engaging and compressing the sides of the can above its bottom end to assist in pulling the can down between said can crushing surfaces of said rollers; and

(f) a plurality of pins extending from said can crushing surfaces of each of said rollers generally mid-way between said can engaging surfaces to assist in pulling the can down between said rollers wherein said pins of a first said roller are spaced in a complementary intermeshing arrangement with said pins of a second said roller.

5,211,110

HAMMER BANK ROCKING DEVICE IN IMPACT DOT LINE PRINTER

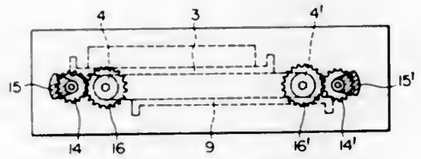
Hiroyuki Maesawa, and Kazumasa Mizoguchi, both of Iruma, Japan, assignors to Ye Data Inc., Tokyo, Japan

Filed Mar. 13, 1992, Ser. No. 851,945

Claims priority, application Japan, Mar. 15, 1991, 3-128817

Int. Cl.[5] B41J *3/00*

U.S. Cl. 101—93.05 **4 Claims**



1. A hammer bank rocking device, comprising:

a pair of rotatably mounted drums;

a belt extending around said drums for movement thereon;

a hammer bank mounted on said belt, said hammer bank having a plurality of printing heads along printing lines;

a counter balancer mounted on said belt for counter-balancing said hammer bank;

wherein said hammer bank and said counter balancer are mounted to said belt such that when said belt is moved on said rotatably mounted drums said hammer bank and said counter balancer move in opposite directions; and

a pair of rotors connected to said rotatably mounted drums such that each said rotor rotates in a direction opposite to the direction of rotation of its respective said rotatably mounted drum, each said rotor having an eccentric weight.

5,211,111

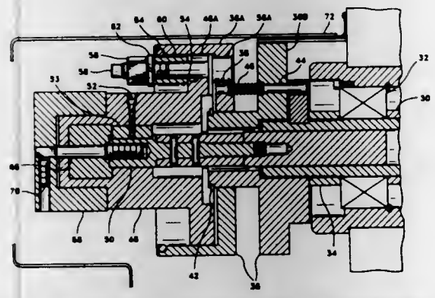
PRINTING PRESS HAVING MEANS FOR INDEXING PLATE CYLINDER

Emanuel Quinci, Dix Hills, N.Y., assignor to Halm Industries Co., Inc., Glen Cove, N.Y.

Filed Jul. 29, 1992, Ser. No. 921,503

Int. Cl.[5] B41F *13/14*

U.S. Cl. 101—248 **17 Claims**



1. An assembly for indexing the position of a plate cylinder, comprising:

a plate cylinder having an outer surface;

means for rotatably supporting the plate cylinder;

a drive assembly coupled to the plate cylinder, the drive assembly including a detent member having a plurality of openings therein and a support for supporting the detent member;

indexing means insertable within the openings within the detent member for engaging and disengaging the drive assembly;

means for rotating the indexing means about an axis, the drive assembly and the plate cylinder being rotatable with the indexing means when the indexing means is engaged with the detent member;

the drive assembly and the plate cylinder being rotatable together independently of the indexing means when the indexing means is disengaged from the drive assembly.

5,211,112

APPARATUS FOR MOUNTING PLATE ON PLATE CYLINDER

Kenichi Tsushima, and Nobuaki Saito, both of Ibaraki, Japan, assignors to Komori Corporation, Japan

Filed May 26, 1992, Ser. No. 888,184

Claims priority, application Japan, May 30, 1991, 3-153839

Int. Cl.[5] B41F *1/28*

U.S. Cl. 101—415.1 **7 Claims**

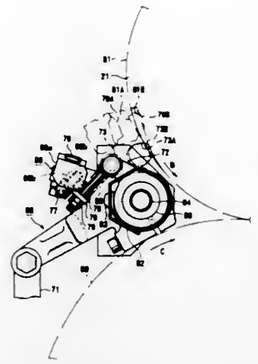
1. An apparatus for mounting a plate on a plate cylinder, comprising:

a support shaft, a pair of right and left support levers supported on said support shaft and driven to swing said support shaft, each of said support levers having a free end portion, said support shaft being provided close to a circumferential surface of said plate cylinder to extend parallel with the axial direction thereof;

a pair of right and left arms pivotally supported on said support shaft to be close to said pair of support levers, each of said arms having a free end portion;

a plate press roller, having two ends pivotally supported on said pair of arms, for urging the plate against said circumferential surface of said plate cylinder when the plate is to be wound on said plate cylinder;

a holding member, a plate press pad, fixed on said holding member for coupling said free ned portions of said pair of



support levers, and having an elastic surface for pressing a trailing-side of the plate; and

a spring member interposed between said free end portion of at least one of said support levers and said free end portion of at least one of said pair of arms.

5,211,113

PRINTING MACHINE WITH AN ELECTROCHEMICALLY CHANGEABLE PRINTING FORM, AND METHOD OF OPERATION

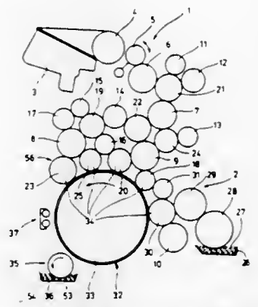
Rainer Buschulte, Bad Schönborn, Fed. Rep. of Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Fed. Rep. of Germany

Filed Jul. 8, 1991, Ser. No. 726,933

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1990, 4021662

Int. Cl.[5] B41M *5/20*

U.S. Cl. 101—467 **3 Claims**



1. A printing machine for performing flat-bed printing having a printing form with hydrophobic and hydrophilic areas thereon corresponding to an image to be printed, and a device for electrochemically converting, respective areas thereof for producing a printing copy from the hydrophobic into the hydrophilic state, comprising a fluid applicator for applying a hydrophobic fluid to the entire surface of the printing form, a current-conducting arrangement for applying current to the hydrophobic fluid and a control device for controlling the

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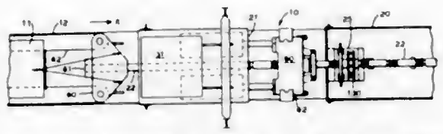
current-conduction arrangement for selectively forming appropriate current paths and for electrochemically removing the hydrophobic fluid from areas of the printing-form surface corresponding to the hydrophilic areas required for the image to be printed, the current-conduction arrangement including an electrode arrangement, an electrolyte and at least one electric voltage source, the electrodes of said electrode arrangement forming a capillary structure in vicinity of the surface of the printing form.

5,211,114

OFFSHORE STRUCTURE PULLING SYSTEM

Paul D. Chaplin; Brian D. Hyde, both of Nairn; Edwin A. B. W. Campbell, Inverness, all of Scotland; Paul F. Gibson, Middlesbrough, and Michael J. Taylor, South Yorkshire, both of England, assignors to McDermott International, Inc., New Orleans, La. and John Gibson (Lifting Gear) Agencies Ltd., London, England

Filed Aug. 7, 1992, Ser. No. 926,799
Int. Cl.[5] B61B *13/00*
U.S. Cl. 104—134 **9 Claims**



1. A pulling apparatus for pulling or moving a large object comprising:
(a) an elongated frame;
(b) a skid track secured to said frame upon which the large object is moved;
(c) a puller unit for pulling the large object along said track;
(d) pulling means coupled between the object and said puller unit for enabling the object to be pulled along said track by said puller unit pulling on said pulling means, said pulling means comprising a single rod formed from a plurality of rod sections removable secured to one another to form a rod of a predetermined length; and,
(e) connecting means for connecting said rod to the object, said connecting means permitting relevant movement between the object and said rod thereby enabling the object to move relative to said rod.

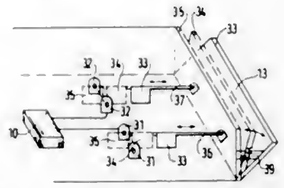
5,211,115

TRANSPORTING DEVICE

Gernot Maier, Stuttgart; Rainer Utz, Waiblingen; Han-Jochen Kollek, Illingen; Hans Erne, Waiblingen; Jochen Schramm, Heilbronn; Thomas Schmid, Ludwigsburg; Stefan Reitmeier, Waiblingen-Hohenacker, and Ulrich Müller, Korb, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE91/00350, § 371 Date Oct. 18, 1991, § 102(e) Date Oct. 18, 1991, PCT Pub. No. WO91/17020, PCT Pub. Date Nov. 14, 1991
PCT Filed Apr. 26, 1991, Ser. No. 768,888
Claims priority, application Fed. Rep. of Germany, May 8, 1990, 4014701
Int. Cl.[5] B23Q *7/00*; B65G *35/00*
U.S. Cl. 104—288 **14 Claims**

8. A transporting device comprising at least one autonomous workpiece carrier provided with an electric drive means connected to a drive control means; a path system provided for guiding said carrier; the drive control means including a pressure responsive switch means in the form of a rocker arranged in front of said carrier; said rocker having an initial position, a first switching position and a second switching position; whereby, in response to a regular impact to the front of the carrier, said rocker is moved from the initial position to the first switching position; in response to an irregular impact harder than said regular impact, said rocker is moved from the initial position passing the first switching position to the second switching position; the drive control means has a function of



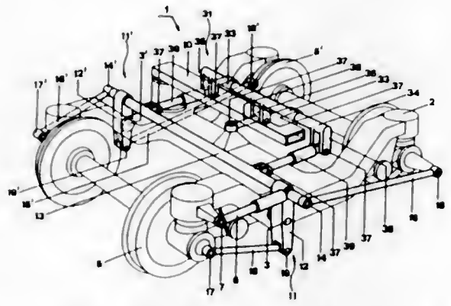
temporary stopping the carrier in response to the rocker moved to the first switching position and permanent stopping the carrier only in response to the rocker moved to the second switching position.

5,211,116

BOGIE FOR HIGH-SPEED RAIL VEHICLES

Richard Schneider, Neuhausen am Rheinfall, Switzerland, assignor to SIG Schweizerische Industrie-Gesellschaft, Switzerland

PCT No. PCT/CH89/00146, § 371 Date Apr. 27, 1990, § 102(e) Date Apr. 27, 1990, PCT Pub. No. WO90/02068, PCT Pub. Date Mar. 8, 1990
PCT Filed Aug. 8, 1989, Ser. No. 499,357
Claims priority, application Switzerland, Aug. 30, 1988, 3223/88
Int. Cl.[5] B61F *5/38*
U.S. Cl. 105—168 **8 Claims**



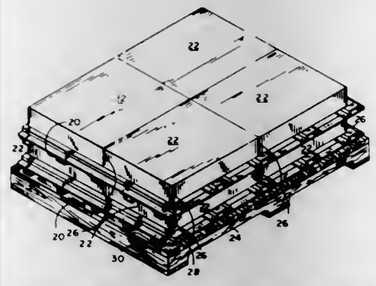
1. A bogie for a high speed rail vehicle of the type having a carriage body, the bogie comprising:
a frame;
a pair of wheel sets mounted on the frame;
automatic control means for selectively controlling movement of the wheel sets in predetermined directions;
restraining means for dampening dynamic movements of the wheel sets, the restraining means being mounted between the automatic control means and the frame;
and a rotation locking device for dampening rolling movement of the bogie connected between the automatic control means and the carriage body.

5,211,117

PALLET ASSEMBLY

John W. Beamer, Grand Haven, Mich., assignor to Lorin Industries, Inc., Muskegon, Mich.

Filed Sep. 11, 1991, Ser. No. 757,645
Int. Cl.[5] B65D *19/00*
U.S. Cl. 108—51.1 **22 Claims**



1. A spacer for supporting packages of meat and the like, comprising:
a plurality of first metal channel members extending in a first direction, each including a pair of first lateral flanges defining a common central plane and further including a first web spaced from said central plane;
a plurality of second metal channel members extending in a direction substantially normal to said first direction, each including a pair of second lateral flanges located on said central plane and further including a second web spaced from said central plane opposite said first webs, said first and second lateral flanges engaging one another at a plurality of intersections on said central plane, said first and second channels forming multiple interconnected passageways for communicating conditioned air therethrough;
said first and second webs including support surfaces defining opposing planes spaced on either side of said central plane for supporting packages of meat and the like placed thereagainst so that said packages and spacer do not undesirably sag as said meat is cooled to a desired temperature, said channels having a structural strength permitting layers of said packages to be alternatingly stacked with said spacers to form a multi-layered arrangement to facilitate cooling, stacking, transportation and handling of said packages of meat; and
joining means for interconnecting said first and second lateral flanges at said plurality of intersections so as to form a rigid unit from said first and second channel members, said joining means including a, section of material from one of said lateral flanges which is deformably pressed through said central plane and also through the thickness of an aligned section of the other of said lateral flanges, said sections being clinched together after being pressed therethrough to form a secure interconnection therebetween.

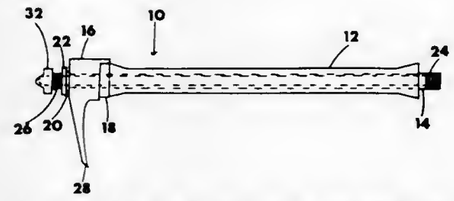
5,211,118

FIRE FIGHTING TOOL FOR EXTINGUISHING EMBERS AND FOR FIRE MOP UP

John G. Perkins, HC 70 Box 145, Bonner, Mont. 59823

Filed Apr. 18, 1991, Ser. No. 681,932
Int. Cl.[5] A01C *23/00*
U.S. Cl. 111—7.1 **1 Claim**

1. A portable fire fighting tool for aiding in extinguishing a fire of burning embers beneath combustible ground cover such as tree roots, grass roots and debris comprising:
a) an elongated steel pipe having a first threaded end, a second threaded end and a hollow interior:
b) a metal collar permanently connected to said steel pipe inwardly of said first threaded end, said metal collar having a slot formed in its periphery;
c) a hoe head connected to said steel pipe by a lock nut and washer combination which are threadably received on said first threaded end to hold said hoe head between said lock nut and washer combination and said metal collar:
said hoe head having an interlocking projection received in said slot of said metal collar to prevent rotation and a sharpened edge to pierce the ground:



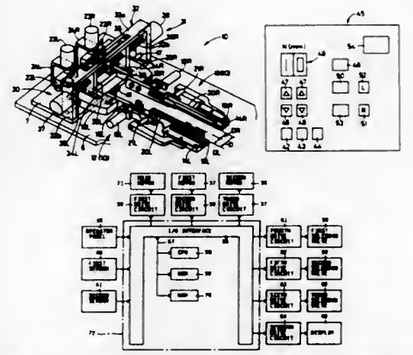
d) a polyurethane handle surrounding said steel pipe from said metal collar to said second threaded end:
e) a nozzle threadably received on said first threaded end to allow water to flow to said burning embers supplied through said hollow interior from a water source connected to said second threaded end, whereby said hoe head and nozzle are operable to mix burning debris, mineral soil and water to extinguish said fire.

5,211,119

MAIN-PRESSER DRIVING APPARATUS FOR AUTOMATIC BINDING SEWING MACHINE

Yuji Tagawa, Nagoya; Takashi Kondou, Obu; Shigeru Abe, Kagamihara, and Kazushi Inoue, Aichi, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Oct. 1, 1992, Ser. No. 955,273
Claims priority, application Japan, Oct. 8, 1991, 3-290878
Int. Cl.[5] D05B *19/00*
U.S. Cl. 112—121.11 **18 Claims**



1. A main-presser driving apparatus for an automatic binding sewing machine including two sewing needles for carrying out a binding sewing operation and a pair of main pressers for pressing a base cloth on which a binding cloth is to be sewn, the main pressers being supported by a frame of the sewing machine such that the two pressers are opposed to each other and are movable independently of each other along a directional line on which the two pressers advance toward, and retract away from, each other, the driving apparatus comprising:
a pair of drive means each of which includes an actuator for displacing a corresponding one of said main pressers along

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said directional line independently of the other of said main pressers, said actuator being controllable to be stopped at a desired operational position;

needle distance specifying means for specifying a distance between said two sewing needles;

control command producing means for producing, based on the specified needle distance, a control command for each of the two actuators of said pair of drive means; and

control means for driving said each of the two actuators according to the produced control command and thereby displacing a corresponding one of said two main pressers along said directional line to a position corresponding to said produced control command.

5,211,120

PROGRAMMABLE SEWING MACHINE

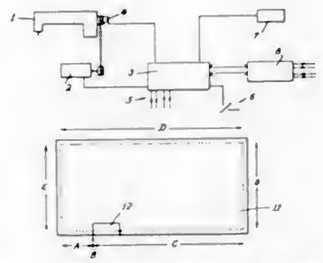
Marcelo S. de Oliveira, Kienhorstrasse 130, 100 Berlin 51, Fed. Rep. of Germany

Filed Jun. 26, 1990, Ser. No. 543,454

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1989, 3921234

Int. Cl.[5] **D05B** *19/00*

U.S. Cl. 112—121.11 **3 Claims**



1. A programmable sewing machine comprising a sewing machine (1) driven by a motor (2), with a control device (3) controlling the sewing machine (1) and the motor (2), which control device has a memory means for functioning of the sewing machine (1) and the motor (2), including means for interlinking data representative of stitch elements, comprising sewn stitches, and time elements, said time elements comprising time periods between two points of operation of the sewing machine, in a random sequence, the sequence not being preprogrammed in said memory means, an operator control panel (7) connected to the control device (3) for inputting the parameters of an operating program of the control device and having programmable inputs and outputs (8) associated with the control device.

5,211,121

DEVICE FOR DETECTING REMAINDER OF BOBBIN THREAD IN SEWING MACHINE

Yasuo Sakakibara, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Dec. 11, 1991, Ser. No. 805,557

Claims priority, application Japan, Dec. 14, 1990, 2-402436

Int. Cl.[5] **D05B** *59/02*

U.S. Cl. 112—278 **17 Claims**

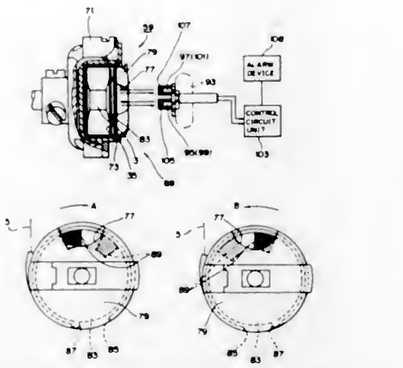
10. A sewing machine including a bed, a reciprocable needle and a rotating hook assembly disposed in the bed, said sewing machine comprising:

a bobbin case disposed below the bed in an installed state and having a shaft member;

a bobbin which is mounted on the shaft member of the bobbin case and around which a bobbin thread is wound up such that a winding leading end portion of the bobbin thread having a predetermined length is wound up therearound in a winding direction reverse to a winding direction of another portion of the bobbin thread;

detecting means mounted to the bed in a vicinity of the bobbin case for detecting a rotating direction of the bobbin;

determining means disposed in association with the detecting means for determining whether the length of the remainder of the bobbin thread reaches the predetermined length based on the rotating direction of the bobbin detected by said detecting means, said determining means



determining that the length of the remainder of the bobbin thread reaches the predetermined length when the rotating direction of the bobbin changes and,

a display plate supported in said rotating hook assembly for rotation in the same direction as the rotating direction of the bobbin, said display plate being provided with a marked portion which appears in response to rotation of the bobbin in a particular direction, wherein said detecting means detects the rotating direction of the bobbin by detecting an appearance of the marked portion of the display plate.

5,211,122

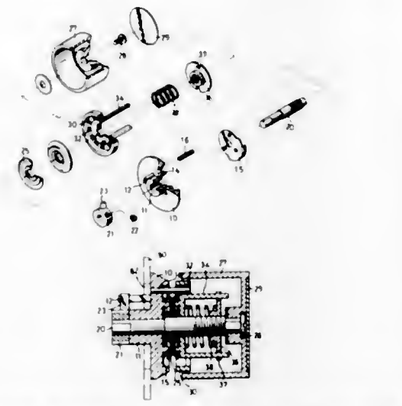
THREAD TENSION DEVICE FOR A SEWING MACHINE

Horng-Ji Lin, P.O. Box 63-151, Taichung, Taiwan

Filed Jul. 15, 1992, Ser. No. 913,350

Int. Cl.[5] **D05B** *47/02*

U.S. Cl. 112—254 **3 Claims**



1. A thread tension device for a sewing machine comprising

a plate engaged on said sewing machine, a bolt including a first end rotatably engaged in said plate and a second end extended outward of said sewing machine, a stop formed on said plate and extended inwards of said sewing machine, a limiting means engaged on said first end of said bolt for engagement with said stop in order to limit said bolt to rotate for one turn, a pin engaged on said plate and extended outwards of said sewing machine, a knob fixed on said second end of said bolt, a dial rotatably engaged on said bolt and including at least one hole formed therein for engagement with said pin of said plate and including at least one lever extended away from said plate, a pair of discs engaged between said plate and said dial and engaged on said bolt for clamping a thread, a follower threadedly engaged on said bolt and including at least one notch formed therein for engagement with said lever of said dial such that said follower is prevented from rotating relative to said dial and is guided to move longitudinally along said lever, and biasing means biased between said dial and said follower for biasing said discs together, whereby, said follower is rotatable by said dial when said dial is pushed inwards of said knob and when said pin is disengaged from said hole of said dial.

5,211,123

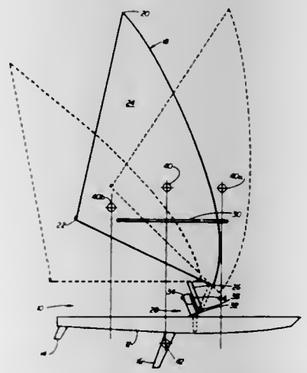
SAILBOARD

Marvin H. Greenwood, 3444 Wickersham, Houston, Tex. 77027

Continuation-in-part of Ser. No. 627,981, Dec. 17, 1990, abandoned. This application Sep. 27, 1991, Ser. No. 766,107

Int. Cl.[5] **B63B** *35/79*

U.S. Cl. 114—39.2 **9 Claims**



1. A sailboard comprising

a floating board structure having an upper surface, a lower surface, a rear skeg secured to extend below the rear of the lower surface and a first opening for receiving a dagger board and a second opening for receiving a shaft,

a dagger board mounted in said first opening,

a shaft secured in said second opening and having a rearward inclination above the upper surface of the board structure,

a spindle positioned around the portion of said shaft extending above said upper surface of the: board structure, said spindle having an axis of rotation,

bearing means positioned between said shaft and said spindle to allow ease of rotation of said spindle with respect to said shaft,

a pivot pin horizontally mounted to said spindle,

a sail assembly including a boom, a mast and a sail supported between said boom and mast, said sail assembly mounted to said horizontal pivot pin to allow pivoting of said assembly with respect to said spindle between a forward position and a rearward position,

a wishbone silled secured to said sail assembly to allow a board rider to control the position of said assembly with respect to said board structure, and

means limiting the amount of pivotal movement of said assembly about said horizontal pin with respect to said spindle.

5,211,124

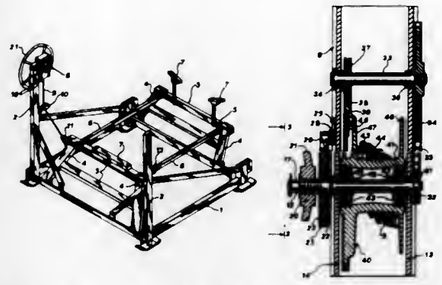
WINCH CONSTRUCTION FOR BOAT LIFT

John N. Reiser, Allenton, Wis., assignor to Triton Corporation, Allenton, Wis.

Filed Mar. 6, 1992, Ser. No. 847,919

Int. Cl.[5] **B63C** *7/00*; **B63B** *21/56, 35/00, 35/73*

U.S. Cl. 114—44 **10 Claims**



1. A winch construction for a boat lift, comprising a pair of spaced side members, a first shaft mounted for rotation in aligned openings in the side members, the ends of the shaft protecting beyond the respective side members, a drum mounted for rotation on said first shaft, a cable wound or the drum and disposed to be connected to the boat lift, manually operable drive means connected to one end of the shaft for rotating the shaft, a second shaft disposed between said side plates and mounted for rotation relative to said side plates, first speed reducing drive means operably connecting the opposite end of said first shaft to said second shaft and located outside of said side members, and second speed reducing means connecting said second shaft and said drum and located between said side members.

5,211,125

APPARATUS AND METHOD FOR PERFORMING EXTERNAL SURFACE WORK ON SHIPS' HULLS

Charles Garland, Williamsburg; Richard A. Goldbach; Frank E. McConnell, both of Norfolk; James A. McMichael, Chesapeake, and William A. Wagner, Virginia Beach, all of Va., assignors to Metro Machine Corporation, Norfolk and Tidewater Equipment Corporation, Chesapeake, both of Va.

Filed Oct. 24, 1991, Ser. No. 782,315

Int. Cl.[5] **B63B** *59/00*

U.S. Cl. 114—222 **27 Claims**

1. A method for servicing a generally vertical surface of substantial horizontal extent, comprising:

(a) selecting an increment of the surface having a given horizontal extent which is less than said substantial extent, and a given vertical extent which ranges downwards to adjacency with a generally horizontal platform;

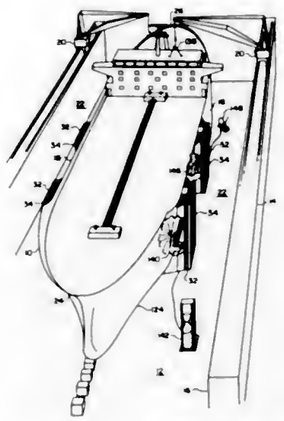
(b) arranging a generally vertical tower on the platform in confronting relationship to, but spaced from said increment of the surface, said tower having supported thereon a trolley which can be raised and lowered on the tower so as to place the trolley selectively in confronting relation with any selected horizontal strip of said increment, and said trolley having provided thereon a work platform cantilevered from the trolley towards the surface, on an arm structure which permits the work platform to be extended towards and retracted away from the surface;

(c) forming a curtain-enclosed space which includes said

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tower and said increment of said surface, with said work platform thereby being enclosed with said space;

(d) while supporting at least one work-performing operator on said work platform, causing said operator to successively apply work to a plurality of said bands of said increment of said surface, and, in conjunction therewith, adjusting said arm structure for adjusting the proximity of said operator to said increment of said surface.



5,211,126

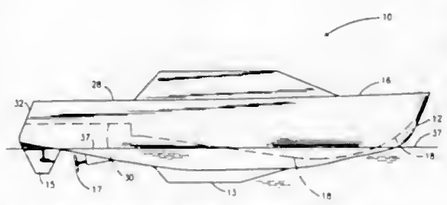
SHIP OR BOAT CONSTRUCTION HAVING THREE HULLS

Robert K. Johnson, 10733 Spring St., Largo, Fla. 34644

Filed May 18, 1992, Ser. No. 884,672

Int. Cl.[5] B63B *1/20*

U.S. Cl. 114—61 **4 Claims**



1. A watercraft, comprising:

a pair of laterally spaced apart, parallel, longitudinally aligned hulls;

said hulls having a common predetermined length and width;

said common predetermined length being equal to the length of the watercraft;

a third hull disposed between said pair of hulls, in equidistantly spaced relation thereto;

said third hull being submerged in water to a similar extent as said pair of hulls when the watercraft is at rest and floating in a body of water;

said third hull having a predetermined longitudinal extent that is less than said common predetermined length of said pair of hulls;

said third hull and each hull of said pair of hulls having a common height extent, all of said hulls having a bottom edge disposed in a common horizontal plane;

a deck disposed in overlying relation to said pair of hulls and to said third hull;

said deck having a length substantially equal to the length of each hull of said pair of hulls;

said deck having a predetermined thickness;

a recess of predetermined depth and predetermined geometrical configuration formed in an underside of said deck aft of said third hull;

said recess being formed between said pair of hulls;

said pair of hulls and said third hull remaining substantially submerged when said watercraft is underway, said watercraft being of the non-planing type;

a rooster tail being created by said third hull when said watercraft is underway;

said recess receiving substantially all of said rooster tail so that water forming said rooster tail does not appreciably impinge against the underside of said deck even when said watercraft is underway; and

said third hull having a leading end disposed substantially coincident with leading ends of each hull of said pair of hulls.

5,211,127

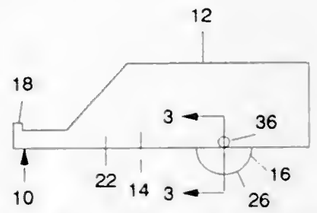
MOBILE BOAT

Powell L. Sprunger, 20 Woodview La., Algonquin, Ill. 60102

Continuation-in-part of Ser. No. 523,103, May 14, 1990, abandoned. This application Feb. 12, 1992, Ser. No. 834,645

Int. Cl.[5] B60P *3/10*

U.S. Cl. 114—344 **6 Claims**



1. A mobile boat comprising, a single hull having a space, a pair of wheels mounted on an upper portion of opposed sides of the hull with at least a first portion of the wheels being located inside the hull and a second portion of the wheels projecting outwardly from the hull for placement of the hull in an inverted configuration in the absence of folding for transport, and with the wheels supporting the entire hull in the inverted configuration of the hll, and a hitch for a vehicle adjacetn a forward portion of the hull, including a pair of hollow covers releasably covering the projecting second portion of said wheels.

5,211,128

AUTOMOTIVE METER DEVICE HAVING SELF-ACTING LIGHT-EMITTING POINTER

Miki Katoh, Kariya; Kaoru Matsuno, Gifu; Akihiko Inoue, Kariya, and Katsuhiro Kumazawa, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 29, 1991, Ser. No. 677,395

Claims priority, application Japan, Mar. 29, 1990, 2-82194; Jul. 12, 1990, 2-184685; Nov. 30, 1990, 2-338501

Int. Cl.[5] G01D *13/26*

U.S. Cl. 116—288 **33 Claims**

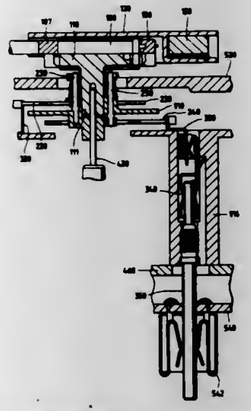
1. A meter device for a motor vehicle, comprising:

(a) a pointer drive unit for rotating a meter shaft in response to an input signal;

(b) a self-acting light-emitting pointer fixedly mounted on said meter shaft for co-rotation therewith, said pointer including a light-emitting element having first and second electrodes, and first and second current supply members connected, at one and thereof, to said first and second electrodes, respectively, and having, at the opposite end thereof, first and second connecting portions, respectively, said first and second connecting portions extending in a direction substantially parallel to a longitudinal axis of said meter shaft;

(c) third and fourth current supply members having, at one end thereof, third and fourth connecting portions, respectively, and connected, at the opposite end, to one end of first and second metallic spiral springs, respectively, said third and fourth connecting portions extending in said direction and being releasably engaged with said first and second connecting portions, respectively, so that said first and second current supply members are electrically connected with said third and fourth current supply members, respectively, at the same time when said self-acting light-emitting pointer is mounted on said meter shaft; and

(d) fifth and sixth current supply members connected to the opposite end of said first and second spiral springs for supplying an electric current to said first and second spiral springs.



5,211,129

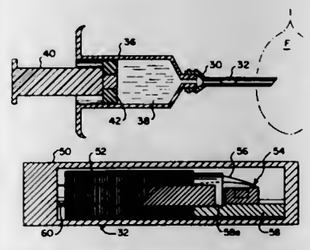
SYRINGE-IMPLANTABLE IDENTIFICATION TRANSPONDER

Vern Taylor, Broomfield, Calif.; Daniel Koturov; John Bradin, both of Colo., and Gerald E. Loeb, Clarksburg, Md., assignors to Destron/IDI, Inc. and Hughes Aircraft Co., both of Boulder, Colo.

Continuation of Ser. No. 267,726, Oct. 26, 1988, abandoned, which is a continuation of Ser. No. 135,563, Dec. 24, 1987, abandoned, which is a continuation of Ser. No. 832,684, Feb. 25, 1986, abandoned. This application Jan. 25, 1991, Ser. No. 647,617

Int. Cl.[5] A01K *61/00;* **A61M** *5/00*

U.S. Cl. 119—3 **27 Claims**



10. A syringe implantable transponder for use in an identification system for monitoring a host such as an animal, fish or the like during a monitoring period extending over a plurality of months, said system comprising at least one interrogator adapted to emit an interrogation signal, said transponder comprising:

a coil adapted to receive said interrogation signal and to transmit an identification signal;

an integrated circuit chip connected to said coil,

said chip comprising memory means for storing an identification code, and transmitter means responsive to said interrogation signal for transmitting said identification signal corresponding to said stored identification code;

support means formed integrally with an elongated coil former means about which said coil is wound, said support means including means for physically maintaining said integrated circuit chip in specified physical relationship to said coil in an assembly configured for accommodating passage thereof through the interior of a syringe needle; and

encapsulation means formed of a material which is transparent to radiation at the frequencies of said interrogation and identification signals and which has characteristics equivalent to glass, for sealing said coil, said integrated circuit chip and said support means therewithin to form a unit dimensioned for injection implantation by a syringe said encapsulating means being constructed of materials impervious to the internal fluids of said host for at least said monitoring period.

5,211,130

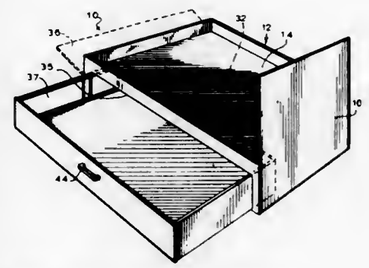
LOVE BED

Elly I. Elias, and Elvira Elias, both of P.O. Box 278, Forest Hills, N.Y. 11375

Filed Aug. 26, 1992, Ser. No. 935,190

Int. Cl.[5] A01K *1/00*

U.S. Cl. 119—28.5 **12 Claims**



1. An improved pet animal bed, comprising:

a) a box-shaped bed frame having a top recess area;

b) means in said bed frame for storage;

c) said bed frame having a hollow compartment with a front and side opening therein;

d) a door hinged along its top edge to the bed frame in said front opening of said compartment; and

e) a drawer that slideably fits into said side opening in the compartment.

5,211,131

PET GROOMING DEVICE WITH DETACHABLE HEAD

Chun A. K. Plyler, 1215 E. 10th St. #9, Roanoke Rapids, N.C. 27870

Filed Dec. 9, 1992, Ser. No. 987,691

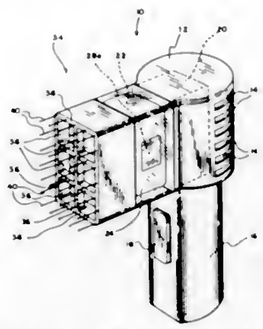
Int. Cl.[5] A01K *13/00*

U.S. Cl. 119—87 **5 Claims**

1. A pet grooming device for removing fleas, ticks, loose hair and other debris from a pet comprising: a motor housing having a power source located therein for generating a vacuum; a vacuum compartment disposed adjacent the motor

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housing and including a collecting bag for collecting fleas, ticks, loose hair and debris and the like, a grooming head secured to the vacuum compartment and including a front and back side and a plurality of separate and distinct manifolds; means associated with the grooming head for detachably connecting the same to the vacuum compartment of the pet grooming device; a handle secured to the pet grooming device and depending therefrom such that an individual using the pet grooming device may grip and hold the handle; and a series of generally uniformly spaced individually grooming bristles



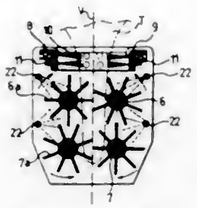
formed on the front side of the grooming head and projecting outwardly therefrom for engaging the pet, and wherein the front side of the grooming head includes an exposed surrounding edge that extends around the respective manifolds formed about the front side of the grooming head and wherein the respective grooming bristles are formed continuously and generally uniformly about the surrounding edge of the front side of the grooming head, the vacuum compartment includes a see-through area that enables one to visually inspect the collecting bag contained therein, the see-through area further includes a see-through area formed in the collection bag itself.

5,211,132

APPARATUS FOR AUTOMATICALLY WASHING TEATS OF DAIRY ANIMALS

Felice Farina; Emilio Lucchini, and Renato Federici, all of Cremona, Italy, assignors to Gilna Corporation N.V., Curacao, Netherlands Antilles

Filed May 18, 1992, Ser. No. 886,019
Claims priority, application Italy, May 20, 1991, 001377 A/91
Int. Cl.[5] A01K *13/00*
U.S. Cl. 119—158 **3 Claims**



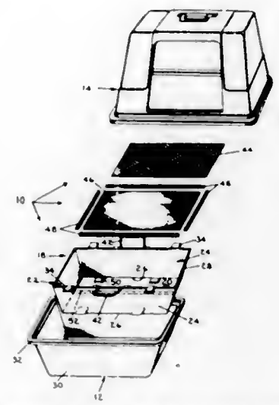
1. An apparatus for automatically washing teats of generic dairy animals, comprising a box-type body having an opening for introducing a teat thereinto along a direction of introduction which is defined as the apparatus is applied to the teat to be washed, a first pair of rotary brushes rotating in opposite directions within the box-type body with their bristles slightly interleaved and applying a suction effect along said direction of introduction toward the box-type body interior on the teat introduced through the opening, and a second pair of rotary brushes rotating in opposite directions and being located downstream from said first pair along the direction of introduction, said second brush pair generating a thrust force in the opposite direction to the suction force from the first brush pair.

5,211,133

LITTER SAVER DEVICE

James F. Foley, 812 Grant St., Reynoldsville, Pa. 15851

Filed Jan. 28, 1992, Ser. No. 826,814
Int. Cl.[5] A01K *1/01*
U.S. Cl. 119—166 **3 Claims**



1. For the collection and disposal of animal waste material a litter saver device is adapted for removable placement in a litter box having a litter floor and an upper rim, the litter saver device comprising:

a generally box-like insert for placement within the litter box, the box-like insert having an open top and a peripheral bottom edge;

a perforated floor member integrally attached to the box-like inset adjacent the bottom edge, the floor member for receiving granular material spread thereupon so that deposited waste material can be collected by the granular material;

a screen member disposed subjacent and contiguous to the floor member, the screen member adapted for removable securement to the floor member adjacent the bottom edge of the box-like insert;

a lock ring for securing the screen member contiguous to the floor member, the lock ring adapted for pressing the screen member against the floor member and wedging against the bottom edge of the insert; and

the lock ring further including a plurality of tapered longitudinal support members forming a grid within the lock ring for further securing the screen member contiguous to the floor member.

5,211,134

COLLAPSIBLE, DISPOSABLE LITTER BOX

Robert T. Bolo, III, 40 Mulberry St. Apt. 3F, New York, N.Y. 10013

Continuation-in-part of Ser. No. 586,241, Sep. 21, 1990, abandoned. This application Feb. 26, 1992, Ser. No. 842,066
Int. Cl.[5] A01K *67/00*
U.S. Cl. 119—168 **24 Claims**

1. A foldable litter box convertible from a closed configuration to an open configuration to form an enclosed receptacle, said foldable litter box comprising:

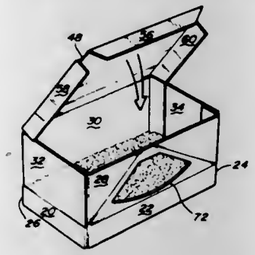
a base;

side walls extending from said base;

end walls extending from said base and perpendicular to said

side walls, said side walls and said end walls being connected to one another in alternating fashion along common boundaries, said side walls and said end walls being of the same height;

diagonal folding axes provided on said end walls and on at least one of said side walls, said diagonal folding axes



permitting said litter box to convert from said closed to said open position;

a top connected to one of said side walls, said top overlying said side walls and said end walls to form a flat roof; and

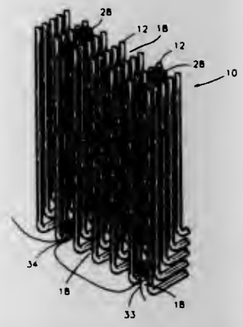
an aperture in at least one of said side walls and said end walls for permitting access to within said receptacle.

5,211,135

APPARATUS AND METHOD OF DESLAGGING A BOILER WITH AN EXPLOSIVE BLASTWAVE AND KINETIC ENERGY

Paul A. Correia, 11805 S. 33rd St., Bellevue, Nebr. 68005, and Robert R. Lamotte, 905 Shenandoah Dr., Papillion, Nebr. 68046

Filed Apr. 23, 1992, Ser. No. 872,541
Int. Cl.[5] F28G *7/00*
U.S. Cl. 122—379 **18 Claims**



1. In combination with a steam boiler including at least one bank of a plurality of spaced apart boiler tubing panels, each panel including multiple spaced apart lengths of boiler tubing, an apparatus for deslagging said boiler with an explosive blastwave and kinetic energy, comprising,

a plurality of loop clusters of detonating cord, each loop cluster including a plurality of loops of detonating cord arranged in a multi-directional pattern to impart a three-dimensional shape to said cluster,

said plurality of loop clusters being supported in spaced apart relation between adjacent tubing panels, and

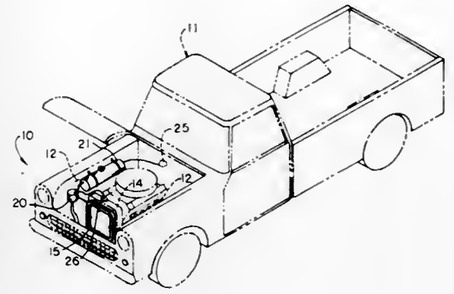
lengths of detonating cord interconnecting said plurality of loop clusters to form a first explosive assembly adapted for substantially simultaneous detonation of the loop clusters thereof.

5,211,136

ENGINE COOLING APPARATUS

Gary T. Dacus, 10451 Brookhurst, Anaheim, Calif. 92804, and Gregory L. Dacus, 13245 Fidler Ave., Downey, Calif. 90242

Filed Apr. 15, 1992, Ser. No. 868,662
Int. Cl.[5] F01P *11/00*
U.S. Cl. 123—41.55 **2 Claims**



1. An engine cooling apparatus arranged for positioning within a self-propelled vehicle, wherein the vehicle includes an engine compartment, and the engine compartment includes a radiator, wherein the apparatus comprises,

a perimeter framework mounted adjacent the radiator in an internal relationship thereto, wherein the perimeter framework includes an interior surface spaced from an outer surface, and

a framework forward side wall spaced from the radiator, and

a plurality of spaced fluid injector nozzles fixedly mounted to the interior surface canted towards the radiator rearwardly of the forward side wall, and

a pump mounted within the vehicle, and

a fluid reservoir mounted within the vehicle, with a first conduit in fluid communication between the fluid reservoir and the pump, and a second conduit in fluid communication between the pump and the injector nozzles, and

control means for effecting selective actuation of the pump upon fluid within the radiator reaching a predetermined temperature, and

the control means includes a temperature sensor switch mounted relative to the radiator for sensing temperature within the radiator, and a manual switch mounted within the vehicle permitting manual actuation of the pump, and

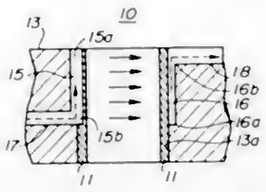
the framework forward side wall includes a plurality of support boss members, each boss member includes a support flange mounted to each boss member, and each flange is arranged in a coplanar relationship relative to one another, and the flanges are directed medially of the perimeter framework parallel to the forward side wall directed into a support annular ring, and the support angular ring mounting a rotary blade support hub medially thereof, and a third conduit in fluid communication with the second conduit to direct fluid to the support hub, and a rotary blade, and a tubular support axle directed medially and orthogonally relative to the rotary blade, with the tubular support axle rotatably mounted within the support hub, and the tubular support axle in fluid communication with the third conduit.

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5,211,137
COOLING SYSTEM FOR A CYLINDER OF AN INTERNAL COMBUSTION ENGINE

Masato Kawauchi, Mishima; Masayoshi Tokoro, Susono, and Shizuo Abe, Mishima, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Jun. 3, 1992, Ser. No. 893,087
Claims priority, application Japan, Jun. 10, 1991, 3-138004
Int. Cl.[5] F02F *1/14*
U.S. Cl. 123—41.79 **2 Claims**



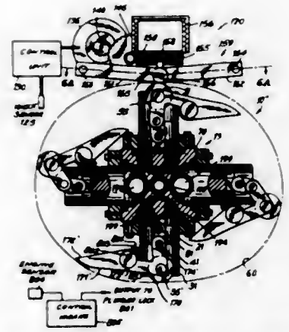
1. A cooling system for an internal combustion engine comprising:
an engine cylinder having a combustion chamber end, a cylinder block and a cylinder liner fitted within said cylinder block;
a plurality of coolant passages located in a row along a longitudinal axial direction of said cylinder liner, each of said plurality of coolant passages being located so as to extend approximately along a circumference of said cylinder liner, said plurality of coolant passages being located between an inner wall of said cylinder block and an outer wall of said cylinder liner;
an inflow passage through which coolant flows into said plurality of coolant passages;
a flux passage through which coolant flows out of said plurality of coolant passages;
a supply passage connected to said inflow passage for introducing coolant thereto;
said inflow passage is located so as to extend approximately along a longitudinal axial direction of said cylinder liner, said supply passage being connected to said inflow passage at a position located near to a farthest one of said coolant passages from said combustion chamber end, said inflow passage having a sectional area large enough so that a pressure loss of coolant flowing in said inflow passage is negligible in contrast to a pressure loss of coolant flowing in each passage of said plurality of coolant passages; and
said flux passage is located so as to extend approximately along a longitudinal axial direction of said cylinder liner, said flux passage having a withdrawal outlet at a position located near the closest one of said plurality of coolant passages to said combustion chamber end, said flux passage having a smaller sectional area than that of said inflow passage.

5,211,138
ROTARY INTERNAL COMBUSTION ENGINE

Jerome L. Murray, 12 Aldersgate Cir., Budd Lake, N.J. 07828, and Joseph O. Mosca, Landing, N.J., assignors to Jerome L. Murray, Budd Lake, N.J.

Division of Ser. No. 682,699, Apr. 9, 1991, Pat. No. 5,161,378, which is a division of Ser. No. 570,169, Aug. 17, 1990, abandoned, which is a division of Ser. No. 478,726, Feb. 12, 1990, Pat. No. 4,974,553, which is a division of Ser. No. 277,714, Nov. 30, 1988, abandoned. This application Mar. 20, 1992, Ser. No. 855,719
Int. Cl.[5] F02B *57/00*
U.S. Cl. 123—44 B **4 Claims**

1. A rotary internal combustion engine, said engine comprising:
a housing;
a cam track internally disposed within said housing and adapted to receive a cam follower;
an engine block disposed within said housing, said engine block and said housing being relatively rotatable with respect to each other about a central axis;
means connectable to an external drive member for translating said relative rotation of said engine block with respect to said housing into useful work;
at least one radially arranged cylinder assembly on said block, each said cylinder assembly including
a cylinder having a longitudinal axis extending generally radially outwardly from the rotational axis of said block, said cylinder including means defining an end wall,
a piston member disposed within said cylinder and adapted to reciprocate within said cylinder,
said piston, cylinder and cylinder end wall together defining a combustion chamber,
means permitting periodic introduction of air and fuel into said combustion chamber,
means for initiating combustion of a compressed mixture of air and fuel within said combustion chamber,
means permitting periodic exhaust of products of combustion of air and fuel from said combustion chamber, and
a cam follower adapted to ride along said cam track so as to impart forces and motions to and from said piston and said cam track;

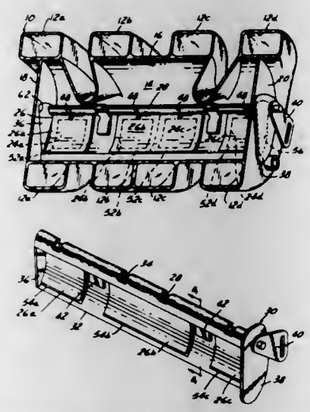


wherein said cam track includes at least a first segment and at least a second segment thereof, said first segment having a generally positive slope wherein said segment has a generally increasing radial distance from the rotational axis of said engine block whereby as a piston moves outwardly in a cylinder on a power stroke while the cam follower is in radial register with said cam track segment, the reactive force of the respective cam follower acts in a direction tending to impart rotation to said engine block in the direction of the positive slope of said cam track segment, said second segment having a generally negative slope wherein said segment has a generally decreasing radial distance from the rotational axis of said engine block whereby as a cam follower rides along said negative slope of said cam track as said engine block rotates, said cam follower will cause a radially inward motion of the respective piston in its respective cylinder; and
means for varying the compression ratio of each of said cylinders during operation of said engine, said means for varying the compression ratio including a pair of pivotable cam track segments having pivoted distal ends and interconnected proximate ends, said pivoted proximate ends being cooperatively and adjustably pivotable about their pivoted distal ends to cause said interconnected proximate ends to be movable in a generally radial direction to vary the radial distance between said interconnected proximate ends and the rotational axis of said engine block thereby to adjustably alter the path of said cam follower in a radial direction in the region of said interconnected proximate ends of said pair of pivotable cam track segments, and means for causing said interconnected proximate ends of said pair of pivotable cam track segments to move from a first position of lesser compression to a second position corresponding to the desired degree of compression.

5,211,139
ACTIVE MANIFOLD

Dennis E. Houle, Chatham; Stephen E. Brackett, Blenheim, and Lisa A. Whaley, Staples, all of Canada, assignors to Siemens Automotive Limited, Chatham, Canada

Filed Sep. 8, 1992, Ser. No. 941,994
Int. Cl.[5] F02M *35/10*
U.S. Cl. 123—52 MB **12 Claims**



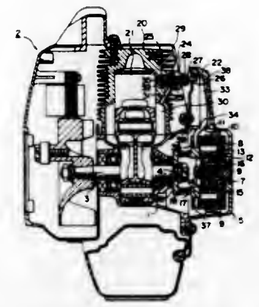
1. An internal combustion engine intake manifold comprising a plenum from which extends at least one transverse runner to at least one combustion chamber of the engine wherein each such runner has a selectable effective length between the plenum and a corresponding combustion chamber provided by a selective opening and closing of a door between the runner and the plenum chamber, said door is disposed on a shaft, said shaft is mounted for rotary motion on said plenum about an axis, and said shaft passes from said plenum through an opening in an end wall of said plenum, characterized in that said opening in an end wall of said plenum is closed by a closure member that provides at least some journaling for the shaft.

5,211,140
DECOMPRESSOR FOR INTERNAL COMBUSTION ENGINE

Yoshiaki Hironaka, Sayama; Susumu Miyashita, Kodaira, and Tadashige Kondo, Tokyo, all of Japan, assignors to Kioritz Corporation, Tokyo, Japan

Filed May 27, 1992, Ser. No. 888,678
Claims priority, application Japan, May 28, 1991, 3-038505[U]
Int. Cl.[5] F02B *77/08*
U.S. Cl. 123—65 P **1 Claim**

1. A decompressor for an internal combustion engine, including: a mounting hole, a decompression valve mounted in said hole for opening and closing a pressure relief bore, said bore opening into a combustion chamber within a cylinder of said engine; an outer open end portion concentrically continuing from said mounting hole and having a grater inner diameter than said mounting hole; and a through-hole which is obliquely and rectilinearly formed through a portion of a wall of said cylinder, and through which a pocket formed between said

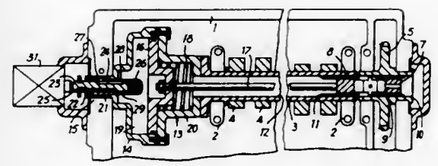


decompression valve and said outer open end portion is able to communicate with a scavenging passage of said engine.

5,211,141
DRIVE ARRANGEMENT FOR A CAMSHAFT FITTED IN THE CYLINDER HEAD OF AN INTERNAL COMBUSTION ENGINE

Wilhelm Hannibal, Neckarsulm, and Johannes Steinwart, Obersulm, both of Fed. Rep. of Germany, assignors to Audi, AG, Ingolstadt, Fed. Rep. of Germany

PCT No. PCT/EP90/01908, § 371 Date Nov. 6, 1991, § 102(e) Date Nov. 6, 1991, PCT Pub. No. WO91/07574, PCT Pub. Date May 30, 1991
PCT Filed Oct. 26, 1990, Ser. No. 784,424
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1989, 3937628
Int. Cl.[5] F01L *1/34;* **F15B** *15/00*
U.S. Cl. 123—90.17 **2 Claims**



1. A drive arrangement for a camshaft (3) mounted in the cylinder head (1) of an internal combustion engine with a facility for rotating the camshaft relative to a drive wheel (5) coaxially in driving connection with the crankshaft of the internal combustion engine, which facility has a switching component (6), which can be shifted axially between two end positions by a servo motor (13) and interacts over a first gear-tooth system (7, 9) with the drive wheel 5 and over a second gear-tooth system (8, 11) with the camshaft (3), each gear-tooth system comprising an external tooth system (7 and 8), which is provided at the switching component (6), and an internal tooth system (9 and 11), which is provided in the hub (10) of the drive wheel (5) and in the camshaft (3), and the two gear-tooth systems enclosing different angles with the longitudinal center line of the camshaft, characterized in that the servo motor (13) is disposed adjacent to the end of the camshaft (3) averted from the drive wheel (5) and that the control element (16) of the servo motor (13) is connected with the switching component (6) by a switching rod (17), which is put through the camshaft (3).

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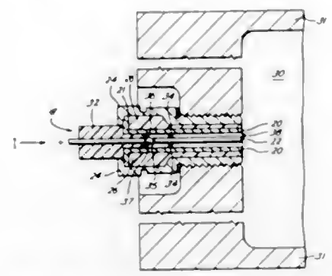
MINIATURE RAILGUN ENGINE IGNITOR

Ronald D. Matthews; Steven P. Nichols; William F. Weldon; Mark M. Koeroghlian, and Richard W. Faidley, all of Austin, Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Continuation-in-part of Ser. No. 502,264, Mar. 30, 1990, Pat. No. 5,076,223. This application Dec. 31, 1991, Ser. No. 815,378

Int. Cl.[5] F02P *1/00, 23/00;* H01T *13/20*

U.S. Cl. 123—143 B 59 Claims



1. A railgun ignition device for generating and injecting a high energy plasma jet into a combustion chamber, comprising:

a holding plug including means for mounting said railgun ignition device in a utilization apparatus;

first and second spaced part electrodes extending along a central axis and defining a bore having a muzzle end and a plasma initiation end, said first electrode being electrically insulated from said holding plug, said bore having a width equal to a spacing between said first and second electrodes at said muzzle end and a length equal to a distance between said muzzle end and said plasma initiation end, an aspect ratio of said bore being at least 3:1; and

an electrical connection between said second electrode and said holding plug, said plasma initiation end being between said electrical connection and said muzzle end.

5,211,143

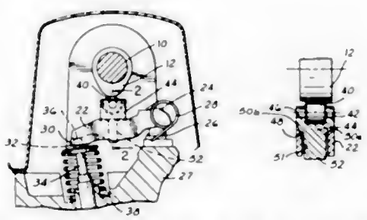
ADJUSTABLE VALVE SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Dominic Fontichiaro, Dearborn Hts., and Daniel M. Kabat, Oxford, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Division of Ser. No. 695,127, May 3, 1991, Pat. No. 5,159,906. This application Oct. 16, 1992, Ser. No. 905,691

Int. Cl.[5] F01L *1/34*

U.S. Cl. 123—90.18 2 Claims



1. An adjustable valve system for an overhead camshaft engine, comprising:

an axially shiftable, overhead mounted camshaft having a plurality of cam lobes for actuating engine valves, with at least one of said lobes having a profile which varies as a function of the axial position of said lobe; and

at least one finger follower displaceable by said axially variable cam lobe, with said follower comprising:

an elongate body having a first end pivotably mounted to a pedestal carried by the cylinder head of said engine, and a second end bearing upon the tip of a valve stem; and

a roller assembly pivotably mounted to said elongate body at a position intermediate said first and second ends, with the axle of the roller being generally parallel to the axis of said camshaft and located such that said axially variable cam lobe may bear upon said roller, with a pivotable mount allowing the roller assembly to accommodate axial shifting of said camshaft by pivoting about an imaginary axis which is perpendicular to the axis of the camshaft while being constrained from rotating about an axis parallel to said camshaft.

5,211,144

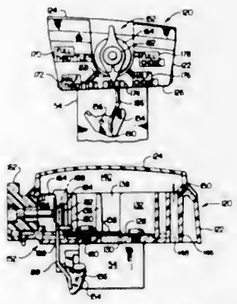
PORTABLE HAND-HELD BLOWER UNIT

Imack L. Collins, 9137 Mansfield Rd., #53, and David M. Wiseman, 9730 Baird Rd., #3121, both of Shreveport, La. 71118

Division of Ser. No. 542,438, Jun. 22, 1990, Pat. No. 5,174,255. This application Oct. 28, 1991, Ser. No. 783,204

Int. Cl.[5] F02B *77/00*

U.S. Cl. 123—198 E 15 Claims



1. Work producing apparatus comprising:

an internal combustion engine having a carburetor with an inlet opening for receiving an inflow of air from a source thereof; and

means for attenuating the air intake noise of said engine during operation thereof, including;

an air intake housing securable to said carburetor over said inlet opening, said air intake housing having an outlet opening positioned to communicate the interior of said air intake housing with said carburetor inlet opening;

first wall means for defining a plurality of elongated air inlet passages for flowing air form a source thereof into the interior of said air intake housing, the total volume of said air inlet passages being substantially smaller than the interior volume of said air intake housing, and

an air filter positioned within the interior of said air intake box between the air inlet passages and the carburetor inlet opening.

5,211,145

FUEL INJECTION SYSTEM FOR ENGINE

Ryuichi Ichikawa, and Yu Motoyama, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Jan. 22, 1992, Ser. No. 824,167

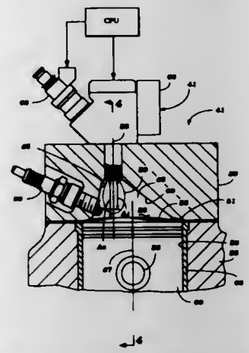
Claims priority, application Japan, Jan. 24, 1991, 3-7319

Int. Cl.[5] F02B *17/00;* F02M *67/00*

U.S. Cl. 123—295 20 Claims

1. An internal combustion engine have a pair of relatively moveable components defining a variable volume chamber comprising, at minimum volume, a recess surrounded at least

in part by a squish area, fuel injection means for injecting fuel into said recess and toward said squish area for combustion therein, and means for controlling the pressure of the fuel injected to maintain an injection velocity of at least 40 meters



per second of the fuel injected into the chamber and an injection velocity at least equal to the velocity imported to the charge in the chamber by the squish action from said squish area, as the engine variable volume chamber approaches its minimum volume.

5,211,146

INLET CONTROL MECHANISM FOR INTERNAL COMBUSTION ENGINE

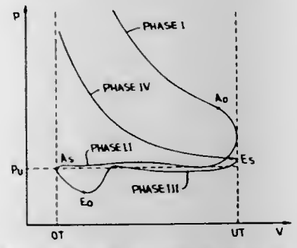
Franz Pischinger, Aachen, Fed. Rep. of Germany, assignor to FEV Motorentechnik GmbH & Co. KG, Aachen, Fed. Rep. of Germany

Filed Apr. 6, 1992, Ser. No. 864,394

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1991, 4111153

Int. Cl.[5] F02B *75/02*

U.S. Cl. 123—316 15 Claims



1. Process for controlling the inlet valves of a 4 cycle internal combustion engine having a crankshaft and having adjustable inlet control periods and individual suction pipe segments per cylinder or per inlet, comprising, at low speeds and changing the valve control times for shifting the opening start of the inlet valve into a later time interval following the top dead center of the piston that for a suitable suction pipe length the pressure wave generated while opening the inlet causes a recharging of the cylinder prior to closing the inlet.

5,211,147

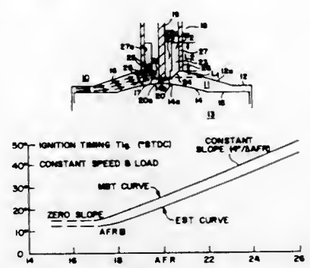
REVERSE STRATIFIED, IGNITION CONTROLLED, EMISSIONS BEST TIMING LEAN BURN ENGINE

Michael A. V. Ward, 20 Marrett Rd., Lexington, Mass. 02173

Filed Apr. 15, 1991, Ser. No. 685,057

Int. Cl.[5] F02B *17/00;* F02P *5/04;* F02D *33/00*

U.S. Cl. 123—418 30 Claims



1. In an internal combustion, IC, engine including means for forming at least one combustion chamber, means for forming an air-fuel mixture therein, means for cyclically igniting said mixture, the latter means including at least one igniter element in contact with the chamber's air-fuel mixture contents, and means for cyclically energizing said igniter element, the improvement comprising:

means for forming a local air-fuel mixture adjacent said igniting element that is lean of fuel relative to the average air-fuel mixture ratio is said chamber to produce a reverse stratified lean-to-rich stratification with reference to said igniting element in at least one operating condition of the engine.

5,211,148

METHOD OF AND AN APPARATUS FOR CONTROLLING ASSIST AIR IN AN INTERNAL COMBUSTION ENGINE

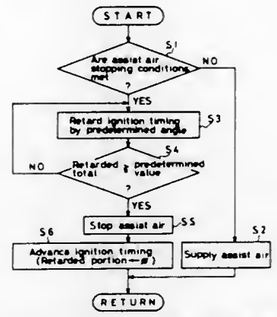
Junichi Furuya; Mitsuru Miyata; Hirokazu Simizu, and Toshio Namba, all of Isesaki, Japan, assignors to Japan Electronic Control Systems Co., Ltd., Isesaki, Japan

Filed Sep. 30, 1992, Ser. No. 953,947

Claims priority, application Japan, Oct. 9, 1991, 3-262258

Int. Cl.[5] F02M *23/12*

U.S. Cl. 123—419 18 Claims

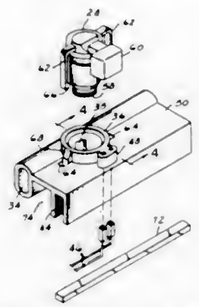


1. An apparatus for controlling assist air in an internal combustion engine, comprising an assist air passage for branching part of intake air as the assist air and injecting the same in the vicinity of an injection nozzle of a fuel injection valve, switching means for starting and stopping the assist air to flow according to engine operating conditions, and output control means for correcting a controlled object related to engine

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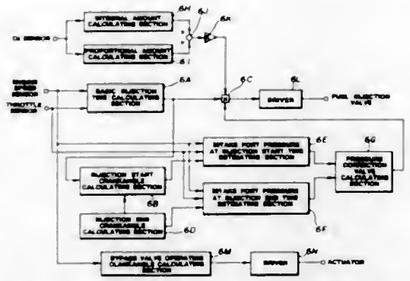
output in a way to suppress a fluctuation in engine output when the switching means starts and stops supplying the assist air.

5,211,149
FUEL RAIL FOR BOTTOM AND SIDE FED INJECTORS
Louis G. DeGrace, Jr., Newport News, Va., assignor to Siemens Automotive L.P., Auburn Hills, Mich.
Division of Ser. No. 546,476, Jun. 29, 1990, Pat. No. 5,111,794.
This application Feb. 7, 1992, Ser. No. 832,552
Int. Cl.[5] F02M *55/02*
U.S. Cl. 123—470 5 Claims



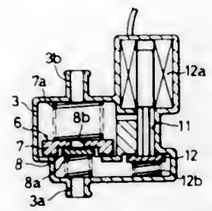
1. An internal combustion engine fuel rail assembly comprising a rail member which contains a fuel hole via which fuel is made available to a plurality of electrically operated fuel injectors mounted on said rail member, each of said fuel injectors comprising a fuel inlet, a fuel outlet, and an electrical connector, said fuel inlet being intermediate opposite axial ends of the fuel injector, said fuel outlet being disposed toward one of said axial ends relative to said fuel inlet, and said electrical connector being disposed toward the other of said axial ends relative to said fuel inlet, said rail member comprising transverse through-hole structures that are spaced apart along the length of said rail member and whose own lengths are arranged transverse to the length of said rail member, each of said fuel injectors being disposed in a corresponding one of said through-hole structures such that the injector's inlet is communicated with said fuel hole via an opening between the corresponding through-hole structure and said fuel hole, said rail member also containing electrical conductors extending from an input connector to individual receptacles for each fuel injector, each such receptacle being open in a direction that faces the electrical connector of the corresponding fuel injector, and said electrical connector of each fuel injector being open in a direction facing the corresponding receptacle and mated with the corresponding receptacle to establish electrical connection of the fuel injector to said input connector, wherein each said fuel injector comprises catch means that is engaged with a corresponding catch-receiving means in said rail member adjacent each through-hole structure, in which each said catch-receiving means comprises hole means, and in which each said catch means comprises at least one integral catch on each fuel injector, and each said hole means comprises a corresponding hole within which each such catch is received, each such catch comprising a hook that lodges behind a surface that lies adjacent the corresponding hole.

5,211,150
FUEL SUPPLY APPARATUS FOR INTERNAL COMBUSTION ENGINE
Makoto Anzai, Kanagawa, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Sep. 16, 1991, Ser. No. 760,282
Claims priority, application Japan, Sep. 19, 1990, 2-47361
Int. Cl.[5] F02D *41/34*
U.S. Cl. 123—480 9 Claims



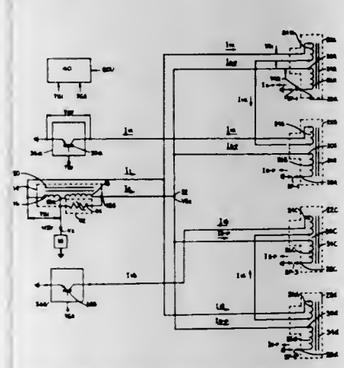
1. A fuel supply apparatus for a multiple-cylinder internal combustion engine, the engine having a throttle valve for each intake passage communicated with each cylinder, said fuel supply apparatus comprising:
fuel supply means disposed in the intake passage downstream of each throttle valve for supplying fuel into the intake passage;
fuel supply amount deciding means for deciding a fuel supply amount in accordance with an operating condition of each cylinder;
intake port pressure estimating means for estimating an intake port pressure in the intake passage downstream of each throttle valve in accordance with said operating condition of each cylinder;
fuel supply amount correcting means for correcting the fuel supply amount to each cylinder in accordance with the intake port pressure of each cylinder estimated by said intake port pressure estimating means; and
drive controlling means for controlling to drive said fuel supply means in accordance with the corrected fuel supply amount to each cylinder.

5,211,151
APPARATUS FOR RESTRICTING DISCHARGE OF EVAPORATED FUEL GAS
Takeaki Nakajima, and Hideo Watanabe, both of Utsunomiya, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha (Honda Motor Co., Ltd.), Tokyo, Japan
Filed Feb. 14, 1992, Ser. No. 835,887
Claims priority, application Japan, Feb. 27, 1991, 3-9649
Int. Cl.[5] F02M *33/02*
U.S. Cl. 123—520 9 Claims



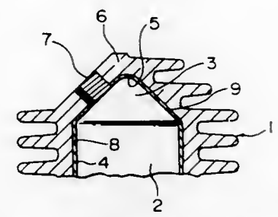
1. Apparatus for restricting discharge of evaporated fuel gas from a fuel tank comprising:
a fuel tank;
a canister;
fluid conduit means connecting said fuel tank to said canister;
a valve casing disposed in said fluid conduit means, said valve casing having a pair of connecting ports for connection to said fluid conduit means leading to said fuel tank and said fluid conduit means leading to said canister, respectively;
a first fluid passage between said connecting ports internally of said valve casing;
a two-way valve in said first fluid passage, said two-way valve comprising a positive-pressure valve and a negative-pressure valve combined into a unitary arrangement in a manner complementary to each other such that when one of the positive-pressure and negative-pressure valves opens, the other closes;
a second fluid passage between said connecting ports internally of said valve casing, said second fluid passage bypassing said two-way valve in said first fluid passage, and
a solenoid valve in said second fluid passage.

5,211,152
DISTRIBUTORLESS IGNITION SYSTEM
Felix Alexandrov, 405 N. 5-th St., Apt. 204, Mankato, Mich. 56001-4411
Filed Jan. 21, 1992, Ser. No. 823,144
Int. Cl.[5] F02P *3/04*
U.S. Cl. 123—620 9 Claims



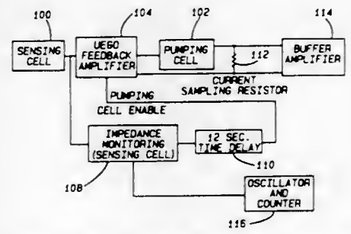
1. A distributorless ignition system for internal combustion engines utilizing spark plugs comprising:
basic ignition coil means having at least one primary winding, being energized from a direct current source, and at least one secondary winding for providing ignition current for said spark plugs, wherein both said windings are magnetically coupled;
trigger ignition coil means adapted for causing electrical break-down across at least one of spark plugs, said trigger ignition coil means having a primary winding being energized from the direct current source, and a secondary winding with the first end thereof electrically connected to one of said spark plugs, and with the second end thereof electrically coupling this winding in series with the secondary winding of the basic ignition coil means, said primary and secondary windings in said trigger ignition coil means being magnetically coupled with each other;
switching means connected to the primary windings of said basic ignition coil means and said trigger ignition coil means for switching current in the primary windings of the basic and trigger ignition coil means, and
a control unit driving the switching means.

5,211,153
TWO-CYCLE INTERNAL COMBUSTION GASOLINE ENGINE CYLINDER
Minoru Yonekawa, Hachioji; Yoshiaki Nagao, Tokyo; Yasuharu Sato, Fussa; Isao Masuda, Tachikawa, and Tomohiro Ohtani, Musashino, all of Japan, assignors to Kioritz Corporation, Tokyo, Japan
Filed Jan. 31, 1992, Ser. No. 828,759
Claims priority, application Japan, Feb. 1, 1991, 3-3183[U]
Int. Cl.[5] B22D *19/08*
U.S. Cl. 123—668 3 Claims



1. A two-cycle internal combustion gasoline engine cylinder, in which a smooth hard chromium plated layer is formed on a combustion chamber top inner surface of a cylinder; wherein said layer is formed simultaneously with a smooth hard chromium plated layer on a sliding surface of a cylinder chamber of said cylinder.

5,211,154
METHOD AND APPARATUS FOR MAINTAINING STOICHIOMETRIC AIR-TO-FUEL RATIO IN AN INTERNAL COMBUSTION ENGINE
Arnold W. Brandt, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 29, 1992, Ser. No. 968,133
Int. Cl.[5] F02M *7/00*
U.S. Cl. 123—693 9 Claims



1. A control arrangement for determining the air-to-fuel ratio of a fuel mixture in an internal combustion engine, including an analog-to-digital converter and a gas sensor having a sensing cell and a pumping cell, and a buffer amplifier, the control arrangement comprising:
current detection means in electrical contact with the pumping cell for detecting pumping cell current and generating an electrical signal corresponding thereto;
amplifier means in electrical contact with said current detection means for receiving and amplifying said electrical signal, said amplifier means having an inherent voltage offset;
calibration means in electrical contact with said amplifier means for receiving said amplified electrical signal and substantially eliminating said voltage offset;
reference voltage shifting means in electrical contact with said amplifier means for adjusting the DC level of said

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electrical signal in accordance with the operation requirements of the analog-to-digital converter;

sample-and-hold means in electrical contact with said amplifier means and the analog-to-digital converter for selectively sampling and holding said shifted electrical signal.

5,211,155

ECCENTRIC PULLEY MECHANISM FOR COMPOUND ARCHERY BOW

Marek R. Zamojski, 11 Reade St., North Providence, R.I. 02904

Filed Feb. 21, 1992, Ser. No. 838,930

Int. Cl.[5] F41B *5/10*

U.S. Cl. 124—25.6 **6 Claims**



1. In a compound archery bow including a pair of resilient bow limbs which are deflected from a braced position to a drawn position by the operation of a bowstring interconnected to said bow limbs through at least one tension cable, an eccentric pulley mechanism comprising:

an inner eccentric wheel pivotally mounted about a fixed axis at an end portion of one of said bow limbs;

an outer pulley wheel including a bowstring track means and a tension cable track means, said outer pulley wheel being rotatable relative to and about said eccentric wheel; and

interengaging means for interengaging said eccentric wheel and said pulley wheel such that said eccentric wheel and said pulley wheel become operative for eccentric rotation about said fixed axis, said mechanism being operable for providing a first mechanical advantage when drawing said bowstring such that said pulley wheel rotates relative to said eccentric wheel and pays out a predetermined stretch of said bowstring while taking up a shorter stretch of said cable, said interengaging means interengaging said pulley wheel and said eccentric wheel in said drawn position,

said mechanism further being operable for providing a second mechanical advantage when propelling an arrow such that when said bowstring is released said interengaged pulley wheel and eccentric wheel eccentrically rotate back about said axis and rapidly pay out said stretch of cable while taking up said stretch of bowstring thus transferring an increased velocity to said propelled arrow, said interengaging means automatically disengaging after said bow limbs return to said braced position.

5,211,156

METHOD AND APPARATUS FOR TREATING A SURFACE OF GRANITE WITH A HIGH TEMPERATURE PLASMA JET

Jerzy Jurewicz; Maher Boulos, and Clermont Roy, all of Sherbrooke, Canada, assignors to Universite De Sherbrooke, Sherbrooke, Canada

PCT No. PCT/CA90/00144, § 371 Date Nov. 1, 1991, § 102(e) Date Nov. 1, 1991, PCT Pub. No. WO90/13406, PCT Pub. Date Nov. 15, 1990

PCT Filed May 1, 1990, Ser. No. 775,976

Claims priority, application Canada, May 3, 1989, 598,629

Int. Cl.[5] B28D *1/00;* **C04B** *41/53*

U.S. Cl. 125—1 **13 Claims**

1. A method of treating the surface of a body of hard material constituted by natural rock and/or artificial stone-like material, comprising the steps of:

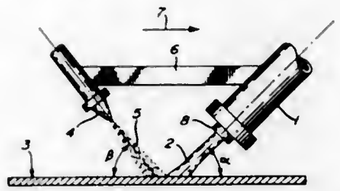
producing a high temperature jet of plasma projected onto said surface;

producing a high speed jet of cooling fluid projected onto said surface;

moving said plasma jet on said surface sufficiently rapidly to enable said high temperature plasma jet to suddenly heat only a thin layer at said surface of said hard material; and

moving the jet of cooling fluid on said surface, said high speed jet of cooling fluid being moved to follow the high temperature plasma jet on said surface, the jet of cooling fluid suddenly cooling said thin layer at said surface just heated by the plasma jet (a) to cause a thermal shock which bursts particles of said hard material at said surface and (b) to prevent deep penetration of heat into the hard material of said body, and said jet of cooling fluid blowing said particles off said surface.

6. An apparatus for treating the surface of a body of hard material constituted by natural rock and/or artificial stone-like material, comprising:



first means for producing a high temperature jet of plasma projected onto said surface;

second means for producing a high speed jet of cooling fluid projected onto said surface;

mechanical support means on which said first and second jet producing means are mounted; and

means for moving said support means relative to said surface sufficiently rapidly to enable the high temperature plasma jet, projected onto said surface, to suddenly heat only a thin layer at said surface of said hard material, wherein said jet of cooling fluid follows the jet of plasma on said surface; in operation, the high speed jet of cooling fluid suddenly cooling the thin layer at said surface just heated by the plasma jet (a) to cause a thermal shock which bursts particles of said hard material at said surface and (b) to prevent deep penetration of heat in the hard material of said body, and said high speed jet of cooling fluid blowing said particles off said surface.

5,211,157

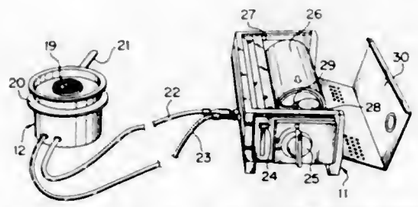
PORTABLE FOOD WARMING DEVICE ASSEMBLY

Arnold Schwartz, and Bong K. Park, both of 7 Rte. 46 West, Lodi, N.J. 07644

Continuation-in-part of Ser. No. 537,931, Jun. 13, 1990, abandoned. This application Jun. 7, 1991, Ser. No. 711,893

Int. Cl.[5] F24C *3/00*

U.S. Cl. 126—39 E **8 Claims**



1. A portable food heating assembly used in food warming devices which comprises:

at least one portable gas burner assembly, said gas burner assembly containing mounting means for removably mounting said gas burner within the food warming device;

a portable control box separate from said gas burner and containing a fuel cartridge and a piezo-electric element;

a flexible fuel supply line; and

a flexible piezo-electric ignition line, said flexible fuel supply line and said flexible piezo-electric ignition line being removably connected to said portable control box for controlling the supply of fuel to said gas burner and igniting the gas at said gas burner, wherein the fuel line and the flexible ignition line form elements of the circuit to conduct the spark generated by the piezo-electric element to the burner so that the portable gas burner assembly can be selectively separated a predetermined distance from the portable control box containing said fuel cartridge so that the heating assembly can readily adapt to the environment in which it is used.

5,211,158

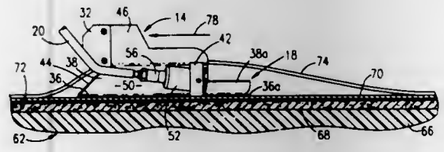
ROOFING TORCH

Paul L. Morris, 8815 W. 104th St., Overland Park, Kans. 66212

Filed May 8, 1992, Ser. No. 880,235

Int. Cl.[5] F23C *5/00*

U.S. Cl. 126—271.2 R **7 Claims**



1. A torch assembly for use in fabricating roof joints or the like, said assembly comprising:

an elongated handle presenting a forward upper end and a lower rearward end, said upper end being configured for grasping by a user in order to pull the torch assembly in a forward direction during use thereof;

a shoe element operably coupled to said handle adjacent the lower end thereof and presenting opposed upper and lower wall sections cooperatively defining a pair of laterally spaced apart side marginal zones and a torch-receiving cavity therebetween having an open rearward end remote from said forward handle upper end, and an elongated flame-directing barrier wall extending rearwardly from said open rearward end along one of said side marginal zones;

a torch including a head presenting an open, rearmost, flame-exiting end, means mounting said head within said cavity with said open flame-exiting end being positioned closely adjacent said open rearward end of said cavity and with said head being oriented for delivery of flame downwardly through said open rearward end of said cavity at an oblique angle relative to the longitudinal axis of said barrier wall and at least partially against said barrier wall for deflection of said flame by said barrier wall and application of said flame to a roof joint; and

means for delivery of fuel to said torch.

5,211,159

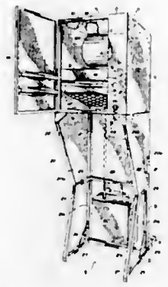
EXHAUST HOOD WITH DISPOSABLE FILTER ASSEMBLY AND FILTER-CONDITION SENSOR

Leonard R. Lieblein, Williamston; Raymond W. Rogers, Mauldin, and William F. Harnesberger, Pelzer, all of S.C., assignors to Standex International Corporation, Salem, N.H.

Continuation-in-part of Ser. No. 516,255, Apr. 30, 1990, Pat. No. 5,154,161, which is a continuation-in-part of Ser. No. 280,025, Dec. 2, 1988, abandoned. This application May 6, 1991, Ser. No. 697,303

Int. Cl.[5] F24C *15/20*

U.S. Cl. 126—299 R **11 Claims**



1. An exhaust hood assembly for positioning above a cooking apparatus, comprising in combination:

an exhaust hood defining an opened-ended compartment having an exhaust opening;

fan means positioned within said compartment for drawing air into said opened end of said compartment and exhaust said air from said compartment via said exhaust opening;

a filter assembly positioned across said opened end of said compartment for filtering vapors from said cooking apparatus; and

control means for sensing vacuum created within said compartment upon operation of said fan means and for indicating proper operation of said filter assembly, said control means comprising a filter assembly vacuum switch positioned in fluid communication within said compartment which is presettable at a certain level of vacuum existing within said compartment such that said filter assembly vacuum switch is actuated when appreciable vacuum exists within aid compartment indicative of said filter assembly being properly installed, and said control means further comprising means for interrupting operation of said fan means if said filter assembly vacuum switch is not actuated.

5,211,160

ULTRASONIC ORTHOPEDIC TREATMENT HEAD AND BODY-MOUNTING MEANS THEREFOR

Roger J. Talish, Fairfield, and Arthur L. Lifsbey, East Brunswick, both of N.J., assignors to Interpore Orthopaedics, Inc., West Caldwell, N.J.

Continuation-in-part of Ser. No. 628,403, Dec. 17, 1990, which is a continuation-in-part of Ser. No. 247,105, Sep. 14, 1988, Pat. No. 5,003,695. This application Mar. 19, 1991, Ser. No. 671,350

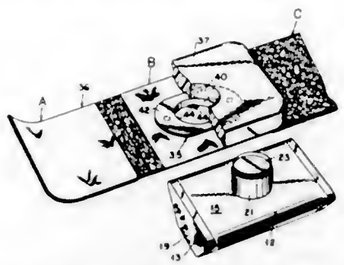
Int. Cl.[5] A61B *17/56*

U.S. Cl. 128—24 AA **18 Claims**

1. An orthopedic-treatment kit, comprising: a length of flexible bandage material sufficient between longitudinally spaced inner and outer wrapping ends to circumferentially wrap an injured body limb, with the outer end in overlap with the wrapped limb and with means to secure the wrap at the outer-end overlap; a pad of softly compressible material removably securable to said bandage at a location intermediate said ends, said pad having a central aperture and said bandage material having an aperture for registration with the aperture of said pad when in secured assembly thereto; a flanged annular socket element having a bore with radially inward bayonet-

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locking formations, said socket element being removably securable to said bandage aperture and with the flange interposed between said bandage material and said pad; and a transducer unit having a generally cylindrical mounting base and an axially projecting end, an ultrasonic transducer carried by said



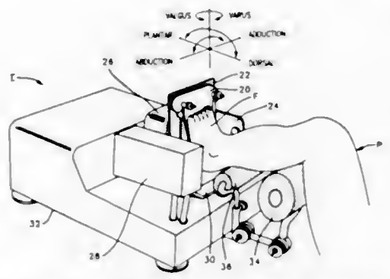
projecting end, said projecting end being sized for selective entry into and through the annulus of said socket element and through the aperture of said pad, and said base having formations for selective bayonet-locking engagement with the locking formations of said socket element upon predetermined passage of said transducer through the aperture of said pad.

5,211,161

THREE AXIS PASSIVE MOTION EXERCISER

Francine Stef, Charleville Mezieres, France, assignor to Compagnie Generale De Materiel Orthopedique, Tournes, France

Filed Jan. 22, 1991, Ser. No. 643,566
Int. Cl.[5] A61H *1/02*
U.S. Cl. 128—25 B 20 Claims



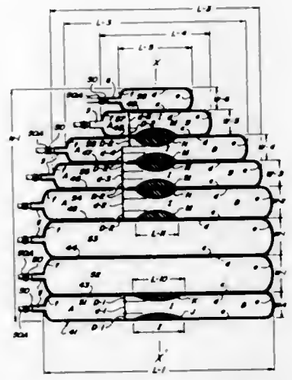
1. A multiple axis passive motion exerciser, comprising:
means for receiving the portion of the patient to be moved, said receiving means being movable in at least two axes of movement of the joint of interest,
a first motor connected to said receiving means to cause said receiving means to move about a first axis;
a first feedback means connected to said receiving means to monitor the position of said receiving means about said first axis;
a second motor connected to said receiving means to cause said receiving means to move about a second axis;
a second feedback means connected to said receiving means to monitor the position of said receiving means about said second axis;
means connected to said first and second motors for providing drive energy to said motors; and
means connected to said first and second position feedback means and to said motor drive means for controlling the activation of said first motor to move said receiving means about said first axis within first axis predetermined limits and for controlling the activation of said second motor to move said receiving means about said second axis within second axis predetermined limits and within a predetermined tolerance of a desired position defined by the relative position of said receiving means about said second axis within said second axis predetermined limits being equal to the relative position of said receiving means about said first axis within said first axis predetermined limits, so that said receiving means reaches substantially said first and second axes predetermined limits at substantially the same time.

5,211,162

APPARATUS AND METHOD FOR MASSAGING THE BACK UTILIZING PNEUMATIC CUSHIONS

John F. Gillen, Jr., and Andrew J. Martin, both of Bethlehem, Pa., assignors to Pneu-Mobility, Inc., Bethlehem, Pa.

Filed Jul. 9, 1991, Ser. No. 727,666
Int. Cl.[5] A61H *7/00*
U.S. Cl. 128—64 26 Claims



1. A pad having a longitudinal centerline and formed with a plurality of inflatable and deflatable adjacent chambers extending transverse to the pad centerline for treatment of the back of a patient placed thereon in a supine position, comprising:
(A) a lower section comprising a plurality of chambers including:
(1) a first elongated chamber having a substantially uniform cross-sectional area for the length thereof,
(2) a second elongated chamber adjacent the first elongated chamber and having a substantially uniform cross-sectional area for the length thereof; and
(B) an upper section comprising a plurality of chambers including:
(1) first, second and third adjacent chambers, each having:
(a) first and second spaced outer portions each having a first substantially uniform transverse cross-sectional area for a major portion of the length thereof,
(b) an intermediate portion having a passage with a second transverse cross-sectional area smaller than the first transverse cross sectional area of the first and second spaced outer portions, communicating therewith, and forming between the first and second outer portions a void about the intermediate portion.

5,211,163

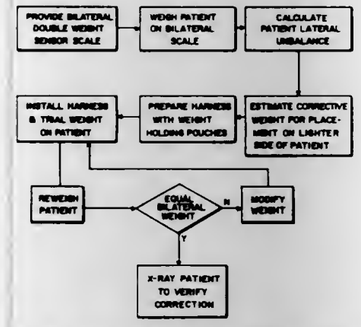
METHOD FOR REDUCING SCOLIOSIS

Dale E. Mortenson, 1101 Ohio Avenue, Lynn Haven, Fla. 32444

Continuation-in-part of Ser. No. 439,183, Nov. 20, 1989, abandoned. This application Sep. 7, 1990, Ser. No. 579,841
Int. Cl.[5] A61F *5/02*
U.S. Cl. 128—781 10 Claims

1. A method for reducing functional scoliosis of a person comprising the steps of:

a) determining the lateral unbalanced weight of the person;
b) estimating the value of a corrective weight for placement on a lighter side of the patient;
c) providing a harness for holding the estimated weight;



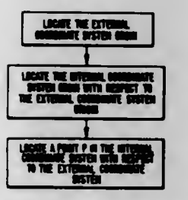
d) installing the harness and estimated weight on the person; and
e) verifying an equal bilateral weight of the person.

5,211,164

METHOD OF LOCATING A TARGET ON A PORTION OF ANATOMY

George S. Allen, 628 Westview Ave., Nashville, Tenn. 37205

Division of Ser. No. 467,243, Jan. 19, 1990, Pat. No. 5,119,817, which is a division of Ser. No. 119,353, Nov. 10, 1987, Pat. No. 4,991,579. This application Mar. 29, 1991, Ser. No. 677,088
The portion of the term of this patent subsequent to May 21, 2008, has been disclaimed.
Int. Cl.[5] A61B *6/03*
U.S. Cl. 128—653.1 5 Claims



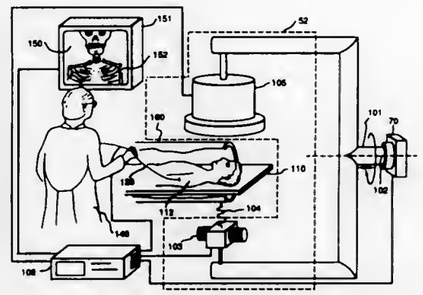
1. A method for locating a target on a portion of anatomy having three fiducial implants comprising:
a. taking a first series of cross-sectional image slices of the portion of the anatomy;
b. defining an internal coordinate system with respect to the three fiducial implants;
c. defining an external coordinate system;
d. locating the target in the portion of the anatomy with respect to the internal coordinate system and defining the internal coordinate system with respect to the predefined external coordinate system; and
e. locating the target with respect to the external coordinate system.

5,211,165

TRACKING SYSTEM TO FOLLOW THE POSITION AND ORIENTATION OF A DEVICE WITH RADIOFREQUENCY FIELD GRADIENTS

Charles L. Dumoulin, Ballston Lake; Robert D. Darrow, Scotia; John F. Schenck, Schenectady, all of N.Y., and Steven P. Souza, Williamstown, Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 3, 1991, Ser. No. 753,565
Int. Cl.[5] A61B *6/00, 5/00*
U.S. Cl. 128—653.1 20 Claims



1. A tracking and imaging system adapted for following a location of at least one invasive device within a subject, comprising:
a) an invasive device;
b) an electromagnetic (EM) field creation means adapted for creating an electromagnetic field of known geometry within the subject attached to the invasive device;
c) a radiofrequency (RF) receiver means adapted for detecting the electromagnetic field at a plurality of M selected locations, wherein the RF receiver has a sensitivity varying with position;
d) a tracking means adapted for computing a position and an orientation of the EM field creation means at the M selected locations, responsive to the detected electromagnetic field;
e) an imaging means adapted for acquiring a medical diagnostic image of a region of interest of said subject;
f) superposition means for superimposing on the medical diagnostic image of said region of interest, a symbol at the computed position representing the EM field creation means resulting in a superimposed image; and
g) display means adapted for displaying the superimposed image on the medical diagnostic image of said region of interest.

5,211,166

OPERATIVE INSTRUMENT PROVIDING ENHANCED VISIBILITY AREA IN MR IMAGE

Raimo Sepponen, Helsinki, Finland, assignor to Instrumentarium Corp., Finland

Continuation of Ser. No. 428,238, Oct. 27, 1989, abandoned. This application Oct. 9, 1991, Ser. No. 773,254
Claims priority, application Finland, Nov. 11, 1988, 885210
Int. Cl.[5] A61B *5/055*
U.S. Cl. 128—653.5 10 Claims

1. An operative instrument insertable in an object subjected to NMR examination for providing a localized area having improved visibility properties in an MR image of the object obtained from the examination, the examination being carried out in a magnetic field created externally of said object, said instrument comprising:
an instrument body which is sufficiently small in size, relative to said object, that the instrument body can be in-

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serted into the object so that the object surrounds the instrument;

means coupled to said instrument body for supplying a paramagnetic relaxant to a localized area within said object and contiguous to said body instrument for interaction with NMR active nuclei capable of emitting an NMR signal and proximate to said relaxant, said paramagnetic relaxant having an electron spin system generating net magnetization in the external magnetic field; and



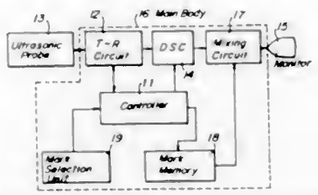
means for supplying electron spin resonance energy via the instrument body for said relaxant to saturate its electron spin system,

thereby to amplify, by dynamic nuclear polarization, the NMR signal obtained from the nuclei during the NMR examination so that said area will have improved visibility properties in an MR image.

5,211,167
ULTRASONIC DIAGNOSING APPARATUS

Takeshi Amenomori, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Feb. 21, 1992, Ser. No. 838,920
Claims priority, application Japan, Feb. 28, 1991, 3-55575; Feb. 3, 1992, 4-17643
Int. Cl.[5] A61D *8/00*
U.S. Cl. 128—660.04 **7 Claims**



1. An ultrasonic diagnosing apparatus comprising: an ultrasonic probe which is insertable into a cavity of a patient for transmitting an ultrasonic wave toward a cavity wall and receiving an ultrasonic wave reflected by the cavity wall to generate an echo signal;

an image signal processing circuit connected to said ultrasonic probe for receiving said echo signal and processing the echo signal to produce an ultrasonic image signal;

a memory means for storing a plurality of posture marks which represent postures of the patient on a bed and a plurality of organ marks which represent organs of the patient;

a selecting means for selecting a desired posture mark among said plurality of posture marks and a desired organ mark among said plurality of organ marks to produce a posture mark signal and an organ mark signal;

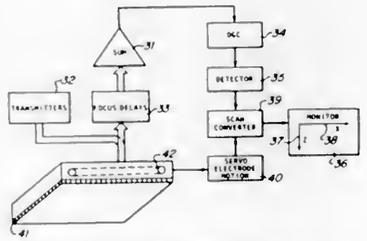
an image processing means for mixing said posture mark signal representing said desire posture mark and said organ mark signal representing said desired organ mark with the ultrasonic image signal generated by said image signal processing means to produce a composite image signal; and

a displaying means for receiving said composite image signal to display a composite image of ultrasonic image, posture mark and organ mark.

5,211,168
MOVING ELECTRODE TRANSDUCER FOR REAL TIME ULTRASOUND IMAGING FOR USE IN MEDICAL APPLICATIONS

Martin K. Mason, Andover, Mass., and F. Stuart Foster, Toronto, Canada, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Dec. 20, 1991, Ser. No. 812,524
Int. Cl.[5] A61B *8/00*
U.S. Cl. 128—661.01 **15 Claims**



1. An ultrasound scanning system comprising:

a plurality of transducer elements arranged in a two-dimensional array; and,

a plurality of electrodes arranged in a two dimensional pattern, the plurality of electrodes being movable with respect to the two dimensional array of transducer elements, electrodes from the plurality of electrodes being in electrical contact with transducer elements from the two dimensional array of transducer elements which are immediately adjacent to the electrodes so that electrical signals placed through the plurality of electrodes result in generation of an ultrasound wave by the plurality of transducer elements which substantially conforms to the two dimensional pattern.

5,211,169
BLOOD POOL IMAGING AND ANALYSIS TECHNIQUE USING ULTRASOUND

John C. Freeland, Boulder, Colo., assignor to Prism Imaging, Inc., Broomfield, Colo.

Filed Nov. 8, 1990, Ser. No. 613,318
Int. Cl.[5] A61B *8/00*
U.S. Cl. 128—661.08 **22 Claims**

1. A method of ultrasonically determining changes in the size of a moving pool of blood within a moving organ of a human body, comprising:

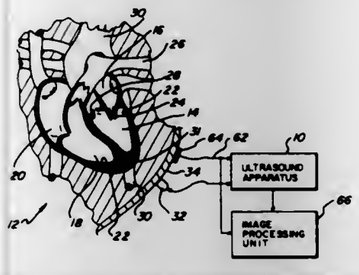
transmitting an ultrasonic signal into the moving blood pool and the organ in the human body;

receiving a reflected ultrasonic signal reflected by the moving blood pool and the moving organ;

analyzing the reflected signal to obtain movement information indicative of the movement of the pool of blood and the movement of the organ;

separating from the movement information that information

indicative of a greater rate of movement than the rate of movement of the organ; and

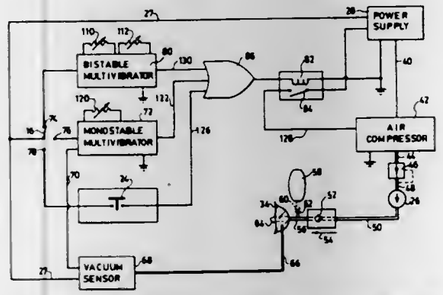


determining the blood pool size changes from the movement information indicative of a greater rate of movement than the movement of the organ.

5,211,170
PORTABLE EMERGENCY RESPIRATOR

Roman J. Press, 20 Sutton Pl., Rochester, N.Y. 14620

Filed Apr. 1, 1991, Ser. No. 678,002
Int. Cl.[5] A61M *16/00*
U.S. Cl. 128—204.18 **17 Claims**



1. A portable emergency ventilating apparatus, wherein said ventilating apparatus is comprised of:

an electrical power supply;

an air compressor including conduit means for conveying air compressed by said air compressor to a patient;

first means for producing a first pulsed electrical signal including a first control means for modifying said first pulsed electrical signal, and wherein said first means is comprised of a timing circuit;

second means for producing a second pulsed electrical signal including a second control means for modifying said second pulsed electrical signal, and wherein said second means is further comprised of means for sensing a vacuum for producing said second pulsed electrical signal after said vacuum has been sensed;

third means for producing a third pulsed electrical signal, wherein said third means is further comprised of a first switching means, and wherein said first switching means is comprised of a manually activated switch;

a second switching means including means for connecting said second switching means to said air compressor;

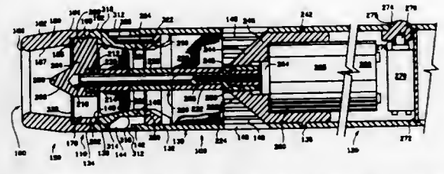
said second switching means including means for selectively supplying power to said first means, said second means, and said third means;

whereby said first means causes said air compressor to provide intermittent positive pressure ventilation to a patient, said second means causes said air compressor to provide compressed breathable gas to a patient in response to said means for sensing a vacuum, and said third means causes said compressor to provide compressed breathable gas to a patient upon manual activation of said first switching means.

5,211,171
PORTABLE LUNG PURGER AND VENTILATOR SYSTEM

Robert Choromokos, 7712 Palacio Dr., San Diego, Calif. 92127

Filed Jan. 31, 1992, Ser. No. 830,372
Int. Cl.[5] A61M *16/00*
U.S. Cl. 128—205.19 **20 Claims**



1. A portable lung purger and ventilator system for exhausting airborne contaminants from the lungs, comprising:

a mouthpiece sized and configured for placement in an individual's mouth, the mouthpiece having an inlet for receiving a gas stream and an outlet for transferring a gas stream received through the inlet;

a vacuum pump having an inlet in fluid communication with the mouthpiece for receiving a gas stream, and an outlet for exhausting a gas stream received through the pump inlet, the vacuum pump generating a vacuum at the mouthpiece;

a drive operatively connected with the vacuum pump for providing motive power thereto;

a switch operatively connected with the drive for controlling operation thereof;

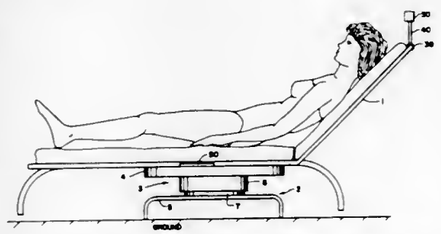
a portable power source operatively connected with the drive for providing power thereto; and

the mouthpiece, vacuum pump, drive, switch and power source being arranged in a portable assembly.

5,211,172
SOLAR CONTROLLED SUN TRACKER FOR A SUNBATHER

Joseph B. McGuane, 41 Holden Rd.; Martin J. Lawless, 58 Holden Rd., both of Shirley, Mass. 01464, and Fei-Jain Wu, 15 Warwick Dr., Chelmsford, Mass. 01824

Filed Mar. 29, 1991, Ser. No. 677,235
Int. Cl.[5] A61H *33/06*
U.S. Cl. 128—377 **9 Claims**



1. Apparatus for rotating a platform in the sun so that a sunbather lying on the platform is exposed to the sun, said apparatus comprising:

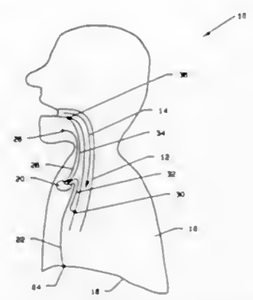
(a) a platform for supporting an object;

(b) means for detecting the relative direction of the sun with

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respect to said platform and producing sun direction signals representative of said relative sun direction,
(c) a ground base,
(d) means for rotatably supporting said platform from said ground base including:
(e) an axle fixed at one end and projecting substantially vertically from said fixed end thereof,
(f) first and second bearings attached at spaced axial positions along said axle,
(g) a bearing sleeve fixed at one end and projecting substantially vertically from said fixed end thereof in an opposite direction to said axle,
(h) means for attaching said bearings to said bearing sleeve,
(i) said axle and said bearing sleeve fixed ends being each fixed to a different one of said ground base or said platform, and
(j) a drive motor acting between said ground base and said platform, and
(k) said sun direction signal control energization of said drive motor.

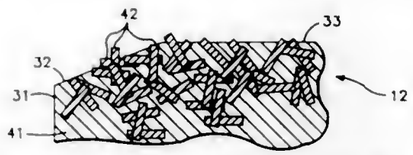
5,211,173
SERVO MUSCLE CONTROL
Michael J. Kallok, New Brighton, and Brian B. Lee, Golden Valley, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Continuation of Ser. No. 639,192, Jan. 9, 1991, abandoned. This application Sep. 21, 1992, Ser. No. 947,826
Int. Cl.[5] A61N *1/36*
U.S. Cl. 128—419 G **11 Claims**



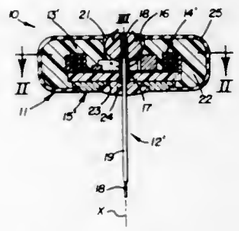
6. An apparatus for treating obstructive sleep apnea comprising:
a. means for generating signals to stimulate upper airway muscle tissue of a patient;
b. means coupled to said generating means for timing said signals to produce stimulation of said upper airway muscle tissue during inspiration by said patient;
c. means for monitoring efficacy of stimulation of said signals; and,
d. means coupled to said monitoring means and said generating means for adjusting intensity of said signals to efficiently increase patency of said upper airway of said patient.

5,211,174
LOW IMPEDANCE, LOW DUROMETER, DRY CONFORMING CONTACT ELEMENT
Mir A. Imran, Palo Alto, Calif., assignor to Physiometrix, Inc., Sunnyvale, Calif.
Filed Sep. 14, 1990, Ser. No. 582,749
Int. Cl.[5] A61B *5/04*; A61N *1/05*
U.S. Cl. 128—639 **20 Claims**

1. A contact comprised of a non-drying mass of nonconductive material having a low durometer and conductive elements dispersed in the mass of material in sufficient quantity to establish contact between the elements to provide a resistivity which is less than 100 ohm-cm, said conductive elements having an L over D ratio of 20 or less and greater than 2 and comprising more than 30% by weight of the contact.

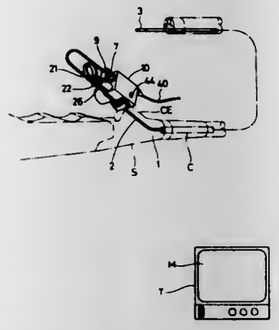


5,211,175
METHOD FOR IMPLANTING ELECTRA-ACUPUNCTURE NEEDLE
Curtis A. Gleason, Palo Alto; Marshall L. Stoller, San Francisco; Tom F. Lue, Millbrae; Richard A. Schmidt, and Emil A. Tanagho, both of San Rafael, all of Calif., assignors to Regents of the University of California, Berkeley, Calif.
Division of Ser. No. 282,002, Dec. 9, 1988, Pat. No. 5,094,242, which is a continuation-in-part of Ser. No. 268,167, Nov. 7, 1988, abandoned. This application Mar. 3, 1992, Ser. No. 845,211
Int. Cl.[5] H61G *5/24*
U.S. Cl. 128—642 **7 Claims**



1. A method for applying an electro-acupuncture device to body tissue, said device comprising a head having receiver means therein for selectively receiving and converting high frequency magnetic energy pulses into stimulating pulses, a first electrode including a metallic tube electrically connected to said receiver means for receiving said stimulating pulses therefrom and a needle-like wire adapted to be slidably mounted in said tube, and a second electrode, electrically connected to said receiver means and electrically insulated from said tube, said method comprising the steps of
placing said head on said body tissue,
inserting said wire through said tube to project beyond a distal end of said tube to pierce said body tissue,
positioning an exposed tip at a distal end of said wire at a preselected distance from the distal end of said tube and at a at a preselected location and depth in said body tissue,
electrically connecting said needle to said tube and fixing the position on the exposed tip of said wire in said body tissue,
transmitting high frequency magnetic energy pulses to said receiver means to convert said energy pulses to stimulating pulses, and
transmitting said stimulating pulses sequentially from said receiver means to said first electrode, through said body tissue and to said second electrode.

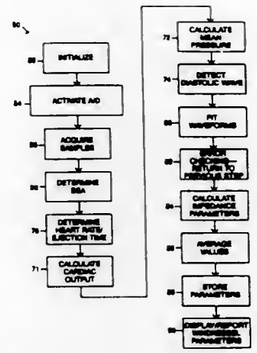
5,211,176
ULTRASOUND EXAMINATION SYSTEM
Masaaki Ishiguro; Toshizumi Tanaka, and Yukio Takagi, all of Omiya, Japan, assignors to Fuji Photo Optical Co., Ltd., Omiya, Japan
Filed Nov. 29, 1991, Ser. No. 800,437
Claims priority, application Japan, Nov. 30, 1990, 2-329997
Int. Cl.[5] A61B *10/00*
U.S. Cl. 128—662.06 **10 Claims**



1. An ultrasound internal examination system, comprising:
an ultrasound probe having an ultrasound transducer rotatably mounted on a tip end portion of a flexible insert member, said flexible insert member having a rotation transmitting means connected to said tip end portion for transmitting rotation to said ultrasound transducer, and a flexible sleeve fitted around said rotation transmitting means, said rotation transmitting means relatively rotatable to said flexible sleeve;
a probe operating unit detachably connected to a base end portion of said flexible insert member including a linear operating means for moving said ultrasound transducer linearly along a longitudinal axis of said tip end portion for linear scanning, and a radial operating means to turn said ultrasound transducer about the longitudinal axis of said tip end portion for radial scanning;
said linear operating means having an operating rod reciprocally mounted through a casing of said probe operating unit and detachably connected to said flexible sleeve and movable into and out of said casing for linear scanning by said ultrasound transducer, and a position sensor means for detecting a position of said ultrasound transducer by detecting a displacement of said operating rod;
said radial operating means having a rotary member coupled with said rotation transmitting means, a motor for rotatably driving said rotary member, a rotation sensor means for detecting a rotational angle of said rotary member, and a rotary connector for connecting rotatable signal lines from said ultrasound transducer to a static part of said operating unit; and
a scan mode selector means for switching an operation of said ultrasound transducer between a linear scan mode and a radial scan mode.

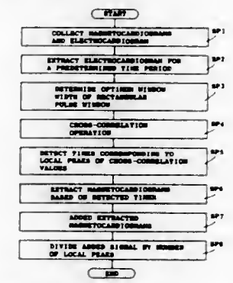
5,211,177
VASCULAR IMPEDANCE MEASUREMENT INSTRUMENT
Charles F. Chesney, Sunfish Lake; Stanley M. Finkelstein, St. Louis Park, and Jay N. Cohn, Minneapolis, all of Minn., assignors to Regents of the University of Minnesota, Minneapolis, Minn.
Filed Dec. 28, 1990, Ser. No. 635,278
Int. Cl.[5] A61B *5/021*
U.S. Cl. 128—672 **9 Claims**

4. Apparatus for measuring vascular impedance properties from the blood pressure waveform of a patient, the waveform containing heart beat signals, comprising:
means for measuring an arterial blood pressure of a patient and producing a corresponding series of digitized data samples representing a waveform of the arterial blood pressure of the patient;
means for determining a mean arterial pressure of the patient from the sample series;
means for determining a cardiac output measurement value for the patient from the sample series;



waveform marking means for searching heart beat signals in the digitized blood pressure waveform, and for marking segments of the heart beat signals corresponding to diastole;
means for determining for the patient one or more parameters of a vascular impedance model from the marked diastolic segments of the sample series and from the cardiac output value and mean arterial pressure, the parameters being measures of vascular impedance properties; and
means for reporting the one or more parameters.

5,211,178
METHOD AND APPARATUS FOR SYNCHRONOUSLY DETECTING A MAGNETOCARDIOGRAM AND METHOD AND APPARATUS FOR SYNCHRONOUSLY ADDING MAGNETOCARDIOGRAMS
Hisashi Kado, Kashiwa, and Tomoaki Ueda, Kyoto, both of Japan, assignors to Agency of Industrial Science & Technology and Daikin Industries, both of Japan
Filed Sep. 27, 1991, Ser. No. 766,349
Claims priority, application Japan, Sep. 30, 1990, 2-262015
Int. Cl.[5] A61N *5/0472*
U.S. Cl. 128—700 **8 Claims**



1. A method for synchronously detecting a magnetocardiogram comprising the steps of:

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receiving an electrocardiogram signal;
receiving a magnetocardiogram signal;
determining a rectangular pulse window signal which consists of a negative rectangular pulse wave, a positive rectangular pulse wave and a negative rectangular pulse wave, in this order;
cross-correlating the electrocardiogram signal with the rectangular pulse window signal to obtain a cross-correlation values signal;
detecting Q-R-S groups of the electrocardiogram signal based on the obtained cross-correlation values signal; and
detecting a portion of the magnetocardiogram signal which is in synchronism with the detected Q-R-S groups.

5,211,179

SYSTEM AND METHOD FOR ANALYZING SELECTED SIGNAL COMPONENTS IN ELECTROCARDIOGRAPHIC SIGNALS, PARTICULARLY LATE POTENTIALS IN ELECTROCARDIOGRAMS

Ralph Haberl, Pippingerstr. 124, D-8000 Munich 60, Fed. Rep. of Germany, and Hans F. Schels, Behamstr. 21, D-8000 Munchen 21, Fed. Rep. of Germany

Filed Jul. 13, 1990, Ser. No. 553,500

Claims priority, application European Pat. Off., Jul. 14, 1989, 89112971

Int. Cl.[5] A61B *5/0452*

U.S. Cl. 128—702 **22 Claims**

1. A system for analyzing selected signal components in physiological measurement signals, comprising:
means for selecting a portion of a physiological measurement signal to be analyzed;
means for selecting a plurality of substantially overlapping mutually offset time segments of said portion;
means for deriving a plurality of low order frequency functions representing the low-band spectral components in each respective time segment;
means for deriving a plurality of high order frequency functions representing the broadband spectral components in each respective time segment;
means for deriving a plurality of difference frequency functions by subtracting said low order frequency functions from respective high order frequency functions; and
means for comparing said difference frequency functions, the comparison indicating detailed analysis of selected signal components in physiological measurement signals.

5,211,180

RESPIRATORY TEST APPARATUS

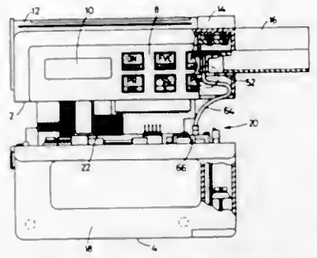
Basil M. Wright, Green, and Derek P. Hutchison, Essex, both of England, assignors to Clement Clarke International Limited, England

Filed Oct. 23, 1990, Ser. No. 601,372

Claims priority, application United Kingdom, Oct. 25, 1989, 8923982

Int. Cl.[5] A61B *5/093*

U.S. Cl. 128—725 **12 Claims**



1. Respiratory test apparatus comprising a chamber having a main interior space defined betwen an end wall and a piston, at least one entry opening into said main interior space, a conduit communicating with said main interior space through said at least one entry opening for air to be blown by a subject into the chamber through said conduit, an outlet from the chamber permitting said air blown into said main interior space and to escape therefrom at a restricted rate, pressure sensing means for providing a measure of air pressure, a portion of the chamber being offset from a flow path between said at least one opening and said outlet from the chamber, said offset portion of the chamber being disposed between said pressure sensing means and the main interior space for communicating said pressure to said pressure sensing means, means for shielding said offset portion of the chamber from the flow of air along said flow path through the main interior space, said shielding means providing an opening which faces downstream of the direction of said flow path, data processing means having input means for a measure of air pressure sensed by said sensing means, said data processing means deriving from the pressure values sensed, at least one parameter relating to the respiratory performance of the subject.

5,211,181

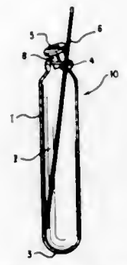
APPARATUS AND METHOD FOR COLLECTING HUMAN BREATH SAMPLES

Jacques J. Delente, Kensington, Md., assignor to Martek Corporation, Columbia, Md.

Filed May 17, 1991, Ser. No. 702,022

Int. Cl.[5] A61B *5/097*

U.S. Cl. 128—730 **7 Claims**



1. A method of producing and collecting a human breath sample for analysis of the constituent components thereof, comprising:
(a) providing an elongated, rigid hollow tubular container having an elongated chamber therein, one end of said container being closed and an opposite end thereof having an inlet portion forming an opening to the interior of said chamber;
(b) providing an elongated, hollow breath delivery means for delivering a breath sample from a subject's mouth, said breath delivery means being insertable into said chamber through said inlet portion to deliver to said chamber a breath sample expelled from said subject's mouth, said chamber having a volume which permits collection of only primarily an alveolar portion of the expelled breath;
(c) providing a closure means for closing and substantially sealing the inlet portion of said tubular container; said closure means being provided with a first position accommodating the insertion of said delivery means and a second position sealing said inlet portion of said chamber;
(d) positioning said closure means into said first position and inserting one end of said delivery means into the mouth of said subject and an opposite end thereof into said chamber through said inlet portion;
(e) expelling a breath sample into said breath delivery means based on a normal full exhale volume and permitting a portion of said breath to flow out of said inlet portion of said container; and
(f) removing said delivery means and positioning said closure means into said second position substantially sealing said inelt portion of said elongated chamber whereby a said breath sample containing a substantial amount of the alveolar portion of the subject's expelled breath is captured in said elongated tubular container.

5,211,182

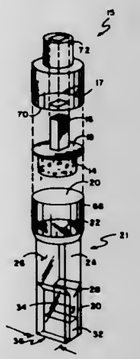
HOME OVULATION TEST KIT AND METHOD

Marshall E. Deutsch, 41 Concord Rd., Sudbury, Mass. 01776, and Stephen M. Blinn, 6 Thoreau Cir., Beverly, Mass. 01915

Filed Oct. 23, 1991, Ser. No. 781,842

Int. Cl.[5] A61B *5/00*

U.S. Cl. 128—771 **20 Claims**



1. A test array for viewing and making colorimetric determinations of a scheduled series of reactions comprising:
an array of test assemblies, each test assembly including:
an upper chamber;
a lower chamber in fluid communication with said upper chamber, said lower chamber having a predetermined cross-sectional length and cross-sectional width;
transparent window means in said lower chamber for unaided viewing of any contents thereof;
a screen member positioned between said upper chamber and said lower chamber;
a fluid-absorbable chewable plug member removably positioned within said upper chamber, said plug member absorbing such fluid as is to be colorimetrically evaluated;
means for compression of said plug member after absorbing fluid and when positioned within said upper chamber to express said fluid from said plug member through said screen member into said lower chamber; and
a reagent disposed in said lower chamber capable of producing a colored reaction product after admixture with any of said fluid expressed from said plug member, said colored reaction product being viewed unaided through said window means of said lower chamber when making a colorimetric determination,
said array of test assemblies providing a viewable range of colored reaction products of specific intensities correlatable with the scheduled series of reactions.

5,211,183

STEERABLE MEMORY ALLOY GUIDE WIRES

Bruce C. Wilson, 34 Twicwood Ln., Glens Falls, N.Y. 12801

Division of Ser. No. 590,811, Oct. 1, 1990, Pat. No. 5,143,085, which is a division of Ser. No. 49,152, May 13, 1987, Pat. No. 5,025,799. This application Mar. 31, 1992, Ser. No. 861,384

Int. Cl.[5] A61B *5/00*

U.S. Cl. 128—772 **17 Claims**



1. A steerable guide wire for insertion in and direct contact with an internal body vessel, the guide wire consisting of at least one solid elongated strand constructed of shape memory alloy material, wherein at least one portion along the length of said strand is annealed to effect a shape change upon the application of heat.

5,211,184

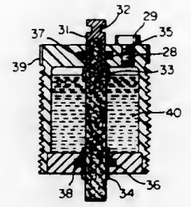
METHOD AND APPARATUS FOR ACUPUNCTURE TREATMENT

Hsiao P. Yee, and Hsiao C. Yee, both of 7338 23 Ave. NE., Seattle, Wash. 98115

Filed May 2, 1991, Ser. No. 694,552

Int. Cl.[5] A61N *1/04, 1/22*

U.S. Cl. 128—802 **3 Claims**



1. Acupuncture treatment apparatus for use on a human body having anatomical reference points, anatomical reference features and at least two acupuncture points, said treatment

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apparatus comprising: a bandage assembly, an electrical signal source apparatus, at least two electrical conductors and at least two electrode assemblies each having an electrode, said bandage assembly comprising a bandage, a contact point and at least two electrode assembly installation fittings, said electrode assemblies being mounted in said fittings, said contact point and at least two installation fittings being integrated into said bandage and positioned relative to each other such that when said contact point is in contact with one of said reference points and said bandage is properly aligned with respect to one of said anatomical reference features, said at least two electrode assemblies are positioned at two of said acupuncture points and each of said electrodes contacts one of said acupuncture points,

said signal source apparatus being electrically connected to said electrodes of said at least two electrode assemblies by said at least two electrical conductors,

each of said at least two electrode assemblies further comprising a hollow body having first and second holes and said electrode being inserted through said body via said first and second holes,

said electrode being made of wick-like material,

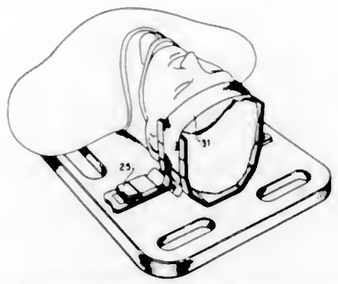
said body being filled with electrically conductive fluid,

said electrode being saturated by said electrically conductive fluid and thereby becoming electrically conductive.

5,211,185
HEAD IMMOBILIZER

Geoffrey Garth, and James Traut, both of Long Beach, Calif., assignors to California Medical, Long Beach, Calif.

Continuation-in-part of Ser. No. 659,076, Feb. 22, 1991, which is a continuation-in-part of Ser. No. 571,010, Aug. 6, 1990, which is a continuation of Ser. No. 275,255, Nov. 23, 1988, which is a continuation-in-part of Ser. No. 243,356, Sep. 12, 1988. This application May 6, 1991, Ser. No. 696,032
Int. Cl.[5] A61B *19/00*
U.S. Cl. 128—870 **8 Claims**



1. A head immobilization device comprising:

a foundation portion including a slot and having a foundation panel;

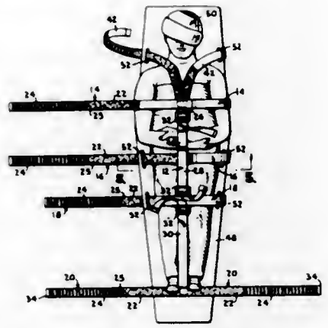
a restraining portion joined to said foundation portion, said restraining portion having a base panel, two side panels each extending laterally from said base panel and having a free end opposite the end of said panels which connects to said base panel, and a first engaging means associated with said free end of at least one of said side panels for engagement of at least said free end of the opposite side panel and for securing said side panels into secure and proper conformation so as to at least partially immobilize the head of a patient placed between said side panels; and

wherein said foundation portion further comprises a strip of adhesive tape for acting as a second engaging means situated on the underside of said foundation panel for affixing said foundation panel to a spine board, and the adhesive tape is covered with a backing material that terminates in a tab that is threaded through said slot.

5,211,186
PATIENT IMMOBILIZATION HARNESS AND APPARATUS

Michael D. Shoemaker, 206 S. Main, Mt. Vernon, Mo. 65712, and Kenneth R. Foster, H.C.R. 6, Box 658, Reeds Spring, Mo. 65737

Filed Nov. 13, 1991, Ser. No. 791,914
Int. Cl.[5] A61F *5/00*
U.S. Cl. 128—870 **11 Claims**



1. A harness constructed for immobilizing a patient on a backboard or other transportable support surface, said harness comprising:

a medial strap comprising at least a first segment and a second segment coupled in longitudinal alignment;

a plurality of laterally extending straps coupled with the medial strap at spaced apart positions along the longitudinal length of the medial strap, said plurality of laterally extending straps including a first lateral strap connected to said first segment of the medial strap and a second lateral strap connected to the second segment of the medial strap;

fasteners coupled with the laterally extending straps for releasably coupling said laterally extending straps with the backboard; and

a connector coupling the first and second segments of the medial strap, said connector permitting longitudinal movement of the first segment in relation to the second segment for adjusting the length of said medial strap and causing the spacing between the first and second lateral straps along the longitudinal length of said medial strap to be varied.

5,211,187
STRING DOFFER MECHANISM

George S. Boswell; Joao C. A. Gomes, both of Richmond, and Joseph P. Maciejczyk, Chester, all of Va., assignors to Philip Morris Incorporated, New York, N.Y.

Filed Jul. 9, 1990, Ser. No. 550,177
Int. Cl.[5] A24C *5/39*; A24B *3/18*
U.S. Cl. 131—109.1 **49 Claims**

1. A doffer mechanism for removing contaminants from a stream of material comprising:

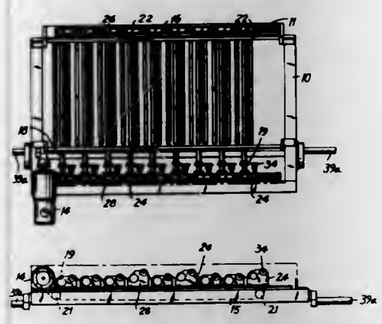
a frame having at least two oppositely disposed sides;

a plurality of doffer elements, each doffer element having two ends and an axis of rotation passing through the two ends;

means for mounting the two ends of each of the doffer elements to opposite sides of the frame at positions along the sides of the frame, such that the doffer elements are positioned across the plane of the frame and the axes of rotation of the plurality of doffer elements are substantially parallel, the means for mounting further comprising pivotal means for pivoting the doffer elements between a first position and a second position, the first position being substantially within the plane of the frame and the second position being substantially out of the plane of the frame;

means for rotating the plurality of doffer elements about their respective axes of rotation, the rotation of the doffer elements causing agitation of the stream of material such that the stream of material travels substantially in the direction of the rotation; and

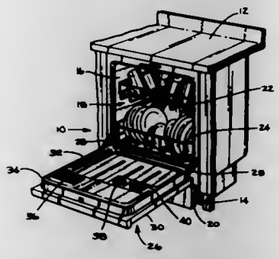
means for adjusting the elevation above or below the plane of the frame of at least one of the plurality of doffer elements.



5,211,188
DISHWATER ADDITIVE DISPENSING APPARATUS

Frederick L. Kraus, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Jan. 3, 1992, Ser. No. 816,657
Int. Cl.[5] A47L *15/44*
U.S. Cl. 134—93 **7 Claims**



1. Apparatus for dispensing additive into a wash chamber of an automatic washing machine, comprising:

a door pivotally mounted for movement between a first position providing access to said chamber and a second position for closing said chamber, said door including an inner door wall exposed to said chamber when said door is in its second position;

a container formed in said inner door wall and disposed to receive an additive when said door is in its first position and to dispense additive into said chamber when said door is in its second position;

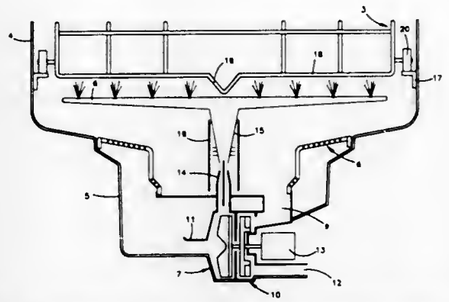
a continuous sealing ring extending outwardly of said inner door wall about the periphery of said container; and

a cover mounted for movement between a first position exposing said container for adding and dispensing additive and a second position sealing said container, said container cover including a generally planar flexible rim complementary in shape to said sealing ring; said flexible rim extending outwardly of said cover and generally perpendicular to said sealing ring and firmly engaging said sealing ring when said cover is in its second position.

5,211,189
DISHWASHER WITH REMOVABLE RACK

Gianni Santarossa, Porcia, Italy, assignor to Zanussi Elettrodomestici S.P.A., Pordenone, Italy

Filed Dec. 13, 1991, Ser. No. 806,650
Claims priority, application Italy, Dec. 17, 1990, 34095/90[U]
Int. Cl.[5] A47L *15/23*
U.S. Cl. 134—179 **4 Claims**

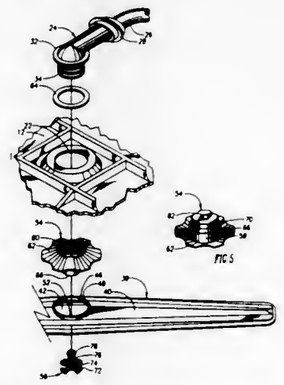


1. A dishwasher, comprising a wash tub in which is inserted at least one removable rack to support dishes; a water circulation pump; a rotor having a substantially vertical axis and being arranged below the rack to spray the dishes with water fed by the water circulation pump, a connection duct extending upwardly from the bottom of the tub with a fixed lower tubular portion forming a rotatable hydraulic joint with an upper tubular portion which is integral with the rotor to rotate therewith about a substantially vertical axis, said connection duct being arranged to direct water from the pump to the rotor, said rotor and said upper tubular portion being subject to upward travel when said pump is started; and downwardly protruding stop means (19) provided on the bottom of said rack (3), said stop means being substantially aligned with the axis of said rotor (8) and adjacent to the rotor when the rack is inserted in the tub (4), to limit the upward travel of the rotor (8).

5,211,190
WASH ARM ATTACHMENT

Thomas M. Johnson, and Lawrence J. Jordan, both of Newton, Iowa, assignors to Maytag Corporation, Newton, Iowa

Filed Dec. 9, 1991, Ser. No. 804,774
Int. Cl.[5] A47L *15/22*
U.S. Cl. 134—180 **15 Claims**



1. In combination:

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a dishwasher tub having tub walls enclosing a washing chamber;

a wash arm having a longitudinal axis, first and second opposite ends, and spaced apart upper and lower walls defining a spray chamber therebetween, an upper circular opening being in said upper wall and a lower circular opening being in said lower wall and registered below said upper circular opening;

a first coupling member having an upper portion above said upper wall of said wash arm and having a shank portion extending downwardly through said upper circular opening into said spray chamber;

a second coupling member having a head portion below said bottom wall of said wash arm and having a shank portion extending upwardly through said lower circular opening into said spray chamber and retentively engaging said shank portion of said first coupling member, whereby said wash arm is free to rotate about said shank portions of said first and second coupling members;

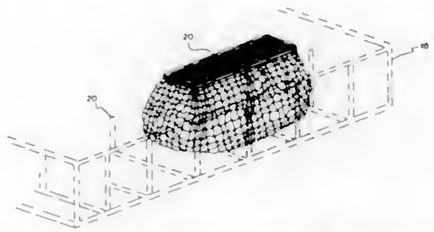
means attaching said upper portion of said first coupling member to said dishwasher tub within said washing chamber whereby said wash arm, said first coupling member and said second coupling member are within said washing chamber.

5,211,191

DISHWASHER BAG

Marilyn Brown, Van Nuys, Calif., assignor to Linda Dmytryk and Carol Zelden, Los Angeles, Calif., a part interest to each

Filed May 12, 1992, Ser. No. 881,642
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—201 **2 Claims**



1. In combination with an automatic dishwashing machine having one or more racks for containing dishware and other objects, said racks having thereon a plurality of generally vertically disposed pronged means for supporting and separating dishware, glassware and similar kinds of articles, a bag for containing and cleansing small and/or delicate objects, comprising:

a flexible mesh or net like fabric including a top end and a bottom end containing a plurality of small openings therein;

a structure therein for reinforcing said mesh or net like fabric with means to maintain said fabric in an uncollapsed state, said structure defining in said top end a generally rectangular opening having a cover means therein to close the opening for retaining the objects inside, said cover means having a plurality of openings to allow the permeation of water;

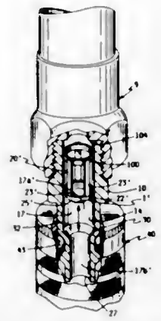
said means to maintain said fabric in a reinforced generally upright uncollapsed state comprising a plurality of openings in said cover means adapted to hook over and held up at said top and by said generally vertically oriented prongs.

5,211,192

PNEUMATIC PRESSURE RELIEF ASSEMBLY

William F. Jorgensen, 17255 Idlewood Way, Lakeville, Minn. 55044

Filed Nov. 14, 1991, Ser. No. 792,242
Int. Cl.[5] F16K *21/02*
U.S. Cl. 137—513.5 **2 Claims**



1. A pressure relief assembly for use in a supply line which carries compressed gas from a source to a tool or the like to prevent the supply line from fishtailing when said supply line is disconnected from said source and compressed gas contained in said supply line is suddenly released, said assembly comprising:

(a) a housing attachable to said supply line and having first and second ends; wherein said housing includes a passageway extending between said first and second ends, said passageway comprising first and second sections, said first section having a larger diameter than said second section;

(b) a sloped surface connecting said first and second passageway sections;

(c) restriction means for partially restricting flow of compressed gas through said passageway from the direction of said tool; wherein said restriction means allow essentially free flow of compressed gas through said passageway in a direction toward said tool;

(d) said restriction means comprising a movable member which has a major diameter which is less than the diameter of said first section of said passageway and greater than the diameter of said second section, wherein said movable member moves against said sloped surface when said supply line is disconnected from said source; and wherein said movable member partially restricts flow of compressed gas thorough said passageway; and

(e) said movable member comprising a curved portion and at least one spacer portion secured to said curved portion; wherein said curved portion is adapted to move toward said sloped surface to partially restrict flow of compressed gas through said passageway; and wherein said spacer portion prevents said curved portion from sealing against said sloped surface.

5,211,193

ANNULAR FUEL LINE FITTING

Jonathan Young, Vancouver; Gary Steintborson, Burnaby; Kent Wu, and Doug Paul, both of Vancouver, all of Canada, assignors to Teleflex (Canada) Limited, Richmond, Canada

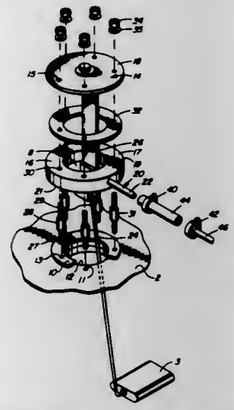
Filed Feb. 24, 1992, Ser. No. 840,192
Int. Cl.[5] B60K *15/01*
U.S. Cl. 137—590 **10 Claims**

1. A fuel tank fitting for withdrawing fuel through a fuel sensor aperture in a fuel tank, the fitting comprising:

an annular member having a top, a bottom, a central aperture and a plurality of fastener apertures spaced-apart

circumferentially thereabout which extend from the top to the bottom thereof; and

a fuel line having a first portion extending generally radially through the annular member to the central aperture thereof and a second portion connected to the first portion



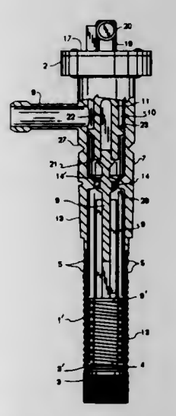
and extending generally perpendicularly from the bottom of the annular member, the second portion of the fuel line being straight and being angled away from a perpendicular axis of the annular member extending through the center of the central aperture.

5,211,194

FUEL CONTROL VALVE

Richard E. Scott; Thomas G. Morgan, both of Naples, Fla., and James Cline, East Hampton, N.Y., assignors to Shaw Aero Development, Inc., Naples, Fla.

Filed Jul. 31, 1992, Ser. No. 923,696
Int. Cl.[5] F16K *11/076*
U.S. Cl. 137—590 **10 Claims**



3. The improvement in a fuel flow control valve having a hollow elongated valve body with opposite ends, a first fuel inlet at one end thereof, a second fuel inlet intermediate said ends, a fuel outlet at the other end thereof, connecting means intermediate said second fuel inlet and said fuel outlet for securing said valve to the wall of a fuel tank with the fuel inlets disposed internally of the tank and the fuel outlet disposed externally of the tank, and valve control means connected to said body for movement between at least two positions, the first position corresponding to the "on" position of the valve permitting flow of fuel into one of said fuel inlets and out said fuel outlet and the second position corresponding to a "reserve" position of the valve permitting flow of fuel into the other of said fuel inlets and out said fuel outlet when the level of fuel in the tank is such as to preclude flow of fuel into the one inlet; the improvement wherein:

a) the valve control means includes fuel inlet closure means movable therewith between an open position remote from the other of said fuel inlets upon movement of the valve control means to its second position and a fuel flow restricting position partially closing the other of said fuel inlets upon movement of the valve control means to its first position;

b) the valve body is defined by a tubular wall member having an internal surface with a first radius of curvature along an area thereof;

c) the other of said fuel inlets is defined by at least one reserve inlet opening extending through the wall member in said area of the internal surface thereof;

d) the valve control means is disposed within said tubular wall member; and

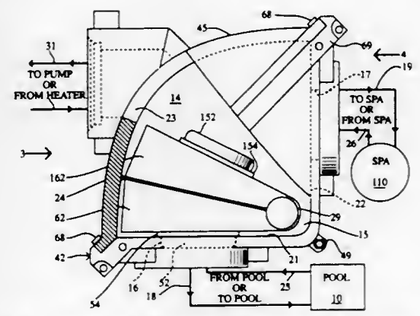
e) the fuel inlet closure means includes at least one valve surface covering said reserve inlet openings when said valve control means is in its first position, said valve surface having a second radius of curvature different from said first radius of curvature to permit restricted flow of fuel through said reserve inlet opening.

5,211,195

FLUID VALVE SYSTEMS

Robert E. Hamos, Simi Valley, Calif., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Jun. 12, 1992, Ser. No. 897,799
Int. Cl.[5] F16K *11/00*
U.S. Cl. 137—595 **12 Claims**



6. In apparatus for selectively circulating fluid through a first body of fluid and alternatively through a second body of fluid via fluid supply and fluid return conduits, the improvement comprising in combination:

housing structure comprising separate first and second valve chambers having respectively a fluid inlet and a fluid outlet and first and second corners;

first and second valve seats for fluid supply conduits for said first and second bodies of fluid in first and second sides, respectively, of said first corner in said first chamber;

a first flapper in said first chamber for selectively closing said first valve seat and alternatively said second valve seat;

third and fourth valve seats for fluid return conduits for said first and second bodies of fluid in first and second sides, respectively, of said second corner in said second chamber;

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a second flapper in said second chamber for selectively closing said third valve seat and alternatively said fourth valve seat; and

an actuator for said first and second flappers.

5,211,196

PROPORTIONAL SEAT-TYPE 4-WAY VALVE

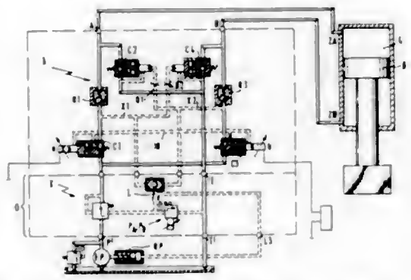
Hans Schwelm, Luxembourg-Dommeldange, Luxembourg, assignor to Hydrolux S.A.R.L., Luxembourg, Luxembourg

Filed Aug. 29, 1991, Ser. No. 751,774

Claims priority, application Luxembourg, Aug. 31, 1990, 87794

Int. Cl.[5] F15B *13/044*

U.S. Cl. 137—596.2 5 Claims



1. A proportional 4-way seat-type valve comprising:

a valve housing block having:

a planar face,

connections in said block at said planar face for connections to, respectively:

(a) a pressure line,

(b) a tank line,

(c) a first working line, and

(d) a second working line;

a first passage in said housing block connecting said connection for the pressure to said connection for the first working line,

a second passage in said housing block connecting said connection for the pressure line to said connection for the second working line,

a third passage in said housing block connecting said connection for the tank line to said first passage,

a fourth passage in said housing block connecting said connection for the tank line to said second passage,

a fifth passage in said housing block connected to said first passage;

a sixth passage in said housing block connected to said second passage;

first and second electrically actuated proportional flow control valves each having a spring return therein threadedly engaging said housing block and being respectively in said first passage and said second passage and comprising means for controlling flow respectively through said first passage and through said second passage in proportion to electrical remote control signals;

a first and a second check valve respectively in said first passage and in said second passage blocking fluid return to said connection for the pressure line;

a first and second 2-way seat-type overcenter valve, each threadedly engaging said housing block and being respectively in said third and said fourth passage;

said first and second 2- way seat-type overcenter valves respectively comprising:

(a) load sensing means in direct fluid communication respectively with said sixth passage and with said fifth passage; and

(b) flow control means responsive to said load sensing means for controlling flow respectively through said third passage proportionally to fluid pressure in said second passage, and through said fourth passage proportionally to fluid pressure in said first passage.

5,211,197

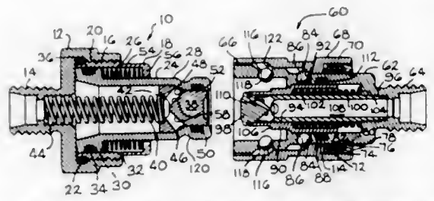
QUICK DISCONNECT LIQUID LINE COUPLING WITH VOLUMERTRIC EXPANSION COUPING ELEMENT

William C. Marrison, Jackson, and Russell L. Rogers, Munith, both of Mich., assignors to Aeroquip Corporation, Maumee, Ohio

Filed Jan. 3, 1992, Ser. No. 816,825

Int. Cl.[5] F16L *37/28*

U.S. Cl. 137—614.04 16 Claims



13. A quick disconnect coupling for a fluid line, said quick disconnect coupling comprising:

a first coupling element, said first coupling element comprising;

an annular member having opposed ends, a first portion of said annular member extending from one of the opposed ends being adapted to being connected to a section of a fluid conduit, said annular member having an internal radially extending shoulder between its opposed ends,

an annular body having at least a first portion positioned within said annular member and a second portion, said second portion having a restricted outlet, said annular body being movable within and with respect to said annular member between a first position, wherein an end of said first portion of said annular body is positioned adjacent to said radially extending shoulder of said annular member, and a second position, wherein said end of the annular body is positioned further away from said radially extending shoulder of said annular body,

first biasing means resiliently biasing said annular body toward said first position of said annular body,

a valve member having an imperforate end portion, said valve member being positioned within said second portion of said annular body and being adapted to be movable within and with respect to said annular body between a first position, wherein said end portion of said valve member is within said restricted outlet of said annular body and will substantially block fluid flow through said annular body, and a second position, wherein said end portion of said valve member is away from said restricted outlet of said annular body and fluid is free to flow through said annular body, and

second biasing means resiliently biasing said valve member toward said first position of said valve member; and

a second coupling element releasably engaging said first coupling element at a first end of said second coupling element, said second coupling element having an opposed end which is adapted to being connected to another section of a fluid conduit and comprising,

valve means carried by said second coupling element, said valve means engaging said valve member of said first coupling element and maintaining said valve member in said second position of said valve member.

5,211,198

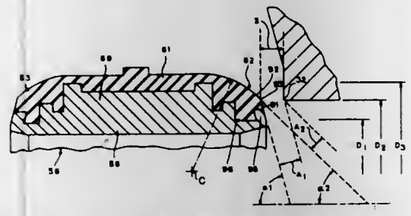
POPPET CONSTRUCTION FOR VALVE

Thomas Tinbolt, Galesburg, Mich., assignor to Humphrey Products Company, Kalamazoo, Mich.

Filed Oct. 15, 1992, Ser. No. 961,483

Int. Cl.[5] F15B *13/044*; F16K *11/044*

U.S. Cl. 137—625.27 7 Claims



1. In a poppet-type valve assembly having a housing provided with a bore therein, a valve stem movably supported within said bore, a plurality of ports formed in said housing and communicating with said bore at axially spaced locations, at least one of said ports communicating with said bore through an annular gap defined between first and second axially-spaced annular valve seats which are defined on said valve housing and concentrically encircle said bore, and said valve stem having a poppet-type valve member stationarily mounted therein in encircling relationship thereto, said poppet-type valve member projecting radially outwardly into said annular gap and being alternatively sealingly engageable with one or the other of said valve seats in response to shifting movement of said valve stem, said poppet-type valve member including an elastomeric poppet ring disposed in surrounding relationship to said valve stem and defining thereon a pair of axially spaced and axially oppositely facing sealing faces which are respectively engageable with said first and second valve seats, the improvement wherein said poppet ring comprises:

each said sealing face being defined by first and second annular frusto-conical surfaces which are disposed such that said first surface is positioned radially inwardly of said second surface, said first and second surfaces intersecting one another and defining at the intersection an annular convex peak which encircles the valve stem, said peak being of a diameter which substantially equals the diameter of the respectively adjacent valve seat so that the latter contacts the sealing face substantially at the peak, said first and second surfaces each being angularly sloped in the same direction relative to the direction of shifting movement of the valve stem, and said first surface being sloped at a significantly steeper angle than the slope of said second surface.

5,211,199

SELF-OPENING TOPLESS POCKET UMBRELLA

Joachim Seidel, Solingen, and Klaus Stiller, Langenfeld, both of Fed. Rep. of Germany, assignors to Kortenbach Verwaltungs-Und Beteiligungs Gesellschaft/mbH & Co., Fed. Rep. of Germany

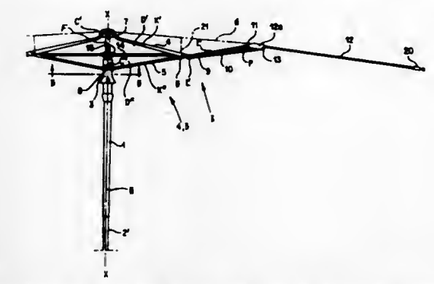
Filed Nov. 21, 1990, Ser. No. 616,567

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1990, 4020679

Int. Cl.[5] A45B *25/14*

U.S. Cl. 135—24 8 Claims

1. In a self-opening, topless umbrella having a telescopic stick and a collapsible framework extending radially from the stick, said framework comprising a plurality of circumferentially-shaped, scissor-link folding systems operable to be spread by means of an upwardly-opening spring(F) and collapsed manually, by a slider(3) which is displacable along said stick, each scissor-link folding system comprising a pair of intermediately-pivoted(6) scissor levers(4,5), said stick having an upper end and a lower end, an operating spring(F) supported on the upper end of said stick, a main crown(C') resting on and freely supported on the upper end of said spring, an upper one of (K') of said scissor levers comprising an upper power lever and being pivotally connected(7) to said main crown(C') and movable therewith as the umbrella frame is opened and closed, a lower one(K'') of said scissor levers comprising a lower power lever and being pivotally connected(8) to said slider(3) and



movable therewith as the umbrella frame is opened and closed, an intermediate crown(C'') fixed adjacent the upper end of said stick and the lower end of said operating spring, and a control strut(14) pivoted at an inner end to said intermediate crown(C'') and pivoted at an outer end adjacent the pivot(6) of said scissor levers whereby said scissor-link folding systems are guided, when opening and closing, by said control strut(14).

5,211,200

AUTOMATIC BLEED VALVES

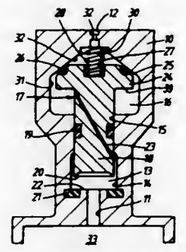
Ronald F. Cassidy, Hampshire, England, assignor to Pall Corporation, Glen Cove, N.Y.

Filed May 26, 1992, Ser. No. 887,836

Claims priority, application United Kingdom, May 24, 1991, 9111327

Int. Cl.[5] F16K *24/00*

U.S. Cl. 137—199 10 Claims



1. An automatic bleed valve for bleeding to a vent one fluid component from a reservoir containing a liquid component and a gas component, comprising:

a housing having an inlet connecting to the reservoir and an outlet connecting to the vent,

an inlet chamber communicating with said inlet,

an outlet chamber communicating with said outlet,

a bore connecting said chambers,

a piston received in said bore, sliding between upstream and downstream positions and having one end in said inlet chamber and one end in said outlet chamber,

biasing means for biasing the piston towards the upstream position,

communicating means within said piston for communicating the inlet chamber with the outlet chamber to pass the bled component to the outlet without overcoming the force of

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the biasing means and producing a force on the piston moving the piston to the downstream position when the other component passes therethrough and preventing communication between the inlet and the outlet.

a piston surface cooperatively arranged with said piston in a location acted on when the piston is in the downstream position by a portion of the other component which has passed through the communicating means to produce a force urging the piston into the downstream position.

5,211,201

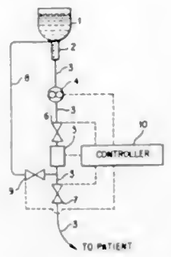
INTRAVENOUS FLUID DELIVERY SYSTEM WITH AIR ELIMINATION

Dean L. Kamen, Bedford, and Valentine Faust, Bow, both of N.H., assignors to Deka Products Limited Partnership, Manchester, N.H.

Continuation-in-part of Ser. No. 748,341, Aug. 22, 1991, Pat. No. 5,116,021, Ser. No. 615,612, Nov. 19, 1990, abandoned, Ser. No. 673,834, Mar. 22, 1991, Ser. No. 674,813, Mar. 22, 1991, and Ser. No. 614,806, Nov. 19, 1990, each is a continuation-in-part of Ser. No. 523,801, May 15, 1990, Pat. No. 5,088,515, and Ser. No. 345,387, May 1, 1989, Pat. No. 4,976,162, which is a continuation-in-part of Ser. No. 92,481, Sep. 3, 1987, Pat. No. 4,826,482, which is a continuation-in-part of Ser. No. 22,167, Mar. 5, 1987, Pat. No. 4,808,161, and Ser. No. 836,023, Mar. 4, 1986, Pat. No. 4,778,451. This application Nov. 15, 1991, Ser. No. 792,483

Int. Cl.[5] A61M *35/00*

U.S. Cl. 137—1 14 Claims



1. An air elimination system, for an intravenous fluid delivery system for intravenous injection of fluid into a patient, comprising:

an intravenous line;

separation means for permitting the separation of air from the fluid;

air-detection means, disposed in the intravenous line, for detecting air in the fluid, and emitting a fault-condition signal;

a return line connecting the separation means to a point in the intravenous line downstream of the air-detection means;

valve means, disposed in the intravenous line and return line, for permitting (i) flow through the return line or (ii) to the patient;

pump means for urging fluid through the return line upon activation; and

control means, in communication with the air-detection means, for (i) setting the valve means to permit flow through the return line and activating the pump means, so as to move air and fluid from the air-detection means to the separation means, in response to a fault-condition signal, and otherwise (ii) setting the valve means to permit flow to the patient.

5,211,202

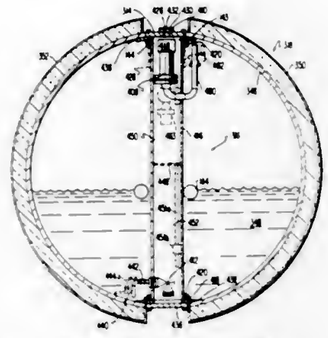
FLUID APPARATUS WITH PRESSURE-TIGHT RECESSED WELL

Donald L. Zink, Billings, Mont., and Donald G. Zink, New Orleans, La., assignors to Montana Sulphur & Chemical Co., Billings, Mont.

Continuation of Ser. No. 595,464, Oct. 10, 1990, abandoned. This application Dec. 2, 1991, Ser. No. 800,699

Int. Cl.[5] A01M *7/00*; B61D *5/00*

U.S. Cl. 137—350 105 Claims



1. A fluid containment apparatus comprising:

a fluid tank having a tank shell and defining at least in part a fluid containment compartment, said tank shell having a tank shell port therethrough;

an equipment well surrounding said tank shell port and defining a cavity generally distinct from said fluid containment compartment, said equipment well including a well wall and a well opening having a sealing surface;

tank equipment positioned and fully recessed in said equipment well;

a removable well cover securable to said well opening and having a mating sealing surface;

attaching means for attaching said well cover to said well opening to close said equipment well and thereby forming a pressure tight cavity surrounding said tank equipment with no fluid communication between said cavity and said fluid containment compartment except through said tank shell port; and

pressurizing means for pressurizing and depressurizing said equipment cavity with said cover closed in place;

wherein said pressurizing means alters the pressure in said equipment cavity relative to that in said fluid containment compartment.

5,211,203

PORTABLE SELF-CONTAINED GROUND WATER TESTING ASSEMBLY

Timothy J. Vollweiler, and Arthur R. Vollweiler, both of 105 Harrison, American Falls, Id. 83211

Filed May 15, 1992, Ser. No. 883,674

Int. Cl.[5] B65H *75/34*; B08B *3/00*

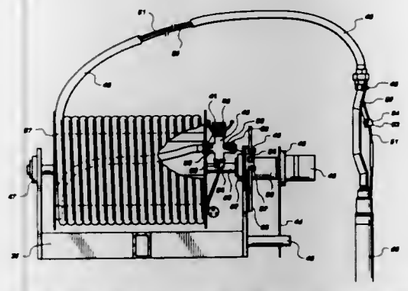
U.S. Cl. 137—355.17 8 Claims

1. A portable ground water testing apparatus comprising in combination:

a boom member rotatingly attached to a portable bed, said boom member being both horizontally pivotable about a vertical axis and vertically pivotable about a horizontal axis; said boom member further having slide members to accommodate the movement of cables and hoses along the length of the boom member;

at least two independently operable reel members attached to said boom member for storing and feeding cables and hoses to said boom member;

at least one decontamination apparatus having a chamber with a forward and a rearward aperture for a hose and a cable to pass through said chamber, said chamber having a spray wash device for spraying the hoses and cables with wash fluid to remove contaminants, and means for removing the contaminated wash fluid from the chamber;



a holding tank for accepting and storing the contaminated wash fluid from the decontamination apparatus; and

a device for maintaining a uniform winding of cables and hoses on each of said reel members.

5,211,204

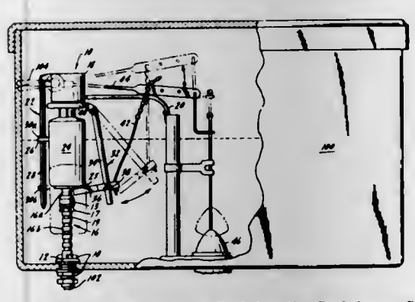
TOILET TANK BALLCOCK WITH DETENT ARM

Erwin F. Mikol, Park Ridge, Ill., assignor to Moen Incorporated, Elyria, Ohio

Filed Jun. 14, 1991, Ser. No. 715,424

Int. Cl.[5] F16K *31/24*, *33/00*

U.S. Cl. 137—410 13 Claims



1. In a toilet tank including a flush handle, flush lever, flush valve, and water supply, an improved toilet tank ballcock comprising:

a vertical riser column communicating with said water supply;

a water control valve regulating the flow of water from said water supply into said toilet tank;

a float disposed about said riser column and coupled to said water control valve such that downward movement of the float to a selected lower level opens the water control valve to fill the toilet tank and upward movement of the float to a selected upper level closes the water control valve to stop filling the tank;

a detent arm including a shaft member and a catch member, said shaft member having first and second ends, said catch member being adustably slidably affixed to said shaft member, said first end of said shaft being pivotally attached to said ballcock at a point above said float, said second end of said shaft member being pivotable in an arc about said first end such that said second end and said catch member can be swung up and out of the water to facilitate access to said slidable catch member when the water is at said upper level for adjustment of said catch member, and said catch member being positioned on said shaft member such that when said float is at said upper level the catch member is biased into a latching position to engage said float and prevent said float from descending to said lower level, the adjustment of said catch member providing latching of said float at different water levels;

connecting means for trying said detent arm to said flush lever such that when said flush lever is raised to open the toilet tank flush valve said detent arm is swung out of said latching position to allow said float to descend.

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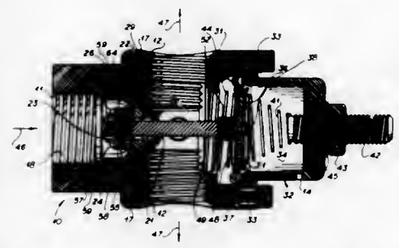
FUEL PRESSURE REGULATOR

Barry Grant, Dahlonega, and Michael E. Harris, Murrayville, both of Ga., assignors to BG 300, Inc., Dahlonega, Ga.

Filed Jul. 22, 1992, Ser. No. 916,701

Int. Cl.[5] F16K *31/12*, *31/36*

U.S. Cl. 137—505.41 15 Claims



1. In a fuel pressure regulator for regulating the pressure of fuel flowing from a high pressure source to a lower pressure application, the fuel pressure regulator including a housing defining a high pressure fuel supply chamber, a low pressure diaphragm chamber having a resilient impervious diaphragm, and a fuel passageway between the high pressure fuel supply chamber and the low pressure diaphragm chamber, the resilient impervious diaphragm being exposed on one of its sides to the fuel in the low pressure diaphragm chamber and on the other of its sides to atmosphere about the fuel pressure regulator, a valve seat about the fuel passageway, a valve closure element in the high pressure fuel supply chamber movable toward and away from the valve seat, and a valve stem engaging at one of its ends with the valve closure element and engaging at the other of its ends with the resilient impervious diaphragm so that the valve closure element moves in response to the movement of the resilient impervious diaphragm the improvement therein comprising:

the high pressure fuel supply chamber defining an array of alternating valve guide surfaces and fuel flow channels surrounding the valve closure element, said valve guide surfaces being juxtaposed the valve closure element for guiding the movement of the valve closure element toward and away from the valve seat, and said fuel flow channels shaped for guiding fuel from the high pressure fuel supply chamber about the valve closure element through the valve seat when the valve closure element is displaced from said valve seat;

wherein said valve guide surfaces comprise the walls of a small bore within the high pressure fuel supply chamber adjacent the valve seat, said small bore being adjacent a large bore forming the inlet cavity of the high pressure fuel supply chamber, the juxtaposition of the small bore and large bore forming a shoulder portion, and wherein said fuel flow channels are formed within said shoulder portion and extend along a proton of said small bore walls toward the valve seat.

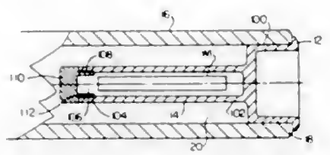
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,206

APPARATUS FOR SECURING WRITTEN INFORMATION TO TUBULAR GOODS

Raymond LaBonte, St. Albert, and Marvin Rains, Ardrossan, both of Canada, assignors to Cougar Tools Inc., Canada

Continuation of Ser. No. 450,428, Dec. 14, 1989, abandoned. This application Jan. 28, 1991, Ser. No. 647,692
Claims priority, application Canada, Jul. 7, 1989, 605137
Int. Cl.[5] F16L *55/24*
U.S. Cl. 138—89 **13 Claims**



1. An apparatus for securing written information to a tubular good defining a cavity comprising:
- a. a closure having means for engaging and securing the closure to an end of the cavity; and
- b. an elongate container, being dimensioned to receive the written information, comprising a first portion being connected to the closure and a second portion being repeatedly releasably secured to the first portion to form a completely sealed container when engaged therewith whereby the written information is insertable into and removable from the container only when the second portion is releasably detached from the first portion;

wherein the first portion is connected to the closure such that when the second portion is secured to the first portion and the closure closes the end of the cavity of the tubular good, both portions of the container extend completely within the cavity and are shielded by both the tubular good and the closure whereby access to the first and second portions of the container is prevented; and

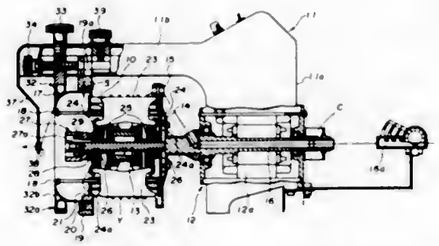
the integrity of the sealed container is unaffected during insertion and removal of the container from the cavity of the tubular good and the integrity of the sealed container is established separately from the securement of the closure to the end of the cavity.

5,211,207

WEFT FEEDER FOR WEAVING MACHINE WITH ANGULARLY ADJUSTABLE CARRIER

Michihiro Ichikawa, Kiryu, Japan, assignor to Ichikawa Iron Works Co., Ltd., Kiryu, Japan

Filed Dec. 20, 1991, Ser. No. 810,838
Claims priority, application Japan, Dec. 21, 1990, 2-413085; May 22, 1991, 3-117594; Jul. 31, 1991, 3-191979
Int. Cl.[5] D03D *47/34*
U.S. Cl. 139—452 **6 Claims**



1. A feeder for supplying weft to a weaving machine, the feeder comprising:
- (a) a frame;
- (b) a drum shaft having a central axis;
- (c) means for rotating the drum shaft, the rotating means being mounted on the frame;
- (d) a drum mounted upon the drum shaft, the drum having a plurality of radial slits formed therein, the drum being stationary;
- (e) a flyer mounted upon and rotatable with the drum shaft;
- (f) a plurality of carriers which are accommodated in the radial slits of the drum and are radially and axially movable with respect to the drum shaft each of the carriers being formed in a rectangular shape;
- (g) means for supporting the carriers upon the drum shaft, the support means being orientated at an angle of inclination with respect to the center axis of the drum shaft, the means for supporting comprising:
  - (1) a pair of bushings axially disposed on the drum shaft and secured thereto;
  - (2) a pair of eccentric rings mounted upon and coupled to the bushings so as to allow the eccentric rings to tilt in an axial direction while preventing rotation relative to the bushings; and
  - (3) a pair of support members mounted on the eccentric rings through a pair of bearings; and
- (h) means for adjusting the angle of inclination of the support means;

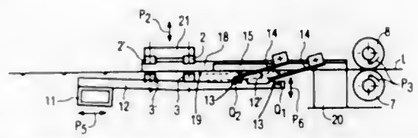
wherein the pair of support members are axially spaced from each other and respectively support opposite ends of a lower edge of each of the carriers, so that when the angle of inclination of the support means is adjusted to a predetermined inclination and the drum shaft is rotated, the pair of supporting members are simultaneously inclined back and forth in the axially direction and are oscillated simultaneously in the radial direction.

5,211,208

DOUBLE-POINT WELDING MACHINE

Gerhard Ritter; Klaus Ritter; Rudolf Scherr, and Josef Grabuschnig, all of Graz, Austria, assignors to EVG Entwicklungs-U.Vertwertungs-Gesellschaft m.b.H., Raaba, Austria

PCT No. PCT/AT91/00036, § 371 Date Nov. 18, 1991, § 102(e) Date Nov. 18, 1991, PCT Pub. No. WO91/15317, PCT Pub. Date Oct. 17, 1991
PCT Filed Mar. 1, 1991, Ser. No. 776,397
Claims priority, application Austria, Mar. 30, 1990, A 743/90
Int. Cl.[5] B21F *27/10;* **B22K** *9/12*
U.S. Cl. 140—112 **9 Claims**



1. Double-spot welding machine for producing wire grids formed of longitudinal wires (L) and cross wires (Q_1, Q_2), crossing each other at right angles, having
- a welding apparatus including
  - two top electrode and bottom electrode pairs (2, 3; 2', 3') the top and bottom electrode pairs defining welding lines (S_1, S_2) which are spaced from each other by a predetermined distance in the direction of the longitudinal wires (L) and extend transversely to said direction, wherein one electrode (2, 2') of the pair is movable (P_2) relative to the other (3, 3');
- a longitudinal wire feeding means (5, 6, 7, 8) for feeding a plurality of longitudinal wires (L) in a feeding direction longitudinally of the extent of the longitudinal wires;
- a cross-wire feeding means (9) for feeding two cross-wires in a direction transversely to said longitudinal direction and defining two insertion lines (E_1, E_2) spaced by a defined distance from each other, said insertion lines being located, with respect to said longitudinal wire feeding direction, in advance of the welding lines (S_1, S_2);
- a cross-wire transfer apparatus (10) for transferring the cross-wires from the insertion line (E_1, E_2) to the welding line (S_1, S_2) including
  - a common support beam (11);
  - a plurality of cross-wire support arms (12) supported on said common support beam (11), said cross-wire support arms (12) being formed with recesses (13) spaced by said defined distance for reception of the cross wires (Q_1, Q_2);

said common support beam (11) being movable cyclically (P_5) backwardly and forwardly in said longitudinal direction;

a control device (C) controlling movement (P_2) of one electrode of each pair with respect to the other,

further controlling feeding movement (P_3) of the longitudinal wire feeding means, and

further controlling cyclical movement (P_5) of said support beam (11);

and wherein said movement of the longitudinal wire feeding means (5, 6, 7, 8), under control of said control device (C), places the longitudinal wires (L) in position at the welding lines and simultaneously pushes welded grid out of position from the welding lines;

said control device further controlling duration of movement as well as speed of movement ($v_1(T)$) of the support beam (11) and duration of feeding movement as well as speed of feeding movement (v(R)) of the longitudinal wire feeding means,

wherein the speed of movement ($v_1(T)$) of the support beam and the speed of feeding movement (v(R)) of the longitudinal wire feeding means are individually selectable, and

the duration of movement of the support beam (t(T)) is longer than the duration of feeding movement (t(R)) of the longitudinal wire feeding means; and

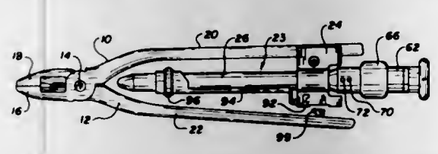
wherein holding means (15, 18) are provided for engaging the cross-wires (Q_1, Q_2) during transfer from the insertion lines (E_1, E_2) to the welding lines (S_1, S_2) and holding said cross-wires in said recesses (13) of the support arms (12) upon movement of the cross-wire support arms (12) secured to the common support beam (11).

5,211,209

REVERSIBLE DIRECTION WIRE TWISTING PLIERS

Ronald J. Geibel, and Maureen A. Geibel, both of Schaumburg, Ill., assignors to Milbar Corporation, Chagrin Falls, Ohio

Filed Dec. 2, 1991, Ser. No. 801,035
Int. Cl.[5] B21F *7/00*
U.S. Cl. 140—118 **10 Claims**



1. Reversible wire twisting pliers comprising a pair of plier arms each having a jaw portion and a handle portion;
- said arms being pivotally interconnected for movement between an open position and a close position;
- plier rotating means mounted on one of said handle portions, said plier rotating means including a sleeve and a double spiral shaft having a left hand groove and a right hand groove formed therein, said shaft being axially slidably mounted within said sleeve;
- first and second gear means carried within said sleeve, said first gear means being slidably engaged in one groove in said shaft and said other gear means being slidably engaged in the other groove in said shaft;
- gear actuation means operably associated with said gear means and said sleeve and movable between a first actuated position wherein said first gear means is engaged and a second actuated position wherein said second gear means is engaged and wherein the engaged gear in the first actuated position will impart a clockwise motion and the gear engaged in the second actuated position will impart a counterclockwise motion of the sleeve with respect to said shaft;
- a slider member mounted externally on said sleeve operatively connected to said gear actuator means, said slider being axially movable on said first and second gear actuated positions;

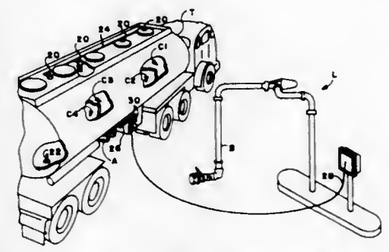
and means to releasably secure said plier arms in said closed position.

5,211,210

CONTROL SYSTEM FOR FILLING TANKS WITH LIQUIDS

Robert C. Koeninger, Fairfield, Ohio, assignor to Dover Corporation, New York, N.Y.

Filed Sep. 28, 1990, Ser. No. 590,653
Int. Cl.[5] B67D *5/32*
U.S. Cl. 141—94 **13 Claims**



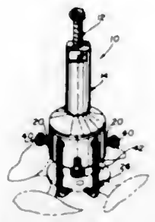
1. A system for controlling the loading of liquid into a tank, said system being adapted to assure that liquid will not be loaded under conditions which would result in the tank being overfilled, said system comprising
- independently controlled means for loading liquid into the tank,
- means for generating an enabling signal input for said independently controlled means,
- said independently controlled means requiring said enabling signal input in order to initiate loading of liquid and to continue loading of liquid,
- said means for generating an enabling signal comprising
  - a sensor mounted in the tank,
  - said sensor comprising means for generating an electrical dry signal so long as the level of liquid in the tank is below said sensor, said generating means being interrupted and the dry signal terminated in response to contact of the liquid with the sensor, and
  - means, requiring a dry signal being generated by said sensor, for generating said enabling signal to thereby permit loading of liquid when the level of liquid in the tank is below the level of said sensor, and loading of liquid into the tank will be interrupted when the liquid level reaches the sensor,

characterized in that
- the sensor means for generating a dry signal has a failure mode in which generation of the dry signal is terminated due to equipment malfunction thereby resulting in a loss of the enabling signal due to termination of the dry signal,

whereby the independently controlled means ceases to continue delivery of liquid thus defining a fail safe failure mode preventing an overfill of liquid in the event of a sensor failure.

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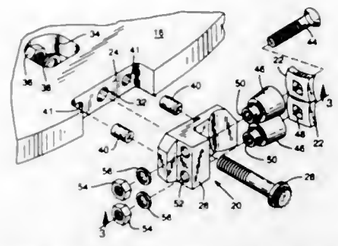
5,211,211
PULLING TOOL
Michael Rubino, 7419 W. Ardmore, Chicago, Ill. 60631, and Michael Berg, Elgin, both of Ill., assignors to Michael Rubino, Chicago, Ill., by said Michael Berg
Continuation-in-part of Ser. No. 737,046, Jul. 29, 1991, Pat. No. 5,163,211. This application Jun. 18, 1992, Ser. No. 900,348
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—259 21 Claims



1. In a pulling tool for pulling off a rotor of a motor or a fan from a shaft, said pulling tool comprising an elongated screw having a first end and a second end, a hollow housing with which said screw is threadingly received, said housing comprising a first open end through which threadingly passes said screw, and a second open end through which protrudes said second end of said screw, said housing comprising a first securing means for releasably holding a rotor of a motor, and second securing means for releasably holding a fan, said first securing means comprising a plurality of rotatable bolts and a first plurality of holes formed in said housing for threadingly receiving said plurality of bolts, and said second securing means comprises a plurality of hooked securing arm-members, each said arm-member having a first end and a second hooked end, and a second plurality of holes for removably receiving the first ends of said arm-members, said second end of each said arm-member being capable of being hung so as to protrude beyond said second open end of said housing, wherein the improvement comprises:
- said housing comprising a first section having a circular cross section;
- said first section of said housing comprising a main, circular portion, and a frusto-conical section connected to said main, circular portion and having sloping surfaces, said frusto-conical section having a smaller-diameter end and a larger-diameter end; said second plurality of holes being formed in said main circular portion,
- and at least one through-hole formed in said frusto-conical section for viewing the interior of said first section and the alignment of said second end of said screw in its operative, protruding state, whereby the user of the tool may visually ensure the proper emplacement of said second end of said screw against a shaft-end;
- said housing further comprising a second, smaller-diameter section having a first end constituting said first open end, and a second end connected to said frusto-conical section, said second end of said second section being connected to said smaller-diameter end of said frusto-conical section.

5,211,212
CUTTING TOOTH
Bertyl W. Carlson, Richfield, and Ronald W. Wiemeri, Owatonna, both of Minn., assignors to Blount, Inc., Montgomery, Ala.
Filed May 29, 1992, Ser. No. 890,923
Int. Cl.[5] A01G *23/08*; B27G *13/00*
U.S. Cl. 144—241 14 Claims

1. A cutting tooth for removable attachment to a saw comprising:
- a concave front surface;
- a convex rear surface uniformly spaced form said front surface, the curvature of said rear surface corresponding with the curvature of said front surface to define a tooth having a uniform thickness; and
- a plurality of side surfaces, each side surface extending form the front surface to the rear surface,
- the intersection of each of the side surfaces with the front surface defining a cutting edge,



the cutting tooth defines an aperture extending from the front surface to the rear surface for receiving a fastening device to removably attach the tooth to the cutting device.

5,211,213
WHEEL FOR SHOPPING CARTS
Jimmy L. Hicks, P & H Casters, 4075 Schaefer, Chino, Calif. 91710
Filed Jul. 16, 1991, Ser. Nn. 733,136
Int. Cl.[5] B60C *7/24*
U.S. Cl. 152—323 4 Claims



1 A process for fabricating a shopping cart wheel comprising the steps of:
- injection molding a unitary hub having a central axial opening with a pair of bearing support cavities and an annular tire holding groove having an inside radius, said tire holding groove having a plurality of outwardly extending ribs and upwardly extending sloped sidewalls;
- molding a rubber tire in a tire mold under heat and pressure, said tire having an inside diameter slightly smaller than the inside radius of said tire holding groove of said unitary hub; and
- removing the rubber tire from the tire mold;
- expanding said tire radially over one of said upwardly extending sloped sidewalls of said annular tire holding grooves; and
- releasing the rubber tire so that it contracts into the tire holding groove and abuts the plurality of outwardly extending ribs.

5,211,214
GOLF CART WINDOW APPARATUS
Robert G. Shaw, Rte. 1, Box 155, Lilbourn, Mo. 63862
Filed Mar. 4, 1992, Ser. No. 845,553
Int. Cl.[5] A47H *3/00*
U.S. Cl. 160—369 11 Claims



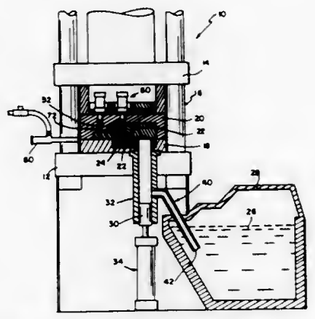
1. A window apparatus temporarily mountable on a front end of a golf cart type vehicle having a roof structure which includes vertical support rods, wherein at last two of said vertical support rods are positioned on opposite sides of said front end of said vehicle, said apparatus comprising:
- a front panel which includes a screen surrounded by a rigid frame for permitting the free flow of air to and from occupants of said vehicle and protecting said occupants from contact with flying objects outside of said vehicle; and
- a plurality of mounting apparatuses, formed on opposite sides of said frame, for frictionally engaging said at least two vertical support rods to temporarily mount said front panel to said front end of said vehicle;

wherein each mounting apparatus comprises:
- a stationary member integral with said frame and extending in a generally perpendicular direction from a back surface of said frame,
- a bracket, movable in a first direction away from or a second direction toward said stationary member, wherein when said bracket is moved in said first direction said bracket frictionally engages one of said at least two vertical support rods and when said bracket is moved in said second direction said bracket frictionally disengages said one vertical support rod, said bracket having an L-shaped cross section causing inner surfaces of said bracket to frictionally engage two sides of said one vertical support rod,
- a bracket rod integral with said bracket and extending in a generally perpendicular direction from a back surface of said bracket through an opening in said stationary member, said bracket rod being movable in said first and second directions in said opening to stabilize movement of said bracket, and
- a resilient device disposed between said stationary member and said bracket for biasing said bracket against forces moving in said second direction.

5,211,215
PROCESS FOR NEUTRALIZING REGENERATED SAND
Hermann W. Sommer, Reginawerk 4, D-8089 Emmering, Fed. Rep. of Germany
Continuation of Ser. No. 524,591, May 17, 1990, abandoned. This application Mar. 24, 1992, Ser. No. 856,872
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1990, 4004553
Int. Cl.[5] B08B *7/04*; B22C *5/00, 5/18*
U.S. Cl. 164—5 11 Claims

1. A process for neutralizing regenerated sand, comprising the steps of:
- measuring the pH of regenerated sand, the regenerated sand containing a clay binder; and,
- neutralizing the regenerated sand with a neutralizing agent being either an acid or a base and selected from the group consisting of sulfuric acid, hydrofluoric acid and NH_4OH, said neutralizing agent being said acid if the pH of the regenerated sand, as determined during said measuring step, is basic and said neutralizing agent being said base if the pH of the regenerated sand, as determined during said measuring step is acidic, the regenerated sand having a pH-value of between 6 and 8 following said neutralizing step.

5,211,216
CASTING PROCESS
Paul E. Drury, Henderson, Ky.; James M. Evans, Evansvile, Ind.; Stephen W. Buckman, Waverly, and Roland N. Gibbs, Henderson, both of Ky., assignors to Gibbs Die Casting Aluminum Corporation, Henderson, Ky.
Filed Sep. 23, 1991, Ser. No. 764,367
Int. Cl.[5] B22D *17/14, 17/12*
U.S. Cl. 164—120 23 Claims



1. A process for manufacture of molded metal castings in a die-casting apparatus of the type comprising
- at least a pair of dies forming at least one cavity therebetween having a vacuum gate and a metal feed gate and a runner communicating with the metal feed gate for delivery of molten metal into the cavity,
- a source of molten metal,
- a charge sleeve communicating with said molten metal source and said runner for receiving molten metal from said source and directing it through the runner to said feed gate into said cavity, said feed gate controlling the flow of metal from said runner into said cavity,
- a plunger reciprocally disposed in said sleeve and means for applying pressure to said plunger to force the molten metal under pressure through said runner and metal feed gate into said cavity,
- a vacuum source communicating with said vacuum gate, cavity, feed gate, runner and sleeve to remove gases therefrom and with sufficient suction quickly to draw the molten metal from its source into said sleeve in a position to be driven by said plunger, the process comprising the steps of
- drawing the vacuum to ladle the molten metal into said sleeve in an amount of time to prevent any appreciable solidifying of the molten metal,
- immediately actuating said plunger as soon as a molten metal charge is ladled into said sleeve to drive molten metal through said metal feed gate to control the gate velocity into the cavity initially to fill said cavity, and thereafter increasing said pressure on said plunger at least up to about 10,000 psi on the molten metal to force additional molten metal through said feed gate,
- controlling the temperature of the molten metal at less than about 100° F. above the temperature at which the metal begins to solidify,
- selecting the metal feed gate to have a cross-sectional area such that with the plunger actuation molten metal is fed at a velocity of about 40 to about 150 feet/second into said

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cavity during the cavity filling step and such that molten metal flows through said feed gate during the pressure increasing step and

removing the resulting casting from the cavity after allowing the pressurized metal in the cavity to solidify.

5,211,217

VERTICAL CONTINUOUS CASTING METHOD AND CASTING APPARATUS

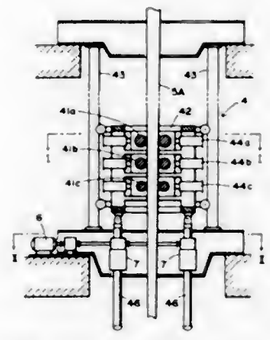
Kiyoshi Morii, Kohnan; Shuzo Kumura, Aichi; Shyzunori Hayakawa, Tokai, and Yoshio Inagaki, Aichi, all of Japan, assignors to Diado Tokushuko Kabushiki Kaisha, Nagoya, Japan

Continuation of Ser. No. 798,982, Nov. 19, 1991, abandoned, which is a continuation of Ser. No. 567,988, Aug. 16, 1990, abandoned. This application Sep. 29, 1992, Ser. No. 953,198

Claims priority, application Japan, Aug. 16, 1989, 1-211067; Jun. 25, 1990, 2-164256

Int. Cl.[5] **B22D** *11/00*

U.S. Cl. 164—476 **4 Claims**



1. A continuous casting method comprising:

casting a molten strand of metal from a water-cooled mold,

drawing said strand vertically downward from said mold,

positioning a light reduction means about the strand,

determining a solidification completing point of the strand,

moving the light reduction means along an axis of the strand in a vertical direction to a point slightly above said solidification completing point, and

applying a light reduction force to said strand by said light reduction means sufficient to compensate for contraction caused by solidification of said strand.

2. A vertical continuous casting apparatus comprising:

water-cooled mold means for providing a molten strand of metal,

drawing drive rollers for vertically drawing said strand downward arranged below said mold means,

a strand cutter for cutting said strand after solidification thereof arranged below said drawing drive rollers,

light reduction means, arranged below said mold means and above said drawing driver rollers and continuously and vertically movable along an axis of said strand, for applying a force to said strand to compensate for contraction caused by solidification thereof at a position along said strand slightly prior to a solidification completing point of said strand, and

means for periodically detecting said solidification completing point by ultrasonic waves and for adjusting said position of said light reduction means relative to changes in said solidification completing point along said axis of said strand.

5,211,218

MELTING AND CASTING PLANT CHAMBER

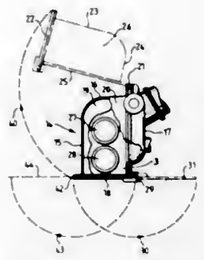
Wolfgang Reuter, Niddatal, and Josef Gediga, Bruchkoebel, both of Fed. Rep. of Germany, assignors to Leybold Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 379,268, Jul. 13, 1989, abandoned. This application Jun. 28, 1991, Ser. No. 724,432

Claims priority, application Fed. Rep. of Germany, Dec. 30, 1988, 3844273

Int. Cl.[5] **B22D** *47/00*

U.S. Cl. 164—313 **12 Claims**



1. A melting and casting plant for operation under one of a vacuum, a protective gas atmosphere or a normal atmosphere, and having a chamber for the acceptance of at least one melting and casting device, the chamber having a bipartite chamber wall, comprising the chamber wall having a substantially cuboid shape and composed of a stationary part and of a moveable part that can be swivelled away from the stationary part, the moveable part being hinged to the stationary part at a first swivel axis, the stationary part being a portion of the chamber wall that is substantially less in area than a portion of the chamber wall formed by the moveable part; the chamber wall and the first swivel axis fashioned and arranged such that, after the moveable part of the chamber wall has been swivelled away from the stationary part, the device in the chamber can be readily manipulated; the moveable part of the chamber wall having five walls and forming a trough-shaped unit that is hinged at the first swivel axis to the stationary part, the stationary part of the chamber wall being a sixth wall and the first swivel axis being a vertically oriented axis; and a door located in the moveable part of the chamber wall, the door being capable of being swivelled around a vertically oriented second swivel axis and being one wall of said five walls of said chamber wall.

5,211,219

AIR CONDITIONER

Katsubiro Kawabata; Hiroyuki Yamashita; Isao Hasegawa; Junichiro Tanaka, and Junji Matsushima, all of Osaka, Japan, assignors to Daikin Industries, Ltd., Osaka, Japan

Filed Jul. 29, 1991, Ser. No. 736,443

Claims priority, application Japan, Jul. 31, 1990, 2-204450

Int. Cl.[5] **F24F** *1/00*

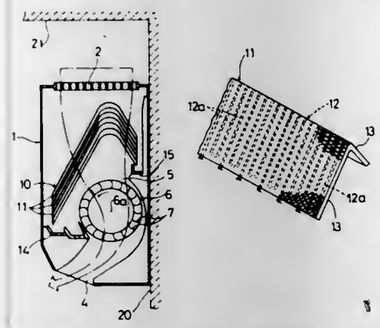
U.S. Cl. 165—122 **12 Claims**

1. An air conditioner comprising:

a casing having an air inlet opened at an upper side thereof, an air outlet opened at a lower side thereof and an air flow passage extending from said air inlet to said air outlet;

a cross flow fan disposed in said air flow passage within said casing, blades of which rotate around an axis extending substantially perpendicular to a direction of said air flow passage; and

a heat exchanger having a heat transfer tube and perforated fins, disposed in series with said cross flow fan in said air flow passage within said casing, said heat transfer tube being branched into plural passes in parallel to one another in said heat exchanger and, said heat transfer tube passes and perforated fins being arranged in layers disposed in a direction intersecting the axial direction of said cross flow fan, said fins being connected to an outer surface of said heat transfer tube and extending at least in the direction of said heat transfer tube.



5,211,220

TUBE FOR A SHELL AND TUBE HEAT EXCHANGER AND PROCESS FOR THE MANUFACTURE THEREOF

Adolf Swozil, Kühlenthal, and Gerhard Ullmann, Gross-Gerau, both of Fed. Rep. of Germany, assignors to Sigri Great Lakes Carbon GmbH, Meitingen, Fed. Rep. of Germany

Filed Jun. 9, 1989, Ser. No. 364,788

Claims priority, applicatioo Fed. Rep. of Germany, Jun. 21, 1988, 3820866

Int. Cl.[5] **F28F** *21/02;* **F16L** *9/14*

U.S. Cl. 165—133 **5 Claims**

1. Tube for a shell and tube heat exchanger, comprising a PTFE tube body having an outside diameter of substantially 10 mm and wall thickness of substantially 1 mm, and a temperature and corrosion resistant layer would cross-wise at an angle of approximately 60° on approximately 60% of said tube body, said layer being formed of fibers of a carbon filament yarn with substantially 3000 lightly prestressed filaments and a surface to which a covering of an approximately 50% aqueous dispersion of PFA has been applied.

5,211,221

METHOD AND APPARATUS FOR JOINING COOLANT TUBES OF A HEAT EXCHANGER

Thomas M. Lease, Canton, S. Dak., assignor to McCord Heat Transfer, Walled Lake, Mich.

Continuation-in-part of Ser. No. 798,550, Nov. 26, 1991, abandoned. This application Jun. 30, 1992, Ser. No. 906,565

Int. Cl.[5] **F28D** *1/04;* **B21D** *39/04;* **F16L** *25/00*

U.S. Cl. 165—150 **12 Claims**

1. A joint for joining coolant tubes of a heat exchanger, said joint comprising:

a first tube (**26**) having an outer diameter (**28**);

a second tube (**30**) having an inner diameter (**32**), a frustro-conical portion (**34**), and a flared extremity (**38**);

said frustro-conical portion (**34**) tapering steadily outward from said inner diameter (**32**) to said flared extremity (**38**) and forming a steadily increasing inner diameter extending from said inner diameter (**32**) to said flared extremity (**38**);

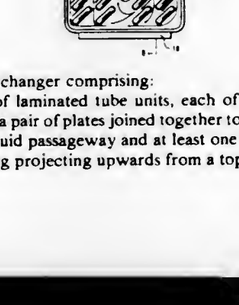
said flared extremity (**38**) flaring steadily outward from said frustro-conical portion (**34**) and defining a frustro-conical access (**52**);

a first portion (**46**) of said first tube (**26**) disposed within said second tube (**30**) and forming a surface contact (**50**) between said outer diameter (**28**) of said first tube (**26**) and said steadily increasing inner diameter of said frustro-conical portion (**34**), and a second portion (**48**) of said first tube (**26**) extending out from said second tube (**30**);

a steadily increasing gap space formed between said outer diameter (**28**) of said first tube (**26**) and said steadily increasing inner diameter of said frustro-conical portion (**34**) of said second tube (**30**);

said gap space extending directly from said surface contact (**50**) and steadily increasing in thickness to a position adjacent said flared extremity (**38**), said a frustro-conical access (**52**) extending from said flared extremity (**38**) directly to said surface contact (**50**);

organic polymeric material disposed through said frustro-conical access (**52**) and into said increasing gap space to



form a bond (**44**) of steadily increasing thickness between said outer diameter (**28**) of said first tube (**26**) and said steadily increasing inner diameter of said frustro-conical portion (**34**) of said second tube (**30**); and

said bond (**44**) extending from said surface contact (**50**) between said increasing inner diameter of said frustro-conical portion (**34**) of said second tube (**30**) and said outer diameter (**28**) of said first tube (**26**) and steadily increasing in thickness to a position adjacent said flared extremity (**38**) thereby ensuring the formation of a bond of optimum thickness between the first (**26**) and second (**30**) tubes.

5,211,222

HEAT EXCHANGER

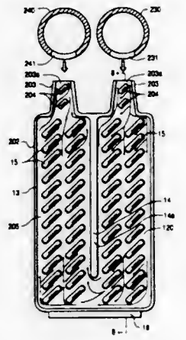
Toshiharu Shinmura, Isesaki, Japan, assignor to Sanden Corporation, Gunma, Japan

Filed Nov. 13, 1991, Ser. No. 791,255

Claims priority, application Japan, Nov. 13, 1990, 2-306649

Int. Cl.[5] **F28D** *1/03*

U.S. Cl. 165—176 **14 Claims**



1. A heat exchanger comprising:

a plurality of laminated tube units, each of said tube units including a pair of plates joined together to define therebetween a fluid passageway and at least one generally tubular opening projecting upwards from a top surface of said

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pair of plates and linked in fluid communication with said fluid passageway; and

at least one conduit separately formed and disposed on an upper surface of said plurality of laminated tube units, said at least one conduit including a plurality of equiinterval slots in the bottom surface thereof;

wherein said at least one conduit is positioned on said plurality of tube units such that said at least one generally tubular opening is received in one of said equiinterval slots and fluid communication between said plurality of tube units is thereby obtained through said at least one conduit; and

wherein each of said pair of plates includes a shallow depression defined therein, a flange extending about the periphery thereof, and a wall disposed at an intermediate location therein and extending a majority of the length of said plate, said wall thereby defining a left side and a right side of said plate.

11. A method for manufacturing a heat exchanger comprising the steps of:

forming a pair of conduits;

forming spaced openings in one side of each said conduit;

forming a plurality of relatively shallow tray shaped plates having a depression therein, each having a pair of spaced, tapered, dished tongue portions at one end thereof;

joining a pair of said tray shaped plates to form a plurality of tube members having a pair of spaced, hollow connecting portions at one end;

arranging said conduits in side by side relation;

inserting said hollow connecting portions into each of said spaced openings; and

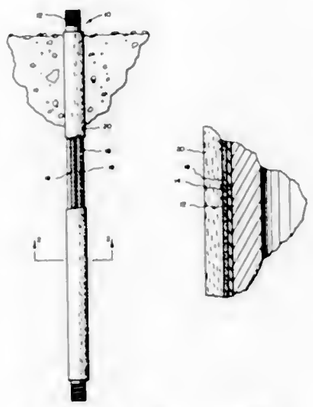
connecting said tubes to said conduits with said connecting portions extending into said holes.

5,211,223

DOWN HOLE OIL WELL HEATER EMPLOYING ELECTRO-THERMAL PAPER

Tim Mulville, P.O. Box 1302, Vernal, Utah 84078

Filed Mar. 2, 1992, Ser. No. 844,452
Int. Cl.[5] E21B *36/04*
U.S. Cl. 166—60 **9 Claims**



1. A down-hole oil well heater comprising:

a heating element covering a portion of oil well tubing and including a sheet of electro-thermal paper leaving a gap between confronting edges thereof and at least a pair of spaced apart primary conductor elements attached to said electro-thermal paper;

inner and outer layers of electrically nonconductive insulating material sandwiching said electro-thermal paper;

secondary electrical conductors penetrating said outer layer of electrically nonconductive insulating material;

electrical connection means electrically connecting said primary and secondary conductor elements together; and

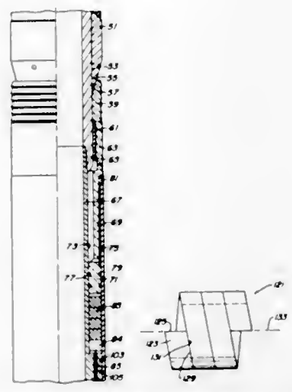
a controller means for regulating electrical power supply to the electro-thermal paper to maintain the temperature of the electro-thermal paper at a desired level, said controller means being electrically connected to said secondary electrical conductors.

5,211,224

ANNULAR SHAPED POWER CHARGE FOR SUBSURFACE WELL DEVICES

Brett W. Bouldin, Friendswood, Tex., assignor to Baker Hughes Incorporated, Houston, Tex.

Filed Mar. 26, 1992, Ser. No. 857,755
Int. Cl.[5] E21B *23/04*
U.S. Cl. 166—63 **7 Claims**



1. An annular shaped gas generating power charge of the type adapted to be used in a downhole tool in a subterranean well, the power charge comprising:

a longitudinal strip of propellant having a length and a width less than the length, a leading end which defines a burn area, a trailing end and opposing non-combustible side edges, the strip being helically wrapped in a plurality of spiral turns occurring in a single plane about a central axis, whereby opposing edges of the strip abut one another to form a right circular cylinder.

5,211,225

SUBMERSIBLE PUMP ADAPTER

Wayne A. Grosch, 231 Brookwood Dr., Dublin, Ga. 31021

Filed Aug. 23, 1991, Ser. No. 749,262
Int. Cl.[5] E21B *4/04*
U.S. Cl. 166—66.4 **6 Claims**

1. In combination,

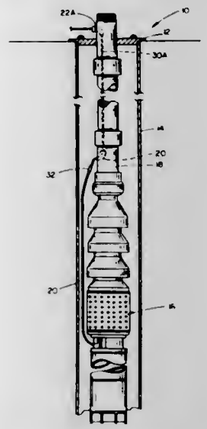
a water well including a vertically disposed casing extending downwardly into the ground,

a vertically disposed pipe column positioned in said casing and having upper and lower ends,

an electric submersible pump at the lower end of said pipe column for pumping water upwardly through said pipe column,

said pump having an electrical cable extending therefrom,

said electrical cable first extending upwardly from said pump between said pump and said casing, thence into the interior of said pipe column, and thence upwardly



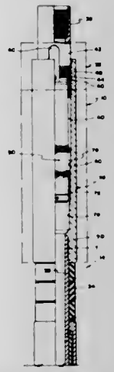
through said pipe column to a source of electrical power at the upper end of the well.

5,211,226

METAL-TO-METAL SEAL FOR OIL WELL TUBING STRING

James D. Hendrickson, Carrollton; William D. Henderson, League City, and John C. Gano, Carrollton, all of Tex., assignors to Otis Engineering Corporation, Carrollton, Tex.

Filed Apr. 24, 1992, Ser. No. 873,457
Int. Cl.[5] E21B *33/10*
U.S. Cl. 166—82 **21 Claims**



1. A metal-to-metal seal assembly for connecting a tubing string to a well packer comprising, in combination:

a tubular seal receptacle having a first end portion adapted for coupling attachment to a tubing string, a second end portion adapted for coupling attachment to a packer mandrel, and having an internal bore sealing surface for engaging a sealing member;

a tubular seal mandrel disposed within the tubular seal receptacle in radially spaced relation with respect to said internal bore surface thereby defining an annular seal chamber, said tubular seal mandrel having a tubular body portion disposed for engagement with a tubular seal sleeve; and,

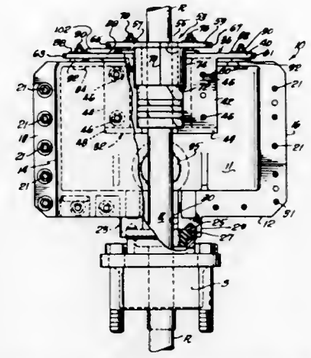
a tubular seal sleeve mounted on said seal mandrel and movable to an operative sealing position relative to the internal bore sealing surface of said seal receptacle, said tubular seal sleeve having a radially deflectable sealing member disposed within the annular seal chamber, said sealing member being compressed between the internal bore surface of the tubular seal receptacle and the tubular body portion of the seal mandrel in the operative sealing position.

5,211,227

FUGITIVE EMISSIONS ACCUMULATOR

L. F. Anderson, 110 Salida Pl., Tulare, Calif. 93274

Filed Nov. 8, 1991, Ser. No. 789,661
Int. Cl.[5] B21B *33/03*
U.S. Cl. 166—84 **12 Claims**



1. In a fugitive emission accumulator for use in collecting blow by at a wellhead, of the type having a stuffing box with a polish rod protruding from the top of the stuffing box and being reciprocable along an essentially vertical axis therethrough, comprising, in combination:

a fluid accumulator vessel, said vessel disposed immediatly above, and in sealing relationship with the stuffing box; means defining an opening through said vessel, said opening adapted to surround the polish rod so as to permit reciprocal movement of the polish rod through said vessel;

wiper means disposed about the polish rod within said vessel, said wiper means being in contact with said polish rod so as to wipe accumulated fluid collected on the surface of the polish rod as it reciprocates into and out of the stuffing box;

said wiper means being mounted in said vessel, and being floatable with respect thereto so as to maintain wiping contact with the polish rod at all times, including times of axial misalignment, whereby fluid accumulation on the polish rod is wiped off and deposited in said vessel, thereby inhibiting escape thereof to the atmosphere.

5,211,228

DIVERTER SYSTEM

Bruce J. Watkins, Houston, Tex., assignor to Dril-Quip, Inc., Houston, Tex.

Filed Apr. 13, 1992, Ser. No. 867,324
Int. Cl.[5] E21B *21/06, 7/12*
U.S. Cl. 166—88 **2 Claims**

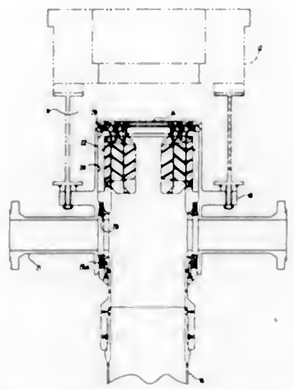
1. A diverter system for use in the drilling of a well from a platform above a subsea wellhead, comprising

a primary housing adapted to be supported beneath the rotary table on the platform and having a bore therethrough and one or more side outlets from the bore,

a secondary housing having a bore therethrough of essen-

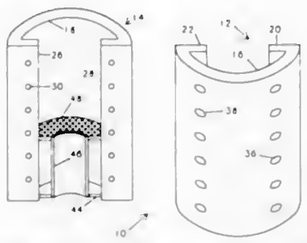
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tially the same size as the bore through the primary housing and one or more side outlets from the
bore and adapted to be supported beneath the primary housing with its bore aligned with the bore of the primary housing,
a diverter assembly comprising an annular body adapted to be lowered into supported position within the bore of the primary housing and having one or more ports therethrough each aligned with a side outlet from the bore of the primary housing, when the assembly is so supported, and means thereon for sealing with the bore of the primary housing to confine flow within the body into said outlets, and



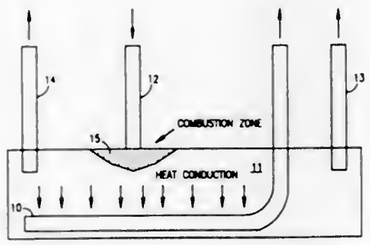
a spool suspended from the diverter assembly body for lowering therewith through the bore of the primary housing, said spool including
a tubular member intermediate its ends for fitting closely and landing within the bore of the secondary housing and having one or more ports therethrough each adapted to be aligned with a side outlet in the secondary housing, when so landed, and means thereon for sealing with the bore of the secondary housing to confine flow within the member into the side outlets, whereby
well fluids in the annulus about a pipe extending through the spool and into a conductor extending upwardly from the wellhead may be diverted by said assembly into flowlines connected to one or more of the outlets of the housings.

5,211,229
WASHPIPE SUPPORT CLAMP
William W. Pecue, II, Baton Rouge, La., assignor to Texaco Inc., White Plains, N.Y.
Filed Mar. 30, 1992, Ser. No. 860,541
Int. Cl.[5] E21B *33/14, 41/00*
U.S. Cl. 166—243 **6 Claims**



1. Clamping means for supporting at least one washpipe in an annular space formed between an inner pipe string and an outer casing string, comprising;
two substantially mirror image components each having a semi cylindrical housing with spaced parallel end edges, flange means secured to each said end edge extending substantially radially inwardly therefrom, semi annular bottom plate means having concentric inner and outer edges and each secured to like ends of respective ones of said housings by said outer edges to extend normal to the axis of said housing, semi annular grid means having concentric inner and outer edges and each secured to respective ones of said housings extending parallel to and spaced from said bottom plates, semi cylindrical pipe string means each secured to the respective inner edges of said bottom plate and said grid means, and means to secure said components together.

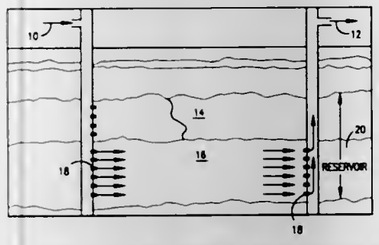
5,211,230
METHOD FOR ENHANCED OIL RECOVERY THROUGH A HORIZONTAL PRODUCTION WELL IN A SUBSURFACE FORMATION BY IN-SITU COMBUSTION
Eugene Ostapovich, and Farrokh N. Pebdani, both of Calgary, Canada, assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Feb. 21, 1992, Ser. No. 839,412
Int. Cl.[5] E21B *47/00, 47/06, 43/243*
U.S. Cl. 166—245 **2 Claims**



1. A method for the enhanced recovery of a heavy viscous oil from a subterranean, oil-bearing reservoir, comprising the steps of:
a) locating at least one horizontal production well in a lower portion of said reservoir,
b) locating at least one vertical injector well in an upper portion of said reservoir.
locating at least one vent well in said reservoir,
d) injecting an oxygen-enriched gas down said injector well into the upper portion of said reservoir.
e) igniting said gas in the upper portion of said reservoir to create a combustion zone that reduces the viscosity of oil in said reservoir as said combustion zone advances downwardly toward said horizontal production well, said reduced viscosity oil draining into said horizontal production well under force of gravity,
f) monitoring oxygen concentration and flue gas in said horizontal production well,
terminating gas injection into the upper portion of said reservoir and venting the oxygen and flue gas from the reservoir through said vent well when a predetermined amount of oxygen is monitored in step
f) within said horizontal production well,
h) monitoring oxygen concentration in said vent well,
i) shutting in said vent well when a predetermined amount of oxygen is monitored in step h) within said vent well, thereby allowing the reservoir to consume remaining oxygen in the reservoir,
j) monitoring reservoir pressure,
k) reinjecting said oxygen-enriched gas down said injection well when the monitored reservoir pressure falls below a predetermined level, and

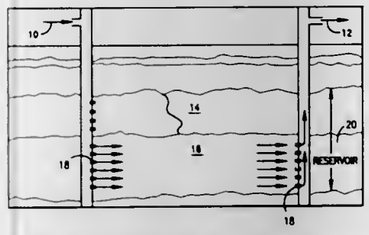
l) repeating steps f)-k).

5,211,231
IN-SITU CEMENTATION FOR PROFILE CONTROL
Paul Shu, Cranbury, N.J.; Ricky C. Ng, and Craig H. Phelps, both of Dallas, Tex., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Dec. 19, 1991, Ser. No. 810,586
Int. Cl.[5] E21B *33/138, 43/24, 43/243*
U.S. Cl. 166—261 **29 Claims**



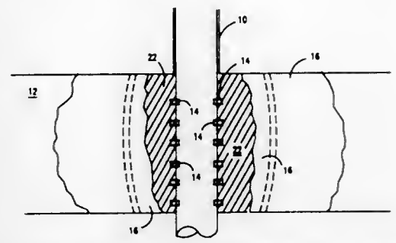
1. A profile control method where a silica cement is formed in-situ sufficient to close off a higher permeability zone in a formation comprising:
a) injecting an aqueous solution into a higher permeability zone which solution contains a silicate selected from a member of the group consisting of alkali metal silicate, organoammonium silicate, or ammonium silicate;
b) injecting thereafter a spacer volume of a water-miscible organic solvent into said zone; and
c) injecting afterwards an alkylpolysilicate contained in a water-miscible organic solvent in an amount sufficient to react with silicate solution of step a) contained in said zone thereby forming a silica cement sufficient to close said zone to fluid flow therethrough.

5,211,232
IN-SITU SILICA CEMENTATION FOR PROFILE CONTROL DURING STEAM INJECTION
Paul Shu, Cranbury, N.J.; Craig H. Phelps, Bakersfield, Calif., and Ricky C. Ng, Dallas, Tex., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Dec. 19, 1991, Ser. No. 810,649
Int. Cl.[5] E21B *33/138, 43/24, 43/243*
U.S. Cl. 166—261 **23 Claims**



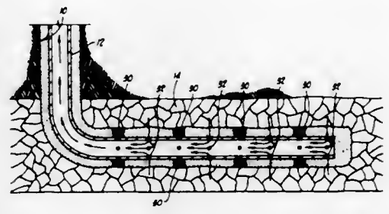
1. A profile control method for closing a zone of a formation to fluid flow, comprising:
a) injecting into said zone an aqueous solution containing a member selected from the group consisting of an alkali metal hydroxide, ammonium hydroxide, or organoammonium hydroxide;
b) injecting thereafter a spacer volume of a water-miscible organic solvent into said zone; and
c) injecting afterwards into said zone a water-miscible organic solvent containing an alkylpolysilicate in an amount sufficient to react with a member from step a) thereby forming a silica cement sufficient to close said zone to fluid flow.

5,211,233
CONSOLIDATION AGENT AND METHOD
Paul Shu, Cranbury, N.J., assignor to Mobil Oil Corporation, Fairfax, Va.
Continuation-in-part of Ser. No. 622,586, Dec. 3, 1990, Pat. No. 5,088,555. This application Dec. 19, 1991, Ser. No. 810,584
Int. Cl.[5] E21B *33/138, 43/22*
U.S. Cl. 166—270 **29 Claims**



1. A sand consolidating method for an unconsolidated or loosely consolidated formation comprising:
a) perforating a cased borehole at an interval expected to produce fines or sand when producing hydrocarbonaceous fluids from said interval;
b) injecting an aqueous solution of a silicate into said interval through perforations contained in the borehole which solution is of a strength sufficient to react with a water-miscible organic solvent containing an alkylpolysilicate and a member of the group consisting of an inorganic salt or chelated calcium thereby forming a permeability retentive cement where said silicate is selected from a member of the group consisting of alkali metal silicate, organoammonium silicate, or ammonium silicate;
c) injecting thereafter a spacer volume of a water-immiscible hydrocarbonaceous liquid into said zone; and
d) injecting thereafter a water-miscible organic solvent containing an alkylpolysilicate and said group member into said interval in an amount sufficient to react with the aqueous silicate so as to form a silicate cement with permeability retentive characteristics whereupon the interval is consolidated in a manner sufficient to prevent formation sand from being produced from the formation during the production of hydrocarbonaceous fluids.

5,211,234
HORIZONTAL WELL COMPLETION METHODS
L. Craig Floyd, Houston, Tex., assignor to Halliburton Company, Duncan, Okla.
Filed Jan. 30, 1992, Ser. No. 828,076
Int. Cl.[5] E21B *33/14, 43/12*
U.S. Cl. 166—276 **20 Claims**



11. A method of completing a well bore having a conduit

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disposed therein where portions of the well bore and conduit are positioned substantially horizontally in a subterranean formation comprising the steps of:

(a) pumping an aqueous carrier liquid suspension of consolidatable resin composition coated particulate solid material into the annulus between the sides of said substantially horizontally positioned well bore and said conduit whereby said resin composition coated particulate material is deposited therein;

(b) causing said resin composition coated particulate material to consolidate into a hard permeable mass;

(c) forming perforations in said substantially horizontally positioned portion of said conduit which divide said conduit into two or more unperforated sections;

(d) pumping an aqueous cement slurry wherein the particles of the cement therein are of a size no greater than 30 microns and have a Blaine Fineness of no less than 6000 cm^2/gm by way of said perforations into said permeable consolidated particulate material whereby sections thereof corresponding to said unperforated sections of said conduit are isolated from each other by portions of said cement slurry;

(e) allowing said portions of said cement slurry to set into hard impermeable masses in said consolidated particulate material; and

(f) perforating one or more of said unperforated sections of said conduit.

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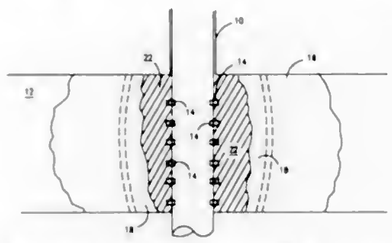
SAND CONTROL AGENT AND PROCESS

Paul Shu, Cranbury, N.J.; Lloyd G. Jones; E. Thomas Strom, both of Dallas, Tex., and Charles S. Yeh, Plano, Tex., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Dec. 19, 1991, Ser. No. 810,648

Int. Cl.[5] E21B *33/138, 43/22*

U.S. Cl. 166—270 **29 Claims**



16. A method for forming a gravel pack in a washed-out interval adjacent a borehole in an unconsolidated or loosely consolidated formation comprising:

a) perforating a cased borehole at an interval of the formation having a washed-out interval adjacent said borehole;

b) placing sand into said washed-out interval via perforations in the borehole;

c) injecting an aqueous solution of a silicate into said interval through perforations contained in the borehole which solution is of a strength sufficient to react with an organic solvent solution of alkylpolysilicate to form a permeability retentive cement where said silicate is selected from a member of the group consisting of alkali metal silicate, organoammonium silicate, or ammonium silicate;

d) injecting thereafter a spacer volume of a water-immiscible hydrocarbonaceous liquid into said zone; and

e) injecting thereafter a water-miscible organic solvent containing an alkylpolysilicate into said interval in an amount sufficient to react with the aqueous silicate so as to form a silica cement with permeability retentive characteristics whereupon the interval is consolidated in a manner sufficient to form a gravel pack in said interval thereby preventing formation sand from being produced from the formation during the production of hydrocarbonaceous fluids; and

f) perforating said interval and commencing in enhanced oil recovery method in said interval.

5,211,236

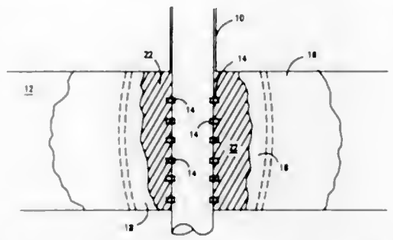
SAND CONTROL AGENT AND PROCESS

Paul Shu, Cranbury, N.J., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Dec. 19, 1991, Ser. No. 810,468

Int. Cl.[5] E21B *33/138*

U.S. Cl. 166—276 **12 Claims**



1. A method for forming a consolidated gravel pack in a washed-out interval adjacent to a borehole in an unconsolidated or loosely consolidated formation comprising:

a) perforating a cased borehole at an interval of the formation having a washed-out interval adjacent said borehole;

b) placing sand into said washed-out interval via perforations in the borehole;

c) injecting an aqueous solution of an alkali metal hydroxide, ammonium hydroxide, or organoammonium hydroxide into said interval through perforations contained in the borehole which solution is of a strength sufficient to react with a water-miscible organic solvent containing an alkylpolysilicate to form a permeability retentive cement sufficient to exclude formation fines or sand;

d) injecting thereafter a spacer volume of a water-immiscible hydrocarbonaceous liquid into said interval; and

e) injecting thereafter via the perforations a water-miscible organic solvent containing an alkylpolysilicate into said interval containing said sand in an amount sufficient to react with the aqueous hydroxide solution in step c) so as to form a permeability retentive silica cement which binds the sand sufficiently to exclude the fines or sand.

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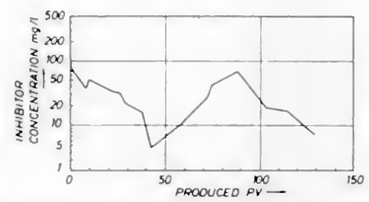
PRECIPITATION OF SCALE INHIBITORS

Robert J. Faircloth, and Jimmie B. Lawson, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 31, 1992, Ser. No. 829,185

Int. Cl.[5] E21B *43/12, 43/22*

U.S. Cl. 166—279 **10 Claims**



1. A process to emplace a scale inhibitor within a brine containing subterranean formation in the vicinity of a producing wellbore comprising:

providing an acidic solution comprising a dissolved scale inhibitor and a metal cation which combination is slightly soluble in the formation brine and a precursor selected from the group consisting of acetamide and dimethyl formamide, wherein the precursor is capable of reacting within the formation to become a basic component;

injecting the acidic aqueous solution into the formation through the wellbore; and

producing formation fluids from the wellbore after the precursor has generated an amount of the scale inhibitor and metal cation to precipitate within the formation that is effective to provide scale inhibition.

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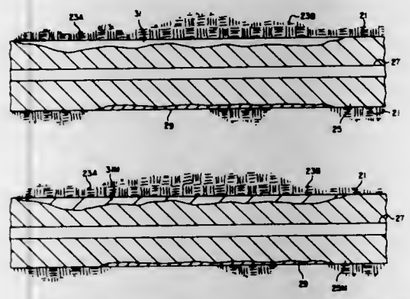
METHOD USING MICRO-SPHERE CEMENT SLURRIES FOR DEVIATED WELLS

Robert B. Carpenter, Hurst, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Nov. 8, 1991, Ser. No. 790,265

Int. Cl.[5] E21B *33/14*

U.S. Cl. 166—292 **10 Claims**



1. A method of cementing a section of a well penetrating subterranean formations and which section deviates more than twenty-five degrees from the vertical comprising the steps of:

a. flowing a micro-sphere laden cement slurry into the well and to said section; and

b. leaving the cement slurry in said section of the well to bond the equipment in said section of the well and provide improved zonal isolation by eliminating development of free water channels.

5,211,239

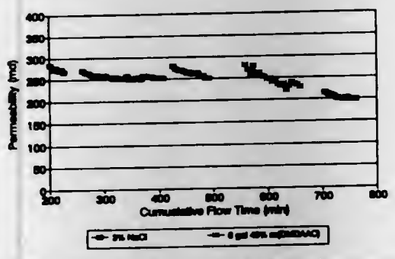
METHOD OF MAINTAINING SUBTERRANEAN FORMATION PERMEABILITY AND INHIBITING CLAY SWELLING

Todd R. Thomas, Coroapolis, and Kevin W. Smith, McMurray, both of Pa., assignors to Clearwater, Inc., Pittsburgh, Pa.

Filed Feb. 13, 1992, Ser. No. 835,602

Int. Cl.[5] E21B *43/22, 43/26*

U.S. Cl. 166—308 **18 Claims**



1. Method of treating a subterranean formation comprising contacting the subterranean formation with an aqueous solution of a treatment fluid containing an effective amount of a formation control additive comprising at least one compound of the formula $(CH_2{=}CH-CH_2)_nN^+(CH_3)_{4-n}X^-$ where X is any anion that does not adversely react with the formation or treatment fluid and n is an integer from 1 to 4 whereby permeability damage resulting from contact of the aqueous fluid with the formation is reduced.

5,211,240

METHOD FOR FAVORING THE INJECTION OF FLUIDS IN PRODUCING ZONE

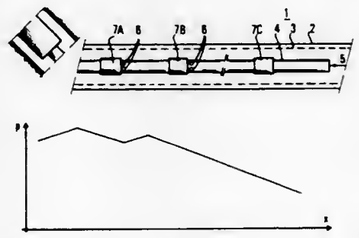
Claude Gadelle, Rueil-Malmaison; Jacques Lessi, Maule, and Hervé Petit, Paris, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Nov. 4, 1991, Ser. No. 787,658

Claims priority, application France, Nov. 2, 1990, 90 13694

Int. Cl.[5] E21B *43/24*

U.S. Cl. 166—303 **12 Claims**



1. A method for controlling the application of fluid under pressure which is injected into a producing zone crossed by at least one deflected drain, into which a pipe having a lower part fitted with at least one injection port communicating with the drain is introduced, in order to promote the recovery of effluents from a surrounding geological formation, the method comprising injecting a fluid under pressure through the pipe and selectively varying the fluid pressure applied to the formation in any determined location of the drain by appropriate selective changing of a distance between said location and the at least one port for injecting the fluid into the drain and/or an area of fluid injection via the at least one injection port communicating with the drain.

5,211,241

VARIABLE FLOW SLIDING SLEEVE VALVE AND POSITIONING SHIFTING TOOL THEREFOR

Howard R. Mashaw, Jr., Carrollton; Christopher A. Dines, Dallas; Robert C. Hammett, Garland, and Clark E. Robison, Plano, all of Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Continuation-in-part of Ser. No. 678,812, Apr. 1, 1991, Pat. No. 5,183,114. This application Dec. 31, 1991, Ser. No. 815,236

Int. Cl.[5] E21B *34/14*

U.S. Cl. 166—332 **16 Claims**

1. A sliding sleeve valve connectable in a conduit comprising:

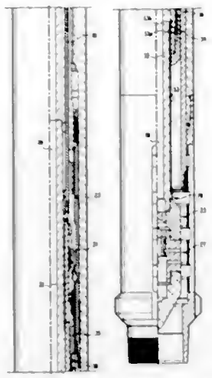
(a) an upper tubular housing;

(b) a lower tubular housing sealably connected to said upper tubular housing, said lower housing having openings for flow through the wall thereof;

(c) valve sleeve means mounted in said housings, said valve sleeve means longitudinally moveable to intermediate positions between fully opened and fully closed positions

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for controlling flow through said wall flow openings and varying wall flow area opened for flow; and



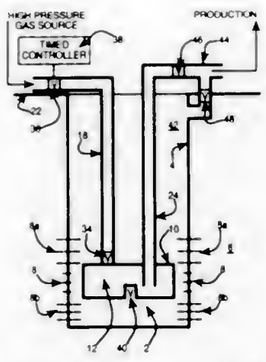
(d) releasable positioning means for retaining said valve sleeve means in each of said fully opened, intermediate and fully closed positions.

5,211,242

APPARATUS AND METHOD FOR UNLOADING PRODUCTION-INHIBITING LIQUID FROM A WELL

Malcolm W. Coleman, Katy, and J. Byron Sandel, Huntsville, both of Tex., assignors to Amoco Corporation, Chicago, Ill.

Filed Oct. 21, 1991, Ser. No. 779,678
Int. Cl.[5] E21B *43/00, 43/18*
U.S. Cl. 166—372 **24 Claims**



1. A gas lift apparatus for installation in a well extending into the ground from the surface and intersecting a natural gas-bearing formation below the surface for intermittently removing separate volumes of liquid from the well for increasing the flow of natural gas from the formation into the well, comprising:

chamber means for receiving liquid from the well and for receiving pressurized gas from outside the well;

an injection tubing string for conducting pressurized gas to said chamber means from outside the well to provide a lift pressure in said chamber means, said injection tubing string connected to said chamber means; and

a production tubing string, connected to said chamber means, for conducting liquid from said chamber means out of the well in response to said lift pressure, said injection and production tubing strings disposed outside each other so that said injection and production tubing strings communicate with each other in the well only through said chamber means, wherein said chamber means is adapted for being lowered into the well on only one of said injection tubing string and said production tubing string and for being subsequently connected in the well with the other of said injection tubing string and production tubing string.

15. A method of gas-lifting liquid from a well extending into the ground from the surface and intersecting a natural gas-bearing formation below the surface for intermittently removing separate volumes of liquid from the well for increasing the flow of natural gas from the formation into the well while permitting production of natural gas through the well, comprising:

lowering from the surface a liquid-containing chamber into the well to a location adjacent to the natural gas-bearing formation by using only one of an injection tubing string and a production tubing string;

subsequently lowering from the surface and connecting to the chamber the other of said injection tubing string and said production tubing string;

injecting, for a limited time period and through said injection tubing string extending from the surface, pressurized gas into a liquid-containing chamber located in the well adjacent the formation and connected to the injection tubing string;

lifting, in response to the injected pressurized gas and during the limited time period, liquid in the chamber out of the well through said production tubing string connected to the chamber, which production tubing string and injection tubing string are located outside of each other and in fluid isolation from each other within the well except through the chamber; and

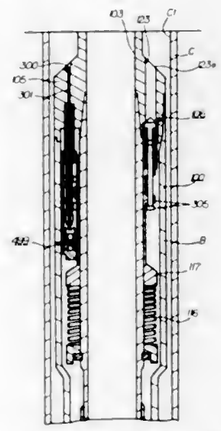
producing natural gas from the formation through the well outside the injection and production tubing strings.

5,211,243

ANNULUS SAFETY VALVE

Scott C. Strattan, and Thomas M. Deaton, both of Tulsa, Okla., assignors to Baker Hughes Incorporated, Houston, Tex.

Continuation-in-part of Ser. No. 573,528, Aug. 27, 1990. This application Aug. 27, 1991, Ser. No. 750,523
Int. Cl.[5] E21B *34/10*
U.S. Cl. 166—374 **32 Claims**



1. A subterranean well annulus safety valve for control of fluid flow in an annulus defined between outer and inner tubular conduits concentrically disposed within the well, the conduits extending from an end of the safety valve to a point in the well, the annulus safety valve comprising:

a housing securable to the inner of the tubular conduits;

a fluid flow passageway defined through the housing and in fluid flow communication with the inner of the tubular conduits;

a plurality of valve passages circumferentially spaced about the housing in fluid flow communication at one end thereof with fluid in the annulus between the outer and inner tubular conduits within the well;

equalizing valve means including equalizing valve head and seat members disposed in at least one of the valve passages, the equalizing valve head and seat members being in normally closed position to prevent fluid in the annulus from flowing through said equalizing valve means, the equalizing valve head and seat members being movable relative to one another to permit fluid flow through the equalizing valve means; and

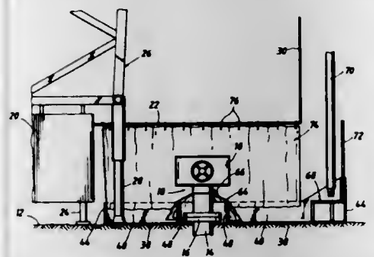
at least one control valve means including control valve head and seat members disposed in at least one of the valve passages, the control valve head and seat members being in normally closed position to prevent fluid in the annulus from flowing through the control valve means, the control valve head and seat members being movable relative to one another to permit fluid flow through the control valve means.

5,211,244

APPARATUS AND METHOD FOR CONTAINING FLUIDS AROUND A WELLHEAD

Roy S. Arterbury, Houston, Tex., assignor to The Cavins Corporation

Filed Jul. 5, 1991, Ser. No. 726,025
Int. Cl.[5] E21B *19/00*
U.S. Cl. 166—379 **32 Claims**



16. A method of catching and containing leaked fluids from a wellhead for an oil and gas well and having a well rig with a derrick having extensible legs positioned adjacent the wellhead for drilling or workover operations; said method comprising the following steps:

positioning a portable tank structure about the wellhead for surrounding the wellhead beneath the rig platform to receive fluids leaked from the wellhead;

positioning a pipe support within the tank structure on a side thereof opposite the well rig; and

positioning the extensible legs of said derrick within said portable tank structure.

5,211,245

VEHICLE MOUNTED AERIAL LIFT

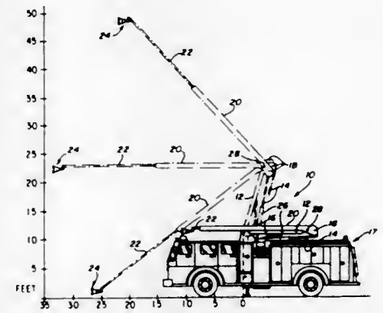
Robert G. Relyea, Dallas, Tex., and Edward V. Garnett, Huntington Beach, Calif., assignors to Crash Rescue Equipment Service, Inc., Dallas, Tex.

Filed Jul. 1, 1991, Ser. No. 723,577
Int. Cl.[5] A62C *27/00*
U.S. Cl. 169—24 **25 Claims**

1. In an aerial lift for a vehicle of the type having an operator's cab at the front thereof, an upper boom pivotally connected at a point adjacent its inner end to the outer end of a lower boom for pivotal movement with respect to each other, a support attached to the vehicle for rotation about an upright axis, the lower boom being pivotally connected at its inner end to the support and extending generally horizontally in a storage position, a power source coupled between the support and the lower boom for moving the lower boom upwardly and downwardly about is pivotal connection to the support, the improvement comprising:

variable length link means having an inner end pivotally coupled to said support and an outer end pivotally connected to the inner end of the upper boom beyond its pivot connection to the lower boom such that upward movement of the outer end of the lower boom causes the outer end of the upper boom to raise generally vertically as the lower boom is raised;

power means coupled between the inner and outer ends of the variable length link means for selectively changing the length of the link to move the upper boom about is pivot point with the lower boom in any position of the lower boom;



an extensible section forming part of the upper boom and controllably movable to any selected position between a fully retracted and fully extended position under both full and no fluid flow conditions such that the outer end of the extensible boom can be positioned from a point at least a grade level to full elevation above the vehicle;

a fluid discharge nozzle assembly mounted on the outer end of the extensible boom;

a single fluid conduit for supplying fluid to the nozzle;

a first rotatable fluid connection coupled to the discharge nozzle assembly and to the single fluid supply conduit to allow the nozzle to be positioned only in a vertical plane from substantially $+45°$ to $-180°$; and

a second rotatable fluid connection coupling the discharge nozzle assembly to the first rotatable fluid connection to allow the nozzle to be positioned $\pm 90°$ only in a plane perpendicular to the vertical plane so as to enable fluid to be directed in any selected forward direction from any position of the discharge nozzle assembly from at least grade level to full elevation.

5,211,246

SCOURING METHOD AND SYSTEM FOR SUPPRESSING FIRE IN AN ENCLOSED AREA

Ralph G. Miller, and Jerry W. Lee, both of Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 30, 1989, Ser. No. 358,838
Int. Cl.[5] A62C *35/12*
U.S. Cl. 169—62 **20 Claims**

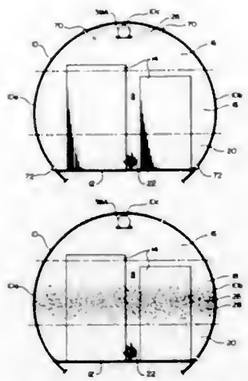
1. A method of combatting a fire that is known to be with a fire suppression sector within a enclosed area, said area containing air and having an upper region, and intermediate region, and a lower region, said method comprising:

a. dispensing a fire retardant material to form in said upper

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region a layer of at least a minimum concentration of said material that is sufficient to suppress flame, said layer extending substantially continuously across said sector, said material having a density and a particle size such that said layer is to descend through said air by gravity;

b. permitting said layer to descend from said upper region through said intermediate and lower regions;



c. maintaining said air in said sector sufficiently still so as to permit said layer of at least said minimum concentration, while descending from upper region through said intermediate and lower regions, to extend substantially continuously across said sector, whereby said sector is traversed by said layer and flame is suppressed within said sector while wastage of said material is alleviated.

5,211,247

LANDSCAPING DEVICE

Bryan Johnsen, Brooklyn Park, Minn., assignor to Insty Corporation, Brooklyn Park, Minn.

Filed Jun. 21, 1991, Ser. No. 719,162

Int. Cl.[5] A01B *49/02*

U.S. Cl. 172—197 **24 Claims**



20. Device for working soil comprising, in combination: a frame; a grading portion secured to the frame for movement relative to the soil in a movement direction, with the grading portion including a body portion having a front surface and a bottom surface which prevent the passage of the soil therethrough, with the body portion being of an elongated length and a thickness, with the body portion being generally C-shaped in plan view including first and second outside ends, with the outside ends of the body portion being ahead of the remaining portions of the body portion when the grading portion is moved in the movement direction; and a raking portion for movement relative to the soil in the movement direction and separately secured to the frame spaced from and in front of the grading portion, with the raking portion separating debris from the soil prior to the grading portion.

5,211,248

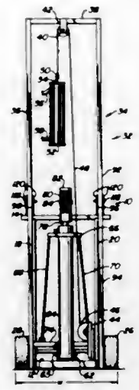
PORTABLE SOIL SAMPLING DEVICE AND METHOD

Michael A. Nosewicz, P.O. Box 2664, Antioch, Calif. 94531, and Stephen B. Turner, 1777 Nantucket Ct., Fairfield, Calif. 94533

Filed May 31, 1991, Ser. No. 708,174

Int. Cl.[5] E21B *1/02, 25/00*

U.S. Cl. 175—20 **11 Claims**



1. A portable soil sampling device comprising:

(a) a generally horizontal frame adapted for contacting a support surface;

(b) a generally vertical mast assembly defining a height above said support surface mounted on said frame;

(c) hydraulic removal means on said device for removing sample tubes after they have been driven to a desired depth;

(d) a source of hydraulic fluid under pressure for powering said hydraulic removal means, said fluid pressure source being located remotely from said device;

(e) conduit means intercommunicating said fluid pressure source with said hydraulic removal means;

(f) hydraulic driving means on said device for driving sample tubes, said driving means comprising a hydraulic hammer adapted for contacting and driving a sample tube; and

(g) a hydraulic motor drivingly connected to a cable drum, a cable around said drum, and wherein said cable has a free end connected to said hydraulic driving means, whereby said hydraulic motor may be actuated to raise and lower said hydraulic hammer into and out of operative position in contact with said sample tube.

5,211,249

APPARATUS AND METHOD FOR OBTAINING SUBTERRANEAN SAMPLES

David L. Richter; Michael C. Kasl; David Overman, and Joel F. Wilson, all of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Jan. 31, 1992, Ser. No. 831,223

Int. Cl.[5] E21B *25/10, 49/02*

U.S. Cl. 175—20 **27 Claims**

1. An apparatus for obtaining a subterranean material sample, comprising:

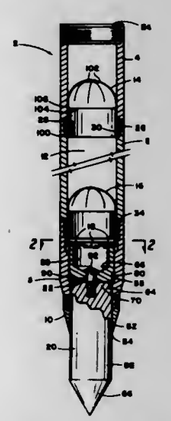
an elongate housing having a passageway extending longitudinally therethrough, said housing having a first end and a second end and said passageway having a first portion and a second portion, said first portion being closer than said second portion to said first end;

a tip member positionable in the second portion of said passageway such that said tip member protrudes from the second end of said housing, said tip member being movable in said passageway from said second portion to said first portion; and at least one locking key for releasably preventing said tip member from moving from said second portion of said passageway to said first portion of said passageway;

said locking key securing a tip locking member positionable inside said passageway and having a first end and a second end, said second end of said tip locking member being positionable on a first end of said tip member and said first end of said tip locking member having a recess therein for receiving said key when said locking means is unlocked; and

an O-ring seal positionable between said second end of said tip locking member and said first end of said tip member.

19. A method of obtaining a subterranean material sample, utilizing a sampling apparatus, comprising an elongate housing having a passageway extending longitudinally therethrough, said housing having a first end and a second end and said passageway having a first portion and a second portion, said first portion being closer than said second portion to said first end; and a tip member positionable in the second portion of said passageway such that said tip member protrudes from the second end of said housing, said tip member being movable in said passageway from said second portion to said first portion; and locking means for releasably preventing said tip member from moving from said second portion of said passageway to



said first portion of said passageway said locking means being capable of being unlocked when said sampling apparatus is inserted into the ground by moving said housing in a direction opposite to the direction in which said sampling apparatus is inserted in the ground and said locking means has at least one locking key, a tip locking member positioned inside said passageway having a first end and a second end, said second end of said tip locking member being positioned on a first end of said tip member, said first end of said tip locking member having a recess therein for receiving said key when said locking means is unlocked, and said recess defining a rim on said first end of said tip locking member said key being positioned on said rim when said locking means is locked, comprising the steps of:

inserting said sampling apparatus into the ground; and

unlocking said locking means to permit said tip member to move from said second portion of said passageway to said first portion of said passageway by moving said housing in said direction opposite to the direction in which said sampling apparatus in inserted into the ground

partially filling said passageway with sample material

further inserting said sampling apparatus into the ground in order to insure at least partial filling of said passageway with sample material.

5,211,250

METHOD FOR STABILIZING BOREHOLES

Edwin Kubena, Jr., Richmond, Tex.; Lee E. Whitebay, Ponca City, Okla., and James A. Wingrave, Chadds Ford, Pa., assignors to Conoco Inc., Ponca City, Okla.

Filed Jan. 21, 1992, Ser. No. 823,505

Int. Cl.[5] E21B *21/00, 33/138*

U.S. Cl. 175—72 **3 Claims**

1. In a method of drilling a well through subterranean formations including at least one shale zone and at least one sandstone zone, the improvement comprising utilizing a water-based drilling fluid containing a stabilizing composition comprised of (1) one or more water-soluble high molecular weight polyfunctional polymers capable of forming several nucleophilic sites when treated with base and (2) one or more potassium salts whose anions are Bronsted-Lowry bases of sufficient strength to raise the pH of the stabilizing fluid to about 9.0 but which are relatively weak nucleophiles compared to the nucleophilic sites of the polymers, said polymers and said salts being present in an amount effective to stabilize said shale zone, said drilling fluid also containing particulate material having a size range of from 75 to 1,400 microns in a amount of from 30 to 50 pounds of particulate material per barrel of drilling fluid whereby said particulate material in combination with said stabilizing composition stabilize said sandstone zone.

5,211,251

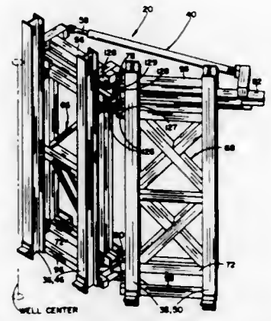
APPARATUS AND METHOD FOR MOVING TRACK GUIDED EQUIPMENT TO AND FROM A TRACK

Joseph R. Woolslayer, Tulsa, Okla., assignor to Woolslayer Companies, Inc., Tulsa, Okla.

Filed Apr. 16, 1992, Ser. No. 869,799

Int. Cl.[5] E21B *19/00*

U.S. Cl. 175—85 **20 Claims**



1. Apparatus for moving track-guided equipment to and from a track, such as a drilling track extending along the length of the derrick of a subterranean drilling rig in which the equipment is movable about axially along the length of the drilling track between the upper end and lower end of the drilling track, the apparatus comprising:

a movable working track connectable to the derrick and transversely movable between a first position in which the working track is aligned with the drilling track and a second position in which the working track is transversely displaced from alignment with the drilling track;

a secondary track pivotably connected to the working track and being pivotable between a skewed position in which the secondary track is not transversely coplanar with the drilling track and the working track and an in-line position in which the secondary track is about transversely coplanar with the drilling track and the working track, the secondary track being transversely movable with the working track so that the secondary track is aligned with

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the drilling track when the working track is in the second position; and

power means for pivoting the secondary track from the skewed position to the in-line position and transversely moving the secondary track in the in-line position and the working track to the second position of the working track; and for transversely moving the working track in the second position and the secondary track in the in-line position to the first position of the working track and pivoting the secondary track from the in-line position to the skewed position.

14. Method of moving track-guided equipment to and from a track, such as a drilling track extending along the length of the derrick of a subterranean drilling rig, in which the equipment is movable about axially along the length of the drilling track between the upper end and the lower end of the drilling track, the method comprising:

connecting a working track to the derrick so that the working track is transversely movable between a first position in which the working track is aligned with the drilling track and a second position in which the working track is transversely displaced from alignment with the drilling track;

connecting a secondary track to the working track so that the secondary track is pivotable between a skewed position in which the secondary track is not transversely coplanar with the drilling track and the working track and an in-line position in which the secondary track is about transversely coplanar with the drilling track and the working track, and so that the secondary track is transversely movable with the working track and is aligned with the drilling track when the working track is in the second position;

pivoting the secondary track from the skewed position to the in-line position and transversely moving the secondary track in the in-line position and the working track to the second position of the working track so that the equipment may be lowered from the drilling track onto the secondary track; and

transversely moving the working track in the second position and the secondary track in the in-line position to the first position of the working track and pivoting the secondary track from the in-line position to the skewed position in order to remove the equipment from the drilling track and align the working track with the drilling track.

5,211,252

AUTOMATIC BASIS SHEET WEIGHT AND MOISTURE CONTENT MEASURING APPARATUS

Richard M. Henderson, Winston-Salem; Tonya R. Young, Welcome; Tommy L. Hickman, Kernersville, all of N.C.; W. Richard Clendaniel, Andover, Mass.; Edward L. Dickinson, Acton, Mass., and Patsy A. Coppola, Bedford, Mass., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Feb. 18, 1992, Ser. No. 837,848
Int. Cl.[5] G01G *19/40, 19/52*
U.S. Cl. 177—25.14 **17 Claims**

1. Apparatus for determining the basis weight and moisture content of a base sheet of reconstituted tobacco comprising:

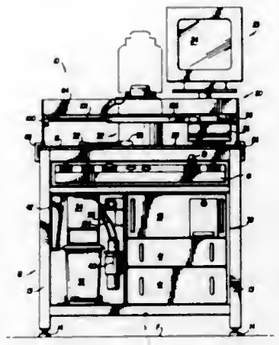
means for automatically cutting a sample of predetermined area from a wet specimen of the base sheet;

means for automatically weighing the sample;

means for automatically transporting the sample of predetermined area in a wet state to the weighing means and for depositing the sample on the weighing means;

means for automatically drying the sample to a substantially dry state, said automatic weighing means being operative to automatically weigh the sample in its wet state and in its substantially dry state; and

means for computing the moisture content and basis weight of the reconstituted tobacco sheet based on the wet and



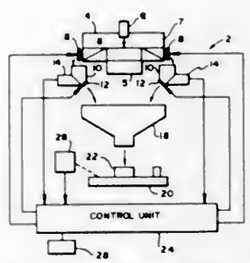
dry weights of the sample and the predetermined area thereof.

5,211,253

METHOD AND APPARATUS FOR COMBINATION WEIGHER

Thornton R. Davis, Jr., Albany, Calif., assignor to The Paxall Group, Skokie, Ill.

Filed Oct. 17, 1991, Ser. No. 778,273
Int. Cl.[5] G01G *13/16*
U.S. Cl. 177—25.18 **6 Claims**



1. A combination weigher for weighing a plurality of articles of product having varying weights and delivering a collection of the weighed articles having a combined weight which most nearly approximates a predetermined target weight comprising:

means for including a plurality of balances, each of which receives and weighs a fraction of the collection to reach a ready state;

means for recording a predetermined target weight;

control means for determining which of said balances is in a ready state;

generating and comparison means for generating the values of combinations of weights on the balances which are in the ready state and comparing the values with the predetermined target weight and for selecting an initial combination of balances having a combined weight which most nearly approximates the target weight;

signal generating means for producing a signal indicating that a combination of scales is ready for discharge; discharge command means with delay;

means for generating the value of a combination of weights on the balances which are in the ready state including the previously selected balances and any balances which have reached a ready state after the initial comparison in response to said discharge command means with delay and

for comparing the values with the predetermined target weight so that all available ready balances are included in the comparison and selecting a second combination of weights which more closely approximates the target weight;

product receiving means;

means for unloading the balances of the second selected combination for delivery to said product receiving means;

means for loading the balances which were unloaded; and

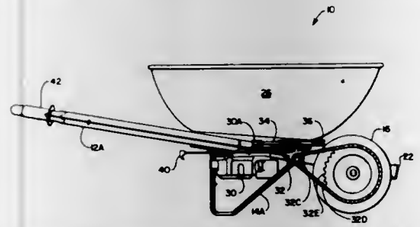
means for initiating operation of said generating and comparing means in response to the unloading of the selected balances.

5,211,254

MOTORIZED WHEELBARROW WITH MULTIPLE SPEED TRANSMISSION

Isaac E. Harris, III, Durham, and Douglas O. Deal, Bahama, both of N.C., assignors to E-Z Haul Corporation, Durham, N.C.

Filed Oct. 3, 1991, Ser. No. 770,556
Int. Cl.[5] B62D *51/04*
U.S. Cl. 180—19.1 **14 Claims**



1. A motorized wheelbarrow for transporting a load comprising:

a frame including a pair of spaced-apart handles each having a proximal and distal end and a pair of downwardly depending support legs;

a wheel secured to the distal ends of said spaced-apart handles for bearing the load of said wheelbarrow when the proximal ends of said handles are lifted;

mounting means secured to said frame for supporting a drive engine, said mounting means comprising a platform secured at each of the opposing sides thereof to a respective one of said pair of handles;

drive means secured to said mounting means for driving said wheel and comprising: a gasoline engine having a displacement between about 15 and 60 cubic centimeters and adapted to operate at a substantially constant predetermined speed ,mounted to one side of said platform; a multiple speed transmission mounted to said one side of said platform; speed reduction means mounted on the other side of said platform operatively connecting said engine and said transmission to facilitate a selective change in linear speed of said wheelbarrow while said engine maintains said substantially constant speed; and means connecting said transmission and said wheel for driving said wheel; and

a load bed attached to said frame.

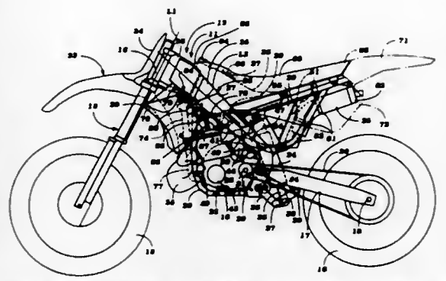
5,211,255

MOTORCYCLE

Takayoshi Fukuda, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Dec. 21, 1990, Ser. No. 633,050
Claims priority, application Japan, Dec. 22, 1989, 1-333380
Int. Cl.[5] B62K *11/02*
U.S. Cl. 180—219 **6 Claims**

1. A motorcycle for rough terrain use comprising a frame assembly comprised of a head pipe dirigibly supporting a front wheel, a pair of main frame members having a generally box shaped cross section affixed at their front ends to said head pipe and extending downwardly and rearwardly therefrom, said main frame members diverging from a longitudinal center plane rearwardly of said head pipe, a radiator carried by said frame assembly continuous to and below said main frame members adjacent said head pipe, a seat carried by said frame assembly rearwardly of said head pipe and having a top surface and a pair of side surfaces each terminating adjacent to portions of said main frame members and in non-overlapping



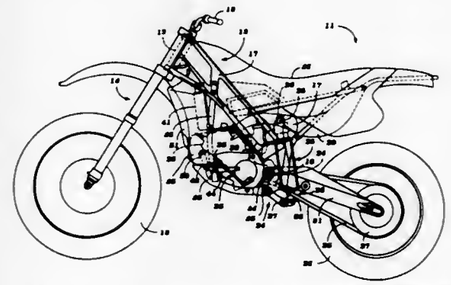
relation thereto, a pair of radiator covers affixed relative to said frame assembly each on a respective side of said radiator and terminating adjacent to portion of said main frame members in non-overlapping relation thereto, the side surface of said seat, said main frame members and said radiator covers each being exposed to view from the side, and means for providing a substantially contiguous surface area between said radiator covers, said main frame members and said seat sides for gripping of the motorcycle by the legs of a rider seated upon the seat on any of a variety of positions.

5,211,256

PEDAL STRUCTURE FOR MOTORCYCLE

Takayoshi Muramatsu, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Jul. 1, 1991, Ser. No. 723,854
Claims priority, application Japan, Jul. 13, 1990, 2-186105; Jul. 13, 1990, 2-186106
Int. Cl.[5] B60K *23/00*
U.S. Cl. 180—219 **18 Claims**



1. A motorcycle construction comprised of a frame assembly suspending front and rear wheels and carrying a seat for accommodating a rider, an engine and change speed transmission carried by said frame assembly for driving said rear wheel, a pair of foot pegs carried at the lower portion of said frame assembly on opposite side thereof for accommodating the feet of a rider seated upon said seat, a brake for braking at least one of said wheels, a master cylinder for operating said brake, an operating brake pedal formed at the rearward end of a brake

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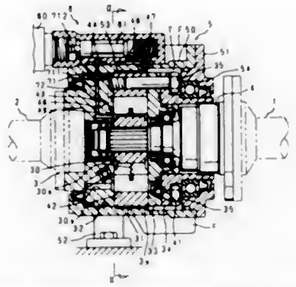
pedal lever supported for pivotal movement by said frame assembly about a pivot point disposed forwardly of said foot peg, and means for connecting said brake pedal to said master cylinder for operation thereof by a rider seated upon said seat.

5,211,257

POWER TRANSMISSION APPARATUS FOR FOUR-WHEEL DRIVE VEHICLE

Hirakushi Shuzo, Uda; Isogawa Hiromi, and Nakagawa Yoshihiro, Kashiwara, all of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Mar. 13, 1991, Ser. No. 668,946
Claims priority, application Japan, Mar. 15, 1990, 2-27049[U]
Int. Cl.[5] B60K *17/344*
U.S. Cl. 180—248 **17 Claims**



1. A power transmission apparatus for a four-wheel drive vehicle comprising:

a housing fixed to the vehicle body;

a hydraulic pump having a casing mounted within said housing and rotatably supported with its outer periphery adjacent the inner periphery of said housing and connecting front and rear wheels or left side and right side wheels of the vehicle by oil pressure produced therein corresponding to a rotational speed difference between said front and rear wheels or said left side and right side wheels;

a variable throttle outside of said housing for receiving the oil generated in said hydraulic pump within said housing, adjusting the oil pressure and returning said oil to said hydraulic pump; and

means for introducing into said variable throttle brake oil pressure generated by braking action, as operating oil pressure to said variable throttle.

5,211,258

AUXILIARY DEVICE FOR CONTROL OF VEHICLE STEERING DEVICE AND DRIVE UNITS

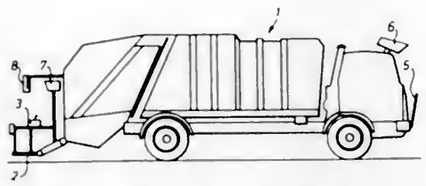
Gustaf Wibom, Solna, Sweden, assignor to Recodrive AB, Solna, Sweden

PCT No. PCT/SE90/00103, § 371 Date Aug. 13, 1991, § 102(e) Date Aug. 13, 1991, PCT Pub. No. WO90/09293, PCT Pub. Date Aug. 23, 1990
PCT Filed Feb. 15, 1990, Ser. No. 741,538
Claims priority, application Sweden, Feb. 16, 1989, 89005433
Int. Cl.[5] B60K *25/00*; B60P *3/00*; B62D *1/22*
U.S. Cl. 180—275 **7 Claims**

1. An auxiliary vehicle control device for maneuvering a vehicle by manipulating a standard control unit, which comprises a vehicle steering rod used to control the operation of the vehicle when a driver is in the vehicle's driver's seat, and by manipulating a standard drive unit, which comprises a drive shaft used to drive the vehicle in a desired direction, from a vehicle control position other than the driver's seat, said auxiliary vehicle control device comprising:

a) a first motor for manipulating the vehicle steering rod, said first motor being operatively engaged with said steering rod by a first resilient coupling means, wherein said first resilient coupling means comprises a gear operatively engaged with a friction clutch surrounding the steering rod, thereby coupling said first motor with the steering rod, said friction clutch being mounted beneath the steering wheel;

b) a second motor for manipulating the vehicle drive shaft, said second motor being operatively engaged with said drive shaft by a second resilient coupling means; and



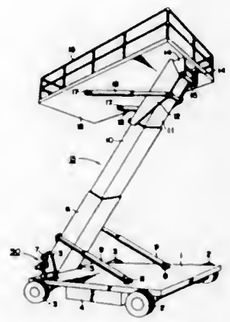
c) an operations panel for controlling said first and second motors so that the vehicle can be driven and maneuvered by means of the vehicle's standard control and drive units, wherein said standard control and drive units may also be used by a driver in the driver's seat to maneuver the vehicle even when said first and second motors are operatively engaged.

5,211,259

LIFTING APPARATUS

Mitsubiro Kishi, Tochigi, Japan, assignor to Japanic Corporation, Ashikaga, Japan

Filed Oct. 24, 1991, Ser. No. 783,638
Claims priority, application Japan, Oct. 31, 1990, 2-296884
Int. Cl.[5] B66F *11/04*
U.S. Cl. 182—2 **8 Claims**



1. In a lifting apparatus comprising:

a movable chassis;

a platform disposed over said chassis;

an elongated telescopic boom body extending between said chassis and said platform, said boom body comprising a plurality of boom sections which are telescopable into and out of said telescopic boom body in the longitudinal direction thereof;

inclining means interposed between said chassis and said telescopic boom body for raising said telescopic boom body so that it is inclined with respect to said chassis;

extension means housed within said boom body for telescoping said boom body to elongate and contract same;

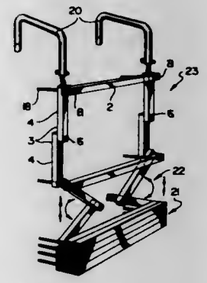
wherein said platform, said telescopic boom body and said chassis are arranged to form a Z-shape when viewed from the side thereof and said telescopic boom body is telescopically moved and inclined relative to said chassis so as to move said platform vertically, the improvement which comprises an angle detecting means for issuing a signal corresponding to the angle of inclination of said telescopic boom body relative to said chassis when said telescopic boom body is inclined relative to said chassis, means responsive to a signal from said angle detecting means for operating said extension means for causing the elongation speed of the telescopic boom body to follow the variation of the angle of inclination of the telescopic boom body relative to said chassis so that the tip end of said telescopic boom body moves vertically relative to said chassis.

5,211,260

COLLAPSIBLE LADDER

Jeffrey E. Toycen, 33 Sandhurst Court, Ottawa, Ontario, Canada K1V 9W9

Filed May 27, 1992, Ser. No. 888,823
Claims priority, application Canada, Nov. 15, 1991, 2055677
Int. Cl.[5] E06C *1/52*
U.S. Cl. 182—164 **11 Claims**



1. A collapsible ladder comprising:

a plurality of tubular rungs;

side support members pivotally connected between each end of adjacent rungs, each side support member comprising a pair of pivotally interconnected tubular links each having a length less than half of that of the rungs;

said links having a generally square cross-section for providing ends with flat surfaces defining a contacting region for contacting the flat surface of an adjacent pivotally interconnected link, and wherein the area of the contacting region of the links is from 20 to 35% of the surface area of one side of the link;

pin receiving apertures passing through opposite wall portions of the tubular rungs and the tubular links near the ends thereof;

pivotal connecting means comprising a first pivot pin disposed in the aperture of each adjacent pair of the interconnected links that define said support member, and a second pivot pin disposed in the aperture of each end of each of the rungs and the aperture of at least one of said side support members;

said apertures and pivot pins being disposed inwards from the ends of the links to define support arms outward from the pin, said support arms having bearing surfaces that bear on the adjacent link for providing rigidity of the pivotally interconnected links, about an axis passing transversely through the pivot pin and parallel with the rungs, when the ladder is in an deployed condition; and

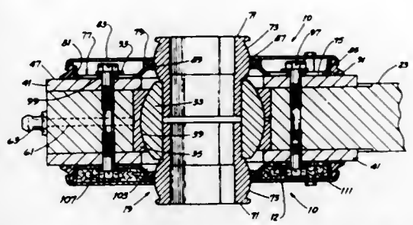
compression applying fastener means associated with at least some of said pins for pressing the contacting regions of the links against one another with a force sufficient to provide a frictional force upon pivoting of said links for restricting the deployment rate of the ladder, and the compression force applied by the fastener is greater than 0.05 pounds per square inch.

5,211,261

LUBRICATION DEVICE FOR A PIVOT JOINT

Bryan J. Garberg, Moorhead, Minn., assignor to Case Corporation, Racine, Wis.

Filed Dec. 16, 1991, Ser. No. 807,995
Int. Cl.[5] F16C *1/24*
U.S. Cl. 184—5.1 **12 Claims**



1. In a structure for lubricating a pivot joint of the type permitting relative oscillating, articulating, non-rotating motion of connected members one to the other and having a primary bearing with a spherical load-bearing external surface, the improvement comprising:

a generally spherical secondary bearing adjacent to and outside of the primary bearing;

an annular hollow, disc-like device in sliding, sealing engagement with the secondary bearing and having a lubricant reservoir within the device;

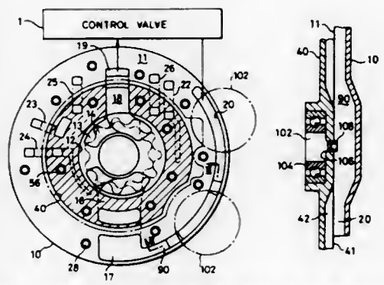
a lubricant flow path extending from the device toward the external surface of the primary bearing, wherein the surface is lubricated and entry of dirt thereto is obstructed.

5,211,262

HYDRAULIC OIL SUPPLYING APPARATUS FOR AUTOMATIC TRANSMISSION

Masaya Akiyama, Fuji, Japan, assignor to Jatco Corporation, Fuji, Japan

Filed Sep. 17, 1992, Ser. No. 945,894
Claims priority, application Japan, Sep. 20, 1991, 3-270079
Int. Cl.[5] F01M *9/00*
U.S. Cl. 184—6.12 **8 Claims**



1. A hydraulic oil supplying apparatus for an automatic transmission comprising:

a transmission case having a gear type speed changing mechanism incorporated therein and including a hydraulic control valve for controlling said speed changing mechanism at an upper portion thereof and a bearing holding portion for a counter shaft;

an oil pump housing secured to said transmission case via a joint surface thereof, said oil pump housing being formed with a central through hole through which an input shaft extends, a gear chamber receiving pump gears therein, a discharge path and a suction path arranged in substantial alignment with each other in the vertical direction, and a

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substantially arch-shaped first groove extending to a lowermost end of said suction path on said joint surface to constitute a drain path from said control valve, said first groove overlapping said bearing holding portion when it is observed in the direction at a right angle relative to said joint surface; and

a pump cover secured to said oil pump housing to cover said gear chamber therewith.

5,211,263

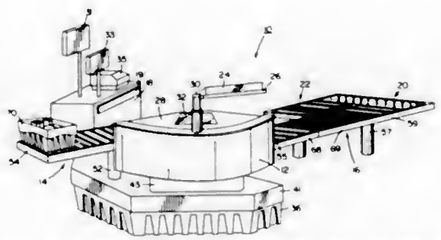
STORE CHECK-OUT STATION

Michael B. Davidson; Joseph P. Jackman; Cameron G. Whitworth, and Harold Braul, all of Toronto, Canada, assignors to In-Store Products Limited, Toronto, Canada

Filed Jan. 21, 1992, Ser. No. 822,787

Int. Cl.[5] B65G 47/66

U.S. Cl. 186—61 **27 Claims**



1. A check-out station for determining the value of a customer's order merchandise, comprising:

a) a working table having a flat, generally horizontal top surface of pre-selected shape having an input edge and an output edge, wherein the top surface of the working table is generally arcuate shaped;

b) input conveying means for conveying merchandise towards the working table, comprising an elongated, generally horizontal, elevated transfer bed having a longitudinal axis, a first end, and a second end adjacent to the input edge of the working table; and

c) output conveying means for conveying the merchandise away from the working table, comprising an elongated, generally horizontal, elevated transfer bed having a longitudinal axis, a first end adjacent the output edge of the working table and a second end spaced therefrom, wherein the longitudinal axis of the output transfer bed is laterally offset from the longitudinal axis of the input transfer bed.

5,211,264

LIFTING APPARATUS

John M. Beattie, and Jimmie D. Sinden, both of Greeley, Colo., assignors to TRI.I, Inc., Greeley, Colo.

Filed Dec. 4, 1991, Ser. No. 802,246

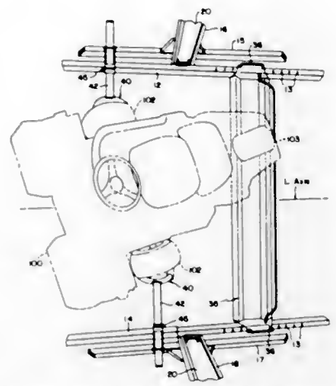
Int. Cl.[5] B60S 13/00

U.S. Cl. 187—8.67 **33 Claims**

1. Lifting apparatus for lifting a three-wheeled vehicle of the type having two side wheels and a third wheel, said apparatus providing an unobstructed entryway and lifting means to readily adapt to said vehicle so that said vehicle can be quickly and conveniently driven into the lifting apparatus, so that the apparatus can readily adapt to vehicles of different sizes, and so that the apparatus can readily adapt to a vehicle misaligned with respect to the longitudinal axis of said lifting apparatus; wherein said apparatus comprises:

(a) two generally horizontal tool bar members which are transversely spaced apart to provide an unobstructed entryway for said vehicle between said tool bar members;

(b) two side wheel lift means, each of which is readily attached to one of said tool bar members, for engaging a side wheel of said vehicle forwardly and rearwardly of the foot print of said side wheel; wherein said side wheel lift means is longitudinally movable along said tool bar member to readily adapt to different size vehicles and to a vehicle misaligned with respect to the longitudinal axis of said lifting apparatus;



(c) third wheel lift means for engaging and lifting said third wheel; and

(d) lifting means for lifting said two members and said third wheel lift means to raise said three-wheeled vehicle.

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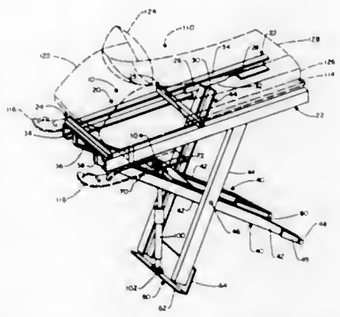
SNOWMOBILE LIFT

Patrick G. Gregg, R1 Box 215, Christmas, Mich. 49862

Filed Mar. 11, 1992, Ser. No. 850,340

Int. Cl.[5] B60S 13/00

U.S. Cl. 187—8.75 **20 Claims**



1. A lift mechanism for a snowmobile having a frame, running boards, a belly pan, a track and skis, all of predetermined dimensional relationships; the lift mechanism having a lift frame adapted to support a snowmobile, a mechanism for raising the lift frame from a lowered positioned to a raised position; the improvement which comprises:

the lift frame having a pair of spaced apart, parallel rails which are joined to a pair of crossmembers;

one crossmember is positioned at one end of the rails and the other crossmember is positioned at a central portion of the rails a sufficient distance from the other end of the rails so that the snowmobile track is free from the other cross member; the lift frame further being free from crossmembers at a rear portion of the lift frame between the other crossmember and the other end of the lift frame, and the crossmembers are positioned such that at least one of the crossmembers supports the snowmobile frame or belly pan and leaves the skis and track suspended for servicing.

5,211,266

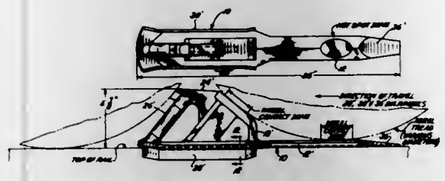
RAIL SKATE

J. Joe Meyer, Williamsburg, Ind., assignor to Western-Cullen-Hayes, Inc., Richmond, Ind.

Filed Dec. 19, 1991, Ser. No. 810,307

Int. Cl.[5] B61K 7/02

U.S. Cl. 188—62 **7 Claims**



1. A friction stopping device which is mounted on top of a rail and includes an entry or toe portion onto which a wheel of an approaching railcar will roll, and also a stopping member against which the wheel engages to stop relative motion between the wheel and the stopping device thereby causing the stopping device to slide along a top of the rail with the wheel positioned on top thereof until the railcar is stopped, the improvement comprising, a shoe member including said entry portion, said stopping member being attached to a top of said shoe member at a rear end of said entry portion, said shoe member having a longitudinal linear break, said break forming a line along a center of said shoe member thereof to form a substantially V-shaped cross-section comprising a central high point and depending side portions.

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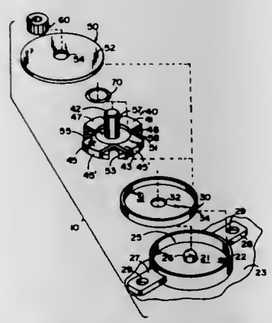
TEMPERATURE COMPENSATED ROTARY DAMPER

Russell L. Clark, West Olive, Mich., assignor to Prince Corporation, Holland, Mich.

Filed Mar. 10, 1992, Ser. No. 840,340

Int. Cl.[5] F16F 9/52; F16D 57/00

U.S. Cl. 188—276 **32 Claims**



1. A rotary fluid filled damper comprising:

a housing defining an interior for receiving a rotor therein;

a rotor having surface means for engaging a viscous fluid;

means for sealing a viscous fluid within said housing;

a cup-shaped temperature compensating member positioned in said interior, said temperature compensating member including a cylindrical sidewall defining an interior surface adapted to receive said rotor with said rotor surface means being positioned proximate said sidewall and further including a floor having means for engaging said housing to center said sidewall in said interior, said compensating member being made of a material which has a coefficient of thermal expansion different than that of said rotor to provide a gap between said surface means of said rotor and said temperature compensating member which varies in width with changes in ambient temperature; and

fluid means for frictionally dampening relative movement between said rotor surface means and said sidewall, said temperature compensating member compensating for viscosity changes in the fluid means as a result of ambient temperature changes, whereby said gap varies as the ambient temperature changes, thus causing the dampening effect on said rotor to remain in a given range despite the effect of the ambient temperature change on the viscosity of the fluid means for dampening.

5,211,268

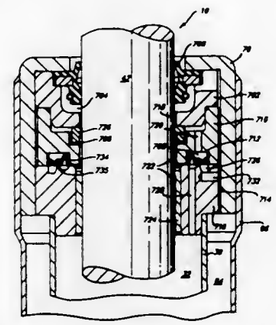
CONTROL VALVE FOR SHOCK ABSORBERS

Magnus B. Lizell, Danderyd, Sweden, and Bert Vanroye, Borgloon, Belgium, assignors to Monroe Auto Equipment Company, Monroe, Mich.

Continuation of Ser. No. 322,542, Mar. 13, 1989, Pat. No. 4,955,460, which is a continuation-in-part of Ser. No. 227,113, Aug. 1, 1988, abandoned. This application Jul. 9, 1990, Ser. No. 550,160

Int. Cl.[5] F16F 9/50

U.S. Cl. 188—281 **4 Claims**



1. A shock absorber comprising:

a pressure tube symmetrically disposed about an axis, said pressure tube forming a working chamber having upper and lower portions;

a reservoir tube for storing hydraulic fluid, said reservoir tube disposed concentric to and radially extended from said pressure tube;

a flexible valve member operable from controlling the flow of hydraulic fluid between said upper portion of said working chamber and said reservoir tube; and

second valve means for allowing flow of said hydraulic fluid from said reservoir tube into said lower portion of said working chamber and for preventing flow of said fluid from said lower portion of said working chamber into said reservoir tube;

a piston slidably disposed between and separating said upper and lower portions of said working chamber, said piston allowing restricted flow of hydraulic fluid between said upper and lower portions of said working chamber;

an elongated piston rod having first and second ends, said first end being attached to said piston, said second end of said elongated piston rod extending along the axis of said pressure tube through said upper portion of said working chamber and out one end of said pressure tube;

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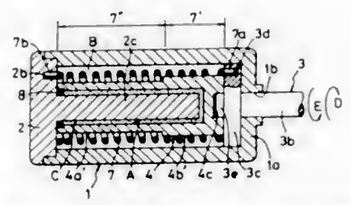
a rod guide disposed between said piston rod and said pressure tube;
a valve housing disposed concentrically about said piston rod and adjacent said rod guide;
a first annular seal disposed around said piston rod;
an annular seal retainer disposed concentrically about said piston rod and adjacent to said valve housing;
a first annular cavity disposed between said piston rod, said first annular seal, and said seal retainer;
a second annular cavity disposed between said piston rod, said valve housing and said annular seal retainer;
a third annular cavity disposed between said valve housing and said rod guide;
passage means for communicating with said reservoir tube, first annular cavity, said second annular cavity, said third annular cavity, said upper portion of said working chamber and said valve member; and
a second annular seal disposed in said second annular cavity, said second annual seal operably to restrict movement of said flexible valve member during rebound of said shock absorber by controlling the flow of damping fluid between said third annular cavity and said reservoir tube.

5,211,269

DAMPER FOR A FLAPDOOR USING VISCOUS FLUID

Kazuyoshi Ohshima, Tokyo, Japan, assignor to Sugatsune Industrial Co., Ltd., Tokyo, Japan

Division of Ser. No. 516,928, Apr. 30, 1990, Pat. No. 5,165,507. This application May 19, 1992, Ser. No. 885,455
Claims priority, application Japan, May 2, 1989, 1-113283
Int. Cl.[5] F16D *57/00*
U.S. Cl. 188—290 **5 Claims**



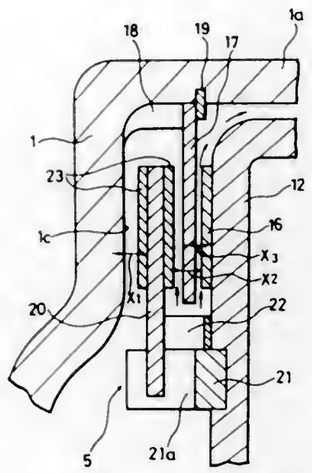
1. A flapdoor damper using viscous fluid comprising a case, a rotatable shaft secured to a flapdoor, a rotatable member fitted to said rotatable shaft by way of a one-way clutch so that said rotatable member is rotatable only in one sense with the shaft, said one-way clutch including a coil spring arranged within said case with one end rigidly fitted to said case and viscous fluid filling a space within said case, the combined effect of a viscous shearing drag of the viscous fluid and a righting force of the coil spring being utilized as resistance against rotation of said shaft in one rotatable direction to dampen movement of the flapdoor, the other end of said spring including a portion engaged with said rotatable member and a portion engaged with said shaft, said case, shaft, rotatable member and coil spring being concentrically arranged, said one-way clutch being formed by said portion of said spring engaged with said rotatable member being engaged with said rotatable member in response to rotation of the shaft and the portion of the spring engaged with the shaft in one direction and being disengaged from said rotatable member in response to rotation of the shaft and the portion of the spring engaged with the shaft in the opposite direction, and a power source section being formed by said portion of the coil spring engaged with said shaft and the end of the spring rigidly fitted to said case.

5,211,270

TORQUE CONVERTER LOCK-UP DEVICE

Kazuhisa Tamura, and Takao Fukunaga, all of Neyagawa, Japan, assignors to Daikin Clutch Corporation, Neyagawa, Japan

Filed Oct. 25, 1991, Ser. No. 783,034
Claims priority, application Japan, Oct. 29, 1990, 2-292759
Int. Cl.[5] F16H *45/02*
U.S. Cl. 192—3.29 **6 Claims**



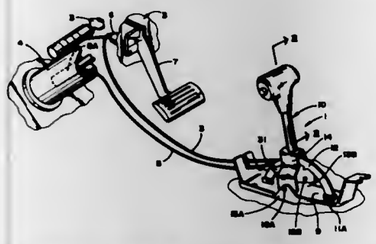
1. A lock-up device for a torque converter disposed coaxially between an input member and an output member, said lockup device comprising:
a piston rotatively connected with said output member;
a first annular friction member mounted on said piston for rotation therewith and having axial movement with respect thereto;
an elastic member disposed between said piston and said first annular friction member to maintain a spacing therebetween;
said input member being connected with a front cover of said torque converter;
a second annular friction member mounted in said front cover for rotation therewith and having axial movement with respect thereto;
a stop member fixed to said front cover to limit axial movement of said second annular friction member in a direction toward said piston;
said first annular friction member being disposed between said second annular friction member and a friction surface of said front cover, and said second annular friction member being disposed between said first annular friction member and a friction surface of said piston;
said front cover, first and second annular friction members and piston being mutually engaged to rotate together in a lock-up position of said piston; and
when lock-up is released, said first annular friction member is separated from said front cover friction surface and is maintained at said spacing from said piston against said elastic member and said second annular friction member is urged against said stop member by circulation of fluid in said torque converter, such that said friction members and said friction surfaces are disengaged from each other whereby frictional drag between said front cover and said piston is prevented.

5,211,271

LOCKOUT MECHANISM AND SYSTEM FOR VEHICLE SHIFTER

Charles Osborn, and Andrew K. Ruiter, both of Spring Lake, Mich., assignors to Grand Haven Stamped Products Company, Div. of JSJ Corp., Grand Haven, Mich.

Continuation-in-part of Ser. No. 642,477, Jan. 17, 1991, Pat. No. 5,096,033. This application Mar. 13, 1992, Ser. No. 851,543
The portion of the term of this patent subsequent to Mar. 17, 2009, has been disclaimed.
Int. Cl.[5] B60K *41/26*
U.S. Cl. 192—4 A **20 Claims**



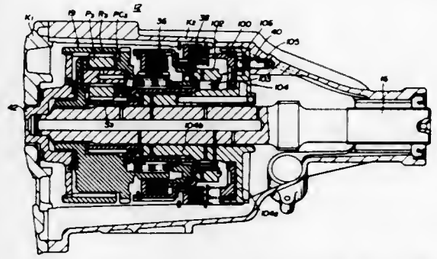
1. A combination brake/park lockout and steering lockout shifter mechanism and system for a vehicle having a shifter lever, a brake, and a steering mechanism comprising:
said shifter lever being shiftable from a park gear position to at least one drive gear position;
a shifter lever position sensor means for sensing the position of said shifter lever;
a brake sensor means for sensing the position of the brake for the vehicle;
a shifter lockout means for locking said shifter lever in a locked park position, said shifter lockout means being shiftable to an unlocked condition;
a steering lockout means for locking the steering mechanism of the vehicle in a "steering locked" position and also for unlocking the steering mechanism in a "steering unlocked" position;
an electrically operated brake control module for controlling said shifter lockout means, said brake control module in one state preventing the shifting of said shifter lever from said park gear position to said drive gear position and in another state permitting said shifting of said shifter lever from said park gear position to said drive gear position;
an electrically operated ignition control module, said ignition control module in one condition having means for permitting said steering lockout means to move from said "steering locked" position to said "steering unlocked" position and in another condition preventing said steering lockout means from moving from said "steering unlocked" position to said "steering locked" position; and
a control circuit;
said shifter lever position sensor means and said brake sensor means being electrically connected to said control circuit;
said brake control module and ignition control module being electrically connected to said control circuit;
said control circuit including switch means for controlling the state of said brake control module and the condition of said ignition control module whereby while said shifter lever is in said locked park position, said ignition control module is in said one condition permitting said steering lockout means to be switched to said "steering unlocked" position, and after said steering lockout means is switched to said "steering unlocked" position and said shifter lever is shifted to one of said gear positions as permitted by said shifter lockout means being actuated to said unlocked condition, said ignition control module is in said another condition for preventing said steering lockout means from being moved from said "steering unlocked" position to said "steering locked" position.

5,211,272

SUPPORTING STRUCTURE FOR CONTROL ELEMENTS FOR AUTOMATIC TRANSMISSION

Masahiro Asari; Shigeto Umebayashi, both of Shizuoka; Kazuyoshi Iwanaga, and Noboru Hattori, both of Kanagawa, all of Japan, assignors to Jatco Corporation and Nissan Motor Company, Limited, both of Japan

Continuation of Ser. No. 454,382, Dec. 21, 1989, abandoned. This application Apr. 20, 1992, Ser. No. 870,230
Claims priority, application Japan, Dec. 26, 1988, 63-330495
Int. Cl.[5] F16D *67/02*
U.S. Cl. 192—12 B **6 Claims**



1. A supporting structure for control elements for an automatic transmission at least including a first frictional element being actuated by a piston operated by hydraulic pressure and a cylinder supporting said piston, a one-way brake having outer and inner races and an engaging member placed between said outer and inner races so as to mechanically engage depending on the rotational direction of said outer race, and a second frictional element having a clutch drum operatingly enclosing therein a plurality of clutch plates, comprising:
a support member being comprised of a cylindrical portion axially extending along a transmission shaft and a flange portion radially extending from one axial end of said cylindrical portion and defining said cylinder therein, said cylindrical portion and said flange portion integrally formed with each other as one piece;
said cylindrical portion being integrally formed with said inner race as one-piece, and arranged for supporting on an outer periphery thereof said clutch drum of said second frictional element as well as said one-way brake;
a transmission case associated with said support member, for securing said flange portion of said support member by fastening means onto an inner wall thereof from the interior of said transmission case; and
said clutch drum being integrally formed with said outer race of said one-way brake, and associated with said transmission case through said first frictional element, such that said clutch drum is engaged with said transmission case when said first frictional element is activated, while said clutch drum is disengaged from said transmission case when said first frictional element is deactivated.

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5,211,273

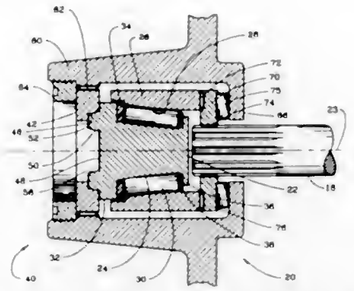
AXIAL THRUST CLUTCH/BEARING/FREEWHEEL

Rudolf R. Castens, Leiden, Netherlands, assignor to Hybo Science, Inc., Delray Beach, Fla.

Continuation of Ser. No. 7,762,585, Sep. 19, 1991, abandoned, which is a continuation-in-part of Ser. No. 7,418,795, Oct. 3, 1989, Pat. No. 5,067,601, which is a continuation of Ser. No. 7,112,638, Oct. 22, 1987, abandoned, which is a continuation-in-part of Ser. No. 7,016,458, Feb. 18, 1987, abandoned, which is a continuation-in-part of Ser. No. 8,821,453, Jan. 22, 1986, abandoned. This application Jun. 30, 1992, Ser. No. 906,752

Int. Cl.[5] F16D *41/06, 43/20*

U.S. Cl. 192—45 2 Claims



1. In a unidirectional clutch of the hyperboloidal type having an inner race member, an outer race member, a plurality of thrust transmitting cylindrical rollers, each said roller making line contact with an inner race surface and line contact with an outer race surface along generators of said inner and outer race surfaces, respectively, the improvement comprising means for biasing said inner and outer race surfaces axially toward one another to maintain said rollers in line contact with both said inner and outer race surfaces, said inner race member being connected to a driven member, said outer race member being connected to a driving member, wherein torque transmitted between said driven and said driving members causes said means for biasing to impose a net axial force on said inner race member tending to urge said inner and outer race surfaces toward one another axially.

5,211,274

OVERRIDING CLUTCH

Arthur J. J. Milano, Jr., Burlington, and W. H. Tuppeny, Jr., Simsbury, both of Conn., assignors to Seitz Corporation, Torrington, Conn.

Filed Apr. 8, 1992, Ser. No. 865,184

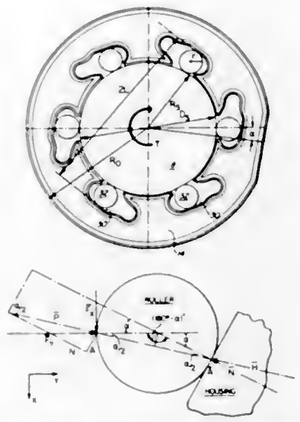
Int. Cl.[5] F16D *41/06*

U.S. Cl. 192—45 14 Claims

1. An overriding clutch adapted for use within associated structures and adapted to receive a shaft therein comprising:

(a) a housing of generally annular cross section having an outer periphery and an inner periphery defining a passage therethrough to receive an associated shaft, said inner periphery having at least three recesses equidistantly spaced thereabout, said recesses having a radial throat portion opening at said inner periphery and a generally secantally extending portion spaced from said inner periphery and elongated in a first circumferential direction which is opposite the direction of rotation of an associated shaft which the clutch is to receive in said passage, said recesses having a radial depth defined by a distance between said inner periphery of said housing and a radially outer surface of said secantally extending portion, said radially outer surface of said secantally extending portion having a secantally extending rectilinear ramp portion which is inwardly inclined in the circumferential direction which is opposite to said first circumferential direction to a smaller radial dimension, said ramp surface being included at an angle of about 9° from an imaginary line perpendicular to a radial line extending through its end of smaller radial dimension;

(b) a roller bearing in each said recess and having a diameter slightly larger than said throat so as to be radially retained in said recess, said radial depth of said recess to said ramp surface being less than the diameter of said roller bearing so that the outer circumference of said roller being extends radially inwardly of the inner periphery of said housing to provide a bearing surface for the associated



shaft seated therein, said bearing seating directly on and bearing upon said ramp surface and applying forces directly thereto along essentially a line extending axially along its periphery; and

(c) resiliently deflectable biasing means in said elongated portion of said recess biasing said roller bearing away therefrom and along said ramp surface, said housing having a wall thickness outwardly of said recess sufficient to resist deformation under normal stresses placed thereon through the bearing by a torque applied to the shaft but being resiliently deformable by excess torque on the shaft whereupon said clutch will override.

5,211,275

CAR WASH COIN/TOKEN COLLECTION SYSTEM

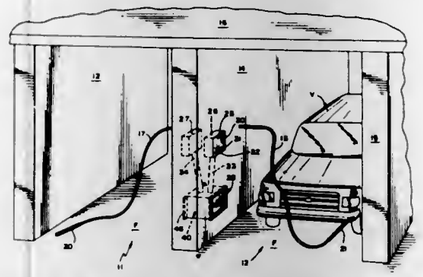
James H. Halsey, El Dorado, and James W. Erwin, Bearden, both of Ark., assignors to IDX, Inc., El Dorado, Ark.

Division of Ser. No. 640,720, Jan. 14, 1991, Pat. No. 5,129,501. This application Apr. 30, 1992, Ser. No. 876,165

Int. Cl.[5] G07F *9/06*

U.S. Cl. 194—350 18 Claims

15. A car wash system comprising a car wash area, a coin/-token vault adapted to receive coins/tokens incident to a car washing operation, said coin/token vault includes a housing and a drawer movable relative thereto, means for locking said movable drawer to said housing, means for releasing said locking means to permit the drawer to open relative to said housing to effect access to coins/token housed therein, said locking means including a pin carried by one of said drawer and housing and an opening defined by another of said drawer and housing, said pin being constructed and arranged for gravity introduction into said opening in a locked condition of said drawer to prevent said drawer from opening, said releasing means including a pair of electromagnetic coils each individually capable of moving sd pin upon energization thereof, a core associated with each electromagnetic coil, and means for connecting said cores to said pin whereby energization of only one electromagnetic coil is sufficient to move said pin against



gravity out of said opening to an unlocked position at which said drawer can be opened.

5,211,276

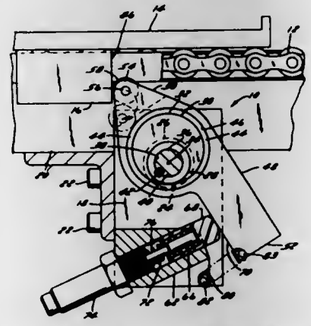
STOP FOR CONVEYOR

Robert T. Clopton, Magnolia, Ky., assignor to Tekno Inc., Cave City, Ky.

Filed Jun. 23, 1992, Ser. No. 902,871

Int. Cl.[5] B65G *47/00*

U.S. Cl. 198—345.3 14 Claims



1. A stop for stopping articles that are travelling along a conveyor, comprising:

a stop arm, defining a bore and including an upper arm portion above the bore and a lower arm portion below the bore;

a shaft, including an end portion and a cylindrical portion eccentric from said end portion and mounted in said bore, such that said stop arm rotates about said cylindrical portion; such that said stop may be moved from an extended position, along an arcuate path, to a retracted position by rotating said shaft.

5,211,277

VIBRATORY CONVEYOR

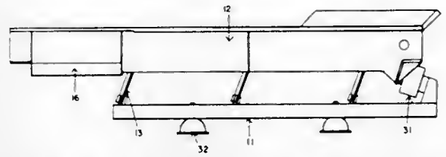
Michael J. Mount, Uxbridge, England, assignor to Wright Machinery Company Limited, Uxbridge, England

Filed May 29, 1991, Ser. No. 706,982

Int. Cl.[5] B65G *47/46*

U.S. Cl. 198—358 9 Claims

1. A vibratory conveyor system for transporting a product, comprising a series of contiguous main line conveyors transporting the product in a longitudinal direction of the conveyor system, a crossfeeder conveyor extending transversely away from a lateral edge of the downstream end of each main line conveyor, at least one vibration means for imparting to at least an upstream end of each main line conveyor a vibratory movement, said vibratory movement of each main line conveyor being the sole movement and having both a component tending to transport said product longitudinally along the main line conveyor and a component tending to transport said product



towards said lateral edge; and means provided wherein the crossfeeder conveyor meets each main line conveyor for permitting said product to pass from each main line conveyor to the crossfeeder conveyor.

5,211,278

FOOD TRANSPORT CHAIN CONVEYOR SYSTEM

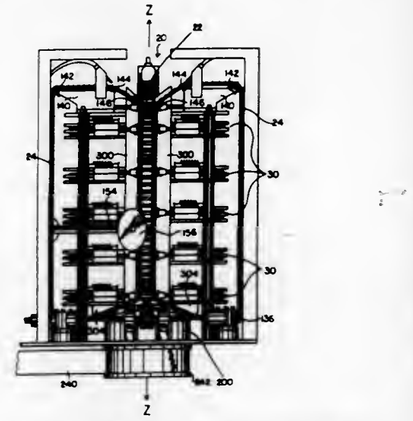
George A. Mendenhall, Boise, Id., assignor to Lamb-Weston, Inc., Tri-Cities, Wash.

Continuation-in-part of Ser. No. 648,053, Jan. 30, 1991, Pat. No. 5,123,521, which is a continuation-in-part of Ser. No. 472,714, Jan. 31, 1990, Pat. No. 5,010,796. This application Apr. 24, 1992, Ser. No. 874,123

The portion of the term of this patent subsequent to Jun. 23, 2007, has been disclaimed.

Int. Cl.[5] B65G *15/14*

U.S. Cl. 198—626.4 15 Claims



1. A conveyor chain transport system for conveying food products in sequential and aligned arrangement which comprises:

a first pair of endless conveyor chain loops each having one segment of conveyor chain loop in juxtaposed, parallel spaced relationship to a corresponding segment of the other loop, said juxtaposed loop segments being of substantially the same length and defining between them a longitudinal space of predetermined length and a three coordinate planar reference system with an x axis being aligned normal to and passing through the centerline of the surfaces of each of said first pair of opposing conveyor chain loop segments, and a y axis perpendicular to the x axis and oriented to define, together with the x axis, a plane normal to the surfaces of said loop segments, and a z axis normal to and coincident with the center point of

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the plane and coincident to the longitudinal centerline of the longitudinal space between said first pair of conveyor loop segments;

a second pair of endless conveyor chain loops each having one segment of conveyor chain loop in juxtaposed, parallel spaced relationship to a corresponding segment of the other loop, said juxtaposed loop segments each being of substantially the same length as the first pair of loop segments, and normal to the y axis, the plane defined by the x and y axis and the first pair of juxtaposed loop segments so as to define a longitudinal passageway with a longitudinal axis coincident with the z axis for the passage of food products therethrough from a receiving end to a discharge end;

means for laterally tensioning the first pair of chain loop segments oriented normal to the x axis against outward displacement along the x axis;

means for laterally tensioning the second pair of chain loop segments oriented normal to the y axis against outward displacement along the y axis; and

means for turning each conveyor chain loop simultaneously at the same speed operatively connected to said first and second pairs of chain loops.

5,211,279

LINEAR CONVEYING UNIT

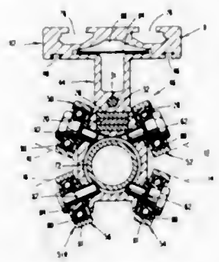
Göran Abbestam; Ake Alstmar, both of Partille; Leif Lachonius, Surte, and Torbjörn Lövgren, Kode, all of Sweden, assignors to SKF Specialty Products AB, Gothenburg, Sweden

Filed Apr. 9, 1992, Ser. No. 865,484

Claims priority, applicstion Sweden, Apr. 9, 1991, 9101060

Int. Cl.[5] B65G *25/00*

U.S. Cl. 198—750 **17 Claims**



1 A linear conveying unit comprising:

a linear rail forming first and second pairs of longitudinal tracks disposed on first and second opposing sides of said rail, respectively;

said tracks of said first pair of tracks forming a first angle therebetween and converging toward said second side of said rail;

said tracks of said second pair of tracks forming a second angle therebetween and converging toward said first side of said rail;

said first and second angles being substantially equal to one another;

a saddle mounted for movement along said rail and including front and rear groups of wheels, each group of wheels comprising first and second pairs of wheels disposed on said first and second sides of said rail, respectively;

said wheels of said first pair of wheels being rotatable on respective axles which form a third angle between one another and which converge toward said second side of said rail;

said wheels of said second pair of wheels being rotatable on respective axles which form a fourth angle between one another and which converge toward said first side of said rail;

said second and third angles being substantially equal to one another and to said first and second angles; and

drive means for moving said saddle along said rail;

only one wheel of each of said front and rear groups of wheels being adjustable radially for eliminating gaps between said wheels and said tracks.

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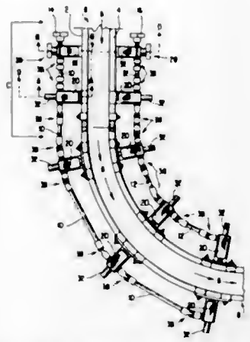
ADJUSTABLE GUIDE RAIL APPARATUS FOR INDEPENDENTLY ADJUSTING POSITIONS OF FIRST AND SECOND GUIDE RAILS DISPOSED RESPECTIVELY ON OPPOSITE SIDES OF THE PATH OF A CONVEYOR

Marc-Andre Houde, Quebec, Canada, assignor to Storcan Limitee, Quebec, Canada

Filed Mar. 13, 1992, Ser. No. 850,529

Int. Cl.[5] B65G *21/20*

U.S. Cl. 198—836.3 **6 Claims**



1. Adjustable guide rail apparatus for independently adjusting positions of first and second guide rails disposed respectively on opposite sides of a path of a conveyor, for guiding articles along said path, comprising:

first and second elongated members to be disposed respectively in parallel and along outward surfaces of said first and second guide rails, each of said members being provided with threaded sections along its length, said members being provided respectively with first and second handles at one of their extremities so that said members can be rotated by a user;

first and second support means for supporting respectively said members in parallel to and along said outward surfaces, each of said support means including several bodies, each of said bodies having a first channel providing a passage to and supporting the corresponding elongated member along its length in such a way that said member can be rotated, and fixing means for fixing each of said bodies onto said conveyor so that said members can be fixed with respect to said conveyor, each of said support means having certain of their bodies provided with a second channel that is transversal and adjacent to the corresponding first channel, said certain bodies being located at threaded sections of said members;

first and second locking means operatively associated with said first and second members respectively for preventing rotation thereof, each of said locking means being provided with a handle so that said members can be locked in desired positions by said user; and

rods respectively associated with said certain bodies, each of said rods having an end that can be fixed onto the corresponding guide rail, and a threaded portion along its length, said rods being inserted into the corresponding second channel so that each of said rods can slide along the corresponding second channel and so that its threaded portion can be engaged with the threaded section of the corresponding elongated member;

whereby said user can independently adjust said first and second guide rails by rotating said handles of said first and second elongated members, and lock said guide rails in desired positions by means of said handles of said first and second locking means.

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MODULAR ROLLER CONVEYOR

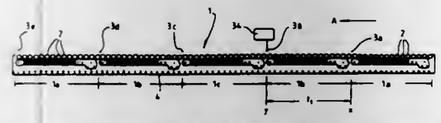
Horst-Dieter Almes, Hildesheim, Fed. Rep. of Germany, assignor to Transnorm System GmbH, Harsum, Fed. Rep. of Germany

Filed Mar. 20, 1992, Ser. No. 854,283

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1991, 4109367

Int. Cl.[5] B65G *13/06*

U.S. Cl. 198—781 **18 Claims**



1. A roller conveyor for advancement of discrete commodities in a predetermined direction along a predetermined path, comprising a plurality of successive conveying units including a first conveying unit adjacent a first portion of said path and a second conveying unit adjacent a second portion of said path downstream of said first portion, each of said units comprising a set of idler rollers adjacent and located beneath the respective portion of said path and extending transversely of said direction, at least one endless flexible element disposed beneath and frictionally engaging the rollers of the respective set, and a discrete prime mover for said at least one flexible element, each of said prime movers including an electric motor; and control means for starting and arresting said prime movers independently of each other, including an electric circuit with electronic components for each of said motors.

5,211,282

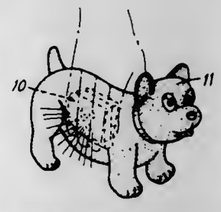
SQUEEZE SWITCH

Charles Ting, Taipei, Taiwan, assignor to American Fun & Toy Creators, Inc., Salt Point, N.Y.

Filed Feb. 12, 1992, Ser. No. 834,407

Int. Cl.[5] H01H *9/02*

U.S. Cl. 200—303 **6 Claims**



1. A device for use in plush toys wherein the device comprises:

a circuit for generating sound, light or motion comprising:

(a) means for generating an electrical signal corresponding to said sound, light or motion and incorporating a push switch for activating said circuit means;

(b) load means for generating said sound, light or motion when excited by said electrical signal;

(c) electrical conducting means for conducting said electrical signal from said circuit means to said load means for driving said load means;

housing means for said sound-generating mechanism comprising two sections;

means for securing said two sections together for relative movement between a first position wherein said two sections are spaced apart by a first predetermined distance and a second position wherein said sections are spaced apart by a second distance less than said first predetermined distance;

said push switch being secured to one of said two-sections and said load means being secured to said other section in alignment with said push switch for activating same when said sections are in said second position; and

means for biasing said two sections to said first position and for accommodating movement of said two sections to said second position when said two sections are squeezed together.

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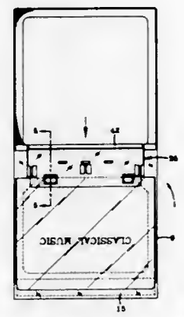
COMPACT DISC SECURITY PACKAGE WITH ORIENTING TABS

James T. Weisburn, Massillon, and John P. Hoerger, Minerva, both of Ohio, assignors to Alpha Enterprises, Inc., East Canton, Ohio

Filed Jan. 27, 1992, Ser. No. 826,477

Int. Cl.[5] B65D *85/67, 85/57*

U.S. Cl. 206—1.5 **5 Claims**



1. In combination, a box and a security package formed with a storage compartment for receiving and securely holding said box in a properly oriented position within said storage compartment, said box having a plurality of walls, one of which is formed with an opening; said security package having a main housing with a plurality of walls forming a storage compartment therebetween and forming an access opening for inserting and removing the box into and out of the compartment; lock means for releasably securing the box in the storage compartment, said lock means including a lock plate mounted on the housing and movable between locked and unlocked positions, said lock plate when in the locked position extends over a portion of the access opening to prevent removal of the box from the storage compartment; locking projections formed on the security package engageable with the lock plate for retaining said plate in locked position; tab means formed on the lock plate and movable into the storage compartment and into the opening formed in the box wall when the lock plate is moved to a locked position for in the storage compartment.

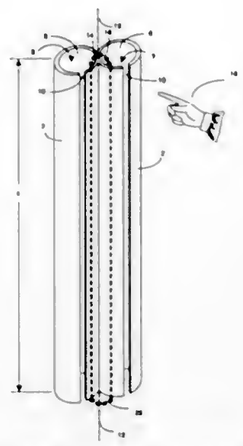
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,284

JEWELRY CHAIN HOLDER

Gail H. Parks, 238 Lake Almanor West Dr. (P.O. Box 415), Chester, Calif. 96020

Filed Jul. 15, 1991, Ser. No. 729,586
Int. Cl.[5] A45C *11/04*
U.S. Cl. 206—6.1 17 Claims



1. A structure for holding and protecting a jewelry chain, the structure comprising:

a longitudinal member including first and second ends and a longitudinal length therebetween, and defining a longitudinal cavity and a longitudinal slit extending said longitudinal length;

said longitudinal member including means for contracting and expanding said longitudinal length axially to accommodate said structure holding a jewelry chain of a length different than said longitudinal length;

a cross-section of said longitudinal cavity being sufficiently large to hold a cross-section of a jewelry chain to be held by said structure;

wherein said slit permits entry into said longitudinal cavity of approximately a half length of a jewelry chain to be held, said longitudinal member maintaining a said jewelry chain in a stretched-out disposition.

8. A structure for holding and protecting a jewelry chain, the structure comprising:

a longitudinal walled member having first and second open ends and a longitudinal length therebetween, and defining within said walled member first and second longitudinal cavities extending said longitudinal length and separated by a longitudinal partition wall, and further defining first and second slots in said member extending said longitudinal length and communicating respectively with said first and second longitudinal cavities;

said first and second slots being sized to permit entry into said respective first and second longitudinal cavities of respective halves of a jewelry chain to be held by said structure without said first and second slots contacting a chain so held;

each said longitudinal cavity defining a cross-section sufficiently large to hold a cross-section of a jewelry chain to be held by said structure;

said structure holding a jewelry chain whose length approximates twice said longitudinal length in a stretched-out disposition within said cavities to minimize tangling and provide protection against dust and contact with foreign objects.

5,211,285

TELESCOPING, PHARMACEUTICAL MIXING CONTAINER

Terry M. Haber, Lake Forest; William H. Smedley, Lake Elsinore, and Clark B. Foster, Laguna Niguel, all of Calif., assignors to Habley Medical Technology Corporation, Laguna Hills, Calif.

Filed Mar. 19, 1992, Ser. No. 853,688
Int. Cl.[5] B65D *25/08;* A61M *37/00, 5/315;* G01F *19/00*
U.S. Cl. 206—221 19 Claims



1. A telescoping, pharmaceutical mixing container comprising:

an outer container including a first end, an open second end and defining a first interior therein;

an inner container extending through the second end and into the first interior for telescopic movement within the first interior between an extended position and a collapsed position, the inner container including an inner end within the first interior, an outer end, and defining a second interior therein;

a piston housed within the second interior movable along a piston path extending between the inner and outer ends to define a second variable volume portion of the second interior between the piston and the inner end;

a piston seal carried by the inner container which seals the first interior to create a first variable volume portion of the first interior between the piston seal and the first end as the inner container and piston seal therewith move between the extended and collapsed positions; and

a flow path element at the inner end of the inner container fluidly coupling the first and second variable volume portions;

whereby movement of the inner container between the extended and collapsed positions causes fluid movement of a fluid pharmaceutical between the first and second variable volume portions with resultant mixing of said pharmaceutical.

5,211,286

PERSONAL IDENTIFICATION SYSTEM

Mike L. Turner, 811 Bradford St., N.W., Gainesville, Ga. 30501

Continuation of Ser. No. 580,094, Sep. 10, 1990, Pat. No. 5,101,970. This application Apr. 6, 1992, Ser. No. 863,853
The portion of the term of this patent subsequent to Apr. 7, 2009, has been disclaimed.
Int. Cl.[5] A01N *1/00;* B65D *43/16*
U.S. Cl. 206—223 10 Claims

1. A method of collecting and preserving body identification information of a person for later use in identifying the person, comprising:

recording identifying data about the person on card means,

collecting in proximity with the card means at least one specimen from the person, the specimen including identifying cells of the person,

placing the card means and specimen in a storage container sealed from the atmosphere, and

maintaining the card, specimen and storage container at a temperature low enough to retard temporal deterioration of the specimen.

7. A method of collecting and preserving body identification information of a person for later use in identification of the person with said method comprising the steps of:

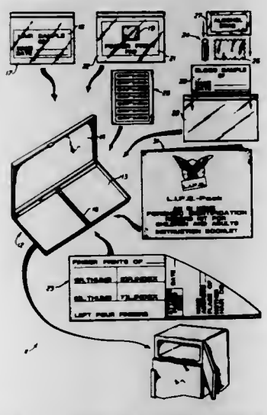
recording identifying data about the person on a card means with said data including at least fingerprints of the person,

collecting a specimen of the individual's blood and drying the collected blood specimen,

sealing the card means with its recorded identifying data together with the collected and dried blood specimen in a common storage container, and

depositing the storage container bearing the data and specimen in a storage space at a temperature low enough for retarding temporal deterioration of the blood specimen.

8. A method of collecting and preserving body identification information for use in subsequent identification of the body with said method comprising the steps of:



(a) collecting and recording identifying data about the body on a card means,

(b) collecting at least one specimen containing cells of the body,

(c) drying the specimen,

(d) sealing the collected specimen and card means against exposure to ambiance,

(e) placing the sealed card means and specimen together for storage in a storage space,

(f) maintaining the storage space below a predetermined temperature sufficient to retard temporal deterioration of the specimen.

10. A kit for assimilating body identification information for use in subsequent identification of the body, with said kit comprising:

card means for capturing fingerprints of the body and for receiving written identifying data of the body,

a patch means supported on said card means for receiving a liquid sample taken from the body, and

plastic envelope means enveloping the card means and patch means and said envelope means being sized and shaped to enclose said card means and said patch means and constructed and arranged to seal the card means and patch means against the atmosphere,

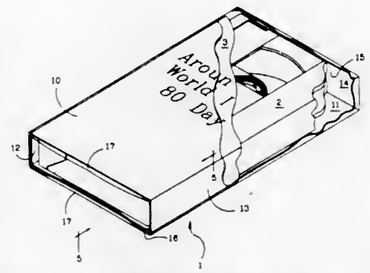
so that the fingerprints of a body can be applied to and captured by the card means and blood can be taken from the body and blotted on the patch means and dried on the patch means, and the card means and patch means can be sealed in the plastic envelope means and stored in an area of temperature low enough to retard temporal deterioration of the blood.

5,211,287

VIDEOCASSETTE STORAGE AND DISPLAY SLEEVE

James T. Weisburn, Massillon, and Gale W. Essick, East Canton, both of Ohio, assignors to Alpha Enterprises, Inc., East Canton, Ohio

Continuation of Ser. No. 474,944, Feb. 5, 1990, Pat. No. 4,988,000. This application Sep. 21, 1990, Ser. No. 585,960
The portion of the term of this patent subsequent to Jan. 29, 2008, has been disclaimed.
Int. Cl.[5] B65D *85/672*
U.S. Cl. 206—387 4 Claims



4. A sleeve for storing and displaying a cassette including, a pair of spaced parallel front and rear walls, and a pair of spaced parallel sidewalls forming a generally rectangular-shaped storage chamber, with said walls being formed of a plastic material and at least the front wall being transparent; said sleeve having first and second ends, with the first end being formed with a generally rectangular-shaped opening through which a cassette can be slidably removed from the storage chamber, and the second end being formed with stop means for generally retaining the cassette within said storage chamber; a hollow flexible cover having printed indicia thereon disposed within the storage chamber of the sleeve and conforming to the interior of said sleeve walls defining said chamber and configured to slidably receive the cassette therein; and a pair of flanges formed integrally with one pair of the pairs of spaced walls adjacent to the first end opening and extending partially across said opening for blocking the opening to retain the cassette in the storage chamber by engaging a front edge of the cassette when the flanges are in a first position, with said flanges being manually movable from the first position to a second position without the use of any tool to remove the flanges from blocking said end opening enabling the cassette to slide from the flexible cover and from the storage chamber through the first end opening, with the flexible cover remaining behind in the storage chamber.

5,211,288

PORTABLE INTEGRATED DISPLAY SYSTEM

Joseph T. Beall, 1371 E. 8175 South, Sandy, Utah 84093

Filed Dec. 11, 1991, Ser. No. 805,082
Int. Cl.[5] B65D *69/00*
U.S. Cl. 206—577 21 Claims

1. A portable, integrated display system for use in providing a display within a display booth comprising:

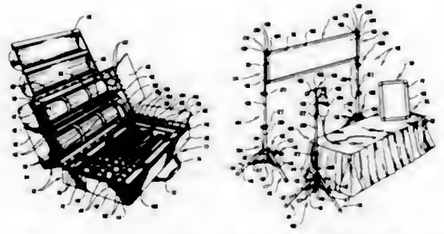
a portable carrying case;

means contained within said carrying case for dividing the interior of the carrying case into a plurality of compartments of substantially fixed shape;

a display easel comprising an easel frame and a plurality of

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collapsible legs, said display easel being movable between open and closed positions, the display easel being capable of displaying printed indicia when in the open position, and being insertable into one of the compartments of the carrying case when in the closed position; and



header display means including a flexible header with printed indicia, a header frame surrounding and supporting the flexible header to which the header may be temporarily attached, the header being foldable for placement in one of the compartments of the carrying case.

5,211,289

REMOVABLE LID

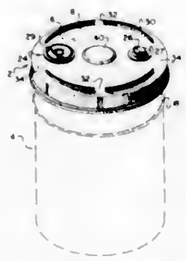
Walter A. Matthews, Rothesay, Canada, assignor to Irving Oil Limited, New Brunswick, Canada

Continuation of Ser. No. 7,553,615, Jul. 18, 1990. This application May 27, 1992, Ser. No. 888,308

Claims priority, application Canada, Sep. 27, 1989, 613417

Int. Cl.[5] B65D *21/00*

U.S. Cl. 206—508 **5 Claims**



1. A removable lid for commercial-sized containers for holding oils, grease, bulk food stuffs, and the like, the containers having an upper lip and a bottom, downwardly-extending flange, said lid comprising:

a central lid area having, at least in part, parallel, substantially horizontal upper and lower surfaces, a central portion and an outer periphery, said upper surface being substantially planar from said central portion to said outer periphery to provide unobstructed flow paths for liquid on said central lid area to said outer periphery;

receiving means for releasably receiving the upper lip of a container, said receiving means comprising a resilient skit downwardly depending about said periphery of said central lid area and an inner wall spaced inwardly from said skirt and downwardly depending from said lower surface of said lid, said skirt and said inner wall defining a continuous inverted peripherally extending U-shaped channel extending downwardly from said lower surface of said lid, said channel having a bottom defined by said lower surface of said central lid area between said skirt and said inner wall;

retaining means for retaining the bottom, downwardly-extending flange of a second container against lateral displacement when the second container is stacked on said lid, said retaining means comprising an upstanding ridge on said upper surface inwardly spaced from said periphery, said ridge having inner and outer peripheries and a series of spaced openings therethrough, at least one of said spaced openings being substantially wider than the others of said spaced openings, and said upstanding ridge being spaced inwardly from said inner wall;

sealing means at said bottom of said channel for forming a seal between said lid and the container when said lid is in position on the container, said sealing means seating on the upper lip of the container;

a first opening in said lid for receiving a pouring spout, said first opening having a circumscribing lip upwardly extending from and integral with said upper surface of said lid, said first opening being spaced inwardly of said ridge and adjacent said substantially wider spaced opening through said ridge;

a small, raised area on said upper surface of said lid spaced inwardly of said ridge and located substantially diametrically opposite to said first opening;

a second opening in said lid for receiving an air venting plug, said second opening being located in said small raised area and having a smaller diameter than said small raised area; and

reinforcing means for reinforcing said inner wall against lateral displacement and for reinforcing said central lid area against deformation when a second container is stacked on said lid, said reinforcing means comprising a plurality of spaced triangular, radial, reinforcing ribs extending between said lower surface and said inner wall of said channel inwardly beyond said inner periphery at said ridge, whereby a second container stacked on said lid with its bottom peripheral edge within said ridge will receive substantial support from said reinforcing ribs.

5,211,290

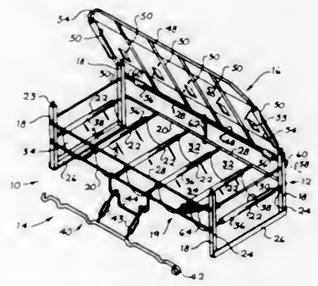
SUSPENSION PACKAGE AND SYSTEM

James J. Janus, Calumet City; Richard L. Zidek, Chicago, and Lewis C. Lofgren, Oak Park, all of Ill., assignors to ADE, Inc., Chicago, Ill.

Filed Aug. 10, 1992, Ser. No. 927,350

Int. Cl.[5] B65D *81/00*

U.S. Cl. 206—583 **45 Claims**



1. A suspension package comprising:

a frame comprising a lower portion and an upper portion;

said lower portion comprising a plurality of spacer elements and at least one bay defining element hingedly mounted to the spacer elements to move between an operational position, in which the spacer elements extend away from the bay defining element to create a product receiving space, and a storage position, in which the spacer elements extend generally alongside the bay defining element;

said bay defining element defining a plurality of bays and comprising at least one lower flexible suspension sheet that extends across the bays to define a product receiving area in each bay when the spacer elements are in the operational position;

said upper portion comprising at least one upper flexible suspension sheet, and said upper portion movable between an open position, in which at least one of the bays is exposed to allow a product to be inserted into and removed from the bay, and a closed position, in which the upper and lower suspension sheets are positioned to suspend the product within the frame; and

a tensioning device secured to the frame to releasably hold the upper portion in the closed position and to tension the suspension sheets around the product.

5,211,291

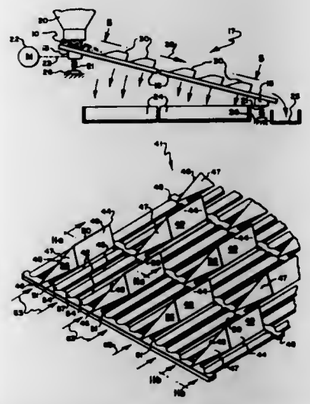
VIBRATORY SEPARATOR PLATE FOR FLAKE-LIKE MEMBERS

Christopher P. Kelley, Boston, and John A. Tanner, Amherst, both of N.Y., assignors to Derrick Manufacturing Corporation, Buffalo, N.Y.

Filed Nov. 7, 1991, Ser. No. 788,867

Int. Cl.[5] B07B *1/46, 13/14*

U.S. Cl. 209—680 **31 Claims**



1. A separator plate construction for elongated flake-like members having thickness and width dimensions comprising a plate body, a plurality of elongated slot openings in said plate body which are wider than said thickness dimensions but less wide than said width dimensions of said flake-like members, and orienter means on said plate body having side means which extend upwardly from said plate body immediately adjacent to said elongated slot openings for engaging and lifting portions of said elongated flake-like members which contact said side means so that said elongated flake-like members are lifted into an orientation with their thickness dimensions and their width dimensions extending longitudinally of and aligned with elongated slot openings which are immediately adjacent to said orienter means which engaged and lifted said flake-like members so that they pass through said openings.

5,211,292

APPARATUS FOR STORING AUDIO/VIDEO CASSETTES AND COMPACT DISCS

Barbara A. Paolucci, 541-86th St, Box 6, Brooklyn, N.Y. 11209

Filed Dec. 19, 1991, Ser. No. 821,499

Int. Cl.[5] A47B *47/00*

U.S. Cl. 211—40 **6 Claims**

1. An apparatus for storing audio/video cassettes and compact discs which comprises;

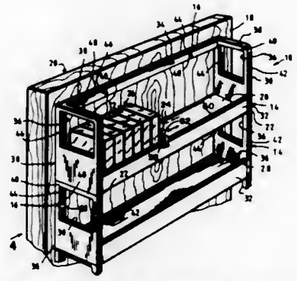
a) a plurality of shelf units, each said shelf unit is sized to hold only one size of the audio/video cassettes and compact discs in a vertical position therein so that each of said shelf units will carry a different sized audio/video cassette and compact disc, each said shelf unit further includes an elongated bottom wall; a pair of spaced parallel side walls attached to said elongated bottom wall; and an elongated frontwall shorter in height than said side walls, forming an open front for access into said shelf unit; each said side wall having an opening near its top edge thereof, to form a top rail, a front rail and a back rail, so that said top rails can be gripped by the hands of a person when each said shelf unit is being mounted against the vertical flat surface;

b) means for mounting each said shelf unit against a vertical flat surface, said mounting means for each shelf unit includes each said side wall having a transverse aperture through said back rail and two fasteners, each extending through one said transverse aperture in each said back rail and into the vertical flat surface;

c) means for interconnecting said shelf units together in a stacked one over the other vertical relationship against the vertical flat surface;

d) a clip member having a pair of vertical legs which can adjustably grip a top edge of said elongated front wall; and

e) a finger rearwardly attached to said clip member, so as to bear against an incomplete row that is less than fully stocked with the only one type of audio/video cassettes and compact discs and hole them in place.



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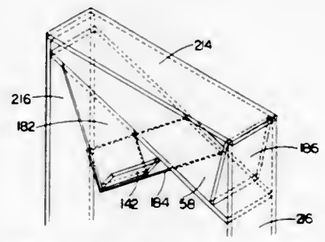
BOOK CASE WITH SHELVES AT RANDOM LONGITUDINAL ANGLES

Howard Rossmoore, 1879 Fiesta Dr., Sarasota, Fla. 34231

Filed Dec. 13, 1991, Ser. No. 807,104

Int. Cl.[5] A47F *5/00*

U.S. Cl. 211—42 **11 Claims**



1. A bookcase, comprising:

a frame including first and second substantially vertical side portions, a substantially horizontal top portion, a substantially horizontal bottom portion;

at least one substantially horizontal shelf adapted to support objects, the at least one substantially horizontal shelf associated with at least one of the side, top and bottom portions;

at least one angled shelf associated with at least one of the

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side, top, and bottom members and the substantially horizontal shelf; and

at least one shelf extension, extending forwardly from one of the at least one substantially horizontal shelf and the at least one angled shelf.

5,211,294

TILESETTERS TRAY

Michael G. Garman, Morro Bay, Calif., assignor to Tile Master Tools, a California General Partnership, Morro Bay, Calif.

Filed Mar. 2, 1992, Ser. No. 844,534
Int. Cl.[5] A47F 7/00
U.S. Cl. 211—70.6 **3 Claims**



1. A tilesetters tray that can be removably mounted on the rim of a bucket having an inside surface and an outside surface, comprising:

a top that is generally horizontal and that has a concave arcuate inner edge the radius of which is less than the radius of the rim of the bucket;

a skirt depending from the concave arcuate inner edge of said top and extending downward adjacent the inside surface of the bucket when said tilesetters tray is mounted on the rim of the bucket;

a first receptacle having a bottom that is spaced below said top and connected to said top by a wall, said wall including a portion spaced a particular distance from said skirt so as to extend downward adjacent the outside surface of the bucket when said tilesetters tray is mounted on the rim of the bucket;

a second receptacle having a bottom that lies in a common plane with the bottom of said first receptacle and that is connected to said top by a wall, the wall including a portion spaced a particular distance from said skirt so as to extend downward adjacent the outside surface of the bucket when said tilesetters tray is mounted on the rim of the bucket; and,

a third receptacle having a bottom that lies in a common plane with the bottoms of said first and said second receptacles and that is connected to said top by a wall, the wall including a portion spaced a particular distance from said skirt so as to extend downward adjacent the outside surface of the bucket when said tilesetters tray is mounted on the rim of the bucket.

5,211,295

ROTATABLE PACKAGE DISPLAY RACK WITH CROSS ARMS

Henry L. Dunn, Parkton, Md., assignor to Dunn Woodworks, Parkton, Md.

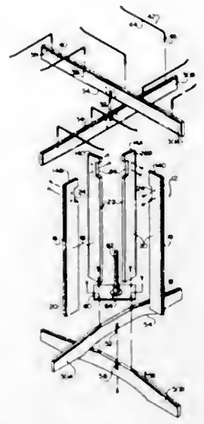
Filed Jun. 18, 1992, Ser. No. 900,289
Int. Cl.[5] A47F 5/00
U.S. Cl. 211—163 **14 Claims**

1. A rotatable package display rack comprising:

a post extending substantially vertically and comprising four boards, two of said boards being in spaced parallel relation and two of said boards being in spaced parallel relation and perpendicular to said first two boards, each said board having an edge engaging a surface of an adjacent board,

at least one cross arm extending transversely through said post and having spaced vertical surfaces, said vertical surfaces of said cross arm respectively engaging a surface of a first and a second board of said post, and

means for supporting said post at the lower end thereof.

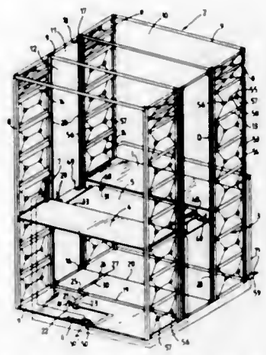


5,211,296

DEVICE AND PROCESS FOR THE STORAGE OF PRODUCTS

Philippe N. D'Heygere, Waalvest 15, B-8930 Menen, Belgium

Filed Oct. 1, 1991, Ser. No. 769,315
Int. Cl.[5] A47F 5/00
U.S. Cl. 211—187 **31 Claims**



1. Device for the storage of products, said device comprising:

(a) a frame provided with means for guiding supports for said products, a distance in a direction perpendicular to the direction in which the guiding means stretch separating the guiding means for one support from the guiding means for another support;

(b) a working place for a support removed from the frame or to be stored in said frame;

(c) an element for removing one support from said frame and bringing it on the working place and for storing one support in said frame;

(d) a circuit for feeding power to a system for moving the element in a direction substantially perpendicular to the direction in which the guiding means stretch, and

(e) a sensor for detecting a dimension of the support provided with the product to be stored, said sensor actuating a switch of said circuit so as to move a support to be stored when the dimension detected by the sensor is lower to the distance between the guiding means on which the support has to be placed and the adjacent guiding means.

5,211,297

FOLDABLE CRANE

James Vandervalk, P.O. Box 1178, Fort MacLeod, Alberta, Canada T0L 0Z0

Filed May 30, 1991, Ser. No. 707,743
Claims priority, application Canada, Feb. 22, 1991, 2036895
Int. Cl.[5] B66C 23/26
U.S. Cl. 212—182 **14 Claims**



9. A foldable crane comprising:

base means having at least one opening therein;

at least one channel-shaped boom member pivotally movable between operative and non-operative positions, said boom member having first and second opposed ends;

at least one channel-shaped load bearing support member having first and second opposed ends, said first end of said support member being pivotally connected to one of said first or second ends of said boom member, said second end of said support member being adapted for reception within said opening of said base means;

a coilapsible support means, said collapsible support means including a locking member pivotally connected to said load bearing support member, a hollow intermediate member pivotally connected to said locking member, a support member telescopically mounted in said intermediate member, means pivotally connecting said support member to said boom member, said locking member adapted to lockingly engage said intermediate member;

said base member further including cable means and actuatable winch means associated therewith;

retainer means mounted on said boom member for releasably receiving said cable means;

means for guiding said cable means from said winch means through said base means, locking member, load bearing support member and boom member to said retainer means;

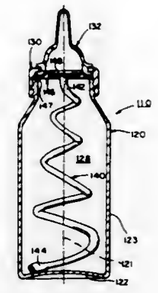
whereby upon actuation of said winch means said cable means tensionably effects unfolding of said boom member from the non-operative position adjacent said load bearing support member to an operative position wherein said boom member is angularly inclined relative to said load bearing support member.

5,211,298

NURSING DEVICES

Harry S. Bloch, 871 Green Ridge Cir., Langhorne, Pa. 19047

Filed Oct. 22, 1992, Ser. No. 965,681
Int. Cl.[5] A61J 9/00
U.S. Cl. 215—11.1 **7 Claims**



1. A nursing device comprising:

a container having a base, an upper end opposing the base, an interior and a mouth providing access to the container interior; and

a drinking tube having opposing first and second open ends, the first end being held at least proximal the container mouth and at least part of a remaining portion of the drinking tube extending away from the first end in loops extending more than once completely around within the container interior, the second end of the drinking tube being located proximal the base when the device is supported in an upright position on the base and proximal to the upper end of the container when the device is supported in an inverted position with the upper end down and at least the loops of the remaining portion of the drinking tube being sufficiently flexible to freely collapse and extend axially at least under the weight of the remaining portion of the drinking tube, the first end being journaled in a swivel positioned in the mouth of the container;

a soft flexible nursing nipple positioned over the swivel; and

an annular cap threaded onto the mouth of the container securing the swivel with the container between the container mouth and nursing nipple.

5,211,299

BABY BOTTLE CAP STORAGE ORGANIZATION

Keith J. Manfredonia, 7 Bount Dr. #518, Yonkers, N.Y. 10710

Filed Apr. 6, 1992, Ser. No. 864,327
Int. Cl.[5] A61J 9/00; B65D 43/03
U.S. Cl. 215—11.1 **4 Claims**

1. A baby bottle cap storage organization, comprising,

a generally cylindrical bottle member formed about an axis, wherein the bottle member includes a bottom wall at a lower distal end of the bottle member, with the bottom wall orthogonally oriented relative to the axis, and

a neck at an upper end of the bottle member spaced from the bottom wall coaxially aligned about the axis, and

a nipple cap mounted to the neck, with the nipple cap including a nipple member mounted within the cap, and

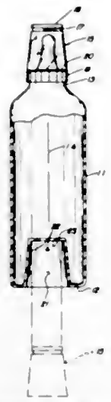
the nipple cap including an annular rib projecting upwardly of the nipple cap coaxially aligned about the axis, and

a cap member having a truncated conical body including a planar top wall and a lower entrance, with the lower entrance frictionally receiving the annular rib therewithin, and

the cap member includes an annular groove spaced from the cap member bottom top wall a predetermined spacing, and the bottle member wall includes a truncated conical cavity directed into the bottle member coaxially aligned

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relative to the axis extending from the bottom wall, wherein the truncated conical cavity complementarily

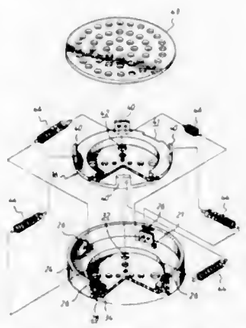


receives the truncated conical body of the cap member therewithin.

5,211,300
SAFETY VALVE FOR FEEDING BOTTLE

Chen Hsing; Chang Li, and Koo Horng-Show, all of Hsinchu, Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Oct. 1, 1992, Ser. No. 955,160
Int. Cl.[5] A61J 9/02
U.S. Cl. 215—11.4 8 Claims



1. A safety valve for a feeding bottle, said feeding bottle comprising a bottle body with an opening to receive therein milk and a rubber teat mounted on the opening of the bottle body, said safety valve which is disposed between the opening of the bottle and the rubber teat comprising:

a first member which is in the form of an outer cap with a first raised flat top in the middle having a plurality of first through holes formed thereon, said first member further comprising a plurality of inner wall segments substantially coaxial with an outer wall of said outer cap to define an interior space with said first raised flat top;

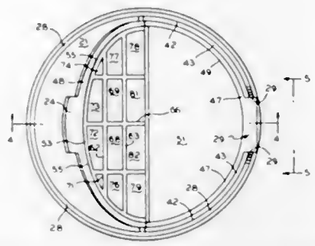
a second member which is in the form of a flanged inner cap with a second raised flat top in the middle with a plurality of flange segments depending from a periphery of a flange on a side opposite to said second raised flat top, said second member being disposed in said interior space of the first member in such a way to be rotatable relative to said first member from an open position to a closed position, said second raised flat top having a plurality of second through holes formed thereon corresponding to said first through holes of the first member in said open position; and

a plurality of temperature sensitive springs disposed between said first member and said second member in such a way to be immersible in the milk to sense the temperature thereof, each of said temperature sensitive springs having two ends respectively fixed on one of said inner wall segments of the first member and one of said flange segments of the second member, each of said temperature sensitive springs being deformable along a first direction of a longitudinal axis thereof when the temperature of the milk is higher than a pre-specified temperature range for causing movement from said open position to said closed position, and deformable along a second direction which is opposite to the first direction when the temperature of the milk is lower than the pre-specified temperature range for causing movement from said closed position to said open position.

5,211,301
SPOONING CLOSURE

Robert J. Groya, Norridge, and Richard W. Hoffman, Chicago, both of Ill., assignors to Magenta Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 485,246, Feb. 26, 1990, Pat. No. 5,085,331. This application Jan. 27, 1992, Ser. No. 826,072
The portion of the term of this patent subsequent to Feb. 4, 2009, has been disclaimed.
Int. Cl.[5] B65D 47/00
U.S. Cl. 215—245 21 Claims



1. A spooning closure for a container comprising a top, a skirt, and a locking means,

said top including a fixed portion and a spooning lid pivotally hinged to the fixed portion, said spooning lid adapted to pivot from a closed position to an open dispensing position,

said skirt being connected to said fixed portion and bounding said spooning lid when in the closed position, said skirt and fixed portion defining a spooning opening adapted to be covered when said spooning lid is in the closed position, and

said locking means comprising a tongue extending from the spooning lid and a locking slot formed on the top side of the skirt adjacent said fixed portion, said locking slot being sized to receive and frictionally engage said tongue to releasably lock said spooning lid in a closed position, and said locking slot is defined by a pair of flexible cantilevers.

5,211,302
COSMETIC ORGANIZER

Paolo Tiramani, 461 Taconic Rd., Greenwich, Conn. 06831

Filed Jul. 16, 1992, Ser. No. 913,803
Int. Cl.[5] B65D 6/00
U.S. Cl. 220—4.25 14 Claims

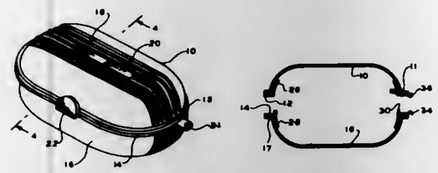
1. A cosmetic organizer comprising:

a lower tray; and

an upper cover including:

(a) an upper rim hinged to said lower tray and having an erect annular wall, said erect wall having a domed shaped, and

(b) a relatively flexible upper shell overlaying and mounted flush on said erect annular wall to follow its domed shape, said erect wall having at its top an inwardly converging

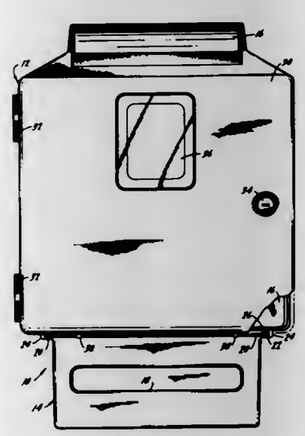


slope for supporting and directing said upper shell away from said erect wall at said inwardly converging slope, said erect wall being relatively rigid in comparison to said upper shell and being sized and sloped to keep the upper shell flexible on top and rigid on its side and to prevent collapsing or inverting of the upper shell, whereby said shell has a soft feel but maintains an erect shape.

5,211,303
DUAL CONTAINER SYSTEM WITH SELECTIVE LOCKING FEATURE

Donald J. Mosior, Lake Geneva, Wis., assignor to Sage Products, Inc., Crystal Lake, Ill.

Filed Jan. 15, 1992, Ser. No. 821,012
Int. Cl.[5] B65D 21/02
U.S. Cl. 220—23.83 20 Claims



1. A secure container system for mounting on a wall, comprising

a. a first container including a side having a predetermined exterior configuration,

b. a second container including a side having an exterior configuration complementary to said predetermined configuration,

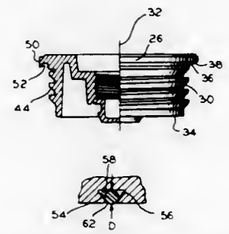
c. means mounting said second container on the exterior of said first container with said sides adjacent one another and with said second container being accessible independent of said first container, said mounting means being formed to permit lateral movement of said second container relative to said first container and including a first mounting position and a second mounting position, and

d. stop means mounted on said first container in alignment with said first mounting position for selectively preventing lateral movement of said second container relative to said first container only when said second container is mounted in said first mounting position and for permitting lateral movement of said second container relative to said first container when said second container is in said second mounting position, said step means having an extended portion projecting adjacent a portion of said second container and being positionable in a first orientation to lock said second container when in said first mounting position to prevent such lateral movement and a second orientation to unlock said second container to permit such lateral movement.

5,211,304
CLOSURE ASSEMBLY

Michael D. Stolzman, 28468 N. Ballard Dr., Lake Forest, Ill. 60045

Filed Mar. 31, 1992, Ser. No. 861,097
Int. Cl.[5] B65D 53/00
U.S. Cl. 220—304 16 Claims



1. A closure assembly for reducing leakage through an opening in a shipping and storage container, the closure assembly comprising:

a closure element having a longitudinal axis, the closure element having a first axial end receivable in the container opening and a second axial end with a peripheral flange outside the container when the first end is received in the container opening;

means operatively associated with said first axial end for releasably engaging the closure element with the container;

a slot on the peripheral flange having an axial opening which faces the container when the first end is received in the container opening, the slot having an end wall spaced axially from said opening and a pair of oppositely inclined sidewalls, the slot further having a depth characterized by the axial distance between the end wall and the opening; and

a seal member disposed in the slot and having a first surface engaging the end wall and an arcuate surface extending axially through the opening, said arcuate surface being captured in sealing relation between the peripheral flange and the container when the closure element is engaged with the container.

5,211,305
CARTON

Edward A. Horton, Middletown, Ohio, assignor to American Packaging Corporation, Philadelphia, Pa.

Filed Jul. 27, 1992, Ser. No. 919,894
Int. Cl.[5] B65D 43/16, 5/56
U.S. Cl. 220—461 14 Claims

1. A carton having a six-sided configuration comprising

an outer shell made of paperboard material,

a liner within said outer shell made of a sift-proof material and having an open upper end,

said outer shell having an upper and a lower end and includ-

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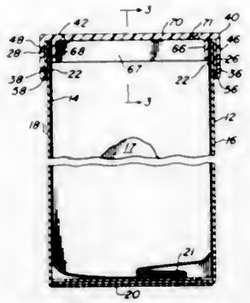
ing four sidewalls extending therebetween and arranged in a rectangular configuration,

said outer shell having means at the lower end thereof for forming a rectangular bottom closure,

said outer shell having a rectangular-shaped open top formed at the upper ends of said sidewalls,

said sidewalls of said outer shell having flaps folded downwardly from said open top thereof to extend alongside said sidewalls to provide a rim extending around said outer shell at a location spaced downwardly from said top end,

a rectangular lid made of a recyclable plastic material,



said lid having a top wall provided with a re-closable pour opening therein and four sidewalls arranged in a rectangular configuration and extending downwardly from said top wall to overlie said flaps of said sidewalls of said outer shell,

said sidewalls of said lid having shoulders formed thereon adapted to interlock with said rim formed by said flaps of the outer shell to secure said lid in position on top of said outer shell,

and means for adhering the inner wall of said outer shell to the upper end of said liner along a band extending around a perimeter of said liner at its upper end.

5,211,306

PRESSURE VESSEL FOR STORING A PRESSURE MEDIUM

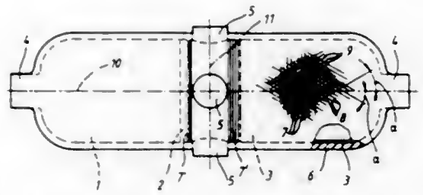
Gudrun Delonge-Immik, Kornwestheim; Wolfgang Henseler, Tübingen; Heinz Knoll, Stuttgart, and Wolf-Dietrich Münzel, Altdorf, all of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Feb. 24, 1992, Ser. No. 839,551

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1991, 4105787

Int. Cl.[5] B65D *1/16*

U.S. Cl. 220—588 **12 Claims**



1. A pressure vessel for storing a pressure medium, comprising an elongated, pressure-tightly closable hollow body, at least one valve-closable opening for the flowing-out of the pressure medium, surrounded by a fiber composite winding surrounding the circumference of the hollow body, said hollow body comprising two half-shell-like vessel parts being pressure-tightly connected on both sides of the annular functional member, the hollow body being essentially rotationally symmetrical, and a plurality of radially outward-protruding connections in communication with the pressure medium distributed symmetrically over the circumference of said functional member.

5,211,307

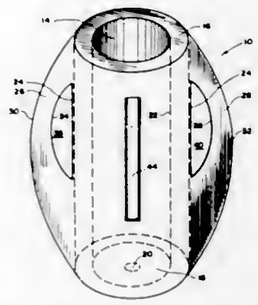
INSULATED CONTAINER HOLDER

Nam T. Jeffries, 2609 Wagon Wheel Dr., Mobile, Ala. 36695

Filed Jun. 6, 1991, Ser. No. 711,204

Int. Cl.[5] A47J *45/00*

U.S. Cl. 220—739 **1 Claim**



1. A beverage container holder, comprising:

a lightweight porous resilient insulating flexible holder body having an open top, bottom wall, a substantially cylindrical continuous side wall enclosing a container when the container is positioned within the holder body and a central opening extending from the open top to the bottom wall, said side wall being provided with a narrow elongated slot extending in substantially parallel relationship to a longitudinal axis of the holder to allow visual determination of a level of contents in the container positioned within the central opening;

a pair of handle means integrally formed at diametrically opposite sides of the continuous side wall, each of said handle means being oriented to extend in a generally vertical orientation, each of said handle means being formed by a convex outer surface and a concave inner surface, said inner surface being spaced from a continuous side wall to allow gripping of the handle means;

and wherein said central opening is defined by a continuous cylindrical inner wall which exerts a discreet compression force on the container, while frictionally engaging the container and preventing the container from sliding within the holder.

5,211,308

UNIVERSAL FUNNEL FOR A PAPER DISPENSER

Joseph A. Decker, and David Pecoraro, both of Houston, Tex., assignors to NYCO International, Inc., Houston, Tex.

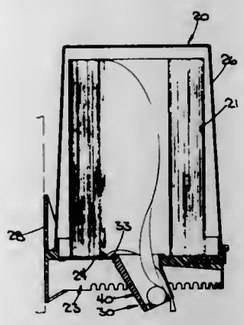
Filed Feb. 27, 1992, Ser. No. 842,476

Int. Cl.[5] B65H *1/00*

U.S. Cl. 221—63 **17 Claims**

1. A funnel for dispensing paper, said funnel comprising a one-piece tubular body molded of plastic and having a substantially vertically extending upper end portion, said body having a lower end portion extending downwardly from and inclined at a predetermined angle relative to said upper end portion, said lower end portion having a bottom, a pair of spaced paper dispensing ports extending through the bottom of said lower end portion, said ports being of different sizes to accommodate

paper of different thicknesses, a ball seat formed in said bottom between said ports, and a generally spherical ball located



within said lower end portion and supported to spin in said ball seat.

5,211,309

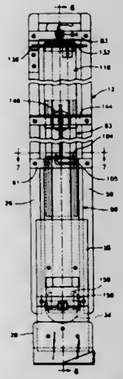
CONTROLLED CONTAINMENT SYSTEM FOR BOTTLED BEVERAGE VENDING MACHINES

Richard D. Crook, Cypress, Tex., assignor to FAB Design Concepts, Inc. and Nutrivend, Inc., both of Houston, Tex., a part interest

Filed May 29, 1992, Ser. No. 889,987

Int. Cl.[5] B65G *59/06*

U.S. Cl. 221—67 **18 Claims**



1. In a bottled beverage vending machine including at least one vertically oriented storage column having a rotatable dispensing tray at the lower end thereof for dispensing the lowermost bottle of a vertical stack of horizontally disposed bottles and a collection door for discharge of the bottle for access by a beverage consumer, said storage column including spaced, vertically disposed side walls, the improvement comprising an inner guide track supported between the walls and an outer guide track supported between the walls with the outer guide track being generally in alignment with the outer vertical edges of the walls of the storage column, each of said guide tracks including vertically disposed, parallel, laterally spaced, aligned flanges having parallel inwardly facing edges for receiving the necks of alternately arranged, neck-to-bottom, bottles to retain the bottle necks in substantial vertical alignment with the side walls of the storage column maintaining the bottle bottoms substantially in vertical alignment, said outer guide track including a lower stationary segment and upper removable segments to provide access to the storage column for placing bottles in the storage column, said inner guide track including a stationary lower segment in opposed facing relation to the stationary lower segment of the outer guide track with the lower stationary segments extending to a height to enable bottles to be initially placed on the dispensing tray and then stacked in a lower portion of the column from the area of the storage column above the outer stationary track segment, said inner guide track including an upper adjustable track to hold bottle necks of alternate bottles in the vertical stack in temporary suspension when placing bottles in the storage column above the stationary bottom segments when the upper segments of the outer guide track are removed to retain the bottle necks in alternate bottles in vertical alignment and means adjusting the upper track of the inner guide track between closed and open positions to release the bottle necks of alternate bottles engaged with the upper adjustable track after the upper removable segments of the outer guide track have been positioned to engage and retain the outer ends of the stacked bottles in the storage column thereby enabling free downward movement of the stacked bottles as the lowermost bottle is dispensed by the dispensing tray.

5,211,310

APPARATUS AND METHOD FOR DISPENSING PHASES OF BLOOD

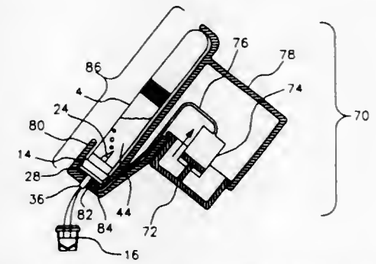
William J. Godolphin, Vancouver; Winona C. Specht; David P. Pires, both of North Vanouver, and Geoffrey T. Killam, Vancouver, all of Canada, assignors to Andronic Devices Ltd.

Filed Apr. 30, 1991, Ser. No. 693,653

The portion of the term of this patent subsequent to Apr. 30, 2008, has been disclaimed.

Int. Cl.[5] B65G *59/00*

U.S. Cl. 222—1 **4 Claims**



1. Apparatus for dispensing a liquid such as blood, blood sera or blood plasma from a closed blood collection tube comprising:

(a) closure piercing means having an end shaped for piercing a stopper of a blood collection tube and for extending into the tube;

(b) liquid path means located within said closure piercing means for defining an opening through the stopper when the closure piercing means is inserted through the stopper of the blood collection tube;

(c) gas passage means to allow gas to be introduced into the interior of the blood collection tube for the purpose of dispensing liquid from the tube, gas passage means having flow restriction means to substantially prevent liquid from entering said gas passage;

(d) sealing means for preventing gas from escaping between the stopper of the blood collection tube and the apparatus;

(e) a sensing means to determine the amount of liquid contained within the blood collection tube and to produce a first signal indicative of that amount;

(f) input means to produce a second signal indicative of a specified quantity of liquid to be dispensed; and

(g) controlling means responsive to first and second signals to regulate the introduction of gas into the blood collec-

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tion tube so that the specified quantity of liquid is dispensed.

2. Method for dispensing a liquid such as blood, blood sera or plasma from a closed blood collection tube comprising the steps of:

(a) inserting dispensing apparatus through a stopper of a closed blood collection tube which contains a liquid;

(b) making and maintaining a seal between the dispensing apparatus and the stopper of the blood collection tube;

(c) inverting the dispensing apparatus and blood collection tube so that the liquid contained in the tube is above said stopper and dispensing apparatus;

(d) displacing a predetermined amount of liquid from the tube through the dispensing apparatus; and

(e) receiving from blood collection tube and dispensing apparatus the displaced amount of liquid.

5,211,311

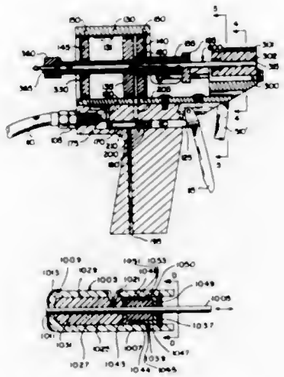
CARTRIDGE FOR A DISPENSER OF REACTIVE CHEMICALS

Donald H. Petcen, Colonial Heights, Va., assignor to E. R. Carpenter Company, Inc., Richmond, Va.

Continuation-in-part of Ser. No. 370,310, Jun. 23, 1989, Pat. No. 5,090,814. This application Oct. 17, 1991, Ser. No. 778,362

Int. Cl.[5] **B05B** *7/04, 15/02;* **B01F** *5/04, 15/02*

U.S. Cl. 222—145 **17 Claims**



1. A cartridge assembly for use with a dispenser of reactive chemicals, comprising:

a purging member;

a mixing assembly which has a forward and a rearward end, said mixing assembly including a deformable member having a longitudinal passageway formed therein which defines a mixing chamber and the longitudinal passageway extending to form a forward outlet opening and a rearward opening in said deformable member, said mixing assembly including an exterior surface, and said mixing assembly including first and second chemical passageways which extend from the exterior surface, pass through said deformable member at a position between the forward and rearward openings in said deformable member, and open into the mixing chamber;

said purging member being adapted for reciprocal travel within the mixing chamber and to positions forward and rearward of said first and second chemical passageways;

scraping means for avoiding build up of the reactive chemicals on said purging member, said scraping means including first and second cup-shaped members with each of said cup-shaped members having a base portion, a side portion and a rim portion with the base, side and rim portions of each cup-shaped member defining a recess, and said cup-shaped members being positioned within said mixing assembly such that said rim portions are positioned adjacent one another, the base portions of said first and second cup-shaped members including an aperture in alignment with said longitudinal passageway, said scraping means further comprising a deformable insert which includes a first and a second end with said first end of said insert positioned within the recess of said first cup-shaped member and the second end of said deformable insert positioned within the recess of said second cup-shaped member, said insert including a through-hole which is aligned with said longitudinal passageway, and said purging member being dimensioned and arranged for reciprocal travel within said longitudinal passageway, said aligned through-hole of said deformable insert and the apertures formed in said cup-shaped members; the apertures in said cup-shaped members being sized so as to place said cup-shaped members in a scraping relationship with said purging member, and wherein said mixing assembly includes an essentially non-deformable shell housing having an exterior which defines the exterior surface of said mixing assembly, said shell housing having an interior surface in contact with an exterior surface of said deformable member, and said first and second chemical passageways extending through said shell housing.

5,211,312

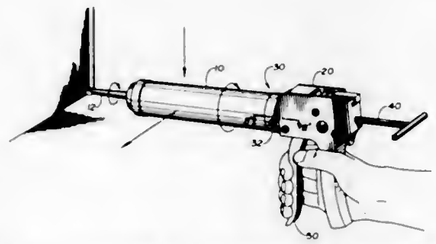
CAULK DISPENSING DEVICE WITH THUMB-CONTROL LOCK

Peter J. Y. Chang, 11001 Petersborough Dr., Rockville, Md. 20852

Filed Oct. 28, 1991, Ser. No. 783,276

Int. Cl.[5] **B67D** *5/42;* **G01F** *11/00*

U.S. Cl. 222—153 **15 Claims**



1. An improvement in a caulk dispensing device having a housing with a downwardly extending handle, a trigger pivoted to said housing and compressible against said handle, a barrel extending from said housing, said barrel being rotatable with respect to said housing for convenient angular caulking, and a piston and rod assembly driven through said barrel by said trigger for dispensing a compound, the improvement comprising;

an on/off thumb control lock for controlling rotation of said barrel, said thumb control lock further comprising,

a rotatable collar in which said barrel is seated;

gripping means compressible against said collar for preventing rotation of said collar and barrel,

a thumb-switch for selectively compressing said gripping means against said collar, said thumb-switch being mounted proximate to said handle for allowing thumb-control of barrel rotation during operation of said trigger.

5,211,313

DISPENSING TAPS

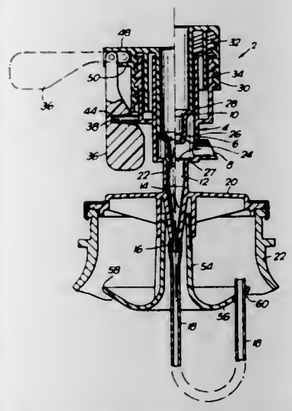
Anthony J. Lucking, London; Charles A. Lane, Kingston-on-Thames, and Derek L. Tyrrell, Rochford, all of England, assignors to Waddington & Duval Limited, England

Filed Jun. 10, 1991, Ser. No. 712,955

Claims priority, application United Kingdom, Jun. 20, 1990, 9013728

Int. Cl.[5] **B67B** *5/00*

U.S. Cl. 222—153 **15 Claims**



1. A tap for attachment to a cask or bottle comprising:

a body having an inlet and an outlet;

a valve element for controlling fluid flow from the inlet to the outlet;

an elongate small bore capillary tube having a first and a second end, the first end being connected to the body inlet;

a sleeve having a first end and a second end, the first end of the sleeve surrounding the first end of the capillary tube and the body inlet, the second end of the sleeve having a sleeve mouth flaring outwardly and backwardly so that the capillary tube does not kink against the sleeve; and

an aperture in the sleeve to receive the second end of the capillary tube in a close fit.

5,211,314

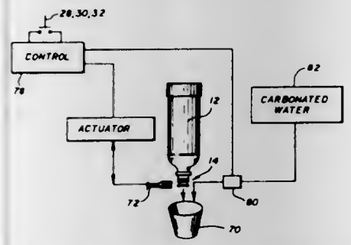
SYRUP DISPENSER AND VALVE ASSEMBLY

Bruce D. Burrows, Valencia, Calif., assignor to Ebtech, Inc., Columbus, Ohio

Filed Dec. 27, 1991, Ser. No. 813,782

Int. Cl.[5] **B67D** *5/06*

U.S. Cl. 222—185 **20 Claims**



1. A dispenser valve assembly for mounting within the neck of a bottle to control dispensing of a liquid contained within the bottle, said dispenser valve assembly comprising:

a base member having a base plate mounted within the bottle neck and defining at least one liquid outflow port, said base member further including a vent tube projecting from said base plate a short distance into the bottle interior and defining a vent port, said base plate and vent tube cooperatively defining a vent passage for admitting air into the bottle interior; and

a valve member mounted on said base member for linear reciprocal movement between first and second positions, said valve member including means for closing said liquid outflow port and said vent port when said valve member is in said first position to prevent fluid flow therethrough, and for opening said liquid outflow port and said vent port when said valve member is in said second position to permit fluid flow therethrough;

said valve member including an elongated valve stem projecting into said vent passage, said valve stem and said vent tube including slidably interengageable seal means for closing said vent port when said valve member is in said first position.

5,211,315

SPRAYER DEVICE COMPRISING A TRIGGER LEVER

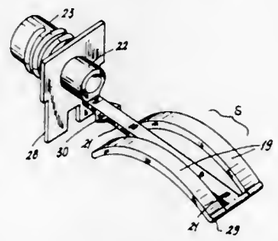
Adalberto Geier, Villazzano, Italy, assignor to Coster Tecnologie Speciali S.p.A., Italy

Filed Jul. 14, 1992, Ser. No. 915,414

Claims priority, application Italy, Aug. 30, 1991, MI91 A002333

Int. Cl.[5] **B67D** *5/40*

U.S. Cl. 222—383 **3 Claims**



1. An improved manually operated sprayer device connected in use to a container (3) containing a liquid for the purpose of spray-dispensing this liquid, the device comprising means (4) for its connection to the container (3), a body (5), a cylinder (13) in said body, a delivery duct (17, 18) and a suction duct (10) in said body (5) in communication (11) with said cylinder (13), a piston (13A) slidingly mounted in the cylinder (13), a trigger lever (15) rotatably supported in said body (5) and connected to the piston (13A), elastic return means (19) acting between the trigger lever (15) and the body (5), a suction valve (9), a delivery valve (26), and a nozzle (24) receiving the liquid from the delivery duct (18), characterised in that the elastic return means (19) form part of a single moulded plastics structure (S) comprising, to constitute said elastic return means, two elastic arms (19) which at one end (29) are connected together and to an intermediate longitudinal element (21) carrying at one end a connector (22, 23) for connection to the delivery duct (18) and to the nozzle (24), with which it defines a chamber (25) for containing the delivery valve (26).

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5,211,316

DUAL-CHAMBER PACKAGE

Geier Adalberto, Villazzano, Italy, and Karl A. Kohler, Racine, Wis., assignors to Coster Tecnologie Specialis p.a., Italy and S. C. Johnson & Son, Inc., Racine, Wis.

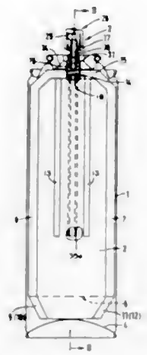
PCT No. PCT/EP90/00085, § 371 Date Oct. 14, 1991, § 102(e) Date Oct. 14, 1991, PCT Pub. No. WO90/10583, PCT Pub. Date Sep. 30, 1990

PCT Filed Jan. 16, 1990, Ser. No. 761,862

Claims priority, application Fed. Rep. of Germany, Mar. 10, 1989, 3907858; May 2, 1989, 3914517

Int. Cl.[5] B65D *25/18*

U.S. Cl. 222—386.5 15 Claims



1. A dual-chamber package having a substantially dimensionally stable outer container (1) with a container bottom and a dispensing valve (2) for holding and dispensing a flowable medium including liquid or pasty contents and an inner container disposed in the outer container (1) for receiving a pressurized gas, said inner container (3) being a flexible inner bag and said dispensing valve (2) including a dispensing tube (17) disposed within a valve body (14) for movement from a closed position to an open position and vice versa, comprising the improvement wherein said inner bag (3) is connected to the dispensing valve (2) and filled therethrough with said pressurized gas with said outer container (1) filled with said flowable medium and closed, said dispensing valve (2) having a control for opening the valve and discharge said flowable medium from the outer container (1) in response to expansion of said inner bag (3) and said inner bag (3) including sheet material folded upon itself to form sidewalls having side edges (7,8) and having a folded bottom end constructed and arranged to form a substantially flat bag bottom (5) extended across the container bottom (4), said inner bag having at least one sealed portion (13) connecting said sidewalls and extending from an upper end of said inner bag facing the dispensing valve (2) towards the folded bottom end and located between the edges (7, 8) of said bag to form a releasably sealed joint (13), said sealed joint (13) having a strength to hold said sidewalls together and cause said folded bottom end to form said flat bag bottom (5) in response to initial introduction of said gas into inner bag and subsequently releasing said sidewalls.

5,211,317

LOW PRESSURE NON-BARRIER TYPE, VALVED DISPENSING CAN

George Diamond, R.D. 1, Box 334, and Ralph Helmrich, 62 Anthony Rd., both of Glen Gardner, N.J. 08826

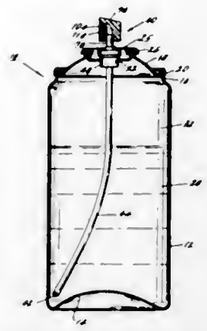
Filed Jun. 18, 1992, Ser. No. 900,414

Int. Cl.[5] B67D *5/42*

U.S. Cl. 222—394 19 Claims

1. A low pressure, non-barrier type, valved dispensing can for containing and dispensing fluent materials by compressed and/or liquified gas the can comprising:

a generally cylindrical can having a wall of such a material and with such a thickness that when the can is unpressurized, the can wall is easily distortable by normal finger pressure and is easily crushable by normal hand pressure, but when the can is pressurized, the can is rigid enough to not be easily distortable and crushable by normal finger and hand pressure;



the can being adapted for containing propellant and fluent material to be dispensed, the propellant and fluent material not being separated by a barrier in the can between them;

a dispensing valve on the can with a valve orifice adapted to be opened to dispense a desired quantity and rate of flow of fluent material and propellant in selected spray, foam or stream form in a manner such that the can will retain enough propellant pressure to expel substantially all of the dispensable fluent material in the can.

5,211,318

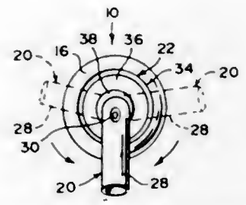
SELF-ADJUSTING LIQUID POURER

George J. Govatzidakis, Brown University, P.O. Box 1425, Providence, R.I. 02912

Filed Dec. 2, 1991, Ser. No. 801,402

Int. Cl.[5] B67D *3/00*

U.S. Cl. 222—479 2 Claims



1. A self-adjusting liquid pourer for a bottle having a neck, which comprises:

a) a casing;

b) means for securing said casing to the neck of the bottle including a flexible, tapered, grooved hollow plug having one end affixed to a rear portion of said casing, so that the other end of said plug can be inserted with a force-fit within the neck of the bottle in liquid tight engagement therewith;

c) a pouring spout assembly comprising a curved liquid dispensing tube with inlet and outlet ends and having an external air vent therein, said inlet end being in communication with said hollow plug and an elongated air tube which extends from the air vent through said plug; and

d) means for rotatively securing said pouring spout assembly to said casing comprising a sealed ball bearing mechanism including an outer stationary cylindrical race member affixed to said casing; and an inner rotating cylindrical race member affixed to an outside of said curved liquid dispensing tube of said pouring spout assembly adjacent the inlet end, whereby upon pouring gravitational force will cause said pouring spout assembly always to rotate to a position in which the outlet end is lowermost with respect to the position of the bottle, so that the liquid can be poured out through said pouring spout assembly.

5,211,319

METHOD OF PREVENTING SEPARATION IN BULK MATERIALS

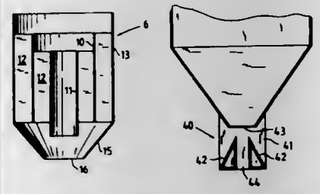
Bo Reinholdsson, Örsundsbro, Sweden, assignor to Uni Patent AB, Örsundsbro, Sweden

Filed Feb. 1, 1991, Ser. No. 649,713

Claims priority, application Sweden, Jun. 2, 1989, 8902022; Mar. 2, 1990, 9000757

Int. Cl.[5] E01C *19/08*

U.S. Cl. 222—547 17 Claims



1. An apparatus for dispensing solid bulk material which comprises solid ingredients of varying sizes, the apparatus including a drum having a first end having an opening into which said solid bulk material may be dispensed into said drum and an opposite second end having an opening which can be opened and closed and from which said solid bulk material may be discharged from said drum when said opposite second end is opened, wherein the improvement comprises means positioned within said drum and dividing said drum into a plurality of compartments each having a constant cross-section for (a) segregating into said plurality of compartments said solid bulk material, which is dispensed into said drum at said first end, in the absence of any substantial separation of said solid bulk materials according to size and (b) dispensing said solid bulk material towards said opposite second end such that any separation of said solid ingredients according to size which might occur in any compartment of said plurality of compartments will be substantially eliminated when said solid bulk material is discharged at said opposite second end.

5,211,320

DEVICE FOR BENDING OVER FABRICS TO BE SEWN

Heinz Hubele, Kaiserslautern, Fed. Rep. of Germany, assignor to G. M. Pfaff Aktiengesellschaft, Kaisers Lautern, Fed. Rep. of Germany

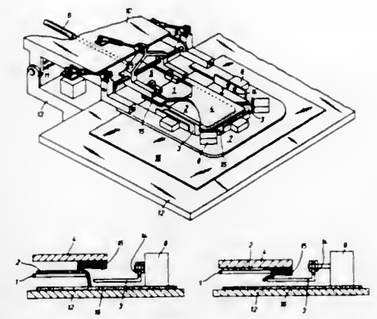
Filed Apr. 14, 1992, Ser. No. 868,297

Claims priority, application Fed. Rep. of Germany, Apr. 22, 1991, 4113131

Int. Cl.[5] A41H *33/00*

U.S. Cl. 223—38 5 Claims

1. A device for binding over a fabric, comprising: a fabric support plate with edges defining bending edges; pressing means movable to be placed on the fabric, the outer contour of the pressing means extending beyond an outer contour of the fabric support plate, said pressing means having at least in an edge zone an elastically deformable holding means for the fabric, forming a guide surface for a bending area of the fabric after the pressing means has been placed over the fabric; and a bending plate cooperating with said fabric support plate and



movable beneath and in parallel to a plane of said fabric support plate.

5,211,321

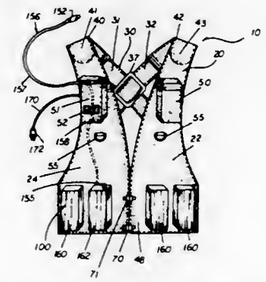
BATTERY AND EQUIPMENT VEST

Norton Rodriguez, 1721 SW. 73 Court Rd., Miami, Fla. 33155

Filed Nov. 25, 1991, Ser. No. 797,378

Int. Cl.[5] A45F *3/04*

U.S. Cl. 224—215 27 Claims



1. A battery and equipment vest comprising:

a vest-type article,

said vest-type article including a front portion and a rear portion,

said front portion and said rear portion integrally interconnected at a left shoulder and a right shoulder,

said front portion including a left chest panel and a right chest panel extending beneath said left shoulder and said right shoulder, respectively,

said front portion further including a front fastener for fastening a bottom portion of said left chest panel with a bottom portion of said right chest panel,

said rear portion including a pair of adjustable straps extending from said left shoulder and said right shoulder in overlapping, crisscross relation with one another,

said pair of adjustable straps being connected at lower distal ends thereof to a lower back panel,

said lower back panel, said right chest panel, and said left chest panel including electrical conduction means for supplying electricity to peripheral equipment,

said right chest panel and said left chest panel being adjustably attached to opposite distal ends of said lower back panel by waist adjustment means,

said waist adjustment means including a pair of tongue-like flaps extending from, and integrally formed with, said opposite distal ends of said lower back panel,

said tongue-like flaps having means for interconnecting said

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electrical conduction means in a hidden way between said front portion of said rear portion,

said waist adjustment means further including a pair of strap-like loops positioned along an inside surface of said left chest panel and said right chest panel, such that each of said pair of tongue-like flaps may be adaptively received therethrough, and

said waist adjustment means also including adjustable fastening means for fastening the waist adjustment means attached to a distal end of each of said pair of tongue-like flaps and to said inside surface of said left chest panel and said right chest panel.

5,211,322

SECURITY SHEATH FOR KNIVES

Charles V. Nealy, 822 Thomas St., Stroudsburg, Pa. 18360

Filed Mar. 7, 1991, Ser. No. 665,685
Int. Cl.[5] B26B *29/02*
U.S. Cl. 224—232 **9 Claims**



1. A knife sheath adapted for securely gripping a knife having a hilt and a knife blade to prevent non-voluntary separation of said knife from within said sheath, said sheath comprising:

(a) two opposite sheath walls formed of a substantially rigid yet resilient plastic resin material, said sheath walls being arranged and constructed such that said walls are adapted to encompass said knife blade therebetween,

(b) said opposite sheath walls being secured together along substantially intersecting edges,

(c) said opposite sheath walls being heat molded to conform to at least a substantial portion of said knife blade and a portion of the hilt such that the sheath is adapted to grip said knife blade and a portion of said hilt inserted thereinto sufficiently tightly to retain said knife and prevent gravitationally-induced separation if oriented in an inverted position, and

(d) a resilient gripping arrangement on said sheath and being adapted for secondary resilient contact with said hilt of said knife when inserted into the sheath, and

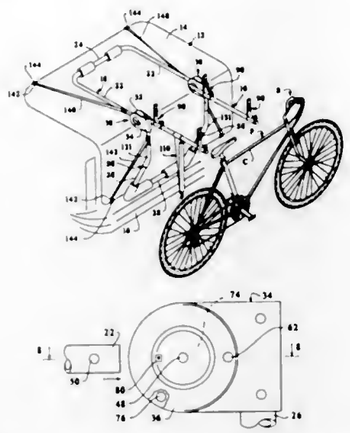
(e) means for supporting said sheath on a user, said means for supporting being secured to the sheath adjacent to a lower end of the sheath and comprising a semirigid clip in the form of a generally rectangular semirigid sheet adapted for insertion into and bulk stabilization of the clip in a pocket of clothing on a user such that said sheath and said knife contained therein are oriented in an inverted position and dependent from said clip, the semirigid sheet of the clip extending substantially parallel to one of said opposite sheath walls whereby when the clip is inserted into a pocket, a rear portion of the sheath and a side of the hilt of said knife retained in the sheath are adapted to lie against a front portion of a pocket in which the clip is contained.

5,211,323

BICYCLE CARRIER ADAPTED TO BE MOUNTED ON THE BACK OF A VEHICLE

Thomas A. Chimenti, New Canaan, Conn.; Daniel K. Ng, Somers, and Raymond R. Raaber, Tuckahoe, both of N.Y., assignors to Industri AB Thule, Hillerstorp, Sweden

Filed Feb. 3, 1992, Ser. No. 829,282
Int. Cl.[5] B60R *9/00*
U.S. Cl. 224—314 **16 Claims**



1. A bicycle carrier adapted to be mounted on the rear of a vehicle, comprising:

first and second mounting members;

a pair of horizontally spaced bicycle supporting arms connected to said first and second mounting members for receiving at least one bicycle;

securing means for releasably securing said first and second mounting members to the rear of the vehicle; and

pivot-forming means forming a pivot connection between said mounting members to enable said mounting members to be pivoted relative to one another about a generally horizontal pivot axis between a plurality of adjusted positions for adjusting an angle formed between said mounting members;

said pivot-forming means including indicia corresponding to each of said adjusted positions of said mounting members, and means for indicating the respective indicia when said mounting members are in each of said adjusted positions, said indicia corresponding to respective vehicle models so that each indicia indicates an adjustment position for a respective vehicle model.

5,211,324

COMPOSITE BOAT TRANSPORT PROVIDING CLIPLESS SECUREMENT OF SEMICONDUCTOR DEVICE ASSEMBLY TO BOAT TRANSPORT, AND OF LID TO PACKAGE BODY

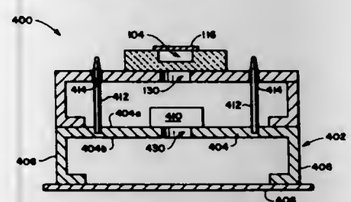
Wallace A. Fiedler, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Aug. 21, 1992, Ser. No. 933,450
Int. Cl.[5] B23K *3/00*
U.S. Cl. 228—44.3 **5 Claims**

1. Composite boat transport for supporting semiconductor packages during assembly, comprising:

a planar platform member having a top surface and a support area on the top surface for supporting a semiconductor package body;

a loader member having a top surface for supporting the planar platform member; and



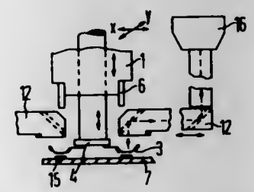
a magnet mounted to the loader member at a location where the magnet will exert a force holding a lid onto the semiconductor package body.

5,211,325

METHOD AND APPARATUS FOR SOLDERING SURFACE-MOUNTABLE COMPONENTS TO A PRINTED CIRCUIT BOARD

Matthias Schweizer, Igenhausen, and Horst Derleth, Diedorf, both of Fed. Rep. of Germany, assignors to Siemens Nixdorf Informationssysteme AG, Fed. Rep. of Germany

Filed Jun. 10, 1992, Ser. No. 896,672
Claims priority, application Fed. Rep. of Germany, Jun. 26, 1991, 4121107
Int. Cl.[5] B23K *3/00*
U.S. Cl. 228—105 **2 Claims**



1. A method for a soldering surface-mountable component having outer leads onto solder locations of a printed circuit board, comprising the steps of:

lowering a combination thermode and suction pipette to a known position over the component as the component is on a bending sink;

applying a suction to the suction pipette to temporarily affix the component to the suction pipette;

optically checking a position of the outer leads of the component relative to the thermode and suction pipette;

positioning the component while affixed on the suction pipette at a mounting location the printed circuit board;

optically checking a position of the outer leads of the component relative to the solder locations on the printed circuit board;

lowering the thermode until the outer leads of the component are positioned on the soldering locations of the printed circuit board;

discontinuing the suction to the suction pipette;

displacing the suction pipette a short distance above the component surface;

blowing nitrogen through the suction pipette onto the soldering locations and simultaneously applying soldering current to the thermode;

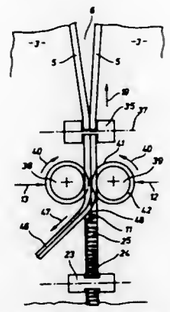
returning the thermode and suction pipette to a final position.

5,211,326

METHOD OF MANUFACTURING A BUILT-UP METAL PLATE AND WELDING CARRIAGE FOR THE CARRYING OUT OF THE METHOD

Xaver Lipp, Hohenstaufer Str. 30, Ellwangen, Fed. Rep. of Germany 7090

Filed Dec. 6, 1991, Ser. No. 804,102
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1990, 4039113
Int. Cl.[5] B23K *28/02*
U.S. Cl. 228—170 **12 Claims**



1. A method of manufacturing a built-up sheet panel comprising the steps of:

locating sheet metal panels alongside of each other,

forming a double flanged joint with raised flange edges between said sheet metal panels by feeding separate sheet metal edges relative to a welding carriage, said sheet edges being mated together but not welded prior to engagement by said carriage,

guiding said welding carriage along the flange edges,

welding said flange edges together by means of said welding carriage, and

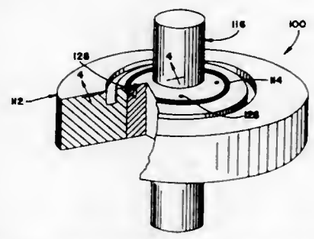
shortening the raised flanged edges shortly before effecting the welding.

5,211,327

METHOD OF WELDING

Theodore M. Clarke, Western Springs, and Barry Slee, Lake Forest, both of Ill., assignors to Case Corporation, Racine, Wis.

Filed Mar. 20, 1991, Ser. No. 672,368
Int. Cl.[5] B21D *39/00*
U.S. Cl. 228—174 **11 Claims**



1. A method of inhibiting shrinkage cracking of a weld joint during a weld solidification process comprising the steps of:

abutting interfacing surfaces defined by metal pieces to be welded;

directing a power beam against the abutting area of said interfacing surfaces with an intensity sufficient to cause metal adjacent said surfaces to become heated and melt

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thereby producing a weld joint from the coalescence of metals;

providing a relatively narrow ligament on one of said metal pieces including at least a portion of a boundary region of said weld joint, and with said ligament being configured with a length extending generally parallel to the direction of the power beam and measures about two times the depth of the weld joint and a width which measures about the depth of the weld joint whereby the ligament is allowed to flex and reduce constraints on the weld joint during weld solidification thereby inhibiting formation of shrinkage related cracking of the weld joint; and

providing an elongated slot below the weld joint and extending from one of the abutting surfaces to limit the depth of the weld joint.

5,211,328

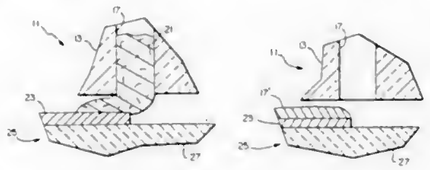
METHOD OF APPLYING SOLDER

Joseph G. Ameen, Apalachin; Joseph Funari, Vestal, and Ronald J. Moore, Binghamton, all of N.Y., assignors to International Business Machines, Armonk, N.Y.

Filed May 22, 1992, Ser. No. 886,895

Int. Cl.[5] B23K *1/20*; H01L *21/60*

U.S. Cl. 228—180.2 **20 Claims**



1. A method of applying solder to metallic sites on a substrate, said method comprising:

providing a transfer member having a plurality of holes therein, selected ones of said holes having a predetermined volume;

substantially filling said selected ones of said holes with solder paste;

positioning said transfer member having said selected ones of said holes substantially filled with said solder paste in aligned orientation relative to a substrate having a plurality of metallic sites thereon such that said selected ones of said holes having said solder paste therein are aligned with said metallic sites;

heating said transfer member to a predetermined temperature to cause said solder paste within said holes to become molten and flow onto said metallic sites; and

cooling said flowed solder on said metallic sites such that said solder solidifies, said method being accomplished without the use of a solder mask or the like.

5,211,329

FOOD PRODUCT CONTAINER

James D. Patton, Arlington, Tex., assignor to Bates Container, Inc., N. Richland Hills, Tex.

Filed Jun. 25, 1992, Ser. No. 904,374

Int. Cl.[5] B65D *5/22*

U.S. Cl. 229—110 **9 Claims**

1. A container formed of a single piece of paperboard blank for holding a flat circular food product, comprising in combination:

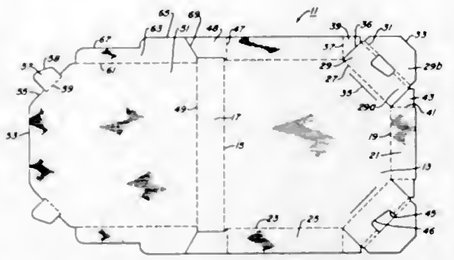
a bottom defined by a rear fold line, a pair of side fold lines, a front fold line, and a pair of corner fold lines, each corner fold line extending diagonally between the front fold line and one of the side fold lines;

a pair of opposed upright side walls extending upward from the bottom at the side fold lines;

a rear wall extending upward from the bottom at the rear fold line;

a front wall extending upward from the bottom at the front fold line;

a lid connected to the rear wall by a lid fold line for moving between an open and a closed position overlying the bottom, the lid having a forward edge and two side edges, the lid having a pair of corner edges, each extending diagonally between the forward edge of the lid and one of the side edges of the lid;



a pair of corner walls, each extending upward from the bottom at one of the corner fold lines;

each of the corner walls being folded over into inner and outer plies and having an upper edge containing a slot, each of the slots extending downward on the outer ply;

a pair of locking tabs, each depending from one of the corner edges of the lid for reception in one of the slots when the lid is in the closed position; and

wherein each of the slots has a lower edge that inclines relative to the bottom, the inclined lower edges of the slots facilitating entry of the locking tabs into the slots.

5,211,330

FIVE-SPEED BOX FOLDABLE FROM A BLANK AND USEFUL AS AN OPEN CONTAINER, OR AS AN END LID FOR A LARGER PACKAGE

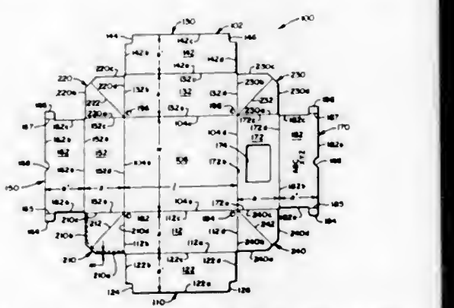
Albert Frey, Dirlewang-Helchenried, Fed. Rep. of Germany, assignor to Albert Frey Verpackungsentwicklungen und Vertriebes-GmbH, Dirlewang-Helchenried, Fed. Rep. of Germany

Filed Apr. 6, 1992, Ser. No. 864,294

Claims priority, application Fed. Rep. of Germany, Apr. 8, 1991, 9104391.3

Int. Cl.[5] B65D *5/22*

U.S. Cl. 229—175 **12 Claims**



1. A box adapted to be folded from a flat blank of sheet material, the box comprising:

a bottom portion;

two side walls, each side wall connected via a fold to one of two first opposing edges of said bottom portion;

two end walls, each end wall having an outer end wall portion connected via a fold to one of two second opposing edges of said bottom portion, and an inner end wall portion connected via a fold to the outer end wall portion;

said second opposing edges of said bottom portion extending perpendicular to said first opposing edges of said bottom portion;

a plurality of connecting portions, each connecting portion connected to a pair of intersecting edges of one of the two side walls and one of the two outer end wall portions;

each connecting portion symmetrically foldable about a fold line extending diagonally from a corner of said bottom portion such that in an erected state of said box said connecting portion is folded and received between the inner and outer end wall portions of one of the two end walls; and

a plurality of engaging means for engaging and resiliently arresting movement of the inner end wall portions, and for retaining the inner and outer end wall portions in a folded upright position, each engaging means having:

a plurality of arresting flaps, each arresting flap projecting from an inner end wall portion from an edge of the inner end wall portion facing an adjacent side wall, the arresting flap extending in parallel to said adjacent side wall; and

recess means correspondingly formed in said side walls for engagingly receiving said arresting flap;

and wherein:

said side walls are provided with holes at positions corresponding to said recess means, for enabling said arresting flap to be unengaged from said recess means.

5,211,331

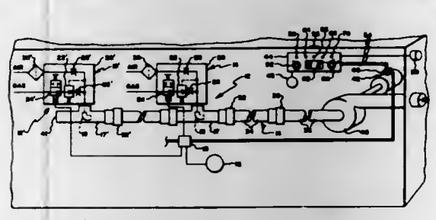
CONTROL IN COMBINATION WITH THERMOSTATICALLY RESPONSIVE ASSEMBLY

Timothy P. Seel, Tonawanda, N.Y., assignor to Roberts-Gordon, Inc., Buffalo, N.Y.

Filed Apr. 13, 1990, Ser. No. 508,969

Int. Cl.[5] F23N *1/00*

U.S. Cl. 236—15 C **12 Claims**



1. The combination of a thermostatically responsive unit used for maintaining the temperature within an enclosed space at a desired temperature setting, said thermostatically responsive unit having a variable thermal output during its operation; and a control assembly including

an indoor temperature measuring device, and

an outdoor temperature measuring device; characterized by the control assembly further including

regulating means for causing the thermal output of the unit to be varied during operation of the unit, and

operational control means for comparing the indoor and outdoor temperatures and for causing the regulating means to in turn cause the unit to operate at thermal outputs proportional to the actual difference between the compared outdoor and indoor temperatures, whereby greater thermal efficiencies may be achieved over a range of conditions with a lower capital investment.

5,211,332

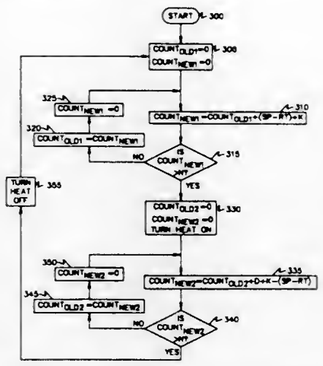
THERMOSTAT CONTROL

John T. Adams, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sep. 30, 1991, Ser. No. 769,038

Int. Cl.[5] G05D *15/00*

U.S. Cl. 236—78 D **2 Claims**



1. A method of controlling the operation of HVAC equipment in a thermostat, the thermostat having a set point and droop and measuring a room temperature, comprising the steps of:

(a) creating Count variable having a preselected initial value;

(b) creating a first new Count variable which is equal to said Count variable plus a first difference between the setpoint and the room temperature;

(c) comparing the new Count variable to a preselected number;

(d) producing a first signal for changing states of the HVAC equipment from a first state to a second state, resetting the Count variable to said initial variable and moving to a step (e) if the new Count variable exceeds the preselected number, and returning to step (b) otherwise;

(e) creating a second new Count variable which is equal to said Count variable plus the droop minus a second difference between said setpoint and said room temperature;

(f) comparing said second new Count variable to said preselected number; and

(g) producing a second signal to change states of the HVAC equipment from said second state to said first state, resetting said Count variable to said initial value and returning to step (b) if said second new Count variable exceeds the preselected number, and returning to step (e) otherwise.

5,211,333

HEATING SYSTEM FOR VEHICLES

Dietrich Schmalenbach, Gruibingen, and Hans Hintennach, Baltmannsweiler, both of Fed. Rep. of Germany, assignors to J. Eberspacher, Esslingen, Fed. Rep. of Germany

Filed May 6, 1992, Ser. No. 879,041

Claims priority, application Fed. Rep. of Germany, May 8, 1991, 4115138

Int. Cl.[5] G05D *23/00*

U.S. Cl. 237—2 A **10 Claims**

1. A heating system for vehicles, comprising:

a heater (2) generating heat during operation by combustion of fuel;

a liquid/air heat exchanger (8) for supplying heat to a vehicle interior space;

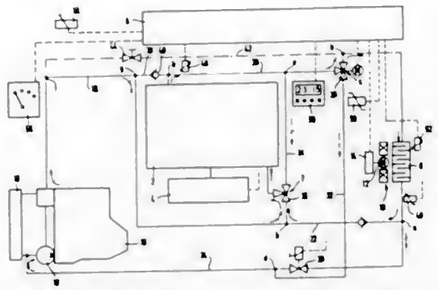
a liquid circuit passing through the heater (2) and the heat exchanger (8); and

a blower (10) associated with the heat exchanger (8), characterized by:

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an electric switching controller (**14**) for the blower power, which is connected to the motor (**12**) of the blower (**10**) and operates in infinitely variable manner and substantially without losses;

a bypass (**32**) of the heat exchanger (**8**) which is part of the liquid circuit;



an electrically adjustable valve (**30**) in the liquid circuit for determining the extent of the flow through the heat exchanger (**8**) and the bypass (**32**);

a vehicle interior space temperature sensor (**50**); and

an electric regulating means (**8**) connected to said temperature sensor (**50**) and driving the switching controller (**14**) and the valve (**30**).

5,211,334

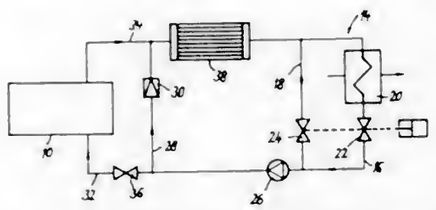
MOTOR VEHICLE FLUID HEATING DEVICE WITH HEAT STORAGE

Oskar Schatz, Waldpromenade 16, D-8035 Gauting, Fed. Rep. of Germany

Continuation of Ser. No. 624,494, Dec. 6, 1990, which is a continuation of Ser. No. 377,545, Jul. 10, 1989. This application Feb. 18, 1992, Ser. No. 839,026

Int. Cl.[5] B60H *1/02*

U.S. Cl. 237—12.3 B **2 Claims**



1. A motor vehicle heating device comprising a heat exchanger adapted to be supplied with coolant from an engine, the engine including a desired predetermined amount of coolant representing all of the coolant in said engine, a heating circuit defining means for providing a flow of said predetermined amount of coolant, said heat circuit comprising outlet conduit means disposed upstream of said heat exchanger for providing passage of all of the predetermined amount of coolant to pass from the engine to the heat exchanger and a return conduit means disposed downstream of said heat exchanger for providing passage of all of the predetermined amount of coolant to pass from the heat exchanger back to the engine representing a full coolant cycle, a pair of bypass duct means connected to said outlet conduit means and return conduit means such that a portion of said predetermined amount of coolant may enter said bypass duct means bypassing said heat exchanger; and a latent heat storage means coupled with one of said outlet or return conduit means and positioned in said outlet conduit means between said pair of bypass duct means such that during each full cycle all of the predetermined amount of coolant from the engine passes through said latent heat storage means transferring heat between said latent heat storage means and said coolant such that said latent heat storage means is charged and its charge dissipated only by transfer of heat between the coolant and latent heat storage means.

5,211,335

NOZZLE FOR SPRAY TUBES

Kent Strid, Järbo, Sweden, assignor to Kvaerner Eureka A/S, Norway

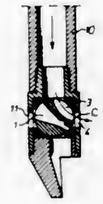
PCT No. PCT/SE90/00336, § 371 Date Nov. 27, 1991, § 102(e) Date Nov. 27, 1991, PCT Pub. No. WO90/15184, PCT Pub. Date Dec. 13, 1990

PCT Filed May 21, 1990, Ser. No. 777,515

Claims priority, application Sweden, May 30, 1989, 8901933

Int. Cl.[5] B05B *15/02*

U.S. Cl. 239—110 **8 Claims**



1. A spray tube nozzle adapted to be cleaned during its operation, including a nozzle head having an inlet connectable to a conduit for spraying liquid and an outlet for said spraying liquid, in said nozzle head being located a rotatable means defining a through hole; said through hole having in one end a first opening of a relatively small cross-section and in an opposite end a second opening of a relatively large cross-section, said rotatable means sealingly arranged in said nozzle head and having an external groove, said rotatable means being positionable in at least a first rotational position for flow of said spraying liquid from said inlet through said through hole in a first direction for forming spray jets at said outlet, a second rotational position for flushing said conduit by flow of said spraying liquid from said inlet through said groove, and a third rotational position for flushing said through hole by flow of said spraying liquid from said inlet through said through hole in a second direction opposite to said first direction.

5,211,336

METHOD FOR PROTECTING AN AREA AGAINST POLLUTION BY USING A CLOUD OF WATER DROPLETS

Aristide Kaidonis, Eguilles, and Eric Issartel, Aubenas, both of France, assignors to Zeus, Eguilles, France

Filed May 23, 1991, Ser. No. 703,868

Int. Cl.[5] B05D *1/02*

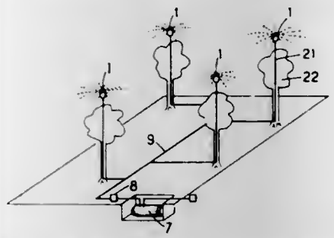
U.S. Cl. 239—1 **11 Claims**

1. Method for protecting an area, against pollution by forming a cloud of water droplets, which may contain an additive, over the area to be protected the method comprising at least two of the three following stages, in an order which is predetermined:

a) a stage in which the droplets formed essentially have a diameter less than 100 micrometers,

b) a stage in which the droplets formed essentially comprise 10 to 50% by weight of droplets of a diameter less than 100 micrometers, and the remainder of droplets of a diameter between 100 and 300 micrometers,

c) a stage in which the droplets formed comprise 3 to 20% by weight of droplets of a diameter less than 100 micrometers, 20 to 50% by weight of droplets of a diameter between 100 and 300 micrometers, and the remainder of droplets of a diameter between 300 and 800 micrometers.



5,211,337

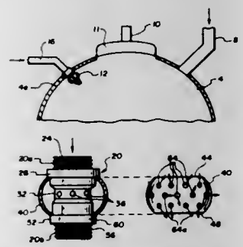
ROTARY RINSE NOZZLE FOR AIRCRAFT WASTE TANKS

Rudy Lukez, Salt Lake City, Utah, assignor to Edo Corporation/Fiber Science Division, Salt Lake City, Utah

Continuation-in-part of Ser. No. 636,746, Jan. 2, 1991, abandoned. This application May 29, 1992, Ser. No. 892,600

Int. Cl.[5] B05B *3/06*

U.S. Cl. 239—251 **1 Claim**



1. A rinse nozzle for mounting in an aircraft waste tank which projects at least partly into the interior of the tank, said nozzle comprising

a tubular stem having a first end and a second end, made of polytetrafluorethylene, including external threads at the first end, the external threads formed on a sufficient portion of the tubular stem such that they extend through an opening in a wall of the aircraft waste tank and are securely mounted therein so that the second end of the stem extends into the tank interior, and including a plurality of first openings circumferentially spaced no more than about sixty degrees apart in the sidewall of the stem, said stem having a head section with a first radius, a mid-section positioned at the first openings, the mid-section having a second radius which is less than the first radius, and a bottom section having the first radius, said stem being open at said first end for receiving cleaning solution and closed at the second end,

an annular collar, made of polytetrafluorethylene, rotatably disposed on the stem about the first openings, said collar including an inner concave surface and an outer convex surface and a plurality of circumferentially positioned second openings, said second openings being spaced apart no more than about twenty-five degrees and at least some of which are directed outwardly and upwardly and at least some of which are directed outwardly and downwardly and in a direction generally opposite to the direction of rotation of the collar, to thereby cause the collar to rotate as cleaning solution supplied to the stem flows through the first openings and out the second openings, and

a mounting ring, made of polytetrafluorethylene, fixable on the stem below the collar to support the collar.

5,211,338

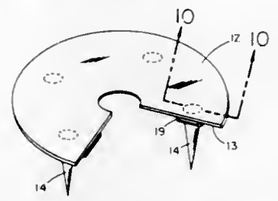
SPRINKLER SHIELD

Diva C. Leite, 5274 E. Sunbuest Dr., Palmdale, Calif. 93550, and Tony C. Leite, P.O. Box 902211, Palmdale, Calif. 93590

Filed Dec. 16, 1991, Ser. No. 807,592

Int. Cl.[5] B05B *15/06*

U.S. Cl. 239—276 **2 Claims**



1. A sprinkler shield, comprising,

a cylindrical plate, the cylindrical plate including a central bore coaxially directed through the central plate, with the cylindrical plate including a top surface spaced from and parallel to a bottom surface, and

a plurality of mounting spikes secured relative to the bottom surface projecting orthogonally downwardly therefrom, and

including a plurality of radial slots directed from the central bore, wherein the central slots are spaced ninety degrees apart relative to the central bore to accommodate a sprinkler head directed through the central bore, and

including plural pairs of frangible grooves radially directed from the central bore extending to a periphery of the cylindrical plate, with each pair of frangible grooves arranged in a coextensive aligned relationship, wherein one of the grooves of the pair of grooves is directed through the top surface, and a further of said grooves of the pair of grooves directed through the bottom surface.

5,211,339

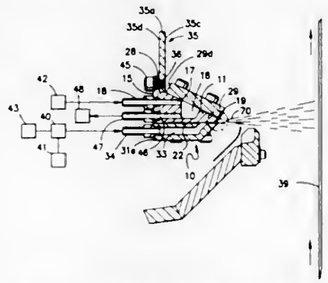
APPARATUS FOR DISPERSING AND DIRECTING DYE ONTO A SUBSTRATE

Bernhard Zeiler, Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Continuation of Ser. No. 539,776, Jun. 18, 1990, abandoned. This application Jun. 12, 1992, Ser. No. 898,232

Int. Cl.[5] B05B *17/04*

U.S. Cl. 239—295 **30 Claims**



1. An apparatus for spraying a liquid marking material onto the surface of a substrate utilizing a source of pressurized

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control fluid and a source of liquid marking material, said apparatus comprising:

(a) a block of rigid material having a plurality of first conduits for delivery of said marking material and a plurality of second conduits for delivery of said pressurized control fluid;

(b) each of said first conduits having an inlet and an outlet for said liquid marking material;

(c) each of said second conduits having an inlet and an outlet for said pressurized control fluid;

(d) said inlet of each of said first conduits arranged for connection to said source of marking material;

(e) said inlet of each of said second conduits arranged for connection to said source of control fluid;

(f) said outlets of said second conduits arranged adjacent to corresponding outlets of said first conduits and cooperating to effect division of a stream of said marking material exiting said outlets of said first conduits into droplets by an impinging stream of said pressurized control fluid exiting said outlets of said second conduits; and

(g) a means for nonaspiratively positioning said outlets of said first conduits outside said stream of said pressurized control fluid.

5,211,340

FUEL INJECTOR

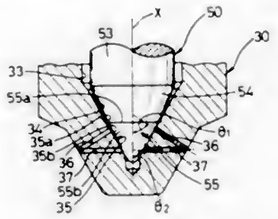
Fumitsugu Yoshizu, Saitama, Japan, assignor to Zexel Corporation, Tokyo, Japan

Filed Aug. 6, 1992, Ser. No. 925,271

Claims priority, application Japan, Aug. 27, 1991, 3-75209[U]; Aug. 27, 1991, 3-75210[U]

Int. Cl.[5] F02M *45/08*

U.S. Cl. 239—533.4 **11 Claims**



1. A fuel injector comprising:

(a) a hollow elongate nozzle body having a closed distal end portion, said nozzle body having a guide hole, a fuel reservoir chamber provided forwardly of said guide hole, a tapered valve seat formed on an inner surface of the distal end portion of said nozzle body, and a plurality of pairs of first and second injection ports formed in the distal end portion of said nozzle body and spaced from one another in a direction of the periphery of said nozzle body, the angle of said first injection port relative to an axis of said nozzle body being different from the angle of said second injection port relative to the axis of said nozzle body, inner ends of said first injection ports being disposed at said valve seat, inner ends of said second injection ports being spaced from the inner ends of said first injection ports toward the distal end of said nozzle body in the direction of the axis of said nozzle body, and each pair of said first and second injection ports having a common outer end;

(b) a needle valve received in said nozzle body, said needle valve having a slide portion slidably received in said guide hole, a pressure receiving portion received in said fuel reservoir chamber, and a tapered conical abutment portion formed at a distal end portion of said needle valve, and the inner ends of said first injection ports facing and sealed by an outer peripheral surface of said abutment portion of said needle valve when said abutment portion is seated on said valve seat;

(c) urging means for urging said needle valve toward said valve seat, said needle valve lifting against the bias of said urging means when a fuel pressure received by said pressure receiving portion of said needle valve exceeds a predetermined pressure, so that said abutment portion is brought out of contact with said valve seat, the injection of fuel from said first injection ports being effected due to a throttle effect between said abutment portion and said valve seat until the amount of lift of said needle valve reaches a specified lift amount, and when the amount of lift of said needle valve exceeds said specified lift amount, said throttling effect being eliminated, so that the injection of the fuel from said second injection ports is effected; and

(d) lift speed limiting means for lowering the speed of lift of said needle valve until the amount of lift of said needle valve reaches said specified lift amount.

5,211,341

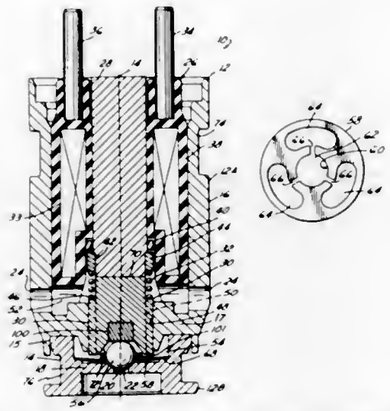
FUEL INJECTOR VALVE HAVING A COLLARED SPHERE VALVE ELEMENT

David P. Wieczorek, Newport News, Va., assignor to Siemens Automotive L.P., Auburn Hills, Mich.

Filed Apr. 12, 1991, Ser. No. 684,619

Int. Cl.[5] B05B *47/02*

U.S. Cl. 239—585.3 **17 Claims**



1. An electrically operated valve comprising a valve body having a main longitudinal axis, said valve body comprising a cylindrical sidewall that is generally coaxial with said axis and laterally bounds the interior of said valve body and an end wall that is disposed at one longitudinal end of said sidewall generally transverse to said axis, a through-hole disposed in said end wall substantially coaxial with said axis and forming a portion of a fluid path through the valve, said through-hole having a frustoconical valve seat at the axial end thereof which is at the interior of said valve body, said valve body having an inlet and an outlet for said fluid path, said valve body further comprising means defining a raised ledge on the interior thereof which encircles said valve seat in radially outwardly spaced relation thereto, a resilient spring disc whose radially outer peripheral margin is supported on, but otherwise unattached to, said raised ledge and which comprises a disc through-hole comprising a central circular void of given diameter, a sphere whose diameter exceeds said given diameter and which is disposed in said disc through-hole to fill slightly less than said circular void, an electrically operated mechanism disposed on said valve body and comprising a longitudinally reciprocal armature means and a bias means that are effective in cooperation with said spring disc to selectively seat and unseat sphere on

and from said seat in accordance with the manner in which said mechanism is electrically operated, said armature means comprising a tip end that in cooperation with said spring disc axially captures said sphere, such capture being effective to cause said sphere to axially reciprocate with the reciprocal motion of said armature means and thereby selectively seat on and unseat from said seat, and said disc having a size in relation to said valve body that keeps said sphere at least approximately concentric with said axis by allowing the disc and sphere together to be radially displaced relative to said axis such that when said mechanism operates to close the fuel injector by displacing said sphere toward said seat, any eccentricity of the sphere relative to said seat is removed by the camming effect of said seat on said sphere with the result that said sphere precisely centers itself on said seat to thereby fully close said first-mentioned through-hole while continuing to fill just slightly less than said void, and a collar that girdles said sphere and provides the interface between the sphere and the disc, said collar comprising an inside diameter surface that circumferentially engages said sphere and a further surface that abuts said disc in circumferentially bounding relation to said void.

5,211,342

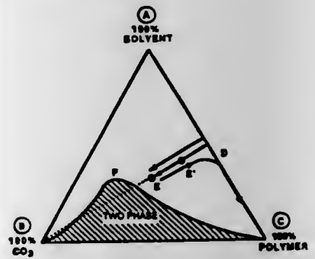
ELECTROSTATIC LIQUID SPRAY APPLICATION OF COATINGS WITH SUPERCRITICAL FLUIDS AS DILUENTS AND SPRAYING FROM AN ORIFICE

Kenneth L. Hoy, St. Albans, and Kenneth A. Nielsen, Charleston, both of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Division of Ser. No. 506,529, Apr. 6, 1990, Pat. No. 5,106,650, which is a continuation of Ser. No. 218,896, Jul. 14, 1988, abandoned. This application Jan. 14, 1992, Ser. No. 820,492

Int. Cl.[5] B05B *5/02, 1/04*

U.S. Cl. 239—707 **16 Claims**



1. An apparatus for electrostatic liquid spray application of a coating to a substrate wherein the use of environmentally undesirable organic solvent is diminished, said apparatus comprised of, in combination:

(1) a source of supercritical fluid;

(2) means for supplying at least one polymeric compound capable of forming a continuous, adherent coating;

(3) means for supplying at least one active organic solvent;

(4) means for supplying supercritical fluid from said source;

(5) means for forming a liquid mixture of components supplied from the means for supplying at least one polymeric compound capable of forming a continuous, adherent coating, the means for supplying at least one active organic solvent and the means for supplying supercritical fluid from said source;

(6) means for spraying said liquid mixture onto a substrate by passing the mixture under pressure through an orifice into the environment of the substrate to form a liquid spray containing droplets having an average diameter of 1 micron or greater; and

(7) means for electrically charging the liquid by a high electrical voltage relative to the substrate.

5,211,343

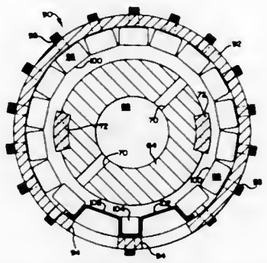
CEREAL GRAIN MILLING SYSTEM WITH DISC MILL AND IMPROVED BRAN REMOVAL MACHINE

Warner Wellman, Omaha, Nebr., assignor to ConAgra, Inc., Omaha, Nebr.

Division of Ser. No. 756,927, Sep. 9, 1991, Pat. No. 5,186,968. This application Jul. 1, 1992, Ser. No. 907,314

Int. Cl.[5] B02C *23/10*

U.S. Cl. 241—86.1 **4 Claims**



1. In bran removal machine of the type comprising:

a vertically oriented rotor which supports a set of inner abrasive elements for rotation about a vertical axis; an enclosure assembly which surrounds the rotor and defines a grain receiving flow passage between the rotor and the enclosure assembly such that said inner abrasive elements are positioned adjacent the grain receiving flow passage; a set of passages in the rotor in communication with the grain receiving flow passage for introducing a gas into the grain receiving flow passage; and means for rotating the rotor with respect to the enclosure assembly; the improvement comprising:

a set of outer abrasive elements included in the enclosure assembly and positioned adjacent the grain receiving flow passage to occupy a cumulative arc of at least about 250° of the enclosure assembly;

a set of screens included in the enclosure assembly and occupying a cumulative arc of no more than about 110° of the enclosure assembly.

5,211,344

COFFEE MILL

Jean-Paul In Albon, Ardon, Switzerland, assignor to Sistar SA, Sion, Switzerland

Filed May 18, 1992, Ser. No. 885,288

Claims priority, application Switzerland, May 17, 1991, 1486/91

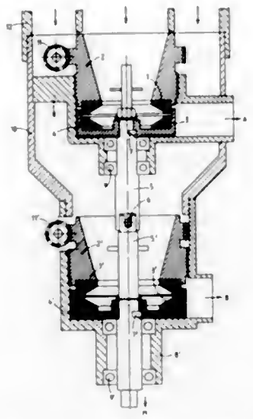
Int. Cl.[5] B02C *23/02*

U.S. Cl. 241—100 **6 Claims**

1. A coffee mill comprising two grinding devices having cutting means, each device being formed of a fixed annular grinder and a rotary annular grinder which are mounted in opposition the one to the other, said grinding devices being coaxially vertically superposed so as to constitute upper and lower guiding devices, said rotary grinders of the two devices being rotated by a single axle connected to a single driving device with a double rotation direction, said cutting means of one of the pairs of grinders being oriented for a right hand cutting whereas those of the other pair of grinders being oriented for a left hand cutting, a feeding container mounted coaxially above the upper grinding device, said container

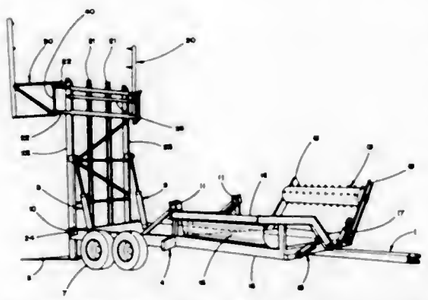
VOL 1150 ISS 3 MY 18 1993 UMI

being funnel-shaped and including an axial central tube providing access to the upper guiding device, and an annular space



surrounding said axial central tube providing access to the lower guiding device.

5,211,345
LARGE BALE HANDLING APPARATUS
Charles Siebenga, 211 Eighth St., Apt. #2, Belgrade, Mont. 59714
Continuation of Ser. No. 166,656, Mar. 11, 1988, abandoned.
This application Jul. 23, 1990, Ser. No. 557,128
Int. Cl.[5] A01D *90/00*; **B02C** *13/286*
U.S. Cl. 241—101.7 **23 Claims**



5. A bale-handling and feed-dispensing system including a trailer having a frame provided with wheel means, tongue means, and a load-carrying platform, wherein the improvement comprises:

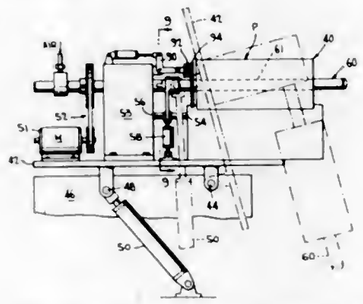
a plurality of selectively engageable pivot means disposed on spaced horizontal axes and providing a pivotal support for said platform on said frame;

actuating means disposed between the axes of certain of said pivot means, and adapted to rotate said platform selectively toward the front or the rear of said trailer depending on the selection of said pivot means, one of said pivot means axes being adjacent the opposite end of said frame from said tongue means, and said platform having a portion extending beyond said frame approximately the distance from said one axis to ground level established by said wheel means, said platform having thin insert means extending perpendicular to said platform at the end of said extending portion;

grasping means mounted on said platform adjacent the tongue end of said trailer, said grasping means being adapted to engage the transversely opposite ends of a bale; and

feeding means securable with respect to said frame, and having a bale-receiving platform disposed to receive a bale from said load-carrying platform, said feeding means also including bale-pushing means and shredding means, said shredding means being disposed to operate on material moved into shredding position by said pushing means.

5,211,346
AUTOMATIC WINDING UNIT
Charles W. Brouwer, Greensboro, N.C., assignor to John Brown Inc., West Warwick, R.I.
Filed Apr. 26, 1988, Ser. No. 186,471
Int. Cl.[5] B65H *54/02, 54/44, 67/04*
U.S. Cl. 242—18 R **5 Claims**



1. A strand winding unit comprising a support, a subplate rotatably positioned on said support, a traverse roller-bail assembly comprising a traverse guide and roller, a horizontally positioned spindle assembly including spindle means, and means for driving said spindle means for taking up a strand material; said traverse roller-bail assembly, spindle assembly, and drive means being positioned on said subplate, and means for rotating said subplate on said support whereby said spindle means is moved from its horizontal position to a substantially vertical or down position for removing a strand package from said spindle means.

5,211,347
THREAD FEED DEVICE
Ermete Riva, Pagnana Di Merate, Italy, assignor to Sobrevin Société de brevets industriels-Etablissement, Vaduz, Liechtenstein
Filed Jun. 14, 1991, Ser. No. 715,822
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1990, 4020642; Dec. 28, 1990, 4042076; Jan. 28, 1991, 4102440; Feb. 25, 1991, 4105889; Mar. 14, 1991, 4108238
Int. Cl.[5] B65H *51/20*
U.S. Cl. 242—47.01 **33 Claims**

1. A thread-delivery device having a storage body on which thread turns of a thread fed at one end in circumferential direction are deposited and from which the thread is withdrawn in axial direction (overhead), the storage body having on outer surface in the shape of a drum upon which turns of the thread are displaced during a feeding of the thread, the device comprising

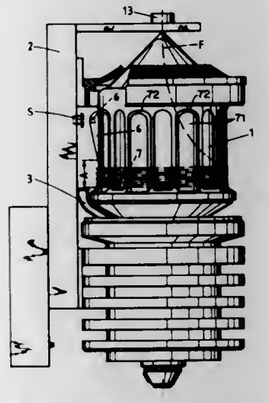
a scanning device adjacent the storage body for scanning the thread turns as the thread turns are displaced from one end of the drum to the other;

wherein said scanning device comprises a swing arm which extends over a thread storage region of the storage body, a stationary sensor part positioned in fixed relation to the storage body, and a movable sensor part carried by the swing arm, the swing arm being swingable towards and away from the storage body;

the storage body has a feed-side end region, the swing arm is mounted in the thread feed-side end region of the storage body, the swing arm has a free end extending in a direction of displacement of the thread turns, there being in all positions of swing of the swing arm an inclined attitude with respect to the outer surface of the storage body, the swing arm being covered with wound turns of the thread;

the thread delivery device further comprises force means for exerting a restoring force against the swing arm, the position of swing being determined against the restoring force by a deposit of a first of the wound thread turns to control the position of the movable sensor part;

means for winding thread on said storage body, and means coupled to said winding means for varying a winding speed;



said moveable sensor part cooperates with the stationary sensor part to provide at the stationary sensor part a sensor signal indicative of the position of the moveable sensor part, with speed varying means being responsive to said sensor signal to attain a reduction in a thread winding speed corresponding to an increasing covering of the length of the swing arm with thread turns;

the moveable sensor part comprises a magnet disposed on the free end of the wing arm, and the stationary sensor part comprises a magnetic field detection element disposed outside the storage body; and

the thread winding speed is varied by said varying means corresponding to a change in a field strength at the magnetic field detection element which is caused by a distancing of the magnet from the magnetic field detection element.

5,211,348
PHOTOGRAPHIC FILM CASSETTE
Masahiro Enomoto, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jan. 28, 1992, Ser. No. 826,966
Claims priority, application Japan, Jan. 28, 1991, 3-26852
Int. Cl.[5] G03B *17/26*
U.S. Cl. 242—71.1 **26 Claims**

1. A photographic film cassette comprising:

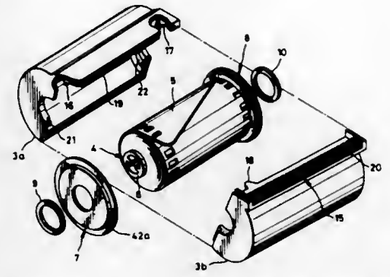
a spool for winding a photographic filmstrip in a roll, said spool having a core, said roll of said photographic film having an outermost turn with lateral sides and having a photographic film leader;

a cassette shell having a photographic film chamber in which said spool is rotatably contained;

a first flange loosely fitted on said core of said spool at one end of said spool, said first flange including an inside surface;

a second flange provided at another end of said spool;

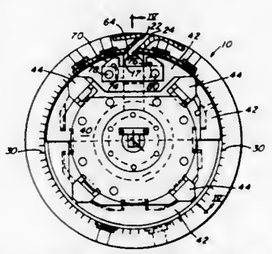
a first circumferential lip projecting from said inside surface of said first flange toward said roll for contact with one of the lateral sides of the outermost turn of said roll so as to prevent said roll from loosening; and



means for advancing the photographic film leader of said roll toward an outside of said cassette shell by releasing said photographic film leader from said first circumferential lip when said core is rotated;

wherein said first flange together with said first circumferential lip are thermoformed from a sheet of thermoplastic resin having a melt index of 4 or less so as to have a high intensity, and said first flange has a thickness of 0.4 mm or less so as to be deformable with a small force.

5,211,349
SLEEVE AND REEL FOR WINDING STRIP INTO COIL
Michael M. Sinar, Porter County, Ind., assignor to USX Corporation, Pittsburgh, Pa.
Filed Sep. 10, 1991, Ser. No. 757,417
Int. Cl.[5] B65H *18/08, 75/24*
U.S. Cl. 242—72 R **6 Claims**



1. A sleeve for installation onto an expandable and collapsible segmented reel having a gripper bar mounted in an opening of one of the segments for securing one end of a metal strip therein, said sleeve comprising:

a cylindrically-shaped piece of flexible elastomeric material adapted to be wrapped around the outer periphery of the reel, said cylindrically-shaped piece of flexible elastomeric material having opposed ends with edges extending longitudinally to form an axial opening in the sleeve, said ends being adapted to fit mateably with opposed edges of the opening between the gripper bar and the segment in which the gripper bar is mounted, said opposed ends of the cylindrically-shaped piece of flexible elastomeric material having means for providing sufficient stiffness in the sleeve adjacent the opening between the gripper bar and the segment to minimize a flat spot in a coil strip wound on to the reel, said cylindrically-shaped piece of flexible elastomeric material having means on an inner surface

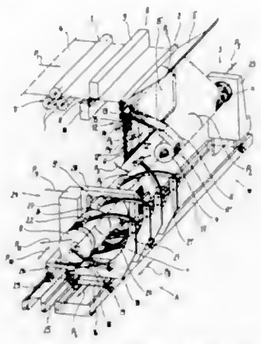
VOL 1150 ISS 3 MY 18 1993 UMI

adapted to abut the outer periphery of the reel for permitting sufficient expansion of the flexible elastomeric material when the segmented reel is moved from the collapsed to the expanded position that the segment housing the gripper bar is not pulled apart and a widened gap is not formed between the gripper bar and said segment.

5,211,350
SYSTEM FOR PRODUCING STRAPPED ROLLS OF WIRE SCREENING

Klaus Ritter; Gerhard Ritter, and Gerhard Schmidt, all of Graz, Austria, assignors to EVG Entwicklungs- u. Verwertungs-Gesellschaft m.b.H., Graz, Austria

PCT No. PCT/AT90/00096, § 371 Date May 23, 1991, § 102(e) Date May 23, 1991, PCT Pub. No. WO91/04807, PCT Pub. Date Apr. 18, 1991
PCT Filed Sep. 28, 1990, Ser. No. 688,575
Claims priority, application Austria, Oct. 4, 1989, A 2299/89
Int. Cl.[5] B21C *47/24*; B65B *27/06*
U.S. Cl. 242—79 **4 Claims**



1. A system for producing strapped rolls of wire screening or mesh having

a windup device (3) including a driven mandrel (4);

means (1, 7; P_1) for delivering wire screening or mesh to the windup device, include guide means (5, 6) for feeding the wire screening or mesh on the mandrel;

a stripper device (23) axially movable with respect to the mandrel for stripping wound-up, or rolled-up wire screening or mesh from the mandrel (4);

a plurality of gripper arm units (18, 19, 20, 21), each including

movable gripper arms (19, 20, 21), and

support means (18) for movably supporting the movable gripper arms;

a gripper carriage means (16, 17) for simultaneously moving said gripper arm units with respect to said mandrel (4), said gripper carriage means being movable between a first position (W), in which the gripper arm units engage the wound-up roll of wire screening or mesh on the winding device and a second position (A) spaced from the first position (W) by a distance exceeding the length of the roll of wire screening or mesh in the direction of the windup mandrel axis (x—x), and remote from the wind-up mandrel (4), each of said gripper arm units being mounted on said gripper carriage means for independent movement relative to the other of said gripper arm units; and

a strapping unit, said strapping unit including

a strapping frame (28) adjustable at right angles with respect to the (axis x—x) of the winding mandrel (4) and

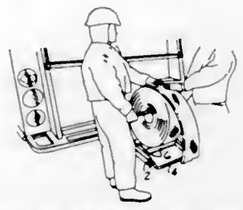
a strapping frame carriage means (26) for moving said strapping frame relative to said axis of said mandrel and guide means (25), supporting the strapping frame carriage means, the strapping frame carriage means supporting the strapping frame (28) for movement parallel with respect to the axis (x—x) of the windup mandrel (4) to freely selectable strapping positions axially on the roll of wound wire screening of mesh; and

wherein the gripper arms (19, 20, 21) of at least one of said gripper arm units are pivotably mounted on the support means (18) for movement towards and away from the roll of wire screening or mesh in a controlled manner to permit, selectively, gripping of the wire screening or mesh roll by the gripper arms and passage of the strapping frame carriage means (26) and the strapping frame (28) thereon past said at least one gripper arm unit.

5,211,351
HOSE LOADER

Ronald J. DeClerck, 37950 Utica Rd., Sterling Heights, Mich. 48312

Filed Mar. 28, 1991, Ser. No. 677,402
Int. Cl.[5] B65H *75/40*; F16L *3/00*
U.S. Cl. 242—86.2 **2 Claims**



1. An apparatus for loading and unloading fire hose coils onto and from a vehicle which comprises:

(a) a frame for supporting said coil;

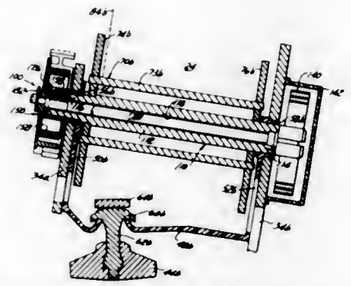
(b) a pair of parallel rollers mounted to the frame with the distance between the respective axes of the rollers adapted such that said rollers support the coil of fire hose by the outer periphery of said coil whereby the simultaneous rotation of the coil of fire hose and the rollers is permitted; and

(c) a support means, which slidably supports the roller/-frame assembly, attached to the underside of said vehicle.

5,211,352
DUAL SPRING TENSION REDUCER

Christopher D. Meyer, Sterling Hgts.; David E. Righter, Birmingham; John G. MaCalla, New Baltimore, and Robert C. Pfeiffer, Troy, all of Mich., assignors to AlliedSignal Inc.

Continuation-in-part of Ser. No. 619,627, Nov. 28, 1990, abandoned. This application Dec. 19, 1991, Ser. No. 810,239
Int. Cl.[5] B60R *22/44*
U.S. Cl. 242—107 **11 Claims**



1. A dual tension safety belt retracting device comprising:

a frame (26), a spool (70*b*) rotatably mounted on the frame (26), for storing safety belt webbing (84) including first and second ratchet wheels (74*b*, 76*b*);

an outer tube (112), extending through and connecting the first and second ratchet wheels;

an inner shaft (130) extending through and rotatably disposed in the outer tube (112);

a main, high torque (140) rewind spring to apply a rewind bias to the inner shaft (130);

a low torque, rewind spring (158), connecting the outer tube (112) to a control ratchet wheel (154), is connected to one end of the inner shaft (130) opposite the main rewind spring (140);

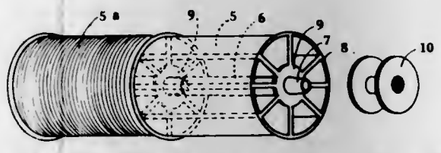
control pawl means (200) for engaging the control ratchet wheel (154), rotatably movable between a first position disengaged from the control ratchet wheel (154) and a second position in engagement with the control ratchet wheel (154) wherein when the control pawl means is in its second position it is effective to block out the main rewind spring from exerting a bias on the safety belt webbing, and

moving means (224) for causing the control pawl means (200) to move between the first and second positions.

5,211,353
SPOOL WITH AN INTEGRAL BOBBIN HOLDER

Menahem Lewin, and Shirley Lewin, both of 43 Rte. 40, E. Jewett, N.Y. 12424

Filed Mar. 25, 1992, Ser. No. 857,475
Int. Cl.[5] B65H *75/18*
U.S. Cl. 242—118.41 **5 Claims**



1. A thread spool with a spool or bobbin holder, said thread spool comprising an elongated body portion, a hollow cylindrical core open at both ends and extending through the body portion, and a hollow conical protuberance extending from the body portion and being an extension of the hollow cylindrical core with the large diameter end of the protuberance being the same diameter as the cylindrical core, whereby a second spool or a bobbin is capable of being attached in series with the thread spool by a hollow core of the second spool or bobbin frictionally engaging said conical protuberance.

5,211,354
TEXTILE CORE HAVING IMPROVED START UP GROOVE

Tony F. Rummage, Hartsville, S.C., assignor to Sonoco Products Company, Hartsville, S.C.

Filed Jun. 3, 1992, Ser. No. 893,408
Int. Cl.[5] B65H *75/28*
U.S. Cl. 242—125.1 **12 Claims**



1. A textile core comprising an elongate tubular body for supporting a yarn package and comprising:

a substantially circumferential groove for gripping an incoming yarn line for windup on said core, said groove being formed in at least a portion of the periphery of said tubular body adjacent one end thereof;

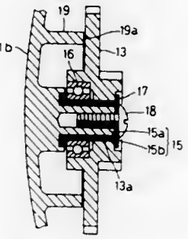
said groove having a generally V shaped cross-section including an open top, a closed bottom and two sidewalls disposed on opposite sides of a center line extending radially into said tubular body, at least a first longitudinal portion of said groove having a first compound sidewall defined in transverse cross-section by a first surface extending upwardly from the bottom thereof and defining a first predetermined acute angle with said center line and a second surface extending downwardly from the top of said groove and defining a second predetermined acute angle with said center line, said second predetermined acute angle being greater than said first predetermined acute angle;

said compound sidewall of said groove having a substantially uniformly roughened matte surface finish provided by fibers of the material forming the elongate tubular body for engaging said incoming yarn line.

5,211,355
GEAR SUPPORT CONSTRUCTION FOR FISHING REEL

Yoshiyuki Furomoto, Osaka, Japan, assignor to Shimano Industrial Co., Ltd., Japan

Filed Jan. 10, 1991, Ser. No. 639,548
Int. Cl.[5] A01K *89/015*
U.S. Cl. 242—310 **5 Claims**



1. A gear support construction for a fishing reel, said construction comprising:

a support shaft projectingly mounted on a reel body member forming part of a reel body;

a gear defining a bore having a first inner diameter portion at which said gear is rotatably fitted on a distal end portion of said support shaft and a second inner diameter portion at which said gear is fitted on a roller bearing which is in turn fitted on a base end portion of said support shaft; and

a wall portion formed on said reel body member at least partially surrounding said support shaft, said wall portion having a rim at a distal end thereof, said rim having an outer diameter which is smaller than a diameter of a circle defined by the bases of the teeth of said gear, said wall portion projecting along a longitudinal axis of said support shaft such that said rim is positioned close to and faces a face of said gear adjacent said reel body member.

5,211,356
METHOD AND APPARATUS FOR REJECTING TRACKABLE SUBIMAGES

Joel K. McWilliams, Highland Village, and Don R. Van Rheeden, Lewisville, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

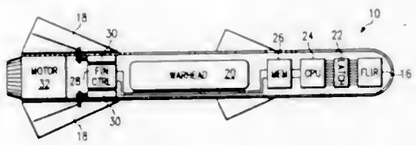
Filed Aug. 30, 1991, Ser. No. 753,294
Int. Cl.[5] F41G *7/22*
U.S. Cl. 244—3.15 **14 Claims**

14. A missile comprising:

an aimpoint designator for establishing an aimpoint on a target;

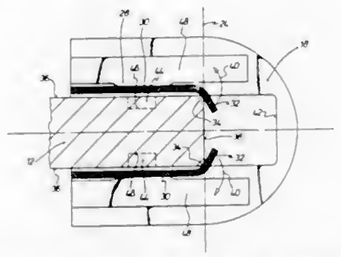
VOL 1150 ISS 3 MY 18 1993 UMI

a sensor for periodically acquiring a set of subimages arbitrarily associated with the aimpoint;
a normalized distance calculator responsive to the aimpoint designator and the sensor for calculating the distance between each subimage from a first set of subimages and from the established aimpoint;
a processor coupled to the aimpoint designator, the sensor and the normalized distance calculator for periodically estimating and reestimating the subsequent location of the aimpoint and for estimating the location of a set of subimages, the estimated location of the aimpoint based upon a set of periodically acquired subimages and on the calculated normalized distances, the reestimated aimpoint based upon a subset of the set of subimages and upon the normal-



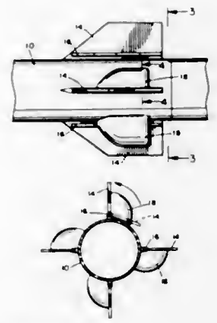
ized distances, and the location of the set of subimages based upon the calculated normalized distances and upon the estimated aimpoint; and
a comparator coupled to the processor for calculating a difference between the location of the periodically acquired subimages and of the estimated & subimages and for creating the subset of the subimages, the subset of subimages comprising those subimages whose difference did not exceed a threshold;
memory coupled to the processor for storing the normalized distances;
fins for guiding the missile responsive to the reestimated aimpoints; and
a motor for propelling the missile.

5,211,357
AIRBORNE BODY WITH STABILIZING FINS
Thomas Leidenberger, Nurnberg, Fed. Rep. of Germany, assignor to Diehl GmbH & Co., Nuremberg, Fed. Rep. of Germany
Filed Jun. 11, 1992, Ser. No. 897,366
Claims priority, application Fed. Rep. of Germany, Jun. 14, 1991, 4119613
Int. Cl.[5] F42B *10/14*
U.S. Cl. 244—3.28 **2 Claims**



1. Airborne body with stabilizing fins, each said stabilizing fin being displaceable about an associated bearing axle between a retracted inoperative position and a flying position in which said stabilizing fin is unfolded from said airborne body; means being operatively connected with each said stabilizing fin for effectuating a damping of the unfolding movement of the stabilizing fin associated therewith from the inoperative position into the flying position and for latching the stabilizing fin in the flying position, each said means including first and second elongate spring elements positioned on opposite sides of said stabilizing fin, each said spring element having a latching portion and the therewith associated stabilizing fin including a latching section cooperable with said latching portion in the extended position of the stabilizing fin, said latching portion of the spring elements comprising free bent end sections extending towards each other in contact with a back surface at a foot end of said stabilizing fin during unfolding of said stabilizing fin from the retracted inoperative position into the flying position thereof, each said latching section on the stabilizing fin including a cutout formed in respectively each opposite side surface of the stabilizing fin facing towards and being axially located offset from said free bent end section of each spring element such that the latching portion of a respective spring element engages therein responsive to rotation of the stabilizing fin about the bearing axle into the extended flying position of the stabilizing fin whereby said bent end portion of each respective spring element is bent open opposite resilient biasing pressure exerted by each spring element against the opposite side surfaces of the therewith associated stabilizing fin during the unfolding thereof under a continuous conversion of kinetic energy generated by the sliding of the bent end portions of the spring elements along the stabilizing fin into frictional energy until said bent end portions of said spring elements engage into the therewith associated cutouts in the opposite sides of said stability fin so as to latch the stabilizing fin in the extended position thereof.

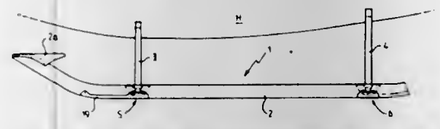
5,211,358
AIRFOIL DEPLOYMENT SYSTEM FOR MISSILE OR AIRCRAFT
Cloy J. Bagley, Fountain Valley, Calif., assignor to General Dynamics Corporation, Pomona, Calif.
Filed May 13, 1991, Ser. No. 699,031
Int. Cl.[5] B64C *3/56, 5/12*
U.S. Cl. 244—3.270 **12 Claims**



12. A missile, comprising:
a generally cylindrical missile body having an outer, generally cylindrical surface;
a series of spaced airfoil members each pivotally mounted to the outer surface of the missile body for pivotal movement between a retracted position adjacent the missile body and an extended position projecting outwardly from the missile body;
a series of inflatable gas bags, each bag being secured between a respective one of said airfoils in its retracted position between the airfoil and the outer surface of the missile;
inflating means for inflating each of said inflatable gas bags into an inflated position projecting outwardly from said outer surface and urging said airfoils into said extended positions, said gas bags extending between said outer surface of the missile and the respective extended airfoil in their inflated positions;

control means for controlling operation of said inflating means to inflate said inflatable bags; and
locking means for locking said airfoils in said extended positions.

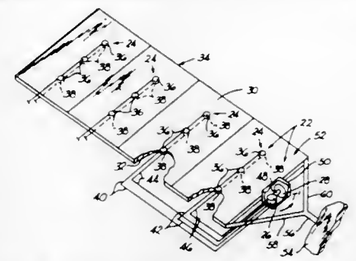
5,211,359
LANDING GEAR FOR AERODYNES, WITH CROSSPIECES IN COMPOSITE MATERIAL
Alande D. René, Chateauneuf-les-Martigues; Frédéric Balayn, Vitrolles, and Claude Bietenhader, Lambesc, all of France, assignors to Aerospatiale Societe Nationale Industrielle, Paris, France
Filed Apr. 29, 1992, Ser. No. 875,461
Claims priority, application France, May 6, 1991, 91 05524
Int. Cl.[5] B64C *25/52*
U.S. Cl. 244—108 **15 Claims**



1. A landing gear for an aerodyne comprising two lateral members for contact with the ground aligned with a longitudinal axis of the aerodyne, said members being linked together and to the fuselage of the aerodyne by at least two crosspieces wherein:
each of the crosspieces is a curved beam constituted by a monolithic laminated material of high-strength fibers agglomerated by thermo-setting synthetic resin,
the cross-section of each crosspiece is polygonal and substantially constant and in the region of its extremities substantially square with rounded edges,
the crosspieces are constituted by a core formed by longitudinal fibers, surrounded by a shell of tissues whose threads are oriented at plus or minus 45° with respect to the longitudinal fibers,
the members for contact with the ground are rigid, hollow and closed profiles whose two lateral walls are parallel and vertical,
the crosspieces are, at their extremities, rigidly embedded onto the members for contact with the ground by penetration of the extremity of the crosspiece inside the profile and integration of the lateral faces of the crosspiece onto the sides of the profile by securing members extending therethrough, and
the crosspieces are fixed at the lower part of the structure of the fuselage of the aerodyne by an articulated link permitting limited rotation of the crosspieces about parallel transverse axes of the aerodyne and relative angular deformations of the crosspieces with respect to the structure in the vertical plane and in the horizontal plane.

5,211,360
SPACECRAFT THERMAL DISTURBANCE CONTROL SYSTEM
Darrell F. Zimbelman, Gaithersburg, Md., assignor to Fairchild Space and Defense Corporation, Germantown, Md.
Filed Jun. 26, 1991, Ser. No. 721,418
Int. Cl.[5] B64G *1/24*
U.S. Cl. 244—164 **14 Claims**

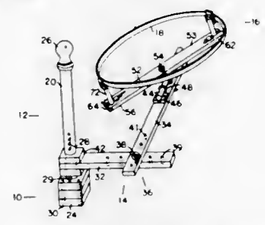
1. A spacecraft thermal disturbance control system for a spacecraft with a main portion and a projecting potion extending from said main portion which is to be subjected to a thermal gradient which in turn produces a torque exerted on the main portion of said spacecraft comprising a plurality of thermal sensors located on said projecting portion of the spacecraft projecting from the main portion of the spacecraft; control means operatively connected to said thermal sensors for receiving temperature information from said thermal sensors and for providing control commands based upon the received temperature information to counter said thermal gradient torque exerted on the main portion of said spacecraft as a result of a thermal gradient being applied to said projecting portion of the spacecraft projecting from the main portion of the space-



craft; and anti-torque means operatively connected to said control means for providing a torque based upon commands received from said control means to counter the torque exerted on the main portion of said spacecraft as a result of a thermal gradient being applied to the projecting portion of said spacecraft.

5,211,361
Patent Not Issued For This Number

5,211,362
ADJUSTABLE QUILTING HOOP STAND
Fred A. Householder, 14206 Hunter Hill, San Antonio, Tex. 78217
Filed Mar. 13, 1992, Ser. No. 851,084
Int. Cl.[5] A47G *29/00*
U.S. Cl. 248—124 **18 Claims**

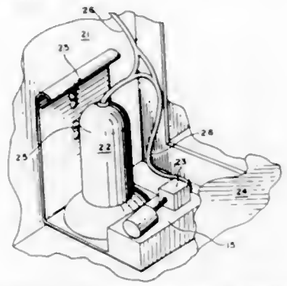


1. A horizontal base-mounted device for adjustably locating a quilting hoop, the device comprising:
a vertical support column, said vertical support column having a first end and a second end, the second end thereof having means to anchor said vertical support column to the horizontal base such that said vertical support column projects substantially vertically from the horizontal base;
a jointed arm, said jointed arm comprising a first arm member and a second arm member, the two arm members each having a free end and a fixed end, the fixed end of the first arm member being rotatably mounted to said vertical support column so as to rotate about the axis of said vertical support column in a plane perpendicular thereto, the free end of the first arm member rotatably attached to the fixed end of the second arm member such that the second arm member also rotates in a plane perpendicular to said vertical support column;
means to selectively adjust the position of said jointed arm along said vertical support columns;
a rotatable bar adjustably mounted to the free end of the second arm member, said rotatable bar having a longitudi-

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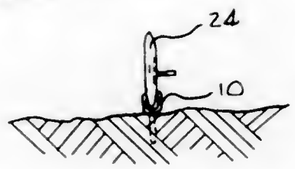
nal axis at a fixed distance from and parallel to the second arm member;
a quilting hoop support beam having means to releasably mount quilting hoops of different sizes to said quilting hoop support beam; and
an axle for rotatably mounting said quilting hoop support beam, at a center thereof, to said rotatable bar.

5,211,363
BILGE PUMP BRACKET
John S. Brown, P.O. Box N716, Nassau, The Bahamas
Filed Feb. 14, 1992, Ser. No. 835,770
Int. Cl.[5] B63J *5/00*
U.S. Cl. 248—146 6 Claims



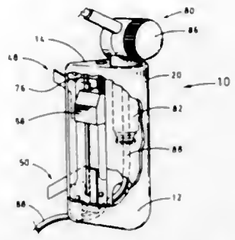
1. A bilge pump bracket comprising, a bracket back and a bracket base, said bracket back being adjoined to the bracket base thus creating an "L" shape, said back terminating curvilinearly thus forming a hand grip and having a means for releasably securing the said back to the bilge area of a marine vessel, and said base terminating in a platform which is raised in a steplike manner with respect to the said base and contiguous therewith, said base having a means for securing thereon a bilge pump and said platform having a means for securing a float switch thereon.

5,211,364
SUPPORT DEVICE FOR RECREATIONAL WATER BOARD
Michael W. James, 204 W. Mission Ct., Corona, Calif. 91720
Filed Sep. 23, 1991, Ser. No. 763,962
Int. Cl.[5] B63B *17/00*
U.S. Cl. 248—156 5 Claims



1. A support device and recreational water board in combination, comprising:
an elongated support element having an end portion with a means for inserting in the ground;
a means forming a cradle comprising a pair of S-shaped arms each pivotally attached at a respective lower end to the uppermost end of the elongated support element, wherein a side edge of said water board is positioned in the means forming a cradle and defining an operating position wherein the S-shaped arms engage respective top and bottom surfaces of the water board, holding the board in a generally vertical plane when the means for inserting is disposed in the ground.

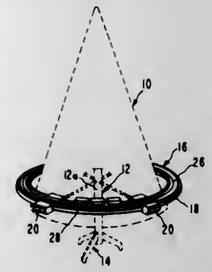
5,211,365
DETACHABLE MOUNTING ACCESSORY APPARATUS FOR USE WITH WALL PANEL SYSTEMS
John Melzian, Rancho Palos Verdes, Calif., assignor to Rubbermaid Office Products, Inglewood, Calif.
Filed Nov. 12, 1991, Ser. No. 791,487
Int. Cl.[5] E04G *5/06*
U.S. Cl. 248—225.1 22 Claims



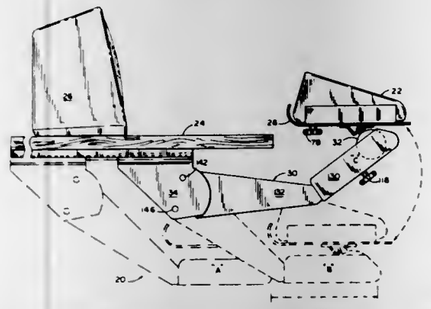
1. A mounting apparatus for detachably mounting to a slotted standard of a wall panel system, said mounting apparatus comprising:
a housing having a back plate;
upper and lower mounting brackets, each having a tab for detachably engaging a respective slot of the slotted standard;
means for mounting said lower mounting bracket to said back plate with said tab extending generally outward from said back plate;
a vertical slot formed in said back plate for receiving said tab of said upper mounting bracket;
a block disposed for vertical displacement within a chamber formed within said housing, said block engaging said upper mounting bracket; and
a threaded screw disposed through a bore hole formed in a upper plate of said housing, said screw extending through said housing into said chamber for engaging with a tapped bore hole extending into an upper portion of said block;
said block being vertically displaceable within said chamber by rotation of said screw such that said upper bracket, secured to said block, is displaced within said slot relative to said housing such that spacing between said upper and lower mounting brackets is selectable.

5,211,366
ORNAMENTAL SUPPORT FOR CHRISTMAS TREE AND THE LIKE
John W. Cummings, 2111 Peachtree La., San Jose, Calif. 95128
Continuation of Ser. No. 637,103, Jan. 3, 1991, abandoned. This application Jan. 13, 1992, Ser. No. 823,035
Int. Cl.[5] A47B *96/06*
U.S. Cl. 248—237 11 Claims

1. Apparatus for providing a decorative, ornamental appearance comprising:
an upright tree having branches and pair of opposed ends forming a trunk, and mounting means adapted to rigidly mount the trunk in an upright fixed position extending above a floor;
a ring-like device surrounding the trunk with the device being at a position spaced above the floor, said device having an upper support surface, a movable wheeled toy unit supported on and movable in rolling and driving relationship to said support surface and about said trunk; and
a plurality of elongated means each having an outer end coupled with the ring-like device and an inner end attached to the central support adapted to rigidly mount the ring-like device in a fixed cantilever position relative to the support trunk, at least a part of said upper support surface extending outwardly beyond an outermost extent of adjacent branches of the tree.

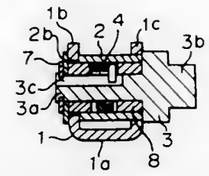


5,211,367
SINGLE ARM ARTICULATED KEYBOARD SUPPORT
Jeffrey A. Musculus, Wyoming, Mich., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed Oct. 16, 1991, Ser. No. 778,388
Int. Cl.[5] E04G *3/00*
U.S. Cl. 248—279 4 Claims



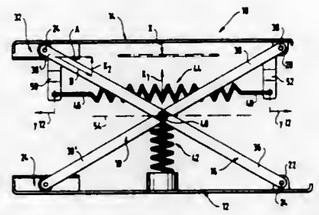
1. An adjustable keyboard support for attachment to a worksurface having an underside and a front edge, comprising:
a single rigid support arm having forward and rearward portions;
a mounting bracket adapted for attachment to the underside of an associated worksurface;
means for pivotably connecting the rearward portion of said support arm with said mounting bracket, said means for pivotably connecting defining a vertical axis of rotation and a horizontal axis of rotation;
means for releasably locking said support arm at a selected position;
a keyboard support portion configured to securely support a computer keyboard or the like thereon;
a continuously repositionable ball joint pivotally and rotatably connecting said keyboard support portion with the forward portion of said support arm so that said keyboard support portion can be squared with the front edge of the associated worksurface to facilitate use of a keyboard placed thereon, said joint including a retainer with means for resisting rotation of said keyboard support portion with respect to said support arm during keyboard manipulation, yet permitting manual rotation of said keyboard support portion with respect to said support arm to facilitate vertically angularly and rotatably adjusting said keyboard support portion;
lift assist means associated with said support arm for assisting in lifting said keyboard support portion, said lift assist means including a gas strut; and
pivotable bracket means for adjusting the amount of lifting force generated by said lift assist means.

5,211,368
ANGLE ADJUSTING DEVICE FOR A DISPLAY DEVICE
Yoshiharu Kitamura, Komagane, Japan, assignor to NHK Spring Co., Ltd., Yokohama, Japan
Filed Dec. 27, 1990, Ser. No. 634,232
Claims priority, application Japan, Dec. 29, 1989, 1-340928
Int. Cl.[5] E05D *11/00*
U.S. Cl. 248—292.1 5 Claims



1. An angle adjusting device for a display device comprising:
a channel type bearing;
a tube type fixed axis having a small diameter portion fitted in said bearing and a large inner diameter portion on another end;
a tube type rotatable axis having a small diameter portion and rotatably inserted in said fixed axis; and
a coil spring having free ends and mounted closely on the inner walls of said tube type fixed axis and said tube type rotatable axis.

5,211,369
SPRUNG SEAT FRAME FOR A SEAT
Josef Hoerner, Regensburg, Fed. Rep. of Germany, assignor to Grammer AG, Amberg, Fed. Rep. of Germany
Filed Jul. 16, 1992, Ser. No. 915,457
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1991, 4123968; Apr. 22, 1992, 4213206
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—588 6 Claims

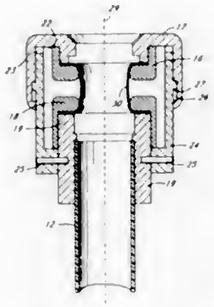


1. A sprung seat frame for a seat comprising a base support means; a seat support means; first and second levers disposed between the seat support means and the base support and pivotally connected together in their central region in a scissor-like frame configuration, each lever having first and second end portions; first means connecting the first end portions of the levers to the base support means; second means connecting the second end portions of the levers to the seat support means, one of said first and second connecting means being a pivotal connection between the associated lever end portions and the respective support means, and the other of said first and second connecting means comprising a linear motion guide means adapted to provide for linear motion of the associated lever end portions relative to the respective support means; a spring-

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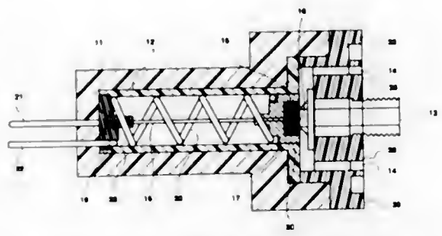
ing system including a compression spring disposed between the scissor-like frame configuration and the base support means for springing the seat frame; a correction spring operatively disposed between the levers in at least approximately parallel relationship to the base and seat support means such that upon movement of the seat support means relative to the base support means, the correction spring is displaceable relative to the pivotal connection location between the levers, whereby there is a change in the spring force component of the correction spring, said component being parallel to the spring force of the compression spring, and consequently providing a change in the spring rate of the springing system of the seat frame; first and second mounting means projecting from said first and second levers, respectively, toward said base support means, and wherein said correction spring is a tension spring disposed beneath the seat support means between said first and second mounting means, such that in a substantially non-loaded condition of said seat frame, said tension spring is between said seat support means and said pivotal connection location, while in the condition of maximum loading on said seat frame said tension spring is between said base support means and said pivotal connection location.

5,211,370
VARIABLE ORIFICE SEALING VALVE
Ronald J. Powers, 4010 Ischia Dr., Oxnard, Calif. 93035
Filed Jan. 6, 1992, Ser. No. 817,390
Int. Cl.[5] F16K 7/08
U.S. Cl. 251—4 10 Claims



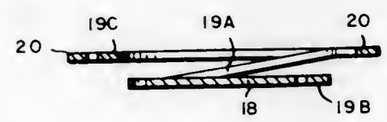
1. A variable orifice sealing valve comprising:
a thin, elastic cylinder having a first end, a second end and a cylindrical length and when at rest having a central opening comprising a fluid passageway therethrough having a passageway area;
a first ring member affixed to the first end of said thin, elastic cylinder in a manner so that the first ring member will not turn with respect to said first end;
a second ring member affixed to the second end of said thin, elastic cylinder in a manner so that the second ring member will not turn with respect to said second end, whereby when said first ring is turned with respect to said second ring, the fluid passageway will change in area; and
a spring mounted exteriorally of said thin, elastic cylinder, said spring having a first end and a second end, said first end being affixed to said first ring member and said second end being affixed to said second ring member, said spring urging the first ring to turn with respect to the second ring.

5,211,371
LINEARLY ACTUATED VALVE
Curtis L. Coffee, Plainfield, Ind., assignor to Advanced Control Technologies, Inc., Indianapolis, Ind.
Filed Jul. 22, 1991, Ser. No. 734,243
Int. Cl.[5] F16K 31/66, 31/02
U.S. Cl. 251—11 33 Claims



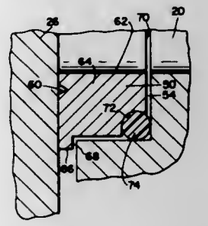
1. A linearly actuated valve of the type comprising a valve body, a valve seal linearly movable with respect to the body between first and second positions, bias means biasing the valve seal toward the first position, a shape memory alloy means separate from the bias means and disposed between the valve seal and the body, electrical circuit means for providing electrical current to the shape memory alloy such that the valve seal is moved from the first position to the second position when current is applied thereto, the improvement comprising,
the electrical circuit being continuously closed and comprised entirely of electrical conductors having no sliding electrical contacts.

5,211,372
EXHAUST VALVE FOR A GAS EXPANSION SYSTEM
Joseph L. Smith, Jr., Concord, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.
Filed Jul. 11, 1991, Ser. No. 728,544
Int. Cl.[5] F16K 31/44
U.S. Cl. 251—75 9 Claims



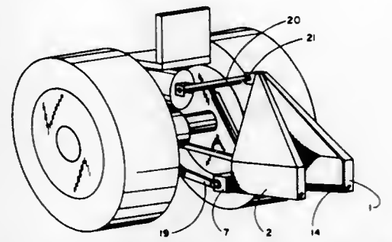
1. A valve for use in a gas expansion system, said valve comprising
a valve seat;
an integrally formed valve disk assembly comprising a metallic valve disk element and a plurality of metallic spring elements, said valve disk assembly being mounted adjacent said valve seat for movement of said valve disk element into and out of a seated position on said valve seat, whereby said valve is placed in a closed state or in an opened state, respectively;
means for moving said valve disk element out of said seated position to place said valve in its opened state, said spring elements causing said disk element to move in a non-linear manner during its movement out of said seated position; and
means for limiting the movement of said valve disk element to a selected position which minimizes the force required for holding said valve in its opened state.

5,211,373
GATE VALVE HAVING EXPANDING GATE AND FLOATING SEATS
Dwight Baker, P.O. Box 249, Rush Springs, Okla. 73082
Continuation of Ser. No. 612,862, Nov. 14, 1990, abandoned.
This application Dec. 9, 1991, Ser. No. 803,912
Int. Cl.[5] F16K 3/16
U.S. Cl. 251—196 3 Claims



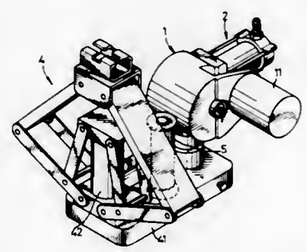
1. A gate valve having an expanding gate, said valve comprising:
a. a valve body having a flow inlet and a flow outlet, and a flow passageway extending between the inlet and outlet and having a flow axis;
b. a gate member positioned within the valve body and movable transversely relative to the flow passageway axis to selectively open and close the flow passageway, the gate member including a pair of abutting gate elements each having opposed wedge surfaces inclined relative to the flow passageway axis to permit the gate elements to be moved relative to each other along respective wedge surfaces to expand the gate member in a direction along the flow passageway axis, the gate elements each having an outwardly facing planar face surface and including a gate passageway through each gate element for alignment with the flow passageway to permit flow through the gate member when the gate element passageways are aligned with the flow passageway, and a spring carried by the gate member for biasing the gate elements toward each other; and
c. a pair of annular valve seats each having a flow passageway extending therethrough and each carried in a respective seat recess provided within the valve body in spaced relationship along the flow axis and on opposite sides of the gate member, the seats each including a seat face adapted for engagement with the face surface of a respective gate element and including a flat sealing surface without protrusions, each seat face adapted to tightly and sealingly engage a gate face surface and including a closed annular groove free of filler materials and substantially coaxial with the flow passageway, the groove being substantially V-shaped in cross section and having an included angle of about 60° and a depth of about 0.060 inches, he groove dividing the seat faces into a first annular outer planar area free of grooves and a second annular inner planar area free of grooves, the first annular outer planar area being coplanar with the second annular inner planar area, resilient biasing means in the form of a flexible member carried by each seat at a coaxial, radially outwardly facing annular groove at an opposite end of the seat from the sealing surface for contacting a respective seat recess in the valve body to resiliently urge the seat toward the gate face surface, each seat carried in a respective seat recess for sliding movement, the respective seat recesses being so sized to permit tilting of the seats relative to the flow passageway axis through an angle of up to about 2.5° to maintain the seat faces in sealing contact with a respective gate face surface, the seat faces having a surface hardness of about 60 on the Rockwell C scale.

5,211,374
POST PULLER
Harold W. Head, 213 E. 3rd St., Cameron, Tex. 76520; Douglas W. Landua, 1300 Leacrest, College Station, Tex. 77840, and James A. McAdams, 1200 E. 31st St., Bryan, Tex. 77802
Filed Sep. 30, 1991, Ser. No. 767,628
Int. Cl.[5] E21B 19/00
U.S. Cl. 254—30 10 Claims



1. A device for extracting fence posts and other similar elongated pieces from the earth comprising:
a. a housing with a front side, a base side, a right side, a left side, and a rear side;
b. means for coupling housing to a lifting mechanism;
c. means for coupling the housing with the lifting mechanism whereby the housing will remain substantially vertical, with reference to the horizon, during the vertical motion of the housing;
d. within the housing, a means for gripping a post to be extracted;
e. the means for gripping the post which is comprised of two substantially horizontal, with reference to the horizon, gripper blades, each composed of a gripping edge and an unsharpened edge which is opposite to the gripping edge, pivotally attached to the base side of the housing; and
f. a means for horizontally, with reference to the horizon, pivotally mounting the gripper blades in a V-shaped manner whereby the gripper blades are aligned such that the gripping edges of the blades are higher, with reference to the horizon, than the unsharpened edges of the gripper blades when the device is static and whereby the gripping edges are able to rotate or attempt to rotate downward when a post is placed against the gripping edges of the gripper blades and the device is raised.

5,211,375
ELECTRIC HYDRAULIC JACK/AIR PUMP
Ta C. Wang, No. 269, Sec. 2, Anho Rd., Tainan, Taiwan
Filed May 26, 1992, Ser. No. 888,512
Int. Cl.[5] B66F 3/24
U.S. Cl. 254—93 M 4 Claims



1. An electrical hydraulic jack/air pump comprising:
a hydraulic jack assembly having a first cylinder for supply-

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ing fluid to a lifting cylinder for effecting a lifting function;

an air pump assembly having a second cylinder for effecting an air-filling function; and

a transmission assembly comprising a driving means electrically connectable to a power source, a shaft driven by said driving means, a wheel eccentrically mounted on said shaft, a ring securely mounted around said wheel, and first and second pistons respectively mounted in said first and second cylinders, each said first and second piston respectively having an end pivotally connected to said ring, thereby providing reciprocating motion of said first and second pistons in their associated first and second cylinders responsive to rotation of said shaft for effecting said lifting and air-filling functions.

5,211,376

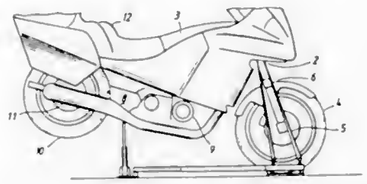
MOTORCYCLE JACK

Donald J. Anderson, P.O. Box 30996, Lafayette, La. 70503

Filed Apr. 13, 1990, Ser. No. 508,823

Int. Cl.[5] B66F *5/04*

U.S. Cl. 254—134 **6 Claims**



1. A jack assembly for use in raising one of the front and rear wheels of a two-wheeled vehicle such as a motorcycle off the ground to facilitate repairs, comprising: a generally T-shaped frame having a transverse portion and a longitudinal portion, said transverse portion being adapted to be located below that wheel of the vehicle that is opposite to the wheel being raised, said longitudinal portion extending away from said transverse portion for a distance that is substantially less than the distance between the axles of such front and rear wheels; wheel receiver means on said transverse portion for restraining forward, rearward and lateral movement of a wheel engaged therewith; means to hold down the wheel that is engaged with said receiver means; and base means on the end of said longitudinal portion opposite said transverse portion and adapted to support a jack by which that portion of a vehicle located above said base means can be jacked upward with respect to said longitudinal portion while said transverse portion and said hold down means maintain the vehicle in an upright position.

5,211,377

METHOD AND DEVICE FOR INSTALLING A CABLE IN A CABLE DUCT

Willem Griffioen, Ter Aar, and Geert J. Prins, Delft, both of Netherlands, assignors to Koninklijke PTT Nederland N.V., Groningen, Netherlands

Filed Jul. 15, 1991, Ser. No. 729,570

Claims priority, application Netherlands, Jul. 17, 1990, 9001618

Int. Cl.[5] B66F *3/24*

U.S. Cl. 254—134.4 **11 Claims**

1. Method for introducing a cable into a cable duct from an inlet end of the cable duct in the direction of an outlet end, which method comprises the following steps:

inserting a foremost end of the cable to be introduced into the inlet end of the duct and thereby leading the foremost end and a following portion of the cable from a cable store via a predefined curved path towards the inlet end of the duct;

accelerating at least said foremost end and subsequent portions of the cable in the direction of the outlet end by exerting pulling forces on the foremost end of the cable, while measuring net transverse forces experienced by the cable in said curved path, and

supplying further portions of cable from the cable store via said curved path to the inlet end of the duct with an increasing, or at least not decreasing, supply speed, so long as the measured net transverse forces correspond with a transverse component of the tension force larger than the centrifugal force and

at reaching maximum supply speed, supplying further cable portions from the store with a supply speed being controlled by adjusting to zero the net transverse forces on the cable in the curved path, thereby maintaining the exertion of said pulling forces.

5,211,378

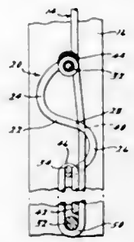
DEVICE FOR INCREASING THE TENSION ON A CABLE OR THE LIKE

Donald T. MacKinnon, Jr., 19534 Warwick, Birmingham, Mich. 48009

Filed Jun. 10, 1991, Ser. No. 712,682

Int. Cl.[5] B66D *3/04*; B63H *9/04*

U.S. Cl. 254—389 **17 Claims**



1. A tensioning device for providing a mechanical advantage to aid in increasing the tension on a cable having a first cable end fixed to a load and a second, free cable end adapted to be secured to an anchoring means, said tensioning device being adapted to be used to increase tension on the cable prior to the free end being secured to said anchoring means, said tensioning device comprising an elongated body formed in a generally serpentine shape and having a pair of oppositely-facing bights lying generally in a single plane and a midportion between said bights, a first end of said body protruding in a laterally outward direction to form a first horn, and a second end opposite said first end protruding in said laterally outward direction to form a second horn, said first horn being adapted to receive a first portion of the cable wrapped therearound a plurality of times, and said second horn being adapted to receive and slidably engage a second portion of the cable wrapped less than one complete turn around said second horn in order to cause the second portion of the cable to extend to said second horn on one side thereof and away from said second horn on the other side thereof, said midportion of said body being adapted to receive a third portion of the cable extending thereunder with the third portion of the cable being between the first and second portions of the cable.

5,211,379

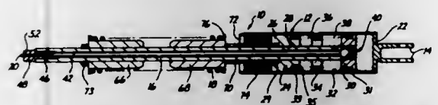
CONTINUOUSLY SELF-COMPENSATING HYDRAULIC POSITIONER

Clyde R. Porter, Los Angeles, Calif., assignor to P. L. Porter Company, Woodland Hills, Calif.

Filed Dec. 18, 1991, Ser. No. 813,292

Int. Cl.[5] F16F *9/10*

U.S. Cl. 267—221 **6 Claims**



1. A hydraulic positioner comprising a cylinder, a piston chamber in said cylinder closed at one end by an axially displaceable gland, a piston axially reciprocable in said piston chamber, a rod axially connected to said piston and slidable through said gland, said rod moveable with said piston between an extended and a compressed condition, hydraulic fluid in said piston chamber, valve means in said piston actuatable for allowing flow of said fluid across said piston, said valve means being normally closed for locking said piston and said rod against movement in said cylinder, a first spring urging said rod to said extended condition, and a second spring cooperating with said first spring means for jointly urging said gland against said fluid to compensate for changes in fluid volume in said chamber.

5,211,380

MOTOR VEHICLE SPRING STRUT

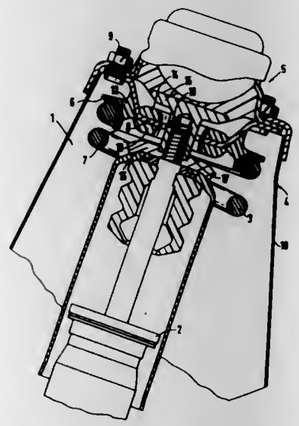
Francesco Germano, Sachsenheim, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany

Filed Feb. 27, 1992, Ser. No. 842,493

Claims priority, application Fed. Rep. of Germany, Feb. 27, 1991, 4106093

Int. Cl.[5] B60G *13/00*

U.S. Cl. 267—221 **7 Claims**



1. A spring strut comprising a coil spring and a shock absorber for a motor vehicle having a separate support on a body of the motor vehicle for the coil spring and the shock absorber, the coil spring being supported on a spring pocket held at the vehicle body side, and the shock absorber being supported in a vehicle-body-side elastic bearing element, a stop element, and an elastic decoupling member connecting the spring pocket with the stop element, the elastic decoupling member forms a constructional unit and, with the bearing element, can be exchangeably fastened on a dome of the vehicle body by screws, the shock absorber has two spaced disks connected to a piston rod, the stop element has an elastic rebounding and compression stop arranged at a distance between the two shock absorber disks, one of the shock absorber disks is an upper disk forming part of the bearing element, and the other shock absorber disk is connected to the upper disk via a sleeve at the piston rod.

5,211,381

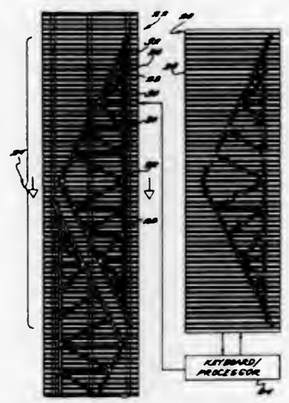
TRUSS ASSEMBLING APPARATUS

Clifford Shaw, P.O. Box 1546, Sumter, S.C. 29151

Filed Nov. 25, 1991, Ser. No. 797,313

Int. Cl.[5] B30B *3/02*

U.S. Cl. 269—37 **15 Claims**



1. An apparatus for assembling trusses, said apparatus comprising:

a surface for assembling trusses;

means for moving said surface, said surface having a truss-assembling area and a truss-unloading area, said trusses being assembled at said truss-assembling area and unloaded at said truss-unloading area, said trusses being carried from said truss-assembling area to said truss-unloading area by said surface when said surface is moved by said moving means;

a first set of slats removably carried by said surface;

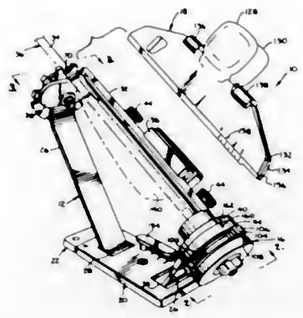
a second set of slats, each slat of said second set of slats interchangeable with slats of said first set of slats;

a plurality of stops for forming truss jigs in accordance with a pattern of stops, said slats of said first and said second sets of slats having means formed therein for receiving said stops; and

means for generating said pattern of stops so that said second set of slats can receive said stops in accordance with said pattern of stops and said second set of slats with said stops can replace slats of said first set of slats on said surface.

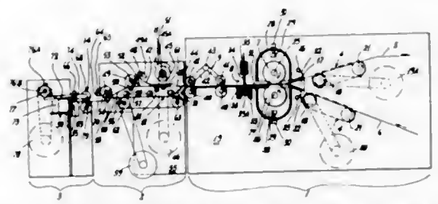
VOL 1150 ISS 3 MAY 18 1993 UMI

5,211,382
ARROW FLETCHER
Robert L. Finlay, Emporia, Kans., assignor to BPE, Inc., Emporia, Kans.
Filed Dec. 30, 1991, Ser. No. 814,618
Int. Cl.[5] B25B *1/20*
U.S. Cl. 269—38 16 Claims



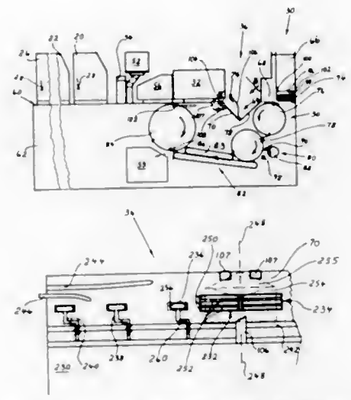
1. An arrow fletcher for use in attaching a fletching to an arrow shaft having a nock, the improvement comprising:
a frame;
a nock receiver attached to said frame;
means coupled to said frame for positioning a fletching adjacent an arrow shaft positioned on said nock receiver; and
a shaft support attached to said frame in spaced relationship to said nock receiver, said shaft support presenting a plurality of discretely sized openings for alternately receiving a complimentarily dimensioned arrow shaft therein, said shaft support being configured to allow the removal of the arrow therefrom transverse to an axis of the arrow extending along its shaft.

5,211,383
DEVICE FOR ARRANGING DOCUMENTS PRINTED ON CONTINUOUS STRIPS
Francesco Valentinis, Milan, Italy, assignor to CEM S.p.A., Italy
Filed Feb. 26, 1992, Ser. No. 841,711
Claims priority, application Italy, Mar. 12, 1991, MI91 A 000652
Int. Cl.[5] B65H *41/00*
U.S. Cl. 270—52.5 10 Claims



1. A device for arranging documents printed on continuous strips of the type using at least two continuous strips (5, 6) printed in at least two columns, characterised by comprising means (4) for selectively advancing the strips (5, 6), means (7, 7') for longitudinally cutting said strips, at least one means (8) for transversely cutting at least a part of the strips, a means (10) for directing the documents (13), obtained from the strips, to at least one waiting and selective sorting station for the documents and to a transit section (12) for the documents, and conveyor means (14) for the documents originating from the station (11) and from the section (12).

5,211,384
INSERTER WITH DIVERTER FOR FAULTY MEMBERS
Winston A. Orsinger, Nazareth; Richard B. Hawkes, Bethlehem; Eric A. Belec, Kempton, all of Pa.; Lee, Jr.: James S., Phillipsburg, N.J.; Harry C. Noll, Jr., Whitehall, Pa.; David P. Nyffenegger, Bethlehem, Pa., and George Fallos, Easton, Pa., assignors to Bell & Howell Company, Skokie, Ill.
Division of Ser. No. 338,171, Apr. 14, 1989, Pat. No. 5,029,832.
This application May 29, 1991, Ser. No. 707,048
Int. Cl.[5] B65H *43/00*; B65G *47/26*; B65B *1/00*
U.S. Cl. 270—59 20 Claims

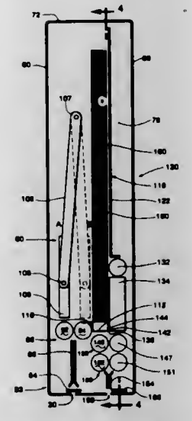


1. A diverter system for diverting inserts and envelopes in an inserter, said inserter including an inserting station, means for conveying inserts and means for conveying envelopes to said inserting station, and means for transporting insert-filled envelopes from said inserting station, the diverter system comprising:
means for identifying envelopes and inserts to be stigmatized as faulty;
means for diverting inserts from said means for conveying inserts, said means for diverting inserts including means for diverting inserts stigmatized as faulty;
means for diverting envelopes from said means for conveying envelopes, said means for diverting envelopes including means for diverting envelopes stigmatized as faulty;
means for complementarily associating individual envelopes with particular inserts intended for insertion thereinto, mutually complementarily associated envelopes and inserts being defined as complementary members; and
means for diverting said complementary members when at least one of said complementary members is stigmatized as faulty.

5,211,385
APPARATUS FOR STORING FILM SHEETS
Wellem A. Hoorn, Amersfoort, Netherlands, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Nov. 22, 1991, Ser. No. 797,486
Int. Cl.[5] B65H *1/02*
U.S. Cl. 271— 3.1 16 Claims

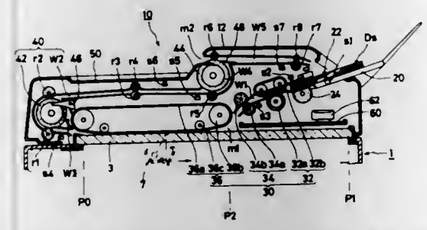
1. An apparatus for receiving a plurality of sheet films in a plurality of sizes each sheet having at least one edge, storing the films and dispensing the films serially, the apparatus comprising:
a light-tight housing including a film entrance slot, a film storage cavity and a film exit slot;

a stationary film storage platform having a substantially horizontal and substantially flat surface in the housing for storing at least one sheet of film on its edge;
a first pair of nip rollers for transporting the at least one film sheet from the film entrance slot to the film storage platform;
film supporting means for supporting the at least one sheet of film when the film is stored on the platform;



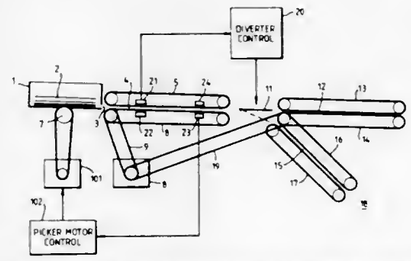
pressure plate means for contacting, supporting and transporting the at least one film sheet along the edge along the platform to a dispensing position in contact with the film supporting means; and
single film sheet dispensing means, associated with the platform and the film supporting means, for receiving at least one film sheets and dispensing one sheet at a time.

5,211,386
RECIRCULATION-TYPE AUTOMATIC DOCUMENT FEEDING DEVICE
Kenji Baba, Kofu, Japan, assignor to Nisca Corporation, Yamanashi, Japan
Filed Nov. 29, 1991, Ser. No. 799,990
Claims priority, application Japan, Nov. 30, 1990, 2-340817; Nov. 30, 1990, 2-340818
Int. Cl.[5] B65H *31/24*
U.S. Cl. 271—3.1 7 Claims



1. A recirculation-type document feeding device for a copying machine having a platen on which a document setting portion is defined, comprising a document tray for stacking one or more given documents to be copied thereon, means for transferring the documents from said document tray to said document setting portion one by one, a discharge passage leading to said document setting portion and adapted for transferring the document, said discharge passage being defined above at least one part of said document setting portion and having a document outlet, means for discharging the document from said document setting portion toward said document outlet through said discharge passage, a discharge tray facing said document outlet and located above at least one part of said discharge passage, a return passage extending from said document outlet to said document tray, and at least one reversible switchback roller located adjacent to said document outlet, said document outlet and switchback roller being disposed about above a midpoint of said document setting portion, whereby the given document transferred from said document tray to said discharge passage is alternatively discharged to said discharge tray or returned to said document tray by controlling said switchback roller.

5,211,387
METHOD AND APPARATUS FOR FEEDING ARTICLES
Paul D. V. Lloyd, and Michael Potter, both of Hampshire, England, assignors to De La Rue Systems Limited, England
Continuation of Ser. No. 502,578, Mar. 30, 1990, abandoned.
This application Dec. 20, 1991, Ser. No. 810,566
Claims priority, application United Kingdom, Mar. 31, 1989, 8907339
Int. Cl.[5] B65H *7/14*
U.S. Cl. 271—111 18 Claims



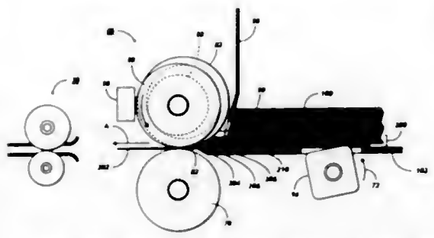
1. A method of feeding articles along a feed path defined by first and second separately driven feed systems in which the articles are fed from said first to said second feed systems, the method comprising sensing the separation between articles fed through said second feed system; and, during the feeding of articles by said feed systems, adjusting the rate at which articles are fed by said first feed system when the separation between successive articles passing through said second feed system does not satisfy at least one predetermined condition, where said second feed system operates at a substantially constant speed, and further comprising increasing said feed rate of the first feed system after a predetermined number of articles have passed through said second feed system without said at least one predetermined condition not being satisfied.

5,211,388
RETARD ROLL ENHANCEMENT
Edward L. Walluk, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Jun. 3, 1992, Ser. No. 892,879
Int. Cl.[5] B65H *3/46*
U.S. Cl. 271—122 11 Claims

1. A sheet feeding apparatus adapted to advance sheets from a stack of sheets, comprising:
means for supporting the stack of sheets;
means, mounted adjacent said support means, for advancing sheets from the stack;
a retard member having a substantially arcuate surface, said retard member comprising a ribbed elastomeric roll in circumferential contact with a portion of said advancing means so as to form a nip therebetween ; and
means for queuing and separating sheets being advanced by said advancing means from the stack, said queuing and separating means comprising a substantially planar mem-

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ber adapted to engage a lead edge of one portion of the sheets of the stack so as to initially separate a plurality of sheets from one side of the stack and a ring having a radius of curvature greater than the arcuate surface of said retard



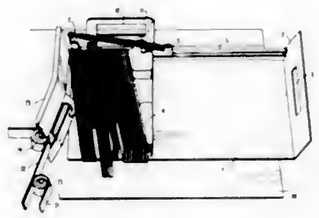
member, said ring having an interior diameter greater than the diameter of said ribbed elastomeric roll disposed so that said ring encircles said elastomeric roll and being adapted to engage a portion of the sheets of the stack.

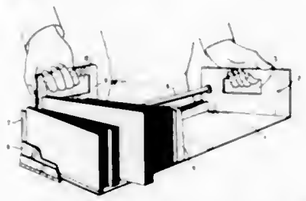
5,211,389

REMOVABLE STACKING DEVICE FOR AUTOMATIC MAIL SORTING MACHINE

Olivier Roch, Valence, and Frédéric Mestrallet, Etoile, both of France, assignors to Compagnie Generale d'Automatisme CGA-HBS, Bretigny-Sur-Orge, France

Filed Oct. 16, 1991, Ser. No. 777,006
Claims priority, application France, Oct. 16, 1990, 90 12750
Int. Cl.[5] B65H *31/06, 31/22*
U.S. Cl. 271—207 **4 Claims**





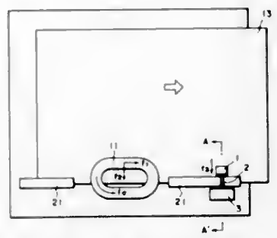
1. Removable stacker for an automatic mail sorting system comprising a flat rectangular plate defining a stacking area, a mobile wall at right angles to said plate and movable across the plate in a direction of a stacker inlet at a edge of the plate and adapted to contact documents on edge on said plate, a return device operatively coupled to said mobile wall for moving said mobile wall in a direction opposite to the direction of movement of said documents as the stacker is filled from the stacker inlet toward the mobile wall, and an articulated flap coupled to said plate and pivotable between a first position in line with the plate to a second position at right angles to the plate and closing off said inlet and for contacting a stack of said documents to an opposite side of a stack of documents from that of said mobile wall to grip said documents during manipulation of the removable stacker, and said stacker further comprising means for maintaining said flap in said second position against the action of the weight of the stacked documents pressed against the flap by said return device acting on said mobile wall.

5,211,390

SHEET FEEDING DEVICE

Masahiko Igaki, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 5, 1991, Ser. No. 664,750
Claims priority, application Japan, Mar. 5, 1990, 2-53134
Int. Cl.[5] B65H *9/00*
U.S. Cl. 271—250 **18 Claims**



12. A sheet feeding device, comprising:

(a) a sheet guide for restricting a direction of conveyance of a sheet to a predetermined direction;

(b) a vibration member adapted to contact the sheet and responsive to an applied electrical signal to generate a travelling vibration wave for feeding the sheet in the predetermined direction, said vibration member creating a first force for feeding the sheet in the predetermined direction and a second force for urging the sheet toward said sheet guide; and

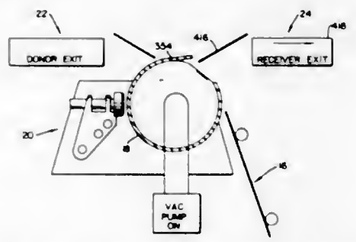
(c) a rotatable member rotated in response to the feeding of the sheet, said rotatable member imparting to the sheet a force urging the sheet toward said sheet guide by said rotation, a surface of said rotatable member in a direction substantially perpendicular to the sheet being sloped.

5,211,391

AIR FLOW ASSISTED MATERIAL REMOVAL METHOD AND APPARATUS

Roger S. Kerr, Brockport; Scott L. Auer, Webster; Dennis W. Heizyk, Rochester, and Donald F. Grube, Canandaigua, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 762,834, Sep. 19, 1991, abandoned. This application Sep. 16, 1992, Ser. No. 945,778
Int. Cl.[5] B65H *5/02*
U.S. Cl. 271—276 **4 Claims**



1. In a sheet removal apparatus for unloading a sheet from a hollow drum member mounted for rotation about its axis and having a vacuum provided to the interior thereof, said apparatus including means for supplying a vacuum to the interior of said drum and thence to first and second sets of vacuum openings through the surface of said drum member wherein said sheet overlies and closes said first set of vacuum openings and said second set of openings extends substantially parallel with an edge of said sheet and comprises only a small portion of the total number of vacuum openings through said drum, and an exit blade disposed adjacent said drum and having an edge proximate said drum and extending substantially parallel to said edge of said sheet, said exit blade being disposed with respect to said drum so as to form an angle with the surface thereof with said proximate edge of said blade closely adjacent the apex of the angle and parallel with said edge of said sheet whereby, when said drum is rotated to a sheet removal position, said second set of vacuum openings lie beneath the acute angle when said edge of said sheet is disposed on the opposite side of said apex, the improvement comprising:

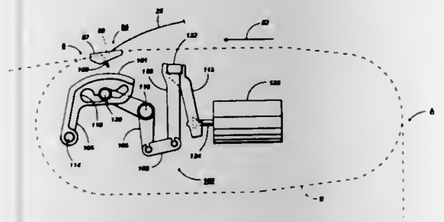
spacing said proximate edge of said exit blade sufficiently close to the surface of said drum that while said exit blade clears said sheet disposed on said drum member the vacuum drawn through said second set of vacuum openings creates an area of relatively high pressure air at said apex whereby air is forced past said apex with sufficient force to lift said edge of said sheet from the surface of said drum.

5,211,392

SHEET TRANSPORT APPARATUS FOR USE IN AN ELECTROPHOTOGRAPHIC PRINTING MACHINE

Roger M. Swanson, Fairport; Scott C. Durland, Rochester; James R. Cassano, Penfield, and David T. Pfeiffer, Fairport, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 5, 1991, Ser. No. 755,409
Int. Cl.[5] B65H *5/02*
U.S. Cl. 271—277 **10 Claims**



1. An apparatus for releasably gripping a sheet and advancing the sheet through a transfer zone and into registration with information developed on a moving member comprising:

a first gripping member;

a second gripping member adapted to be moved relative to said first gripping member,

means for applying a force on said second gripping member to urge said second gripping member towards said first gripping member to grip the sheet;

means for advancing said first gripping member and said second gripping member through the transfer zone;

means for moving said second gripping member relative to said first gripping member to acquire or release the sheet;

means for positioning said moving means in a first mode of operation to allow said moving means to move said second gripping member, and, in a second mode of operation to prevent said moving means from moving said second gripping member; and

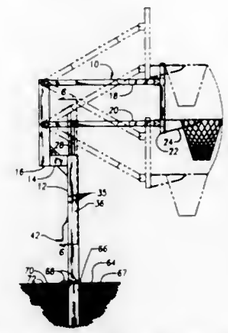
means for isolating said positioning means from the force applied by said force applying means during the first mode of operation.

5,211,393

ADJUSTABLE BASKETBALL GOAL

Merlan Rolffs; Dennis H. Steenhoek, and Dennis E. Brand, all of Pella, Iowa, assignors to Goalsetter Systems, Inc., Pella, Iowa

Filed Oct. 16, 1991, Ser. No. 777,652
Int. Cl.[5] A63B *63/08*
U.S. Cl. 273—1.5 R **15 Claims**



1. An adjustable basketball goal comprising,

a mast having,

a hollow fist mast member vertically positioned and having top and bottom ends with said bottom end being adapted to be operatively supported on the ground,

a second mast member having opposite ends with one end connected to the top end of said first mast member and extending horizontally,

a third mast member vertically positioned and having top and bottom ends, said bottom end being connected to the other end of said horizontally extending second mast member,

a backboard arm having inner and outer ends pivotally connected at its inner end to said third mast member above said second mast member and extending over and beyond said first mast member,

a backboard goal mounted on the outer end of said backboard arm, and

a jack having a base substantially totally mounted in said hollow first mast member beneath said backboard arm and including a rigid rod telescopically received in and extendable from said base and extending upwardly out the top of said first mast member and being connected at its uppermost end to said backboard arm at a point remote from the pivotal connection of said backboard arm to said third mast member whereby said backboard arm may be pivotally raised and lowered through a range of heights through extension and retraction of said rod, said rod being free of any support between said first mast member and said backboard arm, and being free of any angularly displaceable or freely slidable joints between its upper end and the jack base.

5,211,394

BASEBALL HITTING GAME

David M. Jackson, 5204 Tamarus, #A, Las Vegas, Nev. 89119, and Chauncey L. Mann, III, 1457 Elma St., #A, Ontario, Calif. 91764

Filed Jul. 26, 1989, Ser. No. 385,569
Int. Cl.[5] A63B *67/00*
U.S. Cl. 273—25 **13 Claims**

1. A method of playing a ball game comprising:

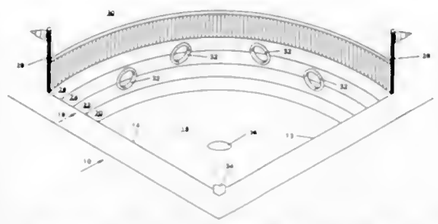
a) pitching a ball to a hitter;

b) the hitter determining whether to swing at the ball;

c) if the hitter does not swing at the ball and the ball passes through a strike zone, the hitter is charged with a strike;

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d) if the hitter swings at the ball and misses, the hitter is charged with a strike;
e) if the hitter swings at the ball and hits it, then
1) if the ball goes into a predetermined area on the fly, then the hitter receives a preselected number of points, or
2) if the ball does not go into the predetermined area on the fly, then the hitter receives a strike;
f) the predetermined area includes four marked off segments on a playing field, each segment is designated with a



preselected point value, the point value of the first segment is one, the point value of the second segment is two, the point value of the third segment is three and the point value of the fourth segment is four;
g) the predetermined area further includes at least one vertical hoop placed on the playing field and facing the hitter, the vertical hoop having a diameter of approximately between 15 feet and 30 feet and a hitter scores points for hitting the ball on the fly through the vertical hoop, and
h) adding up the hitter's points after the hitter has received a certain number of pitches.

5,211,395
GOLF TOOL
Henry H. Liao, 3091 Quail Run Rd., Los Alamitos, Calif. 90720
Filed Sep. 25, 1991, Ser. No. 765,203
Int. Cl.[5] A63B *57/00*
U.S. Cl. 273—32 A 4 Claims



1. A golf tool comprising:
an upper tee portion including a tee cup;
a lower green repair portion including a pair of prongs and a body portion intermediate said upper tee portion and said pair of prongs, said pair of prongs extending downwardly from said body portion, and said prongs each having an inner edge and an outer edge, wherein said inner edges of said prongs comprise range-finding means for determining the distance between a golfer holding said tool and a pin of known height;
a ball marker removably attached to said body portion; and
a positioning means for aiding the golfer to position said range-finding means a predetermined distance from the eyes of the golfer.

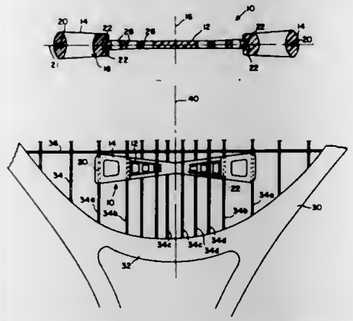
5,211,396
MULTI-FRAME RACKET
Matthew F. Ferrari; Harry M. Ferrari, and John M. Shallenberger, all of Pittsburgh, Pa., assignors to Ferrari Importing Company, Pittsburgh, Pa.
Division of Ser. No. 495,231, Mar. 16, 1990. This application Feb. 19, 1991, Ser. No. 657,718
Int. Cl.[5] A63B *49/02*
U.S. Cl. 273—73 C 20 Claims



1. In a sports racket having a handle, a multi-frame comprising.
(a) a primary frame having a pair of opposite sides and defining a throat connected to said handle and a hoop-shaped head connected to said throat and encompassing an open region, said throat and head of said frame being generally aligned with one another, said throat having shafts with portions spaced apart, said head having a plurality of stringing holes defined therethrough for attaching stringing to said head and across the open region, said stringing holes being aligned in a common plane lying between said opposite sides of said primary frame; and
(b) supplementary bracing including at least one pair of cross members extending between and rigidly interconnecting said spaced portions of said throat shafts, said cross members rigidly connected at their ends of said throat shafts and projecting in opposite directions away from one another and outwardly beyond said opposite sides of said primary frame for increasing the stiffness of said primary frame to thereby reduce axial and torsional deflections thereof upon striking a ball by the stringing across said open region of said primary frame head.

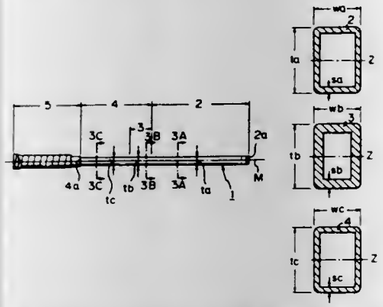
5,211,397
STRING VIBRATION DAMPENER FOR A TENNIS RACQUET
Stephen J. Davis, Yardley, and Kenneth A. Stevens, Lansdale, both of Pa., assignors to Prince Manufacturing, Inc., Princeton, N.J.
Continuation of Ser. No. 535,840, Jun. 11, 1990, abandoned. This application Jan. 30, 1992, Ser. No. 827,864
Int. Cl.[5] A63B *51/10*
U.S. Cl. 273—73 D 11 Claims

1. A vibration absorber for use on a sports racquet having adjacent, parallel strings, said absorber comprising: an elongated member, including a connecting portion which is flexible and thin so as to effect relatively little vibration dampening; vibration dampening means on either end of said elongated member for effecting vibration dampening greater than said connecting portion, wherein said vibration dampening means constitute end members; wherein said connecting member is adapted to be weaved over and under adjacent, parallel strings of a sports racquet so as to contact at least two strings, and wherein each end member is sized to fit between a pair of adjacent, parallel strings of a sports racquet so that opposite sides of the end member are in frictional contact with the two



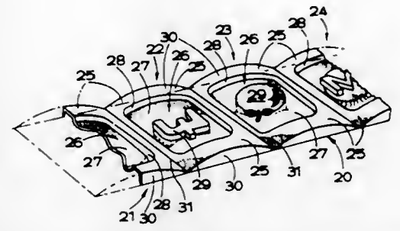
parallel strings and thereby produce variable vibration dampening across the stringing plane of the racquet.

5,211,398
HOLLOW TENNIS RACKET FRAME WITH MATCHED FREQUENCY OF VIBRATION
Tetsuyuki Awano, and Masanori Takatsuka, both of Shizuoka, Japan, assignors to Yamaha Corporation, Japan
Continuation of Ser. No. 312,736, Feb. 17, 1989, abandoned. This application May 29, 1990, Ser. No. 530,439
Claims priority, application Japan, Feb. 19, 1988, 63-37253
Int. Cl.[5] A63B *49/02*
U.S. Cl. 273—73 R 12 Claims



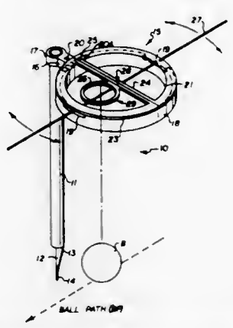
1. A racket frame comprising a head having a face, a shaft including a throat and a grip, the frame having a natural frequency of vibration and a node corresponding to said natural frequency of vibration
said head, said shaft and said grip having respective external dimensions of width and thickness; the respective thicknesses of said head, said shaft and said grip being substantially equal along the direction of said racket frame extending from said grip to said head in a range from 23 to 28 mm with a natural frequency, as measured with the racket frame supported at the node and the head and the grip of the racket frame supported, in a range from 160 to 260 Hz,
said head, said shaft including said throat and said grip having respective hollow cross-sections and each being defined by walls having respective thicknesses, the wall thickness of said throat being larger than the respective wall thicknesses of said head and said shaft excluding said throat.

5,211,399
GAMING AND AMUSEMENT MACHINES AND REELS FOR THEM
Terence Howard, Nottingham, England, assignor to Bell-Fruit Manufacturing Company Limited, Nottingham, England
Filed Feb. 11, 1992, Ser. No. 833,860
Claims priority, application United Kingdom, Aug. 12, 1989, 8918448; PCT Int'l Appl., Aug. 10, 1990, PCT/GB90/01256
Int. Cl.[5] G09F *11/12*; G07F *17/34*
U.S. Cl. 273—143 R 21 Claims



1. A reel strip for a gaming or amusement machine comprising a first surface region and at least one sunken region, said at least one sunken region being provided below the level of said first surface region and said at least one sunken region being provided with at least one symbol or fruit, wherein said at least one symbol is formed in relief and said at least one sunken region and said at least one symbol are integrally formed.

5,211,400
GOLF PUTTING AID
John R. Hall, P.O. Box 1526, Alvin, Tex. 77512, and Charles R. Epps, 166 Warrenton, Houston, Tex. 77024
Filed May 14, 1992, Ser. No. 882,944
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—187.6 9 Claims



1. A golf putting aid for practicing a proper putting technique comprising;
a support post having an upper and lower end adapted at one end to be positioned in an upright vertical position,
a sighting member on the upper end of said support post and having a circular aperture approximately the same diameter as the target hole with an upper ball/club path marker extending diametrically across said circular aperture and outwardly a distance from said circular aperture and an upper clubhead alignment marker extending diametrically across said aperture perpendicular thereto to form a cross hair sight at the center of said circular aperture, and
a circular ball sight member within said circular aperture at one side of said upper clubhead alignment marker and having approximately the same diameter as a golf ball,

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said upper ball/club path marker extending through the center of said circular ball sight member,

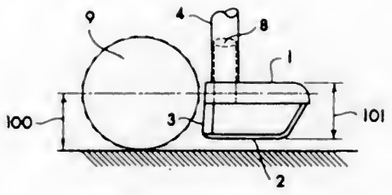
said sighting member capable of being positioned such that when viewed by a golfer from a standing position said upper ball/club path marker will be superposed above a desired ball path, said circular ball sight member will be superposed over the golf ball, and said upper clubhead alignment marker will be superposed above the rear of the golf ball.

5,211,401

GOLFER'S PUTTER WITH WEIGHT RAISED TO CENTER OF BALL

Melvin F. Hainey, 10609 Pinehurst Dr., Austin, Tex. 78747, assignor to Melvin F. Hainey, Austin, Tex.

Filed Jul. 14, 1992, Ser. No. 913,155
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—167 F **1 Claim**



1. In a golfing putterhead for striking a golf ball defining a ball striking front face, a bottom surface, a top surface, a rear surface, a heel and a toe, and a hosel for connecting the putter head to a shaft,

(a) said top surface comprised of an upper surface element joined to the hosel, said upper surface element having a weighted means for substantially concentrating the weight of the putter head along a horizontal plane, wherein said horizontal plane bisects said upper surface element and coincides with a horizontal plane through the center of a golf ball when the putter head strikes the golf ball,

(b) said ball striking front face comprised of a thin, elongate, light-weight face plate and joined to said upper surface element, and,

(c) said bottom surface comprised of a thin sole plate substantially parallel to said upper surface element and joined to said ball striking front face, said sole plate having an upwardly bent rear end joined to said upper surface element.

5,211,402

ANALOGIES BOARD GAME

James A. Ferguson, and Becky J. Ferguson, both of Box 286, Chicora, Pa. 16025

Filed Aug. 26, 1992, Ser. No. 935,556
Int. Cl.[5] A63F *3/00, 9/18*
U.S. Cl. 273—249 **13 Claims**

1. An educational and entertainment board game apparatus, comprising:

a game board adapted for disposition on a flat surface and having a centrally located continuous main walkway arranged thereon, the main walkway characterized by a plurality of continuously connected main walkway spaces, a plurality of subject major walkways arranged about the main walkway of the game board with each subject major walkway including a plurality of continuously connected subject spaces, and a plurality of connecting squares arranged on the game board for connecting the subject major walkways to the main walkway;

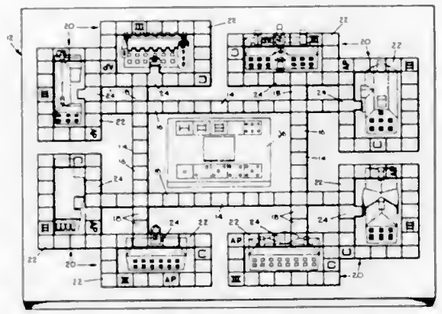
a plurality of subject majors with each respective subject major representing a general field of knowledge and denoted by one particular subject major walkway;

a plurality of colored playing tokens disposed for movement in any direction on the main walkway, the subject major walkways and the connecting spaces, with each playing token representing at least one player;

a plurality of analogy books with each analogy book containing a plurality of questions and answer in the form of analogies and responses pertaining to one respective subject major;

each analogy book further characterized by having the analogies and responses arranged on a plurality of levels of difficulty;

a plurality of pass card sets with the cards of each set having indicia marked thereon denoting one respective subject



major and each pass card set corresponding in color with one of the playing tokens and one of the analogy books;

one pass card from each pass card set being given to each player after that player has successfully completed one subject major walkway;

incremental movement means for determining the range of movement of each playing token on the game board and for determining the particular level of analogy question to be answered; and

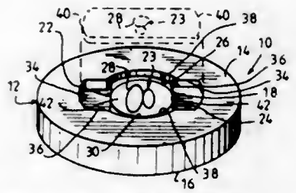
a graduation stage including a plurality of graduation spaces arranged thereon, with each graduation space having unique indicia marked thereon corresponding to either the levels of questions and answers of each analogy book or the range of movement defined by the incremental movement means.

5,211,403

GAME PLAYING PIECE

Edgar A. Ostrander, 164 Noel Dr., Centereach, N.Y. 11720

Filed Mar. 18, 1992, Ser. No. 853,575
Int. Cl.[5] A63F *3/00;* **G09F** *3/02*
U.S. Cl. 273—290 **1 Claim**



1. A game playing piece which comprises:

a) a housing having two playing surfaces, said housing is in a disc shaped configuration;

b) means for indicating a value on said first plaything surface of said housing, said second playing surface of said housing is blank and can be turned upward during the play of a game to hide said value indicating means on said first playing surface of said housing, said second playing surface of said housing has a donut shaped recess therein to enhance the appearance of said second playing surface when turned upward during the play of the game, said value indicating means includes an indicia labeled insert to represent a value, said first playing surface of said housing having a depression therein, means for retaining said indicia labeled insert within said depression of said first playing surface of said housing so that the value can be seen therefrom when said housing is turned over to expose said first playing surface, said indicia labeled insert includes a numeral printed thereon which represents the value of said game playing piece when said housing is turned over to expose said first playing surface, said indicia labeled insert retaining means includes said depression of said first playing surface of said housing having a pair of undercut slots formed on opposite sides of said depression so that when said indicia labeled insert is inserted within said depression said undercut slots will retain said indicia labeled insert therein, said indicia labeled insert further includes a raised central boss on the bottom surface so that said raised central boss will help in turning said indicia labeled insert when placed within said depression; and

c) means for removably retaining said indicia labeled insert within said depression in said first playing surface of said housing so that a person playing the game can remove and replace said indicia labeled insert to change the numerical value of said game playing piece, said removable retaining means includes said depression in said first playing surface of said housing being generally rectangular in which the short sides are curved and the long sides straight with each having a curved cut back area, said undercut slots being curved and oppositely positioned in said depression at said long sides behind said curved cut back areas the distance between said undercut slots being approximately the same distance between said short sides of said depression, said indicia labeled insert being generally rectangular in which the short sides are curved and the long sides straight, said insert being generally the same size as said depression so that said indicia labeled insert can be inserted into said depression and when turned in one direction be retained by said curved undercut slots and when turned in an opposite direction be released by said curved undercut slots, said removable retaining means further includes a pair of stops, each formed between one end of one of said curved undercut slots and one of said curved short ends of said depression so that when said indicia labeled insert is turned in one direction to be retained by said curved undercut slots said stops on the opposite sides will position said indicia labeled insert transversely across said depression, each said curved undercut slot further includes a cam leading edge opposite from said stop to guide said indicia labeled insert when said indicia labeled insert is being turned in said depression in said first playing surface of said housing.

5,211,404

TARGET MOUNTING SYSTEM

Robert P. Grant, 245 McGeorge Street, Angus, Ontario, Canada L0M 1B0

Filed Feb. 20, 1992, Ser. No. 837,949
Claims priority, application Canada, Feb. 7, 1992, 2060810
Int. Cl.[5] F41J *1/00*
U.S. Cl. 273—407 **13 Claims**

1. Target panel, suitable for use on an outdoor firing range, wherein:

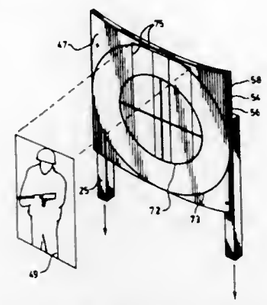
the target panel includes a sheet of plastic material, being material of the kind which comprises opposed outer skins, held in a spaced apart relationship by interconnecting webs;

the sheet of plastic material has a surface which is adapted to receive a target card;

the sheet of plastic material is bowed with a degree of curvature;

the curvature of the sheet is permanently built into the sheet, in that the curvature of the sheet remains present when the sheet is unsupported;

the curvature of the sheet of plastic material is shallow enough that the curvature is imperceptible to a shooter firing at the target;



the curvature of the sheet of plastic material is deep enough that the target panel is rigid, and remains rigid in outdoor weather conditions;

the target panel includes a mounting means, which is arranged for operative engagement with a complementary target panel receptacle;

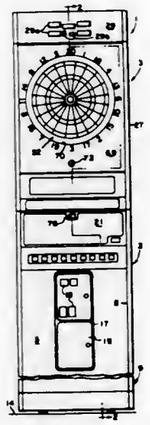
and the arrangement of the mounting means and the sheet of plastic material is such that when the mounting means is operatively engaged in the receptacle, the target panel is presented face-on to the shooter.

5,211,405

DART BOARD GAME CABINET

Richard B. Shelton, Bay City, and Bruce D. Allen, Saginaw, both of Mich., assignors to Valley Recreation Products Inc., Bay City, Mich.

Filed Oct. 3, 1991, Ser. No. 770,598
Int. Cl.[5] F41J *3/00*
U.S. Cl. 273—407 **20 Claims**



1. A cabinet for supporting a game target comprising a lower housing; an upper housing; means coupling said upper and

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lower housings together for swinging movements of said upper housing about a first, substantially horizontal axis from a first position atop said lower housing to a second position alongside and parallel to said lower housing; a game target; and means mounting said target on said upper housing, said mounting means including a support on which said target is fixed and means mounting said support on said upper housing for swinging movements about a second axis.

5,211,406

SEALING-MODULAR CONSTRUCTION

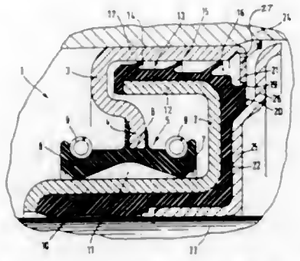
Josef R. Katzensteiner, Passau, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen AG, Fed. Rep. of Germany

Filed Jun. 10, 1991, Ser. No. 712,983

Claims priority, application Fed. Rep. of Germany, Jul. 25, 1990, 4023630

Int. Cl.[5] **F16J** *15/32*

U.S. Cl. 277—25 **5 Claims**



1. A sealing arrangement (1) of a modular construction having an internal annular housing (2) and an external annular housing (3) which are rotatable relatively to one other, both said internal (2) and said external annular housings (3) having a substantially U-shaped cross-section, an internal sealing set (5) and an external sealing set (13) each being supported by one of said internal and external annular housings (2, 3) and each sealing set (5, 13) having at least one sealing lip (7, 14) closely abutting against an axially extending portion (10, 17) of the other of said internal and external annular housings (2, 3),

wherein said external annular housing (3) has a radially inwardly extending web (4) and said internal sealing set (5) comprising a radial shaft sealing ring (6) having two spring-loaded sealing lips (7, 8), and one of said two spring-loaded sealing lips (7, 8) is situated on each side of said radially inwardly extending web (4), and

said external annular housing (3) includes a radially inwardly extending flange (18), and a radially inward edge (19) of said flange (18) and an exterior portion of a ring (20) supported by said internal housing (2) forming a labyrinth (21) therebetween.

5,211,407

COMPRESSOR ROTOR CROSS SHANK LEAK SEAL FOR AXIAL DOVETAILS

Christopher C. Glynn, Hamilton, and Roger C. Walker, Middletown, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Apr. 30, 1992, Ser. No. 876,602

Int. Cl.[5] **F16J** *15/32;* **F01B** *5/32*

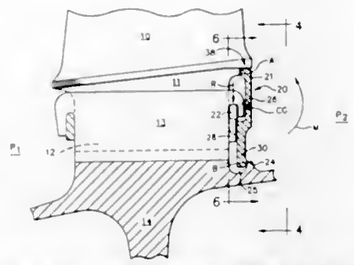
U.S. Cl. 277—192 **4 Claims**

1. A seal assembly for minimizing air leakage about a blade root region of rotor blades in a compressor stage of a gas turbine engine, the blade root region including a blade platform and a blade root, the blade root being axially inserted into slots in a rotor disk, the seal assembly comprising:

a plurality of arcuately shaped plate-like members forming an annular ring, said ring having a radially outer edge held in sealing engagement with a surface of the platform of the rotor blade and a radially inner edge held in sealing engagement with a surface on the rotor disk, the seal assembly overlaying the blade roots and corresponding slots for minimizing air flow therethrough;

a plurality of disk posts each extending radially outward between adjacent ones of the rotor slots of the rotor disk, each disk post having a tang extending therefrom for capturing a mating finger-like member on said seal assembly for holding said seal assembly in engagement with the blade root region;

a circumferential groove defined between an edge of the rotor disk and a circumferential flange formed thereon, said radially inner edge being defined on a radially inner portion of said seal assembly, said inner portion being at least partially disposed in said groove when said seal assembly is in an assembled position, said inner edge contacting an axially forward surface of said flange for establishing a seal therebetween;



each of said tangs depending radially inward and defining an annular slot between the tangs and an adjacent surface of the disk posts, each of the finger-like members extending radially outward from each said seal assembly and into said slot for retaining said seal assembly in an assembled position; and

each plate-like member of said seal assembly having a center of gravity axially displaced from said finger-like members, rotation of the rotor disk being effective to exert a centrifugal force to drive said seal assembly radially outward wherein said finger-like members engage said tangs for creating a pivot point for rotation of said seal assembly, said displaced center of gravity creating a moment of rotation of each plate-like member of said seal assembly about a tangent line to said finger-like members in a direction to enhance said sealing engagement with each of said platform surface and said circumferential flange.

5,211,408

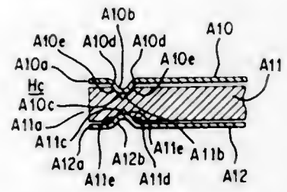
METAL LAMINATE GASKET WITH A SEALING GROOVE

Tsunekazu Udagawa, Ichikawa, Japan, assignor to Ishikawa Gasket Co., Ltd., Tokyo, Japan

Filed Feb. 19, 1992, Ser. No. 837,312

Int. Cl.[5] **F16J** *15/08*

U.S. Cl. 277—235 B **11 Claims**



1. A metal laminate gasket for sealing between contact surfaces of two engine parts with holes, comprising:

a first plate extending substantially throughout an entire area of the engine parts, said first plate having a first hole corresponding to the holes of the engine parts and a first groove formed around the first hole, said first groove having an inlet portion and two inclined side walls extending downwardly from the inlet portion to converge together, and

a second plate situated on the first plate, said second plate having a second hole corresponding to the first hole and a first bead formed around the second hole, said first bead having an apex, two base portions and two side portions, each side portion being situated between the base portion and the apex, a distance between the base portions being greater than a distance at the inlet portion of the groove so that when the first and second plates are assembled, the side portions of the first bead are located above the side walls of the first groove and spaces are formed between the apex and a bottom of the groove and between the first and second plates other than the bead and the groove, and when the first and second plates are tightened, the first and second plates substantially closely contact with each other, the side portions of the first bead are pushed against the side walls of the first groove to seal therebetween and surface pressures are formed at the base portions of the first bead around the first groove to thereby securely seal around the holes of the engine parts.

5,211,409

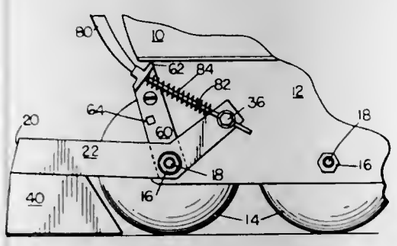
MECHANICALLY ACTIVATED SKATE BRAKE AND METHOD

David N. Mitchell, Englewood, and Ivan Histand, Denver, both of Colo., assignors to Out of Line Sports, Inc., Englewood, Colo.

Filed Feb. 4, 1992, Ser. No. 830,609

Int. Cl.[5] **A63C** *17/14*

U.S. Cl. 280—11.2 **14 Claims**



1. A roller skate brake system, comprising:

(a) a rocker arm having a first end, a second end, and a pivot point located between said first and second ends, said rocker arm being rotatably connected at said pivot point to a roller skate, the rocker arm riding on said skate above a skating surface when the skate is being used to skate on said surface; a rotation of said rocker arm in a first direction about said pivot point urging said first end towards the skating surface, and a rotation of said rocker arm in a second direction about the pivot point urging said end away from the skating surface,

(b) a brake pad operatively connected to said first end of the rocker arm so as to move towards and away from said skating surface in concert with said first end, and a hand-activated actuator operatively connected to said second end of the rocker arm, said actuator urging the rocker arm to rotate in said first direction so that the brake pad is urged towards said skating surface when the actuator is engaged and;

(c) return means operatively connected to said rocker arm, said return means urging the rocker arm to rotate in said second direction about said pivot so that the brake pad is urged away from the skating surface when the actuator is not engaged,

said brake system thereby using the skating surface for stopping said skate when the actuator is engaged and while the angle of the skate relative to the ground remains constant.

5,211,410

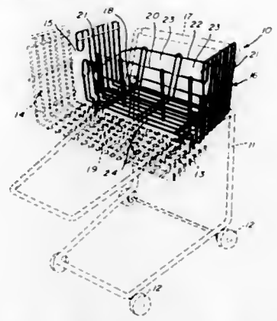
HINGEABLE BABY SEAT BACKREST FOR SHOPPING CART

Antoine Trubiano, Montreal, Canada, assignor to Cari-All Inc., Montreal, Canada

Filed May 4, 1992, Ser. No. 878,078

Int. Cl.[5] **B62B** *3/00*

U.S. Cl. 280—33.993 **8 Claims**



1. A hinge gate construction for a baby seat compartment securable to a rear portion of an elevated frame of a shopping cart, a main forward merchandise-carrying basket having a bottom wall and an open rear end secured to a forward portion of said frame; said baby seat compartment having opposed side walls, a rear wall with leg holes and a bottom wall; said hinge gate being a rectangular frame forming a front wall for said baby seat compartment, a pair of spaced hinge connectors extending from said bottom edge of said rectangular frame, said hinge connectors being secured under said bottom wall of said baby seat compartment and permitting said rectangular frame to be displaced from an upright arrested position to a substantially horizontal collapsed position forwardly over said bottom wall of said merchandise-carrying compartment which is substantially in the same plane as said bottom wall of said baby seat compartment to expand the area of said basket, a sliding latch displaceably secured in a top portion of said rectangular frame and having engageable extensions disposed outwardly of opposed end edges of said rectangular frame, said sliding latch being a finger engageable sliding member retained captive between guide means provided in said rectangular frame and accessible in a top portion of said rectangular frame, and restraining means in said opposed side walls to receive and retain a respective one of said engageable extensions therein to arrest said rectangular frame in said upright position, wherein said restraining means is a cavity formed in a front edge of each of said opposed side walls, said side walls being formed of wire rods, said cavity having a mouth opening and a recessed holding trough to restrain said engageable extension and maintain said rectangular frame upright.

5,211,411

ROOFING MATERIAL CARRIER

Peter Oleksiuk, 11313-164 Avenue, Edmonton, Alberta, Canada T5X 3W1

Filed Mar. 13, 1992, Ser. No. 850,551

Claims priority, application Canada, Mar. 13, 1991, 2038166

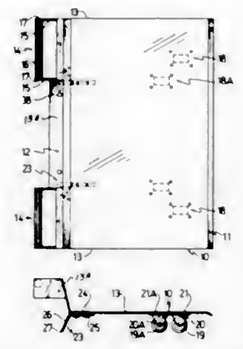
Int. Cl.[5] **B62B** *3/02, 3/10, 5/04*

U.S. Cl. 280—47.24 **12 Claims**

1. A carrier for roofing materials for use upon a roof deck surface having a lower and upper edges, said deck surface

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generally inclining upwardly from the lower edge thereof, and comprising in combination a substantially planar support plate including a front edge and a rear edge and side edges extending between ends of the front and the rear edges, a plurality of friction reducing means mounted upon an underside of said support plate permitting selective movement of said support plate horizontally and upwardly and in all directions therebetween upon said deck surface, roof material engaging means connected along the rear edge of an upper surface of said support plate and gripping means extending downwardly from adjacent said rear edge of said support plate underside to prevent downward movement of said carrier upon said deck surface said gripping means includes end sharpened members having end sharpened portions selectively engageable with the



associated roof deck surface and alternative gripper means selectively pivoted one to each of said end sharpened members for movement between a roof surface engaging position and a stored position clear of the end sharpened portions of said end sharpened members, said gripper means including a plate having an upper side and an underside surface, a roof surface pad attached on said underside surface and at least one pivot plate support means connected with and extending upwardly from said upper side, pivot means connecting an aligned aperture in said at least one pivot plate support means to an aperture in said end sharpened member providing selective positioning of said gripper means between a roof surface engaging position and a pivoted position whereby said gripper means is clear of said end sharpened portion of said gripping means.

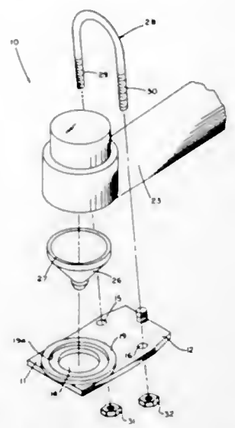
5,211,412
STEERING LINKAGE GREASE CUP RETAINER APPARATUS
James M. Sabel, 2600 Helm Rd., Carpentersville, Ill. 60110
Filed Jan. 27, 1992, Ser. No. 826,034
Int. Cl.[5] F16C *11/06*
U.S. Cl. 280—95.1 **4 Claims**

1. A steering linkage grease cup retainer apparatus for securement to a steering linkage, wherein the steering linkage includes a joint end, the joint end is mounted to a linkage distal end of the steering linkage, wherein the apparatus comprises,

a first plate integrally mounted to a second plate at a linear intersection, with the first plate and second plate defining an obtuse included angle therebetween and

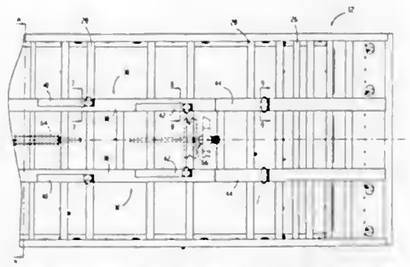
the first plate including a first plate first side spaced from a first plate second side, and the second plate including a second plate first side coextensive with the first plate first side spaced from a second plate second side coextensive with the first plate second side, and

the first plate including a first plate bore defined by a first diameter oriented substantially medially of the first plate spaced from the linear intersection, and the second plate including a second plate first bore and a second plate second bore spaced an equal distance on opposed sides of the first plate bore and positioned adjacent the linear intersection, with the second plate first bore positioned adjacent the second plate first side and the second plate second bore positioned adjacent the second plate second side, and



a replacement flexible grease cup member, including an annular flange, the grease cup positioned concentrically through the first plate bore, with the annular flange positioned in surrounding relationship relative to the first plate bore, and clamp means for securement of the first plate and the second plate to the steering link.

5,211,413
TRAILER HAVING SHIFTABLE UNDERCARRIAGE
Kelly H. Williams, St. Joseph, Mo., and John S. Harlan, Marysville, Kans., assignors to Landoll Corporation, Marysville, Kans.
Filed Sep. 3, 1992, Ser. No. 939,999
Int. Cl.[5] B60P *1/04*
U.S. Cl. 280—194.2 **6 Claims**

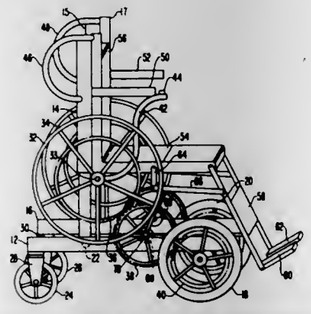


1. In an elongated trailer including a bed, an undercarriage provided with a plurality of wheels and supporting the bed, the undercarriage being shiftable longitudinally of the trailer between a roading position in which at least a portion of the bed is supported at a height lower than the tops of the wheels of the undercarriage and a loading position wherein the portion of the bed is supported at a height above the tops of the wheels, a shifting means for shifting the undercarriage, and a lifting means for lifting the bed relative to the undercarriage when the undercarriage is shifted out of the roading position and for lowering the bed when the undercarriage is shifted to the roading position, the improvement comprising:

the lifting means including at least one beam provided on the bed and extending in the longitudinal direction of the trailer, the beam including a lower flange defining a tracking surface of a substantially constant width, a web extending upward from the central longitudinal axis of the lower flange, and first and second ramps formed in the tracking surface, the first and second ramps being spaced longitudinally from one another and extending laterally inward from opposite sides of the tracking surface, the ramps each being of a width greater than one half the width of the tracking surface so that the width of the ramps overlap one another when viewed along the central longitudinal axis and each ramp extends beneath the web of the beam;

the undercarriage including a pair of rollers supported on the undercarriage for rotational movement, the rollers being spaced longitudinally from one another by a distance corresponding to the distance of longitudinal spacing of the ramps and being offset from one another laterally so that each roller bears against the central longitudinal axis of the tracking surface and engages one of the ramps when the undercarriage is shifted to the roading position.

5,211,414
WHEELCHAIR
Michael H. Galumbeck, Columbia, Md., assignor to Regain, Inc., Columbia, Md.
Continuation-in-part of Ser. No. 527,295, May 23, 1990, abandoned. This application Aug. 7, 1991, Ser. No. 741,589
Int. Cl.[5] B62M *1/14;* **B60T** *1/00*
U.S. Cl. 280—250.1 **46 Claims**



1. A lightweight, foldable manually driven wheelchair including:

(a) travel wheel means for propelling the wheelchair along a desired travel path;

(b) manually activated drive gear means for controlling the direction of travel along the travel path;

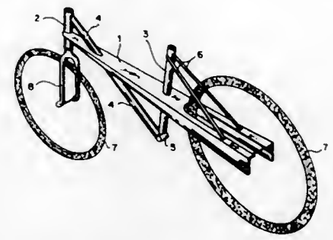
(c) manually actuated body positioning means for moving the position of the wheelchair occupant between sitting and standing positions without changing the center of gravity of the wheelchair;

(d) shift control means shiftable between a first position in which said drive gear means can be activated and a second position in which said body positioning means can be actuated for allowing the wheelchair occupant to control selectively the direction of travel or body position of the wheelchair;

(e) dual function handwheel means for operation by the wheelchair occupant to drive said drive gear means when said drive gear means is activated and to move said body positioning means when said body positioning means is actuated; and

(f) foldable frame means for supporting said travel wheel means, said drive gear means, said body positioning means, said shift control means and said handwheel means in operational relationship.

5,211,415
BICYCLE FRAME WITH CHANNEL MEMBER
Roman J. Gasiorowski, 4434 Steffani La., Houston, Tex. 77041
Filed Sep. 28, 1990, Ser. No. 573,256
Int. Cl.[5] B62K *19/10*
U.S. Cl. 280—281.1 **17 Claims**



1. A bicycle frame comprising:

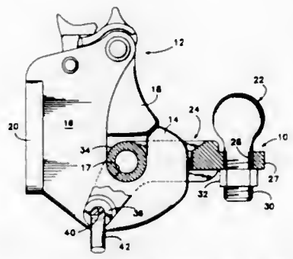
(a) an elongate longitudinal channel member comprising walls and a web, with first and second ends wherein said channel member, when oriented horizontally, is tapered in both horizontal and vertical planes, being smaller at said first end and both wider and deeper at said second end, and wherein said web is partially cut out from said channel member at said second end;

(b) a head tube with upper and lower ends wherein a portion of said lower end is secured to said web of said channel member at said first end, and wherein said walls at said first end wrap entirely around said head tube;

(c) a seat mast tube with upper and lower ends, said seat mast tube secured at a point intermediate to said upper and lower ends to the web of said channel member at a point intermediate said first and second ends of said channel member;

(d) a down tube with first upper and second lower ends, wherein said first upper end is connected to the upper portion of said head tube and wherein said second lower end is connected to said seat mast tube near said lower end and wherein said down tube is connected to said web of said channel member at a point on said channel member intermediate to said first end of said channel member and said point where said seat mast tube is secured to said channel member.

5,211,416
TRAILER COUPLING ADAPTOR
William G. Blacklaw, 22396 So. Parrot Creek Rd., Oregon City, Oreg. 97045
Contiouation of Ser. No. 787,411, Nov. 4, 1991, abandoned. This application Sep. 23, 1992, Ser. No. 949,758
Int. Cl.[5] B60F *5/00*
U.S. Cl. 280—416.1 **4 Claims**



1. An adaptor for attaching a trailer hitch ball to a trailer coupling of the type having a body which is attached to a

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towing vehicle and a drawbar-receiving pintle that extends rearwardly and upwardly from the body and has an arcuate surface, said adaptor comprising:

(a) a platform that is mountable on the trailer coupling, said platform having a first end, a second end and a medial portion,

(b) a tongue, having a ball-receiving hole defined therein, located at said first end of said platform and extending rearwardly from the trailer coupling when said platform is mounted thereon;

(c) a crossbar located in said medial portion of said platform, said crossbar having an arcuate portion that conformingly mates with the arcuate surface of the pintle;

(d) attachment means located at said second end of said platform for attaching said platform releasably to the trailer coupling body with said crossbar in contact with the arcuate surface;

(e) wherein said attachment means comprises:

(i) said second end of said platform having a mounting hole defined therein;

(ii) said trailing coupling having a bore defined therein that is aligned with said mounting hole when said crossbar is in contact with the arcuate surface and said tongue is horizontal; and

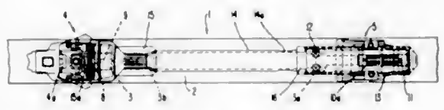
(iii) a pin which fits through said mounting hole and said bore.

5,211,417

SKI BINDING

Holzl Klaus, Vienna; Erdei Roland, Weigelsdorf; Janisch Andreas, Tribuswinkel; Wladar Helmut, Vienna; Wurthner Hubert, Hainburg/D.; Hatvan Hans, Vienna, and Damborsky Klaus, Klosterneuburg/Kierling, all of Austria, assignors to HTM Sport-und Freizeitgerate GmbH, Austria

Division of Ser. No. 411,537, Oct. 3, 1989, Pat. No. 5,056,808.
This application Jun. 26, 1991, Ser. No. 721,834
Claims priority, application Austria, Feb. 19, 1988, 394/88; Jul. 15, 1988, 1820/88; Sep. 30, 1988, 2411/88
Int. Cl.[5] A63C 9/00
U.S. Cl. 280—617 36 Claims



1. A ski binding, comprising:

a guide rail;

a toe holding unit;

a heel holding unit movable along the guide rail;

a connecting element including at least one receptacle, said connecting element extending between and connecting said toe holding unit and said heel holding unit;

a plastic encasing surrounding and affixed to at least a portion of the connecting element; and

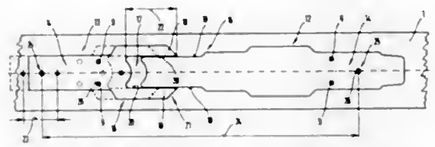
means for varying a connection location of the toe holding unit and the connecting element to adjust a distance between the toe holding unit and the heel holding unit, the varying means for permitting the distance to be adjusted while maintaining an interconnection between the toe holding unit and a ski.

5,211,418

PLATE-SHAPED DAMPING DEVICE FOR SKI BINDING

Franz Scherübl, Radstadt, Austria, assignor to Varpat Patentverwertungs AG, Littau, Switzerland

Filed Aug. 5, 1991, Ser. No. 740,624
Claims priority, application Austria, Aug. 7, 1990, A 1661/90
Int. Cl.[5] A63C 5/07
U.S. Cl. 280—618 37 Claims



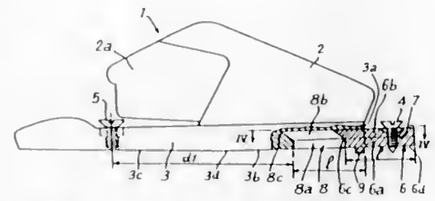
1. A damping device arranged between a surface of a ski and a binding holding a ski boot on the ski surface, the binding comprising a toe clamping member and a heel clamping member supported on a surface of a respective support portion for clamping the ski boot, the damping device comprising a respective plate-shaped damping element having an extension projecting from each one of the support portions, the damping element extensions extending towards each other in the same plane, overlapping in the direction of the longitudinal extension of the ski, being freely displaceable relative to each other in this direction, and having facing end faces defining therebetween at least a small gap in the direction of the longitudinal extension of the ski.

5,211,419

SKI BINDING AND MEANS AND METHOD FOR ATTACHMENT TO SKI

Jean-Philippe Gorliez, Aix les Bains, and Gilles R. Goud, Annecy, both of France, assignors to Salomon S.A., Annecy, France

Filed Aug. 22, 1990, Ser. No. 571,494
Claims priority, application France, Aug. 22, 1989, 89 11121
Int. Cl.[5] A63C 9/22
U.S. Cl. 280—633 41 Claims



1. A binding apparatus for a ski comprising:

(a) a body, said body carrying a jaw for retardation of a boot, said body having a lower portion;

(b) a base affixed to said lower portion of said body, and at least a first screw for attaching said base to the ski, said base having at least one hole for receiving said first screw for mounting said binding to the ski, said base having a lower surface and a frontal surface, said base further comprising a longitudinal groove formed in said lower surface, said longitudinal groove extending to and opening into said lower surface and said frontal surface of said base, said longitudinal groove having a slot which extends to said lower surface and a channel being larger than said slot; and

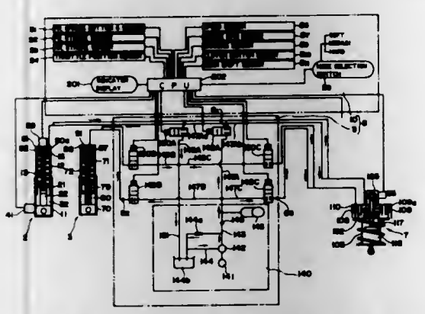
(c) a small bar slidably mounted and partially engagable and maintained within said longitudinal groove in a transport position of said binding apparatus and a further screw for mounting said small bar to the ski, said small bar and said groove having generally complementary transverse cross-sections for preventing substantial movement of said small bar in a direction perpendicular to said lower surface of said base, said small bar having a hole within which said further screw is maintained, exteriorly of said base, in said transport position of said binding apparatus, said further screw comprising a hidden screw, being hidden within said groove in a mounted position of said binding apparatus upon the ski, said first screw being spaced from said small bar.

5,211,420

ADJUSTABLE HEIGHT SUSPENSION MECHANISM FOR TWO-WHEELED MOTOR VEHICLES

Kanau Iwashita, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 408,044, Sep. 15, 1989, abandoned. This application Oct. 24, 1991, Ser. No. 782,904
Claims priority, application Japan, Sep. 16, 1988, 63-231655
Int. Cl.[5] B60G 17/01, 17/015
U.S. Cl. 280—703 11 Claims



1. A method for controlling the suspension of a two-wheeled motor vehicle having a front suspension, a rear suspension and a brake, the front and rear suspensions each having a height adjustable function, comprising the steps of

repeatedly sensing the speed of the vehicle;

calculating acceleration of the vehicle from the repeated steps of sensing the speed of the vehicle;

comparing the speed of the vehicle with a preselected first value and a preselected second value, said first value being larger than said second value;

selecting the preselected first value as a standard value when acceleration is positive or zero and the preselected second value when the acceleration is negative;

lowering the front suspension and the rear suspension when the speed of the vehicle is below the selected standard value.

5,211,421

AIR BAG COVER DOOR RETAINER

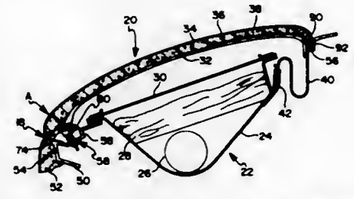
Roger W. Catron, Trotwood, and Jerry T. Shell, Waynesville, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 24, 1992, Ser. No. 840,782
Int. Cl.[5] B60R 21/16
U.S. Cl. 280—728 15 Claims

1. In an air bag installation in a vehicle in which an inflatable air bag is mounted in a recess in the instrument panel for deployment through a rectangular panel opening, having a recessed abutment at its rearward edge, which is closed by a rectangular cover door that engages the abutment when installed and is secured to the instrument panel at its forward edge, retaining mean for releasably maintaining the door installed in the panel opening, comprising

a pair of rubber fasteners mounted at spaced points on the abutment, each fastener having an enlarged head at one end, an intermediate shaft, and a mounting shank at its other end mounted on the abutment, and

a pair of engagement flanges mounted on the door, each having a bifurcated free end releasably embracing the fastener shaft beneath the fastener head to secure the door rear edge against inadvertent upward movement,



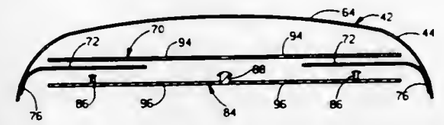
whereby inflation of the air bag causes the engagement flanges to move initially forwardly and upwardly against the fastener heads, simultaneously stretching the fasteners and bending the fastener shanks rearwardly to enable the engagement flanges to disengage the fastener heads, thus freeing the rearward edge of the door to enable door opening.

5,211,422

OCCUPANT RESTRAINT SYSTEM

Brian H. Frantz, Royal Oak; Jack L. Jensen, Highland, and Gregory A. Miller, Troy, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 29, 1991, Ser. No. 752,133
Int. Cl.[5] B60R 21/20, 21/26
U.S. Cl. 280—740 11 Claims



1. An occupant restraint system comprising, support means, an inflatable occupant restraint cushion including a lower wall portion mounted to the support means, an upper wall portion spaced from the support means, and folded wall portions interconnecting the upper and lower wall portions, means mounting the lower wall portion to the support means, a source of pressure fluid mounted to the support means for supplying pressure fluid to inflate and deploy the occupant restraint cushion, a pressure fluid reaction member covering the inside of the upper wall portion, flexible means interconnecting the reaction member and the support means to mount the reaction member in overlying spaced relationship to the source of pressure fluid, and means pocketing the pressure fluid reaction member to the inside of the upper wall portion of the cushion to seal the interface between the reaction member and upper wall portion against the entry of pressure fluid during initial deployment of the cushion and maintain the upper wall portion stationary as the folded wall portions of the cushion deploy generally laterally of the occupant, the pocketing means being released from the reaction member when predetermined levels of volume and pressure of the pressure fluid are attained to permit the pocketing means and upper wall portion to move normal to or toward the occupant.

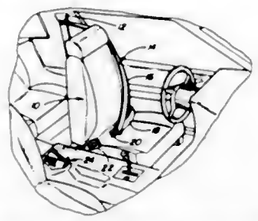
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5,211,423

VEHICLE SEAT BELT TENSIONING MECHANISM

Dagoberto Krambeck, Sterling Heights, Mich., assignor to General Safety Corporation, St. Clair Shores, Mich.

Filed Jan. 17, 1992, Ser. No. 822,403
Int. Cl.[5] B60R *22/18*
U.S. Cl. 280—806 17 Claims



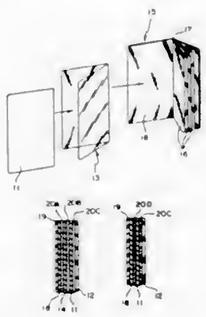
1. A belt tensioning mechanism of the type used in motor vehicles to retract a seat belt buckle for applying a tensioning load on a seat belt in response to a deceleration exceeding a predetermined critical value, said mechanism comprising:
inertia sensing means for sensing the magnitude of a deceleration;
a reel member;
coupling means for coupling said seat belt buckle to said reel member;
drive means for rotatably driving said reel member from a locked position toward a released position;
linkage means movable between a first position for normally retaining said reel member in said locked position and a second position for releasing said drive means;
actuation means for moving said linkage means from said first position to said second position in response to said inertia sensing means detecting a vehicle deceleration exceeding said predetermined critical value, movement of said linkage means to said second position causing said drive means to rotatably drive said reel member for winding said coupling means on said reel member such that said seat belt buckle is moved to a retracted position; and
locking means for retaining said seat belt buckle in said retracted position.

5,211,424

SECURE PASSPORT DOCUMENT AND METHOD OF MAKING THE SAME

Howard B. Bliss, Hyattsville, Md., assignor to PRC Inc., McLean, Va.

Filed Aug. 15, 1991, Ser. No. 746,251
Int. Cl.[5] B42D *15/00*
U.S. Cl. 281—15.1 5 Claims



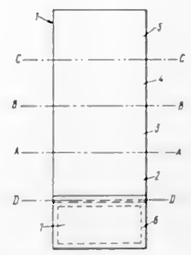
1. A mounting folder for permanently mounting a page containing unique information into a standard bound passport document, said folder comprising
a sheet of transparent plastic laminate having a dry coating of heat-activatable adhesive on one surface thereof;
a paper support sheet having front and back surfaces;
dry coatings of heat-activatable adhesive on both of said front and back surfaces thereof;
said laminate and said support sheet being bounded together along one edge thereof to form a folder, said coated surface of said laminate facing toward one surface of said support sheet.
2. A passport document comprising
a cover;
a plurality of internal pages bound within said cover;
said cover and said pages each having two surfaces;
a separate, unbound single data page containing unique data which distinguishes said passport document from others;
said data page being bonded to one of said surfaces within said passport document by means of a first layer of heat activated adhesive between said one surface and said data page; and
a transparent plastic laminate sheet bonded to said data page by means of a second layer of heat activated adhesive located therebetween;
said adhesive layers and said laminate sheet affixing said data page in said passport document in a tamper-resistant manner.

5,211,425

COLLECTION UNIT FOR STORAGE OF FLAT ITEMS

Vladislav G. Glushakov, per. Vasnetsova, d.15, kv17, Moscow, U.S.S.R. 129090

PCT No. PCT/SU91/00092, § 371 Date Feb. 6, 1992, § 102(e) Date Feb. 6, 1992, PCT Pub. No. WO91/17896, PCT Pub. Date Nov. 28, 1991
PCT Filed May 13, 1991, Ser. No. 807,865
Claims priority, application U.S.S.R., May 15, 1990, 4839287[1]
Int. Cl.[5] B42D *3/00*
U.S. Cl. 281—45 1 Claim



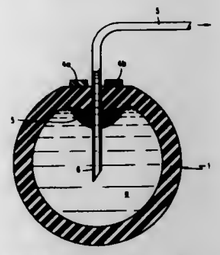
1. A collection unit for storing a flat item belonging to a collection, comprising:
a holder including several pages formed as a booklet containing information about the item, one of said pages being a transparent pocket to receive and hold the item; and
an insert card removably connected to said holder including a tab extending beyond said pages and having markings for identifying the item and allowing similarly marked tabs to be selected and removed from the collection wherein said markings comprise rows of holes punched into said tab arranged adjacent to each other.

5,211,426

POINT IRRIGATION APPARATUS WITH BRANCH CONNECTIONS

René J. Gulgnard, St. Egreve, and Jean Garcia, Charavines, both of France, assignors to Hutchinson, Paris, France

Filed Sep. 25, 1990, Ser. No. 587,691
Claims priority, application France, Sep. 29, 1989, 89 12742
Int. Cl.[5] F16L *55/00*
U.S. Cl. 285—5 16 Claims



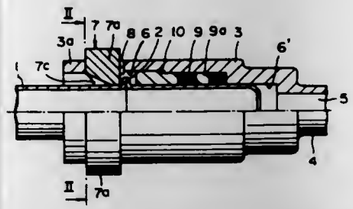
12. Irrigation apparatus comprising, in combination, a main water feed pipe made of elastically deformable material, and at least one branch including a needle having a sharp end connected to the main pipe by being forced through the wall thereof, wherein an inside surface of the wall includes at least one portion of extra thickness of a resiliently deformable material of a hardness which is less than that of the material forming the wall of the pipe and which material of said extra thickness is suitable for sealing orifices formed through its bulk by the needle extending therethrough, wherein the cross-section of the extra thickness when the pipe is not subjected to stress, i.e. before it is put under pressure, is in the form of a sightly crescent-shaped segment of a circle.

5,211,427

PIPING CONNECTOR

Katsushi Washizu, Numazu, Japan, assignor to Usui Kokusai Sangyo Kaisha Ltd., Japan

Filed Dec. 20, 1991, Ser. No. 811,792
Claims priority, application Japan, Dec. 22, 1990, 2-413295; Dec. 22, 1990, 2-413297
Int. Cl.[5] F16L *55/00*
U.S. Cl. 285—23 7 Claims



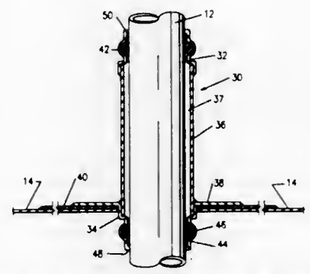
1. A piping connector comprised of a conducting pipe having an annular expanded wall in proximity of an end part thereof, a joint body having opposed ends and configured for accepting the conducting pipe in one said end and having a circulating hole at the other end thereof, said circulating hole being in communication in the axial direction from one end to the other end of the joint body, a seal provided in the joint body, and a socket unit installed inside the joint body and coacting means between said joint body and said socket unit for limiting relative axial movement therebetween wherein said socket unit is comprised of a C-shaped arm made of an elastic material and a plurality of tapered block-shaped parts forming a closed surface with said c-shaped arm and protruding inwardly from said C-shaped arm and being dimensioned for engaging the annular expanded wall of the conducting pipe after the insertion of the conducting pipe into the joint body, said block-shaped parts holding the conducting pipe in collaboration with the joint body.

5,211,428

GAS PIPE SLIP BOOT

Gerald G. Emerson, Corona Del Mar, and Kenneth E. Schick, Lake Elsinore, both of Calif., assignors to Serrot Corporation, Huntington Beach, Calif.

Filed Mar. 9, 1992, Ser. No. 848,268
Int. Cl.[5] F16L *5/00*
U.S. Cl. 285—158 13 Claims



1. A device for providing a substantially gas-tight seal between a pipe and a flexible sheet surrounding the pipe, comprising:
a first tubular sealing member dimensioned to fit around the exterior of the pipe, the sealing member having an interior and an exterior and a first end and a second end;
a second tubular sealing member dimensioned to fit around the exterior of the pipe and having an interior and an exterior;
first sealing means, in the interior of the first sealing member, for providing an axially-slidable, substantially gas-tight sealing engagement with the exterior surface of the pipe;
second sealing means, on the exterior of the first sealing member adjacent the second end thereof, for providing a substantially gas-tight attachment to the sheet;
an inwardly-directed annular lip, adjacent to and integral with, the first end of the first sealing member, the lip having an inside diameter that is slightly larger than the outside diameter of the pipe;
a hollow tubular sleeve dimensioned to fit around the exterior of the pipe and having a first end sealingly attached to the first sealing member and a second end sealingly attached to the second sealing member, thereby joining the first and second sealing members in axial alignment; and
third sealing means, in the interior of the second sealing member, for providing an axially-slidable, substantially gas-tight sealing engagement with the exterior surface of the pipe.

5,211,429

POLYETHYLENE PIPE JUNCTION DEVICE

Norman E. Charlson; Gregory D. Charlson, both of 1020 50th Ave. NE., Minneapolis, Minn. 55421, and Giancarlo Dallai, Via Roma 63, Reggiolo R.E. 42046, Italy

Filed Sep. 9, 1991, Ser. No. 756,558
Int. Cl.[5] F16L *33/00*
U.S. Cl. 285—238 13 Claims

1. A pipe coupling device adapted to mount on an exterior surface of a pipe, said coupling device comprising:
a generally cylindrical integral sleeve member having a first opening extending into said sleeve member and defining a longitudinal axis of said sleeve member, said first opening receiving said pipe in a direction of said longitudinal axis,

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said sleeve member further having an inner surface and an outer surface;

a first concentric restrictive barb on said inner surface, said first barb comprising a first inclined surface and a second surface generally perpendicular to said longitudinal axis, said second surface intersecting said first inclined surface at a first barb tip; and

a second concentric restrictive barb on said inner surface disposed at a spaced-apart distance from said first barb in



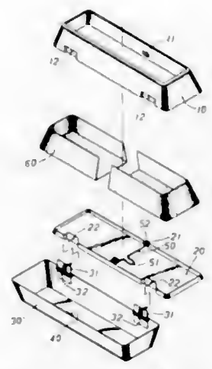
a direction further away form said first opening than said first barb, said second barb comprising a first inclined surface, a second surface generally parallel to said longitudinal axis, a third inclined surface, said second surface extending from said first inclined surface of said second barb to said third inclined surface of said second barb, and a fourth surface generally perpendicular to said longitudinal axis, said fourth surface and said third inclined surface intersecting at a second barb tip.

5,211,430

HIDDEN LOCK FOR A JEWELRY BOX

Jauh-Hsiung Chern, Changhua Hsien, Taiwan, assignor to Song Ye Industrial Co., Ltd., Changhua Hsien, Taiwan

Filed Jul. 28, 1992, Ser. No. 920,632
Int. Cl.[5] E05C *19/02*
U.S. Cl. 292—80 **3 Claims**



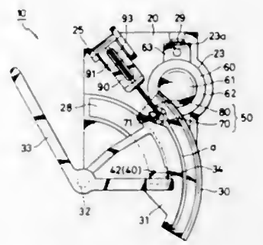
1. A hidden lock adapted for a jewelry or treasure box which is comprised of a bottomless lower case and an inner cushion member and a cover case and a bottom lid wherein said inner cushion member is inserted into said bottomless lower case with said bottom lid secured to the underside of said bottomless lower case and said cover case is associated with said lower case by a pair of spring biased hinges so as to permit said cover case to be pivotally opened or shut; said hidden lock comprising a flexible metal wire having a projected end extending out of a horizontally oriented opening disposed at the front side of said bottomless lower case and being disposed at the center of said bottom lid; and a lock plate secured to the inner surface of the front side of said cover case and being in corresponding alignment with said opening of said lower case and an M shaped recess being defined on said lock plate with said projected end of said metal wire limitedly traveling therein so as to make the box locked when said cover is shut and said projected end of said metal wire slides into said M shaped recess; and said projected end of said metal wire being able to be disengaged with said M shaped recess wire and said cover case being automatically opened due to the exertion of said spring biased hinges.

5,211,431

RECIPROCATING DEVICE FOR MOVABLE MEMBER

Kazuyoshi Koizumi, and Masayuki Nishiyama, both of Yokohama, Japan, assignors to Nifco Inc., Kanagawa, Japan

Filed Mar. 30, 1992, Ser. No. 860,185
Claims priority, application Japan, Apr. 3, 1991, 3-21484[U]
Int. Cl.[5] E05B *47/00*
U.S. Cl. 292—81 **13 Claims**



1. A reciprocating device for a movable member comprising: a stationary member, a movable member held by said stationary member in such a manner as to be able to reciprocate, biasing means provided between said movable member and said stationary member and adapted to bias said movable member in at least one of reciprocating directions of said movable member, and a lock device for stopping said movable member in the course of reciprocation,

said lock device including: a cam groove formed on either said stationary member or said movable member and extending around a heart-shaped island; a lock pin having a base end section rotatably supported by either said stationary member or said movable member on which said cam groove is not formed and a tip end section bent toward a bottom of said cam groove; and pressing means for pressing said tip end section of said lock pin toward the bottom of said cam groove,

said cam groove including: an introduction path extending toward a pointed tapered section of said heart-shaped island; a forward path extending forwards along one side of said heart-shaped island while becoming gradually shallower than said introduction path; a dead-end turn-back section which is one step deeper than a shallowest end of said forward path; a stop section which is adjacent to and still one step deeper than said turn-back section and which extends along a pit section of said heart-shaped island; an escape section which is adjacent to and still one step deeper than said stop section and which extends toward the other side of said heart-shaped island up to a dead end; and a return path which extends along the other side of said heart-shaped island while becoming gradually shallower than said escape section so as to communicate with said introduction path and whose shallowest end is one step higher than a bottom of said introduction path,

said pit section of said heart-shaped island of said lock device being equipped with a tapered surface which is inclined toward a bottom of said stop section of said cam groove, and

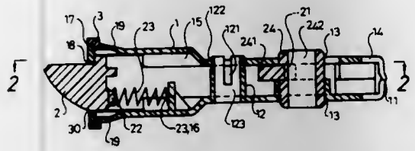
said tip end section of said lock pin being bent at an angle corresponding to the inclination of said tapered surface of said pit section of said heart-shaped island.

5,211,432

LATCH UNIT FOR DOOR LOCKS

Jui C. Lin, No. 55-10 Been Chou Rd., Kangshan, Kaohsiung Hsien, Taiwan

Filed Jul. 8, 1992, Ser. No. 910,432
Int. Cl.[5] E05C *1/16*
U.S. Cl. 292—169 **7 Claims**



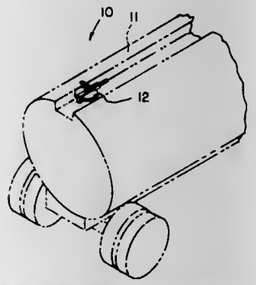
1. A latch unit for door locks comprising a cylindrical housing, a latch bolt, and an actuating wheel, said housing comprising an upper portion and a lower portion assembled together to define a chamber for containing the latch bolt, the latch bolt being provided with two teeth, said actuating wheel being disposed in two shaft holes in said housing and having a curved tooth and a square hole for a square shaft to pass through to permit said wheel to rotate, said curved tooth of the actuating wheel having opposite ends for engaging said two teeth of said latch bolt so that said latch bolt may be moved rearwardly in said housing by rotation of said actuating wheel, a spring being provided in the chamber for urging the latch bolt forwardly when the actuating wheel is in a neutral position in which the two teeth of the latch bolt do not engage the curved tooth of the actuating wheel but are located adjacent the ends of the curved tooth, wherein a locating member is provided to fit around said assembled housing, having a hole to fit around a flange of the housing and keeping the housing in closed position firmly with help of a resilient plate provided on the housing pushing against the locating member.

5,211,433

DOME CLAMP APPARATUS

Alan E. Gumbs, 456 Thalia Rd., Virginia Beach, Va. 23452

Filed Apr. 15, 1992, Ser. No. 868,674
Int. Cl.[5] B60D *17/12*; **E05C** *19/18*
U.S. Cl. 292—256 **4 Claims**



1. A dome clamp apparatus for securement to at least one lid plate of a truck-trailer structure comprises,

an elongate support beam, the support beam including a support beam top surface and a support beam bottom surface, and

a support beam forward end portion at a forward distal end of the support beam, and a support beam rear end portion at a rear distal end of the support beam, and

an L-shaped forward end leg directed downwardly relative to the support beam bottom surface mounted at the support beam forward end portion, and

a tubular slide mounted slidably receiving the support beam therethrough positioned adjacent the support beam rear end portion includes a slide top surface and a slide bottom surface, the slide bottom surface includes a slide L-shaped leg projecting downwardly therefrom in confronting relationship relative to the L-shaped forward end leg, and

an elongate support beam slot positioned through the support beam between the support beam forward end portion and the support beam rear end portion, and

a slot clamp orthogonally directed throughout the support beam slidably mounted within the slot projecting below the support beam and the support beam bottom surface, and

the slot clamp includes a slider disk slidably mounted within the support beam slot, with the slider disk having an annular groove receiving spaced slot side wall of the support beam slot therethrough, and the slider disk includes an externally threaded rod coaxially directed through the slider disk, with the externally threaded rod orthogonally oriented relative to the support beam, with the externally threaded rod including a rod handle at an upper distal end of the externally threaded rod, and a rod foot plate at a lower distal end of the externally threaded rod.

5,211,434

SLIDABLE UTILITY CARRIER

Santo M. Lanava, 118 Blithewood Ave., Worcester, Mass. 01604

Filed Feb. 7, 1992, Ser. No. 833,457
Int. Cl.[5] B62B *15/00*
U.S. Cl. 294—1.1 **4 Claims**



1. A slidable utility carrier comprising:

(a) a rectangular bottom panel which has a pair of opposite side edges and a pair of opposite end edges,

(b) a first rectangular side panel which has a pair of opposite end edges, a top edge and a bottom edge which is connected to one of the side edges of said bottom panel for pivoting movement from an upright vertical position to either a first horizontal position in which said side panel extends away from said bottom panel and is coplanar with said bottom panel or a second horizontal position in which said side panel overlies said bottom panel,

(c) a second rectangular side panel which has a pair of opposite side edges, a top edge and a bottom edge which is connected to the other of the side edges of said bottom panel for pivoting movement from an upright vertical position to either a first horizontal position in which said second side panel extends away from said bottom panel or to a second horizontal position in which said side panel overlies said bottom panel,

(d) a first rectangular end panel which has a pair of opposite side edges, a top edge and a bottom edge which is connected to one of the end edges of said bottom panel for pivoting movement from an upright vertical position to either a first horizontal position in which said first end panel extends away from said bottom panel or to a second horizontal position in which said first end panel overlies said bottom panel,

(e) a second rectangular end panel which has a pair of opposite side edges, a top edge and a bottom edge which is

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connected to the other of the end edges of said bottom panel for pivoting movement from an upright vertical position to either a first horizontal position in which said second end panel extends away from said bottom panel or to a second horizontal position in which said second end panel overlies said bottom panel,

(f) releasable fastening means carried by said end and side panels at predetermined positions along edges thereof for releasably connecting each said side edge of said end panels to corresponding said side edges of said side panels when said end panels and said side panels are in their upright positions to form a temporary rectangular enclosure, and

(g) said panels being made of a single sheet of extruded thermoplastic material comprising:

(1) a first planar layer,

(2) a second planar layer which is parallel with and spaced from said first planar layer, and

(3) a plurality of connecting webs which extend from said first planar layer to said second planar layer,

said opposite side edges of said first and second rectangular side panels and said first and second rectangular end panels being free edges that are not connected to other said edges on other panels, whereby single thicknesses of said end panels directly contact single thicknesses of said side panels when in said second horizontal position,

said extruded thermoplastic material providing a smooth sliding surface and rigidity and strength for said temporary rectangular enclosure,

wherein said fastening means connects said side panels to each other when in said second horizontal position.

5,211,435

APPARATUS FOR HOLDING BY SUCTION AND CONVEYING

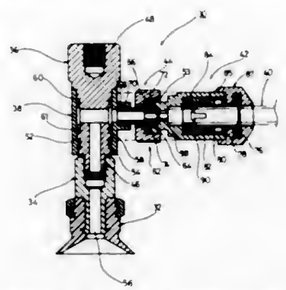
Shigekazu Nagai; Sbuuzou Sakurai, and Tadasu Kawamoto, all of Ibaraki, Japan, assignors to SMC Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 2, 1991, Ser. No. 769,848

Claims priority, application Japan, Oct. 4, 1990, 2-105141[U]; Oct. 4, 1990, 2-105143[U]; Oct. 5, 1990, 2-104998[U]

Int. Cl.[5] B66C *1/02*

U.S. Cl. 294—64.1 **8 Claims**



1. An apparatus for holding a workpiece by suction and conveying the workpiece, comprising:

a pipe joint connected to a vacuum and suction source through a tube;

a cylindrical connector connected to a suction pad;

a connecting member through which the pipe joint is coupled to said cylindrical connector, said connecting member comprising a cylindrical sleeve angularly movably surrounding the outer periphery of said cylindrical connector;

means provided between said cylindrical sleeve and said cylindrical connector for inhibiting movement of said cylindrical sleeve with respect to said cylindrical connector in a direction along a longitudinal axis thereof; and

a coupling member for coupling the pipe joint to said connecting member, said coupling member being provided between said connecting member and said pipe joint.

5,211,436

HANDLE DEVICE FOR USE ON TRUNK LIDS OF AUTOMOBILES

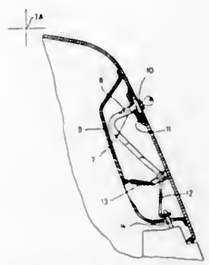
Emil Feder, Hannoversche Strasse 12, D-3501 Niestetal-Sandershausen, Fed. Rep. of Germany

Continuation of Ser. No. 395,137, Aug. 16, 1989, abandoned, which is a continuation of Ser. No. 292,648, Dec. 29, 1988, abandoned, which is a continuation of Ser. No. 183,357, Apr. 12, 1988, abandoned, which is a continuation of Ser. No. 900,876, Aug. 27, 1986, abandoned. This application Apr. 30, 1990, Ser. No. 517,490

Claims priority, application Fed. Rep. of Germany, Aug. 27, 1985, 3530483

Int. Cl.[5] B62D *25/10*

U.S. Cl. 296—76 **7 Claims**



3. A handle device for use in imparting a movement to an automobile trunk lid about a horizontal hinge axis for the purpose of opening and closing said trunk lid without necessitating a user's hand coming into contact with a portion of said handle device that is continuously exposed to an outside environment, comprising:

means defining an opening in a first outwardly facing surface of a panel of said trunk lid;

a substantially L-shaped carrier;

a handle part on one leg of said L-shaped carrier, said handle part having a pair of oppositely facing, substantially flat second and third surfaces, each of which extends in planes which are transverse to said first outwardly facing surface, said one leg being connected to an other leg of said L-shaped carrier at a location inside said trunk lid;

support means for movably supporting said other leg so that only said handle part with said second and third surfaces thereon is movable into and out of said opening and between first and second positions, said handle part, when in said first position, being received along with said other leg within said trunk lid and protected from the outside environment and, when in said second position, only said one leg and said handle part with said second and third surfaces thereon extend through said opening so that each of said oppositely facing second and third surfaces are exposed to the outside environment and accessible, said other leg of said L-shaped carrier always remaining inside said trunk lid; and

surface means on an outer end of said one leg for facilitating a closing of said opening, said surface means being oriented so that when said handle part is in said first position, all of said surface means will be generally flush with said first outwardly facing surface with insufficient space being provided therebetween so as to close said opening and block the admittance of dirt and the like into said opening and to thereby prevent said second and third surfaces from becoming continuously exposed to the outside environment, and when said handle part is moved to said second position, said surface means becoming spaced from said first outwardly facing surface and both of said pair of oppositely facing second and third surfaces becoming exposed to the outside environment and accessible to provide a clean pair of said oppositely facing second and third surfaces to facilitate both an opening and a closing of said trunk lid by enabling said clean oppositely facing second and third surfaces to be touched to impart a force to a selected one of said pair of oppositely facing second and third surfaces to facilitate said opening and closing movements of said trunk lid about said horizontal hinge axis therefor.

5,211,437

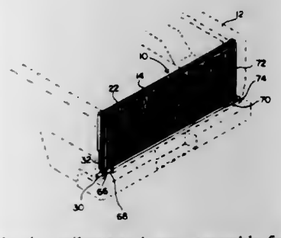
COMBINATION TAILGATE AND RAMP ASSEMBLY

Dennis R. Gerulf, 333 North 5th St., Payette, Id. 83661

Filed Jul. 8, 1992, Ser. No. 910,195

Int. Cl.[5] B62D *25/00*

U.S. Cl. 296—61 **9 Claims**



1. A combination tailgate and ramp assembly for use with a vehicle having a truck bed, side walls, a longitudinal axis and a transverse axis, which comprises:

a slide rail for serving as a pivot axis for movement of the tailgate assembly from a substantially vertical position to a substantially horizontal position attached to the end of the truck bed parallel to the transverse axis;

a first ramp and a second ramp, each having a longitudinal axis, and each adapted for attachment, at one corner to a first and second swing pin hinge, respectively, and each further configured in size and shape to serve, in a orientation with its longitudinal axis parallel to the transverse axis of the truck bed, as a tailgate closure panel;

said first swing pin hinge for rotatable attachment to said first ramp at a corner of said ramp, said first swing pin hinge configured for rotation about the axis of the slide rail, for transverse displacement along the slide rail, for angular rotation of the first ramp from a transverse orientation of its longitudinal axis to an orientation parallel to the longitudinal axis of the truck bed, and for axial rotation of the first ramp panel normal to the axis of the slide rail;

said second swing pin hinge for rotatable attachment to said second ramp at a corner of said ramp, said second swing pin hinge configured for rotation about the axis of the slide rail, for angular rotation of the second ramp from a transverse orientation of its longitudinal axis to an orientation parallel to the longitudinal axis of the truck bed, and for axial rotation of the second ramp panel normal to the axis of the slide rail;

means for rotatably and slidably attaching the first swing pin hinge to the slide rail;

means for rotatably attaching the second swing pin hinge to the slide rail;

means for rotatably attaching the first swing pin hinge to the first ramp; and

means for rotatably attaching the second swing pin hinge to the second ramp.

5,211,438

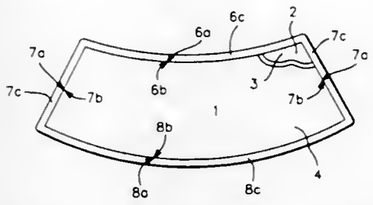
SELF-ANCHORING WINDSHIELD COVER

Michael J. Snow, 44 Estrada Rd., Central Valley, N.Y. 10917

Continuation of Ser. No. 810,888, Dec. 20, 1991, abandoned. This application Oct. 2, 1992, Ser. No. 956,464

Int. Cl.[5] B60J *11/00*

U.S. Cl. 296—95.1 **4 Claims**



1. A protective cover for protecting at least a portion of a glass surface of a windshield from the elements, which is self-anchoring when merely placed upon the windshield glass surface, and which consists essentially of:

a sheet of elastomeric material having top, side and bottom edges, and a top surface and a substantially smooth bottom surface, said sheet being dimensioned such that said edges do not extend beyond respective top, side and bottom edge borders of the windshield glass surface when the sheet is placed on the glass surface;

said sheet of elastomeric material having a flexibility such that the entire bottom surface of said sheet lies against the windshield glass surface when placed thereon to define a continuous frictional interface therewith and thus enhance self-anchorage of the sheet to the glass surface; and

said sheet of elastomeric material further having an overall substantially uniform thickness in a range of 1/16 to 3/16 inch, and an overall substantially uniform durometric hardness reading in a range of 50 to 70, so that said sheet also is self-supporting and does not collapse due to its own weight and gravitational forces when placed on the windshield glass surface, the combination of said sheet thickness, durometric hardness and substantially smooth bottom surface also cooperating to effect frictional self-anchorage of the sheet to the windshield glass surface.

5,211,439

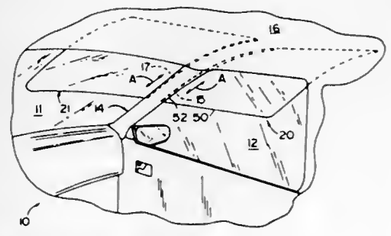
CURVILINEAR SLIDING VISOR

Nels R. Smith, Holland, and Jerry M. De Jong, West Olive, both of Mich., assignors to Prince Corporation, Holland, Mich.

Filed Mar. 31, 1992, Ser. No. 861,025

Int. Cl.[5] B60J *3/02*

U.S. Cl. 296—97.8 **23 Claims**



1. A visor system comprising:

a visor panel;

a mounting member including means for securing said mounting member to a vehicle roof behind a vehicle headliner, wherein one of said visor panel and mounting

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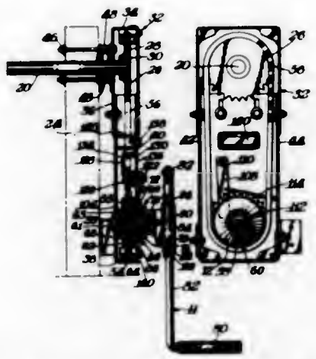
member includes at least a pair of spaced elongated generally parallel extending slots formed therein; and

guide means extending through said slots for coupling said visor panel and said mounting member for sliding movement along said slots, wherein said guide means include means positioned on opposite sides of said slots and engaging the opposite surfaces of the member, in which said slots are formed, with a predetermined compression for providing a controlled sliding force for said visor panel.

5,211,440
SAFETY MECHANISM FOR VEHICLE TARPAULIN SYSTEM

Michael C. Cramaro, Newark, Del., assignor to Cramaro Tarpeulin Systems, Inc., New Castle, Del.

Filed Dec. 13, 1991, Ser. No. 806,314
Int. Cl.[5] B60J *11/00*
U.S. Cl. 296—98 **22 Claims**



1. Safety mechanism for manipulating a tarpaulin mounted to a tarpaulin moving device for selectively covering and uncovering a vehicle body, comprising a transmitting member for connection to the tarpaulin moving device for causing the moving device to move in response to movement by said transmitting member, a drive sprocket, means connecting said drive sprocket to said transmitting member when said drive sprocket is rotated, said drive sprocket being mounted on a shaft, a crank handle selectively operatively mounted to said shaft for rotating said drive sprocket, a ratchet mounted coaxially with said drive sprocket on said shaft, a forward motion pawl, first resilient means urging said forward motion pawl into engagement with said ratchet to prevent said handle from rotating in a reverse direction when said handle is in its operative condition, a safety pawl, a safety latch connected to said safety pawl for selectively moving said safety pawl to an operative position and to an inactive position, and second resilient means connected to and acting directly against said safety pawl for urging said safety pawl into engagement with teeth on said drive shaft when said safety pawl is in said operative position to prevent rotation of said drive sprocket.

5,211,441
HINGED BOWS USED TO SUPPORT TARPAULIN ON TRAILERS

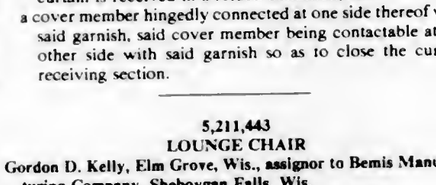
Aaron J. Barkus, Augusta; Virgil E. Royer, Wichita; Robert A. Landers, Wichita, and Steven D. Snyder, Wichita, all of Kans., assignors to Ritchie Sand, Inc., Whichita, Kans.

Filed Aug. 10, 1992, Ser. No. 926,943
Int. Cl.[5] B60J *7/00*
U.S. Cl. 296—104 **20 Claims**

1. A device for supporting a tarpaulin overlying a vehicle bed or trailer, said device comprising:

a support member having first and second ends and having a length sufficient to substantially span the distance between opposed sides of the vehicle bed or trailer;

a hinge coupled with the first end of the support member for coupling with one side of the vehicle bed or trailer to permit swinging movement of the support member about a pivot axis in response to a downward directional force impacting the support member; and



a biasing member coupled with the support member for urging the support member in an upward direction to return the support member to a normal position after said swinging movement in response to the downward directional force.

5,211,442
CURTAIN INSTALLATION STRUCTURE

Tsuyoshi Shikano, Gifu, Japan, assignor to Ikeda Bussan Co., Ltd., Ayase, Japan

Filed Nov. 26, 1991, Ser. No. 797,941
Claims priority, application Japan, Nov. 26, 1990, 2-124398[U]
Int. Cl.[5] B62D *25/06*
U.S. Cl. 296—138 **6 Claims**

1. A curtain installation in a vehicle, comprising:

a garnish covering a pillar disposed between windows of the vehicle and defining a curtain receiving section;

a curtain rail installed to an upper portion of the vehicle window and connected with a curtain such that the curtain is slidable along said curtain rail, said curtain rail extending to the curtain receiving section in which the curtain is received in a folded condition; and

a cover member hingedly connected at one side thereof with said garnish, said cover member being contactable at the other side with said garnish so as to close the curtain receiving section.

5,211,443
LOUNGE CHAIR

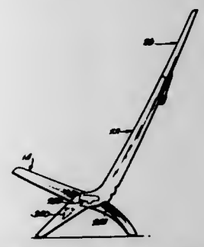
Gordon D. Kelly, Elm Grove, Wis., assignor to Bemis Manufacturing Company, Sheboygan Falls, Wis.

Filed Aug. 29, 1991, Ser. No. 751,804
Int. Cl.[5] A47C *4/00*; A47D *1/62*
U.S. Cl. 297—56 **6 Claims**

1. A chair comprising

a seat having an integrally formed leg part,

a backrest including an integrally formed leg part cooperating with said leg part of said seat to support said chair from the ground, a generally vertically extending back supporting surface, a first portion having thereon said leg part of said backrest and a first surface defining a portion of said back supporting surface, and a second portion including a second surface defining a portion of said back supporting surface, wherein said seat is connected to said first portion of said backrest, and means for selectively increasing the vertical extent of said back supporting surface, said extent increasing means comprising means connecting said second portion to said first portion for relative pivotal movement about a second generally horizontal axis and relative to a first position wherein said



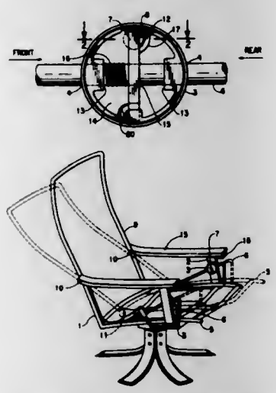
second surface is contiguous with said first surface, and means for releasably retaining said second portion in said first position, said retaining means comprising a projection on one of said first and second portions and a recess in the other of said first and second portions, said connecting means further providing means for translational movement of said second portion relative to said first portion, whereby said projection can be inserted into and removed from said recess, and

means connecting said backrest to said seat for relative pivotal movement about a generally horizontal axis.

5,211,444
LOCKING MECHANISM FOR A FOLDABLE PIECE OF SEATING FURNITURE

Fredrik Kjellman, Jakobstad, Finland, assignor to Ab BD Produkt Oy and Mekrapid, Jakobstad, Finland

PCT No. PCT/FI89/00169, § 371 Date Mar. 8, 1991, § 102(e) Date Mar. 8, 1991, PCT Pub. No. WO90/02502, PCT Pub. Date Mar. 22, 1990
PCT Filed Sep. 8, 1989, Ser. No. 663,865
Claims priority, application Finland, Sep. 9, 1988, 884167
Int. Cl.[5] A47C *1/02*
U.S. Cl. 297—375 **10 Claims**



1. Locking mechanism for a readjustable chair comprising: a cylindrical bushing fixed to a frame of the chair and provided with a pair of diagonally arranged holes for an upwards inclined carrier bar fixed to a seat part of the chair and forming an acute angle with a main plane of said seat part and rising towards a front of the chair; said holes being considerably larger than a cross section of said carrying bar in a peripheral direction; an inner bushing turnably mounted inside said cylindrical bushing; said inner bushing being provided with diagonally placed holes tightly fitting around the carrier bar, said inner bushing being provided with a closed end wall against the frame of the chair; a locking member mounted inside said inner bushing jointly operative with said carrier bar and comprising a plane metal piece provided with a central through hole, said carrier bar extending through said central through hole, said locking member having a free end and an end pivotally mounted in a mantle of said inner bushing and being spring-loaded in a direction towards the front of the chair, locking the movement of the carrier bar in this direction; a control member acting upon said locking member, said control member being mounted in said closed end wall of said inner bushing in a position next to a front side of said free end of said locking member, said control member being arranged to press said free end of said locking member rearwards by effect of an external force, whereby said carrier bar is made free for movement relative to said cylindrical bushing.

5,211,445
HINGE MECHANISM FOR VEHICLE SEAT ASSEMBLY WITH A LEAF RETAINING SPRING

David W. Husted, Ann Arbor, and Jayesh B. Patel, Canton, both of Mich., assignors to Hoover Universal, Inc., Plymouth, Mich.

Filed Aug. 30, 1991, Ser. No. 753,321
Int. Cl.[5] B60N *2/02*; E05D *11/10*
U.S. Cl. 297—379 **7 Claims**

1. A hinge mechanism for a seat assembly, said seat assembly including a lower seat cushion and a seat back coupled to said seat cushion by said hinge mechanism, said seat back having an upright operative position and being rotatable from said operative position to a forward dump position, said hinge mechanism comprising:

a seat back arm adapted to be coupled to said seat back;

a plate member;

means for securing said plate member to said seat cushion;

pivot means for rotatably coupling said seat back arm to said plate member for rotation relative to said plate member about an axis perpendicular to said plate member, said arm being rotatable between a first position corresponding to the upright operative position of said seat back and a second position corresponding to the forward dump position of said seat back;

latch means operative associated with said seat back arm and said plate member for preventing rearward rotation of said seat back arm from said first position and for preventing forward rotation of said seat back arm from said first position when said seat back is experiencing a predetermined deceleration, said latch means permitting forward rotation of said seat back from said first position in the absence of said predetermined deceleration; and

a leaf spring mounted to an edge of said arm with one end extending therefrom and engaging an edge surface of said

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plate member, said edge surface being arcuate and concentric about said pivot over which said spring end slides as said arm is rotated, said arcuate edge surface terminating in a radially recessed detent portion into which said spring end is seated when the seat back is in said upright operative position whereby a minimum force must be applied to said seat back to remove said spring end from said detent to rotate aid seat back from said upright operative position.

5,211,446

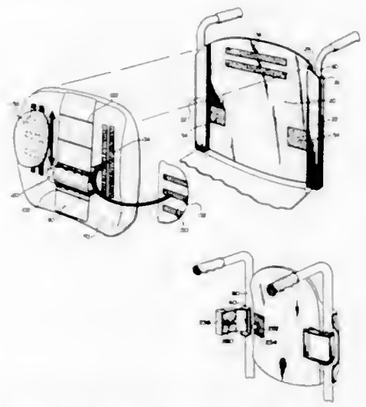
WHEELCHAIR BACK SYSTEM

Eric C. Jay, Boulder, and Michael H. Nordquist, Louisville, both of Colo., assignors to Jay Medical, Ltd., Boulder, Colo.

Continuation-in-part of Ser. No. 272,137, Nov. 16, 1988, abandoned. This application Nov. 1, 1990, Ser. No. 607,527

Int. Cl.[5] **A47C** *7/42*

U.S. Cl. 297—444 **12 Claims**



1. A wheelchair back system adapted to be mounted on the vertical posts of a wheelchair, said back system comprising:

a shell, a mounting system and a cushion;

said mounting system comprising a pair of vertical channels attached to said shell, said channels having an upper end and a lower end, said channels adapted to partially encircle vertical wheelchair posts and contact said posts at said upper end and said lower end;

bracket means affixed to a vertical post of a wheelchair;

strap means affixed to said channels adapted to engage said bracket to hold said shell adjacent to said wheelchair post and to affix said shell in a selected vertical position on said wheelchair post; and

said cushion affixed to the front side of said shell.

5,211,447

SAFETY BELT FASTENING DEVICE

Gerhard Sedlmayr; Peter Eckmann, both of Hamburg; Alfred Liensdorf, Norderstedt, and Jan Baumann, Uetersen, all of Fed. Rep. of Germany, assignors to Autoflug GmbH & Co. Fahrzeugtechnik, Rellingen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 607,876, Nov. 1, 1990. This application Sep. 11, 1992, Ser. No. 944,016

Claims priority, application Fed. Rep. of Germany, Nov. 1, 1989, 3936306

Int. Cl.[5] **A47C** *31/00*

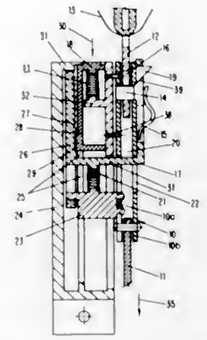
U.S. Cl. 297—468 **11 Claims**

1. In a safety belt fastening device for a safety belt system having a belt-tightening device that acts upon said fastening device and a belt fastening tongue that is latched in said fastening device, said safety belt fastening device comprising a fastener body having a fastening mechanism for said fastening tongue, and a spring loaded release button that acts on said fastening mechanism, the improvement wherein:

said release button comprises two button portions which are coupled together and are movable relative to one another;

a first one of said button portions is connected to said fastener body;

a second one of said button portions is arranged above said first button portion in a direction opposite to a belt-tightening direction to be accessible for actuation;



in a belt-tightening process, said first button portion follows a movement of said fastener body and said second button portion remains in an operating position determined by a rest position of said fastener body; and

for a release of said fastening tongue, said second button portion is actuated in the belt-tightening direction and pushes said first button portion coupled thereto in the belt-tightening direction.

5,211,448

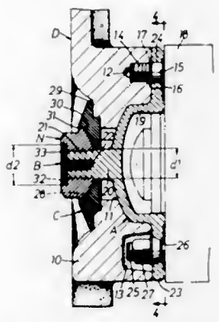
CENTER LOCK DEVICE FOR AUTOMOBILE WHEELS

Masakazu Hayashi, 5-21, 1-chome, Takaidanish, Higashi-Osaka-shi, Osaka-fu, Japan

Filed Feb. 7, 1992, Ser. No. 832,344

Int. Cl.[5] **B60B** *27/06*

U.S. Cl. 301—35.55 **6 Claims**



1. A center lock device for automobiles, comprising: an adapter having a conical barrel with a proximal end from which a joint flange integrally projects, said joint flange being formed with a plurality of stud bolt receiving holes and a plurality of torque pin receiving holes alternating with each other and disposed in a radially symmetrically distributive pattern,

a center shaft portion integrally projecting from the conical barrel of the adapter and formed with a male thread around the outer perimeter of the center shaft portion for threaded engagement with a center nut,

said adapter being attachable to a hub of an axle with the stud bolt receiving holes fitted on stud bolts on the hub and a hub nut threadedly engaged with the stud bolts,

said torque pin receiving holes capable of fitting torque pins projecting from a boss of a wheel disk,

said center nut being threadedly engageable with said male thread thereby fixing the wheel disk to the adapter,

a female thread for receiving a keep bolt cut into the outermost distal end of the center shaft such that its spiral pitch and spiral direction differ from those of the male thread,

a keep bolt having a head larger in diameter than the center shaft portion threadedly engageable with the female thread from the front to lock the center nut from the front by the large-diametered head of the keep bolt so as to prevent it from loosening,

said center shaft and said conical barrel being integrally formed such that the adapter comprises a single integrally formed piece, and

said center shaft comprising a relatively thin solid shaft.

5,211,449

VEHICLE WITH LIFTABLE FOLLOWING AXLE

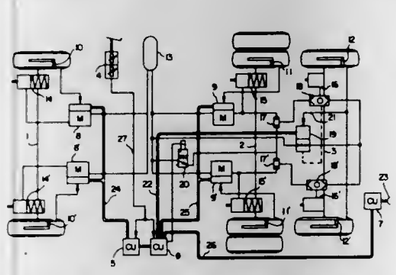
Joachim Amtsfeld, Hannover, Fed. Rep. of Germany, assignor to Wabco Standard GmbH, Hannover, Fed. Rep. of Germany

Filed Apr. 22, 1992, Ser. No. 872,092

Claims priority, application Fed. Rep. of Germany, May 7, 1991, 4114861

Int. Cl.[5] **B60T** *8/38, 8/32, 8/60*

U.S. Cl. 303—9.66 **10 Claims**



1. A multi-axle vehicle having an anti-lock braking system, comprising

a front axle,

first and second rear axles, said first rear axle being a drive axle and said second rear axle being a liftable following axle,

wheels mounted on each of said axles,

rotational speed sensors associated with each of the wheels mounted on said front axles, on said drive axle, and on said following axle, said rotational speed sensors producing signals indicative of the rotational speeds of their associated wheels,

brake cylinders associated with each of said wheels,

a circuit supplying a pressure medium to said brake cylinders so that a braking pressure is applied to said wheels,

at least one electronic control unit receiving said signals from said rotational speed sensors and regulating the braking pressure applied to said wheels based on the signals received from said rotational speed sensors, and

control valve means located in said circuit and connected to said electronic control unit causing the braking pressure applied to said wheels mounted on said following axle to be higher than the braking pressure applied to said wheels mounted on said drive axle.

5,211,450

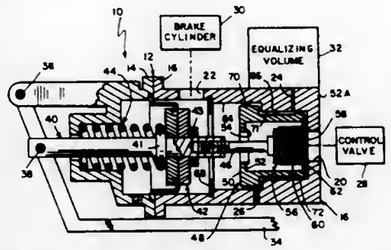
EMPTY/LOAD VALVE

Robert Gayfer, Ganonoque, Canada, and Walter E. Rojecki, Watertown, N.Y., assignors to Knorr Brake Holding Corporation, Westminster, Md.

Filed Sep. 12, 1991, Ser. No. 758,558

Int. Cl.[5] **B60T** *8/30, 8/22*

U.S. Cl. 303—22.2 **19 Claims**



1. An empty-load device including:

a housing having brake cylinder, control valve and equalizing volume ports;

sensing means, having a sensing piston, for sensing load force bearing on a railroad car truck;

ratio means, having a ratio piston and a ratio valve operated by said ratio piston, for limiting fluid pressure at the brake cylinder port from said control valve port;

equalizing valve for connecting said control valve port and said equalizing volume port;

a push rod, operatively connected to said sensing piston, said equalizing valve and said ratio means, for selectively controlling fluid pressure at the brake cylinder port in accordance with said sensed load force; the improvement comprising:

said ratio valve including a valving element and a valve seat mounted on and traveling with said ratio piston.

5,211,451

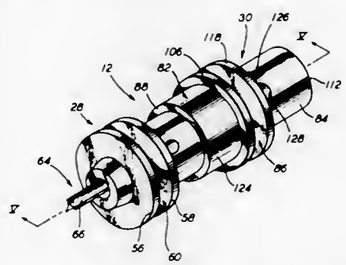
ADJUSTABLE REGULATING DEVICE FOR A RAILWAY LOCOMOTIVE BRAKE VALVE APPARATUS

Alvin J. Matthews, Pittsburgh, and Thomas M. Hartzell, Wilmerding, both of Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Continuation of Ser. No. 587,408, Sep. 25, 1990, abandoned. This application May 11, 1992, Ser. No. 884,304

Int. Cl.[5] **B60T** *17/20*

U.S. Cl. 303—51 **11 Claims**



1. A valve spring house for a regulator valve of a railway locomotive brake valve apparatus comprising:

a cylindrical body having a first section of a predetermined diameter, a second section of a reduced diameter, and an intermediate third section;

said first section having an outer cylindrical surface of an

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uninterrupted curvature and of a substantial width, and a first end, with a threaded recess in said first end which forms a ring-shaped wall portion having a threaded inner surface and a bottom wall, the width of said outer cylindrical surface being substantially equivalent to the extent of said threaded inner surface, the bottom wall having means for seating a spring therein, and a radially outwardly extending first flange on the outer surface of said first section spaced from said first end;

said second section having an outer surface and a second end, with a convex surface on said second end, and a radially outwardly extending second flange on the outer surface of said second section spaced from said second end and confronting said first flange,

said intermediate third section disposed between said confronting first and second flanges and adapted to seat a sealing member therebetween, of securement therein of a valve spring housing sealing member.

5,211,452

ANTI-SKID BRAKE SYSTEM WITH RESET OF THRESHOLDS DUE TO CHANGING ROAD SURFACE COFFICIENT

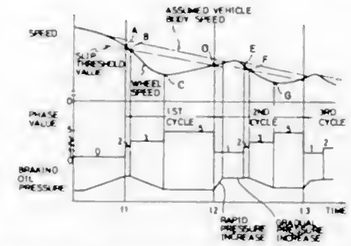
Haruki Okazaki; Fumio Kageyama; Kazutoshi Nobumoto, and Yoji Kurihara, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Nov. 19, 1991, Ser. No. 794,576

Claims priority, application Japan, Nov. 27, 1990, 2-324015

Int. Cl.[5] **B60T** *8/58, 8/60*

U.S. Cl. 303—014 **22 Claims**



1. An anti-skid brake system for an automotive vehicle, which controls a braking force so as to lock no wheel at the moment of braking and which alters a control value for controlling the braking force in accordance with an assumed road surface friction coefficient μ, wherein:

the braking force is set to shift from a state in which the braking force is increased to a state in which the braking force is retained when a magnitude of deceleration of the wheel becomes greater than a first predetermined threshold value;

the first predetermined threshold value is set to become smaller as a road surface friction coefficient μ is smaller; and

means for altering the assumed road surface friction coefficient μ to a higher road surface friction coefficient μ when a period of time required between the moment at which control for increasing the braking force starts and the moment at which control for retaining the braking force starts after the control for increasing the braking force is equal to or shorter than a predetermined period of time.

5,211,453

PROCESS FOR ENHANCING CONTROL OVER A BRAKED VEHICLE

Anton Van Zanten, Ditzingen; Friedrich Kost, Stuttgart; Wolf-Dieter Ruf, Waldstetten; Karl-Josef Weiss, Waiblingen; Uwe Hartmann, Stuttgart, and Gerd Busch, Gerlingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GMBH, Stuttgart, Fed. Rep. of Germany

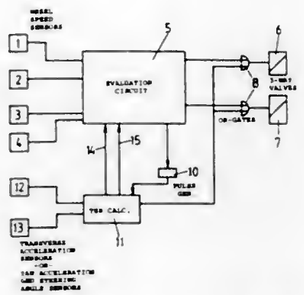
PCT No. PCT/EP89/00507, § 371 Date Nov. 26, 1990, § 102(e) Date Nov. 26, 1990, PCT Pub. No. WO89/11409, PCT Pub. Date Nov. 30, 1989

PCT Filed May 9, 1989, Ser. No. 623,956

Claims priority, application Fed. Rep. of Germany, May 24, 1988, 3817546

Int. Cl.[5] **B60T** *8/60*

U.S. Cl. 303—111 **4 Claims**



1. Method of improving control of a vehicle during braking, said vehicle having a front axle, a rear axle, at least one wheel at each axle, and brakes which are controlled by brake pressure at each wheel, said wheels exhibiting slippage which determines stability and steerability of the vehicle, said method comprising

changing said brake pressure in a pressure pulse during phases when said brake pressure is otherwise maintained constant,

determining a transverse acceleration at each axle before and after said pulse,

determining for each axle changes in transverse acceleration after said pulse, as compared to before said pulse,

changing the brake pressures in accordance with said changes in transverse acceleration to modify wheel slippage at each axle so that the steerability is increased when an adequate stability is determined and so that the stability is increased when an adequate steerability is determined.

5,211,454

HYDRAULIC DUAL-CIRCUIT BRAKE SYSTEM

Jochen Schaefer, Bietigheim-Bissingen, and Karl-Heinz Willmann, Freiberg/N, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

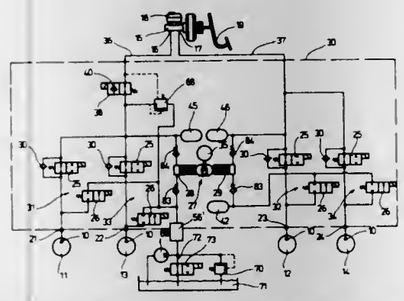
Filed Jan. 13, 1992, Ser. No. 819,714

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1991, 4102864

Int. Cl.[5] **B60T** *8/32, 8/44, 8/48;* **B60K** *28/16*

U.S. Cl. 303—113.2 **9 Claims**

1. A hydraulic dual-circuit brake system with an anti-skid system and traction control for motor vehicles including driven and nondriven wheels, having a master brake cylinder with first and second brake circuit outlets for controlling a brake pressure by brake pedal actuation; a four-channel hydraulic unit with first, second, third and fourth outlets channels distributed to first and second brake circuits connected to said first and second brake circuit outlets for connection with first, second, third, and fourth wheel brake cylinders of the driven and nondriven wheels, first, second, third, and fourth electromagnetic input control valves connected respectively with said first, second, third and fourth outlet channel for controlling a brake pressure dependent on wheel slip in the wheel brake cylinders, each of aid first, second, third, and fourth electromagnetic input control valves include an output connected respectively with said first, second, third and fourth outlet channels and each of said first and second electromagnetic input control valves include an inlet connected to a first connecting line connecting to said first brake circuit outlet and each of said third and fourth electromagnetic input control valves include an inlet connected to a second connecting line connected with said second brake circuit outlet of the master brake cylinder, first, second, third and fourth electromagnetic output control valves each including an input connected respectively to said first, second, third and fourth outlet channels, a return pump including first and second pump elements, said first pump element includes an inlet connected with an outlet of each of said first and second electromagnetic output control valves and said second pump element includes an inlet connected with an outlet of each of said third and fourth electromagnetic output control valves for returning brake fluid in the first, second, third and fourth wheel brake cylinders upon brake pressure reduction, said first pumping element includes an outlet connected to said first connecting line which is connected to said first brake circuit output and said second pump element includes an outlet connected to said second connecting line which is connected to the second brake circuit outlet of the master brake cylinder, a reversing valve disposed in said



first connecting line between said first brake circuit outlet of the master brake cylinder and the outlet of said first pump element assigned to said first brake circuit which is assigned to at least one driven wheel, said reversing valve is triggered during a traction control operation, a first low pressure reservoir connected to the input of said second pump element, a second low pressure reservoir connected to said input of said first pump element, said second low pressure reservoir including a first reservoir cylinder, a first reservoir piston and a first reservoir spring, a brake fluid reservoir including a second reservoir cylinder, a second reservoir piston axially displaceable in said second reservoir cylinder by a force of a second restoring spring due to a .orce of a hydraulic pressure from a hydraulic drive connected thereto, said first reservoir cylinder, said second reservoir cylinder, said first reservoir piston, said second reservoir piston, said first reservoir spring, and said second restoring spring are integrated with one another to form a combined reservoir, including a single reservoir cylinder, a single reservoir piston, said first and second low pressure reservoirs function to temporarily hold brake fluid upon brake pressure reduction, said brake fluid reservoir communicates with said first pump element in said first brake circuit including at least one driven wheel and charges the pump element with brake fluid in traction control operation, said brake fluid reservoir is embodied as an active reservoir that is controllable with respect to the charge pressure generated by it; that the brake pressure in the wheel brake cylinder of at least one driven wheel required in traction control operation is established by the first pump element by controlling the charge pressure generated by the brake fluid reservoir, said brake fluid reservoir in traction control operation, is activated during a brake pressure buildup and is deactivated during a brake pressure holding and reduction.

5,211,455

ANTI-LOCK BRAKING SYSTEM

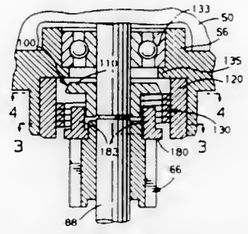
Michael F. Matouka, Utica, Mich.; Yudh V. Rajput, Xenia, Ohio; Paul D. Wilkey, Vandalia, Ohio, and James A. Bright, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Continuation of Ser. No. 353,320, May 17, 1989, Pat. No. 5,011,237. This application Mar. 28, 1991, Ser. No. 676,925

The portion of the term of this patent subsequent to Apr. 30, 2008, has been disclaimed.

Int. Cl.[5] **B60J** *8/42*

U.S. Cl. 303—115.2 **21 Claims**



1. A pressure actuator for a vehicle wheel braking system including a master cylinder means for supplying pressurized fluid, a wheel brake means receiving pressurized fluid from said master cylinder means and for restraining rotational movement of said wheel, and a controller cognizant of the rotational condition of said wheel and providing a signal when the rotational condition of said wheel is within present parameters, the actuator comprising:

an actuator frame having a bore with means of fluid communication with said wheel brake means;

a piston slidably sealably mounted within said bore for providing a variable control volume in communication with said wheel brake means and thereby modulating the pressure therein;

a nut operatively associated with said piston and slidably mounted within said bore in a non-rotative fashion;

a power screw projecting into said nut and threadedly engaged within in an efficient manner, said power screw having a fixed rotational axis with respect to said actuator frame;

reversible motor means for powering said power screw, said motor means being responsive to signals given by said controller;

a non-rotative sleeve located between said power screw and said motor means in a fixed position, said sleeve having an inner diameter of a first value;

a coil spring having a free outer diameter of a second value generally greater than said first value, said coil spring being captured within said non-rotative sleeve, and said coil spring having a tang on each end;

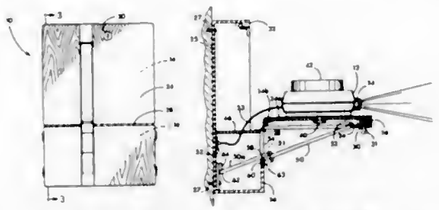
a driver member with a torsion transfer portion, said driver member having a rotational axis, said driver member having an angular position in correspondence with the angular position of said motor means, said driver member having first and second contact surfaces for imparting force to said spring tangs to cause said tangs to release and to allow said spring to have sliding movement within said non-rotative sleeve in both directions;

a driven member with an angular position in correspondence with the angular position of said power screw, said driven member having a rotational axis generally coterminous

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with said rotational axis of said driver member and said driven member having a torsion transfer portion for receiving force imparted by said driver member torsion transfer portion for transferring torque from said driver member to said power screw, said driven member having at least one contact surface for imparting force in the opposite angular direction on said spring tang said driver contact surface imparts force on said spring tang to cause said spring to radially expand and lock within said sleeve to prevent torque from said power screw being transferred to said motor means when said piston is moving away from a position more adjacent to said means of fluid communication of said actuator frame bore with said wheel brake means by fluid pressure within bore.

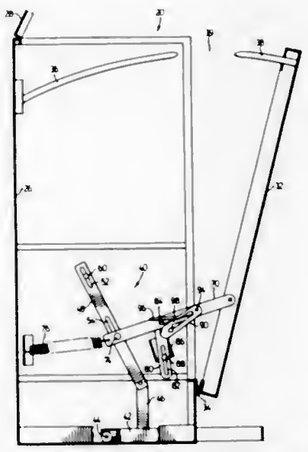
5,211,456
WALL MOUNTABLE PROJECTOR CABINET
Michael J. Staffaroni, 2135 Aquilla Ave. N., Golden Valley, Minn. 55427
Filed Sep. 20, 1991, Ser. No. 763,316
Int. Cl.[5] A47B *5/00*
U.S. Cl. 312—10.1 **19 Claims**



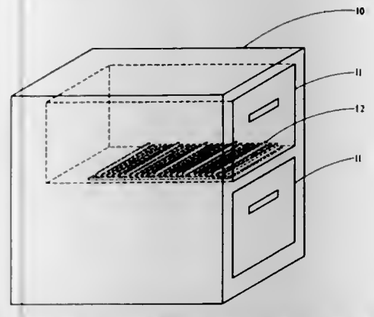
1. A wall mountable projector cabinet comprising,
a cabinet body including a back wall, upright side walls, a top and a bottom wall connected together to provide an enclosure for a projector,
an upright front door which serves as a projector supporting shelf for the projector,
a transversely positioned hinge connected to the bottom of the door and extending horizontally on the front of the cabinet, said hinge being located in spaced relationship above the bottom wall of the cabinet for allowing the projector supporting door to swing downwardly from the top about the horizontal hinge,
at least one storage compartment between the hinge and the bottom wall,
means for defining an upright slot in the cabinet below the hinge and above the bottom wall of the cabinet,
a supporting brace arm pivotally connected at an upper end thereof to the door and extending through the slot into the cabinet,
and the cabinet including a retaining member for engaging the brace arm to support the brace arm in a position supporting the door when the door is opened and in a generally horizontal position serving as a shelf for the projector resting thereupon in position for projecting visual images.

5,211,457
FILE CABINET AND LATCH MECHANISM
Michael Lupynec, Toronto, Canada, assignor to Plan Hold Canada Inc., Mississauga, Canada
Filed Feb. 28, 1992, Ser. No. 843,174
Int. Cl.[5] A47B *63/00*
U.S. Cl. 312—184 **12 Claims**

1. A cabinet for hanging and storing large sheets, comprising:
a) a container having at least two side walls, and including a door pivotal about its bottom edge for outward opening;
b) holding means located in the container for hanging articles thereon, said holding means operable between an open and closed position by moving the door; and
c) latch means including a first arm member pivotally attached at a first end to the door so that movement of said door causes the arm to move, resilient biasing means extending between the first arm member and a point on the interior of the container means for resiliently biasing the door in the closed position, movable support means movably coupled to the arm member, a switch means movably mounted on a side wall, the switch means constrained to remain in close proximity to said first arm during movement of said first arm, the first arm movable between a first position wherein the door is closed and a second position wherein the door is open, the first arm member including an elongate cam member pivotally connected at one end thereof to the first arm member, the cam member being provided with an elongate slot having a longitudinal axis, the cam slot having a lateral access opening, the end of said elongate slot furthest from said cam pivotal connection being transversely displaced off the slot centre axis and forming a pocket receiving means for receiving said switch means, the lateral access opening being adjacent said pocket receiving means, the cam provided with cam locking means engageable with the first arm member so that said cam can be locked in a position wherein the cam slot longitudinal axis is in parallel alignment with said first arm member, the cam member provided with an elongate guide arm extending laterally therefrom and extending adjacent the slot access opening, the switch means constrained such that the first arm member moves parallel to said switch and the switch being located in the cam slot when the cam member is substantially aligned with the first arm member, wherein by the pocket receiving means receiving the switch the cam member is pivoted downwards thereby being displaced from this locked position so that the cam is resting on the switch, and wherein moving the arm rearward a predetermined amount causes the first arm member to retrace a portion of its forward motion whereby the switch is retracted from the pocket receiving means and the cam pivots downwards wherein the switch exits the cam slot through the access opening, the guide arm dropping onto the switch wherein the first arm member is freely movable, the ambit of motion of the first arm member being such that the switch does not extend beyond the free end of the guide arm which is spaced from the cam member.

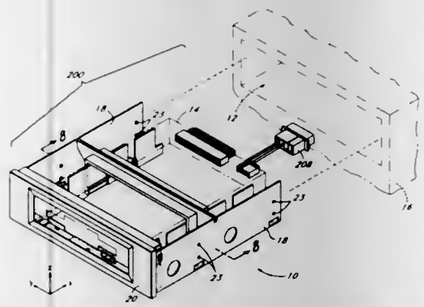


5,211,458
RIBBED MAT FOR PLACEMENT ON BOTTOM OF FILE CABINET DRAWER TO PREVENT DOCUMENT SLIPPAGE
William S. Yale, Box 668, Yorba Linda, Calif. 92686
Filed Jul. 31, 1992, Ser. No. 922,503
Int. Cl.[5] A47B *63/00*
U.S. Cl. 312—193 **14 Claims**



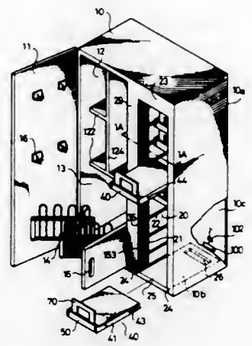
1. In combination with a filing cabinet having at least one sliding drawer, said sliding drawer having a generally flat bottom floor to support a plurality of edge mounted files in a generally upright position, means to prevent said edge mounted files from collapsing away from said upright position due to the weight and suppleness of the files, said means to prevent collapsing comprising a flexible, foldable mat formed of a soft pliant plastic material having a large coefficient of sliding friction, said mat having a generally flat bottom surface and top surface, said bottom surface arranged to lie flat on said bottom floor such that the entire bottom surface contacts the bottom floor in a skid resistant manner; and a plurality of spaced, parallel primary ridges on said mat top surface, the spaces between said ridges forming grooves to receive said edge mounted files.

5,211,459
FORM FACTOR ADAPTOR
Jeff Wu, Mission Viejo, Calif., assignor to Commerical & Industrial Design Co., Inc., Irvine, Calif.
Filed Dec. 20, 1991, Ser. No. 811,319
Int. Cl.[5] A47B *77/08*
U.S. Cl. 312—223.2 **25 Claims**



1. A form factor adaptor for installing an electrical component into a larger enclosure bay, said adaptor comprising:
a chassis to support the electrical component, said chassis having a pair of rails spaced apart to receive the electrical component, said chassis further comprising a faceplate adapted to be located at the exterior of the enclosure bay; and
a clip comprising a pair of spring clasps interengaging with said chassis to secure the electrical component to the chassis.

5,211,460
SHOE CLOSETS
Shih-Ying Liu, 5Fl., No. 2, Alley 7, Lane 298, Chinhsin St., Chungho, Taipei Hsien, Taiwan
Filed Jul. 29, 1991, Ser. No. 737,241
Int. Cl.[5] A47B *57/04*
U.S. Cl. 312—306 **7 Claims**



1. A shoe closet comprising:
a compartment defined by a right plate, a left plate, a top plate, a rear plate, and a bottom plate; a plurality of pairs of slots being formed in said right and left plates, said slots paralleling each other and extending along a width of said shoe closet;
a plurality of shoe-plate modules for putting shoes therein;
a conveyor assembly comprising:
a first conveyor means disposed at an inner edge of said compartment for an upward movement of said shoe plate modules; and
a second conveyor means disposed at an outer edge of said compartment for a downward movement of said shoe-plate modules;
a driving means for driving said first and second conveyor means; and
a first switch means electrically connected with said driving means and activatable by said shoe-plate modules for activating said second conveyor means to carry said shoe-plate modules downward when said shoe-plate modules are pulled out from said compartment;
a second switch means electrically connected with said driving means and activatable by said shoe-plate modules for activating said first conveyor means to carry said shoe-plate modules upward to a storage position when said shoe-plate modules are pushed inward into said compartment;
each said shoe-plate module including an engaging means, said engaging means engaging with said second conveyor means, such that said shoe-plate module is held and carried by said second conveyor means during the downward movement thereof, said engaging means disengaging with said second conveyor means when said shoe-plate module reaches said bottom plate;
said engaging means of said shoe-plate module engaging with said first conveyor means such that said shoe-plate module is held and carried by said first conveyor means during the upward movement thereof, and said engaging means disengaging with said first conveyor means when said shoe-plate module reaches a storage position;
each said shoe-plate module having a pair of engaging members which are received in said shoe-plate module when

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said engaging means engages with said conveyor assembly, said engaging members protruding outward into one pair of said slots for retaining said shoe-plate module when said shoe-plate module reaches the storage position; and

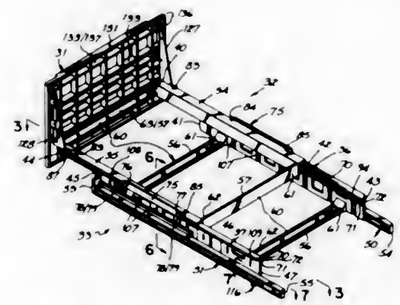
each said shoe-plate module further including a front plate having a means for adjusting the height of the front plate for shoes of various height; said engaging members being actuated to protrude outward into said pair of slots when an upper edge of said front plate contacts a lower side of another shoe plate module located above said shoe-plate module.

5,211,461

VERTICALLY ADJUSTABLE EXTENSION DRAWERS

Rainer B. Teufel, and Timothy A. Friar, both of Columbus, Ohio, assignors to Artromick International, Inc., Columbus, Ohio

Filed Apr. 10, 1992, Ser. No. 867,134
Int. Cl.[5] A47B *88/04*
U.S. Cl. 312—334.4 **16 Claims**



1. In a housing having opposed vertical walls with a plurality of horizontally-extending, vertically-spaced guide ribs leaving alternating guide grooves, a drawer for slidably mounting in opposing guide grooves, said drawer comprising:

a receptacle having two sides;

a first and second spaced apart extension rail assembly with said receptacle mounted therebetween, each of said extension rail assemblies having at least a carrier rail and a slide rail which are slidably interconnected, one of said carrier rails being located adjacent to either side of said receptacle;

two guide arms, each of said guide arms being mountable at a plurality of vertical levels along one of said slide rails, and one of said guide arms adapted for being slidably received by the guide grooves on one of the vertical walls in the housing and the other of said guide arms adapted for being slidably received by the guide grooves on the other of the vertical walls in the housing;

adjusting means for adjusting the vertical relation of one of said guide arms with respect to one of said slide rails and the other of said guide arms with respect to the other of said slide rails;

maintaining means for maintaining said extension rail assemblies in their spaced apart relation; and

limiting means for limiting lengthwise sliding between the rails of each of said extension rail assemblies,

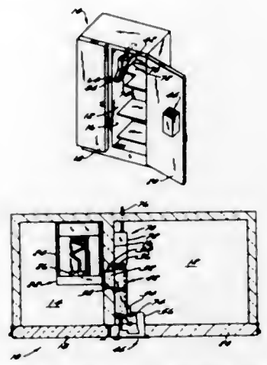
whereby the drawer is locatable at different vertical levels within the housing, while said guide arms remain slidably received in the same guide grooves.

5,211,462

DOUBLE DOOR REFRIGERATOR WITH ICE SERVICE THROUGH THE REFRIGERATOR DOOR

David L. Bien, Middleton, and John J. Jaschinski, Cross Plains, both of Wis., assignors to Sub-Zero Freezer Company, Inc., Madison, Wis.

Filed Jun. 3, 1991, Ser. No. 709,586
Int. Cl.[5] F25D *11/00*
U.S. Cl. 312—404 **16 Claims**



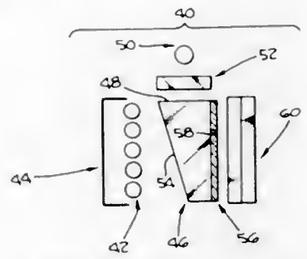
1. A side-by-side double door refrigerator having a freezing compartment separated by a vertical divider wall from a refrigerator compartment, an ice dispenser in the freezer compartment, the ice dispenser including a chute for discharging ice pieces to one side of said dispenser, an opening in the divider wall in direct communication with said chute, a discharge chute assembly mounted on the vertical divider wall in the refrigerator compartment for directing ice pieces from the opening in the vertical divider wall to an ice service area in said refrigerator compartment.

5,211,463

BACKLIGHT FOR LIQUID CRYSTAL DEVICES

Michael H. Kaimanash, Los Altos, Calif., assignor to Kaiser Aerospace & Electronics Corporation, Foster City, Calif.

Filed Mar. 11, 1992, Ser. No. 850,391
Int. Cl.[5] F21V *9/04*; F21Y *8/00*
U.S. Cl. 362—26 **33 Claims**



1. An LCD lighting system compatible with day and night vision equipment including an LCD display and comprising:

a truncated wedge-shaped block of light transmitting material, having a substantially planar display surface and a substantially planar under surface, said surfaces converging at an acute optimum angle, and an end surface at said truncated end;

a first light source, capable of emitting full spectrum visible light, said first light source being adjacent to a block

surface such that light from said first light source enters said block through said surface;

a second light source, including selecting means for limiting the emission of longer wave infrared and near infrared light, said second light source being adjacent to said end surface such that light from said second light source enters said block through said end surface; and

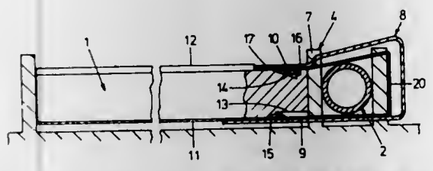
means for disabling said first light source during night viewing, whereby light from said first and second sources is emitted from said planar display surface through said diffusing means.

5,211,464

ILLUMINATING DEVICE, PARTICULARLY FOR DISPLAYS OF DATA PROCESSING DEVICES

Christian Böhmer, Nürnberg, Fed. Rep. of Germany, assignor to Ta Triumph-Adler, Nürnberg, Fed. Rep. of Germany

Filed Mar. 27, 1992, Ser. No. 858,692
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1991, 4110503
Int. Cl.[5] F24V *7/04*
U.S. Cl. 362—31 **6 Claims**



1. An illuminating device, comprising a bar-shaped light; a light conductor plate; and a U-shaped clamping part having two legs, said clamping part extending along said bar-shaped light and connecting said light with said light conductor plate so that said clamping part embraces said light and a neighboring edge region of said light conductor plate in a U-shaped manner and said legs are elastically fixed on said light conductor plate, said clamping part having a first engaging formation provided on said legs, said light conductor plate having second engaging formations formed so that said first engaging formations engage with said second engaging formations, one of said first and second engaging formations being a projection, while another of said first and second engaging formations is a groove in which said projection engages.

5,211,465

PROJECTION TYPE VEHICULAR HEADLAMP

Yoshinobu Suzuki, Shizuoka, Japan, assignor to Koito Manufacturing Co., Ltd., Tokyo, Japan

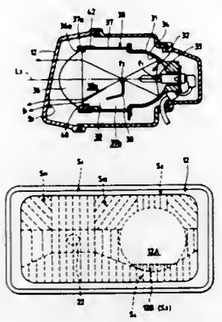
Filed Jun. 11, 1991, Ser. No. 713,482
Claims priority, application Japan, Jun. 25, 1990, 2-164141
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 362—61 **13 Claims**

1. A projection type vehicular lamp, comprising:

a projection lamp unit accommodating a light source, said projection lamp unit comprising an elliptic reflector for accommodating said light source, a tubular holder fixed to said elliptic reflector and a projection lens fitted on said holder at an end thereof opposite said elliptic reflector;

a lamp body having a front opening for accommodating said projection lamp unit; and

an outer cover fixed to said front opening of said lamp body, a beam emitted from said projection lamp unit passing through a circular projection light transmitting region on said outer cover, diffusion steps being formed in an area of said projection light transmitting region defined between a horizontal chord passing through a lower portion of said projection light transmitting region and a lower arcuate boundary of said projection light transmitting region, and in said outer cover diametrically outside of and surrounding said projection light transmitting region, areas of said projection light transmitting region other than said area defined between said chord and said lower boundary being free of said diffusion steps, said diffusion steps in said



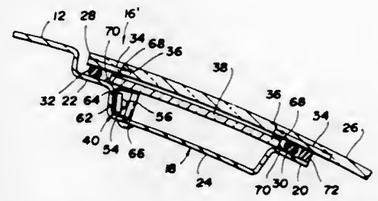
projection light transmitting region reflecting a portion of light from said beam emitted from said projection lamp unit in a downward direction so as to reduce a difference in brightness between an irradiation area and a non-irradiation area between said irradiation area and a vehicle on which said lamp is mounted.

5,211,466

VEHICLE REAR SIGNAL LIGHT ASSEMBLY OF THE HIGH MOUNTED TYPE

Corey J. Jarocki, Mt. Clemens, and Jason W. Provancher, Dearborn, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

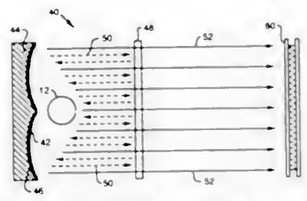
Filed Jun. 15, 1992, Ser. No. 898,658
Int. Cl.[5] B60Q *1/44*
U.S. Cl. 362—83.3 **19 Claims**



1. A vehicle rear signal light assembly of a high mounted type, comprising: a body panel having a rear extremity including a header that has outer and inner, outer and inner flanges and an outwardly opening intermediate portion located between the flanges; a rear window having an edge portion that is secured to the outer and inner flanges of the header and includes an obscuration band that hides the header from sight through the rear window; the obscuration band of the edge portion of the rear window having an opening between the outer and inner flanges of the header; a lens mounted in alignment with the opening in the obscuration band of the edge portion of the rear window; and a signal light source mounted within the outwardly opening intermediate portion of the header in alignment with the lens to shine light rearwardly therethrough to provide a signal.

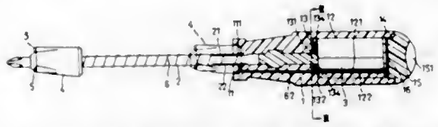
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5,211,467
FLUORESCENT LIGHTING SYSTEM
Thomas A. Seder, Cedar Rapids, Iowa, assignor to Rockwell International Corporation, Seal Beach, Calif.
Filed Jan. 7, 1992, Ser. No. 817,706
Int. Cl.[5] F21V *7/22, 9/00, 9/16*
U.S. Cl. 362—84 10 Claims



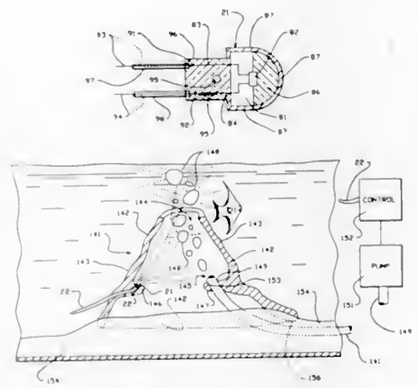
1. A high efficiency, long life fluorescent lighting system, comprising:
a gas discharge lamp having an inside surface without a phosphor coating, said lamp emitting ultraviolet radiation upon electrical discharge;
a phosphor coating on a reflective surface external to said lamp for receiving said ultraviolet radiation and producing a white light output; and
a band pass reflector for transmitting said white light output and reflecting said ultraviolet radiation onto said phosphor coated reflective surface.

5,211,468
SCREW DRIVER HAVING AN ILLUMINATING UNIT MOUNTED THERETO
Jong-Pyng Jeng, No. 9-1, Ting-Nan, Ying-Chuan Li, Huwei Chen, Yunlin Hsien, Taiwan
Filed Sep. 4, 1992, Ser. No. 940,524
Int. Cl.[5] B25B *23/18*
U.S. Cl. 362—120 5 Claims



1. A screw driver including a handle and a shank having a front end with a tip for turning a screw and a rear end fixed to a front end of said handle, said handle confining a compartment for receiving a cell means with a positive terminal connected to said rear end of said shank and a negative terminal, said screw driver further having a slidable member mounted slidably on said shank, an illuminating means fixed on a front portion of said slidable member, means for connecting electrically said illuminating means and said cell means including a coil of wire having a first end connected to said negative terminal of said cell means, and a conducting clamp disposed within said slidable member and clamping said shank, said illuminating means having a first electrode connected electrically to said conducting clamp of said slidable member and a second electrode connected electrically to a second end of said wire;
wherein the improvement comprises: said shank further includes an insulating sleeve member disposed on said rear end of said shank such that when said slidable member is moved to said rear end of said shank adjacent to said front end of said handle, said insulating sleeve member is disposed between said rear end of said shank and said conducting clamp in said slidable member, thereby disconnecting electrically said conducting clamp and said shank.

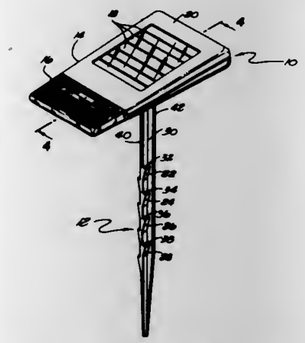
5,211,469
AQUARIUM LIGHTING SYSTEM
John D. Matthias, San Jose; Roger W. Peterson, Santa Clara, and Stuart A. Schwalbe, San Jose, all of Calif., assignors to Universal Fiber Optics, Inc., Santa Clara, Calif.
Division of Ser. No. 609,239, Nov. 5, 1990, Pat. No. 5,165,778, which is a continuation-in-part of Ser. No. 433,741, Nov. 9, 1989, abandoned, which is a continuation-in-part of Ser. No. 402,874, Sep. 5, 1989, abandoned. This application Sep. 9, 1991, Ser. No. 756,602
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—101 7 Claims



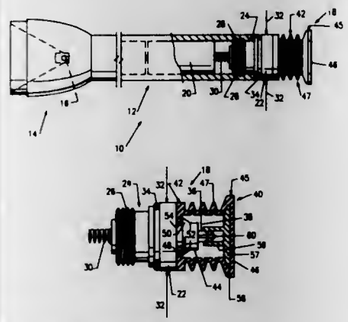
1. A decorative aquarium volcano comprising:
a body having an exterior surface shaped to simulate a scale model of a volcano and including a vent-simulating opening in a top portion of said body;
a light source having a lens, said light source mounted in said body, an insulated electrical conductor means electrically connected to said light source, and means sealing the connection between said light source and said conductor means and sealing said lens for operation of said light source while said body is submerged in water, said sealing means being in direct contact with said connection and said lens, said light source being mounted for transmission of light out said top portion of said body; and
gas discharge means mounted for the discharge of gas inside said body for buoyant migration of said gas for escape from said body through said opening.

5,211,470
SELF-CONTAINED SOLAR POWERED LIGHT
John S. Frost, Thousand Oaks; Mark R. Erickson, Oxnard; Kimberly E. Seegan, Agoura Hills, and Brent P. Boyer, Moorpark, all of Calif., assignors to Siemens Solar Industries, L.P., Camarillo, Calif.
Division of Ser. No. 392,508, Aug. 11, 1989, Pat. No. 5,065,291.
This application Oct. 17, 1991, Ser. No. 779,417
The portion of the term of this patent subsequent to Nov. 12, 2008, has been disclaimed.
Int. Cl.[5] F21L *7/00*
U.S. Cl. 362—183 8 Claims

1. In a self-contained solar powered lamp having a low voltage light source; a rechargeable electrical power source; and a plurality of interconnected photovoltaic cells; a circuit for controlling application of power to the lamp comprising:
switching circuitry coupled to said photovoltaic cells, said electrical power source, and said light source for automatically supplying charging power from said photovoltaic cells to said rechargeable electrical power source, said circuitry blocking power to said light source when the voltage of said photovoltaic cells exceeds the voltage of said electrical power source and automatically supplying illuminating power from said electrical power source to said light source when the voltage of said photovoltaic cells is less than the voltage of said electrical power source.

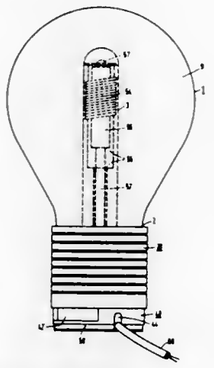


5,211,471
FLASHLIGHT WITH TAILCAP SWITCH BOOT
Donald L. Rohrs, Overland Park, Kans., assignor to The Brinkmann Corporation, Dallas, Tex.
Filed Dec. 28, 1990, Ser. No. 635,030
Int. Cl.[5] F21L *7/00*
U.S. Cl. 362—206 3 Claims



1. A flashlight comprising:
a housing for retaining one or more batteries;
a head assembly attached to one end of said housing, said head assembly enclosing a bulb;
a tailcap assembly attached to an opposite end of said housing, said tailcap assembly including a switch for selectively completing or breaking an electrical circuit between the bulb and the batteries, and further including a switch plunger operatively coupled at one end to said switch and having an opposite end projecting from the tail cap assembly; and
a boot assembly including a generally hollow and resilient boot attached at an open end to said tailcap assembly, said boot having an opposite closed end with a substantially flat exterior surface, said boot assembly further including a rigid boot support within said boot adjacent said closed end thereof, said boot support including means defining a recess into which said opposite end of said switch plunger is received,
wherein said tailcap assembly includes a generally cylindrical and outwardly-extending projection and said boot includes at its open end an inner circumferential lip that mates with said projection to provide a water-resistant and contaminant-resistant seal for said switch.

5,211,472
ELECTRIC LAMP AND DISMANTLING TOOL FOR SAME
Winand H. A. M. Friederichs, and Nicasius Van Gennip, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 8, 1992, Ser. No. 818,005
Claims priority, application Netherlands, Jan. 25, 1991, 9100123
Int. Cl.[5] H01J *61/00*
U.S. Cl. 362—226 20 Claims



1. An electric lamp comprising
a lamp vessel (1) which is sealed in a vacuumtight manner and comprises an end portion (2),
a light source (9) in the lamp vessel,
a cylindrical collar (20) at the end portion,
a mounting member (40) for fastening the lamp to a support,
a plurality of hooks (21) keeping the collar (20) coupled to the mounting member (40), characterized in that
the mounting member (40) has an end portion (41) which projects rotatably into the collar (20),
the collar has the hooks (21) at an inner surface (22) thereof which grip into a groove (42) in an outer surface (43) of the mounting member (40), and
there is clearance between the inner surface (22) of the collar (20) and the outer surface (43) of the mounting member (40) between the hooks (21).

5,211,473
GLARE CONTROL LAMP AND REFLECTOR ASSEMBLY AND METHOD FOR GLARE CONTROL
Myron K. Gordin, and Jim L. Drost, both of Oskaloosa, Iowa, assignors to Musco Corporation, Oskaloosa, Iowa
Continuation of Ser. No. 535,834, Jun. 11, 1990, Pat. No. 5,075,828, which is a continuation of Ser. No. 308,750, Feb. 10, 1989, Pat. No. 4,947,303, which is a continuation-in-part of Ser. No. 44,335, Apr. 30, 1987, Pat. No. 4,816,974, which is a continuation-in-part of Ser. No. 865,086, May 19, 1986, abandoned, which is a continuation-in-part of Ser. No. 687,864, Dec. 31, 1984, abandoned. This application Oct. 4, 1991, Ser. No. 771,721
The portion of the term of this patent subsequent to Aug. 7, 2007, has been disclaimed.
Int. Cl.[5] F21V *7/02*
U.S. Cl. 362—297 31 Claims

1. A mean for light control for sports field lighting comprising:
support means for elevating a lighting fixture substantially

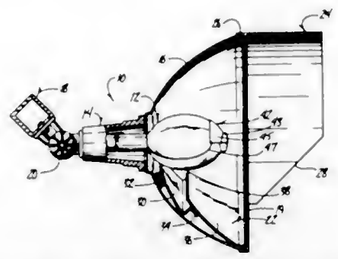
VOL 1150 ISS 3 MY 18 1993 UMI

above ground and oriented generally towards a sports field;

a reflecting means associated with the light fixture for directing light down to and above the sports field;

an arc lamp positioned generally within the reflecting means; and

the reflecting means including at least some reflecting surfaces which are symmetrical with respect to the arc lamp, at least some surfaces which convergingly reflect light from the arc lamp, and at least some surfaces which divergingly reflect light from the arc lamp to control light down to and above the sports field, a portion of the reflecting means comprising a diverging reflector surface generally positioned in a lower hemisphere of the reflecting means.



5,211,474

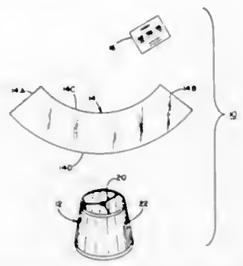
DO-IT-YOURSELF LAMP SHADE KIT

Keith R. Leitner, and Laurie M. Leitner, both of Eau Claire, Wis., assignors to Wisconsin Lighting, Inc., Eau Claire, Wis.

Filed Aug. 30, 1991, Ser. No. 755,504

Int. Cl.[5] F21V *1/12, 1/14*

U.S. Cl. 362—351 **9 Claims**



1. A do-it-yourself lamp shade kit comprising:

a lamp shade base, said base having a substantially continuous arcuate shape in cross-section and presenting a substantially solid outer surface surrounding said base; and

a pattern sized to approximate a size and shape of a continuous length of a fabric with said size and shape selected for said fabric to cover said base with said fabric disposed to lie in face-to-face relation to said base and opposing and covering said outer surface;

said pattern comprising a sheet of material sized and shaped to cover said base when said pattern is disposed on said base in overlying relation, said material selected for said pattern to lie flat on a fabric when said pattern is removed from said base;

said kit including said pattern removably disposed on said base with said pattern opposing and said outer surface in overlying relation.

5,211,475

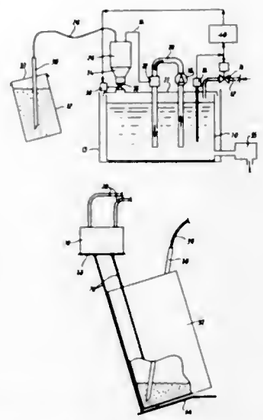
APPARATUS FOR DISSOLVING PARTICULATE SOLIDS IN LIQUIDS

Matthew McDermott, 3 Wellside Dr., Cambuslang, Glasgow G72 8TA, United Kingdom

Filed Dec. 19, 1991, Ser. No. 810,519

Int. Cl.[5] B01F *15/02, 11/00*

U.S. Cl. 366—137 **7 Claims**



1. An apparatus for forming a controlled solution of a particulate solid in a liquid, for use where said particulate solid is in the form of granules mixed with dust, comprising: a mixing tank for holding a known quantity of said liquid; means for recirculating said liquid from said mixing tank through a conduit leading from and back to said mixing tank; said conduit containing a venturi assembly which has a communicating means in communication with a container containing said particulate solid; said venturi assembly operating to form a partial vacuum in said communicating means; said partial vacuum, in use, transporting said particulate solid from said container to said venturi assembly; the apparatus further including a vacuum tank interposed in said communicating means between said venturi assembly and said container, whereby granules transported from said container are trapped in said vacuum tank while said dust passes through said communicating means to be entrained in said liquid passing through said venturi assembly, said vacuum tank being positioned above said mixing tank and being provided with a valve which is openable to empty said granules in said vacuum tank into said mixing tank.

5,211,476

TEMPERATURE RECORDING SYSTEM

Jerome Coudroy, Vitre, France, assignor to Allflex Europe S.A., France

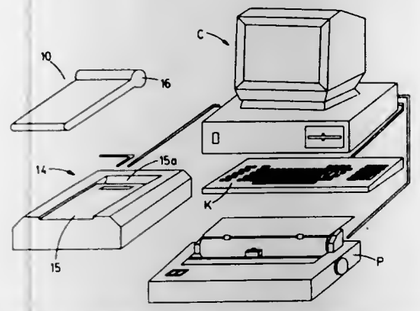
Filed Mar. 3, 1992, Ser. No. 845,031

Claims priority, application New Zealand, Mar. 4, 1991, 237302

Int. Cl.[5] G01K *1/02, 3/00;* **G01D** *5/26*

U.S. Cl. 374—102 **12 Claims**

1. A temperature monitoring device comprising a sealed housing adapted for placement within an environment the temperature of which is to be monitored, said housing having located therein a temperature sensor and a storage system in which temperature readings can be stored, there being further provided a contactless communication means formed by infrared data transmission means, said housing including a window via which said transmission can occur and location means such that the housing can be located with a reader such that said window can align with an aperture of said reader whereby stored temperature readings can be transferred by infrared transmission through said window to said reader when said monitoring device is in position on said reader.



5,211,477

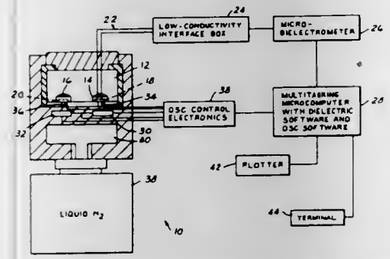
METHOD AND APPARATUS FOR SIMULTANEOUS DIFFERENTIAL SCANNING CALORIMETRY AND MICRODIELECTROMETRY

Chi Li, Orchard Lake, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed May 29, 1999, Ser. No. 706,924

Int. Cl.[5] G01K *17/00;* **G01R** *27/21*

U.S. Cl. 374—33 **15 Claims**



1. A device for testing properties of materials, comprising:

means defining a sample cell;

and means for simultaneously measuring dielectric and thermal properties of a material in the sample cell, said thermal properties including at least heat capacity, and said means for measuring dielectric properties including at least one of measuring dielectric constant and dielectric loss of said material.

5,211,478

HOUSING FOR TEMPERATURE MEASURING APPARATUS

John Horsley, Derby, England, assignor to Rolls-Royce plc, London, England

Filed Nov. 21, 1991, Ser. No. 795,377

Claims priority, application United Kingdom, Dec. 14, 1990, 9027169.3

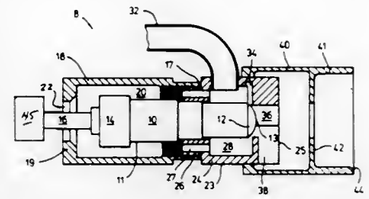
Int. Cl.[5] G01J *5/02*

U.S. Cl. 374—125 **8 Claims**

1. A housing for a temperature measuring apparatus having at least one window, the at least one window having an external surface, comprising:

a duct surrounding the temperature measuring apparatus so as to define a space therebetween for passage of a flow of fluid, the duct being arranged so that a portion of the fluid flow passing therethrough flows over the external surface of the at least one window;

a circumferential shield located adjacent the external surface of the at least one window, the circumferential shield including a cylindrical section having an internal surface, said cylindrical section having at least one internal annular step disposed between the at least one window and the internal surface of the cylindrical section to prevent radiant energy reflected from the internal surface of the cylindrical section from passing through the at least one window, said circumferential shield having a radial recess adjacent to the at least one window to impart a rotational component of velocity to the flow of fluid which passes over the external surface of the at least one window and to direct the flow of fluid radially outward to promote cooling of the circumferential shield.



5,211,479

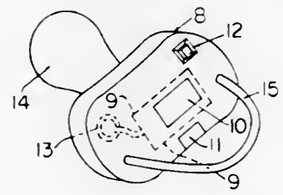
DIGITAL PACIFIER THERMOMETER

Frank Coffey, 225 Main St., New Paltz, N.Y. 12561, and Paul A. Ruggiero, P.O. Box 698, Stone Ridge, N.Y. 12484

Filed Jan. 13, 1992, Ser. No. 819,805

Int. Cl.[5] G01K *7/00, 7/22, 13/00, 1/14;* **A61B** *5/00*

U.S. Cl. 374—151 **11 Claims**



1. A temperature sensing means disposed within a pacifier, said pacifier being provided at a first end with a first portion suitable for insertion into the mouth, a second portion at a second end of said pacifier opposite said first end, wherein said sensing means comprises a plurality of electronic temperature sensing members connected to an electronic circuit means, said circuit means being capable of processing input temperature information received from said plurality of temperature sensing members and transmitting said processed input temperature information to a display means connected thereto, wherein said plurality of temperature sensing members about a circumference of said first portion of said pacifier.

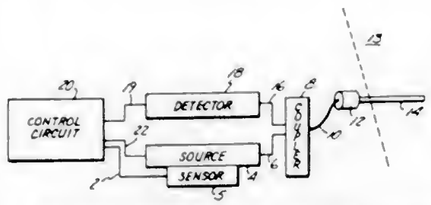
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,480

TRD TEMPERATURE SENSOR AND ELECTRONICS

David C. Thomas, St. Paul; Stephen C. Jensen, Edina; Gerald R. Cucci, Minneapolis, all of Minn.; Charles M. Peterson, Cedar Rapids, Iowa; Shelle D. Tilstra, Eagan, Minn., and Steven J. Rychnovsky, North Liberty, Iowa, assignors to Rosemount Inc., Eden Prairie, Minn.

Filed Oct. 18, 1990, Ser. No. 599,814
Int. Cl.[5] G01K *11/20*; G01J *5/10*
U.S. Cl. 374—161 50 Claims



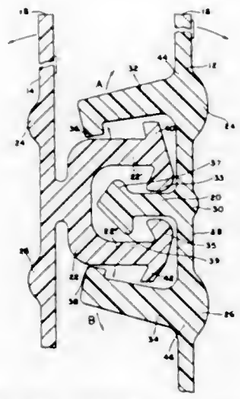
1. A temperature sensing apparatus, comprising:
signal means for providing a signal representative of a temperature responsive luminescence having a characteristic time-rate-of-decay;
sampling means coupled to the signal means for sampling the signal during at least two time intervals, a first interval overlapping a second;
comparison means coupled to the sampling means for comparing the average values of the sampled signals to provide a difference signal representative of the difference therebetween; and
control means responsive to the difference signal for providing an output representing temperature as a function of the time-rate-of-decay, the control means adjusting the intervals as a function of the difference signal.

5,211,481

CLOSURE FOR SLIDERLESS ZIPPER BAGS

Paul A. Tilman, New City, N.Y., assignor to Minigrip, Inc., Orangeburg, N.Y.

Continuation of Ser. No. 797,461, Nov. 22, 1991, abandoned. This application Nov. 30, 1992, Ser. No. 984,020
Int. Cl.[5] B65D *33/24*
U.S. Cl. 383—63 16 Claims



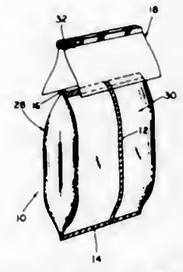
1. A reclosable bag comprising:
a first wall and a second wall joined to form an enclosure with a mouth defined by wall edges;
a primary closure for selectively opening and sealing said mouth, said primary closure comprising an asymmetric arrowhead male profile extending along an internal surface of said first wall and a female profile having stubs adapted to interengage with said male profile and extending along an internal surface of said second wall; and
a secondary closure for selectively opening and sealing said mouth including first and second beams dependent from said first wall internal surface and positioned outboard of said female profile, said beams having portions adapted to interengage with asymmetric outwardly extending portions of said female profile whereby to capture said female profile therebetween and restrict said female profile.

5,211,482

CLOSURE FOR POST FILLING APPLICATION TO PACKAGING

Paul A. Tilman, New City, N.Y., assignor to Minigrip, Inc., Orangeburg, N.Y.

Filed Aug. 19, 1991, Ser. No. 747,787
Int. Cl.[5] B65D *33/16*
U.S. Cl. 383—202 3 Claims



1. A zipper closure strip for post filling application to a sealed prefilled plastic package, said closure strip comprising:
first and second webs, each said web having an edge,
first and second interlocking profile members, each of said profile members being formed on one of said webs adjacent to said respective edge, each of said webs bowing outwardly away from the other web and downwardly away from its respective profile member wherein said closure strip has a generally inverted U-shaped cross-sectional configuration to enable said closure strip to straddle a top end of said prefilled package with said webs abutting opposite sides of said prefilled package;
a slider disposed about said profile members and adapted to urge said profile members into engagement with each other when slid in a first direction and to force said profile members out of engagement with each other when slid in an opposite direction; and,
a blade member extending downwardly from a bottom surface of said slider.

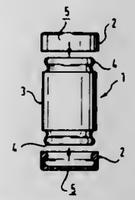
5,211,483

ROLLER BEARING ARRANGEMENT

Werner Blaurock, Niederwerrn, Fed. Rep. of Germany, assignor to Deutsche Star GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Aug. 29, 1991, Ser. No. 752,093
Claims priority, application Fed. Rep. of Germany, Sep. 3, 1990, 4027890
Int. Cl.[5] F16C *33/36*
U.S. Cl. 384—56 25 Claims

1. A roller bearing arrangement with bearing parts (**12**, **13**; **15**, **16**; **42**, **43**) guided in relation to each other by at least one group of rolls (**1**), each roll (**1**) having a roll axis and a load-bearing peripheral surface (**3**) around the roll axis, the load-bearing peripheral surfaces (**3**) of the rolls (**1**) futhermore bearing on respective load-bearing roll races (**12***a*, **13***a*; **A12**, **B12**, **C12**, **D12**; **A13**, **B13**, **C13**, **D13**; **42***a*, **43***a*) of the two bearing parts (**12**, **13**; **15**, **16**; **42**, **43**), said load-bearing roll races extending substantially at right angles to the roll axes, spacer means (**2**) being provided in order to prevent mutual contact between the load-bearing peripheral surface (**3**) of adjacently disposed rolls (**1**), said load-bearing peripheral surface (**3**) of each roll (**1**) being disposed in the axial direction of the roll between two space-maintaining peripheral surfaces (**2**) of said



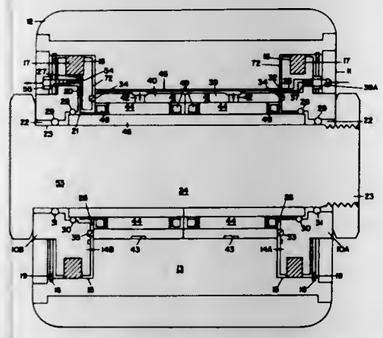
roll (**1**) which project in a radial direction beyond the load-bearing peripheral surface (**3**) and which are situated outside the load-bearing roll races (**12***a*, **13***a*; **A12**, **B12**, **C12**, **D12**; **A13**, **B13**, **C13**, **D13**; **42***a*, **43***a*),
wherein the sliding friction coefficient between the space-maintaining peripheral surfaces (**2**) of adjacent rolls (**1**) is less than the theoretical sliding friction coefficient between two load-bearing surfaces (**3**) of the rolls.

5,211,484

PRESSURE REGULATED LUBRICATING SYSTEM FOR BEARINGS

Lawrence D. Quaglia, 917 Quincy Ave., Bronx, N.Y. 10465

Continuation-in-part of Ser. No. 266,086, Nov. 2, 1988, Pat. No. 4,988,218. This application Jan. 28, 1991, Ser. No. 646,677
Int. Cl.[5] F16C *33/10*, *33/66*
U.S. Cl. 384—322 26 Claims



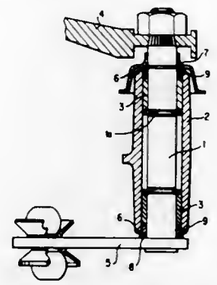
1. A thrust bearing for a pressurized lubricating system comprising:
a hub;
a first body portion positioned adjacent a first side of said hub and having a means for receiving lubricant under pressure;
a sealing means positioned between said hub and said first body portion to seal against outflow of lubricant;
a second body portion positioned adjacent a second side of said hub and having a means for releasing lubricant;
a sealing means positioned between said hub and said second body portion to seal against outflow of lubricant;
said first body portion and said second body portion each include an opening for receiving a shaft therethrough;
a sealing means positioned in each of said first body portion opening for receiving a shaft and said second body portion opening for receiving a shaft to seal against outflow of lubricant;
a channel extending between said first body portion and said second body portion for conducting lubricant between said first body portion and said second body portion.

5,211,485

FIXING STRUCTURE FOR VEHICULAR WIPER PIVOT BEARINGS

Takashi Hoshino, Isesaki, Japan, assignor to Mitsuba Electric Mfg. Co., Ltd., Gunma, Japan

Filed Jul. 24, 1992, Ser. No. 917,997
Claims priority, application Japan, Jul. 26, 1991, 3-66298
Int. Cl.[5] F16C *33/02*
U.S. Cl. 384—296 8 Claims



1. A pivot bearing fixing structure for use in a vehicular wiper device of the type having a wiper arm, a pivot shaft to which said wiper arm is integrally fixed at its base end, a sleeve stationarily mounted on the vehicle body, and a pair of bearings press-fitted in said sleeve positioned at a predetermined axial spacing from each other, said bearings rotatably supporting said pivot shaft, said pivot bearing fixing structure comprising:
slits formed in facing end surfaces of said bearings so as to divide the end portion of each bearing into inner circumferential portion adjacent to said pivot shaft and outer circumferential portion adjacent to said sleeve;
ridges protruding inward radially from an inner surface of said inner circumferential portion of each said bearing;
recesses provided on an outer circumferential surface of said pivot shaft so as to receive said ridges thereby to fix said bearings against axial movement; and
a plurality of notches formed on said inner circumferential portion of said bearing to allow said inner circumferential portion to be elastically deformable radially outward.

5,211,486

CAGE FOR ROLLER BEARING

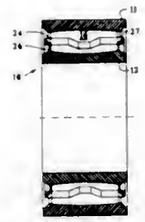
Peter Aqvist, Gothenburg, Sweden, assignor to AB SKF, Gothenburg, Sweden

Filed Jun. 29, 1992, Ser. No. 905,393
Claims priority, application Sweden, Jul. 30, 1991, 9101995
Int. Cl.[5] F16C *33/46*
U.S. Cl. 384—560 8 Claims

1. Roller bearing comprising an inner an dan outer race track and a row of elongated rollers provided between the race tracks in contact with the race tracks and received in cage pockets in a cage, whereby the race tracks and the rollers have curved longitudinal section profiles, and wherein the rollers without hindrance of annular flanges at the race tracks are movable axially between the race tracks relative to both of the race tracks for permitting a mutual angular tilting of the race tracks, each cage pocket being designed with opposed guiding surfaces intended to cooperate with a roller contained in the cage pocket at the axial middle portion of the roller for centering the cage, the axial measure of the pocket being larger than

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the length of the roller so that there is axial clearance between opposed surfaces on the axial side edged of the pocket and the end surfaces of the roller when the roller is centered axially, and a space between axial bars bordering the cage pockets, at



the two opposed end portions of the pocket being larger than the diameter of the roller, at the corresponding end portions of the roller, such that a relative radial movement is allowed between the roller and the cage at said end portions.

5,211,487

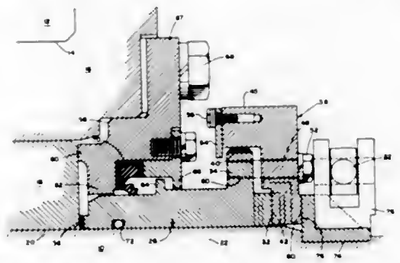
LOCKING ASSEMBLY FOR BEARING

Thomas L. Hannon, and J. Thomas Mahon, both of Pittsburgh, Pa., assignors to SMS Engineering, Inc., Pittsburgh, Pa.

Filed May 11, 1992, Ser. No. 881,472

Int. Cl.[5] F16C *23/00*

U.S. Cl. 384—562 **10 Claims**



1. A locking assembly for securing a bearing on a journal of a shaft, said assembly comprising a cylindrical sleeve member located at the one end of the bearing and in engagement therewith and mounted on an axial portion of the journal, the end of the sleeve opposite said engaging end having a first engagable surface, said first surface having a cam surface, a rotatable cylindrical nut mounted concentric with the journal adjacent said opposite end of said sleeve and having a second engagable surface, said second surface having a cam surface arranged to engage and cooperate with the cam surface of said first surface to force said sleeve in an axially inward direction on rotation of said nut when secured to the shaft, said nut including means for allowing said nut to be rotated, means for securing said nut to said sleeve once the two cam surfaces have been brought into a desired locking position, and a third engagable surface formed on said nut, means for engagement with the third surface for securing the locking assembly in a fixed position relative to the shaft and bearing.

5,211,488

SINGLE TAPERED BUSHING FOR SHAFT MOUNT

Byron M. Patz, Naperville, and Glenn R. Schwartz, Des Plaines, both of Ill., assignors to Regal Beloit Corporation, South Beloit, Ill.

Filed Mar. 19, 1990, Ser. No. 495,422

Int. Cl.[5] F16C *19/38*

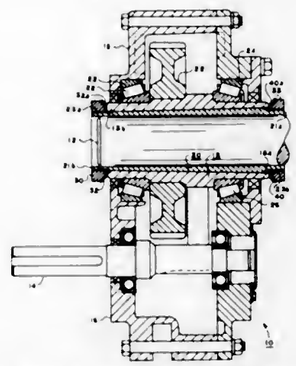
U.S. Cl. 384—584 **9 Claims**

1. A shaft-mount bushing for connecting a rotating member to a driven shaft having an axis, said bushing comprising, in combination:

a frame defining an output side and an input side thereof;

a hub rotatably mounted on said frame, said hub having an opening at one end thereof for receiving said driven shaft generally coaxially therein adjacent said output side of said frame, said hub having a radially inwardly facing surface which tapers inwardly toward and to the other end of said hub adjacent an input side of said frame;

a sleeve mounted in said hub between said inwardly facing surface and said shaft, said sleeve having a large tapered end thereof adjacent said one end of said hub, a small tapered end adjacent said other end of said hub; and



a radially outwardly facing surface which tapers inwardly from said one end of said hub to said other end of said hub adjacent said input side of said frame;

fastener means on said small tapered end of said sleeve for mating engagement with complementary fastener means;

complementary fastener means matingly engageable with said fastener means on said small tapered end of said sleeve for drawing said sleeve into and securing said sleeve in said hub from said input side of said frame; and,

means for connecting an intermediate portion of said hub to an input shaft rotatably mounted to said frame.

5,211,489

RADIAL SPLINE ASSEMBLY FOR ANTIFRICTION BEARINGS

Jerry H. Moore, Palm Beach Gardens, Fla., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 7, 1992, Ser. No. 957,128

Int. Cl.[5] F16C *43/04, 19/52*

U.S. Cl. 384—585 **12 Claims**

1. A support for a rotating load bearing member comprising:

an antifriction bearing having annular inner and outer races;

a rotatable shaft extending through said inner race;

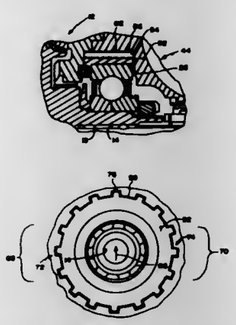
a plurality of splines disposed about a periphery of said outer race, said splines extending generally parallel with said shaft;

a support wall having an opening for supporting said outer race;

a plurality of slots disposed along an inner circumference of said opening, said slots generally parallel with said shaft, for receiving said splines;

first selected clearance defined by sides of said splines and sides of said slots; and

second selected clearances greater than said first selected clearance and defined by outer and intermediate radial portions of said splines and facing regions of said intermediate portions and said slots, whereby radial movement of said shaft is limited by contact between sides of said splines and sides of said slots, and slope distortion of said



opening greater than said first selected clearances are accommodated by said second selected clearances.

5,211,490

INK RIBBON CASSETTE WITH RE-INKING AND DRIVE GEAR

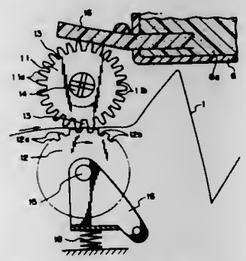
Hiromichi Suzawa; Masaru Sugie; Masayuki Kubota; Chiaki Sekioka, and Hiroki Ohta, all of Inagi, Japan, assignors to Fujitsu Isotec Limited, Tokyo, Japan

Filed Nov. 27, 1991, Ser. No. 798,718

Claims priority, application Japan, Nov. 30, 1990, 2-341004

Int. Cl.[5] B41J *27/12*

U.S. Cl. 400—202.4 **2 Claims**



1. An inked ribbon cassette comprising:

ink supply means having ink absorbed therein;

a first rotatable gear having a plurality of teeth and arranged to contact the ink supply means, each of said teeth of the first gear having a first tooth profile comprising an involute curve and a second tooth profile other than an involute curve contiguous to the first tooth profile;

a second rotatable gear having a plurality of teeth engaged with teeth of the first gear, each of said teeth of the second gear having a tooth profile consisting of an involute curve;

the first gear has a module identical to the module of the second gear and the depth of the teeth of the first gear is 1.5 to 2.5 times greater than the depth of the teeth of the second gear; and

an ink ribbon pinched between the first and the second gears and driven by the first and the second gears upon rotation thereof for traveling along a path;

wherein the depth of the teeth of the first gear provides at least one groove between teeth of the first gear for containing ink therein when ink is excessively transferred from the ink supply means to the first gear.

5,211,491

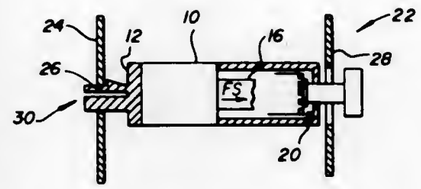
THERMAL TRANSFER CARTRIDGE INTEGRAL LOCK

Frederick W. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 683,167, Apr. 10, 1991, abandoned. This application Aug. 5, 1992, Ser. No. 926,128

Int. Cl.[5] B41J *35/28*

U.S. Cl. 400—208 **1 Claim**



1. A thermal printer, comprising:

a first printer sidewall having an opening;

a second printer sidewall spaced from said first printer sidewall;

a printer cartridge having a supply spool, a take-up spool and a transfer web wound on the supply spool and attached to the take-up spool, and a main body portion positionable between said first and second printer sidewalls;

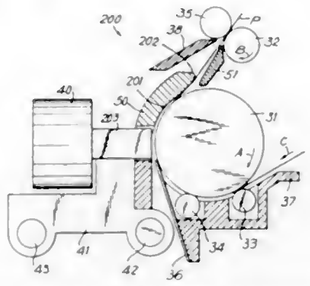
means, engageable with said first printer sidewall, for releasably locking said cartridge in a position between said first and second printer sidewalls for controlled movement of the transfer web from the supply spool to the take-up spool to effect thermal printing, said means including;

a first member having a first end portion attached to said main body and extending laterally therefrom, a second end portion extending in a direction, and a middle portion intermediate said first and second end portions, said middle portion having a ramp slanting downward toward said first end portion of said first member and a shoulder formed at one end of said ramp facing said second end portion of said first member, said first member being moveable between a first position at which said ramp is oriented at a first preselected angle with respect to said main body and a second position at which said ramp is oriented at a second angle with respect to said main body, said second angle being greater than said first angle; and

a second member having a first end portion attached to said main body and a second end portion extending in the direction of said second end portion of said first member, said first member being moveable between a locking position at which said first member is spaced a first preselected distance from said second member and a released position at which said first member is spaced a second preselected distance from said second member, said second distance being smaller than said first distance, said first member being engageable with said first sidewall at said first sidewall opening to prevent movement of said cartridge from said position toward said first printer sidewall or from said second printer sidewall in response to a combination force acting to unseat said cartridge, said second member protruding through said first printer sidewall opening, said first member being moveable between a locking position at which said first and second members abut said first printer sidewall through said printer sidewall opening and a released position at which said first member is free of abutting contact with said first printer sidewall.

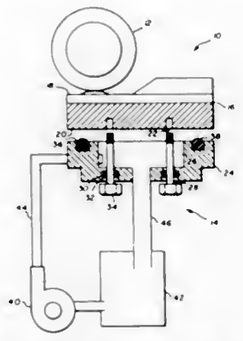
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,492
SERIAL IMPACT PRINTER
Seiichi Hirano, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan
Filed May 14, 1992, Ser. No. 883,598
Claims priority, application Japan, May 15, 1991, 3-110220
Int. Cl.[5] B41J 13/10
U.S. Cl. 400—645 15 Claims



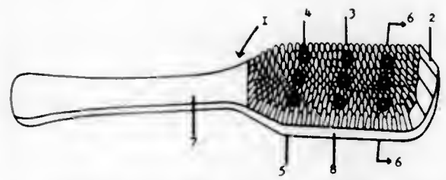
1. A serial impact printer for printing on a printing medium comprising a carriage, a printing head supported on the carriage, a platen having an outer surface adjacent said printing head defining a printing region therebetween, tension roller means having an outer surface positioned downstream of said platen for applying tension to the printing medium, the outer surface of said platen and the outer surface of said tension roller means defining a plane tangent to said platen and said tension roller means, a guide member supported on said carriage having an end portion which protrudes through said plane towards said platen, said end portion contacting said printing medium to press said printing medium out of said plane.

5,211,493
COOLING SYSTEM FOR A THERMAL PRINTING HEAD
Stanley W. Stephenson, Spencerport; Frederick J. Oleson, Brockport, and Peter J. Leas, Penfield, all of, assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jun. 5, 1992, Ser. No. 894,687
Int. Cl.[5] B41J 2/375
U.S. Cl. 400—719 6 Claims



1. A cooling system for a thermal printer, comprising:
a thermal print head having a rear surface with a threaded opening;
a bracket defining a reservoir with a reservoir opening, said bracket having an opening with an annular recess and forming an entrance to said reservoir;
an o-ring positioned in said annular recess;
a bolt insertable through said bracket opening and o-ring to engage said threaded opening to seal said entrance and to removably attach said bracket and print head so that said rear surface covers and closes said reservoir opening;
pump means for supplying cooling fluid to said reservoir and bringing said cooling fluid into contact with said rear surface of said print head to effect cooling thereof;
a gasket interposed between said bracket and said rear surface of said print head in sealing engagement to retain said cooling fluid; and
a gravity fed outlet for draining cooling fluid from said reservoir so that said cooling fluid does not interfere with detaching said reservoir and print head to expose said reservoir.

5,211,494
BATH BRUSH-BACKSCRATCHER FOR CLEANSING AND STIMULATING ONE'S SKIN
Etienette Baijnath, #609, T20 Raglan Avenue, Toronto, Ontario, Canada M6C 2L4
Filed Jun. 4, 1991, Ser. No. 710,014
Int. Cl.[5] A46B 11/00, 11/02, 9/06
U.S. Cl. 401—28 5 Claims

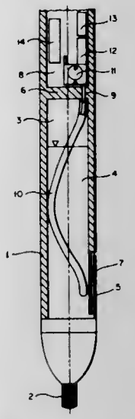


1. A brushing and scratching device for providing pleasant touch sensations and for cleansing and stimulating the user's skin, said device made in a plurality of sizes and comprising:
a body having a back and a base, a soap applicator means secured to the back, a handle extending from the base, and a combination of an array of sufficiently firm, broad human nail-like structures, and an array of sufficiently flexible smooth protuberances surrounded by an array of repetitively interrupted flexible slender stalklike bristles, all projecting adjacently from the base and forming the pleasurable, brushing, scratching and cleansing surface of the brush.

5,211,495
TUBULAR WRITING INSTRUMENT WITH SUCTION VENT
Walter Jozat, Bad Bramstedt; Steffen Wünsche, Hamburg; Ronald Broers, Hamburg; Thomas Hentze, Hamburg, and Horst Eising, Hamburg, all of Fed. Rep. of Germany, assignors to rotring-werke Riepe KG, Hamburg, Fed. Rep. of Germany
Filed Oct. 19, 1992, Ser. No. 962,706
Claims priority, application Fed. Rep. of Germany, Oct. 29, 1991, 4135605
Int. Cl.[5] B43K 7/08, 5/00
U.S. Cl. 401—217 3 Claims

1. In a writing or drawing instrument comprising a housing provided with a writing point and comprising a writing fluid reservoir within an interior space of the housing, wherein the reservoir is connected to ambient air via a capillary pressure equalization system, the improvement comprising a sensor (7) adapted to react to the presence of writing fluid (4) that is provided in a chamber of the capillary pressure equalization system (5), and a suction pump (11, 12) that is connected with the writing fluid reservoir (3) through a semipermeable membrane (10) which lets air through the membrane but is impermeable to writing fluid (4), wherein when the sensor (7) senses

a certain level of writing fluid (4) in the capillary pressure equalization system, a signal is sent to a circuit means that



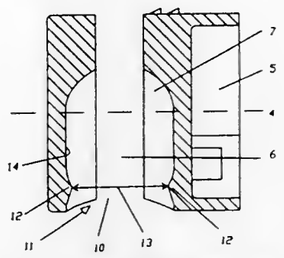
activates the suction pump (11, 12) so as to reduce the level of writing fluid in the capillary pressure equalization system.

5,211,496
DOUBLE WEDGELOCK CLAMP
Mark Hurowitz, San Carlos, Calif., assignor to Kaiser Aerospace and Electronics Corporation, San Jose, Calif.
Continuation of Ser. No. 558,904, Jul. 27, 1990, abandoned. This application Jan. 30, 1992, Ser. No. 830,533
Int. Cl.[5] F16B 1/00
U.S. Cl. 403—24 16 Claims



1. A device for retaining a tab, formed to extend from a module or a circuit board, within an elongate slot of a wall member of a chassis structured to hold the module or circuit board, the device comprising:
at least a pair of first wedge elements, each having a wedge surface adapted to be disposed within said slot;
elongate wedge means dimensioned to fit within said slot on each side of said tab, each wedge means having a complementary wedge surface at one end for cooperating with a corresponding one of said wedge surface of said first wedge elements;
a yoke attached to each wedge means at an end opposite said complementary wedge surface for coupling said wedge means together; and
actuation means disposed on said yoke for moving said complementary wedge surfaces within said slot with respect to said wedge surfaces of said first wedge elements so as to secure said position of said tab within said slot.

5,211,497
CONNECTING DEVICE
Karl-Heinz Kraft, Jamestown, N.C., assignor to Hafele America Co., Archdale, N.C.
Filed Feb. 21, 1991, Ser. No. 659,112
Claims priority, application Fed. Rep. of Germany, Oct. 31, 1990, 9014987
Int. Cl.[5] B65D 59/00
U.S. Cl. 403—12 16 Claims



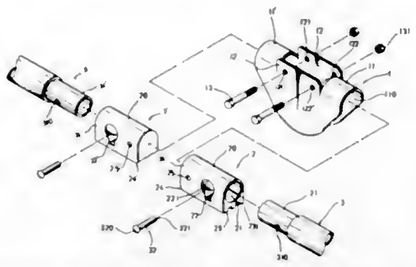
1. A connecting device for preliminarily holding two panels together prior to rotating the connecting device within a bore of one of the panels to engage a bolt head and thereby tighten the panels with respect to each other, the connecting device comprising:
a generally cylindrical casing having two flat opposing surfaces, a circumferential side wall, and a hollow interior large enough to accommodate the bolt head; said casing having an opening for accepting the bolt head, said circumferential side wall having a slot along a portion of said circumferential side wall, said slot proceeding into said hollow interior, said opening being wider than said slot and wider than a head diameter of the bolt head, said slot being narrower than said head diameter, a slot longitudinal axis of said slot being perpendicular to a rotating axis of said casing;
at least one protrusion positioned on an interior side surface of said casing which defines said opening, said interior side surface forming an elastic narrowing of said opening, and a greatest width of said elastic narrowing being less than said head diameter.

5,211,498
FOLDING JOINT FOR A FOLDABLE PLAYYARD
Sieno T. M. Huang, No. 26, Lane 348, Ching Hu Tsun, Lin Kou Hsiang, Taipei Hsien, Taiwan
Filed Jan. 10, 1992, Ser. No. 818,885
Int. Cl.[5] F16C 11/10
U.S. Cl. 403—102 1 Claim

1. A folding joint comprising a base frame having an inner receiving space, two connecting members respectively pivotally held at two different locations within said inner receiving space, said connecting members respectively holding two cylindrical rails and arranged within said inner receiving space for permitting said rails to be held in a longitudinally aligned position relative to each other and folded up into a collapsed position,
said connecting members each having an axial hole at one end thereof for receiving either said rail, opposite side walls respectively having first and second circular through holes, and a track connecting said first and second through holes through said axial hole; and
said rails each having a connecting end inserted into said

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axial hole, said connecting end having a pin hole arranged in a transverse direction relative to said axial hole and a headed pin received in said pin hole, said headed pin having a terminal end flush with an outer wall surface of said connecting end and a head protruding out of said outer wall surface of said connecting end,



wherein one of said first and second through holes has an inner diameter approximately equal to a width of said track for passing said headed pin therethrough, and said connecting end rotates through said track permitting said head of said headed pin to be stopped at said first through hole when said rails are held in said longitudinally aligned position and at said second through hole when said rails are folded up into said collapsed position.

5,211,499

FASTENER FOR AFFIXING A MOUNTING TRACK TO A WALL OF A SWITCHBOX

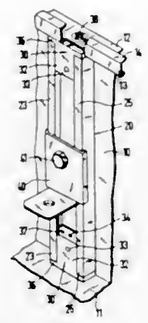
Jurgen Zachrei, Dillenburg-Nanzenbach, Fed. Rep. of Germany, assignor to Rittal-Werk Rudolf Loh GmbH & Co. Kg, Fed. Rep. of Germany

Filed Apr. 18, 1989, Ser. No. 339,391

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1988, 3812939

Int. Cl.[5] F16B *9/02*

U.S. Cl. 403—258 **9 Claims**



1. Fastener means for supporting a cross-sectionally C-shaped mounting track between a front rim and a rear wall of a switchbox, such mounting track having a front end, a rear end and an interior cavity with a longitudinal axis, the fastener means including:

a retainer block for supporting said mounting track, said retainer block having a cross-sectional size and shape generally conforming to that of the interior cavity of said mounting track whereby the block is confined within said interior cavity;

said retainer block including a generally planar and transverse stop plate having an outer edge portion formed on a retainer block end face and oriented to be generally parallel to the rear wall of the switch box, said outer edge portion of said stop plate abutting the front end of said mounting track when said retainer block is supporting said mounting track;

a fastening bore with a longitudinal axis generally parallel to the length of the mounting track, the bore being formed in said end face of said retainer block adjacent to said stop plate; and,

an annular sealing rib disposed on said end face of the retainer block along said outer edge portion of said stop plate.

5,211,500

COMPOSITE ROPE HAVING MOLDED-ON FIXING MEMBER AT END PORTION THEREOF

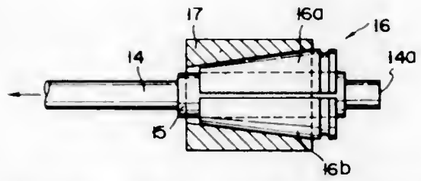
Hiroshi Takaki; Hiroshi Kimura, and Ryuichi Endo, all of Dejima, Japan, assignors to Tokyo Rope Mfg. Co., Ltd., Tokyo, Japan

Division of Ser. No. 502,457, Mar. 30, 1990, Pat. No. 5,027,497. This application Apr. 26, 1991, Ser. No. 692,296

Claims priority, application Japan, Apr. 6, 1989, 1-87341; Sep. 25, 1989, 1-248567

Int. Cl.[5] B25G *3/34*

U.S. Cl. 403—269 **17 Claims**



1. A composite rope structure having an end portion thereof fixed to a stationary member, said composite rope structure comprising:

a composite rope made of resin-impregnated non-metallic multifilaments;

a cast metal member molded on said end portion of said composite rope, said cast metal member extending over a substantial length of said end portion of said composite rope, said cast metal member being molded on said end portion of said composite rope by supplying molten metal into a cavity of a mold that covers a predetermined substantial length of said end portion of said composite rope;

means for initially pressing said cast metal member against said end portion of said composite rope by applying to said cast metal member, a pressing force that is distributed by said cast metal member over said predetermined substantial length of said end portion of said composite rope to increase an adhesion between said cast metal member and said composite rope over said predetermined substantial length of said composite rope, said pressing force distributed by said cast metal member over said predetermined substantial length of said end portion of said composite rope being insufficient to damage said composite rope; and

a fixing member surrounding and clamping at least a portion of the cast metal member after the cast metal member is initially pressed against said end portion of said composite rope, said at least a portion of said cast metal member having a cross-sectional shape that is not deformable by a clamping force provided by said fixing member;

said fixing member, fixing said at least a portion of said cast metal member to said stationary member;

said clamping force provided by said fixing member being substantially uniformly distributed by said cast metal member in a longitudinal direction of said composite rope to said end portion of said composite rope such that a rope-damaging shearing stress is not applied to said composite rope.

5,211,501

ROBOT ARM COUPLING APPARATUS

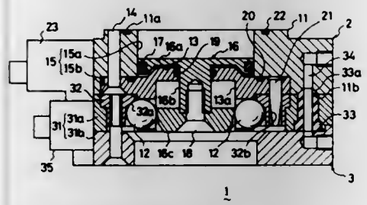
Yoshitaka Nakamura, and Mikio Tsutsumi, both of Kobe, Japan, assignors to BL Autotec, Ltd., Kobe, Japan

Filed Jun. 26, 1991, Ser. No. 719,708

Claims priority, application Japan, Jun. 28, 1990, 2-172284

Int. Cl.[5] B25G *3/18*

U.S. Cl. 403—322 **3 Claims**



1. A coupling apparatus comprising:

an inner assembly capable of being attached to a drive body;

an outer assembly to which a component is attached; and

a locking means for locking said inner assembly to said outer assembly; said locking means including;

a piston member slidably supported by said inner assembly, said piston member being slidable between a locking position and an unlocking position;

a plurality of ball members supported by said inner assembly in a surrounding relationship about said piston member; and

a ball member receiving means formed in said outer assembly for receiving at least a portion of said ball members, said receiving means including an inwardly tapered contact surface;

wherein said piston member includes a ball member displacement means for displacing said ball members in a radial direction into contact with said contact surface of said receiving means when said piston member is moved to the locking position, said displacement means including a first tapered working surface, a cylindrical contact surface extending axially from a radially inward portion of said first tapered working surface and a second tapered working surface extending inwardly from said cylindrical contact surface, said second tapered working surface having an angle of inclination in the axial direction greater than the angle of inclination in the axial direction of said first tapered working surface.

5,211,502

CONNECTION SYSTEM

Christopher W. Upham-Hill, 74a Ashington Street, Dianella, West Australia, Australia

PCT No. PCT/AU89/00337, § 371 Date Mar. 15, 1991, § 102(e) Date Mar. 15, 1991, PCT Pub. No. WO90/01594, PCT Pub. Date Feb. 22, 1990

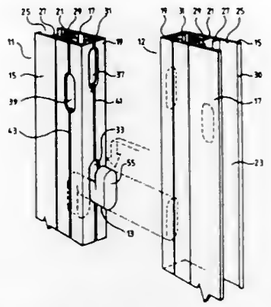
PCT Filed Aug. 7, 1989, Ser. No. 671,903

Claims priority, application Australia, Aug. 8, 1988, PI9713

Int. Cl.[5] F16B *13/04*

U.S. Cl. 403—353 **21 Claims**

1. A connection system comprising first and second members and a connecting element for interconnecting the first and second members, said first and second members each having a face with a connecting aperture therein opening into an internal space within the member, said connecting element comprising a bridge portion and a pair of spigot portions one at each end of the bridge portion and extending transversely of the bridge portion along a spigot axis; wherein the internal space of each member includes means for restraining the spigot portion against tilting movement about the spigot axis, said restraining means including an engaging portion for snugly receiving the respective spigot portion and wherein said engaging portion is bounded by a peripheral structure defined within the member and adapted to cooperate with the spigot portion to restrain the spigot portion against tilting movement within the engaging portion about the spigot axis; said first and second members



being interconnected by inserting the spigot portions of the connecting element into the openings in said members and displacing each spigot portion with respect to the respective member along the spigot axis such that the spigot portion is snugly received and retained in said engaging portion of the internal space of the member.

5,211,503

BARRIER GATE FOR LONGITUDINAL HIGHWAY BARRIER

John P. Quittner, Castle Cove, Austria, assignor to Energy Absorptions Systems, Inc., Chicago, Ill.

Filed Apr. 24, 1991, Ser. No. 690,515

Int. Cl.[5] E01F *13/00;* **A01D** *46/00*

U.S. Cl. 404—6 **18 Claims**



1. A barrier gate for a longitudinal highway barrier of the type having at least first and second axially aligned barrier segments separated by a gap therebetween, said barrier gate comprising:

an elongated gate;

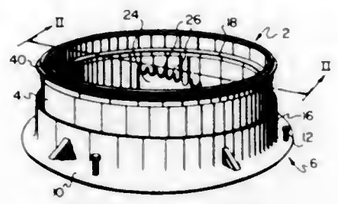
means for mounting the gate in alignment with said first barrier segment such that the gate extends toward the second barrier segment along an axis defined by the first barrier segment; and

means for translating the gate along the axis between a first position, in which at least a portion of the gate overlaps the first barrier segment along the axis and reveals at least a portion of the gap, and a second position, in which at least a portion of the gate is positioned in the gap to extend along the axis toward the second barrier segment, thereby closing at least a portion of the gap;

said translating means comprising a motor mounted adjacent one end of the gap, a drive wheel mounted to engage the gate to move the gate axially past the drive wheel, and a drive member interconnecting the motor and the drive wheel.

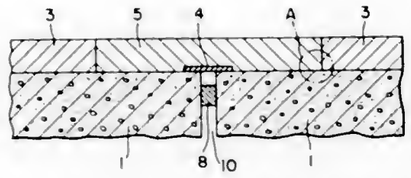
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,504
ADJUSTABLE MANHOLE TOP
Roger Trudel, 218 John Street, Sudbury, Ontario, P3E 1P6, Canada
Filed Jan. 31, 1991, Ser. No. 648,743
Int. Cl.[5] E02D *29/14*
U.S. Cl. 404—26 **10 Claims**



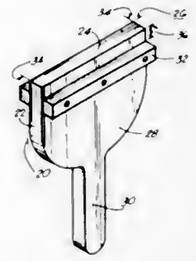
1. An adjustable manhole top comprising:
(a) a cylindrical sleeve having an internal, manhole cover-supporting rim towards one end, a plurality of spaced elongated ribs extending longitudinally along an internal surface of the sleeve below the rim;
(b) a support rim comprising a planar base to be rested on the upper edge of a manhole foundation and a cylindrical wall extending upwardly from the base, a portion of the base extending inwardly, beyond the inner surface of the wall for supporting the sleeve, the wall being of a diameter so as to co-operate with the sleeve and prevent relative lateral displacement thereof;
(c) an annular height adjustment ring to sit on and be supported by the inwardly extending annular portion of the base; and
(d) riser blocks secured to and upwardly extending from the height adjustment ring, the riser blocks each having an upper surface with steps therein at a plurality of pre-determined elevations, the blocks and steps positioned so as to supportably receive the lower ends of corresponding ribs of the sleeve at the same one of said predetermined elevations,
the cylindrical sleeve and the annular height adjustment ring each being relatively rotatable with respect to each other and with respect to the support base so as to permit alignment of the ribs and the steps and thus adjustment of the elevation of the manhole cover.

5,211,505
EXPANSION JOINT FOR BRIDGE STRUCTURE
Akira Ueda, Tokyo, Japan, assignor to Sho-Bond Corporation, Tokyo, Japan
Filed Dec. 28, 1990, Ser. No. 635,738
Int. Cl.[5] E01C *11/02, 11/10*; E04C *1/00*; B32B *18/00*
U.S. Cl. 404—47 **1 Claim**



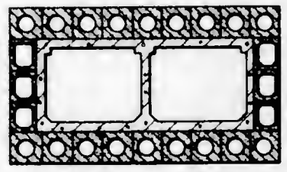
1. An expansion joint for a bridge structure having slabs comprising a layer of a composite consisting of rubber grains as the aggregates and epoxy resins with low modulus of elasticity as the binder, said layer of composite being laid on notched portions of pavements over opposite ends of said slabs per se arranged opposite to each other while leaving a clearance therebetween for compensating possible expansion and contraction of said bridge structure, said composite comprising 1 part and 2.5 parts by weight respectively of said epoxy resins and said rubber grains, said rubber grains having 40°–60° Shore hardness and grain size 5 mm–1 mm and exhibiting a compressive strength of 20 Kg/cm^2, a modulus of compression elasticity of 60 Kg/cm^2 and a deflection of 60 mm, whereby the upper surface of the composite layer is made even with that of the pavements.

5,211,506
BACKER ROD OR BOND BREAKER CORRECTIVE PLACEMENT TOOLS
William Manion, P.O. Box 1776, Slidell, La. 70459
Continuation-in-part of Ser. No. 596,095, Oct. 11, 1990. This application Apr. 12, 1991, Ser. No. 684,652
Int. Cl.[5] E01C *23/09*
U.S. Cl. 404—87 **8 Claims**



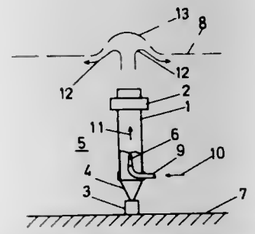
1. A tool for improved placement of a backing within a stonework joint for sealing thereof comprising:
a paddle;
an edge on said paddle having a thickness and a length;
a gauging bar, parallel to said edge;
two parallel edge engaging plates affixed to the paddle, extending beyond said gauging bar a distance, forming a channel therebetween.

5,211,507
METHOD OF MAKING A HUGE ELONGATED SPACE OF SQUARE OR RECTANGULAR CROSS SECTION UNDER THE GROUND
Ayao Siseki; Koji Tada; Toru Taniguchi; Masahiro Nakagawa; Yuji Tachikawa, and Makoto Ukegawa, all of Tokyo, Japan, assignors to Toda Corporation and Mitsui Engineering & Shipbuilding Co. Ltd., both of Tokyo, Japan
Filed Apr. 3, 1992, Ser. No. 862,944
Claims priority, application Japan, Apr. 5, 1991, 3-099803; Apr. 5, 1991, 3-099804; Apr. 5, 1991, 3-099805
Int. Cl.[5] E21D *9/00*
U.S. Cl. 405—138 **6 Claims**



1. A method of making a huge elongated space of square or rectangular cross section under the ground comprising the steps of:
making at least two longitudinal holes at an elongated interval in the earth;
making a plurality of first lateral square or rectangular shell-units at different depths in the ground having shielded passages therein extending between said longitudinal holes and arranged at regular intervals on four sides of a square or rectangular shape corresponding to a square or rectangular cross section of said huge elongated space;
making a plurality of second lateral square or rectangular shell-units at different depths in the ground having shielded passages extending between said longitudinal holes and arranged on the four sides of said square or rectangular shape for each second lateral square or rectangular shell-unit to occupy the interval and connect adjacent first lateral square or rectangular shell-units to form a continuous square or rectangular huge elongated outer-shell; and
removing the soil from the square or rectangular area delimited by said huge outer shell to leave the huge elongated space extending between said longitudinal holes.

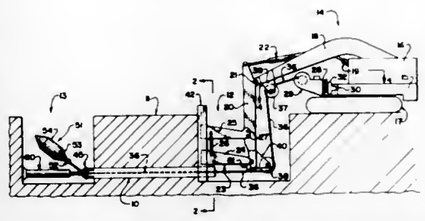
5,211,508
TOTAL WATER CIRCULATION SYSTEM FOR SHALLOW WATER AREAS
Hisao Makino, Ichikawa, Japan, assignor to Kaiyo Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 20, 1992, Ser. No. 839,404
Int. Cl.[5] E02B *3/00, 15/00*
U.S. Cl. 405—52 **13 Claims**



1. A method of producing a total water circulating flow in a shallow water area, comprising the steps of:
jetting water under pressure to produce a forced water flow that rises from a bottom portion toward a top portion of the shallow area through a vertical tubular passage;
causing the forced water flow produced to act upon water in the tubular passage so that the water rises with increasing speed through the tubular passage from the bottom end thereof toward the top end thereof; and
forcing the water in the tubular passage to be jetted out from the top end of the tubular passage and to be diffused in radial directions, so as to create a circulating motion.

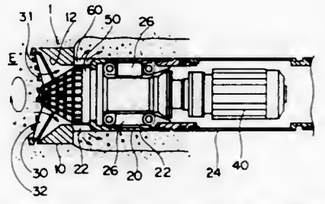
5,211,509
EXTRACTION OF UNDERGROUND PIPE
Klaus E. Roessler, 2 Waterhouse Bay, Winnipeg, Manitoba, Canada R3R 2N4
Filed Aug. 5, 1991, Ser. No. 740,098
Int. Cl.[5] F16L *1/028*
U.S. Cl. 405—184 **12 Claims**

1. A method for extracting underground pipe comprising excavating a first and a second opening in the ground to expose a first and a second end of a portion of the pipe, passing a cable through the pipe from the first end to the second end, attaching an abutment member to the cable at the second end so as to engage the second end of the pipe portion, winding the cable onto a winch mounted at the first opening, guiding the cable at the first opening so as to apply a longitudinal pulling force on the pipe portion to pull the pipe portion into the first opening and engaging a side of the opening adjacent-the first end to apply a reaction forces from the pulling force to the ground surrounding the pipe wherein the winch is mounted on a vehicle at a position outside the opening and the cable is guided by pulleys from the vehicle into the opening, wherein the pipe is pulled through an initial movement by winding said cable onto the winch while said reaction forces are applied to the ground



surrounding the pipe, and wherein the pipe is pulled through a subsequent movement by halting the winding of the cable onto the winch and moving the vehicle away from the opening.

5,211,510
PROPULSION METHOD OF PIPE TO BE BURIED WITHOUT SOIL DISCHARGE AND AN EXCAVATOR
Koichi Kimura, Hyogo, and Hiroharu Nishida, Osaka, both of Japan, assignors to Kidoh Construction Co., Ltd., Osaka, Japan
Filed Dec. 9, 1991, Ser. No. 803,884
Claims priority, application Japan, Dec. 12, 1990, 2-401711; Jan. 17, 1991, 3-004057
Int. Cl.[5] F16L *1/028*; E21D *9/08*
U.S. Cl. 405—184 **3 Claims**



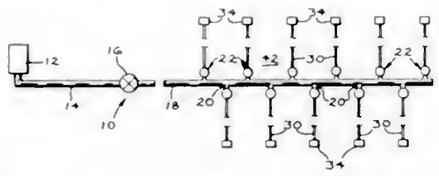
1. A propulsion method for burying a pipe without solid discharge, the method comprising the steps of drilling ground which contains soil with the tip of an excavator propelling within the ground to form a hole, taking the drilled soil into the excavator, discharging the taken soil to the ground side by compacting the soil on the outer circumference of the excavator, and burying the pipe progressively in the hole formed behind the excavator; the excavator including a front tip part having a diameter larger than the outside diameter of the pipe to be buried and a rear part having a diameter nearly the same as the outside diameter of the pipe to be buried and smaller than the diameter of the front tip part such that the hole in the ground is drilled to a diameter larger than the outside diameter of the pipe, and at least a portion of the soil taken into the excavator is discharged outside of the excavator in a position to the rear of the tip part of the excavator.

5,211,511
SLURRY DISTRIBUTION SYSTEM USING REMOTE DISTRIBUTORS
Troy M. Deal, Jr., 277 Trismen Terr., Winter Park, Fla. 32789
Division of Ser. No. 642,653, Jan. 17, 1991, Pat. No. 5,167,469. This application May 26, 1992, Ser. No. 887,850
Int. Cl.[5] E02B *1/00*
U.S. Cl. 405—258 **7 Claims**

1. The method of distributing a dredged slurry over an area comprising the steps of:

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a) forming a pumpable mixture of water and solids at a dredge to define a slurry,
b) pumping said slurry under high pressure to a distributor,

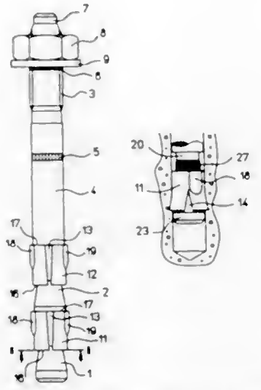


c) conveying said pressurized slurry from the distributor through a conduit to an aerial projector remote from the dredge and located and supported on the area, and
d) translating said aerial projector over the area to aerially distribute the slurry over the area.

5,211,512
EXPANSION ANCHOR

Albert Frischmann, Kenzingen; Paul Steurer, Teningen; Rudolf Schnabl, Herbolzheim; Manfred Rinklake, Emmendingen, and Kurt Mermi, Teningen, all of Fed. Rep. of Germany, assignors to Upat GmbH & Co., Emmendingen, Fed. Rep. of Germany

Filed May 26, 1992, Ser. No. 888,557
Claims priority, application Fed. Rep. of Germany, May 27, 1991, 4117238
Int. Cl.[5] F16B *13/06*
U.S. Cl. 405—259.4 **13 Claims**

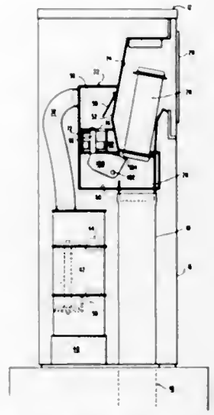


1. An expansion anchor for insertion into a cylindrical hole of a mounting substrate, the anchor comprising:
an anchor bolt having an insertion end and a threaded mounting end;
an anchoring part disposed on said insertion end, said anchoring part including at least one expansion cone radially flaring toward said insertion end and defining a larger diameter portion and a smaller diameter portion, a cylindrical coating zone disposed about said larger diameter portion, and a cylindrical neck section defining a shoulder disposed about said smaller diameter portion;
an expansion element coordinated with said expansion cone and having the shape of an axially fully slotted sleeve type expansion ring and having an insertion end and an outer end;
a plurality of radial projections protruding beyond an outer shell of said expansion ring and distributed along the expansion ring circumference, an inside diameter of said projections being smaller than the largest cone diameter and larger than a diameter of said neck section, while an outside diameter of said projections at least equals the largest diameter of said anchor bolt, said projections fashioned as outwardly arched beads axially extending from said outer end to approximately a center of said expansion ring; and
a plurality of incisions disposed in said expansion ring, said plurality of incisions axially extending from said insertion end to approximately a center of said expansion ring.

5,211,513
APPARATUS FOR SELECTIVELY SUPPORTING AND RELEASING A CARRIER IN A PNEUMATIC TUBE TRANSPORTATION SYSTEM

Lowell L. Scott, Burlington, Ky., assignor to Hamilton Air Products, Fairfield, Ohio

Continuation-in-part of Ser. No. 681,923, Apr. 8, 1991, Pat. No. 5,147,154. This application Feb. 14, 1992, Ser. No. 835,899
Int. Cl.[5] B65G *51/04*
U.S. Cl. 406—112 **20 Claims**

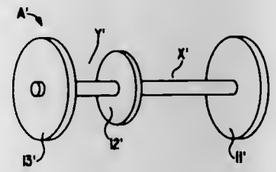


1. Apparatus for selectively supporting a carrier within a pneumatic tube station and releasing the carrier for transport through a tube network from the station, said apparatus comprising:
an interior mounting adapted to be disposed within the pneumatic tube station;
a detent member having a first portion, a second portion, and a third portion, said third portion pivotably mounting said detent member to said interior mounting;
means having elasticity for biasing said detent member towards a first position wherein said first portion thereof contacts the carrier to support the carrier within the station; and
release means for engaging said second portion of said detent member and urging said detent member against the biasing by said biasing means in response to air pressure, whereby said detent member pivots to move said first portion thereof out of contact with the carrier to release the carrier.

5,211,514
TRANSPORT PLUG FOR USE IN PNEUMATICALLY TRANSPORTING SOLID MATERIALS AND A PNEUMATIC TRANSPORT METHOD EMPLOYING THE TRANSPORT PLUG

Kiyoshi Morimoto; Teiichi Miwa; Shinzo Ishii, all of Mishima, and Murata Kazuo, Ikoma, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo and Kabushikikaisha Matsui Seisakusho, Osaka, both of Japan

Filed Nov. 13, 1991, Ser. No. 791,974
Claims priority, application Japan, Nov. 13, 1990, 2-308004
Int. Cl.[5] B65G *51/06*
U.S. Cl. 406—186 **4 Claims**

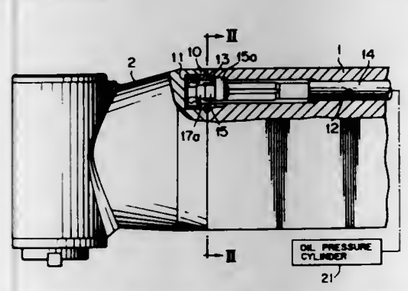


1. A transported plug for pneumatically transporting solid materials in a transport pipe by the use of a pressurized transport gas, comprising:
a front body and a rear body, said front and rear bodies spaced apart and defining a space for storing solid materials therebetween;
at least one supplementary body connected to said rear body, a supplementary material storing space being defined between said at least one supplementary body and said rear body, said supplementary material storing space being smaller than said storing space and being for solid materials which have fallen out of said storing space; and
a connecting bar coupling together said three bodies, said connecting bar being made of a flexible material.

5,211,515
AUTOMATIC MOUNTING AND DISMOUNTING APPARATUS OF ATTACHMENTS

Katsumi Hirabayashi, Shizuoka, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 9, 1992, Ser. No. 848,392
Claims priority, application Japan, Mar. 11, 1991, 3-21309
Int. Cl.[5] B23C *1/02*
U.S. Cl. 409—230 **1 Claim**

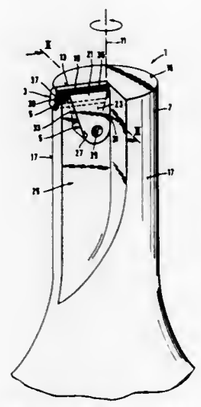


1. An automatic mounting and dismounting apparatus for mounting an attachment onto a spindle hear or ram of a machine tool comprising:
(a) the attachment including a plurality of stepped openings at an end surface of said attachment;
(b) a means for defining a plurality of through openings, the through openings corresponding to the plurality of stepped openings;
(c) a collet, radially expandable and shrinkable, inserted in each of said through openings the collet being axially movable with respect to the through openings and being provided with a plurality of circumferentially spaced slits;
(d) a means for axially moving said collet;
(e) a stationary guide member positioned near the entrance of each of the through openings, the stationary guide member including a ring-shaped stationary guide and a guide pin, the guide pin having an expanded guide head at a front end thereof, the guide pin being inserted into said ring-shaped stationary guide, the ring-shaped stationary guide having a plurality of radial vanes which penetrate freely through the slits of the collet; and
(f) a resilient supporting means for resiliently supporting the guide pin, the resilient supporting means being between an outer periphery of the guide pin and an inner periphery of the stationary guide member.

5,211,516
CUTTING TOOL

Dieter Kress, Aalen, and Friedrich Häberle, Lauchheim, both, Fed. Rep. of Germany, assignors to MAPAL Fabrik fur Prazisionswerkzeuge Dr. Kress KG, Aalen, Fed. Rep. of Germany

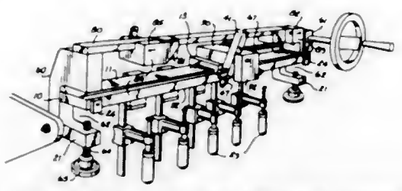
Filed Oct. 22, 1991, Ser. No. 780,250
Claims priority, application Fed. Rep. of Germany, Oct. 29, 1990, 4034345
Int. Cl.[5] B23B *29/08, 51/00*
U.S. Cl. 408—231 **18 Claims**



1. A cutting tool for expanding boreholes, comprising:
a cutter head;
at least one knife plate having a front surface and a longitudinal axis;
at least one clamping shoe for clamping the knife plate into a recess provided in the cutter head;
at least two grooves on the front surface of the knife plate, wherein said grooves extend essentially parallel with respect to the longitudinal axis of the knife plate;
a contact surface on said clamping shoe, wherein said surface faces the front surface of the knife plate; and
projections on the contact surface of the clamping shoe engaging in the grooves of the front surface of the knife plate forming a positively locked connection between the knife plate and the clamping shoe.

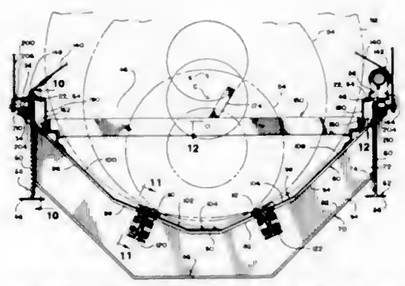
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5,211,517
MACHINE FOR MAKING MICROGROOVES IN SNOW SKIS
Edbert E. L. Dittmar, 1290 NW. Mall St., Issaquah, Wash. 98027
Continuation-in-part of Ser. No. 447,040, Dec. 7, 1989, abandoned. This application Jun. 24, 1991, Ser. No. 719,482
Int. Cl.[5] B23D *1/26*
U.S. Cl. 409—296 4 Claims



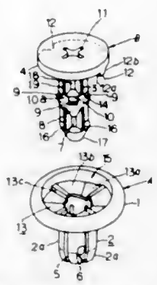
1. A machine for cutting metal inserts characteristically found on the undersurface of snow skis at their outer edges, comprising a platten having a flat underside against which a ski may be flattened so that a ski insert to be cut may be positioned to extend slightly beyond the platten,
clamping means for mounting a ski to the platten,
a slide means on the platten,
a cutting tool holder slidably attached to the slide means,
a plurality of flattening clamps spaced apart along the platten undersurface for flattening a ski against said platten undersurface,
a cutting tool mounted to the tool holder and extending below the platten undersurface for cutting a groove of approximate uniform depth in the flattened ski mounted on the platten undersurface when the tool holder traverses the platten on the slide means.

5,211,518
MOTOR VEHICLE TRAILER FOR HAULING STEEL COILS
Ognjen Mimica, Homewood, Ill., assignor to QCX Partners, Inc., Flossmoor, Ill.
Filed May 24, 1991, Ser. No. 705,550
Int. Cl.[5] B60P *7/12*
U.S. Cl. 410—50 19 Claims



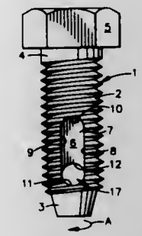
1. Vehicular trailer apparatus for carrying articles, comprising:
a platform having a pair of laterally opposed sides, front and rear end portions and opposed upper and lower surfaces extending between the sides and the front and rear end portions;
sidewalls downwardly depending from the platform sides to form outside corners at the upper surface of the platform, at a joinder of the sidewalls and platform sides;
said platform including at least one interior edge forming an internal recess in said platform;
a plurality of cradle shaped hangers extending between and attached to said sidewalls, below said platform and including a pair of laterally opposed, upwardly facing support surfaces inclined toward one another and located below said platform recess;
forward and rearward endwalls downwardly extending from said platform;
a pair of elongated support beams supported by each said hanger and having forward and rearward ends supported by said forward and rearward endwalls, said elongated support beams including laterally spaced apart, upwardly facing support surfaces for supporting said articles; and
said support beams and said platform interior edges forming a pocket for receiving said articles to be carried by said vehicular trailer apparatus.

5,211,519
PLASTIC GROMMET
Kazuo Saito, Yokohama, Japan, assignor to Nifco, Inc., Yokohama, Japan
Filed Mar. 3, 1992, Ser. No. 845,043
Claims priority, application Japan, Mar. 11, 1991, 3-020934[U]
Int. Cl.[5] F16B *13/06*
U.S. Cl. 411—45 2 Claims



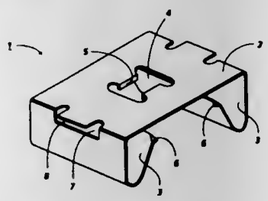
1. A grommet comprising a female member made of synthetic resin which includes a cylindrical body having a top with a collar that extends outwardly, plural slits extending from a lower end of the cylindrical body toward the collar, plural elastic stoppers defined by said slits and a catch provided at a lower end of said elastic stoppers and facing inwardly, and
a male member made of synthetic resin which includes a head, a leg extending integrally from the head, sectioned dents provided in said leg into which each said catch of the elastic stoppers is adapted to be engaged and an inclined portion that extends outwardly from each said dent toward the head and to a peripheral surface of the leg,
the grommet being characterized in that the leg has an enlarged diameter portion located above the inclined portions which is a circle in section and is provided with lateral engagement faces opposing said head and each having an arcuate outer edge formed by a peripheral surface of the enlarged diameter portion and a linear inner edge formed by a flat surface of the larger diameter portion which is parallel to an axial center line of said leg, whereby the catches on the elastic stoppers of the female member are deflected outwardly by the inclined portions of the male member when the male and female member are assembled and are held stopped by said engagement faces.

5,211,520
SELF-THREADING FASTENER
Blake McKinney, 306 Washington St., Marietta, Ohio 45750
Filed Jul. 2, 1992, Ser. No. 907,822
Int. Cl.[5] F16B *35/04, 39/34*
U.S. Cl. 411—418 6 Claims



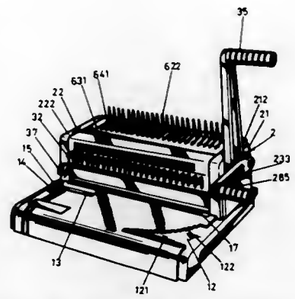
1. A fastener for recutting damaged or stripped metal threads of a previously threaded bore, said fastener comprising a threaded shank, said shank threads having the same pitch and being slightly deeper than said damaged bore threads, said shank terminating at one end in a head portion and at its other end in a frustro-conical lead-in portion, said shank having an elongated cavity formed therein and extending from the first of said shank threads adjacent said lead-in portion toward said head portion, said cavity having an edge portion comprising a thread cutting edge, said cavity being so configured as to comprise a collecting, retaining and compacting recess for metal cuttings formed by said cutting edge and from which said cuttings cannot escape.

5,211,521
DEVICE FOR USE IN LOCATING/SECURING REMOVABLE COMPONENTS
Robert A. Page, Barton-Le-Cley, United Kingdom, assignor to Xerox Corporation, Stamford, Conn.
Filed Sep. 9, 1992, Ser. No. 942,252
Claims priority, application United Kingdom, Sep. 11, 1991, 9119482
Int. Cl.[5] F16B *19/00, 37/04*
U.S. Cl. 411—508 11 Claims



1. A mounting assembly comprising:
a first member defining an aperture;
a second member; and
means for adjustably locating and securing said first member to said second member in an adjusted position, said locating and securing means extending into the aperture of said first member and gripping said first member so as to enable said first member to be removed from said second member and subsequently re-secured thereto in substantially the adjusted position without additional adjustment.

5,211,522
PUNCHING AND BINDING MACHINE
Jackson Ho, 2nd Fl., No. 5-1, Lane 163, Hsin I Road, Panchiao, Taiwan
Filed May 26, 1992, Ser. No. 888,053
Int. Cl.[5] B42B *9/00*
U.S. Cl. 412—16 6 Claims



1. A punching and binding machine comprising:
a base having a back section, a stepped seat with a plurality of ring number indications and steps formed on a right front portion thereof, a slot formed at a left side thereof, a positioner movably fixed to a screw rod, a plurality of punching marks and a paper dust collecting drawer;
an operation mechanism removably fixed to the back section of said base, said operation mechanism including a right fixing block and a left fixing block, each of said fixing blocks comprising a fixing board and an outer casing;
a punching unit including a horizontal seat provided with a plurality of passing holes each of which is adapted to receive a puncher control rod inserted horizontally therein, a positioning spring plate located beneath each puncher control rod, a puncher installed below a front end of each puncher control rod for controlling the number of punchers in operation, each of said punchers being arranged vertically on a lower block beneath the horizontal seat and being connected to the horizontal seat by means of a pin so that each puncher can be displaced toward the lower block in response to movement of the horizontal seat, said horizontal seat having a bent lower front end defining a movable upper clamp element, said lower block having a bent front side defining a fixed lower clamp element which is adapted to be engaged by the lower front end of the movable upper clamp element upon upward and downward movement of the horizontal seat, said horizontal seat being mounted within a guide slot formed in each of said fixing boards by a respective side projecting plate and by a feeding lever movably mounted outside the left fixing block which is connected to a gear at each side of a feeding rod, said feeding rod being engaged with a rack at each end of the horizontal seat in order to cause displacement of the horizontal seat downward by moving said feeding lever, and consequently shifting the puncher control rods downward to cause the respective punchers to punch papers placed below the lower block, said punchers are then returned to their original positions under the force of a spring positioned at each side of the horizontal seat; and
a binding unit including a plurality of shifting rods carried by a fixing seat, a lower board, a pushing board upon which said fixing seat is mounted and an upper board, said upper and lower boards being fixed to the left and right fixing blocks of the operation mechanism respectively, said binding unit being driven by eccentric cams each of which is carried by the operation mechanism and is formed with a guide slot for receiving a respective end of a guide rod secured to said pushing board such that rotation of said

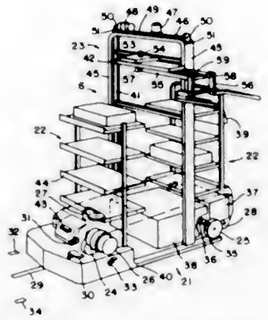
VOL 1150 ISS 3 MY 18 1993 UMI

cams causes shifting of said pushing board and displacement of said fixing seat and shifting rods.

5,211,523
ASSEMBLY FOR PROGRAMMED CONTROLLED HANDLING AND TRANSPORTING OF BOXES, CONTAINERS OR THE LIKE

Mario Andrada Galan; Fernando Diaz Zorita, and Juan Carlos Cristos, all of Madrid, Spain, assignors to Investronica, S.A., Madrid, Spain

Filed Jan. 30, 1991, Ser. No. 648,163
Claims priority, application Japan, May 22, 1990, 2-132427
Int. Cl.[5] B65G *1/06*
U.S. Cl. 414—282 **6 Claims**



1. An assembly for programmed, controlled handling of articles in a work place having a floor comprising a host computer, a set of autoguided and robotized vehicles, a plurality of article receiving stations located on the floor of the work place including work stations and storage areas, and a communication system means for communicating between the host computer, the vehicles, and the article receiving stations;

an external article support means located at each article receiving station, each external article support means having a substantially flat and horizontal article support surface;

an on board article support means mounted on each vehicle, each on board article support means having a substantially flat and horizontal article support surface, each vehicle having a right and a left lateral side, and each vehicle having mounted thereon an on board computer for communication with the host computer;

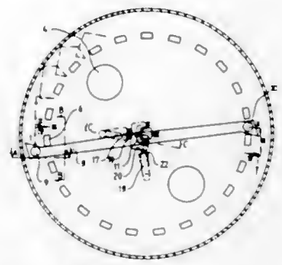
manipulator means mounted on each vehicle for grasping an article positioned on the on board article support means, for transporting the grasped article to an article receiving station adjacent the vehicle, and for releasing the grasped article on the external article support means of the adjacent article receiving station, and vice versa, said article receiving station being adjacent either lateral side of said vehicle, wherein the flat and horizontal article support surface of the article receiving station adjacent the vehicle is at a different height from the floor of the work place than the flat and horizontal article support surface of the on board article support means of the vehicle;

at least one article receiving station being a work station having a receiving area for receiving an article from said manipulator means mounted on the vehicle, first means for communicating with the host computer mounted on said work station and for detecting an article deposited on said receiving area, a work area positioned in said work station adjacent said receiving area, second means for communicating with said host computer mounted on said work station and for detecting an article in the work area, an output area positioned in said work station adjacent said work area, third means for communicating with said host computer mounted on said work station and for detecting an article in the output area, said third means including means for reading an identification code affixed to an article.

5,211,524
DISCHARGE APPARATUS FOR A SILO

Ossi Kilpelainen, Savonlinna, Finland, assignor to Kone Wood Oy, Hollola, Finland

PCT No. PCT/FI90/00165, § 371 Date Dec. 23, 1991, § 102(e) Date Dec. 23, 1991, PCT Pub. No. WO90/15769, PCT Pub. Date Dec. 27, 1990
PCT Filed Jun. 21, 1990, Ser. No. 778,145
Claims priority, application Finland, Jun. 22, 1989, FI893063
Int. Cl.[5] B65G *65/48*
U.S. Cl. 414—306 **16 Claims**



1. An apparatus for discharging fine material from a silo having a cylindrical wall (2) and a bottom (3) with a discharge aperture (4), comprising:

(a) a discharge arm (8) having two opposed ends, said arm being displaceable over the bottom of the silo, to transfer fine material to a vicinity of said discharge aperture;

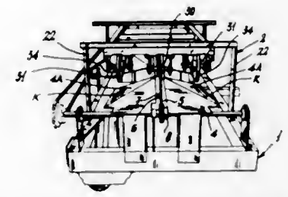
(b) means for rotating said discharge arm about a central connection thereof; and

(c) first and second actuating means (17, 18) acting on the central connection in substantially perpendicular directions, for moving said central connection along a generally rectangular trajectory.

5,211,525
DEVICE FOR UNBINDING SACKS BOUND INTO PACKS

Mario Moltrasio, Via Ruvigliana, 12, Viganello, Switzerland

Filed May 24, 1991, Ser. No. 705,394
Claims priority, application Italy, Jun. 8, 1990, 2931 A/90
Int. Cl.[5] B65B *69/00*
U.S. Cl. 414—412 **11 Claims**



1. A device for unbinding sacks bound into packs, comprising

a profiled resting surface having a center and a periphery, said surface descending in a downward direction from said center to said periphery, said surface including a longitudinal gap,

an endless central conveyor extending through said longitudinal gap in said surface, said central conveyor arranged to convey packs comprising bound sacks such that said central conveyor contacts lower faces of the packs,

conveying means positioned on both sides of said central conveyor, said conveying means arranged to contact upper faces of the packs, the packs contacting said surface and being deformed such that upon leaving said surface, a binding or bindings on the packs separate from the lower faces of the packs,

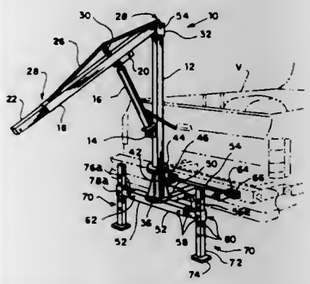
a cutting tool for cutting the binding or bindings from the packs, said cutting tool arranged downstream from said surface, and

removal means located downstream from said cutting tool for removing the binding or bindings from the packs after the binding or bindings have been cut by said cutting tool.

5,211,526
MOBILE CRANE

Larry Robinette, 15 Santuck St., Greenville, S.C. 29611

Filed Feb. 28, 1992, Ser. No. 843,182
Int. Cl.[5] B60P *1/54*
U.S. Cl. 414—550 **6 Claims**



1. A crane having a rotatable boom arm and selective mounting means, said crane comprising:

a rotatable boom arm supported atop said crane, said boom arm pivoting selectively about any horizontal axis;

a vertical central column supporting said boom arm and having a first flange projecting radially therefrom and a lower extension extending below said first flange, said lower extension being round in cross section and having a diameter;

a receptacle including an upwardly oriented socket being round in cross section and having a bottom wall and a diameter just greater than said lower extension diameter, said socket cooperating with said column lower extension, wherein said column is rotatably retained within said receptacle;

said receptacle further comprising,

a second flange projecting radially therefrom and being axially aligned with said socket and said first flange, and washer means conforming to a shape of said first flange and being faced with polytetrafluoroethylene, said washer means also including a central opening therein, thereby enabling penetration of said column lower extension therethrough, said washer means lying between said first and second flanges, wherein said column is constrained against downward motion into said socket upon abutment of said washer means with said first and second flanges,

at least one shorter horizontal projection and at least two longer horizontal projections secured to said receptacle and projecting radially therefrom, said longer and shorter projections having cross sectional configuration other than round, said shorter and longer horizontal projections including means defining a hole therethrough, wherein a telescoping member cooperating with said horizontal projections in telescoping fashion is constrained against axial relative rotation therewith and further is releasably secured to said projections by projection hand pins;

said selective mounting means further comprising one member for selectively attaching, steadying, and supporting said crane, telescoping over at least one of said shorter and longer horizontal projections and being secured thereto by additional hand pins, and being attachable, in turn, to anchoring means selectively resting upon an environmental surface and attachable to an environmental surface and to a vehicle chassis;

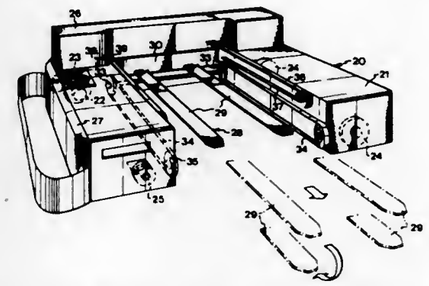
said receptacle substantially surrounding said column lower extension, wherein said column is supported and maintained in upright orientation by said receptacle, and

said column and boom arm being rotatable through 360 degrees of rotation, wherein said crane can lift a load in a first location and lower the load in a second location.

5,211,527
LOAD-HANDLING DEVICE

John B. B. Ahlsén, Angered, and Kurt J. Dahlström, Partille, both of Sweden, assignors to Lift and Go Products Aktiebolag, Angered, Sweden

Filed Sep. 3, 1991, Ser. No. 752,352
Claims priority, application Sweden, Sep. 4, 1990, 9002824; Feb. 13, 1991, 9100442
Int. Cl.[5] B66F *9/12*
U.S. Cl. 414—664 **20 Claims**



1. A load-handling device comprising a carriage (21) adapted for movement on a floor, and a load-handling assembly arranged on said carriage and including a cam track, a driving mechanism and a load-engaging member (29) which is driven by said driving mechanism and is vertically movable as well as extendable and retractable relative to said carriage, said driving mechanism of said load-handling assembly comprising a first endless driving element (34) which is adapted for movement along a path between spaced-apart guides (33, 35) and a driving member for driving said driving element, said load-engaging member (29) of said load-handling assembly including a first and a second arm designed as a double-armed lever (29, 30, 39) with a fulcrum (40) that is rotatably connected to the first endless driving element (34) so as to follow the movement thereof, and said first arm (29) constitutes at least a portion of the load-engaging member (29), and said second arm (30) has a cam follower member (38) which, for the purpose of absorbing torque, is arranged to cooperate with and abut against said cam track (36, 37) included in the load-handling assembly.

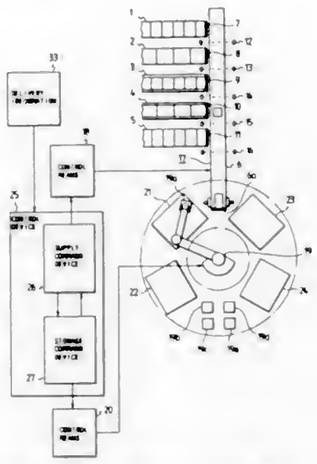
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5,211,528

INDUSTRIAL ROBOT APPARATUS

Hisao Kato, Aichi, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 570,810, Aug. 22, 1990, abandoned.
This application Jan. 15, 1992, Ser. No. 821,133
Claims priority, application Japan, Aug. 31, 1989, 1-225823; Jan. 10, 1990, 2-2864
Int. Cl.[5] B65G *1/18*
U.S. Cl. 414—789.6 7 Claims



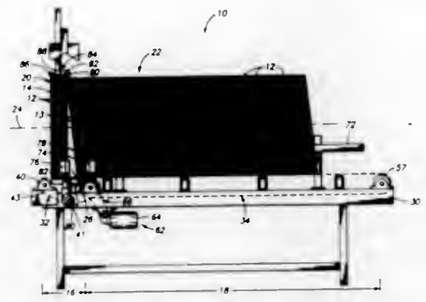
1. An industrial robot apparatus comprising:
a plurality of storage means for storing different kinds of workpieces, each of the storage means storing one of the different kinds of workpieces;
a plurality of pallets on which workpieces are to be stowed;
conveying means for conveying the workpieces of at least two of the storage means;
supply command means operated responsive to an information program that instructs a predetermined number of each kind of workpiece be supplied from each of the storage means, the predetermined number of each kind of workpiece being supplied together during a specified period of the program;
robot means for stowing workpieces on the pallets and having a movable hand, a plurality of separate interchangeable hand attachments disposed in the vicinity of the robot means, each hand attachment corresponding to one of the different kinds of workpieces so that the robot means has the capability of holding each of the different kinds of workpieces when the corresponding hand attachment is mounted on the robot means, transferring the workpieces by the movable hand, and stowing them on any one of the pallets; and
stowage command means operated responsive to the information program that directs the robot means during a specified period of the program to mount a selected one of the hand attachments corresponding to the kind of workpiece being supplied during the specified period, to transfer the predetermined number of workpieces supplied together during that period using the selected hand attachment from the conveying means, and to divide them among the plurality of pallets,
whereby each pallet is stowed with a mix of different kinds of workpieces, all the workpieces of each kind being supplied together to the robot means and divided among the pallets as directed by the information program.

5,211,529

HORIZONTAL STAGING HOPPER

David A. Esala, Alexandria, Minn., and Michael J. Johnson, Spokane, Wash., assignors to R. A. Pearson Company, Spokane, Wash.

Filed Mar. 27, 1992, Ser. No. 859,026
Int. Cl.[5] B65G *57/01*
U.S. Cl. 414—795.8 13 Claims



1. A staging hopper for packaging blanks, comprising:
a first longitudinal conveyor engaging a plurality of transverse blanks across their lower edges within a primary group of upright blanks having a lead blank available for discharge at a blank delivery position;
a second longitudinal conveyor leading to the first conveyor and engaging a plurality of transverse blanks across their lower edges within a secondary group of upright blanks, the top edges of the forward blanks in the secondary group of blanks resting at an angle against the primary group of blanks;
first drive means for periodically moving the first conveyor as part of a blank delivery cycle in which a lead blank is discharged from the primary group of blanks, the first conveyor being moved under the primary group of blanks at a linear speed overrunning the rate of discharge of lead blanks at the blank delivery position to advance individual blanks in the primary group successively to the blank delivery position and to longitudinally transfer forward blanks in the secondary group to the primary group;
second drive means operably connected to drive the second conveyor for selectively transferring forward blanks of the secondary group onto the first conveyor; and
sensor means directed across a predetermined longitudinal gap separating the lower edges of blanks in the primary and secondary groups at an elevational location above the first conveyor for intermittently operating the second drive means in response to the absence of blanks within the gap.

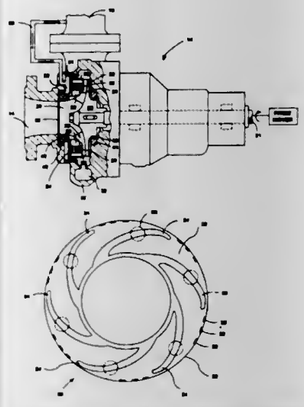
5,211,530

VARIABLE BREADTH IMPELLER THAT PROVIDES A SPECIFIC SHUTOFF HEAD

Mark E. Shiffler, Annapolis, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 20, 1992, Ser. No. 870,870
Int. Cl.[5] F04D *15/00, 29/28*
U.S. Cl. 415—48 8 Claims

5. In a variable capacity centrifugal pump, a variable breadth impeller unit that provides a specific shutoff head comprising:
an impeller element adapted to be rotationally mounted within the variable capacity centrifugal pump, said impeller element having a plurality of radially extending impeller vanes projecting axially therefrom and defining flow passages therebetween, at least one axial inlet in flow communication with said flow passages, at least one radial outlet in flow communication with said flow passages whereby flow is channeled under the effects of said rotating impeller element from said axial inlet through said flow passages to said radial outlet;
a substantially solid annular movable shroud adapted to be rotationally mounted coaxially with said impeller element;
said movable shroud including first and second surfaces disposed axially from one another in a plane substantially orthogonal to the axis of rotation of said impeller element, said first surface having a plurality of grooves formed therein for receiving said vanes of said impeller element in a meshing relationship;
said movable shroud adapted for continuous axial movement between a fully open position defining a constant pressure maximum flow rate operating condition and a fully closed



position defining a constant pressure minimum flow rate operating condition whereby the volume of said flow passages is varied; and
said movable shroud further including a third surface orthogonally disposed between said first and second surfaces and defining an outer radial perimeter of said movable shroud, said third surface having a plurality of recessed grooves formed therein, said recessed grooves extending axially over a portion of said third surface between said first and second surfaces wherein said recessed grooves act as a supplemental pumping means for energizing the flow within the variable capacity centrifugal pump during operation between the constant pressure minimum flow rate condition and the shutoff condition of the variable capacity centrifugal pump whereby said specific shutoff head is achieved.

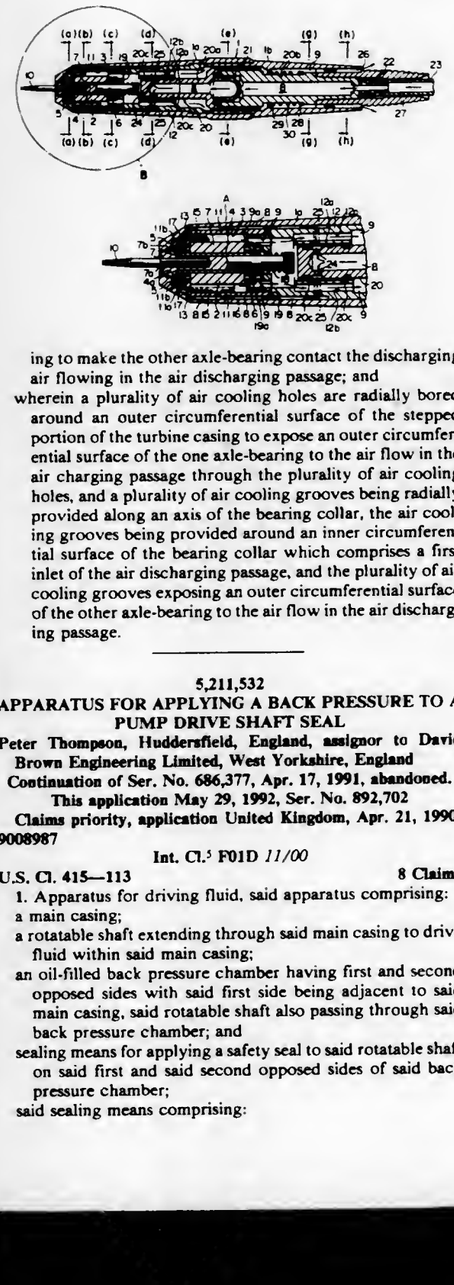
5,211,531

AIR MOTOR

Yasuo Kakimoto, Aichi, Japan, assignor to Ushio Co., Ltd., Nagoya, Japan

Filed Dec. 26, 1991, Ser. No. 813,607
Claims priority, application Japan, Sep. 17, 1991, 3-236264
Int. Cl.[5] F01D *11/00;* F03B *13/04*
U.S. Cl. 415—112 4 Claims

1. An air motor including a turbine housed within an air motor body by supporting both ends of a turbine shaft with axle-bearings, an air charging passage longitudinally provided within the air motor body to introduce compressed air from the rear end of the air motor body for jetting the compressed air into a turbine chamber, and an air discharging passage provided therein in parallel with the air charging passage to discharge exhaust air from the turbine chamber, said air motor comprising:
one axle-bearing for supporting one end of the turbine shaft, the one axle-bearing being positioned to contact charging air flowing in the air charging passage;
an other axle-bearing for supporting the other end of the turbine shaft, the other axle-bearing being positioned to contact discharging air flowing in the air discharging passage;
wherein a turbine casing having the turbine chamber comprises one end being formed as a stepped portion having a smaller diameter than that of the turbine casing, and the other end thereof being formed as an opening, the one axle-bearing being fitted into the stepped portion to make the axle-bearing contact the charging air flowing in the air charging passage, and the other axle-bearing being fitted into a bearing collar which is screwed in the turbine casing to make the other axle-bearing contact the discharging air flowing in the air discharging passage; and
wherein a plurality of air cooling holes are radially bored around an outer circumferential surface of the stepped portion of the turbine casing to expose an outer circumferential surface of the one axle-bearing to the air flow in the air charging passage through the plurality of air cooling holes, and a plurality of air cooling grooves being radially provided along an axis of the bearing collar, the air cooling grooves being provided around an inner circumferential surface of the bearing collar which comprises a first inlet of the air discharging passage, and the plurality of air cooling grooves exposing an outer circumferential surface of the other axle-bearing to the air flow in the air discharging passage.



5,211,532

APPARATUS FOR APPLYING A BACK PRESSURE TO A PUMP DRIVE SHAFT SEAL

Peter Thompson, Huddersfield, England, assignor to David Brown Engineering Limited, West Yorkshire, England

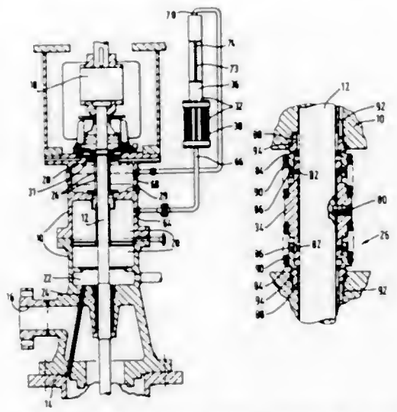
Continuation of Ser. No. 686,377, Apr. 17, 1991, abandoned.
This application May 29, 1992, Ser. No. 892,702
Claims priority, application United Kingdom, Apr. 21, 1990, 9008987
Int. Cl.[5] F01D *11/00*
U.S. Cl. 415—113 8 Claims

1. Apparatus for driving fluid, said apparatus comprising:
a main casing;
a rotatable shaft extending through said main casing to drive fluid within said main casing;
an oil-filled back pressure chamber having first and second opposed sides with said first side being adjacent to said main casing, said rotatable shaft also passing through said back pressure chamber; and
sealing means for applying a safety seal to said rotatable shaft on said first and said second opposed sides of said back pressure chamber;
said sealing means comprising:

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a double shaft seal providing a first seal between said rotatable shaft and said main casing and a second seal between said rotatable shaft and said second opposed side of said back pressure chamber; and

back pressure means for applying a back pressure to said back pressure chamber, said back pressure means comprising a piston slidable in a cylinder one end of which communicates with said main casing and the other end of which communicates with said oil-filled back pressure



chamber, said piston being urged towards said other end of said cylinder by spring means as well as by pressure of the fluid being driven;

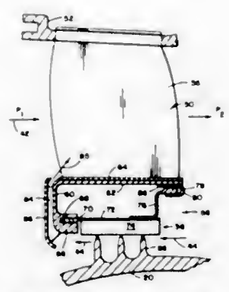
each of said first and second seals comprising a first sealing face extending in a plane normal to the rotational axis of said rotatable shaft and a second sealing face also extending in a plane normal to the rotational axis of said rotatable shaft, said first and second sealing faces being resiliently urged into sealing engagement.

5,211,533

FLOW DIVERTER FOR TURBOMACHINERY SEALS

Roger C. Walker, Middletown, and Christopher C. Glynn, Hamilton, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Oct. 30, 1991, Ser. No. 785,377
Int. Cl.[5] F04D *29/58*
U.S. Cl. 415—115 **8 Claims**



1. A system for directing leakage air, flowing from a high static pressure side to a lower static pressure side of a stator vane located in a compressor of a turbine engine, back into a primary working fluid flow path of the compressor in such a manner that the re-directed leakage air enters the primary working fluid flow path with an aftward component of velocity, said system comprising:

a) a stator vane;

b) a vane liner connected to the radially outer extreme of said stator vane;

c) a shroud member connected to the radially inner extreme of said stator vane;

d) a stationary seal assembly connected to the radially inner extreme of said shroud member;

e) a rotatable sealing means located radially inward from said stationary seal assembly, a leakage flow path being formed at the interface between said rotatable sealing means and said seal assembly; and

f) a flow diverter connected to a leading edge of said shroud member and having a channel for capturing the leakage air which exits the rotatable sealing means and for directing the leakage air back into the primary working fluid flow path with an aftward component of velocity, said channel in direct fluid communication with said primary working fluid flow path.

7. A method for improving efficiency of a gas turbine engine by control of leakage airflow, the leakage airflow flowing from a high static pressure side located to the aft of a stator vane assembly in the engine to a lower static pressure side located to the front of the stator vane assembly, the stator vane assembly being located radially outward of a rotating member and a leakage airflow path being defined between the rotating member and the stator vane assembly, the turbine engine including a flow diverter coupled to a leading edge of the stator vane assembly, said flow diverting having a radially inner edge, the turbine engine having a primary airflow path which flows in an aftward direction, said method comprising the steps of:

a) positioning the radially inner edge of the flow diverter radially inward of the leakage air path on the lower static pressure side of the stator vane assembly;

b) intercepting the leakage air flowing from the higher static pressure side to the lower static pressure side of the stator vane assembly, wherein said step of intercepting is accomplished with the flow diverter; and

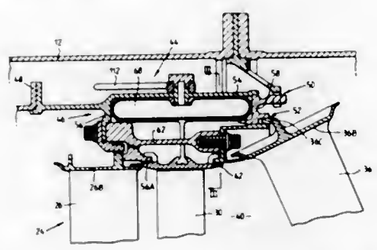
c) re-directing the intercepted leakage air into the primary airflow path with a generally aftward direction of flow.

5,211,534

BLADE TIP CLEARANCE CONTROL APPARATUS

Ronald Catlow, Derby, England, assignor to Rolls-Royce plc, London, England

Filed Dec. 24, 1991, Ser. No. 813,084
Claims priority, application United Kingdom, Feb. 23, 1991, 9103809
Int. Cl.[5] F01D *11/08*
U.S. Cl. 415—173.002 **12 Claims**



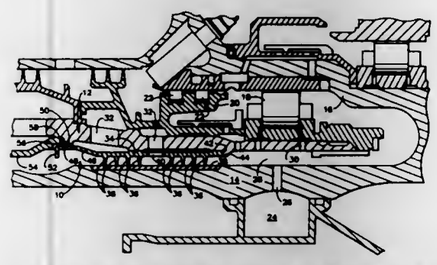
1. A gas turbine engine blade tip clearance control apparatus comprising a plurality of circumferentially arranged spaced wall members located adjacent a rotor path of a plurality of blades of the engine, at least one pressure tube for moving each wall member from a first radial stop to a second radial stop, the at least one pressure tube having a plurality of chordal lengths to which the wall members are operationally attached, the chordal lengths being preloaded to hold the wall members against the first radial stop, the pressure tube being pressurizable to deflect the chordal length and move the wall member against the second radial stop.

5,211,535

LABYRINTH SEALS FOR GAS TURBINE ENGINE

Jeffrey C. Martin, Cincinnati, and Robert J. Meade, West Chester, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 30, 1991, Ser. No. 814,161
Int. Cl.[5] F03B *11/00*
U.S. Cl. 415—170.1 **12 Claims**



1. In a gas turbine engine of a type having an outer rotating shaft, an inner rotating shaft substantially concentric with said outer shaft, the improvement comprising:

a sleeve, attached to said outer shaft and having a plurality of radially-inwardly directed seal teeth projecting toward said inner shaft;

said sleeve including a plurality of spaced, forwardly-extending fingers; and

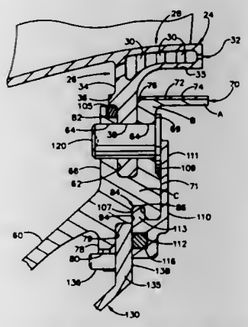
said outer shaft including a plurality of recesses shaped to receive said fingers in a locking engagement, whereby rotation of said sleeve relative to said outer shaft is prevented.

5,211,536

BOLTLESS TURBINE NOZZLE/STATIONARY SEAL MOUNTING

Robert I. Ackerman, Mason; Alan Walker, Wyoming, and Ronald E. Schlechtweg, Loveland, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed May 13, 1991, Ser. No. 699,060
Int. Cl.[5] F01D *25/08*
U.S. Cl. 415—177 **15 Claims**



1. A turbine nozzle and stationary seal mounting means comprising:

a nozzle segment having a nozzle inner band mounting flange;

a nozzle support for receiving said mounting flange, with a surface exposed to high pressure cooling air;

means for retaining said nozzle segment in said mounting support without the use of a threaded fastener;

a stationary seal affixed to said nozzle support;

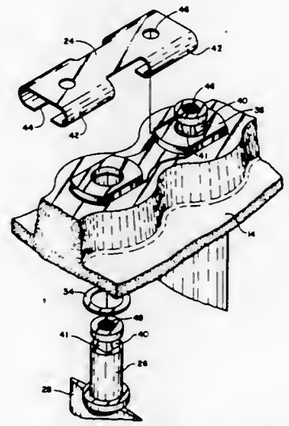
a circumferential retaining ring having one split engaging said nozzle support, said means for retaining said nozzle in said mounting support, and said stationary seal.

5,211,537

COMPRESSOR VANE LOCK

Todd A. Langston, Stuart; Kevin B. McDonnell, Tequesta, and Thomas J. McCarty, West Palm Beach, all of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Mar. 2, 1992, Ser. No. 847,608
Int. Cl.[5] F04D *29/54*
U.S. Cl. 415—209.2 **7 Claims**



1. A compressor arrangement with locked variable vanes comprising:

a compressor casing;

a plurality of valve stem openings in said casing, circumferentially spaced around said casing, and an inwardly facing vane abutment surface adjacent each opening;

a plurality of vanes, each vane comprising an airfoil, a vane stem fixedly secured thereto, and a casing abutment surface adjacent said vane stem;

said plurality of vanes circumferentially arranged in said openings with each vane abutment surface and a corresponding casing abutment surface in contact;

a pair of flat parallel circumferentially extending flats formed on the vane stem of each vane;

a radial threaded bolt opening in the end of each vane stem;

a vane lock connecting two adjacent vane stems and bolted to said bolt openings; and

said vane lock having a pair of resilient C-shaped lock arms at each end with one end of each arm in firm contact with one of said flats on said vane stem.

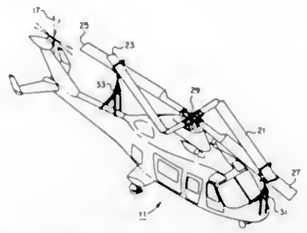
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,538

METHOD FOR FOLDING HELICOPTER MAIN ROTOR BLADES

Ajay Seghal, Bedford, and Bryan W. Marshall, Arlington, both of Tex., assignors to Bell Helicopter Textron Inc., Ft. Worth, Tex.

Filed Nov. 27, 1991, Ser. No. 800,578
Int. Cl.[5] B63H *11/00*
U.S. Cl. 416—1 8 Claims



1. A method of folding the main rotor blades for storage of a helicopter of a type having a main rotor assembly with a yoke and first, second, third and fourth blades, each blade foldably attached to the yoke by a means including a locking member, the helicopter having a fuselage with a nose section located before the main rotor assembly and a tail section located aft of the main rotor assembly, the method comprising the steps of:
removably attaching a forward blade support to the nose section of the fuselage;
removably attaching an aft blade support to the tail section of the fuselage;
rotating the main rotor assembly to a position in which the first and second blades are in substantially parallel alignment with a longitudinal axis running from the forward blade support to the aft blade support; then
placing the first and second blades on the forward and aft blade supports, respectively; then
releasing the locking members of the first and second blades to permit the yoke to rotate relative to the first and second blades; then
rotating the main rotor assembly while restraining from rotation the first and second blades in the forward and aft blade supports, respectively, to a position in which the third and fourth blades are in substantially parallel alignment with a longitudinal axis running from the forward blade support to the aft blade support; and then
placing the third and fourth blades on the forward and aft blade supports.

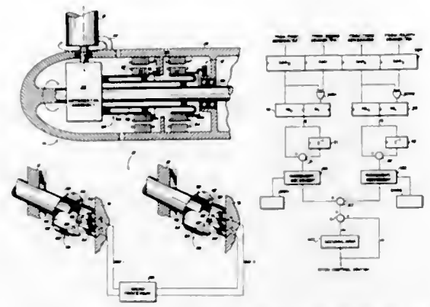
5,211,539

APPARATUS FOR INDICATING THE PITCH OF TURBOFAN BLADES

Frederick B. McCarty, San Pedro, Calif., assignor to Allied-Signal Inc., Morris Township, N.J.

Filed May 13, 1991, Ser. No. 699,398
Int. Cl.[5] F01D *1/24*
U.S. Cl. 416—61 15 Claims

1. Apparatus for indicating change in pitch of variable pitch blades, the pitch being changed in response to a relative displacement between at least two members, each member being movable with respect to a frame of reference, said apparatus comprising:
detecting means for providing signals indicating respective displacements of said members with respect to said frame of reference; and
processing means, responsive to said signals from said detecting means, for determining relative displacement between said members, said relative displacement being indicative of the change in blade pitch.



5,211,540

SHROUDED AEROFOILS

Neil M. Evans, Bristol, Great Britain, assignor to Rolls-Royce plc, London, England

Filed Dec. 11, 1991, Ser. No. 804,756
Claims priority, application United Kingdom, Dec. 20, 1990, 9027583
Int. Cl.[5] F01D *5/22*
U.S. Cl. 416—190 8 Claims



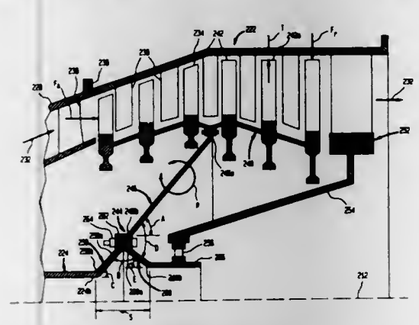
1. A shrouded aerofoil rotor assembly comprising:
an annular array of shrouded aerofoil segments each of which comprises at least two aerofoil blades which share a common radially outer circumferential shared shroud segment, the shared shroud segment having opposite ends in the circumferential direction which are formed with notches to interlockingly engage with notches formed in the correspondingly shaped ends of neighbouring shared shroud segments, each shared shroud segment comprising at least two shroud sections formed integrally with their respective aerofoil blades,
a shroud section is formed with at least one edge in a circumferential direction which on assembly lie adjacent edges of neighbouring shroud sections, and
a shared shroud segment is formed by welding together at least two adjacent shroud sections at said adjacent edges,
wherein during assembly of the rotor, each shared shroud segment is pre-twisted to urge abutting interlock faces to positively engage and the pre-twist load is sufficient to maintain positive engagement of the abutting interlock faces over the whole rotor operating speed.

5,211,541

TURBINE SUPPORT ASSEMBLY INCLUDING TURBINE HEAT SHIELD AND BOLT RETAINER ASSEMBLY

Steve R. Fledderjohn, Cincinnati; James C. Przytulski, Fairfield; Sidney B. Elston, III, Cincinnati; Alan R. Gilchrist, Fairfield, and Ambrose A. Hauser, Wyoming, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 812,476, Dec. 23, 1991. This application Feb. 25, 1992, Ser. No. 841,154
Int. Cl.[5] F01D *5/06*
U.S. Cl. 416—198 A 5 Claims



1. A turbine support assembly comprising:
a fan shaft having a forward end and an aft end;
a turbine rotor having a plurality of stages of rotor blades extending radially outwardly therefrom;
a support shaft including a frustrum having a base end fixedly joined to said turbine rotor, and a top end removably fixedly joined to said fan shaft aft end; and
said fan shaft aft end being configured with said support shaft in a radially extending V-configuration including first and second legs having top and bottom ends joined together at said top ends thereof to define an apex, said first and second legs being inclined axially apart at an apex angle therebetween so that said bottom ends thereof are axially spaced apart, at least said first leg forming an integral part of said fan shaft with said first leg bottom end being integral with said fan shaft, and said turbine rotor being supported by said support shaft and said second leg.

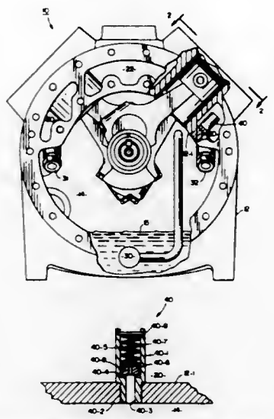
5,211,542

METHOD AND APPARATUS FOR OIL SUMP PRESSURE CONTROL

Bruce A. Fraser, Manlius, and Michael J. Dormer, Fablus, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 19, 1992, Ser. No. 962,542
Int. Cl.[5] F04B *47/08*
U.S. Cl. 417—53 3 Claims

2. An oil sump pressure control for a semi-hermetic low side compressor comprising:
a casing means defining an oil sump and a suction plenum; oil located in said oil sump;
a restricted fluid communication path between said oil sump and said suction plenum with said restricted path providing the only normal fluid communication between said oil sump and suction plenum at start up whereby pressure equalization between said oil sump and said suction plenum takes place at a controlled rate such that refrigerant in said oil sump also boils off at a controlled rate; and



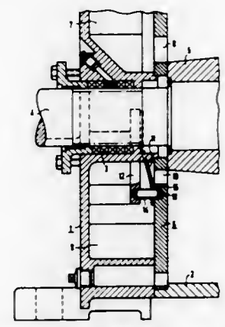
relief means for limiting a pressure differential between said oil sump and said suction plenum.

5,211,543

LIQUID-RING PUMP WITH PRESSURE CHAMBER VALVE PLATE

Robert Siebenwurst, Nürnberg, and Peter Trimborn, Feucht, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 9, 1992, Ser. No. 865,997
Claims priority, application Fed. Rep. of Germany, May 17, 1991, 9106151[U]
Int. Cl.[5] F04C *19/00*
U.S. Cl. 417—68 24 Claims



1. A liquid-ring pump having a chamber formed by the pump housing, rotatably accommodating an impeller, and closed off at least no one front end by a disk cam 6 and being covered by a side shield, said disk cam having at least one inlet slit and several output ports, and said side shield being configured on the pump housing, and forming a suction chamber between it and the disk cam such that the inlet slit provides an opening to the suction chamber and forming a pressure chamber such that the output ports provide an opening to the pressure chamber, at least one of the output ports being covered by at least one valve plate which can be moved away from the at least one of the output ports and be supported on a collector plate affixed to the housing,
wherein the collector plate is connected to the side shield,

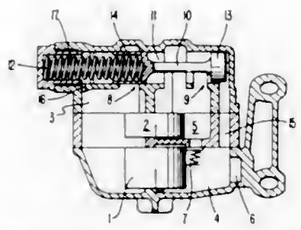
VOL 1150 ISS 3 MY 18 1993 UMI

and wherein guide elements arranged between the collector plate and the disk cam guide the valve plate via corresponding openings in the valve plate.

5,211,544
HYDRAULIC PUMP

Rolf Klumpp, Kernen; Claus-Peter Höptner, Uhingen, and Uwe Matena, Backnang, all of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Feb. 18, 1992, Ser. No. 836,510
Claims priority, application Fed. Rep. of Germany, Feb. 19, 1991, 4105030
Int. Cl.[5] F04B *49/00*
U.S. Cl. 417—286 4 Claims



1. A gear pump for delivery of lubricating oil into a lubricating oil circuit of an internal-combustion engine, comprising a multi-part pump casing, two gear pairs arranged next to one another in different parts of the casing connected to a common suction chamber, mutually separate pressure chambers arranged in the casing and constituting a first pressure chamber having a common pressure outlet and a first of the gear pairs connected to the first pressure chamber continuously delivering a partial quantity of a delivery fluid into a circuit, and a second pressure chamber associated with a second of the gear pairs and being operatively connected to the first pressure chamber via a pressure channel with a unidirectional valve configured to selectively open and close, and a shifter, guided in a bore of the casing and having a control valve with an actuating piston arranged and configured to be subjected to pressure of the delivery fluid from the first pressure chamber and displaceable against a spring force, and a second actuating piston arranged and configured such that a connection can be controlled between at least one of the first and second pressure chambers and the common suction chamber, and a damper chamber comprised by the bore and shifter connected to the common suction chamber via a throttle bore for controlling movements of the first and second actuating pistons wherein

(a) the first actuating piston is constantly acted upon by the pressure of the delivery fluid from the first pressure chamber,

(b) in the case of the pressure at the pressure outlet being below a first limiting value, the first and second pressure chambers are connected with one another via the unidirectional valve in an open state, while the connection between the first and second pressure chambers and the suction chambers is blocked by the shifter,

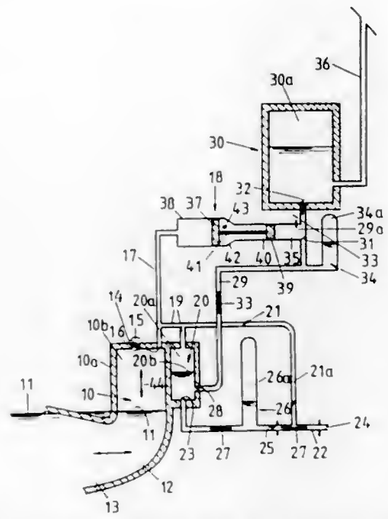
(c) when the first limiting value of the delivery pressure is reached, the unidirectional valve is moved to a closed state and the control valve takes up a position in which only the second pressure chamber is connected with the suction chamber, and

(d) when a second limiting value of the delivery pressure is reached, the control valve takes up a position in which the first actuating piston opens up a throttle connection between the first pressure chamber and the second pressure chamber, and the connection between the second pressure chamber and the suction chamber remains open.

5,211,545
ARRANGEMENT FOR FEEDING WATER INTO A RESERVOIR

Ola Stornes, 6630 Ungvoll, N-6630 Tingvoll, Norway

Filed Apr. 1, 1992, Ser. No. 861,611
Claims priority, application Norway, Apr. 11, 1991, 911405
Int. Cl.[5] F04B *35/02*
U.S. Cl. 417—330 8 Claims



1. An apparatus for feeding water into a reservior located above an ocean level, said apparatus comprising:

a first chamber having a downwardly opening housing for receiving a level of water which rises and falls in response to the waves of an ocean outside said chamber, said housing defining a first air cushion-forming portion above the level of water for compression and expansion of air therein in response to movement of said level of water;

a first work chamber adjacent said first chamber for receiving a level of water and having a second air cushion-forming portion at an upper end in communication with said first air cushion-forming portion;

a water intake conduit for feeding water from below into said work chamber;

a first back pressure valve between said intake conduit and said work chamber to prevent a backflow of water from said work chamber into said conduit;

a water lifting arrangement including a water guide pipe extending from said first work chamber to convey water therein in response to a rise of the water level in said first chamber and a first pair of back pressure valve in an upper end of said guide pipe to contain water therebetween;

a piston and cylinder arrangement between said first air cushion-forming portion and a space in said guide pipe between said pair of back pressure valves for forcing water in said space past an upper valve of said pair of valves in response to a rise of the water level in said first chamber;

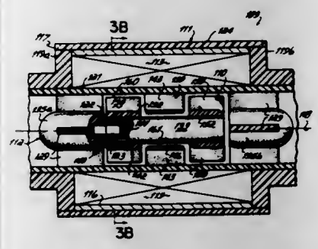
a first rising pipe connected to said water intake conduit to receive water therefrom and to said first air cushion-forming portion to receive air therefrom for building up added water pressure upstream of said first back pressure valve; and

a second pair of back pressure valves in said water intake conduit on opposite sides of said rising pipe.

5,211,546
AXIAL FLOW BLOOD PUMP WITH HYDRODYNAMICALLY SUSPENDED ROTOR

Milton S. Isaacson, Dayton, Ohio, and Anthony P. Lioi, Round Rock, Tex., assignors to Nu-Tech Industries, Inc., Dayton, Ohio

Continuation-in-part of Ser. No. 529,598, May 29, 1990, Pat. No. 5,112,200. This application May 11, 1992, Ser. No. 881,723
Int. Cl.[5] F04B *17/00*
U.S. Cl. 417—356 44 Claims



1. An axial flow blood pump for pumping blood through a patient's bloodstream comprising:

a cylindrical conduit adapted to be disposed in the bloodstream of the patient, the conduit having an internal surface defining a central axial passageway for blood passage therethrough, the passageway having an inner diameter;

a pump stator mounted within the conduit, the pump stator including axially displaced inlet and outlet sections;

a cylindrical motor stator located externally of the passageway through the conduit so as to be out of contact with the blood flowing therethrough, the motor stator having windings and a control circuit to create flux in the conduit between the inlet and outlet pump stator sections;

a rotor axially positioned in the conduit between the inlet and outlet stator sections, the rotor having an outer surface with an outer diameter less than said conduit inner diameter, thereby to define an annular radial gap between the rotor outer surface and the conduit internal surface when the rotor is radially centered in the conduit, the rotor further including,

a plurality of impeller blades,

at least one permanent magnet adapted to interact with said applied flux to rotate the rotor to produce axial blood flow through the passageway from the inlet stator section to the outlet stator section;

whereby, during rotor rotation, the rotor is suspended radially inside the conduit so as to float on the blood and this result is accomplished solely by a hydrodynamic effect created by the presence of said blood flowing within said annular radial gap.

5,211,547
FUEL PUMP AND FUEL SENDER ASSEMBLY

Robert D. Gaston, Dearborn Heights, and Earle F. Cox, Bloomfield Hills, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

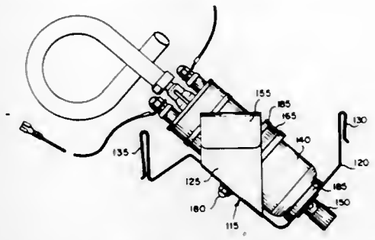
Filed Jun. 17, 1991, Ser. No. 716,580
Int. Cl.[5] F04B *17/00, 35/04;* A47G *1/10*
U.S. Cl. 417—360 22 Claims

1. A fuel tank assembly comprising:

a reservoir having means for mounting said reservoir to a bottom wall of a fuel tank;

a fuel pump unit mounted to said reservoir; and

a fuel sender unit mounted to said reservoir such that said fuel sender unit moves in direct relation to said bottom wall of said fuel tank to enable an accurate fuel level reading and such that said fuel pump unit and said fuel sender unit are separately removably mounted to said

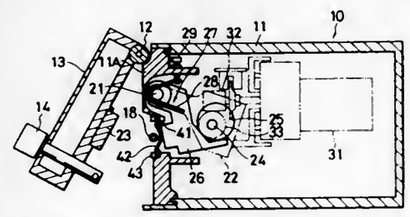


reservoir to enable separate removal of said fuel pump unit or said fuel sender unit from said fuel tank.

5,211,548
PERISTALTIC PUMP HAVING A MOTOR OVERLOAD PROTECTOR

Shigeru Okada, Fujinomoya, Japan, assignor to Terumo Kabushiki Kaisha, Japan

Continuation of Ser. No. 558,051, Jul. 25, 1990, abandoned. This application Apr. 10, 1992, Ser. No. 867,061
Claims priority, application Japan, Jul. 31, 1989, 1-196515; Jul. 31, 1989, 1-196516
Int. Cl.[5] F04B *43/12*
U.S. Cl. 417—474 3 Claims



1. A peristaltic pump comprising:

a motor means;

a plurality of eccentric cams;

a cam shaft connected to be driven by said motor means for carrying and driving said plurality of eccentric cams;

a plurality of fingers pivotally positioned along an axis of a pivot shaft, said plurality of fingers being pivotal about said axis of said pivot shaft and being adapted to be successively driven by said plurality of eccentric cams to pivot about said pivot shaft for pressing and collapsing a flexible tube in a given direction along said axis;

a platen arranged to oppose said plurality of fingers for suppressing a movement of said flexible tube in the given direction;

said plurality of fingers being urged to press said flexible tube by said plurality of eccentric cams and said cam shaft, said plurality of fingers respectively being pivotally mounted for pivotal movement toward and away from said platen; and

urging means positioned coaxially with said axle of said pivot shaft for urging said plurality of fingers toward said platen up to a predetermined position.

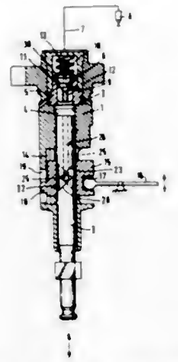
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,549

FUEL INJECTION PUMP

Manfred Kraemer, Schwieberdingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 10, 1992, Ser. No. 833,190
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1991, 4132502
Int. Cl.[5] F04B 7/04
U.S. Cl. 417—499 11 Claims



1. A fuel injection pump for internal combustion engines having at least one reciprocating pump piston (3) defining a pump work chamber (4) in a pump cylinder (2), said piston has at least one control recess (22) on a jacket face which communicates through an axial conduit (26) with the pump work chamber (4), an oblique control edge (23), (28) that extends at a predetermined angle with respect to an axis of the pump piston (3), an annular slide (15) that is adjustable on the pump piston (3) and has a control bore (20), that penetrates a wall of the annular slide, said control bore is openable in the course of the pump piston stroke by the oblique control edges (23), (28) of the control recess (22) and in so doing connects the pump work chamber (4) with a fuel-filled low-pressure chamber surrounding the annular slide (15), in order to control the end of a high-pressure supply, the control bore (20) is disposed angularly to the pump piston axis and pierces a radial plane at an angle with respect to the pump piston axis in the annular slide (15), and an axis of the control bore 20 is disposed such that an ellipse-like entry cross section at the inner wall (21) of the annular slide (15) is located substantially parallel to the oblique control edge (23), (28) of the control recess (22).

5,211,550

SCROLL TYPE FLUID COMPRESSING APPARATUS WITH A THRUST RING PLATE HAVING FLAT AND PARALLEL CIRCUMFERENTIAL OPPOSITE SURFACES EXTENDING OVER AN OLDHAM RING

Isao Kawabe, Shizuoka, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Filed Jan. 21, 1992, Ser. No. 823,173
Int. Cl.[5] F04C 18/04
U.S. Cl. 418—55.1 4 Claims

1. A scroll type fluid compressor apparatus comprising:

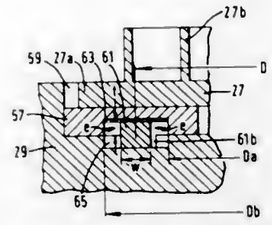
a casing;

a bearing frame supported in the casing, the bearing frame having a surface defining a cylindrical recess;

a ring having a pair of first keys each oppositely located and projected from one of the surfaces thereof and a pair of second keys each located at right angles with the first keys pair and projected from the other surface thereof, the ring being located in the cylindrical recess and movable in a reciprocative direction along a line connected between a pair of first keys thereof, the bearing frame including a pair of guide depressions into which the projecting ends of the pair of first keys are respectively inserted;

a ring shaped thrust plate located in the cylindrical recess and having flat and parallel circumferential opposite surfaces extending over the ring recess, the thrust plate having a pair of openings through which the pair of second keys respectively project;

a compressing unit supported by the bearing frame for compressing a gaseous fluid, the compressing unit having a movable scroll member mounted on the thrust plate, an outer-end portion of the thrust plate being interposed



between an end plate of the movable scroll member and the bearing frame providing support for the endplate, the outermost circumferential end of the thrust plate being supported by an upright wall of the bearing frame, the movable scroll member having a pair of grooves into which the projecting ends of the pair of second keys are respectively inserted; and

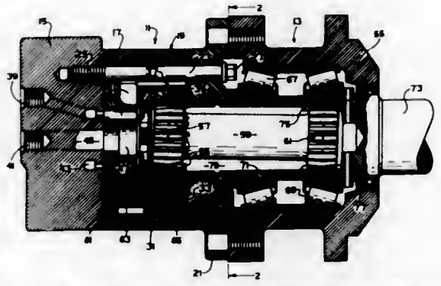
a driving unit, including an eccentric rotational shaft mechanically connected to the movable scroll member, for causing on orbital movement of the movable scroll member by the movement of the ring in the reciprocative direction.

5,211,551

MODULAR MOTOR

Sohan L. Uppal, Bloomington, and Gary Kassen, Chanhassen, both of Minn., assignors to Eaton Corporation, Cleveland, Ohio

Filed Sep. 10, 1992, Ser. No. 943,269
Int. Cl.[5] F03C 2/08; F04C 2/10
U.S. Cl. 418—61.3 9 Claims



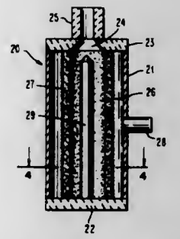
1. A modular fluid pressure operated motor assembly adapted for use with a forward package of the type comprising an output member, a housing, means disposed within said housing for rotatably supporting said output member relative thereto, and seal means disposed between said housing and said output member, whereby said housing is adapted to define a sealed cavity; said modular motor assembly comprising housing means defining a fluid inlet port and a fluid outlet port; fluid pressure displacement means associated with said housing means and including an internally-toothed ring assembly and an externally-toothed star member eccentrically disposed within said ring assembly, said ring assembly and said star member having relative orbital and rotational movement, said ring assembly and said star member interengaging to define expanding and contracting fluid volume chambers in response to said orbital and rotational movement; valve means cooperating with said housing means to provide fluid communication between said fluid inlet port and said expanding fluid volume chambers, and between said contracting fluid volume chambers and said fluid outlet port; means for transmitting said rotational movement to said output member; said housing means comprising a housing member disposed forwardly of said ring assembly and said star member and seal means disposed between said ring assembly and said housing member toward the outer periphery of the engagement thereof; a plurality of bolts, each having a head end and a threaded end, each of said head ends being disposed in engagement with a forward surface of said housing member, each bolt extending axially through said housing member and said ring assembly, and having said threaded end in threaded engagement with said housing means, at a location rearwardly of said ring assembly, each of said bolts being disposed radially inwardly of said seal means of said modular motor assembly, whereby fluid leakage between said housing means and said fluid pressure displacement means is adapted to flow forwardly along said bolts and into said sealed cavity defined by said housing of said forward package.

5,211,552

ADIABATIC SURFACE COMBUSTION WITH EXCESS AIR

Wayne V. Krill, Sunnyvale; Richard L. Pam, Menlo Park; Richard K. Tidball, Fremont, and Robert M. Kendall, Sunnyvale, all of Calif., assignors to Alzeta Corporation, Santa Clara, Calif.

Filed Aug. 15, 1990, Ser. No. 567,740
Int. Cl.[5] F23D 3/40
U.S. Cl. 431—7 21 Claims



1. In a furnace for producing combustion gases containing not more than 10 ppm NO_x, 30 ppm CO and 10 ppm UHC, the improvement which comprises a combustion cavity devoid of heat exchange means, a porous surface combustor arranged with its porous surface exposed to said combustion cavity, and a refractory body that is within and surrounded by said combustion cavity to reradiate heat to said porous surface, said combustion cavity having an exit for exhausting said combustion gases.

5,211,553

BURNER FOR LIQUID FUEL CELL

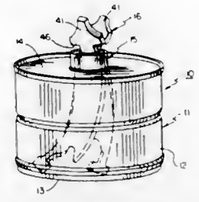
J. Alan Menter, Manlius, N.Y., assignor to Hollowick, Inc., Manlius, N.Y.

Filed Feb. 25, 1992, Ser. No. 840,523
Int. Cl.[5] F23D 3/24
U.S. Cl. 431—320 14 Claims

1. A disposable liquid fuel cell that includes a container means for storing a quantity of liquid fuel, said container having a lid,

a burner means positioned in the lid of said container, said burner means having a vertically-disposed, hollow stud of predetermined length formed therein which opens into said container,

a wick means that contains a neck segment having a length greater than the length of said stud, said neck segment being slidably contained within said stud, a body segment



housed within the container and extending downwardly therein, and an upper tab segment connected to the body segment by the neck segment whereby the tab segment extends upwardly above the burner means, and

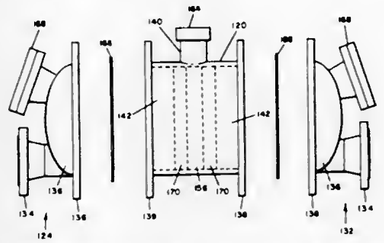
said neck segment further including upper and lower shoulders having a width greater than the width of said stud to restrict the vertical travel of the wick means within said burner means whereby the vertical height of the wick means above the burner means may be adjusted.

5,211,554

DETONATION ARRESTOR WITH STACKED PLATES

Robert K. Rajewski, R.R. #1, Donalda, Alberta, Canada T0B 1H0

Continuation-in-part of Ser. No. 659,272, Feb. 22, 1991, Pat. No. 5,145,360. This application Jul. 17, 1992, Ser. No. 914,412
Claims priority, application Canada, Apr. 29, 1992, 2067612
Int. Cl.[5] F23D 14/82
U.S. Cl. 431—346 7 Claims



1. A detonation arrestor for connection to a line carrying flammable gas, the line having inflow and outflow ends, comprising:

a cell housing defining an interior cavity in fluid connection with the line;

first means attached to the cell housing for securing the detonation arrestor to the outflow end of the line;

first and second sets of stacked plates secured within the cell housing and enclosing the interior cavity, each of the stacked plates being separated by a distance smaller than their individual thickness and having a shorter side, the shorter side being oriented end on to the flow of gas;

the cell housing including a particulate quenching medium substantially filling the interior cavity between the first and second sets of stacked plates; and

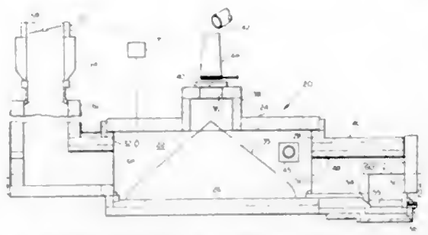
second means attached to the cell housing for securing the detonation arrestor to the inflow end of the line.

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5,211,555
MELTING APPARATUS AND METHOD

Keith M. Gardner, Sylvania, Ohio; Frank J. Vereecke, Palmyra, Mich., and Wayne R. Klemmensen, Toledo, Ohio, assignors to Gas Research Institute, Chicago, Ill.

Filed Dec. 12, 1991, Ser. No. 806,617
Int. Cl.[5] F27B *3/18*
U.S. Cl. 432—161 23 Claims

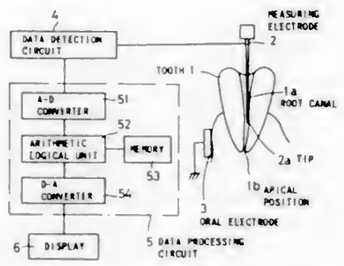


1. A melting apparatus for a generally conically shaped freestanding pile of indiscriminate particulate matter contained therein, said apparatus comprising: a melting chamber defined by a roof member, a floor member and four successively connected upright sidewall members all made of refractory material, a burner in each of said sidewall members, said burner being located adjacent to the junction formed by the trailing end of its sidewall member and the leading end of the succeeding sidewall member, a fuel fired forehearth assembly communicating with said melting chamber through an opening in one sidewall member, a recuperator assembly communicating with said melting chamber through an opening in a sidewall member opposite from the sidewall member containing said forehearth opening, and a feedstock charge opening located centrally in said roof member for depositing a freestanding pile of feedstock on said floor member.

5,211,556
ROOT CANAL METER

Chihiro Kobayashi, Ichikawa, and Kazunari Matoba, Kyoto, both of Japan, assignors to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

Filed Nov. 27, 1991, Ser. No. 799,079
Int. Cl.[5] A61C *3/00, 19/00, 1/00*; A61B *5/103*
U.S. Cl. 433—72 5 Claims

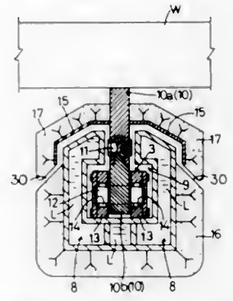


1. A root canal meter, comprising:
a data detecting means successively detecting measured data corresponding to tip position of a measuring electrode inserted into a root canal,
a data processing means which successively compensates the measured data obtained by said data detecting means and treats the compensated data to become data varying linearly or substantially linearly according to distance between the tip of the measuring electrode and the apical position of the root canal, and
a display means displaying the compensated data obtained by said data processing means.

5,211,557
HEATING FURNACE

Tetsuya Tokitsu, Takarazuka, Japan, assignor to Taikisha Ltd., Tokyo, Japan

Filed Feb. 25, 1992, Ser. No. 842,008
Claims priority, application Japan, Oct. 3, 1991, 3-256087
Int. Cl.[5] F27D *3/00*
U.S. Cl. 432—243 4 Claims

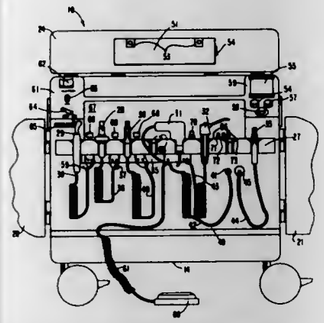


1. A heating furnace comprising:
a heat-resistant conveyer device for conveying a treatment object in a high-temperature atmosphere inside the furnace, the conveyer device having an elongate cooling chamber, a rotary-member guiding passage, an endless rotary member, a drive means and a roller;
said elongate cooling chamber being disposed along a direction of conveying the object inside the furnace and allowing flow of a cooling medium inside the chamber;
said rotary-member guiding passage being constructed as a gutter-like recess formed along an entire length of said elongate cooling chamber, said rotary-member guiding passage being substantially surrounded by said cooling chamber;
said endless rotary member including a plurality of receivers interconnected with each other in the form of a loop, said rotary member being driven by said drive means to convey the object;
said roller being rotatable to guide movement of said endless rotary member as said rotary member receives a load of the object applied onto said endless rotary member inside said rotary-member guiding passage;
said receiver including a receiver portion formed of heat-resistant material and having an object-receiving end projected from said rotary-member guiding passage and the opposite end disposed inside said guiding passage and a cart portion which is entirely positioned inside said guiding passage;
said receiver including a cover element closely attached to said receiver portion for covering a receiver-projecting opening in said rotary-member guiding passage, said cover element including a first heat insulating material affixed to an outer side of said cover element; and
said cooling chamber including a second heat insulating material affixed to a portion of said cooling chamber outwardly and downwardly, said first heat insulating material and said second heat insulating material defining a gap of constant width therebetween, said gap extending outwardly and downwardly from said cooling chamber.

5,211,558
PORTABLE DENTAL WORKSTATION

James R. Bailey, Indianapolis, and C. Robert Schrock, Greenwood, both of Ind., assignors to International Equipment & Supply Corp., Indianapolis, Ind.

Filed Nov. 29, 1991, Ser. No. 800,256
Int. Cl.[5] A61G *15/00*
U.S. Cl. 433—77 11 Claims



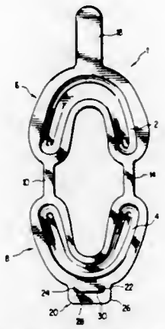
1. A portable dental apparatus comprising:
a portable main housing having an interior, said main housing including transport means therebeneath operable to allow said portable dental apparatus to have an in-use stationary state and a transport state;
dental tool holding means on said main housing;
a plurality of dental tools removably mountable on said dental tool holding means;
drive means mounted within said interior operable to drive said dental tools, said drive means including a pressurized air source and a pressurized water source;
a control panel operably associated with said drive means and said plurality of dental tools, said control panel located on said main housing with said main housing sized to form a storage cavity to receive said plurality of dental tools when said portable dental apparatus is in said transport state; and,
connecting means connected between said drive means and said plurality of dental tools, said connecting means including a distribution manifold and valve means disposed between said drive means and said plurality of dental tools wherein said distribution manifold is substantially solid and includes a plurality of bores, wherein said valve means are connected to said distribution manifold to allow pressurized air and pressurized water to pass from said distribution manifold, through said valve means, and back to into said manifold, and wherein pressurized air and pressurized water are distributed from said pressurized air source and said pressurized water source through said bores and said valves to said plurality of dental tool; and wherein:
said valve means are mounted to said distributed manifold.

5,211,559
DENTAL TREATMENT TRAY FOR HOLDING MEDICAMENT GEL

Adrian Hart, Menlo Park, and John A. Kaminski, Newark, both of Calif., assignors to Gillette Canada Inc., Kirkland, Canada

Continuation-in-part of Ser. No. 732,480, Jul. 18, 1991, abandoned. This application Jun. 2, 1992, Ser. No. 893,185
Int. Cl.[5] A61G *17/02*; A61C *9/00*; A61K *7/18*
U.S. Cl. 433—80 31 Claims

1. A tray for holding medicament to be applied to the teeth and gums of a patient, said tray being unitarily formed of a flexible material and comprising:
a first generally C-shaped cup portion defining a first concave medicament receiving surface;
a second generally C-shaped cup portion defining a second concave medicament receiving surface;
straps flexibly uniting said first and second cup portions such that said first and second cup portions normally lie substantially in a plane with ends of said first generally C-shaped cup portion facing respective ends of said second generally C-shaped cup portion, and such that said first and second concave surfaces open in the same direction;
a handle extending from one of said cup portions in a direction away from the other of said cup portions; and

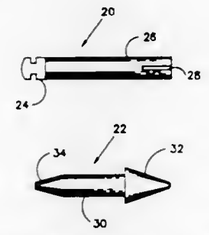


a buckle extending from said other of said cup portions, said buckle comprising a tongue portion extending from said other of said cup portions and a retainer strip extending from said other of said cup portions so as to define a narrow space between tongue portion and said retainer strip, said narrow space having a width less than the thickness of said handle,
whereby said tray may be folded about said straps such that said cup portions overlie one another with said medicament receiving surfaces facing away from one another and such that said handle may be fitted into said narrow space, and whereby the buckle resiliently holds said handle so as to securely maintain said tray in the folded state.

5,211,560
ROTARY DENTAL ABRASIVE POLISHING APPLICATOR

James T. Lowder, and Mark E. Watkins, both of Columbus, Ohio, assignors to Abrasive Technology, Inc., Westerville, Ohio

Filed Dec. 11, 1990, Ser. No. 625,751
Int. Cl.[5] A61C *3/06*
U.S. Cl. 433—166 12 Claims



1. A polishing tool for power rotary dental handpieces to apply an abrasive polishing composition to teeth and tooth restoration materials comprising, in combination;
a) a generally cylindrical connecting portion having one end conformed for releasably fixed connection to said rotary

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dental handpiece and an opposing end provided with a tubular socket portion;

b) a polishing applicator tip removably inserted into said socket portion and including an integrally formed cylindrical shaft having a first polishing end portion and an opposing second end portion tapered sufficiently to be slideably received and releasably fixed within said tubular socket portion of said connecting portion collet; said applicator polishing tip comprising a plurality of fibers taken from a group consisting of natural or synthetic materials, said fibers aligned in parallel relationship and bonded to one another along their axial length to form said cylindrical shaft and said polishing end portion, at least said polishing end portion having a microscopically porous surface.

5,211,561

COUPLING DEVICE FOR DENTAL PROTHESIS

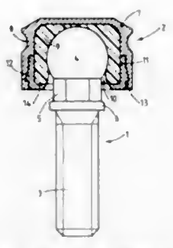
M. Walter Graub, Twann, Switzerland, assignor to Metaux Precieux sa Metalor, Neuchatel, Switzerland

Filed May 21, 1992, Ser. No. 887,399

Claims priority, application Switzerland, May 28, 1991, 1579/91

Int. Cl.[5] A61C *13/28*

U.S. Cl. 433—169 **3 Claims**



3. In a coupling for removable dental protheses comprising a male member one end of which is constituted by a fixing member, whereas the other end has the shape of a male coupling member and a female portion comprising a rigid casing fixed into the prothesis which houses a resiliently deformable mass provided with a housing intended to receive the male coupling member of the male portion; the improvement wherein the male coupling member is a sphere and said rigid casing is non-spherical, said resiliently deformable mass having a spherical cavity that receives and retains said sphere, and a removable ring clipped on the casing and contacting and retaining the resiliently deformable mass but spaced from said male member.

5,211,562

METHOD AND APPARATUS FOR EVALUATING PHYSICAL ABILITY

Richard J. Wickstrom, 10911 Fernhill Dr., Cincinnati, Ohio 45241

Filed Oct. 30, 1991, Ser. No. 785,505

Int. Cl.[5] G09B *19/24*

U.S. Cl. 434—260 **7 Claims**

1. A method for testing and evaluating the dexterity and range of motion of substantially the entire musculoskeletal system of a human test subject, comprising the steps of:

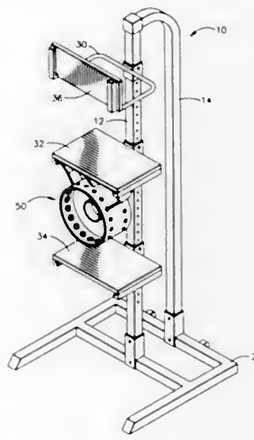
(a) directing the subject's hand and wrist into a dexterity tester positioned at a first predetermined height and placing the subject into a first posture;

(b) requiring the subject while in the first posture to manipulate a plurality of mechanical parts in the dexterity tester in a predetermined manner that requires the subject's hand and wrist to undergo a complete range of motion while the wrist is in an awkward position, said awkward position being achieved by confining the wrist within an opening of said dexterity tester while forcing the hand past an obstacle portion of said dexterity tester proximal to its opening before reaching said plurality of mechanical parts;

(c) measuring the time required for the subject while in the first posture to so manipulate the parts at the first predetermined height;

(d) thereafter directing the subject's hand and wrist into a dexterity tester positioned at a second predetermined height which is different from said first predetermined height and placing the subject into a second posture which is different from said first posture;

(e) requiring the subject while in the second posture to manipulate a plurality of mechanical parts in the dexterity tester in a predetermined manner that requires the subject's hand and wrist to undergo a complete range of motion while the wrist is in an awkward position, said awkward position being achieved by confining the wrist within an opening of said dexterity tester while forcing the hand past an obstacle portion of said dexterity tester proximal to its opening before reaching said plurality of mechanical parts;



(f) measuring the time required for the subject while in the second posture to so manipulate the parts at the second predetermined height independently of the time required for manipulation at the first height;

(g) thereafter directing the subject's hand and wrist into a dexterity tester positioned at a third predetermined height which is different from both said first and second predetermined heights and placing the subject into a third posture which is different from both said first and second postures;

(h) requiring the subject while in the third posture to manipulate a plurality of mechanical parts in the dexterity tester in a predetermined manner that requires the subject's hand and wrist to undergo a complete range of motion while the wrist is in an awkward position, said awkward position being achieved by confining the wrist within an opening of said dexterity tester while forcing the hand past an obstacle portion of said dexterity tester proximal to its opening before reaching said plurality of mechanical parts; and

(i) measuring the time required for the subject while in the third posture to so manipulate the parts at the third predetermined height independently of the time required for manipulations at the first and second heights.

5,211,563

COMPUTER ASSISTED LEARNING SUPPORT SYSTEM AND PROCESSING METHOD THEREFOR

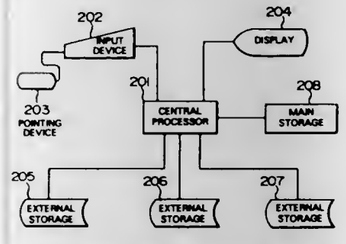
Hirohide Haga, Kyoto; Hiroyuki Kojima, Nishinomiya, and Takaaki Yamada, Osaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 25, 1992, Ser. No. 905,548

Claims priority, application Japan, Jul. 3, 1991, 3-162622

Int. Cl.[5] G09B *3/00*

U.S. Cl. 434—322 **13 Claims**



1. A computer assisted learning support system comprising:

a storage for storing therein blocks of a teaching material respectively assigned with teaching material identifiers and link information which represents by a pair of teaching material identifiers a relationship between blocks of the teaching material, each of the blocks being defined by subdividing the teaching material according to contents thereof;

a display for presenting, in a change-over manner, a screen image of the blocks of the teaching material and a screen image of contents of the blocks of the teaching material and the link information including the teaching material identifiers respectively assigned to the blocks of the teaching material;

an input device for inputting therefrom a selection item for one of the blocks of the teaching material presented on said display and a selection item for one of the contents of the blocks of the teaching material and the link information;

first means, responsive to the selection item from said input device for the block of the teaching material, for reading from said storage the contents of the selected block of the teaching material and the link information including the teaching material identifier of the selected block of the teaching material and for outputting the obtained items to said display; and

second means, responsive to the selection item from said input device for the link information, for reading from said storage the contents of a different block of the teaching material which has a teaching material identifier not contained in the selected link information and which is not presented on said display and different link information including the teaching material identifier of the different block of the teaching material and for outputting the attained items to said display.

5,211,564

COMPUTERIZED FIGURAL RESPONSE TESTING SYSTEM AND METHOD

Michael E. Martinez, Irvine, Calif., and Jeffrey B. Jenkins, Newtown, Pa., assignors to Educational Testing Service, Princeton, N.J.

Continuation-in-part of Ser. No. 382,716, Jul. 19, 1989, Pat. No. 5,011,413. This application Apr. 25, 1991, Ser. No. 691,396

Int. Cl.[5] G09B *7/00*

U.S. Cl. 434—323 **21 Claims**

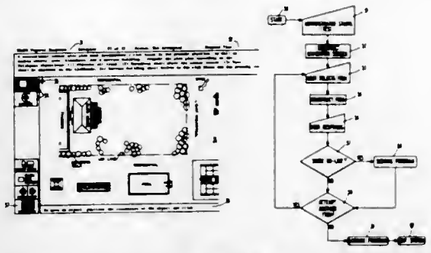
1. A method of figural response test taking employing an interactive computer system, said system having a computer and memory, an image display screen operatively connected to said computer, and means for manipulation of figural response symbols on said screen so as to modify the image thereon, said method comprising:

presenting starting figural material and figural response symbols on said screen, derived from first data stored in said memory,

presenting a problem statement together with said presented starting figural material and said figural response symbols on said screen, derived from second data stored in said memory, requiring responses on said screen relative to said starting figural material,

selecting at least one of said figural response symbols and inputting response data representative of an examinee's responses to said problem by manipulating said at least one selected figural response symbol on said screen by said manipulation means to provide a constructed figural response in relation to said starting figural material, and

determining said relation by comparing the location and orientation of said constructed figural response with pre-



determined correct response data stored in said memory, and scoring said examinee's responses by said comparison.

18. A computer system for interactive figural response test-taking, said system having a computer, a memory operatively connected to said computer and storing solution data, and an image display screen driven by said computer, said computer system further comprising:

means for constructing a test item on said screen, including presenting on said screen a problem statement, a figural background, figural response objects and selectable tools for performing specified tasks on said screen;

means for manipulating selected one of said figural response objects on said screen to orient said figural response object relative to said figural background, whereby an examinee makes responses to said problem statement; and

means for scoring said examinee's responses by comparison of said manipulated figural response objects with said solution data.

5,211,565

HIGH DENSITY INTERCONNECT APPARATUS

Nicholas J. Krajewski, Chippewa Falls, Wis.; Carl D. Breske, Scandia, Minn.; David J. Johnson; David R. Kiefer, both of Chippewa Falls, Wis.; Kent T. McDaniel, Eau Claire, Wis.; William T. Moore, Jr., Elk Mound, Wis.; Michael R. Edwards, Eau Claire, Wis.; Bricky A. Stephenson, Chippewa Falls, Wis., and Anthony A. Vacca, Eau Claire, Wis., assignors to Cray Research, Inc., Fagan, Minn.

Division of Ser. No. 618,603, Nov. 27, 1990, Pat. No. 5,167,511. This application Mar. 19, 1992, Ser. No. 854,312

Int. Cl.[5] H01R *9/09*

U.S. Cl. 439—65 **14 Claims**

1. A circuit board apparatus adapted to store large amounts of information in a densely packed configuration comprising:

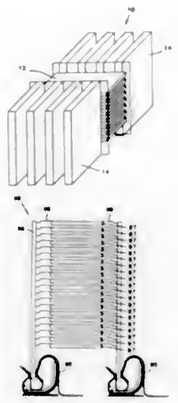
a circuit board;

a plurality of information storage modules having a plurality of stacks of integrated circuit devices, each stack having a plurality of integrated each of said devices being electrically and mechanically connected to a plurality of edge

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boards which maintain said devices in said stacked relationship;

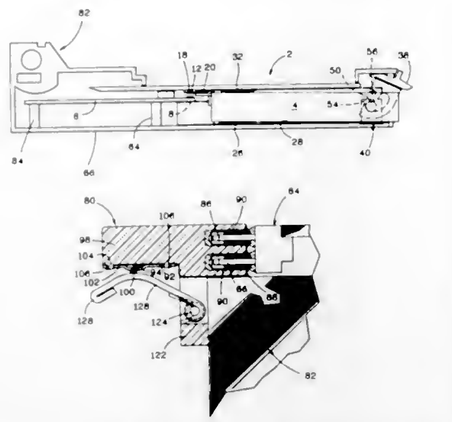
retaining means attached to said circuit board for retaining said edge boards on said circuit board, said retaining means further comprising a memory metal portion forcing said retaining means into an open position in which said edge boards can be non-destructively removed from or inserted into said retaining means, said retaining means further being normally biased in a closed position in which



an edge board is retained within said retaining means for connection to said circuit board; and

connection means for electrically connecting said edge boards to said circuit board, said connection means further comprising a substantially flexible electrical connector electrically connecting said information storage modules and circuit board; whereby electrical communication between said modules and said circuit board can be performed.

thereby bring said plurality of contact terminals into electrical contact with said plurality of traces along said cir-



cuit board edge, thereby completing an electrical interface between said circuit board and said modular component.

5,211,566

DOCKING CONNECTOR FOR DISK DRIVES

Warren A. Bates, Winston Salem; Frederick R. Deak, Kernersville; David C. Johnson, Winston Salem; Robert M. Renn, Pfafftown, and Keith L. Volz, Jamestown, all of N.C., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 11, 1992, Ser. No. 929,185
Int. Cl.[5] H01R *13/629, 23/70*
U.S. Cl. 439—66 **23 Claims**

1. A docking connector for providing an interface between a circuit board having a plurality of traces arranged along an edge, and a modular electrical component such as a disk drive having a plurality of contact terminals for completing a multiple-electrical-connection interface with said circuit board, said docking connector comprising:

a guide housing formed as an open-ended enclosure with a first end for slidable insertion of said modular component and a second end for slidable insertion of the edge of said circuit board, said guide housing further comprising interior alignment means for guiding insertion of said modular component such that said plurality of contact terminals are brought into a facing spaced-relation with said plurality of traces along said circuit board edge; and

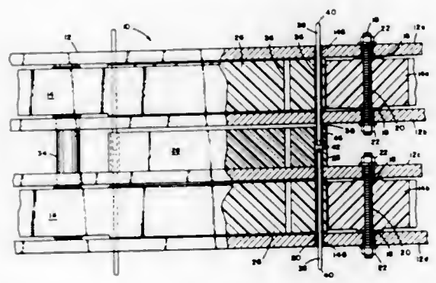
a camming assembly pivoted at the first end of said guide housing for manipulating said modular component to

5,211,567

METALLIZED CONNECTOR BLOCK

Eugene F. Neumann; Melvin C. August; Stephen A. Bowen, and Gregory W. Pautsch, all of Chippewa Falls, Wis., assignors to Cray Research, Inc., Eagan, Minn.

Filed Jul. 2, 1991, Ser. No. 725,007
Int. Cl.[5] H01R *9/09*
U.S. Cl. 439—74 **12 Claims**



1. A completely shielded connector block apparatus for use in connecting at least two circuit boards via electrically conductive members, comprising:

a body having two substantially parallel exterior faces;

a plurality of holes having interior surfaces, said holes formed through the parallel exterior faces of said body and adapted to receive at least one electrically conductive member;

an electrically conductive coating covering at least the interior surfaces of said holes, said coating being in electrical communication between said plurality of holes; and

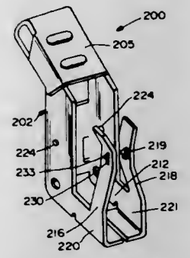
insulating means in at least one of said holes for insulating any electrically conductive members placed in said holes from said electrically conductive coating.

5,211,568

EDGE CARD CONNECTOR WITH LATCH/EJECT MECHANISM

Shoji Yamada, Machida, and Yoshihisa Yamamoto, Yokohama, both of Japan, assignors to Molex Incorporated, Lisle, Ill.

Filed Feb. 24, 1992, Ser. No. 840,245
Int. Cl.[5] H01R *13/62*
U.S. Cl. 439—157 **20 Claims**



1. A push/pull edge card connector for providing an electrical connection between a first plurality of contacts on a primary circuit member and a second plurality of contacts on a printed circuit card, the circuit card having the second plurality of contacts disposed on an edge thereof, the circuit card edge being insertable into and removable from the connector, said circuit card being generally planar in nature and having first and second circuit faces, each of the first and second circuit faces having a row of circuit card contacts generally parallel to and adjacent an edge of said circuit card, and wherein said connector includes means for mounting said connector to the circuit board, said connector comprising:

a connector housing formed from an electrically insulative material, the connector housing having a lower face adapted for positioning adjacent said primary circuit board and an upper face spaced-apart therefrom having an elongated card slot disposed therein and extending between two opposing end portions of said connector, the card slot being adapted to receive said circuit card edge therein in an electrically operative relationship, the connector housing further including a plurality of contact element-receiving cavities spaced apart along said card slot and at least partially communicating with said card slot, said card slot having a predetermined longitudinal centerline;

a resilient contact terminal disposed in each of said contact receiving cavities, each contact terminal including a tail for electrically and mechanically interconnecting said contact terminal to one of said first plurality of contacts of said primary member circuit portion, and a portion of each of said contact terminals protruding into said card slot for slidingly engaging one of said second plurality of contacts upon insertion of said circuit card into said card slot; and

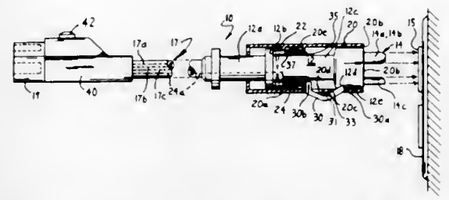
a latch/eject member rotatably positioned at one of said end portions of said housing and rotatably between a first position in which said circuit card is retained within said card slot and a second position in which at least a portion of said circuit card is ejected from said card slot, said latch/eject member including a pair of resilient, cantilevered arms for latching a circuit card in said card slot and an eject surface for at least partially ejecting said circuit card from said card slot, the resilient arms defining a card-receiving space therebetween, said resilient arms projecting away from a lower surface of said card slot when said latch/eject member is positioned at said first position and further including converging lead-in surfaces converging in an insertion direction of the printed circuit card which permits said circuit card to be inserted into said card slot when said latch/eject member is in either the first position or the second position.

5,211,569

ELECTRICAL POWER CORD AND APPLIANCE USING SAME

Jeffrey L. Havens, Farmington Hills, Mich., assignor to Petrina Havens

Filed Nov. 27, 1991, Ser. No. 800,142
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—159 **19 Claims**



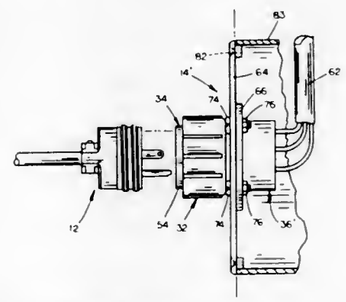
1. An electrical power cord comprising a plug having prongs for insertion in an electrical outlet, an electrical insulating tubular member disposed about the plug, said plug and said tubular member being relatively movable, spring means disposed between the tubular member and the plug and compressed while the prongs are inserted in the outlet so as to bias the plug in a direction away from the outlet, means disposed on the tubular member for releasably interlocking the tubular member and the plug when the prongs are inserted in the outlet, wire coil means disposed on the tubular member, magnetically susceptible trip means disposed between the tubular member and the plug for movement in response to energization of the wire coil means, manually operable switch means operably associated with said cord for passing an electrical current through the coil means while the prongs are inserted in the outlet to move the trip means in a manner to disengage the interlocking means and allow the spring means to eject the plug from the outlet.

5,211,570

CORD CONNECTION SYSTEM

Wesley E. Bitney, P.O. Box 443, Norfolk, Nebr. 68702

Filed May 27, 1992, Ser. No. 889,610
Int. Cl.[5] H01R *4/38*
U.S. Cl. 439—320 **5 Claims**



1. A cord connection system, comprising:

a first electrical cord having a male plug at one end thereof; said plug having at least first and second conventional electrical blades projecting forwardly from a forward face of said plug;

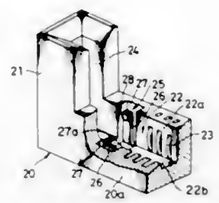
VOL 1150 ISS 3 MY 18 1993 UMI

said plug having a body portion projecting rearwardly from the forward face with an exteriorly projecting thread formed thereon;
a second electrical cord having at least a first female electrical receptacle at one end thereof;
said first receptacle having conventional electrical blade terminals therein corresponding with said plug blades to form an electrical connection when the blades are inserted in the terminals;
said receptacle having a body portion with a flange formed at a forward end thereof projecting radially outwardly therefrom;
a locking ring rotatably mounted on the body portion of said receptacle having an interiorly threaded wall adapted to engage said plug thread;
said locking ring having an annular lip projecting radially inwardly from a rearward end thereof and adapted to engage said flange to prevent removal of said ring from the forward end of the receptacle body; and
an end piece means mounted on the rearward end of said receptacle body for preventing removal of said ring off the rearward end of said receptacle body;
said end piece means including means for connecting said end piece to a wall plate of the type having a central opening for receipt of said receptacle body portion therethrough, such that said flange and locking ring are located forwardly of the wall plate and said end piece is located rearwardly of the wall plate.

5,211,571
SUBSTRATE CONNECTOR

Tatsuya Arai; Hirosbi Ohkawa; Hirokatsu Yaegashi; Morio Suzuki, and Hiroshi Kouzai, all of Tokyo, Japan, assignors to Hirose Electric Co., Ltd. and Hitachi, Ltd., both of Tokyo, Japan

Filed Feb. 15, 1991, Ser. No. 655,859
Claims priority, application Japan, Feb. 23, 1990, 2-16762[U]; Sep. 6, 1990, 2-93121[U]
Int. Cl.[5] H01R *13/62*
U.S. Cl. 439—325 **5 Claims**

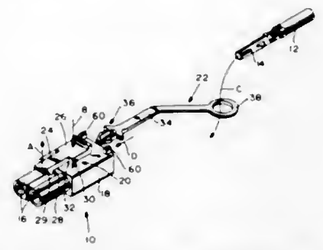


1. A lock mechanism of a printed substrate connector provided with locking holes, comprising a main body of the connector having an insertion groove in which a terminal connecting portion of the printed substrate is inserted, wherein said insertion groove has a sidewall provided with a pair of lock arms each having a locking claw adapted to be engaged with said locking hole when the terminal connecting portion of the printed substrate is inserted into the insertion groove formed in the connector main body, the locking holes of the printed substrate being placed in right and left vacant portions of the terminal connecting portion, lock arm containing grooves being formed on the right and the left sides of the insertion groove of the connector main body so as to have bottoms lower than the bottom of the insertion groove, said pair of lock arms being made of a resilient material and integral one-piece, with the connector main body, said pair of lock arms being placed at symmetrical positions of the center of the insertion groove and placed in the lock arm containing grooves and extend upwardly from the bottoms of the lock arm containing grooves, said lock arm having a locking claw adapted to engage with the locking hole of the printed substrate, the distance of a gap between the pair of opposed locking claws of lock arms being smaller than the thickness of the printed substrate inserted in the gap, said gap being expanded due to elasticity of the lock arms when the printed substrate is being inserted into the gap, said gap returning to almost the original position due to elasticity of the lock arms when the locking claw is being placed in the locking hole in order to lock the locking claw to the locking hole.

5,211,572
SECURITY LOCKING KEY MECHANISM FOR ELECTRICAL CONNECTORS

Gary M. Comstock, LaGrange; John S. Luthy, Naperville, both of Ill., and Stephen H. McCombs, Louisville, Ky., assignors to Molex Incorporated, Lisle, Ill.

Filed Jun. 23, 1992, Ser. No. 902,612
Int. Cl.[5] H01R *13/627*
U.S. Cl. 439—352 **8 Claims**

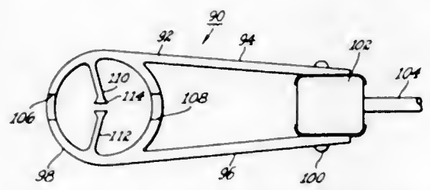


1. In an electrical connector which includes latch means for latching the connector to a complementary mating electrical connector, the latch means having a depressible portion effective to unlatch the latch means, the depressible portion having a vacant space therebeneath, and a locking key insertable in a given direction into the vacant space beneath the depressible portion to prevent unlatching of the latch means, wherein the improvement comprises complementary interengaging retaining means between the connector and the locking key to prevent removal of the key opposite said given direction, the locking key is sufficiently flexible in a direction transverse to said given direction to effect disengagement of the retaining means in response to bending the key transverse to said given direction, and stop means of a given height on the connector engageable by the locking key in a transverse direction to prevent bending the key unless the key is lifted above the height of the stop means.

5,211,573
ELECTRICAL CORD COUPLING

Andrew L. Cross, 17774 Ravenna Rd., Mantua, Ohio 44255

Continuation-in-part of Ser. No. 815,750, Jan. 2, 1992. This application Jun. 8, 1992, Ser. No. 895,135
Int. Cl.[5] H01R *13/62*
U.S. Cl. 439—369 **15 Claims**



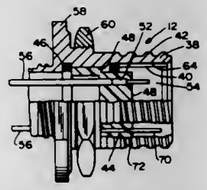
1. A coupling device to retain locked engagement for the plug end of an electrical cord with mating electrical connection means comprising:

(a) a single-piece body member molded with organic polymer having a pair of spaced-apart longitudinally extending arms,
(b) integral molded retention means joining said extending arms together at least at one end,
(c) cooperating rib means provided in said retention means which project inwardly from said extending arms, said rib means having a pair of rib-like elements disposed proximate to but spaced-apart from said end of the molded body member while projecting forwardly therefrom at an acute angle from a longtudinal center axis of the body member, said rib-like elements including engaging shoulders for retention of the electrical cord by friction fit, and
(d) an end opening provided in said retention means and disposed rearward of said rib-like elements to enable passage therethrough of the electrical cord.

5,211,574
HIGH DENSITY ELECTRICAL CONNECTOR ASSEMBLY WITH IMPROVED ALIGNMENT/GUIDE MEANS

Fred Van Wyk, Yorba Linda, Calif., assignor to Molex Incorporated, Lisle, Ill.

Filed Mar. 13, 1992, Ser. No. 850,602
Int. Cl.[5] H01R *13/64*
U.S. Cl. 439—378 **6 Claims**

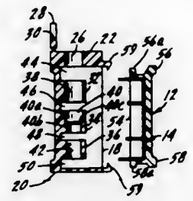


1. In an electrical connector assembly for connecting a first set of insulated wires to a second set of insulated wires, said connector assembly including:
a cylindrical male plug connector having a mating face and including a protruding insulating plug housing with a plurality of passageways formed therein, a plurality of pin contacts mounted in the passageways extending generally parallel to the plug connector axis toward the plug mating face, a key proximate the plug mating face integrally formed with and projecting radially outwardly from the protruding insulating plug housing, and a coupling ring rotatably mounted on the protruding insulating plug housing; and
a cylindrical female receptacle connector having a mating face and including a recessed shell for receiving the protruding insulating plug housing and for mechanically and electrically engaging the coupling ring, a keyway formed on an inside surface of the recessed shell adjacent the receptacle mating face adapted to interengage the integrally formed key of the protruding insulating plug housing, an insulating receptacle housing disposed within the shell, and a plurality of socket contacts mounted in the insulating receptacle housing extending generally parallel to the receptacle connector axis toward the receptacle mating face adapted to interengage the pin contacts,
whereby the key and keyway insure proper initial alignment of the male plug connector with respect to the female receptacle connector;
wherein the improvement comprises:
a guide pin mounted in the insulating receptacle housing extending generally parallel to the socket contacts past the receptacle mating face;
a guide hole formed in the protruding plug housing portion of the plug connector adapted to receive the guide pin;
the pin contacts of the plug connector are recessed from the plug mating face to protect the pin contacts from damage upon mating; and
the socket contacts of the receptacle connector extend past the receptacle mating face,
wherein the guide pin extends past the mating face of the receptacle connector a distance further than the socket contacts,
whereby the guide pin and guide hole are configured for interengagement after interengagement of said key and keyway and before interengagement of the pin and socket contacts.

5,211,575
INSULATED PIGTAIL DEVICE

George Ustin, New York, N.Y., assignor to Buchanan Construction Products, Inc., Hackettstown, N.J.

Filed Jun. 23, 1992, Ser. No. 903,122
Int. Cl.[5] H01R *4/24*
U.S. Cl. 439—417 **19 Claims**



1. A wire connector for connecting a plurality of insulated conductors, without stripping or twisting the conductors, which conductors may be of the same or a different wire gauge, said wire connector including a housing having a plurality of openings for the insertion of insulated conductors,
a plurality of wire guides within the housing and extending transverse to conductors positioned within the housing, each wire guide having openings therein in alignment with the housing openings, the openings in a particular wire guide being of the same size, with the openings in successive wire guides varying in size with the wire guide with the smallest openings being furthest from the housing openings, and
a conductive indentor having a plurality of insulation piercing projections extending between the wire guides for penetrating the conductor insulation to interconnect at least a portion of the conductors positioned in said wire guide openings.

5,211,576
STRAIN RELIEF CABLE CLAMP

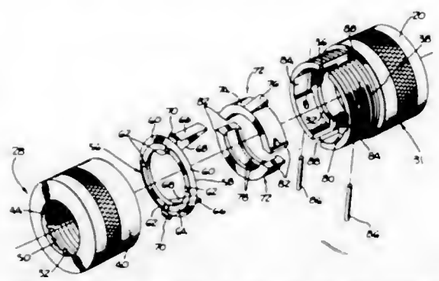
David W. Tonkiss, Glendale; Nestor R. Fuertes, Arleta, and Kevin T. Healy, Burbank, all of Calif., assignors to Glenair, Inc., Glendale, Calif.

Filed Sep. 27, 1991, Ser. No. 766,833
Int. Cl.[5] H01R *13/59*
U.S. Cl. 439—462 **43 Claims**

1. A cable clamp for relieving stress between a cable and a connector with which the cable is associated, the cable clamp comprising:
a body defining a passageway through which a cable may pass;
a strain relief clamp with a cable contact portion at least partly internal to the body for clamping a cable relative to the body when the cable is passed through the body and wherein the clamp is formed from at least one relatively non-resilient clamp element;
a clamp actuator assembly engaging the body to actuate the strain relief clamp; and
means for inhibiting disengagement of the clamp actuator assembly from the body;

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wherein the clamp actuator assembly includes a clamp nut threaded onto the body and a non-uniform surface on the clamp nut, and wherein the inhibiting means includes means for engaging the non-uniform surface on the clamp nut, which engaging means is substantially rotationally fixed relative to the body; and



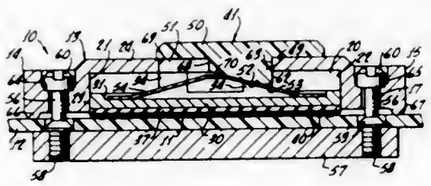
wherein the body includes at least one grooves extending axially of the body and the engaging means includes a detent formed on a ring wherein the ring has an axially extending element for engaging the grooves in the body whereby the detent is prevented from rotating with respect to the body.

5,211,577

PRESSURE-ACTUATED GOLD DOT CONNECTOR

Robert E. Daugherty, Irvine, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Oct. 6, 1992, Ser. No. 957,294
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—493 **14 Claims**



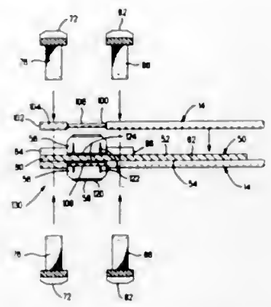
1. An electrical connector device comprising
a pressure exerting element,
a structure including means for permitting limited movement of said pressure exerting element along a predetermined path,
a flexible circuit connected to said pressure exerting element, said flexible circuit including contact means thereon,
means for removably securing said structure to a printed circuit board, and
means engaging said structure for moving said pressure exerting element in said predetermined path so as to move said flexible circuit and cause said contact means of said flexible circuit to engage contacts on a printed circuit board to which said structure is attached.

5,211,578

CONNECTOR HOUSING ASSEMBLY FOR DISCRETE WIRES

Homer E. Henschen, Carlisle; Joseph Kurtz, Dauphin; Joseph M. Pawlikowski, Lancaster, and Brian A. Wolfe, Jonestown, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 18, 1992, Ser. No. 884,791
Int. Cl.[5] H01R *9/07*
U.S. Cl. 439—494 **7 Claims**



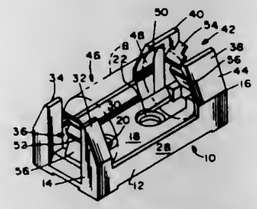
1. An electrical connector assembly for termination to ends of a plurality of discrete insulated conductor wires to define a wire harness, comprising:
a dielectric front cover member having a plurality of passageways extending therethrough from a rearward face to a mating face;
a piurality of signal terminals having contact sections at forward ends forwardly of body sections thereof adapted to be inserted from said rearward face through respective ones of said passageways for said contact sections to be at least exposed along said mating face for electrical connection with a corresponding electrical article, each said signal terminal including an intermediate section extending rearwardly from said body section to a bend section and to a rear section including a frangible section therealong;
said signal terminals arrayed in two rows, said signal terminals of each said row initially being joined to a carrier strip to define a pair of lead frames, said signal terminals of each said lead frame upon being inserted into said front cover member being formed so that said rear sections extend from said bend sections diverging outwardly away from the other said lead frame, with said bend sections being arrayed in opposing rows and defining a wire-receiving constriction therebetween upon said signal terminals being secured in said front cover member to form a connector subassembly;
a dielectric body member adapted to be mounted to said front cover member upon connector assembly, said body member including a planar section extending to a rearward end and including a transverse array of axially oriented wire-receiving grooves across an upper major surface and across a lower major surface corresponding to locations of said signal terminals in said connector subassembly, and further including a front support ledge forwardly of said grooves and a rear support section rearwardly of said grooves, said body member including a pair of mounting flanges laterally of said front support ledge and laterally of said rear support section;
a pair of upper and lower forward clamping bars associated with said front support ledge and including mounting flanges at lateral ends thereof adapted to cooperate with said body member mounting flanges to secure said upper and lower clamping bars to said body member; and
a pair of upper and lower rearward clamping bars associated with said rear support ledge and including mounting flanges at lateral ends thereof adapted to cooperate with said body member mounting flanges to secure said upper and lower clamping bars to said body member,
whereby ends of said wires having insulated conductor ends forwardly of stripped conductor portions of selected length, are securable to said body member by their stripped conductor portions being disposed along respective said grooves and said forward clamping bars being secured to said body member pressing said insulated conductor ends to said front support ledge along said upper and lower major surfaces and said rearward clamping bars being secured to said body member pressing insulated remaining portions of said wires to said rear support section, with said stripped conductor portions exposed along said grooves, defining a wirecarrying subassembly movable forwardly into said constriction between said opposing bend sections for soldering of said intermediate sections of said signal terminals to respective said stripped conductor portions, defining a connector assembly.

5,211,579

BATTERY HOLDER

Au Y. C. Seong, and Yuen P. Wong, both of Singapore, Singapore, assignors to Molex Incorporated, Lisle, Ill.

Filed May 15, 1992, Ser. No. 884,492
Int. Cl.[5] H01R *3/00*
U.S. Cl. 439—500 **12 Claims**



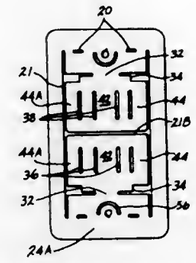
1. A holder for holding a battery therein comprising:
a housing including an elongate base having a width, and also having a length the latter of which is longer than the length of the battery which is to be held;
a pair of housing end walls formed integrally with said base one at each end of the length of said base, said end walls extending upwardly from said base and spaced from each other so as to define an elongate space between said end walls which is at least about as long as the length of the battery which is to be held to permit insertion of the battery between the end walls;
a portion of at least one of said end walls which faces said space having a recess which is configured to receive an end of the battery therein and overlie that end of the battery when the battery is inserted into said housing to hold the battery against removal from said housing;
a pair of terminal contacts one adjacent each of said end walls for electrically contacting the ends of the battery when it is inserted in said housing, at least one of said contacts being resilient and positioned to resiliently bias the end of the battery into said recess in said one end wall, said resilient contact including a latching projection which is positioned to be biased toward the end of the housing at which it is located by the battery as the battery is being inserted in said housing, and to move into overlying relationship to at least a portion of the battery when the battery is fully inserted in the housing to hold the battery against removal from said housing and a second projection between said latching projection and said base which resiliently biases the battery into said recess, said latching projection exerting a force toward said base to retain the battery in the housing; and
a terminal tail electrically coupled to each of said terminal contacts and extending from and beneath said base to electrically couple said terminal contacts to a circuit board.

5,211,580

UNIVERSAL BACKPLATE FOR ELECTRICAL OUTLETS

Jerome T. Schuplin, Parma Hts., Ohio, assignor to G.B. Electrical, Inc., Lorain, Ohio

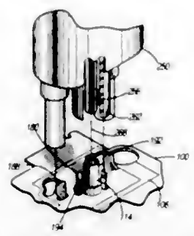
Division of Ser. No. 758,565, Sep. 12, 1991, Pat. No. 5,158,478.
This application Jul. 15, 1992, Ser. No. 899,879
Int. Cl.[5] H01R *13/74*
U.S. Cl. 439—538 **1 Claim**



1. A rectangular backplate, for holding a low voltage electrical outlet plate against an opening in a wall panel or other planar panel having inner and outer surfaces, formed from a flat plate in a single press operation by means of an appropriately dimensioned die, comprising:
a pair of opposed tabs defined by a pair of parallel, longitudinal slits connected by a transverse slit through said backplate, each tab of said opposed pair of tabs depending from a shorter side of said rectangular backplate, and having first, second and third bend lines;
said first bend lines formed by a plurality of intermittent slots through said backplate where each tab depends from its respective side of said rectangular backplate, to define sidewalls of a support bracket with a rectangular frame surrounding a centralized opening when each tab is bent, along said first bend lines, to project orthogonal to the plane of said backplate;
each of said pair of opposed tabs having a narrowed portion defined by transverse notches forming second bend lines, and further having a plurality of longitudinal slots through each tab to form third bend lines, for bending each of the opposed tabs on its width, along said third bend lines, for forming radially projecting wings to fit against and clamp an inner surface of a wall panel and secure the support bracket to the wall panel;
a pair of collinear fastener holes drilled through said flat rectangular backplate in the area where each of said pair of tabs depends from and is contiguous with its respective shorter side of said rectangular backplate, each of said fastener holes surrounded by a curved slot in said backplate adapting the backplate immediately adjacent and surrounding said fastener holes to remain in the plane of said backplate after bending the tabs on said first bend lines, said fastener holes further adapted to threadably receive mounting screws inserted into said backplate, said fastener holes positioned interior of said first bend lines defining said sidewalls of said rectangular plate and spaced apart to correspond with holes in said electrical outlet plate; and
a pair of collinear thin disks formed of sacrificial material within said fastener holes, each disk of said pair of disks having a very small central opening, spaced apart to correspond with holes in said electrical outlet plate, and each disk of said pair of collinear thin disks adapted to receive a mounting screw which engages said sacrificial material as said screws are rotated to threadably tighten an electrical outlet plate against said support bracket.

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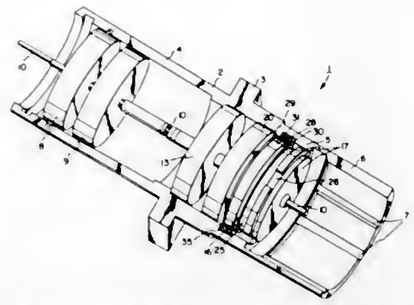
5,211,581
ELECTRICAL CONNECTOR ASSEMBLY AND METHOD THEREFOR
Mark W. Schwartz, Addison; Paul J. Moller, Lake Zurich, and Zdravko M. Zakman, Schaumburg, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jul. 30, 1992, Ser. No. 922,301
Int. Cl.[5] H01R *9/07*
U.S. Cl. 439—581 19 Claims



1. An electrical connector assembly comprising:
an electrical circuit having at least one circuit path;
a substrate having a first receiving port formed to extend through the substrate, and a second receiving port, spaced-apart from the first receiving port and also formed to extend through the substrate;
an electrically-conductive socket member positioned to extend through the first receiving port of the substrate to be supported thereat such that, when positioned to extend therethrough, the socket member abuts against a circuit path of the at least one circuit path of the electrical circuit;
an electrically-conductive clip member comprised of a semi-circular body portion and at least one projecting prong member formed to extend beyond the semi-circular body portion wherein the at least one projecting prong is positioned to extend through the second receiving port to be supported thereat, the at least one projecting prong-member having an end portion thereof forming a spring finger; and
an electrical cable and a coaxial transmission line having a coaxial conductor pin and a coaxial tube positioned thereabout, the electrical cable and the coaxial transmission line being alternately connectable to the electrical circuit when an end of the electrical cable is inserted into the socket member or, alternately, the coaxial conductor pin is inserted into the socket member and the coaxial tube clippingly engages with the spring finger formed at the end portion of the at least one projecting prong of the clip member.

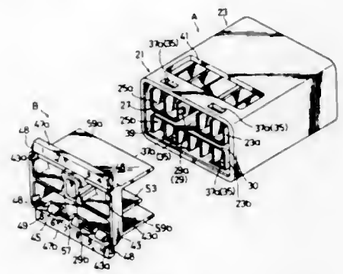
5,211,582
REPAIRABLE CONNECTOR
Ronald W. Morse, Sidney, and Douglas M. Johnescu, Gilbertsville, both of N.Y., assignors to Amphenol Corporation, Wallingford, Conn.
Filed Mar. 9, 1992, Ser. No. 848,337
Int. Cl.[5] H01R *13/40*
U.S. Cl. 439—589 11 Claims

1. A repairable electrical connector, comprising:
a connector shell;
at least one electrical contact for carrying electrical signals from conductors in a second connector mated at one end of said connector to electrical conductors on the other side of the connector;
an insert assembly which fits within said one end of the connector and substantially within the connector shell, and which is removable from said connector shell to permit removal of said at least one contact from said connector;
an O-ring;
a first groove extending around the insert assembly and a second groove extending around an inside surface of said connector shell, wherein one of said first and second grooves is arranged to retain said O-ring therein during assembly of the insert into the connector shell and removal of the insert from the connector shell, and wherein



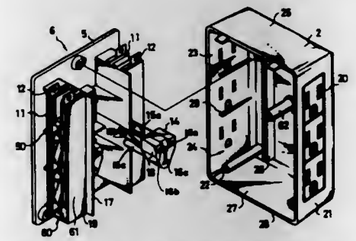
the other of said first and second grooves is arranged to receive said O-ring only when the insert is assembled into the connector shell to retain the insert in the connector, whereby said O-ring serves to both retain said insert substantially within said connector shell and also to provide a seal between said insert and said connector shell.

5,211,583
CONNECTOR
Takayoshi Endo; Sakai Yagi; Masanori Tsuji, and Motohisa Kashiyama, all of Shizuoka, Japan, assignors to Yazaki Corporation, Japan
Continuation of Ser. No. 857,960, Mar. 26, 1992, abandoned. This application Sep. 25, 1992, Ser. No. 951,329
Claims priority, application Japan, Mar. 29, 1991, 3-20159[U]
Int. Cl.[5] H01R *13/40*
U.S. Cl. 439—595 5 Claims



1. A connector comprising:
a plurality of terminal accommodating chambers respectively accommodating terminals therein;
a connector housing having the plurality of terminal accommodating chambers;
a rear holder provided so as to be inserted into and coupled with a rear end of said connector housing for restricting pulling-up of the terminals inserted into said terminal accommodating chambers;
a pair of tentative locking sections provided respectively on said connector housing and on said rear holder, for being tentatively locked on said rear holder when it is halfway inserted into and coupled with the connector housing;
a pair of complete locking section provided respectively on said connector housing and on said rear holder, for being completely locked at completion of insertion and coupling of said rear holder;
a hinge section on said rear holder;
a stopper body coupled to a rear section of said rear holder through said hinge section, said stopper body being interchangeable between a laid-down condition extending along an inserting direction of said rear holder and a standing-up condition which intersects with said laid-down condition, said stopper body being engaged with the rear end of said connector housing in a tentative locking state when said stopper body is biased into the standing-up condition, and said stopper body being brought to the laid-down condition when in a complete locking state so as to be accommodated within the rear end of said connector housing; and
a plurality of indication marks displayed on a rear face of said stopper body when in the standing-up condition, to indicate terminal accommodating of said terminals into the respective terminal accommodating chambers.

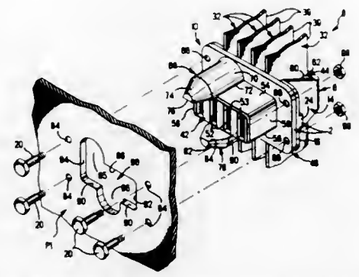
5,211,584
PLUG-IN ELECTRICAL RECEPTACLE
James Lee, 5th Fl., No. 10, Alley 10, Lane 321, Hsinming Rd., Neihu Dist., Taipei, Taiwan
Continuation-in-part of Ser. No. 788,246, Nov. 5, 1991, Pat. No. 5,122,082. This application Jun. 16, 1992, Ser. No. 899,349
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—652 16 Claims



1. A multiple electrical plug receptacle adapter unit intended for attachment to a wall-mounted electrical plug receptacle comprising:
a housing including a plurality of prong-receiving apertures penetrating said housing, and a perimetric edge defining a wall-facing opening; and
a coupling means for coupling the housing to the wall-mounted electrical plug receptacle including a back plate which is integral with a plurality of pods, and a plurality of plugs, each plug having prongs for engagement in the wall-mounted electrical plug receptacle, said coupling means being received by said housing so as to define a space between said plate and the housing, said pods being within said housing adjacent to said apertures, each pod encasing a plurality of contact strips, each strip being aligned with at least two of said apertures; and
each pod further comprising flexible means for electrically connecting each contact strip to one prong of said plugs.

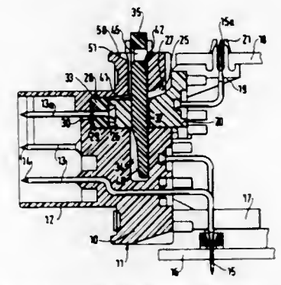
5,211,585
ELECTRICAL CONNECTOR HOUSINGS HAVING POLARIZING MEANS
George H. Douty, Mifflintown, and Charles H. Weidler, Lancaster, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Feb. 28, 1992, Ser. No. 843,696
Int. Cl.[5] H01R *13/64*
U.S. Cl. 439—680 13 Claims

1. An electrical connector insulating housing comprising a forward part having a mating front face and a rear part having a rear face, and a flange to be secured to a mounting panel projecting peripherally of the housing intermediate said faces, the forward part of the housing projecting forwardly from said flange, the housing defining a plurality of contact receiving, through cavities each opening into both of said forward and rear faces, the forward part of the housing having top and bottom walls connected by opposite end walls, first and second polarizing alignment members extending forwardly from said flange, and each having a half cylindrical rear portion and a nose in the form of a half cone projecting from the rear portion beyond the mating face, the flat side of the rear portion of each



polarizing alignment member being coplanar with the flat side of the nose of that alignment member, the flat side of the rear portion of the first polarizing alignment member being formed integrally with the top wall of the forward part of the housing and the rear portion of the second poiarizing alignment member being formed integrally with the bottom wall of the forward part of the housing, said bottom walls being elongate laterally of the forward part of the housing, and said polarizing alignment members being offset from each other longitudinally of said top and bottom walls, unsymmetrically with respect to the longitudinal center of the top and bottom walls.

5,211,586
POWER STRIP
Hans-Heinrich Maue, Bietigheim-Bissingen; Uwe Schaub, Vaihingen/Enz, and Hannes Kalhammer, Beilstein, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
PCT No. PCT/DE90/00895, § 371 Date Jun. 5, 1991, § 102(e) Date Jun. 5, 1991, PCT Pub. No. WO91/11041, PCT Pub. Date Jul. 25, 1991
PCT Filed Nov. 20, 1990, Ser. No. 687,907
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1990, 4000548
Int. Cl.[5] H01R *13/502*
U.S. Cl. 439—695 25 Claims



1. A power strip (11) for an electrical switch device, having a base body (10), a plurality of first plug connection parts (13), which are supported in a sealed manner in the base body and

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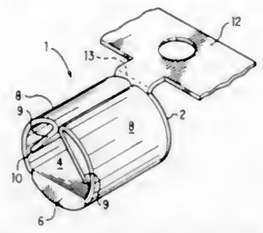
which extend from the base body (**10**) and are joined to electrical components, a plurality of second plug connection parts (**13***a*), which are disposed in an insert part **20**) that is introduced into the base body (**10**), the insert part (**20**) is secured in the base body (**10**) with the aid of a comb-like locking part (**36**) which includes connecting straps (**44**) with tines (**35**) extending therefrom, the base body (**10**) is sealed off from the insert part (**20**) with the aid of a sealing means (**33**), and the tines (**35**) of the locking part (**36**) have a wedge-shaped region (**40**) that extends into the base body (**10**), said wedge-shaped region is oriented toward the sealing means (**33**), and said tines include a region (**41**) having a face parallel to a back side of said tines.

5,211,587

HIGH VOLTAGE CONNECTOR WITH CORONA SHIELD

Peter H. Alden, North Easton, Mass., assignor to Alden Prouets Company, Brockton, Mass.

Filed Aug. 20, 1992, Ser. No. 933,496
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—843 **16 Claims**



1. A high voltage connector for receiving a cylindrical contactor along a connector axis comprising:
a single sheet of metal having a circular base on the axis;
a rectangular face extending outwardly from the base parallel to the axis; and
two arcuate extensions from &he face forming a cylindrical enclosure concentric with the axis;
the extensions each having a reentrant end forming with the face an inner three sided spring socket open at one end to receive the cylindrical contactor;
so that an integral connector socket and a surrounding corona shield are formed integrally from one sheet of metal.

5,211,588

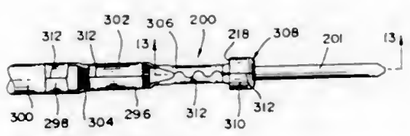
Patent Not Issued For This Number

5,211,589

MICROPIN CONNECTOR SYSTEM

Willard B. McCardell, Rochester, Mich., assignor to Cardell Corporation, Rochester Hills, Mich.

Division of Ser. No. 767,636, Sep. 30, 1991, which is a division of Ser. No. 670,751, Mar. 15, 1991, Pat. No. 5,100,346. This application Feb. 10, 1992, Ser. No. 833,113
Int. Cl.[5] H01R *4/10*
U.S. Cl. 439—879 **4 Claims**



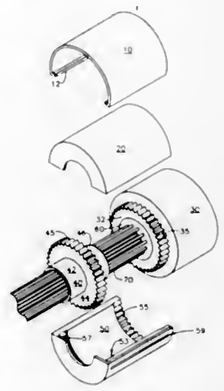
1. In an electrical connector system:
at least a first electrical wire carrying a pin terminal comprising a sheet metal body portion which is precision formed to a generally cylindrical shape to receive the electrical wire at a rearward end, said rearward end of said body portion being fastened to the electrical wire for securing the pin terminal thereto and for making electrical contact therewith, said precision formed body portion being further shaped to have a generally cylindrical forward portion folded back on itself at its distal end to form a double-walled head having a rearwardly-facing, annular, radially-extending locking surface; and
a solid metal pin secured in said pin terminal body forward portion and extending forwardly from said distal head.

5,211,590

REPAIRABLE ELECTRIC CABLE CONNECTOR WITH SNAP TOGETHER BACKSHELL

Kimberly P. Smith, Hamilton, and William W. Stockton, Jr., Cincinnati, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 11, 1991, Ser. No. 805,134
Int. Cl.[5] H01R *13/42*
U.S. Cl. 439—894 **1 Claim**



1. A cable termination comprising:
first and second semicircular shell pieces wherein said first and second shell pieces include antirotation teeth;
a cable transition piece including a central sprocket;
a connector including a wire guide mounted within a sprocket wherein said central sprocket and said connector sprocket include antirotation teeth adapted to mate with said antirotation teeth in said first and second shell pieces; and
a flexible chip adapted to join said first and second shell pieces together over said cable termination piece and said connector sprocket wherein said flexible clip includes ridges at first and second edges thereof and said second shell piece includes slots therein adapted to receive said ridges.

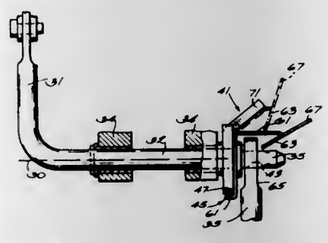
5,211,591

SHIFT ROD QUICK CONNECT AND DISCONNECT

Scott N. Burmeister, Gurnee, and Mark C. Noble, Waukegan, both of Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Jun. 15, 1992, Ser. No. 898,481
Int. Cl.[5] B60K *41/00*
U.S. Cl. 440—86 **6 Claims**

6. A connector for detachably connecting a first vertically movable member having therein an aperture, and a second member rotatably movable to effect vertical movement of the first member in response to rotation of the second member, said connector including a base portion including means adapted for connection with the second member to provide common rotation therewith, a stud fixedly extending from said base portion for movement in common therewith and adapted to be received in the aperture, a resilient clip fixed to said base portion for movement in common therewith and including a part movable relative to said base portion and between an interfering position wherein said part is engagable with the first member to prevent withdrawal of said stud from the aperture and a spaced position affording removal of said stud from the aperture, said clip also including a tab adapted for actuation by an operator to deflect said part away from the interfering position, and a stop fixed to said base portion for movement in common therewith and engagable with said clip to prevent deflection of said part beyond said spaced position in the direction from said interfering position.

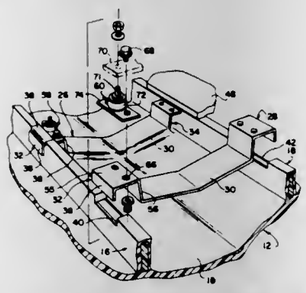


5,211,592

ENGINE MOUNT SYSTEM AND METHOD FOR BOATS

Robert R. Alkema, Merced, Calif., assignor to Malibu Boats, Inc., Merced, Calif.

Filed Oct. 19, 1992, Ser. No. 962,942
Int. Cl.[5] B63H *21/30*
U.S. Cl. 440—111 **11 Claims**



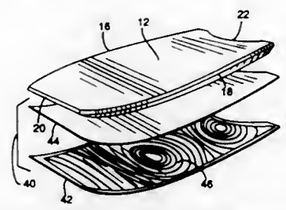
1. A mount system for mounting an engine into a boat having a hull with a contoured interior surface which carries parallel, laterally spaced-apart elongate stringers extending lengthwise of the hull, the mount system comprising the combination of at least one mount element comprised of a strong synthetic composition material, each said mount element being formed with an upwardly open, generally U-shaped mid-portion and two opposite end portions, said mid-portion having a bottom surface shaped to generally conform with the contour of the interior surface of the hull bottom, said end portions being mounted to upper portions of the stringers, and attachment means for orienting each said mount element in a position extending laterally of the hull between the stringers and for bonding said bottom interior surface of the mid-portion to the bottom surface of the hull.

5,211,593

FOAM-CORE STRUCTURE WITH GRAPHICS-IMPRINTED SKIN

Stephen E. Schneider, Claremont, and Steven M. Moran, Long Beach, both of Calif., assignors to Kransco, San Francisco, Calif.

Filed Jan. 23, 1992, Ser. No. 824,784
Int. Cl.[5] B63B *1/00*
U.S. Cl. 441—65 **11 Claims**



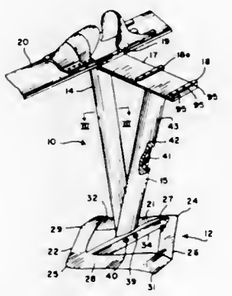
1. A bodyboard for supporting a rider during travel in ocean surf, comprising:
an elongate foam plank forming the core of the bodyboard, the core being made of semi-rigid foam having a thickness generally in the range of 1-inch to 4-inches,
an expanse of skin bonded to the core, the skin including a plurality of layers bonded adhesively together, including an outer layer of nonopaque plastic sheet material having a thickness generally in the range of 1-mil to 5-mils, and an inner layer of plastic sheet material having a thickness generally in the range of 1-mil to 5-mils, and
the outer layer including graphics imprinted on the side of the sheet which faces the core, the graphics being produced by means of a process for printing graphic images on plastic sheet material, whereby the graphics are visible through the nonopaque outer layer to decorate the bodyboard.

5,211,594

WATER SKI HYDROFOIL AND PROCESS

Michael L. Barrows, 59 Robinson Dr., Newport News, Va. 23601

Filed Jul. 2, 1992, Ser. No. 907,860
Int. Cl.[5] B63B *21/00*
U.S. Cl. 441—79 **20 Claims**



1. A water ski hydrofoil comprising:
a pair of hydrofoil sections;
each member of said pair of hydrofoil sections having an apex and a pair of wings integral with said apex and trailing in angular relationship therefrom to form an open base triangular planform;
each member of said pair of wings on each said open base triangular planform sections being provided with wing tips;

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each said wing tip being provided with a ninety degree vertical winglet section extending therefrom;

said open base triangular planform hydrofoil sections facing in opposite directions and disposed in separate parallel planes such that said winglets on one hydrofoil abut the winglets on the other hydrofoil;

said ninety degree vertical section winglets of said one hydrofoil section being connected to said ninety degree vertical section winglets of said other hydrofoil section to thereby form an open diamond shaped planform structure; and

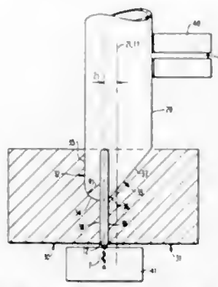
said open diamond shaped planform structure including an elongated spar having one end thereof connected to each said apex of said open base triangular planform hydrofoil sections.

5,211,595

METHOD OF MANUFACTURING AN ARC TUBE WITH OFFSET PRESS SEALS

Lou Kowalczyk, Alfred Station, and Bart van der Leeuw, Hammondsport, both of N.Y., assignors to North American Philips Corporation, New York, N.Y.

Filed Jul. 20, 1992, Ser. No. 916,573
Int. Cl.[5] H01J *9/32*
U.S. Cl. 445—26 **20 Claims**



1. A method of manufacturing a high pressure discharge lamp arc tube having press seals at each end thereof and end chambers into which respective discharge electrodes extend, said method including the steps of providing a length of tubing of vitreous material having a longitudinal tube axis, providing a conductive lead-through connected to a discharge electrode, positioning said lead-through and discharge electrode with respect to an end portion of said tube, softening said end portion by heating, and pressing said end portion with opposing press jaws to form a generally planar press seal about said lead-through, wherein the improvement comprises:

positioning said press seal, said lead-through, and said discharge electrode offset from said longitudinal tube axis in a direction normal to said press seal.

5,211,596

AIR ACTIVATED AMUSEMENT DEVICE

Franklin F. Bradshaw, 927 42 St., Brooklyn, N.Y. 11219

Filed Feb. 10, 1992, Ser. No. 833,100
Int. Cl.[5] A63H *29/16*
U.S. Cl. 446—202 **17 Claims**

1. An amusement device comprising:

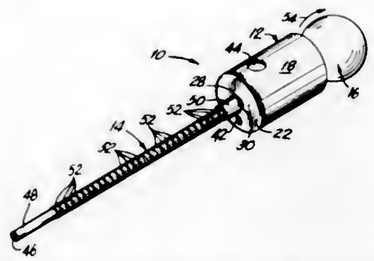
a body member having a front wall and an opposite rear wall, said body member being hollow to receive air therein;

an elongated tubular member connected to said rear wall;

a ball disposed against said front wall;

said body member having tube means for transferring air from said tubular member to an outer surface of said ball so that the air from the tube means causes said ball to rotate against said front wall without falling away from said front wall when said front wall is in a vertical position;

said tube means including a tube extending through said body member and secured to both said front and rear walls;



opening means being provided in said front wall around said tube to permit air to enter said body member; and

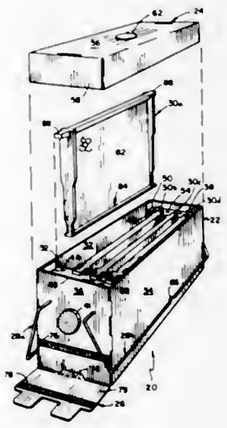
one opening being provided in said body member to permit air to exit from said body member.

5,211,597

PORTABLE BEEHIVE

Charles W. Scott, Traverse City, and Michael D. Kish, Kentwood, both of Mich., assignors to Nucleus Specialties, Inc., Traverse City, Mich.

Filed Apr. 6, 1992, Ser. No. 864,325
Int. Cl.[5] A01K *47/00*
U.S. Cl. 449—27 **29 Claims**



1. A portable beehive comprising:

a box including a bottom, first and second laterally spaced apart side walls, and first and second longitudinally spaced apart outer end walls, said box having a bee exit opening formed therethrough;

support means in said box for supporting a plurality of honeycomb frames within said box; and

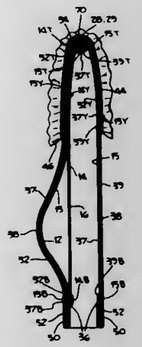
at least one handle spanning said end walls and attached to said nd walls, said at least one handle including ends formed as pivot pins, said pivot pins extending through said end walls into the interior of said box, end portions of said pivot pins being disposed between said honeycomb frames thereby limiting the range of movement of said honeycomb frames within said box.

5,211,598

EXERCISE BRASSIERE

Desiree L. Hall, 2880 Mustang, Las Vegas, Nev. 89108

Filed Jan. 15, 1991, Ser. No. 641,262
Int. Cl.[5] A41C *3/00*
U.S. Cl. 450—1 **16 Claims**



1. An exercise brassiere adapted to fit over the upper torso, breasts and shoulders from a front portion to a back portion of a wearer, the breasts and shoulders of the wearer defining a horizontal and vertical direction and having a front portion and a back portion, the exercise brassiere comprising:

an outer layer constructed of a lightweight, flexible, two-way stretch fabric, having a front portion adapted to fit over the wearer's breasts and over the front portion of the wearer's shoulders and a back portion adapted to fit over the back portion of the wearer's upper torso at the level of the breasts and over the back portion of the wearer's shoulders, the flexible fabric of the outer layer having a stretchability significantly greater in the horizontal direction than in the vertical direction;

an inner layer constructed of a lightweight, flexible, two-way stretch fabric and adapted to fit over the front portion of the wearer's upper torso and shoulders, the inner layer having two circular apertures sized and positioned to receive the breasts of the wearer, the flexible fabric of the inner layer having a stretchability significantly greater in the horizontal direction than in the vertical direction; and

a middle layer constructed of a lightweight, flexible, smooth, moisture-absorbent fabric and adapted to fit over the front portion of the wearer's upper torso and shoulders and also adapted to coextend with substantially all the inner layer and to cover the apertures in the inner layer, the flexible fabric of the middle layer having a stretchability significantly greater in the horizontal direction than in the vertical direction, the front portion of the outer layer being coextensive with substantially all of the inner layer and middle layer and wherein the middle layer covers the apertures of the inner layer.

5,211,599

ADJUSTABLE SIZING DEVICE FOR TUBULAR FOOD CASING

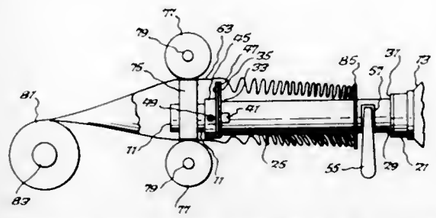
Thomas R. Stanley, Kansas City, Mo., assignor to Teepak, Inc., Westchester, Ill.

Filed Nov. 19, 1991, Ser. No. 794,742
Int. Cl.[5] A22C *11/00*
U.S. Cl. 452—37 **12 Claims**

1. A food stuffing apparatus for tubular casings, which comprises:

(a) food casing filling horn means with a food inlet end, a food outlet end and a cylindrical shaft intermediate to said inlet and outlet ends, and pump means for extruding a foodstuff through said food casing filling horn means,

(b) a stationary food casing sizing means and an adjustable food casing sizing means telescoped over said cylindrical shaft of said food casing filling horn means for expansion of unfilled tubular casing loaded thereon, both said stationary food casing sizing means and said adjustable food casing sizing means having means for engaging and peripherally expanding said tubular casing with movement of said adjustable food casing sizing means, and



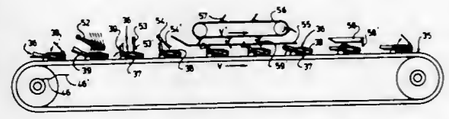
(c) means for shirring said tubular casing onto said food casing filling horn means and over said food casing sizing means without disassembly or removal as said tubular casing is loaded onto said food casing filling horn means.

5,211,600

PROCESS AND DEVICE FOR BONING CARCASS BELLY PIECES

Bob Passchier, Birch Grove House, Cloonagh East, Tullamore, Co., Offaly, Ireland

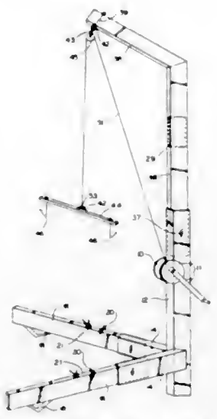
PCT No. PCT/NL90/00128, § 371 Date Apr. 17, 1992, § 102(e) Date Apr. 17, 1992, PCT Pub. No. WO91/03163, PCT Pub. Date Mar. 21, 1991
PCT Filed Sep. 7, 1990, Ser. No. 838,209
Claims priority, application Netherlands, Sep. 8, 1989, 8902252
Int. Cl.[5] A22C *17/04*
U.S. Cl. 452—171 **17 Claims**



7. Device for boning carcass belly pieces (**14**; **59**) or similar pieces which have an inner and outer surface, part of the inner surface having on it a row of more or less encapsulated ribs (**15**; **59'**) forming the pieces of bone to be removed, and each extending inwards essentially from a side edge of the belly piece over a part of the inner surface, characterized in that the device comprises a drivable conveyor (**1**; **35**) which has fixed on it, at intervals from each other, a number of essentially plate-shaped bearing elements (**3**; **37**) being movable in translation during the forward movement of the conveyor, and which carry at the one, leading end a clamping jaw (**4**; **38**) hingedly connected thereto and at the other, rear end an essentially plate-shaped supporting element (**5**; **39**) which is hingedly connected thereto and can be swung up and down, while above the conveyor a grille (**21**; **55**) is arranged whose bars extend in the direction of movement and parallel thereto, and means (**17**; **55**) capable of bending away the meat from the ribs and means (**22**; **56**, **57**) capable of exerting a force on the protruding ribs.

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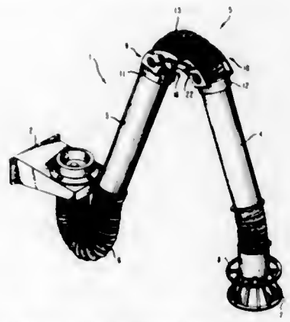
5,211,601
MECHANICAL DEER SKINNING DEVICE
Travis L. Cope, Rte. 3 Box 29-A, Hamburg, Ark. 71646
Filed Jan. 6, 1992, Ser. No. 817,394
Int. Cl.[5] A22B *5/168*
U.S. Cl. 452—187 4 Claims



1. A method for removing the skin from a whitetail deer or other game animal carcass comprising the steps of:
providing a portable free-standing supporting structure for holding said deer or other animal carcass;
positioning said deer or other animal carcass beneath a portion of said structure;
attaching predetermined parts of said deer or other animal carcass to be held by said structure;
cutting a predetermined part of the skin of said deer or other animal carcass and removing a predetermined portion of said skin from the deer or other animal carcass;
attaching said predetermined portion of said skin to a fixed portion of said structure; and
lifting said deer or other animal carcass by means of said structure while said predetermined portion of said skin is held stationary by said structure whereby the skin of said deer or other animal carcass is removed from the carcass as the carcass is raised.

5,211,602
ARRANGEMENT IN FUME EXTRACTION ARMS
Ambjorn Holmgren, Lycksele, Sweden, assignor to J H Plymoth AB, Malmo, Sweden
PCT No. PCT/SE90/00254, § 371 Date Nov. 4, 1991, § 102(e) Date Nov. 4, 1991, PCT Pub. No. WO90/11845, PCT Pub. Date Oct. 18, 1990
PCT Filed Apr. 17, 1990, Ser. No. 768,954
Claims priority, application Sweden, Apr. 13, 1989, 8901331
Int. Cl.[5] F24F *11/00*
U.S. Cl. 454—63 6 Claims

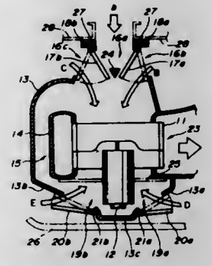
1. An external adjustable middle joint (5) for an extraction arm (1), said extraction arm comprising an inner tube (3) and an outer tube (4), said inner tube being connected to a wall attachment (2) on which a fan is mounted, said outer tube being provided with an extraction hood (7), said middle joint comprising one first half (9) and a second half (10), said inner tube (3) having an outer end, said outer tube (4) having an inner end, said first half (9) being connected to said outer end of said inner tube (3), said second half (10) being connected to said inner end of said tube (4), first connecting member (11) connecting said first half (9) to said outer end of said inner tube (3), second connecting member (12) connecting said second half (10) to said inner end of said outer tube (4), a length of flexible hose (13) extending between and interconnecting said outer end of said inner tube and said inner end of said outer tube, whereby a continuous channel is formed from said fan to said extraction hood, said first half having two first leg members (14) and (15), said second half (10) having two second leg members (16, 17), said first leg members (14,15) projecting from said first connecting member (11), said second leg members (16,17) projecting from said second connecting member (12) wherein said first leg members and said second leg members extend along said hose (13) at both sides thereof, said first leg members (14,15) being articulated to said second leg members (16,17) by means of bolt connections (18,19), each of said bolt connections consisting of a bolt (20) which is mounted free of rotational motion in one of the first leg members (14,15) and in one of the second leg members (16,17), each of said bolts (20) extending with clearance through the opposite leg member of the first leg members and the opposite one of the second leg members, each of said bolts (20) having an outer free end and supporting threaded tightening means (21) thereon, one leg



member (15) of said first leg members and one leg member (16) of said second leg members having a face (24), driving members (22,23) mounted in a position intermediate said corresponding tightening means (21) and said face (24) of the adjacent leg member (15 and 16), said tightening means (21) being screwed towards or away from its associated driving member to adjust the movability of said middle joint (5), wherein said first and second leg members (14, 15 and 16, 17) are made from flat sheet metal plates, said leg members have outer free ends and having an arcuate configuration tapering towards said outer free ends, said tightening means being in the form of wheels having gripping surfaces thereon, means for anchoring said driving members (22, 23) against relative movement in said one of said first and second leg members (17 and 14) respectively in which said bolt (20) is mounted, whereby upon angular movement of said middle joint (5), said driving members and said tightening means (21) are imparted a motion identical to the motion of said associated bolt (20) and unscrewing motion of said bolt connections (18, 29) is prevented.

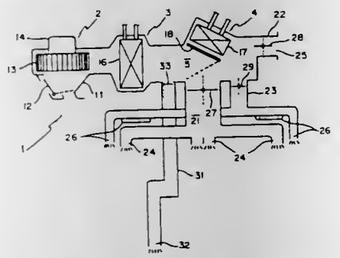
5,211,603
AIR INDUCTION DEVICE FOR USE IN MOTOR VEHICLE
Kazumasa Tanaka, Kanagawa, and Hidenobu Arakawa, Tokyo, both of Japan, assignors to Nissan Motor Co., Ltd. and Calsonic Corporation, both of Japan
Filed Mar. 13, 1992, Ser. No. 851,410
Claims priority, application Japan, Jun. 10, 1991, 3-164931
Int. Cl.[5] B60H *1/24*
U.S. Cl. 454—139 8 Claims

1. An air induction device for use in a motor vehicle having first and second air passage means through which outside air and inside air pass respectively, third and fourth air passage means through with inside air pass, said air induction device comprising:
a casing having upper and lower portions, said lower portion including a bottom wall portion and two inclined side wall portions which are raised from a periphery of said bottom wall portion;
an electric motor installed in said casing;
a blower fan installed in said casing and driven by said electric motor;
outlet passage means for conveying air from the interior of said casing to a remote position;
first means defining in said upper portion of said casing at least two upper inlet openings which are respectively connected to said first and second air passage means;



door means for selectively opening and closing the two openings of said upper portion;
third and fourth means defining in the two inclined side wall portions respective lower inlet openings which are connected to said second air passage means; and
two doors pivotally connected to the two inclined side wall portions to selectively open and close the respective lower inlet openings respectively, each door being arranged to pivot outside said casing.

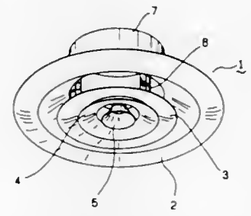
5,211,604
AIR CONDITIONER FOR USE IN AN AUTOMOTIVE VEHICLE
Tsutomu Fujiki, Hiroshima, Japan, assignor to Mazda Motor Corporation, Hiroshima, Japan
Filed Dec. 20, 1991, Ser. No. 811,532
Claims priority, application Japan, Dec. 29, 1990, 2-416774
Int. Cl.[5] B60H *1/00*
U.S. Cl. 454—144 9 Claims



1. An air conditioner having a plurality of emission modes in which appropriately regulated air is directed to a plurality of locations on a front side of a passenger compartment defined in an automotive vehicle, said air conditioner comprising:
a blower unit, disposed on the front side of the passenger compartment, for introducing external air into the passenger compartment or circulating internal air;
an air chamber formed on a downstream side of said blower unit in a direction of air flow;
a rear duct, branched and extending rearwardly from said air chamber, for feeding air from said blower unit to a rear portion of the passenger compartment;

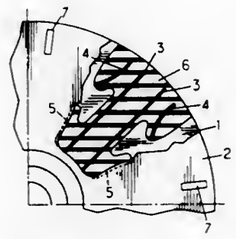
temperature sensor means for sensing a temperature of external air;
air volume restriction means for restricting an air volume to be fed to said rear portion of said passenger compartment; and
control means for controlling said air volume restriction means to reduce the air volume to be fed to said rear portion of said passenger compartment when the temperature of external air sensed by said temperature sensor means is less than a given value.

5,211,605
INCOMBUSTIBLE DIFFUSER ASSEMBLY FOR PREVENTING DEW CONDENSATION IN AIR-CONDITIONING SYSTEMS
Takeo Shiga, and Yoshihide Arakawa, both of Yokohama, Japan, assignors to Senbec Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 27, 1991, Ser. No. 799,271
Claims priority, application Japan, Nov. 28, 1990, 2-326353
Int. Cl.[5] F24F *7/00*
U.S. Cl. 454—284 18 Claims



1. An incombustible diffuser assembly for use in an air conditioning installation to prevent condensation, said assembly comprising: a support frame, and diffuser means mounted to said support frame for controlling the directional flow pattern of air through the diffuser assembly, said diffuser means comprising a plurality of molded diffuser elements defining a plurality of air-diffusing spaces through which air passing through the assembly is diffused, each of said diffuser elements comprising a fibrous inorganic material in an amount of at least 90% by weight and a binder.

5,211,606
TRANSMISSION COUPLING DEVICE WITH COMPOSITE RESILIENT ELEMENT
Jean-Michel Simon, Clamart, France, assignor to Hutchinson, France
Filed May 6, 1991, Ser. No. 694,976
Claims priority, application France, May 4, 1990, 90 05666
Int. Cl.[5] F16B *3/68*
U.S. Cl. 464—85 11 Claims



1. A damped resilient coupling device for a progressive transmission of a drive torque between two coaxial and parallel

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rotary discs, the first rotary disc being a driving disc and the second rotary disc being a driven disc, said device comprising:

a resilient damping mass, disposed between the discs, for providing damping of vibrations between the discs by shearing of said damping mass when the drive torque is applied to the driving disk;

at least one blade formed of a composite material and having a relatively high modulus of elasticity with respect to said resilient damping mass, said blade being embedded in said resilient damping mass and providing a progressive transmission of the drive torque between the discs by a flexion of said blade; and

a respective rest associated with a respective disc and embedded in said resilient damping mass for limiting the flexion of said blade.

5,211,607

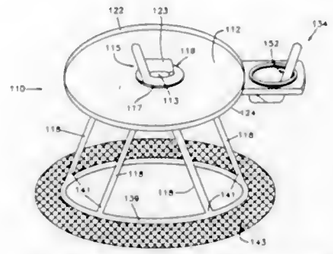
BABY ACTIVITY CENTER

Daniel R. Fermaglich, and Lois F. Fermaglich, both of 9 Van Duyne Rd., Mountain Lakes, N.J. 07046

Continuation-in-part of Ser. No. 528,724, May 24, 1990, Pat. No. 5,085,428. This application Jan. 16, 1992, Ser. No. 821,993

Int. Cl.[5] H63B *23/06*

U.S. Cl. 472—15 **32 Claims**



1. An infant walker adapted for use in a substantially stationary location on a support surface, such as a floor, comprising a frame having a central axis and an outer circumferential edge; mounting means for mounting said frame above the support surface such that said frame is maintained in a substantially horizontal orientation with its said central axis extending vertically and such that said frame is substantially immovable relative to the support surface, said mounting means including a support rod extending downwardly from said frame along said central axis thereof and a plurality of legs extending outwardly from a lower end of said support rod in engagement with the support surface; supporting means, positioned adjacent to said outer circumferential edge of said frame, for supporting an infant for rotation about an axis of rotation of said supporting means, said supporting means including a seat sized and shaped so as to permit an infant to sit thereon; and suspending means for suspending said seat above the support surface such that an infant in said seat has its legs in engagement with the support surface and such that said seat is revolvable about said central axis of said frame in a circular path which circumscribes said outer circumferential edge of said frame, said suspending means including a sleeve rotatably mounted on said lower end of said support rod, a mounting arm attached to said sleeve, said mounting arm having a first end extending upwardly and outwardly from one side of said sleeve and a second end extending upwardly and outwardly from an opposite side of said sleeve, a counterweight carried by said first end of said mounting arm, and rotating means carried by said second end of said mounting arm for enabling said seat to freely rotate about said axis of rotation of said supporting means, whereby an infant in said seat can walk around said frame along said circular path and/or spin about said axis of rotation.

5,211,608

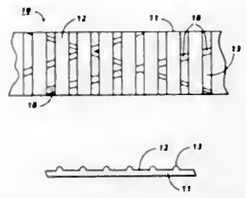
LOW NOISE TIMING BELT

Chee-Chiu J. Wong, Fairport, and Walter J. Sanborn, West Henrietta, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 27, 1991, Ser. No. 722,735

Int. Cl.[5] F16H *1/00*

U.S. Cl. 474—202 **7 Claims**



1. In a positive, non-frictional belt drive system that includes a timing belt entrained around spaced apart drive and driven members having teeth thereon, the improvement for reducing the noise level of the timing belt, characterized by:

alternating teeth and lands on one surface of said timing belt, and wherein said teeth include randomly spaced, non-parallel, transverse and non-orthogonal grooves cut across said teeth that allow air pockets to escape in all directions when said teeth mate with teeth of the drive and driven members during operation of the system.

5,211,609

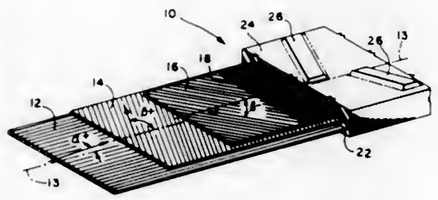
ELASTOMERIC DRIVE BELT

Edwin L. Haines, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 6, 1992, Ser. No. 832,139

Int. Cl.[5] F16G *1/08*

U.S. Cl. 474—260 **3 Claims**



1. An endless elastomeric drive belt comprising:

(a) an endless body having an interior surface, an exterior surface and a pitch line located therebetween extending in a longitudinal direction;

(b) a ply of spirally wrapped cable reinforcement extending in the longitudinal direction parallel to the interior and exterior surfaces and located at or near the pitch line and when placed under tension defining a first lateral force;

(c) a first bias ply of cable reinforcement laid on an angle to the longitudinal direction outwardly of said spirally wrapped cable and in the same direction from the longitudinal direction as the spirally wrapped cable, and defining in use a second lateral force; and

(d) a second bias ply of cable reinforcement laid on an angle to the longitudinal direction outwardly of said first bias ply which angle is equal in magnitude and opposite in direction to said first bias ply angle and at such a distance from the pitch line to generate a third lateral force which neutralizes the sum of the first and second lateral forces.

5,211,610

REDUCTION-DISTRIBUTION UNIT PARTICULARLY SUITABLE FOR INDUSTRIAL MACHINES

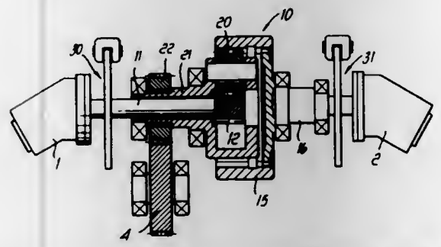
Fritz C. A. Hurth, Montagnola, Switzerland, assignor to Hurth Axle S.p.A., Italy

Filed May 31, 1991, Ser. No. 708,476

Claims priority, application Italy, Jun. 4, 1990, 20520 A/90

Int. Cl.[5] F16H *37/06*

U.S. Cl. 475—1 **13 Claims**



1. Reduction-distribution unit for gearshift units, particularly for industrial machines comprising:

a first hydrostatic motor;

a second hydrostatic motor;

an epicyclic train for operatively associating said first hydrostatic motor and said second hydrostatic motor and for adding and transmitting the power thereof including:

a sun gear;

a first shaft connected to said sun gear;

a first brake associated to said first shaft;

a crown gear;

a second shaft connected to said crown gear;

a second brake associated to said second shaft;

a spider;

a plurality of planet gears supported by said spider for meshing with said crown gear and said sun gear; and

an output gear being keyed to said spider;

wherein said first hydrostatic motor is associated with said first shaft and said second hydrostatic motor is associated with said second shaft, and said first and said second hydrostatic motor are in fluid communication with a variable-displacement hydrostatic pump.

5,211,611

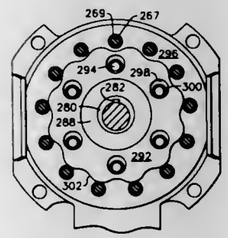
PLANOCENTRIC DRIVE MECHANISM

James B. Lammers, Cleves, and Frank G. Mirazita, Cincinnati, both of Ohio, assignors to American Power Equipment Company, Harrison, Ohio

Continuation-in-part of Ser. No. 388,533, Aug. 1, 1989, abandoned. This application Sep. 19, 1990, Ser. No. 585,849

Int. Cl.[5] F16H *1/32*

U.S. Cl. 475—178 **2 Claims**



1. A planocentric drive mechanism, comprising:

5,211,612

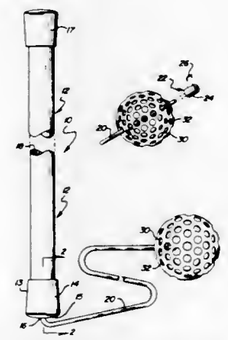
ROPE JUMPING STICK

Fred L. Carbonero, Rochester Hills, Mich., assignor to Pull-Buoy, Inc., Rochester Hills, Mich.

Filed Nov. 28, 1990, Ser. No. 619,011

Int. Cl.[5] A63B *5/22*

U.S. Cl. 482—81 **6 Claims**



1. A rope-skipping assembly comprising: a length of plastic tube (18) having a constant diameter extending between first and second open ends; a cap (17) covering said first end; a cup (14) having a telescoping portion (13) for telescoping engagement along said second end and a covering portion (15) for covering said second end, said covering portion (15) having a cup hole (16) therein; a hollow plastic ball (30) having a plurality of holes (32) through said ball; a cord (20) joining said ball (30) to said tube (18) and having a first end passing through said cup hole (16) in said cup (14) with an enlargement (22) thereon for preventing said first end of said cord (20) from passing back through said cup hole (16) and thereby retaining said core (20) to said cup (14), said cord also having a second end passing through one hole of said plurality of holes (32) in said ball (30) and having an enlargement (22) formed thereon for preventing said second end of said cord (20) from passing back through said hole (32) for retaining said ball (30) to said cord;

characterized by said enlargement (22) including a length of

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hollow plastic tube (**24**) having an inner diameter which equals the thickness of said cord (**20**) and an outer diameter larger than both said cup hole (**16**) and one of said plurality of holes (**32**), said enlargement (**22**) telescopingly disposed over said cord.

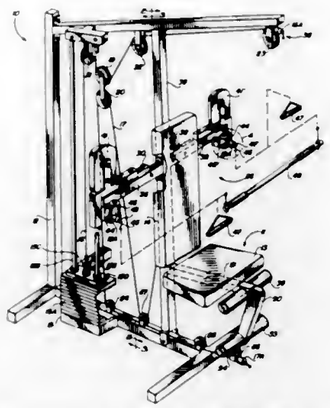
5,211,613
EXERCISING MACHINE WITH IMPROVED ANTI-DRAFTING ENERGY ABSORBING FANWHEEL
Robert C. Friesl, Country Club Hills, Ill., assignor to Schwinn Bicycle Company, Chicago, Ill.
Filed Jun. 23, 1992, Ser. No. 903,241
Int. Cl.[5] A63B *22/06, 69/16*
U.S. Cl. 482—58 **9 Claims**



1. In an exercising machine, and in combination;
a frame;
an anti-drafting energy absorbing fanwheel rotatably mounted on the frame and comprising a hub having an axis with a plurality of air vanes in a central plane of the fanwheel and being movable in an orbit around the axis of the hub;
power input means supported on said frame effective when operated to rotate said fanwheel in one direction;
each air vane comprising a blade having a leading surface and a streamlined trailing surface when rotating in said one direction;
each said streamlined trailing surface having opposite, rearwardly converging side surface portions effective to direct opposite converging air streams along said side surface portions and merge them into a relatively higher pressure stream in said central plane behind said streamlined trailing surface; and
said vanes being circumferentially spaced apart to substantially eliminate drafting between vanes and enable said higher pressure stream behind each trailing surface to impinge on the leading face of the respective immediately following vane in said central plane.

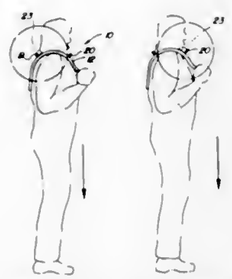
5,211,614
EXERCISE MACHINE
Richard W. Henes, 5816 E. Mockingbird La., Paradise Valley, Ariz. 85253
Filed Jan. 23, 1992, Ser. No. 824,825
Int. Cl.[5] A63B *21/06*
U.S. Cl. 482—102 **6 Claims**

1. An exercise machine comprising:
an exercise station,
a source of reactance to movement of a cable means,
an accessory connection means,
cable means connected at one end to said source of reactance and at its other end to said accessory connection means,
pulley means,
a pair of elongated juxtapositioned parallelly arranged rollers for receiving therebetween a portion of said other end of said cable means and providing for continuously varying compound angle travel of said cable means during exercises,
said rollers have a lengthwise extent that exceeds the depth of the rollers,



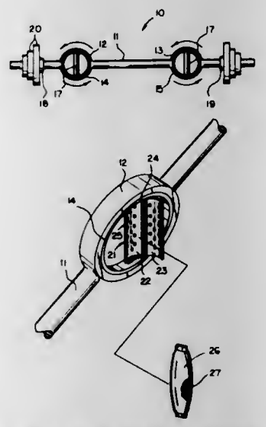
said cable means at its other end passing over said pulley means which laterally redirects said other end of said cable means to pass between said rollers,
whereby said redirected portion of said cable means is randomly removable along the surface of said rollers for providing variable angular travel of said other end of said cable means.

5,211,615
WEIGHT LIFTING HARNESS APPARATUS
Charles H. Sides, 920 Mohawk, Apt. 41, Savannah, Ga. 31419
Filed Feb. 14, 1992, Ser. No. 835,519
Int. Cl.[5] A63B *21/12*
U.S. Cl. 482—105 **4 Claims**



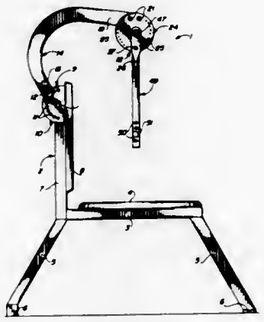
1. A weight lifting harness apparatus, comprising,
a rigid support plate adapted to be worn on the shoulders of an individual, the rigid support plate including a top edge spaced from a bottom edge, the top edge including a first end and a second end, the first end including a rigid first arcuate shoulder plate fixedly mounted thereto and the second end including a rigid second arcuate shoulder plate mounted thereto, wherein the first and second shoulder plates are arranged in a parallel coextensive relationship relative to one another extending from the support plate top edge, the first and second rigid shoulder plates including a respective first and second top surface and a respective first and second bottom surface, the respective first and second bottom surface defining a respective first and second cylindrical shoulder receiving cavity, and each shoulder receiving cavity symetrically formed formed about an axial center line arranged parallel relative to the support plate, and
the first and second shoulder plates terminate in respective first and second handles, the handles project forwardly of the support plate to an orientation substantially aligned with the support plate bottom edge,
and a first set of abutment flanges further comprising: a first and third abutment flange and a second set of abutment flanges further comprising: second and fourth abutment flanges,
the first shoulder plate top surface includes respective first and second abutment flanges fixedly mounted to the first shoulder top surface an equal distance about the axial center line, and the second shoulder plate includes a respective third and fourth abutment flanges mounted an equal distance about the axial center line fixedly to the second shoulder plate top surface,
the first set of abutment flanges being arranged to accept and position a standard weight lifting bar across the shoulder area and rearward an individuals neck and the second set of abutment flanges being arranged to accept and position a standard weight lifting bar across the shoulder area and forward an individuals neck.

5,211,616
WEIGHT LIFTING BAR APPARATUS
Gordon A. Riley, Jr., 3301 Mall Ct., Apt. C8, Michigan City, Ind. 46360
Filed Jan. 8, 1992, Ser. No. 818,255
Int. Cl.[5] A63B *21/072*
U.S. Cl. 482—106 **4 Claims**



1. A weight lifting bar apparatus, comprising,
a central bar, the central bar including a first distal end spaced from a second distal end, the first distal end including a first collar mounted adjacent the first distal end, with the second distal end including a second collar mounted adjacent the second distal end, and
the central bar including a first and second outer ring fixedly mounted to the central bar between the first collar and the second collar, wherein the first outer ring and the second outer ring are mounted and secured to the central bar, and
each outer ring includes an inner ring rotatably and freely mounted concentrically oriented relative to and within the respective first and second outer ring, and
a plurality of individual bearing members mounted between each outer ring and each inner ring, and
each inner ring includes a bar diametrically mounted fixedly within each inner ring, and
each bar includes a first semi-cylindrical tube fixedly mounted within each inner ring, and each first semi-cylindrical tube includes a second semi-cylindrical tube hingedly and pivotally mounted relative to the first semi-cylindrical tube, and a porous bag member received between the first semi-cylindrical tube and the second semi-cylindrical tube, and the first semi-cylindrical tube and the second semi-cylindrical tube including a matrix of apertures directed therethrough, and powder resin contained within the porous bag.

5,211,617
TORSION EXERCISING DEVICE
Roy F. Millen, 109 Belhaven, Shreveport, La. 71118
Filed Oct. 31, 1991, Ser. No. 785,521
Int. Cl.[5] A63B *21/045*
U.S. Cl. 482—127 **13 Claims**



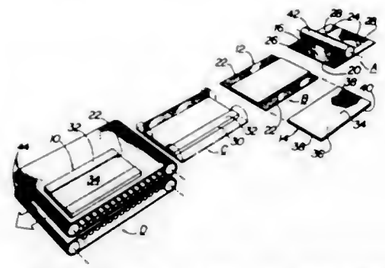
1. A torsion exercising device comprising support means for supporting an exerciser in exercising configuration; a pivot arm assembly characterized by at least one pivot arm plate carried by said support means in fixed relationship, a plurality of pivot arm plate openings provided in spaced relationship in said pivot arm plate, a pivot arm having one end pivotally carried by said pivot arm plate and a pivot arm pin adapted for projecting through a selected one of said pivot arm plate openings and engaging said pivot arm for orienting said pivot arm in a selected exercising position with respect to the exerciser; power frame means carried by the opposite end of said pivot arm in said pivot arm assembly in fixed relationship; torsion bar means carried by said power frame means in pivotal relationship and arm means provided on said torsion bar means, whereby said torsion bar means is subjected to a torsional force responsive to manipulation of said arm means by the exerciser.

5,211,618
SELF-CENTERING LAMINATED PROCESS FOR CORRUGATED CONTAINERS AND BLANK THEREFOR
Dennis J. Stoltz, Austell, Ga., assignor to The Mead Corporation, Dayton, Ohio
Filed Aug. 3, 1992, Ser. No. 923,494
Int. Cl.[5] B31B *1/90*
U.S. Cl. 493—96 **5 Claims**

1. A method of applying a corrugated liner member, having a top surface and a bottom surface, to the inner surface of a corrugated box blank having outer side panels which have outer edges and which are capable of being folded inwardly 180° so as to form a laminated assembly, comprising:
(a) gluing the liner member onto the inner surface; and

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(b) folding the side panels 180°, which have glue thereon, so that the inner surface of each panel is in engagement with



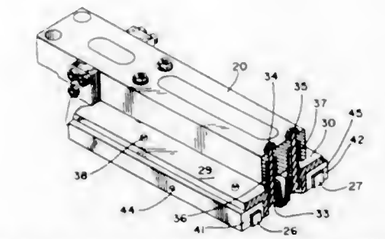
the top surface of the liner member, thereby forming the assembly.

5,211,619

CLAMP ASSEMBLY FOR BAG PRODUCING MACHINE

Paul Ziegelhoffer, Greenleaf, Wis., assignor to Paper Converting Machine Company, Green Bay, Wis.

Filed Dec. 9, 1991, Ser. No. 804,244
Int. Cl.[5] B31B *23/10*; B32B *1/64*
U.S. Cl. 493—194 **6 Claims**



1. In a machine for producing a stream of plastic bags including a frame, a drum mounted for circumferential movement on said frame for rotation about a predetermined axis, and a pair of parallel chain loops one on each side of said drum carrying cross clamping and cutoff sealing wire means to develop individual bags from a continuous, folded plastic web, an improved clamp mechanism comprising:

a relatively axially elongated clamp mounting crossbar extending generally between said chain loops and having an arm portion at each end connected to said chain loops,

a pair of clamps resiliently coupled to said crossbar and positioned on the radially inward side thereof whereby said clamps are adapted to assume different radial attitudes relative to said drum,

two pairs of axially-spaced apart pivot brackets fixed to said crossbar and extending radially inwardly therefrom, the brackets in each pair being aligned on opposite sides of said crossbar and a bracket of one pair being axially aligned with a bracket of the other pair,

a pivot shaft on each side of said crossbar pivotally mounted in said axially aligned brackets,

a generally circumferentially extending pivot pin fixed in each pivot shaft, and

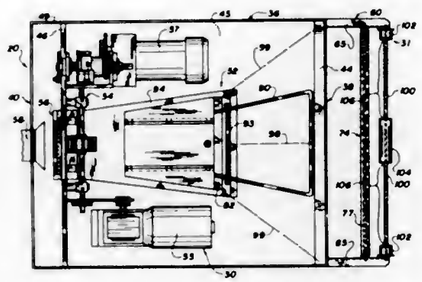
a channel mounted on each pivot shaft and equipped with openings receiving said pivot pin, said channel having a bight portion spaced slightly radially outwardly of said pivot shaft to provide a clearance space, said channel being coupled to an associated clamp whereby said channel and associated clamp are adapted to assume different pivotal positions relative to said pivot shaft and therefore said crossbar.

5,211,620

EDGE-TENSION CONTROLLING DEVICE FOR A CUSHIONING CONVERSION MACHINE

Richard O. Ratzel, Westlake, and James A. Simmons, Willoughby, both of Ohio, assignors to Ranpak Corp., Concord Township, Lake County, Ohio

Filed Nov. 1, 1991, Ser. No. 786,573
Int. Cl.[5] B31D *5/00, 5/04*
U.S. Cl. 493—346 **17 Claims**



1. A cushioning conversion machine for converting a sheet-like stock material, which may be viewed as having two edge sections and a central section therebetween, into a cushioning product, said machine comprising:

a conversion assembly which converts the sheet-like stock material into a cushioning product, and

a supply assembly which supplies the sheet-like stock material to said conversion assembly;

wherein the stock material is supplied to said conversion assembly in such a manner that its edge sections must travel in a longer path than its central section thereby creating edge-tension in the stock material;

wherein a certain minimum conversion-tension is necessary in the edge sections of the stock material to properly convert the stock material into a cushioning product;

wherein a certain continuous tearing-tension, greater than said minimum conversion-tension, will cause a continuous tear in the stock material; and

wherein said stock supply assembly includes an edge-tension controlling device which controls said edge tension by creating so that the edge tension is greater than or equal to said minimum forming-tension and less than said continuous tearing-tension.

5,211,621

DEVICE FOR ZIGZAG FOLDING OF A COUNTINUOUS TAPE

Rene Cheynet, Saint-Just-Malmont, France, assignor to ETS J. Cheynet et Ses Fils, France

PCT No. PCT/FR91/00063, § 371 Date Nov. 19, 1991, § 102(e) Date Nov. 19, 1991, PCT Pub. No. WO91/12194, PCT Pub. Date Aug. 22, 1991
PCT Filed Feb. 1, 1991, Ser. No. 761,963
Claims priority, application France, Feb. 8, 1990, 90 01847
Int. Cl.[5] B65H *45/103*
U.S. Cl. 493—413 **12 Claims**

1. A device for zigzag folding of a flexible tape, comprising:

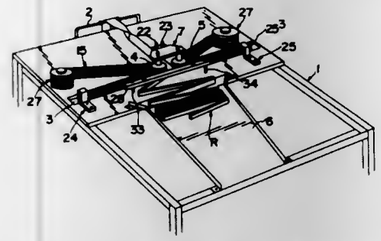
an entablature having means for distributing the tape including a guide for transmitting the tape;

a transverse slot in said entablature;

a pair of rollers disposed within said transverse slot, said rollers having an alternating succession of axially stacked relatively rotatable disks and pulleys, said disks being fixed on said rollers so as to rotate together, each of said pulleys engaging a cable, a plurality of cables constituting a belt for advancing the tape, one end of said cables being anchored in fixing means;

a support carriage beneath said entablature, attachment ends

of said rollers attached to said support carriage, said support carriage including motor means for rotating said



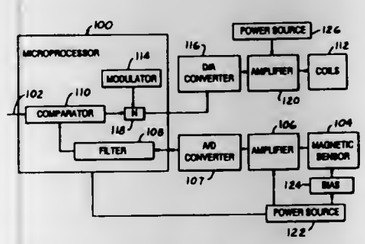
disks, said rollers rotating in opposite directions whereby the tape is guided between the rollers for folding the tape.

5,211,622

METHOD AND APPARATUS FOR THE TREATMENT OF CANCER

Abraham R. Liboff, Birmingham, Mich.; Bruce R. McLeod, Bozeman, Mont., and Stephen D. Smith, Lexington, Ky., assignors to Life Resonances, Inc., Bozeman, Mont.

Continuation of Ser. No. 437,485, Nov. 15, 1989, Pat. No. 5,045,050. This application May 21, 1991, Ser. No. 703,383
Int. Cl.[5] A61N *1/40*
U.S. Cl. 600—9 **2 Claims**



1. A method for reducing the rate of growth of cancer cells in a biological subject, comprising:

generating an applied magnetic flux along an axis projecting through a space, said space being occupied by cancer cells,

said flux generating means having at least two field coils, each of said field coils having at least two windings, one of said windings of each coil being an ac winding and the other of said windings being a dc winding, said ac winding having an associated full-wave rectifier and an oscillator;

measuring an ambient field existing in said space along said axis in the region of said cancer cells;

said applied magnetic flux generating step including the steps of generating with said dc winding a magnetic flux which reduces said ambient field to substantially zero and generating with said ac windings an ac magnetic field having a component along said axis in said space, said ac magnetic field component having a preselected rms value which reduces the rate of proliferation of said cancer cells.

5,211,623

SELF ADJUSTING, SOFT NECK SUPPORT COLLAR

Jeff Sarkozi, 13722 Belle Rive, Santa Ana, Calif. 92705

Filed Aug. 6, 1992, Ser. No. 925,098
Int. Cl.[5] A61F *5/02*
U.S. Cl. 602—18 **13 Claims**



1. A self adjusting, soft, neck support collar, comprising:

a.) an upper, tubular-shaped element providing an outer, covering material and an interior which contains a soft fill material, the tubular-shaped element defining ends which are adapted for closure under a user's chin by closure elements mounted at each end, to thereby form a ring which fits upwardly around the user's neck; and,

b.) a lower, tubular-shaped element providing an outer covering material, and shaped to form an interior which contains a soft fill material, the lower, tubular-shaped element being adapted for closure at each end by closure elements to form a ring which fits around the lower portion of the user's neck, the upper and lower tubular elements being separate and distinct from each other so as to form a curved interface boundary line area therebetween and when the closure portions of each tubular element are connected, they will support the user's neck; whereby,

i. the closure portion of the upper element and adjacent lower, tubular element define a chin support for the user; and,

ii. the soft fill materials of the upper and lower tubular elements interiors function to: 1. impart a flexible support for the user's neck and chin which self adjusts for different shapes, sizes and weights of the user's neck and chin regions; 2. maintain a resilient support which increases as the user's neck and chin deviate from an erect position, during motion; and 3. self adjust to the user in a rest position; and,

c.) a flexible and removable outer sleeve open on both ends and functioning to secure and stabilize the tubular elements and to enable the separate insertion and removal of upper or lower tubular elements of varying sizes while maintaining a resiliency sufficient to prevent vertical and lateral displacement of the tubular elements, and enabling horizontal rotation of the lower tubular element relative to the upper tubular element.

5,211,624

SURGICAL CLOSURE DEVICE METHOD

James Z. Cinberg, 167 N. Ridgewood Rd., South Orange, N.J. 07079, and Peter J. Wilk, 185 W. End Ave., New York, N.Y. 10023

Filed Dec. 9, 1991, Ser. No. 803,582
Int. Cl.[5] A61M *31/00*
U.S. Cl. 604—49 **9 Claims**

1. A surgical closure method, comprising the steps of:

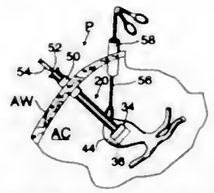
providing an elongate rod-like member provided at a distal end with a pair of expandable balloons in a collapsed configuration, one of said balloons being located distally of another of said balloons;

inserting into a patient's abdominal cavity, through an aperture in an abdominal wall of a patient, a distal portion of said rod-like member;

subsequently inserting the distal end of said rod-like member

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and only said one of said balloons through an opening in a selected internal body organ or tissue of the patient; and



inflating said balloons from said collapsed configuration to an expanded configuration so that a portion of the selected internal body organ or tissue is sandwiched between said balloons, thereby at least temporarily closing the opening.

5,211,625

ULTRASONIC TREATMENT APPARATUS

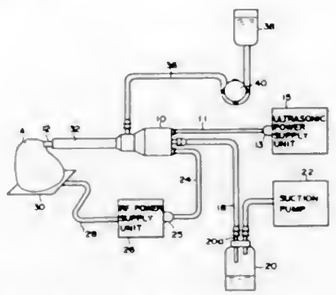
Tomohisa Sakurai; Tetsumaru Kubota, both of Hachioji; Tatsuya Kubota, Sagamihara; Hiroaki Kagawa, Hachioji; Yuichi Ikeda, Hachioji; Mitsumasa Okada, Hachioji; Hitoshi Karasawa, Hachioji; Hideo Nagazumi, Hachioji; Kazuya Hijii, Hachioji; Toshihiko Suzuta, Hachioji; Masahiro Kudo, Hachioji; Kenji Yoshino, Tama, and Tadao Hagino, Yokohama, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 15, 1991, Ser. No. 670,535

Claims priority, application Japan, Mar. 20, 1990, 2-71023; Jul. 31, 1990, 2-203573

Int. Cl.[5] A61B *17/20*

U.S. Cl. 604—22 **8 Claims**



1. An ultrasonic treatment apparatus comprising:

high-frequency current generating means for generating a high-frequency current; and

a hand piece comprising:

a hollow cylindrical member having an opening and an outer surface;

ultrasonic vibration generating means arranged in said hollow cylindrical member, for generating ultrasonic vibrations;

first transmitting means arranged in said hollow cylindrical member, said first transmitting means having an end portion thereof that is externally exposed from said opening of said hollow cylindrical member, said first transmitting means externally transmitting said ultrasonic vibrations generated by said ultrasonic vibration generation means, through said externally exposed end portion thereof;

second transmitting means for transmitting said high-frequency current from said high-frequency current generating means to said first transmitting means; and

at least one mouthpiece provided on said hollow cylindrical member, for supplying water from a water supply means into said hollow cylindrical member through said at least one mouthpiece, said water then being discharged from said hollow cylindrical member through said opening of said hollow cylindrical member;

all of said outer surfaces of said hollow cylindrical member as well as said at least one mouthpiece being formed of an insulating material, said insulating material preventing said high-frequency current transmitted by said first transmitting means from leaking externally through said hollow cylindrical member and said at least one mouthpiece;

said first transmitting means having a cylindrical shape, and said first transmitting means including a probe having a suction path defined therein;

said hollow cylindrical member including;

an inner sheath extending along said probe and covering said probe to define a first flow path therebetween;

an outer sheath extending along said inner sheath and covering said inner sheath to define a second flow path therebetween;

said outer sheath having an end portion where a distal end portion of said probe is externally exposed;

means for causing said suction path defined in said probe to communicate with said first flow path at proximal end portion of said probe; and

means for causing said first flow path to communicate with said second flow path;

said inner sheath comprising an electrically conductive member, and said outer sheath comprising an insulating member; and

said apparatus further comprising connecting means for detachably connecting said inner and outer sheaths at respective proximal end portions thereof, thereby enabling a distal end portion of each of said inner and outer sheaths to be free;

whereby said insulating material prevents high-frequency current from leaking along a flow path of said water as said water is discharged through said opening of said hollow cylindrical member.

5,211,626

MEDICAL INFUSION APPARATUS

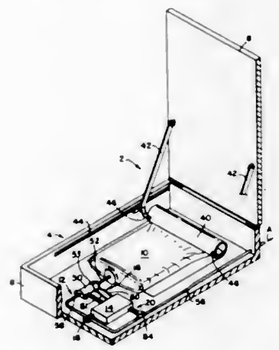
Peter Frank, London, and Terence G. Giles, Coulsdon, both of England, assignors to Product Innovatioo Holdings Ltd., Hertsfordshire, England

Continuation of Ser. No. 188,504, Apr. 29, 1988, abandoned. This application Dec. 17, 1990, Ser. No. 627,906

Claims priority, application United Kingdom, May 1, 1987, 8710441

Int. Cl.[5] A61M *31/00, 5/00*

U.S. Cl. 604—65 **25 Claims**



1. Medical infusion apparatus comprising:

a liquid reservoir;

a conduit for delivering liquid from the reservoir to a patient; and

a monitor for monitoring the flow rate of said liquid along said conduit, said monitor comprising means external of said conduit for applying a pulse of heat to a liquid at a location in the conduit, and radiation sensing means outside a periphery of the conduit including an infra-red sensor spaced from said conduit for sensing a change in temperature of liquid at a position downstream of the location, so that the speed of travel of the heat pulse can be determined in response to radiation sensed by the sensor;

whereby the monitor is non-intrusive to permit removal of the conduit from the monitor.

5,211,627

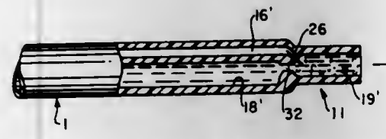
CATHETER AND METHOD FOR INFUSION OF AERATED LIQUID

Howat L. William, Stoneham, Mass., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Filed Feb. 12, 1991, Ser. No. 654,355

Int. Cl.[5] A61M *37/00*

U.S. Cl. 604—82 **7 Claims**



1. Apparatus for injecting an aerated stream of liquid into a body cavity, comprising:

a catheter having a distal end portion for insertion into a body cavity, a proximal end portion remote from said distal end portion, first and second lumens extending from said proximal end portion to said distal end portion, and an opening formed at said distal end portion between said first and second lumens to provide communication therebetween; and

a syringe connected to said proximal end of said catheter, said syringe having first and second barrels communicating with said respective first and second lumens, and first and second plungers mechanically linked together and situated in said first and second barrels for simultaneously infusing air and liquid into said first and second lumens, respectively.

5,211,628

SYRINGE WITH AUTOMATIC RETRACTING NEEDLE

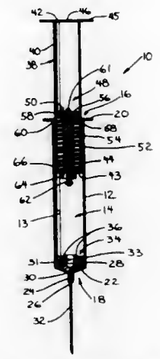
John M. Marshall, 2323 Topswood La., South Bend, Ind. 46614

Filed Sep. 30, 1991, Ser. No. 767,372

Int. Cl.[5] A61M *5/32*

U.S. Cl. 604—110 **3 Claims**

1. In a syringe for administering injections to a patient, said syringe including a hollow tubular member defining a chamber for storing fluids to be injected, a hypodermic needle connected to a discharge end of said tubular member, and a hollow plunger reciprocally movable between up and down positions in said tubular member, the improvement wherein said needle is fastened to a needle retraction block, lock means fixedly connected to said tubular member within said chamber for securing said block and needle in a first orientation with the needle protruding outwardly of said tubular member, and retraction means carried by said plunger for mating with said block and for disengaging said lock means as the plunger is reciprocated into said full down position, and biasing means located within said plunger and operatively connected to said retraction means, said biasing means for automatically retracting said needle into said plunger when the plunger reaches its full down position, said retraction means includes a shaft which is press-fitted into said plunger, said shaft including a lower protrusion matable with said block for allowing one-way movement of the block, said biasing means includes a spring operatively connected to said shaft within said plunger, said shaft includes a foot part radially spaced from said protrusion, and said lock means includes an inwardly protruding flexible lip bearing on said block, said foot part contacting and bending said lip away from said block when the plunger is in said full down position whereby said lock means is disengaged and flexes the foot inward which removes contact between the plunger and the shaft thus allowing the needle to be retracted.



5,211,629

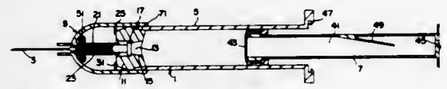
SAFETY SYRINGE

William B. S. Pressly, 112 Caedmoo Ct., Greer, S.C. 29650, and Charles A. Vaughn, Sr., 3123 Queens Walk NE., Atlanta, Ga. 30345

Filed Dec. 23, 1991, Ser. No. 813,115

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—110 **13 Claims**



1. A syringe apparatus, comprising:

a barrel;

a plunger movable within said barrel;

a needle assembly mounted on said barrel;

a deformable base interconnecting said barrel and said needle assembly;

sacrificial support means in said needle assembly for positioning said deformable base;

a hollow needle containment tube formed in said needle assembly defining a passageway extending between said deformable base and an opposite side of said needle assembly;

energy storage means within said passageway;

a hollow needle passing through said passageway;

an enlarged head on said needle within said needle assembly engaged between said deformable base said energy storage means; and

a rupturable boot on said plunger for moving a fluid within said barrel through the hollow of said needle when said plunger is moved through said barrel toward said needle assembly;

whereby when said plunger moves through said barrel toward said needle assembly a fluid is moved from said

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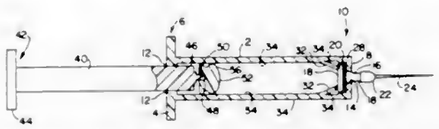
barrel through the hollow of said needle and when said boot contacts said deformable base continued movement thereof moves said deformable base downwardly severing said sacrificial support means with continued movement until such time as sufficient force is imparted to said rupturable boot by said enlarged head of said needle to rupture said rupturable boot, said deformable base then releasing said needle with said enlarged head due to the force applied thereto by said energy storage means to project said needle with said enlarged head into the interior of said plunger.

5,211,630

HYPODERMIC SYRINGE

David R. Schmahmann, 50 Longwood Ave. #815, Brookline, Mass. 02146

Filed Jun. 9, 1992, Ser. No. 895,617
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—110 16 Claims



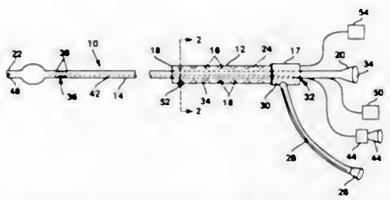
1. A hypodermic syringe comprising a barrel, a plunger slidably disposed in said barrel and extending from a proximal end of said barrel, a stopper mounted on a first end of said plunger, a needle mounting member disposed in said barrel, a post portion of said needle mounting member being adapted to extend through an opening in a distal end of said barrel, a needle mounted on said post portion, a coil spring fixed at one end to an internal portion of said barrel proximate a distal end wall thereof and fixed at a second end to said needle mounting member to bias said needle mounting member toward said proximal end of said barrel, and leaf spring means extending inwardly of said barrel from wall portions of said barrel and adapted to engage said needle mounting member to hold said needle mounting member adjacent said distal end of said barrel against said bias of said coil spring, said stopper being adapted to engage said leaf spring means to move said leaf spring means outwardly to disengage from said needle mounting member, to permit said needle mounting member and said needle to move in said barrel in response to said coil spring bias toward said proximal end of said barrel to move said needle from outside said barrel to inside said barrel.

5,211,631

PATIENT WARMING APPARATUS

Charles M. Sbeaff, 232 Hampton Ct., Palatine, Ill. 60067

Filed Jul. 24, 1991, Ser. No. 734,935
Int. Cl.[5] A61M *31/00*; A61F *7/12, 7/00*; H05B *7/12*
U.S. Cl. 604—113 10 Claims



1. Apparatus for warming a patient with heated fluids at a controlled temperature and flow rate, the patient having blood which circulates within endothelial lined vessels, the patient's blood having a core temperature inside the patient and a vessel temperature inside a selected endothelial lined vessel, comprising:

catheter means for injecting the heated fluids into the selected vessel of the patient through an opening in the patient, said catheter means including a catheter having a proximal catheter end and a distal catheter end which is to be passed through the patient opening and into the selected vessel of the patient;

means for mixing the heated fluids with the blood without excessive endothelial damage, said mixing means including a plurality of orifices near said distal catheter end for passing the heated fluids into the patient, said distal catheter end further having means for separating said fluid passing means from the patient so that substantially all of the heated fluids mix with the blood within the patient before the heated fluids reach the patient's endothelial lined vessels;

means for thermally isolating the patient opening from said catheter means, said thermal isolating means including a sheath which surrounds said catheter means at the patient opening, a cooling jacket between said sheath and said catheter means, and means between said sheath and said catheter means for spacing said sheath from said catheter; and

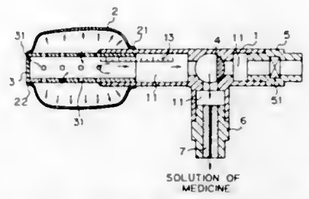
means for controlling the temperature and the flow rate of the fluids into the patient.

5,211,632

INFUSER WITH BALLOON FOR INFUSING MEDICINE

Osamu Tsukada, Nagano, Japan, assignor to Tsukada Medical Research Co., Ltd., Tokyo, Japan

PCT No. PCT/JP90/00266, § 371 Date Dec. 18, 1991, § 102(e) Date Dec. 18, 1991, PCT Pub. No. WO91/12835, PCT Pub. Date Sep. 5, 1991
PCT Filed Feb. 28, 1990, Ser. No. 776,312
Int. Cl.[5] A61M *37/00*
U.S. Cl. 604—132 2 Claims



1. An infuser for continuously infusing a solution of medicine, comprising:

a tubular main body defining a flow path therein which extends along the longitudinal axis of said body;

an inlet portion integral with one end of said body, said inlet portion having one-way flow means for allowing a solution to flow in one direction into the infuser and toward said flow path from the inlet portion;

a cylinder having a closed bottom, said cylinder being slidably connected to the other end of said body with the bottom of said cylinder being directed outwardly thereof, said cylinder or the other end of said body having a plurality of holes extending therethrough;

a change-over valve disposed in said flow path at an intermediate portion of said tubular main body;

an outlet portion communicating with said flow path via said change-over valve so as to allow a solution of medicine to be discharged from the infuser;

a control element disposed in said outlet portion and adapted to control the flow of a solution of medicine out of the infuser through said outlet portion;

a balloon of an elastic material encompassing said holes, said balloon having one circumferential portion air-tightly secured to the outer periphery of said body at a first position thereon and another circumferential portion air-tightly secured to the outer periphery of said cylinder at a second position thereon; and

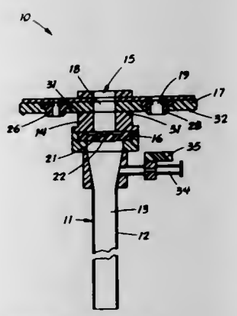
said change-over valve being moveable between at least a first position at which said flow path is open between the ends of said tubular main body while said outlet portion is closed to the flow path by said valve whereby a solution of medicine can be introduced into the infuser without flowing out of said outlet portion and a second position at which said flow path is open between said other end of said tubular main body and said outlet portion whereby a solution of medicine in the infuser can flow from said outlet portion through said control member.

5,211,633

SELECTABLE SEAL CANNULA

Albert E. Stouder, Jr., Doctors Park, R.R. 4, Tipton, Ind. 46072

Filed Jun. 24, 1992, Ser. No. 903,370
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—167 12 Claims



1. A surgical cannula, comprising:

a tubular member insertable into a medical patient and having a side wall defining a lumen through which a medical device is to be inserted;

a housing mounted to a proximal end of said tubular member, wherein said housing has a passage allowing insertion of a medical device therethrough and into said lumen;

a movable member mounted to said housing and selectively movable between a first position, a second position and a third position across said passage, wherein when said movable member is in said first position said passage accommodates insertion of a first medical device having a first outer cross-sectional dimension;

a first valve body mounted in said movable member and having a first opening therein corresponding in size to an outer cross-sectional dimension of a smaller second medical device, wherein said first opening is smaller than said passage, and wherein when said movable member is in said second position said first valve body provides a fluid tight seal around said second medical device; and

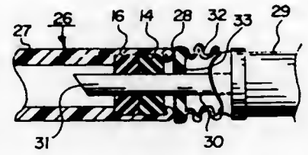
a second valve body mounted in said movable member and having a second opening therein corresponding in size to an outer cross-sectional dimension of a smaller third medical device, wherein said second opening is smaller than said first opening, and wherein when said movable member is in said third position said second valve body provides a fluid tight seal around said third medical device.

5,211,634

COMPOSITE SEAL STRUCTURE AND A COUPLING ARRANGEMENT FOR A CANNULA

Vincent L. Vaillancourt, 14 Bunyan Dr., Livingston, N.J.

Filed Aug. 6, 1991, Ser. No. 741,085
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—167 7 Claims



1. A coupling arrangement comprising

a first part defining a tubular housing;

a composite seal structure secured in one end of said housing, said seal structure including an elastomeric septum having an exposed end of said end of said housing and a slit therein and a sealing member adjacent said septum with a throughbore longitudinally aligned with said slit; and

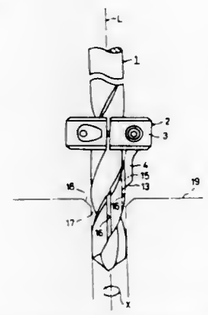
a second part having a cannula with a blunt end, said cannula passing through said slit of said septum in slidable relation and passing through said throughbore of said sealing member in seal-tight releasable friction fit relation for coupling said second part with said first part.

5,211,635

DRILL WITH TRIMMING ATTACHMENT

Takashi Omi, and Shohei Omi, both of Anjo, Japan, assignors to Omi Kogyo Co., Ltd, Japan

Filed Dec. 26, 1991, Ser. No. 814,120
Claims priority, application Japan, Jun. 25, 1991, 3-153526
Int. Cl.[5] B23B *51/10*
U.S. Cl. 408—224 16 Claims



1. A drill with a trimming attachment for forming a hole in a work piece, which comprises:

a drill shaft;

a longitudinally extending groove formed in the shaft of the drill; and

a trimming attachment suitable for clamping to the drill shaft for forming a beveled recess at the top of a hole formed by the drill, the trimming attachment including a body having a plurality of separate blocks and plurality of bolts for combining the blocks together, and a trimming blade having base and arm portions, the base portion of the trimming blade being detachably secured to the body, and said body being arranged to be removably journaled about and clamped to the shaft of the drill such that an edge of

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the arm portion of the trimming blade is closely received by said groove such that during use, the groove carries at least a portion of the load acting against the trimming blade;

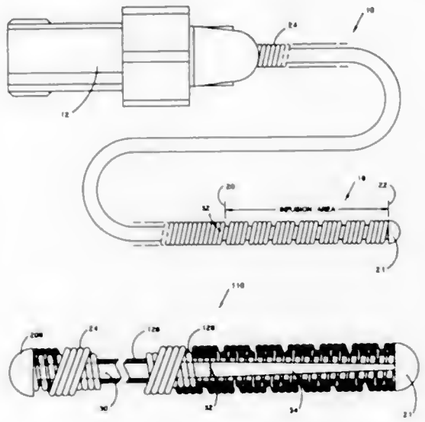
wherein the trimming blade has a through hole defined at the base portion thereof and is fixed to the body at a position between two of the blocks and is secured by one of said bolts which passes through the through hole.

5,211,636

STEERABLE INFUSION GUIDE WIRE

Hans A. Mische, St. Cloud, Minn., assignor to Lake Region Manufacturing Co., Inc., Chaska, Minn.

Filed Oct. 31, 1990, Ser. No. 607,454
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—264 **5 Claims**



1. An infusion guide wire having a proximal end and a distal end comprising:

a. an outer coil having a proximal end and a distal end and having a first lumen, said outer coil being close wound for the majority of its length between said proximal end and said distal end;

b. a flexible sheath having a proximal end and a distal end and having a second lumen located within said first lumen wherein said distal end of said flexible sheath is not coterminous with said distal end of said outer coil;

c. a core wire having a distal end fixedly attached to said distal end of said outer coil located within said second lumen; and

d. means sealingly attached to said proximal end of said flexible sheath for inserting a pressurized fluid into said second lumen, said guide wire further comprising;

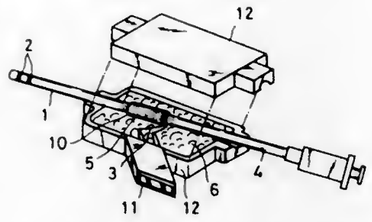
e. a capillary tube within said second lumen, and wherein said outer coil is space wound from said distal end of said flexible sheath to said distal end of said outer coil.

5,211,637

DEVICE FOR CONNECTING CATHETER AND INJECTION TUBE

Yasuhiro Goto; Shin-ichi Hirano, both of Niwa, and Kiyoshi Asai, Ashigarakami, all of Japan, assignors to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho, Aichi and Dow Corning Kabushiki-Kaisha, Kanagawa, both of Japan

PCT No. PCT/JP90/00786, § 371 Date Dec. 6, 1991, § 102(e) Date Dec. 6, 1991, PCT Pub. No. WO90/15578, PCT Pub. Date Dec. 27, 1990
PCT Filed Jun. 15, 1990, Ser. No. 778,081
Int. Cl.[5] A61M *25/00*
U.S. Cl. 604—283 **1 Claim**



1. A device for connecting a catheter and an injection tube, wherein said catheter is a tubular catheter having an open end and electrodes disposed at the closed end thereof and having lead wires connected to said electrodes and taken out at the open end thereof and wherein said injection tube has an open end and has a mechanism for fluid injection at the other end thereof, said device comprising

(1) an elastic tube into which the open end of said tubular catheter and the open end of said injection tube are inserted so that both open ends are connected end-to-end and said conductive wires are lead out through a gap between the elastic tube and the injection tube;

(2) a sealing agent to cover respective surfaces of the catheter, injection tube and elastic tube which surfaces are coated with an adhesive wherein said adhesive has a high viscosity and wherein said catheter, injection tube and elastic tube, when coated with said adhesive, are compatible with said sealing agent lying thereabove; and

(3) a casing comprising half members wherein a connection terminal is arranged on the side of said casing, and wherein said casing has openings through which on one hand said catheter and on the other hand said injection tube extend wherein the ends of said taken out conductive wires connect to said terminal and said casing serves to tightly fix said taken out conductive wires in the sealing agent packed in the case.

5,211,638

PRE-SLIT INJECTION SITE

Thomas E. Dudar; Steven C. Jepson, both of Palatine; Robert P. Dobbie, Lincolnshire; Peter L. Graham, Gurnee; Michael J. Finley, Park City, and Richard A. Rollins, Mundelein, all of Ill., assignors to Baxter International Inc., Deerfield, Ill.

Division of Ser. No. 425,790, Oct. 23, 1989, Pat. No. 5,100,394, which is a continuation-in-part of Ser. No. 147,414, Jan. 25, 1988, abandoned. This application Jan. 21, 1992, Ser. No. 823,498

The portion of the term of this patent subsequent to Mar. 31, 2009, has been disclaimed.

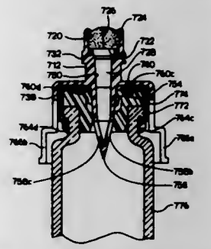
Int. Cl.[5] A61M *25/00*
U.S. Cl. 604—283 **9 Claims**

1. An injection site usable with a blunt cannula comprising:

a housing defining a fluid flow channel therethrough, said housing having a first end and a second end;

a resilient sealing means, carried by said housing overlying said channel, for sealing said first end, said sealing means being formed with a resealable opening therein extending at least partway therethrough and an exterior peripheral surface;

a retaining means for retaining said sealing means in said housing such that a cannula can be sealingly inserted through said opening and placed in fluid flow communication with said flow channel and such that the cannula can be removed therefrom with said sealing means interacting with said retaining means so as to reseal said opening, said



retaining means including a deformation of said housing first end against said exterior peripheral surface of said sealing means, said first end deformation applying axially directed forces to said sealing means;

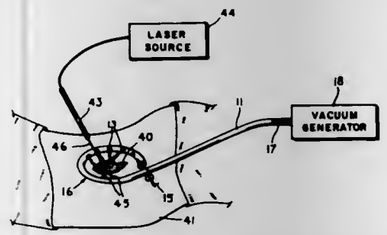
a coupling component integral with said second end and continuing said fluid flow channel, said coupling component having a spike with a barb member, said spike capable of being inserted into a drug vial and provide drainage of the vial fluid through said fluid flow channel.

5,211,639

EVACUATOR ASSEMBLY

Peter J. Wilk, 185 W. End Ave., New York, N.Y. 10023

Filed May 30, 1990, Ser. No. 530,214
Int. Cl.[5] A61M *1/00*
U.S. Cl. 604—317 **12 Claims**



1. A method for use in surgery to reduce air borne particles carrying infectitious micro-organisms, comprising the steps of:

providing a substantially flexible hose with at least one linear end segment and a plurality of apertures spaced along said end segment;

detachably connecting said hose at an end opposite said segment to a suction source;

forming at least a portion said hose into a substantially loop-shaped configuration;

disposing said portion of said hose on a skin surface of a patient so that said loop-shaped configuration at least partially surrounds a surgical site on the patient;

exerting a force on said portion of said hose to maintain said portion of said hose in said loop-shaped configuration during a surgical procedure;

surgically removing organic tissues from said surgical site;

generating air-borne particulate matter as a by-product of said step of removing; and

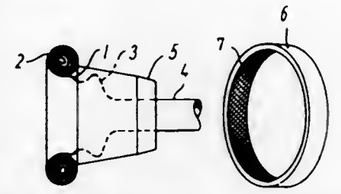
during said step of removing, operating said suction source to apply suction to said hose and thereby draw off particulate matter from the air about said surgical site.

5,211,640

MALE URINARY INCONTINENCE DEVICE

Henrik G. Wendler, Frederiksberg, Denmark, assignor to Coloplast A/S, Denmark

Filed Jan. 22, 1992, Ser. No. 823,984
Claims priority, application Denmark, Jan. 30, 1991, 162/91
Int. Cl.[5] A61F *5/44*
U.S. Cl. 604—349 **13 Claims**



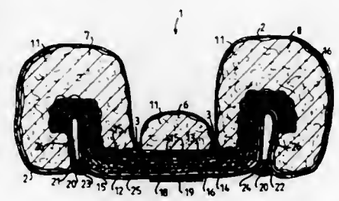
1. A male urinary incontinence kit, comprising an external catheter for arrangement on a penis, having a distal end with a narrowed drainage tube for connection to a hose leading to a collection bag, said catheter being folded or rolled outwardly on itself from a proximal end, so that part of its inside face is turned outward, said kit further comprising an annular member separate from the catheter with a removable adhesive layer on an inside surface of said annular member, wherein said annular member is sized to be passed over said outwardly turned portion of said inside of said catheter, so that said removable adhesive layer contacts said outwardly turned portion and is transferred thereto, providing an interior adhesive layer on said catheter for adhering said catheter to a penis.

5,211,641

DISPOSABLE ABSORBENT ARTICLES

Anders Roos, Onsala; Peter Rönnberg, Ravekarrsgatan; Båard Eiterjord, Ojersbo, all of Sweden, and Jonas Hermansson, Nussloch, Fed. Rep. of Germany, assignors to Molnlycke AB, Goteborg, Sweden

PCT No. PCT/SE90/00376, § 371 Date Nov. 14, 1991, § 102(e) Date Nov. 14, 1991, PCT Pub. No. WO90/14814, PCT Pub. Date Dec. 13, 1990
PCT Filed May 31, 1990, Ser. No. 776,245
Claims priority, application Sweden, May 31, 1989, 8901965-7
Int. Cl.[5] A61F *13/15*
U.S. Cl. 604—385.1 **4 Claims**



1. A disposable absorbent article, such as a diaper, an incontinence guard or the like, comprising an inner, liquid-permeable casing sheet, which when the article is worn lies nearest the body of the wearer, an outer, liquid-impermeable casing sheet, an absorbent pad enclosed between the inner and outer casing sheets, and a layer of fibre wadding disposed between the absorbent pad and the inner casing sheet, the inner casing sheet being joined to the absorbent pad along two longitudinal lines forming permanent fold lines which divide the article, over at least a part thereof, into a central elongated part and two

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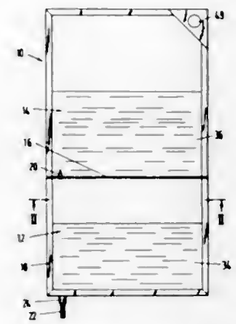
edge-parts located symmetrically on respective sides of the central elongated part, and each edge-part being folded between the respective fold line and its lateral edge such as to form a longitudinal fold in the outer casing sheet, said fold being upstanding in a direction toward the body of the wearer, said article having mutually opposed portions in said longitudinal folds, which portions are permanently joined to each other, whereby the edge-parts form inwardly upstanding embankment walls.

5,211,642
CHAMBERS DRAINAGE SYSTEM
Beverly F. Clendenning, 8 Trinity La., Blackwood, N.J. 08012
Filed Oct. 28, 1991, Ser. No. 783,330
Int. Cl.[5] A61M *1/00*
U.S. Cl. 604—410 **13 Claims**



1. A method of collecting fluids drawn from a patient's bladder using a transurethral catheter procedure, the method comprising:
(a) inserting into the patient transurethral catheter means operatively to continuously irrigate the bladder of the patient and to continuously drain fluids from the bladder.
(b) connecting an inlet tube of a urinary drainage collection device to the transurethral catheter means, the urinary drainage collection device comprising:
(i) a collection bag to receive and hold a volume of fluids,
(ii) the inlet tube connected to an inlet opening to the collection bag,
(iii) a first drainage tube connected to a drainage outlet opening to the collection bag, and
(iv) first closure means to open and close flow through the drainage tube,
(c) providing that there is no antireflux device in the urinary drainage collection device to provide as high unobstructed flow as possible into the collection bag of the urinary drainage collection device,
(d) providing a storage bag comprising:
(i) a closed air tight capacity of at least about eight liters,
(ii) a second inlet tube connected to an inlet opening in the storage bag,
(iii) a second drainage tube connected to a drainage outlet opening from the storage bag, and
(iv) second closure means to open and close flow through the second drainage tube,
(e) connecting the second inlet tube of the storage bag to the first drainage tube of the collection bag using connecting means to connect ends of the tubes in an essentially leak proof connection,
(f) positioning the storage bag at a height below the collection bag, and
(g) continuously irrigating the bladder until the fluids no longer show the presence of blood.

5,211,643
SODIUM BICARBONATE CONTAINING PRECIPITATE-FREE DIALYSIS SOLUTIONS
Bertold Reinhardt, Oberursel, and Volker Bartz, Linden, both of Fed. Rep. of Germany, assignors to Fresenius AG, Fed. Rep. of Germany
Filed May 25, 1990, Ser. No. 528,855
Claims priority, application Fed. Rep. of Germany, May 26, 1989, 3917251
Int. Cl.[5] A61B *19/00*; A61M *5/32*
U.S. Cl. 604—416 **12 Claims**

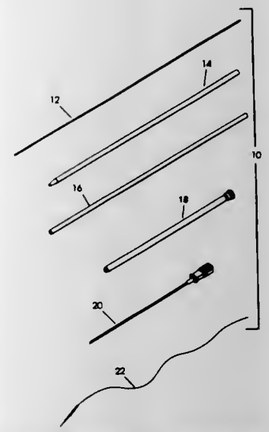


1. A delivery system for the delivery of sodium bicarbonate containing fluids for dialysis and the like, comprising:
a) a container having at least one means of egress for liquid, containing an aqueous solution comprising at least sodium bicarbonate of between 25 and 40 meq/l. of bicarbonate ion at pH below 7.6;
said container having a water vapor permeability of less than 1 $g/m^2/day/bar$ as measured by DIN 53122 and a carbon dioxide permeability of less than 1 $cm^3/100\ \mu m/m^2/day/bar$ at 20° C. as measured by DIN 53380;
b) a container having at least one means of ingress for liquid and at least one means of egress for liquid containing an aqueous solution comprising between 0.1 and 10 meq./l. of Ca^{2+}, 0 to 6 meq./l. Mg^{2+}, 90.5 to 121 meq./l. Cl^-, 180–290 meq./l. Na^+;
wherein the egress means of (a) is connected to the ingress means of (b).

5,211,644
PROCESS AND APPARATUS FOR A DERMAL GRAFT
Allen L. VanBeek, Edina, and Alfred A. Iversen, Minnetonka Beach, both of Minn., assignors to PMT Corporation, Chanhassen, Minn.
Filed Sep. 20, 1991, Ser. No. 763,281
Int. Cl.[5] A61M *31/00*
U.S. Cl. 606—1 **2 Claims**

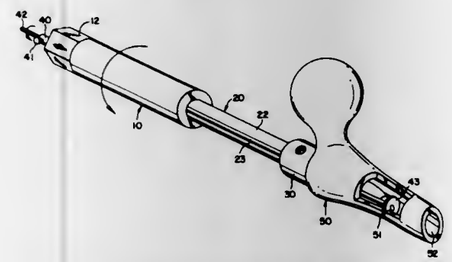
1. Process for performing a dermal graft surgical procedure comprising the steps of:
a. inserting a dermal needle and removing an obturator;
b. inserting a guidewire and removing the dermal needle, leaving the guidewire in place;
c. pacing a dermal dilator over the guidewire and removing the guidewire;
d. passing a dermal transfer cannula over the dermal dilator, removing the dermal dilator;

e. inserting a needle with dermal graft material attached thereto;



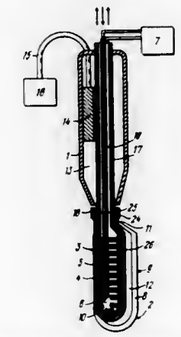
f. using the cannula obturator to advance the needle through the dermal cannula until the needle exits the skin;
g. pulling the dermal graft into final position.

5,211,645
DEVICE FOR GUIDING AN INTERNAL SAW FOR LONG TUBULAR BONE OSTEOTOMY
Rainer Baumgart, Athener Platz 11, 8000 Munich 90, and Augustin Betz, Am Sonnengrund 4a, 8130 Starnberg, both of Fed. Rep. of Germany
PCT No. PCT/EP90/01079, § 371 Date Mar. 4, 1991, § 102(e) Date Mar. 4, 1991, PCT Pub. No. WO91/00061, PCT Pub. Date Jan. 10, 1991
PCT Filed Jul. 4, 1990, Ser. No. 656,053
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1989, 3921973
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—96 **11 Claims**



1. A device for guiding an internal saw for long tubular bone osteotomy, comprising
an elongated stem having a first end portion and a second end portion,
a mandrel projecting centrally from the second end portion of the stem and having a free end portion, the mandrel having a peripheral surface and a longitudinal axis,
a longitudinal groove recessed in the peripheral surface of the mandrel parallel to the longitudinal axis of the mandrel and extending to the second end portion of the stem,
a longitudinal recess formed in the stem and aligned with the groove in the peripheral surface of the mandrel, the recess extending from the second end portion of the stem to the first end portion of the stem,
a spacer sleeve adapted to be longitudinally displaced as desired along the mandrel, and
fixing means for fixing the spacer sleeve on the mandrel.

5,211,646
CRYOGENIC SCALPEL
Boris I. Alperovich, ulitsa Dzerzhinskogo, 36, kv. 47; Ljutsia M. Paramonova, and Alexandr I. Paramonov, both of ulitsa Ferentsa Mjunnikha, 3, kv. 25, all of, Tomsk, U.S.S.R.
Continuation of Ser. No. 495,390, Mar. 16, 1990. This application Sep. 19, 1991, Ser. No. 762,645
Int. Cl.[5] A61B *17/36*
U.S. Cl. 606—23 **10 Claims**



1. A cryogenic scalpel for conducting surgical operations on parenchymatous biological tissues, comprising:
a hollow housing having an interior space;
a working portion connected to said hollow housing and having a body extending in a lengthwise direction;
heat-exchanger means for establishing a zone for cooling biological tissues during surgery by supplying cooling fluid to said interior space;
a blade having two ends and a cutting lip, said ends of said blade being secured to said heat-exchanger means;
a coolant free to circulate through said heat-exchanger means;
a piping accommodated in said interior space of said hollow housing and communicating with said heat-exchanger means;
a source of electromechanical oscillations accommodated in said hollow housing to establish reciprocating motion to said working portion with a frequency of electromechanical oscillation with the result that heating of said blade is precluded and parenchymatous biological tissues are separated by simultaneously cooling in said cooling zone created by said heat-exchanger means; and
means for imparting electromechanical oscillations to said working portion so as to transmit reciprocating motion to said blade; said means for imparting being connected between said source of electromagnetic oscillations and said blade.

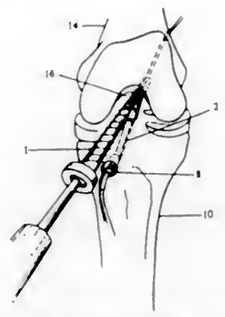
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,647

INTERFERENCE SCREW AND CANNULATED SHEATH FOR ENDOSTEAL FIXATION OF LIGAMENTS

Reinhold Schmieding, Naples, Fla., assignor to Arthrex Inc., Naples, Fla.

Filed Feb. 19, 1992, Ser. No. 836,721
Int. Cl.[5] A61B *17/58*
U.S. Cl. 606—104 18 Claims



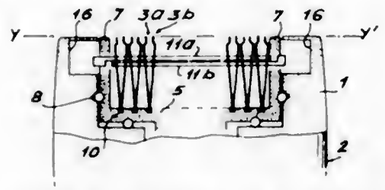
1. An apparatus for endosteal fixation of a substitute ligament by screw insertion, comprising:
an interference screw; and
a removable cylindrical cannulated sheath for receiving said interference screw, said sheath having a proximal end and a distal end, said distal end of said sheath having a cutout portion and a covered portion, said covered portion preventing said interference screw from damaging the substitute ligament during screw insertion, and said cutout portion exposing a portion of said interference screw to permit said interference screw to cut into a bone tunnel wall during screw insertion.

5,211,648

DEPILATING APPLIANCE

Jacques, Demeester Croissy sur Seine, France, assignor to Braun Aktiengesellschaft, Kronberg In Taunus, Fed. Rep. of Germany

PCT No. PCT/FR90/00104, § 371 Date Oct. 16, 1990, § 102(e) Date Oct. 16, 1990, PCT Pub. No. WO90/09119, PCT Pub. Date Aug. 23, 1990
PCT Filed Feb. 14, 1990, Ser. No. 582,915
Claims priority, application France, Feb. 17, 1989, 8902091
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—133 14 Claims



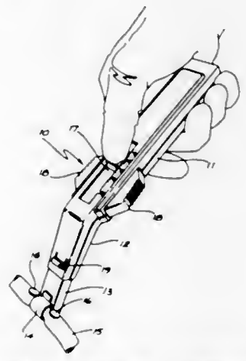
11. Working head for equipping a depilating appliance, said head comprising: clamping jaws constituted by a series of thin blades (3*a*, 3*b*) placed next to each other with their edges (4*a*, 4*b*) disposed in parallel relation so as to form in pairs a plurality of gripping and plucking pincers, said blades being mounted on a support (5), said support adapted to be mechanically driven in a reciprocating movement of translation along an axis parallel to the edges of said blades, said blades (3*a*, 3*b*) being coupled with at least two transverse juxtaposed actuating bars (11*a*, 11*b* or 11*c*, 11*d*) which are capable of causing successive opening and closing of the edges (4*a*, 4*b*) of two adjacent blades (3*a*, 3*b*) by reciprocating transverse displacement of said bars in opposite directions, said bars being themselves actuated by control means which produce action on said bars during translational displacement of the support.

5,211,649

VENOUS CUFF APPLICATOR, CARTRIDGE AND CUFF

Wolfgang W. Kohler, New South Wales, Australia; Paul Di Cesare, Norwalk, Conn.; Paul Mulhauser, and Douglas Spranger, both of New York, N.Y., assignors to Vaso Products Australia Pty. Limited, New South Wales, Australia

Filed Dec. 12, 1988, Ser. No. 279,702
Claims priority, application Australia, Feb. 10, 1987, PI0271; Apr. 16, 1987, PI1485; Oct. 12, 1987, PI4826
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—139 13 Claims



1. An applicator for applying an elongated strap around an object, which comprises:
a strap;
means for anchoring one end of the strap,
means movable with respect to the anchoring means for engaging the other end of the strap after the strap has been formed into a loop around the object and positioned over the anchored end, said movable means including means for moving said other end of the strap so as to tighten and loosen the perimeter of the loop, and
stapler means external of said loop and mounted within the applicator for securing the overlapping portions of the strap.

5,211,650

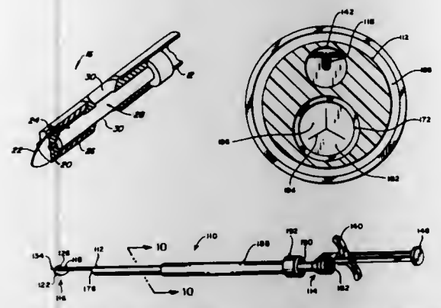
DUAL FUNCTION SUTURING DEVICE AND METHOD

Wayne A. Noda, Mission Viejo, Calif., assignor to LaParomed Corporation, Irvine, Calif.

Continuation-in-part of Ser. No. 638,887, Jan. 7, 1991, Pat. No. 5,129,912. This application Jul. 13, 1992, Ser. No. 912,353
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—139 31 Claims

1. A dual function suture applier comprising:
a shaft having proximal and distal ends and an axial passage;
suture applying means on the shaft, the suture applying means including a length of suture having proximal and distal ends, and a surgical needle secured to the distal end of the suture;

means at the proximal end of the shaft for selectively applying tension on the proximal end of the suture; and



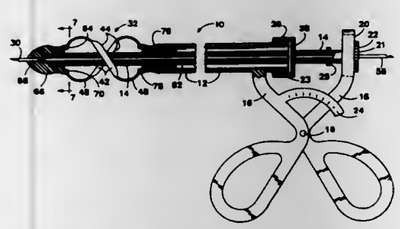
a gaseous seal in the axial passage, the gaseous seal being operative with and without a surgical instrument received in the axial passage.

5,211,651

CATHETER ATHEROTOME

Vincent A. Reger, Portland, and Thomas L. Kelly, West Linn, both of Oreg., assignors to EVI Corporation, Portland, Oreg.

PCT No. PCT/US90/04638, § 371 Date Apr. 8, 1991, § 102(e) Date Apr. 8, 1991
Continuation-in-part of Ser. No. 395,500, Aug. 18, 1989, abandoned. This PCT application Aug. 16, 1990, Ser. No. 675,886
The portion of the term of this patent subsequent to Dec. 10, 2008, has been disclaimed.
Int. Cl.[5] A61B *17/32*
U.S. Cl. 606—159 4 Claims



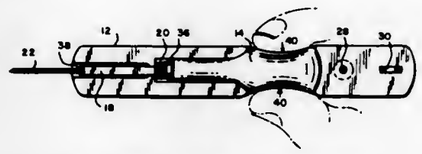
4. A catheter atherotome for use in surgical removal of plaque from the interior wall of an artery, comprising:
(a) an elongate tubular outer sheath having respective proximal and distal ends;
(b) an elongate inner member disposed within said outer sheath and having respective proximal and distal ends, said distal end of said inner member extending beyond said distal end of said outer sheath;
(c) a plurality of elongate blades each having a proximal end interconnected with said outer sheath and a distal end interconnected with said inner member;
(d) means for moving said inner member with respect to said outer sheath so as to retract said distal end of said inner member toward said distal end of said outer sheath and flex said blades into a radially outwardly bowed arcuate configuration; and
(e) at least one of said blades defining a respective sharp edge, at least a portion of each said sharp edge extending alongside said inner member and being oriented more toward said proximal end than toward said distal end of said inner member when said blades are in said outwardly bowed arcuate configuration, so as to engage plaque associated with an inner wall of an artery cuttingly as said catheter atherotome is moved within said artery in a proximal direction, without engaging said interior wall of said artery cuttingly as said catheter atherotome is moved within said artery in a distal direction and some of said blades are free from sharp edges and are located opposite said blades defining sharp edges, so as to contact an interior surface of an artery and distend said artery when said blades are in said radially outwardly bowed arcuate configuration.

5,211,652

SCALPEL

Bruce Derbyshire, P.O. Box 526, Adamsville, R.I. 02801

Filed Oct. 3, 1991, Ser. No. 771,136
Int. Cl.[5] A61F *5/14*
U.S. Cl. 606—182 8 Claims



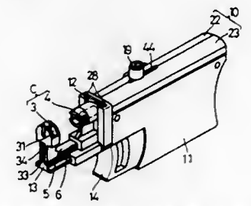
1. A retractable blade cutting device comprising;
an elongated housing forming a blade containment area and an envelope containment area;
a blade reciprocally movable between a withdrawn position within said blade containment area and an extended position protruding exteriorly of said housing;
biasing means for exerting a biasing force urging said blade into said withdrawn position;
a flexible closed envelope partially enclosed within said envelope containment area, said envelope containing a fluid and having at least one actuator surface accessible from the exterior of said housing; and
means to position said blade in the extended position only upon application and maintenance of pressure to said envelope, said means including
a piston associated with said blade and engageable by said flexible envelope such that when pressure is applied to said actuator surface, said piston is actuated by said envelope, thereby overcoming the force exerted by said biasing means and causing said blade to shift from said withdrawn position to said extended position, and upon release of said pressure said biasing means returning said blade to said withdrawn position.

5,211,653

PIERCING APPARATUS

Takeshi Nakajima, 46-8, Takinogawa 5-Chome, Kita-Ku, Tokyo, Japan

Filed Feb. 14, 1992, Ser. No. 835,398
Claims priority, application Japan, Feb. 19, 1991, 3-046014
Int. Cl.[5] A61B *17/00*
U.S. Cl. 606—188 3 Claims



1. A piercing apparatus that uses a cartridge which couples a front member and a back member which can move close to

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and away from each other; this device has a piercing needle and a fastener connected to the needle, and the piercing needle is shot through an earlobe to mount a pierced earring with the fastener, the piercing apparatus further consists of:

a hollow main body with a grip for one hand at the lower part of the apparatus, and a mounting portion to mount a back member in the cartridge in the forward portion;

a trigger with a supporting member which extends forward to mount the front member in the cartridge, and is spring-loaded forward in order to dispose the front and back members of the cartridge at separate positions;

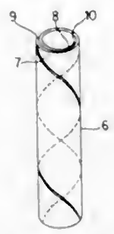
a shooting-out shaft which can be operated from the outside, and can move back and forth behind the mounting portion in the main body, and press the piercing needle in the cartridge out at the pointed end;

a spring where pressure is stored by an operation to move the shooting-out shaft backward;

an anchoring member spring-loaded in the same direction as the shooting-out shaft in order to anchor the shooting-out shaft at the position where pressure is stored; and

a releasing means disposed in the forward or backward position with respect to the anchoring member, and provided to engage with the anchoring member to release the anchorage of the shooting-out shaft as the front member comes close to the back member by means of an operation of the trigger, said releasing means further comprising means for rapidly increasing torque acting against said operation of the trigger.

5,211,654
CATHETER WITH EXPANSIBLE DISTAL END
Martin Kaltenbach, Falltorweg 8, Dreieich-Buchschlag, Fed. Rep. of Germany
Filed Jun. 10, 1991, Ser. No. 713,398
Claims priority, application Fed. Rep. of Germany, Jun. 9, 1990, 4018525
Int. Cl.[5] A61M *29/02*
U.S. Cl. 606—191 9 Claims



1. A catheter having a proximal end and a distal end insertable into a body cavity, said distal end comprising an at least partly elastic scroll-shaped sleeve expansible from a smaller diameter for introduction into an occlusion in a body cavity to a larger diameter to thereby open the occlusion, said sleeve including an inner marginal portion and an outer marginal portion overlying said inner marginal portion at least in contracted condition of the sleeve, at least one of said marginal portions moving relative to the other of said marginal portions in the circumferential direction of said sleeve during expansion and contraction of the sleeve and said marginal portions having a helical shape, said sleeve tending to contract to said smaller diameter to thus facilitate extraction from the body cavity upon completed opening of the occlusion and said sleeve exhibiting a stiffness sufficient to resist localized deformation by an occlusion during expansion in the occlusion; and means for expanding said sleeve upon completion of introduction into an occlusion.

5,211,655
MULTIPLE USE FORCEPS FOR ENDOSCOPY
Harrith M. Hasson, 2043 N. Sedgewick, Chicago, Ill. 60614
Filed May 8, 1992, Ser. No. 880,560
Int. Cl.[5] A61B *17/32*
U.S. Cl. 606—205 30 Claims



1. A surgical instrument comprising:

a body having a rear proximal end and a forward distal end;

a grip assembly attached to the body for facilitating holding and manipulation of the surgical instrument by the hand of a user,

said grip assembly including a rear handle and a front handle with said front and rear handles being movable relative to each other between first and second position,

said rear handle having a surface to be held in the palm of a hand holding the surgical instrument;

a working tip operating mechanism;

a working tip mounted to at least one of said operating mechanism and body at a first location on said body for movement between first and second position;

means for connecting the rear handle to the body so that the rear handle surface is in a fixed position relative to the first body location throughout the range of relative movement of the front and rear handles between their first and second positions;

means for connecting the front handle to the operating mechanism and for causing the working tip to move between its first and second positions as an incident of the handles being moved between their first and second relative positions;

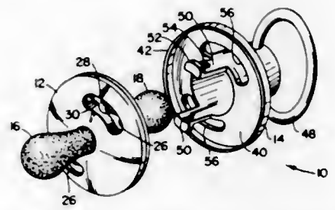
means for releasably locking the front and rear handles in a fixed relationship; and

means for releasing the handle locking means,

said releasing means comprising a button that is movable between normal and release position,

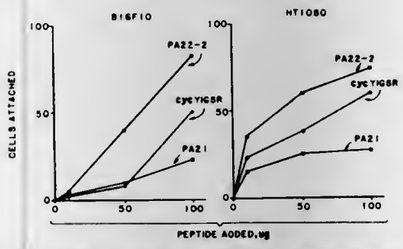
said button being situated forwardly of said rear handle surface to be engagable by one of a user's finger that is engagable with the front handle with the grip assembly being normally held by the hand of a user.

5,211,656
PACIFIER
Richard J. Maddocks, 302 Lexington Dr., Silver Spring, Md. 20901, and Richard C. Levy, P.O. Box 34828, Bethesda, Md. 20827
Filed Dec. 20, 1991, Ser. No. 810,853
Int. Cl.[5] A61J *17/00*
U.S. Cl. 606—236 2 Claims



1. A pacifier comprising a shield; a pair of nipples projecting from opposite sides of said shield in generally opposite directions; a cover for alternately overlying said nipples on opposite sides of said shield; and means cooperable between said cove rand said shield for securing said cover to said shield in alternate positions on either side of said shield whereby each of said nipples may be covered while the other nipple is exposed for use; wherein said shield has means defining a pair of apertures opening therethrough, said cover having a pair of projections for projecting into said apertures, respectively, and cooperable with said aperture defining means for releasably securing said cover to said shield; wherein said pair of projections and said aperture defining means include cooperating detents for releasably securing said cover to said shield in response to relative rotation of said cover to said shield.

5,211,657
LAMININ A CHAIN DEDUCED AMINO ACID SEQUENCE, EXPRESSION VECTORS AND ACTIVE SYNTHETIC PEPTIDES
Yoshihiko Yamada, Silver Spring, Md.; Makoto Sasaki, Beppu, Japan; Hynda K. Kleinman, and George R. Martin, both of Bethesda, Md., assignors to The United States Government as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.
Filed Nov. 7, 1988, Ser. No. 267,564
Int. Cl.[5] A61F *2/06, 2/02*
U.S. Cl. 623—1 17 Claims



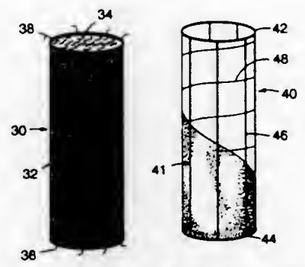
1. Peptides and derivatives thereof having laminin A-like activity selected from the group consisting of:
(i) KCQAGTFALRGDNPQG,
(ii) CSKCQAGTFALR,
(iii) XFALRGDNPQG,
(iv) XSRARKQAASIKVAVSADR,
(v) XRKQAASIKVAVS,
(vi) XIKVAVSADR,
(vii) XSRNLSEIKLLISRARK
(viii) GLWNYIEREGKC,
(ix) KPLKTLEENLSRNLSEI,
(x) DRLKPLKTLEENLSRNLSEI,
(xi) XGQIKKSPAVKVTHFKG,
(xii) XGQIKKSPAVKVT, and
(xiii) CIRAYQPQTSSTNYNTLTIL
wherein the X group is an amino acid which is not present in the A chain but is used in coupling the peptide to other materials.

5,211,658
METHOD AND DEVICE FOR PERFORMING ENDOVASCULAR REPAIR OF ANEURYSMS
Melvin E. Clouse, Brookline, Mass., assignor to New England Deaconess Hospital Corporation, Boston, Mass.
Filed Nov. 5, 1991, Ser. No. 788,799
Int. Cl.[5] A61F *2/06*
U.S. Cl. 623—1 22 Claims

1. A blood vessel wall-defining device for repairing an aneurysm comprising in combination,

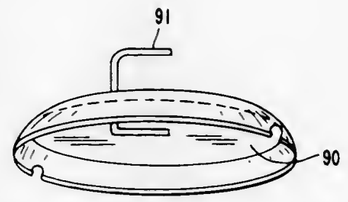
a percutaneously-insertable structural frame extending between first and second ends having an unexpanded diameter which is smaller than the diameter of said blood vessel to allow said structural frame to be percutaneously placed into said blood vessel, said structural frame being expansible to form a generally cylindrical structural skeleton having a slightly larger diameter than said blood vessel to facilitate the securing of said structural skeleton in position in said blood vessel; and

an independently, percutaneously-insertable, expansible tubular member extending between first and second ends constructed to be percutaneously placed subsequent to the placement of said structural frame, said tubular member



comprising a thin-walled flexible tubular membrane extending between said first and second ends, said membrane being essentially impermeable to blood and blood products, and means for expanding and holding said thin-walled flexible tubular membrane adjacent to the inside of said structural skeleton, in cooperative relationship therewith, in a manner that the outer surface of said thin-walled flexible tubular membrane is held in secure contact with the inside of said previously-placed structural skeleton.

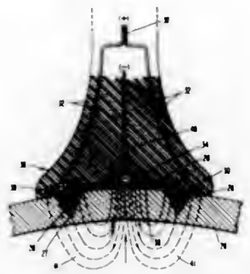
5,211,659
PUMP SYSTEM SUITABLE AS A HEART ASSIST DEVICE
Walter E. Strimling, 79 Jericho Rd., Weston, Mass. 02193-1209; Francis A. DeBernardis, Jr., 352 Hillcrest Rd., Ridgewood, N.J. 07450, and Herbert M. Shapiro, 92 Chelsea Way, Bridgewater, N.J. 08807
Filed Nov. 5, 1990, Ser. No. 609,388
Int. Cl.[5] A61M *11/10*
U.S. Cl. 623—3 9 Claims



1. A heart assist device for use outside the human body, said device including a first rigid housing defining a first blood chamber having a mean volume, said device including at least a second rigid housing defining a pump chamber, said first rigid housing including inlet and outlet ports, said second rigid housing including means for alternately increasing and decreasing the volume of said first blood chamber, said device including means for opening said first rigid housing with respect to said second rigid housing for accepting a disposable conformable insert therein, said device including said insert, said insert being shaped to conform to said first blood chamber and including first and second elongated extensions extend therefrom and configured to extend through said inlet and outlet ports respectively for use with first and second cannulae respectively.

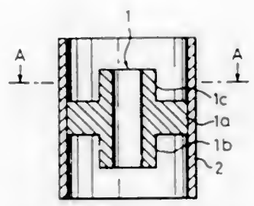
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,660
METHOD FOR PERFORMING EPIKERATOPHAKIA BY ELECTROFUSION
Robert J. Grasso, deceased, late of Tampa, Fla. by Carol Grasso, executor , assignor to University of South Florida, Tampa, Fla.
Continuation-in-part of Ser. No. 189,206, May 2, 1988, abandoned, and a continuation-in-part of Ser. No. 297,218, Jan. 17, 1989, Pat. No. 4,955,378. This application Aug. 28, 1990, Ser. No. 574,172
Int. Cl.[5] A61F *2/14*; A61N *1/32, 1/00*
U.S. Cl. 623—5 26 Claims



1. Epikeratophakia comprising the steps of:
(a) contacting donor cornea tissue having preselected topology of convex dimensions with a patient's own cornea, using mechanical force applied by a device having concave dimensions congruent to the preselected convex dimensions of said donor tissue; and
(b) subjecting the donor cornea tissue and the patient's cornea to an electrical field under conditions sufficient to fuse the donor tissue to the patient's cornea.

5,211,661
ARTIFICIAL LIVING BODY COMPOSITE MATERIAL
Kiyoshi Shinjou, Nagoya, and Shigehide Takagi, Narashino, both of Japan, assignors to Sumitomo Cement Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 506,482, Apr. 6, 1990, abandoned, which is a division of Ser. No. 150,418, Jan. 15, 1988, abandoned. This application Aug. 22, 1990, Ser. No. 570,997
Claims priority, application Japan, May 16, 1986, 61-109466
Int. Cl.[5] A61F *2/28*
U.S. Cl. 623—16 7 Claims

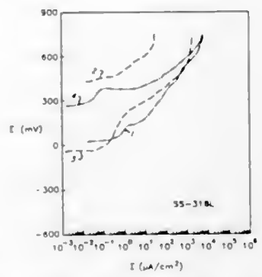


1. Artificial living body composite material comprising:
(a) an artificial bone portion having a predetermined shape and size and consisting essentially of a sintered ceramic material selected from the group consisting of alumina, zirconia and calcium phosphate, said bone potion having a number of spherical independent pores having a size of 1 to 600 μm and communicated with one another and with an exterior space through a number of capillary void paths having a void diameter of 1 to 30 μm; and
(b) an inclusion membrane which covers said artificial bone portion, said inclusion membrane being in the form of a member selected from the group consisting of sheets, tubes and bags, and at least the main component of said membrane being at least one member selected from the group consisting of woven fabrics, knitted fabrics, felts, nets and non-woven fabrics comprising a synthetic polymeric material selected from the group consisting of polyester resins and fluorine-containing organic polymer resins.

5,211,662
BICOMPOSITE INTRAOCULAR LENSES
Graham D. Barrett, Perth, Australia, and Barry Stevens, Arlington, Tex., assignors to Alcon Laboratories, Inc., Fort Worth, Tex.
Continuation-in-part of Ser. No. 347,362, May 4, 1989, Pat. No. 4,997,442. This application Mar. 5, 1991, Ser. No. 664,682
The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.
Int. Cl.[5] A61F *2/16*
U.S. Cl. 623—6 33 Claims

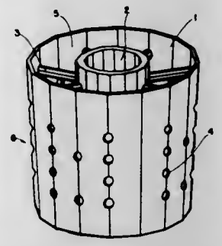
1. A self-supporting bicomposite intraocular lens suitable for implantation in the human eye to replace the natural crystallin lens, comprising:
an optic portion comprising a hydrogel capable of being folded and a UV absorber; and
a haptic portion comprising a hydrogel, which in its hydrated state has lower water content than the hydrated optic portion.

5,211,663
PASSIVATION METHODS FOR METALLIC MEDICAL IMPLANTS
Paul Kovacs, Memphis, and James A. Davidson, Germantown, both of Tenn., assignors to Smith & Nephew Richards, Inc., Memphis, Tenn.
Filed Jun. 24, 1991, Ser. No. 719,805
Int. Cl.[5] A61F *2/28, 2/30, 2/02*; A61K *1/02*
U.S. Cl. 623—16 14 Claims



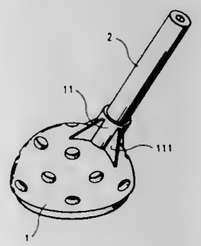
1. A metallic medical implant having a surface covered at least partially with a thin surface film selected from the group consisting of metal oxides and hydroxides wherein the film is produced by the process comprising:
a. immersing the metallic implant in a passivating solution, said solution comprising an aqueous solution of a water soluble metal salt containing an oxyanion in a concentration of from about 0.05 to about 0.25 equivalents per liter; and
b. maintaining the passivating solution containing the implant to a temperature of from about 20° C. to about 50° C. for a time sufficient to form a thin, uniform tightly adherent coating of less than about 20 nanometers thickness.

5,211,664
SHELL STRUCTURE FOR BONE REPLACEMENT
Slobodan Tepic; Stephen J. Bresina, both of Davos, and Sylwester Gogolewski, Alvaneu-Dorf, all of Switzerland, assignors to Forschungsinstitut, Davos Laboratorium fur Experimentelle Chirugie, Davos, Switzerland
Filed Jan. 14, 1992, Ser. No. 820,758
Int. Cl.[5] A61F *2/28, 2/54*
U.S. Cl. 623—16 18 Claims



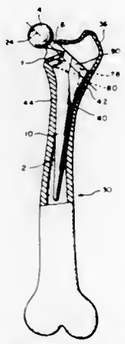
1. A tubular shell structure for replacement of segments of long bones, having a first end and a second end for connecting first and second portions of bones, the shell structure comprising:
A) an outer tubular shell;
B) an inner tubular shell, said inner shell being located within said outer shell and approximately parallel to said outer shell, wherein a hollow cylindrical volume is defined by a predetermined spacing between said inner shell and said outer shell structure, said volume being open at each end and fillable with living tissue or tissue precursors,
said shell structure for being inserted between said first and second bone portions at said first and second ends so that said first and second bone portions correspondingly extend into said hollow cylindrical volume at said ends; and,
C) a plurality of struts connecting said inner shell to said outer shell, and wherein
said structure is composed of a material having an overall porosity below 90% selected from the group consisting of resorbable polymeric material, resorbable polymeric-ceramic material, degradable polymeric material and degradable polymeric-ceramic material.

5,211,665
ACETABULAR CUP ASSEMBLY FOR TOTAL HIP REPLACEMENT
Ming C. Ku, P.O. Box 82-144, Taipei, Taiwan
Filed Mar. 4, 1992, Ser. No. 845,397
Int. Cl.[5] A61F *2/34*
U.S. Cl. 623—22 5 Claims



1. An acetabular cup assembly for total hip replacement comprising:
a generally hemispherical shell socket provided with a tubular neck thereon, said tubular neck having internal threads at a lower portion, a plurality of webs around the tubular neck and a hole extending through the tubular neck and the hemispherical shell socket; and
a stud adapted to be inserted through the tubular neck of said hemispherical shell socket and provided on an upper end with external threads engageable with the internal threads of said tubular neck.

5,211,666
HIP JOINT FEMORAL COMPONENT ENDOPROSTHESIS WITH A LATERAL LOAD-TRANSFERRING SUPPORT SURFACE
Joseph F. Fetto, New York, N.Y., assignor to New York University, New York, N.Y.
Filed Apr. 22, 1991, Ser. No. 688,408
Int. Cl.[5] A61F *2/36*
U.S. Cl. 623—23 27 Claims



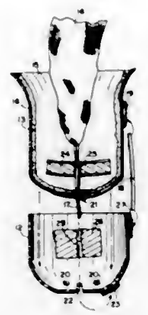
14. A femoral component of a hip endoprosthesis for implantation into the upper end of the medullary canal of a femur, said prosthesis comprising:
a stem having a distal end, shaped and dimensioned for introduction into a medullary cavity of a femur, and a proximal end, said stem having a medial side on the side thereof intended to be adjacent to the medial side of the femur when in use and a lateral side on the side thereof intended to be adjacent to the lateral side of the femur when in use;
a neck connected to and extending away from the proximal end of said stem, said neck being adapted to be connected to a head means for functioning as a femur head when in use; and
a separate discrete lateral support wedge fixedly connected to said stem near the proximal end of said stem so as to extend the lateral side of said stem, when in use, so as to form a lateral support surface which contacts the proximal lateral femoral cortex in the intertrochanteric region of the femur, said lateral support surface having a sufficient width to permit transfer of the force applied to the head means, when in use, onto the femur such that such contact will not damage the femur.

5,211,667
GUARD FOR RESIDUUM AFTER AMPUTATION
Michael B. Danforth, 55 Interlaken Rd., Orlando, Fla. 32804
Filed Apr. 22, 1992, Ser. No. 872,131
Int. Cl.[5] A61F *2/80, 2/78, 2/60*
U.S. Cl. 623—35 11 Claims

1. A prosthesis for protecting a residuum of a lower limb amputation from injury comprising:
a) an upper shell formed to essentially match the contour of the residuum, said upper shell having a first closed lower end, said end including a first slot therethrough;

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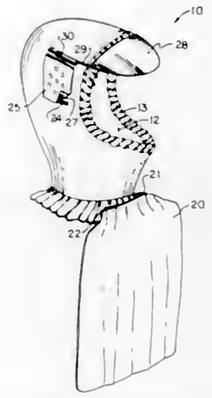
b) a lining of soft material disposed over an inner surface of said upper shell;
c) a first compressive pad disposed over an inner surface of said first closed end of said upper shell, said first pad having a second slot therethrough;
d) a lower shell having an inner contour complementary to an external contour of said upper shell thereby permitting said lower shell to telescope over said upper shell, said lower shell having a second closed lower end, said second closed lower end having a third slot therethrough;
e) a second compressible pad disposed over said second closed end, said second pad having a fourth slot therethrough,



f) a post-operative stump sock having a flexible strip attached at a distal end of said sock, said strip passed through said second slot, said first slot, said third slot, and said fourth slot with said lower shell telescoped over said upper shell; and
g) fastening means for attaching said strip to an external surface of said lower shell for maintaining said lower shell telescoped over said upper shell, whereby pressure on said lower shell causes said lower shell to further telescope over said upper shell, and to compress said first and second pads.

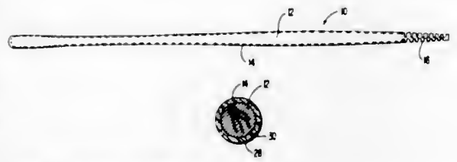
5,211,668
INFANT HAIR BIB ORGANIZATION
Mary A. Secord, 2633 Capp Cir., Kissimmee, Fla. 34744
Filed Jun. 9, 1992, Ser. No. 895,646
Int. Cl.[5] A42B *1/06*
U.S. Cl. 2—203 **1 Claim**

1. An infant hair bib organization, comprising,
a flexible hood member, the hood member having a facial opening directed through the hood member, with the facial opening including an elastomeric opening perimeter in surrounding relationship relative to the facial opening, the hood member including hood side walls, and each hood side wall of said hood side walls includes a plurality of ear openings directed therethrough, with the ear openings positioned in adjacency to and rearwardly of the facial opening, and
the hood member further including a hood lower annular head receiving opening positioned below the facial opening and the ear openings, and the head receiving opening directed through a lower distal end of the hood member, and
a hood lower elastomeric opening perimeter is fixedly mounted in surrounding relationship relative to the hood lower annular head receiving opening, and
a hood lower edge flexible skirt is fixedly mounted to the hood lower elastomeric opening perimeter, with the hood lower edge flexible skirt extending exteriorly thereof, and
the hood lower edge flexible skirt includes a flexible skirt hook and loop fastener strip positioned fixedly on the hood lower edge flexible skirt medially of and below the facial opening, and a flexible torso bib web, the flexible torso bib web including a bib web upper edge, and a hook and loop fastener strip mounted to the bib web adjacent the bid web upper edge, with the bib web hook and loop fastener strip arranged for selective securement to the flexible skirt hook and loop fastener strip, and
each side wall includes a side wall upper hook and loop fastener strip positioned above the ear openings, and a side wall lower hook and loop fastener strip positioned below the ear openings, wherein the upper hook and loop fastener strip and the lower hook and loop fastener strip are arranged in a parallel relationship relative to one another, and each side wall includes a side wall cover web having



a side wall cover web upper seam mounted to the side wall below one of said side wall upper hook and loop fastener strips, and the cover web including a cover web lower hook and loop fastener strip arranged for selective securement to the side wall lower hook and loop fastener strip in a first position and selectively to the side wall upper hook and loop fastener strap in a second furled position, and
a visor flange, the visor flange including visor flange leg members, and each leg member of said visor flange leg members includes a leg member hook and loop fastener strip, wherein each leg member hook and loop fastener strip is arranged for selective securement to the side wall upper hook and loop fastener strip of a respective side wall when the cover web is in the first position.

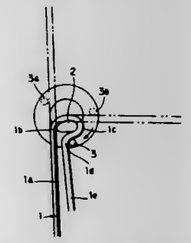
5,211,669
COMPOSITE HANDLE FOR TOOLS
David R. Bonnes, Westerville, and Charles A. Seifert, Bexley, both of Ohio, assignors to The Union Fork and Hoe Company, Columbus, Ohio
Filed Oct. 18, 1991, Ser. No. 779,312
Int. Cl.[5] A01B *1/01, 1/22;* **B25G** *3/02*
U.S. Cl. 16—110 R **16 Claims**



1. An implement handle, comprising:
an axially elongated polymeric shell having an axial centerline and a closed and hollow cross-sectional shape of

predetermined inner and outer dimensions wherein both the inner and outer dimensions vary along the axial length of the shell, said dimensional variation including several dimensional reversals comprising positive and negative changes in the inner and outer dimensions with respect to the axial centerline, whereby a complex tapered shape is formed;
substantially-continuous axially-oriented reinforcing fibers embedded in the shell; and
a core member fully enclosed within said shell, the core member having outer dimensions which conform to the inner dimensions of said shell.

5,211,670
ARMATURES AND METHOD FOR MANUFACTURING SUCH ARMATURES
Masanori Ohmi, Anjo; Tsutomu Maekawa, Takahama; Satoru Hamano, Kariya; Masanori Mori, and Shogo Uzura, both of Okazaki, all of Japan, assignors to Nippondenso Co. Ltd., Kariya, Japan
Division of Ser. No. 675,104, Mar. 25, 1991, which is a continuation-in-part of Ser. No. 4,259, Jan. 2, 1987, abandoned, which is a continuation of Ser. No. 725,811, Apr. 22, 1985, abandoned. This application Sep. 14, 1992, Ser. No. 944,270
Claims priority, application Japan, Apr. 23, 1984, 59-82758
Int. Cl.[5] H02K *15/04*
U.S. Cl. 29—598 **2 Claims**

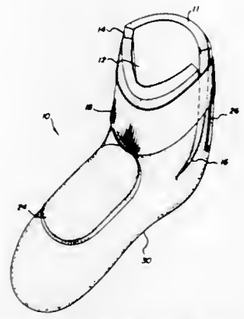


1. A method for manufacturing an armature for an electric motor, the steps comprising:
(a) eccentrically bending at about its midlength a straight conductive wire having a predetermined length to form a curved head portion and first and second straight portions, all of said portions being in substantially the same plane with said first and second straight portions diverging slightly from said head portion and the latter projecting to one side of said second straight portion away from said first straight portion;
(b) inserting said first and second straight portions of a plurality of the bent wires into a corresponding number of opposed longitudinal slots in the interior of an external rotatable cylindrical jig and in the exterior of an internal cylindrical jig coaxially disposed in the external jig so that the planes of the wires are radially disposed while the head portions project radially inward of the slots in the internal jig;
(c) restraining the radially innermost edges of the head portions against radial inward movement;
(d) applying pressure axially of and toward the jigs against the head portions of the bent wires;
(e) relatively rotating the jigs in one direction through a predetermined rotational angle to make an integrated coil body, whereby each of the head portions of the bent wires is transformed into a first curved connecting portion extending radially inward at substantially a right angle from the first straight portion, a second curved connecting portion extending radially inward at substantially a right angle from the second straight portion and a twisted portion having a longitudinal component or direction as respects the straight portions connecting the curved connecting portions, the first curved connecting portion of each wire being offset axially beyond the second curved connecting portion and overlying the second curved connecting portion of a plurality of other wires and the first and second curved connecting portions being disposed, respectively, substantially in the Archimedes' spiral relationship.
(f) removing the integrated coil body from the jigs and inserting the first and second straight portions of the wires respectively into one end of different ones of a corresponding number of annularly arranged slots extending throughout the axial length of an armature core; and
(g) connecting the first and second straight portions extending out of the other ends of the slots to a commutator.

5,211,671
METHOD OF CHARGING THE SALT SPACE OF A LATENT HEAT STORAGE MEANS
Oskar Schatz, Waldpromenade 16, D-8035 Gauting, Fed. Rep. of Germany
Continuation of Ser. No. 634,786, Dec. 27, 1990, which is a continuation of Ser. No. 224,819, Jul. 27, 1988, abandoned. This application Jan. 24, 1992, Ser. No. 825,824
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1987, 3725161
Int. Cl.[5] B23P *15/26*
U.S. Cl. 29—890.03 **1 Claim**

1. A method for charging the salt space of a latent heat storage means, in the case of which the salt space is fully charged with salt heated to above its fusing temperature and then the salt space is hermetically sealed, the method comprising the steps of charging the salt into the salt space at a charging temperature which is substantially equal to a maximum temperature occurring during production and operation such that during operation at a maximum operation pressure substantially greater than atmospheric pressure, expansion in volume and resulting mechanical stressing of the wall of the salt space are substantially eliminated during any temperature differences between the charging temperature and maximum temperature and plastically deforming said wall at said maximum temperature such that wall strength is not impaired during operation.

5,211,672
PROTECTIVE SHOE
Edward M. Andujar, 87 West Riverside Dr., Mays Landing, N.J. 08330
Continuation of Ser. No. 506,061, Apr. 9, 1990, abandoned. This application Oct. 17, 1991, Ser. No. 777,907
Int. Cl.[5] A43B *5/00, 19/00*
U.S. Cl. 36—106 **10 Claims**



1. A protective shoe for use in contact sports comprising a unitary casing member defining an opening into which a foot can be inserted, a strap attached to the unitary casing member

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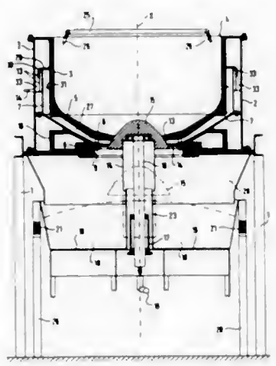
allowing the casing member to be held around the ankle of the wearer, said casing member comprising an upper member and a lower sole member secured to said upper member, the upper member being provided with an opposed plurality of slits extending downward toward the sole member, one of said slits being curved at one end and positioned behind the location which the ankle bone of the wearer's leg would occupy in the shoe, said sole member in combination with said upper member defining an enclosed toe area with a plurality of throughgoing apertures formed in said sole member to provide ventilation of said toe area, said sole member defining a mid foot strap as well as defining selectively the specific foot configuration and a protective instep pad and achilles tendon pad secured to said upper member external of said upper member to respectively give additional foot protection to the user by dissipating force directed to said instep, said achilles pad and the unitary casing member.

5,211,673

CENTRIFUGAL TREATMENT MACHINE

Friedhold Ditscherlein, Bocholt, Fed. Rep. of Germany, assignor to Friedhold Ditscherlein, Bocholt, Fed. Rep. of Germany

Filed Nov. 19, 1991, Ser. No. 794,402
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1990, 4038253
Int. Cl.[5] B24B *31/108*
U.S. Cl. 51—163.2 28 Claims



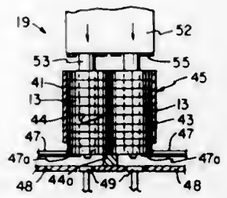
1. Centrifugal treatment machine for mechanical surface treatment of workpieces, comprising a treatment container, having a substantially cylindrical casing which is stationary during operation and a rotatable base in the form of a dished plate mounted coaxially to this which rotates during operation and the circumferential edge of which projects towards the cylindrical casing forming a gap, a support means for the casing, a liquid collecting container for receiving liquid flowing through the gap out from the treatment container positioned beneath the treatment container, at least one opening in the rotatable base dimensioned for workpiece discharge out of the treatment container, co-rotating closure means for closing such opening, a receptacle located beneath the base opening for collecting workpieces and any treatment means discharged out of the treatment container; the closure means includes a closure plug, a raising and lowering bar seated thereon which bar extends downwardly from the closure plug away from the treatment container or upwardly through the treatment container, and activating means for pneumatically or mechanically raising and lowering said bar with the closure plug between closed and open positions.

5,211,674

METHOD AND APPARATUS FOR PACKAGING TAPE ROLLS

Clayton C. Cooper, III, Waterford; David R. Gordon, Schenectady, and William B. Drobish, Amsterdam, all of N.Y., assignors to Phoenix Enterprise Associates, Ltd., Albany, N.Y.

Filed Mar. 11, 1992, Ser. No. 850,347
Int. Cl.[5] B65B *25/24, 35/52*
U.S. Cl. 53—541 6 Claims



1. A method of packaging tape rolls wherein each tape roll has the same outside diameter and is wound around a central core each of the same diameter, comprising the steps of:

a) conveying successive tape rolls, flat side down into a magazine,

b) raising at least one tape roll in the magazine by one tape roll width by pushing vertically upwardly against the down flat side thereof,

c) sliding a horizontal support beneath an edge of said tape roll adjacent to the periphery of the magazine and providing a second horizontal support for the opposite side of said tape roll,

d) maintaining at least one tape roll in said raised position while inserting there beneath another tape roll in stacked relation thereto,

e) repeating the preceding steps until a stack of desired height shall have been formed while surrounding and supporting the stack during the formation of said stack,

f) lifting and inserting said stack into a container by inserting a lifting means vertically through respective aligned central cores of the stack, and

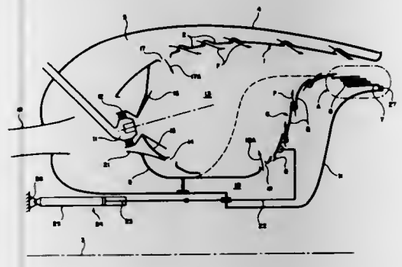
g) engaging at least the lowermost tape roll in said stack by said lifting means prior to lifting said stack.

5,211,675

VARIABLE VOLUME COMBUSTION CHAMBER FOR A GAS TURBINE ENGINE

Xavier M. H. Bardey, Chartrettes; Michel A. A. Desaulty, Vert Saint Denis, and Serge M. Meunier, Le Chatelet En Brie, all of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, France

Filed Jan. 21, 1992, Ser. No. 822,754
Claims priority, application France, Jan. 23, 1991, 91 00723
Int. Cl.[5] F23R *3/44*
U.S. Cl. 60—39.2 9 Claims



1. A variable combustion chamber having an exit end for a gas turbine engine operable between idle and full power settings comprising:

a) a first, fixed wall defining at least one intake orifice adapted to allow an oxidizer to pass into the combustion chamber;

b) a movable second wall located such that the first and second walls bound the combustion chamber;

c) means to move the second wall relative to the first wall between a first position in which the volume of the combustion chamber is at a maximum when the gas turbine engine operates at an idle power setting and a second position in which the volume of the combustion chamber is at a minimum when the gas turbine operates at a full power setting;

d) a shutter operatively associated with the second, movable wall such that it moves with the second wall between a first shutter position wherein the shutter at least partially blocks the at least one intake orifice so as to restrict the passage of oxidizer therethrough, and a second shutter position wherein the at least one intake orifice is unobstructed; and,

e) a plurality of relatively movable, telescoping collar segments operatively associated with the second wall and located adjacent to the exit end of the combustion chamber.

5,211,676

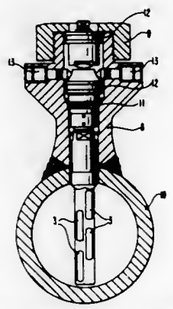
Patent Not Issued For This Number

5,211,677

METHOD AND APPARATUS FOR MEASURING THE QUANTITY OF PARTICULATE MATERIAL IN A FLUID STREAM

John P. Sargeant, Haslum; Terje Sontvedt, Gjettum, and Tom Solberg, Eidanger, all of Norway, assignors to Norsk Hydro a.s., Oslo, Norway

Filed Oct. 16, 1991, Ser. No. 777,014
Claims priority, application Norway, Oct. 17, 1990, 904501
Int. Cl.[5] G01N *15/06, 27/04*
U.S. Cl. 73—61.71 14 Claims



1. A method for measuring the quantity of particulate material in a fluid stream, said method comprising:

positioning within said fluid stream at least one measuring element that has the property of being worn errosively by said particulate material in said fluid stream and that has an electrical resistance that varies as a function of the degree of such wear;

measuring changes of said electrical resistance of said measuring element and determining said detree of wear thereof; and

determining the quantity (P) of said particulate material in said fluid stream according to:

$$P = \frac{(A\rho m^{1.5})}{(Vm^{B} \cdot f \cdot d_p \cdot N)} \cdot \sum_{1}^{N} r$$

wherein:

r = said degree of wear;

N = the number of measuring elements positioned within said stream

ρm = density of fluid mixture

Vm = speed of fluid structure

d_p = particle size of particulate material

f = function that is dependent on the shape and orientation of said at least one measuring element

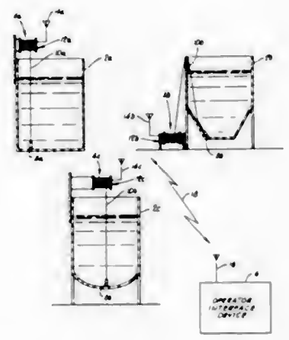
A and B = estimated constants.

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5,211,678
APPARATUS, METHOD AND SYSTEM FOR MONITORING FLUID

Stanley V. Stephenson; Ronald E. Dant; Robert L. Toellner; Edward P. Arnold; Thuong Van Le, and Leslie N. Berryman, all of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Aug. 14, 1991, Ser. No. 744,776
Int. Cl.[5] G01F *23/14*; G01N *9/26*
U.S. Cl. 73—149 10 Claims
MICROFICHE APPENDIX INCLUDED
(209 Microfiche, 3 Pages)



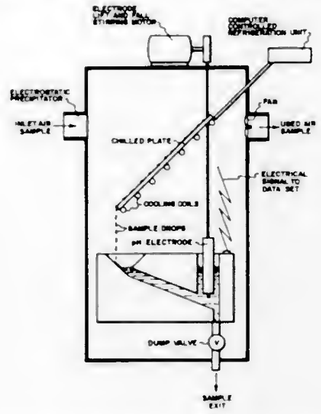
1. A method of monitoring fluid in a container, comprising:
(a) sensing with a totally submersible pressure sensor the pressure of the fluid at a first depth of the fluid;
(b) sensing with the pressure sensor the pressure of the fluid at a second depth of the fluid, the second depth a known distance from the first depth;
(c) sensing with the pressure sensor the pressure of the fluid at the bottom of the fluid;
(d) determining the density of the fluid in response to the pressures sensed in said steps (a) and (b); and
(e) determining the height of the surface of the fluid in the container in response to the pressure sensed in said step (c) and the density determined in said step (d).

5,211,679
AIR QUALITY MONITORING METHOD AND APPARATUS

Raymond A. Meyer, 1021 Calle Las Trancas, Thousand Oaks, Calif. 91360

Filed Apr. 25, 1991, Ser. No. 715,112
Int. Cl.[5] G01N *1/00*
U.S. Cl. 73—863.12 2 Claims

1. A method for studying and evaluating the extent and type of air pollution by evaluating samples collected from the earth's atmosphere including the steps of providing cyclic, computer controlled, condensation on a chilled surface where the collection form is either frost or solid depending upon

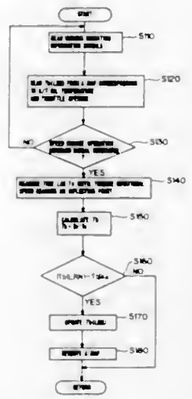


collection conditions and the frost or solid form is subsequently converted to liquid form for evaluation and testing.

5,211,680
CONTROL SYSTEM FOR ENGINE WITH AUTOMATIC TRANSMISSION

Takayuki Sumimoto, Hiroshima; Toshio Nishikawa, Fuji, and Daisaku Moriki, Hiroshima, all of Japan, assignors to Mazda Motor Corp., Hiroshima, Japan

Filed Mar. 27, 1991, Ser. No. 675,261
Claims priority, application Japan, Mar. 30, 1990, 2-81063
Int. Cl.[5] B60K *41/06*
U.S. Cl. 74—858 8 Claims

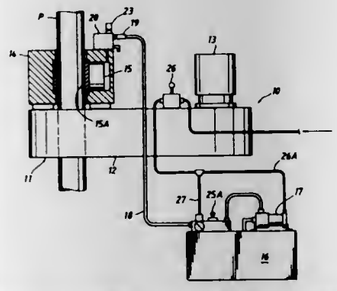


1. A control system for an engine with an automatic transmission, comprising:
an output reducing means for reducing an output of said engine by a predetermined quantity in a speed change operation of said automatic transmission, so as to suppress a speed change shock generated in the speed change operation; and
output reduction control means for controlling a start timing of operation of said output reducing means so as to make a timing when output reduction of said engine is completed by said output reducing means coincide with a start timing of an actual gear shift operation of said automatic transmission;
wherein said output reduction control means comprises:
a speed change operation start timing detecting means for detecting input of a speed change operation command signal into said automatic transmission;
a response lag time measuring means for measuring a response lag time of said automatic transmission from a timing of detection of said speed change operation command signal to the start timing of the actual gear shift operation of said automatic transmission;
an output reduction control executing means for starting the output reduction of said engine when a preset delay time has elapsed form the timing of detection of said speed change operation command signal; and
a delay time setting means for calculating said delay time and storing same as a new set value so that the output reduction of said engine is completed at a timing when a substantially constant time has elapsed from a start timing of the output reduction of said engine, and the timing when the output reduction of said engine is completed is made to coincide with the start timing of the actual gear shift operation of said automatic transmission.

5,211,681
SYSTEM FOR MAKING UP OR BREAKING OUT THREADED JOINTS OF PIPE

Dennis J. Penisson, Raceland, La., assignor to Bilco Tools, Inc., Houma, La.

Filed Feb. 4, 1992, Ser. No. 830,682
Int. Cl.[5] B25B *21/00*
U.S. Cl. 81—57.19 6 Claims

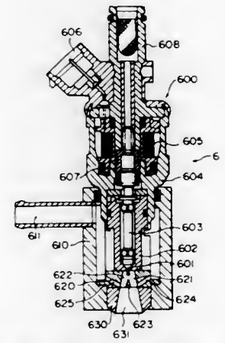


1. In a system for making up or breaking out threaded joints of pipe,
a power tong comprising
a housing,
a head rotatably mounted on the housing,
each of the housing and head having slots adapted to be aligned with one another to receive a joint along the axis of rotation of the head,
means on the head having gripping means movable into and out of positions gripping the joint to cause the joint to rotate with the head when gripped by the gripping means,
moving means for so moving the gripping means into gripping position in response to the supply thereto of fluid under pressure,
a fluid reservoir,
means including a pump for drawing fluid from the reservoir and a conduit connecting the pump to the moving means for supplying fluid from the reservoir under pressure to the moving means,
said conduit having a first portion leading to the moving means and a second portion leading from the pump and including
a coupling having a first part on one end of the first portion of the conduit and a second part on one end of the second portion of the conduit and releasably connected to the first part, said first portion of the conduit also including
means for venting fluid from the first portion of the conduit intermediate the moving means and check valve so as to permit the gripping means to move out of gripping position,
said reservoir and pump being supported at a location which does not rotate with the head.

5,211,682
FUEL FEED APPARATUS OF INTERNAL COMBUSTION ENGINE AND MANUFACTURING METHOD THEREFOR

Hisashi Kadowaki, Kariya; Yasuhide Tani, Nagoya; Mitsunori Takao, Kariya; Kiyoshi Nagata, Anjo, and Haruo Suzuki, Aichi, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

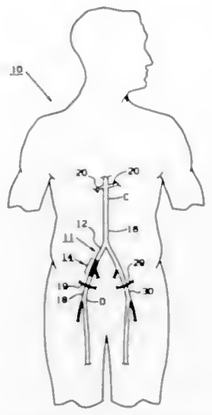
Filed Jun. 9, 1992, Ser. No. 896,036
Claims priority, application Japan, Jun. 11, 1991, 3-139251; Apr. 8, 1992, 4-087172
Int. Cl.[5] F02M *23/00*
U.S. Cl. 123—531 10 Claims



1. A fuel feed apparatus of an internal combustion engine which is to be disposed in an intake passage of the internal combustion engine having a plurality of intake valves, said apparatus comprising:
a fuel injection valve serving to inject fuel from a fuel injection nozzle;
a passage member provided on said fuel injection valve as being extended in the direction of fuel injection and formed with a fuel passage serving to direct the fuel injected from said fuel injection valve toward the respective intake valves of said internal combustion engine, assist air passages through which assist air is jetted so as to cross the fuel injected from said fuel passage, and a cylindrical guide portion serving to regulate a spray cone angle of the fuel when the assist air is jetted from said assist air passages; and
interrupter means for interrupting the supply of the assist air to said air assist passages in accordance with the operation condition of said internal combustion engine,
wherein individual sprays of fuel directed to said plurality of intake valves are formed by said fuel passage when said interrupter means cuts off the assist air, while a single spray of fuel atomized by the assist air, the spray cone angle of which is regulated by said guide portion, is formed when said interrupter means allows the assist air to be supplied.

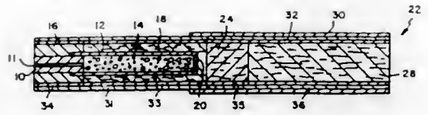
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,683
METHOD OF IMPLANTING A GRAFT PROSTHESIS IN THE BODY OF A PATIENT
Thomas J. Maginot, 2811 Princeton Ave., St. Louis Park, Minn. 55416
Filed Jul. 3, 1991, Ser. No. 725,597
Int. Cl.[5] A61B *19/00*
U.S. Cl. 128—898 40 Claims



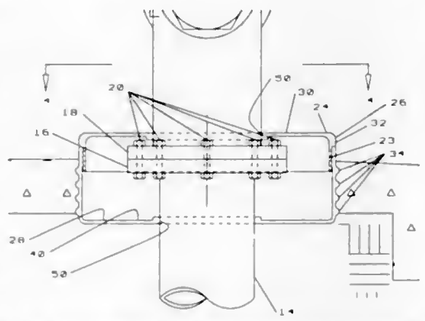
1. A method of implanting a graft prosthesis in the body of a patient to bypass a segment of a blood vessel comprising the steps of:
making an incision in the body;
positioning a graft so that one end of the graft is located substantially adjacent the blood vessel at a site upstream of the segment and a second end of the graft is located substantially adjacent the blood vessel at a site downstream of the segment, wherein the positioning step includes the step of placing the graft into the body through the incision, and further wherein the positioning step is performed while the upstream site is covered by a substantially intact portion of the epidermis of the body;
isolating a region of the area within the blood vessel near the upstream site from fluid communication with the rest of the area within the blood vessel, wherein the upstream isolating step is performed while the upstream site is covered by the substantially intact portion of the epidermis of the body;
making an arteriotomy in a sidewall of the blood vessel near the upstream site to create a communicating aperture between the upstream isolated region and an area outside of the blood vessel, wherein the upstream arteriotomy making step is performed while the upstream site is covered by the substantially intact portion of the epidermis of the body;
forming an anastomosis between the one end of the graft and the blood vessel near the upstream site, wherein the upstream anastomosis forming step is performed while the upstream site is covered by the substantially intact portion of the epidermis of the body;
isolating a region of the area within the blood vessel near the downstream site from fluid communication with the rest of the area within the blood vessel;
making an arteriotomy in the sidewall of the blood vessel near the downstream site to create a communicating aperture between the downstream isolated region and the area outside of the blood vessel; and
forming an anastomosis between the second end of the graft and the blood vessel near the downstream site.

5,211,684
CATALYST CONTAINING SMOKING ARTICLES FOR REDUCING CARBON MONOXIDE
Michael D. Shannon, Lewisville, N.C.; Richard L. Lehman, Belle Mead, N.J.; James L. Resce, Yadkinville; Olivia P. Furin, Clemmons, both of N.C.; Joseph T. Meers, Fairview Park, Ohio; Dennis M. Riggs, Belews Creek, and Ernest G. Farrier, Winston-Salem, both of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Jan. 10, 1989, Ser. No. 296,539
Int. Cl.[5] A24B *15/10, 15/16*
U.S. Cl. 131—352 106 Claims



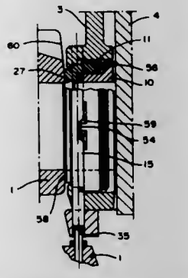
1. A fuel element for smoking articles comprising:
a) a pressure formed mass of carbonaceous material; and
b) a catalytic composition comprising a ceramic material which is an oxide selected from the group of alumina, zirconia, titania, yttria, silica, phosphates, aluminosilicates, or mixtures thereof, which during burning of the fuel element substantially decreases the amount of carbon monoxide in the mainstream smoke of a smoking article employing the fuel element.

5,211,685
FIRE HYDRANT BASE ENCLOSURE
Robert S. Garcia, 14131 Garber St., Arleta, Calif. 91331
Filed Mar. 16, 1992, Ser. No. 852,387
Int. Cl.[5] F16L *35/00*
U.S. Cl. 137—295 13 Claims



1. A device for enclosing the ground-level mounting flange of a fire hydrant, said device comprising:
a hollow, box-like structure having at least two parts independent of said hydrant and releasably mountable to completely enclose said mounting flange and the flangeplate of a water pipe to protect the ground surface about said mounting flange and said flangeplate in the event of severance of said mounting flange from said flangeplate.

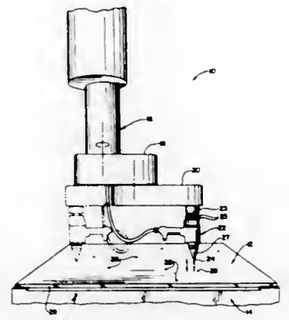
5,211,686
VALVE DEVICE
Odd D. Karlsen, Bøgata 15B, N-6008 Ålesund, Norway
PCT No. PCT/NO91/00021, § 371 Date Dec. 16, 1991, § 102(e) Date Dec. 16, 1991, PCT Pub. No. WO91/12448, PCT Pub. Date Aug. 22, 1991
PCT Filed Feb. 15, 1991, Ser. No. 778,929
Claims priority, application Norway, Feb. 16, 1990, 900754
Int. Cl.[5] F16K *3/30*
U.S. Cl. 137—316 9 Claims



1. A valve device comprising a valve housing having inlet and outlet end pieces for mounting of the valve in a pipeline, and a valve member in the housing movable between open and closed positions for opening and closing of the valve, said valve member being mounted in an assembly which can be removed as a unit from the valve housing, said assembly comprising a cover adapted to bs fasten to the valve housing, a rod or spindle for moving the valve member between open and closed positions, a retainer in which the valve member is movable, gasket means carried by the retainer and arranged to seal both against the movable valve member and against fixed seats in the valve housing, said valve housing having a transverse opening adapted to receiver the assembly and including means for locking the cover in its mounted position and permitting rectilinear movement of the assembly into and out of the transverse opening, said gasket means being movable between retracted and extended positions towards and away from the housing seats relative to the retainer while supported on the retainer, spring means for urging said gasket means axially towards the housing seats in a sealing relationship when the valve device is assembled, locking means for temporarily locking said gasket means in a retracted position on the retainer until said valve device is assembled, said locking means comprising movable locking rods arranged to lock the gasket means in retracted positions until the valve device is assembled, said locking rods extending parallel to the direction of insertion of the retainer into the valve housing during assembly of the valve device.

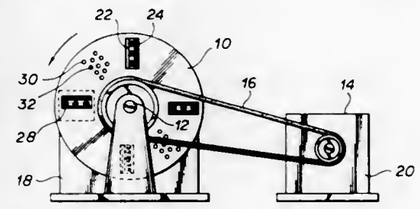
5,211,687
APPARATUS AND METHOD FOR PRODUCING A HOLE IN AN ARTICLE OF WOOD OR WOOD PRODUCT
Larry L. Loser, Holland, Mich., assignor to Herman Miller, Inc., Zeeland, Mich.
Filed Dec. 4, 1991, Ser. No. 811,454
Int. Cl.[5] B27M *1/02*; B26F *1/24*
U.S. Cl. 144—361 40 Claims

1. A method for producing a screw hole in an article comprising wood or wood products, the method comprising:
providing a piercing tool having a punch extending therefrom and means for propelling said punch outwardly with a sufficient impact load to create a screw hole in the article;
automatically moving one of said piercing tool and article relative to the other such that the piercing tool is positioned in a desired location relative to the article;



actuating said propelling means to propel the punch through a surface of the article and thereby produce a screw hole therein; and
retracting the punch.

5,211,688
APPARATUS AND METHOD FOR MAKING WOOD CURLS
James T. Rice, Sr., Athens, Ga., assignor to University of Georgia Research Foundation, Inc., Athens, Ga.
Continuation-in-part of Ser. No. 633,588, Dec. 21, 1990, Pat. No. 5,097,879. This application Mar. 23, 1992, Ser. No. 856,136
Int. Cl.[5] B27L *11/00*
U.S. Cl. 144—373 24 Claims



1. An apparatus for making wood curls, comprising:
(a) a rotatable disc having a work surface on the face of said disc and one or more elongated and narrow slots through said disc, and having a hollow center suitable for mounting said disc on a shaft;
(b) one or more cutting blades extending through said slots;
(c) a means for mounting said cutting blades on the edge of said slots of said disc whereby a rake angle in the range of zero to thirty degrees (0°–30°) is made between the face of said cutting blades and a plane perpendicular to said work surface of said disc;
(d) a shaft upon which to securely mount said disc;
(e) a feed box for the placement of work pieces to be presented to the work surface of said disc wherein the base of said feed box is tilted vertically so as to provide for an angle between the tool motion vector of said cutting blades and the grain of the work piece in a range of zero to ten degrees (0°–10°) and wherein the distance between said disc work surface and the edge of said feed box is in the range of 0.001 inches to 0.010 inches;
(f) a means for directing work pieces placed in said feed box against said work surface of said disc as it rotates about said shaft causing said cutting blades to travel and contact said work pieces; and
(g) sufficiently powerful means for causing said shaft to

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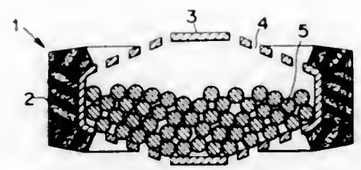
rotate with sufficient speed and force to permit said cutting blades to cut said work pieces to produce curled wood flakes.

5,211,689

WATER-ACTIVATING PARTICLE CASING WITH AN ANNULAR FLOAT

Nobutaka Kobayashi, 26-1202 Wakabadai 2-chome, Asahi-ku, Yokohama-shi, Japan

Filed Dec. 2, 1991, Ser. No. 801,799
Claims priority, application Japan, Nov. 30, 1990, 2-129811
Int. Cl.[5] D06F *35/00*; F17C *13/00*; A24F *25/00*
U.S. Cl. 206—0.5 11 Claims



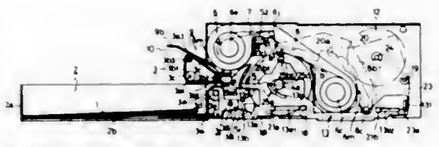
1. A water-activating particle dispenser comprising:
a casing for containing water-activating particles, the casing having openings to allow water to flow into and out of an interior portion of the casing to contact water-activating particles; and
a float surrounding the casing such that the float and the casing are concentric, the float being made of closed cell rubber and attached to the casing such that the float and casing together have positive buoyancy relative to water.

5,211,690

TRANSMISSION CLUTCH AND RECORDING APPARATUS WHICH USES THE TRANSMISSION CLUTCH

Yoshiyuki Mizoguchi, and Yoshitaka Watanabe, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 454,897, Dec. 22, 1989, abandoned.
This application Mar. 27, 1992, Ser. No. 860,246
Claims priority, application Japan, Dec. 23, 1988, 63-323565
Int. Cl.[5] B65H *3/04*
U.S. Cl. 271—10 11 Claims



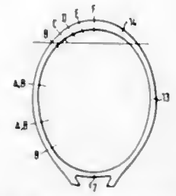
1. A sheet supplying apparatus, comprising:
sheet supply means for supplying a sheet from a stack of sheets;
transport means for transporting a sheet supplied by said sheet supply means;
a first rotary driven member for driving said sheet supply means;
a second rotary driven member for driving said sheet transport means;
rotary drive means for driving either one of said first and second rotary driven members; and
support means for supporting said rotary drive means to be displaceable between a first position where said first rotary driven member can be driven, a second position where said second rotary driven member can be driven or a third position where said first rotary driven member and said second rotary driven member can be driven at the same time.

5,211,691

TENNIS RACKETS

Hugo Sol, Grimbergen, Belgium, assignor to Donnay International S.A., Couvin, France

Filed Nov. 27, 1990, Ser. No. 618,294
Claims priority, application Fed. Rep. of Germany, Nov. 26, 1990, 4037568
Int. Cl.[5] A63B *49/02*
U.S. Cl. 273—73 C 34 Claims



1. A tennis racket having a longitudinal axis of symmetry which comprises a handle extending substantially along the longitudinal axis, a head defined by a frame having an annular opening, stringing mounted on said frame and tensioned across said opening substantially along a plane, two connecting arms extending between the head and the handle and directly joining the head to the handle, and a reinforcement member extending between the two connecting arms, the head comprising a main portion in which a height of the frame measured perpendicularly to the plane of the stringing is at least essentially constant and extends from the ends of the connecting arms to beyond a region of the head of the racket having a maximal head width as measured in the plane of the stringing perpendicularly to the longitudinal axis, a cross-sectional width of the frame in the main portion corresponding to a value of between 50% and 75% of the height of the frame, and an end portion located at the opposite end from the handle, a width of the cross section of the frame measured in the plane of the stringing increasing in the end portion towards a top end of the frame, wherein said reinforcement member is arranged between the two connecting arms, the reinforcement member delimiting the opening of the frame on the side of the handle and being provided with apertures for receiving strings of the stringing in the same manner as the frame surrounding the opening, and wherein said reinforcement member has a height which increases in the direction of its center whereas the width of the cross section decreases.

5,211,692

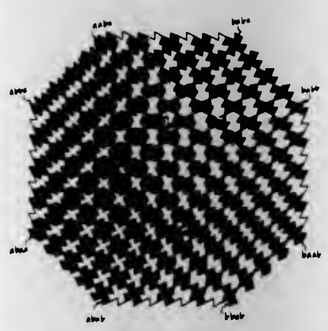
METAMORPHIC TILING PATTERNS BASED ON ZONOHEDRA

Haresh Lalvani, 164 Bank St., Apt. 2B, New York, N.Y. 10014

Filed Aug. 28, 1990, Ser. No. 573,857
Int. Cl.[5] B44F *7/00*
U.S. Cl. 273—157 R 19 Claims

1. A method of producing metamorphic tiling patterns for various design applications and comprising:
a plurality of transformed polygons derived from a base tiling pattern composed of plane-filling base polygons wherein
said transformed polygons are obtained by applying geometric transformations on the edges of said base polygons wherein
each said transformed polygon is a geometric transformation of the adjacent transformed polygon and said plurality of transformed polygons displays a gradual transformation of the tiling pattern from one portion of the pattern to another,

where said geometric transformations are binary combinations of n distinct geometric transformations performed on edges of said base polygons,
where the said plurality of said transformed polygons cover a surface of an underlying zonohedron network composed of contiguous parallelogram faces and defined by a projection of an n-dimensional cube having edges parallel to n directions, such that each direction is coupled with an associated geometric transformation, and where n is any number greater than 3,
where the said metamorphic tiling pattern is derived by using the method steps comprising the following:
selecting said base tiling pattern composed of plane-filling 4-sided base polygons of desired proportions and angles, projecting said n-dimensional cube onto said base tiling pattern,
identifying sets of said base polygons as vertex-polygons corresponding to the vertices of said projected n-dimensional cube, edge-polygons corresponding to the edges of said projected n-dimensional cube, and face-polygons corresponding to all remaining polygons which are not vertex- and edge-polygons,



performing a first transformation on each said vertex-polygon whereby n independent geometric transformations are selected and their combinations applied to all said vertex-polygons thereby creating a set of transformed vertex-polygons,
selecting a sub-set of said transformed vertex-polygons corresponding to the vertices of said contiguous parallelogram faces of said zonohedron network,
performing a second transformation whereby all said edge-polygons corresponding to the edges of the said zonohedron network are transformed by gradual incremental transformations between said transformed vertex-polygons thereby creating a set of transformed edge-polygons,
performing a third transformation whereby all said face-polygons corresponding to the faces of the said zonohedron network are transformed by gradual incremental transformations between said transformed vertex- and edge-polygons,
where said method steps are applied systematically over the entire surface of the said zonohedron network to generate said metamorphic tiling pattern.

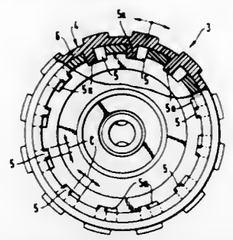
5,211,693

DRILLING AND CHIPPING TOOL

Vinko Pacher, Munich, Fed. Rep. of Germany, assignor to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Nov. 22, 1991, Ser. No. 797,459
Claims priority, application Fed. Rep. of Germany, Nov. 22, 1990, 4037148
Int. Cl.[5] B23B *31/113*
U.S. Cl. 279—19.3 6 Claims

1. Drilling and chipping tool having a leading end and a trailing end and a long direction extending in the trailing end - leading end direction, a holder (3, 13) for a tool bit detachably mountable on a neck (2, 12) at the leading end of said tool (1), said holder (3, 13) includes a cap (4, 14) mountable over the neck (2, 12), wherein the improvement comprises that said cap (4, 14) has an annular interior surface with an axis extending in the long direction and with spaced teeth (5, 5a, 15, 15a) formed on and extending inwardly from the interior surface with said teeth extending in the long direction, said neck (2, 12) has an



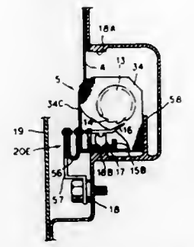
exterior surface with spaced teeth (2a, 12a) thereon extending in the long direction and being complementary to said teeth (5, 5a, 15, 15a) on said cap (4, 14), a part (5a, 15a) of said teeth (5, 5a, 15, 15a) on said cap (4, 14) being offsettable relative to the remainder of said teeth (5, 15), and at least one recess (2b, 12b) in the region of the teeth (2a,12a) on the exterior surface of said neck (2, 12) and arranged to receive the offsettable part (5a, 15a) of said teeth (5, 5a, 15, 15a) on said cap (4, 14).

5,211,694

SAFETY APPARATUS INCLUDING AN AIR BAG AND A SAFETY BELT SUPPORTED ON A VEHICLE WITH A DEFORMABLE COUPLING

Masafumi Sakakida; Yasunori Iwamoto, and Toshiyuki Manabe, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Continuation of Ser. No. 536,885, Jun. 13, 1990, abandoned.
This application May 21, 1992, Ser. No. 887,377
Claims priority, application Japan, Jun. 20, 1989, 1-157006
Int. Cl.[5] B60R *22/36*
U.S. Cl. 280—806 23 Claims



1. A safety apparatus for an automotive vehicle, comprising:
an air bag system including an air bag which is housed, when empty, in a container in front of a seat of the vehicle and inflatable to protect an occupant of said seat during a collision of said vehicle;
a safety belt system having at least a shoulder belt engaged with a retractor for preventing forward plunging of said occupant of said seat to hold said occupant in said seat during the collision of said vehicle; and
impact diminishing means associated with said safety belt system for restraining said shoulder belt and preventing said shoulder belt from applying a pressure impact above a particular value to said occupant before said air bag acts on said occupant with a maximum pressure impact, the impact diminishing means thereby limiting a total impact

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applied to the occupant during the collision by said air bag and said shoulder belt; and

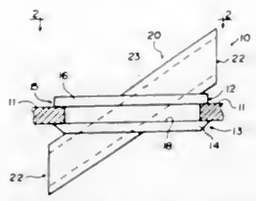
stopper means for preventing excessive upward movement of said retractor once said shoulder belt is subjected to a vertical force exceeding a specific tension.

5,211,695

FEEDTHROUGH SLEEVE AND INTEGRAL SUPPORT FITTING

Robert L. Dowler, New Haven, Ind., assignor to Navistar International Transportation Corp., Chicago, Ill.

Filed May 18, 1992, Ser. No. 885,321
Int. Cl.[5] F16L *3/04*
U.S. Cl. 285—162 4 Claims



2. An elongated feedthrough and support fitting for passing an elongated member through a vehicle bulkhead comprising an integral semirigid plastic structure having:

an oval planar support portion, said support portion having a periphery including means for engaging a surrounding wall structure, and

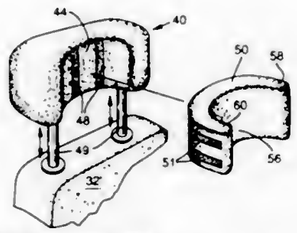
a rigid tubular sleeve portion integrally formed in said support portion and extending to distal ends disposed on both sides of said support portion and outside of the periphery thereof but in close proximity to a longitudinal end thereof, said sleeve portion being disposed at an acute angle to the plane of the fitting and defining an elongated throughbore of relatively small diameter extending therethrough between said distal ends.

5,211,696

HEAD SUPPORT FOR VEHICLE SEAT BACKS

Jim Lacy, P.O. Box 309, Gladstone, Oreg. 97027

Division of Ser. No. 682,252, Apr. 9, 1991, Pat. No. 5,154,477.
This application Jul. 31, 1992, Ser. No. 923,067
Int. Cl.[5] A47C *7/38*
U.S. Cl. 297—397 3 Claims



1. A vehicle seat, comprising:

a seat including a seat back having a back support portion supporting a person's back sitting in the seat, ad a headrest portion extending upward from said back support portion positioned rearward of the head of an individual seated in said seat, said headrest portion having a cutout formed by a concave inset provided in the front of the headrest portion, and a first fastener attached to the headrest in the cutout;

a head restraining insert having a front and a back, said insert removably mountable in the cutout of the headrest portion, a second fastener attached to the back of the insert releasably mateable with the first fastener to hold the insert in the mounted position, said insert mounted in said cutout providing a first profile having a substantially planar front surface for limiting the rearward movement of the head of the individual as a safety measure;

a pillow having a front and a back, said pillow removably mountable to the headrest portion with the back of the pillow nested in the cutout, a third fastener attached to the back of the pillow releasably mateable with the first fastener to hold the pillow in the mounted position, the pillow configured to provide a second profile having a concave front surface for directly supporting the back of the head of an individual seated in the seat for napping; and

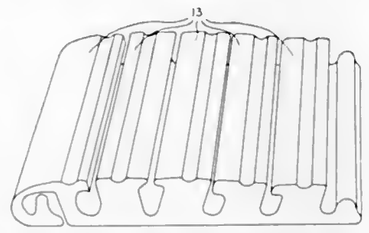
the insert and the pillow being interchangeably mountable in the cutout of the headrest.

5,211,697

UPPER SEAT PART

Kurt Kienlein, Ludwigstrasse 10, D-8505 Rothenbach, and Peter Forster, Sudetenstrasse 37, D-8501 Cadolzburg, both of Fed. Rep. of Germany

PCT No. PCT/EP90/01513, § 371 Date Jun. 24, 1991, § 102(e) Date Jun. 24, 1991, PCT Pub. No. WO91/03193, PCT Pub. Date Mar. 21, 1991
PCT Filed Sep. 7, 1990, Ser. No. 691,054
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1989, 39300218
Int. Cl.[5] A47C *7/02*
U.S. Cl. 297—453 5 Claims



1. An upper seat part made from a permanently elastic material, comprising

a bottom part, a forward area, a central area, and a back area opposite to said forward area, said forward area and said back area defining a seating direction,

a plurality of ridges extending from said bottom part, said ridges being approximately parallel to each other and running transversely to the seating direction, said ridges including upper free end portions,

said ridges in said forward area being inclined forwardly and said ridges in said central and back areas being inclined rearwardly relative to said seating direction,

said ridges inclined forwardly including projections extending rearwardly approximately at a parallel to said bottom part, and said ridges inclined rearwardly including projections extending forwardly approximately at a parallel to said bottom part, so that said projections partially enclose ridge intervals, and so that said projections together with said upper free end portions of said ridges constitute a seating surface,

said upper seat part further comprising a flap-like prolongation extending from a forward-most ridge, said prolongation being folded down over to said bottom part so that said prolongation encloses a cavity and becomes flush with an underside of said bottom part, and

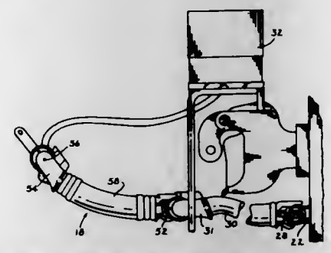
at least one supporting ridge extending from said prolongation into said cavity and running transversely to said seating direction.

5,211,698

RAILROAD TRAIN BRAKING SYSTEM WITH A CONTINUOUSLY VENTING COUPLER

Gerald P. Winfrey, 101 W. James Ct., Kearney, Mo. 64060

Filed Jan. 21, 1992, Ser. No. 822,854
Int. Cl.[5] B60T *11/26*
U.S. Cl. 303—86 15 Claims



1. In a railroad train having a plurality of railroad cars and having an air brake system for braking the train during operation thereof including an air conveyance conduit extending along the length of the train and presenting respective forward and rearward ends and including an air supply source coupled with the conduit adjacent the forward end thereof, the source having an allowable make-up air capability, each car having an air brake mechanism coupled with the conduit and responsive to an air pressure reduction therein for braking the associated car, a method of operating the air brake system comprising the steps of:

providing a safety apparatus having means configured for coupling with the conduit and means for continuously venting pressurized air therefrom at a controlled vent rate;

coupling said safety apparatus with the conduit adjacent the rearward end thereof;

continuously venting pressurized air during operation of the train from the conduit through said safety apparatus at a controlled vent rate less than the allowable make-up air capability of the air supply source;

in the event of a blockage in the conduit, reducing the air pressure in the conduit rearward of the blockage by continuing to vent pressurized air therefrom by way of said safety apparatus; and

actuating the braking mechanism of each of those cars coupled with the conduit rearward of said blockage in response to said reducing of the air pressure therein.

5,211,699

LIGHTED DRINKING GLASS

Tommy B. Tipton, Rte. 1 Box 112, Flatonia, Tex. 78941

Filed May 27, 1992, Ser. No. 888,601
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—101 1 Claim

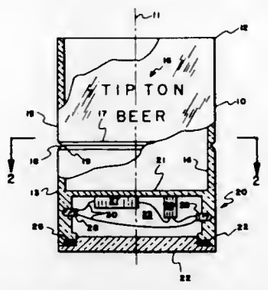
1. A drinking glass fabricated of optically transparent plastic material and comprising:

a) an elongated sidewall portion of circular cylindrical contour having a center axis of symmetry and extending between an uppermost lip extremity and a lowermost extremity, said sidewall portion being bounded in part by opposed interior and exterior surfaces,

b) indicia formed as recesses in said sidewall portion, said recesses emergent upon said exterior surface and extending in depth between about 10% and 40% through said sidewall toward said interior surface, said recesses defined by facets which in part are angled with respect to said axis,

c) a base portion joining the lowermost extremity of the sidewall portion as a continuous integral extension thereof, and comprised of: 1) an opaque upper panel that joins with said sidewall to constitute therewith a liquid-impervious vessel, 2) an impervious sealable compartment and 3) a flat lower panel,

d) a lighting mechanism housed within said compartment and comprised of a battery and a plurality of light-emitting diodes disposed beneath the lowermost extremity of said sidewall portion and equidistantly spaced about said sidewall portion, said diodes activated by said battery,



e) a switch mechanism confined within said compartment and causing said light emitting diodes to be energized when the glass is upright on its base portion, and deactivating said diodes when the glass is turned upside down, and

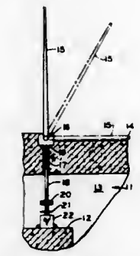
f) a threadably removable, sealable access panel associated with said base portion to provide access to said compartment.

5,211,700

MOVABLE DAM GATE FOR REGULATING WATER IN A NAVIGABLE PASS

Byron K. McClellan, Salem, Ind., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 8, 1992, Ser. No. 880,636
Int. Cl.[5] E02B *7/40*
U.S. Cl. 405—99 1 Claim



1. A movable dam gate comprising:

a concrete sill supporting an axle for rotation, said sill having a dry gallery located there within for supporting a hydraulic motor and clutch assembly and said sill having a tapered recess along it top for supporting a wicket gate in a fixed position;

a wicket gate further supported at one end of said axle, said axle being rotatable to position said wicket gate between vertical position and a horizontal position;

a hydraulic motor and clutch assembly located in said dry gallery in said sill, having a drive shaft extending through said sill to said axle and having a brake connected, thereto for holding said wicket gate in a horizontal position and said clutch being a slip clutch which operates as a failsafe

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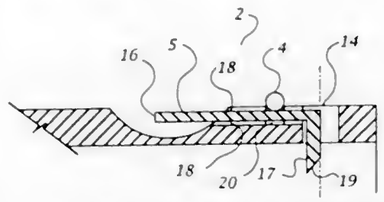
device such that when the wicket is struck and a predetermined amount of pressure is placed thereupon, said slip clutch will give and said wicket will deflect towards its horizontal position; and a gearbox connecting said drive shaft to said axle whereby said wicket gate may be positioned between a vertical and horizontal position by operation of said hydraulic motor and clutch assembly.

5,211,701

RAPID CHANGE DRILL BIT SYSTEM

Attila Csabafy, 32486 Galleon Way, San Juan Capistrano, Calif. 92675

Filed Jan. 9, 1992, Ser. No. 818,521
Int. Cl.[5] B23B *31/103*
U.S. Cl. 408—239 R 2 Claims



1. A system of parts including various interchangeable sizes and shapes of one component part of the system, these interchangeable, functional component parts hereafter referred to as IFCP, comprising:

a holder for the IFCP, the holder containing a cavity to receive the IFCP, the cavity having a bottom surface, the surface having a raised portion on its surface across the width of the cavity, each IFCP having a functional portion and an installation portion, the shape of the installation portion being identical for all IFCP's, the installation portion fitting into the cavity portion of the holder, the IFCP containing a groove across its width on the end of its installation portion, the groove fitting exactly with the raised portion on the holder, the mating of the groove and raised portions preventing rotation between the holder and the IFCP, the mating providing a means of transmitting torque from the holder to the IFCP,

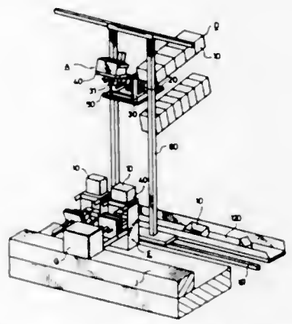
the IFCP containing a peripheral groove, the peripheral groove being located on the IFCP so that said peripheral groove is immersed within the cavity of the holder when the IFCP and the holder are joined, the holder containing an opening on its side leading through its wall to the cavity, the opening located in line with the IFCP peripheral groove when the IFCP is joined to the holder, the holder having a depression in its outside surface centered in line with the opening on its side and displaced from said opening along the length of the holder away from where the IFCP enters the holder, the depression and the opening being connected by an open channel, the depth of the channel being less than the depth of the depression, the holder containing an "O" ring and "O" ring groove, the groove located between the opening and the depression, the holder being fitted within the channel on its exterior wall with a moveable locking pin, the pin being held in place within the groove by its lying under the "O" ring and perpendicular to it, the pin being "L" shaped, the long leg of the "L" being positioned within the groove and under the "O" ring, the short leg of the "L" protruding into the opening on the holder under pressure from the "O" ring to create the locking function holding the IFCP in the holder as the short leg resides within the peripheral groove on the IFCP, the short leg having a normal and an actuated position, the short leg in its normal position having its one end extend into the groove of the IFCP, the leg position within the groove preventing the IFCP from exiting the holder, actuation of the pin being effected by manually pressing the long leg of the pin downward into the depression on the side of the holder, the pin then rocking its long leg on the bottom of the groove between the opening for the short leg and the depression, and at the same time stretching the "O" ring, the pin in its actuated position having its protruding, short leg end outside the groove, the IFCP then being removable from the holder, the result being that the holder and any one of the set of individual, different items of the IFCP can readily be interchanged and joined.

5,211,702

GOODS HANDLING METHOD AND APPARATUS THEREOF

Nobuhiro Tanaka, Miyashiro, Japan, assignor to Kao Corporation, Tokyo, Japan

Filed Nov. 27, 1990, Ser. No. 625,922
Claims priority, application Japan, Nov. 29, 1989, 1-309502; Dec. 4, 1989, 1-314530
Int. Cl.[5] B65G *6/40*
U.S. Cl. 414—404 2 Claims



1. A method for sequentially removing a desired number of goods from an accumulation of goods, said accumulation having a plurality of goods in each of a height and depth direction and at least one good in a width direction, comprising the steps of:

(1) locating said accumulation on a lifting table;

(2) adjusting a height of said lifting table until a bottom surface of said desired number of goods to be removed is level with a goods receiving table;

(3) removing said desired number of goods from said accumulation onto said goods receiving table using sucking tools;

(4) inverting said sucking tools by rotating said sucking tools 90 degrees after said desired number of goods are removed;

(5) transferring said desired goods from said goods receiving table into a container; and

(6) advancing an adjacent row of goods into a place in said accumulation previously occupied by said desired number of goods.

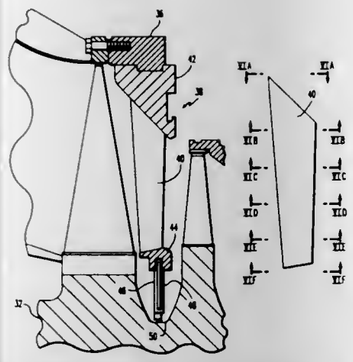
5,211,703

STATIONARY BLADE DESIGN FOR L-OC ROW

Jurek Ferleger, Longwood, and David H. Evans, Lake Mary, both of Fla., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 24, 1990, Ser. No. 603,332
Int. Cl.[5] F01D *9/04*
U.S. Cl. 415—181 5 Claims

2. Blading for an L-OC row of a turbine in accordance with the following table:



SECTION	F-F	E-E	D-D
RADIUS			
(IN)	28.92	33.00	38.00
(mm)	734.44	838.2	965.2
PITCH	3.03	3.46	3.98
WIDTH			
(IN)	3.77	4.143	4.60
(mm)	95.78	105.27	116.79
CHORD			
(IN)	5.17	5.91	6.83
(mm)	131.30	150.21	173.55
PITCH/WIDTH	.81	.83	.87
PITCH/CHORD	.59	.58	.58
STAGGER ANGLE (DEG)	42.44	44.95	47.25
MAXIMUM THICKNESS			
(IN)	.85	.88	1.0
(mm)	21.58	22.37	25.30
MAXIMUM THICKNESS/CHORD	.16	.15	.15
EXIT OPENING			
(IN)	1.06	1.18	1.32
(mm)	26.87	30.03	35.58
EXIT OPENING ANGLE (DEG)	21.65	21.10	20.38
INLET ANGLE (DEG)	68.5	70.01	83.
EXIT ANGLE (DEG)	20.29	19.74	19.26
INLET INCL. ANGLE (DEG)	29.03	33.96	37.96
EXIT INCL. ANGLE (DEG)	1.37	1.55	1.42
AREA (IN**2)	2.42	2.85	3.60
[ALPHA] FLOW ANGLE (DEG)	42.54	45.11	47.34
I MIN (IN**4)	.32	.40	.58
I MAX (IN**4)	3.10	4.82	7.92

SECTION	C-C	B-B	A-A
RADIUS			
(IN)	42.25	47.16	55.31
(mm)	1073.15	1197.86	1404.84
PITCH	4.42	4.94	5.79
WIDTH			
(IN)	4.99	5.43	6.18
(mm)	126.65	138.02	156.89
CHORD			
(IN)	7.62	8.53	10.06
(mm)	193.57	216.77	255.45
PITCH/WIDTH	.89	.91	.94
PITCH/CHORD	.58	.58	.58
STAGGER ANGLE (DEG)	48.77	50.16	51.89
MAXIMUM THICKNESS			
(IN)	1.12	1.20	1.50
(mm)	28.33	30.49	38.23
MAXIMUM THICKNESS/CHORD	15	.14	.15
EXIT OPENING			
(IN)	1.41	1.43	1.41
(mm)	35.82	36.29	35.72
EXIT OPENING ANGLE (DEG)	19.51	17.66	14.75
INLET ANGLE (DEG)	89.37	81.	77.99
EXIT ANGLE (DEG)	18.18	16.11	13.19
INLET INCL. ANGLE (DEG)	43.27	45.97	49.85
EXIT INCL. ANGLE (DEG)	1.56	1.47	1.36

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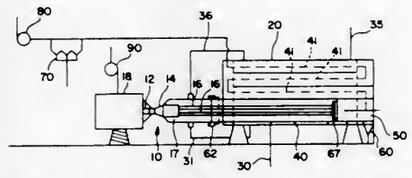
AREA (IN**2)	4.34	5.27	7.82
[ALPHA] FLOW ANGLE (D 48.56	49.90	51.53	
I MIN (IN**4)	.84	1.34	2.98
I MAX (IN**4)	11.63	17.68	35.49

5,211,704

PROCESS AND APPARATUS FOR HEATING FLUIDS EMPLOYING A PULSE COMBUSTOR

Momtaz N. Mansour, Columbia, Md., assignor to Manufacturing Technology and Conversion International, Inc., Columbia, Md.

Filed Jul. 15, 1991, Ser. No. 729,721
Int. Cl.[5] F23C *1/04*
U.S. Cl. 431—2 20 Claims



1. A process for heating a fluid comprising the steps of

a) passing a fluid to be heated through a vessel;

b) pulse combusting a fuel to produce a pulsating flow of combustion products and an acoustic pressure wave at a frequency of from about 20 to about 1500 Hz and directly passing said flow of combustion products through said vessel to effectuate heat transfer to said fluid for predetermined heating of said fluid;

c) removing particulate materials from said combustion product flow; and

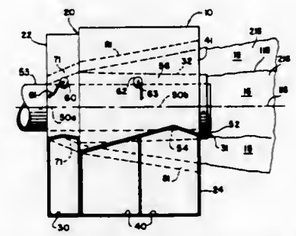
d) forwarding said heated fluid to accomplish its intended function.

5,211,705

APPARATUS AND METHOD FOR DELIVERY OF COMBUSTION AIR IN MULTIPLE ZONES

Donald K. Hagar, Bethlehem, Pa., assignor to Damper Design, Inc., Allentown, Pa.

Continuation of Ser. No. 508,477, Apr. 11, 1990, abandoned, which is a continuation of Ser. No. 277,206, Nov. 29, 1988, abandoned, which is a continuation of Ser. No. 28,180, Mar. 19, 1987, Pat. No. 4,801,261. This application Oct. 31, 1990, Ser. No. 607,106
Int. Cl.[5] F23M *3/04*
U.S. Cl. 431—10 2 Claims



1. A method of supplying air to a combustion device comprising the steps of:

a) feeding air from a common supply to an air register;

b) dividing the air fed from the common supply at the air register into at least two discrete flow paths to produce at

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least two flows, each of which is susceptible of acurate flow measurement;

c) measuring the actual flow in each flow path to obtain the overall air flow, and based on said measured air flow characteristic, controlling said air flow through the air register to control combustion in the combustion device;

d) independently regulating the first flow such that the first flow produces a higher kinetic energy of combustion air in the combustion device than the second flow, to provide high intensity mixing of said first air flow and a fuel so as to provide for good ignition production at a full load when said first and second flows are discharged into the combustion device,

e) independently regulating the second flow path to provide a smoother air flow near a perimeter of said air register to avoid nitrous oxide production by a very hot intense flame in said combustion device;

f) discharging said first and second air flows into the combustion device such that the first flow which produces the higher kinetic energy of combustion air in the combustion device is concentrically surrounded by the second flow, and;

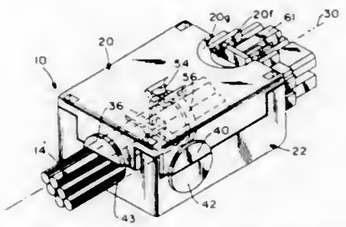
g) supplying fuel to the combustion device coaxially of the air discharged into the combustion device.

5,211,706

STRAIN RELIEF SHELL FOR AN ELECTRICAL CONNECTOR

Gary E. Polgar, Bolingbrook, Ill., assignor to Molex Incorporated, Lisle, Ill.

Filed Jun. 9, 1992, Ser. No. 895,974
Int. Cl.[5] H01R *13/58*
U.S. Cl. 439—464 **7 Claims**



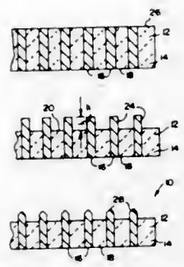
1. In a strain relief shell for relieving stress between an electrical connector and an electrical cable, including a pair of complementarily interengageable shell halves each having a generally flat body wall and end walls defining an interior cavity where the flat body walls are parallel to each other and the end walls of one shell half abut the end walls of the other shell half, means operatively associated between the shell halves releaseably engaging the electrical connector on a given center line, wherein the improvement comprises a pair of cable exit openings through the shell at different orientations in the end walls such that the cable can exit from one opening in a direction generally parallel to said center line and from the other opening in one of two directions generally transverse to the center line, and holding means integral with the generally flat body wall of each shell half accessible from the interior cavity for holding a cable tie about the cable within said interior cavity respectively in one of any of said directions.

5,211,707

SEMICONDUCTOR METAL COMPOSITE FIELD EMISSION CATHODES

Brian M. Ditchek, Milford, Mass.; Mark A. Neifeld, Tucson, Ariz., and John C. Gustafson, Harvard, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Jul. 11, 1991, Ser. No. 728,444
Int. Cl.[5] H01J *9/12*
U.S. Cl. 445—24 **3 Claims**



1. A process for producing a field emission cathode comprising the steps of:

producing, from a eutectic composition of a silicon-based or germanium-based material and a metal, a composite boule comprising a matrix of said silicon-based or germanium-based material and an array of individual rods of an electrically conductive compound of silicon or germanium and said metal, wherein the mole ratio of said silicon-based or germanium-based material to said metal in sad boule is approximately equal to the mole ratio of said silicon-based or germanium-based material to said metal in said eutectic composition, said rods of said array are distributed throughout said matrix, and said rods of said array are disposed generally parallel to each other;

cutting from said boule a composite body in which said rods of said array extend from a first major surface of said body to a second major surface of said body opposite said first major surface and are disposed generally normally to said first and second major surfaces of said body, with said rods each having a first end thereof exposed for emission at said first major surface and a second end exposed for ohmic contact at said second major surface; and

etching a portion of said body to expose said first ends of said rods at said first major surface.

5,211,708

FIBER BALE OPENING APPARATUS

Alfred Rentsch, Kradolf; Daniel Hanselmann, Winterthur, and Jürg Faas, Dinhard, all of Switzerland, assignors to Maschinenfabrik Rieter AG, Winterthur, Switzerland

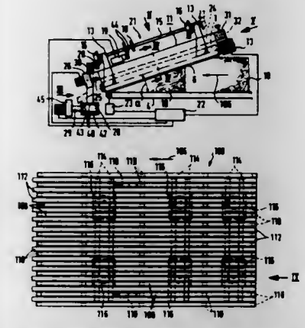
Filed Feb. 4, 1991, Ser. No. 650,093
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1990, 4003110
Int. Cl.[5] D01G *7/00;* **B65G** *25/00*
U.S. Cl. 19—80 R **33 Claims**

1. In fiber bale opening apparatus, bale conveying apparatus comprising

a stationary grate unit having a first plurality of elongated bale contacting members spaced laterally from one another with their upper surfaces located generally in a plane for bearing against the bottom of said bale,

a movable grate unit having a second plurality of spaced apart elongated bale contacting members generally parallel to said first plurality of elongated members and being disposed in interdigitated relation to said first plurality of elongated members, the upper surfaces of said second plurality of elongated members being located generally in a plane for bearing against the bottom of said bale,

means for supporting said movable grate unit for movement relative to said stationary grate unit in a direction having a vertical component so that said second plurality of elongated members may be lowered below the bottom of a bale supported on said first plurality of elongated members or raised into supporting relation to said bale, and



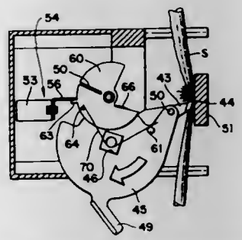
means for moving said movable grate unit relative said stationary grate unit so that said movable and stationary grate units alternately support said bale and so that said movable grate unit shifts longitudinally while it is in supporting relation to said bale to move said bale longitudinally in stepwise fashion.

5,211,709

STOP MOTION DEVICE FOR STRAND PROCESSING MACHINE

John W. Hussey, Lake Wylie, S.C., assignor to MHT, Inc., Lake Sylie, S.C.

Filed Oct. 9, 1991, Ser. No. 773,518
Int. Cl.[5] D01H *13/18;* **B65H** *63/06*
U.S. Cl. 57—87 **9 Claims**



1. A stop motion device for a textile strand processing machine, comprising:

(a) sensing means positioned downstream of a supply package and upstream of a take-up package for sensing the presence or absence of a strand within a defined sensing range of the sensing means;

(b) strand breaking means positioned downstream of the supply package and upstream of the sensing means, said strand breaking means including pivot means for pivotally mounting said strand breaking means for movement between an inoperative position in disengagement with the strand and a strand breaking position in engagement with the strand; and

(c) release means mechanically cooperating with said strand breaking means in response to said sensing means for releasing said strand breaking means when said sensing means senses the absence of a strand within its sensing range, wherein said release means comprises;

(1) a locking pin positioned on said yarn breaking means;

(2) a plunger biased towards said yarn breaking means;

(3) a disk positioned between said plunger and said yarn breaking means and biased for movement between a first position wherein a pin-engaging surface on said disk engages said locking pin to hold the strand breaking means in its inoperative position, and a second position wherein said pin is moved into a disk releasing position and said disk releases said strand breaking means;

(4) said disk also defining a plunger-engaging surface for engaging said plunger; and

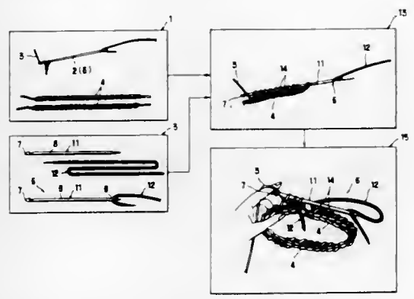
(5) plunger activating means for withdrawing said plunger from said plunger-engaging surface of said disk and releasing said disk to permit said disk to move into said second position when said sensing means senses the absence of a strand within its sensing range.

5,211,710

METHOD OF KNITTING USING KNITTING EXTENSION

Seiko Nagano, 42-12, Akatsutsumi 5-chome, Setagaya-ku, Tokyo, Japan

Filed Sep. 3, 1991, Ser. No. 753,763
Int. Cl.[5] D04G *31/00*
U.S. Cl. 66—118 **2 Claims**



1. A method of knitting comprising:

a.) incorporating a yarn, using a hooked needle, into a chain of stitches with a given number of chain stitches;

b.) a knitting extension, of flexible string having a length and a thickness predetermined according to the size and shape of an article to be knitted or the yarn to be used, into a through hole in an end opposite a hooked end of the hooked needle;

c.) interlooping a length of yarn into each of the chain stitches, of the chain of stitches, to form a succession of loops on the hooked needle and subsequently transferring the formed loops to the knitting extension; and

d.) inserting the hooked end of the hooked needle through one of the formed loop, at an end of the knitting extension opposite the hooked needle, and interlooping the yarn to form a new loop on the hooked needle, forming a succession of new loops by interlooping the yarn with the successively formed loops, and subsequently transferring the new formed loops to the knitting extension; and

e.) repeating step (d) to adesired length.

5,211,711

PACKAGE COMPRISING MULTIPLE CONTAINERS, SUCH AS BEVERAGE CANS, AND METHOD OF FORMING PACKAGES

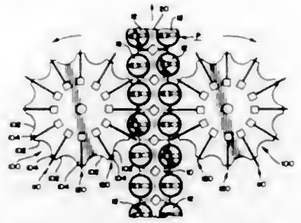
Leslie S. Marco, Bloomingdale, Ill., assignor to Illinois Tool Works Inc., Glenview, Ill.

Filed May 29, 1992, Ser. No. 891,400
Int. Cl.[5] B26D *3/08*
U.S. Cl. 83—862 **5 Claims**

1. A method of forming packages from substantially identical containers having cylindrical side walls and from carrier

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stock formed from a single sheet of resilient polymeric material and having two opposite edges, the carrier stock being severable transversely to form individual carriers, each carrier having band segments defining container-receiving apertures in a rectangular array with longitudinal rows and transverse ranks, each carrier also having additional apertures, said band segments including terminal cross segments at opposite ends of successive carriers, each terminal cross segment having a transverse midline, said band segments also including medial cross segments separating the container-receiving apertures in each longitudinal row along the opposite edges of each carrier, each medial cross segment having a transverse midline and extending between one of the opposite edges and one of the additional apertures, the containers being arranged in a rectangular array



comprising longitudinal rows and transverse ranks and being applied to the containers so that the containers are received in the container-receiving apertures and so that the band segments engage the cylindrical side walls of the containers, the method comprising steps of

(a) severing each terminal cross segment at one end of one such carrier completely along its transverse midline,

(b) severing each medial cross segment of the same carrier partially along its transverse midline, from one of the opposite edges, so as to form a tear-initiating slit extending for a substantial distance along the transverse midline of such medial cross segment, and

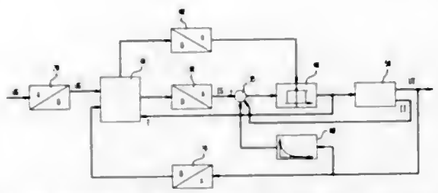
(c) severing each terminal cross segment at the other end of the same carrier completely along its transverse midline.

5,211,712

AUTOMATIC CONTROL SYSTEM FOR A FRICTION-ENCUMBERED SIGNALING DEVICE IN A MOTOR VEHICLE

Jürgen Wietelmann, Ditzingen, and Roland Karrelmeyer, Neckarsulm, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 654,788, Feb. 13, 1991, abandoned.
This application Oct. 26, 1992, Ser. No. 966,614
Claims priority, application Fed. Rep. of Germany, Apr. 20, 1990, 4012577
Int. Cl.[5] F02D *31/00*
U.S. Cl. 123—357 **11 Claims**



1. An automatic control system for a friction-encumbered signaling-device (**50**) in a motor vehicle, comprising:

a first automatic controller (**10**) for comparing a first variable indicative of an actual signaling-device position (UI) and a second variable indicative of a desired signaling-device position (US), and calculating at least one input variable for a two-step action controller (**40**); and

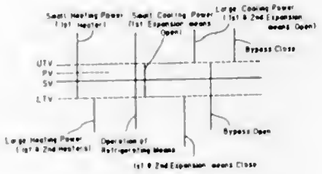
the two-step action controller (**40**) connected to a load side of the first automatic controller (**10**), with the two-step-action controller (**40**) having a variable hysteresis width E that is controlled by the first automatic controller (**10**) dependent upon predetermined operating parameters, with there being a selectable hysteresis width for each set of operating parameters.

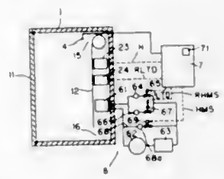
5,211,713

TEMPERATURE CONTROL METHOD WITH SIMULTANEOUS HEATING AND COOLING NEAR THE SET-POINT

Katsumasa Suyama, Hirakata, Japan, assignor to Tabai Espec Corp., Osaki, Japan

Filed Jul. 30, 1991, Ser. No. 737,744
Claims priority, application Japan, Nov. 30, 1990, 2-340983
Int. Cl.[5] F25B *29/00*; **F28F** *27/00*
U.S. Cl. 165—2 **4 Claims**





1. A temperature control method for controlling a temperature in a chamber to a set value, said method comprising:

providing heating means which can select large and small heating powers for heating said chamber and refrigerating means for cooling said chamber;

detecting a current temperature in said chamber;

operating said heating means with a small heating power when a detected temperature is equal to or higher than a lower tolerable deviation value predetermined with respect to said set value of said chamber temperature, and operating said heating means with a large heating power when said detected temperature is lower than said lower tolerable deviation value;

operating said heating means based on time-sharing proportional heat controlling signals at least during the operation of said heating means with said small heating power;

generating a signal which indicates a relationship that a time interval between adjacent signals of said heat controlling signals is larger than a predetermined time interval while maintaining said relationship; and

operating said refrigerating means based on said signal indicating said relationship at least when said signal indicating said relationship is generated;

wherein said refrigerating means operating step comprises operating said refrigeration means at large and small cooling powers, wherein operating said refrigerating means with said large cooling power is based on a signal used for a large cooling power operation and formed of said signal, which indicates said relationship for the operation of said refrigerating means and is generated when said time interval between adjacent said heat controlling signals is larger than said predetermined time interval while said relation-

ship is maintained, and wherein operating said refrigerating means with said small cooling power is when said time interval between adjacent said heat controlling signals is equal to or smaller than said predetermined time interval, and said detected temperature is equal to or higher than a lower tolerable deviation value predetermined with respect to said set value of said chamber temperature; and

wherein said refrigerating means operating step includes operating first and second expansion means so that said first expansion means is opened and said second expansion means is closed so as to obtain said small cooling power and both the first and second expansion means are opened so as to obtain said large cooling power;

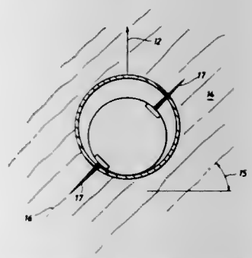
the temperature control method further comprising providing a closable bypass connecting a condenser and a compressor of said refrigerating means together, and continuously operating said compressor during the temperature control, and closing said first and second expansion means and opening said bypass when said detected temperature is lower than said lower tolerable deviation value, wherein said first expansion means is opened and said second expansion means is closed so as to obtain said small cooling power while said bypass is maintained open, and said first and second expansion means are opened and said bypass is closed so at to obtain said large cooling power.

5,211,714

WIRELINE SUPPORTED PERFORATING GUN ENABLING ORIENTED PERFORATIONS

John W. Jordan; Gregory N. Gilbert; Martin L. Tomek, all of Houston; Larry L. Grigar, East Bernard, and Terry L. Slagle, Simonton, all of Tex., assignors to Halliburton Logging Services, Inc., Houston, Tex.

Division of Ser. No. 508,749, Apr. 12, 1990, Pat. No. 5,040,619.
This application Sep. 13, 1990, Ser. No. 582,575
Int. Cl.[5] E21B *43/118*
U.S. Cl. 166—297 **9 Claims**



1. A method of positioning a wireline tool in a well borehole adjacent to a formation of interest comprising the steps of:

(a) determining the angle of the formation fracture bedding plane with respect to the horizontal and then rotating an operative part of a wireline tool to orient said operative part to this angle with respect to an arbitrary zero angle reference on said wireline tool;

(b) lowering by gravity said wireline tool in the well borehole to a depth adjacent to a formation of interest;

(c) determining at said wireline tool by the use of the direction of gravity, a directional reference for said wireline tool;

(d) aligning said zero angle reference on said wireline tool with said directional reference and directing the operative part of said wireline tool at a selected angle with respect to said directional reference; and

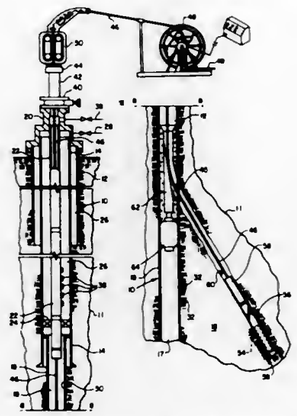
(e) wherein said selected angle directs the operative part of said wireline tool in the direction of the formation fracture bedding plane.

5,211,715

CORING WITH TUBING RUN TOOLS FROM A PRODUCING WELL

John C. Braden, Anchorage; Curtis G. Blount, Wasilla, both of Ak., and David J. Blumer, Plano, Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Aug. 30, 1991, Ser. No. 752,704
The portion of the term of this patent subsequent to Feb. 23, 2010, has been disclaimed.
Int. Cl.[5] E21B *7/06, 25/16*
U.S. Cl. 175—58 **10 Claims**



1. A method of acquiring a core sample from an earth formation through a well, said well having a wellhead at the surface of said formation, a tubing string, and means for injecting a length of tubing into said well through said tubing string, said method comprising the steps of:

providing said length of tubing with core acquisition means connected thereto, said core acquisition means including a core barrel and pressure fluid driven motor means operably connected to said core barrel and to a distal end of said length of tubing, inserting said core acquisition means and said length of tubing into said well through said wellhead and said tubing string and pumping pressure fluid from said surface through said length of tubing to cause said core acquisition means to drill into said formation to obtain a core sample from said formation.

5,211,716

EXPANDABLE VALISE WITH VERTICAL STABILIZING STRAPS

Charles S. Tobias, Road Town, Tortola, British Virgin Islands

Filed Feb. 25, 1992, Ser. No. 841,167
Int. Cl.[5] A45C *7/00*
U.S. Cl. 190—103 **8 Claims**

1. An expandable valise of the type having inner partitions for carrying business papers, comprising:

a) a compressible-expandable body portion including enclosable top, front, rear and side panels and an extensible-contractable bottom panel having flexible convolutions extending between said side panels;

b) a rigid batten, centered adjustably upon said top panel, said rigid batten supporting top strap keepers adjacent opposed ends of the batten;

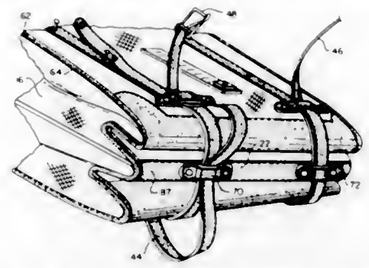
c) pairs of adjusting straps, vertically encircling the valise, further including:

i) a pair of first inner vertical straps, each strap having a bottom portion secured at one end upon said rear panel and extending around said extensible-contractable bottom panel and having a free end with adjusting holes for

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adjustable securement to said front panel; each said inner strap including a top portion extending from said rear panel over said enclosable top panel;

ii) a pair of second outer straps, each strap being adjustably secured to said batten by said top strap keepers and adjustably secured to said rear panel, bottom panel and front panel by rear panel keepers, bottom panel keepers and front panel keepers affixed, respectively, thereon;



said second outer straps each including a free end having adjusting holes extending over the enclosable top panel and a buckle end extending over the lower portion of said front panel for engagement with the adjusting holes in said free end; and

d) adjusting studs protruding from each side of the lower portion of said front panel, so as to complementally engage and secure said adjusting holes of each said first inner strap free end.

5,211,717

SAWTOOTH CONTAINER FOR SEMICONDUCTOR WAFERS

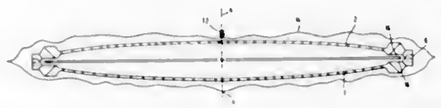
Gilles Skoura, Grenoble, France, assignor to SGS-Thomson Microelectronics, S.A., Gentilly, France

Filed Jun. 11, 1991, Ser. No. 712,866

Claims priority, application France, Jun. 12, 1990, 2-07542

Int. Cl.[5] B65D *73/02*

U.S. Cl. 206—328 **5 Claims**



1. A container system for containing a semiconductor wafer, comprising:

a container formed of two identical parts, one forming the bottom and the other forming the lid of the container, each part substantially forming a disk defining a central axis and having an internal first surface and an external second surface, wherein each part comprises on said first surface a plurality of protruding parts arranged according to a peripheral circle to form a saw-tooth ring, each protruding part being defined by two intersecting plane surfaces which are slanted with respect to a plane containing external edges of the intersecting plane surfaces, said external edges being radially oriented with respect tot he central axis, said first surface having a first generally conical surface within said saw-tooth ring; and

a flexible envelope made of a selected plastic material, shaped and sized so that the two parts cooperating to form the container can be placed therein and held together by providing a vacuum to the inside of the flexible envelope

wherein said second surface comprises a circular ridge which is defined in part by a second generally conical surface formed to fit to said first generally conical surface inside said saw-tooth ring for blocking an adjacent part when a plurality of parts are piled up with respect to one another.

5,211,718

CONVERTIBLE WITH A WIND-DEFLECTING COVER

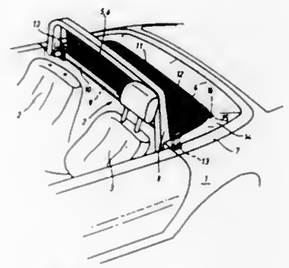
Hans Götz, Böblingen, and Karl-Heinz Baumann, Bondorf, both of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

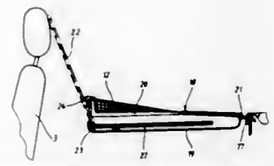
Filed Nov. 26, 1991, Ser. No. 798,311

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1990, 4037705

Int. Cl.[5] B60J *7/22, 7/20*

U.S. Cl. 296—180.1 **7 Claims**





1. A convertible vehicle having a wind-deflecting cover for a space behind a top portion of a front row of seats and a windscreen secured at a forward boundary edge thereof and configured such that the windscreen in an operative position thereof, projects approximately vertically from a level of an upper edge of the vehicle and can be lowered into an out-of-use position thereof, wherein the cover comprises two panels resting one upon the other and configured to be swivelled open at a hinge portion, and, opposite to the hinge portion, the windscreen is swivellably fixed on a lower panel of the two panels and is arranged to be swivelled in between these panels, and an upper panel of the two panels has an extension which locks the windscreen in its swivelled-up operative position.

2. A convertible vehicle having a wind-deflecting cover for a space behind a top portion of front row of seats and a windscreen secured on the cover at a forward boundary edge thereof and configured such that the windscreen, in an operative position thereof, projects approximately vertically from a level of an upper edge of the vehicle and can be lowered into an out-of-use position thereof, wherein the windscreen comprises a roller blind and an winding-up roller fixed on the cover, wherein the cover comprises locking devices situated proximate to a hood-compartment lid of a hood of the vehicle, and the locking devices are configured as extensions which can be locked by locks of the hood-compartment lid in the closed position of the lid.

5,211,719

CONCENTRATED ACQUEOUS SOLUTIONS OF ANIONIC DISAZO DYES WITH POLYGLYCOL-AMINE

Adolf Käser, Bottmingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

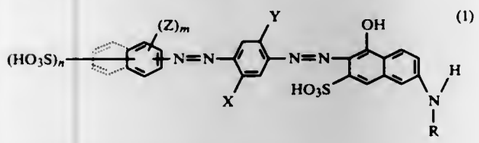
Filed Sep. 27, 1991, Ser. No. 766,935

Claims priority, application Switzerland, Oct. 4, 1990, 3201/90

Int. Cl.[5] C09B *31/72, 31/08, 67/10, 67/36*

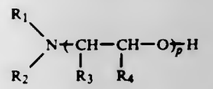
U.S. Cl. 8—527 **7 Claims**

1. A concentrated aqueous solution of anionic disazo dyes, comprising salts of anionic dyes of the formula



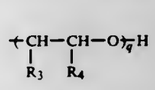
(1)

with polyglycol amines of the formula



(2)

in which X and Y, independently of one another, are each hydrogen, alkyl or alkoxy, R is hydrogen or aryl, Z is alkyl, alkoxy, halogen, hydroxyl or carboxyl, n is 1 or 2, m is 0, 1 or 2, R_1 and R_2, independently of one another, are each alkyl or the group



(3)

R_3 and R_4, independently of one another, are each hydrogen, methyl or ethyl, p is a number from 2 to 20 and q is a number from 1 to 20, and, if desired, water-soluble organic solubilising agents.

5,211,720

DYEING AND FLAME-RETARDANT TREATMENT FOR SYNTHETIC TEXTILES

James R. Johnson, McLeansville, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Continuation-in-part of Ser. No. 871,389, Jun. 6, 1986, Pat. No. 4,752,300. This application Jun. 20, 1988, Ser. No. 208,914

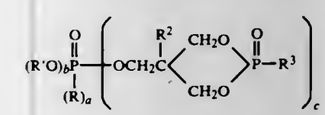
The portion of the term of this patent subsequent to Feb. 20, 2007, has been disclaimed.

Int. Cl.[5] D06M *9/00;* **C09B** *67/00*

U.S. Cl. 8—584 **13 Claims**

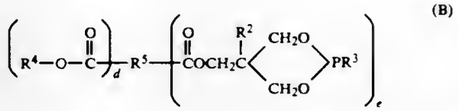
1. A process of simultaneously flame retardant treating and heatsetting a polyester fabric, comprising the steps of:

(1) contacting a polyester fabric with a liquid consisting essentially of a flame retarding amount of a cyclic phosphonate ester flame retardant represented by the formulae:



(A)

where a is 0 or 1; b is 0, 1 or 2; c is 1, 2 or 3 and a+b+c is 3; R and R' are the same or different and are alkyl (C_1–C_8), phenyl, halophenyl, hydroxyphenyl, tolyl, xylyl, benzyl, phenethyl, hydroxyethyl, phenoxyethyl, or dibromophenoxymethyl; R^2 is alkyl (C_1–C_4); and R^3 is lower alkyl (C_1–C_4) or hydroxyalkyl (C_1–C_4); or



(B)

where d is 0, 1 or 2; e is 1, 2 or 3; R^2 is alkyl (C_1–C_4); R^3 is lower alkyl (C_1–C_4) or hydroxyalkyl (C_1–C_4); R^4 is alkyl (C_1–C_4), phenyl, halophenyl, hydroxyphenyl, hydroxyethyl, phenoxyethyl, dibromophenoxyethyl, tolyl, xylyl, benzyl, or phenethyl; and R^5 is monovalent alkly (C_1–C_6), chlorophenyl, bromophenyl, dibromophenyl, tribromophenyl, hydroxyphenyl, naphthyl, tolyl, xylyl, benzyl, or phenethyl; divalent alkylene (C_1–C_6), vinylene, o-phenylene, m-phenylene, p-phenylene, tetrachlorophenylene (o, m, or p), or tetrabromophenylene (o, m, or p); or trivalent phenenyl; at a temperature of at least 300° F.; and (2) heating the fabric treated in step (1) at a temperature of about 350° F. to about 600° F. while holding it under tension to simultaneously heatset and fix the flame retardant to said fabric.

5,211,721

POLYOXYALKYLENE ESTER COMPOUNDS AND ORI-INHIBITED MOTOR FUEL COMPOSITIONS

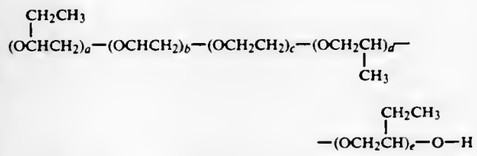
Rodney L. Sung, Fishkill, and Daniel T. Daly, Brewster, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Continuation of Ser. No. 660,069, Feb. 25, 1991, abandoned. This application Jul. 15, 1991, Ser. No. 730,134

Int. Cl.[5] C10L *1/18*

U.S. Cl. 44—389 **7 Claims**

1. An oil soluble polyether ester additive comprising the reaction product of a polyether polyol represented by the formula:



in which c has a value from about 5–150, b+d has a value from about 5–150, and a+e has a value from about 2–12, with an acid represented by the formula RCOOH in which R is a hydrocarbyl radical having from 6 to 27 carbon atoms.

5,211,722

DIVOT ANCHORING PROCESS

John W. Wagner, 2211 N. 56th St., Seattle, Wash. 98103

Continuation-in-part of Ser. No. 388,192, Aug. 1, 1989, Pat. No. 5,058,315. This application Oct. 21, 1991, Ser. No. 780,165

Int. Cl.[5] A01B *79/00*

U.S. Cl. 47—58 **4 Claims**

1. A process for replacing or securing a divot to the soil comprising the steps of positioning said divot in the location where it is to be secured, impaling said divot with a stake made

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of a material which will deteriorate within a few weeks, and leaving said stake in place to prevent movement of said divot



during a long enough time span to permit root growth to occur.

5,211,723

PROCESS FOR REACTING PUMPABLE HIGH SOLIDS SEWAGE SLUDGE SLURRY

Motasimur R. Khan, Wappingers Falls, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Sep. 19, 1991, Ser. No. 762,205
Int. Cl.[5] C10J *3/46*; C02F *11/06*
U.S. Cl. 48—197 R **8 Claims**

1. A process for burning sanitary sewage sludge comprising:
(1) dewatering without heating in air an aqueous slurry of sewage sludge to produce an aqueous slurry of sewage sludge having a solids content in the range of about 10 to 50 wt. % , thereafter shearing the dewatered slurry of sewage sludge in a steam jacketed tank for a period of about 1 to 180 minutes to produce a pumpable homogenous slurry of sewage sludge having a aviscosity in the range of about 400 to 2000 centipoise at a temperature of about 212° F.;
(2) drying the homogenous slurry of sewage sludge from (1) to a solids content in the range of about 50 to 99 wt. % in a drying zone in the absence of a free-oxygen containing gas but while in direct contact with a gaseous material selected from the group consisting of N_2, CO_2, H_2, CO, and mixtures thereof; wherein said drying zone is at a temperature in the range of about 210° F. to 350° F. and a pressure in the range of about 0.5 to 5 atmosphere;
(3) mixing about 0.5 to 7 parts by wt. of said dried sewage sludge from (2) with about 5 to 7 parts by wt. of at least one supplementary fuel from the group consisting of solid carbonaceous fuel, liquid hydrocarbonaceous fuel, mixtures thereof, and with or without water to produce a pumpable slurry fuel feedstream having a solids content in the range of about 50 to 65 wt. % and a higher heating value of at least about 6000 BTU/lb; and
(4) burning said pumpable slurry from (3) in a partial oxidation gasifier, furnace, boiler, or incinerator to produce an effluent gas stream.

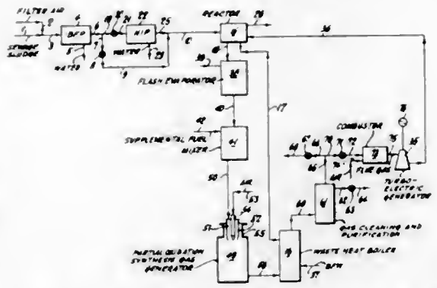
5,211,724

PARTIAL OXIDATION OF SEWAGE SLUDGE

Motasimur R. Khan, Wappingers Falls, and Ronald J. McKeon, Beacon, both of N.Y., assignors to Texaco, Inc., White Plains, N.Y.

Filed Apr. 15, 1991, Ser. No. 685,339
Int. Cl.[5] C10J *3/46*
U.S. Cl. 48—197 R **10 Claims**

1. A process for the partial oxidation of sewage sludge comprising:
(1) concentrating sewage sludge containing about 0.5 to 20 wt.% solids in a belt filter pressing zone to produce highly dewatered sewage sludge comprising about 15 to 65 wt% solids, and separating excess water from said dewatered sewage sludge, wherein said sludge is concentrated by sequentially pressing said sewage sludge in a continuous belt pressure filtering zone with a first pressing at a surface pressure in the range of about 20 to 200 pounds per square inch for a period in the range of about ¼ to 60 minutes followed by a second pressing with a surface pressure of about 200 pounds per square inch for a period in the range of about ¼ to 60 minutes;
(2) heating the sewage sludge from (1) in a reaction zone at a heat treading temperature in the range of about 130° F. to 200° F. in the absence of air for a residence time of about 1 to 20 minutes and at atmospheric pressure, followed by heating at a heat treating temperature in the range of about 300° F. to 650° F. in the absence of air for a residence time of about 5 to 120 minutes and at a pressure which is at or above the vapor pressure of water at the heat treating temperature to produce a pumpable aqueous slurry of sewage sludge;
(3) reducing the pressure and corresponding temperature of the aqueous slurry of sewage sludge from (2) in a flash evaporization zone to a pressure in the range of about atmospheric pressure to the saturated vapor pressure of water at the temperature in said flash evaporation zone



which is in the range of about 200° F. to 400° F. thereby evaporating and separating sufficient water from said sewage sludge to provide a pumpable slurry of dewatered sewage sludge having a solids content in the range of about 30 to 70 wt.% and having a higher heating value (HHV) in the range of about 5,000 to 9,500 BTU/LB;
(4) mixing the slurry of dewatered sewage sludge from (3) with a supplemental fuel thereby providing a pumpable slurry having a total solids content in the range of about 50 to 70 wt.% and comprising about 10 to 40 wt.% dewatered sewage sludge and having a higher heating value in the range of about 5,000 to 14,000 BTU/LB; and,
(5) partially oxidizing the pumpable slurry from (4) with a stream of free-oxygen containing gas and a temperature moderator in the reaction zone of a gas generator at a temperature in the range of about 1800° F. to 3000° F. and a pressure in the range of about 1 to 30 atmospheres to produce a hot raw effluent stream of at least one gas from the group consisting of synthesis gas, reducing gas and fuel gas.

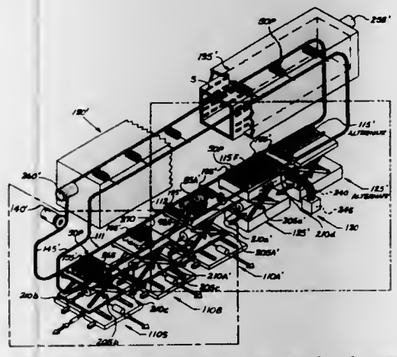
5,211,725

METHOD FOR MANUFACTURING ABRASIVELY-TIPPED FLEXIBLE BRISTLES, AND FLEXIBLE ABRASIVE HONES THEREFROM

Robert G. Fowlie, 4413 Commonwealth Ave., La Canada, Calif. 91011, and Tara L. Rands, 3200 Villa Knolls Dr., Pasadena, Calif. 91107

Filed Aug. 12, 1991, Ser. No. 743,733
Int. Cl.[5] B24D *3/00*
U.S. Cl. 51—293 **24 Claims**

1. A method for quickly and efficiently mass-producing a flexible abrasive hone initially including a plurality of flexible nylon plastic bristles and, after the performance of the following method steps, including a plurality of enlarged-abrasive-globule-carrying modified such flexible nylon plastic bristles, comprising the steps of:
first assembling a plurality of such flexible nylon plastic bristles and effectively firmly mounting bristle mounting portions with respect to a bristle-holding base, and doing so in a desired relatively evenly-laterally-spaced manner with respect to the base, and with bristle applicatory tip end portions being appropriately similarly longitudinally spaced, along the bristle lengths, from the base such that a corresponding plurality of the bristle tip end portions are correspondingly appropriately positioned at corresponding similar bristle-length-spaced pre-honing locations in closely-laterally-adjacent-to-each-other, but individual non-interfering positions, together defining an effective, multi-element, common-contiguous-surface flexibly supported pre-honing portion which is subsequently to be effectively converted into a flexibly-supported honing surface of such an abrasive-hone-to-be;
then, as a high-speed, mass-production, composite, multi-bristle-modifying operation, performed compositely with respect to a desired substantial number of the flexible bristle applicatory tip end portions, performing a first coating applicatory step taking the form of applying an at least semi-liquid, but controllably hardenable, effectively adhesive, plastic matrix means and material to each tip end portion of each desired bristle in a first exterior coat and lamina of said matrix means and material of a desired



lamina thickness, as determined in part by the natural retention characteristics of each now first-coated bristle tip end portion upon termination of said first-coating applicatory step;
then, further, as a high-speed, mass-production, composite multi-bristle-modifying operation, performing an effective immobilizing step, wherein each said first exterior coat and lamina is then rotatingly, wipingly, and under pressure, thinned so as to become, and to subsequently be, substantially effectively immobilized against subsequent physical-positional, liquid-running displacement thereof relative to each bristle tip end portion to which said semi-liquid matrix means and material has been applied and which, thus, carries said first exterior coat and lamina thereon;
then, further, as a high-speed, mass-production, composite, multi-bristle-modifying operation, performing an abrasive particle, supplementary and additive applicatory step taking the form of bridging a quantity of usually initially dry additive abrasive particles of finely-divided particulate abrasive material into relative-non-lateral-displacement-causing insertive and penetrating, temporary, mating and bonding contact thereof with each said exterior coat and lamina of said matrix means and material while it is still in at least partially semi-liquid form and, thereby causing the effective picking-up of said abrasive particles by each said matrix means and material and the effective intermixing thereof into an effective two-phase, composite abrasive-matrix material; and
then, further, as a high-speed, mass-production, composite, multi-bristle-modifying operation, performing a composite-material-hardening and composite-material-curing step taking the form of subjecting each said bristle tip end portion, carrying said coat and lamina, and now comprising said effective two-phase, composite abrasive-matrix material, to the particular required physical conditions needed for hardening and curing same, whereby to cause such hardening and curing of said composite abrasive-matrix material, comprising said exterior coat and lamina on each of said desired bristle tip end portions, to a desired extent.

5,211,726

PRODUCTS AND PROCESS FOR MAKING MULTIGRAIN ABRASIVE COMPACTS

David E. Slutz, Columbus, and Francis R. Corrigan, Westerville, both of Ohio, assignors to General Electric Company, Worthington, Ohio

Filed Mar. 14, 1991, Ser. No. 669,259
The portion of the term of this patent subsequent to Apr. 21, 2009, has been disclaimed.
Int. Cl.[5] B24D *3/00*
U.S. Cl. 51—293 **20 Claims**

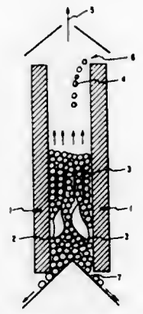
1. A process for the preparation of a multigrain abrasive compact which comprises applying to fine granules of cubic boron nitride or diamond at least one layer of an active coating material which chemically bonds to the underlying surface, wherein the outer layer of active coating material is sinterable, and sintering the coated granules to provide a multigrain compact mass.

5,211,727

PROCESS FOR THE MANUFACTURING OF GRINDING ELEMENTS FROM ALUMINIUM OXIDE WITHOUT FIRING ACCESSORIES

George A. Geyer, Neustadt, Fed. Rep. of Germany, assignor to Alcoa Chemie GmbH, Ludwigshafen am Rhein, Fed. Rep. of Germany

Filed Sep. 6, 1991, Ser. No. 754,986
Int. Cl.[5] B24D *18/00*
U.S. Cl. 51—293 **14 Claims**



1. A process for the manufacture of grinding elements comprised of aluminum oxide, the process comprising the steps of:
(a) mixing aluminum oxide with from 0.5 to 2.5 Wt. % of an organic binder based on the aluminum oxide to provide a mixture;
(b) granulating the mixture;
(c) molding the granulated mixture by applying pressure thereto; and
(d) firing the molded pieces at a temperature ranging from

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1500° C. to 1850° C. in a vertical kiln to produce grinding elements comprised of aluminum oxide.

5,211,728

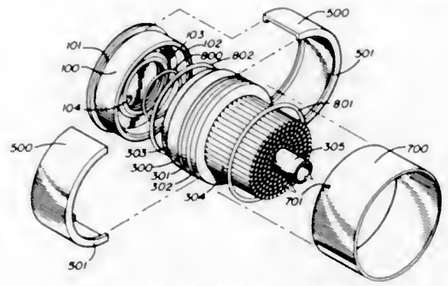
CLAMSHELL RETAINER USED IN HOLLOW FIBER MEMBRANE DEVICES

Johnny L. Trimmer, Antioch, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 769,040, Sep. 30, 1991, abandoned. This application Jun. 4, 1992, Ser. No. 893,306

Int. Cl.[5] B01D *53/22, 63/02, 69/04*

U.S. Cl. 55—16 36 Claims



1. A process for separating a feed gas mixture using a membrane separation device containing a plurality of hollow fiber semi-permeable gas separation membranes, comprising:

(1) contacting one side of said membranes with a feed gas mixture under pressure;

(2) maintaining a pressure differential across the membranes under conditions such that at least one gaseous component in the feed gas mixture selectively permeates through the membranes from the higher pressure side to the lower pressure side of said membranes;

(3) removing from the lower pressure side of said membranes permeated gas which is enriched in at least one selectively permeating gaseous component; and

(4) removing from the higher pressure side of said membranes non-permeated gas which is depleted in at least one selectively permeating gaseous component, wherein said device comprises:

A. a hollow fiber membrane bundle containing said plurality of hollow fiber semi-permeable gas separation membranes;

B. a tubesheet on each end of said bundle, each tubesheet having a radially outward surface with a circumferential groove therein, an inner face intersected by said hollow fiber membranes, said hollow fiber membranes being sealingly secured at each end in the respective tubesheet and communicating therethrough, and an outer face with a peripheral surface;

C. first and second end caps, each having a radially outward surface and an inner face with a peripheral flange, said flange being positioned and adapted to sealingly mate against the mating peripheral surface on the outer face of an adjacent respective tubesheet, each flange having sufficient width in the axial direction to provide an enclosed space between the inner face of said end cap and the outer face of the adjacent tubesheet, the space serving as a fluid inlet or outlet region, and each end cap having a circumferential groove in the radially outward surface thereof;

D. a clamshell retainer means for each adjacent end cap and associated tubesheet, said clamshell retainer means having the configuration of a segmented collar with a plurality of segments, the segments together forming the collar with flange portions on each segment extending radially inwardly, the flange portions of each segment being adapted to fit matingly, respectively, and coordinately into the peripheral groove pair of each respective end cap and associated tubesheet, the spacing between the flanges being such as to urge each end cap and associated tubesheet snugly together in a sealing relationship;

E. a circumferential keeper means closely surrounding each clamshell retainer means to hold the flanges of the clamshell retainer means in the respective grooves in each end cap and associated tubesheet;

F. a hollow envelope enclosing said hollow fiber membrane bundle, said envelope having ends which are fitted sealingly against each respective tubesheet to provide an enclosed space around the hollow fiber membrane bundle; and

G. respective ports extending through each end cap and through said keeper means and said hollow envelope to provide fluid communication into and out of said device.

5,211,729

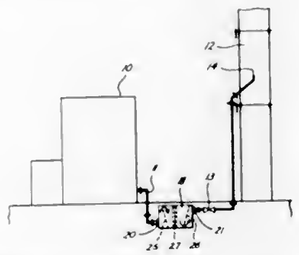
BAFFLE/SETTLING CHAMBER FOR A CHEMICAL VAPOR DEPOSITION EQUIPMENT

Robert C. Sherman, Austin, Tex., assignor to Sematech, Inc., Austin, Tex.

Filed Aug. 30, 1991, Ser. No. 752,392

Int. Cl.[5] B01D *19/00*

U.S. Cl. 55—186 10 Claims



1. In combination for use with a semiconductor processing equipment having its exhaust coupled to an exhaust system, an apparatus for reducing pressure fluctuations of said exhaust and trapping solid particulates present in said exhaust comprising:

an enclosed container, having an inlet opening coupled to receive sad exhaust from said semiconductor processing equipment and an outlet opening coupled to said exhaust system, for providing an enlarged chamber having an increased cross-sectional flow area to expand the volume of exhaust gas from said equipment in order to reduce exhaust gas velocity while in said container, such that said reduced gas velocity is less than transport velocities of larger of said solid particulates, wherein causing said larger of said solid particulates to fall to the bottom of said container and trapped therein;

an influent baffle plate disposed in said container proximal to said inlet opening for providing a barrier to said exhaust gas entering said inlet opening, such that some of said solid particulates present in said exhaust gas impinge on said influent baffle plate and are trapped in said container;

an effluent baffle plate disposed in said container proximal to said outlet opening for providing additional barrier to said exhaust gas traversing said container and exiting said outlet opening, such that solid particulates still present in said exhaust gas impinge on sad effluent baffle plate and are trapped in said container;

a plurality of perforated settling plates disposed in said container between said influent and effluent baffle plates for providing some restriction to the flow of said exhaust gas through said container, wherein sad settling plates further trap additional solid particulates traversing across said chamber

said increased cross-sectional flow area of said container and said settling plates also functioning to dampen kinetic energy pluses of said exhaust system in order to reduce pressure fluctuations of said exhaust.

5,211,730

METHOD FOR HEATING GLASS BODY

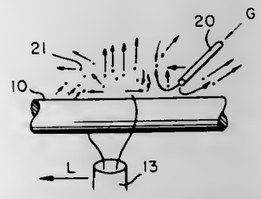
Hiroo Kanamori; Manzo Yamaguchi, and Hikaru Satoh, all of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 626,776, Dec. 13, 1990, abandoned. This application Jul. 7, 1992, Ser. No. 908,881

Claims priority, application Japan, Dec. 15, 1989, 1-323946

Int. Cl.[5] C03C *25/02*; C03B *37/018*

U.S. Cl. 65—3.12 5 Claims



1. A method for heating a glass preform for fabrication of an optical fiber comprising heating a part of the glass preform with a relatively moving heating source in a direction parallel with an axis of the glass preform from one end to other end of the glass preform, wherein an inert gas is blown from an inert gas-blowing means onto a surface of the glass preform near a heated part of the glass preform and the inert gas-blowing means is positioned near the heating source on the opposite side of the moving direction of the heating source and said inert gas-blowing means is moved in the same manner as that of the heating source to prevent a redeposition of glass particles on the glass preform, the glass particles are generated and liberated from the heated surface of the glass preform and float in an atmosphere near the glass preform.

5,211,731

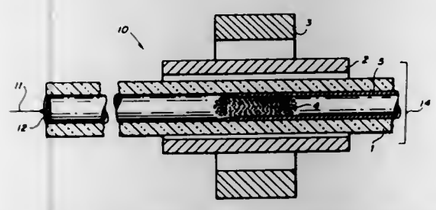
PLASMA CHEMICAL VAPOR DEPOSITION OF HALIDE GLASSES

Lynda E. Busse, Lorton; Ishwar D. Aggarwal, Fairfax Station, both of Va.; Kenneth J. Ewing, Bowie, and Barry B. Harbison, Clinton, both of Md., assignors to The United States of Americas as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 27, 1991, Ser. No. 722,447

Int. Cl.[5] C03B *37/18, 19/03*

U.S. Cl. 65—3.12 22 Claims



1. A method of producing glass tubes internally coated with a glass composition comprising a ZrF_4, BaF_2, LaF_3, AlF_3 and NaF in a predetermined ratio for drawing fiber optic conductors of said glass composition, comprising the steps of:

introducing a carrier gas and said Zr, Ba, La, Al and Na of said glass composition in the form of plasma chemical vapor deposition precursors for said glass composition selected from the group consisting of halogenated alkoxides and non-halogenated organometallic compounds, into a glass tube having an inner wall and surrounded by a resonator, at least one of said Zr, Ba, La, Al and Na of said glass composition being introduced as a halogenated alkoxide, and

moving the tube relative to the resonator to form a plasma zone within the tube to form a coating of said glass composition on the inner wall of the tube.

5,211,732

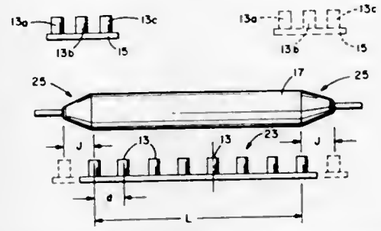
METHOD FOR FORMING A POROUS GLASS PREFORM

John S. Abbott, Elmira, N.Y.; Mark C. Bertz, Greenville, S.C.; James H. Faler, Wilmington, N.C.; William Schirmer, III, Wilmington, N.C., and John G. Williams, Wilmington, N.C., assignors to Corning Incorporated, Corning, N.Y.

Division of Ser. No. 585,192, Sep. 20, 1990, Pat. No. 5,116,400. This application May 21, 1992, Ser. No. 886,970

Int. Cl.[5] C03B *19/06, 37/018*

U.S. Cl. 65—3.12 8 Claims



1. A method for forming an elongated, substantially-porous, glass preform comprising the steps of:

(a) providing an elongated cylindrical starting member;

(b) providing an array of soot-producing burners; and

(c) depositing glass soot on the starting member to form the preform by producing relative oscillatory motion with varying turn-around points between the array of soot-producing burners and the starting member while maintaining the preform substantially from from unidirectional longitudinal motion.

5,211,733

METHOD FOR PRODUCING A HIGH-PURITY SILICA GLASS POWDER

Takahisa Fukao, and Takashi Komoda, both of Kitakyushu, Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

Filed Nov. 13, 1991, Ser. No. 791,146

Claims priority, application Japan, Nov. 16, 1990, 2-310893

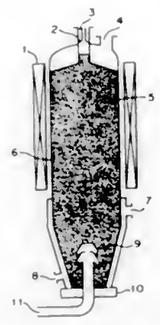
Int. Cl.[5] C03B *1/00*

U.S. Cl. 65—17 11 Claims

1. A method for producing a high-purity silica glass powder by calcining a high purity silica gel powder, wherein a vertical-type moving bed apparatus equipped with a heating means is used in a moving bed system such that said silica gel powder is continuously supplied from an upper portion of the apparatus and discharged from a lower portion of the apparatus, the velocity of the moving bed being from 10 to 50 cm/hr, and

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wherein a gas at a linear velocity of from 10 to 3,000 cm/min. is blown to flow from a lower portion of the moving bed



towards an upper portion of the moving bed, and the calcination is conducted at a temperature of from 1,000° to 1,300° C.

5,211,734

METHOD FOR MAKING A MAGNETIC HEAD HAVING SURFACE-REINFORCED GLASS

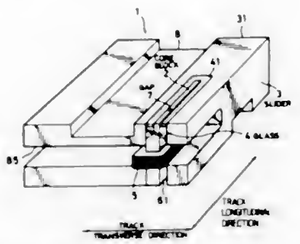
Kojiro Yagami; Chitatsu Sano, and Toshiya Tamura, all of Yamanashi, Japan, assignors to TDK Corporation, Tokyo, Japan

Division of Ser. No. 473,472, Feb. 1, 1990, Pat. No. 5,055,958. This application Aug. 7, 1991, Ser. No. 741,350

Claims priority, application Japan, Mar. 31, 1989, 1-82754; Mar. 31, 1989, 1-82755; Oct. 27, 1989, 1-280811; Oct. 27, 1989, 1-280812

Int. Cl.[5] C03C *23/00*

U.S. Cl. 65—30.1 **14 Claims**



1. A method for preparing a magnetic head, comprising the steps of:

assembling a magnetic head, said magnetic head having an exposed base glass surface, said base glass containing at least one oxide component, and

irradiating said exposed surface of said base glass with radiation or light in an ozone atmosphere to produce a surface portion of said base glass containing more of said oxide component than the base glass, said surface portion exhibiting higher chemical or mechanical durability than the base glass itself.

5,211,735

PROCESS FOR PREPARING PHOSPHATED OR NITROPHOSPHATED FERTILIZERS THROUGH SOLUBILIZATION OF PHOSPHATE ROCK

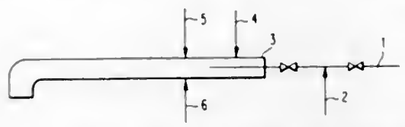
Fabio G. M. Costa; Alberto C. C. Da Silva; Paulo C. W. De Albuquerque, and Alberto Laranjeira, all of Rio de Janeiro, Brazil, assignors to Petroleo Brasileiro S. A., Rio de Janeiro, Brazil

Continuation of Ser. No. 185,744, Apr. 25, 1988, abandoned. This application Aug. 15, 1991, Ser. No. 746,201

Claims priority, application Brazil, Apr. 24, 1987, 8701944

Int. Cl.[5] C05B *11/08;* C01B *25/26*

U.S. Cl. 71—40 **10 Claims**



1. A process for preparing phosphated or nitrophosphated fertilizer directly in a tubular reactor containing a reaction medium said process consisting essentially of the steps of:

(a) introducing phosphate rock as an aqueous pulp into said tubular reactor, wherein said aqueous pulp comprises between 60% and 80% by weight of said rock; and

(b) introducing a stream of an acid selected from the group consisting of concentrated sulfuric acid, concentrated phosphoric acid, and a mixture thereof into said tubular reactor, wherein said pulp is mixed with said stream of acid and reacts throughout the length of said tubular reactor so as to produce said fertilizer directly, wherein the temperature within said tubular reactor is kept between 70° C. and 150° C. by ammonia addition or by water addition and wherein the pressure in said tubular reactor is controlled by means of the discharge area of the outlet nozzle of said reactor, so that the pressure is kept between 2 and 5 kgf/cm^2 gauge.

5,211,736

AZOLE DERIVATIVES OF SPIROHETEROCYCLES

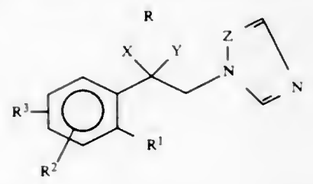
Hoi K. Lai, Guelph, Canada; Robert A. Davis, and Allen R. Blem, both of Cheshire, Conn., assignors to Uniroyal Chemical Company, Inc., Middlebury, Conn. and Uniroyal Chemical Ltd/Ltee, Elmira, Canada

Division of Ser. No. 521,193, May 9, 1990, Pat. No. 5,106,409, which is a division of Ser. No. 191,932, May 9, 1988, Pat. No. 4,943,311. This application Feb. 7, 1992, Ser. No. 832,277

Int. Cl.[5] A01N *43/50;* C07D *411/08, 409/08, 405/08*

U.S. Cl. 504—275 **8 Claims**

1. A compound having the structural formula



where

R is C_2–C_8 alkylene having 2 to 4 carbon atoms linking X and Y;

R^1 is C_1–C_8 linear or branched alkylene;

R^2 and R^3 are the same or different and are hydrogen, halogen, C_1–C_8 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkylthio, C_1–C_6 alkylsulfonyl, phenyl, phenoxy, cyano, nitro, —OCOR^4, —COOR$_5$, —CH$_m$Q$_{3-m}$ or —OCH$_m$Q$_{3-m}$;

R^4 is C_1–C_4 alkyl;

R^5 is hydrogen or C_1–C_4 alkyl;

Q is halogen;

X and Y are the same or different and are oxygen, sulfur, sulfinyl, or sulfonyl;

Z is CH; and

m is 1, 2 or 3;

or physiologically acceptable salts thereof.

5,211,737

4-ARRYL-2-HALOIMIDAZOLE-5-CARBOXYLIC ESTERS, THE PREPARATION AND USE THEREOF

Ulrich Wriede, Mutterstadt; Gerhard Hamprecht, Weinheim; Hermann Koehler, Bobenheim; Thomas Kuekenhoehner, Frankenthal; Bruno Wuerzer, Otterstadt, and Karl-Otto Westphalen, Speyer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 470,130, Jan. 25, 1990, abandoned. This application Mar. 6, 1991, Ser. No. 666,483

Int. Cl.[5] A01N *43/50, 35/06*

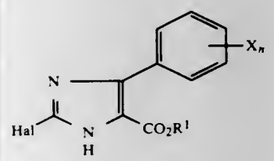
U.S. Cl. 504—106 **11 Claims**

1. A herbicidal composition which comprises

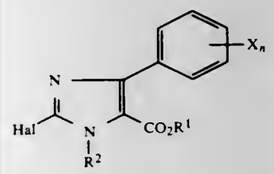
a herbicidally/antidotally effective amount of:

at least one 4-aryl-2-haloimidazole-5-carboxylic ester Ia or Ib

Ia



Ib



where

R^1 is C_1–C_6-alkyl, C_3–C_6-alkenyl or C_3–C_6-alkynyl,

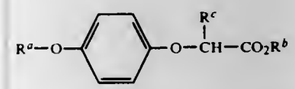
R^2 is C_1–C_6-alkyl, C_3–C_6-alkenyl or C_3–C_6-alkynyl,

Hal is chlorine or bromine,

n is 0 to 3,

X is C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy, C_1–C_4-alkylthio, C_1–C_4-alkylsulfinyl, C_1–C_4-alkysulfonyl, C_1–C_4-haloalkylthio, cyano, nitro, carboC$_1$–C_4-alkoxy, N,N-di-C_1–C_4-alkylcarbamoyl or halogen; and with the proviso that in the esters of formula Ia Hal is not bromine when R^1 is C_2.H_5 and n is 0, and cyclohexenone derivatives of the formula X

IX



wherein

R^d is C_1–C_4-alkyl;

R^e is C_1–C_4-alkyl, C_3–C_4-alkenyl, C_3–C_4-alkynyl or C_3–C_4-haloalkenyl;

R^f is C_1–C_4-alkyl which carries one C_1–C_4-alkylthio or C_1–C_4-alkoxy radical;

R^g and R^h are hydrogen; and

R^i is hydrogen or an equivalent of an environmentally compatible cation.

5,211,738

ADENINE DERIVATIVES AND THEIR USE AS A PLANT GROWTH REGULATOR

Yoshinori Sasaki, Ooita; Takashi Oritani, Toyama; Akinori Tanaka, Niigata; Taketo Maruyama, Niigata; Mitsunori Oda, Niigata; Takashi Suzuki, Niigata; Yoshiaki Suzuki, Niigata, and Masakazu Furushima, Tokyo, all of Japan, assignors to Mitsubishi Gas Chemical Co., Inc., Tokyo, Japan

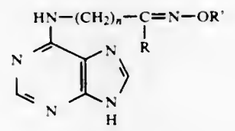
Filed Apr. 2, 1992, Ser. No. 861,771

Claims priority, application Japan, Apr. 12, 1991, 3-108844; Oct. 31, 1991, 3-314072

Int. Cl.[5] C07D *473/34;* A01M *43/54*

U.S. Cl. 504—241 **7 Claims**

1. An adenine derivative represented by the formula:



(wherein n represents 1 or 2, and R and R′ represent hydrogen or a methyl, ethyl, allyl, or propargyl group) and agriculturally acceptable acid addition salts thereof.

5,211,739

HERBICIDAL-1-(DISUBSTITUTED CARBAMOYL OR THIOCARBAMOYL)-1,2,4-TRIAZOL-3-YL SULFONATES AND THISULFONATES

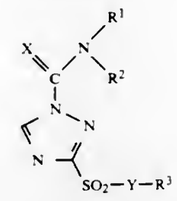
Raul C. G. Lopez, Doylestown, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Sep. 27, 1991, Ser. No. 766,948

Int. Cl.[5] C07D *249/12, 401/02, 403/02;* A01N *43/653*

U.S. Cl. 504—273 **15 Claims**

1. A compound of the formula



wherein

R^1 and R^2 are each independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, alkylcycloalkyl, alkenylcycloalkyl, alkynylcycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, alkoxyalkyl, alkoxyalkenyl, alkoxyalkynyl, alkoxycycloalkyl, haloalkoxyalkyl, haloalkoxyalkenyl, haloalkoxyalkynyl, haloalkoxycycloalkyl, cycloalkylalkyl, cycloalkenylalkyl, alkylcycloalkylalkyl, alkenylcycloalkylalkyl, alkynylcycloalkylalkyl, halocycloalkylalkyl and alkoxycycloalkylalkyl, or R^1 and R^2 may together represent a (C_4–C_5)alkylene group or a (C_4–C_5)alkylene group substituted with one or two substituents each independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, alkoxy, halo and haloalkoxy, so as to form a nitrogen-containing five or six membered cyclic ring with the nitrogen to which they attach,

R^3 is alkyl, haloalkyl, cycloalkyl, halocycloalkyl, alkenyl, cycloalkylalkenyl, alkoxyalkenyl, haloalkenyl, cycloalkenyl, halocycloalkenyl, aryl, aralkyl, or aryl or aralkyl both

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substituted on the aryl ring with one to three substituents each independently selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, halo, haloalkyl, alkoxy, haloalkoxy, cyano, nitro, alkoxycarbonyl, alkylthio and haloalkylthio,

X and Y are each independently oxygen (O) or sulfur (S), or the agronomically acceptable acid addition salts and metal complexes thereof.

5,211,740

HERBICIDAL AMINOGUANIDINOAZINES

Christa Fest, Wuppertal; Rolf Kirsten, Monheim; Joachim Kluth, Langenfeld; Klaus-Helmut Müller, Duesseldorf; Hans-Jochem Riebel, Wuppertal; Hans-Joachim Santel, Leverkusen; Robert R. Schmidt, Bergisch-Gladbach, and Harry Strang, Duesseldorf, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

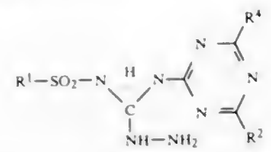
Division of Ser. No. 354,537, May 19, 1989, Pat. No. 5,092,917. This application Feb. 24, 1992, Ser. No. 840,358

Claims priority, application Fed. Rep. of Germany, May 27, 1988, 3818040

Int. Cl.[5] A01M *43/66, 43/68, 43/70*; C07D *251/46*

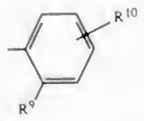
U.S. Cl. 504—230 **6 Claims**

1. An aminoguanidinoazine of the formula



in which

R^1 stands for the radical

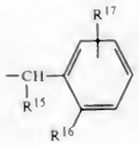


where

R^9 stands for fluorine, chlorine, bromine, methyl, trifluoromethyl, methoxy, difluoromethoxy, trifluoromethoxy, C_1-C_3-alkylthio, C_1-C_3-alkylsulphinyl, C_1-C_3-alkylsulphonyl, dimethylaminosulphonyl, diethylaminosulphonyl, N-methoxy-N-methylamino-sulphonyl, phenyl, phenoxy or C_1-C_3-alkoxycarbonyl and

R^{10} stands for hydrogen or chlorine; where furthermore

R^1 stands for the radical



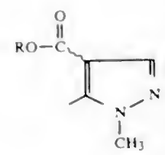
where

R^{15} stands for hydrogen,

R^{16} stands for fluorine, chlorine, bromine, methyl, methoxy, ethoxy, difluoromethoxy, trifluoromethoxy, methoxycarbonyl, ethoxycarbonyl, methylsulphonyl or dimethylaminosulphonyl and

R^{17} stands for hydrogen or chlorine; where furthermore

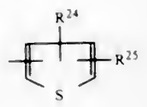
R^1 stands for the radical



where

R stands for C_1-C_2-alkyl; in which furthermore

R^1 stands for the radical



where

R^{24} and R^{25} are identical or different and stand for hydrogen, fluorine, chlorine, bromine, cyano, nitro, C_1-C_4-alkyl (which is optionally substituted by fluorine, chlorine, C_1-C_4-alkoxy and/or C_1-C_4-halogenoalkoxy), C_1-C_4-alkoxy (which is optionally substituted by fluorine and/or chlorine), C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl or C_1-C_4-alkylsulphonyl (which is optionally substituted by fluorine and/or chlorine), di-(C_1-C_4-alkyl)-amino-sulphonyl, C_1-C_4-alkoxycarbonyl, dioxolanyl or 2-thiazolyl,

R^2 stands for hydrogen, fluorine, chlorine, bromine, methyl, dimethoxymethyl, trifluoromethyl, methoxy, ethoxy, difluoromethoxy, methylthio, ethylthio, amino, methylamino, ethylamino, dimethylamino, diethylamino or methoxymethyl, and

R^4 stands for hydrogen, fluorine, chlorine, bromine, methyl, trifluoromethyl, methoxy, ethoxy, propoxy, isopropoxy, difluoromethoxy, methylthio, ethylthio, methylamino, ethylamino, dimethylamino or diethylamino.

5,211,741

FLAKED TANTALUM POWDER

James A. Fife, Thornbury Bristol, United Kingdom, assignor to Cabot Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 462,806, Jan. 10, 1990, abandoned, which is a division of Ser. No. 209,746, Jun. 4, 1988, Pat. No. 4,940,490, which is a continuation-in-part of Ser. No. 126,706, Nov. 30, 1987, abandoned. This application Jul. 31, 1991, Ser. No. 738,852

Int. Cl.[5] C22C *27/02*

U.S. Cl. 75—255 **18 Claims**



1. A flaked tantalum powder comprised of reduced size flakes without substantial tapering of the peripheral edges thereof and having a mean particle size in the range of about 2 to about 55 micrometers and a BET surface area greater than about 0.5 m^2/g; and as aspect ratio between about 2 and about 50.

5,211,742

METHOD OF CONVERTING URANIUM DIOXIDE INTO METALLIC URANIUM LUMP

Ippei Amamoto, Tomata, Japan, assignor to Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, Japan

Filed Aug. 1, 1991, Ser. No. 739,317

Claims priority, application Japan, Oct. 22, 1990, 2-283721

Int. Cl.[5] C22B *60/00*

U.S. Cl. 75—399 **5 Claims**

1. A method of converting uranium dioxide into a metallic uranium lump, comprising mixing a reducing agent comprised of metallic calcium, a slag solvent comprised of calcium chloride and a eutectic comprised of at least one member selected from the group consisting of barium chloride, lithium chloride, sodium chloride and potassium chloride into uranium dioxide to obtain a mixture, heating the mixture at a temperature not below the melting point of metallic uranium, separating resulting molten metallic uranium from a resulting molten slag based on a difference in specific gravity, and cooling the molten metallic uranium to produce metallic uranium as a solid lump.

5,211,743

TREATMENT OF A MELT WITH A GAS AND MEANS THEREFOR

Mikael Brunner, Täby, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden

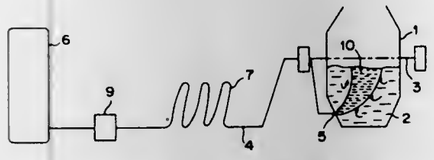
PCT No. PCT/SE90/00339, § 371 Date Nov. 19, 1991, § 102(e) Date Nov. 19, 1991, PCT Pub. No. WO90/15160, PCT Pub. Date Dec. 13, 1990

PCT Filed May 22, 1990, Ser. No. 776,351

Claims priority, application Sweden, May 29, 1989, 8901915

Int. Cl.[5] C21C *5/34, 5/48*

U.S. Cl. 75—557 **4 Claims**



1. In the treatment of a metal melt with a gas in a converter according to the AOD-process, a method for intensifying and rendering more effective the contact between gas and melt so as to produce effective admixture of the gas with the melt which comprises by delivering the gas into the melt through at least one nozzle in the form of a high pressure jet directed essentially in the horizontal direction; by selecting a pressure which is so high as to achieve a finely-divided mixture of gas and melt in a jet zone in said melt; and by achieving the high pressure at the nozzle with the aid of a cryopump which is incorporated in a line extending between a storage container for gas present in a liquid state and a vaporizer connected to the nozzle, said cryopump increasing the inlet pressure to the vaporizer to such a value that the desired gas pressure at the nozzle is obtained.

5,211,744

METHOD AND MEANS FOR IMPROVING MOLTEN METAL FURNACE CHARGING EFFICIENCY

Larry D. Areaux, Nathrop, Colo., and Robert J. Behnke, Bloomfield Hills, Mich., assignors to Premelt Systems, Inc., Kalamazoo, Mich.

Filed Oct. 2, 1991, Ser. No. 771,041

Int. Cl.[5] C22B *9/16*

U.S. Cl. 75—594 **35 Claims**

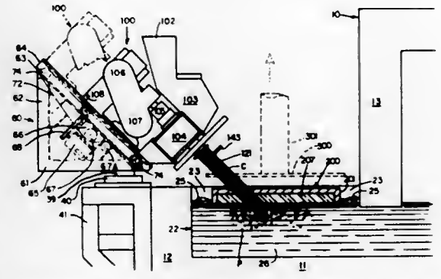
1. A method for the industrial utilization of metal chips which involves the introduction of metal chips into a molten metal pool in a charge well of a furnace for melting therein, comprising the steps of:

providing a molten metal pool in a charge well of a furnace,

providing metal chips and introducing said chips into said well, and

providing a non-oxidizing atmosphere at the surface of the molten metal pool in the said charge well,

wherein non-oxidizing atmosphere at the surface of the molten metal pool in the charge well is provided by providing an inert gas at the surface of the molten metal pool or by generating gas within said molten metal pool by



vaporizing vaporizable contaminants on chips introduced into said pool, and retaining said gas at the surface of said molten metal pool in said charge well with a heat- and flame-resistant cover over at least a substantial portion of said molten metal pool in said charge well and so located and adapted for such purpose, and

wherein at least a portion of said cover is moveable into and out of position at the surface of the molten metal pool in the charge well and including the step of moving said moveable portion of said cover into position atop said pool.

5,211,745

NICKEL PROCESSING

Geoffrey M. Motteram, Dalkeith; Gavin S. M. Becker, and Michael W. Ryan, both of Darlington, all of Australia, assignors to Dominion Mining Limited, Western Australia, Australia

Filed Jun. 5, 1992, Ser. No. 893,740

Claims priority, application Australia, Jun. 7, 1991, PK6571; Mar. 13, 1992, PL1312

Int. Cl.[5] C22B *3/00*

U.S. Cl. 75—743 **14 Claims**

1. A method of processing intermediate nickel bearing products, said method comprising subjecting intermediate nickel bearing products selected from the group consisting of nickel sulphide concentrate and nickel iron oxide calcine to an acid leach in order to dissolve substantially all acid soluble magnesium bearing minerals contained therein to provide an upgraded nickel bearing residue and a leach solution.

5,211,746

FLAME RETARDANT COMPOSITIONS

Michael J. Keogh, Bridgewater, and Jinder Jow, Branchburg, both of N.J., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Jun. 22, 1992, Ser. No. 901,950

Int. Cl.[5] C09D *5/18*; B32B *5/16*

U.S. Cl. 106—18.26 **12 Claims**

1. A flame retardant composition comprising:

(a) polyethylene having a density equal to or less than 0.925 gram per cubic centimeter, grafted with an unsaturated aliphatic diacid anhydride; and

(b) magnesium hydroxide, surface treated with a saturated or

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unsaturated carboxylic acid or a metal salt thereof in an amount of about 0.1 to about 1 part by weight of acid or salt per 100 parts by weight of magnesium hydroxide.

5,211,747

INK JET INK COMPOSITIONS CONTAINING DESIZING AGENTS

Marcel P. Breton; Shadi L. Malhotra, both of Mississauga, Canada; Toshitake Yui, Minamiashigara, Japan; Kerstin M. Henseleit, Toronto, and Melvin D. Croucher, Oakville, both of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed May 16, 1991, Ser. No. 700,967

Int. Cl.[5] C09D *11/02*

U.S. Cl. 106—20 R **31 Claims**

1. An ink composition comprising a colorant, an ink vehicle and a desizing agent wherein said desizing agent is selected from the group consisting of (1) poly(oxyalkylene) modified compounds of sorbitan esters, alkanol amides, castor oil, or fatty acids; (2) hydrophilic poly(dialkyl-siloxanes); (3) fatty imidazolines; (4) fatty ester modified compounds of sorbitan, glycerol, poly(ethylene glycol), sulfonic acid, or alkyl amine; (5) quaternary alkosulfate compounds; and (6) poly(alkylene glycols).

5,211,748

IDENTIFIABLE DENTAL RESTORATIVE MATERIAL

Peter B. Robinson, London, and Brian J. Millar, Beckenham, both of England, assignors to National Research Development Corporation, London, England

Continuation of Ser. No. 489,943, Mar. 9, 1990, abandoned. This application Jan. 10, 1992, Ser. No. 819,638

Claims priority, application United Kingdom, Mar. 21, 1989, 8906484

Int. Cl.[5] C09K *3/00*

U.S. Cl. 106—35 **17 Claims**

1. A dental restorative composition comprising a dental restorative material and an additive which luminesces when irradiated by visible-wavelength light and does not luminesce when irradiated by ultraviolet light.

5,211,749

INTERNAL MOLD RELEASE AGENT FOR USE IN REACTION INJECTION MOLDING

John E. Dewhurst, Macungie, Pa., assignor to Miles Inc., Pittsburgh, Pa.

Division of Ser. No. 546,153, Jun. 28, 1990, Pat. No. 5,076,989, which is a continuation-in-part of Ser. No. 376,336, Jul. 6, 1989, abandoned, which is a division of Ser. No. 243,522, Sep. 12, 1988, abandoned. This application Dec. 19, 1991, Ser. No. 810,629

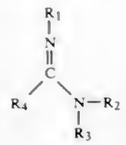
Int. Cl.[5] B29C *33/56, 33/60, 33/38*

U.S. Cl. 106—38.24 **4 Claims**

1. An internal mold release composition comprising

(a) a zinc carboxylate containing from 8 to 24 carbon atoms per carboxylate group, and

(b) a compatibilizer comprising an amidine group-containing compound of the formula (1)



wherein R_1, R_2, R_3, and R_4 are straight or branched, saturated or unsaturated hydrocarbon chains, in an amount sufficient to solubilize the zinc carboxylate.

5,211,750

SYNTHETIC AGGREGATE AND LANDFILL METHOD

Charles L. Smith, Conshohocken, and John J. Juzwiak, Ivyland, both of Pa., assignors to Conversion Systems, Inc., Horsham, Pa.

Filed Jun. 19, 1991, Ser. No. 717,528

Int. Cl.[5] C04B *2/02, 18/06*

U.S. Cl. 106—710 **14 Claims**

1. A method of making an abrasion-resistant cementitiously hardened synthetic aggregate by

a) forming an intimate, initially non-compressible reactant mixture by intense mixing of a material combination comprised of 2.5–6% lime, at least 33% fly ash and at least 20% alkaline earth metal sulfate/sulfite sludge solids (all on a dry weight basis), with water in an amount no less than 5% below that necessary to form an optimum density mixture with the solids in the mixture,

b) placing said intimate, initially non-compressible reactant mixture in a landfill in a layer of sufficient thickness to be 8 to 24 inches thick after the first compression pass of step d), below,

c) waiting a sufficient time to permit a water-consuming reaction to occur in said mixture and to render said intimate, initially non-compressible reactant mixture compressible,

d) applying pressure to said mixture rendered compressible by step c) by traversing the surface thereof with a means for applying compactive pressure thereto, in a sequence of passes to cause a significant increase in density from pass to pass to form a densified mixture,

e) permitting said densified mixture to harden as a monolithic mass over a cure period at least equivalent to 28 days at 73° F.,

f) ripping said cured monolithic material into subdivisions thereof, and

g) collecting, crushing and screening said subdivisions into gradations suitable for use as aggregate.

5,211,751

HYDRAULIC CEMENT SET-ACCELERATING ADMIXTURES INCORPORATING AMINO ACID DERIVATIVES

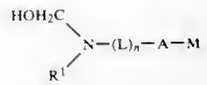
Ahmad Arfaei, Milford; Leslie A. Jardine, Tewksbury, and Ara Jeknavorian, Chelmsford, all of Mass., assignors to W.R. Grace & Co.-Conn., New York, N.Y.

Filed Feb. 28, 1992, Ser. No. 842,912

Int. Cl.[5] C04B *24/12*

U.S. Cl. 106—727 **44 Claims**

1. A cement admixture composition comprising a set-accelerating compound and a first compound of the formula



(I)

wherein L is a divalent organic linking group, n is 0 or 1, A is an acidic group, R^1 is a methylol group, hydrogen, or a group which is linked to L to form an aliphatic ring structure, and M is either hydrogen or a cation.

5,211,752

FLUID CONTAINMENT DEVICE

Girten O. Allerton, Mocksville, N.C., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

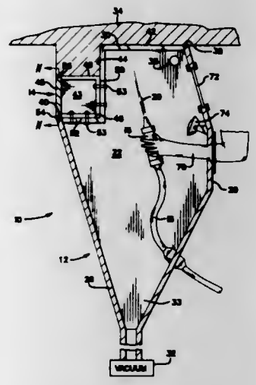
Filed May 31, 1991, Ser. No. 708,998

Int. Cl.[5] B05B *11/00*

U.S. Cl. 118—50 **21 Claims**

20. An adapter apparatus for use with a containment means for containing a sprayed material being sprayed onto a contoured work surface from a nozzle within the containment means the sprayed material being applied through an opening

formed in a portion of the containment means, the adapter apparatus being partially rigid and being mountable on said containment means to define said opening, the adapter apparatus having at least two non-planar configurations forming a



contacting engagement with the work surface, rigid portions of the adapter apparatus defining a contour of the opening to conform the containment means to the contour of said work surface.

5,211,753

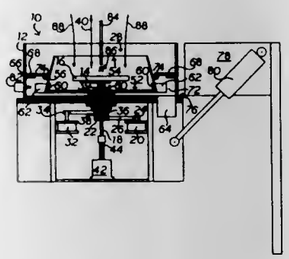
SPIN COATING APPARATUS WITH AN INDEPENDENTLY SPINNING ENCLOSURE

Danny C. Swain, 1124 Foxhurst Way, San Jose, Calif. 95120

Filed Jun. 15, 1992, Ser. No. 898,564

Int. Cl.[5] B05C *11/02*

U.S. Cl. 118—52 **19 Claims**



16. In a spin coating device wherein a fluid is coated upon a spinning workpiece, the improvement comprising:

an enclosure at least partially surrounding the workpiece, said enclosure being rotatably affixed to the spin coating device said enclosure being caused to spin independently of the workpiece.

5,211,754

METHOD OF MANUFACTURING A SUBSTRATE FOR A LIQUID JET RECORDING HEAD, SUBSTRATE MANUFACTURED BY THE METHOD, LIQUID JET RECORDING HEAD FORMED BY USE OF THE SUBSTRATE, AND LIQUID JET RECORDING APPARATUS HAVING THE HEAD

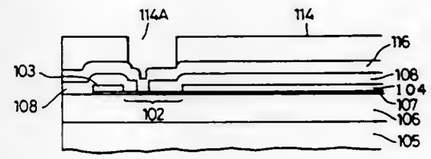
Hirokazu Komuro, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 742,740, Aug. 6, 1991, Pat. No. 5,140,345, which is a continuation of Ser. No. 487,395, Mar. 1, 1990, abandoned. This application Nov. 6, 1991, Ser. No. 788,501

Claims priority, application Japan, Mar. 1, 1989, 1-48838; Mar. 1, 1989, 1-48839

Int. Cl.[5] G01D *15/16*

U.S. Cl. 118—300 **13 Claims**



7. An ink jet recording head including:

a substrate; and

a member having a recessed portion forming an ink path by bonding said member to said substrate, wherein said substrate has a support member and an electro-thermal transducer provided on said support member, said electrothermal transducer having a heat generating resistance layer and electrodes connected to said heat generating resistance layer, said substrate having a filler embedded in a recess over which a protective layer is provided, and wherein said recording said is manufactured by the steps of:

cutting a short-circuited wiring portion of said electrodes;

embedding the filler into the recess created in said support member in said cutting step;

providing the protective layer on the embedded filler and said electrodes; and

attaching said substrate to said member having the recessed portion.

5,211,755

APPARATUS FOR APPLYING A CREASING AGENT TO A FORMED CREASE IN A TEXTILE ARTICLE

James P. Hangley, II, 331 W. Pine St., Long Beach, N.Y. 11561

Filed Aug. 19, 1991, Ser. No. 746,715

Int. Cl.[5] B05C *5/00, 13/02*

U.S. Cl. 118—306 **10 Claims**

1. An apparatus for applying a crease setting agent to a preformed crease formed in a textile article such as pants which comprises:

(a) a support member adapted to hold the apparatus;

(b) an upstanding support mounted on said support member and said upstanding support having bottom and top portions;

(c) a guide member extending from the top portion of said upstanding support at one end and having a free end to receive a textile article to be creased;

(d) said guide member being of a predetermined length;

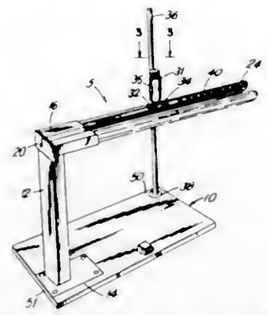
(e) a crease setting applicator including a crease setting agent detachably mounted on said support member;

(f) said guide member having an opening to facilitate the location of said crease setting applicator relative the preformed crease;

(g) said applicator having a nozzle which is selectively fixedly positioned over and into said opening in order to

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enlarge the crease to facilitate the application of said crease setting agent; and,



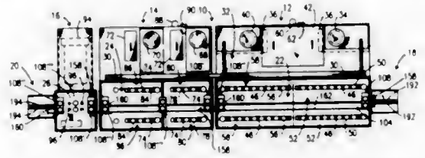
(h) stop means located on said guide means between said opening and said free end of said guide means to minimize hand operation of said applicator.

5,211,756

APPARATUS TO MANUFACTURE PRINTED CIRCUIT BOARDS

Ivo Grubelic, Clearwater, and Vladimir Velitschkowski, St. Petersburg, both of Fla., assignors to Micro-Plate/Systems, Clearwater, Fla.

Filed Aug. 9, 1991, Ser. No. 743,102
Int. Cl.[5] B05C *1/02*
U.S. Cl. 118—316 39 Claims



22. An apparatus to manufacture or produce articles comprising at least one module including a chamber formed therein having an entry and exit opening formed on opposite ends thereof, a fluid supply means to spray fluid on at least one side of the articles within said chamber, a transport mechanism comprising a continuous conveyor including a plurality of interconnected conveyor like to support the articles thereon, and an article guide disposed within said apparatus to maintain the articles in a substantially vertical position as the articles traverse said apparatus, said article guide comprises at least one article guide section including a plurality of stationary vertical arranged guide elements affixed to said apparatus, each said guide element comprises a pair of guide members disposed in spaced relationship relative to each other to cooperatively form a guide channel therebetween to receive the articles as the articles traverse said apparatus, each pair of guide members inclined upwardly from the proximal to distal end thereof.

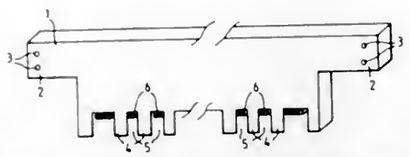
5,211,757

DEVICE FOR POSITIONING MASKING STRIPS IN A METALLIZING MACHINE

Joël Mounoussamy, Beaune; Jean-Paul Bouchard, Chateaurenaud, and Thierry Feral, Jallanges, all of France, assignors to Thomson - CSF, Puteaux, France

Filed May 3, 1991, Ser. No. 695,553
Claims priority, application France, May 11, 1990, 90 05904
Int. Cl.[5] D03C *13/00*
U.S. Cl. 118—504 12 Claims

1. Device for positioning a plurality of individual closed loop masking strips in a machine for metallizing wide film with narrow width metallized zones and non-metallized zones, comprising at least two rollers with a smooth surface which



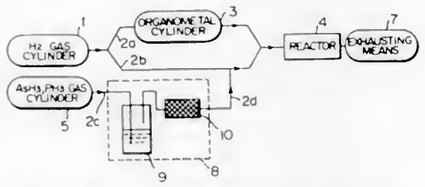
drive the masking strips, these driving rollers being positioned so as to bring the masking strips over the film during metallization, and at least one fixed comb engaging said strips for positioning and guiding the masking strips over the film.

5,211,758

CHEMICAL VAPOR DEPOSITION APPARATUS

Yoichiro Ota, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 11, 1991, Ser. No. 775,040
Claims priority, application Japan, Apr. 17, 1991, 3-84954
Int. Cl.[5] C23C *16/00*
U.S. Cl. 118—722 4 Claims



1. A chemical vapor deposition apparatus comprising:
means for supplying raw-material gas;
means for purifying the raw-material gas supplied from the raw-material gas supplying means, the raw-material gas purifying means having an organometal through which the raw-material gas is passed, and a molecular sieve through which the raw-material gas passed through said organometal is sieved;
a reactor in which the raw-material gas purified by the purifying means undergoes reaction so that a crystal of the product of said reaction is grown; and
exhausting means for exhausting the gases remaining in said reactor after a reaction process.

5,211,759

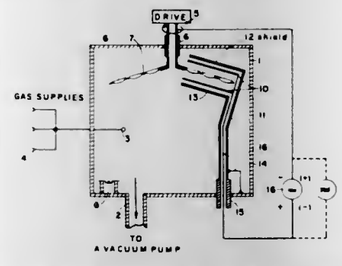
METHOD FOR A DOUBLESIDED COATING OF OPTICAL SUBSTRATES

Heinrich Zimmermann, Buchs, and Mauro Zucchi, Azmoos, both of Switzerland, assignors to Balzers Aktiengesellschaft, Liechtenstein

Filed Feb. 26, 1992, Ser. No. 841,721
Claims priority, application Switzerland, Mar. 5, 1991, 659/91
Int. Cl.[5] C23C *16/48*
U.S. Cl. 118—723 4 Claims

1. An arrangement for coating at least one substrate, comprising:
a vacuum chamber having an inlet for gas and an outlet from which a vacuum can be drawn;
gas supply means connected to the gas inlet for supplying selected gases to the vacuum chamber;

vacuum means connected to the vacuum inlet for drawing the vacuum in the vacuum chamber;
an electrically conductive substrate holder mounted for rotation around an axis in the vacuum chamber and having opposite sides;



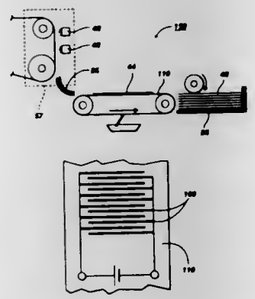
at least one glow electrode in the vacuum chamber at a location with respect to the axis for facing both sides of the substrate holder for at least partly covering both sides of the substrate holder; and
at least one thermal evaporation source in the vacuum chamber for supplying a thermally evaporated material for deposit on a substrate held by the substrate holder.

5,211,760

PAPER CLEANER SUBSYSTEM

N. Kedarnath, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 15, 1992, Ser. No. 868,440
Int. Cl.[5] G03G *21/00*
U.S. Cl. 134—1 10 Claims



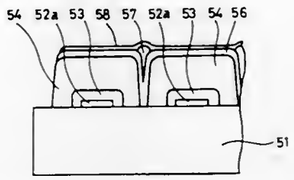
1. A method of removing a plurality of dielectric particles from a sheet before the sheet contacts a photoreceptor at a transfer zone, comprising the steps of:
energizing a plurality of conductors by applying a potential difference between adjacent conductors on an insulative belt to create an electric field with a non-uniform charge to attract dielectric particles on the sheet to the belt and hold the sheet in position;
de-energizing the conductors; and
removing the dielectric particles from the insulative belt.

5,211,761

PHOTOVOLTAIC DEVICE AND MANUFACTURING METHOD THEREOF

Shigeru Noguchi, Hirakata; Hiroshi Iwata, Neyagawa, and Keiichi Sano, Takatsuki, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Jun. 28, 1991, Ser. No. 722,949
Claims priority, application Japan, Jun. 29, 1990, 2-173867; Jul. 11, 1990, 2-183742
Int. Cl.[5] H01L *31/04, 31/18, 31/0392*
U.S. Cl. 136—258 11 Claims



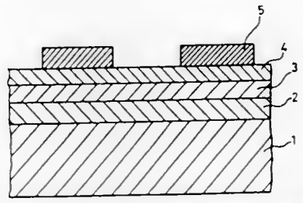
1. A photovoltaic device, comprising: a heat resistant substrate; an adhesion improving layer formed on said substrate for enhancing the adhesion characteristic and wettability of the substrate; a first semiconductor thin film comprising polycrystalline silicon of one conductivity type formed on said adhesion improving layer by a liquid phase growth method; a second semiconductor thin film of opposite conductivity type formed on said first semiconductor thin film, and wherein said adhesion improving layer is formed in a configuration such that said adhesion improving layer exposes scattered portions of the surface of said substrate, said adhesion improving layer being formed of a material selected from the group consisting of silicon, silicide, cermet, and silicon carbide.

5,211,762

PHOTORESPONSIVE ELEMENT UTILIZING A MOLECULAR HETEROJUNCTION

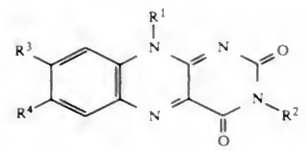
Satoru Isoda; Satosbi Ueyama; Hiroaki Kawakubo, and Mitsuo Maeda, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Mar. 28, 1990, Ser. No. 500,496
Claims priority, application Japan, Mar. 29, 1989, 1-79238
Int. Cl.[5] H01L *31/06, 31/0344*
U.S. Cl. 136—263 6 Claims



1. A photoresponsive molecular heterojunction structure comprising:
first and second redox films having different redox potentials disposed in contact with each other, the first redox film comprising a porphyrin derivative and the second film comprising a flavin derivative having the general formula

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where R^1, R^2 are selected from the group consisting of hydrogen atoms and alkyl groups, and

(i) R^1 is a hydrogen atom or an alkyl group having 1 to 5 carbon atoms,

R^2 is an alkyl group having 15 to 20 carbon atoms, or

(ii) R^1 is an alkyl group having 6 to 20 carbon atoms,

R^2 is an alkyl group having 6 to 20 carbon atoms, or

(iii) R^1 is an alkyl group having 15 to 20 carbon atoms,

R^2 is a hydrogen atom or an alkyl group having 1 to 5 carbon atoms,

and R^3 and R^4 are each a substituent selected from the group consisting of hydrogen atoms, an alkyl group having 1 to 5 carbon atoms, a carbonyl group, a methylthio acetic acid group, and a methylthio succinic acid group;

a first electrode connected to the first redox film; and

a second electrode connected to the second redox film.

5,211,763

SOLDERING FLUX COMPOSITION

Masanori Takemoto, Anjo; Tatsushi Onishi, Hyogo, and Masami Aihara, Kakogawa, all of Japan, assignors to Nippondenso Co., Ltd., Kariya and Harima Chemicals, Inc., Kakogawa, both of Japan

Filed Nov. 29, 1991, Ser. No. 798,931

Claims priority, application Japan, Nov. 30, 1990, 2-337183

Int. Cl.[5] B23K *35/34*

U.S. Cl. 148—23 **6 Claims**

1. A soldering flux composition comprising:

as a flux base resin, a modified amine compound obtained by reacting (i) at least one compound selected from the group consisting of vinyl group-containing compounds, carboxyl group-containing compounds and epoxy group-containing compounds (ii) with an amine compound having at least one hydrogen atom.

5,211,764

SOLDER PASTE AND METHOD OF USING THE SAME

Yinon Degani, Highland Park, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 10, 1992, Ser. No. 973,908

Int. Cl.[5] B23K *35/34*

U.S. Cl. 148—25 **16 Claims**

1. A process for soldering a multiplicity of components to a substrate, said process comprising the steps of 1) subjecting said components and said substrate to a paste wherein said paste comprises solder particles and a vehicle, and 2) heating said paste to the reflow temperature in an inert environment characterized in that said vehicle comprises an acid, a viscosity modifier, a solvent composition, and a mixture wherein said mixture comprises A) a rosin or a dimerized rosin, B) castor oil, and C) pentaerythritol tetrabenzoate or bis(2-ethyl hexyl) sebacate.

5,211,765

METHOD FOR IMPROVING THE SPRINGBACK QUALITIES OF SUPERCONDUCTORS

Juhani Teuho, Pori, Finland, assignor to Outokumpu Oy, Espoo, Finland

Filed Aug. 1, 1991, Ser. No. 738,956

Int. Cl.[5] H01B *12/00*

U.S. Cl. 148—96 **11 Claims**

1. A method for improving springback qualities of solely a Cu/NbTi superconducting composite wire consisting of NbTi filaments and copper matrix material and simultaneously maintaining the residual resistivity ratio (RRR) comprising the steps of:

soft annealing matrix copper; and

subjecting the composite wire to a cold working reduction with a reduction corresponding to the elastic limit of the superconducting composite wire.

5,211,766

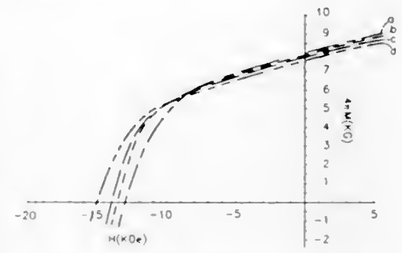
ANISOTROPIC NEODYMIUM-IRON-BORON PERMANENT MAGNETS FORMED AT REDUCED HOT WORKING TEMPERATURES

Viswanathan Panchanathan, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 21, 1992, Ser. No. 823,097

Int. Cl.[5] H01F *1/02*

U.S. Cl. 148—101 **4 Claims**



1. A method for forming an anisotropic iron-rare earth metal permanent magnet by hot pressing, at temperatures not greater than about 1450° F, magnetically isotropic particles of an amorphous or finely crystalline material having a grain size less than about 500 nanometers and comprising, on a weight percent basis, about 26 to 32 percent rare earth wherein at least about 90 percent of this constituent is neodymium and the remainder is essentially praseodymium, about 0.7 to about 1.1 percent boron, and the balance being essentially iron wherein cobalt may be substituted for said iron from about 2 to about 16 percent, at a temperature and duration sufficient to produce a fully densified, plastically deformed body having a fine grain microstructure in which the grain size is not greater than about 500 nanometers, and

cooling said body, the duration of said hot pressing and rate of cooling being such that the resultant body is magnetically anisotropic and has a coercivity of at least 1,000 Oersteds at room temperature;

wherein the improvement comprises the addition of about 0.1 about 0.15 percent of an elemental additive chosen from the group consisting of carbon and tantalum to the magnetic alloy making up said magnetically isotropic particles, said elemental additive being substantially alloyed with said magnetic alloy;

such that the addition of said carbon or tantalum permits the hot pressing of said magnetically isotropic particles at a reduced temperature of not greater than about 1450° F., while enhancing the magnetic remanence of said hot pressed body, as compared to the hot pressing temperature required for the magnetically isotropic particles not having said elemental additive and the remanence of a magnetic body formed therefrom.

5,211,767

SOFT MAGNETIC ALLOY, METHOD FOR MAKING, AND MAGNETIC CORE

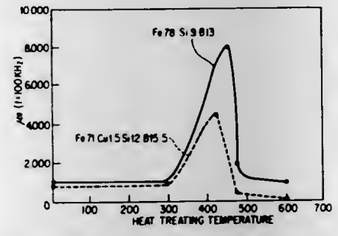
Masao Shigeta, Narashino, and Asako Kajita, Abiko, both of Japan, assignors to TDK Corporation, Tokyo, Japan

Filed Mar. 17, 1992, Ser. No. 852,553

Claims priority, application Japan, Mar. 20, 1991, 3-81498; Dec. 27, 1991, 3-360321

Int. Cl.[5] H01F *1/00*

U.S. Cl. 148—121 **17 Claims**



1. A soft magnetic alloy containing 0.1 to 100% of a crystalline phase and having a magnetic permeability of up to 3000 at 100 kHz consisting of iron, boron, copper, a total of from 0 to 0.008 atom % of at least one element selected from the group consisting of Ti, Zr, Hf, Nb, Ta, Mo and W, a total of from 0 to 3 atom % of at least one element selected from the group consisting of Mn, V and Cr, and, optionally, one or more elements selected from the group consisting of Si, C, Ge, P, Ga, Sb, In, Be and As.

5,211,768

METHOD OF NITRIDING WORK PIECES OF STEEL UNDER PRESSURE

Friedrich Preisser, Buedingen, and Rudolf Seif, Bruchkoebel, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 791,732, Nov. 14, 1991, abandoned. This application Aug. 7, 1992, Ser. No. 926,023

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1990, 4036381

Int. Cl.[5] C21D *1/06*

U.S. Cl. 148—230 **25 Claims**

1. A method for nitriding steel work pieces, comprising:

nitriding said work pieces by subjecting the work pieces to a temperature above 425° C. and an essentially constant pressure above 0.2 MPa and for a sufficient period of time in a gaseous atmosphere which includes about 5 to 95% by volume ammonia and about 95 to 5% by volume molecular nitrogen, said pressure being sufficient to thereby provide the desired nitride case.

5,211,769

METHOD FOR PHOSPHATING METAL SURFACE WITH ZINC PHOSPHATE

Tamotsu Sobata; Akio Tokuyama; Shoji Shiraishi, all of Osaka, and Seiichiro Shirahata, Kanagawa, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

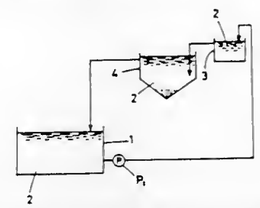
Filed Dec. 18, 1990, Ser. No. 629,853

Claims priority, application Japan, Dec. 19, 1989, 1-330856; Feb. 17, 1990, 2-036432

Int. Cl.[5] C23C *22/36*

U.S. Cl. 148—260 **1 Claim**

1. A method for treating a metal surface with zinc phosphate, which comprises forming a zinc phosphate coating film on a metal surface containing aluminum by bringing the surface in contact with a treating solution for forming a zinc phosphate coating film, being characterized by that said treating solution is adjusted so as to contain a zinc ion in a concentration range of 0.3 to 1.5 g/l, a phosphate ion in a concentration range of 10 to 30 g/l, and a coating film-converting accelerator (a) selected from the group consisting of a nitrite ion in a concentration range of 0.01 to 0.4 g/l, a m-nitrobenzenesulfonate ion in a concentration range of 0.1 to 4 g/l, and hydrogen peroxide in a concentration range of 1 to 8 g/l upon converting into a 100% H_2O_2, a simple fluoride in a concentration range of 200 to 500 mg/l upon converting into a HF concentration, a fluoride complex in a concentration range of;



$$0.01 \leqq \frac{\text{fluoride complex}}{\text{simple fluoride}} \leqq 0.5 \text{ (mole ratio)}$$

and, active fluorine in a concentration range of 15 to 130 μA as a value indicated by a silicon electrode meter.

5,211,770

MAGNETIC RECORDING POWDER HAVING A HIGH COERCIVE FORCE AT ROOM TEMPERATURES AND A LOW CURIE POINT

Ginya Ishiguro, Tokyo; Koulchi Ishiyama, Ohmiya; Yoshinari Ishii, Ohmiya; Takuo Takeshita, Ohmiya; Hachiro Saito, and Yasuaki Yoshioka, both of Tokyo, all of Japan, assignors to Mitsubishi Materials Corporation; Nippon Telegraph and Telephone Corporation and Dai Nippon Insatsu Kabushiki Kaisha, all of Tokyo, Japan

Continuation-in-part of Ser. No. 671,260, Mar. 18, 1991, abandoned. This application Jul. 29, 1992, Ser. No. 921,843

Claims priority, application Japan, Mar. 22, 1990, 2-72840

Int. Cl.[5] H01F *1/053*

U.S. Cl. 148—302 **14 Claims**



1. A magnetic recording powder for use as a material for magnetic recording media including magnetic tapes and magnetic cards, said powder having a high coercive force at room temperatures and a low Curie point, consisting of:

at least one element selected from the group consisting of Y and rare-earth elements (R): 5–20 atomic %;

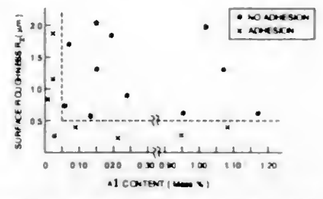
B: 5–20 atomic %;

Mn: 4–20 atomic %; and

Fe and inevitable impurities: the balance, said powder having a means particle size of 0.5–2 μm and a mean crystal grain size of 0.1–0.4 μm.

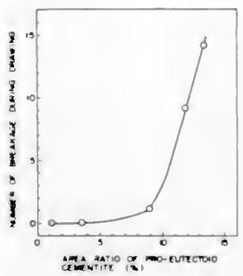
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,771
SOFT MAGNETIC ALLOY MATERIAL
Takuji Okiyama; Ryoji Hirota; Takuji Hara; Yutaka Kawai, and Toshihiko Takemoto, all of Shin-Nan'yo, Japan, assignors to Nisshin Steel Company, Ltd., Tokyo, Japan
Filed Mar. 10, 1992, Ser. No. 848,202
Claims priority, application Japan, Mar. 13, 1991, 3-072213
Int. Cl.[5] H01F *1/04*
U.S. Cl. 148—310 16 Claims



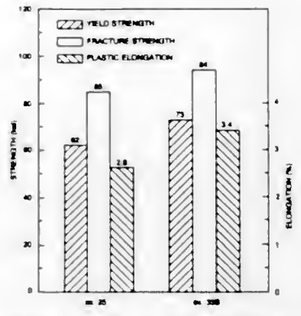
1. A plate material of an alloy consisting of in weight percent 35-60% Ni and the balance Fe and unavoidable incidental impurities and containing 0.04-1.2% of one or more of Al and Ti, said plate having a surface roughness of Rz≧0.5 μm or Ra≧0.06 μm.

5,211,772
WIRE ROD FOR HIGH STRENGTH AND HIGH TOUGHNESS FINE STEEL WIRE, HIGH STRENGTH AND HIGH TOUGHNESS FINE STEEL WIRE, TWISTED PRODUCTS USING THE FINE STEEL WIRES, AND MANUFACTURE OF THE FINE STEEL WIRE
Shinzo Ashida, Nishinomiya; Nobuhiko Ibaraki, Akashi; Katsuji Mizutani, Kakogawa, and Kenji Ochiai, Kobe, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan
Filed Dec. 27, 1991, Ser. No. 813,686
Claims priority, application Japan, Dec. 28, 1990, 2-415971; Apr. 6, 1991, 3-102040; Dec. 7, 1991, 3-349551
Int. Cl.[5] C22C *38/10, 38/08;* C21D *8/06*
U.S. Cl. 148—336 13 Claims



1. A wire rod for a high strength and high toughness fine steel wire, containing 0.85-1.2 wt % of C, less than 0.45 wt % of Si, and 0.3-1.0 wt % of Mn, one or more of elements selected from the group consisting of 0.1-4.0 wt % of Ni and 0.05-4.0 wt % of Co, the balance being essentially Fe and inevitable impurities, wherein Al, N, P and S among the impurities are restricted as 0.005 wt % or less of Al, 0.005 wt % or less of N, 0.02 wt % or less of P and 0.015 wt % or less of S, and the average area ratio of the pro-eutectoid cementite in an as-rolled state or in a rolled and re-heat treated state is specified at 10 wt % or less.

5,211,773
CAST AND FORMED GAMMA TITANIUM ALUMINUM ALLOYS MODIFIED BY BORON, CHROMIUM, AND TANTALUM
Shyh-Chin Huang, Latham, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Dec. 2, 1991, Ser. No. 801,558
Int. Cl.[5] C22C *14/00*
U.S. Cl. 148—421 10 Claims



1. A chromium, boron, and tantalum modified titanium aluminum alloy consisting essentially of titanium, aluminum, boron, chromium, and tantalum in the following approximate atomic ratio:

$$Ti\text{—}Al_{46\text{-}50}Cr_{1\text{-}3}Ta_{1\text{-}6}B_{0.05\text{-}0.2},$$

said alloy having been homogenized at a temperature above the alpha transus of the alloy, and having been forged following the homogenization.

5,211,774
ZIRCONIUM ALLOY WITH SUPERIOR DUCTILITY
Anand M. Garde, West Simsbury, and Satya R. Pati, Simsbury, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed Sep. 18, 1991, Ser. No. 761,509
Int. Cl.[5] C22C *16/00*
U.S. Cl. 148—421 22 Claims

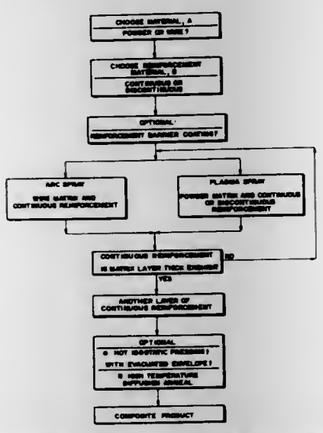
1. An improved ductile modified zirconium alloy for use in light water nuclear core structural elements in fuel cladding, which comprises:
measurable amounts of alloying material from the group including niobium or molybdenum, or combinations thereof, niobium being present in a range of from a measurable amount up to 0.6 percent by weight, said alloying material homogeneously dissolved in alpha Zircaloy with 0.8 to 1.2 percent by weight tin, 0.2 to 0.5 percent by weight iron, 0.1 to 0.4 percent by weight chromium, silicon in the range of 50 to 200 ppm, and oxygen in the range of 900 to 1800 ppm.

5,211,775
REMOVAL OF OXIDE LAYERS FROM TITANIUM CASTINGS USING AN ALKALINE EARTH DEOXIDIZING AGENT
Richard L. Fisher, and Stanley R. Seagle, both of Warren, Ohio, assignors to RMI Titanium Company, Niles, Ohio
Filed Dec. 3, 1991, Ser. No. 802,012
Int. Cl.[5] C21D *1/00*
U.S. Cl. 148—421 14 Claims

1. A process for removing oxygen from oxide and/or oxygen enriched layers which are formed on the surface of a metal casting of titanium or titanium alloy during the casting process to levels equal to or below concentrations found in the interior of the casting comprising:

(a) contacting a metal casting of titanium or titanium alloy having oxide and/or oxygen enriched layers formed on the surface thereof with a metal deoxidant in a dry, inert atmosphere at an elevated temperature sufficient to at least vaporize the metal deoxidant and maintaining contact of the vaporized metal deoxidant with the surface of said casting to form metal deoxidant oxide until the oxide and/or oxygen in the surface is reduced to substantially equate the concentration thereof in the interior of the casting; and
(b) acid washing the casting to remove metal deoxidant oxide on the surface of the casting.

5,211,776
FABRICATION OF METAL AND CERAMIC MATRIX COMPOSITES
Sam M. Weiman, Cypress, Calif., assignor to General Dynamics Corp., Air Defense Systems Division, Pomona, Calif.
Filed Jul. 17, 1989, Ser. No. 380,575
Int. Cl.[5] B05D *1/10, 1/34*
U.S. Cl. 148—525 28 Claims

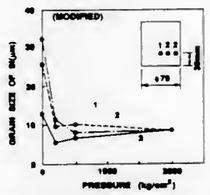


15. A process for manufacturing metal and ceramic matrix composites comprising the steps of:
a) arc spraying a thin layer of at least one matrix material over a preplaced first layer of a woven fabric reinforcement material;
b) placing an additional layer of woven fabric reinforcement material on a sprayed matrix layer resulting from the previous step;
c) arc spraying a thin layer of said at least one matrix material over said additional layer; and
d) repeating steps b) and c) until a desired object shape and thickness are achieved;
wherein said reinforcement material comprises discontinuous segments of a material from the group consisting of graphite, silicon carbide, alumina, and boron carbide; and
wherein each said reinforcement layer further comprises a plurality of discrete particles which have been coated by dipping into molten metal that does not form a brittle compound with said matrix material.

5,211,777
DESENSITIZATION OF WASTE ROCKET PROPELLANTS
Boris D. Nahlovsky, Cameron Park; Brian T. Gilligan, Shingle Springs, and Edward S. Michalik, El Dorado Hills, all of Calif., assignors to Aerojet-General Corporation, Folsom, Calif.
Filed Apr. 2, 1992, Ser. No. 862,019
Int. Cl.[5] C06B *23/00*
U.S. Cl. 149—109.6 14 Claims

1. A method for desensitizing a solid propellant composition, said method comprising combining said solid propellant composition with the following components:
(a) an oil having a viscosity of at least about 600 centipoise, and
(b) solid particulate matter selected from the group consisting of wood particles, nutshell particles, grain flour, starch and corncob particles,
to form a desensitized composition, the proportions of components (a) and (b) in said desensitized composition being sufficient to provide said desensitized composition with an impact sensitivity which is less than about 25% of that of said solid propellant composition, and a flame temperature of at least about 1000° F.

5,211,778
METHOD FOR FORMING ALUMINUM-SILICON ALLOY
Masato Sasaki, and Yoshihiro Yamada, both of Kanagawa, Japan, assignors to Atsugi Unista Corporation, Kanagawa, Japan
Filed Mar. 26, 1991, Ser. No. 675,330
Claims priority, application Japan, Mar. 27, 1990, 2-75577; Nov. 20, 1990, 2-312851
Int. Cl.[5] C22F *1/04;* B22D *18/02*
U.S. Cl. 148—552 8 Claims



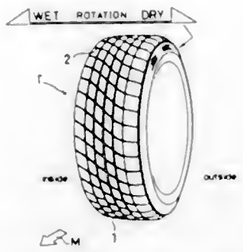
1. A method for forming an aluminum-silicon alloy article partially having thicker portions comprising the steps of:
adding a flux to a molten aluminum-silicon alloy material for modification of said material; and
casting said molten material under pressure of at least 200 kg/cm² to substantially reduce dendrite arm spacing of said molten material and to accelerate a cooling speed of said material in the thicker portions of said article;
wherein said step of modification cooperates with the step of casting to provide a substantially fine grain size of silicon to be included in said material over the whole area thereof regardless of the thickness of the article.

5,211,779
METHOD OF FITTING PNEUMATIC TIRES FOR WET AND DRY ROAD CONDITIONS
Kiyoshi Tomioka; Susumu Watanabe, both of Hiratsuka, and Tuneo Morikawa, Hadano, all of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan
Filed Oct. 16, 1990, Ser. No. 598,304
Claims priority, application Japan, Oct. 30, 1989, 1-279777
Int. Cl.[5] B60C *11/11*
U.S. Cl. 152—209 R 3 Claims

1. A method of fitting right and left handed pneumatic tires

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to a vehicle, said tires having a tread pattern defined by a plurality of annular straight grooves extending over a whole circumference of each tire within a ground-contacting width of a tread surface thereof and a plurality of sub-grooves inclined obliquely to said straight grooves in the width direction and intersecting said straight grooves, all of said sub-grooves extending across the entire tread surface of each tire at a same direction of inclination relative to the tire circumferential direction, said sub-grooves in a ground-contacting surface of the tread of said right handed tire are directed obliquely to the right of a direction of travel and said sub-grooves in a ground-contacting surface of the tread of said left handed tire are directed obliquely to the left of a direction of travel, said method comprising the steps of:



mounting the tires such that imaginary lines in the direction of sub-grooves at a ground-contacting tread surface of left- and right-hand tires confronting each other in the widthwise direction of the vehicle when viewed from above intersect each other solely in a direction toward a front of said vehicle in the direction of travel when a road surface is dry;

removing the tires from the vehicle and remounting the tires in a reverse manner such the imaginary lines intersect each other solely in a direction toward the rear of said vehicle when the road surface is wet; and

repeating the previous steps as appropriate upon each change of road surface condition to achieve optimum running performance of said tires.

5,211,780

PNEUMATIC RADIAL TIRE FOR HEAVY-DUTY VEHICLES

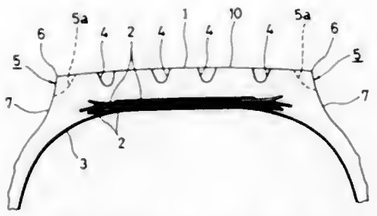
Kazuyuki Kabe; Nobuhiro Yamashita, both of Hiratsuka; Izumi Kuramochi, and Kohtaroh Iwabuchi, both of Tokyo, all of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed Jun. 17, 1991, Ser. No. 717,783

Claims priority, application Japan, Jun. 19, 1990, 2-158549

Int. Cl.[5] B60C *11/01*

U.S. Cl. 152—209 B **4 Claims**



1. A pneumatic radial tire for heavy-duty vehicles having reinforcement belts consisting of metal cords disposed in a tread portion, and a plurality of main grooves extending in the circumferential direction of the tire and formed in a tread surface, wherein recessed projecting portions are provided in the edges of said tread surface in a zig-zag fashion along the circumferential direction of said tire, said recessed and projecting portions comprising V-shaped recessed portions continuously arranged on the edge portions of said tread surface around the entire circumferential direction of said tire, and a bottom portion of each of said recessed portions gradually increases in depth to an end portion and said bottom portion at the outer surface of the shoulder portion is a round curved surface.

5,211,781

TIRE TREAD FOR LARGE MOTOR VEHICLES

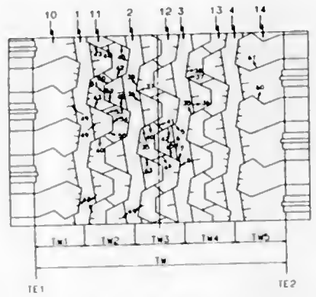
Georges V. Adam, Bissen; Georges G. Feider, Petange; Michel Premont, Boevange/Attert, all of Luxembourg, and Daniel Scheuren, Hachy, Belgium, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Nov. 18, 1991, Ser. No. 793,898

Claims priority, application European Pat. Off., Sep. 5, 1990, 90630149

Int. Cl.[5] B60C *11/12*

U.S. Cl. 152—209 R **8 Claims**



1. A tire tread comprises an elastomeric substance extending circumferentially about the axis of rotation of the tire:

a pair of shoulders which flank the lateral edges of a ground engageable surface;

at least three circumferentially extending grooves dividing the tread into continuous ribs of elastomeric material, the edges of the grooves, which separate the different ribs from each other being constituted by zig-zag shaped repetitive design units, said repetitive design units on either side of the grooves extending in circumferentially opposite directions and each said repetitive design unit having four legs, a first and third short leg alternating with a second and forth long leg, said edges of the grooves forming boundaries for a repetitive series of two axially adjacent blocks;

a first and second alternating series of deep sipes in all the ribs with the exception of the shoulder ribs, the series each having three portions, the first and third portions being respectively in the continuation of the axially closest first legs and third legs of the design units which delimit opposing rib sides, the second or intermediate portions forming with the equatorial plane of the tire angles ranging between 50° to 90° while those of the first and third portions range between 30° to 70°, said first and second alternating series of sipes forming with the edges of the grooves the boundaries of the two axially adjacent blocks;

a third and fourth series of shallow sipes in all the ribs with the exception of the shoulder ribs, having each three portions, the second or intermediate portions forming with the equatorial plane an angle below 20°, the first and third portions being respectively situated in the continuation of said first and third portion of the deep sipes to form the parting line between the two axially adjacent blocks.

5,211,782

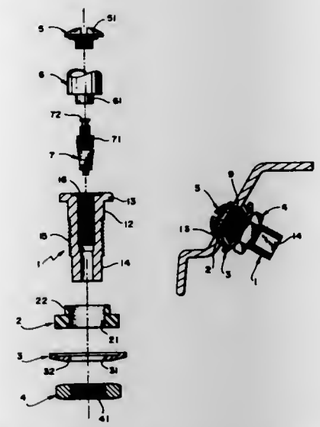
VALVE ASSEMBLY FOR TUBELESS TIRE

Donald Thelen, 8018 Alondra Ave., Paramount, Calif. 90723

Filed Sep. 6, 1991, Ser. No. 756,333

Int. Cl.[5] B60C *29/02*

U.S. Cl. 152—427 **5 Claims**



1. A valve assembly for an automotive wheel having a rim, the assembly comprising in combination, a stem dimensioned to be received in a hole in an associated tire rim and having an axial passage for receiving a valve core, a valve core receivable within said valve stem passage, a locknut engagable with the valve stem for securing the stem to the associated rim, a seal located about the valve stem for sealing the space between the valve stem and the associated rim, a closure cap receivable in one end of the passage of the valve stem, a back-up washer located about the valve stem and between the locknut and the seal, and wherein said valve stem has opposed flat surfaces for engagement by a tool to hold the valve stem while the locknut is installed on the valve stem, and wherein said passage is longer than said valve core such that said valve core is completely enclosed by the valve stem.

5,211,783

UNIT COMPRISING A TORIC TIRE

Jean-Pierre Pompier, Volvic, France, assignor to Compagnie Generale des Etablissements Michelin-Michelin & Cie, Clermont-Ferrand Cedex, France

Filed Apr. 4, 1991, Ser. No. 680,554

Claims priority, application France, Apr. 11, 1990, 90 04789

Int. Cl.[5] B60C *3/02, 15/02*

U.S. Cl. 152—453 **6 Claims**

1. A tire and rim unit comprising a tire which is a closed torus type tire and a rim for supporting said tire, said unit comprising:

a carcass for reinforcing said tire, an interior rubber inside of said carcass, said carcass and said interior rubber forming a closed torus; and

a pair of bead wires each of which is positioned on the inside of said carcass and said interior rubber near lateral ends of said rim for tightly securing said carcass between said bead wires and said rim, wherein said rim defines shoulders which axially extend from each of the lateral ends of the rim, and seats which axially extend from the shoulders, such that the pair of bead wires are positioned directly radially outward of the seats and said tire is immobilized on a radially exterior surface of said rim by said bead wires;

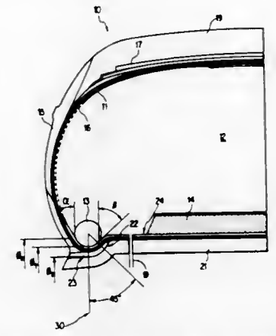
wherein, in a cutting plane containing an axis of rotation of said tire and rim unit:

the position of said beam wire in relation to said rim, at each of the lateral ends of said rim, is defined by the shoulder provided on said rim and extended axially outward by the seat, said seat being entirely situated radially at a diameter which is less than a diameter (ϕ_c) of said shoulder;

a lower diameter (ϕ_l) of said bead wire which is measured from a radially innermost edge of said bead wire which is adjacent to said carcass is less than the diameter (ϕ_c) of said shoulder;

said bead wire assumes a shape of said seat of said rim over at least a 45° swept sector which is displaced toward the interior of said rim from a line which is perpendicular to the axis of rotation of said tire and rim unit and dropped from a center of gravity of said bead wire; and

an angle α, which is an angle measured in relation to a straight line perpendicular to said axis of rotation that a first line tangent to said carcass makes at a position where said first tangent line and carcass leaves contact with said bead wire on an axially exterior side of said tire, being less than an angle β, which is an angle measured in relation to a straight line perpendicular to said axis of rotation that a second line tangent to said carcass makes at a position where said second tangent line and carcass leaves contact with said bead wire on an axially interior side of said tire.



5,211,784

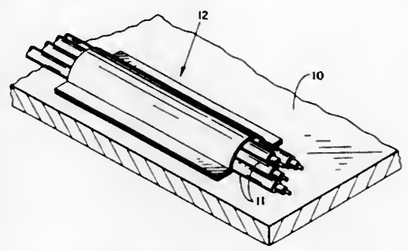
METHOD OF SECURING ELECTRONIC/ELECTRICAL CABLES

John W. Haibach, Kenosha, Wis., and John F. Starkey, Hoffman Estates, Ill., assignors to Specialty Tapes Division of RSW Inc., Racine, Wis.

Division of Ser. No. 675,249, Mar. 25, 1991. This application Jun. 8, 1992, Ser. No. 895,284

Int. Cl.[5] B32B *7/14*

U.S. Cl. 156—71 **5 Claims**



1. A method of retaining one or more electrical cables or other elongated connector members in a temporary installed

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position with respect to an adjacent surface comprising the steps of:

(a) locating the cable or conduit members optionally in close parallel relation where desired;

(b) applying in serial spaced relation one or more lengths of a zone adhering composite retaining material, wherein the material includes a continuous, hand-tearable, flexible laminated web backing consisting essentially of a fabric scrim layer sandwiched between first and second polymer layers in strip form, the laminate further having first and second outer surfaces, an amount of adhesive material applied along both edges of the first outer surface of the backing material in the form of a pair of spaced parallel adhering zones defining an adhesive-free zone therebetween, wherein the adhesive-free zone is of greater width than the adhesive zones, and wherein the adhesive material is a re-adhering pressure sensitive composition which can be repeatedly adhered to and released from adjacent surfaces, over the one or more closely spaced parallel cable members in a manner such that the adhesive zones contact and adhere only to the adjacent surface and the central adhesive-free zone contacts the one or more cable members;

(c) optionally removing one or more lengths of the zone adhering adhesive material, the zone adhering composite releasing from the adjacent surface without exchange of material therebetween,

then adjusting the number or location of conduit members as required,

then reapplying one or more lengths of the zone adhering adhesive to resecure the one or more cable members; and

(d) removing the lengths of zone adhering material from the adjacent surface after the temporary installation is no longer necessary, the zone adhering material releasing from the adjacent surface without exchange of material therebetween.

5,211,785

METHOD FOR MAKING A BODY OF PARTICULATE INSULATING MATERIAL

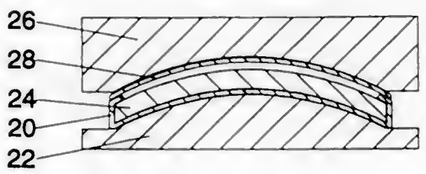
John T. Hughes, Worcestershire, United Kingdom, assignor to Micropore International Limited, Droitwich, United Kingdom

Filed Aug. 7, 1991, Ser. No. 741,272

Claims priority, application United Kingdom, Aug. 7, 1990, 9017279

Int. Cl.[5] B32B *17/00, 1/04*

U.S. Cl. 156—62.2 18 Claims



1. A method for making a non planar formed body of particulate insulating material, comprising the steps of:

compacting substantially inorganic non-fusible particulate insulating material in a first forming means to form a planar panel constituting a body having opposite faces;

disposing covering material coated with or comprising a settable composition adjacent at least one said face of the planar panel, in a second forming means;

operating the second forming means to reshape the body of the panel into the desired non-planar form; and

allowing the settable composition to harden.

5,211,786

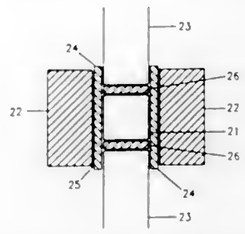
USE OF PERMEABLE MATERIALS TO IMPROVE HOT PRESSING PROCESS

Jack H. Enloe, Columbia, and John W. Lau, Gaithersburg, both of Md., assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Dec. 21, 1990, Ser. No. 631,577

Int. Cl.[5] C04B *37/00;* B28B *1/26;* B29C *67/00*

U.S. Cl. 156—89 18 Claims



1. In a method of sintering a green body by hot pressing wherein said green body contains ceramic grains to be sintered and material capable of existing as an intergranular phase material during said sintering, the improvement comprising hot pressing said body in the presence of a permeable graphite material adapted to receive t least a portion of said intergranular phase material whereby at least a portion of said intergranular material is received by said permeable graphite material as said sintering takes place.

5,211,787

METHOD FOR IMPROVING THE AGING RESISTANCE OF THE SIDEWALLS OF RETREADED TIRES

Yoshihiro Makino, and Larry B. Elkins, both of Murfreesboro, Tenn., assignors to Bridgestone/Firestone, Inc., Akron, Ohio

Filed May 30, 1991, Ser. No. 707,492

Int. Cl.[5] B29D *30/54*

U.S. Cl. 156—96 7 Claims

1. A method for improving the aging resistance of the sidewalls of retreaded tires comprising the steps of:

(a) treating the surface of the sidewalls of a worn tire to be retreaded with an aqueous solution or dispersion containing a film-forming polymer and an antiozonant; said treated tire; and

(b) retreading

(c) curing the treated tire in such a manner as to apply heat to the treated sidewalls thereby causing the antiozonant to migrate into the inner portion of the sidewall.

5,211,788

TENNIS BALL AND METHOD OF MANUFACTURING THE SAME

Jae M. Song, 807-8, Bangbae-dong, Seocho-ku, Seoul, Rep. of Korea

Continuation of Ser. No. 382,450, Jul. 20, 1989, abandoned. This application Feb. 26, 1992, Ser. No. 841,278

Claims priority, application Rep. of Korea, Aug. 10, 1988, 10171

Int. Cl.[5] A63B *39/06;* B29C *65/48*

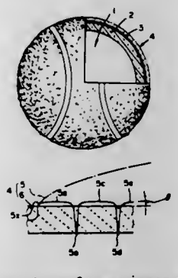
U.S. Cl. 156—148 1 Claim

1. A method of a manufacturing a tennis ball, comprising the steps of:

producing a tubular knitted high-pile fabric having a base layer and a plurality of laid in pile fibers by knitting yarn material on a circular knitting machine to form said base layer and laying a plurality of component fibers comprising blended slivers of wool fiber and nylon fibers in an outer surface of said base portion to provide said plurality of laid in pile fibers;

brushing said tubular knitted high-pile fabric on a side thereof having said plurality of laid in pile fibers to arrange said plurality of laid in pile fibers so as to extend regularly in one direction at an inclination relative to said outer surface of said base portion;

needle-punching said tubular knitted high-pile fabric so that each of said plurality of laid in pile fibers is anchored at



least at two parts thereof to an inner surface of said base portion of said tubular knitted high-pile fabric;

milling the needle-punched tubular knitted high-pile fabric to obtain a felted fabric;

cutting out a felt covering from said felted fabric; and

attaching said felt covering to a hollow, spherical rubber ball by an adhesive so that said hollow, spherical rubber ball is entirely covered by said felt covering to form a tennis ball.

5,211,789

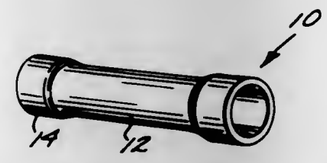
OPTICAL CABLE COMPOSITE-MATERIAL BOBBIN WITH GROOVED BASE LAYER

John F. Christian; Daniel Schotter, and Gregory LoStracco, all of Terrace, Ariz., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jul. 11, 1990, Ser. No. 551,220

Int. Cl.[5] B65H *81/00*

U.S. Cl. 156—169 9 Claims



1. A process for preparing a nonmetallic composite bobbin having a spirally grooved outer surface upon which an optical cable having a cable diameter can be wound, comprising the steps of:

providing a bobbin having a body made of a nonmetallic composite material;

applying a layer of a curable adhesive on the external surface of the body of the bobbin;

partially curing the adhesive;

winding a wire under tension spirally around the body of the bobbin over the layer of curable adhesive, the wire having a diameter larger than the cable diameter;

heating the bobbin to soften and then fully cure the adhesive and thereafter cooling the bobbin; and

removing the spirally wound wire to leave a spiral grooved pattern on the external surface of the bobbin, the combination of the curing cycle of the adhesive and the applied tension being sufficient to form a groove whose depth is about ⅓ of the diameter of the optical cable.

5,211,790

DRY ETCHING METHOD BY SULFUR CONDITIONING

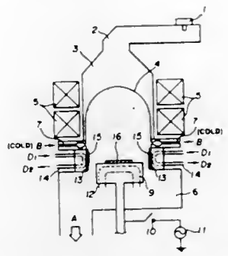
Tetsuya Tatsumi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 26, 1992, Ser. No. 841,946

Claims priority, application Japan, Feb. 26, 1991, 3-054005

Int. Cl.[5] H01L *21/00*

U.S. Cl. 156—662 5 Claims



1. A dry etching method comprising the steps of

growing sulfur from a gaseous phase on at least a part of the inner wall surface of an etching chamber, and

etching a layer of a silicon-based material on a wafer using an SF_6 containing etching gas during sublimation of said sulfur.

5,211,791

METHOD FOR MAKING A PHOTOGRAPH SUPPORT ASSEMBLY

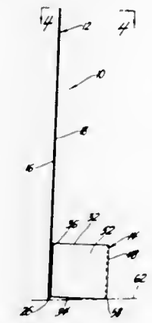
Scott D. Best, Troy, and James F. Turner, Farmington Hills, both of Mich., assignors to Saxon, Incorporated, Ferndale, Mich.

Division of Ser. No. 622,730, Dec. 5, 1990, Pat. No. 5,092,555.

This application Nov. 12, 1991, Ser. No. 791,026

Int. Cl.[5] A47G *1/16*

U.S. Cl. 156—227 7 Claims



1. A method of fabricating a photograph support assembly (10) comprising the steps of:

forming a rectangular support strip (14) with opposite end portions (36,38),

covering the end portions (36,38) with an adhesive,

placing a removable backing covering the adhesive,

folding the support strip (14) at an intermediate fold line (48), forming a pair of arms (52,54) of equal length thereby forming an open V-shaped moment arm (50) with an apex point (58),

folding the support strip (14) at an end fold line (40,42) adjacent each end portion (36,38) and maintaining the open V-shape,

removing the backing,

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positioning the support strip (14) adjacent to a lower edge of a photograph (12) rear surface (18) with only the end portions (36,38) adjacent the rear surface (18), and

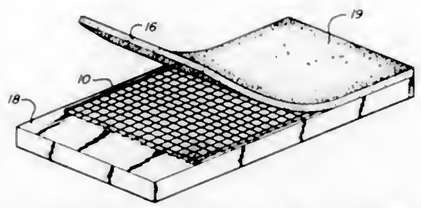
securing the end portions (36,38) to the photograph (12) on the rear surface (18) with the open V-shaped moment arm (50) extending outwardly from the rear surface (18) for resting the apex point (58) on a support surface (62) to support the photograph assembly (10) in a rearwardly inclined display position.

5,211,792

METHOD OF LAMINATING MULTIPLE LAYERS

Richard Carter, 5582 Kathy Ct., Newport, Mich. 48166

Continuation of Ser. No. 516,318, Apr. 30, 1990, abandoned.
This application May 21, 1992, Ser. No. 890,344
Int. Cl.[5] B32B *31/20, 31/26;* C09J *5/06*
U.S. Cl. 156—245 14 Claims



1. A method of bonding together two layers of material to produce a contoured laminate, said method comprising:

providing said two layers at a first temperature;

providing a flexible carrier;

depositing a thermoplastic adhesive on said carrier to form an adhesive/carrier composite, said adhesive characterized in that it has a sharp melting point such that it can set and hold a bond;

preheating the composite to a second temperature substantially higher than the first temperature, said second temperature being the activation temperature of the adhesive, while maintaining said two layers at said first temperature;

placing the preheated composite at said second temperature between said two layers to form a sandwich assembly;

pressing the sandwich assembly together to achieve intimate contact between the layers of material and the composite such that said layers act as a heat sink to rapidly cool said composite below said second temperature;

maintaining said intimate contact for a time period sufficient to achieve bonding; and

cold molding the sandwich assembly to form a contoured laminate.

5,211,793

METHOD OF HANDLING BUSINESS FORMS USING REVERSIBLE ROLLERS

Roger A. Jacques, East Rochester, N.H., assignor to Moore Business Forms, Inc., Grand Island, N.Y.

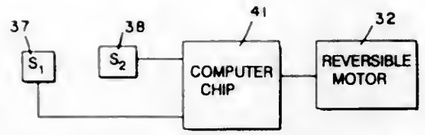
Division of Ser. No. 787,405, Nov. 4, 1991, Pat. No. 5,133,828, and a continuation-in-part of Ser. No. 605,797, Oct. 31, 1990.
This application May 8, 1992, Ser. No. 880,551
Int. Cl.[5] B32B *31/00*
U.S. Cl. 156—312 4 Claims

1. A method of handling business forms each having at least one strip of pressure sensitive adhesive of a predetermined width for fixing one part of each business form to another part, utilizing a machine having narrow width rollers which apply a sealing force at a nip, comprising the steps of:

(a) feeding a business form into operative association with the nip of the rollers, with the at least one strip of adhesive aligned with the nip;

(b) rotating the rollers so that the business form is driven through the nip in a first direction, a sealing force being applied by the rollers only to the approximate area of the predetermined width of adhesive of the at least one adhesive strip;

(c) just prior to the form being driven completely through the nip, stopping the rollers, and reversing the direction of



rotation thereof so that the business form is driven through the nip in a second direction, opposite the first direction; and

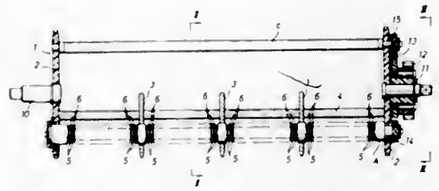
(d) after the business form has been driven through the nip in the second direction, manually removing it from operative association with the machine.

5,211,794

WAFER ETCHING APPARATUS

Tatsuo Enomoto; Michito Sato, both of Fukushima, Japan, and Shigeyoshi Nezu, Selangor, Malaysia, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1991, Ser. No. 776,787
Claims priority, application Japan, Oct. 16, 1990, 2-275186
Int. Cl.[5] H01L *21/306;* B44C *1/22*
U.S. Cl. 156—345 7 Claims



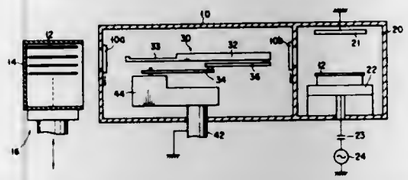
1. In a wafer etching apparatus for etching wafers provided with an orientation flat, composed of a casing generally shaped like a horizontally laid drum, at least two horizontal, parallel and rotative rollers having annular engagement grooves arranged at regular intervals in the axial direction to receive and support wafers vertically, and a press rod means extending in parallel with said rollers, having grooves arranged at the same intervals as said rollers to receive and guide the wafers, and maintaining the wafers in firm contact with said rollers, and a drive means to drive said rollers to rotate about their axes, an improvement comprising in that said rotative rollers are at least five in number and arranged such that the rollers cooperate to substantially circumscribe the wafers, that any two of the rollers are apart from each other so much that the orientation flat does not face any two rollers at a time, and that when the orientation flat faces any one of the rollers the rest of the rollers cooperate to hold the wafer so as to prevent the orientation flat from coming in contact with the facing roller.

5,211,795

PLASMA ETCHING APPARATUS AND TRANSPORTING DEVICE USED IN THE SAME

Yukimasa Yoshida, and Satoshi Kaneko, both of Yokohama, Japan, assignors to Tokyo Electron Limited, Tokyo, Japan

Filed Nov. 29, 1991, Ser. No. 800,246
Claims priority, application Japan, Nov. 29, 1990, 2-334211
Int. Cl.[5] H01L *21/306;* B44C *1/22*
U.S. Cl. 156—345 14 Claims



1. A transporting device used in a plasma etching apparatus, comprising:

a loading unit having a loading surface on which articles to be treated are loaded;

means for moving said loading unit; and

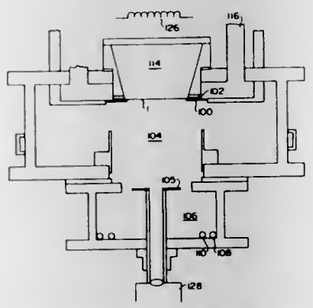
means for removing electric charges accumulated on said loading surface and preventing erosion of the loading unit.

5,211,796

APPARATUS FOR PERFORMING IN-SITU ETCH OF CVD CHAMBER

Keith J. Hansen, San Jose, Calif., assignor to LST Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 591,655, Oct. 2, 1990, abandoned, which is a division of Ser. No. 461,959, Jan. 8, 1990, abandoned.
This application Dec. 12, 1991, Ser. No. 809,104
Int. Cl.[5] H01L *21/00*
U.S. Cl. 156—345 3 Claims



1. An apparatus for performing an in-situ etch of a CVD chamber in a cold-wall type processing system for cleaning said chamber, said apparatus comprising:

a closed loop heating unit for heating walls of said chamber in said cold-wall processing system to a temperature between approximately 65° C. and approximately 90° C.;

means for injecting a fluorine-based etching gas into said chamber; and

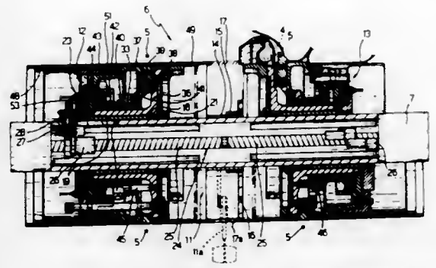
means for controlling said means for heating and said means for injecting so that in-situ etching of said chamber is conducted at between approximately 65° C. and approximately 90° C.

5,211,797

TIRE BUILDING DRUM WITH INNERSTITCHING DEVICE

Karl J. Siegenthaler, Ostia, Italy, assignor to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Feb. 6, 1992, Ser. No. 832,143
Claims priority, application Italy, Mar. 26, 1991, T091A 000212
Int. Cl.[5] B29D *30/26*
U.S. Cl. 156—408 6 Claims



1. A tire building device including a unistage drum in turn including an inner shaft; two half drums coaxial with said inner shaft and movable along same and in relation to each other between an open idle position and a closed operative position; expandable clamping means on each of said half drums for clamping a respective bead; and a number of annular bladders on each of said half drums, selectively inflatable with pressurized fluid; characterized by the fact that it also includes innerstitching means between said half drums and fitted onto said inner shaft so as to rotate with same; and slide means between each of said half drums and said inner shaft; each of said slide means being connected to said inner shaft in a sliding and angularly fixed manner; each of said half drums being connected for rotation to said respective slide means so as to rotate in relation to same about the axis of said inner shaft; and connecting means being provided between each of said half drums and said respective slide means, and being selectively operatable for angularly locking said half drum to said respective slide means.

5,211,798

APPARATUS FOR THE PRODUCTION OF TUBES

Gerhard Keller, Jongny, Switzerland, assignor to AISA Automation Industrielle SA, Vouvry, Switzerland

PCT No. PCT/EP91/00581, § 371 Date Nov. 25, 1991, § 102(e) Date Nov. 25, 1991, PCT Pub. No. WO91/15349, PCT Pub. Date Oct. 17, 1991
PCT Filed Mar. 26, 1991, Ser. No. 777,324
Claims priority, application Fed. Rep. of Germany, Mar. 26, 1990, 4009661
Int. Cl.[5] B29C *47/00*
U.S. Cl. 156—500 12 Claims

1. Apparatus for the production of tubes from prefinished pipe elements, by pressing of a tube head from a heated blank of a plastic, with simultaneous bonding of the heated blank to a tube pipe element comprising:

an indexed transport means which stops at several work stations arranged at equal distances from one another, said work stations including a loading station and an unloading station;

mandrels that travel along to hold the pipe elements;

dies arranged coaxial to the mandrels which also travel along, and have central hole punches;

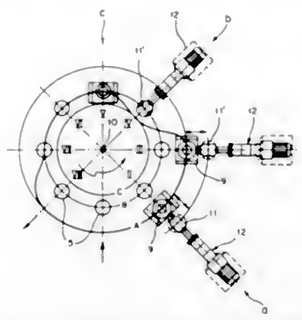
said mandrels can be axially moved and are arranged to work together with a press in such a way that said mandrels can be inserted into the dies to press the tube head;

an extruder for said plastic blank adjacent to a work station

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and a metering device for supplying plastic to said extruder;

said mandrels are arranged so that each mandrel is locatable in a coaxial position orbit relative to the dies; and



means for moving each mandrel into parallel position orbits relative to that coaxial position orbit.

5,211,799

DEVICE FOR FASTENING AN ADHESIVE STRIP ON THE WEB END AND ON THE PAPER ROLL FORMED BY THE WEB

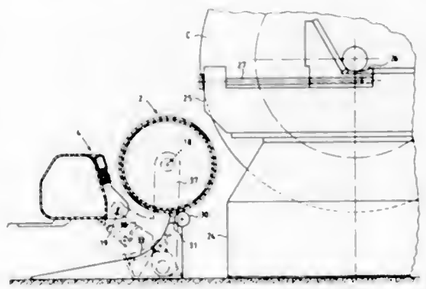
Zygmunt Madrzak, Heidenheim, Fed. Rep. of Germany, assignor to J. M. Voith GmbH, Fed. Rep. of Germany

Filed Jun. 24, 1991, Ser. No. 719,807

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1990, 4021443

Int. Cl.[5] B65H *21/00*; B32B *31/00*

U.S. Cl. 156—518 **16 Claims**



1. A device for the application of an adhesive strip on an end of a web wound on a paper roll, said adhesive strip having an adhesive surface wherein at least a portion of said adhesive surface is covered by a protective foil, said device comprising:

a guide roll spaced from said paper roll;

a support beam situated in closely spaced arrangement to said guide roll and parallel thereto, said support beam having a longitudinal expanse, said support beam further having in said longitudinal expanse a contact surface for said adhesive strip, said contact surface being situated so that a holding slot for said adhesive strip is defined immediately therebelow and bordering on said contact surface, wherein a part of said adhesive strip protrudes from said holding slot, said holding slot being arranged generally parallel to the longitudinal axis of said support beam, said holding slot having a width dimensioned for the part of said adhesive surface covered by said protective foil, said covered part being adaptable to make a splice for said paper roll;

a blade positioned below said holding slot, said blade having a cutting edge for severing a portion of said web from said paper roll; and

blowing means positioned generally below the holding slot for raising said protruding part of the adhesive strip.

5,211,800

APPLYING APPARATUS

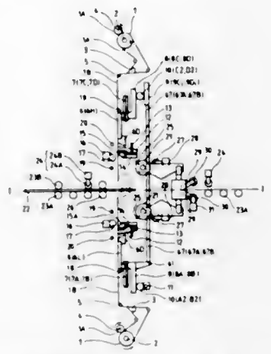
Hiroshi Taguchi, Tokyo; Yoji Washizaki, Saitama; Akira Igarashi, Tokyo, and Hiroyoshi Nakano, Saitama, all of Japan, assignors to Somar Corporation, Tokyo, Japan

Filed Apr. 5, 1991, Ser. No. 680,893

Claims priority, application Japan, Apr. 28, 1990, 2-112157

Int. Cl.[5] B32B *31/18, 31/20*

U.S. Cl. 156—521 **8 Claims**



1. An applying apparatus which cuts off a portion of a plurality of continuous films to a prescribed length and applies the cut-off portions of said continuous films to a base plate being conveyed, said apparatus comprising:

means for feeding said continuous films to said base plate, said film feed means comprising upper and lower film feed members provided above and below a base plate conveyance passage; and

means for moving said upper and lower film feed members upwardly and downwardly synchronously together at first and second ends of said upper and lower film feed members relative to said base plate, said film feed means moving means comprising synchronous kinematic coupling means, provided at said first and second ends of said upper and lower film feed members, for moving said film feed means upwardly and downwardly synchronously together, said film feed means further comprising:

a plurality of double-shaft torque transmission mechanisms being connected to said coupling means by gear means, at least one of said double-shaft torque transmission mechanisms having an inner rotary shaft; and

a power source being provided at said inner rotary shaft of said at least one of said plurality of double-shaft torque transmission mechanisms.

5,211,801

METHOD FOR MANUFACTURING SINGLE-CRYSTAL SILICON CARBIDE

René Stein, Röttenbach, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 536,171, Jun. 11, 1990, abandoned. This application Jul. 15, 1991, Ser. No. 730,590

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1989, 3920134

Int. Cl.[5] C30B *23/00*

U.S. Cl. 156—603 **6 Claims**

1. A method for the growth of single-crystal silicon carbide in a reaction vessel having a protective atmosphere and a small temperature gradient in the direction of growth, comprising:

adding excess silicon to a crystalline silicon carbide powder;

subliming and partially decomposing the crystalline silicon carbide powder; and

growing, on a seed crystal, single crystals of silicon carbide from the sublimed and partially decomposed crystalline silicon carbide powder;

wherein said excess silicon is in an amount of from about 0.1% to 5%.

5,211,802

METHOD FOR PRODUCING SILICON SINGLE CRYSTAL FROM POLYCRYSTALLINE ROD FORMED BY CONTINOUS CASTING

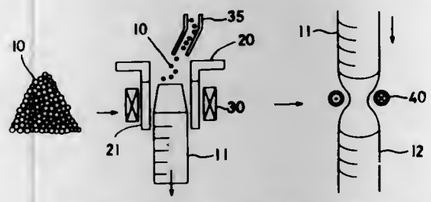
Kyojiro Kaneko; Hideyuki Mizumoto, both of Osaka, and Teruoki Misawa, Hyogo, all of Japan, assignors to Osaka Titanium Co., Ltd., Hyogo, Japan

Filed Apr. 1, 1991, Ser. No. 678,192

Claims priority, application Japan, Mar. 30, 1990, 2-85193

Int. Cl.[5] C30B *29/06*

U.S. Cl. 156—616.2 **6 Claims**



1. A manufacturing method for single-crystal silicon, comprising:

i) forming a polycrystalline silicon rod from polycrystalline silicone granules, lumps or a mixture thereof by continuous casting through electromagnetic induction; and

ii) growing silicon single crystal from said polycrystalline silicon rod by the float-zone method.

5,211,803

PRODUCING METAL PATTERNS ON A PLASTIC SURFACE

Timothy W. Johnson, Bartlesville, Okla., and Mark L. Stone, Idaho Falls, Id., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 415,880, Oct. 2, 1989, abandoned. This application Mar. 23, 1992, Ser. No. 859,649

Int. Cl.[5] C23C *26/00*

U.S. Cl. 156—625 **25 Claims**

1. A method for producing recessed plates paths on an article, comprising:

(a) creating a pattern of areas of lesser crystallinity and areas of higher crystallinity in the polymer morphology of a surface of a poly(arylene sulfide) article;

(b) exposing said surface to a chemical etchant selectively active upon said areas of lesser crystallinity and thereby etching said areas of lesser crystallinity while leaving said areas of higher crystallinity substantially unaffected so that said areas of lesser crystallinity become recessed with respect to said areas of higher crystallinity; and

(c) after step (b), depositing a conductive metal on said recessed, etched areas of lesser crystallinity by electroless plating.

5,211,804

METHOD FOR DRY ETCHING

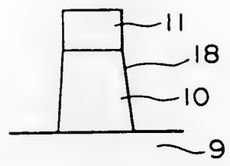
Motoki Kobayashi, Tokyo, Japan, assignor to Oki Electric Industry, Co., Ltd., Tokyo, Japan

Filed Oct. 11, 1991, Ser. No. 775,094

Claims priority, application Japan, Oct. 16, 1990, 2-275405

Int. Cl.[5] H01L *21/00*

U.S. Cl. 156—665 **17 Claims**



1. A method for etching a metal film containing aluminium, comprising the steps of:

forming a metal film on a substrate;

forming an inorganic mask on a part of the metal film, the other part of the metal film being exposed;

introducing a mixture gas consisting essentially of a chloride gas, an oxygen gas and a nitrogen gas into a reaction chamber;

introducing microwaves into the reaction chamber;

generating a magnetic field into the reaction chamber;

interacting the microwaves with the magnetic field to change the mixture gas into a plasma in the reaction chamber; and

subjecting the substrate having the metal film and the inorganic mask thereupon to the plasma to etch the exposed metal film in the reaction chamber and to form a taper shaped side wall for the remaining metal film.

5,211,805

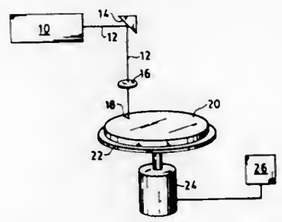
CUTTING OF ORGANIC SOLIDS BY CONTINUOUS WAVE ULTRAVIOLET IRRADIATION

Rangaswamy Srinivasan, 2508 Dunning Dr., Yorktown Heights, N.Y. 10598

Filed Dec. 19, 1990, Ser. No. 630,031

Int. Cl.[5] B44C *1/22*

U.S. Cl. 156—643 **16 Claims**



1. A method of cutting organic solids with continuous wave ultraviolet radiation comprising the steps of:

directing a beam of continuous wave ultraviolet light to a spot on a surface of an organic solid;

irradiating the spot with the beam of continuous wave ultraviolet radiation at a wavelength absorbed by the organic

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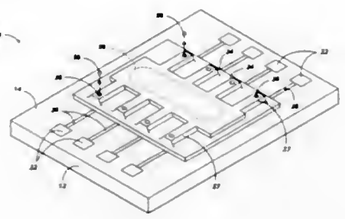
solid and at a power density less than that required to initiate ablative photodecomposition in the organic solid;
relatively moving the beam with respect to the organic solid at a rate that defines an effective pulse width as a quotient of a linear dimension of the spot in a direction of the relatively moving beam divided by a relative speed between the beam and the surface of the organic solid within a range of between 1 microsecond and 1000 microseconds for producing etching rates in the organic solid comparable to those obtained from ablative photodecomposition;
depositing an amount of energy within the prescribed range of effective pulse widths greater than an amount of energy required to initiate ablative photodecomposition;
adjusting (a) the effective pulse width to match absorptivity characteristics of the organic material and (b) the power density of the beam to control a rate of energy deposition within a range in which etching depth is dependent upon the rate of energy deposition; and
limiting the power density of the beam between 1 kilowatt per centimeter squared and 1000 kilowatts per centimeter squared.

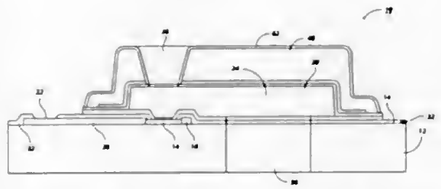
5,211,806

MONOLITHIC INKJET PRINTHEAD

Kaiser Wong, and Anikara Rangappan, both of Torrance, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 24, 1991, Ser. No. 813,170
Int. Cl.[5] H01L *21/306*; B44C *1/22*; C03C *15/00*; C23F *1/00*
U.S. Cl. 156—644 **25 Claims**





1. A method for fabricating a monolithic ink jet printhead, the printhead having a substrate with a major surface, a plurality of ink channels formed on the major surface, the ink channels each having a nozzle at one end and an inlet communicating with an ink manifold at the other end, and transducers formed on the major surface and positioned in the ink channels for creating pressure to move ink through the nozzles, the method comprising the steps of:
a. forming on the major surface a mandrel of a first metal or metal alloy, the mandrel modeling the ink channels and the ink manifold;
b. forming a first passivation layer over the mandrel and the major surface, the first passivation layer being attached to the major surface;
c. forming a mandrel cover of a second metal or metal alloy adjacent the mandrel, the mandrel cover attached to the first passivation layer and separated from the mandrel by the first passivation layer;
d. forming a nozzle cap of a third metal or metal alloy over the mandrel cover, the nozzle cap being attached to the mandrel cover and including openings that are substantially coaxially with the respective transducers; and
e. removing the mandrel to leave a void defining the ink channels and the ink reservoir, with portions of the mandrel cover facing the ink channels and ink manifold being protected from corrosion by the first passivation layer.

5,211,807

TITANIUM-TUNGSTEN ETCHING SOLUTIONS

Ian Y. K. Yee, Austin, Tex., assignor to Microelectronics Computer & Technology Company, Austin, Tex.

Filed Jul. 2, 1991, Ser. No. 724,690
Int. Cl.[5] C23F *1/00*
U.S. Cl. 156—664 **23 Claims**

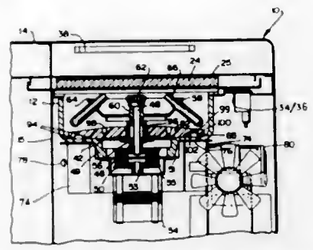
1. A method for etching TiW, comprising the steps of applying an etchant solution to TiW, wherein said solution comprises at least one oxidizing agent and at least one fluoride salt, and buffering the solution to maintain a pH in the range of approximately 7 to 9.

5,211,808

MICROWAVE HEATING IN A VACUUM CENTRIFUGAL CONCENTRATOR

Frank Vilardi, Holbrook; James Boncore, Sayville; Silvio Bellotti, New Hyde Park, and Yury Zlobinsky, Massapequa, all of N.Y., assignors to Savant Instruments, Farmingdale, N.Y.

Filed Nov. 13, 1990, Ser. No. 614,074
Int. Cl.[5] B01D *1/00*
U.S. Cl. 159—6.1 **17 Claims**



1. A vacuum centrifugal concentrator comprising
a vacuum vessel having a centrifugal rotor rotatably mounted within an interior thereof,
means for injecting microwave energy into said vacuum vessel interior,
means for preventing electrical arcing in said interior when a vacuum condition is imposed therein, the microwave energy injection means including
a microwave generator and a waveguide, said waveguide having a first end coupled to said microwave generator and a second end embodying microwave energy terminating means, at least a portion of said waveguide between its first and second ends describing a portion of a circle,
an upper part of said waveguide being mounted to a bottom of said vacuum vessel, said waveguide upper part having a series of waveguide slots located therein in the circle describing portion thereof, successive ones of said slots being progressively larger size in a direction away from said microwave generator, there being a plurality of slots in the bottom of said vacuum vessel, and
said vessel bottom slots having a substantially one-to-one alignment with said waveguide slots, whereby microwave energy can be propagated from said waveguide into said vacuum vessel interior.
16. A vacuum centrifugal concentrator comprising
and enclosure having an open top and a lid for closing said top, a vacuum vessel of a conductive metal, the vessel having a rim disposed in said enclosure with the lid forming an airtight seal with the rim, the lid including a frame comprised of frame parts defining quarter wave microwave traps,
a microwave energy absorbing glass piece supported by the frame with a metal screen covering at least one surface of the glass piece, the lid frame embodying ferrite microwave absorber means thereon,
a row of microwave seal strips carried on the frame parts for sealing said enclosure against microwave leakage,
a centrifugal rotor rotatably supported within an interior of said vacuum vessel, there being a well depending from a bottom of said vacuum vessel, the rotor including a shaft extending from the rotor into said well,
a magnetic drive coupling element carried in said well and connected to a lower end of said shaft, an upper end of the shaft being received in a metallic rotor hub, there being a shaft support bearing and housing therefor encircling the shaft intermediate the shaft upper and lower ends, the rotor hub and bearing housing increasing shaft effective diameter to decrease shaft length/diameter ratio and correspondingly the tendency of the shaft to act as a microwave antenna,
another power-driven magnetic coupling element disposed externally of said well and cooperating with the first-mentioned magnetic coupling element for rotating said rotor,
the bottom of the vacuum vessel including a series of slots disposed therein in an annular course located radially exterior of the well,
a microwave generator for injecting microwave energy into the vacuum vessel,
an air-filled waveguide disposed at a lower surface of the vessel bottom for distributing the microwave energy within said vacuum vessel, the waveguide having a beginning end coupled to the microwave generator and a terminal opposite end for terminating microwave energy flow, the waveguide intermediate said beginning and terminal ends thereof having a circular plan portion, the waveguide being mounted to the bottom of the vacuum vessel and having a series of slots therein in correspondence to and aligned with the slots in the vessel bottom, said slots being progressively larger in size in a direction away from the waveguide beginning end, with the slots in the vessel bottom being substantially larger in size than those in the waveguide, and
a dielectric ring intervening the waveguide and the vacuum vessel bottom lower surface for sealing the slots in the waveguide from the corresponding slots in the vessel bottom,
said dielectric ring including bosses extending through the vacuum vessel slots and upwardly a distance from the vessel bottom, the bosses including means defining hollows therein, the hollows being open to the air in the waveguide.

5,211,809

DYE REMOVAL IN OXYGEN COLOR STRIPPING OF SECONDARY FIBERS

Ronald C. Naddeo, Kempton; Konstantinos Hristofas, Allentown, and Vincent L. Magnotta, Wescosville, all of Pa., assignors to Air Products and Chemicals, Inc.,, Allentown, Pa.

Filed May 21, 1991, Ser. No. 703,547
Int. Cl.[5] D21C *5/02, 9/147*
U.S. Cl. 162—6 **16 Claims**

1. A method for removing color from a pulp prepared from waste paper material which comprises contacting said pulp in a first step with oxygen gas at pH values of less than 8 or greater than 10, wherein said oxygen reacts with one or more dyes present in said pulp, thereby removing said color therefrom to yield a decolorized pulp suitable for making a recycled paper product.

5,211,810

ELECTRICALLY CONDUCTIVE POLYMERIC MATERIALS AND RELATED METHOD OF MANUFACTURE

Gene W. Bartholomew, Tuxedo Park; Jongchul Kim, Chester; Raymond A. Volpe, Newburgh, and Donna J. Wenzel, Middletown, all of N.Y., assignors to International Paper Company, Purchase, N.Y.

Filed Aug. 9, 1990, Ser. No. 565,300
Int. Cl.[5] D21H *11/20*
U.S. Cl. 162—9 **23 Claims**

1. A method for producing an electrically conductive polymeric material having microwave susceptive characteristics comprising the steps of:
suspending a fibrous based material in an aqueous solution to form a slurry;
wherein the concentration of said fibrous based material is in the range of 10 to 70 grams per liter;
introducing a monomer precursor of a conductive polymer into said slurry;
wherein said monomer precursor is selected from the group consisting of acetylene, aniline, pyrrole, paraphenylene, thiophene and derivatives thereof and has a concentration in the range of 2 to 16 grams per liter;
adding a chemical oxidant to said slurry to induce polymerization of said monomer precursor into conductive polymers on said fibrous based material to form a slurry of polymer coated fibrous based material;
wherein said chemical oxidant is ammonium persulfate or ferric chloride and has a concentration in the range of 10 to 50 grams per liter;
and
forming the electrically conductive polymeric material from said slurry of polymer coated fibrous based material.

5,211,811

PROCESS FOR HIGH CONSISTENCY OXYGEN DELIGNIFICATION OF ALKALINE TREATED PULP FOLLOWED BY OZONE DELIGNIFICATION

Bruce F. Griggs, Columbia, S.C.; Thomas P. Gandek, Trenton, N.J.; Michael A. Pikulin, Bound Brook, N.J., and Allen Rosen, Lawrenceville, N.J., assignors to Union Camp Patent Holding, Inc., Wilmington, Del.

Division of Ser. No. 525,808, May 2, 1990, abandoned, and a continuation-in-part of Ser. No. 686,062, Apr. 16, 1991, which is a continuation-in-part of Ser. No. 489,845, Mar. 3, 1991, Pat. No. 5,085,734, which is a continuation-in-part of Ser. No. 311,669, Feb. 15, 1989. This application Aug. 26, 1991, Ser. No. 749,744
The portion of the term of this patent subsequent to Feb. 4, 2009, has been disclaimed.
Int. Cl.[5] D21C *9/14, 9/147, 9/153, 9/18*
U.S. Cl. 162—40 **21 Claims**

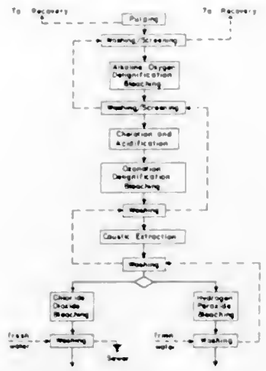
1. A process for delignifying and bleaching lignocellulosic material which comprises:
partially delignifying a lignocellulosic material to form a brownstock pulp;
oxygen delignifying said pulp by:
reducing the consistency of the pulp to a low consistency of less than about 5% by weight;
treating the low consistency pulp with a quantity of alkaline material in an aqueous alkaline solution for a predetermined time and at a predetermined temperature correlated to the quantity of alkaline material by uninterrupted mixing to expose substantially all the pulp to the alkaline solution to substantially complete a substantially uniform distribution of the alkaline material throughout the pulp;
increasing the consistency of the pulp to at least about 20% by weight by removing liquid from the pulp and retaining at least about 1.4 percent by weight based on oven dry pulp of alkaline material on the increased consistency pulp after completion of the treating step,

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said pulp fibers containing the alkaline material being directly passed from the combining step to the consistency increasing step;

recycling a substantial portion of the liquid removed from the pulp in the consistency increasing step to the low consistency pulp treatment step; and

subjecting the increased consistency alkaline material containing pulp to high consistency oxygen delignification to obtain enhanced delignification of the pulp without a corresponding decrease in pulp viscosity compared to pulp which is not treated with alkaline material at low consistencies, the combination of the partial and



oxygen delignifying steps providing a partially delignified pulp having a first K No. of about 9 or less and a first viscosity of greater than about 13 cps;

directing the partially delignified pulp to ozone delignification without any intervening delignification or bleaching steps; and

further delignifying said partially delignified pulp with an effective amount of ozone for a sufficient time to obtain a substantially delignified pulp having a second K No. of about 5 or less, a second viscosity of greater than about 10 cps and a GE brightness of at least about 50% prior to any additional bleaching steps.

5,211,812

DEVICE FOR THE RECOVERY OF A PROCESSED LIQUID IN THE FORM OF A CONDENSATE ON A LIQUID TO BE PROCESSED

Johann Vielberth, Regensburg, and Eberhard Willach, Straubing, both of Fed. Rep. of Germany, assignors to Institut für Entwicklung und Forschung Dr. Vielberth KG, Fed. Rep. of Germany

Filed Feb. 4, 1991, Ser. No. 650,038

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1990, 4003224; Mar. 14, 1990, 4008066

Int. Cl.[5] B01D *1/22, 3/10*

U.S. Cl. 202—172 **19 Claims**

1. Distillation device for purification of water by evaporating water to be treated and by condensing purified water, said device comprising:

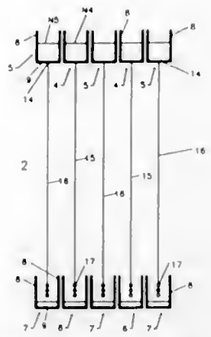
first and second distributing and guide means vertically disposed in at least one chamber;

said distributing and guide means consisting of sheets of a wettable material in a form selected from the group consisting of woven cloth and fibrous nonwoven material, said sheets being capable of carrying a film of water on surface sides and forming flow regions;

said distributing and guide means being disposed in said chamber such that at least one flow region of a first distributing and guide means is neighbored to at least one flow region of a second distributing and guide means;

means for developing a flow of said water to be treated along said flow region of said first distributing and guide means;

means for developing a flow of purified water on the flow region of said second distributing and guide means; and



means for controlling the temperature of the flow of water so that the flow of water on the second distributing and guide means is cooler in temperature than the flow of water to be treated on the first distributing and guide means.

5,211,813

STEAM SHOWER WITH REDUCED CONDENSATE DRIP

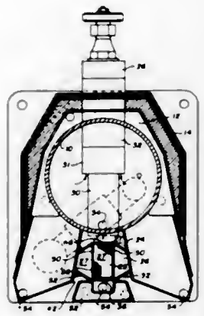
David J. Sawley, 1706-2008 Fullerton Ave., North Vancouver BC V7P 3G7, Canada, and Warren Woodman, 1184 Shelter Cres, Coquitlam BC V3B 5Y5, Canada

PCT No. PCT/CA90/00078, § 371 Date Nov. 7, 1991, § 102(e) Date Nov. 7, 1991, PCT Pub. No. WO91/14045, PCT Pub. Date Sep. 19, 1991

PCT Filed Mar. 9, 1990, Ser. No. 773,566

Int. Cl.[5] D21F *7/00*

U.S. Cl. 162—207 **16 Claims**



1. A steam shower to supply steam to a web passing beneath and comprising:

means defining a steam supply;

a main supply header;

a preheat chamber enclosing said header;

pipe means to direct steam from the steam supply to the preheat chamber on the one hand and to the main supply header on the other hand and means located in said pipe means to proportion steam flow between the preheat chamber and the main supply header;

at least first and second chambers independent of the preheat chamber and arranged to receive steam in sequence from said main supply header; and

outlets in the last of the at least first and second chambers through which steam passes to the web, said outlets being adjacent to at least one exterior wall of the preheat chamber and structured and arranged so that steam leaving the outlets is heated by contact with the at least one exterior wall of the preheat chamber.

2. A method for operating the steam shower of claim 1 comprising the steps of:

a) applying steam to the shower at about 14 psig;

b) operating said means for proportioning steam flow so as to supply steam to the main header at about 8 to 10 psig and to the preheat chamber at about 14 psig.

5,211,814

WIRE LOADING DEVICE IN A PAPER MACHINE

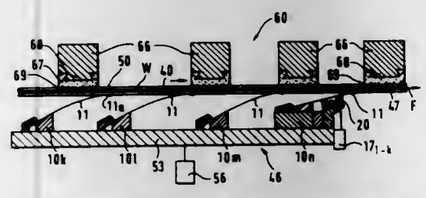
Jyrki Jaakkola, Korpilahti, and Michael Odell, Jyväskylä, both of Finland, assignors to Valmet Paper Machinery Inc., Finland

Filed Feb. 3, 1992, Ser. No. 829,953

Claims priority, application Finland, May 31, 1991, 912630; Oct. 17, 1991, 914913

Int. Cl.[5] D21F *1/00, 1/54*

U.S. Cl. 162—301 **25 Claims**



1. A wire loading device in a paper machine for applying a mechanical load across an entire width of a wire having a running direction in the paper machine, by means of which load a pressure pulse is applied to a fiber layer or web placed on support of the wire or between the wire and a second wire, by means of which pressure pulse the dewatering of the web is promoted, the formation of the web is improved, and/or the transverse profiles of different properties of the web are controlled, comprising

a frame part,

a flexible plate-shaped spring blade, said spring blade having a dragging area structured and arranged to drag against an inner face of the wire in the running direction of the wire to produce a pressure pulse to a fiber layer or web, said spring blade being attached, from outside its dragging area, to said frame part, said spring blade having a length (L) and a thickness (S), the ratio of the length of said spring blade to the thickness of the flexible plate material of said spring blade being in the range of L/S is from about 10 to about 1000, such that said spring blade follows variations in the thickness of the fiber layer or web,

said loading device further comprising loading means for producing said pressure pulse, said loading means structured and arranged to deflect said spring blade into a curved profile to produce a dragging area against the wire.

5,211,815

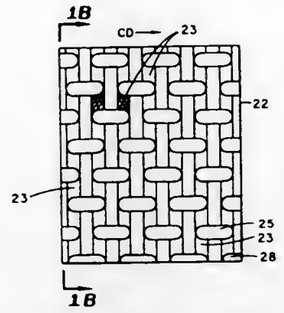
FORMING FABRIC FOR USE IN PRODUCING A HIGH BULK PAPER WEB

Melur K. Ramasubramanian, Appleton, Wis., and Charles A. Lee, Knoxville, Tenn., assignors to James River Corporation, Richmond, Va.

Continuation of Ser. No. 428,823, Oct. 30, 1989, Pat. No. 5,098,519. This application Mar. 20, 1992, Ser. No. 855,328

Int. Cl.[5] D21F *1/10*

U.S. Cl. 162—348 **5 Claims**



1. In a papermaking machine for the manufacture of a paper web having a basis weight of between about 5 and about 45 lb./3000 ft^2 from a pulp of cellulosic fibers suspended in a flowable medium, employing a forming fabric onto one surface of which said pulp is deposited and liquid is withdrawn from said pulp through the thickness of said forming fabric to cause said fibers to be captured as a web on said forming fabric, said web exhibiting a plurality of nubs projecting from one surface thereof and having enhanced bulk, the improvement comprising a forming fabric disposed on said papermaking machine for receipt of said pulp thereon, said forming fabric including a first plurality of warp yarns woven with a first plurality of shute yarns to define a first layer of said woven yarns having a mesh size which is sufficiently small as to prevent the passage of a material quantity of said cellulosic fibers through the thickness thereof in the coarse of the withdrawal of said liquid medium from said pulp on said forming fabric, and a second plurality of warp yarns woven with a second plurality of shute yarns to define a second layer of said woven yarns that is disposed in overlying relationship to said first layer and which receives said pulp thereon, said first and second layers being united by means of one or more yarns being common to said first and second layers, said second warp and shute yarns being of materially larger individual diameters than said first warp and shute yarns, said second warp and shute yarns being of materially larger individual diameters than said first warp and shute yarns, said second warp and shute yarns defining the perimetral dimensions of a plurality of pockets within said second layer, the bottoms of said pockets being defined by said first layer, each of said pockets being of a depth and of a lateral dimension that are each less than the average length of said cellulosic fibers of said pulp whereby when said pulp is deposited on said forming fabric and at least substantial portions of said liquid in said pulp has been withdrawn from said pulp through the thickness of said forming fabric less than a majority of individual ones of said fibers are disposed in each of said pockets having a portion of the length of individual said fibers which is not disposed in each of said pockets overlaying a yarn which defines the perimetral dimension of each of said pockets, and insufficient numbers of or portions of said fibers are entangled with said yarns of said forming fabric to cause said web to be nonreleasable from said forming fabric at a web consistency of about 20%.

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5,211,816

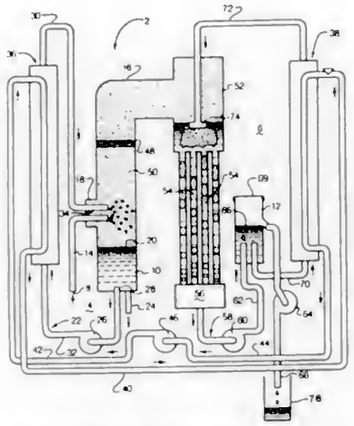
VACUUM DISTILLATION APPARATUS FOR REMOVAL OF VOLATILE IMPURITIES FROM LIQUIDS

Daniel W. Youngner, Maple Grove, Minn., assignor to Eco Pure, Inc., Maple Grove, Minn.

Continuation of Ser. No. 655,297, Feb. 14, 1991, abandoned, which is a continuation of Ser. No. 532,951, Jun. 4, 1990, abandoned, which is a continuation of Ser. No. 416,960, Oct. 14, 1989, abandoned, which is a continuation of Ser. No. 295,059, Jan. 6, 1989, abandoned. This application Oct. 7, 1991, Ser. No. 774,031

Int. Cl.[5] B01D *3/10*

U.S. Cl. 202—205 8 Claims



1. A vacuum distillation apparatus for purifying a raw liquid, said raw liquid having an impurity of higher vapor pressure than that of a desired distillate component entrained therein, comprising:

(a) evaporation apparatus including a boiling chamber, means for supplying raw liquid to the boiling chamber, and means for conveying vapor or gas from the boiling chamber; and

(b) condensation apparatus including:

(i) a closed condensation chamber generally higher than the boiling chamber and communicating with the conveying means to receive, cool, and condense the vapor or gas to a liquid;

(ii) a first closed collection chamber generally below the condensation chamber;

(iii) at least one bubble tube sealingly interconnecting a lower portion of the condensation chamber and an upper portion of the first collection chamber and extending downward into the first collection chamber;

(iv) a second closed collection chamber disposed at a height above a height of said first closed collection chamber;

(v) first transfer means, sealingly engaged and extending, at one end thereof, into the first collection chamber, and connected, at an opposite end thereof, to said second collection chamber, for conveying a mixture of vapor or gas and distillate component from the first collection chamber to the second collection chamber;

(vi) means for creating a partial vacuum above a liquid level in said second closed collection chamber sufficient to cause the impurity to become or remain in a gaseous state, yet insufficient to cause the distillate component to change to a gaseous state; and

(vii) means for releasing and venting the impurity.

5,211,817

SEPARATION PROCESS

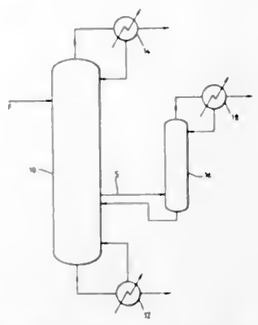
Stephen J. Adams, Warrington, and Andrew M. Taylor, Chester, both of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Mar. 11, 1992, Ser. No. 849,349

Claims priority, application United Kingdom, Mar. 14, 1991, 9105407

Int. Cl.[5] B01D *3/00*; C07C *17/00*

U.S. Cl. 203—82 8 Claims



1. A process for the distillation of a product stream containing HCl, HF, and fluorocarbons which form close boiling azeotropes with HF and in which a lighter one of said fluorocarbons is present in an amount of no more than 20% by weight with respect to a heavier one of said fluorocarbons, said process comprising:

introducing the product stream into a main distillation column to separate said product stream into light ends containing HCl and heavy ends containing said fluorocarbons and HF;

withdrawing a vapor sidestream containing the close boiling azeotropes of said fluorocarbons with HF; and introducing the sidestream into a rectifying column equipped with a condenser and operating with a high reflux ratio such that the lights derived from the rectifying column contain no more than 50% by weight of the heavier fluorocarbon/HF fraction relative to the lighter fluorocarbon/HF fraction, the heavy ends being re-introduced into the main distillation column.

5,211,818

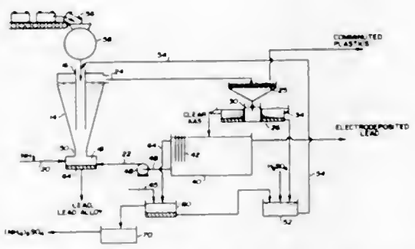
METHOD FOR RECOVERING LEAD FROM BATTERIES

William B. Moure, Jr., P.O. Box 61, Falun, Alberta, Canada T0C 1H0 , and Thomas H. Etsell, 3508 - 117A Street, Edmonton, Alberta, Canada T6J 1V4

Filed Apr. 9, 1991, Ser. No. 682,330

Int. Cl.[5] C25C *1/18*

U.S. Cl. 204—114 11 Claims



1. A process for recovering lead from the materials which result from the crushing of scrap lead/acid batteries, the process comprising:

using ammoniacal ammonium sulphate solution (AAS) to neutralize any sulphuric acid electrolyte in such materials, and to dissolve any lead sulphate in such materials; and

electrowinning the dissolved lead from the AAS.

5,211,819

MICRO-EFFLUENT PROCESS FOR RINSING WATER IN INDUSTRIAL PROCESSING

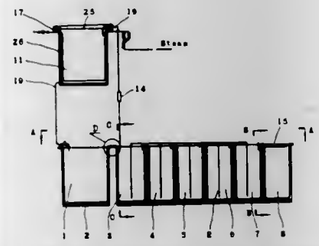
Dezhong Hu, Xuzhou, China, assignor to Ailan Ge and Hubei Machinery & Equipment Import & Export Corporation, both of China

Filed Dec. 19, 1991, Ser. No. 810,296

Claims priority, application China, Dec. 26, 1990, 90106085.2

Int. Cl.[5] C02F *9/00, 1/00*

U.S. Cl. 204—149 18 Claims



1. A micro-effluent process for recovering a rinsing solution in industrial electroplating processing, comprising the following steps:

rinsing work-pieces produced in a plating tank in a rinsing line comprising 4–7 rinse tanks arranged in series to successively receive the work pieces, and a high level storage tank placed above said plating tank;

transferring the rinsing solution in the first rinse tank completely into said high-level storage tank or partially transferring the rinsing solution from said first rinse tank into the plate tank, successively transferring the rinsing solution of each successive rinse tank completely or partially into the previous rinse tank until the rinsing solution in the last rinse tank is completely or partially transferred into the preceding tank;

adding clean rinsing water into the last rinse tank continuously or intermittently according to the period of transferring said rinsing solution of said rinse tanks to fill said last rinse tank with clean rinsing water; and

directly discharging the rinsing solution overflowed from the last rinse tank.

5,211,820

GAS ANALYSIS SYSTEM FOR FURNACES AND THE LIKE

Ralph P. Poor; Michael J. Huber, both of Toledo, and Garry W. Barbee, Waterville, all of Ohio, assignors to Surface Combustion, Inc., Maumee, Ohio

Division of Ser. No. 680,298, Apr. 4, 1991, Pat. No. 5,137,616. This application Apr. 6, 1992, Ser. No. 862,998

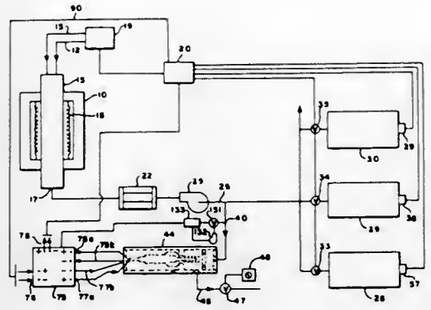
Int. Cl.[5] G01M *27/26*

U.S. Cl. 204—153.18 2 Claims

1. A method for generating and controlling a neutral furnace atmosphere in an industrial furnace throughout the entire furnace cycle by an oxygen sensing probe having a sensing media with sealed interior and exterior surfaces and contact leads extending from each surface and generating an electrical signal in response to a reference gas flowing over one of said surfaces and furnace gas flowing over the other surface comprising the steps of:

(a) purging said furnace with an inert gas until a first predetermined electrical signal indicative of a lean, substoichiometric, furnace atmosphere having a predetermined oxygen content is generated from said sensor;

(b) thereafter admitting a scavenger gas of a generally reducing nature into said furnace until a second predetermined electrical signal indicative of a furnace atmosphere varying from stoichiometric to reducing is generated form said sensor; and



(c) thereafter independently controlling the composition and rate of flow of said inert gas and said scavenger gas admitted to said furnace when said furnace is heated to its operating temperature in accordance with said second predetermined signal to minimize consumption of said scavenger gas.

5,211,821

METHOD AND APPARATUS FOR PROVIDING ECOLOGICAL PROTECTION WITH RESPECT TO EQUIPMENT USING A HALOGENATED HYDROCARBON

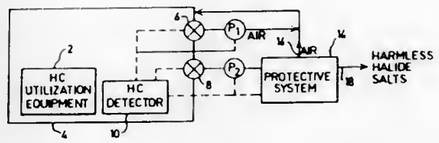
Esther Jacobson, Tel Aviv, Israel, assignor to Spectronix Ltd., Tel-Aviv, Israel

Filed Apr. 30, 1991, Ser. No. 693,475

Claims priority, application Israel, May 4, 1990, 94285

Int. Cl.[5] C01B *7/00*

U.S. Cl. 204—157.41 20 Claims



1. A method of providing ecological protection with respect to equipment using halogenated hydrocarbons, comprising:

enclosing the equipment within an enclosure having a first outlet for normally discharging air from the enclosure to the atmosphere;

detecting the presence of a halogenated hydrocarbon within said enclosure, and upon detecting its presence above a predetermined concentration, discharging the air from the disclosure through a second outlet;

applying a source of radiation to the halogenated hydrocarbon in the air discharged from said enclosure through said second outlet for effecting selective dissociation of the halogenated hydrocarbon to separate the halogen atoms therefrom; and immediately neutralizing said separated halogen atoms by converting them to a halide salt.

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5,211,822

PROCESS FOR THE PRODUCTION OF A SEMIPERMEABLE MEMBRANE ON A POROUS CONDUCTIVE SUPPORT BY ELECTROPHORESIS

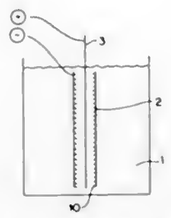
Jean-André Alary, St Etienne de Crossey; Francis Guglielmotte, Voreppe, and Jean-Pierre Isnard, Grenoble, all of France, assignors to Pechiney Recherche, Paris, France

Filed Mar. 14, 1990, Ser. No. 493,370

Claims priority, application France, Mar. 14, 1989, 8904197; Dec. 6, 1989, 8916738

Int. Cl.[5] **C05B** *7/00*

U.S. Cl. 204—180.7 **25 Claims**



1. Process for the production of a microfiltration, ultrafiltration or reverse osmosis element, constituted by a semipermeable mineral membrane on a porous conductive support, comprising the steps of:

a) dispersing one or more inert solid mineral products in a liquid medium comprising water or water mixed with at least partly hydrosoluble organic solvents and an electrodepositable, hydrosoluble coating resin to coat said mineral products with said resin;

b) preparing an electrophoresis bath comprising the at least partly hydrosoluble organic solvents and said coating resin with said resin coated solid mineral product finely dispersed in the liquid medium;

c) contacting the interior of a tubular porous conductive support with said electrophoresis bath with the porous conductive support as an electrode, said bath having a metal counterelectrode, over the entire surface of the porous conductive support in contact with the electrophoresis bath and depositing by electrophoresis on the porous support at least a layer of said electrodepositable resin-coated solid mineral products with only slight penetration and imbrication of the solid mineral products layer into the porous support; and

d) heat treating said porous conductive support covered with the at least one layer of solid mineral product coated with an electro-coagulated resin to eliminate the water, the residual organic solvents and the organic materials, followed by the sintering of the mineral product layer until the desired pore fineness is obtained.

5,211,823

PROCESS FOR PURIFYING RESINS UTILIZING BIPOLAR INTERFACE

Anthony J. Giuffrida, North Andover, and Gary C. Ganzi, Lexington, both of Mass., assignors to Millipore Corporation, Bedford, Mass.

Filed Jun. 19, 1991, Ser. No. 717,460

Int. Cl.[5] **B01D** *61/46, 61/58*

U.S. Cl. 204—182.4 **11 Claims**

1. A process for purifying anion exchange resin particles and cation exchange resin particles containing less than about 1% and 0.1% ionic impurities respectively other than hydroxyl ion or hydrogen ion which comprises:

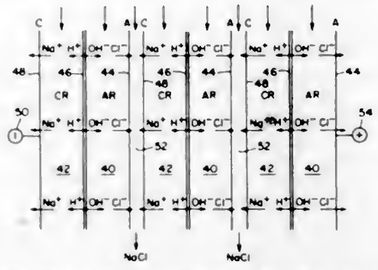
providing a water stream having a purity of at least about 1 megohm-cm,

passing said water stream through ion depletion compartments containing said resin particles in an electrodeionization apparatus, said electrodeionization apparatus comprising:

a cathode compartment at a first end of said apparatus,

an anode compartment at an end of said apparatus opposite said first end,

a plurality of sets of an anion depletion compartments and cation depletion compartments alternating with ion concentration compartments positioned between said cathode compartment and said anode compartment,



each anion depletion compartment and each cation depletion compartment being separated by a bifunctional interface,

passing a second liquid for accepting ions from said water stream through said concentration compartments while said water stream is passed through said anion depletion compartments and said cation depletion compartments,

applying an electrical voltage between an anode in said anode compartment and a cathode in said cathode compartment,

and recovering said purified resin particles.

5,211,824

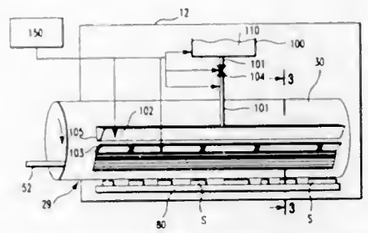
METHOD AND APPARATUS FOR SPUTTERING OF A LIQUID

Karl E. Knapp, Tarzana, Calif., assignor to Siemens Solar Industries L.P., Camarillo, Calif.

Filed Oct. 31, 1991, Ser. No. 786,202

Int. Cl.[5] **C23C** *14/34*

U.S. Cl. 204—192.15 **113 Claims**



1. A method of sputtering target material onto an object by utilizing a cathode member of a sputtering apparatus, the cathode member having an exterior surface, comprising the steps of:

(a) applying a liquid target material by intermediate transfer means to the exterior surface of the cathode member such that at least a portion of said liquid target material exhibits a surface generally exposed in a direction other than vertically upwards; and

(b) positioning next to the surface of the cathode member the object for receiving target material sputtered from said liquid target material exhibiting a surface generally exposed in a direction other than vertically upwards.

5,211,825

PLASMA PROCESSING APPARATUS AND THE METHOD OF THE SAME

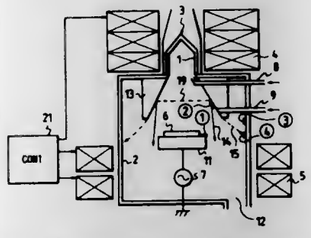
Katsuaki Saito; Takuya Fukuda; Michio Ohue, all of Hitachi, and Tadasi Sonobe, Iwaki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 23, 1991, Ser. No. 764,161

Claims priority, application Japan, Sep. 21, 1990, 2-253398

Int. Cl.[5] **B01J** *19/12;* **C23F** *4/04*

U.S. Cl. 204—192.32 **17 Claims**



16. A plasma processing method which carries out a sample processing by generating a reaction gas plasma within a vacuum vessel using an electron cyclotron resonance excitation and a cleaning processing of an inner wall of the vacuum vessel by generating a cleaning gas plasma within the vacuum vessel, wherein a maximum plasma diameter of a surface which is parallel to the sample surface during a cleaning procedure is larger than the maximum plasma diameter of the surface which is parallel to the sample surface during sample processing, and the end of the maximum plasma diameter during the cleaning procedure reaches to an inner wall of said vacuum vessel.

5,211,826

ELECTROPLATING MEANS FOR PERFORATED PRINTED CIRCUIT BOARDS TO BE TREATED IN A HORIZONTAL PASS

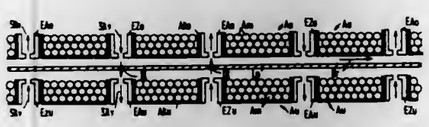
Daniel Hosten, Handzame, and Josef Van Puymbroeck, Oostkamp, both of Belgium, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 4, 1992, Ser. No. 941,173

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1991, 4132145

Int. Cl.[5] **C25D** *17/00*

U.S. Cl. 204—198 **5 Claims**



1. An electroplating apparatus for electroplating perforated printed circuit boards undergoing horizontal movement in a throughput path, comprising:

(a) at least one upper anode above said throughput path;

(b) at least one lower anode under said throughput path;

(c) a plurality of upper electrolyte feeder elements and a plurality of upper electrolyte discharge elements aligned transversely and in alternation above said throughput path forming in combination an upper means for creating a first sequentially alternating flow of electrolyte in said throughput path;

(d) a plurality of lower electrolyte feeder elements and a plurality of lower electrolyte discharge elements aligned transversely and in alternation under said throughput path forming in combination a lower means for creating a second sequentially alternating flow of electrolyte in said throughput path; and

(e) said upper means and said lower means being positioned relative to each other so that said first sequentially alternating flow flows oppositely with respect to said second sequentially alternating flow.

5,211,827

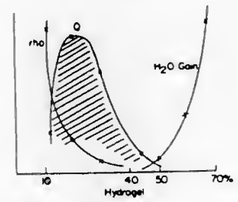
ELECTROCHEMICAL CELL WITH IONIC SEMICONDUCTOR SEPARATOR

Robert L. Peck, Lebanon, Conn., assignor to T and G Corporation, Lebanon, Conn.

Division of Ser. No. 542,304, Jun. 22, 1990, Pat. No. 5,055,171, which is a continuation-in-part of Ser. No. 275,977, Nov. 25, 1988, abandoned, which is a continuation-in-part of Ser. No. 915,994, Oct. 6, 1986, Pat. No. 4,797,190. This application Aug. 5, 1991, Ser. No. 740,061

Int. Cl.[5] **C25B** *13/08*

U.S. Cl. 204—252 **5 Claims**



1. An electrochemical cell comprising:

an anode;

an anolyte;

a cathode;

a catholyte, the catholyte having a different pH when compared to the anolyte;

a membrane separating said anolyte from said catholyte, said membrane comprising a nonporous solid composite material which is formed by a hydrogel substantially uniformly dispersed throughout an inert man made matrix material with said hydrogel comprising approximately 10 to 50% by weight of the dry composite material, ions selectively passing through said membrane from said anolyte to said catholyte whereby an electric current may flow through an external circuit connected between said anode and said cathode.

5,211,828

APPARATUS FOR GENERATING HYDROGEN AND OXYGEN

Rahim Shkarvand-Moghaddam, No. 8-Lashgari Alley, Sohrevardi St., Mollahhari Avenue, Tehran, Iran

Filed Aug. 19, 1991, Ser. No. 746,888

Claims priority, application Iran, Aug. 19, 1990, 28606

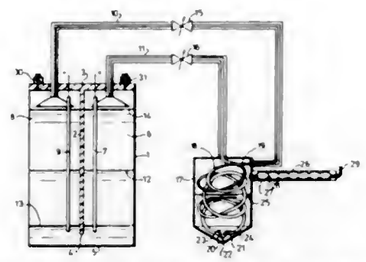
Int. Cl.[5] **C25B** *9/00, 15/02, 15/08*

U.S. Cl. 204—266 **7 Claims**

1. In apparatus for generating heat, comprising a device for the electrochemical decomposition of water to generate hydrogen and oxygen separate conduits for hydrogen and oxygen respectively, each one provided with a control device, and a device for mixing hydrogen and oxygen in a predetermined ratio, as well as a burner for said mixture; the improvement wherein the apparatus is a unit in which the device for the electrochemical decomposition of the water is a tank with an anode compartment and a cathode compartment, said compartments being separated from each other by a wall which extends over essentially the entire height of the tank and has an opening adjacent the bottom of the tank and no higher than the lower end of the anode and/or cathode, which anode and cathode respectively extend downwardly in each respective compartment, the conduits for oxygen and hydrogen down-

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stream the control devices debouching into a mixing device in which the two streams of oxygen and hydrogen respectively impinge upon each other in the form of turbulent flows such that a homogeneous mixture is generated, which mixing device



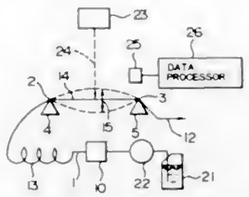
is followed downstream by a device having a series of vortex and impingement chambers interconnected by narrow passages within which the molecular composition is altered into H_xO_y, in which x and /or y deviate from x=2 and y=1.

5,211,829

ANALYTICAL METHOD AND APPARATUS USING CAPILLARY TUBE

Kazumichi Imai; Masataka Koga, both of Katsuta; Takehiko Kitamori, Ushiku; Tsuguo Sawada, and Jiaqi Wu, both of Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 4, 1991, Ser. No. 664,604
Claims priority, application Japan, Mar. 2, 1990, 2-049315
Int. Cl.[5] G01N 27/26, 27/447, 21/85
U.S. Cl. 204—299 R 20 Claims



1. An apparatus for analysis using a capillary tube which comprises:

a capillary tube having a sample receiving position provided such that a sample can low downstream through said capillary tube from said sample receiving position,

a capillary tube holding means which holds the capillary tube at two spaced positions thereby forming a detection zone of the capillary tube between said two spaced positions which can vibrate, said detection zone being positioned downstream of said sample receiving position,

an irradiation means for irradiating the detection zone with a periodically intensity-modulated excitation beam or a periodical pulse-like excitation beam, and

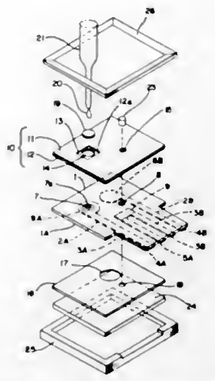
a detection means for detection of information based on the mechanical vibration of the capillary tube in the detection zone.

5,211,830

SHEET-TYPE ELECTRODE FOR USE IN THE MEASUREMENT OF ION CONCENTRATION

Katsuhiko Tomita, Otsu; Masami Nakane, Kyoto, and Yoko Ogihara, Muko, all of Japan, assignors to Horiba, Ltd., Kyoto, Japan

Filed Mar. 28, 1991, Ser. No. 676,847
Claims priority, application Japan, Apr. 2, 1990, 2-87656
Int. Cl.[5] G01N 27/26
U.S. Cl. 204—416 7 Claims



1. An improved sheet-type electrode for use in a measurement of ionic concentration, comprising:

an ion-selective responsive membrane including polyvinyl chloride resin powder having a polymerization degree not less than 3,799 and not greater than 20,001.

5,211,831

PROCESS FOR EXTENDING THE LIFE OF A DISPLACEMENT PLATING BATH

Americus C. Vitale, West Chester, Pa.; Carl W. Reinbold, Wilmington, Del.; Randal D. King, Wilmington, Del., and John R. Dodd, Wilmington, Del., assignors to McGean-Rohco, Inc., Cleveland, Ohio

Filed Nov. 27, 1991, Ser. No. 799,134
Int. Cl.[5] B05D 5/12, 1/18
U.S. Cl. 205—85 31 Claims

1. A process for displacement plating a substrate metal surface with an other metal comprising the steps:

(a) providing a reservoir of aqueous plating solution comprising;

(i) a metal ion of a free metal, which is present in its lowest oxidation state wherein the free metal is different from the metal of the substrate surface;

(ii) a complexing agent; and

(iii) an acid;

(b) directing a stream of the aqueous plating solution onto the substrate metal surface; whereby a portion of the metal ions of (i) are oxidized to ions in a higher oxidation state, and another portion of the metal ions of (i) are reduced to free metal, wherein said reduced free metal displaces surface substrate metal which is oxidized to an ion and complexed with the complexing agent to form a substrate metal ion complex dissolved in the reacted aqueous plating solution at the surface of the substrate metal; and

(c) returning the plating solution to the reservoir;

(d) repeating steps (b) and (c) for a series of substrate metal surfaces whereby the concentration of the substrate metal ion complex in the plating solution reaches a high level of about 80% to 95% of its saturation concentration which is below the concentration at which the ion complex precipitate is formed; and when the concentration of the substrate metal ion complex in the plating solution reaches the high level,

(e) withdrawing a portion of the volume of the aqueous plating solution from the reservoir;

(f) cooling the withdrawn portion to a temperature at which the substrate ion complex is insoluble and the complexing agent is soluble so that the substrate ion complex precipitates from the solution;

(g) removing the substrate metal ion complex precipitate from the solution;

(h) returning the solution to the reservoir; and

(j) repeating steps (e) through (h) a sufficient number of times until the concentration of the substrate metal ion complex in the plating solution drops to a predetermined low level of about 80% lower of the saturation concentration.

5,211,832

PROCESS FOR PRODUCING ELECTRICALLY IMPERVIOUS ANODIZED FILMS ON VALVE METALS AND PRODUCT THEREOF

Mathew Cooper, Fombell, and Harry Rosenberg, Pittsburgh, both of Pa., assignors to The Alta Group, Fombell, Pa.

Filed Apr. 22, 1992, Ser. No. 872,061
Int. Cl.[5] C25D 11/08, 11/26
U.S. Cl. 205—322 30 Claims

1. A process for anodizing a valve metal from the group consisting of titanium, aluminum, tantalum, niobium, zirconium, and titanium or their alloys, where the anodizing solution comprises an aprotic solvent and liquid ortho-phosphoric acid having a total water content including combined water, water of hydration and excess water content of 34 to 43 weight percent.

5,211,833

METHOD FOR COATING IMPLANTS AND SURGICAL DEVICES MADE OF TITANIUM AND TITANIUM ALLOYS

Morteza Shirkhanzadeh, Kingston, Canada, assignor to Queen's University at Kingston, Kingston, Ontario, Canada

Filed Jul. 24, 1991, Ser. No. 735,222
Int. Cl.[5] C25D 11/26
U.S. Cl. 205—322 18 Claims

1. A process for producing a protective, dense, non-porous and biocompatible oxide coating on a metal substrate selected from the group consisting of titanium, zirconium and alloys thereof, comprising anodically depositing said oxide coating by immersing a selected said substrate in an electrolyte comprising at least one of an alkali metal nitrate and nitric acid dissovled in an alcohol having the formula ROH where R is selected from an alkyl group having 1 to 4 carbon atoms, an aryl group and mixtures thereof, and passing a current through said electrolyte for a sufficient time to anodically deposit said coating on said substrate.

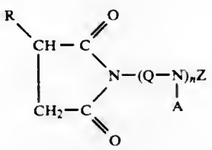
5,211,834

METHOD FOR CONTROLLING FOULING DEPOSIT FORMATION IN A LIQUID HYDROCARBONACEOUS MEDIUM USING BORONATED DERIVATIVES OF POLYALKENYLSUCCINIMIDES

David R. Forester, Conroe, Tex., assignor to Betz Laboratories, Inc., Trevose, Pa.

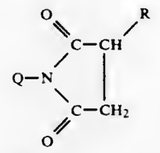
Filed Jan. 31, 1992, Ser. No. 829,794
Int. Cl.[5] C10G 9/16
U.S. Cl. 208—48 AA 12 Claims

1. A method of inhibiting fouling deposit formation in a liquid hydrocarbonaceous medium during heat treatment processing thereof at temperatures of from about 200° C.–550° C., wherein, in the absence of such antifouling treatment, fouling deposits are normally formed as a separate phase within said liquid hydrocarbonaceous medium impeding process throughput and thermal transfer, said method comprising adding to said liquid hydrocarbonaceous medium, an antifouling amount of from about 0.5–10,000 parts per million of a reaction product of a polyalkenylsuccinimide having the formula



(III)

wherein R is an aliphatic alkenyl or alkyl moiety having at least about 50 carbon atoms and less than about 200 carbon atoms, Q is a divalent aliphatic radical, n is a positive integer, A is hydrocarbyl, hydroxyalkyl or hydrogen, Z is H or



with a boron compound, said liquid hydrocarbonaceous medium comprising petroleum hydrocarbons or petrochemicals, and said boron compound comprising boron oxides, boron halides, boron acids or boron esters.

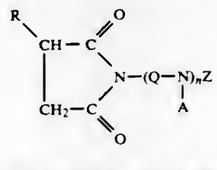
5,211,835

USE OF REACTION PRODUCTS OF PARTIALLY GLYCOLATED POLYALKENYL SUCCINIMIDES AND DIISOCYANATES AS ANTIFOULANTS IN HYDROCARBON PROCESS MEDIA

David R. Forester, Conroe, Tex., assignor to Betz Laboratories, Inc., Trevose, Pa.

Filed Mar. 10, 1992, Ser. No. 848,785
Int. Cl.[5] C10G 9/16
U.S. Cl. 208—48 AA 12 Claims

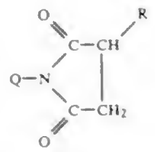
1. A method of inhibiting fouling deposit formation in a liquid hydrocarbonaceous medium during heat treatment processing thereof at temperatures of from about 200° C.–550° C., wherein, in the absence of such antifouling treatment, fouling deposits are normally formed as a separate phase within said liquid hydrocarbonaceous medium impeding process throughput and thermal transfer, said method comprising adding to said liquid hydrocarbonaceous medium, an antifouling amount of from about 0.5–10,000 parts per million of a reaction product of a polyalkenylsuccinimide having the formula



(III)

wherein R is an aliphatic alkenyl or alkyl moiety having at least about 50 carbon atoms and less than about 200 carbon atoms, Q is a divalent aliphatic radical, n is a positive integer, Z is H or

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with glycolic acid to form a partially glycolated bis-alkenyl succinimide, followed by adding a diisocyanate to said partially glycolated bis-succinimide, said liquid hydrocarbonaceous medium comprising petroleum hydrocarbons or petrochemicals.

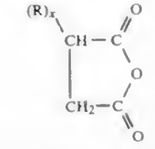
5,211,836

REACTION PRODUCTS OF POLYALKENYL SUCCINIC ANHYDRIDES WITH AROMATIC SECONDARY AMINES AND AMINOALCOHOLS AS PROCESS ANTIFOULANTS

David R. Forester, Conroe, Tex., assignor to Betz Laboratories, Inc., Trevose, Pa.

Filed Mar. 12, 1992, Ser. No. 849,926
Int. Cl.[5] C10G 9/16
U.S. Cl. 208—48 AA 6 Claims

1. A method of inhibiting fouling deposit formation in a liquid hydrocarbonaceous medium during heat treatment processing thereof at temperatures of from about 200°–550° C., wherein, in the absence of such antifouling treatment, fouling deposits are normally formed as a separate phase within said hydrocarbonaceous medium impeding process throughput and thermal transfer, said method comprising adding to said liquid hydrocarbonaceous medium, an antifouling amount of from about 0.5–10,000 parts by weight per one million parts of said hydrocarbonaceous medium of a reaction product of a polyalkenylsuccinic anhydride having the formula



wherein R is an aliphatic alkenyl or alkyl moiety having at least about 50 carbon atoms and less than about 200 carbon atoms, with a diaromatic secondary amine to form a polyalkenylsuccinamide, followed by adding an aminoalcohol to said polyalkenylsuccinamide, said liquid hydrocarbonaceous medium comprising petroleum hydrocarbons or petrochemicals.

5,211,837

CATALYTIC REFORMING PROCESS WITH SULFUR PRECLUSION

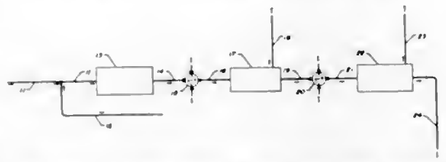
Michael B. Russ, Elmhurst; Roger L. Peer, LaGrange; Joseph Zmich, Hanover Park, and Chi-Chu D. Low, Lisle, all of Ill., assignors to UOP, Des Plaines, Ill.

Continuation-in-part of Ser. No. 555,962, Jul. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 408,577, Sep. 18, 1989, abandoned. This application Feb. 27, 1992, Ser. No. 842,835
Int. Cl.[5] C10G 35/06, 25/00
U.S. Cl. 208—65 18 Claims

1. A process for the catalytic reforming of a hydrocarbon feedstock containing small amounts of sulfur compounds, comprising a combination of:

(a) contacting a combined feed comprising the hydrocarbon feedstock and free hydrogen in the absence of added halogen in a first reforming zone at first reforming conditions comprising a pressure of from atmospheric to 20 atmosphere, a temperature of from 260° to 560° C., a liquid hourly space velocity of from about 1 to 40 hr^{-1}, and a hydrogen to hydrocarbon ratio of from about 0.1 to 10 moles of hydrogen per mole of hydrocarbon with a first reforming catalyst comprising platinum and alumine to convert sulfur compounds in the hydrocarbon feedstock to hydrogen sulfide and produce a halogen-free first effluent;

(b) contacting the first effluent in a sulfur-removal zone at sulfur-removal conditions comprising a pressure of from atmospheric to 20 atmospheres, a temperature of from 260° to 560° C., a liquid hourly space velocity of from about 1 to 40 hr^{-1}, and a hydrogen to hydrocarbon ratio of from about 0.1 to 10 moles of hydrogen per mole of



hydrocarbon with a sulfur sorbent comprising a manganese component to remove hydrogen sulfide and produce a halogen-free second effluent containing less than about 20 parts per billion sulfur; and,

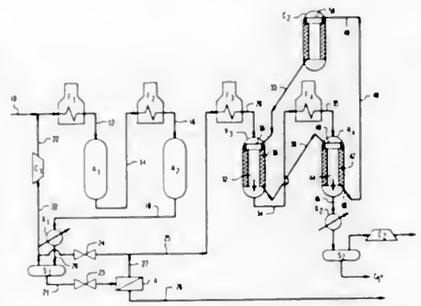
(c) contacting the second effluent in a second reforming zone in the presence of free hydrogen and in the absence of added halogen at second reforming conditions comprising a pressure of from atmospheric to 20 atmospheres, a temperature of from 425° to 560° C. °C., a liquid hourly space velocity of from about 1 to 10 hr^{-1}, and a hydrogen to hydrocarbon ratio of from about 0.1 to 10 moles of hydrogen per mole of hydrocarbon with a second reforming catalyst comprising a non-acidic L-zeolite, an alkali-metal component and a platinum-group metal component to produce a halogen-free aromatics-rich effluent.

5,211,838

FIXED-BED/MOVING-BED TWO STAGE CATALYTIC REFORMING WITH INTERSTAGE AROMATICS REMOVAL

Staubs, David W., Morris Plains, N.J.; Stuart S. Goldstein, Ewell, England; Paul W. Kamienski, Basking Ridge; Gerrit S. Swart, Westfield, both of N.J.; George A. Swan, III, Baton Rouge, La., and Kenneth R. Clem, Humble, Tex., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Dec. 9, 1991, Ser. No. 805,334
Int. Cl.[5] C10G 35/04
U.S. Cl. 208—65 9 Claims



1. A process for catalytically reforming a gasoline boiling range hydrocarbon reactant stream in the presence of hydrogen in a reforming process unit comprised of a plurality of serially connected reforming zones, wherein each of the reforming zones contains a reforming catalyst comprised of at least one Group VIII noble metal on a refractory support, which process comprises:

(a) conducting the reforming in two stages wherein the first stage is comprised on one or more reforming zones, each of which is operated in a fixed-bed mode, and wherein the second stage is comprised of one or more reforming zones each of which is operated in a moving-bed mode;

(b) separating three stream between reforming stages, (i) a C_9^+ aroatics-rich stream, (ii) a C_5^- stream, and (iii) a remaining fraction, wherein the separation of said aromatics is accomplished by a technique selected from the group consisting of extractive distillation, distiallation, and flashing;

(c) passing at least a portion of said remaining fraction to the second reforming stage and collecting the C_9^+ aromatics-rich stream and the C_5^- stream; and

(d) conducting the reforming of the second stage in a moving-bed continuous catalyst regeneration mode wherein the catalyst descends through the reforming zone, exits, and is passed to a regeneration zone where at least a portion of the accumulated carbon is burned-off, and where the regenerated catalyst is recycled to the reforming zones of said second reforming stage, said catalyst comprised of at least one Group VIII noble metal on a substantially sperical refractory support, and wherein the second stage reforming is conducted at a pressure of at least about 25 psig lower than the first stage.

5,211,839

CONTROLLING HYDROGEN PARTIAL PRESSURE TO YIELD 650 ° F.- BOILING RANGE MATERIAL IN AN EBULLATED BED PROCESS

Glenn A. Clauseo, Nederland, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Jul. 26, 1989, Ser. No. 385,038
Int. Cl.[5] C10G 47/02
U.S. Cl. 208—108 2 Claims

1. A method for hydrocracking a nominal 1000° F.+ boiling point vacuum residuum by treating the oil with hydrogen in the presence of a particulate catalyst in an ebullated bed, the steps comprising:

passing the residual oil, and a hydrogen-containing gas upwardly through an ebullated bed of catalyst in a hydrocracking zone at a temperature in the range of 750° F. to 875° F. and a total pressure in the range of about 1900 psig to 3000 psig,

changing the partial pressure of hydrogen in the range of 1700 psig to 2300 psig by adjusting the total reactor pressure to change the quantity of 650° F.− boiling material which increases as outlet hydrogen partial pressure increases without changing the yield of unconverted 1000° F.+ boiling range material.

5,211,840

NEUTRALIZING AMINES WITH LOW SALT PRECIPITATION POTENTIAL

Scott E. Lehrer, Houston, and James G. Edmondson, Conroe, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed May 8, 1991, Ser. No. 697,136
Int. Cl.[5] C10G 7/10
U.S. Cl. 208—348 4 Claims

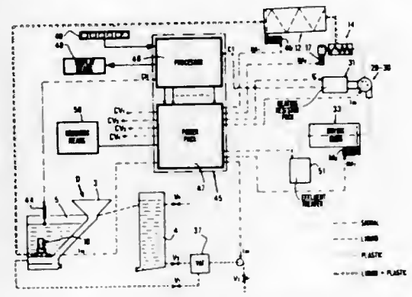
1. In a petroleum refining operation having at least one distillation unit for processing of hydrocarbon that contains chlorides at elevated temperatures, a method for preventing fouling caused by amine chloride salt deposits on the metallic surfaces of the overhead equipment in the distillation unit comprising adding to the distillation unit between 0.1 and 1000 ppm, based on overhead volume, of at least one neutralizing amine having a pKa of from 5 to 8 which permit the formation of amine chloride salts after the water dew point is reached.

5,211,841

DEVICE FOR PRETREATING PLASTIC WASTE BEFORE RECYCLING

Olivier Krempp, Paris, and Andre Renot, Franconville, both of France, assignors to Institut Francais du Petrole, Rueil-Malmaison and Lutz et Kempp Industries (L.K.I.), Athis-Mons, both of France

Filed Feb. 25, 1991, Ser. No. 659,677
Claims priority, application France, Feb. 23, 1990, 90 02387
Int. Cl.[5] B01D 17/12; B30B 15/26
U.S. Cl. 210—86 12 Claims



1. A device for pretreating plastic waste adapted to deliver washed and dried plastic waste for recycling, the device comprising:

a tank filled with liquid into which the plastic waste to be treated is introduced, means including

a washing pump for washing the plastic waste with liquid,

a separating system communicating with the washing means arranged for separating the washed plastic waste from the liquid of said washing pump, said separating system including a dripping drum, and

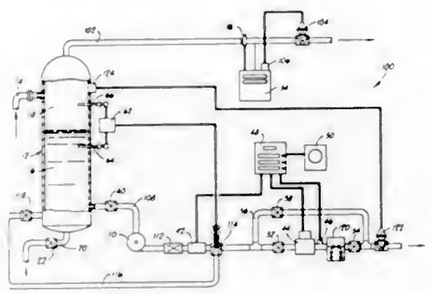
means for compressively dewatering the separated washed plastic waste comprising an accumulation channel with a substantially constant passageway including a cylindrical wall, a press-screw arranged along a portion of said accumulation channel, at least one radial opening arranged in the cylindrical wall of the accumulation channel, at least one braking part pivotably mounted with respect to said accumulator channel for radially engaging in said at least one radial opening so as to be displaceable from a first position away from the press-screw and a second position near said press-screw, and elastic means connected with said at least one braking part for continuously exerting thereon an elastic force for moving said at least one braking part into said second position and restricting said passageway, whereby an elastic braking force is continuously exerted on the washed plastic waste in said accumulation channel.

7. A device as claimed in one of claims 1, 2 or 3, further comprising control means for driving and controlling the device so as to enable an automated pretreating of the plastic waste.

8. A device as claimed in claim 7, wherein the control means comprising a signal processor, an electric power pack for supplying electric power to the washing pump, the dripping drum and the means for compressively dewatering, and wherein the signal processor is connected with a means for detecting a level of the liquid in the tank, a temperature sensor associated with the means for compressively dewatering and sensor means for detecting working parameters of the device.

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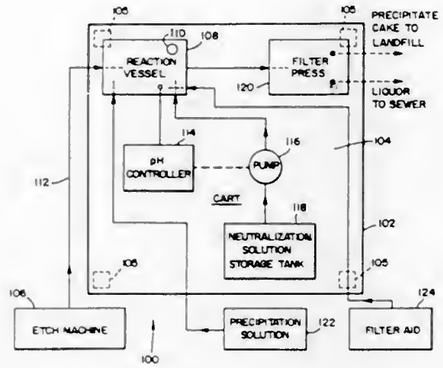
5,211,842
THREE-PHASE WELL TEST APPARATUS USING PUMPED RECIRCULATION TO MAINTAIN HOMOGENOUS FLOW
Bernard M. Tuss, Houston, and Robert A. Kendrick, Montgomery, both of Tex., assignors to Conoco Inc., Ponca City, Okla.
Filed Jan. 7, 1992, Ser. No. 817,715
Int. Cl.[5] E21B *49/08*
U.S. Cl. 210—87 3 Claims



1. An apparatus adapted for testing well fluid constituents from a well, said apparatus comprising:
a separator connectable to a flowline from said well so that the fluid constituents from said well will flow directly into said separator;
a gas outlet line in communication with a gas containing section of said separator;
gas flow measuring means in said gas outlet line for measuring a flow rate of said gas through said gas outlet line;
a flow limiting valve in said gas outlet line downstream of said gas flow measuring means which is adapted for limiting the flow rate of gas to said gas flow measuring means;
a liquid outlet line in communication with a liquid containing section of said separator;
a constant rate pump in said liquid line adapted for pumping liquid from said separator;
liquid flow measuring means downstream of said pump for measuring a volume of liquid flowing therethrough over a period of time;
a liquid recirculating line in communication with said separator;
recirculating means in communication with said liquid outlet line and said recirculating line for allowing liquid flow from said pump to said liquid flow measuring means but not through said recirculating line when in a flow position and for recirculating liquid from said pump to said separator through said recirculating line when in a recirculating position;
liquid level control means on said separator for shifting said recirculating means between said flow and recirculating positions;
mixing means in said liquid outlet line downstream from said pump for mixing fluid flowing therethrough; and
pressure control means downstream of said liquid flow measuring means for maintaining a predetermined back pressure across said liquid flow measuring means.

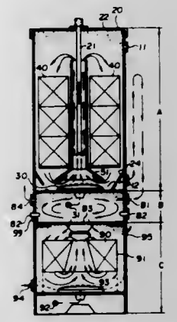
2. The apparatus of claim 1 wherein said liquid flow measuring means comprises a volumetric meter and a water cut monitor in said liquid outlet line, and a net oil computer connected to said volumetric meter and said water cut monitor.

5,211,843
MOBILE APPARATUS FOR ENVIRONMENTALLY TREATING SPENT ETCHANT SAFELY
Gary R. Wester, Florissant, and Bill W. Moore, Ballwin, both of Mo., assignors to Spectrulite Consortium, Inc., Madison, Ill.
Division of Ser. No. 547,835, Jul. 3, 1990, Pat. No. 5,108,620.
This application Oct. 10, 1991, Ser. No. 774,783
Int. Cl.[5] C02F *1/62*
U.S. Cl. 210—143 4 Claims



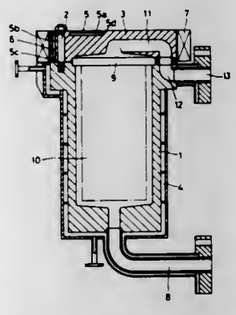
1. Mobile system for environmentally safely treating a spent acid etching solution at a photoengraving plate etching station at which there is a batch quantity of spent nitric acid photoengraving etchant previously used for etching of magnesium alloy photoengraving plates containing magnesium, aluminum and zinc, the batch quantity of etchant being contaminated by zinc resulting from such etching, to selectively remove the zinc from the spent etchant for safe environmental disposal; said mobile system comprising a mobile cart including means carried by the cart for mobile relocation of the cart to a position proximate such etching station, a processing vessel carried by the cart for receiving the batch quantity of the spent etchant from the etching station for processing, a stirrer for the processing vessel for stirring the spent etchant therein, a storage vessel carried by the cart containing a quantity of neutralizing solution, means carried by the cart for delivery of the neutralizing solution from the storage vessel to the processing vessel, selectively controllable means for pumping the neutralizing solution into the processing vessel containing the spent etchant, thereby forming a mixture of spent etchant and neutralizing solution in the processing vessel, means for sensing the pH of the mixture in the processing vessel, means carried by the cart connecting the pH sensing means to the pumping means for automatically controlling the pumping means as a function of the pH sensed in the processing vessel, whereby to provide automatic adjusting of the pH of the mixture in the processing vessel to a value permitting precipitation of zinc in said spent etchant, said mobile system further comprising a source of a precipitant for said zinc comprising a carbamic sodium salt hydrate precipitating agent selected from the group consisting of diethyldithiocarbamic acid sodium salt and dimethyldithiocarbamic acid sodium salt, and means for adding said precipitant to said processing vessel for precipitating said zinc in said spent etchant, and means for receiving the mixture in the processing vessel for separating the precipitated zinc from the mixture whereby nonprecipitated amounts of magnesium and aluminum remain therein.

5,211,844
WASTEWATER TREATING BIOLOGICAL FILM TANK
Takashi Hattori, 5-34-104, Soshigaya -2-chome, Setagaya-ku, Tokyo, and Kazuo Nakano, Yokohama, both of Japan, assignors to Nikki Hanbai Co., Ltd., Yokohama and Takashi Hattori, Tokyo, both of Japan
Division of Ser. No. 667,775, Mar. 11, 1991. This application Feb. 26, 1992, Ser. No. 842,308
Int. Cl.[5] C02F *3/06, 3/30*
U.S. Cl. 210—151 7 Claims



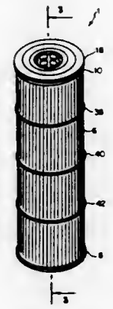
1. A water treating biological film apparatus comprising a first tank means, a first continuous-pore ceramic element means disposed in said first tank means comprising 65 to 93 weight % SiO_2, 5.2 to 15.2 weight % Al_2O_3 and 0.1 to 0.7 weight % Fe_2O_3 and being operable to treat said water in said first tank means with an aerobic biological film for BOD treatment, a second tank means receiving the BOD treated water from said first tank means and circulating said BOD treated water to centrifugally separate sludge therefrom, a third tank means receiving the water from said second tank means, and second continuous-pore ceramic element means in said second tank means comprising 65 to 93 weight % SiO_2, 5.2 to 15.2 weight % Al_2O_3 and 0.1 to 0.7 weight % Fe_2O_3 and being operable to treat said water in said third tank means with a facultatively anaerobic film for COD treatment.

5,211,845
FILTER HOUSING
Noritsugu Kaneshige, Nara, Japan, assignor to Aska Corporation, Osaka, Japan
Filed Feb. 25, 1992, Ser. No. 839,893
Claims priority, application Japan, Oct. 16, 1991, 3-267499
Int. Cl.[5] B01D *35/18*
U.S. Cl. 210—186 5 Claims



1. A filter housing comprising: a body defining an opening and an interior; an inlet communicating with the interior of said body and through which material to be filtered in the housing can be introduced into said body; an outlet communicating with the interior of said body and through which filtrate is discharged from the housing; a lid detachably mounted on said body and closing said opening of said body, said lid including a jacket and a vapor-liquid two-phase heating medium sealed in said jacket; and an electromagnetic induction heating means, including an induction coil, for heating said heating medium to heat said lid.

5,211,846
REPLACEMENT FILTER CARTRIDGE ASSEMBLY
Leonard B. Kott, and Aaron D. Kott, both of N. Massapequa, N.Y., assignors to Pleatco Electronic & Filter Corp., West Babylon, N.Y.
Filed Jul. 30, 1990, Ser. No. 559,321
Int. Cl.[5] B01D *27/06*
U.S. Cl. 210—232 16 Claims



1. A replacement filter cartridge assembly for use in filtering a liquid, which comprises:
a filter cartridge element, the filter cartridge element including opposite first and second non-porous, rigid end caps and a pleated filter medium interposed between the end caps and arranged in a cylindrically shaped configuration to define a central bore extending longitudinally through the filter cartridge element, the first end cap having opposite inner and outer surfaces, and the second end cap having opposite inner and outer surfaces, the second end cap having an opening formed through the thickness thereof and being in communication with the central bore, the first and second end caps providing longitudinal support to the pleated filter medium; and
a reusable supporting core assembly, the supporting core assembly including a tubular core having opposite first and second ends, and further including a sealing end cap mounted on the second end thereof, the sealing end cap having opposite inner and outer surfaces, the outer diameter of the tubular core being less than the inner diameters of the second end cap opening and the central bore of the filter cartridge element to allow the tubular core to be received by the central bore and to allow the supporting core assembly to be removably mounted on the filter cartridge element, the outer diameter of the tubular core substantially contacting the pleated filter medium of the filter cartridge element to provide lateral support to the pleated filter medium when the supporting core assembly is mounted thereon, the tubular core having a predetermined length such that the first end thereof is engagable with the inner surface of the first end cap of the filter cartridge element, and the inner surface of the sealing end cap is engagable with the outer surface of the second end cap of the filter cartridge element thereby providing longitudinal support to the filter cartridge element when the supporting core assembly is mounted thereon, the sup-

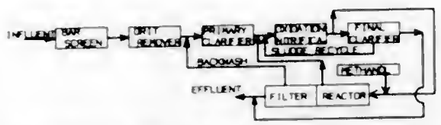
VOL 1150 ISS 3 MY 18 1993 UMI

porting core assembly being mountable on the filter cartridge element and removable therefrom for reuse.

5,211,847
DENITRIFICATION METHODS

Peter E. Kanow, Richmond, Va., assignor to Infilco Degremont Inc., Richmond, Va.

Division of Ser. No. 688,472, Apr. 22, 1991. This application Jul. 20, 1992, Ser. No. 915,540
Int. Cl.[5] C02F *3/04*
U.S. Cl. 210—610 4 Claims



1. An improved method for the multi-stage treatment of influent water for biological denitrification of and suspended solids removal therefrom which comprises:

providing a vertically extending zone containing vertically extending rigid media panels supporting denitrifying bacterial growths,

adding carbon source to said influent water,

introducing said carbon source containing influent water into said zone so as to flow upwardly therein and contact said denitrifying bacterial growths,

removing denitrified water from said zone at a level above said media panels,

aerating said denitrified water to produce aerated water containing suspended solids,

removing suspended solids from said aerated water to form clarified water by passing it downward through a filter divided into a plurality of seriate rectangular cells containing particulate filter media, and

discharging said clarified water from said filter at a level below said cells.

5,211,848
PROCESS FOR THE MICROBIAL DETOXIFICATION OF TOXIC STREAMS

David D. Friday, and Ralph J. Portier, both of Baton Rouge, La., assignors to Board of Supervisors of Louisiana State University Agricultural and Mechanical College, Baton Rouge, La.

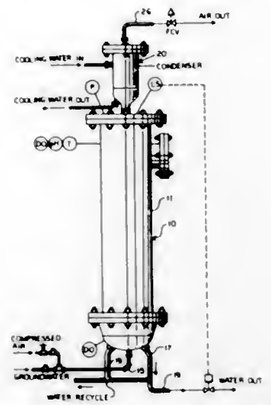
Division of Ser. No. 519,793, May 7, 1990, abandoned. This application Sep. 5, 1991, Ser. No. 759,046
Int. Cl.[5] C02F *3/10*
U.S. Cl. 210—611 9 Claims

1. A process for the detoxification of an aqueous stream containing a toxic organic compound by microbial attack to biodegrade the toxic organic compound, and detoxify the liquid component of the stream, which comprises

pretreating said toxic aqueous stream by dilution with water, as necessary, adding nutrients to optimize the concentration of the toxic organic compound and nutrient concentration, and adjusting temperature and pH, to condition the liquid stream for microbial attack on the toxic organic compound by microorganisms selected to biodegrade said toxic organic compound,

sparging the conditioned liquid stream with an oxygen-containing gas to oxygenate said liquid stream, introducing said oxygenated liquid stream as an influent under pressure into a first zone at high gas shear, without agitation sufficient to strip any substantial amount of the toxic organic compound from the liquid stream,

passing the oxygenated conditioned liquid stream under pressure through a second zone containing a fixed bed of a biocatalyst constituted of a porous carrier on which is attached, and immobilized, a microorganism selected to biodegrade said toxic compound at the conditions extant in said second zone, and

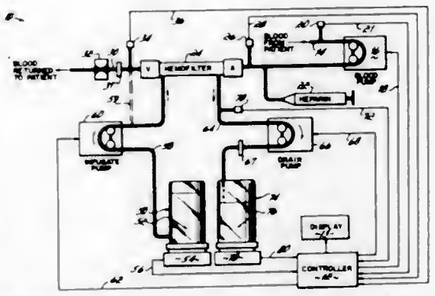


removing from said second zone the liquid stream denuded at least in part of the toxic organic compound.

5,211,849
HEMOFILTRATION SYSTEM AND METHOD

Yuli Kitaevich, Milford; Nat Hemasilpin, Fairfield; J. Gabriel Marchevsky, Cincinnati; John J. Bissler, Cincinnati; George Benzing, III, Cincinnati, and Paul T. McEnery, Cincinnati, all of Ohio, assignors to Children's Hospital Medical Center, Cincinnati, Ohio

Filed Oct. 11, 1991, Ser. No. 775,183
Int. Cl.[5] B01D *61/00*
U.S. Cl. 210—645 11 Claims



6. Hemofiltration method for removal of fluid from the blood of a patient, comprising:

pumping blood from a patient through hemofiltration means and back to the patient;

maintaining a supply of infusate in a first reservoir;

pumping the infusate to the hemofiltration means;

monitoring the weight of the infusate and generating signals correlated thereto;

pumping drained fluid from the hemofiltration means into a second reservoir;

monitoring the weight of the drained fluid and generating signals correlated thereto;

controlling the pumping of the blood, infusate and drained fluid by means of a computer programmed to operate the pumps for infusate and drained fluid only when the blood is being pumped, said computer being responsive to the infusate and drained fluid weight signals;

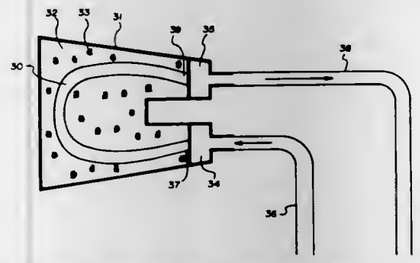
said blood pumping operation being responsive to signals generated by said computer to vary the flow rate of the blood through the hemofiltration means; and

determining, at regular intervals, the weight of infusate in the first reservoir and the weight of drained fluid in the second reservoir, comparing those weights to corresponding predetermined ideal weights and adjusting the rates of pumping the infusate and drained fluid so as to remove a preselected amount of fluid from the blood.

5,211,850
PLASMA FILTER SORBENT SYSTEM FOR REMOVAL OF COMPONENTS FROM BLOOD

Udipi Shettigar, and James C. McRea, both of Midvale, Utah, assignors to Research Medical, Inc., Midvale, Utah

Filed Jul. 26, 1991, Ser. No. 736,405
Int. Cl.[5] B01D *61/00, 63/02*
U.S. Cl. 210—645 23 Claims



17. A method for the selective removal of targeted plasma components from blood which comprises

(a) providing a blood circulation and filtration system having (1) a closed plasma chamber filled with an electrolyte plasma chamber solution containing one or more sorbents which have an affinity for and bind said targeted plasma components, (2) a "U" shaped hollow fiber membrane plasma filter having an inlet arm and an outlet arm and immersed in said plasma chamber solution in said closed plasma chamber, (3) means for securing said inlet arm and outlet arm of said fiber filter in said plasma chamber and closing said chamber, (4) circulation means for directing blood into said inlet arm, through said filter and out through said outlet arm;

(b) directing blood by said circulation means from a source into said inlet arm, through said filter and out said exit arm at a volume and velocity which permits the convective and diffusive transport of plasma from said blood across said filter membrane along the inlet arm of said filter into said plasma chamber solution,

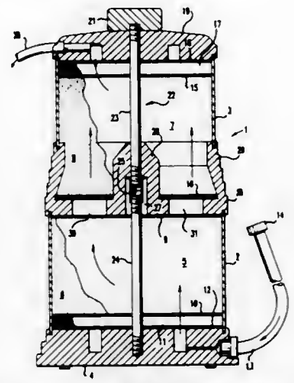
(c) causing said plasma in said plasma chamber solution to come into contact with said sorbents where said targeted plasma components are selectively bound to said sorbents; and

(d) causing said non-targeted plasma components to pass by diffusive and convective transport from said plasma chamber solution across the filter membrane back into the blood along the outlet arm of said filter and out of said system.

5,211,851
WATER CONDITIONING APPARATUS AND METHOD FOR CONDITIONING WATER

Wilhelm Meurer, 65 Wynford Heights Crescent, Appt. 1705, Don Mills, Ontario, Canada M3C 1L7

Filed Oct. 31, 1991, Ser. No. 786,173
Claims priority, application Fed. Rep. of Germany, Oct. 31, 1990, 4034638; Nov. 8, 1990, 4035563
Int. Cl.[5] C02F *1/42;* B01D *24/10, 35/30*
U.S. Cl. 210—670 12 Claims



1. A water conditioning apparatus for removing contaminating materials from water, comprising a casing with a cover, shell and bottom, a water conditioning outlet in the cover, a pipe connection to a contaminated water inlet at the bottom, and activated carbon and anion exchange material located in said casing, through which the contaminated water to be conditioned flows in the direction from the contaminated water inlet to the water outlet, where conditioned water is discharged, wherein

(a) the casing comprises a lower portion housing a first chamber filled with activated carbon and an upper portion housing a second chamber filled with anion exchange material, and

(b) a first filter fleece is disposed at the top of each of said first and second chambers, and a second filter fleece is disposed at the bottom of each of said chambers,

and wherein an impermeable two-part shaft having a first rod section and a second rod section is provided in the center axis of the casing; the first rod section of the shaft extends through the second chamber and through the cover and forms a handle; further provided is a connection between the second rod section and the first rod section of the shaft; the second rod section extends through the first chamber, and is releasably connected with the bottom of the apparatus.

5,211,852
PROCESS FOR REMOVAL OF METAL IONS FROM WATER

Richard H. Van de Walle, Columbia; Mark T. Wajer, Baltimore, both of Md., and David M. Smith, Kearneysville, W. Va., assignors to Martin Marietta Magnesia Specialties Inc., Hunt Valley, Md.

Continuation-in-part of Ser. No. 635,676, Dec. 28, 1990, abandoned. This application Dec. 23, 1991, Ser. No. 812,801
Int. Cl.[5] C02F *1/28*
U.S. Cl. 210—678 32 Claims

1. A process for the removal of metal ions from water, which process comprises filtering the water through a bed of granular hardburned or lightburned magnesium oxide.

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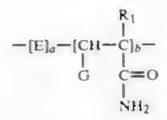
5,211,853
METHOD FOR THE REMOVAL OF CHROMIUM COMPOUNDS FROM AQUEOUS SOLUTIONS
John R. Jackson, and Charles L. Pitzer, both of Wilmington, N.C., assignors to Huron Tech Corp., Delco, N.C.
Filed Jul. 31, 1992, Ser. No. 923,378
Int. Cl.[5] C02F *1/62*
U.S. Cl. 210—713 12 Claims



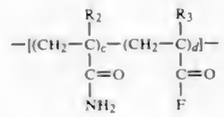
1. A process for the removal of at least one compound containing chromium in the divalent, trivalent, or hexavalent state in a first aqueous solution, said process comprising:
(A) adding to said first aqueous solution a reducing agent selected from the group consisting of hydroxylamine, an addition compound thereof, and a salt thereof in at least a stoichiometric amount of the amount required to react with the chromium ions in said first aqueous solution and reacting at an elevated temperature and a neutral or an acid pH in order to precipitate solid particles of at least one compound containing chromium in the trivalent state, the divalent state or mixtures thereof in said first, aqueous solution and
(B) separating said solid particles from said first aqueous solution to obtain a second aqueous solution containing about 10 parts per million or less of total chromium ion.

5,211,854
WATER SOLUBLE GRAFT COPOLYMERS AND METHODS OF USE THEREOF
Wen P. Liao, Warminster, and Fu Chen, Newtown, both of Pa., assignors to Betz Laboratories, Inc., Trevose, Pa.
Filed Apr. 25, 1991, Ser. No. 691,206
Int. Cl.[5] C02F *1/56;* C08F *265/10*
U.S. Cl. 210—734 12 Claims

1. A method of dewatering wastewater comprising adding to the wastewater from about 10 ppm to about 1000 ppm, based on active polymer, of a water soluble graft copolymer having the structure:

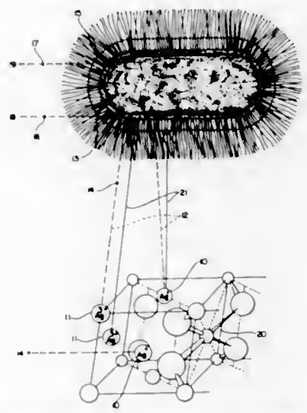


wherein E is the repeat unit obtained after polymerization of an α,β ethylenically unsaturated compound, the molar percentage of a:b is from about 95:5 to 5:95 with the proviso that the sum of a and b equals 100%, G comprises the structure:



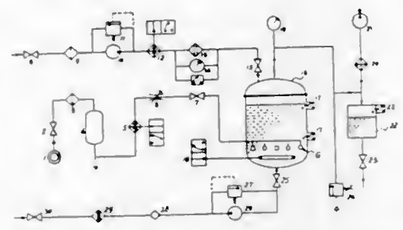
wherein R_1, R_2 and R_3 are the same or different and are hydrogen or a lower alkyl group having C_1 to C_3, F is the salt of an ammonium cation and the molar percentage of c:d is from 95:5 to 5:95 with the proviso that the sum of c and d euqals 100%.

5,211,855
METHOD OF TREATING WATER EMPLOYING TETRASILVER TETROXIDE CRYSTALS
Marvin S. Antelman, Rehovot, Israel, assignor to N. Jonas & Co., Inc., Bensalem, Pa.
Filed Jan. 24, 1992, Ser. No. 825,623
The portion of the term of this patent subsequent to May 21, 2008, has been disclaimed.
Int. Cl.[5] C02F *1/50*
U.S. Cl. 210—758 4 Claims



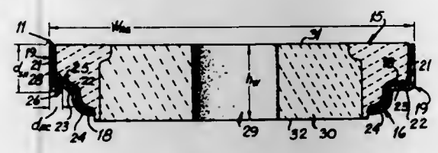
1. A method for killing pathogens including bacteria, viruses and algae in utilitarian water bodies including the water of swimming pools, industrial cooling towers, hot tubs and drinking supply reservoirs, which comprises adding to the water a multitude of tetrasilver tetroxide molecular crystals which are capable of electrocuting said pathogens via an electron transfer mechanism involving their molecular structure in the presence of oxidizing agents.

5,211,856
METHOD OF OIL/WATER SEPARATION AND DEVICE FOR PURIFICATION OF OIL
Hanshi Shen, Shanghai Petro-Chemical Complex, Research & Development Dept. Jin Shan Wei, Shanghai, China
Filed Mar. 6, 1992, Ser. No. 846,940
Int. Cl.[5] B01D *17/02*
U.S. Cl. 210—799 8 Claims



1. A method for separating a liquid oil/water mixture under vacuum, comprising the steps of:
introducing purified and fully diffused gas into the liquid oil/water mixture to produce a large amount of concentrated fine gas bubbles;
turning the liquid oil/water mixture into a gas/liquid two-phase state, thus speeding up the oil/water separation process.

5,211,857
GATE SAFETY ARRANGEMENT
David M. Brinker, Watervliet, Mich., assignor to Leco Corporation, Augusta, Ga.
Filed Oct. 31, 1990, Ser. No. 606,163
Int. Cl.[5] B22D *41/24*
U.S. Cl. 222—600 22 Claims



1. A gate for use in a valve mechanism equipped with side rails and a loading opening through which the gate is loaded into the mechanism along the side rails and through the loading opeining to a loaded position along a loading path, said gate comprising:
a) a metal retainer having a generally rectilinear shape, said retainer defining:
a first central axis therethrough,
a pair of opposed loading sides thereon generally parallel to said first central axis, and
a leading end thereon; and,
b) an asymmetrical guide surface associated with one of said loading sides of said retainer to engage the valve mechanism and cause said retainer to interfere with the valve mechanism about the loading opening as said gate is being moved along the slide rails toward the loaded position thus preventing said gate from being loaded into the loaded position along the loading path when said leading end of said retainer is trailing said gate as said gate is being loaded, and not engaging said valve mechanism so as to not interfere with the valve mechanism about the loading opening as said gate is being moved along the slide rails toward the loaded position thus permitting said gate to be loaded into the loaded position along the loading path when when said retainer has a prescribed orientation with respect to the loading path with said leading end leading as said gate is moved toward said loaded position in said valve mechanism.

5,211,858
LANTHANIDE-CROSSLINKED POLYMERS FOR SUBTERRANEAN FLUID CONTAINMENT
Hoai T. Dovan, Yorba Linda, and Richard D. Hutchins, Placentia, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.
Division of Ser. No. 696,625, May 7, 1991, Pat. No. 5,111,886.
This application Feb. 26, 1992, Ser. No. 842,215
Int. Cl.[5] E02D *29/00;* C09K *3/00*
U.S. Cl. 252—8.551 19 Claims

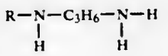
1. A method for inhibiting the migration of a hazardous acid plume through a subterranean stratum, the method comprising the step of injecting into at least a portion of the acid plume a slug of a composition capable of forming a gel, the composition comprising:
(a) a crosslinkable polymer; and
(b) a lanthanide.
19. A system for inhibiting the migration of a hazardous acid plume, the system comprising:
(a) an acid plume present in at least a portion of a subterranean stratum;
(b) a well bore penetrating at least a portion of the subterranean stratum; and
(c) a composition present in at least a portion of the well bore, the composition comprising:
(a) a crosslinkable polymer; and
(b) a lanthanide.

5,211,859
LOW PH FRACTURING COMPOSITIONS
Robert L. Horton, and D. V. Satyanarayana Gupta, both of The Woodlands, Tex., assignors to The Western Company of North America, Houston, Tex.
Filed Nov. 26, 1991, Ser. No. 797,966
Int. Cl.[5] E21B *43/26*
U.S. Cl. 252—8.551 15 Claims

1. A process for fracturing a subterranean formation which comprises:
introducing into said formation an aqueous gel at a flow rate and pressure sufficient to produce a fracture in said formation, said aqueous gel comprising:
an aqueous fluid comprising water and up to about 80 percent alcohol by volume of the aqueous fluid;
a gelling agent comprising a solvatable polysaccharide having a molecular weight in excess of about 100,000 selected from the group consisting of glucomannans, galactomannans, said gelling agent being present in an amount of from about 0.2 to about 1.25 percent by weight of said aqueous fluid;
a buffer which can maintain the pH of the gel in the range of about 2.0 to about 4.5;
an aluminum-based crosslinking composition comprising water, aluminum carboxylates, acetic acid and an agent capable of chelating aluminum, wherein said aluminum carboxylates are selected from the group consisting of salts of the homologous series comprising formic, acetic, propionic, and butyric acids, oxalic, malonic, and succinic acids, citric acid, glyoxylic acid, glycolic acid, o-, m- or p-phthalic acids and glucuronic acid; and
a crosslinking retardant composition selected from the group consisting of xanthan gum and a slurry of xanthan gum in water.

5,211,860
GREASE COMPOSITION
John P. Doner, Sewell; Andrew G. Horodysky, Cherry Hill, and John A. Keller, Pitman, all of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.
Continuation-in-part of Ser. No. 614,564, Nov. 14, 1990, Pat. No. 5,084,194, which is a continuation of Ser. No. 14,091, Jul. 28, 1987, abandoned, which is a continuation of Ser. No. 861,738, May 7, 1986, abandoned, which is a continuation of Ser. No. 774,873, Sep. 12, 1985, abandoned, which is a continuation of Ser. No. 641,077, Aug. 15, 1984, abandoned, which is a continuation-in-part of Ser. No. 587,328, Mar. 7, 1984, abandoned. This application Jan. 27, 1992, Ser. No. 825,683
The portion of the term of this patent subsequent to Jan. 28, 2009, has been disclaimed.
Int. Cl.[5] C10M *117/04, 139/00*
U.S. Cl. 252—32.7 E 23 Claims

1. A method of improving the dropping point of a grease composition comprising blending a major proportion of (1) a grease vehicle, (2) from about 0.01% to about 10% by weight of a means for increasing the dropping point of the grease composition comprising the reaction product made by reacting an amine of the formula



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wherein R is a hydrocarbon group containing from 6 to 20 carbon atoms with boric acid, and (3) a thickener containing at least about 15% by weight of a 12-hydroxy-stearate thickener.

5,211,861

LIQUID AQUEOUS COMPOSITIONS COMPRISING PERFLUOROPOLYETHEREAL COMPOUNDS SUITABLE AS LUBRICANTS IN THE PLASTIC PROCESSING OF METALS

Pietro Lafratta, and Alba Chittofrati, both of Milan, Italy, assignors to Ausimont S.r.l., Milan, Italy

Continuation-in-part of Ser. No. 409,051, Sep. 19, 1989, abandoned. This application Jan. 22, 1991, Ser. No. 643,269
Claims priority, application Italy, Sep. 19, 1988, 21998 A/88
Int. Cl.[5] C10M *173/00, 131/10, 131/12, 147/00*
U.S. Cl. 252—33.6 6 Claims

1. A method for the cold plastic processing of metals, comprising:

introducing a lubricating/refrigerating liquid in a cold processing machine; and

processing the metal in said machine in contact with the above said liquid, said liquid being an aqueous composition comprising from 1 to 40% by weight of a perfluoropolyether having an average molecular weight ranging from 400 to 5,000, with end groups of the perfluoropolyethereal chain selected from the group consisting of perfluoroalkyls, carboxylic acids, carboxylic acid salts and mixtures thereof.

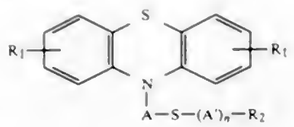
5,211,862

SUBSTITUTED N-THIOMETHYLPHENOTHIAZINES AS LUBRICANT STABILIZERS

John D. Spivack, Spring Valley, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 315,257, Feb. 21, 1989, abandoned, which is a continuation of Ser. No. 948,272, Dec. 31, 1986, abandoned. This application Feb. 16, 1990, Ser. No. 481,771
Int. Cl.[5] C10M *135/36*
U.S. Cl. 252—47.5 6 Claims

1. A lubricant composition consisting essentially of a mineral oil or a synthetic oil or mixtures thereof and an effective stabilizing amount of a compound of the formula



wherein

R_1 are independently hydrogen, alkyl of 1 to 24 carbon atoms, cycloalkyl of 5 to 7 carbon atoms or aralkyl of 7 to 9 carbon atoms;

A is methylene and A' are independently akylene of 1 to 8 carbon atoms;

n is 0 or 1; and

R_2 is alkyl of 1 to 18 carbon atoms, cycloalkyl of 5 to 7 carbon atoms, said cycloalkyl substituted by alkyl of 1 to 18 carbon atoms, phenyl, phenyl substituted by alkyl, alkoxy or thioalkyl to a total carbon atom content of 7 to 30, naphthyl or naphthyl substituted by alkyl, alkoxy or thioalkyl to a total carbon atom content of 11 to 40.

5,211,863

GREASE COMPOSITION

John P. Doner, Sewell; Andrew G. Horodysky, Cherry Hill, and John A. Keller, Jr., Pitman, all of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation-in-part of Ser. No. 831,073, Feb. 18, 1986, abandoned, Ser. No. 792,168, Oct. 25, 1985, abandoned, Ser. No. 774,873, Sep. 12, 1985, abandoned, Ser. No. 769,826, Aug. 27, 1985, abandoned, Ser. No. 769,827, Aug. 27, 1985, abandoned, Ser. No. 769,837, Aug. 27, 1985, abandoned, Ser. No. 769,912, Aug. 27, 1985, abandoned, Ser. No. 643,346, Aug. 22, 1984, Pat. No. 4,600,517, Ser. No. 641,078, Aug. 15, 1984, abandoned, Ser. No. 641,079, Aug. 15, 1984, Pat. No. 4,582,617, Ser. No. 638,609, Aug. 7, 1984, abandoned, and Ser. No. 319,841, Mar. 7, 1989, Pat. No. 4,961,868, said Ser. No. 831,073, is a continuation of Ser. No. 643,344, Aug. 22, 1984, abandoned, said Ser. No. 792,168, is a continuation of Ser. No. 643,347, Aug. 22, 1984, abandoned, said Ser. No. 774,873, is a continuation of Ser. No. 641,077, Aug. 15, 1984, abandoned, which is a continuation-in-part of Ser. No. 587,328, Mar. 7, 1984, abandoned, said Ser. No. 769,826, is a continuation-in-part of Ser. No. 682,579, Dec. 17, 1984, abandoned, which is a continuation of Ser. No. 445,883, Dec. 1, 1982, abandoned, said Ser. No. 638,609, is a division of Ser. No. 456,880, Jan. 10, 1983, Pat. No. 4,486,321, said Ser. No. 641,078, is a continuation-in-part of Ser. No. 577,454, Feb. 6, 1984, abandoned, said Ser. No. 641,079, is a continuation-in-part of Ser. No. 519,878, Aug. 3, 1983, abandoned. This application Oct. 9, 1990, Ser. No. 594,175
The portion of the term of this patent subsequent to May 4, 2099, has been disclaimed.
Int. Cl.[5] C10M *139/00*
U.S. Cl. 252—49.6 42 Claims

1. An improved grease composition comprising a major proportion of a lubricating component and:

(a) a borated derivative of an organic compound;

(b) an alkali or alkaline earth metal or amine derivative of a hydroxy-containing or polyhydroxy-containing soap thickener; said borated organic compound and said hydroxy-containing thickener each being present in an amount sufficient to increase the dropping point over the dropping point of a grease without said borated organic compound and

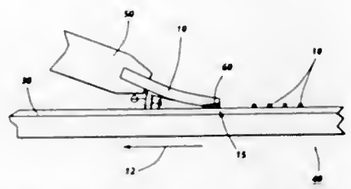
(c) a non-zinc dithiophosphate phosphorus and sulfur compound.

5,211,864

POLYMERIC ALCOHOLS WAX/TONER CLEANING BLADE LUBRICANT

Ronald E. Godlove, Bergen, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 3, 1991, Ser. No. 753,498
Int. Cl.[5] C10M *129/04*; G03G *15/08*
U.S. Cl. 252—52 R 19 Claims



1. A method of lubricating a cleaning blade edge prior to machine start-up and prior to contact between the cleaning blade edge and a photoreceptor used in a printing machine of the type having images developed thereon, comprising the steps of:

forming a slurry from a polymeric alcohol and toner in an evaporatable solution; and

applying the slurry to the cleaning blade edge before an edge of the cleaning blade contacts the photoreceptor used in the printing machine.

5,211,865

MULTIFUNCTIONAL VISCOSITY INDEX IMPROVER-DISPERSANT ANTIOXIDANT

Abhimanyu O. Patil, Westfield, and Robert D. Lundberg, Bridgewater, both of N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Continuation of Ser. No. 490,802, Mar. 8, 1990, abandoned. This application Jul. 24, 1992, Ser. No. 919,635
Int. Cl.[5] C10M *129/76*
U.S. Cl. 252—56 D 21 Claims

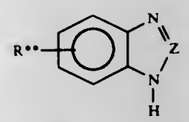
1. Oil soluble additive, useful as a viscosity index improver-dispersant exhibiting improved antioxidant properties for lubricating oil compositions, comprising the reaction products of:

(a) an oil soluble ethylene copolymer comprising from about 15 to 90 wt. percent ethylene and from about 10 to 85 wt. percent of at least one C_3 to C_{28} alpha-olefin, having a number average molecule weight of from about 20,000 to 500,000, grafted with an ethylenically unsaturated carboxylic acid material having 1 or 2 acid anhydride moieties;

(b) organic polyamine having at least two primary amino groups;

(c) an aldehyde; and

(d) a heterocyclic nitrogen reactant comprising at least one heterocyclic compound of the formula:



wherein Z is N, C(H) or C(R•), and R•• is H, —OH, —Cl, —I, or —R•, wherein R• is C_1 to C_{24} hydrocarbyl.

5,211,866

AZEOTROPE-LIKE COMPOSITIONS OF 1-CHLORO-3,3,3-TRIFLUOROPROPANE AND ISOPROPANOL

Ellen L. Swan, Ransomville; Rajat S. Basu, Williamsville, and Richard M. Hollister, Buffalo, all of N.Y., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Nov. 26, 1991, Ser. No. 799,511
Int. Cl.[5] C09K *3/30, 5/04*; C11D *7/30*; C23G *5/028*
U.S. Cl. 252—67 10 Claims

1. Azeotrope-like compositions consisting essentially of from about 99.9 to about 91.5 weight percent 1-chloro-3,3,3-trifluoropropane and from about 0.1 to about 8.5 weight percent isopropanol which boil at about 44.5° C. at 760 mm Hg, wherein the azeotrope-like components of the composition consist of 1-chloro-3,3,3-trifluoropropane and isopropanol.

5,211,867

AZEOTROPE-LIKE COMPOSITIONS OF PENTAFLUOROETHANE AND 1,1,1-TRIFLUOROETHANE

Ian R. Shankland; Theodore Atwood, both of Williamsville; Earl A. E. Lund, West Seneca, and Hang T. Pham, North Tonawanda, all of N.Y., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Continuation of Ser. No. 372,985, Jun. 28, 1989, abandoned. This application Jul. 30, 1991, Ser. No. 741,202
Int. Cl.[5] C09K *5/04*
U.S. Cl. 252—67 15 Claims

1. Azeotrope-like compositions consisting essentially of from 60 to about 38.4 weight percent pentafluoroethane and from 40 to about 61.6 weight percent 1,1,1-trifloroethane which have a vapor pressure below that of both pentafluoroethane and 1,1,1-trifluoroethane at −10° F., wherein the azeotrope-like components consist of said pentafluoroethane and 1,1,1-trifluoroethane.

5,211,868

DIHYDROGEN ORTHOPHOSPHATE DEICING COMPOSITION

Donald T. Ireland, Delano, and Nancy L. Lucas, Minneapolis, both of Minn., assignors to Cargill, Incorporated, Minneapolis, Minn.

Continuation-in-part of Ser. No. 572,174, Aug. 23, 1990, abandoned. This application Aug. 21, 1991, Ser. No. 748,000
Int. Cl.[5] C09K *3/18*
U.S. Cl. 252—70 16 Claims

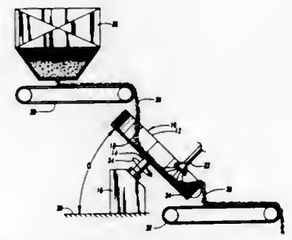
1. A deicing composition comprising NaCl in an amount effective for deicing and a water soluble dihydrogen orthophosphate in an amount effective for the reduction of corrosion of ferrous metal by an aqueous solution of NaCl and a water soluble magnesium salt in amount effective to aid the dihydrogen orthophosphate in the reduction of corrosion of ferrous metal by the aqueous solution of NaCl, wherein the dihydrogen orthophosphate is selected from the group consisting of NaH_2PO_4, KH_2PO_4, $(NH_4)H_2PO_4$, hydrated forms of the dihydrogen orthophosphate and mixtures thereof.

5,211,869

PAN AGGLOMERATED DEICER COMPOSITIONS

Norbert J. Steinhauser, Dubuque, and Kenneth C. Ossian, Bluegrass, both of Iowa, assignors to Ossian, Inc., Davenport, Iowa

Filed Jul. 26, 1991, Ser. No. 736,739
Int. Cl.[5] C09K *3/18*
U.S. Cl. 252—70 5 Claims



1. A method of forming a deicer composition, said method comprising:

forming a mixture of halide salts of metals selected from the group consisting of alkali and alkaline earth metals;

grinding said mixture of salts to a fine powder, and pan agglomerating said mixture using a magnesium chloride salt solution as an agglomerating fluid, and conventional removal of moisture with hot air to form dried, uniform, homogenous agglomerates.

5,211,870

MALODOR-FREE CLEANSING BAR COMPOSITION CONTAINING ZEOLITE ODOR CONTROLLING AGENT

Lawrence A. Gilbert, West Chester; Danielle L. Fieldstad, Cincinnati; Sherri V. Cox, West Chester; Diane L. Furio, Cincinnati; Wayne E. Eccard, Cleves, and Neil W. Jordan, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 11, 1992, Ser. No. 850,173
Int. Cl.[5] A61K *7/50*; C11D *3/12, 9/20, 17/00*
U.S. Cl. 252—120 12 Claims

1. A personal cleansing bar composition essentially free of raw material malodors comprising:

A. an odor-controlling amount of intermediate ratio (SiO_2:Al_2O_3)Y zeolite;

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B. from about 4% to about 32% of essentially saturated long chain (C_{15}-C_{22} alkyl) synthetic surfactant selected from the group consisting of: alkyl sulfate, acyl isethionate, alkyl sarcosinate, alkyl glyceryl ether sulfonate, and mixtures thereof;

C. from about 4% to about 30% of paraffin wax having a melting point of from about 130° F./54° C. to about 180° F./82° C.;

D. from about 20% to about 70% lathering mild synthetic surfactant; and wherein said lathering mild synthetic surfactant is selected from C_{12}-C_{18} acyl isethionate, C_{12}-C_{14} alkyl glyceryl ether sulfonate, C_{12}-C_{18} acyl sarcosinate, and mixtures thereof and wherein at least about 10% of said bar is said mild lathering C_{12}-C_{18} acyl isethionate;

E. from about 2% to about 30% free fatty acid;

F. from 0% to about 15% soap;

G. from about 2% to about 8% sodium isethionate;

H. from 0% to about 2% sodium chloride;

I. from about 1.5% to about 10% water; and

J. from 0% to about 5% of a polymer.

12. A personal cleansing bar comprising an effective amount of a malodor absorbing zeolite and:

A. from about 4% to about 32% of essentially saturated long chain (C_{15}-C_{22}) synthetic surfactant selected from the group consisting of: alkyl sulfate, acyl isethionate, alkyl sarcosinate, alkyl glyceryl ether sulfonate, and mixtures thereof;

B. from about 4% to about 30% of paraffin wax having a melting point of from about 130° F./54° C. to about 180° F./82° C.;

C. from about 20% to about 35% lathering mild synthetic surfactant selected from C_{12}-C_{18} acyl isethionate, C_{12}-C_{14} alkyl glyceryl ether sulfonate, C_{12}-C_{18} sodium acyl sarcosinate, and mixtures thereof; and wherein at least about 10% of said bar is said mild lathering C_{12}-C_{18} acyl isethionate;

D. from about 2% to about 30% free fatty acid; wherein said fatty acid is selected from the group consisting of stearic and lauric acids; wherein the ratio of said stearic acid to said lauric acid is from about 0:1 to about 2:1, and mixtures thereof;

E. from about 2% to about 15% soap;

F. from about 2% to about 8% sodium isethionate;

G. from 0% to about 2% sodium chloride;

H. from about 1.5% to about 10% water;

I. from 0% to about 5% of cationic polymer;

J. from 0% to about 2% perfume; and

wherein said bar has a pH of from about 4.0 to about 9.0.

5,211,871

WATER TREATMENT AGENT

James D. Birchall, Mouldsworth, England, assignor to Imperial Chemical Industreis PLC, London, England

Division of Ser. No. 828,111, Jan. 30, 1992, Pat. No. 5,149,439.
This application Jun. 22, 1992, Ser. No. 901,974
Claims priority, application United Kingdom, Feb. 11, 1991, 9102796
Int. Cl.[5] C02F *1/62*
U.S. Cl. 252—175 9 Claims

1. An agent for the treatment of water containing dissolved aluminium which agent comprises a particulate alkali metal or quaternary ammonium silicate, the particles having a coating of a water-insoluble silicate over at least a part of their surface.

5,211,872

COMPOSITION FOR DETOXIFYING AMMONIA AND CHLORAMINE IN AQUATIC ENVIRONMENTS AND METHOD OF MAKING THE SAME

Joel M. Goldstein, Ambler; Vina Patel, Lansdale, and Steven J. Wiley, Willow Grove, all of Pa., assignors to Aquarium Pharmaceuticals, Inc., Chalfont, Pa.

Division of Ser. No. 557,252, Jul. 24, 1990, Pat. No. 5,082,573.
This application May 7, 1991, Ser. No. 696,689
Int. Cl.[5] C02F *5/12, 5/10*
U.S. Cl. 252—180 12 Claims

1. A method of preparing a stable, non-toxic solution for detoxifying contaminants in aquatic systems, the contaminants selected from the group consisting of ammonia, chlorine and chloramine, comprising the steps of:

(a) adding water to a reaction vessel;

(b) mixing a polyamine compound with the water, wherein the polyamine compound is present in an amount up to about the saturation point of the polyamine compound in the solution;

(c) acidifying the polyamine compound to form a reaction mixture such that the solution has a pH suitable for aquatic life; and

(d) mixing a dechlorinator with the reaction mixture, wherein the dechlorinator is present in an amount up to about the saturation point of the dechlorinator in the solution.

5,211,873

FINE-CELLED PLASTIC FOAM CONTAINING FLUOROCHEMICAL BLOWING AGENT

Rudolf J. Dams, Antwerp, Belgium; Richard M. Flynn, Mahtomedi, Minn.; Koen Focquet, Antwerp, Belgium, and John G. Owens, Woodbury, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 771,442, Oct. 4, 1991. This application Jul. 21, 1992, Ser. No. 918,207
Int. Cl.[5] C08G *18/14;* C09K *3/00*
U.S. Cl. 252—182.24 12 Claims

1. A blowing agent emulsion comprising:

(a) at least one high molecular weight compound with at least two reactive hydrogen atoms,

(b) blowing agent mixture, wherein said mixture comprises

(1) one or more low boiling, hydrochlorocarbon, and

(2) one or more low boiling, chlorine-free perfluorinated compound, and

(c) fluorochemical surfactant.

5,211,874

STABLE PERACID AND ENZYME BLEACHING COMPOSITION

Blanca L. Haendler, Livermore; Frances E. Mitchell, Pleasanton, and Dale S. Steichen, Livermore, all of Calif., assignors to The Clorox Company, Oakland, Calif.

Continuation of Ser. No. 409,479, Sep. 18, 1989, abandoned, which is a division of Ser. No. 899,461, Aug. 22, 1986, Pat. No. 5,089,167, which is a continuation-in-part of Ser. No. 767,980, Aug. 21, 1985, abandoned, and a continuation-in-part of Ser. No. 792,344, Oct. 28, 1985, abandoned, which is a continuation-in-part of Ser. No. 797,890, Nov. 14, 1985, Pat. No. 4,655,301. This application Nov. 13, 1991, Ser. No. 792,332
Int. Cl.[5] C01B *15/10*
U.S. Cl. 252—186.26 17 Claims

1. A magnesium sulfate/sodium sulfate stabilized noncoated peracid and enzyme bleaching composition, consisting essentially of (a) a combination of said peracid and magnesium sulfate/sodium sulfate in a plurality of discrete granules, in which maximum enzyme stability is achieved when the total water present in said granules is controlled to be present in an amount of about 50 to 70% of the weight of magnesium sulfate component; the weight ratio of magnesium sulfate to peracid being less than 1:1 and in which the mole ratio of sodium sulfate to magnesium sulfate is greater than or equal to about 1:1, and (b) enzymes for hydrolyzing stains.

5,211,875

METHODS AND COMPOSITIONS FOR OXYGEN SCAVENGING

Drew V. Speer; William P. Roberts, both of Columbia, and Charles R. Morgan, Brookeville, all of Md., assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Jun. 27, 1991, Ser. No. 722,067
Int. Cl.[5] C09K *15/02, 15/04;* B29D *22/00*
U.S. Cl. 252—188.28 19 Claims

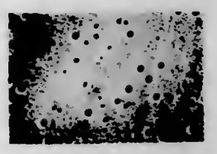
1. A method of scavenging oxygen by a composition which comprises a film comprising an oxidizable organic compound and a transition metal catalyst, wherein the method comprises initiating the oxygen scavenging by exposing the composition to actinic radiation having a wavelength of less than about 750 nm at an intensity of at least about 1.6 mW/cm^2 or an electron beam at a dose of at least about 0.2 megarads, wherein after initiation the oxygen scavenging rate is at least about 0.05 cc oxygen per day per gram of oxidizable organic compound for at least two days after oxygen scavenging is initiated.

5,211,876

POLYMER DISPERSED LIQUID CRYSTAL MATERIAL HAVING AN EXTENDED WAVE-LENGTH RESPONSE

Nuno A. Vaz, West Bloomfield; Thomas H. Van Steenkiste, Washington; George W. Smith, Birmingham, and George P. Montgomery, Jr., Troy, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 29, 1990, Ser. No. 546,290
Int. Cl.[5] C09K *19/52, 19/00;* F21V *9/00;* G02F *1/13*
U.S. Cl. 252—299.01 12 Claims



1. An optically responsive film, comprising:

a thin film of polymer dispersed liquid crystal material capable of scattering light and infrared radiation, said film being responsive to an applied voltage for switching between a light scattering off-state and a substantially clear, transparent on-state;

wherein said liquid crystal material includes a polydisperse distribution of liquid crystalline microdroplet sizes having a first series of droplets with diameters equal to or less than about five micrometers, said first droplet series being at least about 10 percent of the total droplet volume fraction of the liquid crystal material; and

said liquid crystal material furthermore having a second series of droplets with diameters equal to or greater than about 10 micrometers, said second droplet series being at least about 10 percent of the total droplet volume fraction of the liquid crystal material, said first and second droplet series being substantially uniformly dispersed throughout said liquid crystal material.

5,211,877

LIQUID-CRYSTALLINE POLYORGANOSILOXANES CONTAINING (METH) ACRYLOXY GROUPS

Dirk Andrejewski; Magdi Gohary; Hans-Joachim Luckas; Rainer Winkler, all of Munich, and Franz-Heinrich Kreuzer, Martinsried, all of Fed. Rep. of Germany, assignors to Consortium für elektrochemische Industrie GmbH, Munich, Fed. Rep. of Germany

Filed Aug. 31, 1989, Ser. No. 401,261
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1988, 3830592
Int. Cl.[5] C09K *19/52;* C08G *77/04, 77/12;* C07F *7/04*
U.S. Cl. 252—299.01 29 Claims

1. A process for preparing liquid-crystalline polyorganosiloxanes having more than 20 mol percent of crosslinkable methacryloxy and/or acryloxy groups per molecule which is obtained from the reaction of an organosilicon compound selected from the group consisting of an organopolysiloxane having hydrogen atoms bonded directly to silicon atoms, an organosilane having hydrogen atoms bonded directly to silicon atoms and which is capable of being condensed to form organosiloxanes and mixtures thereof, with a compound selected from the group consisting of alkenes, alkynes and mixtures thereof having mesogenic groups which comprises reacting the organosilicon compound in a first step with a compound selected from the group consisting of an alkene, alkyne and mixtures thereof having at least one-non-enolic hydroxyl group protected by a protective group, and in a second step removing the protective group and esterifying the free hydroxyl group with a compound selected from the group consisting of (meth)-acrylic acid, esters, anhydrides, halides thereof, and mixtures thereof with the proviso that if the organosilicon compound is an organosilane, then the organosilane is condensed to an organosiloxane.

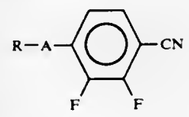
5,211,878

DIFLUOROBENZONITRILE DERIVATIVES

Volker Reiffenrath, Rossdorf; Joachim Krause, Dieburg; Andreas Wächtler, Griesheim; Georg Weber, Erzhausen, and Ulrich Finkenzeller, Plankstadt, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit Beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

Continuation of Ser. No. 321,427, Mar. 9, 1989, abandoned. This application May 14, 1991, Ser. No. 700,955
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1988, 3807806
The portion of the term of this patent subsequent to Mar. 30, 2010, has been disclaimed.
Int. Cl.[5] C09K *19/30, 19/12;* G02F *1/13*
U.S. Cl. 252—299.63 21 Claims

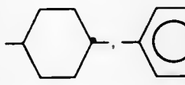
1. In a liquid crystalline phase containing at least two liquid crystalline components, the improvement wherein at least one component is a 2,3-difluorobenzonitrile of the formula



wherein

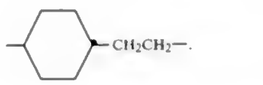
R is alkyl of 1-12 C atoms or alkyl of 1-12 C atoms in which one or two CH_2 groups ar replaced by —O—, —CO—, —O—CO—, and/or —CH=—, where two O atoms are not directly linked with one another, and

A is



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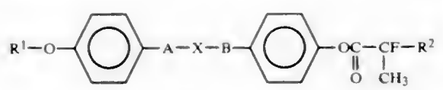
5,211,879

ESTER COMPOUNDS AND LIQUID CRYSTAL COMPOSITIONS CONTAINING THE SAME

Nobuyuki Shiratori; Isa Nishiyama; Atsushi Yoshizawa, and Toshihiro Hirai, all of Toda, Japan, assignors to Nippon Mining Co., Ltd., Tokyo, Japan

Filed Oct. 29, 1990, Ser. No. 604,827
Claims priority, application Japan, Nov. 7, 1989, 1-287994; Jan. 19, 1990, 2-8505; Apr. 13, 1990, 2-96320
Int. Cl.[5] C09K *19/20, 19/34, 19/12;* C07C *69/76*
U.S. Cl. 252—299.67 12 Claims

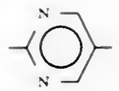
1. An ester compound represented by the following general formula (I):



(I)

, wherein R^1 is a C_1–C_{18} alkyl group and R^2 is a C_1–C_{18} alkyl group and may be the same or not, A and B are selected from a single bond and —COO—, X is selected from

and



5,211,880

PROCESS FOR THE PREPARATION OF AMMONIA SYNTHESIS GAS

Ivar I. Primdahl, Copenhagen, and Giorgio P. Serra, Gentofte, both of Denmark, assignors to Haldor Topsoe A/s, Denmark

Filed Dec. 20, 1991, Ser. No. 812,566
Claims priority, application Denmark, Dec. 21, 1990, 3050/90
Int. Cl.[5] C10J *1/02*
U.S. Cl. 252—376 12 Claims

1. A process for the preparation of raw ammonia synthesis gas, comprising the steps of:

a) steam reforming and/or partially oxidizing a hydrocarbon feedstock containing carbon oxides together with hydrogen and nitrogen in excess of ammonia stoichiometry;

b) dividing the steam reformed and/or partially oxidized hydrocarbon feedstock into a first portion and a second portion;

c) subjecting the first portion to catalytic conversion of hydrogen and carbon oxides contained therein to methanol rich gas;

d) cooling and separating the methanol rich gas from step c) into a liquid methanol phase essentially free of nitrogen and a nitrogen rich purge gas;

e) evaporating and catalytically cracking the methanol phase separated in step (d) to hydrogen and carbon oxide rich gas by endothermic methanol cracking reactions; and

f) recombining the hydrogen and carbon oxide rich gas from step (e) with the second portion of the steam reformed and/or partially oxidized hydrocarbon feedstock from step (b) to obtain raw ammonia synthesis gas containing carbon oxides together with hydrogen and nitrogen in an amount, corresponding to the ammonia stoichiometry.

5,211,881

METHODS AND COMPOSITIONS FOR TREATING METALS BY MEANS OF WATER-BORNE POLYMERIC FILMS

Frank A. Muller, West Los Angeles, and Ronald F. Dubs, Yorba Linda, both of Calif., assignors to Elf Atochem North America, Inc., Philadelphia, Pa.

Filed Jan. 30, 1992, Ser. No. 828,265
The portion of the term of this patent subsequent to Feb. 4, 2009, has been disclaimed.
Int. Cl.[5] C09K *3/00*
U.S. Cl. 252—389.52 5 Claims

1. A formulation for coating the surface of a metal comprising (a) a solution of a thermoplastic or thermosetting acrylic polymer in ammonia water wherein the polymer comprises about 3–20% by weight of the formulation on a dry basis, (b) about 0.05–3.0% of a water-soluble, blocked zirconium or zinc catalyst selected from ammonium zirconium carbonate, an alkanolamine chelate of zirconium oxide, or zinc oxide, (c) a mixture of water and an organic solvent, the solvent comprising about 0.1–5.0% of the formulation, and (d) about 0.1–5.0% of a corrosion additive.

5,211,882

DETERGENT COMPOSITIONS CONTAINING AN N-ALKYLAMINO SULFONIC ACID TYPE SURFACTANT AND NONIONIC SURFACTANT

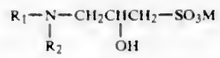
Shuji Tagata, Kaminokawa, and Fumio Sai, Utsunomiya, both of Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Sep. 27, 1990, Ser. No. 588,830
Claims priority, application Japan, Oct. 6, 1989, 1-261749
Int. Cl.[5] C11D *1/28, 1/83, 1/831*
U.S. Cl. 252—545 4 Claims

1. A detergent composition which consists essentially of (a) and (b), and weight ratio of (a) to (b) is in the range of 1/10 to 10/1,

(a) nonionic surfactant in 1–90% by weight of the detergent composition

(b) at least 4% by weight of the detergent composition of an N-alkylamino sulfonic acid type surfactant having the formula (I)



(I)

wherein R_1 is C_6–C_{18} alkyl, alkenyl or hydroxyalkyl, R_2 is hydrogen, C_1–C_{18} alkyl, alkenyl, hydroxyalkyl or $—(CH_2CH_2O)_2—H$ group (n is an integer of from 1 to 10), and M is alkali metal or alkaline earth metal.

5,211,883

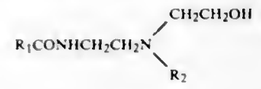
SHAMPOO COMPOSITION

Sahoko Yamashina, Tochigi; Seiichi Kumagai, Funabashi, and Kazuyuki Yahagi, Tokyo, all of Japan, assignors to Kao Corporation, Tokyo, Japan

Division of Ser. No. 507,752, Apr. 12, 1990, Pat. No. 5,077,041. This application Sep. 30, 1991, Ser. No. 767,467
Claims priority, application Japan, Apr. 14, 1989, 1-94495
Int. Cl.[5] C11D *1/90, 1/88, 1/66, 9/36*
U.S. Cl. 252—546 12 Claims

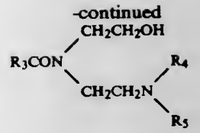
1. An aqueous shampoo composition, comprising:

(A) 1–40% by weight of at least one amidoamine amphoteric surface active agent having the formula (I) or (II):



(I)

-continued



(II)

wherein R_1 and R_3 each independently represents a saturated or unsaturated hydrocarbon group having 7 to 19 carbon atoms, R_2 and R_4 each independently represents a group:

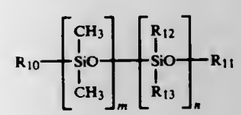
$—CH_2COOM_1$, $—CH_2CH_2COOM_1$, or $—CH_2CHCH_2SO_3M_1$, (OH)

wherein M_1 is a hydrogen atom, an alkali metal, an alkanolamine, and R_5 represents a hydrogen atom, $—CH_2COOM_1$, $—CH_2CH_2COOM_1$, or

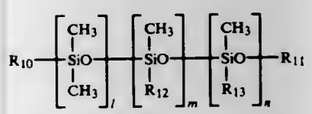
$—CH_2CHCH_2SCM_1$, (OH)

wherein M_1 has the same meaning as defined above;

(B) 0.005–0.3% by weight of a modified silicone polymeric compound having the formula (VI) or (VII):

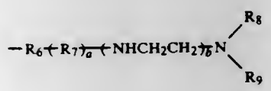


(VI)



(VII)

wherein R_{10} is a methyl group or a hydroxy group, R_{11} is a methyl group or a hydrogen atom, R_{12} is an aminoalkyl group of the formula (III):



(III)

wherein R_6 represents a divalent hydrocarbon group, R_7 represents $—OCH_2CH_2—$,

$—OCHCH_2—$ (CH3), $—OCH_2CHCH_2—$ (OH) or $—OCH_2—CH—$ (CH_2OH),

R_8 and R_9 are individually a hydrogen atom or a monovalent hydrocarbon group, and a and b denote integers of 1–6, R_{13} is a hydroxy group, a hydroxyalkyl group, an oxyalkylene group or a polyoxyalkylene group, and l, m and n are integers depending on the molecular weight; and

(C) 0.01–3% by weight of at least one nonionic polymer.

5,211,884

LUBRICANTS

Thomas F. Buesemann, Zevenhuizen, and Robertus W. Pierik, Krimpen aan den Ijssel, both of Netherlands, assignors to Unilever Patent Holdings BV, Vlaardingen, Netherlands

Filed May 22, 1991, Ser. No. 703,103
Claims priority, application European Pat. Off., May 22, 1990, 90305537.4
Int. Cl.[5] C10M *105/34, 105/38*
U.S. Cl. 252—56 S 9 Claims

1. A lubricant/working fluid composition for mechanical vapor compression type heat transfer devices wherein the working fluid is chlorine-free and the lubricant is an ester or an ester mixture consisting essentially of polyol esterified exclusively with carboxylic acid of at least 4 carbon atoms, and which comprises monocarboxylic acid selected from the group consisting of straight chain acids containing up to 5 carbon atoms and branched chain acids containing up to 8 carbon atoms in sufficient amount such that the ester or ester mixture is miscible with the working fluid at a level of 10% over a temperature range of −50° C. to +80° C. and has a viscosity of from 5 to 100 cSt measured at 40° C.

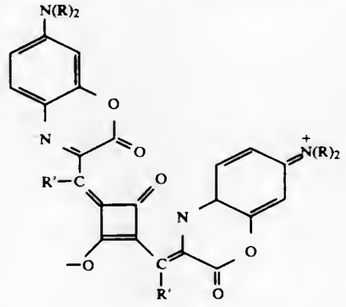
5,211,885

SQUARYLIUM DYES AND PRODUCTS AND PROCESSES USING SAME

Charles M. Zepp, Berlin, Mass., assignor to Steadfast Inc., Cambridge, Mass.

Filed Jun. 17, 1991, Ser. No. 716,250
Int. Cl.[5] F21V *9/04;* C07D *265/02*
U.S. Cl. 252—587 10 Claims

1. An infrared absorbing dye of the formula:



wherein:

each R is hydrogen, alkyl having 1 to 4 carbon atoms or phenyl, including phenyl radicals substituted by one or more alkyl radicals; and

each R′ is hydrogen, alkyl having 1 to 6 carbon atoms, phenyl or phenalkyl.

5,211,886

PREPARATION OF FUNCTIONALIZED POLYMERS UTILIZING A SOLUBLE HIGHLY REACTIVE FORM OF CALCIUM

Reuben D. Rieke, Lincoln, Nebr., assignor to Board of Regents of the University of Nebraska, Lincoln, Nebr.

Filed Aug. 1, 1991, Ser. No. 739,294
Int. Cl.[5] C07F *3/04*
U.S. Cl. 260—665 R 30 Claims

1. A calcium-substituted polymeric compound comprising a polymer substituted with calcium atoms in a covalent interaction, wherein the calcium atoms are derived from a soluble calcium species comprising formally zerovalent calcium metal atoms and a solubilizing agent in an ethereal, polyethereal, or hydrocarbon solvent.

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5,211,887
HIGH PURITY ALKYLLITHIUM COMPOUNDS AND PROCESS OF PREPARATION
Robert C. Morrison, Gastonia; B. Troy Dover, Kings Mountain, and Conrad W. Kamienski, Gastonia, all of N.C., assignors to FMC Corporation, Philadelphia, Pa.
Continuation-in-part of Ser. No. 621,147, Nov. 29, 1990, abandoned. This application Aug. 22, 1991, Ser. No. 749,245
Int. Cl.[5] C07F *1/02*
U.S. Cl. 260—665 R 8 Claims

1. A process for the preparation of alkyllithium compounds by reacting in a liquid organic solvent, in an inert atmosphere a C_2 to C_{18} saturated, acyclic, primary alkyl halide in which the improvement comprises reacting the primary halide with a dispersion of particulate lithium and sodium metals in which there is 5 to 30 mole percent sodium based on the lithium content at a temperature of 0° to a temperature up to but not exceeding the decomposition temperature of the product alkyllithium compound.

5,211,888
CATALYZED HYDROCARBYLLITHIUM PROCESS
Robert C. Morrison, Gastonia; Randy W. Hall, Kings Mountain; James A. Schwindeman, Charlotte; Conrad W. Kamienski, Gastonia, and John F. Engel, Belmont, all of N.C., assignors to FMC Corporation, Philadelphia, Pa.
Continuation-in-part of Ser. No. 736,660, Jul. 26, 1991, abandoned. This application Feb. 27, 1992, Ser. No. 842,944
Int. Cl.[5] C07F *1/02, 3/02, 3/04*
U.S. Cl. 260—665 R 13 Claims

1. A process for alkylating an alkali metal selected from lithium, sodium and potassium with an alkyl halide containing 3 to 20 carbon atoms in which the improvement comprises conducting the reaction in a hydrocarbon solvent in the presence of a catalyst compound represented by the formula

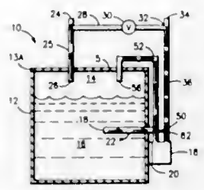
$$(RR^1R^2M^a)_yA(R^3)_x$$

wherein R, R^1 and R^2 are independently selected from hydrogen, halogen, alkyl, and alkenyl groups containing 1 to 13 carbon atoms, cycloalkyl groups containing 3 to 10 carbon atoms, aryl groups containing 6 to 18 carbon atoms, R^3 is independently selected from aryl groups containing 6 to 18 carbon atoms, four to six-membered heterocyclic carbon containing groups containing one to two hetero atoms selected from oxygen, nitrogen, and sulfur; hydroxyalkyl, alkoxyalkyl and monoalkylaminoalkyl and dialkylaminoalkyl groups containing 2 to 13 carbon atoms; M^a is selected from silicon, carbon, germanium, and tin, A is selected from oxygen, sulfur, nitrogen and phosphorus, and x and y independently have values from zero to three.

5,211,889
SOLUBLE HIGHLY REACTIVE FORM OF CALCIUM AND REAGENTS THEREOF
Reuben D. Rieke, Lincoln, Nebr., assignor to Board of Regents of the University of Nebraska, Lincoln, Nebr.
Filed Aug. 1, 1991, Ser. No. 738,828
Int. Cl.[5] C07F *3/04*
U.S. Cl. 260—665 R 33 Claims

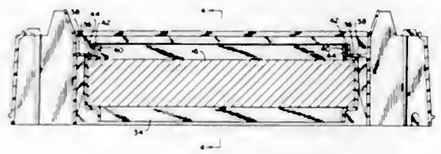
1. A soluble calcium species comprising formally zerovalent calcium metal atoms and a solubilizing agent in an ethereal, polyethereal, or hydrocarbon solvent.

5,211,890
CIRCULATORY ION VAPOR GENERATOR AND METHOD
Fred A. Wentworth, Jr., R.F.D. 4, 100 Brentwood Rd., Exeter, N.H. 03833
Filed Jul. 24, 1992, Ser. No. 919,717
Int. Cl.[5] B01F *3/04*
U.S. Cl. 261—30 18 Claims



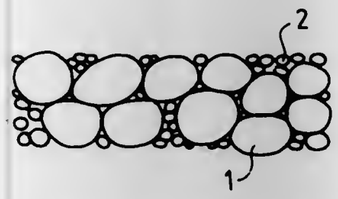
1. In an ion vapor generator device for producing a quantity of negative electrically charged ions, comprising a container for holding a quantity of a liquid including H_2O and including head space for ion vapor within said container and above said liquid surface; outlet means for withdrawing at least a portion of said ion-enriched vapor from said container; and means for imparting controlled disturbance of said liquid surface while maintaining substantially continuous surface tension on the liquid surface; the improvement which comprises air pressure equalization means communicating with said head space and having liquid communication means positioned so as to have at least one inlet means positioned beneath said liquid surface and in communication with said liquid, said equalization means being capable of introducing additional vapor of said liquid to said head space.

5,211,891
EVAPORATIVE PAD FRAME
Thomas J. Anoszko, Oregon, Wis., assignor to Research Products Corporation, Madison, Wis.
Filed May 13, 1992, Ser. No. 882,117
Int. Cl.[5] B01F *3/04*
U.S. Cl. 261—106 5 Claims



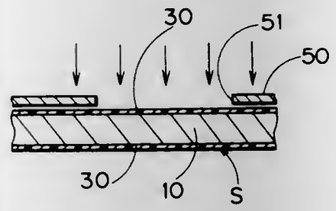
1. A frame for releasably holding an evaporative pad in the base of a humidifier wherein the base has a centrally located generally rectangular opening defined by an inwardly extending lip, said frame comprising
a pair of spaced apart substantially vertical side walls,
a substantially horizontal base disposed between and connected to said side walls,
a substantially horizontal top disposed between and connected to said side walls,
said side walls, base and top defining a chamber in which the evaporative pad is disposed and having a substantially rectangular opening, and
each of said side walls, base and top having a flange portion extending inwardly toward said opening and engageable with the base lip to form an air seal and a rib portion disposed at the inner edge of said flange and extending outwardly away from the pad chamber,
said flange and rib portions dimensioned so as to create a gap between said rib and any adjacent base surface in order to inhibit the migration of mineral deposits from the pad to the base.

5,211,892
PROCESS FOR THE COMPACTION OF A POWDER MIXTURE PROVIDING AN ABSORBENT OR PARTIALLY FRIABLE COMPACT PRODUCT AND THE PRODUCT OBTAINED BY THIS PROCESS
Jean-Louis H. Gueret, Paris, France, assignor to L'Oreal, Paris, France
Filed Jul. 19, 1991, Ser. No. 733,181
Claims priority, application France, Jul. 20, 1990, 90 09327
Int. Cl.[5] B29C *43/02*
U.S. Cl. 204—23 8 Claims



1. A process for compacting a powder mixture so as to provide an absorbent or partially friable compacted product, said process comprising placing a quantity of said powder mixture at the bottom of a chamber having a piston slidable therein, causing said piston to slide within said chamber in order to exert a compaction pressure on said powder mixture, said powder mixture containing from 5 to 80% by weight of at least one thermoplastic product having a particle size of between 5 and 500 μ, the remainder being composed of at least one non-thermoplastic product containing a binder and, while exerting said pressure, subjecting said powder mixture to an ultrasonic force.

5,211,893
METHOD FOR MOLDING RESIN REINFORCED WITH FIBER AND MOLDINGS PRODUCED
Hiroo Ebisawa, Iruma; Katsumi Kohama, Saitama; Tomohisa Abe, Shiki; Hidemitsu Takizawa, Osaka; Daisuke Atobe, Suita, and Kenichi Ueda, Takatsuki, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo and Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, both of Japan
Filed Apr. 13, 1990, Ser. No. 508,441
Claims priority, application Japan, Apr. 14, 1989, 1-96171
Int. Cl.[5] B29C *43/52*
U.S. Cl. 264—26 22 Claims



1. In the method of forming a molded article of thermosetting resin which comprises: forming a sheet comprising said thermosetting resin and reinforcing fibers; effectively contacting such sheet with a molding surface having portions which, during subsequent molding, cause different amounts of undesirable thinning in portions of the walls of said molded article; and heating and pressurizing such contacted sheet and molding surface to a temperature and a pressure sufficient to conform said sheet of thermosetting resin to said molding surface, and then cooling said molding article to set the molded shape thereof;
the improvement, whereby reducing the formation, in said wall portions of said molded article, of undesired differing thicknesses, which comprise:
prior to molding, modifying the viscosity of portions of said sheet of thermosetting resin corresponding to said wall portions which had been undesirably thinned to viscosities which differ from the viscosity of said thermosetting resin in the remainder of said sheet; and
molding said sheet under conditions sufficient to form said molding article thereby effecting reduced undesired differences in wall thicknesses corresponding to said molding surface portions.

5,211,894
SKIN REPLICATION TECHNIQUE
David G. Grob, Walker, and James D. Ayres, Kentwood, both of Mich., assignors to Amway Corporation, Ada, Mich.
Filed Oct. 9, 1990, Ser. No. 591,411
Int. Cl.[5] B29C *33/40, 39/02*
U.S. Cl. 264—40.1 74 Claims

1. A method of studying surface areas by making a positive surface replica casting from a negative surface replica casting comprising the steps of:
mixing a silicone polysiloxane base comprising a room temperature vulcanizing diorganopolysiloxane and a surface tension modifying agent;
removing air bubbles from the silicone polysiloxane base and surface tension modifying agent mixture;
forming a negative surface replica composition comprising a curing catalyst and the silicone polysiloxane base and surface tension modifying agent mixture;
positioning an adhesive collar over the surface area to be replicated;
applying the negative surface replica composition to the surface area to be replicated and to the adhesive collar;
curing the negative surface replicate composition at 25° C. for two minutes;
forming a negative surface replica casting from the cured negative surface replica composition;
removing the adhesive collar and the negative surface replica casting from the surface area;
separating the adhesive collar from the negative surface replica casting;
placing the negative surface replica casting replicated surface side up in the bottom of a container;
forming a liquid positive surface replica composition comprising a polyethylene, a polyethylene copolymer and a pigment;
heating the liquid positive surface replica composition;
covering the negative surface replica casting with the heated liquid positive surface replica composition;
centrifuging the container;
cooling the container;
forming a positive surface replica casting from the negative surface replica casting and from the cooled liquid surface replica composition;
separating a connected positive and negative surface castings at the interface; and
observing the negative and positive surface replica castings.

5,211,895
MOLDING PROCESS FOR FORMING A CONCRETE PAVING BLOCK
Donald E. Jacklich, Sr., 5108 Yackley Ave., Lisle, Ill. 60532
Filed Apr. 30, 1991, Ser. No. 693,672
Int. Cl.[5] E01C *5/00;* B28B *7/22, 3/00*
U.S. Cl. 264—71 9 Claims

1. A method for making a concrete paving member compris-

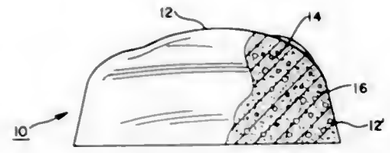
VOL 1150 ISS 3 MY 18 1993 UMI

ing a blend of portland cement, an aggregate, water and a colorant, said method comprising the steps of:

providing a blend of portland cement, an aggregate, water and a colorant;

pouring the blend into a non-porous, high-gloss, flexible polyvinylchloride mold;

vibrating the mold to drive the portland cement to the closed bottom of the mold and to suspend the aggregate



into chemical suspension while driving the water toward the top of the mold;

positioning the mold within a frame with the bottom of the mold suspended in a bag configuration to maintain the bond of the portland cement to the mold while the concrete expands and contracts during a hydration curing process to give the surface of the cured paving member a shiny polished appearance; and

removing the cured paving member form the mold.

5,211,896

COMPOSITE IRON MATERIAL

Robert W. Ward, Anderson, and David E. Gay, Noblesville, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 7, 1991, Ser. No. 710,427

Int. Cl.[5] H01F 1/06; B29C 43/02

U.S. Cl. 264—126 **15 Claims**

1. A mass of ferromagnetic particles in the size range of about 5 microns to about 400 microns for molding into stable, high strength, magnetic cores useful in thermally and chemically hostile environments, said particles each comprising an iron core and a single insulating material deposited directly onto and substantially continuously over, the entire surface of each said core so as to completely encapsulate said core in an electrically insulating outer shell of said material, said material being selected from the group consisting of amorphous thermoplastic polyetherimides, polyethersulfones and polyamideimides having heat distortion temperatures of at least about 200° C.

14. A method for making a magnetic core for an electromagnetic device comprising the steps of:

spray-coating a mass of airborne ferromagnetic particles in the size range of about 5 microns to about 400 microns with an amorphous thermoplastic selected from the group consisting of polyetherimides, polyethersulfones and polyamideimides having a heat distortion temperature of at least about 200° C. to provide a mass of free-flowing thermoplastic-coated particles;

conveying said free-flowing particles via a suitable conveyor into a heated die while substantially uniformly heating said particles in said conveyor enroute to the die to a temperature below, but within about 110° C. of, the softening temperature of said thermoplastic without losing the free-flowability of said particles; and

applying at least about 20 tons per square inch pressure to said particles in said die or shape the core and coalesce the thermoplastic into a substantially continuous binder matrix for the ferromagnetic particles.

5,211,897

SHAPING BODIES

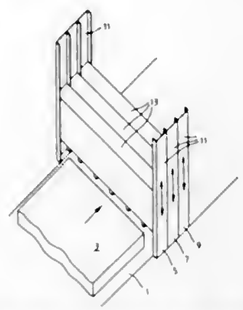
Aldino Albertelli, London, and Brian F. Pegg, Amersham, both of England, assignors to Company "A" Foam Limited, Slough, England

Filed Jul. 26, 1990, Ser. No. 557,849

Claims priority, application United Kingdom, Jul. 28, 1989, 8917324

Int. Cl.[5] B29C 67/20

U.S. Cl. 264—134 **10 Claims**



1. A method of shaping a body of rigid foamed friable material having individual cells suitable for use in the building or furnishing industry, said method comprising:

engaging a surface region of the body with a tool having a working end with a predetermined profile corresponding to the profile to be formed in said surface region; and

with said body in a rigid state, effecting relative movement between the body and the tool in a direction generally parallel with the surface of said region and generally normal to the working end of the tool, and thereby removing material from said surface region of said body by crumbling individual cells of said rigid foamed material which lie directly in the path of the tool and breaking or snapping off cells at the edge of the path;

said body being of rigid foamed material which is sufficiently friable when engaged by the tool during the relative movement to be removed from the body but sufficiently rigid so that adjacent material not engaged by said tool remains;

whereby said surface region is formed with a recess having a profile corresponding to the predetermined profile of the tool.

5,211,898

METHOD AND APPARATUS FOR FEEDING A PLURALITY OF MOLTEN RESIN JET STREAMS INTO T DIE

Jitsumi Shinmoto, Tokyo, Japan, assignor to Tomy Machinery Manufacturing Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 385,805, Jul. 26, 1989, abandoned. This application May 28, 1991, Ser. No. 706,568

Claims priority, application Japan, Jul. 27, 1988, 63-187598

Int. Cl.[5] B29C 47/14

U.S. Cl. 264—171 **33 Claims**

1. A method for combining a plurality of at least three molten resin streams in an axially elongated tubular passageway into a single united resin stream without mixing said streams of said plurality to produce, upon extrusion, a laminated multilayer film of variably selectably ordered lamina with each layer of said film made of one of said resin streams, comprising:

a. combining two of said streams without mixing after successively laterally displacing said uncombined unmixed streams within and respecting said passageway to provide a first combined stream having unmixed component streams, with stream interfaces therebetween angularly oriented according to a selected configuration of said lamina to be produced on said film;

b. thereafter uniting the combined stream with an additional one of said plurality of streams after angularly orienting and laterally displacing said combined and said additional streams within said passageway respecting one another to provide a second angularly oriented combined stream for input to an extruder for producing said laminated multilayer film having the variably selected order of said lamina.

2. Apparatus for combining a plurality of molten resin streams into a single stream without mixing together to produce, upon extrusion, a laminated multilayer web or film with each layer made of resin from one of said streams, comprising:

a. a body, having an axial passageway therethrough, individually receiving said streams;

b. a first axially rotatable valve member within said body for selectably permitting the flow of a second resin stream and for combining and angularly orienting two of said streams, including said second stream, into a first combined stream having unmixed stream components with interfaces therebetween angularly oriented according to a selected configuration of said lamina on said film, with at least one of said streams flowing through said first rotatable valve member, comprising;

i. a rotatable collar, through which at least one of said streams flows; and

ii. a member fixed to, rotatable unitarily therewith and axially projecting from said collar into said passageway into which said first stream flows through said collar and in which said two streams combine into said first combined stream, comprising:

(1) an angular surface portion rotatable unitarily with said valve member for controlling the combining of said two streams to provide said first combined stream having unmixed components angularly oriented according to a selected configuration of said lamina as they are combined into said first combined stream;

c. a second axially rotatable valve member within said body for selectably permitting flow of another resin stream and for combining and angularly orienting said first combined stream and said another stream of said plurality of streams into a second combined stream having unmixed components angularly oriented according to said selected configuration of said lamina on said film, said first combined stream and said additional stream flowing separately through at least part of said second rotatable valve member within said body and downstream of said first rotatable valve member, comprising:

i. a collar through which said first combined stream and said additional stream flow at least part way therethrough separated from each other; and

ii. a member fixedly connected to, rotatable unitarily with and axially projecting from said collar into said passageway, including

(1) an angular surface portion movable unitarily with said second valve member for controlling the combining of said two streams to provide said second united stream having unmixed components angularly oriented according to said selected configuration of said lamina as they are combined into said second combined stream.

5,211,899

PROCESS FOR PRODUCTION OF POLYPROPYLENE SHEETS OR FILMS

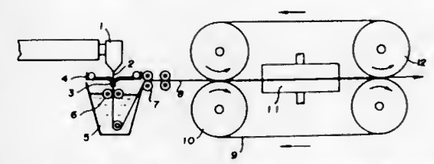
Atsushi Fujii, Himeji, Japan, assignor to Idemitsu Petrochemical Co., Ltd., Tokyo, Japan

Filed Oct. 7, 1991, Ser. No. 773,341

Claims priority, application Japan, Oct. 23, 1990, 2-283359

Int. Cl.[5] B29C 47/90

U.S. Cl. 264—180 **11 Claims**



1. A process for producing a polypropylene resin sheet or film which comprises

(a) introducing a polypropylene resin in a film form, which has been extruded from a T-die in a molten state, into a slit through which cooling water is flowing,

(b) passing the polypropylene resin film between nip rolls of the half immersed type, said nip rolls in contact with a lower water bath, and

(c) pressing between a pair of metal bolts the obtained sheet or film from both sides thereof under a pressure of at least 5 kg/cm^2, while heating at a temperature of 155° to 160° C., said metal belts having a surface roughness of not more than 0.1 μm.

5,211,900

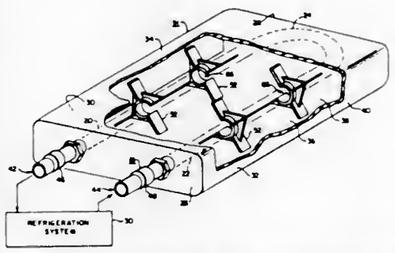
METHOD OF MANUFACTURING AN EUTECTIC BEAM HAVING MULTI-FUNCTIONAL SUPPORT MEMBERS

David B. Ziegler, Eden Prairie, Minn., assignor to Thermo King Corporation, Minneapolis, Minn.

Filed Jun. 28, 1991, Ser. No. 723,365

Int. Cl.[5] B29C 39/10, 39/12

U.S. Cl. 264—263 **6 Claims**



1. A method of manufacturing an eutectic beam which includes a U-shaped evaporator tube having first and second spaced leg portions, and a housing, comprising the steps of:

providing plastic support means which includes a generally cylindrical portion having support legs which extend outwardly therefrom, with the cylindrical portion defin-

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ing an opening dimensioned to enable the support means to snugly but slidably surround a leg portion of the evaporator tube, and with the support legs having first ends integral with the cylindrical portion and second ends opposite the first ends,

providing a rotational mold which includes cooperative mold parts having surfaces which defined a cavity, with the rotational mold including a wall portion having openings through which ends of the first and second spaced leg portions of the evaporator tube extend when the evaporator tube is assembled within the rotational mold,

placing the plastic support means on the evaporator tube to snugly but slidably surround the first and second spaced leg portions of the evaporator tube,

placing the U-shaped evaporator tube in a cooperative mold part of the rotational mold,

assembling the cooperative mold parts of the rotational mold about the U-shaped evaporator tube such that the second ends of the support legs of the plastic support means contact predetermined inner surfaces of the mold cavity defined by the cooperative mold parts and such that the ends of the first and second leg portions of the evaporator tube extend through the openings defined in the wall portion of the rotational mold, to thereby position the evaporator tube within the mold cavity by means of the openings in the wall portion of the rotational mold through which the ends of the first and second leg portions of the evaporator tube extend, and by means of the second ends of the support legs of the plastic support means which contact the predetermined inner surface of the mold cavity,

and rotationally molding a plastic material within and against predetermined inner surfaces of the mold cavity to provide a plastic housing in spaced relation about the first and second spaced leg portions of the evaporator tube and thus form the eutectic beam, such that the support legs of the plastic support means extend through the space between the first and second leg portions of the evaporator tube and the plastic housing, and such that only the second ends of the support legs of the plastic support means become embedded in wall portions of the molded plastic housing, whereby the support legs of the plastic support means additionally provide positional support for the evaporator tube located within the rotationally molded plastic housing during use of the eutectic beam comprising the evaporator tube and the rotationally molded plastic housing.

5,211,901

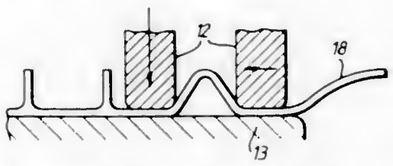
PROGRESSIVE MOULDING OF COMPOSITE MATERIALS

Joseph Fray, Woodford, Great Britain, assignor to British Aerospace Public Limited Company, London, England

Filed Feb. 19, 1992, Ser. No. 836,860

Int. Cl.[5] B29C *43/22, 53/00*; B31F *1/20*; B32B *31/00*

U.S. Cl. 264—280 **1 Claim**



1. A method of progressively molding and curing a composite material component assembly including a skin panel and a series of upstanding, integrally formed, longitudinally extending structural members, comprising:

(a) drawing a quantity of a layer of composite material from a source and supporting a respective portion of said layer on a support;

(b) clamping said portion of said layer against said support using a mold comprising first and second tools which are separated from one another a predetermined amount and have respective datum faces which spacedly confront one another;

(c) slidably moving one of said tools relatively toward the other of said tools whereby said layer of composite material, between said tools, progressively bows away from said support and folds, becoming clamped between said datum faces as a two-layer precursor for a respective said upstanding, longitudinally extending structural member, integral with said layer of composite material;

(d) heating said support and said tools a predetermined amount to thereby subject said portion of said layer of composite material to a curing cycle and thus convert said two-layer precursor into a respective said upstanding, longitudinally extending structural member integral with said layer of composite material, and thus form said layer of composite material into said skin panel;

(e) slidably moving said layer of composite material along said support a predetermined amount by using said tools, thereby drawing a further quantity of said layer of composite material from said source and supporting a respective further portion of said layer of composite material on said support;

(f) withdrawing said tools away from said layer of composite material and repositioning said tools so that said first and second tools are again separated from one another by said predetermined amount and with said respective datum faces spacedly confronting one another; and

(g) repeating steps (b)–(f) a plurality of times with respect to successive further portions of said layer of composite material to progressively form said composite material component assembly including said skin panel and said series of said upstanding, integrally formed, longitudinally extending structural members.

5,211,902

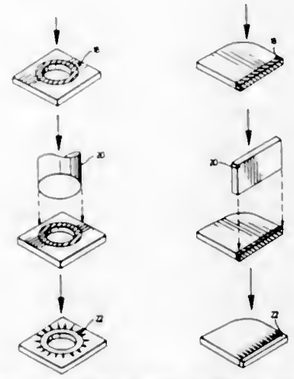
METHOD OF REDUCING RESIDUAL STRESSES IN THERMOPLASTIC LAMINATES

William J. Unger, Rexdale; Jorn S. Hansen, King City, and Henry Y. S. Ko, Mississauga, all of Canada, assignors to The Univ. of Toronto Innovations Foundation, Toronto, Canada

Continuation-in-part of Ser. No. 571,498, Aug. 22, 1990, abandoned. This application Aug. 2, 1991, Ser. No. 739,986

Int. Cl.[5] B29C *71/02*

U.S. Cl. 264—296 **5 Claims**



1. A method of reducing residual stresses in fiber reinforced thermoplastic composite laminate comprising the steps of:

i) providing a fiber reinforced thermoplastic composite laminate having at least one free edge;

ii) heating a region adjacent said free edge for a time period sufficient to form a localized melt zone of the thermoplastic in the region and under a sufficient pressure to prevent delamination of the laminate and thereafter;

iii) cooling the region for a time period and under a pressure sufficient to solidify the region and to prevent delamination thereof.

5,211,903

PROCESS AND APPARATUS FOR PRODUCING A SPUN-FIBER WEB FROM SYNTHETIC POLYMER

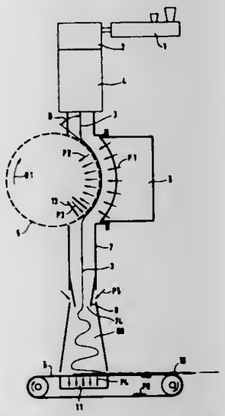
Hans Reifenhäuser, Troisdorf, Fed. Rep. of Germany, assignor to Silver-Plastics GmbH & Co. KG, Troisdorf, Fed. Rep. of Germany

Filed Jan. 30, 1992, Ser. No. 828,227

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1991, 4102650

Int. Cl.[5] D01D *7/00*

U.S. Cl. 264—555 **19 Claims**



1. A process for the production of a spun-fiber web from filaments of a synthetic polymer wherein the filaments exiting through spinnerets from a molten mass of synthetic polymer are guided through a cooling well traversed by cooling air and, after cooling and strengthening, are conducted over a portion of a surface of at least one take-off roll; and thereafter the filaments are swirled and deposited on a depositing conveyor belt to form said web, characterized in that a conveying velocity of a take-off roll at which the filaments arrive is controlled to be substantially higher than an exit speed of the filaments from the spinnerets; the filaments resting on the surface of the take-off roll, are exposed in a pressing zone to compressed air acting from the outside on the surface of the take-off roll, and are pressed against the surface of the take-off roll whereby adhesive friction of the filaments on the take-off roll is increased; and the filaments are accelerated by rotation of the take-off roll so that the exit cross section of the filaments exiting the spinnerets is reduced at a state of the synthetic polymer of the filaments which, in the case of partially crystalline polymers, is in a range above the crystallite melting zone of the synthetic polymer and which, in case of amorphous synthetic polymers, is in a range above the softening temperature zone of the synthetic polymer; the filaments initially pressed against the surface of the take-off roll in the pressing zone are lifted off from the surface of the take-off roll at the end of the pressing zone by streams of compressed air acting from the interior of the take-off roll through perforations in the surface of the take-off roll on the filaments; and the adhesive friction of the filaments on the surface of the take-off roll is increased in the pressing zone by exposing the filaments to a vacuum from an interior of the take-off roll; the vacuum being generated in a suction chamber in the interior of the take-off roll and acting on the filaments via the perforations in the surface of the take-off roll and the compressed air acting from outside on the surface of the take-off roll being exhausted partially via the suction chamber in the interior of the take-off roll; and the compressed air acting from the interior of the take-off roll through the perforations in the surface of the take-off roll to lift off the filaments at the end of the pressing zone being fed from a discharge side of a fan creating the vacuum in the suction chamber.

5,211,904

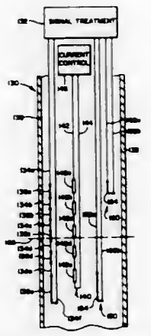
IN-VESSEL WATER LEVEL MONITOR FOR BOILING WATER REACTORS

Willem J. Oosterkamp, Los Gatos, Calif., assignor to General Electric Company, San Jose, Calif.

Filed Dec. 10, 1990, Ser. No. 624,941

Int. Cl.[5] G21C *17/035*

U.S. Cl. 376—258 **17 Claims**



1. Apparatus for determining the level of water within a boiling water power generator having a steam environment above said level and a saturated or slightly subcooled water environment below said level, comprising:

an elongate gauge housing mounted to extend substantially vertically through said steam environment, through said water level and into said boiling water environment and having an opening therein for receiving said water to an elevation corresponding with said level

thermocouple means including a serially coupled sequence of junction defining thermocouple element pairs positioned within said gauge housing for generating an output signal of amplitude corresponding with said water level;

first reference thermocouple means mounted within said generator and having a lengthwise extent selected for substantially continuous immersion within said water environment, for deriving a water reference signal independent of said output signal;

second reference thermocouple means mounted within said generator and having a length selected to position at least a portion thereof to extend above said water level within said steam environment for deriving a steam reference signal independent of said output signal;

heater means extending from a predetermined upper location above said water level within said steam environment to a predetermined lower location within said water environment, positioned in select heat transfer association with said level responsive thermocouple means, said first reference thermocouple means, and said second reference theremocouple means, for deriving select temperature

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differentials across said level responsive thermocouple means; and

signal treatment means responsive to said output signal, said water reference signal and said steam reference signal for deriving a readout of value corresponding to said water level.

5,211,905

MANUFACTURE OF SINTERED URANIUM DIOXIDE

Geoffrey A. Wood, Preston, United Kingdom, assignor to British Nuclear Fuels plc, Warrington, United Kingdom

Filed Apr. 17, 1992, Ser. No. 872,719

Claims priority, application United Kingdom, Apr. 17, 1991, 9108189

Int. Cl.[5] G21C *3/62*

U.S. Cl. 376—261 13 Claims

11. A method for the manufacture of sintered uranium dioxide pellets having a substantially uniform microstructure, the method comprising:

(a) manufacturing a preselected quantity of seeds comprising single crystals of uranium dioxide of a size not exceeding 38 microns;

(b) mixing the seeds in a quantity of about 2% by weight with a powder comprising uranium dioxide and homogenising the mixture;

(c) granulating and pelleting the mixture;

(d) pressing the resultant pellets;

(e) sintering the pellets in a gaseous environment consisting essentially of carbon dioxide for a period of about 5 hours at a temperature of about 1700° C. at a heating rate between ambient and said 1700° C. of about 10° C. per minute, and

(f) subjecting the sintered pellets for a period of about 1 hour to a reducing gaseous environment comprising hydrogen at a temperature of about 1150° C. at a cooling rate between said 1700° and 1150° C. of about 10° C. per minute.

5,211,906

REACTOR CONTAINMENT VESSEL

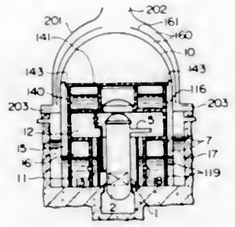
Shigeo Hatamiya; Masanori Naitoh, both of Hitachi; Yoshiyuki Kataoka, Ibaraki; Hiroaki Suzuki, Hitachi; Isao Sumida, Ibaraki; Toshitsugu Nakao, Hitachi; Kanehiro Ochiai, Hitachi; Tsuyoshi Niino, Hitachi; Masataka Hidaka, Hitachi; Tohru Fukui, Hitachi, and Ryuhei Kawabe, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 20, 1990, Ser. No. 615,921

Claims priority, application Japan, Nov. 22, 1989, 1-302186

Int. Cl.[5] G21C *13/00*

U.S. Cl. 376—293 7 Claims



1. A reactor containment vessel comprising an internal structural wall provided within said reactor containment vessel, said internal structural wall constituting a dry well portion for containing a reactor pressure vessel, and an inner peripheral portion of a pressure control chamber for condensing steam in said dry well portion, said internal structural wall being surrounded by said reactor containment vessel of steel in such a manner that said internal structural wall is spaced from a reactor containment vessel wall to form an outer peripheral portion of said pressure control chamber, said reactor containment vessel being disposed in an outer peripheral pool, said inner and outer peripheral portions having respective pressure control pool portions and respective wet well portions disposed above said pressure control pool portions, said pressure control pool portions of said inner and outer peripheral portions being communicated with each other, and said wet well portions of said inner and outer peripheral portions being separated from each other.

5,211,907

ASSEMBLY FOR SECURING A CENTERING PIN WITHIN A BORE OF A NUCLEAR REACTOR CORE PLATE

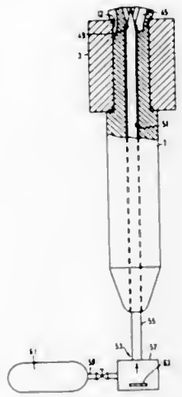
Tilo Landgraf, Erlangen; Rainer Kunz, Nüremberg; Johann Ropers, Erlangen, and Martin Zenkel, Röttenbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Division of Ser. No. 507,254, Apr. 9, 1990, Pat. No. 5,089,215. This application Nov. 5, 1991, Ser. No. 788,186

Claims priority, application European Pat. Off., Apr. 12, 1989, 89106523.7

Int. Cl.[5] G21C *5/06*

U.S. Cl. 376—364 9 Claims



7. In a nuclear reactor, an assembly for securing a cylindrical centering pin of a nuclear fuel assembly in a bore formed in a reactor core plate, comprising a cylindrical centering pin of a fuel assembly having an end to be secured in the bore in the reactor core plate, said end having a radially expandable wall portion, said centering pin being movable in the bore until at least part of said expandable wall portion protrudes beyond the plate and means associated with said expandable wall portion for expanding said wall portion and anchoring the centering pin the bore.

5,211,908

METHOD OF MANUFACTURING A GRID HAVING CALIBRATED CELLS FOR A NUCLEAR FUEL ASSEMBLY

Michel Verdier, Villeurbanne, France, assignor to Framatome, Courbevoie and Compagnie Generale des Matieres Nucleaires, Velizy Villacoublay, both of France

Filed Jul. 24, 1991, Ser. No. 735,256

Claims priority, application France, Jul. 24, 1990, 90 09448

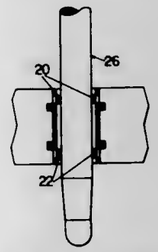
Int. Cl.[5] G21C *3/34*

U.S. Cl. 376—442 10 Claims

1. Process for assembling a grid and a bundle of cylindrical fuel rods of a nuclear fuel assembly, said grid having at least two crossed sets of mutually parallel plates which define cells, some of said cells receiving guide tubes and other of said cells

receiving said fuel rods, the plates being provided with boss means for limiting the amount of movement available to the fuel rods relative tot he nodes of a regular array and said fuel rods having a diameter which may vary, from one fuel rod to another, from a predetermined minimum value to a predetermine maximum value, said process comprising the steps of:

(a) forming boss means projecting radially inwardly into



each of said cells for receiving fuel rods by such an amount that they define passages having sizes no greater than said predetermined minimum diameter;

(b) shaping said boss means by deforming them radially outwardly for imparting to each passage a predetermined radial size slightly higher than said predetermined maximum diameter and determined by a gauge; and

(c) inserting sad fuel rods into the respective cells.

5,211,909

LOW-ALLOY HEAT-RESISTANT STEEL HAVING IMPROVED CREEP STRENGTH AND TOUGHNESS

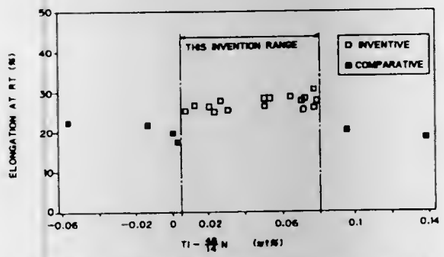
Atsuro Iseda, Kobe; Yoshiatsu Sawaragi, Nishinomiya; Fujimitsu Masuyama, Nagasaki, and Tomomitsu Yokoyama, Chofu, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka and Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, both of Japan

Filed Feb. 20, 1992, Ser. No. 837,917

Claims priority, application Japan, Feb. 22, 1991, 3-28233

Int. Cl.[5] C22C *38/24, 38/26*

U.S. Cl. 420—106 19 Claims



1. A low-alloy steel having improved creep strength and toughness, which consists essentially, on a weight basis, of:

C: 0.03–0.12%,	Si: at most 0.7%,
Mn: 0.1–1.5%,	Ni: at most 0.8%,
P: at most 0.03%,	S: at most 0.015%,
Cr: 1.5–3.5%,	W: 1–3%,
V: 0.1–0.35%,	Nb: 0.01–0.1%,
B: 0.0001–0.02%,	N: less than 0.005%,
Al: less than 0.005%,	Ti: 0.001–0.1%,

one or more elements selected from the group consisting of:

La, Ce, Y, Ca, Zr, and Ta: 0–0.2% each and Mg: 0–0.05%, Mo: 0–0.4%, and

a balance of Fe and incidental impurities,

wherein the Ti and N contents satisfy the following inequality:

$$0.080 \geq Ti(\%) - (48/14) \times N(\%) \geq 0.003.$$

5,211,910

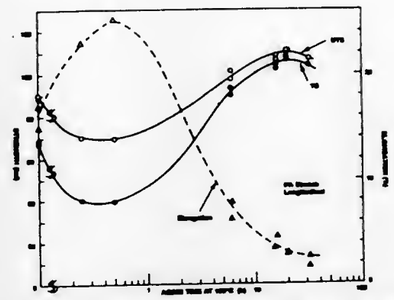
ULTRA HIGH STRENGTH ALUMINUM-BASE ALLOYS

Joseph R. Pickens, Beltsville; Timothy J. Langan; Frank H. Heubaum, both of Baltimore; Lawrence S. Kramer, Baltimore, all of Md., and Alex Cho, Richmond, Va., assignors to Martin Marietta Corporation, Bethesda, Md.

Filed Jan. 26, 1990, Ser. No. 471,299

Int. Cl.[5] C22C *21/06*

U.S. Cl. 420—532 81 Claims



1. An aluminum-base alloy consisting essentially of from about 1 to about 7 weight percent Cu, from about 0.1 to about 4 weight percent Li, from about 0.5 to about 4 weight percent total of at least one element selected from the group consisting of Zn, Ge, Sn, Cd, In, Be, Sr, Sc, Y, and Ca, from about 0.05 to about 3 weight percent Mg, from about 0.01 to about 2 weight percent Ag, from about 0.01 to about 2 weight percent grain refiner selected from the group consisting of Zr, Cr, Mn, Ti, Hf, V, Nb, B, TiB_2 and combinations thereof, and the balance aluminum and incidental impurities.

5,211,911

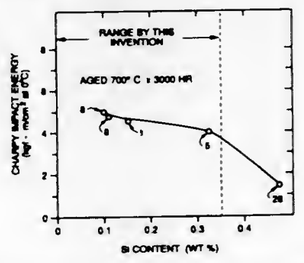
HIGH VANADIUM AUSTENITIC HEAT RESISTANT ALLOY

Yozo Hayase, Kobe; Yoshiatsu Sawaragi, Nishinomiya; Shigemitsu Kihara, Tokyo, all of Japan, and Wate T. Bakker, Saratoga, Calif., assignors to EPRI, Palo Alto, Calif.

Filed Mar. 9, 1992, Ser. No. 848,026

Int. Cl.[5] C22C *30/00*

U.S. Cl. 420—584.1 6 Claims



1. An alloy consisting essentially of Ni by 33.0 to 60.0 weight

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%, Cr by 23.0 to 28.0 weight %, V by 2.4 to 5.0 weight % and one or more selected from the group consisting of B by 0.0010 to 0.010 weight %, Zr by 0.010 to 0.06 weight %, Ti by 0.03 to 0.50% weight % and Nb by 0.05 weight % to 1.0 weight %, the balance consisting essentially of iron, said alloy containing no more than 0.35 weight % of Si.

5,211,912

METHOD FOR DISINFECTING RED BLOOD CELLS, BLOOD PRODUCTS, AND CORNEAS

Alan I. Rubinstein, Los Angeles, Calif., assignor to University of Southern California, Los Angeles, Calif.

Continuation-in-part of Ser. No. 492,723, Mar. 13, 1990, Continuation-in-part of Ser. No. 230,839, Aug. 9, 1988, Pat. No. 4,971,760, Continuation-in-part of Ser. No. 892,058, Sep. 1, 1986, abandoned, which is a continuation-in-part of Ser. No. 838,253, Mar. 10, 1986, abandoned. This application Jul. 23, 1990, Ser. No. 556,756

The portion of the term of this patent subsequent to Nov. 20, 2007, has been disclaimed.

Int. Cl.[5] **A61K** *35/16*; **A61L** *2/18, 2/20*; **C07K** *15/06*

U.S. Cl. 422—37 **32 Claims**

1. A method for treating blood products and tissue products to inactivate viruses and microorganisms contained therein, said method comprising the steps of:

mixing a blood product or a tissue product with a disinfectant composition for a sufficient time to inactivate said viruses, said disinfectant composition comprising:

a disinfectant selected from the group consisting of sodium chlorite and an acid, a water soluble chlorine dioxide liberating compound and an acid, and chlorine dioxide, and

an aqueous diluent, said diluent consisting essentially of water and a solute which, when the solute is at the proper concentration, the disinfectant composition is substantially isotonic with blood; and

separating the disinfectant from the blood product or tissue product, said blood product or tissue product being substantially viable for diagnostic or therapeutic use.

5,211,913

MEDICAL INSTRUMENT

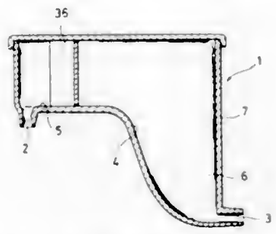
Kazuhiko Hagiwara; Hiroshi Kitoh, both of Shizuoka; Yoshihiro Oshibe, and Hiroshi Ohmura, both of Aichi, all of Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 23, 1988, Ser. No. 288,868

Claims priority, application Japan, Dec. 25, 1987, 62-329159; Dec. 25, 1987, 62-329160; Dec. 28, 1987, 62-333660; Nov. 28, 1988, 63-300301

Int. Cl.[5] **A61B** *19/00*

U.S. Cl. 422—44 **8 Claims**



1. A blood reservoir comprising:

a blood inlet port,

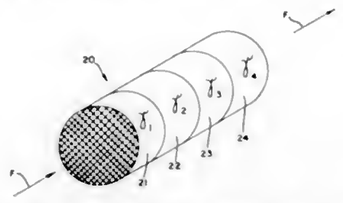
a blood influent section in liquid communication with the inlet port,

a blood storage section in liquid communication with the blood influent section, said blood storage section having at least a portion of the inner surface coated by a polymer containing hydroxyethyl methacrylate (HEMA) units and methyl methacrylate (MMA) units and being additionally coated with a poly(oxyethylene)-poly(oxypropylene) block polymer represented by the general formula:

$$HO(CH_2CH_2O)_a-(CH-CH_2O)_b-(CH_2CH_2O)_cH$$
$$\quad\quad\quad

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prises housing means, having exhaust gas entry means and exhaust gas exit means, said housing means including a catalytic body formed from a plurality of separate catalytic converter modules, each module having an inlet and outlet for the entrance and exit of said exhaust gases, each module being pressed up against adjacent modules for the flow of said ex-



haust gases therethrough and said modules being of different densities and arranged in order of decreasing density in a direction from said gas entry means to said gas exit means, each module having a unitary structure of compression molded and sintered metal pieces coated with a catalytic material having activity for cleaning exhaust gases from an internal combustion engine.

5,211,919

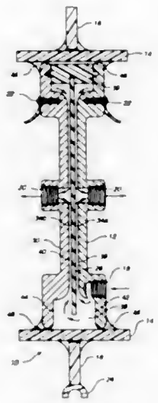
FLAT PLATE CORONA CELL FOR GENERATING OZONE

Richard H. Conrad, 950 Idylberry Rd., San Rafael, Calif. 94903

Filed Jan. 27, 1992, Ser. No. 826,399

Int. Cl.[5] **B01J** *19/08*

U.S. Cl. 422—186.07 **13 Claims**



1. A flat plate corona cell for generating ozone, said cell comprising:

a first conductive electrode plate member having an inside surface, and generally defining a first plane over at least a portion of said inside surface, said first conductive electrode plate member having a perimeter;

a second conductive electrode plate member having an inside surface, and generally defining a second plane over at least a portion of said inside surface, said second plane being generally parallel to said first plane, said second conductive electrode plate member having a perimeter;

a dielectric member interposed between said first and second conductive electrode plate members, said dielectric member defining at least one surface of at least one corona chamber;

a gas distribution chamber generally extending around the perimeter of said first and second conductive electrode plate members;

inlet means for introduction of a gas into said gas distribution chamber; and

outlet means for passage of a gas from said corona chamber, said outlet means comprising a port generally centrally located in at least one of said conductive electrode plate members, wherein a gas introduced into said inlet means is urged to flow in a generally converging radially inward pattern from said distribution chamber, through said corona chamber, and out through said outlet means.

5,211,920

AGGLOMERATING AGENTS FOR CLAY CONTAINING ORES

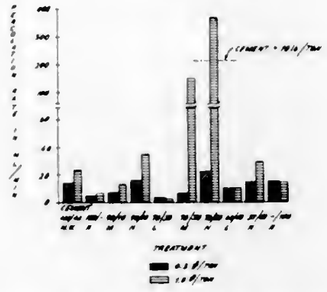
David M. Polizzotti, Yardley, Pa., assignor to Betz Laboratories, Inc., Trevose, Pa.

Continuation-in-part of Ser. No. 522,436, May 11, 1990, Pat. No. 5,112,582, which is a continuation-in-part of Ser. No. 508,517, Apr. 9, 1990, abandoned, which is a continuation of Ser. No. 325,608, Mar. 20, 1989, abandoned. This application Apr. 1, 1992, Ser. No. 861,054

The portion of the term of this patent subsequent to Dec. 31, 2008, has been disclaimed.

Int. Cl.[5] **C01G** *7/00;* **C22B** *11/00*

U.S. Cl. 423—29 **18 Claims**



13. A method of extracting gold from gold ore by heap leaching with caustic cyanide comprising agglomerating the gold ore prior to being formed into a heap with an agglomerating agent comprising anionic copolymer of an acrylamide and an acrylic acid in a ratio of acrylamide to acrylic acid ranging from about 90 to 10 to about 70 to 30, in the absence of cement, said copolymer having a molecular weight above about 1 million, at a treatment rate sufficient to provide an agglomerate having a percolation rate, higher than that obtained when cement is used as the agglomerating agent at the same treatment level and then leaching with caustic cyanide, collecting the gold rich leachate, and recovering gold thereform.

5,211,921

PROCESS OF MAKING NIOBIUM OXIDE

James A. Sommers, and Verlin Q. Perkins, both of Albany, Oreg., assignors to Teledyne Industries, Inc., Albany, Oreg.

Continuation of Ser. No. 721,886, Jun. 27, 1991, abandoned. This application Jul. 7, 1992, Ser. No. 908,804

The portion of the term of this patent subsequent to Feb. 23, 2010, has been disclaimed.

Int. Cl.[5] **C01G** *33/00, 31/00, 35/00;* **C01B** *33/113*

U.S. Cl. 423—62 **13 Claims**

1. A process for the preparation of metal oxides wherein the metal for forming said oxide is contained in an alloy selected from the group consisting of ferro alloy and nickel alloys comprising the steps of:

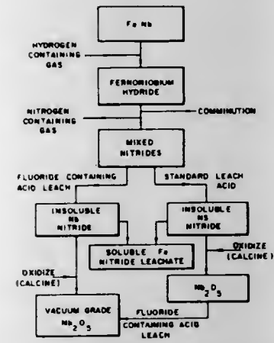
a) providing a ferrometal or nickel metal alloy for use in the process,

b) contacting the ferrometal or nickel metal alloy with a hydrogen-containing gas,

c) reacting the alloy provided with the hydrogen initially at ambient temperature and at about 3 psig to about 15 psig of hydrogen gas, to form a hydride product,

d) subdividing the hydrided product into particle sizes suitable for reaction with a nitrogen-containing gas,

e) nitriding the hydride product by contacting the subdivided hydride product with a nitrogen-containing gas at a



temperature above about 500° C., for a sufficient period of time to substantially completely react the nitrogen-containing gas with the hydride product to form nitrides of the alloy constituents,

f) subsequent to nitride formation in the nitriding reaction, contacting the nitrides produced with an aqueous acid leach solution for a sufficient period of time to dissolve the metal nitride formed during the nitriding in the leach solution, and

g) separating the acid soluble nitrides in the leach solution from the acid insoluble nitrides, and

h) reacting the acid soluble nitrides with oxygen at a sufficiently elevated temperature and for a sufficient period of time to form the metal oxide of the acid insoluble metal nitride.

5,211,922

PROCESS FOR THE RECOVERY OF VALUES FROM SECONDARY ALUMINUM DROSS

Dan Yerushalmi, Cleveland, Ohio, and Richard C. Bennett, Park Forest, Ill., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation of Ser. No. 683,091, Apr. 19, 1991, abandoned, which is a continuation of Ser. No. 451,298, Dec. 15, 1989, abandoned. This application Sep. 18, 1991, Ser. No. 762,066

Int. Cl.[5] **C22B** *21/00, 26/00;* **C01F** *7/00;* **C01D** *3/00*

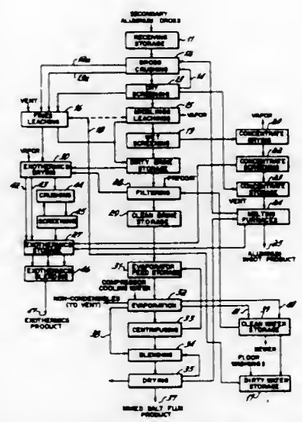
U.S. Cl. 423—131 **8 Claims**

1. In a process for the recovery of metallic aluminum, mixtures of sodium and potassium chlorides, and an aluminum oxide-metallic aluminum product having high aluminum and low chloride contents from secondary aluminum dross, said process including the steps of providing a secondary aluminum dross feed containing aluminum, aluminum oxide and salts, separating the feed dross by particle size into at least a first dross portion and a second dross portion, treating the first dross portion with leach water to dissolve the salt content thereof, wherein the improvement comprises:

(a) filtering the leached first dross portion to produce a filtrate containing dissolved sodium and potassium chloride salts and magnesium chloride;

(b) evaporating the filtrate in an evaporator to produce a slurry containing crystallized sodium and potassium chloride salts, wherein the magnesium chloride remains in solution in the slurry;

(c) removing a purge stream of slurry from the evaporator;



(d) subjecting the slurry from which the purge stream has been removed to a liquid solid separation step to remove the crystallized sodium and potassium chloride salts therefrom; and

(e) discharging said purge stream onto said crystallized sodium and potassium chloride salts.

5,211,923

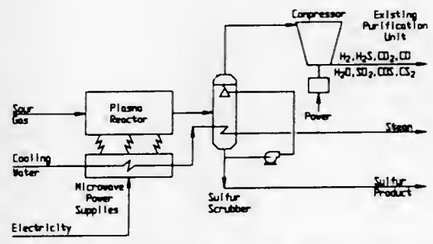
HYDROGEN AND SULFUR RECOVERY FROM HYDROGEN SULFIDE WASTES

John B. L. Harkness, Naperville; Anthony J. Gorski, Woodridge, and Edward J. Daniels, Oak Lawn, all of Ill., assignors to University of Chicago, Chicago, Ill.

Filed Aug. 1, 1991, Ser. No. 739,029

Int. Cl.[5] **C01B** *17/16*

U.S. Cl. 423—220 **21 Claims**



1. A process for treating a gas stream which contains CO_2 and water and sulfur-containing compounds including hydrogen sulfide, comprising the steps of feeding the gas stream containing hydrogen sulfide to a plasma reactor for dissociating hydrogen sulfide under plasma conditions with RF energy to provide a product stream including hydrogen, sulfur, sulfur-containing compounds comprising one or more of COS, CS_2 or SO_2 and non-sulfur containing compounds, said plasma reactor being operated at a temperature in the range of from about 150° C. to about 450° C. and at a pressure in the range of from about

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0.5 to about 2 atm, feeding the product stream to a sulfur recovery unit to remove essentially all of the sulfur therefrom leaving an overhead gaseous stream of hydrogen, unconverted H_2S, sulfur-containing and non-sulfur-containing compounds and a sulfur aerosol, feeding the overhead gaseous stream to a catalytic reduction unit for reacting the sulfur-containing compounds and sulfur aerosol with hydrogen in the overhead gaseous stream in the presence of a catalyst to form a hydrogen sulfide enhanced stream and to decrease the concentrations of sulfur-containing compounds and non-sulfur containing compounds, compressing the hydrogen sulfide enhanced stream, and subsequently separating hydrogen and hydrogen sulfide as final product streams.

5,211,924

METHOD AND APPARATUS FOR INCREASING CONVERSION EFFICIENCY AND REDUCING POWER COSTS FOR OXIDATION OF AN AROMATIC ALKYL TO AN AROMATIC CARBOXYLIC ACID

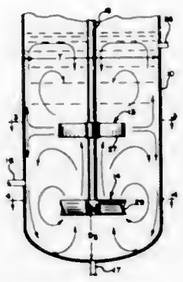
Myon K. Lee, Wheaton, and William F. Huber, Jr., Naperville, both of Ill., assignors to Amoco Corporation, Chicago, Ill.

Filed Feb. 29, 1988, Ser. No. 162,043

The portion of the term of this patent subsequent to Apr. 7, 2009, has been disclaimed.

Int. Cl.[5] B01J *19/18*

U.S. Cl. 422—225 **4 Claims**



1. In a reactor suitable for the oxidation of an aromatic alkyl comprising a vertically disposed elongated vessel having a bottom and a substantially cylindrical side wall, said reactor having reactant inlet means and solids-containing reaction product outlet means, oxidizing gas inlet means at at least one location within the vessel and vent means, and an agitator adapted for rotation within the vessel on a shaft at about the axis of the vessel, the agitator having an upper mixing element and a lowermost mixing element, the improvement wherein the upper mixing element is an outwardly impelling element comprising a flat blade turbine provided with a plurality of blades substantially evenly spaced from each other and each in a plane radial to the shaft with each blade extending substantially to the agitator shaft, the flat blade turbine having a diameter about 0.45 to 0.55 times the inside diameter of the vessel, and wherein the lowermost mixing element is an outwardly impelling element comprising a pitched blade turbine having a diameter of about 0.5 to about 0.55 times the inside diameter of the vessel and provided with a plurality of pitched blades substantially evenly spaced from each other, each of the pitched blades having a leading edge and a trailing edge and a pitch in a range of about 30° to about 60°, the lowermost element being located so that a distance from its mid-level to the bottom of the vessel is about 0.25 to about 0.33 times the inside diameter of the vessel and the upper and lowermost mixing elements being spaced from one another at a distance sufficient to provide substantially uniform mixing of the entire content of said vessel upon rotation of the upper and lowermost mixing elements.

5,211,925

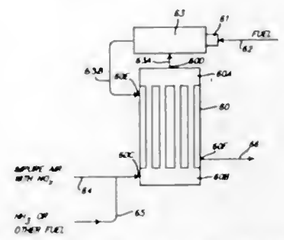
METHOD FOR REMOVING NITROGEN OXIDES FROM AN IMPURE AIR STREAM IN AN INCINERATOR

Reagan Houston, 252 Foxhunt La., Hendersonville, N.C. 28739

Filed Feb. 11, 1992, Ser. No. 834,131

Int. Cl.[5] C01B *21/00*

U.S. Cl. 423—235 **5 Claims**



1. A method of removing nitrogen oxide gas NO_x from an impure air stream feeding through an incinerator at a first temperature, comprising

admixing a quantity of reducing gas with said feed stream at the first temperature,

heating the resulting gas mixture to a second temperature in the range from 1000° to 1400° F. to convert the NO_x gas to nitrogen gas and water, and

further heating the gas mixture to a third temperature in the range from 1500° F. to 1800° F. to air oxidize any excess reducing gas or volatile organic combustibles present in the resulting NO_x-free gas stream prior to release of said stream to the atmosphere.

5,211,926

PROCESS FOR EXTRACTING OF DISPOSING OF AMMONIA OR AMMONIA COMPOUNDS FROM DUST MIXTURES

Walter J. Martin, Tegernsee; Johannes J. E. Martin, Seeshaupt, both of Fed. Rep. of Germany; Stefan Hörler, Watt, Switzerland, and Thomas Nikolaus, Allensbach, Fed. Rep. of Germany, assignors to Martin GmbH für Umwelt- und Energietechnik, Munich, Fed. Rep. of Germany and Techform Engineering AG, Watt, Switzerland

Filed Dec. 20, 1991, Ser. No. 812,579

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1990, 4041380

Int. Cl.[5] C01C *3/00*

U.S. Cl. 423—237 **6 Claims**

1. A process for removing ammonia or ammonia compounds from dust which results from prior thermal treatment processes, comprising the steps of:

mixing the dust with water at an environmental temperature that is lower or equal to the temperature at which the dust leaves the prior treatment processes, the mixing step being performed in batches in a closed system, and

collecting vapors which result from the mixing step using a vacuum.

5,211,927

METHOD FOR STABILIZING ACIDIC AQUEOUS HYDROGEN PEROXIDE SOLUTION CONTAINING COPPER

Katsutoshi Itani, and Yoko Miyashiro, both of Fuji, Japan, assignors to Tokai Denka Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 26, 1991, Ser. No. 798,591

Claims priority, application Japan, Nov. 27, 1990, 2-320787

Int. Cl.[5] C01B *15/037*

U.S. Cl. 423—272 **8 Claims**

1. A method for stabilizing an acidic aqueous hydrogen peroxide solution containing copper ions which decompose the hydrogen peroxide catalytically, characterized by adding to said acidic aqueous hydrogen peroxide solution a stabilizing effective amount of an amino acid having an aromatic nucleus represented by the following formula:

$$Ar-CH_2CH(NH_2)COOH$$

where Ar represents an aromatic group.

5,211,928

METHOD OF IMPROVING GYPSUM SLURRY FILTRATION IN THE PRODUCTION OF PHOSPHORIC ACID

Paul A. Rey, Corsopolis, and Wood E. Hunter, Pittsburgh, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Filed Oct. 15, 1991, Ser. No. 775,888

Int. Cl.[5] C01B *25/16*

U.S. Cl. 423—321 R **4 Claims**

1. A method for improving the filtration of a gypsum slurry in a wet process phosphoric acid manufacturing process which comprises adding to a said gypsum slurry an effective amount of a polymer which consists essentially of about 0.5 to about 99.5%, by weight, of: a) an unsaturated carboxylic acid selected from the group consisting of acrylic acid, methacrylic acid, their salts and mixtures thereof; and b) about 99.5 to about 0.5%, by weight, of an unsaturated sulfonic acid selected from the group consisting of 2-acrylamido-2-methylpropyl sulfonic acid, 2-methacrylamido-2-methylpropyl sulfonic acid vinyl sulfonic acid, sulfoalkyl acrylate, sulfoalkyl methacrylate, allyl sulfonic acid, methallyl sulfonic acid, 3-methacrylamido-2-hydroxypropyl sulfonic acid, sulfonic acid acrylate, their salts and mixtures thereof.

5,211,929

PROCESS FOR THE THERMAL ACTIVATION OF ZEOLITES AND RESULTANT PRODUCTS

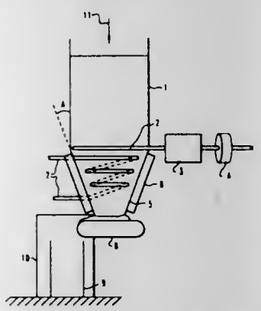
Guy Durand, Honfleur; Dominique Plee, Meulan, and Daniel Delcroix, Surville Pont Eveque, all of France, assignors to CECA S.A., France

Continuation-in-part of Ser. No. 442,597, Nov. 29, 1989, abandoned. This application Jun. 3, 1991, Ser. No. 709,608

Claims priority, application France, Oct. 6, 1989, 89 13065

Int. Cl.[5] C01B *33/34*

U.S. Cl. 423—717 **10 Claims**



1. A process for activation of zeolites A or X that are sensitive to degredation by the combined action of water vapor and temperature to produce activated zeolites with a nitrogen adsorption capacity, of at least 4 mg/g comprising forming a substantially homogeneous bed of granulates of said zeolite in its hydrated form, passing through said bed a current of a preheated, nonacid, dry gas at a substantially uniform velocity through the bed, continuing the passage of gas through said bed until, upon exiting from the bed, the gas is at a constant temperature close to its entry temperature at which time the activation is completed, and the removing and packing said activated zeolites without exposing said zeolite to the ambient air.

5,211,930

PROCESS FOR THE PREPARATION OF CRYSTALLINE SODIUM SILICATES HAVING A SHEET STRUCTURE

Günther Schimmel; Reinhard Gradl, both of Erftstadt, and Martin Schott, Steinbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 515,664, Apr. 25, 1990, abandoned, which is a continuation of Ser. No. 195,762, May 18, 1988, abandoned. This application Apr. 26, 1991, Ser. No. 693,782

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1987, 3718350

Int. Cl.[5] C01B *33/32*

U.S. Cl. 423—333 **1 Claim**

1. In a process for the preparation of crystalline sodium silicate having a sheet structure and an SiO_2/Na_2O molar ratio ranging from (1.9 to 3.5):1 from waterglass solution having a sodium silicate content of 20 to 65% by weight comprising

a) spray-drying the waterglass solution in a spray-drying zone to form an amorphous sodium silicate having a maximum ignition loss of 20% by weight, exhaust gas leaving said spray-drying zone having a temperature of at least 140° C.;

b) heating in an annealing zone the spray-dried amorphous sodium silicate of step (a) in a rotary tubular kiln inclined 1° to 5° from the horizontal at temperatures ranging from 500° C. to 800° C. for 1 to 60 minutes in order to effect crystallization of said amorphous sodium silicate; and

c) recovering said crystalline sodium silicate from said rotary tubular kiln;

the improvement consisting essentially of adding 10 weight-% to 50 weight-%, based on the weight of said amorphous sodium silicate, of crystalline sodium silicate obtained by mechanical comminution to the annealing zone in step b) so as to prevent adherence of any material to the walls of said rotary tubular kiln and thereby enable continuous recovery of pulverulent product in step (c).

5,211,931

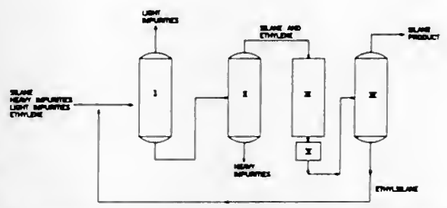
REMOVAL OF ETHYLENE FROM SILANE USING A DISTILLATION STEP AFTER SEPARATION USING A ZEOLITE MOLECULAR SIEVE

Robert H. Allen, Baton Rouge, La., and Douglas M. Richards, Houston, Tex., assignors to Ethyl Corporation, Richmond, Va.

Filed Mar. 27, 1992, Ser. No. 859,146

Int. Cl.[5] C01B *33/04;* **B01D** *53/02*

U.S. Cl. 423—347 **50 Claims**



1. A process for removing impurities from a stream of silane comprising:

a) passing a stream of silane, said stream of silane containing heavier impurities, lighter impurities and ethylene,

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through a first distillation column at a first temperature and pressure sufficient to remove said lighter impurities, leaving a second stream;

b) passing said second stream through a second distillation column at a second temperature and pressure sufficient to remove said heavier impurities, leaving a third stream;

c) passing said third stream through a molecular sieve, said molecular sieve having a porosity of about 4 angstroms, at a third temperature and pressure sufficient to absorb the majority of the ethylene in said third stream onto said molecular sieve and convert the remainder of the ethylene in said third stream to ethylsilane, leaving a fourth stream containing ethylsilane; and

d) passing said fourth stream containing ethylsilane through a third distillation column at a fourth temperature and pressure sufficient to produce a fifth stream containing a reduced concentration of ethylsilane.

5,211,932

CARBON BLACK PROCESS CONTROL SYSTEM

Charles R. Blaylock, Pampa; Melvin C. Dennis, White Deer; David J. Kaul, Pampa, all of Tex.; James L. Rice, Alpharetta, Ga., and Thomas L. Weaver, Chelmsford, Mass., assignors to Cabot Corporation, Boston, Mass.

Continuation of Ser. No. 376,792, Jul. 6, 1989, abandoned. This application Sep. 20, 1991, Ser. No. 763,479

Int. Cl.[5] C09C *1/50*

U.S. Cl. 423—450 **28 Claims**

1. In a process for producing carbon blacks in a carbon black reactor, a method of controlling the production of carbon black comprising the following steps:

a) determining the input variables utilizes in the production of carbon black and the corresponding output variables indicative of the properties of the carbon black product to be controlled in the carbon black production process;

b) generating a predicting algorithm for predicting at least one output variable based on at least one input variable, said at least one input variable being selected from the group including the fuel flow rate, the feedstock flow rate, the oxidant flow rate, the oxidant humidity, the oxidant preheat temperature, the first stage fuel quality, the feedstock quality, and the concentration of potassium in the feedstock;

c) pyrolyzing a hydrocarbon feedstock with hot combustion gases in the carbon black reactor to produce carbon black;

d) measuring at time spaced measuring intervals at least one of said input variables while the carbon black reactor is operating;

e) employing said predicting algorithm to predict at time spaced predicting intervals at least one of said output interval and generating a first signal indicative of said predicted output variable;

f) determining at spaced averaging intervals an average value of said at least one predicted output variable over said averaging interval and generating a second signal indicative of the average value of said at least one predicted output variable;

g) selecting a goal value of said at least one predicted output variable, and comparing said second signal to a third signal indicative of said goal value;

h) adjusting while the reactor is operating at least one of said input variables pursuant to an adjusting algorithm if there is a difference between said second and third signals, at least one of said input variables adjusted being selected from the group including the feedstock flow rate, the fuel flow rate, the oxidant flow rate, the oxidant preheat temperature, the oxidant humidity, and the concentration of potassium in the feedstock, to achieve said goal value of said at least one output variable and thereby obtain a substantially consistent quality of carbon black;

i) repeating steps d through h

j) sampling at time spaced intervals the carbon black produced while the carbon black reactor is operating;

k) measuring said at least one output variable predicted by said predicting algorithm from the sample of carbon black while the carbon black reactor is operating;

l) adjusting said predicting algorithm based on a comparison between said measured value of said at least one output variable and said predicted value of said output variable, in order to more correctly predict said at least one output variable; and

m) repeating steps d through l.

5,211,933

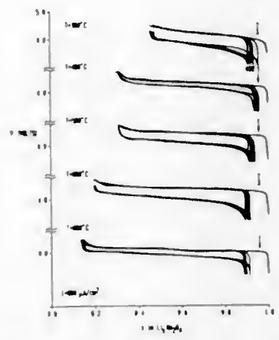
METHOD FOR PREPARATION OF $LiCoO_2$ INTERCALATION COMPOUND FOR USE IN SECONDARY LITHIUM BATTERIES

Philippe Barboux, Paris, France; Frough K. Shokoohi, Bedminster, and Jean-Marie Tarascon, Martinsville, both of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.

Division of Ser. No. 690,080, Apr. 23, 1991, Pat. No. 5,135,732. This application Apr. 30, 1992, Ser. No. 876,880

Int. Cl.[5] C01G *37/14*

U.S. Cl. 423—596 **4 Claims**



1. A method of preparing a lithiated cobalt oxide intercalation compound comprising the steps of:

a) mixing in stoichiometric amounts, based on said lithiated cobalt oxide compound, aqueous solutions of lithium hydroxide and cobalt acetate and a sufficient amount of an aqueous solution of a base selected from the group consisting of organic bases and ammonium hydroxide to establish a solution mixture pH of about 7, thereby initiating the formation of a gelatinous precipitate;

b) drying said precipitate by heating in the range of 60°–150° C., thereby forming a xerogel; and

c) annealing said xerogel by heating in the range of 200°–600° C.

5,211,934

SYNTHESIS OF MESOPOROUS ALUMINOSILICATE

Charles T. Kresge, West Chester, Pa.; Michael E. Leonowicz, Medford Lakes, N.J.; Wieslaw J. Roth, Sewell, N.J., and James C. Vartuli, West Chester, N.J., assignors to Mobil Oil Corp., Fairfax, Va.

Continuation-in-part of Ser. No. 735,000, Jul. 24, 1991, which is a continuation-in-part of Ser. No. 625,245, Dec. 10, 1990, Pat. No. 5,098,684, which is a continuation-in-part of Ser. No. 470,008, Jan. 25, 1990, Pat. No. 5,102,643. This application Feb. 12, 1992, Ser. No. 834,452

Int. Cl.[5] C01B *33/34*

U.S. Cl. 423—706 **5 Claims**

1. A method for synthesizing a composition of matter comprising an inorganic, porous, non-layered crystalline phase material exhibiting, after calcination, an X-ray diffraction pattern with at least one peak at a d-spacing greater than about 18 Angstrom Units with a relative intensity of 100 and a benzene adsorption capacity of greater than 15 grams benzene per 100 grams of said material at 50 torr and 25° C., said method comprising the steps of:

(a) preparing a mixture capable of forming said composition, said mixture comprising a source of silica, a source of alumina, an organic (R') agent and a solvent or solvent mixture, wherein R' comprises an ion of the formula $R_1R_2R_3R_4Q^+$, wherein Q is nitrogen or phosphorus and wherein at least one of R_1, R_2, R_3 and R_4 is aryl or alkyl of from 6 to about 36 carbon atoms or combinations thereof, the remainder of R_1, R_2, R_3 and R_4 being selected from the group consisting of hydrogen, alkyl of from 1 to 5 carbon atoms and combinations thereof;

(b) maintaining said mixture under sufficient conditions of pH, temperature and time for formation of said composition of matter; and

(c) recovering said composition of matter, wherein said source of silica and said source of alumina comprise hydrolyzable compounds which hydrolyze under the conditions of step (b) to give silica and alumina.

5,211,935

SYNTHESIS OF CRYSTALLINE MORDENITE-TYPE MATERIAL

Clarence D. Chang, Princeton, N.J.; Stuart D. Hellring, Yardley, Pa., and Randy F. Striebel, Mt. Holly, N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Oct. 4, 1991, Ser. No. 771,716

Int. Cl.[5] B01J *29/18, 20/18;* **C01B** *33/34*

U.S. Cl. 423—708 **17 Claims**

1. A method for synthesizing crystalline material exhibiting a characteristic X-ray diffraction pattern including d-spacing maxima values as shown in Table 1 which comprises (i) preparing a mixture capable of forming said material, said mixture comprising sources of alkali or alkaline earth metal (M), an oxide of trivalent element (X), an oxide of tetravalent element (Y), water and directing agent 1,2-diaminocyclohexane (R), and having a composition, in terms of mole ratios, within the following ranges:

YO_2/X_2O_3	1 to 50
H_2O/YO_2	10 to 100
OH^-/YO_2	0 to 0.25
H^+(added)/YO_2	0 to 1.0
M/YO_2	0 to 2.0
R/YO_2	0.01 to 2.0

(ii) maintaining said mixture under sufficient conditions until crystals of said material are formed; and (iii) recovering said crystalline material from step (ii), said recovered crystalline material containing said R.

12. The recovered crystalline material of claim 1.

5,211,936

METHOD OF DETERMINING A CITE OF INFLAMMATION UTILIZING ELAM-1 LIGANDS SITE

Brian K. Brandley, Alameda; Michael Tiemeyer; Stuart J. Swiedler, both of Oakland; Margaret Moreland, Berkeley, and Hans Schweingruber, Mountain View, all of Calif., assignors to Glycomed Incorporated, Alameda, Calif.

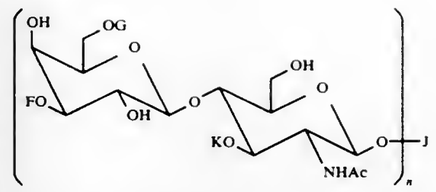
Filed Jul. 30, 1990, Ser. No. 559,836

Int. Cl.[5] A61K *49/02, 49/00*

U.S. Cl. 424—1.1 **5 Claims**

1. A method of determining a cite of inflammation in a patient, comprising the steps of:

administering to a patient an effective amount of an ELAM-1 ligand attached to a detectable label wherein the ELAM-1 ligand comprises a compound having the following general structural formula:



wherein one of F and G is hydrogen and one is an N-acetyl neuraminic acid residue on the terminal unit and are both hydrogen on any other unit; J is hydrogen or a linking group; K is hydrogen or a fucose residue; and n is an integer from 1 to 10 with the proviso that n and K are defined such that at least one K is a fucose residue;

allowing the labeled ELAM-1 ligand sufficient time to circulate in the patient and attach to ELAM-1 in the patient; and

detecting the label and its location in the patient and thereby determining the cite of inflammation.

5,211,937

METHOD OF DETERMINING A SITE OF INFLAMMATION UTILIZING ELAM-1 LIGANDS

Brian K. Brandley, Alameda; Michael Tiemeyer; Stuart J. Swiedler, both of Oakland; Margaret Moreland, Berkeley, and Hans Schweingruber, Monatain View, all of Calif., assignors to Glycomed Incorporated, Alameda, Calif.

Continuation-in-part of Ser. No. 637,868, Jan. 7, 1991, which is a continuation-in-part of Ser. No. 613,113, Nov. 15, 1990, which is a continuation-in-part of Ser. No. 559,856, Jul. 30, 1990. This application Apr. 11, 1991, Ser. No. 683,458

Int. Cl.[5] A61K *49/02, 49/00*

U.S. Cl. 424—1.1 **5 Claims**

1. A method of determining a site of inflammation in a patient, comprising the steps of:

injecting into the patient's circulatory system an injectable formulation comprising an effective amount of an ELAM-1 ligand attached to a detectable label wherein the ELAM-1 ligand is selected from the group consisting of NeuAc (α2,3)Gal(β1,3)[Fuc(α1,4)]GlcNAc and structural isomers thereof which bind to the same degree or more to ELAM-1;

allowing the labeled ELAM-1 ligand sufficient time to circulate in the patient and attached to ELAM-1 in the patient; and

detecting the label and its location in the patient and thereby determining the site of inflammation.

5,211,938

METHOD OF DETECTION OF MALIGNANT AND NON-MALIGNANT LESIONS BY PHOTOCHEMOTHERAPY OF PROTOPORPHYRIN IX PERCURSORS

James C. Kennedy; Roy H. Pottier, and Robert L. Reid, all of Kingston, Canada, assignors to Queen's University at Kingston, Kingston, Canada

Continuation of Ser. No. 386,414, Jul. 28, 1989, Pat. No. 5,079,262. This application Oct. 28, 1991, Ser. No. 783,750

Int. Cl.[5] G01N *33/15;* **A61K** *31/195*

U.S. Cl. 424—7.1 **2 Claims**

1. A method for detecting malignant and non-malignant tissue abnormalities and lesions of the skin, mucosa, endometrium and urothelium in a patient, comprising administering to said patient an effective amount of a precursor of protoporphyrin IX in the biosynthetic pathway for heme so as to induce synthesis of protoporphyrin IX preferentially in said abnormalities and lesions, exposing said patient to light having a wavelength within the absorbance spectrum of said protoporphyrin

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IX to thereby induce fluorescence in said abnormalities or lesions, and detecting said fluorescence.

5,211,939
METHOD FOR DESENSITIZING TEETH
Samuel Turesky, 84 Wallis Rd., Brookline, Mass. 02167, and Jean L. Spencer, 19 Middle St., #4, Boston, Mass. 02127
Continuation-in-part of Ser. No. 759,535, Sep. 13, 1991. This application Jan. 14, 1992, Ser. No. 820,348
Int. Cl.[5] A61K *7/16, 9/14, 9/50*
U.S. Cl. 424—49 21 Claims



1. A method of desensitizing a hypersensitive tooth, comprising applying a dentrifice, an aqueous dispersion, or a paste containing an effective amount of charged polymeric particles to the surface of said tooth to cause desensitization of said tooth.

5,211,940
TRANSPARENT LIQUID ORAL COMPOSITION
Keiji Ishiguro, Narashino; Osamu Uotani, Chiba, and Minako Seyama, Tokyo, all of Japan, assignors to Lion Corporation, Tokyo, Japan
Filed Jun. 16, 1992, Ser. No. 899,310
Claims priority, application Japan, Jun. 21, 1991, 3-177225
Int. Cl.[5] A61K *7/16, 33/34*
U.S. Cl. 424—49 13 Claims

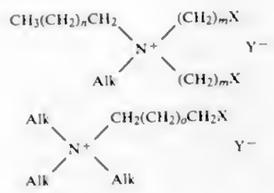
1. A transparent liquid oral composition comprising a water-soluble copper compound and an aliphatic dicarboxylic acid compound selected from the group consisting of malic acid, succinic acid, tartaric acid and water-soluble salts thereof.

5,211,941
HAIR CLEANSING COMPOSITION
Takashi Komori, Sakura; Yoshiyuki Eshita, Chiba; Tsuyoshi Ohtomo, Miyashiromachi, and Hajime Hirota, Tokyo, all of Japan, assignors to Kao Corporation, Tokyo, Japan
Filed Jun. 10, 1991, Ser. No. 712,416
Claims priority, application Japan, Jun. 11, 1990, 2-152191; Jun. 11, 1990, 2-152192
Int. Cl.[5] A61K *7/075*
U.S. Cl. 424—70 5 Claims

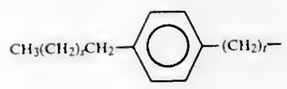
1. A hair cleansing composition comprising:
(a) 0.05 to 15% by weight of a surfactant, selected from the group consisting of (1) nonionic surfactants selected from the group consisting of monoglycerides, sorbitan fatty acid esters, sucrose fatty acid esters, polyglycerol fatty acid esters, alkanol amides, amine oxides, polyoxyethylene alkyl ethers, polyethylene glycol fatty acid esters, polyoxyethylene sorbitan fatty acid esters, polyoxyalkylene derivatives of propylene glycol, polyoxyethylene glycerol fatty acid monoesters, polyoxyethylene propylene glycol fatty acid monoesters, polyoxyethylene hydrogenated caster oils, polyoxyethylene fatty acid amides, polyoxyethylene alkylamines and alkyl saccharides; (2) anionic surfactants selected from the group consisting of alkyl sulfates, alkyl ether sulfates, fatty acid soaps, ether carboxylic acids and salts thereof, alkane sulfonic acid salts, α-olefin sulfonic acid salts, sulfonic acid salts of higher fatty acid esters, dialkyl sulfosuccinates, monoalkyl sulfosuccinates, polyoxyethylene monoalkyl sulfosuccinates, sulfonic acid salts of higher fatty acid amides, sulfuric acid ester salts of glycerol fatty acid esters, sulfuric acid ester salts of higher fatty acid alkylolamides, acylated amino acid salts and monoalkyl phosphates; (3) cationic surfactants selected from the group consisting of alkyl trimethyl ammonium salts, dialkyl dimethyl ammonium salts, alkyl dimethyl benzyl ammonium salts, alkyl pyridinium salts and alkyl isoquinolinium salts; and (4) amphoteric surfactants selected from the group consisting of imidazolines, amido amino acid salts, alkyl betains, and alkyl sulfobetains;
(b) 0.5 to 40% by weight of an alcohol, which is one or more members selected from the group consisting of ethanol, glycerol, ethylene glycol, diethylene glycol, triethylene glycol, hexanediol, butylene glycol, heptanediol, propylene glycol, sorbitol, maltitol and polyethylene glycol;
(c) 0.1 to 25% by weight of water; and
(d) 20 to 98% by weight of a liquid oil, which is one or more members selected from the group consisting of volatile cyclic silicone compounds, dimethyl polysiloxanes having a viscosity of 100 cs or less, methyl phenyl polysiloxane having a viscosity of 100 cs or less, squalane, liquid paraffin, isoparaffin, branched fatty acids, higher fatty acid esters, benzoates, diglycerides, triglycerides, and rosin derivatives; wherein the viscosity ratio of a mixture consisting of said components (a), (b) and (c) to a mixture of oil components comprising component (d) is 1 or more.

5,211,942
HALIDE CONTAINING QUATERNARY AMMONIUM SALTS AS HAIR CONDITIONING AGENTS
Thomas M. Deppert, Waterbury, and Janusz Z. Jachowicz, Bethel, both of Conn., assignors to Clairol Incorporated, New York, N.Y.
Division of Ser. No. 562,306, Aug. 3, 1990, Pat. No. 5,030,756. This application Jun. 21, 1991, Ser. No. 719,883
Int. Cl.[5] A61K *7/075*
U.S. Cl. 424—70 6 Claims

1. Aqueous compositions useful as hair conditioners for human hair containing from about 0.1 to about 10% by weight of the total composition of at least one compound represented by the formulas;



wherein:
X is bromine, chlorine or iodine
Y is an anion
Alk is an alkyl group containing from about 1 to about 4 carbon atoms
n is an integer with a value of from about 10 to about 22
m is an integer with a value of from about 1 to about 4
o is an integer with a value of from about 9 to about 11,
with the proviso that the total number of aliphatic carbon atoms in the cation is not more than about 28,
and further compounds in which one or both long chain alkyl groups is interrupted with a phenylene group so that the structure of the interrupted group can be represented by

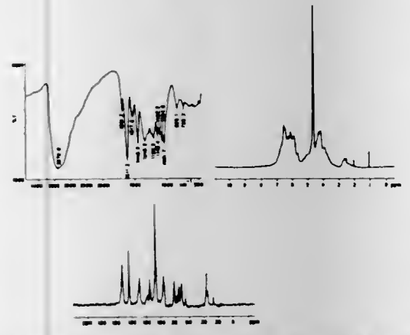


wherein s is an integer of from about 8 to about 17 and t is an integer from about 1 to about 5.

5,211,943
PHARMACEUTICAL PREPARATION FOR ADMINISTRATION BY PERCUTANEOUS ABSORPTION AND A METHOD FOR THEIR MANUFACTURE
Masato Azuma, Osaka; Toshihiro Isoue, Hyogo, and Yasuaki Kawano, Saitama, all of Japan, assignors to Chugai Selyaku Kabushiki Kaisha, Tokyo and Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, both of Japan
Filed Aug. 14, 1987, Ser. No. 86,319
Claims priority, application Japan, Aug. 18, 1986, 61-192492; Aug. 18, 1986, 61-192493; Apr. 1, 1987, 62-80276
Int. Cl.[5] A61K *31/745;* A01J *21/00*
U.S. Cl. 424—448 42 Claims

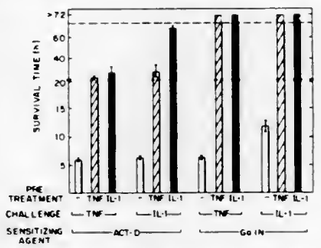
1. A pharmaceutical preparation for percutaneous absorption comprising a base material which is not compatible with Nicorandil and Nicorandil which may be in a free form or in the form of a salt thereof and is evenly distributed throughout said base material, wherein said Nicorandil exists as fine crystals having a mean diameter of between 2 and 50 μm whereby the stability of Nicorandil in said preparation during storage is greatly improved.

5,211,944
PROANTHOCYANIDIN POLYMERS HAVING ANTIVIRAL ACTIVITY AND METHODS OF OBTAINING SAME
Michael S. Tempesta, Moss Beach, Calif., assignor to Shaman Pharmaceuticals, Inc., San Carlos, Calif.
Continuation-in-part of Ser. No. 596,893, Oct. 12, 1990, abandoned. This application Jul. 29, 1991, Ser. No. 737,077
Int. Cl.[5] A01N *65/00*
U.S. Cl. 424—78.08 20 Claims



1. A proanthocyanidin polymer composition, characterized by:
(a) the capability of dissolving in water and/or aqueous solution;
(b) the capability of exerting a pronounced antiviral effect as demonstrated in in vitro assays for antiviral activity against respiratory syncytial virus, types A and B; parainfluenza virus, types 1 and 3; influenza virus, types A and B; and as demonstrated in in vivo tests for antiviral activity against respiratory syncytial virus; influenza virus, type A; parainfluenza virus, type 3; and herpes simplex virus, type 2;
(c) comprising a proanthocyanidin polymer having a structure comprising flavonoid units selected from the group consisting of catechins, epicatechins, gallocatechins, galloepicatechins and combinations thereof; and
(d) ^{13}C NMR spectra having peak positions at δ 154.2, 145.1, 143.7, 132.8, 131.2, 130.3, 120.9–118.6 (series of broad peaks), 116.1, 115.4, 114.3, 108.0, 106.3, 96.6, 95.3, 81.8, 77.6, 75.3, 72.6, 1.5, 65.6, 37.1, 35.3, and 27.7.

5,211,945
COMPOSITIONS AND METHODS FOR MODULATING THE EFFECT OF TNF AND IL-1
David Wallach, Rehovot, Israel, and Helmut Holtmann, Porta Westfalica, Fed. Rep. of Germany, assignors to Yeda Research and Development Co. Ltd., Rehovot, Israel
Filed Sep. 9, 1987, Ser. No. 94,981
Claims priority, application Israel, Sep. 10, 1986, 80005
Int. Cl.[5] A61K *37/02*
U.S. Cl. 424—85.1 11 Claims



1. A method of reducing the lethality of TNF and/or IL-1 in a mammal which comprises administering to said mammal a sub-deleterious amount of TNF and/or IL-1 prior to administering a therapeutically effective amount of TNF and/or IL-1.

5,211,946
BACILLUS THURINGIENSIS ISOLATES FOR CONTROLLING ACARIDES
Jewel M. Payne, San Diego, Calif.; Raymond J. C. Cannon, and Angela L. Bagley, both of Sittingbourne, England, assignors to Mycogen Corporation, San Diego, Calif.
Continuation-in-part of Ser. No. 759,248, Sep. 13, 1991, abandoned. This application Sep. 30, 1991, Ser. No. 768,141
Int. Cl.[5] A01N *61/00;* C12N *1/20;* C07K *15/02*
U.S. Cl. 424—93 L 20 Claims

1. A process for controlling acarid pests of livestock, fowl, and stored products, which comprises contacting said pests with an acarid-controlling effective amount of a Bacillus thuringiensis isolate selected from the group consisting of B.t. PS45B1, B.t. PS24J, B.t. PS94R3, B.t. PS17, B.t. PS62B1, and B.t. PS74G1, and mutants thereof, which retain the property of activity against acarid pests.

5,211,947
METHOD FOR LOWERING BLOOD CHOLESTEROL LEVELS WITH GRANULOCYTE-MACROPHAGE COLONY STIMULATING FACTOR
Melvin D. Brannan, Perkasie, Pa., and Hugh E. Black, Sparta, N.J., assignors to Schering Corporation, Kenilworth, N.J.
Filed Dec. 16, 1988, Ser. No. 285,156
Int. Cl.[5] A61K *37/547, 45/05, 37/02*
U.S. Cl. 424—94.63 5 Claims

1. A method for lowering the blood serum chloesterol level in a mammal comprising administering to a mammal a serum cholesterol lowering amount of GM-CSF in combination with at least one thrombolytic agent.

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5,211,948

PROCESS FOR THE PREPARATION OF A POWDERED EXTRACT OF VALERIAN ROOTS

Léon Cerise; Peter D. Leathwood, both of Blonay, and Tito L. Lunder, Morges, all of Switzerland, assignors to Nestec S.A., Vevy, Switzerland

Continuation of Ser. No. 413,319, Sep. 27, 1989, abandoned. This application Apr. 29, 1992, Ser. No. 876,119

Claims priority, application European Pat. Off., Oct. 12, 1988, 88116920

Int. Cl.[5] A61K *35/78*; A23G *3/30*

U.S. Cl. 424—195.1 15 Claims

1. A process for treating an aqueous extract of valerian roots comprising concentrating an aqueous extract obtained from valerian roots extracted with water to obtain a concentrated extract having a dry matter content of from 10% to 20% by weight, and to eliminate odors which are volatile and which are produced by degradation products of valepotriates, adding ethanol to the concentrated extract to form an ethanol-containing extract to precipitate insoluble solids therefrom and then centrifuging the ethanol-containing extract to remove precipitated solids therefrom.

5,211,949

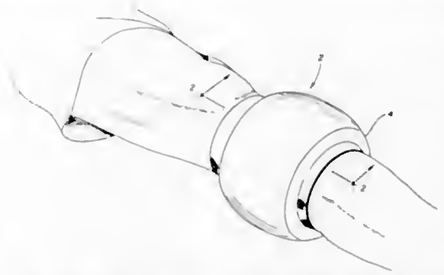
DRY POWDER MIXES COMPRISING PHASE CHANGE MATERIALS

Ival O. Salyer, Dayton, Ohio, assignor to University of Dayton, Dayton, Ohio

Division of Ser. No. 462,365, Jan. 9, 1990, Pat. No. 5,106,520. This application Feb. 18, 1992, Ser. No. 835,854

Int. Cl.[5] A01N *25/34*

U.S. Cl. 424—402 11 Claims



1. A wrap useful as a hot or cold medical wrap or a tree wrap comprising an outer envelope formed from a liquid impervious polymer, and a powdered mix of a phase change material and finely divided silica particles, in combination, disposed within said outer envelope, said silica particles having particle sizes of about 7×10^{-3} to about 7×10^{-2} microns, said phase change material being selected from the group consisting of water, glycerine, ethylene glycol, crystalline alkyl hydrocarbons having a carbon chain length of C_{14} and greater, crystalline fatty acids, crystalline fatty acid esters, crystalline alicyclic hydrocarbons, crystalline aromatic compounds, hydrated salts, clathrates, semi-clathrates, gas clathrates, polyethylene glycol, and halogen-terminated alkyl hydrocarbons, said phase change material having a melting and freezing point of from about −20° to about 140° C. and being present in an amount of 80% or less by weight and said silica particles being present in an amount of 20% or more by weight based on the total weight of the combination of phase change material and silica particles.

5,211,950

STABILIZED CALCITONIN PHARMACEUTICAL COMPOSITION

Hideki Kobayashi; Seiji Mochizuki; Yuji Makino, and Yoshiki Suzuki, all of Hino, Japan, assignors to Teijin Limited, Osaka, Japan

Filed May 23, 1990, Ser. No. 527,461

Claims priority, application Japan, May 23, 1989, 1-127743

Int. Cl.[5] A61K *9/14, 9/48, 9/52*

U.S. Cl. 424—422 5 Claims

1. A solid calcitonin pharmaceutical composition comprising a therapeutically effective amount of at least one calcitonin and at least one ethylene diamine tetraacetate in an amount of 0.005 to 50 μg per 1 IU of calcitonin, said composition being obtained either by freeze drying an aqueous solution containing said calcitonin and said ethylene diamine tetraacetate or by adding a poor solvent selected from the group consisting of ethyl alcohol, acetonitrile, propylene glycol and glycerin to an aqueous solution containing said calcitonin and said ethylene diamine tetraacetate.

5,211,951

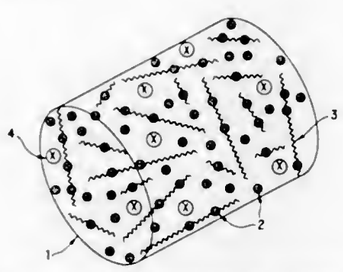
PROCESS FOR THE MANUFACTURE OF BIOERODIBLE POLY (ORTHOESTER)S AND POLYACETALS

Randall V. Sparer, and Gaylen Zentner, both of Lawrence, Kans., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jul. 24, 1991, Ser. No. 734,843

Int. Cl.[5] A61F *2/00*

U.S. Cl. 424—426 11 Claims



1. A process for the manufacture of a bioerodible poly(ortho ester) or polyacetal polymer, which contains from 1% to 100% of a biologically active beneficial agent, which comprises:

(a) mixing, in a dry environment, a diol and a polyol having three or more hydroxyl groups until the mixture is solubilized and a uniform viscosity of solution is achieved;

(b) adding a biologically active beneficial agent having a hydroxyl functionality of two or more and a poly(ortho ester) bond stabilizer to the mixture of (a) and stirring until a uniform viscosity of solution is achieved; and

(c) adding a diketene acetal or a divinyl ether to the mixture of (b) with stirring and monitoring the rate of polymerization by monitoring the change in viscosity, until the viscosity of the resulting poly(orth ester) or polyacetal is between 2,000 cp and 20,000 cp at 20° C. and 10 sec^{-1};

wherein the biologically active beneficial agent is present in the poly(ortho ester) or polyacetal in a stoichiometric ratio of 0.1 to 1.5 equivalents of hydroxyl to 1 equivalent of ketene acetal of vinyl ether.

5,211,952

CONTRACEPTIVE METHODS AND FORMULATIONS FOR USE THEREIN

Darcy V. Spicer, Pasadena, and Malcolm C. Pike, Long Beach, both of Calif., assignors to University of Southern California, Los Angeles, Calif.

Filed Apr. 12, 1991, Ser. No. 684,612

Int. Cl.[5] A61F *2/02, 6/06*; A61K *37/38, 9/50, 9/14*; C07K *15/06, 17/02, 17/14*

U.S. Cl. 424—426 16 Claims

1. A composition for use in a contraceptive delivery system comprising:

a slow-release formulation of a gonadotropin hormone releasing hormone composition which maintains serum levels of said gonadotropin hormone releasing hormone composition at a level effective to inhibit ovulation over a first period of time comprising about two months to about six months;

a slow-release formulation of an estrogenic hormone which maintains serum levels of said estrogenic hormone at a level equivalent to a serum level of estradiol of from about 25 to about 140 pg/ml over said first period of time; and

a slow-release formulation of a progestogen which maintains serum levels of said progestogen at a level equivalent to a serum level of progesterone of from about 5 to about 20 ng/ml for a second period of time comprising about 5 to about 20 days, said second period of time running simultaneously with a portion of said first period of time.

5,211,953

LIVER FUNCTION IMPROVER

Yoshifumi Shinmen, Nagaokakyo; Kengo Akimoto, Mishima; Sumio Asami, Ibaraki; Yoshihide Suwa, Ibaraki; Yoshinori Kitagawa, Ibaraki; Michihiro Sugano, Fukuoka; Hideaki Yamada, and Sakayu Shimizu, both of Kyoto, all of Japan, assignors to Suntory, Limited, Osaka, Japan

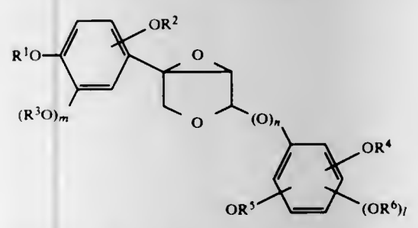
Division of Ser. No. 555,586, Jul. 20, 1990, Pat. No. 5,180,588. This application Jun. 23, 1992, Ser. No. 902,854

Claims priority, application Japan, Jul. 21, 1989, 1-187497; Apr. 3, 1990, 2-087500

Int. Cl.[5] A61K *47/00*; A01N *43/30*

U.S. Cl. 424—439 18 Claims

1. A method for the prevention or treatment of fatty liver, liver disorders caused by alcohol, treatment of liver disorders caused by chemicals, acceleration of alcohol metabolism, or decrease of serum cholesterol or neutral fat comprising administering to a person in need of such treatment, an effective amount to prevent or treat fatty liver, liver disorders caused by alcohol, to treat liver disorders caused by chemicals, to accelerate alcohol metabolism, or to decrease serum cholesterol or neutral fat of a dioxabicyclo[3.3.0]octane derivative represented by the following general formula (I):



(I)

wherein R^1, R^2, R^3, R^4, R^5 and R^6 independently represent a hydrogen atom or an alkyl grouping having 1 to 3 carbon atoms, or R^1 and R^2 and/or R^4 and R^5 together form a methylene group or an ethylene group, and n, m and l are 0 or 1.

5,211,954

LOW DOSE TEMAZEPAM

William R. Sterling, Pine Brook, N.J., assignor to Sandoz Ltd., Basel, Switzerland

Continuation of Ser. No. 709,866, Jun. 3, 1991, abandoned, which is a division of Ser. No. 569,787, Aug. 17, 1990, Pat. No. 5,030,632, which is a continuation of Ser. No. 434,142, Nov. 9, 1989, abandoned, which is a continuation of Ser. No. 295,332, Jan. 10, 1989, abandoned, which is a continuation of Ser. No. 910,571, Sep. 23, 1986, abandoned. This application Apr. 30, 1992, Ser. No. 876,269

Int. Cl.[5] A61K *9/14, 9/48*

U.S. Cl. 424—452 2 Claims

1. A hard gelatin capsule containing a temazepam formulation consisting essentially of 6 to 8 milligrams of crystalline temazepam having a surface area of from 0.65 to 1.1 m^2/g and 95% of the temazepam having a particle size of less than 65 microns in admixture with a pharmaceutically acceptable carrier therefor.

5,211,955

PHARMACEUTICAL COMPOSITION CONTAINING A HYDROPHILIC ACTIVE COMPOUND, TREATED WITH AN ORGANIC ACID AND ENCAPSULATED IN A LIPOSOME

Franz Legros, rue de Plagniau 8, B-1330 Rixensart, and Claude-Pascal Leroy, rue de la Follie 2, B-7190 Ecaussinnes, both of Belgium

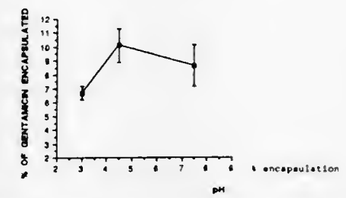
PCT No. PCT/BE89/00047, § 371 Date Apr. 10, 1991, § 102(e) Date Apr. 10, 1991, PCT Pub. No. WO90/03781, PCT Pub. Date Apr. 19, 1990

PCT Filed Oct. 12, 1989, Ser. No. 659,286

Claims priority, application Belgium, Oct. 12, 1988, 8801180

Int. Cl.[5] A61K *9/127*

U.S. Cl. 424—450 20 Claims



1. Pharmaceutical composition containing an hydrophilic aminoglucoside antibiotic coupled with an organic acid, the coupled aminoglucoside antibiotic and organic acid being encapsulated in a liposome.

5,211,956

PHARMACEUTICAL COMPOSITIONS CONTAINING PHYTIC ACID OR ITS SALTS

Kiichi Sawai, Funabashi; Masayasu Kurono, Mie; Hiromoto Asai, Nagoya; Takahiko Mitani, Mie, and Naohisa Ninomiya, Nagoya, all of Japan, assignors to Sanwa Kagaku Kenkyusho Co., Ltd., Aichi, Japan

Filed May 3, 1989, Ser. No. 346,852

Claims priority, application Japan, May 19, 1988, 63-122348; Nov. 22, 1988, 63-295167

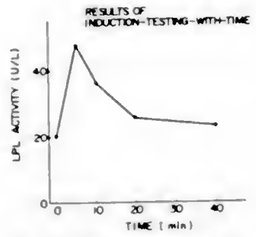
Int. Cl.[5] A61K *9/48*

U.S. Cl. 424—451 8 Claims

1. A method of treatment for obesity and hyperlipemia symptoms comprising the oral administration to a mammal in need of such treatment of an effective dosage of a pharmaceuti-

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cal composition consisting essentially of at least one compound selected from the group consisting of phytic acid, a non-toxic



phytate salt, and mixtures thereof, and a pharmaceutically acceptable carrier.

5,211,957

SOLID RAPIDLY DISINTEGRATING DOSAGE FORM

Ruth Hagemann, Allschwil; Dagmar Wirth, Dottikon, both of Switzerland, and Henri-Julien Brooner, Hésingue, France, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 692,803, Apr. 24, 1991, abandoned, which is a continuation of Ser. No. 324,931, Mar. 19, 1989, abandoned. This application Jul. 16, 1992, Ser. No. 915,050

Claims priority, application Switzerland, Mar. 25, 1988, 1138/88

Int. Cl.[5] **A61L** *9/46*

U.S. Cl. 424—466 **4 Claims**

1. A solid, rapidly disintegrating dosage form of an effervescent tablet for producing an aqueous suspension for peroral administration, said dosage form comprises fine particles of micronized diclofenac having an average particle size smaller than 200 mμ, said particles individually coated with a coating material selected from the group consisting of polyvinylpyrrolidone, a lower alkyl ether of cellulose, and a permeable, swellable acrylate/methacrylate copolymer, or a correspondingly coated pharmaceutically acceptable salt of diclofenac, together with excipients suitable for solid effervescent formulations, suspending aids, and further optional pharmaceutical excipients.

5,211,958

PHARMACEUTICAL COMPOSITION AND PROCESS FOR ITS PREPARATION

Piet J. Akkerboom, Zoetermeer; Robert De Cocq, Delft, and Maria Wegman, Hoofddorp, all of Netherlands, assignors to Gist-Brocades, N.V., Delft, Netherlands

Continuation of Ser. No. 655,210, Feb. 12, 1991, abandoned, which is a continuation of Ser. No. 278,020, Nov. 30, 1988, abandoned. This application Apr. 29, 1992, Ser. No. 877,385

Claims priority, application European Pat. Off., Nov. 30, 1987, 87202370

Int. Cl.[5] **A61K** *9/26*

U.S. Cl. 424—470 **24 Claims**

1. A pharmaceutical tablet, comprising:

tetracycline;

a cellulose produce selected from the group consisting of microcrystalline cellulose, microfine cellulose and mixtures thereof;

low-substituted hydroxypropylcellulose; and

a thickening agent selected from the group consisting of natural gums and cellulose derivatives, and having a viscosity of less than 50 cps, measured as a 2% by weight aqueous solution at 20° C. wherein the weight ratio of low-substituted hydroxypropylcellulose to the thickening agent is between 3:1 and 10:1, and the cellulose product is present in an amount of 20–60 wt % based on the weight of the tetracycline.

5,211,959

PROCESSES FOR PRODUCING SLOW-RELEASE POWDERS

Fumio Yoshii; Keizo Makuuchi, and Isao Ishigaki, all of Gunma, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Jan. 4, 1991, Ser. No. 637,533

Claims priority, application Japan, Jan. 11, 1990, 2-4237; Feb. 3, 1990, 2-25013; May 24, 1990, 2-134976; May 24, 1990, 2-134977

Int. Cl.[5] **A61K** *9/14, 7/46, 47/32;* **C08F** *2/54*

U.S. Cl. 424—489 **4 Claims**

1. A process for producing a slow release powder by the steps of:

first mixing a long-chain compound and a slow-releasable substance, wherein the weight ratio of said long-chain compound to said slow-releasable substance ranges from 1:0.1 to 1:10; and

then mixing the resulting mixture with urea at a temperature ranging from 20° to 80° C., wherein the molar ratio of said urea to said long-chain compound ranges from 1:5 to 1:15,

wherein said long-chain compound has a molecular weight of at least 100, said long-chain compound facilitating the incorporation of said slow-releasable substance into said urea to form a urea adduct, wherein said long chain compound is selected from the group consisting of hexyl alcohol, n-octyl alcohol, nonyl alcohol, decyl alcohol, undecyl alcohol, lauryl alcohol, n-capric acid, caproic acid, lauric acid, oleic acid, linoleic acid, stearic acid, 1,6-hexanediol diacrylate, 1,6-hexanediol monoacrylate, lauryl acrylate, stearyl acrylate and caprolactone modified 2-hydroxyethyl acrylate, and

wherein the slow-releasable substance is selected from the group consisting of a natural perfume, a synthetic perfume, an insect control agent, an insect killing agent, a rust inhibitor, a mold inhibitor and an antibacterial agent.

5,211,960

STABILIZATION OF LEUKOCYTES

Bernard M. Babior, San Diego, Calif., assignor to Scripps Clinic and Research Foundation, La Jolla, Calif.

Division of Ser. No. 277,256, Nov. 29, 1988, Pat. No. 4,923,797. This application Nov. 15, 1989, Ser. No. 437,361

Int. Cl.[5] **A61K** *35/14*

U.S. Cl. 424—534 **6 Claims**

1. A stock solution adapted to be mixed with a suspension of human leukocytes to maintain function during storage, said solution comprising a

water solution containing an amount of modified fluid gelatin from 8% by weight up to the amount causing the solution to gel at room temperature, and

a member of the group consisting of a) the heterocyclic bases which occur in nucleic acids, b) nucleosides containing said bases, c) nucleotides containing said bases, and d) mixtures of a), b) and c), said member being present at a concentration from 0.5 micromolar to 20 millimolar.

5,211,961

COMPOSITION, AND METHOD, FOR PREMILKING UDDER HYGIENE

Robert W. Adkinson, Baton Rouge, La., assignor to Louisiana State University Board of Supervisors, Baton Rouge, La.

Continuation-in-part of Ser. No. 575,090, Aug. 30, 1990, abandoned. This application Apr. 2, 1992, Ser. No. 862,429

Int. Cl.[5] **A01N** *39/00, 59/08, 59/22, 37/52*

U.S. Cl. 424—616 **28 Claims**

1. A composition for improving teat and udder hygiene in preparing agricultural animals soiled with manure, mud and other dirt for machine milking which comprises

an admixture of

(a) water,

(b) a germicide in concentration sufficient to destroy environmental bacteria that cause mastitis,

(c) a soap, detergent, surfactant or combination thereof sufficient to provide good wetting and cleaning properties,

(d) a skin softener and moisturizer for the protection of the skin surfaces of the teats and udder,

(e) an aqueous gelling agent in concentration sufficient to gell with the water to form a tactile palpable jelly-like mass the apparent viscosity of which ranges from about 1,500 Cp to about 2,000,000 Cp, as measured at 25° with a Brookfield LVT Viscometer equipped with a helipath stand and using T-bar spindles A, B, C, D, E and F at rotational speeds up to 6 rpm, which can be applied to the teats and udder of the animals to soften the manure, mud and other dirt, destroy environmental bacteria that cause mastitis, and clean the teats and udder without the use of extraneous water, and without separation of a liquid phase from the admixture.

5,211,962

DEVICE AND PROCESS FOR THE PRODUCTION OF OXIDE-CERAMIC MATERIALS

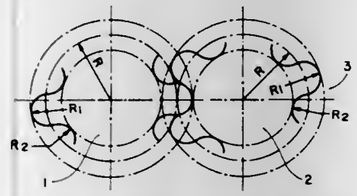
Erwin Haas, Kandern, and Heinz-Withold Schmitz, Bochum, both of Fed. Rep. of Germany, assignors to Lonza-Werke G.m.b.H., Waldshut, Fed. Rep. of Germany

Filed Aug. 4, 1987, Ser. No. 81,339

Claims priority, application Switzerland, Aug. 15, 1986, 3287/86; Feb. 9, 1987, 461/87

Int. Cl.[5] **B22B** *1/54*

U.S. Cl. 425—6 **13 Claims**



1. Device for fast cooling and solidifying molten materials with a metal oxide base which exhibits two horizontally-mounted metal cylinders having parallel axes of rotation which form a plane, said metal cylinders each having outside surfaces which rotate in opposite directions said device being provided with cooling devices which are adapted to cool said metal cylinders, each outside surface constituting a rolling periphery which is a corrugated surface having consecutive recesses and elevations, one of said elevations of one of said metal cylinders engaging one of said recesses of said other metal cylinder, and said outside surfaces of said metal cylinders at said plane forming a free gap of at least 0.5 mm and at most 10 mm.

5,211,963

EXTRUSION APPARATUS

John N. Garner, Kingston, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed May 7, 1992, Ser. No. 879,632

Int. Cl.[5] **B29C** *63/00*

U.S. Cl. 425—113 **13 Claims**

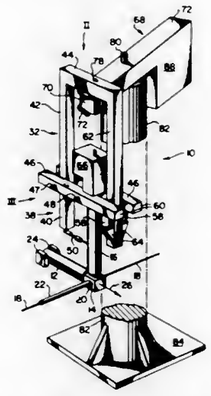
1. Apparatus for extruding two layers of material onto a core of indefinite length comprising:

a dual extruder head having a passageway terminating in an extrusion orifice for the layers, a passline for the core extending through the passageway and out through the extrusion orifice;

a horizontal extruder having an extrusion outlet connectable directly to a first inlet to the passageway of the extruder head;

an upwardly extending extruder having an extrusion outlet connectable directly to a second inlet to the passageway of the extruder head;

and a means to carry the weight of the upwardly extending extruder, said means having pivotal axes to allow for movement of the upwardly extending extruder so as to maintain desired alignment between the extruder head and



each extruder and maintain the angular orientation of the upwardly extending extruder to minimize stresses caused by temperature variations while:

a) allowing the head, during temperature variation induced expansion and contraction, to move the upwardly extending extruder horizontally to comply with the expansion and contraction; and

b) allowing temperature variation induced axial extension and contraction of the upwardly extending extruder towards and away from the extruder head.

5,211,964

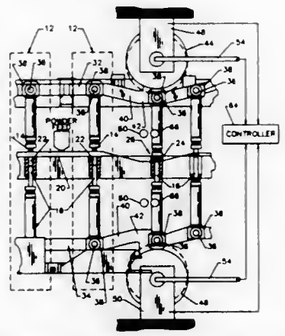
PRESS MACHINE WITH MEANS TO ADJUST PUNCHING FORCE

Edmund Prytherch, Columbia, and Edward M. Quarterman, Gilbert, both of S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 20, 1991, Ser. No. 703,313

Int. Cl.[5] **B29C** *43/08*

U.S. Cl. 425—140 **12 Claims**



1. A press machine comprising a plurality of press units, each

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press unit having a die opening and cooperating upper and lower punches being slidable into an extended, inward position in the die opening,

means for advancing each press unit successively into a punching position where the upper and lower punches are positioned in the extended, inward position in the die opening for pressing material into a compact body,

force generating means positioned at said punching position for exerting a punching force onto upper and lower punches advanced into the punching position,

means for comparing the displacement of upper and lower punches when the punching force is applied with a reference displacement indicative of the actual undisplaced position of said punches just prior to the application of the punching force, and

control means operatively connected to said force generating means and said comparing means for adjusting the punching force applied onto said punches in response to the compared displacements and predetermined values therefor.

5,211,965

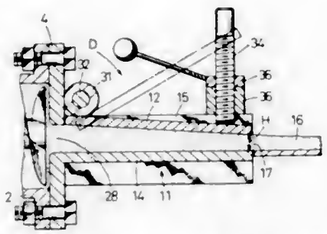
APPARATUS FOR MAKING NOODLE BASE

Yukio Kitagawa, Gifu, Japan, assignor to Kabushiki Kaisha Takashin, Gifu and Tosei Kogyo Kabushiki Kaisha, Tokyo, both of Japan

Filed Feb. 25, 1992, Ser. No. 839,894

Int. Cl.[5] B29C *47/16*

U.S. Cl. 425—141 15 Claims



1. An apparatus for making a noodle base, comprising:

at least one cylindrical drum having a screw conveyor therein;

means for rotating said screw conveyor;

an inlet at one end of said conveyor for receiving raw materials of a noodle base therein; and

An extrusion die at the other end of said conveyor for extruding the raw materials after having been kneaded and stretched by said screw conveyor as a noodle base, said extrusion die comprising a main die body having an open upper surface and a base end portion, a cover body rotatably supported on said base end portion of said main die body such that said cover body is rotatable to cover said open upper surface, said cover body and said open upper surface defining therebetween an extrusion port, and a cover body pushing member adjustably mounted relative to said main die body for preventing said cover body from being rotated and raised above said open upper surface beyond an adjustable limit, whereby said extrusion port is adjustable.

5,211,966

DEVICE FOR DETACHABLY FASTENING A BOX

Gerhard Raudies, Egliswil, Switzerland, and Walter Steinmann, Kadelburg, Fed. Rep. of Germany, assignors to Bucher-Guyer AG Machinenfabrik, Niederweningen, Switzerland

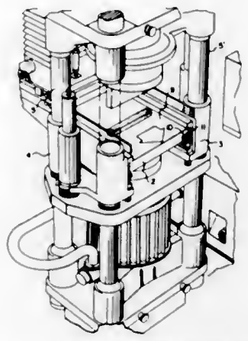
PCT No. PCT/CH89/00168, § 371 Date May 10, 1990, § 102(e) Date May 10, 1990, PCT Pub. No. WO90/02651, PCT Pub. Date Mar. 22, 1990

PCT Filed Sep. 12, 1989, Ser. No. 490,555

Claims priority, application Switzerland, Sep. 14, 1988, 3419/88

Int. Cl.[5] B29C *43/04*

U.S. Cl. 425—193 8 Claims



1. In a press having a mold table and a removable mold block insertable therein, the improvement comprising a device for inserting and detachably fastening the insertable mold block in an operating position on the mold table, said mold table and the insertable block having thereon laterally opposite guide members, lifting means on said mold table between said guide members for holding the mold block against downward-oriented adjusting surfaces of said guide members on said mold table in the operating position, said block having a surface with a mold feed opening therein, said block surface and said adjusting surfaces provided on the mold table defining a common plane when said mold block is in the operating position.

5,211,967

THREE-DIMENSIONAL FABRIC AND METHOD OF PRODUCING THE SAME

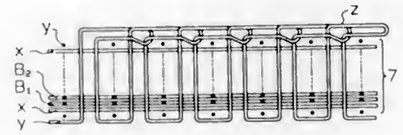
Yoshiharu Yasui; Meiji Anahara, and Masaaki Amano, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Mar. 12, 1992, Ser. No. 849,748

Claims priority, application Japan, Mar. 15, 1991, 3-51479; Mar. 15, 1991, 3-51480

Int. Cl.[5] D03D *3/00*

U.S. Cl. 428—225 18 Claims



1. A three-dimensional fabric comprising:

at least two plate sections arranged in intersecting planes, there being a bend defined at the intersection of the plate sections;

a plurality of thread layers that extend continuously through and between the plate sections, the threads of the thread layers within each plate section are arranged to extend in planes that are perpendicular to a transverse direction that passes through the corresponding plate section, the threads being woven in at least two independent directions; and

at least one transverse thread woven through the thread layers in the transverse direction of the corresponding plate sections to couple the thread layers together.

5,211,968

DOUGH DIVIDING MACHINE

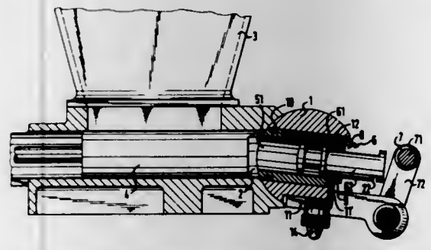
Helmut Judex, Schwieberdingen, Fed. Rep. of Germany, assignor to Werner & Pfleiderer GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 18, 1991, Ser. No. 809,763

Claims priority, application Fed. Rep. of Germany, Jan. 7, 1991, 4100243

Int. Cl.[5] A21C *5/02*

U.S. Cl. 425—238 15 Claims



1. A machine for dividing dough comprising dough supply means having an outlet end for delivering dough under pressure from said outlet end, a displaceable carrier adjacent to said outlet end for receiving said dough from said dough supply means, said carrier having a dividing chamber with an open end for receiving said dough when the carrier is in a first receiving position, piston means in said dividing chamber for discharging the dough from said dividing chamber when the carrier has been displaced to a discharge position, said piston means having first and second operational states in which, for a given stroke of said piston means, said piston means delivers respective larger and smaller volumes of dough mass, and means for changing the piston means between said first and second operational states, said piston means comprising an external piston slidable in said dividing chamber and an internal piston slidable in said external piston, said external and internal pistons being coupled for conjoint movement in said first operational state, said internal piston being slidable in said external piston in said second operational state, said external and internal pistons being relatively rotatable, said means for changing the piston means between said first and second operational states comprising locking means for selectively locking the external and internal pistons for conjoint movement by relatively rotating said pistons, said locking means comprising a flat region extending axially along said internal piston at the periphery thereof, said internal piston having a groove in said periphery, a locking bolt carried by said external piston, said locking bolt being engaged in said groove in the internal piston when the pistons are locked together in the first operational state whereas in the unlocked position of the pistons, in the second operational state, said pistons are rotated relative to one another so that the locking bolt rides on said flat region on the internal piston.

5,211,969

MOLD FOR PRESS MOLDING OF OPTICAL ELEMENT

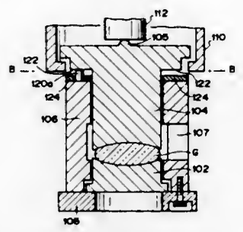
Fumitaka Yoshimura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 31, 1991, Ser. No. 785,766

Claims priority, application Japan, Nov. 2, 1990, 2-295233; Nov. 2, 1990, 2-295234

Int. Cl.[5] B29D *11/00*

U.S. Cl. 425—395 4 Claims



1. A mold for press molding, including an upper mold member and a lower mold member in a sleeve member so as to be slidable in a longitudinal direction of the sleeve member, comprising:

means for limiting a movement of said lower mold member with respect to said sleeve member in a direction in which said lower mold member is separated from said upper mold member; and

a ring member mounted on an upper end face of said sleeve member, said ring member being provided with at least three penetrating holes in the longitudinal direction of said sleeve member, pins with same length being detachably inserted respectively in said penetrating holes;

wherein said upper mold member is provided with an impinging face to be brought into contact with said pins for setting a thickness of a molded article.

5,211,970

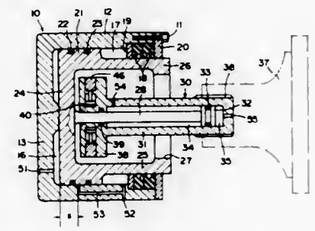
HYDRAULIC CLAMPING APPARATUS FOR AN INJECTION MOLDING MACHINE

Hiroshi Sakurai, 10-1 Sugita 9-chome, Isogo-ku, Yokohama-shi, Kanagawa-ken, Japan, and Yong Chul Kim, 120-11 Hanshin 16 Apartment Jamwon-Dong, Socho-ku, Seoul, Rep. of Korea

Filed Jan. 14, 1992, Ser. No. 820,483

Int. Cl.[5] A23P *1/00*

U.S. Cl. 425—595 20 Claims



1. Hydraulic clamping apparatus for injection molding machines comprising:

a first hydraulic actuator means comprising a first cylinder and a first hollow, cup-shaped piston including a closed head portion disposed for reciprocating movement within said first cylinder, and a foot portion axially spaced from said head portion and defining an opening;

a second hydraulic actuator means comprising a second piston, a rod extending axially through said opening into

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said first piston and connected between said first and second pistons, and a second cylinder mounted for reciprocating movement on said second piston and through said opening between a recessed position substantially within said first piston, and an extended position substantially outside said first piston; and

clutch means operable in said extended position of said second cylinder to produce engagement thereof with said first piston.

5,211,971

LACTIC ACID BACTERIA CULTURES SUPPORTED ON AN EXPANDED CEREAL FOR PREPARING FLAVOR OR AROMA MATERIAL

Wietse Van Dijk, Klaaswaal; Bartholomeus Van Schie, Leiden, both of Netherlands, and Nigel K. H. Slater, West Kingsdown, United Kingdom, assignors to Unilever Patent Holdings B.V., Rotterdam, Netherlands

Continuation of Ser. No. 601,129, Oct. 23, 1990, abandoned. This application Aug. 19, 1992, Ser. No. 930,452

Claims priority, application United Kingdom, Oct. 23, 1989, 8923841

Int. Cl.[5] A23L *1/10*; A21D *2/00*; C12N *11/10*

U.S. Cl. 426—18 9 Claims

1. A process for the production of supported lactic acid bacteria cultures which comprises culturing a lactic acid producing bacteria in an aqueous dispersion of an expanded, pregelatinized, starch containing cereal adsorbent obtained by extrusion of a cereal product under a pressure of less than 50 bar at a temperature of at least 150° C., said dispersion having a viscosity at 25° C. from 30 to 60 mPas, when measured as a 10 wt % aqueous dispersion, and separating a supported lactic acid producing bacterial product from the dispersion.

5,211,972

PREPARATION OF CHEESE FLAVORANT COMPOSITIONS

Zdenek Kratky, and Dharam V. Vadehra, both of New Milford, Conn., assignors to Nestec S.A., Vevey, Switzerland

Division of Ser. No. 25,224, Mar. 12, 1987. This application Aug. 14, 1992, Ser. No. 930,155

Int. Cl.[5] A23L *1/22, 1/23*

U.S. Cl. 426—35 8 Claims

1. A process for preparing a flavoring composition comprising:

mixing heavy cream with water, salt and a lipase specific for hydrolyzing fatty acids having up to 12 carbon atoms and incubating the mixture at a temperature of from 25° C. to 40° C. for from 12 hours to 30 hours to obtain a lipolysed cream product;

mixing heard, ripened cheese with water, salt and a lipase specific for hydrolyizing fatty acids having up to 12 carbon atoms, homogenizing the mixture and then incubating the homogenized mixture at a temperature of from 25° C. to 40° C. for a period of from 1 day to 4 days for preparing a lipolysed hard, ripened cheese product;

preparing at least one proteolysed cheese product by at least one process selected from the group consisting of:

(a) mixing hard, ripened cheese with water and a neutral protease, homogenizing the mixture and then incubating the homogenized mixture at a temperature of from 25° C. to 40° C. for a period of from 12 hours to 30 hours for preparing a first proteolysed cheese product;

(b) mixing hard, ripened cheese with water, adjusting the pH of the mixture to a pH of from 3 to 4, adding an acid stable protease to the pH adjusted mixture and then incubating that mixture at a temperature of from 25° C. to 40° C. for a period of from 1 day to 4 days for preparing a second proteolysed cheese product; and

(c) mixing the first and second proteolysed cheese products for preparing a third proteolysed cheese product; and

mixing the lipolysed cream product, the lipolysed cheese product and the at least one proteolysed cheese product to obtain a flavoring composition product.

5,211,973

WATER TREATMENT APPARATUS

John E. Nohren, Jr., St. Petersburg, Fla., assignor to Innova/-Pure Water, Inc., Clearwater, Fla.

Division of Ser. No. 517,453, May 4, 1990, Pat. No. 4,979,654, which is a continuation of Ser. No. 247,332, Sep. 21, 1988, abandoned, which is a continuation-in-part of Ser. No. 29,720, Mar. 24, 1987, Pat. No. 4,769,144, which is a continuation-in-part of Ser. No. 822,238, Jan. 24, 1986, Pat. No. 4,695,379. This application Oct. 25, 1990, Ser. No. 605,129

Int. Cl.[5] C02F *9/00*

U.S. Cl. 426—82 9 Claims



1. Water treatment apparatus comprising a fill tube having an open inlet end and an open discharge end, the tube enclosing between said open discharge end and said open inlet end at least two types of filter media, one above the other and separated by a first retaining screen, the inlet end including means for mounting the open inlet end of the fill tube to a water faucet and the discharge end including a second retaining screen below and adjacent the other filter media, the discharge end further including means mounting a replaceable cartridge, the cartridge having an upper open end and a closed lower end, a retaining screen located between the upper open end and the closed lower end, and filter media located between the retaining screen and the closed lower end, and a plurality of discharge openings formed in a peripheral side wall of the cartridge, adjacent the closed lower end.

5,211,974

CONTAINERS AND COMPOSITIONS FOR SEALING THEM

Steven A. C. White, Ivinghoe, England, assignor to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Sep. 19, 1991, Ser. No. 762,822

Claims priority, application United Kingdom, Sep. 28, 1990, 9021167; Nov. 30, 1990, 9026053; Jan. 18, 1991, 9101100

Int. Cl.[5] B65D *1/00*

U.S. Cl. 426—106 7 Claims

1. A beer bottle comprising a bottle, a cap and a sealing gasket that is between the bottle and the cap, the bottle being filled with beer, the gasket is formed of a homogeneous blend of a thermoplastic composition of from about 20 to about 60% by weight butyl rubber and about 40% to about 80% by weight of thermoplastic polymer and wherein the gasket has been formed by placing a molten piece of the thermoplastic composition in the cap and then molding the molten composition to form the gasket.

5,211,975

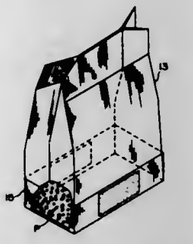
MICROWAVABLE FOOD CONTAINING PACKAGE INCLUDING A SUSCEPTOR SLEEVE

Abraham H. Mendenhall, Morris, N.J.; Joseph F. Irace, and Joseph Skudrzyk, both of St. Louis, Mo., assignors to Packaging Concepts, Inc., St. Louis, Mo.

Filed May 20, 1991, Ser. No. 703,280

Int. Cl.[5] B65D *81/34*

U.S. Cl. 426—107 3 Claims



1. A microwavable food containing package comprising a food container and food to be microwave heated contained therein, said container being made of a material transparent to microwaves, and a sleeve accessory which surrounds said container, said sleeve accessory surrounding said container being completely separate from said food container and not adhered to said food container and slidable thereon, said sleeve accessory having a microwave susceptor applied thereto to facilitate heating of the food product in said container, said food container and sleeve accessory being made from at least one-ply paper or film material, said sleeve accessory being aplied to said container after formation of the container, said sleeve accessory being in tubular form in its position surrounding said container and maintaing its position surrounding said container by friction between said sleeve accessory and said container, said sleeve accessory surrounding said container being in contiguous position thereto such that the susceptor is positioned to effectively dispose said food within the container to the maximum microwave energy to enhance microwave heating of said food product therein.

5,211,976

METHOD OF PREPARING ARTIFICIAL ADIPOSE

James P. Cox; R. W. Duffy Cox, and Florence F. Cox, all of Lynden, Wash., assignors to LipiDyne Corporation, Woodinville, Wash.

Division of Ser. No. 484,379, Feb. 23, 1990, Pat. No. 5,100,688. This application Feb. 28, 1992, Ser. No. 843,804

Int. Cl.[5] A23L *1/31, 1/313, 1/314*

U.S. Cl. 426—248 16 Claims

1. A method of preparing an artificial adipose which includes the steps of: providing blood plasma, removing cholesterol from said blood plasma, emulsifying a mixture of said blood plasma from which cholesterol has been removed and at least one fat or edible oil and then gelling or setting the resulting emulsion.

5,211,977

PROCESS FOR THE PRODUCTION OF FLAVOURED PASTAS

Thomas W. Hauser, and Jurg Lechthaler, both of Zurich, Switzerland, assignors to Nestec S.A., Vevey, Switzerland

Filed Jun. 26, 1991, Ser. No. 721,155

Claims priority, application Switzerland, Jul. 24, 1990, 2444/90

Int. Cl.[5] A23L *1/0532, 1/16*

U.S. Cl. 426—557 13 Claims

1. A process for preparing a flavoured pasta comprising mixing a ground starchy product, a starch, an emulsifier, a gelling agent, a flavouring agent and softened water to prepare a mixture, extrusion cooking and extruding the mixture to prepare an extrusion-cooked, shaped pasta, contacting the cooked, shaped pasta with an aqueous calcium solution to obtain a calcium-treated pasta and drying the treated pasta to obtain a dried pasta, wherein the flavouring agent is mixed into the mixture in an amount so that the dried pasta contains the flavouring agent in an amount of at least 3% by weight.

5,211,978

COMPOSITION AND METHOD OF MAKING PROCESSED CHEESE

Karl Merkenich, Fuerth/Fahrenbach; Andrea Maurer-Rothmann, Weinheim; Edgar Walter, Mannheim; Guenter Scheurer, Hasloch, and Henning Klostermeyer, Freising, all of Fed. Rep. of Germany, assignors to BK Ladenburg GmBH, Ladenburg, Fed. Rep. of Germany

Filed Dec. 9, 1991, Ser. No. 802,635

Claims priority, application Fed. Rep. of Germany, Dec. 19, 1990, 4040622

Int. Cl.[5] A23C *19/082*

U.S. Cl. 426—582 6 Claims

1. A processed cheese preparation comprising cheese, fat, water, and a processing salt component comprised of at least one of trisodium citrate or sodium phosphate, wherein said processing salt component is present at a concentration of from about 1.5 to about 3% by weight, and wherein said preparation further comprises an ester of glycerol or of saccharose having one citric acid residue and further having either one or two of an edible fatty acid residue, wherein said ester is present at a concentration of from about 0.5 to about 2% by weight.

5,211,979

POLYOL FATTY POLYESTERS HAVING NEWTONIAN RHEOLOGY

Dirk W. Bruijne; Wilhelmus A. Castenmiller, both of Vlaardingen; Theodorus J. Liefkens, Maassluis; Johannus de Looff, Rhoon, and Volkmar K. Müller, 's-Gravenhage, all of Netherlands, assignors to Van den Bergh Foods Co., Division of Conopco, Inc., Lisle, Ill.

Filed Jul. 18, 1991, Ser. No. 732,030

Claims priority, application European Pat. Off., Jul. 20, 1990, 90201986.8

Int. Cl.[5] A23D *9/00*

U.S. Cl. 426—601 11 Claims

1. Fat composition comprising one or more polyol fatty acid polyesters, which exhibits Newtonian rheology at a N_c of at least 15%, and with a fatty acid distribution which complies with the conditions:

$$PY < 1.1$$

where

$PY = 2.94*y + 2.1*x + 16.6*y^2 + 2.7*x^2 + 14.6*xy - 0.6$

wherein $x = [P] - [M]$, $y = [S] - [P]$ and PY means predicted yield and which in the same time complies with each of the following conditions:

$$[B] < 0.35$$

either $[P] < 0.40$ or $[P] > 0.64$

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and [L]<0.15, wherein

[P] is the molar fraction of palmitic acid residues, [M] is the molar fraction of myristic acid residues and [S] is the molar fraction of stearic acid and longer saturated fatty acid residues, [B] is the molar fraction of lauric and shorter fatty acid residues, [L] is the molar fraction of saturated fatty acid residues having a carbon chain length of at least 20.

5,211,980

LIPID PELLETIZATION METHODS, APPARATUS AND PRODUCTS

James P. Cox, 246 E. Bartlett Rd., Lynden, Wash. 98264

Division of Ser. No. 131,298, Dec. 8, 1987, Pat. No. 5,006,361, which is a continuation of Ser. No. 609,541, Nov. 29, 1983, abandoned, which is a continuation-in-part of Ser. No. 447,622, Dec. 7, 1982, abandoned, and Ser. No. 447,130, Dec. 6, 1982, abandoned, which is a division of Ser. No. 193,434, Oct. 3, 1980, Pat. No. 4,362,748, said Ser. No. 447,622, is a continuation-in-part of Ser. No. 193,434, Oct. 3, 1980. This application Mar. 11, 1991, Ser. No. 667,526

Int. Cl.[5] A23K *1/00*

U.S. Cl. 426—601 29 Claims

1. A method of forming a solid pellet of lipid material consisting essentially of the steps of:

a) forming an aqueous solution containing at least water and a coagulant selected from the group consisting of: algin, okra, aloe vera, and pectin and agitating said solution;

b) introducing a liquid lipid into the aqueous solution so as to form a coagulant/lipid gel-like emulsion;

c) agitating the emulsion so as to establish and maintain a homogeneous dispersion of the ingredients thereof;

d) introducing discrete quantities of the emulsion into a setting bath selected from the group consisting of: ice water; an aqueous acid solution having a pH in the range of 0 to 3.5; and a metal salt ion bath, wherein the discrete quantities of coagulant/lipid emulsion are set to form a solid lipid pellet containing 65–95% by weight lipid; and

e) drying the pellets to reduce their moisture content to a substantially low moisture level approaching that of the water of hydration of the pellets and their constituent ingredients.

5,211,981

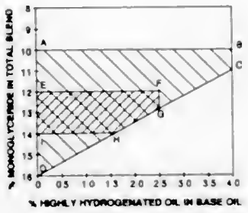
PROCESS FOR MAKING A UNIFORM LIQUID, POURABLE SHORTENING CONTAINING HIGH EMULSIFIER LEVELS

Edward R. Purves, Forest Park; Larry D. Halstead, Hamilton, and Keith D. Adams, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 714,482, Jun. 13, 1991, abandoned. This application Oct. 2, 1992, Ser. No. 956,439

Int. Cl.[5] A23D *9/04*

U.S. Cl. 426—606 21 Claims



1. A process for making a uniform liquid, pourable shortening containing high emulsifier levels comprising:

(a) preparing a melted base oil comprising between about 96% and 100% melted partially hydrogenated edible oil having an iodine value between about 90 and 133, and between 0% and about 4% melted highly hydrogenated edible oil having an iodine value of not more than about 8; then

(b) blending a melted emulsifier containing at least about 30% monoglyceride with the melted base oil in proportions so that the monoglyceride content of the total blend is between about 12% and about 16%:

(c) wherein the amounts of emulsifier and highly hydrogenated oil are chosen so that a plot of percent monoglyceride versus percent highly hydrogenated oil falls within the cross-hatched area EFGD in FIG. 1; then

(d) in a first zone, rapidly cooling the melted total blend to a temperature between about 60° F. and about 80° F. to partially crystallize the blend; and then

(e) in a second zone, working by agitation for a time of at least about 1 minute the partially crystallized total blend to form a liquid pourable shortening:

wherein the product shortening has a solid fat index between about 3 and about 12 at 50° F., between 0 and about 7 at 70° F., between 0 and about 4 at 80° F., between 0 and about 3 at 92° F., and not more than about 3 at 104° F.

5,211,982

WHEAT MILLING PROCESS AND MILLED WHEAT PRODUCT

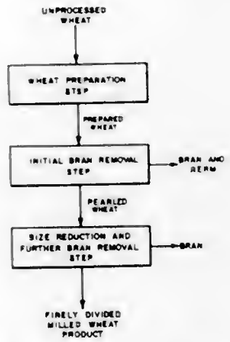
Warner Wellman, Omaha, Nebr., assignor to ConAgra, Inc., Omaha, Nebr.

Division of Ser. No. 557,631, Jul. 24, 1990, Pat. No. 5,089,282. This application Jul. 29, 1991, Ser. No. 736,774

The portion of the term of this patent subsequent to Mar. 16, 2010, has been disclaimed.

Int. Cl.[5] A23L *1/10*

U.S. Cl. 426—622 8 Claims



1. A finely divided food grade wheat product made from milling quality durum wheat, said product having an ash content no greater than about 1.0 wt %, a measured aleurone fluroescence area of at least about 3.6%, and an average particle size no greater than that of semolina.

5,211,983

DE-VITALIZED SEED PRODUCT

Michael E. Bley, Minneapolis, Minn., assignor to Golden Valley Microwave Foods, Inc., Edina, Minn.

Continuation of Ser. No. 580,770, Sep. 11, 1990, abandoned, which is a continuation of Ser. No. 386,514, Jul. 27, 1989, Pat. No. 4,978,555. This application Oct. 8, 1991, Ser. No. 772,612

The portion of the term of this patent subsequent to Dec. 18, 2007, has been disclaimed.

Int. Cl.[5] A23B *9/02*

U.S. Cl. 426—629 1 Claim

1. A food product comprising:

a devitalized popcorn seed, said corn seed exhibiting popping performance substantially the same as exhibited by said corn seed prior to devitalization, said corn seed having a moisture content from about 12% to about 16%, being essentially free of non-inert sterilization or fumigant treatment gas, and being essentially unaltered genetically at the cellular level.

5,211,984

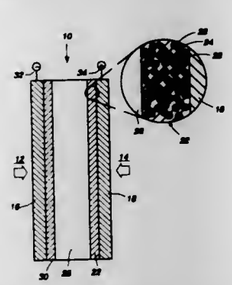
MEMBRANE CATALYST LAYER FOR FUEL CELLS

Mahlon S. Wilson, Los Alamos, N. Mex., assignor to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 736,876, Jul. 29, 1991, which is a continuation-in-part of Ser. No. 656,329, Feb. 19, 1991, abandoned. This application Dec. 20, 1991, Ser. No. 811,220

Int. Cl.[5] H01M *4/88*

U.S. Cl. 427—115 5 Claims



1. A method for fabricating a SPE membrane assembly for use in a gas reaction fuel cell, comprising the steps of:

furnishing a SPE membrane in Na^+ form;

furnishing a perfluorosulfonate ionomer in a Na^+ form or thermoplastic form;

uniformly dispersing a supported Pt catalyst and a solvent in said Na^+ or said thermoplastic form of said ionomer to form an ink;

forming a film of said ink containing a predetermined amount of said catalyst on a surface of said SPE membrane in said Na^+ form;

heating said film of said ink to a temperature effective to dry said ink; and

converting said film of said ink and said SPE membrane to a protonated form of perfluorosulfonate.

5,211,985

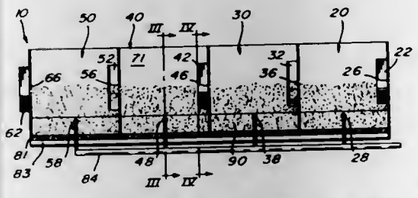
MULTI-STAGE PROCESS FOR CONTINUOUS COATING OF FERTILIZER PARTICLES

Arthur R. Shirley, Jr.; Keith D. Cochran, both of Florence, Ala.; Terence B. Lynch, London, Canada; Russell I. Derrah, Oakville, Canada; Sayeeda J. Quadir, Etobicoke, Canada, and Zdzislaw M. Tulimowski, Sarnia, Canada, assignors to ICI Canada, Inc., Ontario, Canada

Filed Oct. 9, 1991, Ser. No. 773,273

Int. Cl.[5] B05D *7/00*

U.S. Cl. 427—213 38 Claims



17. A process for the continuous coating of fertilizer substrate particles comprising:

providing a plurality of fluidized bed zones for maintaining fertilizer substrate particles in a fluidized condition by means of a fluidizing gas, said fluidized bed zones including at least first and second fluidized bed coating zones;

providing spraying means in said first and second fluidized bed coating zones for applying a coating material onto particles in said fluidized bed coating zones;

continuously feeding substrate particles into said first fluidized bed coating zone and spraying coating material onto said particles while fluidized therein;

maintaining the relative humidity in the first fluidized bed coating zone below the critical relative humidity of the fertilizer substrate particles;

transferring said particles from said first fluidized bed coating zone to said second fluidized bed coating zone and spraying coating material onto the particles while fluidized therein; and

continuously removing coated substrate particles from the second fluidized bed coating zone;

wherein said coating material sprayed onto the particles in said second fluidized bed coating zone is a material including the same or a different fertilizer as the substrate particles.

5,211,986

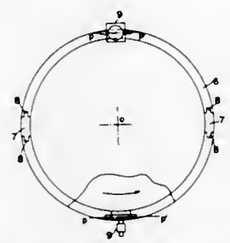
METHOD FOR PROCESSING A SUBSTRATE SURFACE AND AN APPARATUS THEREFOR

Yoshio Ohkubo, Ibaraki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 18, 1990, Ser. No. 554,245

Int. Cl.[5] B05D *3/12*

U.S. Cl. 427—240 4 Claims



1. A method for coating a substrate having concave and convex areas in a surface thereof, said method comprising the steps of:

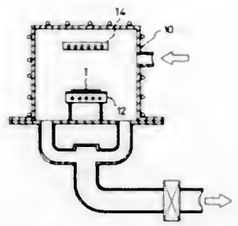
setting said substrate on a substrate holder which is capable of rotation about a central axis parallel to the plane of said substrate holder,

applying a viscous coating material to both said concave and convex areas in a surface of said substrate while said substrate is supported in a horizontal position, and

spinning said substrate holder about an axis vertical to and spaced apart from the plane of said substrate holder, whereby said substrate holder is gradually rotated about said central axis parallel to the plane of said substrate holder from a horizontal position to a vertical position, wherein a centrifugal force greater than 1G is continuously applied to said substrate in a direction orthogonal to the surface of said substrate so as to cause said viscous coating material in said convex areas to flow into adjacent concave areas and the surface of said substrate is coated substantially flat.

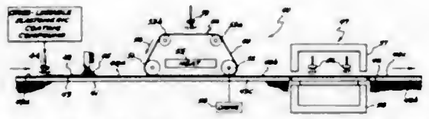
VOL 1150 ISS 3 MY 18 1993 UMI

5,211,987
METHOD AND APPARATUS FOR FORMING REFRACTORY METAL FILMS
Iwao Kunishima, Tokyo, and Hitoshi Itoh, Mitaka, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 215,770, Jul. 6, 1988, abandoned. This application Nov. 29, 1991, Ser. No. 800,743
Claims priority, application Japan, Jul. 10, 1987, 62-171219
Int. Cl.[5] C23C 16/06, 16/56
U.S. Cl. 427—250 22 Claims



1. A method of adhering a refractory metal film to a silicon semiconductor surface, comprising the steps of:
forming an insulating film on a silicon semiconductor substrate;
forming a contact hole through said insulating film to expose a surface of said silicon semiconductor substrate;
selectively depositing a refractory metal film on the exposed silicon semiconductor surface at a first temperature by selective chemical vapor deposition; and
heating the contact surface between the deposited film and the substrate, after the completion of the depositing step, at a second temperature, higher than said first temperature, to improve the adhesion of the refractory metal film to the silicon semiconductor surface, said second temperature being between about 300° C. and 600° C., wherein the depositing and heating steps are performed in a single reaction furnace and the temperature between the depositing and heating steps does not drop below about 300° C.

5,211,988
METHOD FOR PREPARING A SMOOTH SURFACED TOUGH ELASTOMERIC COATED FIBROUS BATT
L. Keith Morton, Greenville, S.C., assignor to Evode Tanner Industries, Inc., Greenville, S.C.
Filed Jan. 22, 1992, Ser. No. 824,179
Int. Cl.[5] B05D 3/12
U.S. Cl. 427—370 6 Claims



1. A method for developing a generally smooth, tough, elastomeric surface coating over one surface of a batt of fibrous insulation, comprising:
a. applying a foamed or frothed cross-linkable elastomeric aqueous emulsion coating composition to said one surface of a batt at a substantially uniform concentration coating over said one surface;
b. engaging a hot, smooth ironing surface with said coating to dry and compress said cross-linkable emulsion coating and to develop a cured, smooth surface film over the exposed area of said coating;
c. separating said ironing surface from engagement with said coating and thereafter heating said batt and coating until said coating is substantially dried and fully cured;
d. recovering said batt of fibrous insulation having a cured elastomeric cross-linked coating over one surface of said batt, said coating having a generally smoother and tougher exposed surface compared to a corresponding coating of the same cross-linkable elastomeric coating composition on the same batt at the same concentration which has not been exposed to said hot, smooth, ironing surface prior to heating said batt and coating to achieve a final cure of said coating.

5,211,989
CLEAR HYDROPHILIC COATING FOR HEAT EXCHANGER FINS
David D. Clinnin, Schaumburg; Ronald J. Lewarchik, Sleepy Hollow, both of Ill., and Dexter F. Sunderman, Hartselle, Ala., assignors to Morton Coatings, Inc., Chicago, Ill.
Filed Apr. 13, 1992, Ser. No. 867,585
Int. Cl.[5] B05D 3/02
U.S. Cl. 427—388.4 9 Claims

1. A method for the treatment of an aluminum surface to provide thereon a corrosion resistant, hydrophilic coating which comprises coating said surface with a composition consisting essentially of water, a water miscible alkanol, an ethylene/acrylic acid copolymer, and an amine salt of a fatty acid; and drying the coating at an elevated temperature.

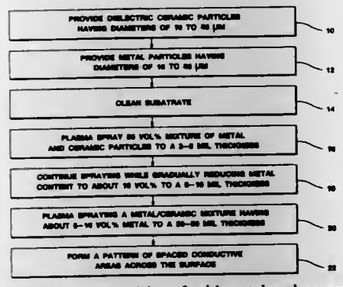
5,211,990
POLYOLEFIN FLAME SPRAYING METHOD
Osborne K. McKinney; Randy S. Moore, both of Lake Jackson, Tex., and Alfred F. Castello, Newark, Ohio, assignors to The Dow Chemical Company, Midland, Mich.
Filed Aug. 1, 1991, Ser. No. 739,275
Int. Cl.[5] B05D 1/10
U.S. Cl. 427—447 10 Claims

1. A method of flame spray coating a substrate surface with an adherent carboxyl-containing polyolefin, comprising the steps of:
forming a flame by supplying a continuous stream of fuel to a fuel discharge port of a flame-spraying nozzle at a rate to sustain combustion thereof;
pneumatically conveying fluidized, finely-divided carboxyl-containing polyolefin to said nozzle, said polyolefin comprising from about 0.1 to about 55 percent by weight of a carboxyl-containing monomer,
discharging said fluidized polyolefin from said nozzle through said flame in an oxygen-lean environment having an oxygen content less than about 5 percent to form a molten polyolefin spray; and
directing said spray onto a substrate surface to deposit a coating of said polyolefin thereon.

5,211,991
METHOD OF PLASMA SPRAYING MAGNETIC-CERMET DIELECTRIC COATINGS
Ronald E. Bullock, Cardiff, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Filed Jul. 23, 1992, Ser. No. 917,880
Int. Cl.[5] B05D 5/12
U.S. Cl. 427—448 4 Claims

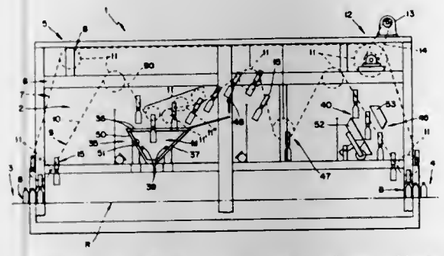
1. The method of forming a magnetic-cermet dielectric coating on a substrate surface which comprises the steps of:
providing a quantity of finely divided electrically insulating ceramic particles having average diameters of from about 10 to 45 micrometers and a quantity of finely divided magnetic metal particles having average diameters of from about 10 to 45 micrometers;
mixing together portions of said ceramic and said metal particles to produce a first mixture having about 50 vol % of each type of particles;

plasma spraying said first mixture onto a substrate to form a first layer having a thickness of from about 3 to 5 mils;
continuing to plasma spray said first mixture onto said first layer while gradually reducing the metal content to about 10 vol %, to form a transitional layer having a total thickness of from about 6 to 10 mils;



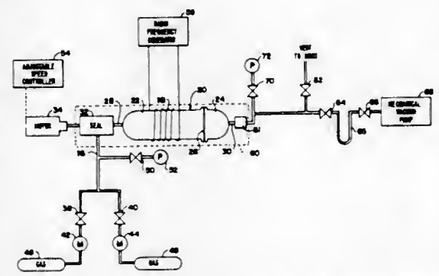
mixing additional quantities of said metal and ceramic particles to a substantially uniform second mixture having about 5 to 10 vol % of metal particles, the balance being ceramic particles;
plasma spraying said second mixture onto said transitional layer to form a top layer having a thickness of from about 30 to 50 mils.

5,211,992
METHOD AND APPARATUS FOR COATING ARTICLES
Philip G. Newton, Kirrawee; Patrick W. Duggan, Kew, and Hugo Dries, Mount Macedon, all of Australia, assignors to International Partners in Glass Research, Windsor, Conn.
Filed Feb. 14, 1991, Ser. No. 656,224
Claims priority, application Australia, Feb. 16, 1990, PJ8688
Int. Cl.[5] B05D 3/02, 3/06, 1/18
U.S. Cl. 427—512 1 Claim



1. A method for coating exterior surfaces of rows of heated glass containers exiting continuously from a lehr at a controlled temperature on a lehr conveyor, comprising the steps of:
(i) gripping each row of containers in succession at an upper region thereof;
(ii) picking the row of gripped containers up form the lehr conveyor so as to hold the containers in upright stable suspension;
(iii) conveying the gripped row of containers along a coating path located above the lehr conveyor so that the containers are arranged in a non-contact relationship with one another;
(iv) dipping the row of containers being conveyed at least partially into a bath of ultraviolet light radiation curable liquid coating material so as to apply a coating of the coating material to exterior surfaces of the containers;
(v) withdrawing the row of containers with the applied locating from the bath of liquid coating material;
(vi) thermally aging the applied coating while continuing the convey the coated containers along the coating path;
(vii) subjecting the coated containers being conveyed along the coating path to irradiation with ultraviolet light radiation so as to cure the coating, the containers being maintained in upright stable suspension throughout irradiation thereof;
(viii) repositioning the gripped row of coated containers onto the lehr conveyor downstream from where the containers were picked up;
(ix) releasing the grip on the row of coated containers to return the containers to the lehr conveyor;
(x) said containers being conveyed continuously along the conveying path during steps iv, vi, and vii; and
(xi) following withdrawal of the rows of containers from the bath of liquid coating material, tilting the suspended containers at an angle so as to cause any excess coating material to concentrate in a drip formation at a heel region of the containers, and the drip formation are blown from the containers with a gas blast.

5,211,993
METHOD OF MAKING NOVEL SEPARATION MEDIA
Henry S. Kolesinski, Atkinson, N.H., assignor to Advanced Surface Technology, Inc., North Billerica, Mass.
Filed Dec. 10, 1990, Ser. No. 625,204
Int. Cl.[5] B05D 3/00, 7/00
U.S. Cl. 427—488 7 Claims



1. Method of making a chromatographically active support material, said method comprising the steps of:
coating the surfaces of a comminuted inorganic substrate material with a monomer selected from those monomers which, when polymerized, possess chromatographic properties; and
exposing said monomer coated on said surface to an inert gas plasma for a time and of an intensity sufficient to induce polymerization of said monomer.

5,211,994
APPARATUS FOR AND METHOD OF FORMING THIN FILM
Hisashi Tsukazaki, and Ken-ichiro Yamanishi, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 2, 1992, Ser. No. 892,363
Claims priority, application Japan, Jun. 5, 1991, 3-133910
Int. Cl.[5] C23C 14/32
U.S. Cl. 427—523 11 Claims

1. A thin film forming apparatus, comprising:
an evaporation source for emitting a cluster beam;
ionizing means for irradiating the cluster beam from said evaporation source with thermal electrons to form cluster ions;
accelerating means for accelerating the cluster ions so as to

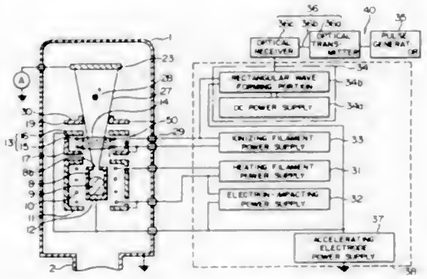
VOL 1150 ISS 3 MY 18 1993 UMI

irradiate a substrate with the cluster ions together with neutral clusters; and

cluster ion rate control means for periodically varying the rate of irradiation of said substrate with said cluster ions at a period which is longer than the time required for said cluster ions to reach said substrate from said ionizing means and which is shorter than the time required for forming a mono-atom or mono-molecular layer on said substrate, thereby controlling the time-mean of the rate of irradiation with said cluster ions.

9. A method of forming a thin film; comprising the steps of:

emitting a cluster beam from an evaporation source into a space inside a vacuum vessel;



irradiating said cluster beam with thermal electrons so as to form a cluster ion;

accelerating said cluster ion to enable said cluster ion to irradiate a substrate together with neutral clusters; and

periodically varying the rate of irradiation of said substrate with said cluster ions at a period which is longer than the time required for said cluster ions to reach said substrate from said ionizing means and which is shorter than the item required for forming a mono-atom or mono-molecular layer on said substrate, thereby controlling the time-mean of the rate of irradiation with said cluster ions.

5,211,995

METHOD OF PROTECTING AN ORGANIC SURFACE BY DEPOSITION OF AN INORGANIC REFRACTORY COATING THEREON

Manfred R. Kuehnle, Waldesruh P.O. Box 1020, Rte. 103A, New London, N.H. 03257; Arno K. Hagenlocher, Santa Rosa, and Klaus Schuegraf, Rancho Palos Verdes, both of Calif., assignors to Manfred R. Kuehnle, New London, N.H.

Filed Sep. 30, 1991, Ser. No. 768,159

Int. Cl.[5] B05D *3/06*

U.S. Cl. 427—570 **22 Claims**

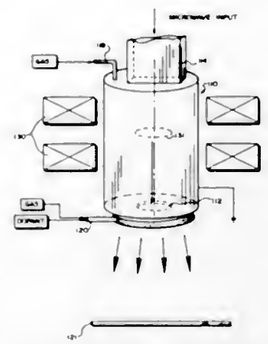
1. A method of protecting an organic surface by deposition of a refractory inorganic coating thereon, comprising the steps of:

a. introducing the surface into a sealed chamber and creating a vacuum therein;

b. creating a plasma of at least one gaseous precursor in a cavity having an exit member proximate to the surface and contained within the chamber, so that the plasma reacts with at least one other gaseous precursor and produce a deposition vapor;

c. exposing the surface to the deposition vapor as it diffuses away from the cavity exit so as to build progressively on the surface said inorganic coating;

d. interrupting deposition and treating the coating to create a layer substantially impermeable to gaseous exudates emanating from the surface; and



e. recommencing deposition until the overall thickness of the coating reaches a final level.

5,211,996

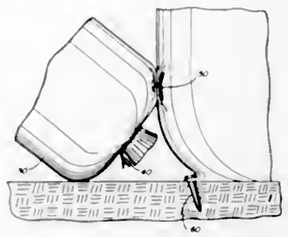
SPIDER-LIKE DECORATIVE OBJECT

Benson Zinbarg, Stamford, Conn., assignor to Sun Hill Industries, Inc., Stamford, Conn.

Filed Mar. 4, 1991, Ser. No. 664,023

Int. Cl.[5] B44C *3/06*

U.S. Cl. 428—16 **20 Claims**



1. A decorative object simulating the appearance of a fanciful conception of a spider, comprising:

a main bag member having a filling therein, said main bag member being made of flexible plastic material and simulating the appearance of a body portion of said decorative object; and

a plurality of elongated tubular leg members each made of a flexible elongated tubular plastic bag and having a filling therein, said leg members simulating the appearance of legs of a fanciful conception of a spider, said leg members being arranged adjacent said main bag member, and arranged at spaced apart locations around the periphery of said main bag member to extend from said main bag member and simulate the appearance of a plurality of legs of a fanciful conception of a spider;

said leg members having respective end portions which are respectively connected to lower portions of said main bag member at said spaced apart locations by means of respective clip members which are manually pierced through the plastic material of both said leg members and said lower portion of said main bag member;

each leg member having an articulated portion at an intermediate portion of said leg member; and

said articulated portion comprising a tied-off portion at said intermediate portion of said elongated tubular member.

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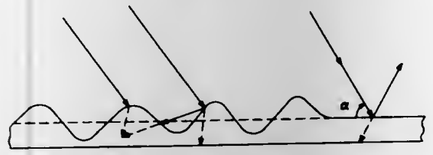
ENHANCEMENT OF ELECTROMAGNETIC BARRIER PROPERTIES

Kirit Patel, 9 Longview Dr., and John R. Pennace, 2 Knollwood Rd., both of Spencer, Mass. 01562

Filed Jan. 29, 1990, Ser. No. 471,415

Int. Cl.[5] B44F *1/10*; **G02B** *27/22, 5/30*; **B32B** *3/00*

U.S. Cl. 428—29 **18 Claims**



MULTIPLE REFLECTIONS PRODUCE COMPONENTS THAT CANCEL

6. A structure exhibiting enhanced barrier properties which comprises:

a substrate,

a metallic coating formed by vaporization and condensation upon said substrate, said metallic coating having a thickness of about 400Å, and

a plurality of sets of embossed patterns upon said coating, said plurality of sets of embossed patterns each having a line density between 100 and 50,000 lines per square centimeter, whereby the embossment of said coating enhances the barrier properties of said structure.

5,211,998

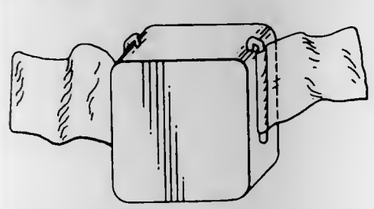
AUTOMOBILE HOOD ORNAMENT DECORATIVE DEVICE

Frank R. Connors, and Caroline M. Connors, both of 8 Washington Dr., East Quogue, N.Y. 11942

Filed Aug. 27, 1991, Ser. No. 750,259

Int. Cl.[5] B60R *13/04*

U.S. Cl. 428—31 **3 Claims**



1. An automobile hood ornament decorative device comprising:

a first body means capable of fitting over an automobile hood ornament;

a compression fitting means located inside the first body means and capable of causing the first body means to be securely attached to the automobile hood ornament; and

a second body means which can fit over the first body means and be attached to the first body means and is transparent so that any ornamental designs placed between the first body means and the second body means will be visible from the outside.

5,211,999

LAMINATED COMPOSITE COMPOSED OF FIBER-REINFORCED CERAMICS AND CERAMICS AND METHOD OF PRODUCING SAME

Akira Okada, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jul. 9, 1991, Ser. No. 725,801

Claims priority, application Japan, Jul. 9, 1990, 2-181036

Int. Cl.[5] A47G *19/22*; **B32B** *9/04*; **D04H** *1/58*

U.S. Cl. 428—34.5 **4 Claims**



1. A laminated composite comprising:

a first layer consisting essentially of a densely sintered body of SiC; and

a second layer of a SiC-matrix ceramic reinforced by a member of the group consisting of continuous SiC fiber and carbon fiber which is secured to said first layer.

5,212,000

METHOD FOR PROVIDING AN INNER-SKINNED FUNCTIONALIZED COATING ON THE LUMEN-DEFINING SURFACE OF A HOLLOW TUBE

Gene D. Rose; Donald L. Schmidt, and William J. Settineri, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 11, 1991, Ser. No. 667,014

Int. Cl.[5] B05D *7/22*

U.S. Cl. 428—34.7 **34 Claims**



1. A method for producing an inner-skinned functionalized tube comprising the consecutive steps of:

(a) providing an open-ended hollow tube in part defined by:

(i) at least one inner surface which defines a lumen,

(ii) two open ends which communicate through the lumen,

(iii) a longitudinal axis, extending between the open ends through the center of the lumen,

(iv) a maximum cross-sectional area of the lumen taken perpendicular to the longitudinal axis which is less than about 5 cm^2;

(b) introducing a first coating fluid comprising a first polymer through one of the open ends into the lumen:

(c) introducing into the lumen a second fluid through an open end such that the second fluid contacts the first coating fluid, the second fluid having non-Newtonian properties and forming a self-centering plug within the first coating fluid in the lumen; and

(d) applying the first coating solution to the inner surface by passing the plug through the lumen, coating the inner surface with a first amount of the coating fluid.

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5,212,001

TACKIFIED ETHYLENE-ACRYLATE CLING LAYERS IN STRETCH/CLING FILMS

Patrick Brant, Seabrook, and Paul M. German, Friendswood, both of Tex., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 633,524, Dec. 28, 1990, Pat. No. 5,154,981, which is a continuation-in-part of Ser. No. 123,002, Nov. 19, 1987, abandoned. This application Jul. 22, 1992, Ser. No. 918,475

Int. Cl.[5] B65B *53/00*

U.S. Cl. 428—34.9 3 Claims

1. A method for bundling, packaging or unitizing an article or a plurality of articles, comprising the step of:

stretch-wrapping a stretch/wrap thermoplastic film, comprising a cling layer consisting essentially of (i) a polymer of two or more monomers, wherein a first monomer comprises ethylene and a second monomer comprises an acrylate or vinyl acetate, and (ii) a compatible tackifier blended therewith, said polymer/tackifier blend having a glass transition temperature of about 0° C. or less; and a second layer adjacent to said cling layer around the article or articles.

5,212,002

SPLICE AND PROCESS FOR MAKING A SPLICE ON THE LEADER OF A PAPER ROLL

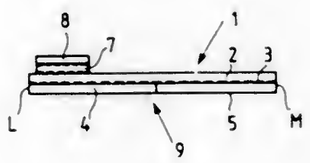
Zygmunt Madrzak, Heidenheim, and Bernd Kaufmann, Steinheim, both of Fed. Rep. of Germany, assignors to J. M. Voith GmbH, Fed. Rep. of Germany

Filed Apr. 3, 1991, Ser. No. 679,779

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1990, 4010704; Oct. 25, 1990, 4033900

Int. Cl.[5] A61F *13/02*

U.S. Cl. 428—40 15 Claims



1. In combination, a paper roll and a splice for said roll, wherein said splice comprises:

an adhesive tape having two sides, said adhesive tape having at least one adhesive layer on one of said sides for taping an end of an old web and a leading end of a new paper roll, said adhesive layer being affixed by adhesion to an underside of said leading end, said adhesive tape additionally having an adhesive layer on its other side whereby said other side is adhered to said web or said paper roll at an end of the outermost roll winding wherein said outermost winding is taut, said adhesive tape further having respective longitudinal edges, wherein said adhesive layer on said other side of the adhesive tape comprises at least one double-stick adhesive strip, said adhesive strip having two sides and having an adhesive layer on each of said sides, said adhesive strip being adhered at one of said sides to said other side of said tape, at least one adhesive strip being situated in closely spaced relationship to one of said longitudinal edges and being aligned generally parallel thereto, wherein the adhesion of the adhesive layer on the side of the adhesive strip adhering to said tape is considerably less than the adhesion on the other side of said adhesion strip.

5,212,003

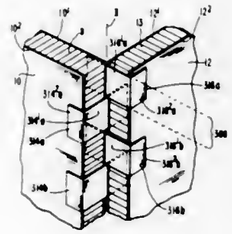
LOW STRESS PANEL JOINTS

Peter K. Homer, Langhorne, Pa., assignor to General Electric Co., East Windsor, N.J.

Filed Jan. 22, 1992, Ser. No. 824,807

Int. Cl.[5] B32B *3/12, 3/06*

U.S. Cl. 428—57 11 Claims



1. A structure including a pair of sandwich panels joined together along edges, comprising:

first and second sandwich panels, each of said panels including first and second load-bearing face sheets, each defining a plane, said face sheets being held in a mutually parallel spaced-apart relationship by a core, each of said sandwich panels also including at least regions of an edge to be joined, the planes of said face sheets of said first panel making a particular angle with the planes of said face sheets of said second panel;

at least two joining pieces fastened to said first and second sandwich panels in said regions of said edges to be joined, each of said joining pieces being a thin, flat member elongated along an axis of elongation, each of said joining pieces including a bend of said member to define first and second thin, flat segments lying in planes separated by said particular angle, first ones of said joining pieces having said first segments affixed to said first face sheet of said first panel and to the exposed portion of said core of said second panel, and said second segments affixed to said second face sheet of said second panel, and second ones of said joining pieces, located adjacent to said first ones in regions to be joined adjacent to those of said first ones of said joining pieces, having first ones of said segments affixed to said first face sheet of said second panel and to said exposed core of said first panel, and said second segments affixed to said second face sheet of said first panel.

5,212,004

CERAMIC BOARD UTILIZED FOR THE CONSTRUCTION OF HEAT EXCHANGER PLATES

Jürgen Böttcher; Rudolf Ganz, both of Lauf; Otto Heinz, Neu Isenburg, and Jörg Hönerlage, Kieselbronn, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

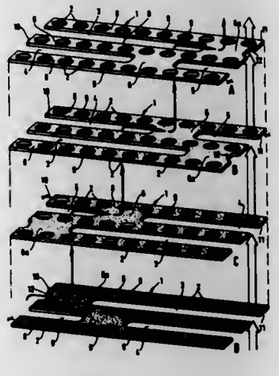
Filed Jul. 16, 1991, Ser. No. 730,692

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1990, 4022654

Int. Cl.[5] F28F *3/08, 21/04;* B32B *3/10*

U.S. Cl. 428—131 3 Claims

1. A board of ceramic material for the construction of heat exchangers and heat exchanger plates, which board has three spaced-apart rows of holes which extend parallel to one another and are arranged symmetrically to the axis of the middle row of holes and between the rows of holes are arranged three recesses of differing length which intersect the board edge, the longest recess and one of the two shorter recesses opening out at the same board edge and the shortest recess being opposite to the second longest recess, and the webs remaining between the recesses or the recess and the board edge provide for heat exchange through the board and have a length of 25% ± 6% in relation to the length of the board determined by the direction of the rows of holes.



5,212,005

SUPPORT FOR PHOTOGRAPHIC PAPER

Hiroshi Uehara, Noda, Japan, assignor to Mitsubishi Paper Mills Limited, Tokyo, Japan

Filed Jun. 27, 1991, Ser. No. 722,509

Claims priority, application Japan, Jun. 29, 1990, 2-171495

Int. Cl.[5] B32B *3/00*

U.S. Cl. 428—141 2 Claims

1. A support for photographic paper having ga finely embossed surface with a center-plane average roughness SRa of 1.0–2.0 μm, a center-plane peak height SRp of 5–7 μm, and a center-plane valley depth SRv of 6–9 μm, which are measured by three dimensional surface roughness meter;

wherein said support for photographic paper is a polyolefin-coated paper.

5,212,006

HIGH DENSITY MAGNETIC RECORDING MEDIUM

Utsumi Shigeo, Yokohama, Japan, assignor to Diafoil Company, Ltd., Tokyo, Japan

Filed Dec. 27, 1991, Ser. No. 815,113

Claims priority, application Japan, Dec. 28, 1990, 2-408809

Int. Cl.[5] B32B *27/00*

U.S. Cl. 428—141 7 Claims

1. A high density magnetic recording medium comprising a polyester film formed of a plurality of layers laminated by coextrusion and oriented by stretching, said plurality of layers including a first outer layer forming a rougher surface side of said polyester film and a second outer layer forming a less rough surface on an opposite side of said polyester film, said polyester film satisfying the conditions of the following relations (1) to (4); a back coat layer which is provided on the rougher surface side of said polyester film layer and whose surface roughness simultaneously satisfies the conditions of the following relations (5) and (6); and a magnetic film layer provided on the less rough surface of said polyester film;

the following relations being as follows:

$$Ra^A \leqq 0.008 \quad (1)$$

$$0.005 \leqq Ra^B \leqq 0.02 \quad (2)$$

$$0.005 \leqq Ra^B - Ra^A \leqq 0.015 \quad (3)$$

$$9 \leqq F_5 \leqq 30 \quad (4)$$

$$0.015 \leqq Ra^C \leqq 0.040 \quad (5)$$

$$0.003 \leqq Ra^C - Ra^B \leqq 0.035 \quad (6)$$

wherein

Ra^A stands for the average centerline roughness (μm) of the less rough surface side of the polyester film;

Ra^B stands for the average centerline roughness (μm) of the rougher surface of the polyester film;

Ra^C stands for the average centerline roughness (μm) of the surface of the back coat layer; and

F_5 stands for the tensile strength in kilograms per square millimeter at 5% elongation in the longitudinal direction of the polyester film.

5,212,007

Patent Not Issued For This Number

5,212,008

COATED RECORDING SHEETS

Shadi L. Malhotra; Josephine P. Turner, both of Mississauga; Brent S. Bryant, Ontario, and Arthur Y. Jones, Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 1, 1992, Ser. No. 861,668

Int. Cl.[5] B41M *5/00;* B32B *27/08*

U.S. Cl. 428—216 18 Claims

1. A recording sheet which comprises a substrate; a first coating in contact with the substrate which comprises a cross-linking agent selected from the group consisting of: (a) hexamethoxymethyl melamine, (b) methylated melamine-formaldehyde, (c) methylated urea-formaldehyde, (d) cationic urea-formaldehyde, (e) cationic polyamine-epichlorohydrin,

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(f) glyoxal-urea resin, (g) poly (aziridine), (h) poly (acrylamide), (i) poly (N,N-dimethyl acrylamide), (j) acrylamide-acrylic acid copolymer, (k) poly (2-acrylamido-2-methyl propane sulfonic acid), (l) poly (N,N-dimethyl-3,5-dimethylene piperidinium chloride), (m) poly (methyleneguanidine) hydrochloride, (n) poly (ethylene imine), (o) poly (ethylene imine) epichlorohydrin, (p) poly (ethylene imine) ethoxylated, (q) glutaraldehyde, and mixtures thereof; a catalyst; and a polymeric material capable of being crosslinked by the crosslinking agent and selected from the group consisting of: (a) polysaccharides having at least one hydroxy group, (b) polysaccharides having at least one carboxy group, (c) polysaccharides having at least one sulfate group, (d) polysaccharides having at least one amine or amino group, (e) polysaccharide gums, (f) vinyl polymers, (g) poly (alkylene oxides), and mixtures thereof; and a second coating in contact with the first coating which comprises a binder and a material selected from the group consisting of: (a) fatty imidazolines, (b) ethosulfate quaternary compounds, (c) dialkyl dimethyl methosulfate quaternary compounds, (d) alkoxylated di-fatty quaternary compounds, (e) amine oxides, (f) amine ethoxylates, (g) Imidazoline quaternary compounds, (h) alkyl benzyl dimethyl quaternary compounds, (i) poly (epiamines), and mixtures thereof.

5,212,009

MULTI-LAYER TRANSPARENT POLYOLEFIN FILM FOR APPLICATION IN SHRINK LABELLING

Herbert Peiffer, Mainz; Gunter Schloegi, Kelkheim, and Lothar Bothe, Mainz-Gonsenheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed May 21, 1990, Ser. No. 525,600

Claims priority, application Fed. Rep. of Germany, May 31, 1989, 3917652

Int. Cl.[5] **B32B** *27/32*

U.S. Cl. 428—220 **22 Claims**

1. A transparent shrinkable film comprising

(i) a base layer comprising:

(a) about 5 to 40 wt % of a propylene homopolymer,

(b) 0 to about 30 wt % of a hydrogenated hydrocarbon resin having a softening point in the range from about 80° to 125° C., and

(c) about 30 to 95 wt % of a random ethylenepropylene copolymer,

wherein all percentages are related to the total weight of the mixture, and

(ii) a top layer having a melting point lower than the base layer comprising at least one α-olefin polymer on each side of said base layer,

wherein said film has (2) a capacity for shrinking of more than 15% at 90° C. and of more than 40% at 120° C., in the transverse direction and, at the same time, a capacity for shrinking of less than 5% at 90° C. and of less than 10% at 120° C., in the longitudinal direction, the percentages being in each case related to the respective linear dimension of the film prior to the shrinking process (2) a modulus of elasticity in the longitudinal direction of more than 1,200 N/mm^2, and a modulus of elasticity in the transverse direction of more than 3,000 N/mm^2 and (3) a tear resistance of more than 50 N/mm^2, in the longitudinal direction and of more than 220 N/mm^2 in the transverse direction.

5,212,010

STABILIZING FABRIC WITH WEAVE REINFORCEMENT FOR RESIN MATRICES

Frederick H. Curzio, Garden Grove, and Peter R. Moores, Anaheim, both of Calif., assignors to Ketema, Inc., Philadelphia, Pa.

Filed May 28, 1991, Ser. No. 706,023

Int. Cl.[5] **B32B** *7/00*

U.S. Cl. 428—260 **33 Claims**

1. A stabilized, reinforcing fabric for a resin matrix in composites, the fabric being woven in a warp direction, the fabric having a width in excess of about six inches, and stabilizing weft pick fibers at about 2-10 picks per inch woven in the fabric; the weft fibers being coated with about 2%-50% of resin by weight of the said weft fiber prior to weaving; the resin coating on the said weft fibers being adapted to melt when the fabric is heated causing the said weft fibers to adhere to, and stabilize the fabric during handling, and when subsequently positioned in a mold for impregnation by a resin matrix.

5,212,011

ADHESIVE TAPE

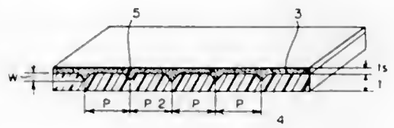
Yuzuru Ishikawa, Tokyo; Tsuneta Ikeda, Saitama, and Minoru Nishino, Mitakaishi, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 658,458, Feb. 22, 1991, abandoned, which is a continuation of Ser. No. 451,156, Dec. 15, 1989, abandoned. This application Apr. 15, 1992, Ser. No. 869,120

Claims priority, application Japan, Dec. 16, 1988, 63-318738; Apr. 27, 1989, 1-108100; Oct. 4, 1989, 1-259766

Int. Cl.[5] **B32B** *7/12*

U.S. Cl. 428—343 **2 Claims**



1. An adhesive tape, comprising:

a polyolefin resin base film having

(i) a smooth surface which is not coated with a peeling agent on one side and,

(ii) an uneven surface processed by corona discharge on the other side, wherein an adhesive layer coated with an adhesive agent is disposed on the uneven surface (ii) which was processed by corona discharge and wherein the corona discharge does not penetrate through to a reverse face of the adhesive tape,

wherein the uneven surface processed by corona discharge has an uneven depth of 0.03 to 0.30 mm and an uneven interval of 0.5 to 5.0 mm, and a surface wetting tension of the smooth surface of the polyolefin resin base film is less than 30 dyn/cm and that of the uneven surface processed by corona discharge is more than 35 dyn/cm.

5,212,012

PRIMER COATING COMPOSITION AND POLYMERIC FILM COATED WITH PRIMER COATING FOR SILICONE RELEASE APPLICATIONS

Edwin C. Culbertson, Greer, S.C., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Continuation of Ser. No. 609,869, Nov. 7, 1990, Pat. No. 5,077,353. This application Oct. 28, 1991, Ser. No. 783,308

Int. Cl.[5] **B32B** *27/34, 27/36*

U.S. Cl. 428—336 **11 Claims**

1. A primer coated, polymeric film for use as a silicone release film, comprising:

a) a polymeric film; and

b) an effective amount of a primer coating applied to at least one side of said polymeric film, sufficient to improve the adhesion of silicone to said polymeric film, said prime coating comprising:

i) from 25 to 75% by weight of a glycidoxysilane; and

ii) from 75 to 25% by weight of a copolyester mixture, said copolyester mixture comprising:

a) from about 65 to 98 mol percent isophthalic acid,

b) from about 0 to about 30 mol percent of at least one aliphatic dicarboxylic acid;

c) from about 2 to about 20 mol percent of at least one sulfomonomer containing a sulfonate group attached to a dicarboxylic nucleus; and

d) about 100 mol percent of glycol having from about 2 to 11 carbon atoms.

5,212,013

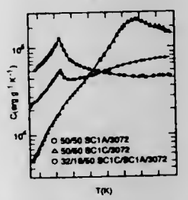
INORGANIC WIRE INSULATION FOR SUPER-CONDUCTING WIRE

Tapan K. Gupta, Monroeville; George J. Bich, Pittsburgh, both of Pa., and William N. Lawless, Westerville, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Continuation of Ser. No. 880,243, Jun. 30, 1986, abandoned. This application Jun. 9, 1988, Ser. No. 205,029

Int. Cl.[5] **B32B** *15/00*

U.S. Cl. 428—381 **2 Claims**



1. An insulated electrical conductor for fast pulse superconducting magnets and energy storage devices which require high current, high field, low loss, stable superconductors and associated insulation systems, which can withstand a high formation temperature and yet be electrically satisfactory at low use temperature (4–8K), and which is able to absorb energy dissipated during fast charge and discharge of a magnet, said insulated electrical conductor comprising, in combination, a superconducting Nb_3Sn wire and an inorganic insulation system;

the wire being formed by embedding Nb_3Sn in a copper matrix having a protective coating layer selected from the group consisting of Ni, inconel and Cr;

the insulation being formed from a green coating composition which comprises a composite of 35–45% glass, 20–30% of an inorganic ceramic oxide powder, 30–40% of an organic binder and a solvent, chosen so that the vitrification temperature coincides with the superconducting formation temperature of 600°–800° C., and vitrified on the wire at said temperature, the vitrified insulation being 55–65% glass and 35–45% ceramic;

said glass being selected from the group consisting of a first glass (A-508) of a composition comprising by weight approximately 40% SiO_2, 6% Al_2O_3, 12% K_2O, 8% Na_2O, 10% BaO, 2% SrO, 3% CaO, 0.5% MgO, 6% ZnO, 2% TiO_2, 6% V_2O_5, 0.5% AS_2O_3, and 4% Li_2O; and a second glass (M3072) of a composition comprising by weight approximately 55% SiO_2, 4% Al_2O_3, 11% Na_2O, 20% BaO, 6% CaO, and 4% Y_2O_3;

wherein the ceramic is selected from the group consisting of a first ceramic (SClC) having a chromite-spinal type structure, a second ceramic (SClA) having a niobate-columbite type structure (SClA), and a mixture which includes said first and said second ceramics.

5,212,014

POLYCARBONATE SHEET LAMINATED TO PLASTICIZED POLYVINYL BUTYRAL SHEET

Donald J. David, Amherst, Mass., and Thomas F. Sincock, Weatogue, Conn., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 8, 1991, Ser. No. 789,495

Int. Cl.[5] **B32B** *27/36;* **B29C** *47/00*

U.S. Cl. 428—412 **8 Claims**

1. A laminate comprising a sheet of polycarbonate laminated to another sheet comprising, on a weight basis, a) 30 to 90% polyvinyl butyral and b) 70 to 10% thermoplastic polyurethane, and containing as plasticizer 3 to 15 parts per 100 parts of combined polyvinyl butyral and thermoplastic polyurethane of one or more C_2–C_5 alkanediols or diethylene glycol.

5,212,015

COATED SUBSTRATES COMPRISING POLYMERS DERIVED FROM MONOCARBAMATE DIOLS

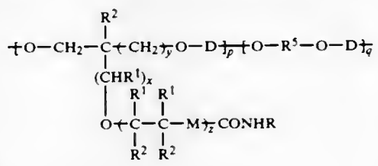
Smarajit Mitra, West St. Paul, and Cecil V. Francis, Woodbury, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 760,862, Sep. 16, 1991, Pat. No. 5,163,060, which is a division of Ser. No. 365,965, Jun. 14, 1989, Pat. No. 5,093,456. This application Jun. 26, 1992, Ser. No. 905,267

Int. Cl.[5] **C08G** *18/64, 63/40, 64/12, 64/02*

U.S. Cl. 428—412 **7 Claims**

1. An article comprising a substrate having coated on at least one surface thereof a layer of a polymer having the structure



wherein

R is an alkyl, alkenyl, or aryl group having 1 to 20 carbon atoms;

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R^1 and R^2 can be the same or different and each is selected from hydrogen and alkyl, alkenyl, alkoxyalkyl, aryl, aryloxyalkyl, alkoxyaryl, aralkyl or alkaryl groups, wherein R^1 and R^2 together total from zero to forty carbon atoms, or a pair of R^1 and R^2 together with the carbon atoms to which they are joined can form an aliphatic cyclic structure of 5 to 7 atoms;

D can be

$$-\overset{\overset{O}{\|}}{C}-R^6-\overset{\overset{O}{\|}}{C}-, \quad -\overset{\overset{O}{\|}}{C}NHR^6-NH\overset{\overset{O}{\|}}{C}-, \text{ or } \quad -\overset{\overset{O}{\|}}{C}O-R^6-O\overset{\overset{O}{\|}}{C}-,$$

R^5 and R^6 can be the same or different, and each is a divalent organic group selected from (1) aliphatic groups having 1 to 20 carbon atoms, (2) cycloaliphatic groups having 5 to 12 carbon atoms, and (3) arylene groups having 6 to 12 carbon atoms;

M is a unitary heteroatom selected from —O— and —S—;

p is an integer having a value from 1 to 10,000;

q is an integer which can be zero or greater than zero such that when q is not zero, then the ratio of q to p can be in the range of 1:10,000 to 10,000:1;

x is an integer from 0 to 20;

y can be zero or 1 provided that at least one of x and y is not zero;

z is an integer from 0 to 20;

and wherein said polymer is uncrosslinked; wherein said substrate is transparent to actinic radiation in the wavelength range of 0.3 to 20 micrometers.

5,212,016

PROCESS FOR PROTECTING AND CONSOLIDATING STONE MATERIALS

Liberato Mascia, Loughborough, Great Britain; Giovanni Moggi, and Desiderata Ingoglia, both of Milan, Italy, assignors to Ausimont S.p.A., Milan, Italy

Filed Sep. 27, 1991, Ser. No. 767,129

Claims priority, application Italy, Oct. 1, 1990, 21613 A/90

Int. Cl.[5] B32B *27/00*

U.S. Cl. 428—422 **8 Claims**

1. A process for consolidating and protecting stone materials, marble, bricks, concrete and manufactured articles therefrom, from the degrading action caused by atmospheric agents and pollutants, which process comprises applying a protecting and consolidating agent thereto, said protective and consolidating agent comprising:

(a) 2–40% by weight of a non-elastomeric (co)polymer based on vinylidene fluoride, or 1–20% by weight of a polyalkylmethacrylate, wherein the alkyl group contains form 1 to 4 carbon atoms; and

(b) an elastomeric copolymer of vinylidene fluoride, constituting the balance to 100% by weight and formed of, in moles, 55–85% of vinylidene fluoride, 15–45% of hexafluoropropene and 0–30% of tetrafluorethylene.

5,212,017

AMINOPROPYLTRIMETHOXY SILANE PRIMER COMPOSITION AND COATED ARTICLES MADE THEREWITH

Martin G. Meder, Hightstown, N.J., assignor to General Electric Company, East Windsor, N.J.

Filed Dec. 14, 1990, Ser. No. 627,458

Int. Cl.[5] B32B *9/04*

U.S. Cl. 428—447 **25 Claims**

10. A method of bonding condensation cure silicone to a resin substrate comprising applying a solution of gamma-aminopropyltrimethoxysilane in an aprotic solvent having a solubility parameter of about 10.8 $(cal/cm^3)^{\frac{1}{2}}$ to the resin substrate; drying the resin substrate to remove the aprotic solvent; curing the gamma-aminopropyltrimethoxysilane; applying the condensation cure silicone to the resin substrate; and curing the silicone.

5,212,018

CONDUCTIVITY METER AND METHOD OF PRODUCING AN ELECTRODE FOR USE IN SAME

Yasukazu Iwamoto, Miyanohigashi, Japan, assignor to Horiba, Ltd., Kyoto, Japan

Filed Jan. 9, 1991, Ser. No. 639,661

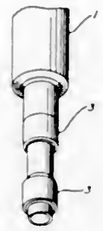
Claims priority, application Japan, Jan. 19, 1990, 2-10923

Int. Cl.[5] B22F *7/04*; **G01N** *27/30*

U.S. Cl. 428—559 **6 Claims**

1. In a conductivity meter having electrodes, the improvement comprising:

an electrode having an electrode substrate including titanium, the titanium material having an inner layer of a surface configuration resulting from a hot acid bath treatment of 3-N-HCL and an outer surface layer, deposited on the inner layer, of a platinum black plating.



5,212,019

MAGNETIC RECORDING MEDIUM HAVING A MAGNETIC LAYER CONTAINING FERROMAGNETIC METAL POWDER, BINDER, FATTY ACID ESTER, AND A SPECIFIED BRANCHED CHAIN FATTY ACID

Katsumi Ryoke; Yutaka Kakuishi, and Masaki Suzuki, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 765,229, Sep. 25, 1991, abandoned. This application Sep. 8, 1992, Ser. No. 940,733

Claims priority, application Japan, Sep. 27, 1990, 2-255229

Int. Cl.[5] G11B *5/00*

U.S. Cl. 428—694 BB **4 Claims**

1. A magnetic recording medium comprising a non-magnetic support having thereon a magnetic layer containing a ferromagnetic powder, a branched chain fatty acid, a branched chain fatty acid ester and a binder,

said ferromagnetic powder being a ferromagnetic metal powder, and the branched chain fatty acid contained in the magnetic layer consists essentially of compounds represented by formula (I):

$$R_2(CH_2)_mCOOH \qquad (I)$$

wherein R represents $CH_3(CH_2)_n$, n represents an integer of 8 or more, and m represents 0 or 1 in an amount of from 0.5 to 3 parts by weight per 100 parts by weight of said ferromagnetic metal powder,

said branched chain fatty acid is selected from the group consisting of a branched chain fatty acid represented by formula (I) wherein m is 1 and n is 8 or 10, and a branched chain fatty acid represented by formula (I) wherein m is 0 and n is 9, 11 or 14.

5,212,020

BATTERY CASE

Kazuhiko Inobe, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 1, 1991, Ser. No. 769,376

Claims priority, application Japan, Oct. 4, 1990, 2-267682

Int. Cl.[5] H01M *2/00*

U.S. Cl. 429—9 **4 Claims**

1. A battery case for an electronic apparatus including a body having a space into which a storage battery case having first attaching means for attaching said storage battery case to said space can be received and attached, comprising:

a case body including a space formed for selectively accommodating either a battery pack or a plurality of primary batteries, said case body having an outside dimension substantially identical with an outside dimension of said storage battery case,

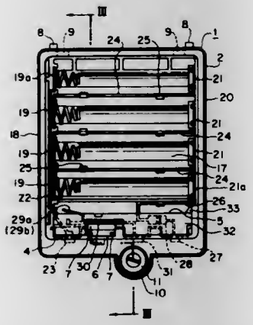
second attaching means provided on said case body for attaching said case body to the body of said electronic apparatus, said second attaching means being so formed as to be substantially identical with said first attaching means of said storage battery case,

minus terminals and plus terminals for said primary batteries, which are arranged in said case body, for electrically connecting said primary batteries when said primary batteries are received in said space in said case body,

said minus terminals including a common minus terminal for contacting a minus terminal of one of said primary batteries when said primary batteries are received in sad space of said case body and for contacting a minus terminal of said battery pack when said battery pack is received in said space of said case body,

a plus terminal for said battery pack, which is arranged in said case body, for contacting a plus terminal of said battery pack when said battery pack is received in said space of said case body,

a minus external terminal connected to said common minus terminal,



a plus external terminal for said primary batteries which is connected to said plus terminal for said primary batteries, and

a plus external terminal for said battery pack which is connected to said plus terminal for said battery pack,

said minus external terminal and said plus external terminal being provided in positions adapted to be substantially identical with those of corresponding minus and plus external terminals provided on said storage battery case when said storage battery case is received in said space in said electronic apparatus.

5,212,021

ENERGY PACK AND INDIVIDUAL BATTERY CELL CARTRIDGE

Richard B. Smith, Bethel, and Bruce McDonald, Weston, both of Conn., assignors to Duracell Inc., Bethel, Conn.

Filed Feb. 21, 1992, Ser. No. 839,415

Int. Cl.[5] H01M *2/10*

U.S. Cl. 429—9 **29 Claims**

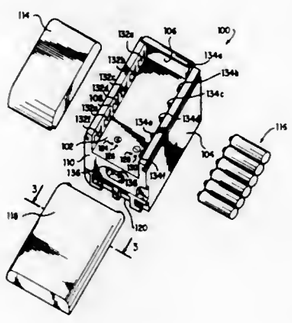
1. A cartridge capable of accommodating either an energy pack or at least one individual battery cell to supply energy to an electrical apparatus having a positive contact and a negative contact, said cartridge comprising:

a housing having a cavity capable of accommodating the energy pack;

first contact means on an exterior portion of said housing adapted to mate with the positive and negative contacts of the electrical apparatus;

second contact means on a first interior portion of said housing within the cavity, said second contact means electrically connected to said first contact means and adapted to mate with contacts on the energy pack;

third contact means on a second interior portion of said housing within the cavity, said third contact means electrically connected to said first contact means and adapted to mate with contacts on the at least one battery cell; and



means for releasably attaching said housing to the electrical apparatus.

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5,212,022
INTERNAL-REFORMING FUEL CELLS AND POWER STATIONS USING THE SAME
Tsutomu Takahashi, Ibaraki; Keizou Ohtsuka, Katsuta; Toshiki Kahara, Naka, and Yasutaka Komatsu, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Sep. 20, 1990, Ser. No. 585,508
Claims priority, application Japan, Sep. 20, 1989, 1-243620
Int. Cl.[5] H01M *8/18, 8/06*
U.S. Cl. 429—19 20 Claims

1. An internal reforming fuel cell comprising a plurality of unit cells stacked together in a first direction, each of said unit cells comprising a cathode an anode and an electrode plate therebetween, and a separator; said cathode, electrode plate and anode defining a generating zone and said separator defining a fuel gas flow channel communicating with a fuel gas inlet and a fuel gas outlet and including a divided fuel gas flow channel in contact with a surface of said anode, and an oxidant gas flow channel communicating with an oxidant gas inlet and oxidant gas outlet and including a divided oxidant gas flow channel in contact with a surface of a cathode of an adjacent unit cell; wherein each of said unit cells further comprises a reforming zone for reforming fuel gas provided in said fuel gas flow channel and positioned adjacent said generating zone in a second direction perpendicular to said first direction.

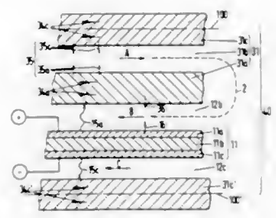
5,212,023
SOLID ELECTROLYTIC FUEL CELL AND METHOD OF DISSIPATING HEAT THEREIN
Roland Diethelm, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland
Filed Aug. 2, 1991, Ser. No. 739,898
Claims priority, application Switzerland, Aug. 27, 1990, 2-769
Int. Cl.[5] H01M *8/04*
U.S. Cl. 429—26 14 Claims

1. A method of dissipating heat from a battery of solid electrolytic fuel cells, said method comprising the steps of

positioning a temperature equalizing member opposite a positive electrode of an electrochemically active structure of at least one fuel cell to receive generated heat therefrom during a conversion of chemical energy with electrical energy;

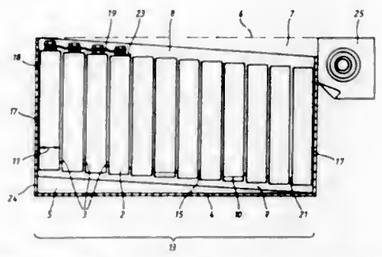
dissipating a first part of the heat transferred to the temperature equalizing member indirectly to a flow of air via heat exchange elements;

dissipating a second part of the heat transferred to the temperature equalizing member directly to the flow of air to heat the air to a temperature close to the temperature of reaction; and



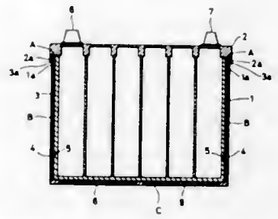
thereafter passing the flow of heated air to the positive electrode of the electrochemically active structure.

5,212,024
BATTERY BOX WITH A CIRCULATING FLOW CHANNEL
Rainer Klink, Kernen, and Johann German, Weinstadt, both of Fed. Rep. of Germany, assignors to Deutsche Automobilgesellschaft mbH, Stuttgart, Fed. Rep. of Germany
Filed May 18, 1992, Ser. No. 884,086
Claims priority, application Fed. Rep. of Germany, May 17, 1917, 4116253
Int. Cl.[5] H01M *2/38*
U.S. Cl. 429—72 15 Claims



1. Battery box for a plurality of electrochemical cells which are arranged in rows, with individual cells in each row being disposed one behind the other, and a circulating-flow channel being formed between housings of adjacent cells within each row by a spacing of said adjacent cells from one another, through which circulating-flow channels a fluid can flow, said circulating-flow channels all being fluidically connected to an inlet channel which tapers in the flow direction and is arranged in the vicinity of a box bottom, and to an outlet channel which expands in the flow direction and is arranged in the vicinity of a box lid, wherein the side walls of the battery box are provided with a step-type ledge for the staggered vertical arrangement of cells within each row, the bottoms of said cells being positioned on said steps, the slope of said ledge corresponding in magnitude and direction to the taper of the inlet channel on the bottom side, and the step dimension of the step form of the ledge corresponding to the depth of a cell plus the corresponding width of the spacing between adjacent cells within each row, which forms the circulating-flow channel.

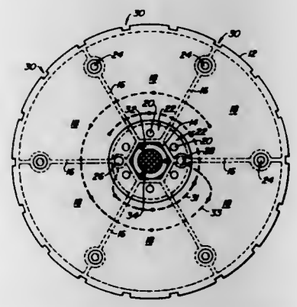
5,212,025
STORAGE BATTERY FOR AUTOMOBILES
Osamu Shibata; Naohiro Otake; Kazuyuki Machida; Akihiro Tsubuki, and Kenji Nakano, all of Iwaki, Japan, assignors to Furukawa Denchi Kabushiki Kaisha, Kanagawa, Japan
Filed Nov. 27, 1991, Ser. No. 799,529
Claims priority, application Japan, Nov. 30, 1990, 2-129443
Int. Cl.[5] H01M *2/02*
U.S. Cl. 429—120 3 Claims



1. A storage battery for a motor vehicle comprising a battery container having side walls and a bottom; a battery cover

secured to and covering said container and having side walls which project downwardly outside of said container such that a gap is formed between said downwardly projecting side walls and a top portion of side walls of the container; and a bottomed heat-shielding case detachably attached to and surrounding said battery container and having an upper end portion arranged within said gap.

5,212,026
CIRCULAR BATTERY FOR FLYWHEEL
Danny E. Mitchell, P.O. Box 4741 Incline Village, Incline, Nev. 89450
Filed Oct. 4, 1991, Ser. No. 771,680
Int. Cl.[5] H01M *2/24, 2/02;* B65D *85/57*
U.S. Cl. 429—160 11 Claims



1. A battery housing for use in a flywheel, comprising:

a cylindrical casing having a cylindrical outer wall and an inner wall with an opening for attachment to an axle; and

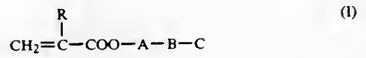
a plurality of interior walls defining a plurality of pie-slice shaped inner cells containing a plurality of pie-slice shaped cells of a battery.

5,212,027
MONOMERS AND THEIR USE FOR THE PRODUCTION OF A LASER-OPTICAL RECORDING ELEMENT WHICH CAN BE REPEATEDLY ERASED AND RECORDED ON
Karl-Heinz Etzbach; Gerhard Wagenblast, both of Frankenthal; Wolfgang Brox, Heidelberg; Axel Paul, Mannheim, and Volker Bach, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany
Division of Ser. No. 524,989, May 18, 1990. This applicatioo Dec. 30, 1991, Ser. No. 814,517
Int. Cl.[5] G11B *7/24*
U.S. Cl. 430—20 40 Claims

1. A laser-optical recording element which can be repeatedly erased and recorded on, containing

a) a recording layer having a thickness (d) which exhibits enantiotropic, ferroelectric smectic liquid crystalline (S_{C^*}) behavior and can be switched back and forth between two thermodynamically stable, optically distinguishable ferroelectric smectic liquid crystalline S_{C^*} order states on exposure to a laser beam of sufficient luminous power by applying an external electric field,

the said recording layer (a) containing at least one polymer I having chiral mesogenic pendant side groups exhibiting ferroelectric smectic liquid crystalline behavior and comprising monomer units derived from monomers of the structure I



(I)

where

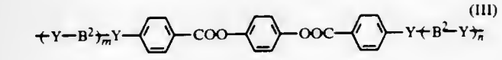
R is hydrogen, chlorine or methyl,

A is a flexible space-maintaining long-chain molecular moiety having the formula $-(CH_2-)_R-$ where R is an integer of from 1 to 30,

C is an optically active chiral molecular moiety and B is a mesogenic molecular moiety which consists of three or more aromatic nuclei bonded linearly or virtually linearly to one another and which is selected from the group consisting of

i) moieties B which contain one or more napth-2,6-ylene groups,

ii) moieties B of the formula II



(III)

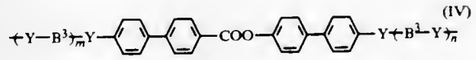
where

B^2 is a p-phenylene, a biphenyl-4-4'-diyl or a napth-2,6-ylene group,

Y is an ether, an ester, a thioester group or a carbon-carbon single bond and

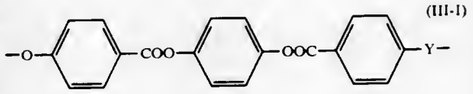
m and n are each 0 or an integer ≥ 1;

iii) moieties B of the formula IV



(IV)

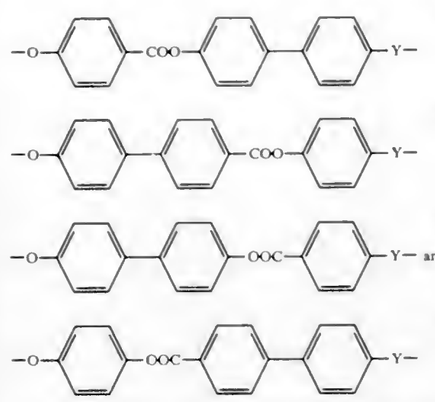
where m and n and Y have the abovementioned meanings and B^3 is selected from the group consisting of the p-phenylene, the biphenyl-4-4'-diyl and the napth-2,6-ylene group and the group III-1



(III-1)

where Y has the abovementioned meanings; and iv) moieties B, selected from the group consisting of the groups X-1 to X-4

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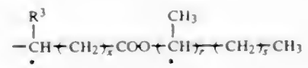
(X-1)

(X-2)

(X-3)

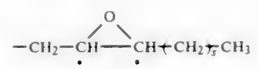
(X-4)

where Y has the abovementioned meanings and the groups X-1 to X-4 are bonded via the ether group to moiety A, with the proviso that the moiety C of the molecule is exclusively selected from the group consisting of the pinan-3-yl, the camphan-2-yl and the p-methan-3-yl group and the group of the formula VII



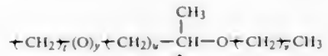
(VII)

where R^3 is methyl or trifluoromethyl, x and r independently of one another are each 0 or 1 and s is an integer from 1 to 3, the group of the formula VIII



(VIII)

where s has the abovementioned meaning, and the group of the formula IX



(IX)

where t, u and v independently of one another are each an integer of from 1 to 10, t and u independently of one another may furthermore be 0, and y is 0 or 1, whenever one of the said groups X-1 to X-4 is selected for moiety B of the molecule.

5,212,028

FABRICATION OF FINE PATTERNS BY SELECTIVE SURFACE REACTION AND INSPECTION METHOD THEREFOR

Takeshi Fujino, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 20, 1991, Ser. No. 657,785
Claims priority, application Japan, Feb. 26, 1990, 2-46263
Int. Cl.[5] G03C *5/00*
U.S. Cl. 430—22 **15 Claims**

1. A method of fabricating a fine pattern by using selective surface reaction, comprising the steps of:

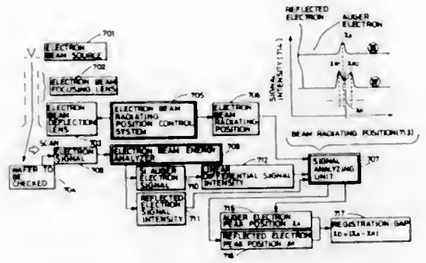
applying a resist on a major surface of a substrate at least comprising an alignment mark formed at a predetermined reference position and having a stepped portion,

transferring a predetermined pattern onto said resist by selectively radiating electron beams onto said resist in accordance with said pattern with reference to the position of said alignment mark,

selectively forming a surface layer of high etchingresistant on said resist,

checking the registration of the position of said alignment mark with the position of said surface layer formed in the region of said alignment mark by scanning said resist in the region at least including said alignment mark by the electron beams after the formation of said surface layer and before the development of the pattern transferred onto said resist, said step of checking the registration including detecting the position of said surface layer by the detection of Auger electrons emitted from silicon atoms penetrated into the surface of said resist, and

developing said pattern transferred onto the resist by selectively removing said resist by using said surface layer as a mask.

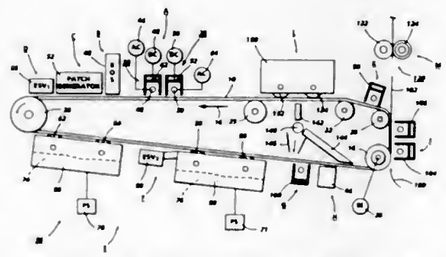


5,212,029

ROS ASSISTED TONER PATCH GENERATION FOR USE IN TRI-LEVEL IMAGING

Mark A. Scheuer, Williamson, and Daniel W. MacDonald, Farmington, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 5, 1991, Ser. No. 755,193
Int. Cl.[5] G03G *13/01*
U.S. Cl. 430—42 **32 Claims**



1. In a method of creating tri-level images on a charge retentive surface, the steps including:

uniformly charging said charge retentive surface;

using a test patch generator, forming a first test patch on said charge retentive surface;

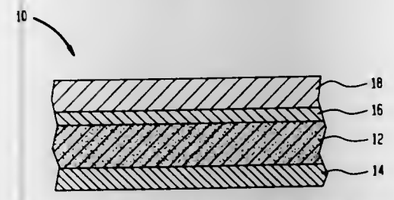
using an image exposure structure utilized for forming tri-level images and said test patch generator, forming a second test patch on said charge retentive surface.

5,212,030

METHOD AND MATERIALS FOR PRODUCING A PRINTING MASTER

Murray Figov, Raanana, Israel, assignor to Plazer Ltd., Ramat Gan., Israel

Filed Nov. 21, 1989, Ser. No. 439,704
Int. Cl.[5] G03G *13/28*
U.S. Cl. 430—49 **10 Claims**



1. A method of producing a printing plate using the indirect electrophotographic process, said method comprising the steps of:

coating a polyester printing plate base material with a pigment-loaded resin;

imaging said coated printing plate in an indirect electrophotographic process, forming image areas;

applying a conversion etch solution for etching said image areas; and

applying a background cleaning mixture to said etched image areas to improve the sharpness thereof while simultaneously removing unwanted background image formed by toner particles,

wherein said background cleaning mixture is an emulsion comprising an external hydrophilic phase of water, a humectant and an acid, at least one surfactant with an HLB greater than 10, and an internal lipophilic phase consisting of an oil and an organic solvent, where the total surfactant and lipophilic phase are a total weight of less than 30%;

and wherein the strength of said organic solvent in said background cleaning mixture is 2.7% by weight, to remove said unwanted background image while sharpening said etched image areas.

5,212,031

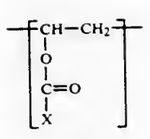
PHOTOELECTROGRAPHIC METHOD OF IMAGING WITH AN ELEMENT COMPRISING A MOISTURE INSENSITIVE BINDER

Douglas E. Bugner; Louis J. Sorriero, Rochester, and Sherry L. Marlowe, Rush, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 509,119, Apr. 16, 1990, Pat. No. 5,108,859.
This application Dec. 23, 1991, Ser. No. 812,609
Int. Cl.[5] G03G *5/06*
U.S. Cl. 430—56 **11 Claims**

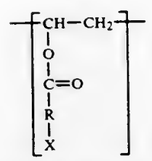
1. A photoelectrographic method of imaging comprising the steps of:

(a) providing a photoelectrographic element comprising a conductive layer in electrical contact with an acid photogenerating layer which (i) is free of photopolymerizable materials and (ii) comprises an electrically insulating binder and an acid photogenerator wherein the electrically insulating binder is a copolymer comprising at least two different repeating units, one of said repeating units selected from the group consisting of:



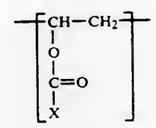
I

and



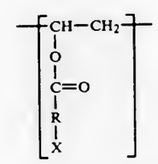
II

wherein R represents an alkylene group having 2, 4 or 6 carbon atoms and X represents an aromatic radical selected from the group consisting of unsubstituted aromatic radicals, aromatic radicals having an acyl substituent, aromatic radicals having an alkyl substituent, aromatic radicals having an alkoxy substituent and aromatic radicals having a halogen substituent; and another of said repeating units selected from the group consisting of:



III

or



IV

wherein Y represents a lower alkyl radical having from 1 to about 8 carbon atoms, and Z represents a hydroxy radical;

(b) carrying out the following steps (b) (i) and (b) (ii) concurrently or separately in any order, to form an electrostatic latent image,

(i) imagewise exposing the acid photogenerating layer to actinic radiation,

(ii) electrostatically charging the acid photogenerating layer, and

(c) developing the electrostatic latent image with charged toner particles.

5,212,032

MOISTURE STABLE POLYURETHANE BIASABLE TRANSFER MEMBERS

John C. Wilson, Rochester, and William B. Vreeland, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 26, 1991, Ser. No. 798,432
Int. Cl.[5] G03G *13/16*
U.S. Cl. 430—65 **32 Claims**

1. A member for electrically cooperating with a conductive support surface to attract charged toner particles from the surface towards the member comprising a conductive substrate

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capable of supporting a uniform bias potential thereon and at least one coating comprising a resilient elastomeric polyurethane formed by reacting:

(a) a polyisocyanate prepolymer comprising the reaction product of:

(i) a saturated aliphatic polyisocyanate, a saturated cycloaliphatic polyisocyanate or an aromatic polyisocyanate; and

(ii) a polyol free of aliphatic unsaturation; and

(b) a hardening mixture comprising:

(i) a polyol of (a) (ii) or a diamine free of aliphatic unsaturation thereof; and,

(ii) as a conductivity control agent for controlling the resistivity of the elastomeric polyurethane, from 0.001 to 5.0 weight percent, based on the total weight of (b), of a complex of ethylene glycol or an oligoethylene glycol selected from the group consisting of di-, tri- and tetraethylene glycol with an ionizable ferric halide salt selected from the group consisting of ferric fluoride, ferric chloride and ferric bromide,

the coating being in electrical contact with the conductive substrate and having an electrical resistivity such that the coating is capable of transmitting a bias potential from the substrate to the outer periphery of the coating.

5,212,033

ELECTROPHOTOGRAPHIC TONER FOR NEGATIVE CHARGING

Noriaki Tsubota, Himeji; Masahiko Kubo, Yao; Kazuo Fuji, Higashi-osaka; Akihiro Watanabe, Kawai, and Yoshihisa Kuramae, Hirakata, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Nov. 27, 1991, Ser. No. 798,742

Claims priority, application Japan, Nov. 28, 1990, 2-328363; Nov. 28, 1990, 2-328365; Nov. 28, 1990, 2-328371; Nov. 28, 1990, 2-328373

Int. Cl.[5] G03G *9/097*

U.S. Cl. 430—106 **17 Claims**

1. An electrophotographic toner for negative charging, comprising a fixing resin, a colorant, a charge-controlling agent for negative charging, and a charge-controlling assistant, wherein the charge controlling agent for negative charging is a copolymer of an acrylamide monomer represented by the following formula (1)

$$CH_2=CX^1-CONH-X^2-SO_3H \quad (1)$$

wherein X^1 represents a hydrogen atom or a methyl group, and X^2 represents a divalent hydrocarbon group having 1 to 6 carbon atoms, and a vinylic monomer, and the charge-controlling assistant is a positive charge-controlling substance which is incompatible with the fixing resin and has a dispersibility in the fixing resin.

5,212,034

ELECTROPHOTOGRAPHIC DEVELOPMENT MAGNETIC RESIN COATED CARRIER

Koichi Tsuyama, Kobe, and Hiroshi Harada, Nikaho, both of Japan, assignors to Mita Industrial Co., Ltd., Osaka and TDK Corporation, Tokyo, both of Japan

Filed Jun. 6, 1991, Ser. No. 711,143

Claims priority, application Japan, Jun. 6, 1990, 2-148357

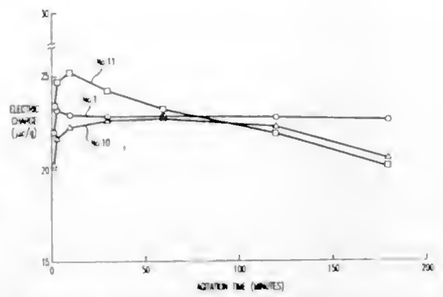
Int. Cl.[5] G03G *9/113*

U.S. Cl. 430—108 **5 Claims**

1. In magnetic carrier particles for use in electrophotographic development, each in the form of a ferrite core particle having a resinous coating on the surface thereof,

the improvement wherein at least 90% by weight of said ferrite core particles have a saturation magnetization of 45 to 55 emu/g and a particle size of 74 to 149 μm,

said resinous coating has a copolymer composition comprising a major proportion of a copolymer of ethyl methacrylate and styrene having a styrene content of from 15 to 25% by weight of the copolymer, 0.1 to 2% by weight of dodecyl methacrylate, and 0.1 to 2% by weight of 2-hydroxyethyl acrylate, and



the magnetic carrier particles have a resistance of 8.5×10^7 to 220×10^7 Ω.

5,212,035

TONERS AND DEVELOPERS CONTAINING ESTER-CONTAINING QUATERNARY PYRIDINIUM SALTS AS CHARGE CONTROL AGENTS

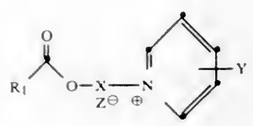
John C. Wilson, Rochester, and Alexandra D. Bermel, Spencerport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 18, 1991, Ser. No. 734,358

Int. Cl.[5] G03G *9/10*

U.S. Cl. 430—110 **13 Claims**

1. A dry, particulate electrostatographic toner composition comprising a polymeric binder and a charge control agent comprising an ester-containing quaternary pyridinium salt having the structure:



wherein R_1 is alkyl or aryl, X is $+CH_2+_n$, Y is hydrogen, alkyl, alkoxy or halogen, $Z\ominus$ is an anion and n is an integer from 2 to 6.

5,212,036

PASSIVATED GREEN TONER COMPOSITIONS COMPRISING POSITIVE CHARGE ENHANCING ADDITIVE

Roger N. Ciccarelli, Rochester, and Denise R. Bayley, Fairport, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 28, 1991, Ser. No. 706,477

Int. Cl.[5] G03G *9/97*

U.S. Cl. 430—110 **13 Claims**

1. A process for the preparation of negatively charged toner compositions with a negative triboelectric charge of from about a negative 10 to about a negative 30 consisting essentially of admixing toner resin particles, green pigment particles comprised of HELIOGEN GREEN TM, and a positive charge enhancing additive selected from the group consisting of cetyl pyridinium chloride and distearyl dimethyl ammonium methyl sulphate incorporated, pigment particles, and a positive charge enhancing additive incorporated into said toner composition that enables passivation of said green pigment particles, and subsequently adding thereto surface additives and wherein said passivated green pigments enable the minimization or avoidance of adverse effects on the toner triboelectric charging characteristics and wherein said toner compositions have rapid admix characteristics with an admix time of from about 15 to about 60 seconds.

5,212,037

TONER PROCESS WITH METAL OXIDES

Paul C. Julien; Ronald J. Koch, both of Webster, and Grace T. Brewington, Fairport, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 1, 1991, Ser. No. 739,071

Int. Cl.[5] G03G *9/08, 9/00*

U.S. Cl. 430—120 **8 Claims**

1. A process for avoiding, or minimizing toner contamination of electrodes in a scavengeless electrophotographic imaging apparatus consisting essentially of adding to the donor roll present in said apparatus toner particles comprised of resin, pigment, charge additive, and metal oxide particles, or a mixture of metal oxide particles, and wherein said metal oxide particles are associated with the surface of said toner particles.

5,212,038

DEVELOPER AND PROCESS FOR PREPARATION THEREOF

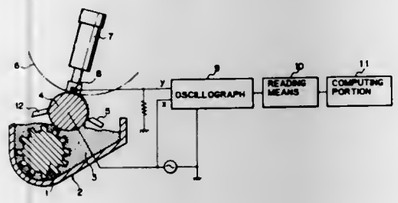
Akihiro Watanabe; Katsumi Oyama, both of Neyagawa; Yoshihisa Kuramae, Hirakata; Mitsushi Kuroki, Kumamoto, and Noriaki Tsubota, Himeji, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Aug. 10, 1990, Ser. No. 565,142

Claims priority, application Japan, Aug. 21, 1989, 1-212927; Jan. 31, 1990, 2-23036

Int. Cl.[5] G03G *9/08, 9/00*

U.S. Cl. 430—122 **10 Claims**



1. A two-component type developer, which comprises a magnetic carrier and an electroscopic toner, wherein the magnetic carrier is a carrier having a dynamic resistivity (Rc) of 5×10^9 to 5×10^{11} Ω-cm, and the toner is a toner having a static electroconductivity of 6×10^{-10} to 4×10^{-9} s/cm and a dielectric constant (ε) of 2.7 to 3.9 and the ratio ((Rd/Rc) of the dynamic resistivity (Rd) of the developer to the dynamic resistivity (Rc) of the magnetic carrier is in the range of from 0.20 to 0.99.

5,212,039

DEVELOPING METHOD OF ELECTROSTATIC LATENT IMAGES FOR FULL COLOR IMAGE FORMATION

Ichiro Demizu, Toyonaka; Mitsutoshi Nakamura, Ibaragi; Hiroshi Fukao, Toyokawa; Yuji Shintani, Toyohashi, and Shinobu Nakasawa, Toyohashi, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 27, 1991, Ser. No. 799,343

Claims priority, application Japan, Nov. 30, 1990, 2-337542

Int. Cl.[5] G03G *13/09*

U.S. Cl. 430—122 **16 Claims**

1. A developing method for electrostatic latent images for developing the electrostatic latent images retained on an electrostatic latent image retaining member, comprising

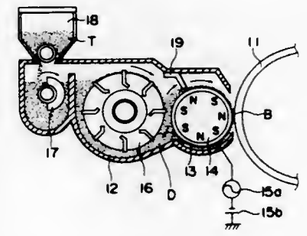
a step of supplying a developer comprising

a toner comprising a polyester resin with $2500\leqq Mn\leqq12000$, $2\leqq Mw/Mn\leqq6$, $50°\ C.\leqq Tg\leqq70°\ C.$ and $80°\ C.\leqq Tm\leqq120°\ C.$ and a coloring agent,

a carrier comprising a magnetic core material coated with a thermosetting resin in which a styrene-acrylate copolymer resin and melamine resin are crosslinked, and

an external additive comprising a hydrophobic silica and a hydrophobic titanium oxide or a hydrophobic silica and a hydrophobic aluminum oxide on a developer retaining member of non-magnetic property which contains a magnetic member in it and is arranged oppositely t o the electrostatic latent image retaining member;

a step of transporting the developer to a developing area



which is formed in an opposite portion of the electrostatic latent image retaining member to the developer retaining member; and

a step of developing the electrostatic latent images formed on the electrostatic latent image retaining member in the development area under a development bias in which an alternating current component with a frequency of 1000 to 3500 Hz and peak-to-peak voltage of 300 to 2500 V is superposed on a direct current component, wherein the frequency (f) and the peak-to-peak voltage ($V_{p\text{-}p}$) have the relation of equation below:

$$V_{p\text{-}p}f+500 \quad [I].$$

5,212,040

CARBONLESS PAPER FOR ELECTROSTATIC IMAGING PROCESSES

David J. Sanders, Oakville; John F. Oliver, and Marcel P. Breton, both of Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 13, 1991, Ser. No. 806,508

Int. Cl.[5] G03G *13/14*

U.S. Cl. 430—126 **40 Claims**

1. A process which comprises incorporating into an electrostatic imaging apparatus a recording sheet comprising a support on one surface of which are situated microcapsules which comprise a shell and a core containing a color former and an oil, said microcapsules being strengthened with a polymer capable of degrading upon exposure to actinic radiation; generating an electrostatic latent image on an imaging member in the apparatus; developing the latent image with a developer; transferring the developed image to the recording sheet; and, subse-

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quent to transfer, exposing the recording sheet to actinic radiation at a wavelength at which the polymer will degrade, thereby rendering the microcapsules subject to rupture upon application of pressure.

5,212,041

WATER DEVELOPABLE, NEGATIVE WORKING OVERLAY COLOR PROOFING SYSTEM UTILIZING WATER SOLUBLE POLYMERIC DIAZONIUM COMPOUND AND WATER INSOLUBLE, WATER SWELLABLE, BINDER RESIN

Stanley F. Wanat, Scotch Plains, N.J., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Continuation-in-part of Ser. No. 431,257, Feb. 12, 1990, abandoned, which is a division of Ser. No. 183,841, Apr. 10, 1988, Pat. No. 4,914,039. This application Apr. 2, 1991, Ser. No. 679,361

Int. Cl.[5] G03F *7/32, 7/021, 3/00*

U.S. Cl. 430—143 **9 Claims**

1. A method for forming an overlay color proofing image on a transparent substrate which comprises

A) providing a negative working, photosensitive, overlay color proofing film which consists essentially of, in order:

i) a smooth transparent substrate; and

ii) a photosensitive layer on said substrate, which photosensitive layer comprises a light sensitive, water soluble, negative working, polymeric diazonium compound, which diazonium compound is present in sufficient amount to photosensitize said layer; and a water insoluble, water swellable binder resin in sufficient amount to bind the layer components in a uniform film; and at least one colorant in sufficient amount to uniformly color said layer; and then

B) imagewise exposing said photosesitive layer to sufficient actinic radiation to form a latent image; and then

C) developing the latent image carrying photosensitive layer on said film with water alone to thereby remove the non-exposed areas of the photosensitive layer.

5,212,042

POSITIVE TYPE LIGHT-SENSITIVE COMPOSITION

Fumiaki Shinozaki; Akira Umehara, and Sadao Ishige, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 570,753, Aug. 22, 1990, abandoned. This application Mar. 2, 1992, Ser. No. 844,869

Claims priority, application Japan, Aug. 22, 1989, 1-215619

Int. Cl.[5] G03C *1/52*

U.S. Cl. 430—189 **4 Claims**

1. A positive type light-sensitive composition, comprising an alkali-soluble polymeric binder and at least one p-iminoquinonediazido-N-sulfonyl compound, wherein said at least one p-iminoquinonediazido-N-sulfonyl compound is present in an amount of from 0.1 to 0.7 part by weight per 1 part by weight of said alkali-soluble polymeric binder, and wherein said alkali-soluble polymeric binder is a phenolic polymer.

5,212,043

PHOTORESIST COMPOSITION COMPRISING A NON-AROMATIC RESIN HAVING NO AROMATIC STRUCTURES DERIVED FROM UNITS OF AN ALIPHATIC CYCLIC HYDROCARBON AND UNITS OF MALEIC ANHYDRIDE AND/OR MALEIMIDE AND A PHOTOSENSITIVE AGENT

Takashi Yamamoto, Ebina; Masaaki Todoko, Fujisawa; Toru Seita; Kyoko Nagaoka, both of Atsugi, and Kosaburo Matsumura, Yokohama, all of Japan, assignors to Tosho Corporation, Japan

PCT No. PCT/JP89/00159, § 371 Date Oct. 17, 1989, § 102(e) Date Oct. 17, 1989

PCT Filed Feb. 17, 1989, Ser. No. 425,191

Claims priority, application Japan, Feb. 17, 1988, 63-32806; Feb. 18, 1988, 63-33877; Feb. 18, 1988, 63-33878; Feb. 18, 1988, 63-33879; Feb. 18, 1988, 63-33880; Feb. 25, 1988, 63-40647; May 23, 1988, 63-123925; May 23, 1988, 63-123926; Jul. 4, 1988, 63-165124; Jul. 4, 1988, 63-165125; Jul. 4, 1988, 63-165126; Jul. 4, 1988, 63-165128

Int. Cl.[5] G03F *7/023, 7/012;* **C08F** *36/00*

U.S. Cl. 430—192 **19 Claims**

1. A photoresist composition for far ultraviolet or excimer laser lithography, which comprises in admixture:

a non-aromatic resin having no aromatic structure, soluble in an aqueous alkaline solution, having units of an aliphatic cyclic hydrocarbon main frame and units derived from maleic anhydride and/or units derived from a maleimide; and

a photosensitive agent selected from the group consisting of a naphthoquinone diazide type positive photosensitive agent, a bis-azide type negative photosensitive agent and a diazo type positive photosensitive agent in a sufficient amount to promote or hinder the solubility of said resin in an aqueous alkaline solution upon exposure to active radiation so as to create a substantial difference in the solubility as between an exposed portion and a non-exposed portion and to form a positive or negative image by subsequent development with an aqueous alkaline solution.

5,212,044

PHOTORESIST COMPOSITION INCLUDING POLYPHENOL AND SENSITIZER

Rong-Chang Liang, Centerville; Alexander R. Pokora, Pickerington, and William L. Cyrus, Jr., Ray, all of Ohio, assignors to The Mead Corporation, Dayton, Ohio

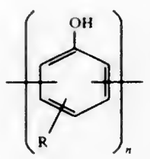
Continuation of Ser. No. 241,657, Sep. 8, 1988, abandoned. This application Nov. 13, 1991, Ser. No. 793,260

Int. Cl.[5] G03F *7/023, 7/32*

U.S. Cl. 430—192 **20 Claims**

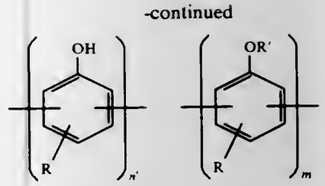
1. A photoresist composition consisting essentially of a methylene bridge-free phenolic resin and a sensitizer, said sensitizer being present in an amount effective to render said composition alkaline soluble in areas exposed to actinic radiation, said phenolic resin being represented by the formula (I) or (II):

(I)



-continued

(II)



wherein R is a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, an alkaryl group, an aryl group or a silyl group; R' is a silyl group; and n and n'+m are greater than 3.

5,212,045

METHOD FOR IMAGE FORMATION

Masao Koga, and Minoru Ohashi, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills Limited, Tokyo, Japan

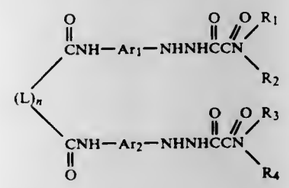
Filed May 9, 1991, Ser. No. 697,439

Claims priority, application Japan, May 9, 1990, 2-120279; May 11, 1990, 2-121747

Int. Cl.[5] G03C *1/06*

U.S. Cl. 430—264 **11 Claims**

1. A method for high contrast image formation which comprises developing an image-wise exposed a silver halide photographic photosensitive material in the presence of a compound represented by the following formula



wherein Ar_1 and Ar_2 may be identical or different and each represents a divalent aromatic group, R_1, R_2 and R_3 and R_4 may be identical or different and each represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group, R_1 and R_2 may link to each other to form a ring and R_3 and R_4 may link to each other to from a ring, L represents a divalent linkage group, and n represents 0 or 1.

5,212,046

NEAR UV PHOTORESIST

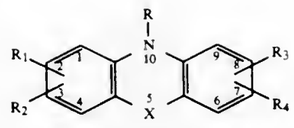
Angelo A. Lamola, Sudbury; Gary Calabrese, North Andover, and Roger Sinta, Woburn, all of Mass., assignors to Shipley Company Inc., Newton, Mass.

Continuation of Ser. No. 422,621, Oct. 17, 1989, abandoned. This application Jun. 28, 1991, Ser. No. 725,872

Int. Cl.[5] G03C *7/038*

U.S. Cl. 430—270 **22 Claims**

1. A photoresist composition comprising an acid hardening resin system consisting of a phenolic resin and an aminoplast resin, a halogenated organic, photoacid generating compound that is other than an onium salt and capable of generating a halogen acid upon exposure to actinic radiation, and a sensitizer capable of sensitizing the photoresist to exposure within the range of 360 to 450 nm, said sensitizer having the structural formula:



where R is selected from the group of hydrogen, alkyl having one to eight carbon atoms and aryl; X is selected form the group consisting of sulfur, oxygen, selenium and tellurium; R_1 and R_2 are selected from the group consisting of hydrogen, halogen, lower alkyl, alkoxy, aryl, a phenothiazine radical or R_1 and R_2 taken together form an aromatic ring fused to the sensitizer nucleus in the first and second positions on the nucleus, the second and third positions on the nucleus, or the third and fourth positions on the nucleus, R_3 and R_4 are selected from the same group as R_1 and R_2, or R_3 and R_4 taken together form an aromatic ring fused to the sensitizer nucleus in the sixth and seventh positions of the nucleus, the seventh and eighth positions of the nucleus, or the eighth and ninth positions of he nucleus; provided that at least one of R_1, R_2, R_3 or R_4 is aryl or R_1 and R_2 taken together, or R_3 and R_4 taken together, are part of an aryl group; said sensitizer being present in a concentration sufficient to absorb sufficient energy whereby, upon exposure to irradiation within a range of from 360 to 450 nm, photoactivation of the photoacid generating compound occurs.

5,212,047

RESIST MATERIAL AND PROCESS FOR USE

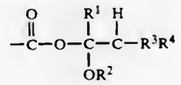
Walter R. Hertler, Kennett Square, Pa.; Dotsevi Y. Sogah, Wilmington, Del., and Gary N. Taylor, Bridgewater, N.J., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 507,342, Apr. 10, 1990. This application Feb. 18, 1992, Ser. No. 837,508

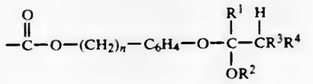
Int. Cl.[5] G03C *1/76*

U.S. Cl. 430—270 **16 Claims**

1. A material comprising 1) a polymer chosen from the group consisting of composition having a polymer backbone and pendant groups bound directly or indirectly to said backbone, said pendant groups represented by the formulae:



or



where

n is 0–4;

R^1 is hydrogen or lower alkyl;

R^2 is lower alkyl; and

R^3 and R^4 independently are hydrogen or lower alkyl where the definition of lower alkyl includes the joining of R^1 and R^2 or R^1 and either R^3 or R^4, or R^2 and either R^3 or R^4 to form a 5-, 6- or 7-membered ring; and (2) a material that forms an acid upon irradiation. in a solvent, wherein said material is applied to a substrate.

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5,212,048

SILICONE COATING FORMULATIONS AND PLANOGRAPHIC PRINTING PLATES MADE THEREWITH

Thomas E. Lewis, E. Hampstead, N.H., and Michael T. Nowak, Gardner, Mass., assignors to Presstek, Inc., Hudson, N.H.

Filed Nov. 21, 1990, Ser. No. 616,377
Int. Cl.[5] G03C 1/492
U.S. Cl. 430—272 45 Claims

1. A recording medium capable of being imaged using ablative discharge, comprising a substrate having applied to at least one surface thereof a composition comprising a cured polymeric silicone matrix consisting essentially of the reaction product of:

a. a first polysiloxane component having a molecular weight in excess of 300,000 and comprising substantially linear chains of substituted siloxane units, some of which units contain, as substitutents, a first reactive functional group that facilitates cross-linking, and which functional group is randomly interspersed in each first-component chain;

b. a second polysiloxane component having a molecular weight no greater than 70,000 and comprising substantially linear chains of substituted siloxane units, each of which is capped by terminal siloxane units that each contain, as substituents, a second reactive functional group that facilitates cross-linking; and

c. a cross-linking component having a molecular weight less than 5,000 and containing a plurality of a third reactive functional group differing from but reactive with the first and second functional groups;

wherein

d. the relative weight proportion of the first component to the second component is at least 10% and no more than 90%.

5,212,049

RADIATION-SENSITIVE MIXTURE AND RECORDING MATERIAL BASED ON OLIGOMERIC MALEATES AND FUMARATES

Joachim Gersdorf, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jan. 15, 1991, Ser. No. 641,514
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1990, 4001465
Int. Cl.[5] G03F 7/033
U.S. Cl. 430—285 37 Claims

1. A radiation-sensitive mixture, comprising, in admixture:

a) at least one thermoplastic, elastomeric block copolymer of the formulae

$$(A\text{-}B)_m\text{—}A,\ (B\text{-}A)_{m+1}\text{—}B,\ (A\text{-}B)_{m+1}\ \text{or}\ (A\text{-}B)_mY,$$

in which

A is a thermoplastic, nonelastomeric polymer block having a glass transition temperature of 25° C. or above, and

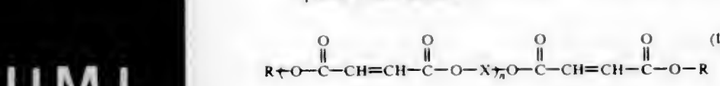
B is an elastomeric polymer block having a glass transition temperature of 10° C. or below,

Y is Sn or Si,

m is an integer from 1 to 10, and

b) at least one ethylenically polyunsaturated compound, and

c) a photopolymerization initiator, wherein at least one of the ethylenically polyunsaturated compounds corresponds to the formula I



(I)

where

R is a straight-chain or branched alkyl radical;

X is a straight-chain alkylene or cycloalkylene, in which individual methylene groups may be substituted by —O—, —S—, carbonyl or carbonyloxy groups, and

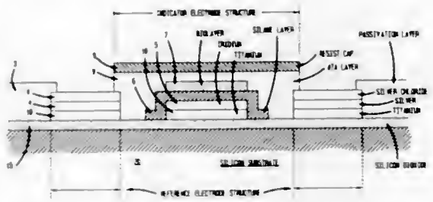
n is 1 to 5.

5,212,050

METHOD OF FORMING A PERMSELECTIVE LAYER

Randall M. Mier, 215 Nepean Avenue #1107, Ottawa, Ontario, Canada K2P 0B7; Sylvia Piznik, 12 Corrinne Ct., Jackson, N.J. 08527; Imants R. Lauks, 1011 Yardley-Morrisville Rd., Yardley, Pa. 19067, and Graham Davis, 15-04 Fox Run Dr., Plainsboro, N.J. 08536

Division of Ser. No. 432,714, Nov. 7, 1989, which is a continuation-in-part of Ser. No. 381,223, Jul. 13, 1989, abandoned, which is a continuation-in-part of Ser. No. 270,171, Nov. 14, 1988, abandoned. This application Aug. 15, 1990, Ser. No. 568,441
Int. Cl.[5] G03C 5/00
U.S. Cl. 430—320 48 Claims



1. A method for forming a permselective layer on preselected areas of a substantially planar sensing device which comprises:

(a) establishing a photoresist layer on a substantially planar sensing device;

(b) processing said photoresist layer using photolithographic techniques to expose preselected areas of said sensing device;

(c) establishing at least one film comprising a silane compound mixed with a suitable solvent on the sensing device of step (b), said compound having the formula $R'_nSi(OR)_{4-n}$, in which n is an integer selected from the group consisting of 0, 1, and 2; R' is a hydrocarbon radical comprising 3–12 carbon atoms; and R is a hydrogen radical or a lower alkyl radical comprising 1–4 carbon atoms; and

(d) heating said film to a temperature of at least about 100° C. for a period of time effective to form a permselective layer having a thickness of about 1 to about 1000 nm sufficient to provide said permselective layer with the desired semipermeable properties in which molecules having about a first preselected molecular weight or above are substantially precluded from permeating through said permselective layer, while molecules having about a second preselected molecular weight or below may effectively permeate therethrough; and

(e) removing the underlying photoresist layer and the permselective layer overlaid thereover from all except the preselected areas of said sensing device.

5. A method of forming a permselective layer on preselected areas of a substantially planar sensing device which comprises:

(a) establishing at least one film comprising a silane compound mixed with a suitable solvent on a substantially planar sensing device, said compound having the formula $R'_nSi(OR)_{4-n}$, in which n is an integer selected from the group consisting of 0, 1 and 2; R' is a hydrocarbon radical comprising 3–12 carbon atoms; and R is a hydrogen radical or a lower alkyl radical comprising 1–4 carbon atoms; and

(b) heating said film to a temperature of at least about 100° C. for a period of time effective to form a permselective layer having a thickness of about 1 to about 1,000 nm sufficient

to provide said permselective layer with the desired semipermeable properties in which molecules having about a first preselected molecular weight or above are substantially precluded from permeating through said permselective layer, while molecules having about a second preselected molecular weight or below may effectively permeate therethrough;

(c) establishing a photoresist layer on said permselective layer;

(d) processing said photoresist layer using photolithographic techniques such that a proportion of the underlying permselective layer becomes exposed and subject to further processing, while those preselected areas of the device retain a protective cap of photoresist material;

(e) removing said exposed permselective layer; and

(f) removing said protective photoresist layer to leave a permselective layer over preselected areas of said device.

6. The method of claim 5 in which step (e) comprises contacting said permselective layer with an etchant selected from the group consisting of dry agents, wet agents, and combinations thereof.

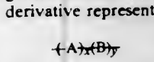
5,212,051

PHOTOGRAPHIC ELEMENT WITH CELLULOSE DERIVATIVE POLYMER

Kentaro Shiratsuchi, and Hideki Takaki, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

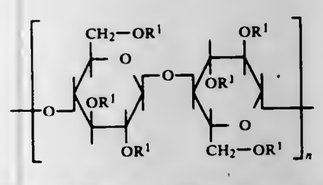
Filed Jun. 24, 1991, Ser. No. 719,433
Claims priority, application Japan, Jun. 26, 1990, 2-167961
Int. Cl.[5] G03C 5/54, 1/46, 7/20
U.S. Cl. 430—449 6 Claims

1. A photographic element comprising a support having thereon at least one layer comprising a polymer obtained by copolymerizing a repeating unit represented by the following general formula (I) and a copolymerizable oil-soluble cellulose derivative represented by the following general formula (II),



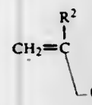
(I)

wherein A represents a repeating unit derived from an ethylenically unsaturated monomer having —COOH group, $—SO_3H$ group or $—PO(OH)_2$ group in the molecular structure; and B represents a repeating unit derived from a copolymerizable ethylenically unsaturated monomer;



(II)

wherein (R^1)s each independently represents (i) a hydrogen atom, (ii) a monovalent organic bonding group selected from the group consisting of an ester group and an ether group or (iii) a monovalent organic bonding group represented by the following general formula (III), with the provisos that (R^1)s do not represent all hydrogen atom at the same time and at least one R^1 is represented by formula (III); and n represents a number of 20 to 800;



(III)

wherein R^2 represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms; and L represents a bivalent organic bonding group, and wherein the percentage by weight of the component represented by general formula (I) in the copolymer is from 5 to 95; the percentage by weight of the component represented by general formula (III) based on the weight of the component represented by general formula (II) is from 0.00001 to 10; x and y each represents the percentage by weight of each monomer component in the copolymer, and x is in the range of 1 to 95 and y is in the range of 5 to 99.

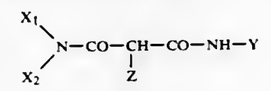
5,212,052

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

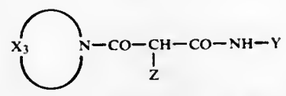
Kei Sakanoue, and Akira Ogawa, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 9, 1992, Ser. No. 848,230
Claims priority, application Japan, Mar. 12, 1991, 3-70375; Apr. 26, 1991, 3-123073
Int. Cl.[5] G03C 1/46
U.S. Cl. 430—503 22 Claims

1. A silver halide color photographic material comprising on a support at least one blue-sensitive layer, one green-sensitive layer and one red-sensitive layer, wherein said blue-sensitive layer comprises at least one yellow dye-forming coupler selected from the group consisting of general formulae (1), (2) and combinations thereof and said green-sensitive layer comprises at least one magenta dye-forming coupler represented by the following general formula (M):

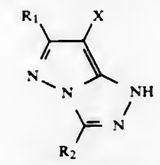


(1)



(2)

wherein X_1 and X_2 each represents an alkyl group, an aryl group or a heterocyclic group; X_3 represents an organic residue which forms a nitrogen-containing heterocyclic group together with >N—; Y represents an aryl group or a heterocyclic group; and Z represents a group which separates from the remainder of the molecule when the coupler undergoes a reaction with an oxidation product of a developing agent;



(M)

wherein R_1 and R_2 each represents a hydrogen atom or a substituent; and X represents a hydrogen atom or a group which separates from the remainder of the molecule when the coupler undergoes a reaction with an oxidation product of a developing agent.

5,212,053

TRANSLUCENT DISPLAY PAPER FOR REAR ILLUMINATION

Gary J. McSweeney, Hilton; John F. Bacilek, and John H. Goselin, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 7, 1992, Ser. No. 832,826
Int. Cl.[5] G03C 1/46
U.S. Cl. 430—503 10 Claims

1. A translucent display material comprising a substrate and sensitized layers wherein said substrate comprises paper of a

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basis weight of less than 120 g/m^2, resin coated on both sides, and said sensitized layers comprise at least one layer comprising cyan dye-forming coupler, at least one layer comprising magenta dye-forming coupler, and at least one layer comprising yellow dye-forming coupler wherein said sensitized layers comprise magenta coupler at between about 0.7 and 1.5 grams per square meter, yellow dye-forming couplers at between 1.2 and 2.0 grams per square meter, and cyan dye-forming couplers at between the amount of 0.7 and 1.5 grams per square meter and wherein the white areas of said display material transmit greater than 17 percent of the light striking them.

5,212,054

SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

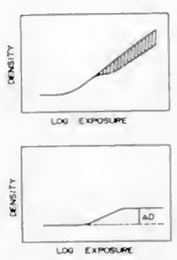
Koji Tashiro; Hideaki Haraga; Atsuo Ezaki; Hiroshi Ideda; Katsutoyo Suzuki; Satoru Shimba; Miki Kon; Kenji Michiue; Yasushi Irie; Toshibiko Yagi; Syoji Matsuzaka, and Keisuke Tobita, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Feb. 7, 1991, Ser. No. 652,048

Claims priority, applicatioo Japan, Feb. 9, 1990, 2-30730; Feb. 15, 1990, 2-24785; Feb. 15, 1990, 2-34786; Feb. 16, 1990, 2-36613; Feb. 19, 1990, 2-37764; Feb. 19, 1990, 2-37765

Int. Cl.^{5} G03C *1/08*

U.S. Cl. 430—509 **15 Claims**



1. A silver halide color photographic light sensitive material comprising a support having provided thereon a red-sensitive silver halide emulsion layer, a green-sensitive silver halide emulsion layer, and a blue-sensitive silver halide emulsion layer, wherein at least said green-sensitive silver halide emulsion layer is a three-layer structure comprising a low-speed elemental emulsion layer, a medium-speed elemental emulsion layer, and a high-speed elemental emulsion layer arranged in sequence from the side facing said support, said medium-speed elemental emulsion layer of the green-sensitive layer having a maximum color density of not more than 0.35 and the following spectral sensitivity distribution;

$$0.55S_{560} < S_{570} < .120S_{560},$$

$$0.20S_{560} < S_{580} < 0.60S_{560}, \text{ and}$$

$$S_{580} < 0.30_{560}$$

wherein S represents the sensitivity in a specific wavelength region, which is defined as the reciprocal of an exposure amount required to obtain a minimum density + 0.1 at the subscripted wavelength (in nm).

5,212,055

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS CONTAINING IMAGE STABILIZER AND ANTI-STAINING AGENT AND COLOR PHOTOGRAPHS CONTAINING THE SAME

Masakazu Morigaki; Nobuo Seto, and Kozo Aoki, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 18, 1990, Ser. No. 553,839

Claims priority, application Japan, Jul. 18, 1989, 1-185579

Int. Cl.^{5} G03C *1/34, 7/38*

U.S. Cl. 430—551 **27 Claims**

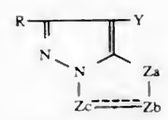
1. A silver halide photographic material comprising a support having thereon at least one light-sensitive silver halide emulsion layer comprising a dispersion of silver halide grains in a hydrophilic colloid, wherein the silver halide emulsion layer contains

(a) at least one coupler represented by formula (I) in an amount of from 1×10^{-2} to 1 mol per mol of silver halide,

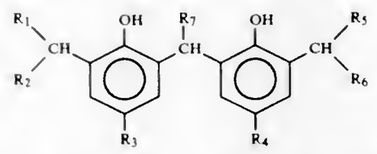
(b) at least one compound represented by formula (II) in an amount from 0.5 to 150 mol % based on the molar amount of the coupler,

(c) at least one compound represented by formula (III) in an amount of from 10 to 500 mol % based on the molar amount of the coupler, and

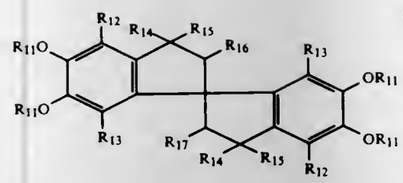
(d) at least one compound selected from the group consisting of compounds represented by formulae (IV), (V) or (VI) in an amount of from 1×10^{-2} to 10 mol per mol of the coupler:


(I)

wherein R represents a hydrogen atom or a substituent group; Za, Zb and Zc each represents a methine group, a substituted methine group, =N— or —NH—; and Y represents a hydrogen atom, a coupling-off group capable of being eliminated in a coupling reaction with the oxidized product of a developing agent, or a non-coupling-off substituent group; couplers having at least two moieties may be formed via R, Y or a substituted methine group represented by Za, Zb or Zc, and when Y is a non-coupling-off substituent group, any of Za, Zb or Zc is a methine group or a substituted methine group which is substituted with a coupling-off group capable of being eliminated in a coupling reaction with the oxidized product of a developing agent;

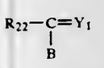

(II)

wherein R_1, R_2, R_5 and R_6, which may be the same or different, each represents a hydrogen atom, an alkyl group, an alkenyl group or an aryl group, and R_1 and R_2 or R_5 and R_6 may be linked to form a 5-membered to 7-membered ring; R_3 and R_4 each represents a hydrogen atom or an alkyl group or an aryl group; and R_7 represents a hydrogen atom or an alkyl group, provided that the total number of carbon atoms in R_1, R_2, R_3, R_4, R_5 and R_6 is at most 30; said groups and rings may be substituted:

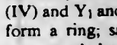

(III)

wherein R_{11} represents an alkyl group, an alkenyl group or an aryl group; R_{12} and R_{13}, which may be the same or different, each represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group, an acylamino group, a mono-alkylamino group, a dialkylamino group, —OR_{18}, —SR_{18} or a halogen atom; R_{14}, R_{15}, R_{16} and R_{17}, which may be the same or different, each represents a hydrogen atom, an alkyl group or an aryl group; and R_{18} has the same definition as those for R_{11}; said groups may be substituted;


(IV)


(V)

wherein R_{21} and R_{22} each represents an aliphatic group, an aromatic group or a heterocyclic group; X represents a group capable of being eliminated by reaction with an aromatic amine developing agent; A represents a group capable of reacting with an aromatic amine developing agent to form a chemical bond; n is 1 or O provided that n is O when X is a halogen atom; B represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an acyl group or a sulfonyl group; and Y_1 represents a group capable of promoting the addition of an aromatic amine developing agent to the compound represented by formula (V); provided that R_{21} and X in formula (IV) and Y_1 and R_{22} or B in formula (V), may be linked to form a ring; said groups and rings may be substituted; compounds having at least two moieties may be formed via R_{21} or X in formula (IV) and R_{22}, B or Y_1 in formula (V); and


(VI)

wherein R_{30} represents an aliphatic group, an aromatic group or a heterocyclic group; said groups may be substituted; and Z represents a nucleophilic group or a group capable of decomposing in the photographic material to release a nucleophilic group; compounds having at least two moieties may be formed via R_{30} or Z.

5,212,056

SILVER HALIDE MULTILAYER COLOR PHOTOGRAPHIC ELEMENT COMPRISING A DISULFIDE SUPERSENSITIZER

Walter Beltramini, Albissola Superiore, and Ivano Delprato, Rocchetta Di Cairo Montenotte, both of Italy, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

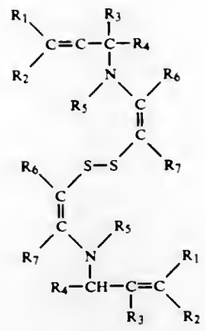
Filed Mar. 25, 1992, Ser. No. 858,308

Claims priority, application Italy, Apr. 3, 1991, MI91 A 000924

Int. Cl.^{5} G03C *1/09, 1/12*

U.S. Cl. 430—572 **11 Claims**

1. A multilayer silver halide color photographic element comprising at least one blue-sensitive silver halide emulsion layer comprising a blue spectral sensitizing dye and a supersensitizing amount of a disulfide compound of formula (I)


(I)

wherein R_1, R_2, R_3, and R_4, equal or different, each represents a hydrogen atom or a lower alkyl group, R_5 represents a hydrogen atom, a formyl group or a acetyl group, R_6 and R_7, the same or different, each represents a hydrogen atom or a lower alkyl group, or R_6 and R_7 represent the elements needed to complete an unsaturated cyclic nucleus.

5,212,057

BIOLOGICAL SYSTEM FOR CONSTRUCTING AND TESTING VIRAL VACCINES

Richard W. Moyer, and David C. Bloom, both of Gainesville, Fla., assignors to University of Florida, Gainesville, Fla.

Continuation-in-part of Ser. No. 262,769, Oct. 26, 1988, abandoned. This application Dec. 22, 1989, Ser. No. 455,483

Int. Cl.^{5} C12Q *1/70;* **C12N** *15/00*

U.S. Cl. 435—5 **2 Claims**

1. A biologically pure culture of a rabbit poxvirus denoted RPμhr23 HA$^+$.

5,212,058

NUCLEIC ACID ENCODING UBIQUITIN-SPECIFIC PROTEASES

Rohan T. Baker, Garran, Australia; John W. Tobias, Cambridge, and Alexander Varshavsky, Boston, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 573,958, Aug. 28, 1990, abandoned, which is a continuation-in-part of Ser. No. 521,089, May 9, 1990, abandoned. This application Nov. 8, 1991, Ser. No. 789,915

Int. Cl.^{5} C12Q *1/68;* **C07H** *21/04;* **C12N** *15/57, 15/66, 15/70*

U.S. Cl. 435—252.33 **11 Claims**

1. An isolated DNA encoding a ubiquitin-specific protease, or a biologically active portion thereof, said portion encoding said protease, which specifically cleaves a ubiquitin fusion protein having a molecular weight of about 120 kilodaltons, the specific cleavage taking place in vitro between the C-terminal residue of ubiquitin and the N-terminal residue of the protein or peptide, the fusion protein being encoded by the DNA represented in Sequence I.D. Number 1.

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5,212,059

OLIGONUCLEOTIDE PROBES FOR THE DETECTION OF PERIODONTAL PATHOGENS

Dennis E. Schwartz, Redmond; Roy H. Kanemoto; Susan M. Watanabe, both of Seattle, and Kim Dix, Arlington, all of Wash., assignors to MicroProbe Corporation, Bothel, Wash.

PCT No. PCT/US89/00072, § 371 Date Aug. 29, 1990, § 102(e) Date Aug. 29, 1990

Continuation-in-part of Ser. No. 142,106, Jan. 11, 1988, abandoned. This PCT application Jan. 9, 1989, Ser. No. 571,563

Int. Cl.[5] **C12G** *1/68;* **C07H** *15/12;* **C12P** *39/00*

U.S. Cl. 435—6 **22 Claims**

1. A composition of polynucleotide probes for the detection of bacteria associated with a periodontal disease, wherein said probes comprise a selective sequence of 10 to 100 nucleotides or nucleotide analogs capable of selectively hybridizing, under hybridizing conditions, to hypervariable regions of ribosomal RNA of the bacteria with the provision that any additional nucleotides covalently bound to said segment do not hybridize under said conditions to nucleic acids of bacteria found in the human mouth wherein said selective sequence comprises in whole or in part a nucleic acid sequence selected from the group consisting of:

for *Bacteroides gingivalis:*

5'CAATACTCGTATCGCCCGTTATTC3';

5'GTATAAAAGAAGTTTAMAATCCTT3';

5'CCTTAGGACAGTCTTCCTTCACGC3';

5'CTGTGGAAGCTTGACGGTATATCG3';

5'GGTTTTCACCATCAGTCATCTACA3';

5'ATTACCCTAGTGCGCCCCTTGCGG3';

and

5'CCGATGCTTATTCTTACGGTACAT3';

for *Actinobacillus* (ex. Hameophilus) *actinomycetemcomitans:*

5'ATTTAACGTCAATTTGGCATGCTA3';

5'CTTCGGGCACYAGGGCTAAACCCC3';

5'ACCCATCTCTGAGTTCTTCTTCGG3';

5'GTGGTAAACGCCCCCCTCTCGGTT3';

and

5'TGGCATGCTATTAACACACCAACC3';

for *Bacteroides intermedius* Type 1:

5'GGTCCTTATTCGAAGGGTAAATGC3';

5'CACGTGCCCCACTTTACTCCCCAA3';

5'TAGCCGCTAACGCCAGGCGCTAAC3';

5'CCCTAGGYGCGCTCCTCGCGGTTA3';

5'GAGTCAACATCTCTGTATCCTGCG3';

and

5'TTGCCCTAGGTCGCTCCTCGCGGT3';

for *Bacteroides intermedius* Type 2:

5'AGACGCCCCGAAGGAAGCCTATGT3';

5'ATGAGGTACATGCAATGGCGCACA3';

and

5'CGTGCGCCAATTTATTCCCACATA3';

for *Bacteroides forsythus:*

5'CACAAGGTACATGCAATAAAATAC3';

5'CGTATCTCATTTTATTCCCCTGTA3';

5'AGCTCTCACTCTCCGTCGTCTACA3';

5'AATACACGTATCTCATTTTATTCC3';

and

5'GAAGAAAGCTCTCACTCTCCGTCG3';

5'CTGTAGAGCTTACACTATATCGCA3';

for *Eikenella corrodens:*

5'GTACGCTACTAAGCAATCAAGTTG3';

5'TTAGGTACCGTCAGCAAAAAGTGG3';

5'GCACTTCCCTTTTCTTCCCTAACA3';

5'TACCGTGGCAAGCGGGCTCCTTGC3';

and

5'CTTCCGTCTCTGGAAGGTTCCGTAC3';

for *Fusobacterium nucleatum:*

5'GTCATCGTGCACACAGAATTGCTG3';

5'GTTGGTACCGTCATTTTTTTCTTC3';

5'AGGTTTCCCCGAAGGCACTGAAAC3';

5'TCAGACTCTCGGTCCATTGTCCAA3';

and

5'AAACATCTCTGTCTCATTCCTAAG3';

for *Wolinella recta:*

5'GTACCGTCATAATTCTTTCCCAAG3';

5'GGACCATAACCGGTTTGGTATTTG3';

5'GCATTACTGCCTCGACTAGCGAAG3';

and

5'CTTGGGTACCGTCATAATTCTTTCC3';

for *Streptococcus intermedius:*

5'GTACCGTCACAGTATGAACTTTCC3';

5'TTCTCACACTCGTTCTTCCTTAAC3';

and

5'TTTCCATTCTCACACTCGTTCTTC3';

and combinations thereof wherein M represents A or C and Y represents C or T.

5,212,060

DRY TEST STRIP COMPRISING A DEXTRAN BARRIER FOR EXCLUDING ERYTHROCYTES

Catherine B. Maddox, St. Paul, Minn., assignor to Genesis Labs, Inc., Edina, Minn.

Continuation of Ser. No. 88,454, Feb. 25, 1987, abandoned. This application Apr. 27, 1990, Ser. No. 517,399

Int. Cl.[5] **G01N** *33/53, 21/00*

U.S. Cl. 435—7.1 **21 Claims**

1. A dry test strip for detection of an analyte in a test fluid comprising:

(a) a porous detection zone having a test fluid application site physically separate from a visualization site containing a signal generating system that produces a signal in the presence of the analyte, wherein the detection zone pores are about 0.04 to 1 micron; and

(b) dextran, having a molecular weight of about 10,000 to 50,000 dispersed in the detection zone at a concentration effective to prevent penetration of red blood cells through the detection zone to the visualization site;

wherein any red blood cells present in the test fluid interact with the dextran adjacent the test fluid application site to prevent their penetration through the detection zone to the visualization site thereby essentially eliminating red blood cell interference with the signal generation.

14. A method for detecting an analyte in a test fluid which method comprises:

(a) applying the test fluid to a dry test strip comprising a porous detection zone having pores of about 0.04 to 1 micron and a test fluid application site physically separate from a visualization site containing:

(i) a signal generating system that produces a signal in the presence of the analyte; and

(ii) dextran having a molecular weight of about 10,000 to 50,000, dispersed through the detection zone at a concentration effective to prevent penetration of any red blood cells present in the fluid through the detection zone; and

(b) detecting the concentration of the analyte; wherein any red blood cells present in the test fluid interact with the dextran adjacent the application site to prevent their penetration through the detection zone to the visualization site thereby essentially eliminating red blood cell interference with the signal generation.

5,212,061

DIRECT BINDING ASSAY FOR THE DETERMINATION OF A BACTEROIDES ORGANISM

Brian A. Snyder; Paul B. Contestable; Catherine T. Abrams, all of Rochester; Joseph J. Zambon, Amherst, and Homer S. Reynolds, Tonawanda, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 22, 1990, Ser. No. 468,045

The portion of the term of this patent subsequent to Jul. 16, 2008, has been disclaimed.

Int. Cl.[5] **G01N** *33/569, 33/543*

U.S. Cl. 435—7.32 **20 Claims**

1. A method for the determination of a Bacteroides microorganism comprising:

A. contacting at least one antigen extracted from a specimen suspected of containing a Bacteroides microorganism with a microporous membrane for a sufficient time for said Bacteroides antigen to directly bind to said membrane,

B. within about five minutes of said contacting, separating unbound materials from said Bacteroides antigen bound to said membrane by washing said unbound materials through said membrane, and contacting said bound antigen with at least one antibody of said Bacteroides antigen to form an immunological complex bound to said membrane, and

C. within about five minutes of contacting said antibody with said bound antigen, separating said bound immunological complex from uncomplexed antibody by washing said uncomplexed antibody through said membrane, and determining the presence of said bound complex on said membrane as an indication of the presence of said Bacteroides microorganism in said specimen,

said method being carried out within about 15 minutes.

5,212,062

METHOD AND COMPOSITION TO DIRECT *CHLAMYDIA PSITTACI* OR *CHLAMYDIA TRACHOMATIS* INFECTION

Eddie K. Daniels, Hastings, Nebr.; Robert M. Phillips, and Teresa J. Yeary, both of Manhattan, Kans., assignors to Kansas State University, Manhattan, Kans.

Filed Sep. 6, 1991, Ser. No. 755,823

Int. Cl.[5] **G01N** *33/569, 33/571;* **C07K** *15/28*

U.S. Cl. 435—7.36 **2 Claims**

2. A method to detect *Chlamydia psittaci* or *Chlamydia trachomatis* antigen in a sample comprising:

(a) contacting a sample with a monoclonal antibody produced by a hybridoma all the identifying characteristics of hybridoma ATCC No. HB10861 affixed to a solid support for a time and under conditions sufficient to form an immune complex on said support;

(b) contacting said support with an antibody which binds to said antigen in said immune complex for a time and under conditions sufficient for binding to occur;

(c) detecting the presence of said immune complex as an indication of the presence of *Chlamydia psittaci* or *Chlamydia trachomatis* antigen in said sample.

5,212,063

LIGAND TRAP USEFUL IN IMMUNOASSAYS OF BIOTIN OR FREE BIOTIN CONTAINING SAMPLES AND IMPROVED IMMUNOASSAYS USING THESE LIGAND TRAPS

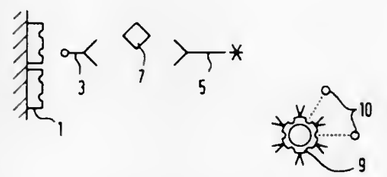
Beatus Ofenloch-Hähnle, Munich; Michael Berger, Penzberg, and Arno Deger, Seeshaupt, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Filed May 9, 1990, Ser. No. 521,121

Claims priority, application Fed. Rep. of Germany, May 9, 1989, 3915135

Int. Cl.[5] **C12Q** *1/00;* **G01N** *33/544, 33/543, 33/566*

U.S. Cl. 435—7.5 **9 Claims**



1. In an immunoassay for determining an analyte in a body fluid sample, wherein said sample is contacted with a conjugate of biotin and a receptor for said analyte and any complexes formed between said conjugate and analyte are determined, and wherein said sample contains in addition to said analyte, free biotin or a derivative of free biotin, the improvement comprising adding to said body fluid sample a water soluble, polymeric particle consisting of:

(a) a polymer core having at least 10 binding sites for said free biotin or derivative of free biotin, and

(b) a coating on said polymer core, wherein said coating is at least one layer in thickness and comprises a protein, a peptide, a carbohydrate or a aggregate of carbohydrate and amino acids, wherein said coating is permeable to said free biotin or said derivative of free biotin but not said conjugate of biotin and receptor for said analyte.

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5,212,064

SOLID PHASE NON-SEPARATION ENZYME COMPLEMENTATION ASSAY

Pyare L. Khanna, Fremont; Imo-Jean C. Ford, Pleasant Hill, and Patricia A. Porreca, Berkeley, all of Calif., assignors to Microgenics Corporation, Concord, Calif.

Continuation of Ser. No. 261,510, Oct. 24, 1988, abandoned, which is a continuation-in-part of Ser. No. 99,396, Sep. 21, 1987, abandoned. This application May 9, 1990, Ser. No. 520,972

Int. Cl.[5] G01N *33/543, 33/548, 33/563*

U.S. Cl. 435—7.6 **20 Claims**

1. A method for determining the presence of an analyte in a sample, said analyte being a member of a specific binding pair ("mip"), said method employing as reagents fragments of beta-galactosidase comprising an N-terminal enzyme donor fragment ("ED") and a C-terminal enzyme acceptor fragment ("EA"), where said acceptor and donor fragments when joined together form an active enzyme complex and said enzyme donor is conjugated to a mip to form a mip/ED conjugate which is immunologically competitive with or complementary to said analyte; and wherein a mip, complementary to said mip/ED conjugate and/or said analyte, is attached to a macromolecule of at least about 250 kda or attached to a solid surface to form immobilized mip:

said method comprising:

contacting in an assay medium, said sample, said mip/ED conjugate, said EA, said immobilized mip, and enzyme substrate, wherein said immobilized mip and said mip/ED conjugate are complementary and mip/ED conjugate bound to said immobilized mip is substantially inhibited in forming an enzymatically active complex; and

determining the enzyme activity of said assay medium in comparison to an assay medium having a known amount of analyte.

5,212,065

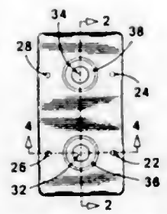
RAPID ASSAY DEVICE

R. Kevin Pegg, Fernandina Beach, and Mary S. Saunders, Monticello, both of Fla., assignors to International Diagnostic Systems, Corp., St. Joseph, Mich. and KM Laboratories, Inc., Monticello, Fla.

Filed Oct. 25, 1990, Ser. No. 603,151

Int. Cl.[5] G01N *33/543*

U.S. Cl. 435—7.9 **28 Claims**



1. An apparatus for use in immunoassay procedures consisting essentially of:

(A) a housing comprising a reservoir member and a base member, said reservoir member defining a cavity, said base member engaging said reservoir member to enclose said cavity, and having

(i) a first surface on said reservoir member facing away from said cavity and a second surface on said reservoir member facing into said cavity;

(ii) an aperture providing an opening through both of said first and second surfaces,

(iii) a first profile provided on said first surface around said aperture,

(iv) at least one vent hole,

(v) a second profile facing said cavity provided on said second surface around said aperture;

(B) a single porous foam member provided in said cavity, wherein a surface of said foam member is deformable by said second profile to produce a depression that surrounds an area on said surface of said foam member; and

(C) a reagent-binding member provided on said surface of said member, wherein no external means to direct the flow of sample and reagents within said apparatus is required.

5,212,066

USE OF INHIBITORS OF COLOR GENERATION IN CHROMOGENIC ASSAYS

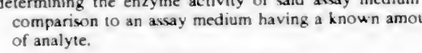
James P. Albarella, Granger; Todd K. Cast, South Bend; David W. Michaels, Elkhart, and Wallace G. Strycker, Gosben, all of Ind., assignors to Miles Inc., Elkhart, Ind.

Filed Nov. 14, 1991, Ser. No. 791,380

Int. Cl.[5] C12Q *1/54, 1/28*

U.S. Cl. 435—28 **24 Claims**

1. In a diagnostic reagent system for the detection of an analyte selected from the group consisting of glucose, cholesterol, triglyceride and uric acid consisting essentially of an oxidase selective for the analyte to be detected, a buffer, a chromogenic oxidation indicator which generates a colored response upon being oxidized together with peroxidase or a perioxidatively active substance, the improvement which comprises an inhibitor of color generation which is selected from the group consisting of 1,4-disubstituted semicarbazides, 1,4-disubstituted thiosemicarbazides and 1,5-disubstituted carbazides and thiosemicarbizides characterized by the formula:



where X is oxygen or sulfur, R is alkyl or 1–6 carbon atoms, allyl, benzyl, aryl or NH-aryl$_2$ where aryl$_2$ is the same as or different than aryl, which inhibitor reduces the intensity of the color generated by the oxidation of the chromogenic indicator thereby facilitating the visual and instrumental color discrimination between differing levels of analyte in the aqueous system.

5,212,067

QUICK ASSAY FOR DETECTION OF SALMONELLA

Edward T. Mallinson, Columbia; Christopher R. Tate, Frederick, and Russell G. Miller, Glen Dale, all of Md., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C. and The University of Maryland, College Park, Md.

Filed Mar. 30, 1989, Ser. No. 330,479

Int. Cl.[5] C12Q *1/10, 1/02, 1/24, 1/22*

U.S. Cl. 435—38 **7 Claims**

1. A method for monitoring structures housing livestock for salmonella contamination, consisting essentially of:

(A) periodically collecting drag swab samples, said drag swab samples having been dragged along the floor of said structure for at least 10–20 minutes,

(B) maintaining said drag swabs for a period of up to two weeks in a holding medium consisting essentially of double strength skim milk, at a temperature below about 10° C.,

(C) transferring said swabs to a culture broth which supports growth of salmonella cultures, and culturing said swabs for about 15–30 hours, at a temperature between about 35°–43° C., so as to promote the multiplication of any salmonella organisms captured in said drag swabs, and

(D) qualitatively assaying said culture broth for the presence of salmonella cultures.

5,212,068

HUMAN PANCREATIC ELASTASE

Yo Takiguchi; Tokio Tani; Ichiro Kawashima; Jun Ohsuml; Hidehiko Furukawa, and Toshinori Ohmine, all of Hiromachi, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Division of Ser. No. 111,094, Oct. 13, 1987, Pat. No. 4,985,361, which is a continuation-in-part of Ser. No. 846,934, Apr. 1, 1980, abandoned. This application Oct. 22, 1990, Ser. No. 602,190

Claims priority, application Japan, Apr. 5, 1985, 60-72308; Apr. 27, 1985, 60-91986; Jul. 26, 1985, 60-163964; Oct. 23, 1985, 60-236686

Int. Cl.[5] C12P *21/00, 21/02, 19/34;* **C12N** *15/00, 7/00, 5/00, 1/21, 1/16, 1/18;* **C07H** *15/12;* **C07K** *3/00*

U.S. Cl. 435—68.1 **11 Claims**

1. A recombinant DNA sequence selected from the group consisting of:

(5')-TGT GGG GTC TCC ACT TAC GCG CCT GAT ATG
TCT AGG ATG CTT GGA GGT GAA GAA GCG AGG
CCC AAC AGC TGG CCC TGG CAG GTC TCC CTG
CAG TAC AGC TCC AAT GGC CAG TGG TAC CAC
ACC TGC GGA GGG TCC CTG ATA GCC AAC AGC
TGG GTC CTG ACG GCT GCC CAC TGC ATC AGC
TCC TCC AGG ATC TAC CGC GTG ATG CTG GGC
CAG CAT AAC CTC TAC GTT GCA GAG TCC GGC
TCG CTG GCC GTC AGT GTC TCT AAG ATT GTG
GTG CAC AAG GAC TGG AAC TCC AAC CAG GTC
TCC AAA GGG AAC GAC ATT GCC CTG CTC AAA
CTG GCT AAC CCC GTC TCC CTC ACC GAC AAG
ATC CAG CTG GCC TGC CTC CCT CCT GCC GGC
ACC ATT CTA CCC AAC AAC TAC CCC TGC TAC
GTC ACA GGC TGG GGA AGG CTG CAG ACC AAC
GGG GCT CTC CCT GAT GAC CTG AAG CAG GGC
CGG TTG CTG GTT GTG GAC TAT GCC ACC TGC
TCC AGC TCT GGC TGG TGG GGC AGC ACC GTG
AAG ACG AAT ATG ATC TGT GCT GGG GGT GAT
GGC GTG ATA TGC ACC TGC AAC GGA GAC TCC
GGT GGG CCG CTG AAC TGT CAG GCA TCT GAC
GGC CGG TGG GAG GTG CAT GGC ATC GGC AGC
CTC ACG TCG GTC CTT GGT TGC AAC TAC TAC
TAC AAG CCC TCC ATC TTC ACG CGG GTC TCC
AAC TAC AAC GAC TGG ATC AAT TCG GTG ATT
GCA AAT AAC - X (3');

(5')-GTT GTC CAT GGT GAG GAT GCG GTC CCC TAC
AGC TGG CCC TGG CAG GTT TCC CTG CAG TAT
GAG AAA AGT GGA AGC TTC TAC CAC ACG TGT
GGC GGT AGC CTC ATC GCC CCC GAT TGG GTT
GTG ACT GCC GGC CAC TGC ATC TCG AGG GAT
CTG ACC TAC CAG GTG GTG TTG GGT GAG TAC
AAC CTT GCT GTG AAG GAG GGC CCC GAG CAG
GTG ATC CCC ATC AAC TCT GAG GAG CTG TTT
GTG CAT CCA CTC TGG AAC CGC TCG TGT GTG
GCC TGT GGC AAT GAC ATC GCC CTC ATC AAG
CTC TCA CGC AGC GCC CAG CTG GGA GAT GCC
GTC CAG CTC GCC TCA CTC CCT CCC GCT GGT
GAC ATC CTT CCC AAC GAG ACA CCC TGC TAC
ATC ACC GGC TGG GGC CGT CTC TAT ACC AAT
GGG CCA CTC CCA GAC AAG CTG CAG GAG GCC
CTG CTG CCG GTG GTG GAC TAT GAA CAC TGC
TCC AGG TGG AAC TGG TGG GGT TCC TCC GTG
AAG AAG ACC ATG GTG TGT GCT GGA GGG GAC
ATC CGC TCC GGC TGC AAT GGT GAC TCT GGA
GGA CCC CTC AAC TGC CCC ACA GAG GAT GGT
GGC TGG CAG GTC CAT GGC GTG ACC AGC TTT
GTT TCT GCC TTT GGC TGC AAC ACC CGC AGG
AAG CCC ACG GTG TTC ACT CGA GTC TCC GCC
TTC ATT GAC TGG ATT GAG GAG ACC ATA GCA
AGC CAC - X (3');

(5')-GTT GTC AAT GGT GAG GAT GCG GTC CCC TAC
AGC TGG CCC TGG CAG GTT TCC CTG CAG TAT
GAG AAA AGC GGA AGC TTC TAC CAC ACC TGT
GGC GGT AGC CTC ATC GCC CCC GAC TGG GTT
GTG ACT GCC GGC CAC TGC ATC TCG AGC TCC
CGG ACC TAC CAG GTG GTG TTG GGC GAG TAC
GAC CGT GCT GTG AAG GAG GGC CCC GAG CAG
GTG ATC CCC ATC AAC TCT GGG GAC CTC TTT
GTG CAT CCA CTC TGG AAC CGC TCG TGT GTG
GCC TGT GGC AAT GAC ATC GCC CTC ATC AAG

-continued

CTC TCA CGC AGC GCC CAG CTG GGA GAC GCC
GTC CAG CTC GCC TCA CTC CCT CCG GCT GGT
GAC ATC CTT CCC AAC GAG ACA CCC TGC TAC
ATC ACC GGC TGG GGC CGT CTC TAT ACC AAC
GGG CCA CTC CCA GAC AAG CTG CAG GAG GCC
CTG CTG CCG GTG GTG GAC TAT GAA CAC TGC
TCC AGG TGG AAC TGG TGG GGT TCC TCC GTG
AAG AAG ACC ATG GTG TGT GCT GGA GGG GAC
ATC CGC TCC GGC TGC AAT GGT GAC TCT GGA
GGA CCC CTC AAC TGC CCC ACA GAG GAT GGT
GGC TGG CAG GTC CAT GGC GTG ACC AGC TTT
GTT TCT GCC TTT GGC TGC AAC ACC CGC AGG
AAG CCC ACG GTG TTC ACT CGA GTC TCC GCC
TTC ATT GAC TGG ATT GAG GAG ACC ATA GCA
AGC CAC - X (3');

where X represents TAA, TGA or TAG.

5,212,069

METHOD OF USING N-ACETYL-2,3-DIDEHYDROLEUCINE ACYLASE FOR THE PREPARATION OF D- OR L-TRYPTOPHYL GLYCINE, D- OR L-TRYPTOPHYL-D-METHIONINE OR L-TRYPTOPHYL-D-CYSTEINE

Maria-Regina Kula, Niederzier/Hambach, and Matthias Kittelmann, Freiburg, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 472,388, Feb. 1, 1990, Pat. No. 5,134,073. This application Apr. 20, 1992, Ser. No. 870,817

Claims priority, application Fed. Rep. of Germany, Feb. 4, 1989, 3903324

Int. Cl.[5] C12P *21/00, 13/04;* **C12N** *9/80*

U.S. Cl. 435—68.1 **1 Claim**

1. A method for the enzymatic conversion of D- or L-tryptophane amide and glycine to the dipeptide D- or L-tryptophyl glycine, of D- or L-tryptophane amide and D-methionine to D- or L-tryptophy-D-methionine or of L-tryptophane amine and D-cysteine to the dipeptide L-tryptophyl-D-cysteine, said method comprising carrying out the conversion in the presence of a N-acetyl-2,3-didehydroleucine acylase, having the following characteristics

1) reactivity:

it splits off the acetyl group from N-acetyl-2,3-didehydroleucine, at which time acetic acid and, after consecutive chemical reactions, 2-keto-4-methyl valeric acid and ammonia arise as end products;

2) Substrate specificity;

it hydrolyses both various N-acetyl-2,3-didehydroamino acids such as N-acetyl-2,3-didehydrovaline, N-acetyl-2,3-didehydroisoleucine, 2-acetylamino cinnamic acid and 2-acetylamino acrylic acid as well as amino acid amides such as D- and L-tryptophane amide, D- and L-leucine amide and L-methionine amide but not 2,3-saturated N-acetylamino carboxylic acids such as N-acetyl leucine or N-acetyl valine;

3) optimum pH:

the optimum pH is 9.3 + 1;

4) pH stability:

it exhibits good stability in a pH range between 9 and 10;

5) optimum temperature:

the optimum temperature is 55° C. at a pH of 9;

6) temperature resistance:

at 50° C., 90% residual activity can still be demonstrated after 30 minutes incubation;

7) influences of inhibitors and activators:

Inhibitors of serine proteases, especially phenylmethane sulfonylfluoride (0.001 mM), exert an inhibitory action, glycine accelerates the substrate splitting as a function of the concentration;

8) molecular weight:

the molecular weight is approximately 60000;

9) subunits:

the molecule consists of only one unit;

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10) K-value:
the K-value for the substrate N-acetyl-2,3-didehydroleucine is 4.5 mM (30° C., 0.1M glycine buffer, pH 9).

5,212,070

SECRETORY SIGNAL SELECTION VECTORS FOR EXTRACELLULAR PROTEIN SYNTHESIS IN BACILLI

Hilde E. Smith, Groningen; Jan H. Van Ee, Nieuwerkerk a/d IJssel; Ben P. H. Peeters, Haren; Sierd Broo, Haren, and Gerard Venema, Haren, Netherlands, assignors to Gist-brocades, Netherlands

Continuation of Ser. No. 45,890, May 1, 1987, Pat. No. 5,037,760. This application Dec. 13, 1990, Ser. No. 627,028

Int. Cl.[5] **C12P** *21/02, 19/34;* **C12N** *15/00, 1/21;* **C07H** *15/12;* **A61K** *37/02*

U.S. Cl. 435—69.1 **4 Claims**

1. In a method for producing a peptide product by recombinant techniques, wherein a host microorganism is transformed with a plasmid comprising a gene encoding said peptide product, and growing said host under nutrient conditions, whereby said gene is expressed and said peptide product is secreted, the improvement which comprises:

employing as said gene an open reading frame encoding said peptide product joined at its 5' terminus to a DNA sequence encoding an amino acid sequence capable of functioning as a secretory signal sequence (hereinafter "secretory sequence"), wherein said open reading frame DNA sequence is other than the native open reading frame of said DNA sequence encoding said secretory sequence and wherein said secretory sequence comprises one of the following amino acid sequences.

Met arg lys ser leu ile thr leu gly leu ala ser val
ile gly thr ser ser phe leu ile pro phe thr ser lys
thr ala ser ala glu thr leu asp glu lys lys gln lys
ile glu ser lys gln ser glu val ala ser ser ile glu
ala lys glu lys glu leu thr glu;

Met lys lys met leu val val leu leu phe ser ala leu leu
leu asn gly cys gly ser gly glu ser lys ala asn thr ala
glu thr pro glu val leu asp val lys leu thr gly;

Met ile arg gly ile leu ile ala val leu gly ile ala ile
val gly;

Met leu lys lys val ile leu ala ala phe ile leu val gly
ser;

Met ser gln gln his asp tyr val ile gly lys asn ala val
ile glu thr leu lys ser asp arg leu asp leu phe pro leu
leu arg leu thr lys lys pro lys val gln thr gly ile asp
thr leu leu pro asp tyr lys lys gln;

glu phe glu leu ala pro gly leu phe ile leu leu phe leu
phe val met ala val ile gly;

Met leu lys arg thr ser phe val ser ser leu phe ile ser
ser ala val leu leu ser ile leu leu pro ser gly leu ser
his thr leu ser ala lys gly thr asn lys asn asn leu phe
phe phe asp thr glu thr thr gly leu gly gly gly ala gly
asn thr ile phe leu leu gly his ala arg val tyr glu asp
arg val thr val lys gln his leu leu pro lys pro lye asn
glu val ala leu tyr gln ser phe leu ser glu val asp ile
thr ser leu val thr tyr asn gly lys ala phe asp tyr;

Met lys ile ser arg ile leu leu ala ala val ile leu ser
ser val phe ser ile thr tyr leu gln ser asp leu gly trp
phe ala lys glu gly gln met asp glu thr phe thr lys ala
ala phe lys leu lys thr gly glu val ser asp;

Met lys gln thr val leu leu leu phe thr ala leu phe leu
ser gly cys ser val ala ser ala asp asp ser val pro arg
phe thr glu glu gly lys tyr ile gly ser ala asp;

Met lys lys leu val phe gly leu leu ala ile val leu phe
gly cys gly leu tyr ile tyr his val trp phe gly asp;

-continued

Met leu lys lys cys ile leu leu val phe leu cys val gly
leu ile gly leu ile gly cys ser lys thr asp ser pro glu
asp;

Met arg lys trp ile ala ala ala gly leu ala tyr val leu
tyr gly leu phe phe tyr trp tyr phe phe leu ser gly asp
set ala ile pro glu ala val lys gly thr gln ala asp;

Met pro ile lys lys lys val met met cys leu ala val thr
leu val phe gly ser met ser phe pro thr leu thr asn ser
gly gly phe lys glu ser thr asp; and

Met lys leu val pro arg phe arg lys gln trp phe ala tyr
leu thr val leu cys leu ala leu ala ala ala val ser phe
gly val pro ala lys ala ala glu asn pro gln thr ser val
ser asn thr gly lys glu ala asp ala thr lys asn gln thr
ser lys ala asp.

5,212,071

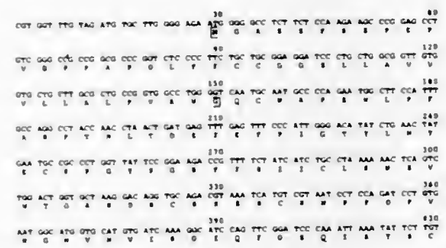
NUCLEIC ACIDS ENCODING A HUMAN C3B/C4B RECEPTOR (CR1)

Douglas T. Fearon, Baltimore, Md.; Lloyd B. Klickstein, Brookline, Mass.; Winnie W. Wong, Wahan, Mass.; Gerald R. Carson, Wellesley, Mass.; Michael F. Concino, Newton, Mass.; Stephen H. Ip, Sudbury, Mass., and Savvas C. Makrides, Bedford, Mass., assignors to The Johns Hopkins University, Baltimore, Md.; Brigham and Women's Hospital, Boston and T Cell Sciences, Inc., Cambridge, both of Mass.

Continuation-in-part of Ser. No. 176,532, Apr. 1, 1988, abandoned. This application Apr. 3, 1989, Ser. No. 332,865

Int. Cl.[5] **C12N** *15/12, 15/63*

U.S. Cl. 435—69.1 **64 Claims**



1. An isolated nucleic acid encoding a polypeptide, the amino acid sequence of which comprises at least a fragment of the amino acid sequence depicted in FIG. 1, which polypeptide has a complement regulatory activity.

5,212,072

POLYPEPTIDES COMPLEMENTARY TO PEPTIDES OR PROTEINS HAVING AN AMINO ACID SEQUENCE OR NUCLEOTIDE CODING SEQUENCE AT LEAST PARTIALLY KNOWN AND METHODS OF DESIGN THEREFOR

J. Edwin Blalock; Kenneth L. Bost, both of Birmingham, Ala., and Eric M. Smith, Galvestoo, Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Continuation of Ser. No. 829,709, Feb. 19, 1986, which is a continuation-in-part of Ser. No. 708,001, Mar. 1, 1985, Pat. No. 4,863,857. This application Mar. 7, 1991, Ser. No. 665,967

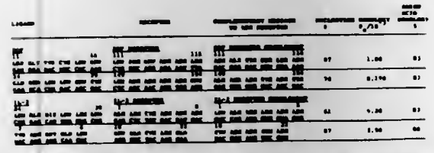
Int. Cl.[5] **C12P** *21/06*

U.S. Cl. 435—69.1 **23 Claims**

1. A polypeptide complementary to at least a portion of an original peptide or protein, said polypeptide being produced by a process comprising the steps of:

(a) determining a first nucleotide sequence of a first nucleic acid, said first nucleotide sequence coding for an amino acid sequence of at least a portion of the original peptide or protein;

(b) ascertaining a second nucleotide sequence of a second nucleic acid which base-pairs with the first nucleotide sequence of the first nucleic acid, the first and second nucleic acids pairing in antiparallel directions;



(c) determining the amino acid sequence of the complementary polypeptide by finding the amino acid sequence coded by the second nucleotide sequence when read in the same reading frame as the first nucleotide sequence; and

(d) producing a polypeptide comprising the amino acid sequence determined in step (c).

5,212,073

PROCESS FOR PRODUCING HUMAN JE CYTOKINE

Barrett Rollins, Brookline; Charles Stiles, Newton Centre, and Gordon G. Wong, Jamaica Plain, all of Mass., assignors to Genetics Institute, Inc. and Dana Farber Cancer Inst.

Filed May 12, 1989, Ser. No. 351,008

Int. Cl.[5] **C07K** *3/00;* **C07H** *15/12;* **C12P** *21/06;* **C12N** *5/00*

U.S. Cl. 435—69.5 **5 Claims**

1. A DNA encoding human JE having the amino acid sequence set forth in Table 1, said DNA being selected from the group consisting of:

(i) the DNA sequence set forth in Table I;

(ii) a DNA capable of hybridizing under stringent conditions to the DNA of (i); and

(iii) a DNA differing from the DNAs of (i) and (ii) in codon sequence due to the degeneracy of the genetic code.

2. A vector comprising the DNA of claim 1 in operative association with an expression control sequence.

3. A process for producing human JE which comprises

(i) transforming a host cell with the vector of claim 2;

(ii) culturing the cell in a suitable culture medium under conditions suitable for expression of the JE DNA; AND

(iii) isolating the human JE from said culture medium.

5,212,074

GENETIC MATERIAL ENCODING NEW INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN IGFBP-6

Michael C. Kiefer, Clayton, and Frank R. Masiarz, San Francisco, both of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Division of Ser. No. 574,613, Aug. 28, 1990, abandoned. This application Aug. 31, 1990, Ser. No. 576,629

Int. Cl.[5] **C12P** *21/02;* **C07H** *21/04;* **C12N** *1/00*

U.S. Cl. 435—69.6 **11 Claims**

1. A recombinant D' 'A molecule comprising a cDNA encoding insulin-like-growth-factor binding protein (IGFBP-6) or a protein which is substantially the same.

5,212,075

COMPOSITIONS AND METHODS FOR INTRODUCING EFFECTORS TO PATHOGENS AND CELLS

Mark D. Bednarski, Berkeley; Carolyn R. Bertozzi, Albany, and Jon O. Nagy, Rodeo, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Apr. 15, 1991, Ser. No. 686,342

Int. Cl.[5] **C12Q** *1/00;* **G01N** *33/53*

U.S. Cl. 435—72 **19 Claims**

1. A method for introducing a heterologous antigenic determinant to the surface of a pathogen or cell, said method comprising exposing the pathogen or cell to hybrid molecules having a carbohydrate binding moiety which binds specifically to a conserved pathogen or cellular receptor and an effector moiety which includes the heterologous antigenic determinant, wherein the heterologous antigenic determinant is exposed when the binding moiety is bound to the receptor and wherein the hybrid molecule has a molecular weight below about 3 kD.

5,212,076

PRODUCTION OF QUERCETIN GLUCURONIDE

Yoshikazu Yamamoto, and Yasuhiro Kinoshita, both of Neyagawa, Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Filed Sep. 16, 1991, Ser. No. 760,352

Claims priority, application Japan, Sep. 17, 1990, 2-248457

Int. Cl.[5] **C12R** *1/91;* **C12P** *19/60;* **C07H** *17/07*

U.S. Cl. 435—75 **1 Claim**

1. A process for producing quercetin glucuronide comprising;

culturing tissues or cells of *Euphorbia milli* to form callus,

dividing the callus to small lumps,

selecting yellowing lumps,

repeating the above steps, and

collecting yellowish cultured cells and extracting with a neutral organic solvent.

5,212,077

METHOD FOR THE SYNTHESIS OF ORGANIC COMPOUNDS FROM MANURE

Erik D. J. Bleeker, Epe, Netherlands, assignor to MeMon B.V., Deventer, Netherlands

Filed Apr. 20, 1990, Ser. No. 511,458

Claims priority, application Netherlands, Mar. 16, 1990, 9000616

Int. Cl.[5] **C12P** *13/04, 13/12, 13/08;* **C12R** *1/06*

U.S. Cl. 435—113 **7 Claims**

1. A method for producing an amino acid compound selected from the group consisting of L-lysine and L-methionine from manure, comprising:

i) concentrating the manure to form a vapor;

ii) condensing said vapor to form a condensate;

iii) adding to said condensate specific-amino acid-organic-compound-producing microorganisms are selected from the group consisting of the species of the genera Arthrobacter, Brevibacterium, Corynebacterium, Bacillus, Escherichia, Microbacterium, Micrococcus and Pseudomonas; and

iv) separating from the condensate the specific organic compound produced by said specific-amino acid-organic-compound-producing-microorganisms.

5,212,078

PROCESS FOR PRODUCING A LACTONE

Mohamad I. Farbood, Holmdel; James A. Morris, Howell, and Arthur E. Downey, Linden, all of N.J., assignors to International Flavors and Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 399,826, Aug. 28, 1989, Pat. No. 4,970,163. This application Apr. 25, 1990, Ser. No. 513,789

The portion of the term of this patent subsequent to Nov. 13, 2007, has been disclaimed.

Int. Cl.[5] **C12P** *17/04, 17/02, 7/00;* **C12N** *1/16*

U.S. Cl. 435—126 **7 Claims**

1. A process for preparing a lactone compound having the structure:

VOL 1150 ISS 3 MY 18 1993 UMI

5,212,079

PROCESS FOR THE PREPARATION OF ASCORBIC ACID-2-PHOSPHATE

Tatsuro Fujio; Akihiko Maruyama, both of Kanagawa, and Satoshi Koizumi, Tokyo, all of Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 642,144, Jan. 15, 1991, abandoned, which is a continuation of Ser. No. 255,182, Oct. 7, 1988, abandoned. This application Sep. 6, 1991, Ser. No. 758,528
Claims priority, application Japan, Oct. 8, 1987, 62-254106; Mar. 24, 1988, 63-70218
Int. Cl.[5] C12P 9/00
U.S. Cl. 435—131 8 Claims

1. A process for the preparation of ascorbic acid-2-phosphate, which comprises the steps of reacting ascorbic acid with a phosphate donor other than ATP in an aqueous medium in the presence of an effective amount of an enzyme derived from a culture of a microorganism capable of preferentially catalyzing the enzymatic phosphorylation at the 2-position of said ascorbic acid by said phosphate donor, and then recovering the resultant ascorbic acid-2-phosphate from the reaction solution, wherein said microorganism is chosen from the group consisting of

Klebsiella oxytoca, ATCC 8724;

Cellumonas cartai, ATCC 21681;

Alcaligenes eutrophus, ATCC 17697

Beneckea hyperoptica, ATCC 15803;

Aeromonas hydrophila, ATCC 11163;

Klebsiella pneumoniae, ATCC 21524;

Brevibacterium lyticum, ATCC 15921;

Brevibacterium ammoniagenes, ATCC 6872;

Brevibacterium flavum, ATCC 13826;

Brevibacterium lactofermentum, ATCC 13655;

Pseudomonas ribaflavina, ATCC 9526;

Pseudomonas diminuta, ATCC 11568;

Flavobacterium devorans, ATCC 10829;

Pseudomonas azotocolligans, ATCC 12417

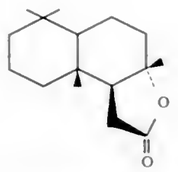
Pseudomonas maltophilia, ATCC 17806;

Morganella morganii, ATCC 25830;

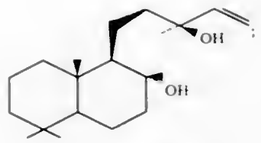
Serratia rubidaea, ATCC 11634;

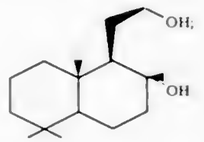
Enterobacter aerogenes, ATCC 13048; and

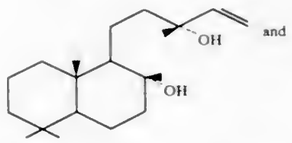
Corynebacterium glutamicum, ATCC 13032.



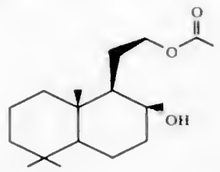
which comprises cultivating a microorganism selected from the group consisting of:
Cryptococcus albidus, ATCC 20918; and
Cryptococcus albidus, ATCC 20921
to produce said lactone in a recoverable quantity upon the transformation of a substrate comprising a carbon source and in addition, at least one compound selected from the group consisting of:







and



under aerobic conditions in an aqueous nutrient medium containing one or more compounds from said group and an additional carbon source wherein:

(i) the pH of the reaction mass is between about 2.5 and about 9.0;

(ii) the temperature of the reaction mass is between about 12° C. and about 33° C.; and

(iii) the substrate concentration is between about 0.1 grams per liter up to about 130 grams per liter

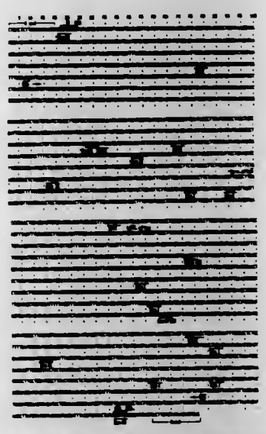
and recovering said lactone.

5,212,080

METHOD OF DNA SEQUENCING USING DNA TRANSPOSON TN5SEQL

Dilip K. Nag, Chicago, Ill.; Henry V. Huang, and Douglas E. Berg, both of St. Louis, Mo., assignors to Washington University, St. Louis, Mo.

Division of Ser. No. 105,422, Oct. 5, 1987. This application Apr. 12, 1990, Ser. No. 508,379
Int. Cl.[5] C12N 15/09, 15/70, 1/21
U.S. Cl. 435—172.3 1 Claim



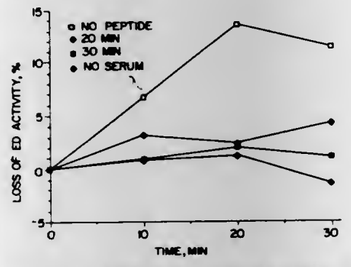
1. A method of bidirectional DNA sequencing comprising inserting into a DNA molecule of an *E. coli* cell a transposon Tn5seq1 having the nucleotide sequence shown in FIGS. 4A and 4B.

5,212,081

STABILIZATION OF POLYPEPTIDE FRAGMENTS AGAINST PROTEOLYTIC DEGRADATION

Bill Coty, Danville, and Pyare Khanna, Fremont, both of Calif., assignors to Microgenics Corporation, Concord, Calif.

Filed Apr. 3, 1990, Ser. No. 503,836
Int. Cl.[5] C12N 9/96
U.S. Cl. 435—188 4 Claims



1. A method of stabilizing a beta-galactosidase enzyme-donor fragment in a complementation assay which comprises: including in an assay medium in which said assay is carried out a mixture of soluble, random-sequence peptides, wherein said mixture comprises a hydrolysate of bovine serum albumin or human serum proteins, in an amount sufficient to reduce proteolytic degradation of said enzyme-donor fragment.

5,212,082

GENETICALLY MODIFIED TYROSINE HYDROXYLASE AND USES THEREOF

Menek Goldstein; Jing Wu; David Filer, and Arnold J. Friedhoff, all of New York, N.Y., assignors to New York University, New York, N.Y.

Filed Mar. 13, 1991, Ser. No. 669,446
Int. Cl.[5] C12N 9/04, 15/00
U.S. Cl. 435—190 5 Claims

1. A variant tyrosine hydroxylase protein moelcule having at least one amino acid substitution in the N-terminal fifty-five amino acid residues of the wild-type protein sequence, said at least one substitution corresponding to an amino acid selected from Ser-8, Ser-31, Arg-37, Arg-38, Gln-39, Ser-40, Leu-41, Ile-42, Glu-43, Asp-44, Ala-45, Arg-46 or Lys-47 of a rat or human tyrosine hydroxylase, wherein the tyrosine hydroxylase enzymatic activity of said variant protein is at least three fold greater than the enzymatic activity of the wild-type protein, and wehrein said substitution is a larger amino acid for a smaller amino acid, a smaller amino acid for a larger amino acid, or a hydrophilic amino acid for a hydrophobic amino acid or a hydrophobic amino aicd for a hydrophilic amino acid.

5,212,083

SEQUENCE FOR STABILIZING PROTEINS IN BACTERIA

William G. Haldenwang, San Antonio, Tex., assignor to Board of Regents, The University of Texas System, Austin, Tex.

Filed Jnl. 26, 1991, Ser. No. 736,447
Int. Cl.[5] C12N 9/38, 9/10, 1/00; C07K 15/04
U.S. Cl. 435—207 9 Claims

1. An isolated and purified peptide consisting essentially of about 29–31 amino acids contained in an inactive precursor protein of sporulation specific *Bacillus subtilis* factor, wherein said peptide is capable of enhancing protein stability when attached to a protein sensitive to degradation.

5,212,084

RETROVIRUS AND RELATED METHOD USED FOR PRODUCING A MODEL FOR EVALUATING THE ANTIRETROVIRAL EFFECTS OF DRUGS AND VACCINES

Harold M. McClure; Patricia N. Fultz, both of Atlanta, and Daniel C. Anderson, Stone Mountain, all of Ga., assignors to Emory University and Centers for Disease Control, both of Atlanta, Ga.

Filed Jun. 1, 1988, Ser. No. 200,843
Int. Cl.[5] C12N 7/00, 7/08
U.S. Cl. 435—235.1 1 Claim

1. SIV/SMM/PBj14, deposited with the American Type Culture Collection under ATCC Accession No. VR 2331, a T-lymphotropic retrovirus taken from a simian primate and capable of inducing acute disease and rapid death upon placement into a second simian primate.

5,212,085

SF-25 COLON ADENOCARCINOMA ANTIGEN, AND ANTIBODIES WITH RECOGNIZE THIS ANTIGEN

Jack R. Wands, Walrun, Mass., and Hiroshi Takahashi, Tokyo, Japan, assignors to The General Hospital Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 130,777, Dec. 9, 1987, abandoned. This application Jun. 7, 1988, Ser. No. 203,198
Int. Cl.[5] C12N 5/20, 15/02; C07K 15/28; C12P 21/08
U.S. Cl. 435—240.27 12 Claims

1. A molecule which specifically binds to the SF-25 antigen of a colon adenocarcinoma cell, said molecule being selected from the group consisting of:

(a) an antibody substantially free of natural contaminants;

(b) a monoclonal antibody;

(c) a fragment of (a) or (b).

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5,212,086
FUNGAL HERBICIDES
Alan K. Watson, Pincourt; Richard D. Reeleder, Montreal, both of Canada, and Juan Ormeno-Nunez, Santiago, Chile, assignors to The Royal Institution for the Advancement of Learning (on Behalf of McGill University), Ste. Anne De Bellevue, Canada
Continuation of Ser. No. 614,699, Nov. 19, 1990, abandoned, which is a continuation of Ser. No. 145,285, Jan. 19, 1988, abandoned. This application May 28, 1991, Ser. No. 707,924
Claims priority, application Canada, Feb. 3, 1987, 528909
Int. Cl.[5] C12N *1/14*; A01N *1/02*
U.S. Cl. 435—252.1 1 Claim

1. A biologically pure culture of the microorganism *Phomopsis convolvulus* IMI 312959.

5,212,087
ARS SEQUENCE WHICH IS EFFICACIOUS IN YARROWIA LIPOLYTICA
Phillippe Fournier, Paris; Claude Gaillardin, Versailles; Bernard Kudla, and Henri Heslot, both of Paris, all of France, assignors to Institut National de la Recherche Agronomique (INRA), Paris, France
Filed Jan. 27, 1989, Ser. No. 303,874
Claims priority, application France, Jan. 28, 1988, 88 00973
Int. Cl.[5] C12N *1/19, 15/11, 15/81*
U.S. Cl. 435—255 25 Claims

1. An isolated ars sequence from *Yarrowia lipolytica* which is efficacious in *Yarrowia lipolytica*.

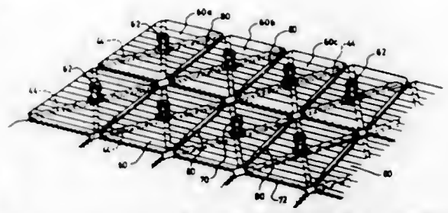
5,212,088
SPHEROPLAST FUSIONS OF *PHAFFIA RHODOZYMA* CELLS
William D. Prevatt, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Oct. 23, 1990, Ser. No. 601,951
Int. Cl.[5] C12N *1/16*
U.S. Cl. 435—255 8 Claims

1. A biologically pure culture of a stable fusion strain of *Phaffia rhodozyma* which produces in the range of from about 1430 μg/g to about 1160 μg/g of astaxanthin, and from about 2350 μg/g to about 2950 μg/g of total carotenoids and provides a yield of at least 24 percent on a dry cell weight basis when cultivated under suitable growth conditions in a shake flask with a productivity of in the range of from about 4500 μg/l to about 8600 μg/l based on a 5 day shake flask assay wherein the strain is cultivated under suitable conditions to facilitate near optimum growth of said strain.

5,212,089
PROCESS FOR PREPARTION OF S-(+)-3-HALOGENO-1,2-PROPANEDIOL BY TREATMENT WITH ALCALIGENES
Toshio Suzuki, Toyonaka, and Naoya Kasai, Amagasaki, both of Japan, assignors to Daiso Co., Ltd., Osaka, Japan
Filed Dec. 19, 1990, Ser. No. 631,091
Claims priority, application Japan, Dec. 19, 1989, 1-330368
Int. Cl.[5] C07C *29/00, 37/00*
U.S. Cl. 435—280 7 Claims

1. A process for the preparation of S-(+)3-halogeno-1,2-propanediol which comprises cultivating a bacterium, which has an ability to assimilate R-(−)-3-halogeno-1,2-propanediol and belongs to the genus Alcaligenes and is selected from the group consisting of Alcaligenes sp. DS-S-7G, Alcaligenes sp. DS-S-8S, and Alcaligenes sp. DS-S-1C in a culture medium containing racemate 3-halogeno-1,2-propanediol, and recovering S-(+)-3-halogeno-1,2-propanediol from the resulting culture.

5,212,090
COVER STRUCTURE FOR A FERMENTATION CONTAINER
Robert Landine; Albert Cocci, and Graham J. Brown, all of P. O. Box 44, Station A, 1133 Regent Street, Suite 407, Fredericton, New Brunswick, Canada E3B 4Y2
Filed Jan. 31, 1991, Ser. No. 649,774
Int. Cl.[5] B65D *88/34, 88/36*; C12M *1/00*
U.S. Cl. 435—287 4 Claims



1. A cover structure for collecting gases in a container, comprising a first plurality of strips extending in side-by-side relationship; at least one further plurality of strips, extending over said first plurality of strips, in side-by-side relationship, angularly oriented relative to the first plurality of strips and together forming a lower cover structure, strips in at least one of said plurality of strips being connected together at spaced locations along adjacent edges to form spaced gaps to permit the migration of gas therethrough; a gas impermeable cover membrane extending over said lower cover structure; spacer means positioned between said gas impermeable cover membrane and said lower cover structure for defining gas flow channels, said spacer means comprising a plurality of elongate members extending angularly relative to each other over said lower cover structure with inner ends of increased thickened intersecting to form a vent position, and a vent member positioned at said vent position for collecting and venting gases from said gas flow channels.

5,212,091
METHOD OF PRODUCING TISSUE FACTOR PATHWAY INHIBITOR
Judy A. Diaz-Collier, St. Louis; Mark E. Gustafson, St. Charles, and Tze-Chein Wun, St. Louis, all of Mo., assignors to Monsanto Company, St. Louis, Mo.
Filed Mar. 2, 1992, Ser. No. 844,297
Int. Cl.[5] C12P *21/02*
U.S. Cl. 435—69.6 6 Claims

1. A method for the production of a non-glycosylated form of tissue pathway inhibitor (SEQ ID No. 1) which comprises culturing under fermentation conditions sufficient to produce TFPI *E. coli* cells which have been transformed with a replicable expression vector containing the cDNA coding for said TFPI , harvesting the *E. coli* cells, isolating the inclusion bodies from the harvested *E. coli* cells and subjecting the inclusion bodies to a stepwise purification comprising either series (A) or series (B) as follows:

(A)

(1) subjecting the inclusion bodies to sulfitolysis to form TFPI-sulfonate,
(2) purifying TFPI-S sulfonate by anion exchange chromatography,
(3) refolding TFPI-S sulfonate by disulfide interchange reaction, and
(4) purifying active refolded TFPI by cation exchange chromatography, or

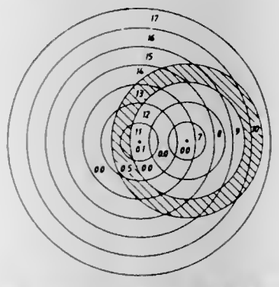
(B)

(1) subjecting the inclusion bodies to reduction with β-mercaptoethanol in urea to form reduced TFPI,
(2) purifying the reduced TFPI by cation exchange chromatography,
(3) refolding reduced TFPI by disulfide interchange reaction in urea, and
(4) purifying the active refolded TFPI by cation exchange chromatography.

5,212,092
STORAGE AND CALIBRATION SOLUTION FOR MULTIPARAMETER INTRAVASCULAR BLOOD GAS SENSOR DEVICE
Jeffrey T. Jackson, Poway, and Henry K. Hui, Laguna Niguel, both of Calif., assignors to Puritan-Bennett Corporation, Carlsbad, Calif.
Filed May 22, 1992, Ser. No. 887,679
Int. Cl.[5] G01N *31/00*; G01C *17/38*; A61B *5/05*
U.S. Cl. 436—11 11 Claims

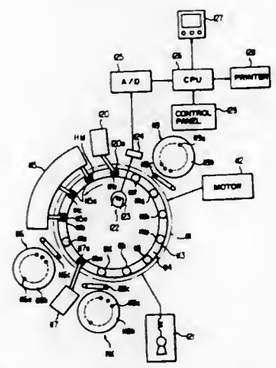
1. A method for calibrating an intravascular blood sensor in a solution for storage and calibration of an intravascular multiparameter blood sensor buffered to maintain the pH of the solution without loss of the gas tonometric properties of the solution following steam sterilization of the solution, the solution comprising an aqueous solution of from 10–35 mM of a first buffer component selected from the group consisting of bicarbonate and carbonate salts and at least one additional buffer component selected to maintain the pH of the solution at or below a pH of approximately 8, the steps of the method comprising:
placing the intra-vascular blood sensor in said solution;
sterilizing the blood sensor in the buffer solution with high temperature steam;
infusing the solution with a first concentration of a calibration gas;
performing a first measurement of a parameter related to said first concentration of said calibration gas;
infusing the solution with a second concentration of said calibration gas; and
performing a second measurement of a parameter related to said second concentration of said gas.

5,212,093
METHOD TO DETERMINE DRIFT AND RESIDUAL OIL SATURATION
Edwin A. Richardson, and Scott L. Wellington, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.
Filed Jul. 31, 1991, Ser. No. 738,645
Int. Cl.[5] G01N *33/24*; E21B *47/10*
U.S. Cl. 436—27 16 Claims



1. A process to determine residual oil saturation of a subterranean formation in the vicinity of a wellbore comprising the steps of:
performing a no-soak test comprising (a) injecting into the formation through the wellbore a no-soak test aqueous solution comprising a tracer which is at least partially water soluble, (b) producing produced fluids from the wellbore without a soak period, and (c) determining the concentration of the tracer in the produced fluids as a function of the accumulated produced fluids;
performing a soak test comprising (a) injecting into the formation through the wellbore, a soak test aqueous solution comprising a precursor capable of forming, within the formation, a partitionable tracer which is partitionable between water and oil and a water-soluble tracer which has greater water solubility and less oil solubility than the partitionable tracer, (b) neither injecting nor producing from the wellbore for a soak period, the soak period being of a duration at least long enough for a measurable amount of the partitionable tracer and the water-soluble tracer to form within the formation, (c) producing from the wellbore, and (d) determining the concentration of the partitionable tracer and of the water-soluble tracer as a function of the accumulated produced fluids; and
selecting a residual oil saturation which best accounts for the concentration of tracers as a function of the accumulated produced fluids from both the no-soak test and the soak test.

5,212,094
AUTOMATIC CHEMICAL ANALYZER
Yoshifumi Ogawa, Ootawara, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 537,794, Jun. 14, 1990, abandoned, which is a continuation of Ser. No. 95,631, Sep. 14, 1987, abandoned. This application Apr. 19, 1991, Ser. No. 687,096
Claims priority, application Japan, Sep. 16, 1986, 61-218695
Int. Cl.[5] G01N *35/02*
U.S. Cl. 436—47 2 Claims



1. A method for performing automatic chemical analysis, comprising:
providing (2L+1) reaction tubes for holding a chemical solution to be reacted, where L is an integer;
supporting said (2L+1) reaction tubes in a loop;
forwarding predetermined odd multiples of L or L+1 reaction tubes past a predetermined location in said loop and stopping for a predetermined interval;
photometrically measuring the solution of the tubes passing by a predetermined location during forward of said reaction tubes; and,
washing the reaction tubes during stopping for said predetermined interval.

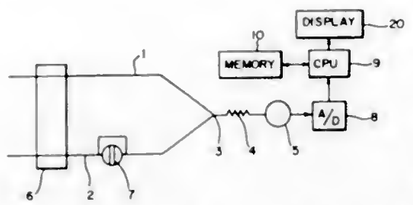
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,095

FLOW INJECTION NONAQUEOUS SOLVENT NEUTRALIZATION TITRATION PROCESS AND APPARATUS

Kojiro Miki, Kouga; Shinji Takeichi, Nara, and Hiromi Ohkawa, Joyo, all of Japan, assignors to Horiba, Ltd., Kyoto, Japan

Filed Mar. 19, 1992, Ser. No. 854,092
Claims priority, application Japan, Mar. 22, 1991, 3-83086
Int. Cl.[5] G01N *35/08, 31/16, 31/22*
U.S. Cl. 436—52 7 Claims



1. A method of determining the concentration of a sample in a fluid carrier solution comprising the steps of:
selecting a predetermined quantity of a known titrant;
preparing calibration values based on the predetermined quantity of the known titrant for different predetermined concentrations of a desired component to be determined in the sample, the known titrant quantity being in excess of an amount necessary to completely react with the sample;
adding the quantity of a known titrant to the sample and causing it to fully react with the sample;
providing a fluid carrier solution for receiving the sample and titrant after they have interacted;
inserting the sample and titrant by-products in the fluid carrier solution;
providing a pH buffer solution;
mixing the fluid carrier solution, with by-products of the reactions of the sample and titrant, in the pH buffer solution to change the concentration ratio of acids to bases by any active excess titrant;
detecting any amount of an excess remaining titrant that has not reacted with the sample, and
determining from the calibration values and the detected amount of excess titrant, the concentrations within the sample of the desired component.

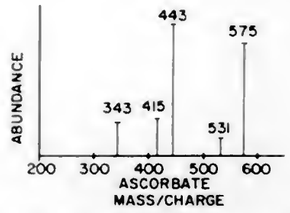
5,212,096

GAS CHROMATOGRAPHY/MASS SPECTROMETRY DETERMINATION OF ASCORBATE AND OXIDATION PRODUCTS THEREOF

J. Fred Kolhouse, and John C. Deutsch, both of Denver, Colo., assignors to University of Colorado Foundation, Inc., Boulder, Colo.

Filed Feb. 19, 1992, Ser. No. 838,356
Int. Cl.[5] G01N *33/00*
U.S. Cl. 436—93 19 Claims

1. A method for determination of in vivo ascorbate concentration in a body fluid comprising the steps of:
(a) combining a known amount of ascorbate internal standard with a body fluid collected in vitro, said body fluid comprising endogenous ascorbate;
(b) at least partially purifying said endogenous and internal standard ascorbate from other components in said in vitro body fluid;
(c) quantitating said endogenous and internal standard ascorbate concentrations in said purified in vitro body fluid of step (b) by gas chromatography/mass spectrometry analysis; and
(d) determining the in vivo ascorbate concentration by correcting the quantitated in vitro endogenous ascorbate



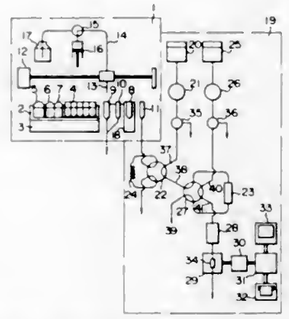
concentration for endogenous ascorbate loss as reflected by the loss in said known amount of internal standard.

5,212,097

METHOD FOR ANALYSIS OF CATECHOLAMINE

Masao Kamahori, Saitama; Mamoru Taki, Ibaraki; Junkichi Miura; Taro Nogami, both of Katsuta, and Yoshio Watanabe, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 20, 1990, Ser. No. 616,246
Claims priority, application Japan, Nov. 22, 1989, 1-302187
Int. Cl.[5] G01N *33/00*
U.S. Cl. 436—111 6 Claims



1. A method for analyzing catecholamines in a living body fluid, which comprises the steps of:
(1) reacting prior to deprofeinization a living body fluid sample with a boron compound of the formula,



wherein R is hydroxyl, phenyl, methyl or ethyl to form a reaction solution which includes complexes of the boron compound with catecholamines,
(2) deproteinizing the reaction solution containing the complexes,
(3) decomposing the complexes to release the catecholamines,
(4) labeling the released catecholamines to form labeled catecholamines,
(5) allowing the labeled catecholamines to adsorb on a precolumn packed with a cation exchange resin and removing impurities by passing an appropriate pretreatment liquid through the precolumn,
(6) eluting the labeled catecholamines adsorbed on the precolumn,

(7) passing the eluting liquid including labeled catecholamines to a separation column
(8) eluting the separate labeled catecholamines,
(9) detecting the eluted, labeled catecholamines.

5,212,098

BROMIDE ION DETERMINATION

Andrew F. Hoffmann, Walworth, and Richard W. Bauer, Jr., Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 761,181, Sep. 17, 1991, abandoned. This application Sep. 27, 1991, Ser. No. 766,944
Int. Cl.[5] G01N *33/00*
U.S. Cl. 436—125 1 Claim

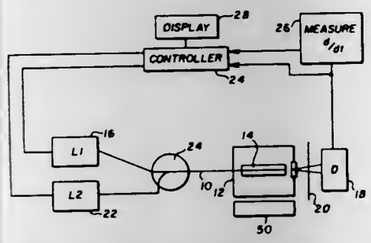
1. In a titrimetric method for the quantitative determination of bromide ion present in a non-chromogenic developer containing thiocyanate ion, the improvement comprising (a) acidifying said developer with sufficient citric acid to deactivate the developer and thereby prevent unwanted reaction of said developer with a silver ion titrant consisting essentially of aqueous silver nitrate, subsequently (b) removing thiocyanate ion as a quaternary ammonium complex by adsorbing said complex on an adsorbent; and (c) subsequently titrating said developer with aqueous silver nitrate until the end point is reached, using TIPS or Eosin Y as an indicator for said titration.

5,212,099

METHOD AND APPARATUS FOR OPTICALLY MEASURING CONCENTRATION OF AN ANALYTE

Michael A. Marcus, Honeoye Falls, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 18, 1991, Ser. No. 643,403
Int. Cl.[5] G01N *21/63*
U.S. Cl. 436—172 56 Claims



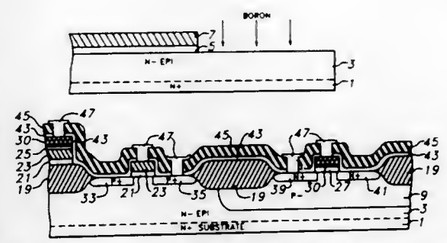
1. A method for measuring the concentration of an analyte in a medium, comprising the steps of:
directing a beam of radiant energy along an optical path into said medium at a wavelength selected to cause a response of said analyte;
periodically directing a perturbing pulse of energy into said medium to alter in a controlled manner the concentration of said analyte along said path and thereby the response of said analyte to said beam of radiant energy;
detecting the response of said analyte to said beam of radiant energy while the response is changing due to the influence of the perturbing pulse, after the perturbing pulse starts or ends or both;
determining the time rate of change of said response; and correlating said time rate of change to the concentration of said analyte.

5,212,100

P-WELL CMOS PROCESS USING NEUTRON ACTIVATED DOPED N−/N+ SILICON SUBSTRATES

Emily A. Groves, Sachse, and Gary J. Grant, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 4, 1991, Ser. No. 802,164
Int. Cl.[5] H01L *21/268*
U.S. Cl. 437—17 4 Claims



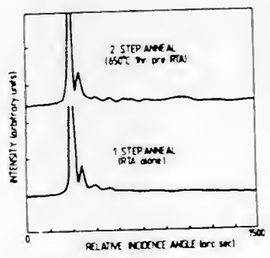
1. A method of fabricating a semiconductor structure, comprising the steps of:
(a) providing a substrate;
(b) forming a layer of neutron activated semiconductor material on said substrate by depositing a substantially intrinsic layer of said semiconductor material on said substrate and then bombarding said layer of intrinsic semiconductor material with neutrons to provide a uniform N-type dopant therein and decrease the resistivity thereof; and
(c) forming semiconductor devices in said neutron activated layer by forming a P-well in said layer of neutron activated semiconductor material, forming an N-channel device in said P-well and forming a P-channel device in said layer of neutron activated semiconductor material external to said P-well.

5,212,101

SUBSTITUTIONAL CARBON IN SILICON

Leigh T. Canham; Keith G. Barraclough, both of Worcestershire, and Mark R. Dyball, Birkenshaw, all of England, assignors to Secretary of State for Defence in her Britannic Majesty's Government of the United Kingdom, London, England

PCT No. PCT/GB90/00553, § 371 Date Nov. 6, 1991, § 102(e) Date Nov. 6, 1991, PCT Pub. No. WO90/13138, PCT Pub. Date Nov. 1, 1990
PCT Filed Apr. 11, 1990, Ser. No. 772,367
Claims priority, application United Kingdom, Apr. 14, 1989, 8908509
Int. Cl.[5] H01K *21/265*
U.S. Cl. 437—24 15 Claims



1. A method of incorporating substitutional carbon comprising the sequential steps of:
implanting a silicon wafer with C^+ ions, and

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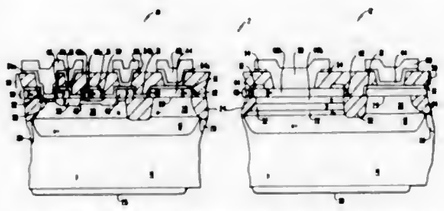
two step annealing of the implanted silicon wafer comprising first furnace annealing at a temperature within the range 500° C. to 700° C. for a time between about 30 minutes and 2 hours and thereafter annealing at a temperature within the range of 900° C. to 1200° C. for a time between about 1 and 30 seconds.

5,212,102

METHOD OF MAKING POLYSILICON SCHOTTKY CLAMPED TRANSISTOR AND VERTICAL FUSE DEVICES

Ali A. Iranmanesh, Federal Way, Wash., and George E. Ganschow, Trabuco Canyon, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Division of Ser. No. 571,346, Aug. 22, 1990, Pat. No. 5,144,404.
This application Jun. 5, 1992, Ser. No. 894,403
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—31 11 Claims



1. A process for fabricating a semiconductor structure on a substrate having a Schottky transistor in a first area and a vertical fuse in a second area, said transistor including a collector region, an emitter contact region, and a base contact region, said base contact region having a surface adjacent said collector contact region, said vertical fuse including a collector region, an emitter contact region, and a base region, said base region being between said emitter contact region and said collector contact region, the process comprising the steps of:

forming a first refractory metal over at least a portion of said transistor base contact region and at least a portion of said collector region adjacent said base region, said first refractory metal forming a rectifying contact between a base and said collector of said transistor;

forming a barrier metal over selected areas of said first reacted refractory metal layers, excluding said fuse emitter contact regions; and

forming a contact metal over said selected areas of said first reacted refractory metal, said contact metal in direct contact with said fuse emitter contact.

5,212,103

METHOD OF MAKING A HETEROJUNCTION BIPOLAR TRANSISTOR

Teruyuki Shimura, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 481,619, Feb. 20, 1990, Pat. No. 5,073,812.
This application Sep. 20, 1991, Ser. No. 763,155
Claims priority, application Japan, May 11, 1989, 1-118194
Int. Cl.[5] H01L *29/72*
U.S. Cl. 437—31 15 Claims

1. A method of producing a semiconductor device comprising:

epitaxially growing a plurality of layers of GaAs and AlGaAs and n^+ type InGaAs layer as the final layer;

producing a refractory metal emitter electrode on and making ohmic contact with said InGaAs layer without alloying;

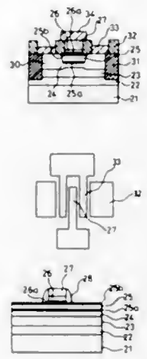
selectively etching said n^+ type InGaAs layer using said emitter electrode as a mask;

depositing a first insulating film on said emitter electrode and n^+ type layer and forming side walls on the side surfaces of said emitter electrode and said n^+ type InGaAs layer by anisotropic etching of the insulating film;

depositing a doped oxide on the surface exposed by the selective etching of said n^+ type InGaAs layer;

selectively diffusing dopants from said doped oxide into said layers using said emitter electrode and said side walls as a diffusion mask to form an external access to a base region in said layer;

converting portions of said base region into electrically



insulating regions by ion implantation using a photoresist mask;

depositing a second insulating film on said emitter electrode and selectively etching the second insulating film to expose a surface of said emitter electrode;

forming at least one opening in the second insulating film isolated from said emitter electrode, exposing said base region; and

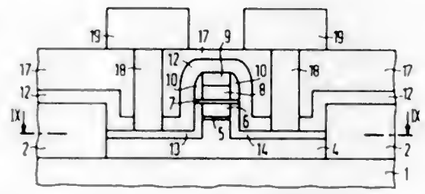
depositing a metal base contact in the opening contacting said base region.

5,212,104

METHOD FOR MANUFACTURING AN MOS TRANSISTOR

Helmut Klose, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 9, 1992, Ser. No. 848,238
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1991, 4113755
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—40 14 Claims



1. A method for manufacturing an MOS transistor comprising the steps of:

a) applying an insulating layer onto a surface of a substrate that is doped with a first conductivity type;

b) structuring the insulation layer such that said insulating layer has an opening in which the surface of the substrate is exposed;

c) growing a first layer that is undoped on the surface of the

substrate that is exposed inside the opening on the basis of selective epitaxy;

d) growing a second layer by selective epitaxy on the first layer, said second layer being doped with the first conductivity type and being thinner than the first layer;

e) growing a third layer on the second layer by selective epitaxy, said third layer being doped with a second conductivity type opposite said first conductivity type and being thicker than the second layer;

f) forming from the first layer, the second layer and the third layer a channel region of the MOS transistor;

g) producing a gate dielectric at the surface of the channel region;

h) producing a gate electrode at the surface of the gate dielectric;

i) completely covering the gate electrode with an insulating structure;

j) forming the insulating structure and the insulation layer of a material such that the first layer, the second layer and the third layer are selectively etchable with respect to the material of the insulting structure and the insulating layer;

k) producing depressions extending into the first layer in an anisotropic etching step wherein the insulating structure and the insulation layer act as an etching mask;

l) applying surface-wide a glass layer that is provided with a dopant of the second conductivity type;

m) forming, in a tempering step, a source region and a drain region by driving the dopant out into surfaces of the first layer, of the second layer and of the third layer having contact with the glass layer;

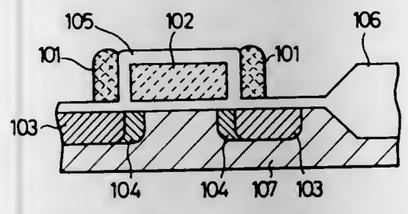
n) managing the tempering step such that dopant distribution in the second layer and in the third layer remains substantially unaltered.

5,212,105

SEMICONDUCTOR DEVICE MANUFACTURING METHOD AND SEMICONDUCTOR DEVICE MANUFACTURED THEREBY

Tatsuki Kizu; Shinichi Shimada, both of Yokohama, and Kiyoshi Kobayashi, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 528,205, May 24, 1990, abandoned.
This application Dec. 10, 1991, Ser. No. 804,506
Claims priority, application Japan, May 24, 1989, 1-128652
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—44 7 Claims



1. A method of manufacturing semiconductor devices comprising:

forming a gate insulating film on the surface of a semiconductor substrate, within which substrate lightly doped impurity regions are formed;

forming a gate electrode on said gate insulating film;

forming an impurity polysilicon layer on said substrate over said gate electrode, the density of the impurity introduced in said polysilicon being sufficiently high to increase the etching speed of said polysilicon layer;

selectively removing said impurity polysilicon layer by anisotropic etching in order to leave polysilicon spacers flanked on the side surface of said gate electrode;

introducing an impurity into said impurity regions by the use of said gate electrode and said spacers as masks in order to form heavily doped impurity regions in said lightly doped impurity regions, respectively; and

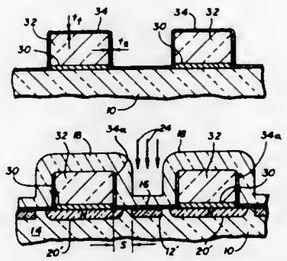
removing said spacers by selective etching.

5,212,106

OPTIMIZING DOPING CONTROL IN SHORT CHANNEL MOS

Darrell M. Erb, Los Altos, and Zoran Krivokapic, Sunnyvale, both of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed May 7, 1992, Ser. No. 881,002
Int. Cl.[5] H01L *21/266*
U.S. Cl. 437—45 14 Claims



1. An improved process for fabricating short channel metal oxide semiconductor devices comprising source and drain regions separated by gate regions, wherein the process of forming a shallow channel doping region includes forming said shallow channel doping region beneath the surface of a semiconductor, forming source-drain regions of opposite conductivity type on either side of said shallow doping region, forming a gate insulator on the surface of said semiconductor above said shallow channel doping region and extending over a portion of said source-drain region adjacent said shallow channel doping region, and forming a gate electrode to said gate oxide, the improved process including:

(a) forming a doped glass layer on said substrate, said doped glass layer acting as a source of dopant to form said source-drain regions of opposite conductivity by subsequent diffusion into said silicon substrate at an elevated temperature;

(b) forming an insulating layer and said doped glass layer;

(c) patterning said insulating layer and said doped glass layer to form vertical structures which define said gate region, said vertical structures disposed on either side of said gate region;

(d) forming an oxide film on the exposed surface of said vertical structures;

(e) anisotropically etching said oxide film to leave said oxide film on the sidewalls of said vertical structures to thereby form oxide spacers;

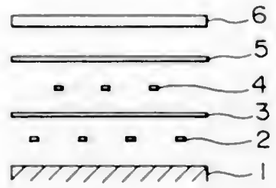
(f) forming said gate insulator in said gate region;

(g) forming a polysilicon coating on said gate insulator and on said vertical structures to provide a narrowed spacing between said vertical structures, said narrowed spacing being less than the distance separating said source and drain regions; and

(h) implanting ions through said polysilicon coating and said gate insulator into said gate region to form said shallow channel doping region to thereby laterally space said shallow channel doping region by a distance S from said sidewalls of said vertical structures and to self-align said shallow channel doping region to said source-drain regions, said shallow channel doping region centered between said source-drain regions and separated therefrom.

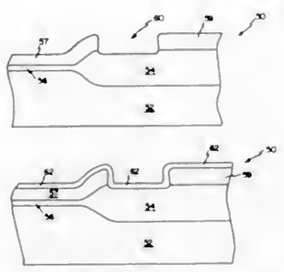
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,107
WIRING METHOD FOR SEMICONDUCTOR INTEGRATED CIRCUITS
Katsuyoshi Suzuki, Hadano; Tatsuki Ishii, Tokyo, and Tomio Taniguchi, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo and Hitachi Software Engineering Co., Ltd., Yokohama, both of Japan
Filed Jan. 31, 1992, Ser. No. 830,338
Claims priority, application Japan, Jan. 31, 1991, 3-10293
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—51 8 Claims



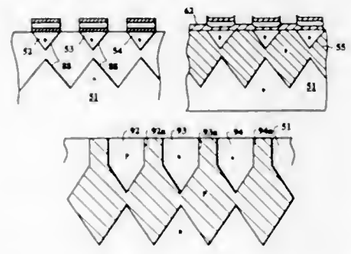
1. A wiring method for semiconductor integrated circuits having a multilayered wiring structure, comprising the steps of:
extracting wires requiring consideration of delay time;
allotting the wires requiring consideration of delay time to the uppermost and bottom layers of general wiring layers except for a power layer of the multilayered wiring structure; and
allotting the wires not requiring consideration of delay time to the portions not allotted with the wires of multilayered wiring structure requiring consideration of delay time.

5,212,108
FABRICATION OF STABILIZED POLYSILICON RESISTORS FOR SEU CONTROL
Michael S. Liu, Bloomington; Gordon A. Shaw, Plymouth, and Jerry Yue, Roseville, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 13, 1991, Ser. No. 807,307
Int. Cl.[5] H01L *21/70, 27/00*
U.S. Cl. 437—60 16 Claims



1. A method for fabricating a polysilicon resistor for use as a cross-coupling resistor in a CMOS static random access memory cell, comprising the following steps:
providing a semiconductor substrate;
growing a field oxide layer on said substrate, said field oxide separating a gate region from an interconnected region;
growing a gate oxide;
depositing a first polysilicon layer;
masking and etching a resistor region in said first polysilicon layer at said field oxide layer;
depositing a second polysilicon layer:
implanting arsenic ions in said second polysilicon layer at said resistor region to form a resistor having a predetermined resistance value;
implanting fluorine ions in said second polysilicon layer at said resistance region to stabilize said resistance value; and
performing subsequent semiconductor processes.

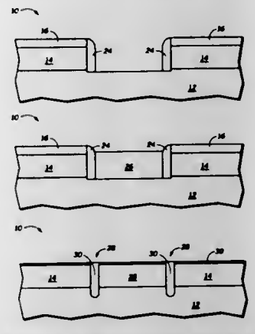
5,212,109
METHOD FOR FORMING PN JUNCTION ISOLATION REGIONS BY FORMING BURIED REGIONS OF DOPED POLYCRYSTALLINE OR AMORPHOUS SEMICONDUCTOR
Teruyoshi Mihara, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan
Continuation of Ser. No. 528,206, May 24, 1990, abandoned.
This application Sep. 20, 1991, Ser. No. 762,264
Claims priority, application Japan, May 24, 1989, 1-128641
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—67 8 Claims



1. A method of producing a semiconductor device having at least two island regions formed in a surface area of a substrate, comprising the steps of:
(a) preparing a first conductivity type semiconductor substrate;
(b) forming a second conductivity type region by diffusion in the surface area of the substrate, to provide a second conductivity type island region later;
(c) forming an insulating film on the surface area of the substrate for masking of the surface area of the substrate, to provide first and second conductivity type island regions under the formed insulating film later;
(d) forming vertical grooves in the surface area of the substrate by etching on the basis of the formed insulating masking film, to form the island regions between the two adjacent vertical grooves;
(e) forming enlarged grooves and the first and second conductivity type island regions by etching side walls of the formed vertical grooves;
(f) filling up the enlarged grooves with a second conductivity type doped polycrystalline or amorphous semiconductor to obtain a buried region for enclosing the island regions so that the island regions are isolated from the substrate;
(g) partially forming an oxide film on only the surface area of the buried region by oxidization to obtain a substrate board; and
(h) forming semiconductor elements in the formed island regions to produce a semiconductor device.

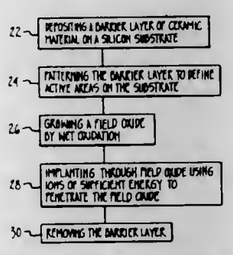
5,212,110
METHOD FOR FORMING ISOLATION REGIONS IN A SEMICONDUCTOR DEVICE
James R. Pfiester, and Howard C. Kirsch, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed May 26, 1992, Ser. No. 887,958
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—67 10 Claims
1. A method for forming a semiconductor device compris-

ing: providing a substrate having a single-crystal silicon surface;
forming a single-crystal SiGe layer overlying a portion of the surface, wherein the SiGe layer contacts the silicon surface at a predetermined point; and



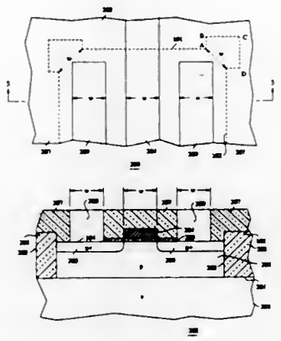
selectively forming a single-crystal silicon layer overlying the single-crystal silicon surface and contacting side portions of the SiGe layer, wherein the SiGe provides a seed layer for the formation of the single-crystal silicon layer at said side portions.

5,212,111
LOCAL-OXIDATION OF SILICON (LOCOS) PROCESS USING CERAMIC BARRIER LAYER
Trung T. Doan, and Gurtej S. Sandhu, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Filed Apr. 22, 1992, Ser. No. 872,015
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—70 16 Claims



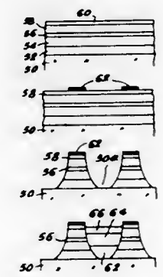
1. A local oxidation of silicon (LOCOS) process for semiconductor manufacture comprising:
depositing a low stress barrier layer of a ceramic material having a high ion stopping power on a silicon substrate;
patterning and etching the barrier layer to define active areas on the substrate covered with the ceramic material with exposed areas of the substrate therebetween;
growing a field oxide in the exposed areas by wet oxidation;
implanting the active areas through the field oxide using ions of sufficient energy to penetrate the field oxide but not the barrier layer; and
removing the ceramic layer.

5,212,112
SELECTIVE EPITAXY OF SILICON IN SILICON DIOXIDE APERTURES WITH SUPPRESSION OF UNWANTED FORMATION OF FACETS
William T. Lynch, Summit, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.
Filed May 23, 1991, Ser. No. 704,749
Int. Cl.[5] H01L *21/20, 21/205*
U.S. Cl. 437—89 8 Claims



1. A method of selective epitaxial growth of a semiconductor region comprises the steps of
(a) forming a window and a lobe in a masking layer located on a major surface of an essentially monocrystalline semiconductor body, the window having a corner defined by an intersection of first and second edges thereof, the lobe being located at said corner, the window and the lobe penetrating through the masking layer to the major surface of the semiconductor body; and
(b) epitaxially growing semiconductor in said window and said lobe, whereby the semiconductor region includes both said window and said lobe.

5,212,113
PROCESS FOR THE SELECTIVE EPITAXY AND ETCHING OF A III-V MATERIAL IN THE SAME OMCVD GROWTH FRAME
Rosette Azoulay, Fontenay aux Rose, and Louis Dugrand, Chelles, both of France, assignors to France Telecom Etablissement Autonome de Droit Public (Centre National d'Etudes des Telecommunications), Issy les Moulineaux, France
Filed Sep. 16, 1991, Ser. No. 760,157
Claims priority, application France, Sep. 20, 1990, 90 11615
Int. Cl.[5] H01L *21/203, 21/20*
U.S. Cl. 437—107 8 Claims



1. Process for the selective epitaxy of a semiconductor layer constituted by at least one III element and at least one V element, incorporating the following stages:

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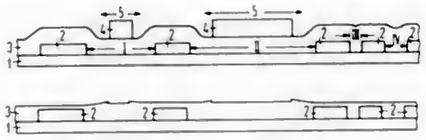
a) depositing on a III-V monocrystalline material (2) an epitaxy-resistant masking layer (6),
b) etching the masking layer in order to form therein openings (9) facing the areas of the material on which selective epitaxy is to be carried out and
c) epitaxiing the semiconductor layer (14) on said areas in an OMCVD frame,
characterized in that stage c) consists of subjecting, under atmospheric pressure, the masked material simultaneously to vapours of chemical species of at least one III element and at least one V element, as well as to vapours of hydrochloric acid or at least one halide of a V element, the III and V elements of the chemical species and the halide being those intended to form the semiconductor layer, the said chemical species being organometallic and/or hydrogen compounds.

5,212,114

PROCESS FOR GLOBAL PLANARIZING OF SURFACES FOR INTEGRATED SEMICONDUCTOR CIRCUITS

Virinder-Singh Grewal, Ebersberg; Klaus-Dieter Menz, Munich, and Ronald Huber, Hohenbrunn, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 10, 1990, Ser. No. 580,329
Claims priority, application European Pat. Off., Sep. 8, 1989, 89116664
Int. Cl.[5] H01L *21/88, 21/302*
U.S. Cl. 437—192 **11 Claims**



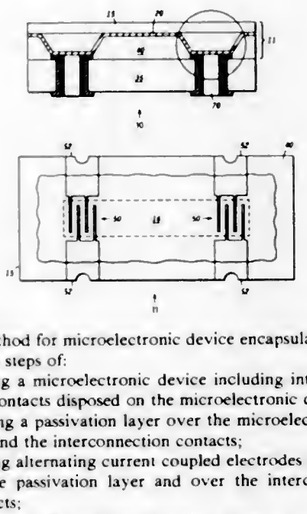
1. Process for globally planarizing surfaces of integrated circuits, which comprises:
a) preparing a component with a substrate plane, and a structured layer to be planarized being disposed above the substrate plane and having a given step height for defining regions of the substrate plane covered by and regions not covered by the structured layer;
b) initially producing a locally planarized silicon oxide film defining oxide trenches having a remaining silicon oxide thickness over all of the regions not covered by the structured layer being greater than the given step height after the local planarizing;
c) generating photoresist structures with a photographic technique inversely to the locally planarized plane of the structured layer so that side walls of the oxide trenches are not covered by the photoresist structures;
d) applying a well-adhering planarizing auxiliary layer to the photoresist structures and the silicon oxide film, the auxiliary layer being formed of a different material than the photoresist structures;
e) anisotropically back-etching with substantially corresponding etch rates of the auxiliary layer and the silicon oxide and a lower etch rate of the photoresist structures until the level of the silicon oxide on the structured layers is approximately equal to the level of nonback-etched silicon oxide film under the surfaces of the photoresist structures;
f) removing the photoresist; and
g) removing residues of the auxiliary layer and additionally removing a damage layer produced by the anisotropic etching with an isotropic etching process.

5,212,115

METHOD FOR MICROELECTRONIC DEVICE PACKAGING EMPLOYING CAPACITIVELY COUPLED CONNECTIONS

Frederick Y. Cho, Scottsdale; Gerald Norley, Tempe, and David Penunuri, Fountain Hills, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 663,347, Mar. 4, 1991, Pat. No. 5,119,172.
This application Dec. 6, 1991, Ser. No. 802,929
Int. Cl.[5] H01L *21/56, 21/58, 21/60*
U.S. Cl. 437—208 **15 Claims**



1. A method for microelectronic device encapsulation comprising the steps of:
providing a microelectronic device including interconnection contacts disposed on the microelectronic device;
depositing a passivation layer over the microelectronic device and the interconnection contacts;
providing alternating current coupled electrodes positioned on the passivation layer and over the interconnection contacts;
providing a base substrate including pressure contact electrodes and vias; and
bonding the base substrate to the microelectronic device with a bonding agent for providing a mechanical bond between the microelectronic device and the base, and for providing electrical coupling between the pressure contact electrodes and the alternating current coupled electrodes positioned on the passivation layer.

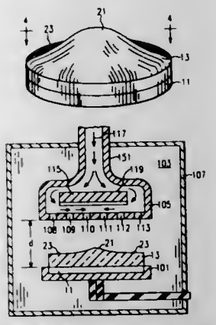
5,212,116

METHOD FOR FORMING PLANARIZED FILMS BY PREFERENTIAL ETCHING OF THE CENTER OF A WAFER

Chen-Hua D. Yu, Allentown, Pa., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 691,070, Apr. 24, 1991, abandoned, which is a continuation of Ser. No. 539,635, Jun. 18, 1990, abandoned. This application Feb. 28, 1992, Ser. No. 845,502
Int. Cl.[5] H01L *21/48*
U.S. Cl. 437—228 **10 Claims**

1. A method of semiconductor integrated circuit fabrication comprising:
forming a material layer upon a wafer having partially fabricated integrated circuits, said material layer being a dielectric or amorphous silicon or a metal CHARACTERIZED BY having a thickness which is greater in the vicinity of the center of said wafer than in the vicinity of the edge of said wafer, and



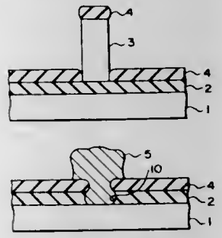
etching said material layer by a process which preferentially removes material in the vicinity of said center of said wafer.

5,212,117

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE CONTACT STRUCTURE USING LIFT

Hitoshi Tsuji, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 601,390, Oct. 23, 1990, abandoned. This application Feb. 14, 1992, Ser. No. 835,116
Claims priority, application Japan, Oct. 24, 1989, 1-274971
Int. Cl.[5] H01L *21/31*
U.S. Cl. 437—229 **16 Claims**



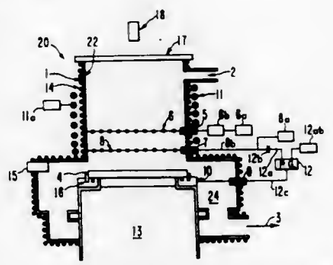
1. A method of manufacturing a contact structure in a semiconductor device utilizing lift-off for forming a submicron opening, comprising the steps of:
forming an Si_3N_4 layer on a semiconductor substrate;
forming a negative resist layer sensitive to electron beams on said Si_3N_4 layer;
applying electron beams onto a predetermined region of said negative resist layer to draw a pattern thereon corresponding to said submicron opening to be formed;
removing unnecessary portions of said negative resist layer by using a developer, thereby forming on a position where said submicron opening is to be formed a remaining pattern resist layer which consists of one layer and has a constant width substantially the same as that of said submicron opening;
forming an SiO_2 layer on the entire region of said Si_3N_4 layer and said remaining pattern resist layer, said SiO_2 layer being formed by sputtering such that said remaining pattern resist layer has a thickness five to ten times larger than that of said SiO_2 layer;
simultaneously removing said remaining pattern resist layer and that part of said SiO_2 layer which is formed thereon, thereby forming said submicron opening in said SiO_2 layer;
dry-etching said Si_3N_4 layer through said submicron opening, using said SiO_2 layer as a mask, so as to expose that region of said semiconductor substrate which corresponds to said submicron opening; and
forming a metal electrode in said submicron opening and on said SiO_2 layer such that it is brought into contact with said exposed region of said semiconductor substrate.

5,212,118

METHOD FOR SELECTIVE CHEMICAL VAPOR DEPOSITION OF DIELECTRIC, SEMICONDUCTOR AND CONDUCTIVE FILMS ON SEMICONDUCTOR AND METALLIC SUBSTRATES

Arjun N. Saxena, 2 Birch Hill Rd., Ballston lake, N.Y. 12019

Filed Aug. 9, 1991, Ser. No. 743,546
Int. Cl.[5] H01L *21/00, 21/02, 21/94*
U.S. Cl. 437—235 **11 Claims**



1. A method of chemical vapor deposition of a film on a substrate comprising:
placing a substrate to be coated with a film in a chamber;
directing reactants into the chamber and along a path of travel toward the substrate;
moving the reactants through an electric field as they are directed toward the substrate to stretch the polarized chemical bonds of the reactants substantially almost to the breaking point;
applying electrical pulses to the electric field to break the chemical bonds of the reactants to produce free radicals and ions without the generation of plasma; and
allowing the free radicals to react to deposit a film of relatively high purity onto the substrate.

5,212,119

METHOD FOR MAINTAINING THE RESISTANCE OF A HIGH RESISTIVE POLYSILICON LAYER FOR A SEMICONDUCTOR DEVICE

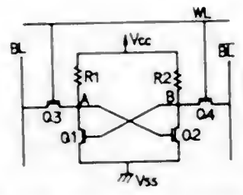
Hyung C. Hah, Kwangmyung-City; Jung T. Kim, Seoul; Yong K. Baek, Seoul, and Hee K. Cheon, Seoul, all of Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Rep. of Korea

Filed Nov. 26, 1991, Ser. No. 797,994
Claims priority, application Rep. of Korea, Nov. 28, 1990, 90-19326
Int. Cl.[5] H01L *21/00, 21/02, 21/469*
U.S. Cl. 437—235 **20 Claims**

1. A method for preventing the resistance of a high resistive polysilicon layer from decreasing due to the deposition of a passivation layer on the partially completed semiconductor structure which includes the high resistive polysilicon layer in a semiconductor device, the method comprising:
depositing a passivation layer including a silicon oxide layer and a silicon nitride layer on a high resistive polysilicon layer of the partially completed semiconductor structure, by utilizing a plasma-enhanced chemical vapor deposition process;
annealing the passivation layer with oxygen plasma in a chamber; and

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heating the annealed passivation layer in the presence of nitrogen conditioning gas in the chamber such that it prevents the resistance of the high resistive polysilicon



layer from being decreased by out-diffusing a plurality of the ions trapped into the boundary of the grains of the high resistive polysilicon during the deposition process of the passivation layer.

5,212,120

PHOTOSENSITIVE GLASS

Roger J. Araujo, Horsebeads; Nicholas F. Borrelli, Elmira, and Dennis W. Smith, Corning, all of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Continuation-in-part of Ser. No. 713,429, Jun. 10, 1991, abandoned. This application Jun. 19, 1992, Ser. No. 900,667

Int. Cl.[5] **C03C** *4/06, 3/095*

U.S. Cl. 501—13 **8 Claims**

1. A photosensitive borosilicate glass which, on an oxide basis as calculated from the glass batch in weight percent, consists essentially of 20–80% SiO_2, 8–40% B_2O_3, 0–6% Li_2O, 0–28% Na_2O, 0–25% K_2O, the Na_2O+K_2O content being 10–28%, 0–18% Al_2O_3, the cation ratio of $(R_2O—Al_2O_3):B_2O_3$ being at least 0.6, 0.05–0.3% Ag, an effective amount to promote photosensitivity up to about 0.05% cerium oxide, and an effective amount to enhance photosensitivity and fine the glass up to 0.5% Sb_2O_3.

5,212,121

RAW BATCHES FOR CERAMIC SUBSTRATES, SUBSTRATES PRODUCED FROM THE RAW BATCHES, AND PRODUCTION PROCESS OF THE SUBSTRATES

Takahisa Omata, Ayase; Masaru Yanagimachi, Tochigi; Tosio Matsuuchi, Tochigi, and Yoshinori Koyanagi, Tochigi, all of Japan, assignors to Mitsui Mining Company, Limited, Tokyo, Japan

Continuation of Ser. No. 711,899, Jun. 7, 1991, abandoned. This application Jun. 17, 1992, Ser. No. 899,938

Claims priority, application Japan, Jun. 13, 1990, 2-152608; Nov. 29, 1990, 2-326073

Int. Cl.[5] **C03C** *3/091, 14/00*

U.S. Cl. 501—32 **7 Claims**

1. A raw batch for ceramic substrates, comprising, as a mixture:

40 to 80 weight percent of borosilicate glass powder, wherein borosilicate glass powder comprises, by weight, (a) 65 to 85 percent of silicon dioxide (SiO_2), (b) 5 to 25 percent of boric anhydride (B_2O_3), (c) 0.1 to 7 percent of at least one component selected from the group consisting of lithium oxide (Li_2O), sodium oxide (Na_2O) and potassium oxide (K_2O), (d) 0.1 to 5 percent of at least one component selected from the group consisting of magnesium oxide (MgO) and calcium oxide (CaO), and (e) 0.1 to 5 percent of alumina (Al_2O_3);

20 to 60 weight percent of aluminum borate powder which is in the form of fine powder ground to not greater than 3 μm in average particle size; and

oxide compound which is at least one component selected from the group consisting of spinel, cordierite, mullite, forsterite, anorthite, celsian and alumina, there being an amount of up to and including 10 weight percent of the oxide compound.

5,212,122

TRANSPARENT COLORED GLASS CERAMIC WITH GOOD THERMAL STABILITY AND VARIABLE TRANSMISSION IN THE IR REGION

Wolfgang Pannhorst; Erich Rodek, and Herwig Scheidler, all of Mainz, Fed. Rep. of Germany, assignors to Schott Glaswerke, Mainz, Fed. Rep. of Germany

Filed Oct. 24, 1986, Ser. No. 923,113

Claims priority, application European Pat. Off., Oct. 26, 1985, 85113664.8

The portion of the term of this patent subsequent to Oct. 18, 2005, has been disclaimed.

Int. Cl.[5] **C03C** *3/085*

U.S. Cl. 501—69 **13 Claims**

1. A transparent, colored glass ceramic consisting essentially of high quartz solid solution crystals, especially suitable for the manufacture of heatable plates, wherein:

a) the change in the linear thermal expansion coefficient has a positive value of not greater than 1.8×10^{-7}/°K. over one to four heat treatment cycles of i) heating from room temperature at 4° C./min to 720° C.; ii) maintaining the temperature at 720° C. for one hour, iii) heating at 2° C./min to 880° C., iv) maintaining the temperature at 880° C. for 90 min, and v) cooling to room temperature;

b) the change in the linear thermal expansion coefficient after one heat treatment cycle and tempering at 825° C. for 35 hours has a positive value of not greater than 1.6×10^{-7}/°K.;

c) the transmission of the glass ceramic in the IR region between 800 nm and 2.6 microns can be variably adjusted; and

d) the glass ceramic consists essentially of the following base glass composition (in weight percent):

SiO_2	62–68
Al_2O_3	19.5–22.5
Li_2O	3.0–4.0
Na_2O	0–1.0
K_2O	0–1.0
$Na_2O + K_2O$	0.5–1.5
BaO	1.5–3.5
CaO	0–1.0
BaO + CaO	1.5–4.0
MgO	0–0.5
ZnO	0.5–2.5
TiO_2	2.0–2.8
ZrO_2	0.0–3.0
$TiO_2 + ZrO_2$	3.5–5.5
MnO_2	0.0–0.40
Fe_2O_3	0.0–0.20
CoO	0.0–0.30
NiO	0.0–0.30
V_2O_5	0.0–0.80
Cr_2O_3	0.0–0.20
F	0.0–0.20
Sb_2O_3	0.5–2.0

and wherein it was transformed from this glass-ceramic base glass by a heat treatment between 680° C. and 920° C.

5,212,123

REFRACTORY MATERIALS FORMED FROM REFRACTORY GRAINS BONDED BY A SIALON MATRIX CONTAINING DISPERSED GRAPHITE AND/OR BORON NITRIDE PARTICLES AND A PROCESS FOR THE PREPARATION OF THESE MATERIALS

Jacques P. R. Schoennahl, Villeurbanne, France, assignor to Savoie Refractaires, Venissieurs, France

Filed Oct. 8, 1991, Ser. No. 772,978

Claims priority, application France, Oct. 24, 1990, 90 13168

Int. Cl.[5] **C04B** *35/58*

U.S. Cl. 501—87 **10 Claims**

1. A refractory material having high resistance to corrosion, high mechanical strength at elevated temperature and high resistance to thermal shock, comprising:

(A) 31%–85% by weight of grains of at least one refractory material whose melting point or, where appropriate, thermal decomposition temperature is greater than 1700° C., these particles being dispersed in

(B) 12%–45% by weight of a binding matrix comprising at least 85% by weight of a sialon of the formula $Si_{6-z}Al_zO_zN_{8-z}$ where z ranges from 0.5 to 4, as determined by an X-ray diffraction pattern, and

(C) 3%–42% by weight of at least one of the particles of hexagonal boron nitride and flakes of crystalline graphite which are dispersed in the binding matrix.

5,212,124

CERAMIC COMPOSITE ARTICLES WITH SHAPE REPLICATED SURFACES

Marc S. Newkirk, Newark, Del., assignor to Lanxide Technology Company, LP, Newark, Del.

Continuation of Ser. No. 308,420, Feb. 8, 1989, abandoned, which is a division of Ser. No. 896,157, Aug. 13, 1986, Pat. No. 4,859,640. This application Feb. 19, 1991, Ser. No. 657,290

Int. Cl.[5] **C04B** *35/65*

U.S. Cl. 501—88 **16 Claims**

5. A self-supporting ceramic matrix composite body consisting essentially of from about 2% to about 95% by volume of a three-dimensionally interconnected ceramic matrix and from about 5% to about 98% by volume of at least one filler incorporated within said matrix, said matrix consisting essentially of from about 60% to about 99% by weight of a three-dimensionally interconnected oxidation reaction product consisting essentially of a material selected from the group consisting of silicon carbide, silicon boride, aluminum boride, titanium nitride, zirconium nitride, titanium boride, zirconium boride, tin oxide and aluminum oxynitride and the remainder of said matrix consisting essentially of at least one interconnected metallic constituent and voids.

5,212,125

PROCESS FOR SINTERING ALUMINUM NITRIDE USING ORGANOMETALLIC COMPOUNDS

David D. Marchant; Joseph R. Fox, both of Solon, and Timothy W. Brauneck, Thompson, all of Ohio, assignors to The Carborundum Company, Nigara Falls, N.Y.

Filed Nov. 20, 1990, Ser. No. 616,153

Int. Cl.[5] **C04B** *35/58, 35/52, 35/54;* **F27B** *9/10*

U.S. Cl. 501—96 **9 Claims**

1. A process for producing a sintered AlN ceramic body comprising:

mixing a hydrocarbon solvent, an organometallic compound selected from the group consisting of metal alkoxides and metal alkoxycarboxylates, and AlN powder to produce a slurry having an amount of said organometallic compound ranging from about 0.1–12% by weight with respect to the dry weight of said AlN powder;

removing said solvent from said slurry to form a mixture of organometallic compound and AlN;

forming said mixture into a shape; and



sintering said shape in a non-oxidizing atmosphere to obtain densification.

5,212,126

ALUMINUM RESISTANT REFRACTORY AND METHOD

Lawrence D. Fitch, and Thomas R. Kleeb, both of Pittsburgh, Pa., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Jun. 10, 1991, Ser. No. 712,385

Int. Cl.[5] **C04B** *35/02*

U.S. Cl. 501—100 **18 Claims**

12. An aluminum resistant castable consisting essentially of alumina calcines, submicron silica, calcium aluminate cement, less than 1 wt.% dry phosphate additive, and an amount less than 1 wt.% polyvinyl chloride powder.

5,212,127

PROCESS FOR REACTIVATING A DEACTIVATED DEHYDROCYCLODIMERIZATION CATALYST

Joseph A. Kocal, Gurnee; Christopher D. Gosling, Roselle; Paul J. Kuchar, Hinsdale, and Tamotsu Imai, Mt. Prospect, all of Ill., assignors to UOP, Des Plaines, Ill.

Filed Nov. 8, 1991, Ser. No. 790,315

Int. Cl.[5] **B01J** *39/38, 38/66, 38/60;* **C07C** *2/42*

U.S. Cl. 502—26 **6 Claims**

1. A process for reactivating a dehydrocyclodimerization catalyst comprising a zeolite having a Si:Al ratio greater than about 10 and a pore diameter of about 5–6 Å, an aluminum phosphate binder and gallium, said catalyst having been deactivated by exposure to hydrogen at a temperature above 500° C., the process comprising treating the catalyst with an aqueous solution of a weakly acidic ammonium salt or a dilute acid solution at a temperature of about 50° to about 100° C. for a time of about 1 to about 48 hours and then calcining the treated catalyst at a temperature of about 500° to about 700° C. for a time of about 1 to about 15 hours, thereby providing a reactivated catalyst.

5,212,128

METHOD FOR RECOVERING OR MAINTAINING THE ACTIVITY OF HYDROISOMERIZATION CATALYSTS

James J. Schorfheide, Baton Rouge, La., and Biddanda U. Achia, Clearwater, Canada, assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Nov. 29, 1991, Ser. No. 799,810

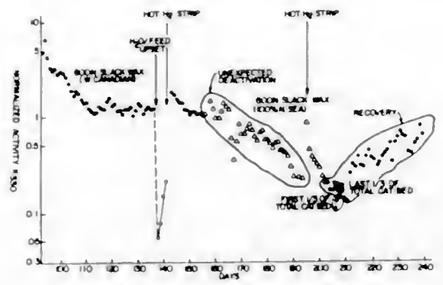
Int. Cl.[5] **B01J** *23/96, 27/32;* **C10G** *73/38, 73/10*

U.S. Cl. 502—31 **3 Claims**

1. A method for recovering the activity of deactivated isomerization catalysts comprising Group VI and/or Group VIII metal on halogenated refractory metal oxide used for the isomerization of feeds selected from wax, waxy distillates, and waxy raffinates, comprising contacting the deactivated catalyst under isomerization conditions with wax containing aro-

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matic hydrocarbons which are predominantly single-ring aromatics and wherein the total aromatic hydrocarbon content to



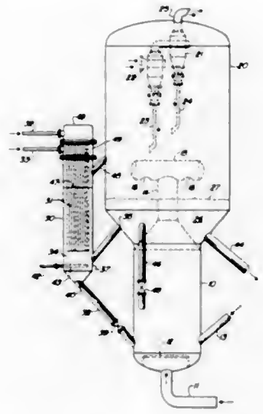
said wax is lower than that of the feed which deactivated said catalyst.

5,212,129

INVERTED BACKMIX COOLERS FOR FCC UNITS

David A. Lomas, Barrington, Ill., assignor to UOP, Des Plaines, Ill.

Filed Dec. 17, 1991, Ser. No. 808,823
Int. Cl.[5] B01J *29/38, 21/20, 38/32;* C10G *11/18*
U.S. Cl. 502—43 6 Claims



1. A process for regenerating coke-contaminated fluidized catalyst particles said process comprising:

a) regenerating catalyst in a regeneration vessel by the combustion of coke;

b) transferring hot catalyst from the regeneration vessel to an inlet located at a lower locus of a vertically extended catalyst cooling vessel;

c) withdrawing cooled catalyst particles from the bottom of said cooling vessel;

d) passing a fluidizing gas into said cooling vessel at or below said lower locus and maintaining an at least relatively dense bed of catalyst particles in said cooling vessel above said lower locus of said cooling vessel;

e) cooling said catalyst particles in said bed by indirect heat exchange with a plurality of heat exchange tubes located above said lower locus;

f) withdrawing a dilute phase gas stream comprising said fluidizing medium from an upper portion of said cooling vessel.

5,212,130

HIGH SURFACE AREA WASHCOATED SUBSTRATE AND METHOD FOR PRODUCING SAME

William P. Addiego; Irwin M. Lachman; Mallanagouda D. Patil, all of Corning; Jimmie L. Williams, Painted Post; Melcenia R. Williams, and Kenneth E. Zaun, both of Corning, all of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Mar. 9, 1992, Ser. No. 848,081
Int. Cl.[5] B01J *21/04, 23/02, 32/00*
U.S. Cl. 502—60 30 Claims

1. A method for producing a washcoat on a substrate, the method comprising:

a) forming a slurry comprising

i) at least one ionizable compound of A, where A is selected from barium, strontium, and combinations thereof, and A is in an amount sufficient to yield AO in an amount of about b 0.2–20% by weight of the washcoat.

ii) an aluminum oxide yielding species, and

iii) a medium wherein at least a portion of said ionizable compound ionizes to from ions of A;

b) contacting said slurry with a substrate to form a green coating containing A and the aluminum oxide yielding species therein; and

c) heat treating the resulting green-coated substrate at a temperature of about 500° C. to about 700° C. and for a time sufficient to form a washcoat containing AO-Al_2O_3 on said substrate, wherein A is homogeneously distributed throughout said Al_2O_3, said washcoat having a specific surface area, as measured by the N_2 BET method, of at least about 50 m^2/g, which surface area remains after at least two repeated exposures of the washcoat to temperatures of greater than about 500° C.

5,212,131

LOW PRESSURE DROP FILTER

William A. Belding, Danville, Calif., assignor to Innovative Research Enterprises, Danville, Calif.

Filed Feb. 20, 1991, Ser. No. 658,248
Int. Cl.[5] B01J *20/00, 20/30*
U.S. Cl. 502—60 27 Claims

1. A filter for removing contaminants from a gas comprising a support material and, deposited on the support material:

(i) a first component which is an oxide, a hydroxide or a mixture of an oxide an a hydroxide of Al, Si, Ti, Fe, Zn or a mixture thereof, the oxide, the hydroxide or the mixture of the oxide and the hydroxide comprising at least about 0.5% by weight of water; and,

(ii) a second component which is an alkali metal, an alkaline earth metal, a compound of the alkali metal, a compound of the alkaline earth metal, a salt of permanganic acid, or a mixture thereof.

2. A filter of claim 1 wherein the support material is a fibrous support material.

8. A filter of claim 1 which additionally comprises a third component which is an adsorbent in the form of separate particles.

9. A filter of claim 8 wherein the third component comprises granular particles of alumina, granular particles of alumina treated with at least one alkali metal and/or alkaline earth metal compound, activated charcoal, alumino-silicate, clay, a molecular sieve, a zeolite, a bauxite compound, a separately prepared and separately supported salt of permanganic acid or a mixture thereof.

5,212,132

MAGNESIUM CHLORIDE PARTICLES WITH A POLYHEDRAL STRUCTURE, CATALYTIC COMPONENTS SUPPORTED ON THESE PARTICLES, RESULTANT CATALYST SYSTEMS, PROCESSES FOR FABRICATING THESE PRODUCTS, AND POLYOLEFINS OBTAINED FROM THESE CATALYTIC COMPONENTS

Roger Spitz, St Symphorien d'Ozon; Thierry Soto, Lyons; Claude Brun, Idron, and Laurent Duranel, Arthez de Bearn, all of France, assignors to Atochem, France

Filed Nov. 22, 1991, Ser. No. 796,712
Claims priority, application France, Nov. 29, 1990, 90 14934
Int. Cl.[5] C08F *4/654*
U.S. Cl. 502—134 23 Claims

15. A catalytic component consisting essentially of particles of $MgCl_2$ impregnated by a transition-metal compound and up to an effective amount of an electron donor, wherein said particles have the form of essentially regular polyhedrons with six or eight faces in which the paired symmetrically opposite faces are essentially parallel, two of which faces are large and elongated and form the top face and the bottom face of a polyhedron such that on each of them the longest diagonal (D) is larger than the shortest distance (d) separating two opposite sides, which large elongated faces are surrounded essentially perpendicularly by the other essentially rectangular faces that form the sides of the said polyhedron, the length of the smaller side (e) of each of the said essentially rectangular faces being less than the shortest distance (d) separating the two opposite sides of the large elongated faces.

5,212,133

MAGNESIUM CHLORIDE PARTICLES WITH A TRUNCATED STRUCTURE, CATALYTIC COMPONENT SUPPORTED ON THESE PARTICLES, POLYOLEFINS OBTAINED BY EMPLOYING THIS CATALYTIC COMPONENT, PROCEDURES FOR MANUFACTURING THESE PRODUCTS

Laurent Duranel, Arthez de Bearn, and Jean-Pierre Roche, Voltaire, both of France, assignors to Atochem, France

Filed Feb. 19, 1991, Ser. No. 657,756
Claims priority, application France, Feb. 19, 1990, 90 01948
Int. Cl.[5] C08F *4/64*
U.S. Cl. 502—134 32 Claims

22. A catalytic component comprising $MgCl_2$ particles impregnated with a transition metal compound, said particles having essentially the shape of two truncated right cones connected by their larger bases, which truncated cones are incurved towards the axis of symmetry perpendicular to the bases, at the intersection of the envelope of the truncated cones with two orthogonal planes passing through the said axis of symmetry.

5,212,134

CATALYST OF LIQUID-PHASE OXIDATION OF SULFUR-CONTAINING COMPOUNDS

Raisa P. Kochetkova, mikroraion 18; Ljudmila I. Shpilevskaya, mikroraion 9, 19, kv. 119; Ida P. Shiverskaya, ulitsa Geroev; Anatoly F. Babikov, ulitsa Moskovskaya, all of Angarsk; Raisa M. Zaikova, ulitsa Tselljuloznikov, 1, kv. 1, Baikalsk; Fedor K. Shmidt, mikroraion "Primorsky", 14, kv. 5, Irkutsk; Oleg A. Gurenko, kvartal 89, 9, kv. 12, Angarsk; Valery V. Glazyrin, ulitsa Tselljuloznikov, 2, kv. 2, Baikalsk; Gennady P. Tikhonov, ulitsa Gagarina, 170, kv. 16, Baikalsk; Vasily I. Usov, ulitsa Gagarina, 148, kv. 12, Baikalsk; Anatoly A. Popov, kvartal 74, 4a, kv. 45; Semen A. Eppel, ulitsa Krasnaya, 4, kv. 10, both of Angarsk; Gennady I. Botkin, deceased, late of Angarsk; by Valentina I. Botkina, administrator, 17 mikroraion, 22, kv. 48, Angarsk; by Olga G. Botkina, administrator, 17 mikroraion, 22, kv. 48, Angarsk; by Natalya G. Botkina, administrator, 17 mikroraion, 22, kv. 48, Angarsk, and by Alexei G. Botkin, administrator, 17 mikroraion, 22, kv. 48, Angarsk, all of U.S.S.R.

PCT No. PCT/SU89/00210, § 371 Date Jul. 29, 1991, § 102(e) Date Jul. 29, 1991, PCT Pub. No. WO90/01369, PCT Pub. Date Feb. 22, 1990
PCT Filed Aug. 14, 1989, Ser. No. 474,740
Claims priority, application U.S.S.R., Aug. 15, 1988, 4474445; Sep. 19, 1988, 4483532; Jun. 12, 1989, 4697938
Int. Cl.[5] B01J *23/72, 31/06*
U.S. Cl. 502—159 3 Claims

1. A catalyst of liquid-phase oxidation of sulfur-containing compounds, comprising an active component and a thermoplastic polymer, characterized in that as an active component it contains a product of calcination of iron oxide based pyrite, with the following proportioning of the components in % by mass:

product of calcination of iron oxide based pyrite	30–50
thermoplastic polymer	the balance.

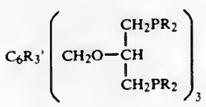
5,212,135

POLYMERIZATION PROCESS

Johannes J. Keijaper; Alexander W. van der Made, and Petrus W. N. M. van Leeuwen, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 684,110, Apr. 12, 1991, Pat. No. 5,169,926.
This application Aug. 28, 1992, Ser. No. 936,493
Claims priority, application Netherlands, May 10, 1990, 9001114
Int. Cl.[5] B01J *31/24*
U.S. Cl. 502—162 8 Claims

1. A catalyst composition formed from a compound of palladium, the anion of a strong non-hydrohalogenic acid and a hexakis phosphine of the formula



wherein R' independently is hydrogen or methyl and R independently is alkoxyphenyl wherein at least one alkoxy is a substituent on a ring carbon atom which is ortho to the ring carbon atom through which R is connected to phosphorus.

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5,212,136

SOLID-ACID ALKYLATION CATALYST COMPOSITIONS FOR ALKYLATION PROCESSES

Howard P. Angstadt, Media, Pa.; Elmer J. Hollstein, Wilmington, Del., and Chao-Yang Hsu, Media, Pa., assignors to Sun Company, Inc (R&M), Philadelphia, Pa.

Filed Nov. 27, 1991, Ser. No. 800,797
Int. Cl.[5] B01J *27/053*
U.S. Cl. 502—206 9 Claims

1. A composition of matter comprising a sulfated and calcined mixture of (1) a support comprising an oxide or hydroxide of a Group IV-A element, (2) an oxide or hydroxide of molybdenum, and (3) an oxide or hydroxide of a metal selected from the group consisting of Group V-A metals, Group VI-A metals other than molybdenum, Group I-B metals, Group II-B metals, Group III-A metals, Group III-B metals, Group IV-B metals, and metals from the Lanthanide Series of the Periodic Table.

5,212,137

CATALYST FOR THE MANUFACTURE OF ACRYLONITRILE AND METHACRYLONITRILE

Dev D. Suresh, Hudson; Maria S. Friedrich, Lyndhurst, and Michael J. Seely, Twinsburg, all of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 462,202, Jan. 9, 1990, Pat. No. 5,093,299. This application Jul. 29, 1991, Ser. No. 736,864
The portion of the term of this patent subsequent to Mar. 3, 2009, has been disclaimed.
Int. Cl.[5] B01J *23/78, 23/84, 23/83, 27/185*
U.S. Cl. 502—212 4 Claims

1. A catalyst composition comprising a complex of the catalytic oxides of iron, bismuth, molybdenum, nickel, magnesium, cesium, potassium, and optionally one or more of cobalt, manganese, chromium, phosphorous, antimony, tellurium, sodium, cerium and/or tungsten and having the formula:

$$A_aK_bCs_cMg_dNi_eFe_fBi_gMo_{12}O_x$$

wherein

A is one or more of Co, Mn, Cr, P, Sb, Te, Na, Ce, or W

wherein

a is a number from 0 to 5.0;

b is a number from greater than 0 to 0.4;

c is a number from greater than 0 to 0.4;

provided that the sum of b and c is from 0.1 to 0.4;

d, e, f and g are numbers from 0.2 to 10; and

x is a number determined by the valence requirements of the other elements present.

5,212,138

LOW CORROSIVITY CATALYST FOR ACTIVATION OF COPPER FOR ELECTROLESS NICKEL PLATING

Gerald A. Krulik, El Toro, Calif., and Nenad V. Mandich, Homewood, Ill., assignors to Applied Electroless Concepts Inc., El Toro, Calif.

Filed Sep. 23, 1991, Ser. No. 763,646
Int. Cl.[5] B01J *23/58, 27/13*
U.S. Cl. 502—230 15 Claims

1. A catalyst composition for initiation of an electroless metal plating composition on otherwise nonplatable metallic materials, comprising an aqueous solution containing a mixture of a palladium salt and at least one other Group VIII precious metal salt, an alkali halide salt and an inorganic acid.

5,212,139

CATALYST FOR THE DIRECT CONVERSION OF METHANE TO HIGHER HYDROCARBONS AND METHOD FOR THE PREPARATION OF SAME

Cesar Ovalles, Las Esmeraldas/Caracas; Nora Urbano, and Francisco Rosa, both of Caracas, all of Venezuela, assignors to Intevep, S.A., Caracas, Venezuela

Filed Mar. 5, 1992, Ser. No. 846,626
Int. Cl.[5] B01J *21/06, 21/08, 21/10, 23/34*
U.S. Cl. 502—241 17 Claims

1. A catalyst for conversion of methane to higher hydrocarbons, comprising

a support material selected from a group consisting of silicon, zirconium and magnesium oxides;

a manganese catalytic agent supported on the support material; and

an alkali metal promoter impregnated into the catalyst, wherein a surface atomic ratio of promoter to manganese is at least 5.

5,212,140

CATALYST FOR DECOMPOSING OZONE

Masafumi Yoshimoto, Sakai; Tadao Nakatsuji, Kitakatsuragi; Kazuhiko Nagano, and Kimihiko Yoshida, both of Sakai, all of Japan, assignors to Sakai Chemical Industry Co., Inc., Sakai, Japan

Filed Aug. 19, 1991, Ser. No. 747,062
Claims priority, application Japan, Feb. 28, 1991, 3-120655; May 7, 1991, 3-198971
Int. Cl.[5] B01J *35/04, 35/12, 32/00;* C01B *13/00*
U.S. Cl. 502—300 4 Claims

1. In a catalyst assembly for the removal of ozone from a gas containing such comprising a carrier member, which comprises a carrier material, and a catalyst for the decomposition of ozone coated on said carrier member:

the improvement, whereby reducing the thickness of said catalyst coating on said carrier to about 5 to 100 micrometers, and improving the ozone removal from said gas, which comprises said carrier member having been formed by mixing said carrier material with a substance which is active for the decomposition or absorption of ozone, and then forming said mixture into said carrier assembly and in addition, said assembly having said ozone decomposition catalyst coated thereon.

5,212,141

Patent Not Issued For This Number

5,212,142

HIGH PERFORMANCE THERMALLY STABLE CATALYST

Joseph C. Dettling, Howell, N.J., assignor to Engelhard Corporation, Iselin, N.J.

Filed Nov. 4, 1991, Ser. No. 787,192
Int. Cl.[5] B01J *21/04, 21/06, 23/10, 23/40, 23/89*
U.S. Cl. 502—304 17 Claims

1. A catalyst composition comprising a carrier on which is disposed a catalytic material comprising: (a) a first support comprising stabilized alumina, (b) a catalytically effective amount of a first platinum catalytic component dispersed on the first support, (c) a second support consisting essentially of a are earth metal oxide, (d) a catalytically effective amount of both a rhodium catalytic component and a palladium catalytic component dispersed on the second support, the rhodium and palladium catalytic components being present in quantities to provide in the catalytic material a rhodium to palladium weight ratio of from about 50:1 to 1:50, measured as metals.

5,212,143

HOLLOW POROUS MICROSPHERES MADE FROM DISPERSED PARTICLE COMPOSITIONS

Leonard B. Torobin, 3340 Peachtree Rd. NE., Atlanta, Ga. 30026

Division of Ser. No. 889,927, Jul. 28, 1986, Pat. No. 4,777,154, which is a division of Ser. No. 639,126, Aug. 9, 1984, Pat. No. 4,671,909, which is a continuation-in-part of Ser. No. 428,923, Sep. 30, 1982, Pat. No. 4,548,196, which is a continuation of Ser. No. 103,113, Dec. 13, 1979, abandoned, which is a division of Ser. No. 59,296, Jul. 20, 1979, abandoned, which is a continuation-in-part of Ser. No. 937,123, Aug. 28, 1978, abandoned, and a continuation-in-part of Ser. No. 944,643, Sep. 21, 1978, abandoned. This application May 5, 1988, Ser. No. 197,141
Int. Cl.[5] B01J *20/08, 20/28;* B32B *1/06*
U.S. Cl. 502—415 30 Claims

25. Hollow porous microsphers having a substantially uniform diameter within the range of 500 to 6,000 microns and having a substantially uniform wall thickness within the range of 5.0 to 400 microns, the walls of said hollow microspheres comprise sintered together particles which define interconnecting voids within the walls and a single central cavity in the interior of the microspheres and inner and outer microsphere wall surfaces, said interconnecting voids are continuous and extend from the outer wall surface to the inner wall surface, said walls have substantially uniform void content and said interconnecting voids are substantially uniformly distributed in the walls of the hollow microspheres, and the walls of said hollow microspheres are free of latent solid or liquid blowing gas materials and are substantially free of relatively thinned wall portions and bubbles, and containing encapsulated therein an adsorbent or absorbent material.

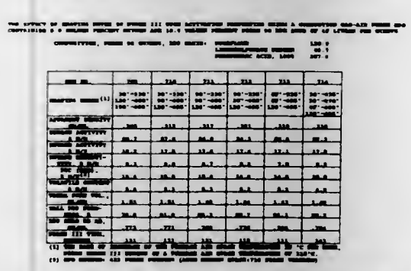
28. The hollow porous microspheres of claim 25 wherein the walls of the hollow porous microspheres comprise sintered together alumina particles.

5,212,144

PROCESS FOR MAKING CHEMICALLY ACTIVATED CARBON

Frank R. Schwartz, Jr., Galena, Ohio, assignor to Westvaco Corporation, New York, N.Y.

Filed Jun. 1, 1992, Ser. No. 891,734
Int. Cl.[5] C01B *31/12;* B01J *20/20;* F27B *7/06*
U.S. Cl. 502—423 20 Claims



1. A process for producing a chemically activated carbon from particles of carbonaceous raw material impregnated with an amount of an activating chemical capable of causing the simultaneous carbonization and activation of said raw material by an essentially dehydration reaction evolving a substantial amount of the water content of said impregnated material, comprising the steps of:

a) feeding said particles of impregnated raw material into a furnace means for travel along the length of said furnace means to an outlet;

b) transferring heat energy from an indirect heating source, independent of the atmosphere in said furnace means, to said particles at a selected rate to raise the temperature of said particles to a value greater than about 120 degrees C. while simultaneously contacting said particles with an independently controlled flow of sweep gas introduced at outlets spaced longitudinally from one another along the path of travel of said particles, the volume flow rate of said sweep gas through said outlets being selected to substantially eliminate the tendency of said particles to adhere to one another or to internal surfaces of said furnace means during travel through said furnace means;

c) thereafter, treating said particles of raw material with heat to complete the carbonization and activation of said particles to produce a useful activated carbon product.

5,212,145

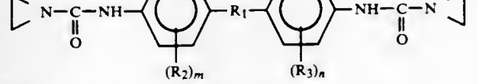
HEAT SENSITIVE RECORDING MATERIAL

Tetsuo Tsuchida, Takarazuka; Yasuji Koga, Kobe; Haruo Omura, Sakai; Yoshihiro Shimizu, Nishinomiya, and Shuji Yoda, Kobe, all of Japan, assignors to Kanzaki Paper Manufacturing Co., Ltd., Tokyo, Japan

Filed Jul. 23, 1992, Ser. No. 917,267
Claims priority, application Japan, Jul. 25, 1991, 3-186692; Jul. 31, 1991, 3-192376; Dec. 24, 1991, 3-340703
Int. Cl.[5] B41M *5/26*
U.S. Cl. 503—207 14 Claims

1. A heat sensitive recording material having a recording layer formed on a substrate and containing a colorless or light-colored basic dye and a color acceptor, the heat sensitive recording material being characterized in that at least one ethyleneimine derivative of the following formula (1) is contained in the recording layer as a preservability improving agent for record images

(1)



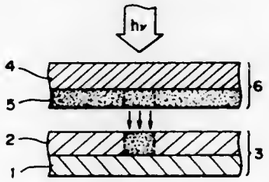
wherein R_1 is direct bond, —O—, —S—, —SO_2— or $C_1 \sim C_6$ alkylene, R_2 and R_3 are each $C_1 \sim C_4$ alkyl, $C_1 \sim C_4$ alkoxyl or halogen atom, m and n are each zero or an integer of 1 to 4.

5,212,146

HEAT-SENSITIVE TRANSFER RECORDING MATERIAL

Tawara Komamura; Katsunori Katoh, and Yoriko Ikehata, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

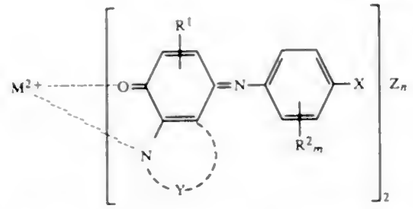
Filed Jun. 24, 1991, Ser. No. 719,823
Claims priority, application Japan, Jul. 2, 1990, 2-175660
Int. Cl.[5] B41M *5/035, 5/38*
U.S. Cl. 503—227 23 Claims



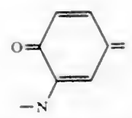
1. A heat-sensitive transfer recording material comprising a colorant layer containing a colorant transferable by heat; a support, and a compound represented by the formula (I) shown below, contained in said colorant layer or a layer adjacent to said colorant layer:

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Formula (I)



wherein M^{2+} represents a chelatable metal ion, R^1 and R^2 each independently represent hydrogen atom, a halogen R atom, a monovalent organic group, X represents $-N(R_3)(R_4)$, $-OR^6$ and hydroxyl group, where R^3, R^4, R^5 each independently represent an alkyl group which may also have a substituent, Y represents a 6-membered nitrogen containing aromatic heterocyclic ring together with



Z represents an anion, m represents 1 or 2 and n represents 1 or 2.

5,212,147

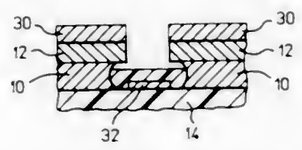
METHOD OF FORMING A PATTERNED IN-SITU HIGH TC SUPERCONDUCTIVE FILM

James R. Sheats, Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 15, 1991, Ser. No. 700,671

Int. Cl.[5] B05D *5/12*; H01L *39/00*

U.S. Cl. 505—1 **16 Claims**



1. A method of forming an in-situ superconductive film on a surface comprising,

forming a sacrificial masking structure on said surface to include a lower portion adjacent to said surface and an upper portion spaced apart from said surface by said lower portion, said forming including removing masking material from said lower portion to provide a first gap in said lower portion and including removing masking material from said upper portion to provide a second gap in said upper portion such that the area of said first gap as measured parallel to said surface is greater than the area of said second gap,

depositing high T_c superconductive material through said second gap such that a superconductive layer within said first gap has an area less than the area of said first gap,

covering said superconductive layer within said first gap with a sacrificial polymer to seal said superconductive material from the ambient atmosphere,

removing said sacrificial masking structure from said surface, and

removing said sacrificial polymer to expose said superconductive layer.

5,212,148

METHOD FOR MANUFACTURING OXIDE SUPERCONDUCTING FILMS BY LASER EVAPORATION

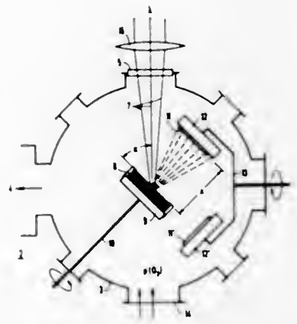
Bernhard Roas, Erlangen; Gerhard Endres, Forchheim, and Ludwig Schultz, Bubenreuth, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 3, 1989, Ser. No. 347,246

Claims priority, application Fed. Rep. of Germany, May 11, 1988, 3816192

Int. Cl.[5] B05D *3/06, 5/12*

U.S. Cl. 505—1 **18 Claims**



1. A method for manufacturing a layer of an oxide-ceramic superconductor material having a high superconducting transition temperature and high current capacity, on the basis of a cuprate system containing metallic constituents and oxygen, comprising directing a pulsed laser with a wavelength in the ultraviolet spectral range at a target material of the system to vaporize the target material on to a single crystalline or polycrystalline substrate, applying a heat treatment and an oxygen treatment of the deposited material to form a desired superconducting metal-oxide phase with an at least partially ordered crystal structure, the heat treatment and the oxygen treatment being performed simultaneously during the vaporizing step, and comprising the steps of:

providing a power density of the laser radiation directed at the target material of more than $3J/cm^2$;

providing a pulse power of the laser of at least 12.5 J/pulse;

raising the temperature of the substrate to a temperature of between 600° C. and 800° C.; and

providing an atmosphere with a partial pressure of oxygen of between 0.02 mbar and 1 mbar, whereby the desired superconducting metal-oxide phase with a transition temperature of at least 77° K. is at least partially developed in-situ on said substrate.

5,212,149

Patent Not Issued For This Number

5,212,150

OXIDE SUPERCONDUCTING LEAD FOR INTERCONNECTING DEVICE COMPONENT WITH A SEMICONDUCTOR SUBSTRATE VIA AT LEAST ONE BUFFER LAYER

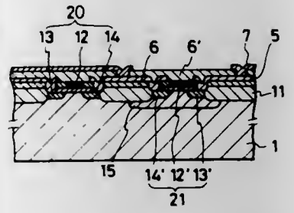
Shunpei Yamazaki, Tokyo, Japan, assignor to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Division of Ser. No. 188,413, Apr. 29, 1988, which is a continuation-in-part of Ser. No. 165,955, Mar. 9, 1988, abandoned. This application Feb. 16, 1990, Ser. No. 483,769

Claims priority, application Japan, May 6, 1987, 62-111613

Int. Cl.[5] H01B *12/00*; H01L *23/48, 39/00*

U.S. Cl. 505—1 **18 Claims**



1. An electronic device comprising:

a substrate comprising a silicon containing material;

at least one device component formed on or in said substrate; and

a lead formed on or in said substrate, which comprises an oxide superconducting material and electrically contacts with said device component, wherein a buffer layer comprising a refractory material is interposed between said lead and said device component.

5,212,151

SUPERCONDUCTING THIN FILM HAVING A MATRIX AND FOREIGN PHASES

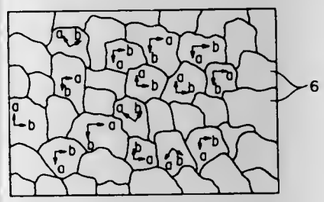
Satoshi Takano; Shigeru Okuda; Noriyuki Yoshida, all of Osaka; Tsukushi Hara, Tokyo; Kiyoshi Okaniwa, Tokyo, and Takahiko Yamamoto, Tokyo, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Dec. 7, 1990, Ser. No. 623,477

Claims priority, application Japan, Dec. 7, 1989, 1-318252; Dec. 15, 1989, 1-326727

Int. Cl.[5] H01L *39/00*

U.S. Cl. 505—1 **5 Claims**



1. An Y-Ba-Cu-O superconducting film formed by laser ablation on a single crystal substrate comprising:

a matrix formed of c-axis oriented superconducting phases, wherein the size of each said superconducting phase in its c-axis direction is equal to the thickness of said superconducting film; and

foreign phases comprising CuO particles, wherein the size of each said foreign phase is at least 0.01 μm and not more than 5 μm in diameter and each said foreign phase other than said CuO particles has an a-axis or b-axis oriented perpendicularly with respect to the major surface of said oxide superconducting film.

5,212,152

PROTECTION OF OXIDE SUPERCONDUCTORS FROM DEGRADATION

Stuart B. Lyon, Cheetham Hill, and Beverley J. Hepburn, Chorlton-cum-Hardy, both of England, assignors to British Technology Group Limited, London, England

PCT No. PCT/GB90/00256, § 371 Date Aug. 16, 1991, § 102(e) Date Aug. 16, 1991, PCT Pub. No. WO90/09683, PCT Pub. Date Aug. 23, 1990

PCT Filed Feb. 16, 1990, Ser. No. 743,399

Claims priority, application United Kingdom, Feb. 18, 1989, 8903731

Int. Cl.[5] B05D *5/12, 1/18*

U.S. Cl. 505—1 **16 Claims**

1. A method of treating an oxide superconductor to prevent degradation thereof characterized in that it comprises dipping the superconductor in a solution of metal ions, selected from the group consisting of Mn^{2+}, Ti^{3+}, Pb^{2+} and Sn^{2+}, having a pH of less than 6 and simultaneously applying an external potential to form on those regions of the surface area of the superconductor treated with the solution an insulating, non-porous protective film of an oxide which is stable against further oxidation.

5,212,153

CYCLOPENTYL-CYANOMETHYL-CYCLOPENTENES, PROCESS FOR THEIR PREPARATION AND THEIR USE AS ODORIFEROUS SUBSTANCES

Rudolf Hopp; Thomas Thielmann, both of Holzminden, and Wilhelm Göttsch, Bevern, all of Fed. Rep. of Germany, assignors to Haarmann & Reimer GmbH, Holzminden, Fed. Rep. of Germany

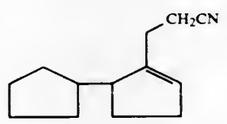
Filed Apr. 2, 1992, Ser. No. 862,043

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1991, 4111902

Int. Cl.[5] A61K *7/46*; C07C *253/30, 255/31*

U.S. Cl. 512—6 **6 Claims**

1. 1-Cyanomethyl-5-cyclopentyl-cyclopent-1-ene of the formula



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5,212,154

PREPARATION FOR TREATING COMPLICATIONS IN DIABETES

Robby Huisman, Grave, Netherlands, assignor to Akzo N.V., Velperweg, Netherlands

Continuation of Ser. No. 225,452, Jul. 28, 1988, abandoned. This application May 19, 1992, Ser. No. 887,577

Claims priority, application Netherlands, Aug. 14, 1987, 8701912

Int. Cl.[5] A61K *37/26, 37/02*

U.S. Cl. 514—4 7 Claims

1. A preparation for treating sensory diabetic neuropathies, comprising (a) from about 10 to about 100 international units of insulin per milliliter of preparation and (b) from about 0.35 to about 6.5 milligrams of a peptide of the formula:

H-L-Met(O_2)-L-Glu-L-His-L-Phe-D-Lys-L-Phe-OH

or a salt thereof per milliliter of preparation.

5,212,155

METHODS OF INHIBITING TRANSPLANT REJECTION IN MAMMALS USING RAPAMYCIN AND DERIVATIVES AND PRODRUGS THEREOF

Roy Calne, Cambridge, England CB2 2AS

Division of Ser. No. 362,354, Jun. 6, 1989, Pat. No. 5,100,899. This application Jul. 31, 1991, Ser. No. 738,960

Int. Cl.[5] A61K *37/00, 31/44*

U.S. Cl. 514—11 10 Claims

1. A method of inhibiting organ or tissue transplant rejection in a mammal in need thereof, comprising administering to said mammal, in combination rapamycin and a cyclosporin, said combination being administered in an amount effective to inhibit transplant rejection and including an effective amount of rapamycin and cyclosporin.

5,212,156

SRIF-RELATED PEPTIDES AND USES THEREOF

Bernard Laarveld; Roy N. Kirkwood; Philip A. Thacker; Lorraine M. Sordillo, and mark Redmond, all of Saskatoon, Canada, assignors to University of Saskatchewan, Sasakatoon, Canada

Continuation-in-part of Ser. No. 369,499, Jun. 22, 1989, abandoned. This application Jun. 18, 1990, Ser. No. 539,236

Int. Cl.[5] C07K *7/08*

U.S. Cl. 514—14 15 Claims

1. A composition comprising a pharmaceutically acceptable vehicle, an SRIF-related peptide capable of cross-reacting with antisera raised against SRIF-14, said SRIF-related peptide liked to ovalbumin, and an adjuvant comprising $Al(OH)_3$.

5,212,157

ENZYME INHIBITORS

Paul C. Anderson, Pierrefonds; Yvan Guindon, Montreal, and Christiane Yoakim, Laval, all of Canada, assignors to Bio-Mega, Inc., Laval, Canada

Filed Jun. 6, 1989, Ser. No. 362,171

Int. Cl.[5] A61K *37/43;* C07K *5/10, 7/06*

U.S. Cl. 514—17 8 Claims

1. A peptide of the formula

$R^1—R^2—Y—R^3—R^4$

wherein R^1 is 3-(1,2,3,4-tetrahydroisoquinolyl)carbonyl; R^2 is $—N(R^8)CH(R^9)CO—$ wherein R^8 is hydrogen or methyl and R^9 is lower alkyl, lower cycloalkyl, cyclopropylmethyl, cyclohexylmethyl, $—CH_2CH_2COOH$, $—CH_2CH_2CONH_2$, $—CH_2CONH_2$ or benzyl; Y is $—NHCH(R^{13})—W—$ wherein R^{13} is lower alkyl, (lower cycloalkyl)methyl, $—CH_2CH_2SCH_3$, benzyl or (4-methoxyphenyl)methyl and W is $—CH(OH)CH_2C(O)—$ or $—CH_2NHCH(R^{14})C(O)—$ wherein R^{14} is lower alkyl or (lower cycloalkyl)methyl; R^3 is Leu, Nle, Ile, Val, Ala, Cha, Glu or Gln; R^4 is either Ile-NH_2, Ala-NH_2, Thr(OBzl)-NH_2, Cha-NH_2 or Phe-NH_2, or is $—NHCR^{18}(R^{21})CH_2OH$ wherein R^{18} is 1-methylethyl, 1-methylpropyl, 2-methylpropyl, $—CH_2OH$ or $—CH(OH)C_6H_5$, and R^{21} is hydrogen or methyl; or a therapeutically acceptable salt thereof.

5,212,158

DERIVATIVES OF L-PROLINE, THEIR PREPARATION AND THEIR BIOLOGICAL USES

Pierre-Yves Fiez Vandal, Chaton, France, assignor to Inorgan SA Recherche & Developpement Pharmaceutiques, CAS, Geneva, Switzerland

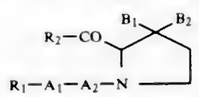
Filed Nov. 3, 1988, Ser. No. 266,680

Claims priority, application France, Nov. 3, 1987, 87 15228

Int. Cl.[5] C07K *5/08;* A61K *37/02*

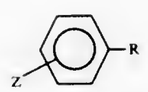
U.S. Cl. 514—18 18 Claims

1. A L-proline derivative of the formula I:



(I)

or a pharmacologically acceptable salt thereof, wherein R_1 is a group corresponding to Formula II:



(II)

in which

R is selected in group consisting of a carbonyl radical CO—, an acyl radical Y—CO— or an oxy-acyl radical O—Y—CO—, Y being an alkyl or alkenyl group containing from 1 to 4 carbon atoms and,

Z represents in the ortho and/or ortho' and/or meta and or meta' and/or para positions hydrogen or a substituent chosen from among halogen atoms, CF_3 group, alkyl or alkoxy radicals containing from 1 to 4 carbon atoms, and in the case of 2 neighbouring substituents, an alkylenedioxy group, in which the alkyl group contains from 1 to 3 carbon atoms,

R_2 is a NH2 or OH radical or functional derivative

A_1 and A_2, identical or different, are naturally occurring amino acid residues, and

B_1 and B_2, identical or different, represent a hydrogen atom or a methyl group,

with the provisos that on the one hand A_1 be different from a phenylalanyl residue when B_1 and B_2 represent H, R_2 represents OH, R_1 is benzoyl and A_2 is an alanyl residue, and, on the other hand, that A_2 be different from a proline residue, when B_1 and B_2 represent H, R_2 represents —OH or $—NH_2$, or the functional derivatives thereof and R is —CO— or —Y—CO, with Y being an alkyl group.

5,212,159

ANTICATARACT COMPOSITION

Shinji Ohmori, Okayama; Kazumi Ogata, Toyonaka, and Yoshimasa Abe, Akashi, all of Japan, assignors to Senju Pharmaceutical Co., Ltd., Osaka, Japan

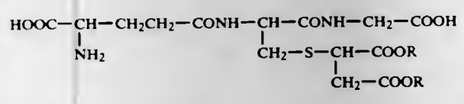
Division of Ser. No. 836,429, Feb. 18, 1992, abandoned. This application Sep. 21, 1992, Ser. No. 947,961

Claims priority, application Japan, Feb. 27, 1991, 3-119645

Int. Cl.[5] A61K *37/00, 31/22, 31/13*

U.S. Cl. 514—19 9 Claims

1. A method for the treatment of cataracts which comprises administering to a patient in need of such treatment an anticataract effective amount of a compound of the formula



wherein the R groups are the same or different and each is a hydrogen atom or a lower alkyl group or a pharmacologically acceptable salt thereof.

5,212,160

3-L-(5-THIOXO-L-PROLYL)THIAZOLIDINE-4-CARBOXYLIC ACID AND DERIVATIVES THEREFROM, PROCESSES FOR THE PREPARATION THEREOF AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Stefano Poli; Lucio Del Corona, and Germano Coppi, all of Milan, Italy, assignors to Poli Industria Chimica S.p.A., Milan, Italy

Filed Jan. 16, 1991, Ser. No. 652,792

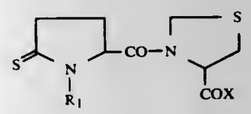
Claims priority, application Italy, Jan. 23, 1990, 19133 A/90

The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.

Int. Cl.[5] C07K *5/06;* A61K *37/02*

U.S. Cl. 514—19 6 Claims

1. Compounds of general formula (I)



(I)

wherein R_1 is hydrogen, C_1–C_8 alkyl, C_6–C_8 aryl and aralkyl, C_2–C_{10} acyl, C_2–C_{10} straight or branched alkoxyalkyl containing 1-3 oxygen atoms, C_3–C_8 alkylcarbonylalkyl, and X is —OH, C_1–C_4 alkoxy, aralkoxy and to the pharmaceutically acceptable salts thereof.

5,212,161

DERIVATIVES OF 2'-DEOXYURIDINE SUBSTITUTED IN THE 5-,3'-OR 5'-POSITION BY α-AMINACYL GROUPS, PROCESS FOR THEIR PREPARATION AND DRUGS IN WHICH THEY ARE PRESENT

Jean-Luc Moriniere, Neauphle le Chateau; Michelle Faulques, Paris; Claude Rousseau, Orgerus; Bernard Danree, Poissy; Claude Marquer, Chatou; Patrick Saur, Chevilly la Rue; Jean Lemoine, Bougival, and Jean-Yves Lacolle, Saint Nom la Breteche, all of France, assignors to Institut de Recherches Chimiques et Biologiques Appliquees (I.R.C.E.B.A.), France

PCT No. PCT/FR89/00072, § 371 Date Aug. 17, 1990, § 102(e) Date Aug. 17, 1990, PCT Pub. No. WO89/08115, PCT Pub. Date Sep. 8, 1989

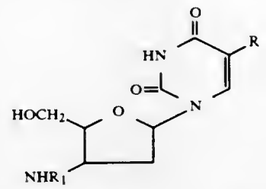
PCT Filed Feb. 23, 1989, Ser. No. 566,344

Claims priority, application France, Feb. 24, 1988, 88 02255; Jun. 28, 1988, 88 08684

Int. Cl.[5] A61K *31/70;* C07H *17/00*

U.S. Cl. 514—50 5 Claims

1. A 2'-deoxyuridine having the formula:



wherein R is selected from the group consisting of alkyl moieties having from one to four carbon atoms, alkenyl moieties having from two to four carbon atoms, halogens and halogenated alkenyl moieties having from two to four carbon atoms; and R_1 is an amino acid residue or a peptide residue containing from two to six amino acids; and the pharmaceutically acceptable salts of said compound.

5,212,162

USE OF COMBINATIONS GELLING POLYSACCHARIDES AND FINELY DIVIDED DRUG CARRIER SUBSTRATES IN TOPICAL OPHTHALMIC COMPOSITIONS

Paul J. T. Missel; John C. Lang, both of Arlington, and Rajni Jani, Fort Worth, all of Tex., assignors to Alcon Laboratories, Inc.

Continuation of Ser. No. 676,146, Mar. 27, 1991, abandoned. This application Mar. 25, 1992, Ser. No. 857,673

Int. Cl.[5] A61K *31/715, 31/70*

U.S. Cl. 514—54 27 Claims

1. A topical ophthalmic composition comprising a gelling polysaccharide and a finely-divided drug carrier substrate, wherein the concentration of said gelling polysaccharide allows the composition to be administrable as a drop which gels upon instillation to the eye.

5,212,163

COMPOUNDS

Robert W. Ward; Roger E. Markwell, and David J. Hunter, all of Harlow, England, assignors to Beecham Group p.l.c., Middlesex, England

Continuation of Ser. No. 508,272, Apr. 11, 1990, abandoned. This application Sep. 9, 1991, Ser. No. 758,356

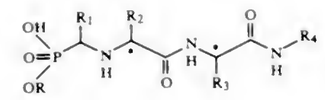
Claims priority, application United Kingdom, Apr. 13, 1989, 8908353; Aug. 3, 1989, 8917756

Int. Cl.[5] A61K *31/675, 31/66;* C07K *5/02, 5/06*

U.S. Cl. 514—80 15 Claims

1. A compound of formula (I) or a pharmaceutically acceptable salt thereof:

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(I)

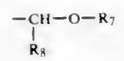
in which,

R is hydrogen, C_{1-6} alkyl or optionally substituted benzyl of the group in which the phenyl moiety is optionally substituted by a moiety selected from —OH, C_{1-6} alkyl, C_{1-6} alkoxy, halogen, —NHCO C_{1-6} alkyl, —NHCOPh and —$CONR_5R_6$;

R_1 is hydrogen or C_{1-6} alkyl;

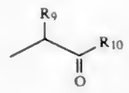
R_2 is C_{3-6} alkyl;

R_3 is hydrogen, C_{1-8} alkyl, —CH—Z where Z is a phenyl group or a indolyl group, said phenyl or indolyl group optionally substituted by a moiety selected from —OH, C_{1-6} alkyl, C_{1-6} alkoxy, halogen, —NHCO C_{1-6} alkyl, —NHCOPh and —$CONR_5R_6$, or R_3 is a group



where R_7 is hydrogen, alkyl or —CH_2—Ph where Ph is a phenyl group optionally substituted by a moiety selected from —OH, C_{1-6} alkyl, C_{1-6} alkoxy, halogen, —NHCO C_{1-6} alkyl, —NHCOPh and —$CONR_5R_6$ and R_8 is hydrogen or C_{1-8} alkyl; and

R_4 is —CH_2—$(CH_2)_n$—OR_5 or —CH_2—$(CH_2)_n$—$OCOR_6$ or



where n is an integer from 1 to 6; R_5, R_6, and R_9 are hydrogen or C_{1-6} alkyl; and R_{10} is hydroxy or —O—C_{1-6} alkyl or —NR_5R_6, where R_5 and R_6 may be linked to form an indolyl group which may be unsubstituted or substituted by C_{1-6} alkyl, phenyl, or benzyl; or R_3 and R_4 are joined together as —$(CH_2)_m$— where m is an integer from 4 to 12.

15. A method of treating conditions in which degradation of connective tissue and other proteinaceous components of the body occurs, in mammals, which method comprises administering an effective amount of a compound of formula (I) as defined in claim **1** or a pharmaceutically acceptable salt thereof to a sufferer.

5,212,164

PHOSPHORUS-CONTAINING SQUALENE SYNTHETASE INHIBITORS

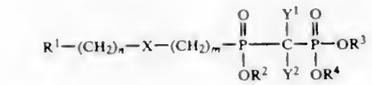
Scott A. Biller, Ewing, N.J., and Michael J. Sofia, Carmel, Ind., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Continuation-in-part of Ser. No. 237,940, Aug. 29, 1988, abandoned, and a continuation-in-part of Ser. No. 381,434, Jul. 17, 1989, abandoned. This application Mar. 29, 1990, Ser. No. 501,204

Int. Cl.[5] **C07F** *9/40*; **A61K** *31/66*

U.S. Cl. 514—108 **32 Claims**

1. A compound having the structure



wherein

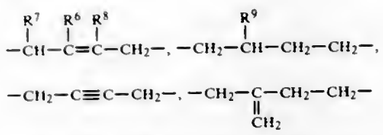
m is 0, 1, 2 or 3; n is 0, 1, 2, 3 or 4;

Y^1 and Y^2 are H;

R^2, R^3 and R^4 may be the same or different and are independently H, metal ion, C_1 to C_8 alkyl or C_3 to C_{12} alkenyl;,

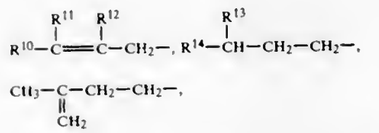
X is O or S; and

R^1 is R^5—Q^1—Q^2—Q^3— wherein Q^1, Q^2 and Q^3 are the same or different and are independently



or a single bond, with the proviso that if Q^1 is a bond, then Q^2 and Q^3 are bonds, and if Q^2 is a bond then Q^3 is a bond, and wherein R^6 is H, lower alkyl, halo or haloalkyl; R^7 is H, halogen, lower alkyl or lower alkylthio; R^8 is H, halogen, trimethylsilyl or lower alkyl; and R^9 is H or lower alkyl;

R^5 is



$CH_3(CH_2)_p$ where p is an integer from 2 to 7, or R^{16}—C≡C—CH_2— where R^{16} is H or lower alkyl; R^{10}, and R^{11} are the same or different and are independently H, lower alkyl, haloalkyl, halogen or lower alkenyl or R^{10} and R^{11} can be taken together to form $(CH_2)_s$ where s is an integer from 2 to 7; R^{12} is H, lower alkyl, halogen or lower alkenyl; and R^{13} and R^{14} are the same or different and are independently lower alkyl; with the proviso that if all of Q^1, Q^2 and Q^3 are bonds, then R^{10} and R^{11} cannot both be H, and R^5 cannot be $CH_3(CH2)_p$- with p less than or equal to 4; and when m is O, X is O, and n is 1, 2, 3 or 4; and including all stereoisomers thereof.

5,212,165

METHOD FOR REHABILITATING THE VASORELAXANT ACTION OF THE CORONARY ARTERIES IMPAIRED THROUGH ATHEROSCLEROSIS OR HYPERCHOLESTEROLEMIA EMPLOYING AN ACE INHIBITOR

A. K. Gunnar Aberg, Lawrenceville, and Miguel A. Ondetti, Princeton, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Oct. 23, 1989, Ser. No. 426,138

Int. Cl.[5] **A61K** *37/00, 31/66, 31/40*

U.S. Cl. 514—114 **19 Claims**

1. A method for rehabilitating or restoring the vasorelaxant action of the coronary endothelium impaired through atherosclerosis and/or hypercholesterolemia, in a mammalian specie, to thereby prevent occurrence of coronary vasospasm, which comprises administering to a mammalian specie in need of such treatment a therapeutically effective amount of an angiotensin converting enzyme inhibitor.

5,212,166

UNSATURATED 17β-SUBSITUTED 3-CARBOXY STEROIDS

Achille Panzeri, Merate; Marcella Nesi, and Enrico Di Salle, both of Milan, all of Italy, assignors to Farmitalia Carlo Erba S.r.l., Milan, Italy

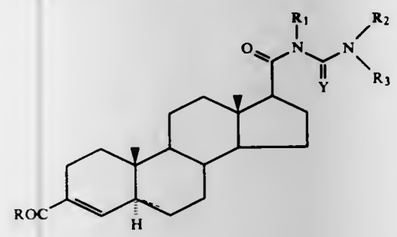
Filed May 21, 1992, Ser. No. 886,574

Claims priority, application Italy, May 24, 1991, MI91-A001432

Int. Cl.[5] **C07J** *43/00, 3/00*; **A61K** *31/58*

U.S. Cl. 514—176 **6 Claims**

1. A compound of the following formula (I)



(I)

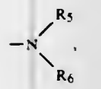
wherein

Y is oxygen or sulphur;

R is a group:

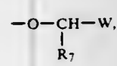
a) —OR_4, wherein R_4 is hydrogen or a C_1–C_6 alkyl group;

b)



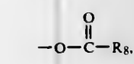
wherein each of R_5 and R_6, independently, is hydrogen or a C_1–C_6 alkyl group;

c)



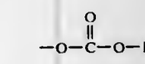
wherein R_7 is hydrogen or a C_1–C_6 alkyl group and W is a group:

(i)



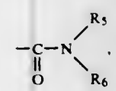
wherein R_8 is a C_1–C_6 alkyl group, a C_5–C_6 cycloalkyl group, a C_6–C_9 cycloalkylalkyl group, a phenyl group or a benzyl group; or

(ii)



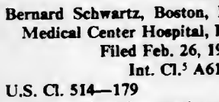
wherein R_9 is a C_1–C_6 alkyl group or a C_5–C_6 cycloalkyl group; or

(iii)



wherein R_5 and R_6 are as defined above;

d)



wherein each of R_{10} and R_{11} is,

independently, hydrogen or a C_1–C_6 alkyl group or taken together with the nitrogen atom to which they are linked form a pentatomic or hexatomic saturated heteromonocyclic ring, selected from oxygen and nitrogen and n is an integer from 2 to 4;

R_1 is hydrogen, a C_1–C_6 alkyl group, a C_5–C_6 cycloalkyl group, a C_6–C_9 cycloalkyalkyl group or an aryl group;

each of R_2 and R_3 is, independently, selected from the group consisting of hydrogen, C_1–C_6 alkyl, C_5–C_6 cycloalkyl, C_6–C_9 cycloalkylalkyl and aryl or R_2 and R_3, taken together with the nitrogen atom to which they are linked, form a pentatomic or hexatomic saturated heteromonocyclic ring, optionally containing at least one additional heteroatom selected from oxygen and nitrogen; and the symbol represents a single or a double bond provided that when it is a double bond the hydrogen in the 5α-position does not exist and the pharmaceutically acceptable salts thereof.

6. A method of producing testosterone 5α-reductase inhibition in a patient in need thereof, said method comprising administering to the said patient an effective amount of a compound of formula (I) according to claim **1**.

5,212,167

MODULATION OF RECEPTOR-MEDIATED ION TRANSPORT

David H. Farb, Cambridge, Mass., assignor to Trustees of Boston University, Boston, Mass.

Filed Sep. 12, 1991, Ser. No. 758,129

Int. Cl.[5] **A61K** *31/56*

U.S. Cl. 514—178 **34 Claims**

1. A method for potentiating glutamate-induced NMDA receptor-mediated ion channel activity comprising contacting a neuronal cell with a pregnenolone sulfate solution at a concentration of about 1–500 micromolar.

5,212,168

METHOD OF AND SOLUTION FOR TREATING GLAUCOMA

Bernard Schwartz, Boston, Mass., assignor to New England Medical Center Hospital, Inc., Boston, Mass.

Filed Feb. 26, 1991, Ser. No. 661,841

Int. Cl.[5] **A61K** *31/56, 31/415*

U.S. Cl. 514—179 **5 Claims**

1. A method for treating elevated intraocular pressure in a mammalian eye comprising:

administering to the eye a therapeutically effective amount of a corticosteroid and an alpha adrenergic agent;

said corticosteroid selected from the group consisting of dexamethasone having a concentration from 0.0005 to 0.01%, prednisolone having a concentration from 0.0005% to 0.1%, hydrocortisone having a concentration from 0.0025 to 0.05%, cortisone having a concentration from 0.0125 to 0.25%, fluorometholone having a concentration from 0.0005 to 0.01%, betamethasone having a concentration from 0.0005 to 0.01%, methyl prednisolone having a concentration from 0.04 to 0.8%, triamcinolone having a concentration of 0.0005 to 0.01%, and their physiologically acceptable salts;

said alpha adrenergic agent being apraclonidine hydrochloride having a concentration ranging from about 0.1% to 0.25% and its physiologically acceptable salts;

the concentration of said corticosteroid and said alpha ad-

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renergic agent being selected to produce a prolonged decrease in intraocular pressure while minimizing undesirable side effects of said corticosteroid and said alpha adrenergic agent.

5,212,169

SUBSTITUTED DIBENZOXAZEPINE COMPOUNDS, PHARMACEUTICAL COMPOSITIONS AND METHODS FOR TREATING PAIN

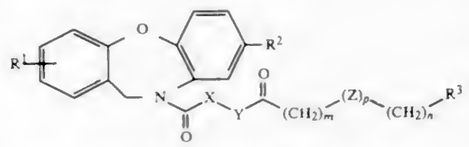
Robert K. Husa, Vernon Hills; Timothy J. Hagen, Glenview, and E. Ann Hallinan, Evanston, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Filed Oct. 31, 1991, Ser. No. 786,161

Int. Cl.[5] **C07D** *267/20, 413/12;* **A61K** *31/55*

U.S. Cl. 514—211 **22 Claims**

1. A compound having a structure of the formula:



or a pharmaceutically-acceptable salt thereof, wherein:

X is —NH— or —CH_2—;

Y is

(1) —CH_2— when X is —NH—, and

(2) —NH— when X is —CH_2—;

R^1 is hydrogen, halogen or —OR^4;

R^4 is hydrogen, alkyl or



Z is oxygen, sulfur, —SO—, —SO_2— or —NR^5—;

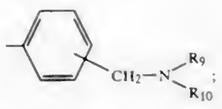
R^5 is hydrogen or t-butyloxycarbonyl;

R^2 is hydrogen, halogen or trifluoromethyl;

R^3 is hydrogen, halogen, aryl, heteroaryl in which the heteroatoms are selected from oxygen, nitrogen and/or sulfur, or —NR^6R^7;

R^6 and R^7 are each independently hydrogen or alkyl;

R^8 is alkyl, aryl or



R^9 and R^{10} are each independently hydrogen or alkyl, or when taken together form N-morpholino or 4-methyl-N-piperazinyl;

m and n are each independently integers of from 0 to 3; and

P is 0 or 1, provided that p is not 1 when m is 0.

21. A method for treating pain in a mammal comprising administering to said mammal a therapeutically-effective amount of a compound of claim 1.

5,212,170

PSYCHOTROPIC PIPERIDINYLMETHYL BENZODIOXANS

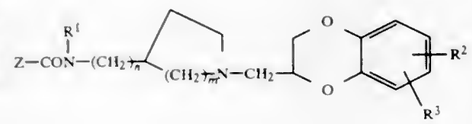
Gary P. Stack, Ambler, Pa., assignor to American Home Products Corporation, New York, N.Y.

Division of Ser. No. 719,886, Jun. 21, 1991, Pat. No. 5,182,292. This application May 13, 1992, Ser. No. 882,405

Int. Cl.[5] **A61K** *31/55, 31/54, 31/44, 31/445, 31/40;* **C07D** *487/00, 279/16, 471.08*

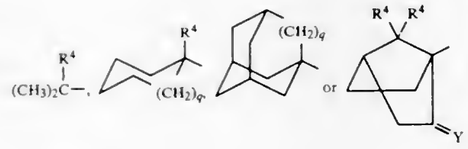
U.S. Cl. 514—214 **1 Claim**

1. A method for relieving the symptoms of a psychosis, depression or anxiety which comprises administering to a patient in need thereof, an antipsychotic, antidepressant or anxiolytic amount of a compound of the formula:



in which

Z is



or

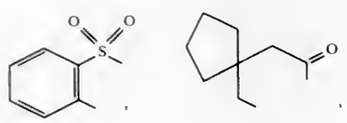
where

R^4 is —H or alkyl of 1 to 4 carbon atoms;

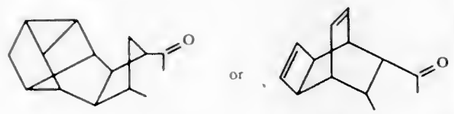
q is one of the integers 0, 1 or 2;

Y is H_2 or O;

Z, taken with R^1 forms



or



R^1 is hydrogen or alkyl of 1 to 4 carbon atoms or combined with Z as described above;

R^2 and R^3 are, independently, hydrogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, aralkoxy of 7 to 12 carbon atoms, alkanoyloxy of 2 to 6 carbon atoms, hydroxy, halo, amino, mono- or dialkylamino in which each alkyl group has 1 to 4 carbon atoms, alkanamido of 2 to 6 carbon atoms or sulfonamido or R^2 and R^3, taken together are methylenedioxy, ethylenedioxy or propylenedioxy;

m is one of the integers 1, 2 or 3;

n is one of the integers 0 or 1;

or a pharmaceutically acceptable salt thereof.

5,212,171

PESTICIDAL HETEROCYCLIC COMPOUNDS

Martin Anderson, Whitstable; Antony G. Brinsand, Selling, and Roger E. Woodall, Painters Forstal, all of England, assignors to Shell Research limited, United Kingdom

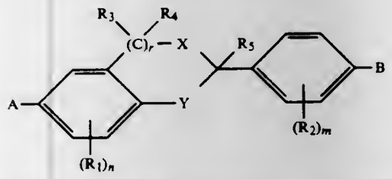
Filed Jul. 9, 1991, Ser. No. 727,051

Claims priority, application United Kingdom, Jul. 31, 1990, 9016799

Int. Cl.[5] **C07D** *319/02, 319/08;* **A61K** *31/335;* **A01N** *43/32*

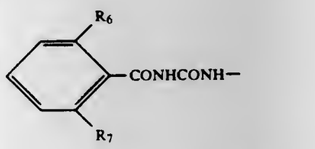
U.S. Cl. 514—230.5 **11 Claims**

1. A compound of the general formula:



(I)

wherein R_1 and R_2 each independently represents a halogen atom or an alkyl, alkoxy, haloalkyl, haloalkoxy, alkoxycarbonyl, alkenoxy, cyano or nitro group; R_3 and R_4 each independently represents a hydrogen atom or an alkyl group; R_5 represents a hydrogen atom, or an alkyl, alkoxy or alkoxycarbonyalkyl group; X and Y each independently represents an oxygen atom or a group N-R, in which R is a hydrogen tom or an alkyl group; n is 0–3; r is 1; m is 0–4; and A or B represents a group of the general formula:



(II)

wherein R_6 represents a hydrogen or halogen atom, or an alkyl group; and R_7 represents a halogen atom or an alkyl group; the other of A and B being a hydrogen atom or as for R_1 or R_2.

5,212,172

4-(1-HYDROXY-2-SUBSTITUTED AMINO)ETHYL-5-HYDROXY-2(5H)-FURANONES AS ANTI-INFLAMMATORY AGENTS

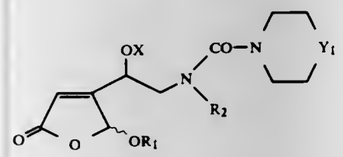
Gary C. M. Lee, Laguna Hills, Calif., assignor to Allergan, Inc., Irvine, Calif.

Division of Ser. No. 493,895, Mar. 15, 1990, Pat. No. 5,081,147. This application Nov. 15, 1991, Ser. No. 792,977

Int. Cl.[5] **A61K** *31/495, 31/535;* **C07D** *405/12, 413/12*

U.S. Cl. 514—231.5 **13 Claims**

1. Compounds of the formula



where

R_1 is H or alkyl of 1 to 20 carbons, CO—R_1*, CO—O—R_1*, CO—NH—R_1*, or PO(OR_1*)$_2$, PO(OR_1*)R_1* where R_1* independently is H, alkyl of 1 to 20 carbons, or phenyl;

R_2 is H or alkyl of 1 to 20 carbons;

X is H, R_3, CO—R_3, CO—O—R_3, CO—NH—R_3, CO—N—(R_3)$_2$, PO(OR_3)$_2$, PO(OR_3)R_3, and R_3 independently is H, phenyl, alkyl of 1 to 20 carbons or is alkyl of 1 to 20 carbons substituted with a hydroxyl, alkoxy, amino, thioalkoxy or with a COR_3* group where R_3* is H, lower alkyl, OH, OR_3**, NH_2, NHR_3** or N(R_3**)$_2$ group where R_3** independently is H or lower alkyl, with the proviso that when X is R_3, CO—O—R_3 or is CO—NH—R_3 then R_3 is not hydrogen;

Y_1 is O, NH, N-methyl or N—SO_2—methyl, and salts of said compounds.

5,212,173

ALKYLAMINOALKYLAMINE AND ETHER COMPOUNDS, PROCESSES AND INTERMEDIATES FOR THEIR PREPARATION, AND MEDICAMENTS CONTAINING THEM

Herman Kraehling, Sehnde; Samuel David; Inss Hell, both of Hanover; Ulf Preuschoff, Laatzen; Ivan Ban, Hanover, all of Fed. Rep. of Germany, and Marie-Odile Christen, Suresnes, France, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

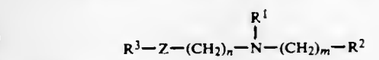
Filed Dec. 19, 1991, Ser. No. 809,448

Claims priority, application Fed. Rep. of Germany, Dec. 19, 1990, 4040633; Sep. 18, 1991, 4130947

Int. Cl.[5] **A61K** *31/38, 31/34;* **C07D** *265/30, 321/10*

U.S. Cl. 514—237.8 **7 Claims**

1. A compound corresponding to the formula I



wherein

n represents 2–5,

m represents 2–6,

R_1 denotes hydrogen or lower alkyl,

R_2 represents an OR^4 group in which R^4 denotes a lower alkyl, phenyl or phenyl-lower alkyl group which is optionally substituted in the phenyl ring by 1 to 3 substituents selected from the group consisting of lower alkyl, lower alkoxy, halogen and lower alkylenedioxy, or

R^2 represents a



group in which

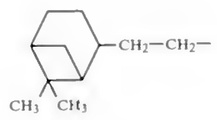
R^5 denotes hydrogen, lower alkyl or a phenyl or phenyl-lower alkyl group which is optionally substituted in the phenyl ring by to 1 to 3 substituents selected from the group consisting of lower alkyl, lower alkoxy, halogen, trifluoromethyl and lower alkylenedioxy, and

R^6 denotes hydrogen, lower alkyl or a phenyl or phenyl-lower alkyl group which is optionally substituted in the phenyl ring by 1 to 3 substituents selected from the group consisting of lower alkyl, lower alkoxy, halogen, trifluoromethyl and lower alkylenedioxy, or

R^5 and R^6, together with the nitrogen atom to which they are bonded, represent a saturated 5- or 6-membered heterocycle, which can optionally contain a second hetero atom from the group of oxygen and N-R^7, in which R^7 denotes lower alkyl or benzyl,

R^3 represents a saturated monocyclic or bicyclic terpene hydrocarbon radical having 10 carbon atoms or a bicyclic hydrocarbon radical having 11 carbon atoms, of the formula b

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and

Z represents oxygen or, if R^3 denotes a radical of the formula b, Z may also represent sulfur,

and physiologically acceptable acid addition salts thereof.

5,212,174

QUINOXALINYL/QUINOXALINYLAKYL-N-TERMINAL CYCLOALKOXY-C- TERMINAL AMINO HYDROXY β-AMINO ACID DERIVATIVES

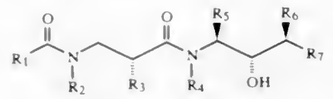
Gunnar J. Hanson, Skokie, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Division of Ser. No. 736,870, Jul. 29, 1991, Pat. No. 5,175,170. This application Jul. 16, 1992, Ser. No. 914,836

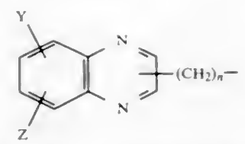
Int. Cl.[5] A61K *31/495;* **C07D** *241/46*

U.S. Cl. 514—249 **12 Claims**

1. Compound of the formula



wherein R_1 is selected from heteroaryl and heteroaralkyl groups represented by



wherein each of Y and Z is independently selected from hydrido, lower alkyl, hydroxy, halo, alkoxy, carboxy, amino, alkylamino, dialkylamino, aryl, sulfhydryl and thioalkyl; wherein n is a number selected from zero through five, inclusive; wherein each of R_2 and R_4 is independently selected from hydrido and lower alkyl; wherein R_3 is selected from hydrido, alkyl, benzyl, cycloalkyl, cycloalkylalkyl, alkoxyalkyl and alkylthioalkyl; wherein R_5 is selected from cycloalkyl, phenyl, lower alkyl, cycloalkylalkyl and phenylalkyl; wherein R_6 and R_7 are taken together to form a partially saturated or fully saturated heterocyclic ring containing five to eight ring members with one or two ring members being oxygen atoms and the remaining ring members being carbon atoms; and wherein any of the foregoing R_1 through R_7 substituents having a substitutable position may be substituted with one or more groups selected from alkyl, alkoxy, halo, haloalkyl, alkenyl, alkynyl and cyano; or a pharmaceutically-acceptable salt thereof.

5,212,175

BENZOTHIOPHENYL BENZOTHIOPHENYLALKYL-N-TERMINAL AMINO HYDROXY β-AMINO ACID DERIVATIVES

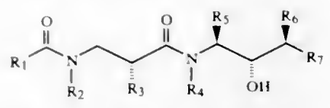
Gunnar J. Hanson, Skokie; John S. Baran, Winnetka; Dave Weissing, Lisle, and Mark Russell, Skokie, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Division of Ser. No. 445,257, Dec. 4, 1989, abandoned. This application Aug. 2, 1991, Ser. No. 739,551

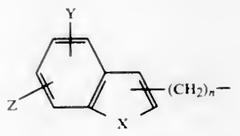
Int. Cl.[5] A61K *31/38;* **C07D** *333/56*

U.S. Cl. 514—443 **12 Claims**

1. Compound of the formula



wherein R_1 is selected from heteroaryl and heteroaralkyl groups represented by



wherein each of Y and Z is independently selected from hydrido, lower alkyl, hydroxy, halo, alkoxy, carboxy, amino, alkylamino, dialkylamino, aryl, sulfhydryl and thioalkyl; wherein X is sulfur atom; wherein n is a number selected from zero through five, inclusive; wherein each of R_2 and R_4 is independently selected from hydrido, alkyl, benzyl, cycloalkyl, cycloalkylalkyl, alkoxyalkyl and alkylthioalkyl; wherein R_5 is selected from cycloalkyl, phenyl, lower alkyl, cycloalkylalkyl and phenylalkyl; wherein R_6 is selected from hydrido, hydroxy, alkoxy, amino, alkylamino, dialkylamino, lower alkyl and cycloalkyl; wherein R_7 is selected from hydrido, alkyl, haloalkyl, cycloalkylalkyl, alkylcycloalkyl, alkylcycloalkenyl and alkoxycarbonyl; wherein R_6 and R_7 may be further taken together to form a carbocyclic ring consisting of from three to about eight ring members; and wherein any of the foregoing R_1 through R_7 substituents having a substitutable position may be substituted with one or more groups selected from alkyl, alkoxy, halo, haloalkyl, alkenyl, alkynyl and cyano; or a pharmaceutically-acceptable salt thereof.

5,212,176

R(+)-TERAZOSIN

John J. Kyncl, Lake Forest, and Bruce W. Horrom, Waukegan, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Jun. 29, 1990, Ser. No. 546,349

Int. Cl.[5] A61K *31/505;* **C07D** *239/84*

U.S. Cl. 514—254 **6 Claims**

1. The compound having the name R(+)-2-(4-((tetrahydro-2-furanyl)carbonyl)piperazinyl)-6,7-dimethoxy-4-quinazolinamine hydrochloride dihydrate having an optical rotation $[\alpha]_D^{28.5°\ C.}$ (C=1, water) of 23.9° or greater.

5,212,177

INDOLE AND BENZIMIDAZOLE-SUBSTITUTED DIHYDROPYRIMIDINE DERIVATIVES

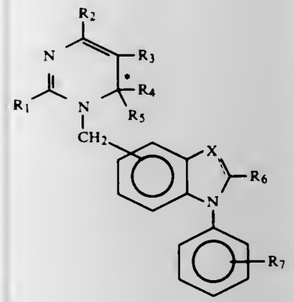
Michael A. Poss, Lawrenceville, N.J., and Karnail S. Atwal, Newtown, Pa., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Dec. 16, 1991, Ser. No. 808,350

Int. Cl.[5] A61K *31/505, 31/675;* **C07D** *211/26, 211/56, 403/06, 487/02*

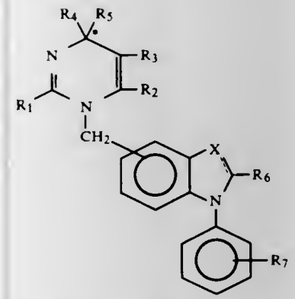
U.S. Cl. 514—259 **10 Claims**

1. A compound of the formula



1

or its isomer

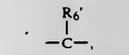


1'

or a pharmaceutically acceptable salt thereof;

wherein

X is —N— or



when X is —N—, the double bond is always present;

R_1 is alkyl, alkenyl or alkynyl or an alkyl, alkenyl or alkynyl group substituted with F or $—CO_2R_8$; cycloalkyl; (cycloalkyl)alkyl of 4 to 10 carbon atoms; (cycloalkyl)alkenyl or (cycloalkyl)alkynyl of 5 to 10 carbon atoms; $—NR_{11}R_{12}$; $—(CH_2)_mZ(CH_2)_nR_{14}$; benzyl or benzyl substituted with 1 or 2 halogens, alkoxy of 1 to 4 carbon atoms, alkyl of 1 to 4 carbon atoms, haloalkyl or nitro; $—SR_{15}$; or $—OR_{15}$;

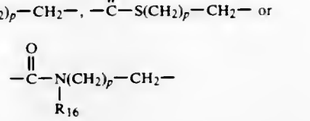
R_2 is hydrogen, —CN, $—OR_{15}$, $—SR_{15}$, $—COR_{15}$, R_{16}, $(R_{16}O)$alkyl, $(R_{16}S)$alkyl, $—CO_2R_{17}$ or (substituted amino)alkyl;

R_3 is —CN, $—NO_2$,



$—CONR_{11}R_{12}$, $(R_{15}OCO)$alkyl, $(R_{16}O)$alkyl, $(R_{16}S)$alkyl, $(R_{16}CO)$alkyl, $—CO_2R_{17}$, R_{18}, $—COR_{18}$, $—SO_2R_{18}$ or $CR_{18}OC)$alkyl; or

R_2 and R_3 taken together are



to form a 5- to 7-membered ring with the carbon atoms to which they are attached; or

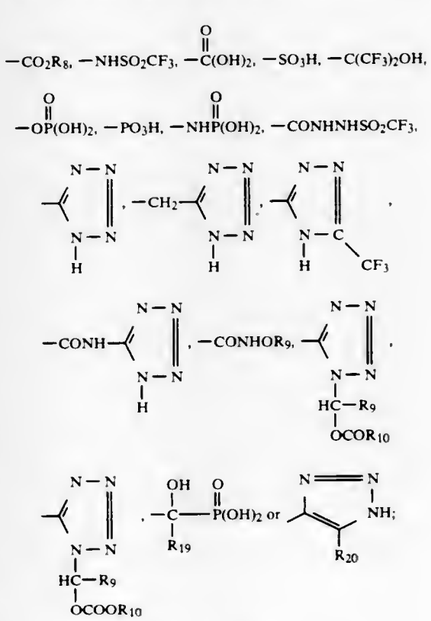
R_2 and R_3 taken together with the carbon atoms to which they are attached form an aryl or heterocyclo group;

R_4 and R_5 are independently selected from hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, heterocyclo, (heterocyclo)alkyl, haloalkyl or $—CO_2R_8$; or

R_4 and R_5 taken together with the carbon atom to which they are attached form a 5- to 7-membered carbocyclic ring which may have another 5- to 7-membered carbocyclic ring fused thereto; or

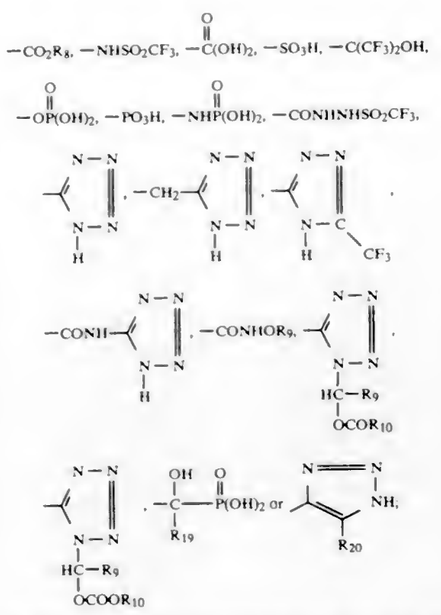
R_4 and R_5 together with the carbon atom to which they are attached form a carbonyl or a thiocarbonyl group;

R_6 and R_6' are independently selected from hydrogen, alkyl, aryl, cycloalkyl, arylalkyl, haloalkyl,



R_7 is an acid moiety such as hydrogen,

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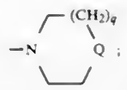
R_8 and $R_{8'}$ are independently hydrogen, alkyl, perfluoroalkyl of 1 to 8 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl, benzyl,



R_9 is hydrogen, alkyl, aryl, arylalkyl or cycloalkyl;

R_{10} is alkyl, aryl, alkylaryl, arylalkyl or cycloalkyl;

R_{11} and R_{12} are independently hydrogen, alkyl of 1 to 6 carbon atoms, benzyl, α-methylbenzyl, or taken together with the nitrogen atom to which they are attached form a ring of the formula



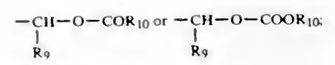
R_{13} is hydrogen, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, phenyl or benzyl;

R_{14} is hydrogen; alkyl of 1 to 6 carbon atoms; cycloalkyl; alkenyl or alkynyl of 2 to 4 carbon atoms; or the above alkyl, cycloalkyl, alkenyl or alkynyl group optionally substituted with F or $—CO_2R_8$;

R_{15} is alkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, heterocyclo, (heterocyclo)alkyl or haloalkyl;

R_{16} is hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, heterocyclo, (heterocyclo)alkyl or haloalkyl;

R_{17} is hydrogen, alkyl, alkenyl, alkynyl, perfluoroalkyl of 1 to 8 carbon atoms, cycloalkyl, aryl, arylalkyl, (cycloalkyl)alkyl, heterocyclo, (heterocyclo)alkyl, haloalkyl,



R_{18} is aminoalkyl, (substituted amino)alkyl; or R_{16};

R_{19} is hydrogen, alkyl of 1 to 5 carbon atoms or phenyl;

R_{20} is —CN, $—NO_2$ or $—CO_2R_8$;

Q is $—CH_2$, —O—, or $—NR_9$;

Z is —O—, —S— or $—NR_{13}$;

m is an integer of 1 to 5;

n is an integer of 1 to 5;

p is 0, or the integer 1 to 2;

q is 0, or the integer; and

wherein "alkyl" refers to both straight and branched chain groups having 1 to 10 carbon atoms;

"alkenyl" and "alkynyl" refer to both straight and branched chain groups having 2 to 10 carbon atoms;

"cycloalkyl" refers to groups having 3 to 8 carbon atoms;

"substituted amino" refers to a group of the formula $—NZ_1Z_2$ wherein Z_1 is hydrogen, alkyl, or aryl-$(CH_2)_p$- and Z_2 is alkyl or aryl-$(CH_2)_p$- or Z_1 and Z_2 taken together with the nitrogen atom to which they are attached are 1-pyrrolidinyl, 1-piperidinyl, 1-azepinyl, 4-morpholinyl, 4-thiamorpholinyl, 1-piperazinyl, 4-alkyl-1-piperazinyl, 4-arylalkyl-1-piperazinyl, 4-diarylalkyl-1-piperazinyl, or 1-pyrrolidinyl, 1-piperidinyl, or 1-azepinyl substituted with alkyl, alkoxy, alkylthio, halo, trifluoromethyl or hydroxy;

"aryl" refers to phenyl or naphthyl optionally substituted with substituents selected from halogen, alkyl, alkoxy, carboxy, alkylthio, hydroxy, alkanoyl, nitro, amino, alkylamino, dialkylamino or trifluoromethyl groups; and

"heterocyclo" refers to fully saturated or unsaturated rings of 5 to 6 atoms containing one to four nitrogen atoms, or one oxygen atom, or one sulfur atom, or one oxygen atom and one or two nitrogen atoms, or one sulfur atom and one or two nitrogen atoms optionally substituted with a substituent selected from alkyl of 1 to 4 carbons, carboxy, alkoxy of 1 to 4 carbons and alkylthio of 1 to 4 carbons on an available carbon; bicyclic rings wherein said five or six membered ring containing oxygen, sulfur or nitrogen atoms is fused to a benzene ring, optionally substituted with a substituent selected from alkyl of 1 to 4 carbons, carboxy, alkoxy of 1 to 4 carbons and alkylthio of 1 to 4 carbons on an available carbon.

5,212,178

8α-ACYLAMINO ERGOLINES AND USE AS PHARMACEUTICAL AGENTS

Gerhard Sauer; Thomas Brumby; Helmut Wachtel; Jonathan Turner, and Peter-Andreas Löschmann, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

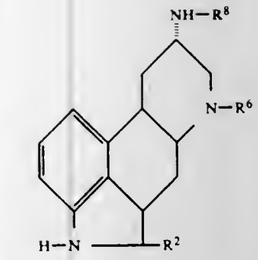
Filed May 14, 1990, Ser. No. 522,751

Claims priority, application Fed. Rep. of Germany, May 12, 1989, 3915950

Int. Cl.[5] **A61K** *31/48*; **C07D** *457/12*

U.S. Cl. 514—288 **12 Claims**

1. A compound of Formula I



in which

CC each independently is a single or double bond;

R^2 is optionally substituted C_{1-7}-alkyl, or C_{2-7}-alkenyl, $CH_2—O—C_{1-4}$-alkyl, or $CH_2—S—C_{1-4}$-alkyl;

R^6 is C_{2-6} alkyl, C_{3-6}-alkenyl, or C_{3-5}-cycloalkyl-C_{1-2}-alkyl;

R^8 is $—CXR^3$,

R^3 is hydrogen or optionally substituted C_{1-6}-alkyl;

or a pharmaceutically acceptable acid addition salt thereof.

5,212,179

PIPERIDINE DERIVATIVES

John L. Archibald, Farmham Royal, and Terence J. Ward, Maidenhead, both of United Kingdom, assignors to John Wyeth and Brother Limited, Maidenhead, England

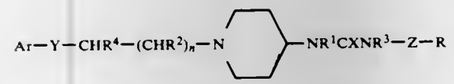
Division of Ser. No. 259,653, Oct. 19, 1988, Pat. No. 4,985,438, which is a division of Ser. No. 929,924, Nov. 12, 1986, Pat. No. 4,806,552, which is a continuation-in-part of Ser. No. 781,832, Sep. 30, 1985, Pat. No. 4,722,930, which is a division of Ser. No. 545,802, Oct. 26, 1983, Pat. No. 4,563,466, which is a continuation-in-part of Ser. No. 366,266, Apr. 7, 1982, Pat. No. 4,424,387, which is a continuation-in-part of Ser. No. 238,381, Feb. 25, 1981, abandoned. This application Oct. 25, 1990, Ser. No. 603,109

Claims priority, application United Kingdom, Mar. 11, 1980, 8007048; Aug. 22, 1980, 8027435; Nov. 15, 1985, 8528235

Int. Cl.[5] **C07D** *215/233, 217/02, 215/02, 217/24*

U.S. Cl. 514—308 **26 Claims**

1. A compound of the formula



wherein

n is 0 or 1;

R^1, R^2, R^3 and R^4 are independently hydrogen or C_1–C_4 alkyl;

X is =O or =S;

Y is —O— or a direct bond;

Z is —CO— or $—CH_2—$;

R is phenyl or phenyl substituted by one or two substituents selected from C_1–C_4alkyl, C_1–C_4alkoxy, hydroxy, fluoro, chloro, bromo, chloroethyl, trifluoromethyl, and nitro, and;

Ar is 2, 4, 5 or 6-quinolinyl or 2, 4, 5 or 6-quinolinyl substituted by one or two substituents selected from C_1–C_4alkyl, C_1–C_4alkoxy, hydroxy, fluoro, chloro, bromo, chloroethyl, trifluoromethyl, amino, C_1–C_4alkylamino, di-(C_1–C_4alkyl)amino, C_1–C_4alkylcarbonylamino, dimethane or diethanesulphonylamino, nitro or cyano, or

a pharmaceutically acceptable acid addition or quaternary ammonium salt thereof, in which the dotted line represents an optional double bond.

5,212,180

QUINOLINE-CONTAINING KETOACIDS AS LEUKOTRIENE ANTAGONISTS

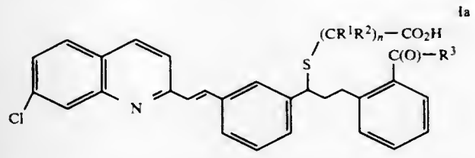
Michel L. Belley, Pierrefonds, Canada, assignor to Merck Frosst Canada, Inc., Kirkland, Canada

Continuation-in-part of Ser. No. 658,931, Feb. 21, 1991, abandoned. This application Feb. 7, 1992, Ser. No. 832,298

Int. Cl.[5] **H01N** *43/42*; **C07D** *215/36*

U.S. Cl. 514—311 **9 Claims**

1. A compound of the formula:



wherein:

each of R^1 and R^2 is independently H or lower alkyl with the proviso that at least one is lower alkyl, or R^1 and R^2 attached to the same carbon are a ring of 3 to 6 carbon atoms;

R^3 is C_1–C_3 alkyl: and

n is 1 to 4;

or a pharmaceutically acceptable salt thereof.

5,212,181

1-(3,4-DIHYDRO-2-OXO-1H-QUINOLIN-6-YL)-2-[4-(2-PHENYLETHYL)PIPERIDIN-1-YL]ETHANOL AND TO 1-(3,4-DIHYDRO-2-OXO-1H-QUINOLIN-6-YL)-2-[4-(2-PHENYLETHYL)PIPERIDIN-1-YL]ETHANONE, TO THEIR PREPARATION AND TO THEIR THERAPEUTIC APPLICATION

Jonathan Frost, Wissous, and Patrick Lardenois, Bourg-la-Reine, both of France, assignors to Synthelabo, Paris, France

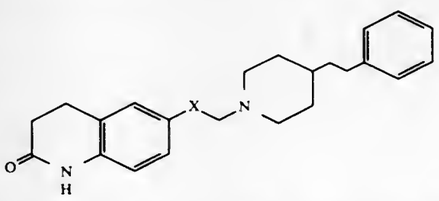
Filed Oct. 16, 1991, Ser. No. 777,176

Claims priority, application France, Oct. 18, 1990, 90 12872

Int. Cl.[5] **A61K** *31/47*; **C07D** *401/02*

U.S. Cl. 514—312 **7 Claims**

1. A compound which is an ethanol or ethanone derivative of general formula (I)



in which X represents CO or CHOH, or is an addition salt thereof with an acid, and, when X represents CHOH, is in the form of a pure enantiomer or a mixture of enantiomers.

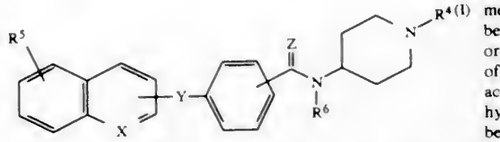
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,182
SUBSTITUTED QUINOLINYL- AND NAPHTHALENYLBENZAMIDES OR BENZYLAMINES AND RELATED COMPOUNDS USEFUL AS ANALGESICS

John H. Musser, Yardley, Pa.; Albert J. Molinari, Kingston, and Dominick Mobilio, Franklin Park, both of N.J., assignors to American Home Products Corpooration, New York, N.Y.

Filed Oct. 3, 1990, Ser. No. 592,160
Int. Cl.[5] A61K *31/47;* **C07D** *215/00*
U.S. Cl. 514—314 **1 Claim**

1. A method for the treatment of pain in mammals which comprises administering orally or parenterally thereto, in therapeutically effective analgesic doses, at least one compound of the formula



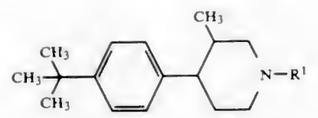
wherein X is nitrogen, NO or CR^1; Y is $C(R^1)(R^2)O$, $OC(R^1)(R^2)$, $C(R^1)(R^2)N(R^3)$, $N(R^3)C(R^1)(R^2)$ or $C(R^1)=C(R^2)$; wherein R^1, R^2, and R^3 are independently hydrogen or lower alkyl containing 1 to 10 carbon atoms; Z is oxygen or $(R^1)(R^2)$; R^4 is R^1, benzyl, benzyl ring substituted with R^5, benzyl alpha monosubstituted with R^1, benzyl ring substituted with R^5 and alpha monosubstituted with R^1, phenyl, phenylalkyl containing 2 to 10 carbon atoms in the alkyl group or phenylalkyl ring substituted with R^5 and containing 2 to 10 carbon atoms in the alkyl group; wherein R^5 is R^1, lower alkoxy containing 1 to 10 carbon atoms, halogen, trihalomethyl, NO_2, $N(R^1)(R^2)$ or $C(O)N(R^1)(R^2)$; R^6 is R^1 or R^6 is $C(O)(R^7)$ with the proviso that Z is not oxygen; and wherein R^7 is R^1, phenyl, perfluoroalkyl containing 1 to 10 carbon atoms, phenylalkyl containing 1 to 10 carbon atoms in the alkyl group or a pharmaceutically acceptable acid addition salt thereof.

5,212,183
4-(P-TERT.-BUTYLPHENYL)-3-METHYLPIPERIDINES SUBSTITUTED AT THE NITROGEN, THEIR QUATERNARY SALTS AND THEIR USE AS FUNGICIDES

Walter Himmele, Walldorf; Ernst Buschmann, Ludwigshafen; Hubert Sauter, Mannheim; Ernst-Heinrich Pommer, Limburgerhof, and Eberhard Ammermann, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

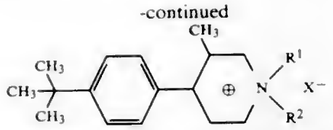
Continuation of Ser. No. 248,260, Sep. 20, 1988, abandoned, which is a continuatioo of Ser. No. 797,882, Nov. 14, 1981, abandoned. This application Jan. 16, 1991, Ser. No. 641,818
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1984, 3441927
Int. Cl.[5] C07D *211/14;* **A01N** *43/40*
U.S. Cl. 514—317 **5 Claims**

1. A piperidine derivative of the formula



or

-continued



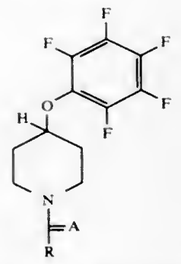
in which R^1 is an alkyl of 1 to 10 carbon atoms in which 1, 2 or 3 of the carbon atoms may be replaced by —O—, said alkyl being substituted by cycloalkyl of 5 to 7 carbon atoms, cycloalkenyl of 5 to 7 carbon atoms, tetrahydropyran, dioxane, bicycloalkyl of 8 to 14 carbon atoms, tricycloalkyl of 8 to 14 carbon atoms, cycloalkoxy of 5 to 7 carbon atoms, phenyl or phenoxy, and the cyclic radicals in turn may be substituted by alkyl of 1 to 6 carbon atoms, alkoxy of 1 to 4 carbon atoms or methylenedioxy; and alkenyl of 2 to 6 carbon atoms which may be substituted by phenyl or methoxyphenyl; or an alkynyl of 3 or 4 carbon atoms, R^2 is alkyl of 1 to 4 carbon atoms or alkenyl of 2 to 4 carbon atoms, and X is a plant-tolerated anion of an acid chosen from the group consisting of hydrochloric acid, hydrobromic acid, formic acid, acetic acid, propionic acid, benzenesulfonic acid and dodecylbenzenesulfonic acid, or the plant-tolerated acid addition a salt of the piperidine derivative of the formula I with an acid selected from the group consisting of hydrochloric acid, hydrobromic acid, hydroiodic acid, sulfuric acid, phosphoric acid, nitric acid, formic acid, acetic acid, propionic acid, benzenesulfonic acid and dodecylbenzenesulfonic acid.

5,212,184
1-SUBSTITUTED-4-PENTAFLUOROPHENOXYPIPERIDINES

Grover C. Helsley, Pluckemin; Larry Davis, Sergentsville, and Gordon E. Olsen, Somerset, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Division of Ser. No. 764,280, Sep. 23, 1991, which is a continuation of Ser. No. 167,935, Mar. 14, 1988, abandoned. This application Sep. 16, 1992, Ser. No. 945,467
Int. Cl.[5] A61K *31/435;* **C07D** *401/06*
U.S. Cl. 514—326 **15 Claims**

1. A compound of the formula



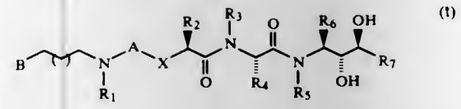
wherein A is oxygen or sulfur, and R is hydrogen, loweralkyl, aryllowerallcyl, heteroaryllowerallcyl.

5,212,185
PIPERIDINYL-TERMINATED ALKYLAMINO ETHYNYL ALANINE AMINO DIOL COMPOUNDS FOR TREATMENT OF HYPERTENSION

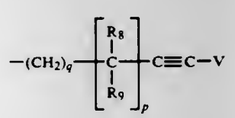
Gunnar J. Hanson, Skokie, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Filed Aug. 14, 1992, Ser. No. 930,061
Int. Cl.[5] A61K *31/445;* **C07D** *211/56*
U.S. Cl. 514—331 **32 Claims**

1. A compound of Formula I:



wherein A is selected from CO and SO_2; wherein X is selected from oxygen atom and methylene; wherein R_1 is selected from hydrido and alkyl; wherein B is a heterocyclic ring system of six to ten ring members with one ring member being a nitrogen atom that is a ring member of a six-membered ring, wherein said ring system may be monocyclic or bicyclic and may be fully saturated or partially saturated and may be fused to a benzene or cyclohexane ring, wherein the point of attachment of B to the backbone of the structure of Formula I may be through a bond to any substitutable position on said heterocyclic ring system of B and wherein any substitutable position of B may be optionally substituted with one or more radicals selected from alkyl, alkoxy, alkenyl, alkynyl, halo, trifluoromethyl, oxo, cyano and phenyl, and wherein the said heterocyclic ring nitrogen atom may be combined with oxygen to form an N-oxide; wherein R_2 is selected from alkyl, cycloalkylalkyl, acylaminoalkyl, phenylalkyl and naphthylalkyl, and wherein the cyclic portion of any of said phenylalkyl, cycloalkylalkyl and naphthylalkyl groups may be substituted by one or more radicals selected from halo, hydroxy, alkoxy and alkyl; wherein each of R_3 and R_5 is independently selected from hydrido and alkyl; wherein R_4 is selected from



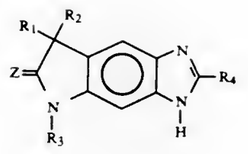
wherein V is selected from hydrido, alkyl, benzyl and phenyl; wherein each of R_8 and R_9 is a radical independently selected from hydrido, alkyl, alkenyl and phenyl; wherein R_6 is selected from alkyl, cycloalkylalkyl and phenylalkyl, any one of which may be substituted with one or more groups selected from alkyl, hydroxy and alkoxy; wherein R_7 is selected from hydrido, alkyl, cycloalkyl, cycloalkylalkyl, hydroxyalkyl and alkenyl; wherein p is a number selected from zero through five, inclusive; wherein q is a number selected from zero through five, inclusive; and wherein n is a number selected from zero through five, inclusive; or a pharmaceutically-acceptable salt thereof.

5,212,186
CARDIOACTIVE PYRROLOBENZIMIDAZOLES

Michael Paal, Hamburg; Wolfgang Stenzel, Reinbek; Reinhard Brückner, Hanover, and Ben Armah, Hamburg, all of Fed. Rep. of Germany, assignors to Beiersdorf Aktiengesellschaft, Hamburg, Fed. Rep. of Germany

Filed Aug. 27, 1991, Ser. No. 750,372
Claims priority, application Fed. Rep. of Germany, Aug. 31, 1990, 4027592
Int. Cl.[5] A61K *31/44, 31/415;* **C07D** *487/04*
U.S. Cl. 514—338 **6 Claims**

1. A compound of the formula



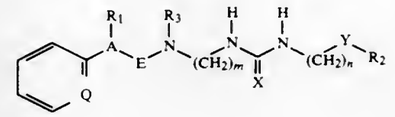
in which
R_1 is hydrogen, C_{1-6}-alkyl, C_{2-6}-alkenyl or C_{3-7}-cycloalkyl,
R_2 is hydrogen, C_{1-6}-alkyl, C_{2-6}-alkenyl or C_{1-6}-hydroxyalkyl, or
R_1 and R_2 together with the carbon atom which carries them can be C_{3-7}-spiroalkyl,
R_3 is hydrogen or C_{1-6}-alkyl, and
R_4 is a cyanamido group, a 4-difluoromethoxy-3-pyridyl group or a C_{1-2}-nitroalkyl group, and
Z is oxygen or sulphur,
or a salt, tautomer or optical isomer thereof.

5,212,187
PYRIDYL ALKYLAMINE COMPOUNDS WHICH ARE USEFUL AGAINST HISTAMINE H_1 AND H_2 RECEPTORS

Rudi A. Alisch; Frank R. Schulze; Armin Buschauer, and Walter Schunack, all of Berlin, Fed. Rep. of Germany, assignors to Zyma SA, Nyon, Switzerland

Filed Jul. 20, 1992, Ser. No. 914,584
Claims priority, application Switzerland, Jul. 22, 1991, 2193/91
Int. Cl.[5] A61K *31/44;* **C07D** *213/02*
U.S. Cl. 514—342 **10 Claims**

1. An arylalkylamine derivative of the formula (I)



wherein
R_1 is phenyl which is unsubstituted or mono- or di-substituted by at least one member selected from the group consisting of halogen, C_1–C_3 alkyl and C_1–C_3 alkoxy,
A is CH,
E is $—(CH_2)_p—$, $—O—(CH_2)_p—$ or $—S—(CH_2)_p—$ wherein p is 2, 3 or 4,
Q is a nitrogen atom,
R_2 is a member selected from the group consisting of piperidino-C_1–C_3 alkyl-phenyl, guanidine-thiazolyl-C_1–C_3 alkyl and (N,N-di-C_1–C_3 alkylamino-C_1–C_3 alkyl)-furanyl-C_1–C_3 alkyl,
R_3 is hydrogen or C_1–C_3 alkyl,
X is oxygen or sulfur,
m is 2, 3, 4, 5, 6, 7 or 8,
n is 1, 2, 3 or 4, and
Y is sulfur or oxygen,
or a stereoisomeric form, a hydrate or a physiologically acceptable said thereof.

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5,212,188

METHOD FOR TREATMENT OF NEURODEGENERATIVE DISEASES

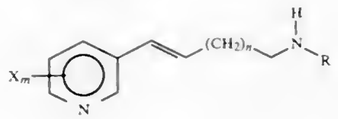
William S. Caldwell, Winston-Salem, and Patrick M. Lippiello, Clemmons, both of N.C., assignors to R. J. Reynolds Tabacco Company, Winston-Salem, N.C.

Filed Mar. 2, 1992, Ser. No. 844,364

Int. Cl.[5] A61U *31/44*

U.S. Cl. 514—343 **18 Claims**

1. A method for treating a patient suffering from senile dementia of the Alzheimer's type, the method comprising administering to the patient an effective amount of a compound having the formula:



where n represents an integer from 1–5, m represents an integer from 0–4, R represents H or alkyl, and X represents alkyl or halo.

5,212,189

THIADIAZOLE OR OXADIAZOLE ANALOGS OF FENAMIC ACIDS CONTAINING SUBSTITUTED HYDROXAMATE SIDE CHAINS AS ANTIINFLAMMATORY AGENTS

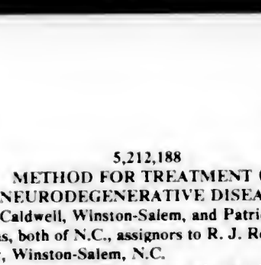
Thomas R. Belliotti, Ypsilanti; David T. Connor, Ann Arbor, and Catherine R. Kostlan, Saline, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Dec. 17, 1991, Ser. No. 809,686

Int. Cl.[5] C07D *271/113, 285/125;* **A61K** *31/41*

U.S. Cl. 514—363 **23 Claims**

1. A compound of the Formula (I)



or a pharmaceutically acceptable salt thereof; wherein

Q is S or O;

R_{10} is —OH, —SH, or $—NH_2$;

R_1 is H or lower alkyl;

X is H, halogen, lower alkyl, lower alkoxy, CF_3, or OH;

Y is H, halogen, lower alkyl, lower alkoxy, CF_3, or OH;

A is

wherein

W is S or O,

Z is lower alkyl, lower alkoxy, NR_2R_3

wherein R_2 and R_3 are independently H or lower alkyl.

5,212,190

Patent Not Issued For This Number

5,212,191

HETEROCYCLIC COMPOUNDS

Masaaki Toda, Osaka; Shuichi Ohuchida, Kyoto, and Hiroyuki Ohno, Shiga, all of Japan, assignors to Ono Pharmaceutical Co., Ltd., Osaka, Japan

Division of Ser. No. 333,227, Apr. 5, 1989, Pat. No. 5,053,414. This application May 15, 1991, Ser. No. 700,299

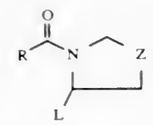
Claims priority, application Japan, Apr. 8, 1988, 63-85288

The portion of the term of this patent subsequent to Aug. 15, 2006, has been disclaimed.

Int. Cl.[5] C07D *277/04;* **A61K** *31/425*

U.S. Cl. 514—365 **5 Claims**

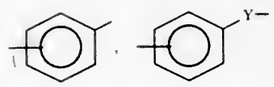
1. A thiazoline derivative of the formula:

 (I)

wherein Z represents sulfur atom, R represents the general formula:

G—E—D—B—A—

wherein A represents a linkage which contains no atom, alkylene group of from 1 to 6 carbon atom(s), alkenylene group of from 2 to 6 carbon atoms, a group of the formula:



wherein Y represents alkylene group of from 1 to 4 carbon atom(s) or alkenylene group of from 2 to 4 carbon atoms, a saturated hydrocarbon ring of from 4 to 7 carbon atoms or heterocyclic mono ring containing 3 to 7 ring members including 1 or 2 hetero atom(s) selected from N, O and S atoms which may be partially or fully saturated or aromatic,

B represents a linkage which contains no atom or alkylene group of from 1 to 6 carbon atom(s),

D represents a linkage which contains no atom, oxygen atom, carbonyl group or a group of the formula:

$—NR^1—CO—$ or $—CO—NR^1—$

wherein R^1 represents hydrogen atom, alkyl group of from 1 to 6 carbon atom(s), phenyl group or benzyl group,

E represents a linkage which contains no atom, alkylene group of from 1 to 8 carbon atom(s) or alkylene group of from 1 to 8 carbon atom(s) substituted by phenyl or benzyl group,

G represents a mono-, bi- or tri-carbocyclic ring(s) containing not more than 15 carbon atoms which may be partially or fully or saturated or aromatic, or mono-, bi- or tri-heterocyclic ring(s) containing not more than 15 ring members including carbon and 1 or 2 hetero atoms selected from N, O and S atoms which may be partially or fully saturated or aromatic wherein said carbocyclic or heterocyclic ring(s) represented by G is unsubstituted or substituted by 1–3 of alkyl group of from 1 to 6 carbon atom(s), alkoxy group of from 1 to 6 carbon atom(s), halogen atom, trifluoromethyl group or nitro group,

L represents a group of the formula:

$—CH(OR^3)_2$

or



wherein R^3 represents alkyl group of from 1 to 6 carbon atom(s), phenyl group, or alkyl group of from 1 to 6 carbon atom(s) substituted by phenyl group,

with the proviso that the following compounds are excluded:

(i) compounds wherein both of A and B are linkage which contains no atom

or non-toxic salt or hydrate thereof.

5,212,192

IMMUNOSTIMULATING 6-ARYL-5,6-DIHYDROIMIDAZO[2,1-B]THIAZOLE DERIVATIVES

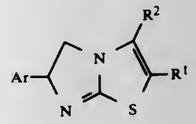
Alfons H. M. Raeymaekers, Beerse; Leopold F. C. Roevens, Rijkevorsel; Willy J. C. Van Laerhoven, and Jean P. F. Van Wauwe, both of Beerse, all of Belgium, assignors to Janssen Pharmaceutica N.V., Beerse, Belgium

Continuation-in-part of Ser. No. 593,178, Jun. 18, 1990, abandoned, which is a continuation-in-part of Ser. No. 440,842, Nov. 24, 1989, abandoned. This application Dec. 19, 1991, Ser. No. 810,221

Int. Cl.[5] C07D *513/04;* **A61K** *31/425*

U.S. Cl. 514—368 **20 Claims**

1. A compound of the formula:



a pharmaceutically acceptable acid addition salt thereof or a stereochemically isomeric form thereof, wherein:

Ar is phenyl optionally substituted with from 1 to 3 substituents each independently selected from halo, hydroxy, C_{1-6}alkyloxy, mercapto, C_{1-6}alkylthio, C_{1-6}alkyl, nitro, amino, mono- and di(C_{1-6}alkyl)amino, C_{1-6}alkylcarbonylamino, arylcarbonylamino, C_{1-6}alkylsulfonylamino, trifluoromethyl, cyano, aminocarbonyl, mono- and di(C_{1-6}alkyl)aminocarbonyl, hydroxycarbonyl, C_{1-6}alkyloxycarbonyl, carboxaldehyde and hydroxymethyl; pyridinyl; thienyl; furanyl or furanyl substituted with C_{1-6}alkyl or halo;

R^1 is C_{3-10}alkyl, (C_{3-7}cycloalkyl)C_{1-6}alkyl, C_{3-7}cycloalkyl, aryl or (aryl)C_{1-6}alkyl;

R^2 is hydrogen, C_{1-20}alkyl, (C_{3-7}cycloalkyl)C_{1-6}alkyl, C_{3-7}cycloalkyl, aryl or (aryl)C_{1-6}alkyl;

or R^1 and R^2 together may form a C_{3-6}alkandiyl radical;

wherein in the foregoing each aryl independently is phenyl optionally substituted with from 1 to 3 substituents each independently selected from halo, hydroxy, C_{1-6}alkyloxy, C_{1-6}alkyl, nitro, amino, trifluoromethyl or cyano.

5,212,193

ANTIMICROBIAL COMPOSITIONS COMPRISING 3,4-DICHLOROANILIDES AND ISOTHIAZOLONES AND METHODS OF CONTROLLING MICROBES

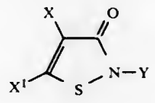
Samuel E. Sherba, Willingboro, N.J., and Raj J. Mehta, Gujarat, India, assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Mar. 20, 1991, Ser. No. 672,305

Int. Cl.[5] A01N *37/18, 43/80*

U.S. Cl. 514—372 **15 Claims**

1. A microbial composition comprising a synergistic mixture a first component of which is a 2-alkyl-3-isothiazolone selected from the group consisting of 4,5-dichloro-2-n-octyl-3-isothiazolone and 2-n-octyl-3-isothiazolone

 (I)

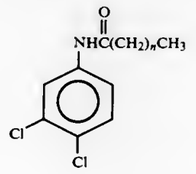
wherein

Y is a (C_5–C_{12})alkyl or a (C_5–C_8)cycloalkyl;

X is hydrogen, halogen, or (C_1–C_4)alkyl; and

X^1 is hydrogen, halogen, or (C_1–C_4)alkyl;

and a second component of which is a 3,4-dichloroanilide of the formula

 (II)

wherein n = 1 or 2, wherein the weight ratio of the first component to the second component is in a range of from about 0.03/100 to about 1/10.

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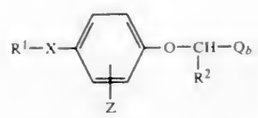
5,212,194
PHENOXYALKYL-SUBSTITUTED HETEROAROMATICS AND A METHOD FOR CONTROLLING PESTS

Joachim Leyendecker, Ladenburg; Hans-Juergen Neubauer, Muenster-Hiltrup; Uwe Kardorff, Mannheim; Christoph Kuenast, Otterstadt; Wolfgang Krieg, Weingarten, and Peter Hofmeister, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 379,956, Jul. 14, 1989, Pat. No. 5,013,847.
This application Feb. 20, 1991, Ser. No. 658,241
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1988, 3825821; Jul. 29, 1988, 3825822
Int. Cl.[5] C07D *261/08;* A01N *43/80*
U.S. Cl. 514—378 6 Claims

1. Phenoxyalkyl-substituted heteroaromatics of the formula Ib

(Ib)



where the substituents have the following meanings: R^1 C_1–C_{12} alkyl, C_2–C_{12}-alkenyl, C_2–C_{12}-alkynyl, C_1–C_{12}-haloalkyl, C_2–C_{12}-haloalkenyl, C_2–C_{12}-haloalkynyl, C_3–C_{12}-alkoxyalkyl, C_3–C_8-cycloalkyl, C_4–C_{12}-cycloalkylalkyl, C_3–C_8-halocycloalkyl, C_4–C_{12}-halocycloalkylalkyl, C_4–C_{12}-cycloalkylhaloalkyl or C_4–C_{12}-halocycloalkylhaloalkyl;
X O, S or SO_2;
Z hydrogen, halogen or C_1–C_4-alkyl;
R^2 hydrogen or C_1–C_4-alkyl; and
Q_b isoxazol-3-yl or isoxazol-5-yl which is unsubstituted or mono- or polysubstituted by halogen, C_1–C_8-alkyl, C_2–C_8-alkenyl, C_1–C_4-haloalkyl, C_1–C_8-alkoxy, C_1–C_8-alkylthio, C_2–C_8-alkoxyalkyl or C_3–C_{10}-cycloalkyl.

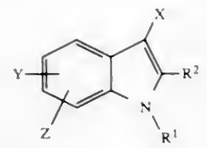
5,212,195
SUBSTITUTED INDOLE ANTAGONISTS DERIVATIVES WHICH ARE ANGIOTENSIN II

Robin D. Clark, Palo Alto; David E. Clarke; Lawrence E. Fisher, both of Mountain View, and Alam Jahangir, San Jose, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed May 13, 1992, Ser. No. 882,390
Int. Cl.[5] A61K *31/41;* C07D *257/04*
U.S. Cl. 514—381 11 Claims

1. A compound represented by the Formula (I):

(I)



R^1 is lower alkyl;
R^2 is 2''-(1H-tetrazol-5-yl)biphenyl-4'-ylmethyl;
X is hydrogen, lower alkyl, halogen, —C(O)CF_3, —CO_2R^4, or —C(O)NR^5R^6;
Y is hydrogen, lower alkyl, lower alkoxy, hydroxy, halogen, or —CO_2R^4;
Z is hydrogen, lower alkyl, lower alkoxy, or halogen;
wherein
R^4 is hydrogen or lower alkyl;
R^5 is hydrogen or lower alkyl;
R^4 is hydrogen or lower alkyl; or
R^5 and R^6 taken together with the nitrogen to which they attached represent a heterocycle;
or a pharmaceutically acceptable salt thereof.

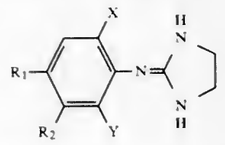
5,212,196
CONTROL OF POST-SURGICAL INTRAOCULAR PRESSURE USING CLONIDINE DERIVATIVES

Betty R. House, Euless; Joseph M. DeFaller, Bedford, and Billie M. York, Fort Worth, all of Tex., assignors to Alcon Laboratories, Inc., Fort Worth, Tex.

Continuation of Ser. No. 615,950, Nov. 20, 1990, abandoned, which is a continuation of Ser. No. 311,789, Feb. 16, 1989, abandoned, which is a continuation of Ser. No. 921,175, Oct. 21, 1986, abandoned. This application Jul. 24, 1992, Ser. No. 918,874
Int. Cl.[5] A62K *31/415*
U.S. Cl. 514—392 22 Claims

1. A method of controlling or preventing an acute post-operative intraocular pressure rise associated with an ophthalmic laser surgical procedure, which comprises topically applying to the involved eye prior and subsequent to the procedure an amount of an imidazoline compound effective to control such an acute post-operative intraocular pressure rise, said imidazoline compound having the formula:

(I)



wherein: R_1 and R_2 are selected from the group consisting of H, OH, and NHR', wherein R' is selected from the group consisting of H and C_1–C_4 alkyl, provided that one of R_1 and R_2 is always hydrogen; and X and Y are selected from the group consisting of Br, Cl, CH_3 and CH_2CH_3, or a pharmaceutically acceptable free base or acid salt thereof.

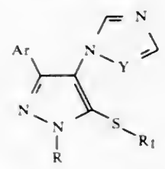
5,212,197
FUNGICIDALLY ACTIVE PYRAZOLE COMPOUNDS

Hendrik Dolman; Johannes Kuipers; Leonarda C. Niemann, and Bart Heijne, all of Weesp, Netherlands, assignors tn Duphar International Research B.V., Weesp, Netherlands

Filed Apr. 8, 1992, Ser. No. 865,059
Claims priority, application European Pat. Off., Apr. 11, 1991, 91200852
Int. Cl.[5] A01N *43/56, 43/653;* C07D *403/04*
U.S. Cl. 514—397 6 Claims

I. Pyrazole compound of the formula

(I)



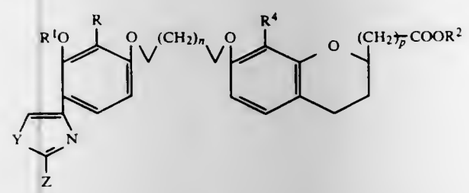
wherein
Ar is an unsubstituted phenyl group or a phenyl group, substituted with 1 or 2 substituents selected from the group consisting of C_1–C_4 alkyl, halogen, nitro, cyano and C_1–C_4 alkoxy, or with 3 halogen atoms,
R is a C_1–C_{12} alkyl group,
R_1 is a C_1–C_4 alkyl group, and
Y is CH or N.

5,212,198
ALKOXY-SUBSTITUTED DIHYDROBENZOPYRAN-2-CARBOXYLIC ACIDS AND DERIVATIVES THEREOF

Stevan W. Djuric, Glenview; Thomas D. Penning, Elmhurst, and James P. Snyder, Glenview, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Division of Ser. No. 759,272, Sep. 13, 1991, which is a division of Ser. No. 521,777, May 10, 1990, Pat. No. 5,073,562. This application Oct. 9, 1992, Ser. No. 958,632
Int. Cl.[5] A61K *31/415;* C07D *405/12*
U.S. Cl. 514—397 15 Claims

1. A compound of the formula:

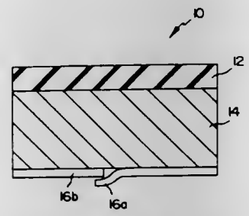


wherein
R represents alkyl having 2 to 6 carbon atoms, alkenyl having 2 to 6 carbon atoms, alkynyl having 2 to 6 carbon atoms, or —$(CH_2)_m$—R^3 wherein R^3 represents cycloalkyl of 3 to 5 carbons atoms and m is 1 or 2;
R^1 represents alkyl having 1 to 4 carbon atoms;
R^2 represents hydrogen or alkyl having 1 to 5 carbon atoms;
R^4 represents alkyl having 1 to 6 carbon atoms;
n is an integer from 1 to 5;
p is an integer from 0 to 6;
Y represents NH; and
Z represents hydrogen, alkyl having 1 to 4 carbon atoms, alkoxy having 1 to 4 carbon atoms, NR^4R^5 wherein R^4 and R^5 are independently hydrogen or alkyl having 1 to 4 carbon atoms, or SR^6 wherein R^6 is, hydrogen, benzyl or alkyl having 1 to 4 carbon atoms;
and the stereoisomers and pharmaceutically acceptable salts thereof.

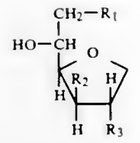
5,212,199
SORBITAN ESTERS AS SKIN PERMEATION ENHANCERS

Sonia Heiber, Salt Lake City; Dinesh Patel, Murray, and Charles D. Ebert, Salt Lake City, all of Utah, assignors to Theratech, Inc., Salt Lake City, Utah

Continuation of Ser. No. 702,043, May 17, 1991, Pat. No. 5,122,383. This application Apr. 21, 1992, Ser. No. 871,643
Int. Cl.[5] A01N *45/38*
U.S. Cl. 514—415 21 Claims



1. A method for enhancing the rate of penetration of a pharmacologically active agent through the skin, comprising applying to a selected area of intact skin: (a) a therapeutically effective amount of the pharmacologically active agent; and (b) a permeation enhancer consisting essentially of a sorbitan ester having the structural formula



wherein R_1 has the formula —O(CO)R', R' is selected from the group consisting of saturated, mono-unsaturated, di-unsaturated, or tri-unsaturated aliphatic hydrocarbon substituents of 7 to 21 carbon atoms optionally containing 1 to 3 hydroxyl groups, and R_2 and R_3 are independently selected from the group consisting of hydroxyl and —O(CO)R'.

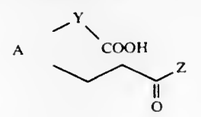
5,212,200
OCULAR HYPOTENSIVE AGENTS

Ryuzo Ueno, and Ryuiji Ueno, both of Nishinomiya, Japan, assignors to R-Tech Ueno, Ltd., Osaka, Japan

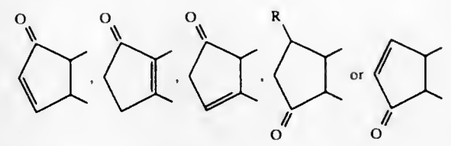
Division of Ser. No. 584,669, Sep. 19, 1990, Pat. No. 5,151,444, which is a continuation of Ser. No. 246,059, Sep. 19, 1988, Pat. No. 5,001,153. This application Sep. 16, 1991, Ser. No. 760,280
Claims priority, application Japan, Sep. 18, 1987, 62-235890; Dec. 29, 1987, 62-334037
Int. Cl.[5] A61K *31/557*
U.S. Cl. 514—530 26 Claims

1. A topical ocular composition comprising an amount effective as an ocular hypotensive agent of a 13,14-dihydro-15-keto-prostaglandin represented by the following formula (I):

[1]



wherein A is

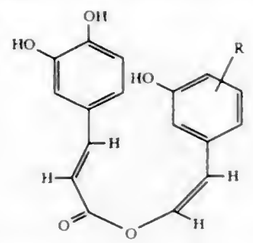


wherein R is hydroxy, hydroxy C_{1-3} alkyl or C_{1-2} alkyl; Y is a saturated or unsaturated C_{2-6} hydrocarbon chain which is unsubstituted or substituted by oxo, halogen, an alkyl group or hydroxyl; Z is a C_{1-10} saturated or unsaturated hydrocarbon forming a straight-chain, a branched-chain or a ring, which is unsubstituted or substituted by halogen, an alkyl group, an alkoxy group, hydroxyl, a phenyl group or a phenoxy group; or the physiologically acceptable salts and carboxylic acid esters of the compounds of formula (I) said ester being a straight or branched-chain alkyl containing up to one unsaturated bond, cycloalkyl, benzyl, phenyl, hydroxyalkyl, alkoxyalkyl, alkylsilyl or tetrahydropyranyl ester, of a compound of Formula (I); and a pharmaceutically acceptable carrier.

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5,212,201
XANTHINE OXIDASE INHIBITOR
Michio Wakashiro, Kyoto; Shiro Abe, Ayabe; Nobukazu Tanabe, Ayabe, and Hiroshi Obata, Ayabe, all of Japan, assignors to Gunze Limited, Kyoto, Japan
Filed Nov. 13, 1990, Ser. No. 612,144
Claims priority, application Japan, Nov. 20, 1989, 1-302818
Int. Cl.[5] A01N *37/10*
U.S. Cl. 514—532 3 Claims

1. A method of inhibiting xanthine oxidase in a patient, which comprises administering to a patient requiring such inhibitory activity a compound of the formula:



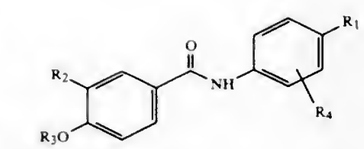
wherein R is 4'-OH or 5'-OH or a pharmaceutically acceptable salt or an ester thereof.

5,212,202
THERAPEUTIC CHOLESTEROL GALLSTONE DISSOLUTION METHOD
Alan F. Hofmann, and Claudio D. Schteingart, both of La Jolla, Calif., assignors to The Regents of the University of California, Oakland, Calif.
Continuation-in-part of Ser. No. 513,684, Apr. 24, 1990, abandoned, which is a continuation-in-part of Ser. No. 341,900, Apr. 24, 1989, abandoned. This application Apr. 20, 1992, Ser. No. 871,182
Int. Cl.[5] A61K *31/22*
U.S. Cl. 514—546 24 Claims

1. A method for dissolving cholesterol calculi which comprises contacting said calculi with a solvent comprising a C_5-C_6 ester having a boiling point in the range of 80°–40° C. in an amount and at a flow rate effective to dissolve said calculi at a dissolution rate of at least about 4 mg/min.

5,212,203
AROMATIC BENZAMIDO COMPOUNDS; THEIR PREPARATION AND THEIR USE IN HUMAN OR VETERINARY MEDICINE OR IN COSMETIC PREPARATIONS
Braham Shroot, Antibes; Jacques Eustache, Grasse, and Jean-Michel Bernardon, Nice, all of France, assignors to Centre International de Recherches Dermatogologiques (C.I.R.D.), Valbonne, France
Continuation of Ser. No. 5,727, Jan. 21, 1987, Pat. No. 4,927,928. This application Feb. 23, 1990, Ser. No. 483,625
Claims priority, application Luxembourg, Jan. 21, 1986, 86258
The portion of the term of this patent subsequent to Feb. 23, 2007, has been disclaimed.
Int. Cl.[5] A61K *31/165*
U.S. Cl. 514—617 13 Claims

1. A pharmaceutical composition comprising in a vehicle suitable for enteral, parenteral, topical or ocular administration, at least one aromatic benzamido compound having the formula



(I)

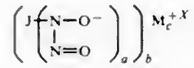
wherein
R_1 represents $—CH_2OH$, $—CHOHCH_3$ or $—COR_5$,
R_5 represents hydrogen, lower alkyl, OR_6 or



R_6 represents hydrogen, lower alkyl or mono- or polyhydroxyalkyl,
r' and r'' represent hydrogen, lower alkyl, mono- or polyhydroxy alkyl, aryl or benzyl optionally substituted, the residue of an amino acid or aminated sugar or when taken together form a heterocycle,
R_2 represents an α,α'-disubstituted alkyl radical having 4–12 carbon atoms or mono or polycyclic cycloalkyl having 5–12 carbon atoms wherein the linking carbon is quaternary,
R_3 represents hydrogen or alkyl having 1–10 carbon atoms, and
R_4 represents hydrogen, lower alkyl or hydroxy, and
the salts of said aromatic benzamido compound of Formula I when R_6 represents hydrogen.

5,212,204
ANTIHYPERTENSIVE COMPOSITIONS AND USE THEREOF
Larry K. Keefer, Bethesda; David A. Wink, Frederick; Tambra M. Dunams, Frederick, and Joseph A. Hrabie, Frederick, all of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.
Filed Oct. 18, 1989, Ser. No. 423,279
Int. Cl.[5] A61K *31/135*
U.S. Cl. 514—647 27 Claims

1. An injectable pharmaceutical composition consisting essentially of a compound of the formula



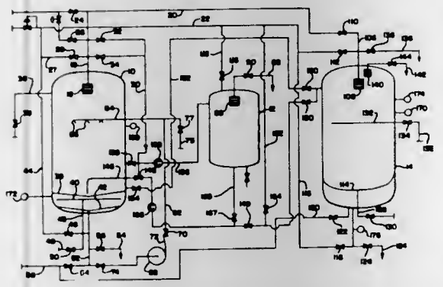
wherein J is an inorganic moiety, or an organic moiety selected from the group consisting of C_1-C_{12} aliphatic, C_3-C_8 cycloalkyl, benzyl, phenyl, substituted benzyl, substituted phenyl, benzycarbonyl, phenylcarbonyl, substituted benzylcarbonyl, substituted phenylcarbonyl, C_1-C_{12} acyl, and



wherein R is C_1-C_{12} aliphatic, C_3-C_8 cycloalkyl, benzyl, phenyl, substituted benzyl or substituted phenyl, and said substituted benzyl and substituted phenyl is substituted with one or two substituents selected from the group consisting of halogen, hydroxy, C_1-C_4 alkyl, C_1-C_4 alkoxy, amino, mono C_1-C_4 alkylamino, di C_1-C_4 alkylamino, phenyl and phenoxy;

M^{+x} is a pharmaceutically acceptable cation, wherein x is the valence of the cation, a is 1, b and c are the smallest integers that result in a neutral compound, and wherein the compound decomposes under physiological conditions to release nitric oxide (NO); and
a pharmaceutically acceptable sterile carrier.

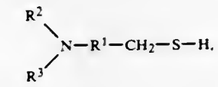
5,212,205
REGENERATION OF DEEP BED CONDENSATE POLISHERS
Michael J. O'Brien, Basking Ridge, N.J., assignor to The Graver Company, Union, N.J.
Filed Feb. 4, 1992, Ser. No. 830,616
Int. Cl.[5] B01J *49/00*
U.S. Cl. 521—26 13 Claims



1. A method for regenerating a mixture of anion and cation exchange resins from a mixed bed demineralizer, comprising the steps of:
(a) transferring the exhausted anion and cation resins into a separation vessel having a quantity of inactive resin material therein;
(b) directing a backwash liquid through the separation vessel so as to separate the resins into an upper anion resin layer and a lower cation resin layer;
(c) transferring the cation resin from the bottom of the separation vessel through a cation transfer line into a cation regeneration vessel while simultaneously directing an anticipatory interface detection sample flow of cation resin from an intermediate section of the separation vessel through a sample line into an interface tank;
(d) detecting an interface by the entry of anion resin into the sample line;
(e) terminating the transfer of cation resin into the cation regeneration vessel and the transfer of the sample flow into the interface tank upon detection of the interface in step (d);
(f) transferring the remaining cation resin from the bottom of the separation vessel through the cation transfer line into the interface tank;
(g) detecting an interface by the entry of anion resin into the cation transfer line;
(h) terminating the transfer of cation resin from the bottom of the separation vessel upon detection of the interface in step (g);
(i) directing a regenerant liquid through the separation vessel to regenerate the anion resin;
(j) directing a regenerant liquid through the cation regeneration vessel to regenerate the cation resin;
(k) transferring the anion resin from the separation vessel to the cation regeneration vessel; and
(l) transferring the resin from the interface tank back into the separation vessel.

5,212,206
ION EXCHANGE MODIFIED WITH MERCAPTO AMINES
Udo Rudolph; Norbert Bachem, and Claus Wulff, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany
Continuation of Ser. No. 55,292, May 29, 1987, abandoned. This application Feb. 8, 1990, Ser. No. 477,161
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1986, 3619450
Int. Cl.[5] C08F *8/34*; C07C *39/16*
U.S. Cl. 521—32 4 Claims

1. A process for the preparation of anhydrous ion exchangers modified with mercapto amines having improved stability in the production of bisphenols using acid ion exchanger resins having total capacities of acid functions of from 0.7 to 2.1 mval/ml of ion exchanger in the water-moist form with a water content of about 75 to 85% by weight or total capacities of acid functions of from 3.5 to 5 mval or higher when based on 1 g of dry substance of ion exchanger, said process being characterized in that the resin is dried and thereafter rinsed with the phenol required for preparation of the bisphenol and thereafter neutralized with at least 0.3 mol of mercapto amines corresponding to formula (I) per mol of acid function of the ion exchanger at a temperature above the melting point of bisphenol

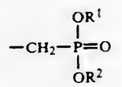


(I)

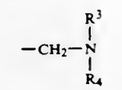
in which formula (I), R^1 stands for C_1-C_6-alkylene, C_5-C_{10}-cycloalkylene or C_6-C_{14}-arylene and R^2 and R^3 denote, independently of one another, C_1-C_6-alkyl groups or hydrogen.

5,212,207
STYRENE-DIVINYLBENZENE COPOLYMER HAVING BOTH AMINO AND PHOSPHONATE GROUPS
Yoshio Sato, Toride; Katsuo Murayama, Urawa, and Yoshihiro Nakai, Toride, all of Japan, assignors to Director-General of Agency of Industrial Science and Technology, Japan
Filed Feb. 28, 1992, Ser. No. 843,157
Claims priority, application Japan, Mar. 30, 1991, 3-093361
Int. Cl.[5] C08F *8/40*
U.S. Cl. 521—32 4 Claims

1. A three-dimensional polymer having a skeletal structure of a styrene-divinylbenzene three-dimensional copolymer and containing (a) phosphonate-containing groups directly bonded to the benzene rings of said skeletal structure and having the following formula:



wherein R^1 and R^2 stand, independently from each other, for a hydrocarbyl group and (b) amino-containing groups directly bonded to the benzene rings of said skeletal structure and having the following formula:



wherein R^3 and R^4 stand, independently from each other, for hydrogen or an alkyl group with the proviso that R^3 and R^4 do not represent hydrogen at the same time.

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5,212,208

PROCESS OF INSULATING A BODY CAVITY

Jan R. Soderberg, Overijse, Belgium, assignor to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 478,798, Feb. 12, 1990, Pat. No. 5,160,465. This application Aug. 17, 1992, Ser. No. 931,081

Claims priority, application United Kingdom, Feb. 13, 1989, 8903211

Int. Cl.[5] C08J 9/10

U.S. Cl. 521—96 9 Claims

1. A shaped, foamable part mounted in an open space of a vehicle body comprising a mixture of at least 65 wt.% of a base polymer containing units derived of ethylene and an olefinically unsaturated methyl acrylate having a melt index of from 0.1 to 6 and containing from 10 to 40 percent by weight of methyl acrylate, a cross-linking agent, a chemical blowing agent and a blowing agent activator so that the part is foamable to a closed cell foam and curable concurrently at a temperature between 110° and 190° C.

5,212,209

COMPATIBILIZED INTERNAL MOLD RELEASE COMPOSITION FOR PREPARATIONS OF FOAMED AND FIBER-REINFORCED POLYMERIC ARTICLES

Laura B. Weaver, and Robert Carswell, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 18, 1991, Ser. No. 793,779

Int. Cl.[5] C08G 18/14

U.S. Cl. 521—122 30 Claims

1. A composition for preparing a molded foamed polymeric article comprising (1) a relatively high molecular weight polyahl and a relatively low molecular weight polyol, in proportions such that the relatively high molecular weight polyahl and the relatively low molecular weight polyol are incompatible, (2) a polyisocyanate, (3) a blowing agent, and (4) an internal mold release/compatibilizing agent containing (a) a metal salt of an acid, wherein the metal is selected from elements of the Periodic Table of the Elements having Atomic Numbers 3–5, 11–14, 19–34, 37–52, 55–57, and 72–84, and (b) a compound containing at least one amine group, wherein the internal mold release/compatibilizing agent is present in an amount sufficient to provide mold release characteristics to the article and to compatibilize the relatively high molecular weight polyahl and the relatively low molecular weight polyol.

5,212,210

ENERGY CURABLE COMPOSITIONS HAVING IMPROVED CURE SPEEDS

Leo W. Halm, Blaine, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 18, 1992, Ser. No. 853,570

Int. Cl.[5] C08G 18/22

U.S. Cl. 522—24 26 Claims

1. A polymerizable composition comprising a polymeric precursor as disclosed in (1) or (2) wherein

(1) comprises at least one polyisocyanate, and at least one compound bearing at least two isocyanate-reactive hydrogen atoms, the isocyanate and reactive hydrogen-containing compound constituting polyurethane precursors, or

(2) comprises at least one ethylenically-unsaturated monomer, at least one polyisocyanate, and at least one compound bearing at least two isocyanate-reactive hydrogen atoms, the isocyanate and reactive hydrogen-containing compound constituting polyurethane precursors,

and a two-component curing agent for (1) or (2) comprising an ionic salt of an organometallic complex cation comprising at least one transition metal atom and at least one carbon to metal atom bond, and a peroxide selected from the group consisting of hydroperoxides and acyl peroxides, wherein said polymerizable composition, when subjected to sufficient energy to effect polymerization, provides a tack-free cured composition.

5,212,211

POLYMODAL-CURE SILICONE COMPOSITION, AND METHOD OF MAKING THE SAME

Edward K. Welch, II, Bristol; Robert P. Cross, West Simsbury; David I. Crossan, Hebron, and Hsien-Kun Chu, Wethersfield, all of Conn., assignors to Loctite Corporation, Hartford, Conn.

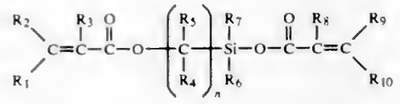
Filed Nov. 19, 1990, Ser. No. 615,185

Int. Cl.[5] C08F 2/50; C08G 77/14, 77/20, 77/16

U.S. Cl. 522—37 32 Claims

1. An acryloxy-functional capped silicone, formed as a non-hydrolysis reaction product of:

(i) a silyl diacrylate compound of the formula:



wherein:

R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8, R_9, and R_{10} are independently selected from hydrogen, halo, and organo radicals; and

n is an integer having a value of from 1 to 4; and

(ii) a silicone having:

(A) functionality which is reactive with an acryloxy functionality of said silyl diacrylate compound to yield said acryloxy-functional capped silicone which is partially curable under first curing conditions comprising curingly effective radiation exposure optionally in the presence of a photoinitiator; and

(B) additional functionality which renders said acryloxy-functional capped silicone partially curable by second curing conditions different from the curingly effective radiation exposure of the first curing conditions.

5,212,212

ZINC-CONTAINING CERAMIC INK COMPOSITIONS STABILIZED WITH CALCIUM ORGANIC COMPLEX

James B. Fonda, Erie, Pa., assignor to Lord Corporation, Erie, Pa.

Filed Nov. 14, 1992, Ser. No. 868,599

Int. Cl.[5] C08F 2/48; C08K 5/04; C03C 17/00

U.S. Cl. 522—79 20 Claims

1. A ceramic ink composition comprising a metal oxide, a glass frit, a UV-curable vehicle, zinc powder, and a calcium-containing organic complex.

5,212,213

RADIATION-CURABLE ROSIN-BASED RESINS

G. Frederick Hutter, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 603,427, Oct. 26, 1990, abandoned. This application May 20, 1992, Ser. No. 885,842

Int. Cl.[5] C08F 2/46

U.S. Cl. 522—81 31 Claims

1. Radiation-curable rosin-based resins with a softening point of at least 80° C. comprising reacting in a fusion reaction:

(a) 12 to 68% by weight of a member selected from the group consisting of: fully maleated rosin, fully fumarated rosin, and combinations thereof;

(b) 12 to 68% by weight of a member selected from the group consisting of: maleic anhydride, maleic acid, fumaric acid, and combinations thereof;

(c) 15 to 40% by weight of a polyol; and

(d) up to 20% by weight of a member selected from the group consisting of aromatic dibasic acid, saturated aliphatic dibasic acid, and combinations thereof.

5,212,214

ARYLENE SULFIDE COATING HAVING IMPROVED PHYSICAL PROPERTIES

Lyle R. Kallenbach, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 7, 1991, Ser. No. 696,830

Int. Cl.[5] C08J 9/32

U.S. Cl. 523—218 30 Claims

1. A method of improving the degradation resistance of a substrate comprising the step of coating at least one surface of said substrate with a layer of an arylene sulfide polymer coating composition, said arylene sulfide polymer coating composition comprising an arylene sulfide polymer coating resin and a ceramic microsphere filler incorporated in said arylene sulfide polymer resin, said ceramic microsphere filler being present in said coating composition in an amount in the range of from about 15 to about 40 parts by weight and said arylene sulfide polymer resin being present in said coating composition in an amount in the range of from about 50 to about 85 parts by weight such that said ceramic microsphere filler operates to improve the abrasion resistance of said coating composition.

5,212,215

LIGHT ANTI-CHIPPING COATING

Yasuo Nanri, Chiryu; Mitsuo Hironaga, Toyota, and Akio Sato, Chiryu, all of Japan, assignors to Nihon Tokushu Toryo Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 193,718, May 13, 1988, abandoned, which is a continuation-in-part of Ser. No. 922,606, Oct. 24, 1986, abandoned. This application Feb. 26, 1991, Ser. No. 662,380

Claims priority, application Japan, Oct. 29, 1985, 60-240474; Dec. 17, 1985, 60-281981; Apr. 21, 1986, 61-90113

Int. Cl.[5] C08J 9/32

U.S. Cl. 523—218 6 Claims

1. A light, anti-chipping coating consisting essentially of a blend of 100 parts by weight of a polyvinyl resin capable of forming a plastisol, 50 to 200 parts by weight of a plasticizer for said resin, 2 to 20 parts by weight of additives and 80 to 350 parts by weight of a filler component, said filler component consisting of from 0.5 to 5% by weight of expanded thermoplastic microspheres and the balance being solid calcium carbonate filler powder.

5,212,216

CATIONIC ELECTRODEPOSITION PAINT COMPOSITION CONTAINING COLLOIDAL SILICA-CONTAINING GELLED PARTICULATE

Tsutomu Hattori; Hirofumi Masui; Katsuo Iizuka; Satoru Nishigaki, all of Zama; Mitsuyoshi Kitano, and Yasuyuki Hirata, both of Hiratsuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Aug. 13, 1990, Ser. No. 565,788

Claims priority, application Japan, Aug. 14, 1989, 1-207824

Int. Cl.[5] C09D 5/44

U.S. Cl. 523—415 8 Claims

1. A cationic electrodeposition paint composition, comprising:

an amine-modified epoxy resin;

a blocked isocyanate;

a nonionic emulsified and dispersed acrylic resin, said acrylic resin being within a range from 5 to 30% by weight in resinous solid content relative to a total resin content of the paint composition;

a colloidal silica-containing gelled particulate, said gelled particulate being within a range from 10 to 30 PHR in solid content in the paint composition, said colloidal silica-containing gelled particulate being formed by dispersing a mixture of an acrylic copolymer having a hydrolyzable alkoxysilane group and a cationic group and cationic acidic colloidal silica in water to carry out a cross-linking reaction; and

an alkyltin ester compound of an aliphatic carboxylic acid, said alkyltin ester compound being within a range from 0.1 to 10 PHR in solid content in the paint composition.

5,212,217

ARTIFICIAL MARBLE FROM REACTIVE THERMOPLASTIC, MONOMER AND ANHYDRIDE

Nobuhiko Yukawa, Akashi; Terukuni Hashimoto, Itami; Katsuhiko Sakamoto, Kishiwada, and Atsushi Motoyama, Suita, all of Japan, assignors to Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, Japan

Continuation of Ser. No. 276,916, Nov. 26, 1988, abandoned. This application Jul. 16, 1990, Ser. No. 552,874

Claims priority, application Japan, Nov. 26, 1987, 62-296046; Jul. 27, 1988, 63-185574; Aug. 19, 1988, 63-204732

Int. Cl.[5] C08K 3/22, 3/26, 3/34, 3/36

U.S. Cl. 523—434 5 Claims

1. A setting resin composition comprising:

(A) a radically polymerizable monomer in a liquid state at room temperature,

(B) at least one thermoplastic resin selected from the group consisting of polystyrene and polymethyl methacrylate, containing in the molecular unit thereof at least one functional group selected from the group consisting of epoxy gruop, thioepoxy group, aziridine group, oxazoline group and N-hydroxyalkylamide group and having a weight average molecular weight in the range of 3,000 to 400,000,

(C) an epoxy resin having an epoxy equivalent weight in the range of 70 to 250,

(D) at least one carboxyic acid anhydride selected from the group consisting of maleic anhydride and phthalic anhydride, and

(E) an inorganic filler and

using said components in proportions such that, based on the amount of said radically polymericable monomer (A) taken at 100 parts by weight, the amount of said thermoplastic resin (B) is in the range of 5 to 75 parts by weight, that of said epoxy resin (C) in the range of 10 to 100 parts by weight, that of said inorganic filler (E) in the range of 100 to 1,000 parts by weight, and that of said carboxylic acid anhydride (D) in the range of 0.5 to 4.0 equivalent weights per equivalent weight of said epoxy resin (C), and (E) said inorganic filler being the hydrate of a metal oxide.

5,212,218

HYDROPHOBIC, ERODIABLE SYNTHETIC RESIN COMPOSITION FOR ELECTRICAL INSULATORS

William M. Rinehart, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.

Filed Oct. 15, 1991, Ser. No. 775,461

Int. Cl.[5] C08K 5/10

U.S. Cl. 523—455 19 Claims

1. An insulative body having at least the outer portion thereof formed of a dielectric composition, said composition comprising a continuous phase, a discrete, discontinuous, hydrophobic phase, a minor amount of a dispersant, and a UV light absorber, said continuous phase being selected from the group consisting of the epoxy, urethane and silicone rubber resins and mixtures thereof, said hydrophobic phase being present in said continuous phase as discrete, suspended droplets, said droplets being formed of hydrophobic material which is substantially solid at room temperature but which melts at a temperature above about 80° F., said dielectric composition being formed by separately preparing an additive comprising a quantity of said hydrophobic material with said UV light absorber dissolved or dispersed therein, and thereafter incorporating said additive with the remaining ingredients of the dielectric composition.

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5,212,219

DEGRADABLE PLASTICS

Gerald J. L. Griffin, Leics, England, assignor to Epron Industries Limited, England

Continuation-in-part of Ser. No. 565,998, Aug. 10, 1990, abandoned, which is a continuation of Ser. No. 182,949, Apr. 18, 1988, Pat. No. 4,983,651. This application Sep. 4, 1991, Ser. No. 754,626

Claims priority, application United Kingdom, May 21, 1987, 8712009

The portion of the term of this patent subsequent to Jan. 8, 2008, has been disclaimed.

Int. Cl.[5] C08L *3/00;* C08F *8/00;* C08G *63/48, 63/91*

U.S. Cl. 524—17 67 Claims

1. A polymer composition for preparing degradable articles having as essential ingredients a blend of:

a stable chemically saturated polymer containing an antioxidant active over a limited time,

a less stable chemically unsaturated polymer or copolymer, and

a pro-oxidant.

5,212,220

WATER-BASED EMULSIONS AND DISPERSIONS OF BITUMEN MODIFIED WITH A FUNCTIONALIZED BLOCK COPOLYMER

Richard Gelles, Sugarland, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Mar. 18, 1992, Ser. No. 853,645

Int. Cl.[5] C08L *95/00*

U.S. Cl. 524—68 12 Claims

1. A bitumen emulsion comprising

(a) bitumen,

(b) water,

(c) optionally at least one emulsifier, and

(d) a conjugated diene polymer containing functional groups which have a strong affinity for water wherein the polymer is a block copolymer which is comprised of at least one conjugated diene block and at least one acrylic monomer block.

5,212,221

STABILIZED PHTHALOCYANINE PIGMENT COMPOSITIONS

Robert Langley, Glasglow, and Michael D. McFarlane, Houston, both of Scotland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 4, 1992, Ser. No. 878,102

Claims priority, application United Kingdom, May 11, 1991, 9110260

Int. Cl.[5] C08K *5/34*

U.S. Cl. 524—88 14 Claims

1. A heat-stable, pigmented thermoplastic resin composition comprising A) a thermoplastic resin; B) a metal phthalocyanine pigment; and C) 0.5 to 30% by weight of, based on the weight of component B), as agent for imparting heat stability to component B), a phthalocyanine compound having the formula (I):

$$MPc(CH_2NHCO—A)_y \quad I$$

in which Pc is a phthalocyanine residue which is optionally substituted by up to an average of 1 chlorine or bromine atom, or of 1 sulphonic acid group; M is hydrogen or a metal capable of forming a metal phthalocyanine; y is a number ranging from 0.1 to 4.0; and A is C_1–C_{21} alkyl, C_2–C_{21} alkenyl, C_5–C_8 cycloalkyl, C_7–C_{11} aralkyl, C_6or C_{10} aryl, or a 5- or 6-membered heterocyclic residue, or a fused heterocyclic system.

5,212,222

MELT-STABLE RECYCLABLE CARBON BLACK-LADEN POLYACETAL RESIN MOLDING COMPOSITIONS AND MOLDED ARTICLES FORMED OF THE SAME

Masamichi Mitsuuchi; Tsuyoshi Minamisawa; Hiroshi Kitamura, and Hideo Kakizaki, all of Shizuoka, Japan, assignors to Polyplastics Co., Ltd., Osaka, Japan

Filed Jan. 29, 1992, Ser. No. 827,047

Claims priority, application Japan, Feb. 4, 1991, 3-13480

Int. Cl.[5] C08K *13/06*

U.S. Cl. 524—230 12 Claims

1. A melt-stable recyclable polyacetal resin molding composition comprising a blend of

(A) 100 parts by weight of a polyacetal base resin;

(B) a carbon black-laden ethylenic carrier resin which is present in an amount to provide between 0.1 to 30 parts by weight of carbon black, and wherein the ethylenic carrier resin is present in an amount between 0.3 to 8 times by weight of the carbon black integrated therewithin, and a co-stabilization system which comprises

(C) between 0.01 to 5 parts by weight of at least one compound selected from nitrogen-containing compounds, fatty acid ester compounds and metal-containing compounds having a hydroxide moiety, an inorganic acid salt moiety or a carboxylic acid salt of an alkali metal or an alkaline earth metal, and

(D) between 0.01 to 5 parts by weight of a hindered phenolic compound.

5,212,223

EXTRUSION METHOD AND APPARATUS FOR RECYCLING WASTE PLASTICS AND CONSTRUCTION MATERIALS THEREFROM

Wolfgang A. Mack, Franklin, and Peter J. Canterino, Towaco, both of N.J., assignors to Polymerix, Inc., Cranford, N.J.

Filed Mar. 5, 1991, Ser. No. 664,927

Int. Cl.[5] C08K *5/10*

U.S. Cl. 524—318 27 Claims

1. An extrudable composition for making construction material, comprising a dry blend of:

at least 50%, based of total weight of said composition, of a used polyolefinic material derived from residential, commercial, or industrial waste;

about 0.1 to 1.5%, based on the total weight of said composition, of an alkali metal bicarbonate; and

in a molar ratio of about 1:1 to 2:1 with respect to said bicarbonate, a saturated fatty acid which is a solid at room temperature, the amount of said alkali metal bicarbonate and said fatty acid being sufficient to form, upon extrusion, a foamed construction material having a specific gravity of 0.4 to 0.9; and

about 2 to 50% of a reinforcing material.

5,212,224

FREE FLOWING MOULDING MATERIALS BASED ON POLYAMIDES CONTAINING BISPHENOLS

Rolf-Volker Meyer; Friedrich Fahnler; Rolf Dhein, all of Krefeld, and Martin Wandel, Dormagen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Continuation of Ser. No. 333,739, Apr. 5, 1989, abandoned, which is a continuation of Ser. No. 189,723, May 3, 1988, abandoned, which is a continuation of Ser. No. 32,617, Apr. 1, 1987, abandoned. This application Feb. 27, 1990, Ser. No. 486,002

Claims priority, application Fed. Rep. of Germany, Apr. 11, 1986, 3612159

Int. Cl.[5] C08K *5/13;* C08L *33/24*

U.S. Cl. 524—333 8 Claims

1. A polyamide moulding material which can be processed by thermoplastic means and contains diene or acrylic rubber or both, and contains 10% to 20% by weight, relative to the polyamide content, of at least one bisphenol selected from the group consisting of dihydroxydiphenyls, bis-(hydroxyphenyl)alkanes, bis-(hydroxyphenyl)-cycloalkanes, bis-(hydroxyphenyl) sulphides, bis-(hydroxyphenyl) ethers, bis-(hydroxyphenyl) ketones, bis(hydroxyphenyl) sulphoxides, bis-(hydroxyphenyl) sulphones and, bis-(hydroxyphenyl)-diisopropylbenzenes, and wherein the amount of diene and acrylic rubber is 10 to 40%, by weight, relative to the polyamide content.

5,212,225

BINDER SYNTHESIS PROCESS

David M. Ingle, Riverside, Calif., assignor to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 774,730, Oct. 9, 1991, Pat. No. 5,157,071, which is a continuation of Ser. No. 400,124, Aug. 24, 1989, abandoned. This application Jul. 8, 1992, Ser. No. 910,674

Int. Cl.[5] C08L *33/02*

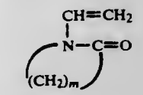
U.S. Cl. 524—458 20 Claims

1. A process for synthesizing a binder comprising the steps of:

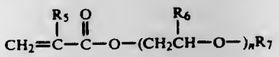
(a) forming a latex adhesion polymer comprising:

(i) about 15 to about 35 weight percent of a substantially non-self-polymerizable monomer selected from the group consisting of itaconic acid, maleic acid, fumaric acid, itaconate ester, maleate ester, fumarate ester, and mixture thereof;

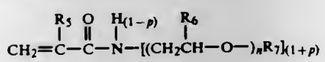
(ii) about 30 to about 70 weight percent of a copolymerizable monomer having a water-soluble homopolymer selected from the group consisting of N-vinyl lactams having the formula



m being an integer from about 3 to about 5; acrylates having the formula



and acrylamides having the formula



R_5 and R_6 being independently hydrogen or methyl, R_7 being hydrogen or an alkyl group, n being an integer from 1 to about 30, an p being either 0 to 1; and

(iii) about 10 to about 35 weight percent of a wet adhesion promoting monomer selected from the group consisting of ethyleneureido-containing monomers, cyanoacetoxy-containing monomers, acetoacetoxy-containing monomers, and hydroxymethyl diacetone acrylamide; and

(b) polymerizing monomers in a reaction vessel to form a high molecular weight film former while delay adding the latex adhesion polymer.

5,212,226

CARBON BLACK HAVING A HIGH SPECIFIC SURFACE AREA

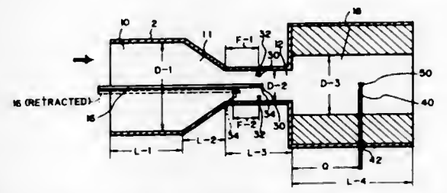
Mizuo Soeda, Tokyo, and Kazuyoshi Watanabe, Shimonoseki, both of Japan, assignors to Cabot Corporation, Boston, Mass.

Division of Ser. No. 526,725, May 22, 1990, Pat. No. 5,110,576. This application Dec. 12, 1991, Ser. No. 811,445

Claims priority, application Japan, May 23, 1988, 1-129643

Int. Cl.[5] C08K *3/04*

U.S. Cl. 524—496 2 Claims



1. A rubber composition comprising about 100 parts, by weight, of a rubber and from about 10 to about 250 parts, by weight, of a carbon black having an I_2 No. of from at least about 135 mg/g to about 200 mg/g, a DBP of from at least about 105 cc/100 g to about 150 cc/100 g, a CTAB/I_2 No. ratio of 0.95 to 1.05, a N_2SA/CTAB ratio of not greater than 1.05, a Dmode$_C$/Dmode$_U$ ratio of at least 0.96 to about 1.0.

5,212,227

THERMOPLASTIC RESIN COMPOSITIONS

Suehiro Sakazume, Fujisawa, and Yuichi Orikasa, Yokohama, both of Japan, assignors to Nippon Petrochemicals Co., Ltd. and Nippon Oil & Fat Co., Ltd., Japan

Filed Dec. 20, 1990, Ser. No. 631,388

Claims priority, application Japan, Dec. 28, 1989, 1-343857

Int. Cl.[5] C08L *23/10, 25/06, 51/06, 23/12*

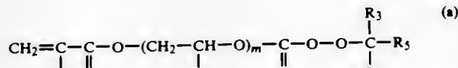
U.S. Cl. 524—504 7 Claims

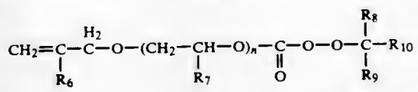
1. A thermoplastic resin composition which comprises

(I) 90 to 50% by weight of a propylene polymer other than (III), and

(II) 10 to 50% by weight of polystyrene other than (III), and

(III) 5 to 20 parts by weight, based on 100 parts by weight of the aforesaid resins (I)+(II), of a preformed compatibility agent which is a multiphase structure thermoplastic resin which is a graft copolymer comprising 20 to 90% by weight of a propylene polymer and 80 to 10% by weight of polystyrene or copolymer of styrene and acrylonitrile, one of the components being formed as a dispersion phase having a particle diameter of 0.001 to 10 μm, said graft copolymer being obtained by melting and kneading a graft polymerization precursor (A) which is prepared by copolymerizing styrene or styrene and acrylonitrile with at least one of radical polymerizable peroxides having the formulae (a) or (b)


(a)


(b)

wherein R_1 is a hydrogen atom or an alkyl group having 1 or 2 carbon atoms, each of R_2 and R_7 is a hydrogen atom or a methyl group, R_6 is a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, each of R_3, R_4, R_8 and R_9 is an alkyl group having 1 to 4 carbon atoms, each of

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R_5 and R_{10} is an alkyl group having 1 to 12 carbon atoms, a phenyl group, an alkyl-substituted phenyl group or a cycloalkyl group having 3 to 12 carbon atoms, m is 1 or 2, and n is 0, 1 or 2,

in particles of a propylene polymer.

5,212,228

STARCH-BASED CORRUGATING ADHESIVE HAVING CROSS-LINKED POLYVINYL ALCOHOL COMPONENTS

Donald C. Sistrunk, 3933 Devonshire Dr., Cincinnati, Ohio 45226

Continuation of Ser. No. 517,315, May 1, 1990, abandoned, which is a continuation of Ser. No. 295,784, Jan. 11, 1989, abandoned. This application Oct. 31, 1991, Ser. No. 784,082

Int. Cl.[5] C08L *61/00*

U.S. Cl. 524—512 **1 Claim**

1. A premix composition for addition to a starch-based corrugating adhesive, said premix composition consisting essentially of water, polyvinyl alcohol and a resin selected from the group consisting of ketone-aldehyde resins and ureaformaldehyde resins and in the absence of borax and starch, said premix being formed by mixing said polyvinyl alcohol in water, heating the mixture to a temperature from about 125°-210° F., holding the mixture at said temperature for a period of about 15 minutes to 3 hours, allowing the mixture to cool to a temperature of about 100° F. or less, and thereafter adding said resin thereto to effect reaction of the resin with the polyvinyl alcohol to disperse the polyvinyl alcohol and stabilize the viscosity of the composition, there being from about 10 to 25 weight percent of polyvinyl alcohol and from about 1 to 15 weight percent of said resin, said composition being pourable after a period of 7 days storage at ambient temperature.

5,212,229

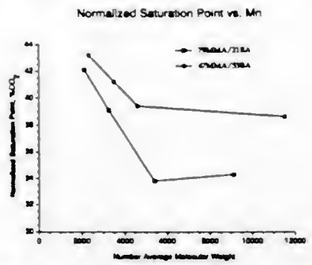
MONODISPERSED ACRYLIC POLYMERS IN SUPERCRITICAL, NEAR SUPERCRITICAL AND SUBCRITICAL FLUIDS

James W. Taylor, South Charleston; John N. Argyropoulos, Scott Depot, and Jeffrey J. Lear, Dunbar, all of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Mar. 28, 1991, Ser. No. 676,547

Int. Cl.[5] C08L *31/00*

U.S. Cl. 524—556 **18 Claims**



1. A coating composition low in volatile organic solvents which comprises a monodispersed acrylic polymer solutions containing supercritical, near supercritical or subcritical fluids as a diluent therein.

5,212,230

AQUEOUS POLYUREA DISPERSIONS PREPARED BY AN EMULSION POLYMERIZATION PROCESS

Robin E. Tirpak, Wheeling, W. Va.; Peter H. Markusch, McMurray, Pa., and Ashok M. Sarpeshkar, New Martinsville, W. Va., assignors to Miles Inc., Pittsburgh, Pa.

Filed Mar. 28, 1991, Ser. No. 677,011

Int. Cl.[5] C08J *3/00;* **C08K** *3/20;* **C08L** *75/00;* **C08G** *18/00*

U.S. Cl. 524—589 **16 Claims**

1. A process for the preparation of an aqueous polyurea dispersion which comprises

a) dispersing in water at an NCO:NH equivalent ratio of 0.5:1.0 to 2.0:1.0

i) a polyisocyanate which has an average functionality of 1.5 to 4.0 and an isocyanate content of at least 12% by weight and

ii) a polyamine having at least two primary and/or secondary amino groups and a molecular weight of at least 1000 and

b) allowing the polyisocyanate and polyamine to react to form an aqueous polyurea dispersion.

5,212,231

ISOCYANATE CURED POLYSULPHIDE POLYMERS

Clive Woollard, Tamworth, England, assignor to Morton International Limited, Hounslow, England

Filed Feb. 20, 1992, Ser. No. 839,517

Claims priority, application United Kingdom, Feb. 21, 1991, 9103670; Jan. 3, 1992, 9200091

Int. Cl.[5] C08L *75/04*

U.S. Cl. 524—590 **43 Claims**

1. A method of curing a liquid polysulphide resin which comprises reacting the liquid polysulphide with an isocyanate curing agent in the presence of a catalyst selected from organometallic compound and metal salts, wherein the isocyanate curing agent has a isocyanate functionality of at least two.

5,212,232

PROCESS FOR PRODUCTION OF STYRENE-BASED POLYMERS

Masahiko Kuramoto; Hiroshi Maezawa, both of Ichihara, and Hiroshi Hayashi, Chiba, all of Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 358,385, May 11, 1989, abandoned. This application Oct. 3, 1991, Ser. No. 771,783

Claims priority, application Japan, Sep. 28, 1987, 62-240981; Oct. 2, 1987, 62-247986

Int. Cl.[5] C08K *3/08;* **C08F** *4/64*

U.S. Cl. 524—779 **8 Claims**

1. In a process for producing a styrene-based polymer having mainly a syndiotactic structure, the improvement comprises polymerizing a styrene-based monomer in the presence of 0.1 to 85% by weight, based on total product weight, of filler selected from the group consisting of silica, alumina, silica alumina, quick lime, magnesia, titania, triirontetraoxide, zirconia, and calcium carbonate by the use of a catalyst containing (A) a titanium compound and (B) aluminoxane as main components.

5,212,233

POLYMERIZABLE LIQUID SEALANTS FOR IMPREGNATING CAST METAL AND POWDERED METAL ARTICLES

Thomas W. Juday, Elm Grove, Wis., assignor to Imprex, Inc., Milwaukee, Wis.

Division of Ser. No. 377,352, Jul. 10, 1989, Pat. No. 5,097,743. This application Jun. 28, 1991, Ser. No. 723,016

Int. Cl.[5] C08F *36/00, 36/20*

U.S. Cl. 525—36 **9 Claims**

1. A thermally curable liquid sealant for impregnating and sealing pores of cast metal articles and powdered metal articles

including polymerizable components consisting essentially of, on a percent by weight basis

(1) about 25% to 40% of a polymerizable monofunctional methacrylate or acrylate monomer;

(2) about 30% to 40% of a polymerizable polyfunctional dimethacrylate or diacrylate monomer ester of triethylene glycol, tripropylene glycol or tetraethylene glycol;

(3) about 10% to 20% of a polymerizable polyfunctional dimethacrylate or diacrylate ester of diethylene glycol or dipropylene glycol;

(4) about 5% to 15% of an unsaturated water emulsifiable polyester which is reactive with the acrylate monomers of components (1)–(3) to form a cross-linked solid upon curing, said polyester being formed by the reaction of adipic acid and fumaric acid with a mixture of polyols;

(5) about 5% to 15% of a dicyclopentenyloxyethyl methacrylate or acrylate ester, said sealant having a viscosity of about 29 to 33 seconds as measured with a No. 1 Zahn cup at 72° C.

5,212,234

MOULDING COMPOUND BASED ON THERMOSETTING RESIN MATERIAL

Rene L. E. Van Gasse, Opglabbeek, Belgium, and Andreas N. J. Verwer, Beek, Netherlands, assignors to DSM Resins B.V., Zwolle, Netherlands

Continuation of Ser. No. 345,850, May 1, 1989, abandoned, which is a continuation of Ser. No. 122,596, Nov. 12, 1987, abandoned, which is a continuation of Ser. No. 850,158, Apr. 10, 1986, abandoned. This application Apr. 23, 1991, Ser. No. 689,508

Claims priority, application Netherlands, Apr. 11, 1985, 8501059

Int. Cl.[5] C08L *67/06*

U.S. Cl. 525—43 **9 Claims**

1. The molding compound comprising:

a mixture of at least two thermosetting resins, the first resin being partially cured to a viscosity greater than 50,000 Pas at 20° C. by radical polymerization, the second resin having a viscosity less than 100 Pas at 150° C., said thermosetting resins consisting essentially of

(a) alkenically unsaturated crosslinkable polyesters, in combination with

(b) alkenically unsaturated monomers, alkenically unsaturated prepolymers, or mixtures of alkenically unsaturated monomers and prepolymers, said first resin containing fibers and the particles of said first resin being dispersed in said second resin.

5,212,235

HYDROPHOBICALLY MODIFIED PROTEINS

Eirik Nestaas, Trondheim, Norway; Kevin R. Hrebenar, Jacksonville, Fla.; Jerome M. Lewis, and George M. Whitesides, both of Newton, Mass., assignors to Emulsan Biotechnologies, Inc., New York, N.Y.

Continuation of Ser. No. 22,443, Mar. 3, 1987, abandoned. This application Dec. 27, 1990, Ser. No. 634,369

Int. Cl.[5] C07K *1/12;* **C08H** *1/06*

U.S. Cl. 525—54.1 **3 Claims**

1. A C_{12} to C_{30} alkyl- or alkenyl-succinylated emulsan in which the succinyl group is covalently attached to the protein or polypeptide of said emulsion via an amide linkage.

5,212,236

POLYPHENYLENE ETHER RESIN COMPOSITION

Isao Sasaki; Naoki Yamamoto, both of Hiroshima, and Akira Yanagase, Otake, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 379,197, Jul. 13, 1989, abandoned, which is a continuation of Ser. No. 95,001, Sep. 10, 1987, Pat. No. 4,894,415. This application Jul. 11, 1991, Ser. No. 728,714

Claims priority, application Japan, Sep. 11, 1986, 61-214871

Int. Cl.[5] C08F *283/12. 51/04, 51/08*

U.S. Cl. 525—63 **5 Claims**

1. A process for producing a compound-rubber-based graft copolymer which comprises:

(a) emulsion-polymerizing an organosiloxane with a cross-linking agent for polyorganosiloxane rubber to obtain a polyorganosiloxane-rubber component;

(b) polymerizing an alkyl (meth)acrylate with a cross-linking agnet for polyalkyl (meth)acrylate rubber and a graft-linking agent for polyalkyl (meth)acrylate rubber in a state where they are impregnated into said polyorganosiloxane rubber component, said second polymerization providing a compound rubber having an average particle diameter of 0.08 to 0.6 μm and a structure wherein 7.2 to 92. 8% by weight of the polyorganosiloxane rubber component and 92.8 to 7.2% by weight of the polyalkyl (meth)acrylate rubber component are tangled with each other so as not to separate, the total amount of the polyorganosiloxane rubber component being 100% by weight of the compound rubber; and

(c) graft-polymerizing one or more vinyl monomer onto the compound rubber.

5,212,237

POLYMER MIXTURES

Werner Siol, Darmstadt-Eberstadt; Thomas Suefke, Rossdorf; Ulrich Terbrack, Reinheim, and Reiner Mueller, Biesbesheim, all of Fed. Rep. of Germany, assignors to Roehm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Feb. 27, 1990, Ser. No. 485,548

Claims priority, application Fed. Rep. of Germany, Mar. 4, 1989, 3907018

Int. Cl.[5] C08L *51/04, 51/06*

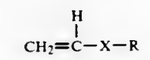
U.S. Cl. 525—64 **14 Claims**

1. A polymer mixture, comprising:

(A) 2 to 98 wt. % of a first polymer which comprises at least 80 wt. % of the repeating unit $-(CH_2-O)-$; and

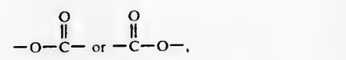
(B) 98 to 2 wt. % of a second polymer comprising

(i) at least 20 to 90 wt. % of a polymer B1 which comprises at least 90 wt. % of monomer units derived from monomers of the formula I



(I)

wherein R is an alkyl group having 1 to 3 carbon atoms and X is



and

(ii) 80 to 10 wt. % of a polymer B2 having a glass transition temperature, Tg, below 0° C., wherein polymer B2 is covalently bonded with at least 5 wt. % of said polymer B1, wherein said polymer B is a polymer with a core-shell structure, wherein polymer B1 comprises the shell and polymer B2 comprises the core, and wherein said polymer B2 is selected from the group consisting of elastomeric polyacrylates and polyolefins.

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TOUGHENED COMPOSITIONS OF POLYAMIDE AND FUNCTIONALIZED RUBBER BLOCK OR GRAFT COPOLYMERS

Anthony S. Scheibelhoffer, Norton, and Paryiz Baghail, Independence, both of Ohio, assignors to Ferro Corporation, Cleveland, Ohio

Division of Ser. No. 670,370, Mar. 14, 1991, Pat. No. 5,122,569, which is a continuation of Ser. No. 288,736, Dec. 22, 1988, abandoned. This application Apr. 16, 1992, Ser. No. 869,809
The portion of the term of this patent subsequent to Jun. 16, 2009, has been disclaimed.
Int. Cl.[5] C08L *51/04, 53/00, 77/06*
U.S. Cl. 525—66 **24 Claims**

15. A multiphase composition, comprising:
a continuous phase comprising from about 40 to about 80 percent by weight of a polyamide, and
a dispersed particulate phase comprising from about 20 to about 60 percent by weight of a block or graft copolymer which is formed by intimate mixing at a reaction temperature of from about 200° to about 500° and at a shear rate of from about 500 $sec.^{-1}$ to about 2000 $sec.^{-1}$ and in the presence of free radicals to cause a chemical coupling of one or more rubber polymers having a repeating unit selected from the group consisting of ethylene-propylene-diene monomer, random copolymer or multiblock SBR, polyisoprene, and nitrile rubber, and one or more reactive polymers having a mole fraction of less than 0.5 of a reactive functionality reactive with said polyamide selected from the group consisting of an unsaturated dicarboxylic acid having 3 to 8 carbon atoms or a salt thereof, an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms, an anhydride of said dicarboxylic acid, a monoester having from 3 to 8 carbon atoms, or a salt thereof, a sulfonic acid and an unsaturated epoxy or a salt of said reactive functionality, and said reactive polymer having an ethylene repeat unit thereon; said rubber polymer being present in the block or graft copolymer from about 40 to about 90 percent by weight of said rubber and said reactive polymer.

16. A method for producing a multiphase composition, comprising:
producing a graft or block copolymer by mixing at a reaction temperature of from about 200° F. to about 500° F. and at a shear rate of from about 500 $sec.^{-1}$ to about 2000 $sec.^{-1}$ to cause a chemical coupling and in the presence of free radicals, a rubber, and a reactive polymer having from about 0.01 to about 0.5 of a reactive functionality reactive with a polyamide, said reactive functionality being selected from the group consisting of an unsaturated dicarboxylic acid, an unsaturated monocarboxylic acid, an anhydride, a monoester, a sulfonic acid, or a salt of said reactive functionality, or an unsaturated epoxy; and
melt mixing said graft or block copolymer with one or more polyamides.

5,212,239

RESIN BLENDS CONTAINING CRYSTALLINE PROPYLENE POLYMERS AND STYRENIC COPOLYMERS

Ramesh Mallikarjun, Exton, Pa., assignor to Arco Chemical Technology, L.P., Wilmington, Del.

Filed Feb. 22, 1991, Ser. No. 659,802
Int. Cl.[5] C08G *63/48, 63/91;* **C08L** *53/00*
U.S. Cl. 525—74 **20 Claims**

1. A resin blend comprising:
(a) from about 25 to 80 weight percent of a crystalline propylene polymer;
(b) from about 5 to 40 weight percent of a random styrenic copolymer comprised of
(i) from about 50 to 99.5 weight percent of a vinyl aromatic monomer;
(ii) from about 0.5 to 30 weight percent of a first α,β-unsaturated dicarboxylic acid anhydride; and
(c) a functionalized elastomer comprised of a base elastomeric polymer and at least one pendent active hydrogen-containing functional group selected from the group consisting of amino and hydroxyl, wherein said base elastomeric polymer is selected from the group consisting of
(i) random copolymers of ethylene, a C_3 to C_6 olefin, and a diene;
(ii) conjugated diene polymers and hydrogenated derivatives thereof;
(iii) block and random copolymers of vinyl aromatic monomers and conjugated dienes and hydrogenated derivatives thereof; and
(iv) random copolymers of ethylene and a C_3 to C_6 olefin.

5,212,240

HEAT RESISTANT STYRENIC POLYMER BLENDS

Robert P. Dion, and John M. Warakomski, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 22, 1991, Ser. No. 688,229
Int. Cl.[5] C08L *9/00, 51/00*
U.S. Cl. 525—86 **12 Claims**

1. A styrenic polymer blend comprising:
A. from about 5 to about 95% by weight based on the total weight of the blend of a fumaronitrile-containing styrenic copolymer having polymerized therein,
i. from about 45 to about 95% by weight, based on the total weight of said copolymer, of styrene,
ii. from about 5 to about 30% by weight based on the total weight of said copolymer, of fumaronitrile, and
iii. from about 0 to about 25% by weight, based on the total weight of said copolymer, of acrylonitrile; and
B. from about 5 to 95% by weight based on the total weight of the blend, of a binary copolymer having polymerized therein:
i. acrylonitrile, for compatibility with the fumaronitrile-containing styrenic copolymer, in an amount, based on the total weight of the binary copolymer, between y % and x % wherein:
y=(AN % in copolymer A+FN % in copolymer A), and
x=(AN % in copolymer A+1.3×FN % in copolymer A)+7, and
ii. styrene in an amount constituting the balance of said binary copolymer.

5,212,241

GLYCIDYL-EPOXY-ACRYLIC COPOLYMERS

James T. K. Woo, Medina; Gary C. Pompignano, and Kevan A. Packard, both of North Royalton, all of Ohio, assignors to The Glidden Company, Cleveland, Ohio

Division of Ser. No. 528,375, May 25, 1990, Pat. No. 5,157,078. This application May 15, 1992, Ser. No. 883,946
Int. Cl.[5] C08F *8/00;* **C08L** *63/00*
U.S. Cl. 525—109 **10 Claims**

1. A protective surface coating containing a polymeric binder having a self-contained wetting agent structure, the polymeric binder comprising:
an acrylic-graft terpolymer comprising on a weight basis between about 2% and 20% of an aliphatic-modified glycidyl acrylate, between about 30% and 80% epoxy resin, between about 0.2% and 30% diphenol, and between about 15% to 25% in-situ formed acrylic copolymer of copolymerized ethylenically unsaturated monomers including carboxyl monomers; and
said acrylic-graft terpolymer formed by first forming a terpolymer by coreacting epoxy resin and aliphatic-modified glycidyl acrylate with diphenol to form the terpolymer, and then in-situ copolymerizing the ethylenically unsaturated monomers in the presence of the terpolymer and in the presence of at least 3% by weight peroxide initiator at temperatures from about 70° C. to 170° C. to produce the acrylic-graft terpolymer.

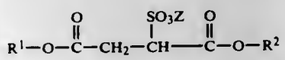
5,212,242

COATING COMPOSITION BASED ON A HYDROXYL-CONTAINING ADDITION POLYMER AND AN AMINO RESIN CROSSLINKING AGENT, AGENT AND CONTAINING ACID CATALYSTS HAVING HYDROXY GROUPS

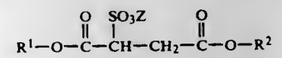
Lutz-Werner Gross, Haltern, Fed. Rep. of Germany; Stefan Wieditz, Sylvania, Ohio, and Werner-Alfons Jung, Ascheberg, Fed. Rep. of Germany, assignors to BASF Lache+Farben Aktiengesellschaft, Munster, Fed. Rep. of Germany

PCT No. PCT/EP90/00201, § 371 Date Oct. 2, 1991, § 102(e) Date Oct. 2, 1991, PCT Pub. No. WO90/10039, PCT Pub. Date Sep. 7, 1990
PCT Filed Feb. 8, 1990, Ser. No. 752,651
Claims priority, application Fed. Rep. of Germany, Feb. 25, 1989, 3905915
Int. Cl.[5] C08L *29/02, 61/26, 29/16*
U.S. Cl. 525—162 **19 Claims**

1. A coating composition, comprising
A) 50 to 90% by weight of one or more hydroxyl-containing addition polymers, prepared by copolymerization of ethylenically unsaturated monomers which are in part hydroxyalkyl esters of α,β-ethylenically unsaturated carboxylic acids, and
B) 10 to 50% by weight of one or more melamineformaldehyde crosslinking agents
the sum of the proportions by weight of A and B being 100% by weight, and suitable auxiliaries and additives, optionally pigments, optionally fillers, organic solvent and an acid catalyst, wherein the acid catalyst used comprises:
1) a sulfo- or sulfono-succinic diester which contains at least one hydroxyl group and corresponds to the following formulae (I) or (II):



(I)



(II)

in which:
R^1=a linear or branched alkyl or alkoxyalkyl radical having 2 to 12 carbon atoms and having 1, 2 or 3 hydroxyl groups
R^2=a linear or branched alkyl or alkoxyalkyl radical having 2 to 12 carbon atoms and, if desired, up to 3 hydroxyl groups
Z=H or $NH_nR_{.n}$
with
n=0–4 and
R=alkyl, hydroxyalkyl, aryl or hydroxyaryl, where R may be identical or different, or an aliphatic or aromatic N-heterocycle
and/or
2) a succinic polyester sulfonic acid and/or succinic polyester sulfonium salt in each case containing at least on hydroxyl group.

5,212,243

POWDER COATING WHICH IS EXCELLENT IN STAIN RESISTANCE

Yuji Toyoda, Takatsuki; Akimitsu Uenaka; Hideki Ichimura, both of Suita; Tasaburo Uneo, Sakai, and Koichi Tsutsui, Kyoto, all of Japan, assignors to Nippon Paint Co., Ltd., Japan

Filed Jun. 5, 1992, Ser. No. 894,470
Claims priority, applicatioo Japan, Juo. 6, 1991, 3-233669
Int. Cl.[5] C08L *75/04*
U.S. Cl. 525—187 **4 Claims**

1. A powder coating which is excellent in stain resistance, essentially consisting of
(a) a base resin having a reactive functional group
(b) a hardener having in its molecule 2 or more functional groups which are reactive with the functional group of the base resin, and
(c) an acrylic resin, containing 40 to 100% by weight of the total of the constituting monomers of t-butyl acrylate and/or t-butyl methacrylate.

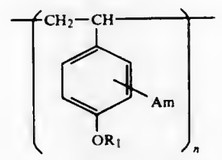
5,212,244

THERMOSETTING RESIN COMPOSITION, AND PREPREG AND LAMINATED SHEET WHICH USE THE SAME

Katuo Sugawara, Hitachi; Akio Takahashi, Hitachiota; Junichi Katagiri, Ibaraki; Akira Nagai; Masahiro Ono, both of Hitachi, and Toshikazu Narahara, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 487,406, Mar. 26, 1990, Pat. No. 5,080,965. This application Oct. 8, 1991, Ser. No. 772,846
Int. Cl.[5] C08F *709/02*
U.S. Cl. 525—193 **1 Claim**

1. A laminated sheet formed by laminating a prepreg which comprises a fibrous base material and a thermosetting resin composition comprising
(a) a prepolymer of a ply(p-hydroxystyrene) derivative represented by the general formula



(I)

wherein A is a halogen group, R_1 is an alkenyl or alkenoyl group of 2 to 4 carbon atoms, m denotes a number of 1 to 4 and n denotes a number of 1 to 100,
(b) an epoxy-modified polybutadiene, and
(c) an aromatic malimide compound.

5,212,245

THERMOSETTING POWDER COATING COMPOSITIONS CONTAINING FLOW MODIFIERS

James R. Franks, Allison Park, Pa., and Paul H. Pettit, Jr., Strongsville, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Mar. 4, 1992, Ser. No. 845,571
Int. Cl.[5] C08L *33/14;* **C08F** *63/00;* **C08G** *63/91;* **B32B** *15/04*
U.S. Cl. 525—223 **17 Claims**

1. A thermosetting powder coating composition comprising:
(a) from 95.0 to 99.99 percent by weight of a curable particulate resinous material and
(b) from 0.01 to 5.0 percent by weight of a flow control agent being a copolymer having a weight average molecular weight of at least 4000 and a glass transition temperature less than 10° C.; said copolymer being prepared from

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polymerizing polymerizable ethylenically unsaturated monomers comprising:

(i) 40 to 80 percent by weight of an alkyl acrylate or methacrylate containing from 6 to 20 carbon atoms in the alkyl group and

(ii) from 10 to 50 percent by weight of a hydroxyalkyl acrylate or methacrylate.

5,212,246

OLEFIN POLYMER FILMS

Kumar Ogale, Hockessin, Del., assignor to Himont Incorporated, Wilmington, Del.

Continuation-in-part of Ser. No. 589,857, Sep. 28, 1990, abandoned. This application Aug. 27, 1991, Ser. No. 749,055

Int. Cl.[5] C08L *23/10, 23/16, 53/00*

U.S. Cl. 525—240 **14 Claims**

1. A film or sheet material comprising an olefin polymer composition which is comprised of

(a) from about 10 to 50 parts of a propylene homopolymer having an isotactic index greater than 80, or a copolymer selected from the group consisting of (i) propylene and ethylene, (ii) propylene, ethylene and a CH_2=CHR alpha-olefin, where R is a C_{2-8} straight or branched alkyl, and (iii) propylene and an alpha-olefin as defined in (ii), said copolymer containing over 80% propylene and having an isotactic index greater than 80;

(b) from about 5 to 20 parts of a semi-crystalline, essentially linear copolymer fraction having a crystallinity of about 20 to 60% wherein the copolymer is selected from the group consisting of (i) ethylene and propylene containing over 55% ethylene, (ii) ethylene, propylene, and an alpha-olefin as defined in (a) (ii) containing from 1 to 10% of the alpha-olefin and over 55% of both ethylene and alpha-olefin, and (iii) ethylene and an alpha-olefin as defined in (a) (ii) containing over 55% of said alpha-olefin, which copolymer is insoluble in xylene at room or ambient temperature; and

(c) from about 40 to 80 parts of a copolymer fraction wherein the copolymer is selected from the group consisting of (i) ethylene and propylene containing from 20% to less than 40% ethylene, (ii) ethylene, propylene, and an alpha-olefin as defined in (a) (ii) wherein the alpha-olefin is present in an amount of 1 to 10% and the amount of ethylene and alpha-olefin present is from 20% to less than 40%,, and (iii) ethylene and an alpha-olefin as defined in (a) (ii) containing from 20% to less than 40% of said alpha-olefin, and optionally with 0.5 to 10 % of a diene, said copolymer fraction being soluble in xylene at ambient temperature, and having an intrinsic viscosity of from 1.5 to 4.0 dl/g;

with the total of the (b) and (c) fractions, based on the total olefin polymer composition, being from about 50% to 90%, and the weight ratio of (b)/(c) being less than 0.4, wherein said composition is prepared by polymerization in at least two stages and has a flexural modulus of less than 150 MPa.

5,212,247

POLYPROPYLENE RESIN COMPOSITIONS OF HIGH SYNDIOTACTICITY AND PREPARATION PROCESS THEREOF

Tadashi Asanuma, Osaka; Tetsunosuke Shiomura, Tokyo; Nobutaka Uchikawa, Osaka; Tutomu Iwatani, Osaka, and Katsumi Takeuchi, Osaka, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Jun. 6, 1990, Ser. No. 533,757

Claims priority, application Japan, Jun. 12, 1989, 1-146738

Int. Cl.[5] C08F *297/08;* **C08L** *23/10, 23/12, 23/16*

U.S. Cl. 525—240 **1 Claim**

1. A polypropylene resin composition of high syndiotactic characteristics which comprises a substantial homopolymer of propylene, in which the ratio of the intensity of the peak attributable to the syndiotactic pentad bonds to the sum of the intensities of all the peaks attributable to the methyl groups in the spectrum of the methyl groups measured by ^{13}C-NMR is 0.7 or more, and a copolymer of ethylene and propylene, in which the molar ratio of ethylene units to propylene units ranges from 15/85 to 85/15, and the weight ratio of said homopolymer to said copolymer ranges from 95/5 to 50/50, said polypropylene resin composition having improved transparency over a syndiotatic homopolymer of propylene and being prepared by first polymerizing propylene substantially singly in the presence of a catalyst capable of forming high syndiotatic polypropylene and then copolymerizing ethylene and propylene in the same polymerization reaction system.

5,212,248

PREPARATION OF HYDROCARBONS AND POLYMERS WITH ALLYLIC CHLORIDE END GROUPS FRIEDEL-CRAFTS CATALYST

Konrad Knoll, Mannheim; Klaus Bronstert, Carlsberg, and Dietmar Bender, Schifferstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Aug. 14, 1991, Ser. No. 744,743

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1990, 4025961; Sep. 29, 1990, 4030914

Int. Cl.[5] C08F *255/00, 297/08*

U.S. Cl. 525—245 **4 Claims**

1. A process for preparing hydrocarbons and polymers thereof, of the structure I

$$R-C(CH_3)_2-CH_2-C(CH_3)_2-CH_2-CH=CH-CH_2-Cl \quad (I)$$

where R is a hydrocarbon radical, which comprises reacting a material containing chlorine bonded to a tertiary carbon and having the structure

$$R-C(CH_3)_2-CH_2-C(CH_3)_2-Cl \quad (II)$$

with from 1 to 10 moles of butadiene in the presence of a Friedel-Crafts catalyst in a solvent which is inert to the catalyst, not less than 1 equivalent of Friedel-Crafts catalyst being employed per $-CH_2-C(CH_3)_2Cl$ end group.

5,212,249

METHOD FOR PREPARING ASYMMETRIC RADIAL POLYMERS

Gary W. Richie, deceased, late of Columbus by Jean Richie, administrator ; Raymond C. Tsiang, Sugar Land; Ronald J. Hoxmeier; Arthur R. Bean, both of Houston, and Harvey E. Atwood, Kingwood, all of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Oct. 28, 1991, Ser. No. 783,441

Int. Cl.[5] C08F *297/04*

U.S. Cl. 525—258 **12 Claims**

1. In a method for preparing an asymmetric radial polymer comprising the steps of

(a) contacting a first polymer having a single reactive end group with a nonpolymerizable coupling agent containing a plurality of functional groups which will react with the reactive end group, the amount of said first polymer being substantially stoichiometrically corresponding with a part of the total amount of the functional groups in such a way that the reaction between the first polymer and the coupling agent proceeds substantially to completion,

(b) contacting in subsequent steps one or more polymers, being different from said first polymer and from each other and having a reactive end group, with the respective reaction product from each proceeding step until all functional groups of the coupling agent have finally completely reacted, and

(c) recovering an asymmetric radial polymer; the improvement which comprises adding a polar compound capable of increasing the amount of vinyl groups during the polymerization of a conjugated diolefin to the polymer during the final contacting step of the last polymer.

5,212,250

POLY(MALEIC ANHYDRIDE) COPOLYMERS WITH SIDE CHAINS EXHIBITING NONLINEAR OPTICAL RESPONSE

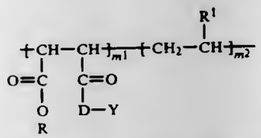
Iain McCulloch, Plainfield, N.J., and Thomas M. Leslie, Huntsville, Ala., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Sep. 17, 1991, Ser. No. 761,115

Int. Cl.[5] C08F *267/04*

U.S. Cl. 525—276 **25 Claims**

1. A copolymer which is characterized by recurring monomeric units corresponding to the formula:



wherein m^1 and m^2 are integers which total at least 10, and the m^1 monomer comprises between about 10–90 mole percent of the total m^1+m^2 monomeric units; R is hydrogen or a C_1–C_{10} hydrocarbyl substituent; R^1 is a C_1–C_4 alkoxyl or C_6–C_{12} aromatic substituent; D is —O— or —NH—; and Y is a pendant organic side chain containing a conjugated structure and an electron-withdrawing group selected from the group consisting of $-NO_2$, —CN, $-CF_3$, $-CH=C(CN)_2$, $-C(CN)=C(CN)_2$, and $-SO_2CF_3$, such that the D—Y-electron-withdrawing moiety exhibits nonlinear optical susceptibility.

5,212,251

ALKALI-RESISTANT CORE-SHELL POLYMERS

Dennis P. Lorah, Lansdale, and Mark S. Frazza, Philadelphia, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Sep. 24, 1990, Ser. No. 587,199

Int. Cl.[5] C08F *257/02, 263/04, 265/02, 6/14*

U.S. Cl. 525—279 **28 Claims**

1. A composition comprising a core-shell polymer having an acid-insoluble polymer core and an acid-soluble or quaternizable polymer shell, wherein said shell and said core are prepared sequentially by emulsion polymerization, wherein said core having an average molecular weight of greater than about 8,000 and said shell having a weight average molecular weight of about 5,000 to about 100,000, and wherein the ratio of said core to said shell is about 85:15 to about 15:85.

6. The composition of claim 1 wherein said core-shell polymer has been neutralized by an acid.

8. A clear overprint varnish comprising the composition of claim 6.

9. An ink composition comprising the core-shell polymer of claim 6.

10. A process for emulsion polymerization using the core-shell polymer of claim 6 as a seed.

5,212,252

ROOM-TEMPERATURE CURABLE RESIN COMPOSITION CONTAINING ACRYLIC POLYMER HAVING ALICYCLIC EPOXIDE FUNCTIONS

Kei Aoki, Ikoma; Tadafumi Miyazono, Mino, and Hirohiko Mori, Settsu, all of Japan, assignors to Nippon Paint Co., Ltd., Japan

Filed Nov. 14, 1991, Ser. No. 791,503

Claims priority, application Japan, Nov. 14, 1990, 2-310001

Int. Cl.[5] C08F *20/32*

U.S. Cl. 525—327.3 **5 Claims**

1. A curable resin composition comprising:

(a) an acrylic polymer having a plurality of alicyclic epoxide functions and a number average molecular weight, of greater than 1,000, said acrylic polymer being a homopolymer of an acrylic monomer having at least one alicyclic epoxide function or a copolymer of said acrylic monomer with an ethylenically unsaturated monomer free from said alicyclic epoxide function and an alkoxysilane function; and

(b) an amount effective to initiate the curing reaction of said acrylic polymer at room temperature of a cation polymerization initiator selected from the group consisting of a Bronsted acid, a Lewis acid, an amine trifluoromethane sulfonate, an amine tetrafluoroborate, an amine hexafluoroantimonate, an amine hexafluoroarsenate and an amine hexafluorophosphate.

5,212,253

ELECTROPHORESIS ELEMENT COMPRISING A POLYMER CONTAINING A HALOACETAMIDO GROUP

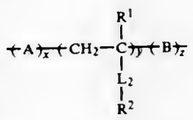
Ignazio S. Ponticello, Pittsford, and David B. LaTart, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 339,456, Apr. 18, 1989, abandoned. This application Nov. 2, 1989, Ser. No. 430,995

Int. Cl.[5] C08F *8/00, 8/34*

U.S. Cl. 525—328.2 **4 Claims**

1. An element for electrophoresis which comprises a crosslinked polymer which, before crosslinking, conforms to the structure



wherein —A— represents recurring units derived from one or more polymerized acrylamide monomers, R^1 is hydrogen or methyl, R^2 is a haloacetamido group, L is



alkylene, arylene, a divalent heteroatom, or a combination of



alkylene, divalent heteroatom, and/or arylene, Z is a divalent heterocyclic group having from 5 to 7 nuclear carbon and heteroatoms; —B— represents recurring units derived from any other polymerized vinyl monomer; and x, y, and z represent weight percents of the recurring units, x being about 50–90 weight percent, y being about 1–50 weight percent, and z being about 0–45 weight percent.

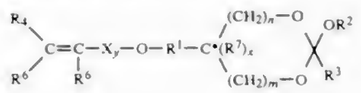
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5,212,254
PROCESS FOR PRODUCING CHLOROSULFONATED POLYOLEFIN IN PRESENCE OF OLEFIN
Yoshiaki Ishida, and Katsushige Okayama, both of Yamaguchi, Japan, assignors to Tosoh Corporation, Yamaguchi, Japan
Filed Apr. 17, 1991, Ser. No. 686,385
Claims priority, application Japan, Apr. 19, 1990, 2-101802; Apr. 20, 1990, 2-102847
Int. Cl.[5] C08F *8/38;* C08C *19/20*
U.S. Cl. 525—344 6 Claims

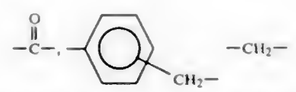
1. A process for producing a chlorosulfonated polyolefin which comprises dissolving or suspending a polyolefin in a solvent and conducting chlorination and chlorosulfonation reaction of the dissolved or suspended polyolefin, said solvent being a chloroform-based solvent comprising a mixture of 100 parts by weight of chloroform containing no alcohol and a compound having from 4 to 10 carbon atoms and containing one or more double bonds per molecule, which compound stabilizes the chloroform to prevent the generation of phosgene, wherein said compound having from 4 to 10 carbon atoms and containing one or more double bonds per molecule is used in an amount of from 0.0008 to 10 parts by weight per 100 parts by weight of said chloroform containing no alcohol.

5,212,255
FUNCTIONALIZATION OF POLYPHENYLENE ETHER WITH GRAFTABLE ORTHOESTER
Farid F. Khouri, Clifton, N.Y.; Robert J. Halley, Atlanta, Ga., and John B. Yates, III, Glenmont, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Apr. 3, 1992, Ser. No. 863,625
Int. Cl.[5] C08G *65/48*
U.S. Cl. 525—391 11 Claims

1. A functionalized polyphenylene ether prepared by the reaction of a polyphenylene ether with an ethylenically unsaturated orthoester having the formula



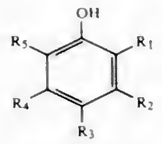
wherein:
R^1 is a C_{1-6} alkylene radical;
R^2 is a C_{1-4} primary or secondary alkyl radical and R^3 is a C_{1-4} primary or secondary alkyl or C_{6-10} aromatic radical, or R^2 and R^3 together with the atoms connecting them form a 5-, 6- or 7-membered ring;
each of R^4, R^5 and R^6 is independently hydrogen, an unsubstituted or substituted C_{1-8} alkyl radical or an unsubstituted or substituted aryl radical;
R^7 is hydrogen or C_{1-4} primary or secondary alkyl;
X is



x is 0 when R^2 and C• form a ring and is otherwise 1;
m is 0 or 1;
n is 1 or 2; and
y is at least 1.

5,212,256
THERMOPLASTIC RESIN COMPOSITION
Yukio Mizuno; Takashi Maruyama; Hiroomi Abe, all of Chiba, and Yutaka Terada, Hyogo, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan
Continuation-in-part of Ser. No. 352,996, May 17, 1989, abandoned. This application Nov. 8, 1990, Ser. No. 610,205
Claims priority, application Japan, May 24, 1988, 63-127391
Int. Cl.[5] C08L *71/12, 75/00, 77/00*
U.S. Cl. 525—395 2 Claims

1. A thermoplastic resin composition which comprises:
(A) 100 parts by weight of a composition comprising 95–5% by weight of a polyphenylene ether obtained by oxidation polymerization of at least one phenol compound represented by the following formula:



(wherein R_1, R_2, R_3, R_4 and R_5 which may be identical or different, each represents a hydrogen atom, a halogen atom, a hydrocarbon radical or a substituted hydrocarbon radical and at least one of them is a hydrogen atom) and 5–95% by weight of a polyamide, and
(C) 0.01–10 parts by weight of an amino resin obtained by modifying with an alcohol an addition reaction product of formaldehyde and at least one compound selected from the group consisting of melamine, guanamine and urea.

5,212,257
ARAMID BLOCK COPOLYMERS
Robert S. Irwin, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 6, 1991, Ser. No. 802,910
Int. Cl.[5] C08L *77/10*
U.S. Cl. 525—432 26 Claims

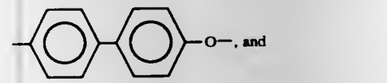
1. An aramid block copolymer, comprising, two or more first aramid blocks, said first aramid blocks being crystalline after drawing of the solid polymer, and two or more second aramid blocks, said second aramid blocks being noncrystalline after drawing of the solid polymer, said first and second aramid blocks being flexible in solution and in the undrawn solid polymer and rigid in the drawn solid state, and provided the average number of repeat units in each of said first aramid blocks and said second aramid blocks is at least 3.

5,212,258
ARAMID BLOCK COPOLYMERS
Robert S. Irwin, Wilmington, Del., assignor to E. I Du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 29, 1991, Ser. No. 784,346
Int. Cl.[5] C08L *77/10*
U.S. Cl. 525—432 31 Claims

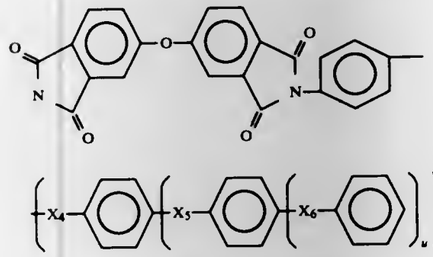
1. An aramid block copolymer, comprising, two or more first aramid blocks, said first aramid being flexible in solution and in the undrawn solid polymer but is rigid after drawing of the solid polymer, and two or more second aramid blocks, said second aramid being flexible in solution and in the drawn and undrawn solid state, provided the number of repeat units in each of said first aramid blocks and said second aramid blocks is at least 3.

5,212,259
MISCIBLE BLENDS OF IMIDE CONTAINING POLYMERS WITH POLY(ARYL SULFONES)
James E. Harris, Evans, Ga., and Gary T. Brooks, Naperville, Ill., assignors to Amoco Corporation, Chicago, Ill.
Division of Ser. No. 291,967, Dec. 30, 1988, Pat. No. 5,037,902. This application Jul. 9, 1990, Ser. No. 550,098
Int. Cl.[5] C08L *79/08*
U.S. Cl. 525—436 5 Claims

1. A miscible blend of a poly(aryl sulfone) and a polyimide having a single Tg when determined by the modulus-resilience method, said blend comprising:
(a) a poly(aryl sulfone) containing the following unit:



(b) a polyimide containing the following unit:



wherein X_4, X_5 and X_6 are independently —O—, —CO—, —SO_2, —NHCO, —$C(CH_3)_2$—or a direct bond with the proviso that at least one of X_4, X_5 and X_6 isopropylidene, and U, V and W are independently 0 or 1, with the proviso that at least one of U or V is 1.

5,212,260
PRIMER COATING COMPOSITION FOR SILICONE RELEASE APPLICATIONS
Edwin C. Culbertson, Greer, S.C., assignor to Hoechst Celanese Corporation, Somerville, N.J.
Continuation-in-part of Ser. No. 609,869, Nov. 7, 1990, Pat. No. 5,077,353. This application Nov. 6, 1991, Ser. No. 788,626
The portion of the term of this patent subsequent to Dec. 31, 2008, has been disclaimed.
Int. Cl.[5] C08F *20/32, 20/36*
U.S. Cl. 525—446 8 Claims

1. A primer coating composition for silicone release coatings, comprising, before dilution with water, from 25 to 75% by weight glycidoxy silane and from 75 to 25% by weight copolyester, wherein said copolyester comprises:
a) from about 40 to 98 mol percent isophthalic acid;
b) from about 0 to about 50 mol percent of at least one aliphatic dicarboxylic acid;
c) from about 2 to about 20 mol percent of at least one sulfomonomer containing a sulfonate group attached to a dicarboxylic nucleus; and
d) about 100 mol percent of glycol having from about 2 to 11 carbon atoms.

5,212,261
LATENT, HEAT-CURABLE EPOXY RESIN COMPOSITIONS CONTAINING METAL CARBOXYLATE CURING SYSTEMS
Thomas J. Stierman, Santa Rosa, Calif., assignor to Henkel Research Corporation, Santa Rosa, Calif.
Filed Dec. 17, 1990, Ser. No. 628,794
Int. Cl.[5] C08G *59/68;* C08L *63/00*
U.S. Cl. 525—506 51 Claims

1. A heat-curable epoxy resin composition free of cure-effective amounts of an amine, carboxylic anhydride, or carboxylic acid in the acid form, comprising:
(a) at least one polyepoxide;
(b) from about 0.1 to about 50 parts of a metal carboxylate salt curing agent per hundred parts by weight of total epoxy resin, said metal carboxylate salt being selected from a Group IA or Group IIA metal and being derived from a carboxylic acid containing from 1 to 4 carboxyl groups, wherein said metal carboxylate salt is substantially soluble in said epoxy resin composition at a cure temperature of above about 100° C.; and
(c) from about 1 to about 100 parts of a cure modifier per hundred parts by weight of total epoxy resin, said cure modifier containing polar functionality, being soluble in said epoxy resin composition at said cure temperature and having sufficient solvating strength as to increase the solubility of said metal carboxylate salt in said epoxy resin to curing effective levels at said cure temperature.

5,212,262
EPOXY RESIN ADVANCED WITH DIPHENOL/DIGLYCIDYL ETHER ADDUCTS
Kenneth W. Anderson, Lake Jackson; Deborah I. Haynes, Freeport, and Ross C. Whiteside, Jr., Angleton, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 372,064, Jun. 27, 1989, abandoned, which is a division of Ser. No. 128,249, Dec. 3, 1987, Pat. No. 4,863,575. This application Apr. 27, 1990, Ser. No. 516,018
Int. Cl.[5] C08L *63/02;* C08K *63/20*
U.S. Cl. 525—524 11 Claims

1. A curable composition comprising a curing quantity of a suitable curing agent and a composition comprising a mixture of
(A) an advanced epoxy resin resulting from reacting a composition comprising
(1) the aromatic hydroxyl-containing product resulting from reacting a composition comprising
(a) at least one diglycidyl ether of (i) an oxyalkylated aromatic diol, or (ii) at least one compound having two hydroxyl groups per molecule in which the hydroxyl groups are attached to an aliphatic or cycloaliphatic carbon atom and which compound is free of aromatic rings; or (iii) a combination of (i) and (ii); and (iv) optionally, a diglycidyl ether compound different from (i) and (ii) which is present in an amount such that the amount of epoxy groups contributed by component (iv) based upon the total amount of epoxy groups contributed by components (i), (ii) and (iv) is from about zero to about 75 percent; and
(b) at least one compound containing two aromatic hydroxyl groups per molecule; wherein components (a) and (b) are employed in amounts such that there are more aromatic hydroxyl groups present than glycidyl ether groups;
(2) at least one diglycidyl ether of a compound containing two aromatic hydroxyl groups per molecule;
(3) optionally, one or more compounds containing two aromatic hydroxyl groups per molecule; and
(4) optionally, a monofunctional capping agent; and
(B) at least one diglycidyl ether of a compound having two aromatic hydroxyl groups per molecule;

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wherein components (A1) and (A2) are employed in amounts such that the resultant product has an epoxide equivalent weight greater than that of component (A2); component (A3), when present, is employed in an amount which provides a total amount of aromatic hydroxyl groups from components (A1) and (A3) per epoxide group contained in component (A2) of from about 0.5:1 to about 0.95:1; and component (A4) is present in an amount which provides a ratio of epoxy-reactive groups contained in component (A4) per glycidyl group not consumed by reaction of components (A1) and (A3) with component (A2) of from about zero: 1 to about 0.7:1; and components (A) and (B) are present in an amount such that from about 25 to about 95 percent of the total amount of glycidyl ether groups are contributed by component (A) and from about 75 to about 5 percent of the total amount of glycidyl ether groups are contributed by component (B).

5,212,263

TEXTURED EPOXY POWDER COATING

Dean A. Schreffler, Hamburg, Pa., assignor to Morton International, Inc., Chicago, Ill.

Filed Jan. 10, 1991, Ser. No. 639,628
Int. Cl.[5] C08G *59/14*; C08L *63/00*
U.S. Cl. 525—533 **6 Claims**

1. A coating powder for forming a grainy textured finish which is a particulate form of a composition comprising epoxy resin, between about 15 and about 25 phr methylene disalicylic acid and between about 1 and about 5 phr of a cure catalyst which is an adduct of imidazole or a substituted imidazole and a Bisphenol A epoxy resin, the residue of said imidazole comprising between about 5 and about 50 wt. % of said adduct.

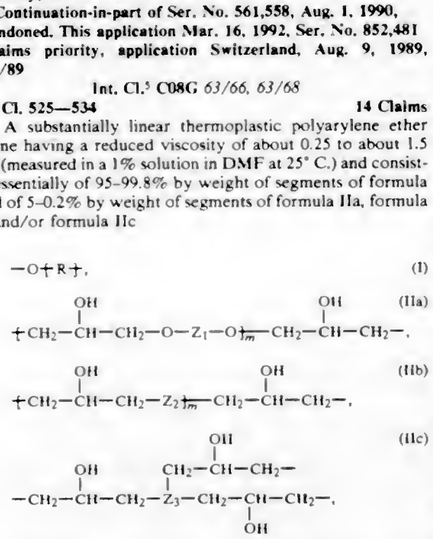
5,212,264

MODIFIED POLYARYLENE ETHER SULFONES

Kurt Hoffmann, Lautertal; Thomas Kainmüller, Lindenfels-/Odenwald, and Rudolf Pfaendner, Rimbach/Odenwald, all of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 561,558, Aug. 1, 1990, abandoned. This application Mar. 16, 1992, Ser. No. 852,481
Claims priority, application Switzerland, Aug. 9, 1989, 2924/89
Int. Cl.[5] C08G *63/66*, *63/68*
U.S. Cl. 525—534 **14 Claims**

1. A substantially linear thermoplastic polyarylene ether sulfone having a reduced viscosity of about 0.25 to about 1.5 dl/g (measured in a 1% solution in DMF at 25° C.) and consisting essentially of 95–99.8% by weight of segments of formula I and of 5–0.2% by weight of segments of formula IIa, formula IIb and/or formula IIc



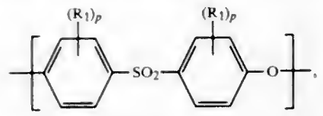
(I)

(IIa)

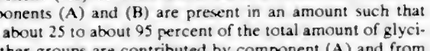
(IIb)

(IIc)

the percentages by weight being based on the entire polymer and the molecular weight (number average) of the segments of formula I being 6,000 to about 60,000, if the polymer contains solely structural units of formula IIa and/or IIb, and 1,000 to about 60,000 if the polymer contains more than 0.1% by weight of structural units of formula IIc, and R is selected from the group consisting of the recurring structural units of formula Ia and of up to 99.8% by weight, based on the total polymer, of recurring structural units of formula Ib



(Ia)



(Ib)

wherein R_1 is C_1–C_6alkyl, C_3–C_{10}alkenyl, phenyl or halogen, p is an integer from 0 to 4, Ar_1 and Ar_2 are each independently of the other divalent carbocyclic-aromatic radicals, Z_1 is a divalent radical of a cycloaliphatic, aromatic or araliphatic dihydroxy compound after removal of both hydroxyl groups, Z_2 is a divalent radical of a cycloaliphatic, aromatic or araliphatic di-secondary amino compound after removal of both N-hydrogen atoms, m is an integer from 1 to about 10, and Z_3 is a trivalent radical of a cycloaliphatic, aromatic or araliphatic compound containing hydroxy and/or amino groups after removal of the hydroxyl groups and/or active hydrogen atoms bound to amino nitrogen atoms, which radicals Ar_1, Ar_2, Z_1, Z_2 and Z_3 may be substituted by one to four C_1–C_6alkyl groups, C_3–C_{10}alkenyl groups, phenyl groups or halogen atoms, and in which radicals Z_1, Z_2 and Z_3 one, two, three or four ring carbon atoms may be replaced by oxygen, sulfur and/or nitrogen atoms.

5,212,265

METHOD FOR RECOVERING UNREACTED MONOMERS AFTER PREPARATION OF VINYLIC POLYMER

Tadashi Amano, Kanagawa, and Minoru Shigemitsu, Ibaragi, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Japan

Filed Mar. 30, 1992, Ser. No. 859,814
Claims priority, application Japan, Apr. 8, 1991, 3-75222
Int. Cl.[5] C08F *2/16*
U.S. Cl. 526—71 **8 Claims**

1. A method for recovering unreacted monomers during preparation of a vinylic polymer which comprises the steps of polymerizing a vinyl monomer in an aqueous medium in a polymerizer and then recovering unreacted monomers from the polymerization system, wherein a gas evacuation rate per unit charge weight of the monomer is controlled to the range of from 60 to 300 Nm^3/hr per ton of the monomer from the initiation of the monomer recovery till the pressure in the polymerizer reaches 2.5 kg/cm^2G and a superficial gas linear velocity is reduced to a level of not more than 0.008 m/sec when the pressure in the polymerizer reaches 2.5 kg/cm^2G.

5,212,266

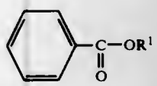
PROPYLENE POLYMERIZATION METHOD

Charles K. Buehler, Naperville; Cindy S. Senger, Plainfield, and Kenneth W. Johnson, Naperville, all of Ill., assignors to Quantum Chemical Corporation, Cincinnati, Ohio

Division of Ser. No. 341,242, Apr. 20, 1989, Pat. No. 5,128,294, which is a continuation of Ser. No. 71,978, Jul. 10, 1987, abandoned. This application Mar. 30, 1992, Ser. No. 865,799
Int. Cl.[5] C08F *4/649*
U.S. Cl. 526—128 **40 Claims**

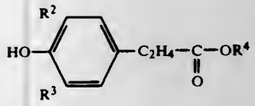
1. A method of homopolymerizing propylene or copolymerizing propylene with at least one other polymerizable 1-olefin having two to eight carbon atoms, inclusive, said method comprising the step of polymerizing said propylene and said 1-olefin, if any, under polymerizing conditions in the presence of a catalyst system comprising a dialkyl aluminum halide cocatalyst in combination with a catalyst component being prepared by reacting TiCl3 which is substantially free of extraneous halide with an electron donor compound dissolved in a liquid hydrocarbon solvent in which said TiCl3 is dispersed, said electron donor compound being selected from the group consisting of:

(a) organic acid esters of the general formula



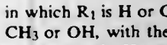
wherein R^1 is an alkyl group of 1 to 16 carbon atoms, inclusive;

(b) hindered phenolic compounds of the general formula



wherein R^2 is an alkyl group of 1 to 6 carbon atoms, inclusive; R^3 is hydrogen or an alkyl group of 1 to 6 carbon atoms, inclusive; and R^4 is an alkyl group of 2 to 24 carbon atoms, inclusive; and

(c) silyl esters of the general formula



wherein R^5 and R^6 can be the same or different and are alkyl groups of 1 to 8 carbon atoms, inclusive, or aryl groups, and n = 1 or 2.

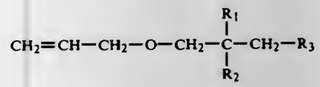
5,212,267

HARDENABLE FLUORINATED COPOLYMER, THE PROCESS FOR MAKING THE SAME, AND ITS APPLICATION IN PAINTS AND VARNISHES

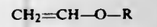
Patrick Kappler, Ecully, and Jean-Luc Perillon, Bernay, both of France, assignors to Atochem, France

Division of Ser. No. 779,029, Oct. 18, 1991, Pat. No. 5,136,003. This application Jul. 15, 1992, Ser. No. 913,857
Claims priority, application France, Oct. 19, 1990, 90 12969
Int. Cl.[5] C08F *18/20*
U.S. Cl. 526—212 **3 Claims**

1. The process of making a hardenable copolymer based on fluorinated monomer and an allylic compound, comprising polymerizing tetrafluoroethylene, chlorotrifluoroethylene, an allylic polyol of the formula:



in which R_1 is H or CH_2OH, R_2 is OH or CH_2OH, R_3 is CH_3 or OH, with the proviso that R_1 and R_3 cannot be simultaneously H and CH_3, and that it also contains an vinylic ether of the formula:



in which R is a linear of branched chain alkyl radical with 2 to 13 carbon atoms, in a solvent medium in the presence of a organosoluble polymerization initiator at a temperature of between about 30 to 120° C. and at a pressure of 10 to 80 bars for a time sufficient to form said copolymer.

5,212,268

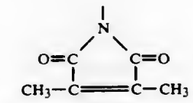
MULTIFUNCTIONAL REACTIVE POLYMERIC DILUENT AND METHOD RELATING THERETO

Carl J. Long, II, Elyria; William F. Masler, III, Hinckley; William R. Wilbur, Avon Lake; Gary L. Julian, Parma, and Julius Farkas, Westlake, all of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Division of Ser. No. 516,409, Apr. 30, 1990. This application Oct. 23, 1992, Ser. No. 965,631
Int. Cl.[5] C08F *26/06*, *220/10*
U.S. Cl. 526—262 **9 Claims**

1. A polymeric material comprising the reaction product of the following:

(1) a polymeric material comprising a pendant group having the following formula:

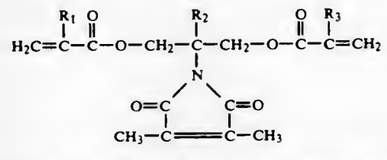


(2) a reactive material having the following formula:



wherein R_1 aromatic or aliphatic and R_2 is either —H or —CH_3 and m is 1, 2, 3, or 4; and

(3) a diluent having the following formula:



wherein R_1, R_2 and R_3 can be the same or different and are either —H, —CH_3 or —CH_2CH_3.

5,212,269

MAIN CHAIN CHROMOPHORIC POLYMERS WITH SECOND ORDER NONLINEAR OPTICAL PROPERTIES

John Fischer, P.O. Box 659, Inyokern, Calif. 93527; Ronald Henry, 329 Perdew, Ridgecrest, Calif. 93555; James Hoover, 408 Vanessa Ave., Ridgecrest, Calif. 93555; Geoffrey Lindsay, 725 Scott Cir., Ridgecrest, Calif. 93555; John Stenger-Smith, 1133 Meadowview La., Ridgecrest, Calif. 93555, and Andrew P. Chafin, 1565-A S. Downs St., Ridgecest, Calif. 93555

Filed Mar. 25, 1991, Ser. No. 680,717
Int. Cl.[5] C08G *63/685*
U.S. Cl. 526—266 **15 Claims**

1. Main-chain chromophoric processible homopolymers and copolymers

having nonlinear optical properties and defined by the general formula:



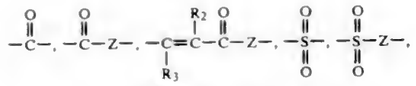
where D-B-A is a chromophoric unit in which:

D is an amine electron donating group —NR_1—, where R_1 is selected from the group consisting of H, alkyl, and alkenyl having one to 22 carbon atoms;

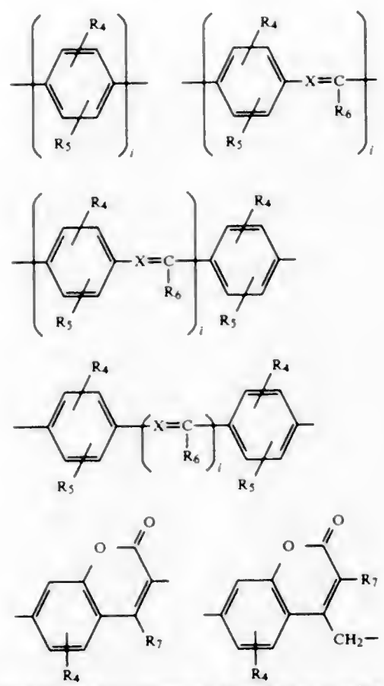
Sp is the spacer group selected from the group consisting of —$(CH_2)_{n'}$— and —$(CF_2)_{n'}$—, where n' is 2 to 12;

A is selected from the following electron accepting groups:

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where Z is selected from the group consisting of —O—, and —NH—; where R_2 and R_3 are selected from the group consisting of —H,— CH_3, $-CF_3$, —CN, and $-NO_2$; and,
where B is selected from one of the following connector groups:



where X is —CH= or nitrogen; R_4 and R_5 are each selected from the group consisting of —H, $-CH_3$, $-CF_3$, and OR_6, where R_6 is selected from the group consisting of H, alkyl, and alkylene having one to 22 carbon atoms; R_7 is selected from the group consisting of —H, $-CH_3$, $-CF_3$, —CN, and $-NO_2$; and i is 1 to 2: and
n is about 2 to about 10,000 wherein the Sp—D—B—A— units are oriented in a head-to-tail configuration.

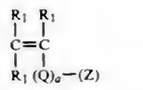
5,212,270

COMPOSITIONS SUITABLE FOR IMPARTING WETTING CHARACTERISTICS TO FABRICS, AND FABRICS TREATED WITH SAME

Kasturi Lal, Willoughby, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

Continuation of Ser. No. 494,064, Mar. 15, 1990, Pat. No. 5,079,076. This application Sep. 17, 1991, Ser. No. 761,206
Int. Cl.[5] C08F *228/02*
U.S. Cl. 526—287 **12 Claims**

1. A composition prepared by reacting, in the presence of a redox initiator and a material acid,
(a) at least one hydroxyl-containing imide, amide, or mixture of amide and imide, comprising at least one hydrocarbyl substituted carboxylic acid or anhydride moiety, wherein the hydrocarbyl group contains from 10 to about 150 carbon atoms, and at least one hydroxy amine moiety; with at least about an equivalent amount of
(b) at least one sulfo compound represented by the following formula:



wherein each R_1 is independently hydrogen or a hydrocarbyl group;
a is zero or one;
Q is a hydrocarbylene group or —C(X)N(R_2)Q'—;
R_2 is hydrogen or a hydrocarbyl group;
X is sulfur or oxygen
Q' is a hydrocarbylene group; and
Z is —S(O)OH, or —$S(O)_2$OH or an ester, metal salt or ammonium salt of the sulfo compound.

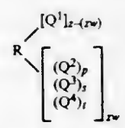
5,212,271

PROCESS FOR OBTAINING TEXTURED COATINGS FROM PHOTO-CURABLE UREA-CONTAINING COMPOSITIONS

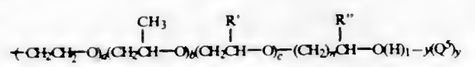
Alison D. Beckett, Nitro; Joseph V. Koleske, Charleston, and Richard M. Gerkin, Cross Lanes, all of W. Va., assignors to Texaco Chemical Company, Westchester, N.Y.

Filed Dec. 22, 1989, Ser. No. 455,100
Int. Cl.[5] C08F *2/50, 226/02*
U.S. Cl. 526—301 **22 Claims**

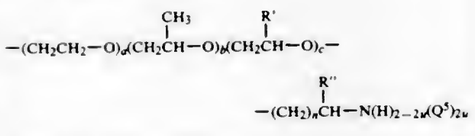
1. A process for preparing an ultraviolet light-cured coating having a textured appearance in the as-cured material, which process comprises exposing a photocurable composition in contact with an atmosphere to ultraviolet light for a sufficient length of time to cure the composition and wherein the photocurable composition comprises:
i) an aromatic ketone photosensitizer;
ii) a multifunctional urea compound of the formula



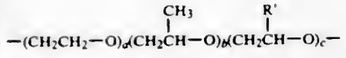
where R is an initiator radical based on a compound containing Zerewitinoff active hydrogen atoms other than thiol active hydrogen atoms and contains from two to six carbon atoms, Q^1 is a group of the formula:



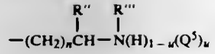
Q^2 is a group of the formula



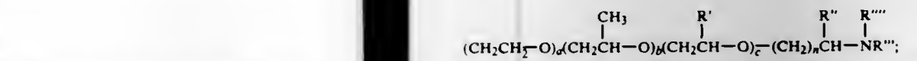
Q^3 is a group of the formula:



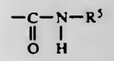
-continued



Q^4 is a tertiary amine-containing group of the formula:



wherein a has a value of from zero to 175, b has a value of 3 to 98, c has a value of zero to 30, n is an integer of from 1 to 3, y has a value of zero to u, u has a value of 0.3 to 1.0, R' is an alkyl group of 2 to 18 carbons, R'' is hydrogen or an alkyl group of one to 18 carbon atoms, R''' and R'''' are independently an alkyl group of 2 to 12 carbon atoms, Q^5 is a group represented by the formula:



wherein R^5 is an isopropenyl-substituted α,α-dimethylbenzyl group, p is a mole fraction and ranges from zero to 1.0, s is a mole fraction and ranges from zero to 1.0, t is a mole fraction and ranges from zero to 0.7, the quantity (p+s+t) equals one, w is a mole fraction and ranges from 0.3 to 1.0, z is an integer from 2 to six and (zw) is the product of z and w, and
iii) an ethylenically unsaturated compound that will undergo photopolymerization selected from the group consisting of monoacrylates, diacrylates, triacrylates and higher functionality acrylates.

5,212,272

POLYACRYLIC ACID COMPOSITIONS FOR TEXTILE PROCESSING

Ralph R. Sargent, and Michael S. Williams, both of Rome, Ga., assignors to Peach State Labs, Inc., Rome, Ga.

Filed Oct. 31, 1990, Ser. No. 606,467
Int. Cl.[5] C08F *12/24*
U.S. Cl. 526—317.1 **8 Claims**

1. A water soluble composition comprising a polymer prepared by polymerizing monomers consisting essentially of methacrylic acid, or its sodium, potassium, or ammonium salt, in the presence of at least 10% by weight of reaction components of an aromatic sulfonic acid selected from the group consisting of xylene sulfonic acid, toluene sulfonic acid, benzene sulfonic acid, cumene sulfonic acid, dodecylbenzene sulfonic acid, dodecyl diphenyloxide disulfonic acid, naphthalene sulfonic acid, methylnaphthalene sulfonic acid, trimethylbenzenesulfonic acid, aminobenzene sulfonic acid, halobenzenesulfonic acid, alkoxybenzenesulfonic acid, benzophenone sulfonic acid, halonaphthalene sulfonic acid, alkylnaphthalene sulfonic acid, alkoxynaphthalene sulfonic acid, 3-sulfobenzoic acid, hydroxybenzenesulfonic acid, hydroxynapthalenesulfonic acid, or carboxymethylbenzene sulfonic acid, or mixtures of these aromatic sulfonic acids or their sodium, potassium, or ammonium salts, and wherein the polymerization reaction is performed in the absence of a sulfonated formaldehyde condensation polymer of sodium naphthalene sulfonate and 4,4'-dihydroxydiphenylsulfone.

5,212,273

CROSSLINKED POLYMERIC MICROPARTICLES; THEIR METHOD OF PREPARATION AND USE IN COATING COMPOSITIONS

Suryya K. Das, Pittsburgh, and Soner Kilic, Gibsonia, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jun. 20, 1991, Ser. No. 718,065
Int. Cl.[5] C08F *20/10*
U.S. Cl. 526—323.1 **15 Claims**

1. Crosslinked polymeric microparticles useful as rheology control agents for coating compositions, said microparticles being prepared by aqueous emulsion polymerization techniques in the presence of a free radical initiator which is soluble in aqueous medium in the absence of polyester emulsifiers from a mixture of polymerizable ethylenically unsaturated monomers containing less than 1 percent by weight of monomers containing polar groups and at least one of said monomers being a polyethylenically unsaturated crosslinking monomer free of oxyethylene groups and present in amounts of 20 to 50 percent by weight based on total weight of said polymerizable ethylenically unsaturated monomers; removing water from the resulting emulsion by azeotropic distillation with an organic diluent in which the crosslinked polymeric microparticles are insoluble and which forms an azeotrope with water to form a dispersion of the crosslinked polymeric microparticles having a particle size within the range of 0.005 to 1 micron and which are crosslinked to an extent of at least 80 percent by weight in the organic diluent.

5,212,274

PROCESS FOR PREPARING HIGH MOLECULAR WEIGHT ORGANOPOLYSILOXANES

Akihito Tsukuno, Annaka, Japan, assignor to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Feb. 27, 1992, Ser. No. 842,632
Claims priority, application Japan, Feb. 27, 1991, 3-055895
Int. Cl.[5] C08G *77/06*
U.S. Cl. 528—14 **7 Claims**

1. A process for preparing a high molecular weight organopolysiloxane comprising:
a first step of polymerizing a low molecular weight organopolysiloxane having a polymerization degree of from 2 to about 1,000 by heating in the presence of a quaternary phosphonium hydroxide compound or a silanolate of said quaternary phosphonium hydroxide compound as a catalyst; followed by
a second step of polymerizing the resulting reaction mixture by heating in the presence of at least one member selected from the group consisting of alkali metal hydroxides and silanolates thereof as a catalyst to obtain a higher molecular weight organopolysiloxane.

5,212,275

UREA AND BIURET PREPOLYMERS OF MDI

William E. Slack, Moundsville, and Rick L. Adkins, New Martinsville, both of W. Va., assignors to Miles Inc., Pittsburgh, Pa.

Filed Oct. 7, 1992, Ser. No. 957,498
Int. Cl.[5] C08G *18/10*
U.S. Cl. 528—67 **3 Claims**

1. A liquid isocyanate prepolymer having an isocyanate group content of from 10 to 30% by weight, prepared by reacting:
i) a polyfunctional secondary amine group containing material of the general formula:

wherein
R represents alkyl alkenyl cycloalkyl aralkyl or aryl radical;

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A represents an organic radical having a molecular weight between 28 and 6000 and having a functionality of m and m represents an integer from 2 to 6;

with

ii) an isocyanate mixture comprising:

a) from 50 to 100% by weight of diphenylmethane diisocyanate of which from 2 to 50% by weight consist of 2,2'- and 2,4'-isomers; and

b) the balance being polyphenylpolymethylene polyisocyanates.

5,212,276

POLYIMIDES WITH IMPROVED COMPRESSION MOLDABILITY

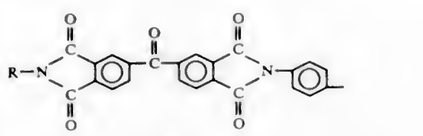
Paul M. Hergenrother, Yorktown; Stephen J. Havens, Newport News, both of Va., and Mark W. Beltz, Baton Rouge, La., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

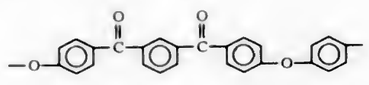
Filed May 8, 1990, Ser. No. 520,472

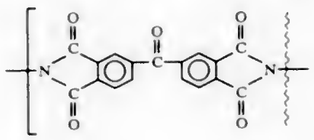
Int. Cl.[5] C08G *8/02, 73/10, 69/26*

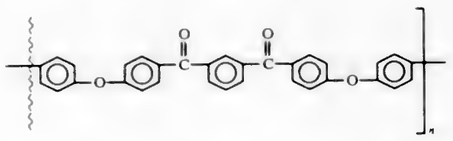
U.S. Cl. 528—125 **10 Claims**

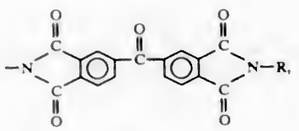
1. The polyimide composition having the general structural formula:







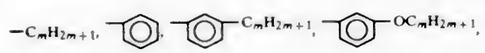


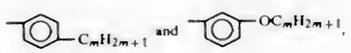


wherein

n is a integer between 10 and 200; and

R is selected from the group consisting of:





wherein m is an integer between 1 and 10, and wherein the aliphatic groups may be of any structural isomer.

5,212,277

POLYETHERIMIDEIMIDES AND A METHOD FOR MANUFACTURING THEM

Kwang-Sup Lee; Kil-Yeong Choi; Jong C. Won, all of Taejeon; Byoung K. Park, Seoul, and In-Tae Lee, Kyungki, all of Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Taejeon and Cheil Industries, Inc., Daegu, both of Rep. of Korea

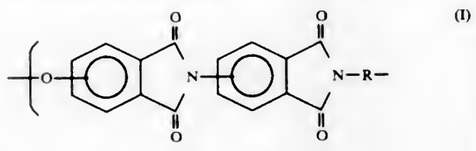
Filed Jan. 10, 1991, Ser. No. 638,992

Claims priority, application Rep. of Korea, May 15, 1990, 90-6881

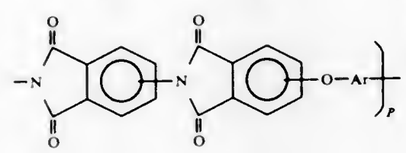
Int. Cl.[5] C08G *73/10, 8/02, 14/00*

U.S. Cl. 528—170 **5 Claims**

1. A polyetherimide-imide resin characterized by having imide-imide group with the following structural formula (I) and inherent viscosity (ηinh) of 0.27~0.71 dl/g

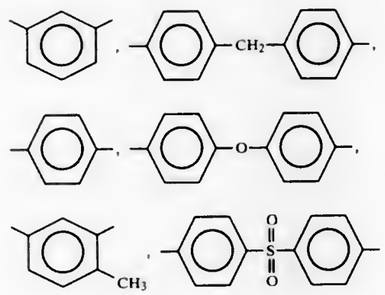


(I)



Wherein

R is selected from group of



Ar is selected from alkyl group or phenyl derivatives with 6 to 12 carbons, and p is an integral number between 10 and 1000.

5,212,278

POLYARYLENE ETHERS

Rudolf Pfaendner, Rimbach/Odenwald; Thomas Kainmüller, Lindenfels/Odenwald; Kurt Hoffmann, Lautertal, all of Fed. Rep. of Germany; Andreas Kramer, Düdingen, and Friedrich Stockinger, Courtepin, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

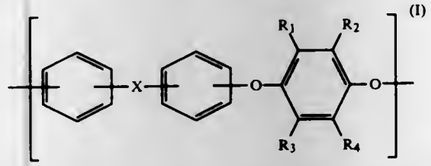
Filed Mar. 13, 1990, Ser. No. 493,058

Claims priority, application Switzerland, Mar. 17, 1989, 995/89

Int. Cl.[5] C08G *75/23, 8/02, 14/00, 65/38*

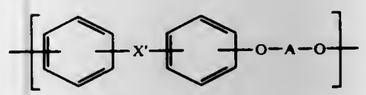
U.S. Cl. 528—171 **17 Claims**

1. A polyarylene ether which consists essentially of based on the total amount of structural elements present in the polyether resin, 5–100 mol % of a recurring structural element of the formula I



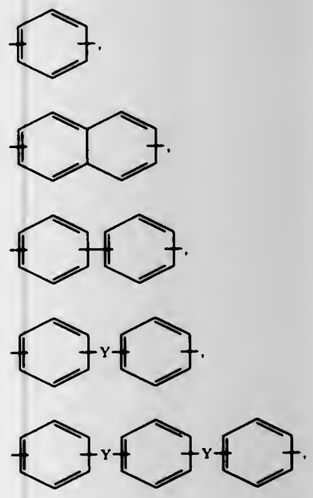
(I)

and 0–95 mol % of a recurring structural element of the formula II

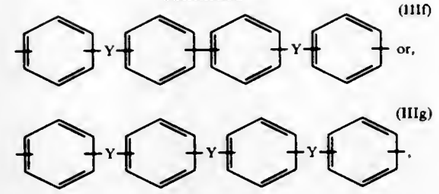


(II)

in which X and X' independently of one another are —SO—, —SO_2— or —CO—, one of the radicals R_1, R_2, R_3 and R_4 is phenyl or phenyl which is substituted by one to three (C_1-C_4)alkyl groups and the remaining radicals R_1, R_2, R_3 and R_4 independently of one another are hydrogen, (C_1–C_4)alkyl, phenyl or phenyl which is substituted by one to three (C_1-C_4)alkyl groups, and A is a group of the formulae IIIa to IIIg



-continued



in which Y is —CH_2—, —$C(CH_3)_2$—, —$C(CH_3)(C_6H_5)$—, —$C(CF_3)_2$—, —S—, —SO—, —SO_2—, —O— or —CO—, with the proviso that at least 25% of the bonds X and/or X' and/or Y are —SO_2—.

5,212,279

HOT-MELT ADHESIVE AND ITS USE IN POLYIMIDE FILM AND PRINTED CIRCUIT BOARD

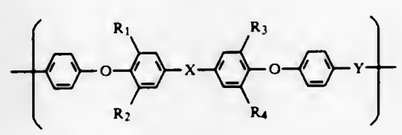
Yoshihiro Nomura, Ichihara; Takashi Morinaga, Chiba; Toshiaki Fukushima, Shizuoka; Hiroshi Minamisawa, Ichihara, and Kazuhito Hanabusa, Fuji, all of Japan, assignors to Hitachi Chemical Co., Ltd., Tokyo, Japan

Filed Oct. 22, 1990, Ser. No. 600,725

Int. Cl.[5] C08G *73/10, 69/26;* **B32B** *15/08, 27/06*

U.S. Cl. 528—184 **41 Claims**

1. A hot-melt adhesive comprising at least one member selected from the group consisting of a polymer having repeating units of the formula:

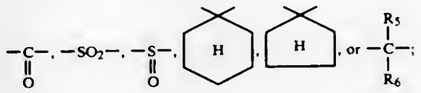


(I)

wherein R_1, R_2, R_3 and R_4 are independently a hydrogen atom, a lower alkyl group, a lower alkoxy group or a halogen atom; X is the same or different group in every repeating unit and is a direct link, —O—, —S—,

(IIIa)

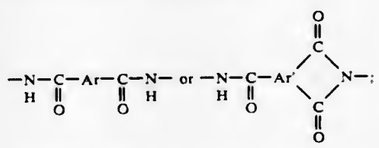
(IIIb)



(IIIc) R_5 and R_6 are independently a hydrogen atom, a lower alkyl, group, a trifluoromethyl group, a trichloromethyl group or a phenyl group; Y is the same or different group in every repeating unit and represent by the formula:

(IIId)

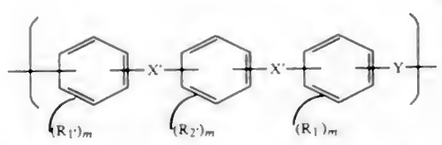
(IIIe)



Ar is a divalent aromatic group; and Ar' is a trivalent aromatic group, and a polymer having repeating units of the formula:

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(II)



wherein m is zero or an integer of 1 to 4; R_1' is a lower alkyl group; R_2' is a lower alkyl group or a halogen atom; X' is the same or different group in every repeating unit and is a direct link, —O— or



R_5' and R_6' are independently a hydrogen atom, a lower alkyl group, a trifluoromethyl group or a phenyl group; and Y is as defined above.

5,212,280

POLYCARBONATE FROM SPECIAL DIHYDROXYDIPHENYL BICYCLOALKANE

Volker Serini, Krefeld; Uwe Westeppe, Mettmann; Gerd Fengler, Krefeld-Traar; Manfred Hajek, Leverkusen; Carl Casser, Koeln, and Helmut Waldmann, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

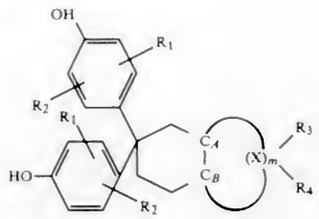
Filed Sep. 30, 1991, Ser. No. 767,729

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1990, 4031756

Int. Cl.[5] C08G *64/04*

U.S. Cl. 528—201 4 Claims

1. In the process for the production of a high molecular weight, thermoplastic aromatic polycarbonate which comprises reacting at least one diphenol with at least one carbonate precursor, the improvement wherein at least one diphenol has the formula



in which

R_1 and R_2 independently of one another represent hydrogen, halogen, C_{1-8} alkyl, C_{5-6} cycloalkyl, C_{6-10} aryl or C_{7-12} aralkyl,

m is an integer of from 3 to 7,

R_3 and R_4 are individually selected for each X and independently of one another represent, hydrogen, linear or branched C_{1-6} alkyl, C_{6-10} aryl or aralkyl, and

X represents carbon,

with the proviso that, at least one atom X, R_3 and R_4 are not both hydrogen, in a quantity of 100 mol-% to 2 mol-% based on the total mols of diphenols reacted.

5,212,281

PROCESS FOR THE PREPARATION OF HIGH MOLECULAR WEIGHT HALOGENATED POLYCARBONATE

Sarat Munjal, Lake Jackson, Tex.; Clark J. Cummings, Midland, Mich., and Che-I Kao, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 8, 1991, Ser. No. 742,140

Int. Cl.[5] C08G *64/20*

U.S. Cl. 528—202 14 Claims

1. A process for the preparation of halogenated polycarbonate comprising

(a) contacting a halogenated dihydroxy compound, a base, water and non-reactive organic solvent with a carbonate precursor in a reaction mixture to form a halogenated carbonate oligomer product;

(b) condensing said halogenated carbonate oligomer product to from polycarbonate product by contacting halogenated carbonate oligomers in a tank reactor with

(i) further organic solvent;

(ii) 50 weight parts per million or less of coupling catalyst, based on the weight of all organic solvent present in steps (a) and (b), including any in which the coupling catalyst is dissolved; and

(iii) a further amount of base which, together with the amount of base present in step (a), brings the total moles of base present in steps (a) and (b) per mole of dihydroxy compound to the number $2+4(Y-1)+Q$, where Y is the number of moles of carbonate precursor per mole of dihydroxy compound, and Q is about 0.001 to about 0.2; and

(c) recovering a halogenated polycarbonate product.

5,212,282

PROCESS FOR PREPARING RANDOM COPOLYCARBONATE FROM DIANION OF ORTHO-SUBSTITUTED DIHYDRIC PHENOL

Maurice J. Marks, and Thoi H. Ho, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 15, 1991, Ser. No. 730,327

Int. Cl.[5] C08G *64/20*

U.S. Cl. 528—204 16 Claims

1. An interfacial process for the preparation of a random copolycarbonate comprising

(a) contacting the dianion of an ortho-substituted dihydric phenol with a carbonate precursor to form the bis(carbonate precursor)ester of the ortho-substituted dihydric phenol,

(b) contacting the bis(carbonate precursor)ester with the dianion of a non-ortho-substituted dihydric phenol to form a random carbonate oligomer,

(c) contacting the random carbonate oligomer with a carbonate precursor to form a random copolycarbonate, and

(d) recovering the random copolycarbonate.

5,212,283

POLYIMIDES CONTAINING THE CYCLOBUTENE-3, 4-DIONE MOIETY

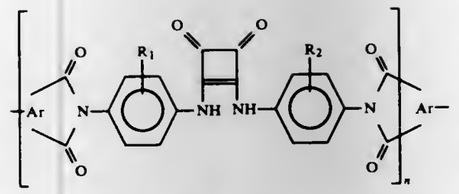
Terry L. St. Clair, Poquoson, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 3, 1992, Ser. No. 845,090

Int. Cl.[5] C08G *69/26, 73/10*

U.S. Cl. 528—353 10 Claims

1. A polymide having the following general structural formula:



where n = 10—100; Ar is any aromatic moiety; and R_1 and R_2 each is a hydrogen or a lower alkyl group.

5,212,284

CONVERSION OF CYCLIC POLYCARBONATE OLIGOMERS TO LINEAR POLYCARBONATES INITIATED BY PHOSPHINE-DISULFIDE PRODUCT OR PRECURSOR THEREOF

Herman O. Krabbenhoft, and Daniel J. Brunelle, both of Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 27, 1992, Ser. No. 826,503

Int. Cl.[5] C08G *64/20*

U.S. Cl. 528—371 20 Claims

1. A method for preparing a resinous composition which comprises contacting, at a temperature in the range of about 280°-350° C., at least one cyclic polycarbonate oligomer with an effective amount to initiate polymerization of an initiator precursor system comprising (A) at least one organic disulfide, (B) at least one triarylphosphine or triaryl phosphite which is capable of reaction with reagent A to form a salt, the molar ratio of reagent A to reagent B being in the range of about 1-5:1, and any reaction products of reagents A and B.

5,212,285

REMOVAL OF HYDROGENATION CATALYST FROM POLYMER SOLUTIONS BY CATALYZED PRECIPITATION

Zaida Diaz, and Carma J. Gibler, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Jun. 14, 1990, Ser. No. 537,738

Int. Cl.[5] C08F *6/08*

U.S. Cl. 528—482 27 Claims

1. A process to remove Group VIII metal containing hydrogenation catalyst residue from a hydrogenated polymer solution comprising the steps of:

a) contacting a Group VIII metal hydrogenation catalyst residue containing polymer solution with a chelating resin, the chelating resin containing iminodiacetate ions;

b) allowing the hydrogenation catalyst residue to agglomerate and precipitate; and

c) recovering a polymer solution comprising less than 5 ppm by weight, based on the solution, of the hydrogenation catalyst residue metals by separation of the chelating resin and precipitated catalyst particles from said polymer solution.

5,212,286

ATRIAL NATRIURETIC/VASODILATOR PEPTIDE COMPOUNDS

John A. Lewicki, Sunnyvale, and Robert M. Scarborough, Jr., Hayward, both of Calif., assignors to Scios Nova Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 766,030, May 8, 1985, Pat. No. 4,764,504, which is a continuation-in-part of Ser. No. 602,117, Apr. 9, 1984, Pat. No. 4,618,600, and a continuation-in-part of Ser. No. 616,488, Jun. 1, 1984, abandoned. This application Jun. 5, 1986, Ser. No. 870,795

The portion of the term of this patent subsequent to Aug. 16, 2005, has been disclaimed.

Int. Cl.[5] C07K *7/08, 7/10*

U.S. Cl. 530—324 1 Claim

1. A polypeptide compound useful as a natriuretic, diuretic, and/or vasodilator in mammals, said polypeptide compound having the formula:

(1)



wherein

X is hydrogen, acetyl, or an oligopeptide of up to 125 amino acid residues from the naturally occurring N-terminal Atrial Peptide Sequence, including the N-acetyl derivatives thereof;

Y is hydroxyl, amido, Asn-OH, Asn-Ser-OH, Asn-Ser-Phe-OH, Asn-Ser-Phe-Arg-OH, Asn-Ser-Phe-Arg-Tyr-OH, or the C-terminal amide derivatives thereof; or an oligopeptide extension of up to 20 amino acid residues from the C-terminus of any of the foregoing, including the C-terminal amide derivatives thereof;

each of AA_6, AA_7, AA_{13}, and AA_{17}, is independently selected from the group consisting of Gly and Ala; AA_9 is selected from Ile, met, and Val; and AA_{12} is selected from Ile and Val,

wherein 0, 1 or 2 residues selected from residues 1-20 are substituted by the D-isomer thereof, and including such compound containing a disulfide bridge joining the cysteine residues and the pharmacologically acceptable salts thereof,

and which compound contains at least one of the following substitutions for residues in formula (1):

des—Ser at position 2 or 3;
Ala or Leu in place of Phe at position 5;
Nle in place of Arg at position 8; and
Nle in place of Arg at position 11.

5,212,287

PENTAPEPTIDE SYNTHESIS

John C. Tolle, Zion; Wenying Z. Gifford, Vernon Hills, and Kenneth W. Funk, Lindenhurst, all of Ill., assignors to Immunetech Pharmaceuticals, Inc., San Diego, Calif.

Filed Dec. 21, 1988, Ser. No. 287,865

Int. Cl.[5] C07C *103/52*

U.S. Cl. 530—330 11 Claims

1. A method of synthesizing L-aspartyl-L-seryl-L-aspartyl-L-prolyl-L-arginine which comprises the steps of:

A. converting L-aspartic acid having a protected amino group and a protected side chain carboxyl group to a carboxyl-activated derivative thereof;

B. reacting the carboxyl-activated L-aspartic acid derivative with L-proline to give an L-aspartyl-L-proline intermediate whose L-aspartyl moiety has its amino group and side chain carboxyl group protected;

C. converting the L-aspartyl-L-proline intermediate to a

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carboxyl-activated derivative thereof whose L-aspartyl moiety has its amino group and side chain carboxyl group protected;

D. reacting the carboxyl-activated L-aspartyl-L-proline intermediate with L-arginine, L-nitroarginine, or an L-arginine side chain acid salt to give an L-aspartyl-L-prolyl-L-arginine intermediate whose L-aspartyl moiety has its amino group and side chain carboxyl group protected and whose L-arginine moiety has its terminal amino group unprotected or protected as the nitroarginine derivative;

E. deprotecting the L-aspartyl-L-prolyl-L-arginine intermediate to give L-aspartyl-L-prolyl-L-arginine;

F. converting L-serine having a protected amino group and an unprotected or protected side chain hydroxyl group to a carboxyl-activated derivative thereof;

G. reacting the carboxyl-activated L-serine derivative with L-aspartyl-L-prolyl-L-arginine to give an L-seryl-L-aspartyl-L-prolyl-L-arginine intermediate whose L-seryl moiety has its amino group protected and side chain hydroxyl group protected or unprotected;

H. deprotecting the amino group in the L-seryl moiety of the L-seryl-L-aspartyl-L-prolyl-L-arginine intermediate;

I. reacting the deprotected amino group-containing L-seryl-L-aspartyl-L-prolyl-L-arginine with a carboxyl-activated derivative of L-aspartic acid, the L-aspartic acid having a protected amino group and a protected side chain carboxyl group, to give an L-aspartyl-L-seryl-L-aspartyl-L-prolyl-L-arginine intermediate whose terminal L-aspartyl moiety has its amino group and side chain carboxyl group protected and whose L-seryl moiety has its side chain hydroxyl group protected or unprotected;

J. deprotecting the L-aspartyl-L-seryl-L-aspartyl-L-prolyl-L-arginine intermediate to give L-aspartyl-L-seryl-L-aspartyl-L-prolyl-L-arginine.

5,212,288

TEMPORARY MINIMAL PROTECTION SYNTHESIS OF SERINE-CONTAINING POLYPEPTIDES

John J. Nestor, Jr., Cupertino; Natalie L. McClure, Portola Valley, and Humberto Arzeno, Cupertino, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Continuatioo-in-part of Ser. No. 482,428, Feb. 20, 1990, abandoned. This application Feb. 8, 1991, Ser. No. 654,149

Int. Cl.[5] A61K *37/02*

U.S. Cl. 530—334 19 Claims

1. In a process for the solid phase synthesis of a LH-RH analog having at least one serine, the improvement comprising temporarily protecting the side-chain of each serine residue with a protecting group labile to N^{α}-deprotecting agents wherein the serine side-chain protecting group and the N^{α}-protecting group are removed immediately following the addition of each serine to the polypeptide chain, prior to adding the next amino acid in the sequence.

5,212,289

REACTIVE AZO DYESTUFFS OBTAINED BY COUPLING DIAZOTIZED ACYLAMINO-AMINOBENZENE SULFONIC ACID COMPOUNDS WITH PYRIDONE DERIVATIVES

Karl-Josef Herd, Odenthal-Holz; Karl-Heinz Schündehütte, deceased, late of Leverkusen; Eva Schündehütte, heir, Leverkusen, and Horst Jäger, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

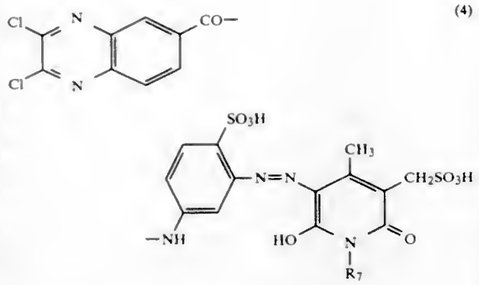
Filed Jun. 10, 1991, Ser. No. 712,860

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1990, 4019421; Oct. 17, 1990, 4032923

Int. Cl.[5] C09B *62/405;* D06P *1/382*

U.S. Cl. 534—633 1 Claim

1. A dyestuff of the following formula



(4)

in which

R_7 is H, CH_3 or C_2H_5.

5,212,290

ANTIBODIES SPECIFIC FOR TYPE II MUTANT EGTR

Bert Vogelstein, Baltimore, Md., and Darell Bigner, Chapel Hill, N.C., assignors to The Johns Hopkins University, Baltimore, Md. and Duke University, Durham, N.C.

Division of Ser. No. 531,410, Jun. 1, 1990, abandoned, which is a continuation-in-part of Ser. No. 404,226, Sep. 8, 1989, abandoned. This application Dec. 17, 1990, Ser. No. 627,869

Int. Cl.[5] C07K *15/28*

U.S. Cl. 530—387.7 3 Claims

1. An isolated antibody which binds specifically to an EGFR mutant type II as represented by FIG. 2, but which does not bind specifically to EGFR found on normal cells expressing EGFR.

5,212,291

ANTHRACYCLINE DERIVATIVES AS SOLUBILIZED PRO-DRUGS

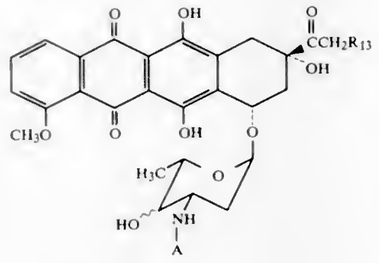
Keith C. Murdock, Pearl River, and Ving J. Lee, Monsey, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 671,052, Mar. 18, 1991, Pat. No. 5,116,827, which is a continuation-in-part of Ser. No. 184,998, Apr. 22, 1988, abandoned, which is a continuation-in-part of Ser. No. 91,077, Aug. 31, 1987, abandoned, which is a continuation-in-part of Ser. No. 922,220, Oct. 23, 1986, abandoned. This application Mar. 9, 1992, Ser. No. 848,565

Int. Cl.[5] C07H *15/24*

U.S. Cl. 536—6.4 1 Claim

1. A compound of the formula



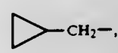
where R_{13} is hydrogen, —OH or



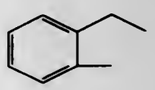
Y is C_1–C_6 alkyl and A is



such that R′ and R″ may be the same or different and are R (where R is C_1–C_6 alkyl, C_6H_5, C_6H_5—CH_2—, NC—CH_2C-H_2—,



Cl_3C—CH_2— or $R_7OCH_2CH_2$—, where R_7 is hydrogen or C_1–C_6 alkyl), hydrogen, or a pharmaceutically acceptable cation or R′ and R″ are linked to form a —CH_2—CH_2— or a



group.

5,212,292

PROCESS FOR THE PREPARATION OF LIGHT-COLORED ALKYL POLYGLYCOSIDES

Norbert Ripke, Haltern, Fed. Rep. of Germany, assignor to Huels Aktiengesellschaft-PB 15, Marl, Fed. Rep. of Germany

Filed Nov. 15, 1991, Ser. No. 792,597

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1991, 4104640

Int. Cl.[5] C07H *1/00, 15/04;* C07G *3/00*

U.S. Cl. 536—18.6 15 Claims

1. In a process for the preparation of alkyl polyglycosides containing an alkyl group of about 8 to 24 carbon atoms, which comprises glycosylating one or more saccharides by mixing said one or more saccharides, an alcohol or glycol of about 1 to 5 carbon atoms and an acid catalyst and then heating the same and transglycosylating the product resulting therefrom with long-chain alcohols having 8 to 24 carbon atoms, the improvement wherein the glycosylating is carried out in an evaporator at an acid number of about 1 to 10 mg of KOH/g.

5,212,293

PROCESS FOR THE PREPARATION OF DEOXYNUCLEOSIDES

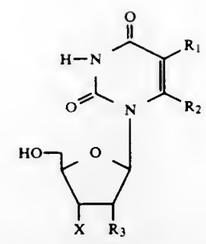
Kenneth E. Green, Yorktown Heights, N.Y.; John L. Considine, Jr., Bridgewater, N.J.; Joseph D'Antuono, III, Three Bridges, N.J., and Thurairajah Padmanathan, Piscataway, N.J., assignors to American Cyanamid Company, Wayne, N.J.

Continuation of Ser. No. 563,596, Aug. 6, 1990, abandoned. This application Sep. 4, 1992, Ser. No. 941,357

Int. Cl.[5] C07H *1/00*

U.S. Cl. 536—28.2 40 Claims

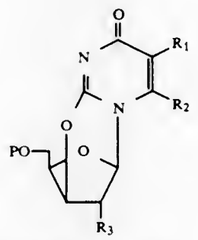
1. In a process for preparing a compound of the Formula I:



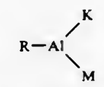
(1)

wherein R_1 and R_2 may be the same or different and are selected from the group consisting of hydrogen, lower alkyl and halogen; R_3 is selected from the group consisting of hydrogen and halogen; and X is a halogen; the improvement which comprises the steps of:

(a) mixing a compound of the formula:



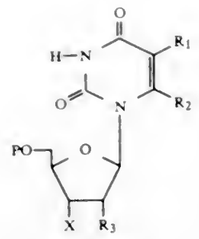
wherein P is selected from the group consisting of hydrogen, triphenylmethyl, methoxytriphenylmethyl, acetyl, pivaloyl, methanesulfonyl or trialkylsilyl with a reagent of the formula H-X wherein X is a halogen; in the presence of a reagent of the formula:



wherein R is selected from the group consisting of (C_1–C_{12}) branched or unbranched alkyl, (C_1–C_{12}) branched or unbranched alkoxy, phenyl, substituted phenyl, carboxylate, benzyl, enolate, carbonyl, b-diketonate, (C_1–C_{12}) branched or unbranched thioalkyl, thiophenyl or substituted thiophenyl wherein the substituting moiety in the aforesaid substituted phenyl or substituted thiophenyl is selected from halogen, (C_1–C_6) alkyl and alkoxy; K and M may be the same or different and are selected from the group consisting of R and hydrogen, in an inert organic solvent,

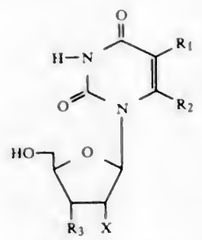
(b) heating said compound and reagents at 40°–115° C. for about one to 24 hours to produce a compound of the formula:

VOL 1150 ISS 3 MY 18 1993 UMI

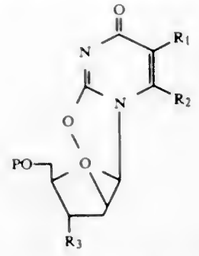


and, where P is other than hydrogen,
(c) removing said protecting group.
2. In a process for preparing a compound of the formula II:

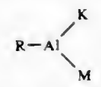
(II)



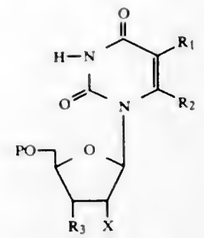
wherein R_1 and R_2 may be the same or different and are selected from the group consisting of hydrogen, lower alkyl and halogen; R_3 is selected from the group consisting of hydrogen and halogen; and X is a halogen; the improvement which comprises the steps of:
(a) mixing a compound of the formula:



wherein P is hydrogen or a protecting group selected from the group consisting of triphenylmethyl, methoxytriphenylmethyl, acetyl, pivaloyl, methanesulfonyl or trialkylsilyl with a reagent of the formula H-X wherein X is a halogen; in the presence of a reagent of the formula:



wherein R is selected from the group consisting of (C_1–C_{12}) branched or unbranched alkyl, (C_1–C_{12}) branched or unbranched alkoxy, phenyl, substituted phenyl, hydrogen, carboxylate, benzyl, enolate, carbonyl, (C_1–C_{12}) branched or unbranched thioalkyl, thiophenyl or substituted thiophenyl wherein the substituting moiety in the aforesaid substituted phenyl or substituted thiophenyl is selected from halogen, (C_1–C_6) alkyl and alkoxy, K and M may be the same or different and are selected from the group consisting of R and hydrogen, in an inert organic solvent;
(b) heating said compound and reagents at 40°–115° C. for about one to 24 hours to produce a compound of the formula:



and, where P is other than hydrogen,
(c) removing said protecting group.

5,212,294

PRODUCTION OF 2',3'-DIDEOXY-2',3'-DIDEHYDRONUCLEOSIDES

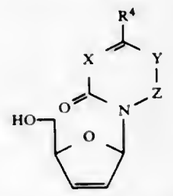
John E. Starrett, Jr., Middletown; Muzammil M. Mansuri; John C. Martin, both of Cheshire, all of Conn.; Carl E. Fuller, Warners, and Henry G. Howell, Jamesville, both of N.Y., assignors to Bristol-Myers Squibb Company, New York, N.Y.

Division of Ser. No. 697,512, Apr. 29, 1991, Pat. No. 5,130,421, which is a continuation of Ser. No. 441,023, Nov. 24, 1989, abandoned, which is a division of Ser. No. 173,473, Mar. 24, 1988, Pat. No. 4,904,770. This application Mar. 31, 1992, Ser. No. 860,938

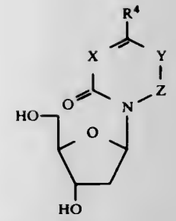
Int. Cl.[5] **C07H** *17/00, 19/06*

U.S. Cl. 536—28.2 **6 Claims**

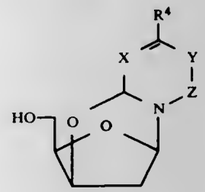
1. A process for producing a 2',3'-dideoxy-2',3'-didehydronucleoside represented by the formula



wherein the base moiety is a member selected from the group of unsubstituted and substituted bases consisting of pyrimidine, aza-pyrimidine, and deaza-pyrimidine; X is selected from N and C-H; Y is selected from C-R^5 and N; Z is selected from C-H and N; R^4 is selected from OH and NH_2; and R^5 is selected from H, unsubstituted and halo-substituted alkyl having the formula $C_nH_{2n}A$, and unsubstituted and halo-substituted alkenyl having the formula $—(CH_2)_m—CH═CHA$, wherein m is an integer selected from 0, 1, 2 and 3, n is an integer selected from 1, 2, and 3 and A is selected from H, F, Cl, Br, and I, comprising the steps of:
(a) reacting, with a strong base, a 2'-deoxynucleoside represented by the formula



to form a reactive 2,3'-anhydro-2'-deoxynucleoside intermediate represented by the formula



and
(b) converting in the presence of base selected from non-nucleophilic and nucleophilic bases said reactive 2,3'-anhydro-2'-deoxynucleoside from step (a) above to said 2',3'-dideoxy-2',3'-didehydronucleoside.

5,212,295

MONOMERS FOR PREPARATION OF OLIGONUCLEOTIDES HAVING CHIRAL PHOSPHORUS LINKAGES

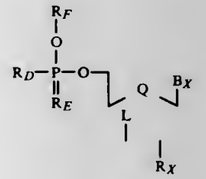
Phillip D. Cook, Carlsbad, Calif., assignor to ISIS Pharmaceuticals, Carlsbad, Calif.

Continuation-in-part of Ser. No. 463,358, Jan. 11, 1990, abandoned, and a continuation-in-part of Ser. No. 566,977, Aug. 13, 1990, abandoned. This application Oct. 15, 1991, Ser. No. 777,670

Int. Cl.[5] **C07H** *19/04, 19/06, 19/15*

U.S. Cl. 536—26.7 **9 Claims**

1. A compound having the structure:



wherein:
Q is O or CH_2;
R_D is O, S, methyl, O—C_1–C_{12}-alkyl, S—C_1–C_{12}-alkyl, amino or substituted amino, where said substituent is C_1–C_{12}-alkyl or C_6–C_{14}-aryl;
R_E is O or S;
R_F is H or a blocking group;
R_X is H, OH, C_1–C_{12}-alkyl, substituted C_1–C_{12}-alkyl, F, Cl, Br, OCF_3, O—C_1–C_{12}-alkyl, O-substituted C_1–C_{12}-alkyl, $OCH_2CH═CH_2$, OCH_2CCH, and C(O)—C_1–C_{12}-alkyl, wherein said substituent is C_1–C_{12}-haloalkyl, C_1–C_{12}-alkenyl, C_1–C_{12}-alkoxy, C_1–C_{12}-thioalkoxy, C_1–C_{12}-haloalkoxy, C_6–C_{14}-aryl, halogen, hydroxyl, amino, azido, carboxy, cyano, nitro, or mercapto;
B_X is a nucleoside base or a blocked nucleoside base; and
L is a leaving group or together L and B_X are a C2 or C6 pyrimidine-3'xylo cyclo-nucleoside or C8 purine-3'xylo cyclo-nucleoside.

5,212,296

EXPRESSION OF HERBICIDE METABOLIZING CYTOCHROMES

Caroline Dean, Norwich, United Kingdom; Patricia A. Harder; Kenneth J. Leto, both of Wilmington, Del.; Daniel P. O'Keefe, Ridley Park; Charles A. Omer, Downingtown, both of Pa.; James A. Romesser, Wilmington, Del., and James M. Tepperman, Oakland, Calif., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 464,499, Jan. 12, 1990, abandoned, which is a continuation-in-part of Ser. No. 405,605, Sep. 11, 1989, abandoned. This application Aug. 23, 1990, Ser. No. 569,781

Int. Cl.[5] **C12M** *15/11, 15/31*

U.S. Cl. 536—23.2 **14 Claims**

1. An isolated DNA molecule encoding cytochrome P450 enzyme P450SU1 and iron sulfur protein FeS-B comprising

```
                10                                  30
GCGGACAGGGGGACTCCTGAAGATGTCTGA
---------+---------+---------+
CGCCTGTCCCCCTGAGGACTTCTACAGACT

                                    50
 TAGAGGCCGTTGCGTTCTCTACGGGGGCAA
---------+---------+---------+
 ATCTCCGGCAACGCAAGAGATGCCCCCGTT

                70                  90
GTCTATGCTCCGAAATAGAGAACATGGCGT
---------+---------+---------+
CAGATACGAGGCTTTATCTCTTGTACCGCA

                                   110
 TCTTTAAAGGTGAGAATTCTTGAATCGGAG
---------+---------+---------+
 AGAAATTTCCACTCTTAAGAACTTAGCCTC
                EcoR1

                130                 150
TGGACCGATGACCGATACCGCCACGACGCC
---------+---------+---------+
ACCTGGCTACTGGCTATGGCGGTGCTGCGG
P450SU1     Met  Thr  Asp  Thr  Ala  Thr  Thr  Pr
Start

                                   170
 CCAGACCACGGACGCACCCGCCTTCCCGAG
---------+---------+---------+
 GGTCTGGTGCCTGCGTGGGCGGAAGGGCTC
o Gln  Thr  Thr  Asp  Ala  Pro  Ala  Phe  Pro  Se

                190                 210
CAACCGGAGCTGTCCCTACCAGTTACCGGA
---------+---------+---------+
GTTGGCCTCGACAGGGATGGTCAATGGCCT
r Asn  Arg  Ser  Cys  Pro  Tyr  Gln  Leu  Pro  As

                                   230
 CGGCTACGCCCAGCTCCGGGACACCCCCGG
---------+---------+---------+
 GCCGATGCGGGTCGAGGCCCTGTGGGGGCC
p Gly  Tyr  Ala  Gln  Leu  Arg  Asp  Thr  Pro  Gl

                250                 270
CCCCCTGCACCGGGTGACGCTCTACGACGG
---------+---------+---------+
GGGGGACGTGGCCCACTGCGAGATGCTGCC
y Pro  Leu  His  Arg  Val  Thr  Leu  Tyr  Asp  Gl
```

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                                290
CCGTCAGGCGTGGGTGGTGACCAAGCACGA
--------+---------+---------+
GGCAGTCCGCACCCACCACTGGTTCGTGCT
y Arg Gln Ala Trp Val Val Thr Lys His Gl

          310                   330
GGCCGCGCGCAAACTGCTCGGCGACCCCCG
--------+---------+---------+
CCGGCGCGCGTTTGACGAGCCGCTGGGGGC
u Ala Ala Arg Lys Leu Leu Gly Asp Pro Ar

                    350
GCTGTCCTCCAACCGGACGGACGACAACTT
--------+---------+---------+
CGACAGGAGGTTGGCCTGCCTGCTGTTGAA
g Leu Ser Ser Asn Arg Thr Asp Asp Asn Ph

          370                   390
CCCCGCCACGTCACCGCGCTTCGAGGCCGT
--------+---------+---------+
GGGGCGGTGCAGTGGCGCGAAGCTCCGGCA
e Pro Ala Thr Ser Pro Arg Phe Glu Ala Va

                    410
CCGGGAGAGCCCGCAGGCGTTCATCGGCCT
--------+---------+---------+
GGCCCTCTCGGGCGTCCGCAAGTAGCCGGA
l Arg Glu Ser Pro Gln Ala Phe Ile Gly Le

          430                   450
GGACCCGCCCGAGCACGGCACCCGGCGGCG
--------+---------+---------+
CCTGGGCGGGCTCGTGCCGTGGGCCGCCGC
u Asp Pro Pro Glu His Gly Thr Arg Arg Ar

                    470
GATGACGATCAGCGAGTTCACCGTCAAGCG
--------+---------+---------+
CTACTGCTAGTCGCTCAAGTGGCAGTTCGC
g Met Thr Ile Ser Glu Phe Thr Val Lys Ar

          490                   510
GATCAAGGGCATGCGCCCCGAGGTCGAGGA
--------+---------+---------+
CTAGTTCCCGTACGCGGGGCTCCAGCTCCT
g Ile Lys Gly Met Arg Pro Glu Val Glu Gl

                    530
GGTGGTGCACGGCTTCCTCGACGAGATGCT
--------+---------+---------+
CCACCACGTGCCGAAGGAGCTGCTCTACGA
u Val Val His Gly Phe Leu Asp Glu Met Le

          550                   570
GGCCGCCGGCCCCGACCGCCGACCTGGTCAG
--------+---------+---------+
CCGGCGGCCGGGGCTGGCGGCTGGACCAGTC
u Ala Ala Gly Pro Thr Ala Asp Leu Val Se

                    590
TCAGTTCGCGCTGCCGGTGCCCTCCATGGT
--------+---------+---------+
AGTCAAGCGCGACGGCCACGGGAGGTACCA
r Gln Phe Ala Leu Pro Val Pro Ser Met Va

          610                   630
GATCTGCCGACTCCTCGGCGTGCCCTACGC
--------+---------+---------+
CTAGACGGCTGAGGAGCCGCACGGGATGCG
l Ile Cys Arg Leu Leu Gly Val Pro Tyr Al

                    650
CGACCACGAGTTCTTCCAGGACGCGAGCAA
```

-continued

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--------+---------+---------+
GCTGGTGCTCAAGAAGGTCCTGCGCTCGTT
a Asp His Glu Phe Phe Gln Asp Ala Ser Ly

          670                   690
GCGGCTGGTGCAGTCCACGGACGCGCAGAG
--------+---------+---------+
CGCCGACCACGTCAGGTGCCTGCGCGTCTC
s Arg Leu Val Gln Ser Thr Asp Ala Gln Se

                    710
CGCGCTCACCGCGCGGAACGACCTCGCGGG
--------+---------+---------+
GCGCGAGTGGCGCGCCTTGCTGGAGCGCCC
r Ala Leu Thr Ala Arg Asn Asp Leu Ala Gl

          730                   750
TTACCTGGACGGCCTCATCACCCAGTTCCA
--------+---------+---------+
AATGGACCTGCCGGAGTAGTGGGTCAAGGT
y Tyr Leu Asp Gly Leu Ile Thr Gln Phe Gl

                    770
GACCGAACCGGGCGCGGGCCTGGTGGGCGC
--------+---------+---------+
CTGGCTTGGCCCGCGCCCGGACCACCCGCG
n Thr Glu Pro Gly Ala Gly Leu Val Gly Al

          790                   810
TCTGGTCGCCGACCAGCTGGCCAACGGCGA
--------+---------+---------+
AGACCAGCGGCTGGTCGACCGGTTGCCGCT
a Leu Val Ala Asp Gln Leu Ala Asn Gly Gl

                    830
GATCGACCGTGAGGAACTGATCTCCACCGC
--------+---------+---------+
CTAGCTGGCACTCCTTGACTAGAGGTGGCG
u Ile Asp Arg Glu Glu Leu Ile Ser Thr Al

          850                   870
GATGCTGCTCCTCATCGCCGGCCACGAGAC
--------+---------+---------+
CTACGACGAGGAGTAGCGGCCGGTGCTCTG
a Met Leu Leu Leu Ile Ala Gly His Glu Th

                    890
CACGGCCTCGATGACCTCCCTCAGCGTGAT
--------+---------+---------+
GTGCCGGAGCTACTGGAGGGAGTCGCACTA
r Thr Ala Ser Met Thr Ser Leu Ser Val Il

          910                   930
CACCCTGCTGGACCACCCCGAGCAGTACGC
--------+---------+---------+
GTGGGACGACCTGGTGGGGCTCGTCATGCG
e Thr Leu Leu Asp His Pro Glu Gln Tyr Al

                    950
CGCCCTGCGCGCCGACCGCAGCCTCGTGCC
--------+---------+---------+
GCGGGACGCGCGGCTGGCGTCGGAGCACGG
a Ala Leu Arg Ala Asp Arg Ser Leu Val Pr

          970                   990
CGGCGCGGTGGAGGAACTGCTCCGCTACCT
--------+---------+---------+
GCCGCGCCACCTCCTTGACGAGGCGATGGA
o Gly Ala Val Glu Glu Leu Leu Arg Tyr Le

                    1010
CGCCATCGCCGACATCGCGGGCGGCCGCGT
--------+---------+---------+
GCGGTAGCGGCTGTAGCGCCCGCCGGCGCA
u Ala Ile Ala Asp Ile Ala Gly Gly Arg Va
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-continued

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          1030                  1050
CGCCACGGCGGACATCGAGGTCGAGGGGCA
--------+---------+---------+
GCGGTGCCGCCTGTAGCTCCAGCTCCCCGT
l Ala Thr Ala Asp Ile Glu Val Glu Gly Hi

                    1070
CCTCATCCGGGCCGGCGAGGGCGTGATCGT
--------+---------+---------+
GGAGTAGGCCCGGCCGCTCCCGCACTAGCA
s Leu Ile Arg Ala Gly Glu Gly Val Ile Va

          1090                  1110
CGTCAACTCGATAGCCAACCGGGACGGCAC
--------+---------+---------+
GCAGTTGAGCTATCGGTTGGCCCTGCCGTG
l Val Asn Ser Ile Ala Asn Arg Asp Gly Th

                    1130
GGTGTACGAGGACCCGGACGCCCTCGACAT
--------+---------+---------+
CCACATGCTCCTGGGCCTGCGGGAGCTGTA
r Val Tyr Glu Asp Pro Asp Ala Leu Asp Il

          1150                  1170
CCACCGCTCCGCGCGCCACCACCTCGCCTT
--------+---------+---------+
GGTGGCGAGGCGCGCGGTGGTGGAGCGGAA
e His Arg Ser Ala Arg His His Leu Ala Ph

                    1190
CGGCTTCGGCGTGCACCAGTGCCTGGGCCA
--------+---------+---------+
GCCGAAGCCGCACGTGGTCACGGACCCGGT
e Gly Phe Gly Val His Gln Cys Leu Gly Gl

          1210                  1230
GAACCTCGCCCGGCTGGAGCTGGAGGTCAT
--------+---------+---------+
CTTGGAGCGGGCCGACCTCGACCTCCAGTA
n Asn Leu Ala Arg Leu Glu Leu Glu Val Il

                    1250
CCTCAACGCCCTCATGGACCGCGTCCCGAC
--------+---------+---------+
GGAGTTGCGGGAGTACCTGGCGCAGGGCTG
e Leu Asn Ala Leu Met Asp Arg Val Pro Th

          1270                  1290
GCTGCGACTGGCCGTCCCCGTCGAGCAGTT
--------+---------+---------+
CGACGCTGACCGGCAGGGGCAGCTCGTCAA
r Leu Arg Leu Ala Val Pro Val Glu Gln Le

                    1310
GGTGCTGCGGCCGGGTACGACGATCCAGGG
--------+---------+---------+
CCACGACGCCGGCCCATGCTGCTAGGTCCC
u Val Leu Arg Pro Gly Thr Thr Ile Gln Gl

          1330                  1350
CGTCAACGAACTCCCGGTCACCTGGTGACG
--------+---------+---------+
GCAGTTGCTTGAGGGCCAGTGGACCACTGC
y Val Asn Glu Leu Pro Val Thr Trp End

                    1370
GGGGAGAGGGGCAAGGACATGACCATGCGG
--------+---------+---------+
CCCCTCTCCCCCGTTCCTGTACTGGTACGCC
      FeS-B      Start      Met Thr Met Arg

          1390                  1410
GTGAGTGCGGATCGGACGGTCTGCGTCGGT
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-continued

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--------+---------+---------+
CACTCACGCCTAGCCTGCCAGACGCAGCCA
Val Ser Ala Asp Arg Thr Val Cys Val Gly

                    1430
GCCGGGCTGTGTGCGCTGACGGCGCCGGGC
--------+---------+---------+
CGGCCCGACACACGCGACTGCCGCGGCCCG
Ala Gly Leu Cys Ala Leu Thr Ala Pro Gly

          1450                  1470
GTCTTCGACCAGGACGACGACGGGATCGTC
--------+---------+---------+
CAGAAGCTGGTCCTGCTGCTGCCCTAGCAG
Val Phe Asp Gln Asp Asp Asp Gly Ile Val

                    1490
ACGGTGCTGACGGCCGAACCCGCCGCCGAC
--------+---------+---------+
TGCCACGACTGCCGGCTTGGGCGGCGGCTG
Thr Val Leu Thr Ala Glu Pro Ala Ala Asp

          1510                  1530
GACGACCGGCGCACCGCGCGCGAGGCCGGC
--------+---------+---------+
CTGCTGGCCGCGTGGCGCGCGCTCCGGCCG
Asp Asp Arg Arg Thr Ala Arg Glu Ala Gly

                    1550
CATCTCTGTCCGTCCGGTGCGGTCCGCGTC
--------+---------+---------+
GTAGAGACAGGCAGGCCACGCCAGGCGCAG
His Leu Cys Pro Ser Gly Ala Val Arg Val

          1570                  1590
GTCGAGGACACGGAATAGGGTCAAGGACAC
--------+---------+---------+
CAGCTCCTGTGCCTTATCCCAGTTCCTGTG
Val Glu Asp Thr Glu End

                    1610
GGAACAGGCGAGCGGGGATTCCGGCCGTCG
--------+---------+---------+
CCTTGTCCGCTCGCCCCTAAGGCCGGCAGC

          1630                  1650
GCCGGGGCGGTCTCCGGCCGACGGGCTGGG
--------+---------+---------+
CGGCCCCGCCAGAGGCCGGCTGCCCGACCC

                    1670
GCCGCCCGCGGTGCCGCCGCGCAGGCGAGG
--------+---------+---------+
CGGCGGGCGCCACGGCGGCGCGTCCGCTCC

          1690                  1710
CCGCCGGTGGCGCCCGGCACCCGCGGCGGC
--------+---------+---------+
GGCGGCCACCGCGGGCCGTGGGCGCCGCCG

                    1730
CGTCAGATCCACCCCTTCCGCGCCGCGTAC
--------+---------+---------+
GCAGTCTAGGTGGGGAAGGCGCGGCGCATG

          1750                  1770
AGAGCGAGTTGGAAACGGGTGGTGGCGTCG
--------+---------+---------+
TCTCGCTCAACCTTTGCCCACCACCGCAGC

                    1790
GCGGCGCGGTTGAGCTGCTCCAACTGGCGG
--------+---------+---------+
CGCCGCGCCAACTCGACGAGGTTGACCGCC
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VOL 1150 ISS 3 MY 18 1993 UMI

-continued



5,212,297

CDNA CLONES ENCODING CHICKEN EGG WHITE CYSTATIN

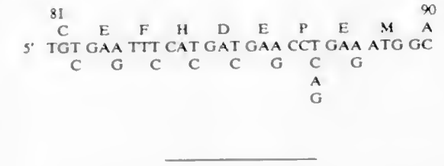
Rita Colella, Parlin; John W. C. Bird, Piscataway, both of N.J., and Hideaki Nagase, Fairway, Kans., assignors to University of Kansas, Kansas City, Kans. and Rutgers, The State University of New Jersey, New Brunswick, N.J.

Division of Ser. No. 352,736, May 16, 1989, Pat. No. 5,124,443. This application May 14, 1992, Ser. No. 864,516

Int. Cl.[5] C07H *17/00*

U.S. Cl. 536—24.31 **3 Claims**

1. A synthetic oligonucleotide probe for screening a cDNA library for cystatin consisting of



5,212,298

METHOD FOR PRODUCING SYNTHETIC N-LINKED GLYCOCONJUGATES

Thomas W. Rademacher; Ian D. Manger; Simon Wong, and Raymond A. Dwek, all of Oxford, United Kingdom, assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 394,691, Aug. 16, 1989, abandoned. This application Oct. 15, 1991, Ser. No. 776,911

Int. Cl.[5] C07H *5/04, 37/00*

U.S. Cl. 536—55.2 **21 Claims**

1. A process for producing synthetic N-linked glycoconjugates of oligosaccharides under conditions to directly maintain the closed ring structure of the terminal monosaccharide of said oligosaccharides in the β-anomeric configuration comprising reacting an oligosaccharide in saturated ammonium bicarbonate at pH of from about 8 to about 8.5 to form a β-glycosylamine derivative of said oligosaccharide, haloacetylating said β-glycosamine derivative in aqueous phase reaction to directly form the 1-N-haloacetamido derivative of said β-glycosamine derivative without selective crystallization in organic solvent medium, converting said 1-N-haloacetamido derivative to a 1-N-glycyl-β-glycosylamine intermediate derivative by ammonolysis and thereafter reacting said 1-N-glycyl-β-glycosylamine intermediate derivative with a substrate capable of forming a 1-N-glycyl-β-glycosylamine linked glycoconjugate of said substrate and said 1-N-glycyl-β-glycosylamine derivative.

5,212,299

GLYCERYL AGAROSE AND BORATE COMPOSITIONS

Joshua D. Smith, Rockland, Me., assignor to FMC Corporation, Philadelphia, Pa.

Filed May 10, 1991, Ser. No. 698,228

Int. Cl.[5] C08B *37/00, 37/12*

U.S. Cl. 536—114 **27 Claims**

1. An aqueous gel composition characterized in that it comprises:

(A) at least one di-or tri-hydroxy alkyl ether moiety substituted gel-forming agarose present in a gel-forming effective amount;

(B) at least one borate compound other than a strongly reducing or strongly axoidizing compound present in a gel-handling-effective amount; and

(C) water sufficient to form a gel.

5,212,300

CYANO- AND POLYCYANOMETALLO-PORPHYRINS AS CATALYSTS FOR ALKANE OXIDATION

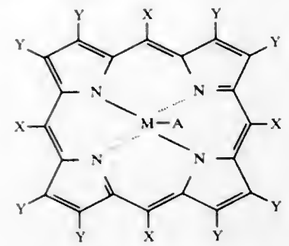
Paul E. Ellis, Jr., Downingtown, and James E. Lyons, Wallingford, both of Pa., assignors to Sun Company, Inc. (R&M), Philadelphia, Pa.

Continuation-in-part of Ser. No. 758,148, Sep. 12, 1991, Pat. No. 5,118,886. This application Jun. 2, 1992, Ser. No. 892,107

Int. Cl.[5] C07D *487/22*

U.S. Cl. 540—145 **7 Claims**

1. A composition useful as a catalyst comprising the compound having the formula:



where M is iron, chromium, manganese, ruthenium, copper or cobalt, X is hydrogen, halogen, nitro, cyano, alkyl, cycloalkyl or halocarbon, at least one of said Y's is cyano the remaining Y's are hydrogen, halogen, nitro, cyano hydrocarbon or halocarbon, A is an anion selected from the group consisting chloride, bromide, fluoride, cyanide, azide, nitride, thiocyanate, cyanate, hydroxy, methoxy, chlorate, carboxylate, or is absent, said compounds including iron complexes of μ oxo dimers comprising two structures as shown in said formula joined through an M-O-M linkage.

5,212,301

SUBSTITUTED FLUOROBENZENES

John S. Moilliet, Bury; Richard D. Chambers, Whitesmocks, and Michael H. Rock, Bourneville, all of England, assignors to Imperial Chemical Industries PLC, London, England

Filed May 8, 1992, Ser. No. 880,419

Claims priority, application United Kingdom, May 10, 1991, 9110181

Int. Cl.[5] C07D *295/06, 291/08, 223/14*; C07C *65/105, 65/21*

U.S. Cl. 540—450 **6 Claims**

1. A process for the preparation of a 3-fluoroaromatic compound by reacting an aromatic compound which carries an electron-withdrawing group in the 1-position and an electron-donating group in the 4-position with a gas comprising a mixture of fluorine and an inert gas containing up to 50% fluorine by volume.

5,212,302

PROCESS FOR PRODUCING EPSILON-CAPROLACTAM AND ACTIVATING SOLID CATALYSTS THEREFOR

Masaru Kitamura, Takatsuki; Hiroshi Ichihashi, Ohtsu, and Hideto Tojima, Kyoto, all of Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed Dec. 23, 1991, Ser. No. 811,627

Claims priority, application Japan, Dec. 26, 1990, 2-406823

Int. Cl.[5] C07D *201/04*

U.S. Cl. 540—536 **17 Claims**

1. A process for producing ϵ-caprolactam from cyclohexanon oxime under a gaseous phase in the presence of solid catalysts which have been in contact with

(1) aqueous solution of ammonium salts and at least one basic material selected from ammonia, lower alkylamines, allylamines and alkylammonium hydroxides, or

(2) ammonia water.

5,212,303

BENZONAPHTHALENE DERIVATIVES, A PROCESS FOR THEIR PREPARATION AND THEIR USE IN THERAPEUTIC AND COSMETIC COMPOSITIONS

Braham Shroot, Antibes; Jacques Eustache, Grasse, and Jean-Michel Bernardon, Nice, all of France, assignors to Centre International de Recherches Dermatologiques (CIRD), Valbonne, France

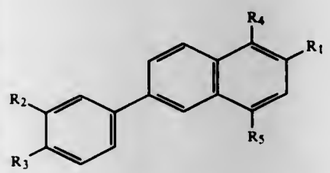
Division of Ser. No. 803,965, Dec. 9, 1991, Pat. No. 5,183,889, which is a division of Ser. No. 502,122, Mar. 30, 1990, Pat. No. 5,098,895, which is a division of Ser. No. 120,968, Nov. 16, 1987, Pat. No. 4,861,229, which is a division of Ser. No. 850,145, Apr. 10, 1986, Pat. No. 4,717,720. This application Sep. 28, 1992, Ser. No. 952,341

Claims priority, application Luxembourg, Apr. 11, 1985, 85849

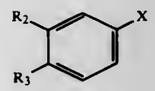
Int. Cl.[5] C07D *265/30, 211/06*; C07C *7/02*

U.S. Cl. 544—69 **2 Claims**

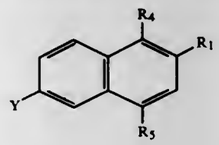
1. A process for preparing a compound having the formula



comprising coupling, in an anhydrous solvent and in the presence of, as a reaction catalyst, a transition metal or a complex thereof, a magnesium, lithium or zinc derivative of a compound of the formula



with a halogenated naphthalene compound of the formula



wherein

R_1 represents (i)



or (ii) $-CH_2OH$,

R_6 represents



or OR_7 wherein R_7 represents hydrogen, alkyl having 1–20 carbon atoms, monohydroxyalkyl or polyhydroxyalkyl, r' and R'' represent hydrogen, lower alkyl, mono or polyhydroxyalkyl, aryl or a residue of an amino acid or an amino sugar selected from the group consisting of glucosamine, galactosamine and mannosamine, or together form a heterocycle selected from the group consisting of piperidino, piperazino, morpholino and pyrrolidino,

R_2 represents hydrogen, branched or straight chain alkyl having 1–15 carbon atoms, alkoxy having 1–4 carbon atoms or a cycloaliphatic radical,

R_3 represents hydrogen, hydroxy, branched or straight chain alkyl having 1–4 carbon atoms, alkoxy having 1–10 carbon atoms, a cycloaliphatic radical selected from the group consisting of 1-methyl cyclohexyl and 1-adamantyl, a thiocycloaliphatic radical, or $-O-Si(CH_3)_2-R_8$ wherein R_8 represents linear or branched lower alkyl,

R_4 and R_5, each independently, represent hydrogen, lower alkyl, hydroxy or lower acyloxy, and

X and Y represent Cl, Br, F or I.

5,212,304

AMINO-DERIVATIZED PHOSPHORAMIDITE LINKING AGENTS

Steven Fung, Palo Alto; Sam L. Woo, Redwood City, and Lloyd M. Smith, South Pasadena, all of Calif., assignors to Applied Biosystems, Inc., Foster City, Calif.

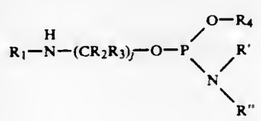
Division of Ser. No. 769,170, Aug. 26, 1985, Pat. No. 4,757,141. This application Jul. 8, 1988, Ser. No. 216,768

Int. Cl.[5] C07D *265/30*; C07F *9/06, 9/547*

U.S. Cl. 544—157 **25 Claims**

1. A compound of the formula:

Formula III



wherein:

j is in the range of 2 to 10;

R_1 is an amino protection group;

R_2 and R_3 taken separately each represent hydrogen; alkyl having from 1 to 6 carbon atoms; halo-, cyano-, nitro-, sulfo-, halomethyl-, dihalomethyl-, or trihalomethyl-substituted alkyl having from 1 to 6 carbon atoms; cycloalkyl having from 3 to 6 carbon atoms; cyano, halo, or nitro;

R_4 is alkyl, alkenyl, aryl, aralkyl, or cycloalkyl containing up to 10 carbon atoms; and

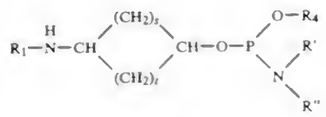
R' and R'' taken separately each represent alkyl, aryl, aralkyl, cycloalkyl, or cycloalkylalkyl containing up to 10 carbon atoms; or R' and R'' taken together form an alkylene chain containing up to 5 carbon atoms in the principal chain and a total of up to 10 carbon atoms with both terminal valence bonds of said chain being attached to the nitrogen atom to which R' and R'' are attached; or R' and R'' when taken together with the nitrogen atom to which

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they are attached from a hydrogen-saturated nitrogen heterocycle of five or six atoms selected from the group consisting of carbon, nitrogen, oxygen, and sulfur.

17. A cycloalkane of the formula:

Formula IV



the cycloalkane having a protected amino substituent and a phosphoramidite substituent wherein:

s is in the range of 0 to 8, t is in the range of 0 to 8, and s+t is in the range of 1 to 8;

R_1 is an amino protection group;

R_4 is alkyl, alkenyl, aralkyl, or cycloalkyl containing up to 10 carbon atoms; and

R' and R'' taken separately are alkyls selected from the group consisting of isopropyl, t-butyl, sec-butyl, neopentyl, tert-pentyl, isopentyl, sec-pentyl, isohexyl, 3-methylpentyl, 2-methylpentyl, 1-methylpentyl, 1,1-dimethylbutyl, 2,2-dimethylbutyl, neohexyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-trimethylpropyl, and 1-ethyl-2-methylpropyl; or R' and R'' taken together with the nitrogen atom to which they are attached is morpholino, pyrrolidino, or piperidino.

5,212,305

PROCESS FOR PREPARING DELMOPINOL VIA THE INTERMEDIATES ISOXAZOLIDINES AND ISOXAZOLINES

Sven Hernestam, Malmö ; Bernt Thelin; Elisabeth Seifert, both of Lund, and Arne Nilsson, Malmö, all of Sweden, assignors to Kabi Pharmacia Aktibolag, Sweden

Division of Ser. No. 634,186, Feb. 19, 1991, Pat. No. 5,155,220. This application Jul. 22, 1992, Ser. No. 918,272

Claims priority, application Sweden, May 24, 1989, 8901837-8; May 24, 1989, 8901838-6

Int. Cl.[5] C07D *265/30*

U.S. Cl. 544—170 **9 Claims**

1. A process for preparing 3-(4-propylpentyl)-morpholine-ethanol (delmopinol) comprising:

a) reacting a mono- or polyunsaturated 4-propylheptyl compound having the formula I or II:

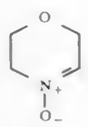
I. CH_2=CH—R II. CH≡C—R

wherein R is:

2-propylpentyl optionally with one, two or three internal unsaturated bonds; or

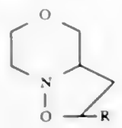
2-substituted-2-propylpentyl optionally having one or two internal unsaturated bonds wherein the 2-substituent is a leaving group with a morpholine nitrone (III)

III



to produce the compounds of the formula:

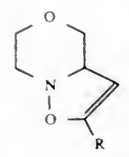
IV



-continued

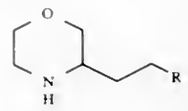
or

V

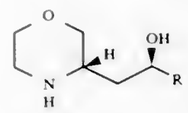


b) reductive ring opening of compounds IV or V to compounds of the formulas:

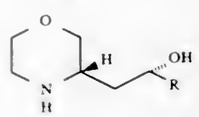
VIa



VIb



VIc



c) reacting the mixture of VIb and VIc with a chlorinating agent;

d) dechlorinating the compounds of step c) to the compound VIa by hydrogenating; and

e) alkylating the compound VIa to render delmopinol.

5,212,306

AMINE-BORATE AND AMINE-BORON HALIDE COMPLEXES AS CATALYST COMPOSITIONS FOR THE PRODUCTION OF POLYURETHANES

Ann C. L. Savoca, Wyomissing, and Mark L. Listemann, Whitehall, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Sep. 18, 1992, Ser. No. 947,237

Int. Cl.[5] C07D *251/34*

U.S. Cl. 544—193 **11 Claims**

1. In a method for catalyzing the trimerization of an isocyanate and/or the reaction between an isocyanate and an active hydrogen-containing compound, the improvement which comprises employing a catalyst composition consisting essentially of the addition product of a tertiary amine urethane catalyst and a boron compound of the formula

$$R_nBX_{3-n}$$

where

n represents 0, 1, 2 or 3,

X represents halide, OCOR', OR'' or mixtures thereof, and

R, R' and R'' independently represent C_1–C_8 alkyl, C_5–C_8 cycloalkyl, C_6–C_{10} aryl or mixtures thereof.

5,212,307

LIGHT-SENSITIVE BIS-TRICHLOROMETHYL-S-TRIAZINES, AND PROCESS FOR THEIR PREPARATION

Wojciech A. Wiczak, Jersey City, N.J., assignor to Hoechst Aktiengesellschaft, Frankfurt/Main, Fed. Rep. of Germany

Filed Apr. 5, 1990, Ser. No. 505,155

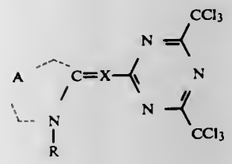
Claims priority, application Fed. Rep. of Germany, Apr. 18, 1989, 3912652

Int. Cl.[5] C07D *251/24, 251/42*

U.S. Cl. 544—194 **21 Claims**

1. A light-sensitive bis-trichloromethyl-s-triazine having the formula I

(I)



wherein

A are the ring members required to complete a 5- or 6-membered heterocyclic ring, wherein said ring members may be unsubstituted or substituted with an alkyl or alkoxy group containing 1 to 6 carbon atoms, an aryl or aryloxy group containing 6 to 10 carbon atoms or a halogen atom, wherein said heterocyclic ring may be fused to a benzene or naphthalene ring, and wherein said fused benzene or naphthalene ring may be unsubstituted or substituted with an alkyl or alkoxy group containing 1 to 6 carbon atoms, an aryl or aryloxy group containing 6 to 10 carbon atoms or a halogen atom

is an alkyl group unsubstituted or substituted with an alkoxy group having 1 to 6 carbon atoms, an aryl or aryloxy group having 7 to 10 carbon atoms or halogen, and

X is CH or N.

5,212,308

NONANE

William S. Lukasavage, Succasunna; Seymour Portnoy, Livingston; Jack Alster, Fair Lawn, and Steven M. Nicolich, Saddlebrook, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 687,607, Apr. 15, 1991. This application Jun. 5, 1992, Ser. No. 894,503

Int. Cl.[5] C07D *487/08*

U.S. Cl. 544—215 **1 Claim**

1. In the improved process of making 3,7-diacetyl-1,3,5,7-tetraaza bicyclo-3,3,1-nonane wherein an exotherm is a rate limiting factor, the improvement comprising absorbing said exotherm by a change of phase from the frozen solid state to a liquid state of common ice.

5,212,309

3-AMINOBENZENE-1,2,4,5-TETRACARBOXYLIC DIHYDRAZIDES AND COMPOSITION CAPABLE OF CHEMILUMINESCENCE, AND 3-AMINOBENZENE-1,2,4,5-TETRACARBOXYLIC DIANHYDRIDES

Ernst Schefczik, Ludwigshafen, and Klaus Huemke, Friedelsheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Feb. 3, 1992, Ser. No. 829,631

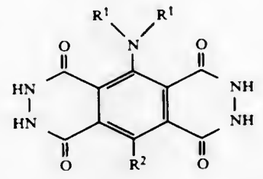
Claims priority, application Fed. Rep. of Germany, Feb. 5, 1991, 4103405

Int. Cl.[5] C07D *487/04, 493/04;* C09K *11/07;* C12Q *1/66*

U.S. Cl. 544—234 **3 Claims**

1. A 3-aminobenzene-1,2,4,5-tetracarboxylic dihydrazide of the following formula I

I



where R^1 is H, methyl or ethyl and R^2 is H, C_{1-6}-alkyl or C_{1-6}-alkoxy.

5,212,310

CERTAIN ARYL FUSED IMIDAZOPYRIMIDINES; A NEW CLASS OF GABA BRAIN RECEPTOR LIGANDS

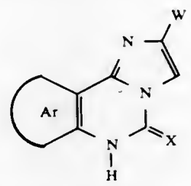
Andrew Thurkauf, Branford; Alan Hutchison, Madison, and Pamela Albaugh, Clinton, all of Conn., assignors to Neurogen Corporation, Branford, Conn.

Filed Dec. 19, 1991, Ser. No. 810,684

Int. Cl.[5] C07D *487/04, 495/14, 498/14, 513/14*

U.S. Cl. 544—251 **44 Claims**

1. A compound of the formula:



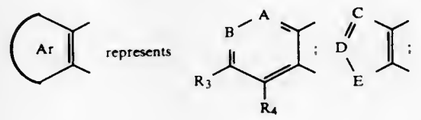
or the pharmaceutically acceptable non-toxic salts thereof wherein:

X is oxygen or sulfur;

W is

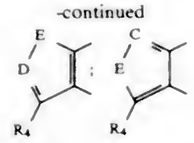
phenyl, thienyl, or pyridyl, or

phenyl, thienyl, or pyridyl, each of which may be mono or disubstituted with halogen, hydroxy, straight or branched chain lower alkyl having 1–6 carbon atoms, amino, mono or dialkylamino where each alkyl is straight or branched chain lower alkyl having 1–6 carbon atoms, or straight or branched chain lower alkoxy having 1–6 carbon atoms;



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-continued



wherein:

A represents nitrogen or C-R_1;

B represents nitrogen or C-R_2 with the proviso that not both A and B are nitrogen and not both A and B are carbon;

C represents nitrogen or C—R_1;

D represents nitrogen or C—R_2 with the proviso that both C and D are nitrogen;

E represents oxygen, sulfur or N—R_5;

R_1 and R_4 are the same or different and represent hydrogen, halogen, straight or branched chain lower alkyl having 1–6 carbon atoms, or straight or branched chain lower alkoxy having 1–6 carbon atoms;

R_2 is

hydrogen, halogen, hydroxy, amino, 1-indanyl, 4-(thio)-chromanyl, 1-(1,2,3,4-tetrahydronaphyl);

1-indanyl, 4-(thio)chromanyl, 1-(1,2,3,4-tetrahydronaphthyl), each of which is monosubstituted with halogen, straight or branched chain lower alkyl having 1–6, carbon atoms, or straight or branched chain lower alkoxy having 1–6 carbon atoms;

OR_5, COR_5, CO_2R_5, $OCOR_5$, or R_5, where R_5 is phenyl, pyridyl, straight or branched chain lower alkyl having 1–6 carbon atoms, or phenylalkyl or pyridylalkyl where each alkyl is straight or branched chain lower alkyl having 1–6 carbon atoms;

—$CONR_6R_7$ or —$(CH_2)_nNR_6R_7$ where

n is 0, 1, or 2;

R_6 is hydrogen, straight or branched chain lower alkyl having 1–6 carbon atoms; and

R_7 is hydrogen, phenyl, pyridyl, straight or branched chain lower alkyl having 1–6 carbon atoms, or phenylalkyl or pyridylalkyl where each alkyl is straight or branched chain lower alkyl having 1–6 carbon atoms; or

NR_6R_7 forms a heterocyclic group which is morpholyl, piperidyl, pyrrolidyl, or N-alkyl piperazyl; or

R_2 is

$C(OH)R_{10}R_{11}$ where R_{10} and R_{11} are the same or different and represent straight or branched chain lower alkyl having 1–6 carbon atoms, phenyl, or phenylalkyl where each alkyl is straight or branched chain lower alkyl having 1–6 carbon atoms; and

R_3 and R_5 are the same or different and represent hydrogen or straight or branched chain lower alkyl having 1–6 carbon atoms.

5,212,311

CHIRAL AMINO-METHYL FERROCENE DERIVATIVES

Makoto Watanabe; Masaru Uemura, both of Yokkaichi; Shuki Araki, and Yasuo Butsugan, both of Nagoya, all of Japan, assignors to Tosoh Corporation, Yamaguchi, Japan

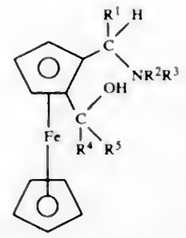
Continuation of Ser. No. 490,408, Mar. 8, 1990, Pat. No. 5,079,359. This application Oct. 7, 1991, Ser. No. 772,455

Claims priority, application Japan, Mar. 9, 1989, 1-57232; Sep. 25, 1989, 1-249869

Int. Cl.[5] C07F *17/12*

U.S. Cl. 546—11 **6 Claims**

1. A ferrocene derivative with chirality represented by the following formula (I):



(I)

wherein R^1 represents an alkyl group, R^2 and R^3 respectively represent an alkyl group, an aryl group or a benzyl group, or NR^2R^3 together form a heterocyclic ring in which R^2R^3 represents a hydrocarbon chain having 4 to 6 carbon atoms, R^4 and R^5 are the same or different and represent hydrogen, a lower alkyl group having 2 to 6 carbon atoms, an aryl group, an anthracenyl group or a ferrocenyl group, or R^4 and R^5 form a cycloalkyl group having 5 to 7 carbon atoms or a 9-(10-hydroanthracenyl) group together with a carbon atom to which R^4 and R^5 bond, wherein R^4 and R^5 are not hydrogen at the same time, and when R^1, R^2 and R^3 are methyl groups, R^4 and R^5 are not phenyl groups at the same time and are not respectively p-methoxyphenyl and hydrogen.

5,212,312

VATTABLE AND NON-VATTABLE QUINOID DYES

Jean-Marie Adam, Saint-Louis, France, and Athanassios Tzikas, Prattein, Switzerland, assignors to Ciba-Geigy AG, Basle, Switzerland

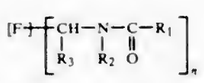
Continuation of Ser. No. 628,963, Jul. 11, 1984, abandoned, which is a continuation of Ser. No. 329,858, Dec. 11, 1981, abandoned. This application Sep. 22, 1986, Ser. No. 912,174

Claims priority, application Switzerland, Dec. 23, 1980, 9530/80

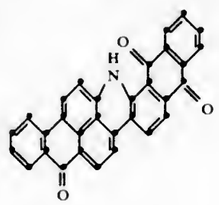
Int. Cl.[5] C07D *487/06, 491/00*

U.S. Cl. 546—32 **9 Claims**

1. A dye of the formula

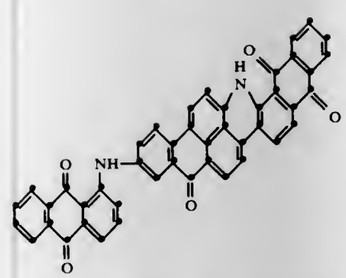


in which F is a group of a dibenzanthrone, isodibenzanthrone, 16,17-ethylenedioxydibenzanthrone, 2,2'-dibenzanthronyl, 2,2'-bisindolindigo, 2,2'-bisthionaphtheneindigo, cis- or trans-naphthoylenebenzimidazole, benzothioxanthene, N,N'-di-p-tolyl-perylenetetracarboxylic acid diimide, N,N'-di-p-phenethoxynaphthalene-1,4,5,8-tetracarboxylic acid diimide, 5,5'-bis-naphthyl-1,1',8,8'-tetracarboxylic acid-dibenzimidazole, 5,5'-bis-naphthyl-1,1',8,8'-tetracarboxylic acid-6'',6'''-dimethyl-dibenzimidazole, 5,5'-bisnaphthyl-1,1',8,8'-tetracarboxylic acid-5'',5''',6'',6'''-tetramethoxydibenzimidazole or 16,17-methylenedioxydibenzanthrone dye, or a group of a compound of the formula

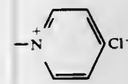


-continued

or



R_1 is a group of the formula —A—Q wherein A is methylene and Q is



n is 1 or 2, and R_2 and R_3 are hydrogen.

5,212,313

POLYCYCLIC DYES

Ronald W. Kenyon, Failsworth; David F. Newton, Shaw, and Derek Thorp, Hopwood, all of England, assignors to Imperial Chemical Industries Plc, Millbank, England

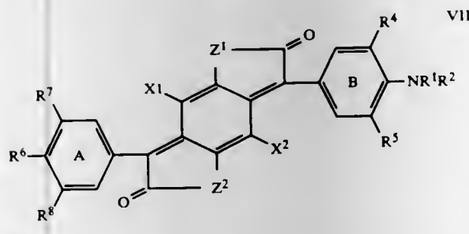
Division of Ser. No. 410,630, Sep. 21, 1989, Pat. No. 5,084,580. This application Oct. 23, 1991, Ser. No. 781,589

Claims priority, application United Kingdom, Oct. 3, 1988, 8823158

Int. Cl.[5] C07D *215/14, 215/18, 307/77*

U.S. Cl. 546—174 **6 Claims**

1. A compound of Formula VII:



VII

wherein;

X^1 and X^2 are each independently selected from H, cyano, C_{1-20}-alkyl, C_{1-4}-alkoxy, phenyl, carbamoyl, sulphamoyl, COOH and carboxylic acid ester;

Z^1 and Z^2 are both —O—;

R^1 and R^2 are each independently selected from H, C_{1-20}-alkyl, C_{2-20} alkenyl, C_{4-8}-cycloalkyl, phenyl and phenyl-C_{1-4}-alkylene each of which is unsubstituted or is substituted by a group selected from C_{1-4}-alkyl, C_{1-4}-alkoxy, nitro, halogen, C_{1-4}-alkoxy-C_{1-4}-alkoxy, cyclohexyl, phenyl, diphenyl, hydroxy, C_{1-4}-alkylcarbonyl, C_{1-4}-alkoxycarbonyl, C_{1-4}-alkoxy-C_{1-4}-alkoxycarbonyl, C_{1-4}-alkoxycarbonyloxy, C_{1-4}-alkoxy-C_{1-4}-alkoxycarbonyloxy, C_{1-4}-alkylcarbonyloxy, cyano and amino;

R^1 and R^2 together with the N atom and Ring B form a tetrahydroquinolinyl group; or

R^2 and R^5 together with the N atom and Ring B form a tetrahydroquinolinyl group;

R^6 is selected from H, halogen, C_{1-4}-alkyl, C_{3-4}-alkenyl, C_{1-10}-alkoxy group and a group NR^1R^2 in which R^1 and R^2 are each independently as hereinbefore defined;

R^4 and R^5 each independently is —H, halogen, or a group selected from C_1–C_4 alkyl, C_3–C_4 alkenyl, and C_1–C_{10} alkoxy each of which may be substituted by a group selected from alkoxy, hydroxy, alkylcarbonyloxy, alkoxyalkoxycarbonyl, alkoxycarbonyl, halogen and cyano;

R^7 and R^8 each independently is —H, halogen, or a group selected from C_1–C_4 alkyl, C_3–C_4 alkenyl, and C_1–C_{10} alkoxy each of which may be substituted by a group selected from alkoxy, hydroxy, alkylcarbonyloxy, alkoxyalkoxycarbonyl, alkoxycarbonyl, halogen and cyano;

and where R^6 is NR^1R^2, then R^6 is the same as or different from the NR^1R^2 group present in Ring B, provided that one of R^4 and R^5 is other than H, and provided either X^1 and X^2 are different or the number or pattern of substituents in Ring A and Ring B are different.

5,212,314

ALKOXYIMINO ETHER DERIVATIVES OF 5-ACYL-2(1H)-PYRIDINONES

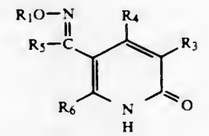
Winton D. Jones; Richard A. Schnettler, and Richard C. Dage, all of Cincinnati, Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Division of Ser. No. 703,936, Jul. 29, 1991, abandoned, which is a division of Ser. No. 476,993, Feb. 8, 1990, Pat. No. 5,043,449, which is a division of Ser. No. 321,704, Mar. 10, 1989, Pat. No. 4,920,229, which is a division of Ser. No. 166,147, Mar. 10, 1988, Pat. No. 4,849,522, which is a division of Ser. No. 834,692, Feb. 28, 1986, Pat. No. 4,732,982, which is a continuation of Ser. No. 548,398, Nov. 3, 1983, abandoned. This application Jun. 16, 1992, Ser. No. 899,559

Int. Cl.[5] C07D *401/14, 403/14*

U.S. Cl. 546—256 **4 Claims**

1. A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein

R_1 is C_{1-10} alkyl,

R_3 is H, lower alkyl, —C≡N, —NH_2, —$CONH_2$ and —COOR with R being hydrogen or lower alkyl,

R_4 is hydrogen or a lower alkyl

R_5 is pyridyl, and

R_6 is thienyl or furyl.

5,212,315

ALKOXYIMINO ETHER DERIVATIVES OF 5-ACYL-2(1H)-PYRIDINONES

Winton D. Jones; Richard C. Dage, and Richard A. Schnettler, all of Cincinnati, Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

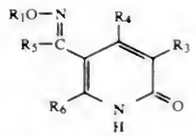
Division of Ser. No. 476,993, Feb. 8, 1990, Pat. No. 5,043,449, which is a division of Ser. No. 321,704, Mar. 10, 1989, Pat. No. 4,920,229, which is a division of Ser. No. 166,147, Mar. 10, 1988, Pat. No. 4,849,522, which is a division of Ser. No. 834,692, Feb. 28, 1986, Pat. No. 4,732,982, which is a continuation of Ser. No. 548,398, Nov. 3, 1983, abandoned. This application Jul. 29, 1991, Ser. No. 703,936

Int. Cl.[5] C07D *401/04, 401/02*

U.S. Cl. 546—257 **4 Claims**

1. A compound of the formula:

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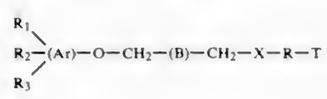
or a pharmaceutically acceptable salt thereof, wherein
R_1 is $C_{1\text{-}10}$ alkyl,
R_3 is H, lower alkyl, —C≡N, —NH_2, —$CONH_2$ and —COOR with R being hydrogen or lower alkyl,
R_4 is hydrogen or a lower alkyl
R_5 is pyridyl, and
R_6 is pyridyl.

5,212,316
ETHERS AND THIOETHERS HAVING THERAPEUTICAL ACTIVITY, THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Silvano Spinelli; Roberto Di Domenico; Ernesto Menta; Bruno Lumachi; Licia Gallico, and Sergio Tognella, all of Milan, Italy, assignors to Boehringer Mannheim Italia, Monza, Italy

Division of Ser. No. 230,821, Aug. 11, 1988, Pat. No. 4,968,706.
This application Jul. 30, 1990, Ser. No. 559,036
Claims priority, application Italy, Aug. 14, 1987, 21657 A/87
Int. Cl.[5] C07D *401/12, 211/70, 211/82*
U.S. Cl. 546—278 **1 Claim**

1. Compounds of formula I



(I)

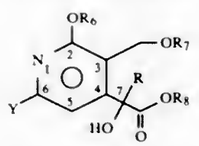
wherein:
Ar is phenyl;
R_1, R_2, and R_3 are substituents of the phenyl group Ar in 2-, 3-, 4-, and 5- position, which are the same or different, and are selected from the group consisting of hydrogen, hydroxy, (C_1–C_5)-acyloxy, (C_1–C_4)-alkyl, (C_1–C_4)-alkoxyl, (C_2–C_4)-alkenyl, halogen, (C_1–C_5)-acylamino, phenyl, phenoxy, imidazol-1yl, carboxyl-(C_1–C_3)-alkoxycarbonyl, and carboxy-(C_1–C_4)-alkyl;
B is a valency bond, or a —(CH_2—O—CH_2)$_n$-group;
X is sulphur or oxygen;
R is —(CH_2)$_n$, —CH(R_4)—, $CH_2CH(NH_2)$—, or —CH-2—CH(NH—CORa) group;
T is 2-, 3-, or 4-pyridyl, carboxyl, —CO_2R_6, —COR_6, —CO_2NH_2, —CONRdRe, —CO—NH—CH(R-c)—CO_2Ra, di-(C_1–C_4)-alkylamino-(C_1–C_4)—alkyl-aminocarbonyl, hydroxy-(C_1–C_4)-alkoxy-(C_1–C_4)-alkyl-aminocarbonyl, di-(C_1–C_4)-alkyl-amino-(C_1–C_4)-alkoxy-(C_1–C_4)—alkyl-aminocarbonyl, or 2-, 3-, 4-pyridylmethylaminocarbonyl;
n is 1 or 2;
R_4 is (C_1–C_4)-alkyl or (C_2–C_4)alkenyl;
R_6 is (C_1–C_6)-alkyl, unsubstituted or substituted by (C_1–C_6)-alkoxy, carboxyl, (C_1–C_4)-alkyoamino, di-(C_1–C_4)alkylamino, (C_3–C_6)-alkenyl, phenyl, or phenyl-(C_1–C_6)-alkyl; Ra is hydrogen or (C_1–C_4)-alkyl; and Rd is hydrogen, (C_1–C_6)-alkyl, (C_6-C_{14})-Ar-(C_1–C_4)-alkyl,
Rd and Re, which are the same or different, are hydrogen or (C_1–C_6)-alkyl, wherein the alkyl is unsubstituted or substituted by (C_1–C_6)-alkoxy, hydroxy, —(C_1–C_4)-alkoxy-(C_1–C_4)-alkyl, or di-(C_1–C_4)-alkyl-amino-(C_1–C_4)-alkoxy-(C_1–C_4)-alkyl, wherein the molecule contains either an imidazolyl group or a pyridyl group or both,
as well as their enantiomers or diastereomers and the pharmacologically acceptable salts thereof.

5,212,317
METHODS AND INTERMEDIATES FOR THE ASSYMMETRIC SYNTHESIS OF CAMPTOTHECIN AND CAMPTOTHECIN ANALOGS

Daniel L. Comins, and Matthew F. Baevsky, both of Cary, N.C., assignors to North Carolina State University, Raleigh, N.C.

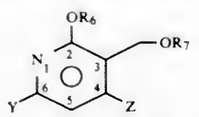
Continuation-in-part of Ser. No. 632,970, Dec. 20, 1990, Pat. No. 5,162,532. This application Jun. 18, 1992, Ser. No. 900,650
Int. Cl.[5] C07D *213/64*
U.S. Cl. 546—301 **51 Claims**

1. A process for making a compound of the formula



(XIV)

wherein R_6 is lower alkyl, R_7 is lower alkyl, R is lower alkyl, Y is H, F or Cl, and R_8 comprises a chiral moiety, comprising the steps of:
reacting a compound of the formula

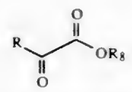


(X)

wherein Z is Br or I, with a base of the formula

A^+B^-

wherein A^+ is an organic cation and B^- is an organic anion, to form an intermediate, then
stereospecifically adding to the intermediate an α-keto-ester of the formula



(XIII)

the R_8 moiety having a configuration that forces R and the —OH group of compound XIV to take a first stereochemical orientation about the chiral carbon at position 7 by sterically hindering the formation of an opposite second stereochemical orientation about the chiral carbon at position 7.

5,212,318
PREPARATION OF OMEGA-SUBSTITUTED ALKANAMIDE

Paul R. Buckland, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 4, 1991, Ser. No. 663,525
Int. Cl.[5] C07D *233/84, 405/12*
U.S. Cl. 548—315.7 **3 Claims**

1. A process for preparing an omega-substituted arylthioalkanamide of the formula

ArS—Y—$CONR^8R^9$,

wherein
Ar is 4,5-diphenyl-1H-imidazol-2-yl;
Y is selected from the group consisting of trimethylene, tetramethylene, or pentamethylene, or trimethylene, tetramethylene, or pentamethylene substituted by a group

selected from the list consisting of methyl, ethyl, propyl, or butyl;
R^8 and R^9 each independently represents hydrogen, C_1–C_7 alkyl, phenyl optionally substituted with 1-3 groups selected from C_1–C_4 alkyl or alkoxy, F, Br, OH, CN, CO_2H, CF_3, NO_2, C_1–C_4 carbalkoxy, $NR^{10}R^{10}$, $NCOR^{11}$, and furfuryl, with the proviso that R^8 and R^9 cannot both be aromatic;
R^{10} is C_1–C_4 alkyl; and R^{11} is H or C_1–C_4 alkyl;
which comprises the steps:
(a) reacting delta valerolactone with an amine of the formula R^8R^9NH, to provide a compound of the formula

HO—Y—$CONR^8R^9$;

followed by
(b) treatment with a compound of the formula R^7SO_2X, wherein R^7 is a lower alkyl group of 1–4 carbon atoms, or trifluoromethyl; and X is an anion selected from the group consisting of —F, —Cl, and —Br; to provide a compound of the formula

R^7SO_2O—Y—$CONR^8R^9$;

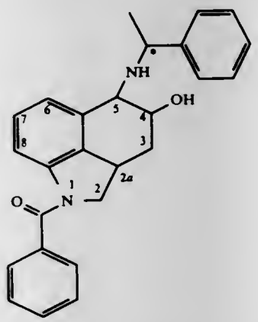
followed by
(c) treatment with a compound of the formula ArSH in the presence of a non-nucleophilic base.

5,212,319
INTERMEDIATES TO 4-AMINO-HEXAHYDROBENZ[CD]INDOLES AND PROCESSES THEREFOR

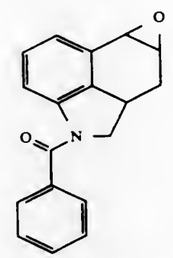
Thomas J. Kress, Indianapolis, Ind.; M. Robert Leanna, Mundelein, Ill.; Michael J. Martinelli, and Barry C. Peterson, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation of Ser. No. 485,194, Feb. 26, 1990, abandoned. This application Nov. 26, 1991, Ser. No. 799,924
Int. Cl.[5] C07D *209/50, 209/56*
U.S. Cl. 548—436 **6 Claims**

1. A stereospecific process for preparing a substantially pure enantiomer of the compound of the formula



wherein
i) the 2-carbon is in the R configuration, the 4 carbon is in the R configuration, the 5 carbon is in the R configuration; and the carbon marked • is in the S configuration; or
ii) the 2-a carbon is in the S configuration, the 4 carbon is in the S configuration, the 5 carbon is in the S configuration, and the carbon marked • is in the R configuration; or
iii) the 2-a carbon is in the R configuration, the 4 carbon is in the S configuration, the 5 carbon is in the S configuration, and the carbon marked • is in the R configuration; or
iv) the 2-a carbon is in the S configuration , the 4 carbon is in the configuration, the 5 carbon is in the R configuration, and the carbon marked • is in the S configuration;
which process comprises:
1) reaction of a mixture of substantially the α-isomers or substantially the β-isomers of the compound of the formula



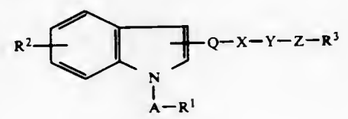
with a substantially pure optical isomer of 1-phenylethylamine, in n-butanol, to form a mixture of enantiomers of said compound;
2) selective crystallization of one of said enantiomers; and
3) isolation of the crystallized enantiomer.

5,212,320
INDOLE DERIVATIVES AND THEIR USE FOR TESTOSTERONE 5-ALPHA-REDUCTASE-MEDIATED DISEASES

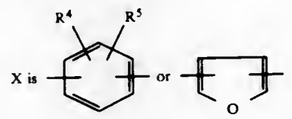
Satoshi Okada; Kozo Sawada; Natsuko Kayakiri; Yuki Saitoh, all of Tsukuba; Hirokazu Tanaka, Tsuchiura, and Masashi Hashimoto, Toride, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 702,500, May 20, 1971. This application Sep. 11, 1991, Ser. No. 757,522
Claims priority, application United Kingdom, May 21, 1990, 9011335
Int. Cl.[5] C07D *209/18, 209/20;* **A61K** *31/405, 31/41*
U.S. Cl. 514—415 **12 Claims**

1. A compound of the formula:



wherein
R^1 is carboxy or protected carboxy,
R^2 is hydrogen, lower alkyl or halogen,
R^3 is aryl or ar(lower)alkyl, each of which may have suitable substituent(s),
A is lower alkylene which may be substituted by oxo or lower alkenylene,
Q is carbonyl or lower alkylene,



in which
R^4 is hydrogen or lower alkyl, and
R^5 is hydrogen, lower alkyl or Y—Z—R^3,
Y is bond or lower alkylene,
Z is lower alkylene, —O— or

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in which R^6 is hydrogen, lower alkyl, ar(lower)alkyl which may have suitable substituent(s) or amino protective group,
and pharmaceutically acceptable salts thereof.

5,212,321
PROCESS FOR THE PREPARATION OF TRIMETHYLENE CARBONATE

Klaus R. Muller; Berthold Buchholz, both of Ingelheim am Rhein, and Joachim Hess, Bingen, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

Continuation of Ser. No. 582,561, Sep. 14, 1990, abandoned. This application Jun. 17, 1992, Ser. No. 900,519
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1989, 3933617
Int. Cl.[5] C07D *317/38, 319/06*
U.S. Cl. 549—228 **10 Claims**

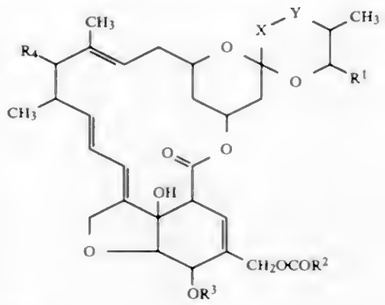
1. A process for producing trimethylene carbonate wherein 1,3-propanediol is reacted with diethylcarbonate in the presence of zinc powder, zinc oxide, tin powder, tin halide or an organo-tin compound, at an elevated temperature.

5,212,322
MACROLIDE COMPOUNDS, THEIR PREPARATION AND THEIR USE

Takao Okazaki; Shuji Takahashi; Seigo Iwado, all of Tokyo; Keiji Tanaka, Shiga; Toshiaki Yanai, Shiga, and Hisaki Kajino, Shiga, all of Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

Division of Ser. No. 131,413, Dec. 10, 1987, Pat. No. 5,008,191. This application Jan. 22, 1991, Ser. No. 644,100
Claims priority, application Japan, Dec. 11, 1986, 61-295452
Int. Cl.[5] C07D *305/14*; A01N *43/02*
U.S. Cl. 549—265 **16 Claims**

1. A compound having the formula:



(I)

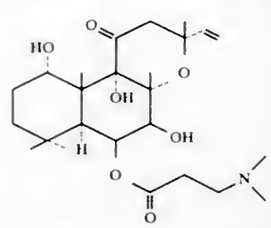
wherein:
—X—Y— is selected from the group consisting of —CH_2—CH_2—, —CH_2—CHOH—, —CH=CH—, and —CH_2—C(=O)—;
R^1 is selected from the group consisting of a methyl group, an ethyl group, an isopropyl group, a sec-butyl group and a group of formula —$C(CH_3)$=CHR^5 in which R^5 is selected from the group consisting of a methyl group, an ethyl group and an isopropyl group;
R^2 represents a group of formula —$(CH_2)_n$—$C(R^6)$=$C(R^7)(R^8)$ in which n is 0, 1 or 2, R^6 and R^7 each is selected from the group consisting of a hydrogen atom and a methyl group and R^8 is selected from the group consisting of a hydrogen atom, a C_{1-4} alkyl group, a phenyl group and a phenyl group substituted with at least one substituent selected from the group consisting of halogen, methyl and nitro substituents;
R^3 is selected from the group consisting of a hydrogen atom, a methyl group, a hydroxy-protecting group, an ester-forming carboxylic acid residue, and an ester-forming carbonic acid residue; and
R^4 is selected from the group consisting of a hydrogen atom and an α-L-oleandrosyl-α-L-oleandrosyloxy group, with the proviso that R^4 represents a hydrogen atom when the group R^1 is selected from the group consisting of a methyl group, an ethyl group, and groups of formula —$C(CH_3)$=CHR^5 in which R^5 is selected from the group consisting of a methyl group, an ethyl group and an isopropyl group.

5,212,323
PROCESS FOR PRODUCING 6-(3-DIMETHYLAMINOPROPIONYL)FORSKOLIN

Akihiro Mashiba, Tokyo, and Yutaka Ogawa, Saitama, both of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

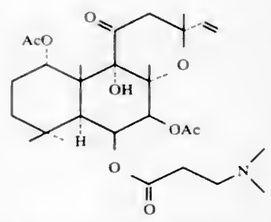
Filed Oct. 24, 1991, Ser. No. 781,979
Claims priority, application Japan, Nov. 1, 1990, 2-293679
Int. Cl.[5] C07D *311/92*
U.S. Cl. 549—389 **7 Claims**

1. A process for producing 6-(3-dimethylamino-propionyl)-forskolin, comprising the sequential steps of:
(1) acetylating hydroxy groups in 1-position and 7-position of a compound represented by the formula (III):



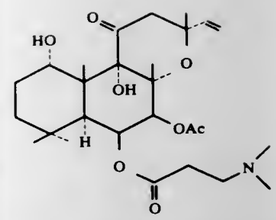
(III)

to prepare 1-acetyl-6-(3-dimethylaminopropionyl)forskolin represented by the formula (II):



(II)

(wherein Ac represents acetyl group), and
(2) selectively removing the acetyl group in the 1-position of the compound represented by the formula (II) while avoiding the formation of by-products, consisting essentially of reacting the compound represented by the formula (II) with dimethylamine in a group solvent to prepare 6-(3-dimethylaminopropionyl)forskolin represented by the formula (I):



(I)

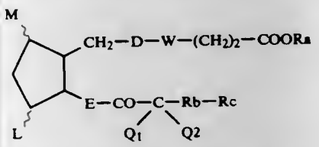
(wherein Ac represents the same as defined in formula (II)).

5,212,324
TREATMENT OF CATARACT WITH 15-KETO-PROSTAGLANDIN COMPOUNDS

Ryuji Ueno, Hyogo, Japan, assignor to R.-Tech Ueno Ltd., Osaka, Japan

Filed Apr. 3, 1991, Ser. No. 680,187
Claims priority, application Japan, Apr. 4, 1990, 2-90895; Aug. 22, 1990, 2-221646; Jan. 29, 1991, 3-29310
Int. Cl.[5] C07C *177/00*
U.S. Cl. 554—118 **14 Claims**

1. A compound of the formula:



(I)

wherein each of L and M is hydrogen atom, hydroxy, lower alkyl, hydroxy(lower)alkyl or oxo, provided that at least one of L and M is not hydrogen atom and that the five-membered ring may have one or two double bonds, each of Q_1 and Q_2 is hydrogen atom, halogen atom or lower alkyl, with at least one of Q_1 and Q_2 is a halogen atom or lower alkyl, D is —CH_2—CH_2—, —CH=CH—, —C≡C— or —CO—CH_2—, E is —CH_2—CH_2—, or —CH=CH—, W is —CH_2—CH_2—CH_2—, —CH=CH—CH_2 or —CH_2—CH=CH—, Ra is hydrogen atom, lower alkyl, lower cycloalkyl, monocyclic aryl, monocyclic aryl(lower)alkyl or monocyclic aroyl(lower-)alkyl, Rb is single bond or lower alkylene, Rc is lower alkyl which is unsubstituted or substituted by halogen, lower cycloalkyl which is unsubstituted or substituted by lower alkyl, monocyclic aryl which is unsubstituted or substituted by halogen or halo(lower)alkyl, or monocyclic arloxy which is unsubstituted or substituted by halogen or halo(lower)alkyl.

5,212,325
FATTY ACID SALT PRODUCTS

M. Stephen Lajoie, Basking Ridge, N.J., assignor to Church & Dwight Co., Inc., Princeton, N.J.

Continuation-in-part of Ser. No. 761,235, Sep. 17, 1991. This application Jan. 29, 1992, Ser. No. 828,529
Int. Cl.[5] C07C *51/00*
U.S. Cl. 554—156 **10 Claims**

1. A fatty acid salt product in friable solid form which consists essentially of (a) at least one C_{14}–C_{22} fatty acid salt of an alkaline earth metal; and (b) a basic alkali metal compound; wherein the atomic ratio of alkaline earth metal:alkali metal is between about 2:1 and 10:1, and the product contains less than about 5 weight percent of C_{14}–C_{22} fatty acid in glyceride form, based on the total content of fatty acid.

5,212,326
SODIUM HYDROGEN DIVALPROATE OLIGOMER

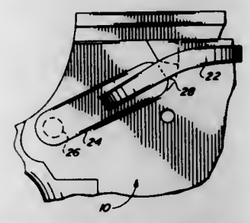
Edwin M. Meade, Duncan, Canada, assignor to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 117,945, Nov. 9, 1987, Pat. No. 4,988,731, which is a continuation of Ser. No. 545,719, Oct. 26, 1983, abandoned, which is a continuation-in-part of Ser. No. 68,284, Aug. 20, 1979, abandoned. This application Jan. 7, 1991, Ser. No. 637,828
The portion of the term of this patent subsequent to Jan. 29, 2008, has been disclaimed.
Int. Cl.[5] C07B *53/00*; A01N *37/00*; A61K *31/19*
U.S. Cl. 562—606 **5 Claims**

1. An oligomer having a 1:1 molar ratio of sodium valproate and valproic acid of the unit formula, $(CH_3CH_2CH_2)_2CHCO_2$-Na/$(CH_3CH_2CH_2)_2CHCO_2H$, and containing about 4 to 6 such units.

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5,212,327
AMBIDEXTROUS THUMB SAFETY
Wilfred C. Schuemann, 705 Wagner Dr., Carson City, Nev.
Filed Jan. 7, 1992, Ser. No. 817,670
Int. Cl.[5] F41A *17/20*
U.S. Cl. 42—70.01 15 Claims



1. Apparatus for retaining and guiding a left-hand thumb safety engaged with and operating in concert with a right-hand thumb safety, each of the left-hand and right-hand thumb safeties being pivotally mounted in a frame of a piston, said apparatus comprising in combination:

a) a first pivot shaft extending from the right-hand thumb safety into the frame of the pistol;

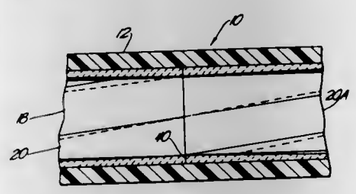
b) a second pivot shaft extending from the left-hand thumb safety into the frame of the pistol;

c) means for interconnecting said first and second pivot shafts to prevent independent rotation between the left and right-hand thumb safeties;

d) a tang extending from the left-hand thumb safety; and

e) a slot disposed in the frame of the pistol for receiving said tang, for guiding said tang upon pivotal movement of the left-hand thumb safety and for preventing disengagement of the left-hand thumb safety from the right-hand thumb safety while said tang is disposed within said slot.

5,212,328
NONMETALLIC GUN BARREL
Paul A. Petrovich, 11269 Judd Rd., Fowlerville, Mich. 48836
Filed Oct. 11, 1991, Ser. No. 774,949
Int. Cl.[5] F41A *21/04*
U.S. Cl. 42—76.02 17 Claims



1. A nonmetallic gun barrel, comprising:

a barrel axis;

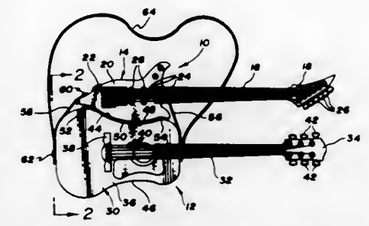
a tubular, elastically deformable barrel exterior portion disposed along the barrel axis and comprised of a thermosetting plastic resin;

a generally cylindrical barrel interior portion divided circumferentially and lengthwise into axial liner segments fixed on an inner diameter of the barrel exterior portion, the liner segments being harder and less compressible than the the barrel exterior portion;

the interior portion defining a plurality of wide, shallow, cross-sectionally curved channels, the channels forming spiral paths about the barrel axis, the channels bounding one another at ridges running along the channels;

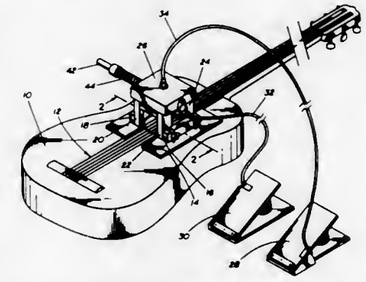
wherein the segments have ends between sides, one of the ends on one of the liner segments opposes another of the ends on another of the liner segments, and the one of the ends and the other of the ends together define an arcuate groove at an inner diametrical face of the barrel interior portion.

5,212,329
ELECTRIC GUITAR MOUNTABLE UPON ACOUSTIC GUITAR
Henry F. Woodworth, 146 Walnut, Northville, Mich. 48167
Filed Aug. 8, 1991, Ser. No. 742,611
Int. Cl.[5] G10D *1/00, 1/08, 3/00*
U.S. Cl. 84—263 16 Claims



1. An electric guitar comprising: a body and a neck that extends from the body and has a head; said body having a face including a tailpiece for connecting wires; said head having means for connecting the wires which are tensioned so the guitar can be played; said body having an electrical sound producer for use in producing an electrically transmitted sound as the tensioned wires are strummed between the head and the tailpiece; said body having a vertical edge for opposing a vertical side of a sound box of an acoustic guitar; spacer means for spacing said vertical edge of the electric guitar from said vertical side of the acoustic guitar to prevent sound transmission between the guitars; and connector means for securing the electric guitar to the acoustic guitar in a fixed and spaced relationship with respect to each other in cooperation with the spacer means.

5,212,330
MECHANICAL GUITAR STRUMMER
Michael P. Cooper, 6424 Central City Blvd. #334, Galveston, Tex. 77551
Filed Aug. 8, 1991, Ser. No. 742,364
Int. Cl.[5] G10D *3/00*
U.S. Cl. 84—320 1 Claim



1. Apparatus without electronic circuitry for strumming a string musical instrument by a one-armed player, said apparatus including in combination

a support assembly having first and second elongated members,

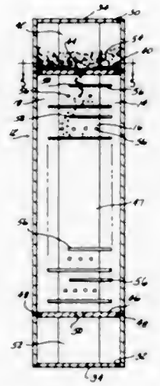
a frame positioned on said support assembly,

pick means including a pick holder and a pick positioned in said frame, and

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first and second pedal means each having a cable connected to a foot pedal and connected to said pick means, said first pedal means providing selective vertical movement of said pick means and said second pedal means providing selective horizontal movement of said pick means.

5,212,331
MUSICAL INSTRUMENT
Geoferey S. Waldo, 5721 Oakmeadow La., #2206, Raleigh, N.C. 27612
Filed Dec. 5, 1991, Ser. No. 802,498
Int. Cl.[5] G10O *13/08*
U.S. Cl. 84—404 **15 Claims**



1. A musical instrument comprising:
a hollow tubular member having side walls and closed, first and second, opposed ends;
a plate fixedly mounted within and spaced from one end of the tubular member forms a first chamber in the tubular member between the first end and the plate and a second chamber between the plate and the second end of the tubular member, an aperture formed in and extending through the plate disposes the first chamber in communication with the second chamber in the housing;
a plurality of tone pegs mounted in the side walls of the tubular member and extending a predetermined distance into the second chamber of the tubular member, the innermost end of each of the tone pegs being spaced from the opposed side wall of the tubular member; and
filler particles loosely disposed within the tubular member and movable, when the tubular member is disposed at an angle from horizontal, from the first chamber through the aperture in the plate into the second chamber whereby the filler particles impinge on and generate sound from contact with the tone pegs as the filler particles flow through the second chamber.

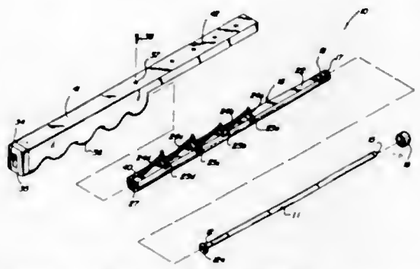
5,212,332
SWAB FOR WIND INSTRUMENTS
Anthony M. Gigliotti, 48 N. Syracuse Dr., Cherry Hill, N.J. 08034
Filed Jul. 15, 1991, Ser. No. 729,564
Int. Cl.[5] G10G *7/00*; A47K *7/02*
U.S. Cl. 84—453 **7 Claims**

1. A musical wind instrument swab for removing moisture from the interior of a musical wind instrument of the type characterized by having a bell end, a barrel end, and an interior air passage extending through the instrument from the bell end to the barrel end, comprising in combination,
a) a moisture absorbent washable silk fabric swab body of such configuration and dimensions as to be normally passable through said interior air passage of the wind instrument,
b) a swab drawstrip fixedly attached to and extending in opposite directions from said swab body to define a drawstrip leading tail and a drawstrip following tail, each of said tails having a free end, and
c) a weight affixed to the said free end of said drawstrip leading tail, said weight being of such dimensions and so affixed to said leading tail that it is freely passable from



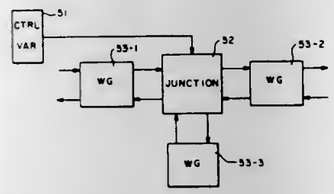
one end to the other through the interior air passage of the wind instrument with which it is to be used,
whereby, the said weighted free end of said leading tail is insertable into the bell end of the instrument to lead and pull the swab through the instrument for emergence at the barrel end, said following tail following the swab body into the instrument and being utilizable in the event of a swab body jam within the instrument to release the jam by back pulling the swab by means of said following tail.

5,212,333
MUSICAL BATON APPARATUS
Frederick O. Aryee, 3790 32nd St., Apt. E., San Diego, Calif. 92104
Filed Feb. 14, 1992, Ser. No. 835,316
Int. Cl.[5] G09B *15/02*; A45B *3/02*
U.S. Cl. 84—477 B **5 Claims**



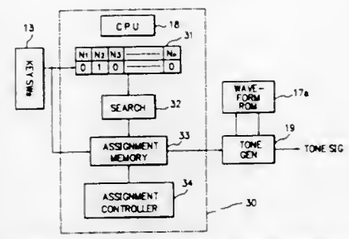
1. A musical baton apparatus, comprising,
an elongate handle body, the handle body including a handle socket, and
a wand support tube, the wand support tube including a support tube rear end, with the support tube rear end received within the handle socket and longitudinally aligned relative to the handle body, and
the wand support tube including a translucent tubular wand mounted in a longitudinally aligned relationship relative to the wand support tube at a forward distal end of the wand support tube, and
illumination means mounted within the handle body for projecting illumination through the wand support tube into the translucent tubular wand, and
illumination control means mounted to the wand support tube and arranged for manual manipulation relative to the handle body and oriented for projecting various colorations of illumination into the tubular wand, and
the translucent tubular wand includes a wand rear wall flange plate, the rear wall flange plate extends laterally and orthogonally beyond the tubular wand, and the wand rear wall flange plate including a flange plate bore directed therethrough, and the translucent tubular wand including an elongate cavity directed through the tubular wand coextensively therewith in communication with the flange plate bore, and a plurality of parallel flutes arranged coextensively within the tubular wand, with the tubular wand oriented about a wand axis and the flutes oriented parallel relative to the wand axis, and the wand support tube including an externally threaded forward outer wall portion, and an internally threaded cap formed with a cap bore receiving the wand therethrough, the cap including a cap top wall, the cap top wall in abutment with the wand rear wall flange plate received within the cap, and the cap threadedly secured to the wand support tube threaded forward outer wall portion to longitudinally align the translucent tubular wand relative to the wand support tube.

5,212,334
DIGITAL SIGNAL PROCESSING USING CLOSED WAVEGUIDE NETWORKS
Julius O. Smith, III, Palo Alto, Calif., assignor to Yamaha Corporation, Hamamatsu, Japan
Division of Ser. No. 414,646, Sep. 27, 1989, Pat. No. 4,984,276, which is a continuation of Ser. No. 275,620, Nov. 14, 1988, abandoned, which is a continuation of Ser. No. 920,701, Oct. 17, 1986, abandoned, which is a continuation-in-part of Ser. No. 859,868, May 2, 1986, abandoned. This application Aug. 16, 1990, Ser. No. 568,609
Int. Cl.[5] G10H *1/02, 1/12, 1/46*
U.S. Cl. 84—622 **61 Claims**



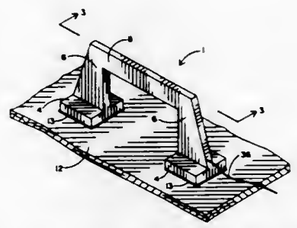
24. A real time tone generation system comprising:
means for providing a control signal, the value of which is variable within a range including plural non-zero values in accordance with performance variation, for initiating and thereafter controlling generation of a tone, wherein the value of the control signal is substantially independent of the pitch of a tone to be generated;
wave transmission means for receiving the control signal and electronically simulating wave transmission which occurs in a natural musical instrument so as to create at least one wave signal in the wave transmission means in response to the control signal, said wave signal interacting with the control signal so as to be sustained and varied in response to variation of the value of the control signal; and
means for extracting a signal from the wave transmission means as a musical tone signal whose pitch is determined by transmission characteristics of the wave transmission means.

5,212,335
ELECTRONIC KEYBOARD INSTRUMENT WITH A SIMPLE TONE GENERATION ASSIGNOR
Toru Suzuki, Saitama, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Shizuoka, Japan
Filed Jun. 25, 1992, Ser. No. 904,483
Claims priority, application Japan, Jun. 27, 1991, 3-183001
Int. Cl.[5] G10H *1/22*
U.S. Cl. 84—618 **3 Claims**



1. A tone generation apparatus for an electronic keyboard instrument, comprising:
an assignment memory for storing key information for at least one channel, and transferring the key information to a tone generator;
storage means, having a bit string corresponding to key numbers, for storing key ON/OFF information of a key in the corresponding bit;
search means for searching key ON information stored in said storage means in a predetermined pitch order; and
assignment control means for, when a key corresponding to tone-ON key information stored in said assignment memory is released, changing a content of said assignment memory with another ON key information obtained by said search means, and causing said assignment memory to supply the changed key information to said tone generator.

5,212,336
PLANAR WAVE TRANSDUCER ASSEMBLY
Lester M. Barcus, Huntington Beach, Calif., assignor to Barcus-Berry, Inc., Hungtington Beach, Calif.
Filed Jun. 25, 1991, Ser. No. 720,406
Int. Cl.[5] G10H *1/00, 3/00*
U.S. Cl. 84—730 **13 Claims**



1. For a musical instrument having a soundboard, a transducer assembly to convert into an electrical signal the wave motion produced in the soundboard during the playing of said instrument, said transducer assembly comprising:
first and second legs,
means for bonding said first and second legs to the soundboard in a spaced relationship to one another, such that

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one of said legs moves on the soundboard relative to the other leg in response to the wave motion produced in said soundboard,

means for sensing the movement of said one leg relative to the other leg, and

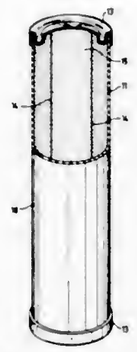
means for converting the sensed movement into an electrical signal.

5,212,337

PLASTIC STORAGE AND TRANSPORATION CONTAINER FOR LOOSE CARTRIDGES

Matti Patteri, and Jukka Juselius, both of Vantaa, Finland, assignors to Neste Oy, Finland

Filed Feb. 26, 1992, Ser. No. 841,423
Claims priority, application Finland, Feb. 28, 1991, 910997
Int. Cl.[5] F42B *39/00*
U.S. Cl. 89—34 **8 Claims**



1. A plastic storage and transportation container for loose cartridges, comprising

a shell comprised of a thermoplastic tube structure having first and second open ends, said shell having an inner surface,

a conductive fiber material comprised of carbon fibers disposed on said inner surface, said conductive fiber material being fixed to the inner surface of said tube structure during its manufacture,

a covering portion attached to each of said ends of said tube structure, at least one of said covering portions comprising a plug part made of a conductive plastic,

said conductive fiber material arranged to conduct static electricity arising inside said container to an outside of said container.

5,212,338

AMMUNITION TRANSFER APPARATUS FOR UPLOADING AND DOWNLOADING A MAGAZINE

David L. Maher, Burlington, Vt., assignor to General Electric Co., Burlington, Vt.

Filed Jul. 5, 1991, Ser. No. 726,417
Int. Cl.[5] F41A *9/34*
U.S. Cl. 89—45 **18 Claims**

1. Ammunition handling apparatus comprising, in combination:

A. an ammunition storage magazine;

B. a rotary conveyor contained by said magazine, said conveyor including

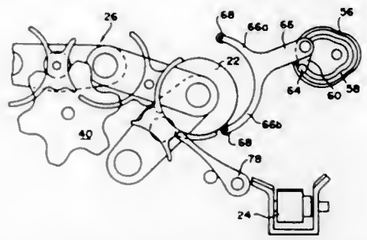
1) a series of carrier elements for retaining horizontally oriented rounds of ammunition in a succession of carrier positions during conveyance within said magazine, and

2) at least one turnaround path section;

C. a linear transfer conveyor for conveying ammunition rounds to and from said magazine along a horizontal path aligned with the ammunition round axis; and

D. a transfer mechanism for laterally transferring ammunition rounds between said transfer conveyor and said rotary conveyor without axial reorientation of the ammunition rounds, said transfer mechanism including

1) at least one first transfer element driven in synchronism with said rotary conveyor and mounted for pivotal movement between a first position in engagement with



an ammunition round on said transfer conveyor and a second position in ammunition round exchanging relation with a set of said carrier elements for one of said carrier positions on said rotary conveyor while moving through said turnaround path section, and

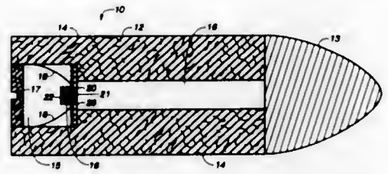
2) at least one second transfer element operating in conjunction with said first transfer element to provide underlying, rolling support for the ammunition rounds during lateral transfer.

5,212,339

EXPLOSIVE LASER LIGHT INITIATION OF PROPELLANTS

Martin S. Piltch, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 27, 1992, Ser. No. 858,457
Int. Cl.[5] F42B *3/113*
U.S. Cl. 102—202 **7 Claims**



1. An artillery shell with improved initiation comprising:

a casing having proximal and distal ends and a detonation well in said proximal end;

a projectile fixed to said distal end of said casing;

propellant means inside said casing for launching said projectile toward a target, said propellant means defining first and second axial cavities;

a transparent window having proximal and distal surfaces separating said first axial cavity from said second axial cavity, said proximal surface defining a recess;

a high explosive material packed into said proximal end of said casing inside said first axial cavity adjacent to said detonation well for producing high pressure and high temperature with in said first axial cavity;

a fluorescing gas confined in said first axial cavity for producing light and heat in response to said high pressure produced by said high explosive;

a lasing material having proximal and distal end mounted coaxially within said first axial cavity, said lasing material having a total reflector attached to its proximal end, and a partial reflector attached to its distal end, wherein said distal end with said partial reflector is secured in said recess in said proximal surface of said transparent window;

reflector means surrounding said lasing material for concentrating light and heat from said fluorescing gas into said lasing material;

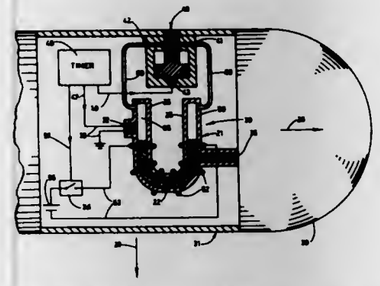
whereby laser light produced by said lasing material is directed into said second axial cavity for uniformly initiating said propellant means.

5,212,340

SAFE AND ARM DEVICE USING LIQUID EXPLOSIVE

Lee R. Hardt, and Donald R. Burnett, both of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 1, 1990, Ser. No. 591,209
Int. Cl.[5] F42C *15/32*
U.S. Cl. 102—223 **7 Claims**



1. A safe and arm device comprising:

an explosive train having a predetermined region, said region being substantially void to establish a safe condition of said train by interrupting progress of an explosion along the train;

a quantity of a substance having a solid state liquefiable to provide an explosive liquid, said substance being in said solid state;

storage means spaced from said predetermined region for storing said quantity;

liquefying means for liquefying said quantity of said substance in said solid state into said explosive liquid; and

conduit means for conducting said explosive liquid into said predetermined region after liquefaction of said substance in said solid state by said liquifying means, said liquid in said region establishing an armed condition of said train.

5,212,341

CO-EXTRUDED SHOCK TUBE

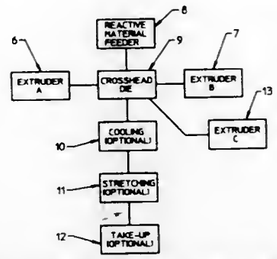
Alfred M. Osborne, 16816 S. 1400 West, Bluffdale, Utah 84065, and Patrick J. Harder, Rd. 7, Box B, Kingston, N.Y. 12401

Continuation of Ser. No. 745,385, Aug. 15, 1991, abandoned. This application May 6, 1992, Ser. No. 882,377
Int. Cl.[5] C06C *5/04*
U.S. Cl. 102—275.8 **6 Claims**

1. A method of reducing the thickness of the inner layer of a multi-layer low-energy shock tube comprising the steps of:

(a) heating at least two plastic materials to their respective, desired extrusion temperatures;

(b) extruding simultaneously by a co-extrusion process the plastic materials to form a layered plastic tube having at least an inner layer with an inner surface and an outer layer, the inner layer being extruded in a thickness of less than 0.3 millimeter and the inner surface of the inner layer having an adhesive affinity for a reactive material, and the outer layer having abrasion and cut resistance; and



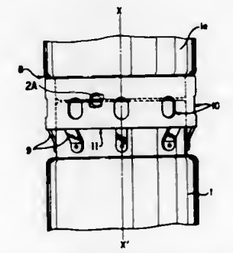
(c) feeding a reactive material to the inner surface of the inner layer as it is being co-extruded to form a thin layer of the reactive material on the inner surface.

5,212,342

CONTAINER FOR RECEIVING PROPELLANT CHARGES

Nicolas Eches, and Bernard Brion, both of Bourges, France, assignors to GIAT Industries, Versailles, France

Filed Feb. 10, 1992, Ser. No. 833,126
Claims priority, application France, Feb. 11, 1991, 91 01499
Int. Cl.[5] F42B *3/02*
U.S. Cl. 102—317 **20 Claims**



1. A container having a first constructed area and a first end face at a first end to be made integral with an abutting container having a second constricted area and a second end face at a second end, the container comprising a ring and securing means, the ring being disposed on the first constricted area so as to be axially slidable to cover the second constricted area, the securing means being disposed on the first end face for joining the container and the abutting container.

5,212,343

WATER REACTIVE METHOD WITH DELAYED EXPLOSION

John M. Brupbacher, Catonsville; Leontios Christodoulou, Baltimore, both of Md.; James M. Patton, Annandale, Va.; Russell N. Bennett, Baltimore, Md.; Alvin F. Bopp; Larry G. Boxall, both of Catonsville, Md., and William M. Bachta, Ellicott City, Md., assignors to Martin Marietta Corporation, Bethesda, Md.

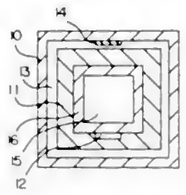
Filed Aug. 27, 1990, Ser. No. 573,960
Int. Cl.[5] F42B *3/00, 13/14*
U.S. Cl. 102—323 **15 Claims**

1. A method of producing a water explosion comprising the steps of:

a. providing a reactive mixture comprising elements that are exothermically reactive to form a ceramic or intermetallic material;

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b. initiating an exothermic reaction of the reactive mixture;
c. allowing sufficient delay time for most of the reactive mixture to react to attain an elevated temperature; and



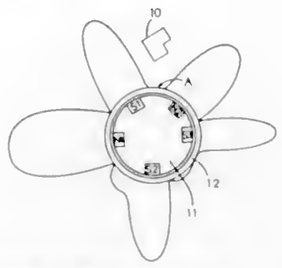
d. contacting the elevated temperature reacted mixture with water to produce an explosion.

5,212,344

DEVELOPING APPARATUS AND MANUFACTURING METHOD OF DEVELOPING ROLLER

Hiroshi Kageyama, Osaka, and Yoshihiko Tanaka, Moriguchi, both of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Jun. 27, 1991, Ser. No. 722,158
Claims priority, application Japan, Jul. 9, 1990, 2-181716
Int. Cl.[5] G03G *15/09*
U.S. Cl. 118—658 **7 Claims**



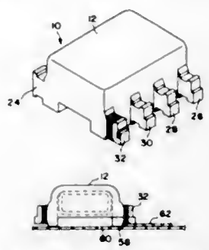
1. A developing apparatus, comprising:
a developing roller having a magnet roller for feeding a developer to a photoconductor, said magnet roller including plural magnetic poles for adsorbing the developer,
a toner concentration sensor for detecting a toner concentration of said developer,
a region (A) of said magnet roller corresponding to a location of said toner concentration sensor, said region being between two of said plural magnetic poles, said region having substantially zero gauss as a magnetic flux density distribution,
said region (A) produced by forming said plural magnetic poles at specified positions of said magnet roller by magnetic fluxes of plural magnetic field generating means, and an additional magnetic field generating means disposed between a first and a second magnetic field generating means, said first and second magnetic field generating means magnetizing two areas at both sides of said region, and said additional magnetic field generating means disposed so as to repel a magnetic flux produced by the first magnetic field generating means and to attract a magnetic flux produced by the second magnetic field generating means, and thereby the magnetic flux density distribution produced by said first and second magnetic field generating means is altered so as to produce the substantially zero gauss region.

5,212,345

SELF LEADED SURFACE MOUNTED COPLANAR HEADER

Aurelio J. Gutierrez, San Diego, Calif., assignor to Pulse Engineering, Inc., San Diego, Calif.

Filed Jan. 24, 1992, Ser. No. 825,148
Int. Cl.[5] H01L *23/02*; H01R *9/00*; H01F *27/02*
U.S. Cl. 174—52.5 **17 Claims**



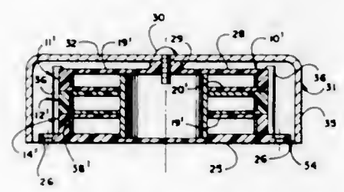
1. A combination circuit element and self leaded header for surface mounting of the circuit element to a PC board, comprising:
a support body having a cavity for receiving an inductance coil, said body having a base for supporting same on a PC board;
a lead support member extending outward from said support body adjacent said base;
an inductance coil mounted in said cavity; and
a lead extending from said inductance coil to said lead support member, wound multiple turns around said lead support member and disposed for surface bonding to a PC board.

5,212,346

ELECTRICAL JUNCTION BOX

Wendell Clark, Semmes, Ala., assignor to Melvin Pierce, Semmes, Ala., a part interest

Filed Jun. 28, 1991, Ser. No. 723,462
Int. Cl.[5] H01R *9/24*
U.S. Cl. 174—59 **8 Claims**



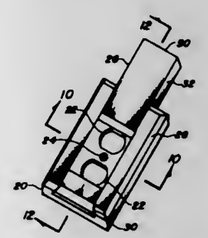
1. An electrical junction box, for receiving the ends of a plurality of electrical cables, each cable having a plurality of wires therein, each wire of said plurality of wires including an indication of polarity of said wire, said junction box providing for connection of wires of one cable to wires of another cable of said plurality of cables, said junction box comprising a plurality of sections including a first section and a second section, said first section including a first plurality of terminals, each terminal of said first plurality of terminals being electrically connected to one another and adapted to receive wires of one polarity, said second section including a second plurality of terminals electrically connected to one another and adapted to receive wires of a second polarity, each section of said plurality of sections comprising one layer of a plurality of horizontal layers, each layer of said plurality of layers being generally circular, said first plurality of terminals being substantially equally spaced around the periphery of said first layer, said second plurality of terminals being substantially equally spaced around the periphery of said second layer, each layer of said plurality of layers including upper and lower walls for electrically insulating adjacent layers from each other, said terminals being located between said upper walls and said lower walls, each terminal of said plurality of terminals including a hole defined in a layer, a connector strip within said layer, said connector strip defining a slit therein having one end aligned with said hole in said layer, and wire gripping means for gripping a wire passing through said hold and said slit.

5,212,347

ELECTRICAL APPARATUS COVER PLATE

Carolyn E. Powers, Imperial Beach, and Richard W. McKee, Costa Mesa, both of Calif., assignors to Switch Stix Inc., Imperial Beach, Calif.

Filed Jun. 3, 1991, Ser. No. 709,235
Int. Cl.[5] H02G *3/14*
U.S. Cl. 174—67 **10 Claims**



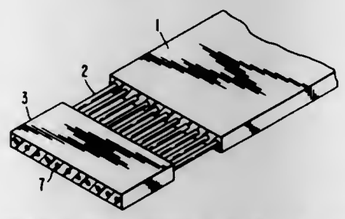
10. A decorative cover plate for electrical apparatus mounted flush with a building wall having at least one threaded hole for screw attachment, the cover plate comprising;
a partially enclosing base plate having a dovetail therein and a mating opening of a size compatible with each exposed electrical apparatus and at least one countersunk bore,
at least one screw extending through the bore for insertion into the threaded hole of the electrical apparatus for mounting the plate contiguously with a wall safely covering the apparatus therewithin, and
a protective shield slideably retained by the dovetail in the partially enclosing base plate providing a guard over the electrical apparatus also allowing accessibility by sliding away therefrom.

5,212,348

PARTIALLY-STRIPPED REINFORCED ELECTRIC SIGNAL CABLE AND PROCESSES FOR MANUFACTURE AND TERMINATION THEREOF

Rowland W. Gibson, Newark, Del., assignor to W. L. Gore & Associates, Inc., Newark, Del.

Filed Jul. 17, 1991, Ser. No. 731,595
Int. Cl.[5] H02G *15/02*
U.S. Cl. 174—74 R **11 Claims**



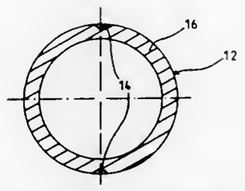
1. A reinforced partially-stripped electric cable comprising:
(a) at least one center conductor surrounded by insulating material, a segment of said insulating material being separated from the remainder of said insulating material by a gap, said segment of insulating material positioned at the end of said at least one center conductor; and
(b) an easily-removable hardenable reinforcing material surrounding said at least one center conductor in the gap between said segment of insulating material and said remainder of said insulating material.
5. A process for preparing a reinforced partially-stripped electric cable having at least one center conductor surrounded by insulating material comprising the steps of:
(a) stripping a first segment of said insulating material from the end of a cable having at least one center conductor surrounded by insulating material;
(b) slitting and severing a second segment of the remaining insulating material;
(c) moving said second segment of insulating material to the end of said at least one center conductor to leave a gap between said second segment of insulating material and the remainder of said insulating material;
(d) applying an easily-removable hardenable reinforcing material around said at least one center conductor to surround and hold in place said at least one center conductor between said second segment of insulating material and said remainder of said insulating material; and
(e) allowing said reinforcing material to harden.

5,212,349

CABLE DUCT WITH DETECTOR WIRE

Rudolf Pelzer, Herzogenrath, Fed. Rep. of Germany, assignor to Kabelwerk Eupen AG; Cablerie D'Eupen S.A. and Kabelfabriek Eupen N.V., Eupen, Belgium

Filed Mar. 22, 1991, Ser. No. 673,318
Claims priority, application Belgium, Mar. 23, 1990, 9000324
Int. Cl.[5] H02G *3/04*
U.S. Cl. 174—98 **11 Claims**



1. A cable duct of synthetic plastic material which can be laid in the ground, with at least one electrically conducting detector wire along a neutral bending line in a wall of the duct, a receiving groove in the duct wall receiving the detector wire, and a separate filler material welded to the duct wall embedding the detector wire in the duct so that the detector wire is enclosed on all sides.

5,212,350

FLEXIBLE COMPOSITE METAL SHIELD CABLE

Berahart A. Gebs, Richmond, Ind., assignor to Cooper Industries, Inc., Houston, Tex.

Filed Sep. 16, 1991, Ser. No. 760,264
Int. Cl.[5] H01B *11/18*
U.S. Cl. 174—102 R **20 Claims**

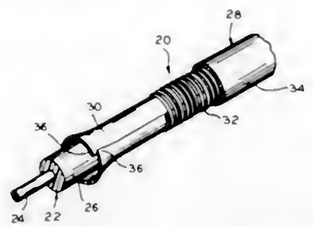
1. A flexible shielded cable comprising:
an elongate, flexible metal conductor;
a layer of a flexible dielectric material disposed about said conductor; and
a flexible metallic shield disposed about said layer, said shield including a copper foil having overlapping edges, a first copper wire spirally served shield about the foil, and a layer of metal which closes any opening between said

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overlapping edges, bond said spirally served shield and said foil and closes the interstices of said spirally served shield whereby said shield is flexible and has no openings therein.

19. A method of forming a metallic shield about a flexible metal conductor encompassed by a layer of dielectric material to form a flexible coaxial cable, said method comprising:

providing a flexible metal conductor encompassed by a layer of dielectric material;



wrapping a copper foil about said layer of dielectric material so that said foil has overlapping edges;

applying a copper wire spirally served shield over said foil; and

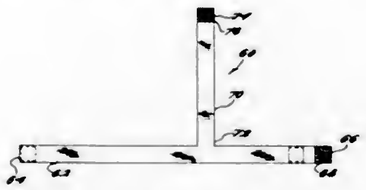
passing the cable through a bath of a molten metal which bonds to said spirally served shield and said foil so that any opening between said edges of said foil is closed and the interstices of said spirally served shield are closed.

5,212,351

INSULATING BOOT FOR ELECTRICAL DEVICE MOUNTED IN CONNECTOR BOX

George D. Raines, 1848 Old Barnwell Rd., Lexington, S.C. 29073

Filed Dec. 13, 1991, Ser. No. 807,109
Int. Cl.[5] H01B *17/38*
U.S. Cl. 174—138 F 9 Claims



1. An insulating boot for use with an electrical device having electrical connections, a firs circumference and a second circumference, and an electrical outlet box, said insulating boot comprising:

a first strip of non-conducting material having a first end and a second end, said first end carrying an adhesive so that said first end will adhere to said second end when said first strip is wrapped about said electrical device, said strip dimensioned to fit between said electrical device and said electrical outlet box and cover said electrical connections when wrapped about said electrical device; and

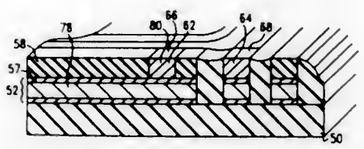
a second strip of material, said second strip having a first end and a second end, said first end of said second strip integrally attached to said first strip between said first and second ends of said first strip said second strip being at substantially right angle to said first strip, said second end of said second strip carrying an adhesive so that said second end of said second strip can be attached to said first strip between said first and said second ends of said first strip, said first strip following said first circumference and said second strip following said second circumference.

5,212,352

SELF-ALIGNED TUNGSTEN-FILLED VIA

Jeffrey E. Brighton, Katy, and Douglas P. Verret, Sugarland, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 137,389, Dec. 23, 1987, Pat. No. 4,996,133, which is a continuation-in-part of Ser. No. 80,116, Jul. 31, 1987, Pat. No. 4,842,991. This application Dec. 26, 1990, Ser. No. 633,877
Int. Cl.[5] H05K *1/00*
U.S. Cl. 174—264 7 Claims



1. An apparatus, comprising:

an elongate conductor formed on a support layer, sides of said conductor extending outwardly from said support layer;

an outer surface of said conductor having a lateral boundary defined by said sides;

a first insulator layer formed only on said outer surface, an area of said outer surface not covered by said first insulator layer, said first insulator layer defining first and second edges of said area, third and fourth edges of said area defined by said outer surface lateral boundary;

a second insulator layer formed to cover all of said sides that adjoin said area;

a bottom of a via formed by said area, sidewalls of said via formed by said first and second insulator layers; and

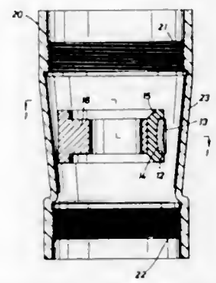
conductive material selectively formed in said via to fill said via, an outer surface of said conductive material substantially coplanar with an outer surface of said first insulator layer.

5,212,353

TRANSDUCER SYSTEM FOR USE WITH BOREHOLE TELEVIEWER LOGGING TOOL

Frederick H. K. Rambow, and Rocco DiFoggio, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Dec. 17, 1984, Ser. No. 682,728
Int. Cl.[5] G01V *1/40;* H01L *41/10*
U.S. Cl. 181—106 2 Claims



1. An improved transducer system for a borehole televiewer operating in heavy mud comprising:

a spherical transducer operating at a frequency of 250–350 kHz, having a radius of between 2.5 and 4.5 inches and having a A/λ ratio of at least two, said transducer being mounted in a sound absorbing mount and disposed for rotation about the axis of the televiewer; and

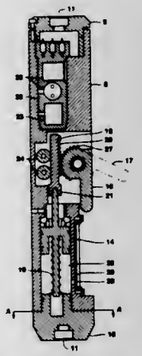
a cylindrical acoustic window formed of polymethylpentene, said window being disposed to surround said transducer, the wall of said window being inclined at an angle of 3 to 5 degrees with respect to the axis of the cylinder.

5,212,354

APPARATUS AND METHOD FOR DETECTING SEISMIC WAVES IN A BOREHOLE USING MULTIPLE CLAMPING DETECTOR UNITS

Mark A. Miller, Houston; J. Dave Fox, Stafford, and Christine E. Krohn, Houston, all of Tex., assignors to Exxon Production Research Company, Houston, Tex.

Filed Feb. 7, 1991, Ser. No. 652,333
Int. Cl.[5] G01V *1/00*
U.S. Cl. 181—108 15 Claims



1. An apparatus for detecting seismic waves in a borehole comprising:

(a) a plurality of small, light-weight, flexibly connected clamping detector units, each of said detector units having an hydraulically activated clamp;

(b) a hydraulic pressure source adapted to actuate said hydraulically actuated clamp on each of said plurality of clamping detector units;

(c) conduit means connecting said hydraulic pressure source to said plurality of clamping detector units so that said clamping detector units may be hydraulically clamped to a borehole with a large force by activation of said hydraulically activated clamps; and

(d) means for conditioning signals from said clamping detector units and transmitting them to the surface of said borehole.

5,212,355

SOUND ABSORPTIVE FILE CABINET DOOR

John Edwards, Nobleton, and Douglas Boileau, Bradford, both of Canada, assignors to Hollanding Inc., Newmarket, Canada

Filed Oct. 18, 1991, Ser. No. 779,332
Int. Cl.[5] E04B *1/82*
U.S. Cl. 181—290 19 Claims

1. A filing cabinet having a storage compartment and door means movable between open and closed positions to provide access to the storage compartment, and a plurality of paper sheet means removably placed in the storage compartment, wherein said door means comprises;

a front panel;

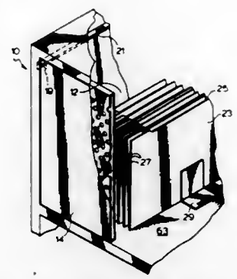
a layer of sound absorptive material disposed rearward of said front panel;

a rear; and

a plurality of first openings through said front panel;

the first openings permitting a substantial proportion of sound impinging on said front panel to pass therethrough and into said layer of sound absorptive material,

the door means permitting a substantial proportion of sound impinging on the front panel to pass through said door and out the rear into the storage compartment,



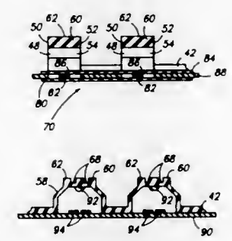
said plurality of paper sheet means having peripheral edges removably disposed in said compartment for storage with the peripheral edges proximate the rear of the door means and directed towards said rear when the door means is in the closed position, such that sound passing through said rear impinges on said peripheral edges.

5,212,356

COMPUTER KEYBOARD WITH FLEXIBLE DOME SWITCH LAYER

George English, Spokane, Wash., assignor to Key Tronic Corporation, Spokane, Wash.

Filed Aug. 14, 1992, Ser. No. 930,075
Int. Cl.[5] H01H *13/70*
U.S. Cl. 200—5 A 10 Claims



1. In a computer keyboard having key switches positioned at spaced key locations in a preselected array having a plurality of parallel key rows,

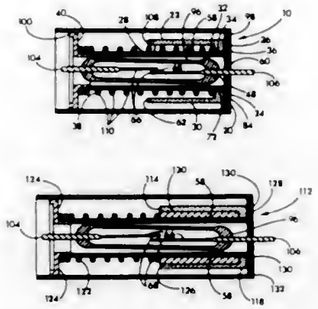
a flexible dome sheet;

said flexible dome sheet being extruded with a base and a plurality of parallel dome ridges extending upward from the base corresponding to the key rows;

said extruded dome sheet having a plurality of apertures formed in the dome ridges at selected locations along the ridges defining individual ridge domes between the apertures at spaced locations corresponding to the spaced key locations.

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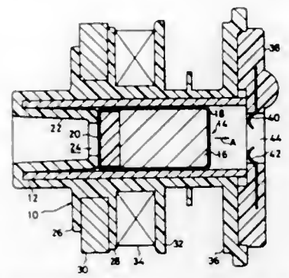
5,212,357
EXTENDED MINIMUM DWELL SHOCK SENSOR
Daniel R. Reneau, Madison, Wis., assignor to Hamlin, Inc., Lake Mills, Wis.
Filed Aug. 14, 1991, Ser. No. 745,205
Int. Cl.[5] H01H *35/14*
U.S. Cl. 200—61.45 M **16 Claims**



1. A shock sensor comprising:
a) a housing having a first abutment and a second abutment spaced a fixed distance from the first abutment;
b) an activation magnet slidably mounted on the housing and having a first portion adapted to engage against the first abutment and a second portion adapted to engage against the second abutment, wherein the first portion has a greater magnetic flux than the second portion;
c) a reed switch mounted to the housing to be responsive to the position of the activation magnet and coaxial with the magnet such hat the reed switch is activated when the magnet travels to a pre-selected activation position during movement of the magnet in response to an initial acceleration force applied to the sensor;
d) a means for biasing the magnet such that the first portion engages against the first abutment and the reed switch remains unactivated until the housing is subjected to a pre-selected level of acceleration, such that a pre-selected level of acceleration will cause the magnet to slide on the housing past the pre-selected activation position to activate the reed switch.

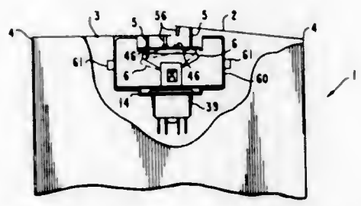
5,212,358
ACCELERATION SENSOR
Kazuo Yoshimura; Shigeru Shimozono, and Ryo Satoh, all of Kanagawa, Japan, assignors to Takata Corporation, Tokyo, Japan
Filed Jul. 23, 1991, Ser. No. 734,739
Claims priority, application Japan, Aug. 23, 1990, 2-221995
Int. Cl.[5] G01P *15/135*
U.S. Cl. 200—61.45 M **3 Claims**

1. An acceleration sensor comprising:
a cylinder made of a metal having a resistance temperature coefficient less than 3×10^{-3}°C.$^{-1}$, said metal being a copper alloy consisting essentially of 0.2–1% by weight of Ni, 0.05–0.5% by weight of Si, 0.05–0.5% by weight of Zn, and a remaining percentage of Cu;
a magnetized inertial member mounted in the cylinder so as to be movable longitudinally of the cylinder;
a conductive member mounted at least on one end surface of the inertial member which is on a side of one longitudinal end of the cylinder;
a pair of electrodes which is disposed at said one longitudinal end of the cylinder and which, when the conductive member of the inertial member makes contact with the electrodes, is caused to conduct via the conductive member; and
an attracting member disposed near the other longitudinal end of the cylinder and made of a magnetic material, the



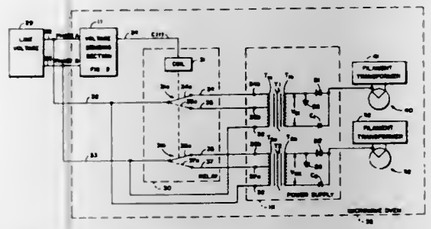
inertial member being magnetically attracted by the attracting member.

5,212,359
MULTIPLE INTERFACE SAFETY SWITCH ACTUATING MECHANISM
Terry N. Morganti, Brockport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 3, 1992, Ser. No. 829,637
Int. Cl.[5] H01H *3/16*
U.S. Cl. 200—61.69 **7 Claims**



1. A multiple interface safety switch actuating mechanism, operable by door actuators of a double door cabinet, for moving a normally biased open shaft activated switch mechanism between its positional stations, as the doors of the cabinet are opened and closed, to control activation of an apparatus contained within the cabinet, the switch actuating mechanism comprising:
a cabinet mount housing;
an actuator housing mounted with the cabinet mount housing;
pivotal and slidable means mounted in the actuator housing for pivotal and slidable movement;
mounting means for mounting the pivotal and slidable means for pivotal and slidable movement in the actuator housing and for activating and deactivating the positional stations of the switch mechanism in response to the pivotal and slidable movement of the pivotal and slidable means;
fixed guide means for guiding the movement of the mounting means within the actuator housing as the mounting means reacts to the movement of the pivotal and slidable means; and
reception means for receiving the door actuators that impart and control pivotal and sliding movement of the pivotal and slidable means as the cabinet doors are opened and closed.

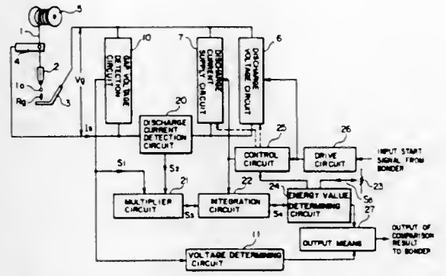
5,212,360
LINE VOLTAGE SENSING FOR MICROWAVE OVENS
Roger W. Carlson, Cedar Rapids, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa
Filed Sep. 4, 1990, Ser. No. 577,227
Int. Cl.[5] H05B *6/68*
U.S. Cl. 219—10.55 B **10 Claims**



1. A microwave oven comprising:
a magnetron;
a high voltage power supply coupled to said magnetron, said power supply comprising a transformer having primary and secondary windings, said primary winding having a first input connection providing a predetermined voltage across said secondary winding in response to a first line voltage, said primary winding further having a second input connection providing substantially the same predetermined voltage across said secondary winding in response to a second line voltage different from said first line voltage;
means for providing a reference voltage; and
means comprising a comparator for sensing the magnitude of the line voltage supplied to said microwave oven and, in response thereto, for coupling said line voltage to a corresponding one of said first and second input connections to provide said predetermined voltage across said secondary winding, said comparator being fed by first and second voltages, said first voltage being proportional to said supplied line voltage and said second voltage being said reference voltage.

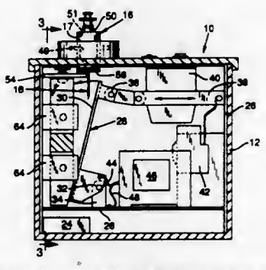
5,212,361
METHOD AND APPARATUS FOR FORMING BALLS AT THE ENDS OF WIRES
Naoki Miyazaki, and Kazuhiro Kawabata, both of Fukuoka, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Continuation-in-part of Ser. No. 623,254, Dec. 5, 1990, abandoned, which is a continuation-in-part of Ser. No. 460,535, Jan. 3, 1990, abandoned. This application Nov. 25, 1991, Ser. No. 797,343
Claims priority, application Japan, Jan. 7, 1989, 1-1618
Int. Cl.[5] B23K *9/00*
U.S. Cl. 219—56.22 **17 Claims**

1. A method of forming a ball on the end of a wire by electrical discharge between the wire and an electrode comprising:
extending in the direction of an electrode an end of a wire having a diameter;
applying a voltage pulse between the electrode and the wire for initiating an electrical discharge between the electrode and the wire;
applying a voltage signal between the electrode and the wire at the end of the pulse to sustain the electrical discharge between the electrode and the wire;
while the voltage signal is being applied, detecting and comparing the discharge voltage between the electrode and the wire to an upper threshold voltage;
generating an alarm signal if the discharge voltage between the electrode and the wire is greater than the upper threshold voltage, thereby indicating the absence of a discharge;
detecting the discharge voltage across and discharge current flowing between the wire and the electrode in the discharge;
multiplying the discharge voltage by the discharge current for respective time intervals during the discharge to compute the heat energy supplied in the discharge during each time interval;



integrating the heat energy for the time intervals during the discharge to determine the total heat energy supplied during the discharge;
comparing the total heat energy with a predetermined heat energy that produces a ball on the end of the wire, the ball having a diameter of about two to three and one-half times the diameter of the wire; and
controlling at least one of the discharge voltage, current, and duration in accordance with the comparison and terminating the discharge when the total heat energy reaches the predetermined heat energy.

5,212,362
METHOD AND APPARATUS FOR DISPOSING OF CONTAMINATED HYPODERMIC NEEDLES
Roy B. Burden, and Michael S. Burden, both of North Bend, Oreg., assignors to Sharp-Saf Corporation, North Bend, Oreg.
Filed May 31, 1991, Ser. No. 708,398
Int. Cl.[5] B23K *9/013*
U.S. Cl. 219—69.1 **28 Claims**



1. An apparatus for disposing of biohazardous sharp metallic instruments having elongated metallic sharp portions such as hypodermic needles, comprising:
grounding means for electrically grounding the instrument;
an electrode for supplying electricity to the instrument across an arc formed at a position of proximity between the electrode and the instrument; and
means for moving the electrode to progressively contact the instrument along its length while the instrument is stationary, such that at least a substantial majority of the biohazardous metallic sharp portion of the instrument is volatil-

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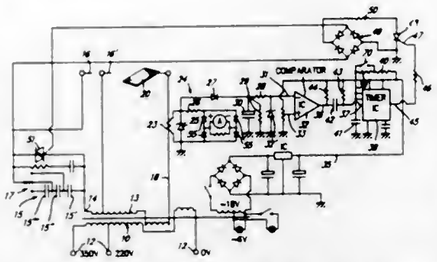
ized when an electrical current flows between the electrode and the grounding means.

5,212,363
TORCH FOR REMOVING STEAM GENERATOR TUBES
Gregory M. Minue, Menomonee Falls, Wis., assignor to The Babcock & Wilcox Company, New Orleans, La.
Filed Oct. 28, 1991, Ser. No. 783,598
Int. Cl.[5] B23K *9/167*
U.S. Cl. 219—75 **10 Claims**



1. A torch assembly for use in a steam generator tube, comprising:
a base containing a coolant passage for a coolant and an inert gas passage for an inert gas, the base being adapted for connection to a weldhead for supplying electrical power, a coolant and an inert gas to the base;
a sheath mounted for rotation to the base and defining an elongated conduit space extending from the base, the sheath having an outer diameter which is smaller than an inner diameter of a steam generator tube for receiving the sheath;
a drive shaft fixed to the base and extending through the sheath for rotation relative to the sheath, the inert gas passage of the base communicating with the conduit space around the drive shaft for conveying inert gas around the drive shaft;
a gas cap rotatably mounted to an end of the sheath opposite from the base, the gas cap communicating with the conduit space for receiving inert gas from the base and having a radial opening for a torch tip and for discharging inert gas around the torch tip;
a torch tip fixed to an end of the shaft spaced away from the base and engaged within the gas cap, the tip extending into the radial opening in the gas cap, the base, shaft and tip being electrically connected to each other for conveying electricity from the base to the tip to strike an arc torch at the tip, the gas cap having the opening through which the tip extends for supplying inert gas around an arc struck at the tip, the base, drive shaft, cap and tip being rotatable as a unit for movement inside a tube; and
centering means connected to the sheath and between the sheath and the torch tip, for centering the sheath in a tube to be TIG relaxed by the torch tip.

5,212,364
ARC WELDING CIRCUIT FOR WELDING THIN METAL PIECES
Qing-Sheng Chen, 350 Prince Arthur St. W., #D404, Montreal, Quebec, Canada H2X 3R4
Filed Jun. 15, 1992, Ser. No. 897,946
Int. Cl.[5] B23K *9/10*
U.S. Cl. 219—137 PS **20 Claims**

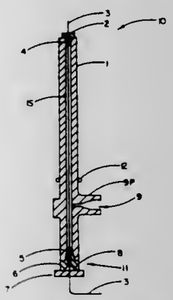


16. A method of controlling an initiating arc and maintaining a substantially steady low arc welding current between a welding electrode and a thin metal piece to be welded, said method comprising the steps of:
(i) connecting said welding electrode to a terminal of a secondary winding of a power supply transformer through coupling means having a capacitance circuit;
(ii) connecting a common electrode from a further terminal of said transformer to a thin metal piece to be welded;
(iii) contacting said metal piece with said welding electrode to initiate a welding arc;
(iv) sensing a high current flow through said metal piece while said welding electrode is in contact with said metal piece to produce a resultant voltage signal;
(v) comparing said resultant voltage signal with a reference voltage value to produce a triggering signal;
(vi) actuating a switch with said triggering signal to short said capacitance circuit and supply high voltage to said welding electrode to initiate an arc;
(vii) substantially simultaneously establishing an open contact high voltage high current welding gap between said electrode and said thin metal piece; and
(viii) cutting off said switch after a predetermined time constant to reconnect said capacitance circuit to supply a steady low arc current to said welding electrode.

5,212,365
DIRECT INJECTION MICRO NEBULIZER SYSTEM AND METHOD OF USE
Daniel R. Wiederin, Omaha, Nebr., assignor to Cetac Technologies, Inc., Omaha, Nebr.
Filed Dec. 27, 1991, Ser. No. 813,766
Int. Cl.[5] B23K *9/00*
U.S. Cl. 219—121.520 **27 Claims**

1. A direct injection micro nebulizer system comprising:
a primary body element,
a sample delivery tube system, and
a sample delivery tube system adjustment means;
said primary body element being of a generally elongated shape presenting with a longitudinal dimension and having a first connection means at an upper aspect thereof, with upper aspect being defined as the vertically higher end of the primary body element as viewed in side elevation from a position perpendicularly removed therefrom while the longitudinal dimension thereof projects vertically upward and perpendicular to an underlying horizontal surface; and said primary body element also having a second connection means at a lower aspect thereof, and a third connection means thereon;

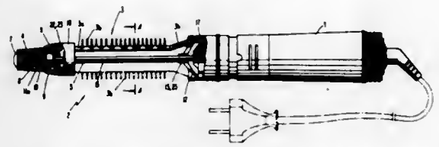
said sample delivery tube system comprising, at a minimum, a sample delivery tube;
said sample delivery tube system adjustment means being connected to said primary body element at the second connection means thereof;
said primary body element and sample delivery tube system adjustment means having centrally located longitudinally oriented holes therethrough;
said sample delivery tube system being threaded into the centrally located longitudinally oriented hole in the sample delivery tube system adjustment means and through the centrally located longitudinally oriented hole through the primary body element so that the upper aspect of the sample delivery tube is at a position near the upper aspect of the primary body element;
the position of the upper aspect of said sample delivery tube being precisely adjustable by manipulation of the sample delivery tube system adjustment means;



said sample delivery tube allowing a sample solution to be entered thereto at a lower aspect thereof and forced to flow through said sample delivery tube to the upper aspect thereof;
said third connection means on the primary body element allowing gas to be entered into and be forced to flow through the annular space formed between the outer surface of the sample delivery tube and the inner surface of the centrally located longitudinally oriented hole through the primary body element;
such that during use said sample solution flow and said gas flow are simultaneously ejected from the upper aspects of the sample delivery tube and the annular space between the outer surface of the sample delivery tube and the inner surface of the centrally located longitudinally oriented hole through the primary body element respectively, and interact with one another such that the sample solution is caused to be nebulized.

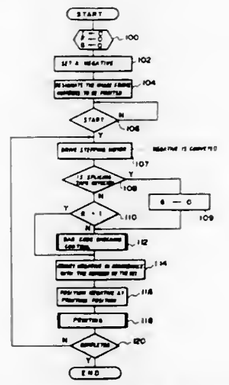
5,212,366
HANDHELD HAIR CARE APPLIANCE WITH ADJUSTABLE DIAMETER BARREL PROVIDING HEATED AIRFLOW
Gregory J. McDougall, Kowloon, Hong Kong, assignor to China Pacific Trade Ltd., British Virgin Isls.
Continuation-in-part of Ser. No. 711,092, Jun. 6, 1991, abandoned. This application Jan. 8, 1992, Ser. No. 818,246
Claims priority, application United Kingdom, Oct. 24, 1990, 9023157; Feb. 7, 1991, 9102630
Int. Cl.[5] A45D *1/04, 20/12;* **F24H** *3/04*
U.S. Cl. 219—222 **2 Claims**

1. An electrically powered hand held hair care appliance comprising:
a handle by means of which the appliance is held;
a barrel extending from the handle on which the hair to be curled is wound externally, the barrel being hollow to allow fluid flow along the barrel, the barrel being provided with apertures to allow the fluid to flow outwardly to the hair, and the barrel being of adjustable diameter between a fully expanded and a fully contracted state to allow curls of different diameter to be formed, wherein the barrel comprises:
a number of elongate barrel elements supported by means associated with the handle and arranged in mutually parallel radial relationship to form a generally axially symmetric barrel, the barrel elements being movable radially inwardly together and radially outwardly together so as to contract and expand the diameter of the barrel, the



barrel elements mutually combining to form a substantially closed barrel when in the fully expanded state and a substantially closed barrel with overlapping barrel elements which allow fluid to flow from the interior of the barrel directly out to the hair when the barrel is in the fully expanded, fully contracted or any intermediate state; and
means associated with the barrel elements for selectively moving the barrel elements radially inwardly and outwardly between the fully expanded state and the fully contracted state.

5,212,367
METHOD OF READING POSITIONAL INFORMATION ON PHOTOGRAPHIC FILM
Yuji Takenaka, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Apr. 27, 1989, Ser. No. 343,643
Claims priority, application Japan, Apr. 28, 1988, 63-106105
The portion of the term of this patent subsequent to Oct. 2, 2007, has been disclaimed.
Int. Cl.[5] G06K *15/20, 7/10;* **G03B** *23/12, 27/32*
U.S. Cl. 235—375 **9 Claims**



1. A method of reading positional information on photographic film in which items of positional information are read during the feeding by a feed mechanism of an elongated photographic film in the longitudinal direction thereof, said positional information items being provided in a predetermined sequence and in correspondence with at least one image frame recorded on the film in the longitudinal direction, said method comprising the steps of:

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sensing feed pulses associated with the feeding of said film by said feed mechanism;

(a) calculating a number of feed pulses reached at the time of reading a positional information item, by performing addition or subtraction of feed pulses in accordance with the direction and the distance which the photographic film is fed, said feed pulses having a predetermined pitch interval therebetween;

(b) calculating a reference number of feed pulses corresponding to a predetermined reference position on the basis of said calculated number and the information read in step (a);

(c) checking a position at which each of the items of positional information is read, by comparing the information read in each of said positional information items with a number of feed pulses calculated as to said position, on the basis of said reference number of feed pulses corresponding to said predetermined reference position calculated in step (b);

based on the position checked of each of the items of positional information, determining whether the information read in each of said positional information items corresponds to said number of feed pulses calculated as to said position; and

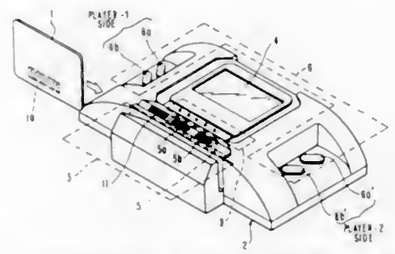
printing said at least one image frame corresponding to said positional information read in accordance with said determining step.

5,212,368

TOY APPARATUS WITH CARD READER UNIT AND A CARD HAVING GAME PARAMETER DATA

Hiroshi Hara, Chofu, Japan, assignor to Epoch Company, Ltd., Tokyo, Japan

Filed Jun. 3, 1991, Ser. No. 709,304
Int. Cl.[5] G06F *15/20*
U.S. Cl. 235—375 16 Claims



1. A toy apparatus for use with cards having barcode data associated therewith, comprising;

a card reader unit for reading the barcode associated with a card; and

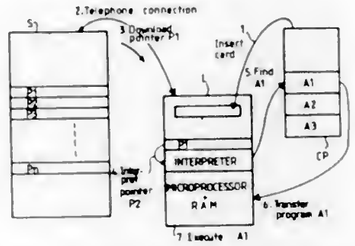
a calculation unit coupled to said card reader unit to receive the barcode data from said card reader unit and to calculate at least one of player turn result data and game result data, based on the barcode data, the barcode being a standard barcode which may be selected by a player from any available barcode and associated with the card.

5,212,369

METHOD OF LOADING APPLICATIONS PROGRAMS INTO A MEMORY CARD READER HAVING A MICROPROCESSOR, AND A SYSTEM FOR IMPLEMENTING THE METHOD

Thierry Karlisch, Aubagne, and Jean-Yves Le Roux, Bouc Bel Air, both of France, assignors to Gemplus Card International, Gemenos, France

Filed Jan. 23, 1991, Ser. No. 644,989
Claims priority, application France, Jan. 25, 1990, 90 00868
Int. Cl.[5] G06F *15/30*
U.S. Cl. 235—380 3 Claims



1. A method for loading an application program into a memory card reader, said application program comprising coded instructions for executing actions; said memory car reader including a microprocessor, a RAM memory for receiving said application program; and said memory card reader being connected by a telephone line to a server center; said server center controlling said application program, the method comprising the steps of:

(a)—during a preparatory stage,

(i)—at least said application program is stored in a memory of a memory card which is adapted to be inserted in said memory card reader,

(ii)—at least one pointer associated with said application program is stored in said server center, and

(b)—during a utilization stage, at a later time and when said memory card has been inserted in said memory card reader,

(i)—a telephone connection is established between said memory card reader and said server center,

(ii)—said pointer associated with said particular application is then transferred from the server center to the memory card reader via the telephone line,

(iii)—said memory card reader interprets said transferred pointer to find said corresponding application program in said memory card, said memory card reader thereby controls an interrogation of the memory card, and

(iv)—said memory card reader transfer said application program from said memory of said memory card into said RAM memory of said memory card reader for the purpose of executing said actions.

5,212,370

APPARATUS AND METHOD FOR EXTENDING LASER LIFE BY DISCONTINUOUS OPERATION

Christopher J. Wittensoldner; Denis M. Blanford; John K. Burkey, all of Cambridge; Paul O. Detwiler, New Concord; Barry M. Mergenthaler; Wilbur I. Hilles, both of Cambridge, and Robert J. Tom, Zanesville, all of Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Nov. 20, 1990, Ser. No. 618,185
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—462 17 Claims

1. Apparatus for extending the life of laser means, comprising:

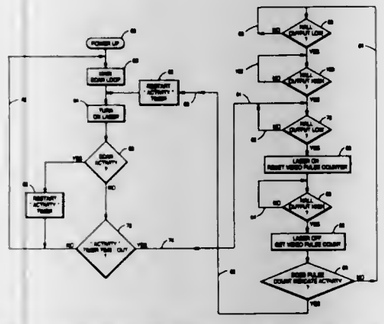
laser means for providing a light beam;

means for driving said laser means discontinuously;

means for applying light from said laser means to a target area comprising motor driven rotating optical scan means and motor means for driving said optical scan means;

detector means for sensing light reflected back from said target area and generating signals representative of said light and including transitions of said reflected light from a relatively light state to a relatively dark state and vice versa;

means for counting the number of transitions in a given period of time to obtain a count of transitions per time period;



means for evaluating said number of transitions in a given period of time to determine whether said count is relatively low and represents the absence of a coded symbol in said target area, or is relatively high and represents the presence of a coded symbol in said target area;

first control means coupled to said evaluating means and to said means for driving the laser means for causing continued operation of said laser means when said evaluating means indicates that said coded symbol is being sensed; and

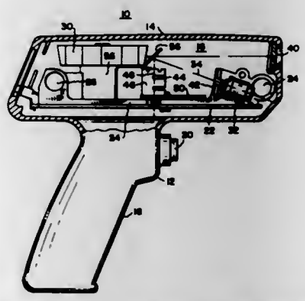
means for determining said given period of time comprising detection means for measuring the speed of said motor means.

5,212,371

HAND HELD BAR CODE SCANNER WITH IMPROVED AIMING MEANS

John A. Boles, Fishers; Dean S. White, Holcomb, and Randall K. Hems, Rochester, all of N.Y., assignors to PSC, Inc., Webster, N.Y.

Filed Mar. 1, 1991, Ser. No. 663,229
Int. Cl.[5] G06K *7/10*
U.S. Cl. 225—472 4 Claims



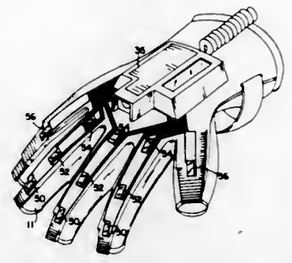
1. In a hand held bar code scanner which produces a scanning beam and directs said beam along a first path and has an aiming system which comprises a laser which projects an aiming laser beams along a second path independent from said scanning beam and having a window through which said scanning and aiming beam both pass and are directed to a bar code across which said scanning beam executes a scan to read said code, the improvement comprising means including a mirror disposed along said second path of said aiming laser beam for bending said aiming beam to be parallel to the scanning beam and to intersect said code at the center of the scan, and a lense in the second path to said window along the path of said aiming beam for modifying said aiming beam to provide an oblong spot in the general vicinity of the center of the scan across the bar code.

5,212,372

PORTABLE TRANSACTION TERMINAL FOR OPTICAL AND KEY ENTRY OF DATA WITHOUT KEYBOARDS AND MANUALLY ACTUATED SCANNERS

Dusty L. Quick, Sodus Point; Jay M. Eastman, Pittsford, and John A. Boles, Fishers, all of N.Y., assignors to PSC, Inc., Webster, N.Y.

Filed Sep. 9, 1991, Ser. No. 756,636
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—472 13 Claims



1. A portable transaction terminal which does not require manual keyboard or code reader actuation, said terminal comprising a hand receiving glove, said glove having areas movable with movements of hand positions, including the fingers thereof, means in said positions for providing signals and response to different ones of said movements and sequences of signals corresponding to sequences of said movements, each movement corresponding to different data and an enter command, an optical code reader mounted on said glove, and means responsive to said signals and sequences thereof for actuating said reader and entering different digits as transaction data in response to said signals and sequences of signals.

5,212,373

NON-CONTACT IC CARD

Shuzo Fujioka; Toshiyuki Matsubara, and Shigeru Furuta, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 31, 1990, Ser. No. 606,854
Claims priority, application Japan, Jul. 3, 1990, 2-178003
Int. Cl.[5] G06K *19/06*
U.S. Cl. 235—492 6 Claims

1. A non-contact IC card comprising:

an oscillator circuit for generating a clocking oscillation signal;

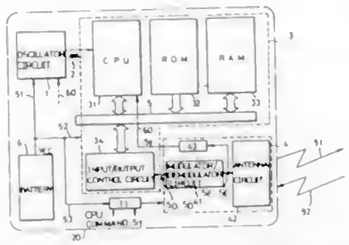
digital circuitry, including at least a CPU, ROM, and RAM, said CPU receiving the clocking oscillation signal and producing an internal clock signal from the clocking oscillation signal, said ROM and RAM being operated in response to the internal clock signal;

analog circuitry coupled to said digital circuitry for transmitting data to and receiving data from an external device without contacting the external device; and

an internal power supply battery for providing an operating

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voltage to said oscillator circuit, said digital circuitry, and said analog circuitry wherein said CPU includes an internal clock inhibit circuit for inhibiting application of the internal clock signal to said ROM and RAM in response to



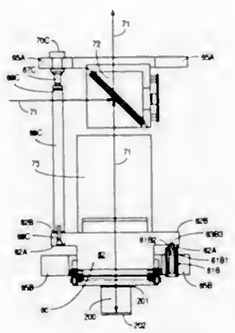
a command produced by said CPU when said non-contact IC card is neither transmitting data to nor receiving data from an external device and for applying the internal clock signal to said digital circuitry in response to receipt of data by said analog circuitry from an external device.

5,212,374

METHOD AND APPARATUS FOR POSITIONING AND BIASING AN ELECTRO-OPTIC MODULATOR OF AN ELECTRO-OPTIC IMAGING SYSTEM

James C. Speedy, San Jose; Francois J. Henley, Los Gatos; Hee-June Choi, Fremont; Michael J. Miller, Sunnyvale, and Ying-Moh Liu, Saratoga, all of Calif., assignors to Photon Dynamics, Inc., San Jose, Calif.

Filed Dec. 4, 1991, Ser. No. 804,257
Int. Cl.[5] G01J *1/20*
U.S. Cl. 250—201.1 18 Claims



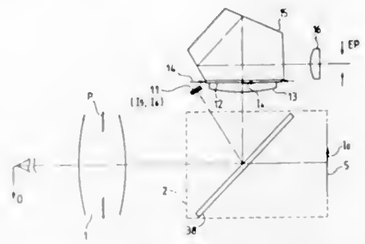
1. A method of positioning an electro-optic material in relation to a surface of a substrate, optical energy emerging from said electro-optic material, comprising the steps of:
detecting said optical energy; and
controlling a positioning of said electro-optic material in relation to said surface of said substrate in response to at least one characteristic of said optical energy.

5,212,375

CAMERA FOCUS DETECTION SYSTEM USING HOLOGRAPHIC BEAM SPLITTER

Hisashi Goto, Musashino; Tsutomu Uzawa, Hachiouji; Yoshihiro Kawano, Hachiouji; Hiroyuki Kurita, Hachiouji; Hideaki Yoshida, Hachiouji; Akira Hasegawa, Mitaka, and Kimihiko Nishioka, Hachiouji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Oct. 7, 1991, Ser. No. 772,243
Claims priority, application Japan, Oct. 9, 1990, 2-271621; Oct. 11, 1990, 2-272913
Int. Cl.[5] G01J *1/20*
U.S. Cl. 250—201.7 4 Claims



1. An imaging system, comprising:
an objective lens for forming an image of an object;
a finder optical system; and
photoelectric conversion means for receiving first and second images formed by first and second beams of light passing through different portions of the objective lens;
wherein focus detection is performed in accordance with a phase difference between output signals representing intensity distributions of light of the first and second images obtained from the photoelectric conversion means; and
wherein said imaging system further comprises reflecting means obliquely disposed behind said objective lens for reflecting at least part of the light transmitted through said objective lens toward said finder optical system, said reflecting means having first and second holographic optical elements on a surface thereof, each of said first and second holographic elements for splitting incident light into a plurality of beams for reflection, wherein one of said plurality of beams is incident on the finder optical system and the other beam is incident on said photoelectric conversion means so that the first and second images are directly formed through said two holographic optical elements on said photoelectric conversion means.

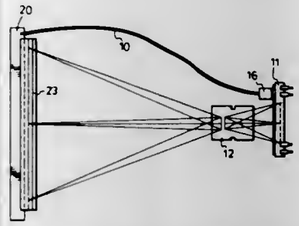
5,212,376

IMAGE SCANNER WITH AUTOMATIC SIGNAL COMPENSATION USING SAMPLED REFERENCE LIGHT

Raymond Liang, Taipei, Taiwan, assignor to Primax Electronics Ltd., Taipei, Taiwan

Filed May 29, 1992, Ser. No. 891,235
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—208.1 7 Claims

1. An image scanner, comprising:
a light source for illuminating a document being scanned;
a reflex mirror set receiving a first light signal which results from light rays that are reflected by the document;
a lens barrel having an imaging lens arranged therein and receiving said first light signal from said reflex mirror set;
a flexible optical transmission element having an input end provided in close proximity with said light souce so as to receive a second light signal therefrom;
a line image sensor disposed adjacent to said lens barrel and receiving said first light signal from said reflex mirror set and said second light signal from said optical transmission element, said line image sensor generating an image scan signal corresponding to said first light signal and a brightness reference signal corresponding to said second light signal; and



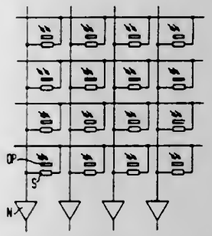
a signal compensation circuit receiving said image scan signal and said brightness reference signal from said line image sensor, said signal compensation circuit processing and amplifying said image scan signal in accordance with the magnitude of said brightness reference signal, thereby compensating said image scan signal for instability in the brightness of light from said light source.

5,212,377

THIN-FILM NEURON NETWORK WITH OPTICAL PROGRAMMING

Karlheinz Rosan, München, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

PCT No. PCT/DE90/00021, § 371 Date Feb. 28, 1992, § 102(e) Date Feb. 28, 1992, PCT Pub. No. WO91/03798, PCT Pub. Date Mar. 21, 1991
PCT Filed Jan. 16, 1990, Ser. No. 838,241
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1989, 3929132
Int. Cl.[5] H01J *31/50*
U.S. Cl. 250—214 9 Claims



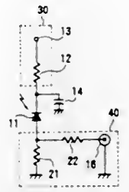
1. A neuron network with optical programming, comprising:
a) substrate having integrated thereon a synapse matrix and a means for optical programming,
b) the means for optical programming having photoelectric elements which can be triggered individually and are permanently assigned to respective synapses,
c) the synapses having photoelectric elements which can be individually illuminated by the means for optical programming,
d) the synapses having different electrical resistances which can be substantially continuously adjusted by illumination by the means for optical programming,
e) a plurality of neurons connected to one another via the synapses, and
f) at least the synapse matrix and the means for optical programming being implemented in thin-film technology.

5,212,378

OPTICAL RECEIVER WITH CRITICAL DAMPING RESISTOR

Yoshihiro Uda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 8, 1991, Ser. No. 790,189
Claims priority, application Japan, Nov. 15, 1990, 2-307004
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—214 R 4 Claims



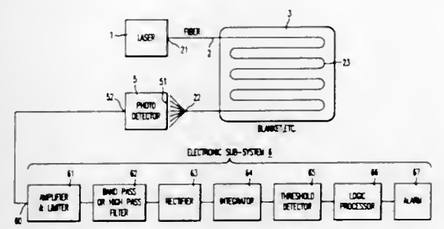
1. An optical receiver comprising:
a light-receiving element for converting an optical signal into an electrical signal;
a bias circuit for applying a DC bias voltage to said light-receiving element;
an output circuit for outputting, from an output terminal, a voltage corresponding to an optical current generated by said light-receiving element; and
a damping resistor connected between said light-receiving element and said output terminal in said output circuit and having a resistance set to serve as a critical damping condition in combination with a junction capacitance and a lead inductance of said light-receiving element.

5,212,379

FIBER OPTICAL MONITOR FOR DETECTING MOTION BASED ON CHANGES IN SPECKLE PATTERNS

Antonio B. Nafarrate, San Jose, and Eric G. Rawson, Saratoga, both of Calif., assignors to Alamed Corporation, Portola Valley, Calif.

Filed Dec. 6, 1991, Ser. No. 802,868
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—227.14 19 Claims



1. A fiber optic motion monitor comprising:
a light source,
an optical fiber waveguide including an input end, and an output end, and a sensing section intermediate said input and output ends, said optical fiber being positioned to receive light from said light source at said input end,
movable means for transmitting motion of an object being monitored, said sensing section being coupled to said moveable means so as to move therewith,
photodetector means positioned proximate to said output end for receiving therefrom a speckle pattern of light representative of approximately half the light guided by said optical waveguide, which pattern changes in response to movement of said sensing section, said photodetector

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means generating electrical signals representative of changes in said speckle pattern, and

means for identifying electrical signals indicative of normal motion and for differentiating them from electrical signals indicative of deviations from normal motion.

5,212,380

AUTOMOTIVE ENGINE CONTROL SYSTEM WITH ROTARY ENCODER INDEXING

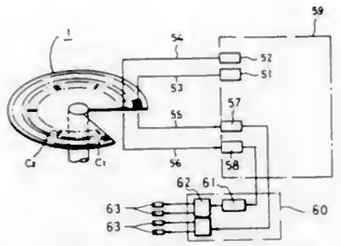
Seiichi Sato; Kazuo Yamaguchi; Yoshi Kurosawa, all of Tokyo; Atsushi Ueda, and Masami Matsumura, both of Hyogo, all of Japan, assignors to Optec D.D. Meico Laboratory Co., Ltd.; Optec Dai-Ichi Denko Co., Ltd. and Mitsubishi Denki Kabushiki Kaisha, all of Tokyo, Japan

Continuation-in-part of Ser. No. 603,402, Oct. 26, 1990, Pat. No. 5,130,536. This application May 11, 1992, Ser. No. 882,176

Claims priority, application Japan, Oct. 26, 1989, 1-279258

Int. Cl.[5] **G01D** *5/34*

U.S. Cl. 250—231.17 **3 Claims**



1. An automotive engine control system, comprising:

an automobile having a variable rotation of speed engine having a plurality of cylinders served by respective spark plug means;

an ignition system operatively connected with said spark plug means;

an engine speed rotation sensor operatively connected with said engine for outputting the detected speed rotation to said ignition system; and

an optical rotary encoder operatively connected between said engine speed rotation sensor and said ignition system for detecting a crank angle of the engine and outputting the detected crank angle to the ignition system for controlling ignition timing for said spark plug means in relation to engine speed rotation; in which

both an angular signal and a reference position signal indicative of 0° for an angle of interest are outputted as optical pulse signals in accordance with the angle of rotation of a rotatable pulse scale, and the angle of rotation of the pulse scale is detected based on the angular signal and the reference position signal, wherein the optical rotary encoder comprises:

a rotatable pulse scale having a row of code pattern elements formed thereon so as to extend in the circumferential direction thereof and including in said row both a first light-transmitting or light-reflecting portion for outputting optical signals at a first, higher peak level containing both the optical angular signal and an optical reference position signal together, and a second, light-transmitting or light-reflecting portion for outputting optical signals at a second, lower peak level containing only the optical angular signal, each said element having a width in said circumferential direction, elements of said first portion being interested in elements of said second portion in said row,

a signal processing section for discriminating between binary "1" and "0" for electric pulse signals obtained by opto-electronic conversion of said optical signals and waveform shaping of the resultant electric pulse signals based on a first threshold voltage for said angular signal, which is set lower than said lower peak level, and a second threshold voltage for said reference positional signal, which is set between said higher peak level and said lower peak level, and

the circumferential width of each of said code pattern elements in one of said first and second portions being characteristically narrower than that of each of said code pattern elements in the other of said first and second portions, by a given amount such that the width of each pulse of the electric pulse signal at the higher peak level obtained by the waveform shaping is substantially equal to the width of each pulse of the electric pulse signal at the lower peak level obtained by the waveform shaping, each based on said first threshold voltage, so that electrical pulse signals resulting from sensing elements of said first and second portions are indicative of angular position and electrical pulse signals resulting from sensing elements of said first portion are additionally indicative of a reference position; wherein

said ignition system comprising:

a conversion table for the number of rotation and the ignition timing in which the engine rotation speed and the crank angle indicative of the ignition timing for each of the cylinders corresponding the engine rotation speed is previously set and

a comparison means for comparing the crank angle indicative of the ignition timing and the crank angle detected by said rotary encoder; whereby

the ignition timing for each of the cylinders corresponding to the rotation speed detected by said engine rotation speed sensor is outputted from the conversion table for the number of rotation and the ignition timing to the comparison means and, the comparison means outputs a signal for igniting each of the spark plugs of the corresponding cylinder when the crank angle indicative of the ignition timing and the crank angle detected by the optical rotary encoder agrees with each other.

5,212,381

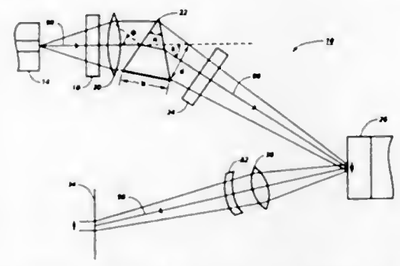
METHOD OF CONTROLLING SLOW SCAN DIRECTION OF SPOT POSITION IN AN OPTICAL OUTPUT DEVICE EMPLOYING AN ELECTRO-OPTICAL CONTROL APPARATUS

James J. Appel, Brighton, N.Y., and Thomas L. Paoli, Los Altos, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 19, 1991, Ser. No. 747,176

Int. Cl.[5] **H01J** *5/16*

U.S. Cl. 250—236 **9 Claims**



1. A method of controlling the slow scan direction position at which a beam of light is focussed to a spot upon an image plane in an optical output system, comprising the steps of:

directing a beam of light so as to be deflected by an electro-optical element; and

applying an electrical bias to the electro-optic element such that the amount that the beam of light is deflected in the slow scan direction is varied to achieve slow scan direction position control of the spot.

5,212,382

LASER TRAPPING AND METHOD FOR APPLICATIONS THEREOF

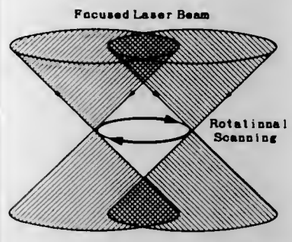
Keiji Sasaki, 14-20, Shoaza-Toriimae, Aza-Enmeiji, Obyamazaki-cho, Otokuni-gun, Kyoto; Hiroaki Misawa, 11-2, Kitazono-cho, Takatsuki-shi, Osaka, and Noboru Kitamura, Mezon-Takano 502, 34-35, Tanaka-Ue-Furukawa-cho, Sakyo-ku, Kyoto-shi, Kyoto, all of Japan

Filed Dec. 13, 1991, Ser. No. 806,635

Claims priority, application Japan, Dec. 13, 1990, 2-402063; May 9, 1991, 3-104517

Int. Cl.[5] **H05H** *3/04*

U.S. Cl. 250—251 **5 Claims**



1. A method for laser trapping of a microparticle or a group of microparticles, by repeatedly scanning said microparticle or group of microparticles with at least a focused laser beam at a sufficiently faster speed than the mechanical response speed of the microparticle to be trapped thereby.

5,212,383

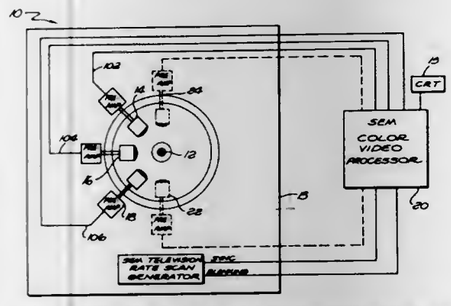
COLOR SYNTHESIZING SCANNING ELECTRON MICROSCOPE

David Scharf, 2100 Loma Vista Pl., Los Angeles, Calif. 90039

Filed Jul. 29, 1991, Ser. No. 737,942

Int. Cl.[5] **H01J** *37/28*

U.S. Cl. 250—310 **21 Claims**



1. A color synthesizing scanning electron microscope having a scanning primary beam of electrons directed toward a specimen, comprising:

at least two wide energy bandwidth secondary detectors arranged around the specimen at variable angles for receiving electron emission from the specimen subsequent to incidence of the scanning primary beam, said secondary detectors detecting electrons with positional differences and converting said positional differences to signals for synthesizing color; and

means for mixing said signals to generate signals representative of different colors which are indicative of surface topography including illuminating and shadows effects of said specimen.

5,212,384

SYSTEM FOR DETECTING A HOT SPOT IN AN INFRA-RED DETECTED LANDSCAPE

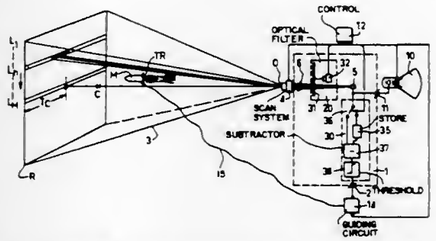
Jean-Pierre Fouilloy, Velizy, France, assignor to Thomson-TRT Defense, Guyancourt, France

Filed Feb. 5, 1991, Ser. No. 237,398

Claims priority, application France, Jun. 6, 1980, 80 12639

Int. Cl.[5] **F41G** *7/00;* **G02B** *26/10;* **G01J** *1/00;* **H04N** *5/33*

U.S. Cl. 250—334 **4 Claims**



1. A system for detecting a hot spot in a infra-red detected landscape comprising:

a landscape scan system for converging a main optical beam emanating from various regions of said landscape onto an infra-red detector circuit; an optical filter means interposed in the path of said main beam for producing from said main beam consecutively in time at least two secondary beams each representing a part of the main beam spectrum; and, a signal comparison circuit having an input connected to said detector circuit for comparing the detector circuit output signals corresponding to the received secondary beams and providing an output signal representing the results of the comparison, said signal comparison circuit comprising analog-to-digital converter means for converting signals from said detector circuit into digital signals, a digital store for storing said digital signals representing at least one of said secondary beams, a subtraction element for forming the difference between the data in the store and the data supplied by the detector circuit representing the other secondary beam, inverter means switchable from a first position to a second position, means for changing the positions of said inverter means such that in said first position, output signals from said converter means are applied to first inputs of said substraction element and output signals from the digital store applied to second inputs of the subtraction element, while in said second position of the inverter means, output signals from the digital store are applied to said first inputs of the subtraction element and output signals from the analog-to-digital converter means are applied to the second inputs of the subtraction element.

5,212,385

DIAMOND α PARTICLE DETECTOR

Barbara L. Jones, 80 Chisbury Close, Forest Park, Bracknell RG12 3TX, England

Filed Aug. 19, 1991, Ser. No. 747,267

Claims priority, application United Kingdom, Aug. 17, 1990, 9018138

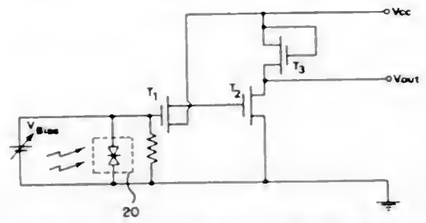
Int. Cl.[5] **H01L** *31/06, 31/118;* **G01T** *1/16*

U.S. Cl. 250—370.01 **16 Claims**

1. A radiation detector element comprising a layer of diamond or diamond-like carbon with first and second electri-

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cal contacts applied thereto, with at least one of the contacts defining a rectifying junction with the diamond or diamond-



like carbon layer which is responsive to the intensity of radiation incident on the detector element.

5,212,386

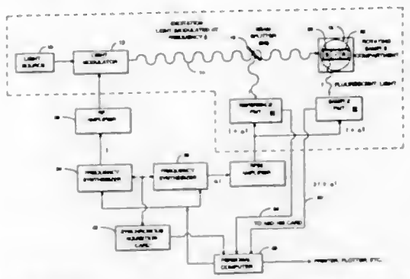
HIGH SPEED CROSS-CORRELATION FREQUENCY DOMAIN FLUOROMETRY-PHOSPHORIMETRY

Enrico Gratton, Urbana, and Beniamino Barbieri, Champaign, both of Ill., assignors to I.S.S. (U.S.A.) Inc., Champaign, Ill.

Filed Dec. 13, 1991, Ser. No. 807,261

Int. Cl.[5] G01N *21/64*

U.S. Cl. 250—458.1 **27 Claims**



1. In apparatus for cross-correlation frequency domain fluorometry-phosphorimetry, which comprises:

a source of electromagnetic radiation;

means for amplitude modulating the electromagnetic radiation at a first frequency;

means for directing the amplitude-modulated electromagnetic radiation at a sample;

means for detecting the luminescence of the sample;

means for providing a signal coherent with amplitude modulated signals produced by said amplitude modulating means, at a second frequency, to said detecting means;

means for modulating the gain of said detecting means, or multiplying the output of said detecting means, by said signal;

said second frequency being different from said first frequency; and means for deriving a resultant signal from said electromagnetic radiation and said detecting means at a frequency of the difference between said first and second frequencies, to detect phase shift and modulation changes of said luminescence from that of said electromagnetic radiation;

the improvement comprising, in combination: means for sequentially performing runs of said cross-correlation frequency domain fluorometry-phosphorimetry at sequentially differing first and second frequencies; means for detecting the intensities of signal responses of said runs at the respective cross-correlation frequency which is the difference of the respective first and second frequencies used in each run; and means for prolonging the detecting of each signal response at each of said differing first and second frequencies, until an integrated signal with a specified standard deviation has been acquired at each of said differing first and second frequencies.

5,212,387

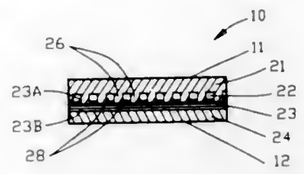
LASER RADIATION BARRIER

Charles H. Swan, Dade City, Fla., assignor to Charles H. Swan & Louis S. Pavloff, D.D. Ltd., Dade City, Fla.

Filed Jan. 27, 1992, Ser. No. 826,011

Int. Cl.[5] A61B *19/08*; **A61F** *13/00*

U.S. Cl. 250—515.1 **11 Claims**



1. An improved laser radiation barrier for shielding a surface from laser radiation, comprising:

an outer polymeric layer comprising a dispersion of mica;

an intermediate mica layer for retarding said penetration of the laser radiation therethrough; and

an inner polymeric layer comprising a dispersion of mica bounded to said intermediate mica layer.

5,212,388

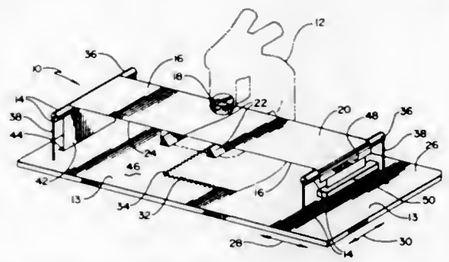
METHOD FOR DETECTING TRACKING ERROR IN MAGNETIC TAPES WITH USING AN X-Y STAGE CALIBRATION MEANS

Valentin M. Izraelev, Eden Prairie, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 1, 1992, Ser. No. 877,830

Int. Cl.[5] G01V *9/04*

U.S. Cl. 250—560 **3 Claims**



1. A method for obtaining a corrected distance between two points on the recording surface of a magnetic tape, said recording surface being in generally parallel relationship with a generally planar measuring surface, said measuring surface having a first measuring scale in the X direction and a second measuring scale in the Y direction, said first and second measuring scales being collinear with X and Y lines, respectively, said X and Y lines intersecting at a point of origin, said measuring scales adapted to provide an X - Y coordinate reading for any of a plurality of points on said recording surface, comprising the steps of:

(1) providing measuring means for determining a measured distance between a first point on said recording surface corresponding to said point of origin and a second point on said recording surface, said measured distance determined by reference to said measuring scales;

(2) providing calibration means for determining a standard distance between said first point and said second point;

(3) determining an error parameter for said second point by determining the difference between said measured distance and said standard distance;

(4) determining error parameters for said plurality of points on said recording surface by repeating steps (1) through (3) for said plurality of points; and

(5) measuring the distance between two points on said magnetic tape by using said measuring means to determine a measured distance between each of said two points and said point of origin, and applying respective ones of said error parameters to each of said two points to obtain a corrected distance between said two points.

5,212,389

APPARATUS FOR RECOGNIZING RESIDUAL YARN REMAINING ON TEXTILE BOBBINS AFTER UNWINDING UTILIZING A SENSING DEVICE COMPRISING A PHOTOOPTIC DETECTOR WITH A RECEIVER LENS

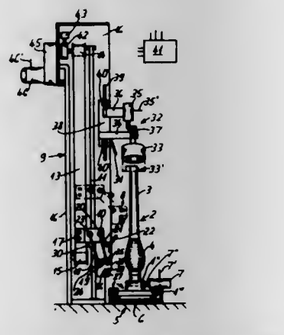
Ulrich Wirtz, Monchen-Gladbach, Fed. Rep. of Germany, assignor to W. Schlafhorst AG & Co., Monchen-Gladbach, Fed. Rep. of Germany

Filed Apr. 3, 1992, Ser. No. 863,423

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1991, 4110729

Int. Cl.[5] G01N *21/86*

U.S. Cl. 250—561 **13 Claims**



1. Apparatus for recognizing the presence of residual yarn on a textile bobbin comprising a device for optically sensing yarn and means for moving one of the sensing device and the textile bobbin relative to the other longitudinally with respect to the axis of the textile bobbin, said sensing device comprising a light transmitter for generating a limited beam of light rays, a transmitter lens for focusing the light rays onto the surface of the textile bobbin, and a photooptic detector having a receiver lens for receiving the light rays reflected off the surface of the textile bobbin, said transmitter lens and said receiver lens having respective optical axes which, during relative movement between said sensing device and said textile bobbin: (a) intersect one another in the area of the surface of the textile bobbin, (b) are oriented relative to the textile bobbin such that a line bisecting said optical axes deviates from a line which is perpendicular to the surface of the bobbin and which intersects the point of intersection of the optical axes by an angle of deviation of at least about ten degrees (10°), and (c) lie in a common plane oriented at an angle of at least about ninety degrees (90°) relative to a line representing the path of relative movement of the focused light rays from said transmitter lens longitudinally along the surface of the textile bobbin.

5,212,390

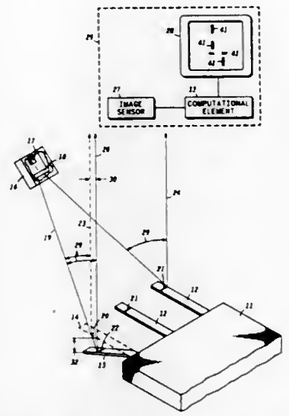
LEAD INSPECTION METHOD USING A PLANE OF LIGHT FOR PRODUCING REFLECTED LEAD IMAGES

Christopher J. LeBeau, and Shay-Ping T. Wang, both of Tempe, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 4, 1992, Ser. No. 878,371

Int. Cl.[5] G01V *9/04*

U.S. Cl. 250—561 **13 Claims**



1. A lead inspection method comprising:

providing a semiconductor package having a plurality of leads along at least one side of the package;

illuminating a portion of each lead with a plane of light wherein an incidence angle is formed between the plane of light and each lead, the plane of light producing a reflected lead image for the portion of each lead;

simultaneously detecting each reflected lead image;

determining a position for each reflected lead image;

determining an amount of variation between a position of each reflected lead image and a predetermined image position by using a vision system having a solid state camera; and

using the amount of variation and the incidence angle for determining a distance each lead is displaced from a predetermined coplanar position.

5,212,391

LASER SENSOR FOR DETECTING THE EXTENDED STATE OF AN OBJECT IN CONTINUOUS MOTION ESPECIALLY THE CLOGGED OR BROKEN STATE OF A DRILL BIT

John Wachli, Rancho Palos Verdes, Calif., assignor to Excellon Automation, Torrance, Calif.

Filed Nov. 13, 1991, Ser. No. 791,416

Int. Cl.[5] G01N *21/86*

U.S. Cl. 250—561 **27 Claims**

1. A sensor for detecting the state of an object in continuous repetitive motion, comprising:

an energy source for generating energy;

means for focusing the energy on the object;

means for detecting energy reflected from the object as a signal;

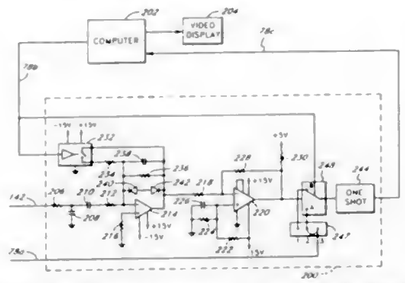
means for detecting a level of the signal;

means for amplifying the signal;

means for detecting a level of the amplified signal; and

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means for processing the detected signal level and the detected amplified signal level so as to provide a state of the



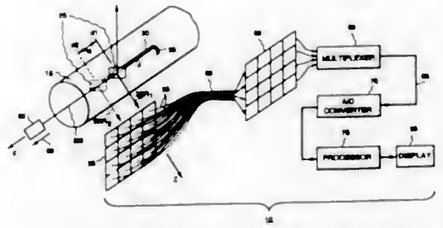
object, wherein the state is at least one of: object present and clean, object present and unclean, and object absent.

5,212,392

OPTICAL SENSING APPARATUS FOR DETECTING LINEAR DISPLACEMENT OF AN OBJECT AND METHOD OF OPERATION THEREOF WITH DETECTOR MATRIX AND CENTROID DETECTION

Ertugrul Berkcan; Chung-Yih Ho; Jerome J. Tiemann, all of Schenectady, and Fathy F. Yassa, Clifton Park, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 13, 1991, Ser. No. 806,507
Int. Cl.[5] G01N *21/86*
U.S. Cl. 250—561 **13 Claims**



1. A sensing apparatus for detecting linear displacement of an object between first and second locations along an axis, said sensing apparatus comprising:

a light source for projecting an incident light beam along an incident light path to said object;

a reflector affixed to said object to reflect said light beam along a reflective light path;

a photo-receptor array comprising an x-y matrix of photo-sensor elements located in said reflective light path and sufficiently closely spaced such that the reflected light beam impinges on a grouping of said photo-sensor elements of said array;

centroid determining means coupled to said photo-receptor array for determining a first centroid of said reflected light beam impinging on a first group of said photo-sensor elements of said photo-receptor array when said object is situated at said first location and for determining a second centroid of said reflected light beam impinging on a second group of said photo-sensor elements of said photo-receptor array when said object is displaced to said second location; and

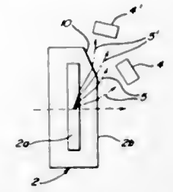
processor means responsive to said centroid determining means for calculating the displacement of said object between said first and second locations by determining the difference between said first and second centroids.

5,212,393

SAMPLE CELL FOR DIFFRACTION-SCATTERING MEASUREMENT OF PARTICLE SIZE DISTRIBUTIONS

Yoshiaki Togawa; Tatsuo Igushi, both of Kyoto, and Koichiro Matsuda, Otsu, all of Japan, assignors to Horiba, Ltd., Kyoto, Japan

Continuation of Ser. No. 671,496, Mar. 19, 1991. This application Aug. 6, 1992, Ser. No. 926,556
Claims priority, application Japan, Mar. 19, 1990, 2-71674
Int. Cl.[5] G01N *15/06*
U.S. Cl. 250—573 **15 Claims**



1. An apparatus for making diffraction-scattering measurement of a particle size distribution of a sample, comprising:

a sample cell for allowing a liquid containing particulates to flow through an internal space of the sample cell, the sample cell being irradiated by a light beam, said light beam entering said sample cell through an entrance surface of said sample cell;

the light component being diffracted-scattered by the particulates to produce an intensity pattern, the intensity pattern emerging through an exit surface of the sample cell, and

optical detector means operatively positioned for detecting said intensity pattern emerging from said exit surface;

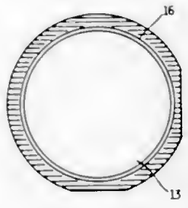
the exit surface having at least two portions, said portions being beveled with respect to each other to provide increased transmission of the diffracted/scattered light pattern to the detector, one of said portions being perpendicular to the beam.

5,212,394

COMPOUND SEMICONDUCTOR WAFER WITH DEFECTS PROPAGATING PREVENTION MEANS

Takashi Iwasaki; Naoyuki Yamabayashi, both of Osaka, and Yoshiki Miura, Hyogo, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 613,550, Nov. 15, 1990, abandoned. This application Aug. 19, 1992, Ser. No. 932,288
Claims priority, application Japan, Mar. 17, 1989, 1-66713
Int. Cl.[5] H01L *27/24*
U.S. Cl. 257—1 **15 Claims**



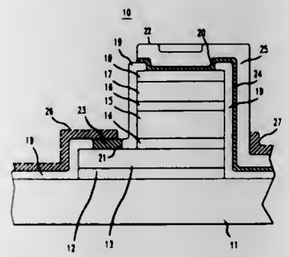
1. A compound semiconductor epitaxial wafer, comprising a compound semiconductor single crystal substrate having a substantially circular configuration, a heteroepitaxial crystal layer formed on said compound semiconductor single crystal substrate, means for preventing a propagation of defects, said defects propagation preventing means forming part of said wafer and extending into said substrate to surround an area of said wafer prior to wafer processing so that defects starting outside said area during wafer processing of said wafer cannot propagate into said area surrounded by said defects propagation preventing means during said processing, and wherein said compound semiconductor single crystal substrate is free of dislocation defects at least within said area surrounded by said defects propagation preventing means.

5,212,395

P-I-N PHOTODIODES WITH TRANSPARENT CONDUCTIVE CONTACTS

Paul R. Berger; Alfred Y. Cho, both of Summit; Nlioy K. Dutta, Colonia; John Lopata, North Plainfield; Henry M. O'Bryan, Jr., Plainfield; Deborah L. Sivco, Warren, and George J. Zydzik, Columbia, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Mar. 2, 1992, Ser. No. 844,264
Int. Cl.[5] H01L *27/14*
U.S. Cl. 257—185 **10 Claims**



1. A p-i-n diode which comprises

a layered structure of a plurality of compound semiconductor layers, and a lower and a top electrode to the structure,

said structure comprises a substrate of a first conductivity type, a bottom confining layer of said first conductivity type, an intrinsic active layer, a top confining layer of a second conductivity type, and a contact layer of said second conductivity type, and

said top electrode is in contact with said contact layer and consists of a thin optically semitransparent metal layer overlaying said contact layer and an optically transparent, conductive cadmium tin oxide layer overlaying said metal layer, said metal layer forming non-alloyed ohmic contact to the contact layer.

5,212,396

CONDUCTIVITY MODULATED FIELD EFFECT TRANSISTOR WITH OPTIMIZED ANODE EMITTER AND ANODE BASE IMPURITY CONCENTRATIONS

Akio Nakagawa, Hiratsuka, and Hiromichi Ohashi, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 355,828, May 22, 1989, abandoned, which is a continuation of Ser. No. 61,505, Jun. 15, 1987, abandoned, which is a continuation-in-part of Ser. No. 858,854, Apr. 30, 1986, Pat. No. 4,689,647, which is a continuation of Ser. No. 677,092, Nov. 30, 1984, abandoned. This application Dec. 17, 1991, Ser. No. 807,752
Claims priority, application Japan, Nov. 30, 1983, 58-224089; Jun. 30, 1984, 59-135904
The portion of the term of this patent subsequent to Aug. 25, 2004, has been disclaimed.
Int. Cl.[5] H01L *23/58, 29/76, 27/095, 23/48*
U.S. Cl. 257—212 **23 Claims**

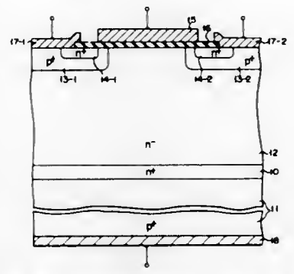
1. A conductivity modulated semiconductor device comprising:

a semiconductor substrate of a P type having a constant impurity concentration;

a first epitaxial semiconductor layer of an N type which is formed on said semiconductor substrate and has an amount of impurities per unit area of between 5×10^{13} cm^{-2} and 1×10^{15} cm^{-2};

a second epitaxial semiconductor layer of the N type which has an impurity concentration lower than that of said first epitaxial semiconductor layer and is formed on said first epitaxial semiconductor layer;

at least one first semiconductor region of the P type formed in a surface area of said second epitaxial semiconductor layer;



at least one second semiconductor region of the N type formed in a surface area of said first semiconductor region;

a gate electrode formed on an insulation layer over the surface area of said first semiconductor region which lies between said second epitaxial semiconductor layer and said second semiconductor region;

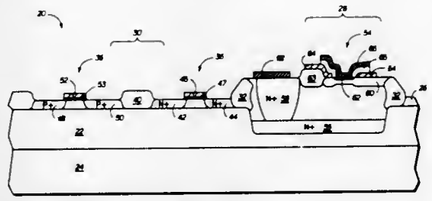
a source electrode formed in contact with said first and second semiconductor regions; and a drain electrode formed in contact with said semiconductor substrate.

5,212,397

BICMOS DEVICE HAVING AN SOI SUBSTRATE AND PROCESS FOR MAKING THE SAME

Yee-Chaung See; Thomas C. Mele, and John R. Alvis, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 13, 1990, Ser. No. 566,901
Int. Cl.[5] H01L *27/12*
U.S. Cl. 257—347 **10 Claims**



1. A semiconductor device comprising:

an SOI structure in a semiconductor device having a silicon layer overlying a buried oxide layer, a surface of the silicon layer forming a principal surface of the SOI structure, wherein a distance between a surface of the buried oxide layer and the principal surface of the SOI structure is greater in a second SOI device region thereof than in a first SOI device region thereof;

a first isolation region extending from the principal surface to the buried oxide layer separating and electrically isolating the first SOI device region from the second device SOI region;

an NMOS and a PMOS transistor formed in the first device SOI region and separated by a second isolation region

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extending from the principal surface of the SOI structure to the surface of the buried oxide layer; and

at least one bipolar transistor formed in the second SOI device region.

5,212,398

BIMOS STRUCTURE HAVING A PROTECTIVE DIODE

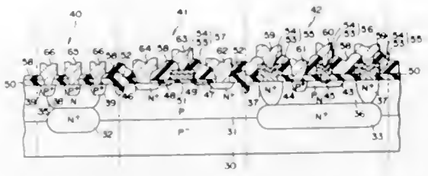
Taira Matsunaga, Yokohama, and Bunshiro Yamaki, Fujisawa, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 618,476, Nov. 27, 1990, abandoned. This application Aug. 21, 1992, Ser. No. 931,510

Claims priority, application Japan, Nov. 30, 1989, 1-310978

Int. Cl.[5] H01L *23/62, 29/76, 31/075*

U.S. Cl. 257—356 7 Claims



1. An integrated circuit device including a bipolar transistor, a metal-insulator semiconductor (MIS) device and a protective diode for the metal-insulator semiconductor device formed in a first semiconductor layer of one conductivity type formed over a semiconductor substrate of high resistivity, the protective diode comprises:

(1) a first region of a first thickness formed in said first semiconductor layer and having an opposite conductivity type to that of said first semiconductor layer;

(2) a first buried area of a high impurity concentration formed continuous with, and in contact with, the first region, at a boundary between the lower portion of the first region and the semiconductor substrate, the first buried area having the same conductivity type as that of the first region, and the first buried area having a second thickness greater than said first thickness of said first region; and

(3) a plurality of regions adjacently formed, at the first region, in a surface portion of the first semiconductor layer and having a conductivity type opposite to that of the first region.

5,212,399

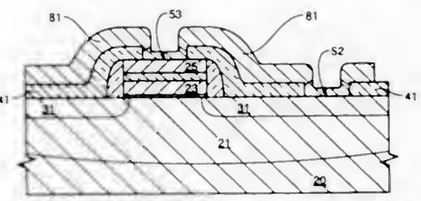
LOW COST POLYSILICON ACTIVE P-CHANNEL LOAD

Monte Manning, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Aug. 15, 1991, Ser. No. 746,274

Int. Cl.[5] H01L *29/76, 29/04, 27/11*

U.S. Cl. 257—369 15 Claims



1. A structure of an active device combined with an active load, said structure constructed in a semiconductor device fabricated on a starting substrate, said structure comprising:

a) said active device having a control gate overlying a substrate portion of first type conductivity and separated therefrom by a gate dielectric layer, said control gate spanning between first and second diffusion regions conductively doped to a second type conductivity; and

b) said active load having a lower channel semiconductive material portion of second type conductivity directly overlying and separated from said control gate by a first dielectric layer, an upper channel intrinsic semiconductive material portion aligning and connecting to said lower portion, first and second terminals of first type conductivity lying above said upper portion and extending downward to connect to either side of said upper portion thereby forming a u-shaped junction, said first terminal being separated from said active device's first diffusion region by a second dielectric layer and said second terminal connecting to said active device's second diffusion region at a contact location and separated elsewhere by said second dielectric layer.

5,212,400

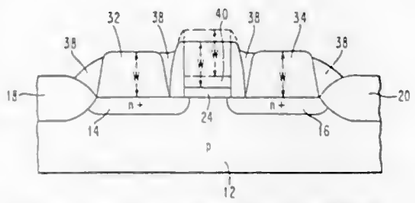
METHOD OF DEPOSITING TUNGSTEN ON SILICON IN A NON-SELF-LIMITING CVD PROCESS AND SEMICONDUCTOR DEVICE MANUFACTURED THEREBY

Rajiv V. Joshi, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 654,409, Feb. 8, 1991, Pat. No. 5,071,788, which is a continuation of Ser. No. 157,026, Feb. 18, 1988, abandoned. This application Sep. 3, 1991, Ser. No. 753,747

Int. Cl.[5] H01L *29/06*

U.S. Cl. 257—412 3 Claims



1. A metal oxide semiconductor device comprising:

a semiconductor layer of a first conductivity type;

drain and source regions of a second conductivity type formed in said semiconductor layer, said drain and source regions being separated from each other;

an oxide insulating layer formed on said semiconductor layer between said source and drain regions;

a refractory metal gate layer formed on said oxide insulating layer, said refractory metal gate layer having first and second sidewalls of an insulating material;

source and drain refractory metal layers formed on said source and drain regions respectively, said source refractory metal layer having first and second sidewall spacers of an insulating material and said drain refractory metal layer having third and fourth sidewall spacers of an insulating material, said second and third sidewall spacers being spaced from each other and contiguous with said first and second gate sidewalls respectively; and

ohmic contacts formed on said source and drain refractory metal layers.

5,212,401

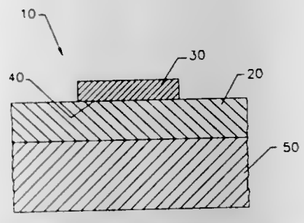
HIGH TEMPERATURE RECTIFYING CONTACT

Trevor P. Humphreys, Raleigh; Robert J. Nemanich, Cary, and Kalyankumar Das, Raleigh, all of N.C., assignors to Kobe Steel USA, Inc., New York, N.Y. and North Carolina State University, Raleigh, N.C.

Filed Jul. 25, 1991, Ser. No. 735,602

Int. Cl.[5] H01L *29/48*

U.S. Cl. 257—473 12 Claims



1. A semiconductor device comprising:

a monocrystalline semiconducting diamond layer; and

a heteroepitaxial crystalline metal layer on said monocrystalline diamond layer for forming a rectifying contact therewith;

the metal of said heteroepitaxial crystalline metal layer having a lattice match with said monocrystalline diamond layer so that said heteroepitaxial crystalline metal layer is substantially in atomic registry with said monocrystalline diamond layer forming an atomically abrupt interface between said heteroepitaxial crystalline metal layer and said monocrystalline diamond layer with atomic bonding at the interface.

5,212,402

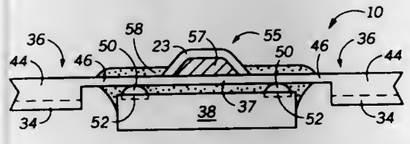
SEMICONDUCTOR DEVICE WITH INTEGRAL DECOUPLING CAPACITOR

Leo M. Higgins, III, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 14, 1992, Ser. No. 834,929

Int. Cl.[5] H01L *23/48, 21/60;* H01G *1/14*

U.S. Cl. 257—532 17 Claims



1. A semiconductor device comprising:

a semiconductor die having a plurality of first voltage bond pads and a plurality of second voltage bond pads;

a first leadframe having a first voltage plane and a plurality of first voltage leads which are contiguous with the first voltage plane, the first voltage leads being electrically coupled to the plurality of first voltage bond pads of the semiconductor die;

a second leadframe having a second voltage plane and a plurality of second voltage leads which are contiguous with the second voltage plane, the second voltage leads being electrically coupled to the second voltage bond pads of the semiconductor die, the second leadframe being superimposed with the first leadframe such that second voltage plane overlies the first voltage plane, such that both the first and second voltage planes overlie the semiconductor die, and such that the first and second leadframes are electrically isolated from one another; and

a dielectric element separating the first and second voltage planes to form a decoupling capacitor over the semiconductor die.

5,212,403

INTEGRATED CIRCUIT DEVICE HAVING AN IC CHIP MOUNTED ON THE WIRING SUBSTRATE AND HAVING SUITABLE MUTUAL CONNECTIONS BETWEEN INTERNAL CIRCUITS

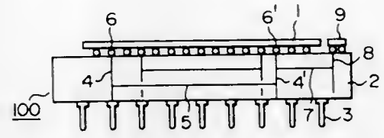
Keiichirou Nakanishi, Kokubunji; Minoru Yamada, Hanno; Tatsuya Saitoh, and Kazumichi Yamamoto, both of Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 6, 1991, Ser. No. 755,652

Claims priority, application Japan, Sep. 10, 1990, 2-236958

Int. Cl.[5] H01L *39/02, 23/48, 29/46*

U.S. Cl. 257—664 23 Claims



1. An integrated circuit device comprising:

an integrated circuit chip having a plurality of logic circuits formed therein;

first signal wirings disposed inside said integrated circuit chip;

output terminals for providing output signals of said logic circuits from said integrated circuit chip;

input terminals for receiving input signals to be applied to said logic circuits in said integrated circuit chip;

a wiring substrate for mounting thereon said integrated circuit chip; and

second signal wirings disposed in said wiring substrate, for connecting electrically said output terminals to said input terminals,

wherein said transmission between respective ones of said logic circuits, inside said integrated circuit chip, is provided through a wiring taken from either said first signal wirings or said second signal wirings.

5,212,404

SEMICONDUCTOR DEVICE HAVING A VERTICAL CHANNEL OF CARRIERS

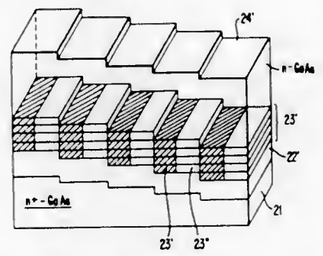
Yuji Awano, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Apr. 9, 1991, Ser. No. 682,254

Claims priority, application Japan, Apr. 9, 1990, 2-92049

Int. Cl.[5] H01L *27/82, 29/80, 31/072*

U.S. Cl. 257—592 9 Claims



1. A semiconductor device, comprising:

an emitter layer of a semiconductor material having first and second opposing major surfaces, said second major sur-

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face comprising a plurality of stepped surfaces, said emitter layer releasing carriers,

a base layer having first and second opposing major surfaces and provided on said emitter layer such that the first major surface of said base layer opposes the second major surface of said emitter layer, the first major surface of said base layer comprising a plurality of stepped surfaces corresponding to the stepped surfaces of the second major surface of said emitter layer, said base layer comprising a plurality of channels and a plurality of control regions, each of said channels passing the carriers released by said emitter layer therethrough and each of said control regions controlling the passage of the carriers through said channels in response to a base voltage applied thereto, said plurality of channels and said plurality of control regions being disposed alternately in each stepped surface of the first major surface of said base layer, to extend parallel with each other in an elongated direction of the stepped surface of the first major surface of said base layer such that at least one channel and at least one control region are formed adjacent with each other in correspondence to each stepped surface of the first major surface of said base layer;

a collector layer of a semiconductor material having first and second opposing major surfaces and provided on said base layer such that the first major surface of said collector layer faces the second major surface of said base layer for collecting the carriers that have passed through said channels;

emitter electrode means, provided in electrical connection to said emitter layer for causing said emitter layer to release the carriers when said emitter electrode means is supplied with an emitter current;

base electrode means provided in electrical connection to said control regions for applying the base voltage thereto; and

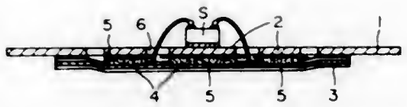
collector electrode means provided in electrical connection to said collector layer for producing a collector current in response to the carriers collected by said collector layer.

5,212,405

COMPOSITE LEAD FRAME

Kinya Oigawa, Oume, Japan, assignor to Sumitomo Metal Mining Company, Limited, Tokyo, Japan

Filed Jan. 8, 1992, Ser. No. 818,089
Int. Cl.[5] H01L *23/48*
U.S. Cl. 257—672 **4 Claims**



1. A composite lead frame which comprises:

a lead frame main body which defines an outer portion and an inner island portion which has opposite surfaces, said outer portion including leads that extend inwardly towards said island portion, said island portion having a plurality of through holes therethrough and being adapted to mount a semiconductor device on one of said opposite surfaces thereof,

a flexible polyimide insulating sheet bonded to one of said opposite surfaces of said island portion of said lead frame main body, said insulating sheet including through holes in register with said through holes in said lead frame main body, and

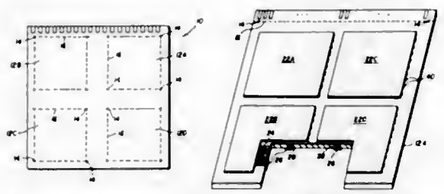
a plurality of fine leads attached to said insulating sheet on a surface thereof opposite said island portion and which extend from inner ends to outer ends, said inner ends being in register with said through holes and to which the leads of a semiconductor device can be respectively attached, said outer ends being in contact with respective said leads that extend inwardly towards said island portion from the outer portion of said lead frame main body.

5,212,406

HIGH DENSITY PACKAGING OF SOLID STATE DEVICES

Samuel Reele, and Thomas R. Pian, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 6, 1992, Ser. No. 817,229
Int. Cl.[5] H01L *23/48, 23/02, 23/16, 27/02*
U.S. Cl. 257—723 **11 Claims**



1. An array of electronic packaging substrates that is useable for testing, the array comprising:

a support means for supporting a plurality of testable modules;

a plurality of semiconductor chips mounted on a front surface of said support means, said chips being divided into subsets of chips, each subset being part of a different testable module and including a plural number of chips;

a passive circuit element located beneath a chip of each testable module;

a plurality of test pads located on a back surface of said support means; and

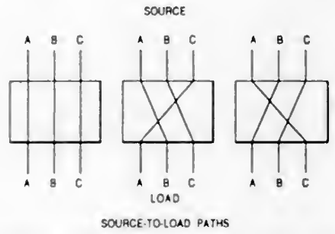
a conductive via coupling one of said test pads to leads on the front surface of said support means.

5,212,407

DIGITAL PHASE MATCH DISCRIMINATOR FOR THREE-PHASE POWER

Dianne E. Gaddis, Manassas; Forrest K. Smith, Nokesville, and Kirk J. Treubert, Fairfax, all of Va., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 4, 1990, Ser. No. 592,748
Int. Cl.[5] H02J *9/06, 3/44*
U.S. Cl. 307—87 **14 Claims**



9. A method of phase matching a firs multi-phase power source connected to a load to a second multi-phase power source to be sequentially connected to the load to choose the best phase path solution for the second multi-phase power source comprising the steps of:

monitoring the phase voltages of the load and second multi-phase power source;

determining the best phase path solution from a logic network based on the voltage phase polarities of the load and the second source as listed in a truth table;

storing a value from the logic network indicative of the best phase path solution between the second multi-phase source and the load; and

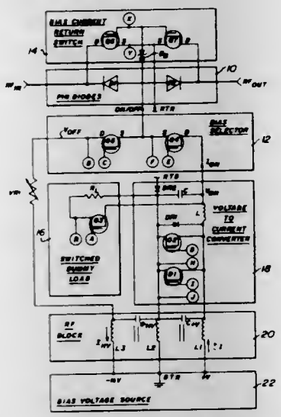
updating the stored value each time any phase of the load changes polarity.

5,212,408

ULTRA FAST PIN DIODE SWITCH

Baruch Even-or, Chalfont, Pa., assignor to AEL Defense Corp., Lansdale, Pa.

Filed Feb. 6, 1992, Ser. No. 832,107
Int. Cl.[5] H03K *17/74*
U.S. Cl. 307—256 **7 Claims**



1. An electronic switch for selectably switching a high frequency signal between an input and an output, comprising

(a) a switching element comprising at least two PIN diodes connected in series-opposed configuration between said input and said output, said switching element having a low impedance when said diodes are forward biased and a substantially higher impedance when said diodes are reverse biased,

(b) bias circuit means connected to said diodes for selectably applying a forward bias current to the diodes for forward-biasing said diodes and a reverse bias voltage to the diodes for reverse-biasing said diodes,

(c) bias current return means connected to said diodes for providing a high-speed return path for the forward bias current from said diodes to a return when said diodes are forward biased,

(d) switch means connected between said bias circuit means and a resistive load for applying the forward bias current to said load when the reverse bias voltage is applied to the diodes,

(e) bias voltage source means connected to said bias circuit means for supplying a positive voltage and a negative voltage thereto, and

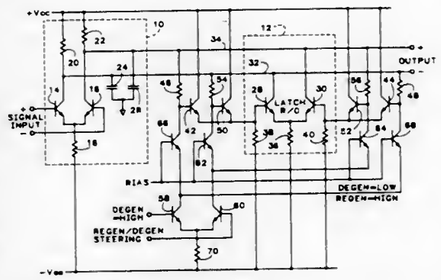
(f) RF blocking circuit means comprising a trifilar high frequency inductor connected between said bias voltage source means and said bias circuit means.

5,212,409

ANALOG-TO-DIGITAL CONVERTER LATCH CIRCUIT

Clifford H. Moulton, Beaverton, and Philip S. Crosby, Portland, both of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Continuation of Ser. No. 682,775, Apr. 9, 1991, abandoned. This application Mar. 16, 1992, Ser. No. 851,115
Int. Cl.[5] H03K *5/00, 3/29*
U.S. Cl. 307—261 **4 Claims**



1. An A/D converter comprising:

a regenerative latch for converting an input to a latch state,

a degenerative stage having its output coupled to its input in a degenerative manner, said degenerative stage sharing common input and output with said regenerative latch, and

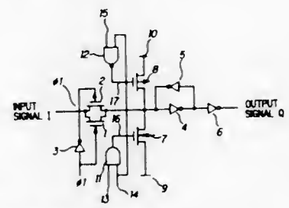
means for alternately operating said degenerative stage and said regenerative latch for first holding said input and output at a given level while said degenerative state is operable and then enabling regeneration toward the latched state as determined by the input when the regenerative latch is operable.

5,212,410

REGISTER CIRCUIT IN WHICH A STOP CURRENT MAY BE MEASURED

Ryuichi Sase, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 26, 1992, Ser. No. 857,768
Claims priority, application Japan, Mar. 26, 1991, 3-061726
Int. Cl.[5] H03K *3/356, 17/22*
U.S. Cl. 307—272.3 **2 Claims**



1. A register circuit, comprising:

a parallel circuit of N and P channel type transistors connected between an input terminal and a first predetermined node, gates of said N and P channel type transistors being coupled to receive clock pulse and inverted clock pulse signals respectively;

a feedback loop circuit of a transmission invertor and a feedback invertor connected between said first predetermined node and a second predetermined node;

an output invertor connected between said second predetermined node and an output terminal;

a first gate circuit coupled to receive a clock-stop signal and a register circuit-set signal to generate a first gate signal;

a second gate circuit to receive said clock-stop signal and a

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register circuit-reset signal to generate a second gate signal; and

a circuit for setting an output of said register circuit to a set state in responses to said first gate signal, and for resetting said output of said register circuit to a reset state in response said second gate signal.

5,212,411

FLIP-FLOP CIRCUIT HAVING CMOS HYSTERESIS INVERTER

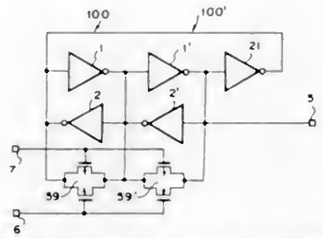
Hiroshi Asazawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 2, 1991, Ser. No. 801,542

Claims priority, application Japan, Nov. 30, 1990, 2-340107

Int. Cl.[5] H03K *3/289, 3/26*

U.S. Cl. 307—279 **3 Claims**



1. A master-slave T-type flip-flop circuit comprising:

a master stage flip-flop circuit including a master stage hysteresis inverter and a master stage complementary transfer gate circuit connected between input and output nodes of said master stage flip-flop circuit, said master stage complementary transfer gate circuit receiving complementary clock signals;

a slave stage flip-flop circuit directly connected in series with said master stage flip-flop circuit and including a slave stage hysteresis inverter and a slave stage complementary transfer gate circuit connected between input and output nodes of said slave stage flip-flop circuit, said slave stage complementary transfer gate circuit receiving said complementary clock signals;

an output terminal, said output node of said slave stage flip-flop circuit being connected to said output terminal; and

a feedback inverter interconnected between the output node of said slave stage flip-flop circuit and the input node of said master stage flip-flop circuit.

5,212,412

POWER ON RESET CIRCUIT HAVING HYSTERESIS INVERTERS

Ahmad H. Atriss, Chandler; Benjamin C. Peterson, Tempe, and Lanny L. Parker, Mesa, all of Ariz., assignors to Codex Corporation, Mansfield, Mass.

Filed Oct. 26, 1992, Ser. No. 966,626

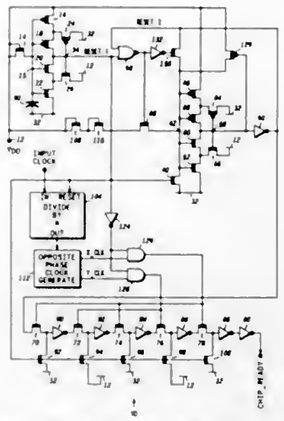
Int. Cl.[5] H03K *3/29, 3/01*

U.S. Cl. 307—296.4 **20 Claims**

1. A circuit, comprising:

first means responsive to a first power supply potential from a first power supply conductor for developing a first reset signal having a first logic state when said first power supply potential is less than a first predetermined threshold, said first reset signal having a second logic state when said first power supply potential is greater than a second predetermined threshold; and

second means responsive to said first power supply potential for developing a second reset signal having a first logic state when said first power supply potential is less than a third predetermined threshold, said second reset signal having a second logic state when said first power supply potential is greater than a fourth predetermined threshold, said second means receiving said first reset signal to disable said second means until said first power supply potential reaches said second predetermined threshold.



5,212,413

STABLE, PROGRAMMABLE LOW-DISSIPATION REFERENCE CIRCUIT

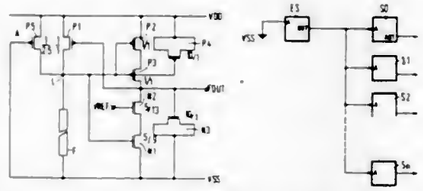
Cathal G. Phelan; Peter H. Voss, both of San Jose, Calif.; Thomas J. Davies, Eindhoven, Netherlands; Cormac M. O'Connell, Kanata, Canada; Leonardus C. M. G. Pfennings, deceased, late of Sittard; Henricus J. Kunnen, legal representative, Valkenswaard, both of Netherlands, and Hans Ontrop, Eindhoven, Netherlands, assignors to U.S. Philips Corp., New York, N.Y.

Filed Jul. 8, 1991, Ser. No. 726,470

Claims priority, application Netherlands, Jul. 9, 1990, 9001558

Int. Cl.[5] H03K *3/01, 19/003*

U.S. Cl. 307—296.8 **2 Claims**



1. A programmable reference circuit which, prior to programming, is in a first and after programming in a second logic state and which includes a first and a second cross-wise coupled inverter which are each connected between two power supply lines, the first inverter including an active element and a programmable element connected in series therewith, characterized in that a second active element whose control electrode is directly and continuously connected to one of the supply lines is arranged in parallel with the active element of the first inverter.

5,212,414

SWITCH WITH FREQUENCY COMPENSATION, DIFFERENTIAL BIAS OPERATION COMPENSATION AND ENABLE INDICATOR

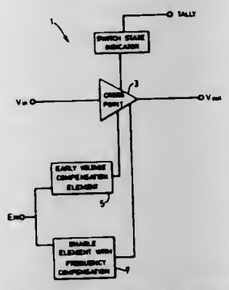
John R. Francis, Burlington, Canada, assignor to Gennum Corporation, Burlington, Canada

Filed Sep. 26, 1990, Ser. No. 589,229

Claims priority, application Canada, Oct. 13, 1989, 2000636

Int. Cl.[5] G06G *7/12;* **H03K** *17/56, 17/60, 3/01*

U.S. Cl. 307—491 **14 Claims**



1. A switch for switching an input signal at an input to an output signal at an output, said switch being operable in an enabled state and in a disabled state, said switch comprising:

(a) cross-point switching means for switching the input signal to the output signal;

(b) switching control means coupled to said cross-point switching means, said switching control means having an enable input for receiving an enable signal and means for switching the input signal to the output signal in response to said enable signal;

(c) compensation means for controlling an Early voltage effect in said cross-point switching means, said compensation means being coupled to said switching control means;

(d) said cross-point switching means comprising an output buffer coupled to said input, an output buffer coupled to said output, and level shifting means coupling said input buffer to said output buffer, said level shifting means being coupled to said switching control means, and said level shifting means being responsive to operation of said switching control means for said level shifting means to switch the input signal coupled to said input buffer to said output buffer in response to receipt of said enable signal at said enable input.

5,212,415

PRECHARGE CIRCUIT

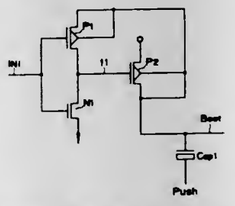
Kiyoharu Murakami, Kawasaki, and Ryosuke Matsuo, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 29, 1991, Ser. No. 799,960

Claims priority, application Japan, Nov. 30, 1990, 1-336070

Int. Cl.[5] H03K *17/687, 19/01*

U.S. Cl. 307—578 **4 Claims**



1. A precharge circuit having step-up node means including a capacitor for supplying a drive voltage having a predetermined level, for raising said drive voltage to a stepped-up voltage level which is greater by a specific value than said predetermined level and for delivering said drive voltage at said predetermined level or at said stepped-up voltage level to a load, said precharge circuit comprising:

main transistor means comprising a main P-channel metal oxide semiconductor (MOS) transistor having a gate terminal, a source terminal, a drain terminal and a substrate terminal;

subsidiary transistor means comprising a subsidiary P-channel metal oxide semiconductor (MOS) transistor having a gate terminal, a source terminal, a drain terminal and a substrate terminal;

means for connecting said drain terminal of said subsidiary transistor to said gate terminal of said main transistor;

means for connecting said source terminal of said main transistor to a positive potential power supply;

means for supplying a first input signal to said gate terminal of said subsidiary transistor; and

means for supplying said drive voltage to said source and substrate terminals of said subsidiary transistor;

said main transistor means providing said drive voltage at said predetermined level for delivery to said load through said step-up node means when a step-up input signal at ground level is input to said step-up node means;

said subsidiary transistor means turning on, due to said drive voltage being raised by said step-up input signal, immediately before said drive voltage exceeds said predetermined value and turning off due to said gate of said subsidiary transistor being input with a voltage level which is the same level as said drive voltage.

5,212,416

PRIMARY COIL ASSEMBLY FOR A SUPERCONDUCTING LINEAR INDUCTION MOTOR

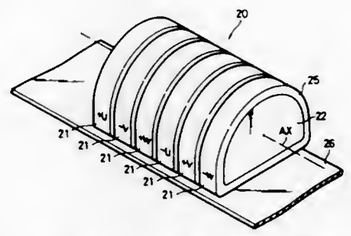
Hitoshi Shimizu, Ichihara; Katsuro Oishi; Yasuzo Tanaka, both of Yokohama; Syuiti Sato; Shinnichi Yatabe, both of Kimitsu, and Osami Tsukamoto, Yokohama, all of Japan, assignors to The Furukawa Electric Co., Ltd. and Nippon Steel Corporation, both of Tokyo, Japan

Filed Nov. 12, 1991, Ser. No. 790,476

Claims priority, application Japan, Nov. 29, 1990, 2-325296; Nov. 29, 1990, 2-325297

Int. Cl.[5] H02K *41/00*

U.S. Cl. 310—12 **6 Claims**



1. A primary coil assembly for a superconducting linear induction motor, comprising:

a plurality of coil units having substantially identical structure and shape and spaced at a predetermined distance from each other, each of the coil units including a nonmagnetic and nonconductive bobbin, an alternating-current superconducting wire wound around the bobbin, and nonmagnetic and nonconductive spacer means interposed between adjacent turns of the superconducting wire being adjacent to each other in an outward direction with respect to an axis of the bobbin or adjacent to each other in a width direction of the bobbin, for providing a clearance therebetween;

wherein the coil units each have an end face and are ar-

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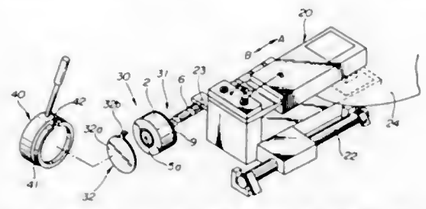
ranged with the respective end faces thereof inclined at a predetermined angle relative to each other.

5,212,417

STEPPING MOTOR FOR DRIVING HEAD CARRIAGE AND DISC DRIVE UNIT COMPRISING SUCH MOTOR

Michiaki Nagai, Koganei, and Takahiro Sakaguchi, Kodaira, both of Japan, assignors to TEAC Corporation, Japan

Filed May 1, 1992, Ser. No. 877,281
Claims priority, application Japan, May 7, 1991, 3-031025[U]
Int. Cl.[5] H02K *37/00*; G11B *5/55*
U.S. Cl. 310—49 R 17 Claims



1. A stepping motor for driving a head carriage, for use in a disk drive unit comprising:

a main part of the motor comprising a motor axis on which is formed a lead screw for driving a head carriage, a rotor for rotating said motor axis and a stationary part of the motor, said stationary part including a stator, a body of the motor, and a leaf that presses an end of said motor axis at said body of the motor, when installation in a disk drive unit is complete, by an elastic force directed along said motor axis; and

an engagement part provided on said stationary part of the main part of the motor, said engagement part comprising one or more projections formed of a thin plate material, said projection projecting in a radial direction with respect to said motor axis and being bent so as to extend in a direction along said motor axis and toward said head carriage;

said disk drive unit having a fixing means for fixing said main part of the motor in said unit; and

said main part of the motor being rotationally controllable by means of a jig that is engaged with said engagement part, and being fixed by said fixing means after the position of the main part of the motor is rotationally controlled on the motor axis.

5,212,418

HIGH TORQUE AND SPEED DC MOTORS

Elmer B. Mason, 905 Vickie Dr., Del City, Okla. 73115

Filed Apr. 20, 1992, Ser. No. 870,861
Int. Cl.[5] H02K *16/02*
U.S. Cl. 310—114 8 Claims

5. A DC motor assembly, comprising:

a pair of endless strap-like magnetizable members disposed in coaxial spaced-apart relation;

coil means between and connected in diametric opposition with said members for forming a pair of opposite polarity magnetic pole pieces,

each said coil means comprising, a rectangular coil core having opposing end surfaces abutting confronting surfaces of said pair of pole pieces and having opposite planar side surfaces normal to the confronting surfaces, respectively of said pole pieces;

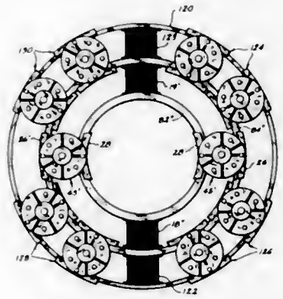
at least one wire wound around said coil cores in a manner defining a like plurality of coil magnetic flux generating substantially planar surfaces disposed in a like plurality of planes normal to each other and the adjacent confronting surfaces of each pole piece of said pair of pole pieces;

each pole piece of said pair of pole pieces having a transverse concave recess angularly spaced from the respective said coil means and disposed in confronting opposition with a like cooperating concave recess in the opposite pole piece;

first and second armatures each having a predetermined winding span transversely disposed in parallel diametric opposition between said pole pieces in axial alignment the with pole piece confronting recesses and forming a fine air gap between a peripheral portion of the respective armature and the surface defining the adjacent concave recess in the respective said pole piece of said pair of pole pieces,

the width of the respective recess circumferentially of each pole piece of said pair of pole pieces being substantially one-half the winding span of the respective armature;

nonmagnetic housing means for operatively supporting said armatures between said pair of pole pieces;



a source of DC potential;

primary circuit means including parallel primary wiring respectively connecting the DC potential to ground in series through one said armature and an adjacent said coil for generating magnetic flux influence from opposing directions in the respective pole piece of said pair of pole pieces and in diametric opposition on the respective armature; and,

electrical current control means including first switch means interposed in said primary wiring for selectively controlling the direction of rotation, angular rate of rotation, torque and amperes of one said armature relative to the other said armature.

5,212,419

LIGHTWEIGHT HIGH POWER ELECTROMOTIVE DEVICE

Gene A. Fisher, Pinellas Park, and John T. Jacobs, St. Petersburg, both of Fla., assignors to Fisher Electric Motor Technology, Inc., St. Petersburg, Fla.

Filed Jan. 10, 1992, Ser. No. 820,287
Int. Cl.[5] H02K *1/12*
U.S. Cl. 310—254 16 Claims

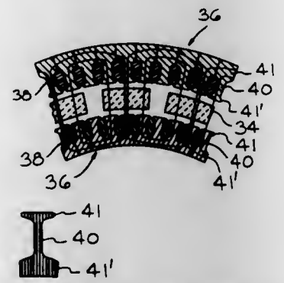
14. An electromotive device comprising, In combination:

a first stator inductor composed of a first set of magnetic flux conducting stator bars, each of said first set of stator bars having a longitudinal grain orientation, and a first electrical conductor disposed as randomly dispersed windings around said first set of stator bars for creating an electromagnetic field;

means adjacent said first stator inductor for generating a magnetic field within said electromotive device;

a second stator inductor composed of a second set of magnetic flux conducting stator bars, each of said second set of stator bars having a longitudinal grain orientation, and a second electrical conductor disposed as randomly dispersed windings around said second set of stator bars for creating a second electromagnetic field, said second stator inductor being positioned in opposed relationship with said first stator inductor wherein said magnetic field generating means is positioned therebetween;

said first and second stator inductors having respective stator bars of a geometry wherein said respective windings from such magnetic field within said electromotive



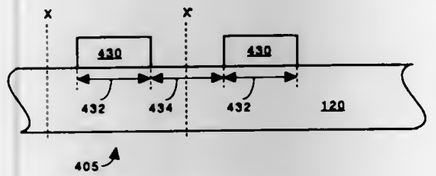
device and for providing a first flux return path and a second flux return path for substantially all of the flux, said first and second flux return paths being generally perpendicular to such respective grain orientations through each respective set of stator bars.

5,212,420

METHOD AND APPARATUS FOR SURFACE ACOUSTIC WAVE REFLECTOR GRATING

Thomas S. Hickernell, Tempe; David Penunuri, Fountain Hills, and Frederick Y. Cho, Scottsdale, all of, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 3, 1991, Ser. No. 754,477
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—313 D 22 Claims



1. An acoustic wave device comprising:

an acoustic wave propagating substrate;

a first acoustic wave transducer coupled to said acoustic wave propagating substrate, said first acoustic wave transducer for converting energy between electrical and acoustical form; and

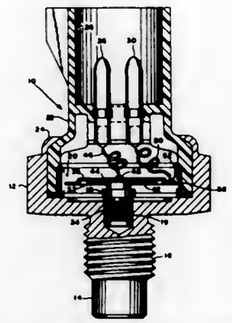
a first and a second acoustic reflector coupled to said acoustic wave propagating substrate, said first acoustic reflector disposed on one side of said first acoustic wave transducer, said second acoustic reflector disposed on another side of said first acoustic wave transducer, said first and second acoustic reflectors for reflecting acoustical energy, each of said first and second acoustic reflectors including a plurality of acoustic reflection elements wherein there is a single acoustic reflection element per acoustic wavelength.

5,212,421

VIBRATION TRANSDUCER ASSEMBLY

Bruce M. Hatton, Carol Stream; Jaklin Yoesep, Arlington Heights, and Stephen M. Hutchings, Oswego, all of Ill., assignors to Eaton Corporation, Cleveland, Ohio

Filed Dec. 5, 1990, Ser. No. 622,703
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—329 8 Claims



1. A vibration transducer assembly for sensing vibrations in a selected frequency range comprising:

(a) body means adapted to receive vibratory movement from external structure and defining a stanchion thereon;

(b) a rigid resonatable disc generally thin with respect to its diameter, said disc centrally supported on said stanchion in overhanging arrangement, said disc having an annular stiffening portion formed integrally therein intermediate said stanchion and the periphery of said disc, said stiffening portion having in transverse section a generally rectangular configuration with the portion radially outwardly of said stiffening portion offset from the central portion;

(c) a piezoelectric member bonded to the surface of said resonatable disc and disposed centrally within said stiffened portion; and,

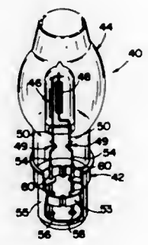
(d) electrical lead means connected to said piezo member and said disc, wherein upon vibration of said body means in said selected range, said disc resonates and said piezoelectric member is flexurally strained and generates an electrical signal along said lead means.

5,212,422

LAMP CAPSULE SUPPORT BASE

A. Charles Topel, Jr., Boston; Lewis H. Palmer, III, Marblehead; Stephen J. Leadvaro, Salem; Peter R. Gagnon, Topsfield, and Roy C. Martin, Peabody, all of Mass., assignors to GTE Products Corporation, Danvers, Mass.

Filed Dec. 30, 1991, Ser. No. 814,856
Int. Cl.[5] H01J *17/16, 9/24, 61/34*
U.S. Cl. 313—318 18 Claims



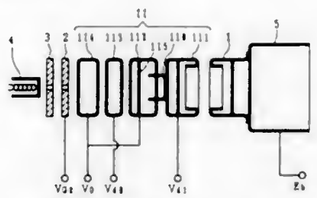
1. A lamp comprising:

a substantially cylindrical base;

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a light-transmissive outer envelope;
a filament or lamp capsule having at least two leads; and
a support ring mounted within the base, the ring including a ring portion and at least one pair of supporting tabs directed radially inwardly from the ring portion, each tab including a mounting hole for receiving one of the leads, the tabs being positioned so that the respective lead passes through each of the mounting holes and is supported thereby.

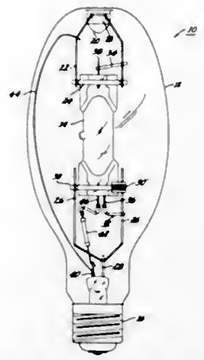
5,212,423
ELECTRON GUN WITH LENS WHICH CHANGES BEAM INTO NONAXISYMMETRIC SHAPE
Kazunari Noguchi, Chiba, and Syoji Shirai, Mobara, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 7, 1991, Ser. No. 712,188
Claims priority, application Japan, Jun. 7, 1990, 2-147288
Int. Cl.[5] H01J *29/38, 29/46*
U.S. Cl. 313—414 **15 Claims**



1. A cathode ray tube having an electron gun for producing electron beams which are to be scanned across a screen in response to deflection thereof, comprising:
first electrode means for generating a plurality of electron beams and directing the electron beams along initial paths parallel to each other in a horizontal plane; and
second electrode means disposed along said initial paths and including a focusing lens unit positioned adjacent to an accelerating electrode to which a highest voltage is applied for forming therebetween a main lens to focus said electron beams on the screen, said focusing lens unit having a plurality of electrode members forming at least one first-type electron lens which changes the cross-sectional shape of said electron beam into a nonaxisymmetric shape with increase in the degree of electron beam deflection in response to a first voltage varying in synchronism with said deflection and at least one second-type axisymmetric electron lens, separate from said main lens, whose lens power is weakened with increase in the degree of the electron beam deflection in response to a second voltage increasing with the degree of said electron beam deflection.

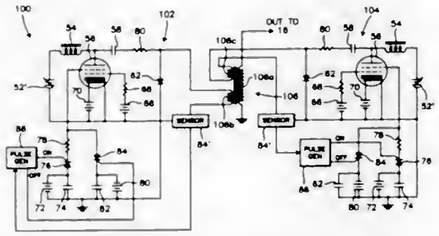
5,212,424
METAL HALIDE DISCHARGE LAMP CONTAINING A SODIUM GETTER
Timothy D. Russell, Cleveland Heights, and Raymond A. Heindl, Euclid, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.
Filed Nov. 21, 1991, Ser. No. 795,439
Int. Cl.[5] H01J *61/20, 61/26*
U.S. Cl. 313—562 **11 Claims**

1. A metal halide arc discharge lamp comprising a light-transmissive arc chamber hermetically sealed and containing within a fill comprising sodium metal, mercury metal, a starting gas and at least one ionizable metal halide, wherein said sodium metal is present in an amount sufficient to getter any excess halogen initially present in said arc chamber and wherein said amount of sodium metal present initially ranges



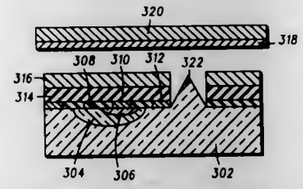
between 1 to 5 mole % of the total amount of said mercury metal and said sodium metal.

5,212,425
ION IMPLANTATION AND SURFACE PROCESSING METHOD AND APPARATUS
Dan M. Goebel, Tarzana, and Jesse N. Matossian, Woodland Hills, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.
Filed Oct. 10, 1990, Ser. No. 595,122
Int. Cl.[5] H05H *1/24*
U.S. Cl. 315—111.21 **39 Claims**



29. A bipolar pulse modulator for individually applying electric pulses to an object for implantation with ions or for surface processing with electrons from a plasma in a plasma source ion implantation apparatus, comprising:
negative power source means;
first switch means connected in circuit for periodically electrically connecting the negative power source means to the object so that negative pulses are applied to the object;
positive power source means; and
second switch means connected in circuit for periodically electrically connecting the positive power source means to the object so that positive pulses are applied to the object during periods when the negative power source means is not connected to the object.

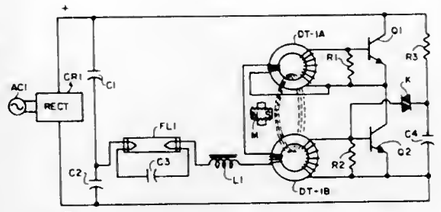
5,212,426
INTEGRALLY CONTROLLED FIELD EMISSION FLAT DISPLAY DEVICE
Robert C. Kane, Woodstock, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Jan. 24, 1991, Ser. No. 645,163
Int. Cl.[5] H01J *23/16*
U.S. Cl. 315—169.1 **11 Claims**



1. An integrally controlled cold-cathode field-induced electron emission display device having a device anode, a device non-insulating gate layer, and a device electron emitter, comprising:
A) a supporting substrate with a primary surface;
B) an integral controller including one of a bipolar transistor and a field-effect transistor, the integral controller being substantially disposed in at least one of:
the supporting substrate;
the device non-insulating gate layer; and
a device electron emitter layer;
and being operably connected to at least one of:
the device anode;
the device non-insulating gate layer; and the device electron emitter;
the device electron emitter being operably connected to the primary surface of the supporting substrate, and wherein the device anode is substantially distally disposed with respect to the device electron emitter;
C) an insulator layer disposed on the primary surface of the supporting substrate and having an aperture therein, such that the electron emitter is substantially symmetrically disposed within the aperture, and such that the device non-insulating gate layer is disposed on the insulator layer substantially peripherally symmetrically about the device electron emitter; and
D) a cathodoluminescent layer that is operably connected to/substantially disposed on the device anode, such that at least some of any emitted electrons impinge on the cathodoluminescent layer, and such that the cathodoluminescent layer is distally disposed with respect to the device electron emitter substantially symmetrically disposed within the aperture;
such that at least some of any emitted electrons impinging on the cathodoluminescent layer are collected by the device anode to provide a display.

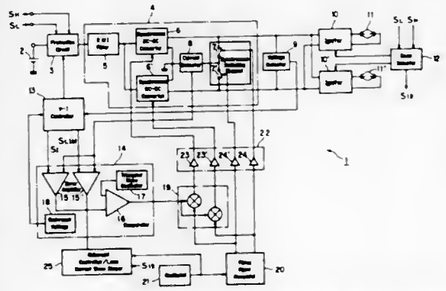
5,212,427
ELECTRONIC LAMP BALLAST DIMMING CONTROL MEANS EMPLOYING PULSE WIDTH CONTROL
William H. Jones, Villa Park, Ill., assignor to Appliance Control Technology, Inc., Addison, Ill.
Filed Dec. 30, 1991, Ser. No. 814,510
Int. Cl.[5] H05B *41/29, 41/391*
U.S. Cl. 315—224 **6 Claims**

1. An electronic ballast connected to a fluorescent lamp comprising:
an inverter circuit operated to convert direct current to high voltage alternating current;
first and second transistors;
and a dual toroid coil assembly functioning with said transistors to form said inverter circuit;
dimmer control means consisting of a permanent magnet located in proximity to said dual toroid coil assembly to control the saturation of said dual toroid coil assembly, said saturation determining the width of pulses generated by said first and second transistors whereby said high



voltage alternating current for operation of said fluorescent lamp is limited to control the intensity of light emitted therefrom:
and support means for said permanent magnet.

5,212,428
LIGHTING CIRCUIT FOR VEHICULAR DISCHARGE LAMP
Masaru Sasaki; Atsuhiko Murata, and Goichi Oda, all of Shimizu, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan
Filed Sep. 25, 1991, Ser. No. 765,231
Claims priority, application Japan, Oct. 1, 1990, 2-263300
Int. Cl.[5] H05B *41/36*
U.S. Cl. 315—308 **8 Claims**



1. A lighting circuit for a vehicular discharge lamp comprising:
DC-to-AC converting means for converting a DC voltage into an AC voltage and supplying the AC voltage to the discharge lamp;
lamp voltage detector for acquiring a voltage detection signal concerning a lamp voltage of the discharge lamp;
lamp current detector for acquiring a current detection signal concerning a lamp current of the discharge lamp;
voltage-current controller for producing a lamp current control instruction signal generated with respect to the lamp voltage upon reception of the voltage detection signal from the lamp voltage detector, and supplying a control signal to the DC-to-AC converting means so as to minimize difference between the instruction signal and the current detection signal from the lamp current detector, thereby controlling output voltage of the DC-to-AC converting means, the voltage-current controller having at least a lighting acceleration area for producing the lamp-current control instruction signal to permit supply of greater power than rated power of the discharge lamp and a steady power control area for performing steady power

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control of the discharge lamp with the rated power, as a control area based on lamp voltage-lamp current characteristic; and

power change reducing means for suppressing a change in power supplied to the discharge lamp with respect to the lamp voltage at a time of transition to the steady power control area from the lighting acceleration area, thereby shortening a time required for flux of light from the discharge lamp to become stable.

5,212,429

RASTER POSITION ADJUSTING CIRCUIT

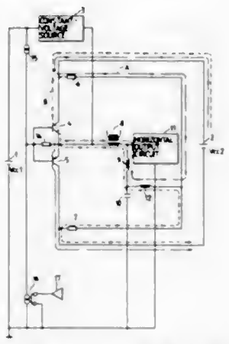
Kazunori Yamate; Hideo Kinoshita, both of Osaka; Chikara Uenishi, Chigasaki; Masafumi Ugajin; Shinichi Kidokoro, both of Fujisawa, and Hiroshi Yamagiwa, Kamakura, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 20, 1992, Ser. No. 837,957

Claims priority, application Japan, Feb. 27, 1991, 3-32790

Int. Cl.[5] G09G *1/04*; H01J *29/54*

U.S. Cl. 315—398 **4 Claims**



1. A raster position adjusting circuit comprising: first and second voltage sources; a current supply source; a constant-voltage source; a voltage-controlled type current supply source; a digital-to-analog converter; a flyback transformer; a horizontal output circuit; a horizontal deflecting coil; a direct-current blocking capacitor; and a choke coil, a voltage supply side of said first voltage source being coupled to one terminal of said current supply source and further coupled to one terminal of said constant-voltage source, the other terminal of said current supply source being coupled to one terminal of said voltage-controlled type current supply source and the other terminal of said voltage-controlled type current supply source being coupled to a grounded side of said first voltage source, said digital-to-analog converter being coupled to said voltage-controlled type current supply source so that an output voltage of said digital-to-analog converter is applied thereto, a junction point between said current supply source and said voltage-controlled type current supply source being connected to one terminal of a first resistor and to bases of first and second transistors, the other terminal of said first resistor and emitters of said first and second transistors being coupled to each other and to an output terminal of said constant-voltage source, a collector of said first transistor being coupled to a voltage supply side of said second voltage source and a collector of said second transistor being coupled to a grounded side of said second voltage source, one terminal of a second resistor being coupled to a junction point between said collector of said first transistor and said second voltage source and one terminal of a third resistor being coupled to a junction point between said collector of said second transistor and said second voltage source, the other terminal of said second resistor and the other terminal of said third resistor being coupled to each other, one terminal of a primary side of said flyback transformer being coupled to the junction point between said emitters of said first and second transistors and said output terminal of said constant-voltage source and the other terminal of said primary side thereof being coupled to said horizontal output circuit, one terminal of said horizontal deflecting coil being coupled to a junction point between the other terminal of said primary side of said flyback transformer and said horizontal output circuit, and the other terminal of said horizontal deflecting coil being coupled to one terminal of said direct-current blocking capacitor, the other terminal of said direct-current blocking capacitor being coupled to the grounded side of said first voltage source, one terminal of said choke coil being coupled to a junction point between said second and third resistors, and the other terminal of said choke coil being coupled to a junction point between said horizontal deflecting coil and said direct-current blocking capacitor.

5,212,430

CONTROL SYSTEM FOR A MACHINE TOOL OR A ROBOT

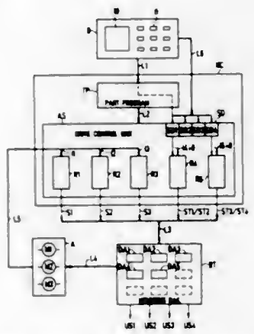
Hermann Jartyn, Burghaslach, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 22, 1991, Ser. No. 703,883

Claims priority, application European Pat. Off., May 22, 1990, 90109725.3

Int. Cl.[5] G05B *19/18*, *19/417*

U.S. Cl. 318—34 **14 Claims**



1. A numerical control section in a control system for a machine tool or a robot that has a plurality of drive systems comprising:

a part program; and

a drive-control unit comprising:

a plurality of control loops for closed-loop control of the drive systems of the machine tool or robot, each control loop receiving actual value signals and producing desired-value signals, and a plurality of digital-to-analog converters converting desired value signals from digital to analog values, wherein at least one of said plurality of control loops processes at least one specifiable desired-value signal as a control signal to an additional device to be controlled wherein inputs for the actual-value signals of said at least one control loop used for processing at least one control signal are set to a constant specified value.

5,212,431

ELECTRIC VEHICLE

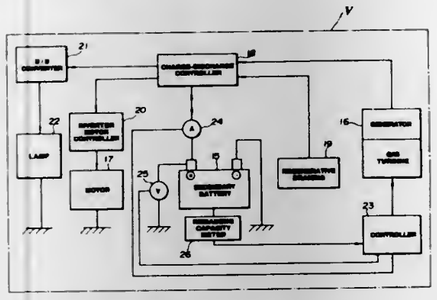
Masato Origuchi; Masato Fukino; Hideaki Horie, and Namio Irie, all of Kanagawa, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 21, 1991, Ser. No. 703,514

Claims priority, application Japan, May 23, 1990, 2-131167

Int. Cl.[5] B60L *11/02*

U.S. Cl. 318—139 **8 Claims**



1. An electric vehicle comprising:

a secondary battery;

a generator selectively set in an operating state and a stopping state;

a motor electrically connected to said secondary battery and said generator, said motor driving a vehicle body to run upon receiving electric energy from at least one of said secondary battery and said generator;

means for detecting an amount of charge in said secondary battery and for outputting a charge signal indicative of the detected amount of charge in said secondary battery; and

means for controlling said generator and said secondary battery according to the signal from said detecting means, said controlling means setting said generator in the operating state when the detected amount of charge of said secondary battery is smaller than a first predetermined value which value is changed according to the total amount of energy consumption in said secondary battery.

2. An electric vehicle comprising:

a secondary battery;

a generator selectively set in an operating state and a stopping state;

a motor electrically connected to said secondary battery and said generator, said motor driving a vehicle body to run upon receiving electric energy from at least one of said secondary battery and said generator;

means for detecting an amount of charge in said secondary battery and for outputting a charge signal indicative of the detected amount of charge in said secondary battery;

means for calculating the rate of energy consumption of said motor and for outputting a signal indicative of the measured rate of the energy consumption of said motor; and

means for controlling said generator and said secondary battery according to the signals from said detecting means and said calculating means, said controlling means setting said generator in the operating state when the detected amount of charge is smaller than a first predetermined value and setting said generator in the operating state when the calculated rate of the energy consumption is larger than a second predetermined value.

4. An electric vehicle comprising:

a secondary battery;

a generator selectively set in an operating state and a stopping state;

a motor for driving a vehicle body to run upon receiving electric energy from at least one of said secondary battery and said generator; and

control means for controlling said generator to selectively take the operating state and the stopping state in accordance with the amount of charge in said secondary battery, said control means including a means for determining the rate of energy consumption for each predetermined time period of said motor, and accordingly switching said generator into the operating state when the amount of charge in said secondary battery is smaller than a predetermined value and the determined rate of consumed electric energy for each predetermined time period is larger than that of a predetermined energy consumption for each predetermined time period.

5,212,432

INDUSTRIAL ROBOT

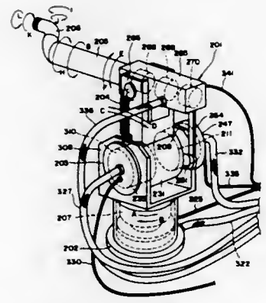
Yukio Ohtani, Kawasaki; Yoshiko Iriyama, Tokyo, and Satoshi Uehara, Yokohama, all of Japan, assignors to Tokico, Ltd., Japan

Continuation of Ser. No. 599,342, Oct. 17, 1990, abandoned. This application Feb. 28, 1992, Ser. No. 845,494

Claims priority, application Japan, Oct. 20, 1989, 1-273104; Oct. 20, 1989, 1-273108

Int. Cl.[5] G05B *19/10*

U.S. Cl. 318—568.11 **9 Claims**



1. An industrial robot comprising:

(a) a robot body forming a plurality of motor spaces;

(b) a plurality of electric motors for driving the robot body, one of the electric motors being located in each of the motor spaces;

(c) a plurality of guide passages in communication with the motor spaces for conducting a protective gas thereinto;

(d) a plurality of exhaust passages in communication with the motor spaces for discharging the protective gas therefrom;

(e) a gas supply means in communication with the guide passages for supplying the protective gas thereto at a pressure greater than an ambient pressure;

(f) a plurality of temperature sensors, one of the temperature sensors being located in each of the motor spaces to sense the temperature therein; and

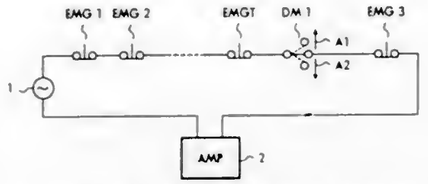
(g) a plurality of gas control valves, one of the valves being located in each of the guide passages, and one of the valve being located in each of the exhaust passages, said valves controlling the flow of the protective gas through the motor spaces in response to changes in the temperatures sensed by the temperature sensors.

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5,212,433
ROBOT EMERGENCY STOP CIRCUIT

Shimoda Yasuyuki, Minamitsuru, Japan, assignor to Fanuc Ltd., Japan

PCT No. PCT/JP90/01619, § 371 Date Aug. 13, 1991, § 102(e) Date Aug. 13, 1991, PCT Pub. No. WO91/08870, PCT Pub. Date Jun. 27, 1991
PCT Filed Dec. 11, 1990, Ser. No. 720,870
Claims priority, application Japan, Dec. 19, 1989, 1-328775
Int. Cl.[5] B25J 9/22
U.S. Cl. 318—568.13 4 Claims



1. A robot emergency stop circuit for bringing a robot being supplied power to an emergency stop while said robot is being taught behavior patterns using a teaching control device issuing instructions, said robot emergency stop circuit comprising:
a deadman switch connected to the teaching control device, said deadman switch including:
a 3-position contact switch having first, second and third contact positions; and
a conductive element contractual with said first, second and third contact positions responsive to pressure applied to said deadman switch,
said deadman switch supplying said robot with the power in response to the pressure applied by a user enabling the robot to receive the instructions and operate in accordance with the instructions issued by said teaching control device when the pressure applied by the user remains within a specified range connecting said conductive element to said second contact position and connecting the power supply to the robot, and
said deadman switch stopping the supplying of the power to said robot when the pressure applied by the user becomes one of lower than said specified range connecting said conductive element to said first contact position and higher than said specified range connecting said conductive element to said third contact position, disconnecting the power supply from the robot.

5,212,434
PHASE-LOCKED STEP MOTOR SPEED SERVO CONTROLLER

Guan-Chyun Hsieh, Hsin-Tien, Taiwan, assignor to National Science Counsil, Taiwan

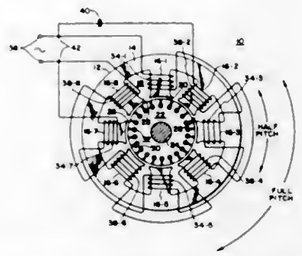
Filed Mar. 17, 1992, Ser. No. 852,698
Int. Cl.[5] G05B 11/06
U.S. Cl. 318—603 3 Claims

1. A servo control system for controlling the speed of a step motor, comprising:
(a) means for detecting angular speed of the step motor, said detecting means adapted to generate a first pulse train with a frequency indicative of the angular speed of the step motor;
(b) a reference signal source adapted to generate a second pulse train with a preset frequency;
(c) means for generating a phase error signal in accordance with phase difference between the first pulse train and the second pulse train, during each one period defined by the preset frequency of the second pulse train, said phase error signal generating means being adapted to generate a group of pulses with a pulse number in proportion to the phase error detected during the same one period, the group of pulses having oscillation with positive polarity when a phase lead is detected and negative polarity when a phase lag is detected;
(d) an up-down counter coupled to said phase error signal generating means, said up-down, counter adapted to count in the up direction if one pulse received thereby has oscillation in the positive direction and in the down direction if one pulse received thereby has oscillation in the negative polarity; and
(e) means for generating a signal for control of the speed of the step motor, the control signal consisting of a pulse train having a frequency in proportion to the output count number of said up-down counter.

5,212,435
VARIABLE SPEED ASYNCHRONOUS INDUCTION MOTOR

Lynn R. Dutro, Jonesborough, Tenn., assignor to Morrill Motors Inc., Fort Wayne, Ind.

Filed May 22, 1992, Ser. No. 887,096
Int. Cl.[5] H02P 1/44
U.S. Cl. 318—785 12 Claims

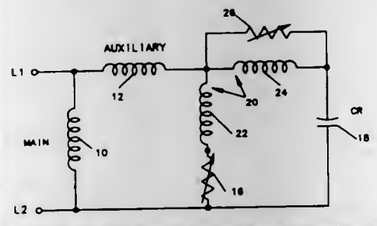


7. In a single-phase asynchronous induction motor including a stator core member having a plurality of substantially equally angularly-spaced, radially inwardly extending teeth respectively defining winding slots therebetween, said teeth having inner ends defining a bore, a rotor member in said bore having a peripheral surface defining air gaps with said ends of said teeth and having generally axially extending slots formed therein, said teeth inner ends having a circular shape with a diameter greater than the rotor diameter thereby forming said air gaps, a squirrel cage winding in said rotor member slots, a main winding on said stator core member, said main winding forming a predetermined even number of magnetic poles, an auxiliary winding on said stator core member mechanically angularly displaced from said main winding and forming the same number of magnetic poles, said auxiliary winding connected in parallel with said main winding, said teeth being equal in number to twice the number of said poles, said main winding comprising a plurality of coils equal in number to the number of said poles, said main winding coils respectively embracing alternate consecutive ones of said teeth, said auxiliary winding comprising a plurality of coils equal in number to the number of said poles, said auxiliary winding coils respectively embracing consecutive alternate teeth respectively intermediate said first named alternate teeth, there being one coil only on each said tooth, the improvement comprising:
impedance means connected to said auxiliary winding for shifting the electrical phase across said auxiliary winding;
said rotor continuously being driven during operation by flux created by both said main and auxiliary windings; and,
means for varying said impedance means between a first impedance and a second impedance in response to a condition outside of the rotor during operation between a low rotational speed and a high rotational speed.

5,212,436
SINGLE PHASE MOTOR START SYSTEM

Stanley J. Nacewicz, Plainville, and William R. Manning, Wrentham, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 6, 1991, Ser. No. 805,718
Int. Cl.[5] H02P 1/44
U.S. Cl. 318—788 12 Claims



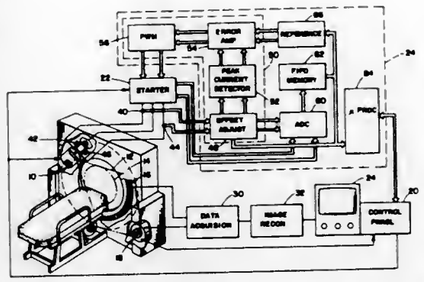
1. An electric motor system having a main winding and an auxiliary winding and first and second power leads, the first power lead connected to one side of the main and auxiliary windings, the second power lead connected to another side of the main winding, comprising an autotransformer having a primary winding interconnected to a secondary winding, a parallel circuit having first and second branches connected across the main and auxiliary windings, the first branch comprising the primary winding serially connected to a PTC resistor, the second branch comprising the secondary winding of the autotransformer.

5,212,437
HIGH SPEED STARTER OPERATIONS MONITOR

Donald A. Hescht, Clinton; Walter A. Dupuis, Cleveland Heights; William E. Szabo, North Olmstead, and Theodore A. Resnick, Beachwood, all of Ohio, assignors to Picker International, Inc., Highland Hts., Ohio

Filed Aug. 2, 1991, Ser. No. 739,837
Int. Cl.[5] H01J 35/10; H02P 9/12
U.S. Cl. 318—798 18 Claims

1. An apparatus for monitoring operation of an x-ray tube rotor in which run and phase windings provide motive power to the x-ray tube rotor, the apparatus comprising:
an electric supply means for supplying electrical currents to the run and phase windings;
a sensor means for sensing at least the electrical currents supplied to the run and phase windings and providing analog sensor signals indicative thereof;
an analog to digital converter means for converting the analog sensor signals to digital sensor signals;
a microprocessor means for processing the digital sensor signals and deriving digital reference signals therefrom, the microprocessor means including:
a means for converting the digital sensor signals into digital frequency spectra,
a fingerprint means of comparing the digital frequency spectra with a preselected frequency spectra criteria to monitor for wear and malfunctions;

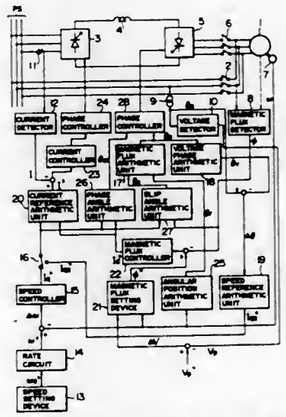


a digital to analog converter means for converting the digital reference signals to analog reference signals, the digital to analog converter means being operatively connected with the processor to receive the digital reference signals therefrom and operatively connected with the electric supply means.

5,212,438
INDUCTION MOTOR CONTROL SYSTEM

Masanori Miyazaki, Tokorozawa; Yasuhiro Suzuki, Kunitachi; Tadashi Saito, Fuchu, all of Japan, and , assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 248,384, Sep. 23, 1988, abandoned. This application Apr. 22, 1992, Ser. No. 873,711
Claims priority, application Japan, Sep. 24, 1987, 62-237302; Jan. 4, 1988, 63-209
Int. Cl.[5] H02D 5/40
U.S. Cl. 318—805 3 Claims



1. An induction motor control system comprising:
a variable-frequency power supply for supplying an output voltage at a given phase for driving an induction motor, having a rotational speed, a magnetic flux phase and a voltage, at various speeds;
first switching means, connected to said induction motor,

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said variable-frequency power supply and a commercial power supply for supplying a voltage at a given phase for selectively connecting said induction motor to said commercial power supply or said variable-frequency power supply;

means for calculating a first torque current reference from a speed difference between a speed reference and said rotational speed of said induction motor;

means for calculating a second torque current reference corresponding to a phase difference between said phase of said output voltage of said variable-frequency power supply or a magnetic flux reference, having a given phase, for said induction motor, and said phase of said voltage of said commercial power supply;

second switching means for selectively outputting said first torque current reference or said second torque current reference as a torque current reference, prior to switching of said first switching means; and

vector control means for performing vector control of said variable-frequency power supply in response to said torque current reference outputted from said second switching means, and an excitation current reference calculated from said speed reference and a detected magnetic flux of said induction motor, so that said rotational speed and said voltage of said induction motor are maintained at predetermined values, respectively;

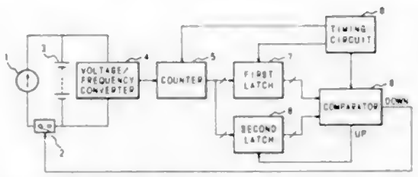
whereby said torque current reference outputted from said second switching means controls a slip frequency of said induction motor through said vector control means.

5,212,439

CHARGING APPARATUS WITH BATTERY VOLTAGE MONITORING CIRCUITRY

Masato Sano, Sumoto, and Toru Morioka, Hyogo, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Apr. 2, 1991, Ser. No. 679,485
Claims priority, application Japan, Apr. 5, 1990, 2-90904
Int. Cl.[5] H02J *7/04*
U.S. Cl. 320—39 **10 Claims**



1. A voltage sampling apparatus for sampling the voltage of a battery, comprising:

voltage/frequency converting means for converting the voltage of said battery to pulses of a frequency corresponding to the voltage;

a counter for counting said pulses and providing a series of counts on a predetermined cycle; and

comparator means for evaluating successive counts in said series to detect a change in said voltage.

5,212,440

QUICK RESPONSE CMOS VOLTAGE REFERENCE CIRCUIT

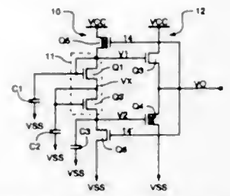
William K. Waller, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed May 14, 1990, Ser. No. 523,778
Int. Cl.[5] G05F *3/30*
U.S. Cl. 323—313 **18 Claims**

18. A method of generating a desired voltage at a voltage node, comprising:

a) gating first and second threshold devices with first and second gating signals respectively, such that said desired voltage is provided at said voltage node which is a serial connection of said first and second threshold device, said desired voltage comprising an intermediate potential within the range of a supply potential and a reference potential, said supply and reference potentials connectable to said first and second threshold devices; and

b) gating third and fourth threshold devices with said intermediate potential at said voltage node, said gating providing said first and second gating signals at the outputs of said third and fourth threshold devices respectively, said potential at said voltage node controlling the gating of said first and second threshold devices through a feed back of said intermediate potential, said controlling rapidly adjusting the potential of said voltage node to said desired voltage, said third and fourth threshold transistors connectable to said supply and reference potentials.



5,212,441

HARMONIC-ADJUSTED POWER FACTOR METER

Alexander McEachern, Oakland, Calif., and W. Mack Grady, Round Rock, Tex., assignors to Basic Measuring Instruments, Inc., Foster City, Calif.

Filed Feb. 25, 1992, Ser. No. 841,392
Int. Cl.[5] G01R *21/06, 21/133*
U.S. Cl. 324—142 **5 Claims**



1. An instrument for measuring electric power consumed by a consumer, comprising:

a. first means for measuring watt consumption;

b. second means for measuring volt-ampere consumption coupled to the means for measuring watt consumption;

c. third means for calculating a frequency-domain power factor parameter comprising a function of a ratio of watt-hours to volt-ampere-hours coupled to receive a data signal from the first means and the second means; and

d. fourth means for adjusting the power factor parameter in a predetermined manner related to the non-fundamental currents and non-fundamental voltages.

5,212,442

FORCED SUBSTRATE TEST MODE FOR PACKAGED INTEGRATED CIRCUITS

James E. O'Toole, and Brian P. Higgins, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Mar. 20, 1992, Ser. No. 854,485
Int. Cl.[5] G01R *31/02*; G11C *7/00*
U.S. Cl. 324—158 R **21 Claims**

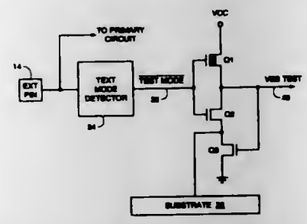
1. An integrated circuit fabricated in a package having a number of external pins, the integrated circuit comprising:

a primary circuit having a plurality of inputs and outputs electrically coupled to the external pins;

an integrated circuit substrate that is unconnected to any of the external pins;

a test mode indicator having an input coupled to an external pin and an output for providing a test mode signal;

a charge pump for biasing the substrate to a predetermined voltage in a normal operating mode; and



a switch for controlling the substrate voltage in a test mode independently of the operation of the charge pump, the switch having a first node coupled to the substrate, a second node coupled to a voltage source, and an input for receiving the test mode signal.

5,212,443

EVENT SEQUENCER FOR AUTOMATIC TEST EQUIPMENT

Burnell West, Fremont, and Egbert Graeve, Los Altos, both of Calif., assignors to Schlumberger Technologies, Inc., San Jose, Calif.

Filed Sep. 5, 1990, Ser. No. 577,986
Int. Cl.[5] G01R *31/28*
U.S. Cl. 324—158 R **19 Claims**



18. A test system for testing an integrated circuit, comprising:

a global sequencer including

a clock signal generator for generating a clock signal,

means for generating a time zero signal using said clock signal to indicate the start of a test sequence,

means for generating a period vernier value indicating an offset from said clock signal for the start of each of a plurality of test cycles; and

a plurality of local sequencers, each of said local sequencers being coupled to a separate lead of said integrated circuit, each local sequencer including

memory means for storing timing data indicating the time for each of a sequence of signal transitions and functional data indicating the state to be transitioned to for said sequence, wherein a bit of said functional data can apply to a plurality of signal transitions;

decoding means, having a first input coupled to receive said timing data and a second input coupled to receive said functional data, for providing an output indicating the state and transition time of events;

edge generator means, coupled to said decoding means and responsive to said clock signal, said period vernier value and said state and transition time of events for generating a programmable number of signal transitions in a signal for said lead within a test cycle defined by said period vernier value, such that said test cycle need not be a multiple of said clock signal and said local sequencers can have different numbers of transitions in any given test period, and

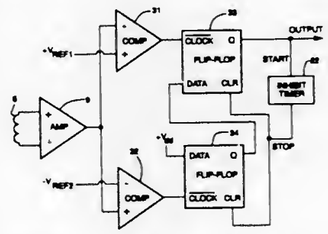
driver means, coupled to said edge generator means, for providing said signal transitions to said circuit.

5,212,444

DETECTION OF DAMPED SINE WAVES IN A MAGNESTOSTRICTIVE DISPLACEMENT TRANSDUCER USING PRETRIGGER AND DETECTION THRESHOLDS OF OPPOSITE POLARITY

Igor A. Abramovich, and Neil McKenna, both of Simsbury, Conn., assignors to Magnetek Controls, Clawson, Mich.

Filed Jul. 31, 1991, Ser. No. 738,613
Int. Cl.[5] G01B *7/14*; G01F *23/30*
U.S. Cl. 324—207.13 **26 Claims**



12. A magnetostrictive linear displacement detector comprising:

a magnetostrictive wire having opposite head and a foot ends defining a measurement interval therebetween;

a return wire having a foot end electrically coupled to said foot end of said magnetorestrictive wire and a head end;

a magnet disposed for displacement along the said magnetostrictive wire within said measurement interval, the position of said magnet within said measurement interval being the linear displacement detected;

an electrical excitation means electrically coupled to said head end of said magnetostrictive wire and said head end of said return wire for producing a predetermined electrical excitation through said magnetostrictive wire and said return wire;

a torsional motion sensor disposed proximate to said head end of said magnetostrictive wire for generating an electrical indication of torsional motion within said magnetostrictive wire; and

a displacement determination means connected to said electrical excitation means and said torsional motion sensor for detecting the position of said magnet within said measurement interval of said magnetostrictive wire from the interval of time between producing said predetermined electrical excitation and the detection of the torsional motion within said magnetostrictive wire induced by said electrical excitation traveling, said displacement determination means including

a first comparator having a non-inverting input connected to the input line, an inverting input connected to a predetermined negative threshold voltage, and an output generating a first output signal when the level of the signal on the input line falls below said predetermined negative threshold voltage;

a first latch circuit having a data input connected to a first predetermined positive voltage, a clock input connected to said output of said first comparator and an output for generating a first latch signal upon receipt of said first output signal;

a second comparator having an inverting input connected to the input line, a non-inverting input connected to a second predetermined positive threshold voltage, and an output generating a second output signal when the level of the signal on the input line rises above said second predetermined positive threshold voltage;

a second latch circuit having a data input connected to

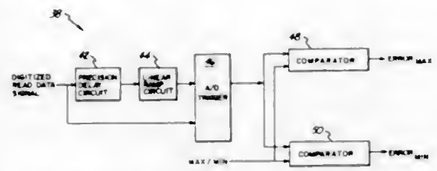
VOL 1150 ISS 3 MY 18 1993 UMI

said output of said first latch circuit, a clock input connected to said output of said second comparator and an output for generating a second latch signal if said data input receives said first latch signal upon receipt of said second output signal, said second latch signal indicating detection of the damped sine wave.

5,212,445
METHOD AND APPARATUS FOR DETECTION AND IDENTIFICATION OF FLAWS IN A MAGNETIC MEDIUM BY MEASURING THE WIDTH OF PULSES STORED ON THE MEDIUM

Forrest C. Meyer, Eden Prairie, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Feb. 13, 1991, Ser. No. 654,936
Int. Cl.[5] G01R *33/12*; **G04F** *11/12*; **G11B** *5/09, 15/14*
U.S. Cl. 324—212 **10 Claims**



1. An apparatus for measuring spacing between edges of successive data pulses in a magnetic storage system which includes a magnetic storage surface and a magnetic head for reading information from the magnetic storage surface of the magnetic storage system, the apparatus comprising:

a capacitor;

first means coupled to the capacitor for charging the capacitor;

means connected to the capacitor for initiating charging of the capacitor by the means for charging the capacitor in response to detecting an edge of a first data pulse from the magnetic head;

an analog-to-digital converter connected to the capacitor for converting a voltage level measured across the capacitor to a digital value in response to an edge of a second data pulse from the magnetic head, whereby the digital value is representative of a time period between the edge of the first data pulse and the edge of the second data pulse; and

comparator means connected to the analog-to-digital converter for comparing the digital value to predetermined limits and producing an error signal if the digital value falls outside the pedetermined limits.

5,212,446
MAGNETO-OPTICAL ELEMENT AND MAGNETIC FIELD MEASUREMENT APPARATUS

Nobuki Itoh, Hirakata, and Hirokazu Yamada, Sakai, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 24, 1992, Ser. No. 873,211
Claims priority, application Japan, Apr. 25, 1991, 3-095812
Int. Cl.[5] G01R *33/02*; **G02B** *5/30*; **G02F** *1/29, 1/31*
U.S. Cl. 324—244.1 **11 Claims**

1. A magneto-optical element made of a bismuth-substitution rare earth iron garnet crystal of a chemical formula

$$(Bi_XGd_YR_ZY_{3-X-Y-Z})(Fe_{5-W}Ga_W)O_{12},$$

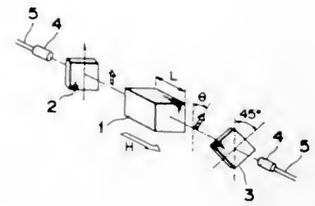
wherein R designates an element selected among rare earth elements, wherein

$$0.8 \leqq X \leqq 1.3,$$

$$0.1 \leqq Y \leqq 0.3,$$

$$0.1 \leqq Z \leqq 1.0$$

and

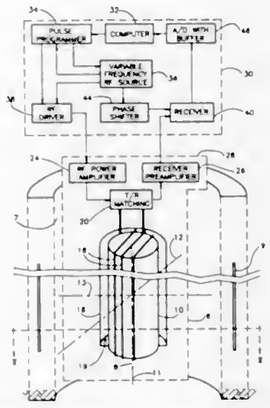


$$0.3 \leqq W \leqq 0.8$$

5,212,447
APPARATUS AND TECHNIQUE FOR NMR DIFFUSION MEASUREMENT

Zvi Paltiel, Ness Ziona, Israel, assignor to Numar Corporation, Malvern, Pa.

Filed Dec. 3, 1990, Ser. No. 624,975
Int. Cl.[5] G01R *33/20*
U.S. Cl. 324—300 **29 Claims**



1. A method for conducting borehole NMR measurements comprising the steps of:

providing a magnetic field and a magnetic field gradient of a predetermined magnitude at a desired location along a borehole, said magnetic field gradient being applied for a predetermined duration of time thereby allowing molecules in said location to diffuse;

carrying out at least one NMR measurement in the presence of the magnetic field gradient by applying an RF field of a preselected frequency, said NMR measurement containing at least one echo;

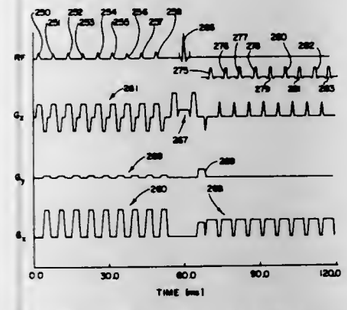
sensing a diffusion effect on the decay of at least the first of said at least one echo; and

determining therefrom a diffusion coefficient.

5,212,448
NMR PULSE SEQUENCE WITH BURST RF EXCITATION PULSES HAVING SEPARATELY CONTROLLED PHASE

Patrick L. Le Roux, Brookfield, Wis., and John M. Pauly, Menlo Park, Calif., assignors to General Electric Company, Milwaukee, Wis. and The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Filed Aug. 9, 1991, Ser. No. 743,547
Int. Cl.[5] G01V *3/00*
U.S. Cl. 324—309 **6 Claims**



1. In an NMR system for producing images from a set of separately acquired NMR signals, a burst excitation pulse sequence for acquiring a plurality of separate NMR signals which comprises:

producing an RF excitation burst comprised of a series of separate RF excitation pulses each having a separately controlled RF phase;

producing a readout magnetic field gradient during the RF excitation burst;

producing a series of separate NMR signals, each corresponding to one of the RF excitation pulses;

producing a readout magnetic field gradient during the production of the NMR signals;

separately acquiring each NMR signal in the series;

adjusting the phase of each acquired NMR signal by an amount determined by the phase of its corresponding RF excitation pulse; and

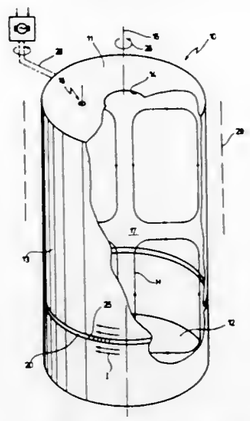
reconstructing an image from the adjusted NMR signals.

5,212,449
RESONATOR FOR ELECTRON SPIN RESONANCE SPECTROSCOPY

Ekkehard Gentsch, Karlsruhe, and Dieter Schmalbein, Marxzell-Burbach, both of Fed. Rep. of Germany, assignors to Bruker Analytische Messtechnik GmbH, Fed. Rep. of Germany

Filed Mar. 6, 1992, Ser. No. 847,899
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1991, 4107630
Int. Cl.[5] G01R *33/20*
U.S. Cl. 324—316 **6 Claims**

1. Resonator for electron spin resonance spectroscopy having walls being arranged in the form of a cylindrical jacket defining a cavity of cylindrical shape, said cavity being delimited by two radial end walls, the distance of which defining the total length L of the resonator, wherein in said cavity a predetermined oscillation mode of a preselectable frequency in the Q band of the type TE_{01n}, with n being greater than one, is excited, and wherein said walls are provided with an opening for admitting radiation said opening being configured as an annular slot extending substantially all around the cylindrical jacket, and being arranged in a radial plane at a distance of mL/4 from either one of said two radial end walls delimiting

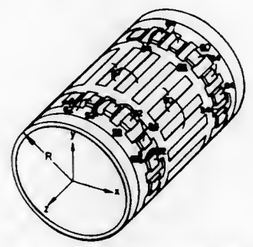


said cavity, with m being an odd number and greater than or equal to one.

5,212,450
RADIO FREQUENCY VOLUME RESONATOR FOR NUCLEAR MAGNETIC RESONANCE

Joseph Murphy-Boesch, Lafayette Hills; Ravi Srinivasan, Philadelphia, and Lucas Carvajal, North Hills, all of Pa., assignors to Fox Chase Cancer Center, Philadelphia, Pa.

Filed Oct. 25, 1990, Ser. No. 603,947
Int. Cl.[5] G01R *33/20*
U.S. Cl. 324—322 **67 Claims**



1. An RF resonator for use in NMR comprising:

four coaxial high frequency ring current paths distributed along the axis thereby defined, ring current paths at each end of the resonator being outer ring current paths and other ring current paths being inner ring current paths;

at least four high frequency current paths interconnecting each pair of at least three pairs or ring current paths, adjacent interconnecting paths forming current loops with connecting segments or ring current paths, loops between and including an outer ring current path and an inner ring current path defining an outer structure and loops between and including the inner ring current paths comprising an inner structure; and

at least one discrete capacitor interposed in and interrupting each current loop in each outer structure, whereby in combination with the inductance in each loop, including inherent inductance in conductors of the current paths, each loop in the outer structure is resonant, but such that each loop in the inner structure is not interrupted by a

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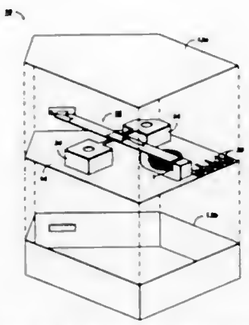
capacitor so that no loop in the inner structure alone is resonant.

5,212,451

SINGLE BALANCED BEAM ELECTROSTATIC VOLTMETER MODULATOR

Alan J. Werner, Jr., Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 9, 1992, Ser. No. 848,563
Int. Cl.[5] G01R *29/12*
U.S. Cl. 324—458 **13 Claims**



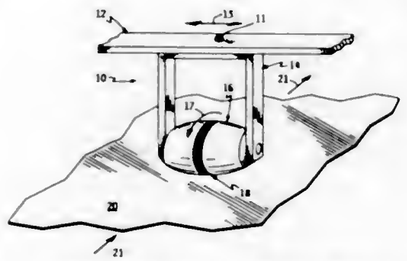
1. An apparatus for measuring the magnitude of an electrostatic field, comprising:
- a balanced beam vibratory element;
- means for resiliently supporting said balanced beam vibratory element;
- drive means for vibrating said balanced beam vibratory element; and
- an electrode, operatively associated with said balanced beam vibratory element, for sensing a capacitive coupling relationship with the electrostatic field and thereby producing a signal indicative of the magnitude of the electrostatic field during modulation of the coupling relationship.

5,212,452

ROTATABLE CAPACITANCE SENSOR

Daniel W. Mayer, St. Paul, Minn., and Roger C. Oestreich, River Falls, Wis., assignors to Modern Controls, Inc., Minneapolis, Minn.

Filed Sep. 24, 1991, Ser. No. 764,774
Int. Cl.[5] G01R *27/00*
U.S. Cl. 324—662 **6 Claims**



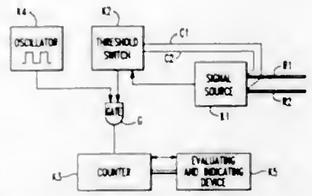
1. A rotatable sensor adapted for positioning against a moving film material, comprising:
- a) a generally cylindrical body aligned along a first axis;
- b) a pair of bearing assemblies in said body, said assemblies positioned at respective opposite ends of said body along said first axis;
- c) a plurality of spaced apart conductive plates in said body between said bearing assemblies, alternate ones of said plates being commonly connected to a first conductor and the remainder of said plates being commonly connected to a second conductor; edges of said conductive plates extending to the exterior surface of said body;
- d) a dielectric insulator material interleaved between said spaced apart conductive plates, thereby forming a predetermined capacitance between alternate ones of said plates;
- e) means for connecting said first conductor to one of said bearing assemblies and means for connecting said second conductor to the other of said bearing assemblies;
- f) carriage means adjacent respective ends of said body, for attaching to said bearing assemblies; whereby to provide freely rotatable movement of said body about said first axis; and
- g) means connected to said bearing assemblies for applying an electrical signal thereto and for measuring changes in said signal caused by capacitance changes between said plates.

5,212,453

PULSE ECHO METHOD AND APPARATUS FOR MEASURING THE MOISTURE CONTENT OF MATERIALS

Kurt Koehler, Ettlingen, and Robin Fundinger, Karlsbad, both of Fed. Rep. of Germany, assignors to IMKO Micromodultechnik GmbH, Ettlingen, Fed. Rep. of Germany

Filed Aug. 1, 1991, Ser. No. 739,226
Claims priority, application Fed. Rep. of Germany, Aug. 3, 1990, 4024648
Int. Cl.[5] G01R *27/02. 31/11*
U.S. Cl. 324—664 **17 Claims**



1. In a method for determining the moisture content of a material by measuring the dielectric constant of the material which surrounds, and thereby forms the dielectric of, a measuring conductor utilizing the time lapse between the application of a pulsed electrical signal to the measuring conductor and the return of the echo of the signal from the end of the measuring conductor, the improvement wherein said electrical signal has a pulse duration of a predetermined length greater than the longest time lapse between the start of the electrical signal and return of the echo of the started signal and determining the time lapse by measuring the time delay between application of the electrical signal to the measuring conductor and return of the echo superimposed on said electrical signal as an indication of moisture content of the material.

5,212,454

METHOD AND APPARATUS FOR SELECTING AND MEASURING A CAPACITANCE FROM A PLURALITY OF INTERCONNECTED CAPACITANCES

Robert J. Proebsting, Los Altos, Calif., assignor to Intergraph Corporation, Inc., Huntsville, Ala.

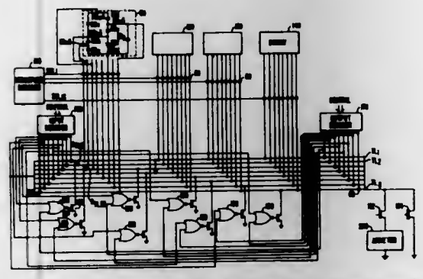
Continuation of Ser. No. 650,157, Feb. 4, 1991. This application Mar. 20, 1992, Ser. No. 855,981
Int. Cl.[5] G01R *27/26*
U.S. Cl. 324—678 **14 Claims**

1. An apparatus for coupling signals to a plurality of capacitances comprising:

a plurality of capacitances, each capacitance having first and second terminals, each first and second terminal of each capacitance being coupled to one of the first or second terminals of another one of the plurality of capacitances at a node so that the plurality of capacitances are interconnected through a plurality of nodes;

a first multiplexer having an input terminal and a plurality of output terminals, each output terminal being coupled to one of the plurality of nodes;

wherein the first multiplexer includes first selection means for enabling the communication of a signal from the input terminal of the first multiplexer to the node coupled to the first terminal of a selected one of the plurality of capacitances;



a second multiplexer having a plurality of input terminals and an output terminal, each input terminal being coupled to one of the plurality of nodes;

wherein the second multiplexer includes second selection means for enabling the communication of current from the node coupled to the second terminal of the selected capacitance to the output terminal of the second multiplexer; and

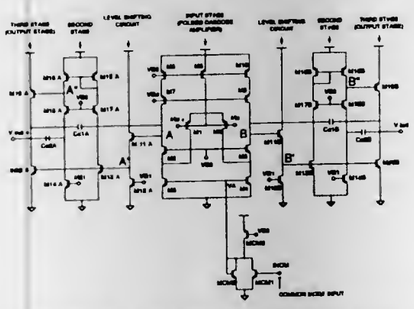
ground means, coupled to the plurality of nodes, for coupling all of the plurality of nodes to an electrical ground other than the node coupled to the first terminal of the selected capacitance and the node coupled to the second terminal of the selected capacitance.

5,212,455

DIFFERENTIAL OUTPUT, POWER, CMOS, OPERATIONAL AMPLIFIER

Sergio Pernici, Bergamo, and Germano Nicollini, Piacenza, both of Italy, assignors to SGS-Thomson Microelectronics s.r.l., Milan, Italy

Filed Dec. 19, 1991, Ser. No. 811,153
Claims priority, application Italy, Dec. 21, 1990, 83652 A/90
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—253 **10 Claims**



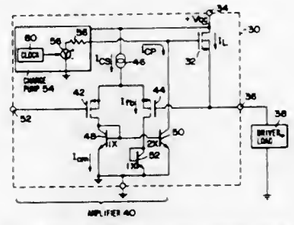
1. Power CMOS operational amplifier with a differential output having an intrinsically stable current absorption under rest conditions, comprises two symmetric branches, each branch comprises:
- a first input inverting stage having a folded cascode configuration, capable of producing on a respective output node a voltage signal replica of a voltage applied on a respective input terminal of the differential amplifier;
- a level shifting circuit, having an input coupled to said output node of the first stage and en output node and capable of producing on said output node a replica of the voltage signal present at its input, shifted in level by a predetermined amount;
- a second noninverting amplifying stage comprising a current mirror having an input branch which comprises at least one transistor, whose gate constitutes an input and is connected to the output of said level shifting circuit, and an output branch which comprises at least a transistor whose gate is driven by a constant voltage, and having a drain connected to an output node of the stage, and producing on said output node an amplified voltage replica of the output voltage produced by said level shifting circuit;
- a third inverting power output stage formed by a p-channel transistor and by an n-channel transistor connected in a common source configuration between the supply rails of the circuit, the gate of the p-channel transistor being driven by the output signal of said second noninverting amplifying stage and the gate of the n-channel transistor being driven by the output signal produced by said level shifting circuit, said two transistors having their drains connected in common to a respective differential output terminal of the amplifier;
- a frequency compensating network formed by a first capacitor connected between said differential output terminal and said output node of said first input inverting stage and by a second capacitor connected between said differential output terminal and a source of said transistor of the output branch of said second noninverting amplifying stage; and
- a common mode control feedback network.

5,212,456

WIDE-DYNAMIC-RANGE AMPLIFIER WITH A CHARGE-PUMP LOAD AND ENERGIZING CIRCUIT

Thomas J. Kovalcik, Barrington, and Paul W. Latham, II, Durham, both of N.H., assignors to Allegro Microsystems, Inc., Worcester, Mass.

Filed Sep. 3, 1991, Ser. No. 753,483
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—261 **13 Claims**



1. A linear voltage amplifier circuit comprising:
- a DC voltage supply conductor;
- a final amplifier stage having a high impedance-output;
- an oscillator for producing signal pulses;
- a charge pump circuit means connected to said DC voltage supply conductor for being energized therefrom, having an input connected to said oscillator, and having an output with a substantial source impedance,
- for producing, at said charge-pump-means output under open circuit conditions, voltage pulses at the frequency of said oscillator signal pulses, said voltage pulses having

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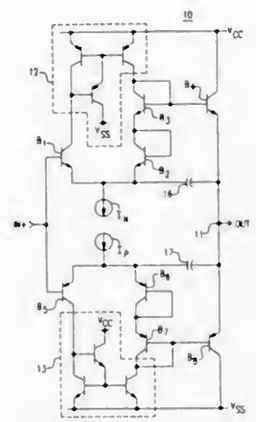
peak values substantially greater than the voltage applied to said DC voltage supply conductor, said high impedance-output of said final amplifier stage being connected to said charge-pump-means output, said substantial source impedance of said output of said charge pump circuit means serving as a load to said final-amplifier-stage transistor and the high voltage pulses of said charge-pump means serving as a high voltage energizing source to said amplifier transistor.

5,212,457

INPUT BUFFER WITH REDUCED OFFSET FOR OPERATIONAL AMPLIFIERS OR THE LIKE

Douglas R. Frey, Hanover Township, Northampton County, and John W. Pierdomenico, West Cocalico Township, Lancaster County, both of Pa., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed May 19, 1992, Ser. No. 886,001
Int. Cl.[5] H03F *3/30*
U.S. Cl. 330—263 **9 Claims**



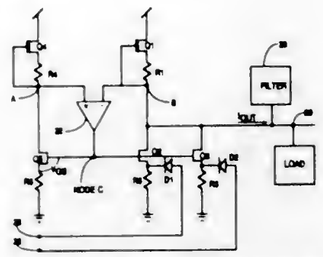
1. In an integrated circuit, an amplifier having an input and an input/output terminal, characterized by:
- a first transistor, having a base, emitter, and a collector, the base coupling to the input of the amplifier;
- a second transistor, having a base, emitter, and a collector, connected as a diode and having two terminals, a first one of the two terminals coupling to the emitter of the first transistor;
- a third transistor, having a base, emitter, and a collector, connected as a diode and having two terminals, a first one of the two terminals coupling to a second one of the two terminals of the diode-connected second transistor;
- a fourth transistor, having a base, emitter, and a collector, the base connecting to a second one of the two terminals of the diode-connected third transistor, and the emitter connected to the input/output terminal;
- a current source coupling to the emitter of the first transistor; and
- a current mirror having an input and an output, the input coupling to the collector of the first transistor and the output coupling to the base of the fourth transistor.

5,212,458

CURRENT MIRROR COMPENSATION CIRCUIT

Mark E. Fitzpatrick, and Robert C. Bard, both of San Jose, Calif., assignors to TriQuint Semiconductor, Inc., Santa Clara, Calif.

Filed Sep. 23, 1991, Ser. No. 764,020
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—288 **8 Claims**



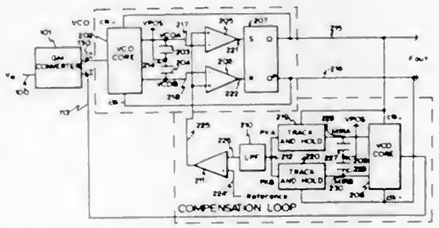
1. A compensation circuit connected in a current matching circuit, said current matching circuit including a current mirror programming portion, a current mirror output portion, and a current load output portion, said compensation circuit comprising:
- a means for comparing a voltage at a first node of said current load output portion with a corresponding second node of said current mirror programming portion;
- said means for comparing having an output terminal coupled to said current mirror programming portion and said current mirror output portion to control a first current through said current mirror output portion to match a second current through said current load output portion.

5,212,459

LINEARIZED AND DELAY COMPENSATED ALL CMOS VCO

Shunsaku Ueda, Carlsbad; Kwai-Kwong Lam, Margarita, and Craig Robertson, Mountain View, all of Calif., assignors to Silicon Systems, Inc., Tustin, Calif.

Continuation of Ser. No. 792,222, Nov. 12, 1991, Pat. No. 5,155,452. This application Oct. 13, 1992, Ser. No. 960,534
Int. Cl.[5] H03K *3/03*
U.S. Cl. 331—111 **1 Claim**



1. A method of delay compensating the generation of a signal having two states, said method comprising the steps of:
- generating a first ramping signal responsive to an input signal, said ramping signal having an actual amplitude range and an ideal amplitude range;
- comparing said first ramping signal to a threshold signal for determining a threshold crossing of said ramping signal with said threshold signal;
- producing an output signal having at least two states, said output signal changing states dependent on said threshold crossing;

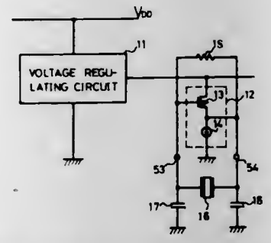
- generating a second ramping signal responsive to said output signal, said second ramping signal mirroring said first ramping signal;
- determining an amplitude level of said second ramping signal when said output signal changes state, said amplitude level of said second ramping signal corresponding to a delay between said first ramping signal crossing said threshold signal and a change in said states of said output signal; and
- adding said amplitude level of said second ramping signal to a reference signal for modifying said threshold signal, said threshold signal minimizing a difference between said actual amplitude range and said ideal amplitude range of said first ramping signal.

5,212,460

CRYSTAL OSCILLATION CIRCUIT WITH VOLTAGE REGULATING CIRCUIT

Akio Tamagawa, Tokyo, Japan, assignor to NEC Coporation, Tokyo, Japan

Filed Jan. 10, 1992, Ser. No. 818,624
Claims priority, application Japan, Jan. 10, 1991, 3-1329
Int. Cl.[5] H03B *5/36*
U.S. Cl. 331—116 FE **4 Claims**



1. A crystal oscillation circuit comprising:
- a voltage regulating circuit (**11**) for outputting a predetermined regulated output voltage;
- a constant-current load type inverter circuit (**12**) having a constant-current source (**14**) and a P-channel MOS field effect transistor (**13**) having a source electrode connected to an output terminal of said voltage regulating circuit so as to receive said predetermined regulated output voltage;
- a crystal resonator (**16**) connected between an input and an output terminal (**53,54**) of said inverter circuit; and
- a feedback circuit connected between said input and output terminals of said inverter circuit and having a resistor (**15**) and capacitors (**17,18**).

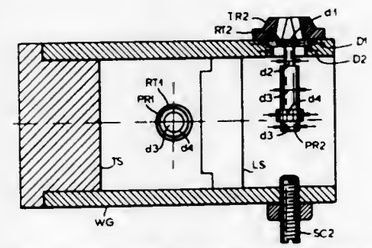
5,212,461

ORTHOMODE TRANSDUCER BETWEEN A CIRCULAR WAVEGUIDE AND A COAXIAL CABLE

Antonello Aicardi, Imperia, and Piercarlo Massaglia, Torino, both of Italy, assignors to CSELT-Centro Studi E Laboratori Telecomunicazioni S.P.A., Torino, Italy

Filed May 9, 1991, Ser. No. 697,770
Claims priority, application Italy, May 22, 1990, 67371 A/90
Int. Cl.[5] H01P *1/16, 5/12*
U.S. Cl. 333—125 **3 Claims**

1. An orthomode transducer, comprising:
- a section of a circular waveguide having a front end, a rear end, and a cylindrical wall therebetween, said wall provided with circular holes aligned along respective axes lying in two mutually perpendicular planes, each of said holes having an outer portion with a diameter which is larger than a diameter of an inner portion of the respective hole;
- a respective dielectric washer disposed in each of the outer portions of corresponding said holes;
- a respective probe extending along each of said axes into an interior of said waveguide through a respective one of the holes and supported by the respective washer, one of said probes being located close to said front end and the other of said probes being located further from said front end than said one of said probes, said probes each comprising:
- a first section with a diameter smaller than the remainder of the probe which is disposed in the respective washer,
- a second section adjacent to and connected with said first section and inwardly thereof, said second section being of a diameter larger than the diameter of said first section and defining with said inner portion of the respective hole a given coaxial impedance,
- a third section inwardly of and adjacent to and connected with said second section and of a diameter larger than the diameter of said second section,
- a fourth section inwardly of and adjacent to and connected with said third section and of a diameter greater than the diameter of said third section, and
- a final section inwardly of and adjacent to and connected with said fourth section and of a diameter equal to the diameter of said third section;
- a respective tuning screw extending through said wall diametrically opposite each of said probes;
- a tuning plate lying in said plane of the axis of said one of said probes close to said front end, axially spaced from said one of said probes and having a side facing away from said one of said probes;
- a circular disk for tuning of said other probe closing said rear end of said waveguide; and
- respective connectors on said waveguide for said probes and coaxial with said holes, said connectors having constant-impedance transitions which can be connected to coaxial couplings with said impedance.



5,212,462

STRIPLINE MICROWAVE MODULE HAVING MEANS FOR CONTACTLESS COUPLING BETWEEN SIGNAL LINES ON DIFFERENT PLANAR LEVELS

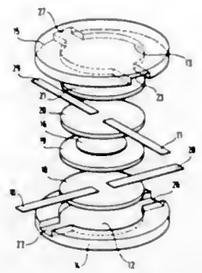
Michel Gomez-Henry, L'Union; Michel Salvan, Pibrac; Michel Lairle, Villeneuve Tolosane, and Gérard Raguenet, Eaunes, all of France, assignors to Alcatel Espace, Courbevoie, France

Filed Jul. 3, 1991, Ser. No. 725,101
Claims priority, application France, Jul. 4, 1990, 90 08491
Int. Cl.[5] H01P *5/12*
U.S. Cl. 333—136 **13 Claims**

7. A stripline microwave module comprising:
- at least one first conductive line situated in a first plane;
- a coupling opening situated in a second plane;
- at least one second conductive line situated in a third plane, said first, said second and said third planes being spaced from and parallel to each other; said coupling opening enabling microwave contactless coupling between said at least one first line and said at at least one second line; said at least one first line and said at least one second line being DC isolated from one another; said module further comprising a set of two cavities, said two cavities being of circular cylindrical geometry and being defined by electrically conducting right cylindrical surfaces; said two right

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cylindrical surfaces being respectively disposed interiorly within two blocks of electrically conducting material; said circular right cylindrical surfaces having dimensions of internal diameter and height, said two cavities being separated from each other by a flat electrically conducting part situated in said second plane; said flat conducting part



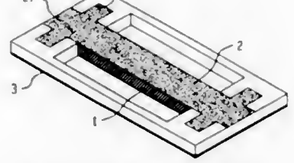
having a circular geometry and corresponding dimensions of diameter and at least a partial circumference; and said coupling opening being provided between said two cavities by having said diameter of said flat conducting part less than said internal diameter of said circular cylindrical cavities.

5,212,463

PLANAR FERRO-ELECTRIC PHASE SHIFTER

Richard W. Babbitt, Fair Haven; William C. Drach, Trenton, and Thomas E. Koscica, Clark, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 22, 1992, Ser. No. 916,741
Int. Cl.[5] H01P *1/18*
U.S. Cl. 333—161 10 Claims



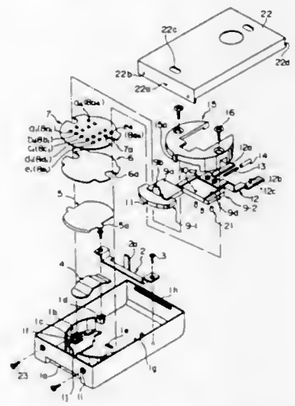
1. A ferro-electric phase shifter comprising:
a conductor line;
a ground plane;
a means for applying a DC current between said conductor line and said ground plane;
a ferro-electric element of a material possessing a high dielectric constant that can be varied by applying a DC voltage, said ferro-electric element being interposed between said conductor line and said ground plane to form a microstrip circuit, and said ferro-electric element having an entry point and exit point;
a means integral to said ground plane for blocking DC voltage from traveling through said conductor line, said ferro-electric element, and said ground plane;
an impedance matching circuit functionally interposed between said conductor line and said entry point of said ferro-electric element, wherein said impedance matching circuit reduces the signal reflection of a microwave signal traveling through the conductor line and into said ferro-electric element by matching the impedance of said microwave signal to that of said ferro-electric element; and
a high-impedance, low pass filter coupled to said ground plane wherein said filter prevents microwave energy from entering the DC voltage applying means.

5,212,464

MAGNETIC CARD SWITCH

Nobuyo Sakai, 27-3, Komagome 6-chome, Toshima-ku, Tokyo, Japan

PCT No. PCT/JP90/01012, § 371 Date Feb. 7, 1992, § 102(e) Date Feb. 7, 1992, PCT Pub. No. WO91/02368, PCT Pub. Date Feb. 21, 1991
PCT Filed Aug. 8, 1990, Ser. No. 829,056
Claims priority, application Japan, Aug. 10, 1989, 1-205653
Int. Cl.[5] H01M *9/00*
U.S. Cl. 335—207 13 Claims



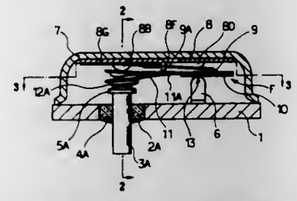
1. A magnetic card switch comprising:
casing means attached to a wall of a building or the like;
a slider accommodated in said casing means and slidable in a predetermined direction;
a plurality of magnet lock pins accommodated in a plurality of holes forming a predetermined code, said holes being provided in said slider;
spring means for biasing said slider forwards;
slider lock means for properly locking said slider in either a forward slide position or a backward slide position, said slider lock means being fixedly disposed in said casing along said slider, said slider lock means having a plurality of holes forming a predetermined code, said holes receiving one ends of said magnet lock pins; and
a switch disposed to correspond to said slider;
wherein said slider is normally in a non-slidable, locked state at said forward slide position with one end of at least one predetermined lock pin being received in said lock means;
when a first magnetic card is inserted into said casing means, said lock pin of said slider moves in correspondence with a magnetic code of said card to unlock said slider, so that said slider moves to said backward slide position to change said switch from an "off" to an "on" or from an "on" to an "off" state; and
when said slider reaches the backward slide position, the lock pin of said slider moves to lock it again, thereby holding said slider in the backward slide position, and thus holding said switch in an "on" or "off" state even after said first magnetic card has been withdrawn.

5,212,465

THREE-PHASE THERMAL PROTECTOR

Yasukazu Mizutani, Nagoya; Isao Higashikata, Owariasahi, and Hideki Koseki, Aichi, all of Japan, assignors to Ubukata Industries Co., Ltd., Nagoya, Japan

Filed Aug. 12, 1992, Ser. No. 928,284
Int. Cl.[5] H01H *37/12, 37/54, 61/08*
U.S. Cl. 337—368 10 Claims



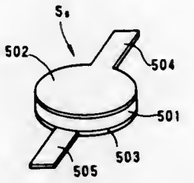
1. A three-phase thermal protector comprising:
a) a hermetic receptacle comprising a cover formed of a metallic material and having an opening the width of which is larger than the depth of the cover, and a header plate hermetically secured to an opening edge of the cover and having two through-apertures;
b) two electrically conductive terminal pins inserted through the respective through-apertures of the header plate, each terminal pin being hermetically secured in each through-aperture by an electrically insulating material filling a space between the peripheral wall surface of each aperture and the outer periphery of each terminal pin, each terminal pin having an end placed in the interior of the hermetic receptacle and a fixed contact electrically conductively connected to the end;
c) an operating temperature calibrating plate formed of a metallic material and disposed in the receptacle, the operating temperature calibrating plate having an end side secured to the cover of the receptacle by way of welding and a suitable portion more bendable than the other portion thereof;
d) a thermally-responsive-element support having one of two ends secured to the operating temperature calibrating plate and a cutout portion at a suitable portion thereof, the thermally-responsive-element support being elastically deformable easily in a direction intersecting perpendicularly to a plane thereof;
e) a thermally responsive element having a supported end secured to the other end of the thermally-responsive-element support and a generally central shallow dish-shaped portion reversing its curvature with a snap action at predetermined temperatures, the thermally responsive element carrying two movable contacts on respective portions thereof substantially symmetrical about a central line passing through the supported end so that the movable contacts are operatively associated with the respective fixed contacts;
f) a protrusion fixedly disposed on the header plate so as to be positioned between the thermally responsive element and the header plate, the protrusion having a distal end in contact with a portion of an underside of the thermally responsive element away from the central portion thereof toward the supported end, the portion of the thermally responsive element in contact with the distal end of the protrusion acting as a fulcrum; and
g) a push projection provided on the operating temperature calibrating plate so that a distal end extends through the cutout portion of the thermally-responsive-element support, the distal end pushing a convex side of the thermally responsive element at a room temperature, in the vicinity of a portion thereof on which the center line passes through the supported end such that a pushing force of the push projection is dispersed equally to the distal end of the protrusion and the fixed contacts, the push projection being moved with movement of a free end of the operating temperature calibrating plate upon displacement applied to the cover of the receptacle for calibration of an operating temperature.

5,212,466

PTC THERMISTOR AND MANUFACTURING METHOD FOR THE SAME

Makoto Yamada, Tokyo; Setsuya Isshiki, Funabashi; Yukihiko Kurosawa; Masakazu Kuroda, both of Chiba, and Mori Hayashi, Kasukabe, all of Japan, assignors to Fujikura Ltd., Tokyo, Japan

Filed May 18, 1990, Ser. No. 524,920
Claims priority, application Japan, May 18, 1989, 1-125516; Jun. 6, 1989, 1-143916; Apr. 3, 1990, 2-88462
Int. Cl.[5] H01C *7/10*
U.S. Cl. 338—22 R 13 Claims



1. A PTC thermistor manufactured by a method including the steps of:
(a) preparing a substantially flat plate shaped section of PTC composition demonstrating positive temperature coefficient behavior and having two contact surfaces;
(b) preparing a pair of electrode plates each having a contact surface of which the surface area is greater than the corresponding contact surface of said section of PTC composition, said contact surface having a lead portion and a non-lead portion; and
(c) sandwiching said section of PTC composition between said non-lead portions of said contact surfaces of said pair of electrode plates so that the non-lead portions of the contact surface of each of said pair of electrode plates comes to be bonded to a respective contact surface of said section of PTC composition and so that at least one lead portion of one contact surface of said electrode plates is caused to extend beyond said section of PTC composition and to provide an exposed planar conductive lead surface which extends beyond said section of PTC composition.

5,212,467

OBJECT DETECTING APPARATUS FOR USE IN AUTOMOBILE

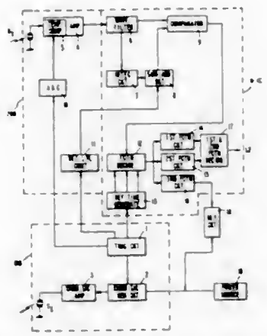
Byong-Yong Park, San 193-4, Seocho-dong, Seocho-ku, Seoul, Rep. of Korea

Filed Mar. 27, 1991, Ser. No. 675,850
Claims priority, application Rep. of Korea, Mar. 28, 1990, 1990-4188
Int. Cl.[5] B60Q *1/00*; G01S *15/00*
U.S. Cl. 340—435 9 Claims

8. An object detecting circuit, comprising:
ultrasonic transmitting means for radiating ultrasonic acoustic energy, receiving means for receiving reflected ultrasonic acoustic energy and control means for supplying a composite alerting signal in response to the received reflected ultrasonic energy, said ultrasonic transmitting means including
(i) trigger means for supplying a trigger signal,
(ii) oscillator means responsive to said trigger signal for supplying an excitation signal,
(iii) emitter means responsive to said excitation signal for radiating the ultrasonic acoustic energy;

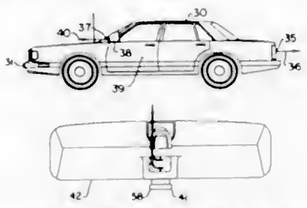
VOL 1150 ISS 3 MY 18 1993 UMI

said receiving means including
(i) ultrasonic transducer means responsive to the reflected ultrasonic acoustic energy for supplying a detected ultrasonic signal,
(ii) temperature compensating means responsive to an ambient temperature for supplying a temperature compensation signal,
(iii) detector means responsive to said detected ultrasonic signal and said temperature compensation signal for supplying an amplified detected signal; and
said control means including
(i) integrating means responsive to said amplified detected signal for supplying a time integrated signal,
(ii) comparator means responsive to said amplified detected signal and said time integrated signal for supplying a first logic signal,



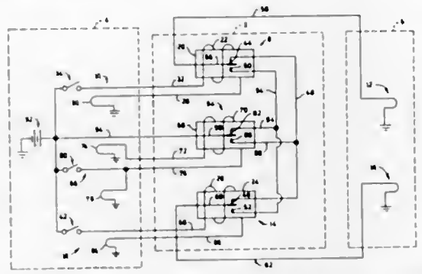
(iii) reference time generating means responsive to said trigger signal for supplying first and second time reference signals,
(iv) function control means responsive to said first and second time reference signals and to said first logic signal for supplying first and second function signals,
(v) first function means responsive to said first function signal for supplying a first alerting signal,
(vi) a second function means responsive to said second function signal for supplying a second alerting signal, and
(vii) function deciding means responsive to said first and second altering signals for supplying the composite alerting signal.

5,212,468
VEHICLE SIGNALLING SYSTEM
Robert Adell, 31800 S. Brandingham, Franklin, Mich. 48025
Filed May 26, 1992, Ser. No. 888,516
Int. Cl.[5] B60Q *1/26*
U.S. Cl. 340—469 **20 Claims**



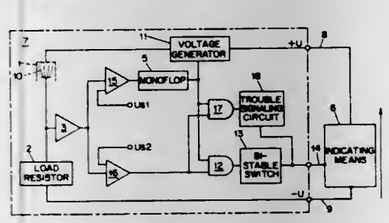
1. A vehicle signal system for alerting a driver to dim his vehicle's bright headlights, comprising: at least one signal light mounted on a first vehicle for transmitting a flashing light beam to a driver operating a second vehicle; an electrical circuit for controlling the operation of said signalling light; an inside day/night rear view mirror mounted inside of said first vehicle, said mirror being located near the eye level of the driver of said first vehicle and selectively switchable between day and night positions; and a single multi-function control mounted in said day/night mirror for turning said signalling light "on" and "off" and for switching said inside day/night mirror between day and night positions.

5,212,469
TRAILER LAMP CONTROLLER
Frank J. Avellino, Russell, Pa., assignor to GTE Products Corporation, Danvers, Mass.
Filed May 29, 1990, Ser. No. 529,846
Int. Cl.[5] B60Q *1/34*; G08B *21/00*
U.S. Cl. 340—475 **17 Claims**



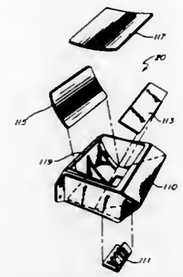
1. A trailer lamp controller for use with a vehicle assembly including a towing vehicle and a towed vehicle, comprising:
a first sensing means electrically connected to a first towing vehicle turn lamp and to a first towed vehicle lamp for sensing one of current and voltage when said first towing vehicle turn lamp is on and then responsively turning said first towed vehicle lamp on;
a second sensing means electrically connected to a second towing vehicle turn lamp and to a second towed vehicle lamp for sensing one of current and voltage when said second towing vehicle turn lamp is on and then responsively turning said second towed vehicle lamp on; said first sensing means including a first switch electrically connected to said first towed vehicle lamp, and a first switching means electrically connected to said first towing vehicle turn lamp for switching said first switch when said first towing vehicle turn lamp is on and wherein said second sensing means includes a second switch electrically connected to said second towed vehicle lamp, and a second switching means electrically connected to said second towing vehicle turn lamp for switching said second switch when said second towing vehicle turn lamp is on; said first switch being a first reed switch and said first switching means being a first coil which extends around said first reed switch, said first coil having a first lead electrically connected to a first towing vehicle turn lamp and a second lead electrically connected to a first towing vehicle turn lamp switch, and further wherein said second switch is a second reed switch and said second switching means is a second coil which extends around said second reed switch, said second coil having a first lead electrically connected to a second towing vehicle turn lamp and a second lead electrically connected to a second towing vehicle turn lamp switch; and said first reed switch including a first contact electrically connected to a first contact of said second reed switch, and a second contact electrically connected to a second contact of said second reed switch, and further wherein said first reed switch includes a first reed electrically connected to said first towed vehicle lamp and moveable for selective engagement between said first contact of said first reed switch and said second reed switch includes a secood reed electrically connected to said second towed vehicle lamp and moveable for selective engagement between said first contact of said second reed switch and said second contact of said second reed switch.

5,212,470
SUPERVISED FIRE ALARM SYSTEM
Marc Thuillard, Mannedorf, Switzerland, assignor to Cerberus Ltd., Mannedorf, Switzerland
Continuation of Ser. No. 582,620, Sep. 14, 1990, abandoned. This application Aug. 26, 1991, Ser. No. 749,598
Claims priority, application Switzerland, Aug. 13, 1990, 3372/89
Int. Cl.[5] G08B *17/10*
U.S. Cl. 340—629 **12 Claims**



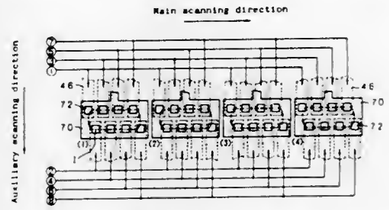
1. A fire alarm system comprising:
(a) control and indicating means (6); and
(b) a plurality of ionization smoke detectors (7), being connected through signal lines (8, 9, 14) with said control and indicating means (6), each ionization smoke detector (7) comprising:
(i) an ionization measurement chamber (1) for producing an electrical signal having a characteristic indicative of a monitored condition,
(ii) a radioactive source (10) to ionize the air in the ionization measurement chamber (1), and
(iii) an evaluation circuit comprising:
(A) an amplifier element (3) to amplify the electrical signal from the ionization measurement chamber (1), and
(B) threshold detection means (15, 16) for comparing the electrical signal characteristic to minimum and maximum limits and for producing an alarm or trouble signal,
(C) electronic means (5, 11) adapted to change the supply voltage (U) of said ionization smoke detector (7) to a first supply voltage and an increased second supply voltage, and
(D) electronic control means for signal evaluation adapted to compare the corresponding two currents measured at said two different supply voltages with predetermined current values and to transmit an alarm signal to said control and indicating means (6) only if variations from the predetermined current values of the actual output signal of the amplifier element (3) caused by the increased second supply voltage demonstrates that there has been no significant reduction of the saturated current (Is) of said ionization measurement chamber (1) after the supply voltage has been increased to said second supply voltage.

5,212,471
POLARIZED HEADS UP DISPLAY
Mark E. McDonald, Playa del Rey, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Continuation of Ser. No. 428,143, Oct. 27, 1989, abandoned.
This application Mar. 25, 1991, Ser. No. 674,809
The portion of the term of this patent subsequent to Nov. 27, 2007, has been disclaimed.
Int. Cl.[5] G09G *3/02*
U.S. Cl. 340—705 **9 Claims**



1. A head-up display for a vehicle, comprising:
a substantially transparent substrate having first and second opposing air interfaces for partially reflecting imaging illumination at a beamsplitter region on a selected one of said air interfaces to produce a primary virtual image viewable by the operator of the vehicle;
image source means for directing linearly polarized imaging illumination to said beam-splitter region at an angle which enhances reflection of a first predetermined linear polarization and transmission of a second linear polarization, the polarization state of said imaging illumination depending on the air interface selected to produce the primary image occurs; and
means interposed between said first and second opposing air interfaces and adjacent said beamsplitter region for rotating the linear polarization of imaging illumination transmitted therethrough.

5,212,472
GAS DISCHARGE TYPE LIGHT EMISSION APPARATUS AND METHOD OF DRIVING THE SAME
Atsushi Takahashi; Hiroshi Furuya; Hideo Sawai; Mio Chiba; Yukio Nakamura; Masao Ikehata; Hiroshi Tohyama; Hiromi Takahashi; Yoshitaka Terao, and Yuuji Terouchi, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Sep. 28, 1989, Ser. No. 413,678
Claims priority, application Japan, Oct. 3, 1988, 63-247443; Nov. 21, 1988, 63-151555; Nov. 21, 1988, 63-151556
Int. Cl.[5] G09G *3/22*
U.S. Cl. 340—771 **17 Claims**



1. A method of driving a gas discharge type light emission apparatus which includes a plurality of electrode blocks ar-

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ranged end-to-end in a line direction, the electrode blocks each including an anode and a plurality of cathodes, the plurality of cathodes confronting the anode via a discharge gas medium to form a plurality of discharge cell regions therebetween arranged in at least one row extending substantially parallel to the line direction, the cathodes at corresponding positions in each of said electrode blocks being commonly connected to each other through a respective one of a plurality of scanning electrodes, discharge light emission being selectively carried out in the plurality of discharge cell regions by applying data signals to the anode in each electrode block and scanning signals to respective cathodes of each electrode block via the scanning electrodes, wherein two electrode blocks having adjacent ends are denoted a first electrode block and a second electrode block, respectively, wherein a cathode of the first electrode block which is positioned at an end of the first electrode block adjacent the second electrode block is denoted a first cathode, and wherein a cathode of the second electrode block which is positioned at an end of the second electrode block adjacent the first electrode block is denoted a second cathode, said method comprising the steps of:

applying a scanning signal to one of the first and second cathodes; then

applying at least one scanning signal to at least one of the plurality of cathodes other than the first and second cathodes; and then

applying a scanning signal to the other of the first and second cathodes;

wherein said discharge cell regions of each electrode block are arranged in two rows which are offset relative to each other, and when cathodes corresponding to said two rows of discharge cell are regions scanned in a loop sequence by applying scanning signals to cathodes of one of said two rows sequentially in said line direction and then applying scanning signals to cathodes of the other of said two rows sequentially in a direction opposite to said line direction.

5,212,473

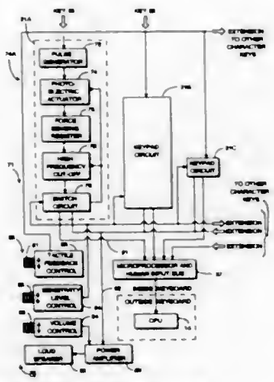
MEMBRANE KEYBOARD AND METHOD OF USING SAME

William M. Louis, Encinitas, Calif., assignor to TypeRight Keyboard Corp., Encinitas, Calif.

Filed Feb. 21, 1991, Ser. No. 658,541

Int. Cl.[5] G09G *3/02*

U.S. Cl. 340—711 **27 Claims**



1. A membrane keyboard, comprising:

a housing;

a substrate mounted in said housing;

thin inner sheet means mounted on the top surface of said substrate;

thin outer sheet means mounted on the top surface of said inner sheet means having a plurality of spaced apart finger engageable recessed keypads for helping to form a plurality of membrane character keys;

said thin outer sheet means further having a plurality of spaced apart outer valley members for helping to facilitate arranging said plurality of membrane character keys in columns;

each one of said plurality of spaced apart outer valley members including a pair of spaced apart outer ridge members disposed along an imaginary orthogonal transverse line for helping to facilitate arranging said plurality of keypads in at least two rows oppositely disposed having substantially different heights;

electrical signal producing means for generating an electrical signal when individual ones of said plurality of membrane character keys are depressed by a user;

said thin inner sheet means including a plurality of spaced apart inner valley members for helping to facilitate arranging said plurality of membrane character keys in columns;

said thin inner sheet means further including a plurality of oppositely disposed cup-shaped valley member means disposed adjacent to said electrical signal producing means for facilitating the actuation of said signal producing means;

each one of said spaced apart inner valley members including a pair of spaced apart inner ridge members disposed along an imaginary orthogonal transverse line for helping to facilitate arranging said plurality of keypads in at least two oppositely disposed rows having substantially different heights;

means for connecting together said outer and said inner sheet means in a nesting manner to enable said thin outer sheet means and said thin inner sheet means to move in unison substantially simultaneously together in response to a user slightly depressing individual ones of said plurality of membrane character keys, so that individual ones of said keypads may be depressed slightly of casing individual ones of said plurality of cup-shaped valley members to engage said electrical signal producing means with a sufficient force to produce said electrical signal, whereby individual ones of the membrane character keys may be depressed rapidly in seriatim for information entry purposes.

5,212,474

QUASI-STATIC LEVEL SHIFTER

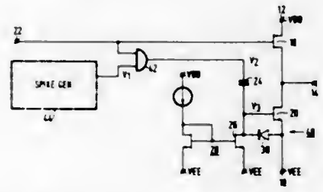
Kurt Muhlemann, Zürich, Switzerland, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 2, 1991, Ser. No. 694,581

Claims priority, application European Pat. Off., May 7, 1990, 90201157.6

Int. Cl.[5] G09G *3/00, 3/36*

U.S. Cl. 340—805 **14 Claims**



1. A level shifter comprising:

an input terminal and an output terminal,

a charge path including a first transistor and coupled between a first supply voltage terminal and the output terminal,

a discharge path including a second transistor and coupled between the output terminal and a second supply voltage terminal,

means for DC coupling an input signal at the input terminal to a control electrode of the first transistor,

means for generating a recurrent signal,

means coupled to said input terminal and to an output of the signal generating means for logically combining the input signal applied to the input terminal with said recurrent signal, and

a capacitor for coupling an output signal of the combining means to a control input of the second transistor thereby to regenerate a control voltage developed at said control input of the second transistor, and wherein

said input signal and said output signal control said first and second transistors to switch in a mutually complementary manner.

5,212,475

METHOD FOR GENERATING AN ALARM INHIBIT SIGNAL

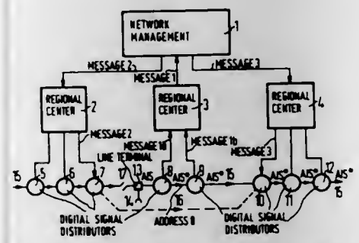
Wolfang Thoma, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 1, 1989, Ser. No. 346,085

Claims priority, application Fed. Rep. of Germany, May 18, 1988, 3816974

Int. Cl.[5] H04B *1/00*

U.S. Cl. 340—825.16 **17 Claims**



1. A method for generating a digital alarm inhibit signal for a plurality of digital signal distributors connected in series in a signal path, each digital signal distributor having an incoming path and an outgoing path forming a part of the signal path, the method using a signal having long strings of ones pulse sequence that is both supplied to an outgoing path by digital signal distributors and is also recognized on an incoming path by the digital signal distributors and that can subsequently be further-processed, comprising allocating an identification character to the signal having long strings of ones pulse sequence.

5,212,476

WIRELESS INTRAORAL CONTROLLER DISPOSED IN ORAL CAVITY WITH ELECTRODES TO SENSE E.M.G. SIGNALS PRODUCED BY CONTRACTION OF THE TONGUE

Sean R. Maloney, 405 Sondley Woods Pl., Asheville, N.C. 28805

Filed Sep. 28, 1990, Ser. No. 590,463

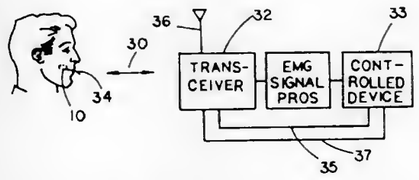
Int. Cl.[5] H09B *1/034;* **A61B** *5/0488, 5/0492, 5/103*

U.S. Cl. 340—825.19 **32 Claims**

1. An intraoral device comprising:

a substrate adapted to be mounted in the oral cavity;

at least one floating active electrode attached to said substrate; said active electrode sensing electric field generated within the oral cavity; said fields being electromyographic signals generated by the movement and contraction of the tongue; said active electrode not being in continuous contact with the tongue; a detector receiving signals from said active electrode.



5,212,477

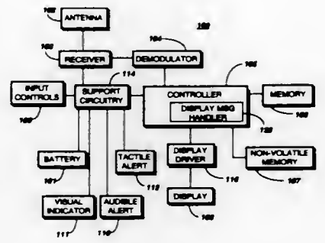
METHOD FOR SIZING MESSAGE CHARACTERS FOR A DISPLAY

Jack P. Indekeu, Delray Beach; Joseph E. Laviana, Lake Worth, and Carlos E. Marciales, Boynton Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 1, 1991, Ser. No. 786,684

Int. Cl.[5] H04B *7/00*

U.S. Cl. 340—825.44 **19 Claims**



1. An electronic device, comprising:

storing means for storing a message, the message having message characters and a message length;

automatic selecting means, coupled to the storing means, for automatically selecting one of at least first and second sizes for displaying the message characters by comparing the message length to at least one predetermined threshold, the message length being compared as greater than each of the at least one predetermined threshold to indicate a different one of the at least first and second sizes, and each of the at least first and second sizes corresponding to a different one of at least first and second number of lines on a display screen; and

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display means, coupled to the automatic selecting means and the storing means for displaying on a display screen at least a portion of the message characters in the selected size and in the corresponding one of at least first and second number of lines on the display screen.

5,212,478

DYNAMIC POWER RECOVERY SYSTEM

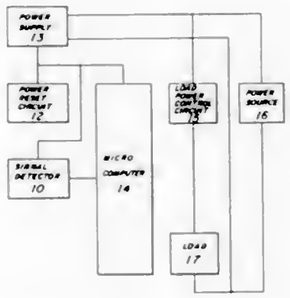
Robin Moseley, Allentown, Pa., assignor to Lutron Electronics Co., Inc., Coopersburg, Pa.

Continuation of Ser. No. 332,241, Mar. 31, 1989, abandoned. This application Dec. 11, 1991, Ser. No. 807,963
Int. Cl.[5] H04Q *1/00*
U.S. Cl. 340—825.72 **34 Claims**

1. A system for dynamically controlling power supplied from a source to a load comprising, in combination:

a) means for detecting the reapplication of power to said system after interruption of power from said source, said detecting means generating a signal in response to said reapplication,

b) microcomputer means for setting to a first predetermined non-zero initial value the power supplied to said load in response to said signal generated in response to said detected reapplication of power, said microcomputer means for setting being further responsive to a command signal generated by at least one operable control means for



immediately returning the system to normal operation, wherein said microcomputer means for setting power supplied to said load has separate operating routines for responding to said means for detecting said reapplication of power and for responding to each of said at least one operable means so as to separately adjust said power supplied to said load to a plurality of different values and

c) means for changing the first predetermined value of said power in a predetermined manner.

5,212,479

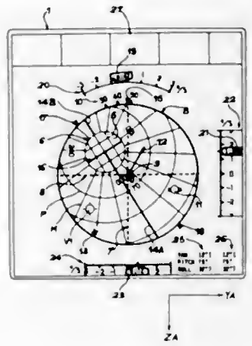
Patent Not Issued For This Number

5,212,480

PROCESS FOR THE VISUAL DISPLAY OF THE ATTITUDE OF AN AIRCRAFT FOR AIDING PILOTING IN SPACE

Vincent D. Ferro, Toulouse, France, assignor to Aerospatiale Société Nationale Industrielle, Paris, France

Filed Nov. 5, 1990, Ser. No. 609,371
Claims priority, application France, Nov. 17, 1989, 89 15115
Int. Cl.[5] G01C *21/00*
U.S. Cl. 340—974 **12 Claims**



1. Process for the display of the attitude of an aircraft or spacecraft for aiding piloting or flying in space, which comprises the steps of:

defining a spherical celestial canopy (C) centered on the center of gravity (G) of the aircraft (A), having a polar axis oriented towards the celestial north (N) and an equatorial plane (E) perpendicular to said polar axis and passing through a vernal reference marking point (γ **50**);

defining reference marking parallels (M,P) and meridians on said celestial canopy;

defining a reference mark (G,X,Y,Z) with orthogonal axes centered on the center of gravity (G) of the aircraft, a first axis (X) of said mark passing through the vernal point (γ **50**), a second axis (**2**) coinciding with the polar axis and a third axis (Y) being perpendicular to the first and second axes;

defining a specific reference mark (G, X_A, Y_A, Z_A) of the aircraft with three orthogonal axes, having for its origin the center of gravity (G) of the aircraft, a first axis (X_A) directed along a longitudinal axis of the aircraft, a second axis (Z_A) located in a plane of symmetry passing through the longitudinal axis of the aircraft and a third axis (Y_A) perpendicular to the first and second axes of the specific reference mark;

defining the attitude of the aircraft by calculating the cardan angles, (roll (ϕ), pitch (θ) and yaw (ψ)) of the aircraft with respect to the reference mark (G,X,Y,Z);

using the values of the cardan angles (ϕ, θ, ψ) for displaying, on a screen (**1**) of display means (**2**), the image obtained in a plane perpendicular to the first specific axis (X_A) of a net formed from portions of meridians and parallels (M,P) of the celestial canopy projected onto said plane within a piloting or flying circle (B), displayed on a screen (**1**) and centered on the first axis (X_A) of the specific reference mark;

displaying a cruciform reticule (**7,8,9**) with two perpendicular segments (**7,8**) intersecting the flying circle, intersecting in the center (O) of the circle (B) and corresponding respectively to the second and third axes (Z_A, Y_A) of the specific reference mark, the position of the center (O) of the circle respectively representing the yaw and pitch angles referenced in longitude and latitude, respectively with respect to a meridian portion (M) and a parallel portion (P) of the net;

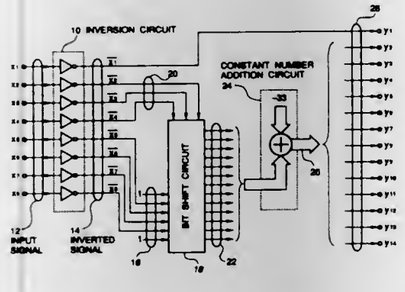
and displaying the value of the roll angle (ϕ) in a scale (**10**) of numerical values, close to the intersection of the flying circle (B) with the segment (**7**) of the reticule corresponding to the second axis (A_A) of the specific reference mark.

5,212,481

CIRCUIT FOR CODE CONVERTING PCM CODES

Masaki Ichihara, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 1, 1991, Ser. No. 649,592
Claims priority, application Japan, Feb. 1, 1990, 2-24073
Int. Cl.[5] H03M *7/50*
U.S. Cl. 341—75 **8 Claims**



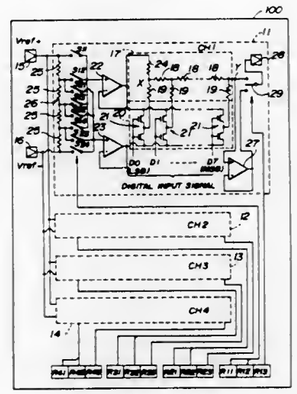
1. A code conversion circuit comprising an inversion circuit means for receiving an 8-bit code signal and for outputting an 8-bit inverted code signal, a bit shift circuit means having a data input and a control input, means for connecting said data input to receive four less significant bits of the 8-bit inverted code signal, means for connecting said control input to receive three bits selected from four more significant bits of the 8-bit inverted code signal, means for operating the bit shift circuit means to shift the input data in a direction toward the most significant bit by a range from 0 bit to seven bits in response to a signal at said control input, and means for adding a predetermined constant number to an output of the bit shift circuit means, the most significant bit of the 8-bit inverted code signal being a sign bit and being combined with an output of the addition circuit so as to form a linear code.

5,212,482

DIGITAL-TO-ANALOG CONVERTER HAVING AN EXTERNALLY SELECTABLE OUTPUT VOLTAGE RANGE

Tetsuo Okuyama, Kasugai, Japan, assignor to Fujitsu Limited, Kanagawa and Fujitsu VLSI Limited, Aichi, both of Japan

Filed Aug. 16, 1991, Ser. No. 745,602
Claims priority, application Japan, Aug. 18, 1990, 2-217804
Int. Cl.[5] H03M *1/18*
U.S. Cl. 341—139 **30 Claims**



15. A D/A converter device comprising:

a chip; and

a plurality of D/A converters formed on said chip,

wherein each of said D/A converters includes:

D/A conversion means for converting a digital input signal into an analog output signal within an output voltage range and operating under a first reference voltage and a second reference voltage;

varying means, connected to said D/A conversion means, for varying the first reference voltage in accordance with a first control data and for varying the second reference voltage, independently of the first reference voltage, in accordance with a second control data; and

storing means, connected to said varying means, for storing the first and second control data, wherein a magnitude of the output voltage range is selectively varied in accordance with the first and second control data.

5,212,483

MULTIPLEXING A/D CONVERTER HAVING SWEEP INTERRUPT FUNCTION

Akihiko Wakimoto, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 23, 1991, Ser. No. 734,410
Claims priority, application Japan, Oct. 17, 1990, 2-278061
Int. Cl.[5] H03M *1/12*
U.S. Cl. 341—141 **1 Claim**

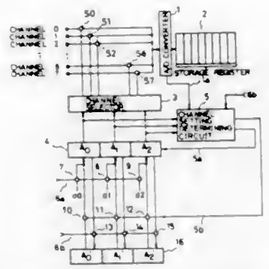
1. An A/D converter apparatus for performing A/D conversions using an A/D circuit, the conversions performed on signals carried in a predetermined range of channels selected from among a plurality of analog input channels, each one of the plurality of analog input channels being selected by a channel setting means for conversion based on a channel value stored in a channel register, the channel register characterized

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by a bit width equal to a predetermined number, and the channel value being modifiable by the channel setting means which varies the channel value sequentially through a range of channel values corresponding to the range of channels, comprising:

a saving register, for saving the contents of the channel register, said saving register characterized by a number of bits equal to the predetermined number of bits;

detecting means, coupled to the A/D converter, for outputting a conversion completion signal upon detection of completion of a conversion by the A/D converter of a signal carried in the channel selected by the channel setting means; and



a plurality of saving switches comprising a number of switches equal to the predetermined number, coupled to said saving register and the channel register, for transferring said contents of the channel register to said saving register in response to an interrupt signal;

a plurality of returning switches, comprising a number of switches equal to the predetermined number, coupled to the channel register, said saving register, and said detecting means, for transferring contents of said saving register to the channel register in response to said conversion completion signal output by said detecting means.

5,212,484

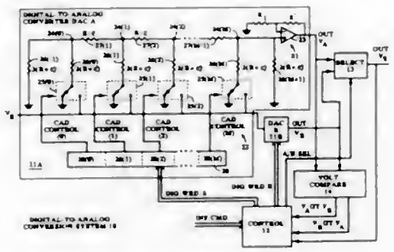
DIGITAL TO ANALOG CONVERTER SYSTEM EMPLOYING PLURAL DIGITAL TO ANALOG CONVERTERS WHICH IS INSENSITIVE TO RESISTANCE VARIATIONS

W. Daniel Hillis, Cambridge, Mass., assignor to Thinking Machines Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 489,079, Mar. 5, 1990, Pat. No. 5,118,975. This application Jan. 14, 1992, Ser. No. 820,421

Int. Cl.[5] H03M *1/78*

U.S. Cl. 341—154 **5 Claims**



5. A digital to analog converter comprising:

A. an amplifier circuit for generating said output signals having a voltage level determined by the voltage level of an input signal at an input terminal;

B. a resistor network comprising:

i. a plurality of series-connected resistors connected between a selected base voltage and said input terminal of said amplifier circuit, connections between each pair of resistors defining a node;

ii. a plurality of depending resistors each having one terminal connected to a node; and

iii. a plurality of switch circuits each having an input terminal connected to one of said depending resistors, each switch circuit being independently controllable to selectively connect said input terminal to said selected base voltage or to a selected reference voltage in response to a switch control signal;

wherein, if the resistance value of each of said series-connected resistors and said depending resistors is defined in accordance with a base value of R and a tolerance of ϵ, said series connected resistors each have a nominal resistance value $R-\epsilon$, and said depending resistors each have a nominal resistance value $2(R+\epsilon)$.

5,212,485

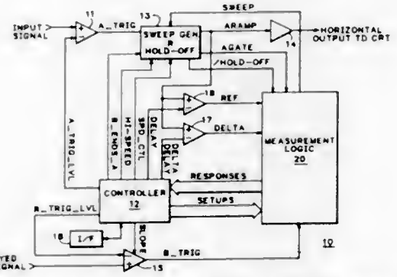
ANALOG OSCILLOSCOPE DIGITIZER

Gordon W. Shank, Portland; Henry G. Fox, Sherwood, and Kevin A. Robertson, Vernonia, all of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Sep. 27, 1990, Ser. No. 589,155

Int. Cl.[5] H03M *1/00*

U.S. Cl. 341—161 **15 Claims**



1. A method of digitizing a repetitive waveform using an analog oscilloscope comprising the steps of:

a. initiating a ramp signal at a fixed point on the repetitive waveform at predetermined repetition intervals, the ramp signal being a horizontal sweep signal for the analog oscilloscope to display the repetitive waveform;

b. selecting an attenuated version of a delay level to provide magnification of a selected portion of the repetitive waveform;

c. for each iteration of the ramp signal comparing the ramp signal with the attenuated version of the delay level to generate a strobe signal, that attenuated version of the delay level representing a point to be digitized within the selected portion of the repetitive waveform;

d. comparing the repetitive waveform with a digitizing level to generate a logic signal;

e. sampling the logic signal with the strobe signal to generate a sample logic level;

f. adjusting the digitizing level as a function of the sample logic level;

g. repeating steps d.–f. until a predetermined condition is met;

h. storing the digitized level as a digitized value in a storage location unique for the point;

i. incrementing the delay level by a predetermined amount to digitized a next point on the repetitive waveform; and

j. repeating steps c.–i. until all points within the selected portion of the repetitive waveform are digitized.

5,212,486

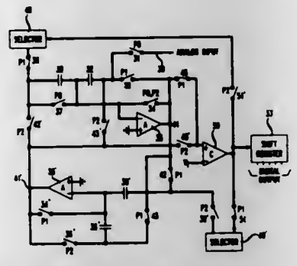
CYCLIC ANALOG-TO-DIGITAL CONVERTER

Krishnaswamy Nagaraj, Macungie, Pa., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 26, 1991, Ser. No. 814,339

Int. Cl.[5] H03M *1/40, 1/50, 1/12*

U.S. Cl. 341—172 **5 Claims**



1. An analog-to-digital converter comprising

an operational amplifier

a comparator having an input connected to the output of said operational amplifier,

first and second selectors for producing values in response to output signals from said comparator,

first, second, third and fourth capacitors of equal value,

means operative during a phase P0 for charging said first capacitor to the value of the analog input signal to be converted and for keeping said second capacitor discharged,

means operative during a phase P1 for connecting said first capacitor between input and output terminals of said operational amplifier, connecting said second capacitor between the output terminal of said first selector and the input terminal of said operational amplifier, connecting the output of said comparator to the input of said second selector and charging said third and fourth capacitors to the value of the output of said operational amplifier and

means operative during a phase P2 for connecting said third capacitor between the input and output terminals of said operational amplifier, connecting said fourth capacitor between the output terminal of said second selector and the input terminal of said operational amplifier, connecting the output of said comparator to the input of said first selector and charging said first and second capacitors to the value of the output of said operational amplifier

clock means for generating timing signals defining phase P0 and repeated phases P1 and P2 to convert said analog input signal to a digital signal at the output terminal of said comparator.

5,212,487

APPARATUS AND METHOD FOR ADAPTIVE REMOTE TRANSMISSION

Sang-su Lee, and Jun-ki Hong, both of Suwon, Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Sep. 6, 1991, Ser. No. 756,040

Claims priority, application Rep. of Korea, May 1, 1991, 91-7013

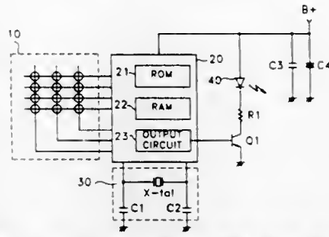
Int. Cl.[5] H04Q *9/00;* **G08C** *19/00*

U.S. Cl. 346—176 **14 Claims**

1. A remote transmitting apparatus in a remote controller for transmitting a remote control signal, comprising:

key input means for receiving a plurality of control commands;

microtransmitter means comprising memory means having a ROM and a RAM, said ROM storing a plurality of signal formats and a plurality of appliance control data strings for controlling electronic appliances in response to a user's control commands, whereby, responsive to each of said control commands, one appliance control data string stored in said ROM is read out and temporarily stored in said RAM, then one signal format stored in said ROM and corresponding to said one appliance control data string is read out and stored in said RAM, then one remote control data string corresponding to said appliance control data string and said signal format stored in said RAM is generated in dependence upon a clock signal, and then another appliance control data string stored in said ROM is read



out and temporarily stored in said RAM, and another corresponding signal format stored in said ROM is read out and stored in said RAM to generate another corresponding remote control data string until a remote control data string corresponding to each control command is generated; and

means for converting the output of said micro-transmitter means into an optical signal, and for transmitting said optical signal so as to simultaneously control plural electronic appliances.

5,212,488

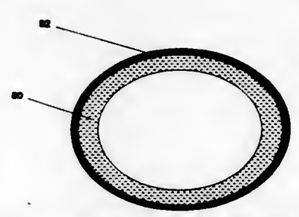
ELLIPSOIDAL CHAFF

John A. Kosotchick, 3116 Mercer La., San Diego, Calif. 92122

Filed Jan. 21, 1992, Ser. No. 822,644

Int. Cl.[5] G01S *7/38;* **H01K** *17/00*

U.S. Cl. 342—12 **21 Claims**



14. A process for neutralizing radar comprising the step of dispersing into the atmosphere ellipsoidal shaped chaff having a metallic coating and a major dimension of less than 1 millimeter.

5,212,489

ECHO RANGING SYSTEM FOR DETECTING VELOCITY OF TARGETS USING COMPOSITE DOPPLER INVARIANT TRANSMISSIONS

David E. Nelson, Rochester, N.Y., assignor to Hydroacoustics Inc., Rochester, N.Y.

Continuation of Ser. No. 671,060, Mar. 18, 1991, abandoned. This application Aug. 20, 1992, Ser. No. 931,670

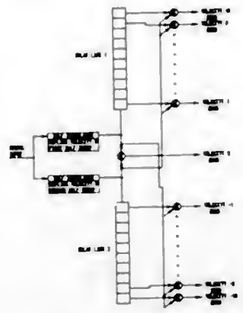
Int. Cl.[5] G01S *13/58, 15/58*

U.S. Cl. 342—109 **46 Claims**

1. Apparatus for measuring simultaneously the velocity and range of a target which comprises means for generating a composite signal having a plurality of segments which define an ambiguity function in time and velocity having at least two

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ridge lines which have different time-velocity slopes and which intersect along the zero-velocity time axis of said ambiguity function, means for transmitting at a transmit time said composite signal in the direction of a target, means for receiving a composite return signal from said target following incidence of said composite signals thereon, means for correlating



the composite return signal with replicas of each of said segments to transform the frequency shift of said target return due to the velocity thereof into outputs occurring in time-delayed relationships corresponding to the velocity and range of the target, and means for coherently summing said outputs in time-delayed relationship to produce a plurality of coherent sums from which target velocity and range are determinable.

5,212,490

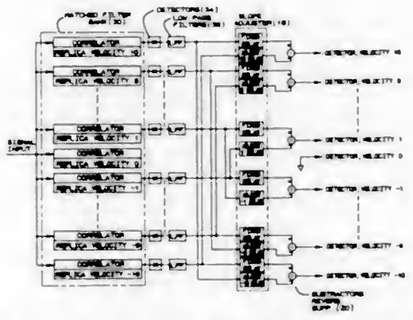
ECHO RANGING SYSTEM FOR DETECTING VELOCITY AND RANGE OF TARGETS USING COMPOSITE DOPPLER INVARIANT-LIKE TRANSMISSIONS WITH SUPPRESSION OF FALSE TARGETS

David E. Nelson, Rochester, and John V. Bouyoucos, Pittsford, both of N.Y., assignors to Hydroacoustics, Inc., Rochester, N.Y.

Continuation of Ser. No. 711,681, Jun. 6, 1991, abandoned. This application Mar. 13, 1992, Ser. No. 851,262

Int. Cl.[5] G01S *13/536, 15/58*

U.S. Cl. 342—109 **22 Claims**



15. An echo ranging system for determining the range and velocity of moving targets, and for suppressing unwanted returns as from reverberation, clutter, or false targets, including reverberation or false targets appearing with a velocity v, where v may be zero or nonzero, said system comprising:

means for transmitting a signal of total duration T having a time-bandwidth product greater than unity and an ambiguity function that is distributed symmetrically about the time axis corresponding to zero velocity in time-velocity space;

means for receiving echo return signals from moving targets as well as unwanted echo return signals from said reverberation, clutter, or false targets appearing with said velocity v, said unwanted return signals having an ambiguity function that is symmetrical about the time axis corresponding to said velocity v in time-velocity space;

a bank of matched filters, each filter of said bank having a signal replica corresponding to a different target velocity;

means for passing said echo return signals through said bank of matched filters to provide a distribution of outputs which characterize the range and velocity of said echo returns;

means for providing continuously a replication of said output distribution rotated 180° about the time axis corresponding to said velocity v;

means for combining said rotated output distribution with said distribution of outputs in time alignment to obtain a combined distribution in which said unwanted returns are suppressed; and

means responsive to said distribution for providing the range and velocity of said moving targets.

5,212,491

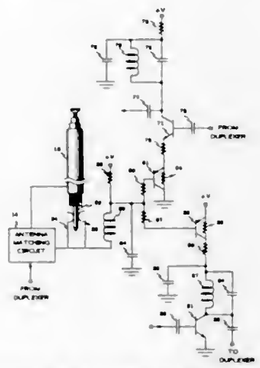
ANTENNA ARRANGEMENT FOR A PORTABLE TRANSCEIVER

Melissa C. Chin, Kinnelon; James G. Evans, Colts Neck, and Denis P. Orlando, Freehold, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 388,454, Aug. 2, 1989, Pat. No. 5,144,324. This application Apr. 15, 1991, Ser. No. 685,325

Int. Cl.[5] H01Q *1/10*

U.S. Cl. 343—745 **2 Claims**



1. An arrangement for providing matching resonating circuitry for increasing the level of radiated energy in a telescoping antenna while the antenna is in a collapsed position and maintaining a maximum permitted level of radiated energy while the antenna is in an extended position, the arrangement comprising:

contact means for providing an electrical activation signal indication when the antenna is in the extended position and

antenna tuning means including first antenna tuning circuitry for resonating with the antenna at a selected frequency when the antenna is in the collapsed position and second antenna tuning circuitry for resonating with the antenna at said selected frequency when the antenna is in the extended position, the tuning means connecting the first antenna tuning circuitry to the antenna when said contact means indicates that the antenna is in the extended position and said tuning means connecting the second antenna tuning circuitry to the antenna when said contact means indicates that the antenna is in the collapsed position, each of said first antenna tuning circuitry and second antenna tuning circuitry providing a resonating inductance level wherein the resonating inductance level of the said first antenna tuning circuitry is greater than the resonating inductance level of said second antenna tuning circuitry.

5,212,492

MATCHING ELEMENT FOR MOBILE ANTENNA

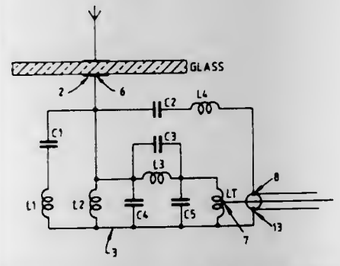
Andrew Jesman, 10 Little Warren Close, Guildford, Surrey GU4 8PW, and Christopher Jesman, 46 Cole Park Road, Twickenham, Middlesex TW1 2HS, both of United Kingdom

Filed Apr. 9, 1991, Ser. No. 682,335

Claims priority, application United Kingdom, Apr. 9, 1990, 9007979

Int. Cl.[5] H01Q *1/32, 1/50*

U.S. Cl. 343—713 **3 Claims**



1. A coupling unit for use with an antenna adapted to be secured to one surface of a window of dielectric material and including a termination circuit for said antenna, the coupling unit providing a matched coupling between the antenna and the termination circuit, said coupling unit comprising: a circuit board substrate of dielectric material; a first area of conductive cladding forming a capacitor plate on a first surface of said substrate to be fastened to said window; a first terminal means of said termination circuit connected to said first area of conductive cladding; a second area of conductive cladding provided on said first surface of said substrate and shaped to form an inductance; a second terminal means of said termination circuit connected to said second area of conductive cladding; a third area of conductive cladding shaped to form an inductance and provided on a second surface of said substrate opposite said first surface, said third area of cladding connected to said second terminal means and overlying said second area of conductive cladding whereby said second and third areas of conductive cladding provide distributed inductance and capacitance acting to provide matched coupling between said first area of conductive cladding and said second terminal means; and a fourth area of conductive cladding shaped to form an inductance and provided on said second surface of said substrate, said fourth area of conductive cladding connected to said first terminal means and overlying said first area of conductive cladding whereby said first and fourth areas of conductive cladding provide distributed inductance and capacitance between said first terminal means and the capacitor plate formed by said first area of cladding; and wherein said fourth area of conductive cladding is substantially in the shape of a ring with a web portion coupled to the periphery of said ring and extending inwardly of said periphery, said web portion being connected to said first terminal means and said periphery connected to said second terminal means.

5,212,493

ANTENNA SYSTEM FOR RECEPTION FROM DIRECT BROADCASTING SATELLITES

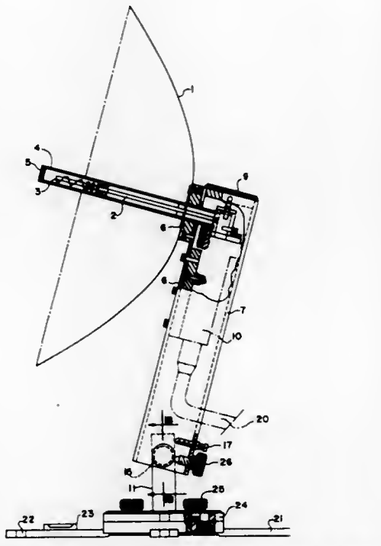
Claude Cluniat, Aubergenville; Maurice Loiseau, Courbevoie; Guy Bastard, Garches, and Jean-Jacques Lombard, Montigny Le Bretonneux, all of France, assignors to Thomson-LGT Laboratoire General Des Telecomm., Conflans-Saint-Honorine, France

Continuation of Ser. No. 480,483, Feb. 16, 1990, abandoned. This application Feb. 19, 1992, Ser. No. 837,694

Claims priority, application France, Feb. 17, 1989, 89 02082

Int. Cl.[5] H01Q *3/080, 1/120*

U.S. Cl. 343—765 **6 Claims**



1. An antenna system for direct broadcasting satellite reception, comprising:

a parabolic reflector, having a central axis;

a supporting foot formed of a hollow tubular body having a first end and a second opposite end and having a central axis extending along a lengthwise portion of said tubular body;

a centering piece rigidly affixed to a rear central part of said parabolic reflector and to said first end of said tubular body to connect said parabolic reflector to said tubular body such that said central axis of said tubular body is always orthogonal to said central axis of said reflector;

a cylindrical tube, passing through the reflector and the centering piece and having a central axis which is the same as the central axis of the reflector, said tube including a source along said central axis;

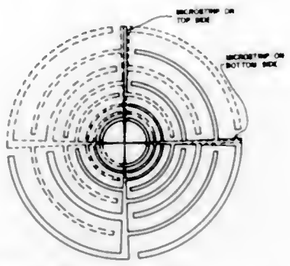
a pedestal arranged along a horizontal axis, and holding said second end of said tubular body, rotatable around a vertical axis which is perpendicular to said horizontal axis to set an azimuth of the antenna system;

means, coupled to said second end of hollow tubular body and to said pedestal, for hinging and locking the tubular body with respect to said pedestal, enabling the antenna system to swivel around a horizontal axis for fixing an elevation of the antenna system; and

a plurality of circuits for the antenna system, which circuits are fixed to an interior of the tubular body of the supporting foot.

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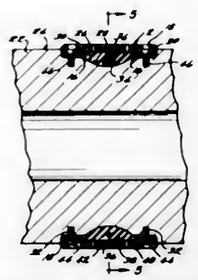
5,212,494
COMPACT MULTI-POLARIZED BROADBAND ANTENNA
Dean A. Hofer, Richardson; Oren B. Kesler, and Lowell L. Loyet, both of Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 339,774, Apr. 18, 1989, abandoned.
This application Oct. 31, 1990, Ser. No. 608,606
Int. Cl.[5] H01Q *11/10*
U.S. Cl. 343—859 40 Claims



39. An antenna which comprises:
(a) an electrically insulating substrate having a perimeter;
(b) an antenna pattern disposed on said substrate having a central feedpoint, a portion of said antenna pattern extending to said perimeter of said substrate, wherein said antenna pattern includes:
(i) a first antenna element having a plurality of first regions, each of said first regions composed of first plural interconnected concentric sectors of circles of diminishing radius extending to said feedpoint,
(ii) a second antenna element having a plurality of second regions, each of said second regions composed of second plural interconnected concentric sectors of circles of diminishing radius extending to said feedpoint, and
(iii) an infinite balun on said substrate interconnecting said sectors of circles and said connection,
(c) a signal injection/extraction connection coupled to said antenna pattern at said perimeter of said electrically insulating substrate; and
(d) a transmission line coupled to said connection at a location on said antenna pattern remote from said central feedpoint and at said perimeter of said electrically insulating substrate.

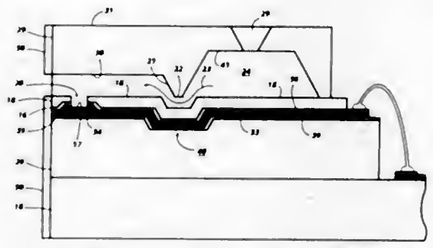
5,212,495
COMPOSITE SHELL FOR PROTECTING AN ANTENNA OF A FORMATION EVALUATION TOOL
David A. Winkel, Middletown, and Mark M. Bochain, Moodus, both of Conn., assignors to Teleco Oilfield Services Inc., Meriden, Conn.
Filed Jul. 25, 1990, Ser. No. 558,075
Int. Cl.[5] H01Q *1/420, 1/400;* G01V *3/100, 3/180*
U.S. Cl. 343—872 10 Claims

10. A formation evaluation tool, comprising:
a cylindrical housing, said housing having an outer surface and having a circumferential groove defined in said outer surface;
an antenna loop surrounding the housing and secured within the circumferential groove;
elastomeric means, sealingly contacting said housing within said groove and surrounding said antenna loop, for protecting said antenna loop from shock and moisture;
rigid electrically nonconductive shell means, removably secured to said housing and covering said elastomeric means, for protecting said elastomeric means from abrasion; and
said shell means being in at least two segments and including an inner surface disposed in contact with the elastomeric means, an outer circumferential surface, and means for



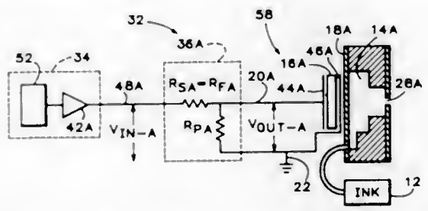
equalizing pressure between the outer circumferential surface and the inner surface.

5,212,496
COATED INK JET PRINTHEAD
Santokh S. Badesha, and Reinbold E. Drews, both of Pittsford, N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Sep. 28, 1990, Ser. No. 589,747
Int. Cl.[5] B41J *2/165*
U.S. Cl. 346—1.1 19 Claims



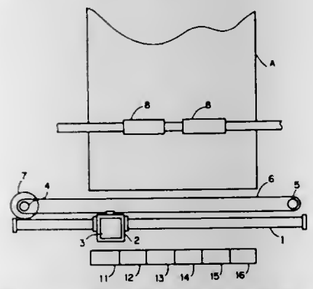
1. An ink jet printhead comprising a plurality of channels, wherein the channels are capable of being filled with ink from an ink supply and wherein the channels terminate in nozzles on one surface of the printhead, the surface being coated with a polyimide-siloxane block copolymer.

5,212,497
ARRAY JET VELOCITY NORMALIZATION
Douglas M. Stanley, and Howard V. Goetz, both of Tigard, Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.
Filed Jun. 17, 1991, Ser. No. 716,457
Int. Cl.[5] B41J *2/045*
U.S. Cl. 346—1.1 20 Claims



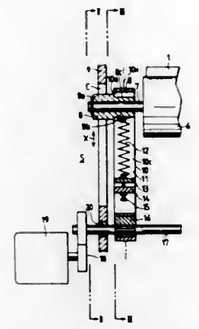
1. A method for normalizing actual velocities of ink drops ejected from an orifice of an ink jet print head array such that the actual velocities are substantially equal to a desired velocity, the ink from which the drops are formed residing in a chamber and the print head array including a transducer that, in response to a drive signal developed by a drive circuit, produces pressure waves in the ink and thereby causes the ejection of the ink drops from the orifice toward a print medium at the actual velocities corresponding to the drive signal, the method comprising the steps of:
establishing a standard that represents a position of the print medium with respect to the orifice;
determining a particular value of a parameter of the drive circuit such that when an input signal is applied to the drive circuit including the parameter with the particular value, the ink drops are ejected from the orifice at substantially the desired velocity, the determining step occurring during a time when the drive circuit does not include the particular value of the parameter, and the determining step includes modifying a test input signal applied to a portion of the drive circuit such that the portion of the drive circuit applies to the transducer a test drive signal of a character that ejected test ink drops are in alignment with the standard at predetermined times following respective ejections of the test ink drops from the orifice; and
modifying the drive circuit to include the particular value of the parameter, so that thereafter the ink drops are ejected from the orifice at substantially the desired velocity.

5,212,498
JET RECORDING APPARATUS WITH MEANS FOR CONTROLLING POWER TO FIXING HEATERS ACCORDING TO THE NUMBER OF PRINTED DOTS IN REGIONS CORRESPONDING TO EACH HEATER
Masao Sugimori, Hirakata, Japan, assignor to Mita Industrial Co., Ltd., Japan
Filed Oct. 23, 1991, Ser. No. 780,785
Claims priority, application Japan, Nov. 1, 1990, 2-297546
Int. Cl.[5] B41J *2/01*
U.S. Cl. 346—25 5 Claims



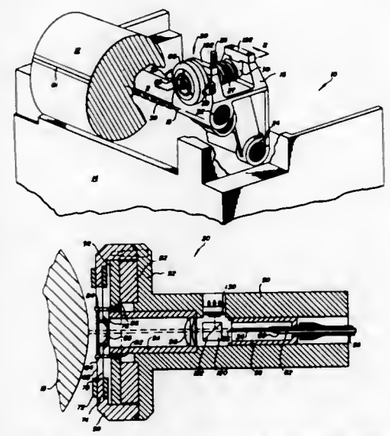
1. An inkjet recording apparatus including an inkjet print head for printing on recording paper, recording paper conveying means, and paper feeding control means for controlling paper feeding by said recording paper conveying means, said apparatus comprising:
a plurality of fixing heaters, disposed side by side in a direction at right angles to the direction in which recording paper is fed, for heating recording paper after printing to speed up drying of ink;
means for storing a total number of printed dots by region for at least one line of the recording paper, each of said fixing heaters having a corresponding region; and
means for driving each of said fixing heaters by power proportional to the total number of printed dots in its corresponding region for said at least one line of the recording paper which is in a position to be heated by said fixing heaters.

5,212,499
PRESSING MECHANISM FOR THERMAL PRINTER
Takayasu Hongo, and Yoshinobu Masumura, both of Amagasaki, Japan, assignors to Kanzaki Paper Mfg. Co., Ltd., Tokyo, Japan
Filed Mar. 27, 1992, Ser. No. 858,992
Claims priority, application Japan, Mar. 29, 1991, 3-065885
Int. Cl.[5] B41J *11/14, 2/325*
U.S. Cl. 346—76 PH 7 Claims



1. A pressing mechanism for thermal printer, comprising:
a fixed printing head;
a platen roll movably disposed adjacent said printing head;
means, operatively coupled to said platen roll, for rectilinearly moving said platen roll in a direction toward said printing head; and
means for applying a pressing force to press said platen roll against said printing head, said pressing force being applied coaxially with said moving direction.

5,212,500
WRITING BEAM FOCUSING UTILIZING LIGHT OF A DIFFERENT WAVELENGTH
Michael E. Harrigan, Webster, and John F. Carson, W. Henrietta, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 15, 1991, Ser. No. 670,092
Int. Cl.[5] H04N *1/21*
U.S. Cl. 346—108 30 Claims



1. In an imaging system comprising a source of light movable in continuous motion with respect to a writing element

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and continuously projectable through a lens assembly onto said writing element to generating an image in the writing element, said source generating a first beam of light of a wavelength selected to be actinic with respect to said writing element wherein at least a portion of said light is absorbed by said writing element, means for focusing said light source with respect to said writing element, said focusing means including means for generating a second beam of light projectable through said lens assembly onto said writing element and having a wavelength different that the wavelength of said first light beam, and means responsive to said second beam of light to generate a signal to control said focusing means.

5,212,501

IMAGE RECORDING APPARATUS WITH A LASER OPTICAL UNIT

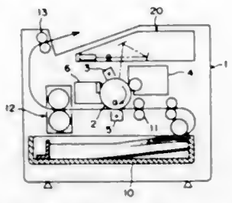
Hiromu Nakamura; Akiyoshi Hamada; Satoru Ono, all of Toyokawa; Masanori Murakami; Toshio Naiki, both of Toyohashi; Kunihiko Omura, Toyokawa, and Masahito Niikawa, Okazaki, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Apr. 29, 1992, Ser. No. 875,977

Claims priority, application Japan, Apr. 30, 1991, 3-097815; Apr. 30, 1991, 3-097818

Int. Cl.[5] G02B *26/10*; H01S *3/18*; G03G *15/04*

U.S. Cl. 346—108 **19 Claims**



1. An image recording apparatus comprising:

a laser diode for emitting a laser beam in accordance with image data;

a convergent member having a diffraction effect for collimating the laser beam, the convergent member being disposed in front of the laser diode; and

optical scanning means for scanning the laser beam which passed through the convergent member on an image surface;

wherein the image recording apparatus meets a condition expressed by an expression

$$f_{co} > \frac{(4f_H^2/\pi D_o^2)\Delta\lambda}{\sqrt{(D_1/D_o)^2 - 1}}$$

in which expression, $\Delta\lambda$ denotes a variation in wavelength of the laser beam from a designed wavelength λ with a rise in temperature of the laser diode from a standard temperature;

f_{co} denotes a focal length of the convergent member when the laser beam has the wavelength λ;

D_0 denotes a diameter of a beam spot on the image surface when the laser beam has the wavelength λ;

D_1 denotes a tolerable limit of the diameter of the beam spot; and

f_H denotes a focal length of the optical scanning means in a main-scanning direction.

5,212,502

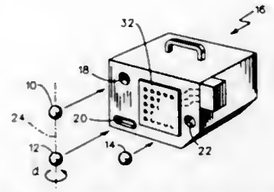
INK JET PRINT HEAD MOUNTING MECHANISM

Bruce A. Bowling, Beavercreek, Ohio, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 4, 1992, Ser. No. 845,987

Int. Cl.[5] G01D *15/16*

U.S. Cl. 346—140 R **9 Claims**



1. An ink jet print cartridge for use in an ink jet printer having a carriage for receiving the cartridge in a constrained position, the carriage defining three alignment features arranged in a triangular pattern, comprising:

a. first means defined by said cartridge for cooperating with a first one of said alignment features so as to define a point wherein said first one of said alignment features and said first cooperating means respectively comprise a generally spherical boss and a conical recession;

b. second means defined by said cartridge for cooperating with a second one of said alignment features so as to define a line through said point wherein said second one of said alignment features and said second cooperating means respectively comprise a generally spherical boss and a trough having sloping sides; and

c. third means defined by said cartridge for cooperating with a third one of said one of said alignment features so as to define a rotation about said line wherein said third one of said alignment features and said third cooperating means respectively comprise a generally spherical boss and a flat, whereby the position of said cartridge is exactly constrained with respect to said carriage.

5,212,503

LIQUID JET RECORDING HEAD HAVING A SUBSTRATE WITH MINIMIZED ELECTRODE OVERLAP

Asao Saito, Fujisawa; Ryoichi Koizumi, and Tsutomu Kato, both of Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 622,186, Dec. 5, 1990, abandoned, which is a continuation of Ser. No. 382,904, Jul. 21, 1989, abandoned. This applicatioo Oct. 31, 1991, Ser. No. 785,165

Claims priority, application Japan, Jul. 26, 1988, 63-184688

Int. Cl.[5] B41J *2/05*

U.S. Cl. 346—140 R **48 Claims**

1. A substrate for use with a liquid jet recording head comprising:

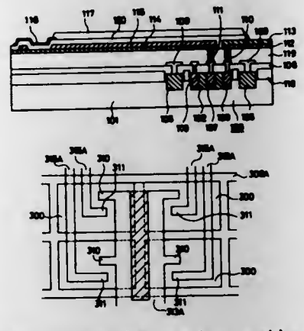
a semiconductor substrate;

functional elements formed on said semiconductor substrate;

control electrodes formed between adjacent functional elements; and

electro-thermal transducers electrically connected to said functional elements for generating thermal energy to be utilized to discharge liquid,

said substrate comprising a common electrode electrically connected to said functional elements in common, said



common electrode having a notch at a position facing said control electrodes.

5,212,504

IMAGE FORMING APPARATUS EMPLOYING LED PRINTING HEAD

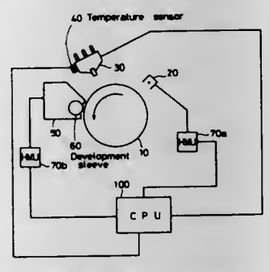
Akihiro Takada, Sayama, and Akihiro Kondou, Izumi, both of Japan, assignors to Mita Industrial Co., Ltd., Japan

Filed Sep. 24, 1991, Ser. No. 764,766

Claims priority, application Japan, Oct. 1, 1990, 2-264868

Int. Cl.[5] G03G *15/06, 21/00*

U.S. Cl. 346—160 **6 Claims**



1. An image forming apparatus comprising:

a photoreceptor;

charging means for forming a charged portion on said photoreceptor;

an LED printing head for forming a latent image by irradiating light on the charged portion formed on said photoreceptor based on image information, said LED printing head comprising a plurality of light emitting diodes;

developing apparatus for developing the latent image formed on said photoreceptor into a toner image;

voltage applying means for applying a developing bias voltage to said developing apparatus;

temperature sensing means for sensing a temperature of said LED printing head; and

controlling means for changing a developing bias voltage applied to the developing apparatus by said voltage applying means according to a temperature of the LED printing head, sensed by said temperature sensing means so that a toner density of a toner image formed by said developing apparatus is appropriate.

5,212,505

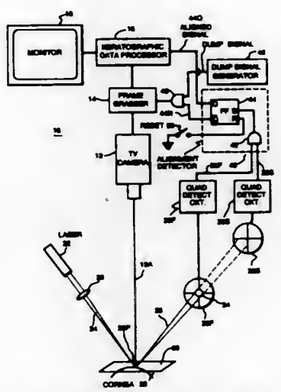
ALIGNMENT SYSTEM FOR KERATOGRAPH

Carl M. Peaney, Saratoga Springs, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 16, 1991, Ser. No. 807,547

Int. Cl.[5] A61B *3/14, 3/10*

U.S. Cl. 351—208 **15 Claims**



1. A system for eye measurement comprising:

a light source for applying a light beam to a cornea of an eye;

a first detector for receiving a reflected beam from the light beam reflecting off the cornea;

a second detector, spaced from said first detector, for receiving the reflected beam; and

alignment means electrically connected to said first detector and said second detector for generating an aligned signal only when the cornea is aligned such that said reflected beam extends from the corneas long a predetermined line; and

wherein said first detector provides a first plurality of signals and said second detector provides a second plurality of signals, each of said first and second detectors has detector elements in a two-dimensional array, each of said first and second detectors is disposed to detect the position of said reflected beam at respective first and second planes which are intersected by said predetermined line; and further comprising

determining means receiving said first and second pluralities of signals for determining whether said reflected beam is at the intersection of said predetermined line with said first plane based only on said first plurality of signals and for determining whether said reflected beam is at the intersection of said predetermined line with said second plane based only on said second plurality of signals, said determining means providing outputs to said alignment means.

5,212,506

ANALYSIS METHOD OF EYEBALL CONTROL SYSTEM

Hiroshi Yoshimatsu, and Mitsuho Yamada, both of Kyoto, Japan, assignors to ATR Auditory and Visual Perception Research Laboratories, Kyogo, Japan

Filed Sep. 17, 1991, Ser. No. 760,442

Claims priority, application Japan, Nov. 27, 1990, 2-326283

Int. Cl.[5] A61B *3/10*

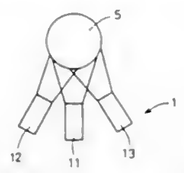
U.S. Cl. 351—210 **7 Claims**

1. A method for analyzing small oscillations of an eye to enable quantifying said small oscillations, comprising the steps of:

measuring small eye oscillations while an eye of a subject is looking at a target and providing output signals corresponding thereto, said small eye oscillations having small amplitudes;

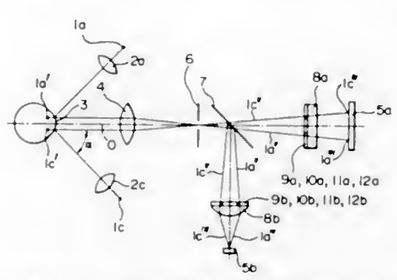
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converting said output signals to digital signals;
inputting said digital signals to a computer;
calculating fractal dimension for said measured small eye oscillations using said digital signals;



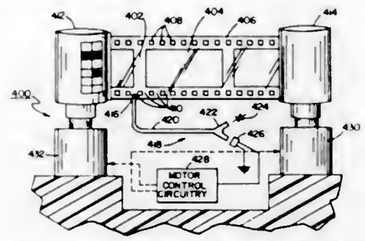
providing a quantity using said fractal dimension which corresponds to said small oscillations of the eye; and
displaying the quantity on a display means,
using said quantity to accurately model an eyeball control system.

5,212,507
APPARATUS FOR MEASURING CORNEA SHAPE
Masanao Fujieda, Toyohashi; Akihiro Hayashi, Toyokawa, and Toshiya Hino, Toyohashi, all of Japan, assignors to Nidek Co., Ltd., Gamagori, Japan
Filed Jan. 28, 1991, Ser. No. 646,908
Claims priority, application Japan, Jan. 29, 1990, 2-19966
Int. Cl.[5] A61B *3/10*
U.S. Cl. 351—212 **6 Claims**



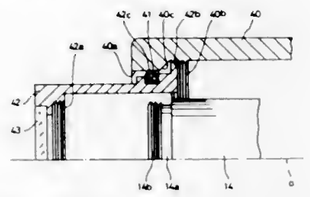
1. An apparatus for measuring a corneal shape comprising:
projecting means for projecting, onto a cornea, a set of at least four point light sources in a form of parallel light beams, which are substantially on a same circle, around an optical measuring system;
detecting optical system means for detecting positions of said at least four point light sources projected onto and reflected by the cornea by said projecting means;
means for grouping a plurality of sets of combinations of said at least four point light sources reflected by the cornea, each set of combinations containing at least three of said point light sources and for sequentially extracting positions of corneal reflection images of the respective sets detected by said detecting means;
means for determining a part of a corneal shape, based on an elliptical shape, by connecting the extracted positions of the respective sets of corneal reflection images; and
displaying means for displaying the corneal shape, based on the determination of each part of the corneal shape determined by said determining means.

5,212,508
REMOTE PHOTO-ELECTRIC INTERFACE IN CAMERA
Norbert Koenig, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jun. 28, 1991, Ser. No. 722,772
Int. Cl.[5] G03B *7/00*
U.S. Cl. 354—21 **9 Claims**



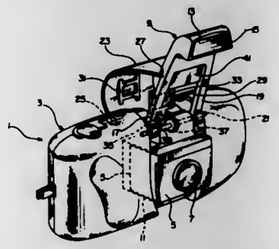
1. An apparatus for photo-electrically interfacing a mechanical camera component to an electrical camera component in a camera, said mechanical camera component having a sensing area associated therewith, the sensing area containing optically detectable information, said apparatus comprising
an optical fiber having a distal end and a proximal end, the distal end being remotely situated adjacent to the sensing area of said mechanical camera component to permit emission of incident radiant energy thereon and reception of reflected radiant energy therefrom,
means, optically coupled to the proximal end of said optical fiber, for emitting radiant energy into said optical fiber, and
means, optically coupled to the proximal end of said optical fiber, for photodetecting reflected radiant energy received from the optically detectable information of said sensing area, said photodetecting means providing an electrical output signal in response to the reflected radiant energy detected, said electrical output signal being received by said electrical camera component,
whereby the operational status of said mechanical camera component is determinable from the output of said photodetecting means.

5,212,509
WATERPROOF CAMERA HAVING A, MOVABLE LENS, BARREL AND COVER
Kosei Kosako, and Takeo Kobayashi, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 581,633, Sep. 12, 1990, abandoned. This application Jun. 19, 1991, Ser. No. 715,899
Claims priority, application Japan, Feb. 27, 1990, 2-19328[U]
Int. Cl.[5] G03B *17/08;* **H04N** *7/18*
U.S. Cl. 354—64 **13 Claims**



1. A camera comprising:
an opening which is formed in a stationary barrel of a camera body and in which a photographing lens barrel is movable in said opening in an optical axis direction;
a waterproofing cover which is movable in the optical axis direction independently from said photographing lens barrel to a projected waterproof position and a non-waterproof position, said cover being provided on its front end with a transparent waterproof member, said waterproofing cover being secured to and movable together with the photographing lens barrel when the waterproofing cover is positioned at the non-waterproof position;
thread means for securing the waterproofing cover to the stationary barrel when the waterproofing cover is positioned at the waterproof position; and
a sealing means which establishes a watertight connection between the opening and the waterproofing cover when the waterproofing cover is secured by the securing means at the waterproof position.

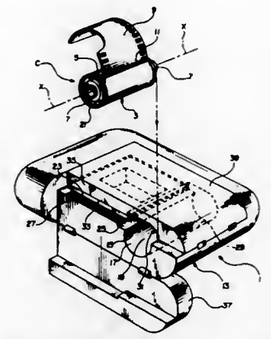
5,212,510
COMPACT CAMERA WITH ELASTIC LENS COVER TO PREVENT ABRASION OF TAKING LENS
Dennis E. Baxter, East Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 18, 1992, Ser. No. 838,120
Int. Cl.[5] G03B *17/04, 15/03, 13/04, 11/04*
U.S. Cl. 354—187 **7 Claims**



1. A photographic camera comprising a camera body, a lens carrier for an objective lens supported for movement outwardly and inwardly of said camera body between respective picture-taking and storage positions, and a lens cover supported for movement relative to said camera body between a covering position in front of said objective lens when said lens carrier is in its storage position and a non-covering position removed from the objective lens when the lens carrier is in its picture-taking position, is characterized in that:
said lens cover includes an elastic piece located to deform over said objective lens when said lens carrier is in its storage position and the lens cover is in its covering position, to prevent the lens cover from abrading the objective lens.

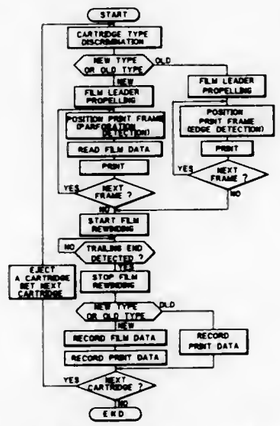
5,212,511
EASY LOADING CAMERA
William L. Burnham, Leroy, and Joel S. Lawther, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 27, 1992, Ser. No. 825,883
Int. Cl.[5] G03B *1/00*
U.S. Cl. 354—212 **7 Claims**

1. A photographic camera intended to be used with a film cartridge that has a normally curled film leader protruding from the film cartridge, said camera comprising:
a first cartridge-receiving chamber portion having an open end and side which allow the film cartridge to be received in said first chamber portion laterally through said open side with one end of the film cartridge protruding from said open end and the curled film leader protruding from the open side, to permit the one end to be manually grasped in order to rotate the film cartridge within the first chamber portion in the particular direction of curl of the film leader;
an elongate surface arranged proximate said first chamber portion to force the curled film leader to uncurl against said elongate surface to substantially flatten when the film cartridge is rotated within the first chamber portion in the particular direction of curl of the film leader; and



a second cartridge-receiving chamber portion having an open end which opens to said first chamber portion to allow the film cartridge to be inserted with the film leader substantially flattened against said elongate surface into said second chamber portion from the first chamber portion.

5,212,512
PHOTOFINISHING SYSTEM
Kazuo Shiota, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Nov. 29, 1991, Ser. No. 799,958
Claims priority, application Japan, Nov. 30, 1990, 2-339170; Nov. 30, 1990, 2-339171
Int. Cl.[5] G03D *3/08*
U.S. Cl. 354—319 **28 Claims**



1. A method of handling a plurality of exposed photographic films of different types which are contained in individual film cartridges, said method comprising the steps of:
developing said photographic films;
winding up each of said developed photographic films individually into corresponding wind-up cartridges; and

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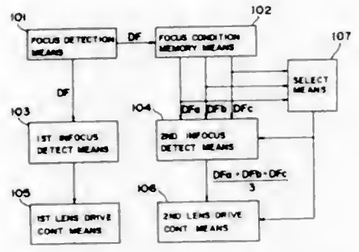
recording identification data on each of said wind-up cartridges, said identification data indicating the type of one of said photographic films wound in a corresponding one of said wind-up cartridge.

5,212,513

AF CAMERA SYSTEM

Tokuji Ishida; Masataka Hamada; Jun Hasegawa; Kenji Ishibashi; Toshio Norita, and Hiroshi Ootsuka, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 276,920, Nov. 28, 1988, Pat. No. 4,998,124.
This application Jan. 10, 1991, Ser. No. 640,268
Claims priority, application Japan, Nov. 26, 1987, 62-299063; Nov. 26, 1987, 62-299064; Nov. 26, 1987, 62-299065; Nov. 26, 1987, 62-299066
Int. Cl.[5] G03B *13/36*; G01J *1/20*
U.S. Cl. 354—402 **8 Claims**



1. An AF camera system for automatically controlling photographing lens for focusing an object comprising:

first focus detection means for detecting a focusing condition of said photographing lens with respect to said object, and for producing a focusing signal based on the detected result;

infocus condition detection means for detecting, based on said focusing signal, an infocus condition of said photographing lens with respect to said object;

focus adjusting means for prohibiting, under a first mode, the lens movement regardless of the detected focusing condition after the detection of infocus condition by said infocus condition detection means, and for adjusting the photographing lens, under a second mode, based on the detected focusing condition even after the detection of infocus condition; and

selecting means for automatically selecting one of said first and second modes of said focus adjusting means based on the focusing signal.

5,212,514

CAMERA HAVING A FOCUS DETECTING OPTICAL SYSTEM

Hisashi Goto, Musashino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 16, 1991, Ser. No. 745,757
Claims priority, application Japan, Aug. 17, 1990, 2-216654
Int. Cl.[5] G03B *13/36, 19/12*
U.S. Cl. 354—402 **5 Claims**

1. A camera having a photographing optical system including a photographic lens and a film plane, a focus detecting optical system, and a finder optical system, comprising:

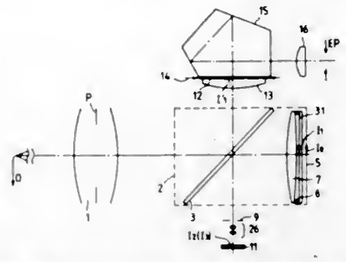
a swing-up type instant-return mirror composed of a half mirror, pivotally mounted in a mirror box;

a reflecting member mounted in said mirror box, located directly before said film plane when said instant-return mirror is placed on an optical path of said photographic lens and removed from the optical path of said photographic lens when said instant-return mirror is removed from the optical path;

a field stop disposed on said reflecting member; and

a condenser lens arranged adjacent to said reflecting member,

so that when said instant-return mirror is placed on the optical path of said photographic lens, part of beams of



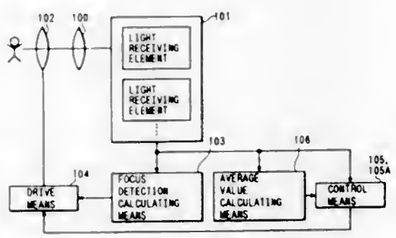
light is reflected from said instant-return mirror and incident on the finder optical system, while the remainder is transmitted through the instant-return mirror, reflected from said reflecting member, further reflected from said instant-return mirror, and incident on the focus detecting optical system.

5,212,515

AUTO-FOCUSING APPARATUS

Akira Ogasawara, Kawasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Dec. 26, 1991, Ser. No. 813,515
Claims priority, application Japan, Jan. 16, 1991, 3-14998
Int. Cl.[5] G03B *13/36*
U.S. Cl. 354—402 **2 Claims**



1. An auto-focusing apparatus comprising:

photo-electric conversion means having a plurality of photosensing elements for sensing a light beam from an object directed through a focus detection optical system to produce object image signals representing light intensities of the photosensing elements;

focus detection means for calculating a defocusing amount representing a focus adjustment status of a photographing optical system in accordance with the object image signals;

drive means for driving said photographing optical system in accordance with the defocusing amount;

control means for calculating the defocusing amount by said focus detection means in accordance with the object image signals when the object image signals of the photosensing elements are at a proper input level of said focus detection means to assure correct focus detection and driving said photographing optical system by said drive means in accordance with the calculated defocusing amount; and

averaging means for calculating a mean value of the object image signals of at least a portion of the photo-sensitive elements,

said control means calculating the defocusing amount by said focus detection means in accordance with the object image signals when the mean value calculated by said averaging means is smaller than a predetermined value even if a portion of the object image signals of the photosensing elements exceeds the proper input level of said focus detection means and driving said photographing optical system by said drive means in accordance with the calculated defocusing amount.

5,212,516

AUTOMATIC FOCUS ADJUSTING DEVICE

Kunihiko Yamada, Tokyo; Akihiro Fujiwara, Kanagawa; Hirofumi Suda, Kanagawa; Masamichi Toyama, Kanagawa, and Kitahiro Kaneda, Kanagawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 500,297, Mar. 27, 1990, abandoned.
This application Feb. 11, 1992, Ser. No. 834,971
Claims priority, application Japan, Mar. 28, 1989, 1-077063; Apr. 11, 1989, 1-091143; Apr. 21, 1989, 1-102344
Int. Cl.[5] G03B *13/00*
U.S. Cl. 354—402 **30 Claims**

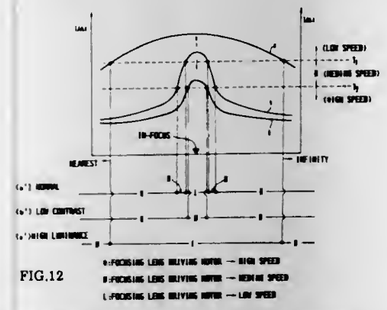


FIG.12

1. An automatic focus adjusting device comprising:

(a) image sensing means for converting an object image formed on an image sensing plane by a photo-taking lens optical system into a video signal;

(b) first detecting means for detecting a predetermined high-frequency component from the video signal;

(c) second detecting means for detecting, from the video signal, a signal corresponding to the sharpness of an edge part of object image;

(d) driving means for driving and varying the position of said photo-taking lens optical system relative to said image sensing plane in the direction in which said high-frequency component and an output level of said signal corresponding to the sharpness of the edge part increase; and

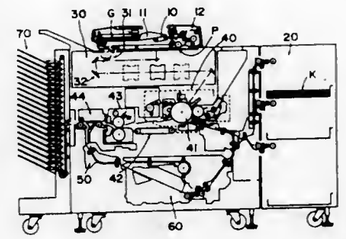
(e) control means for controlling the driving speed of said driving means among plural predetermined driving speeds according to the output of said second detecting means and for controlling change of a threshold value set to be used in changing and selecting said driving speed from said plural predetermined driving speeds according to the depth of field.

5,212,517

COPIER HAVING COPY MODE SELECTION MEANS

Yasushi Yamada; Tsuyoshi Mizubata; Masaru Ushio; Osamu Murata; Tomoya Motoyoshi; Yoshikazu Maekawa, and Masanobu Kawano, all of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Dec. 24, 1991, Ser. No. 812,818
Claims priority, application Japan, Dec. 28, 1990, 2-417100; Dec. 28, 1990, 2-417101; Dec. 28, 1990, 2-417102
Int. Cl.[5] G03B *27/32, 27/52*
U.S. Cl. 355—24 **11 Claims**



1. A copying apparatus for producing a desired number of sets of duplex copy sheets from a set of original document sheets, comprising:

means for inputting the desired number of sets of duplex copy sheets and generating a copy set signal in response thereto,

a platen;

copying means for copying a page of an original document sheet to a side of a sheet of a copy paper when said page is disposed upon said platen;

document feeding means for feeding the original document sheets from a document tray, for placing the original document sheets on said platen, and for returning the original document sheets to said document tray;

copy paper conveying means for feeding a sheet of copy paper to said copying means, for conveying said copy paper to an intermediate tray after copying one page of an original document sheet upon a first side of said copy paper, and for conveying said copy paper from said intermediate tray to said copying means for copying another page of an original document sheet upon the second side of said copy paper;

controlling means for controlling said document feeding means, said copying means, and said copy paper conveying means so as to provide a first and a second copy mode wherein,

said first copy mode comprises copying a first page of said document sheets onto a first side of a desired number of copy papers corresponding to the desired number of sets of duplex copy sheets, copying a second page of said document sheets onto a second side of said desired number of copy papers, and repeating the steps of copying a first page and copying a second page on a desired number of copy papers to copy all pages of said document sheets; and

said second copy mode comprises copying every other page of said document sheets onto a first side of single ones of a plurality of copy papers, copying the remaining pages of said document sheets on a second side of single ones of said plurality of copy papers, and repeating the steps of copying every other page and copying the remaining pages until the desired number of sets of duplex copy sheets has been made; and

selecting means for comparing said copy set signal with a threshold value, said threshold value representing a predetermined number of sets of duplex copy sheets, and selecting said first mode when said inputted desired number is at least said threshold value.

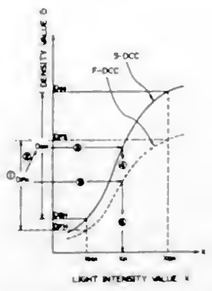
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,518

TONAL CONVERSION METHOD FOR A FADED COLOR PHOTOGRAPHIC ORIGINAL PICTURE

Takashi Numakura, and Iwao Numakura, both of Tokyo, Japan, assignors to Yamatoya & Co., Ltd., Tokyo, Japan

Filed Apr. 8, 1992, Ser. No. 865,891
Claims priority, application Japan, Jul. 30, 1991, 3-211437
Int. Cl.[5] G03B *27/32, 27/80*
U.S. Cl. 355—77 **8 Claims**



1. A tonal conversion method used upon producing a printed picture in a halftone from a faded color photographic original in a continuous tone comprising the steps of:

(i) obtaining a density information value (D_{Fn}) of a pixel (n point) of a color (R, G or B) of the original picture from the faded color photographic original;

(ii) determining an unfaded density information value (D_{Sn}) of the pixel of the color from the density information value (D_{Fn}) by means of Formula (1):

$$D_{Sn}=D_{Fn}\cdot(D_{Su}/D_{Fu}) \quad (1)$$

where

D_{Su}: a density information value of an unexposed area (the darkest area) of an unfaded photographic photosensitive material, taking a preset value; and

D_{Fu}: a measured density information value of an unexposed area (the darkest area) of the faded color photographic original;

(iii) determining a light intensity value (Xn) for the color from the density information value (D_{Sn}) by utilizing photographic density characteristic functions for the color (R, G or B) of an unfaded photographic photosensitive material used upon photographing the color photographic original and determining a basic light intensity value ($_{Xn}$); and

(iv) converting the basic light intensity value ($_{Xn}$) for the color into a halftone dot area % value ($a_{\chi n}$) for a corresponding color plate (C, M or Y plate) by means of Tonal Conversion Formula (2-1):

$$A_{\chi n}=a_H+\alpha(1-10^{-\kappa\cdot\chi n})(a_S-a_H)/(\alpha-\beta) \quad (2\text{-}1)$$

where

χ_n: a basic light intensity value given by $\chi_n=[Xn\text{-}X_{Hn}]$, said χ_n being determined from a difference between a light intensity value (Xn) determined from an unfaded density information value (D_{Sn}) corresponding to a density information value (D_{Fn}) of a pixel (n point) on an original picture and a light intensity value (X_{Hn}) determined from an unfaded density information value (D_{SH}) corresponding to a density information value (D_{FH}) of a highlight area (H area) on the original picture, by utilizing photographic density characteristic functions;

$a_{\chi n}$: a halftone dot area % value set to a pixel (n point) on a color plate (C, M or Y) corresponding to a given pixel (n point) in an original;

a_H: a halftone dot area % value preset to H part of a color plate;

a_S: a halftone dot area % value preset to S part of a color plate;

α: a surface reflectance of a paper used for forming a printed picture;

β: a value determined by $\beta=10^{-\gamma}$;

κ: a value determined by $\kappa=\gamma/(X_{Sn}-X_{Hn})$,

where X_{Sn} is alight intensity value determined from an unfaded density information value (D_{SS}) corresponding to a density information value (D_{FS}) of a shadow area (S area) on an original picture, by utilizing an unfaded photographic density characteristic functions; and

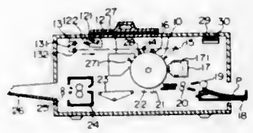
γ: an arbitrary coefficient.

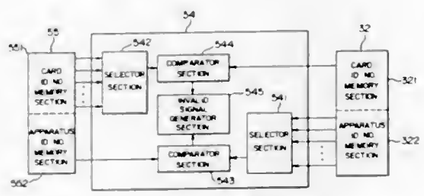
5,212,519

IMAGE FORMING APPARATUS WITH MEMORY CARD

Seitaro Kasahara; Minoru Asakawa, and Yasunori Ohgo, all of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Feb. 7, 1992, Ser. No. 832,226
Claims priority, application Japan, Feb. 12, 1991, 3-18947
Int. Cl.[5] G03G *15/00*
U.S. Cl. 355—200 **3 Claims**





1. An image forming apparatus comprising:

portable memory means adapted to be connected to the main body of the image forming apparatus for memorizing therein a portable memory identification number to identify the portable memory means and a plurality of usable apparatus numbers to represent the usable image forming apparatuses which are to become usable by the connection of the portable memory means;

inner memory means provided in the main body of the image forming apparatus for memorizing an apparatus identification number to identify the same image forming apparatus and a plurality of acceptable portable memory numbers to represent acceptable portable memory means for the same image forming apparatus;

first checking means provided in the main body for checking if the apparatus identification number coincides with any of the plurality of the usable apparatus numbers;

second checking means for checking if the portable identification number coincides with any of the plurality of the acceptable portable memory numbers;

mode selecting means for selecting a check mode from a plurality of predetermined check modes, each check mode determining if each check by the first checking means and the second checking means is to be performed or not; and

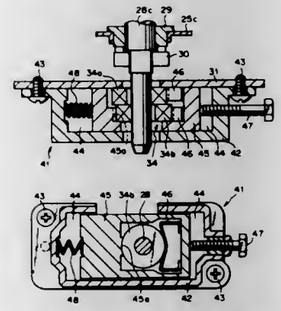
judging means for judging usability of the image forming apparatus by the connection of the portable memory means, which permits the image forming apparatus to perform an image forming operation based on a check result under the selected check mode.

5,212,520

BEARING STRUCTURE FOR SUPPORTING A PHOTOCONDUCTIVE ELEMENT OF AN IMAGE FORMING APPARATUS

Masafumi Toyofuku, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 29, 1991, Ser. No. 799,937
Claims priority, application Japan, Nov. 30, 1990, 2-339669; Nov. 30, 1990, 2-339670; May 7, 1991, 3-101474
Int. Cl.[5] G03G *15/00*
U.S. Cl. 355—200 **11 Claims**



1. A structure for supporting a photoconductive element included in an image forming apparatus, comprising:

a shaft mounting said photoconductive element thereon and journalled to a framework of said apparatus;

a first bearing supporting said shaft and fixed in place by being pressed against said framework;

a second bearing supporting said shaft and adjoining said first bearing, said second bearing being movable relative to said framework and pressed against said shaft in a same direction as said first bearing; and

pressing means for pressing against said first and second bearings such that said pressing means presses upon said first bearing to press the first bearing against said framework, and said pressing means presses upon said second bearing to press the second bearing against said shaft.

5,212,521

DEVELOPING UNIT HOUSING WITH TONER SEALS FOR IMAGE RECORDING APPARATUS

Moriaki Ogawa, Yokohama, and Tetsuo Yamanaka, Kawasaki, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Jan. 30, 1992, Ser. No. 828,786
Claims priority, application Japan, Feb. 6, 1991, 3-15276
Int. Cl.[5] G03G *15/08*
U.S. Cl. 355—215 **15 Claims**

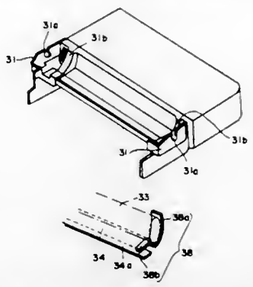
1. A developing unit for supplying developer to a surface of an image carrying medium on which a latent image is formed, so that the latent image is visualized by the developer, said developing unit comprising:

a housing frame containing developer and having an opening;

a developing roller rotatably mounted on said housing frame so as to face the opening of said housing frame, the developer in the housing frame being supplied to the developing roller via the opening;

a blade having a width approximately equal to a length of said developing roller, said blade being in contact with a surface of said developing roller and scraping off the developer adhered to the surface of said developing roller so that a thin developer layer is formed on the surface of said developing roller, the developer being supplied from the thin developer layer to said image carrying medium; and

a sealing member for sealing a continuous gap formed of a first gap between each end of said developing roller and said housing frame and a second gap between each end of said blade and said housing frame, said sealing member being divided into a first sealing member for sealing the



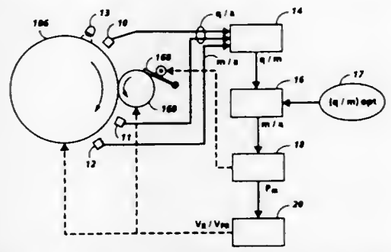
first gap and a second sealing member for sealing the second gap, wherein said first sealing member has a notch formed at a corner thereof, and wherein a corner of said second sealing member is engaged with the notch of said first sealing member so that a corner, of said first sealing member, adjacent to the notch covers a side end of said second sealing member.

5,212,522

BASIC DEVELOPABILITY CONTROL IN SINGLE COMPONENT DEVELOPMENT SYSTEM

John F. Knapp, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 29, 1992, Ser. No. 906,090
Int. Cl.[5] G03G *15/08*
U.S. Cl. 355—208 **14 Claims**



1. An apparatus for maintaining a selected ratio of electrostatic charge per unit mass for particles adhering to a member transporting to a surface having a latent image recorded thereon, comprising:

means for controlling a ratio of particle mass to the member surface area; and

means for adjusting the controlling means as a function of the selected ratio of electrostatic charge to unit mass to regulate the ratio of particle mass to the member surface area so as to substantially maintain particle electrostatic charge to unit mass ratio at the selected ratio of electrostatic charge to unit mass.

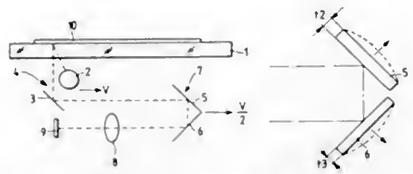
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,523

IMAGE READ DEVICE WITH REDUCED MIRROR VIBRATION

Masuji Ogaiwara, and Takashi Tomaru, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed May 12, 1992, Ser. No. 881,968
Claims priority, application Japan, May 13, 1991, 3-107289
Int. Cl.[5] G03G *15/28*
U.S. Cl. 355—233 9 Claims



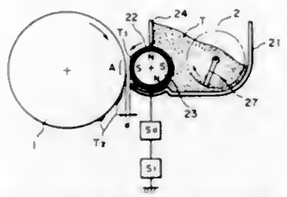
1. In an image read device in which an original document located on a platen glass is exposed to and scanned with a light from a light source, to obtain a light image representative of a picture on said original, and the light image is guided through an optical system including at least first to third mirror elements to an image pick-up unit, the improvement in which the natural frequencies of said first to third mirror elements are different from each other.

5,212,524

TONER FOR DEVELOPING ELECTROSTATIC IMAGES, IMAGE FORMING METHOD AND IMAGE FORMING APPARATUS

Hirohide Tanikawa; Yasutaka Akashi, both of Yokohama; Masaki Uchiyama, Ichikawa; Makoto Unno, Tokyo, and Masaaki Taya, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 604,207, Oct. 29, 1990, Pat. No. 5,169,738.
This application Aug. 31, 1992, Ser. No. 937,114
Claims priority, application Japan, Nov. 9, 1989, 1-289882; Mar. 2, 1990, 2-051196
Int. Cl.[5] G03G *15/09*
U.S. Cl. 355—251 6 Claims



1. An image forming apparatus, comprising: a latent image-bearing member for holding an electrostatic image thereon, a toner-carrying member for carrying a layer of a magnetic toner thereon, a toner vessel for holding the magnetic toner to be supplied to the toner-carrying member, a toner layer-regulating member for regulating the magnetic toner layer on the toner-carrying member, and a bias application means for applying an alternating bias voltage comprising a DC bias voltage and an unsymmetrical AC bias voltage in superposition between the toner-carrying member and the latent image-bearing member, wherein
- the latent image-bearing member and the toner-carrying member are disposed with a prescribed gap therebetween at a developing station;
- the toner layer-regulating means is disposed to regulate the magnetic toner layer on the toner-carrying member in a thickness thinner than the prescribed gap;
- the magnetic toner comprises a binder resin and magnetic powder and has a volume-average particle size of 4–10 microns, the binder resin comprises a vinyl copolymer having an acid anhydride group, and the binder resin has a total acid value (A) of 2–100 mgKOH/g and a total acid value (B) attributable to acid anhydride group of below 6 mgKOH/g so that $[(B)/(A)]\times 100$ is 60% or less; and

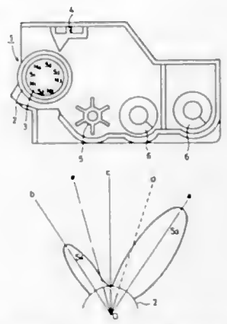
the bias application means is disposed to provide an alternating bias electric field comprising a development-side voltage component and a reverse-development side voltage component, the development-side voltage component having a magnitude equal to or larger than that of the reverse development-side voltage component and a duration smaller than that of the reverse-development side voltage component, so that the magnetic toner on the toner-carrying member is transferred to the latent image-bearing member to develop the electrostatic image thereon at the developing station.

5,212,525

DEVELOPING MAGNETIC ROLLER HAVING REPULSIVE MAGNETIC POLES AND DEVELOPER-LIMITING MEMBER

Tsuneo Noami; Takeshi Sumikawa, and Nobumasa Furuya, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 11, 1991, Ser. No. 773,849
Claims priority, application Japan, Oct. 25, 1990, 2-288045; Sep. 30, 1991, 3-276372
Int. Cl.[5] G03G *15/09*
U.S. Cl. 355—251 3 Claims



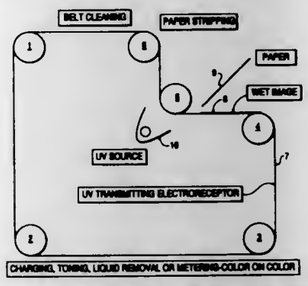
1. A dual component developing device for developing an electrostatic latent image formed on a latent image carrier, said developing device comprising:
- a rotatable nonmagnetic sleeve;
- a magnetic roll mounted inside said sleeve, said magnetic roll having repulsive magnetic poles of the same polarity disposed adjacent one another; and
- a developer-limiting member formed from a nonmagnetic material, said developer-limiting member being disposed opposite to said repulsive magnetic poles and substantially midway between a position at which the magnetic force produced from one of said repulsive magnetic poles disposed upstream from the developer-limiting member relative to the direction of rotation of said sleeve is maximal and a position at which the sum of the magnetic forces produced by said repulsive magnetic poles is minimal.

5,212,526

PROCESS AND APPARATUS FOR TRANSFERRING AND FUSING AN IMAGE TO A RECORDING MEDIUM

Gerald A. Domoto, Briar Cliff Manor, and Elias Panides, Whitestone, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 27, 1991, Ser. No. 799,253
Int. Cl.[5] G03B *13/14, 13/20, 15/14, 15/20*
U.S. Cl. 355—271 27 Claims



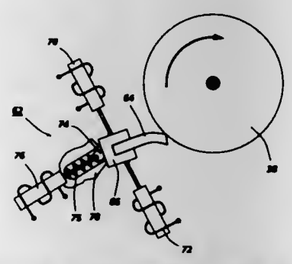
1. The method of transferring an image from an image receptor to a recording medium, which method comprises:
- forming a toned image layer on a surface of an image receptor, the toned image layer comprising a toner material and a radiation-curable material;
- contacting a recording medium with the toned image layer; and
- irradiating the toned image layer in contact with the recording medium to cure said radiation curable material;
- wherein the resulting cured material has greater adhesion to the toner material and the recording medium than to the surface of the image receptor.

5,212,527

DUAL MODE OIL APPLYING BLADE FOR APPLYING DIFFERENT OIL RATES DEPENDING ON OPERATING MODE OF AN IMAGE CREATION APPARATUS

Paul M. Fromm, Rochester, and Rabin Moser, Victor, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 20, 1992, Ser. No. 870,966
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—284 14 Claims



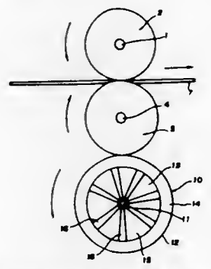
1. Apparatus for applying offset preventing liquid to one member of a contact fuser for fixing powder images to a substrate wherein the contact fuser includes a supply of release agent material, a release agent metering member supported for contact with said supply of release agent material and a donor member contacting the metering member and a fuser member, said apparatus comprising:
- a release agent metering member supported for movement in an endless path and contact with a supply of release agent material;
- a blade structure for pressure contacting said metering member in a first mode of operation for applying a predetermined quantity of release agent material to the surface of said metering member and for pressure contacting said metering member in a second mode of operation for metering a quantity of release agent material to said metering member which is less than said predetermined quantity of release agent material.

5,212,528

FIXING DEVICE AND METHOD WHICH USES A HEAT DISSIPATING ROLLER HAVING FINS

Yasuhiko Matsuda, Hanamaki, Japan, assignor to Sato Corporation, Japan

Filed Nov. 5, 1991, Ser. No. 788,198
Claims priority, application Japan, Nov. 7, 1990, 2-302269
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—285 4 Claims



1. In a thermal toner fixing device for a xerographic apparatus which fixes a toner image to a sheet of paper having the toner image disposed thereon by heating the sheet of paper as it is passed between a rotatable heat roller and a rotatable pressure roller in contact with the heat roller, heat dissipation means for dissipating heat accumulating in the pressure roller and for maintaining heat deformation of the pressure roller substantially uniform, the heat dissipation means comprising a heat absorbing roller in contact with the pressure roller for dissipating heat absorbed by the pressure roller from the heat roller, the heat absorbing roller including a substantially hollow interior, a central hub, a cylindrical roller surface disposed radially outward from said hub, an inner surface facing said hub, and a plurality of substantially equiangularly spaced heat dissipation fins disposed in the hollow interior and extending radially between the hub and the inner surface for connecting said hub to said cylindrical surface and for dissipating heat absorbed by the cylindrical surface into the hollow interior, and further comprising a cooling fan for circulating air and removing heat from said hollow interior.

5,212,529

HEAT AND PRESSURE FUSER

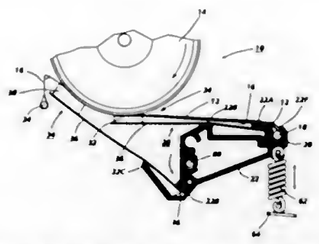
Daniel L. Morris; David A. Bartman, both of Webster; Albert E. Andrews, Rochester; Emilio J. Giuseppetti, Webster; Paul M. Achtziger, Ontario; Paul J. Rowe, Williamson, and Donald L. Pease, Honeoye, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 26, 1992, Ser. No. 888,949
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—290 7 Claims

1. A heat and pressure fusing system for fusing a toner image on a copy sheet having a leading and trailing edge comprising:
- a rotatable heated fuser roll,
- a thin web in pressure contact with the fuser roll along a wrap angle of less than 70° of the total arc circumference of the fuser roll, said wrap angle defining the area in which the toner image is fused, and
- web biasing means for maintaining the web in contact with

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the roll surface at at least two pressure differentials along said wrap angle area, said fusing system further including an entrance nip formed at the roll and web interface for engaging the leading edge of the copy sheet and wherein said web biasing means includes a first flexible blade member mounted so as to apply a first biasing pressure to said web at a point beginning at said entrance nip and extending over an area A of the total wrap angle area, and a second flexible blade member mounted so as to apply a second biasing pressure to said web across an area B of the wrap angle area separated from area A and wherein said first and second pressures applied by said first and second blade members are within a pressure range of 16 to 22 pounds.

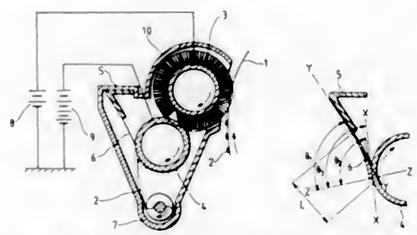


5,212,530

CLEANING UNIT FOR A XEROGRAPHIC PRINTING MACHINE

Toshimitsu Harada, Ibaraki; Sadaki Maeda, Osaka; Shinichi Nishino, and Toshitaka Ogawa, both of Ibaraki, all of Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed Nov. 29, 1991, Ser. No. 800,088
Claims priority, application Japan, Nov. 30, 1990, 2-337683
Int. Cl.[5] G03G 21/00
U.S. Cl. 355—301 10 Claims



1. A cleaning unit for mechanically or electrostatically removing particles from a member to be cleaned, comprising:

a cleaning brush in rotating contact with a member to be cleaned;

a cleaning roll, in contact with said cleaning brush so as to electrostatically and magnetically remove particles from said cleaning brush; and

a cleaning blade supported in cantilever fashion at a base thereof by a blade holder, said cleaning blade being positioned such that a top surface of said cleaning blade presses against said cleaning roll at a free end of said blade so as to remove said toner deposited on a surface of said cleaning roll, said cleaning blade being a resilient, thin metal plate;

wherein said cleaning blade is bonded to a bonding surface of said blade holder so that said cleaning blade extends from an end of said blade holder, said cleaning blade is bent in a concave manner on a bottom surface thereof opposite of said cleaning roll, and said bonding surface is inclined with relation to said cleaning roll so as to satisfy the angular relationships $\theta 1 < 90°$, $\theta 1 < \theta 2$, $\theta 2 < \theta 3$, and $90° < \theta 3 < 180\infty$, where, when a line Z—Z is normal to a line P—P tangent to said top surface of said cleaning blade at a contact portion between said top surface of said cleaning blade and said cleaning roll:

$\theta 1$ is an angle between the line Z—Z and a line Y—Y tangentially extending from said bonding surface of said blade holder;

$\theta 2$ is an angle between the line Z—Z and the line P—P; and

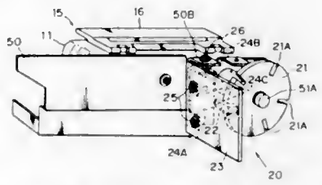
$\theta 3$ is an angle between the line Z—Z and a line X—X tangent to a surface of said cleaning roll at said contact portion between said cleaning blade and said cleaning roll.

5,212,531

PRINTING POSITION ADJUSTMENT MECHANISM FOR PRINTER

Yoshio Monma, Ooi, and Ikuo Negoro, Sakado, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 8, 1991, Ser. No. 681,746
Claims priority, application Japan, Apr. 10, 1990, 2-94420
Int. Cl.[5] G03G 21/00
U.S. Cl. 355—316 13 Claims



1. An apparatus for forming an image on a recording medium, said apparatus comprising:

(a) means for feeding the recording medium;

(b) means for generating a pulse signal, the number of pulses of said pulse signal corresponding to the feeding amount of said recording medium;

(c) means for detecting a predetermined position on said recording medium; and

(d) means for shifting the phase of said pulse signal in relation to said predetermined position of said recording medium, wherein said means for shifting the phase of said pulse signal comprises means for mounting said means for generating a pulse signal, said mounting means being movable to change the position of said means for generating a pulse signal.

5,212,532

ELECTROPHOTOGRAPHIC COLOR PRINTER USING GRIT WHEELS FOR IMPARTING LINEAR MOTION TO THE PRINTED MEDIA

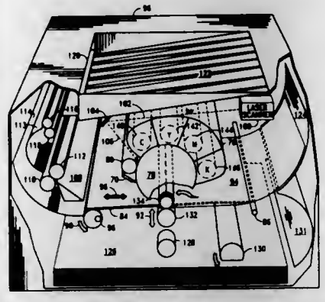
Chris A. Storlie, Boise, Id., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 15, 1992, Ser. No. 883,844
Int. Cl.[5] G03G 15/01
U.S. Cl. 355—326 9 Claims

1. A multiple pas electrophotographic color printer including, in combination:

a. means including a multi-color supply carousel positioned adjacent to a photoconductive drum for transferring primary colors such as cyan, magenta, yellow, and black toner in sequence to the drum during a printing operation, and

b. media transport means including a pair of drive or grit wheels mounted above and below a fixed position media receiving platform for providing controlled back and forth linear motion of said media as each color is serially transferred respectively from each of a plurality of different color supplies in said carousel, first to said drum and then to said media.

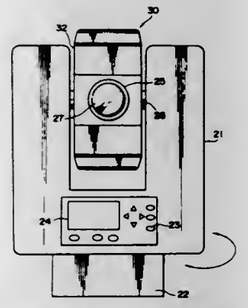


5,212,533

LIGHT WAVE DISTANCE METER

Hiroto Shibuya, and Kouichi Kitagata, both of Tokyo, Japan, assignors to Kabushiki Kaisha Topcon, Tokyo, Japan

Filed Nov. 13, 1991, Ser. No. 792,198
Claims priority, application Japan, Nov. 14, 1990, 2-309764
Int. Cl.[5] G01C 3/08
U.S. Cl. 356—5 3 Claims



1. A distance measuring device comprising:

a supportable telescope unit including a case, said case including a telescope, first and second chambers on one side of said telescope and third and fourth chambers on the opposite side of said telescope;

a target;

analog photoemitter means in said second chamber for directing modulated light toward said target in response to a first signal;

analog photodetector means in said third chamber for receiving modulated light reflected from said target and generating a second signal in response thereto;

processing means in said first chamber for determining the distance to the target based upon said first and second signals; and

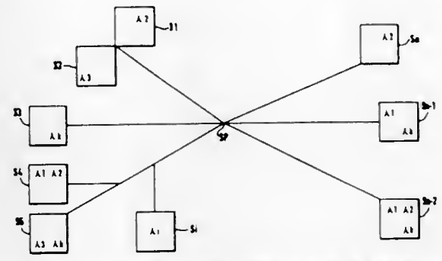
power supply means in said fourth chamber for supplying power to said analog photoemitter means, analog photodetector means and said processing means.

5,212,534

DISTANCE-MEASURING METHOD AND TRANSMITTING AND RECEIVING STATION FOR CARRYING OUT THE SAME

Alessandro Bianchi, Albano Laziale; Guiseppe Comito, Pomezia, and Andrea Fantini, Tivoli, all of Italy, assignors to Alcatel N.V., Amsterdam, Netherlands

Filed Nov. 22, 1991, Ser. No. 796,414
Claims priority, application Italy, Nov. 22, 1990, 22157 A/90
Int. Cl.[5] H04J 1/00
U.S. Cl. 356—5 19 Claims



1. Method of measuring the distance from a station of a passive optical star network to a central node of said passive optical star network when said station is put into operation, comprising the steps of:

transmitting a signal on a wavelength not being used for message transmission; and

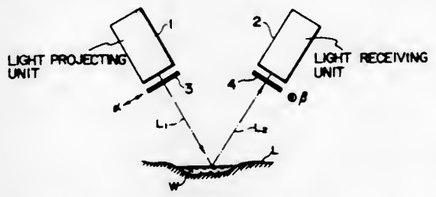
measuring delay until receipt of an echo signal, whereby the delay corresponds to a distance measurement.

5,212,535

SPATIAL FILTER TYPE SPEED MEASURING APPARATUS

Hidenori Miyazaki, Takatsuki, and Hiroshi Kitajima, Kyoto, both of Japan, assignors to Omron Corporation, Kyoto, Japan

Filed Jun. 19, 1991, Ser. No. 716,809
Claims priority, application Japan, Jun. 20, 1990, 2-163420
Int. Cl.[5] G01P 3/36; B60T 7/16
U.S. Cl. 356—28 10 Claims



1. A speed measuring apparatus comprising:

a light projecting unit comprising a light source for emitting light, an optical projection system arranged to project a light from the light source onto a relatively moving object, and a first polarizer disposed in the optical projection system for allowing the passage of one polarized light component of the light from the light source as projected light;

a light receiving unit comprising a second polarizer arranged to allow the passage of polarized light in a direction at right angles to the direction of polarization of the projected light reflected from the relatively moving object, and spatial filter means for taking out a predetermined spatial frequency component of the polarized light passed through the second polarizer and outputting an electrical signal representing the frequency component; and

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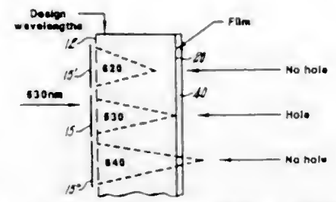
means for calculating the relative speed of the relatively moving object on the basis of the signal from the spatial filter means.

5,212,536

FRESNEL LENS BASED SPECTROSCOPIC DETECTOR

Gary A. Ball, Newington, and Richard A. Meinzer, Glastonbury, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jun. 18, 1991, Ser. No. 716,873
Int. Cl.[5] G01J *3/00*
U.S. Cl. 356—300 **9 Claims**



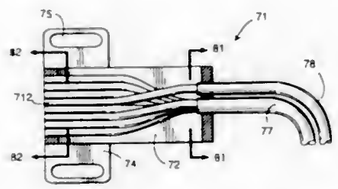
1. A device for detecting optical radiation, comprising:
a lens array of at least one Fresnel lens in a first plane, each member of said array having a common predetermined focal length at a predetermined wavelength different from the other members, disposed on a first surface of said device, for intercepting optical radiation and focusing said intercepted optical radiation to an array of focal spots; and
a detecting film disposed parallel to said array of at least one Fresnel lens, said detecting film disposed in a second plane separated from said first plane by said predetermined focal length and being formed from a predetermined material having a predetermined damage threshold for optical radiation wherein radiation emitted from said lens array carrying a sample intensity level exceeding said predetermined damage threshold for a certain dwell time.

5,212,537

CALIBRATION TECHNIQUE FOR MONOCHROMATORS AND SPECTROPHOTOMETERS

Monoocher Birang, Los Gatos; Kien Chuc; Ronnie Northrup, both of San Jose, and Bruno Strul, Palo Alto, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Jul. 12, 1990, Ser. No. 551,349
Int. Cl.[5] G01J *3/00*
U.S. Cl. 356—300 **6 Claims**



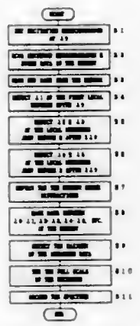
1. An optical test apparatus comprising:
a photometer having an optical entrance for input of an optical signal;
at least one optical fiber having an exit end at said optical entrance for transmission of sample light to the photometer optical entrance;
at least one optical fiber having an exit end at said optical entrance for transmission of calibration light to the photometer optical entrance; and
means for aligning said exit ends of all of these optical fibers into a linear array
wherein at least one optical fiber is utilized to carry light from a calibration source to said optical entrance, said at least one optical fiber for carrying calibration light is positioned at the optical entrance in such a way that, over a wavelength range of the test apparatus, minimizes astigmatic misalignment of a pair of peaks, a first of these peaks being produced in response to light of wavelength λ transmitted only through said at least one calibration fiber and the other of these two peaks being produced in response to light of wavelength λ transmitted only through said at least one fiber for transmission of sample light.

5,212,538

FLUORESCENCE MEASUREMENT APPARATUS WITH AN AUTOMATIC RECORDER FULL-SCALE SETTING FUNCTION

Tsutomu Hayashi, Kyoto, Japan, assignor to Shimadzu Corporation, Kyoto, Japan

Filed Oct. 8, 1991, Ser. No. 772,878
Claims priority, application Japan, Oct. 19, 1990, 2-283116
Int. Cl.[5] G01N *21/64*
U.S. Cl. 356—318 **18 Claims**



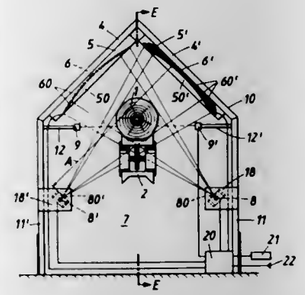
1. A fluorescence measurement apparatus for analyzing a spectrum curve of fluorescent light emitted from a sample irradiated by an excitation light, comprising:
an excitation light generator;
an emitted light detector;
scanning means for holding one of the emitted light detector and the excitation light generator at a fixed wavelength and scanning the other of the emitted light detector and excitation light generator over a range of wavelengths;
a memory for storing data of the spectrum curve; and
analyzing means for analyzing the stored data to determine data corresponding to peaks of the spectrum curve about multiples of the fixed wavelength and data corresponding to minima of the spectrum curve adjacent the determined peaks, and for generating a corrected spectrum curve by disregarding data between the determined minima corresponding to the determined peaks;
scale setting means for detecting a maximum peak value of the corrected spectrum curve and setting a scale based on the detected maximum peak value; and
a recorder for recording the corrected spectrum curve, wherein a full scale of the recorder is set to the scale set by the scale setting means.

5,212,539

APPARATUS FOR DETERMINING AT LEAST ONE SIZE PARAMETER OF AN OBJECT WHETHER IT IS MOVING OR AT REST

Johann-Peter Wögerbauer, Linz, Austria, assignor to Sprecher Energie Österreich GmbH, Linz, Austria

Filed Dec. 6, 1991, Ser. No. 804,219
Claims priority, application Austria, Dec. 10, 1990, 2497/90
Int. Cl.[5] G01B *11/08*
U.S. Cl. 356—379 **10 Claims**



1. An apparatus for determining at least one size parameter of an object having a longitudinal axis extending in a predetermined direction, whether said object is at rest or moving in said predetermined direction, which apparatus comprises
(a) a measuring portal defining a measuring plane extending substantially perpendicularly to said predetermined direction, which portal comprises at least two support beams for light receiving means, the support beams enclosing a predetermined angle with each other,
(1) each support beam having a side face facing the measuring plane,
(2) the light receiving means comprising a plurality of light receiving elements arranged in at least one row on said side face of each support beam and extending therealong,
(b) an optoelectronic measuring system comprising light transmitting means and said light receiving means optically communicating with said light transmitting means, the light transmitting and receiving means being disposed in said measuring plane,
(1) the light transmitting means comprising a single light transmitting element associated with each row of the light receiving elements and spaced in the measuring plane a predetermined distance from the support beam whereon the light receiving elements are arranged, each light transmitting element being operable to emit a fan-like light beam incident on the light receiving elements of the associated row, and the measuring system comprising
(2) an evaluating unit responsive to said light receiving means, and
(c) activating means for periodically activating said light transmitting elements to emit said fan-like light beams.

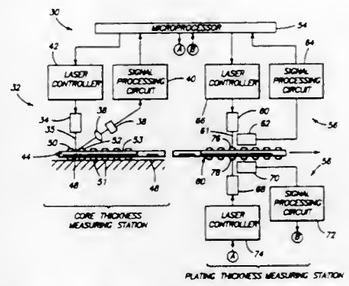
5,212,540

METHOD FOR MEASURING A THICKNESS OF A PRINTED CIRCUIT BOARD

Donald W. Miller, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Nov. 22, 1991, Ser. No. 796,465
Int. Cl.[5] G01B *11/06*
U.S. Cl. 356—381 **27 Claims**

1. A method for measuring a thickness of a printed circuit board having a plating portion of a first material provided on a core portion of a second material, the printed circuit board having a total thickness, the method comprising the steps of:
directing a laser beam to the core portion of the printed circuit board, the laser beam at least partially reflecting from the core portion;
monitoring the laser beam reflected from the core portion;
deriving a thickness of the core portion based upon the monitoring of the laser beam reflected from the core portion to measure a first partial thickness of the total printed circuit board thickness;



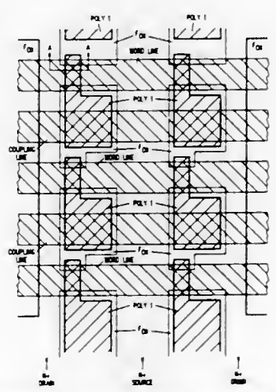
heating the plating portion of the printed circuit board by transferring a selected amount of energy to the plating portion;
monitoring thermal characteristics of the plating portion upon transfer of the selected around of energy to the plating portion; and
deriving a thickness of the plating portion of the printed circuit board independent of the core portion based upon the thermal characteristics to measure a second partial thickness of the total printed circuit board thickness, the second partial thickness being separated from the first partial thickness.

5,212,541

CONTACTLESS, 5V, HIGH SPEED EPROM/FLASH EPROM ARRAY UTILIZING CELLS PROGRAMMED USING SOURCE SIDE INJECTION

Albert M. Bergemont, San Jose, Calif., assignor to National Semiconductor Corporation

Filed Apr. 18, 1991, Ser. No. 687,281
Int. Cl.[5] H01L *29/68*
U.S. Cl. 257—319 **5 Claims**

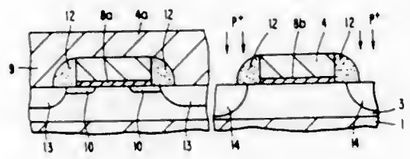


1. A contactless, 5V only EPROM cell array formed in a silicon substrate, the EPROM cell array comprising:

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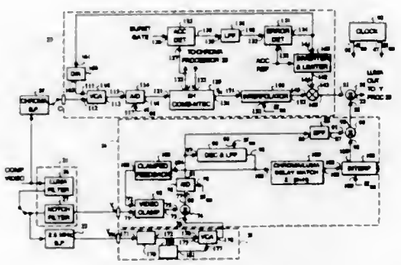
(a) an N+ source line formed in the silicon substrate;
(b) first and second N+drain lines formed in parallel with and spaced-apart from the source line on opposite sides of the source line to define respective first and second substrate channel regions therebetween;
(c) first and second field oxide strips formed in parallel with and spaced-apart from the first and second drain lines, respectively, such that the source line/drain line structure is isolated by the first and second field oxide strips to separate such structure from adjacent similar source/drain structures in the array;
(d) a layer of first insulating material formed over the channel regions;
(e) first and second array field oxide regions formed in the substrate between the first drain line and the source line and the second drain line and the source line, respectively;
(f) first and second floating gates formed on the first insulating material and overlying a first portion of the corresponding first and second channel regions, respectively, that extends from an edge of the corresponding drain region to an intermediate point of the channel region thereby defining a second portion at the channel region that extends from the intermediate point to an edge of the source line and over which the floating gate does not extend, the floating gate including a coupling portion that extends over the corresponding array field oxide region;
(g) a layer of second insulating material formed over the first and second floating gates, including the coupling portion thereof;
(h) a conductive control gate line overlying the first and second floating gates but separated therefrom by the layer of second insulating material and comprising first and second access portions overlying the second portion of the first and second channel regions, respectively, but separated therefrom by the layer of first insulating material; and
(i) a conductive coupling line overlying the coupling portion of the first and second floating gates but separated therefrom by the layer of second insulating material.

5,212,542
SEMICONDUCTOR DEVICE HAVING AT LEAST TWO FIELD EFFECT TRANSISTORS AND METHOD OF MANUFACTURING THE SAME
Yoshinori Okumura, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 26, 1991, Ser. No. 675,247
Claims priority, application Japan, May 30, 1990, 2-142194
Int. Cl.[5] H01L *27/02, 21/265*
U.S. Cl. 257—369 **9 Claims**



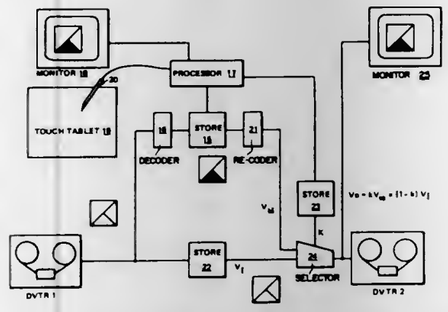
1. A complementary field effect transistor with an N channel MOSFET and a P channel MOSFET formed on the same substrate, comprising:
a semiconductor substrate having an N type main surface and a P type main surface,
an N channel MOSFET including a gate electrode and a pair of impurity regions which becomes a pair of source/drain regions, formed on the P type main surface of said semiconductor substrate,
a P channel MOSFET including a gate electrode and a pair of impurity regions which becomes a pair of source/drain regions, formed on the N type main surface of said semiconductor substrate,
each impurity region of said N channel MOSFET comprising an impurity region of relatively low concentration formed so as to extend beneath said gate electrode, and an impurity region having a concentration higher than that of said impurity region of low concentration formed at a distance from said gate electrode and joining said impurity region of low concentration,
the length of the portion located beneath said gate electrode in the surface portion of said impurity region of low concentration being not less than 0.1 μm in the direction identical to the direction of the channel length to position a maximum electric field of said impurity region of low concentration beneath said gate electrode, and
wherein said impurity region of said P channel MOSFET does not extend beneath said gate electrode of said P channel MOSFET.

5,212,543
VIDEO PROCESSOR HAVING REDUCED CAPACITY LUMINANCE DELAY CIRCUIT
Gopal K. Srivastava, Arlington Heights, Ill., assignor to Zenith Electronics Corporation, Glenview, Ill.
Filed Oct. 3, 1991, Ser. No. 770,503
Int. Cl.[5] H04N *9/77, 9/78*
U.S. Cl. 358—21 R **17 Claims**



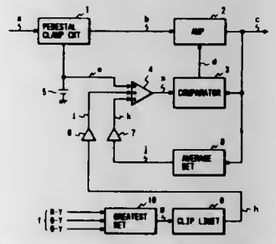
1. For use in an image display system responsive to a composite video signal having chrominance and luminance information, video processing means comprising:
receiving means for receiving said composite video signal;
separating means for separating said luminance information from said chrominance information to provide a luminance signal;
signal means for processing said luminance signal to produce a lower frequency portion digital signal clocked at a low frequency and a higher frequency portion digital signal clocked at a high frequency;
delay means for delaying said lower frequency portion digital signal to produce a delayed lower frequency portion digital signal;
converting means for converting said delayed lower frequency portion digital signal to a high frequency clocked delayed lower frequency portion digital signal; and
combining means for combining said higher frequency portion digital signal and said high frequency clocked delayed lower frequency portion digital signal.

5,212,544
METHOD AND APPARATUS FOR MANIPULATING VIDEO IMAGE SIGNALS
Paul R. N. Kellar, Newbury, England; Neil R. Hinson, and Alan L. Stapleton, both of Berkshire, United Kingdom, assignors to Quantel Limited, Newbury, Great Britain
PCT No. PCT/GB89/00701, § 371 Date Apr. 30, 1990, § 102(e) Date Apr. 30, 1990, PCT Pub. No. WO89/12943, PCT Pub. Date Dec. 28, 1989
PCT Filed Jun. 22, 1989, Ser. No. 466,410
Claims priority, application United Kingdom, Jun. 25, 1988, 8815182
Int. Cl.[5] H04N *9/74*
U.S. Cl. 358—22 **16 Claims**



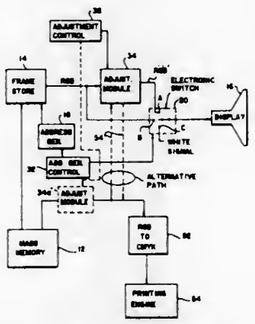
15. A method of modifying composite video signals comprising storing an original composite video signal unaltered and, in addition, decoding the original composite video signal into a component signal form and storing the resulting signal in component signal form, manipulating at least selected portions of the signal which is in component signal form, crating a corresponding control signal during said manipulation, and re-coding at least the manipulated portions of the signal which is in component signal form into a composite form and combine the re-coded signal which is in the composite form with said unaltered original composite signal under control of said control signal.

5,212,545
APPARATUS FOR CORRECTING A BLACK LEVEL OF A VIDEO SIGNAL
Atsuhisa Kageyama, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed May 30, 1991, Ser. No. 708,141
Claims priority, application Japan, Jun. 5, 1990, 2-148285
Int. Cl.[5] H04N *9/73*
U.S. Cl. 358—29 **5 Claims**



1. An apparatus for correcting a black level of a video signal, comprising:
pedestal clamping means for clamping a pedestal level of an input video signal in response to a predetermined pedestal voltage, and converting the input video signal into a clamped video signal;
black-level expanding means for expanding a tone of a black portion of the clamped video signal, and converting the clamped video signal into a black-level expanded video signal;
color greatest detecting means for detecting a greatest of color signals of the input video signal;
adding means for adding an output signal from the color greatest detecting means and the pedestal voltage; and
black-level comparing means, responsive to the black-level expanded video signal and an output signal from the adding means, for detecting a blackest portion of the black-level expanded video signal, comparing the detected blackest portion of the black-level expanded video signal with the output signal from the adding means, and controlling a degree of expanding the black tone by the black-level expanding means in response to a difference between the detected blackest portion of the black-level expanded video signal and the output signal from the adding means.

5,212,546
COLOR CORRECTION SYSTEM EMPLOYING REFERENCE PICTURES
Efraim Arazi, San Francisco, Calif.; William F. Schreiber, Cambridge, Mass., and Abraham A. Bar, Palo Alto, Calif., assignors to Electronics for Imaging, Inc., San Mateo, Calif.
Continuation-in-part of Ser. No. 547,074, Jul. 3, 1990, abandoned. This application Sep. 14, 1990, Ser. No. 582,054
Int. Cl.[5] G03F *3/08*
U.S. Cl. 358—80 **66 Claims**



1. A color correction system comprising:
a first image appearance value storage device containing a first set of appearance values which represent a first color image and wherein appearance values are values that represent color and that are RGB values or may be obtained by a reversible transformation of RGB values;
a variable image appearance value adjustment device connected to said first image appearance value storage device;
an image display connected to said variable image appearance value adjustment device;
a second image appearance value storage device containing a second set of appearance values which represent a second color image connected to said display; and
an appearance value to colorant value converter connected to said variable image appearance value adjustment device.

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5,212,547

IMAGE PROCESSING DEVICE AND METHOD FOR SENSING MOVING OBJECTS AND RANGEFINDER EMPLOYING THE SAME

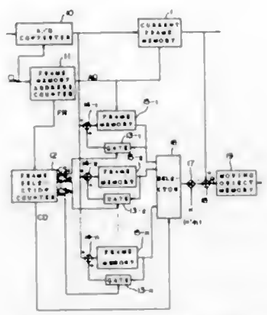
Akira Otsuki, Matsudo, Japan, assignor to Fujikura Ltd. and FMT Ltd., Japan

Filed Jul. 8, 1991, Ser. No. 726,938

Claims priority, application Japan, Jul. 6, 1990, 2-179047; Jul. 31, 1990, 2-203018

Int. Cl.[5] H04N *7/18, 17/00*

U.S. Cl. 358—105 **5 Claims**



1. An image processing method for detecting a moving object in a field of view comprising the steps of:

a) utilizing a video camera to generate sequential video data on a field of view of the video camera comprising a consecutive series of video frames taken by the video camera;

b) storing the sequential video data generated by the video camera in a memory for a consecutive series of video frames obtained over a predetermined time interval at a predetermined sampling rate;

c) generating a standard image by averaging the video data stored in memory for the predetermined time interval to obtain video data representing a composite standard image over the predetermined time interval; and

d) subtracting the video data for the standard image from video data for a current video frame to detect a moving object in the field of view.

5,212,548

APPARATUS FOR MOTION VECTOR ESTIMATION WITH ASYMMETRIC UPDATE REGION

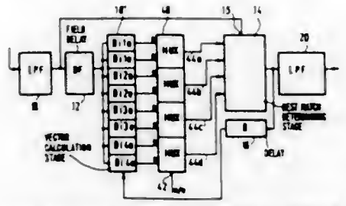
Gerard de Haan, and Hendrik Huijgen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 29, 1991, Ser. No. 751,289

Claims priority, application European Pat. Off., Sep. 3, 1990, 90202328.2

Int. Cl.[5] H04N *7/18*

U.S. Cl. 358—105 **17 Claims**



1. A block matching motion estimation apparatus for matching pixel values of blocks in a given field to pixel values in blocks of a previous field shifted relative to corresponding blocks in said given field by x and y values constituting components of an output motion vector, said apparatus comprising:

a) a delay furnishing a delayed output motion vector constituting a prediction vector,

b) a candidate motion vector generator connected to said delay for adding at least first and second increment vectors having mutually different directions to said prediction vector thereby generating at least first and second candidate motion vectors, and

c) a selection circuits for selecting said output motion vector from said candidate motion vectors, wherein said first increment vector has a first vector length and said second increment vector has a second vector length different from said first vector length.

5,212,549

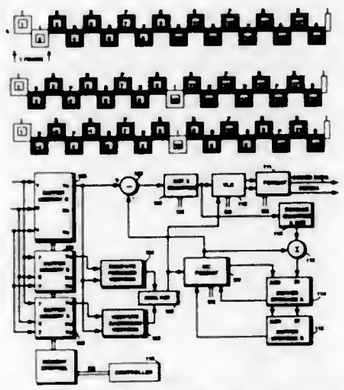
ERROR CONCEALMENT APPARATUS FOR A COMPRESSED VIDEO SIGNAL PROCESSING SYSTEM

Sheau-Bao Ng, Cranbury, and Eric P. Herrmann, Bound Brook, both of N.J., assignors to RCA Thomson Licensing Corporation, Princeton, N.J.

Division of Ser. No. 692,868, Apr. 29, 1991, Pat. No. 5,146,325. This application Jun. 16, 1992, Ser. No. 899,528

Int. Cl.[5] H04N *7/13*

U.S. Cl. 358—135 **7 Claims**



1. Error concealment apparatus for a video signal processor of the type for decompressing a compressed image representative signal which has been compressed in groups of frames, with at least the first frame in each group of frames having been intraframe encoded, and ones of the remaining frames of each group having been predictive encoded, and wherein frames of respective groups of frames from which other frames have been predictive encoded are herein designated as anchor frames, said compressed image representative signal occurring in segments of data of less than a frame and susceptible of incurring errors during transmission, said segments including error check bits from which errors in segments may be detected, said apparatus comprising:

receiver means for detecting transmitted said compressed image representative signal and providing a detected compressed image representative signal;

error detection/correction means, responsive to detected compressed image representative signal, for detecting and correcting correctable errors and detecting further errors which are not correctable and generating error indications E for respective segments of data having uncorrectabe errors;

means responsive to said error indications E for mapping said uncorrectable errors in an error map for respective frames;

means for propagating, in said error map, error indications occurring in at least said anchor frames, into corresponding spatial locations of successive anchor frames within a group of frames; and

means responsive to said propagated error indications for providing substitute image data for image data corresponding to said corresponding spatial locations.

5,212,550

MUSE/NTSC STANDARD CONVERTER

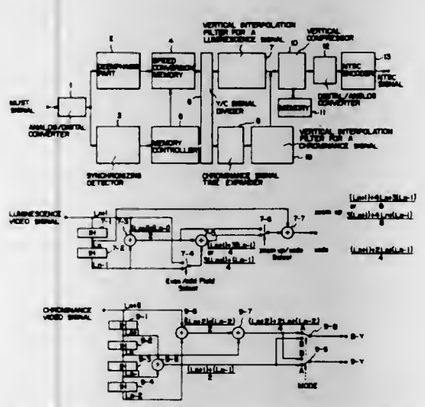
Jeong H. Park, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 13, 1991, Ser. No. 807,444

Claims priority, application Rep. of Korea, Jun. 29, 1991, 91-11112

Int. Cl.[5] H04N *7/01, 11/20*

U.S. Cl. 358—140 **5 Claims**



1. A MUSE/NTSC standard converter for converting a divided digital luminance signal and chrominance signal into a video signal by vertical interpolation filters to output a television broadcasting standard, comprising:

a vertical interpolation filter for a luminance signal including horizontal line delay parts for successively delaying the divided luminance signal as an input by 1 H;

a first adder for adding said inputted luminance signal and the output of said horizontal line delay part;

a first data selector for switching two inputs of said first adder according to a field signal;

a second adder for adding the outputs of said data selector and said first adder;

a second data selector for switching the outputs of said first and said second adders according to a mode signal;

and a third adder for adding the outputs of said horizontal line delay part and said second data selector;

a vertical interpolation filter for a chrominance signal including horizontal line delay parts for successively delaying the divided chrominance signal as an input by 1 H;

a fourth adder for adding the outputs of said horizontal line delay parts;

a fifth adder for adding said inputted chrominance video signal and the output of said horizontal line delay part;

a sixth adder for adding the outputs of said horizontal line delay part and said fifth adder; and

data selectors for switching the outputs of said fourth and said sixth adders according to said mode signal.

5,212,551

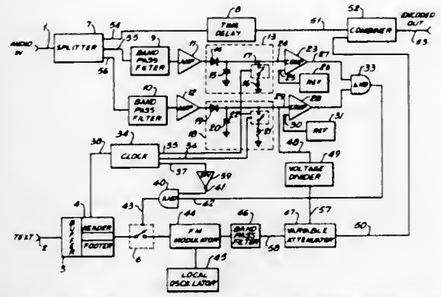
METHOD AND APPARATUS FOR ADAPTIVELY SUPERIMPOSING BURSTS OF TEXTS OVER AUDIO SIGNALS AND DECODER THEREOF

Virgillo D. Conanan, 475 Graphic Blvd., New Milford, N.J. 07646

Filed Oct. 16, 1989, Ser. No. 425,687

Int. Cl.[5] H04N *7/08*

U.S. Cl. 358—143 **14 Claims**



1. An apparatus for adaptively superimposing bursts of digital data with analog sound signals, comprising an encoder and decoder, wherein said encoder comprise:

means for entering original, unencoded audio program input signals;

means for dividing said unencoded audio program input signals into three portions;

means for time delaying a first portion of said unencoded input signals;

a variable high-pass filter means for generating an upper passband of said unencoded input signals;

a variable low-pass filter means for generating a lower passband of said unencoded input signals;

means for generating clock timing synchronization pulses;

means for measuring a first sound power level found at a predetermined narrow bandwidth of said upper baseband of second portion of said unencoded input signal;

means for measuring a second sound power level found at a predetermined bandwidth of said lower passband of third portion of said unencoded input signal;

means for measuring a plurality of power levels of said unencoded sound signals at a plurality of frequencies and at a plurality of bandwidths;

means for comparing said measured first power level with a predetermined first reference signal and subsequently generating first binary control signals therefrom;

means for comparing said measured second power level with a predetermined second reference signal and subsequently generating second binary control signals therefrom;

means for logically comparing said first binary control signals with said second binary control signals and subsequently triggering the generation of bursts of concatenated digital header signals, digital text signals, and digital footer signals therefrom;

means for modulating a frequency-modulator with said bursts of concatenated digital header signals, digital text signals, and digital footer signals;

means for bandlimiting said frequency-modulated signal resulting from said modulation means;

means for adaptively adjusting the output power level of said bandlimited frequency-modulated signal;

means for transmitting or recording said encoded signals;

wherein, said decoder comprise:

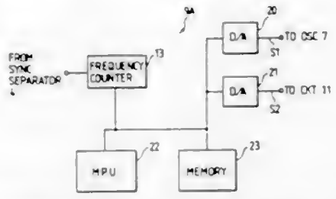
means for receiving said transmitted encoded signals;

means for dividing said received input signals into three portions;

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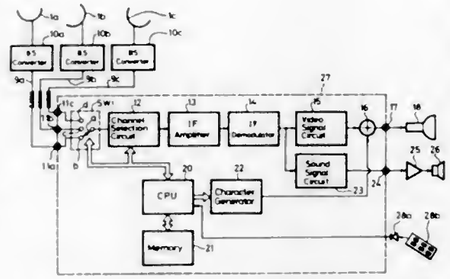
means for bandlimiting the first portion of said received divided input signals;
means for amplifying and amplitude-limiting said bandlimited first portion of received input signals;
means for demodulating said amplified and amplitude-limited signal;
means for separating desired digital text from said demodulated digital signals;
means for converting said desired digital text into baseband video signals;
means for modulating the picture and sound carriers of a standard television modulator with said converted baseband video signals; and,
displaying said video signals containing said desired text concurrently with the received reproduced input sound signals using television reproduction means;
thereby allowing adaptive conveyance of text information with analog sound signals.

5,212,552
HORIZONTAL DEFLECTION CIRCUIT
Yoshiaki Matsumoto, Sagamihara, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Japan
Filed Jul. 15, 1991, Ser. No. 729,958
Int. Cl.[5] H04N *3/27*
U.S. Cl. 358—158 **5 Claims**



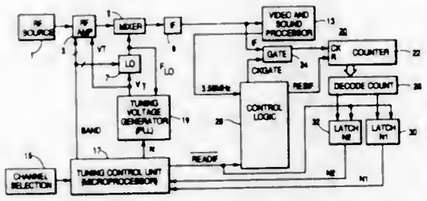
4. In a display apparatus for visualizing an input video signal having a changeable horizontal sync frequency, an improved horizontal deflection circuit, wherein the improvement comprises:
a circuit for maintaining substantially constant a horizontal dimension of an image displayed by the display apparatus independently of changes in a dwell time of the input video signal,
said circuit including:
means for detecting the horizontal sync frequency of the video signal;
generating means for generating first and second different control voltages which depend on the detected horizontal sync frequency,
said generating means including first means for generating said first control voltage as a first function of the detected horizontal sync frequency and second means for generating said second control voltage as a second function of the detected horizontal sync frequency, said first and second means differing from each other for generating said first and second control voltages as different functions of the detected horizontal sync frequency;
wherein said generating means comprises means for storing predetermined voltage values of said first and second control voltages corresponding to said first and second functions of predetermined horizontal sync frequencies, and means for interpolating voltage values for horizontal sync frequencies between said predetermined horizontal sync frequencies in accordance with said first and second functions, and wherein said first and second means include respective first and second converting means for converting interpolated voltage values to said first and second control voltages,
a variable horizontal oscillator oscillating at a frequency dependent on said first control voltage; and
a horizontal output circuit responsive to said second control voltage for generating a horizontal deflection current which is synchronous with an oscillation output signal from the variable horizontal oscillator.

5,212,553
TELEVISION RECEIVER WITH SELECTIVE MENU DISPLAY
Kazuhisa Maruoka, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Aug. 13, 1991, Ser. No. 744,248
Claims priority, application Japan, Sep. 4, 1990, 2-233664
Int. Cl.[5] H04N *9/74, 5/44*
U.S. Cl. 358—188 **4 Claims**



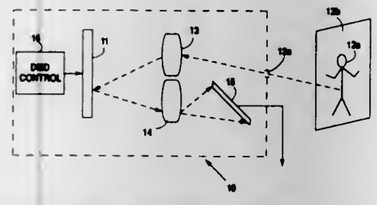
1. A television receiver comprising:
circuit means for receiving a television signal and producing a video signal and a sound signal from said received television signal;
display means for displaying an image based on said video signal; and
control means for controlling said circuit means, said control means comprising means for adding to said video signal a menu display signal representing a plurality of menu items and for selectively deleting said items under the direction of a user of the apparatus, whereby all or only selected ones of said menu items can be displayed on said displayed means.

5,212,554
DIGITAL METHOD AND APPARATUS FOR EVALUATING A FREQUENCY PARAMETER OF AN IF SIGNAL
Juri Tults, Indianapolis, Ind., assignor to Thomson Consumer Electronics, Inc., Indianapolis, Ind.
Filed Dec. 31, 1990, Ser. No. 635,843
Int. Cl.[5] H04N *5/50*
U.S. Cl. 358—195.1 **10 Claims**



1. In a television receiver including a tuner for tuning an RF television signal having a picture carrier modulated with video information organized in repetitive fields including line intervals including image information and horizontal and vertical blanking intervals including synchronization information to produce an IF signal having a picture carrier corresponding to the picture carrier of the RF signal, wherein the tuner comprises:
means for counting cycles of the picture carrier of the IF signal during repetitive counting intervals which occur during a measurement interval having a duration at least as long as the duration of one field;
means for generating a timing signal which defines the counting cycles as to duration and spacing so that at least one counting interval occurs within the vertical blanking interval; and
means for determining which one, if any, of first and second predetermined counts have been produced during the measurement interval to evaluate the deviation of the frequency of the IF picture carrier from a nominal frequency.

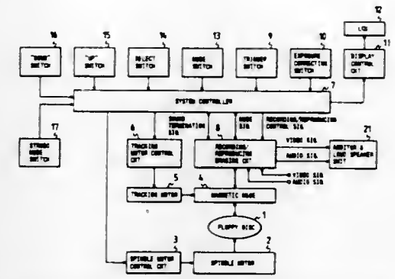
5,212,555
IMAGE CAPTURE WITH SPATIAL LIGHT MODULATOR AND SINGLE-CELL PHOTOSENSOR
Richard A. Stoltz, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 17, 1991, Ser. No. 809,607
Int. Cl.[5] H04N *3/08, 9/10*
U.S. Cl. 358—206 **17 Claims**



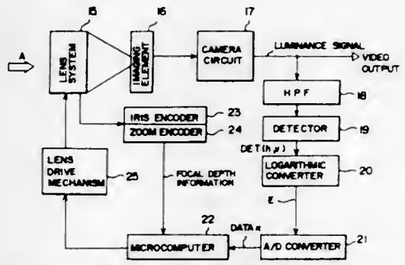
16. An image capturing system, comprising:
an optics unit for capturing an image having a means for directing image-reflected light to a spatial light modulator (SLM), a SLM comprised of an array of reflective pixel elements, which are individually addressable and switchable, such that a series of pixel-reflected light beams are reflected from said SLM as different pixels are switched, a means for focussing said pixel-reflected light to a photosensor, and a photosensor for detecting a single pixel-reflected light beam and for generating an electrical signal proportional to the intensity of said pixel-reflected light;
an analog to digital converter for converting said electrical signal to a digital signal; and
a processor for performing image processing operations on said digital signal.

5,212,556
ELECTRONIC STILL CAMERA HAVING INTERVAL REPRODUCING AND ERASING CAPABILITY
Kimiaki Ogawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo K.K., Tokyo, Japan
Filed Feb. 7, 1991, Ser. No. 658,166
Claims priority, application Japan, Feb. 9, 1990, 2-30490; Feb. 9, 1990, 2-30491
Int. Cl.[5] H04N *5/225*
U.S. Cl. 358—209 **20 Claims**

1. An electronic still camera having a plurality of operation switches, comprising:
an image processing mode setting means for setting an image processing mode; and
an additional image processing mode setting means for modifying the image processing mode into an additional image processing mode relative to the image processing mode when at least one of said operation switches which are not used in the image processing mode is operated with the image processing mode set by said image processing mode setting means, wherein image processing remains active and wherein said additional image processing mode setting means in itself serves to perform a function unrelated to the image processing mode.



5,212,557
IMAGING DEVICE CAPABLE OF CARRYING OUT AUTOMATIC FOCUSING WITH STABLE DETECTION ACCURACY AND AT A HIGH RESPONSE SPEED
Kazuhiko Ueda, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan
Filed Sep. 3, 1991, Ser. No. 752,361
Claims priority, application Japan, Aug. 31, 1990, 2-229802; Aug. 31, 1990, 2-229803; Nov. 6, 1990, 2-300416
Int. Cl.[5] H04N *5/232*
U.S. Cl. 358—228 **9 Claims**



1. An automatic focusing imaging device comprising:
an imaging element for forming an image of an image pick-up light from an object through a lens system to apply photoelectric conversion to said image pick-up light at a photoelectric conversion surface provided on said imaging element to provide video signal, said imaging element and said lens system defining the elements of an optical pair
a camera circuit for processing said video signal subjected to photoelectric conversion by said imaging element to generate a luminance signal, said camera circuit utilizing one of a plurality of processing techniques signal including filtering and blanking;
filter means for extracting, as an analog signal, a high frequency band component of said video signal, said filter means comprising a high-pass filter for extracting an edge signal corresponding to said high frequency band component;
a detector for detecting said edge signal extracted by said high-pass filter to output a detected signal;
a logarithmic converter for applying logarithmic conversion to said detected signal from said detector to provide a focal point voltage having a predetermined characteristic;
an analog/digital converter for converting said focal point voltage to data in the form of a digital signal;

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calculation means for calculating in advance an in-focus position of at least one element from said optical pair which includes said lens system and said imaging element where said high frequency band component takes a maximum level to generate a control signal, said calculation means comprising a microcomputer responsive to said in-focus position to generate said control signal;

a lens drive mechanism responsive to said control signal to move said at least one element from said optical pair which includes said imaging element; and

non-linear conversion means being provided at the preceding stage of said analog-digital converter, and for correcting in advance deterioration of the quantization resolution of said high frequency band component quantized at the time of calculation of the in-focus position of said at least one element from said optical pair;

and wherein said microcomputer includes means for dividing a screen captured by said imaging element into a plurality of blocks to extract for each of said blocks a high frequency band component to determine high frequency component information corresponding to each of said blocks to calculate an in-focus value for each of said blocks to determine an in-focus value for the entire screen by using calculated results for each block to generate said control signal for carrying out focusing using said lens drive mechanism.

5,212,558

USING THERMALLY TRANSFERRED INVISIBLE INK DETECTABLE BY EXPOSURE TO INVISIBLE LIGHT OF SPECIFIC WAVELENGTH

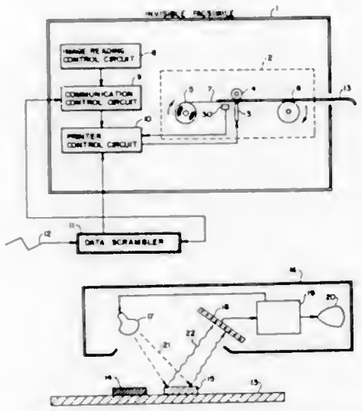
Kenzo Obata, Okazaki, and Masakazu Sugano, Obu, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Feb. 26, 1991, Ser. No. 659,962

Claims priority, application Japan, Feb. 26, 1990, 2-45271; Feb. 21, 1991, 3-27556

Int. Cl.[5] H04N *1/23, 1/44;* **G09C** *5/00;* **B41J** *2/325*

U.S. Cl. 358—296 **11 Claims**



1. A secrecy-protected facsimile machine comprising:

receiving means for receiving transmit data based on an original which is transmitted from a facsimile transmission machine; and

recording means for recording an image of said original on a recording paper using invisible ink based on the transmit data received by the receiving means, wherein said recording means comprises:

thermal transfer film on which the invisible ink is disposed,

a thermal transfer printer having a thermal head which records an image by transferring the invisible ink onto the recording paper by applying heat to said thermal transfer film,

moving means for moving said thermal transfer film with respect to said thermal head, and

control means for transmitting a signal for generating heat to said thermal head according to said transmit data.

10. A facsimile machine with a secrecy protection function comprising:

receiving means for receiving transmit data based on an original which is transmitted from a facsimile transmission machine;

recording means for recording an image of said original on a recording paper based on the transmit data received by said receiving means, said image being recorded by using one of visible ink and invisible ink,

determining means for determining whether said transmit data indicates secret data or non-secret data; and

control means for controlling said recording means to record said image using said visible ink if said determining means has determined said non-secrecy of data and for controlling said recording means to record said image with said invisible ink if said determining means has determined secrecy of data.

5,212,559

DUTY CYCLE TECHNIQUE FOR A NON-GRAY SCALE ANTI-ALIASING METHOD FOR LASER PRINTERS

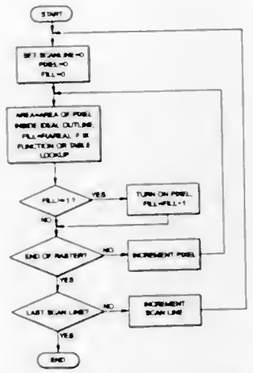
John M. Gilbert, Minneapolis; Lawrence J. Luckis, and Leonard R. Steidel, both of Prior Lake, all of Minn., assignors to LaserMaster Corporation, Eden Prairie, Minn.

Continuation-in-part of Ser. No. 434,318, Nov. 10, 1989, Pat. No. 5,041,848. This application Oct. 2, 1990, Ser. No. 591,537

The portion of the term of this patent subsequent to Aug. 20, 2008, has been disclaimed.

Int. Cl.[5] H04N *1/21*

U.S. Cl. 358—298 **27 Claims**



1. A non-gray scale anti-aliasing method for smoothing one or more edges of an image that is generated by rasterizing an ideal outline of the image using a processor means for processing a plurality of raster lines to form a pixel representation of the image to be communicated to a binary imaging printer, each raster line comprised of a plurality of pixels each having a predefined total area, the method comprising the steps of:

for each pixel in each raster line:

(a) determining an ideal fill area representing the area inside the ideal outline for the pixel currently being processed;

(b) comparing the ideal fill area to at least a first and second comparison value; and

(c) determining whether the pixel currently being processed will be turned on or turned off based upon the comparison of the ideal fill area and the first and second comparison values.

5,212,560

ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS COMPRISING MEANS FOR AUTOMATICALLY ADJUSTING IMAGE REPRODUCTION DENSITY

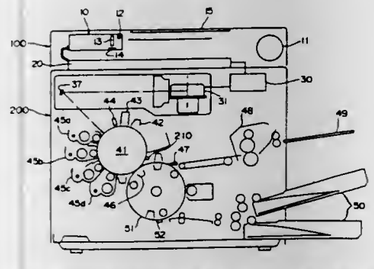
Yoshihiro Hattori, Tokokawa; Kazuyuki Fukui, Toyohashi; Takanobu Yamada, Toyokawa, and Yoshikazu Naito, Gamagori, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 27, 1991, Ser. No. 799,178

Claims priority, application Japan, Nov. 30, 1990, 2-337551

Int. Cl.[5] G03G *15/00;* **B41J** *3/00;* **H04N** *1/23*

U.S. Cl. 358—360 **16 Claims**



1. An electrophotographic image forming apparatus comprising:

a photoconductor;

charger means for electrically charging said photoconductor to a predetermined initial electric potential so as to supply an amount of electric charge corresponding to the predetermined initial electric potential thereto;

light projecting means for projecting a light onto said photoconductor electrically charged to the predetermined initial electric potential so as to form an electrostatic latent image on said photoconductor;

light projecting control means for controlling said light projecting means to change a light amount of the light projected onto said photoconductor by said light projecting means according to an image density signal for representing densities of respective pixels of an image to be formed;

developing means for developing the electrostatic latent image formed on said photoconductor with toner so as to form a toner image on said photoconductor;

voltage applying means for applying a developing bias voltage to said developing means; and

density control means for controlling said charger means and said voltage applying means to change the amount of electric charge supplied from said charger means to said photoconductor and the developing bias voltage, said density control means controlling said voltage applying means so that a difference between the predetermined initial electric potential and the developing bias voltage becomes larger and a light amount of first starting reproducing an image which is a minimum light amount from said light projecting means when the toner image is formed on said photoconductor becomes smaller as the amount of electric potential supplied to said photoconductor becomes larger.

5,212,561

NOISE KILLING CIRCUIT FOR VIDEO TAPE DUPLICATING APPARATUS

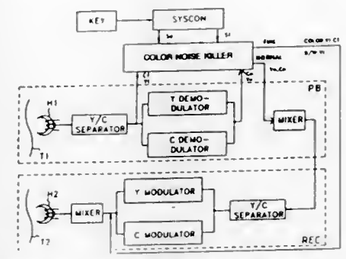
Seok-jung Kim, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 28, 1990, Ser. No. 635,243

Claims priority, application Rep. of Korea, Dec. 28, 1989, 89-21389

Int. Cl.[5] H04N *5/782*

U.S. Cl. 358—317 **17 Claims**



1. A video tape duplicating apparatus having a fine copy mode and a normal copy mode, said video tape duplicating apparatus comprising:

a play back system for reproducing image signals recorded on a first video tape;

a recorder system for recording image signals onto a second video tape; and

color noise killing means for selectively providing the reproduced image signals from said play back system to said recorder system, said color noise killing means comprising:

mode setting means for generating a mode selection signal indicative of a selected one of said fine copy mode and said normal copy mode,

color signal detecting means for detecting existence of color signals in said reproduced image signals and generating a color presence signal indicative of said existence,

selecting means for receiving said reproduced image signals from play back system as first luminance signals, first color signals, demodulated luminance signals and demodulated color signals and selectively supplying the received signals to said recorder system; and

transmission controller means for controlling said selecting means according to said mode selection signal and said color presence signal;

wherein in response to selection of said fine copy mode, said reproduced image signals and separated into said first luminance signals and said first color signals in said playback system and supplied to said recording system by said selecting means, and in response to selection of said normal copy mode, said play back system separates and demodulates said reproduced image signals to generate said demodulated luminance signals and said demodulated color signals received by said selecting means and thereafter supplied to said recorder system for mixing and modulation.

5,212,562

IMAGE SIGNAL REPRODUCING APPARATUS HAVING MEMORY FUNCTION

Tokibiko Ogura, Kanagawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 23, 1990, Ser. No. 557,145

Claims priority, application Japan, Jul. 25, 1989, 1-193091; Jul. 25, 1989, 1-193092

Int. Cl.[5] H04N *5/95*

U.S. Cl. 358—338 **8 Claims**

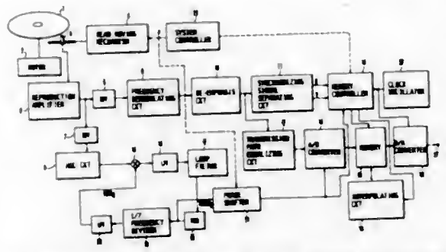
1. An image signal reproducing apparatus for reproducing

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an image signal from a disk-shaped recording medium on which the image signal with which a pilot signal is frequency-multiplexed is recorded, comprising:

(a) reproducing position designating means for designating any desired reproducing position on said disk-shaped recording medium;

(b) reproduction means for reproducing the image signal with which the pilot signal is frequency-multiplexed, recorded at the reproducing position designated by said reproducing position designating means on said disk-shaped recording medium and for outputting the reproduced image signal and the reproduced pilot signal;



(C) memory means for storing the reproduced image signal output from said reproduction means;

(D) clock signal generating means for generating a clock signal synchronized in phase with the reproduced pilot signal output from said reproduction means; and

(E) clock signal correction means for correcting the phase of said clock signal generated by said clock signal generating means in accordance with the reproducing position on said disk-shaped recording medium designated by said reproducing position designating means.

5,212,563

CD-ROM AND CD-ROM REPRODUCING SYSTEM

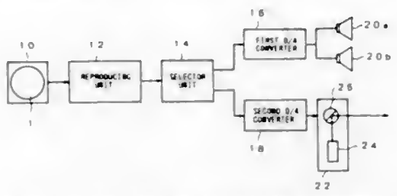
Hironobu Sato, Tokyo, Japan, assignor to Japan Opto-Electronics Co., Ltd., Tokyo, Japan

Filed Aug. 26, 1991, Ser. No. 750,888

Claims priority, application Japan, Nov. 20, 1990, 2-337860

Int. Cl.[5] H04N *5/91*

U.S. Cl. 358—341 **2 Claims**



1. A reproducing system for a CD-ROM comprising:

a reproducing unit for digital signal processing of CD information read out from the CD-ROM for reproduction,

the CD-ROM having stored thereon successive sets of data, each set consisting essentially of digital galvanometer scan information and sound data for sound to be generated when an image is generated at a position corresponding to the digital galvanometer scan information, wherein the successive sets of data stored on the CD-ROM do not include further video information,

a selector unit for separating digital sound information and digital galvanometer scan information from digital CD information obtained from said reproducing unit,

a first D/A converter for converting the digital sound information from the selector unit into analog sound information to supply the latter information to a loudspeaker, and

a second D/A converter for converting the digital galvanometer scan information from the selector unit into analog galvanometer scan information to supply the latter information to a galvanometer.

5,212,564

FACSIMILE SYSTEM FOR RECORDING RECEIVED PICTURE DATA HAVING BUFFER WITH SELECTABLE STORAGE

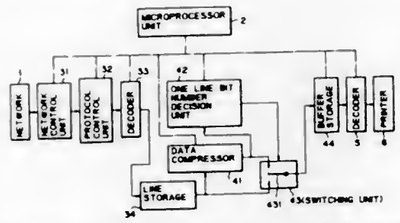
Kenji Yaso, Kawasaki, and Masaya Yamamoto, Yokohama, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 15, 1990, Ser. No. 613,016

Claims priority, applicatioo Japan, Nov. 15, 1989, 1-296419

Int. Cl.[5] H04N *1/419*

U.S. Cl. 358—426 **4 Claims**



1. A system for recording received picture data for facsimile transmission, comprising:

means for receiving a facsimile transmitted signal of picture data;

decoder means for decoding the received signal of the picture data to produce original picture data;

compressor means for encoding the original picture data per unit line and compressing to produce compressed picture data;

decision means, operatively connected to said compressor means, for deciding which of the number of bits of a unit line of the compressed picture data or the number of bits of a unit line of the original picture data is smaller and outputting a control signal representing the decision result;

buffer storage means, operatively connected to said decoder means and said compressor means, for storing the picture data having a smaller number of bits decided by said decision means;

output decoder means, operatively connected to said buffer storage means, for outputting and uncompressing picture data from said buffer storage means when the data from said buffer storage means is compressed picture data and outputting the data from said buffer storage means when the data from said buffer storage means is original picture data; and

printing means, operatively connected to said output decoder means, for printing the picture data output from said output decoder means.

5,212,565

METHOD FOR REDUCING AMOUNT OF STORED DIGITAL IMAGE DATA WITHOUT DEGRADING A RECONSTITUTED IMAGE

Martin Feintuch, Washington Township, County of Bergen, and Christopher Ivory, Glen Rock, both of N.J., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Nov. 19, 1990, Ser. No. 615,191

Int. Cl.[5] H04N *1/415*

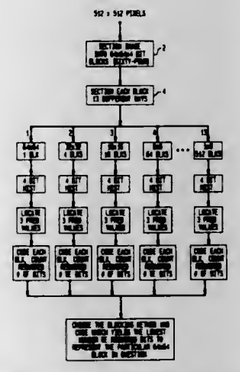
U.S. Cl. 358—433 **12 Claims**

1. A digital image data compression method, comprising:

digitizing an uncompressed image area data field including

digitizing said image area data field in the form of 512×512 pixels, wherein each pixel carries a numerical weight of zero through fifteen so as to have sixteen levels and can be represented by four binary bits;

sectioning the digitized, uncompressed image area data field into a plurality of data blocks including sectioning the digitized image area data field into sixty-four 64×64×4 bit blocks, wherein each block is spatially oriented for retaining the integrity of an original image, and sub-sectioning each of the sixty-four blocks by one of a plurality of schemes, wherein each of the sixty-four blocks is divided into integral sub-blocks, with each of the sub-blocks retaining its spatial orientation;



compressing the plurality of data blocks for representing each block in terms of its predominant data values and non-redundant occurrences including selecting predominant data values from each block, and encoding the selected predominant data values and the data values that are identical to a selected predominant data value including assigning a data bit code to each of the selected predominant data values and assigning to data values that are identical to a predominant value a data bit code corresponding to that of the predominant value; and

storing remaining uncoded data values and the coded data values in a variable length record so that each data location within the record corresponds to the location of the data in the uncompressed image area data field.

5,212,566

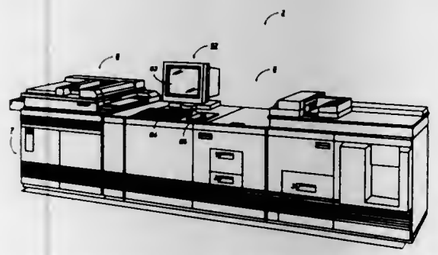
SYNCHRONIZATION OF ESS/IIT WHEN SCANNING COMPLEX DOCUMENTS

Filomena K. U, Fairport; Kurt T. Knodt, Rochester, and David E. Crocker, Fairport, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 28, 1990, Ser. No. 589,951

Int. Cl.[5] H04N *1/40*

U.S. Cl. 358—444 **6 Claims**



1. A process for synchronizing transfer of image data to and from a permanent memory in an electronic printing system having a source of image data communicating with an image output terminal by way of a system memory having a supply of buffers, comprising the steps of:

allocating a first buffer set from the supply of buffers for temporarily holding a first set of image data from the image data source pending transfer to the permanent memory and a second buffer set from the supply of buffers for temporarily holding a second set of image data from the permanent memory to the image output terminal;

filling the second buffer set with the second set of image data from the permanent memory and transferring the second set of image data from the second buffer set to the image output terminal;

monitoring a rate at which the second set of buffers is being emptied and a rate at which the second buffer set is being filled up with image data from the permanent memory; and

reallocating a buffer of the first buffer set to serve as a buffer for the second buffer set when the rate at which the second buffer set is being emptied is less than the rate at which the second buffer set is being filled.

5,212,567

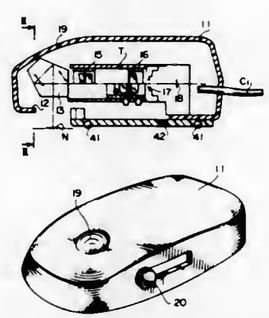
MAGNIFYING DISPLAY APPARATUS

Isao Kawai, Tokyo; Toshiyuki Taguchi, Saitama; Tetsuo Hayakawa, Ibaragi; Nobuo Tokuda, Saitama, and Sanyo Nagayama, Tokyo, all of Japan, assignors to Neitz Instruments Co., Ltd., Tokyo, Japan

Filed Oct. 10, 1990, Ser. No. 595,825

Int. Cl.[5] H04N *1/40*

U.S. Cl. 358—451 **7 Claims**



1. A magnifying display apparatus comprising: a photoelectric-converting reading unit including a body and an optical system disposed in the body and having a light-path inversion prism, a magnifier lens system, an iris, an imaging device and illuminating lamp, a controller connected to the reading unit through a cord and including a power supply circuit for the reading unit and also a control circuit for controlling conversion of the output from the imaging device into an image output, and a display unit such as a television separably connected to the controller through a cord; wherein the improvement comprises tactile indicator formed on a front upper portion of the body at a position corresponding to the light-path inverting prism, the size of the body being compatible with a human hand, said tactile indicator being sensible by a user's finger and serving a an index of the portion of the original to be magnified and displayed, and an operating means for operating said iris on a lateral side of the body.

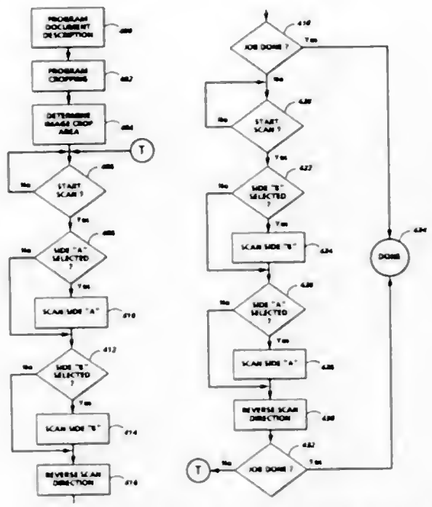
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,568

METHOD AND APPARATUS FOR SCANNING A SIGNATURE DOCUMENT

James R. Graves, Ontario; Gerald L. Coy, Rochester, and William A. Blitz, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 17, 1990, Ser. No. 583,922
Int. Cl.[5] H04N *1/40*
U.S. Cl. 358—474 13 Claims



1. In a high speed electronic printing system having a scanner section, a platen, a user interface suitable for programming dimensional information defining a desired imaging area of an input document page and a reciprocating scanning device for scanning the document page or pages located on the platen to generate electrical signals representative of the input document, a method of scanning a first page pair, consisting of pages A and B of a signature-type document, and a second page pair, consisting of pages A' and B' of the signature-type document, in a single scan cycle, including the steps of:

a) programming characteristics of the input document to define the desired imaging area of the signature-type document (A,B) to be imaged, whereby the characteristics comprise:

i) a cropping offset,

ii) a cropping distance, and

iii) a page size;

b) locating the first page pair of the signature-type document, consisting of pages A and B, on the platen for scanning;

c) using the characteristics programmed in step a, scanning page A in a first direction through said crop distance;

d) using the characteristics programmed in step a, scanning page B in said first direction through said crop distance;

e) replacing the first signature-type document on the platen with the second page pair of the signature-type document consisting of pages A' and B';

f) reversing the scan direction of the reciprocating scanning device;

g) scanning page B' in a direction opposite the first direction through said crop distance; and

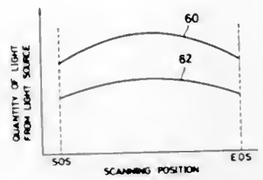
h) scanning page A' in said opposite direction through said crop distance.

5,212,569

LIGHT BEAM SCANNING APPARATUS CAPABLE OF CHANGING THE SCANNING DENSITY

Norihisa Takada, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 542,340, Jun. 22, 1990. This application Mar. 10, 1992, Ser. No. 847,877
Claims priority, application Japan, Jun. 29, 1989, 1-168110
Int. Cl.[5] H04N *1/12, 1/17*
U.S. Cl. 358—475 5 Claims



1. A light beam scanning apparatus that uses a light beam deflected in the direction of main scanning in order to perform two-dimensional scanning of a sheet-like subject to be scanned that is moving in a sub-scanning direction which is generally perpendicular to said direction of main scanning, said apparatus comprising:

a light beam source that emits said light beam;

means for altering the speed at which said sheet-like subject moves in the sub-scanning direction in order to change the density of scanning lines formed by said light beam;

a memory unit containing at least two versions of data representing the intensity of said light beam in association with the density of said lines, said at least two versions of data varying from the beginning to the end of each scanned line and comprising standard light intensity data for each scanning position of a single scan, a first version of data representing a high density mode for producing an image of a first quality and a second version of data representing a lesser density mode for producing an image of a second quality; and

selection means for selecting one of said at least two versions of data from said memory unit in accordance with the desired density of said scanning lines, wherein said selected version of data causes said intensity of said light beam to be modulated in accordance with clock pulses corresponding to image data, such that said intensity is increased as said scanning density is decreased and said intensity is decreased as said scanning density is increased.

5,212,570

PIXEL CLOCK PHASE LOCKED LOOP FOR A LASER SCANNER

Aron Nacman, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 27, 1991, Ser. No. 722,411
Int. Cl.[5] H04N *1/04*
U.S. Cl. 358—481 16 Claims

1. A laser scanner having a pixel clock, said scanner including a rotating multi-faceted polygon for scanning an imaging beam across an imaging member, each facet of said polygon scanning one of a plurality of scan lines, the pixel clock controlling image resolution within each scan line, the pixel clock including a phase locked loop comprising:

generating means for generating pulses indicative of each of the beginning and end of scanning for each scan line;

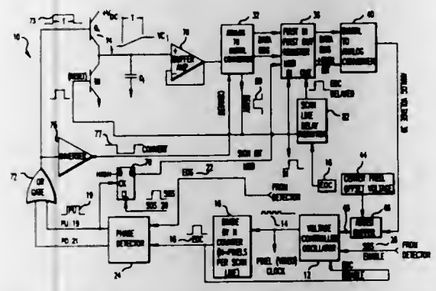
a voltage-controlled oscillator for outputting a desired frequency of the pixel clock;

counter means for counting a desired number of pixels in each scan line and outputting a pulse at a last pixel in the scan line;

comparison means for comparing said end of scanning pulse and said last pixel pulse, said comparison means outputting a phase error substantially equal to the difference between said end of scanning pulse and said last pixel pulse;

storage means for storing said phase error for each individual facet of said polygon;

clocking means for obtaining from said storage means said phase error for each said individual facet when the facet scans an imaging beam on a next subsequent revolution of said polygon;



transforming means for transforming said obtained phase error to a phase error voltage;

means for generating a center frequency voltage;

adding means for adding said phase error voltage to said center frequency voltage to generate a composite voltage; and

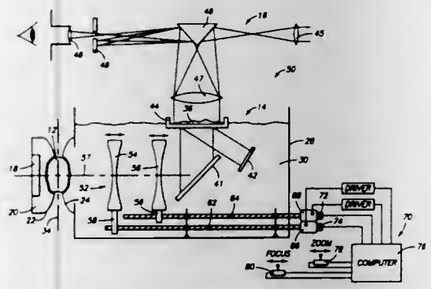
control means for controlling said voltage controlled oscillator at said composite voltage, said phase locked loop providing an accuracy substantially of within ±2 nanoseconds correction per scan line.

5,212,571

ULTRASONIC HOLOGRAPHIC IMAGING APPARATUS HAVING ZOOM FEATURE

George F. Garlick, and Victor I. Neeley, both of Kennewick, Wash., assignors to Advanced Imaging Systems, Richland, Wash.

Filed Nov. 22, 1991, Ser. No. 796,714
Int. Cl.[5] G03H *3/00*; G01N *29/04*
U.S. Cl. 359—9 9 Claims



1. An ultrasonic holographic imaging apparatus for viewing an internal structure of an object at different magnifications, comprising:

a) a hologram detection surface;

b) ultrasonic transducer means for (1) generating and transmitting an object ultrasonic beam through the object and onto the hologram detection surface, and (2) generating and transmitting a reference ultrasonic beam onto the hologram detection surface interfering with the transmitted object beam forming an ultrasonic hologram on the detection surface;

c) an ultrasonic lens system interposed between the object and the hologram detection surface having at least two ultrasonic lenses aligned along a lens system axis for imaging internal structure of the object in a selected object plane onto the detection surface;

d) a coherent light illuminating means for generating and directing a coherent light beam onto the holographic detection surface to illuminate the formed hologram and generate a diffracted beam containing an image of the internal structure of the object in the selected object plane;

e) viewing means for viewing the image of the internal structure of the object from the hologram; and

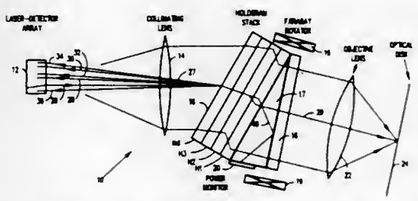
f) moving means for selectively moving both of the ultrasonic lenses relative to each other to change the magnification of the internal object structure on the detection surface and thereby change the size of the internal object structure in the viewed image.

5,212,572

OPTICAL DATA STORAGE SYSTEM WITH COMPACT HOLOGRAPHIC POLARIZATION-SENSING OR REFLECTIVITY-SENSING OPTICAL STORAGE HEAD

Matthias C. Krantz, San Jose, and LeRoy D. Dickson, Morgan Hill, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 22, 1991, Ser. No. 796,159
Int. Cl.[5] G02B *5/32*
U.S. Cl. 359—15 16 Claims



1. An optical data storage system for writing and reading data on an optical data storage medium, said system comprising:

an integrated laser-detector array formed on a single substrate and comprising a forward-biased laser diode for producing an incident radiation beam of coherent light and a plurality of reverse-biased diodes searching as light detectors for detecting data and focus error and track error servo signals;

a collimating lens for collimating the incident radiation beam; and

a polarization-sensitive optical element comprising a sandwich of four volume holograms for transmitting the collimated incident radiation beam and for receiving p and s polarized return beams reflected from the medium and diffracting and/or transmitting, from said polarized beam to said detectors, multiple beams which are closely spa ed on the substrate.

5,212,573

INPUT PROTECTION CIRCUIT OF ELECTRO-OPTICAL DEVICE

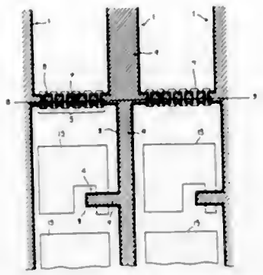
Tsuneo Yamazaki, Tokyo, Japan, assignor to Seiko Instruments Inc., Japan

Filed Nov. 17, 1989, Ser. No. 438,712
Claims priority, application Japan, Nov. 18, 1988, 63-293258
Int. Cl.[5] G02F *1/13*
U.S. Cl. 359—54 15 Claims

1. An electro-optical device comprising: input electrodes

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composed of a thin metallic film and arranged in a stripe pattern; a plurality of picture elements connected to the input electrodes and arranged in a matrix, each picture element being comprised of a nonlinear resistive switching element of two-terminal type, a picture electrode and electro-optical material;



and a nonlinear resistive element having a nonlinear resistive film interposed between two electrodes connected between adjacent input electrodes and effective to protect the nonlinear resistive switching element of each picture element from damage caused by excessive electrical energy applied to the input electrodes.

5,212,574

ACTIVE MATRIX BOARD HAVING DOUBLE-LAYER SCAN LINES AND CAPACITY LINES WITH DISCONTINUOUS LOWER SCAN LINES AND LOWER CAPACITY LINES

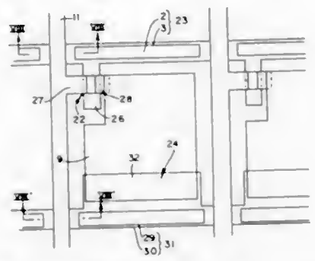
Mikio Katayama; Hidenori Negoto, both of Ikoma; Hiroaki Kato; Akihiko Imaya, both of Nara; Yuzuru Kanemori, Tenri, and Kiyoshi Nakazawa, Fujiidera, all of Japan, assignors to Sharp Kabushiki Kaisha, Japan

Continuation of Ser. No. 545,956, Jul. 2, 1990, abandoned. This application Sep. 17, 1992, Ser. No. 946,150

Claims priority, application Japan, Jul. 5, 1989, 1-174823; Jul. 5, 1989, 1-174824; Jul. 5, 1989, 1-174825; Aug. 11, 1989, 1-209402

Int. Cl.[5] G02F *1/136*

U.S. Cl. 359—59 4 Claims



1. An active matrix board comprising:

a plurality of pixel electrodes disposed in a matrix fashion on an insulating substrate;

a plurality of lower scan lines disposed on the insulating substrate in a parallel manner between the pixel electrodes, each lower scan line being formed from a low resistivity material and comprising a plurality of discontinuous segments, each segment corresponding to each pixel electrode;

a plurality of upper scan lines disposed continuously over the lower scan lines, each upper scan line being formed from an anodizable metal and having a width wider than that of the lower scan line;

a plurality of lower addition capacity lines disposed on the insulating substrate in a parallel manner between the pixel electrodes, each lower addition capacity line being formed from a lower resistivity material and comprising a plurality of discontinuous segments, each segment corresponding to each pixel electrode;

a plurality of upper addition capacity lines disposed continuously over the lower addition capacity lines, each upper addition capacity line being formed from an anodizable metal and having a width wider than that of the lower addition capacity line;

a plurality of anodized films formed by the anodization of the upper scan lines and the upper addition capacity lines;

an insulating layer disposed over the anodized films; and

a plurality of source lines disposed in a parallel manner so as to be perpendicular to the lower scan lines and the lower addition capacity lines, each source line being formed over the anodized film such that the discontinuity of the lower scan lines and lower addition capacity lines can prevent the upper lines from a breakdown caused by erosion spreading.

5,212,575

FUNCTIONAL SUBSTRATE FOR CONTROLLING PIXELS

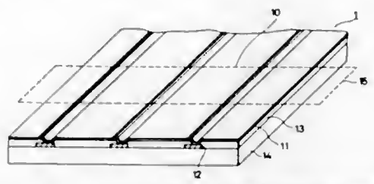
Makoto Kojima, Hino; Yutaka Inaba, Kawaguchi; Tatsuo Murata, Oume, and Hideaki Takao, Sagamihara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 28, 1989, Ser. No. 398,989

Claims priority, application Japan, Aug. 30, 1988, 63-217210; Oct. 25, 1988, 63-270093; Dec. 14, 1988, 63-316763; Dec. 28, 1988, 63-328821; Dec. 28, 1988, 63-328823; Mar. 10, 1989, 1-056026

Int. Cl.[5] G02F *1/13*

U.S. Cl. 359—82 17 Claims



1. A functional substrate for controlling pixels, comprising:

a) a substrate;

b) an insulating film provided on said substrate;

c) a stripe-shaped transparent conductive film provided in plurality on said insulating film;

d) a strip-shaped opaque conductive film covered with said insulating film, arranged in parallel to said stripe-shaped transparent conductive film, and disposed so as to cover a gap formed between two stripe-shaped transparent conductive films adjacent to each other; and

e) a contact area at which one of said two stripe-shaped transparent conductive films adjacent to each other and said opaque conductive film are electrically connected.

5,212,576

INSULATING MATERIAL WITH COEFFICIENT LINEAR EXPANSION MATCHING THAT OF ONE SUBSTRATE OVER CONNECTION BETWEEN TWO CONDUCTIVE PATTERNS

Kazuo Yoshioka, Nagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 16, 1991, Ser. No. 808,226

Claims priority, application Japan, Dec. 18, 1990, 2-411296

Int. Cl.[5] G02F *1/13*

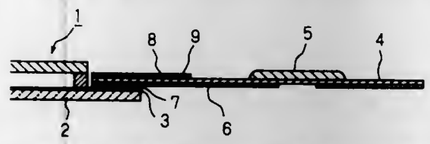
U.S. Cl. 359—88 9 Claims

3. An electric circuit composed of plural circuit pattern

which are formed on independent substrates and connected with each other, comprising:

an electrode pattern formed on a glass substrate;

a conductive pattern formed on a substrate of a first insulating material having a coefficient of linear expansion larger



than that of glass and connected to said electrode pattern; and

a second insulating material bonded at least to a part where said conductive pattern is connected to said electrode pattern, and having the coefficient of linear expansion approximately equal to that of glass.

5,212,577

OPTICAL COMMUNICATION EQUIPMENT AND OPTICAL COMMUNICATION METHOD

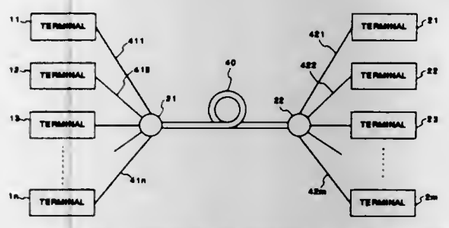
Kenji Nakamura, Hadano, and Jun Nitta, Sagamihara, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 641,550, Jan. 15, 1991, abandoned. This application Aug. 4, 1992, Ser. No. 922,001

Claims priority, application Japan, Jan. 19, 1990, 2-8368; Jan. 19, 1990, 2-8369

Int. Cl.[5] H04J *14/02*

U.S. Cl. 359—124 17 Claims



1. An optical communication equipment for performing an optical communication with another optical communication equipment through an optical communication medium, comprising:

first wavelength detection means for detecting an unused first wavelength from a wavelength range to be commonly used by said equipment, a destination equipment and another equipment which requests transmission and connected to the optical communication medium;

call signal transmission means for transmitting a call signal to the destination equipment using the first wavelength detected by said first wavelength detection means;

acknowledgement signal detection means for detecting an acknowledgement signal sent from the destination equipment in response to the call signal transmitted from said call signal transmission means from a wavelength in the range other than the first wavelength;

call signal detection means for detecting a call signal addressed to its own equipment from the other equipment which requests transmission;

second wavelength detection means for detecting an unused second wavelength from the wavelength range to be commonly used by the three equipment connected to the optical communication medium; and

acknowledgement signal transmission means for transmitting a acknowledgement signal in response to the call signal addressed to its own equipment using the second wavelength detected by said second wavelength detection means.

5,212,578

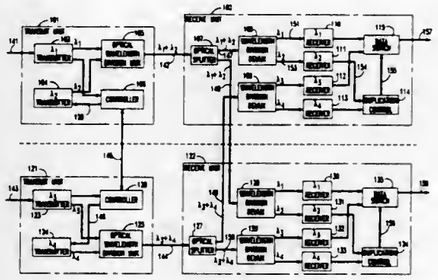
SELECTION OF TRANSMISSION FACILITIES USING OPTICAL WAVELENGTH DIVISION MULTIPLEXING

Gary J. Grimes, Thornton; John S. Helton, Louisville; William K. Honea, Denver, and Stephen R. Peck, Boulder, all of Colo., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Oct. 2, 1991, Ser. No. 770,057

Int. Cl.[5] H04J *14/02*

U.S. Cl. 359—124 10 Claims



1. An apparatus for controlling a duplicated transmission system comprising:

a first and second optical link with the first optical link interconnecting a first transmit means and a first receive means and the second optical link interconnecting a second transmit means and a second receive means;

the first and second transmit means transmitting on the first and second optical links, respectively, data using a first optical wavelength and a control signal using a second optical wavelength; and

the first and second receive means each responsive to control signal communicated by the second optical wavelength of the first optical link and the control signal communicated by the second optical wavelength of the second optical link for selecting the first optical wavelength from the first optical link or the first optical wavelength from the second optical link.

5,212,579

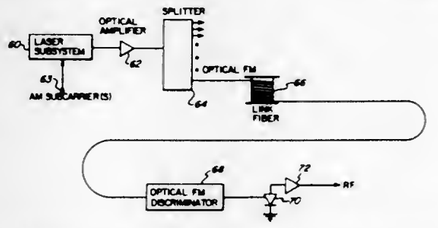
METHOD AND APPARATUS FOR COMMUNICATING AMPLITUDE MODULATED SIGNALS OVER AN OPTICAL COMMUNICATION PATH

David R. Huber, Warrington, and Joseph B. Glaab, New Hope, both of Pa., assignors to General Instrument Corporation, Hatboro, Pa.

Filed Mar. 11, 1991, Ser. No. 667,443

Int. Cl.[5] H04B *10/04, 10/00*

U.S. Cl. 359—182 7 Claims



1. Apparatus for transmitting communication signals over an optical communication path comprising:

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first means for frequency modulating a carrier by a block of amplitude modulated channel signals to provide an FM modulated RF subcarrier containing said block of channel signals and for converting said FM modulated RF subcarrier to an appropriate frequency range for modulation of an optical carrier, said first means including:

a pair of voltage controlled oscillators coupled in a push-pull mode of operation,

means for inputting said block of amplitude modulated channel signals to said pair of oscillators, and

double balanced mixer means coupled to the outputs of said oscillators for providing said converted RF subcarrier; and

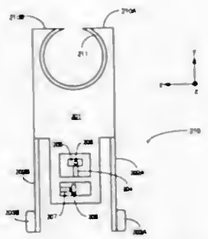
second means for modulating said optical carrier by said converted FM modulated RF subcarrier for transmission over an optical communication path to communicate a plurality of AM channel signals contained in said block on a single communication channel.

5,212,580

LOW COST STAGE FOR RASTER SCANNING OF SEMICONDUCTOR WAFERS

George L. Coad, LaFayette; James B. Stolz, Milpitas; Yung C. Lee, Cupertino; Ron B. Whitney, Redwood City; Peter G. Borden, San Mateo, and Mark A. Nokes, Palo Alto, all of Calif., assignors to High Yield Technology, Sunnyvale, Calif.

Filed Feb. 12, 1992, Ser. No. 836,039
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—196 18 Claims



1. A structure for raster scanning, comprising:

a stage capable of moving in a direction perpendicular to a scanning direction;

means for accommodating a specimen for scanning;

leaf springs means connecting said specimen accommodating means and said stage such that said leaf springs means and said means for accommodating a specimen form an assembly capable of moving in said scanning direction; and

means for setting said assembly in motion back and forth along said scanning direction in a sinusoidal manner.

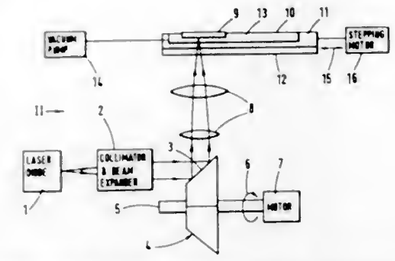
5,212,581

MICROFILM SCANNING APPARATUS

Robert A. D. Brash, Winchester Hampshire, United Kingdom, assignor to Wicks and Wilson Limited, Basingstoke, Hants, England

Filed Apr. 14, 1992, Ser. No. 868,313
Claims priority, application United Kingdom, Apr. 22, 1991, 9108541
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—216 11 Claims

1. A microfilm scanning apparatus of the entrance scanner type including radiant energy producing means, a rotatable polygon mirror for receiving a radiant energy from the producing means and scanning said radiant energy across a microfilm, a platten having an arcuate surface for supporting said microfilm thereon, said arcuate surface coinciding with the loci of the focus of the scanning radiant energy, and said platten being in the form of a plano-convex lens, the plane side of the platten being located adjacent the polygon mirror.

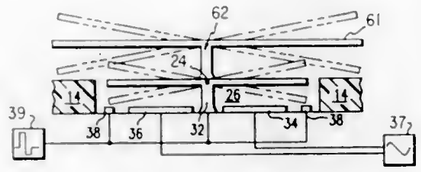


5,212,582

ELECTROSTATICALLY CONTROLLED BEAM STEERING DEVICE AND METHOD

William E. Nelson, Dallas, Tex., assignor to Texas Instructs Incorporated, Dallas, Tex.

Filed Mar. 4, 1992, Ser. No. 846,305
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—224 10 Claims



1. A structure for steering light comprising:

a. a substrate;

b. at least one electrode proximate said substrate;

c. a first element suspended substantially over said electrode, such that said element deflects towards said electrode along an axis when said electrode is addressed;

d. at least two support posts on said first element positioned proximate to said axis of said first element; and

e. a second element supported by said posts such that said second element deflects when said first element deflects, and wherein said second element has greater extent than said first element.

5,212,583

ADAPTIVE OPTICS USING THE ELECTROOPTIC EFFECT

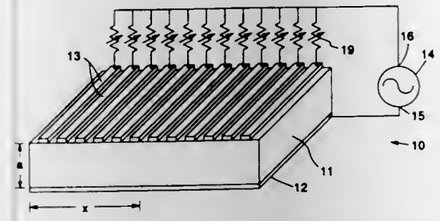
Victor Vali, Laguna Hills; David B. Chang, Tustin; I-Fu Shih, Los Alamitos, and Bruce R. Youmans, Temple City, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jan. 8, 1992, Ser. No. 818,315
Int. Cl.[5] G02F *1/03, 1/33*
U.S. Cl. 359—245 17 Claims

1. An adaptive optical lens system comprising:

an electrooptic material having first and second surfaces that are disposed normal to the direction of propagation of an optical beam through the adaptive optical lens system and having an index of refraction that is adjustable in response to an applied electric field;

a first plurality of electrodes disposed on the first surface of the electrooptic material and at least one ground electrode disposed on the second surface of the electrooptic material that are adapted to apply electric fields thereto, which first plurality of electrodes and at least one ground electrode are substantially transparent to the optical beam, which electric fields are adapted to selectively change the index of refraction of the electrooptical material across a first dimension thereof to provide for a first predetermined index of refraction profile along the first dimension and thereby form a lens, and whereby the change in index of



refraction across the first dimension is adapted to change the angle at which the optical beam entering the electrooptic lens exits the lens; and

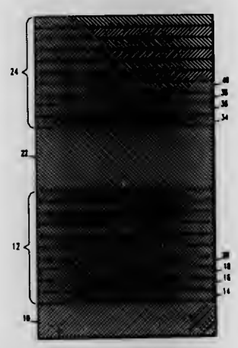
a first voltage source coupled to the first plurality of electrodes and the at least one ground electrode for applying predetermined voltages to the plurality of electrodes to create the first predetermined index of refraction profile in the electrooptic material.

5,212,584

TUNABLE ETALON FILTER

Yun C. Chung, Aberdeen, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Apr. 29, 1992, Ser. No. 875,873
Int. Cl.[5] G02F *1/07, 1/01;* G02B *27/00, 1/10*
U.S. Cl. 359—260 19 Claims



1. A tunable etalon filter comprising

spacer means having a temperature dependent coefficient of index of refraction which has a value greater than about -0.55×10^{5}/°C. and less than about 9.7×10^{-3}/°C.,

a first reflecting means coupled to a surface of said spacer means,

a second reflecting means coupled to an opposing surface of said spacer means, and

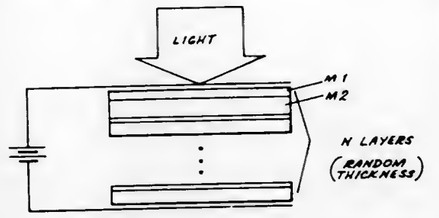
means for controlling the temperature of said spacer means to control its index of refraction.

5,212,585

LASER PROTECTIVE DEVICE

Xiaohui Ning, N. Providence, R.I., assignor to American Optical Corporation, Southbridge, Mass.

Filed Apr. 3, 1990, Ser. No. 503,873
Int. Cl.[5] G02F *1/03*
U.S. Cl. 359—276 16 Claims



1. Laser protective filter comprising:

a plurality of layers in a stack defining a multilayer stack;

switch means for dynamically switching between a transparent state wherein said stack is substantially transparent and a reflective state wherein said stack is substantially reflective over a broadband;

the refractive index of said layers being substantially the same in said transparent state and the refractive index between adjacent layers being different in said reflective sate; and

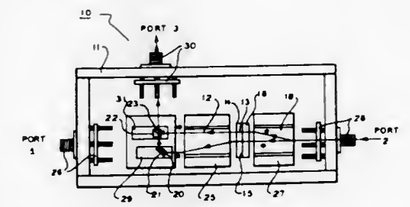
said layers each being of different optical thickness and said layers of different thickness being randomly arranged with the number of said layers being selected so as to make said multilayer stack function as a broadband reflector in said reflective state.

5,212,586

OPTICAL CIRCULATOR HAVING A SIMPLIFIED CONSTRUCTION

Jay S. Van Delden, Montville, N.J., assignor to Optics for Research, Caldwell, N.J.

Filed Nov. 26, 1991, Ser. No. 798,633
Int. Cl.[5] G02B *5/30;* G02F *1/09*
U.S. Cl. 359—281 7 Claims



1. An optical circulator comprising:

a first birefringent plate disposed at a first port for separating an incident beam of light from said first port into two beams having orthogonal directions of polarization and to receive light traveling in a reciprocal direction from a second port;

a Faraday rotator which includes an optical element having an optical axis and a means for generating a magnetic field along the optical axis;

a polarization transforming component;

a second birefringent plate located between said polarization transforming component and the second port, said second birefringent plate being immediately adjacent to both said second port and said polarization transforming component, said second birefringent plate being capable of combining into one beam of light said two beams of light

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traveling from said first birefringent plate and having orthogonal directions of polarization, said one beam of light traveling to said second port, and said second birefringent plate being capable of separating an incident beam of light from said second port into two beams of orthogonal polarization, said incident beam of light from second port traveling in a direction reciprocal to that of light traveling from said first port; and

a means for diverting light traveling from said second port through said first birefringent plate along a direction of travel at a right angle to the prior direction of travel of said light traveling from said second port through said first birefringent plate, whereby said diverting means directs to a third port said light traveling from said second port through said first birefringent plate and said diverting means being immediately adjacent to said first birefringent plate, wherein said diverting means allows the clear passage of light from said first port to said first birefringent plate, said diverting means including (a) a right angle prism and (b) a beam splitter cube, wherein said right angle prism directs a first beam of linearly polarized light traveling from said second port through said first birefringent plate, to a direction of travel at a right angle to the prior direction of travel, and wherein said beam splitter cube directs a second beam of linearly polarized light traveling from second port through said first birefringent plate, to a direction of travel at a right angle to the prior direction of travel, whereby said right angle prism and said beam splitter cube combine said first beam and said second beam of linearly polarized light to form a combined beam, and direct said combined beam to said third port.

5,212,587

BINARY TREE SWITCHING NETWORK

Peter Healey, Ipswich, England, assignor to British Telecommunications plc, London, United Kingdom

PCT No. PCT/GB89/00770, § 371 Date Dec. 27, 1990, § 102(e) Date Dec. 27, 1990, PCT Pub. No. WO90/00757, PCT Pub. Date Jan. 25, 1990

PCT Filed Jul. 6, 1989, Ser. No. 623,810

Claims priority, application United Kingdom, Jul. 8, 1988, 8816278

Int. Cl.[5] G11C *5/06*; G02F *1/31*

U.S. Cl. 359—301 8 Claims

CODE-WORDS e	d	c	b	a	OUTPUT
0	0	0	0	0	A
1	0	1	1	0	B
0	1	1	0	1	C
1	1	0	1	1	D

1. A binary tree switching network comprising a plurality of first ports and a second port including two or more switching stages, the switching stages being configured to switch the first ports to the second port by means of a control code set wherein to reduce cross-talk each control code has a predetermined minimum Hamming distance between all of the other control codes in the set greater than 1.

5,212,588

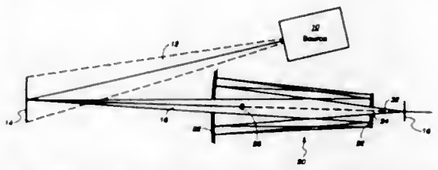
REFLECTIVE OPTICAL IMAGING SYSTEM FOR EXTREME ULTRAVIOLET WAVELENGTHS

Vriddhachalam K. Viswanathan, and Brian E. Newnam, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 9, 1991, Ser. No. 682,780

Int. Cl.[5] G02B *5/10*

U.S. Cl. 359—355 6 Claims



1. A reflecting optical system including illumination means for projecting an image of an object, said optical system further defining an image plane for receiving a reduced image representation of said object, the improvement comprising:

first and second coaxial aspherical mirrors in partially obscured arrangement and defining four reflecting surfaces between said object and said image plane coaxial with said mirrors, said first and second mirrors being defined by aspherical coefficients effective to resolve image features of 0.05–0.25 μm with a telecentricity ≦ 1 mrad with distortions less than 0.1 of a resolution value for said object over an image filed in said image plane of at least 10 mm × 10 mm when said illumination means is a partially coherent photon beam having a wavelength less than about 100 nm;

wherein said first aspherical mirror receives illumination from said object and has a conic constant $K < -1$; and

said second mirror directs illumination onto said image plane and has a conic constant $0 > K > -1$.

5,212,589

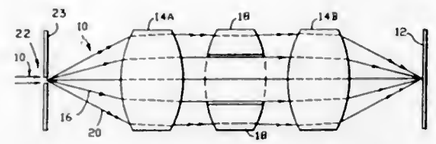
LENS SYSTEM FOR FOCUSSING LIGHT OF PLURAL WAVELENGTH

Douglas S. Goodman, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 25, 1991, Ser. No. 782,944

Int. Cl.[5] G02B *13/14, 3/00, 9/12*

U.S. Cl. 359—353 6 Claims



1. A lens system for imaging both short and long wavelengths of a beam of plural wavelength illumination onto an image plane comprising:

an optical mask having an aperture therein disposed in the path of a beam of illumination for passing said beam of illumination through said aperture,

a set of first and second lens elements disposed on an optical axis in the path of said illumination passing through said aperture and a third lens element disposed on said optical axis and located between said first and second lens elements,

said first and second lens elements functioning in combination to focus a first type plurality of wavelengths of said illumination onto said image plane,

said first, second and third lens elements functioning in combination to focus a second type plurality of wavelengths of said illumination onto said image plane.

5,212,590

BRIGHTNESS INTENSIFIER TUBE WITH ALIGNMENT MARKER

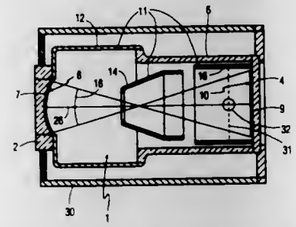
Willy J. P. Bols, Retie, Belgium, assignor to U.S. Philips Corp., New York, N.Y.

Continuation of Ser. No. 527,992, May 23, 1990, abandoned. This application Aug. 13, 1991, Ser. No. 746,133

Claims priority, application Netherlands, May 25, 1989, 8901306

Int. Cl.[5] G02B *23/00*; H01J *31/50*

U.S. Cl. 359—400 4 Claims



1. A brightness intensifier tube comprising an entrance screen, an exit screen and an electron-optical system for imaging electrons emanating from the entrance screen onto the exit screen wherein the brightness intensifier tube is provided with a channel plate having an input electrode and a fixed alignment marker is provided on the input electrode of the channel plate.

5,212,591

FOCUSING MECHANISM FOR BINOCULARS

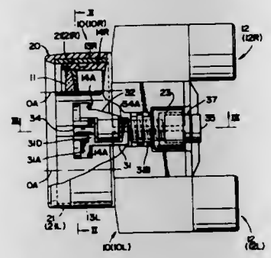
Gouzi Funathu, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1990, Ser. No. 599,081

Claims priority, application Japan, Oct. 18, 1989, 1-271311

Int. Cl.[5] G02B *23/00*

U.S. Cl. 359—407 21 Claims



1. A binocular comprising:

a pair of telephotographic optical systems with their respective optical axes being arranged in parallel to each other, each of said telephotographic optical systems has a lens group for focusing, and at least one of said lens groups being used for diopter-adjusting;

first shaft means for simultaneously moving each said lens group for focusing in an optical axis direction, said first shaft means including a first operating member located at an end portion thereof; and

second shaft means for moving said at least one of said lens groups for diopter-adjusting in said optical axis direction, said second shaft means including a second operating member located at an end portion thereof;

wherein said first shaft means and said second shaft means are arranged coaxially, and said end portion of said first shaft means being located adjacent said end portion of said second shaft means; and

said first shaft means being arranged to be movable by means of a focus adjustment screw arranged to be movable by means of one of said operation members, said one of said operation members being threaded with inner circumferential screw threads attached to the binocular, and a slidable member arranged to be slidable along an axis parallel to said optical axes for moving said pair of telephotographic optical systems when said one of said operation member is operated, whereby said pair of telephotographic optical systems are moved along said optical axes as said first shaft means is moved.

5,212,592

ADJUSTED FOCUS HOLDING MECHANISM FOR BINOCULAR

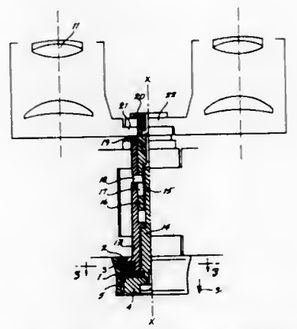
Masashi Kato, Warabi, Japan, assignor to Kakakua Koki Kabushiki Kaisha, Warabi, Japan

Filed Nov. 9, 1990, Ser. No. 612,265

Claims priority, application Japan, Nov. 9, 1989, 1-130645[U]

Int. Cl.[5] G02B *23/00*

U.S. Cl. 359—410 9 Claims



1. In a binocular having a turning wheel adapted to rotate a rotary shaft, and an axially movable member that is moved along an axis in parallel to the binocular's optical axes by rotation of the rotary shaft, thereby to move an optical system of the binocular along one of said optical axes for achievement of a desired focused condition, the improvement comprising:

an adjusted-focus holding mechanism comprising an engageable locking member engageable with said turning wheel so that said turning wheel in an initial position is prevented from rotating by locking engagement with said engageable locking member, wherein said turning wheel is movable from its initial position to cancel the locking of said turning wheel, thereby allowing rotation of said turning wheel for adjustment of the optical system focus, this adjusted focus being holdable by moving the turning wheel in the reverse direction to its initial position to re-engage said turning wheel with said locking member to lock said turning wheel against rotation.

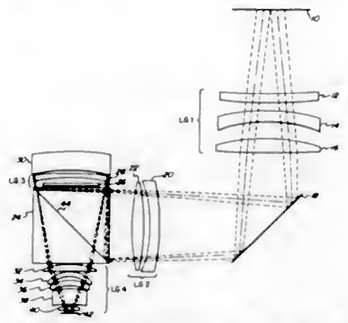
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5,212,593

BROAD BAND OPTICAL REDUCTION SYSTEM USING MATCHED MULTIPLE REFRACTIVE ELEMENT MATERIALS

David Williamson, and Satish DeSai, both of Bethel, Conn., assignors to SVG Lithography Systems, Inc., Wilton, Conn.

Filed Feb. 6, 1992, Ser. No. 831,818
Int. Cl.[5] G02B *17/08, 27/28*
U.S. Cl. 359—487 13 Claims



1. A catadioptric optical reduction system, from the long conjugate end to the short conjugate end comprising:
- a first lens group, said first lens group including refractive elements made from at least two different materials;
- a second lens group, said second lens group including refractive elements made from at least two different materials;
- a beamsplitter;
- a third lens;
- a reduction mirror; and
- a fourth lens group, said fourth lens group including refractive elements made from at least two different materials
- arranged such that radiation entering the system passes through said first lens group, said second lens group, said beamsplitter, said third lens, is reflected by said mirror back through said third lens, through said beamsplitter, and through said fourth lens group.

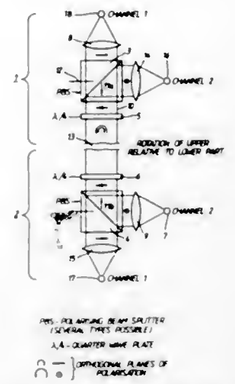
5,212,594

ROTATABLE JOINTS FOR COMMUNICATION LINES

George M. S. Joynes, Romsey, Great Britain, assignor to Roke Manor Research Limited, Romsey, England

Filed Nov. 27, 1991, Ser. No. 799,127
Claims priority, application United Kingdom, Dec. 7, 1990, 9026669
Int. Cl.[5] G02B *5/30, 27/28*
U.S. Cl. 359—494 12 Claims

1. A communication line joint arrangement comprising two parts, at least one of the two parts being adapted for rotation relative to the other part by a means for rotation, and both parts being adapted for the transmission of at least two channels therebetween using electromagnetic energy, each part comprising beam splitter means operatively associated with quarter wave plate means, wherein the beam splitter means of the two parts are arranged to pass two orthogonally related polarised input channel signals to the quarter wave plate means associated therewith, so as to produce two corresponding circularly polarised channel signals of opposite directional sense which are transmitted between the quarter wave plate means, across an interface between the parts, so as to produce



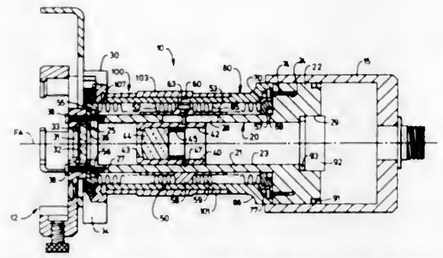
two corresponding orthogonally polarised output channel signals from the beam splitter means.

5,212,595

STERILIZABLE FOCUSING LENS ASSEMBLY

Allan G. Dennison, Jr., Action, Mass., and Larry E. Shephard, Providence, R.I., assignors to MP Video, Inc., Hopkinton, Mass.

Filed Dec. 21, 1990, Ser. No. 632,470
Int. Cl.[5] G02B *7/02*
U.S. Cl. 359—513 20 Claims



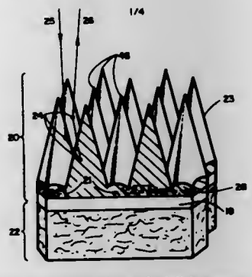
1. A sealed adjustable focusing lens assembly, said assembly comprising:
- (a) a lens barrel having a substantially tubular body with a longitudinal throughbore therewithin and oppositely disposed barrel ends, said tubular body having fluid tight seals adjacent said barrel ends;
- (b) a focusing lens reciprocably mounted within said barrel for selective adjustment therewithin along a longitudinal optical axis;
- (c) means for reciprocating said lens along said axis within a portion of said barrel intermediate said barrel ends, said reciprocating means comprising a longitudinally reciprocable drive member which extends inwardly into said body for selectively moving said lens along said axis; and
- (d) an expandable tubular sealing member concentrically telescoped over said barrel, said sealing member comprising a longitudinally expandable tubular wall member having longitudinally spaced oppositely disposed retainer ends, said retainer ends sealingly attached relative to said barrel, wherein said drive member is connected to said focusing lens through said tubular sealing member intermediate said retainer ends, and whereby said sealing member provides an effective static seal about said portion of said barrel while permitting longitudinal adjustment of said lens therewithin.

5,212,596

NONREFLECTIVE ARTICLES

Paul G. Andrus, Powell, Ohio, assignor to Battelle Memorial Institute, Columbus, Ohio

Filed May 18, 1992, Ser. No. 885,087
Int. Cl.[5] G02B *27/00*
U.S. Cl. 359—614 17 Claims



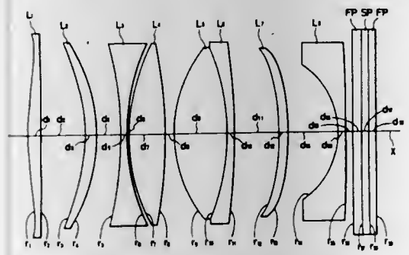
1. An article for presentation of visible matter therein, comprising
- a substantially transparent viewing region,
- visible matter in the viewing region, and
- a substrate region adjacent to the viewing region,
- the viewing region comprising an outer layer and an outer surface thereon comprising a low reflectivity material configured to provide a series of at least 3 reflections of light normally incident thereon so that not more than about 0.05% of such incident light is reflected away by the outer surface and the remainder of the incident light is transmitted into the viewing region, whereby at least about 5% the transmitted light is scattered by the visible matter back toward a viewer, and so that the viewer thus can see the visible matter clearly and free from noticeable reflected light from the outer surface.

5,212,597

PROJECTION LENS SYSTEM FOR PROJECTORS

Hiroshi Yamada, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan

Filed Oct. 24, 1991, Ser. No. 782,311
Claims priority, application Japan, Oct. 25, 1990, 2-285733; Nov. 30, 1990, 2-330172
Int. Cl.[5] G02B *3/02*
U.S. Cl. 359—649 6 Claims



1. A projection lens system, comprising consecutively from the side of the viewing screen:
- a first lens component L_1 in the form of a positive plastic lens;
- a second lens component L_2 in the form of a plastic lens of weak power;
- third to sixth lens components L_3 and L_6 constituted by a combination of a couple of convex glass lenses of strong power and a couple of concave glass lenses of strong power;
- a seventh lens component L_7 in the form of a plastic lens of weak power; and
- an eighth lens component L_8 in the form of a negative plastic lens of strong power having a concave surface on the side of the viewing screen;
- at least one of the lens surfaces of each of said first lens component L_1, second lens component L_2, seventh lens component L_7 and eighth lens component L_8 being an aspheric surface;
- wherein said couple of concave glass lenses constituting two of said lens components L_3 to L_6 satisfy the condition of

$$b\ 0.3 < \phi_{CS}/\phi_{CL} < 1.0$$

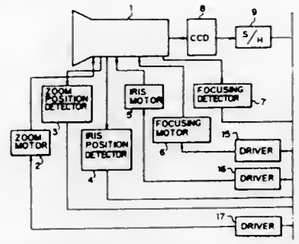
wherein ϕ_{CL} is the lens power of the strong one of said concave glass lenses and ϕ_{CS} is the lens power of said weaker concave glass lens.

5,212,598

ZOOM TRACKING APPARATUS

Akihiro Kikuchi, Chiba, Japan, assignor to Sony Corporation, Japan

Filed Oct. 29, 1991, Ser. No. 784,528
Claims priority, application Japan, Nov. 6, 1990, 300427
Int. Cl.[5] G02B *7/02*
U.S. Cl. 359—823 16 Claims



1. A zoom tracking apparatus of a focusing lens in which a position of a focusing lens is controlled to an in-focus position so as to follow a motion of a zoom lens, wherein said focusing lens and said zoom lens are included in a first, a second, a third ,and a fourth lens groups, counting from the photographed object side, and wherein said second and fourth lens groups are movable, comprising:
- means for wobbling the focusing lens or an image pickup device in the front and back directions; and
- means for controlling front and back wobbling amounts of the focusing lens or the large image pickup device,
- wherein the front and back wobbling amounts of the focusing lens or the image pickup device are changed in accordance with a relation between the position of the zoom lens and the in-focus position of the focusing lens or the image pickup device.

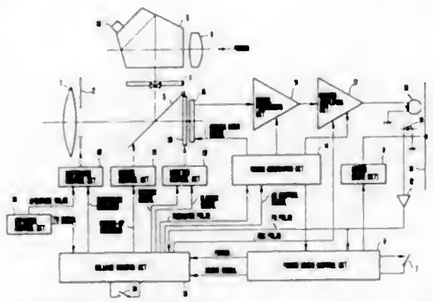
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,599

ELECTRONIC CAMERA FOR SYNCHRONOUS RECORDING OF STILL PICTURES ON ROTATING RECORD MEDIUM

Shinji Sakai, and Takashi Kawabata, both of Kanagawa, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 613,930, Nov. 12, 1990, abandoned, which is a continuation of Ser. No. 262,199, Oct. 19, 1988, abandoned, which is a continuation of Ser. No. 852,139, Apr. 15, 1986, abandoned. This application Nov. 1, 1991, Ser. No. 785,874
Claims priority, application Japan, Apr. 17, 1985, 60-080354
Int. Cl.[5] H04N 5/781
U.S. Cl. 360—35.1 47 Claims



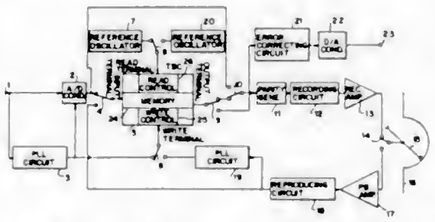
1. An apparatus comprising:
(a) means for converting an image into an electrical signal;
(b) drive means for driving a recording medium for recording said electrical signal to move periodically, said means producing a first signal when recording medium motion reaches at least a prescribed speed, and a second signal each time when the phase of recording medium motion takes a prescribed state;
(c) resetting means for resetting said convert means to an initial cleared state in response to said first signal;
(d) means for reading out said electrical signal from said convert means in synchronism with said second signal after said convert means has been reset to said initial state and said image has been converted to said electrical signal.

5,212,600

DIGITAL VIDEO TAPE RECORDER WITH TIME BASE CORRECTION OF INPUT VIDEO SIGNALS

Keiji Kanota, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 19, 1990, Ser. No. 631,096
Claims priority, application Japan, Dec. 29, 1989, 1-341967
Int. Cl.[5] H04N 5/78
U.S. Cl. 360—36.2 1 Claim



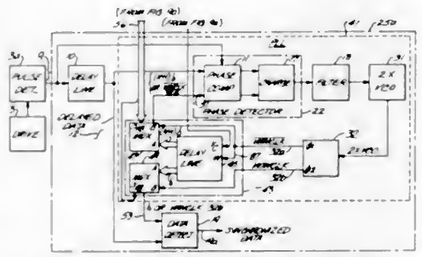
1. A digital video tape recording and reproducing apparatus, comprising:
analog-to-digital converter means for converting an input video signal into a corresponding digital video signal;
time base corrector means for correcting a time base error in said input video signal including a memory, means for writing said digital video signal in said memory in response to a first synchronizing signal derived from said input video signal, means for generating a first reference signal and means for reading out a time base corrected digital video signal from said memory in response to said first reference signal;
means for processing the time base corrected digital video signal read from said memory and for supplying a recordable time base corrected digital video signal;
means including a rotary head for recording the recordable time base corrected digital video signal on a magnetic tape;
means including said rotary head for reproducing the digital video signal recorded on said magnetic tape;
means for writing said reproduced digital video signal in said memory in response to a second synchronizing signal derived from said reproduced digital video signal;
means for generating a second reference signal;
means for reading out the reproduced digital video signal from said memory as a time base corrected reproduced digital video signal in response to said second reference signal; and
digital-to-analog converter means for converting the time base corrected reproduced digital video signal read from said memory into an analog output video signal.

5,212,601

DISK DRIVE DATA SYNCHRONIZER WITH WINDOW SHIFT SYNTHESIS

Ronald E. Wilson, Lake Forest, Calif., assignor to Western Digital Corporation, Irvine, Calif.

Filed May 3, 1991, Ser. No. 695,531
Int. Cl.[5] G11B 5/09
U.S. Cl. 360—51 36 Claims



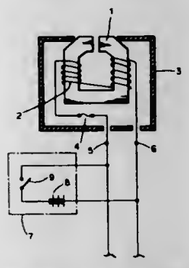
1. A disk drive data, synchronizer for deriving from an irregular series of data pulses in a pulse train having a given channel rate, window clock signals designating successive selectively-variable time periods, each of said window clock signals being dedicated to the discerning of the presence or absence of a respective one of said data pulses during a respective one of said time periods and to the synchronization of a discerned one of said data pulses, comprising:
a) variable-frequency means for generating a first periodic clock signal whose nominal frequency is an integral multiple of the frequency of said pulse train and whose frequency is variable in response to a frequency-control signal;
b) phase-shift means driven by said first periodic clock signal for generating second and third periodic clock signals in response to and at an integral submultiple of the frequency of said first clock signal, said second and third clock signals being phased apart from each other by a variable angle, said phase-shift means including a phase-shift control signal input;
c) phase detector means for producing a phase detector signal representative of the sign and magnitude of the phase difference between said second clock signal and said data pulses, and means for applying the average of said phase detector signal to said variable-frequency means as its frequency-control signal, said variable-frequency means, phase-shift means, and phase detector forming a phase-locked loop;
d) phase-shift control means for applying a control signal to said phase-shift control signal input and having a second phase-locked loop, said second phase-locked loop including a digital frequency divider therein; and
e) data detector means responsive to said third clock signal and to said data pulses for discerning the presence or absence of a data pulse during each of said time periods and synchronizing said discerned data pulse with respect to said third clock signal.

5,212,602

MAGNETIC HEAD HAVING FUSE WITHIN HEAD CASE

Hidefumi Suzuki, Tokyo, Japan, assignor to Kabushiki Kaisha CSK, Tokyo, Japan

PCT No. PCT/JP90/01191, § 371 Date May 17, 1991, § 102(e) Date May 17, 1991
PCT Filed Sep. 18, 1990, Ser. No. 689,746
Claims priority, application Japan, Sep. 18, 1989, 1-241457
Int. Cl.[5] G11B 5/17
U.S. Cl. 360—66 2 Claims



1. A magnetic head usable in a reader-writer for reading and writing data which can be magnetically processed, the magnetic head being characterized in that:
it comprises a core, an exciting coil for exciting said core, and a head case for tightly enclosing said core and said exciting coil; and
a fuse is provided in a part of said exciting coil.

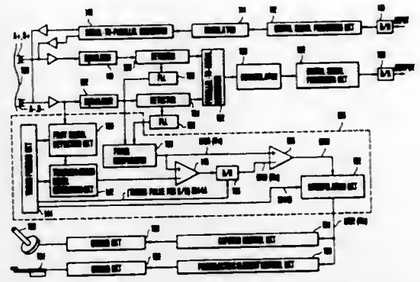
5,212,603

TRACKING CONTROL MEANS FOR A MULTI-CHANNEL REPRODUCING APPARATUS

Masahide Hasegawa, Kanagawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 8, 1989, Ser. No. 391,162
Claims priority, application Japan, Aug. 26, 1988, 63-210612; Aug. 26, 1988, 63-210613
Int. Cl.[5] G11B 5/58, 5/588
U.S. Cl. 360—77.01 16 Claims

1. An apparatus for reproducing signals of a plurality of channels from a recording medium having said signals of plural channels recorded in parallel, said signals of plural channels respectively including digital signals, comprising:
a) a plurality of head means for reproducing said signals of plural channels by tracing in parallel said recording medium;
b) a plurality of extracting means for extracting specific signals from a plurality of signals reproduced by said plurality of head means, each of said plurality of extracting means including a phase-locked loop which is arranged to generate a clock signal in synchronism with clock signal components of said digital signals;
c) detecting means for detecting a phase difference between said specific signals extracted by said plurality of extracting means; and



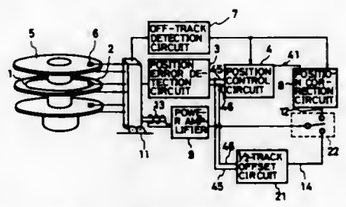
d) tracking control means for controlling the position of said plurality of head means relative to said recording medium in accordance with said phase difference detected.

5,212,604

METHOD AND APPARATUS FOR PROCESSING POSITIONING SIGNALS IN A RECORD

Shirou Ogura, and Masahiro Mizuno, both of Kanagawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed May 17, 1990, Ser. No. 525,126
Claims priority, application Japan, May 17, 1989, 1-123157
Int. Cl.[5] G11B 5/596
U.S. Cl. 360—77.11 13 Claims



1. A recording device comprising:
(a) a head for writing and reading information;
(b) a recording medium having tracks on which head positioning information is written;
(c) first means operable in response to said head positioning information to generate a first positioning signal for positioning said head at a predetermined track, said first means comprising a positioning error detection circuit operable in response to said positioning information to detect a position error between said head and a track center to generate two positioning signals A and B which are continuous and periodic over all tracks and offset a quarter period in phase;
(d) second means operable in response to said first positioning signal to generate a second positioning signal for bringing said head to a position between predetermined adjacent tracks, said second means comprising
an addition amplifier circuit for summing said positioning signals A and B to generate a sum signal and amplifying said sum signal by a half to generate a positioning signal C; and
a subtraction amplifier circuit for subtracting said positioning signal B from said positioning signal A to generate a differential signal and amplifying said differential signal by a half to generate a positioning signal D; and
(e) control means operable in response to either of said first and second positioning signals to position said head at a track for writing or reading information, said control means comprising

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a position control circuit operable in response to window signals obtained from comparative operations on said positioning signals A–D and their inverted signals to select a signal from the group consisting of said positioning signals A–D and their inverted signals for generating a linear signal; and

a position correction circuit responsive to said linear signal for generating a feedback signal for controlling the position of said head so that said linear signal becomes zero.

5,212,605

EJECTING AND LOADING MECHANISM FOR A TAPE CASSETTE WITH MEANS FOR PREVENTING UNINTENTIONAL EJECTION OF THE CASSETTE

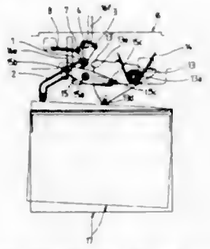
Jong R. Lim, and Jong G. Choi, both of Seoul, Rep. of Korea, assignors to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Jan. 30, 1991, Ser. No. 647,927

Claims priority, application Rep. of Korea, Jan. 31, 1990, 1123/1990; Jul. 31, 1990, 11416/1990

Int. Cl.[5] G11B *17/04*

U.S. Cl. 360—99.06 **7 Claims**



1. A tape cassette ejecting and loading mechanism comprising:

a top cover;

a horizontal carrier movably mounted under said top cover;

and ejecting lever mounted below a lower surface of said horizontal carrier, and a first spring mounted to elastically bias said ejecting lever in a direction to eject a tape cassette out of a cassette holder;

a locking lever mounted below said horizontal carrier, said locking lever being coupled to said ejecting lever to lock said ejecting lever and unlock said ejecting lever at loading and unloading position; and

a safety lever mounted to a middle portion of said carrier, said safety lever having a surface engageable with said ejecting lever at a determined angular displacement of said safety lever and ejecting lever, and a second spring mounted to elastically bias said safety lever in a direction to engage said surface thereof with said ejecting lever to prevent said ejecting lever from rotating, to thereby prevent said cassette from being ejected unintentionally when a tape is initially being loaded into said mechanism.

5,212,606

DOOR STRUCTURE OF A STILL VIDEO CAMERA

Jeong-Se Park, Suweon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 30, 1990, Ser. No. 619,996

Claims priority, application Rep. of Korea, Nov. 30, 1989, 1989-18089

Int. Cl.[5] G11B *17/02, 15/675*

U.S. Cl. 360—99.02 **17 Claims**

1. A door structure of a still video camera enabling loading and unloading of a floppy disk or a tape cassette, said door structure comprising:

an opening accommodating passage of said floppy disk or said tape cassette through said opening;

a first pin;

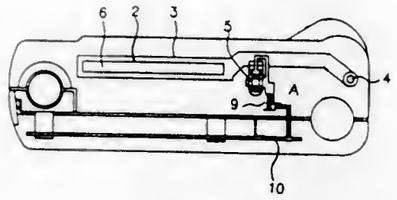
a second pin;

a first spring;

a second spring attached to said second pin;

a door frame mounted around said opening, said door frame pivoting on said first pin toward and away from said opening;

an eject knob connected to said door frame and said first spring, for moving said door frame away from said opening when said eject knob is moved from a first position to a second position and urged toward said first position by said first spring;



a door supported and pivoted on said door frame by said second pin, said door pushed open when said floppy disk or said tape cassette enters through said door frame and urged shut by said second spring; and

a leaf switch having an end resiliently supported by said first spring, positioned to be operationally engaged by motion of said eject knob from said first position to said second position, for enabling ejection of said floppy disk or said tape cassette from the still video camera through said opening.

5,212,607

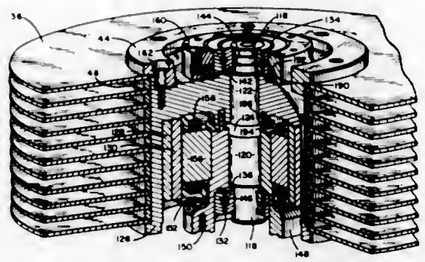
DISK DRIVE INCLUDING UNITARY DECK FOR ALIGNING AND SUPPORTING AXIALLY RETRACTABLE SPINDLE ASSEMBLY

John W. Elsing, Edina; William J. Kostecka, Jordan, and William C. Bright, Eden Prairie, all of Minn., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Division of Ser. No. 560,747, Jul. 31, 1990. This application Aug. 28, 1992, Ser. No. 936,481

Int. Cl.[5] G11B *17/02*

U.S. Cl. 360—99.08 **13 Claims**



1. A spindle assembly for supporting data storage disks for rotation about a spindle axis with respect to a disk drive housing, the spindle assembly including:

an elongate spindle shaft having a spindle axis;

a first bushing means at a first end portion of the spindle shaft, and a first bearing means for securing the first bushing means for rotation about the spindle axis relative to the shaft;

a second bushing means at a second and opposite end portion of the shaft, and a second bearing means for securing the second bushing means for rotation about the spindle axis relative to the spindle shaft;

wherein each of the first and second bushing means surround its associated one of the bearing means; and

wherein the first and second bearing means are constructed of a first material and the first and second bushing means are constructed of a second material having a coefficient of thermal expansion greater than the thermal expansion coefficient of the first material, each of the bearing means being retained in a compression fit within its associated bushing means up to a predetermined maximum temperature.

5,212,608

HEAD SLIDER FOR MAGNETIC DISK DRIVE, HAVING SIDE RAILS WITH GRADUALLY INCREASING WIDTH FORMING A SHALLOW RECESS

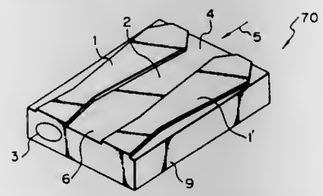
Seizi Yoneoka, Kanagawa, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jul. 12, 1991, Ser. No. 729,294

Claims priority, application Japan, Jul. 13, 1990, 2-184082; Jun. 17, 1991, 3-144852

Int. Cl.[5] G11B *5/60*

U.S. Cl. 360—103 **36 Claims**



1. A magnetic head slider for mounting a magnetic head for writing data into and reading data from a rotating magnetic disk in a magnetic disk drive device, comprising:

a base member having a surface mating with said magnetic disk, the entire area of said surface being flat;

a pair of side rails formed on said surface mating with said magnetic disk, for generating a floating force and having end surfaces, the width of each of said side rails being gradually increased from an air inlet end from which air is introduced toward an air outlet end from which the air is discharged, and subsequently being gradually reduced toward said air outlet end; and

a shallow recess defined between said side rails on said base member and forming a negative pressure generating region having a width which is gradually increased from the air inlet end to the air outlet end.

5,212,609

MAGNETORESISTIVE HEAD

Isamu Yuito, Oume; Makoto Morijiri, Naka; Tooru Takeura, Odawara; Naoki Koyama, Kokubunji, and Masahiro Kitada, Nishitama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

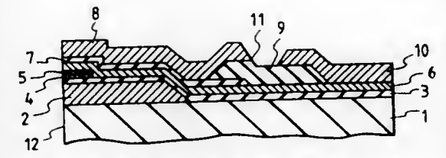
Filed Nov. 15, 1991, Ser. No. 792,630

Claims priority, application Japan, Nov. 19, 1990, 2-311492

Int. Cl.[5] G11B *5/33*

U.S. Cl. 360—113 **9 Claims**

1. A magnetoresistive head comprising at least a lower gap film, a magnetoresistive film, a bias film, an electrode, an upper gap film, and upper shield film provided in sequence on a substrate, wherein a protective film is provided to cover at least said upper gap film and said electrode right under ends of said upper shield film on the side opposite to a air bearing



surface of said head, and said protective film does not exist right on at least the magnetoresistive film.

5,212,610

SCANNING DEVICE FOR MAGNETIC TAPE WITH SPECIAL BEARING ARRANGEMENT FOR SCANNER SHAFT

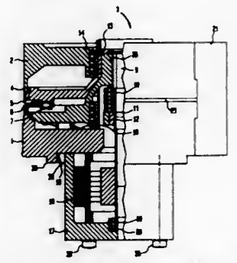
Gerhard Falk, Rossdorf; Hartmut Willmann, Gross-Zimmern, and Wolfgang Fell, Seeheim, all of Fed. Rep. of Germany, assignors to BTS Broadcast Television Systems GmbH, Darmstadt, Fed. Rep. of Germany

Filed Feb. 13, 1992, Ser. No. 835,211

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1991, 4104265

Int. Cl.[5] G11B *5/52*

U.S. Cl. 360—107 **3 Claims**



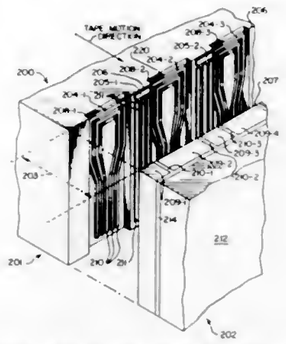
1. A scanning device for a magnetic tape equipment having a tape-guiding drum subdivided into fixed upper and lower drums, a rotating head wheel having magnetic heads on its periphery for scanning magnetic tape in a gap between said upper and lower drums, a motor for driving said head wheel disk by means of a shaft mounted coaxially with said tape guiding drum for rotation of said shaft and said head wheel driven by said motor, and further comprising

an upper bearing located at a height on the axis of said tape guiding drum at which height the plane of rotation of said magnetic heads (**5**) is located, said upper bearing being a duplex ball bearing in which inner rings of the duplex ball bearing (**10**) are affixed to said shaft (**9**) and outer rings of said duplex ball bearing (**10**) are affixed to said lower drum (**1**) of said subdivided tape-guiding drum (**3**), and

a lower bearing of said shaft (**9**) having the form of a supporting bearing (**19**) for opposing radially acting cross pressures to which said shaft (**9**) may be subjected.

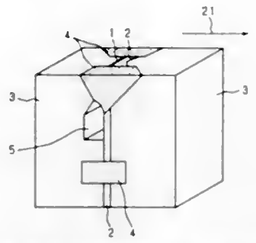
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,611
INTEGRAL READ/WRITE RECORDING HEAD WITH DUAL GAP DIMENSION
Richard H. Dee, Louisville, Colo., assignor to Storage Technology Corporation, Louisville, Colo.
Filed Jul. 16, 1991, Ser. No. 731,008
Int. Cl.[5] G11B *5/127*
U.S. Cl. 360—113 15 Claims



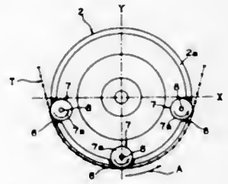
1. An integral head module having at least one MR read element and one write element, said module comprising:
a first pole piece having a first mating surface,
a recess having an inner wall in said first mating surface,
a write element positioned in said recess,
an MR read element affixed to a first insulator layer on said first mating surface adjacent said recess, and
a second pole piece having a second mating surface,
said second pole piece being positioned adjacent said first pole piece to define a read gap of a length equal to the distance between said first and second mating surfaces and to define a write gap of a length equal to the distance between said second mating surface and said inner wall.

5,212,612
MAGNETIC HEAD
Hiroshi Kobayashi; Hiroshi Yamamoto; Kazunori Inoue, all of Amagasaki, and Hideo Kimura, Nagaokikyo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan
Filed Feb. 6, 1991, Ser. No. 651,133
Claims priority, application Japan, Feb. 7, 1990, 2-29158
Int. Cl.[5] G11B *5/235*
U.S. Cl. 360—119 19 Claims



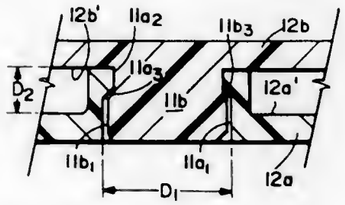
1. A magnetic head comprising:
a first magnetic core made of an oxide magnetic compact,
a second magnetic core made of an oxide magnetic compact having a protrusion confronting said first magnetic core, said protrusion having an end face coated with a metal film of high saturation flux density forming a boundary therebetween,
a non-magnetic gap member interposed between said first and second magnetic cores thereby providing a gap between said first magnetic core and said metal film of the second magnetic core,
a bonding material for bonding said first and second magnetic cores,
wherein the boundary between said metal film and the end face of said protrusion of the second magnetic core defines a line which is transverse to said gap, and
wherein the first magnetic core has a protrusion having a flat end face parallel to said gap member.

5,212,613
ROTARY HEAD DRUM
Jung-eon Seo, Euiwang, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyunggi-do, Rep. of Korea
Filed Dec. 27, 1991, Ser. No. 813,659
Claims priority, application Rep. of Korea, Dec. 29, 1990, 90-22482
Int. Cl.[5] G11B *15/61, 5/027*
U.S. Cl. 360—130.24 4 Claims



1. A rotary head drum comprising an upper rotating head drum with a head and a lower fixed drum coaxial with said upper rotating head drum and having an inclined tape lead line, thereby carrying out predetermined recording or reproducing operation to/from a tape which travels while in contact with the circumference of said upper and lower drums, wherein
at least one stabilizer having a disc plane of a predetermined diameter is provided in said lower fixed drum, such that the disc projects from the circumferential surface of said lower fixed drum to be partially in contact with said tape, and said stabilizer is supported by a pivot to be rotated at the same linear velocity as the traveling speed of said tape.

5,212,614
FLEXIBLE MAGNETIC DISC CASSETTES WITH SEPARABLE CASSETTE CASES
Patrick M. Hughes, Clinton, N.J.; Maribeth Fletcher, and Thaddeus R. Dudzik, both of Lisle, Ill., assignors to Hoechst Celanese Corporation, Somerville, N.J.
Filed Feb. 5, 1991, Ser. No. 650,867
Int. Cl.[5] G11B *23/03*
U.S. Cl. 360—133 19 Claims

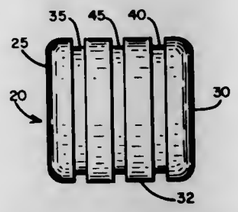


1. A relatively thin microdisc cassette case having a generally rectangular parallelpiped shape adapted to house therewithin a standardized 3.5-inch flexible magnetic disc, said cassette case comprising;

a pair of opposing planar cassette case halves having a pair of interior surfaces, and
detent members for joining said cassette case halves one to another in face-to-face relationship, wherein
said detent members include a number of registered male and female detent members, said registered male and female detent members being in an interfere friction fit with one another to securely joint the cassette case halves one to another yet allow the cassette case halves to be separable upon application of a separatory force of sufficient magnitude; and wherein width dimension measured detent members establish a continuous peripheral interengagement region having a width dimension measured parallel to the plane of said cassette case halves, and a depth dimension measured perpendicular to the plane of said cassette case halves between said pair of interior surfaces, said width dimension being at least twice said depth dimension.

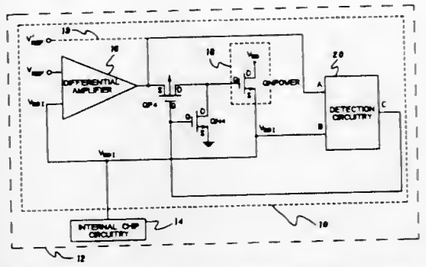
11. A relatively thin microdisc cassette case having a generally rectangular parallelpiped shape adapted to house therewith a standardized 3.5-inch flexible magnetic disc, said cassette case comprising:
a pair of opposing planar cassette case halves; and
a number of registered male and female detent members for joining said cassette case halves one to another in face-to-face relationship;
said registered male and female detent members being in an interference friction fit with one another to securely join the cassette case halves one to another yet allow the cassette case halves to be separable upon application of a separatory face of sufficient magnitude; wherein
said male detent members are provided by a number of discrete male wall members which convergingly outwardly project from said one of said cassette case halves, and said female detent members are provided by a number of discrete walls which project divergingly outwardly form another one of is a cassette case halves; and wherein
said male and female wall members define an annular interengagement region such that said male wall members are laterally frictionally engaged with a respective female wall member within said annular interengagement region defined thereby.

5,212,615
DATA STORAGE DEVICE HAVING STRETCHED AND DISTENDED MAGNETIC MEDIA SURFACE
Ramon S. Gomez, P.O. Box 361, Cottage Grove, Minn. 55016
Filed Sep. 13, 1991, Ser. No. 759,404
Int. Cl.[5] G11B *5/82, 5/76*
U.S. Cl. 360—135 16 Claims



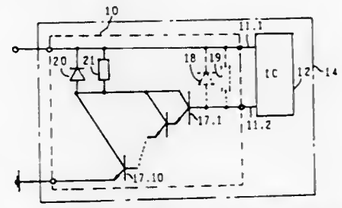
1. A stretched magnetic media surface data storage device comprising:
(a) a core body having a first and second end;
(b) a first magnetic media distended over said first end and secured to said core body;
(c) a second magnetic media distended over said second end and secured to said core body;
(d) means connected to said core body for stretching said first and second magnetic media;
(e) a data unit raceway surrounding said means for stretching.

5,212,616
VOLTAGE REGULATION AND LATCH-UP PROTECTION CIRCUITS
Sang H. Dhong, Mahopac, and Robert L. Franch, Wappingers Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 23, 1991, Ser. No. 781,446
Int. Cl.[5] H02H *7/10*
U.S. Cl. 361—18 20 Claims



1. A latch-up protection circuit for a CMOS integrated circuit chip having internal circuitry and a voltage regulator which supplies power and current to said internal circuitry, said latch-up protection circuit comprising:
detection means having a high input impedance during normal operation for determining a signal proportional to the current output from said voltage regulator to said internal circuitry of said CMOS integrated circuit chip; and
means for switching off said voltage regulator when said regulator supplied current to said internal circuitry of said CMOS integrated circuit chip exceeds a preset value, said preset value being such that a current value in excess thereof is indicative of a latch-up condition in said internal circuitry of said CMOS integrated circuit chip.

5,212,617
CIRCUIT FOR COMPENSATING VERY FAST CURRENT FLUCTUATIONS
Klaus Hueser, St. Peter-Ording, and Bernd Bodig, Schwieberdingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Continuation of Ser. No. 604,782, Oct. 26, 1990, abandoned.
This application Apr. 30, 1992, Ser. No. 879,055
Claims priority, application Fed. Rep. of Germany, Dec. 29, 1989, 3943279
Int. Cl.[5] H02H *9/04*
U.S. Cl. 361—56 2 Claims



1. A circuit for compensating current fluctuations in a nanosecond range in a power consumer circuit provided with a pair of power input or power output conductors, comprising a bipolar transistor circuit connected between the conductors and being arranged as close as possible to the consumer circuit to minimize inductance of the conductors; wherein the bipolar

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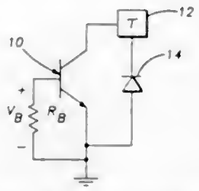
transistor circuit includes a bipolar transistor having a collector, an emitter and a base, said collector of said bipolar transistor being connected by a semiconductor diode and also by a resistor to one conductor of the pair of conductors, said resistor being connected in parallel with said semiconductor diode; and an emitter follower connected via the semiconductor diode and the resistor between the pair of conductors; the semiconductor diode being oriented in blocking direction and having a pn-junction with a barrier layer capacitance so as to act as a nanosecond range-responding loading buffer; and the resistor being dimensioned such that the semiconductor diode loads through the barrier layer capacitance the consumer circuit to compensate the current fluctuations.

5,212,618

ELECTROSTATIC DISCHARGE CLAMP USING VERTICAL NPN TRANSISTOR

Dennis P. O'Neill, San Mateo County; William C. Rempfer, and Robert C. Dobkin, both of Santa Clara County, all of Calif., assignors to Linear Technology Corporation, Milpitas, Calif.

Filed May 3, 1990, Ser. No. 518,151
Int. Cl.[5] H02H *9/04;* **H02L** *27/04*
U.S. Cl. 361—56 **21 Claims**



21. An electrostatic discharge protection clamp for an input terminal to an integrated circuit comprising:

a semiconductor substrate of one conductivity type,

a first semiconductor region of opposite conductive type abutting a surface of said substrate,

a vertical bipolar transistor formed in said first semiconductor region and having emitter, base, and collector regions, with said collector region being coupled to said input terminal and said base region being coupled to said emitter region via a current limiting resistive element, said vertical bipolar transistor having a collector-base voltage below a pre-selected voltage level such that said vertical bipolar transistor is inactive at input voltages applied to said input terminal below the pre-selected breakdown voltage and forms a current path for discharging excess charge on said input terminal when said input voltage exceeds the pre-selected voltage level, and

a PN junction connecting said substrate to said collector region.

5,212,619

METHOD AND SYSTEM FOR PROTECTING A GATE CONTROLLED THYRISTOR AGAINST UNACCEPTABLE OVERVOLTAGE

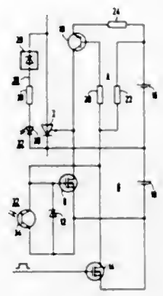
Eric Baudelot, Erlangen, and Hans Laber, Erlangen-Bruck, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Dec. 4, 1990, Ser. No. 621,888
Claims priority, application European Pat. Off., Dec. 8, 1989, 89122721.7
Int. Cl.[5] H02H *3/20*
U.S. Cl. 361—91 **43 Claims**

1. A method for protecting a gate fully controlled thyristor against unacceptable overvoltage, in which the gate fully controlled thyristor having a gate is controlled with a drive circuit that includes a turn-on circuit and a turn-off circuit, and a negative voltage source is connected at the gate of the gate fully controlled thyristor, said method comprising:

a) monitoring the voltage across the gate fully controlled thyristor;

b) generating a control signal upon overshoot of a predetermined limit by said voltage across the thyristor;



c) turning off the negative voltage source in response to said control signal;, and

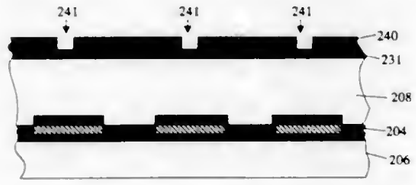
d) turning on the gate fully controlled thyristor by the turn-on circuit.

5,212,620

METHOD FOR ISOLATING SiO_2 LAYERS FROM PZT, PLZT, AND PLATINUM LAYERS

Joseph T. Evans, Jr.; Jeff A. Bullington, and Carl E. Montross, Jr., all of Albuquerque, N. Mex., assignors to Radiant Technologies, Albuquerque, N. Mex.

Filed Mar. 3, 1992, Ser. No. 845,064
Int. Cl.[5] H01G *4/10, 7/00;* **G11C** *11/22*
U.S. Cl. 361—313 **9 Claims**



1. An improved integrated circuit structure comprising:

a layer of SiO_2;

an isolation since this obviously was intended which is substantially inert with respect to said layer of SiO_2 and which is substantially an electrical insulator; and

an electrode layer of material chosen from the group PZT, PLZT, or platinum, wherein said isolation layer is disposed between, and in contact with, said layer of SiO_2 and said electrode layer, and wherein said isolation layer is substantially inert with respect to said electrode layer.

5,212,621

PROXIMITY SWITCHED MACHINE CONTROL METHOD AND APPARATUS

Ronald L. Panter, Clio, Mich., assignor to CNC Retrofits, Inc., Mt. Morris, Mich.

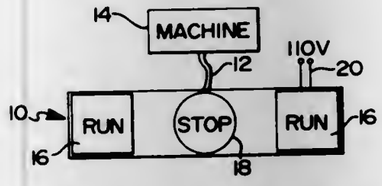
Filed Apr. 26, 1990, Ser. No. 514,770
Int. Cl.[5] H01H *9/26, 36/00*
U.S. Cl. 361—181 **5 Claims**

1. A pressure-free operator station for a machine, having a control output for connection to said machine, and comprising:

a voltage supply circuit,

a protective enclosure having a pair of exposed, spaced apart exterior targets forming exterior portions of the enclosure,

a capacitive proximity sensor in the circuit inside the enclosure behind each target and generating an electrical field extending outwardly a predetermined distance forwardly beyond the respective exterior target in a local area for sensing an operator's respective hand which can but need not touch the targets,



activatable elements coupled in circuit with the voltage supply and the sensors for operating the machine upon sensing an operator's hands near the respective targets, and

means for connecting the activatable elements to said control output.

5,212,622

LARGE SURFACE AREA ELECTRODES

Douglas R. MacFarlane, Elsternwick; John R. Tetaz, Templestowe, and Maria Forsyth, Blackburn, all of Australia, assignors to Specialized Conductives Pty. Ltd., Neerim, Australia

Continuation-in-part of Ser. No. 431,600, Nov. 3, 1989, Pat. No. 5,146,391. This application Oct. 29, 1991, Ser. No. 784,262
Claims priority, application Australia, Aug. 3, 1991, PJ9014
Int. Cl.[5] H01G *1/01, 9/00*
U.S. Cl. 361—305 **35 Claims**

1. A high surface are electrode comprising a composite material that comprises

an electronically conductive particulate filler having a high surface to volume ratio dispersed in

a binder material, wherein the particles of said particulate filler are substantially in intimate contact, and said binder material conducts ions to and from a substantial proportion of the surface of the filler particles.

5,212,623

PORTABLE POWER DISTRIBUTION CABINET

Charles P. Wilson, Richmond, and William G. Bowers, Colonial Heights, both of Va., assignors to Chewning & Wilmer, Inc., Richmond, Va.

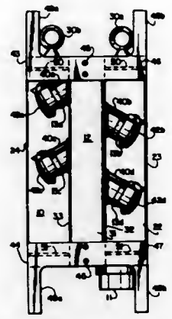
Filed Jan. 3, 1992, Ser. No. 816,237
Int. Cl.[5] H02B *1/26*
U.S. Cl. 361—334 **19 Claims**

8. A portable electric power distribution cabinet which comprises:

(a) hollow box means for containing electrical circuits and having a front wall, a back wall, vertical side walls, and top and bottom end walls;

(b) an electrical inlet receptacle located on said bottom end wall of said box means;

(c) hollow receptacle support means extending rearwardly from said box back wall around an opening in said box back wall, the hollow receptacle support means having a rear surface, first and second side surfaces, and top and bottom end surfaces, wherein the side-to-side width of said support means is substantially smaller than the side-to-side width of said box means and said support means is centered with respect to the side walls of said box means; and



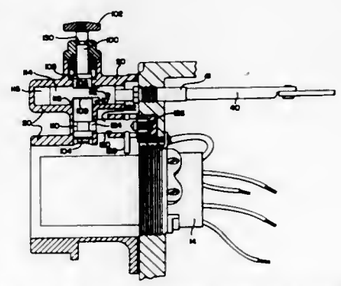
(d) at least one electrical outlet receptacle located one each side surface of said support means.

5,212,624

INTERLOCK MECHANISM FOR EXPLOSION-PROOF FIXTURE HAVING CIRCUIT BREAKER SWITCH

James G. Johnson, Merrillville, Ind., and Nabil L. Mina, Roselle, Ill., assignors to Appleton Electric Company, Chicago, Ill.

Filed Feb. 7, 1992, Ser. No. 832,962
Int. Cl.[5] H02B *1/10;* **H01H** *9/20*
U.S. Cl. 361—357 **15 Claims**



1. In an explosion-proof housing containing a plug receptacle for receiving a plug having a sidewall with an aperture therein, an electrical switch for completing or interrupting an electrical circuit to the plug receptacle, and switch operating means extending through the housing for actuation of the switch, an interlock means operably associated with the plug receptacle, comprising:

(a) a safety shaft mounted in the housing and aligned with the aperture in the plug sidewall for movement normal to the plug sidewall between an engaged position and a standby position;

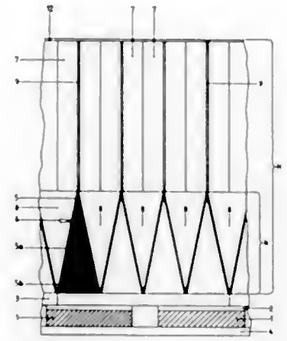
(b) first means operatively connecting said safety shaft and the switch to prevent the switch from being moved between an energized and a deenergized position unless said safety shaft engages the plug sidewall;

(c) second means operatively connecting said safety shaft and the switch to prevent the plug from being inserted into or removed from the plug receptacle unless the switch is in the deenergized position; and

(d) means operatively securing said safety shaft in the standby position until the plug is inserted into the plug receptacle, said securing means comprising a single integral part.

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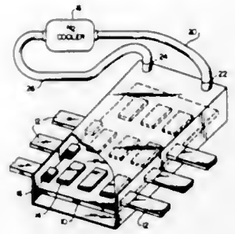
5,212,625
SEMICONDUCTOR MODULE HAVING PROJECTING COOLING FIN GROUPS
Eleanor van Andel, Lk Fleringen, and Carolina A. M. C. Dirix, Westervoort, both of Netherlands, assignors to Akzo NV, Arnhem, Netherlands
Continuation of Ser. No. 444,085, Nov. 30, 1989, abandoned.
This application Nov. 5, 1991, Ser. No. 788,057
Claims priority, application Netherlands, Dec. 1, 1988, 8802957; Dec. 1, 1988, 8802958
Int. Cl.[5] H05K 7/20
U.S. Cl. 361—383 13 Claims



1. A semiconductor module comprised of (1) at least one semiconductor chip, (2) at least one heat dissipating conductor unit, said heat dissipating conductor unit connected to the back side of said semiconductor chip, and (3) a plurality of closely spaced wire cooling fins of a high thermally conductive material, said cooling fins being attached to the side of the heat dissipating conductor unit facing away from said semiconductor chip and said cooling fins projecting away from said semiconductor chip, wherein said cooling fins are positioned in cooling fin groups separated from each other by interspaces having a longitudinal direction substantially parallel to said heat dissipating conductor unit, said cooling fin groups comprising closely spaced wires and being adapted to provide fluid communication between the adjacent interspaces, said interspaces alternately being inlets and outlets for the flow of coolant through said cooling fin groups.

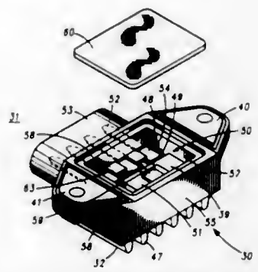
5,212,626
ELECTRONIC PACKAGING AND COOLING SYSTEM USING SUPERCONDUCTORS FOR POWER DISTRIBUTION
David F. Bell, Woodstock, N.Y.; Bruno R. Pagnani, Raleigh, N.C., and James R. Warnot, Jr., Rhinebeck, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 9, 1990, Ser. No. 612,288
Int. Cl.[5] H05K 7/20
U.S. Cl. 361—385 8 Claims

1. An electronic packaging system comprising:
a sealed enclosure containing an internal cavity;
cooling means for maintaining a temperature within said internal cavity below a critical superconductive temperature, said cooling means connected to said sealed enclosure;
an interconnection board having at least one power plane, said power plane comprising a material that is superconductive below said critical superconductive temperature, said interconnection board disposed within said internal cavity of said sealed enclosure;
at least one power supply bus connected to said at least one power plane, said at least one power supply bus extending through a sealed opening in said sealed enclosure and supplying an electrical potential to said at least one power plane;
at least one semiconductor logic chip;
mounting means mounting said logic chip in said cavity in a position offset from said interconnection board, said



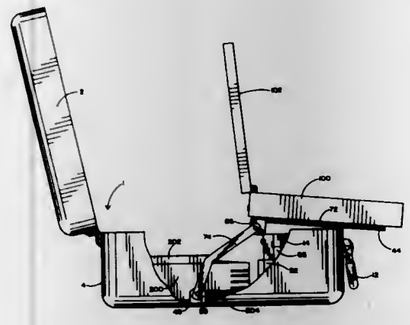
mounting means electrically connecting said power plane of said interconnection board to said logic chip; and
thermal isolation means connected between said chip and said interconnection board for preventing heat transfer from said semiconductor logic chip to said interconnection board.

5,212,627
ELECTRONIC MODULE HOUSING AND ASSEMBLY WITH INTEGRAL HEATSINK
Hyo S. No, Buffalo Grove, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Jan. 31, 1992, Ser. No. 829,112
Int. Cl.[5] H05K 7/20
U.S. Cl. 361—386 20 Claims



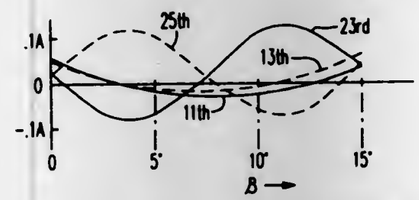
1. An electronic module housing with an integral heatsink, comprising:
a heatsink having a general U-shape configuration formed by a pair of upstanding opposing heatsink sidewalls rising upward from opposite ends of a central intermediate portion, said central intermediate portion having a planar surface suitable for mounting a substantially planar module substrate thereon; and
plastic housing material molded and contacting said heatsink and forming an interior module receiving cavity, said interior cavity having an open side and generally defined by said pair of upstanding opposing heatsink sidewalls, said central intermediate portion of said heatsink and a pair of molded plastic opposing sidewalls provided between and extending between said pair of heatsink sidewalls, said pair of molded plastic opposing sidewalls rising upward from said central intermediate portion of said heatsink, whereby said heatsink provides said planar surface for mounting a module substrate thereto while said heatsink sidewalls can conduct heat away from said substrate and said heatsink and plastic sidewalls provide protection for components in said interior cavity.

5,212,628
MODULAR PORTABLE WORK STATION HAVING A MOVABLE SUPPORT TRAY
George M. Bradbury, Bonsall, Calif., assignor to The I.D.E.A. Corporation, Las Cruces, N. Mex.
Filed Jan. 17, 1992, Ser. No. 822,065
Int. Cl.[5] H05K 7/16
U.S. Cl. 361—395 17 Claims



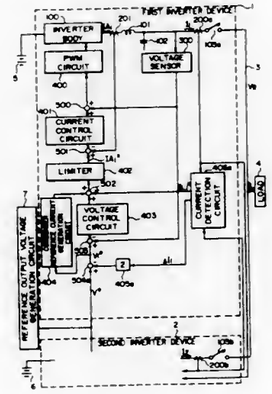
1. A portable work station including a carrying case and at least a computer and printer transported within the carrying case, said carrying case having a body in which said computer and printer are located and a cover movable to opened and closed position relative to the body, and said work station comprising:
a printer tray attached to the body of said carrying case and supporting the printer;
a computer tray spaced above said printer tray and supporting the computer when the cover of the carrying case is in the closed position; and
positioning means by which said computer tray is moved laterally and rotationally relative to said printer tray to permit easy access to the computer and the printer when the cover of the carrying case is in the opened position, said positioning means including at least one arm, a first end of said arm pivotally connected to said printer tray and the opposite end of said arm pivotally connected to an end of said computer tray such that said computer tray is adapted to move laterally in generally parallel alignment with said printer tray and rotationally relative to said printer tray to form an angle therewith.

5,212,629
VOLTAGE AND HARMONIC CONTROL OF A MULTI-POLE INVERTER
Ralph D. Jessee, 4411 Zarmehly Rd., Lima, Ohio 45806
Filed Apr. 2, 1991, Ser. No. 679,484
Int. Cl.[5] H02M 1/12
U.S. Cl. 363—42 19 Claims



11. A multi-pole inverter apparatus for a multi-phase inverter system which is adapted to provide switched or notched output voltages with the notches becoming optimized in their variable placement with respect to preselected phase positions and variable pulse width or duration, thereby to reduce the harmonic content of the output voltage of the inverter circuit to a filterable minimum of harmonic voltage components of a frequency immediately next adjacent in whole number multiples of twelve times the fundamental frequency, which is voltage controlled by pole switching, while odd number multiples next adjacent to components six times the fundamental frequency are cancelled, the notch interval duration being set within a range of about 2° to beyond 20°, within the respective quarter-cycle periodicity, so that the notches cause the 11th and 13th harmonics to reduce substantially to zero and the 23rd and 25th harmonics are substantially reduced towards zero.

5,212,630
PARALLEL INVERTER SYSTEM
Yushin Yamamoto, and Joji Kawai, both of Kobe, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 18, 1991, Ser. No. 809,572
Claims priority, application Japan, Dec. 19, 1990, 2-403589
Int. Cl.[5] H02M 7/00
U.S. Cl. 363—71 8 Claims



1. A parallel inverter system, comprising:
a plurality of AC output igniters of an instantaneous voltage control type;
a bus for connecting outputs of said plurality of inverters to a load so as to share a load current;
first detection means for detecting a cross current component in a current flowing among said inverters; and
control means for controlling output voltages of said inverters to suppress the cross current component detected by said first detection means said control mans including a virtual impedance circuit which has a predetermined impedance with respect to the cross current and a low impedance with respect to current components other than the cross current.

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5,212,631

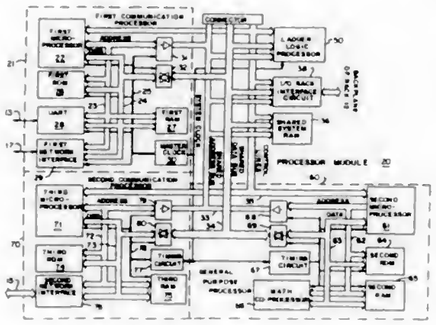
PROGRAMMABLE CONTROLLER PROCESSOR MODULE HAVING MULTIPLE PROGRAM INSTRUCTION EXECUTION SECTIONS

Otomar S. Schmidt, Richmond Heights; Raymond R. Husted, Mentor; Wayne Van Sickle, South Euclid; Terrence L. Dauterman, Chardon, and David R. Rohn, Richmond Heights, all of Ohio, assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.

Continuation of Ser. No. 575,760, Aug. 31, 1990. This application Apr. 24, 1992, Ser. No. 874,994

Int. Cl.[5] G05B *19/05*

U.S. Cl. 364—136 6 Claims



1. In a programmable controller having input and output modules that interface electrical signals with sensing and actuating devices on machinery operated by the programmable controller, the input and output modules being connected to backplane buses; a processor module comprising:

a first memory means for storing data representing status of the sensing and actuating devices;

a second memory means for storing a control program defined by the user, which control program uses the data stored in said first memory means and which control program is written in a programming language consisting of a set of control program instructions;

a logic circuit means for executing a first subset of control program instructions;

a custom microcoded processor means for executing a second subset of control program instructions, which second subset is non-intersecting with the first subset;

a general purpose processor section including a microprocessor to execute a third subset of control program instructions which third subset is non-intersecting with the first and second subsets, a read only memory for storing a program which the microprocessor executes, and a group of address, data and control buses to which the microprocessor and the read only memory are connected;

a control program instruction decoder which responds to control program instructions read from said second memory means by enabling either said logic circuit, said custom microcoded processor or said general purpose processor section depending upon which one is able to execute each such instruction;

an interface circuit, coupled to the backplane buses, for controlling the exchange of data between said first memory means and the input and output modules; and

a set of buses to which said memory means, said interface circuit, said logic circuit means, said custom microcoded processor means, said general purpose processor section, and said control program instruction decoder are connected to exchange signals.

5,212,632

ADAPTIVE CONTROL SYSTEM

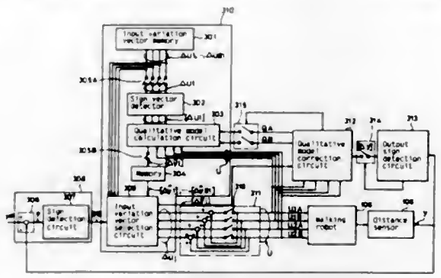
Osamu Ito, Kadoma, and Shigeaki Matsubayashi, Sakai, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jan. 22, 1991, Ser. No. 643,589

Claims priority, application Japan, Jan. 22, 1990, 2-13141; Jul. 20, 1990, 1-193638

Int. Cl.[5] G05B *13/02;* G06F *15/46*

U.S. Cl. 364—151 4 Claims



1. An adaptive control system comprising:

input-variation-vector generating means for generating a plurality of input-variation-vectors for varying input applied to an object to be controlled,

qualitative model calculation means for outputting predictive sign data by applying calculation to said input-variation-vector on the basis of a predetermined qualitative model,

sensor means for detecting an output of said object to be controlled,

error sign detection means for detecting the sign of a difference between an aimed value and the detected value of said detecting means,

an input-variation-vector selection circuit for selecting an input-variation-vector on the basis of the output of said error sign detection means and said predictive sign data,

output sign detecting means for detecting a predetermined sign for representing variation of output value of said object to be controlled,

input vector renewal means for adding said selected input-variation-vector to said input of said object to be controlled, and

qualitative model correction means for correcting said qualitative model on the basis of said input of said object to be controlled and said output detected by said output sign detecting means.

5,212,633

SYSTEM FOR TRANSFERRING RESIDENT PROGRAMS TO VIRTUAL AREA AND RECALLING FOR INSTANT EXCUTION IN MEMORY LIMITED DOS SYSTEM USING PROGRAM CONTROL TABLES

James W. Franzmeier, Tempe, Ariz., assignor to ShareData, Phoenix, Ariz.

Filed Aug. 18, 1989, Ser. No. 395,527

Int. Cl.[5] G06F *12/02, 9/44*

U.S. Cl. 395—500 3 Claims

1. A computer system run under a disk operating system (DOS) and including

(a) main memory means including a limited storage area for storing at least one application program to become an active application program and be executed;

(b) secondary memory means including

(i) an area for storing resource data including resident files,

(ii) an area for storing inactive resident application programs for transfer to said limited storage area of the first memory means for execution, each of the resident programs sized to be stored within an area having the storage capacity of the limited storage area and each including a data storage (DS) area and a computer logic storage (CS) area,

(iii) a virtual memory area for storing, in suspension, an application program transferred from the limited storage area prior to completion of execution of the program;

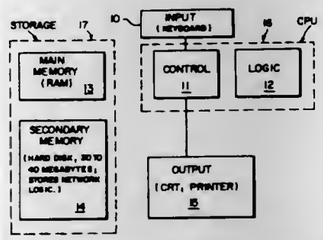
(iv) a work area for, during execution of an active application program in the limited storage area, storing program data in excess of the storage capacity of the DS are of the active application program;

(c) controller means responsive to said active program for operating on the resource data;

(d) keyboard means for entering user commands for controlling execution of application programs and for controlling the transfer of application programs between the main memory means and the secondary memory means;

(e) application transfer means responsive to a resident application program request resulting from user commands or the execution of a presently active application program in the limited storage area to transfer a corresponding resident application program from secondary memory to the limited storage area of the primary memory means to become an active program and be executed;

(f) application program suspension means responsive to operation of an application program suspension request



resulting from user commands or the execution of a presently active application program in the limited storage area to

(i) transfer the corresponding application program, including all data in the DS area of the corresponding program, from active status in the limited storage area to the virtual memory area in suspension prior to completion of execution in the main memory means of the corresponding application program,

(ii) determine the DS address entry, if any, identifying the location in scanning data in the DS area of the corresponding active application program when the program is suspended for transfer to the virtual memory area and to transmit the DS address entry,

(iii) determine the CS address entry, if any, identifying the location in executing logic steps in the CS area of the corresponding active program when the program is suspended for transfer to the virtual memory area and to transmit the CS address entry, and,

(iv) determine the work area address entry, if any, identifying the location in the work area of the secondary memory means of program data from the corresponding active application program which is stored in the work area when the corresponding active program is suspended, and to transmit the work area address entry;

(g) memory manager means responsive to operation of the

(i) application program transfer means for surveying the limited storage area and assigning an application program storage space in the limited storage area for storing the corresponding resident application program to be transferred into the main memory means, and,

(ii) application program suspension means for surveying the virtual memory area and assigning the application program storage space in the virtual memory area for storing the corresponding application program to be transferred from active status in the limited storage area in suspension into the virtual memory area;

(h) transmission means responsive to the operation of the

(i) application program transfer means for creating a LS program location address entry indicating the location of the corresponding application program in the limited storage area when the corresponding resident program is transferred from the secondary memory means into the limited storage area and for transmitting the LS program location address entry, and

(ii) application program suspension means for creating a VM program location address entry indicating the location of the corresponding application program in the virtual memory area when the corresponding program is transferred from active status the limited storage area in suspension into the virtual memory area and for transmitting the VM program location address entry;

(i) application program control table means responsive to operation of the application program transfer means

(i) for creating an application program control table corresponding to the resident application program to be transferred from the secondary storage means to the limited storage area to become active and be executed, each program control table containing information used in transferring the corresponding application to and from suspension in the virtual memory area and in controlling execution of the corresponding application program,

(ii) generating a corresponding program control table identification entry, each program control table identification entry linking the application program to the corresponding program control table,

(iii) for receiving and storage in the control table the transmitted

(I) LS and VM program location entries transmitted by the transmission means for the corresponding application program,

(2) DS entries transmitted by the program suspension means for the corresponding application active program when the corresponding application program is suspended,

(3) work area address entries transmitted by the program suspension means for identifying the location in the work area of program data from the corresponding active program stored in the work area when the corresponding program is suspended, and

(4) CS entries transmitted by the program suspension means for the corresponding application active program when the corresponding application program is suspended,

the most recent of the entries for each of (i)(iii)(1), (i)(iii)(2), (i)(iii)(3), and (i)(iii)(4) being identified in the control table;

(j) application program recall means responsive to operation of an application program recall request resulting from user commands or the execution of a presently active application program to transfer a corresponding suspended application program including the data in the DS area of the corresponding suspended application program from the virtual memory area to the limited storage area to be an active application program to be executed; and,

(k) means responsive to operation of the application program recall means for examining in the control table for the corresponding recalled application program the most recent

(i) program location address entry to locate the corresponding recalled application program in the virtual memory area,

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(ii) DS address to determine the address in the DS area of the corresponding recalled application program when the corresponding recalled application program was suspended, and

(iii) CS address to determine the address in the CS area of the corresponding recalled application program when the corresponding recalled application program was suspended.

5,212,634

METHOD OF AND APPARATUS FOR AUTOMATICALLY GENERATING APPLICATION PROGRAM

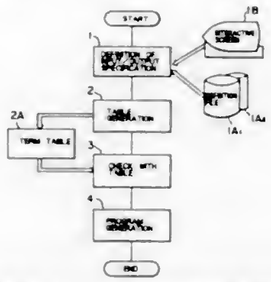
Tsuyoshi Washizaki; Yoshinori Akiyama; Etsuko Nakada; Takeo Ishii, all of Yokohama, and Isao Nishiyama, Yamato, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 7, 1990, Ser. No. 489,665

Claims priority, application Japan, Mar. 10, 1989, 1-056456

Int. Cl.[5] **G06F** *15/20, 15/22*

U.S. Cl. 364—400 **7 Claims**



1. An application program generating apparatus for generating an application program wherein said application program reads an input file and produces an output file based on input items contained in the input file, comprising:

an input/output specification file for defining a list of input terms representing said input items and a list of output terms representing output items to be produced on said output file;

table generating and storing means for generating a term table consisting of said input terms and output terms derived from said input/output specification file, and storing therein said term table;

check means coupled to said table generating and storing means for checking each output term in said term table with each input term therein and deriving identical item terms; and

program describing means coupled to an output from said check means for generating said application program including a posting process for posting an input item to an output item with respect to each of said derived identical item terms.

5,212,635

METHOD AND APPARATUS FOR MEASUREMENT OF MANUFACTURING TECHNICIAN EFFICIENCY

Kate M. Ferriter, Atlanta, Ga., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 23, 1989, Ser. No. 425,640

Int. Cl.[5] **G06F** *15/21, 15/46*

U.S. Cl. 364—402 **12 Claims**

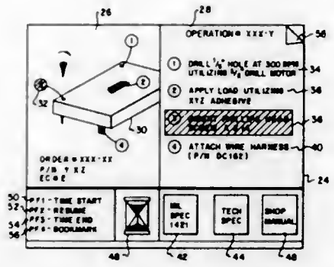
1. A method in a computer system based manufacturing process for providing an indication of the efficiency of a manufacturing technician in the performance of selected operations within a manufacturing process, said method comprising the steps of:

storing a plurality of labor standard time values within said computer system which predict the amount of time required to complete each of a plurality of operations within a manufacturing process;

displaying within said computer system a sequence of textual instructions for performing a plurality of operations within said manufacturing process;

noting the selection of a particular one of said sequence of textual instructions by a manufacturing technician;

determining a selected one of said plurality of operations within a manufacturing process which is initiated by performance of said particular one of said sequence of textual instructions;



retrieving a labor standard time for said selected one of said plurality of operations;

noting an initiation of said selected one of said plurality of operations by said manufacturing technician; and

automatically displaying within said computer system an indication of the passage and completion of said labor standard time for said selected one of said plurality of operations until completion of said selected one of said plurality of operations wherein the performance of said manufacturing technician may be measured against said labor standard time for said selected one of said plurality of operations.

5,212,636

RADIO RECEIVER CAPABLE OF CONFIRMING GAMBLING RESULTS

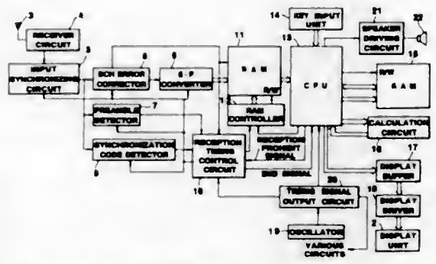
Eiji Nakazawa, Akishima, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Dec. 26, 1989, Ser. No. 456,852

Claims priority, applicatioo Japan, Dec. 28, 1988, 63-171265[U]; Dec. 28, 1988, 63-171266[U]; Dec. 28, 1988, 63-171267[U]; Dec. 28, 1988, 63-171268[U]; Dec. 28, 1988, 63-171269[U]; Dec. 28, 1988, 63-171270[U]

Int. Cl.[5] **G06F** *15/28;* **A63B** *71/00*

U.S. Cl. 364—412 **35 Claims**



1. A radio receiver comprising:

input means for inputting a plurality of prediction data with respect to each of a plurality of races;

memory means for storing said plurality of prediction data inputted by said input means;

display means for displaying said plurality of prediction data stored in said memory means;

receiving means for receiving result data about said plurality of races;

coincidence judging means for judging whether or not result data for each of said plurality of races received by the receiving means is coincident with each of said plurality of prediction data stored in said memory means; and

display control means for displaying the prediction data which is coincident with said result data on said display means in a display mode different from that of other prediction data.

5,212,637

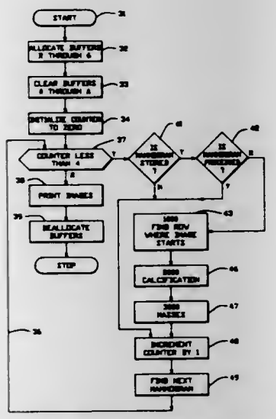
METHOD OF INVESTIGATING MAMMOGRAMS FOR MASSES AND CALCIFICATIONS, AND APPARATUS FOR PRACTICING SUCH METHOD

Kripa C. Saxena, San Jose, Calif., assignor to Stereometrix Corporation, San Jose, Calif.

Filed Nov. 22, 1989, Ser. No. 441,452

Int. Cl.[5] **G06F** *15/42*

U.S. Cl. 364—413.26 **27 Claims**



1. In a method for assisting the investigation of a human breast for malignancies, the steps of:

(a) converting intuitive criteria used to investigate a human breast for malignancies to specific numerical criteria;

(b) programming a computer with said criteria;

(c) acquiring information in said programmed computer defining a human breast;

(d) using said computer to apply said specific numerical criteria defined by said program to said information to identify regions of said breast to be investigated, said information defining a calcification, and said step of using said computer includes applying criteria programmed into the same identifying regions having a predetermined number, size, and shape of calcifications.

5,212,638

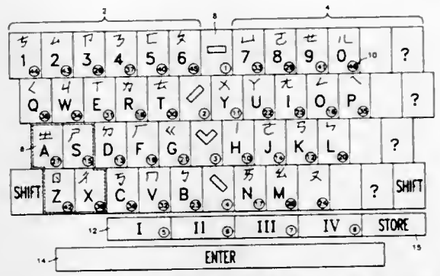
ALPHABETIC KEYBOARD ARRANGEMENT FOR TYPING MANDARIN CHINESE PHONETIC DATA

Colman Bernath, 26-4, Sublane 342, Lane 150, Hsinyi Road, Taipei, Taiwan 105

Division of Ser. No. 357,499, May 26, 1989, which is a continuation of Ser. No. 551,555, Nov. 14, 1983, abandoned. This application Oct. 31, 1990, Ser. No. 606,987

Int. Cl.[5] **G06F** *3/023*

U.S. Cl. 364—419 **11 Claims**



1. A keyboard for typing Roman alphabet transcriptions of Chinese character texts and for inputting phonetic data of said characters, based upon the pinyin phonetic notation system, comprising a plurality of keys actuable by an operator in a two-hand operation, including a row of keys on which said operator's fingers usually rest and a central area, said plurality of keys bearing respectively at least the letters of the Roman alphabet and four syllabic tone quality symbols used in the pinyin phonetic system, said keys being arranged such that:

keys bearing respectively the letters A, I, O and U are placed among different key groups, wherein each of said groups is struck by a different finger;

at least two of the seven keys bearing respectively the letters A, I, O, U, N, G and H are placed in the row of keys on which the operator's fingers usually rest;

at least two of the six keys bearing respectively the letters A, E, I, U, H and N are struck by the index finger or the middle finger of either hand; and

four keys bearing said four syllabic tone quality symbols are placed in the central area of the keyboard such that either of the index fingers can actuate each of said four syllablic tone quality symbol keys.

5,212,639

METHOD AND ELECTRONIC APPARATUS FOR THE CLASSIFICATION OF COMBINATORIAL DATA FOR THE SUMMARIZATION AND/OR TABULATION THEREOF

Wesley C. Sampson, 2739 Rockridge Cir. W., Toledo, Ohio 43606, and Michael J. Olan, N. 4588 MeadowWood Rd., Onalaska, Wis. 54650

Filed Apr. 5, 1990, Ser. No. 505,061

Int. Cl.[5] **G06L** *15/34*

U.S. Cl. 364—419 **20 Claims**

1. A method for electronically classifying a plurality of data entries each having at least one item forming a parental set of items comprising the steps of:

a. creating item indicators for each item in a list of items which may be in a parental set of items;

b. reading a data entry from a parental set of items and applying a mapping function to said data entry to assign corresponding ones of said item indicators to items of said data entry;

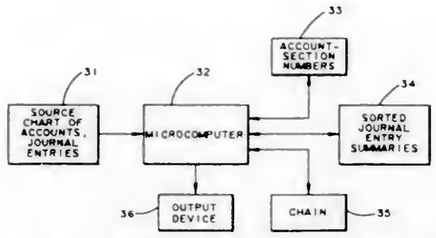
c. sorting said item indicators assigned to said items of said data entry into a predetermined order;

d. identifying a design corresponding to said predetermined order of said items;

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e. checking stored design records for a record associated with said design and creating a design record for said design if no such record exists;

f. accumulating a quantity for each said item indicator of said data entry in said design record, adding one to a sum



representing the number of data entries accumulated in said design record, and adding an entry number to a pointer for said design record; and

g. repeating steps b through f for each data entry in said parental set.

5,212,640

AUTOMOTIVE CONTROL SYSTEM EMPLOYING ACCELERATION SENSOR AND FAULT DETECTING SYSTEM THEREFOR

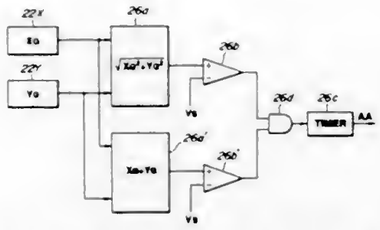
Toshiro Matsuda, Kanagawa, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Sep. 8, 1989, Ser. No. 404,527

Claims priority, application Japan, Sep. 9, 1988, 63-118413

Int. Cl.[5] **G06F** *15/20*; **B60K** *26/00*

U.S. Cl. 364—424.03 **26 Claims**



1. In an automotive control system employing a lateral acceleration sensor for monitoring lateral acceleration exerted on a vehicular body and a longitudinal acceleration sensor for monitoring longitudinal acceleration exerted on the vehicular body as control parameters, a fault detecting system for detecting failure of said lateral and longitudinal acceleration sensors, comprising:

first means for deriving a data value, said first means comprising receiving means for receiving a lateral acceleration indicative signal output from said lateral acceleration sensor and a longitudinal acceleration indicative signal output from said longitudinal acceleration sensor and summing means for summing said lateral acceleration indicative signal and said longitudinal acceleration indicative signal; and

second means for detecting a faulty state of one of said lateral and longitudinal acceleration sensors, said second means comprising comparing means for comparing said data value with a predetermined reference value and indication means for producing a faulty indication signal in response to said comparing means.

5,212,641

REAR WHEEL STEERING CONTROL SYSTEM FOR VEHICLE

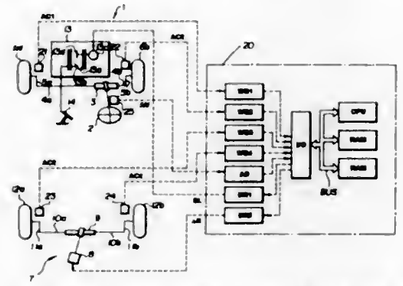
Toru Iwata; Takashi Imaseki; Minoru Tamura, and Yuichi Fukuyama, all of Kanagawa, Japan, assignors to Nissan Motor Company, Limited, Japan

Filed Sep. 24, 1990, Ser. No. 586,604

Claims priority, application Japan, Sep. 25, 1989, 1-249447

Int. Cl.[5] **B62D** *6/02*

U.S. Cl. 364—424.05 **50 Claims**



1. A rear wheel steering control system for a vehicle comprising:

first means for monitoring a steered angle of front wheels to provide a signal indicative thereof;

second means including sensors for monitoring rotational speeds of wheels for determining a difference in rotational speeds between the front and rear wheels and speed of the vehicle for deriving signals indicative thereof;

third means for determining a rear wheel steering angle based on the steered angle of the front wheels and the vehicle speed for deriving a signal indicative thereof;

fourth means for compensating the rear wheel steering angle determined by said third means based on the difference in rotational speeds between the front and rear wheels for deriving a rear wheel target steering angle;

fifth means responsive to the difference in rotational speeds between the front and rear wheels being greater than a preselected reference value for controlling traction of driven wheels so as to compensate the difference in rotational speeds between the front and rear wheels;

sixth means responsive to operation of said fifth means for restricting the compensating operation of said fourth means and deriving the rear wheel steering angle determined by said third means as the rear wheel target steering angle; and

seventh means for controlling an actual steering angle of the rear wheel according to the rear wheel target steering angle.

5,212,642

ELECTRIC CONTROL APPARATUS FOR FOUR-WHEEL STEERING SYSTEM

Hiroaki Tanaka, Toyota; Osamu Takeda, Susono; Kaoru Ohashi, Okazaki; Mizuho Sugiyama; Shin Koike, both of Toyota; Hitoshi Iwata, Okazaki; Masaru Ishikawa, Susono, and Hideki Kusunoki, Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jul. 22, 1991, Ser. No. 733,022

Claims priority, application Japan, Jul. 20, 1990, 2-193393

Int. Cl.[5] **B62D** *5/04*

U.S. Cl. 364—424.05 **1 Claim**

1. An electric control apparatus for a four-wheel steering system in an automotive vehicle having a set of dirigible front road wheels and a set of dirigible rear road wheels, comprising:

mode selection means for selecting any one of a plurality of rear wheel steering modes;

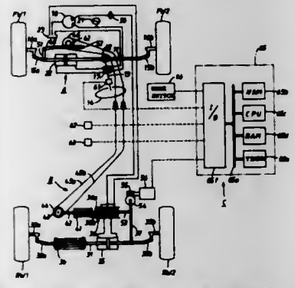
memory means for memorizing a plurality of control rules

respectively corresponding with the rear wheel steering modes;

calculation means for calculating a steering angle of the rear road wheels on a basis of the memorized control rule corresponding with the selected rear wheel steering mode; and

an electrically operated rear wheel steering mechanism for steering the rear road wheels at the calculated steering angle;

wherein the electric control apparatus further comprises first means for calculating a difference between new and old steering angles respectively calculated by said calcula-



tion means when the selected rear wheel steering mode has been changed to another one of the rear wheel steering modes and immediately before change of the selected rear wheel steering mode; second means for gradually decreasing an absolute value of the calculated difference at a predetermined time interval; and third means for correcting the new steering angle in accordance with the absolute value of the calculated difference until the absolute value becomes zero after change of the selected rear wheel steering mode and for controlling an actual steering angle of the rear road wheels in accordance with the corrected new steering angle.

5,212,643

VEHICLE-MOUNTED NAVIGATION APPARATUS

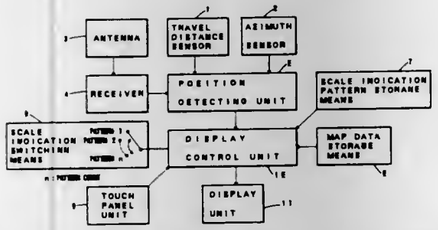
Chisato Yoshida, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 9, 1991, Ser. No. 773,411

Claims priority, application Japan, Jan. 17, 1991, 3-003731

Int. Cl.[5] **G06F** *15/50*

U.S. Cl. 364—449 **9 Claims**



1. A navigation apparatus mounted on a vehicle for indicating a current position of the vehicle on a screen of a display unit disposed therein, said navigation apparatus comprising:

a travel distance sensor for detecting distance traveled by the vehicle;

an azimuth sensor for detecting a running direction of the vehicle;

receiving means for externally receiving information concerning location of the vehicle, said receiving means including an antenna and a receiver;

position detecting means for detecting a current position of the vehicle from data collected from said travel distance sensor, said azimuth sensor, and said receiving means;

map data storage means for storing data corresponding to a plurality of road maps, each road map having a different scale;

scale indication pattern storage means for storing a plurality of scale indication patterns showing respective reduced scales corresponding to the stored road maps;

scale indication switching means for selecting one of said scale indication patterns stored in said scale indication pattern storage means;

a touch panel unit for generating a control signal for specifying an image to be displayed on the screen; and

a display control unit which reads said data from said map data storage means corresponding to one of said road maps in accordance with the current position of the vehicle detected by said position detecting unit, controls the read data to be displayed on the screen of the display unit in accordance with said control signal from said touch panel unit, and further reads the selected scale indication pattern from said indication pattern storage means in accordance with the selection operation of said scale indication switching means, thereby superimposing the selected scale indication pattern on the displayed road map.

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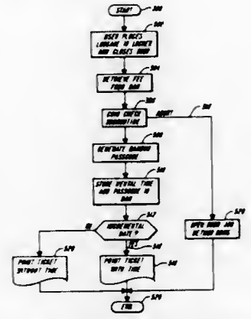
INCREMENTAL RATE LOCKER SYSTEM

Pierre Frisch, Veneux de Sablons, France, assignor to Mors Technologies, Inc., Delson, Canada

Filed Nov. 20, 1990, Ser. No. 616,186

Int. Cl.[5] **G06F** *15/20*

U.S. Cl. 364—464.01 **21 Claims**



1. In an electronic left luggage locker system having a central computer, a remote control unit with a memory, a locker controlled by said remote control unit and means for transferring information between said central computer and said remote control unit, an incremental rate fee system comprising:

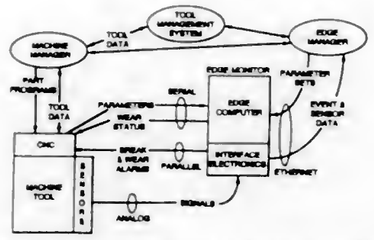
means located in said central computer and responsive to manual data input for storing rate data including an incremental fee, the time duration of an incremental interval and the maximum number of incremental time intervals;

means for transferring said stored rate data to said remote control unit memory; and

means located in said remote control unit and responsive to rate data stored in said remote control unit memory for computing a variable rental fee for use of said locker which fee depends on the length of a time interval during which said locker is in use.

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5,212,645
FLEXIBLE REAL-TIME, MULTI-TASKING ARCHITECTURE FOR TOOL CONDITION MONITORING
Douglas G. Wildes, Ballston Lake; Steven R. Hayashi, Schenectady, and George D. Montanaro, Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Jul. 19, 1990, Ser. No. 554,495
Int. Cl.[5] G06F *15/46*
U.S. Cl. 364—463 26 Claims



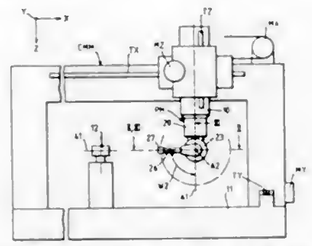
1. A system for manufacturing a workpiece comprising modular hardware interlinked with modular software, wherein said modular hardware comprises:

(a) sensors for detecting signals in the manufacturing process;

(b) signal conditioning elements for transmitting said detected signals to the system;

wherein said modular software comprises one or more signal processing algorithms adapted for detecting features in aid detected signals for controlling the manufacture of the workpiece, wherein one or more interface task and data structures isolate the signal processing algorithms from external data formats, wherein said interface tasks and external data formats comprise a computer network interface, wherein said computer network interface is operable for recording sensor data and other diagnostic information, and wherein said computer network interface automatically reconnects if a network connection is broken and discards data without disrupting real-time performance if the network connection cannot be reestablished.

5,212,646
METHOD OF USING A MOUNTING FOR SURFACE-SENSING STYLUS
David R. McMurtry, Wotton-Under-Edge, United Kingdom, assignor to Renishaw plc, Gloucestershire, United Kingdom
Continuation of Ser. No. 391,542, Jul. 28, 1989, Pat. No. 5,088,046. This application Nov. 19, 1991, Ser. No. 794,046
Int. Cl.[5] G06F *15/46*; G01B *21/20*
U.S. Cl. 364—474.03 5 Claims



1. A method of scanning a surface of a workpiece with a surface sensing device, the device being supported on an operating member of a coordinate positioning machine by a mounting device providing movement of said surface sensing device with 2 degrees of freedom relative to said operating member, the workpiece being supported on a table of the machine, the operating member and the table being movable one relative to the other, the method comprising the steps of:

bringing the sensing device into a sensing relationship with the workpiece surface;

operating the machine to drive the operating member in a first direction along a path adjacent the workpiece surface;

simultaneously operating the mounting device to move the surface sensing device with an oscillatory motion over the plane of the local workpiece surface;

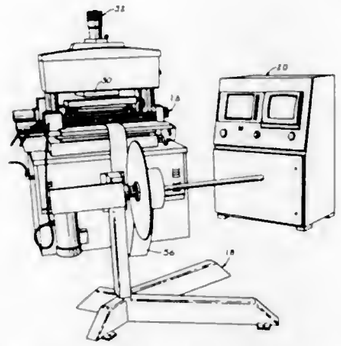
maintaining said sensing relationship between the sensing device and workpiece surface; and

measuring:

(a) the position of the surface sensing device relative to the operating member; and

(b) the position of the operating member relative to the table.

5,212,647
DIE STAMPING PRESS HAVING CCD CAMERA SYSTEM FOR AUTOMATIC 3-AXIS DIE REGISTRATION
Joseph E. Raney, Kansas City, and Charles C. Raney, Shawnee, both of Kans., assignors to Preco Industries, Inc., Lenexa, Kans.
Continuation-in-part of Ser. No. 729,933, Jul. 15, 1991, abandoned. This application Dec. 23, 1991, Ser. No. 812,715
Int. Cl.[5] G06F *15/46*; B26D *5/34*
U.S. Cl. 364—474.34 24 Claims



1. In a die cutting press for elongated material having defined, successive areas and area indicia provided in predetermined positions relative to each of the defined areas, the press including a base platen, a ram platen shiftable toward and away from the base platen, a die unit received in the space between the base platen and the ram platen, and longitudinal shifting means for longitudinally advancing the material along a path of travel to successively feed the defined areas of the material toward the die unit, a registration system for successively positioning the die unit in predetermined relationship to the defined areas of the material as successive defined areas are brought into a position to be processed by the die unit, the registration system comprising:

lateral shifting means for moving the die unit relative to the base platen along a direction of travel transverse to the path of travel of the material;

angular shifting means for rotating the die unit relative to the base platen about a reference axis perpendicular to a plane containing the material;

at least one camera for receiving images;

focusing means for focusing the at least one camera on predetermined locations relative to the die unit corresponding to the predetermined positions of the indicia relative to the defined areas of the material;

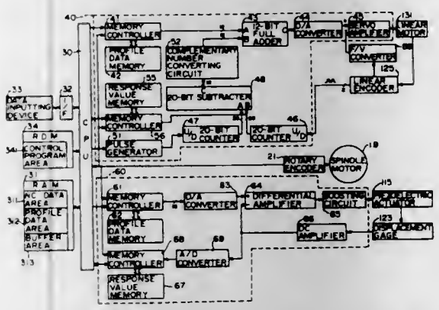
reference means for providing reference image data representative of the desired position of the area indicia within each image received by the camera;

means for interrupting successive movement of the areas toward the die unit when a corresponding area indicia is substantially at said predetermined location relative to the die unit and said camera;

comparison means for comparing the reference image data with an image received by the camera after movement of the material has been interrupted with a corresponding area indicia in said predetermined location thereof and for generating longitudinal, lateral and angular difference data representative of the difference in position between the area indicia within the image and the desired position of the area indicia; and

control means for receiving the longitudinal, lateral and angular difference data and operating the longitudinal, angular and lateral shifting means to change the position of the material relative to the die unit to compensate for the difference in position between the indicia within the image and the desired position of the indicia so that one of the defined areas of the material is in register with the die unit.

5,212,648
METHOD AND APPARATUS FOR MACHINING A NON-CIRCULAR WORKPIECE
Kazuhiko Sugita, Anjo; Norio Sakakibara, Kariya; Nobumitsu Hori, Ichinomiya; Yoichi Yamakawa, Aichi, and Toshihiro Takahashi, Nishio, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan
Filed Mar. 11, 1991, Ser. No. 667,577
Claims priority, application Japan, Mar. 22, 1990, 2-72493
Int. Cl.[5] B23B *3/28*; G06F *3/14*
U.S. Cl. 364—474.35 9 Claims



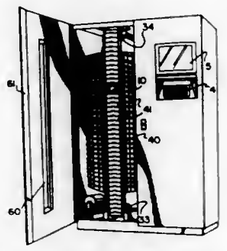
1. A method of machining a non-circular workpiece with a machine tool having a rotatable spindle supporting a workpiece, a movable member guided on a base for movement in a moving direction perpendicular to the rotational axis of said spindle, a tool supported at a front end of said movable member for movement in the moving direction, a low speed actuator for moving said movable member in the moving direction with respect to said base, a high speed actuator for moving said tool in the moving direction with respect to said movable member, first command means for generating low frequency command data which indicate low frequency components of profile data defining position change of said tool with respect to angular position change of said spindle, first drive means for driving said low speed actuator in accordance with said low frequency command data, second command means for generating high frequency command data which indicate high frequency components of said profile data, and second drive means for driving said high speed actuator in accordance with said high frequency command data, said method comprising steps of:

detecting a positioning error of said tool which is produced due to reaction force produced by said high speed actuator;

compensating said high frequency command data based on the positioning error detected by said detecting step; and

activating said first and second drive means for machining said workpiece using said low frequency command data and said compensated high frequency command data.

5,212,649
ELECTRONIC ROBOT KEY DISTRIBUTOR
Florent Pelletier, 3319-51st Avenue, Apt. 308, Red Deer, Alberta T4N 6H9, and Lionel Coulombe, 17785 Charles, Ste. Janvier, Mirabel PQ J0N1L0, both of Canada
Filed Mar. 28, 1990, Ser. No. 500,187
Int. Cl.[5] G06F *15/24*; B65G *1/04*
U.S. Cl. 364—479 12 Claims



1. An apparatus having a plurality of individual storage compartments for receiving and storing articles, comprising: means for allowing access to such compartments one at a time and to articles stored therein and upon return of such articles access to the same compartments for again storing them therein, said individual storage compartments for said articles being arranged in an array having a cylindrical exterior surface rotatable about the central axis of said cylindrical surface, and a separate exterior opening in said surface to each individual compartment; an enclosure surrounding said storage compartment array, wherein, a movable access port in said enclosure which upon alignment with a selected storage compartment permits individual access to that particular storage compartments in said array, a longitudinally extending slot in said enclosure with at least a component of the length thereof parallel to said central axis, a belt received in said slot and comprising a series of contiguous transversely extending plate links, one portion of said belt having at least one of said plate links apertured to define an opening in said belt with the others of said plate links forming said belt extending on either side of said opening being unapertured and preventing access through said belt except through said opening, said opening forming said access port, track means mounted to said enclosure movably retaining said belt in said slot contiguous with an exterior surface of said enclosure, means for positioning said array with respect to said enclosure by rotation of said array about said axis, means for moving said belt with respect to said enclosure with at least a component of movement parallel to said axis, to define a unique position for each compartment with respect to said access port to provide access to each individual compartment respectively, actuating means for said positioning means and said moving means, each said article being assigned a value corresponding to one of said storage compartments, and means for controlling said actuating means in accordance with said selected assigned values for access to said respective compartments storing said articles.

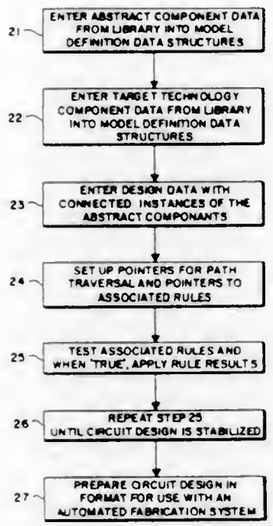
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,650

PROCEDURE AND DATA STRUCTURE FOR SYNTHESIS AND TRANSFORMATION OF LOGIC CIRCUIT DESIGNS

Donald F. Hooper, Northboro, and Snehamay Kundu, Marlboro, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 907,303, Sep. 12, 1986, abandoned. This application Aug. 3, 1989, Ser. No. 393,107
Int. Cl.[5] G06F *15/60*
U.S. Cl. 364—489 33 Claims



1. A process for automatic design of a logic circuit by a data processing system which yields a data structure representing interconnected logic components, said data structure being stored in a data base in a memory of the data processing system, the process being performed by the data processing system and comprising the steps, performed by the data processing system, of:

inputting into locations of the data base in the memory, by the data processing system, data representing a plurality of logic components, the logic components corresponding to components of a logic circuit and belonging to different levels of a data hierarchy;

inputting, by the data processing system, a plurality of rules to the data base, the rules belonging to different levels of a rule hierarchy;

establishing, by the data processing system, bidirectional pointers between the locations in the data base containing the data for the plurality of logic components, the pointers being determined according to the logic circuit, wherein the pointers allow the location containing data for any logic component in the data base to be accessed by following pointers from the location containing data for any other logic component in the data base; and

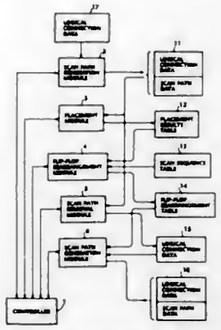
altering, by the data processing system, a subset of the data for the logic components in the data base by application of one of the plurality of rules stored in the data base to one of the plurality of logic components, called a current logic component, the altering of the subset resulting in a formation in the data base in the memory of a new data structure representing a logic circuit including a plurality of interconnected logic components.

5,212,651

SCAN PATH GENERATION WITH FLIP-FLOP REARRANGEMENT ACCORDING TO GEOMETRY OF LOGIC CIRCUIT

Shoji Yabe, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 12, 1990, Ser. No. 492,021
Claims priority, application Japan, Mar. 10, 1989, 1-59260
Int. Cl.[5] G06F *15/60*
U.S. Cl. 364—488 11 Claims



7. A scan path generation system for arranging a plurality of flip-flops of a logic circuit along a scan path, comprising:

first scan path generation means for deriving from logical connection data original scan path data which represents a sequence according to which said flip-flops would originally be connected in said scan path;

storage means for storing said original scan path data and said logical connection data;

placement means for placing said flip-flops and logic elements of said logic circuit on a two-dimensional plane according to said original scan path data and to said logical connection data stored in said storage means;

table memory means for storing a sequence of said flip-flops which meets geometrical design requirements of said logic circuit;

rearrangement means for rearranging said flip-flops placed on said two-dimensional plane according to said sequence stored in said table memory means; and

second scan path generation means for deriving from said rearranged flip-flops new scan path data representative of a new sequence according to which said flip-flops are to be newly connected in said scan path and replacing said original scan path data stored in said storage means with said new scan path data.

5,212,652

PROGRAMMABLE GATE ARRAY WITH IMPROVED INTERCONNECT STRUCTURE

Om P. Agrawal, San Jose; Michael J. Wright, Menlo Park, and Ju Shen, San Jose, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Aug. 15, 1989, Ser. No. 394,221
Int. Cl.[5] H03K *17/693*
U.S. Cl. 364—489 74 Claims

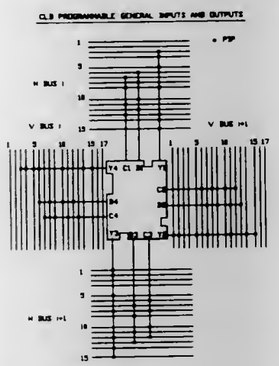
1. A configurable logic array, comprising:

configuration storage means for storing program data specifying a user defined data processing function;

a plurality of configurable logic means $CL_{c,r}$ arranged in an array consisting of C columns and R rows, where o designates a column in the range 1 to C, and r designates a row in the range 1 to R, each of the configurable logic means $CL_{c,r}$ having a plurality of inputs and outputs, and coupled to the configuration storage means, for generating cell output signals at the respective plurality of outputs in response to cell input signals supplied to the respective plurality of inputs and in response to program data in the configuration storage means, including a tristate output means supplying one of the respective plurality of output signals or presenting a high impedance state in response to a tristate control signal and means for supplying the tristate control signal configurable in response to program data in the configuration storage means;

a plurality of configurable input/output means. each coupled to an input/output pad and having an input and an output, and coupled to the configuration storage means, for providing configurable interfaces between the respective input/output pads and the respective inputs and outputs in response to program data in the configuration storage means;

configurable interconnect means, coupled to the plurality of configurable logic means, the plurality of configurable input/output means and the configuration storage means, for connecting inputs and outputs of configurable logic means and configurable input/output means into logical networks in response to program data in the configuration storage means.

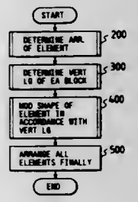


5,212,653

METHOD FOR PRODUCING A LAYOUT OF ELEMENT PORTIONS FOR A SEMICONDUCTOR INTEGRATED CIRCUIT USING A COMPUTER

Makoto Tanaka, Osaka, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

Filed Feb. 21, 1991, Ser. No. 658,620
Claims priority, application Japan, Feb. 21, 1990, 2-41425
Int. Cl.[5] G06F *15/60*
U.S. Cl. 364—491 16 Claims



1. A method for positioning circuit elements for a semiconductor integrated circuit on the basis of inputted circuit configuration data which represent kind, attribute data and location of each circuit element to be included in said semiconductor integrated circuit, using a computer, comprising the steps of:

(a) positioning a plurality of blocks arranged side by side in one direction of the semiconductor integrated circuit such that one or more blocks includes circuit elements to be directly connected to a common line in said semiconductor integrated circuit;

(b) obtaining a total area of each kind of circuit element in each of said blocks;

(c) determining a kind of circuit element to be arranged in each of said blocks in accordance with said total area obtained in connection with said each kind;

(d) detecting at least one circuit element different from the determined kind of said circuit element in each of said blocks if any;

(e) transferring the detected different kind of circuit element from said each block to a block including the same kind of said circuit element arranged therein; and

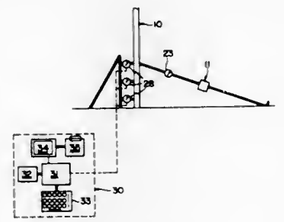
(f) for each of said blocks arranging said circuit elements determined after said step of transferring so that each circuit element is located at a suitable position in accordance with said location data of said circuit elements to produce said layout.

5,212,654

TESTING OF POLES

Krzysztof J. Deuar, 17 Henderson Road, Burpengary, Queensland, 4505, Australia

Continuation-in-part of Ser. No. 546,744, Jul. 2, 1990, Pat. No. 5,051,919, which is a continuation-in-part of Ser. No. 396,089, Aug. 21, 1989, abandoned, which is a continuation of Ser. No. 272,477, Nov. 17, 1988, abandoned, which is a continuation of Ser. No. 96,482, Sep. 15, 1987, abandoned. This application Sep. 23, 1991, Ser. No. 763,466
Claims priority, application Australia, Apr. 22, 1987, 71869/87; Jul. 31, 1989, 39091/89; Aug. 1, 1991, 81530/91
Int. Cl.[5] G01N *3/20*
U.S. Cl. 364—508 23 Claims



1. A method for testing the residual strength of a pole, including the steps of:

calculating a minimum allowable residual strength for the pole (at which the pole requires replacement) from a predetermined formula (e) or by a programmed calculator or computer;

applying a preset load, corresponding to the minimum allowable residual strength, to the pole by pushing or pulling the pole above ground level;

restraining the pole substantially at ground level using at least one of a chain, a cable and a ram; and

observing if the pole fails under the applied load if the actual residual strength of the pole is below the minimum allowable residual strength.

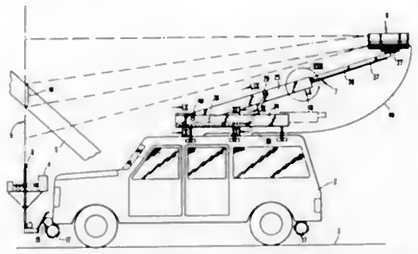
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,655

CLEARANCE MEASUREMENT SYSTEM, VIDEO CLEARANCE MEASUREMENT VEHICLE AND IMPROVED METHOD OF PERFORMING CLEARANCE MEASUREMENTS

Joseph B. Boehle, Jacksonville, Fla., assignor to CSX Transportation, Inc., Jacksonville, Fla.

Filed Nov. 21, 1990, Ser. No. 616,996
Int. Cl.[5] G06F *15/74*; H04N *7/18*
U.S. Cl. 364—516 **21 Claims**



1. A clearance control system for measuring peripheries of obstacles at locations which are spaced apart along a path of movement, the system comprising:

a vehicle movable on a support surface along the path of movement;

radiation transmitting means supported on the vehicle for providing a beam of energy which reflects off portions of outer peripheries of obstacles located above the support surface and facing the path of movement, the radiation transmitting means comprising a light system which projects a beam of light in a vertical plane which is perpendicular to the path of movement; and

recording means for recording signals corresponding to coordinates of the portions of the obstacles, the recording means being supported by the vehicle in fixed relationship thereto such that the recording means continuously records the signals while the vehicle moves along the path of movement, the recording means receiving reflections of the beam of energy off the portions of the obstacles and the signals recorded by the recording means corresponding to coordinates of the portions of the obstacles, the recording means comprising a video camera which records images during movement of the vehicle.

5,212,656

BOX INSPECTION DEVICE AND METHOD

Michael W. Clary; Theodore J. Hartka, both of Phoenix, and John H. Holmes, Owings Mills, all of Md., assignors to Prime Technology, Inc., Sparks, Md.

Filed Apr. 26, 1991, Ser. No. 692,018
Int. Cl.[5] G01N *21/89*
U.S. Cl. 364—552 **25 Claims**

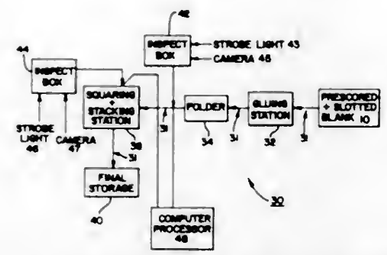
1. A method for monitoring the quality of boxes in-line as they are produced from blanks, comprising:

(a) forming a folded box blank including four interconnected panels with a gap formed between two of said panels, each panel having a longitudinal edge and a lateral edge;

(b) creating an electronic image of said blank, and digitizing the electronic image to provide digitized data;

(c) processing the digitized data by computer to calculate critical parameters of the folded box blank; and

(d) comparing the critical parameters with corresponding parameters stored in the computer to predict whether the folded box blank, when unfolded, will produce a square



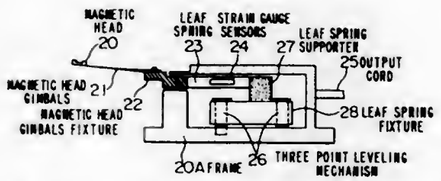
box having essentially all 90° angles between adjacent interconnected panels.

5,212,657

KINETOFRICTIONAL FORCE TESTING APPARATUS

Hiroshi Uchikawa; Mutsuo Munekata, and Hiroyuki Motohashi, all of Tokyo, Japan, assignors to Onoda Cement Co., Ltd. and Koyo Precision Instruments, Inc., both of Tokyo, Japan

Filed Jan. 16, 1990, Ser. No. 465,499
Claims priority, application Japan, Feb. 1, 1989, 1-20907
Int. Cl.[5] G01N *19/02*
U.S. Cl. 364—556 **10 Claims**



1. A kinetrofrictional force testing apparatus comprising:

a variable speed motor having a rotational speed range;

a spindle which is driven and rotated by said motor to rotate a disk in a plane of rotation at varying speeds within the range;

a load cell fixture which supports a test head in opposition to the plane of rotation and includes sensing elements which generate electrical signals corresponding to frictional forces when the test head is in contact with a disk rotating in the plane of rotation;

a rotational frequency controlling synthesizer and a motor control circuit connected to control speed of the motor; and

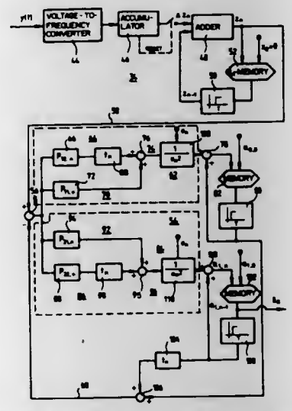
a computer which operates the synthesizer and control circuit according to a program to vary the rotational speed of the motor to carry out a test procedure to determine relative kinetofrictional forces between the disk and the test head when in contact and when their relative speed varies at intervals according to a predetermined characteristic curve, and which receives signals form the sensing elements representing varying frictional forces between the test head and the disk, whereby the program which causes the computer to vary the rotational speed of the motor and rotational rise and fall of the disk also causes the computer to process the signals from the sensing elements and provide output data representing the measured frictional forces.

5,212,658

FILTER FOR OBTAINING A USEFUL SIGNAL, CONSTANT WITH RESPECT TO TIME, FROM A NOISY MEASURING SIGNAL

Uwe Krogmann, Überlingen-Nussdorf, Fed. Rep. of Germany, assignor to Bodenseewerk Gerätetechnik GmbH, Fed. Rep. of Germany

Filed Oct. 20, 1989, Ser. No. 424,534
Claims priority, application Fed. Rep. of Germany, Oct. 22, 1988, 3836115
Int. Cl.[5] G06F *7/38*
U.S. Cl. 364—572 **3 Claims**



1. A filter apparatus for providing a useful signal constant with respect to time from a measuring signal including measuring noise, comprising:

(a) means for integrating a measuring signal with respect to time and thereby providing an integrated measuring signal;

(aa) said means for integrating the measuring signal including

(1) a voltage-to-frequency converter,

(2) clock means for generating clock intervals,

(3) an accumulator to which the output signals from the voltage-to-frequency converter are applied and which is resettable at predetermined clock intervals,

(4) a first memory for storing the integrated measuring signal,

(5) adding means to which, in said predetermined clock intervals, the content of the accumulator is applied as one summand, and the contents of said first memory is applied as another summand with a delay of one clock interval, and

(6) the output of the adding means being read into the first memory and constituting the digitized integrated measuring signal;

(b) said integrated measuring signal containing a component varying substantially linearly with time with a predetermined coefficient which represents the useful signal;

(c) filtering means for generating output signals indicative of a preselected, variable model which represents an estimate of said integrated measuring signal and an estimate of a first order coefficient of the linearly time-variable component of the estimate of said integrated measuring signal corresponding to the time-constant useful signal;

(d) said filtering means including

means for multiplying the difference of the integrated measuring signal and the estimate of the integrated measuring signal by a first time-variant factor and the time of a concerned clock interval,

means for multiplying the difference of the integrated measuring signal and the estimate of the integrated measuring signal by a second time-variant factor,

means for adding the two products thus obtained and for forming a zero variation signal representing a variation of a zero order coefficient of the model,

a second memory for storing the zero order coefficient of the model,

zero adding means to which the zero variation signal thus obtained is applied as one summand, and the contents of the second memory is applied as an other summand with a delay of one clock interval, in order to thereby obtain the zero order coefficient of the model, and

the output of the zero adding means being read into the second memory for storing in the second memory the zero order coefficient of the model;

(e) said filtering means further including

means for multiplying the difference of the integrated measuring signal and the estimate of the integrated measuring signal by a third time-variant factor and the time of said concerned clock interval,

means for multiplying the difference of the integrated measuring signal and the estimate of the integrated measuring signal by a fourth time-variant factor,

means for adding the two products thus obtained and forming a first variation signal representing a variation of a first order coefficient of the model,

a third memory for storing the first order coefficient of the model,

first adding means to which the first variation signal thus obtained is applied as one summand and the contents of the third memory is applied as another summand with a delay of one clock interval, in order to thereby obtain the first order coefficient of the model,

the output of the first adding means being read into said third memory, the contents of the third memory delayed by one clock interval forming the first coefficient of a model, and

means for multiplying said first order coefficient by the time of said concerned clock interval;

(f) means for adding the zero order coefficient and the first order coefficient multiplied by the time of said concerned clock interval for forming the estimate of said integrated measuring signal; and

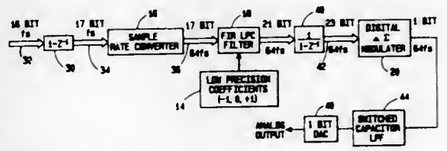
(g) said first order coefficient providing the estimate of the time-constant useful signal.

5,212,659

LOW PRECISION FINITE IMPULSE RESPONSE FILTER FOR DIGITAL INTERPOLATION

Jeffrey W. Scott; Donald A. Kerth, and Shaochyi Lin, all of Austin, Tex., assignors to Crystal Semiconductor, Austin, Tex.

Filed Oct. 8, 1991, Ser. No. 773,044
Int. Cl.[5] G06F *15/31*
U.S. Cl. 364—724.1 **27 Claims**



1. A digital interpolator, comprising:

an input for receiving a digital input sequence at a first sampling rate;

a sample rate converter for increasing the first sampling rate to a second and higher sampling rate; and

an interpolation filter for filtering out the images of the output of said rate converter input sequence, said interpolation filter having a frequency response with a pass band

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for passing through with minimum attenuation the interpolated input sequence, a stop band for attenuating the images of the interpolated sequence to a predetermined level, and a transition band between the pass band and the stop band, said interpolation filter including:

a Finite Impulse Response (FIR) filter having low precision FIR filter coefficients associated therewith that provide a frequency response below a point in the stop band that is commensurate with substantially higher precision FIR coefficients, and which frequency response above said point degrades in a substantially gradual manner, and

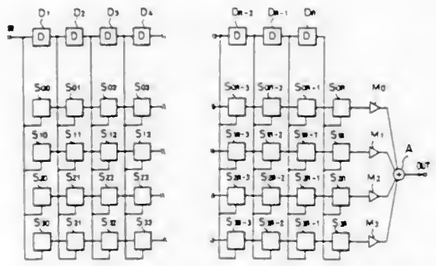
a low pass filter for filtering the output of said FIR filter to attenuate signals above said point.

5,212,660

DIGITAL FILTER HAVING A SWITCHING MATRIX AND ADDERS

Junichi Orihara, Ichihara, Japan, assignor to Kawasaki Steel Corporation, Hyogo, Japan

Filed Sep. 16, 1991, Ser. No. 760,324
Claims priority, application Japan, Sep. 20, 1990, 2-251315
Int. Cl.[5] G06F *15/31*
U.S. Cl. 364—724.16 **4 Claims**



1. A digital filter for producing an output signal based on an input signal and an intermediate signal, the intermediate signal comprising a plurality of delay signals, each of said delay signals having different delay times, the digital filter comprising:

an input terminal for receiving the input signal;

a serially connected tapped delay line connected to the input terminal, alternatingly comprising n taps and n−1 delay elements, each of the n−1 delay elements outputting one delay signal of the intermediate signal, each delay signal having a different delay time;

a switching circuit for receiving the input signal and the intermediate signal from the n taps and the n−1 delay signals, the switching circuit comprising a plurality of switches arranged in a matrix having n columns and m rows, each of the plurality of switches having a switched input, an output and a switch element selectively connecting the switched input to the output, the switched input of each of the m switches of each of the n columns connected in parallel to one of the n taps for receiving one of the input signal and the n−1 delay signals;

a first adding circuit comprising m first adders, each of the m first adders associated with a corresponding one of the m rows of the matrix and having n inputs, each of the n inputs being connected to the output of one of the n switches of the corresponding row, each first adder outputting a sum of output signals of the n switches of the corresponding row as a first sum output signal;

a multiplier circuit comprising m multipliers, each of the m multipliers associated with one of the m first adders for inputting the first sum output signal of the one first adder and outputting a multiplied signal; and

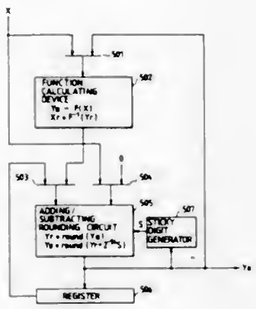
a second adder having m inputs for inputting and summing the multiplied signals of the m multipliers and outputting the output signal, wherein the switching circuit is controlled to selectively connect at least one of the n taps to one of the m first adders.

5,212,661

APPARATUS FOR PERFORMING FLOATING POINT ARITHMETIC OPERATION AND ROUNDING THE RESULT THEREOF

Takashi Taniguchi, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 11, 1990, Ser. No. 596,116
Claims priority, application Japan, Oct. 16, 1989, 1-268447
Int. Cl.[5] G06F *7/38*
U.S. Cl. 364—745 **7 Claims**



1. An apparatus comprising:

a function calculating device for deriving an approximate solution Ya of a function F with respect to a given value X by referring to a relation Y=F(X) at an accuracy at which an error between the approximate solution Ya and an infinitely precise solution Y is smaller than a weight of a digit in a place lower by two places than a lowest place of significant digits for a final solution,

said function calculating device further operating for deriving a value Xr from an interim solution Yr and from an inverse function F^{-1} by referring to a relation $Xr=F^{-1}(Yr)$;

a rounding circuit including an adder and a subtractor,

said rounding circuit operating for rounding the approximate solution Ya to provide as said interim solution Yr a solution equal to a selected one of a plurality of possible interim solutions which is closest to the approximate solution Ya, the possible interim solutions being represented by digits in predetermined digit places, a lowest of which is arbitrarily selected from a place range starting from a place lower by at least one place than the lowest place of the significant digits for the final solution and ending at a place higher by at least one place than a place of a minimal weight, wherein a weight of a digit in the minimal-weight place is greater than a maximum of an error of the approximate solution Ya;

a sticky digit generator for deciding which of the infinitely precise solution Y and the interim solution Yr is greater by referring to a relation between the values X and Xr, and for generating a sticky digit S, said sticky digit generator setting the sticky digit to a value 0 when the values Y and Yr are equal, to a value −1 when the infinitely precise solution Y is decided to be smaller than the interim solution Yr, and to a value 1 when the infinitely precise solution Y is decided to be greater than the interim solution Yr,

wherein said adder of said rounding circuit adds the sticky digit S to a place immediately lower than a lowest place of the interim solution Yr and said rounding circuit rounds a result of the addition performed by the adder in a designated rounding mode,

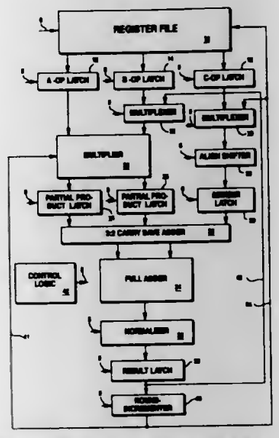
said rounding circuit generating a digital signal representing the final solution and outputting said digital signal to an external utilization circuit.

5,212,662

FLOATING POINT ARITHMETIC TWO CYCLE DATA FLOW

Daniel Cocanougher, Fort Worth; Robert K. Montoye; Myhong Nguyenphu, both of Austin, and Stephen L. Runyon, Pflugerville, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 297,781, Jul. 13, 1989, Pat. No. 4,999,802. This application Sep. 11, 1990, Ser. No. 580,892
The portion of the term of this patent subsequent to Mar. 12, 2008, has been disclaimed.
Int. Cl.[5] G06F *7/38*
U.S. Cl. 364—748 **7 Claims**



1. In a data processing circuit having a floating point arithmetic circuitry controller generating first, second and third cycles and providing control inputs to first, second and third arithmetic circuits, a method for performing floating point arithmetic operations comprising the steps of:

performing a first floating point arithmetic operation on a set of operands during said first cycle in said first arithmetic circuit;

performing a second floating point arithmetic operation on an operand and a first result of said first floating point arithmetic operation during said second cycle in said second arithmetic circuit; and

providing, during a third cycle, a second result of the second floating point operation for a next successive first floating point operation to said first arithmetic circuit concurrently with performing a third floating point arithmetic operation in said third arithmetic circuit.

5,212,663

METHOD TO IMPLEMENT A LARGE RESETTABLE STATIC RAM WITHOUT THE LARGE SURGE CURRENT

Raymond M. Leong, Los Altos, Calif., assignor to Cypress Semiconductor Corporation, San Jose, Calif.

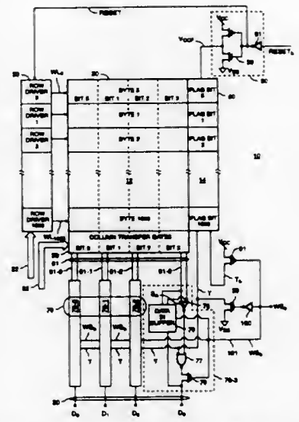
Filed Feb. 21, 1991, Ser. No. 658,559
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—189.01 **11 Claims**

1. A resettable static random access memory comprising:

an array of M rows and N+P columns of memory cells having a first array portion of M rows and N columns storing a first block of data and a second array portion of M rows and P columns storing a second block of data;

each byte in said first array portion having a corresponding flag bit in said second array portion;

said memory cells in all P columns of said second array portion being simultaneously reset to a preferred logic state by changing the voltage of a first power supply rail to the value of the voltage of a second power supply rail and then returning the voltage of said first power supply rail to its original value;



a plurality of control means, one for each bit of said byte, each control means having a plurality of inputs, one of which is coupled to receive said flag bit from said second array portion and the other of which is coupled to receive one of the bits of said byte in said first array portion;

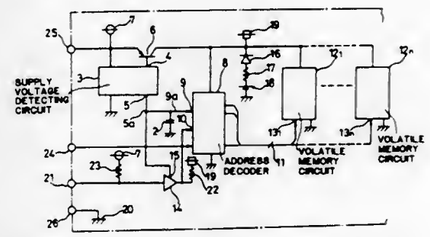
the outputs of said control means being coupled to a data bus, whereby the condition of said flag bit provides to said bus an indication of the validity of the data in said byte.

5,212,664

INFORMATION CARD WITH DUAL POWER DETECTION SIGNALS TO MEMORY DECODER

Takayuki Shinohara, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 503,676, Apr. 13, 1990, abandoned. This application Oct. 16, 1991, Ser. No. 777,445
Claims priority, application Japan, Apr. 5, 1989, 1-85983; Nov. 21, 1989, 1-304245
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—229 **3 Claims**



1. An information card comprising:

a plurality of volatile memory circuits for storing data;

an internal battery for backing up data stored in the volatile

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memory circuits when a voltage supplied by an external power supply is below a predetermined voltage;

power supply detecting means for outputting a power detection signal at a power detection output terminal when the voltage supplied by the external power supply exceeds the predetermined voltage;

memory circuit enabling means for enabling changing of data stored in at least one of the volatile memory circuits, the memory circuit enabling means including a first enabling input terminal and a second enabling input terminal for receiving first and second enabling signals, respectively, for controlling the memory circuit enabling means, the second enabling input terminal receiving the power detection signal; and

reducing means serially connected between the power detection output terminal and the first enabling input terminal for reducing high frequencies in the power detection signal and for preventing an electrostatic discharge from changing data stored in the volatile memory circuits.

5,212,665

INTERNAL ADDRESS DETERMINING DEVICE FOR SEMICONDUCTOR MEMORY DEVICES

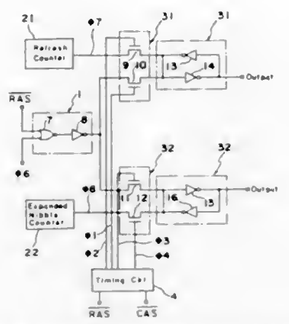
Makoto Ihara, Tenri, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 13, 1991, Ser. No. 668,639

Claims priority, application Japan, Mar. 14, 1990, 2-63611

Int. Cl.[5] G11C *8/00, 8/04*

U.S. Cl. 365—230.02 **4 Claims**



1. An internal address determining device for a semiconductor memory device, comprising:

an input section to which are input an external address strobe signal and an external address signal, said external address signal including an external row address signal and an external column address signal;

at least one internal counter for storing addresses for a specific operation mode;

multiplexing means for selecting and outputting one of the external address signal input from the input section and an address signal stored in said at least one internal counter;

a timing circuit for controlling the multiplexing means by generating one of at least first and second control signals in accordance with an operation mode of the semiconductor memory device, said first control signal controlling timing at which the external address signal is accepted by the multiplexing means while said second control signal controlling timing at which the address signal stored in said at least one internal counter is accepted by the multiplexing means; and

latching means for latching output from said multiplexing means to output as an internal address to be accessed.

5,212,666

MEMORY APPARATUS HAVING FLEXIBLY DESIGNED MEMORY CAPACITY

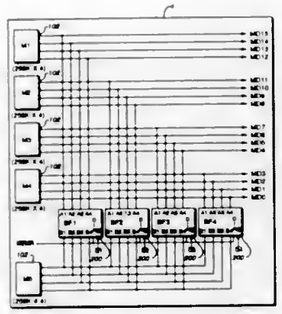
Koji Takeda, Suwa, Japan, assignor to Seiko Epson Corporation, Japan

Filed Jul. 10, 1990, Ser. No. 551,449

Claims priority, application Japan, Jul. 10, 1989, 1-177375; Aug. 21, 1989, 1-214414

Int. Cl.[5] G11C *8/00*; G06F *12/00*

U.S. Cl. 365—230.03 **8 Claims**



2. A memory apparatus having a data bus of D-bit wide and a memory configuration of $W(1+J/N)$ words$\times$D bits, the memory apparatus comprising:

(N+J) memory units, each having a W words$\times$B bits configuration and being equally divided into P element address areas, $a_1, a_2, \ldots, a_P$;

wherein

$D=2^d$, and d is a positive integer,

$W=2^w$, and w is a positive integer,

$B=2^b$, b is zero or a positive integer and b<d,

J is a positive integer and J<N,

$N=D/B=2^{d-b}$, and

P=N·L/J and P and L are positive integers; and

wherein said $W(1+J/N)$ words$\times$D bits memory configuration is divided into (P+L) memory address areas $A_1, A_2, \ldots, A_{P+L}$, so that each memory address area comprises N element address areas, only one of which comes from a corresponding memory unit.

5,212,667

LIGHT IMAGING IN A SCATTERING MEDIUM, USING ULTRASONIC PROBING AND SPECKLE IMAGE DIFFERENCING

Harold W. Tomlinson, Jr., Scotia, and Jerome J. Tiemann, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 3, 1992, Ser. No. 829,668

Int. Cl.[5] G03B *42/06*

U.S. Cl. 367—7 **9 Claims**

1. A method for imaging portions of a scattering medium disposed between first and second opposed surfaces thereof, said scattering medium being transmissive of ultrasound pulses, said method comprising the steps of:

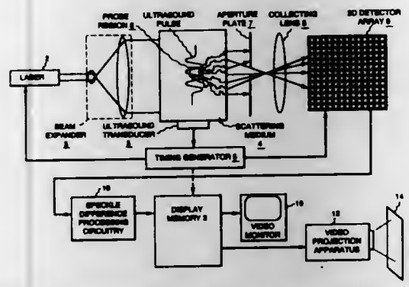
propagating ultrasound pulses through said scattering medium in a direction substantially parallel to each of said first and second surfaces;

irradiating the first surface of said scattering medium with a coherent beam of radiant energy, which said scattering medium at least partially disperses;

projecting onto a focal plane an image of the radiant energy exiting the second surface of said scattering medium, thereby to form speckle patterns of radiant energy;

detecting the speckle patterns projected on said focal plane, so as to resolve individual elements of said speckle patterns;

sensing the difference in levels of detected energy in the corresponding individual elements of pairs of successive said speckle patterns to generate electrical signal representations of those differences; and



integrating the electrical signal representations of the differences in levels of detected energy in the corresponding individual elements of pairs of successive said speckle patterns to generate electrical signal representations of respective images of the portions of said scattering medium through which an ultrasonic pulse travels.

5,212,668

METHOD FOR QUANTIFICATION OF THE LEVEL OF WEATHER AND SEA NOISE DURING MARINE SEISMIC SURVEYS

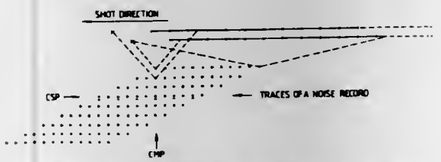
Morten Svendsen, Rud, Norway, assignor to Geco A.S., Stavanger, Norway

Filed Oct. 7, 1991, Ser. No. 772,417

Claims priority, application Norway, Oct. 5, 1990, 904343

Int. Cl.[5] G01J *1/38*

U.S. Cl. 367—21 **20 Claims**



1. A method for determining the quantity of the level of weather and sea noise in marine seismic surveys utilizing a seismic energy source for producing seismic signals directed toward the area being surveyed and reflected from said area, and at least one seismic streamer cable having detectors in spaced relationship along the seismic streamer cable for detecting the reflected signals to produce shot recordings for said seismic signals comprising:

obtaining at least one noise record along a seismic line of at least some of the channels in the seismic streamer at least one given point in time before an actual shot recording;

stacking individual traces forming part of the noise record; and

determining the number of traces used in the stack by the number of folds in the gather of each common reflection point to provide the quantity of the level of weather and sea noise.

5,212,669

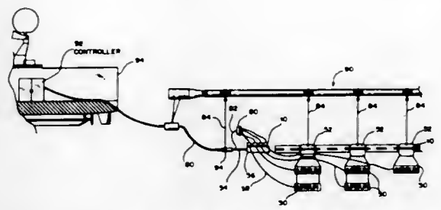
REMOTE CUT-OFF VALVE

Philip J. Jenkins, Pearland, Tex., assignor to Western Atlas International, Inc., Houston, Tex.

Filed Jun. 11, 1991, Ser. No. 713,964

Int. Cl.[5] G01V *1/04, 1/38*

U.S. Cl. 367—144 **2 Claims**



1. An air gun array for use in geophysical surveying, comprising:

(a) a plurality of air guns placed in a spaced relationship;

(b) a fluid supply line for supplying a fluid to each said air gun; and

(c) a remote controlled valve coupled to the fluid supply line and each said air gun, said remote controlled valve further comprising:

(i) a body having a bore therethrough;

(ii) an input port formed in the body, said input port coupled to the fluid supply line for receiving the fluid therefrom;

(iii) an output port formed in the body, said output port having a sealable recess terminating in the bore, said output port coupled to an associated air gun for supplying the fluid to that air gun, said input and output ports being in fluid communication with each other and with the bore when the recess is open;

(iv) a poppet paced in the bore, said poppet adapted to move in the bore between an open and a close position, said poppet having a free end adapted to seal the output port recess when the free end is placed in the output port recess, the close position being defined when the poppet seals the recess;

(v) a motor coupled to said poppet for moving the poppet between the open and close positions; and

(vi) a decoder coupled to said motor, said decoder adapted to receive signals and in response thereto causing the motor to turn so as to move the poppet between the open and close positions.

5,212,670

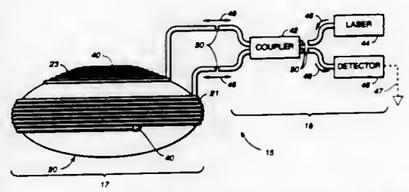
FLEXTENSIONAL HYDROPHONE

David A. Brown, Salinas, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 20, 1992, Ser. No. 916,646

Int. Cl.[5] H04R *23/00*

U.S. Cl. 367—149 **6 Claims**



1. In combination with a transducer including (1) a closed

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hollow thin-walled shell of uniform wall thickness made of an elastic material and having an exterior surface in the shape of an oblate ellipsoid having two opposed poles, (2) a first wrapping of optical fiber wound about the circular equatorial circumference of the ellipsoidal shell surface and bonded thereto, and (3) a second wrapping of optical fiber wound about the ellipsoidal shell surface and bonded thereto, the improvement wherein the second wrapping of optical fiber is oriented parallel to the ellipsoidal shell circular equatorial circumference and located near a pole.

5,212,671

ULTRASONIC PROBE HAVING BACKING MATERIAL LAYER OF UNEVEN THICKNESS

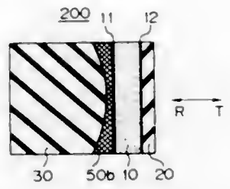
Tadashi Fujii, and Hiroyuki Yagami, both of Kanagawa, Japan, assignors to Terumo Kabushiki Kaisha, Japan

Filed Jun. 19, 1990, Ser. No. 540,607

Claims priority, application Japan, Jun. 22, 1989, 1-160048; Nov. 10, 1989, 1-291119

Int. Cl.[5] H04R *17/00*

U.S. Cl. 367—151 12 Claims



1. An ultrasonic probe comprising:
a layer of piezoelectric material having generally flat main surfaces;
a pair of electrodes provided on said main surfaces of said layer of piezoelectric material to apply voltage to said layer of piezoelectric material;
a layer of backing material provided on one of said pair of electrodes and having an acoustic impedance lower than that of said piezoelectric material; and
a layer of reflecting material interposed between said one electrode and said layer of backing material, said reflecting material having an acoustic impedance higher than that of said layer of piezoelectric material, and having a first portion and a second portion thinner than said first portion.

5,212,672

TIMING CONTROL APPARATUS

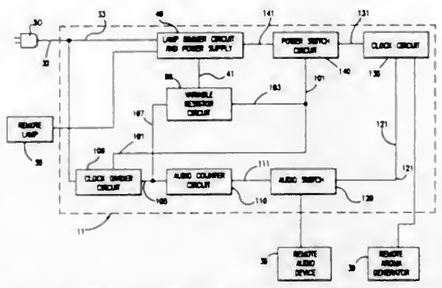
Julius A. Loisch, 155 Graywood Ave., Elkhart, Ind. 46516; Rod Snider, 25037 Timberlake Dr., Tega Cay, S.C. 29715, and John W. Harriger, 54541 Meadowbank La., Elkhart, Ind. 46514

Filed Nov. 20, 1991, Ser. No. 794,916

Int. Cl.[5] G04B *19/00*; G04C *21/00, 21/16*

U.S. Cl. 368—79 20 Claims

1. A timing control apparatus comprising:
a) a clock divider circuit for dividing an incoming source of electrical power into a plurality of timed pulses;
b) a variable resistor circuit for counting the output pulses from the clock divider circuit, and for decreasing the output resistance in proportion with the increasing count of pulses it receives from the clock divider circuit; and
c) a light dimmer circuit responsive to the output resistance of the variable resistor circuit for actuating a remote lamp source at an initial low light level, and for controllably increasing the intensity of the remote lamp source to a



high light level over time in response to the decreasing output resistance from the variable resistor circuit.

5,212,673

COMPACT OPTICAL DISK DRIVE UNIT

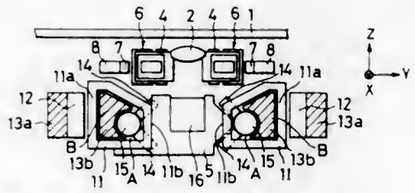
Syuichi Honda, Yokohama, Japan, assignor to Ricoh Company, Ltd., Japan

Filed Jan. 23, 1991, Ser. No. 644,948

Claims priority, application Japan, Jan. 31, 1990, 2-20912

Int. Cl.[5] G11B *7/12*

U.S. Cl. 369—44.15 10 Claims



1. An optical disk drive unit comprising:
an objective lens for converging light emitted from a light source and irradiating the converged light to an optical information recording medium;
an objective lens holder for holding the objective lens;
a carriage for supporting elastically said objective lens holder thereto; and
a magnetic circuit for performing a seeking operation and having a magnet and a yoke arranged outside the carriage and extending along a radial direction of said optical information recording medium, said magnetic circuit having a movable coil fixed to said carriage so as to surround one side of the yoke;
said movable coil being formed in a polygonal shape in cross section and constructed such that one carriage side of the movable coil is located below a moving part of the objective lens and another side of the movable coil opposite to the one carriage side thereof is set to be longer than the one carriage side.

5,212,674

OPTICAL HIGH DENSITY DATA REPRODUCING APPARATUS USING INTERFERENCE TECHNIQUES

Chiaki Sato, and Eishi Ikuta, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 6, 1991, Ser. No. 711,213

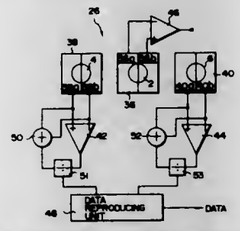
Claims priority, application Japan, Jun. 15, 1990, 2-155526; Aug. 2, 1990, 2-203842; Apr. 19, 1991, 3-88788

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—44.26 5 Claims

1. An optical data reproducing apparatus for reproducing a

quantity of data from a recording medium that stores said quantity of data in the form of mark sets, each mark set including marks formed on a track at intervals corresponding to said quantity of data, said apparatus comprising:
a light source for emitting a light beam;
radiating means for radiating said light beam from said light source to at least one of said mark sets;
two two-part photodiodes for receiving at least portions of a given +1st-order diffracted beam and a given −1st-order diffracted beam that have been diffracted by said at least one of said mark sets;



calculating means for calculating a plurality of photoelectric conversion outputs from said two parts of said two two-part photodiodes; and
reproducing means for reproducing said quantity of data from positional data of said given 1st-order diffracted beams that are shifted in accordance with a distance between said marks of said at least one mark set;
said positional data being provided by said calculating means; and
said calculating means including a divider for providing a value of a ratio of said photoelectric conversion outputs of said two parts of said at least one of said two two-part photodiodes.

5,212,675

APPARATUS FOR DETECTING POSITION OF LIGHT SPOT

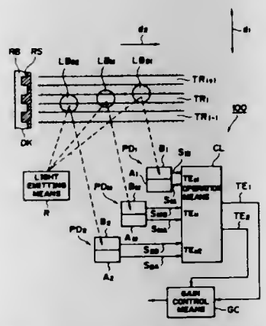
Junichi Yoshino, and Yoshitaka Shimoda, both of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jan. 23, 1992, Ser. No. 824,602

Claims priority, application Japan, Jan. 30, 1991, 3-009958

Int. Cl.[5] G11B *7/09*

U.S. Cl. 369—44.36 8 Claims



1. An apparatus for detecting position of a light spot in which a reflected light beam from a signal recording surface of an optical disk is used to detect whether or not a light spot exist on an axis of a recording track, said apparatus comprising:
light emitting means for emitting, onto said signal recording surface, a first light spot, a second light spot preceding to said first light spot with a predetermined spacing in a direction of said recording track axis and such that it is positioned with a fixed spacing in a direction perpendicular to said recording track axis, and a third light spot succeeding to said first light spot with a predetermined spacing in a direction of said recording track axis and such that it is positioned with the fixed spacing on the opposite side to said second light spot in a direction perpendicular to said recording track axis,
first photodetection means including bisected detector surfaces for applying photoelectric conversion to a reflected light beam from said first light spot to output an electric signal,
second photodetection means including bisected detector surfaces for applying photoelectric conversion to a reflected light beam from said second light spot to output an electrical signal,
third photodetection means including bisected detector surfaces for applying photoelectric conversion to a reflected light beam from said third light spot to output an electric signal,
operation means for determining by calculation a first difference output indicative of a difference between outputs from said respective detector surfaces of said first photodetection means, a second difference output indicative of a difference between outputs from said respective detector surfaces of said second photodetection means, and a third difference output indicative of a difference between outputs from said respective detector surfaces of said third photodetection means to calculate a difference between a value real number times larger than a sum of said second and third difference outputs and the first difference output to output a first light spot position signal, and to calculate a difference between said second and third difference outputs to output a second light spot position signal, and
gain control means for controlling gain so that the value of said second light spot position signal becomes equal to a predetermined value.

5,212,676

PERFORMANCE INFORMATION RECORDING/REPRODUCING APPARATUS HAVING CORRECTION TECHNIQUES USING EVENT AND STATE INFORMATION

Toshio Yamabata; Satoshi Otsuka; Mitsuhiro Umeta; Fumio Rokkaku; Takenori Yamamori; Minoru Fujisawa, and Koji Hara, all of Hamamatsu, Japan, assignors to Roland Corporation, Osaka, Japan

Filed Feb. 5, 1991, Ser. No. 650,872

Claims priority, application Japan, Feb. 7, 1990, 2-27930; Oct. 4, 1990, 2-268111

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—48 12 Claims



1. A performance information playing device comprising:
playing means for reproducing event information which corresponds to changes in a state of a predetermined musical tone and state information which indicates a state at any given time of a musical tone of the predetermined musical tone after a change has occurred according to the event information, said event information and state information having been recorded in a recording media sequentially; and
event information correcting means for correcting errors in the event information reproduced from the recording

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media by said playing means based on the state information reproduced in the same manner.

5,212,677

DEFECT INSPECTING APPARATUS FOR DISC-SHAPED INFORMATION RECORDING MEDIA

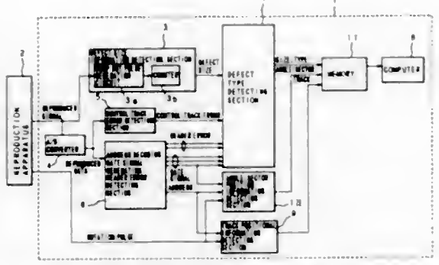
Yuuji Shimote; Mitsuo Fukuda; Masafumi Ototake, and Koji Shindo, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 11, 1990, Ser. No. 522,259

Claims priority, application Japan, May 11, 1989, 1-117911; May 23, 1989, 1-129304; Apr. 17, 1990, 2-102031

Int. Cl.[5] G11B *7/00, 27/36, 3/90*

U.S. Cl. 369—58 **10 Claims**



1. A defect inspection apparatus for disc-shaped information recording media, comprising:

means for detecting defects by using a reproduced signal from a disc-shaped information recording medium,

means for detecting a type of detected defect,

means for detecting a position of the detected defect in radial and circumferential directions,

means for grouping the defects into clusters of defects by the detected positions,

means for calculating dimensions of the defect cluster in radial and circumferential directions, and

means for storing information regarding the type, position and dimensions of the detected defects or defect clusters.

5,212,678

SYSTEM FOR RECORDING AND READING INFORMATION ON A RECORD CARRIER AT A CONSTANT SCANNING SPEED INDEPENDENT OF THE BIT RATE OF SUCH INFORMATION

Rudolf Roth, and Johannes C. Van Offenbeek, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 590,392, Sep. 28, 1990. This application Jun. 9, 1992, Ser. No. 896,803

Claims priority, application Netherlands, Nov. 23, 1989, 8902895

Int. Cl.[5] G11B *5/09, 7/00*

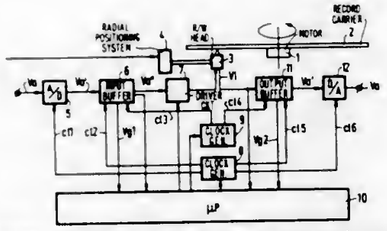
U.S. Cl. 369—60 **20 Claims**

1. A system for receiving a digital signal at an input thereof and recording it on a track of a record carrier, and subsequently reading the recorded digital signal from said track and deriving therefrom an output digital signal which is supplied at an output of the system; the system comprising scanning means for producing a scanning spot which scans said track, write means adapted to use the scanning spot to record the input digital signal on the track, read means adapted to use the scanning spot to read from the track the digital signal which has been recorded thereon, programmable write control means for controlling actuation of said write means, and programmable read control means for controlling actuation of said read means; said system being characterized in that it further comprises:

an input buffer memory coupled between the input of said system and said write means for temporarily storing successive blocks of the data in the received digital signal, the stored data blocks being subsequently read-out to said write means for recording on said track;

said write control means being programmed to (i) periodically interrupt read-out from the input buffer and concurrently cause the scanning means to skip the scanning spot back to a previous track location and continue scanning from such previous location, and (ii) resume read-out from the input buffer when the scanning spot again reaches the track location at which scanning was previously interrupted; the periodic interruptions of read-out from the input buffer being such that the degree of filling of the input buffer is maintained within predetermined limits;

an output buffer memory coupled between said read means and the output of said system for temporarily storing the successive data blocks read from said track by said read



means, the stored data blocks being subsequently read-out from the output buffer to form said output digital signal;

said read control means being programmed to (i) periodically interrupt read-in to the output buffer and concurrently cause the scanning means to skip the scanning spot back to a previous track location and continue scanning from such previous location, and (ii) resume read-in to the output buffer when the scanning spot again reaches the track location at which scanning was previously interrupted; the periodic interruptions of read-in to the output buffer being such that the degree of filling of the output buffer is maintained within predetermined limits;

whereby the received digital signal is recorded on said track and the recorded digital signal is read from said track at a predetermined constant scanning speed which is independent on the data rates of the received digital signal and the output digital signal.

5,212,679

DISK DRIVE FOR INFORMATION STORAGE

Kohichi Tohkairin, Yokoham, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 525,723, May 21, 1990, Pat. No. 5,140,578. This application Dec. 19, 1991, Ser. No. 810,607

Claims priority, application Japan, May 24, 1989, 1-130910

Int. Cl.[5] G11B *3/58, 33/02*

U.S. Cl. 369—75.2 **17 Claims**

1. A disk drive comprising:

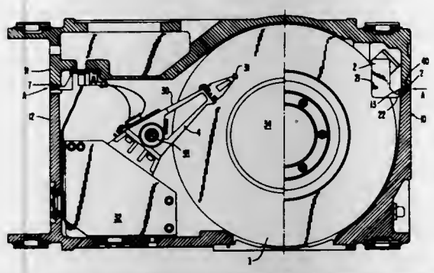
(a) a disk for recording data;

(b) a head actuator including a read/write head for reading and writing data to the disk;

(c) an accessory member having an attaching part and a fitting part;

(d) a cabinet for accommodating the disk, head actuator and accessory member, the cabinet being divided into a first cabinet part and a second cabinet part, wherein the first and second cabinet parts have walls for being joined together at a joining surface, and the attaching part of the accessory member is sandwiched between the first and

second cabinet parts at the joining surface when the first and second cabinet parts are joined; and



(e) a positioning member positioning said accessory member to said cabinet by engagement with the fitting portion of said accessory member.

5,212,680

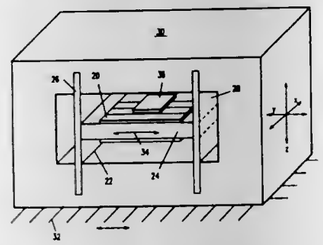
MASS STORAGE DEVICE EMPLOYING ARRAY OF TRANSDUCERS "COCKED" IN RELATION TO RECIPROCAL MOVEMENT AXIS

Richard A. Toupin, Islamorada, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 10, 1991, Ser. No. 775,627

Int. Cl.[5] G11B *5/00, 5/48*

U.S. Cl. 369—99 **10 Claims**



1. A mass storage device, comprising:

a substrate;

a media sheet supported by said substrate, for storing digital bit manifestations;

a planar, integrated array of transducers arranged in rows and columns, said columns oriented at an acute angle with respect to a movement axis;

means for providing relative reciprocal movement between said substrate and said array of transducers along said movement axis; and

means for accessing transducers in each said column in a timed manner to operate each said transducer in a column at a time it is adjacent a row of stored digital bit manifestations.

5,212,681

CARTRIDGE POSITIONING AND INTERLOCK APPARATUS

Steven D. Bock, Louisville; Arthur W. Klein, Broomfield; Roger A. Lopez, Lousiville; Robert J. Miosek, Berthoud, and Abdul-Karim H. Kaissi, Boulder, all of Colo., assignors to Storage Technology Corporation, Louisville, Colo.

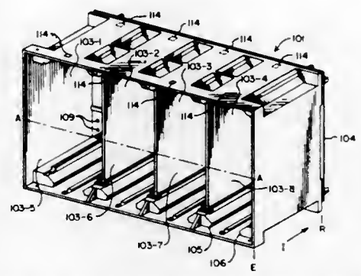
Filed Jul. 2, 1990, Ser. No. 547,697

Int. Cl.[5] G11B *33/12*

U.S. Cl. 369—244 **14 Claims**

1. In a disk drive housing, having a plurality of rectangular-shaped disk drive cartridge mounting openings for housing an associated disk drive cartridge, each of said openings having a front, a back wall, a top wall and two side walls which define said opening, a disk drive interlock apparatus for mechanically securing a disk drive cartridge, having a front side and a back side, into one of said disk drive cartridge mounting openings, comprising:

a pair of tapered channel means, located on said top wall of said opening, extending from said front to said back wall and mating with a corresponding rail on said disk drive cartridge, for guiding the insertion of said disk drive car-



tridge into said opening, wherein the taper of said tapered channel means provides a guide opening having diminishing width from said front to said back wall;

elastomeric stop means located on said back wall of said opening for elastically resisting the complete insertion of said corresponding disk drive cartridge into said opening; and

camming means for compressing said elastomeric stop means to lock said corresponding disk drive cartridge into said opening.

5,212,682

WRITE-ONE TYPE RECORDING MEDIUM STORING TIME AND DATA-WRITING MANAGEMENT DATA AND RECORDING APPARATUS THEREOF

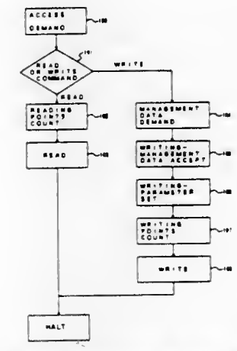
Yukimitsu Sakurai, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Dec. 26, 1990, Ser. No. 633,978

Claims priority, application Japan, Dec. 27, 1989, 1-341338

Int. Cl.[5] G11B *3/70, 5/84, 7/26*

U.S. Cl. 369—275.3 **3 Claims**



3. A write once-type recording medium having a guide groove comprising:

first management data, having a plurality of management data components which regularly vary at a constant time

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cycle, for constantly managing positions of a track in said guide groove while data-writing/reading is executed; and second management data for managing said data-writing,

wherein both said first and second management data are optically recorded on places in said guide groove, where the places are displaced from said track, and both said first and second management data are superimposed on each other in a way that specific components of said management data components of said first management data are repeatedly replaced with said second management data at a longer time cycle than the constant time cycle.

5,212,683

CASSETTE FOR STORING AND HANDLING AN INFORMATION CARRIER, AND SCANNING SYSTEM COMPRISING THE CASSETTE

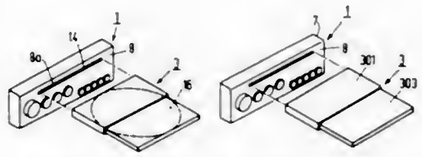
Omar P. L. P. Van Heusden; Libert H. A. M. Camps, and Guido H. J. Switten, all of Hasselt, Belgium, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 5, 1991, Ser. No. 755,255

Claims priority, application Netherlands, Sep. 28, 1990, 9002125

Int. Cl.[5] B65D *85/30*

U.S. Cl. 369—291 **14 Claims**



1. A cassette for storing and handling an information carrier, the cassette comprising a sleeve-shaped housing and a box-shaped holder which is slidable in the housing, characterized in that the sleeve-shaped housing has an open first side and, opposite thereto, an at least partly open second side, the holder, which extends permanently into the housing through said first side, being slidable between a slid-out position, in which the holder together with the housing forms a storage space for the information carrier, and a slid-in position for moving the information carrier out of the cassette via said second side, latching means being provided for latching the information carrier in the storage space in the slid-out position of the holder.

5,212,684

PROTOCOL AND TRANSCEIVER FOR CORDLESS/CELLULAR TELEPHONE SERVICE

Robert J. G. MacNamee, Cambridge, and Sunil K. Vadgama, Thornton Heath, both of Great Britain, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 30, 1990, Ser. No. 575,116

Claims priority, application United Kingdom, Sep. 1, 1989, 8919824

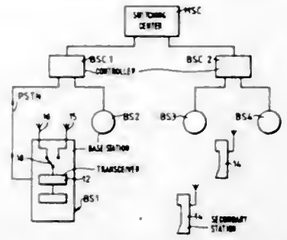
Int. Cl.[5] H04B *7/26;* **H04L** *5/14;* **H04Q** *7/02, 7/04*

U.S. Cl. 370—24 **24 Claims**

1. A communications system comprising a dual mode hand portable transceiver for metropolitan cellular and cordless telecommunications use, forming a secondary station, and a primary station, the primary and secondary stations each comprising respective radio transceiving means for duplex radio communication between the stations, said primary and secondary stations each further comprising:

a single encoding means for digitizing speech to form transmitter digitized speech signals, and a single decoding means for recovering speech from received digitized speech signals, and

means for formatting said digitized speech signals to produce a modulation signal according to a selected one of first and second protocols, selection of the protocol being responsive to control by a user of the transceiver, said first protocol using 3 full rate channels per carrier, with each channel carrying signals at substantially 32 kbits per second; and said second protocol using 2 half rate duplex channels carrying signals at substantially 11.4 kbits per second, and



each respective transceiver comprising a single transmitter means for modulating a carrier with said modulation signal at a carrier bit rate of substantially 270.8333 kbits per second, and transmitting the resultant formatted transmitter digitized speech signals over a duplex channel system.

5,212,685

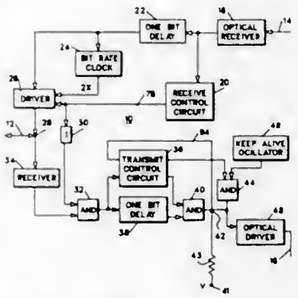
CONTROL CIRCUIT FOR HALF-DUPLEX/SIMPLEX INTERFACE IN COMMUNICATION SYSTEM

George R. Stilwell, Jr., Raleigh; Theodore B. Vojnovich, Cary, and Robert L. Walker, Raleigh, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 21, 1991, Ser. No. 672,811

Int. Cl.[5] H04L *5/16*

U.S. Cl. 370—31 **5 Claims**



1. A half-duplex/simplex control circuit for providing an interface between a half-duplex line and a pair of simplex lines, one of said simplex lines being used to transmit data selectively forwarded from the half-duplex line and the other of said simplex lines being used to receive data to be selectively forwarded to the half-duplex line, said control circuit comprising:

a receive control logic circuit connected in parallel with the receiving simplex line and the half-duplex line, said receive control logic circuit being responsive to received simplex data to generate a first receive control signal upon detection of a first pattern in such data and a second receive control signal upon detection of a second or a third pattern in such data;

first gating means responsive to the first receive control signal to enable forwarding of received simplex data to the half-duplex line while inhibiting forwarding of received half-duplex data to the transmitting simplex line, said first gating means also being responsive to the second receive control signal to inhibit forwarding of received simplex data while enabling forwarding of received half-duplex data;

a keep alive signal source for providing a continuous idle signal which may be selectively forwarded to the transmitting simplex line;

a transmit control logic circuit connected in parallel with the half-duplex line and the transmitting simplex line, said transmit control logic circuit being responsive to data received on the half-duplex line to generate a first transmit control signal upon detection of a fourth pattern in such data; and

second gating means responsive to the first transmit control signal to enable forwarding of received half-duplex data to the transmitting simplex line, said second gating means also being responsive to the second transmit control signal to inhibit forwarding of received half-duplex data while connecting the keep alive signal source to the transmitting simplex line.

5,212,686

ASYNCHRONOUS TIME DIVISION SWITCHING ARRANGEMENT AND A METHOD OF OPERATING SAME

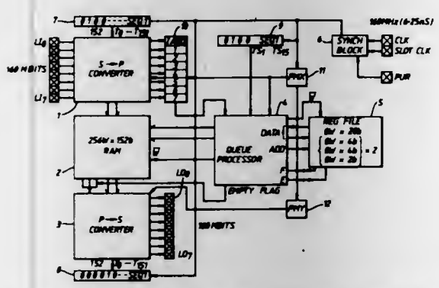
Andrew K. Joy, Northampton; Michael D. Jager, Surrey; Andrew J. Pickering, Warwickshire; Raymond E. Oakley, and John S. Arnold, both of Northants, all of England, assignors to Plessey Overseas Limited, Ilford and Gec Plessey Telecommunications Limited, Coventry, both of England

Filed Sep. 29, 1989, Ser. No. 414,289

Claims priority, application United Kingdom, Oct. 6, 1988, 8823493; Aug. 1, 1989, 8917530

Int. Cl.[5] H04Q *11/04*

U.S. Cl. 370—60 **8 Claims**



7. A method of operating an asynchronous time division multiplex switching arrangement comprising the steps of receiving input packets of data, by a serial to parallel converter, including routing information, in serial form; converting the packets of data to parallel form selecting data from the serial to parallel converter by a walking one sequencer; entering each packet of data in parallel form into an addressed location of a random access memory; drawing the address from the head of a first-in first-out queue of addresses of free locations in the memory where one or more separate FIFO output queuing means each associated with an output are provided to list in order of arrival the address location of input packets directed to said output, accessing the address when an address comes to the head of the queue; reading the packet of data from the random access memory into a parallel to serial converter; converting the packet of data to serial form; and serially delivering the packet of data to a required output.

5,212,687

ARRANGEMENT FOR TRANSMITTING OVER A TIME-DIVISION MULTIPLEX LINE DIFFERENT CHANNELS HAVING VARIOUS BIT RATES

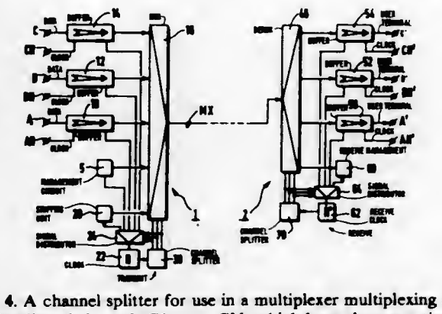
Philippe De La Bourdonnaye, Rocquencourt, France, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Dec. 9, 1991, Ser. No. 805,357

Claims priority, application France, Dec. 14, 1990, 90 15691

Int. Cl.[5] H04J *3/16*

U.S. Cl. 370—84 **4 Claims**



4. A channel splitter for use in a multiplexer multiplexing a plurality of channels C1, . . . , CN, which have the respective bit rates d1, . . . , dN, over a time-division multiplex line which has a bit rate dTDM, where the sum of the respective bit rates is less than or equal to dTDM, the channel splitter comprising

A) means for assembling a table having a plurality of rows numbered by an index j, each row containing j Δ_i, j ΔS, and j ΔX, where $\Delta_i = di/dMAX$, $\Delta S = dS/dMAX$, and $\Delta X = dX/dMAX$, i is an index numbering the multiplex channels, di is the bit rate of the channel i, dS is the rate of the service data, dMAX is the fastest of the di and dS, and

$$dX = dTDM - \left[\left(\sum_{i=1}^{N} di\right) + dS\right],$$

until each value in a current row exceeds a quantity VS, where $VS = 1 + \epsilon$; and

B) coupling means for allowing access to the multiplex line for a channel i when $j \cdot \Delta_i > kVS + \epsilon$; where k is an integer incremented each time when access is given to a multiplex line and where ϵ is a fixed value.

5,212,688

TDM EXPANSION BUS

Jay L. Gerbehy, Califon; Richard P. Graber, Westwood, and Chester Juall, Hawthorne, all of N.J., assignors to Dialogic Corporation, Parsippany, N.J.

Filed Jul. 18, 1990, Ser. No. 555,098

Int. Cl.[5] H04J *3/06*

U.S. Cl. 370—105.1 **17 Claims**

1. Network module apparatus for receiving an input series time division multiplexed (TDM) digital signal and for transmitting information contained therein onto a bus and for receiving information from the bus and generating an output serial TDM signal, which apparatus comprises:

means, responsive to the input TDM signal, for generating a receive clock signal (CLKR) having a clock rate which is substantially equal to a data information clock rate of the input serial TDM signal and for driving the receive clock signal on a receive clock pathway on the bus;

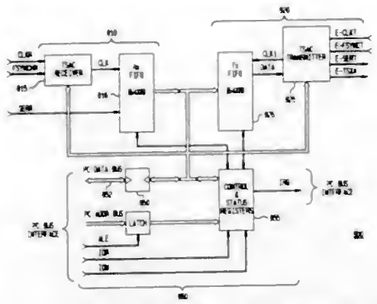
means, responsive to the input TDM signal, for generating a serial receive data signal (SERR) and for driving the receive data signal on a receive data pathway on the bus;

means, responsive to the input TDM signal, for generating

VOL 1150 ISS 3 MY 18 1993 UMI

receive synchronization and framing signals (FSYNCR and MSYNCR) and for driving the receive synchronization and framing signals on receive synchronization and framing pathways on the bus; and

means, responsive to: (a) a transmit clock signal (CLKT) applied thereto over a transmit clock pathway on the bus,



(b) transmit synchronization and framing signals (FSYNCT and MSYNCT) applied thereto over transmit synchronization and framing pathways on the bus, and (c) a serial transmit data signal (SERT) applied thereto over a transmit data pathway on the bus, for generating the output TDM signal.

5,212,689

METHOD OF TRANSMITTING DIFFERENT COMMANDS RELATING TO THE CHOICE OF TRANSMITTER ANTENNA IN A TIME MULTIPLEX RADIO COMMUNICATIONS SYSTEM

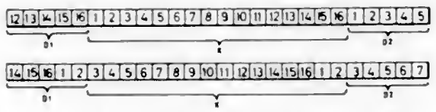
Hakan O. Eriksson, Vallentuna, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed May 3, 1991, Ser. No. 695,339

Claims priority, application Sweden, May 10, 1990, 9001700

Int. Cl.[5] H04B *7/06*

U.S. Cl. 370—106 **10 Claims**



6. A method for transmitting in a time multiplex radio communication system different commands from at least one movable station to a fixed station, each transmission sequence from said mobile station having a standard synchronizing word including a predetermined number of binary bits, comprising:

(a) generating a plurality of different synchronizing words, corresponding respectively to one of said different commands, by shifting the bits of said standard synchronizing word;

(b) transmitting one of said different synchronizing words for each new transmission sequence from said movable station depending on the particular command to be transmitted; and

(c) selecting one of a plurality of antennas at said fixed station based on said different synchronizing word transmitted in step (b).

5,212,690

METHOD OF SYNCHRONIZING DIGITAL DATA BY COMPARING TO A REFERENCE WORD TO DETERMINE BIT ERRORS

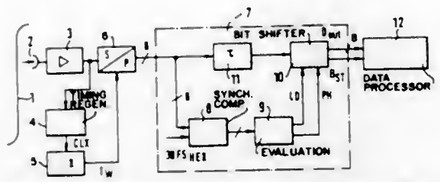
Andreas Löw, Gross-Gerau, Fed. Rep. of Germany, assignor to BTS Broadcast Television Systems GmbH, Darmstadt, Fed. Rep. of Germany

Filed Aug. 7, 1991, Ser. No. 742,670

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1990, 4027262

Int. Cl.[5] H04J *3/06*

U.S. Cl. 370—108 **12 Claims**



2. Method of synchronizing data words in the serial-to-parallel conversion of a digital data signal separated into data blocks, each of which comprises a group of data words and synchronization words assigned to the group, wherein a bit-synchronous timing signal (CLK) is regenerated from the present data signal and a word-timing signal (Tμ) is derived that has a frequency equaling the sequential frequency of the serial words, although it is not strictly assigned to them chronologically; wherein said word-timing signal is utilized to convert said data signal, which is present in serial form, initially into a parallel data signal as long as one word; wherein the data represented in the parallel data signal are temporarily stored in a buffer; wherein the number of bits periods that the originally established chronological relationship of converted data words deviates from an ideal value dictated by said synchronization words is detected; and wherein the originally established chronological relationship of converted data words is varied in accordance with the detected deviation by a corresponding read-out from said buffer; said method comprising the steps of comparing the bit sequence of the words in the parallel data signal with an ideal bit sequence of said synchronization words; detecting the number of bit errors in relation to said ideal bit sequence for every bit position in a word; and comparing the number of bit errors for every bit position in a word with the number of bit errors detected in the interval of one data block length to determine the bit position with the smallest bit error, such that every bit position that reveals the lowest bit error for the duration of one data block length dictates the chronological relationship of the serial-to-parallel converted data words in the parallel data signal.

5,212,691

PRIVATE NETWORK WITH MEANS FOR ESTABLISHING VIRTUAL TIE TRUNKS BETWEEN PBXS THROUGH ISDN PUBLIC NETWORK

Makoto Hokari, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 30, 1991, Ser. No. 784,507

Claims priority, application Japan, Oct. 30, 1990, 2-292835

Int. Cl.[5] H04J *3/12*

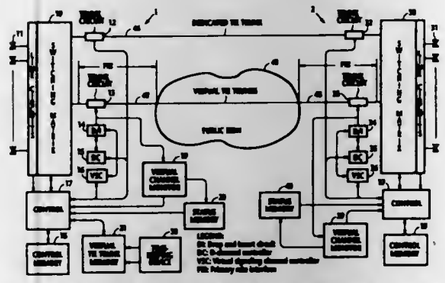
U.S. Cl. 370—110.1 **8 Claims**

1. A private switched communications system having a PBX (private branch exchange) system connected through a primary rate interface to an ISDN (Integrated Services Digital Network) public network, wherein the PBX system comprising:

memory means for storing routing data identifying a virtual tie trunk to be established by one of speech channels of the primary rate interface, first channel status data indicating

set-up/clear-down command status of the virtual tie trunk, and second channel status data indicating working-/nonworking status of said virtual tie trunk, said first channel status data being variable as a function of time and as a function of calendar day; and

control means for accessing said first channel status data at periodic intervals, transmitting a call setup message or a call clearing message to said ISDN public network through a signaling channel of the primary rate interface to set-up or clear-down said virtual tie trunk between said PBX system and a distant PBX system according to contents of said first channel status data, receiving a response message from said distant PBX system, causing the working/nonworking status of said virtual tie trunk in said memory means to change according to said first channel status data following receipt of said response message, and causing a path to be established in said PBX systems to establish a connection from a user station of said PBX system to a user station of said distant PBX system via said virtual tie trunk in response to a call request when said working/nonworking status of said virtual tie trunk is indicative of the working state.



5,212,692

HELP FUNCTION GENERATION APPARATUS AND METHOD

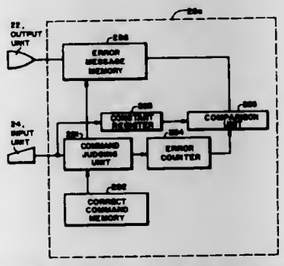
Hiroshi Itoh, Tokyo, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 31, 1990, Ser. No. 605,855

Claims priority, application Japan, Oct. 31, 1989, 1-284174

Int. Cl.[5] G06F *11/00*

U.S. Cl. 371—5.1 **10 Claims**



1. A numerical control apparatus for operating a machine tool and generating an operation guidance message, comprising:

input means for inputting a command for operating a machine tool;

memory means for storing a plurality of programs each of which control an operation of said machine tool;

observation means for judging whether said command input by said input means is a correct command and outputting a display enable signal when said observation means judges that incorrect commands have been inputted by said input means a predetermined number of times;

cycle start command means for reading one of said programs stored in said memory means in order to start an operation of said machine tool when said command input by said input means is judged to be correct by said observation means; and

output means for outputting said operation guidance message based on said display enable signal output by said observation means.

5,212,693

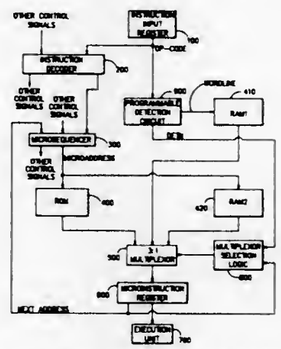
SMALL PROGRAMMABLE ARRAY TO THE ON-CHIP CONTROL STORE FOR MICROCODE CORRECTION

Hu H. Chao, Pleasantville, N.Y., and Jung H. Chang, Saratoga, Calif., assignors to IBM Corporation, Armonk, N.Y.

Filed Aug. 2, 1990, Ser. No. 561,630

Int. Cl.[5] G06F *11/00*

U.S. Cl. 371—10.1 **26 Claims**



1. In a microprocessor system having a register means for receiving a macroinstruction, a control store memory for storage and output of microinstructions associated with a macroinstruction, and a microsequencer means for producing a next address signal to address a next executable microinstruction, an apparatus for correcting one or more faulty microinstructions contained in said control store, said apparatus comprising:

(a) a programmable detection circuit means coupled to said register means and programmed to detect a macroinstruction previously determined to have one or more faulty microinstructions associated therewith, said programmable detection circuit means outputting a decoder signal and a detection signal upon detection of said macroinstruction;

(b) a first programmable memory array for receiving said decoder signal and programmed to contain a first error free microinstruction, said first memory array outputting said first error-free microinstruction for further processing in response to said decoder signal;

(c) a second programmable memory array for receiving said next address signal and programmed to contain one or more error-free microinstructions corresponding to said faulty microinstructions contained in said control store, said second programmable memory array outputting said one or more error-free microinstructions for further processing in response to said next address signal;

(d) selecting means responsive to said detection signal and said next address signal for selecting an error-free microinstruction output from one of said control store memory, said first programmable array and said second programmable array.

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5,212,694

IMPROPER WRITING PREVENTION CIRCUIT AND A MEMORY DEVICE AND A DATA PROCESSING DEVICE WHICH INCLUDE THE CIRCUIT

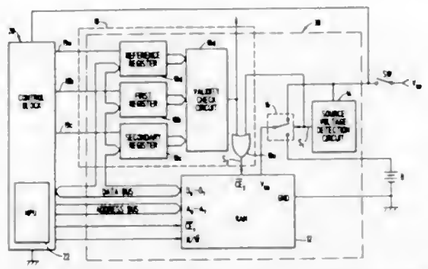
Yasuhide Fujiwara, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Dec. 20, 1990, Ser. No. 630,854

Claims priority, application Japan, Dec. 20, 1989, 1-330603; Oct. 31, 1990, 2-294162

Int. Cl.[5] *G11C 29/00*

U.S. Cl. 371—21.1 **24 Claims**



1. An improper writing prevention circuit for use with a device having means for supplying a source voltage and memory means adapted to receive the source voltage, the source voltage having a value, the memory means including a state selection terminal ,the circuit comprising:

source voltage detection means for detecting the value of the source voltage and for generating a first control signal having a value which is dependant on the value of th source voltage;

receiving means for receiving predetermined data;

storage means, including a test register, for receiving reference data and for storing the received reference data;

validity check means, operably connected to said receiving means and to said storage means, for performing a writing test which determines whether or not the reference data is consistent with the predetermined data and for generating a second control signal having a value which is dependent on the determination; and

state selection means for receiving said first and second control signals from said source voltage detection means and said validity check means, respectively, and for producing a state selection signal to be applied to the state selection terminal oft the memory means in accordance with the values of said first and second control signals.

5,212,695

ERROR CHECK OR ERRO CORRECTION CODE CODING DEVICE

Akihiro Shikakura, Kawasaki; Tetsuya Shimizu, Yokohama, and Motokazu Kashida, Musashino, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 25, 1990, Ser. No. 514,303

Claims priority, application Japan, Apr. 28, 1989, 1-109502; Apr. 28, 1989, 1-109505; Apr. 28, 1989, 1-109513

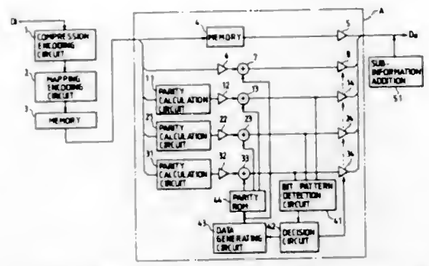
Int. Cl.[5] **G06F** *11/08*

U.S. Cl. 371—37.1 **26 Claims**

1. An error detection or error correction code coding device comprising:

(a) calculation means for calculating a redundancy code for detecting or correcting an error from a code group including main information codes and a control code having no correlation with the main information codes; and

(b) selection means for selecting a pattern of the control code from a plurality of patterns, said selection means



selecting a pattern which can reduce a DC component of the redundancy code as much as possible.

5,212,696

METHOD AND APPARATUS FOR PRODUCING ORDER INDEPENDENT SIGNATURES FOR ERROR DETECTION

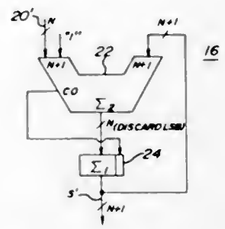
Forrest E. Norrod, Fort Collins, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 480,417, Feb. 14, 1990, abandoned. This application Feb. 28, 1992, Ser. No. 825,244

The portion of the term of this patent subsequent to Jun. 9, 2007, has been disclaimed.

Int. Cl.[5] **G06F** *11/08*

U.S. Cl. 371—54 **14 Claims**



1. An error detection method for use in a system wherein a set of N digit data words are transferred from a source end to a receiver end over a communications medium, comprising the steps of:

(a) summing, in modulo M^N arithmetic, where M represents the number of levels representable by the digits of the system, data words to be transferred from the source end by accumulating the data words in a first register while storing any carry outs ("COs"), the contents of the first register defining an expected signature SE;

(b) summing, in modulo M^N arithmetic, data words received from the source end by accumulating the received data words in a second register while storing any COs, the contents of the second register defining an error detection signature S; and,

(c) comparing S and SE, detecting whether a discrepancy exists therebetween, and providing an indication that an error has occurred in the data transfer when a discrepancy is detected.

5,212,697

VARIABLE LENGTH CHARACTER STRING DETECTION APPARATUS

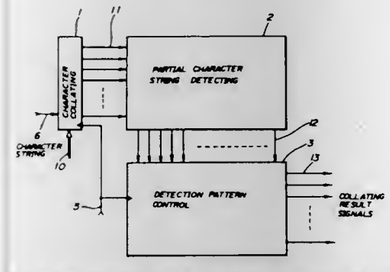
Tetsuya Morita, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 405,122, Sep. 11, 1989, abandoned. This application Mar. 20, 1992, Ser. No. 859,627

Claims priority, application Japan, Sep. 13, 1988, 63-227502

Int. Cl.[5] **G06F** *7/02*

U.S. Cl. 371—68.1 **12 Claims**



1. A variable length character string detection apparatus comprising:

a) character collating means including:

1) first means for registering a character string as a registered character string;

2) second means for entering an input character string from a file; and

3) comparator means for comparing each character of the input character string with characters making up the registered character string and for outputting character string collating signals which respectively indicate whether or not each character of the input character string coincides with one of the characters making up the registered character string;

b) partial character string detecting means for:

1) carrying out predetermined logic operations on the character string collating signals; and

2) outputting partial character string collating signals which respectively indicate whether or not the registered character string which coincides with the input character string and partial character strings thereof exists; and

c) detection pattern control means for:

1) carrying out a predetermined logic operation on the partial character string collating signals; and

2) outputting collating result signals which respectively indicate whether or not there exists the registered character string which coincides with:

i) the input character string;

ii) the partial character strings thereof; and

iii) erroneous character strings which respectively include one or a plurality of consecutive errors;

the detection pattern control means thus constituting means for detecting excessive, missing or erroneous characters.

5,212,698

DISPERSION COMPENSATION FOR ULTRASHORT PULSE GENERATION IN TUNEABLE LASERS

James D. Kafka, Mountain View; Michael L. Watts, Union City, and Shawn D. Streeby, Campbell, all of Calif., assignors to Spectra-Physics Lasers, Incorporated, Mountain View, Calif.

Continuation-in-part of Ser. No. 697,692, May 9, 1991, which is a continuation of Ser. No. 518,535, May 2, 1990, abandoned. This application Oct. 30, 1991, Ser. No. 787,317

Int. Cl.[5] **H01S** *3/090*

U.S. Cl. 372—18 **12 Claims**

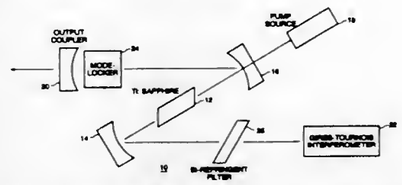
1. A laser system for producing nearly transform-limited pulses, said pulses having a duration less than about 100 picoseconds, including:

a laser gain medium;

means for exciting said gain medium;

means for defining a laser cavity;

means for mode locking said laser system;



means for tuning said laser; and

a GTI etalon located in said cavity, said GTI etalon comprising a highly reflective surface and a partially reflective surface, said highly reflective surface and said partially reflective surface having a spacing of between about 200–1,500 microns.

5,212,699

TEMPERATURE-CONTROLLING LASER DIODE ASSEMBLY

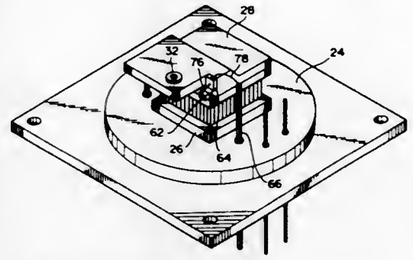
Takayuki Masuko, Koganei; Shunichi Satoh, Kawasaki; Tetsuo Ishizaka, Narashino, and Toshio Ohya, Zama, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jul. 15, 1991, Ser. No. 729,997

Claims priority, application Japan, Jul. 18, 1990, 2-187999

Int. Cl.[5] **H01S** *3/04, 3/045*

U.S. Cl. 372—34 **13 Claims**



1. A laser diode assembly, comprising:

a base member;

a Peltier device mounted on said base member;

a carrier mounted on said Peltier device;

a laser diode chip fixedly mounted on said carrier;

a thermistor fixedly mounted on said carrier;

a terminal extended through said base member for connecting said thermistor to an external circuit;

a relay block provided between said thermistor and said terminal, said relay block comprising a block body formed of a heat insulating material and a metal film formed on said block body, said relay block being spaced from said carrier;

first connecting means for connecting said thermistor to said relay block;

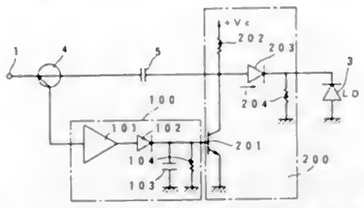
second connecting means for connecting said relay block to said terminal;

a cap fixed to said base member for sealingly enclosing said Peltier device, said carrier, said laser diode chip, said thermistor, and said relay block; and

means for detecting a resistance of said thermistor and controlling a driving current for said Peltier device contacting with said carrier to maintain said resistance at a constant value.

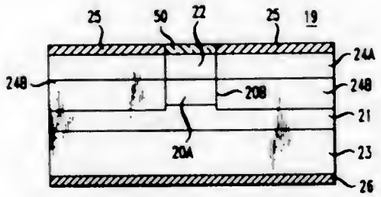
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,700
MODULATION CIRCUIT FOR A LIGHT EMISSION DEVICE
Toshio Okita, Yokohama, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Jul. 24, 1991, Ser. No. 735,262
Int. Cl.[5] H01S *3/00*
U.S. Cl. 372—38 **7 Claims**



1. A modulation circuit for controlling a light emission device to produce an intensity-modulated light signal based on an input modulation signal, the modulation circuit comprising;
level detector means for producing an electrical signal corresponding to an amplitude level of the input modulation signal; and
attenuator means for attenuating the input modulation signal based on the electrical signal, and for applying the attenuated input modulation signal to said light emission device.

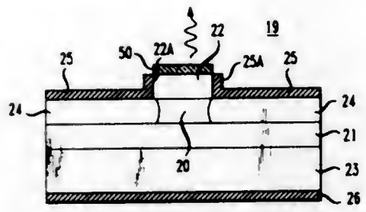
5,212,701
SEMICONDUCTOR SURFACE EMITTING LASER HAVING ENHANCED OPTICAL CONFINEMENT
Kent D. Choquette, New Providence; Robert S. Freund, Livingston, and Minghwei Hong, Berkeley Heights, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Mar. 25, 1992, Ser. No. 857,350
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—45 **6 Claims**



1. In a semiconductor surface emitting laser of the type comprising an active region disposed between a pair of reflector stacks, the improvement wherein the region peripheral to said active region comprises material having an index of refraction lower than that of said active region for forming an optically confining interface with said active region.

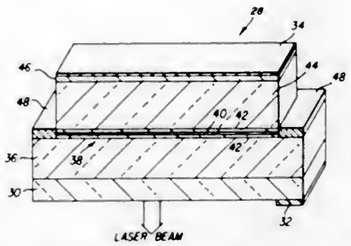
5,212,702
SEMICONDUCTOR SURFACE EMITTING LASER HAVING REDUCED THRESHOLD VOLTAGE AND ENHANCED OPTICAL OUTPUT
Kent D. Choquette, New Providence, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Mar. 25, 1992, Ser. No. 857,352
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—45 **5 Claims**

1. In a vertical cavity, surface emitting laser of the type comprising a semiconductor active region disposed between a pair of Bragg reflector stacks each comprising a plurality of longitudinally extending reflector layers and a pair of metal contact layers for providing a current through said active region, the improvement wherein at least one of said reflector stacks terminates in at least one substantially transverse wall



peripheral to said active region and one of said metal contact layers substantially covers said wall.

5,212,703
SURFACE EMITTING LASERS WITH LOW RESISTANCE BRAGG REFLECTORS
Keith B. Kahen, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 18, 1992, Ser. No. 836,569
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **8 Claims**

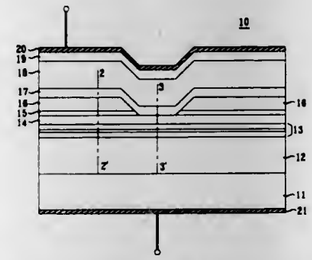


1. A vertical cavity surface emitting laser, comprising:
(a) a semiconductor substrate of one conductivity type;
(b) a lower cladding layer of similar conductivity type deposited on the semiconductor substrate, having multiple periods of semiconductor layers of varying index of refraction so deposited as to form a λ/2 Bragg reflector;
(c) a semiconductor active layer formed on the lower cladding layer;
(d) an upper cladding layer of opposite conductivity type deposited on the semiconductor active layer, having multiple periods of semiconductor layers of varying index of refraction so deposited as to form a multilayer reflector;
(e) deposited on the upper cladding layer; and
(f) electrically conductive layers, deposited on the substrate and cap layers.

5,212,704
ARTICLE COMPRISING A STRAINED LAYER QUANTUM WELL LASER
Young-Kai Chen, Berkeley Heights; Maurice A. Chin, South Plainfield; Jenn-Ming Kuo, Edison; Arthur M. Sergeot, New Providence, and Ming-Chiang Wu, Bridgewater, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Nov. 27, 1991, Ser. No. 800,772
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **8 Claims**

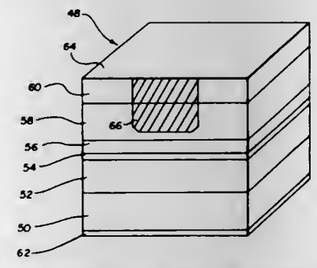
1. An article comprising a GaAs-based self-aligned semiconductor laser adapted for emission of electromagnetic radiation of wavelength λ, said laser comprising a semiconductor substrate, a multiplicity of epitaxial semiconductor layers on said substrate, and first and second contact means for flowing a

current between said contact means, said multiplicity of semiconductor layers comprising, in sequence, a first semiconductor layer (to be referred-to as the "first cladding layer") doped to exhibit a first conductivity type, a second semiconductor layer (to be referred-to as the "active layer") that is substantially undoped, a third semiconductor layer (to be referred-to as the "second cladding layer") doped to exhibit a second conductivity type, and a patterned fourth semiconductor layer (to be referred-to as the "blocking layer"), at least a part of said blocking layer material being doped to exhibit conductivity of said first conductivity type, said blocking layer being patterned to define a window adapted to facilitate, under forward bias laser operating conditions, flow of charge carriers from a contact region through said second cladding layer into said



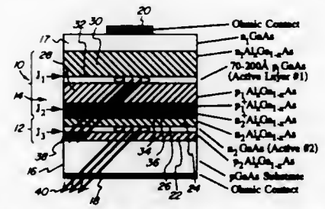
active layer, said blocking layer adapted to substantially prevent, under said forward bias laser operating conditions, flow of charge carriers through said blocking layer material into said second cladding; characterized in that
a) 0.87 μm $<\lambda\lesssim$1.1 μm; and
b) said active layer comprises at least one quantum well, of thickness t less than a critical thickness t_c associated with dislocation formation, sandwiched between two barrier layers, associated with the material of each of said quantum well and barrier layers being an equilibrium lattice constant, with said quantum well material selected such that said equilibrium lattice constant associated with said quantum well material differs from said equilibrium lattice constant associated with said barrier layer material.

5,212,705
ALAS ZN-STOP DIFFUSION LAYER IN ALGAAS LASER DIODES
Keith B. Kahen, Rochester, and Frank T. J. Smith, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 18, 1992, Ser. No. 836,571
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **6 Claims**



1. An AlGaAs-based semiconductor laser diode comprising:
(a) a n^+-GaAs semiconductor substrate;
(b) a n-AlGaAs cladding layer deposited on the semiconductor substrate;
(c) an active layer formed on the n-AlGaAs cladding layer;
(d) a Zn-stop diffusion layer of p-type conductivity deposited on the active layer, having an Al content greater than 85%;
(e) a p-AlGaAs cladding layer deposited on the Zn-stop diffusion layer, having an Al content between 55 and 75%, where such p-AlGaAs cladding layer has Zn diffused into it;
(f) a GaAs capping layer deposited on the p-AlGaAs cladding layer where such layer has Zn diffused into it; and
(g) electrically conductive layers, deposited on the substrate and capping layers.

5,212,706
LASER DIODE ASSEMBLY WITH TUNNEL JUNCTIONS AND PROVIDING MULTIPLE BEAMS
Faquir C. Jain, Storrs, Conn., assignor to University of Connecticut, Storrs, Conn.
Filed Dec. 3, 1991, Ser. No. 802,056
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—50 **15 Claims**



1. A laser diode assembly providing multiple output beams from multiple p-n junctions and at least one tunnel junction comprising:
(a) a semiconductor substrate;
(b) a multiplicity of superposed semiconductor laser stacks thereon each having an active layer sandwiched between p and n layers, and at least one pair of adjacent semiconductor laser stacks having a tunnel junction therebetween; and
(c) ohmic contacts on the outer surface of said substrate and the outer surface of the uppermost semiconductor laser stack, whereby an applied potential across said ohmic contacts produces lasing in the active layers semiconductor laser stacks on the opposite sides of said tunnel junction.

5,212,707
ARRAY OF DIFFRACTION LIMITED LASERS AND METHOD OF ALIGNING SAME
Jeffrey Heidel, Red Bud, Ill.; Mark Zediker; Keith Throgmorton, both of Florissant, Mo., and William Harting, Churubusco, Ind., assignors to McDonnell Douglas Corporation, St. Louis, Mo.
Filed Dec. 6, 1991, Ser. No. 802,838
Int. Cl.[5] H01S *3/19*; G02B *5/18*
U.S. Cl. 372—50 **21 Claims**

1. A one-dimensional semiconductor laser array assembly, comprising:
a) a one-dimensional semiconductor laser array having a plurality of emitters wherein each emitter is electrically connected to a power supply means;
b) a heatsink means for absorbing heat from the semiconductor laser array;
c) a bonding means for attaching the semiconductor laser array to the heatsink means and transferring heat from the semiconductor laser array to the heatsink means, the bonding means having a uniform thickness;
d) a refractive lens means for collimating a fast axis of the

VOL 1150 ISS 3 MY 18 1993 UMI

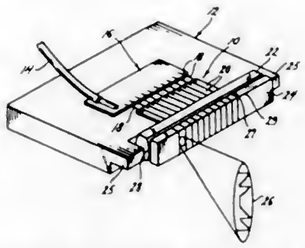
output of each emitter of the semiconductor laser array; and

e) a one-dimensional array of binary optical elements for collimating a slow axis of the output of the emitters of the semiconductor laser array and correcting aberrations therein, wherein each individual binary optical element corresponds to a distinct individual emitter of the semiconductor laser array, each binary optical element comprising a substantially planar substrate having a front surface wherein the front surface has been formed such that the optical path length travelled by each ray of divergent light emitted by an emitter of the semiconductor laser array is equal upon the ray's exit from the front surface of the binary optical element.

21. A method for aligning the output of a two-dimensional semiconductor laser array assembly, comprising the steps of:

a) placing a first one-dimensional semiconductor laser array assembly in a clamping fixture;

b) placing a second one-dimensional semiconductor laser array assembly in the clamping fixture such the second one-dimensional semiconductor laser array assembly is substantially parallel to the first one-dimensional semiconductor laser array assembly;



c) positioning a set of collimating optics for the second one-dimensional semiconductor laser array assembly such that the output of the second semiconductor laser array, placed within the clamping fixture, travels through substantially the center of the collimating optics;

d) supplying power to each of the one-dimensional semiconductor laser array assemblies following the positioning of the collimating optics;

e) introducing a transform lens in the optical path of the output of each one-dimensional semiconductor laser array assembly to simulate a far field of the two-dimensional semiconductor laser array assembly;

f) monitoring the power level at the focal point of the transform lens;

g) altering the position of the collimating optics until a maximum power level is detected by the monitor;

h) retaining the collimating optics in the position corresponding to the highest power level detected; and

i) repeating steps (b) through (h) for each additional one-dimensional semiconductor laser array assembly of the two-dimensional semiconductor laser array assembly.

5,212,708

AXIAL FLOW GAS LASER PARTICULARLY HIGH-POWER CO_2 LASER WITH DC EXCITATION

Klaus Schanz, Reinbek, and Wolfgang Wurst, Hamburg, both of Fed. Rep. of Germany, assignors to Rofin-Sinar Laser GmbH, Hamburg, Fed. Rep. of Germany

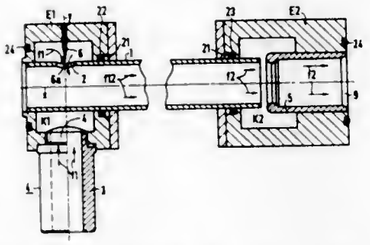
Filed May 29, 1990, Ser. No. 529,936

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1989, 8914097[U]

Int. Cl.[5] H01S *3/22*

U.S. Cl. 372—55 **9 Claims**

1. An axial flow gas laser, comprising a discharge tube of dielectric material defining a gas chamber and having a given longitudinal axis, first and second connection bodies sealingly connected with said discharge tube and forming respective first and second connection chambers, a connection neck sealingly communicating with said first connection chamber and said connection neck defining a predetermined longitudinal axis, said connection bodies forming electrical and laser gas connection points in the region of said connection chambers, laser gas inlet and laser gas outlet lines communicating with said first and second connection chambers, said first connection body being connected to the anode potential of a direct voltage source and said second connection body being connected to the cathode potential of the direct voltage source, said first and second connection bodies being mutually spaced apart along said given axis, said gas chamber of said discharge tube defining a discharge path between the anode and cathode potentials, a gas inflow opening disposed on said discharge tube and communicating with said first connection chamber of said first connection body, an electrode pin having a tip inserted into said first connection body, and said tip extending at least into the vicinity of said gas inflow opening, and said electrode pin being disposed substantially coaxially with said predetermined axis.



5,212,709

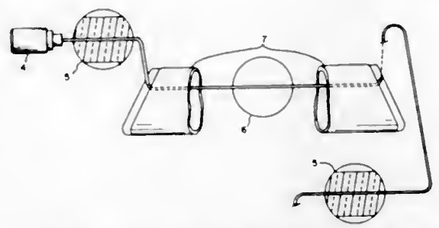
FREQUENCY MODULATED PHOTON EXCITED LIGHT SOURCE

Daniel C. Mihm, P.O. Box 8122, Ft. Wayne, Ind. 46898

Continuation-in-part of Ser. No. 447,195, Dec. 7, 1989, abandoned. This application Jul. 15, 1991, Ser. No. 731,144

Int. Cl.[5] H01S *3/09*

U.S. Cl. 372—69 **12 Claims**



1. A lighting system utilizing stimulated atomic emission, comprising: a laser producing photons of a predetermined modulated frequency; a sealed bulb which contains a predetermined inner gaseous environment, and a predetermined frequency modulated fluorescent photon interaction coating source on the inner walls; and a fiber-optic waveguide coupled to said laser and extending through said gaseous environment contained within said sealed bulb; said waveguide being clad with a material with more density than that of the waveguide core; where it is coupled to said laser and extending to said sealed bulb and unclad as it extends through said gaseous environment contained within said sealed bulb, and further

said waveguide has an intragally formed reflective end section for provisions of feedback of frequency modulated photon through the waveguide core at the output end, said predetermined frequency modulated photon being pumped through said waveguide by said laser thereby producing counter travelling photons within the waveguide thereby increasing the intensity of photon emission within the waveguide, thereby enhancing the probability of photon collision at a variety of incident angles as to cause photons to be emitted from the portion of unclad waveguide within said sealed bulb, therefore stimulating the inner gaseous environment to a spontaineous emission which in turn stimulates a frequency modulated fluorescent photon interaction coating source on the inner diameter of the sealed bulb thereby producing cold light without electrical stimulation to start a photon emission, therefore eliminating direct electrical stimulation.

5,212,710

LASER LIGHT BEAM SYNTHESIZING APPARATUS

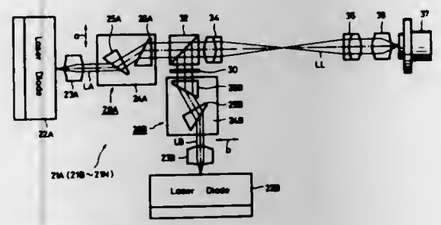
Yushi Kaneda, and Michio Oka, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jul. 11, 1991, Ser. No. 728,583

Claims priority, application Japan, Jul. 19, 1990, 2-191152

Int. Cl.[5] G02B *6/26, 6/28;* H01S *3/133, 3/14*

U.S. Cl. 372—71 **31 Claims**



1. A laser light source comprising:

a first light source for emitting a first light beam having a shape in cross-section of a flat ellipse;

a second light source for emitting a second light beam having a shape in cross-section of a flat ellipse;

first beam shape re-form means for re-forming the cross-sectional beam shape of the first light beam from a flat ellipse to a more circular ellipse;

second beam shape re-form means for re-forming the cross-sectional beam shape of the second light beam from a flat ellipse to a more circular ellipse;

polarizing means for polarizing the second light beam with respect to the first light beam such that the polarizing plane of a light beam emitted from said first beam shape re-form means is oriented at an angle of 90 degrees with respect to the polarizing plane of a light beam emitted from the second beam shape re-form means; and

beam synthesizing means for synthesizing the light beam outputted from the first beam shape re-form means and a light beam outputted from the polarizing means, which is supplied thereto with an incident angle deviated by an angle of 90 degrees relative to the incident angle of the first light beam, to produce a synthesized light beam.

5,212,711

HARMONICALLY MODE-LOCKED LASER

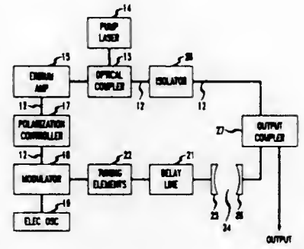
George T. Harvey, Princeton, and Lisa F. Mollenauer, Colts Neck, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Feb. 18, 1992, Ser. No. 835,813

Int. Cl.[5] H01S *3/098*

U.S. Cl. 372—94 **14 Claims**

1. A harmonically mode-locked ring laser comprising: means defining an optical path; an active laser medium for emitting coherent light to be transmitted along the optical path; means included in the optical path for causing the light to propagate along the path as a succession of pulses having a substantially uniform repetition rate at a sub-optic frequency and having a period substantially equal to the transit time of the light pulses



in the optical path divided by an integer; wherein the improvement is characterized in that:

the optical path includes a Fabry-Perot optical resonator having a free spectral range substantially equal to said pulse repetition rate.

5,212,712

LASER DEVICE AND METHOD OF MANUFACTURING THE SAME

Akio Makuta, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan

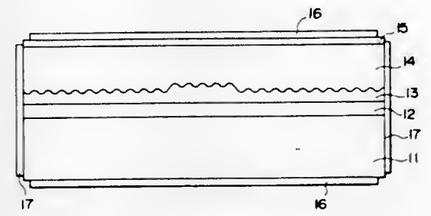
PCT No. PCT/JP91/00501, § 371 Date Jan. 23, 1992, § 102(e) Date Jan. 23, 1992

PCT Filed Apr. 17, 1991, Ser. No. 778,948

Claims priority, application Japan, Apr. 19, 1990, 2-101591

Int. Cl.[5] H01S *3/08*

U.S. Cl. 372—96 **8 Claims**



1. A laser device comprising:

a substrate;

an active layer formed on the substrate;

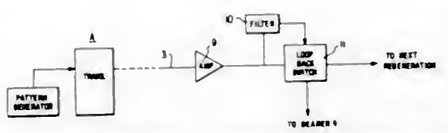
a waveguide layer formed on the active layer and having a phase shift region, the phase shift region being a projecting portion formed in a center of the waveguide layer, a diffraction grating being formed in the entire surface of the waveguide layer including the projecting portion;

a cladding layer formed on the waveguide layer; and

electrodes formed on the cladding layer.

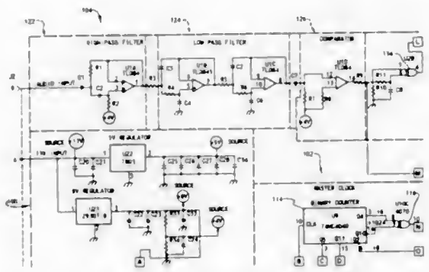
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,713
FAULT LOCATION ARRANGEMENT FOR DIGITAL TRANSMISSION SYSTEMS
David A. Frisch, Yarrawarra, Australia, assignor to Tasman Cable Company, Alexandria and OTC Limited, Sidney, both of Australia
Filed Jul. 25, 1990, Ser. No. 557,212
Claims priority, application Australia, Aug. 9, 1989, PJ5696
Int. Cl.[5] H04B 17/02
U.S. Cl. 375—3.1 6 Claims



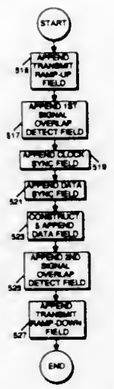
1. In a non-re-timed digital transmission system comprising a first terminal and a second terminal each of which includes a signal transmit means and a signal receive means, a first transmission bearer and a second transmission bearer, the first transmission bearer conveying signals from the signal transmit means of one terminal to the signal receive means of the other terminal, and the second transmission bearer conveying signals from the signal transmit means of the other terminal to the signal receive means of the said one terminal, each bearer having a plurality of spaced regenerators to restore the original shape of a pulse signal transmitted from a signal transmit means, a method of locating faults by diverting regenerated signals that are transmitted from a terminal on one bearer onto the other bearer to return said regenerated signals to the signal receive means of that terminal, said method including the steps of:
transmitting a repetitive pattern from the transmit means of a terminal to selectively generate detectable signals of a predetermined frequency;
detecting said detectable signals of a predetermined frequency with filter means in a regenerator, said filter means being tuned to pass said detectable signals to a diverting circuit in the regenerator; and
activating said diverting circuit in the regenerator to divert regenerated signals from one bearer to the other.

5,212,714
HIGH SPEED DATA INTERFACE FOR LAND MOBILE COMMUNICATION SYSTEM
Mervin L. Grindahl, and Philip M. Wala, both of Waseca, Minn., assignors to E. F. Johnson Company, Waseca, Minn.
Continuation of Ser. No. 192,846, May 11, 1988, abandoned.
This application May 18, 1989, Ser. No. 355,089
Int. Cl.[5] H04L 25/00
U.S. Cl. 375—5 8 Claims



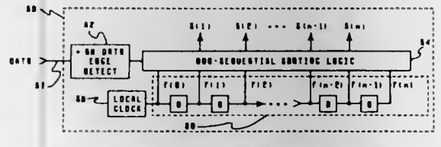
1. A data interface unit for interfacing a data terminal or the like with a transceiver for a voice radio communications system, said transceiver including a detector presenting an unfiltered audio signal, said audio signal having a received clock encoded data signal modulated thereon, said interface unit being adapted for receiving said unfiltered audio signal from said transceiver and for coupling to said transceiver for modulation of signals within said transceiver with a transmitted clock encoded data signal, comprising:
input means adapted for coupling to said transceiver detector for monitoring of said unfiltered audio signal, said input means including filter means for presenting said unfiltered audio signal as a bandwidth limited information signal;
signal demodulator means operably coupled to said filter means for demodulating said bandwidth limited information signal to present said received clock encoded data signal;
clock recovery means operably coupled to said signal demodulator means for recovering received clock information from said received clock encoded data signal;
data demodulating means operably coupled to said signal demodulator means and said clock recovery means for recovering received data signals from said received clock encoded data signal;
logic means operably coupling said data demodulating means with said data terminal for presentation of said received data signals to said data terminal and for receiving outgoing data signals from said data terminal;
encoding means operably coupled to said logic means for encoding said outgoing data signals with timing information to present said transmitted clock encoded data signal; and
coupling means operably coupled to said encoding means for presenting said transmitted clock encoded data signal to said transceiver.

5,212,715
DIGITAL COMMUNICATION SIGNALLING SYSTEM
William F. Pickert, Hoffman Estates; James A. McDonald, Buffalo Grove; Thomas A. Sexton, Schaumburg, and Charles J. Malek, Crystal Lake, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jan. 25, 1991, Ser. No. 647,334
Int. Cl.[5] H04L 7/00
U.S. Cl. 375—114 45 Claims



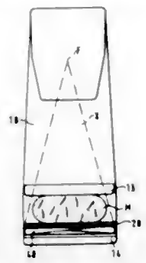
1. A method of transmission in a communication system from a radio transmitter that communicates digital information to a radio receiver, comprising the steps of:
generating a message frame having a format comprising:
(i) a field enabling carrier frequency change and
(ii) at least one data field for the digital information, said at least one data field comprising:
(a) a transmitter ramp-up field,
(b) a first unsynchronized signal overlap detection field,
(c) a synchronization field,
(d) a field containing the digital information, and
(e) a second unsynchronized signal overlap detection field; and
transmitting said generated message frame.

5,212,716
DATA EDGE PHASE SORTING CIRCUITS
Frank D. Ferraiolo, New Windsor, N.Y.; John E. Gersbach, and Ilya I. Novof, both of Burlington, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 5, 1991, Ser. No. 650,516
Int. Cl.[5] H03D 3/24
U.S. Cl. 375—119 20 Claims



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object (M) to be radiographed, whereby said beam (X) is used for imaging an X-ray picture of the radiographed object (M) onto an imaging means, and in which method a grid assembly (**20**) adapted between the radiographed object (M) and the imaging means is used, said grid assembly serving the purpose of canceling the disturbing effect caused by backscattered or secondary radiation generated in the radiographed object (M) from the radiographed image, and further, said grid assembly (**20**) comprising a grid plate (**22**) having several parallel, essentially equidistantly spaced, X-ray opaque lamellas, whereby X-ray radiation can pass through the spaces (**24**) between said



lamellas in the direction of the X-ray beam to act on the imaging means, and in which method the grid plate (**22**) is set in an oscillating motion in the plane of the grid plate (**22**) in a direction (T) perpendicular to the longitudinal direction of the grid lamellas, characterized in that the grid plate is set in a reciprocatingly oscillating motion in a controlled manner in regular cycles (T) of travel with a varying amplitude so that the stops or changes of direction ($K_1 \ldots K_5$) in the oscillating a motion are distributed essentially evenly over the interlamellar spaces of the grid plate (**22**) so as to prevent the grid lamellas (**23**) form becoming imaged onto the imaging means in a disturbing manner.

5,212,720

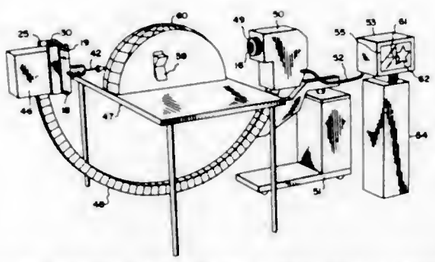
DUAL RADIATION TARGETING SYSTEM

Michael K. Landi, Snyder, and Robert M. Lifeso, East Amherst, both of N.Y., assignors to Research Foundation-State University of N.Y., Buffalo, N.Y.

Filed Jan. 29, 1992, Ser. No. 827,672

Int. Cl.[5] **A61B** *6/08*

U.S. Cl. 378—206 **18 Claims**



11. The method of illumination of a target region on a member embedded in an object which is X-ray transmissive but optically opaque with a beam of light projected along a line of sight through the location of said region, which method comprises the steps of calibrating by locating an identifiable ray of an X-ray beam along a line, aligning said beam of light with said identifiable ray so that said identifiable ray and said light beam are in coaxial relationship along said line along which said identifiable ray is located during said calibrating step, aligning a target which is visible under both visible light and X-ray illumination with said coaxially related ray and light beam to intersect said line, said target aligning said identifiable ray with said target region and said target so that said target region is intersected by said line, and providing illumination along said line with said light beam.

5,212,721

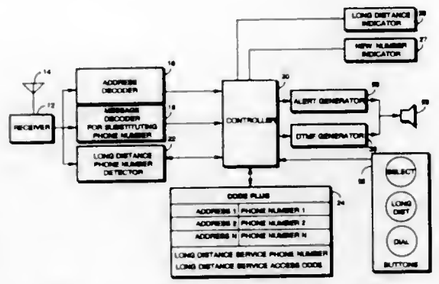
TELEPHONE DIALING PAGING APPARATUS METHOD

Michael J. DeLuca, and Robert D. Lloyd, both of Boca Raton, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 18, 1989, Ser. No. 395,613

Int. Cl.[5] **H04Q** *7/00*

U.S. Cl. 379—57 **18 Claims**



1. A pager for receiving radio frequency (RF) paging signals broadcast from a paging system comprising:

receiving means for receiving the RF paging signals and for demodulating the RF paging signals to recover a message signal, the message signal including a predetermined address;

decoding means for decoding the predetermined address from within the message signal;

memory means for storing a plurality of predetermined telephone numbers;

address-to-telephone number conversion means for selecting a telephone number from the plurality of predetermined telephone numbers in response to the predetermined address; and

signal generating means for converting the selected telephone number into a signal for dialing a telephone.

5,212,722

HANDS-FREE TELEPHONE HAVING A HANDSET VOLUME ATTENUATOR FOR CONTROLLING SPEAKER VOLUME IN A HANDS-FREE ADAPTOR

Yukio Murata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 556,515, Jul. 24, 1990, abandoned. This application Jun. 29, 1992, Ser. No. 905,229

Claims priority, application Japan, Jul. 24, 1989, 1-188812

Int. Cl.[5] **H04M** *11/00*

U.S. Cl. 379—58 **14 Claims**

4. An apparatus having a handset and a hands-free unit, said handset comprising:

transmitter means for transmitting a transmit signal over a radio frequency, said transmitter means being connected to a mouthpiece microphone;

receiver means for receiving and demodulating a radio signal to produce a receive signal; and

volume means for manually changing the level of said receive signal to produce a level-changed receive signal, said volume means being adapted to supply said level-changed receive signal to an earpiece receiver;

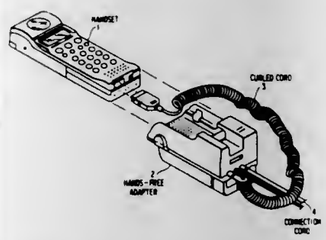
said hands-free unit comprising:

microphone means for transducing an audible signal into said transmit signal;

first attenuator means for attenuating the level of said transmit signal in response to a control signal;

second attenuator means for attenuating the level of said receive signal in response to said control signal;

third attenuator means for attenuating the level of said level-changed receive signal in response to said control signal;



control means for producing said control signal in response to said transmit signal and to the output of said second attenuator means; and

speaker means for transducing the output of said third attenuate means into an audible signal.

5,212,723

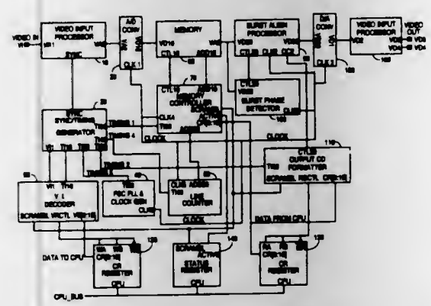
BURST PHASE CORRECTION SYSTEM FOR VIDEO DESCRAMBLING

K. Heinz Griesshaber, Los Gatos, Calif., assignor to Macrovision Corp., Mountain View, Calif.

Filed Aug. 8, 1991, Ser. No. 743,049

Int. Cl.[5] **H04N** *7/167*

U.S. Cl. 380—11 **15 Claims**



7. A method of scrambling and descrambling a color composite video signal comprising the steps of:

recording the video signal;

scrambling the video signal by line rotation of each horizontal line thereof;

determining if the chrominance portion of the composite signal, for each particular horizontal line thereof, has a phase discrepancy relative to a reference oscillator phase-locked to color bursts of the prior horizontal lines;

digitizing the composite video signal;

providing a digital delay line having a programmable length;

programming the length of the delay line to compensate for the determined phase discrepancy;

transmitting the digitized composite video signal through the programmed delay line;

replacing the original horizontal synchronization signal in the particular horizontal line with a time-referenced horizontal synchronization signal; and

descrambling the video signal.

5,212,724

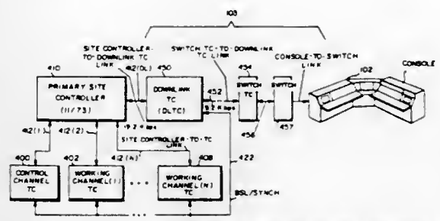
PROCESSOR-TO-PROCESSOR COMMUNICATIONS PROTOCOL FOR A PUBLIC SERVICE TRUNKING SYSTEM

Dimitri M. Nazarenko; Houston H. Hughes, III; Robert T. Gordon; David I. Hattey, and Bruno Yurman, all of Lynchburg, Va., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 666,860, Mar. 8, 1991, abandoned, which is a division of Ser. No. 365,810, Mar. 6, 1989, Pat. No. 5,020,132, which is a division of Ser. No. 85,572, Aug. 14, 1987, Pat. No. 4,835,731. This application Jul. 21, 1992, Ser. No. 915,769

Int. Cl.[5] **H04M** *11/00*

U.S. Cl. 379—58 **4 Claims**



1. A method of communicating digital signals between an RF repeater site controller and a telephone switch over a digital signal switchlink, said method including:

(1) transmitting distinct first and second site controller messages from said site controller over a high-speed data link connecting said site controller to a switchlink trunking card module;

(2) packing said first and second messages into a single message at said switchlink trunking card module;

(3) transmitting said single message from said switchlink trunking card module to a switch trunking card module over a lower speed landline communications link;

(4) unpacking said single message into distinct first and second console messages corresponding to said first and second site controller messages at said switch trunking card module; and

(5) transmitting said first and second console messages to said switch over a further high-speed data link connecting said switch trunking card module to said switch.

5,212,725

TELEPHONE BEING SIGNAL RESPONSIVE FOR EXTENDING AND RETRACTING AN ANTENNA

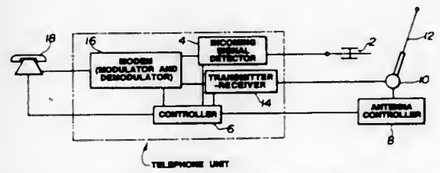
Yasuhiko Yamamoto, Hadano, Japan, and Seiichi Tojo, Novi, Mich., assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jul. 25, 1991, Ser. No. 735,019

Claims priority, application Japan, Jul. 31, 1990, 2-80661

Int. Cl.[5] **H04M** *11/00;* **H01Q** *1/24, 1/10;* **H04B** *1/06*

U.S. Cl. 379—58 **12 Claims**



1. In a telephone apparatus for a vehicle, by which a telephone communication is carried out through a main antenna, said telephone apparatus including a sub-antenna receiving an incoming call wave, the improvement comprising:

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a detector detecting an incoming call signal from the incoming call wave; and

a controller outputting to an antenna controller of the main antenna a command for extending the main antenna in response to detection of the incoming call signal by said detector.

5,212,726

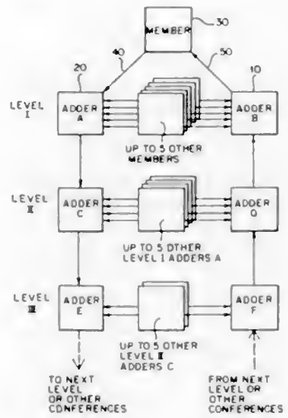
METHOD OF COMBINING SIGNALS IN A TELEPHONE CONFERENCE CIRCUIT

David Dayner, Novato; Ginny Lacker, Petaluma; Paul Hirsohn, Berkeley; Karen Bell, Rohnert Park; Darryl Paffenroth, Tiburon; Allen Jackson, Penngrove, and David Hochman, Nicasio, all of Calif., assignors to Harris Corporation, Melbourne, Fla.

Filed Apr. 18, 1991, Ser. No. 687,109

Int. Cl.[5] H04M *3/42, 1/00;* **H04Q** *11/04*

U.S. Cl. 379—202 **9 Claims**



2. A method of establishing a telephone conference among plural members comprising the steps of:

a. forming at least one group of up to a predetermined number of members;

b. providing an adder A for each said group for combining signals from the members of each said group;

c. providing an adder B for each member of each said group for combining the signals from each other member of the said group so that each member does not receive its own signal;

and in the event there is more than one said group,

d. connecting said adder A from a predetermined number of said groups to an adder C for combining the signals from said adders A;

e. providing an adder D for each said adder B for combining the signals from said adders A so that each said adder B does not receive its own signal.

5,212,727

QUEUING TRIGGER IN CALL PROCESSING

Vasant C. Ramkumar, Freehold, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Sep. 26, 1990, Ser. No. 589,724

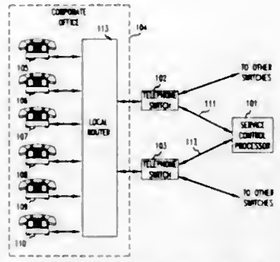
Int. Cl.[5] H04M *7/00, 11/00, 15/00, 3/00*

U.S. Cl. 379—221 **3 Claims**

1. In a telecommunications system including a plurality of switches for routing incoming calls, at least one Service Control Processor (SCP) for communicating with the switches, and a plurality of telecommunications equipment coupled to the switches, the SCP including stored availability information relating to the telecommunications equipment, a method of operating the telecommunications system comprising the steps of:

sending a query to the SCP when any of the switches receives an incoming call which is a result of predetermined numbers being dialed; and

routing the call to said telecommunications equipment or



queuing said call for later routing, as a function of said stored availability information;

wherein said SCP is implemented in a standalone hardware arrangement different from the switches; and

wherein said SCP includes means for sequentially polling said switches and for receiving messages and queries therefrom.

5,212,728

DYNAMIC TRACE ELEMENTS

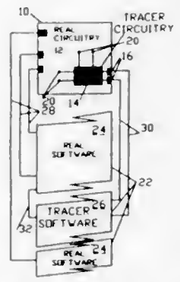
Thomas E. Glover, Ajax, and Derek K. W. Smith, Toronto, both of Canada, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 26, 1991, Ser. No. 766,607

Claims priority, application Canada, Oct. 5, 1990, 2026998

Int. Cl.[5] H04L *9/00*

U.S. Cl. 380—4 **10 Claims**



1. A dynamic hardware tracer for use in first integrated circuit which is comprised of a first circuit for generating at least one signal which is indicative of performing a predetermined function, the hardware tracer comprising:

a second circuit which performs a function independent of said first circuit and does not interact with said first circuit to modify said predetermined function of said first integrated circuit;

means for receiving and processing at least one input signal from said first circuit; and

means for producing at least one detectable output signal from the processed signal on at least one one detectable output terminal wherein said output signal does not interact with the first circuit to modify the predetermined function of the first integrated circuit, whereby said dynamic hardware tracer, by its presence in at least one other integrated circuit, provides an indication that said other integrated circuit has been copied from said first integrated circuit.

5,212,729

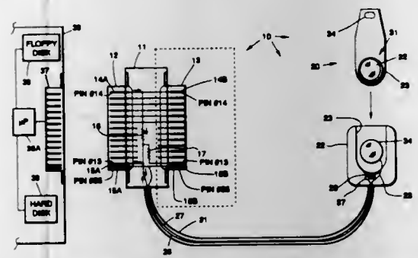
COMPUTER DATA SECURITY DEVICE AND METHOD

Randy J. Schafer, 22 Colonial, Irvine, Calif. 92720

Filed Jan. 22, 1992, Ser. No. 823,994

Int. Cl.[5] H04L *9/00*

U.S. Cl. 380—4 **15 Claims**



1. A computer data security device for use with a computer, said device comprising:

a key device comprising an integrated circuit having output and ground conductors, and wherein the key device is adapted to output a predetermined stored code when it is energized;

a key connector having first and second electrical conductors adapted to contact the respective output and ground conductors of the key device, respectively;

connector means for connecting between a predetermined port of the computer and the key connector, the connector means having a bidirectional data conductor and a ground conductor; and

a first conductor coupled between the bidirectional data conductor in the connector means and the first conductor of the key connector, and a second conductor coupled between the ground conductor of the connector means and the second conductor of the key connector;

and wherein placing the key device into the key connector such that respective electrical conductors thereof come in contact energizes the key device which outputs the predetermined stored code to a computer coupled to the connector means.

5,212,730

VOICE RECOGNITION OF PROPER NAMES USING TEXT-DERIVED RECOGNITION MODELS

Barbara J. Wheatley, and Joseph W. Picone, both of Plano, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jul. 1, 1991, Ser. No. 724,299

Int. Cl.[5] G10L *5/06, 5/00, 5/02*

U.S. Cl. 381—43 **16 Claims**

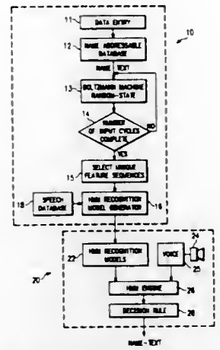
1. A method of proper name recognition using text-derived recognition models to recognize spoken rendition of name-texts (i.e., names in textual form) that are susceptible to multiple pronunciations, where spoken name input (i.e., spoken rendition of a name-text) is from a person who does not necessarily know how to properly pronounce the name-text, comprising the steps:

entering name-text into a text database in which the database is accessed by designating name-text;

for each name-text in the text database, constructing a selected number of text-derived recognition models from the name-text, each text-derived recognition model representing at least one pronunciation of the name;

for each attempted access to the text database by a spoken name input, comparing the spoken name input with the text-derived recognition models; and

if such comparision yields a sufficiently close pattern match



to one of the text-derived recognition models based on a decision rule, providing a name recognition response designating the name-text associated with such text-derived recognition model.

5,212,731

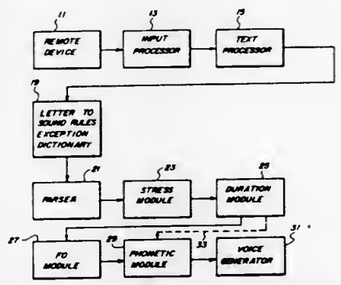
APPARATUS FOR PROVIDING SENTENCE-FINAL ACCENTS IN SYNTHESIZED AMERICAN ENGLISH SPEECH

Beatrix Zimmermann, Goleta, Calif., assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Sep. 17, 1990, Ser. No. 584,530

Int. Cl.[5] G10L *5/00*

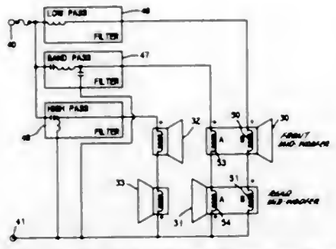
U.S. Cl. 381—52 **23 Claims**



1. In a phoneme-based test-to-speech synthetic voice system having means for generating spoke sentences composed of a plurality of syllables, wherein some of said syllables are stressed, and wherein some of said syllables precede periods of silence, having means for determining whether each of the sentences is declarative, exclamatory, or a question, and having a pitch module for determining FO values representative of pitch for assigning to selected portions of selected phonemes of stressed syllables, the improvement in said pitch module of said system comprising: means for determining whether a question sentence is a "yes/no" question or a "WH" question; and means for determining appropriate FO values for assigning to the selected phonemes of a last stressed syllable before a period of silence at an end of a sentence, with different FO values being determined and assigned depending upon whether the sentence is declarative, exclamatory, a "yes/no" question, or a WH question.

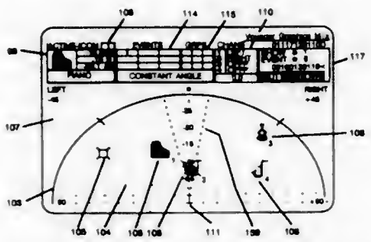
VOL 1150 ISS 3 MAY 18 1993 UMI

5,212,732
EFFECTS SPEAKER SYSTEM
Jeffrey L. Hipps, Whittier, and Stephen R. Stokes, Montebello, both of Calif., assignors to Lancer Electronics, Santa Fe Springs, Calif.
Filed Mar. 5, 1992, Ser. No. 848,672
Int. Cl.[5] H04R *1/02*
U.S. Cl. 381—89 15 Claims



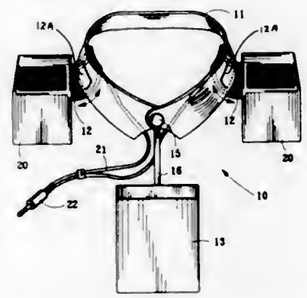
1. A speaker system, such as for use in "surround" sound and other applications, comprising
a speaker enclosure having first and second baffles generally intended to serve as respective front and rear baffles to be directed at and away from a viewing screen, the baffles each being adapted to have a loudspeaker mounted in an opening thereof,
first and second dual voice coil speakers for providing mid-frequency and low frequency response, a first voice coil of each speaker being connected in an in-phase circuit and the second voice coil of each speaker being connected in an out-of-phase circuit,
a low pass filter connected with the in-phase circuit to supply low frequency signals to the first voice coils,
a bandpass filter connected to the out-of-phase circuit to provide mid-range frequency signals to the second voice coils,
a pair of high frequency speakers respectively mounted to the first and second baffles and having voice coils connected together out-of-phase, and
a high pass filter connected to the voice coils of the high frequency speakers.

5,212,733
SOUND MIXING DEVICE
Douglas J. DeVitt, Weston, and Kristoph D. Krug, Framingham, both of Mass., assignors to Voyager Sound, Inc., Weston, Mass.
Filed Feb. 28, 1990, Ser. No. 486,151
Int. Cl.[5] H04B *1/00*
U.S. Cl. 381—119 53 Claims



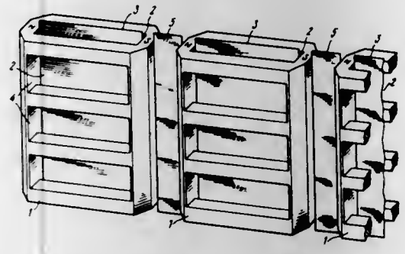
1. An apparatus for controlling multiple parameters effecting an audio mix output, said apparatus comprising
a controller including a visual display for displaying a visual representation of an input sound signal in a multidimensional space and generating a multiple parameter control signal controlling multiple parameters effecting said audio mix output, each dimension of said multidimensional space separately controlling a mixing parameter or mixing parameters, said control signal being based upon the state of said representation in said multidimensional space, at least two said dimensions being the location of said representation on said visual display, a change in location of said representation on said display causing a change in two or more said mixing parameters,
an input device connected to said controller to control the state of said representation in said multidimensional space so as to affect said audio mix output, and
a sound signal processing circuit having a sound signal input for receiving a sound input signal, a sound signal output for providing a sound output signal, and a control signal input for receiving said multiple parameter control signal, said circuit modifying said sound input signal based upon said multiple parameter control signal to provide said sound output signal,
wherein said multidimensional space represents a multiple channel output mix environment, said multiple parameters include gains associated with each said output, and said sound signal processing circuit provides a plurality of output signals,
wherein said visual representation is displayed with respect to a listener origin, and the location of said representation is characterized on said display in polar coordinates including a radius component and an angular displacement component.

5,212,734
SHOULDER-MOUNT SPEAKER AND AUDIO EQUIPMENT
Ye-Ming Tsao, 6F-4, No. 188, Sec. 3, Ting-Chou Road, Taipei, Taiwan
Filed Jan. 23, 1992, Ser. No. 824,387
Int. Cl.[5] H04R *5/00, 25/00;* H04B *1/38*
U.S. Cl. 381—188 1 Claim



1. A shoulder-mount speaker and audio equipment, comprising:
a soft collar member for putting around user's neck, having two first female velcro pieces separately fixed to inner surface of said soft collar member at positions corresponding to user's shoulders, and a fastening means provided at two ends of said soft collar member so that said soft collar member may be securely circled on user's neck;
a retaining bag hanging below said fastening means of said soft collar member and being connected to the same with an downward extending strip member so as to accommodate a thin, light, and small radio cassette player therein;
two speaker cabinets each being generally n-shaped in profile with suitably formed curvy underside surface so that it may be comfortably mounted onto user's shoulder and attach to shoulder's fossasae, and being designed to have a hollow inner portion at a location corresponding to user's shoulder so that speakers may be accommodated therein and the exit of sound is toward the user's ears; said speaker cabinets each being equipped with necessary wires and a second female velcro piece; and
a male velcro strap which may firmly attach to said first and said second female velcro pieces and thereby facilitates adjustable connection of said speaker cabinets to said soft collar member.

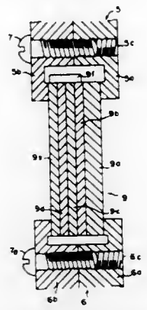
5,212,735
WIDE-RIBBON LOUDSPEAKER
Alexei F. Kasatkin, ulitsa Pravdy, 7/9, kv, 42, and Ilya A. Feldman, ulitsa Ostrovityanova, 28, korpus 1, kv. 81, both of Moscow, U.S.S.R.
PCT No. PCT/SU90/00076, § 371 Date Jun. 4, 1991, § 102(e) Date Jun. 4, 1991
PCT Filed Mar. 28, 1990, Ser. No. 687,906
Claims priority, application U.S.S.R., Sep. 1, 1989, 4737896
Int. Cl.[5] H04R *25/00*
U.S. Cl. 381—199 21 Claims



1. A wide-ribbon loudspeaker, comprising:
a sound ribbon made of an electrically conductive material and having a first and a second planar surface,
a first single hollow permanent magnet having a magnetic axis, side walls, an internal chamber defined by said side walls, and sound apertures, said sound apertures being formed in a first and a second side wall of said side walls and opening into said internal chamber;
said sound ribbon being positioned within said internal chamber and extending in a plane parallel to the magnetic axis, the first planar surface of said sound ribbon being juxtaposed to said first side wall and the second planar surface of said sound ribbon being juxtaposed to said second side wall.

5,212,736
RIBBON SPEAKER
Tsunehiro Tsukagoshi, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed Jul. 31, 1991, Ser. No. 738,650
Claims priority, application Japan, Aug. 8, 1990, 2-211390; Sep. 28, 1990, 2-259891
Int. Cl.[5] H04R *25/00*
U.S. Cl. 381—203 4 Claims

1. A ribbon speaker having a vibrating diaphragm disposed in a magnetic gap, comprising:
the vibrating diaphragm comprising first and second organic films superimposed on each other, and first and second metal films overlaid on said first and second organic films, respectively,
the first organic film having a given polarization and the second organic film having a larger polarization than that of said first organic film, the first and second metal films being different in work function;



a third metal film electrically connecting the first and second metal films; and
means for supplying current to the vibrating diaphragm.

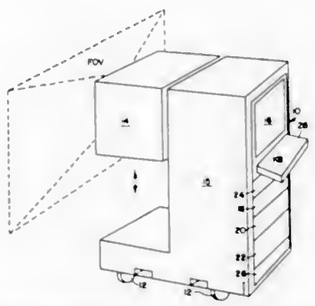
5,212,737
REAL TIME DATA AVERAGER FOR USE IN COMPUTED TOMOGRAPHY SCANNING
Sholom M. Ackelsberg, San Francisco, Calif., assignor to Imatron, Inc., So. San Francisco, Calif.
Filed Sep. 30, 1991, Ser. No. 767,505
Int. Cl.[5] G06K *9/00*
U.S. Cl. 382—6 9 Claims

1. In a computed tomography X-ray system, a method for providing real time analysis of data provided when X-rays generated by a system scan at least partially penetrate a subject and are detected by a detector array within the system, where data from N scans are to be averaged, the method comprising:
(A) providing first and second memory banks, each bank capable of storing data representing one system scan; each bank having an input and an output;
(B) providing means for adding;
said means having a first input in data communication with data from the detector array, a second input in data communication with said output of said first memory bank, and a third input in data communication and with said output of said second memory bank;
said means further having a first output coupled to said input of said first memory bank, a second output coupled to said input of said second memory bank, and a third output;
(C) coupling a means for dividing by N to said third output

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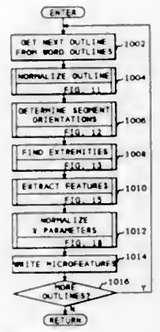
of said means for adding, said means for dividing providing an output representing a division by N of its input data;
(D) providing synchronization means for synchronizing data flow to and from said means for adding, said memory banks, said means for dividing by N, and for coordinating data flow therebetween;
(E) for a first system scan, communicating data from the detector array corresponding to said first scan to said first input of said means for adding and essentially simultaneously writing said data into said first memory bank;
(F) for subsequent system scans 2 through N−1, communicating data from the output of whichever of said first and second data banks was last written into an input of said means for adding essentially simultaneously with data communicated from the detector array corresponding to said system scan number 2 through N−1 to another input of said means for adding;
(G) writing, into whichever of said memory banks was not last written to, essentially simultaneously the summation of said inputs present at scans 2 through N−1 from an output of said means for adding;
(H) for system scan N, communicating data from the output of whichever of said first and second data banks was last written into an input of said means for adding essentially simultaneously with data communicated from the detector array corresponding to said system scan number N to another input of said means for adding;
(I) providing a summation made by said means for adding at scan N to said third output of said means for adding;
wherein the output of said means for dividing by N represents a substantially real-time average of data representing system scans 1 through N inclusive, and wherein the quantity of data representing system scans 1 through N to be subsequently stored or further processed is reduced by a factor of N.

5,212,738
SCANNING LASER MEASUREMENT SYSTEM
Alhad M. Chande, Columbia, and Arthur Acampora, Jr., Abingdon, both of Md., assignors to Martin Marietta Magnesia Specialties Inc., Hunt Valley, Md.
Filed Apr. 12, 1991, Ser. No. 684,092
Int. Cl.[5] G06K 9/00
U.S. Cl. 382—8 **20 Claims**



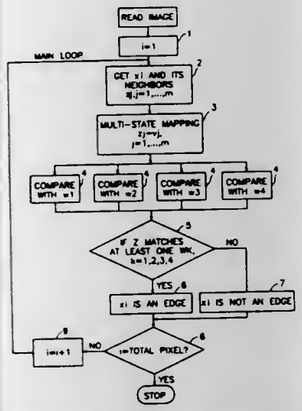
1. A thickness measurement system comprising:
means for imaging an object, wherein the imaging means generates a plurality of data values representing distances from the imaging means to respective points on the object; and
means for processing the data values generated by the imaging means, wherein the processing means comprises:
means for protruding a measured 2½-D model of a surface of the object, comprising means for making a first object origin congruent with a second object origin, the first object origin being determined by first data points collected by the imaging means from a first position relative to the object, the second object origin being determined by second data points collected by the imaging means from a second position relative to the object, whereby data values collected by the imaging means from the first position may be combined with data values collected by the imaging means from the second position to produce the measured 2½-D model;
means for entering a predetermined 2½-D mathematical model of the object; and
first comparing means for comparing the measured 2½-D model to the predetermined 2½-D model to determine the object's thickness.

5,212,739
NOISE TOLERANT OPTICAL CHARACTER RECOGNITION SYSTEM
Dan S. Johnson, Greeley, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Continuation of Ser. No. 599,522, Oct. 17, 1990, abandoned.
This application Apr. 24, 1992, Ser. No. 875,000
Int. Cl.[5] G06K 9/00
U.S. Cl. 382—9 **13 Claims**



1. A system for optical character recognition comprising:
means for converting a page having plurality of text printed thereon into a graphical image containing a plurality of pixel elements representative of said text;
means for separating said graphical image into a plurality of word images;
means for scanning said word images and for producing a plurality of micro-features for each of said word images comprising
means for separating said word images into a plurality of outlines each defined by a boundary between pixels of different intensity within said word images,
means for locating all extremities of each of said outlines, comprising
means for combining each pair of adjacent edge points of said outlines into a plurality of segments,
means for computing a directional orientation for each of said segments,
means for combining adjacent segments having the same directional orientation into a plurality of sections, and
means for defining zero or more points in each of said sections as an extremity, and
means for producing a single micro-feature between each pair of said extremities, said micro-feature being terminated at each of said pair of extremities; and
means for converting said micro-features into a set of coded characters equivalent to said word.

5,212,740
EDGE DETECTION METHOD AND APPARATUS FOR AN IMAGE PROCESSING SYSTEM
Jun-gi Paek, Seoul; Yong-cheol Park, Wanaaa, and Chan-kyu Myeong, Nam, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea
Filed Apr. 2, 1991, Ser. No. 679,205
Claims priority, application Rep. of Korea, Mar. 28, 1991, 91-4871
Int. Cl.[5] G06K 9/48
U.S. Cl. 382—22 **11 Claims**



1. An edge detection method comprising:
a converting step comprising steps for obtaining a mean value M_i of pixel data Z_i in an n×n window and converting said pixel data in said n×n window into tri-state values V_j using said mean value M_i and a predetermined threshold value e

$$V_j = \begin{cases} -1 & Z_j < M_i - e \\ 0 & M_i - e < Z_j < M_i + e \\ 1 & Z_j > M_i + e \end{cases}$$

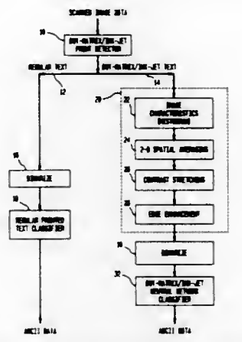
for j=1, 2 . . . , r;
a comparing step for comparing V_j, which is said pixel data represented in tri-state values, with four pre-specified edge patterns W_1, W_2, W_3 and W_4, where

$$W_1 = [-1\ 0\ 1\ -1\ 0\ 1\ -1\ 0\ 1]^T$$
$$W_2 = [-1\ -1\ -1\ 0\ 0\ 0\ 1\ 1\ 1]^T$$
$$W_3 = [-1\ -1\ 0\ -1\ 0\ 1\ 0\ 1\ 1]^T$$
$$W_4 = [0\ -1\ -1\ 1\ 0\ -1\ 1\ 1\ 0]^T$$

where the superscript T represents the transpose of the matrix; and
decision steps for determining said pixel data to be an edge if V_j is equal to any one of said four pre-specified edge patterns, and otherwise not to be an edge.

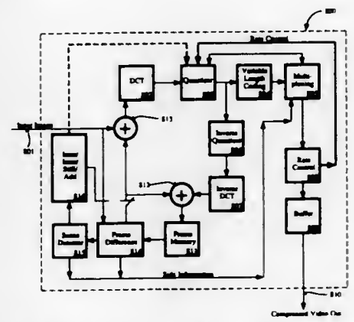
5,212,741
PREPROCESSING OF DOT-MATRIX/INK-JET PRINTED TEXT FOR OPTICAL CHARACTER RECOGNITION
Lori L. Barski, and Roger S. Gaborski, both of Pittsford, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 21, 1992, Ser. No. 822,818
Int. Cl.[5] G06K 9/38
U.S. Cl. 382—51 **12 Claims**

1. A method of processing image data of dot-matrix-ink-jet printed text for Optical Character Recognition (OCR) comprising the steps of:
(a) determining the image characteristics of the dot-matrix-/ink-jet image data by forming a histogram of density values of pixels of the image data;
(b) reducing a dynamic range of the image data by altering the structure of characters in the image data from that of



dots to one of strokes using a 2-D spatial averaging operation;
(c) performing a contrast stretching operation on the altered structure of the characters produced in step (b);
(d) performing edge enhancement of the characters of the image data produced in step (c); and
(e) binarizing the edge enhanced image data of step (d).

5,212,742
METHOD AND APPARATUS FOR ENCODING/DECODING IMAGE DATA
James O. Normile, Sunnyvale; Chia L. Yeh, Saratoga; Daniel W. Wright, Sunnyvale, and Ke-Chiang Chu, Saratoga, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
Filed May 24, 1991, Ser. No. 705,284
Int. Cl.[5] G06K 9/00
U.S. Cl. 382—56 **16 Claims**



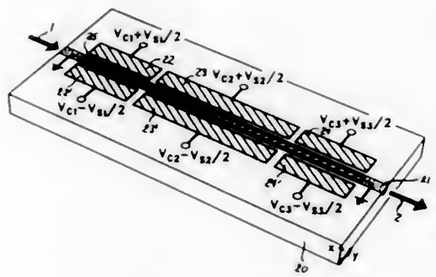
1. A method in a video display system of partitioning an image for processing by N processing units coupled in parallel to an input means for receiving said image, said image of dimensions of H rows and W columns, comprising the following steps:
a. initializing an index variable i;
b. assigning an ith horizontal region of said image in the input means to an ith processing unit, said ith region starting at a ith starting position and ending at the ith starting position offset by a partition length value of H/N, said ith

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region comprising W columns, and H/N and an overlap number of complete rows, said overlap number of rows being shared with a next processor, and

c. incrementing said index variable i and repeating step b if said index variable i is less than N.

5,212,743
AUTOMATIC POLARIZATION CONTROLLER HAVING BROADBAND, RESET-FREE OPERATION
Fred L. Heismann, Freehold, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Feb. 12, 1992, Ser. No. 836,045
Int. Cl.[5] G02B *6/12, 5/30*
U.S. Cl. 385—11 **32 Claims**



1. A polarization transformer for controlling polarization and phase of an optical signal propagating in a waveguide having an electrooptically induced birefringence at a desired wavelength of operation, the polarization transformer comprising,

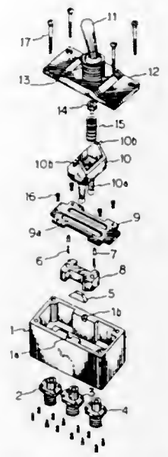
first means for varying the orientation of linear birefringence of the waveguide and for introducing a first predetermined phase retardation between orthogonal first and second polarization states of the optical signal wherein the first predetermined phase retardation is substantially equal to $\pi/2$ radians when at least one the polarization states is substantially parallel to at least one of the principal axes of the linear birefringence,

second means coupled to the waveguide at an output of the first means for varying the orientation of linear birefringence of the waveguide and for introducing a second predetermined phase retardation between orthogonal first and second polarization states of the optical signal wherein the second predetermined phase retardation is substantially equal to π radians when at least one the polarization states is substantially parallel to at least one of the principal axes of the linear birefringence, and

third means coupled to the waveguide at an output of the second means for varying the orientation of linear birefringence of the waveguide and for introducing a third predetermined phase retardation between orthogonal first and second polarization states of the optical signal wherein the third predetermined phase retardation is substantially equal to $\pi/2$ radians when at least one of the polarization states is substantially parallel to at least one of the principal axes of the linear birefringence,

wherein an angular difference ϵ exists between the orientation of linear birefringence for the first means and the orientation of linear birefringence for the third means and $0 \leqq \epsilon \leqq 2\pi$.

5,212,744
COMPACT OPTICAL SWITCH
Kazumitsu Ohnuki, Tokyo, Japan, assignor to Nihon Kaiheiki Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 7, 1991, Ser. No. 772,678
Claims priority, application Japan, Oct. 9, 1990, 2-106033[U]
Int. Cl.[5] G02B *6/36*
U.S. Cl. 385—16 **9 Claims**



1. A compact optical switching comprising:

a housing;

a lid for the housing;

a control knob provided on an obverse surface of the lid;

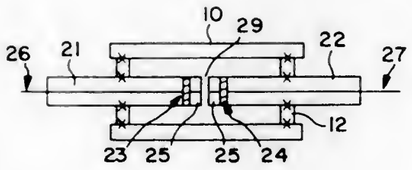
a switching member linearly reciprocable right and left in the housing;

a substantially trapezoidal prism disposed on an undersurface of the switching member; and

a plurality of optical receptacles provided on the bottom of the housing;

wherein when the control knob is actuated, the prism linearly reciprocates on the optical receptacles to change an optical path.

5,212,745
FIXED AND TEMPERATURE TUNED FIBER FABRY-PEROT FILTERS
Calvin M. Miller, Atlanta, Ga., assignor to Micron Optics, Inc., Atlanta, Ga.
Filed Dec. 2, 1991, Ser. No. 801,450
Int. Cl.[5] G02B *6/26*
U.S. Cl. 385—25 **62 Claims**



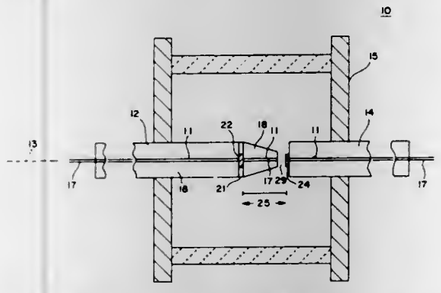
1. A temperature tunable fiber optic Fabry-Perot etalon filter (FFP) which comprises:

a. a fiber ferrule assembly through which an optical fiber extends and which has a resonance cavity along a length of said optical fiber, said assembly comprising a first and a second ferrule each of which has a substantially axial bore therethrough in which a portion of an optical fiber is positioned, and a first and a second mirror positioned to intercept said optical fiber and thereby form said resonance cavity, said mirrors located in parallel planes with respect to one another, said planes substantially normal to the axis of said length of optical fiber;

b. alignment means for aligning and holding said ferrules in fixed relative axial relation to one another such that an optical signal can be transmitted through the optical fiber of said assembly; and wherein said alignments means includes a fixture means for holding said ferrules in rigid axial alignment, said fixture means for expanding and contracting symmetrically with changing temperature such that the alignment of said ferrules is not substantially changed when the temperature of said fixture is changed; and

c. a thermal means in thermal contact with said alignment means for varying the length of said cavity wherein the length of said resonance cavity is changed by changing the temperature of said filter without substantially changing the alignment of said ferrules.

5,212,746
SINGLE WAFERED FERRULE FIBER FABRY-PEROT FILTERS
Calvin M. Miller, Atlanta, and Jeffrey W. Miller, Symrna, both of Ga., assignors to Micron Optics, Inc., Atlanta, Ga.
Continuation-in-part of Ser. No. 801,450, Dec. 2, 1991. This application Jan. 15, 1992, Ser. No. 821,484
Int. Cl.[5] G02B *6/26*
U.S. Cl. 385—25 **40 Claims**

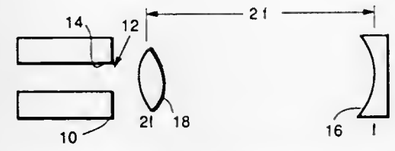


1. A fiber Fabry-Perot filter (FFP) having:

a. a fiber ferrule assembly through which an optical fiber extends and which has an optical resonance cavity along a length of said optical fiber, said assembly comprising a first and a second ferrule each of which has a substantially axial bore therethrough in which a portion of said optical fiber is positioned, and a first and a second mirror positioned to interrupt said optical fiber and thereby form said resonance cavity, said mirrors located in parallel planes with respect to one another, said planes substantially normal to the axis of said length of optical fiber, said first ferrule is a wafered ferrule comprised of a wafer with a first end and a second end, said first end bonded to said first ferrule to form a wafer portion of said wafered ferrule, said first mirror embedded between said first ferrule and said first end of said wafer, said wafer portion thereby residing within said resonance cavity, said second ferrule is a mirrored-end ferrule having no wafer bonded thereto but having said second mirror deposited on an end thereof, said cavity containing a gap located directly between said second mirror and said second end of said wafer, and

b. means for holding said ferrules in an aligned relative axial relation to one another such that an optical signal can be transmitted through the optical fiber of said assembly.

5,212,747
ZERO LOSS WAVEGUIDE COUPLER
David Fink, Los Angeles, Cal[i]f., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Filed Apr. 21, 1992, Ser. No. 871,886
Int. Cl.[5] G02B *6/32*
U.S. Cl. 385—33 **29 Claims**



28. A coupler for coupling a radiation beam emitted from the exit of a first waveguide to an entrance of a second waveguide whereby the irradiance distribution of the beam reentering the waveguide is a substantial reproduction of the irradiance distribution of the beam exiting the waveguide, the first waveguide having an opening size that is different than the opening size of the second waveguide, said coupler comprising:

an imaging lens disposed within the beam for imaging the exit of the first waveguide onto the entrance of the second waveguide, said imaging lens having a focal length of f and a magnification factor of M associated therewith, said imaging lens further adding a spherical phase curvature to the image of the exit;

a phase compensating lens disposed adjacent to the entrance of the second waveguide, said phase compensating lens having a focal length of Mf, said phase compensating lens compensating for the spherical phase curvature added to the image of said exit by said imaging lens; and

said imaging lens being disposed at a distance of $(1+1/M)f$ away from the exit of the first waveguide and said compensating lens being disposed at a distance of $(M+1)f$ away from said imaging lens and adjacent to the entrance of saidsecond waveguide.

5,212,748
FIBER OPTIC MIXER AND SPECTROMETER
Lawrence E. Curtiss, P.O. Box 177, Concord, Mass. 01742, and Richard D. Driver, 67 Pleasant St., Cambridge, Mass. 02139
Filed Jul. 11, 1990, Ser. No. 551,554
Int. Cl.[5] G02B *6/26;* **G01B** *9/02;* **H01J** *5/16*
U.S. Cl. 385—32 **19 Claims**

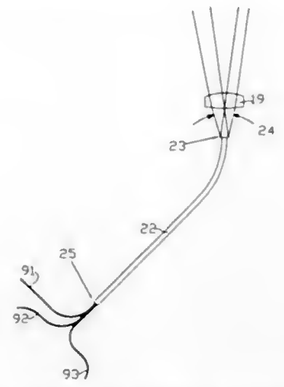
4. In an FT-IR spectrometer having a radiation source, an interferometer and a plurality of optical circuits that is optically coupled to an optical switch that in turn is optically coupled to a detector, the improvement comprising:

an optical fiber mixer having a curved input end portion and a straight output end portion such that any ray entering the input end portion of the optical fiber will have at least one reflection within the optical fiber before exiting from the output end portion of the optical fiber;

a plurality of optical fibers optically coupled to the output end portion of the optical fiber of said mixer with each of

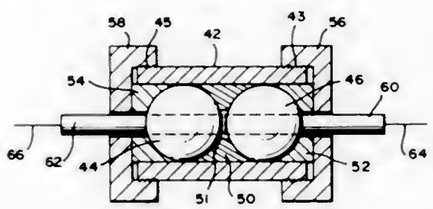
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said plurality of optical fibers having a core diameter less than the core diameter of the optical fiber of said mixer and said plurality of optical fibers being optically coupled to the corresponding plurality of optical circuits; and,



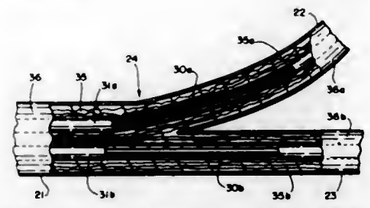
means for concentrating the radiation from the interferometer on the input end of said fioer optic mixer.

5,212,749
OPTICAL FIBER MOUNT
Raymood W. Huggins, Mercer Island, and Omer C. Helfer, Black Diamond, both of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 17, 1991, Ser. No. 808,630
Int. Cl.[5] G02B 7/26
U.S. Cl. 385—62 6 Claims



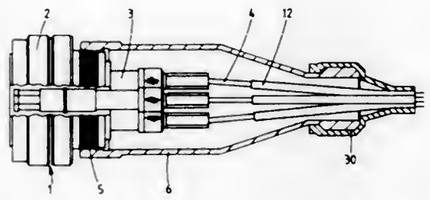
1. An optical fiber mounting device comprising:
a housing having a cylindrical portion at one end with external threads formed thereon and having a spherical cavity therein and an outlet opening in the bottom of said cavity;
a spherical fiber mounting member assembled in the spherical cavity in said housing and having a diametral hole therethrough for receiving an optical fiber in alignment with the outlet opening in the bottom of the spherical cavity in said housing; and
clamping means for releasably clamping said fiber mounting means in the spherical cavity in said housing, said clamping means having internal threads at one end for engaging the external threads on said housing whereby said clamping means engages the spherical fiber mounting means when said clamping means is threaded onto said housing.

5,212,750
FIBER OPTIC HARNESS HAVING REDUCED WEIGHT AND BULK, AND METHOD
James R. Wright, Chenango County, N.Y., assignor to Simmonds Precision Engine System, Inc., Akron, Ohio
Filed Jun. 12, 1992, Ser. No. 897,649
Int. Cl.[5] G02B 6/00, 6/36
U.S. Cl. 385—69 24 Claims



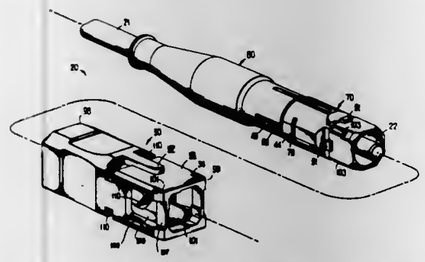
1. A fiber optic harness assembly having at least first, second and third branches meeting at an intersection and comprising a plurality of optical fibers at least two of which are routed commonly along said first branch and respectively along said second and third branches; tubular protective buffers respectively surrounding said optical fibers; plural strength elements extending parallel to said optical fibers along said first branch and being divided at said intersection into separate portions for extension respectively along said second and third branches; and an outer protective sheath surrounding and holding together in contiguous relationship said protective buffers and strength members in each said branch.

5,212,751
SCREENING ARRANGEMENT FOR CONNECTORS
Nicholas E. Brownjohn, Droitwich, England, assignor to Lucas Industries public limited company, England
Filed Jan. 24, 1992, Ser. No. 825,207
Claims priority, application United Kingdom, Jan. 30, 1991, 9102006
Int. Cl.[5] G02B 6/36
U.S. Cl. 385—75 15 Claims



13. A screening arrangement for a connector having a front end for mating with a mating connector, a rear end, and a pole for receiving an optical fibre entering the connector through the rear end, said screening arrangement comprising an electrically conductive housing arranged to be attached to the rear end of the connector, and an electrically conductive sleeve for passage of the optical fibre, said electrically conductive sleeve being electrically connected to said electrically conductive housing and forming an electromagnetic waveguide attenuator, said electrically conductive housing being substantially closed about said electrically conductive sleeve said electrically conductive housing comprising a metal shell of circular cross-section having first and second ends, said first end being provided with a screw thread for attachment to the connector, and said screening arrangement comprising a flexible boot extending from said second end of said metal shell and defining an aperture for passage of said electrically conductive sleeve, said flexible boot having an internal electrically conductive surface for electrically connecting said electrically conductive sleeve to said metal shell.

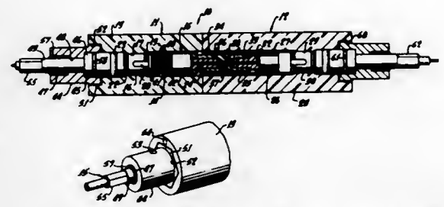
5,212,752
OPTICAL FIBER FERRULE CONNECTOR HAVING ENHANCED PROVISIONS FOR TUNING
Daniel L. Stephenson, Norcross; Naif T. Subh, Lawrenceville, and Ruben Travieso, Alpharetta, all of Ga., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed May 27, 1992, Ser. No. 889,203
Int. Cl.[5] G02B 6/26, 6/38
U.S. Cl. 385—78 25 Claims



1. An optical fiber connector, said connector comprising:
a ferrule assembly including a ferrule portion having a passageway for an optical fiber, and a barrel;
a plug frame in which is disposed said ferrule assembly, said barrel of said ferrule assembly projecting toward a latching end portion of said plug frame and said ferrule projecting toward an opposite end portion of said plug frame, said opposite end portion of said plug frame being symmetrical with respect to a cross section of said plug frame which is normal to a longitudinal axis of said connector;
spring means disposed about said portion of said ferrule assembly which projects toward said latching end portion of said plug frame;
a cable retention member which is assembled to said plug frame and which includes a pocket for said spring means and said barrel, said cable retention member including outwardly projecting tabs each of which is received in a slot in said latching end portion of said plug frame to secure said cable retention member to said plug frame, said cable retention means being effective to preload said spring means, and
a housing in which said plug frame is disposed and which has a longitudinal axis, said plug frame capable of being assembled to said housing in any one of a plurality of rotational orientations with respect to the longitudinal axis of said connector.

5,212,753
POLARIZATION PRESERVING FIBER OPTIC TERMINUS
Jack J. Maranto, Capistrano Beach, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Filed Feb. 25, 1992, Ser. No. 841,123
Int. Cl.[5] G02B 6/26
U.S. Cl. 385—80 12 Claims

1. The method of achieving predetermined polarization of an optical fiber comprising the steps of
positioning a polarization preserving optical fiber in an optical fiber terminus,
associating with said optical fiber terminus a member such that said terminus is rotatable relative to said member,
forming an opening in a body,
positioning said optical fiber terminus in said opening,
locating said member in a predetermined rotational position relative to said body,
then rotating said optical fiber terminus relative to said member and to said body to a rotational position in which said optical fiber has predetermined polarization, and
then rotationally locking said member to said optical fiber



terminus, whereby said optical fiber terminus and said member can be removed from said body and said optical fiber can be given a predetermined polarization by locating said member in a predetermined rotational position.

5,212,754
OPTICAL LASER CONNECTOR
Nagesh R. Basavanhally, Trenton, N.J.; D. Bruce Buchholz, Woodridge, Ill.; Anthony F. J. Levi, Summit, N.J., and Ronald A. Nordin, Naperville, Ill., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Dec. 27, 1991, Ser. No. 815,296
Int. Cl.[5] G02B 6/36
U.S. Cl. 385—90 7 Claims

6. Apparatus for connecting an optical cable with a plug-in type of circuit board via laser devices mounted in the connecting apparatus wherein said connecting apparatus comprises
a receptacle having a pair of silicon substrates with parallel channels formed to receive fibers of the optical cable and wherein each substrate is secured to the other with one edge of the combination thereof forming a receptacle planar surface perpendicular to an axis of the receptacle with each end of the fibers aligned and positioned within and parallel to the receptacle planar surface and wherein the receptacle is formed with a pair of aligning pins extended outward from the receptacle planar surface along the receptacle axis;
a plug having a silicon base formed with a pair of rows of connector pads wherein each row is located on an opposing edge with each pad of one row interconnected to a corresponding pad of the other row by an electrical conducting path and mounting a plurality of lasers along one edge with each laser having an electrical terminal affixed to one connector pad with the corresponding pad connected to the circuit board and with each laser having an optical terminal positioned within and parallel to a plug planar surface perpendicular to an axis of the plug and wherein said plug has a silicon cap having a cavity formed for receiving a top portion of the lasers and positioned in alignment with the silicon base to maintain the lasers located in an assembly of the silicon base and cap with the

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laser optical terminals positioned within and parallel to the plug planar surface to correspond with ends of the fibers, a pair of copper plates each placed outside of opposing sides of the plug silicon base and cap assembly for electrically and heat shielding the lasers, and a pair of V configured grooves formed along opposite sides of the plug silicon base and cap assembly at angles corresponding to a crystalline structure of the silicon base and cap assembly for slidable receiving said aligning pins located on the receptacle to align and engage the plug planar surface with the receptacle planar surface thereby optically coupling each fiber with each laser optical terminal;

a pair of clip devices wherein one clip device is positioned over the pair of substrates and wherein the other clip device is positioned over the pair of copper plates and the silicon base and cap assembly for forming the receptacle and plug members; and

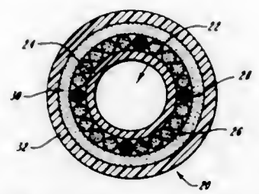
a retaining member affixed to the plug clip device and a pair of retaining screws affixed to the receptacle for engaging the retaining member for securing the receptacle to the plug.

5,212,755

ARMORED FIBER OPTIC CABLES

Gerald E. Holmberg, Quaker Hill, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 10, 1992, Ser. No. 896,633
Int. Cl.[5] G02B *6/44*
U.S. Cl. 385—107 **13 Claims**



1. A low-strain armored fiber optic cable, comprising:

a core having an interior;

a jacket concentric with the core defining an annular region between the jacket and core that is radially spaced from and outside the interior of the core;

a plurality of armor wires about the core in the annular region and defining at least one radially located layer circumferentially concentric with the spaced from said interior of the core; and

a plurality of armored fiber optic cables about the core in the annular region interspaced with the armor wires in at least one of each said at least one radially located layer;

said armor wires being of a synthetic material and wherein said armored fiber optic cables being fiber optic cables embedded within a composite material.

5,212,756

FIBER OPTIC RIBBON CABLE INCLUDING FLEXIBLE WEB

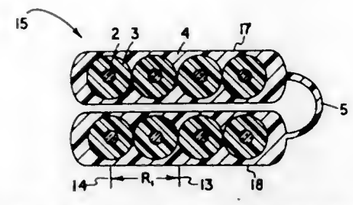
Christopher K. Eoll, Hickory, N.C., assignor to Siecor Corporation, Hickory, N.C.

Filed Jan. 21, 1992, Ser. No. 822,764
Int. Cl.[5] G02B *6/44*
U.S. Cl. 385—114 **14 Claims**

1. A fiber optic cable component comprising:

(a) first and second optical fiber ribbons in which each ribbon contains a plurality of optical fibers and each optical fiber si circumscribed by a coating, said optical fibers disposed in a single plane in an adjacent and essentially coating to coating touching relationship one to another and are circumscribed by a plastic material;

(b) a first flexible web connected to said first and second optical fiber ribbons; and,



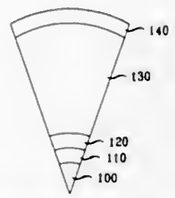
(c) the optical fibers of said first optical fiber ribbon delimit a plane that is spaced apart from and essentially parallel to a plane delimited by the optical fibers of said second optical fiber ribbon and the lateral edges of said first and second optical fiber ribbons are co-extensive with one another.

5,212,757

FATIGUE RESISTANT OPTICAL FIBER

Darryl L. Brownlow, Plainfield; David J. DiGiovanni, Scotch Plains, and Daryl Inniss, Hillsborough, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Oct. 3, 1991, Ser. No. 770,798
Int. Cl.[5] G02B *6/22*
U.S. Cl. 385—127 **18 Claims**



1. An optical fiber having a core and a cladding surrounding the core, at least a first portion of the cladding comprising silica-based glass, wherein:

a) the cladding has at least one outer layer which surrounds the first portion;

b) the outer layer is doped with a dopant composition comprising at least one metal oxide; and

c) the dopant composition is effective for producing, in the resulting fiber, a stress corrosion parameter of 30 or more, without producing, in the resulting fiber, a residual, compressive stress.

5,212,758

PLANAR LENS AND LOW ORDER ARRAY MULTIPLEXER

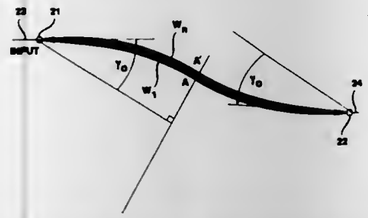
Renen Adar, Westfield; Corrado Dragone, Little Silver, and Charles H. Henry, Skillman, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Apr. 10, 1992, Ser. No. 866,614
Int. Cl.[5] G02B *6/10*; H04J *14/00*
U.S. Cl. 385—129 **8 Claims**

8. A planar lens comprising:

an optical input coupler for receiving an optical input signal at an input point and distributing said optical signal at substantially identical optical pathlengths to a plurality of waveguides;

a plurality of optical waveguides coupled at equal pathlengths from said input point, said waveguides configured in an S-shaped array in order to present substantially equal pathlengths to an output coupler; and



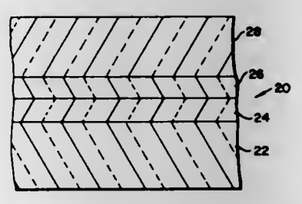
an output coupler for receiving said optical waveguides and presenting the optical signals from said waveguides at substantially equal pathlengths to an output point.

5,212,759

MODE INSENSITIVE WAVEGUIDE DEVICE

John C. Brazas, Jr., and Glenn E. Kohnke, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 16, 1991, Ser. No. 808,705
Int. Cl.[5] G02B *6/10*
U.S. Cl. 385—130 **20 Claims**



1. An optical device, comprising:

a waveguide having a film, said film having a first film and a second film boundary spaced from said first film boundary, said waveguide internally reflecting an electromagnetic wave at said film boundaries, said wave being characterized by a projected wave vector, β, on a z axis, where

$$\beta_m = \frac{2\pi}{\lambda} n_w \sin\phi_m$$

and where λ is the wavelength of light, n_w is the waveguide refractive index, and ϕ_m represents the propagation angles supported by said waveguide for defined modes, m, so that an effective refractive index, N_{wm}, of said waveguide is a function of ϕ and n_w where

$$N_m = n_w \sin \phi_m; \text{ and}$$

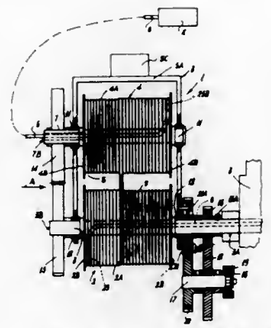
an overlay material positioned on said waveguide film and having a higher refractive index than said waveguide so that the ratio of the effective refractive indexes is substantially constant for all propagation angles, ϕ_m, supported by said waveguide.

5,212,760

DEVICE BY WHICH THE END OF AN OPTICAL CABLE INCORPORATED IN A POWER CABLE UNWINDABLE FROM A DRUM IS MAINTAINED FIXED RELATIVE TO AN OPTICAL READER

Francesco Goetz, Milan, Italy, assignor to Specimas S.P.A., Italy

Filed May 5, 1992, Ser. No. 878,863
Claims priority, application Italy, May 7, 1991, MI91A 001238
Int. Cl.[5] G02B *6/44*; H01J *5/16*; B65H *75/00*
U.S. Cl. 385—134 **10 Claims**



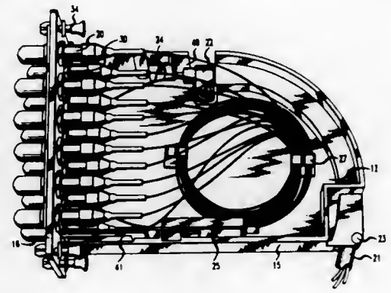
1. A device by which the end of an optical cable incorporated in a power cable is maintained fixed relative to an optical reader while the power cable is being wound onto or unwound from a cable winding drum, characterized by comprising a first roller (2) on which there can be wound a number of turns of said optical cable (6) equal at least to a fraction of the number of turns of said power cable wound on said cable winding drum, the free end of said optical cable being locked in front of said optical reader (E) after it has been wound through at least one turn or a portion of a turn on a second roller (4) on which there can be wound a number of turns equal at least to the number of turns which can be wound on said first roller (2), said first roller (2) being rotatably driven and said second roller (4) being associated with a mobile structure (5) rotating about said first roller (2).

5,212,761

FIBER OPTIC MODULE

Alexander Petrunia, Allentown, Pa., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Apr. 27, 1992, Ser. No. 874,314
Int. Cl.[5] G02B *6/00, 6/36*
U.S. Cl. 385—135 **7 Claims**



1. A device comprising:

a housing including an interior and a curved outer surface;

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a channel formed within a portion of the curved surface, said channel being open along said curved surface and including a port communicating with the interior of the housing;

an optical fiber cable secured to said housing so that the cable enters the interior at said port and a portion of the cable is positioned within the channel while the device is installed within a shelf and said portion is free to flex outside the channel during the device installation in and removal from the shelf; and

an array of optical fiber connectors mounted at another surface of said housing.

5,212,762

PLASTIC-CLAD SILICA (PCS) FIBERS AND METHODS AND APPARATUSES FOR PRODUCING THE SAME

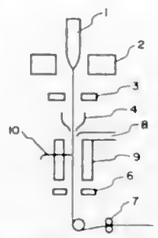
Katsuhiko Shimada; Tsuneo Takano; Osamu Itamoto; Michisuke Edamatsu, and Yasuo Hiromoto, all of Otake, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 905,196, Jun. 26, 1952, abandoned, which is a continuation of Ser. No. 798,335, Nov. 26, 1991, abandoned. This application Sep. 29, 1992, Ser. No. 953,201

Claims priority, application Japan, Nov. 27, 1990, 2-320623

Int. Cl.[5] G02B *6/00*; B05D *5/06*; C03B *25/00*

U.S. Cl. 385—145 8 Claims



1. An optical fiber, having a core-clad structure, comprising a core of a transparent inorganic glass and a cladding of a transparent organic polymer, which optical fiber is characterized in that the amount of volatile components in the cladding is not more than 1 wt %.

5. A method for producing an optical fiber comprising:

a) forming a core fiber from a transparent inorganic glass; and

b) forming a cladding of a transparent organic polymer, having a refractive index less than that of the core fiber, on the core fiber; and

c) evaporating the volatile components in the cladding with a far infrared heater to a level of not more than 1 wt %.

5,212,763

ELECTRIC FLUID HEATER WITH INFRARED HOT SPOT SENSOR

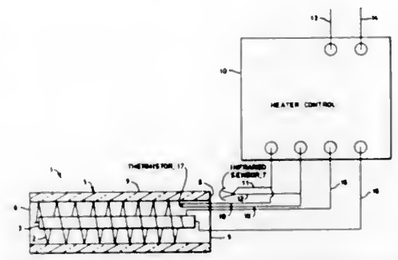
Jonathan B. Arold, Exeter; E. Forrest Decatur, E. Kingston, and Joan L. Mishou, Portsmouth, all of N.H., assignors to GTE Products Corporation, Danvers, Mass.

Filed Sep. 11, 1992, Ser. No. 943,633

Int. Cl.[5] H05B *1/02*; F24H *1/10*

U.S. Cl. 392—488 2 Claims

1. A forced gas electric heater comprising a serpentine heating element disposed within a closely fitting cylindrical glass tube, the glass tube having an inlet end where gas to be heated enters and an outlet end where the heated gas exits, the glass tube being a light pipe whereby part of the infrared radiation emanating from the heating element, when it is at an infrared radiating temperature, is directed within the wall of the glass tube to the edge of the glass tube, an infrared sensor disposed in light of sight with said edge of the glass tube, the infrared sensor being responsive to the hot spot temperature of the heating element along the entire length thereof, a controller electrically connected to the infrared sensor, the controller and infrared sensor operative to control current flow through the heating element and to thereby limit the maximum hot spot



temperature of the heating element to a predetermined temperature.

5,212,764

NOISE ELIMINATING APPARATUS AND SPEECH RECOGNITION APPARATUS USING THE SAME

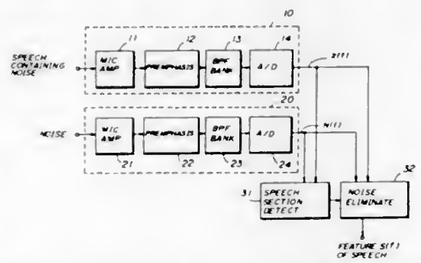
Takashi Ariyoshi, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 509,196, Apr. 16, 1990, abandoned. This application Apr. 24, 1992, Ser. No. 873,976

Claims priority, application Japan, Apr. 19, 1989, 1-101141; Oct. 5, 1989, 1-261099

Int. Cl.[5] G10L *5/00, 7/08*

U.S. Cl. 395—2 8 Claims



1. A noise eliminating apparatus coupled to a recognition device for recognizing an input speech signal, said noise eliminating apparatus comprising:

a) first amplifier means for amplifying a first acoustic signal and for generating a first amplified acoustic signal, said first acoustic signal including the input speech signal to be recognized;

b) first feature extracting means, coupled to said first amplifier means, for generating a feature quantity of said first amplified acoustic signal for each of n channels, said feature quantity including a power spectrum;

c) second amplifier means for amplifying a second acoustic signal and for generating a second amplified acoustic signal;

d) second feature extracting means, coupled to said second amplifier means, for generating a feature quantity of said second amplified acoustic signal for each of said n channels, said feature quantity including a power spectrum;

e) speech section detecting means, coupled to said first and second feature extracting means, for detecting a speech section of said first acoustic signal for each of said n channels by using the feature quantity of said first amplified acoustic signal and the feature quantity of said second amplified acoustic signal; and

f) a noise eliminating unit, coupled to said first and second feature extracting means and said speech section detecting means, said noise eliminating unit including:

1) first means for generating a first noise eliminating variable k(f) and a second noise eliminating variable d(f) on the basis of a feature quantity Xn(f) extracted by said first feature extracting means and a feature quantity Nn(f) extracted by said second feature extracting means when said first acoustic signal does not include the input speech signal and thus said speech section detecting means does not detect the speech section; and

2) second means for generating a feature quantity of said input speech signal which is to be supplied to the recognition device on the basis of a feature quantity Xs(f) extracted by said first feature extracting means and a feature quantity Ns(f) extracted by said second feature quantity extracting means when said first acoustic signal includes the input speech signal and thus said speech section detecting means detects the speech section;

wherein said first noise eliminating variable k(f) and said second noise eliminating variable d(f) are defined as a function satisfying the following:

(i) the first noise eliminating variable k(f) approaches zero and the second noise eliminating variable d(f) approaches the feature quantity Xn(f) as the feature quantity Xn(f) becomes smaller than a predetermined value; and

(ii) the first noise eliminating variable k(f) approaches Xn(f)/Nn(f) and the second noise eliminating variable d(f) approaches zero as the feature quantity Xn(f) becomes greater than the predetermined value.

5,212,765

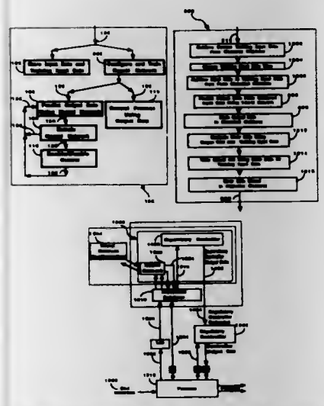
ON-LINE TRAINING NEURAL NETWORK SYSTEM FOR PROCESS CONTROL

Richard D. Skeirik, Newark, Del., assignor to E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.

Filed Aug. 3, 1990, Ser. No. 563,092

Int. Cl.[5] G06F *15/18*

U.S. Cl. 395—11 14 Claims



1. A computer neural network process control system adapted for predicting output data provided to a controller used to control a process for producing a product having at least one product property, the computer neural network process control system comprising:

(1) a neural network, connected to retrieve training input data from a data source, and connected to retrieve input data from a data source in accordance with time specifications, and connected to store output data to a data source, comprising:

(a) specification storing means for storing specifications for said training input data, said input data, and said output data;

(b) weight storing means for storing weights for said neural network;

(c) training means for adjusting said weights; and

(d) predicting means for predicting said output data in accordance with said input data and said weights; and

(2) monitoring means, responsive to said training input data, for monitoring, which comprises:

(a) comparing means for detecting new training input data;

(b) computing means for determining said time specifications for said input data; and

(c) triggering means, responsive to said comparing means, for triggering in accordance with said new training input data, said triggering means connected to initiate training by said training means of said neural network.

5,212,766

NEURAL NETWORK REPRESENTING APPARATUS HAVING SELF-ORGANIZING FUNCTION

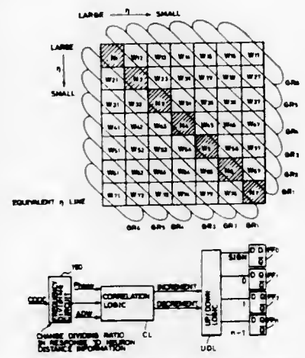
Yutaka Arima, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 26, 1990, Ser. No. 634,352

Claims priority, application Japan, Jan. 11, 1990, 2-4747

Int. Cl.[5] G06F *7/00*

U.S. Cl. 395—24 10 Claims



1. An integrated circuit device being modelled on nerve cells, comprising:

a plurality of neuron-expressing units simulating functions of neurons of nerve cell bodies;

a plurality of axon-representing signal lines each receiving a signal indicating a state of an associated neuron-representing unit;

a plurality of dendrite-representing signal lines corresponding to respective ones of said plurality of neuron-expressing units for transferring signals to corresponding neuron-expressing units;

a plurality of synapse-expressing units on respective cross-points between said plurality of axon-representing signal lines and said plurality of dendrite-representing signal lines coupling related axon-representing signal lines with related dendrite-representing signal lines with synapse load values indicating connecting strength between an axon-representing signal line and a dendrite-representing signal line, said integrated circuit device operable in a self-organizing manner of correcting a synapse load value in response to externally supplied educator information in accordance with a prescribed learning rule, said learning rule including a synapse load correction coefficient defining an amount of the synapse load value corrected by a single learning operation; and

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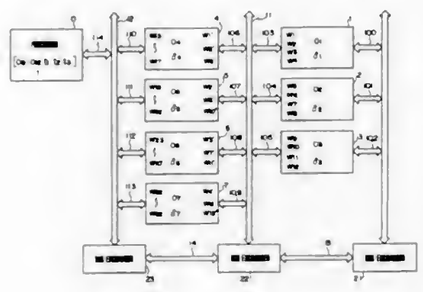
means for setting said synapse load correction coefficient in each synapse-expressing unit to a value corresponding to a distance between neuron-expressing units coupled by each respective synapse-expressing unit.

5,212,767

MULTI-LAYER NETWORK AND LEARNING METHOD THEREFOR

Junichi Higashino, Kodaira, and Hitoshi Matsushima, Tachikawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 10, 1990, Ser. No. 625,166
Claims priority, application Japan, Dec. 15, 1989, 1-323721
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—27 12 Claims



1. A multi-layer network comprising:

an input layer including input means for inputting a plurality of data;

a hidden layer connected to the input means of said input layer and including a plurality of data processors, each of which having means for storing factors of multiplication from input layer to hidden layer corresponding to connections with the input means of said input layer and having means for calculating based on said factors of multiplication from input layer to hidden layer a sum of products on a plurality of data delivered from the input means of said input layer; and

an output layer connected to the plurality of data processors of said hidden layer and including a plurality of data processors, each of which having means for storing factors of multiplication from hidden layer to output layer corresponding to connections with the plurality of data processors of said hidden layer and having means for calculating based on said forces of multiplication a sum of products on a plurality of data delivered from the plurality of data processors of said hidden layer,

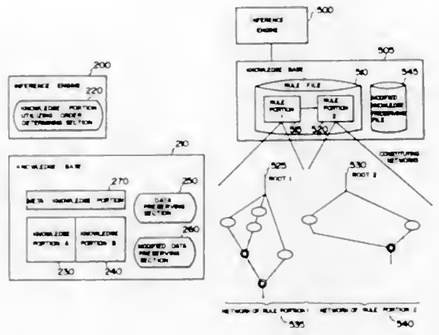
said each data processor of said hidden layer further having means for storing factors of multiplication from output layer to hidden layer corresponding to connections with the plurality of data processors of said output layer, and said calculating means performing calculation of a sum of products based on said factors of multiplication from output layer to hidden layer on a plurality of data delivered from the plurality of data processors of said output layer.

5,212,768

METHOD AND APPARATUS FOR PROCESSING KNOWLEDGE

Rei Itsuki, Nishinomiya; Hiroshi Yajima, Amagasaki; Shoichi Masui, Kawasaki; Kikuo Yoshimura, Tokyo, and Hiroko Tanabe, Osaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 25, 1990, Ser. No. 588,087
Claims priority, application Japan, Sep. 29, 1989, 1-251888
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—54 1 Claim



1. A knowledge processing apparatus comprising:

inference means having means for dividing a knowledge base which includes a plurality of knowledge expressions into at least two knowledge portions in accordance with contents of the knowledge portions and objects to be processed;

constituting means coupled to said inference means for constituting a network of a rule file for condition verification of a rule execution for each divided portion independently of one another;

a knowledge base storing means for storing the knowledge base, the knowledge base storing means being coupled with the inference means and the constituting means;

a selecting means for selecting one of the at least two knowledge portions, corresponding to characteristics of knowledge at a time of a knowledge utilization process;

means for dynamically adding or deleting, during knowledge utilization, processed portions used for a knowledge verification processing among processed portions provided on a memory according to contents described in the knowledge base as knowledge;

means for controlling to determine, during knowledge utilization, whether a change in a knowledge element belonging to a divided knowledge portion caused by utilizing the knowledge element is to be verified with other knowledge portions or such verification with other knowledge portions is deferred and another knowledge element is to be utilized;

modified knowledge holding means for holding a latest update time and a latest update contents when a knowledge element belonging to a divided knowledge portion is updated while the other knowledge element is being utilized;

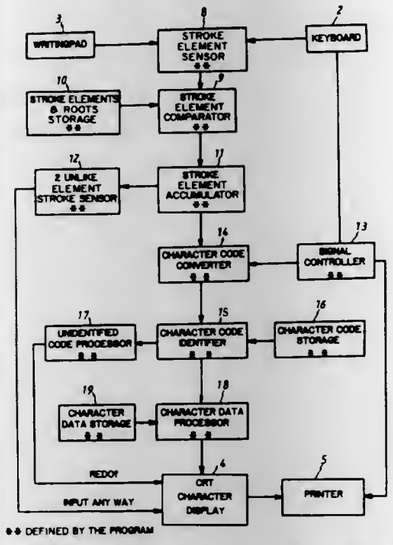
preserving means for preserving contents of the change in knowledge caused by utilizing the knowledge element in the knowledge portion until a different knowledge element in a different knowledge portion is later utilized.

5,212,769

METHOD AND APPARATUS FOR ENCODING AND DECODING CHINESE CHARACTERS

Gim Pong, Flushing, N.Y., assignor to Pontech, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 313,888, Feb. 23, 1989, abandoned. This application Feb. 8, 1990, Ser. No. 477,327
Int. Cl.[5] G06F *15/66*
U.S. Cl. 395—150 22 Claims



1. An apparatus for encoding and decoding Chinese characters comprising:

(a) entry means for entering a sequence of one or more basic stroke elements into which the stroke or strokes of a corresponding Chinese character being entered are decomposed in a sequence conforming at least initially to Chinese handwriting rules, the basic stroke elements being of only three types, namely, a horizontal stroke element —, a vertical stroke element | and a slant stroke element /;

(b) processing means responsive to the entry by the entry means of the sequence of one or more basic stroke elements corresponding to the character being entered for deriving a character stroke code indicative of the order of initial occurrence of different types of the basic stroke elements and the total number of occurrences of each basic stroke element type in the sequence of one or more basic stroke elements, the processing means including memory means for storing a character set comprising a multiplicity of Chinese characters each corresponding to a respective character stroke code;

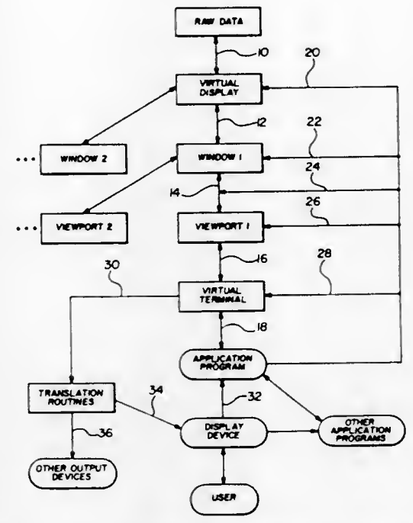
(c) display means responsive to the processing means for displaying each character of the character set corresponding to the character stroke code derived by the processing means, wherein the entry means includes means for selecting one of the characters being displayed on the display means if the character stroke code derived by the processing means correspond to more than one character of the character set and the processing means is further responsive to the means for selecting one of the characters being displayed for deriving an extended character stroke code which uniquely corresponds to a selected one of the characters being displayed.

5,212,770

DATA-HANDLING AND DISPLAY SYSTEM CAPABLE OF SUPPORTING MULTIPLE APPLICATION PROGRAMS AND OUTPUT DEVICES

Robert M. Smith, Andover; David M. T. Ting, Sudbury; John Porter, Lexington, and Gerald Williams, Tyngsborough, all of Mass., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 6, 1989, Ser. No. 446,975
Int. Cl.[5] G06F *15/20*
U.S. Cl. 395—155 59 Claims



1. An input/output system for enabling a user to interact with a plurality of application programs implemented on one or more computers, the system comprising:

a) a system memory;

b) a user-responsive display device;

c) interface means for transferring, to a specified application program, data and instructions defined on the display device by a user;

d) means, operatively coupled to the interface means, for electronically communicating with at least one application program operative on a computer to accept display data generated by each application program;

e) memory-partitioning means for defining a plurality of data fields within the system memory, said data fields including:

i. at least one application data buffer for storing display data generated by an application program;

ii. at least one display buffer for storing a display list consisting of raster-image instructions defining the dimensions, positions, orientation, and contents of a display;

f) translation means operatively connected to each application data buffer and each display buffer for converting the data in each application data buffer into a common set of raster-image instructions and storing the instructions in a display buffer; and

g) a display driver operatively coupled to each display buffer and capable of generating a visual image on the display device in response to the raster-image instructions in each display buffer.

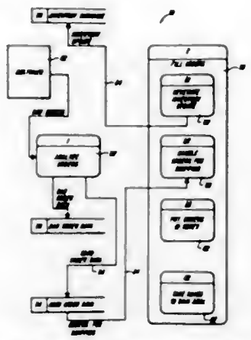
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,771

SYSTEM FOR ESTABLISHING CONCURRENT HIGH LEVEL AND LOW LEVEL PROCESSES IN A DIAGRAM WINDOW THROUGH PROCESS EXPLOSION AND IMPLOSION SUBSYSTEMS

Christopher P. Gane, New York, N.Y., and David A. Krieger, Cambridge, Mass., assignors to Bachman Information Systems, Inc., Burlington, Mass.

Filed Apr. 27, 1990, Ser. No. 516,814
Int. Cl.[5] G06F *3/03*
U.S. Cl. 395—160 3 Claims



I. A computer system for establishing subprocesses in a model of information management systems of organizations, comprising:

A. at least one modeler subsystem including at least one modeler means for performing a selected operation on one or more models associated with said modeler subsystem, said operation selected from the group consisting of creating, analyzing, and modifying one or more of said models, each of said models having design data associated therewith, said design data including at least one process;

B. operator means for applying external signals to each said modeler means, each said signal evoking a selected response from said modeler means, said response being selected from the group consisting of creating, analyzing, and modifying;

C. modeler display means coupled to said modeler subsystem for establishing at least one modeler display in a diagram window, said display having objects representative of said design data, including means selectively operative on said display for externally applying signals to said display objects, whereby at least one of said signals applied to at least one of said display objects affects said design data associated with said design objects;

D. a process explosion (PE) subsystem coupled to said modeler display means, including means for exploding at least one of said processes of said design data into zero, one or more process explosion (PE) subprocesses,

each of said PE subprocesses including at least one from the group consisting of primitive subprocess and high-level (HL) process,

wherein said HL process includes one from the group consisting of primitive subprocess and HL process, and

wherein said PE subsystem includes means for creating and modifying said PE process; and

E. PE display means coupled to said modeler display means for establishing a PE display in said diagram window of at least one said primitive subprocess, said PE display having PE display objects representative of said design data associated with said primitive subprocess, and including means selectively operative for externally applying signals to said PE display means, whereby a PE signal associated with at least one of said PE display objects and applied to said PE display means affects said display objects and said design data associated with said display objects; and

whereby said PE display is selectively displayable in said diagram window simultaneous with at least one of said modeler displays,

wherein said design data includes at least two processes, and further comprises an implosion subsystem including implosion means coupled to said modeler subsystem for consolidating at least two of said processes of said design data into a process implosion (PI) process, said PI process defining a high-level (HL) process,

wherein said implosion means further includes means for establishing a PI display of at least one of said HL processes, and including selectively operative PI signal means coupled to said PI display and selectively operative for externally applying signals to said PI display, whereby at least one of said signals applied to said PI display affects said design data; and

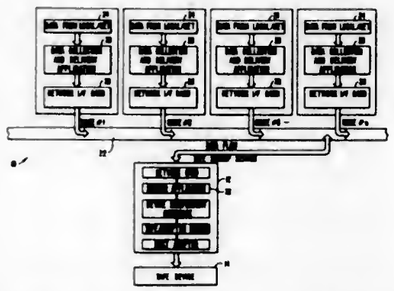
wherein said PI display is selectively displayable in said diagram window simultaneous with at least one of said modeler displays.

5,212,772

SYSTEM FOR STORING DATA IN BACKUP TAPE DEVICE

Daniel R. Masters, San Diego, Calif., assignor to Gigatrend Incorporated, Carlsbad, Calif.

Filed Feb. 11, 1991, Ser. No. 653,777
Int. Cl.[5] G06F *12/00, 13/00*
U.S. Cl. 395—200 20 Claims



1. A system for storing data collected by a plurality of nodes in backup operations, each node having a buffer for storing data to be backed up, said nodes collecting and storing data in their buffers, said system comprising:

communication means connecting the nodes;

at least one tape recording device; and

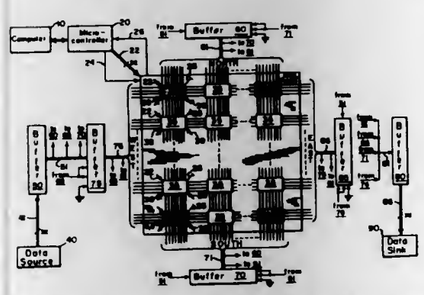
at least one tape server connected to the at least one device and connected to the nodes through the communication means, said server polling said nodes through the communication means on whether the nodes have filled their buffers with data for storage by the at least one device or completed backup data storage even though its buffer is not filled, and, for each node polled, causing a block of data from the node polled to be recorded by the at least one device when said node that is polled has filled its buffer with data for storage by the at least one device or when the node polled has completed backup data storage even though its buffer is not filled while at least one other node to be polled is concurrently collecting and storing data in its buffer, said server polling a different node for data storage when any node polled has not filled its buffer with data for backup data storage and not completed backup data storage when polled by the tape server, said server polling all the nodes and causing blocks of data collected by the nodes to be recorded by the at least one device until all data from all the nodes to be backed up are caused to be recorded by said at least one device, said server causing the blocks of data from different nodes to be interleaved on tape when recorded by the at least one device.

5,212,773

WORMHOLE COMMUNICATIONS ARRANGEMENT FOR MASSIVELY PARALLEL PROCESSOR

W. Daniel Hillis, Brookline, Mass., assignor to Thinking Machines Corporation, Cambridge, Mass.

Division of Ser. No. 489,179, Mar. 5, 1990, Pat. No. 5,123,109, which is a division of Ser. No. 478,082, Feb. 9, 1990, Pat. No. 5,152,000, which is a division of Ser. No. 184,739, Jun. 27, 1988, Pat. No. 5,008,815, which is a continuation of Ser. No. 499,474, May 31, 1983, Pat. No. 4,814,973. This application Feb. 22, 1991, Ser. No. 660,323
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—200 14 Claims



1. A computer system comprising a plurality of processing elements and a message router in which:

A. each processing element for generating messages, each message comprising an address portion comprising a series of address elements and a data portion comprising at least one data element, each processing element including a message transfer circuit for transmitting messages over said message router and for receiving messages from said router, said message transfer circuit transmitting each message by serially transmitting address elements and a data element thereof and receiving a message by serially receiving at least a data element thereof;

B. said message router being connected to the message transfer circuits of said processing elements for receiving messages transmitted by said message transfer circuits and transferring each such received message to a processing element in accordance with its address portion, said message router comprising a plurality of message router nodes interconnected by a plurality of communications links, at least some of said message router nodes also being connected to said processing elements, said message router nodes each including:

i. a plurality of input circuits each connected to one of said communications links or said processing elements for receiving messages therefrom, each input circuit serially receiving message elements comprising each message received thereby;

ii. a plurality of output circuits each connected to a communications link or to a processing element for transmitting messages thereto, each output circuit serially transmitting message elements comprising each message transmitted thereto; and

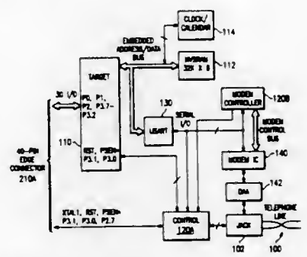
iii. a switch connected to said input circuits for, for each message received by said input circuits, decoding one address element of the message to identify therefor an output circuit, said awitch establishing a path for said message between the input circuit which received the message and the identified output circuit to facilitate the transfer of message elements of said message therebetween, said switch maintaining the path until the last of the serially-received message elements for the message have been transferred to the identified output circuit.

5,212,774

TWO PROCESSOR COMMUNICATIONS SYSTEM WITH PROCESSOR CONTROLLED MODEM

Stephen N. Grider, Farmers Branch; Don Folkes, Coppell; Stephen M. Curry, Dallas, and Wendell L. Little, Carrollton, all of Tex., assignors to Dallas Semiconductor Corporation, Dallas, Tex.

Filed Dec. 9, 1988, Ser. No. 282,702
Int. Cl.[5] G06F *9/00, 13/14*
U.S. Cl. 395—200 15 Claims



1. An adapter module, for interfacing to a computer system which includes a microprocessor emplacement of a predetermined pin-out configuration, comprising:

a connector which matches said predetermined pin-out configuration;

a first microprocessor, which is compatible with the computer system architecture, and which has at least some data pins connected directly to said connector;

a modem, connectable to a serial input;

a second microprocessor,

connected with and to control said modem, and

connected to intercept at least some control signals received through said connector, and to provide said first microprocessor with selectably modified control signals in place thereof;

memory space, connected to said first microprocessor so that said first microprocessor can execute programs stored therein; wherein said second microprocessor is also able to read from and write to said memory space.

5,212,775

METHOD AND APPARATUS FOR OBSERVING INTERNAL MEMORY-MAPPED REGISTERS

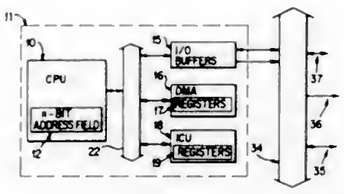
Zeev Bikowsky, Netanya, and Dan Biran, Raanana, both of Israel, assignors to National Semiconductor Corporation, Santa Clara, Calif.

Continuation of Ser. No. 461,023, Jan. 4, 1990, abandoned. This application Aug. 22, 1991, Ser. No. 750,771
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—275 6 Claims

1. In an integrated data processing system that includes a central processing unit (CPU) connected via an internal bus to an internal functional unit for transfer of data therebetween, and an I/O buffer connected between the internal bush and a system bus, the system bus having a peripheral unit connected thereto such that data may be transferred between the CPU and the peripheral unit via a data path comprising the internal bus, the I/O buffer and the aystem bus, and wherein the CPU includes control means for controlling the transfer of data both between the CPU and the internal functional unit and between the CPU and the peripheral unit by generating a reference address that identifies either the internal functional unit or the

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peripheral unit, thereby allowing data to be transferred to be placed on the internal bus, and then, only in the event that the reference address identifies the peripheral unit, asserting a confirmation signal that allows the data to be transferred to be accessed from the internal bus by the system bus via the I/O buffer for transfer to the peripheral unit, the improvement comprising internal access confirmation means located within



the CPU for, in the event that the reference address identifies the internal functional unit, asserting an internal confirmation signal that allows the data to be transferred to be accessed from the internal bus by the system bus via the I/O buffer

whereby all data transfers appearing on the internal bus, whether involving the internal functional unit or the peripheral unit, may be monitored by a monitoring device connected to the system bus.

5,212,776

COMPUTER SYSTEM COMPRISING A MAIN BUS AND AN ADDITIONAL COMMUNICATION MEANS DIRECTLY CONNECTED BETWEEN PROCESSOR AND MAIN MEMORY

Frederik Zandveld, and J. A. G. M. Kindervater, both of Apeldoorn, Netherlands, assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Apr. 3, 1989, Ser. No. 333,058

Claims priority, application Netherlands, Apr. 5, 1988, 8800858

Int. Cl.[5] **G06F** *13/38*

U.S. Cl. 395—325 **16 Claims**

1. A computer system, comprising

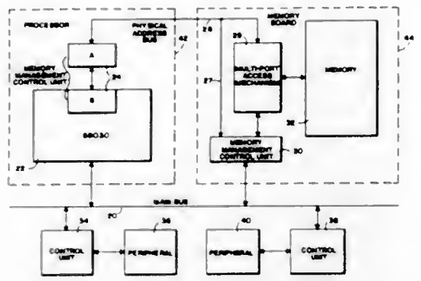
a main bus interconnecting a main memory and at least one control unit for controlling an associated peripheral apparatus,

a processor having logical address generating means, and a first memory management control unit for receiving said logical address for conversion into an associated physical address,

communication means for communicating said physical address to said main memory and associated data between said main memory and the processor, characterized in that

a second memory management control unit is provided for receiving a first bus-communicated logical address from the main bus for conversion into its associated physical address and

said communication means comprise an address path that is wider than an address width of the main bus, said address path being external to the main bus.



5,212,777

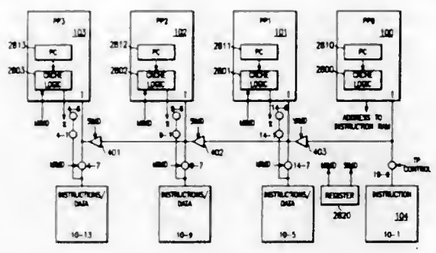
MULTI-PROCESSOR RECONFIGURABLE IN SINGLE INSTRUCTION MULTIPLE DATA (SIMD) AND MULTIPLE INSTRUCTION MULTIPLE DATA (MIMD) MODES AND METHOD OF OPERATION

Robert J. Gove, Plano, Tex.; Keith Balmer; Nicholas K. Ing-Simmons, both of Bedford, England, and Karl M. Guttag, Missouri City, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 17, 1989, Ser. No. 437,858

Int. Cl.[5] **G06F** *9/00, 15/16*

U.S. Cl. 395—375 **16 Claims**



1. A multi-processor system operable in either a single instruction multiple data (SIMD) mode or in a multiple instruction multiple data (MIMD) mode comprising:

a SIMD/MIMD mode register storing therein an indication of either the single instruction multiple data (SIMD) mode or the multiple instruction multiple data (MIMD) mode;

a plurality of processors, each processors having a data port and an instruction port and operating from instructions provided to said instruction port for controlling a process including movement of data to and from said data port;

a plurality of memories, said plurality of memories including at least one data memory corresponding to each of said processors and an instruction memory corresponding to each of said processors;

a switch matrix connected to said SIMD/MIMD mode register, to each of said plurality of processors and each of said plurality of memories, said switch matrix including

a set of first links connected to said memories,

a set of second links connected to said data ports of said processors,

a third link having a plurality of sections equal in number to the number of said processors, each section connected to said instruction port of a corresponding one of said processors,

a plurality of buffers disposed between adjacent sections of said third link connecting said adjacent sections of said third link when said SIMD/MIMD mode register indicates the single instruction multiple data (SIMD) mode, and splitting said adjacent sections of said third link when said SIMD/MIMD mode register indicates the multiple instruction multiple data (MIMD) mode, and

a plurality of crosspoints disposed at intersections between said first links and said second links and at intersections between said first links and said sections of said third link, said crosspoints individually operating to connect said first and second links permitting said data port of a processors to access a memory, and to connect said first links and said third link permitting said instruction port of a processor to receive an instruction from an instruction memory,

said plurality of crosspoints including a first crosspoint disposed at the intersection of said section of said third link connected to said instruction port of a predetermined first processor and said first link connected to said corresponding instruction memory which is always enabled to permit connection,

said plurality of crosspoints including a set of second crosspoints disposed at the intersection of said section of said first link connected to said instruction port of processors other than said predetermined first processor and said respective first link connected to said corresponding instruction memories which are disabled to prohibit connection when said SIMD/MIMD register indicates the single instruction multiple data (SIMD) mode and enabled to permit connection when said SIMD/MIMD register indicates the multiple instruction multiple data (MIMD) mode;

whereby said instruction port of each processor is connected to said instruction memory corresponding to said predetermined first processor in the single instruction multiple data (SIMD) mode via said first crosspoint, said sections of said third link and said buffers, and said instruction port of each processor is connected to said corresponding instruction memory in the multiple instruction multiple data (MIMD) mode via said corresponding second crosspoint and said corresponding section of said third link.

5,212,778

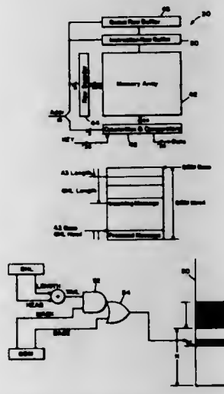
MESSAGE-DRIVEN PROCESSOR IN A CONCURRENT COMPUTER

William J. Dally, Framingham, Mass.; Andrew A. Chien, Urbana; Waldemar P. Horwat, Hoffman Estates, both of Ill., and Stuart Fiske, Montreal, Canada, assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed May 27, 1988, Ser. No. 200,003

Int. Cl.[5] **G06F** *15/16, 9/32, 12/06, 13/00*

U.S. Cl. 395—400 **5 Claims**



1. In a concurrent computer system in which an array of processors is coupled in a communication network over which messages are transferred between processors of the array, the method in a processor of the array comprising:

automatically storing sequential messages in a queue independent of any ongoing routine;

with suspension of a routine, reading a header of a next received message from the queue, and from a physical address in the header directly addressing a first handler routine to be processed;

processing the first handler routine and subsequent routines to which the first handler routine directs the processor, the first handler routine processing data in the message to locate a subsequent routine;

identifying a segment of memory by creating a segment descriptor that identifies a base address and a length of the entire week received message from length data in the header; and

reading message arguments under program control from the identified memory segment by computing an address as an offset from the base address from the segment descriptor and checking the address against a length limit.

3. A concurrent data processing system comprising:

a processor which processes instructions received in messages;

a memory which stores data, accessible by the processor for processing, in rows of words;

means for address a row from memory;

means for forwarding an individual word from an addressed row to a data bus coupled to the processor; and

a row buffer means coupled to the memory, in parallel with the means for forwarding, for storing a row of words of a massage to be processed by the processor, received serially from a communications channel which is separate from the data bus and independent of the processor, and for thereafter simultaneously writing a row of words from the row buffer into memory with a signal access to a row addressed by the means for addressing.

5,212,779

SYSTEM FOR GUARANTEE REEXECUTION AFTER INTERRUPTION BY CONDITIONALLY USED STORE BUFFER IF MICROINSTRUCTION BEING EXECUTED IS A MEMORY WRITE AND LAST MICROINSTRUCTION

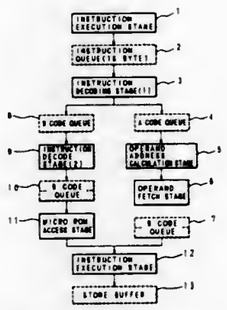
Youichi Saito, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 29, 1990, Ser. No. 574,845

Claims priority, application Japan, Aug. 29, 1989, 1-222207

Int. Cl.[5] **G06F** *9/22, 9/06*

U.S. Cl. 395—375 **3 Claims**



1. A pipelined data processor for executing a processor instruction in parallel, comprising:

a plurality of microprograms, each comprising at least one microinstruction and implementing a processor instruc-

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tion, said microprograms including memory store microinstructions;

a microprogram memory for storing said plurality of microprograms, said microprogram memory comprising addressable memory locations, wherein a first instruction of each of said plurality of microprograms is located at a microprogram entry location within said microprogram memory, and said microprogram memory outputting at a data output a microinstruction stored at a memory location indicated by an address input on an address bus;

a microprogram counter, coupled to said address bus of said microprogram memory, for stepping through said microprogram memory locations starting with an initial value loaded into said microprogram counter and ending with a microprogram ending microinstruction;

an instruction decoding stage, coupled to an input of the pipelined data processor and to said microprogram counter, said instruction decoding stage comprising means for accepting a processor instruction, means for decoding said processor instruction, means for generating a microprogram entry address, and means for loading said microprogram entry location entry address as said initial value in said microprogram counter;

an instruction execution stage, coupled to said instruction decoding stage and said data output of said microprogram memory, for executing each microinstruction output at said data output;

a store buffer, coupled to said instruction execution stage, configured to hold a storing address and data to be stored at said storing address in response to a memory store microinstruction, said storing address pointing to a memory location in an external memory; and

a store selection means, coupled to said instruction execution stage, said store buffer, and said external memory, for writing said data to be stored to external memory using one data path of a direct path and a buffered path, said direct path characterized by a path which transfers said data to be stored from said instruction execution stage to said external memory, said direct path including means for preventing said instruction execution stage from processing a new microinstruction until said transfer to said external memory is completed, and said buffered path characterized by a path which transfers said data to be stored and said storing address to said store buffer, said store selection means transferring said data along said direct path when said microinstruction is not a microprogram ending microinstruction and transferring said data along said buffered path when said microinstruction is a microprogram ending microinstruction, wherein said data in said store buffer is used when an exception, interrupt, or trap (EIT) occurs to guarantee completion of said processor instruction when EIT processing begins.

5,212,780

SYSTEM FOR SINGLE CYCLE TRANSFER OF UNMODIFIED DATA TO A NEXT SEQUENTIALLY HIGHER ADDRESS IN A SEMICONDUCTOR MEMORY

Ajay J. Padgaonkar, Phoenix, and Sumit K. Mitra, Tempe, both of Ariz., assignors to Microchip Technology Incorporated, Chandler, Ariz.

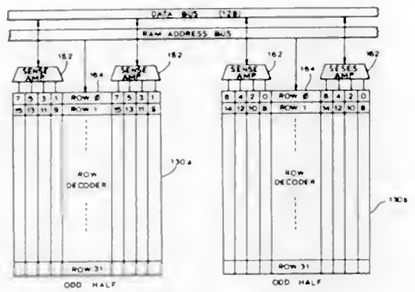
Filed May 9, 1988, Ser. No. 191,983
Int. Cl.[5] G06F *5/01*
U.S. Cl. 395—425 **4 Claims**

4. A method for transferring data between address locations of a semiconductor memory, comprising:

partitioning said memory into first and second halves one of which contains all odd numbered address locations and the other of which contains all even numbered address locations of the memory,

reading data from a selected address location in one of said halves during an instruction cycle of operation, and

incrementing the addresses of said memory such that the same data which was read from the selected address location is written into the next sequentially higher address location of said memory in the other of said halves during a single instruction cycle of operation in which both reading from and writing into the respective halves of said memory takes place.

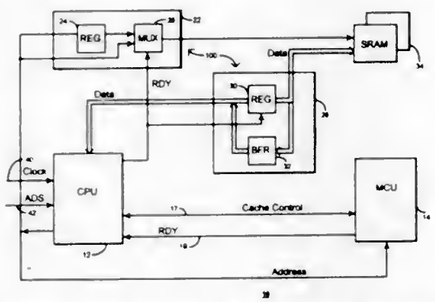


5,212,781

SECONDARY CACHE CONTROL FOR A COMPUTER SYSTEM

Ravi Shah, San Jose, Calif., assignor to Chips and Technologies, Inc., San Jose, Calif.

Filed Mar. 21, 1990, Ser. No. 496,898
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—425 **4 Claims**



1. In a computer including a central processing unit (CPU), a Memory Control Unit (MCU) coupled to the CPU, and a Static Random Access Memory (SRAM) for receiving data from and sending data to the CPU, a system for providing secondary cache control for the CPU comprising:

means for latching data and address signals from the CPU during a first predetermined time period;

and means for writing data into the SRAM during a second predetermined time period in which the CPU is not operating on data.

5,212,782

AUTOMATED METHOD OF INSERTING PIPELINE STAGES IN A DATA PATH ELEMENT TO ACHIEVE A SPECIFIED OPERATING FREQUENCY

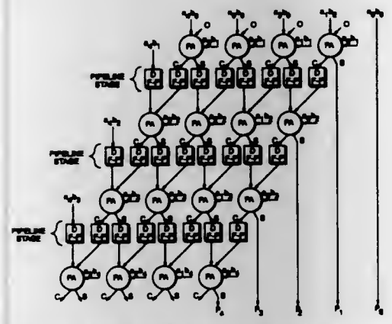
Creigton S. Asato, Suonyvale; Suresh K. B. Dholakia, and Christoph Ditzen, both of San Jose, all of Calif., assignors to VLSI Technology, Inc., San Jose, Calif.

Continuation of Ser. No. 297,057, Jan. 13, 1989, abandoned. This application Apr. 1, 1991, Ser. No. 680,004
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—500 **10 Claims**

1. A method for locating pipelining stages in a multi-stage datapath element including a plurality of multiple-bit functional stages, comprising machine execute steps of:

a) for each functional stage of a multi-stage datapath element, estimating a stage delay time through the functional stage as a function of a delay for communication of bits within the stage, a total number of bits in the datapath element, and a constant; and

b) with an automated integrated circuit design system locating pipelining stages between functional stages within the multi-stage datapath element in accordance with the estimated stage delay times.

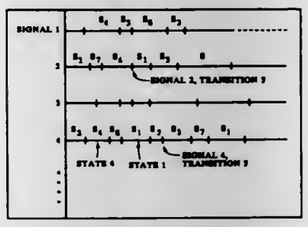


5,212,783

SYSTEM WHICH DIRECTIONALLY SUMS SIGNALS FOR IDENTIFYING AND RESOLVING TIMING INCONSISTENCIES

Steven K. Sherman, Marlboro, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Jun. 13, 1988, Ser. No. 205,811
Int. Cl.[5] G06F *7/122*
U.S. Cl. 395—550 **14 Claims**



1. Apparatus for detecting incompatibilities among related signals, the apparatus comprising:

a. memory means for storing data representative of relationships among a plurality of signals, the data for each signal relationship including a comparison parameter, a time interval having magnitude and direction, a signal location and a priority level;

b. output means for communicating with a user; and

c. processor means for detecting incompatibilities among the signals characterized by the data, such means including

i. means for identifying at least one group of signals characterized by locations and timing intervals that are related to one another as a loop;

ii. means for determining whether the sum of the time intervals within the loop, taking account of interval directions, equals zero; and

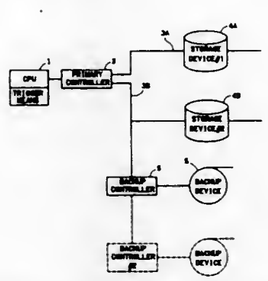
iii. means for causing the output means to report compatibility among the signals in each group in which the sum equals zero.

5,212,784

AUTOMATED CONCURRENT DATA BACKUP SYSTEM

Clyde R. Sparks, Riverside, Calif., assignor to Delphi Data, a Division of Sparks Industries, Inc., Corona, Calif.

Filed Oct. 22, 1990, Ser. No. 601,251
Int. Cl.[5] G06F *11/20*
U.S. Cl. 395—575 **21 Claims**



1. An automated concurrent data backup system including:

a. a central processing unit;

b. at least one first primary data storage device coupled to a first controllable logical bus;

c. at least one second primary data storage device coupled to a second controllable logical bus;

d. trigger generation means for generating a trigger signal;

e. primary controller means, coupled to the central processing unit, the trigger generation means, and to each first primary data storage device by the first logical bus and to each second primary data storage device by the second logical bus, the primary controller means for:

(1) controlling data transfers between the central processing unit and at least one pair of the first and second primary data storage devices, wherein each such at least one pair of first and second primary data storage device contains approximately the same data; and

(2) automatically detecting the trigger signal, and generating a backup command over at least the second logical bus in response to such detection;

f. backup storage means;

g. first backup controller means, coupled to the second logical bus and the backup storage means, for detecting the backup command generated from the primary controller means, seizing control of the second logical bus, transferring selected data from at least one second primary data storage device to the backup storage means, and thereafter releasing control of the second logical bus to the primary controller means;

wherein data transfers between the central processing unit and at least one first primary data storage device are enabled, and data transfers between the central processing unit and each second primary data storage device are disabled, while control of the second logical bus is seized by the first backup controller means.

5,212,785

APPARATUS AND METHOD FOR CONTROLLING DATA FLOW BETWEEN A COMPUTER AND MEMORY DEVICES

David T. Powers, Morgan Hill; David H. Jaffe, Belmont; Larry P. Henson, Santa Clara; Hoke S. Johnson III, Monte Sereno; Joseph S. Glider, Palo Alto, and Thomas E. Idleman, Santa Clara, all of Calif., assignors to Micro Technology, Inc., Sunnyvale, Calif.

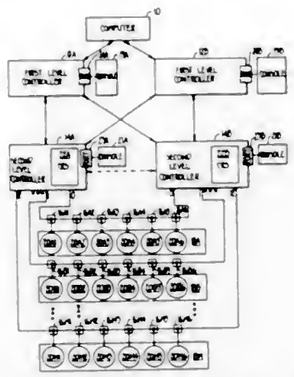
Filed Apr. 6, 1990, Ser. No. 506,703
Int. Cl.[5] G06F *13/12, 11/20*
U.S. Cl. 395—575 **8 Claims**

1. In a system having a computer coupled to each of first and second level-one data routing controller means, said first and

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second data routing controller means each being coupled to first and second level-two data routing controller means, each of said first and second level-two data routing controller means being coupled to first and second groups of memory devices, respectively, through a switching circuit, a method comprising the steps of:

determining in the second level-two data routing controller means that the first level-two data routing controller means has stopped functioning properly;



providing, from within said second level-two data routing controller means, a first switching signal to said switching circuit; and

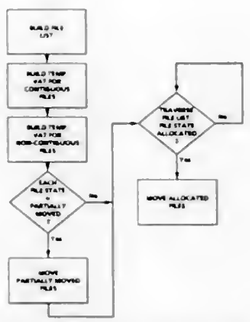
switching, with said switching circuit, in response to said first switching signal, the coupling of said first group of memory devices from said first second-level data routing controller means to said second second-level data controller means.

5,212,786

FILE COMPACTION PROCESS FOR ELECTRONIC PRINTING SYSTEMS

Kitty Sathi, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 1, 1991, Ser. No. 678,923
Int. Cl.[5] G06F *12/02*
U.S. Cl. 395—600 11 Claims



7. A process for compacting scattered contiguous and non-contiguous files in an electronic printing system having a system memory operatively coupled with N disks on which said files are stored, a processor for writing data, represented by electrical signals, from said system memory to said disks, and means for controlling movement of scattered replicated and non-replicated files between said disks, wherein said files are moved from different areas of said disks to a predetermined area of said disks, some of said files comprising system files that are replicated and stored in duplicate on each of said disks to avoid loss in the event of disk failure, with other files comprising non-replicated files that are divided into relatively small file segments, with the number of said file segments being an even multiple of N with every N file segments divided between said disks at the same location, the locations of said files being stored in a first allocation table, comprising the steps of:

a) building a list of said replicated and non-replicated files stored on said disks by volume;

b) sorting said files by the disk addresses of said files;

c) building a temporary volume allocation table in said system memory;

d) using said temporary allocation table, allocating said contiguous files to a first set of locations in said predetermined area of said disks;

e) using said temporary allocation table, allocating said non-contiguous files to a second set of locations in said predetermined area of said disks, performing step d) substantially prior to performing step e);

f) writing a copy of said temporary volume allocation table to one of said disks for updating said allocation table on said disk;

g) moving said contiguous and non-contiguous files to the first and second sets of locations allocated in said temporary volume allocation table with said controlling means; and

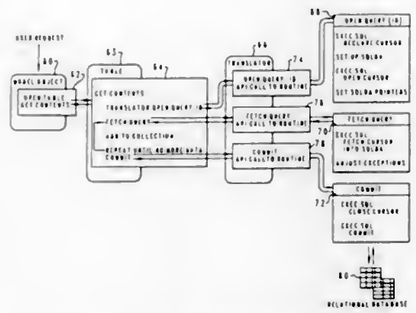
g) erasing said temporary allocation table from said system memory.

5,212,787

METHOD AND APPARATUS FOR ACCESSING A RELATIONAL DATABASE WITHOUT EXITING AN OBJECT-ORIENTED ENVIRONMENT

Ronald B. Baker, Fort Worth; Cathy J. Cavendish, Dallas, both of Tex., and Kevin L. Sitze, Las Cruces, N. Mex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 12, 1991, Ser. No. 668,001
Int. Cl.[5] G06F *15/40*
U.S. Cl. 395—600 5 Claims



1. A method for accessing a relational database outside of an object-oriented environment, without exiting the object-oriented environment comprising:

receiving a data access message from a requestor object in the object-oriented environment;

selecting a table having a data access routine for retrieving data corresponding to the data access message;

creating a data object in the object-oriented environment for holding data;

sending a command to a data access routine corresponding to the table, wherein the data access routine accesses the relational database;

receiving results of the relational database access from the data access routine;

placing the results in the data object; and

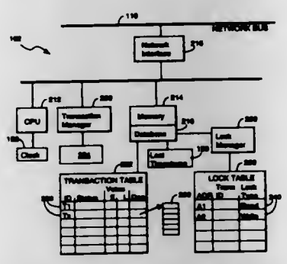
sending the data object to the requestor object.

5,212,788

SYSTEM AND METHOD FOR CONSISTENT TIMESTAMPING IN DISTRIBUTED COMPUTER DATABASES

David B. Lomet, Westford; Philip A. Bernstein, Carlisle, both of Mass.; James Johnson, Newbury, England, and Kenneth Wilner, Merrimack, N.H., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed May 22, 1990, Ser. No. 527,087
Int. Cl.[5] G06F *7/00, 15/40*
U.S. Cl. 395—600 11 Claims



1. A transaction management method for use in a distributed database system having a plurality of interconnected nodes, the steps of the method comprising:

(a) transmitting a prepare-to-commit message to each node in said system which is a cohort of a distributed transaction;

(b) each cohort of said distributed transaction receiving said prepare-to-commit message and then voting on a disposition of said distributed transaction, said disposition being selected from the set consisting of aborting said transaction and committing said transaction;

(c) each cohort voting to commit said transaction also voting a commit time range including an earliest time acceptable to said cohort for committing said transaction and a latest time acceptable to said cohort for committing said transaction;

(d) whenever said cohorts all vote to commit said transaction and said time ranges voted by said cohorts have a non-empty intersection, committing said transaction and selecting a transaction time for said transaction from the intersection of said time ranges voted by said cohorts;

(e) aborting said transaction whenever any of said cohorts vote to abort said transaction;

(f) aborting said transaction whenever said time ranges voted by said cohorts do not intersect; and

(g) repeating said steps (a) through (f) for a multiplicity of subsequent distributed transactions; and

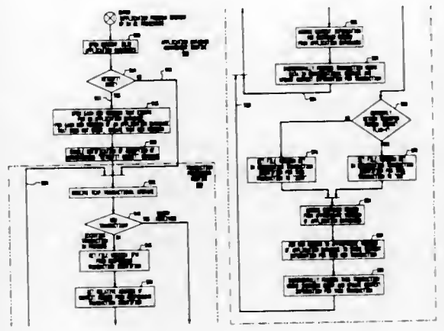
in a first distributed transaction whose cohorts include a read-only cohort that updates no data values during said first distributed transaction, setting a read lock in said read-only cohort for each datum accessed by said read-only cohort while performing said first distributed transaction, storing in said read-only cohort data indicating that each said read lock was set by said first distributed transaction, and releasing each said read lock no later than the latest time voted by said read-only cohort for said first distributed transaction.

5,212,789

METHOD AND APPARATUS FOR UPDATING APPLICATION DATABASES USED IN A DISTRIBUTED TRANSACTION PROCESSING ENVIRONMENT

Vito Rago, Brooklyn, N.Y., assignor to Bell Communications Research, Inc., Livingston, N.J.

Filed Oct. 12, 1989, Ser. No. 420,533
Int. Cl.[5] G06F *12/14, 15/40*
U.S. Cl. 395—600 11 Claims



1. A method for updating from a first version of a database residing within a memory device associated with a first node to a second version thereof and accessible by a processor connected to a second node, said first and second nodes being connected by a communication path so that transactional messages can be sent between said first and second nodes for conversational transaction processing, said method comprising the steps of, at said first node,

processing transactional messages of each first transaction that has been initiated prior to the start of a predefined transfer time period using the first version of said database regardless of whether any of the transactional messages of a first transaction occurs after the start of the transfer period;

loading the second version of said database onto said memory device prior to the start of said transfer time period;

initiating said transfer time period;

processing transactional messages of each second transaction that is initiated after the start and before the expiration of said transfer time period using said second version of said data base;

said processing steps each further comprising the step of setting a pre-defined field in a next subsequently occurring transactional message of the first or second transaction to a pre-defined value to specify whether said first or said second version of the database is to be used in processing the transaction of the next transactional message; and

transmitting the value of said pre-defined field in the next subsequent occurring transactional message from the first node to the second node; and said method further comprising at said second node the step of

echoing from said second node to said first node said value of said pre-defined field in succeeding transactional messages,

whereby the echoed pre-defined field assures that sequential access for successive transactional messages of a first and second transaction are processed only by said first and second databases respectively.

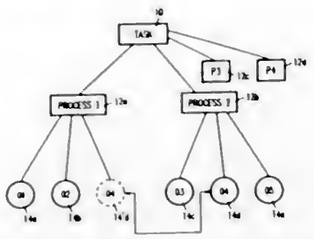
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5,212,790

METHOD OF PROGRAMMING A TASK, HAVING A PLURALITY OF PROCESSES, CREATED BY A PLURALITY OF DIFFERENT PROGRAMMERS, FOR OPERATION BY A COMPUTER

Peter C. Ohler, Lafayette, and Michael A. Curry, Berkeley, both of Calif., assignors to Teknekron Communications Systems, Inc., Berkeley, Calif.

Filed Nov. 28, 1990, Ser. No. 619,217
Int. Cl.[5] G06F 9/06
U.S. Cl. 395—650 6 Claims



1. A method of programming a task in object program format by a user for operation by a computer, comprising the steps of:

dividing said task into a plurality of processes by the user;

defining a plurality of unique objects for each process by the user; and

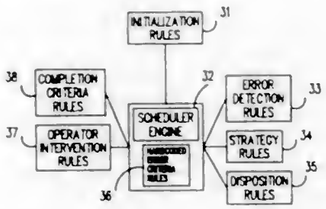
creating one or more phantom objects by the computer in a first process in response to a command specified by the user, each of said phantom objects corresponds to a defined object in a second different process, wherein upon access to a phantom object by the computer executing said first process, said computer automatically links with the second process having the corresponding defined object to cause said corresponding defined object to be accessed.

5,212,791

DYNAMIC SCHEDULING

Richard G. Damian, Palo Alto, and Manesh J. Shah, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 413,412, Sep. 27, 1989, abandoned. This application Jul. 27, 1992, Ser. No. 920,000
Int. Cl.[5] G06F 15/20, 15/46
U.S. Cl. 395—650 5 Claims



1. A method for operating a computer system to generate a schedule for a plurality of orders, the schedule having a plurality of slots for orders, the system having an inference engine for processing a set of rules including disposition, strategy and error detection rules, having a production memory for storing the set of rules and having working memory for storing a pool of schedules, comprising the steps of:

(a) forming a current parent schedule in the pool in the working memory having a first slot filled by an order by processing predetermined strategy rules using the inference engine;

(b) generating in the pool in the working memory all possible child schedules for the current parent schedule with each child schedule having at least one more slot filled than the current parent schedule by processing a rule using the inference engine;

(c) calculating error counts for the child schedules which violate the error detection rules by processing the error detection rules using the inference engine;

(d) deleting the current parent schedule from the pool in the working memory by processing a rule using the inference engine;

(e) deleting from the pool in the working memory the child schedules having error counts exceeding a predetermined error count threshold by processing the disposition rules using the inference engine;

(f) determining by processing a rule using the inference engine whether there are any schedules in the pool in the working memory and selecting, by processing a rule using the inference engine, a schedule in the pool, if any exists, as the current parent schedule while leaving the remaining schedules in the pool or ending if there are no schedules in the pool; and

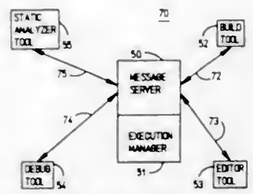
(g) repeating steps (b) through (f) until a schedule with all slots filled is found which meets the disposition rules by processing a rule using the inference engine.

5,212,792

METHOD AND APPARATUS FOR CONTROLLING EXECUTION OF TOOLS IN A COMPUTER-AIDED SOFTWARE ENGINEERING SYSTEM

M. Colin Gerety; Samuel C. Sands, and Martin R. Cagan, all of Fort Collins, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 1, 1989, Ser. No. 359,912
Int. Cl.[5] G06F 9/44, 15/16
U.S. Cl. 395—650 22 Claims



1. A method for controlling execution of software tools in a computer system comprising an electronic digital computer and a memory containing computer software for operating said computer, said computer software comprising a plurality of software tools which include means for communicating with each other through messages including request messages, each containing a request by one of said software tools for service by another of said software tools, said computer executing message control software for performing a method comprising the steps of:

receiving and forwarding said messages and controlling execution of request messages, said message control software having access to an initialization table for listing software tools that are present in said computer system and to a status table for listing software tools that are in operation in said computer system;

determining from said status table if a software tool is in operation for servicing a received request message received by said message control software; and

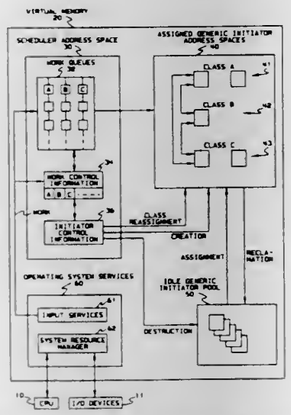
when a software tool is not in operation for servicing said received request message, automatically selecting from said initialization table a software tool for servicing said received request message and automatically starting the selected software tool.

5,212,793

GENERIC INITIATORS

Patricia A. Donica, Austin, Tex.; Stanley R. Shubert, Rochester, Minn., and Karl D. Schmitz, Pleasant Valley, N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Sep. 4, 1991, Ser. No. 754,812
Int. Cl.[5] G06F 12/02
U.S. Cl. 395—700 5 Claims



1. A method for enhancing the speed of processing in a computer system having an operating system and virtual memory capability, said method comprising the steps of:

creating unassigned address spaces as necessary in accordance with predetermined parameters;

storing in a control block accessible to said operating system fixed control information specific to programs to be run in at least one of said address spaces;

storing in a control block accessible to said operating system information indicating address space status;

storing in a control block accessible to said operating system tailorable control information specific to particular classes of work to be run in at least one of said address spaces by said computer system and;

assigning said address spaces to specific units of work requested to be performed in said computer system.

5,212,794

METHOD FOR OPTIMIZING COMPUTER CODE TO PROVIDE MORE EFFICIENT EXECUTION ON COMPUTERS HAVING CACHE MEMORIES

Karl W. Pettis, San Jose, and Robert C. Hansen, Santa Clara, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 1, 1990, Ser. No. 531,782
Int. Cl.[5] G06F 9/445, 9/45
U.S. Cl. 395—700 6 Claims

1. A method for operating a digital computer, including a memory for the storage of computer instructions and data, to convert a first computer program to a second computer program, said first computer program comprising a set of basic blocks of computer code arranged in a first linear order and said second computer program comprising a second set of basic blocks in a second linear order, each basic block of said second set of basic blocks being derived from one of said basic blocks of said first set of basic blocks, said method comprising the steps of:

(a) determining the frequency with which each basic block of said first set of basic blocks transfers control to each other basic block of said first set of basic blocks when said first computer program is executed with test data;

(b) providing an indicator for each pair of said basic blocks of said first set of basic blocks having a determined transfer frequency greater than zero, each said indicator having a first state and a second state, each said indicator being initialized to said first state;

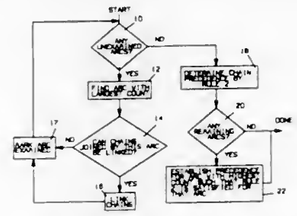
(c) determining which pair of basic blocks of said first set of basic blocks for which said indicator corresponding to said pair is in said first state has the largest transfer frequency and setting said indicator corresponding to said pair to said second state;

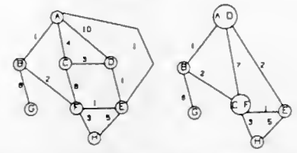
(d) combining a pair of chains of said first set of basic blocks to form a new chain which replaces said pair of chains if a source basic block for said pair of chains is the tail of one of said chains and a target basic block is the head of the other of said chains, said source basic block and target basic block being said pair of basic blocks determined in step (c);

(e) repeating steps (c) and (d) until all said indicators are in said second state; and

(f) arranging said chains in a linear order to generate said second computer program.

5. In a digital computer system including a computer memory, a method for causing said digital computer system to load





a computer program comprising a plurality of procedures, wherein at least some of said procedures when executed by said computer system call others of said procedures, into said computer memory, said method comprising the steps of:

(a) determining the frequency with which each procedure calls each other procedure in said computer program; and

(b) placing said procedures in said computer's memory in an order that depends on said determined frequencies,

wherein said step of placing said procedures comprises the steps of:

(c) defining groups of said procedures, each group initially comprising one of said procedures, each group being defined as being determined or incompletely determined, said groups being initially defined to be incompletely determined;

(d) defining a weight for each pair of said groups, said weight initially being the determined frequency with which said procedure in one group of said each pair called said procedure in the other group of said each pair;

(e) combining a pair of said groups having the highest weight to form a new group which replaces each group in said pair of groups;

(f) determining an order for the procedures in said new group if one of the groups in said combined pair was defined as being incompletely determined, said new group

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being defined as being determined if an order is determined for all procedures in said new group, and being defined as incompletely determined otherwise;

(g) defining weight for each pair of groups containing said new group, is said weight being the sum of the frequencies with which said new group called the other group in said each pair of groups; and

(h) repeating steps (e) through (g) until only one group remains, the order in which said procedures are loaded into said computer memory being determined by the order of said procedures in said remaining group.

5,212,795

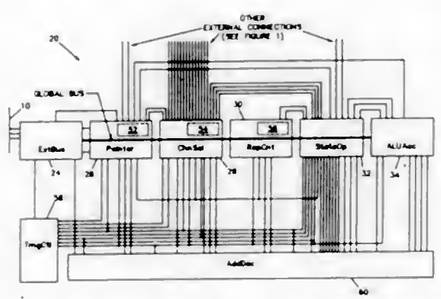
PROGRAMMABLE DMA CONTROLLER

David F. Hendry, Altadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Continuation of Ser. No. 255,384, Oct. 11, 1988, abandoned. This application Feb. 10, 1992, Ser. No. 833,636

Int. Cl.[5] **G06F** *13/18*

U.S. Cl. 395—725 **14 Claims**



1. In a data system having a memory, plural input/output (I/O) devices and a bus connecting each of said I/O devices to said memory, a direct memory access (DMA) controller for regulating access of each of said I/O devices to said bus, said DMA controller comprising:

global register means comprising:

priority register means for storing priority parameters for each of said I/O devices, said parameters corresponding to relative priorities accorded to simultaneously pending requests by at least some of said plural I/O devices for access to said bus,

interrupt register means for storing requests for access to said bus from respective ones of said I/O devices,

resolver means for determining from said priority register means and said interrupt register means one of said I/O devices to have access to said bus and for transmitting an acknowledgment to said one I/O device enabling said device to communicate with said memory on said bus;

channel register means comprising:

pointer register means for storing addresses of locations in said memory for communication with said one I/O device via said bus,

sequence register means for storing an address of a location in said memory containing a channel program instruction which is to be executed next;

arithmetic logic unit (ALU) means comprising:

means for one of incrementing and decrementing addresses stored in said pointer register means in accordance with a corresponding channel program instruction,

means for computing the next address to be stored in said sequence register means in accordance with a corresponding channel program instruction,

means for computing an initial contents of each of said register means in said channel register means in accordance with a corresponding channel program instruction;

said memory containing a sequence of channel program instructions for each of said channels at locations in said memory whose addresses are sequentially stored in said sequence register means, said instructions comprising means for defining:

a set up operation wherein the contents of each of said registers in said channel register means is initialized in accordance with said initial contents computed by said ALU means,

an access operation wherein data is transferred on said bus between a location in said memory whose address is currently stored in said pointer register means and said one I/O device enabled by said resolver means.

5,212,796

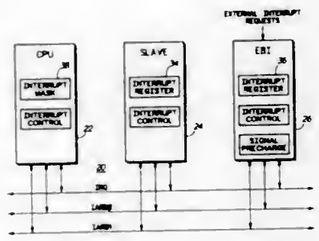
SYSTEM WITH MODULES USING PRIORITY NUMBERS RELATED TO INTERRUPT VECTORS FOR BIT-SERIAL-ARBITRATION ON INDEPENDENT ARBITRATION BUS WHILE CPU EXECUTING INSTRUCTIONS

Nigel J. Allison, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 459,507, Jan. 2, 1990, abandoned. This application Apr. 6, 1992, Ser. No. 866,943

Int. Cl.[5] **G06F** *13/14*

U.S. Cl. 395—725 **19 Claims**



1. In a microcomputer comprising a processor which executes instructions and responds to interrupt requests and a plurality of modules which are capable of producing interrupt requests, a method of interrupt arbitration and interrupt vector determination comprising the steps of:

providing an interrupt request line coupled to each of the plurality of modules;

while the processor continues instruction execution, performing the steps of:

(i) providing an arbitration bus including at least one line, coupled to each of the plurality of modules, the arbitration bus transferring only information related to interrupts;

(ii) supplying from at least two of said plurality of modules on the arbitration bus, in bit serial fashion, multi-bit interrupt priority number signals indicative of an interrupt priority number of each of the at least two of said plurality of modules; and

(iii) without polling said plurality of modules, determining, based upon the multi-bit interrupt priority number signals, which one of the at least two of said plurality of modules has a higher interrupt priority number;

interrupting the processor;

transferring the higher priority interrupt number to the processor;

using the higher priority interrupt number as an offset into a vector table in order to determine an interrupt vector; and

using the interrupt vector to enter an interrupt vector service routine.

5,212,797

MULTIPLE CPU SYSTEM INCLUDING AUTOMATIC POWER SUPPLY RESTORATION FOLLOWING INSTANTANEOUS SHUTDOWN

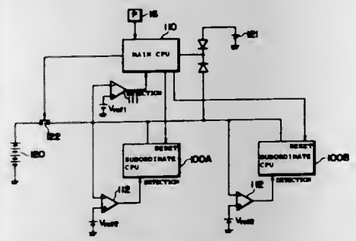
Izumi Miyake; Kiyotaka Kaneko; Yoshio Nakase; Yutaka Maeda, and Hiroshi Shimaya, all of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Division of Ser. No. 315,441, Feb. 24, 1989, Pat. No. 5,121,218. This application Jan. 28, 1992, Ser. No. 827,228

Claims priority, application Japan, Feb. 24, 1988, 63-39465; Feb. 24, 1988, 63-39468; Apr. 7, 1988, 63-84080

Int. Cl.[5] **G06F** *1/28*

U.S. Cl. 395—750 **2 Claims**



1. A multiple-CPU system comprising:

a main CPU; and

at least one subordinate CPU connected to said main CPU;

each of said CPU's further including a respective detector circuit coupled to a primary power supply for detecting a drop in a primary power supply voltage below a respective predetermined voltage threshold level, said detector circuit generating an output signal indicating a detection of the drop in primary power supply voltage for causing the respective CPU to assume a standby state;

said detector circuit of said main CPU further having a voltage threshold level set to a voltage lower than a voltage threshold of the detector circuit of said at least one subordinate CPU;

said main CPU additionally being supplied with an auxiliary power supply voltage from an auxiliary power source;

said main CPU further having means responsive to said auxiliary power supply voltage for reactivating the subordinate CPU following being placed in a standby state.

5,212,798

FLOPPY DISK DRIVE APPARATUS WITH VARIABLE ROTATION DISK SPEEDS AND VARIBLE STOPPING PERIODS

Kunio Kanda, Gotenba, Japan, assignor to Fanuc Ltc., Yamanashi, Japan

PCT No. PCT/JP89/00082, § 371 Date Apr. 28, 1989, § 102(e) Date Apr. 28, 1989, PCT Pub. No. WO89/07313, PCT Pub. Date Aug. 10, 1989

PCT Filed Jan. 27, 1989, Ser. No. 377,823

Claims priority, application Japan, Jan. 29, 1988, 63-017440

Int. Cl.[5] **G06F** *9/22, 9/445, 13/14, 12/06*

U.S. Cl. 395—775 **3 Claims**

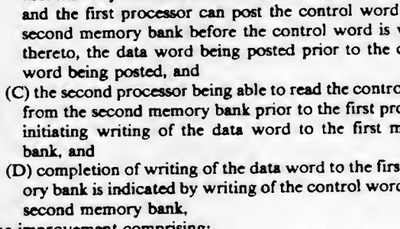
1. A floppy disk drive apparatus connected to a numerical control unit via a data transfer interface, for driving a floppy disk magnetically storing numerical control data accessible by the numerical control unit, said apparatus comprising:

reading means for reading the numerical control data from the floppy disk;

drive means for rotatively driving the floppy disk while said reading means is held in contact with the floppy disk;

monitoring means for monitoring a remaining amount of the numerical control data read from the floppy disk by said reading means not yet transferred by the data transfer interface;

comparing means for comparing the remaining amount of numerical control data with a reference amount of data calculated in dependence upon a start-up time of said drive means, a data read-out time and a a speed at which numerical control data is transferred by the data transfer interface; and



drive control means for controlling timing of commands for rotating and stopping said drive means responsive to the comparison by said comparison means.

5,212,799

METHOD AND APPARATUS FOR STORING A DATA BLOCK IN MULTIPLE MEMORY BANKS WITHIN A COMPUTER

Craig A. Walrath, Easley; Gene F. Young, Lexington; Terry S. Strickland, Greenville, and Michael R. Hilley, Belton, all of S.C., assignors to NCR Corporation, Dayton, Ohio

Filed Jul. 31, 1991, Ser. No. 739,114

Int. Cl.[5] **G06F** *12/00, 12/16*

U.S. Cl. 395—800 **4 Claims**

1. In a computer

(A) having a first processor and a second processor, the first processor being able to write a data block which includes a data word and a control word to a first memory bank and a second memory bank, and

(B) in which the first processor can post the data word to the first memory bank before the data word is written thereto and the first processor can post the control word to the second memory bank before the control word is written thereto, the data word being posted prior to the control word being posted, and

(C) the second processor being able to read the control word from the second memory bank prior to the first processor initiating writing of the data word to the first memory bank, and

(D) completion of writing of the data word to the first memory bank is indicated by writing of the control word to the second memory bank,

the improvement comprising:

a) means for ascertaining posting of the data word to the first memory bank by the first processor and generating a command signal in response thereto; and

b) means, responsive to the command signal, for preventing writing of the control word to the second memory bank until writing of the data word to the first memory location has been initiated.

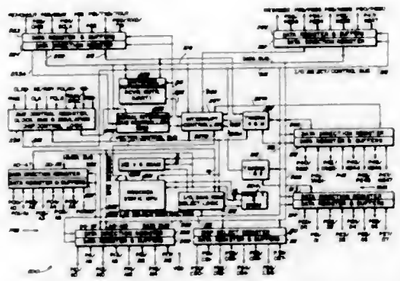
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,800

METHOD AND APPARATUS FOR SENSING TRINARY LOGIC STATES IN A MICROCOMPUTER USING BUS HOLDING CIRCUITS

William D. Mensch, Jr., 1924 E. Hope St., Mesa, Ariz. 85203

Division of Ser. No. 368,826, Jun. 20, 1989, Pat. No. 5,123,107.
This application Mar. 10, 1992, Ser. No. 849,166
Int. Cl.[5] G06F *1/12, 3/05, 13/20, 13/40*
U.S. Cl. 395—800 2 Claims



1. A method of operating a CMOS integrated circuit microcomputer including a plurality of I/O interface circuits including the steps of:
(a) providing a plurality of bus holding circuits, each bus holding circuit including a binary latch circuit having only two states and having a high output impedance in either state;
(b) connecting an input and an output of each latch circuit both to an I/O terminal of one of the I/O interface circuits, respectively;
(c) sensing trinary logic states representing conditions of an external circuit connected to one of the I/O terminals by an external circuit, by performing the steps of
i. reading a first logic level on the I/O terminal,
ii. forcing a second logic level on the I/O terminal, then reading the level on the I/O terminal and accepting a state of the I/O terminal as a first logic state indicating that the first logic level is maintained on the I/O terminal by the external circuit if that read level is equal to the first logic level,
iii. accepting the state of the I/O terminal as a second logic state indicating a very high output impedance condition of the external circuit if that read level is not equal to the first level,
iv. reading a second logic level on the I/O terminal,
v. forcing the first level on the I/O terminal, then reading the level of the I/O terminal, and accepting the state of the I/O terminal as a third logic state indicating that the second logic level is maintained on the I/O terminal by the external circuit if that read level is equal to the second logic level, and
vi. accpeting the state of the I/O terminal as the second logic state if that read level is not equal to the second logic level.

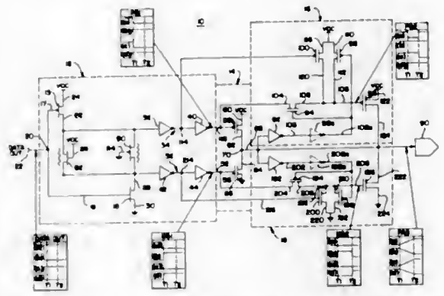
5,212,801

APPARATUS FOR RESPONDING TO COMPLETION OF EACH TRANSITION OF A DRIVER OUTPUT SIGNAL FOR DAMPING NOISE BY INCREASING DRIVER OUTPUT IMPEDANCE

Charles Farmer, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Aug. 31, 1990, Ser. No. 576,006
Int. Cl.[5] G06F *3/00*
U.S. Cl. 395—800 5 Claims

1. An apparatus for controlling digital driver signals to accommodate a host system; the apparatus comprising:
a driver control means for generating a plurality of gating signals in response to a received data signal;
a driver means for generating a driver signal at a driver output in response to said plurality of gating signals; said driver means being connected to said driver control means to receive said plurality of gating signals and
impedance control means for adjusting output impedance of said driver means in response to transitions of said driver signal, said impedance control means being connected to said driver means to receive said driver signal, said impedance control means comprising a high signal impedance control means for effecting said adjusting for low-to-high transitions of said driver signal and a low signal impedance control means for effecting said adjusting for high-to-low transitions of said driver signal;
said high signal impedance control means being responsive



to said driver signal for generating a first impedance control signal for controlling a first digital switching device to operatively connect said driver output with a voltage source;
said low signal impedance control means being responsive to said driver signal for generating a second impedance control signal for controlling a second digital switching device to operatively connect said driver output with ground; said high signal impedance control means and said low signal impedance control means responding to said transitions of said driver signal to reduce noise during said transition, said high signal impedance control means and said low signal impedance control means respectively establishing said first and second digital switching devices off substantially upon completion of each said transition of said driver signal to increase output impedance of said driver means.

5,212,802

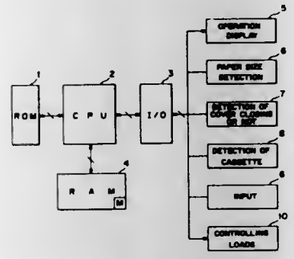
IMAGE FORMING APPARATUS ASSESSING WHETHER IT IS NECESSARY TO INSTALL ADDITIONAL PERIPHERAL DEVICE AND INFORMING AN OPERATOR TO THAT EFFECT

Manabu Matsumoto, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 1, 1990, Ser. No. 486,751
Claims priority, application Japan, Mar. 2, 1989, 1-51755; May 24, 1989, 1-131191; Jun. 14, 1989, 1-151090
Int. Cl.[5] G06F *9/06*
U.S. Cl. 395—800 6 Claims

1. An image forming apparatus the apparatus comprising:
means for mounting peripheral devices to the apparatus;
a memory for storing copying condition data sets sequentially wherein said copying condition data sets include the size of sheets, or size of original, documents, numbers of copies from an original document and number of original documents;
means operatively connected to the memory, for determining whether each data set of said sequential data sets in

said memory are of successive copying events or not and for counting said successive copying events in a predetermined period of time;
means operatively connected to said memory, for assessing a necessity of equipping an additional peripheral device



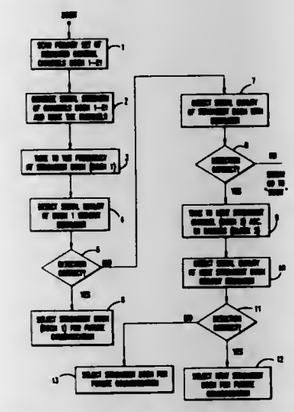
based on a criteria involved in said copy condition data set and said successive copying events; and
means operatively connected to said memory for informing an operator whether said additional peripheral device is necessary or not.

5,212,803

METHOD FOR REDUCING EQUALIZER USAGE IN MOBILE RADIO COMMUNICATION SYSTEMS

Jan E. Uddenfeldt, Vällingby, and Alex K. Raith, Kista, both of Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Sep. 6, 1990, Ser. No. 578,246
Int. Cl.[5] H04B *7/26*
U.S. Cl. 455—33.1 17 Claims



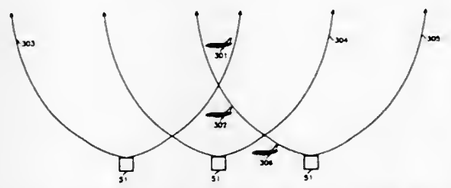
1. In a cellular mobile radio system including a number of base stations and mobile stations, each of said mobile stations including an equalizer function which can be used for compensation of the time dispersion in the radio signals received from one of the base stations, each of said base stations transmitting a specific dedicated control channel to said mobile stations, a method of selecting one of said dedicated control channels and an associated base station, comprising the steps of:
a) scanning a plurality of said dedicated control channels received by a mobile station,
b) measuring the signal strength of said dedicated control channels from strongest to weakest and ranking the channels according to the signal strength thus measured,
c) tuning the receiver of said mobile station to a first dedicated control channel having a first signal strength according to said ranking,
d) detecting a first signal quality of said first dedicated control channel without using said equalizer function in said mobile station, and making a decision whether said first signal quality is acceptable or not,
e) using said equalizer function in said mobile station and detecting a second signal quality of said first dedicated control channel if said first signal quality without the use of the equalizer function of said first dedicated control channel was not acceptable, and making a decision whether said second signal quality is acceptable or not,
f) tuning the receiver to a second dedicated control channel having a second signal strength less than said first signal strength according to said ranking if said second signal quality was acceptable, and detecting a signal quality of said second dedicated control channel without using said equalizer function, and
g) selecting said second dedicated control channel and the associated base station if the previous detection of the signal quality of said second dedicated control channel was acceptable.

5,212,804

COMMUNICATION SYSTEM HAVING MULTIPLE BASE STATIONS AND MULTIPLE MOBILE UNITS

Bernard K. Choate, Chicago, Ill., assignor to GTE Airfone, Inc., Oak Brook, Ill.

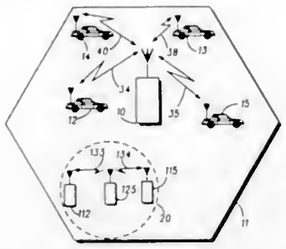
Division of Ser. No. 562,114, Aug. 2, 1990, Pat. No. 5,123,112.
This application Oct. 7, 1991, Ser. No. 772,507
Int. Cl.[5] H04B *7/26*
U.S. Cl. 455—33.1 4 Claims



1. A method for managing radio frequency communications between one or more mobile units and one or more base stations, said method comprising the steps of:
making a pilot channel and a predetermined number of communication channels available at each of said base stations;
broadcasting, from each of said base stations, pilot signals over said pilot channels;
receiving, at one of said mobile units, at least one of said broadcast pilot signals;
processing, at said one mobile unit, said received pilot signal to determine whether communication channels are available for use by said one mobile unit;
processing, at said one mobile unit, said received pilot signal to determine whether communication channels associated with said base station from which said received pilot signal was broadcast are reserved for use by other ones of said mobile units and;
refraining, at said one mobile unit, from utilizing said reserved communication channels.

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5,212,805
NEAR-FIELD ON-SITE/TRUNKING SYSTEM FREQUENCY SHARING
Richard A. Comroe, Dundee; Arun Sobti, Wheaton; Paul M. Bocci, Roselle; Robert W. Furtaw, Arlington Heights; Bradley M. Hiben, Glen Ellyn, and James A. McDonald, Buffalo Grove, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jun. 29, 1990, Ser. No. 546,328
Int. Cl.[5] H04Q 7/00
U.S. Cl. 455—33.1 21 Claims



10. A method of assigning communication resources within a first service coverage area, wherein the first service coverage area is at least partially coextensive with a second service coverage area that is serviced by a first communication system that makes use of a first set of communication resources, comprising the steps of:

A) measuring, proximal to the first communication system, a first signal quality factor for at least one of the first set of communication resources;

B) measuring, within the first service coverage area, a second signal quality factor of the same at least one of the first set of communication resources;

C) comparing the first and second signal quality factors against at least one reference value, to obtain first and second comparison values, respectively;

D) when the first and second comparison values at least equal predetermined values, determining that the at least one of the first set of communication resources is available for allocation within the first service coverage area.

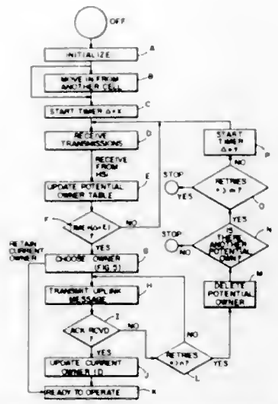
5,212,806
DISTRIBUTED CONTROL METHODS FOR MANAGEMENT OF MIGRATING DATA STATIONS IN A WIRELESS COMMUNICATIONS NETWORK
Kadathur S. Natarajan, Millwood, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 29, 1990, Ser. No. 605,723
Int. Cl.[5] H04B 7/26
U.S. Cl. 455—33.2 23 Claims

16. A wireless communications system having a plurality of header stations each serving a communication coverage area, the system further including at least one mobile communication unit, the mobile communication unit comprising:

means for receiving, when located at a position that is served by two or more of the header stations, a transmission from each of the header stations that serve the position occupied by the mobile communication unit, the received transmissions being received over the wireless communications network and each transmission including information for uniquely identifying the transmitting header station, each transmission further including other information for indicating a number of mobile communication units for which the transmitting header station is currently managing wireless communications;

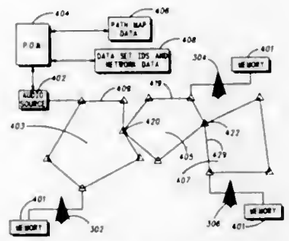
means for selecting, in accordance with the received transmissions from the two or more header stations, one of the header stations as a header station to manage future wireless communications for the mobile communication unit; and

means for transmitting a message over the wireless communications network from the mobile communication unit to the selected header station, the transmitted message requesting that the mobile communication unit be assigned to the selected header station, said transmitting means



operating in response to a determination by the mobile communication unit that the selected header station is not a header station that is presently managing wireless communications for the mobile communication unit, the transmitted message including information for identifying a header station, if any, that is currently managing wireless communications for the mobile communication unit.

5,212,807
METHOD OF AUTOMATIC PATH MAP GENERATION FOR SIMULCAST TRANSMISSION SYSTEM
Hang K. Chan, Bartlett, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Mar. 28, 1991, Ser. No. 678,878
Int. Cl.[5] H04Q 7/00
U.S. Cl. 455—33.4 3 Claims



1. A method of automatically mapping delay parameters with particular path conditions, the method being employed in a network control device of a simulcast transmission system having at least three transmitter sites which form a first communication loop having at least a first and a second audio path, the first audio path originating from a primary transmitter site, passing first through a first transmitter site, and ending at a second transmitter site, a second audio path originating from the primary site, passing first through the second transmitter site, and ending at the first transmitter site, the first audio path being associated with a first path condition, the second audio path being associated with a second path condition, the method comprising the steps of:

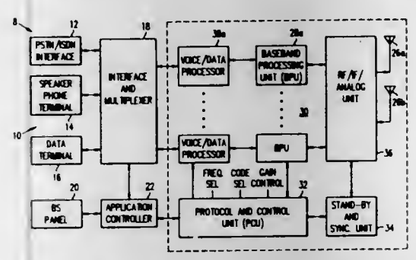
selecting one of the at least three transmitter sites for which a path map is to be generated to produce a selected transmitter site;

determining a logical relationship between the primary transmitter site and said selected transmitter site;

calculating, based on said logical relationship, a data set identification (ID) containing delay parameters for said selected transmitter site and associated with each of the at least first and the second path conditions; and

recording said data set ID for said selected transmitter site, whereby a path map describing a unique association between each of at least the first and the second path conditions and said data set ID is produced.

5,212,808
METHOD AND AN APPARATUS FOR RE-ESTABLISHING WIRELESS COMMUNICATION BETWEEN A BASE UNIT AND A REMOTE UNIT
Chun-Meng Su, Lafayette; Keith Jarett, and Christopher Flores, both of Oakland, all of Calif., assignors to Teknekron Communications Systems, Inc., Berkeley, Calif.
Filed Nov. 8, 1991, Ser. No. 789,736
Int. Cl.[5] H04B 7/00
U.S. Cl. 455—51.1 8 Claims



3. A wireless communication system for communication between a base unit and a remote unit, said system comprising:

means for transmitting by the base unit to the remote unit a table of channels of communication to be used between the base unit and the remote unit;

means for receiving the table transmitted by the base unit, by the remote unit;

means for storing the table received by the remote unit;

means for generating a clock signal by the base unit;

means for transmitting, by the base unit to the remote unit, the clock signal value;

means for applying a function by the base unit to the value of the clock signal to obtain an entry in the table in the base unit, in the event of a break in the communication link between the base unit and the remote unit;

means for selecting the channel of communication associated with the entry in the table by the base unit;

means for receiving said clock signal value by said remote unit;

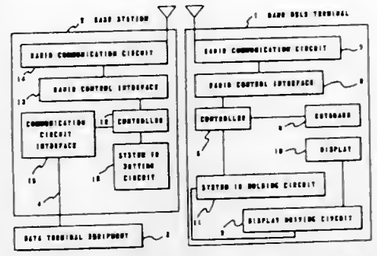
means for generating an internal clock signal by the remote unit synchronized with said clock signal value;

means for applying the same function by the remote unit to the value of the internal clock signal at the remote unit, to obtain an entry in the table in the event of a break in the communication link between the base unit and the remote unit; and

means for selecting the channel of communication associated with the entry in the table by the remote unit,

whereby communication is re-established over the channel of communication associated with the entry in the table.

5,212,809
RADIO COMMUNICATION SYSTEM
Tomohiko Oka, Tokyo, Japan, assignor to Seiko Instruments Inc., Japan
Filed Aug. 29, 1989, Ser. No. 399,911
Claims priority, application Japan, Sep. 6, 1988, 63-223153
Int. Cl.[5] H04B 1/38
U.S. Cl. 455—54.1 20 Claims



1. A method of setting a system ID number to a hand held terminal, in which a base station communicates with plural hand held terminals by a two-way radio transmission in accordance with the system ID number, the method comprising the steps of:

A. transmitting first data including a system ID request code to said base station from said hand held terminal by radio transmission, said transmitting step comprising

A1. inputting a code requesting the system ID number,

A2. judging said code which requests said system ID number,

A3. generating said first data including said system ID request code and a terminal ID of said hand held terminal, and

A4. transmitting said first data to said base station;

B. transmitting second data including the system ID number to said hand held terminal from said base station by radio transmission; and

C. setting said system ID number to said hand held terminal.

5,212,810
TERMINAL EQUIPMENT OF A VEHICLE RADIO TELEPHONE SYSTEM
Koji Maeda; Yutaka Tomiyori; Shinji Kawamura; Motoyoshi Komoda; Shinobu Okuno, and Hiroshi Takizawa, all of Tokyo, Japan, assignors to NEC Corporation, Japan
Filed Jun. 15, 1990, Ser. No. 538,989
Claims priority, application Japan, Jun. 19, 1989, 1-157603; Jul. 26, 1989, 1-191364; Jul. 26, 1989, 1-193747; Jul. 28, 1989, 1-196150; Aug. 17, 1989, 1-210669; Feb. 16, 1990, 2-35210
Int. Cl.[5] H04B 1/00, 7/00
U.S. Cl. 455—58.2 17 Claims

1. A terminal equipment having transmitting and receiving functions for a vehicle radio telephone system, comprising:

a timpiece means for counting time to produce time information;

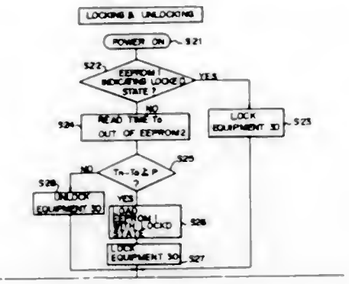
transmitter/receiver means for causing a communication to be held at the time of transmission and reception;

locking means for locking the operations of said transmitter/receiver means;

control means for controlling operations of said transmitter/receiver means in response to the time information from said timepiece means and thereby limiting a function of said terminal equipment to one of a plurality of predetermined modes, said control means controlling in response to the time information, said locking means and said transmitter/receiver means such that said equipment is locked when a predetermined period of time expires after either locking of said transmitter/receiver means by said locking means has been cancelled, or after a power

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source of said equipment has been turned on and locking of said transmitter/receiver means by said locking means has been cancelled.



5,212,811

RADIO TELEPHONE IN WHICH AN OFF OPERATION OF AN OPERATOR-ACTIVATED POWER SWITCH IS INHIBITED DURING A TALK MODE

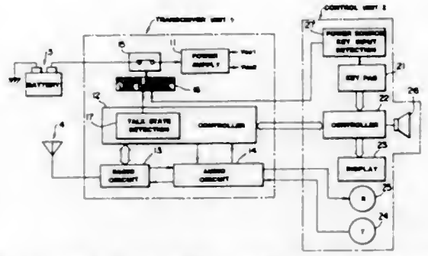
Toru Kuge, Hino, and Takaaki Ishii, Sagamihara, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 5, 1989, Ser. No. 446,540

Claims priority, application Japan, Dec. 7, 1988, 63-309578; Mar. 10, 1989, 1-59247

Int. Cl.[5] H04B *1/38*

U.S. Cl. 455—73 **43 Claims**



3. A method of controlling a radio telephone apparatus having a transceiver unit including a power supply and a radio circuit, said method comprising the steps of:

turning ON said apparatus by operating an ON/OFF key, wherein said apparatus is turned ON solely in response to an actuation of said ON/OFF key;

detecting whether or not said apparatus is in a talk mode on the basis of the detection of a supervisory audio tone signal transmitted by a base station; and

inhibiting user-activated OFF operation of said power supply when the apparatus is in the talk mode.

5,212,812

END-OF-TRANSMISSION KEYING DEVICE

Roy F. Dutton, Orlando, Fla., assignor to Mr. Jiggs CB Development, Inc., Salt Springs, Fla.

Filed Oct. 1, 1990, Ser. No. 590,943

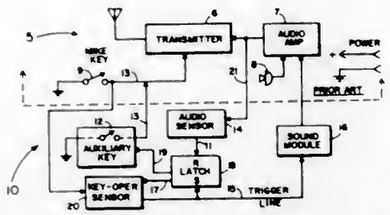
Int. Cl.[5] H04B *1/38*

U.S. Cl. 455—73 **7 Claims**

1. A device for automatically re-keying a transmitter after a transmission ceases, and for thereafter transmitting a preselected audio signal comprising:

a) key-open sensing means having an input to a first transistor connected to said transmitter, axis transistor turned on when said transmission ceases to thereby produce a trigger signal, a latch circuit connected to said first transistor, said trigger signal setting a HIGH at an output of said latch circuit, and a trigger signal output for providing an indicating signal for said preselected audio signal;

b) auxiliary keying means responsive to said key-open sensing means for re-keying said transmitter; and



c) audio sensing means connected to said latch circuit for sensing presence of said preselected audio signal, and for resetting said latch circuit to open said auxiliary keying means thereby un-keying said transmitter.

5,212,813

DEVICE FOR THE COUPLING TO A COMMON ANTENNA OF AT LEAST TWO TRANSMITTING AND/OR RECEIVING DEVICES

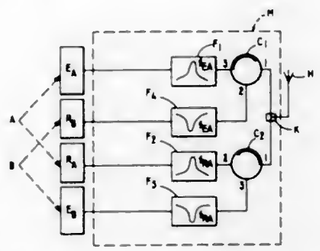
Laurent Renaud, Rueil Malmaison, France, assignor to Dassault Aviation, Paris, France

Filed Feb. 26, 1991, Ser. No. 660,845

Claims priority, application France, Feb. 28, 1990, 90 02484

Int. Cl.[5] H04B *1/48, 1/18*

U.S. Cl. 455—82 **15 Claims**



1. Device for the coupling to at least one common antenna of at least two devices for transmitting and receiving microwave frequency signals operating in a same frequency range but having separated working bands, a four-channel circuit comprising:

- a first channel for coupling a transmitter of a first device to the antenna by the intermediary of a first passive filter and of a first circulator,
- a second channel for coupling a receiver of said first device to the antenna by the intermediary of a second passive filter and of a second circulator,
- a third channel for coupling a transmitter of a second device to the antenna by the intermediary of a third passive filter and of said second circulator, and
- a fourth channel for coupling a receiver of said second device to the antenna by the intermediary of a fourth passive filter and of said first circulator,

said first passive filter is a band pass filter centered on the middle of the working band of said transmitter of said first device;

said second passive filter is a band pass filter centered on the middle of the working band of said receiver of said first device;

said third passive filter is a band rejection filter centered on the middle of the working band of said receiver of said first device;

said fourth passive filter is a band rejection filter centered on the middle of the working band of said receiver of said first device;

each circulator being connected to the transmitter of one of said devices and to the receiver of the other of said devices to allow the transmission of signals from said transmitter of one of said devices to the antenna and from the latter to said receiver of said other of said devices and to inhibit the transmission of signals from said transmitter of said one of said devices to said receiver of said other of said devices.

5,212,814

AUTOMATIC OUTPUT POWER CONTROLLER

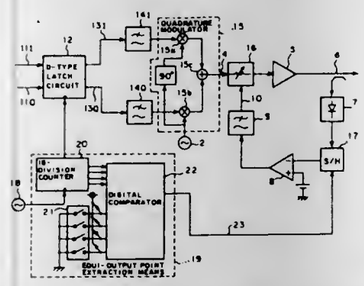
Yasushi Iwane, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 18, 1991, Ser. No. 686,986

Claims priority, application Japan, Jul. 4, 1990, 2-176771

Int. Cl.[5] H04B *1/02, 1/04;* **H03G** *3/00*

U.S. Cl. 455—107 **9 Claims**



1. An automatic output power controller wherein gain adjustment of a power amplifier is performed automatically so that the output of the power amplifier amplifying signals modulated by base band signals is held constant, said controller comprising:

an output power detector for detecting the output power of said power amplifier and outputting a voltage in response to the output power so detected;

a sample-and-hold circuit for sampling said voltage in response to the output power detected by said output power detector at selected time intervals and for holding the sampled voltage which is sampled at each time interval to a next sample point at a next time interval;

a voltage difference output means for comparing the voltage sampled-and-held in said sample-and-hold circuit with a selected reference voltage and for outputting the voltage difference between said sampled-and-held voltage and said selected reference voltage;

a low pass filter for smoothing the voltage difference obtained in said voltage difference output means and outputting a feedback control signal which is a function of the smoothed voltage difference;

an output power adjusting means for adjusting the output power in response to the feedback control signal output by said low pass filter; and

an equi-output point extraction means for extracting timing at which the output power becomes a constant value based on a phase signal set by a switch group and for outputting the extracted timing as a sample timing signal for determining said selected time intervals of said sample-and-hold circuit.

5,212,815

RADIO EQUIPMENT DIRECTIONAL COUPLER

Lawrence R. Schumacher, Hoffman Estates, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 3, 1991, Ser. No. 753,530

Int. Cl.[5] H04B *1/04;* **H01P** *5/18*

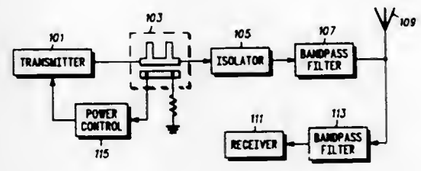
U.S. Cl. 455—126 **13 Claims**

6. A radio transmitter employing a directional coupler to couple the radio frequency output signal of the transmitter to an antenna and provide a signal representative of the coupled radio frequency output signal to a controller which controls the power of the radio frequency output signal, the directional coupler comprising:

a first transmission line having an input port coupled to the transmitter and an output port coupled to the antenna;

a second transmission line, coupled primarily to said first transmission line and having a first port coupled to the controller to provide a portion of said radio frequency output signal to the controller; and

a third transmission line coupled primarily to said first transmission line and having an electrical length equal to an integer multiple of a quarter wavelength of an undesired component of said radio frequency output signal, whereby said undesired component is diminished at least at said output port.



5,212,816

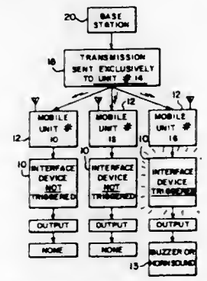
HORN HONKER INTERFACE

Oscar Gimenez, 72-21 60th Ave., Maspeth, N.Y. 11378, and George Spector, 233 Broadway RM 3815, New York, N.Y. 10007

Filed Sep. 4, 1990, Ser. No. 577,445

Int. Cl.[5] G08B *3/00*

U.S. Cl. 455—156.1 **1 Claim**



1. An audible interface device for each of a plurality of mobile units used in a vehicle interfacing a radio dispatch base station connected to each unit by a transmission line, said device comprising:

a) audible signaling members;

b) means for detecting a voltage drop in each said line when an exclusive message is received by one of said units and actuating one of said audible signaling members for a predetermined time interval to indicate the exclusive message has been received at the unit; including a manu-

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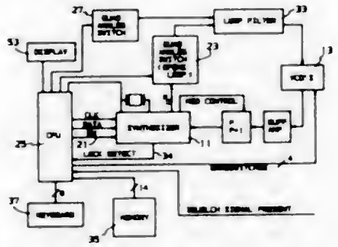
ally operated switch electrically coupled to said detecting means so that in one position said switch connects said detecting means to a first of said audible signaling members to produce a low sound level when a person operating the vehicle is sitting on a seat inside the vehicle and in another position said switch connects said detecting means to a second of said audible signaling members to produce a high sound level when the person is in hearing distance away from the vehicle, wherein the second of said audible signaling members is a vehicle horn and means are provided responsive to the person sitting on the vehicle seat to deactivate the born.

5,212,817

ULTRA HIGH SPEED SCAN SYSTEM

Noel D. Atkinson, 4710 Ingleside La., Indianapolis, Ind. 46227

Filed Sep. 14, 1990, Ser. No. 583,040
Int. Cl.[5] H04B *1/26*
U.S. Cl. 455—161.2 **11 Claims**



1. In a high speed scanning radio receiver having an RF amplifier, a frequency synthesizer for generating a local oscillator signal, a mixer receiving an input from the RF amplifier and the local oscillator signal from the frequency synthesizer, an IF amplifier receiving an input from the mixer, a demodulator for demodulating an IF signal from the IF amplifier and providing an output signal to an audio output stage, the improvement comprising:

memory means for storing a plurality of frequency codes corresponding to respective radio channels;

scan control means for sequentially reading pairs of distinct frequency codes for each channel to be scanned from said memory means and for loading said frequency synthesizer with said pairs of distinct sequentially read frequency codes;

means utilizing a linear combination of each pair of distinct frequency codes to generate a local oscillator signal;

means for sensing each scanned channel to detect the presence of a signal on the channel; and

squelch circuit means for disabling said audio output stage in the absence of a detected signal on any one of the channels corresponding to said pairs of distinct sequentially read frequency codes, the squelch circuit means being deactivated and the scan control means interrupted upon detection of the presence of a signal on a channel.

5,212,818

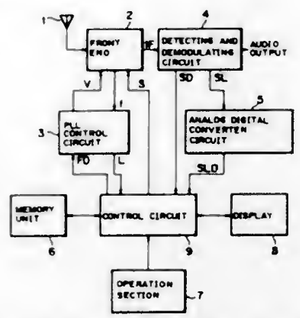
RADIO STATION PRESETTING METHOD FOR RADIO RECEIVERS

Toshiyuki Fukami, Saitama, Japan, assignor to Pioneer Electrical Corporation, Tokyo, Japan

Filed Dec. 21, 1990, Ser. No. 631,311
Claims priority, application Japan, May 23, 1990, 2-131205
Int. Cl.[5] H04B *17/02*
U.S. Cl. 455—186.1 **4 Claims**

1. In a radio station presetting method for radio receivers, in which seek-scanning is performed to select a predetermined number of radio stations with reception field strength higher than a specified level in descending order of reception field strength and to set data of the selected stations in a station-presetting first memory, said method comprising the steps of:

storing in a second memory a predetermined number of radio stations with reception field strength higher than the specified level and which are not set in the station-presetting first memory;



each time specific station data set in the station-presetting first memory is specified for data deletion, deleting the specified station data from the first station-presetting memory, and then writing into the first station-presetting memory that station data from the second memory with the highest reception field strength; and then

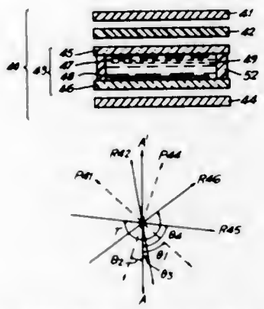
erasing that station data from the second memory.

5,212,819

LIQUID CRYSTAL DISPLAY DEVICE WITH PARTICULAR ANGLE BETWEEN OPTICAL AXIS OF OPTICALLY ANISOTROPIC MATERIAL AND OBSERVATION DIRECTION

Hiroshi Wada, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Apr. 9, 1991, Ser. No. 683,419
Claims priority, application Japan, Apr. 9, 1990, 2-93667
Int. Cl.[5] G02F *1/13, 1/1335*
U.S. Cl. 359—63 **15 Claims**



12. A liquid crystal display device having a display screen with a rear edge as viewed from a user, comprising:

a super twisted nematic liquid crystal cell including first and second opposed electrode substrates with a twisted nematic liquid crystal material therebetween with an angle of twist between about 180° and 260° from the first substrate to the second, the cell having an observation direction, the observation direction being a direction of the projection in the plane of the display screen of the direction from which a user of said display device most frequently views said display screen, the observation direction being both in the plane of the display screen and substantially perpendicular to the rear edge thereof;

a pair of polarizing plates disposed on opposite sides of the liquid crystal cell with Θ_1 being the angle between the observation direction and the axis of polarization of the first polarizer adjacent the first substrate of the liquid crystal cell and Θ_2 being the angle between the observation direction and the axis of polarization of the other polarizer; and

at least one layer of an optically anisotropic material between the liquid crystal cell and one polarizer with Θ_3 being the angle between the optical axis of the at least one layer of optically anisotropic material and the observation direction,

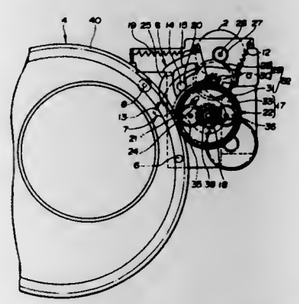
Θ_3 between one of about 0° and 30° and about 60° and 90°.

5,212,820

TAPE LOADING APPARATUS FOR DRAWING MAGNETIC TAPES

Seiki Tanaka, Kanagawa, assignor to Sony Corporation, Japan

Filed Dec. 21, 1990, Ser. No. 631,487
Claims priority, application Japan, Dec. 26, 1989, 1-337539
Int. Cl.[5] G11B *15/665*
U.S. Cl. 360—85 **4 Claims**



1. A tape loading apparatus in a chassis for drawing magnetic tape from a mounted tape cassette in which magnetic tape is wound around a circumferential surface of a tape guide drum comprising:

a loading ring on which a first pin is mounted so that said loading ring is stopped thereby at a first loading start position;

a second pin fixed relative to said chassis for stopping a rotation of said loading ring at a second position at which a loading operation is completed;

a motor;

means for transmitting rotation of said motor to said loading ring; and

lock means having first and second levers for locking said first pin at a position where said first pin is engaged by the first and second levers, and at least one of said first and second levers contacts said second pin; wherein

said transmitting means comprises an epicyclic train;

said second lever has a third pin which is engaged to said epicyclic train so that a rotation of said epicyclic train is limited thereby; and

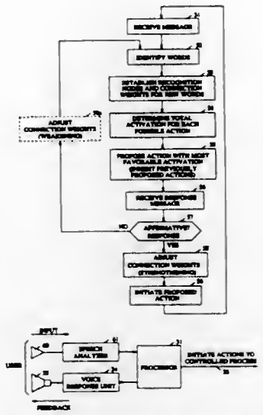
said epicyclic train comprises a first gear having a wall on which gear teeth are formed and having a slot engaged with said third pin on said second lever, and a second gear on which at least one planet gear is rotatably mounted, said second gear and said planet gear being engaged to said loading ring and said gear teeth of said first gear respectively, and a main shaft having gear teeth for engaging said first and second gears so as to drive same in response to rotation of said motor.

5,212,821

MACHINE-BASED LEARNING SYSTEM

Allen L. Gorin, Fairlawn, and Stephen E. Levinson, Westfield, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Mar. 29, 1991, Ser. No. 677,043
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—22 **19 Claims**



1. The method of conditioning a machine for selecting one of a plurality of outputs in response to applied inputs, each input containing one or more elements, comprising the steps of:

establishing a recognition node for each distinct element in said inputs, said recognition node having activation states indicating the presence or absence of said element in an input;

defining weighting relationships between each said recognition node and each said output;

determining, in response to each input, a total activation for each said output from said weighting relationships and the activation states of said recognition nodes;

selecting, in response to said determining step, the output having the most favorable total activation;

proposing the output selected in said selecting step;

adjusting said weighting relationships in response to an input received subsequent to said proposing step in accordance with whether or not said subsequent input indicates that said proposed output is correct;

whereby, as successive inputs are received, said weighting relationships become adapted to represent associations between semantically significant ones of said elements and said outputs.

5,212,822

METHOD FOR REGISTERING MOBILE STATION IN MOBILE COMMUNICATION SYSTEM

Yoshinobu Fukumine; Takanori Utano; Narumi Umeda, and Seizo Onoe, all of Kanagawa, Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed Jan. 2, 1991, Ser. No. 623,670
Claims priority, application Japan, Aug. 24, 1989, 1-218058
Int. Cl.[5] H04Q *7/00*
U.S. Cl. 455—33.1 **6 Claims**

1. A mobile communication system comprising:

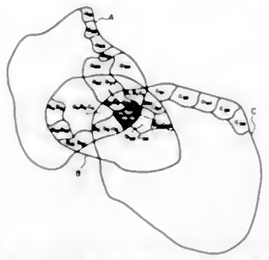
a plurality of location registration areas each having a plurality of radio base stations associated therewith for the transmission of location registration area codes for storage in a mobile station wherein:

some of said radio base stations are associated with a plural-

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ity of location registration areas by partial overlap of said location registration areas,

each radio base station transmits all the registration area codes with which said each radio base station is associated together with the indication of one of said codes as a primary location registration area code,



the mobile station receives the location registration area codes, and compares said received codes with a previously stored location registration area code so that

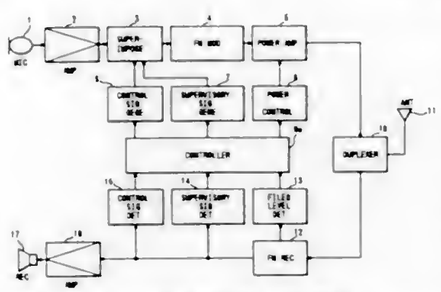
when the previously stored area code in the mobile station coincides with none of the plurality of area codes transmitted by the base station, the registration of area code for the mobile station is updated to said primary location registration area code.

5,212,823

RADIO COMMUNICATION SYSTEM

Yuichi Fujii, and Tetsuaki Nakanishi, both of Yokohama, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 12, 1990, Ser. No. 478,379
Claims priority, application Japan, Feb. 15, 1989, 1-36867
Int. Cl.[5] H04B 1/00
U.S. Cl. 455—54.1 3 Claims



1. A radio communication system comprising:

a base station transmitting a signal including a component which designates a power level; and

a mobile station receiving the signal from the base station;

wherein the mobile station comprises means for setting an output power of the mobile station to the designated power level, means for detecting a received field level of the signal transmitted from the base station, means for determining whether or not the detected field level of the received signal is equal to or higher than a predetermined field level, and means for decreasing the output power of the mobile station from the designated power level by a predetermined value when the detected field level of the received signal is equal to or higher than the predetermined field level, and

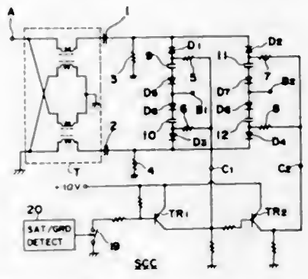
wherein the base station transmits a speech supervisory signal to the mobile station on a voice channel, the speech supervisory signal includes a tone signal whose frequency resides outside an audio frequency band, and the mobile station transponds the speech supervisory signal even when the output power of the mobile station is decreased by a predetermined value from the designated power level.

5,212,824

MIXER FOR FREQUENCY CONVERTING BOTH GROUND AND SATELLITE BROADCASTING SIGNALS

Akira Mishima, Gifu, and Kazuhiko Kubo, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 13, 1990, Ser. No. 625,763
Claims priority, application Japan, Dec. 13, 1989, 1-323364
Int. Cl.[5] H04B 1/16
U.S. Cl. 455—188.1 4 Claims



1. A mixer comprising:

a balun transformer having an input terminal for receiving a local oscillation signal and first and second output terminals;

first and second switching diodes connected in series between said first and second out terminals of said balun transformer;

third and fourth switching diodes connected in series between said first and second output terminals of said balun transformer and in parallel to said first and second switching diodes;

first and second frequency mixing diodes inserted in series between said first and second switching diodes;

third and fourth frequency mixing diodes inserted in series between said third and fourth switching diodes;

a detecting means for detecting a selected channel between a satellite broadcasting channel and a ground broadcasting channel;

a first control means for simultaneously turning said first and second switching diodes OFF and ON with respect to the direction of the satellite broadcasting channel and ground broadcasting channel, respectively;

a second control means for simultaneously turning said third and fourth switching diodes ON and OFF with respect to the detection of the satellite broadcasting channel and ground broadcasting channel, respectively;

a first input/output terminal means connected to a junction between said first and second frequency mixing diodes for receiving signals of a first frequency and for outputting signals of a second frequency; and

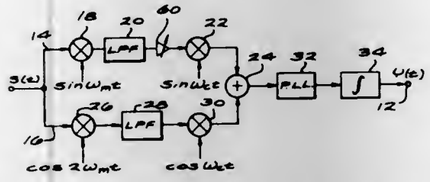
a second input/output terminal means connected to a junction between said third and fourth frequency mixing diodes for receiving signals of a third frequency and for outputting signals of a fourth frequency.

5,212,825

SYNTHETIC HETERODYNE DEMODULATOR CIRCUIT

Michael R. Layton, Clayton, Calif., assignor to Litton Systems, Inc., Woodland Hills,, Calif.

Filed Nov. 9, 1990, Ser. No. 610,931
Int. Cl.[5] H04B 10/06
U.S. Cl. 455—205 21 Claims



1. A method for recovering the phase modulated sideband $\psi(t)$ of the output signal s(t) from an interferometric fiber sensor with large amplitude carrier phase modulation, said signal being of the form $s(t)=S_o(1+\gamma\cos(B\sin\omega_m t+\psi(t)))$ where:

S_o = a dimensional constant;

γ = fringe visibility of the interferometer;

B = phase modulation amplitude; and

ω_m = phase modulation angular frequency comprising steps of:

a) forming the in-phase and quadrature components of said signal; then

b) lowpass filtering said in-phase and quadrature components to remove all modulation at ω_m; then

c) mixing said filtered quadrature component with a signal of the form $\sin\omega_c t$ where ω_c is an arbitrary frequency; and

d) mixing said filtered in-phase component with a signal of the form $\cos\omega_c t$; then

e) summing said last-named signals to form a modulated signal; and

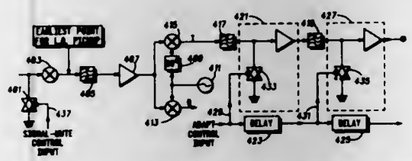
f) demodulating said modulated signal to obtain $\psi(t)$.

5,212,826

APPARATUS AND METHOD OF DC OFFSET CORRECTION FOR A RECEIVER

Duane C. Rabe, Rolling Meadows, and Daniel C. Feldt, Streamwood, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 20, 1990, Ser. No. 630,644
Int. Cl.[5] H04B 1/16
U.S. Cl. 455—214 17 Claims



1. A radio receiver for receiving an input signal and including base band (BB) circuitry and at least a first and a second operational state, the input signal having an undesired DC offset, the radio receiver comprises:

means for receiving the input signal during the second operational state, forming a received input signal;

a first and a second adaptive DC offset compensator circuit coupled to said means for receiving and disposed in the BB circuitry comprising means for diminishing the undesired DC offset from the received input signal during said second operational state;

a first and second means for adjusting each of said first and said second adaptive DC offset compensator circuits to a predetermined output level during the first operational state; and

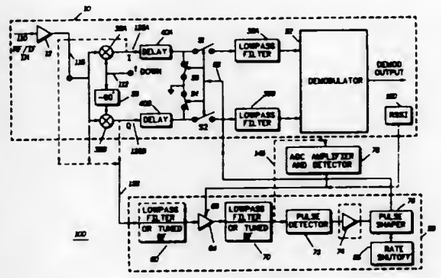
means for delaying in time operation of said second means for adjusting from said first means for adjusting.

5,212,827

ZERO INTERMEDIATE FREQUENCY NOISE BLANKER

William R. Meszko, Fort Worth, Tex., and Joseph P. Heck, Fort Lauderdale, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 4, 1991, Ser. No. 650,277
Int. Cl.[5] H04B 1/16
U.S. Cl. 455—219 15 Claims



1. An essentially zero intermediate frequency receiver for recovering an information signal from a received signal said receiver comprising:

receiver means for recovering said information signal comprising:

a first conversion means for operating on said received signal to provide an essentially baseband inphase signal;

a second conversion means for operating on said received signal to provide an essentially baseband quadrature signal;

a first delay means coupled to said first conversion means for producing a delayed essentially baseband inphase signal;

a second delay means coupled to said second conversion means for producing a delayed essentially baseband quadrature signal;

at least one blanker switch means for operating on said delayed essentially baseband signals to temporarily prevent recovery of said information signal in response to a switch control signal;

means for providing a gain control signal; and

noise blanking means for blanking noise signals which may otherwise deteriorate performance, said noise blanking means coupled to said receiver means for operating on either at least one of said essentially baseband signals or said received signal as a noise blanker input signal to provide said switch control signal;

said noise blanking means comprising;

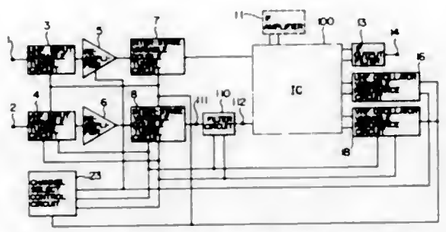
input filtering means for filtering said noise blanker input signal to provide a filtered signal;

amplifier means for amplifying said filtered signal, in response to said gain control signal, to provide an amplified signal; and

means for generating said switch control signal from said amplified signal.

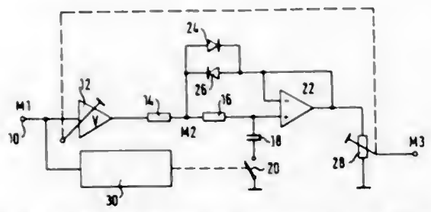
VOL 1150 ISS 3 MY 18 1993 UMI

5,212,828
RECEIVER APPARATUS
Hiroshi Hatashita; Toshio Nagashima, and Tomomi Matsumoto, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Dec. 11, 1990, Ser. No. 625,978
Claims priority, application Japan, Dec. 15, 1989, 1-323706
Int. Cl.[5] H04B *1/10*
U.S. Cl. 455—295 4 Claims



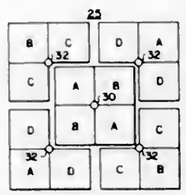
1. A receiver apparatus having at least a tuner circuit, a mixer circuit, and an oscillator circuit in which the mixer circuit is connected to the tuner circuit at an input side in the receiver and the oscillator circuit;
wherein a trap filter circuit for attenuating a mutual modulation wave or a higher harmonic wave generated by said tuner circuit which receives a plurality of bands is provided between said mixer circuit and said tuner circuit and disposed in a stage prior to said mixer circuit;
wherein said mixer circuit comprises means for offsetting a first spurious signal generated by converting two or more received RF signals to an IF band by said mixer circuit with a second spurious signal generated by converting mutual modulation waves generated by mutually modulating said two or more received RF signals by said tuner circuit to the IF band by said mixer circuit.

5,212,829
CIRCUIT ARRANGEMENT FOR SUPPRESSION OF INTERFERENCE SIGNALS
Stefan Brinkhaus, Remchingen-Wilferdingen, Fed. Rep. of Germany, assignor to Becker Autoradiowerk GmbH, Karlsbad, Fed. Rep. of Germany
Filed Feb. 18, 1992, Ser. No. 836,351
Claims priority, application Fed. Rep. of Germany, Feb. 19, 1991, 4105123
Int. Cl.[5] H04B *1/10, 1/26;* H03B *5/04*
U.S. Cl. 455—296 8 Claims



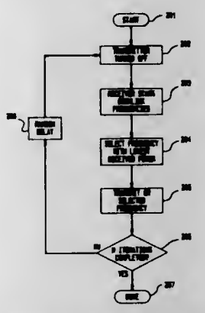
1. A circuit arrangement for suppression of interference signals in an electrical signal containing low-frequency information comprising:
a signal path for said signal;
an integrating member with a capacitor and a resister provided in said signal path;
a voltage divider preceding said integrating member; said voltage divider containing a nonlinear element and performing a limitation with respect to a reference signal which corresponds to said signal smoothed by said integrating member; and
an amplifier preceding said voltage divider and having a gain adapted to a current/voltage characteristic of said non-linear element to optimize interference signal suppression.

5,212,830
RADIO FREQUENCY COMMUNICATIONS SYSTEM
Craig Miller, Paoli, Pa., assignor to International Mobile Machines Corporation, King of Prussia, Pa.
Filed May 31, 1991, Ser. No. 708,694
Int. Cl.[5] H04B *7/26;* H04Q *7/04*
U.S. Cl. 455—33.1 10 Claims



5. An RF communications system for communicating between a plurality of base stations and subscriber units within a plurality of contiguous geographic sectors comprising:
a plurality of frequency groups, each group being utilized for communication in a selected sector between a selected base station and a plurality of subscriber units;
a primary base station having a plurality of primary directional antennas, each for servicing a separate primary one of the geographic sectors;
said primary antennas being disposed together at a fixed location proximate a common corner of the primary sectors which they service;
a first of said primary antennas for servicing a first of said primary sectors being directed substantially away from the direction of a second of said primary antennas which services a second of said primary sectors;
a first of said frequency groups being utilized for communication in both said first and second primary sectors between said primary base station and a plurality of subscriber units such that a single frequency of said first group can be simultaneously utilized for two separate communications between the primary base station and a subscriber unit in each of the first and second primary sectors;
a plurality of secondary base stations, each having a plurality of secondary directional antennas, each for servicing a separate secondary one of the geographic sectors;
said secondary antennas of each secondary base station being disposed together at a fixed location proximate a common corner of the secondary sectors which they service and one of said primary sectors;
the locations of said secondary antennas being substantially concentric about the location of said primary antennas;
at least a first of said secondary base stations having a first secondary antenna for servicing a first of said secondary sectors being directed substantially away from the direction of a second secondary antenna which services a second of said secondary sectors;
a second of said frequency groups being utilized for communication in both said first and second secondary sectors between said secondary base station and a plurality of subscriber units such that a single frequency of said second group can be simultaneously utilized for two separate communications between said first secondary base station and a subscriber unit in each of the first and second secondary sectors.

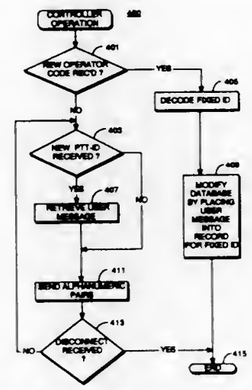
5,212,831
METHOD AND APPARATUS FOR AUTONOMOUS ADAPTIVE FREQUENCY ASSIGNMENT IN TDMA PORTABLE RADIO SYSTEMS
Justin C. Chuang, Eatontown, and Nelson R. Sollenberger, Tinton Falls, both of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.
Filed Nov. 28, 1990, Ser. No. 619,059
Int. Cl.[5] H04B *7/00, 17/00*
U.S. Cl. 455—54.1 17 Claims



1. A method of assigning radio frequencies in a frequency-reusing radio communications system having a plurality of fixed base units and a plurality of mobile transceivers, each fixed base unit having a transmitter for transmitting at an assigned downlink frequency to at least one mobile transceiver, a receiver for receiving at an associated uplink frequency from said at least one mobile transceiver and for receiving at all the downlink frequencies being transmitted by the other of the plurality of fixed base units in the system, and means for measuring the power level of signals received at all the possible different downlink frequencies from the other of the plurality of fixed base units in the system, comprising the steps of:
(a) turning off the transmitter at a first base unit;
(b) tuning the receiver at that first base unit to each possible downlink frequency;
(c) measuring at that first base unit the power level of the downlink signals received at each of the possible downlink frequencies from the other of the plurality of fixed base units in the system;
(d) determining at that first base unit the downlink frequency associated with the lowest measured power level;
(e) assigning and setting the downlink frequency at that first base unit to the downlink frequency determined in step (d);
(f) turning on the transmitter at that first base unit with its transmitting downlink frequency being set at the frequency set in step (e);
(g) repeating steps (a) through (f) at each of the other of the plurality of base units in the system; and
(h) after each of the plurality of base units in the system has its downlink frequency set in accordance with steps (a) through (f), repeating steps (a) through (g) to update the assignment of downlink frequencies to each of the base units.

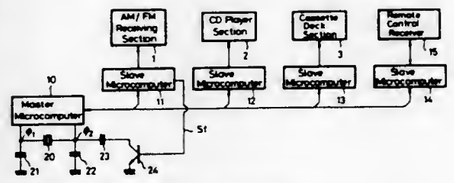
5,212,832
METHOD AND APPARATUS FOR OPERATOR MESSAGING USING VOICE CHANNEL SIGNALLING
David J. Ness-Cohn, Lisle, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Nov. 26, 1990, Ser. No. 618,197
Int. Cl.[5] H04B *7/26*
U.S. Cl. 455—54.1 15 Claims

11. A radio communication resource controller, which is able to allocate, via a control resource, a plurality of communication resources among a plurality of communication units, each communication unit being operated by an operator having an operator code that is uniquely associated with an operator message, which operator code and message, along with identification codes representing each of the plurality of communication units, are stored in a database coupled to the resource controller, the resource controller comprising:
means for receiving during at least a first transmission period, from each of a plurality of communication units participating in a communication, an operator code uniquely associated with a first operator, and an identification from a transmitting one of the plurality of participating communication units requesting access to one of the plurality of communication resources;



means for matching at least said received identification with one of the stored identification codes in the database;
means for retrieving, coupled to said means for matching, a previously stored operator message from the database uniquely associated with the first operator of said transmitting communication unit; and
means for sending, via sub-audible signals on said requested communication resource, said previously stored operator message to at least a receiving one of the plurality of participating communication units.

5,212,833
MICROCOMPUTER CONTROLLED SYNTHESIZER-TYPE RADIO RECEIVER
Kazuyuki Suda; Akio Araki, Chiba, and Toshio Asai, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Sep. 5, 1990, Ser. No. 577,640
Claims priority, application Japan, Sep. 13, 1989, 1-237624
Int. Cl.[5] H04B *15/00*
U.S. Cl. 455—183.2 7 Claims



1. An electronic apparatus comprising:
receiver means having a synthesizer section for selecting a receiving frequency within a predetermined frequency band and receiving a signal broadcast at the selected receiving frequency, said receiver means providing an

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information signal corresponding to said selected receiving frequency;

control means operable on the basis of a clock signal having a respective frequency and higher order harmonic components thereof for controlling operation of at least said synthesizer section of said receiver means; and

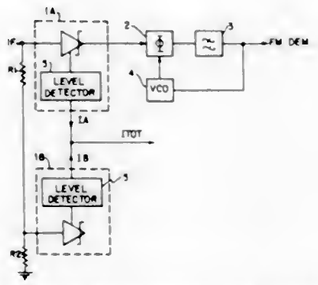
clock generating means for providing said clock signal, said clock generating means including an oscillator having a predetermined oscillating frequency to which said frequency of said clock signal corresponds and means responsive to said information signal for shifting the frequency of said clock signal by an amount $\Delta f = fc/2n$, where fc is the frequency of said clock signal and n is the average of the orders of the higher harmonic components of said clock signal within said predetermined frequency band so as to shift each higher harmonic component of said clock signal or of a frequency-divided version of said clock signal substantially one-half the frequency difference between the higher harmonic components of said clock signal when said selected receiving frequency is a frequency disturbed by at least one of said higher harmonic components of said clock signal or of said frequency-divided version of said clock signal.

5,212,834

CIRCUIT FOR EXTENDING THE DYNAMIC RANGE OF AN INTERMEDIATE LEVEL SELECTOR

Jouni Nuqvist, Muurala, Finland, assignor to Nokia-Mobira Oy, Salo, Finland

Filed May 9, 1989, Ser. No. 349,161
Claims priority, application Finland, May 25, 1988, 882471
Int. Cl.[5] H04B *1/10, 1/20*
U.S. Cl. 455—311 **5 Claims**



1. An FM intermediate-frequency circuit comprising a first limiter-amplifier (1A) having an internal level detector and a phase-locked loop having a VCO(4), characterized in that at least a second limiter-amplifier (1B) having an internal level detector is placed in parallel with the first limiter-amplifier,

the first limiter-amplifier produces a first output signal (IA) in response to receipt of a first intermediate frequency signal;

the second limiter-amplifier produces a second output signal (IB) in response to receipt of a second intermediate frequency signal;

the second intermediate frequency signal level being reduced to a level below the first intermediate frequency level by a level-dividing circuit; and

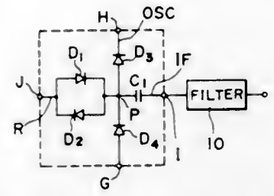
the first and second output signals being combined to form a level detection signal (ITOT).

5,212,835

FREQUENCY-CONVERSION MIXER

Eiji Suzuki, Kawasaki, Japan, assignor to Kokan Densetsu Kogyo Kabushiki Kaisha, Kanagawa, Japan

Filed Jul. 18, 1990, Ser. No. 554,731
Int. Cl.[5] H04B *1/26*
U.S. Cl. 455—330 **15 Claims**



1. A frequency-conversion mixer comprising:

input means having a parallel circuit including a first and second diode arranged in inverse parallel connection with each other for inputting input signals from its one terminal;

detecting means having a series circuit including a third and fourth diode arranged in forward series connection, the other terminal of said parallel circuit being connected to the junction point of said third and fourth diode and local oscillating signals being supplied to one of said series circuit; and

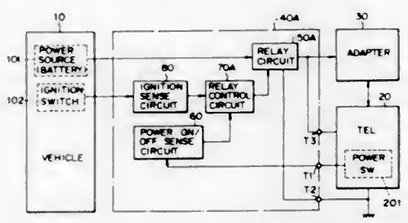
a capacitor of which one terminal is connected to said junction point, the frequency-converted signals being taken out from the other terminal.

5,212,836

POWER SOURCE CONTROL CIRCUITRY FOR AN AUTOMOTIVE PORTABLE TELEPHONE

Akimasa Matsushita, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jan. 30, 1991, Ser. No. 647,791
Claims priority, application Japan, Jan. 30, 1990, 2-21293
Int. Cl.[5] H04B *1/16;* **H04M** *11/00*
U.S. Cl. 455—343 **5 Claims**



1. Power source control circuitry for an automotive portable radio telephone which is powered by a power source mounted on a motor vehicle, comprising:

switching means for providing a switching connection between said power source of said motor vehicle and an adapter and said telephone;

ignition sensing means for sensing an output signal of an ignition system incorporated in said motor vehicle;

power ON/OFF sensing means connected to a power switch of said telephone for inverting, every time said power switch produces an ON/OFF pulse, an output state of said power ON/OFF sensing means and holding said inverted output state; and

control means for controlling said switching means in response to an output of said ignition sensing means and an output of said power ON/OFF sensing means, such that when said telephone is removed from said adapter, said switching means interrupts the connection of said power source and said adapter.

DESIGN PATENTS

GRANTED May 18, 1993

ERRATA

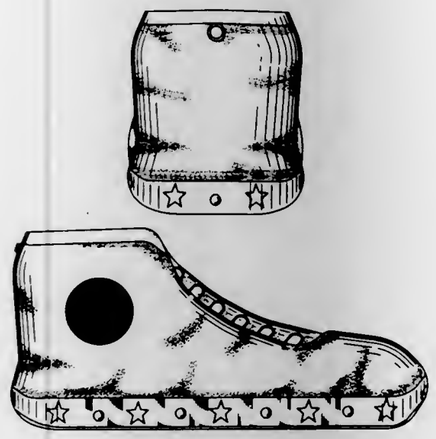
For CLASS	See PATENT NO.
D12-011	335,640
D26-042	335,756
D21-038	335,757

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335,568
TENNIS SHOE

Maurice G. Kilgore, 2039 Wesleygrove Ave., Duarte, Calif. 91010

Filed Jun. 15, 1990, Ser. No. 538,487
Term of patent 14 years
U.S. Cl. D2—309



335,569
ELEMENTS OF A SHOE UPPER

Christopher Kittle, Cohasset; Charles Legassie, Canton; Judith Ringel, Milton; David E. Miller, Carver; James I. Agnew, Plymouth; Ralph Serna, Hingham; Andrew R. Jones, Roslindale; Steven F. Smith, Taunton, and Daniel Ellis, Stoughton, all of Mass., assignors to Reebok International Ltd., Stoughton, Mass.

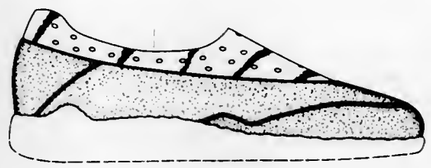
Continuation-in-part of Ser. No. 370,291, Jun. 23, 1989, Pat. No. Des. 307,508. This application Feb. 21, 1990, Ser. No. 483,433
Term of patent 14 years
U.S. Cl. D2—314



335,570
SHOE UPPER

Tinker L. Hatfield, and Alexander W. Bodecker, both of Portland, Oreg., assignors to Nike, Inc., Beaverton, Oreg.

Filed Jan. 10, 1992, Ser. No. 818,976
Term of patent 14 years
U.S. Cl. D2—314



335,571
SHOE SOLE

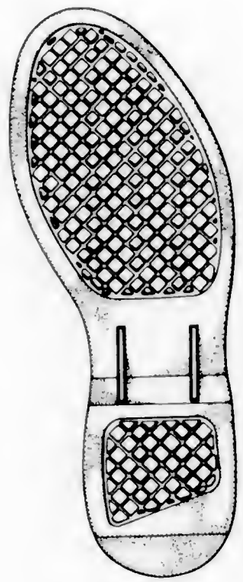
William R. Peterson, Encino, Calif., assignor to Guess?, Inc., Los Angeles, Calif.

Filed Nov. 18, 1991, Ser. No. 793,712
Term of patent 14 years
U.S. Cl. D2—320

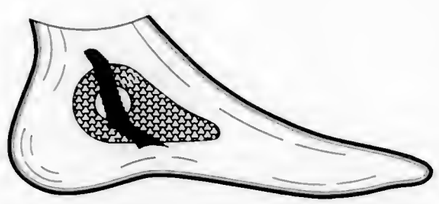


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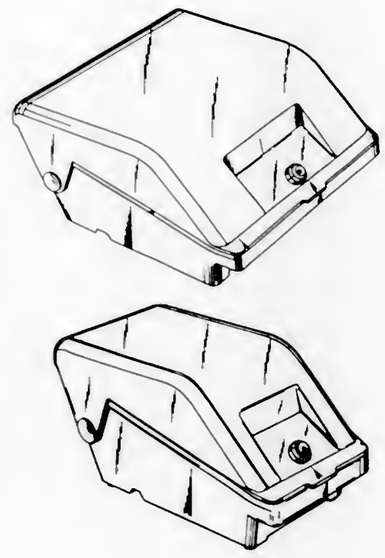
335,572
SHOE SOLE
William R. Peterson, Encino, Calif., assignor to Guess?, Inc., Los Angeles, Calif.
Filed Nov. 21, 1991, Ser. No. 797,085
Term of patent 14 years
U.S. Cl. D2—320



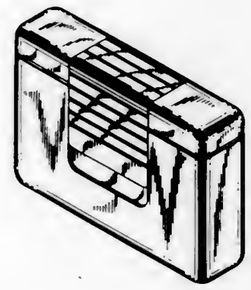
335,573
FOOT PROTECTOR
Lois A. Kelton, 585 25 ¼ Rd., Space #202, Grand Junction, Colo. 81505
Filed Feb. 7, 1991, Ser. No. 651,919
Term of patent 14 years
U.S. Cl. D2—329



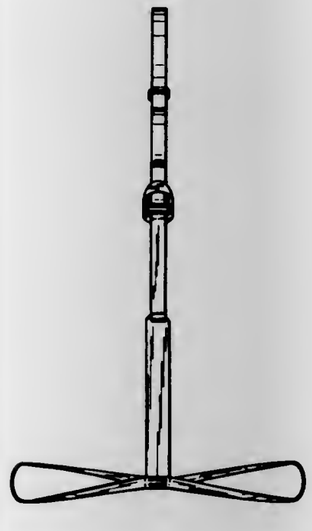
335,574
BOX FOR FLEXIBLE DISKS
Per-Ake Roskvist, Malmö , Sweden, and Maj-Lis Roskvist, Ermatingen, Switzerland, assignors to ABA System AG, Ermatingen, Switzerland
Filed Sep. 28, 1990, Ser. No. 589,894
Claims priority, application Sweden, Apr. 2, 1990, 90 0758; Apr. 2, 1990, 90 0759
Term of patent 14 years
U.S. Cl. D3—35



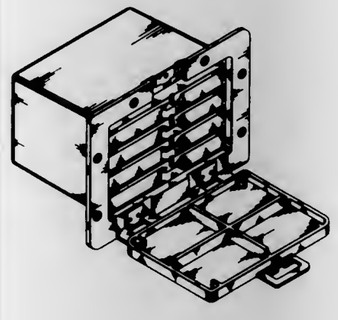
335,575
CASE FOR MAGNETIC TAPE CASSETTE
Miya Suwa, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jun. 25, 1991, Ser. No. 721,212
Claims priority, application Japan, Dec. 28, 1990, 2-43960
Term of patent 14 years
U.S. Cl. D3—35



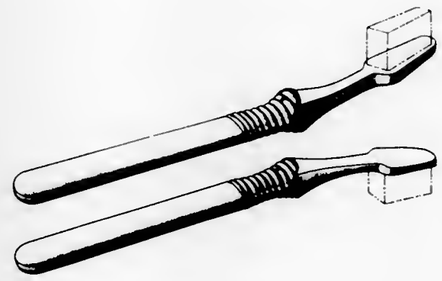
335,576
SKATE SLING CARRIER
William T. Phillpott, 2020 Airline Park Blvd., Metairie, La. 70003
Filed Feb. 25, 1991, Ser. No. 659,933
Term of patent 14 years
U.S. Cl. D3—36



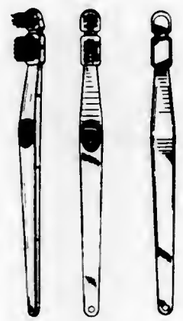
335,577
TACKLE STORAGE SYSTEM
John A. Malmanger, Vashon; Steven D. Cedergreen, Seattle, and Kim R. Hunter, Kent, all of Wash., assignors to Tempress Incorporated, Seattle, Wash.
Filed Jan. 17, 1991, Ser. No. 642,315
Term of patent 14 years
U.S. Cl. D3—38



335,578
TOOTHBRUSH HANDLE
Paul D. Fuchs, Cincinnati; Maia M. Fong, Woody Creek, and Daniel W. Volpenhein, Maineville, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Filed Jan. 28, 1991, Ser. No. 648,434
Term of patent 14 years
U.S. Cl. D4—104

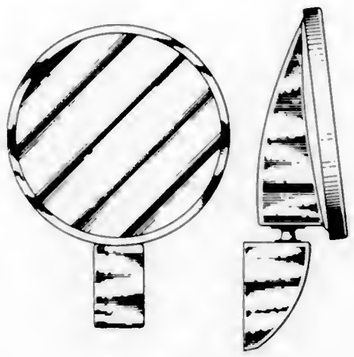


335,579
TOOTHBRUSH
Karson Chuang, 3F, No. 6, Lane 387, Lang Kiang Rd., Taipei, Taiwan
Filed Mar. 11, 1991, Ser. No. 666,679
Term of patent 14 years
U.S. Cl. D4—105

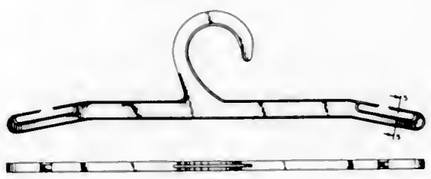


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335,580
VANITY MIRROR
Alain Gaullier, Creteil, France, assignor to Societe Brot, Paris, France
Filed Dec. 2, 1991, Ser. No. 801,188
Claims priority, application France, Sep. 18, 1991, 91 5702
Term of patent 14 years
U.S. Cl. D6—309



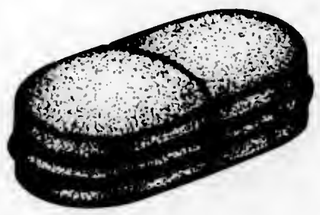
335,581
INTIMATE APPAREL HANGER
Stanley F. Gouldson, Northport, N.Y., assignor to Plasti-form Enterprises, Inc., Deer Park, N.Y.
Filed Oct. 31, 1990, Ser. No. 606,353
Term of patent 14 years
U.S. Cl. D6—318



335,582
ROCKING CHAIR
Charles Desnoyers, St-Pie, Canada, assignor to Dutailier Inc., Quebec, Canada
Filed Oct. 22, 1990, Ser. No. 601,062
Term of patent 14 years
U.S. Cl. D6—344



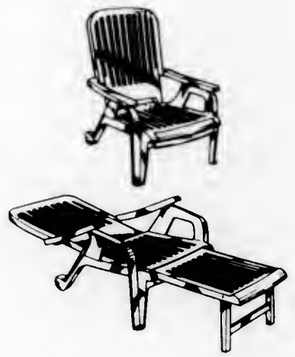
335,583
OTTOMAN
Andrew C. Gibson, Greensboro, N.C., assignor to Henredon Furniture Industries, Inc., Morganton, N.C.
Filed Oct. 12, 1990, Ser. No. 596,907
Term of patent 14 years
U.S. Cl. D6—349



335,584
AIR SEAT
Warren A. Addison, 2230 N. 5th St., Ceres, Calif. 95307
Filed Oct. 19, 1990, Ser. No. 600,112
Term of patent 14 years
U.S. Cl. D6—354



335,585
RECLINER LOUNGE CHAIR
Raymond Grosfillex, Oyonnax, France, assignor to Grosfillex SARL, Oyonnax, France
Filed Nov. 1, 1990, Ser. No. 607,508
Claims priority, application Int'l Pat. Institute, May 29, 1990, DMA/001246
Term of patent 14 years
U.S. Cl. D6—361



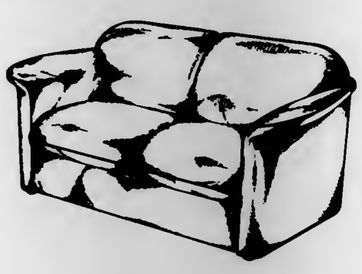
335,586
CHAIR
Stephen C. Hess, Birmingham, Ala., assignor to Winston Furniture Company, Inc., Birmingham, Ala.
Filed Sep. 26, 1990, Ser. No. 588,428
Term of patent 14 years
U.S. Cl. D6—376



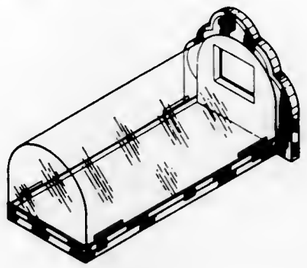
335,587
SEAT
Leonard J. Backer, Plantation, Fla., assignor to Loewenstein, Inc., Pompano Beach, Fla.
Filed Jun. 3, 1992, Ser. No. 894,781
Term of patent 14 years
U.S. Cl. D6—379



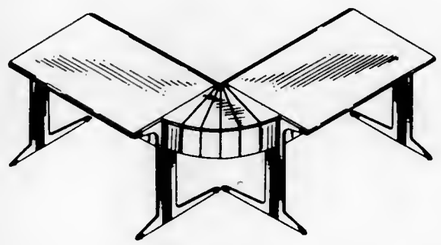
335,588
SOFA
Jean Beirise, Cincinnati, Ohio, assignor to Herman Miller, Inc., Zeeland, Mich.
Filed May 15, 1990, Ser. No. 523,916
Term of patent 14 years
U.S. Cl. D6—381



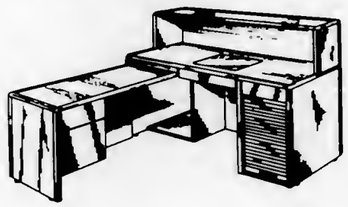
335,589
COMBINED BED AND FIREPROOF COVERING
Ronnie L. Benedict, P.O. Box 251 1440 Perkinsville Rd., Dansville, N.Y. 14437
Filed May 16, 1991, Ser. No. 700,923
Term of patent 14 years
U.S. Cl. D6—389



335,590
DESK ARRANGEMENT
Thomas J. Newhouse, Grand Rapids, Mich., assignor to Herman Miller, Inc., Zeeland, Mich.
Division of Ser. No. 680,267, Apr. 4, 1991, Pat. No. Des. 321,447, which is a division of Ser. No. 544,852, Jun. 27, 1990, Pat. No. Des. 318,385, which is a division of Ser. No. 57,830, Jun. 2, 1987, Pat. No. Des. 311,833. This application Aug. 16, 1991, Ser. No. 747,209
Term of patent 14 years
U.S. Cl. D6—423

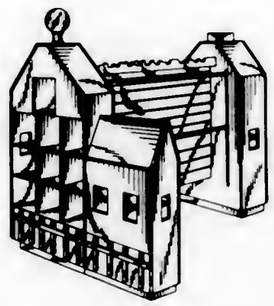


335,591
DESK
John N. Lechman, Effingham, Ill., assignor to Nova Office Furniture, Inc., Effingham, Ill.
Filed Jul. 18, 1990, Ser. No. 555,543
The portion of the term of this patent subsequent to Jul. 14, 2006, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—426

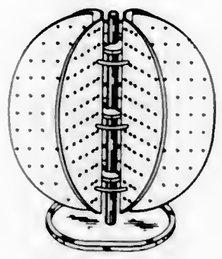


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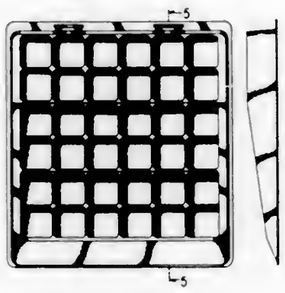
335,592
MERCHANDISING DISPLAY STAND
Kris Barthelmess, 59 Compo Rd. S., Westport, Conn. 06880; Karen Barnett, and Wayne Barnett, both of 320-47 Strawberry Hill Ave., Stamford, Conn. 06902
Filed Apr. 11, 1991, Ser. No. 684,342
Term of patent 14 years
U.S. Cl. D6—450



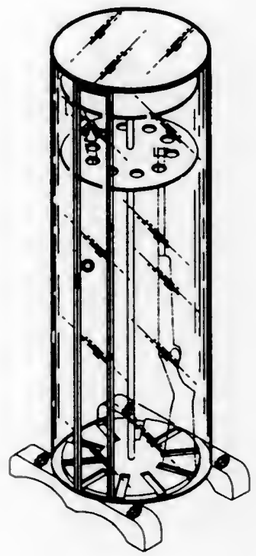
335,593
DISPLAY STAND FOR JEWELRY
Tyler A. France, 725 Eastvale Drive, Gloucester, Ontario, Canada K1J 6Z8
Filed Dec. 2, 1991, Ser. No. 801,097
Term of patent 14 years
U.S. Cl. D6—457



335,594
DISPLAY STAND
Ralph Muniz, 256 S. Robertson, Suite 3317, Beverly Hills, Calif. 90211
Filed May 18, 1992, Ser. No. 884,837
Term of patent 14 years
U.S. Cl. D6—467



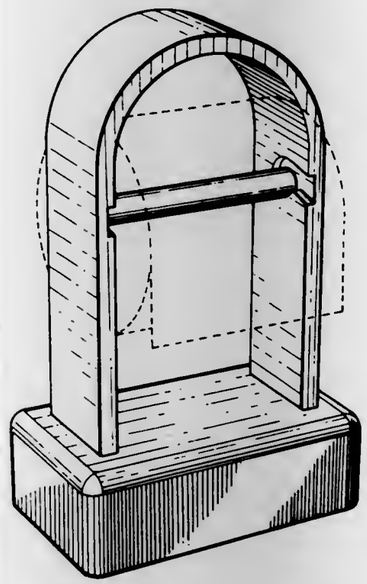
335,595
ROTARY RIFLE CABINET
Garry R. Bowen, R.R. #1, Box 3785, West Haven, Vt. 05743
Filed Jun. 24, 1991, Ser. No. 719,562
Term of patent 14 years
U.S. Cl. D6—472



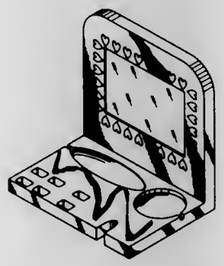
335,596
OFFICE CHAIR
Steven S. Wogoman, Elkhart, Ind., and Robert G. Martinez, Akron, Ohio, assignors to Harter Corporation, Sturgis, Mich.
Division of Ser. No. 364,184, Jun. 9, 1989. This application Mar. 18, 1992, Ser. No. 853,155
Term of patent 14 years
U.S. Cl. D6—500



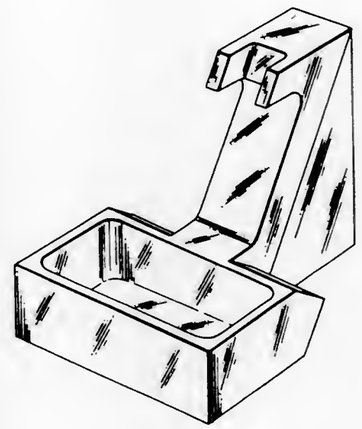
335,597
PORTABLE ROLLED TISSUE DISPENSER
John F. Winebrenner, 9401 Roberts Dr., NW., Apt. 25 C, Dunwoody, Ga. 30350
Filed Oct. 8, 1991, Ser. No. 773,689
Term of patent 14 years
U.S. Cl. D6—518



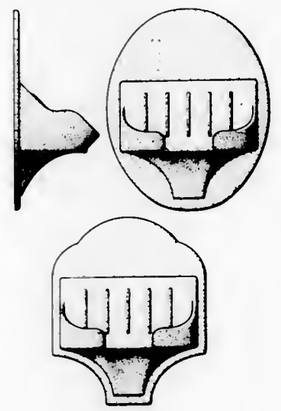
335,598
COMBINATION MIRROR AND SHAVING NEEDS HOLDER FOR SHOWER USE
William M. Kerbs, P.O. Box 1801, Laguinta, Calif. 92253
Filed Jun. 15, 1990, Ser. No. 538,467
Term of patent 14 years
U.S. Cl. D6—525



335,599
RAZOR HOLDER
Paul F. Novak, 87 Coggeshall St., Fairhaven, Mass. 02719
Filed Jun. 5, 1990, Ser. No. 533,672
Term of patent 14 years
U.S. Cl. D6—526

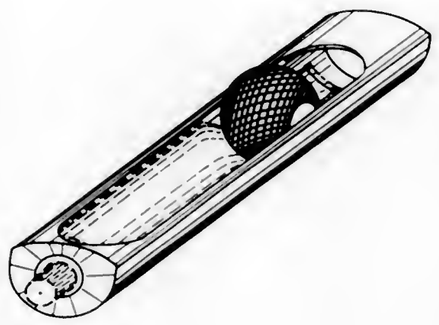


335,600
SOAP DISH
James Ritchie, 1677 Hollywood Cresent, Victoria, B.C., Canada V8S 1J2
Filed Jul. 18, 1991, Ser. No. 731,939
Term of patent 14 years
U.S. Cl. D6—540



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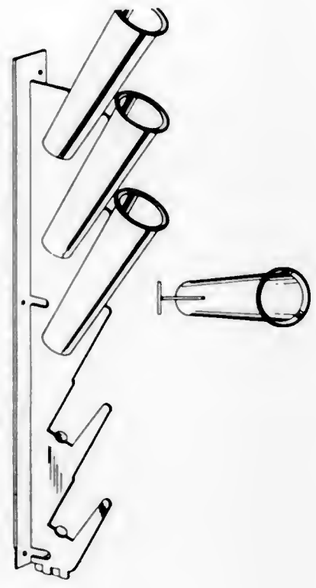
335,601
PASTE TUBE DISPENSER
Unto A. Heikkila, Tuurintie 1, SF 20100 Turku, and Hannu K. Hartman, Rauhankatu 1, 20100 Turku 10, both of Finland
Filed Aug. 5, 1991, Ser. No. 740,481
Term of patent 14 years
U.S. Cl. D6—541



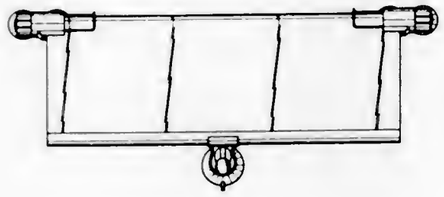
335,602
JEWELRY HOLDER
Patricia A. Magaard, San Diego, Calif., assignor to Barbara Jo Hehman, Danvers, Mass.
Filed Sep. 6, 1991, Ser. No. 756,122
Term of patent 14 years
U.S. Cl. D6—553



335,603
DISPLAY RACK
Herbert Arenson, Mission Woods, Kans., assignor to The Gerson Company, Mission, Kans.
Filed Oct. 7, 1991, Ser. No. 771,998
Term of patent 14 years
U.S. Cl. D6—570



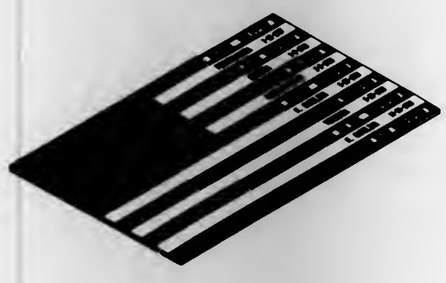
335,604
ROLLER BLIND
Tat-Nin Lui, Chaiwan, and Chi-Wai Ko, Kowloon, both of Hong Kong, assignors to Choon Nang Electrical Appliance Manufactory Limited, Aberdeen, Hong Kong
Filed Feb. 23, 1990, Ser. No. 483,947
Claims priority, application United Kingdom, Sep. 12, 1989, 2000971
Term of patent 14 years
U.S. Cl. D6—575



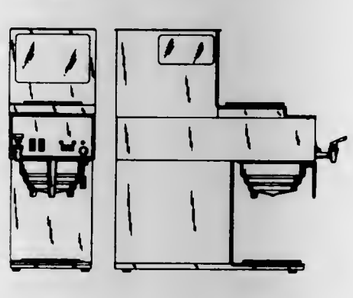
335,605
PILLOW INCORPORATING ARMS
Doris Roberts, 6225 Quebec Dr., Los Angeles, Calif. 90068
Filed Sep. 13, 1991, Ser. No. 759,072
Term of patent 14 years
U.S. Cl. D6—601



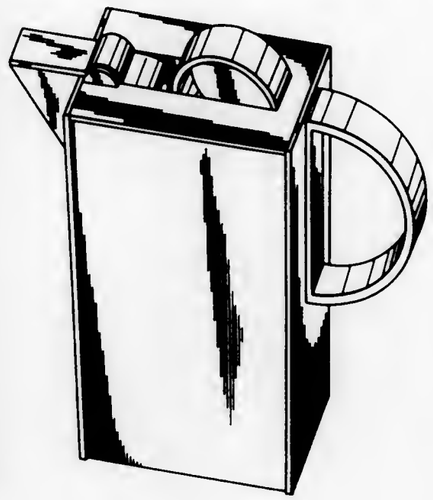
335,606
TABLE PLACE MAT
Stephen P. Budassi, 752 Roebling Ave., Trenton, N.J. 08611
Filed Nov. 19, 1990, Ser. No. 617,050
Term of patent 14 years
U.S. Cl. D6—616



335,607
COMBINATION COFFEE GRINDER AND BREWER
Brian D. Newman, Louisville, Ky., assignor to Grindmaster Corporation, Louisville, Ky.
Filed Jul. 23, 1990, Ser. No. 556,216
Term of patent 14 years
U.S. Cl. D7—305



335,608
PITCHER FOR MILK AND OTHER LIQUIDS
Gerhard Arnold, Lahnstrasse 4, Wiesbaden, Fed. Rep. of Germany D-6200
Filed Jul. 18, 1990, Ser. No. 553,773
Claims priority, application Hague, Jan. 22, 1990, DM/015645
Term of patent 14 years
U.S. Cl. D7—317

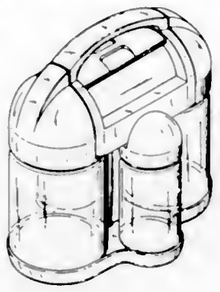


335,609
VEGETABLE CUTTER
William C. Cesaroni, Glenview, Ill., and David C. Belongia, West Bend, Wis., assignors to The West Bend Company, West Bend, Wis.
Filed Jul. 26, 1991, Ser. No. 736,891
Term of patent 14 years
U.S. Cl. D7—381

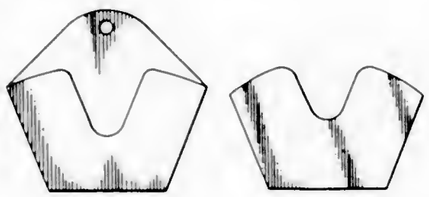


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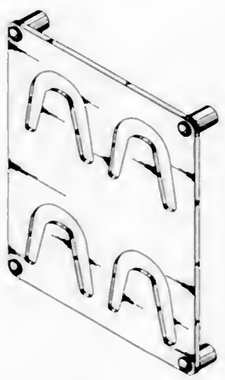
335,610
CRUET SET
Josep Maria P. Gibert, Reus, Spain, assignor to Industria Auxiliar Manodomesticos, S.A., Spain
Filed Nov. 26, 1991, Ser. No. 797,813
Claims priority, application Spain, May 27, 1991, 125.013
Term of patent 14 years
U.S. Cl. D7—590



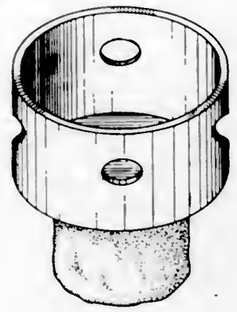
335,611
HOLDER FOR COFFEE FILTERS
Gerard Petrallia, 251 Vermont Ave., Irvington, N.J. 07111
Filed Dec. 31, 1990, Ser. No. 636,931
Term of patent 14 years
U.S. Cl. D7—691



335,612
COMBINED CUP AND GLASS HOLDER
John A. Osland, Jr., P.O. Box 565, Freeland, Wash. 98249
Filed Aug. 16, 1991, Ser. No. 746,520
Term of patent 14 years
U.S. Cl. D7—616



335,613
WEIGHTED HOLDER FOR A LIQUID CONTAINER
Julie Bingham, 2107 E. 73rd St. N., Tulsa, Okla. 74130
Filed May 16, 1991, Ser. No. 700,921
Term of patent 14 years
U.S. Cl. D7—619



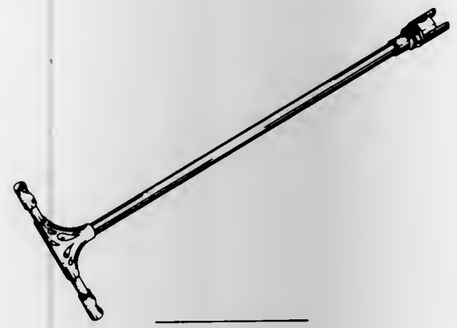
335,614
BEVERAGE-CAN HOLDER
Mary J. Diab, 1595 Highway A1A, Satellite Beach, Fla. 32937
Filed Jul. 31, 1991, Ser. No. 738,504
Term of patent 14 years
U.S. Cl. D7—619



335,615
COCONUT GRATER
Jos J. Kannukkaden, 12 Kilgore Dr., Mableton, Ga. 30059
Filed Sep. 25, 1990, Ser. No. 587,426
Term of patent 14 years
U.S. Cl. D7—678



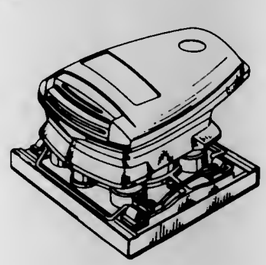
335,616
WRENCH
Delbert Schafer, 14447 Chere Dr., Whittier, Calif. 90604
Filed Aug. 24, 1990, Ser. No. 572,022
Term of patent 14 years
U.S. Cl. D8—21



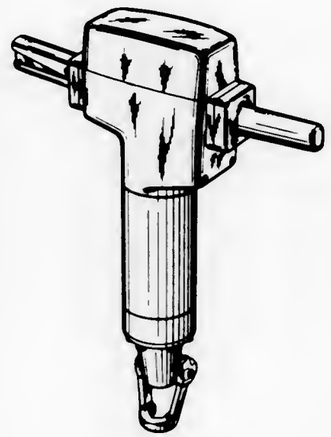
335,617
CAN CRUSHER
Wayne J. Scholl, 7003 Kelsey Rae Ct., Houston, Tex. 77069
Filed May 6, 1991, Ser. No. 695,797
Term of patent 14 years
U.S. Cl. D8—51



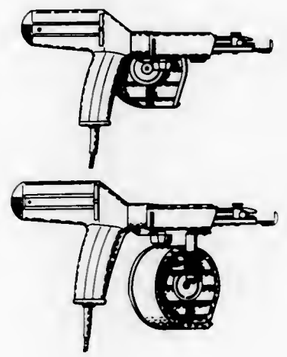
335,618
PORTABLE VIBRATING SANDER
Tadahisa Mogaki, Tokyo, Japan, assignor to Nitto Kohki Co., Ltd., Tokyo, Japan
Filed Dec. 26, 1990, Ser. No. 632,731
Term of patent 14 years
U.S. Cl. D8—62



335,619
PORTABLE ELECTRIC HAMMER
Yasunori Ogawa, Mito; Norio Nitta, and Mutsuo Harada, both Katsuta, all of Japan, assignors to Hitachi Koki Company Limited, Tokyo, Japan
Filed Mar. 13, 1991, Ser. No. 669,305
Claims priority, application Japan, Sep. 21, 1990, 2-31796
Term of patent 14 years
U.S. Cl. D8—67

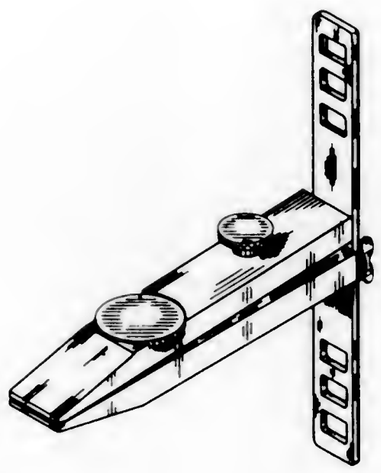


335,620
SCREW GUN
Gerhard Farian, Grossbettlingen, and Guenter Haas, Wolfschlugen, both of Fed. Rep. of Germany, assignors to Karl M. Reich Maschinenfabrik GmbH, Nuertingen, Fed. Rep. of Germany
Filed Feb. 6, 1991, Ser. No. 651,482
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1990, M9005602.7
Term of patent 14 years
U.S. Cl. D8—68

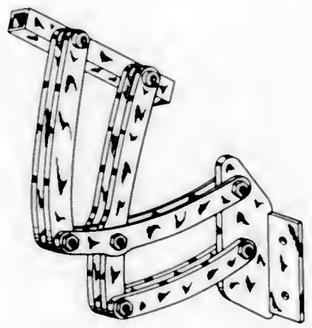


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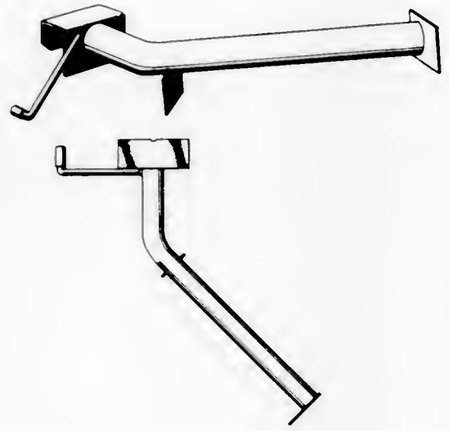
335,621
KNIFE HOLDER FOR A KNIFE SHARPENER
Carl T. Moody, Little Rock, Ark., assignor to Arkansas Hones, Inc., Little Rock, Ark.
Filed Jul. 15, 1991, Ser. No. 730,291
Term of patent 14 years
U.S. Cl. D8—93



335,622
HINGE SUPPORT FOR A TRUCK BED COVER
Franklin L. Millsap, 3904 Miles Rd., Sachse, Tex. 75048
Continuation of Ser. No. 595,092, Oct. 10, 1990, abandoned. This application Apr. 29, 1991, Ser. No. 693,406
Term of patent 14 years
U.S. Cl. D8—323



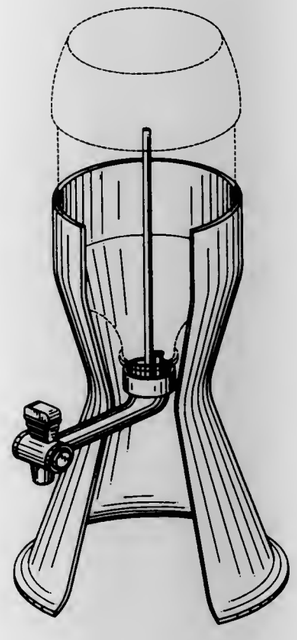
335,623
ANGLED DISPLAY FIXTURE
John P. Salrin, Dublin, and James W. Bates, Port Washington, both of Ohio, assignors to Lancaster Colony Corporation, Columbus, Ohio
Filed Apr. 8, 1991, Ser. No. 682,016
Term of patent 14 years
U.S. Cl. D8—373



335,624
OVERHEAD TRACK
David Siener, Indianapolis, Ind., assignor to Modernfold, Inc., New Castle, Ind.
Filed Feb. 26, 1991, Ser. No. 661,453
Term of patent 14 years
U.S. Cl. D8—377



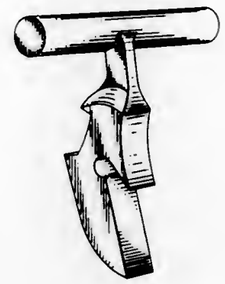
335,625
COMBINED LIQUID DISPENSER AND SPIGOT
V. Chris Dolson, Rte. 1, Box 10, Joshua, Tex. 76058
Filed Oct. 21, 1991, Ser. No. 779,573
Term of patent 14 years
U.S. Cl. D9—300



335,626
COSMETIC BOTTLE
Chih-Hsiang Liao, 4FL, 593, Tung-Hwa S. Road, Taipei, Taiwan
Division of Ser. No. 514,344, Apr. 24, 1990. This application Apr. 3, 1992, Ser. No. 862,286
Term of patent 14 years
U.S. Cl. D9—317



335,627
HANDLE WITH STRAIGHT LEG
Rolf Harris, Highlands, Fishery Road, Bray-on-Thames, Berkshire, England
Filed Feb. 19, 1991, Ser. No. 657,551
Claims priority, application United Kingdom, Aug. 16, 1990, 2009052
Term of patent 14 years
U.S. Cl. D9—455



335,628
COMBINED BOTTLE AND CAP
Patrick J. Tighe, Littleton; Lane J. Anderson; Richard L. George, both of Englewood; W. Kenn Thiess, Aurora, and Reed N. Wilcox, Littleton, all of Colo., assignors to Polymerics, Inc., Natick, Mass.
Filed Nov. 18, 1991, Ser. No. 794,167
Term of patent 14 years
U.S. Cl. D9—558

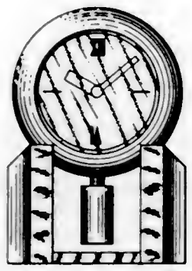


335,629
TRAVEL ALARM CLOCK
Asao Takashima, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Jul. 26, 1990, Ser. No. 558,844
Term of patent 14 years
U.S. Cl. D10—18



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335,630
CLOCK
Mitsuo Wada, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed May 10, 1991, Ser. No. 698,534
Term of patent 14 years
U.S. Cl. D10—28



335,631
CLOCK
Tsuyoshi Oyanagi, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Nov. 23, 1990, Ser. No. 617,520
Term of patent 14 years
U.S. Cl. D10—28



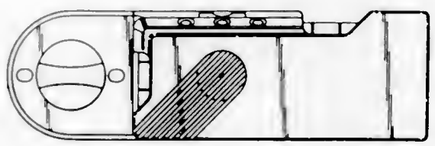
335,632
CLOCK
Tsuyoshi Oyanagi, and Seiji Odaka, both of Tokyo, Japan, assignors to Seikosha Co., Ltd., Japan
Filed Jan. 11, 1991, Ser. No. 640,018
Term of patent 14 years
U.S. Cl. D10—28



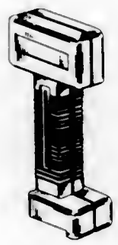
335,633
CLOCK
Mitsuo Wada, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed May 10, 1991, Ser. No. 698,533
Term of patent 14 years
U.S. Cl. D10—28



335,634
INCLINATION MEASURING INSTRUMENT
Tang K. Yau, Kowloon, Hong Kong, assignor to Techtronic Industries Co. Ltd., New Territories, Hong Kong
Filed Jan. 24, 1991, Ser. No. 645,283
Term of patent 14 years
U.S. Cl. D10—65



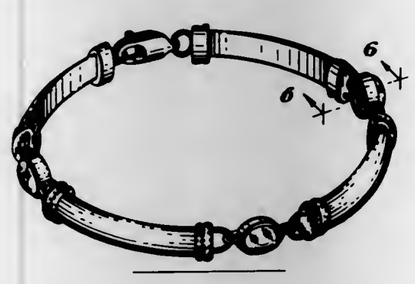
335,635
FISH WEIGHING SCALE
Richard J. Robbins, Derby, Kans., assignor to Zebco Corporation, Tulsa, Okla.
Filed May 29, 1990, Ser. No. 530,072
The portion of the term of this patent subsequent to Dec. 22, 2006, has been disclaimed.
Term of patent 14 years
U.S. Cl. D10—89



335,636
WATCH BAND
Ryoichi Kaneko, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Jun. 6, 1991, Ser. No. 711,435
Term of patent 14 years
U.S. Cl. D11—3



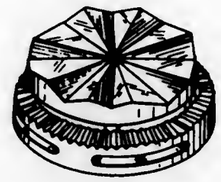
335,637
BRACELET
Aya Azrielant, New York, N.Y., assignor to Andin International, New York, N.Y.
Filed Sep. 12, 1991, Ser. No. 758,811
Term of patent 14 years
U.S. Cl. D11—4



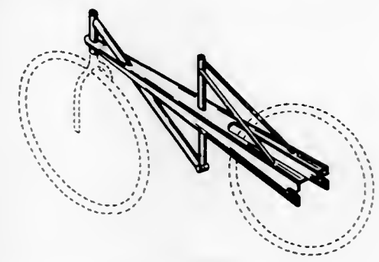
335,638
EXPANSION BRACELET
George T. Butler, Warwick, R.I., assignor to Textron Inc., Providence, R.I.
Filed Jun. 5, 1992, Ser. No. 895,820
Term of patent 14 years
U.S. Cl. D11—19



335,639
JEWELRY LINK
Meang Chia, and Cheo Chia, 412 W. 6th St., Suite #1104, both of Los Angeles, Calif. 90014
Filed Feb. 2, 1990, Ser. No. 479,574
The portion of the term of this patent subsequent to Aug. 13, 2008, has been disclaimed.
Term of patent 14 years
U.S. Cl. D11—93



335,640
BICYCLE FRAME
Roman J. Gasiorowski, 4434 Steffani La., Houston, Tex. 77041
Filed Aug. 24, 1990, Ser. No. 573,655
Term of patent 14 years
U.S. Cl. D12—111



335,641
CHRISTMAS STOCKING
Richard W. Green, Golden Valley, Minn., assignor to Milaca Mills, Inc., Minnetonka, Minn.
Filed Oct. 7, 1991, Ser. No. 771,958
Term of patent 14 years
U.S. Cl. D11—126



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335,642
STROLLER
Mien-Cheng Huang, Tainan, Taiwan, assignor to Taiwan Charweli Enterprise Co., Ltd., Tainan, Taiwan
Filed Jul. 31, 1991, Ser. No. 738,295
Term of patent 14 years
U.S. Cl. D12—129



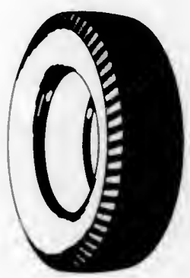
335,643
AUTOMOBILE TIRE
Hidehiko Hino, Hyogo, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan
Filed May 1, 1991, Ser. No. 694,037
Claims priority, application Japan, Nov. 1, 1990, 2-36779
Term of patent 14 years
U.S. Cl. D12—147



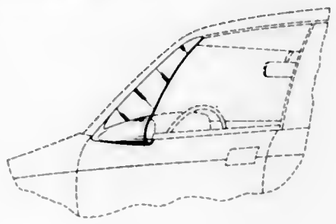
335,644
AUTOMOBILE TIRE
Akihiro Miyoshi, Hyogo, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan
Filed Sep. 17, 1991, Ser. No. 761,033
Claims priority, application Japan, Mar. 25, 1991, 3-8348
Term of patent 14 years
U.S. Cl. D12—147



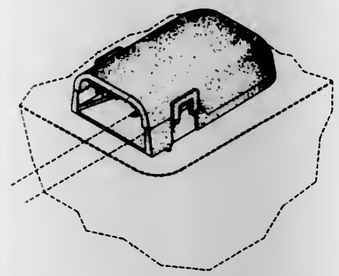
335,645
AUTOMOBILE TIRE
Akihiro Miyoshi, Hyogo, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan
Filed Sep. 17, 1991, Ser. No. 761,032
Claims priority, application Japan, Mar. 25, 1991, 3-8349
Term of patent 14 years
U.S. Cl. D12—147



335,646
AUTOMOBILE WIND DEFLECTOR
Elmar Silzer, Laguna Beach, Calif., assignor to Arvan, Inc., Gardena, Calif.
Filed Nov. 20, 1991, Ser. No. 795,653
Term of patent 14 years
U.S. Cl. D12—181



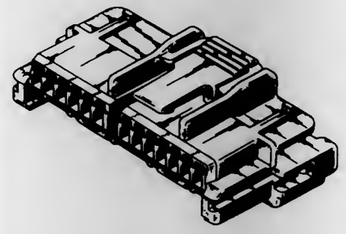
335,647
BATTERY CONNECTOR COVER
Brian M. Hood, Mount Clemens, Mich., assignor to United Technologies Automotive, Dearborn, Mich.
Filed Sep. 27, 1991, Ser. No. 767,310
Term of patent 14 years
U.S. Cl. D13—119



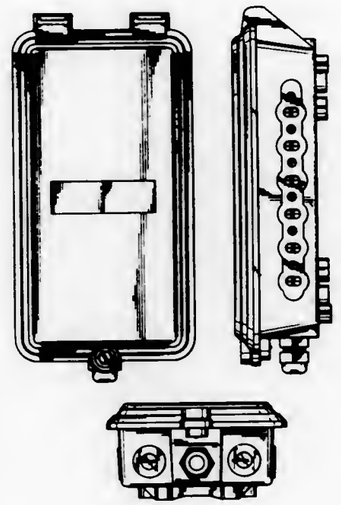
335,648
FIBER OPTIC BREAK OUT BOX
Don E. Ballsieper, 34 Old Farm Dr., Newington, Conn. 06111
Filed Oct. 18, 1990, Ser. No. 599,386
Term of patent 14 years
U.S. Cl. D13—147



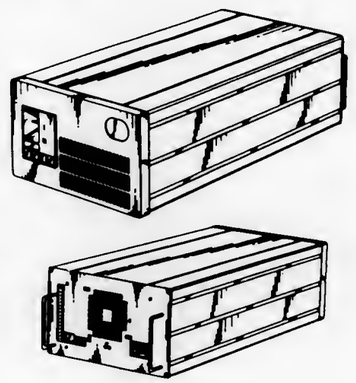
335,649
ELECTRICAL CONNECTOR HOUSING
Shinji Ogawa, Suzuka, Japan, assignor to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Nov. 27, 1991, Ser. No. 798,797
Claims priority, application Japan, Jun. 12, 1991, 3-17425
Term of patent 14 years
U.S. Cl. D13—147



335,650
CONNECTOR BOX WITH BOTTOM ENTRY
Richard C. Powell, Fuquay-Varina; John E. Francis, and Daniel P. Sedlecky, both of Raleigh, all of N.C., assignors to Raychem Corporation, Menlo Park, Calif.
Filed Mar. 5, 1991, Ser. No. 665,149
Term of patent 14 years
U.S. Cl. D13—152

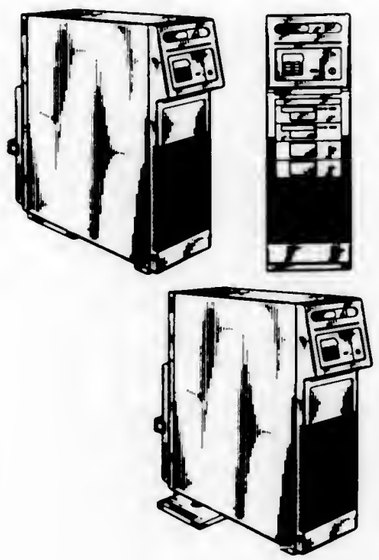


335,651
AUXILIARY POWER UNIT FOR USE WITH COMPUTER SYSTEMS
Bruce A. Jones, Ulster Park, and John J. Natoli, Woodstock, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Sep. 4, 1990, Ser. No. 577,429
Term of patent 14 years
U.S. Cl. D14—100

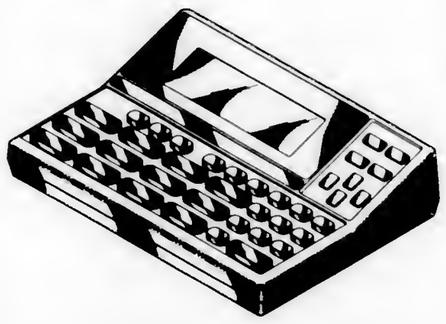


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335,652
INTELLIGENT COMPUTER DISK ARRAY
George R. Daniels, Houston, Tex., assignor to Compaq Computer Corporation, Houston, Tex.
Filed Nov. 13, 1990, Ser. No. 611,871
Term of patent 14 years
U.S. Cl. D14—100



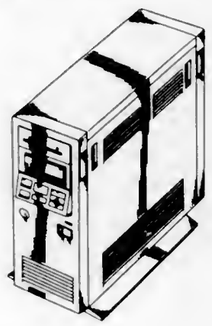
335,653
PORTABLE RADIO DATA TERMINAL FOR TRANSMITTING AND RECEIVING SIGNALLING DIGITAL INFORMATION
Roman P. Rak, Delta, Canada, assignor to Motorola Inc., Schaumburg, Ill.
Filed Apr. 15, 1991, Ser. No. 685,002
Term of patent 14 years
U.S. Cl. D14—100



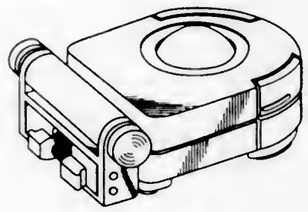
335,654
ELECTRONIC NOTE PAD FOR DATA ENTRY
Jeffrey A. Robinson, and Gary R. Wilson, both of 4528 Vista Dr., Canal Winchester, Ohio 43110-9235
Filed Mar. 27, 1991, Ser. No. 675,712
Term of patent 14 years
U.S. Cl. D14—100



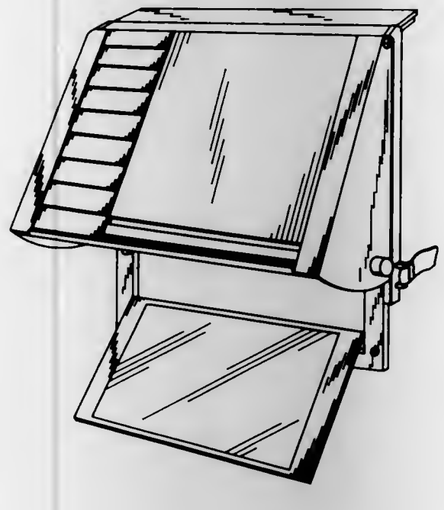
335,655
ENCLOSURE FOR A DATA PROCESSING SYSTEM
David W. Hill, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 15, 1990, Ser. No. 598,444
Term of patent 14 years
U.S. Cl. D14—102



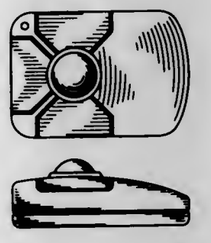
335,656
POINTED INSTRUMENT WITH A COMBINED TILTING AND COUPLING ASSEMBLY
Charlie Garthwaite, Kirkland; Bridget Cameron, and Stuart Ashmun, both of Seattle, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.
Filed Dec. 27, 1990, Ser. No. 634,299
Term of patent 14 years
U.S. Cl. D14—114



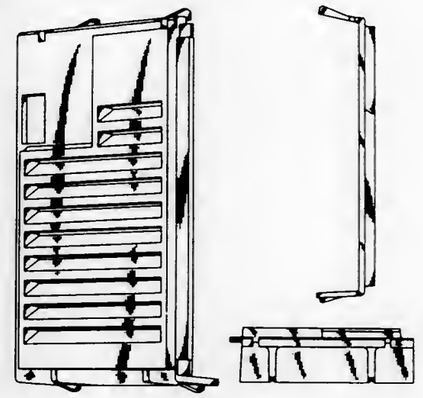
335,657
VIEWING ENHANCEMENT DEVICE FOR ATACHMENT TO A COMPUTER MONITOR
Jonathan C. Burke, Larkspur, Calif., assignor to Designs by Royo, Marysville, Calif.
Filed Jan. 25, 1991, Ser. No. 645,681
Term of patent 14 years
U.S. Cl. D14—114



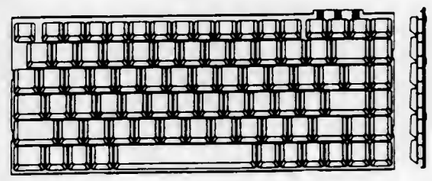
335,658
TRACK BALL FOR COMPUTER SYSTEM CURSOR CONTROL
Timothy C. Barry, Fremont, Calif., assignor to Microspeed Incorporated, Fremont, Calif.
Filed Oct. 1, 1991, Ser. No. 770,282
Term of patent 14 years
U.S. Cl. D14—114



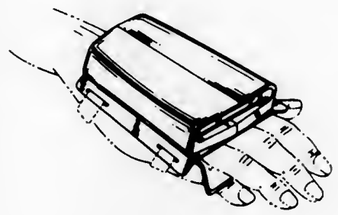
335,659
FRONT PANEL FOR DATA STORAGE UNIT
Michael H. Sharp, Winchester, England, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jun. 19, 1990, Ser. No. 540,419
Claims priority, application United Kingdom, Dec. 20, 1989, 2003492
Term of patent 14 years
U.S. Cl. D14—115



335,660
KEYBOARD
John P. Busch, Austin, Tex., assignor to Dell USA, L.P., Austin, Tex.
Filed Dec. 20, 1990, Ser. No. 633,438
Term of patent 14 years
U.S. Cl. D14—115

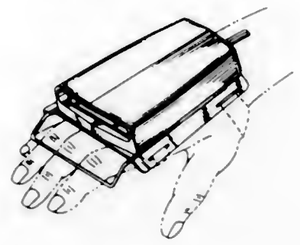


335,661
OPTICAL SCANNER
Howard M. Shepard, Great Neck, N.Y., assignor to Symbol Technologies, Inc., Bohemia, N.Y.
Filed Sep. 30, 1991, Ser. No. 767,605
Term of patent 14 years
U.S. Cl. D14—116

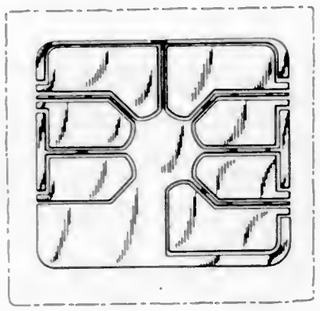


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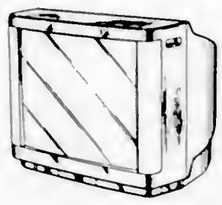
335,662
OPTICAL SCANNER
Howard M. Shepard, Great Neck, N.Y., assignor to Symbol Technologies, Inc., Bohemia, N.Y.
Filed Sep. 30, 1991, Ser. No. 767,606
Term of patent 14 years
U.S. Cl. D14—116



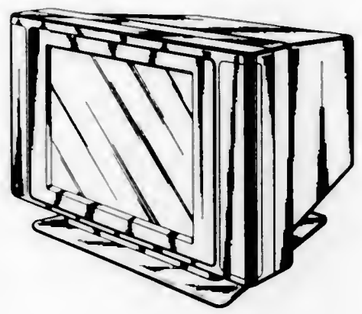
335,663
CONNECTING TERMINAL FOR CHIP CARDS
Jean-Pierre Gloton, Aix En Provence, France, assignor to Gemplus Card International, Aix En Provence, France
Division of Ser. No. 388,626, Aug. 1, 1989. This application Jun. 29, 1992, Ser. No. 912,623
Claims priority, application France, Feb. 2, 1989, 89 0749
Term of patent 14 years
U.S. Cl. D14—117



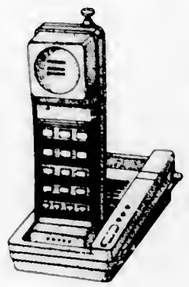
335,664
TELEVISION RECEIVER
Yusuke Morita, and Hiroaki Nishiyori, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jan. 8, 1991, Ser. No. 639,177
Claims priority, application Japan, Jul. 11, 1990, 2-23448
Term of patent 14 years
U.S. Cl. D14—126



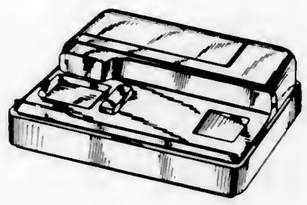
335,665
TELEVISION SET
Richard K. Althans, Long Grove, and Mark Gartz, Mt. Prospect, both of Ill., assignors to Zenith Electronics Corporation, Glenview, Ill.
Filed Aug. 29, 1991, Ser. No. 752,241
Term of patent 14 years
U.S. Cl. D14—126



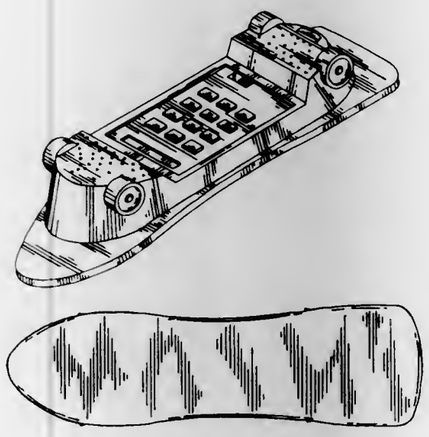
335,666
COMBINED CORDLESS HANDSET TELEPHONE AND BASE THEREFOR
George P. Roegner, Vero Beach, Fla., assignor to North American Foreign Trading Corporation, New York, N.Y.
Filed Dec. 26, 1991, Ser. No. 812,955
Term of patent 14 years
U.S. Cl. D14—138



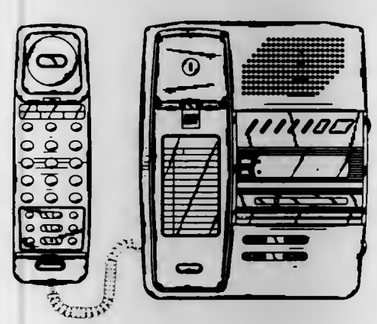
335,667
BASE FOR A MOBILE TELEPHONE
Kazuo Kawakami, and Fukuya Iguchi, bot of Tokyo, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan
Filed Jan. 29, 1991, Ser. No. 647,724
Claims priority, application Japan, Nov. 2, 1990, 2-36991
Term of patent 14 years
U.S. Cl. D14—142



335,668
SKATEBOARD TELEPHONE OR SIMILAR ARTICLE
Ralph R. Pasinski, Sunnyvale, Calif., assignor to Nobell, Inc., Sunnyvale, Calif.
Filed Nov. 13, 1991, Ser. No. 791,608
Term of patent 14 years
U.S. Cl. D14—143



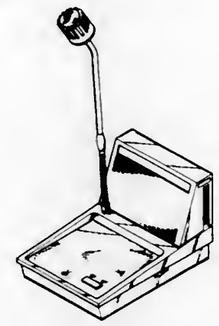
335,669
TELEPHONE
Him-Chi Yu, North Point, Hong Kong, assignor to Picotronics Industries Limited, Kowloon, Hong Kong
Filed Jul. 1, 1991, Ser. No. 723,530
Claims priority, application United Kingdom, Jan. 2, 1991, 2012036
Term of patent 14 years
U.S. Cl. D14—144



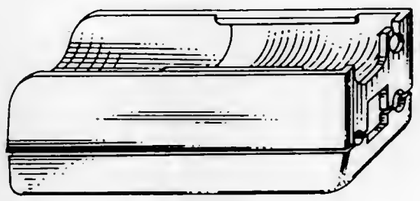
335,670
HOUSING FOR WIRELESS RADIO COMMUNICATION EQUIPMENT
Claire T. Kerr, Morris Plains, and Fredrick G. Randall, Newark, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Jun. 27, 1990, Ser. No. 544,790
Term of patent 14 years
U.S. Cl. D14—188



335,671
MICROPHONE SET
Wen C. Yang, Taichung, Taiwan, assignor to Sekaku Electron Industry Co., Ltd., Taichung, Taiwan
Filed Dec. 3, 1991, Ser. No. 801,911
Term of patent 14 years
U.S. Cl. D14—227

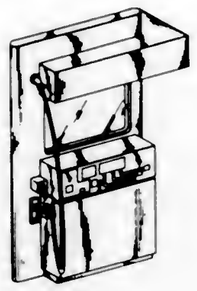


335,672
BRACKET FOR A HAND TELEPHONE
Ari Léman, Pertteli, and Pekka Hakanen, Turku, both of Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland
Filed Oct. 9, 1990, Ser. No. 594,897
Claims priority, application Finland, Apr. 12, 1990, 334/90
Term of patent 14 years
U.S. Cl. D14—251

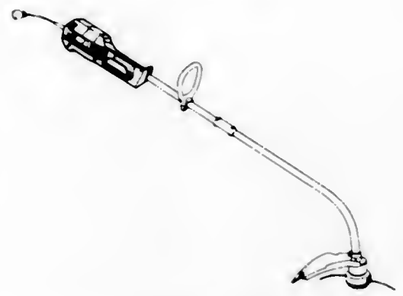


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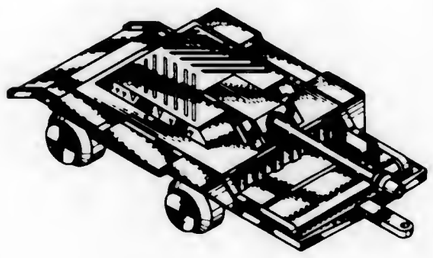
335,673
FUEL DISPENSING CONSOLE
Stanley S. Wulc, Rydal, Pa., assignor to William M. Wilson's Sons, Inc., Lansdale, Pa.
Filed Dec. 18, 1991, Ser. No. 813,300
Term of patent 14 years
U.S. Cl. D15—9.1



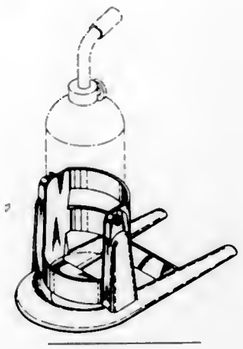
335,674
COMBINED HOUSING AND HANDLE ASSEMBLY FOR A LINE TRIMMER
Kiyoshi Hoshino, Clemson, S.C., assignor to Ioertia Dynamics Corporation, Chandler, Ariz.
Filed Jun. 27, 1990, Ser. No. 544,484
Term of patent 14 years
U.S. Cl. D15—18



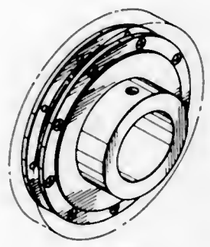
335,675
HAY DRYER
Harold S. Herron, Rte. 5, Box 177, Live Oak, Fla. 32060
Filed Jul. 31, 1990, Ser. No. 560,338
Term of patent 14 years
U.S. Cl. D15—27



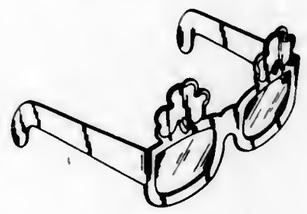
335,676
ADJUSTABLE HOLDER FOR A GAS TORCH
William S. Szybura, P.O. Box 563, Orting, Wash. 98360
Filed Jan. 22, 1992, Ser. No. 823,561
Term of patent 14 years
U.S. Cl. D15—144



335,677
PULL WHEEL HUB
Steven D. Davis, Yucaipa, and Mark W. Griffin, Apple Valley, both of Calif., assignors to W. A. Lane, Inc., San Bernardino, Calif.
Filed Jun. 6, 1991, Ser. No. 710,935
Term of patent 14 years
U.S. Cl. D15—138



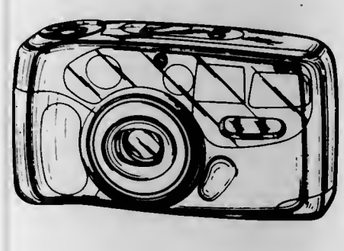
335,678
EYEGLASSES WITH CLOVER
Craig T. Jones, Aurora, and David M. Vaughan, Denver, both of Colo., assignors to Day Shades, Inc., Denver, Colo.
Filed Jan. 10, 1992, Ser. No. 820,213
Term of pateot 14 years
U.S. Cl. D16—104



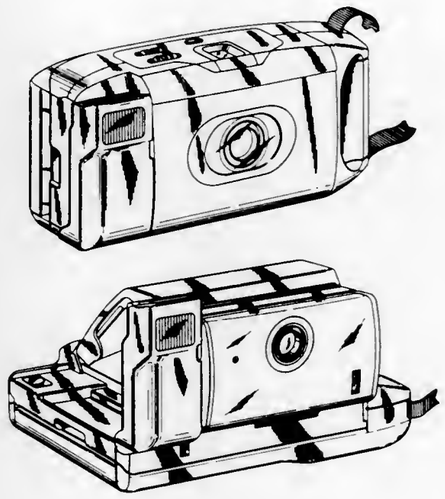
335,679
EYEGLASSES
Craig T. Jones, Aurora, and David M. Vaughan, Denver, both of Colo., assignors to Day Shades, Inc., Denver, Colo.
Filed Jan. 10, 1992, Ser. No. 821,533
Term of patent 14 years
U.S. Cl. D16—104



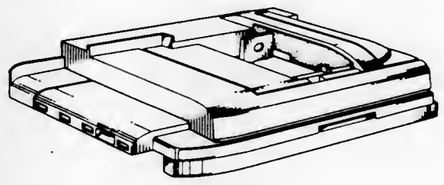
335,680
35 MM CAMERA
Koki Onuma, Tokyo, Japan, assignor to Asahi Kogaku Kogyo K.K., Tokyo, Japan
Filed Feb. 14, 1991, Ser. No. 655,908
Claims priority, application Japan, Aug. 28, 1990, 2-28788
Term of patent 14 years
U.S. Cl. D16—209



335,681
COMPACT FOLDING PHOTOGRAPHIC CAMERA
John H. Betts, New York, N.Y.; Donald H. Hendry, Rockland, Mass.; Bruce K. Johnson, Andover, Mass.; Joanne M. Krawczyk, Dracut, Mass., and George D. Whiteside, Lexington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Filed Aug. 1, 1991, Ser. No. 738,950
Term of patent 14 years
U.S. Cl. D16—211



335,682
DOCUMENT HANDLER FOR COPIER OR PRINTER
Mark S. Penke, West Henrietta; Robert E. Kalvitis, Fairport; William T. Clark, III, West Henrietta, all of N.Y.; Marland Chow, Oceanside, Calif.; Leonard V. Gates, Widford Nr. Ware, United Kingdom; Hideyuki Matsubara, and Chikako Sanaka, both of Yokohama, Japan, assignors to Xerox Corporation, Stamford, Conn.
Filed Oct. 31, 1991, Ser. No. 785,683
Term of patent 14 years
U.S. Cl. D18—49

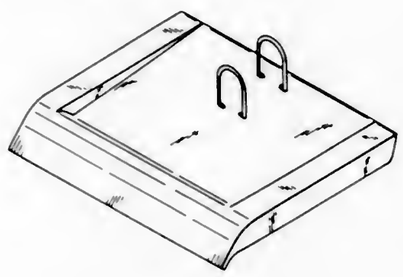


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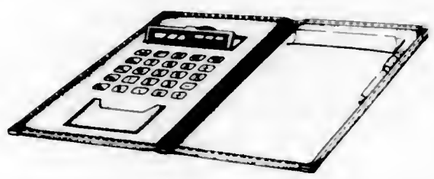
335,683
SMOOTH EDGE RECESSED SOLID INK PELLET
Philip N. Smith, Valencia, Calif., assignor to Dataproducts Corporation, Woodland Hills, Calif.
Continuation of Ser. No. 431,859, Nov. 6, 1989, abandoned. This application Jul. 27, 1992, Ser. No. 919,975
Term of patent 14 years
U.S. Cl. D18—56



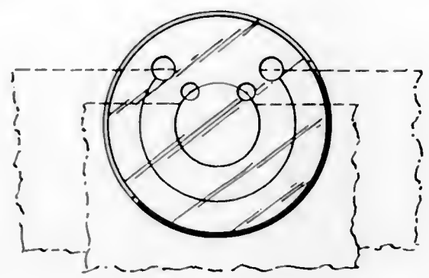
335,684
CALENDAR HOLDER
Eric P. Chan, New York, N.Y., assignor to American Trading & Production Corporation, Baltimore, Md.
Filed Dec. 26, 1991, Ser. No. 814,284
Term of patent 14 years
U.S. Cl. D19—20



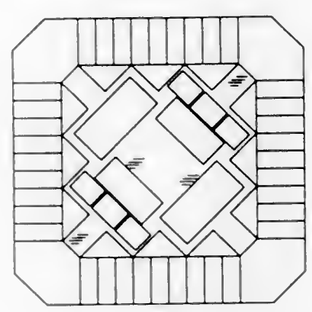
335,685
FOLDER WITH CALCULATOR
Lai-Fu Chen, Taoyuan, Taiwan, assignor to Aurora Mechatronics Corp., Taoyuan, Taiwan
Filed May 22, 1991, Ser. No. 704,011
Term of patent 14 years
U.S. Cl. D19—26



335,686
PAPER CLIP
Tom Christian, 4914 Pacifica Dr., San Diego, Calif. 92109
Filed Jul. 15, 1991, Ser. No. 729,805
Term of patent 14 years
U.S. Cl. D19—65



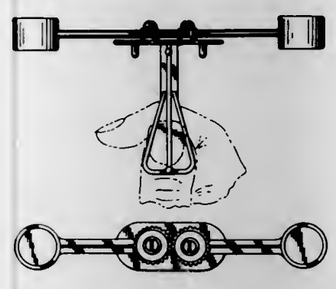
335,687
GAME BOARD
Thomas J. Campbell, 1666 Swanson La., Stanwood, Wash. 98292
Filed Jun. 12, 1990, Ser. No. 537,094
Term of patent 14 years
U.S. Cl. D21—33



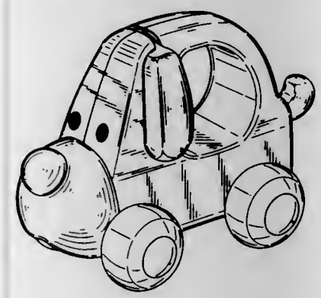
335,688
AERIAL TOY
Christopher Paquette, 184 Rockingham St., and Michael Paquette, Kissell Hill, both of Bellows Falls, Vt. 05101
Filed Dec. 30, 1991, Ser. No. 813,408
Term of patent 14 years
U.S. Cl. D21—82



335,689
SPINNING TOY
John A. Crane, Downers Grove, Ill., assignor to Allied Display & Packaging Corp., Elk Grove Village, Ill.
Filed Oct. 31, 1991, Ser. No. 785,706
Term of patent 14 years
U.S. Cl. D21—92



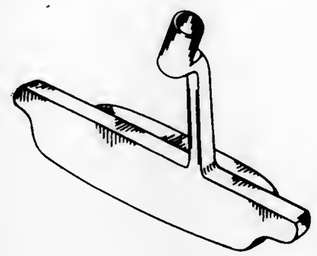
335,690
TOY VEHICLE
Masami Shiraishi, Tokyo, Japan, assignor to Combi Corporation, Tokyo, Japan
Filed Nov. 29, 1991, Ser. No. 799,628
Claims priority, application Japan, Jun. 5, 1991, 3-16293
Term of patent 14 years
U.S. Cl. D21—128



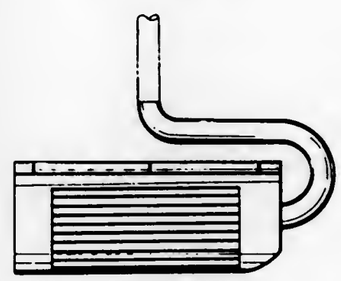
335,691
PUTTER HEAD
Robert W. Barker, Paradise Valley, Ariz., and Richard D. Barker, 5333 Baltimore Dr., LaMesa, Calif. 92042, assignors to Richard D. Barker, LaMesa, Calif.
Filed Jan. 22, 1991, Ser. No. 650,551
Term of patent 14 years
U.S. Cl. D21—217



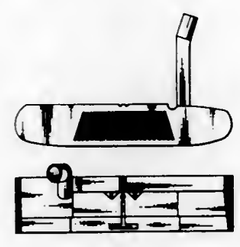
335,692
PUTTER TYPE GOLF CLUB HEAD
Anthony J. Antonious, 205 E. Joppa Rd., Towson, Md. 21204
Filed May 1, 1991, Ser. No. 694,032
Term of patent 14 years
U.S. Cl. D21—217



335,693
GOLF PUTTER HEAD
Albert R. Siegel, 387 Dorchester, Venice, Fla. 34292
Filed Sep. 14, 1990, Ser. No. 583,765
Term of patent 14 years
U.S. Cl. D21—218



335,694
GOLF PUTTER HEAD
Alfred O. Stuff, P.O. Box 574807, 572 N. Semoran Blvd., Orlando, Fla. 32807
Filed Mar. 4, 1991, Ser. No. 663,696
Term of patent 14 years
U.S. Cl. D21—219

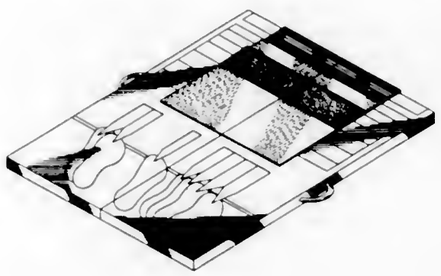


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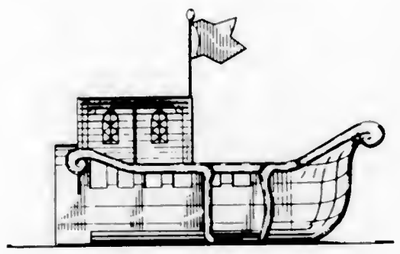
335,695
GOLF CLUB HANDLE SUPPORT
John Beck, 2318 Hazeltine Dr., Michigan City, LaPorte County, Ind. 46360
Filed Mar. 11, 1991, Ser. No. 667,069
Term of patent 14 years
U.S. Cl. D21—223



335,696
GOLF STANCE AND SWING TRAINING AID
James Byers, and Shirley Byers, both of 895 W. Main St., Newark, Ohio 43055
Filed Oct. 23, 1990, Ser. No. 601,580
Term of patent 14 years
U.S. Cl. D21—234



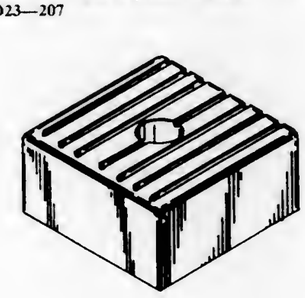
335,697
CHILDREN'S PLAY BOAT
Eileen Cleary, 12 Hillcrest Rd., Arlington, N.J. 07032
Filed Sep. 25, 1991, Ser. No. 765,701
Term of patent 14 years
U.S. Cl. D21—250



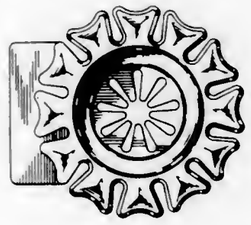
335,698
HANDGUN GRIP
William F. Lett, Jr., Rte. 4, Box 479A- Currier Rd., Contoocook, N.H. 03229
Filed Aug. 14, 1990, Ser. No. 567,782
Term of patent 14 years
U.S. Cl. D22—108



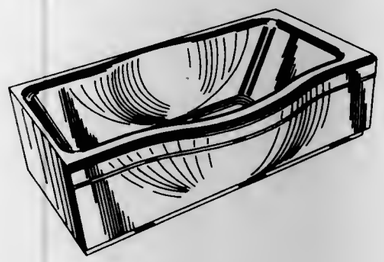
335,699
CHEMICAL DETERGENT BLOCK
Elizabeth J. Gladfelter, Falcon Heights; Tina O. Outlaw, Inver Grove Heights; James L. Copeland; Rhonda K. Schulz, both of Burnsville; Daniel K. Boche, Eagan, and Jeff W. Peterson, Minnetonka, all of Minn., assignors to Ecolab Inc., St. Paul, Minn.
Filed May 14, 1991, Ser. No. 699,789
Term of patent 14 years
U.S. Cl. D23—207



335,700
COMBINED SINK STRAINER AND SCRAPER
Norton Sarnoff, Northbrook, and Carl R. Fletcher, Kildeer, both of Ill., assignors to Ensar Corporation, Wheeling, Ill.
Filed Aug. 15, 1990, Ser. No. 567,903
Term of patent 14 years
U.S. Cl. D23—261



335,701
BATHTUB
Gianfranco D. Zaccai, Boston, and Timothy C. Dearborn, Wellesley, both of Mass., assignors to Herman Miller, Inc., Zeeland, Mich.
Filed May 28, 1991, Ser. No. 706,521
Term of patent 14 years
U.S. Cl. D23—277



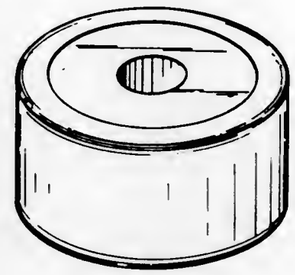
335,702
ELECTRONIC OZONATION UNIT
Richard T. Chang, Saratoga, Calif., assignor to Information Scan Technology, Inc., Santa Clara, Calif.
Filed Jul. 2, 1991, Ser. No. 724,962
Term of patent 14 years
U.S. Cl. D23—366



335,703
ELECTRIC FAN
Yin-Chieh Liao, No. 106, Lane 6, Sec. 1, Chung-San Rd., Ta-Tsuen Hsiang, Chunghua Hsien, Taiwan
Filed Sep. 6, 1991, Ser. No. 756,138
Term of patent 14 years
U.S. Cl. D23—380



335,704
PARTIALLY SHELL ENCASED SWIMMING POOL CHEMICAL TABLET
John M. Casberg, Cheshire, Conn., assignor to Olin Corporation, Cheshire, Conn.
Filed Mar. 27, 1990, Ser. No. 503,590
Term of patent 14 years
U.S. Cl. D24—101



335,705
RETROGRADE CARDIOPLEGIA STYLET
Gerald D. Buckberg, Los Angeles, Calif., and Robert J. Todd, Salt Lake City, Utah, assignors to Research Medical, Inc., Salt Lake City, Utah
Filed Jun. 4, 1991, Ser. No. 713,448
Term of patent 14 years
U.S. Cl. D24—112

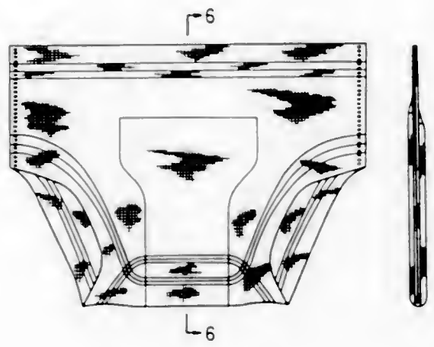


335,706
PAP SMEAR SAMPLER
Reza S. Mohajer, 3115 W. Shore Dr., Orchard Lake, Mich. 48033
Filed Apr. 26, 1991, Ser. No. 692,045
Term of patent 14 years
U.S. Cl. D24—119



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335,707
DIAPER PANTS
Takamitsu Igaue; Tohru Sasaki, both of Kawanoe; Hiromi Manabe, Ehime; Hironori Nomura, Iyomishima, and Taiji Shimakawa, Kanonji, all of Japan, assignors to Uni-Charm Corporation, Ehime, Japan
Filed Jul. 12, 1990, Ser. No. 551,849
Claims priority, application Japan, Jan. 17, 1990, 2-862
Term of patent 14 years
U.S. Cl. D24—126



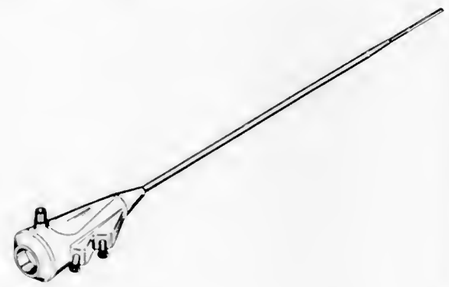
335,708
SPECIMEN CUP HOLDER
Timothy B. Jones, 10300 South Western Apt. 1314, Oklahoma City, Okla. 73139; Robert D. Jones, and Lori D. Jones, both of 1452 N. Washington, Ardmore, Okla. 73401
Filed May 29, 1991, Ser. No. 706,746
The portion of the term of this patent subsequent to Dec. 22, 2006, has been disclaimed.
Term of patent 14 years
U.S. Cl. D24—128



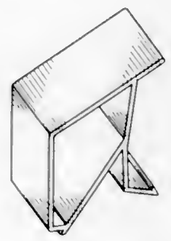
335,709
BINAURAL HEADPIECE FOR A STETHOSCOPE
Jae H. Choi, 4 Plane Tree La., Dix Hills, N.Y. 11746
Filed May 31, 1991, Ser. No. 713,445
Term of patent 14 years
U.S. Cl. D24—134



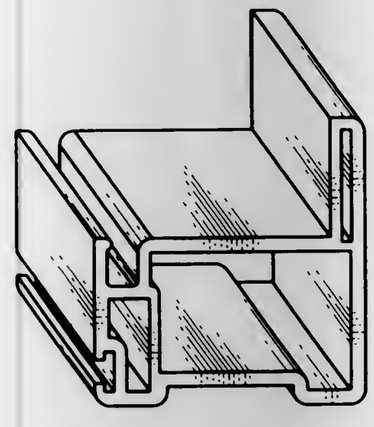
335,710
MINI-RIGID URETEROSCOPE
Raymond A. Ainger, III, Stamford, Conn., assignor to Circon Corporation, Santa Barbara, Calif.
Filed Dec. 21, 1990, Ser. No. 631,795
Term of patent 14 years
U.S. Cl. D24—138



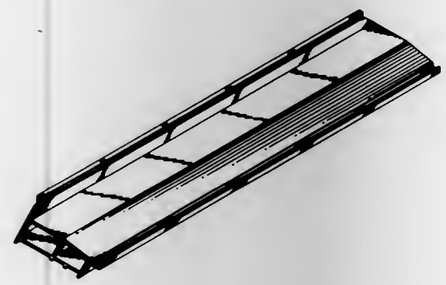
335,711
WINDOW COMPONENT EXTRUSION
Douglas L. Cole, Seattle, Wash., assignor to Mikron Industries, Kent, Wash.
Filed May 30, 1991, Ser. No. 707,408
Term of patent 14 years
U.S. Cl. D25—124



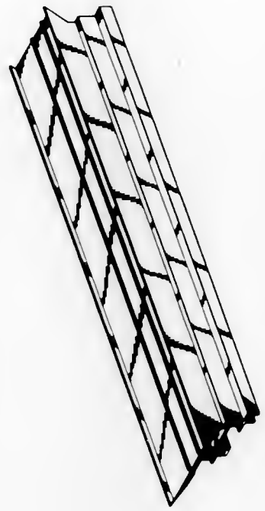
335,712
WINDOW SASH EXTRUSION
Douglas L. Cole, Seattle, Wash., assignor to Mikron Industries, Kent, Wash.
Filed May 30, 1991, Ser. No. 708,786
Term of patent 14 years
U.S. Cl. D25—124



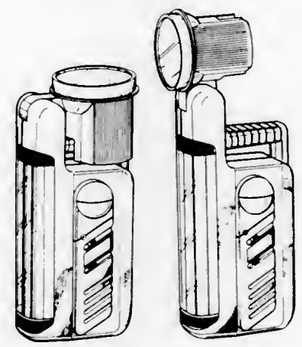
335,713
EXTRUDED WINDOW SILL
Carl P. Slocomb, 2652 Drayton Dr., Wilmington, Del. 19808
Filed Jun. 6, 1991, Ser. No. 710,928
Term of patent 14 years
U.S. Cl. D25—124



335,714
EXTRUDED WINDOW JAMB
Carl P. Slocomb, Wilmington, Del., assignor to Slocomb Industries, Inc., Wilmington, Del.
Filed Jun. 6, 1991, Ser. No. 710,930
Term of patent 14 years
U.S. Cl. D25—124

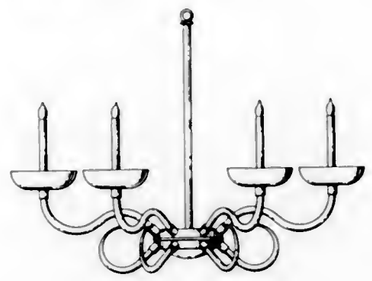


335,715
COMBINED INCANDESCENT LAMP AND FLUORESCENT LANTERN
Albert Wan, Tsuen Wan, Hong Kong, assignor to Fee Tat Plastic Factory, Limited, Aberdeen, Hong Kong
Filed Mar. 18, 1991, Ser. No. 671,286
Claims priority, application United Kingdom, Oct. 3, 1990, 2010033
Term of patent 14 years
U.S. Cl. D26—44

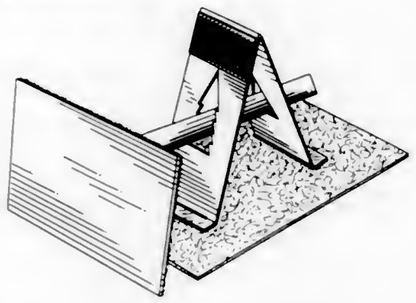


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335,716
CHANDELIER
Arnold Schonbek, Plattsburgh, N.Y., assignor to A. Schonbek & Co., Inc., Plattsburgh, N.Y.
Filed Jul. 8, 1991, Ser. No. 726,542
Term of patent 14 years
U.S. Cl. D26—81



335,717
PORTABLE PHOTOGRAPHIC LIGHT REFLECTOR UNIT
Quest Couch, 1142 E. Commerce, San Antonio, Bexar County, Tex. 78204
Filed Dec. 20, 1990, Ser. No. 631,034
Term of patent 14 years
U.S. Cl. D26—118



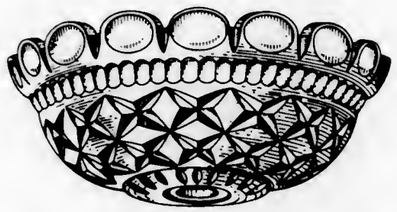
335,718
FLASHLIGHT HOLDER CLAMP ASSEMBLY
Anthony Maglica, Ontario, and Fred R. McAlister, Chino, both of Calif., assignors to Mag Instruments, Inc., Ontario, Calif.
Filed Jun. 13, 1990, Ser. No. 537,446
Term of patent 14 years
U.S. Cl. D26—138



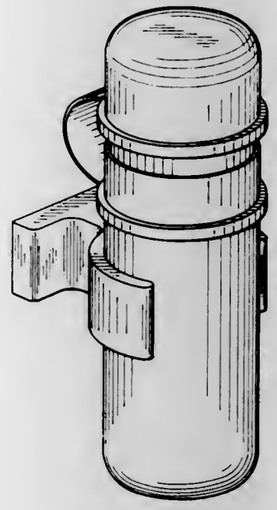
335,719
ARM FOR ADJUSTABLE LAMP SUPPORT
J. T. Kuo, 1F., No. 92, Chao Yang Street, Kon Liao Hsiang, Taipei Hsien, Taiwan
Filed Oct. 10, 1991, Ser. No. 774,272
Term of patent 14 years
U.S. Cl. D26—140



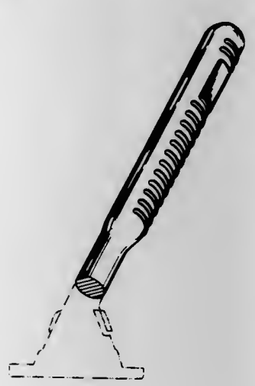
335,720
LIGHTING FIXTURE DISH
Arnold Schonbek, Plattsburgh, N.Y., assignor to A. Schonbek & Co., Inc., Plattsburgh, N.Y.
Filed Jul. 3, 1991, Ser. No. 725,265
Term of patent 14 years
U.S. Cl. D26—149



335,721
PORTABLE TOOTHPICK HOLDER
Janice A. Kimball, 60 Calico Valley Rd. NE., Rydal, Ga. 30171
Filed Mar. 22, 1991, Ser. No. 676,211
Term of patent 14 years
U.S. Cl. D28—64



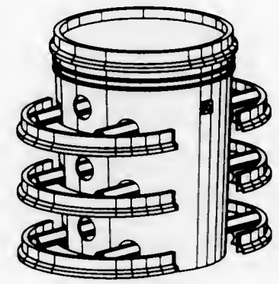
335,722
RAZOR HANDLE
Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.
Filed Sep. 28, 1990, Ser. No. 590,067
Term of patent 14 years
U.S. Cl. D28—48



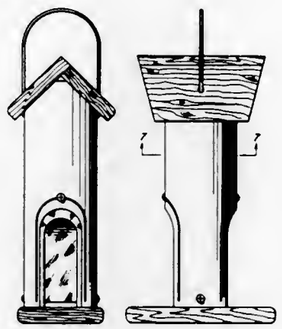
335,723
FACE SHIELD
Alicja Pawliszyn, 945 Brentwood Dr., Reno, Nev. 89502
Filed Apr. 25, 1990, Ser. No. 515,133
Term of patent 14 years
U.S. Cl. D29—6



335,724
DESIGN FOR SIX HOLE BIRD HOUSE
Henry D. Coffer, 1115 S. Main, Charleston, Mo. 63834
Filed Oct. 3, 1991, Ser. No. 770,308
Term of patent 14 years
U.S. Cl. D30—110

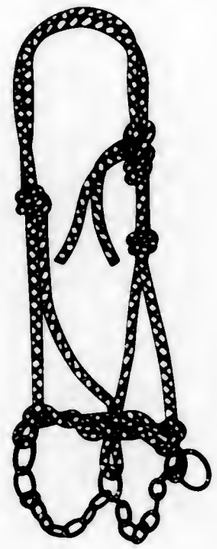


335,725
BIRD FEEDER
Victor Fasino, 62 Oneida Ave., Landing, N.J. 07850
Filed Apr. 17, 1991, Ser. No. 686,569
Term of patent 14 years
U.S. Cl. D30—126

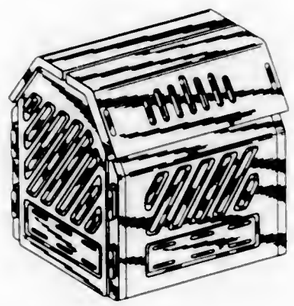


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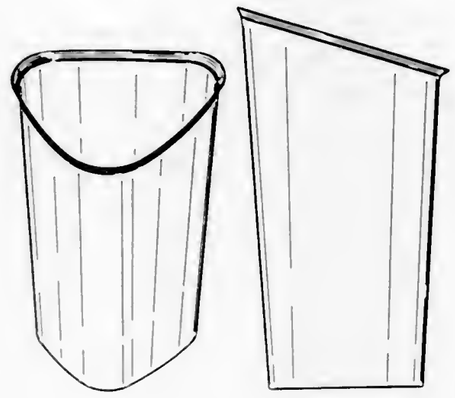
335,726
CATTLE HALTER
Anthony L. Baker, 77 Garden Street, Tamworth, New South Wales 2340, Australia
Filed Mar. 1, 1991, Ser. No. 664,645
Claims priority, application Australia, Sep. 3, 1990, 2879/90
Term of patent 14 years
U.S. Cl. D30—136



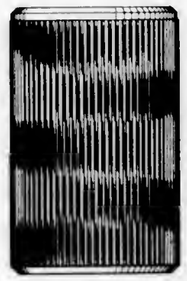
335,727
COMPOST CONTAINER
W. Henry Kahl, Wooster, Ohio, and James A. Schillinger, Augusta, Kans., assignors to Rubbermaid Incorporated, Wooster, Ohio
Filed May 28, 1991, Ser. No. 705,883
Term of patent 14 years
U.S. Cl. D34—1



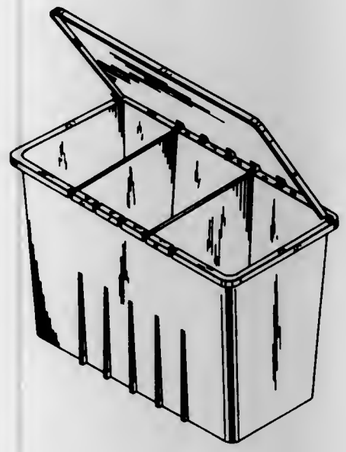
335,728
VANITY BASKET
Mark Dziersk, Simsbury, and Walter Koda, Newtown, both of Conn., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Mar. 22, 1991, Ser. No. 674,025
Term of patent 14 years
U.S. Cl. D34—1



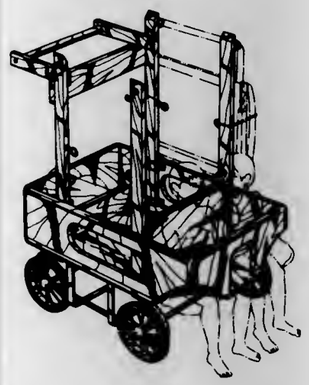
335,729
WASTE BASKET
Bernd Brüssing, Ulm/Donau, Fed. Rep. of Germany, assignor to Hans Friedrich Hefendehl, Kierspe, Fed. Rep. of Germany
Filed Oct. 3, 1990, Ser. No. 592,079
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1990, 9002638
Term of patent 14 years
U.S. Cl. D34—1



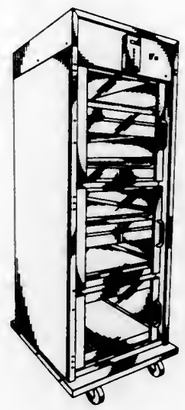
335,730
MULTIPLE BIN REFUSE CONTAINER
William Tessner, 8801 Briar Hollow Rd., Tampa, Fla. 33634, and Edward A. Mackowiak, 5686 Harborside Dr., Tampa, Fla. 33615
Filed Feb. 27, 1991, Ser. No. 661,319
Term of patent 14 years
U.S. Cl. D34—7



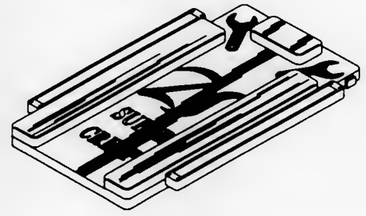
335,731
BEACH CART
Theodore J. Allen, 619 Wesley Ave., Ocean City, N.J. 08226
Filed Oct. 23, 1991, Ser. No. 786,903
Term of patent 14 years
U.S. Cl. D34—17



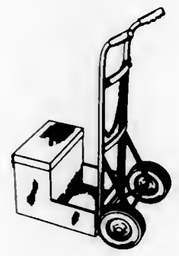
335,732
MULTI-COMPARTMENT FOOD HOLDING CABINET
James D. King, Dayton, Ohio, assignor to Henny Penny Corporation, Eaton, Ohio
Filed May 16, 1991, Ser. No. 701,138
Term of patent 14 years
U.S. Cl. D34—21



335,733
CREEPER
Stephen A. Zimmer, 46 N. Cherry St. B-6, Wallingford, Conn. 06492
Filed Nov. 29, 1991, Ser. No. 799,638
Term of patent 14 years
U.S. Cl. D34—23

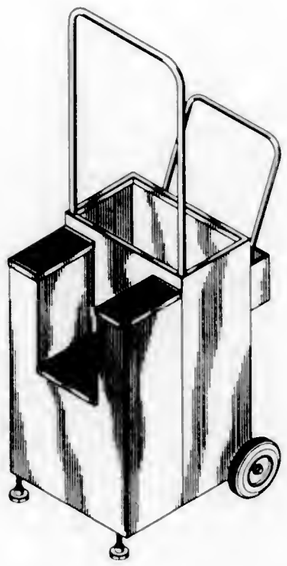


335,734
EQUIPMENT CARRIER HANDCART
John J. Senn, 320 E. Grand Ave., Wisconsin Rapids, Wis. 54494
Filed Sep. 11, 1991, Ser. No. 757,503
Term of patent 14 years
U.S. Cl. D34—25



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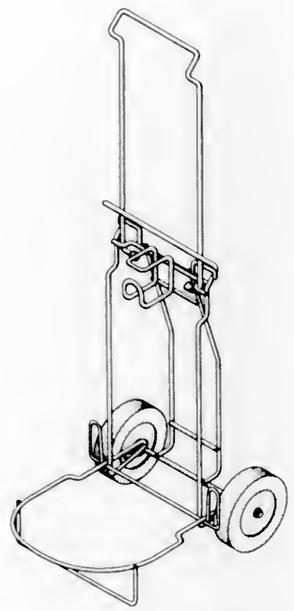
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ELECTRIC LIGHT CART
William C. Isom, 9430 Folkstone Rd., Dallas, Tex. 75220
Filed Oct. 21, 1991, Ser. No. 782,280
Term of patent 14 years
U.S. Cl. D34—25



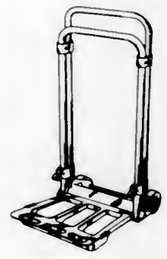
335,736
ELECTRIC LIGHT CART WITH LADDER HOLDER
William C. Isom, 9430 Folkstone Rd., Dallas, Tex. 75220
Filed Oct. 21, 1991, Ser. No. 779,611
Term of patent 14 years
U.S. Cl. D34—25



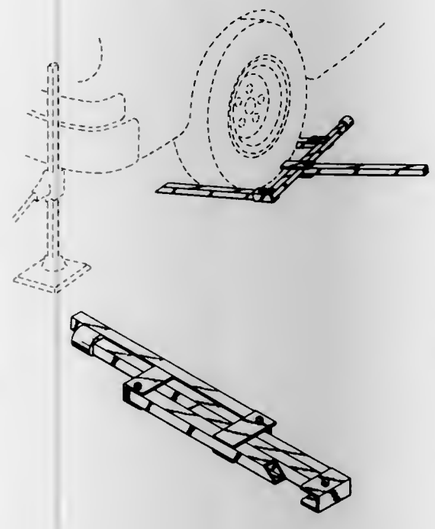
335,737
GAS CYLINDER CARRIER
John Bell, Sr., Birmingham; John Bell, Jr., Hoover, both of Ala., and Daniel T. Carter, Peach Tree City, Ga., assignors to Intercontinental Enterprises, Inc., Birmingham, Ala.
Filed Aug. 23, 1991, Ser. No. 752,266
Term of patent 14 years
U.S. Cl. D34—26



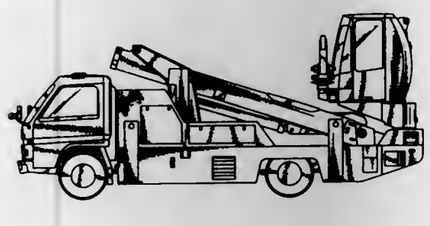
335,738
BARROW FOR USE IN GOING SHOPPING AND LOADING LUGGAGE
Cheng-Hsien Tsai, No. 103, Da-Ming 1st Rd., Tien-Tzu Hslang, Taichung Hsien, Taiwan
Filed Dec. 2, 1991, Ser. No. 801,171
Term of patent 14 years
U.S. Cl. D34—26



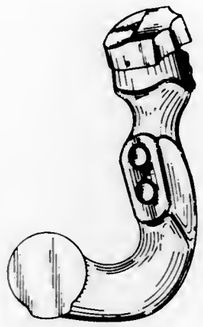
335,739
TIRE LIFT
Louis W. Holman, 3329 NW. 27th, Oklahoma City, Okla. 73112, and Louis W. Holman, Jr., 6801 Newman Dr., Oklahoma City, Okla. 73162
Filed Mar. 5, 1990, Ser. No. 488,752
Term of patent 14 years
U.S. Cl. D34—31



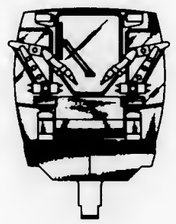
335,740
COMBINED MOBILE LIFTING VEHICLE AND AERIAL CABIN
Mineyuki Fujimoto, Okegawa, and Jun Amano, Ageo, both of Japan, assignors to Aichi Sharyo Co., Ltd., Nagoya, Japan
Filed Jan. 22, 1991, Ser. No. 643,821
Term of patent 14 years
U.S. Cl. D34—34



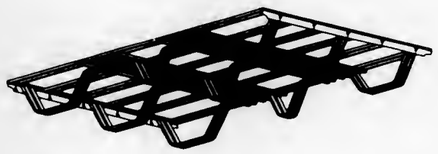
335,741
CONTROL HANDLE FOR A MATERIAL HANDLING VEHICLE
Edward J. McCormick, Greene; Eugene A. Helmetsie, Spencer; Isaac Avitan, Vestal, and Robert J. Lewis, Binghamton, all of N.Y., assignors to Raymond Corporation, Greene, N.Y.
Filed Sep. 9, 1991, Ser. No. 757,438
Term of patent 14 years
U.S. Cl. D34—35



335,742
AERIAL CABIN WITH A PAIR OF MANIPULATORS FOR A MOBILE LIFTING VEHICLE
Mineyuki Fujimoto, Okegawa, and Jun Amano, Ageo, both of Japan, assignors to Aichi Sharyo Co. Ltd., Nagoya, Japan
Filed Jan. 22, 1991, Ser. No. 643,822
Term of patent 14 years
U.S. Cl. D34—35

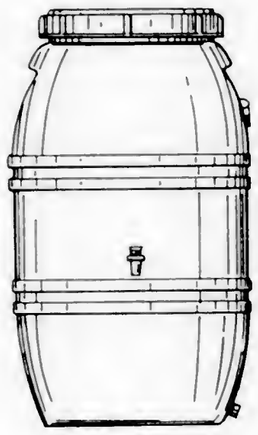


335,743
LOADING PALLETS
Claes Nordstrom, Vintrie, Switzerland, assignor to Uni Load AB, Malmo, Sweden
Continuation of Ser. No. 293,229, Jan. 4, 1989, abandoned. This application Oct. 9, 1991, Ser. No. 774,367
Claims priority, application Switzerland, Jul. 4, 1988, 88-1593
Term of patent 14 years
U.S. Cl. D34—38



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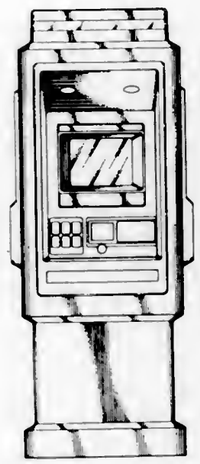
335,744
BARREL FOR COLLECTING AND DISPENSING RAINWATER
Christopher Small, Dedham, and Jeffrey Wixon, Brockton, both of Mass., assignors to The Great American Rain Barrel Company, Inc., Dedham, Mass.
Filed Apr. 29, 1991, Ser. No. 692,506
Term of patent 14 years
U.S. Cl. D34—39



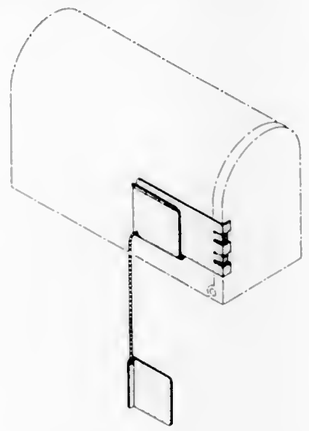
335,745
CONTAINER
Steven Schilthuizen, Za Berkel Enschot, Netherlands, assignor to Wiva Verpakkingen B.V., Netherlands
Filed Oct. 22, 1991, Ser. No. 781,941
Claims priority, application Int'l Pat. Institute, Aug. 5, 1991, DM/020337
Term of patent 14 years
U.S. Cl. D34—39



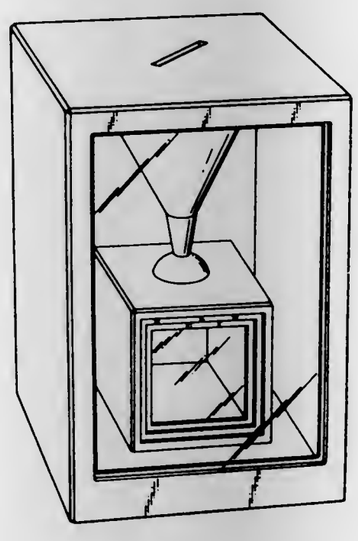
335,746
KIOSK
Michael J. North, Santa Monica, Calif., assignor to North Communications, Inc., Santa Monica, Calif.
Filed May 20, 1991, Ser. No. 702,738
Term of patent 14 years
U.S. Cl. D99—28



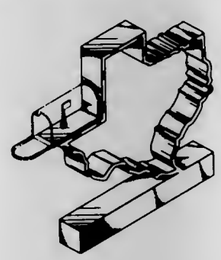
335,747
COMBINED MAIL DELIVER INDICATOR AND HOLDER THEREFOR
James C. Dearing, 615 Gardenia Rd., Millbrook, Ala. 36054, and Billy J. Walker, 167 N. Northington, Prattville, Ala. 36067
Filed Jul. 1, 1991, Ser. No. 724,357
Term of patent 14 years
U.S. Cl. D99—29



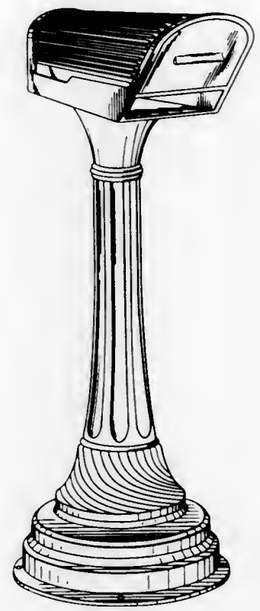
335,748
SAVING BOX
Tooru Suzuki, Tokyo, Japan, assignor to Tenyo Co., Ltd., Tokyo, Japan
Filed Aug. 7, 1992, Ser. No. 925,641
Claims priority, application Japan, Apr. 27, 1992, 4-12234
Term of patent 14 years
U.S. Cl. D99—34



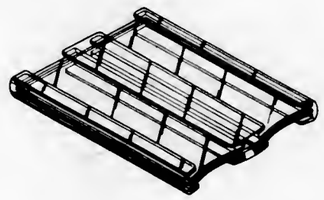
335,749
MAIL BOX STAND
Joe R. Brittain, 8822 Merritt Rd., Rowlett, Tex. 75088
Continuation-in-part of Ser. No. 690,234, Apr. 23, 1991. This application May 21, 1991, Ser. No. 703,336
Term of patent 14 years
U.S. Cl. D99—32



335,750
MAILBOX AND SUPPORT THEREFOR
Herman D. Berardi, 15745 Crabbs Branch Way, Rockville, Md. 20855
Filed Jun. 6, 1991, Ser. No. 710,934
Term of patent 14 years
U.S. Cl. D99—31

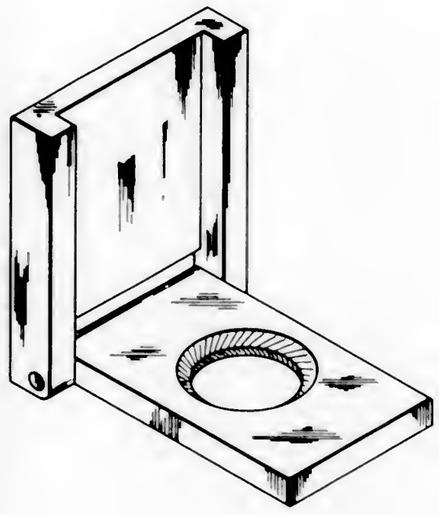


335,751
TOKEN/COIN HOLDER
Gary D. Johnson, New York, and Stanley Hochfeld, Howard Beach, both of N.Y., assignors to Leonard Holtz, Oceanside and Charles H. Mutterperl, Valley Stream, both of N.Y., a part interest
Filed May 3, 1991, Ser. No. 695,235
Term of patent 14 years
U.S. Cl. D99—34

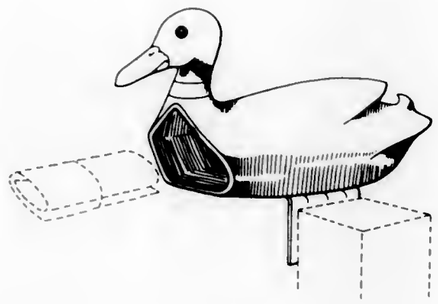


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335,752
COIN CASE
Jorge M. De La Salud, Madrid, Spain, assignor to Servicios Documentales Filatelicos Y Numiusmaticos, S.A., Nunez De Balboa, Spain
Filed May 9, 1991, Ser. No. 697,958
Term of patent 14 years
U.S. Cl. D99—34



335,754
SIMULATIVE NEWSPAPER RECEPTACLE
Elizabeth F. Englert, 1801 Conifer Way, #4, Redding, Calif. 96002
Filed Mar. 15, 1991, Ser. No. 670,325
Term of patent 14 years
U.S. Cl. D99—37



335,753
PIGGY-BANK
Jerry Smits, and Shirley Smits, both of R #2 Box 488 A, Markesan, Wis. 53946
Filed Jun. 24, 1991, Ser. No. 722,238
Term of patent 14 years
U.S. Cl. D99—35



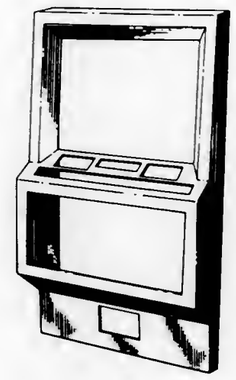
335,755
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Cole Davis, and Jason Adams, both of 19 Piney Trail, Cabot, Ark. 72023
Filed May 4, 1990, Ser. No. 518,853
Term of patent 14 years
U.S. Cl. D99—32



335,756
FLUORESCENT EXTENSION DROPCORD LIGHT
Edwin H. Gaynor, Fairfield, Conn., assignor to Edwin Gaynor Company, Stratford, Conn.
Filed Aug. 23, 1991, Ser. No. 749,413
Term of patent 14 years
U.S. Cl. D26—42



335,757
GAMING MACHINE CABINET DOOR
Danny L. Ward, 1003 Geneva St., Las Vegas, Nev. 89015, and Frank N. Heischman, 405 Bent Creek Dr., Las Vegas, Nev. 89107
Filed Dec. 13, 1991, Ser. No. 807,571
Term of patent 14 years
U.S. Cl. D21—38



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LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 18TH DAY OF MAY, 1993

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Abbott, John S.; Bertz, Mark C.; Faler, James H.; Schirmer, William, III; and Williams, John G., to Corning Incorporated. Method for forming a porous glass preform. 5,211,732, Cl. 65-3.120.

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Aberg, A. K. Gunnar; and Ondetti, Miguel A., to E. R. Squibb & Sons, Inc. Method for rehabilitating the vasorelaxant action of the coronary arteries impaired through atherosclerosis or hypercholesterolemia employing an ACE inhibitor. 5,212,165, Cl. 514-114.000.

Abramovich, Igor A.; and McKenna, Neil, to Magnetek Controls. Detection of damped sine waves in a magnestostrictive displacement transducer using pretrigger and detection thresholds of opposite polarity. 5,212,444, Cl. 324-207.130.

Abrams, Catherine T.: *See*—
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Achtziger, Paul M.: *See*—
Morris, Daniel L.; Bartman, David A.; Andrews, Albert E.; Giuseppetti, Emilio J.; Achtziger, Paul M.; Rowe, Paul J.; and Pease, Donald L., 5,212,529, Cl. 355-290.000.

Ackelsberg, Sholom M., to Imatron, Inc. Real time data averager for use in computed tomography scanning. 5,212,737, Cl. 382-6.000.

Ackerman, Robert I.; Walker, Alan; and Schlechtweg, Ronald E., to General Electric Company. Boltless turbine nozzle/stationary seal mounting. 5,211,536, Cl. 415-177.000.

Adalberto, Geier; and Kohler, Karl A., to Coster Tecnologie Specialis p.a.; and S. C. Johnson & Son, Inc. Dual-chamber package. 5,211,316, Cl. 222-386.500.

Adam, Georges V.; Feider, Georges G.; Premont, Michel; and Scheuren, Daniel, to Goodyear Tire & Rubber Company, The. Tire tread for large motor vehicles. 5,211,781, Cl. 152-209.00R.

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Adams, John T., to Honeywell Inc. Thermostat control. 5,211,332, Cl. 236-78.00D.

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Adamski, Joseph R.; Ferguson, Christopher; Petty, J. Scott; and Quandt, William J., to Raytheon Company. Controller for washing machine with alternately reversing drive motor. 5,211,037, Cl. 68-12.160.

Adar, Renen; Dragone, Corrado; and Henry, Charles H., to AT&T Bell Laboratories. Planar lens and low order array multiplexer. 5,212,758, Cl. 385-129.000.

Addiego, William P.; Lachman, Irwin M.; Patil, Mallanagouda D.; Williams, Jimmie L.; Williams, Melcenia R.; and Zaun, Kenneth E., to Corning Incorporated. High surface area washcoated substrate and method for producing same. 5,212,130, Cl. 502-60.000.

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Adkins, Rick L.: *See*—
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Adkinson, Robert W., to Louisiana State University Board of Supervisors. Composition, and method, for premilking udder hygiene. 5,211,961, Cl. 424-616.000.

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Ahrens, Are: *See*—
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Aicardi, Antonello; and Massaglia, Piercarlo, to CSELT-Centro Studi E Laboratori Telecomunicazioni S.P.A. Orthomode transducer between a circular waveguide and a coaxial cable. 5,212,461, Cl. 333-125.000.

Aihara, Masahiro; and Suzuki, Hiroyuki, to Kato Hatsujo Kaisha, Ltd. Releasable double-hinge device for an automobile console box. 5,210,906, Cl. 16-232.000.

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Keller, Gerhard, 5,211,798, Cl. 156-500.000.

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Albarella, James P., Cast, Todd K., Michaels, David W.; and Strycker, Wallace G., to Miles Inc. Use of inhibitors of color generation in chromogenic assays. 5,212,066, Cl. 435-28.000

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Frey, Albert, to Albert Frey Verpackungsentwicklungen und Vertriebes-GmbH. Five-speed box foldable from a blank and useful as an open container, or as an end lid for a larger package. 5,211,330, Cl. 229-175.000.

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Grindahl, Mervin L.; and Wala, Philip M., to E. F. Johnson Company. High speed data interface for land mobile communication system. 5,212,714, Cl. 375-5.000.

Groh, David G., and Ayres, James D., to Amway Corporation. Skin replication technique. 5,211,894, Cl. 264-40.100.

Grosch, Wayne A. Submersible pump adapter. 5,211,225, Cl. 166-66.400.

Gross, Lutz-Werner; Wieditz, Stefan; and Jung, Werner-Alfons, to BASF Lache+Farben Aktiengesellschaft. Coating composition based on a hydroxyl-containing addition polymer and an amino resin crosslinking agent, agent and containing acid catalysts having hydroxy groups. 5,212,242, Cl. 525-162.000.

Grosspietsch, Wolfgang; Mader, Gottfried, Voit, Herbert; and Muller, Karl, to Fichtel & Sachs AG. Slave cylinder for a hydraulic actuating system of a motor vehicle friction clutch. 5,211,099, Cl. 92-107.000.

Groves, Emily A., and Grant, Gary J., to Texas Instruments Incorporated. P-well CMOS process using neutron activated doped N−/N+ silicon substrates. 5,212,100, Cl. 437-17.000.

Groya, Robert J., and Hoffman, Richard W., to Magenta Corporation. Spooning closure. 5,211,301, Cl. 215-245.000.

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Grubelic, Ivo; and Velitschkowski, Vladimir, to Micro-Plate/Systems. Apparatus to manufacture printed circuit boards. 5,211,756, Cl. 118-316.000.

GTE Airfone, Inc.: *See*—
Choate, Bernard K., 5,212,804, Cl. 455-33.100.

GTE Laboratories Incorporated. *See*—
Ditchek, Brian M.; Neifeld, Mark A., and Gustafson, John C., 5,211,707, Cl. 445-24.000.

GTE Products Corporation. *See*—
Arold, Jonathan B.; Decatur, E. Forrest, and Mishou, Joan L., 5,212,763, Cl. 392-488.000.
Avellino, Frank J., 5,212,469, Cl. 340-475.000.
Topel, A. Charles, Jr.; Palmer, Lewis H., III, Leadvaro, Stephen J.; Gagnon, Peter R., and Martin, Roy C., 5,212,422, Cl. 313-318.000.

Gueret, Jean-Louis H., to L'Oreal. Process for the compaction of a powder mixture providing an absorbent or partially friable compact product and the product obtained by this process. 5,211,892, Cl. 204-23.000.

Guglielmotte, Francis. *See*—
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Guignard, Rene J.; and Garcia, Jean, to Hutchinson. Point irrigation apparatus with branch connections. 5,211,426, Cl. 285-5.000.

Guindon, Yvan: *See*—
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Gumbs, Alan E. Dome clamp apparatus. 5,211,433, Cl. 292-256.000.

Gunze Limited: *See*—
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Gupta, D. V. Satyanarayana. *See*—
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Gupta, Tapan K.; Bich, George J.; and Lawless, William N., to United States of America, Air Force. Inorganic wire insulation for superconducting wire. 5,212,013, Cl. 428-381.000.

Gurenko, Oleg A.: *See*—
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Gustafson, John C.: *See*—
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Gustafson, Mark E.: *See*—
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Haas, Erwin; and Schmitz, Heinz-Withold, to Lonza-Werke G.m.b.H. Device and process for the production of oxide-ceramic materials. 5,211,962, Cl. 425-6.000.

Haber, Terry M.; Smedley, William H.; and Foster, Clark B., to Habley Medical Technology Corporation. Telescoping, pharmaceutical mixing container. 5,211,285, Cl. 206-221.000.

Haberl, Ralph; and Schels, Hans F. System and method for analyzing selected signal components in electrocardiographic signals, particularly late potentials in electrocardiograms. 5,211,179, Cl. 128-702.000.

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Hada, Tetsurou, to Kabushiki Kaisha Toshiba. Computed tomography scanner apparatus. 5,212,717, Cl. 378-4.000.

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Hagar, Donald K., to Damper Design, Inc. Apparatus and method for delivery of combustion air in multiple zones. 5,211,705, Cl. 431-10.000.

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Jones, Winton D.; Dage, Richard C.; and Schnettler, Richard A., to Merrell Dow Pharmaceuticals Inc. Alkoxyimino ether derivatives of 5-acyl-2(1H)-pyridinones. 5,212,315, Cl. 546-257.000.

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Lim, Jong R., and Choi, Jong G., to Goldstar Co., Ltd. Ejecting and loading mechanism for a tape cassette with means for preventing unintentional ejection of the cassette. 5,212,605, Cl. 360-99.060.

Lin, Horng-Ji. Thread tension device for a sewing machine. 5,211,122, Cl. 112-254.000.

Lin, Jui C. Latch unit for door locks. 5,211,432, Cl. 292-169.000.

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Young, Jonathan; Steinthorson, Gary; Wu, Kent; and Paul, Doug, to Teleflex (Canada) Limited. Annular fuel line fitting. 5,211,193, Cl. 137-590.000.

Young, Tonya R.: *See*—
Henderson, Richard M.; Young, Tonya R.; Hickman, Tommy L.; Clendaniel, W. Richard; Dickinson, Edward L.; and Coppola, Patsy A., 5,211,252, Cl. 177-25.140.

Youngner, Daniel W., to Eco Pure, Inc. Vacuum distillation apparatus for removal of volatile impurities from liquids. 5,211,816, Cl. 202-205.000.

Yu, Chen-Hua D., to AT&T Bell Laboratories. Method for forming planarized films by preferential etching of the center of a wafer. 5,212,116, Cl. 437-228.000.

Yue, Jerry: *See*—
Liu, Michael S.; Shaw, Gordon A.; and Yue, Jerry, 5,212,108, Cl. 437-60.000.

Yui, Toshitake: *See*—
Breton, Marcel P.; Malhotra, Shadi L.; Yui, Toshitake; Henseleit, Kerstin M.; and Croucher, Melvin D., 5,211,747, Cl. 106-20.00R.

Yuito, Isamu; Morijiri, Makoto; Takeura, Tooru; Koyama, Naoki; and Kitada, Masahiro, to Hitachi, Ltd. Magnetoresistive head. 5,212,609, Cl. 360-113.000.

Yukawa, Nobuhiko; Hashimoto, Terukuni; Sakamoto, Katsuhiko; and Motoyama, Atsushi, to Nippon Shokubai Kagaku Kogyo Co., Ltd. Artificial marble from reactive thermoplastic, monomer and anhydride. 5,212,217, Cl. 523-434.000.

Yurman, Bruno: *See*—
Nazarenko, Dimitri M.; Hughes, Houston H., III; Gordon, Robert T.; Hattey, David I.; and Yurman, Bruno, 5,212,724, Cl. 379-58.000.

Zachrei, Jurgen, to Rittal-Werk Rudolf Loh GmbH & Co. Kg. Fastener for affixing a mounting track to a wall of a switchbox. 5,211,499, Cl. 403-258.000.

Zahnradfabrik Friedrichshafen AG: *See*—
Katzensteiner, Josef R., 5,211,406, Cl. 277-25.000.

Zaikova, Raisa M.: *See*—
Kochetkova, Raisa P.; Shpilevskaya, Ljudmila I.; Shiverskaya, Ida P.; Babikov, Anatoly F.; Zaikova, Raisa M.; Shmidt, Fedor K.; Gurenko, Oleg A.; Glazyrin, Valery V.; Tikhonov, Gennady P.; Usov, Vasily I.; Popov, Anatoly A.; Eppel, Semen A.; Botkin, Gennady I., deceased; Botkina, Valentina I., administrator; Botkina, Olga G., administrator; Botkina, Natalya G., administrator; and Botkin, Alexei G., administrator, 5,212,134, Cl. 502-159.000.

Zakman, Zdravko M.: *See*—
Schwartz, Mark W.; Moller, Paul J.; and Zakman, Zdravko M., 5,211,581, Cl. 439-581.000.

Zambon, Joseph J.: *See*—
Snyder, Brian A.; Contestable, Paul B.; Abrams, Catherine T.; Zambon, Joseph J.; and Reynolds, Homer S., 5,212,061, Cl. 435-7.320.

Zamojski, Marek R. Eccentric pulley mechanism for compound archery bow. 5,211,155, Cl. 124-25.600.

Zandveld, Frederik; and Kindervater, J. A. G. M., to Digital Equipment Corporation. Computer system comprising a main bus and an additional communication means directly connected between processor and main memory. 5,212,776, Cl. 395-325.000.

Zanussi Elettrodomestici S.P.A.: *See*—
Santaroesa, Gianni, 5,211,189, Cl. 134-179.000.
Valent, Lucio, 5,211,038, Cl. 68-23.200.

Zaun, Kenneth E.: *See*—
Addiego, William P.; Lachman, Irwin M.; Patil, Mallanagouda D.; Williams, Jimmie L.; Williams, Melcenia R.; and Zaun, Kenneth E., 5,212,130, Cl. 502-60.000.

Zediker, Mark: *See*—
Heidel, Jeffrey; Zediker, Mark; Throgmorton, Keith; and Harting, William, 5,212,707, Cl. 372-50.000.

Zeiler, Bernhard, to Milliken Research Corporation. Apparatus for dispersing and directing dye onto a substrate. 5,211,339, Cl. 239-295.000.

Zel Products Inc.: *See*—
Brown, Douglas T.; Brown, David D.; and Brown, Virginia M., 5,210,911, Cl. 24-18.000.

Zelden, Carol: *See*—
Brown, Marilyn, 5,211,191, Cl. 134-201.000.

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Zenith Electronics Corporation: *See*—
Srivastava, Gopal K., 5,212,543, Cl. 358-21.00R.
Zenkel, Martin: *See*—
Landgraf, Tilo; Kunz, Rainer; Ropers, Johann; and Zenkel, Martin, 5,211,907, Cl. 376-364.000.
Zentner, Gaylen: *See*—
Sparer, Randall V.; and Zentner, Gaylen, 5,211,951, Cl. 424-426.000.
Zepp, Charles M., to Steadfast Inc. Squarylium dyes and products and processes using same. 5,211,885, Cl. 252-587.000.
Zeus: *See*—
Kaidonis, Aristide; and Issartel, Eric, 5,211,336, Cl. 239-1.000.
Zexel Corporation: *See*—
Yoshizu, Fumitsugu, 5,211,340, Cl. 239-533.400.
Zidek, Richard L.: *See*—
Janus, James J.; Zidek, Richard L.; and Lofgren, Lewis C., 5,211,290, Cl. 206-583.000.
Ziegelhoffer, Paul, to Paper Converting Machine Company. Clamp assembly for bag producing machine. 5,211,619, Cl. 493-194.000.
Ziegenbein, Botho: *See*—
Nolting, Peter; Holland, Martin; Ziegenbein, Botho; Stecher, Guenther; and Baresel, Detlef, 5,211,053, Cl. 73-31.050.
Ziegler, David B., to Thermo King Corporation. Method of manufacturing an eutectic beam having multi-functional support members. 5,211,900, Cl. 264-263.000.
Zillikens, Josef: *See*—
Steudle, Ernst; Boling, Gerd; and Zillikens, Josef, 5,211,055, Cl. 73-64.470.
Zimbelman, Darrell F., to Fairchild Space and Defense Corporation. Spacecraft thermal disturbance control system. 5,211,360, Cl. 244-164.000.
Zimmermann, Beatrix, to Matsushita Electric Industrial Co. Ltd. Apparatus for providing sentence-final accents in synthesized american english speech. 5,212,731, Cl. 381-52.000.
Zimmermann, Heinrich; and Zucchi, Mauro, to Balzers Aktiengesellschaft. Method for a doublesided coating of optical substrates. 5,211,759, Cl. 118-723.000.
Zinbarg, Benson, to Sun Hill Industries, Inc. Spider-like decorative object. 5,211,996, Cl. 428-16.000.
Zink, Donald G.: *See*—
Zink, Donald L.; and Zink, Donald G., 5,211,202, Cl. 137-350.000.
Zink, Donald L.; and Zink, Donald G., to Montana Sulphur & Chemical Co. Fluid apparatus with pressure-tight recessed well. 5,211,202, Cl. 137-350.000.
Zlobinsky, Yury: *See*—
Vilardi, Frank; Boncore, James; Bellotti, Silvio; and Zlobinsky, Yury, 5,211,808, Cl. 159-6.100.
Zmich, Joseph: *See*—
Russ, Michael B.; Peer, Roger L.; Zmich, Joseph; and Low, Chi-Chu D., 5,211,837, Cl. 208-65.000.
Zucchi, Mauro: *See*—
Zimmermann, Heinrich; and Zucchi, Mauro, 5,211,759, Cl. 118-723.000.
Zydzik, George J.: *See*—
Berger, Paul R.; Cho, Alfred Y.; Dutta, Niloy K.; Lopata, John; O'Bryan, Henry M., Jr.; Sivco, Deborah L.; and Zydzik, George J., 5,212,395, Cl. 257-185.000.
Zyma SA: *See*—
Afisch, Rudi A.; Schulze, Frank R.; Buschauer, Armin; and Schunack, Walter, 5,212,187, Cl. 514-342.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 18TH DAY OF MAY, 1993

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Dialight Corporation: *See*—
Dragoon, Daniel, Re. 34,254, Cl. 362-307.000.
Dragoon, Daniel, to Dialight Corporation. Surface mounted LED package. Re. 34,254, Cl. 362-307.000.
Eklund, Sven L.: *See*—
Strand, Bengt N. G.; and Eklund, Sven L., Re. 34,256, Cl. 408-239.00A.
Fratty, Hector; and Leleve, Joel, to Valeo Vision. Motor vehicle headlight including a single light source for generating two different beams. Re. 34,253, Cl. 362-61.000.
Friedrich, Juergen, to Krup Corporation. Static mixing device. Re. 34,255, Cl. 366-337.000.
Ishigami, Kazuhiro: *See*—
Yuzawa, Haruo; Nishiyama, Masafumi; Nakamura, Katsuyuki; and Ishigami, Kazuhiro, Re. 34,257, Cl. 123-643.000.
Krup Corporation: *See*—
Friedrich, Juergen, Re. 34,255, Cl. 366-337.000.
Leleve, Joel: *See*—
Fratty, Hector; and Leleve, Joel, Re. 34,253, Cl. 362-61.000.
Nakamura, Katsuyuki: *See*—
Yuzawa, Haruo; Nishiyama, Masafumi; Nakamura, Katsuyuki; and Ishigami, Kazuhiro, Re. 34,257, Cl. 123-643.000.
Nishiyama, Masafumi: *See*—
Yuzawa, Haruo; Nishiyama, Masafumi; Nakamura, Katsuyuki; and Ishigami, Kazuhiro, Re. 34,257, Cl. 123-643.000.
Nissan Motor Co., Ltd.: *See*—
Yuzawa, Haruo; Nishiyama, Masafumi; Nakamura, Katsuyuki; and Ishigami, Kazuhiro, Re. 34,257, Cl. 123-643.000.
Pien, Pao C. Multi-fuel compression-ignition engine and fuel injection pump therefor. Re. 34,252, Cl. 123-304.000.
Seco Tools AB: *See*—
Strand, Bengt N. G.; and Eklund, Sven L., Re. 34,256, Cl. 408-239.00A.
Strand, Bengt N. G.; and Eklund, Sven L., to Seco Tools AB. Tool for metal cutting. Re. 34,256, Cl. 408-239.00A.
Valeo Vision: *See*—
Fratty, Hector; and Leleve, Joel, Re. 34,253, Cl. 362-61.000.
Yuzawa, Haruo; Nishiyama, Masafumi; Nakamura, Katsuyuki; and Ishigami, Kazuhiro, to Nissan Motor Co., Ltd. Crank angle detecting system for engines. Re. 34,257, Cl. 123-643.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

American Orthodontics Corporation: *See*—
Merkel, Daniel A., B1 4,659,309, Cl. 433-9.000.
Audiotronics Corporation: *See*—
Warner, Donald E.; and Oyama, George C., B1 4,065,645, Cl. 381-183.000.
Axel Johnson Engineering AB: *See*—
Hjelmner, Ulf R.; and Larsson, Hans F., B1 4,126,546, Cl. 210-741.000.
B. F. Goodrich Company, The: *See*—
Kolycheck, Edmond G.; and Ondercin, Lawrence, B1 4,643,949, Cl. 428-425.900.
Dalebout, William T.; Measom, S. Ty; and Watterson, Scott R., to Weslo, Inc. Adjustable incline system for exercise equipment. B1 4,913,396, 5-18-93, Cl. 248-649.000.
Fujinaga, Yoshikazu: *See*—
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,720,342, Cl. 210-321.790.
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,781,832, Cl. 210-321.800.
Harumi, Fujio: *See*—
Takebayashi, Hiroaki; Harumi, Fujio; Nakamura, Kiyoshi; and Inoue, Koichi, B1 4,634,300, Cl. 384-548.000.
Hjelmner, Ulf R.; and Larsson, Hans F., to Axel Johnson Engineering AB. Method for the filtration of a suspension or emulsion. B1 4,126,546, 5-18-93, Cl. 210-741.000.
Inoue, Koichi: *See*—
Takebayashi, Hiroaki; Harumi, Fujio; Nakamura, Kiyoshi; and Inoue, Koichi, B1 4,634,300, Cl. 384-548.000.
Kabushiki Kaisha Toshiba: *See*—
Takebayashi, Hiroaki; Harumi, Fujio; Nakamura, Kiyoshi; and Inoue, Koichi, B1 4,634,300, Cl. 384-548.000.
Kolycheck, Edmond G.; and Ondercin, Lawrence, to B. F. Goodrich Company, The. Magnetic recording tape. B1 4,643,949, 5-18-93, Cl. 428-425.900.
Koyo Seiko Company Limited: *See*—
Takebayashi, Hiroaki; Harumi, Fujio; Nakamura, Kiyoshi; and Inoue, Koichi, B1 4,634,300, Cl. 384-548.000.
Larsson, Hans F.: *See*—
Hjelmner, Ulf R.; and Larsson, Hans F., B1 4,126,546, Cl. 210-741.000.
Measom, S. Ty: *See*—
Dalebout, William T.; Measom, S. Ty; and Watterson, Scott R., B1 4,913,396, Cl. 248-649.000.
Merkel, Daniel A., to American Orthodontics Corporation. Orthodontic bracket with rhomboidal profile. B1 4,659,309, 5-18-93, Cl. 433-9.000.
Minnesota Mining and Manufacturing Company: *See*—
Pembroke, Robert, B1 4,283,621, Cl. 235-375.000.
Mitsubishi Rayon Co., Ltd.: *See*—
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,720,342, Cl. 210-321.790.
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,781,832, Cl. 210-321.800.
Nakamura, Kiyoshi: *See*—
Takebayashi, Hiroaki; Harumi, Fujio; Nakamura, Kiyoshi; and Inoue, Koichi, B1 4,634,300, Cl. 384-548.000.
Okamoto, Masashi: *See*—
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,720,342, Cl. 210-321.790.
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,781,832, Cl. 210-321.800.
Ondercin, Lawrence: *See*—
Kolycheck, Edmond G.; and Ondercin, Lawrence, B1 4,643,949, Cl. 428-425.900.
Oyama, George C.: *See*—
Warner, Donald E.; and Oyama, George C., B1 4,065,645, Cl. 381-183.000.
Pembroke, Robert, to Minnesota Mining and Manufacturing Company. Apparatus and method of storing and retrieving information. B1 4,283,621, 5-18-93, Cl. 235-375.000.
Russo, Ronald D. Tracheal suction catheter. B1 5,083,561, 5-18-93, Cl. 128-207.160.
Takahashi, Hiroshi: *See*—
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,720,342, Cl. 210-321.790.
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,781,832, Cl. 210-321.800.
Takebayashi, Hiroaki; Harumi, Fujio; Nakamura, Kiyoshi; and Inoue, Koichi, to Koyo Seiko Company Limited; and Kabushiki Kaisha Toshiba. Rotating member supporting apparatus. B1 4,634,300, 5-18-93, Cl. 384-548.000.
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, to Mitsubishi Rayon Co., Ltd.

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Hollow-fiber filter module with filtrate conduit. B1 4,720,342, 5-18-93, Cl. 210-321.790.
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, to Mitsubishi Rayon Co. Ltd. Hollow-fiber filter module. B1 4,781,832, 5-18-93, Cl. 210-321.800.
Warner, Donald E.; and Oyama, George C., to Audiotronics Corporation. Headset. B1 4,065,645, 5-18-93, Cl. 381-183.000.
Watterson, Scott R.: *See*—
Dalebout, William T.; Measom, S. Ty; and Watterson, Scott R., B1 4,913,396, Cl. 248-649.000.
Weslo, Inc.: *See*—
Dalebout, William T.; Measom, S. Ty; and Watterson, Scott R., B1 4,913,396, Cl. 248-649.000.
Yoshida, Haruhiko: *See*—
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,720,342, Cl. 210-321.790.
Takemura, Tohru; Yoshida, Haruhiko; Takahashi, Hiroshi; Fujinaga, Yoshikazu; and Okamoto, Masashi, B1 4,781,832, Cl. 210-321.800.

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A. Schonbek & Co., Inc.: *See*—
Schonbek, Arnold, 335,716, Cl. D26-81.000.
Schonbek, Arnold, 335,720, Cl. D26-149.000.
ABA System AG: *See*—
Roskvist, Per-Ake; and Roskvist, Maj-Lis, 335,574, Cl. D3-35.000.
Adams, Jason: *See*—
Davis, Cole; and Adams, Jason, 335,755, Cl. D99-32.000.
Addison, Warren A. Air seat. 335,584, 5-18-93, Cl. D6-354.000.
Agnew, James I.: *See*—
Kittle, Christopher; Legassie, Charles; Ringel, Judith; Miller, David E.; Agnew, James I.; Serna, Ralph; Jones, Andrew R.; Smith, Steven F.; and Ellis, Daniel, 335,569, Cl. D2-314.000.
Aichi Sharyo Co., Ltd.: *See*—
Fujimoto, Mineyuki; and Amano, Jun, 335,740, Cl. D34-34.000.
Fujimoto, Mineyuki; and Amano, Jun, 335,742, Cl. D34-35.000.
Ainger, Raymond A., III, to Circon Corporation. Mini-rigid ureteroscope. 335,710, 5-18-93, Cl. D24-138.000.
Allen, Theodore J. Beach cart. 335,731, 5-18-93, Cl. D34-17.000.
Allied Display & Packaging Corp.: *See*—
Crane, John A., 335,689, Cl. D21-92.000.
Althans, Richard K.; and Gartz, Mark, to Zenith Electronics Corporation. Television set. 335,665, 5-18-93, Cl. D14-126.000.
Amano, Jun: *See*—
Fujimoto, Mineyuki; and Amano, Jun, 335,740, Cl. D34-34.000.
Fujimoto, Mineyuki; and Amano, Jun, 335,742, Cl. D34-35.000.
American Trading & Production Corporation: *See*—
Chan, Eric P., 335,684, Cl. D19-20.000.
Anderson, Lane J.: *See*—
Tighe, Patrick J.; Anderson, Lane J.; George, Richard L.; Thiess, W. Kenn; and Wilcox, Reed N., 335,628, Cl. D9-558.000.
Andin International: *See*—
Aznelant, Aya, 335,637, Cl. D11-4.000.
Antonious, Anthony J. Putter type golf club head. 335,692, 5-18-93, Cl. D21-217.000.
Arenson, Herbert, to Gerson Company, The. Display rack. 335,603, 5-18-93, Cl. D6-570.000.
Arkansas Hones, Inc.: *See*—
Moody, Carl T., 335,621, Cl. D8-93.000.
Arnold, Gerhard. Pitcher for milk and other liquids. 335,608, 5-18-93, Cl. D7-317.000.
Arvan, Inc.: *See*—
Silzer, Elmar, 335,646, Cl. D12-181.000.
Asahi Kogaku Kogyo K.K.: *See*—
Onuma, Koki, 335,680, Cl. D16-209.000.
Ashmun, Stuart: *See*—
Garthwaite, Charlie; Cameron, Bridget; and Ashmun, Stuart, 335,656, Cl. D14-114.000.
AT&T Bell Laboratories: *See*—
Kerr, Claire T.; and Randall, Fredrick G., 335,670, Cl. D14-188.000.
Aurora Mechatronics Corp.: *See*—
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Avitan, Isaac: *See*—
McCormick, Edward J.; Helmetsie, Eugene A.; Avitan, Isaac; and Lewis, Robert J., 335,741, Cl. D34-35.000.
Aznelant, Aya, to Andin International. Bracelet. 335,637, 5-18-93, Cl. D11-4.000.
Backer, Leonard J., to Loewenstein, Inc. Seat. 335,587, 5-18-93, Cl. D6-379.000.
Baker, Anthony L. Cattle halter. 335,726, 5-18-93, Cl. D30-136.000.
Ballsieper, Don E. Fiber optic break out box. 335,648, 5-18-93, Cl. D13-147.000.
Barker, Richard D.: *See*—
Barker, Robert W.; and Barker, Richard D., 335,691, Cl. D21-217.000.
Barker, Robert W.; and Barker, Richard D., to Barker, Richard D Putter head. 335,691, 5-18-93, Cl. D21-217.000.
Barnett, Karen: *See*—
Barthelmess, Kris; Barnett, Karen; and Barnett, Wayne, 335,592, Cl. D6-450.000.
Barnett, Wayne: *See*—
Barthelmess, Kris; Barnett, Karen; and Barnett, Wayne, 335,592, Cl. D6-450.000.
Barry, Timothy C., to Microspeed Incorporated. Track ball for computer system cursor control. 335,658, 5-18-93, Cl. D14-114.000.
Barthelmess, Kris; Barnett, Karen; and Barnett, Wayne. Merchandising display stand. 335,592, 5-18-93, Cl. D6-450.000.
Bates, James W.: *See*—
Salrin, John P.; and Bates, James W., 335,623, Cl. D8-373.000.
Beck, John. Golf club handle support. 335,695, 5-18-93, Cl. D21-223.000.
Beirise, Jean, to Herman Miller, Inc. Sofa. 335,588, 5-18-93, Cl. D6-381.000.
Bell, John, Jr.: *See*—
Bell, John, Sr.; Bell, John, Jr.; and Carter, Daniel T., 335,737, Cl. D34-26.000.
Bell, John, Sr.; Bell, John, Jr.; and Carter, Daniel T., to Intercontinental Enterprises, Inc. Gas cylinder carrier. 335,737, 5-18-93, Cl. D34-26.000.
Belongia, David C.: *See*—
Cesaroni, William C.; and Belongia, David C., 335,609, Cl. D7-381.000.
Benedict, Ronnie L. Combined bed and fireproof covering. 335,589, 5-18-93, Cl. D6-389.000.
Berardi, Herman D. Mailbox and support therefor. 335,750, 5-18-93, Cl. D99-31.000.
Betts, John H.; Hendry, Donald H.; Johnson, Bruce K.; Krawczyk, Joanne M.; and Whiteside, George D., to Polaroid Corporation. Compact folding photographic camera. 335,681, 5-18-93, Cl. D16-211.000.
Bingham, Julie. Weighted holder for a liquid container. 335,613, 5-18-93, Cl. D7-619.000.
Boche, Daniel K.: *See*—
Gladfelter, Elizabeth J.; Outlaw, Tina O.; Copeland, James L.; Schulz, Rhonda K.; Boche, Daniel K.; and Peterson, Jeff W., 335,699, Cl. D23-207.000.
Bodecker, Alexander W.: *See*—
Hatfield, Tinker L.; and Bodecker, Alexander W., 335,570, Cl. D2-314.000.
Bowen, Garry R. Rotary rifle cabinet. 335,595, 5-18-93, Cl. D6-472.000.
Brittain, Joe R. Mail box stand. 335,749, 5-18-93, Cl. D99-32.000.
Brussing, Bernd, to Hefendehl, Hans Friedrich. Waste basket. 335,729, 5-18-93, Cl. D34-1.000.
Buckberg, Gerald D.; and Todd, Robert J., to Research Medical, Inc. Retrograde cardioplegia stylet. 335,705, 5-18-93, Cl. D24-112.000.
Budassi, Stephen P. Table place mat. 335,606, 5-18-93, Cl. D6-616.000.
Burke, Jonathan C., to Designs by Royo. Viewing enhancement device for atachment to a computer monitor. 335,657, 5-18-93, Cl. D14-114.000.
Busch, John P., to Dell USA, L.P. Keyboard. 335,660, 5-18-93, Cl. D14-115.000.
Butler, George T., to Textron Inc. Expansion bracelet. 335,638, 5-18-93, Cl. D11-19.000.
Byers, James; and Byers, Shirley. Golf stance and swing training aid. 335,696, 5-18-93, Cl. D21-234.000.
Byers, Shirley: *See*—
Byers, James; and Byers, Shirley, 335,696, Cl. D21-234.000.
Cameron, Bridget: *See*—
Garthwaite, Charlie; Cameron, Bridget; and Ashmun, Stuart, 335,656, Cl. D14-114.000.
Campbell, Thomas J. Game board. 335,687, 5-18-93, Cl. D21-33.000.
Carter, Daniel T.: *See*—
Bell, John, Sr.; Bell, John, Jr.; and Carter, Daniel T., 335,737, Cl. D34-26.000.
Casberg, John M., to Olin Corporation. Partially shell encased swimming pool chemical tablet. 335,704, 5-18-93, Cl. D24-101.000.
Cedergreen, Steven D.: *See*—
Malmanger, John A.; Cedergreen, Steven D.; and Hunter, Kim R., 335,577, Cl. D3-38.000.
Cesaroni, William C.; and Belongia, David C., to West Bend Company, The. Vegetable cutter. 335,609, 5-18-93, Cl. D7-381.000.
Chan, Eric P., to American Trading & Production Corporation. Calendar holder. 335,684, 5-18-93, Cl. D19-20.000.
Chang, Richard T., to Information Scan Technology, Inc. Electronic ozonation unit. 335,702, 5-18-93, Cl. D23-366.000.
Chen, Lai-Fu, to Aurora Mechatronics Corp. Folder with calculator. 335,685, 5-18-93, Cl. D19-26.000.
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30.1 5,211,734

CLASS 66

8 5,211,033
9 A 5,211,034
51 5,211,035
118 5,211,710
151 5,211,036

CLASS 68

12.16 5,211,037
23.2 5,211,038
27 5,211,039

CLASS 70

71 5,211,040
209 5,211,041
252 5,211,042
259 5,211,043
371 5,211,044

CLASS 71

40 5,211,735

CLASS 72

22 5,211,045
306 5,211,046
313 5,211,047
344 5,211,048
410 5,211,049
5,211,050

CLASS 73

1 D 5,211,051
23.2 5,211,052
31.05 5,211,053
61.71 5,211,677
64.42 5,211,054
64.47 5,211,055
118.2 5,211,056
147 5,211,057
149 5,211,678
606 5,211,059
724 5,211,058
862.044 5,211,060
862.541 5,211,061
863.12 5,211,679
864.33 5,211,062
866.1 5,211,063

CLASS 74

15.8 5,211,064
51 5,211,065
122 5,211,066
339 5,211,068
371 5,211,067
400 5,211,069
477 5,211,070
501.5 R 5,211,071
512 5,211,072
527 5,211,073
551.8 5,211,074
5,211,075
5,211,076
594.6 5,211,078
850 5,211,680
858 5,211,079
866 5,211,080
5,211,081
878 5,211,082
890 5,211,083

CLASS 75

255 5,211,741
399 5,211,742
557 5,211,743
594 5,211,744
743 5,211,745

CLASS 76

107.8 5,211,084

CLASS 81

20 5,211,085
57.19 5,211,681
58.1 5,211,086
63.2 5,211,087

CLASS 82

1.2 5,211,088
47 5,211,089

CLASS 83

24 5,211,090
69 5,211,091
98 5,211,092
426 5,211,093
495 5,211,094
552 5,211,095
674 5,211,096
698 5,211,097
862 5,211,711
865 5,211,098

CLASS 84

263 5,212,329
320 5,212,330
404 5,212,331
453 5,212,332
477 B 5,212,333
618 5,212,335
622 5,212,334
730 5,212,336

CLASS 89

34 5,212,337
45 5,212,338

CLASS 92

107 5,211,099
169.1 5,211,100
177 5,211,101
208 5,211,102

CLASS 99

284 5,211,103
295 5,211,104
441 5,211,106
446 5,211,105
450.6 5,211,107

CLASS 100

48 5,211,108
98 R 5,211,109

CLASS 101

93.05 5,211,110
248 5,211,111
415.1 5,211,112
467 5,211,113

CLASS 102

202 5,212,339
223 5,212,340
275.8 5,212,341
317 5,212,342
323 5,212,343

CLASS 104

134 5,211,114
288 5,211,115

CLASS 105

168 5,211,116

CLASS 106

18.26 5,211,746
20 R 5,211,747
35 5,211,748
38.24 5,211,749
710 5,211,750
727 5,211,751

CLASS 108

51.1 5,211,117

CLASS 111

7.1 5,211,118

CLASS 112

121.11 5,211,119
5,211,120
254 5,211,122
278 5,211,121

CLASS 114

39.2 5,211,123
44 5,211,124
61 5,211,126
222 5,211,125
344 5,211,127

CLASS 116

288 5,211,128

CLASS 118

50 5,211,752
52 5,211,753
300 5,211,754
306 5,211,755
316 5,211,756
504 5,211,757
658 5,212,344
722 5,211,758
723 5,211,759

CLASS 119

3 5,211,129
28.5 5,211,130
87 5,211,131
158 5,211,132
166 5,211,133
168 5,211,134

CLASS 122

379 5,211,135

CLASS 123

41.55 5,211,136
41.79 5,211,137
44 B 5,211,138
52 MB 5,211,139
65 P 5,211,140
90.17 5,211,141
90.18 5,211,142
143 B 5,211,144
198 E 5,211,145
295 Re.34,252
304 5,211,146
316 5,211,712
357 5,211,147
418 5,211,148
419 5,211,149
470 5,211,150
480 5,211,151
520 5,211,682
531 Re.34,257
620 5,211,152
643 5,211,153
668 5,211,154
693

CLASS 124

25.6 5,211,155

CLASS 125

1 5,211,156

CLASS 126

39 E 5,211,157
271.2 R 5,211,158
299 R 5,211,159

CLASS 128

24 A A 5,211,160
25 B 5,211,161
64 5,211,162
204.18 5,211,170
205.19 5,211,171
207.16 B1 5,083,561
377 5,211,172
419 G 5,211,173
639 5,211,174
642 5,211,175
653.1 5,211,164
5,211,165
653.5 5,211,166
660.04 5,211,167
661.01 5,211,168
661.08 5,211,169
662.06 5,211,176
672 5,211,177
700 5,211,178
702 5,211,179
725 5,211,180
730 5,211,181
771 5,211,182
772 5,211,183
781 5,211,163
802 5,211,184
870 5,211,185
5,211,186
898 5,211,683

CLASS 131

109.1 5,211,187
352 5,211,684

CLASS 134

1 5,211,760
93 5,211,188
179 5,211,189
180 5,211,190
201 5,211,191

CLASS 135

24 5,211,199

CLASS 136

258 5,211,761
263 5,211,762

CLASS 137

1 5,211,201
199 5,211,200
295 5,211,685
316 5,211,686
350 5,211,202
355.17 5,211,203
410 5,211,204
505.41 5,211,205
513.5 5,211,192
590 5,211,193
5,211,194
595 5,211,195
596.2 5,211,196
614.04 5,211,197
625.27 5,211,198

CLASS 138

89 5,211,206

CLASS 139

452 5,211,207

CLASS 140

112 5,211,208
118 5,211,209

CLASS 141

94 5,211,210

CLASS 144

241 5,211,212
361 5,211,687
373 5,211,688

CLASS 148

23 5,211,763
25 5,211,764
96 5,211,765
101 5,211,766
121 5,211,767
230 5,211,768
260 5,211,769
302 5,211,770
310 5,211,771
336 5,211,772
421 5,211,773
5,211,774
5,211,775
525 5,211,776
552 5,211,778

CLASS 149

109.6 5,211,777

CLASS 152

209 B 5,211,780
209 R 5,211,779
5,211,781
323 5,211,213
427 5,211,782
453 5,211,783

CLASS 156

62.2 5,211,785
71 5,211,784
89 5,211,786
96 5,211,787
148 5,211,788
169 5,211,789
227 5,211,791
245 5,211,792
312 5,211,793
345 5,211,794
5,211,795
5,211,796
408 5,211,797
500 5,211,798
518 5,211,799
521 5,211,800
603 5,211,801
616.2 5,211,802
625 5,211,803
643 5,211,805
644 5,211,806
662 5,211,790
664 5,211,807
665 5,211,804

CLASS 159

6.1 5,211,808

CLASS 160

369 5,211,214

CLASS 162

6 5,211,809
9 5,211,810
40 5,211,811
207 5,211,813
301 5,211,814
348 5,211,815

CLASS 164

5 5,211,215
120 5,211,216
313 5,211,218
476 5,211,217

CLASS 165

2 5,211,713
122 5,211,219
133 5,211,220
150 5,211,221
176 5,211,222

CLASS 166

60 5,211,223
63 5,211,224
66.4 5,211,225
82 5,211,226
84 5,211,227
88 5,211,228
243 5,211,229
245 5,211,230
261 5,211,231
5,211,232
270 5,211,233
5,211,235
276 5,211,234
5,211,236
279 5,211,237
292 5,211,238
297 5,211,714
303 5,211,240
308 5,211,239
332 5,211,241
372 5,211,242
374 5,211,243
379 5,211,244

CLASS 169

24 5,211,245
62 5,211,246

CLASS 172

197 5,211,247

CLASS 174

52.5 5,212,345
59 5,212,346
67 5,212,347
74 R 5,212,348
98 5,212,349
102 R 5,212,350
138 F 5,212,351
264 5,212,352
606 R 5,211,077

CLASS 175

20 5,211,248
5,211,249
58 5,211,715
72 5,211,250
85 5,211,251

CLASS 177

25.14 5,211,252
25.18 5,211,253

CLASS 180

19.1 5,211,254
219 5,211,255
5,211,256
248 5,211,257
275 5,211,258

CLASS 181

106 5,212,353
108 5,212,354
290 5,212,355

CLASS 182

2 5,211,259
164 5,211,260

CLASS 184

5.1 5,211,261
6.12 5,211,262

CLASS 186

61 5,211,263

CLASS 187

8.67 5,211,264
8.75 5,211,265

CLASS 188

62 5,211,266
276 5,211,267
281 5,211,268
290 5,211,269

CLASS 190

103 5,211,716

CLASS 192

3.29 5,211,270
4 A 5,211,271
12 B 5,211,272
45 5,211,273
5,211,274

CLASS 194

350 5,211,275

CLASS 198

345.3 5,211,276
358 5,211,277
626.4 5,211,278
750 5,211,279
781 5,211,281
836.3 5,211,280

CLASS 200

5 A 5,212,356
61.45 M 5,212,357
5,212,358
61.69 5,212,359
303 5,211,282

CLASS 202

172 5,211,812
205 5,211,816

CLASS 203

82 5,211,817

CLASS 204

23 5,211,892
114 5,211,818
149 5,211,819
153.18 5,211,820
157.41 5,211,821
180.7 5,211,822
182.4 5,211,823
192.15 5,211,824
192.32 5,211,825
198 5,211,826
252 5,211,827
266 5,211,828
299 R 5,211,829
416 5,211,830

CLASS 205

85 5,211,831
322 5,211,832
5,211,833

CLASS 206

0.5 5,211,689
1.5 5,211,283
6.1 5,211,284
221 5,211,285
223 5,211,286
328 5,211,717
387 5,211,287
508 5,211,289
577 5,211,288
583 5,211,290

CLASS 208

48 AA 5,211,834
5,211,835
5,211,836
65 5,211,837
5,211,838
108 5,211,839
348 5,211,840

CLASS 209

680 5,211,291

CLASS 210

86 5,211,841
87 5,211,842
143 5,211,843
151 5,211,844
186 5,211,845
232 5,211,846
321.79 B1 4,720,342
321.8 B1 4,781,832
610 5,211,847
611 5,211,848
645 5,211,849
5,211,850
670 5,211,851
678 5,211,852
713 5,211,853
734 5,211,854
741 B1 4,126,546
758 5,211,855
799 5,211,856

CLASS 211

40 5,211,292
42 5,211,293
70.6 5,211,294
163 5,211,295
187 5,211,296

CLASS 212

182 5,211,297

CLASS 215

11.1 5,211,298
5,211,299
11.4 5,211,300
245 5,211,301

CLASS 219

10.55 B 5,212,360
56.22 5,212,361
69.1 5,212,362
75 5,212,363
121.520 5,212,365
137 PS 5,212,364
222 5,212,366

CLASS 220

4.25 5,211,302
23.83 5,211,303
304 5,211,304
461 5,211,305
588 5,211,306
739 5,211,307

CLASS 221

63 5,211,308
67 5,211,309

CLASS 222

1 5,211,310
145 5,211,311
153 5,211,312
5,211,313
185 5,211,314
383 5,211,315
386.5 5,211,316
394 5,211,317
479 5,211,318
547 5,211,319
600 5,211,857

CLASS 223

38 5,211,320

CLASS 224

215 5,211,321
232 5,211,322
314 5,211,323

CLASS 225

472 5,212,371

CLASS 228

44.3 5,211,324
105 5,211,325
170 5,211,326
174 5,211,327
180.2 5,211,328

CLASS 229

110 5,211,329
175 5,211,330

CLASS 235

375 5,212,367
5,212,368
B1 4,283,621
380 5,212,369
462 5,212,370
472 5,212,372
492 5,212,373

CLASS 236

15 C 5,211,331
78 D 5,211,332

CLASS 237

2 A 5,211,333
12.3 B 5,211,334

CLASS 239

1 5,211,336
110 5,211,335
251 5,211,337
276 5,211,338
295 5,211,339
533.4 5,211,340
585.3 5,211,341
707 5,211,342

CLASS 241

86.1 5,211,343
100 5,211,344
101.7 5,211,345

CLASS 242

18 R 5,211,346
47.01 5,211,347
71.1 5,211,348
72 R 5,211,349
79 5,211,350
86.2 5,211,351
107 5,211,352
118.41 5,211,353
125.1 5,211,354
310 5,211,355

CLASS 244

3.15 5,211,356
3.270 5,211,358
3.28 5,211,357
108 5,211,359
164 5,211,360

CLASS 248

124 5,211,362
146 5,211,363
156 5,211,364
225.1 5,211,365
237 5,211,366
279 5,211,367
292.1 5,211,368
588 5,211,369
649 B1 4,913,396

CLASS 250

201.1 5,212,374
201.7 5,212,375
208.1 5,212,376
214 5,212,377
214 R 5,212,378
227.14 5,212,379
231.17 5,212,380
236 5,212,381
251 5,212,382
310 5,212,383
334 5,212,384
370.01 5,212,385
458.1 5,212,386
515.1 5,212,387
560 5,212,388
561 5,212,389
5,212,390
5,212,391
5,212,392
573 5,212,393

CLASS 251

4 5,211,370
11 5,211,371
75 5,211,372
196 5,211,373

CLASS 252

8.551 5,211,858
5,211,859
32.7 E 5,211,860
33.6 5,211,861
47.5 5,211,862
49.6 5,211,863
52 R 5,211,864
56 D 5,211,865
56 S 5,211,884
67 5,211,866
5,211,867
70 5,211,868
5,211,869
120 5,211,870
175 5,211,871
180 5,211,872
182.24 5,211,873
186.26 5,211,874
188.28 5,211,875
299.01 5,211,876
5,211,877
299.63 5,211,878
299.67 5,211,879
376 5,211,880
389.52 5,211,881
545 5,211,882
546 5,211,883
587 5,211,885

CLASS 254

30 5,211,374
93 M 5,211,375
134 5,211,376
134.4 5,211,377
389 5,211,378

CLASS 257

1 5,212,394
185 5,212,395
212 5,212,396
319 5,212,541
347 5,212,397
356 5,212,398
369 5,212,399
5,212,542
412 5,212,400
473 5,212,401
532 5,212,402
592 5,212,404
664 5,212,403
672 5,212,405
723 5,212,406

CLASS 260

665 R 5,211,886
5,211,887
5,211,888
5,211,889

CLASS 261

30 5,211,890
106 5,211,891

CLASS 264

26 5,211,893
40.1 5,211,894
71 5,211,895
126 5,211,896
134 5,211,897
171 5,211,898
180 5,211,899
263 5,211,900
280 5,211,901
296 5,211,902
555 5,211,903

CLASS 267

221 5,211,379
5,211,380

CLASS 269

37 5,211,381
38 5,211,382

CLASS 270

52.5 5,211,383
59 5,211,384

CLASS 271

3.1 5,211,385
5,211,386
10 5,211,690
111 5,211,387
122 5,211,388
207 5,211,389
250 5,211,390
276 5,211,391
277 5,211,392

CLASS 273

1.5 R 5,211,393
25 5,211,394
32 A 5,211,395
73 C 5,211,396
5,211,691
73 D 5,211,397
73 R 5,211,398
143 R 5,211,399
157 R 5,211,692
167 F 5,211,401
187.6 5,211,400
249 5,211,402
290 5,211,403
407 5,211,404
5,211,405

CLASS 277

25 5,211,406
192 5,211,407
235 B 5,211,408

CLASS 279

19.3 5,211,693

CLASS 280

11.2 5,211,409
33.993 5,211,410
47.24 5,211,411
95.1 5,211,412
194.2 5,211,413
250.1 5,211,414
281.1 5,211,415
416.1 5,211,416
617 5,211,417
618 5,211,418
633 5,211,419
703 5,211,420
728 5,211,421
740 5,211,422
806 5,211,423
5,211,694

CLASS 281

15.1 5,211,424
45 5,211,425

CLASS 285

5 5,211,426
23 5,211,427
158 5,211,428
162 5,211,695
238 5,211,429

CLASS 292

80 5,211,430
81 5,211,431
169 5,211,432
256 5,211,433

CLASS 294

1.1 5,211,434
64.1 5,211,435

CLASS 296

61 5,211,437
76 5,211,436
95.1 5,211,438
97.8 5,211,439
98 5,211,440
104 5,211,441
138 5,211,442
180.1 5,211,718

CLASS 297

56 5,211,443
375 5,211,444
379 5,211,445
397 5,211,696
444 5,211,446
453 5,211,697
468 5,211,447

CLASS 301

35.55 5,211,448

CLASS 303

9.66 5,211,449
22.2 5,211,450
51 5,211,451
86 5,211,698
014 5,211,452
111 5,211,453
113.2 5,211,454
115.2 5,211,455

CLASS 307

87 5,212,407
256 5,212,408
261 5,212,409
272.3 5,212,410
279 5,212,411
296.4 5,212,412
296.8 5,212,413
491 5,212,414

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578 5,212,415

CLASS 310

12 5,212,416
49 R 5,212,417
114 5,212,418
254 5,212,419
313 D 5,212,420
329 5,212,421

CLASS 312

10.1 5,211,456
184 5,211,457
193 5,211,458
223.2 5,211,459
306 5,211,460
334.4 5,211,461
404 5,211,462

CLASS 313

318 5,212,422
414 5,212,423
562 5,212,424

CLASS 315

111.21 5,212,425
169.1 5,212,426
224 5,212,427
308 5,212,428
398 5,212,429

CLASS 318

34 5,212,430
139 5,212,431
568.11 5,212,432
568.13 5,212,433
603 5,212,434
785 5,212,435
788 5,212,436
798 5,212,437
805 5,212,438

CLASS 320

39 5,212,439

CLASS 323

313 5,212,440

CLASS 324

142 5,212,441
158 R 5,212,442
5,212,443
207.13 5,212,444
212 5,212,445
244.1 5,212,446
300 5,212,447
309 5,212,448
316 5,212,449
322 5,212,450
458 5,212,451
662 5,212,452
664 5,212,453
678 5,212,454

CLASS 330

253 5,212,455
261 5,212,456
263 5,212,457
288 5,212,458

CLASS 331

111 5,212,459
116 FE 5,212,460

CLASS 333

125 5,212,461
136 5,212,462
161 5,212,463

CLASS 335

207 5,212,464

CLASS 337

368 5,212,465

CLASS 338

22 R 5,212,466

CLASS 340

435 5,212,467
469 5,212,468
475 5,212,469
629 5,212,470
705 5,212,471
711 5,212,472
771 5,212,473
805 5,212,474
825.16 5,212,475
825.19 5,212,476
825.44 5,212,477
825.72 5,212,478
870.02 5,212,479
974 5,212,480

CLASS 341

75 5,212,481
139 5,212,482
141 5,212,483
154 5,212,484
161 5,212,485
172 5,212,486

CLASS 342

12 5,212,488
109 5,212,489
5,212,490

CLASS 343

713 5,212,492
745 5,212,493
765 5,212,494
872 5,212,495

CLASS 346

1.1 5,212,496
5,212,497
25 5,212,498
76 PH 5,212,499
108 5,212,500
5,212,501
140 R 5,212,502
5,212,503
160 5,212,504
176 5,212,487

CLASS 351

208 5,212,505
210 5,212,506
212 5,212,507

CLASS 354

21 5,212,508
64 5,212,509
187 5,212,510
212 5,212,511
319 5,212,512
402 5,212,513
5,212,514
5,212,515
5,212,516

CLASS 355

24 5,212,517
77 5,212,518
200 5,212,519
5,212,520
208 5,212,522
215 5,212,521
233 5,212,523
251 5,212,524
5,212,525
271 5,212,526
284 5,212,527
285 5,212,528
290 5,212,529
301 5,212,530
316 5,212,531
326 5,212,532

CLASS 356

5 5,212,533
5,212,534
28 5,212,535
300 5,212,536
5,212,537
318 5,212,538
379 5,212,539
381 5,212,540

CLASS 358

21 R 5,212,543
22 5,212,544
29 5,212,545
80 5,212,546
105 5,212,547
5,212,548
135 5,212,549
140 5,212,550
143 5,212,551
158 5,212,552
188 5,212,553
195.1 5,212,554
206 5,212,555
209 5,212,556
228 5,212,557
296 5,212,558
298 5,212,559
317 5,212,561
338 5,212,562
341 5,212,563
360 5,212,560
426 5,212,564
433 5,212,565
444 5,212,566
451 5,212,567
474 5,212,568
475 5,212,569
481 5,212,570

CLASS 359

9 5,212,571
15 5,212,572
54 5,212,573
59 5,212,574
63 5,212,819
82 5,212,575
88 5,212,576
124 5,212,577
5,212,578
182 5,212,579
196 5,212,580
216 5,212,581
224 5,212,582
245 5,212,583
260 5,212,584
276 5,212,585
281 5,212,586
301 5,212,587
353 5,212,589
355 5,212,588
400 5,212,590
407 5,212,591
410 5,212,592
487 5,212,593
494 5,212,594
513 5,212,595
614 5,212,596
649 5,212,597
823 5,212,598

CLASS 360

35.1 5,212,599
36.2 5,212,600
51 5,212,601
66 5,212,602
77.01 5,212,603
77.11 5,212,604
85 5,212,820
99.02 5,212,606
99.06 5,212,605
99.08 5,212,607
103 5,212,608
107 5,212,610
113 5,212,609
5,212,611
119 5,212,612
130.24 5,212,613
133 5,212,614
135 5,212,615

CLASS 361

18 5,212,616
56 5,212,617
5,212,618
91 5,212,619
181 5,212,621
305 5,212,622
313 5,212,620
334 5,212,623
357 5,212,624
383 5,212,625
385 5,212,626
386 5,212,627
395 5,212,628

CLASS 362

26 5,211,463
31 5,211,464
61 Re.34,253
5,211,465
83.3 5,211,466
84 5,211,467
101 5,211,469
5,211,699
120 5,211,468
183 5,211,470
206 5,211,471
226 5,211,472
297 5,211,473
307 Re.34,254
351 5,211,474

CLASS 363

42 5,212,629
71 5,212,630

CLASS 364

136 5,212,631
151 5,212,632
400 5,212,634
402 5,212,635
412 5,212,636
413.26 5,212,637
419 5,212,638
5,212,639
424.03 5,212,640
424.05 5,212,641
5,212,642
449 5,212,643
463 5,212,645
464.01 5,212,644
474.03 5,212,646
474.34 5,212,647
474.35 5,212,648
479 5,212,649
488 5,212,651
489 5,212,650
5,212,652
491 5,212,653
508 5,212,654
516 5,212,655
552 5,212,656
556 5,212,657
572 5,212,658
724.1 5,212,659
724.16 5,212,660
745 5,212,661
748 5,212,662

CLASS 365

189.01 5,212,663
229 5,212,664
230.02 5,212,665
230.03 5,212,666

CLASS 366

137 5,211,475
337 Re.34,255

CLASS 367

2 5,212,667
21 5,212,668
144 5,212,669
149 5,212,670
151 5,212,671

CLASS 368

79 5,212,672

CLASS 369

44.15 5,212,673
44.26 5,212,674
44.36 5,212,675
48 5,212,676
58 5,212,677
60 5,212,678
75.2 5,212,679
99 5,212,680
244 5,212,681
275.3 5,212,682
291 5,212,683

CLASS 370

24 5,212,684
31 5,212,685
60 5,212,686
84 5,212,687
105.1 5,212,688
106 5,212,689
108 5,212,690
110.1 5,212,691

CLASS 371

5.1 5,212,692
10.1 5,212,693
21.1 5,212,694
37.1 5,212,695
54 5,212,696
68.1 5,212,697

CLASS 372

18 5,212,698
34 5,212,699
38 5,212,700
45 5,212,701
5,212,702
46 5,212,703
5,212,704
5,212,705
50 5,212,706
5,212,707
55 5,212,708
69 5,212,709
71 5,212,710
94 5,212,711
96 5,212,712

CLASS 374

33 5,211,477
102 5,211,476
125 5,211,478
151 5,211,479
161 5,211,480

CLASS 375

3.1 5,212,713
5 5,212,714
114 5,212,715
119 5,212,716

CLASS 376

258 5,211,904
261 5,211,905
293 5,211,906
364 5,211,907
442 5,211,908

CLASS 378

4 5,212,717
147 5,212,718
155 5,212,719
206 5,212,720

CLASS 379

57 5,212,721
58 5,212,722
5,212,724
5,212,725
202 5,212,726
221 5,212,727

CLASS 380

4 5,212,728
5,212,729
11 5,212,723

CLASS 381

43 5,212,730
52 5,212,731
89 5,212,732
119 5,212,733
183 B1 4,065,645
188 5,212,734
199 5,212,735
203 5,212,736

CLASS 382

6 5,212,737
8 5,212,738
9 5,212,739
22 5,212,740
51 5,212,741
56 5,212,742

CLASS 383

63 5,211,481
202 5,211,482

CLASS 384

56 5,211,483
296 5,211,485
322 5,211,484
348 B1 4,634,300
560 5,211,486
562 5,211,487
584 5,211,488
585 5,211,489

CLASS 385

11 5,212,743
16 5,212,744
25 5,212,745
5,212,746
32 5,212,748
33 5,212,747
62 5,212,749
69 5,212,750
75 5,212,751
78 5,212,752
80 5,212,753
90 5,212,754
107 5,212,755
114 5,212,756
127 5,212,757
129 5,212,758
150 5,212,759
134 5,212,760
135 5,212,761
145 5,212,762

CLASS 392

488 5,212,763

CLASS 395

2 5,212,764
11 5,212,765
22 5,212,821
24 5,212,766
27 5,212,767
54 5,212,768
150 5,212,769
155 5,212,770
160 5,212,771
200 5,212,772
5,212,773
5,212,774
275 5,212,775
325 5,212,776
375 5,212,777
5,212,778
400 5,212,779
425 5,212,780
5,212,781
500 5,212,633
5,212,782
550 5,212,783
575 5,212,784
5,212,785
600 5,212,786
5,212,787
5,212,788
650 5,212,789
5,212,790
5,212,791
5,212,792
700 5,212,793
5,212,794
725 5,212,795
5,212,796
750 5,212,797
775 5,212,798
800 5,212,799
5,212,800
5,212,801
5,212,802

CLASS 400

202.4 5,211,490
208 5,211,491
645 5,211,492
719 5,211,493

CLASS 401

28 5,211,494
217 5,211,495

CLASS 403

12 5,211,497
24 5,211,496
102 5,211,498
258 5,211,499
269 5,211,500
322 5,211,501
353 5,211,502

CLASS 404

6 5,211,503
26 5,211,504
47 5,211,505
87 5,211,506

CLASS 405

52 5,211,508
99 5,211,700
138 5,211,507
184 5,211,509
5,211,510
258 5,211,511
259.4 5,211,512

CLASS 406

112 5,211,513
186 5,211,514

CLASS 408

224 5,211,635
231 5,211,516
239 A Re.34,256
239 R 5,211,701

CLASS 409

230 5,211,515
296 5,211,517

CLASS 410

50 5,211,518

CLASS 411

45 5,211,519
418 5,211,520
508 5,211,521

CLASS 412

16 5,211,522

CLASS 414

282 5,211,523
306 5,211,524
404 5,211,702
412 5,211,525
550 5,211,526
664 5,211,527
789.6 5,211,528
795.8 5,211,529

CLASS 415

48 5,211,530
112 5,211,531
113 5,211,532
115 5,211,533
170.1 5,211,535
173.002 5,211,534
177 5,211,536
181 5,211,703
209.2 5,211,537

CLASS 416

1 5,211,538
61 5,211,539
190 5,211,540
198 A 5,211,541

CLASS 417

53 5,211,542
68 5,211,543
286 5,211,544
330 5,211,545
356 5,211,546
360 5,211,547
474 5,211,548
499 5,211,549

CLASS 418

55.1 5,211,550
61.3 5,211,551

CLASS 420

106 5,211,909
532 5,211,910
584.1 5,211,911

CLASS 422

37 5,211,912
44 5,211,913
56 5,211,914
102 5,211,915

107 5,211,916
139 5,211,917
171 5,211,918
186.07 5,211,919
225 5,211,924

CLASS 423

29 5,211,920
62 5,211,921
131 5,211,922
220 5,211,923
235 5,211,925
237 5,211,926
272 5,211,927
321 R 5,211,928
333 5,211,930
347 5,211,931
450 5,211,932
596 5,211,933
706 5,211,934
708 5,211,935
717 5,211,929

CLASS 424

1.1 5,211,936
5,211,937
7.1 5,211,938
49 5,211,939
5,211,940
70 5,211,941
5,211,942
78.08 5,211,944
85.1 5,211,945
93.1 5,211,946
94.63 5,211,947
195.1 5,211,948
402 5,211,949
422 5,211,950
426 5,211,951
5,211,952
439 5,211,953
448 5,211,943
450 5,211,955
451 5,211,956
452 5,211,954
466 5,211,957
470 5,211,958
489 5,211,959
534 5,211,960
616 5,211,961

CLASS 425

6 5,211,962
113 5,211,963
140 5,211,964
141 5,211,965
193 5,211,966
238 5,211,968
395 5,211,969
595 5,211,970

CLASS 426

18 5,211,971
35 5,211,972
82 5,211,973
106 5,211,974
107 5,211,975
248 5,211,976
557 5,211,977
582 5,211,978
601 5,211,979
5,211,980
606 5,211,981
622 5,211,982
629 5,211,983

CLASS 427

115 5,211,984
213 5,211,985
240 5,211,986
250 5,211,987
370 5,211,988
388.4 5,211,989
447 5,211,990
448 5,211,991
488 5,211,993
512 5,211,992
523 5,211,994
570 5,211,995

CLASS 428

16 5,211,996
29 5,211,997
31 5,211,998
34.5 5,211,999
34.7 5,212,000
34.9 5,212,001
40 5,212,002
57 5,212,003
131 5,212,004
141 5,212,005
5,212,006
181 5,212,008
216 5,212,009
220 5,211,967
225 5,212,010
260 5,212,011
336 5,212,012
343 5,212,013
381 5,212,014
412 5,212,015
5,212,016
422 B1 4,643,949
425.9 5,212,017
447 5,212,018
559 5,212,019
694 BB

CLASS 429

9 5,212,020
5,212,021
19 5,212,022
26 5,212,023
72 5,212,024
120 5,212,025
160 5,212,026

CLASS 430

20 5,212,027
22 5,212,028
42 5,212,029
49 5,212,030
56 5,212,031
65 5,212,032
106 5,212,033
108 5,212,034
110 5,212,035
5,212,036
120 5,212,037
122 5,212,038
5,212,039
126 5,212,040
143 5,212,041
189 5,212,042
192 5,212,043
5,212,044
264 5,212,045
270 5,212,046
5,212,047
272 5,212,048
285 5,212,049
320 5,212,050
449 5,212,051
503 5,212,052
5,212,053
509 5,212,054
551 5,212,055
572 5,212,056

CLASS 431

2 5,211,704
7 5,211,552
10 5,211,705
320 5,211,553
346 5,211,554

CLASS 432

161 5,211,555
243 5,211,557

CLASS 433

9 B1 4,659,309
72 5,211,556
77 5,211,558
80 5,211,559
166 5,211,560
169 5,211,561

CLASS 434

260 5,211,562
322 5,211,563
323 5,211,564

CLASS 435

5 5,212,057
6 5,212,059
7.1 5,212,060
7.32 5,212,061
7.36 5,212,062
7.5 5,212,063
7.6 5,212,064
7.9 5,212,065
28 5,212,066
38 5,212,067
68.1 5,212,068
5,212,069
69.1 5,212,070
5,212,071
5,212,072
69.5 5,212,073
69.6 5,212,074
5,212,091
72 5,212,075
75 5,212,076
113 5,212,077
126 5,212,078
131 5,212,079
172.3 5,212,080
188 5,212,081
190 5,212,082
207 5,212,083
235.1 5,212,084
240.27 5,212,085
252.1 5,212,086
252.33 5,212,058
255 5,212,087
5,212,088
280 5,212,089
287 5,212,090

CLASS 436

11 5,212,092
27 5,212,093
47 5,212,094
52 5,212,095
93 5,212,096
111 5,212,097
125 5,212,098
172 5,212,099

CLASS 437

17 5,212,100
24 5,212,101
31 5,212,102
5,212,103
40 5,212,104
44 5,212,105
45 5,212,106
51 5,212,107
60 5,212,108
67 5,212,109
5,212,110
70 5,212,111
89 5,212,112
107 5,212,113
192 5,212,114
208 5,212,115
228 5,212,116
229 5,212,117
235 5,212,118
5,212,119

CLASS 439

65 5,211,565
66 5,211,566
74 5,211,567
157 5,211,568
159 5,211,569
320 5,211,570
325 5,211,571
352 5,211,572
369 5,211,573
378 5,211,574
417 5,211,575
462 5,211,576
464 5,211,706
493 5,211,577
494 5,211,578
500 5,211,579
538 5,211,580
581 5,211,581
589 5,211,582
595 5,211,583
652 5,211,584
680 5,211,585
695 5,211,586
843 5,211,587
879 5,211,589
894 5,211,590

CLASS 440

86 5,211,591
111 5,211,592

CLASS 441

65 5,211,593
79 5,211,594

CLASS 445

24 5,211,707
26 5,211,595

CLASS 446

202 5,211,596

CLASS 449

27 5,211,597

CLASS 450

1 5,211,598

CLASS 452

37 5,211,599
171 5,211,600
187 5,211,601

CLASS 454

63 5,211,602
139 5,211,603
144 5,211,604
284 5,211,605

CLASS 455

33.1 5,212,803
5,212,804
5,212,805
5,212,822
5,212,830
33.2 5,212,806
33.4 5,212,807
51.1 5,212,808
54.1 5,212,809
5,212,823
5,212,831
5,212,832
58.2 5,212,810
73 5,212,811
5,212,812
82 5,212,813
107 5,212,814
126 5,212,815
156.1 5,212,816
161.2 5,212,833
183.2 5,212,818
186.1 5,212,824
188.1 5,212,825
205 5,212,826
214 5,212,827
219 5,212,828
295 5,212,829
296 5,212,830
311 5,212,834
330 5,212,835
343 5,212,836

CLASS 464

85 5,211,606

CLASS 472

15 5,211,607

CLASS 474

202 5,211,608
260 5,211,609

CLASS 475

1 5,211,610
178 5,211,611

CLASS 482

58 5,211,613
81 5,211,612
102 5,211,614
105 5,211,615
106 5,211,616
127 5,211,617

CLASS 493

96 5,211,618
194 5,211,619
346 5,211,620
413 5,211,621

CLASS 501

13 5,212,120
32 5,212,121
69 5,212,122
87 5,212,123
88 5,212,124
96 5,212,125
100 5,212,126

CLASS 502

26 5,212,127
31 5,212,128
43 5,212,129
60 5,212,130
5,212,131
134 5,212,132
5,212,133
159 5,212,134
162 5,212,135
206 5,212,136
212 5,212,137
230 5,212,138
241 5,212,139
300 5,212,140
304 5,212,142
415 5,212,143
423 5,212,144

CLASS 503

207 5,212,145
227 5,212,146

CLASS 504

106 5,211,737
230 5,211,740
241 5,211,738
273 5,211,739
275 5,211,736

CLASS 505

1 5,212,147
5,212,148
5,212,149
5,212,150
5,212,151
5,212,152

CLASS 512

6 5,212,153

CLASS 514

4 5,212,154
11 5,212,155
14 5,212,156
17 5,212,157
18 5,212,158
19 5,212,159
5,212,160
50 5,212,161
54 5,212,162
80 5,212,163
108 5,212,164
114 5,212,165
176 5,212,166
178 5,212,167
179 5,212,168
211 5,212,169
214 5,212,170
230.5 5,212,171
231.5 5,212,172
237.8 5,212,173
249 5,212,174
254 5,212,176
259 5,212,177
288 5,212,178
308 5,212,179
311 5,212,180
312 5,212,181
314 5,212,182
317 5,212,183
326 5,212,184
331 5,212,185
338 5,212,186
342 5,212,187
343 5,212,188
363 5,212,189
5,212,190
365 5,212,191
368 5,212,192
372 5,212,193
378 5,212,194
381 5,212,195
392 5,212,196
397 5,212,197
5,212,198
415 5,212,199
5,212,320
443 5,212,175
530 5,212,200
532 5,212,201
546 5,212,202
617 5,212,203
647 5,212,204

CLASS 521

26 5,212,205
32 5,212,206
5,212,207
96 5,212,208
122 5,212,209

CLASS 522

24 5,212,210
37 5,212,211
79 5,212,212
81 5,212,213

CLASS 523

218 5,212,214
5,212,215
415 5,212,216
434 5,212,217
455 5,212,218

CLASS 524

17 5,212,219
68 5,212,220
88 5,212,221
230 5,212,222
318 5,212,223
333 5,212,224
458 5,212,225
496 5,212,226
504 5,212,227
512 5,212,228
556 5,212,229
589 5,212,230
590 5,212,231
779 5,212,232

CLASS 525

36 5,212,233
43 5,212,234
54.1 5,212,235
63 5,212,236
64 5,212,237
66 5,212,238
74 5,212,239
86 5,212,240
109 5,212,241
162 5,212,242
187 5,212,243
193 5,212,244
223 5,212,245
240 5,212,246
5,212,247
245 5,212,248
258 5,212,249
276 5,212,250
279 5,212,251
327.3 5,212,252
328.2 5,212,253
344 5,212,254
391 5,212,255
395 5,212,256
432 5,212,257
5,212,258
436 5,212,259
446 5,212,260
506 5,212,261
524 5,212,262
533 5,212,263
534 5,212,264

CLASS 526

71 5,212,265
128 5,212,266
212 5,212,267
262 5,212,268
266 5,212,269
287 5,212,270
301 5,212,271
317.1 5,212,272
323.1 5,212,273

CLASS 528

14 5,212,274
67 5,212,275
125 5,212,276
170 5,212,277
171 5,212,278
184 5,212,279
201 5,212,280
202 5,212,281
204 5,212,282
353 5,212,283
371 5,212,284
482 5,212,285

CLASS 530

324 5,212,286
330 5,212,287
334 5,212,288
387.7 5,212,290

CLASS 534

633 5,212,289

CLASS 536

6.4 5,212,291
18.6 5,212,292
23.2 5,212,296
24.31 5,212,297
26.7 5,212,295
28.2 5,212,293
5,212,294
55.2 5,212,298
114 5,212,299

CLASS 540

145 5,212,300
450 5,212,301
536 5,212,302

CLASS 544

69 5,212,303
157 5,212,304
170 5,212,305
193 5,212,306
194 5,212,307
215 5,212,308
234 5,212,309
251 5,212,310

CLASS 546

11 5,212,311
32 5,212,312
174 5,212,313
256 5,212,314
257 5,212,315
278 5,212,316
301 5,212,317

CLASS 548

315.7 5,212,318
436 5,212,319

CLASS 549

228 5,212,321
265 5,212,322
389 5,212,323

CLASS 554

118 5,212,324
156 5,212,325

CLASS 562

606 5,212,326

CLASS 600

9 5,211,622

CLASS 602

18 5,211,623

CLASS 604

22 5,211,625
49 5,211,624
65 5,211,626
82 5,211,627
110 5,211,628
5,211,629

VOL 1150 ISS 3 MY 18 1993 UMI

	5,211,630		5,211,638		CLASS 606	139	5,211,649	236	5,211,656	6	5,211,662
113	5,211,631	317	5,211,639				5,211,650		CLASS 623	16	5,211,661
132	5,211,632	349	5,211,640	1	5,211,644	159	5,211,651				5,211,663
167	5,211,633			23	5,211,646	182	5,211,652	1	5,211,657		5,211,664
	5,211,634	385.1	5,211,641	96	5,211,645	188	5,211,653		5,211,658	22	5,211,665
264	5,211,636	410	5,211,642	104	5,211,647	191	5,211,654	3	5,211,659	23	5,211,666
283	5,211,637	416	5,211,643	133	5,211,648	205	5,211,655	5	5,211,660	35	5,211,667

D2—	309	335,568		540	335,600			335,632		126	335,664		223	335,695		126	335,725
	314	335,569		541	335,601			335,633			335,665		234	335,696	D34—	136	335,726
		335,570		553	335,602		65	335,634		138	335,666		250	335,697		1	335,727
	320	335,571		570	335,603		89	335,635		142	335,667	D22—	108	335,698			335,728
		335,572		575	335,604	D11—	3	335,636		143	335,668	D23—	207	335,699			335,729
	329	335,573		601	335,605		4	335,637		144	335,669		261	335,700		7	335,730
D3—	35	335,574		616	335,606		19	335,638		188	335,670		277	335,701		17	335,731
		335,575	D7—	305	335,607		93	335,639		227	335,671		366	335,702		21	335,732
	36	335,576		317	335,608		126	335,641		251	335,672		380	335,703		23	335,733
	38	335,577		381	335,609	D12—	111	335,640	D15—	9.1	335,673	D24—	101	335,704		25	335,734
D4—	104	335,578		590	335,610		129	335,642		18	335,674		112	335,705			335,735
	105	335,579		616	335,612		147	335,643		27	335,675		119	335,706			335,736
D6—	309	335,580		619	335,613			335,644		138	335,677		126	335,707		26	335,737
	318	335,581			335,614			335,645		144	335,676		128	335,708			335,738
	344	335,582		678	335,615		181	335,646	D16—	104	335,678		134	335,709		31	335,739
	349	335,583		691	335,611	D13—	119	335,647			335,679		138	335,710		34	335,740
	354	335,584	D8—	21	335,616		147	335,648		209	335,680	D25—	124	335,711		35	335,741
	361	335,585		51	335,617			335,649		211	335,681			335,712			335,742
	376	335,586		62	335,618		152	335,650	D18—	49	335,682			335,713		38	335,743
	379	335,587		67	335,619	D14—	100	335,651		56	335,683			335,714		39	335,744
	381	335,588		68	335,620			335,652	D19—	20	335,684	D26—	42	335,756			335,745
	389	335,589		93	335,621			335,653		26	335,685		44	335,715	D99—	28	335,746
	423	335,590		323	335,622			335,654		65	335,686		81	335,716		29	335,747
	426	335,591		373	335,623		102	335,655	D21—	33	335,687		118	335,717		31	335,750
	450	335,592		377	335,624		114	335,656		38	335,757		138	335,718		32	335,749
	457	335,593	D9—	300	335,625			335,657		82	335,688		140	335,719			335,755
	467	335,594		317	335,626			335,658		92	335,689		149	335,720		34	335,748
	472	335,595		455	335,627		115	335,659		128	335,690	D28—	48	335,722			335,751
	500	335,596		558	335,628			335,660		217	335,691		64	335,721			335,752
	518	335,597	D10—	18	335,629		116	335,661			335,692	D29—	6	335,723		35	335,753
	525	335,598		28	335,630			335,662		218	335,693	D30—	110	335,724		37	335,754
	526	335,599			335,631		117	335,663		219	335,694						

CLASSIFICATION OF PLANTS

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	335,747		335,718	13 :	335,597		335,647		335,684		335,625
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Ronald H. Brown, *Secretary*

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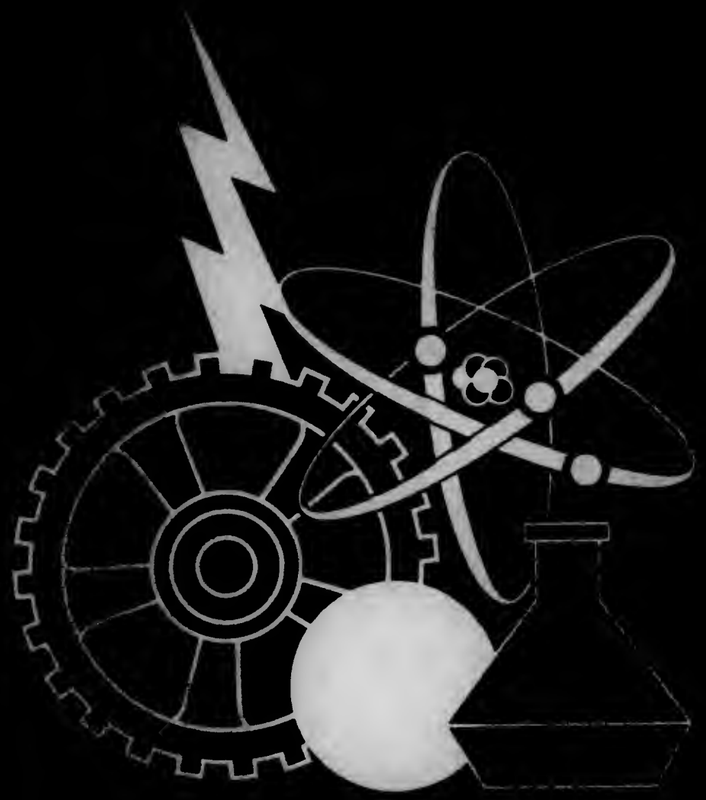
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PATENTS

May 25, 1993



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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1149 O.G. 36, on Apr. 20, 1993.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed, effective May 1, 1993, due to changes in the exchange rate of the U.S. dollar to the German mark, and was announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

International fees were changed, effective on May 1, 1993, due to changes in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1148 O.G. 20, on Mar. 9, 1993.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective Oct. 1, 1992, and were announced in the *Official Gazette* at 1141 O.G. 68, on Aug. 25, 1992.

The schedule of PCT fees (in U.S. dollars), effective May, 1, 1993, is as follows:

Transmittal fee:	200.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	620.00
—Corresponding prior U.S. national application filed	410.00
—Supplemental search fee, per additional invention	170.00
European Patent Office as ISA	1512.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	450.00
—Additional examination fee, per additional invention	140.00
—ISA not the USPTO	670.00
—Additional examination fee, per additional invention	230.00
International fees	
Basic fee	530.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	128.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	162.00

U.S. National Stage fees	Small Entity	Regular
USPTO was IPEA	320.00	640.00
USPTO was ISA but not IPEA	355.00	710.00
USPTO was neither ISA nor IPEA	475.00	950.00
Filing with an EPO or JPO search report	415.00	830.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	45.00	90.00
—For each independent claim in excess of 3	37.00	74.00
—For each claim in excess of 20	11.00	22.00
—For each application containing a multiple dependent claim	115.00	230.00
—Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Mar. 17, 1993

MICHAEL K. KIRK,
Acting Assistant Secretary and Acting Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d) provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on May 22, 1990 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,926,501 through 4,928,319
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on May 20, 1986 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,589,146 through 4,590,620
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after December 12, 1980, but before August 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months and eleven years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1992, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(c) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9f) $465.00
By other than a small entity $930.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9f) $935.00
By other than a small entity $1,870.00

(g) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity(§ 1.9(f)) $1,410.00
By other than a small entity $2,820.00

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(h), and (i), which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980

By a small entity (§ 1.9f) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been

(1) unavoidable $620.00
(2) unintentional $1,500.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED MARCH 14, 1993
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 32,184	06/727,929	6/17/86
(4,504,000)	(06/465,791)	(3/12/85)
4,503,565	06/467,428	3/12/85
4,503,566	06/546,560	3/12/85
4,503,567	06/555,467	3/12/85
4,503,582	06/427,111	3/12/85
4,503,583	06/427,113	3/12/85
4,503,584	06/427,112	3/12/85
4,503,590	06/477,538	3/12/85
4,503,591	06/497,106	3/12/85
4,503,592	06/454,210	3/12/85
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4,503,610	06/408,547	3/12/85
4,503,613	06/475,331	3/12/85
4,503,614	06/464,245	3/12/85
4,503,616	06/375,521	3/12/85
4,503,625	06/523,608	3/12/85
4,503,636	06/519,659	3/12/85
4,503,637	06/395,842	3/12/85
4,503,643	06/418,438	3/12/85
4,503,647	06/461,550	3/12/85
4,503,652	06/417,181	3/12/85
4,503,655	06/429,592	3/12/85
4,503,661	06/525,399	3/12/85
4,503,666	06/494,824	3/12/85
4,503,667	06/539,379	3/12/85
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4,503,672	06/555,055	3/12/85
4,503,674	06/404,509	3/12/85
4,503,676	06/567,051	3/12/85
4,503,678	06/599,249	3/12/85
4,503,679	06/409,178	3/12/85
4,503,688	06/382,314	3/12/85
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4,503,704	06/490,650	3/12/85
4,503,708	06/464,394	3/12/85
4,503,709	06/472,489	3/12/85
4,503,710	06/502,037	3/12/85
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4,503,721	06/464,917	3/12/85
4,503,725	06/409,185	3/12/85
4,503,727	06/430,014	3/12/85
4,503,730	06/444,602	3/12/85
4,503,731	06/377,201	3/12/85
4,503,737	06/634,661	3/12/85
4,503,739	06/614,399	3/12/85
4,503,742	06/446,727	3/12/85
4,503,743	06/466,056	3/12/85
4,503,747	06/557,914	3/12/85
4,503,750	06/456,940	3/12/85
4,503,751	06/619,570	3/12/85
4,503,756	06/514,198	3/12/85
4,503,761	06/467,804	3/12/85
4,503,763	06/534,806	3/12/85
4,503,767	06/267,297	3/12/85
4,503,769	06/390,379	3/12/85
4,503,770	06/491,204	3/12/85
4,503,771	06/471,502	3/12/85
4,503,773	06/453,318	3/12/85
4,503,774	06/490,266	3/12/85
4,503,775	06/478,925	3/12/85
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4,503,779	06/352,232	3/12/85
4,503,782	06/484,434	3/12/85
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4,503,804	06/458,490	3/12/85
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4,503,813	06/511,524	3/12/85
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4,503,826	06/256,563	3/12/85
4,503,828	06/598,096	3/12/85
4,503,834	06/584,566	3/12/85
4,503,835	06/565,401	3/12/85
4,503,836	06/420,340	3/12/85
4,503,844	06/457,644	3/12/85
4,503,845	06/331,613	3/12/85
4,503,850	06/570,494	3/12/85
4,503,855	06/454,689	3/12/85
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4,503,860	06/480,858	3/12/85
4,503,861	06/500,061	3/12/85

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4,503,862	06/298,184	3/12/85
4,503,866	06/371,573	3/12/85
4,503,867	06/421,562	3/12/85
4,503,874	06/520,481	3/12/85
4,503,875	06/521,472	3/12/85
4,503,885	06/562,267	3/12/85
4,503,886	06/494,084	3/12/85
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4,503,901	06/432,849	3/12/85
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4,503,911	06/504,998	3/12/85
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4,503,924	06/476,566	3/12/85
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4,503,934	06/483,582	3/12/85
4,503,936	06/432,584	3/12/85
4,503,937	06/445,897	3/12/85
4,503,942	06/435,783	3/12/85
4,503,955	06/474,264	3/12/85
4,503,957	06/468,367	3/12/85
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4,503,979	06/425,958	3/12/85
4,503,980	06/433,717	3/12/85
4,503,987	06/614,520	3/12/85
4,504,001	06/519,049	3/12/85
4,504,006	06/488,978	3/12/85
4,504,010	06/494,894	3/12/85
4,504,015	06/420,131	3/12/85
4,504,021	06/476,852	3/12/85
4,504,023	06/612,955	3/12/85
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4,812,157	07/116,873	3/14/89
4,812,160	06/946,060	3/14/89
4,812,165	07/164,673	3/14/89
4,812,170	07/089,993	3/14/89
4,812,175	07/062,344	3/14/89
4,812,178	06/938,510	3/14/89
4,812,179	06/654,078	3/14/89
4,812,180	07/245,237	3/14/89
4,812,202	06/885,254	3/14/89
4,812,207	07/122,598	3/14/89
4,812,219	07/093,745	3/14/89
4,812,221	07/073,495	3/14/89
4,812,228	06/884,934	3/14/89
4,812,233	06/919,295	3/14/89
4,812,237	07/135,696	3/14/89

Patent Number	Serial Number	Issue Date
4,812,246	07/160,027	3/14/89
4,812,267	07/103,887	3/14/89
4,812,276	07/188,783	3/14/89
4,812,282	07/102,326	3/14/89
4,812,286	07/153,163	3/14/89
4,812,289	07/129,233	3/14/89
4,812,294	07/020,530	3/14/89
4,812,296	07/147,592	3/14/89
4,812,302	07/061,961	3/14/89
4,812,305	07/118,609	3/14/89
4,812,307	07/074,207	3/14/89
4,812,333	07/189,081	3/14/89
4,812,342	06/940,322	3/14/89
4,812,356	07/003,404	3/14/89
4,812,359	06/866,353	3/14/89
4,812,362	07/084,325	3/14/89
4,812,373	06/852,865	3/14/89
4,812,375	07/213,031	3/14/89
4,812,388	07/102,302	3/14/89
4,812,400	06/885,412	3/14/89
4,812,407	07/038,285	3/14/89
4,812,410	06/735,913	3/14/89
4,812,423	06/758,645	3/14/89
4,812,430	07/084,242	3/14/89
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4,812,443	06/748,403	3/14/89
4,812,451	06/845,148	3/14/89
4,812,452	06/845,170	3/14/89
4,812,467	07/066,531	3/14/89
4,812,483	06/939,778	3/14/89
4,812,485	07/132,246	3/14/89
4,812,486	07/086,476	3/14/89
4,812,492	07/078,216	3/14/89
4,812,508	06/764,029	3/14/89
4,812,513	07/169,199	3/14/89
4,812,517	07/138,039	3/14/89
4,812,523	07/147,440	3/14/89
4,812,531	06/834,252	3/14/89
4,812,532	07/079,258	3/14/89
4,812,535	07/093,230	3/14/89
4,812,538	07/067,198	3/14/89
4,812,546	07/101,075	3/14/89
4,812,552	07/038,692	3/14/89
4,812,555	07/171,973	3/14/89
4,812,562	06/887,941	3/14/89
4,812,582	07/047,230	3/14/89
4,812,589	06/908,435	3/14/89
4,812,594	07/093,911	3/14/89
4,812,609	07/024,064	3/14/89
4,812,610	07/023,335	3/14/89
4,812,615	07/075,110	3/14/89
4,812,619	07/057,488	3/14/89
4,812,621	07/113,496	3/14/89
4,812,627	06/845,542	3/14/89
4,812,630	07/149,492	3/14/89
4,812,635	07/090,097	3/14/89
4,812,639	06/810,808	3/14/89
4,812,642	07/008,625	3/14/89
4,812,653	07/127,078	3/14/89
4,812,665	07/026,219	3/14/89
4,812,668	07/129,323	3/14/89
4,812,670	07/095,603	3/14/89
4,812,671	07/224,542	3/14/89
4,812,677	07/109,362	3/14/89
4,812,681	07/048,164	3/14/89
4,812,682	07/171,322	3/14/89
4,812,692	07/149,923	3/14/89
4,812,693	07/083,285	3/14/89
4,812,696	07/015,628	3/14/89
4,812,697	07/034,024	3/14/89
4,812,704	06/678,374	3/14/89
4,812,718	07/132,497	3/14/89
4,812,722	07/112,540	3/14/89
4,812,731	06/918,899	3/14/89
4,812,739	06/906,952	3/14/89
4,812,740	06/934,507	3/14/89
4,812,748	06/900,801	3/14/89
4,812,770	07/048,798	3/14/89
4,812,771	06/876,145	3/14/89
4,812,779	07/067,805	3/14/89
4,812,782	07/091,313	3/14/89
4,812,785	07/077,572	3/14/89
4,812,788	07/115,952	3/14/89
4,812,789	07/146,018	3/14/89
4,812,790	07/155,906	3/14/89
4,812,795	07/043,764	3/14/89
4,812,796	07/173,672	3/14/89
4,812,801	07/049,363	3/14/89
4,812,804	07/092,403	3/14/89
4,812,806	07/080,315	3/14/89
4,812,807	07/130,271	3/14/89
4,812,808	07/037,338	3/14/89
4,812,812	07/109,550	3/14/89
4,812,844	07/014,585	3/14/89
4,812,853	06/905,483	3/14/89
4,812,854	07/046,144	3/14/89
4,812,867	07/168,413	3/14/89
4,812,882	07/098,230	3/14/89
4,812,888	07/035,519	3/14/89
4,812,895	07/051,215	3/14/89
4,815,905	07/144,414	3/14/89
4,812,908	07/180,587	3/14/89
4,812,917	07/028,597	3/14/89
4,812,918	06/746,638	3/14/89
4,812,938	07/064,415	3/14/89
4,812,592	07/029,784	3/14/89
4,812,954	07/194,097	3/14/89
4,812,977	06/948,058	3/14/89
4,812,982	06/942,343	3/14/89
4,812,993	07/057,949	3/14/89
4,813,001	07/055,670	3/14/89
4,813,006	07/067,193	3/14/89
4,813,013	06/945,371	3/14/89
4,813,014	06/851,453	3/14/89
4,813,026	07/125,902	3/14/89
4,813,030	07/076,899	3/14/89
4,813,040	06/925,172	3/14/89
4,813,041	07/101,404	3/14/89
4,813,042	07/012,058	3/14/89
4,813,046	07/098,603	3/14/89
4,813,049	07/100,119	3/14/89
4,813,052	07/137,541	3/14/89
4,813,053	07/103,930	3/14/89
4,813,054	07/067,477	3/14/89
4,813,065	07/107,562	3/14/89
4,813,072	07/055,013	3/14/89

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,992,809, Re. S.N. 08/017,401, Filed Feb. 11, 1993, Cl. 354/149, ZOOM FINDER SYSTEM, Katsuhiko Nozaki, et. al., Owner of Record: *Asahi Kogaku Kogyo Kuhushiki Kaisha, Tokyo, Japan*, Attorney or Agent: David J. Cushing, Ex. Gp.: 2101

5,002,381, Re. S.N. 08/038,678, Filed Mar. 26, 1993, Cl. 351/123, EYEWEAR RETAINER, Edmond E. Murrell, Owner of Record: *Inventor*, Attorney or Agent: Donald B. Haslett, Ex. Gp.: 2507

5,015,784, Re. S.N. 08/027,734, Filed Feb. 1, 1993, Cl. 568/722, ISOMERISATION OF BISPHENOLS, Udo Rudolph, et. al., Owner of Record: *Bayer Aktiengellschaft, Leverkusen, Germany*, Attorney or Agent: Ashley I. Pezzner, Ex. Gp.: 1206

5,108,597, Re. S.N. 08/042,087, Filed Apr. 1, 1993, Cl. 210/198.2, CARBON-CLAD ZIRCONIUM OXIDE PARTICLES, Eric F. Funkenbusch, et. al., Owner of Record: *Regents of the*

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University of Minnesota, Minneapolis, Minn., Attorney or Agent: Warren D. Woessner, Ex. Gp.: 1306

5,166,679, Re. S.N. 08/031,247, Filed Mar. 11, 1993, Cl. 340/870, DRIVEN SHIELDING CAPACITIVE PROXIMITY SENSOR, John M. Vranish, et. al., Owner of Record: *United States of America, As Represented by the Administrator of the National Aeronautics and Space Administration, Greenbelt, Md.*, Attorney or Agent: Robert D. Marchant, Ex. Gp.: 2604

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b))

3,863,114, Reexam. No. 90/003,017, Requested Mar. 29, 1993, Cl. 361/139, TAPPING DEVICE FOR GENERATING PERIODIC MECHANICAL PULSES, John F. DeMayo, Owner of Record: *Sensonics, Inc., Hicksville, N.Y.*, Attorney or Agent: Daniel P. Burke, Jericho, N.Y., Ex. Gp.: 2104, Requester: Owner

4,181,086, Reexam. No. 90/003,013, Requested Apr. 5, 1993, Cl. 112/445, PATTERN SELECTED SYSTEM FOR SEWING MACHINE, Hideaki Takenoya, et. al., Owner of Record: *Janome Sewing Machine Co., Tokyo, Japan*, Attorney or Agent: Michael J. Striker, New York, N.Y., Ex. Gp.: 2407, Requester: Owner

4,922,348, Reexam. No. 90/003,020, Requested Apr. 5, 1993, Cl. 358/407, FASCIMILE SERVICE, Alexander C. Gillon, et. al., Owner of Record: *AT & T Bell Labs, Inc., Murray Hill, N.J.*, Attorney or Agent: Peter V. D. Wilde, Murray Hill, N.J., Ex. Gp.: 2612, Requester: Owner

4,947,506, Reexam. No. 90/003,018, Requested Mar. 30, 1993, Cl. 015/247, PORTABLE APPLIANCE COVER, David W. Foster, Owner of Record: *Soft Vac, Inc., Washington, D.C.*, Attorney or Agent: Finnegan, Henderson, Farabow, Garrett & Dunner, Washington, D.C., Ex. Gp.: 2402, Requester: Thomas Myers, Myers Enterprises, Tustin, Calif.

5,046,775, Reexam. No. 90/003,019, Requested Apr. 1, 1993, Cl. 296/039.2, SNAP-LOCK FASTENER FOR TRUCK BED LINERS, Howard W. Marcum, Jr., Owner of Record: *LRV Acquisition Corp., Wapakoneta, Ohio*, Attorney or Agent: Frost & Jacobs, Attn: Ronald J. Snyder, Cincinnati, Ohio, Ex. Gp.: 3102, Requester: Owner

5,065,258, Reexam. No. 90/003,021, Requested Apr. 6, 1993, Cl. 360/015, TRANSMITTING INFORMATION FROM PRODUCER TO END USERS THROUGH SLANT-TRACK TAPE-TO-TAPE COPYING AT HIGHER-THAN-STANDARD SIGNAL TRANSMISSION, Eugene D. Warren, et. al., Owner of Record: *Rank Video Services America, Deerfield, Ill.*, Attorney or Agent: Luc. P. Benoit, Benoit Law Corp., Los Angeles, Calif., Ex. Gp.: 2513, Requester: Owner

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Notice of Expiration of Trademark Registrations Due to Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059

TRADEMARK REGISTRATIONS WHICH EXPIRED APRIL 19, 1993 DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
38,607	70/038,607	7/15/1902
87,403	71/061,787	7/16/1912
87,419	71/060,197	7/16/1912
87,427	71/037,952	7/16/1912
87,436	71/062,321	7/16/1912
87,437	71/061,701	7/16/1912
87,468	71/062,034	7/16/1912
87,469	71/062,168	7/16/1912
87,479	71/061,187	7/16/1912
87,487	71/057,219	7/16/1912
288,609	71/317,068	11/03/1931
295,696	71/318,007	7/12/1932
295,711	71/322,368	7/12/1932
295,712	71/322,732	7/12/1932
295,730	71/323,794	7/12/1932
295,735	71/323,852	7/12/1932
295,736	71/323,854	7/12/1932
295,748	71/324,066	7/12/1932
295,751	71/324,112	7/12/1932
295,753	71/324,130	7/12/1932
295,760	71/324,324	7/12/1932
295,786	71/324,848	7/12/1932
295,806	71/321,571	7/12/1932
295,814	71/323,963	7/12/1932
295,822	71/324,874	7/12/1932
295,823	71/324,875	7/12/1932
295,850	71/282,207	7/12/1932
295,858	71/321,220	7/12/1932
561,333	71/556,319	7/15/1952
561,338	71/564,415	7/15/1952
561,345	71/570,547	7/15/1952
561,348	71/572,164	7/15/1952
561,361	71/574,718	7/15/1952
561,365	71/575,602	7/15/1952
561,372	71/576,948	7/15/1952
561,378	71/579,074	7/15/1952
561,379	71/579,092	7/15/1952
561,385	71/579,840	7/15/1952
561,397	71/584,215	7/15/1952
561,408	71/586,463	7/15/1952
561,414	71/587,572	7/15/1952
561,417	71/587,882	7/15/1952
561,418	71/588,154	7/15/1952
561,423	71/588,994	7/15/1952
561,432	71/590,444	7/15/1952
561,433	71/590,880	7/15/1952
561,434	71/590,990	7/15/1952
561,437	71/592,400	7/15/1952
561,438	71/592,742	7/15/1952
561,439	71/593,454	7/15/1952
561,442	71/593,888	7/15/1952
561,443	71/594,366	7/15/1952
561,444	71/594,367	7/15/1952
561,452	71/596,272	7/15/1952
561,454	71/596,881	7/15/1952
561,473	71/600,862	7/15/1952
561,474	71/601,391	7/15/1952
561,484	71/603,451	7/15/1952
561,493	71/605,491	7/15/1952
561,495	71/606,047	7/15/1952
561,503	71/607,348	7/15/1952
561,516	71/608,281	7/15/1952
561,519	71/609,015	7/15/1952
561,530	71/610,412	7/15/1952
561,541	71/612,262	7/15/1952
561,543	71/612,505	7/15/1952
561,548	71/613,413	7/15/1952
561,554	71/614,078	7/15/1952
561,555	71/614,086	7/15/1952
561,556	71/614,129	7/15/1952
561,560	71/614,483	7/15/1952
561,569	71/615,781	7/15/1952

Reg. No.	Serial Number	Reg. Date
561,571	71/615,996	7/15/1952
561,579	71/616,452	7/15/1952
561,583	71/616,529	7/15/1952
561,586	71/616,532	7/15/1952
561,588	71/616,634	7/15/1952
561,595	71/617,545	7/15/1952
561,602	71/617,804	7/15/1952
561,609	71/617,993	7/15/1952
561,614	71/618,154	7/15/1952
561,616	71/618,225	7/15/1952
561,618	71/618,301	7/15/1952
561,622	71/618,669	7/15/1952
561,632	71/619,148	7/15/1952
561,637	71/619,314	7/15/1952
561,643	71/619,572	7/15/1952
561,645	71/619,777	7/15/1952
561,647	71/619,911	7/15/1952
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561,649	71/620,091	7/15/1952
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561,674	71/586,165	7/15/1952
561,679	71/590,629	7/15/1952
561,680	71/591,197	7/15/1952
561,683	71/593,668	7/15/1952
561,686	71/594,409	7/15/1952
561,702	71/606,411	7/15/1952
561,717	71/623,465	7/15/1952
937,302	72/265,435	7/11/1972
937,307	72/385,346	7/11/1972
937,309	72/386,855	7/11/1972
937,310	72/387,156	7/11/1972
937,314	72/390,755	7/11/1972
937,317	72/371,590	7/11/1972
937,318	72/378,196	7/11/1972
937,320	72/381,516	7/11/1972
937,321	72/381,517	7/11/1972
937,325	72/393,020	7/11/1972
937,329	72/394,727	7/11/1972
937,331	72/395,595	7/11/1972
937,333	72/357,862	7/11/1972
937,335	72/374,978	7/11/1972
937,340	72/396,791	7/11/1972
937,342	72/391,413	7/11/1972
937,344	72/354,467	7/11/1972
937,348	72/366,288	7/11/1972
937,349	72/367,318	7/11/1972
937,350	72/370,584	7/11/1972
937,351	72/371,448	7/11/1972
937,355	72/374,860	7/11/1972
937,356	72/377,232	7/11/1972
937,361	72/381,604	7/11/1972
937,367	72/384,023	7/11/1972
937,370	72/393,047	7/11/1972
937,379	72/385,377	7/11/1972
937,380	72/367,319	7/11/1972
937,381	72/367,320	7/11/1972
937,382	72/367,321	7/11/1972
937,384	72/341,218	7/11/1972
937,390	72/332,496	7/11/1972
937,391	72/380,339	7/11/1972
937,394	72/398,751	7/11/1972
937,398	72/408,931	7/11/1972
937,399	72/408,963	7/11/1972
937,400	72/409,004	7/11/1972
937,402	72/330,944	7/11/1972
937,403	72/344,388	7/11/1972
937,404	72/397,473	7/11/1972
937,406	72/411,052	7/11/1972
937,408	72/353,177	7/11/1972
937,409	72/354,653	7/11/1972
937,410	72/366,746	7/11/1972
937,411	72/376,450	7/11/1972
937,414	72/351,148	7/11/1972
937,416	72/378,120	7/11/1972
937,417	72/380,996	7/11/1972
937,420	72/360,902	7/11/1972
937,424	72/361,092	7/11/1972
937,425	72/374,962	7/11/1972
937,433	72/396,976	7/11/1972
937,438	72/360,569	7/11/1972
937,443	72/377,956	7/11/1972
937,444	72/385,342	7/11/1972
937,445	72/410,964	7/11/1972
937,447	72/338,437	7/11/1972
937,448	72/347,482	7/11/1972
937,452	72/371,493	7/11/1972
937,453	72/371,630	7/11/1972
937,454	72/373,960	7/11/1972
937,455	72/374,788	7/11/1972
937,459	72/376,684	7/11/1972
937,460	72/382,801	7/11/1972
937,461	72/386,182	7/11/1972
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937,472	72/361,896	7/11/1972
937,476	72/368,374	7/11/1972
937,477	72/368,375	7/11/1972
937,478	72/368,376	7/11/1972
937,480	72/372,718	7/11/1972
937,481	72/372,721	7/11/1972
937,482	72/373,101	7/11/1972
937,483	72/375,604	7/11/1972
937,484	72/376,472	7/11/1972
937,486	72/377,547	7/11/1972
937,488	72/377,804	7/11/1972
937,489	72/378,124	7/11/1972
937,495	72/391,559	7/11/1972
937,499	72/394,184	7/11/1972
937,500	72/394,472	7/11/1972
937,505	72/395,428	7/11/1972
937,508	72/396,181	7/11/1972
937,511	72/313,323	7/11/1972
937,512	72/313,556	7/11/1972
937,513	72/318,246	7/11/1972
937,515	72/330,943	7/11/1972
937,518	72/349,852	7/11/1972
937,521	72/364,501	7/11/1972
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937,535	72/379,691	7/11/1972
937,539	72/381,661	7/11/1972
937,540	72/383,303	7/11/1972
937,541	72/385,766	7/11/1972
937,542	72/385,767	7/11/1972
937,543	72/385,799	7/11/1972
937,544	72/385,800	7/11/1972
937,553	72/375,578	7/11/1972
937,557	72/379,769	7/11/1972
937,558	72/377,380	7/11/1972
937,564	72/325,373	7/11/1972
937,568	72/377,788	7/11/1972
937,569	72/377,789	7/11/1972
937,574	72/393,298	7/11/1972
937,577	72/366,630	7/11/1972
937,578	72/368,250	7/11/1972
937,579	72/369,926	7/11/1972
937,581	72/362,017	7/11/1972
937,586	72/373,386	7/11/1972
937,590	72/363,918	7/11/1972
937,593	72/383,156	7/11/1972
937,596	72/390,588	7/11/1972
937,598	72/400,416	7/11/1972
937,599	72/402,494	7/11/1972
937,602	72/361,368	7/11/1972
937,605	72/376,481	7/11/1972
937,606	72/376,482	7/11/1972
937,613	72/382,423	7/11/1972
937,619	72/390,960	7/11/1972
937,620	72/390,995	7/11/1972
937,621	72/392,424	7/11/1972
937,623	72/392,636	7/11/1972
937,625	72/395,005	7/11/1972
937,629	72/369,666	7/11/1972

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Reg. No.	Serial Number	Issue Date
937,631	72/374,889	7/11/1972
937,632	72/377,028	7/11/1972
937,640	72/389,060	7/11/1972
937,645	72/392,231	7/11/1972
937,646	72/392,622	7/11/1972
937,647	72/392,842	7/11/1972
937,648	72/392,901	7/11/1972
937,649	72/393,317	7/11/1972
937,658	72/394,220	7/11/1972
937,659	72/394,288	7/11/1972
937,660	72/394,328	7/11/1972
937,663	72/382,635	7/11/1972
937,665	72/391,210	7/11/1972
937,666	72/391,230	7/11/1972
937,670	72/392,350	7/11/1972
937,674	72/393,399	7/11/1972
937,676	72/336,675	7/11/1972
937,678	72/401,215	7/11/1972
937,679	72/303,615	7/11/1972
937,680	72/313,099	7/11/1972
937,681	72/352,193	7/11/1972
937,683	72/354,414	7/11/1972
937,687	72/364,277	7/11/1972
937,688	72/368,184	7/11/1972
937,690	72/371,527	7/11/1972
937,693	72/378,696	7/11/1972
937,701	72/385,669	7/11/1972
937,707	72/389,977	7/11/1972
937,708	72/390,105	7/11/1972
937,710	72/390,202	7/11/1972
937,712	72/390,722	7/11/1972
937,721	72/378,273	7/11/1972
937,723	72/384,898	7/11/1972
937,726	72/368,615	7/11/1972
937,727	72/369,215	7/11/1972
937,728	72/379,991	7/11/1972
937,729	72/380,033	7/11/1972
937,730	72/380,034	7/11/1972
937,735	72/384,000	7/11/1972
937,737	72/385,896	7/11/1972
937,739	72/386,760	7/11/1972
937,740	72/386,761	7/11/1972
937,741	72/386,762	7/11/1972
937,742	72/386,763	7/11/1972
937,743	72/387,347	7/11/1972
937,744	72/387,348	7/11/1972
937,745	72/387,349	7/11/1972
937,747	72/398,543	7/11/1972
937,751	72/355,499	7/11/1972
937,756	72/377,414	7/11/1972
937,757	72/379,069	7/11/1972
937,759	72/380,605	7/11/1972
937,762	72/385,931	7/11/1972
937,764	72/387,146	7/11/1972
937,765	72/388,559	7/11/1972
937,768	72/397,985	7/11/1972
937,772	72/350,027	7/11/1972
937,776	72/374,228	7/11/1972
937,777	72/388,038	7/11/1972
937,780	72/392,185	7/11/1972
937,782	72/393,974	7/11/1972
937,787	72/395,418	7/11/1972
937,788	72/296,558	7/11/1972
937,790	72/328,646	7/11/1972
937,791	72/333,104	7/11/1972
937,796	72/340,940	7/11/1972
937,797	72/341,997	7/11/1972
937,798	72/348,518	7/11/1972
937,800	72/359,335	7/11/1972
937,803	72/373,267	7/11/1972
937,806	72/375,832	7/11/1972
937,810	72/394,251	7/11/1972
937,812	72/398,533	7/11/1972
937,818	72/356,751	7/11/1972
937,819	72/356,752	7/11/1972
937,821	72/391,619	7/11/1972
937,825	72/351,185	7/11/1972
937,826	72/352,094	7/11/1972
937,830	72/373,443	7/11/1972
937,832	72/378,978	7/11/1972
937,834	72/360,780	7/11/1972
937,836	72/350,631	7/11/1972
937,837	72/375,063	7/11/1972
937,839	72/387,829	7/11/1972
937,842	72/385,610	7/11/1972
937,845	72/394,730	7/11/1972
937,848	72/344,538	7/11/1972
937,849	72/360,032	7/11/1972
937,850	72/371,079	7/11/1972
937,854	72/388,764	7/11/1972
937,855	72/389,883	7/11/1972
945,972	72/355,066	10/24/1972

Errata

"All reference to Patent No. 5,205,183 to Yoshihisa Iwasaki, Osaka-Fu, Japan, for 'BICYCLE SPEED CHANGE LEVER ASSEMBLY' appearing in the *Official Gazette* of Apr. 27, 1993 should be deleted since no patent was granted."

"All reference to Patent No. 5,205,257 to Akira Tsunoda, Kosaishi, Japan, et. al., for 'ACTUATOR,' appearing in the *Official Gazette* of Apr. 27, 1993 should be deleted since no patent was granted."

"All reference to Patent No. 5,205,901 to Monte A. Douglas, Coppell, Tex., et. al., for 'ANISOTROPIC BARIUM STRONTIUM TITANATE ETCH,' appearing in the *Official Gazette* of Apr. 27, 1993 should be deleted since no patent was granted."

"All reference to Patent No. 5,206,001 to Vaikuntam I. Lakshmanan, Mississauga, Canada, for REMOVAL OF BASE METALS AND 'CYANIDE FROM GOLD-BARREN CLIP SOLUTIONS' appearing in the *Official Gazette* of Apr. 27, 1993 should be deleted since no patent was granted."

Taking Action in a Patent Matter Before the Office by the Assignee under 37 CFR 3.73.

When the assignee of the entire right, title and interest first seeks to take action in a matter before the Office with respect to a patent application, patent or reexamination proceeding, the assignee must establish its ownership of the property to the satisfaction of the Commissioner. 37 CFR 3.73(b). The assignee's ownership may be established either 1) by submitting to the Office copies of the documentary evidence of a chain of title from the original inventor to the assignee, or 2) by specifying, by reel and frame number, for example, where such documentary evidence is recorded in the Office. In addition to the establishment of ownership, there is further requirement that the assignee submit a statement specifying that the evidentiary documents have been reviewed and certifying that, to the best of the assignee's knowledge and belief, title is in the assignee seeking to take action. Once 37 CFR 3.73(b) is complied with by an assignee, that assignee may continue to take action in that application, patent or reexamination proceeding without filing a 37 CFR 3.73(b) statement each time, provided that ownership has not changed.

When an assignee files a continuation or divisional application (under 37 CFR 1.53, 1.60 or 1.62), reference may be made to a statement filed under 37 CFR 3.73(b) in the parent application or a copy of that statement may be filed. A newly executed statement under 37 CFR 3.73(b) must be filed when a continuation-in-part application is filed by an assignee.

The statement under 37 CFR 3.73(b) may be signed on behalf of the assignee in the following two manners if the assignee is an organization (e.g., corporation, partnership, university, government agency, etc.).

(1) The statement may be signed by a person in the organization having apparent authority to sign on behalf of the organization. An officer (president, vice-president, secretary, or treasurer) is presumed to have authority to sign on behalf of the organization. The signature of the chairman of the board of directors is acceptable, but not the signature of an individual director. A person having a title (manager, director, administrator, general counsel) that does not clearly set forth that person as an officer of the assignee is not presumed to be an officer of the assignee or to have authority to sign the statement on behalf of the assignee. A power of attorney from the inventors in an organization to a practitioner to prosecute a patent application does not make the practitioner an official of an assignee or empower the practitioner to sign the statement on behalf of the assignee.

(2) The statement may be signed by any person, if the statement includes an averment that the person is empowered to sign the statement on behalf of the assignee and, if not signed by a registered practitioner, the statement must be in oath or declaration form. Where a statement does not include such an averment, and the person signing does not hold a position in the organization that would give rise to a presumption that the person is empowered to sign the statement on behalf of the assignee, evidence of the person's authority to sign will be required.

Examples of situations where ownership must be established and the statement under 37 CFR 3.73(b) *must* be submitted are when the assignee: signs a request for status of an application or gives a power to inspect an application; acquiesces to express abandonment of an application; appoints its own legal representative; signs a terminal disclaimer; consents to the filing of a reissue application; consents to the correction of inventorship; files an application under 37 CFR 1.47(b) or 37 CFR 1.475; signs an Issue Fee Transmittal (PTOL-85B); or signs a response to an Office action.

Examples of situations where ownership need not be established and a statement under 37 CFR 3.73(b) *is not* required to be submitted are when the assignee: signs a small entity declaration; signs an affidavit or declaration of common ownership of two inventions; signs a NASA or DOE property rights statement; signs an affidavit under 37 CFR 1.131 where the inventor is unavailable; signs a Certificate of Mailing under 37 CFR 1.8; or files a request for reexamination of a patent under 37 CFR 1.510.

An acceptable certification under 37 CFR 3.73(b) is attached to this notice.

For further information related to actions taken by an assignee in patent matters, contact Jeffrey V. Nase at (703) 305-9282.

Apr. 30, 1993

CHARLES E. VAN HORN
Patent Policy and Projects Administrator
Office of the Assistant Commissioner
for Patents

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Certificate Under 37 CFR 3.73(b)

Applicant: _____

Application No.: _____ Filed: _____

For: _____

_____ , a _____
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

A. [ ] An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel _____ , Frame_____, or for which a copy thereof is attached.

OR

B. [ ] A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

1. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____ , Frame _____ , or for which a copy thereof is attached.

2. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____ , Frame _____ , or for which a copy thereof is attached.

3. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____ , Frame _____ , or for which a copy thereof is attached.

[ ] Additional documents in the chain of title are listed on a supplemental sheet.

[ ] Copies of assignments or other documents in the chain of title are attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

The undersigned (whose title is supplied below) is empowered to sign this certificate on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: _____

Name: _____

Title: _____

Signature: _____

Status of PTO Services

The following is an update of the status of PTO services for Apr. 1993:

Service Item	FY 1993 Goal (Calendar Days)*	Monthly Average (Calendar Days)*
Filing Receipts:		
Patents	22	34
Trademarks	30	71
Patent/Trademark Copies:		
Special Window Coupons	24 Hours	9 Hours
Window Coupons	5	2
Mail Coupons	12	4
Letter Orders	16	26
Electronic Ordering Service (EOS)	11	2
Certified Copies:		
Trademark Registrations	21	5
Patent Applications-As-Filed	17	12
Patent Applications Expedited	7	7
Patent File-Wrapper/Contents	N/A	27
TM Applications-As-Filed	17	14
TM Applications Expedited	7	9
Patent Copies	17	10
Trademark Search Library:		
Filing Pending Marks	23	69
Filing Reg. Certificates	Issue Date + 2 days	Issue + 2
Filing Temp. Drawings	8	21
Assignments:		
Recording Patents-New Applications	20	14
Recording Patents-Mail Room Recpts.	20	25
Return Patents-New Applications	34	30
Return Patents-Mail Room Recpts.	34	45
Recording Trademarks	20	31
Returning Trademark Documents	34	53
Avg. Days from Issue Fee Payment to Issue Date	90-100	115
Issue Fee Receipts Mailed	4 weeks prior to Issue Date	On Time
Patent Copies Available	95% on Issue Date	99% on Issue Date
Trademark Copies Available	95% on Issue Date	99% on Issue Date

*Unless otherwise noted.

IMPROVEMENTS TO SERVICES

o *Customer Surveys*

To better meet customer expectations, Public Services and Administration (PSA) has been developing, distributing, and analyzing surveys completed by internal customers in an effort to improve in-house services. In 1992, PSA developed, received approval from the Office of Management and Budget, and conducted six external customer surveys. The surveys addressed customer expectations and PSA's success in meeting those expectations in recording ownership of patents and trademarks, filing requests for certified documents and patent copies, issuing patent application filing receipts, and issuing patent grants. The surveys were mailed in Oct. 1992 to 3,820 randomly selected customers with a response rate of 27%. The respondents were mostly (89%) attorney/agents, with more than half (63%) affiliated with law firms and 31% with a corporation/business. When asked to rank in order of importance of certain characteristics against the product they received for each of the five products, most respondents ranked completeness/accuracy as the most important characteristic, timely delivery as the second most important, consistency of delivery time as the third most important, and availability of help from PTO personnel as the least important. The following tables indicate how well customer's expectations were met for the specific product received as well as their overall perception of how well expectations are met for the product in general.

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Customer Expectations for Specific Product
Percent Responses

Filing Receipts	Timeliness	Completeness/ Accuracy	Consistency of Delivery Time	Help from PTO Personnel	In General, Overall
Exceeded	6.5	5.7	6.4	8.5	4.6
Met	58.3	80.7	67.4	71.9	60.7
Below	35.2	13.6	26.2	19.6	34.7
Assignments					
Exceeded	9.6	7.8	7.9	8.7	6.6
Met	49.7	79.2	62.6	68.7	57.4
Below	40.6	13.0	29.6	22.6	36.0
Certified Copies					
Exceeded	8.3	3.9	3.5	15.0	3.8
Met	45.9	83.6	53.1	60.7	52.6
Below	45.9	12.5	43.4	24.2	43.5
Issue Notification					
Exceeded	14.4	9.5	8.8	10.9	0.6
Met	68.8	85.1	74.0	70.5	79.0
Below	16.9	5.5	17.2	18.6	20.5
Patent Grants					
Exceeded	36.0	10.9	20.4	11.8	1.8
Met	50.3	75.5	66.3	67.7	74.1
Below	13.8	13.6	13.3	19.4	24.2

Action plans are being developed to improve customer satisfaction in receipt of these products and services

Apr. 30, 1993

THERESA A. BRELSFORD
Assistant Commissioner for Public Services and Administration

Patent Certificates of Correction For Week of May 25, 1993

Des. 322,359	5,013,088	5,046,924	5,066,981	5,079,957	5,083,895	5,088,565	5,094,101
Des. 322,857	5,013,427	5,047,296	5,067,780	5,079,963	5,084,050	5,088,831	5,094,107
Des. 323,326	5,013,432	5,047,922	5,067,796	5,080,157	5,084,059	5,088,840	5,094,133
Des. 330,685	5,014,586	5,049,348	5,067,979	5,080,212	5,084,245	5,088,880	5,094,165
4,196,109	5,015,464	5,049,439	5,068,018	5,080,263	5,084,251	5,089,020	5,094,472
4,226,148	5,015,657	5,049,550	5,068,436	5,080,486	5,084,514	5,089,277	5,095,067
4,252,798	5,016,260	5,049,857	5,068,458	5,080,650	5,084,864	5,089,327	5,095,503
4,351,402	5,016,587	5,049,884	5,068,559	5,080,787	5,084,928	5,089,435	5,095,597
4,369,226	5,018,096	5,049,968	5,068,892	5,081,251	5,084,948	5,089,635	5,095,618
4,394,953	5,019,466	5,050,196	5,069,475	5,081,313	5,085,280	5,089,654	5,096,003
4,404,210	5,019,636	5,050,411	5,069,570	5,081,398	5,085,372	5,089,884	5,096,480
4,430,358	5,020,027	5,050,605	5,069,726	5,081,407	5,085,470	5,090,162	5,096,499
4,448,949	5,020,502	5,051,139	5,070,025	5,081,601	5,085,491	5,090,504	5,096,581
4,552,145	5,020,826	5,051,779	5,070,058	5,081,623	5,085,638	5,090,630	5,096,729
4,561,869	5,020,995	5,051,782	5,070,181	5,081,848	5,085,682	5,090,704	5,096,750
4,695,814	5,021,004	5,051,841	5,070,246	5,081,880	5,085,685	5,090,940	5,096,883
4,746,007	5,021,684	5,052,206	5,070,503	5,081,886	5,085,790	5,090,972	5,096,933
4,807,144	5,021,882	5,052,247	5,070,530	5,081,907	5,085,816	5,091,035	5,097,334
4,830,879	5,022,170	5,052,640	5,070,532	5,082,162	5,086,190	5,091,108	5,097,956
4,832,892	5,022,270	5,052,696	5,070,606	5,082,311	5,086,217	5,091,781	5,098,555
4,863,565	5,022,732	5,052,779	5,070,685	5,082,344	5,086,576	5,091,784	5,098,648
4,871,699	5,023,251	5,053,061	5,071,153	5,082,433	5,086,684	5,091,870	5,099,793
4,878,603	5,023,889	5,053,127	5,071,252	5,082,484	5,086,874	5,092,204	5,100,174
4,882,268	5,023,991	5,053,420	5,071,499	5,082,576	5,086,950	5,092,226	5,101,809
4,886,800	5,024,915	5,053,566	5,071,578	5,082,622	5,087,004	5,092,273	5,111,155
4,889,746	5,024,957	5,053,770	5,071,723	5,082,883	5,087,037	5,092,497	5,121,846
4,909,043	5,025,435	5,053,832	5,071,791	5,083,057	5,087,177	5,092,795	5,153,214
4,909,711	5,025,463	5,053,873	5,071,904	5,083,600	5,087,477	5,092,836	5,163,177
4,917,044	5,025,787	5,054,075	5,072,090	5,083,706	5,088,273	5,092,869	5,180,924
4,917,817	5,026,502	5,055,351	5,072,265	5,083,814	5,088,354	5,092,982	5,186,780
4,926,387	5,026,729	5,055,885	5,072,421	5,083,850	5,088,396	5,093,600	5,186,942
4,928,259	5,027,260	5,055,959	5,073,177	5,083,888	5,088,520	5,094,075	5,191,151
4,933,285	5,028,485	5,055,990	5,073,304				
4,942,551	5,028,593	5,056,836	5,073,345				
4,943,669	5,029,720	5,056,847	5,073,892				
4,947,540	5,030,178	5,057,337	5,074,546				
4,952,511	5,030,566	5,058,542	5,074,726				
4,952,954	5,030,722	5,058,577	5,974,807				
4,959,699	5,030,747	5,058,989	5,074,859				
4,964,223	5,030,770	5,059,699	5,074,906				
4,966,530	5,030,821	5,059,756	5,074,977				
4,967,740	5,030,822	5,059,899	5,075,060				
4,973,599	5,031,182	5,060,049	5,075,296				
4,974,201	5,032,460	5,060,001	5,075,354				
4,974,205	5,034,017	5,060,205	5,075,471				
4,975,582	5,035,399	5,061,155	5,075,746				
4,976,505	5,035,482	5,061,238	5,075,767				
4,981,306	5,035,581	5,061,565	5,075,818				
4,982,816	5,036,298	5,061,840	5,075,871				
4,984,020	5,036,472	5,062,044	5,075,939				
4,984,065	5,037,259	5,062,281	5,076,031				
4,987,192	5,037,320	5,062,448	5,076,090				
4,988,382	5,037,954	5,062,806	5,076,114				
4,988,616	5,038,203	5,062,901	5,076,135				
4,990,635	5,038,225	5,063,072	5,076,274				
4,992,725	5,038,312	5,063,109	5,076,288				
4,993,922	5,038,338	5,063,448	5,076,377				
4,997,677	5,039,155	5,064,465	5,076,465				
4,997,869	5,039,222	5,064,493	5,076,653				
4,998,585	5,039,334	5,064,907	5,076,913				
4,999,951	5,039,493	5,064,938	5,077,358				
5,001,070	5,040,722	5,064,950	5,077,421				
5,001,232	5,041,350	5,065,185	5,077,518				
5,001,744	5,041,441	5,065,311	5,077,722				
5,001,890	5,041,915	5,065,393	5,077,760				
5,002,027	5,042,536	5,065,411	5,078,032				
5,002,106	5,042,927	5,065,442	5,078,302				
5,004,427	5,043,239	5,065,495	5,078,335				
5,005,623	5,043,421	5,065,664	5,078,604				
5,006,852	5,043,758	5,065,686	5,079,017				
5,007,973	5,044,041	5,065,766	5,079,049				
5,008,966	5,044,213	5,066,098	5,079,386				
5,009,712	5,044,790	5,066,401	5,079,458				
5,009,745	5,044,891	5,066,487	5,079,484				
5,010,089	5,045,548	5,066,947	5,079,524				

Dedications

4,167,648—*Alan C. Lockwood,* Rosemead, Calif. ELECTRIC JUNCTION BOX. Patent dated Sept. 11, 1979. Dedication filed Dec. 9, 1991, by the assignee, Masco Building Products Corp.

Hereby dedicates to the Public all claims of said patent.

4,639,664—*Anthony M. Chiu,* Richardson, Tex.; *Mark D. Allison,* Boise, Id.; *James W. Jones,* Singapore, Singapore; *Lyndale A. Trammell,* Baguio City, Philippines; *Fock San Ho,* Singapore, Singapore. APPARATUS FOR TESTING A PLURALITY OF INTEGRATED CIRCUITS IN PARALLEL. Patent dated Jan. 27, 1987. Dedication filed Dec. 7, 1992, by the assignee, Texas Instruments Inc.

Hereby dedicates to the Public all claims of said patent.

Disclaimers

4,528,900—*William J. Simelunas,* Glen Rock, N.J. HIGH PRODUCTION APPARATUS FOR FORMING FILLED EDIBLE PRODUCTS. Patent dated July 16, 1985. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining terms of said patent.

4,626,157—*Josef T. Franek,* Chorleywood; *Paul Porucznik,* Kennington; *Peter H. Serby,* Newbury; *Christopher J. N. Tod,* Steyning, all of United Kingdom. METHODS OF MAKING

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CONTAINERS. Patent dated Dec. 2, 1986. Disclaimer filed Dec. 6, 1991, by the assignee, CMB Foodcan PLC.

Hereby enters this disclaimer to all claims of said patent.

4,648,821—*Robert Thulin*, Wyckoff Rt., N.J. APPARATUS FOR CO-EXTRUSION OF A DOUGH MASS HAVING DISSIMILAR INNER AND OUTER PORTIONS. Patent dated Mar. 10, 1987. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining term of said patent.

4,807,741—*William J. Simelunas*, Glen Rock; *Henry N. Shoiket*, Rutherford; *Celso Espejo*, Chatham, all of N.J. AUTOMATIC DIRECT SOFT COOKIE LOADING APPARATUS. Patent dated Feb. 28, 1989. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining term of said patent.

4,821,870—*William J. Simelunas*, Glen Rock; *Henry N Shoiket*, Rutherford; *Celso Espejo*, Chatham, all of N.J. AUTOMATIC DIRECT SOFT COOKIE LOADING APPARATUS. Patent dated Apr. 18, 1989. Disclaimer filed Feb. 11, 1993, by the assignee, Nabisco Brands, Inc.

Hereby enters this disclaimer to the remaining terms of said patent.

4,850,258—*Yoshihiro Hoshino*, Nagoya; *Taisei Sugiyama*, Shizuoka, both of Japan. SNARE DRUM HEAD WITH ODD NUMBER OF ATTACHEMNT BOLTS. Patent dated July 25, 1989. Disclaimer filed Feb. 1, 1993, by the assignee, Hoshino Gakki Co., Ltd.

Hereby enters this disclaimer to claims 1-3 of said patent.

4,878,748—*Laurie A. Johansen; Paul Diffendaffer*, both of La Crescenta, Calif. ULTRAVIOLET RADIATION AND BLUE LIGHT BLOCKING POLARIZING LENS. Patent dated Nov. 7, 1989. Disclaimer filed Oct. 26, 1992, by the assignee, Suntiger, Inc.

Hereby enters this disclaimer to claims 1-2 and 5-7 of said patent.

5,091,740—*Masakatsu Hori*, Tokyo, Japan. FILM WINDING DEVICE. Patent dated Feb. 25, 1992. Disclaimer filed Feb. 4, 1993, by the assignee, Asahi Kogaku Kogyo Kabushiki Kaisha.

Hereby enters this disclaimer to claims 7 and 9 of said patent.

Disclaimers and Dedications

D. 313,320—*Willaim J. Fisher*, Rockland, Me. ROCKING CHAIR. Patent dated Jan. 1, 1991. Disclaimer and Dedication filed Mar. 3, 1993, by the assignee, Imagineering, Inc.

Hereby disclaims and dedicates to the Public the entire term of said patent.

4,054,598—*Helumt Blum; Karl-Heinz Worms*, both of Dusseldorf, Germany. 1-HYDROXY-3-AMINO-ALKANE-, 1-DIPHOSPHONIC ACIDS AND SALTS. Patent dated Oct. 18, 1977. Disclaimer and Dedication filed Jan. 18, 1990, by the assignee, Henkel Kommanditgesellschaft au Aktien.

Hereby disclaims and dedicates to the Public the entire term of said patent.

Summary of Final Decisions

Issued by the

Trademark Trial and Appeal Board

April 12 - 16, 1993

Date Issued	Type of Proceeding(1)	Proceeding or App'n No	Party Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods of Registration Cited by Examining Atty.	Recommended for Publication
4-12	I-X	74/063,494	American Olean Tile Co., Inc	2(d)	Refusal Affirmed		"MESA GRANDE" [quarry tile]	"MESA" [plastic coverings of the solid surface, for surfaces such as floors, walls, countertops, etc.]	No
4-12	OPP	82,842	Tombstone Pizza Corp. v. Sargento Inc	descriptiveness, genericness	Opposition Sustained (on grd. of descriptiveness, but not genericness)		"PIZZA DOUBLE CHEESE" [shredded mozzarella and cheddar cheese]		
4-13	I-X	74/123,568	Nabisco, Inc.	2(e)(1)	Refusal Affirmed		[SWISS CHEESE" [crackers]		No
4-14	I-X	74/094,821	Neal Pargman	whether matter asserted for registration functions as a mark or is, instead, merely ornamental	Refusal Reversed		"SAVE THE EARTH" [clothing]		No

(1) I-X= I-X PARTE; APPEAL; OPP= OPPOSITION; C= CANCELLATION; CU= CONCURRENT USE; (R)= REQ. FOR RECONSIDERATION

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Box OED	Mail for the Office of Enrollment and Discipline
Box PATENT APPLICATION	New patent application and associated papers and fees.
Box TRADEMARK APPLICATION	New trademark application and associated papers and application fees.
Box Pat. Ext.	Applications for patent term extension.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
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In addition, each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials. Facilities for making paper copies of patent and trademark information are generally provided for a fee.

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California	Los Angeles Public Library	(213) 612-3273
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	Sunnyvale Patent Clearinghouse	(408) 730-7290
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	Piscataway: Library of Science and Medicine, Rutgers University	(908) 932-2895
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New York	Albany: New York State Library	(518) 473-4636
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Oklahoma	Stillwater: Oklahoma State University Center for International Trade Development	(405) 744-7086
Oregon	Salem: Oregon State Library	(503) 378-4239
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
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Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8877
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	Milwaukee Public Library	(414) 278-3247

PATENT EXAMINING CORPS

STEPHEN G. KUNIN, Acting Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 1100 — D. E. TALBERT, Director	308-0661	5/23/92
ORGANIC CHEMISTRY, GROUP 1200 — JOHN F. TERAPANE, JR., Director	308-1235	8/20/92
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300 — EDWARD E. KUBASIEWICZ, Director	308-0651	6/19/92
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 1500 — J. O. THOMAS, Director	308-2351	6/19/92
BIOTECHNOLOGY, GROUP 1800 — BARRY S. RICHMAN, Director	308-0196	10/24/91
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100 — D. G. KELLY, Director	308-1782	10/29/91
SPECIAL LAWS ADMINISTRATION, GROUP 2200 — ROBERT E. GARRETT, Director	308-0511	10/12/91
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 2300 — GERALD GOLDBERG, Director	308-0754	1/16/91
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 2400 — CARLTON CROYLE, Director	308-0771	5/15/92
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500 — JOSEPH J. ROLLA, Director	308-0956	9/24/91
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 2600 — BOBBY R. GRAY, Director	305-4700	10/05/91
DESIGN, GROUP 2900 — ROBERT E. GARRETT, Director	308-0511	12/30/90
MECHANICAL EXAMINING GROUPS		
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MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200 — N. GODICI, Director	308-1148	7/07/92
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 3300 — J. J. LOVE, Director	308-0858	6/16/92
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400 — JOHN KITTLE, Director	308-0861	7/24/92
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500 — A.L. SMITH, Director	308-1021	3/31/92

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during April 1993 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

Patents ..... Numbers 3,947,896 to 3,953,891 inclusive
Plant Patents ..... 3,856 to 3,875

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TRADEMARK OPERATION

Robert M. Anderson, Acting Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Operation
Condition of Trademark Applications as of April 1993

Law Office	Oldest Date New *	Oldest Date Amendment Filed
Law Office 3—Kathryn A. Dobbs, Managing Attorney, (703) 308-9103 Scientific Equipment, Furniture, Houseware and Glass—Int. Classes 9, 20, 21 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/19/93	3/05/93
Law Office 4—Sharon Marsh, Managing Attorney, (703) 308-9104 Scientific Equipment, Furniture, Houseware and Glass—Int. Classes 9, 20, 21 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/04/93	2/02/93
Law Office 5—Mary Sparrow, Managing Attorney, (703) 308-9105 Cosmetics, Cleaning Preparations, Paper Products and Toys—Int Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/30/92	1/04/93
Law Office 6—Myra Kurzbard, Managing Attorney, (703) 308-9106 Scientific Equipment, Furniture, Houseware and Glass—Int. Classes 9, 20, 21 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/19/93	1/03/93
Law Office 7—David Shallant, Managing Attorney, (703) 308-9107 Lubricants, Fuels, Industrial Equipment & Materials—Int. Classes 4, 6, 11, 14, 19 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/21/93	1/04/93
Law Office 8—Thomas Lamone, Managing Attorney, (703) 308-9108 Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/21/93	2/01/93
Law Office 9—Sidney Moskowitz, Managing Attorney, (703) 308-9109 Lubricants, Industrial Equipment, Materials & Musical Instruments-Int. Classes 4, 6, 7, 8, 12, 13, 15, 16, 17, 18, 19, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/28/92	1/29/93
Law Office 10—Jean Logan, Managing Attorney, (703) 308-9110 Cordage, Fibers, Yarns, Threads, Fabrics, Clothing & Floor Covering-Int. Classes 22, 23, 24, 25, 26, 27 Services-Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/19/93	1/25/93
Law Office-11—Thomas Howell, Managing Attorney, (703) 308-9111 Paints, Pharmaceuticals & Medical Apparatus—Int. Classes 2, 5, 10 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/21/93	1/21/93
Law Office 12—Deborah Cohn, Managing Attorney, (703) 308-9112 Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/09/92	2/25/93
Law Office 13—Craig Morris, Managing Attorney, (703) 308-9113 Chemicals, Food, Beverages, Wines & Spirits—Int. Classes 1, 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/13/93	2/10/93
Law Office 14—Ron Williams, Managing Attorney, (703) 308-9114 Chemicals, Food, Beverages, Wines & Spirits—Int. Classes 1, 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/13/93	2/03/93
Law Office 15—Paul Fahrenkopf, Managing Attorney, (703) 308-9115 Rubber, Leather Goods & Clothing—17, 18, 25 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	1/22/93	11/06/92
•• Collective Marks—Class 200		
•• Certification Marks—Classes A & B		
Office of Trademark Services—Jodi Rush, Director (703) 308-9000		
Post Registration Section—Jacqueline Cole, Managing Attorney, (703) 308-9500		
Affidavits Under Sections 8 & 15 (All Classes)	12/22/92	—0—
Renewals (All Classes)	2/11/93	—0—
Section 12(C) Publications (All Classes)	—0—	—0—

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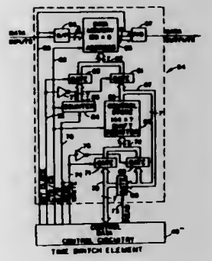
• These dates identify the oldest unassigned new case in each law office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examiner.

REEXAMINATIONS

MAY 25, 1993

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B2 3,956,593 (2018th)
TIME SPACE TIME (TST) SWITCH WITH COMBINED AND DISTRIBUTED STATE STORE AND CONTROL STORE
Arthur A. Collins; John C. Bellamy, II, both of Dallas, and Richard L. Christensen, Richardson, all of Tex., assignors to Arthur A. Collins, Inc., Dallas, Tex.
Reexamination Request Nos. 90/002,358, Jun. 4, 1991 and 90/002,370, Jun. 4, 1991 and 90/002,543, Dec. 17, 1991 and 90/002,784, Jul. 15, 1992.
Reexamination Certificate for Patent No. 3,956,593, issued May 11, 1976, Ser. No. 514,828, Oct. 15, 1974.
Reexamination Certificate B1 3,956,593, issued Apr. 17, 1990.
Int. Cl.[5] H04Q *11/04;* **H04J** *3/00*
U.S. Cl. 370—63



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–26** and **29–53** is confirmed.

Claims **27** and **28** were previously cancelled.

29. The switch of claim **27**, wherein said individual time division digital signal switch element means are in two basic configurations, a space switch element and a time switch element interconnectable in pluralities of each said space and time switch elements through an extensive range of time division multiplex switch sizes and configurations.

B1 4,326,416 (2019th)
ACOUSTIC PULSE RESPONSE MEASURING
Jeffrey J. Fredberg, 27 Tall Tree Rd., Sharon, Mass. 02067, assignor to Jeffrey J. Fredberg, Sharon, Mass.
Reexamination Request No. 90/002,400, Aug. 14, 1991.
Reexamination Certificate for Patent No. 4,326,416, issued Apr. 27, 1982, Ser. No. 120,618, Feb. 11, 1980.
Continuation-in-part of Ser. No. 932,033, Aug. 8, 1978, abandoned
Int. Cl.[5] A61B *5/08;* **G01N** *24/00*
U.S. Cl. 128—720

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1**, **3–4**, **6** and **9** are determined to be patentable as amended.

Claims **2**, **5**, **7–8** and **10–14**, dependent on an amended claim, are determined to be patentable.

New claims **15–19** are added and determined to be patentable.

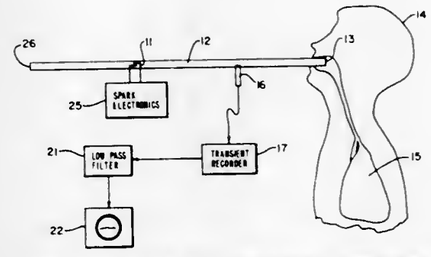
1. Apparatus for measuring physical properties of a confined volume *passageway having an entrance in a living subject* comprising,

conduit means for exchanging acoustical energy with said confined volume *passageway*,

a piece at one end of said conduit means for engaging said entrance,

means for propagating a pressure pulse within said conduit *means* through an opening thereof *and said piece* for entry into the confined volume *passageway*,

said piece and conduit means constructed and arranged to produce substantially one-dimensional wavefronts in response to said pressure pulse at substantially all points in said con-



fined volume passageway when said piece engages said entrance,

electroacoustical transducing means in said conduit responsive to acoustical energy therein for providing an electrical signal representative of wave energy having spectral components in a substantial portion of the audio frequency range above 100 Hz reflected through said opening in response to said pressure pulse propagated through said opening provided by said means for propagating,

and utilization means responsive to said [detected] *electrical* signal for providing a representation thereof characteristic of physical properties of said confined volume *passageway*,

said physical properties including the cross sectional area of said confined volume *passageway* as a function of its distance from said opening.

B1 4,423,286 (2020th)
APPARATUS AND METHOD FOR DETERMINING THE POSITION OF A DRIVEN COIL WITHIN A GRID OF SPACED CONDUCTORS
Gary A. Bergeron, Phoenix, Ariz., assignor to Calcomp Inc., Anaheim, Calif.
Reexamination Request No. 90/002,735, May 21, 1992.
Reexamination Certificate for Patent No. 4,423,286, issued Dec. 27, 1983, Ser. No. 400,511, Jul. 21, 1982.
Int. Cl.[5] G08C *21/00*
U.S. Cl. 178—19

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

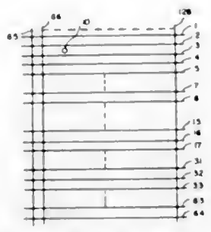
The patentability of claims **1–20** is confirmed.

1. Apparatus for determining the position of a transmitting

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coil with respect to a grid of spaced parallel conductors located adjacent to the transmiting coil, comprising:

means for sampling the signals induced in only a selected small percentage of the conductors so as to successively



reduce the possible position of the coil to smaller and smaller areas until the position is determined to be intermediate two of the conductors; and

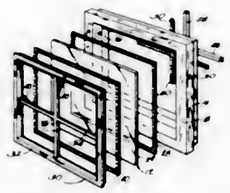
means responsive to the signals induced in the two conductors to determine the precise position of the coil.

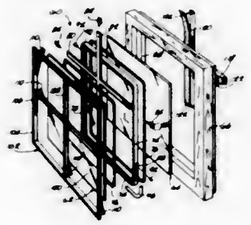
B1 4,783,938 (2021st)

WINDOW PANEL ASSEMBLY

Douglas J. Palmer, Mosinee, Wis., assignor to SNE Enterprises, Inc., Wausau, Wis.

Reexamination Request No. 90/001,952, Mar. 9, 1990.
Reexamination Certificate for Patent No. 4,783,938, issued Nov. 15, 1988, Ser. No. 152,653, Feb. 5, 1988.
Int. Cl.[5] E06B *3/70*
U.S. Cl. 52—171





AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** and **2** are cancelled.

Claims **3**, **8**, **9** and **11–13** are determined to be patentable as amended.

Claims **4–7** and **10**, dependent on an amended claim, are determined to be patentable.

New claims **14–18** are added and determined to be patentable.

3. An insulated window assembly [according to claim **2** wherein] *comprising:*

first and second generally parallel spaced panes of a transparent sheet material;

a plurality of intersecting, internal muntin bars disposed in the space between said first and second panes;

a plurality of first intersecting outer muntin bars having a width slightly wider than said internal muntin bars and affixed by adhesive means on the outer surface of said first pane in coincidental alignment with said internal muntin bars;

a plurality of second intersecting, outer muntin bars having substantially the same width as said first outer muntin bars and affixed by adhesive means on the outer surface of said second pane in coincidental alignment with said first outer muntin bars, said internal muntin bars and said first and second outer muntin bars being arranged in a pattern to provide said window assembly with the appearance of a historically correct, authentic divided lite window having individual panels separated by conventional muntin bars;

wherein:

said internal muntin bars are metal and have a thickness which is slightly less than the width of the space between said panes;

said first and second outer muntin bars are wooden; and

wherein:

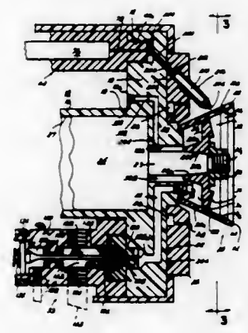
said window assembly includes thermally insulating spacer means disposed between said internal muntin bars and the inner surfaces of said first and second panes at selected locations to prevent said panes from touching said internal muntin bars.

B1 4,887,770 (2022nd)

ELECTROSTATIC ROTARY ATOMIZING LIQUID SPRAY COATINGS APPARATUS

Robert L. Wacker, Wellington; Donald E. Shuster, Elyria; John Sharpless, Oberlin; Alan J. Knobbe, Lorain, and James C. Murphy, Broadview Heights, all of Ohio, assignors to Nordson Corporation, Westlake, Ohio

Reexamination Request No. 90/002,690, Apr. 3, 1992.
Reexamination Certificate for Patent No. 4,887,770, issued Dec. 19, 1989, Ser. No. 300,114, Jan. 19, 1989.
Continuation-in-part of Ser. No. 14,450, Feb. 13, 1987, abandoned, which is a continuation-in-part of Ser. No. 853,746, Apr. 18, 1986, abandoned
Int. Cl.[5] B05B *5/04*
U.S. Cl. 239—703



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–26** and **28–41** is confirmed.

Claims **27** and **42** are determined to be patentable as amended.

Claims **43–47**, dependent on an amended claim, are determined to be patentable.

New claims **48—56** are added and determined to be patentable.

1. Electrostatic rotary atomizing liquid spray coating apparatus comprising:

a support body of insulative material having forward, intermediate, and rear sections,

a rotary atomizer of insulative material having an axis of rotation, a first surface over which liquid coating can flow outwardly to an atomizing edge thereof when said atomizer is rotated about said axis of rotation, and a second surface separated from said first surface by said atomizing edge,

a circular ring-shaped charging electrode mounted on said first surface encircling said axis of rotation,

a circular electrical current-conducting element mounted on said second surface encircling said axis of rotation,

means mounted to said rotary atomizer for electrically connecting said circular electrode and said electrical current-conducting element,

drive means incorporated in said support body drivingly mounting said rotary atomizer to said forward section of said support body for rotating said rotary atomizer about said axis of rotation,

means fabricated of insulative material for supplying liquid coating to said first surface of said rotary atomizer when said atomizer is rotating about its rotational axis, and

plural circumferentially-spaced electrical conductors stationarily mounted to said forward section of said support body, said conductors having a free end located in closely spaced proximity to said circular electrical current-conducting element for transferring electrostatic energy thereto when said stationary electrical conductors are energized from a high voltage source for facilitating contact charging of liquid coating supplied to said first surface when said coating flows outwardly over said first surface in contact with said charging electrode toward said atomizing edge.

B1 4,944,030 (2023rd)

LENS SHUTTER CAMERA INCLUDING ZOOM LENS

Keisuke Haraguchi; Shinsuke Kohmoto; Takeo Kobayashi; Shigeru Kondoh; Hideki Ohkubo; Norio Numako; Saburo Sugawara; Susao Nakamura; Hirofumi Matsuo; Katsuhiko Nomura; Etsuro Nishio, and Haruo Ishii, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki, Tokyo, Japan

Reexamination Request No. 90/002,261, Jan. 28, 1991.
Reexamination Certificate for Patent No. 4,944,030, issued Jul. 24, 1990, Ser. No. 144,030, May 12, 1987.
PCT No. PCT/JP87/00293, § 371 Date Jan. 7, 1988, § 102(e) Date Jan. 7, 1988, PCT Pub. No. WO87/07038, PCT Pub. Date Nov. 19, 1987
Claims priority, application Japan, May 12, 1986, 61-108278; May 12, 1986, 61-108279; May 28, 1986, 61-80861; May 28, 1986, 61-80862; Jun. 2, 1986, 61-83932; Jun. 2, 1986, 61-127496; Jun. 21, 1986, 61-145470; Jun. 26, 1986, 61-150995; Aug. 15, 1986, 61-125045; Aug. 22, 1986, 61-196911; Aug. 29, 1986, 61-132658; Aug. 29, 1986, 61-132659; Aug. 29, 1986, 61-132660; Aug. 29, 1986, 61-132661
Int. Cl.[5] G03B *3/00, 5/00, 13/12, 15/03*
U.S. Cl. 354—403

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **54–68**, **74–76**, **99–101** is confirmed.

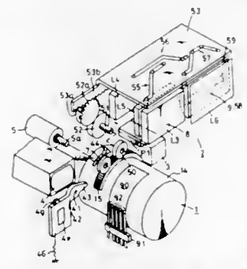
Claims **2**, **52**, **71**, **96** are cancelled.

Claims **1**, **3**, **9**, **17**, **31**, **32**, **45**, **47**, **50**, **53**, **69**, **73**, **77**, **79**, **82**, **85–95**, **97**, **102**, **106–108**, **110** are determined to be patentable as amended.

Claims **4–8**, **10–16**, **18–30**, **33–44**, **46**, **48**, **49**, **51**, **70**, **72**, **78**, **80**, **81**, **83**, **84**, **98**, **103–105**, **109**, **111**, dependent on an amended claim, are determined to be patentable.

New claims **112–116** are added and determined to be patentable.

1. A *still* camera having a *body, and a* finder optical assembly and a photographic optical assembly with different optical axis, *said finder optical assembly being moveable over a range of movement,* said photographic optical assembly including a *non-interchangeable,* movable zoom lens, said camera further comprising a strobe assembly, and means for driving said zoom



lens, for driving said finder optical assembly in association with zooming movement of said zoom lens in order to vary the field of view through said finder optical assembly, and for driving said strobe assembly in association with zooming movement of said zoom lens, said means for driving said zoom lens, said finder optical assembly, and said strobe assembly including *a motor positioned within said camera body and* at least one gear positioned about at least a portion of said zoom lens, said gear being rotatable in association with linear movement of said zoom lens along said photographic optical axis, *said motor being arranged to drive said at least one gear and said zoom lens, said camera further comprising means for automatically focusing said photographic optical assembly, at least part of said driving means being arranged to drive said finder optical assembly, in association with said zooming movement of said zoom lens, over substantially all of said range of movement of said finder optical assembly.*

B1 4,965,717 (2024th)

MULTIPLE PROCESSOR SYSTEM HAVING SHARED MEMORY WITH PRIVATE-WRITE CAPABILITY

Richard W. Cutts, Jr., Georgetown; Nikhil A. Mehta, and Douglas E. Jewett, both of Austin, all of Tex., assignors to Tandem Computers Incorporated, Cupertino, Calif.

Reexamination Request No. 90/002,393, Jul. 30, 1991.
Reexamination Certificate for Patent No. 4,965,717, issued Oct. 23, 1990, Ser. No. 283,573, Dec. 13, 1988.
Int. Cl.[5] G06F *11/18, 15/16*
U.S. Cl. 395—575

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim **5** is confirmed.

Claim **1** is cancelled.

Claims **2**, **3**, **6**, **7**, and **12** are determined to be patentable as amended.

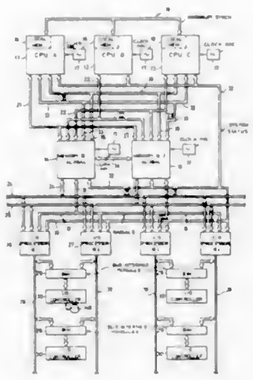
VOL 1150 ISS 4 MY 25 1993 UMI

Claims **4**, **8**, **9**, **10**, **11**, **13**, **14**, **15**, **16**, **17**, **18**, **19** and **20**, dependent on an amended claim is determined to be patentable.

New claims **21**, **22**, **23** and **24** are added and determined to be patentable.

12 A method of operating a computer system having multiple processors, comprising the steps of:

(a) storing data by each of said multiple processors in a shared memory having memory space accessed by all of said multiple processors,



(b) also storing information by each one of said multiple processors in a private memory space for each multiple processor writable only by one multiple processor, *wherein said private memory space for each of said multiple processors has a given logical address associated with instructions executed by said multiple processors, and*

(c) translating said given logical address to a unique address for each private memory space before accessing said shared memory.

B1 4,966,324 (2025th)

INTEGRAL CARRYING HANDLE FOR A CAN CARTON AND CARTON BLANK CONTAINING SAME

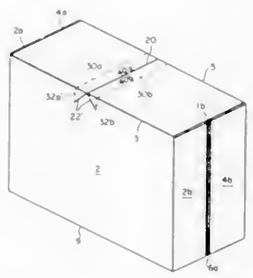
Thomas C. Steel, 45 Ogston Ter., Malverne, N.Y. 11565

Reexamination Request No. 90/002,381, Jun. 28, 1991.

Reexamination Certificate for Patent No. 4,966,324, issued Oct. 30, 1990, Ser. No. 454,520, Dec. 21, 1989.

Int. Cl.[5] B65D *5/46*

U.S. Cl. 229—117.13



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **23–32** is confirmed.

Claims **2**, **9**, **13**, **20** are cancelled.

Claims **1**, **10**, **12**, **16**, **21**, **22** are determined to be patentable as amended.

Claims **3–8**, **11**, **14**, **15**, **17–19**, dependent on an amended claim, are determined to be patentable.

New claims **33** and **34** are added and determined to be patentable.

1. A carrying handle [or] *for* a carton for packaging a plurality of cans and having interconnected top, bottom and side walls, and end closure panels, said handle comprising:

a *rectilinear* transverse slit extending completely across one of said interconnected carton walls and having *collinear* end projections extending into the two walls interconnected with said one of said carton walls, *said transverse slit and end projections being oriented and positioned such that they will be substantially centered between two adjacent cans disposed within the carton and disposed closest thereto*; [and]

a *rectilinear* transverse fold line extending completely across one of said interconnected carton walls which is spaced from and disposed [generally] parallel to said transverse slit, said fold line having end projections extending into said two walls interconnected with said one of said carton walls which terminate adjacent to the corresponding end projection of said transverse slit, [so that] *said transverse fold line end projections being disposed such that they will be oriented approximately tangentially with respect to one of said closest adjacent cans disposed within the carton*, said transverse fold line and said transverse slit cooperatively define therebetween a foldable transverse handle flap struck from said one of said interconnected carton walls and said two walls interconnected therewith, foldably joined thereto via said fold line, said transverse handle flap having a main central portion which is foldable inwardly to an angle of approximately 180°, into face contacting relation with the inner surface of said one of said interconnected carton walls and two outer end portions which flex inwardly to substantially tangentially wrap the end of [an] *said* adjacent can disposed within the carton when said associated handle flap is inwardly folded[ ]; *and*

an end slit formed in each of said two walls interconnected with said one of said carton walls, which end slit intersects an associated one of the transverse slit end projections and fold line end projections and is disposed generally normally relative thereto.

B1 5,033,639 (2026th)

BUNGED VESSEL

Dietmar Przytulla, Sindorf, Fed. Rep. of Germany, assignor to Mauser-Werke GmbH, Bruhl, Fed. Rep. of Germany

Reexamination Request No. 90/002,699, Apr. 23, 1992.

Reexamination Certificate for Patent No. 5,033,639, issued Jul. 23, 1991, Ser. No. 154,735, Feb. 11, 1988.

Claims priority, application European Pat. Off., Jan. 21, 1988, 88100868

Int. Cl.[5] B65D *6/00*

U.S. Cl. 220—604

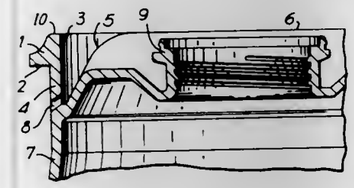
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–3** and **5–7** are determined to be patentable as amended.

Claim **4**, dependent on an amended claim, is determined to be patentable.

New claims **8–14** are added and determined to be patentable.

1. A vessel of thermoplastic synthetic material having a central section, opposite head and bottom end surfaces, a frustoconical section [connecting] *having an upper end and a lower end, with said lower end connected directly to* the central section *and said upper end connected* to at least one of the end surfaces, and at least one carriage and transport ring of solid cross-section, located on the shell of the vessel near said one end surface of the vessel and comprising a horizontal and a vertical bearing surface for the arms of a vessel lifter to be used in tranporting the vessel, the carriage and transport ring being integrally formed with and connected to the vessel by a con-



necting web *having an upper end and a lower end and* merging *at its lower end* with the shell of the vessel *below said one end surface*, and extending a distance axially along the shell of the vessel *and* joining the carriage and transport ring *at its upper end, the lower end of* the connecting web and *the lower end of* the frustoconical section of the shell *being joined together and* defining an annular groove therebetween, wherein the bottom of the groove between the connecting web (**4**) and the frustoconical section (**5**) rising conically towards the head surface (**6**) of the vessel is spacedaxially below the horizontal bearing surface (**2**) of the carriage and transport ring (**1**), while the connecting web (**4**) is formed out of an axial lengthening of the central [part] *section* (**7**) of the shell of the vessel.

B1 Des. 273,794 (2017th)

SUNGLASSES

Aaron M. Markovitz, Rochester, and Robert H. Ramp, Pittsford, both of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

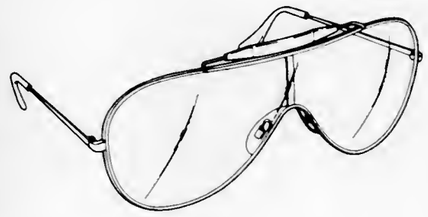
Reexamination Request No. 90/002,162, Oct. 12, 1990.

Reexamination Certificate for Patent No. Des. 273,794, issued May 8, 1984, Ser. No. 346,967, Feb. 8, 1982.

U.S. Cl. D16—112

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim **1** is confirmed.



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REISSUES

MAY 25, 1993

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

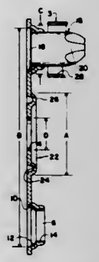
Re. 34,258
DISK FOR CARRYING PROPELLANT CHARGES

Harry M. Haytayan, 32 Indian Rock Rd., Nashua, N.H. 03063

Original No. 5,075,997, dated Dec. 31, 1991, Ser. No. 604,865, Oct. 29, 1990. Application for reissue Apr. 14, 1992, Ser. No. 868,200

Int. Cl.[5] F41A *9/85*

U.S. Cl. 42—89 20 Claims



1. A magazine for accommodating propellant charges comprising:

a thin metal disk having a circular outer periphery, said disk being provided with a plurality of spaced orifices located in an annular array adjacent its outer periphery for retaining jacketed propellant charges; and

reinforcing means located on said disk providing dampening capability to substantially prevent the transmission of disruptive vibrations that otherwise would traverse the disk upon the firing of a propulsive charge and cause sympathetic firing of other adjacent propulsive charges.

Re. 34,259
SYSTEM FOR LOW TEMPERATURE REFRIGERATION AND CHILL STORAGE USING AMMONIATED COMPLEX COMPOUNDS

Uwe Rockenfeller, Boulder City, Nev., assignor to Rocky Research, Boulder City, Nev.

Original No. 4,848,994, dated Jul. 18, 1989, Ser. No. 162,016, Feb. 29, 1988. Continuation-in-part of Ser. No. 115,820, Nov. 2, 1987, Pat. No. 4,822,391. Application for reissue Jul. 17, 1991, Ser. No. 734,290

Int. Cl.[5] F25D *5/00*

U.S. Cl. 62—4 16 Claims

1. [In a] *A* heat exchange system containing a *liquid and a complex compound for being mixed therewith and comprising a heat exchange surface exposed to said liquid and/or said mixture. said* complex compound consisting of a metal salt and ammonia for being alternately heated and cooled to alternately desorb and adsorb, respectively, at least a portion of said ammonia, [the improvement comprising] said metal salt being selected from the group consisting of

(a) an alkaline earth metal chloride, bromide or chlorate salt,

(b) a metal chloride, bromide or [chloride] *chlorate* salt in which the metal is chromium, manganese, iron, cobalt, nickel, cadmium, tantalum, [or] rhenium *or tin.*

(c) a double chloride salt selected from NH_4AlCl_4, $NaAlCl_4$, $KAlCl_4$, $(NH_4)_2ZnCl_4$, $(NH_4)_3ZnCl_5$, K_2ZnCl_4, $CsCuCl_3$, and K_2FeCl_5, and

(d) sodium bromide or ammonium chloride[.] , *and said liquid selected from the group consisting of alcohols, alcohol-ethers, glycol-ethers, esters, ketones and pyridines.*

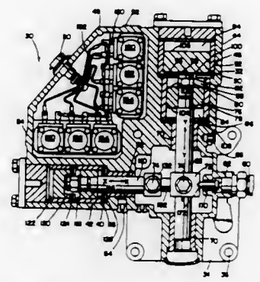
Re. 34,260
DUAL PRESSURE PRESSURIZED FLUID ACTUATED SHIFTING MECHANISM

Ronald K. Markyvecb, Allen Park, and Thomas A. Genise, Dearborn, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Original No. 4,928,544, dated May 29, 1990, Ser. No. 368,010, Jun. 19, 1989. Application for reissue Apr. 15, 1991, Ser. No. 685,804

Int. Cl.[5] F16H *5/06*

U.S. Cl. 74—335 18 Claims



17. A control system for controlling shift actuators (30) for mechanical transmissions. said actuators including a mechanism effective to selectively urge said actuators into a first position for causing engagement of a selected ratio of said transmission and to urge said actuator into a second position for causing disengagement of said selected ratio, and shift control means characterized by:

means for causing said mechanism to exert a selected one of at least a first force level or a second lesser force level, said means causing said mechanism to exert said first force level to cause engagement of said selects ratio and said means causing said mechanism to exert said second force level to cause disengagement of said selected ratio.

Re. 34,261
SOLENOID VALVE

Akos Sule, 4 Gates Ave., Roseland, N.J. 07068

Original No. 4,711,269, dated Dec. 8, 1987, Ser. No. 756,845, Jul. 18, 1985. Continuation of Ser. No. 447,003, Dec. 6, 1989, abandoned, which is a continuation-in-part of Ser. No. 318,846, Nov. 6, 1981, abandoned. Application for reissue Apr. 15, 1991, Ser. No. 686,270

Int. Cl.[5] F16K *11/04, 11/14, 11/20, 31/06*

U.S. Cl. 137—625.5 48 Claims

1. A solenoid valve comprising a valve body having a valve cavity,

first port means disposed on said valve body and communicating with said valve cavity,

second port means disposed on said valve body and communicating with said valve cavity,

an orifice member having an orifice, with said orifice member mounted in said valve cavity and disposed separating said first and second ports,

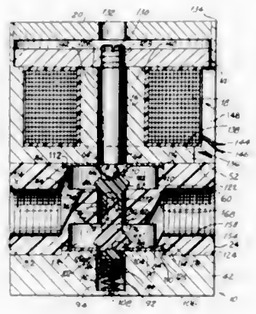
electrically operated solenoid means mounted on said valve body and including a solenoid coil and armature means disposed for actuation by said solenoid coil,

diaphragm means mounted in said valve cavity,

poppet means formed as part of said diaphragm means with said poppet means operative to close said orifice, with said

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diaphragm means and said poppet means comprising an integrally formed unitary member and with said poppet means comprising a [semi-sperical] *semi-spherical* end portion and a conical portion with said conical portion having a larger diameter and a smaller diameter and with said larger diameter of said conical portion disposed *immediately* adjacent said semi-spherical end portion, and said smaller diameter disposed *immediately* adjacent said diaphragm.



resilient means mounted [in] *on* said valve [cavity] *body* and disposed to bear on said diaphragm means and bias said diaphragm means and said poppet means in a first direction,

pressure plate means disposed [in] *on* said valve [cavity] *body* and supporting a portion of said diaphragm means thereby enhancing the ability of said diaphragm means to withstand fluid pressure and with said solenoid means capable of biasing said diaphragm and poppet means in a second direction which is opposite to said first direction.

Re. 34,262

HIGH MODULUS AL ALLOYS

Raymond C. Benn, Madison, Conn.; Prakash K. Mirchandani, Troy, Mich., and Walter E. Mattson, Huntington, W. Va., assignors to Inco Alloys International, Inc., Huntington, W. Va.

Original No. 4,834,810, dated May 30, 1989, Ser. No. 190,713, May 6, 1988. Application for reissue May 28, 1991, Ser. No. 705,969

Int. Cl.[5] **C22C** *21/00*

U.S. Cl. 148—437 **9 Claims**

8. A mechanically alloyed, high modulus aluminum-base alloy containing, in weight percent, 10 to 25% of at least one transition element selected from the group consisting of titanium, vanadium, zirconium, niobium, tantalum, yttrium, tungsten, cerium, erbium, chromium, iron, cobalt, nickel and copper, said vanadium, zirconium, nickel, copper, cerium and erbium each being present in an amount less than about 5%, said niobium, tantalum, yttrium, tungsten, chromium, iron and cobolt each being present in an amount less than 10%, said transition elements being limited to atom-for-atom substitution of 10 to 25% titanium, said olloy further containing up to 1% boron, up to 3% lithium, up to 10% silicon and beryllium, about 0.1 to 2% oxygen, about 1-4% carbon, total of said boron, lithium, silicon and beryllium, being less than 2% and said carbon being less than 2% when titanium and transition elements substituted for titanium on an atom-for-atom basis are greater than 15% and total boron, lithium, copper, nickel, cerium, erbium, silicon, beryllium, iron, chromium, cobalt, niobium, yttrium, tantalum, tungsten, vanadium and zirconium being limited to about 10% and the balance being principally aluminum.

Re. 34,263

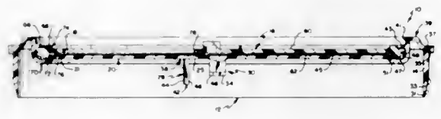
END CLOSURE HAVING A PUSH OPEN LID PORTION

John vanKerkhoven, deceased, late of Wausau, Wis. by Lois M. vanKerkhoven, personal representative; and James Kick, Ellisville, Mo., assignors to The Specialty Packaging Group, Inc., Wausau, Wis.

Original No. 4,969,572, dated Nov. 13, 1990, Ser. No. 389,581, Aug. 4, 1989. Application for reissue Dec. 16, 1991, Ser. No. 809,271

Int. Cl.[5] **B65D** *51/18*

U.S. Cl. 220—253 **13 Claims**



10 An end closure for a container comprising:

a substantially planar first lid portion including means for engaging [an upper rim of] a container to be closed;

a second substantially planar lid portion rotatably mounted to [an upper surface of] said first lid portion, said second lid portion having an opening defined therethrough[, sealing means for sealing about the periphery of the opening between the first and second lid portions], and

an openable lid portion defined in said first lid portion[, said openable lid portion including] *by* a flexible hinge extending along a first edge thereof and a frangible coupling extending along the remaining edges thereof whereby when a force is applied to the upper surface of said openable lid portion, the frangible seal is broken and the openable lid is pivoted about the hinge, a bottom surface of said first lid portion including at least one gripping element, a bottom surface of said openable lid portion including at least [one tab] *a first* element positioned thereon so that when pressure is applied to said openable lid portion and said openable lid portion pivots about said hinge, said gripping element engages said [tab] *at least first element* so as to retain said openable lid portion in an open disposition.

Re. 34,264

TOLAN DERIVATIVE AND A LIQUID CRYSTAL MIXTURE CONTAINING THE SAME

Yasuyuki Goto, and Tetsuya Ogawa, both of Chibaken, Japan, assignors to Chisso Corporation, Tokyo, Japan

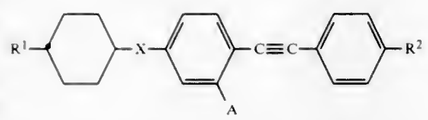
Original No. 4,778,620, dated Oct. 18, 1988, Ser. No. 79,997, Jul. 31, 1987. Application for reissue Oct. 18, 1990, Ser. No. 599,442

Claims priority, application Japan, Aug. 4, 1986, 61-182985; Mar. 28, 1987, 62-75525

Int. Cl.[5] **C09K** *19/30, 19/54;* **C07C** *19/08, 13/00*

U.S. Cl. 252—299.63 **20 Claims**

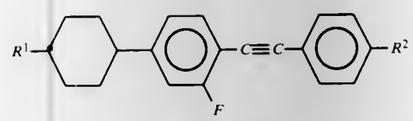
4. A liquid crystal mixture comprising at least two components at least one of which is a tolan derivative compound expressed by the formula



(I)

wherein R^1 represents an alkyl group of 1 to 10 carbon atoms, R^2 represents an alkyl group of 1 to 10 carbon atoms, X represents $—CH_2CH_2—$ and A represents an H atom or an F atom.

13. A liquid crystal mixture comprising at least two components, at least one of which is a tolan derivative compound expressed by the formula



wherein each of R^1 and R^2 independently represents an alkyl group of 2 to 5 carbon otoms.

Re. 34,265

GROUNDWATER AZIMUTH DETECTION

John W. Foster, Normal, and Lawrence J. Fryda, Bloomington, both of Ill., assignors to Illinois State University, Normal, Ill.

Original No. 4,963,019, dated Oct. 16, 1990, Ser. No. 386,895, Jul. 28, 1989. Application for reissue Jun. 26, 1992, Ser. No. 905,092

Int. Cl.[5] **G01P** *3/36;* **G01W** *1/02*

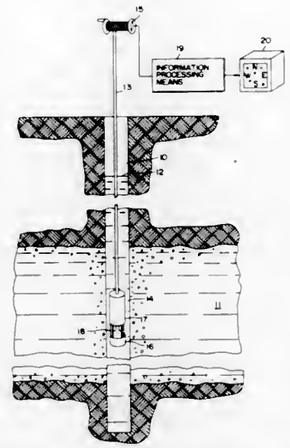
U.S. Cl. 356—28 **28 Claims**

13. An apparatus for detecting the azimuth of migration of groundwater, in situ, said groundwater containing suspended microscopic particles, the apparatus comprising:

a light source, an imaging device and a light path extending from the light source to the imaging device, the path including a path segment adapted to be occupied by said groundwater, in situ, and to be oriented in a direction transverse to the direction of said migration, whereby an image is formed by said imaging device of particles in said path segment,

a direction indicator coupled with said imaging device,

and a display device at a location remote from said path segment and being electrically coupled with said imaging device for displaying said image in a predetermined angular relation with the orientation of said imaging device,



whereby movement of said particles in said path segment can be viewed on said display for detecting said azimuth of migration.

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PLANT PATENTS

GRANTED MAY 25, 1993

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

8,235

ROSE PLANT JACSOS

William A. Warriner, Tustin, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.

Filed Dec. 10, 1990, Ser. No. 625,871
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—1 **1 Claim**

1. A new and distinct variety of rose plant of the shrub class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its vigorous upright habit of growth, its continuous production during the growing season of light red flowers, its dark green, semi-glossy foliage, its ease of production from softwood or hardwood cuttings and its profusion of glands on sepals, receptacle, and rachis.

8,236

ROSETTA ALMOND TREE

William Spoto, 760 N. Township Rd., Yuba City, Calif. 95991

Filed Feb. 27, 1991, Ser. No. 661,116
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—32.2 **1 Claim**

1. A new and distinct variety of almond tree is illustrated and described, particularly characterized by its upright tree form which is less willowy than Nonpareil; of large size; by blooming prior to and concurrently with Nonpareil and harvesting just after the Nonpareil; by excellent pollenization of other varieties such as Nonpareil; by bearing nuts that hull more easily and knock easily from the trees; by bearing nuts with a tighter, more well sealed cork imparting superior disease and insect resistance, the nuts being of superior quality and hulls easily, the nuts having meat which has comparable physical attributes and the same commercial value as the Nonpareil and can be mixed therewith at harvest.

8,237

PEACH TREE NAMED TUCKER'S

Joseph H. Tucker, 2500 E. Sophi La., Kingsburg, Calif. 93631

Filed May 22, 1991, Ser. No. 704,218
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—43.2 **1 Claim**

1. A new and distinct very late ripening variety of a freestone peach tree having flesh of the yellow variety substantially as herein shown and described, having fruit of good to high, excellent sugar content, being of medium size, yellow in color with a red blush, being firm and not melting, and by having a desirable oblate shape, where the peach ripens substantially after other late harvest existing commercial varieties, typically in later October and in November.

8,238

ORANGE TREE NAMED 'SWEET MARTIN'

Martin J. Krug, 2069 S. Leonard, Sanger, Calif. 93657

Filed Sep. 9, 1991, Ser. No. 756,439
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—45 **1 Claim**

1. A new and distinct variety of navel orange tree, as described and illustrated, having no thorns, having a maturity period in the early season, both in color and soluable solids/acid ratios, and without loss of desirable eating qualities and having superior color, and having large fruit with thick skin, small, embedded navel ends, ease of segment separation, sweet tartness, firm texture and excellent flavor.

8,239

LITTLE LEAF LINDEN—RONALD CULTIVAR

Wilbert G. Ronald, Portage la Prairie, Canada, assignor to Bailey Nurseries, Inc., St. Paul, Minn.

Filed Apr. 24, 1991, Ser. No. 690,862
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—53.4 **1 Claim**

1. A new and distinct cultivar of *Tilia cordata* tree, having the following combination of characteristics:

(a) exhibits a relatively rapid growth rate to form an attractive symmetrical tree having a moderately pyramidal crown and sturdy lateral branches,
(b) exhibits improved winter hardiness in northern zones and a high degree of trunk tolerance to winter sun scald damage,
(c) forms attractive dark green foliage which exhibits good resistance to leaf gall mites and fungal leaf spotting, and
(d) forms fragrant flowers in abundance which tend to form a sparse seed crop;

substantially as illustrated and described.

8,240

CHRYSANTHEMUM PLANT — FUNBEAM CULTIVAR

Jacques C. M. van der Knapp, De Lier, Netherlands, assignor to Fides Beheer B.V., De Lier, Netherlands

Filed Jun. 24, 1991, Ser. No. 719,463
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—82.4 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum plant named Funbeam, substantially as herein shown and described, which:

(a) exhibits attractive relatively small anemone flowers having an overall diameter of approximately 40 mm. wherein the petals are light red-purple instead of white as the Funshine cultivar and the disc florets particularly towards the center bear a more intense and more purple coloration on the distal ends than the Funshine cultivar,
(b) bears flowers in a somewhat pyramidal configuration,
(c) exhibits a flower response period of approximately seven and one-half weeks,
(d) forms attractive dark green foliage, and
(e) has the ability to produce flowers of commercially acceptable quality throughout the year in a cut mum production program.

8,241

CHRYSANTHEMUM PLANT — FUNRISE CULTIVAR

Jacques C. M. van der Knapp, De Lier, Netherlands, assignor to Fides Beheer B.V., De Lier, Netherlands

Filed Jun. 24, 1991, Ser. No. 719,465
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—82.4 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum plant named Funrise, substantially as herein shown and described, which:

(a) exhibits attractive relatively small anemone flowers having an overall diameter of approximately 40 mm. wherein the petals are red-purple instead of white as the Funshine cultivar and the disc florets particularly towards the center bear a slightly more intense red coloration on the distal ends than the Funshine cultivar,
(b) bears flowers in a somewhat pyramidal configuration,
(c) exhibits a flower response period of approximately seven and one-half weeks,
(d) forms attractive dark green foliage, and
(e) has the ability to produce flowers of commercially acceptable quality throughout the year in a cut mum production program.

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PATENTS

GRANTED May 25, 1993

ERRATA

002-424 5,212,843
028-141 5,212,858
030-366 5,212,869
030-481 5,212,870
033-555 5,212,871
033-558 5,212,872
033-559 5,212,873
033-021 5,212,874
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475-010 5,212,997
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126-025 5,213,075
402-008 5,213,429
415-206 5,213,474
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504-191 5,213,606
504-193 5,213,607
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134-001 5,213,619
152-451 5,213,652
428-046 5,213,828
524-291 5,214,049
514-044 5,214,136
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336-084 5,214,403
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257-080 5,214,495
257-296 5,214,496
257-528 5,214,497
257-678 5,214,498
361-383 5,214,621
338-022 5,214,738

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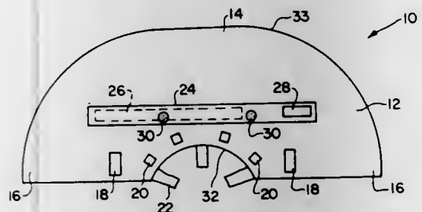
GENERAL AND MECHANICAL

5,212,837

PROTECTIVE CLOTHING ACCESSORY

Richard V. Gose, and Kenneth W. Anderson, both of Suite 415, 500 South Main, Las Cruces, N. Mex. 88004

Continuation-in-part of Ser. No. 646,209, Jan. 28, 1991. This application Sep. 13, 1991, Ser. No. 759,993
Int. Cl.[5] A42B *1/06, 3/04*
U.S. Cl. 2—172 7 Claims



1. A clothing accessory for protecting the neck and face of a wearer and adapted to be secured to a headband, said accessory comprising:

a substantially semi-circular piece of fabric having interior and exterior sides and substantially parallel arcuately shaped opposed edges, wherein one of said edges has a lesser radius than the other of said edges;

first fastening means joined to one of said sides of the fabric along said edge having a lesser radius, said fastening means being adapted to be secured to a headband which is secured to and forms a part of a headgear; and

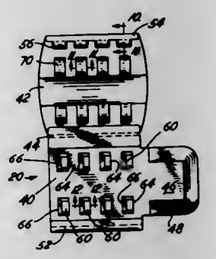
second fastening means disposed on the other of said sides of the fabric adjacent said edge having a lesser radius, said additional fastening means being adapted to be secured to a headband which is independent of a headgear.

5,212,838

MOLDED PLASTIC CAP BUCKLE AND ADJUSTMENT STRAP

Raymond G. Davidson, Batavia, and Rodney C. Shadwick, Chicago, both of Ill., assignors to Handy Button Machine Company, Melrose Park, Ill.

Filed Dec. 17, 1991, Ser. No. 809,702
Int. Cl.[5] A42B *1/22*
U.S. Cl. 2—197 8 Claims



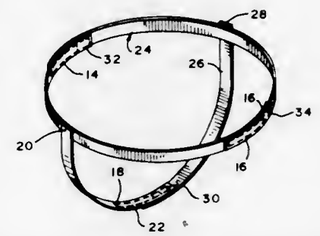
1. A molded plastic cap buckle and adjustment strap for adjusting the circumference of a cap band comprising an elongated strap adapted to be secured at one end to said cap band, a plurality of recesses on one side of the elongated strap, the recesses being aligned longitudinally of the elongated strap, and a one-piece buckle having two parts integrally and pivotally secured to one another along one edge of each part and adapted to be engaged on opposite sides of the elongated strap, one part of the buckle having a projection adapted to be secured to said cap band, means for detachably connecting the two parts of the buckle together, said one part of the buckle having projections thereon adapted to engage with selected recesses in the elongated strap for securing the buckle and strap together in an adjusted position, said one part of the buckle having a flange along the edge opposite the pivotally connected edge thereof and said other part of the buckle having a retention flange along the edge opposite the pivotally connected edge thereof, the retention flange cooperating with said flange for detachably securing the two parts of the buckle together.

5,212,839

DIAPER HOLDER FOR A PERSON IN A BODY CAST

John M. Sliman, and Donna M. Sliman, both of Rt. 5 Box 984, Deridder, La. 70634

Filed Mar. 27, 1992, Ser. No. 858,745
Int. Cl.[5] A41B *9/00*; A61F *13/15*
U.S. Cl. 2—408 6 Claims



3. A diaper holder for a person in a body cast, which comprises a first narrow body belt portion having first and second opposite ends, a first narrow body crotch portion said first narrow body crotch portion having a first end secured to said first narrow body belt portion approximately at a mid-point of the length of said first narrow body portion and a second end which is free of any connection to said first narrow body belt portion, a second narrow body belt portion having third and fourth opposite ends, a second narrow body crotch portion having a third end secured to said second body belt portion approximately at a mid-point of the length of said second narrow body portion and a fourth end which is free of any connection to said second narrow body portion; one end of each of said first and second narrow body belt portions has a belt buckle thereon with the opposite end of each of said first and second narrow body belt portions being free of a belt buckle whereby the end of said first narrow body belt portion which is free of a belt buckle is secured to the belt buckle of the second narrow body belt portion and the free end of the body belt portion of the second narrow body belt is secured to the belt buckle of the first narrow body belt portion to form a composite body belt, said second end of said first narrow body crotch portion and said fourth end of said second narrow body crotch portion having means to secure each to the other to form a single crotch body portion.

5,212,840

STABILIZING TOILET SEAT GUIDE

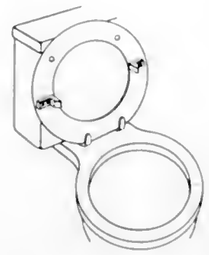
Leroy Caldwell, 110 Big Oak Cir. S., Stockbridge, Ga. 30281

Filed Sep. 26, 1991, Ser. No. 765,998
Int. Cl.[5] A47K *13/04*
U.S. Cl. 4—237 13 Claims

1. A device for stabilizing a toilet seat in its desired position

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atop a toilet bowl, comprising at least one restraining means connectable to the bottom of the toilet seat for preventing lateral movement of the toilet seat relative to the toilet bowl, wherein the restraining means extends downward into the toilet bowl so as to rest immediately adjacent to an upper inside rim of the toilet bowl when the toilet seat is in its lowered position and further comprising a tapered portion on the restraining means to guide the toilet seat onto the toilet bowl, a



substantially level portion connectable to the bottom of the toilet seat to support the toilet seat and to connect the toilet bowl while separating the toilet seat from the toilet bowl when the seat is in the lowered position, and an edge portion located between the tapered portion and the level portion that is substantially perpendicular to the level portion and that is substantially parallel to the inside edge of the toilet bowl when the seat is in the lowered position, to stabilize the toilet seat by preventing lateral movement.

5,212,841

CARRY-COT AND CASE

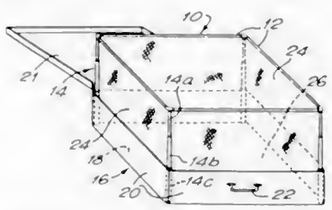
George J. Binnersley, 30 Slaidburn Street, London, SW10 OJP, United Kingdom

Filed Jan. 14, 1992, Ser. No. 777,380

Claims priority, application United Kingdom, May 24, 1989, 8911943.2

Int. Cl.[5] A47C *29/00*

U.S. Cl. 5—99.1 8 Claims



1. A combination of a collapsible carry-cot and case, the collapsible carry-cot comprising, in an erect form, a plurality of cot walls, a cot base, and telescopic legs supporting the cot walls, each leg being secured in a corresponding corner of the case, each of the cot walls comprising a flexible sheet, each sheet being supported by a cot frame including the telescopic legs, the cot being collapsible to a collapsed form in which the cot is receivable within the case, the case including a base, side walls, a closable lid and carrying means by which the case may be carried, the cot being erectable to stand only within the base of the case when the lid is open, such that the cot base comprises the base of the case.

5,212,842

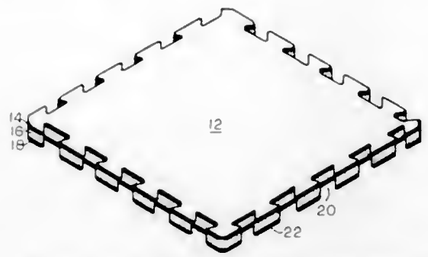
CHILD'S INTERLOCKABLE FOAM PAD, FOAM PAD STRUCTURE AND METHOD

Jon A. Glydon, West Barnstable, Mass., assignor to P1 Consumer Products Corporation, Hyannis, Mass.

Filed Sep. 17, 1992, Ser. No. 946,966

Int. Cl.[5] A63H *33/08;* A47G *9/06*

U.S. Cl. 5—420 11 Claims



1. An interlockable foam pad adapted for use for interlocking with another similar foam pad to form an interlocked foam pad structure comprising a plurality of interlocked foam pads, which foam pad comprises:

a) a core foam layer comprising a flexible foam material having a density of less than about 3 pcf;

b) a top and bottom foam layer bonded to the core foam layer, the top and bottom foam layers comprising a foam material having a foam density of greater than about 5 pcf and having a thickness ranging from about 10 to 25 percent of the thickness of the core foam layer; and

c) the foam pad having at least along one side edge a plurality of alternating, spaced apart, uniform male and female sections, which male and female sections are adapted to interlock with slight hand pressure with male and female sections of an adjacent foam pad to permit a child to push against the top and bottom foam layers to depress the core foam layer so as to form in an easy, effective manner a desired interlocked foam pad structure.

5,212,843

HELMET

Eitaro Kamata, Tokyo, Japan, assignor to Shoei Kako Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 19, 1987, Ser. No. 16,437

Claims priority, application Japan, Dec. 17, 1986, 61-300583

Int. Cl.[5] A42B *3/02*

U.S. Cl. 2—424 10 Claims

2. A helmet comprising:

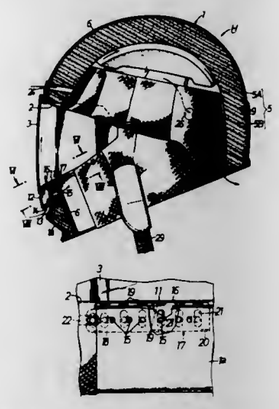
a cap body provided with a chin cover portion extending to define a lower edge of a window opening on a front surface of the body and a shield plate mounted on said cap body for closing the window opening;

a distribution chamber laterally extending in said chin cover portion;

an air introducing port communicating with said distribution chamber and opening to a front surface of said chin cover portion;

a plurality of first jet ports extending from a rear portion of said distribution chamber and opening to a rear surface of said chin cover portion;

a plurality of second jet ports extending from an upper portion of said distribution chamber and opening to a lower surface of the window opening; and



said first and second jet ports being laterally arranged in a first and second row, respectively.

5,212,844

POCKET TOOL WITH RETRACTABLE JAWS

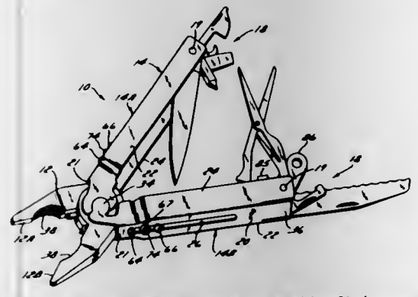
George C. Sessions; Chuck D. Mills, both of Milwaukie; Bradford J. Parrish, Oregon City, and Douglas R. Hutchens, Lake Oswego, all of Oreg., assignors to Fiskars Oy Ab, Helsinki, Finland

Continuation-in-part of Ser. No. 666,367, Mar. 8, 1991, Pat. No. 5,142,721. This application Jul. 28, 1992, Ser. No. 921,307

The portion of the term of this patent subsequent to Sep. 1, 2009, has been disclaimed.

Int. Cl.[5] B25B *7/22*

U.S. Cl. 7—128 16 Claims



1. A tool with retractable cross-jaws capable of being moved into an exposed operating position by imparting inertial force to the tool, said tool comprising:

first and second jaws, each including a working portion and a tang interconnected by a bearing portion, said jaws being pivotally connected at said bearing portions to form said cross-jaws;

first and second handles, each including an internal channel therein;

means for slidably coupling said tangs to said handles for selective movement within said handle channels whereby said jaws can be moved between an exposed operating position and a retracted position; and

releasable biasing means for locking said jaws in said operating position in response to an inertial force imparted to the tool.

5,212,845

PROCESS FOR THE WARP PRINTING OF A DESIGN ONTO A CLOTH AND APPARATUS FOR CARRYING OUT THIS PROCESS

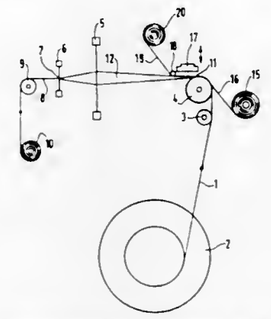
Claude Corbiere, la Tour de Salvagny, France, assignor to Corbiere & Teintureries de la Turdine, France

Filed May 22, 1991, Ser. No. 704,276

Claims priority, application France, May 29, 1990, 90 06896

Int. Cl.[5] D06B *1/10*

U.S. Cl. 8—149.1 6 Claims



1. A process for warp printing a design onto a cloth, wherein a lap of parallel warp yarns is wound onto a beam of a loom for producing cloth by inserting a weft yarn at an insertion point into the lap of warp yarns, said warp yarns continuously travelling from the beam as far as the insertion point, said loom comprising a means for controlling the continuous travel of the warp yarns and the inserting of the weft yarn, said process comprising the steps of;

1) bringing a transfer paper, carrying a dye design capable of being transferred onto said lap of warp yarns when said transfer paper is heated, in proximity with said lap of warp yarns at a position between said beam and said insertion point;

2) causing said transfer paper to travel in a speed ratio with respect to the travel speed of said lap of warp yarns;

3) heating while simultaneously pressing the travelling transfer paper continuously against said lap of warp yarns, while said lap of warp yarns and said transfer paper are travelling in a speed ratio and in proximity to one another, care being taken to direct the travelling transfer paper carrying the dye design towards the lap of warp yarns, while simultaneously transferring said dye design from said transfer paper onto said warp yarns by virtue of said continuous pressure and of dry heat; and

4) receiving separately;

printed cloth obtained by insertion of weft into said warp yarns; and

said transfer paper, having had at least some of the dye design therefrom transferred onto the lap of warp yarns.

5,212,846

VEHICLE RESTRAINT

Norbert Hahn, South Milwaukee, Wis., assignor to Rite-Hite Corporation, Milwaukee, Wis.

Filed Aug. 1, 1991, Ser. No. 738,928

Int. Cl.[5] B65B *21/02;* E01D *1/00*

U.S. Cl. 14—69.5 16 Claims

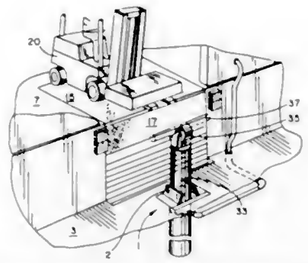
1. A vehicle restraint comprising:

a housing substantially disposed below-ground, said housing having an opening in the top thereof;

a ram slidably mounted in said housing for reciprocating movement relative to the housing, said ram moving between a first stored position inside the housing and a second raised position;

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first means for moving said ram in a substantially vertical direction through said opening between said first stored position inside the housing and said second raised position; and



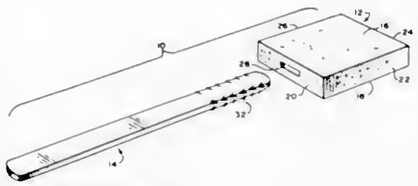
second means attached to said ram for releasably retaining a vehicle when said ram is said second raised position, said second means being stored within said housing when said ram is in the first stored position.

5,212,847

SWAB AND METHOD OF MANUFACTURING AND USING IT

Jerald R. Melcher, Omaha, and Debra A. Speichert, Bellevue, both of Nebr., assignors to Nagl Manufacturing Company, Omaha, Nebr.

Filed Jan. 21, 1992, Ser. No. 823,366
Int. Cl.[5] A47L *13/46*
U.S. Cl. 15—244.1 7 Claims



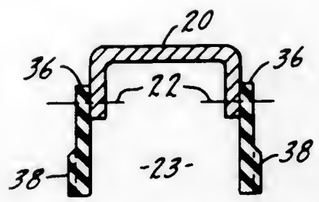
1. A swab comprising:
an applicator pad;
an elongated handle;
said handle including a longitudinal axis, a first end and a second end on said longitudinal axis and a plurality of barb means extending away from said longitudinal axis and from said first end toward said second end;
said pad including an opening substantially conforming in size to the region of said handle adjacent to said first end;
said plurality of barb means being chevron-shaped and formed on the first end of said handle;
said opening being sufficient in size to receive said first end of said handle and the adjacent portion through at least 25 percent of said applicator pad, whereby said barbs, once inserted, engage said applicator pad material within said opening to resist removal of said handle;
said applicator pad and handle being made of a material which is autoclavable without deterioration;
said handle being flat with a length of at least one inch, a width of at least $\frac{1}{4}$ th inch and a thickness of at least 1/64 th inch;
said first end of said handle having a cross-section perpendicular to the longitudinal axis of the handle including four corners and said plurality of barb means being in rows located at each of said corners.

5,212,848

SQUEEGEE BLADE

Robert A. Geyer, Champlin, Minn., assignor to Tennant Company, Minneapolis, Minn.

Filed Mar. 13, 1992, Ser. No. 851,173
Int. Cl.[5] A47L *5/24*
U.S. Cl. 15—401 7 Claims



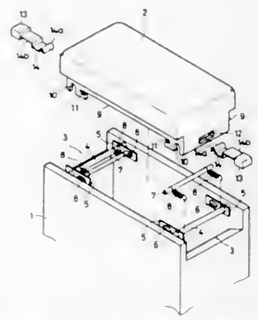
1. A flexible squeegee blade having a generally rectangular solid shape with a length, a width which is less than the length, and a thickness which is less than the width, said blade having first and second opposed side surfaces with dimensions equal to the length and width of the blade, and at least one edge surface with dimensions equal to the length and thickness of the blade, intersections between the first and second side surfaces and the one edge surface, the second side surface having a series of protuberances along its length with non-protruding spaces between them, said protuberances extending from adjacent the edge of the second side surface where said second side surface intersects said one edge surface and extending in the width direction of the second side surface for a distance which is less than the width of the squeegee blade.

5,212,849

DEVICE FOR OPENING AND SHUTTING LID

Masahiro Aihara, Isehara, Japan, assignor to Kato Hatsujo Kaisha, Ltd., Kanagawa, Japan

Filed Oct. 1, 1991, Ser. No. 769,641
Claims priority, application Japan, Dec. 17, 1990, 2-411052
Int. Cl.[5] E05D *15/50*
U.S. Cl. 16—232 2 Claims



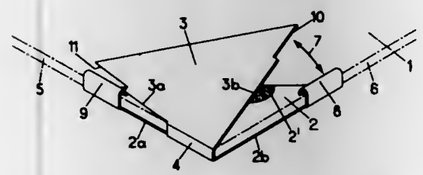
1. A device for opening and shutting in two directions a lid disposed rotatably over an opening of a box body, which comprises:
a pair of rotary shafts and a pair of lock shafts severally disposed in opposite lateral parts of the opening of the box body;
spring means interconnecting said rotary and lock shafts on the respective sides thereof and urging said lock shafts toward the corresponding rotary shafts;
opposite lateral parts of the lid having first engaging holes for engagement with said pair of rotary shafts and second engagement holes for engagement with said pair of lock shafts severally formed therein;
two pairs of brackets having oblong guide holes, each pair of brackets being rotatably disposed one bracket each on the opposite end parts of said rotary shafts, the opposite end parts of said lock shafts being idly inserted one each for reciprocation in said oblong guide holes; and
a pair of operating members, one for each shaft, for causing said lock shafts to be moved away from the corresponding rotary shafts against the resilient force of said spring means and producing a pressing action, thereby enabling said lock shafts to be independently released from the corresponding second engaging holes.

5,212,850

DEVICE FOR HOLDING SEVERAL LEAVES TOGETHER

Nathalie Rerolle, Paris, France, assignor to In The Pocket, Lyons

Filed Nov. 12, 1991, Ser. No. 791,030
Claims priority, application France, Nov. 12, 1990, 90 13998
Int. Cl.[5] B42F *1/12*
U.S. Cl. 24—67 AR 11 Claims



1. A holding device for a plurality of leaves forming a file including a first leaf and a last leaf, comprising:
(a) an upper element having an inner face which is adapted to press against the first leaf only at a corner of the file to be held;
(b) a lower element having an inner face which is adapted to press against the last leaf only at the corner of the file to be held;
(c) a hinge-forming part between the upper and lower elements and arranged along a first side of the upper element and along a first side of the lower element, said first sides being parallel with a first side of the file of leaves;
(d) a primary resilient interlocking component on the inner face and along a second side of the upper element, parallel with a side contiguous to the first side of the file;
(e) a secondary resilient interlocking component on the inner face and along a second side of the lower element corresponding to the second side of the upper element, adapted to cooperate with the primary component by resilient interlocking in releasable manner, so as to hold the upper and lower elements in assembled position with said upper and lower elements exerting compression forces on the file and locating the leaves of the file,
the upper and lower elements being flat, and
the first and second sides of said upper and lower elements being shorter than the respective first and second sides of the file of leaves.

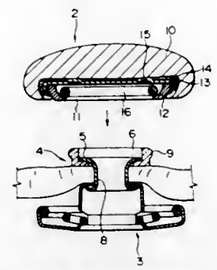
5,212,851

SNAP-FIT BUTTON

Hirokazu Wantanabe, Toyama, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Jun. 1, 1992, Ser. No. 890,796
Claims priority, application Japan, May 31, 1991, 3-48741[U]
Int. Cl.[5] A44B *17/00*
U.S. Cl. 24—108 2 Claims

1. A snap-fit button comprising:
(a) a button body having on its front surface an ornamental;
(b) a snap member;
(c) a connecting member with which said button body and snap member are adapted to be connected;
(d) a locking ring having on and along its outer peripheral portion a ridge and attached to a flange of said connecting member;



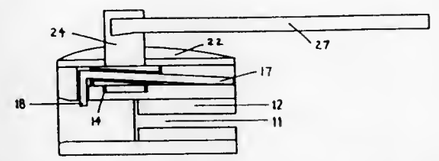
(e) a socket having an aperture for receiving said locking ring and having a taper diverging from an edge of said aperture toward a back surface of said button body, said socket being secured to the back surface of said button body; and
(f) a ring-shape spring disposed in said socket for resiliently engaging said locking ring.

5,212,852

SAFETY FASTENER

Georg Zachres, Heuchelheimerstr. 20, D-6380 Bad Homburg, Fed. Rep. of Germany

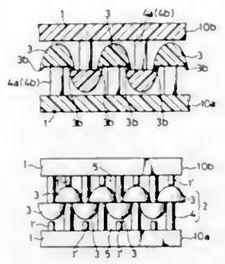
Filed Apr. 16, 1992, Ser. No. 869,727
Claims priority, application Fed. Rep. of Germany, Apr. 16, 1991, 4112319
Int. Cl.[5] A44B *19/00*
U.S. Cl. 24—418 3 Claims



1. A safety fastener that includes a slide for selectively opening and closing teeth of said fastener, said fastener further comprising:
leg means for said slide, with a pin means being mounted in said leg means such that it is displaceable at right angles to said slide;
a spindle for shifting said pin means between two end positions, namely a first end position where said pin means extends into said teeth of said fastener, and a second end position where said pin means releases said teeth;
a wire that is connected to said pin means and extends approximately parallel to said slide; and in which said spindle is provided with a thread on an outer periphery thereof, with said wire being disposed in said thread, and said spindle is further provided with an actuating handle; and
said pin means has a length that is coordinated with the pitch of said thread of said spindle such that a 180° rotation of said spindle moves said pin means from one of said end positions to the other of said end positions thereof.

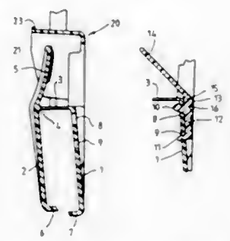
VOL 1150 ISS 4 MY 25 1993 UMI

5,212,853
SEPARABLE PLASTIC FASTENER AND METHOD AND APPARATUS FOR MANUFACTURING THEREOF
Yoshio Kaneko, Yokohama, Japan, assignor to Nifco Inc., Yokohama, Japan
Filed Mar. 10, 1992, Ser. No. 847,270
Int. Cl.[5] A44B *18/00*
U.S. Cl. 24—452 5 Claims



1. A separable plastic fastener which comprises:
a pair of fastener pieces each including a flat base and a plurality of engagement projections provided on and integral with said base and arranged in a plurality of lateral and longitudinal rows, said engagement projections having heads of a uniform shape and a uniform size, each of said heads being supported on said base via a pair of opposed leg pieces united at the upper end thereof to opposed bottom surface edge portions of said head wherein each of said heads of said engagement projections has a tunnel-like cavity extending perpendicularly to a plane containing and parallel to said two leg pieces and open at its bottom and opposite sides and wherein each of said heads of said engagement projections has four bottom edge portions defined by said two leg pieces and said tunnel-like cavity and formed with respective downward directed wedge-like projections.

5,212,854
CLIP FOR GARMENT HANGER
Joseph C. Hollis, East Bentleigh, Australia, assignor to Spotless Plastics Pty. Ltd., Victoria, Australia
Filed Jul. 15, 1991, Ser. No. 730,258
Int. Cl.[5] A44B *21/00*
U.S. Cl. 24—487 6 Claims

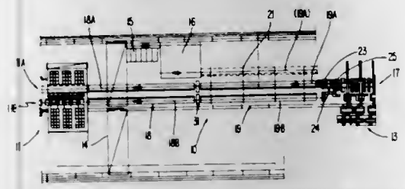


1. A clip for a hanger said clip comprising:
a fixed jaw;
a moveable jaw;
an integral flexible hinge interconnecting said moveable jaw and said fixed jaw;
an actuator arm extending from said moveable jaw to enable said moveable jaw to be manually separated from said fixed jaw; and
a spring means for biasing said moveable jaw toward said fixed jaw to provide a gripping force, wherein said spring means comprises an anchoring portion and a spring portion,
said anchoring portion having projection means positioned and configured to engage anchoring openings formed in said fixed jaw,
said spring portion extending from said anchoring portion and being substantially planar and configured to act in the nature of a leaf spring,
said spring portion being oriented to engage said actuator arm to provide a closing force to said moveable jaw.

5,212,855
MULTIPLE BUTTON CLOSURE-FASTENER
Leo F. McGanty, 186 Long Hill Rd., Bolton, Mass. 01740
Filed Aug. 5, 1991, Ser. No. 740,134
Int. Cl.[5] A44B *17/00*
U.S. Cl. 24—580 7 Claims

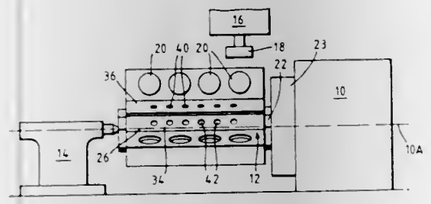
1. A separable flexible closure-fastener means comprising a series of adjacent round, conical-shaped male buttons, such buttons protruding from an integral planar surface forming a button strip, said button strip being formed on a deformable plastic sheet, such male buttons coaxially opposing a strip of female buttons, such strip of female buttons being cavities in an integral planar surface having the same shape as the male buttons being round and conical, said female button strip being formed on a deformable plastic sheet; the male buttons on being pushed into said female buttons past an annular ridge in the female buttons to the fully engaged and closed position accomplish a liquid and hermetic seal, said seal being caused by the annular curves on the male buttons engaging the annular curves on the female buttons, said male button annular curves located at the largest diameter of the male buttons, said female button annular curves located at the largest diameter of the female buttons, said liquid and hermetic seal being created by having said annular curves on the male buttons of less distance from the planar surface of said male button strip, said planar of said male button strip being closest to the largest diameter on the male buttons, said annular curves on the female buttons a greater distance from the planar surface of said female button strip, said planar surface of said female button strip being closest to the largest diameter of the female buttons, said both male button annular curves and female button annular curves pulling against each other will cause the planar surface closest to the largest diameter of the male buttons and the planar surface closest to the largest diameter of the female buttons to become tightly engaged to effect a complete liquid and hermetic seal across the engaged male button strip and female button strip.

5,212,856
TUNNEL SYSTEM FOR A HOT STRIP ROLLING MILL LINKED TO THE CONTINUOUS CASTING OF THIN SLABS
Bruno Di Giusto, and Alessandro Dorigo, both of Udine, Italy, assignors to Danieli & C. Officine Meccaniche SpA, Buttrio, Italy
Filed Feb. 7, 1992, Ser. No. 832,478
Claims priority, application Italy, Feb. 19, 1991, UD91A000023; Mar. 20, 1991, UD91A000046
Int. Cl.[5] B21D *1/46, 13/22*; B22D *11/12*
U.S. Cl. 29—33 C 13 Claims



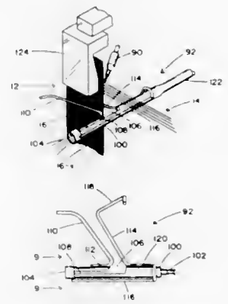
1. A system for continuous casting of thin slabs and hot strip rolling thereof, comprising:
a continuous casting plant having at least one continuous casting line for casting of thin slabs along an axis;
at least one first insulated tunnel provided downstream of and operably connected to said at least one continuous casting line and extending longitudinally along said axis;
at least one second temperature equalization furnace tunnel provided downstream of and operably connected to said at least one first insulated tunnel, wherein said at least one second temperature equalization furnace tunnel has a first working position extending along said axis; and
a rolling mill downstream of and operably connected to said at least one second temperature equalization furnace tunnel.

5,212,857
MODULAR MULTI-FIXTURING SYSTEM FOR A MACHINE TOOL
David R. McMurtry, Wotton-Under-Edge, United Kingdom, assignor to Renishaw plc, Gloucestershire, United Kingdom
PCT No. PCT/GB90/01460, § 371 Date May 22, 1991, § 102(e) Date May 22, 1991, PCT Pub. No. WO91/04127, PCT Pub. Date Apr. 4, 1991
PCT Filed Sep. 21, 1990, Ser. No. 689,748
Claims priority, application United Kingdom, Sep. 22, 1989, 8921449; Nov. 30, 1989, 8927043
Int. Cl.[5] B23Q *7/02*
U.S. Cl. 29—38 C 19 Claims



1. A machine tool comprising:
a machining spindle for carrying a cutting tool;
a head on which a workpiece is to be mounted, the head being indexable about an axis of rotation to bring a workpiece mounted thereon into machining relationship with the cutting tool;
a tailstock;
an elongate core having a longitudinal axis;
means for mounting the core on the head for rotation therewith about said axis of rotation, the core extending between the head and the tailstock with its longitudinal axis coincident with said axis of rotation;
the core having a plurality of radially outwardly disposed faces on its periphery extending parallel to the longitudinal axis of the core, each face having locating surfaces which extend longitudinally of the core to overlie, at least in part, said face;
a plurality of workpiece-providing cassettes configured to engage the locating surfaces of the core;
the location of the faces with respect to the tailstock being such that the workpiece-providing cassettes are loaded onto the core past the tailstock by an axial sliding movement of the cassettes in a direction parallel to the longitudinal axis of the core.

5,212,858
APPARATUS FOR CAPTURING AND STABILIZING A YARN
Larry D. Anderson, Appleton, Wis., assignor to Asten Group, Inc., Charleston, S.C.
Continuation of Ser. No. 472,734, Jan. 31, 1990. This application Jun. 11, 1991, Ser. No. 713,961
Int. Cl.[5] D06H *5/00*
U.S. Cl. 28—141 19 Claims



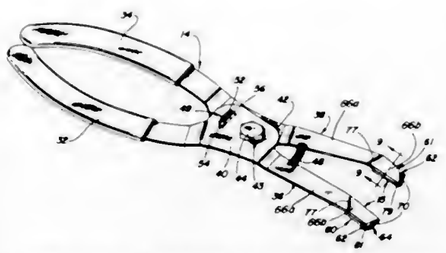
1. An apparatus for capturing and stabilizing a yarn prior to interweaving thereof, said apparatus comprising a generally tubular body having at least one open end and a bifurcated portion forming a slot, a side opening, the slot communicating with said side opening, said slot extending from the side opening to the open end allowing the yarn to move between the side opening and the open end.

5,212,859
REMOVAL TOOL FOR SNAP RINGS AND THE LIKE
Willian K. Hagerty, 605 E. Norwood Pl., Alhambra, Calif. 91801
Filed Jul. 23, 1992, Ser. No. 919,059
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—229 30 Claims

1. A pliers for installing or removing a snap ring having beveled open end portions terminating in opposed pointed tips comprising:
a pair of handles pivotally connected to each other;
a pair of jaw members integrally formed with said handles and extending outwardly therefrom, wherein each jaw member is formed having a disposed free end;
a pivot means positioned intermediate said handles and said jaw members whereby inward movement of the handles causes the jaw members to move outwardly to an open position and outward movement of the handles causes the jaw members to move inwardly to a closed position;
a positive engaging socket member carried on each of said free ends of the jaw members, each of said socket members having an open convergent socket which converges

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in the direction of inward jaw movement, each of the convergent sockets being constructed and arranged to receive and extends over a respective pointed tip of a snap ring for locking said tip within the convergent sockets and preventing inadvertent disengagement of the snap ring from the pliers when the jaw members are moved outwardly to separate the open end portions of the snap ring; and



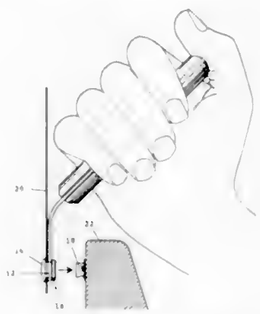
a biasing means for biasing said jaw members in a normally open position so as to forcibly engage each of said socket members with the respective open end portions and tip ends of the snap ring, thereby preventing the snap ring from accidentally disengaging from said convergent sockets.

5,212,860

TOOL FOR ATTACHING FABRIC TOP TO BOAT COCKPIT FROM INSIDE THE BOAT

Roger C. Lakey, 576 N. Tomahawk Island Dr., Portland, Oreg. 97217

Filed Jun. 5, 1992, Ser. No. 893,938
Int. Cl.[5] B25B *27/00*
U.S. Cl. 29—270 **5 Claims**



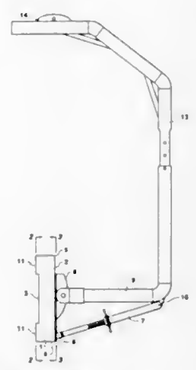
1. For use with a boat having:
a cockpit with complementary fastener elements thereon;
arched frames spaced above said cockpit;
and a flexible fabric top designed to be installed by extending said top from front to back and side to side over said frames and said cockpit, said top having fastener elements at said top's edges for attachment to said complementary fastener elements on the outside of said edges of the front, sides, and back of said cockpit;
a tool with means for pulling said fabric top into proper position for attachment from inside said boat cockpit, said attachment being accomplished by said tool engaging and grasping a bell-shaped portion of said fastener element located on the inside of said fabric top at said top's said edges, positioning said bell-shaped portion over said complementary fastener element and closing said fastener elements comprising:
an elongated flat rigid blade;
a notch in one end of said blade, said notch being shaped in a manner to provide means for said tool to engage and grasp said bell-shaped portion of said fastener element by sliding said notch and said blade behind said bell-shaped portion;
a handle on the other end of said blade;
means to angularly attach said blade to said handle to provide a firm and comfortable grip for a person's hand to pull on said fabric top;
said blade having an unobstructed flat length slightly more than the distance from said top edge of said cockpit to said complementary fastener element located outside said cockpit edge so that when a person pulls down on said tool, said blade pulls said fabric top in such a direction as to align said fastener element with said complementary fastener element so that said fastener elements can be closed;
said blade having sufficient stiffness to resist a bending moment while closing said fastener elements.

5,212,861

OIL PUMP INSTALLATION AND REMOVAL TOOL

Raymond D. Bevills, Centerville, La., assignor to Exxon Production Research Company, Houston, Tex.

Filed Apr. 24, 1991, Ser. No. 690,465
Int. Cl.[5] B25B *27/14*
U.S. Cl. 29—281.1 **5 Claims**



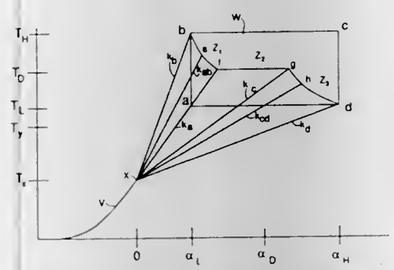
1. An apparatus comprising:
a) a bracket having a first face and an oppositely facing second face, a first edge and a second edge, a first means positioned on the first face near the first edge of the bracket for pivotally connecting a first arm, and a second means positioned on the first face between the first means and the second edge for pivotally connecting a second arm;
b) a first arm, being of adjustable length, connected to the first face of the bracket at the first means;
c) a second arm, connected to the first face of the bracket at the second means, wherein both the first arm and the second arm are pivotally connected to the bracket and are pivotally connected to each other, such that said first arm and second arm are pivotable with respect to the second face of the bracket in substantially the same plane, and such that the first arm and the second arm extend outwardly away from the bracket; and
d) a frame having a first portion extending vertically upward from the second arm, and, at a spaced apart distance from the second arm, a second portion which bends away from the first portion such that the frame has a portion of its length which doubles back with respect to the second arm to overlie the second arm, wherein the frame has the shape of an upside-down "L" and wherein means for attaching the frame to a support are located on the second portion of the frame overlying the second arm.

5,212,862

TORQUE-ANGLE WINDOW CONTROL FOR THREADED FASTENERS

Siavash Eshghy, Solon, Ohio, assignor to Allen-Bradley Company, Inc., Milwaukee, Wis.

Continuation of Ser. No. 594,532, Oct. 9, 1990, Pat. No. 5,131,130. This application Jun. 2, 1992, Ser. No. 889,932
Int. Cl.[5] B23Q *17/00*
U.S. Cl. 29—407 **5 Claims**



1. A method of tightening in seriatim a multiplicity of substantially identical joints, each said joint including at least one threaded fastener pair, said method comprising:
defining an upper limit of each of a first characteristic and of a second characteristic for said joints, said first characteristic being torque applied to a fastener pair of a joint and said second characteristic being a turning angle applied to said fastener pair;
tightening a fastener pair with an instructable powered tool;
measuring values of torque and values of turning angle as said fastener pair is being tightened;
determining a stopping parameter for said fastener pair being tightened from said measured values of torque and turning angle as a quantification of one of said characteristics, said stopping parameter being determined to yield projected final values of torque and turning angle, when tightening is terminated which are within a range of acceptable torques and turning angles for said fastener pair;
monitoring the measured values of said one of said characteristics for the attainment of said stopping parameter;
monitoring the measured values of the other of said characteristics and comparing said measured values of said other of said characteristics to the upper limit of said other of said characteristics; and
instructing the tool to terminate tightening at the first to occur of either: a) a measured value of said one of said characteristics attaining or exceeding said stopping parameter; or b) a measured value of said other of said characteristics approaching within a certain limit of or exceeding the upper limit of said other of said characteristics.

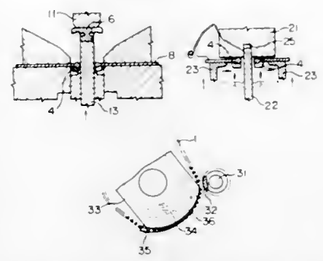
5,212,863

METHOD FOR FORMING ELEMENT-FREE SPACES IN SLIDE FASTENER CHAIN

Masao Matsumoto, Toyama, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Apr. 21, 1992, Ser. No. 871,728
Claims priority, application Japan, May 13, 1991, 3-202618[U]
Int. Cl.[5] B21D *53/50*
U.S. Cl. 29—408 **3 Claims**

1. A method for forming element-free space sections in a slide fastener chain including a pair of rows of interengaged discrete coupling elements mounted on confronting edges of a pair of fastener tapes, said method comprising the steps of:
cutting legs of interengaged discrete coupling elements at predetermined sections of said slide fastener chain provided with coupling elements by use of a punch and cutters to separate each head from one leg of forked legs of the individual coupling elements;



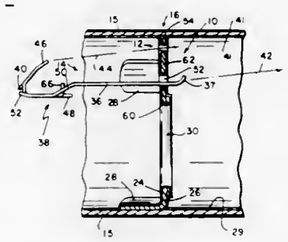
pushing up said heads of said coupling elements from the cutting side in the direction orthogonal to fastener tape faces by a knock-out rod to remove the other leg and said heads of said coupling elements from said fastener tapes; and
gripping at least some of the cut legs remaining on fastener tapes by grippers to draw-out and remove at least some cut legs in the direction orthogonal to said fastener tape faces.

5,212,864

NOZZLE RESTRICTOR ASSEMBLY AND METHOD OF INSTALLING SAME

Dale Bates, Columbus; Daniel N. Smith, North Vernon, and Richard F. Little, Columbus, all of Ind., assignors to Arvin Industries, Inc., Columbus, Ind.

Filed Sep. 4, 1991, Ser. No. 754,531
Int. Cl.[5] B67C *3/34*
U.S. Cl. 29—434 **29 Claims**



1. A method for installing a restrictor assembly in a fuel filler tube, the fuel filler tube having an inner surface and an open end configured to receive a fuel cap, the restrictor assembly including a restrictor plate and a closure plate having a closure portion, the method comprising the steps of:
attaching the restrictor plate to the inner surface of the fuel filler tube, thereby forming a subassembly, the restrictor plate including an opening allowing passage of a fuel filler nozzle therethrough during refueling, and a first slot sized to receive the closure portion;
coating the subassembly;
inserting the closure portion through the first slot;
positioning the closure portion such that said closure portion blocks the opening; and
maintaining the closure portion in this position blocking the opening.

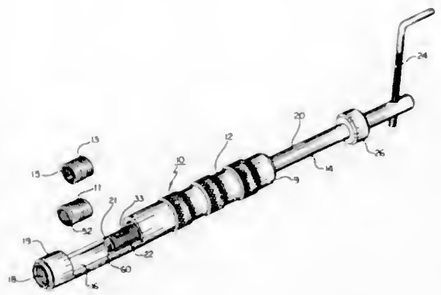
VOL 1150 ISS 4 MY 25 1993 UMI

5,212,865

TOOL FOR INSTALLATION OF TANGED AND TANGLESS WIRE INSERTS

Richard L. Davis, Alexandria, Va., and Frank J. Cosenza, Santa Barbara, Calif., assignors to USI Corporation, Chantilly, Va.

Filed Jul. 20, 1992, Ser. No. 915,207
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—240.5 4 Claims



1. A tool for inserting either a tangless or tanged helically coiled insert in a tapped hole, the tangless helically coiled insert having at least one free end with a recess in the inner thread of the free end and said tanged insert having a tang at one end thereof said tool comprising:

a tubular body of substantially circular cross-section, said body including a portion at one end thereof having an aperture therein adapted to receive either a tangless or tanged helically coiled insert;

a mandrel insertable into said tubular body and adapted to receive the tanged or tangless insert for installation in the tapped hole, said mandrel having a portion with a cavity therein;

driving means at one end of said mandrel for applying a torque sufficient to move said mandrel forward in a first direction to install either the tanged or tangless insert in a tapped hole, said mandrel having a threaded portion at an end opposite said driving means and adjacent said body aperture for threading the tangless and tanged helically coiled inserts thereupon, said mandrel threaded portion having a nose portion with a device to engage the tang of a tanged insert formed thereon;

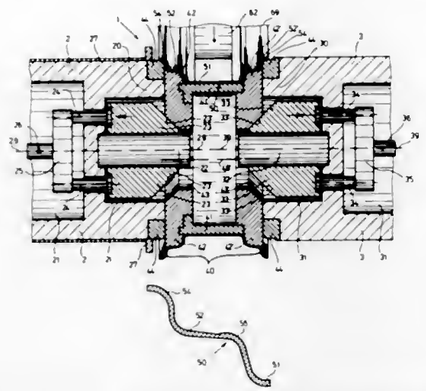
a pivotable pawl having a laterally projecting hook means biased in a first direction and extending longitudinally in said mandrel cavity adjacent said mandrel threaded portion, said pawl having a free end with means laterally projecting adapted to project through an opening formed in said mandrel for automatically locating said pawl within the tangless insert at the insert recess as said mandrel is rotated in a clockwise direction, said pivotable pawl engaging the recess in said tangless helically coiled insert if said tangless helically coiled insert is received in said aperture whereof said mandrel is engaged with said tangless insert for simultaneous movement of said mandrel and said tangless insert, said nose engagement device engaging the tang portion of said tanged insert if said helically coiled tanged insert is received in said aperture whereby said mandrel is engaged with said tanged insert for simultaneous movement of said mandrel and said tanged insert.

5,212,866

METHOD FOR THE MANUFACTURING OF A DEEP-BED WHEEL RIM

Helmut Wenzel, Beckum, and Karl-Heinz Köstermeier, Rietberg, both of Fed. Rep. of Germany, assignors to Leifeld GmbH & Co., Ahlen, Fed. Rep. of Germany

Filed Jan. 22, 1992, Ser. No. 823,634
Claims priority, application Fed. Rep. of Germany, Jan. 25, 1991, 4102139
Int. Cl.[5] B21H *1/10*
U.S. Cl. 29—894.354 4 Claims



1. A method for the manufacture of a deep-bed wheel rim from a hollow cylindrical metal preform having a central portion and side portions, said wheel rim being adjoined toward the sides by a bead seat with a hump, and at the outer sides by a bead flange, the method comprising:

mounting the preform once on a single apparatus;

drawing in the center portion of the preform to form a recessed bed of the wheel rim by a concentric rotation of the preform in the apparatus and of a tool, said tool being made up of a plurality of parts;

widening a side portion of the preform to form a bead seat by a steadily increasing radial displacement of the axis of rotation of the preform, up to an established maximum, together with a tool part of said tool for the rim bed and bead seat shifting accordingly in the plane perpendicular to the axis of rotation of the preform;

at least during the widening, pressing in a single inward radial direction, the direction of displacement of the axis of rotation of the preform corresponding to the direction of pressing; and

forming a hump in an area of the bead seat while the bead seat retains a substantially unchanged diameter.

5,212,867

METHOD AND UNIT FOR FILLING ELECTROCHEMICAL CELLS

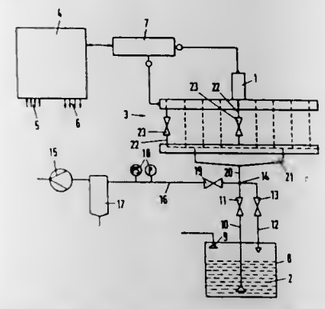
Karl-Wilhelm Vogel, Willingen, Fed. Rep. of Germany, assignor to Accumulatorenwerke Hoppecke Carl Zoellner & Sohn GmbH & Co. KG, Brilon, Fed. Rep. of Germany

Filed Dec. 1, 1989, Ser. No. 518,559
Claims priority, application Fed. Rep. of Germany, Apr. 19, 1989, 3912846
Int. Cl.[5] H01M *2/36*
U.S. Cl. 29—623.1 5 Claims

1. A method of filling electrochemical cells, with an electrolyte, including the steps of:

first evacuating said cells and simultaneously checking same for short circuits, whereby for any cell determined to have a short circuit, the further filling process is terminated; and

after the final vacuum level has been achieved in said cells, subsequently filling same with said electrolyte while simultaneously monitoring the electrical voltage at said



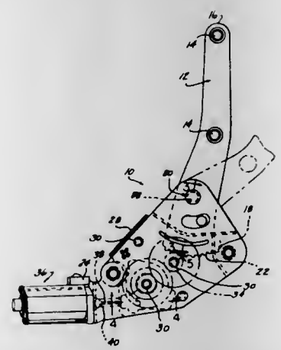
cells, whereby for any cell determined to have a deviation from a prescribed voltage range, the filling process is terminated.

5,212,868

METHOD OF MAKING AN ADJUSTABLE SEAT RECLINER APPARATUS

Kirk E. Morris, Davisburg, Mich., and Andrew J. Stribling, St. Thomas Elgin, Canada, assignors to ITT Corporation, New York, N.Y.

Division of Ser. No. 658,136, Feb. 20, 1991. This application Feb. 6, 1992, Ser. No. 832,135
Int. Cl.[5] B23P *11/00*
U.S. Cl. 29—437 10 Claims



6. A method for constructing a seat recliner apparatus for adjusting the relative inclination of two elements comprising the steps of:

forming a first member having first and second ends;

forming a slot in a second member; and

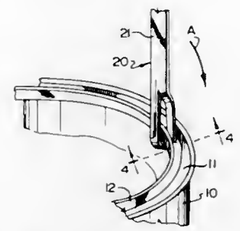
pivotally connecting the first member to the second member through the slot in the second member for allowing adjustable inclination of the first member relative to the second member, the connecting step further including the step of angularly staking at least one tenon extending outwardly from a rivet to the second member, such that a first edge of the tenon, farthest from the first end of the first member, is disposed in registry with the second member and a second, diametrically opposed, edge of the tenon is located further from the second member than the first edge of the tenon such that an end surface of the tenon between the first and second edges is disposed at an acute angle with respect to the second member to urge the rivet and connected first member in a predetermined direction.

5,212,869

PAINT CAN RIM PERFORATING TOOL AND PAINT CAN PERFORATED THEREBY

Walter Zacharchuk, 28 B Bayshore Drive, Nepean, Ontario, Canada K2B 6M8

Filed May 26, 1992, Ser. No. 887,896
Int. Cl.[5] B67B *7/46*
U.S. Cl. 30—366 5 Claims



1. A pry-type hand tool for making perforations in the bottom wall of a channel formed in the top rim of a paint can in which such channel is used for mounting a lid thereon, said tool comprising a handle and bifurcated end part at one end of said handle, said bifurcated end part including two legs laterally and longitudinally offset from one another, one of said legs having an inwardly turned end portion extending in a direction toward the other of said legs, said inwardly turned portion providing a shallow longitudinal channel for nestingly receiving therein an underside portion of the channel in said paint can rim, said other leg having a sharpened tip for piercing through said bottom wall of said channel and a sharpened longitudinal edge for cutting through such wall, said sharpened edge being generally aligned with the longitudinal direction of said shallow channel, said sharpened tip being located on said other leg at a position remote from said one leg, said shallow channel and longitudinal sharpened edge being spaced from one another and sloped relative to one another in opposite directions diverging outwardly from one another in a direction away from the handle, said sharpened piercing tip, shallow channel and longitudinal sharpened edge being disposed relative to one another such that said inwardly turned end, defining said shallow channel, initially engages the underside of the bottom wall of said channel of said paint can rim and at a position nearest said other leg when said sharpened piercing tip engages the bottom wall of said channel prior to piercing such wall.

5,212,870

EDGE PLANER

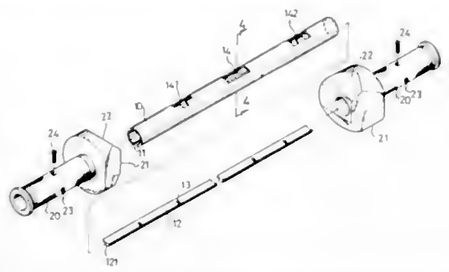
Chih-Sung Chi, No. 37-7, Hsiapu Lane, Taiping Rd., Taiping Hsiang, Taichung Hsien, Taiwan

Filed Jun. 1, 1992, Ser. No. 891,945
Int. Cl.[5] B27G *23/00*
U.S. Cl. 30—481 4 Claims

1. An edge planer comprising a tube including two end portions and including a slot longitudinally formed therein and at least one blade edge formed therein opposite to said slot, a strip engaged in said slot and including a plurality of first screw holes formed therein and a rib longitudinally formed in a bottom portion thereof for engagement within said slot of said tube, a handgrip engaged on each of said end portions of said tube and including a plurality of second screw holes formed therein, and engaging means for fixing said handgrips and said strip together including a plurality of screws engaged through

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said first screw holes and said second screw holes so that said handgrips and said strip are fixed together, whereby, said blade



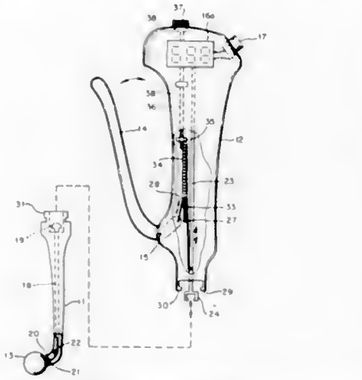
edge is located between said handgrips in order to plane an edge portion of a workpiece.

5,212,871

MEASURING DEVICE FOR AN ORTHODONITIC BAND

Steven J. Luccarelli, 953 Highland Ave., Pelham Manor, N.Y. 10803

Filed May 28, 1992, Ser. No. 890,657
Int. Cl.[5] G01B *3/10, 5/08;* A61B *5/107;* A61C *19/04*
U.S. Cl. 33—555.4 13 Claims



1 A device for measuring the circumference of a tooth or other object, comprising:

a longitudinally extending handle having a first end, a second end, and a hollow interior;

a sterile head portion demountably coupled to said first end of said handle and having at its free end an aperture that is offset from the longitudinal axis of said handle;

a sterile band having two ends slidably disposed within said head portion and a central portion projecting outwardly from the aperture of the head portion for encircling the tooth or other object, said head portion and said band being readily detachable from said handle for sterilization;

lever operated tightening means pivotally connected to said handle and operatively connected to said ends of said band, said lever being pivoted toward said handle to retract said band through the aperture of the head into the hollow interior so that said loop is tightened around the tooth or other object;

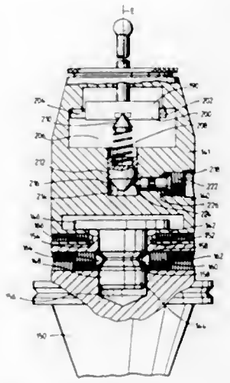
display means mounted on said handle and coupled to said tightening means for indicating the circumference of the tooth or other object.

5,212,872

TOUCH PROBE

Martin P. Spivey, Essex; Stephen J. Trull, and David R. McMurtry, both of Gloucestershire, all of United Kingdom, assignors to Reinshaw plc, Gloucestershire, England

Division of Ser. No. 495,751, Mar. 19, 1990, Pat. No. 5,040,931.
This application Jun. 13, 1991, Ser. No. 714,593
Claims priority, application United Kingdom, Mar. 31, 1989, 8907264; May 16, 1989, 8911198; Oct. 21, 1989, 8923747
Int. Cl.[5] G01B *7/03, 7/28*
U.S. Cl. 33—558 8 Claims



1. A touch probe comprising:

a housing;

a stylus carrier for supporting a workpiece-contacting stylus, said stylus carrier being supported on the housing in a rest position;

biasing means for providing a biasing force for biasing the stylus carrier into said rest position, the biasing means acting along a first axis and between the stylus carrier and a first member, wherein the distance between the stylus carrier and the first member along said first axis determines the magnitude of the biasing force on the stylus carrier, and wherein the first member is movable relative to the housing along said first axis; and

adjusting means for adjusting the magnitude of the biasing force, said adjusting means comprising a second member, movable linearly relative to said housing along a second axis transverse to said first axis, and means for providing mutual engagement of the first and second members to enable adjustment of displacement of the first member along the first axis by adjustment of the displacement of the second member along the second axis.

5,212,873

POSITION-SENSING PROBE

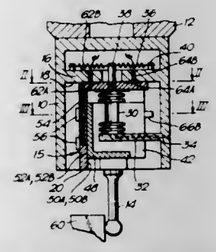
David R. McMurtry, Wotton-Under-Edge, United Kingdom, assignor to Renishaw plc, Gloucestershire, England

Filed Jan. 22, 1991, Ser. No. 643,373
Claims priority, application United Kingdom, Jan. 25, 1990, 9001682
Int. Cl.[5] G01B *5/20*
U.S. Cl. 33—559 19 Claims

1. A measuring probe for use on a coordinate positioning machine, the probe having a fixed structure by which the probe may be supported on a movable arm of the machine, and relative to which a workpiece contacting stylus is movably supported by a support assembly comprising:

a first movable member retained against, and movable in at least a first direction relative to a support member provided on and fixed relative to, the fixed structure;

a second movable member retained on the first movable member for movement therewith in said first direction and supported thereon for movement relative to the first movable member in a second direction transverse to said first direction, the stylus being connectable to the second movable member for movement therewith in said first and second directions;



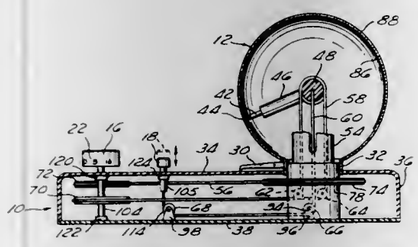
air bearing means for enabling said movement of said second movable member relative to said first movable member in said second direction, wherein air for said air bearing means is supplied from a duct on the support member via at least one air pathway provided on said first movable member.

5,212,874

THREE-DIMENSIONAL DRAWING DEVICE

Richard H. Anderson, and Robert R. Anderson, both of P.O. Box 1059, Trabuco Canyon, Calif. 92678

Division of Ser. No. 420,136, Oct. 11, 1989, Pat. No. 5,038,482.
This application Mar. 12, 1991, Ser. No. 668,193
The portion of the term of this patent subsequent to Aug. 13, 2008, has been disclaimed.
Int. Cl.[5] B43L *13/00*
U.S. Cl. 33—21.2 4 Claims



1. A three-dimensional drawing device comprising:

(a) a substantially transparent hollow three-dimensional drawing surface extending approximately 360° in altitude;

(b) a powder material disposed within said three-dimensional drawing surface, said powder material adhering to the inner surface of said three-dimensional drawing surface when it comes into contact therewith;

(c) a powder removal means disposed within said three-dimensional drawing surface for selectively removing said powder material therefrom to form images thereon;

(d) control means for positioning said powder removal means upon said three-dimensional drawing surface, said control means comprising:

(i) means for positioning said powder removal means in azimuth comprising a first control knob for positioning said powder removal means relative to said three-dimensional drawing surface in azimuth by rotating said three-dimensional drawing surface about its vertical axis; and

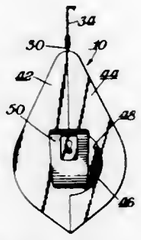
(ii) means for positioning said powder removal means in altitude comprising a second control knob for positioning said powder removal means relative to said three-dimensional drawing surface in altitude by rotating said powder removal means about a horizontal axis which is perpendicular to a longitudinal axis of said powder removal means.

5,212,875

CHALK LINE ASSEMBLY HAVING MULTIPLE LINES AND A MOTORIZED WINDING MECHANISM

Joseph R. Corso, 2334 S. 12th St., Philadelphia, Pa. 19148

Filed Jan. 15, 1992, Ser. No. 821,180
Int. Cl.[5] B44D *3/38*
U.S. Cl. 33—414 28 Claims



1. A chalk line assembly comprising a housing having a plurality of aligned chalk containing chambers, a reel in each of said chambers, each of said reels containing a hollow drum, each of said drums having an axial opening therethrough, a chalk line mounted around each of said drums, an exit opening in each of said chambers, each of said chalk lines having one end anchored to its respective drum and an opposite free end extending from its respective exit opening, said reel drums being aligned with each other and having their axial openings aligned, a shaft slidably mounted axially through said drums, each of said drums having locking structure in its axial opening, said shaft having an outer surface with complementary locking structure for selective engagement with said locking structure of a respective one of said drums to lock said shaft to said respective one of said drums, and means for rotating said shaft to selectively rewind each of said lines on its respective reel.

5,212,876

AUTOMATIC SPIN DRYER

Bradley 1. Berit, Norfolk, Mass., assignor to Sanborn, Inc., Wrentham, Mass.

Filed Jun. 4, 1992, Ser. No. 893,392
Int. Cl.[5] F26B *5/08*
U.S. Cl. 34—58 8 Claims

1. Centrifugal separating apparatus for drying objects, said apparatus comprising

a support including at least three upstanding posts with lateral spaces between the post for providing clearance for a conveyor extending from the dryer in at least one of three directions;

a housing having a annular bottom wall, a side wall and a top wall with an opening therein;

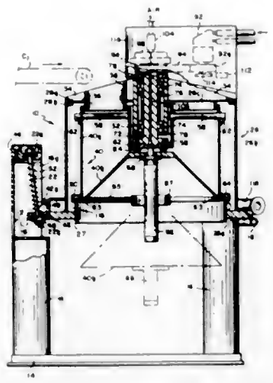
pendulum-type suspension means extending from each of the posts to the housing for suspending the housing between the post;

an open-top basket inside the housing, said basket having a cylindrical side wall and a conical bottom wall which is moveable along a vertical axis between a closed position wherein the periphery of the bottom wall seals against the lower edge of the basket side wall and an open position wherein the bottom wall is spaced depreciably below the basket side wall;

rotating means for rotating said basket about its said axis, and

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moving means for moving said bottom wall between its said positions so that when the bottom wall is in its open posi-



tion, the contents of the basket can fall onto a conveyor positioned underneath said bottom wall.

5,212,877

METHOD OF AND APPARATUS FOR DRYING COATED SUBSTRATES

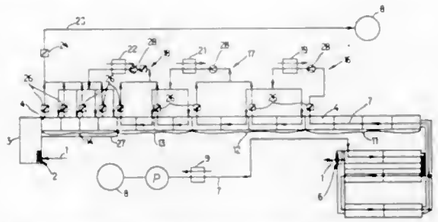
Emin Onur, and Georg Johnke, both of Hamburg, Fed. Rep. of Germany, assignors to Pagendarm GmbH, Hamburg, Fed. Rep. of Germany

Filed Jun. 26, 1991, Ser. No. 721,184

Claims priority, application Fed. Rep. of Germany, Jul. 24, 1990, 4023442

Int. Cl.[5] F26B *3/00*

U.S. Cl. 34—29 14 Claims



1. A method of expelling volatile constituents from an elongated substrate having a coating which contains volatile constituents and is to be dried as a result of expulsion of volatile constituents and from the coating, comprising the steps of moving the substrate in a first direction along a predetermined path having an inlet and an outlet; admitting a stream of inert gas into said path at said outlet and conveying the admitted stream along said path in a second direction counter to said first direction whereby the inert gas entrains volatile constituents from the coating; heating the inert gas to a predetermined maximum drying temperature prior to admission into said path; withdrawing the inert gas and the entrained volatile constituents from said path at said inlet; and conditioning the inert gas between said outlet and said inlet, including cooling the stream of inert gas in a plurality of successive stages to maintain the inert gas slightly below the condition of saturation with volatile constituents not later than at said inlet.

5,212,878

SOLE WITH REMOVABLE INSERT

Robert Burke, Toronto, and James Russell, Scarbourgh, both of Canada, assignors to Bata Limited, Don Mills, Canada

Filed Jan. 31, 1992, Ser. No. 828,607

Claims priority, application Canada, Jul. 19, 1991, 2047433

Int. Cl.[5] A43B *13/28, 13/37, 13/18*

U.S. Cl. 36—27 4 Claims



1. A sole for an article of footwear, comprising a mass of sole-forming material having provided therein a block of material functioning harmoniously with the remaining mass of soleforming material, said block having a pair of elongate side-by-side zig-zag shaped cavities extending transversely therethrough and having an open end, and a pair of user-selectable, removable elongate inserts having a zig-zag shape in end view complementary to the shape of said cavities and fitted snugly in said respective cavities, said inserts being slidable into and out of said cavities through said open end thereof, said inserts being made of a resilient plastics material having the ability to return to substantially to its pre-stressed condition after deflection, whereby said inserts for part of a compression spring system absorbing energy from a wearer on a downward stroke and subsequently returning such energy to the wearer.

5,212,879

METHOD FOR MANUFACTURING A DISPOSABLE-RETRACTABLE FINGER STICK DEVICE

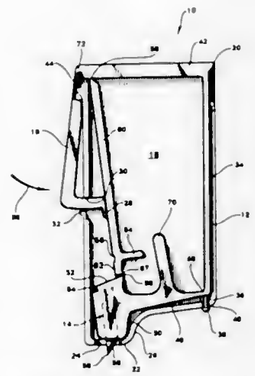
Ladislau Biro, Metuchen; Robert F. Cusack, and Michael D. Mintz, both of Edison, all of N.J., assignors to International Technidyne Corp., Edison, N.J.

Division of Ser. No. 700,592, May 15, 1991, Pat. No. 5,133,730.

This application Apr. 14, 1992, Ser. No. 868,630

Int. Cl.[5] B23P *11/00*

U.S. Cl. 29—437 9 Claims



1. Method of manufacturing a device for making a skin incision, comprising the steps of:

(a) providing a case having an internal hollow, an open end aperture, a open side aperture and an elongated slot located on a surface of said case adapted to be placed flushed against the skin;

(b) molding a monolithic finger stick mechanism having a blade support arm and an actuatable arm whereby said actuatable arm is biased against said blade support arm causing said blade support arm to move when said actuatable arm is manually depressed;

(c) attaching a blade to said blade support arm;

(d) inserting said monolithic finger stick mechanism through said open end aperture into said case, whereby said actuatable arm extends through said open side aperture and said blade support arm holds said blade proximate said elongated slot so that said blade extends through said elongated slot when said actuatable arm is depressed and biased against said blade support arm; and

(e) attaching said monolithic finger stick mechanism to said case.

5,212,880

APPARATUS FOR PACKAGING A SEMICONDUCTOR DEVICE

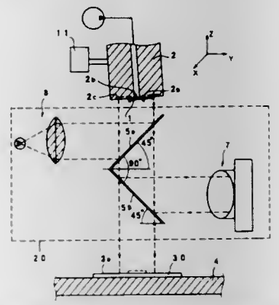
Masanori Nishiguchi, and Atsushi Miki, both of Yokohama, Japan, assignors to Sumitomo Electric Industries, Osaka, Japan

Filed Jun. 18, 1991, Ser. No. 717,015

Claims priority, application Japan, Jun. 19, 1990, 2-160346; Jul. 6, 1990, 2-178721

Int. Cl.[5] B23P *19/04;* B23K *37/04;* H01L *21/60*

U.S. Cl. 29—739 5 Claims



1. An apparatus for packaging a semiconductor device comprising:

a bonding head;

a holding plane on said bonding head, said holding plane being adapted to hold a semiconductor device by sucking a rear surface thereof;

a semiconductor device having a bump electrode formed on a front surface thereof, said semiconductor device being held on said holding plane of said bonding head;

a light reflective plane disposed around the holding plane;

a stage opposed to said holding plane adapted to hold a substrate on which the semiconductor device is to be bonded in a face-down manner;

a substrate held on said stage;

irradiation means for irradiating the light reflective plane and said stage with coherent light;

observing means for causing light irradiating the light reflective plane and reflected by the light reflective plane to interfere with light irradiating the substrate held by said stage and reflected by the substrate held by said stage to observe an interference state therebetween;

detection means for detecting an inclination between the semiconductor device and the substrate; and

adjusting means for adjusting an inclination of said bonding head relative to said stage and for moving the bonding head relative to said stage to adjust said inclination between a plane on which the bump electrode of the semiconductor device is disposed and a plane of the substrate to which the semiconductor device is to be bonded.

5,212,881

ELECTRONIC COMPONENT MOUNTING APPARATUS

Takashi Nishitsuka, and Tohma Yamaguchi, both of Kanagawa, Japan, assignors to Tokico Ltd., Kanagawa, Japan

Filed Sep. 19, 1991, Ser. No. 762,496

Claims priority, application Japan, Sep. 20, 1990, 2-251031; Sep. 20, 1990, 2-251032

Int. Cl.[5] B23P *19/00;* H05K *3/30*

U.S. Cl. 29—740 3 Claims



1. An electronic component mounting apparatus for automatically mounting electronic components at designated positions on a base member of an electronic module, said apparatus comprising:

a component supply section configured to support a supply of electronic components in a predetermined arrangement;

mounting head means for picking up an electronic component and for moving between said supply section and a designated place so as to be capable of picking up a component from said supply section and placing the component at a designated position on a base member located at said designated place;

recognition means for observing the image of a component held by said mounting head and for judging whether the component held by the mounting head is suitable for mounting on the base member in accordance with the manner in which the component is held by the mounting head and in accordance with the shape of the component itself; and

controller means operatively connected to said mounting head and to said recognition means for operating said mounting head to sequentially pick up electronic components located at said supply section, to place the picked up component at a designated position on a base member located at the designated place whenever said recognition means judges the picked up component to be suitable for mounting, and to place the component back where it was picked up from at the component supply section whenever said recognition means judges the component to be unsuitable for mounting so long as the component is of a predetermined type of component.

3. An electronic component mounting apparatus for automatically mounting electronic components at designated positions on a base member of an electronic module, said apparatus comprising:

a component supply section configured to support a supply of electronic components in a predetermined arrangement;

mounting head means for picking up an electronic component and for moving between said supply section and a designated place so as to be capable of picking up a com-

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ponent from said supply section and placing the component at a designated position on a base member located at said designated place;

recognition means for observing the image of the component held by said mounting head and for judging whether the component held by the mounting head is suitable for mounting on the base member in accordance with the manner in which the component is held by the mounting head and in accordance with the shape of the component itself;

a component storing section having a plurality of areas; and

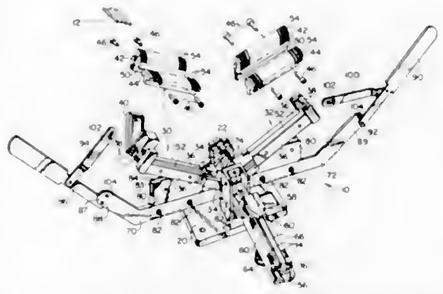
controller means, including a memory in which component storing data is stored, operatively connected to said recognition means and to said mounting head for operating said mounting head to sequentially pick up electronic components located at said supply section, to place the picked up component at a designated position on a base member located at the designated place wherever said recognition means judges the picked up component to be suitable for mounting, and to place the component in a respective one of the areas of said component storing section, based on said component storing data, whenever said recognition means judges the picked up component to be unsuitable for mounting.

5,212,882

TOOL FOR CONNECTING CONDUCTORS TO IDC TERMINALS

Michael R. Hamonko, Harrisburg, and Douglas J. Leiby, Enola, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 27, 1992, Ser. No. 842,825
Int. Cl.[5] H01R *43/04*
U.S. Cl. 29—749 4 Claims



1. A tool for connecting a plurality of electrical conductors to insulation displacement contact terminals secured in an insulating connector housing, comprising:

(a) a base;

(b) holding means for securely holding said insulating connector housing with respect to said base;

(c) conductor positioning means pivotally attached to said base for positioning said conductors adjacent their respective contact terminals in alignment therewith for insertion thereinto when in a closed position and remote therefrom when in an open position;

(d) first and second arms each having a free end and an attached end, said attached end being pivotally attached to said base and arranged to move to a closed position adjacent said positioning means and an open position away therefrom;

(e) a pair of wire insertion bars, one said bar attached to each of said first and second arms so that when said arms are pivoted into said closed position said bars engage and insert said conductors into said contact terminals;

(f) means for effecting movement of said arms to said closed position from a position adjacent said closed position, comprising:

(1) a first handle pivotally attached to said first arm at a first pivot point near said free end thereof, and a second handle pivotally attached to said second arm at a second pivot point near said free end thereof;

(2) a first toggle link pivotally attached at one end to said first handle and a second toggle link pivotally attached at one end to said second handle;

(3) releasable attaching means for coupling the other end of said first toggle link to said second arm near said free end thereof, and for coupling the other end of said second toggle link to said first arm near said free end thereof,

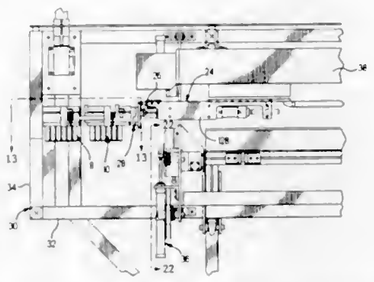
whereby manual actuation of said first and second handles causes said first and second toggle links to urge said first and second arms together with a mechanical advantage such that a force required for said manual actuation is less than a force required for said movement of said arms to said closed position.

5,212,883

CABLE MAKER HAVING CONDUCTOR PULLER FOR WIRE FEEDING

Kenneth F. Folk, and Craig W. Hornung, both of Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 20, 1992, Ser. No. 871,251
Int. Cl.[5] B23P *19/00, 19/02*
U.S. Cl. 29—749 8 Claims



1. A conductor feeder for feeding selected ones of a plurality of conductors along parallel conductor feed paths from upstream sources to a downstream processing zone, comprising:

a first conductor clamping assembly having a plurality of first clamp members for releasably holding associated ones of the plurality of conductors with respect to the first clamping assembly;

a second conductor clamping assembly having a plurality of second clamp members for releasably holding associated ones of the plurality of conductors with respect to the second clamping assembly, the second clamping assembly being disposed downstream of the first clamping assembly along the conductor feed paths, the first and second clamping assemblies being relatively movable between a first position wherein said clamping assemblies are disposed remote from each other, and a second position wherein said clamping assemblies are disposed proximate to each other; and

a conductor puller disposed downstream of said second clamping assembly, the conductor puller having a plurality of conductor grippers each associated with one of the plurality of conductors, the conductor puller being reciprocable along the conductor feed path toward and away from the second clamping assembly,

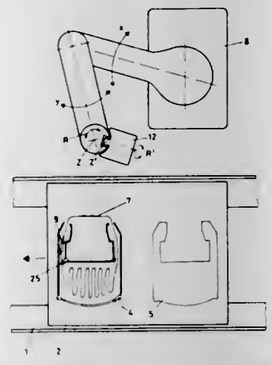
the first clamp members being selectively operable to fixedly hold the selected conductors when said clamping assemblies are in the first position and to release the selected conductors when said clamping assemblies are in the second position, the second clamp members being selectively operable to fixedly hold the non-selected conductors during relative movement of said clamping assemblies between the first and second positions, said clamping assemblies being adapted to permit non-clamped conductors to pass through without engagement during movement between the first and second positions, whereby ends of the selected conductors are caused to extend downstream relative to ends of the non-selected conductors, and the conductor grippers being operable for gripping the extended ends of the selected conductors during movement of the conductor puller away from the second clamping member.

5,212,884

DEVICE FOR THE SERIES PRODUCTION OF MOEBIUS-TYPE RIBBONS

Xaver Stockli, Richterswil, and Jurg Messerli, Samstagern, both of Switzerland, assignors to SM Engineering AG, Wollerau, Switzerland

Filed Sep. 16, 1991, Ser. No. 760,410
Claims priority, application Switzerland, Sep. 28, 1990, 03133/90
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—806 14 Claims



1. A device for the series production of Moebius-type ribbons in the course of the manufacturing of ribbon cartridges equipped with endless ribbons, which are mounted on a workpiece carrier, comprising a first robot element for threading of one end of a ribbon element into the ribbon cartridge, and a second robot mounted on said first robot, said second robot having at least two degrees of freedom, said second robot adapted to twist the ribbon element in its longitudinal direction by 180° in a given section.

5,212,885

HIGH GAS SEALIBILITY MAKEUP FOR API BUTTRESS CONNECTIONS

Anthony J. Buonodono, Houston, Tex., and James B. Day, New Orleans, La., assignors to Exxon Production Research Company, Houston, Tex.

Filed Jan. 21, 1992, Ser. No. 822,788
Int. Cl.[5] B23P *15/00*
U.S. Cl. 29—890.14 4 Claims

1. A method of connecting threaded pipe sections to form a made-up thread casing, comprising the steps of:

a) providing a first pipe section including an externally threaded pin member having a face at its end, said first thread section having been marked with a triangle stamp in accordance with API Specification Std. 5B, Section 2 (13th ed. May 31, 1988);

b) providing a second pipe section including a corresponding internally threaded box member having a face at its end;

c) plating the threads of said box member with tin;

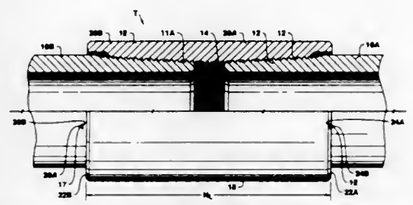
d) applying a thread lubricant containing Teflon TM or a material substantially similar to Teflon TM to the threads of said threaded box member;

e) helically rotating the pin member and box member together until the base of said triangle stamp at least aligns with the face of said threaded box member or helically rotating further, but in no event helically rotating so far that said triangle stamp is completely covered by said threaded box member;

f) determining that the made-up casing is acceptable during helically rotating together of the pin member and box member when (1) the face of the end of the box member is properly positioned relative to the triangle mark on the first pipe section, and (2) the make-up torque is within a predetermined make-up torque range, or

g) determining that the made-up casing should be rejected when either (1) the face of the end of the box member completely covers the triangle mark when less than a minimum of the predetermined make-up torque range is applied to the made-up casing; or (2) the face of the end of the box member does not align with any point within the area circumscribed by the edges of said triangle stamp when a maximum of the predetermined make-up torque range is applied to the joint, and

h) terminating the helical rotation when the made-up casing is determined to be acceptable or to be rejected.

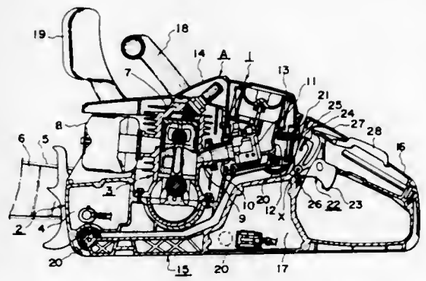


5,212,886

CHAIN SAW

Takanobu Tasaki, Tokyo, Japan, assignor to Kioritz Corporation, Tokyo, Japan

Filed Jan. 16, 1992, Ser. No. 821,786
Claims priority, application Japan, Jan. 23, 1991, 3-6525[U]
Int. Cl.[5] B27B *17/00*
U.S. Cl. 30—381 3 Claims



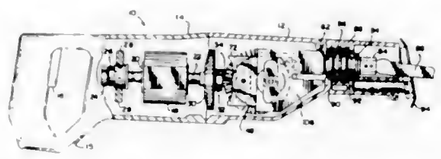
1. A chain saw comprising a body housing an internal combustion engine, a carburetor and a throttle rod for controlling the carburetor, a handle frame having a fitting for mounting a trigger mechanism for actuating said throttle rod, and vibration damping means for resiliently connecting said body and said fitting, said trigger mechanism comprising a pivotal finger

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grip, a contact part for abutting an end of the throttle rod on pivoting of said finger grip and a plurality of yieldable bends arranged between said contact part and said finger grip so as to provide a predetermined spring bias therebetween

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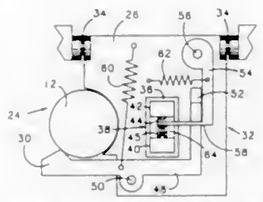
5,212,887
COUNTERBALANCED ORBITAL DRIVE MECHANISM FOR SAWS AND THE LIKE
Joseph G. Farmerie, Muskego, Wis., assignor to S-B Power Tool Company, Chicago, Ill.
Filed Mar. 18, 1992, Ser. No. 853,108
Int. Cl.[5] B23D *49/10*
U.S. Cl. 30—393 17 Claims



1 A power tool for imparting orbital movement to a saw blade comprising.
(a) a casing,
(b) a motor mounted within said casing,
(c) a plunger assembly swingably supported by said casing for mounting a saw blade having a working; and
(d) a drive mechanism contained within said casing and connected to said motor and said plunger assembly for imparting oscillatory movement to the latter and including
(1) first compound cam means including first and second cam elements connected to said plunger assembly for imparting oscillatory movement to the latter thereby to move the working end of the saw blade in an orbital path;
(2) a counterweight having a mass substantially the same as the mass of the plunger assembly; and
(3) second compound cam means including third and fourth cam elements connected to said counterweight for imparting orbital movement to at least a portion of the latter such that the counterweight develops forces to counterbalance movement of the plunger assembly

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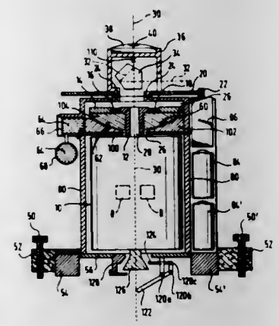
5,212,888
DUAL FUNCTION SENSOR FOR A PEN PLOTTER
Paul D. Cary, Orange, and Jeff T. Stapleton, Huntington Beach, both of Calif., assignors to Calcomp Inc., Anaheim, Calif.
Filed Sep. 16, 1991, Ser. No. 760,564
Int. Cl.[5] B43L *13/00*; G01D *15/16*
U.S. Cl. 33—18.1 4 Claims



1 In a pen plotter having a plotting head carrying one half of a pen exchanging mechanism including a holding plate pivotally attached to a plotting head for pivotal movement to raise and lower a pen gripped therein and carried thereby and a spring-biased gripping finger pivotally carried by the holding plate for releasably holding a pen, dual-function sensing apparatus for providing a single output signal indicating pen presence and pen up/down position comprising:
a) the holding plate having a rectangular hole therethrough;
b) an optical sensor fixedly mounted below the holding plate and passing through said hole so that said hole moves up and down along said optical sensor as the holding plate is pivoted up and down respectively, said optical sensor comprising a light source and a light detector separated from said light source by a space and having a sensing surface upon which a beam of light from said light source impinges and wherein the level of a signal output from said light detector is a function of the amount of said beam of light impinging on said sensing surface;
c) the gripping finger having a first L-shaped arm extending back from a pivot point of the gripping finger in a plane parallel to the holding plate, a free end of said L-shaped arm comprising a vertical finger perpendicular to said plane;
d) a second L-shaped arm in a plane parallel to the holding plate pivotally mounted at a pivot point across said hole from said pivot point of the gripping finger, a free end of the second L-shaped arm comprising a rectangular blade perpendicular to said plate;
e) bias means for biasing said second L-shaped arm towards said hole and said optical sensor, said second L-shaped arm being sized and positioned such that said rectangular blade moves in and out of said space between said light source and said light detector as said second L-shaped arm is pivoted, said first L-shaped arm being sized and positioned such that said vertical finger impinges against and pushes said second L-shaped arm so that when the gripping finger is not holding a pen said rectangular blade is out of said space and when the gripping finger is holding a pen said rectangular blade is fully inserted into said space, said rectangular blade being sized and positioned such that when said rectangular blade is fully inserted into said space and a pen being held is in a lowered position half of said sensing surface is covered by said rectangular blade and when said pen is raised said sensing surface is covered by said rectangular blade whereby with no pen being held said signal output from said light detector is a maximum possible value, with a pen being held in a lowered position said signal output is at one half said maximum possible value, and with a pen being held in a raised position said signal output is at a minimum possible value.

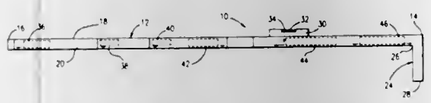
5,212,889
PLUMB DEVICE TO DETERMINE VERTICALS AND HORIZONTALS
Heinrich Lysen, Munich, Fed. Rep. of Germany, assignor to Prueftechnik, Ismaning, Fed. Rep. of Germany
Filed Oct. 15, 1991, Ser. No. 775,397
Claims priority, application Fed. Rep. of Germany, Oct. 23, 1990, 4033630
Int. Cl.[5] G01C *15/02*
U.S. Cl. 33—286 16 Claims

1 Plumb device for the determination of vertical directions, whereby a direction determination unit is suspended on a non-encapsulated universal joint having upper and lower joint parts so that said unit can move freely during a levelling operation, said unit having a luminous source therein for generating a light beam, characterized by the fact that said lower joint part is rigidly connected to a stand by means of a housing, said lower joint part carrying at least one lubricant supply line by means of which a volatile lubricant can be introduced to a groove located on a surface of said upper joint part facing said lower joint part, said upper and lower joint parts each having a passage therethrough such that under equilibrium conditions,



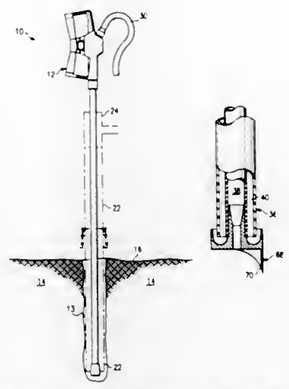
said light beam passes through said passages in said upper and lower joint parts to indicate the vertical.

5,212,890
ACCESS AREA MEASUREMENT APPARATUS
Glen W. White, 2608 Bond Pl., and R. Mark Mathews, 2712 Stratford Rd., both of Lawrence, Kans. 66049
Filed Oct. 22, 1991, Ser. No. 781,493
Int. Cl.[5] B43L *7/027*; G01C *3/04, 3/56*
U.S. Cl. 33—451 7 Claims



1. A measurement apparatus for use in determining whether the slop of a ramp of an access area is equal to or less than the necessary angle required for the ramp to comply with applicable code requirements concerning access ramp angles, the apparatus comprising:
an elongated body having first and second axial ends separated from one another by a first predetermined length;
an elongated handle provided on the body at the first axial end, the handle extending in a direction transverse to the length of the body and having a tip spaced from the body by a second predetermined length, the first and second predetermined lengths defining the base and side of a right-angled triangle having a hypotenuse extending between the tip of the handle and the second end of the body, the hypotenuse being angle relative to the base by a predetermined angle corresponding to the necessary angle;
a level including a movable bubble and being provided on the body for indicating when the body is disposed in a horizontal plane such that when the tip of the handle and the second end of the body are placed in contact with the ramp an indication is provided as to whether the slope of the ramp is equal to the necessary angle;
indicia provided on the body adjacent the level for indicating a position on the level beyond which the bubble must be located in order for the slop of the ramp to be less than or equal to the necessary angle required; and
length measuring means provided on the body for indicating whether one or more dimensions of the access area fall within a necessary range of lengths to comply with applicable code requirements concerning access area dimensions.

5,212,891
SOFT EXCAVATOR
Kenneth W. Schuermann; James E. Franklin, and Arthur D. Deken, all of Perry, Okla., assignors to The Charles Machine Works, Inc., Perry, Okla.
Filed Jan. 25, 1991, Ser. No. 646,150
Int. Cl.[5] E02F *3/88*
U.S. Cl. 37—62 17 Claims



1. An apparatus for excavating material by use of high velocity fluid from a high pressure fluid source, comprising:
a member having a first passage formed therein, the first passage having a first end connected to the high pressure fluid source, and a second end;
a nozzle secured to the member at the second end of the first passage to direct fluid exiting at high velocity from the first passage against the material to be excavated;
means operative at the excavation site to drive the excavated material away from the excavation site, said driving means connected to the high pressure fluid source, said driving means further being independent of the flow through the first passage so that two separate sources of high velocity fluid are delivered to the excavation site, said driving means and said first passage being concentric; and
said nozzle having a bore formed therethrough connected to the first passage, said bore being tapered inwardly and then outwardly diverging to accelerate the high pressure fluid to supersonic speeds, in the direction of flow of the high velocity fluid.

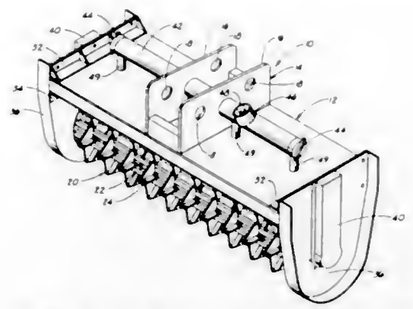
5,212,892
CUTTER HEAD ASSEMBLY FOR EXCAVATING MACHINE
C. Gene Maitlen, Rte. 4, Box 2632; Randall E. Maitlen, Rte. 4, Box 2630, both of Cushing, Okla. 74023, and Tony A. Maitlen, 1809 Sunset Dr., Stillwater, Okla. 74074
Filed Oct. 15, 1992, Ser. No. 962,377
Int. Cl.[5] E02F *3/88*
U.S. Cl. 37—66 14 Claims

1. A cutter head assembly attachable to a boom of an excavating machine, the cutter head assembly comprising:
a frame having a top plate, a bottom plate, two opposing end plates extending downward from the frame, and a mounting bracket attached to the top plate, the mounting bracket being adapted for removable attachment of the frame to the boom of the excavating machine;
a pair of motors, each motor attached to one of the end plates of the frame and having a rotatable end;
a pair of torque converters, each torque converter corresponding to one of the motors and having an input end attached to the rotatable end of the corresponding motor and an output end adapted for rotation in response to the

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rotation of the input end thereof, the rotation of the output end of each torque converter producing greater torque than the rotation of the input end of the torque converter;

a cylindrical cutter drum having a plurality of longitudinally extending cutter bars, each end of the cylindrical cutter drum being attached to the output end of one of the torque converters; and



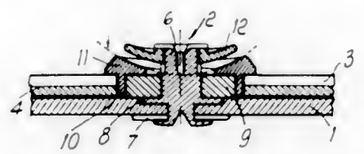
a plurality of teeth attached to each cutter bar in spaced relation and extending from the outer periphery of the cutter drum;

wherein the cylindrical cutter drum rotates about the longitudinal axis thereof in response to rotation of the rotatable ends of the motors.

5,212,893
FLEXIBILITY ADJUSTMENT FASTENER PARTICULARLY FOR SKI BOOTS

Alessandro Pozzobon, Paderno di Ponzano Veneto, Italy, assignor to Nordica S.p.A., Montebelluna, Italy

Filed May 28, 1991, Ser. No. 706,502
Claims priority, application Italy, Jun. 15, 1990, 82587 A/90
Int. Cl.[5] A43B *5/04, 5/16*
U.S. Cl. 36—120 8 Claims



1. Flexibility adjustment fastener, connected to a ski boot comprising a shell and at least one quarter, comprising:

a pivot element for pivotally connecting said quarter to said shell, said pivot element extending through a bore of said quarter and being rigidly connected to said shell;

a first ring element accommodated inside said bore and arranged circumferentially to said pivot element;

at least one resilient member arranged circumferentially to said pivot element and between said first ring and said shell;

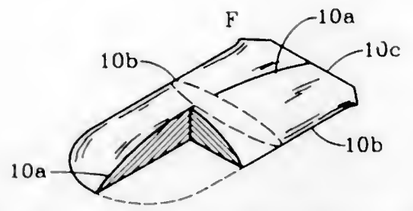
a second ring connected to said pivot element and arranged at a distance above said first ring; and

means for connecting said second ring to said pivot element which allow adjustment the distance between said second ring and said first ring.

5,212,894
GOLF SHOE INSOLES FOR IMPROVING THE GOLF SWING

Michael Paparo, 7341 Amberly La., Penthouse #1, Delray Beach, Fla. 33446

Filed Feb. 7, 1990, Ser. No. 476,559
Int. Cl.[5] A43B *13/38, 5/00*
U.S. Cl. 36—43 8 Claims



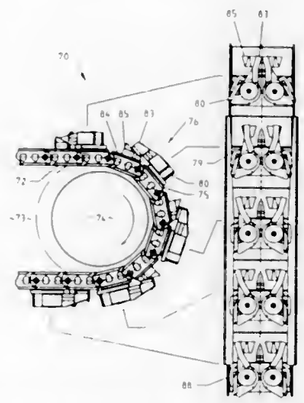
3. A golf shoe insole for improving the dynamic movement of the golfer's front foot relative to the direction of the ball during a golf swing comprising:

a resilient pad sized to fit within a golf shoe substantially in from the front of the arch to the heel area of the shoe, said pad being thicker along a centerline longitudinal axis from the back of the heel area toward the front of the arch than along the lateral edges, and a transverse cross section being substantially symmetrical on either side of the centerline, said pad centerline thickness being sufficient to provide tactile pressure on the front foot to encourage a rolling motion of the front foot about the centerline axis during the golf swing, said pad centerline thickness being approximately twice the thickness at halfway points laterally from said centerline to said lateral edges.

5,212,895
RETRACTABLE EXCAVATOR CUTTING TOOTH APPARATUS

Paul A. Camilleri, Queensland, Australia, assignor to Foundation Technology Limited, Nerang, Australia

PCT No. PCT/AU90/00024, § 371 Date Jul. 23, 1991, § 102(e) Date Jul. 23, 1991, PCT Pub. No. WO90/08857, PCT Pub. Date Aug. 9, 1990
PCT Filed Jan. 25, 1990, Ser. No. 720,808
Claims priority, application Australia, Jan. 25, 1989, PJ2424
Int. Cl.[5] E02F *5/06*
U.S. Cl. 37—80 A 6 Claims



1. A trenching apparatus having a trenching arm and an endless chain excavator having a plurality of chain link members, said chain link excavator being driven between an upper rotary guide and a lower rotary guide, said apparatus further comprising:

a body member pivotally disposed on at least one of said chain link members;

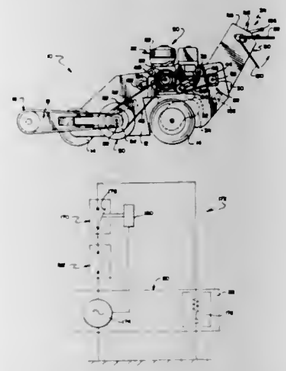
a cutting tooth disposed on said body member, said body member and said cutting tooth pivoting between a cutting position and a stowed position; and

locking means for locking said tooth in said stowed position while said cutting tooth is on a return side of said endless chain excavator, said locking means disposed on a chain link member adjacent to said chain link member having said body member disposed thereon.

5,212,896
CONTROL SYSTEM FOR A WALK BEHIND TRENCHER MACHINE

Randy H. Hillard, Wichita; Howard A. Zimmerman, Belle Plaine; Robert G. Draney, and Virgil J. Hill, both of Wichita, all of Kans., assignors to Case Corporation, Racine, Wis.

Filed May 15, 1992, Ser. No. 884,536
Int. Cl.[5] E02F *3/16*
U.S. Cl. 37—86 21 Claims



1. A walk-behind self-propelled trencher comprising:

a mobile frame supported for movement over ground by at least two wheels;

an endless digging chain assembly mounted on the frame for digging trenches;

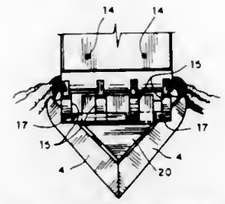
power means mounted on the frame for driving said digging chain assembly and providing motive force to at least one of said wheels thereby propelling the trencher;

a control mechanism for controlling trencher speed and direction and for controlling operation of the digging chain assembly, said control mechanism including a single control lever mounted for movement along a predetermined path of movement in a neutral plane extending between a neutral/start position at one end of the neutral plane and a drive position at an opposite end of the neutral plane, said control lever further being capable of forward and reverse movements from the drive position to direct the trencher during operation, a chain assembly control member normally urged toward a disengaged condition, whereat the chain assembly is disengaged from the power means, and which is movable to a position causing said power means to drive said chain assembly, said control mechanism further including means for monitoring the positions of said single control lever and said chain assembly control member and for allowing starting of said power means only after said control lever has been moved to said neutral/start position and said chain assembly control member is in said disengaged condition.

5,212,897
TRENCHING ATTACHMENT FOR AN EARTH MOVING BUCKET

Stuart T. Jefferson, 9207 Ox Rd., Lorton, Va. 22079

Filed Apr. 13, 1992, Ser. No. 867,339
Int. Cl.[5] E02F *5/02*
U.S. Cl. 37—103 20 Claims

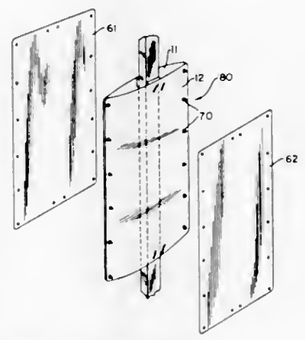


10. A trenching attachment for use on a toothed backhoe bucket pivotally joined to the distal end of a backhoe's articulated boom comprising: two cutting plates, angularly joined so as to form a V shape and having cutting edges for slicing the ground's surface; a plow face of triangular outline fitted and joined between said cutting plates; means for mounting said trenching attachment to the inside bottom of the earth moving bucket; and a means for anchoring and connecting said trenching attachment to a backhoe boom; whereby said cutting plates, plow face, mounting means, and said anchoring and connecting means form a single trenching attachment to said backhoe bucket which, when said cutting plates are vertically disposed below the ground's surface and the backhoe is driven forward, plows a V-shaped trench, lifting excavated earthen spoil material and depositing a spoil berm on each side of the trench.

5,212,898
POLE SIGN CONSTRUCTION

James M. Dinan, Irvington, N.Y., and Paul J. Dinan, Westfield, N.J., assignors to Dinaco, Inc., Irvington-on-Hudson, N.Y.

Continuation-in-part of Ser. No. 509,575, Apr. 16, 1990, abandoned. This application Jul. 5, 1991, Ser. No. 725,989
Int. Cl.[5] G09F *15/00*
U.S. Cl. 40—607 1 Claim



1. A pole sign construction comprising

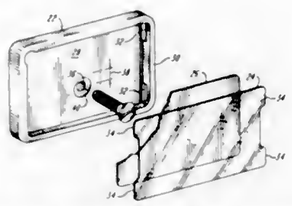
(a) a vertical pole support means;

(b) paris of upper and lower bracket means secured to said pole support means and having outwardly projecting fastening means;

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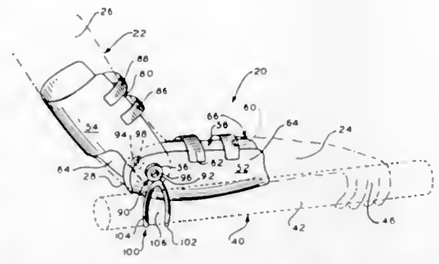
(c) a pair of rectangular base sign boards of corrugated plastic material having a series of first connecting holes formed in lateral edges thereof;
(d) a plurality of transparent plastic locking means connecting said sign boards in back-to-back relation around said vertical pole support means.
(e) spaced pairs of mounting holes formed in upper and lower edges of each of said base sign boards;
(f) said fastening means passing through said upper and lower mounting holes;
(g) first locking means securing said base sign boards to said brackets on said projecting fastening means;
(h) changeable message overlay sheets having second connecting holes congruent with the first connecting holes of said base sign boards; said overlay sheets are superimposed with and connected by the transparent plastic locking means to said base sign boards;
(i) said overlay sheets are fabricated from corrugated laminated material; and
(j) said transparent plastic locking means includes a transparent double-ended threaded bolt means passing through said first and second connecting holes, a transparent flange, and at least two transparent stop nut means secured to said double-ended bolt means.

5,212,899
SWITCH PLATE LABELLING ASSEMBLY
Gerhard Fandreyer, 509 Clark St., Gardner, Mass. 01440-1205
Filed Jun. 27, 1991, Ser. No. 722,113
Int. Cl.[5] G09F *3/18*
U.S. Cl. 40—642 **2 Claims**



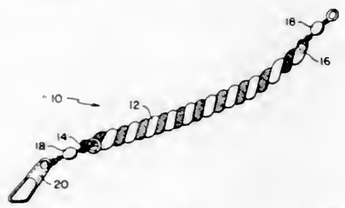
1. A labelling assembly for use with an electrical switch box cover plate having mounting holes therein, comprising:
label holder including a unitary rectilinear frame and base defining a cavity opened in an upward direction, said base having an aperture therethrough, said frame having interior opposed sidewalls having slots therein;
a label on top of said base within said frame;
a transparent flexible cover adapted to fit within said frame over said label, said cover having a plurality of laterally extending tabs extending therefrom at opposed edges of said cover at locations adapted to fit within corresponding slots in said frame; and
a single screw adapted to pass through said aperture to mount said label holder over one of the cover plate mounting holes, said base including a frustoconical portion projecting rearwardly of said base at said aperture, said frustoconical portion having an aperture therethrough to accommodate said screw, whereby said single screw may be used to secure said labelling assembly over said electrical switch box cover plate.

5,212,900
LIMB BRACE SUPPORT DEVICE FOR FISHING RODS
Edward Perry, Ardmore St., Box 669 R.R. 6, New Windsor, N.Y. 12550
Continuation of Ser. No. 310,092, Feb. 14, 1989, abandoned. This application Sep. 29, 1989, Ser. No. 416,716
Int. Cl.[5] A01K *97/10*
U.S. Cl. 43—21.2 **50 Claims**



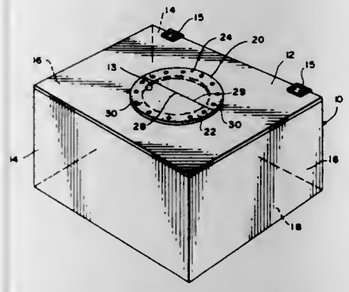
31. A brace and support device to be fitted to and worn by an articulated limb of a person, the articulated limb being of the type having a hand or similar grasping means facilitating the use of a fishing rod or pole, comprising:
(a) a first brace and support portion of a size and configuration to cradle a first part of the person's limb proximate and to a first side of where it articulates;
(b) a second brace and support portion of a size and configuration to cradle a second part of the person's limb proximate and to a second side of where it articulates;
(c) hinge means hingedly connecting said first brace and support portion and said second brace and support portion to permit articulation of the person's limb when worn thereby;
(d) fishing rod support means carried by a least one of said portions; and
(e) fishing rod fixture means carried by said fishing rod support means being of a size and configuration to receive the butt end of a fishing rod so that the rod may be more easily grasped by the grasping means.

5,212,901
SHOCK ABSORBING FISHING DEVICE
Robert C. Bishop, and Betty J. Bishop, both of 1008 W. Galena St., Butte, Mont. 59701
Filed Sep. 9, 1992, Ser. No. 943,225
Int. Cl.[5] A01K *91/00*
U.S. Cl. 43—42.72 **6 Claims**



1. In a fishing device of the type which includes a fishing line and a hook, the improvement including a shock absorbing device located between said line and said hook, said shock absorbing device comprising:
first and second swivel connectors each having a closed loop fastener at one end;
an elongate, resilient, looped member having a longitudinal axis;
wherein said elongate member is twisted to form first and second eyes at opposite ends, the elongate member also remembering a twist about its longitudinal axis;
the first connector is connected to the resilient member through the first eye;
the second connector being connected to the resilient member through the second eye; whereby
the elongate member twisting in one direction about the longitudinal axis while is stretched, and in the opposite direction as the member is released after being stretched.

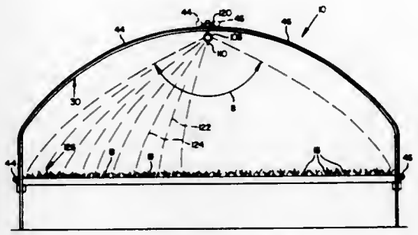
5,212,902
CONTAINER FOR FISH AND OTHER ITEMS AND SEPARATOR THEREFOR
Jack B. Moorhead, 822 Hedwig Way, Houston, Tex. 77024, and Guy L. McClung, III, 8130 Vintage Creek, Spring, Tex. 77379
Continuation-in-part of Ser. No. 436,354, Nov. 14, 1989, Pat. No. 5,038,515. This application Aug. 9, 1991, Ser. No. 743,056
Int. Cl.[5] A01K *97/00*
U.S. Cl. 43—55 **5 Claims**



1. A container for keeping fish, the container comprising
a box with a wall member defining a box interior,
the box having a bottom and a first box opening through which fish are insertable into the box interior,
a first separation device in the box comprising two releasably securable members, each member having a beaded end removably receivable in a recessed end of the other member, the two members defining a first interior space within the separation device and separating the first interior space from a remaining portion of the box interior so that ice is disposable beneath and around the separation device, and
the separation device having a first top opening beneath the first box opening so that fish inserted through the first box opening enter the first interior space defined by the separation device.

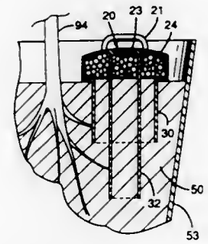
5,212,903
GREENHOUSE CONSTRUCTION AND LIQUID DISTRIBUTION SYSTEM
Gene B. Talbott, Rte. 2, Box 200, Banks, Oreg. 97105
Division of Ser. No. 354,501, May 19, 1989, Pat. No. 5,038,517. This application Aug. 9, 1991, Ser. No. 743,269
Int. Cl.[5] A01G *9/24*
U.S. Cl. 47—17 **5 Claims**

1. A greenhouse for providing improved growth and environmental control for growing plants comprising:
frame means defining a structure having a top and a given length and width to form a bounded, interior region for receiving plants;
cover means positionable over the frame means for providing a roof enclosure for the structure;
a liquid distribution conduit having a length and a longitudinal axis and extending substantially the length of the interior region and disposed generally centrally of the width adjacent the top of the frame means, wherein spray nozzles are provided along the length of the conduit means spaced-apart there along for directing liquid downwardly onto plants disposed beneath the conduit within the interior region;
power drive means coupled to the conduit means operable for rotating the conduit means through a defined arc about its longitudinal axis so that the conduit means oscillates reciprocally through the arc causing the nozzles to direct



liquid spray along the entire length and width of the interior region; and
timing means selectively operable to delay the reciprocal oscillation of the conduit so that increased spray is directed over a period of time to selected areas within the greenhouse.

5,212,904
FERTILIZING APPARATUS
James L. Green, Corvallis, Oreg.; Bruce A. Briggs, and Doris L. Briggs, both of Olympia, Wash., assignors to State of Oregon acting by and through the State Board of Higher Education on behalf of Oregon State University, Eugene, Oreg.
Continuation-in-part of Ser. No. 446,230, Dec. 4, 1989, Pat. No. 5,117,581. This application Aug. 23, 1991, Ser. No. 748,854
Int. Cl.[5] A01G *29/00*
U.S. Cl. 47—48.5 **23 Claims**



1. A fertilizing apparatus for fertilizing a plant that is planted in growth media comprising:
a first moisture-impermeable diffusion member shaped to define therein a compartment and an adjacent diffusion pathway; and
retaining means, through which dissolved fertilizer may permeate, for retaining fertilizer inside the compartment adjacent to the diffusion pathway with the diffusion member positioned above and beside the fertilizer, said retaining means contacting the growth media and the fertilizer, thereby to permit diffusion of the fertilizer through the retaining means and into the growth media.

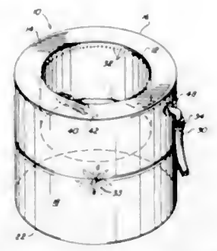
VOL 1150 ISS 4 MY 25 1993 UMI

5,212,905

PLANT WATERING DEVICE

Jean La Mennais H. Philoctete, 2430 NW. 108 St., Miami, Fla. 33167

Filed Mar. 15, 1991, Ser. No. 673,780
Int. Cl.[5] A01G *29/00*
U.S. Cl. 47—48.5 6 Claims



1. A plant watering device adapted to be placed on the ground about the base of a plant for delivering liquid to said plant comprising:

a hollow cylindrical member containing an upper section and a lower section, said upper section containing an inner cylindrical wall and an outer cylindrical wall, said outer cylindrical wall further extending downwardly to form said lower section wherein the bottom distal edge of said outer cylindrical wall is adapted to be disposed in surrounding relationship to the ground at the base of the plant, said upper section further cmoprising a top ring-shaped member and a bottom ring-shaped member, said top ring-shaped member and said bottom ring-shaped member being parallel and disposed in surrounding relationship to the corresponding edges of said inner cylindrical wall and said outer cylindrical wall thereby defining an interior chamber for the storage of said liquid,

a valve means attached to and extending inwardly from said inner cylindrical wall such that the liquid within said interior chamber can be delivered to said plant,

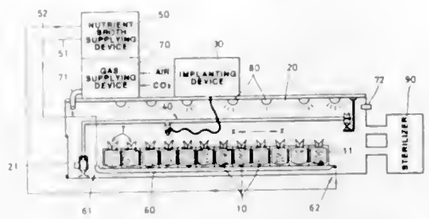
a liquid supply connection means on said upper section adapted to be connected to a liquid supply conduit, said liquid supply connection means being disposed in fluid communication with said interior chamber such that said liquid flows from said supply conduit to said interior chamber.

5,212,906

LIQUID CULTURE APPARATUS

Noboru Okuno, 2-10-1 Fujimino, Hiratsuka-shi, Kanagawa-ken; Masahiro Sei, 58-2, Shimo-Ochiai, Isehara-shi, Kanagawa-ken, and Hiroshi Abe, 4-34-5, Soshi-gaya, Setagaya-ku, Tokyo, all of Japan

PCT No. PCT/JP88/00138, § 371 Date Oct. 1, 1990, § 102(e) Date Oct. 1, 1990, PCT Pub. No. JP88/00138, PCT Pub. Date Feb. 10, 1988
PCT Filed Feb. 10, 1988, Ser. No. 548,885
Int. Cl.[5] A01G *31/00*
U.S. Cl. 47—62 18 Claims



1. A liquid culture apparatus comprising:

a nutrient broth support for supporting a plant body implanted therein and comprising a porous or fibrous material having a first porosity capable of absorbing a nutrient broth and bringing said broth into contact with said plant body;

a nursery chamber for enclosing at least one said nutrient broth support in a controlled environment;

first liquid controlling means for storing liquids such as various types of nutrient broths needed for various stages of plant growth such as germination and/or rooting broths and other liquids such as water and for supplying said liquids to said nursery chamber;

second liquid controlling means comprising a liquid absorbant material having a second nursery which is smaller than said first porosity of said nutrient broth support, for supporting said nutrient broth support and receiving said liquid supplied to said nursery chamber by said first liquid controlling means and coupling said liquid to said nutrient broth support such that said nutrient broth support absorbs said liquid and brings said liquid into contact with said plant body, and, when said first liquid controlling means stops supplying said liquid, for receiving liquid which drains from said nutrient broth support;

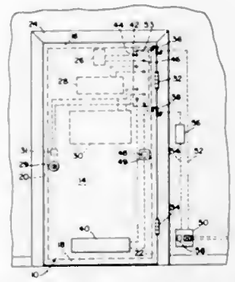
third liquid controlling means coupled to receive said drained liquid from said second liquid controlling means for draining said liquid through a path leading to a point outside said nursery chamber.

5,212,907

DOOR INCLUDING ELECTRICAL DEVICE AND PIVOTABLE CONDUCTOR THEREFOR

Ed Van Sandt, 1422 41st St. West, Hirmingham, Ala. 35208

Filed Oct. 13, 1992, Ser. No. 959,805
Int. Cl.[5] E06H *7/00*
U.S. Cl. 49—70 17 Claims



1. A door pivotally carried by a door frame and including an electrical circuit carried by the door and adapted to be electrically connected with a source of electrical power that is external to the door, said door comprising:

a. a door structure having outer and inner surfaces, the outer and inner surfaces spaced from each other to define an interior space, the door structure including top, bottom, and side panels extending along and between the outer and inner edges to enclose the interior space;

b. an electrical circuit carried by the door within the interior space and connected with an electrical device that is carried on the outer surface of the door; and

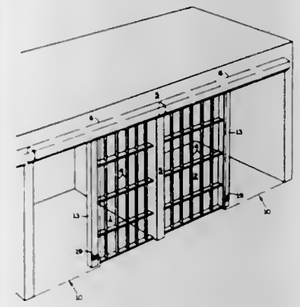
c. a pair of pivotable electrical conductors electrically coupled with the circuit and carried by the door adjacent a side panel thereof, the pivotable conductors being spaced from each othe and being spaced from hinges supporting the door from a door frame, the pivotable conductors including a door-mounted member and a frame-mounted member, and an intermediate member extending between and conductively coupled with each of the door-mounted member and the frame-mounted member to provide a direct conduction path between the respective door-mounted and frame-mounted members.

5,212,908

CELL DOOR OPERATING SYSTEM

Richard O. Norman, San Antonio, Tex., assignor to Adtec, Incorporated, San Antonio, Tex.

Filed Jul. 11, 1991, Ser. No. 728,697
Int. Cl.[5] E05B *47/06;* E05F *15/10*
U.S. Cl. 49—18 19 Claims



1. A symmetrical jail cell door assembly for a door opening having a top wall, a floor, two opposed vertical side walls and a fixed, rigid, vertical column dividing the door opening into two suostantially equal area right and left halves, comprising, in combination:

a top frame assembly having a vertical base portion and a horizontal flange, with said base portion being securable to said top wall and extending between said vertical side walls;

means on said horizontal flange defining a horizontal roller track;

a rigid rectangular vertical cell door having upper and lower horizontal frame elements interconnected with at least two horizontally spaced, vertical frame members;

a roller support plate secured to said upper frame element;

a plurality of rollers horizontally journalled in spaced relationship along said roller support plate and engaging said roller track to support said cell door for rolling movements between open and closed positions relative to either the right or left half of said door opening;

a locking bar vertically slidably mounted on the said vertical column;

the top end of said locking bar projecting above said horizontal flange and having a horizontally projecting actuator secured thereto;

means secured to said lower horizontal frame element of said cell door defining two upwardly opening horizontally spaced notches respectively engagable by the bottom end of said locking bar when said cell door is positioned in a closed or opened position relative to either the right half or the left half of said door opening;

a rack horizontally disposed above said horizontal flange;

said rack having a lost motion connection with said cell door and defining an elongated cam track extending the full width of said cell door;

said cam track engaging said locking bar actuator to move said locking bar into engagement with a respective one of said upwardly open notches as said cell door approaches its closed position relative to said right or left half of said door opening and to release said locking bar from said respective notch when said rack is moved from said closed position; and

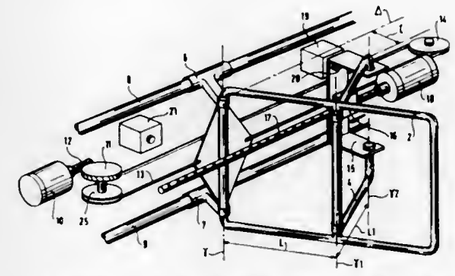
motor driven pinion means for horizontally shifting said rack relative to said channel shaped top frame element to selectively open or close said right half or said left half of said door opening.

5,212,909

PASSAGE HAVING CONTROLLED ACCESS PROVIDED BY A CLOSURE DEVICE USING A BARRIER HINGED ABOUT A VERTICAL AXIS

Claude Morin, La Celle Saint Cloud, France, assignor to Compagnie Generale D'Automatisme CGA HBS, Bretigny Sur Orge, France

Filed Oct. 29, 1991, Ser. No. 783,814
Int. Cl.[5] E01F *13/00*
U.S. Cl. 49—49 3 Claims



1. A passage (1) having monitored authorization of access provided with a closure device using a barrier (2) hinged about a vertical axis γ, said passage including at least one such barrier (2) with the end thereof situated adjacent to said vertical axis γ including rectilinear guide means (6 to 9) for guiding said axis γ along a line Δ parallel to the through direction of said passage, said barrier further being provided with a hinged link (4) which is hinged firstly about a vertical axis γ_1 situated along said barrier (2), and secondly about a vertical axis γ_2 situated in he vicinity of said line Δ, drive means (10 to 13, 22 to 24) opening and closing said passage by causing said vertical axis γ to slide along said line Δ, said vertical axis γ_2 being situated at a distance l from said line Δ, the length of said barrier (2) between the vertical axis γ and the vertical axis γ_1 being equal to L, the passage being characterized in that the length L_1 of said link (4) between the axies γ_1 and γ_2 is equal to L-l, in that the vertical axis γ_2 is tied to a carriage (15) supporting the hinge of said link (4), and in that drive means (16 to 18) enable said carrier (15) to be displaced in a direction parallel to said line γ, locking means (19, 21) being provided for locking said carriage in two distinct positions along the stroke of the carriage (15).

5,212,910

COMPOSITE POLISHING PAD FOR SEMICONDUCTOR PROCESS

Joseph R. Breivogel, Beaverton; Sam F. Louke, Portland; Michael R. Oliver, Tigard, and Leo D. Yau, Portland, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jul. 9, 1991, Ser. No. 727,829
Int. Cl.[5] B24D *11/00*
U.S. Cl. 51—398 30 Claims

1. In an apparatus for planarizing a surface of a semiconductor substrate said apparatus including a support table covered with a polishing pad, a means for coating said pad with an abrasive slurry, and a means for forcibly pressing said substrate against said pad such that movement of said substrate relative to said table results in planarization of said surface, an improved polishing pad comprising:

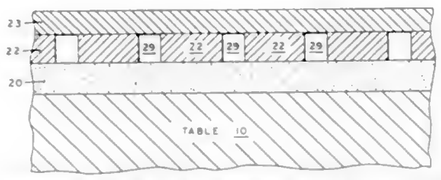
a first layer of elastic material attached to said table;

a second layer of material covering said first layer;

a third layer of material for transporting said slurry, said

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third layer covering said second layer and making contact with said substrate during said process:

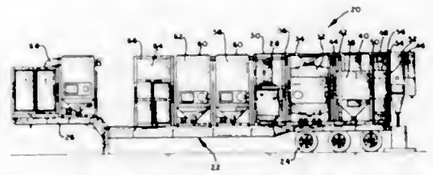


said second layer being segmented into individual rigid sections physically isolated from one another in the lateral dimension, each section being resilient across its width yet cushioned by said first layer in the vertical direction.

5,212,911
ABRASIVE PARTICLE BLASTING DEVICE AND METHOD

Ronald C. Benson, P.O. Box 988, Minneapolis, Minn. 55458

Filed May 29, 1991, Ser. No. 706,802
Int. Cl.[5] B24C *3/00*
U.S. Cl. 51—410 15 Claims



1) A modular abrasive particle blasting device comprising:
an abrasive particle storage component;
an abrasive particle recovery component;
at least one subframe structure, adapted for carrying one of the storage or the recovery components of the device, the subframe structure including:
a first vertical side, the vertical side defining a vertical boundary plane of the subframe; and
means for reversible attaching of the subframe structure at the vertical boundary plane to the other of the storage or the recovery component of the device.

5,212,912
STRUCTURE INTENDED TO SUPPORT A DIRECTIONAL ANTENNA MOUNTED SUBSTANTIALLY AT THE TOP OF A MAST

Yves Foissac, Famars Valenciennes, France, assignor to Laboratoire D'Etudes et de Recherches Chiminques (Lerc), S.A., St. Amand Les Eaux, France

Filed Dec. 5, 1990, Ser. No. 622,800
Claims priority, application France, Dec. 7, 1989, 89 16742
Int. Cl.[5] E04H *12/00*
U.S. Cl. 52—40 24 Claims

1. A structure (1) adapted to support at least one directional apparatus (2) substantially at the top of a mast (3) having a longitudinal axis that is approximately vertical in its supporting position and in the form of a cylinder of revolution, comprising a plurality of elongated, rigid girders (4) extending substantially radially to the longitudinal axis (5) of the mast (3) in a plane (P1) and in a generally regular angular distribution about said axis, each girder being connected at one end (6), with said mast via a connection means (7) of the receptacle type, each girder being connected at an opposite end (8) to a point (9) that is fixed with respect to the foot of the mast and in particular to ground via a guy wire, a plurality of wind bracing elements (12), each said wind bracing elements (12) being interposed via removable connection means (13, 14) between said opposite end (8) of one of the girders, a fixed point (9) remote of the mast and the mast, said element adapted to be connected to the mast substantially below a zone (15) of the mast (3) above which the directional apparatus (2) is supported, said connector means (7) including at each end of a girder (4) intended for connection with said mast (3) a support part (16) supported on

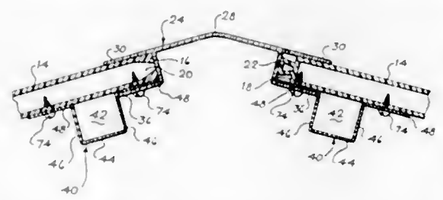


the cylindrical wall (17) of the mast (3), along a cylindrical sector extending over a predetermined angular fraction thereof, each said support part (16) including means (18, 19) for assembly with another support part and for pressing the support parts forcefully against the outer cylindrical wall (17) of the mast (3).

5,212,913
ANGLED RIDGE FITTING FOR FORMING ROOF OF MODULAR BUILDING

Steven P. Whitehead, Elgin, Ill., assignor to Suncast Corporation, Batavia, Ill.

Filed Feb. 3, 1992, Ser. No. 831,206
Int. Cl.[5] E04D *1/30*
U.S. Cl. 52—57 9 Claims

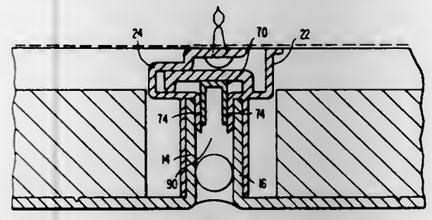


1. A ridge fitting for connecting a first roof section and a second roof section of a building at an angle with respect to one another, the ridge fitting comprising:
a first longitudinally extending channel for engageably receiving said first roof section;
a second longitudinally extending channel for engageably receiving said second roof section; and
a thin, longitudinally extending interface spanning said first channel and said second channel, the interface being light transmitting to allow illumination of the interior of the building and being bendable about a longitudinal axis to allow variation of the angle between said first channel and said second channel.

5,212,914
WALL PANELING SYSTEM WITH WATER GUTTERING DEVICE

Manuel F. Martin, Greenlawn, and Thomas K. Rowden, Port Washington, both of N.Y., assignors to Alu Tech Systems, Inc., Deer Park, N.Y.

Filed May 28, 1991, Ser. No. 706,229
Int. Cl.[5] E04H *1/00*; E04F *13/08*; E04D *1/00*
U.S. Cl. 52—235 22 Claims

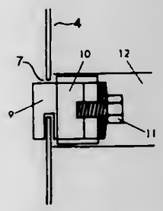


1. A paneling system for finishing a building's exterior facade comprising a plurality of pan assemblies arranged in aligned columns and rows, each of said pan assemblies comprising a pan-like panel having inturned flanges along each edge of its perimeter; a pair of male channel members and a pair of female channel members secured to adjacent of said flanges by flange securing means which secure to said flanges of said pan-like panel; said male channel members having a laterally extending leg extension; said female channel members having a wall securing means for facilitating mechanical attachment of said pan assembly to said exterior of said building, and a receptacle portion; said leg extension of a first of said male channel members of a first of said pan assemblies being matingly received in the receptacle portion of a female channel member of a second pan assembly, said male and female channel members providing a substantially continuous water guttering system such that moisture which may penetrate to said channel members is positively directed to flow in both the vertical and horizontal directions, along said channel members and between said aligned columns and rows of panels.

5,212,915
MODULAR SYSTEM FOR OBTAINING EQUIPPED WALLS AND WORKBENCHES, IN PARTICULAR FOR USE IN LABORATORIES

Buzzi Antonio, Busto Arsizio, Italy, assignor to Arredi Tecnici Villa S.p.A., Italy

Filed Oct. 3, 1991, Ser. No. 770,629
Claims priority, application Italy, Nov. 21, 1990, 22132 A/90
Int. Cl.[5] E04H *1/00*
U.S. Cl. 52—79.1 12 Claims

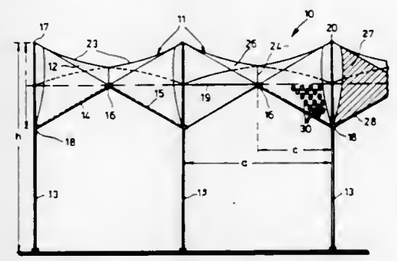


1. A modular equipped wall and workbench system comprising:
a plurality of uprights defining openings for passage of cables and pipes and also defining slots;
a plurality of crosspieces connected to said plurality of uprights, said plurality of crosspieces defining openings for passage of cables and pipes;
C-shaped holder means for connecting said plurality of uprights to said plurality of said crosspieces, said C-shape holder means having a C-like shape attached on one side to an end of said crosspieces, and including legs of said C-like shape extending beyond said end, said legs including catch means for engaging with slots of said plurality of uprights, said C-shape holder means also including a block and screw means for sliding said block against said uprights, and locking said catch means in position with said slots of said upright.

5,212,916
DEVICE FOR SHADING SPACES

Hans-Jurgen Dippel, Uhnigen-Kattenborn, and Peter Raupach, Kaipershof 22, D-8600 Bamberg, both of Fed. Rep. of Germany, assignors to Peter Raupach, Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 242,719, Sep. 9, 1988, Pat. No. 4,835,918. This application Jun. 2, 1989, Ser. No. 360,991
The portion of the term of this patent subsequent to Jun. 6, 2006, has been disclaimed.
Int. Cl.[5] E04B *7/00*
U.S. Cl. 52—82 16 Claims



1. A device for shading spaces, especially for shading areas or plazas where people can walk, which comprises:
a roof made of cable ropes forming a netlike or geodesic construction;
said roof having a synclastical or anticlastical surface;
said netlike roof including photovoltaic means for converting sunlight into electrical energy, said photovoltaic means permitting a high degree of adaptation to and a close fit with said netlike roof at crossing points of the cable rope; and
said photovoltaic means comprising a plurality of photovoltaic cells combined together by electrical connections to form a line.

5,212,917
BRICK EDGING DEVICE

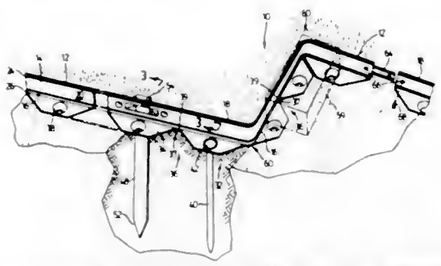
Rubin Kurtz, and David P. Karp, both of North York, Canada, assignors to Brickstop Corporation, North York, Canada

Filed Dec. 23, 1991, Ser. No. 812,467
Int. Cl.[5] A01G *1/00*
U.S. Cl. 52—102 15 Claims

1. A brick edging device, comprising:
a) an elongate strip extending in a longitudinal direction and having first and second opposed sides and opposed edges;
b) a flange member attached to the elongate strip along a first edge thereof and extending transversely from a first side of the elongate strip, the flange including a plurality of spaced flap member, said flap members each provided with an aperture for receiving a spike therein, a plurality of spaced, V-shaped cut-out portions separating adjacent flaps, wherein the apex of said cut-out V portion is flat and is spaced from the first edge of the elongate strip, there being an angle of at least 90 degrees between the sides of said V so that the elongate strip can be bent at a position

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between the flat apex and said first edge to an angle of at least 90 degrees; and



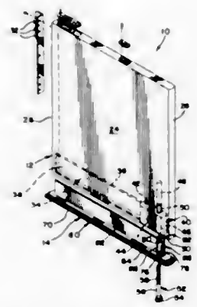
c) a plurality of spaced stake receiving means located on the second side of the elongate strip between the first and second edges.

5,212,918

SUPPORT PANEL BASE COVER

Thomas J. Newhouse, Grand Rapids, and Paul G. Dame, Holland, both of Mich., assignors to Herman Miller, Inc., Zeeland, Mich.

Filed Jun. 5, 1991, Ser. No. 710,717
Int. Cl.[5] E04B *2/82*; E05D *15/06*
U.S. Cl. 52—126.3 19 Claims



1. An apparatus for use with a wall panel system, comprising:

a support panel mounted to a wall panel, said support panel having a bottom edge spaced apart from a floor and an interior chamber extending vertically upward from said bottom edge and spanning a substantial length of the panel, said interior chamber including a relatively narrow channel and a cavity having a width greater than the channel;

vertically adjustable leg means positioned in said support panel cavity and adapted to cooperate with the support panel and the floor to support said panel on the floor, whereby the leg means is adjusted to compensate for variations in the floor height; and

cover means having a lower portion adapted to rest upon the floor and an upper portion adapted to slide up into said channel in the support panel to provide access to the leg means, said cover means including a cavity for receiving the leg means and being adapted to substantially fill the space between the support panel and the floor;

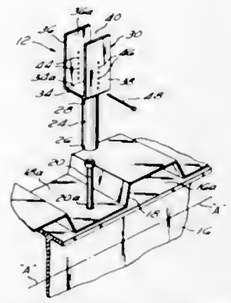
whereby the cover means is adapted to be lifted upward to provide access to the vertically adjustable leg means and adapted to fall downward when released until the lower portion thereof contacts the floor, thus filling the space between the bottom edge of the support panel and the floor.

5,212,919

NELSON STUD SCREED POST ASSEMBLY

Lee A. Shaw, 1924 Irvine Ave., Newport Beach, Calif. 92660; Ronald D. Shaw, 1988 Pelican, Costa Mesa, Calif. 92626; Thomas W. Enis, 2862 DeForrest Dr., Long Beach, Calif. 90806; Scott G. Shaw, 8206 Pawtucket, Huntington Beach, Calif. 92646, and Leroy E. Shaw, 2861 Tobago Pl., Costa Mesa, Calif. 92626

Continuation of Ser. No. 647,276, Jan. 28, 1991, abandoned. This application May 11, 1992, Ser. No. 882,691
Int. Cl.[5] E04B *9/00*
U.S. Cl. 52—126.6 8 Claims



1. An apparatus for leveling a concrete pour during construction of a composite deck comprising:

a first pair of screed posts interfaced to a first pair of studs integral with and extending perpendicularly upward from a top, horizontal surface of a first support beam, each of the screed posts of said first pair including a tubular portion having a top end and a bottom end for receiving a respective one of the studs of the first pair, said tubular portion being sized and configured to be extensible over and completely receive a respective one of the studs of the first pair of studs in a manner wherein the bottom end of each tubular portion is abutted against the horizontal surface of said first support beam and each screed post of the first pair extends vertically upward therefrom;

a second pair of screed posts interfaced to a second pair of studs integral with and extending perpendicularly upward from a top, horizontal surface of a second support beam, each of the screed posts of said second pair including a tubular portion having a top end and a bottom end for receiving a respective one of the studs of said second pair, said tubular portion being sized and configured to be extensible over and completely receive a respective one of the studs of the second pair of studs in a manner wherein the bottom end of each tubular portion is abutted against the horizontal surface of said second support beam and each screed post of the second pair extends vertically upward therefrom;

a first elongate screed rail attached to and extending between said first pair of screed posts;

a second elongate screed rail attached to and extending between said second pair of screed posts; and

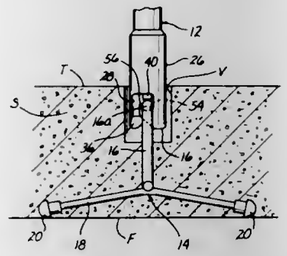
an elongate screed extending horizontally between and being slidably positionable along the length of said first and second screed rails.

5,212,920

STRONGBACK ATTACHMENT SYSTEM FOR CONCRETE PANEL TILT-UP CONSTRUCTION

Dennis W. Tye, Hayward, Calif., assignor to Richmond Screw Anchor Company, Inc., Fort Worth, Tex.

Filed Mar. 19, 1991, Ser. No. 671,550
Int. Cl.[5] E02D *35/00*
U.S. Cl. 52—127.1 17 Claims



1. A fastener system for temporarily securing a strongback beam or the like to a poured concrete structural member, comprising:

an anchor having a first portion adapted to be set in said poured concrete and to support a connected handle portion free of said concrete; and

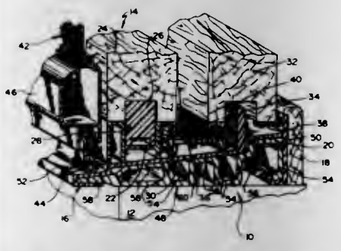
a shaft having a threaded end and an opposite end having a fastener head adapted to releasably engage said handle portion of the anchor, said fastener head being integral with said shaft and comprising a diametric slot defined in said opposite end dimensioned to receive said handle portion, hook means defined by diametrically opposed lateral slots opening into said diametric slot on either side thereof, said lateral slots being shaped for receiving and retaining said handle portion against withdrawal from said slot, and biasing means in said diametric slot normally urging said handle portion into retaining relationship with said hook means, said threaded end remaining free for securing a strongback beam to said structural member.

5,212,921

DOOR SILL COMPOSITION

Kirby L. Unruh, Warroad, Minn., assignor to Marvin Lumber and Cedar Company, Warroad, Minn.

Continuation of Ser. No. 642,358, Jan. 17, 1991, abandoned. This application Sep. 24, 1992, Ser. No. 950,790
Int. Cl.[5] E06B *1/04*
U.S. Cl. 52—204.1 2 Claims



1. A door sill for seating on a foundation support of a building in which the sill is to be installed, the sill including, when it is installed seated on the foundation support, a portion cantilevered outward from a forward face of the foundation support, the sill comprising:

(a) a strengthening core having a dimension perpendicular to an axis of elongation of the foundation support, said perpendicular dimension being defined in part by a core cantilever portion which extends along, and forms, a forward edge of said core, said core being formed of spun glass fibers, oriented in both lineal rows and random mats, defining a plurality of vertically-oriented panels integrated by a plurality of generally horizontally-oriented interconnecting panels, at least one of which interconnecting panels is integrally formed with said core cantilever portion, wherein said core is strengthened along said full perpendicular dimension against flexure forces brought to bear upon the sill by persons stepping on the sill; and

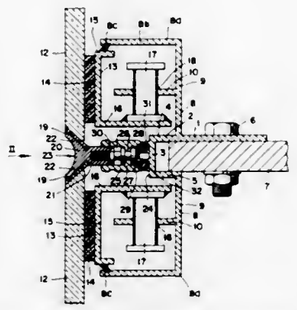
(b) an ultraviolet-stable, abrasion-resistant cladding, which has a low coefficient of thermal conductivity, encasing said core on at least upwardly-facing surfaces thereof.

5,212,922

KIT FOR GLASS FACADES

Günter Werner, Sieboldstr. 14, D-6100 Darmstadt, Fed. Rep. of Germany

PCT No. PCT/EP89/00413, § 371 Date Oct. 17, 1990, § 102(e) Date Oct. 17, 1990, PCT Pub. No. WO89/10461, PCT Pub. Date Nov. 2, 1989
PCT Filed Apr. 18, 1989, Ser. No. 598,594
Claims priority, application Fed. Rep. of Germany, Apr. 19, 1988, 8805126[U]; Aug. 18, 1988, 8810437[U]; Sep. 21, 1988, 8811937[U]
Int. Cl.[5] E04B *2/88*
U.S. Cl. 52—235 16 Claims



1. In a glass facade for a building comprising a support profile arrangement mounted on an outer surface of a building to form a facade substructure, and glass panes forming an outer surface of said facade and adhesively bonded to said support profile arrangement; adjacently disposed ones of said glass panes including beveled edges which form joints; anchoring bodies being provided for positively securing said glass panes to said support profile arrangement; said anchoring bodies gripping said beveled edges of said glass panes and being releasably joined to said support profile arrangement, said anchoring bodies comprising cross-shaped anchoring crosses set into the intersection of four of said joints, each anchoring cross including a bushing extending substantially the entire depth of said anchoring cross, a hole extending through said bushing, said hole being countersunk on an outside surface of said anchoring cross, and a screw extending into said hole and secured to said support profile arrangement.

5,212,923

PREHUNG GAUGED COVE BASE

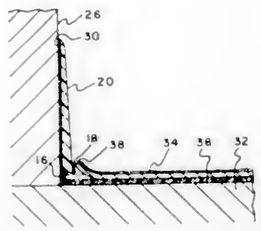
Lee J. Pelosi, and Frank Pelosi, Jr., both of 625 E. Chapel Ave., Cherry Hill, N.J. 08034

Filed Jul. 18, 1991, Ser. No. 732,171
Int. Cl.[5] E04F *19/04*
U.S. Cl. 52—288 5 Claims

1. A cove base adapted to be secured to a wall base and to

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cooperate with the outer edges of a floor covering to give the same a finished look when installed, comprising an elongated substantially flat member having a height dimension of at least two and one-half inches which is substantially greater than the thickness thereof, said member having an upper portion and a lower gauging portion, the rear surface of said upper and lower portions being substantially continuous and being adapted to be affixed to said wall base, said upper portion



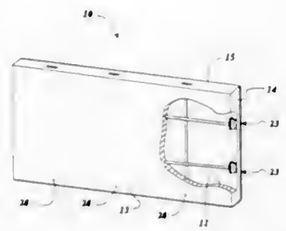
having a finished front surface, substantially the entire area of said front surface being planar and lying in a single plane, said lower gauging portion having a height and thickness which are substantially less than the height and thickness of said upper portion, a transition zone including a bottom wall on said upper portion which tapers downwardly and forwardly toward said front planar surface, said bottom wall intersecting said front planar surface and forming a tip which points substantially downwardly.

5,212,924

INSULATED PANEL WITH EDGE LATCH APPARATUS

Burl Finkelstein, Shenandoah, Ga., assignor to Kason Industries, Inc., Shenandoah, Ga.

Filed Jun. 24, 1991, Ser. No. 719,925
Int. Cl.[5] E04B *2/82*
U.S. Cl. 52—583 **4 Claims**



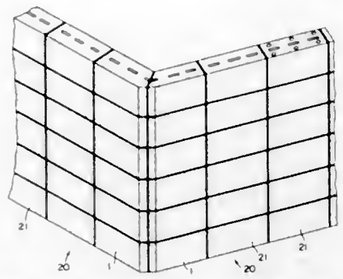
1. An insulated panel adapted to be interlocked with an adjacent insulated panel and which comprises a block of foam insulation having opposite end walls; a pair of fastener means mounted in said block adjacent said opposite end walls, each of said fastener means has a housing and a wing flange that extends at an acute angle from an embedded end of said fastener means housing towards the other end of the housing, each of said wing flanges has a T-shaped slot; and a flexible band embedded in said block having T-shaped ends sized to be releasably coupled in said T-shaped slots of said wing flanges thereby releasably coupling said pair of fastener means tautly together.

5,212,925

WALL CORNER COMPOSITE, MOLD AND METHOD FOR PRODUCING GLAZED UNIT FOR SUCH

John McClinton, 7432 Hickory La., Hanover, Md. 21076

Filed Nov. 21, 1991, Ser. No. 795,773
Int. Cl.[5] E04C *1/00*
U.S. Cl. 52—612 **38 Claims**



1. A wall corner composite comprising at least two glazed angled masonry building units each having an angled return portion and wherein the angled return portions face each other providing for a non-interlocking joint therebetween and wherein each glazed masonry building unit comprises a front face, a back face, a top face, a bottom face and two side faces wherein said front face is glazed with a resinous composition and is intended to be exposed and comprises a planar portion that is opposite to said back face and a second segment that intersects said planar portion to thereby form an obtuse, acute or right angle and wherein the length of said second segment is shorter than the length of said planer portion and is about 2½ inches or less;

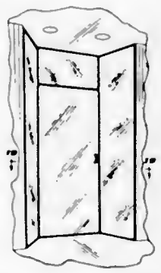
one of said side faces being angled and intersecting said second segment and said back face forming an obtuse angle with said back face and forming an angle with said second segment.

5,212,926

METHOD FOR FORMING AN ALCOVE

Robert A. Beasley, 210 Blueberry Hill NW., Cleveland, Tenn. 37312

Division of Ser. No. 657,424, Feb. 19, 1991, Pat. No. 5,107,645. This application Feb. 18, 1992, Ser. No. 835,846
Int. Cl.[5] E04B *2/00*
U.S. Cl. 52—745.1 **4 Claims**



1. A method for forming an alcove in a rough opening for a standard door defined by a plurality of parallel spaced apart structural members; said alcove including a recessed portion spaced away from the plane of said rough opening and a pair of converging side wall portions disposed at a predetermined angle relative to the plane of said rough opening, comprising the steps of:

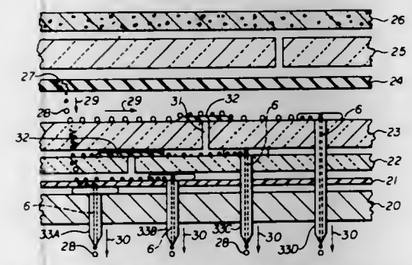
(a) providing a construction guide for guiding placement of said side wall portions adapted to be removably engaged with said structural members defining said rough opening;
(b) disposing said construction guide in said rough opening;
(c) forming said side wall portions relative to said guide; and
(d) forming said recessed portion.

5,212,927

LEAK LOCALIZING USING A COMBINATION OF PENETRATING DEVICES AND BARRIERS

James P. Sheahan, Midland, Mich., assignor to J. P. Sheahan Associates, Inc., Midland, Mich.

Filed Jan. 30, 1991, Ser. No. 647,804
Int. Cl.[5] E04B *1/00*
U.S. Cl. 52—747 **8 Claims**



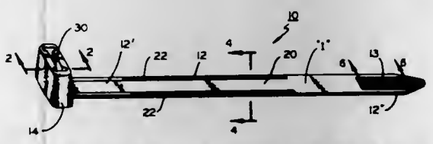
1. A method of localizing leaks in a roof assembly having a roof with at least one vapor barrier and a roof deck supporting said roof, said vapor barrier having an upper surface, the method comprising placing a penetrating device through the roof assembly such that the penetrating device breaches a roof deck, said device having an elongated shank at top end and a lower end and at least one opening in the shank, said opening extending continuously from the top end of the device through the lower end of the device such that the device allows limited amounts of water to pass downwardly from the upper surface of the vapor barrier while providing a passage for a limited amount of air to the upper surface of the vapor barrier.

5,212,928

CLOSURE STRAP FOR FLEXIBLE CONTAINERS AND APPARATUS AND METHOD FOR TENSIONSING THEREOF

Ernest D. Scott, Delray Beach, Fla.; Donald L. Tedder, Carrollton, Ga., and Gregory Scott, Jacksonville Beach, Fla., assignors to Edge Technology Corporation, Delray Beach, Fla.

Continuation-in-part of Ser. No. 503,281, Apr. 2, 1990, abandoned. This application Nov. 30, 1990, Ser. No. 621,215
Int. Cl.[5] B65B *51/08*
U.S. Cl. 53—417 **1 Claim**



1. A method for drawing a bundling strap taut about the neck of a flexible container such as a bank bag, said bundling strap comprised of an elongated body means, a head end portion connected to said strap body and defining an aperture sized to accommodate the insertion of at least a portion of said strap body, the method utilizing an automatic bundling strap tensioning apparatus characterized by a reversible motor means connected to a reciprocating means, means for gripping the strap body operably associated with said reciprocating means, said means for gripping adapted to reciprocate on said reciprocating means between an extended position and a retracted position dependent upon the direction of rotation of said power means, comprising the steps of:

looping said bundling strap about the open neck of said flexible container;

inserting a tail end of the strap through the aperture defined by the head end portion of the strap;

pulling said tail end of said strap at least partially through said aperture;

causing said means for gripping to grippingly engage the tail end portion of the strap;

electromechanically causing said means for gripping to move from the extended to the retracted position, thereby pulling the strap body further through said aperture enclosing the neck of the flexible container; and

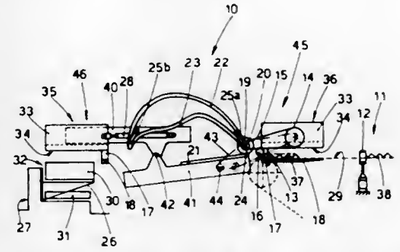
electromechanically causing said means for gripping to move from the retracted toward the extended position while gripping the strap body to at least partially expel the tightened strap from the apparatus and releasing said means for gripping from gripping engagement with said strap body.

5,212,929

UNIT TO FEED AND STACK LAYERS OF SECTIONS

Bruno Castellan, Farra d'Isonzo, Italy, assignor to Daniell & Co. Officine Meccaniche SpA, Buttrio, Italy

Filed Jan. 24, 1992, Ser. No. 825,087
Claims priority, application Italy, Jan. 25, 1991, UD91A000009
Int. Cl.[5] B65B *19/34, 35/56*
U.S. Cl. 53—149 **7 Claims**



1. A feeder-stacker unit to feed and stack layers of sections, the feeder-stacker unit being located downstream of a layer-forming platform and upstream of a packaging assembly, comprising:

a conveyor to deliver sections in a longitudinal direction from the layer-forming platform to the feeder-stacker unit;

a first manipulator arm bearing a first layer manipulator movable lengthwise along the first manipulator arm and capable of retaining a layer of sections, the first manipulator arm being mounted for rotation about an axis transverse to said longitudinal direction and between the conveyor and the packaging assembly to enable the first layer manipulator to move between a position adjacent the conveyor and a position adjacent the packaging assembly; and

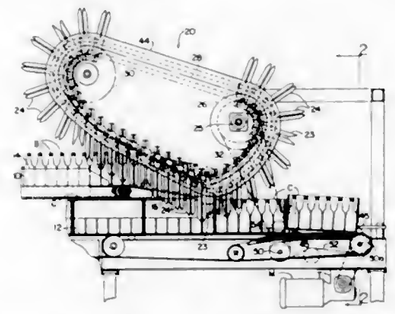
a second manipulator arm bearing a second layer manipulator movable lengthwise along the second manipulator arm and capable of retaining a layer of sections, the second manipulator arm being mounted for rotation about an axis transverse to said longitudinal direction and between the conveyor and the packaging assembly to enable the second layer manipulator to move between a position adjacent the conveyor and a position adjacent the packaging assembly;

means for simultaneously rotating said manipulator arms in

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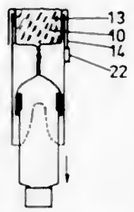
opposite directions to pass each other for moving layers from the conveyor to the packaging assembly;
and means for moving the first and second manipulators lengthwise along the first and second manipulator arms, respectively, while the arms are rotating to position the manipulators to pass each other.

5,212,930
CONTINUOUS MOTION PACKER FOR LOADING PARALLEL COLUMNS OF UPRIGHT CONTAINERS INTO PARTITIONED PACKING CASES
John L. Raudat, North Madison, Conn., assignor to Standard-Knapp, Inc., Portland, Conn.
Filed Nov. 26, 1991, Ser. No. 798,220
Int. Cl.[5] B65B *5/08*
U.S. Cl. 53—263 8 Claims



1. Apparatus for loading upright containers of girth (D) and height (H) into packing cases having front and rear portions and comprising:
container infeed conveyor means for advancing the containers in parallel in-line columns and in laterally aligned rows,
individual container supporting fingers downstream of said infeed conveyor means and gaps between said fingers, said fingers defining parallel paths for the columns of in-line containers, said fingers having downstream ends at a load station,
case conveyor means for moving cases end-to-end along a path below the paths of the containers and through said load station,
flight bar conveyor means with flights provided at a pitch distance (P) which is slightly greater than the girth (D) of the in-line containers in said columns,
said flight bar conveyor means providing an angled path for said flights that is inclined toward the parallel paths of said containers,
camming means alongside said inclined path for said flights, and cam followers on said flights to maintain said flights in a particular orientation relative to the containers being moved downstream by said infeed conveyor means,
each of said flights having depending pegs provided thereon, said pegs being spaced apart laterally by at least the girth (D) of said containers, said pegs provided in a grid-like pattern and adapted to move between adjacent upright containers and to pass downwardly though said gaps provided between said fingers,
at least some of said pegs moving further downwardly into the case as said case approaches said load station whereby the individual containers are guided by said pegs as the containers drop off the downstream end of the fingers into the case at said load station.

5,212,931
METHOD OF FILLING PASTE TUBES AND APPARATUS THEREFOR
Heinz Hartmann, Birnenweg 10, D-7417 Pfullingen, Fed. Rep. of Germany
Continuation of Ser. No. 570,949, Aug. 22, 1990, abandoned.
This application Mar. 19, 1992, Ser. No. 855,455
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1989, 3927996
Int. Cl.[5] B65B *3/04, 11/58*
U.S. Cl. 53—449 12 Claims

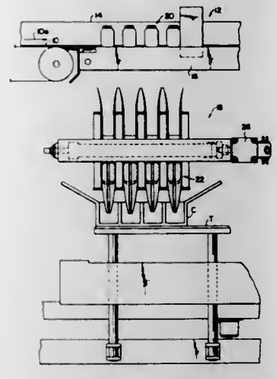


8. A method of placing a pasty mass into a first tube through an open bottom end of the first tube, said first tube also having a neck opening, comprising:
placing a leading end of a flexible plastic skirt over the bottom end of said first tube, said skirt also having an opposite trailing end;
placing a front end of a second tube over said leading end of said skirt, said second tube also having a back end;
turning back at least a portion of said trailing end over said back end;
placing a pasty mass into said plastic skirt; covering said pasty mass with said trailing end of said skirt;
pressing the back end of said second tube onto a firm surface to push said skirt containing said pasty mass into said bottom end of said first tube;
applying a force to said skirt containing said pasty mass; and
closing said bottom end.

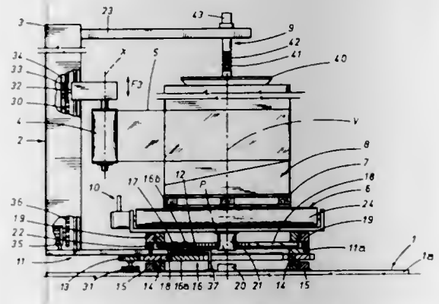
5,212,932
APPARATUS FOR LOADING FRANGIBLE ARTICLES INVERTED INTO PACKING CASE
John L. Raudat, North Madison, Conn., assignor to Standard-Knspp, Inc., Portland, Conn.
Filed Jun. 24, 1992, Ser. No. 903,624
Int. Cl.[5] B65B *21/04, 35/58*
U.S. Cl. 53—539 12 Claims

1 Apparatus for loading groups of articles into open packing cases and comprising:
article infeed conveyor means for moving articles in a plurality of side-by-side lanes in a downstream direction, lane defining grid means downstream of said article infeed conveyor means for successively receiving charges of articles, said grid means having movable article support elements for selectively releasing each charge of articles for downward movement out of said lane defining grid means,
article carrier means below said grid means for receiving articles so released by said support elements,
said carrier means including a first set of finger assemblies defining individual article receiving pockets, said finger assemblies having flexible fingers,
said flexible fingers having free end portions normally in open positions forming said pockets for receiving articles,
means for moving said finger free end portions from opened to closed positions,

means for moving said carrier means while said fingers are closed to a load station where said first set of finger assemblies are inverted, said fingers being opened at said load station to drop the articles into an open packing case.

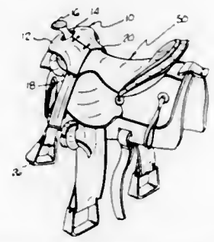


5,212,933
APPARATUS FOR WRAPPING PALLETIZED COMMODITIES IN PLASTIC FILM
Mauro Cere', Lolano, Italy, assignor to Robopac Sistemi S.r.l., Forli, Italy
Filed May 12, 1992, Ser. No. 881,535
Claims priority, application European Pat. Off., Mar. 9, 1992, 92830107.6
Int. Cl.[5] B65B *11/04*
U.S. Cl. 53—556 14 Claims



1. An apparatus for wrapping palletized stacks of commodities in plastic film material, comprising:
a frame, affording a horizontal bed;
a horizontal platform, mounted on said frame, on which to stand a single pallet base stacked with commodities;
a beam substantially of 'L' profile exhibiting a horizontal member and a vertical member, supported by and anchored rotatably to the frame and set in motion by drive means, of which the vertical member carries a roll of plastic film material rotatable about its own vertical axis and invested with controlled axial movement by further drive means in such a way as to ascend and descend on the vertical member, and the horizontal member is positioned beneath the roll, extending between the horizontal bed and the platform, and anchored in rotation at a point low down in the apparatus, coinciding with the axis about which the beam is caused to rotate in a first direction;
gripping means, positioned adjacent to the roll, by which the film is secured to the commodities at its free end before the start of the wrapping operation and cut on completion of the operation;
a drive transmission means, interposed between the frame and the platform and associated both with the platform and with the horizontal member of the 'L' profile beam, said drive transmission means causing said beam to rotate in the first direction for generating the wrapping action, and said drive transmission means causing at least the part of the platform occupied by the pallet to rotate simultaneously in the opposite second direction;
a single motor for driving said drive transmission means;
wherein the drive transmission means comprises:
a first driving gear wheel associated with drive means mounted to the frame by which the horizontal member is caused to rotate, in mesh with an internally and externally toothed first ring gear rigidly associated with the top face of a first bearing located between the horizontal member and the frame and allowing the horizontal member to rotate in the first direction;
a double idle gear freely rotatable and mounted to the frame, of which a bottom gear wheel meshes with the internal teeth of the first ring gear and a top gear wheel meshes in a plane above the plane of rotation of the horizontal member with a second idle gear, also freely rotatable and mounted to the frame;
an internally toothed second ring gear associated rigidly with a second bearing, said second ring gear meshing with said second idle gear, said second ring gear being located between the platform and the horizontal member, on which the platform is able to rotate in the direction opposite to that of the horizontal member.

5,212,934
SADDLE STIRRUP ATTACHMENT FOR USE BY CHILDREN
August R. Brown, 12598 Weld County Rd. 64 1/2, Greeley, Colo. 80631
Filed Feb. 21, 1992, Ser. No. 839,384
Int. Cl.[5] B68C *1/16*
U.S. Cl. 54—46.1 4 Claims



1. A stirrup attachment adapted for positioning over the horn of a standard adult saddle to permit a person of small build to ride horseback using the saddle, the stirrup attachment comprising:
a dome-shaped central section having an aperture centrally located therein through which the saddle horn of said standard saddle is received, said dome-shaped central section including left and right strap extensions, said central section being cut from flat leather stock, a pie-shaped section thereof adjacent to and rearward of said apertures being removed therefrom, two facing edges of said central section exposed by removal of said pie-shaped section being joined to thereby impart a dome shape to said central section;
a first stirrup connected to the left strap extension; and
a second stirrup connected to the right strap extension.

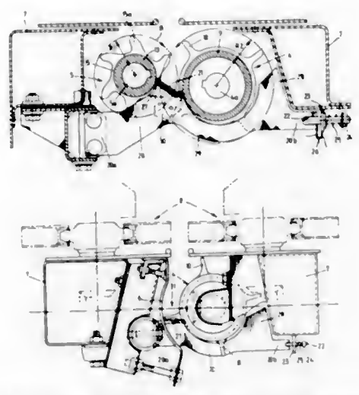
VOL 1150 ISS 4 MY 25 1993 UMI

5,212,935

DEVICE FOR HARVESTING CORN OR OTHER GRAINS

Lambert Sanders, Herzebrock-Clarholz; Heinrich Ostrup, and Heribert Dudler, both of Hersewinkel, all of Fed. Rep. of Germany, assignors to Claas oHG, Harsewinkel, Fed. Rep. of Germany

Filed Dec. 23, 1991, Ser. No. 812,273
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1990, 4041530
Int. Cl.[5] A01D *45/02*
U.S. Cl. 56—66 13 Claims



1. A harvesting device for harvesting corn or other grains embodied as an attachment for a combine and provided with a draw-in device and one picking gap per plant row for separating the cob from a cornstalk and having one driven picking roller per plant row with beater plates, and a bracing support (5, 6) extending paraxially to said picking roller, said device comprising, a connection piece (20) means disposed in a plant intake (PE) between said picking roller (4) and said bracing support (5, 6) for separating and cominnuting said cornstalk and stabilizing a distance between said picking roller (4) and said bracing support (5, 6), said connection piece (20) means extending crosswise, at right angles to said plant intake (A) and perpendicular to a longitudinal axis of said picking roller (4) and is formed by a sheet metal plate with an upper cutter edge (21) extending almost vertically in respect to said longitudinal axis of said picking roller wherein a first longitudinal end (20*a*) of said connection piece (20) means is fastened rigidly but removably and a second longitudinal end (20*b*) is fastened in a spring-loaded manner on two supports (7) respectively bearing said picking roller (4) and said bracing support (5, 6).

5,212,936

DISC CUTTER BAR

Georg Lauritsen, Kerteminde, Denmark, assignor to Maskinfabriken Taarup A/A, Kerteminde, Denmark

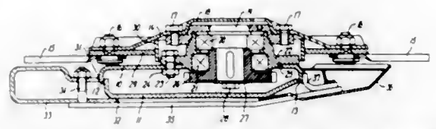
PCT No. PCT/DK90/00138, § 371 Date Dec. 6, 1991, § 102(e) Date Dec. 6, 1991, PCT Pub. No. WO90/14754, PCT Pub. Date Dec. 13, 1990
PCT Filed Jun. 6, 1990, Ser. No. 778,063
Claims priority, application Denmark, Jun. 7, 1989, 2779/89
Int. Cl.[5] A01D *34/66*
U.S. Cl. 56—6 5 Claims

1. A disc cutter bar comprising:

an elongate, relatively flat housing formed by an upper part and a lower part forming an upper wall, a lower wall, a front wall and a rear wall,

a plurality of cutter discs which are rotatable about substantially vertical axes and have rotary shafts carrying gear wheels which are arranged in said housing and are in drive connection with each other through a row of idle gear wheels,

said cutter bar being provided with a longitudinal reinforcing beam extending rearwardly with respect to the rear



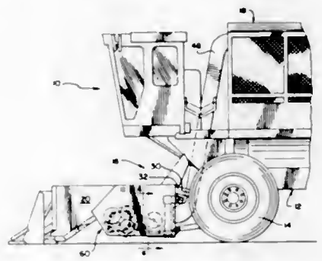
wall of said housing and having an upper wall and a lower wall which are welded to or integral with the upper part and lower part respectively of said housing so as to define a cavity extending longitudinally and defined by said rear wall.

5,212,937

COTTON HARVESTER

Robert M. Fachini, Naperville, Ill., and Arvel L. Black, Hereford, Tex., assignors to Case Corporation, Racine, Wis.

Filed Nov. 1, 1991, Ser. No. 786,524
Int. Cl.[5] A01D *46/08*; D01B *1/02*
U.S. Cl. 56—28 22 Claims



7. A cotton harvester having a mobile chassis and a harvesting head assembly laterally extending across and supported on said chassis, said harvesting head assembly comprising a rotatably driven auger means laterally extending across said chassis, harvesting means for removing a commingled mixture of trash and cotton materials from the plants, and means interposed between said harvesting means and said auger means for separating at least a portion of the trash and the like from cotton materials before the auger means receives the cotton materials.

5,212,938

MULCHING MOWER WITH OBROUND CUTTING CHAMBER

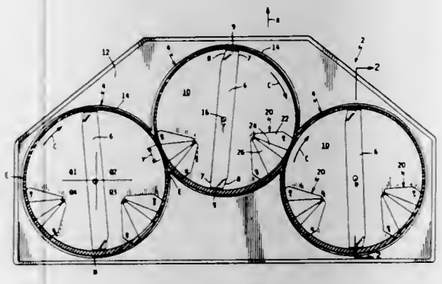
Michael N. Zenner, Lakeville, and Richard J. Guertin, Mounds View, both of Minn., assignors to The Toro Company, Minneapolis, Minn.

Filed Nov. 27, 1991, Ser. No. 800,324
Int. Cl.[5] A01D *34/72, 34/73*
U.S. Cl. 56—320.1 19 Claims

1. A mower of the type having at least one generally enclosed cutting chamber in which a generally horizontal cutting blade is contained, the cutting blade being rotatable about a vertical axis to sever grass or the like, wherein the cutting chamber includes a peripheral side wall which substantially surrounds the blade and is relatively unbroken at the level of the grass clippings being circulated by rotation of the blade such that the grass clippings are contained within the cutting chamber until such time as they are driven downwardly out of the cutting chamber through an open bottom side of the cutting chamber, and wherein the improvement relates to the shape of the cutting chamber and comprises:

a cutting chamber which is obround over the rear portion thereof.

15. A mower of the type having a generally horizontal cutting deck which is movable over the ground, wherein the cutting deck includes at least one generally enclosed cutting chamber which projects downwardly from a top wall of the cutting deck with the cutting chamber being substantially open only at the bottom thereof, a rotatable cutting blade contained inside the cutting chamber and having blade tips which have at



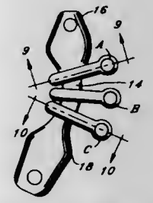
least a nominal clearance with a peripheral side wall defining a circumferential boundary of the cutting chamber, wherein the cutting chamber includes a front half and a rear half taken with reference to the direction of forward movement of the cutting deck such that the front half contacts uncut grass before the rear half as the cutting deck is being moved forwardly over the ground, and further including grass deflecting means located in the cutting chamber above a plane of rotation of the blade and above radially outer portions of the blade, wherein the grass deflecting means is located only in the rear half of the cutting chamber.

5,212,939

MARINE MOORING SWIVEL FITTING

John M. Pratt, Jr., 113 Whiskers La., Litchfield, Conn. 06759

Filed Dec. 4, 1991, Ser. No. 802,234
Int. Cl.[5] F16G *13/12*
U.S. Cl. 59—93 11 Claims



1. A marine mooring swivel comprising:

(a) a unitary fitting including a generally linear dumbbell shaped body having a relatively slender neck with outward enlargements at either end of the neck, and attaching means extending longitudinally at least one end of the fitting, and

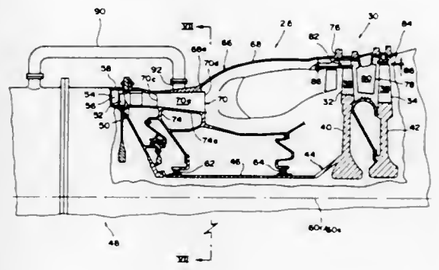
(b) a conventional shackle received laterally on the neck, the enlargements being sized not to pass the shackle endwise of the fitting.

5,212,940

TIP CLEARANCE CONTROL APPARATUS AND METHOD

Jeffrey Glover, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Apr. 16, 1991, Ser. No. 685,948
Int. Cl.[5] F02C *3/00, 5/00*
U.S. Cl. 60—39.02 12 Claims



1. A tip clearance control method for a gas turbine engine having a turbine section and a compressor section operating from a common rotor having a rotor axis, the compressor section including a compressor rotor assembly portion having plural rows of rotating compressor blades mounted on the common rotor, a compressor stator assembly portion having plural rows of compressor stator vanes mounted on a compressor stator casing, each pair of adjacent rows of rotary compressor blades and compressor stator vanes comprising a compressor stage, the turbine section including a turbine rotor assembly portion having at least one row of rotating turbine blades mounted on the common rotor, each rotating turbine blade having a tip, and a turbine stator assembly portion having at least one row of stator vanes mounted on a turbine stator casing and a stator shroud mounted on the turbine stator casing circumferentially around each row of rotating turbine blades, each stator shroud having a stator shroud axis, the rotor axis being substantially coincident with the stator axis when the engine is in a cold, no power condition and when the engine is running at low power, the tip clearance being defined as a circumferential space between the rotating turbine blade tips of a given row and an opposing surface of the corresponding turbine stator shroud and being circumferentially uniform during no power and low power conditions, the rotor axis being positioned relative to the stator axis by bearing means supported by a plurality of hollow struts mounted on a frame, the hollow struts being radially disposed at equiangular intervals around the rotor axis, each strut having a longitudinal axis substantially parallel to the rotor axis, the method comprising:

tapping a source of pressurized cooling air having a flow rate proportionate to engine power; and

delivering the pressurized air through conduit means to a selected group of the hollow struts at a temperature sufficient to induce thermal contraction of the selected group of the hollow struts, thereby opposing a downward shift in the rotor axis during high power engine operation and maintaining a circumferentially uniform tip clearance.

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5,212,941

METHOD FOR OPERATING A COMBINED GAS TURBINE/STEAM TURBINE PROCESS

Raimund Croonenbrock, Engelskirchen; Hubert Steven, Gummersbach, and Reinhold U. Pitt, Aachen, all of Fed. Rep. of Germany, assignors to L. & C. Steinmüller GmbH, Gummersbach, Fed. Rep. of Germany

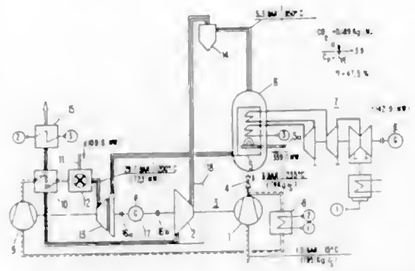
PCT No. PCT/EP90/00367, § 371 Date Oct. 30, 1991, § 102(e) Date Oct. 30, 1991, PCT Pub. No. WO90/10785, PCT Pub. Date Sep. 20, 1990

PCT Filed Mar. 6, 1990, Ser. No. 756,843

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1989, 3907217

Int. Cl.[5] F02C *6/00*

U.S. Cl. 60—39.02 **12 Claims**



1. A method for operating a combination of a superimposed boosted gas turbine process and a steam turbine process for generating electrical energy, comprising the steps of:

operating said superimposed boosted gas turbine process with compressed air and combustible fluid;

operating said steam turbine process with a fluidized bed furnace with a carbonaceous solid fuel;

performing combustion in said fluidized bed furnace with oxygen-containing exhaust gases from said superimposed boosted gas turbine process;

expanding said oxygen-containing exhaust gases to such an extent that said fluidized bed furnace is operable as a pressurized fluidized bed;

removing solid particles from flue gases of said fluidized bed furnace;

expanding said flue gases in a second gas turbine process;

in a first step, compressing air for said superimposed boosted gas turbine process with recooling, and in a second step, repeating compressing, whereby compressing energy for said first step is derived from said second gas turbine process and compressing energy for said second step is derived from said superimposed boosted gas turbine process; and

performing a heat-exchange of said flue gases with said compressed air of said superimposed boosted gas turbine process.

5,212,942

COGENERATION SYSTEM WITH RECUPERATED GAS TURBINE ENGINE

Donald Malohn, Scottsdale, Ariz., assignor to Tiernay Turbines, Inc., Phoenix, Ariz.

Division of Ser. No. 611,418, Nov. 9, 1990, Pat. No. 5,105,617. This application Dec. 9, 1991, Ser. No. 804,048

Int. Cl.[5] F02C *6/18, 7/10*

U.S. Cl. 60—39.07 **12 Claims**

1. A cogeneration system comprising:

a) a combustion chamber having means supplying fuel thereto;

b) a compressor for supplying compressed air to said combustion chamber;

c) a turbine rotatable about a central axis for extracting energy from the gases produced in said combustion chamber;

d) a recuperative heat exchanger including

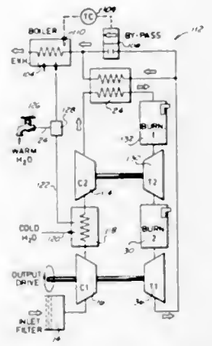
i) first inlet means for admitting low temperature compressed air from said compressor;

ii) first outlet means for expelling said compressed air into said combustion chamber;

iii) second inlet means for admitting high temperature exhaust from said turbine;

iv) second outlet means for expelling said turbine exhaust; and

v) separator means for separating said low temperature compressed air from said high temperature exhaust and for conducting heat therebetween;



e) a boiler communicating with said second outlet means for recovering the waste heat from said turbine to generate additional energy;

f) a bypass duct communicating between said turbine and said boiler for allowing a selected portion of said waste heat to bypass said heat exchanger and enter said boiler directly;

g) valve means in said bypass duct for regulating the proportion of waste heat passing through said heat exchanger relative to the amount of waste heat passing through said bypass duct; and

h) control means for controlling the action of said valve means such that the temperature of gases entering said boiler is substantially constant.

5,212,943

REDUCED THERMAL STRESS TURBINE STARTING STRATEGY

James J. Harris, San Diego, Calif., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Oct. 8, 1991, Ser. No. 772,834

Int. Cl.[5] F02C *9/28*

U.S. Cl. 60—39.141 **12 Claims**

1. A fuel controller for a gas turbine engine comprising:

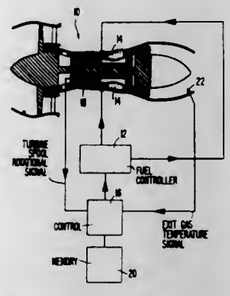
a fuel control for providing metered fuel to the gas turbine engine in response to a fuel control signal;

a rotational speed measuring device for determining a rotational speed of the gas turbine engine;

a memory for storing control parameters used during start-up of the gas turbine engine; and

a control responsive to a sensed speed and the control parameters stored in the memory for providing the fuel control signal to the fuel control for controlling the metering of fuel by the fuel controller applied to the gas turbine with a functional control relationship between a quantity of fuel which is metered by the fuel controller and the rotational speed of the gas turbine engine being varied during the start-up; and wherein

control parameters utilized by the control in generating the control signal are varied from the stored control parameters during start-up to vary the functional control relationship, and low limit fuel values applied to the control from the memory, which are a function of a sensed initial rotational speed, are provided to the gas turbine engine from the fuel controller beginning with a stored low limit value for an initial rotational speed at which fuel is provided to the gas turbine engine, a calculated rotational acceleration



for the turbine is provided by the control for the sensed initial rotational speed and compared with a threshold value stored in memory with an initial value of a correction term being applied to the control from the memory if the calculated acceleration is below the stored acceleration to which the calculated acceleration is compared to cause a change in the control signal to ensure metered fuel flow to the gas turbine engine.

5,212,944

CARBON AND SILICONE POLYMER ABLATIVE LINER MATERIAL

Jon W. Martin, Los Alamitos, and Richard A. Griese, Redlands, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Oct. 23, 1990, Ser. No. 602,438

Int. Cl.[5] F02K *9/00*; C08F *8/00*

U.S. Cl. 60—253 **18 Claims**

1. A method for protecting a surface from heat, comprising the step of forming an ablative liner material on the surface, the ablative liner material including:

a carbon polymer having a backbone of carbon atoms; and a silicone polymer;

wherein the carbon and silicone polymers are selected to provide a molar ratio of carbon to silicon in the range of approximately 2 to 8, thus controlling the endothermic reaction during the ablation process to optimize the generation of gases for transpirational cooling and the amount of stable char that remains after the ablation process is complete.

5,212,945

POST-COMBUSTION DEVICE WITH PIVOTING FLAPS

Alain G. J. Habrard, Saint Martin en Biere, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "S.N.E.C.M.A.", Paris, France

Filed Feb. 12, 1992, Ser. No. 833,787

Claims priority, application France, Feb. 13, 1991, 91 01641

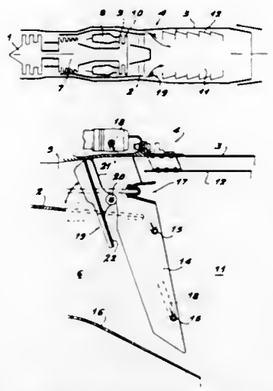
Int. Cl.[5] F02H *3/02*

U.S. Cl. 60—226.1 **5 Claims**

1. A post-combustion device through which flows two concentric streams, one of which is a primary flow of air flowing into the internal stream and the other of which is a flow of secondary air flowing into the external stream which device comprises:

a plurality of flame stabilizing radial arms extending through the internal stream;

a plurality of pivoting flaps, wherein the flaps assume a normal position when they separate the streams and a slanted position when they direct the flow of secondary air towards the primary flow said flaps including means for pivoting said flaps on the arms and each flap extending



between two adjacent arms, and wherein the flaps almost fully obstruct the external stream when in said slanted position.

5,212,946

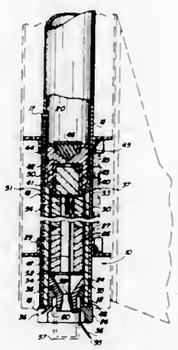
RELOADABLE/MODULAR SOLID PROPELLANT ROCKET MOTOR

Paul C. Hans, Scottsdale, Ariz.; Gary C. Rosenfield, Las Vegas, and Daniel H. Meyer, Henderson, both of Nev., assignors to Industrial Solid Propulsion, Las Vegas, Nev.

Filed May 20, 1991, Ser. No. 702,511

Int. Cl.[5] F02K *9/00*

U.S. Cl. 60—253 **18 Claims**



1. A modular rocket motor comprising a cylindrical housing having a first and second open end, forward component retainer means, aft component retainer means, each said component retainer means being detachably secured into a different end of said cylindrical housing in non-bonded relationship thereto and coacting therewith to define a chamber therebetween; seal means dividing said chamber into a first and second compartment; a time delay element operatively disposed in said first compartment; a propulsion charge operatively disposed in said second compartment; nozzle means disposed in said second compartment in operative interposition between said propulsion charge and said aft retainer means and including a central opening extending axially therethrough for directing combustion gases from said second compartment when said propulsion charge is ignited to and through said aft re-

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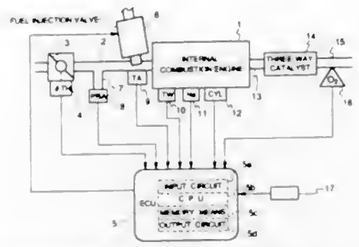
tainer means while said seal means coacts with said time delay element to prevent said combustion gases from engaging said forward retainer means.

5,212,947

FAILURE-DETECTING DEVICE FOR AIR-FUEL RATIO SENSORS OF INTERNAL COMBUSTION ENGINES

Sachito Fujimoto, and Kujiro Tsutsumi, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 6, 1992, Ser. No. 847,515
Claims priority, application Japan, Mar. 8, 1991, 3-020678
Int. Cl.[5] F01N *3/20*
U.S. Cl. 60—276 9 Claims



1. A failure-detecting device for an air-fuel ratio sensor of an internal combustion engine including an exhaust passage, and a three-way catalyst arranged in said exhaust passage, said air-fuel ratio sensor being arranged downstream of said three-way catalyst in said exhaust passage,

said failure-detecting device comprising:

air-fuel ratio-perturbing means for changing the air-fuel ratio of an air-fuel mixture supplied to said engine with a predetermined repetition period and by a predetermined amplitude;

air-fuel ratio variation-detecting means for detecting an amount of change in an output from said air-fuel ratio sensor responsive to the air-fuel ratio of said air-fuel mixture perturbed by said air-fuel ratio-perturbing means; and

failure-detecting means for detecting failure of said air-fuel ratio sensor based on the amount of change in said output from said air-fuel ratio sensor detected by said air-fuel ratio variation-detecting means.

5,212,948

TRAP APPARATUS WITH BYPASS

Gary R. Gillingham, Prior Lake; Marty A. Barris, Lakeville; Charles O. Reinhart, Minneapolis; Julian A. Imes, Jr., Bloomington, and Erland D. Anderson, Farmington, all of Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.

Filed Sep. 27, 1990, Ser. No. 589,050
Int. Cl.[5] F01N *3/02*
U.S. Cl. 60—288 9 Claims

1. Apparatus for processing exhaust gases from an engine, said apparatus comprising:

a housing with inlet means, outlet means, and first and second fluid flow paths with respect to said inlet means upstream and said outlet means downstream, said housing including a plurality of chambers with each of said chambers being separated from others by a gas impervious barrier;

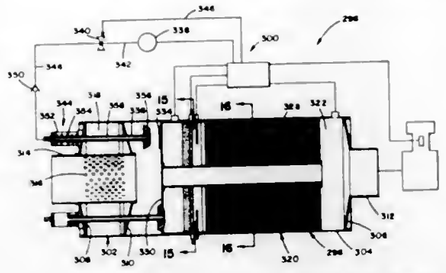
an acoustic element within said housing for attenuating the sound of said exhaust gases along said first and second fluid flow paths;

means, within said housing, for filtering the particulates from said exhaust gases along said first fluid flow path, said filtering means including a ceramic filter element divided into a plurality of segments;

means forming a section of said second fluid flow path for bypassing a portion of said filtering means to direct said exhaust gases from said second fluid flow path to said first fluid flow path;

means for regenerating said filtering means, said regenerating means including a plurality of means for heating said segments and a plurality of means for directing combustion air through said segments, each of said chambers including one of said segments of said ceramic filter element, one of said plurality of heating means, and one of said plurality of air directing means; and

means for controlling said regenerating means and said bypassing means.

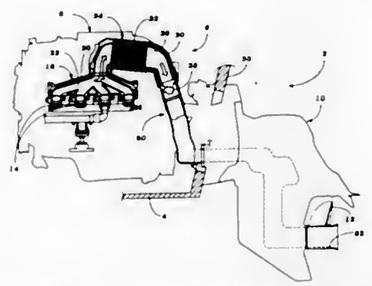


5,212,949

EXHAUST GAS CLEANING SYSTEM FOR A MARINE PROPULSION UNIT

Shigeki Shiozawa, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Shizuoka, Japan

Filed May 21, 1991, Ser. No. 703,808
Claims priority, application Japan, May 22, 1990, 2-130257
Int. Cl.[5] F01N *3/28*
U.S. Cl. 60—298 13 Claims



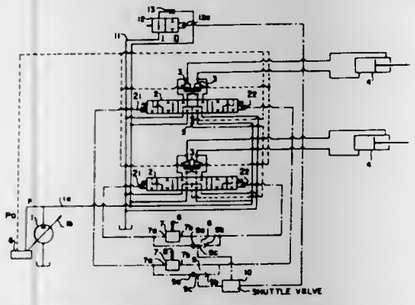
1. An exhaust gas cleaning system for use with a watercraft engine comprising a water cooled engine block and a cylinder head; and a plurality of exhaust ports located within said cylinder head, and positioned horizontally; and, an exhaust manifold in communication with each of said exhaust ports at a first end and forming a gas collecting pipe at a second end, said collecting pipe positioned above said exhaust ports; said exhaust manifold provided with a mating face which mates with said engine; said exhaust manifold further including a generally horizontally positioned exhaust pipe extending from said collecting pipe and continuing rearwardly therefrom; and means for introducing coolant from said engine into said rearwardly extending portion of said exhaust pipe; and, a catalyst member located within and across said horizontally positioned region of said exhaust pipe; said catalyst mounted within a catalyst holding structure formed within said exhaust pipe between said collecting pipe portion of said exhaust manifold and the area where coolant is introduced into said rearwardly extending portion of said exhaust pipe; and wherein said exhaust manifold is formed with an integral coolant jacket; and further comprising a coolant inlet provided substantially upstream of said catalyst holding structure for allowing coolant to enter said coolant jacket; wherein said coolant jacket is continuous and void of joints between said coolant inlet and a rearwardmost end of said catalyst; and wherein said catalyst is in a heat exchange relationship with said coolant jacket.

5,212,950

HYDRAULIC CIRCUIT WITH PILOT PRESSURE CONTROLLED BYPASS

Kiyoshi Shirai; Teruo Akiyama; Shigeru Shinohara; Naoki Ishizaki, and Takahide Takiguchi, all of Kawasaki, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Continuation of Ser. No. 674,324, Apr. 23, 1991, abandoned. This application May 6, 1992, Ser. No. 882,367
Claims priority, application Japan, Aug. 16, 1989, 1-210051; Aug. 16, 1990, 1-210052
Int. Cl.[5] F16D *31/02*; F15B *11/08, 13/04*
U.S. Cl. 60—422 4 Claims



1. A hydraulic circuit apparatus comprising:

a plurality of hydraulic loads, each being active in response to a supply of a given magnitude of an operating pressure;

a plurality of operating valves disposed in pressure supply passage means for supplying fluid pressure from a pressure source to said plurality of hydraulic loads, each of which is actuated by supplying a given magnitude of operating pressure, each of said operating valves corresponding to one of said hydraulic loads, and each of said operating valves being normally held at a closed position for blocking supply of the operating pressure to the corresponding hydraulic load and responsive to a pilot pressure to shift to an open position to permit supply of the operating pressure;

pressure regulating means for draining an excess pressure exceeding a given pressure level for regulating a line pressure;

pilot pressure generating means associated with manual operation means for selectively operating one of said hydraulic loads, for generating said pilot pressure to be supplied to at least one of said operating valves corresponding to at least a selected one of said hydraulic loads;

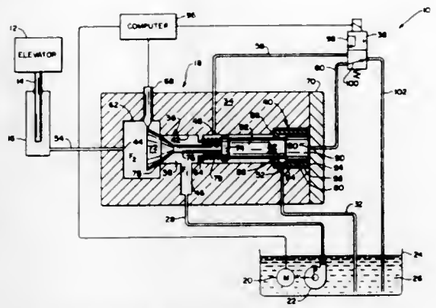
means responsive to said pilot pressure generated in said pilot pressure generating means for disabling draining of said pressure regulating means and thereby raising the line pressure beyond said given pressure level.

5,212,951

HYDRAULIC ELEVATOR CONTROL VALVE

Richard N. Fargo, Plainville, Conn., and Bennie J. Murah, Amherst, Mass., assignors to Otis Elevator Company, Farmington, Conn.

Filed May 16, 1991, Ser. No. 701,396
Int. Cl.[5] F16D *31/02*; F15B *13/044*
U.S. Cl. 60—479 10 Claims



1. An hydraulic elevator comprising:

a cab,

a plunger attaching to said cab,

a cylinder for translatingly receiving said plunger,

a pump means for communicating a variable fluid pressure force ("FPF") to said cylinder, and

a valve for communicating said variable FPF between said pump and said cylinder, said valve communicating said variable FPF for different magnitudes of variable FPF, said valve comprising:

a check valve for preventing a flow of said variable FPF between said pump and said cylinder, and

a circuit means for directing said FPF upon said check valve to urge said check valve to open against a cylinder FPF if said pump FPF is approximately equal to said cylinder FPF, said circuit means urging said check valve to open if no emergency condition exists and it is desired to lower the cab.

5,212,952

COMPACT POWER SUPPLY AND LUBRICANT AFFORDING DEVICE THEREFOR

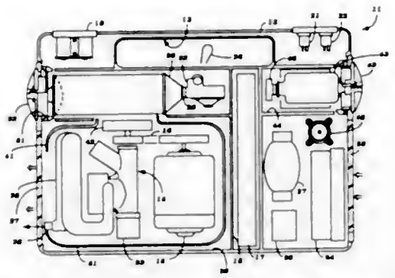
Yoshiharu Yokoyama; Shigeru Akiyama, and Kazubito Kitano, all of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Continuation of Ser. No. 692,775, Apr. 26, 1991, abandoned, which is a continuation of Ser. No. 377,480, Jul. 10, 1989, abandoned. This application Jan. 29, 1992, Ser. No. 827,535
Claims priority, application Japan, Jul. 9, 1988, 63-171291
Int. Cl.[5] F02B *63/04*
U.S. Cl. 60—721 16 Claims

1. A compact portable power supply comprising an outer housing having a carrying handle, an internal combustion engine supported within said outer housing, a cooling system for said engine comprising a cooling jacket for said engine, a radiator and means for circulating coolant between said cooling jacket and said radiator all within said outer housing, air inlet means in said outer housing for admitting air thereto, air outlet means in said outer housing for discharging air therefrom, said radiator being positioned in proximity to one of said air means, a combined generator, starter coupled to said engine for starting of said engine and for generating electrical power when said engine is running, said starter, generator being contained within said outer housing, a battery within said outer housing for operating said starter, generator when starting and for being charged by said starter, generator when said engine is running, a source of pressurized gaseous fuel for said engine

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within said outer housing and a lubricating system for said engine including a removable lubricant source accessible



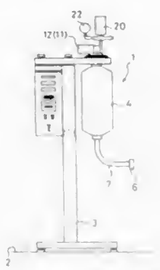
through an opening in said outer housing and closed by a removable closure.

5,212,953

APPARATUS FOR PREVENTING EVAPORATION OF LIQUEFIED GAS IN LIQUEFIED GAS RESERVOIR AND ITS CONTROL METHOD

Etsuji Kawaguchi; Masato Adachi, both of Moriyama; Masayuki Taira, and Eiichi Watanabe, both of Akishima, all of Japan, assignors to Iwatani Sangyo Kabushiki Kaisha; Iwatani Plantech Kabushiki Kaisha, both of Osaka and Jeol Ltd., Tokyo, all of Japan

Filed Sep. 13, 1991, Ser. No. 759,904
Claims priority, application Japan, Feb. 8, 1991, 3-039291
Int. Cl.[5] F17C *5/02*
U.S. Cl. 62—47.1 5 Claims



1. A method for preventing evaporation of liquefied gas in a liquefied gas reservoir, said liquefied gas reservoir comprising a cryogenic refrigerator with a cold head positioned at an upper end of the reservoir, said method comprising the steps of:

condensing and liquefying a vapor inside the liquefied gas reservoir, said step of condensing and liquefying being accomplished by having a cold end of the cold head extend into the upper end of the liquefied gas reservoir;

automatically controlling the cold head of the cryogenic refrigerator, such that said cryogenic refrigerator is automatically switched on when temperature inside said liquefied gas reservoir is above an automatic operation set temperature, and automatically switched off when said temperature reaches a predetermined low temperature;

activating an automatic operation release state when the temperature inside said liquefying gas reservoir is below said automatic operation set temperature, such that an energy dispersive spectrometer type x-ray can be placed into operation, with said x-ray being connected to a cold finger which extends from a container wall of said liquefied gas reservoir;

i) while said automatic operation is in the release state, sensing whether the temperature inside the reservoir has risen above the automatic operation set temperature, and triggering a switching alarm when the temperature reaches an alarm issuing temperature above said operation set temperature;

ii) forcibly switching back to the automatic control state when temperature inside the reservoir rises above the alarm issuing temperature and reaches a forced automatic operation state switching temperature;

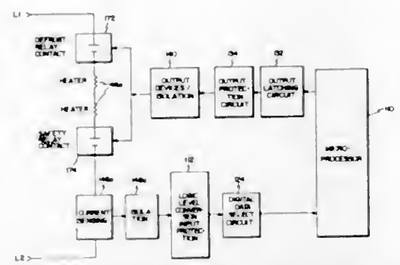
ii) resetting said switching alarm and switching operation; said method of resetting being remotely controllable.

5,212,954

FROZEN CONFECTION MACHINE AND HEATING APPARATUS AND METHOD THEREFORE

William J. Black, Coon Rapids; Joseph W. Kieffer, Maple Grove, both of Minn.; Darrell D. Brown, Grafton, and Tom D. Tagliapietra, Glendale, both of Wis., assignors to IMI Cornelius Inc., Anoka, Minn.

Division of Ser. No. 495,876, Mar. 19, 1990, Pat. No. 5,095,710.
This application Feb. 12, 1992, Ser. No. 834,442
Int. Cl.[5] H05B *3/02*; F25C *5/08*
U.S. Cl. 62—73 12 Claims



1. Heating means for a frozen confection machine, the confection machine including, a freezing cylinder for retaining and producing the confection therein and an evaporator coil secured to the exterior of the freezing cylinder for providing freezing of the confection retained therein, and the cylinder and coil retained within an interior space of a cylinder housing and the cylinder housing interior space filled with an insulating material, the heating means comprising: a heat conductive housing secured to the evaporator, and an electrical heater element slideably engageable within the interior of the housing, the heating element operatively connected to a control means and connected to a source of electrical power for providing current thereto, and the conductive housing having an open end terminating at a position adjacent to an exterior surface of the cylinder housing so that the heater element can be easily removed from the conductive housing while the conductive housing remains in place secured to the evaporator and while the evaporator and cylinder remain within the insulated cylinder housing interior space.

5,212,955

HALF CRESCENT SHAPED ICE PIECE MAKER

Thomas H. Hogan, Anniston, Ala., assignor to Mid South Industries, Inc., Rainbow City, Ala.

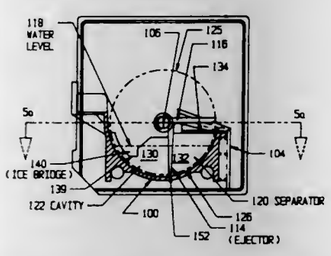
Filed Aug. 7, 1992, Ser. No. 926,197
Int. Cl.[5] F25C *5/08*
U.S. Cl. 62—73 18 Claims

1. In a half crescent shaped ice piece maker comprising an elongated tray having an arcuately shaped inner surface extending along the length of the tray about a radial line axis and divided into a plurality of full crescent shaped cavities arranged sideby-side in said tray,

a bi-directional rotatable shaft having an axis of rotation coincident with said radial line axis, and leading and lagging rows of ejector elements, with each row of ejector elements lying in a separate plane with the first ends of the lagging row of ejector elements being securely attached to, but slightly off-center from the axis of said shaft and with the first ends of the leading row of ejector elements being securely attached to the side of one of the lagging ejector elements close to the axis of said shaft, and with the second ends of each leading ejector element extending downwardly into the center of a cavity at the beginning of an ice making cycle to divide said cavity into two half crescent shaped cavities which ultimately will form two half crescent shaped ice pieces;

control means for controlling the direction of rotation of said shaft the circumferential point during the rotation of said shaft at which a reversal of rotation of direction occurs and when and for what period of time the rotation of said shaft ceases;

a row of stripper elements positioned to pass between said ejector elements and to strip said half crescent ice pieces from said ejector elements as said ejector elements rotate between adjacent ones of said stripper elements;



said control means, at the end of each previous ice making cycle causing said leading row of ejector elements to rotate clockwise a predetermined angular amount past said stripper elements to first strip said leading half crescent ice pieces from said leading ejector elements and to then strip said lagging half crescent ice pieces from said leading ejector elements, and to then reverse the direction of rotation of said shaft to a counter-clockwise direction for a second angular distance less than said first angular distance during which the flow of water into the now empty crescent shaped cavities occurs;

said control means causing said shaft to continue to rotate in a counter-clockwise direction until the leading row of ejector elements becomes directed downward into the center of a cavity at which time the shaft rotation ceases and the water in the cavities is allowed to freeze; and

said control means further comprising temperature sensing means responsive to the freezing of said water to cause said shaft to rotate in a clockwise direction said first angular distance to begin a new cycle of half crescent shaped ice piece making.

5,212,956

METHOD AND APPARATUS FOR GAS COOLING

Alexandre Tsimerman, Odessa, U.S.S.R., assignor to Ari-Tec Marketing, Inc., Phoenix, Ariz.

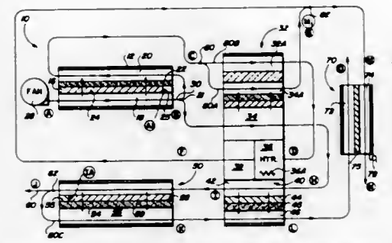
Continuation-in-part of Ser. No. 642,897, Jan. 18, 1991, Pat. No. 5,050,391. This application Sep. 23, 1991, Ser. No. 763,647
Int. Cl.[5] F25D *17/06*
U.S. Cl. 62—94 26 Claims

23. A process for treating a total stream of air to condition same to cool same for supply to a temperature controlled area including:

(a) directing air to be treated to a regenerative adsorption unit with an inlet and outlet having first stage and second stage heat exchange element and dehumidification means to cool and dehumidify the supply air stream;

(b) directing the discharge from the regenerative adsorption unit to an initial heat exchange zone and flowing the air along a first moisture-impervious surface to extract heat at substantially constant moisture conditions to produce a dry cooled air in the first stage;

(c) diverting a portion of the total stream of the dry cooled air to establish a secondary air flow and a primary air flow;



(d) directing the secondary air flow in a secondary heat exchange zone countercurrently to the total air stream along an absorbent surface adjacent said first moisture-impervious surface in heat exchange relationship with said total flow to heat and humidify said secondary air flow;

(e) directing the primary stream of dry cooled air to the temperature controlled zone; and

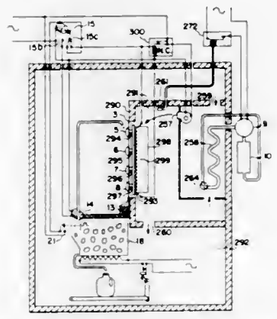
(f) periodically regenerating said regenerative adsorption unit to reactivate the dehumidification means.

5,212,957

REFGRIGERATOR/WATER PURIFIER

John D. Ruff, Alexandria, Va., assignor to Thermadyne, Inc., Alexandria, Va.

Continuation-in-part of Ser. No. 654,509, Feb. 13, 1991, Pat. No. 5,123,948, which is a continuation-in-part of Ser. No. 494,546, Mar. 16, 1990, Pat. No. 4,998,417, which is a continuation-in-part of Ser. No. 437,161, Nov. 16, 1989, Pat. No. 4,944,902, which is a division of Ser. No. 278,447, Dec. 1, 1988, Pat. No. 4,897,099. This application Apr. 7, 1992, Ser. No. 864,781
Int. Cl.[5] C02F *1/22*
U.S. Cl. 62—124 13 Claims



1. A system for storage of foodstuffs at temperatures less than 45° F., and for providing ice and purified water comprising:

a continuous refrigerant flow path including a compressor, a condenser, a metering means and an evaporator means;

a storage space for food;

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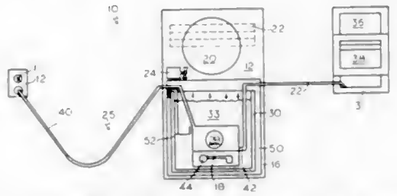
means for cooling said storage space by conducting thermal energy from said storage space to said evaporator means;
temperature sensor means for sensing the temperature in said storage space;
control means responsive to said temperature sensor means for energizing said compressor when the temperature in said storage space is higher than a predetermined level;
at least one ice-forming surface;
means for cooling selected areas of said ice-forming surface to a temperature below the freezing temperature of water by conducting thermal energy to said evaporator means from said selected areas;
pump means for circulating a stream of unpurified water over said selected areas to form ice at said selected areas while washing impurities away from the formed ice with said stream;
means for increasing the temperature at said selected areas at various times to remove said ice from said ice-forming surface;
a bin for collecting ice removed from said ice-forming surface;
means for warming said bin to melt some of the ice collected therein into purified liquid water;
container means for collecting the purified liquid water formed by melting the ice in said bin;
bin sensor means for sensing the amount of ice collected in said bin;
container sensor means for sensing the amount of purified liquid water collected in said container; and
control means responsive to said bin sensor means for deactivating said pump means when said amount of said collected ice in said bin exceeds a predetermined amount.

5,212,958

DEHUMIDIFIER APPARATUS WITH PUMP

John C. Anderson, 31 Blueberry Hill Rd., Hyannis, Mass. 02601

Continuation-in-part of Ser. No. 518,789, May 4, 1990, Pat. No. 5,074,119. This application Dec. 17, 1991, Ser. No. 809,740
Int. Cl.[5] F25D *23/14*
U.S. Cl. 62—150 **4 Claims**



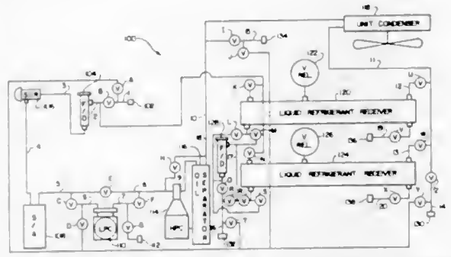
4. A dehumidifier apparatus in combination with a submersible pump device comprising:
a) a portable dehumidifier device adapted for use in below - grade building locations comprising;
i) a housing having an air inlet and an air outlet and an upper chamber and a lower chamber;
ii) an electrically operated dehumidifier means for condensing moisture from the surrounding air and forming liquid water condensate to dehumidify the air;
iii) a collection means including a wall, mounted in the base located in the lower chamber of the housing, to collect liquid condensate generated by the dehumidifier means, located in the upper chamber of said housing, and adapted to be manually removed from the housing for emptying the within - contained condensate;
iv) a motor blower means to draw moisture laden air into the air outlet, to circulate the air across the dehumidifier means, and to discharge dehumidified air from the air outlet;
v) a switch circuit means for controlling the operation of the dehumidifier;
vi) a float switch means to sense the level of condensate in the collection means connected electrically to the switch circuit means to intermittently activate and deactivate the dehumidifier means;
b) a submersible pump means to automatically remove liquid condensate from the collection means to permit continuous operation of the dehumidifier means comprising;
i) a submersible electric pump means to pump the liquid condensate from the collection means to an elevated or remote drain via a tube means;
ii) mounting means to attach the submersible pump means to the wall of the collection means;
iii) an external tube means having a one end and an other end, the one end attached to the submersible electric pump and the other end adapted to communicate with an elevated, remotely located drain, said external tube means being of elongated construction and extending from the submersible electric pump means to provide a conduit for carrying away the water condensate and;
iv) a pump switch connected to the switch circuit means.

5,212,959

REFRIGERANT PROCESSING AND TRANSFERRING SYSTEM

Charles E. Galbreath, Sr., P.O. Box 507, Westlake, La. 70669

Filed Jun. 3, 1992, Ser. No. 893,007
Int. Cl.[5] F25B *45/00*
U.S. Cl. 62—292 **11 Claims**



1. A refrigerant processing and transferring system usable with a refrigerant system under repair, comprising:
a first fluid path for transferring and processing refrigerant in vapor form having an input end for receiving the refrigerant in vapor form at low pressure and an output end for producing a processed vapor refrigerant at high pressure;
a vapor suction inlet connector having a vapor suction inlet valve for selectively connecting and disconnecting the input end of said first fluid path to a refrigerant line of the refrigerant system under repair having refrigerant in vapor form located therein;
a condenser for receiving a refrigerant in vapor form at high pressure at an input end thereof, for condensing the refrigerant therein, and for producing a condensed liquid refrigerant at an output end thereof under high pressure, wherein the output end of said first fluid path is connected to the input end of said condenser;
a liquid refrigerant receiver section for storing refrigerant in liquid form under high pressure;
said first fluid path further comprising:
a filter and dryer stage for filtering and drying refrigerants entering therein from an input end connected thereto and exiting therefrom from an output end connected thereto, wherein the input end thereof is connected to the input end of said first fluid path;
a suction regulator stage having an input end and an output end;
a first fluid connection connecting the filtered and dried refrigerant at the output end of said filter and dryer stage to the input end of said suction and regulator stage; a suction accumulator stage having an input end and an output end;
a second fluid connection connecting the output end of said suction and regulator stage to the input end of said suction accumulator stage;
a low pressure compressor having an input end and an output end;
a low pressure compressor inlet valve having an inlet and an outlet;
a third fluid connection connecting the output end of said suction accumulator to the inlet of said low pressure compressor inlet valve;
a fourth fluid connection connecting the outlet of said low pressure compressor valve to the input end of said low pressure compressor;
a low pressure compressor outlet valve having an inlet and an outlet;
a fifth fluid connection connecting the outlet of said low pressure compressor to the inlet of said low pressure compressor outlet valve;
a high pressure compressor having an input end and an output end;
a sixth fluid connection connecting the outlet of said low pressure compressor outlet valve to the input end of said high pressure compressor;
an oil separator stage having an input end, a first output end for producing the processed vapor refrigerant located at the output end of said first fluid path, and a second output end for circulating some of the oil recovered by the oil separator stage to the high pressure compressor;
a seventh fluid connection connecting the output end of said high pressure compressor to the input end of said oil separator;
a second fluid path for selectively delivering said condensed liquid refrigerant to said liquid refrigerant receiver section and blocking said condensed liquid refrigerant from entering said liquid refrigerant receiver section;
a third fluid path for transferring and processing refrigerant in liquid form from an input end thereof to an output end thereof, wherein said output end thereof is connected to said liquid refrigerant receiver section;
a liquid refrigerant connector having a liquid refrigerant inlet connector valve for selectively connecting and disconnecting the input end of said third fluid path to a refrigerant line of said refrigerant system under repair with refrigerant in liquid form located therein;
a vapor discharge outlet connector having a vapor discharge outlet connector valve for selectively connecting and disconnecting the output end of said first fluid path to a refrigerant line of the refrigerant system having a refrigerant in vapor form located therein; and
a fourth fluid path for selectively connecting or disconnecting said liquid refrigerant receiver section to said input end of the first fluid path.

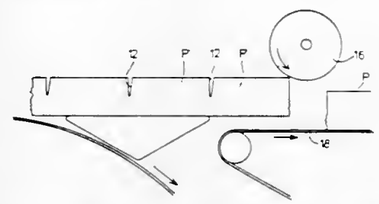
5,212,960

METHOD AND A SYSTEM FOR PRODUCING EXTRUDED EDIBLE ICE PRODUCTS

Ejvind Waldstrøm, Tranbjerg, Denmark, assignor to O.G. Hoyer A/S, Hojbjerg, Denmark

PCT No. PCT/DK90/00177, § 371 Date Jan. 7, 1992, § 102(e) Date Jan. 7, 1992, PCT Pub. No. WO91/00693, PCT Pub. Date Jan. 24, 1991
PCT Filed Jul. 9, 1990, Ser. No. 781,131
Claims priority, application Denmark, Jul. 7, 1989, 3369/89
Int. Cl.[5] B02C *18/02*
U.S. Cl. 62—320 **8 Claims**

1. A method of producing extruded ice cream products the method comprising the steps of:
delivering extruded material while still being deformable as an unbroken extruded string of ice material,
conveying the extruded strings through a freezing zone,
subjecting the extruded string after passing a first partial length of the freezing zone to a constriction formation mutually spaced positions corresponding to a desired length of the ice cream products without breaking the extruded string,



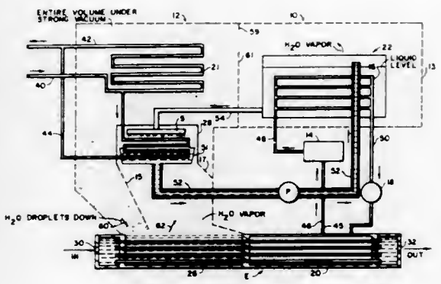
further conveying the extruded string through a remaining length of the freezing zone so as to be hard frozen and into a severing station, and
consecutively breaking off an intruding front end of the extruded string as a product body at a following construction area of the extruded string.

5,212,961

DUAL CYCLE WATER CHILLER

William J. Graf, 39-65 52nd St., Woodside, N.Y. 11377

Filed Oct. 15, 1991, Ser. No. 775,424
Int. Cl.[5] F25B *15/00*
U.S. Cl. 62—333 **5 Claims**



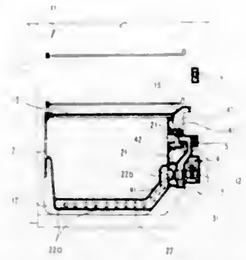
1. A cooling system comprising the combination of a compression unit and an absorption unit;
said compression unit having a compressor, a first condenser means, and an expansion device;
said absorption unit having a solution pump, a second condenser means, a generating/concentrating means; an absorber, and a strong liquor spray head within said absorber;
a single evaporator having first and second sections, said first section forming part of said compression unit and said second section forming part of said absorber unit;
means within said evaporator for permitting the fluid being cooled to flow serially and continuously through said evaporator sections so as to enable both the compression unit and the absorber unit to operate immediately and directly on said fluid.

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5,212,962
VEGETABLE BOX COOLING APPARATUS FOR REFRIGERATOR

Sung-Chel Kang, and Kyong-Man Kim, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Dec. 30, 1991, Ser. No. 814,705
Claims priority, application Rep. of Korea, Jan. 7, 1991, 91-120
Int. Cl.[5] F25D *25/02*
U.S. Cl. 62—382 6 Claims



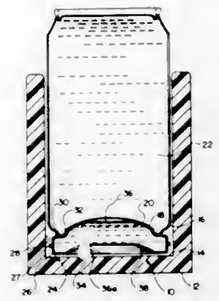
1. A vegetable box cooling apparatus for refrigerator, comprising:
a refrigerator body partitioned into a freezing room, refrigerating room, and a vegetable room and provided with a blowing fan for circulating cool air;
a vegetable box movably disposed within said vegetable room in such a manner as to store vegetables, and provided with a cool air inlet and a cool air outlet on the rear wall thereof;
a cool air sucking member integrally and curvedly formed across the bottom of said vegetable box, with one of its ends being connected to said cool air outlet order to suck the cool air within said vegetable box;
a cool air circulating member installed within a recess formed on the rear wall of said vegetable room, and provided with a fan motor and a blower in order to circulate the cool air;
a duct member for accommodating said blower, and connected between said cool air inlet and said cool air outlet of said vegetable box ; and
first and second temperature sensing means for detecting the temperatures of said refrigerating room and said vegetable room, and for outputting sensing signals to a controller in order to turn on or off said cool air circulating member.

5,212,963
REFRIGERANT DEVICE FOR INSULATED BEVERAGE HOLDER

Barry N. McGinnis, Manufacturing Technology Corporation, 1850 Business Park Dr., Ste. 109, Clarksville, Tenn. 37040

Filed Feb. 26, 1992, Ser. No. 841,565
Int. Cl.[5] F25D *3/08*
U.S. Cl. 62—457.4 2 Claims

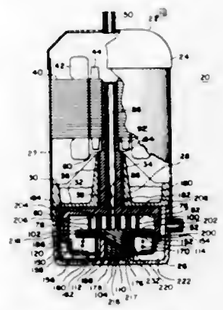
1. A refrigerant device which is removably insertable into an insulated beverage container holder for keeping a beverage container cool for an extended period while facilitating a consumption of a beverage therefrom, the beverage container being generally cylindrical in shape and having a predetermined outside diameter and a concave bottom surface, said refrigerant device comprising:
a) a disk-shaped container which includes a raised top surface that substantially conforms to and essentially maintains contact with the bottom surface of the beverage container, said disk-shaped container having a cylindrical sidewall with a peripheral flange radially extending therefrom, said flange having an outside diameter which corresponds to slightly smaller than an inside diameter of the holder, said disk-shaped container further having a bottom surface which is substantially concave and which has a configuration that conforms to said top surface to enable a plurality of said disk-shaped containers to be nestingly stackable; and
b) a non-toxic refrigerant substance in said disk-shaped container to impart a cooling effect on the beverage container by conductive heat transfer through the bottom surface of the beverage container, whereby said refrigerant device is stored in a freezer compartment until frozen, said refrigerant device then being removed from the freezer compartment in a frozen state and deposited into an insulated beverage container holder with said raised top surface projecting upwards, the beverage container then being placed concentrically within the insulated beverage container holder such that the bottom surface of the beverage container contacts said top surface of said refrigerant device enabling conductive heat transfer to occur said raised top surface having a periphery which has a diameter which is smaller than a diameter of the side wall.



5,212,964
SCROLL APPARATUS WITH ENHANCED LUBRICANT FLOW

Robert E. Utter, Onalaska; Daniel R. Crum, and Peter A. Kotlarek, both of La Crosse, all of Wis., assignors to American Standard Inc., New York, N.Y.

Continuation of Ser. No. 605,599, Oct. 29, 1992, abandoned.
This application Oct. 7, 1992, Ser. No. 958,436
Int. Cl.[5] F04C *18/04, 29/02*
U.S. Cl. 62—498 32 Claims

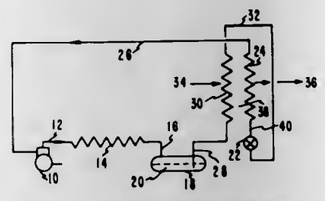


1. A scroll compressor comprised of:
a first scroll member having a first scroll end plate and a first scroll wrap disposed on said first scroll end plate;
a second scroll member having a second scroll end plate and a second scroll wrap disposed thereon, said second scroll wrap cooperating with said first scroll wrap to form an alternately open and closed first chamber between the respective scroll wraps and said second scroll end plate defining a lubricant passage having an outlet in flow communication with said first chamber;
a lubricant pickup tube, affixed to said second scroll member and in flow communication with said lubricant passage, for delivering lubricant to said lubricant passage; and
means for rotating said first and said second scroll members.

5,212,965
EVAPORATOR WITH INTEGRAL LIQUID SUB-COOLING AND REFRIGERATION SYSTEM THEREFOR

Chander Datta, R.R. #6, Kingston, Ontario K7L 4V3, Canada

Filed Sep. 23, 1991, Ser. No. 763,578
Int. Cl.[5] F25B *39/02*
U.S. Cl. 62—515 23 Claims



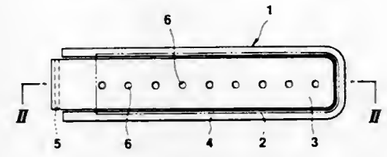
1. An improved evaporator for cooling a fluid stream,
the evaporator being adapted for use in a refrigeration system having evacuating means for withdrawing refrigerant vapor from the evaporator and condensing means for converting the refrigerant vapor to a high pressure refrigerant liquid flowing to the evaporator,
said evaporator comprising
first heat transfer means for receiving the high pressure refrigerant liquid from the condensing means and for exchanging heat between the high pressure refrigerant liquid and the fluid stream thereby cooling the high pressure refrigerant liquid and discharging it and warming the fluid stream and discharging it,
pressure reducing means for receiving the cooled high pressure refrigerant liquid discharged by the first heat transfer means and for discharging it at reduced pressure,
and second heat transfer means for receiving the warmed fluid stream discharged by the first heat transfer means and for receiving the reduced pressure refrigerant liquid discharged by the pressure reducing means and for exchanging heat between the warm fluid stream and the reduced pressure refrigerant liquid whereby the fluid stream is cooled and the reduced pressure refrigerant liquid stream is evaporated and the resulting vapor conveyed to the evacuating means.

5,212,966
RESIN WRISTWATCH BAND HAVING FIRST AND SECOND MOLDED RESIN MEMBERS

Shunji Minami, Fussa, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed May 12, 1992, Ser. No. 882,441
Claims priority, application Japan, May 15, 1991, 3-139737
Int. Cl.[5] A44C *5/00*
U.S. Cl. 63—3 10 Claims

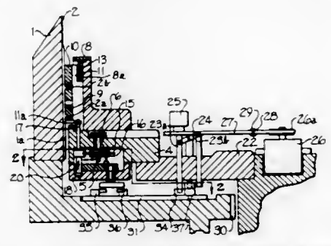
1. A resin wristwatch band comprising:
a first resin member formed by injection molding so as to have an elongated belt-like shape, a through hole being formed at one end portion of said first resin member to receive a mounting pin for mounting the band to a wristwatch case, said first resin member further having a plurality of band stopper holes formed therein;
a net member arranged embedded in said first resin member and having a peripheral edge portion projecting from a periphery of said first resin member; and
a second resin member formed by injection molding, said second resin member covering said projecting peripheral edge portion of said net member and said second resin member firmly and hermetically joining the periphery of said first resin member, and wherein said second resin member is made of a softer resin material than said first resin member.



5,212,967
AUTOMATIC STITCH ADJUSTING MECHANISM FOR CIRCULAR KNITTING MACHINE

Takao Shibata, Osaka, and Hiromasa Nagai, Hyogo, both of Japan, assignors to Precision Fukuhara Works, Ltd., Japan

Continuation-in-part of Ser. No. 712,465, Jun. 10, 1991, abandoned. This application Jul. 17, 1992, Ser. No. 915,933
Int. Cl.[5] D04B *15/32*
U.S. Cl. 66—55 4 Claims



1. In a circular knitting machine including a plurality of knitting needles supported in a rotating needle cylinder for vertical movement parallel to the axis of rotation of the needle cylinder, a plurality of raising cams engaging the needles for raising the needles, and a plurality of stitch cams engaging the needles for lowering the needles, said stitch cams being vertically movable for adjusting the size of the stitch, an automatic stitch adjusting mechanism for automatically changing the vertical height of the stitch cams comprising a plurality of vertically movable stitch cam control members, means operatively connecting each of said stitch cam control members to respective stitch cams, a drive motor, and means operatively connecting each of said stitch cam control members to said drive motor whereby actuation of said drive motor moves said stitch cam control members and said stitch cams in a vertical direction.

5,212,968
PRESSER CONTROLLER OF A CARRIAGE IN A FLAT KNITTING MACHINE

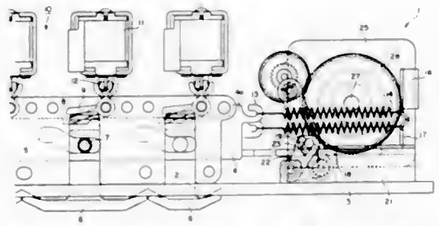
Masahiro Shima, and Toshinori Nakamori, both of Wakayama, Japan, assignors to Shima Seiki Mfg., Ltd., Wakayama, Japan

Filed Jun. 28, 1991, Ser. No. 723,039
Claims priority, application Japan, Jul. 4, 1990, 2-178198
Int. Cl.[5] D04B *15/36*
U.S. Cl. 66—78 2 Claims

1. A flat knitting machine comprising:
a presser controller device for a carriage of said flat knitting machine;

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selector jacks of corresponding knitting needles which are arranged in parallel on a knitting bed of said flat knitting machine;
cams that project from said carriage which urge said selector jacks of said corresponding knitting needles;
cam lift-down plates arranged in parallel in said carriage for actuating their respective cams for upward and downward movement;
holding means for holding selected ones of the cam lift-down plates in a given location;
spring means coupled to respective cam lift-down plates for constantly urging said cam lift-down plates in one direction;



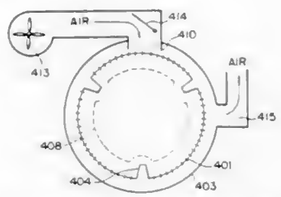
actuating means for pressing the cam lift-down plates for displacement against the yielding force of the springs; and
said actuating means comprises a step motor, a sliding plate for pressing the cam lift-down plates, and a link operating means for transmitting an action of the step motor to the sliding plate so that the cam lift-down plates are moved leftward and rightward against a yielding force of and together with the springs respectively by an action of the step motor transmitted via the link operating means and the sliding plate and thus, the cams linked with the cam lift-down plates can project under control outward from the carriage.

5,212,969

DRUM TYPE WASHING APPARATUS AND METHOD OF PROCESSING THE WASH USING SAID APPARATUS

Yasuhiro Tsubaki; Kazuo Kitajima; Hidetoshi Ishihara; Shoichi Hayashi; Atsushi Ueda; Kenichi Yagami, and Shuji Yamada, all of Nakamura, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo and Churyo Engineering Kabushiki Kaisha, Aichi, both of Japan

Continuation of Ser. No. 762,728, Sep. 17, 1991, abandoned, which is a continuation of Ser. No. 430,611, Nov. 1, 1989, abandoned, which is a division of Ser. No. 315,948, Feb. 23, 1989, abandoned. This application Jul. 9, 1992, Ser. No. 912,084
Claims priority, application Japan, Feb. 23, 1988, 63-40513; Mar. 15, 1988, 63-61281; Jul. 28, 1988, 63-188661; Sep. 13, 1988, 63-227418; Oct. 26, 1988, 63-139766; Dec. 6, 1988, 63-306942; Jan. 25, 1989, 1-15580
Int. Cl.[5] D06F *25/00*
U.S. Cl. 68—19.2 1 Claim



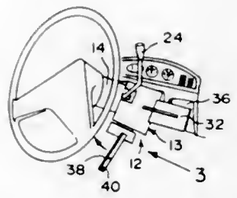
1. A drum type washing apparatus for carrying out at least one of a washing step, a dewatering step and a drying step, comprising:
a housing;
a rotary drum made of a perforated plate, said at least one of washing, dewatering and drying steps being carried out in said rotary drum, said rotary drum having a peripheral wall that has a pot-shaped contour with a single corrugated portion in an axial direction of said rotary drum, said single corrugated portion having a corrugation angle open between 90°–160° including a direction of action of centrifugal force;
an outer drum arranged in said housing and rotatably supporting said rotary drum;
a plurality of beaters formed on an inner wall surface of said rotary drum;
an air blowing nozzle arranged at said outer drum so as to open toward an outer wall surface of said rotary drum;
an exhaust hole provided in said outer drum;
air blowing means including a dust with a an integral blower for conducting air to an integral air valve for adjusting blown air flow rate to more than 0.53 m^3/min. Kg of fabric, said air valve being connected to said air blowing nozzle for blowing air toward said rotary drum, said blower and air valve being arranged within the apparatus housing; and
mean for actuating the air blowing means when the number of revolutions of said rotary drum is lowered to a level where less than 1 G of acceleration is present at the periphery of said rotary drum, after the dewatering step so that washed fabrics closely adhering to the inner wall surface of said rotary drum are removed.

5,212,970

MOTOR VEHICLE ANTI-THEFT DEVICE

Washington Harrell, 143-18 182 Pl., Springfield Garden, N.Y. 11413

Filed Jun. 17, 1992, Ser. No. 899,918
Int. Cl.[5] E05B *17/14*
U.S. Cl. 70—18 3 Claims



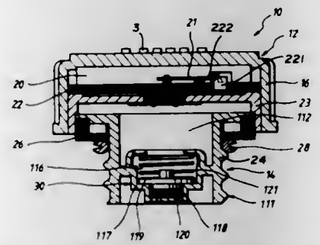
1. A motor vehicle anti-theft device which comprises:
a) an enclosure to fit about a steering column and an ignition switch on the steering column of the motor vehicle; and
b) means for locking said enclosure about the steering column, so as to prevent an unauthorized operation of the ignition switch which may be located on a dashboard or alternatively located on the steering column, wherein said enclosure includes:
i) a side wall having an opening for an automatic gear shift lever on the steering column to pass through;
ii) a top wall extending from said side wall;
iii) a bottom wall extending from said side wall;
iv) a front wall having a cutout area, so that the steering column can pass through said enclosure; and
v) a cover member extending from said side wall of said enclosure to block an ignition switch on a dashboard of the motor vehicle adjacent the steering column, so as to prevent an unauthorized operation of the ignition switch on the dashboard.

5,212,971

FUEL TANK PLUG STRUCTURE

Kuk S. Yoon, Seoul, Rep. of Korea, and Chi K. Chang, Houston, Tex., assignors to Kuk Sun Yoon, Seoul, Rep. of Korea

Filed Jan. 8, 1992, Ser. No. 818,035
Claims priority, application Rep. of Korea, Jan. 8, 1991, 91-152[U]; Jan. 23, 1991, 91-918[U]
Int. Cl.[5] B65D *55/14*
U.S. Cl. 70—165 7 Claims



1. A fuel tank plug structure for closing a container and for storing an article in a compartment thereof comprising:
a cap assembly including a cap member having an inner surface and a recessed portion, a push button combination lock mounted in said recessed portion for selectively locking the cap assembly onto a container when a combination other than a predetermined combination is in place and permitting release of the cap assembly when the predetermined combination is in place, a fixing plate mounted upon the inner surface of the cap member to secure said push button combination lock in said recessed portion and an intermediate member positioned below said fixing plate, said fixing plate including a lever movably mounted thereon and a hole extending therethrough, said lever including a plunger member adapted to extend through said hole when said lever is moved relative to said fixing plate in a predetermined direction, said intermediate member including at least one stopper member adapted to be engaged by said plunger member when said plunger member extends through said hole and an interior compartment formed therein which is adapted to store an article, said push button combination lock including means for causing said plunger member to extend through said hole and engage said stopper member when said predetermined combination is in place such that rotation of said cap member will cause rotation of said intermediate member, and to disengage said plunger member from said stopper member when said predetermined combination is not in place such that said cap member can rotate relative to said intermediate member; and
a clogging assembly removably secured to said cap assembly so as to rotate with said intermediate member and to selectively close or provide access to said interior compartment, said clogging assembly including a lower portion adapted to engage and close a container.

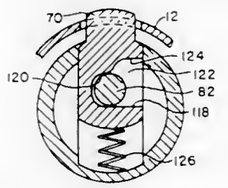
5,212,972

TAMPER RESISTANT POP-HANDLE LOCK

Herbert Kincaid, Libertyville; John Crocco, Wheeling, and David Malik, Hickory Hills, all of Ill., assignors to The Eastern Company, Wheeling, Ill.

Filed Jun. 15, 1992, Ser. No. 889,876
Int. Cl.[5] E05B *13/10*
U.S. Cl. 70—208 3 Claims

1. A tamper resistant pop-handle lock having
a housing for attachment to a closure element,
a handle disposed in the housing and axially movable between an extended position wherein the handle is operable for opening the closure element and a retracted position wherein the handle is inoperable,
a spring interposed between the housing and the handle for biasing the handle toward the extended position,
a lock barrel disposed in the handle and having an axial opening,
a plug rotatable within the barrel opening about a center axis of the plug between a locked position and an unlocked position, the plug having a key-retractable tumbler,
said tumbler being extendable into engagement with a slot on the barrel to prevent rotation of the plug relative to the barrel with the plug in the locked position,
the plug also having an eccentric axial lug,
a bolt movable through a radial opening in the barrel and engageable with the housing for holding the handle in the retracted position, said lug being aligned with the radial



opening and said center axis of the plug when the plug is in the locked position,
the bolt having a recess for receiving the axial lug and including a cam surface engaged by the axial lug for moving the bolt radially inward through the opening in the barrel when the plug is rotated toward the unlocked position,
a second spring interposed between the bolt and the barrel for moving the bolt radially outward through the opening in the barrel when the plug is rotated toward the locked position, the improvement comprising
a locking surface on the lug-receiving recess for engagement with the lug, preventing radial movement of the bolt when the plug is in the locked position, the lug-receiving recess having a pocket adjacent the locking surface for loosely receiving the lug when the plug is not in the locked position to allow radial movement of the bolt without rotating the key plug.

5,212,973

MOTOR VEHICLE THEFT DETERRENT DEVICE

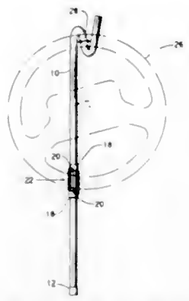
Gerald M. van Staden, and Hendrick F. van Staden, both of 335 West Avenue, Ferndale, Randburg, Transvaal, South Africa

Filed Mar. 26, 1991, Ser. No. 675,410
Claims priority, application South Africa, Mar. 27, 1990, 90/2329
Int. Cl.[5] B60R *25/02*
U.S. Cl. 70—209 7 Claims

1. A steering wheel lock device comprising:
a rod;
first steering wheel engaging means formed at one end of said rod for engageably surrounding the steering wheel, said first steering wheel engaging means having a substantially three-dimensional, spiral formation with a pitch greater than a diameter of a rim of the steering wheel;
second steering wheel engaging means on said rod for engaging the rim of the steering wheel at a spaced location on the steering wheel from said first steering wheel engaging means and said second steering wheel engaging means spaced on said rod from the first steering wheel engaging means and comprising lockable clamp means for slidably locking said second steering wheel engaging means to the steering wheel, said lockable clamp means includes a pair of jaws adapted to be lockably clamped about the rim of

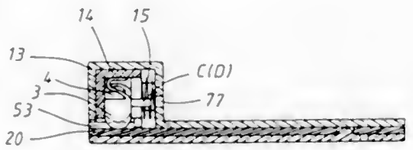
VOL 1150 ISS 4 MY 25 1993 UMI

the steering wheel, each of said pair of jaws having sliding means for sliding towards and away from each other



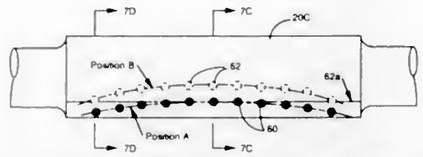
axially along said rod, said rod having a detent portion extending beyond the steering wheel.

5,212,974
CARD TYPE LOCKING APPARATUS
Kou-Chi Shen, Fl. 11th-1, No. 258, Sin-Yi Road, Sec. 4, Taipei, Taiwan
Filed May 28, 1992, Ser. No. 889,247
Int. Cl.[5] E05B *23/00*
U.S. Cl. 70—352 3 Claims



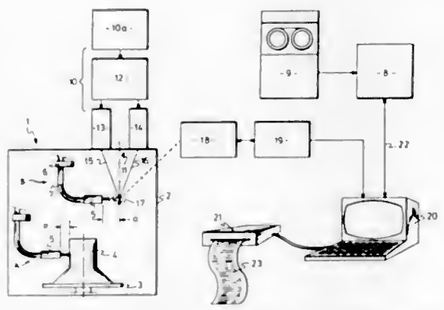
1. A locking apparatus which comprises a key and a lock body,
said key having a shape of a flat card including a guide block and a plurality of raised blocks on an upper flat surface thereof, and
said lock body having an upper half soldered to a lower half with an opening therebetween for receiving said key, said upper half including a hollow portion having a side wall with a window formed therein,
said hollow portion encasing a slidable member facing said window, a spring element arranged between said side wall and said slidable member and biasing said slidable member away from said side wall,
said slidable member having a raised portion, a spring board biasing a latching element toward an opened position, a hook engaging said latching element when said locking apparatus is in a locked condition, and caves receiving spring plungers, said spring plungers having pin rods misaligned with said window when said locking apparatus is in said locked condition,
wherein when said key is initially inserted into said opening, said raised blocks move said spring plungers and align said pin rods with said window and said guide block of said key abuts said raised portion of said slidable member; and when said key is further inserted into said opening, said pin rods pass through said window, said guide block pushes said slidable member causing said hook to disengage from said latching element, thereby opening said locking apparatus.

5,212,975
METHOD AND APPARATUS FOR COOLING ROLLING MILL ROLLS AND FLAT ROLLED PRODUCTS
Vladimir B. Ginzburg, Pittsburgh, Pa., assignor to International Rolling Mill Consultants, Inc. and United Engineering, Inc., both of Pittsburgh, Pa.
Continuation-in-part of Ser. No. 699,203, May 13, 1991, abandoned. This application Oct. 24, 1991, Ser. No. 781,981
Int. Cl.[5] B21B *27/10, 45/02*
U.S. Cl. 72—43 44 Claims



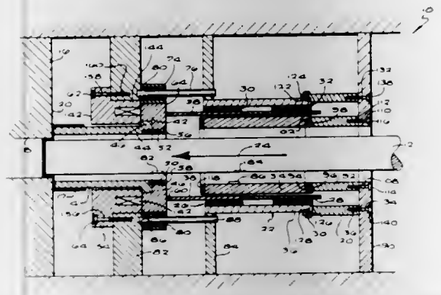
1. A spray bar for use in combination with apparatus for cooling a rolling mill roll comprising; an elongated tubular member, means for delivering a liquid coolant into said elongated tubular member, and a plurality of spaced spray nozzles each adapted to spray such liquid coolant from within said tubular member onto a surface of such rolling mill roll, said nozzles disposed in a curved alignment, so as to form an arc with respect to a straight line parallel to the axis of said spray bar, along a surface of said spray bar so that each adjacent nozzle effects at least one of a different spray-angle and different spray-distance thereby achieving different cooling rates within different portions of such rolling mill roll, said tubular member adapted for movement with respect to such rolling mill roll to change cooling rates effected by said nozzles.

5,212,976
METHOD AND APPARATUS FOR CONTROLLING SHOT PEENING DEVICE
José Company, Villeneuve St Georges, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation (S.N.E.C.M.A.), Martial Valin, France
Filed Jun. 29, 1992, Ser. No. 905,469
Claims priority, application France, Jul. 3, 1991, 91 08283
Int. Cl.[5] B24C *1/10;* B21J *1/02*
U.S. Cl. 72—53 7 Claims



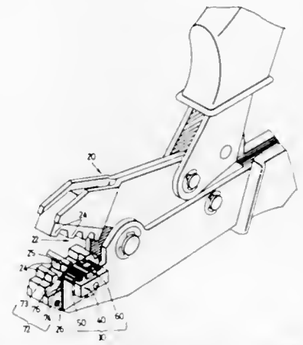
1. A method of operating a shot peening apparatus having an enclosure in which a workpiece and at least one peening nozzle are located such that, in a working position wherein the at least one peening nozzle is located a distance D from the workpiece, shot elements emanating from the at least one peening nozzle are directed onto the workpiece, comprising the steps of:
a) providing a laser velocimeter device to establish a measurement point within the enclosure;
b) moving the at least one peening nozzle from a working position to a measuring position wherein the at least one peening nozzle is located distance D from the measurement point;
c) operating the peening nozzle in the same manner as in its working position;
d) acquiring data relating to shot elements passing through the measurement point, such data comprising the size of the shot element, the speed (V_i) of the shot elements and the number of shot elements per unit of time (N);
e) calculating the peening energy (E_T) based upon the acquired data;
f) comparing the calculated peening energy (E_T) to a predetermined peening energy;
g) stopping the operation of the shot peening apparatus if the calculated peening energy falls outside predetermined limits from the predetermined peening energy;
h) continuing the operation of the shot peening apparatus if the calculated peening energy falls within the predetermined limits from the predetermined peening energy; and,
i) returning the at least one peening nozzle to its working position.

5,212,977
ELECTROMAGNETIC RE-DRAW SLEEVE ACTUATOR
Keith O. Stuart, Cypress, Calif., assignor to Aura Systems, Inc., El Segundo, Calif.
Filed Jul. 16, 1991, Ser. No. 730,634
Int. Cl.[5] B21D *24/10*
U.S. Cl. 72—347 10 Claims



1. In a can forming apparatus in which a cylindrical re-draw sleeve holds a can material preform cup against an ironing die while a ram pushes said cup through an opening in said die to form a can body, an improvement comprising:
a linear electromagnet actuator having an actuator core mounted to said apparatus, a coil element moveable between a first position and a second position along an axis of relative movement, a magnetic circuit for defining radially directed flux in both an inward and an outward direction relative to said axis of relative movement, wherein said coil is disposed within the flux path, and means for applying current to said coil so that current can be applied in one direction through the portions of the coil disposed in the inwardly radially directed flux, and applied in the opposite direction through the portions of the coil disposed in the outwardly radially directed flux so that the flux/current products are additive, said re-draw sleeve being mounted to said coil element, and further being in a retracted position to allow placement of said can material preform against said ironing die when said coil element is in said first position and in an extended position to hold said can material preform against said ironing die when said coil element is in said second position;
an electromagnet mounted to said apparatus;
a ring of magnetic material mounted coaxially to said re-draw sleeve so that said ring is adjacent said electromagnet when said re-draw sleeve is in said extended position; and
a timing and control circuit to activate said actuator to place said coil element in said second position when said ram is in a retracted position and to return said coil element to said first position when said ram is in an extended position, and further to activate said electromagnet when said re-draw sleeve has been brought to said extended position so that magnetic force on said ring holds said re-draw sleeve against said can material preform and to deactivate said electromagnet when said re-draw sleeve is to return to said retracted position.

5,212,978
TERMINAL POSITIONING STRUCTURE OF CLAMPING TOOL
Lien-Huang Liu, No. 17, Alley 166, Lane 68, Sua-Yuan Rd., Feng-Yuan City, Taichung Hsien, Taiwan
Filed Feb. 14, 1992, Ser. No. 834,943
Int. Cl.[5] H01R *43/042*
U.S. Cl. 72—410 6 Claims



1. A terminal positioning structure for use with a crimping tool having a pair of jaws with corresponding dies thereon for crimping electrical conductors to a terminal while axes of said terminal and conductor extend in a predetermined direction, at least one of said jaws having a side extending transverse to said axes, said terminal positioning structure comprising:
a base having an attachment surface extending transverse to said axes for attachment to a side of one of said pair of jaws;
a pair of collinear slots on said base extending parallel to said side and transverse to said axes;
each of a pair of clamping members selectively positioned in slidable engagement in said pair of slots;
said each one of said pair of clamping members having a baffle above said base, each baffle having surfaces for engagement with said terminal;
wherein said base and said baffle of said each of said pair of clamping members form a selectively sized first restriction portion of a terminal holding area by movement of said baffles towards and away from one another in a direction transverse to said axes for gripping one end of said terminal therein so that the axes of the terminal extends parallel to said baffle surfaces during the crimping of an electrical conductor by said crimping tool to said terminal.

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5,212,979

TESTING DEVICE FOR MEASUREMENT OF A LEAK RATE OF A SPRAYING OR INJECTION VALVE

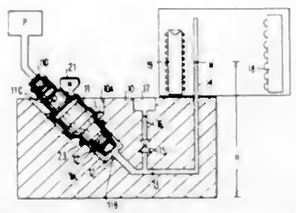
Hartmut Albrodt, Tamm, and Martin Maier, Moeglingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 2, 1991, Ser. No. 739,817

Claims priority, application Fed. Rep. of Germany, Aug. 18, 1990, 4026228

Int. Cl.[5] G01M *3/02, 3/38*

U.S. Cl. 73—37 7 Claims



1. A testing device for measurement of a hydraulic leak rate of a spraying valve (11) with an at least partially closable outlet opening (11B), comprising a vessel (10) having a cavity (10A) at least partially filled with an indicating liquid (12), means (21) for holding the spraying valve to be tested in an inclined orientation in the indicating liquid (12) in the cavity (10A) and with the outlet opening (11B) pointing downward, a riser tube (14) communicating with the cavity (10A) of the vessel (10) so that the indicating liquid (12) from the vessel (10) can flow into the riser tube, a balancing reservoir (17) connectable with the cavity (10A) of the vessel (10) to receive indicating liquid (12) therefrom, a shutoff valve (15) for connecting and disconnecting the cavity (10A) and the reservoir (17), and a measuring device (18,19) for accurately measuring a height (H) of a level (M) of the indicating liquid (12) in the riser tube (14).

5,212,980

ARRANGEMENT FOR MEASURING DIMENSIONS OF A WORKPIECE

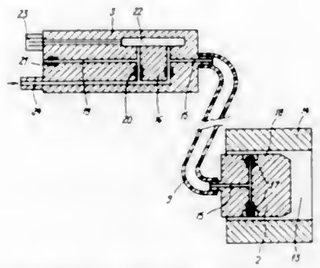
Heinz Wegmann, Mettmenstetten, Switzerland, assignor to Meseltron S.A., Corcelles, Switzerland

Filed Nov. 4, 1991, Ser. No. 787,144

Claims priority, application France, Nov. 5, 1990, 90 13763

Int. Cl.[5] G01B *13/10*

U.S. Cl. 73—37.9 12 Claims



1. An arrangement for measuring dimensions of a workpiece comprising a circuit in which a liquid circulates, said circuit including a first branch provided with an inlet nozzle and at least one measuring nozzle directed towards the workpiece the dimensions of which are to be measured, and a second branch provided with an inlet nozzle and opening into an output reference nozzle, a pressure transducer furnishing an electrical signal representing the difference in the pressures prevailing in the two branches of the circuit and means for connecting the two inlet nozzles to a source of regulated pressure, the inlet nozzles being provided with means for furnishing a liquid flow at their output producing minimum noise on the electrical signal issuing from the pressure transducer.

5,212,981

METHOD OF AND APPARATUS FOR MEASURING THE VISCOSITY OF MATERIALS

Martin Laun, Ludwigshafen; Wolfgang Göring, Münster; Theodora Dirking, Münster, and Hans-Joachim Streitberger, Münster, all of Fed. Rep. of Germany, assignors to BASF Lacke & Farben AG, Münster, Fed. Rep. of Germany

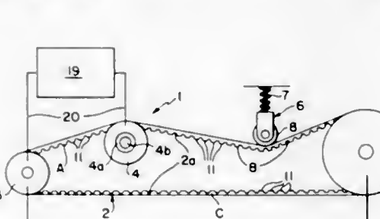
PCT No. PCT/EP88/01070, § 371 Date Aug. 31, 1990, § 102(e) Date Aug. 31, 1990, PCT Pub. No. WO89/06352, PCT Pub. Date Jul. 13, 1989

PCT Filed Nov. 24, 1988, Ser. No. 536,595

Claims priority, application Fed. Rep. of Germany, Jan. 11, 1988, 3800474

Int. Cl.[5] G01N *11/02*

U.S. Cl. 73—54.01 26 Claims



1. An apparatus for measuring the effective viscosity and the elastic properties of coatings during a flash-off phase and a stoving phase comprising:

a horizontal coated substrate, the substrate including a plate of non-ferromagnetic material;

a sphere on the coated substrate composed of a ferromagnetic material and having a sphere diameter of 1 to 10 mm;

a servomotor drive for moving the coated substrate; and

a magnet underneath the coated substrate, said magnet causing magnetic forces to act on the sphere.

5,212,982

METHOD AND APPARATUS TO CHECK THE ACCEPTABLENESS OF THE STATE OF WEAR IN THE COVERING FABRIC OF A DRIVING BELT

Vincenzo Macchiarulo, Pescara, and Tommaso Di Giacomo, Guardiagrele, both of Italy, assignors to Pirelli Trasmissioni Industriali S.p.A., Chieti, Italy

Filed Dec. 6, 1991, Ser. No. 801,575

Claims priority, application Italy, Dec. 11, 1990, 22335 A/90

Int. Cl.[5] B65G *43/02*; G01N *27/04*

U.S. Cl. 73—159 22 Claims

1. A method of checking acceptableness of a state of wear in a reinforcement fabric of a driving belt operatively engaged between at least one first pulley and a second pulley and having a body provided with said reinforcement fabric on a work surface thereof, said reinforcement fabric designed to act in contact with said pulleys and comprising electroconductive fillers, said method comprising the steps of:

applying a predetermined electric voltage between the at least one first pulley and the second pulley, while they are stationary in a non-running condition, in order to achieve an electric current passage along at least a first belt stretch (A) and a second belt stretch (B) between said at least one first pulley and said second pulley, said first belt stretch (A) and second belt stretch (B) being electrically connected in parallel;

measuring a first total electric resistance value offered by the first belt stretch (A) and the second belt stretch (B) on passing of said electric current;

comparing said first resistance value with a predetermined electric resistance value corresponding to a given state of wear of the reinforcement fabric.

5,212,983

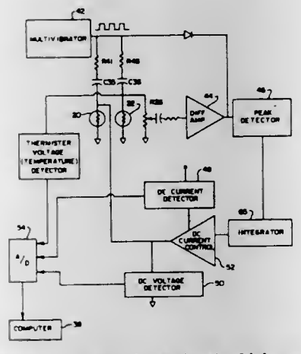
AIR FLOW SENSOR AND DETECTING METHOD

James H. Ott, Akron, and Mark E. Anglin, Wadsworth, both of Ohio, assignors to Novar Electronics Corporation, Barberton, Ohio

Filed Mar. 18, 1991, Ser. No. 671,090

Int. Cl.[5] G01F *1/68*

U.S. Cl. 73—204.15 2 Claims



1. An apparatus for detecting a signal which represents the flow velocity of a fluid, the apparatus comprising:

(a) a pair of thermistors for positioning in a flowing fluid, each thermistor having an impedance which is a function of its temperature;

(b) means for the variably controlled heating of one of the thermistors;

(c) an electrical circuit for detecting the temperature of each of the thermistors by detecting signals representing the impedance of the thermistors, the temperature detecting circuit including means for coupling an AC source which generates square wave pulses to each of said thermistors and for detecting AC signals representing said impedance of the thermistors, the temperature detecting circuit more particularly comprising:

(i) an impedance connected in series with each thermistor to form two series pairs of voltage dividers; and

(ii) a square wave, constant voltage source connected across said voltage dividers wherein the voltage across each thermistor is proportional to the thermistor's impedance and substantially represents its temperature;

(d) a negative feedback, closed loop control means having its output connected to said heating means for controlling the thermal power applied to heat the heated thermistor, and having the two temperature outputs of the temperature detecting circuit connected to its reference and feedback summing junction inputs, one of the two temperature outputs being scaled to cause the feedback control circuit to maintain a substantially constant temperature different between said pair of thermistors, the negative feedback closed loop control means more particularly comprising:

(i) a potentiometer connected to an intermediate node in the voltage divider of the unheated thermistor for scaling its temperature representing voltage;

(ii) a differential amplifier having one input connected to the scaled potentiometer output and in other input connected to an intermediate voltage divider of the heated thermistor

(iii) a pulse peak detector connected to the output of the differential amplifier;

(iv) an integrator circuit connected to the output of the pulse peak detector; and

(v) an amplifier circuit connected to supply electrical heating power to said heated thermistor and having its input control terminal connected to the output of said integrator circuit; and

(e) means for detecting a signal representing the thermal power supplied to heat the heated thermistor, said thermal power detecting means more particularly comprising an electrical circuit for detecting the voltage across and the current through said heated thermistor and an electrical circuit for multiplying the voltage and current to obtain a power signal representing said thermal power; wherein the thermal signal is an inverse continuous function of and represents the fluid flow velocity.

5,212,984

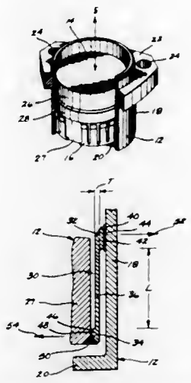
MOUNTING SYSTEM FOR AN ACCELEROMETER

Brian L. Norling, Mill Creek, and Jeffrey F. Tonn, Tacoma, both of Wash., assignors to Sundstrand Corporation, Rockford, Ill.

Continuation of Ser. No. 717,853, Jan. 22, 1988, abandoned, which is a continuation of Ser. No. 879,676, Jun. 27, 1986, abandoned, which is a continuation-in-part of Ser. No. 676,724, Nov. 30, 1984, abandoned. This application Aug. 13, 1992, Ser. No. 930,473

Int. Cl.[5] G01P *15/00*

U.S. Cl. 73—493 11 Claims



1. An accelerometer assembly, comprising:

a generally cylindrical accelerometer having a cylindrical axis and a cylindrical mounting section;

a supporting case;

a mounting assembly including a plurality of mounting elements, each mounting element having first and second ends and a resilient generally flat planar axially aligned intermediate portion, said first end comprising a flange extending radially inwardly from said intermediate portion welded to the accelerometer, said second end being

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connected to the case and extending out of the plane of said intermediate portion, at least said first end being composed of a substance that has a coefficient of thermal expansion approximately equal to the coefficient of thermal expansion of the accelerometer, said intermediate portion of each mounting element being adapted to provide a low resistance to relative movement between the accelerometer and the case in a radial direction perpendicular to the plane of each mounting element and a high resistance to relative movement between the transducer and the case in directions in the plane of each mounting element; and

said mounting assembly further including a plurality of bridge sections joining together adjacent mounting elements such that said first end flanges and bridge sections form a closed generally ring-shaped band, said bridge sections being composed of a substance having a coefficient of thermal expansion approximately equal to the coefficient of thermal expansion of the accelerometer, said band defining a radially inwardly facing cylindrical mounting surface which is generally equal in radius to the radius of said cylindrical accelerometer and which is welded to the transducer at said mounting section, said bridge sections and said first end flanges which form said mounting surface being composed of the same material,

whereby the stress imposed on the transducer by differential thermal expansion or contraction between the transducer and the case is reduced and misalignment between the transducer and the case is reduced relative to a mounting system not having an intermediate portion.

5,212,985

ANGULAR RATE SENSOR HAVING A TUNING-FORK STRUCTURE

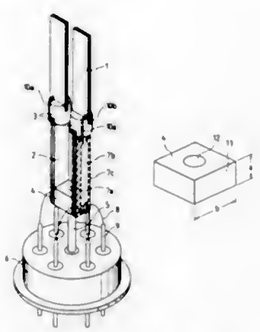
Hiroshi Takenaka, Ikoma; Kazumitsu Ueda, Osaka; Toshihiko Ichinose, Osaka, and Jiro Terada, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 18, 1991, Ser. No. 643,115

Claims priority, application Japan, Jan. 18, 1990, 2-8603

Int. Cl.[5] G01P *9/04*

U.S. Cl. 73—505 **6 Claims**



1. An angular rate sensor comprising:

a pair of sensor elements each including a vibratory piezoelectric detecting element and a vibratory piezoelectric drive element joined together end to end by a joint member in such a manner that said detecting and drive elements are oscillatable perpendicularly relative to each other; and

a resilient joint member joining respective free ends of said drive elements so as to form, jointly with said sensor elements, a tuning-fork structure having a longitudinal axis, said resilient lint member having a pair of opposite bonding surfaces facing the respective drive elements, each of said bonding surfaces having a first extent in a direction parallel to said longitudinal axis and a second extent in a direction perpendicular to said longitudinal axis of said tuning-fork structure, the ratio of said first extent to said second extent being in the range of 3:10 to 7:10.

5,212,986

SEMICONDUCTOR ACCELERATION SENSOR INCLUDING OFF AXIS ACCELERATION CANCELLATION

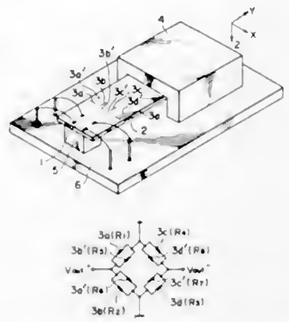
Takenobu Takeuchi, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 3, 1991, Ser. No. 725,473

Claims priority, application Japan, Nov. 30, 1990, 2-330475

Int. Cl.[5] G01P *15/12*

U.S. Cl. 73—517 R **5 Claims**



1. A semiconductor acceleration sensor comprising:

a semiconductor acceleration sensor element having a longitudinal axis, said acceleration sensor for sensing acceleration in a particular direction perpendicular to the longitudinal axis, said semiconductor acceleration sensor element having a thin-walled portion including opposed first and second surfaces;

first piezoresistive sensing means disposed on the first surface of the thin-walled portion of said semiconductor acceleration sensor element changing in resistance in response to acceleration of said semiconductor acceleration sensor element, said first pierоresistive sensing means including first pierzoresistive elements for sensing acceleration of said semiconductor acceleration sensor element in the particular direction and second piezoresistive elements for sensing acceleration of said semiconductor acceleration sensor element in a direction perpendicular to the particular direction; and

second piezoresistive sensing means disposed on the second surface of the thin-walled portion of said semiconductor acceleration sensor element changing in resistance in response to acceleration of said semiconductor acceleration sensor element, said second piezoresistive sensing means including third piezoresistive elements for sensing acceleration of said semiconductor acceleration sensor element in the particular direction and fourth pierzoresistive elements for sensing acceleration of said semiconductor acceleration sensor element in a direction perpendicular to the particular direction, wherein said first, second, third, and fourth piezoresistive elements are interconnected in a bridge circuit for cancelling changes in resistance of said first and second piezoresistive sensing means in response to an acceleration acting on said semiconductor acceleration sensor element in a direction perpendicular to the particular direction.

2. The semiconductor acceleration sensor according to claim 1 wherein each of said piezoresistive element is a resistor.

5,212,987

ACOUSTIC SCREEN SCAN MICROSCOPE FOR THE EXAMINATION OF AN OBJECT IN THE SHORT-RANGE FIELD OF A RESONANT ACOUSTIC OSCILLATOR

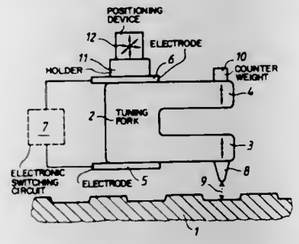
Klaus Dransfeld, Ermatingen, Switzerland; Ulrich Fischer, Wetzlar, Fed. Rep. of Germany; Peter Guethner, Konstanz, Fed. Rep. of Germany, and Knut Heitmann, Wetzlar, Fed. Rep. of Germany, assignors to Hommelwerke GmbH, Schwenningen, Fed. Rep. of Germany

Continuation of Ser. No. 466,291, Apr. 6, 1990, abandoned. This application Nov. 15, 1991, Ser. No. 794,610

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1988, 3820518

Int. Cl.[5] G01B *5/28, 7/28, 21/20*

U.S. Cl. 73—579 **15 Claims**



1. An acoustic scanning microscope for examining an object, said acoustic scanning microscope comprising:

a resonant acoustic oscillator located adjacent to, but not contacting, said object as said acoustic oscillator oscillates such that said object is in an acoustic field of said acoustic oscillator, said acoustic field being defined as a field created when a size of a radiation source and its distance from said object are approximately the same and are significantly smaller than a wavelength of acoustic radiation used; and

means for determining the damping of said acoustic oscillator as a function of the position of said object in relation to said acoustic oscillator to generate a micro-image profile of said object.

5,212,988

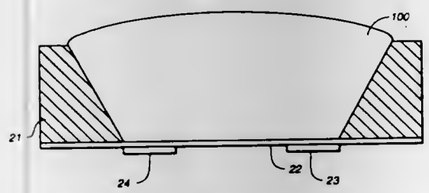
PLATE-MODE ULTRASONIC STRUCTURE INCLUDING A GEL

Richard M. White; Stuart W. Wenzel, both of Berkeley, and Benedict J. Costello, Oakland, all of Calif., assignors to The Reagents of the University of California, Berkeley, Calif.

Continuation-in-part of Ser. No. 467,412, Jan. 18, 1990, Pat. No. 5,129,262, which is a continuation of Ser. No. 162,193, Feb. 29, 1988, abandoned. This application Oct. 10, 1991, Ser. No. 775,631

Int. Cl.[5] G01N *29/00*

U.S. Cl. 73—599 **42 Claims**



1. An ultrasonic structure comprising:

a propagation medium comprising a thin planar sheet capable of supporting Lamb waves, said sheet having a thickness very much thinner than the wavelength of the Lamb waves to be propagated thereon, said propagation medium including on a surface thereof a layer of a low shear modulus material; and

electrical means coupled to the thin planar sheet of said propagation medium for producing Lamb waves in the propagation medium.

5,212,989

PRESSURE SENSOR

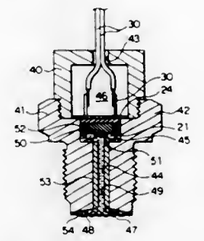
Seiki Kodama; Atsushi Ueda; Toshio Iwata; Yasuo Tada; Tateki Mitani; Yasuyoshi Hatazawa, all of Himeji; Mikio Bessho, and Yuji Hase, both of Amagasaki, all of Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Jun. 6. 1991, Ser. No. 710,987

Claims priority, application Japan, Jun. 8, 1990, 2-60162[U]; Jun. 8, 1990, 2-60163[U]; Jun. 11, 1990, 2-149839; Jun. 15, 1990, 2-62742[U]; Jun. 15, 1990, 2-62743[U]; Sep. 25, 1990, 2-251898; Sep. 26, 1990, 2-254112

Int. Cl.[5] G01L *7/08, 9/06, 19/04*

U.S. Cl. 73—706 **9 Claims**



1. A pressure sensor comprising:

a hollow main body defining a bore extending therethrough and having a detection end and an output end;

a pressure sensing assembly disposed within said bore of said main body and dividing said bore into a detection cavity including said detection end for transmitting therethrough the pressure to be detected and an output cavity including said output end through which an output signal from said pressure sensing assembly is to be supplied;

a flexible diaphragm attached to said main body at said detection end of said detection cavity for sealing said detection cavity; and

a pressure transmitting medium filled within said detection cavity;

said detection end of said bore, along which said flexible diaphragm is bent when it is subjected to a pressure, being substantially cone-shaped to exhibit a shallow slope, bevelled edge surface for moderating concentration of bending of said diaphragm.

5,212,990

METHOD AND APPARATUS FOR DETERMINING FLOW RATES OF WELL FLUID CONSTITUENTS

Christopher A. Stout, Carrollton; Kenneth Schwendemann, Lewisville, and Roger L. Schultz, Richardson, all of Tex., assignors to Halliburton Company, Duncan, Okla.

Filed Apr. 10, 1991, Ser. No. 684,084

Int. Cl.[5] G01F *1/74*

U.S. Cl. 73—861.04 **17 Claims**

1. A method for determining flow rates of well fluid constituents, said method comprising the steps of:

measuring a fluid stream from a well head of a well;

measuring a total mass flow rate of said fluid stream;

diverting a sample stream portion of said fluid stream;

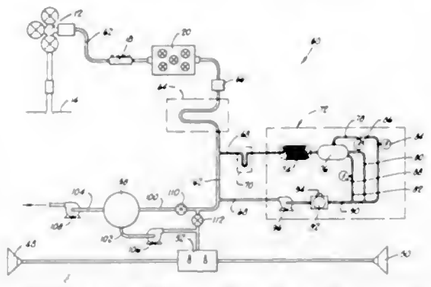
separating the fluid constituents of said sample stream portion;

measuring a relative mass flow rate of each of the separated constituents in said sample stream portion, said step of measuring a relative mass flow rate comprising:

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measuring a mass flow rate of said sample stream portion prior to said step of separating; and

measuring a volumetric flow rate of each of said fluid constituents after said step of separating; and



calculating a total mass flow rate of each of said fluid constituents based on said relative mass flow rate thereof and said total mass flow rate of said fluid stream.

5,212,991

PORTABLE, SELF-CONTAINED EQUIPMENT FOR THE IN SITU ANALYSIS OF A LIQUID OR SOLID SUBSTANCE

Pierre Suzanne, Oncy sur Ecole; Patrick Bleuse, Le Quesnoy; Gilles Guene, Elancourt, and Christian Heurtel, Vert le Petit, all of France, assignors to Proengin S.A. and Etat Francais, both of France

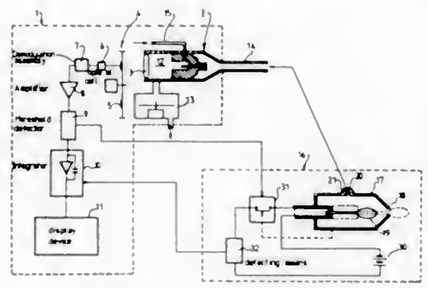
PCT No. PCT/FR90/00399, § 371 Date Feb. 7, 1991, § 102(e) Date Feb. 7, 1991, PCT Pub. No. WO90/15318, PCT Pub. Date Dec. 13, 1990

PCT Filed Jun. 7, 1990, Ser. No. 651,331

Claims priority, application France, Jun. 9, 1989, 89 07985

Int. Cl.[5] G01N *1/02*

U.S. Cl. 73—863.11 12 Claims



1. Portable and self-contained apparatus for analyzing a sample of a substance in situ, said apparatus comprising:

i. a sample taking device comprising a body, a collecting enclosure having an external opening and a suction orifice, a sample taking head fixed to said body and at least partially lodged in said collecting enclosure, said sample taking head being provided with a support adapted to receive said sample, means for moving said sample taking head relatively to the collecting enclosure so as to occupy successively a sample taking position in which said support extends outside the collecting enclosure through said external opening so as to allow the sample to be taken, and a vaporization position in which said support is housed inside the collecting enclosure, and heating means designed so as to heat the support when the sample taking head is in the vaporization position and to vaporize said substance, and

ii. a gas composition analysis device having a suction circuit connected to said suction orifice so as to use the vaporized substance as gas composition to be analyzed.

5,212,992

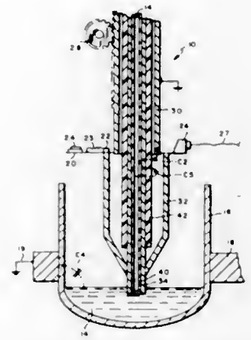
CAPACITIVE PROBE SENSOR WITH REDUCED EFFECTIVE STRAY CAPACITANCE

Jeffrey Calhoun, Peekskill, and Stanimir T. Zupanski, Bedford, both of N.Y., assignors to Medical Laboratory Automation, Inc., Pleasantville, N.Y.

Filed Jun. 14, 1991, Ser. No. 715,434

Int. Cl.[5] B01L *3/02*

U.S. Cl. 73—864.01 12 Claims



1. In a probe for aspirating an ionic liquid sample and for sensing a capacitance difference at the probe tip when it is not in contact with the liquid and when it is in contact with the liquid, apparatus for providing an effective stray capacitance from stray capacitance source which is substantially less than said capacitance difference comprising:

means for dividing stray capacitance sources into at least two sources; and

means for reducing the capacitance value of each divided stray capacitance source to a value substantially less than said capacitive difference.

5,212,993

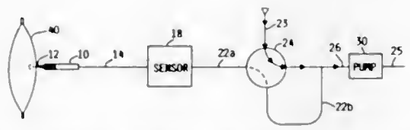
GAS SAMPLING SYSTEM AND METHOD

William N. Mayer, White Bear Lake, Minn., assignor to Modern Controls, Inc., Minneapolis, Minn.

Filed Apr. 20, 1992, Ser. No. 870,898

Int. Cl.[5] G01N *1/24*

U.S. Cl. 73—864.21 7 Claims



1. An apparatus for extracting and testing gas samples from sealed packages, comprising:

a) a hollow needle adapted for puncturing said sealed package;

b) a trace gas oxygen analyzer having an input and an output, and gas flow conduit means for passing gas from said hollow needle to said analyzer input;

c) a valve having an output port and two selectable input ports, and gas flow conduit means for passing gas from said analyzer output to one of said valve input ports, the other of said valve input ports being open to ambient atmosphere;

d) a gas pump connected to said valve output port; and

e) means for actuating said valve for connecting said valve output port to either of said valve input ports.

5,212,994

MEASURING CELL

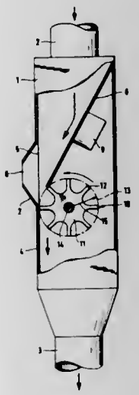
George C. von Alfthan, Kaunlainen, and Kari O. Mann, Espoo, both of Finland, assignors to Outokumpu Oy, Helsinki, Finland

Filed Mar. 8, 1991, Ser. No. 666,361

Claims priority, application Finland, Mar. 14, 1990, 901257

Int. Cl.[5] G01N *33/00*

U.S. Cl. 73—866 13 Claims



1. A measuring cell for analyzing solid granular or pulverous material, which measuring cell has an inlet for admitting material to the measuring cell and an outlet for discharging material from the measuring cell, the inlet and outlet being spaced apart along a predetermined axis, and comprises a wall formed with an aperture, a measuring window fitted in the aperture to allow material in the measuring cell to be analyzed, a feeder disposed inside the measuring cell for regulating essentially continuous flow of material through the measuring cell, a guide plate inclined relative to said predetermined axis for guiding material to flow closely adjacent to the measuring window, and a vibrator member attached to the guide plate.

5,212,995

PROFILER DEVICE

Melvin E. Robinson, 4021 Augustine, Sterling Heights, Mich. 48310, and Joseph E. Robinson, 167 W. Shevlin, Hazel Park, Mich. 48030

Filed Dec. 10, 1991, Ser. No. 805,852

Int. Cl.[5] F16H *21/22*; F16C *19/54*

U.S. Cl. 74—44 19 Claims

1. A reciprocating hand tool comprising:

a housing having a cavity therein and a bore extending radially from said cavity;

a tubular member mounted to said housing, said tubular member having a bore aligned with said bore extending radially from said cavity of said housing;

a sleeve member having one end mounted in said bore of said tubular member, said sleeve member having a bore therein and an annular seat disposed at one end of said bore;

camming means disposed within said cavity of said housing;

a drive member in mechanical communication with said camming means, said drive member having a head portion mounted in said bore of said sleeve member and engaging said annular seat of said bore, said drive member further having a body portion extending through said annular seat in said bore and attached to said camming means;

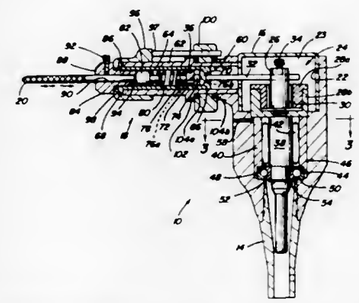
a first member mounted in said bore of said sleeve member, said first member having a planar surface at one end facing said drive member and a reduced diameter portion at an opposite end;

a spherical member disposed between said head portion of said drive member and said planar surface of said first member;

a second member disposed within an end opposite said one end of said bore of said sleeve member;

means for biasing said second member in a direction away from said first member;

attachment means mounted in said bore of said sleeve member, said attachment means abutting said second member; and



a transmission assembly disposed within said cavity, said transmission assembly being in mechanical communication with said camming means for transferring rotative motion to said camming means, said transmission assembly comprising:

a cylindrical sleeve disposed within said cavity, said cylindrical sleeve having a longitudinal bore extending therethrough;

a shaft disposed within said longitudinal bore; and

bearing means disposed between said shaft and said cylindrical sleeve for rotatably supporting said shaft within said longitudinal bore;

wherein reciprocating motion induced by said camming means reciprocates said attachment means through said drive member, said spherical member, said first member, said means for biasing and said second member, respectively.

5,212,996

CRANK DRIVE WITH PLANETARY PIVOT PIN, FAVOURABLY FOR PISTON POWER ENGINES AND MACHINE TOOLS

Dezsö Méry, Budapest, Hungary, assignor to Laszlo Berinkey and Josef Szecsanszky, Budapest, Hungary

Filed Feb. 5, 1991, Ser. No. 650,640

Claims priority, application Hungary, Feb. 6, 1990, 678/90

Int. Cl.[5] F16H *21/18*

U.S. Cl. 74—49 5 Claims

1. A drive shaft drive mechanism for an internal combustion engine including an engine block having cylinder bores therein and pistons reciprocable in the cylinder bores said drive shaft mechanism being fitted on the pistons and comprising:

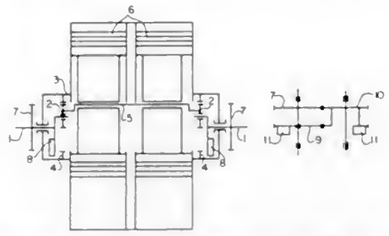
a pivot-point attached to the pistons, said pivot-point having a longitudinal axis,

a ring gear having internal teeth and being firmly fastened to the engine block;

a planet gear formed as a unit with said pivot-pin and having

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external teeth which intermesh with said internal teeth of said ring gear, said planet gear having an axis of rotation parallel to said longitudinal axis of said pivot-pin, the distance between said longitudinal axis of said pivot-point



and said axis of rotation of said planet gear being equal to the rolling radius of said planet gear, and the ratio between the number of said internal teeth of said ring gear and said external teeth of said planet gear being 2:1; and

an eccentric disk firmly attached to said planet gear.

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FRICTION ROLLER TYPE CONTINUOUSLY VARIABLE TRANSMISSION

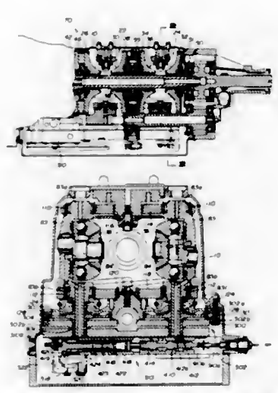
Toshifumi Hibi, and Kazuhisa Sasahara, both of Kanagawa, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Apr. 29, 1992, Ser. No. 875,326

Claims priority, application Japan, Jun. 12, 1991, 3-167538

Int. Cl.[5] F16H *15/38*

U.S. Cl. 475—10 **8 Claims**



1. A friction roller type continuously variable transmission comprising:

an input shaft;

a first transmission mechanism concentrically disposed about said input shaft and including a first input disc, a first output disc and a first pair of friction rollers operatively disposed between said first input and output discs;

a second transmission mechanism concentrically disposed about said input shaft and arranged behind said first transmission mechanism in a back-to-back relationship, said second transmission mechanism including a second input disc, a second output disc and a second pair of friction rollers operatively disposed between said second input and output discs;

first means for biasing said first and second input discs toward said first and second output discs respectively in accordance with a torque possessed by said input shaft, the biasing action for said first input disc being directly made, while the biasing action for said second input disc being indirectly made through said input shaft;

second means for varying angular positions of said first and second pairs of friction rollers with respect to the associated input and output discs in accordance with an instruction applied thereto; and

a cam mechanism which corrects the varying of angular positions by said second means by feeding back an existing condition of said second transmission mechanism to said second means.

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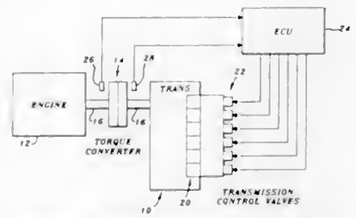
TRANSMISSION CONTROL SYSTEM WITH LOAD COMPENSATED SHIFT MODULATION

Michael D. Testerman, Dearing, Kans., assignor to Deere & Company, Moline, Ill.

Filed Dec. 2, 1991, Ser. No. 801,194

Int. Cl.[5] B60K *41/06*

U.S. Cl. 74—335 **11 Claims**



1. In a vehicle having a drive train comprising a powershift transmission driven by an engine, at least one pressure operated clutch for controlling shifting of the transmission, and at least one valve for controlling hydraulic pressure supplied to the clutch, and a control unit cooperating with the valve to apply to the clutch, during a shift of the transmission, a pressure which gradually increases from a minimum pressure to a maximum pressure, characterized by:

means for sensing a load parameter representing a load on the drive train;

means for varying the minimum clutch pressure value as a function of the load parameter; and

means for varying a rate at which the clutch pressure increases as a function of the load parameter.

5,212,999

MOTOR WITH WORM REDUCTION GEAR

Katsuyoshi Kitada, Kiryu, Japan, assignor to Mitsuba Electric Manufacturing Co., Ltd., Gunma, Japan

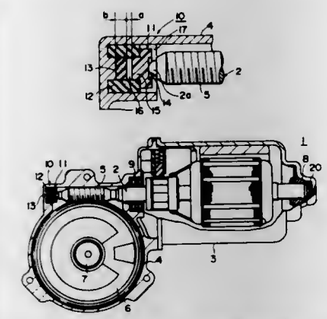
Filed May 26, 1992, Ser. No. 888,183

Claims priority, application Japan, Jun. 4, 1991, 3-050255[U]

Int. Cl.[5] F16H *1/16*

U.S. Cl. 74—425 **11 Claims**

1. A motor comprising a rotary shaft having first and second end faces and a first end portion located adjacent said first end face; a worm reduction gear including a worm on said first end portion of said rotary shaft and a worm wheel in meshing engagement with said worm whereby rotation of said rotary shaft is reduced in speed and transmitted to a load; and a plurality of elastic members different in elasticity from each other located adjacent said first end face of said rotary shaft in the axial direction of said rotary shaft to support thrust forces tending to move said rotary shaft in the direction toward said first end face, said elastic members including at least one elastic member of lower elasticity and one elastic member of higher elasticity, said elastic members being positioned so that said elastic member of lower elasticity urges said rotary shaft in the direction away from said first end face without said member of higher elasticity contributing to the force urging said rotary shaft away from said first end face when small thrust forces in the direction toward said first end face are applied to said rotary shaft and so that when higher thrust forces are applied to said shaft tending to move it toward said first end face both



said member of lower elasticity and said member of higher elasticity in combination support the thrust force by both of them urging said rotary shaft in the direction away from said first end face.

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MOTOR OUTPUT SHAFT POSITIONING DEVICE

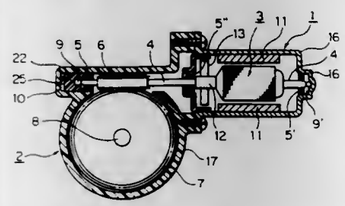
Tsutomu Saya; Hiroaki Nakahashi; Shinichi Taniguchi, and Tsutomu Watanabe, all of Matsudo, Japan, assignors to Mabuchi Motor Co., Ltd., Chiba, Japan

Filed Nov. 14, 1991, Ser. No. 792,239

Claims priority, application Japan, Nov. 11, 1990, 2-310282; Aug. 29, 1991, 3-217655

Int. Cl.[5] F16H *55/22*

U.S. Cl. 74—425 **8 Claims**



1. A motor output shaft positioning device for a motor with worm reduction gear (1) outputting the output of a motor output shaft (4) via a worm reduction gear, comprising a gear case (17) having a hollow part (10) for housing a worm (6) fitted to a motor output shaft (4) and a worm wheel (7) meshing with said worm (6) and receiving an end of said motor output shaft (4); said hollow part (10) receiving a bearing (5) of said motor output shaft (4) and a steel ball (9); a bearing holder (22) having projections projecting towards the bottom (26) of said hollow part (10), and a filler (23) that is injected into said hollow part (10) through a filling hole (28) formed on said hollow part (10).

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POWER TRANSMISSION ELEMENT HAVING INCREASED TORQUE CAPACITY

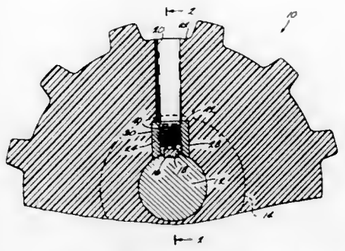
David R. Gruettner, Mequon, and Robert J. Gladczak, Milwaukee, both of Wis., assignors to UCC Corporation, New Berlin, Wis.

Continuation of Ser. No. 526,985, May 21, 1990, abandoned.

This application Jan. 3, 1992, Ser. No. 818,408

Int. Cl.[5] F16H *55/12, 3/08, 55/17*

U.S. Cl. 74—451 **4 Claims**



1. A power transmission assembly comprising a power transmission element mounted on a substantially cylindrical shaft, the shaft defining a cylindrical outer surface and having a keyway of substantially rectangular cross-sectional shape formed in the cylindrical outer surface, said power transmission element comprising:

a central hub including an aperture for receiving therethrough the shaft;

a first element embedded within said central hub and having a lower surface positioned and dimensional to lie closely adjacent the cylindrical outer surface of the shaft, said lower surface extending no more than one-half the circumferential distance around the shaft, said lower surface including a keyway of substantially rectangular cross-sectional shape; and

a second element engaging said first element and oriented substantially perpendicularly to said keyway in said lower surface so that rotation of said second element relative to said first element in one direction moves said second element inwardly toward said keyway in said lower surface and rotation of said second element relative to said first element in the opposite direction moves said second element outwardly away from said keyway in said lower surface, said second element thereby serving to lock a key within a space bounded by said keyway in said lower surface and the keyway in the cylindrical outer surface of the shaft when the shaft is received through said aperture;

said first and second element each being formed of a material which is relatively nondeformable compared to said central hub

said first element including a torque transferring surface in contact with said central hub for transferring torque from said first element to said hub in response to rotation of the shaft when the shaft is received through said aperture and the key is secured by said second element.

5,213,002

BEARING SYSTEM FOR A GEAR SHIFT LEVER

Rolf Langhof, Offenbach, and Michael Schütz, Rimbach, both of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim/Bergstr., Fed. Rep. of Germany

Filed Aug. 21, 1991, Ser. No. 748,689

Claims priority, application Fed. Rep. of Germany, Aug. 23, 1990, 4026652

Int. Cl.[5] B60K *20/00*

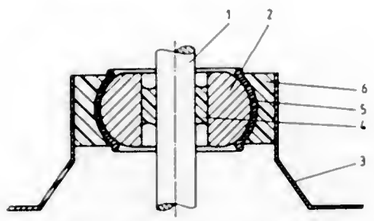
U.S. Cl. 74—473 P **11 Claims**

1. A bearing system for a gear shift lever, comprising:

a gear shift lever;

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an ring-shaped intermediate layer surrounding and being in contact with the gear shift lever, said intermediate layer having a top surface, a bottom surface, and an uninterrupted outer surface therebetween and insulating the gear shift lever from vibrations, said outer surface being cylindrical or conical in shape;



a shift ball having an inner surface that is configured to mate with the outer surface of the intermediate layer, said shift ball surrounding and in contact with the full extent of the uninterrupted outer surface of the intermediate layer so that the inner surface of the shift ball is spaced from the gear shift lever by the intermediate layer and the gear shift lever does not directly contact the shift ball; and

an assembly flange surrounding the shift ball.

5,213,003

LOCKING DEVICE FOR AN ADJUSTABLE STEERING COLUMN ASSEMBLY

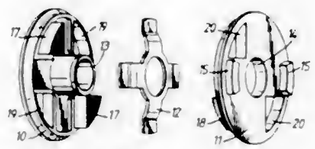
Gerald A. Speich, Warwickshire, England, assignor to The Torrington Company, Torrington, Conn.

Filed Mar. 27, 1992, Ser. No. 858,793

Claims priority, application United Kingdom, Aug. 27, 1991, 9118322

Int. Cl.[5] B62D *1/18*

U.S. Cl. 74—493 **20 Claims**



1. A locking device for an adjustable steering column assembly for a vehicle, the locking device comprising:

first and second interengageable parts, at least one of the parts having a locking means for locking it said at least one part against a portion of the steering column assembly, the locking means comprising an area of serrated or toothed profiles and an open area defining a window;

resilient means for urging said parts apart to bring said at least one part out of locking engagement with said portion of the steering column assembly; and

the locking means being arranged such that the area of serrated or toothed profiles on one of the first and second interengageable parts protrudes, when the two interengageable parts are urged together through a corresponding window in the other of said first and second interengageable parts to engage with a corresponding area of serrated or toothed profiles provided on said portion of the steering column assembly.

5,213,004

DEVICE FOR LOCKING IN POSITION THE ADJUSTABLE STEERING COLUMN OF A MOTOR VEHICLE

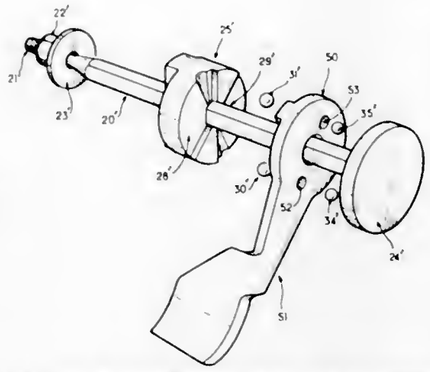
Andre Hoblingre, Valentigney, France, assignor to ECIA, Audincourt, France

Filed Dec. 20, 1991, Ser. No. 811,586

Claims priority, application France, Dec. 28, 1990, 90 16494

Int. Cl.[5] B62D *1/18*

U.S. Cl. 74—493 **6 Claims**



1. A locking device for locking in position an adjustable steering column of a motor vehicle, said adjustable column (1) being of the type having a column support structure (5) which is connected to the rest of the structure of the vehicle and whic comprises fit and second side plates (3, 4) between which is disposed the column (1) and locking means (6) for locking the column in position by bringing thee side plates together, wherein said locking means comprise a tie rod (2) extending between said side plates and having a first end (21) which bears against the said first side plate and a second end which is connected to a plurality of locking elements comprising a stop component (24) at the second end of the tie rod, an intermediate support component (25) in contact with said second side plate of the support structure and movable axially on the tie rod (20), and an operating component (26, 50), disposed between thee stop component (24) and the intermediate support component (25), which is connected to operating means (27, 51) and is movable in rotation in a plane perpendicular to the tie rod (20) between an active position for locking the column (1) and a retracted position for unlocking the column (1);

wherein the operating component (26, 50) has first and second opposite surfaces which respectively face the intermediate support component (25) and the top component (24); and which contain projecting means (30, 31; 34, 35) adapted to cooperate with a facing ramp (28, 29) of the intermediate support component and with the stop component, so as to separate said locking elements from one another and to bring the side plate together in order to lock the column (1) when the operating component (26, 50) is moved; and

wherein said projecting means comprise at least one rolling bearing component (30, 31) and at least one rolling bearing element (34, 35) which are disposed as a pair in a same cavity (52, 53) passing through the operating component (50) and said opposite surfaces thereof, so that said bearing component and said bearing element bear against one another, one projecting between the operating component (50) and the intermediate support component (25), and the other projecting between the operating component (50) and the stop component (24).

5,213,005

SPEED CONTROL DEVICE FOR BICYCLE DERAILLEUR

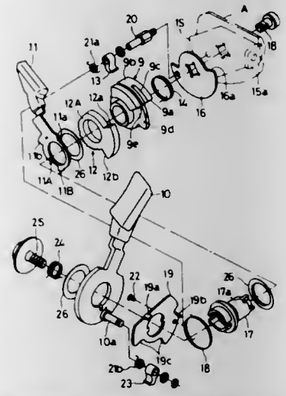
Nagano, Masashi, Izumi, Japan, assignor to Shimano, Inc., Osaka, Japan

Continuation of Ser. No. 548,583, Jul. 5, 1990, abandoned. This application Jun. 1, 1992, Ser. No. 891,911

Claims priority, application Japan, Jul. 6, 1989, 1-175329

Int. Cl.[5] F16C *1/10*; G05G *11/00*

U.S. Cl. 74—502.2 **12 Claims**



1. A speed change control device for selectively positioning a bicycle derailleur (4) at a plurality of speed positions by controlling a cable (8) which is constantly urged in a rewinding direction (R) by the derailleur (4), said speed change control device comprising:

a fixing member (17);

a take-up element (9) for taking up the cable (8), said take-up element being urged in said rewinding direction, said take-up element being pivotably supported to said fixing member (17), said take-up element having a central axis;

a speed change control member (10, 23) for rotating said take-up element (9) in a winding direction (F) and for thereby taking up the cable (8) in said winding direction, said winding direction being opposite to said rewinding direction (R);

a positioning mechanism (13, 12) having a first engaging member (13) and a plurality of engaged members (12), said engaged members being provided on said take-up element,

wherein said first engaging member (13) moves in an engaging direction to be engaged with said engaged members (12), and wherein said first engaging member moves in a disengaging direction to be disengaged from said engaged members, said engaging direction being radially toward said central axis of said take-up element (9), said disengaging direction being radially away from said central axis of said take-up element, and

wherein said engaged members (12) form a plurality of groups (Sa, Sb) with each one of said groups corresponding to one of said speed positions, each of said groups having at least two of said engaged members having the same radial height relative to said central axis, with the engaged members of different groups having different heights, and with the heights increasing stepwise in the winding direction (F), and

wherein said speed change control member (10, 23) cooperates with said first engaging member (13) to selectively rotate said take-up element (9) whereby, with one stroke of said speed change control member, said first engaging member is disengaged from an engaged member in a group corresponding to one of said speed positions and is engaged with an engaged member in a group corresponding to a next one of said speed positions, with said take-up element then being maintained in position by said positioning mechanism (13, 12); and

release control means (11) for selectively lifting said first engaging member (13) in said disengaging direction, and for thereby disengaging said first engaging member (13) from an engaged member and for thereby allowing said take-up element to move in said rewinding direction (R) until said first engaging member (13) contacts an engaged member whose height is greater than the extent to which said first engaging member (13) is lifted by said release control means (11).

5,213,006

BICYCLE STEM MECHANISM HAVING INTERNAL RIGIDIFYING WASHER

Jim Liao, Taipei Hsien, Taiwan, assignor to Hsin Lung Accessories Co., Ltd., Taiwan

Filed Jun. 5, 1992, Ser. No. 894,444

Int. Cl.[5] B62H *5/04*

U.S. Cl. 74—551.1 **1 Claim**

1. An improved stem mechanism for a bicycle comprising

a vertical bar having an upper end and a lower end, said lower end being inclined to an axis of the bar extending between the upper and lower ends of the bar and presenting an annular portion at said lower end, said inclined lower end being capable of being inserted into a fork member of the bicycle with said annular portion inside said fork member;

a bar member connected to said upper end of said vertical bar;

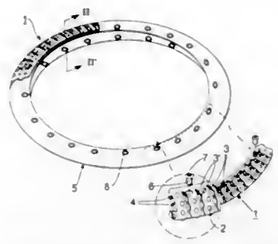
a securing member having an inclined upper end with an annular portion thereon, said securing member being capable of being engaged firmly within said fork member and having a threaded passage generally aligned with the axis of said vertical bar;

a bolt member having a threaded portion, which can be inserted into said vertical bar and engaged with said securing member; and

a washer lying within said inclined lower end of said vertical bar, said washer having an outer wall portion engaged with an inner wall of said inclined lower end of said vertical bar and having its lower surface aligned with said annular portion of said vertical bar so as to enlarge the area of said annular portion and to improve the rigidity of said vertical bar in the inclined lower end thereof.

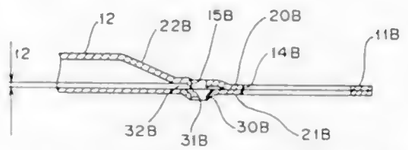
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,007
STEERING WHEEL COVER ASSEMBLY
Tae Woo Yoo, 807, 1-Dong, Hanyang APT, San 189-1, Seocho-dong, Seocho-ku, Seoul, Rep. of Korea
Filed Sep. 19, 1991, Ser. No. 762,874
Claims priority, application Rep. of Korea, Jan. 11, 1991, 1991 249
Int. Cl.[5] B62D *1/06*
U.S. Cl. 74—558 4 Claims



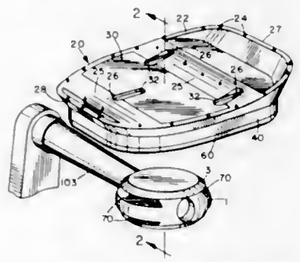
1. A cover assembly for the steering wheel of an automobile, comprising
a ring-like steering wheel cover comprising a pair of circumferential inner edges which define an opening therebetween to accommodate the steering wheel and a plurality of spaced eyelets adjacent each inner edge, and
a ring-like metal member comprising a pair of circumferential inner edges and a plurality of eyelets adjacent each inner edge and spaced substantially equal to the space of said eyelets in said cover, said member being dimensioned to be received on said cover so that the eyelets in the member align with the eyelets in the cover, said member having a multiplicity of outwardly projecting protrusions and an array of transverse slots spaced at a substantially uniform interval around said metal member and extending radially inward toward said inner edges of said member between said protrusions.

5,213,008
LINK ROD OF WIPER FOR MOTOR VEHICLE AND METHOD OF MANUFACTURING THE SAME
Kazunobu Kanno, Toyohashi; Satoru Hamano, Kariya, and Mikio Kawamura, Kasugai, all of Japan, assignors to Asmo Co., Ltd., Kosai, Japan
Filed May 26, 1992, Ser. No. 888,122
Int. Cl.[5] G05G *1/00*; F16C *11/00*
U.S. Cl. 74—579 R 2 Claims



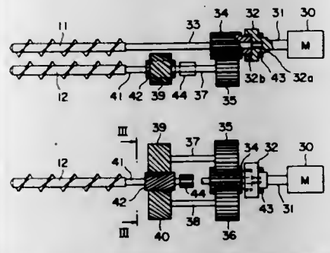
1. A link rod of a wiper for a motor vehicle, comprising:
a cylindrical section;
a pair of flat sections which are, respectively, formed at opposite ends of said cylindrical section by crushing the opposite ends of said cylindrical section from above and below; and
a pair of resinous coupling joints which are mounted on said flat sections, respectively;
wherein a first hole having a large diameter and a second hole having a small diameter are, respectively, formed at outer and inner portions of each of said flat sections as viewed in a longitudinal direction of said cylindrical section;
wherein a gap opens into an axially intermediate portion of a peripheral surface of the second hole such that interior of said cylindrical section is communicated with a mouth of the second hole through the gap;
wherein each of said coupling joints includes a joint portion disposed at the first hole and seals the second hole and the gap.

5,213,009
CLEAT FOR CLIPLESS PEDALS
Richard M. Bryne, 2172 Pine St., San Diego, Calif. 92103
Filed Nov. 18, 1991, Ser. No. 793,148
Int. Cl.[5] G05G *1/14*; A43B *5/00*
U.S. Cl. 74—594.6 21 Claims



1. A cleat for attachment to a sole of a bicycle shoe for use with a clipless bicycle pedal, said sole having a toe end and a heel end and a first plurality of bores having a spacing according to a first industry standard, said cleat comprising:
a first plate assembly having a perimeter generally conforming to a shape of at least a portion of said sole near said toe end, a generally ramp-like profile to follow a curvature of said portion of said sole, a first plurality of slots therein to be aligned with said first plurality of bores and a second plurality of bores having a spacing according to a second industry standard;
a first fastening means to be inserted through each slot of said first plurality to be received in each bore of said first plurality, said first fastening means being fully retained in said each slot of said first plurality;
a second plate assembly abutting said first plate assembly and having a cavity at its center, a perimeter corresponding to the perimeter of said first plate assembly, a second plurality of slots generally aligned with said second plurality of bores, and at least one channel adjacent to said cavity, said cavity having a diameter for receiving at least a portion of said clipless bicycle pedal;
at least one spring means to be retained in said at least one channel so that a portion of said at least one spring means extends into said cavity; and
a second fastening means to be inserted through each slot of said second plurality of slots to be received in each bore of said second plurality of bore, said second fastening means being fully retained in said each slot of said second plurality;
wherein insertion of said at least a portion of said clipless pedal into said cavity causes said spring means to releasably retain said clipless bicycle pedal adjacent to said sole.

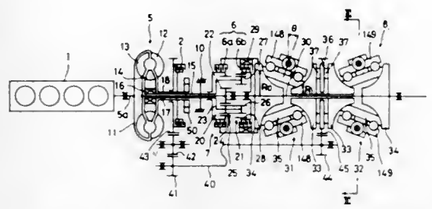
5,213,010
DRIVER POWER TRANSMITTING APPARATUS OF TWIN SHAFT EXTRUDERS
Nobuyuki Hayafusa, Numazu; Kuniaki Endoh, Susono; Mitsuoki Hatamoto, Mishima; Tokushige Maeda, Numazu, and Akiyoshi Kobayashi, Fuji, all of Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan
Filed May 6, 1992, Ser. No. 879,206
Claims priority, application Japan, May 7, 1991, 3-041270[U]
Int. Cl.[5] F16H *17/06*
U.S. Cl. 74—665 GA 3 Claims



1. Driving power transmitting apparatus of a twin shaft extruder comprising:
an input shaft rotated by a prime mover;
first and second coupling members provided for one end of said input shaft;
a power transmitting shaft coaxial with said input shaft, one end of said power transmitting shaft being connected to said input shaft through said first coupling member, the other end of said power transmitting shaft being connected to a first screw;
a plane gear concentrically and rotatably mounted on said power transmitting shaft and connected to said input shaft through said second coupling member;
two paired idle plane gears meshing with said plane gear;
two parallel idle shafts each with one end of connected with said idle plane gears;
two idle helical gears connected to the other ends of two idle shafts; and
a helical gear connected to a drive end of a second screw paired with said first screw, said two idle helical gears meshing with said helical gear at substantially symmetrical positions, teeth of said helical gear being skewed in a same direction as a flight of said second screw.

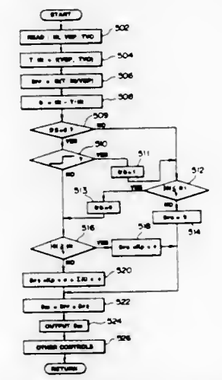
5,213,011
POWER TRANSMISSION DEVICE FOR VEHICLE
Hidetoshi Nobumoto; Seiji Esaki; Seiji Terauchi; Osamu Sado, and Kazuhiko Ueda, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan
Filed Apr. 3, 1992, Ser. No. 863,174
Claims priority, application Japan, Apr. 5, 1991, 3-72828; Apr. 26, 1991, 3-125458; Apr. 26, 1991, 3-125459; Jun. 7, 1991, 3-136439; Jun. 11, 1991, 3-138844
Int. Cl.[5] F16H *61/02*
U.S. Cl. 74—862 19 Claims

1. A power transmission device for a vehicle, comprising:
a first power transmitting path for transmitting an engine output to a wheel side via a reduction gear;
a second power transiting path for transmitting the engine output to the wheel side via a stepless speed change gear mechanism;
a friction element for switching said power transmitting paths so as to transmit by one of said paths;
switch-over control means for controlling a switch-over operation of said friction element according to a driving condition of the vehicle; and
rotational condition abrupt change restraining means for restraining an abrupt change of a rotational condition of



an engine output shaft at a switch-over between said power transmitting paths.

5,213,012
DOWNSHIFT WITH POWER IN CONTINUOUSLY VARIABLE TRANSMISSION
Yutaka Suzuki, Atsugi, Japan, assignor to Nissan Motor Company, Yokohama, Japan
Filed Aug. 2, 1991, Ser. No. 739,761
Claims priority, application Japan, Aug. 2, 1990, 2-205388
Int. Cl.[5] B60K *41/14*, *41/12*
U.S. Cl. 74—866 9 Claims

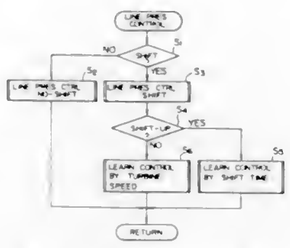


1. A method of controlling a reduction ratio in a continuously variable transmission drivingly connected to an engine of a vehicle having an accelerator manually operable by a driver of the vehicle, the continuously variable transmission having an actuator movable from a first operating position to a second operating postion and hydraulic means for varying the reduction ratio from a first ratio state corresponding to the first operating position to a second ratio state corresponding to the second operating position, the method comprising the steps of:
detecting a first predetermined operating variable indicative of a power demand imposed on the accelerator by the driver and generating a power demand indicative signal indicative of said first predetermined operating variable detected;
detecting an actual value of a second predetermined operating variable and generating an actual value indicative signal indicative of said actual value detected;
setting a target value of said second predetermined operating variable in response to said power demand indicative signal;
determining a feedforward value in response to said target value;
determining a deviation between said actual value and said target value;

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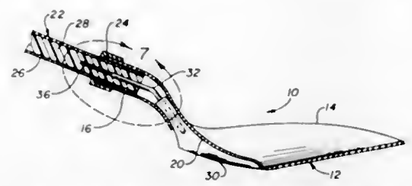
determining a feedback value in response to said deviation;
determining whether there has occurred a demand for downshift with power from said power demand indicative signal;
setting, as an output signal, a sum of said feedforward value and said feedback value until occurrence of said demand;
setting as said output signal, said feedforward value only in response to said occurrence of said demand by neglecting said feedback value; and
controlling the actuator in response to said output signal.

5,213,013
LINE PRESSURE CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION
Takuji Fujiwara; Kozo Ishii; Kazuo Takemoto, and Hiroshi Yoshimura, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan
Continuation of Ser. No. 424,827, Oct. 20, 1989, abandoned. This application Oct. 3, 1991, Ser. No. 770,158
Claims priority, application Japan, Oct. 22, 1988, 63-266996
Int. Cl.[5] B60K *41/06*
U.S. Cl. 74—866 8 Claims



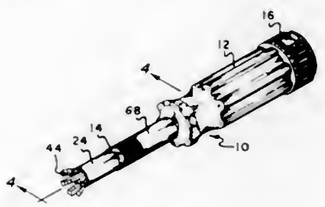
8. A hydraulic pressure control system for an automatic transmission comprising:
a transmission gear mechanism having a plurality of gear stages and frictional elements for switching power transmitting paths in the transmission gear mechanism,
hydraulic control means for controlling engagement and disengagement of the frictional elements to establish one of said gear stages,
line pressure control means for controlling line pressure of said hydraulic control means,
speed detecting means for detecting an actual speed of an input element of the transmission gear mechanism during a shift operation switching the gear stage of the transmission gear mechanism,
electronic control means for detecting a shift operation, based on a signal from the speed detecting means, and further determining a compensation coefficient, and a speed change rate of the input element based on the actual speed of the input element, when said shift operation is a shift-down operation, and
compensation means for compensating the line pressure based on a signal from the electronic control means representing said compensation coefficient.

5,213,014
CLOSED BACK SHOVEL AND METHOD OF ASSEMBLY
Joseph A. Carmien, 525 N. Maple Dr., Beverly Hills, Calif. 90210, assignor to Joseph Allen Carmien, Beverly Hills, Calif.
Division of Ser. No. 757,670, Nov. 7, 1991, which is a continuation-in-part of Ser. No. 712,690, Jun. 10, 1991, Pat. No. 5,123,304. This application Jun. 19, 1992, Ser. No. 901,034
The portion of the term of this patent subsequent to Jun. 23, 2009, has been disclaimed.
Int. Cl.[5] B21K *11/14, 29/00*
U.S. Cl. 76—113 20 Claims



1. A process for assembling a closed back shovel, the steps comprising:
providing a frog configured to fill a back-side cavity of a shovel blade, the frog having a tang element extending therefrom;
heating the tang element;
placing the frog in the back-side cavity of the shovel blade so that the tang element extends into a handle receiving socket;
aligning a front end of a composite tool handle including a thermoplastic section, with the tang element; and
driving the heated tang element into the thermoplastic section such that as the heated tang element engages the tool handle, the thermoplastic section is softened to permit entry of the tang element whereby the thermoplastic material of the thermoplastic section flows into intimate contact around the tang element and then hardens as the heat of the tang element is dissipated to hold the tang element in place.

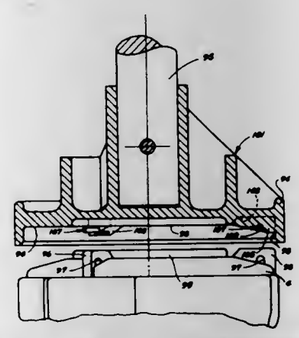
5,213,015
VARIABLE NUT DRIVER
Horace C. Disston, Jr., 217 S. Hurffville Rd., Deptford, N.J. 08096
Filed Oct. 3, 1991, Ser. No. 770,361
Int. Cl.[5] B25B *13/32*
U.S. Cl. 81—90.9 10 Claims



1. A variable nut driver comprising:
a handle;
a closure member having a rear shank portion, an intermediate tubular portion having a pair of opposed elongated slots, and a forward tubular portion, the free rear end of said shank portion being secured to said handle;
an outer tubular sleeve member surrounding said intermediate tubular portion, said sleeve member having an internal screw thread on the inner surface thereof overlying said elongated slots;
a collet ember comprised of a plurality of elongated fingers and a cylindrical ring connecting said fingers at one end

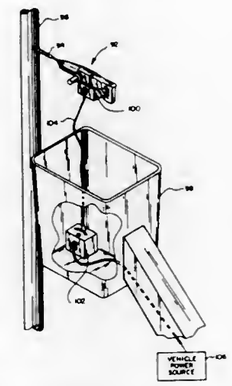
thereof, said fingers being separated from each other with a space interposed between adjacent fingers and including jaw portions at their free ends, said collet member being located within said tubular portions with said jaw portions extending forwardly of said forward tubular portion, and
a thread follower, said thread follower engaging the cylindrical ring of said collet member so as to be axially moveable with said collet member, said thread follower including projections extending through said slots in said intermediate tubular portion and through two of said spaces in said collet member between said fingers, said projections engaging said screw thread at axially displaced positions whereby when said sleeve member is rotated, said thread follower moves axially moving said collet member therewith and moving said jaw portions toward or away form the free open end of said forward tubular portion, said thread follower being comprised of a substantially flat metallic member having a top edge and a bottom edge, an upper pair of projections extending upwardly from said two edge and a lower pair of projections extending downwardly from said bottom edge, all four of said projections engaging said internal thread, said flat metallic member further including a leg portion adjacent the bottom edge which extends rearwardly and downwardly to engage said cylindrical ring of said collet member.

5,213,016
SPRINKLER DEVICE
Carl L. C. Kah, Jr., 778 Lakeside Dr., North Palm Beach, Fla. 33408
Division of Ser. No. 403,758, Sep. 6, 1989, Pat. No. 5,086,977, which is a division of Ser. No. 37,704, Apr. 13, 1987, Pat. No. 4,867,378. This application Sep. 3, 1991, Ser. No. 753,922
Int. Cl.[5] B25B *13/06*
U.S. Cl. 81—176.15 5 Claims



1. A sprinkler cover removal and replacing tool, for a cover having spaced upstanding radially placed lugs, each with an opening therethrough at a predetermined radius; said tool including a handle; a cap member having a recessed undersurface for positioning over the sprinkler cover, plural cavities in said recessed undersurface to receive a respective lug; cover lifting rods on said recessed undersurface, one for each lug and cavity, each cover lifting rod extending across each cavity for a short distance leaving an entry for each lug into its respective cavity, each cover lifting rod being placed in line with each lug opening when each lug is in its cavity to engage said lug opening when said cap member is rotated to unlock a cover; with each cover lifting rod fully engaging its opening, one side of each cavity contacts its lug to turn said cover to unlock it, said rods being able to lift the unlocked cover.

5,213,017
NEUTRALLY MOUNTED SAME VIBRATION FREQUENCY IMPACT TOOL
Jack D. Jones, Lima, and James D. Knebel, Delphos, both of Ohio, assignors to Aircraft Dynamics Corporation, Elida, Ohio
Continuation-in-part of Ser. No. 339,403, Apr. 17, 1989, Pat. No. 5,070,750, which is a continuation-in-part of Ser. No. 187,630, Apr. 28, 1988, Pat. No. 5,083,358. This application Oct. 17, 1991, Ser. No. 777,904
Int. Cl.[5] B25B *21/00*
U.S. Cl. 81—464 12 Claims



1. Apparatus in combination including an electrical, torque-transmitting, rotary, impact tool connected to a battery,
said tool including a drive lug on one end and means for rotating said lug at a specific speed and with a torque of up to about 300 ft. lbs.,
said tool including a hollow body encompassing an electrical drive motor, said motor being connected to rotate said lug,
said motor including a field winding, brushes and a rotor, said rotor having commutator bars configured to be engaged by said brushes to drive the motor when said brushes are connected to said battery, said brushes being mounted in a neutral position in relation to said field winding,
the brushes are secured to a rigid aluminum alloy holder which circumscribes the rotor,
the holder and hollow body vibrate when the motor drives the lug, said holder and body in combination being configured vibrate at about the same frequency when the motor is rotating said lug.

5,213,018
PNEUMATIC BRAKE SPRING COMPRESSION APPARATUS
Duane R. Lalone, 9651 N. Alger Rd., Alma, Mich. 48801
Filed Feb. 20, 1992, Ser. No. 837,945
Int. Cl.[5] B25B *29/00*
U.S. Cl. 81—488 3 Claims

1. A pneumatic brake spring compression apparatus for use in cooperation with a pneumatic brake reservoir chamber, the reservoir chamber including at least one chamber conduit directed into the reservoir chamber, and including a chamber end wall, the chamber end wall including a slot directed therethrough of rectilinear configuration, and a spring positioned within the reservoir chamber adjacent the chamber end wall, wherein the apparatus comprises,
a tool cylinder, the tool cylinder including a cylinder rear end wall and a cylinder forward end wall, wherein the

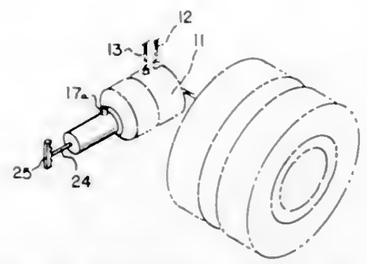
VOL 1150 ISS 4 MY 25 1993 UMI

cylinder rear end wall is arranged in a parallel relationship relative to the cylinder forward end wall, and

a chamber defined within the cylinder, and a pneumatic coupling directed through the cylinder into the chamber for reception of the at least one chamber conduit in securement thereto, and

a vent opening directed through the cylinder rear end wall, and

a piston slidably mounted within the cylinder between the cylinder forward end wall and the cylinder rear end wall, and



a piston rod coaxially directed through the cylinder, with the piston rod including a rod forward distal end and spaced from the forward end wall, and a rod rear distal end spaced from the rod rear end wall, and

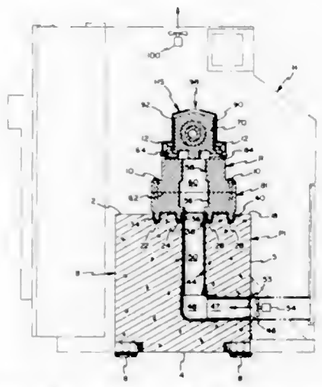
a piston spring captured between the piston and the cylinder forward end wall, the piston rod rear distal end including a handle fixedly mounted thereto, the piston rod forward distal end including a rectilinear plate fixedly secured thereto orthogonally intersected medially of the plate by the piston rod.

5,213,019

HEADSTOCK COOLING SYSTEM FOR A MACHINE TOOL

Robert B. Carlyle; Daniel P. Soroka, both of Horseheads; Harold E. Walburn, Elmira; Jyoti Mukherjee, Elmira Hts.; Raymond C. Cady, Horseheads; Terrence M. Sheehan, Elmira, and James P. Peris, Horseheads, all of N.Y., assignors to Hardinge Brothers, Inc., Elmira, N.Y.

Filed Jul. 17, 1991, Ser. No. 731,447
Int. Cl.[5] B23Q *11/12, 11/14*
U.S. Cl. 82—142 28 Claims



1. A headstock cooling system for a machine tool comprising:

a) a base having a top, a first region and a first fluid passageway extending therethrough from said first region to said top;

b) a bed mounted on said base top and provided with a second fluid passageway connected to said first fluid passageway;

c) a headstock having a bottom, top and sides, said headstock mounted on said bed and positioned above said second fluid passageway and including means communicating with said second fluid passageway;

d) said means communicating with said second fluid passageway including a headstock central opening;

e) said headstock central opening including lateral venting means extending from said central opening and out said sides of said headstock;

f) shroud means for directing a cooling fluid exiting from said lateral venting means upwardly along said headstock sides and across said headstock top surface, said shroud means including sidewalls and a top surface; and

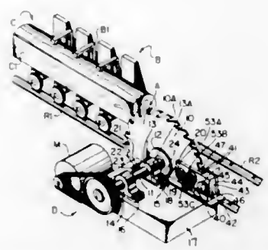
g) said shroud means further including means for vertically exiting the cooling fluid from said shroud means top surface.

5,213,020

THIN-KERF CIRCULAR HEAD SAW AND SAW GUIDE

Julien H. Pleau, Ottawa, and William F. Love, Orleans, both of Canada, assignors to Forintek Canada Corp., Ottawa, Canada

Filed Dec. 12, 1991, Ser. No. 805,616
Claims priority, application Canada, Aug. 15, 1991, 2049257
Int. Cl.[5] B23D *47/02*
U.S. Cl. 83—828 18 Claims



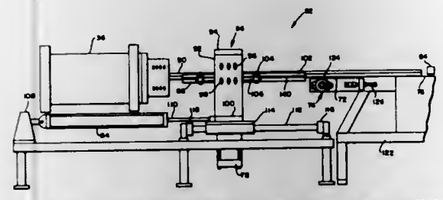
1. A saw mill head saw comprising a power driven mandrel, a thin-kerf circular saw blade having a diameter in the range of 34 inches to 60 inches mounted on said mandrel for rotation therewith, means securing said saw blade at a fixed position on said mandrel and a rigid robust saw guide unit securely mounted and located at the in-feed side of the saw, said saw guide unit being at a position below a saw cut made during operation of the head saw and having a gap portion receiving therein a selected portion of the saw blade, said saw guide unit having adjustably positionable blade guiding contact means projecting into said gap, said contact means comprising pads spaced from one another on each of respective opposite side faces of said saw blade for guiding said blade during operation of the same and wherein each of said contact pads is selectively adjustably movable toward and away from the adjacent face of the saw blade.

5,213,021

RECIPROCATING CUTTER ASSEMBLY

Billy D. Goforth, Fayetteville; Charles L. Goforth, Lowell, both of Ark., and Joe G. Brooks, Junction, Tex., assignors to Advanced Environmental Recycling Technologies, Inc., Springdale, Ark.

Continuation of Ser. No. 530,837, May 30, 1990, abandoned, which is a division of Ser. No. 491,061, Mar. 14, 1990, Pat. No. 5,088,910. This application Nov. 26, 1991, Ser. No. 799,713
Int. Cl.[5] B23D *25/04*
U.S. Cl. 83—318 **1 Claim**



1. A flying cutoff blade assembly for cutting a hot pliable extruded plastic and wood fiber composition product, comprising:

a product entry tray having a surface which is conducive to sliding so that the composition product can slide there along without sticking;

a product exit tray having a surface which is conducive to sliding so that the composition product can slide there along without sticking;

a housing including a knife with upwardly and downwardly facing edges, said knife being adapted and operatively positioned to cut entirely through the composition product passing from the entry tray to the exit tray and to cut the product into successive pieces of desired length in alternating upward and downward cutting directions;

a support plate conducive to non-stick sliding of the composition product adjacently aligned upstream of the exit tray and downstream of the entry tray and defining a slot therein for passage of the knife therethrough for non-deforming non-stick contact support of the composition product when a cut is effectuated in the downward direction;

an upper product stop block defining a slot therein for passage of said knife therethrough, for non-deforming non-stick contact support of the composition product upstream and downstream of the knife when a cut is effectuated in the upward direction; and

a means for moving the housing back and forth along the direction of the composition product passing from the entry tray at a speed sufficient to permit cutting of the composition product by the knife without the composition product upstream of the knife ramming into the knife as a cut is being effectuated.

5,213,022

MULTI-DIRECTIONAL PORTABLE BAND SAWMILL FOR LUMBER AND FIREWOOD

Douglas L. Elgan, P.O. Box 83, Gooding, Id. 83330

Filed Jul. 1, 1992, Ser. No. 907,166
Int. Cl.[5] B23D *55/08*
U.S. Cl. 83—797 **7 Claims**

1. A portable band sawmill system comprising:

a generally rectangular horizontal mainframe assembly with two generally parallel sides and a center region;

a generally rectangular vertical sub-frame assembly with two vertical members, said sub-frame assembly spanning the width of said main frame assembly, and being movably connected to said main frame assembly at two locations, one of said two locations being on each of said two generally parallel sides of said main-frame assembly;

means for moving said sub-frame assembly horizontally, relative to said main-frame assembly;

two traveler assemblies, with inner surfaces oriented towards the said center region of said main frame assembly, one of said traveler assemblies being movably connected to each of two said vertical members of said sub-frame assembly;

means for moving said traveler assemblies vertically, relative to said vertical members of said sub-frame assembly; and

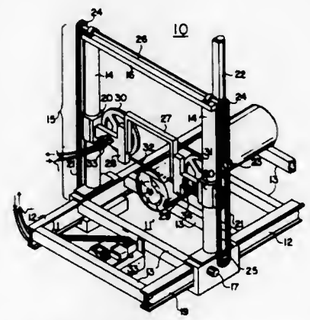
a band saw blade carriage comprising:

a drive wheel support member with inner and outer surfaces, said drive wheel support member being pivotally connected at its outer surface to one of said two traveler assemblies at the traveler assembly's inner surface;

a drive wheel supported by said drive wheel support member;

an idler wheel support member, also with inner and outer surfaces, said idler wheel support member being pivotally connected at its outer surface to the other one of said two traveler assemblies also at the traveler assembly's inner surface;

an idler wheel supported by said idler wheel support member;



a band saw blade supported by said drive wheel and said idler wheel;

a U-shaped inner member with two outer edges, said U-shaped inner member being pivotally connected at one of its outer edges to the inner surface of said drive wheel support member, and said U-shaped inner member being pivotally connected at the other one of its outer edges to the inner surface of said idler wheel support member;

means for driving said drive wheel;

means for pivotally connecting said drive wheel support member relative to said one of said two traveler assemblies;

means for pivotally connecting said idler wheel support member relative to said other one of said two traveler assemblies;

means for pivotally connecting said U-shaped inner member relative to said drive wheel support member and said idler wheel support member;

means for securing said drive wheel support member relative to said one of said two traveler assemblies;

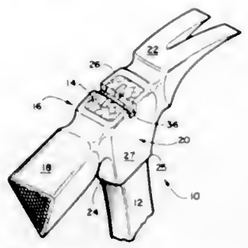
means for securing said idler wheel support member relative to said other one of said two traveler assemblies; and

means for securing said U-shaped inner member relative to said drive wheel support member and said idler wheel support member;

so that the saw blade carriage may rotate 0°–180°, relative to said vertical sub frame assembly.

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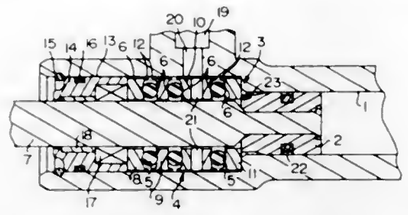
5,213,023
HAMMER
Ted Floyd, 453 Grand Ave., Spring Valley, Calif. 91977
Filed Feb. 25, 1992, Ser. No. 843,937
Int. Cl.[5] B25D *1/00*
U.S. Cl. 81—20 5 Claims



1. A hammer comprising:
a handle having a top end;
a hammer head unit having a hammer portion, a handle receiving central portion and claw portion;
said handle receiving central portion having a top edge, a bottom edge, a vertical Y-axis and a 4-sided bore hole that extends along said Y-axis from said bottom edge to said top edge;
said 4-sided bore hole having a front inside wall, a rear inside wall, and left and right inside walls, the respective inside walls taper outwardly from their bottom edge to their top edge to that the top end of said 4-sided bore hole is greater its size than its bottom end;
a wedge unit having an X-axis wedge section and a Z-axis wedge section that intersect each at a predetermined angle, the respective wedge sections have predetermined lengths L1 and L2, said X-axis wedge section having a top surface and a bottom surface; said Z-axis wedge section intersects said X-axis wedge section along a vertical Y-axis; said Z-axis wedge section having a top surface and a bottom surface and its top surface being spaced downwardly from the top surface of said X-axis wedge section to thereby form a groove that matingly receives a nail that is positioned horizontally across the entire length of the top surface of said Z-axis wedge section; and
said wedge section being driven into the top end of said handle within the perimeter formed by the top end of said 4-sided bore hole.

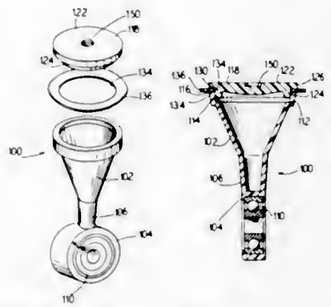
5,213,024
DAMPING MECHANISM FOR CYLINDER/PISTON MECHANISM
Gerhard Huber, Frankenhofen, and Bernhard Hollerbach, Steingaden, both of Fed. Rep. of Germany, assignors to Hoerbiger Fluidtechnik Gmbh, Schongau, Fed. Rep. of Germany
Filed Mar. 18, 1992, Ser. No. 853,244
Claims priority, application Austria, Mar. 25, 1991, 649/91
Int. Cl.[5] F01B *11/02*
U.S. Cl. 92—85 R 12 Claims

1. A damping mechanism for a cylinder/piston mechanism, comprising:
a cylinder including a working medium and a plurality of holding assemblies each including two holding members spaced along the longitudinal axis of said cylinder and each said holding assembly including an elastically deformable damping element positioned between said two spaced holding members, said cylinder further including a substantially inelastic spacer for limiting the elastic compression of said damping element and located between said two holding members in each said plurality of holding assemblies and facing the damping element therein;
a piston displaceable along the longitudinal axis of said cylinder by means of said working medium and being decelerated by said plurality of holding assemblies;
each of said holding assemblies being positioned between the inner wall of said cylinder and a surface of said piston, each of said two holding members in each of said plurality



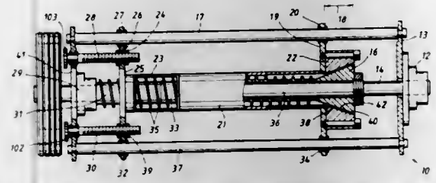
of holding assemblies being contoured for shape-locking the retained damping element in an unloaded condition; and
a force/path characteristic of the damping mechanism is adjusted by selecting the elasticity of said damping elements or the contour of the holding members.

5,213,025
CONICAL ROD PISTON
Roy J. Rozek, Plymouth, Wis., assignor to Thomas Industries Inc., Sheboygan, Wis.
Continuation-in-part of Ser. No. 470,805, Jan. 26, 1990. This application Oct. 28, 1991, Ser. No. 783,407
The portion of the term of this patent subsequent to Mar. 3, 2009, has been disclaimed.
Int. Cl.[5] F01B *31/00*
U.S. Cl. 92—109 11 Claims



1. A plastic piston assembly, comprising:
(a) a plastic annular crankshaft ring;
(b) a plastic hollow frusto-conical piston body having an apex and a piston head end remote from the apex;
(c) a plastic hollow joint member extending between and joining said apex to said crankshaft ring, the joint member interconnecting an outer wall of the crankshaft ring and the apex of the frusto-conical piston body;
(d) a plastic working surface member secured to the piston head end of the piston body remote from the apex; and
(e) an annular seal secured between the working surface member and the piston head end of the piston body.
5. A unitary piston assembly, comprising:
(a) a crankshaft ring molded about a bearing;
(b) a piston formed by a frusto-conical body having an apex; and
(c) a hollow frusto-conical joint member that connects said apex of said piston body to said crankshaft ring.

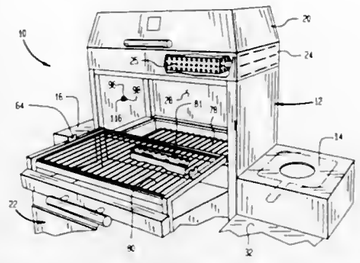
5,213,026
COMMODITY DEHYDRATING STABILIZER
J. Edward House, Spring Branch, Tex., assignor to The NeVentures Foundation, Denver, Colo.
Filed Aug. 28, 1991, Ser. No. 751,168
Int. Cl.[5] A23K *1/14, 3/00;* A23L *1/20*
U.S. Cl. 99—326 27 Claims



1. An extruding apparatus for processing commodites such as rice bran, comprising:
a cylindrical extrusion housing having first and second ends with a feed opening proximate said first end for introducing said rice bran;
an annular housing mounted to said second end with a passageway therethrough axially aligned with said extrusion housing and flared outwardly along a first inclined surface;
at least one knife mounted about the interior of said extrusion housing proximate said second end;
an extrusion rotor disposed within said extrusion housing and said annular housing;
means for rotating operatively connected to said extrusion rotor;
spiral threading about the portion of said rotor disposed within said extrusion housing;
at least one beater bar disposed about the portion of said rotor adjacent said knives, each said beater bar angularly oriented with respect to said threading, each said beater bar comprised of at least one segment, each said segment interposed between adjacent threads and wherein said segments and said knives are arrayed to produce during rotation of said rotor a plurality of impacts between at least one segment and at least one knife, each of said plurality of impacts separated by approximately equal degrees of rotation of said rotor;
a frustoconical section rotating with the portion of said rotor disposed within said housing and having a second inclined surface corresponding to said first inclined surface of said annular housing; and
an extrusion gap formed between said inclined surfaces.

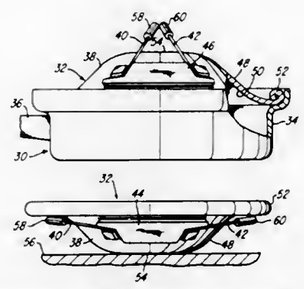
5,213,027
BARBECUE GRILL ASSEMBLY
Thomas A. Tsotsos, Palm Harbor, and Robert L. Bundschub, Miami Lakes, both of Fla., assignors to The Alexander Oven Co., Inc., Palm Harbor, Fla.
Filed Jul. 11, 1991, Ser. No. 728,601
Int. Cl.[5] A47J *37/04, 37/07*
U.S. Cl. 99—339 21 Claims

1. A barbecue grill assembly comprising:
a main cooking chamber;
a removable cooking grid disposed within said main cooking chamber above a primary source of heat and structured to supportively receive food for cooking within said main cooking chamber;
a frame structured to support said cooking grid in a generally horizontal position within said main cooking chamber;
said frame including an elongated upright notched member structured to cooperatively act with a toothed sprocket which is held for rotation only by a drawer slide element whereby said frame and said cooking grid are movable up and down in response to rotation of said sprocket;
said drawer slide element connected at one end to said main cooking chamber and at the other end to said sprocket, said drawer slide element structured to allow said cooking grid and said frame to be slidably withdrawn from and returned into said main cooking chamber;



said sprocket and said drawer slide element operable independently of one another.

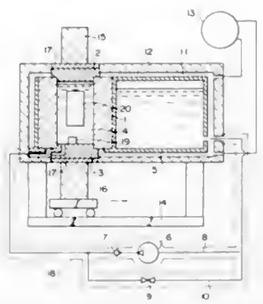
5,213,028
MULTIPLE PURPOSE COOKING UTENSIL SYSTEM
Cherng Chang, 3065 Maginn Dr., Beavercreek, Ohio 45434
Continuation of Ser. No. 648,919, Feb. 1, 1991, Pat. No. 5,154,114, which is a continuation of Ser. No. 428,830, Oct. 30, 1989, abandoned. This application Oct. 8, 1992, Ser. No. 958,231
The portion of the term of this patent subsequent to Oct. 13, 2009, has been disclaimed.
Int. Cl.[5] A47J *27/12*
U.S. Cl. 99—340 18 Claims



1. A multiple purpose cooking utensil member comprising:
(A) an invertible concavo-convex body section having a concave side and an opposite convex side including a central portion on said convex side, the body section being invertible between a first body position in which the concave side of the body section faces downwardly whereby the body section serves as a cooking utensil cover, and a second body position in which the concave side of the body section faces upwardly whereby the body section serves as a food container,
(B) handle means including a hand grip region, the handle means being movably attached to the body section, the handle means being movable to a first handle position wherein the hand grip is disposed above the central portion whereby the handle means serve as support means for the body section with the body section in the first body position, the handle means also being movable to a second handle position wherein the hand grip region is disposed above the concave side of the body section whereby the handle means serve as support means for the body section with the body section in the second body position.

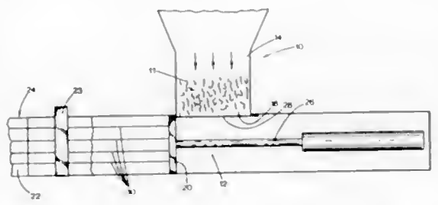
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,029
APPARATUS FOR TREATING FOOD UNDER HIGH PRESSURE
Hideki Yutaka, Kobe, Japan, assignor to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan
Filed Mar. 20, 1992, Ser. No. 855,855
Claims priority, application Japan, Mar. 28, 1991, 3-64826; Nov. 27, 1991, 3-312746
Int. Cl.[5] A23L 3/00
U.S. Cl. 99—474 8 Claims



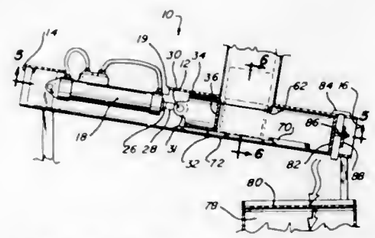
1. An apparatus for treating food under isostatic high pressure applied by a liquid pressure medium, comprising:
a high-pressure vessel forming therein a treating chamber in which food is placed,
a pressure medium tank adjacent to said high-pressure vessel,
means for delivering a pressure medium from said pressure medium tank to said treating chamber, and
cooling means holding therein said high-pressure vessel and said pressure medium tank, whereby said high-pressure vessel and said pressure medium tank are simultaneously cooled.

5,213,030
METHOD FOR PACKAGING AND SHIPPING FIBER MATERIALS
Clifford R. Bolstad, Milton, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Division of Ser. No. 607,265, Oct. 31, 1990, Pat. No. 5,174,198. This application Sep. 1, 1992, Ser. No. 939,100
Int. Cl.[5] B30B 13/00
U.S. Cl. 100—35 2 Claims



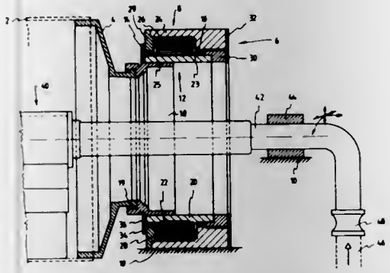
1. A method of applying a force to compress a volume of high-bulk, crosslinked cellulose fiber the method comprising:
introducing high-bulk, crosslinked cellulose fiber at a first density of about 0.008 g/cc into load hopper connected to a bale chute wherein the load hopper funnels the high-bulk fiber into the bale chute; and
applying a pressure of no more than about 42.7 kgs/cm^2 to compress the fiber into the form of a bale and to extrude the bale through the bale chute, the compressed fiber being at a second density of from about 0.1 g/cc to about 1.0 g/cc.

5,213,031
CAN CRUSHER INCLUDING A RIPPER TOOTH
Timothy R. Hebbert, Casper, Wyo., assignor to K N Energy, Inc., Lakewood, Colo.
Filed May 11, 1992, Ser. No. 881,177
Int. Cl.[5] B30B 9/32
U.S. Cl. 100—98 R 20 Claims



1. A can crusher for flattening cans for disposal and/or recycling, said can crusher comprising:
a cylindrical body having a first upstream end and a second downstream end said second end including a reactive surface;
a hydraulic fluid cylinder mounted in said body and connected to said first end thereof and having a piston rod mounted for reciprocal movement therein between a retracted position and an extended position;
a discharge opening in said body adjacent said second end thereof;
a can receiving opening in said body longitudinally spaced from said discharge opening to thereby define between said can receiving opening and said discharge opening a longitudinally extending and circumferentially solid region of said body having a length at least equal to a can height to be accommodated by said can crusher;
a piston having a cylindrical side wall having an inside and an outside, mounted within said body and attached to said piston rod for movement from a retracted position upstream of said can receiving opening to an extended downstream position at said discharge opening to flatten the can between said piston and said reactive surface, said piston having a proximal end and a distal end;
a ripper tooth, having a width, extending longitudinally within said longitudinally extending and circumferentially solid region of said body at least from said can receiving opening to said discharge opening for ripping a can as the can is moved by said piston from said can receiving opening toward said discharge opening; and
control means selectively supplying hydraulic fluid to opposite ends of said hydraulic fluid cylinder to move said piston rod and thereby move said piston between said retracted position and said extended position.

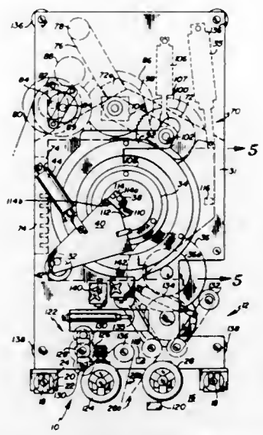
5,213,032
STENCIL DRIVE FOR A SCREEN PRINTING MACHINE
Franciscus J. J. van Akkeren, Stramproy; Jan H. Nekkers, Gennep; Robert J. van den Berg, Ewijk; Humphry G. E. Beck, Eindhoven, and Carolus T. J. A. van Sas, Helmond, all of Netherlands, assignors to Stork Brabant B.V., Boxmeer, Netherlands
Filed Jul. 2, 1992, Ser. No. 908,162
Claims priority, application Netherlands, Jul. 4, 1991, 9101165
Int. Cl.[5] B41L 13/04
U.S. Cl. 101—116 9 Claims



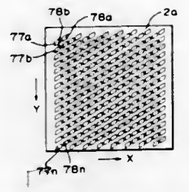
1. A screen printing apparatus for printing a web of material positioned on a supporting belt, and comprising,
a frame,
at least one rotary, tubular stencil having a hollow interior for printing the web of material,
a rotary drive comprising a stationary stator securely fixed to said frame and a rotor mounted for rotation relative to said stator so as to define a rotational axis,
means detachably and rigidly coupling said at least one stencil to said rotor,
an elongated squeegee,
means mounting said squeegee in the interior of said at least one stencil and including an elongate end which is mounted to said squeegee, and
said rotary drive being provided with a central opening which is sufficiently large to permit said elongate end to extend therethrough with radial play.

5,213,033
PRESS-READY ROTARY SCREEN PRINTING APPARATUS
Robert A. Bourgeois, Orland Park, Ill.; Jon C. Zook, Carmel, Calif., and Cornelius A. Vandenberg, Elmhurst, Ill., assignors to Illinois Tool Works Inc., Glenview, Ill.
Filed May 10, 1991, Ser. No. 698,311
Int. Cl.[5] B41L 13/04
U.S. Cl. 101—116 13 Claims

1. A screen printing apparatus, in combination with a printing press having first and second spaced apart stations wherein said screen printing apparatus is located between said stations so as to define a predetermined length dimension for said printing press, comprising:
a print cylinder and an impression cylinder disposed in contact with each other, one of said cylinders being located substantially vertically above the other one of said cylinders in order to minimize said predetermined length dimension of said printing press and allow said screen printing apparatus to be disposed between said stations of said press while defining said minimal predetermined length dimension of said printing press;
said print cylinder having a longitudinal axis and a predetermined outer peripheral surface;
a main frame; and
a screen mounting frame pivotably mounted upon said main frame by means of a mounting member, having a longitudinal axis disposed parallel to said longitudinal axis of said print cylinder and disposed externally of said predetermined outer peripheral surface of said print cylinder, said print cylinder being rotatably mounted within said screen mounting frame, whereby said print and impression cylinders are able to be disposed and maintained in contact with each other within said substantially vertical mode regardless of the use of different sized print cylinders.



5,213,034
GRAVURE PRINTING PLATE WITH ANGLED AND OFFSET HOLE PATTERN AND SMEAR PREVENTING SLOTS ADJACENT THE HOLES
Sohichi Kuwahara; Shigeyoshi Hirashima, and Tatsumi Ito, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Division of Ser. No. 726,354, Jul. 5, 1991. This application Apr. 22, 1992, Ser. No. 872,136
Claims priority, application Japan, Jul. 9, 1990, 2-180893; Jul. 9, 1990, 2-180894
Int. Cl.[5] B41F 9/00; B41C 1/05
U.S. Cl. 101—150 9 Claims



1. A printing plate having a height and a width and being made of thermoplastic resin sheet for use in gravure printing comprising:
a plurality of holes each representing a pixel of image information and each having a configuration substantially of a rhomboid and arranged in rows of continuous series of said holes with a space between adjacent holes in each row and each row being arranged at a predetermined angle in the width direction, with holes in each of said rows being aligned in columns in the height direction and each successive column being offset from a preceding column by one-half of one said pixel.

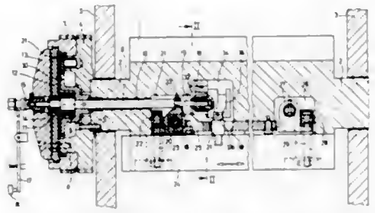
VOL 1150 ISS 4 MY 25 1993 UMI

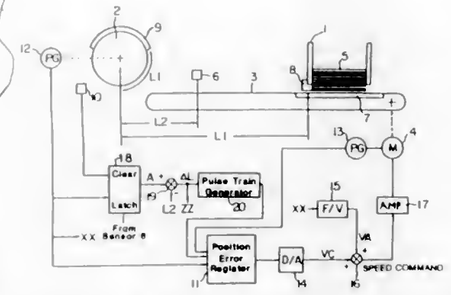
5,213,035

DEVICE FOR CHANGING-OVER A GRIPPER CONTROL ON A GRIPPER CYLINDER OF A TURNING DEVICE IN A SHEET-FED ROTARY PRINTING MACHINE FOR FIRST-FORM AND PERFECTOR PRINTING

Willi Becker, Bammental, Fed. Rep. of Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Fed. Rep. of Germany

Filed Sep. 21, 1992, Ser. No. 948,238
Claims priority, application Fed. Rep. of Germany, Sep. 20, 1991, 4131273
Int. Cl.[5] B41F *21/10, 5/02, 3/40*
U.S. Cl. 101—230 13 Claims





1. Device for changing-over a gripper control on a gripper cylinder of a turning device in a sheet-fed rotary printing machine for first-form and perfector printing, including an adjusting gear and a fixed gear disposed coaxially with one another, the adjusting gear being adjustably movable so as to vary the angular position thereof relative to that of the fixed gear, and a clamping device for clamping the adjusting gear and the fixed gear frictionally together, comprising a control shaft axially displaceable in the gripper cylinder, said control shaft being rotatable and being coupled, via first intermediate converting means, with the adjusting gear so that an adjustable movement of the adjusting gear is converted thereby into a rotary movement of said control shaft, spring means for applying a reaction force to said control shaft in a clamping direction of the adjusting gear, an adjusting bridge carried by the gripper cylinder so as to be displaceable in axial direction thereof, an angle lever disposed in the gripper cylinder so as to be swivelable therein about an axis transverse to the axis of said control shaft for transmitting radial forces to said adjusting bridge, said angle lever having an arm formed with a borehole, said control shaft extending through said borehole and being formed with an abutment shoulder, said shoulder, in a condition wherein said control shaft is loaded with a clamping force, being engageable with an opposing surface on said angle lever for acting thereon, and second intermediate converting means for converting a rotary movement of said control shaft into an axial displacement of said adjusting bridge, said second intermediate converting means including an intermediate member, said control shaft having an end thereof directed towards a middle region of the printing machine and engaging in said intermediate member in a manner that said control shaft is fixed against rotation relative to said intermediate member yet axially displaceable relative thereto.

5,213,036

SHEET FEEDING APPARATUS

Masateru Tokuno, Tokyo, and Tatsuyuki Miyagawa, Yokohama, both of Japan, assignors to SK Engineering Ltd. and Reliance Electric Ltd., Kanagawa, Japan

PCT No. PCT/JP91/00480, § 371 Date Dec. 5, 1991, § 102(e) Date Dec. 5, 1991, PCT Pub. No. WO91/16254, PCT Pub. Date Oct. 31, 1991
PCT Filed Apr. 12, 1991, Ser. No. 777,344
Claims priority, application Japan, Apr. 13, 1990, 2-96229
Int. Cl.[5] B65H *31/12, 5/02*
U.S. Cl. 101—232 2 Claims

1. A sheet feeding apparatus for feeding sheets piled up in a hopper, piece by piece, to a printing press from first and second suction conveyors installed in parallel at a bottom of the hopper, comprising;

a first motor for driving the first suction conveyor,

a second motor for driving the second suction conveyor,

a first sensor positioned above the first suction conveyor for detecting front edges of sheets being transferred,

a second sensor positioned above the second suction conveyor for detecting front edges of sheets being transferred,

a first control unit for equalizing speed of the first motor with speed of a plate cylinder of the printing press and for adjusting phase of the sheet to phase of a press plate on the plate cylinder with a detection signal of the first sensor, and

a second control unit for equalizing speed of the second motor with speed of the plate cylinder of printing press, for adjusting phase of the sheet to phase of the press plate with the detection signal of the first sensor, and for correcting parallel error of the sheet against the press plate with detection signals of the first and second sensors,

whereby sheet feeding accuracy is improved by correction of mechanical error and parallel error at suction of sheets.

5,213,037

APPARATUS FOR APPLYING INK TO A SUBSTRATE

Emmett Leopardi, II, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 608,513, Nov. 2, 1990, abandoned. This application Jul. 17, 1992, Ser. No. 917,528
Int. Cl.[5] B41F *31/04, 31/06*
U.S. Cl. 101—363 4 Claims

1. An apparatus for applying ink to a substrate, said apparatus comprising:

a reservoir for containing ink;

an ink supplying means for supplying ink to said reservoir at a first rate;

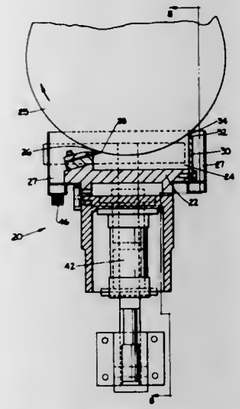
an axially rotatable anilox roll partially submerged in said reservoir;

a transport means for transporting the substrate relative to said anilox roll so that said ink can be applied to said substrate in a preselected pattern;

an orifice for removing ink from said reservoir in a controlled manner without transfer to said substrate, said orifice having a border defined by a weir disposed substantially parallel to said anilox roll;

a doctor blade in juxtaposed relationship with said anilox roll; and

a means for vertically separating said reservoir, said weir, and said doctor blade from said anilox roll by vertical linear translation of at least one of said reservoir and said anilox roll.

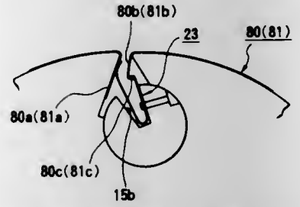


5,213,038

PLATE EXCHANGE APPARATUS FOR ROTARY PRESS

Hiroshi Takahashi, Chiba, and Tsuyoshi Takei, Ibaraki, both of Japan, assignors to Komori Corporation, Japan

Filed Sep. 16, 1992, Ser. No. 945,692
Claims priority, application Japan, Sep. 19, 1991, 3-266986
Int. Cl.[5] B41F *1/30*
U.S. Cl. 101—410 1 Claim



1. A plate exchange apparatus for a rotary press, comprising:

a plate winding rod pivotally fitted in a winding rod hold in an outer circumferential portion of a plate cylinder and having a spring groove extending almost an entire length thereof;

a plurality of leaf springs, each constituted by a leaf spring member to have a U-shaped section, provided in the spring groove, and each having an end formed with a press portion for urging a leading end of a plate against a surface of a gap of said plate cylinder and the other end formed with a bent portion for catching a bent end wound on a circumferential surface of plate cylinder;

a biasing member for biasing said plate winding rod in a predetermined rotational direction;

a plate winding rod pivoting unit coupled to an end portion of said plate winding rod by a cam mechanism;

a plate press roller extending in an axial direction of said plate cylinder close to said circumferential surface of said plate cylinder and moved forward and backward toward and away from the leading end of the plate by a driving unit; and

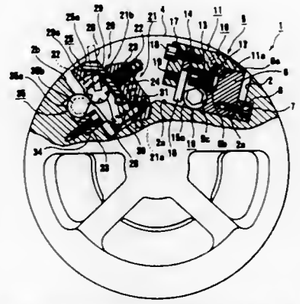
a control unit for operating said plate winding rod, said plurality of leaf springs, said biasing member, said plate winding rod pivoting unit, and said plate press roller at predetermined timings.

5,213,039

PLATE LOCKUP APPARATUS FOR PRINTING PRESS

Koji Takeda, and Nobuaki Saito, both of Ibaraki, Japan, assignors to Komori Corporation, Japan

Filed May 26, 1992, Ser. No. 888,895
Claims priority, application Japan, May 30, 1991, 3-48301[U]
Int. Cl.[5] B41F *1/28*
U.S. Cl. 101—415.1 4 Claims



1. A plate lockup apparatus for a printing press, comprising:

a plate lockup table with a first gripper surface located in a gap of a circumferential surface of a plate cylinder and extending in an axial direction of said plate cylinder;

a gripper plate with a second gripper surface pivotally supported on said plate lockup table such that said second gripper surface opposes and contacts said first gripper surface of said plate lockup table and extends in the axial direction of said plate cylinder;

a spring member for biasing said gripper plate in a plate releasing direction;

an actuating member fixed on said gripping plate and extending in a radial direction of said plate cylinder;

a cam shaft extending along said actuating member to be pivotal in an axial direction parallel to the axial direction of said plate cylinder such that a cam surface thereof opposes and contacts said actuating member, for swinging, by cooperating with said spring member, said gripper plate disposed in the plate gripping direction and in a plate releasing direction with respect to said plate lockup table through said actuating member; and

an adjusting member for acting on said actuating member to adjust a relative position between said first gripper surface and said second gripper surface, wherein said adjusting member is an urging member which moves forward and backward to urge said actuating member against said cam shaft, thereby swinging said actuating member.

5,213,040

AUTOMATIC CLEANING APPARATUS FOR GRAVURE PLATE CYLINDERS

Tomoyasu Mihori; Toshiya Saeki; Sadayoshi Naito; Masaichi Iiboshi, all of Zama, and Hiroki Nakamura, Funabashi, all of Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 3, 1991, Ser. No. 802,127
Int. Cl.[5] B41F *35/00*
U.S. Cl. 101—424 1 Claim

1. An automatic cleaning apparatus for gravure plate cylinders comprising:

a carriage having a spatula capable of being placed in contact with the outer cylindrical surface of a gravure plate cylinder supported to be rotatable about the cylindrical axis thereof;

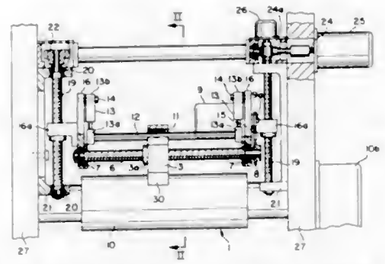
VOL 1150 ISS 4 MY 25 1993 UMI

means for rotating the gravure plate cylinder;

moving means for moving the carriage in a direction parallel to the cylindrical axis of the gravure plate cylinder, said moving means comprising a rotatable screw bar extending parallelly to the cylindrical axis of the gravure plate cylinder and engaged with an internal threaded portion provided in the middle of the carriage;

a pair of brackets supporting said screw bar, each of said brackets screw brackets further including an internal threaded portion;

a pair of feed screws threadingly engaging with said threaded portion of said brackets and provided in a substantially diametrical direction of the gravure plate cylinder on which said pair of brackets is moved along;



pressing means for pressing the spatula against the outer cylindrical surface of the gravure plate cylinder, the pressing means comprising a pressure shaft passing through a bearing of the carriage on the opposite side to the spatula and an actuator connected to the pressure shaft, said pressure shaft further being secured to said brackets by said actuator whereby the spatula is pressed against or separated from the gravure plate cylinder by the actuator; and

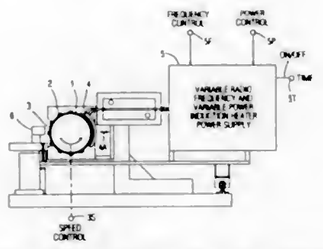
sprinkling means for sprinkling a cleaning solvent on the cylindrical surface of the gravure plate cylinder, the sprinkling means comprising a solvent sprinkling pipe disposed parallelly to and above the gravure plate cylinder, the solvent sprinkling pipe sprinkling solvent at substantially atmospheric pressure.

5,213,041

METHOD AND SYSTEM FOR FUSING PRINTING IMAGE DEPOSITS ON SURFACES OF A PRINTING SUBSTRATE, AND REMOVAL THEREOF FOR RE-USE OF THE SURFACE

Asbjorn J. Kanck, Athelstone, Australia, assignor to Man Roland Druckmaschinen AG, Offenbach-am-Main, Fed. Rep. of Germany

Filed May 28, 1992, Ser. No. 889,781
Claims priority, application Australia, Jun. 28, 1991, PK6993
Int. Cl.[5] B41C *1/10*
U.S. Cl. 101—450.1 10 Claims



1. A method of lithographic printing using a reusable lithographic printing plate (1) having an image accepting surface, comprising the steps of;

producing a printing image deposit (2) on the surface of the printing plate (1) by jet printing with a jet printing substance containing a heat fusable component;

fusing said printing image deposit (2) onto the surface of the printing plate, by using a heating means (4, 5) providing for heating of the deposit at a first heat energy level;

printing the desired number of copies of said fused image deposit (2) on the surface of said printing plate (1) by lithographic printing; and

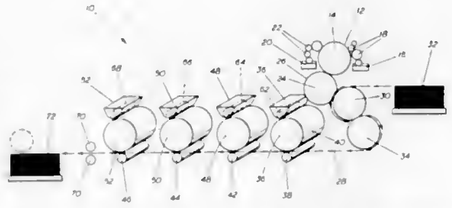
removing said printing image deposit (2) from the surface of said printing plate (1) by using said heating means by applying heat energy from said heating means to said deposit at a level which is higher with respect to said first heat energy level.

5,213,042

PRINTING PROCESS AND APPARATUS

Frank N. Larios, Loomis, Calif., assignor to The NuVentures Foundation, Denver, Colo.

Filed Feb. 25, 1992, Ser. No. 842,039
Int. Cl.[5] B41F *1/18*
U.S. Cl. 101—450.1 10 Claims



1. A process for printing an image onto a target element using a printing plate, comprising the following steps:

applying an attractant material to image areas of said printing plate, said image areas forming the image to be printed;

repelling said attractant material from non-image areas of said printing plate with an oleophobic substance;

transferring said attractant material between said printing plate and said target element such that said transferred attractant material substantially retains the shape of said image; and

contacting ink with said attractant material on said target element such that said ink conforms to the shape of said image on said target element.

5,213,043

NON-FILM LITHOGRAPHIC IMAGING

Gary L. Reimers, 2552 Winsford La., Carmichael, Calif. 95608; Joe Cole, 1308 Foxhollow Way, and Bob Torres, 1122 Cresthaven Way, both of Roseville, Calif. 95678

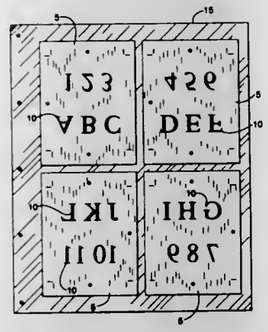
Filed Mar. 20, 1992, Ser. No. 853,976
Int. Cl.[5] B41F *7/02*
U.S. Cl. 101—463.1 20 Claims

1. A non-film requiring method for applying information to a light sensitive emulsion coated lithographic printing plate, comprising the steps of:

a) acquiring an image of said information applied to one surface of a sheet of paper based material;

b) positioning said information image applied sheet on said printing plate to cover at least a portion of said emulsion,

wherein said positioning step directly contacts said image on said one surface with said plate emulsion; and



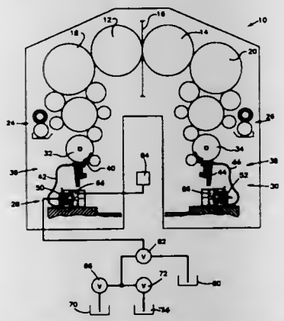
c) exposing said sheet covered printing plate to a light from a light source thereby transferring said information to said printing plate.

5,213,044

METHOD AND APPARATUS FOR USE IN PRINTING

Frederick J. Elia, Sarasota, Fla., and Giacinto R. Mazzenga, Lake Como, Pa., assignors to Como Technologies, Incorporated, Sarasota, Fla.

Filed Nov. 30, 1990, Ser. No. 621,296
Int. Cl.[5] B41M *1/00*
U.S. Cl. 101—483 8 Claims



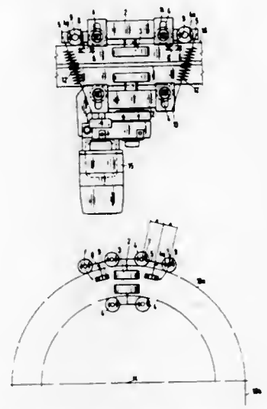
1. A method comprising the steps of printing on sheet material with ink, operating an ink pump in a first direction to pump ink to an inker apparatus during performance of said step of printing on sheet material with ink, after at least substantially completing said step of printing on sheet material with ink, operating the ink pump in a second direction opposite to the first-direction to pump ink from the inker apparatus, operating the ink pump in the first direction to pump clean-up fluid to the inker apparatus after completing said step of operating the ink pump in the second direction to pump ink from the inker apparatus, and operating the ink pump in the second direction to pump clean-up fluid from the inker apparatus after completing said step of operating the ink pump in the first direction to pump clean-up fluid to the inker apparatus.

5,213,045

MONORAIL HOIST OR OVERHEAD CRANE HAVING A BOTTOM FLANGE RUNNING GEAR AND BOTTOM FLANGE RUNNING GEAR THEREFOR

Udo Gersemsky, Herdecke, Fed. Rep. of Germany, assignor to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Mar. 23, 1992, Ser. No. 854,716
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1991, 4109971
Int. Cl.[5] B66C *9/14*; B60B *17/00*
U.S. Cl. 104—93 9 Claims



1. A movable hoist installation comprising:

a running rail wherein said rail comprises curved and straight portions said running rail being a bottom flange of a beam;

said running rail comprising a top, a bottom, and at least two sides disposed between said top and said bottom;

a load bearing running wheel being disposed on said bottom flange;

a motor means being connected to and for driving said load bearing running wheel;

said motor means being disposed on a first side of said running rail;

at least two supporting rollers each being disposed on each side of and displaced from said running wheel along the longitudinal direction of said running rail;

said at least two supporting rollers being disposed along and making contact with said bottom of said running rail, on a second side having an edge wherein said second side is the side of said running rail opposite said first side; and

a means for maintaining said at least two supporting rollers at a minimum distance from said edge of said second side of said running rail when the center of the radius of curvature of said curved portion of said running rail is on the same side of said curved running rail as said motor means;

said minimum distance being no less than the distance of said at least two supporting rollers from said edge of said second side along a straight portion of said running rail;

said means for maintaining a minimum distance comprising means for moving the rotation axles of said at least two supporting rollers to maintain said minimum distance from said edge of said second aside of said running rail;

said means for maintaining said at least two supporting rollers at a minimum distance form said edge of said second side of said curved running rail comprising:

at least two supporting roller carriers; and

biasing means for biasing said at least two supporting roller carriers against said edge of said second side of said running rail;

each said supporting roller carrier comprising:

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a lateral guide roller being disposed along said edge of said second side of said running rail, ad said lateral guide roller being mounted on a lateral guide roller axle wherein said lateral guide roller axle is generally perpendicular to the bottom of said running rail; and

a supplemental roller being disposed along said edge of said second side of said running rail, and said supplemental roller being mounted on a supplemental roller axle wherein said supplemental roller axle is generally perpendicular to the bottom of said running rail, and said supplemental roller axle is generally parallel to said lateral guide roller axle;

each said supporting roller being disposed along said bottom of said second side of said running rail, and each said supporting roller being mounted on a supporting roller axle, said supporting roller axle being disposed at a point between said lateral guide roller axle and said supplemental roller axle;

said supporting roller axle lying in the plane generally perpendicular to the plane formed by said lateral guide roller axle and said supplemental roller axle;

each said biasing means comprising a spring;

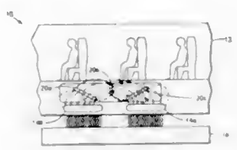
said spring pivoting one of said supporting roller carriers about said lateral guide roller axle and pressing said lateral guide roller and said supplemental roller against said second edge.

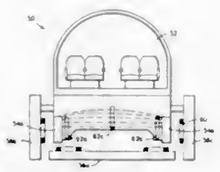
5,213,046

MAGNETIC FIELD CONFINEMENT FOR MAGNETICALLY LEVITATED VEHICLES

Michael Proise, Garden City, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Jan. 17, 1992, Ser. No. 822,614
Int. Cl.[5] B60L *13/04*
U.S. Cl. 104—281 **15 Claims**





1. A magnetically levitated vehicle adapted for movement along a guideway, comprising:

a passenger compartment,

first and second primary magnet means secured on the vehicle to produce a magnetic field having a magnetic flux density extending outward from the primary magnet means, to support the vehicle above and spaced from the guideway; and

a plurality of confining magnets disposed on the vehicle to confine the magnetic flux extending outward from the primary magnet means and to reduce the strength of the primary magnetic field in the passenger compartment,

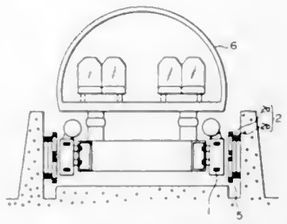
wherein the primary magnet means has a capacity to produce a primary magnetic field having a maximum strength of at least 200 gauss in the passenger compartment, and the confining magnets maintain the strength of the primary magnetic field in the passenger compartment below 5 gauss.

5,213,047

PROPULSION SYSTEM FOR MAGNETICALLY LEVITATED VEHICLE

Shunsuke Fujiwara, Tokyo; Yoshihiro Jizo, and Hidenari Akagi, both of Amagasaki, all of Japan, assignors to Railway Technical Research Institute and Mitsubishi Denki Kabushiki Kaisha, both of Tokyo, Japan

Filed Nov. 22, 1991, Ser. No. 795,998
Claims priority, application Japan, Nov. 30, 1990, 2-337534
Int. Cl.[5] B60L *13/04*
U.S. Cl. 104—281 **9 Claims**



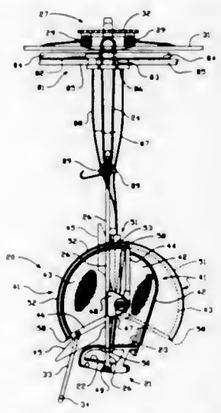
1. In a propulsion system for a magnetically levitated vehicle comprising a superconductor coil mounted on the vehicle and a propulsion coil fixed to a track rail for guiding said vehicle, said propulsion coil comprising an inner and outer coil disposed adjacent to each other, and therefore at different respective distances away from the superconductor coil, each of said inner and outer coils being a three phase coil, wherein the number of turns in the outer coil is greater than the number of turns of the inner coil such that the levels of mutual inductance developed between the inner propulsion coil and the superconductor coil and the outer propulsion coil and the superconductor coil are substantially the same.

5,213,048

CHAIRLIFT CHAIR ASSEMBLY WITH MOVABLE ENCLOSURE

Jan K. Kunczynski, Glenbrook, Nev., assignor to Zygmunt Alexander Kunczynski and Alexander Jan Kunczynski, Carson City, Nev.

Filed Oct. 24, 1991, Ser. No. 782,344
Int. Cl.[5] B61B *7/00*
U.S. Cl. 105—149.2 **17 Claims**



1. In a chair assembly for a chairlift including a seat assembly for support of a passenger thereon movable enclosure means mounted to said seat assembly for movement between a closed position defining a passenger protecting volume above a portion of said seat assembly and an open position permitting ingress and egress of a passenger to said seat assembly, and drive means coupled to said movable enclosure means for displacement of said movable enclosure means between said open position and said closed position, wherein the improvement in said chair assembly comprises:

drive means including a drive rail mans and drive roller means frictionally engaging said drive rail means to effect relative displacement therebetween, one of said rail means and said roller means being carried by said movable enclosure means and the other of said rail means and said roller means being mounted to said seat assembly to effect movement of said movable enclosure means upon rotation of said roller means, and said roller means being mounted for movement toward and away from said drive rail means and being spring biased in a direction toward said drive rail means by spring biasing assembly, said spring biasing assembly including means for adjusting the biasing force applied to said roller means to control the force at which said roller means will slip relative to said drive rail means in response to a force applied to said movable enclosure means in a direction opposite the movement of said movable enclosure means; and

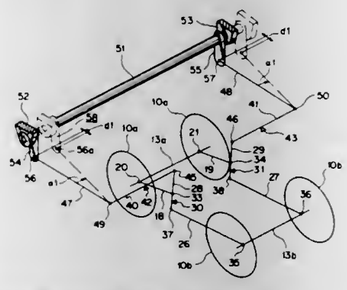
drive actuator means coupled to drive said drive roller means, said drive actuator means being formed to produce rotation of said drive roller means during and as a result of movement of said chair assembly along a path of said chairlift.

5,213,049

RAILWAY VEHICLE BOGIE

Noboru Kobayashi, Kobe, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed Jul. 25, 1991, Ser. No. 735,723
Claims priority, application Japan, Jul. 30, 1990, 2-203588; Jul. 30, 1990, 2-203589
Int. Cl.[5] B61F *5/44*
U.S. Cl. 105—168 **6 Claims**



1. A railway vehicle bogie, comprising:

a first axle box and a second axle box spaced apart longitudinally with respect to a bogie frame carrying a body thereon, each of said axle boxes holding an axle supporting wheels for movement along railway rails;

a pair of first links, each of which has a first end and a second end, said first links being spaced apart and angularly displaceably connected at said first ends to said first axle box;

a pair of second links, each of which has a third end and a fourth end, said second links being spaced apart and angularly displaceably connected at said third ends to said second axle box;

a pair of first levers spaced apart transversely with respect to said bogie frame and pivotably movable within first and second parallel planes, each of which has a fifth end, a sixth end, a first intermediate portion adjacent to said fifth end, and a second intermediate portion adjacent to said sixth end, said second intermediate portions of said first levers being angularly displaceably connected to said second ends of said first links, said fifth ends of said first levers being angularly displaceably connected to said fourth ends of said second links, and said first intermediate portions of said first levers being angularly displaceably supported by said bogie frame; and

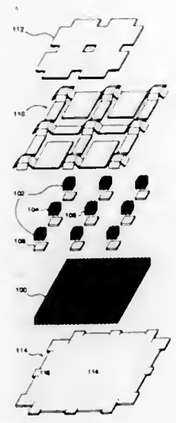
means respectively pivotably mounted upon opposite sides of said vehicle body and connected to said sixth ends of said transversely spaced pair of first levers so as to be disposed transversely outwardly with respect to said planes of said transversely spaced pair of first levers and additionally interconnect said sixth ends of said transversely spaced pair of first levers for permitting lateral and vertical movement of said vehicle body relative to said bogie frame without incurring resultant movement of said first levers, said first and second links, and said first and second axle boxes, and for angularly moving said first levers in opposite directions with respect to each other so as to in turn move said first and second links in opposite directions in order to angularly move said first and second axle boxes relative to said bogie frame so as to reduce the attack angle of said wheels with respect to said rails when said vehicle body displaces angularly relative to said bogie frame.

5,213,050

INTEGRATED PAPER CARGO PALLET

Harry C. Juvik-Woods, San Rafael, Calif., assignor to Damage Prevention Products, Inc., Benicia, Calif.

Filed Jun. 26, 1992, Ser. No. 906,221
Int. Cl.[5] B65D *19/00*
U.S. Cl. 108—51.3 **15 Claims**



1. A pallet comprising:

a honeycomb platform having an upper surface, lower surface, and edges;

an upper facing sheet adherent to the upper surface of the honeycomb platform,

footblocks adherent to the lower surface of the honeycomb platform,

a lower cover patterned so that it comprises portions that cover the footblocks and portions that cover the lower surface of the honeycomb platform, said cover is functionally continuous between adjacent footblocks, and is adherent respectively to the lower surface of the honeycomb platform and the surfaces of the footblocks it covers, said portions that cover the footblocks extending downwardly from said portions that cover the lower surface of the honeycomb platform and

a lower facing sheet patterned with openings so that said portions that cover the footblocks protrude through the openings in the lower facing sheet and which lower facing

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sheet adheres to the portion of the lower cover sheet which adheres to the lower surface of the honeycomb platform.

5,213,051

APPARATUS FOR INCINERATING WASTE MATERIAL

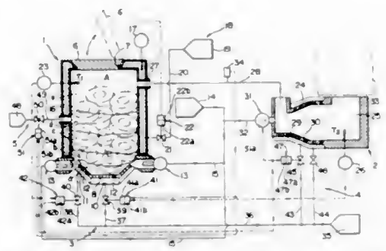
Masamoto Kaneko, Takasaki, Japan, assignor to Kinsei Sangyo Co., Ltd., Takasaki, Japan

Filed Mar. 13, 1992, Ser. No. 850,591

Claims priority, application Japan, Nov. 20, 1991, 3-305066; Nov. 20, 1991, 3-305067

Int. Cl.[5] F23G *5/12*

U.S. Cl. 110—229 32 Claims



1. An apparatus for incinerating a waste material by processing the waste material through dry distillation and gasification, comprising:

a gasification furnace for storing a waste material therein and burning a portion of the waste material and thermally decomposing a remainder of the waste material by way of dry distillation with the heat of combustion of the portion of the waste material, thereby producing a combustible gas;

a combustion furnace for combusting the combustible gas introduced therein from said gasification furnace through a gas passage;

first temperature detecting means for detecting the temperature in said gasification furnace;

second temperature detecting means for detecting the temperature of the combustible gas as it is burned in said combustion furnace; and

oxygen supply means for supplying said gasification furnace with an amount of oxygen required to burn the portion of the waste material and to thermally decompose the remainder of the waste material while controlling the amount of oxygen supplied to said gasification furnace to maintain, at a substantially constant value, the temperature of the combustible gas as detected by said second temperature detecting means during the dry distillation of the waste material, and for supplying said gasification furnace with an amount of oxygen to accelerate the combustion and ashing of the waste material when the dry distillation of the waste material is finished;

said oxygen supply means comprising means for increasing the amount of oxygen supplied to said gasification furnace to accelerate the combustion and ashing of the waste material if the temperature in said gasification furnace as detected by said first temperature detecting means increases up to a first predetermined temperature or higher as the combustion of the waste material progresses and also if the temperature of the combustible gas as detected by said second temperature detecting means drops from said substantially constant value to a second predetermined temperature or lower, when the dry distillation of the waste material is finished.

5,213,052

SEWING MACHINE WITH AN ADJUSTING DEVICE

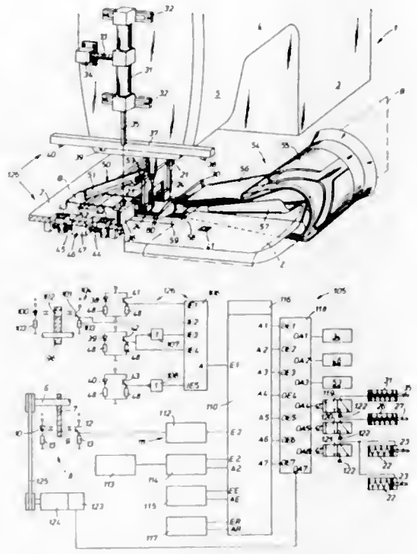
Hans Wilke, Wartenberg-Rohrbach, Fed. Rep. of Germany, assignor to G. M. Pfaff Aktiengesellschaft, Kaiserslautern, Fed. Rep. of Germany

Filed Jun. 2, 1992, Ser. No. 892,215

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1991, 4118119

Int. Cl.[5] D05B *19/00, 37/04*

U.S. Cl. 112—121.11 6 Claims



1. A sewing machine for sewing a hem to a fabric part to provide a front hem projection length and a rear hem projection length and to provide a seamless front edge and a seamless rear edge, comprising: a cutting device; a microprocessor a first hem projection length sensor for generating a signal to be input to said microprocessor to initiate a cutting process for said front hem projection length; a second hem projection length sensor for generating a signal to be input to said microprocessor to initiate a cutting process for said rear hem projection length; an adjusting device for adjusting the position of said first hem projection length sensor and said second hem projection length sensor including a stop connected to drive means for movement of said stop in a direction of feed for positioning a front edge of said fabric to define a width of a seamless front edge of the fabric being sewn, said width of said seamless front edge corresponding to a distance from said stop to a stitch formation site of the sewing machine, a forward sensor, located in front of said stitch formation site at a distance from said stitch formation site corresponding to a predeterminable fabric end length, for indicating absence of the fabric, the occurrence of which corresponding to an actual fabric end length dropping below the predeterminable fabric end length, a measuring device activated by said forward sensor for measuring feed distance of the fabric, and adjusting device control means for determining a residual seam length based on a difference between said predeterminable fabric end length and said width of said seamless front fabric edge, to form a seamless rear edge, and for stopping a needle bar of the sewing machine in a top reversal position when said residual seam length is reached based on a distance measured by said measuring device.

5,213,053

THREAD TAKEUP FOR AN EMBROIDERY MACHINE

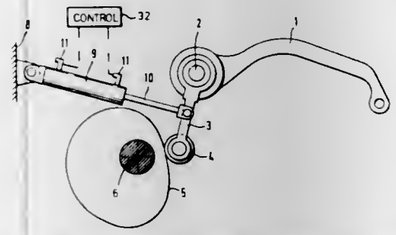
Uwe Webers, Moers, and Paul Woelfle, Krefeld, both of Fed. Rep. of Germany, assignors to ZSK-Stickmaschinen-Gesellschaft Mit Beschrankter Haftung, Krefeld, Fed. Rep. of Germany

Filed Aug. 9, 1991, Ser. No. 743,035

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1990, 9011592

Int. Cl.[5] D05B *49/02*

U.S. Cl. 112—241 8 Claims



1. A thread takeup for an embroidery machine, comprising:

a driven main shaft of an embroidery machine;

a thread takeup cam mounted on said driven main shaft and formed with a closed surface surrounding an axis of said main shaft;

a pivotally mounted thread guide lever traversed by an embroidery thread and formed with a transmission arm;

a cam follower on said transmission arm engaging said surface and decouplable therefrom, said cam follower being a roller rotatably mounted on a free end of said transmission arm;

forcegenerating means operatively connected to and acting upon said transmission arm for forcibly urging said cam follower into a first position against said surface; and

a counterforce means for swinging said thread-guide lever into a second position.

5,213,054

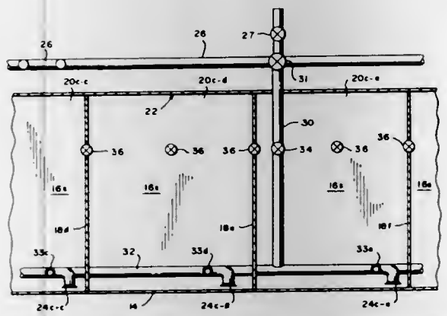
EMERGENCY BULK LIQUID HANDLING SYSTEM FOR TANKVESSELS

John J. Gallagher, P.O. Box 2148, Prince Frederick, Md. 20678, and Paul S. Smith, 15817 29th Dr., SE, Mill Creek, Wash. 98012

Filed May 8, 1992, Ser. No. 880,223

Int. Cl.[5] B63B *25/08*

U.S. Cl. 114—74 R 7 Claims



1. In a vessel having a hull deck and bulkheads defining side, top and bottom walls of a plurality of liquid cargo-carrying tanks therein and cargo-handling means including pump means, cargo collection means comprising bottom mains and branches connecting said pump means to suction intake means in at least one of said tanks and cargo loading/discharge means including at least one deck manifold and deck header connected to said pump means, the improvement comprising at least one vertical drop line selectively communicating said cargo loading means with the bottom of at least one of said cargo-carrying tanks to bypass said pump means for loading cargo directly into said tanks, high suction valve means in said drop lines for selectively providing high suction inlets for said cargo-carrying tanks in which said drop lines are situated, and means to prime said headers and said drop lines to provide for continued removal of cargo from said tanks by said pump means through said drop lines in the event of tank flooding or disruption of said cargo collecting means.

5,213,055

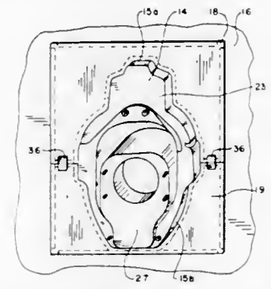
TEMPLATE FOR CLEANING OR PAINTING OF A GIMBAL HOUSING

Arthur M. Hofbauer, 2931 Whaleneck Dr., Merrick, N.Y. 11566

Filed Sep. 23, 1991, Ser. No. 764,414

Int. Cl.[5] B63B *59/00, 9/00, 35/00*

U.S. Cl. 114—222 20 Claims



1. A method for reducing the time for cleaning or painting of a gimbal housing which is mounted to a boat transom, which comprises attaching a template to the boat transom around an intricately and arcuate-shaped gimbal housing perimeter prior to cleaning or painting of the gimbal housing, wherein the template has at least two sections and is configured and dimensioned to correspond to the gimbal housing perimeter thus shielding the transom from damage with the template while the gimbal housing is cleaned or painted to facilitate the cleaning and painting of same while reducing the amount of time required to clean or paint the gimbal housing, wherein the template sections are sequentially attached to the transom.

5,213,056

SLACK ADJUSTMENT TESTER

Douglas C. Nicholls, Box 1988, Yorkton, Saskatchewan, Canada S3N 3X3 , and David E. McLelland, 22 Waterloo Road, Yorkton, Saskatchewan, Canada S3N 3E8

Filed May 27, 1992, Ser. No. 888,862

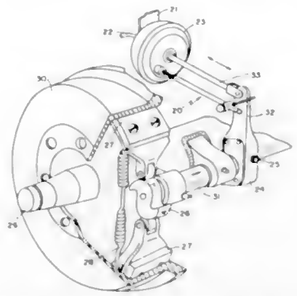
Int. Cl.[5] G01L *5/28;* B60Q *1/26*

U.S. Cl. 116—208 11 Claims

1. A slack adjustment tester for use with a vehicle braking system including an air cylinder, a push rod, a slack adjuster, brake shoes and a brake drum operating in series, said slack adjustment tester providing a readable indication of the slack that exists between said air cylinder movement and said brake shoes contacting said brake drum comprising in combination, an elongated tubular body member, a bushing mounted in a first end of said elongated tubular body member, an indicator means slidably supported by said bushing, said indicator means having a stop at a first end thereof for retention of said indicator means with said elongated tubular body member, a mounting means for mounting said slack adjustment tester on said air

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cylinder, attaching means at a second end of said indicator means attaching said indicator means to said mounting means, a pin body means slidable on said elongated tubular body member, a removable member received by said pin body means and engaging an arm of the slack adjuster, a setting



means mounted in said pin body means, said setting means engaging said elongated tubular body member through said pin body means to fix said pin body means at an adjusted position, whereby a slack reading is provided on said indicator means when there is a relative elongating movement between said elongated tubular body member and said indicator means.

5,213,057

POSITION INDICATING APPARATUS

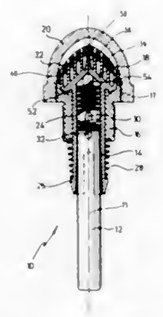
Fritz Müller, Ingelfingen, Fed. Rep. of Germany, assignor to Gebrüder Müller Apparatebau GmbH & Co. KG, Ingelfingen, Fed. Rep. of Germany

Filed Dec. 2, 1991, Ser. No. 801,004

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1990, 9017208

Int. Cl.[5] F16K *37/00*; G01L *19/12*

U.S. Cl. 116—281 19 Claims



1. Apparatus adapted for securement to the housing of a valve for indicating the position of a movable valve element of the valve, comprising:

an actuator spindle fixedly secured to the valve element;

an indicator spindle operatively connected to said actuator spindle and provided with a head piece; and

guide means connectable to the housing of the valve in opposite relationship to said head piece for cooperation therewith such that a movement of said valve element is transmitted via said actuator spindle to said indicator spindle to thereby displace said head piece relative to said guide means, with the degree of projection of said head piece beyond said guide means being commensurate with the position of the valve element.

5,213,058

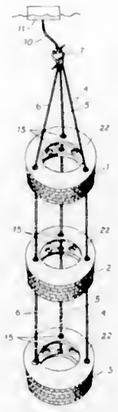
RECOVERABLE AQUACULTURE HABITAT UTILIZING PNEUMATIC TIRE CASINGS

Robert S. Parker, 205 Tours St., Lafayette, La. 70506, and C. A. Yundt, 415 Schlief Dr., Belle Chasse, La. 70053

Filed Dec. 24, 1990, Ser. No. 632,384

Int. Cl.[5] A01K *61/00*

U.S. Cl. 119—2 19 Claims



1. A stone crab habitat and harvesting apparatus self-supported on the water bottom in an aquatic environment comprising:

(a) a first substantially round vehicular pneumatic tire casing and a plurality of succeeding substantially round vehicular pneumatic tire casings, said tire casings having a tread area at the outer radial edge and a pair of opposing sidewall areas located substantially perpendicular to said tread area so as to form a pneumatic space, each of said tire casings being oriented horizontally, so as to have one upper and one lower sidewall, said tire casings being positioned, one over the other, so as to form a vertical stack of said tire casings having said first tire casing in said stack resting on said water bottom on its lower sidewall and each said succeeding tire casing in said stack supported on the upper sidewall of the preceding tire casing in said stack;

(b) means for attaching said tire casings together;

(c) means for locating said stack of tire casings in said aquatic environment; and

(d) means for pulling said stack of tire casings from said aquatic environment.

5,213,059

AIR CONDITIONING UNIT FOR EXPERIMENTAL ANIMALS

Anders Krantz, Söderala, Sweden, assignor to Airchitecht I Soderhamn AB, Soderhamn, Sweden

Filed Nov. 14, 1991, Ser. No. 768,559

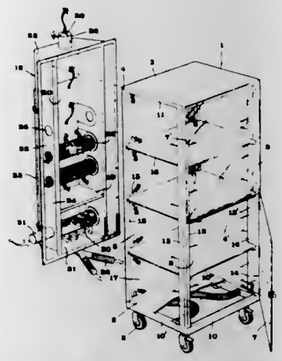
Claims priority, application Sweden, Mar. 29, 1989, 8901090; Nov. 9, 1989, 8903757

Int. Cl.[5] A01K *1/00*

U.S. Cl. 119—15 8 Claims

1. An air conditioning unit for experimental animals, comprising a housing with a bottom, a roof, two side walls, a rear wall, and a front wall having an opening provided with at least one door and which permits access to the interior of said housing; one or more supporting means, forming two or more compartments each adapted to accommodate a number of cages with experimental animals; and means for conducting air through said compartments in horizontal air currents which are taken into the housing in the form of supply air via inlet

holes and which are sucked out in the form of exhaust air via outlet holes in an opposing wall, characterized in that the inlet holes are formed in two vertical air ducts which both are disposed immediately adjacent to the opening in the housing and which have opposing surfaces in which said inlet holes are formed defining means for conducting the supply air into the



housing in the form of opposing partial currents which, after having met in an area between the air ducts, are deflected towards the housing rear wall which has the outlet holes for sucking out the exhaust air, such that the air currents passing through the separate compartments are at all times directed away from the front wall and towards the rear wall, whether the door is closed or not.

5,213,060

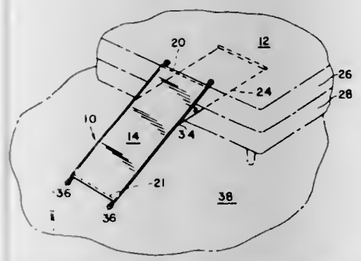
PET RAMP

Lois C. Sloan, 20924 Snag Island Dr. E., Sumner, Wash. 98390, and Heidi LeBeau, 7705 Hampton Ave., Apt #323, Los Angeles, Calif. 90046

Filed Feb. 10, 1992, Ser. No. 833,538

Int. Cl.[5] A01K *29/00*

U.S. Cl. 119—82 13 Claims



1. A ramp for assisting animals in climbing from a first surface onto a higher surface of an article having at least two layers, comprising:

an inclined member having a length defining a longitudinal direction and a width defining a lateral direction generally perpendicular to the longitudinal direction, said width being less than said length, said member extending from said first surface to said higher surface; and

an anchor flap having proximal and distal ends, said proximal end connected to said member generally along the lateral direction and said flap extending from said member generally in the longitudinal direction, said distal end being adapted to be retained between said layers.

5,213,061

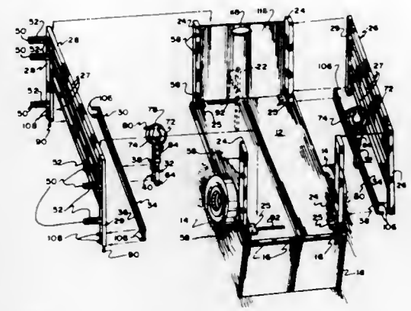
FARRIER SQUEEZE TRAILER

Nicholas J. Zito, 7279 McCartney Rd., Coolidge, Ariz. 85228

Filed Apr. 28, 1992, Ser. No. 874,850

Int. Cl.[5] A61D *3/00*

U.S. Cl. 119—101 10 Claims



1. An apparatus for immobilizing a hoofed animal for the purpose of shoeing hoofs of said animal, comprising:

a trailer having a flat bed;

four vertical corner posts attached to said flat bed;

a front wall connected to said flat bed and to a front pair of said corner posts, said front wall including an opening for a halter rope;

a rear gate hinged to said flat bed, said rear gate when open forming a ramp leading to said flat bed;

a fixed side frame attached to a first two of said four vertical corner posts on one side of said flat bed;

a slidable side frame slidably connected to a second two of said four vertical corner posts on a second side of said flat bed by a connecting means;

said connecting means including a plurality of locking bars mounted on said slidable side frame, said locking bars cooperating with openings in said second two corner posts to prevent reverse movement of said slidable side frame when said slidable side frame is pushed toward said fixed side frame; whereby

a hoofed animal may be immobilized on said trailer by being squeezed between said side frames.

5,213,062

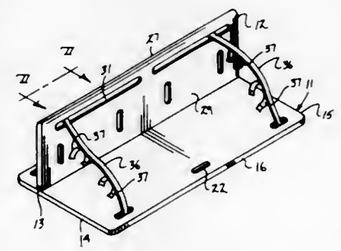
PET TRAUMA BOARD

James W. Canady, Jr., 117 Hickory Hills Dr., Williamsburg, Va. 23185-5407

Filed Jul. 6, 1992, Ser. No. 909,192

Int. Cl.[5] A61D *3/00*; A61G *7/08*; A61F *5/37*

U.S. Cl. 119—103 4 Claims



1. A pet trauma board, comprising,

a first board, including a first board first end spaced from and

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parallel a first board second end, a first board first side spaced from and parallel a first board second side, and a first board top surface parallel to and coextensive relative to a first board bottom surface, and

a second board, the second board having a second board first end spaced from and parallel a second board second end, the second board first side spaced from and parallel a second board second side, a second board first surface parallel to and coextensive relative to a second board second surface, and

a spring hinge member means mounted to the second board second side and to the first board top surface for biasing the second board first surface towards the first board top surface, and

the first board first end is spaced from the first board second end a predetermined length, and the second board first end is spaced from the second board second end said predetermined length, with the second board orthogonally oriented and coextensive relative to the first board first end and the first board second end, and

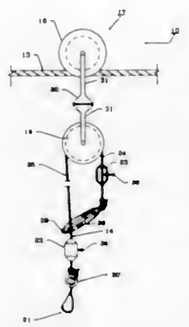
including a plurality of first strap apertures directed through the first board in a longitudinally aligned relationship parallel to the first board first side, and a plurality of second apertures arranged in a longitudinally aligned row parallel to the first board second side oriented between the second board second side and the first board second side, and the second board including second board first side slots arranged longitudinally aligned relative to one another and parallel to and in adjacency to the second board first side, and a plurality of second board body slots orthogonally oriented relative to the second board first side slots directed through the second board.

5,213,063

ANIMAL TETHERING DEVICE

William F. Franck, III, Greensboro, N.C., assignor to Windsor Products, Inc., Greensboro, N.C.

Filed Aug. 20, 1992, Ser. No. 932,666
Int. Cl.[5] A01K *3/00*
U.S. Cl. 119—120 **20 Claims**



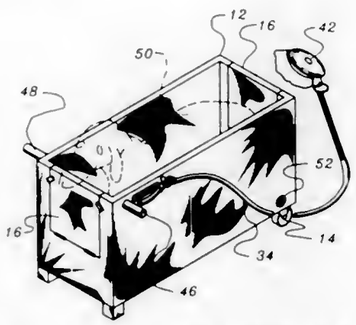
13. An animal tethering device comprising: a leash line, one end of said leash line for attachment to an animal, the other end of said leash line comprising a heavy loop catch, means to maintain said leash line above said animal, said leash line maintaining means spaced from said animal for attaching said leash line thereto, said leash line extending from said leash line maintaining means through said loop catch to said animal to lengthen or shorten said leash line as said loop catch slides along said leash line.

5,213,064

ANIMAL BATH APPARATUS HAVING MULTIPLE SPRAY ASSEMBLIES

Patricia Mondine, 266 Noble Ave., Pittsburgh, Pa. 15205, and Mary J. Hilarzewski, 280 Lemoyne Ave., Pittsburgh, Pa. 15228

Filed Apr. 13, 1992, Ser. No. 867,323
Int. Cl.[5] A01K *13/00*
U.S. Cl. 119—158 **3 Claims**



2. The new and improved bath apparatus for an animal comprising:

housing means in which said animal may be confined, said housing means comprising a bottom, a pair of opposed side walls, a pair of opposed end walls and an open top;

access door means, said access door means comprising at least one door hingedly supported on one of said opposed end walls to facilitate an egress and ingress of said animal into said housing means;

valve means having an input connected to a source of washing fluid, said valve means being mounted exteriorly on one of said opposed side walls, said valve means further having a pair of outputs, one of said outputs extending through said one side wall and being connected to a first washing fluid spray assembly mounted on said bottom and being adapted to direct a spray of washing fluid upwardly against a bottom area of an animal placed in said housing means through said at least one door, the other of said outputs being connected to a flexible conduit having a free end, and a second washing fluid spray assembly connected to said flexible conduit free end and being adapted to direct a spray of said washing fluid against a top area of said animal through the open end of said housing means.

5,213,065

STEAM GENERATOR FEEDWATER DISTRIBUTION SYSTEM

Robert M. Wilson, Plum Boro, Pa.; King W. Chan, Lutz, and Daniel E. Ford, Cantonment, both of Fla., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 23, 1991, Ser. No. 749,363
Int. Cl.[5] F22B *1/06*
U.S. Cl. 122—34 **26 Claims**

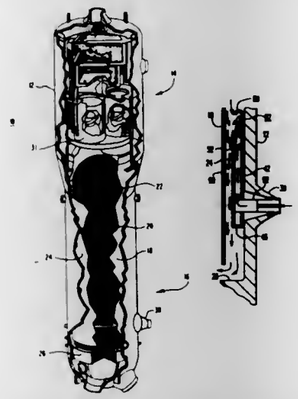
22. A method for substantially uniformly mixing feedwater with recirculating water in a steam generator, having a shell, a wrapper, an annular downcomer region positioned between said shell and said wrapper, an inlet nozzle, a tube bundle positioned within said wrapper and a distribution device, comprising the steps of:

directing the flow of said feedwater from said inlet nozzle into said distribution device and circumferentially in both directions around at least a portion of aid annular downcomer region;

directing the flow of said feedwater uniformly distributed around said wrapper in an ascending direction in said distribution device toward a downwardly directing means of said distribution device;

discharging said feedwater from said downwardly directing means into said downcomer region; and

mixing said feedwater exiting said downwardly directing means with descending recirculating water in said downcomer region of said steam generator prior to entry of said feedwater into said tube bundle for providing a substantially uniform mixture of said feedwater and said recirculating water for reducing thermal shock and water hammer to said steam generator.

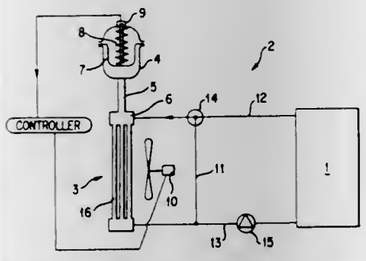


5,213,066

EVAPORATION COOLED INTERNAL COMBUSTION ENGINE

Andreas Sausner, Frankfurt am Main; Klaus Mertens, Hemsbach; Jens Sielaff, Wald-Michelbach; Karl-Heinrich Spies, Birkenau; Hans-Peter Jaekel, Frellstedt, and Hans-Juergen Schäfer, Brunswick, all of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim/Bergstr., Fed. Rep. of Germany

Filed Oct. 2, 1991, Ser. No. 770,166
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1990, 4031475
Int. Cl.[5] F01P *4/02*
U.S. Cl. 123—41.2 **7 Claims**



1. An evaporation cooling system for an internal combustion engine, comprising:

a conduit for transferring coolant to an internal combustion engine and for removing coolant from an internal combustion engine;

a heat exchanger having a first end for receiving coolant from the engine by way of said conduit and a steam-filled zone located in the region of said first end, and a second end from which may be withdrawn coolant for the engine by way of said conduit, said heat exchanger serving to transfer heat from the coolant as it moves from the first end to the second end; and

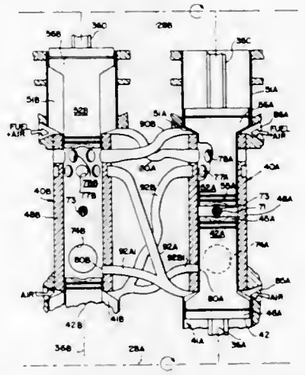
an equalization container having only one port, said port connected to said steam-filled zone by a line, said equalization container including a resilient displaceable wall that is supported on a secondary spring.

5,213,067

INTERNAL COMBUSTION ENGINE

Louis E. Kramer, 5323 Elk Creek Rd., Middletown, Ohio 45042

Filed Dec. 19, 1991, Ser. No. 808,865
Int. Cl.[5] F02B *25/08, 75/28, 75/04;* **F02M** *25/02*
U.S. Cl. 123—51 BA **8 Claims**



1. In an opposed piston two cycle engine of the type having a cylinder and a pair of pistons operating in counter movement within said cylinder, there being an exhaust port from said cylinder controlled by one of said pistons and a charging port controlled by the other of said pistons, said pistons having main heads defining between them a combustion chamber, and there being an air inlet port adjacent said charging port and closer to said combustion chamber than said charging port; the improvement comprising

an auxiliary air inlet port located near the end of the path of said one piston on the opposite side of said exhaust port from said combustion chamber and controlled by said one piston, and

means for supplying compressed air to each of said air inlet ports

whereby air is admitted to said cylinder first in a region between the products of combustion from said combustion chamber and said charging port when exhaust flow initiates through said exhaust port and further air is admitted to said cylinder in a region on the opposite side of said exhaust port from said combustion chamber.

5,213,068

ARRANGEMENT FOR CONNECTING PRESSURE MEDIUM SYSTEMS TO CYLINDER HEAD IN BIG DIESEL ENGINES

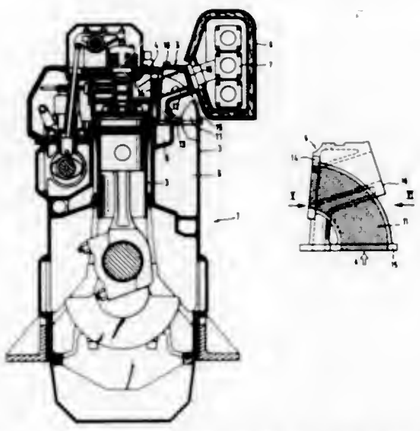
Hugo Stenfors, Västerbankmo, and Arto Nikula, Merikaarto, both of Finland, assignors to Wartsila Diesel International Ltd. Oy, Helsinki, Finland

Filed Oct. 26, 1992, Ser. No. 967,254
Claims priority, application Finland, Nov. 11, 1991, 915297
Int. Cl.[5] F02M *35/10*
U.S. Cl. 123—52 MC **9 Claims**

1. Connection arrangement for pressure medium systems in a big diesel engine including a number of cylinders (3), wherein different pressure mediums provided for a cylinder (3) are

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transported through respective passages in a cylinder head (4), the arrangement being such that connection ports for the pressure medium systems for a cylinder (3) are positioned in the cylinder head (4) on the same side of an engine block (2), that the arrangement comprises a separate distribution piece (5) for each of the cylinders (3) installed on the cylinder head (4) at the position of said connection ports, said distribution piece (5) including a first flow-through channel (11) for leading combustion air from an air supplying system through the cylinder head (4) into the cylinder (3), a second flow-through channel (12) for leading exhaust gases through the cylinder head (4) into an exhaust pipe (7) and a third flow-through channel (13) for leading cooling water provided for the cylinder (3) through the cylinder head (4) for the recovery thereof, that said flow-through channels (11,12,13) are arranged substantially in transverse direction relative to the engine block (2), and that the distribution piece (5) includes flange-like attachment members (14,15), which are placed on adjoining sides in the distribution piece (5) for fixing it on the one hand to the cylinder head (4) and on the other hand to the engine block (2).



5,213,069

TWO-STROKE SUPER CHARGED ENGINE AND PROCESS FOR OPERATING

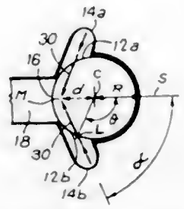
Rémi E. Curtil, 7, rue Fortuny, 75017 Paris, France

Continuation of Ser. No. 576,420, Sep. 24, 1990, abandoned. This application Mar. 4, 1992, Ser. No. 845,536

Claims priority, application France, Mar. 25, 1988, 88 04002

Int. Cl.[5] F02B *75/02*

U.S. Cl. 123—65 A **13 Claims**



1. A system for scavenging a cylinder in a two-stroke internal combustion engine, said system comprising:

a linearly reciprocating piston disposed within said cylinder;

at least two inlet ducts each having an inlet port opening into said cylinder, each of said inlet ports for delivering an inlet stream into said cylinder; and

an exhaust duct having an exhaust port opening into said cylinder, said exhaust port for delivering an exhaust stream from within said cylinder; wherein

said inlet ducts and inlet ports are disposed so that each inlet stream impacts the wall of the cylinder at a substantially identical location, said location being disposed substantially between said exhaust port and an end of said cylinder opposite said piston; and wherein

the edge of each of said inlet ports farthest from said opposite end and the edge of said exhaust port closest to said opposite end are arranged to substantially eliminate crossing of said inlet streams and said exhaust stream.

5,213,070

TWO-CYCLE INTERNAL COMBUSTION ENGINE WITH SEQUENTIAL EXHAUST VALVE OPENINGS

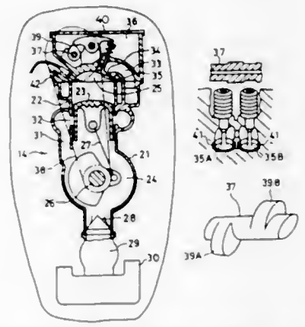
Hiroaki Fujimoto, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Japan

Filed Nov. 7, 1991, Ser. No. 788,871

Claims priority, application Japan, Nov. 7, 1990, 2-299726

Int. Cl.[5] F02B *37/00*

U.S. Cl. 123—65 VC **5 Claims**



1. A two-cycle internal combustion engine comprising:

a combustion chamber including a cylinder composed of a side portion and first and second end portions;

a crankcase opening up into said second end portion of said cylinder;

a piston slidable mounted for reciprocal motion within said cylinder;

crankshaft means mounted in said crankcase and adapted to be rotated by reciprocal motion of said piston in said cylinder;

charge intake and delivery means including a scavenging passage for delivering a charge to said combustion chamber, said scavenging passage terminating in a scavenging port which opens into said side portion of said cylinder;

exhaust outlet means located in said first end portion of said cylinder, said exhaust outlet means further including a plurality of exhaust ports and a plurality of exhaust valves, each of said exhaust valves being seated in a respective one of said exhaust ports;

means for opening the exhaust valves individually in a non-overlapping manner consecutively over sequential combustion cycles, each combustion cycle including a charge intake, compression, ignition, expansion and exhaust event.

5,213,071

SUPPORT STRUCTURE FOR CAM SHAFTS

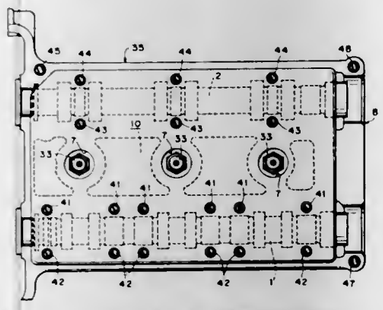
Noriyuki Iwata; Naoyuki Yamagata, both of Hiroshima; Tatsuya Uesugi, Higashi-Hiroshima, and Taiji Matsubara, Hatsukaichi, all of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Sep. 21, 1992, Ser. No. 947,638

Claims priority, application Japan, Sep. 20, 1991, 3-242030

Int. Cl.[5] F01L *1/04*

U.S. Cl. 123—90.27 **4 Claims**



1. A support structure for cam shafts comprising:

an intake cam shaft disposed in a cylinder head;

an exhaust cam shaft disposed opposite to the intake cam shaft with an ignition plug being disposed between the shafts;

a pair of intake cams per a cylinder formed side by side on the intake cam shaft;

a pair of exhaust cams per a cylinder formed side by side on the exhaust cam shaft and having a longer interval therebetween than that of the intake cams;

a cam cap forming an upper portion of the support structure for the cam shafts and an upper wall portion of a plug hole for inserting the ignition plug;

a cam carrier forming a lower portion of the support structure for the cam shafts and a lower wall portion of the plug hole; and

fastener means for fastening the cam cap to an engine cylinder head, said fastener means being disposed both at longitudinally opposite sides of the pair of intake cams and between the pair of exhaust cams.

5,213,072

VALVE ACTUATING MECHANISM IN THE CYLINDER HEAD OF A COMBUSTION ENGINE

Klaus Döhring, Heidelberg, Fed. Rep. of Germany, assignor to Firma Carl Freudenberg, Weinheim/Bergstr., Fed. Rep. of Germany

Filed May 18, 1992, Ser. No. 885,131

Claims priority, application Fed. Rep. of Germany, May 28, 1991, 4117406

Int. Cl.[5] F01L *1/14, 3/10*

U.S. Cl. 123—90.48 **14 Claims**

1. A valve actuating mechanism comprising:

a tappet lifter having a cupped recess;

a valve stem connected to said tappet lifter;

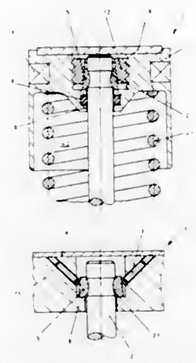
a retaining mechanism connecting said tappet lifter to said valve stem, having an annular member, a radial outer surface of the annular member being threaded, and an adapter, said adapter contacting a radially inner surface of the annular member and the valve stem, said adapter being arranged radially between the annular member and the valve stem, said adapter having a portion extending below the annular member, said portion being braced against a radially inwardly projecting extension of said tappet lifter; and

a valve spring, the valve spring contacting, and being retained by, the cupped recess in the tappet lifter.

11. A valve actuating mechanism comprising:

a tappet lifter having a cupped recess;

a valve stem connected to said tappet lifter;



retaining mechanism connecting said tappet lifter to said valve stem, and having at least one set screw being oriented at an acute angle to the valve stem; and

a valve spring, the valve spring contacting, and being retained by, the cupped recess in the tappet lifter.

5,213,073

CYLINDER HEAD OF AN INTERNAL COMBUSTION ENGINE

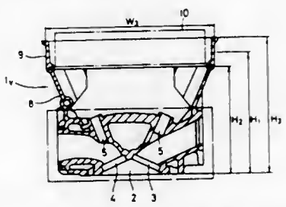
Shinichi Murata; Michiyasu Yoshida; Hideki Miyamoto, and Noboru Nakamura, all of Kyoto, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 5, 1991, Ser. No. 788,277

Claims priority, application Japan, Nov. 5, 1990, 2-299589

Int. Cl.[5] F02M *35/10*

U.S. Cl. 123—193.5 **6 Claims**



1. A method for processing a cylinder head of an internal combustion engine, comprising a head base portion having combustion chambers, and plurality of guide holes for receiving inlet and outlet valves, and an extended portion having an internal space for installing an additional mechanism relative to a valve driving system, on a manufacturing line for processing a plurality of different conventional heads without such additional mechanism and having different heights, comprising the steps of:

providing a head base portion having a height between the lowest height and the highest height among said plurality of different conventional heads for processing in said manufacturing line;

surface grinding of the upper and lower surface of said head base portion,

drilling valve guide holes for inlet and outlet valves in said head base portion;

expansion fitting valve guides in said guide holes;

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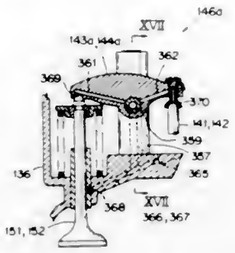
expansion fitting valve seat rings at an opening of said inlet and outlet ports in said combustion chambers;
finishing said lower surface of said head base portion; and
assembling said extended portion on said head base portion.

5,213,074

LUBRICATING DEVICE OF FOUR-STROKE CYCLE ENGINE UNIT FOR PORTABLE WORKING MACHINE

Youichi Imagawa, and Hiroshi Kohmoto, both of Tokyo, Japan, assignors to Ryobi Limited, Tokyo, Japan

Division of Ser. No. 812,691, Dec. 23, 1991, Pat. No. 5,176,116. This application Oct. 22, 1992, Ser. No. 964,926
Claims priority, application Japan, Dec. 26, 1990, 2-418425; Dec. 26, 1990, 2-418426
Int. Cl.[5] F01M *9/10*
U.S. Cl. 123—196 M 6 Claims



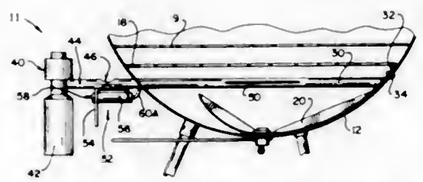
1. A lubricating device of a four-stroke cycle engine unit for a portable working machine, said lubricating device comprising:
a holder for pivotably supporting a pair of rocker arms which operatively connect ends of a pair of push rods to an intake and exhaust valve, said holder having a space formed therein for receiving a quantity of lubrication oil and a series of pathways connecting said space to contacting portions of rocker arms, valves and push rods; and
spring means mounted on the holder for maintaining oil within the holder space in a compressed state thereby supplying lubricating oil to the rocker arms, push rods and valves during engine operation.

5,213,075

IGNITER FOR CHARCOAL GRILL

James C. Stephen, Arlington Heights; Erich J. Schlosser, Barrington; Andrzej Leja, Palatine, and Donald E. Pestka, Bensenville, all of Ill., assignors to Weber-Stephen Products Co., Palatine, Ill.

Continuation-in-part of Ser. No. 566,082, Aug. 10, 1990, abandoned. This application Aug. 6, 1991, Ser. No. 740,921
Int. Cl.[5] F23Q *13/02, 3/00*
U.S. Cl. 126—25 B 16 Claims



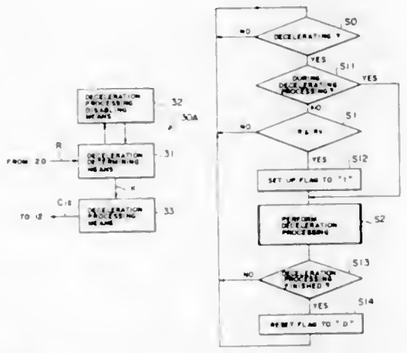
1. A gas igniter in combination with a charcoal grill comprising:
a grill housing having substantially horizontal charcoal support grid in a lower section thereof;
a food support grid located above said charcoal support grid;
an opening within said grill housing below said charcoal support grid;
a burner tube passing through said opening and having an open, exposed first end outside said grill housing and a closed second end within said grill housing,
said tube extending substantially horizontal across said grill housing below said charcoal support grid,
said tube further having a first opening therein outside said grill housing adjacent said first end for the inlet of air into said tube, a second opening therein inside said grill housing adjacent said second end for defining outlets for the ignited gas, and venturi means between said first opening and said second opening, said first opening being at least one air intake opening, said second opening being at least two diametrically located generally horizontal slots;
a pressurized gas source connected to said exposed first end of said tube; and,
ignition means having actuating means, an electrode generating assembly and a spark-emitting electrode, said actuating means and said electrode generating assembly being positioned outside said housing and said electrode being positioned in said tube and entering said tube outside said housing for igniting gases flowing through said tube.

5,213,076

APPARATUS AND METHOD FOR CONTROLLING AN INTERNAL COMBUSTION ENGINE

Hideki Umemoto, and Wataru Fukui, both of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1992, Ser. No. 961,646
Claims priority, application Japan, Oct. 17, 1991, 3-269544
Int. Cl.[5] F02M *23/06*
U.S. Cl. 123—327 10 Claims



1. An apparatus for controlling an internal combustion engine comprising:
primary supply means for supplying an air/fuel mixture to cylinders of an internal combustion engine;
auxiliary supply means for supplying auxiliary air to said cylinders;
a speed sensor for sensing the number of revolutions per minute of said engine and generating a corresponding output signal;
sensor means for sensing operating conditions of said engine and generating a corresponding output signal; and
control means connected to receive the output signals from said speed sensor and said sensor means for controlling, based thereon, said primary and auxiliary supply means in such a manner that an amount of air/fuel mixture and an amount of auxiliary air supplied to said cylinders are

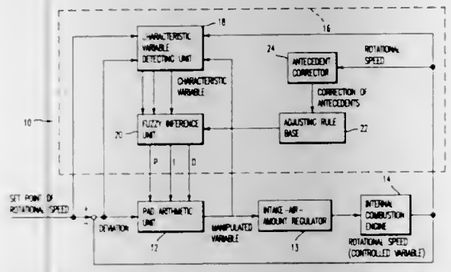
controlled in accordance with the engine operating conditions;
said control means comprising:
deceleration determining means for determining whether said engine is decelerating and for determining whether the rotational speed of said engine is equal to or less than a predetermined reference value;
deceleration processing means for performing a deceleration processing of gradually decreasing the amount of auxiliary air when said engine is decelerating and when the engine rotational speed is equal to or less than said predetermined reference value; and
deceleration processing disabling means for determining whether a deceleration processing is being performed, said deceleration processing disabling means being operable to disable said deceleration determining means when the deceleration processing is being performed.

5,213,077

GAIN ADJUSTING DEVICE FOR PID CONTROLLER FOR CONTROLLING ROTATIONAL SPEED OF INTERNAL COMBUSTION ENGINE

Hiroyuki Nishizawa; Masataka Osawa; Kohta Ohtoshi, and Tomohiro Iwai, all of Aichi, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi and Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, both of Japan

Filed May 15, 1992, Ser. No. 883,536
Claims priority, application Japan, May 15, 1991, 3-110606
Int. Cl.[5] F02D *31/00, 41/00*
U.S. Cl. 123—352 13 Claims



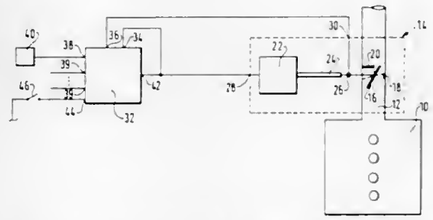
1. A gain adjusting device for a PID controller for controlling the rotational speed of an internal combustion engine, so as to adjust a gain of the PID controller in such a manner that the rotational speed agrees with a set point on the basis of a deviation of the rotational speed from a set point and a gain, comprising:
characteristic variable detecting means for detecting a plurality of characteristic variables concerning the rotational speed used for inference;
first storage means which stores groups of rules each indicating the relationship between the characteristic variable corresponding to a respective one of a plurality of sets which are divided from the plurality of characteristic variables and an amount of gain adjustment;
second storage means which stores the relationship between a magnitude of the characteristic variable corresponding to each of the sets and a degree of adoption of the amount of gain adjustment;
correcting means for correcting the relationship between each of the characteristic variables of the groups of rules and the amount of gain adjustment in such a manner that a permissible range is broadened when it is determined that each of the characteristic variables cannot be controlled within the permissible range; and
inferring means for inferring the amount of gain adjustment for each of the sets on the basis of the characteristic variables detected and the groups of rules, for determining the degree of adoption of the amount of gain adjustment for each of the sets in correspondence of the manipulated variable of the respective characteristic variables, and for determining on the basis of the result of inference of the amount of gain adjustment and the degree of adoption an amount of gain to be adjusted by calculating a weighted average value of the result of inference of the amount of gain adjustment with the degree of adoption set as weight.

5,213,078

METHOD FOR DETERMINING AT LEAST ONE END POSITION OF A DISPLACEMENT DEVICE IN A MOTOR VEHICLE

Gerhard Kolberg, Bühl-Weitenung; Karl-Heinrich Preis, Bühlertal; Jörg Holzberg, Renchen, and Stefan Koch, Ottersweier, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart

PCT No. PCT/DE90/00163, § 371 Date Sep. 25, 1991, § 102(e) Date Sep. 25, 1991, PCT Pub. No. WO90/11442, PCT Pub. Date Oct. 4, 1990
PCT Filed Mar. 7, 1990, Ser. No. 761,989
Claims priority, application Fed. Rep. of Germany, Mar. 25, 1989, 3909905
Int. Cl.[5] F02D *41/28, 11/10*
U.S. Cl. 123—399 9 Claims



1. A method for determining at least one end position of a displacing device in a motor vehicle, the method comprising the steps of:
forming a desired value from at least one operating characteristic variable;
closed-loop controlling the position of said displacing device in dependence upon said desired value by means of a control unit which supplies a control variable to said displacing device;
determining an end position of said displacing device for predetermined operating conditions by open-loop controlling said displacing device in the direction of a particular end position independently of said desired value; and,
storing the position of said displacing device as the particular end position when said control variable for said displacing device at least assumes a pregiven value for a predetermined time duration and said displacing device is disposed in the region of said particular end position.

5,213,079

IGNITION TIMING CONTROL APPARATUS

Hideki Umemoto, and Hiroshi Okuda, both of Himeji, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Continuation of Ser. No. 637,841, Jan. 7, 1991, abandoned. This application Apr. 30, 1992, Ser. No. 877,389
Claims priority, application Japan, Jan. 17, 1990, 2-6330
Int. Cl.[5] F02P *7/067, 11/00*
U.S. Cl. 123—414 3 Claims

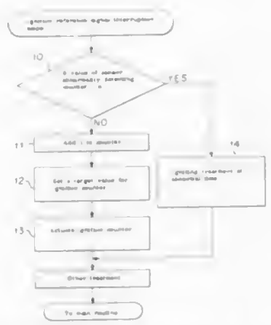
1. An ignition timing control apparatus for an internal combustion engine which comprises:
an ignition signal coil for producing a first pulse signal in synchronism with the revolution of the engine and in correspondence to a predetermined crank angle position,
a crank angle sensor for producing a second pulse signal in

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synchronism with the revolution of the crank, the second pulse signal having a greater frequency than said first pulse signal,

a control means for performing an ignition control of the engine by detecting the crank angle on the basis of said first and second pulse signals, said control means being adapted to perform an ignition control by another means when an abnormal state of the crank angle sensor is detected from said second pulse signal, and

threshold means for enabling said control means to perform ignition control by said another means only when said crank angle sensor has been detected to be abnormal past a predetermined threshold of abnormality, wherein said threshold means operates under software control to check whether the crank angle is abnormal past said predetermined threshold of abnormality, by iteratively checking the value of a sensor abnormality counter, said threshold means comprising



checking means for checking whether the contents of said sensor abnormality counter is greater than a predetermined value;

updating means for increasing the contents of said sensor abnormality counter when said checking means determines that the contents is not greater than said predetermined value;

abnormal ignition means for performing ignition when said checking means determines that said contents is greater than said predetermined value;

normal ignition means for performing ignition when said updating means increases the contents of said sensor abnormality counter; and

clearing means for clearing to zero the contents of said sensor abnormality counter whenever said normal ignition means performs ignition.

5,213,080

IGNITION TIMING CONTROL

John E. Lambert, Dublin, Ohio, and George M. Bedross, Southfield, Mich., assignors to Gas Research Institute, Chicago, Ill.

Filed Jul. 10, 1992, Ser. No. 911,886

Int. Cl.[5] F02P *5/15*

U.S. Cl. 123—417 **9 Claims**

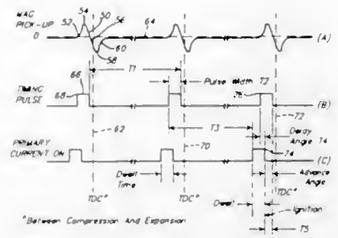
1. An engine ignition control system for controlling the timing of the spark for initiating burning in the combustion chamber of a four stroke cycle, single cylinder, internal combustion engine;

said engine having a cylinder, a piston in said cylinder, a crankshaft connected to said piston, said piston being adapted to reciprocate between a top dead center position and a bottom dead center position;

a speed sensor means for developing periodic sensor voltage timing pulses, the cycle time between timing pulses being an indication of engine crankshaft speed;

means for developing ignition timing pulses, each timing pulse having a leading edge corresponding to a voltage change in a timing voltage pulse and a trailing edge corresponding to an opposite voltage change in a timing voltage pulse;

means for developing a spark voltage including an ignition coil and a source of ignition coil current, said spark voltage occurring at a coil primary current interrupt point;



means for measuring in real-time, cycle time and a timing pulse time for one engine cycle; and

means for computing an optimum delay time from the leading edge of a timing pulse for said one cycle to said interrupt point whereby combustion is initiated at a time in advance of the top dead center position.

5,213,081

MISFIRE SENSING APPARATUS FOR AN INTERNAL COMBUSTION ENGINE

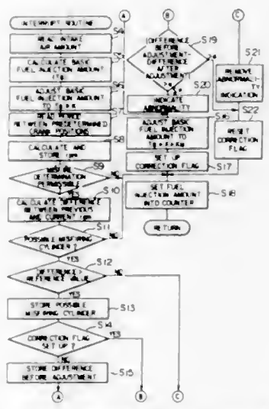
Takanori Fujimoto, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 23, 1992, Ser. No. 949,126

Claims priority, application Japan, Sep. 27, 1991, 3-249038

Int. Cl.[5] F02D *41/04, 41/22;* **F02P** *5/15*

U.S. Cl. 123—419 **5 Claims**



1. A misfire sensing apparatus for an internal combustion engine comprising:

a crank angle sensor for generating an output signal at predetermined crank angles of a crankshaft of said engine;

cylinder identifying means for identifying operating states of a plurality of cylinders of said engine based on the output signal from said crank angle sensor;

adjusting means for adjusting an engine operating parameter so as to control the respective operations of said cylinders;

misfire sensing means for sensing misfire information relating to misfiring in each of said cylinders and determining possible misfiring in a cylinder based on the misfire information, said misfire sensing means being operable such that when there is possible misfiring in a cylinder, it controls said adjusting means so as to adjust said engine operating parameter by a predetermined value, compares misfiring information as sensed before and after the adjustment, and determines an occurrence of true misfiring if a difference in the misfiring information before and after the adjustment is less than a predetermined reference value.

5,213,082

FUEL INJECTION CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

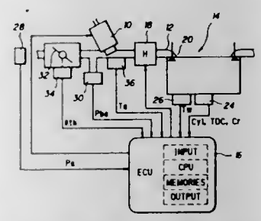
Yoshiharu Abe, and Naoki Hotta, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 5, 1992, Ser. No. 878,599

Claims priority, application Japan, Jun. 26, 1991, 3-181777

Int. Cl.[5] F02D *41/06;* **F02M** *31/00*

U.S. Cl. 123—491 **4 Claims**



1. A system for controlling a fuel injection for an internal combustion engine having a heater for heating an air-fuel mixture in an air intake passage of the engine; comprising:

first means for determining, in response to the operating condition of the engine, the timing to cease injection carried out in accordance with an injection period;

second means for determining if the heater is turned on;

third means for deferring the determined timing to cease injection if the heater is turned on; and

control means for ceasing the injection in response to the determined or deferred timing.

5,213,083

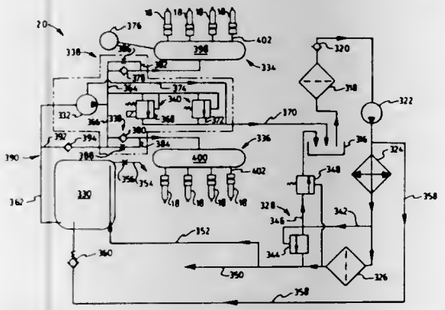
ACTUATING FLUID PUMP HAVING PRIMING RESERVOIR

Stephen F. Glassey, East Peoria, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Oct. 11, 1991, Ser. No. 775,263

Int. Cl.[5] F02M *37/20;* **F02N** *17/00*

U.S. Cl. 123—447 **12 Claims**



4. A hydraulically-actuated fuel injection system adapted for an engine comprising:

at least one hydraulically-actuated fuel injector;

means for supplying fuel to the injector;

means for supplying hydraulically actuating fluid, separate from the fuel supplying means, to the injector, said actuating fluid supplying means including an actuating fluid sump, a high pressure actuating fluid pump having a pumping chamber arranged in fluid communication with the sump, and a priming reservoir separate from the actuating fluid sump and arranged in fluid communication between the sump and the inlet of the pumping chamber of the pump.

5,213,084

FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINES

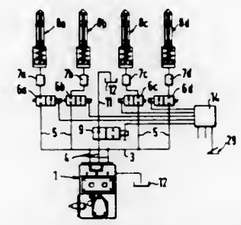
Ernst Linder, Muehlacker, and Helmut Rembold, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 13, 1991, Ser. No. 699,016

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1990, 4019586

Int. Cl.[5] F02M *41/00*

U.S. Cl. 123—456 **23 Claims**



1. A fuel injection system for internal combustion engines having a high-pressure pump (1), which communicates with a plurality of fuel injection valves (8*a* . . . 8*d*) via a fuel distributor (3) and via a respective electrically controlled distributor valve (6*a*, 6*b*, 6*c*, 6*d*), wherein per delivery stroke of the pump piston one fuel injection valve communicates with the high-pressure feed pump, a pressure valve (7*a* . . . 7*d*) located in a connection to the fuel injection valve between said respective electrically controlled distributor valve and said injection valve and opens in a delivery direction, and having an electrically controlled fuel injection quantity control valve (9) connected to the distributor (3) and to a fuel supply tank (12), by means of said quantity control valve, the pump work chamber communicates with a relief line (11) to terminate the intended injection phase, said distributor valves (6*a* . . . 6*d*) are each opened before the beginning of each injection and closed after the end of each injection, and the injection phase is controlled in terms of the instant and duration of injection by the closing time of the fuel injection quantity control valve (9).

5,213,085

FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES

Manfred Kraemer, Schwieberdingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 13, 1991, Ser. No. 806,387

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1990, 4041656

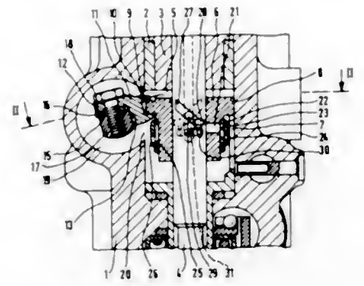
Int. Cl.[5] F02M *37/04*

U.S. Cl. 123—503 **12 Claims**

1. A fuel injection pump for internal combustion engines including a housing (1), a pump cylinder (2) fixed in a suitable bore of the pump housing, a cylinder liner (3) in said pump cylinder, a pump piston in said cylinder liner (3) which is driven for a reciprocating working stroke and is rotatable for fuel control, at least one control slide that has a torsion guide and that for fuel control purposes is axially displaceable on the pump piston, a rounded tang (9) is radially disposed and em-

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bodied as a one-piece component of the control slide (6) and said tang cooperates with a fork-like rider (11) that fits around



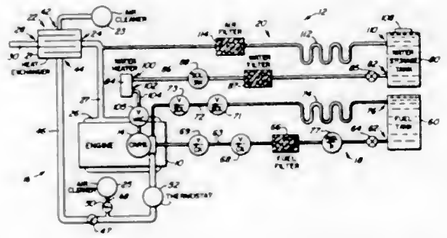
the tang (9), and said fork-like rider is operative by a control rod (14).

5,213,086

FUEL INLET SYSTEM FOR INTERNAL COMBUSTION ENGINE

Fred Sims, Abbotsford, Canada, assignor to Carbco Technologies Inc., Vancouver, Canada

Continuation-in-part of Ser. No. 722,256, Jun. 27, 1991, abandoned. This application Jul. 17, 1991, Ser. No. 731,767
Int. Cl.[5] F02M *31/00*
U.S. Cl. 123—514 46 Claims



1. A fuel inlet system for an internal combustion engine, comprising:

means for providing a continuous flow of fuel in a main flow line;

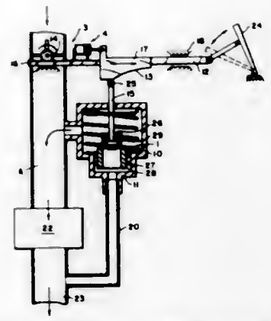
means for diverting part of said fuel flowing in said main flow line into a branch line connected to a fuel/air mixing chamber of a carburetor means for mixing said diverted fuel with air in a first mixing zone to obtain a preliminary air/fuel mixture; and means for mixing said preliminary air/fuel mixture with air in a second mixing zone to obtain a combustible air/fuel mixture for injection into an intake minifold of an internal combustion engine.

5,213,087

DEVICE FOR SUPPLYING COMBUSTED GASES TO THE COMBUSTION CHAMBER OF AN INTERNAL COMBUSTION ENGINE AT A CONTROLLED RATE

Andreas Sausner, Frankfurt am Main, and Sebastian Zabeck, Hemsbach, both of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim/Bergstrasse, Fed. Rep. of Germany

Filed Oct. 8, 1991, Ser. No. 772,802
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1990, 4035176
Int. Cl.[5] F02M *25/07*; F02D *9/10*
U.S. Cl. 123—568 9 Claims



1. In a device for supplying combusted gases at a controlled rate to the combustion chamber of an internal combustion engine having an intake pipe that accommodates a throttle; an exhaust pipe; an external gas recycling line connecting the intake pipe with the exhaust pipe, said line having a shut-off valve accommodated therein; means for controlling the shut-off valve and means for controlling the throttle; the improvement comprising a common actuating mechanism for actuating both said means for controlling the shut-off valve and said means for controlling the throttle; wherein the actuating mechanism comprises a rack and pinion;

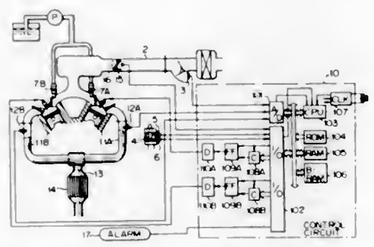
whereby said shut-off valve and said throttle can be actuated only in common.

5,213,088

AIR-FUEL, RATIO CONTROL DEVICE FOR AN INTERNAL COMBUSTION ENGINE

Kenichi Harada, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Jul. 15, 1992, Ser. No. 913,395
Claims priority, application Japan, Jul. 17, 1991, 3-176849
Int. Cl.[5] F02D *41/14*, *41/22*
U.S. Cl. 123—674 22 Claims



1. An air-fuel ratio control device for an internal combustion engine having an exhaust passage and a fuel supply system, said device comprising:

an air-fuel ratio detecting means arranged in the exhaust passage for detecting an air-fuel ratio;

an air-fuel ratio feedback correction amount calculating means for calculating an air-fuel ratio feedback correction amount in accordance with an output of said air-fuel ratio detecting means to an increase in the air-fuel ratio when said output of said air-fuel ratio detecting means is on the rich side and to decrease the air-fuel ratio when said output of said air-fuel ratio detecting means is on the lean side;

an average calculating means for calculating an average of said air-fuel ratio feedback correction amount every time the output of said air-fuel ratio detecting means is changed from rich to lean or from lean to rich;

a learning means for calculating a learning correction amount on the basis of said average of said air-fuel ratio feedback correction amount so that said average is converged to a predetermined value;

an air-fuel ratio control means for controlling the air-fuel ratio of the engine on the basis of said air-fuel ratio feedback correction amount and said learning correction amount to become the predetermined air-fuel ratio;

an abnormal state determining means for determining that the fuel supply system is in an abnormal state by comparing a determining value calculated on the basis of said average and said learning correction amount with a predetermined reference value; and

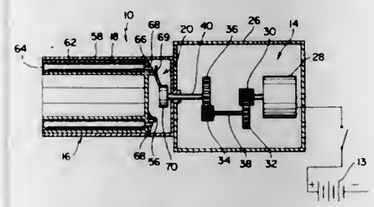
a prohibiting means for prohibiting a determination of said abnormal state determining means during a predetermined time from a time at which said learning correction amount was renewed.

5,213,089

TOY GUN

Donald A. DeLuca, Barrington, R.I., assignor to Hasbro, Inc., Pawtucket, R.I.

Filed Aug. 8, 1991, Ser. No. 742,324
Int. Cl.[5] F41B *7/08*
U.S. Cl. 124—29 19 Claims



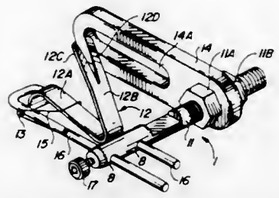
12. A toy gun comprising a barrel assembly having opposite firing and muzzle ends, and including a predetermined sequential array of a plurality of substantially parallel tubular barrel elements, each of said barrel elements having opposite muzzle and firing ends which correspond to the muzzle and firing ends of said barrel assembly, respectively, said barrel assembly being of substantially cylindrical configuration and having a longitudinal axis, said barrel elements being disposed in side-by-side relation and in substantially parallel relation to the cylindrical configuration of said barrel assembly, said barrel elements being positioned to form a substantially circular ring of barrel elements, a plurality of missible elements having front and rear ends and slidably receivable i firing positions is sequential barrel elements wherein the rear ends of said missible elements are positioned adjacent the firing ends of the respective barrel elements thereof and firing means for sequentially firing the missile elements from sequential barrel elements, said firing means including a resiliently bendable firing member resiliently movable into impacting engagement with the missile elements in sequential barrel elements when said missile elements are received therein, and means for resiliently bending and releasing said firing member so as to cause the latter to be resiliently moved into impacting engagement with the rear ends of the missile elements located at the firing ends of sequential barrel elements for launching said missile elements when they are received in said barrel elements, said firing member pivoting about the longitudinal axis of said barrel assembly for lauching said missile elements.

5,213,090

PIVOTAL ARROW REST FOR REDUCING INACCURACY CAUSED BY SPIRAL ARROW FLETCHING STRIKING RESILIENT ARROW REST ARMS

Richard D. Tone, Gilbert, Ariz., assignor to Cavalier Equipment Company, Inc., Gilbert, Ariz.

Filed Nov. 18, 1991, Ser. No. 795,204
Int. Cl.[5] F41B *5/22*
U.S. Cl. 124—44.5 13 Claims



1. An arrow rest mechanism for attachment to a bow, comprising in combination:

(a) a support rigidly attached to the bow;

(b) an arrow rest assembly including

i. at least one member having an arrow shaft contact point supporting a shaft of a released arrow,

ii. a hinge positioned in fixed relationship to the support and pivotally connecting the member to the support, a pivot axis of the member being located a predetermined distance ahead of the contact point, the member pivoting forward in reaction to being struck by fletching of the released arrow and imparting minimal upward displacement of the contact point,

whereby vertical plane flexing and erratic flight of the arrow due to striking of the member by the fletching is nearly eliminated.

13. A method for reducing vertical plane flexing of a released arrow due to striking of an arrow rest member by a fletching vane of the arrow as it passes by the member, the method comprising the steps of:

(a) pivotally connecting the member in fixed relation to a handle of the bow, by means of a pivotal connection spaced ahead of a contact point of the member, the contact point supporting the arrow prior to release;

(b) releasing the arrow, the vane striking the member as it passes by; and

(c) pivoting the member in the direction of travel of the arrow in response to the striking to reduce a counter-force produced on a tail end of the arrow by the striking and thereby reducing the vertical plane flexing of the arrow which otherwise would occur during flight.

5,213,091

DOWNDRAFT GAS RANGE WITH SEALED BURNER SYSTEM

Stanley H. Beach, Indianapolis, Ind., assignor to Maytag Corporation, Newton, Iowa

Filed Jul. 24, 1992, Ser. No. 919,710
Int. Cl.[5] F24C *15/20*
U.S. Cl. 126—299 D 18 Claims

1. A downdraft gas range with a forced draft gas burner, comprising:

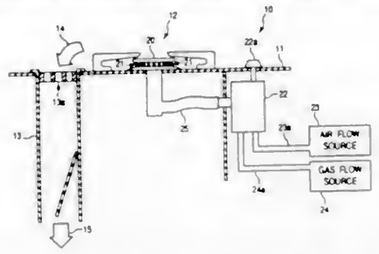
a cooktop comprising a top surface adapted to be sealed to a gas burner assembly;

a downdraft plenum adjacent the gas burner assembly

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adapted to withdraw combustion byproducts and cooking vapors from adjacent the top surface and gas burner assembly; and

a sealed gas burner assembly comprising a gas burner having a plurality of burner outlets, combined air and gas flow supply means adapted for connection with an air flow source above atmospheric pressure and a gas flow source,



and a sealed conduit connected between said gas burner and said combined air and gas flow supply means, said combined air and gas flow supply means including means for combining air flow and gas flow from said air flow source and gas flow source and control means for controlling the air flow together with the gas flow to provide a combined flow of air and gas through said sealed conduit and said gas burner outlets for controllable combustion.

5,213,092

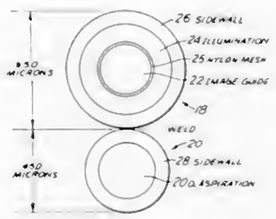
ASPIRATING ENDOSCOPE

Martin Uram, 39 Sycamore Ave., Little Silver, N.J. 07739

Filed Oct. 31, 1991, Ser. No. 785,996

Int. Cl.[5] A61B *1/06*

U.S. Cl. 128—4 **8 Claims**



1. An ophthalmological endoscopic probe extending distally from a hand piece, comprising:

a longitudinally extending aspirating cannula having an open distal end and a first longitudinal axis, and

a longitudinally extending illumination and imaging guide comprising:

i. a tubular housing having a second longitudinal axis and a second distal end,

ii. a first set of longitudinally extending optical fibers within said housing which act as an image guide for transmitting an image from an operation area to a viewing device, said fibers arranged in a cylindrical bundle, said bundle being centered on said second longitudinal axis and extending to said second distal end,

iii. a second set of longitudinally extending optical fibers which act as an illumination guide for transmitting light from a light source to the operation area, said second set being arranged as an annulus around said first set within said housing and extending to said second distal end,

said first and second sets of optical fibers being the sole elements within said tubular housing and having a cross-section substantially congruent with the inner cross-section of said housing,

said aspirating cannula and said housing being fixed adjacent to one another with their respective longitudinal axes parallel to one another,

said distal end of said aspirating cannula extending distally past said distal end of said housing.

5,213,093

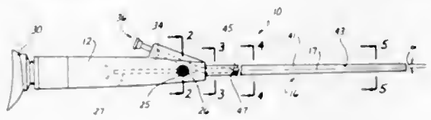
ENDOSCOPE WITH NON-CIRCULAR PROBE AND METHOD OF MAKING SAME

Carl A. Swindle, Irvine, Calif., assignor to Applied Vascular Devices, Inc., Laguna Hills, Calif.

Filed May 29, 1991, Ser. No. 706,804

Int. Cl.[5] A61B *1/00*

U.S. Cl. 128—4 **24 Claims**



1. An endoscope having a proximal end and a distal end, comprising:

a housing disposed at the proximal end of the endoscope;

a probe attached to the housing and having a wall with an inner surface and an outer surface, the inner surface defining a lumen which extends through the probe;

a first axial portion of the wall wherein the outer surface has a tapered shape in axial cross-section; and

a second axial portion of the wall wherein the outer surface has a non-circular configuration in radial cross-section.

5,213,094

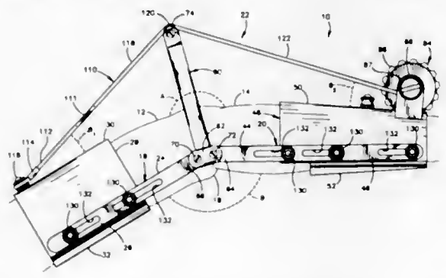
ORTHOSIS WITH JOINT DISTRACTION

Peter M. Bonutti, 1303 W. Evergreen Plz., Effingham, Ill. 62401

Continuation-in-part of Ser. No. 559,700, Jul. 30, 1990, Pat. No. 5,167,612. This application Apr. 17, 1991, Ser. No. 686,811

Int. Cl.[5] A61F *5/00*

U.S. Cl. 128—25 R **30 Claims**



1. An apparatus for establishing extremes of motion of a joint between first and second relatively pivotable body portions, by stretching tissue around the joint during movement of the joint, the joint and the first and second body portions defining on one side of the joint an inner sector which decreases in angle as the joint is flexed and defining on the opposite side of the joint an outer sector which decreases in angle as the joint is extended, comprising:

a first arm having proximal and distal end portions, and first clamping means on said first arm for clamping said first arm to the first body portion;

a second arm having proximal and distal end portions, and second clamping means on said second arm for clamping said second arm to the second body portion;

pivot means for pivotally interconnecting said proximal end portions of said first and second arms, at least one of said first and second arms having portions cooperating with said pivot means for forcing said proximal end portions of said first and second arms longitudinally apart from each other upon pivoting movement of said first and second arms from a relatively flexed position to a relatively extended position, to thereby exert a force upon at least one of said first and second body portions to distract the joint; and

actuator means connected to said first and second arms for applying force to said first and second arms to pivot said first and second arms relative to each other to move the joint.

5,213,095

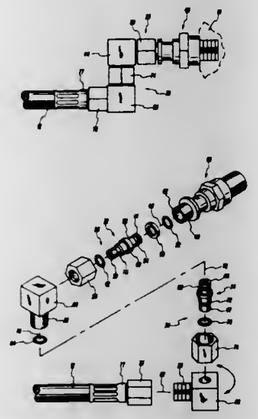
COUPLING APPARATUS FOR SCUBA GEAR

Lawrence M. Dague, 1221 Lakeshore Dr., Irving, Tex. 75060

Filed Feb. 6, 1991, Ser. No. 651,316

Int. Cl.[5] A61M *16/00*; A62B *7/04, 9/04, 9/02*

U.S. Cl. 128—204.18 **12 Claims**



1. Apparatus for coupling a gas supply hose to a gas pressure regulator, said apparatus comprising:

first and second elbow fittings, each of said first and second elbow fittings having opposed first and second ends;

first and second coupling members located at the respective first and second ends of said first elbow fitting and third and fourth coupling members located at the respective first and second ends of said second elbow fitting, said first coupling member being complementary with said third coupling member for coupling the respective first ends of said first and second elbow fittings along a first axis, said second coupling member being adapted for mating engagement with a complementary fitting of the gas pressure regulator along a second axis perpendicular to said first axis, said fourth coupling member being adapted for mating engagement with a complementary fitting of the gas supply hose along a third axis perpendicular to said first axis; and

securing means for securing said second coupling member to the complementary fitting of the gas pressure regulator, such that said second coupling member is substantially secured against rotation about said second axis with respect to the gas pressure regulator.

5,213,096

APPARATUS FOR CONNECTING A PATIENT TO BREATHING DEVICES, THE APPARATUS INCLUDING A BACTERIA FILTER AND GAS SAMPLING MEANS

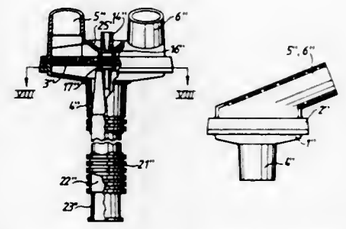
Ake Kihlberg, Täby; Ragnar Tryggvason, Löddeköpinge, and Per Wikefeldt, Järfälla, all of Sweden, assignors to Gambro Engstrom AB, Sweden

Continuation of Ser. No. 698,717, May 10, 1991, abandoned. This application Sep. 9, 1992, Ser. No. 942,368

Claims priority, application Sweden, Jun. 18, 1990, 9002162?; Nov. 2, 1990, 9003505?

Int. Cl.[5] A62B *7/10, 19/00, 23/02*; A61B *5/08*

U.S. Cl. 128—205.12 **81 Claims**



70. Apparatus for connecting a patient to breathing devices comprising a patient attachment tube member extending in a first direction and having a first end and a second end, first and second attachment tube members extending in a second direction, said first and second attachment tube members adapted for connection to an inhalation tube and an exhalation tube, respectively, and each including a first end and a second end, said second direction being different from said first direction such that said first end of said patient attachment tube member is proximate to said first ends of said first and second attachment tube members and said second end of said patient attachment tube member is distal from said second ends of said first and second attachment tube members, connecting means connecting said first end of said patient attachment tube member to said first ends of said first and second attachment tube members, a bacteria filter disposed within said apparatus and separating said first end of said patient attachment tube member from said first ends of said first and second attachment tube members, whereby gases passing between said patient attachment tube member and said first and second attachment tube members along a predetermined flow path must pass through said bacteria filter, and partition means extending from said bacteria filter to a point between said first and second attachment tube members on a first side of said filter, and towards said patient attachment tube member on a second side of said filter, so as to separate inhaled air and exhaled air during their respective passage through said apparatus in said predetermined flow direction.

5,213,097

APPARATUS FOR THE TREATMENT OF DISEASES OF THE WALLS OF OPENINGS ORCAVITIES OF THE BODY

Kurt Zeindler, Ebikon, Switzerland, assignor to Zewa AG, Hergiswil, Switzerland

Continuation of Ser. No. 599,820, Oct. 22, 1990, abandoned. This application Jul. 13, 1992, Ser. No. 911,373

Claims priority, application Switzerland, Oct. 24, 1989, 3836/89

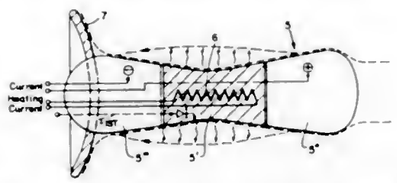
Int. Cl.[5] A61F *7/12*

U.S. Cl. 128—401 **10 Claims**

1. An apparatus for the treatment of diseases of the walls of a human or an animal body, the apparatus comprising: a probe for insertion into a respective opening of the body, which probe has an electrical heating unit for delivering heat to the wall of the opening of the body via a wall of the probe, and a

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control apparatus coupled with a source of electrical energy and with the electrical heating unit to transfer electrical energy from the source of electrical energy to said heating unit of said probe, the control apparatus including a control circuit for said heating unit and including a temperature limit control for setting the maximum temperature of the heating unit, which control circuit includes an intermittent current impulse circuit



coupled with the source of electrical energy for supplying said heating unit with intermittent electrical current pulses so that the heating unit emits heat in the form of intermittent heat impulses, wherein the intermittent current impulse circuit includes a manually operable, variable timer for manually setting the time duration of the individual intermittent heat impulses.

5,213,098

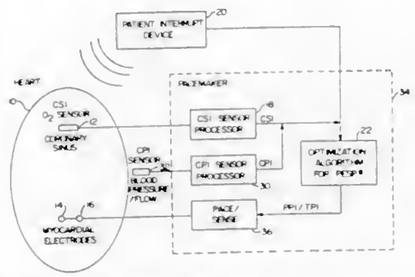
POST-EXTRASYSTOLIC POTENTIATION STIMULATION WITH PHYSIOLOGIC SENSOR FEEDBACK

Tom D. Bennett, Shoreview; Russell L. Lundstrom, Jr., Minneapolis, and Paul M. Stein, Maple Grove, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jul. 26, 1991, Ser. No. 736,198

Int. Cl.[5] A61N *1/365*

U.S. Cl. 128—419 PG **28 Claims**



1. A cardiac pacemaker having escape interval timer means for generating a pace event signal at the time-out of an escape interval, natural heart depolarization sensing means for providing a sense event signal upon sensing a heart depolarization, means for resetting said escape interval timer means in response to pace and sense event signals, pulse generator means responsive to a pace event signal for generating a pacing pulse, and means for applying the packing pulse to a heart, further comprising means for selectively providing post-extrasystolic potentiation effects without undue cardiac stress comprising:

means for causing said pulse generator means to provide a paired packing pulse a paired pulse interval after the occurrence of a pace event signal in order to induce a post-extrasystolic potentiation effect;

means for detecting a physiologic response resulting from said post-extrasystolic potentiation effect; and

means responsive to said detecting means for adjusting said selectively providing means to vary a parameter of said paired packing pulses accordingly.

5,213,099

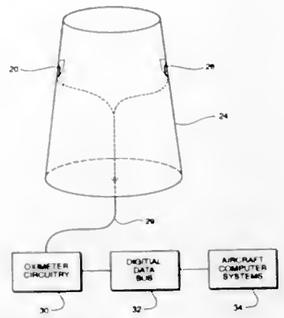
EAR CANAL PULSE/OXYGEN SATURATION MEASURING DEVICE

Lloyd D. Tripp, Jr., Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 30, 1991, Ser. No. 767,969

Int. Cl.[5] A61B *5/00*

U.S. Cl. 128—633 **11 Claims**



1. An oximeter probe, comprising:

(a) a generally tubular plug made of pliable material and shaped to fit comfortably inside a living body cavity;

(b) light emitting means for emitting light of two or more preselected wavelengths, wherein the light emitting means is mounted and positioned inside the plug so that it can emit light outside the outer surface of the plug; and,

(c) light sensing means for separately sensing the two or more preselected wavelengths of light emitted by the light emitting means, wherein the light sensing means is mounted and positioned inside the plug so that it can sense light impinging on the outer surface of the plug.

5,213,100

X-RAY MAMMOGRAPHY APPARATUS WITH A STEREOTACTIC BIOPSY UNIT

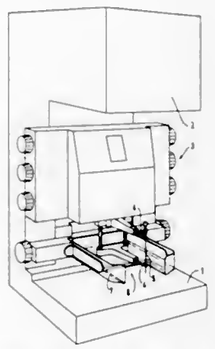
Herbert Summ, Wilhelmsdorf, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 9, 1991, Ser. No. 773,538

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1990, 9016810[U]

Int. Cl.[5] A61B *19/10*

U.S. Cl. 128—653.1 **3 Claims**



1. In an x-ray mammography apparatus having a stereotactic biopsy unit attached thereto having two holders for a biopsy needle extending parallel to an exposure plane for x-ray exposures, each holder having a free end, wherein the improvement comprises releasable closure means for receiving said biopsy needle and being openable so that said biopsy needle can be detached from said holders and moved away from said holders without axial displacement of said biopsy needle, said releasable closure means comprising:

two resilient halves forming the respective free ends of each of said holders, said halves having respective recesses in registry forming a receptacle for said biopsy needle; and

a clamping element slidable along said halves having a first position permitting said receptacle to open, and a second position forcing said halves together to close said receptacle.

5,213,101

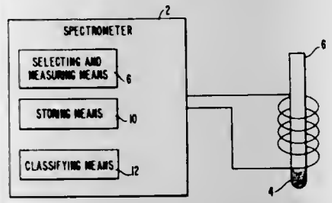
PROCESS FOR THE DETECTION OF CANCER USING NUCLEAR MAGNETIC RESONANCE

Eric T. Fossel, Chestnut Hill, Mass., assignor to The Beth Israel Hospital Association, Boston, Mass.

Continuation of Ser. No. 325,773, Mar. 20, 1989, abandoned, which is a continuation of Ser. No. 262,073, Oct. 24, 1988, abandoned, which is a continuation of Ser. No. 188,752, Apr. 29, 1988, abandoned, which is a continuation of Ser. No. 036,943, Apr. 10, 1987, abandoned, which is a division of Ser. No. 833,840, Feb. 26, 1986, abandoned. This application Apr. 27, 1990, Ser. No. 517,400

Int. Cl.[5] A61B *5/055*

U.S. Cl. 128—653.2 **15 Claims**



1. An improved NMR spectrometer for screening patients who do not have cancer from those who might have cancer comprising:

a) means for generating a water-suppressed NMR spectrum from a sample to produce a resonance line;

b) means for measuring the width of said line generated at a predetermined fraction of its height;

c) means for storing the width measured;

d) means for storing a range of values to constitute a standard for screening; and

e) means for comparing and determining whether the width of the sample measured and stored is within said range of values stored to enable samples with no possibility of cancer to be screened from those samples with a possibility of cancer.

5,213,102

SHOCK WAVE GENERATING APPARATUS CAPABLE OF SETTING MOVING DIRECTION OF SHOCK WAVE GENERATING SOURCE TO ULTRASONIC TOMOGRAPHIC IMAGE PLANE

Nobuki Kudo, Tochigi, and Fujio Terai, Kanagawa, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 517,656, May 1, 1990, abandoned. This application Feb. 26, 1992, Ser. No. 840,587

Claims priority, application Japan, May 8, 1989, 1-113767

Int. Cl.[5] A61B *17/22, 8/13*

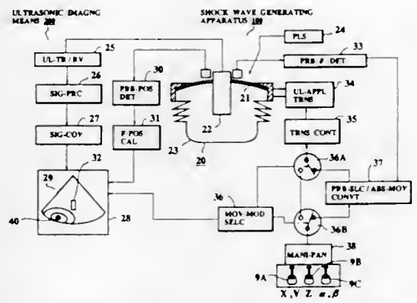
U.S. Cl. 128—660.03 **10 Claims**

1. A shock wave generating apparatus comprising:

source means for producing a shock wave and transmitting said shock wave to a biological body under medical examination;

ultrasonic imaging means, including ultrasonic probe means to project an ultrasonic wave beam to said biological body, for producing and displaying an ultrasonic tomographic image of tissue within said biological body;

probe position detecting means for detecting a slice plane position of said ultrasonic probe means with respect to said shock wave so as to produce a slice plane positioning signal for said ultrasonic probe means while an image of an article to be disintegrated located within said tissue of said biological body is being displayed in said ultrasonic tomographic image;



transporting means for transporting both said source means and said ultrasonic probe means;

generating means for generating a marker indicative of a focal point of said shock wave produced from said source means; and

transport controlling means for controlling said transporting means so as to transport both said source means and said ultrasonic probe means along a detected slice plane of said ultrasonic probe means in response to said slice-plane positioning signal, whereby said marker is automatically coincident with said image of said article to be disintegrated.

5,213,103

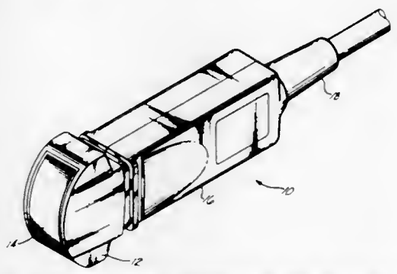
APPARATUS FOR AND METHOD OF COOLING ULTRASONIC MEDICAL TRANSDUCERS BY CONDUCTIVE HEAT TRANSFER

Glenn Martin, and Hamid Ekhlassi, both of Chandler, Ariz., assignors to Acoustic Imaging Technologies Corp., Phoenix, Ariz.

Filed Jan. 31, 1992, Ser. No. 830,224

Int. Cl.[5] A61B *8/00*

U.S. Cl. 128—660.07 **25 Claims**



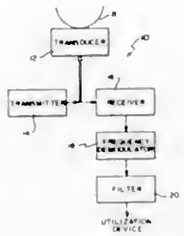
1. An ultrasonic medical transducer having improved heat transferability to cool the transducer comprising:

a transducer face having a transducer element located

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therein and electrically connected to a braided power cable;
a heat sink located behind the transducer element;
a housing surrounding the heat sink; and
heat conductive epoxy located between the housing and the heat sink.

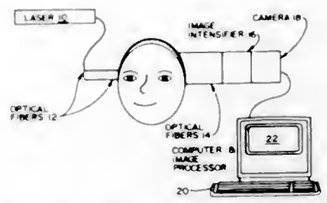
5,213,104
DOPPLER ULTRASOUND MONITOR SYSTEM
Charles A. Reynolds, 11 Shingle Hill Rd., West Haven, Conn. 06516
Filed Oct. 24, 1991, Ser. No. 782,142
Int. Cl.[5] A61B *8/06*
U.S. Cl. 128—661.07 5 Claims



1. In a multi-transducer Doppler ultrasonic monitoring system:
a multiplex switch having a plurality of inputs each adapted to be connected to an ultrasound transducer and a single output, said switch connecting each of said inputs to said output in sequence on a timeshared basis;
transmitting means for providing a signal for actuating an ultrasonic transducer, said, transmitting means being connected to the output of said multiplex switch;
receiving means connected to the output of said multiplex switch for converting a signal received from an ultrasound transducer to a demodulated output signal;
output means responsive to and having a single input connected to said receiving means and also having a plurality of outputs, each corresponding to one of said transducers, for sequentially connecting said outputs to said input on a timeshared basis; and
control means for controlling and coordinating the operation of said multiplex switch and said output means so that a multiplex switch input connected to the output of the multiplex switch and an output means output which is simultaneously connected to the input of the output means correspond to the same transducer.

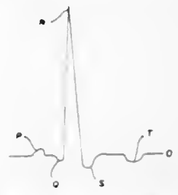
5,213,105
FREQUENCY DOMAIN OPTICAL IMAGING USING DIFFUSION OF INTENSITY MODULATED RADIATION
Enrico Gratton, Urbana; William W. Mantulin, and Martin J. vandeVen, both of Champaign, all of Ill., assignors to Research Corporation Technologies, Inc., Tucson, Ariz.
Filed Dec. 4, 1990, Ser. No. 624,385
Int. Cl.[5] A61B *8/00*
U.S. Cl. 128—664 36 Claims

1. A method for producing images based upon diffusion of intensity modulated radiation and frequency domain analysis comprising:
a. illuminating a medium with light radiation which is amplitude modulated;
b. detecting amplitude modulated diffusional radiation from the medium at a plurality of detection locations forming a detection area, including detecting the phase of the amplitude modulated diffusional radiation at each detection location, and detecting the demodulation of the amplitude modulated diffusional radiation at each detection location; and



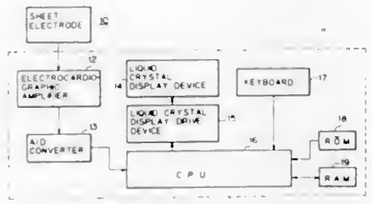
c. displaying an image of the medium comprised of data from the detected relative phase or demodulation of the amplitude modulated diffusional radiation at each detection location.

5,213,106
DIAGNOSING AND TREATING CHRONIC FATIGUE SYNDROME BY ELECTROCARDIOGRAPHIC MONITORING OF T-WAVES
Albert M. Lerner, 660 Woodland, Birmingham, Mich. 48009
Filed Mar. 25, 1991, Ser. No. 675,542
Int. Cl.[5] A61B *5/0452*
U.S. Cl. 128—696 14 Claims



1. A method for diagnosing chronic fatigue syndrome, comprising:
electrocardiographically monitoring to detect T-waves of an ambulatory patient who has unexplainable fatigue;
determining the T-wave frequency when the T-wave of the ambulatory patient is not positive; and
providing a diagnosis of chronic fatigue syndrome based on the determination of T-wave frequency.

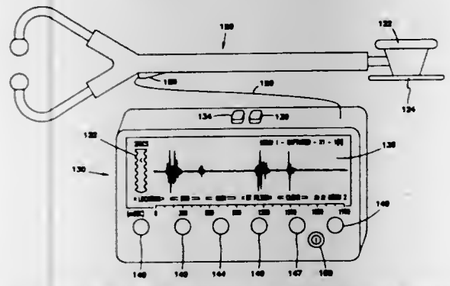
5,213,107
PORTABLE ELECTROCARDIOGRAPH
Ryoichi Fujii, Soraku, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Mar. 25, 1991, Ser. No. 675,352
Claims priority, application Japan, Apr. 2, 1990, 2-88579
Int. Cl.[5] A61B *5/0432*
U.S. Cl. 128—710 13 Claims



1. A portable electrocardiograph having a power supply device and capable of providing a low electricity consumption

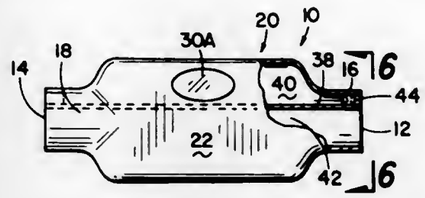
rate by controlling an electric power supply from the power supply device, said portable electrocardiograph comprising:
means for detecting electrocardiographic signals and for converting said electrocardiographic signals into electrocardiographic complex data;
means connected with said detecting means for displaying said electrocardiographic complex data;
means for controlling said electric power supply to selectively connect said electric power supply to said detecting means or said displaying means in accordance with a predetermined mode so that said electric power supply from said power supply device remains connected in such a manner throughout a predetermined time period; and
means, connected to said detecting means, for storing said electrocardiographic complex data so that said stored electrocardiographic complex data are displayed on said displaying means in accordance with said predetermined mode during said predetermined time period, said predetermined mode being a reproduction mode and where, in accordance with said reproduction mode, said means for controlling disconnects said electric power supply from said power supply device to said detecting means and connects said electric power supply to said means for displaying to display said electrocardiographic complex data stored in said storing means.

5,213,108
VISUAL DISPLAY STETHOSCOPE
Mark S. Bredesen, and Elliot D. Schmerler, both of Incline Village, Nev., assignors to Blood Line Technology, Inc., Incline Village, Nev.
Continuation-in-part of Ser. No. 628,482, Dec. 17, 1990, which is a continuation of Ser. No. 153,719, Feb. 4, 1988, Pat. No. 5,010,889. This application Oct. 24, 1991, Ser. No. 782,079
Int. Cl.[5] A61B *5/02, 7/04*
U.S. Cl. 128—715 35 Claims



1. A visual display stethoscope adapted to receive and display body sounds from a plurality of body locations for use by an operator, comprising;
transducer means for receiving the body sounds from the plurality of body locations, and for converting each of the plurality of body sounds into an electrical signal;
memory means operatively coupled to said transducer means for storing said electrical signals for each of the plurality of body locations;
display means operatively coupled to said memory means for receiving said electrical signal for a selected one of the plurality of body locations and for displaying a visual representation of said electrical signal;
means, coupled to a control means, for allowing the operator to identify a first location on said visual representation of said electrical signal and for allowing the operator to identify a second location on said visual representation of said displayed electrical signal; and
said control means for measuring the time interval between said first location on said electrical signal and said second location on said electrical signal and for displaying on said display means measurements therefrom.

5,213,109
AIRWAY ADAPTER FOR MONITORING CONSTITUENTS OF A PATIENT'S BREATH
Roger E. Susi, 5680 S. Lake Burkett La., Winter Park, Fla. 32792
Filed Dec. 13, 1991, Ser. No. 807,138
Int. Cl.[5] A61B *5/08*
U.S. Cl. 128—719 10 Claims



1. Apparatus for use in measuring the chemical constituents of a patient's breath, comprising:
an airway adapter having first and second end portions of generally circular configuration for installation in a patient's ventilation tubing and having an intermediate portion between the two ends, the intermediate portion being generally flat in cross-section with generally planar, spaced apart sidewalls and spaced apart end walls, the sidewalls being substantially closer together than the diameter of said end portions and said end walls being substantially further apart than the diameter of said end portions;
a window formed in one of said generally planar sidewalls of said intermediate portion of the type to permit light to pass therethrough; and
a mirror secured to the interior surface of the other of said generally planar sidewalls within the adapter intermediate portion, the mirror being opposite said window and arranged so that at least a portion of the patient's ventilation gases pass between the mirror and said window whereby light may be directed through said window and received back therefrom as reflected by said mirror to permit the reflected light to be analyzed, whereby the spacing between said window and said mirror is substantially less than the diameter of said end portions and wherein the cross-sectional area of said intermediate portion is at least about equal to the cross-sectional area of said end portions to provide no impedance to the air flow rate while permitting a minimal light travel path.

5,213,110
PISTOL-GRIP VACUUM SOFT TISSUE BIOPSY DEVICE
Uzi Kedem, Moshav Gan Haim, and Mordechai Rubinstein, Rishon Le-Zion, both of Israel, assignors to Du-Kedem Projects Ltd., Moshav Gan Haim, Israel
Filed Mar. 16, 1992, Ser. No. 851,790
Int. Cl.[5] A61B *10/00*
U.S. Cl. 128—754 20 Claims

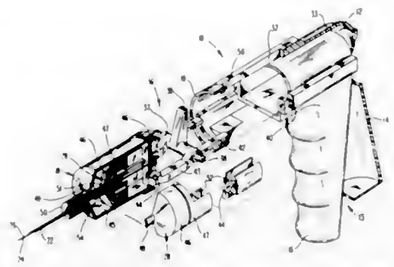
1. A soft tissue biopsy device comprising:
a cylindrical housing having a piston being slidably retractable therein, said piston having a cannula extending distally therefrom and being in communication with said housing, said piston being slidably seated on a stylet fixed at one to said housing, said stylet being slidably engaged along its length in said cannula such that its distal end protrudes therefrom;
means for retracting said piston from an initial position within said housing, to withdraw said cannula and expose

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said stylet distal end, while developing a suction chamber within said housing and along said cannula length; and

a cam for limiting retraction of said piston by releasing said piston retraction means, to restore said piston to its initial position within said housing by vacuum-spring action of said suction chamber,

such that when the device is inserted into organ tissue to



perform a biopsy procedure, retraction of said piston develops said suction chamber in said housing and along said cannula length to draw a portion of said tissue into a depression formed on said stylet distal end,

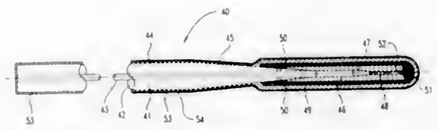
whereupon said cam releases said piston which is shot forward in said housing, and said cannula slides over said stylet to cut and retain said tissue portion in said depression.

5,213,111

COMPOSITE WIRE GUIDE CONSTRUCTION

William A. Cook, and Scott E. Eells, both of Bloomington, Ind., assignors to Cook Incorporated, Bloomington, Ind.

Filed Jul. 10, 1991, Ser. No. 728,233
Int. Cl.[5] A61B *5/00*; A61M *25/00*
U.S. Cl. 128—772 29 Claims



1 A composite mandrel for a wire guide comprising:

a strand of readily weldable material radially surrounded by and fused with a shape memory material; and

wherein at least half of the mandrel is made up of said shape memory material.

5,213,112

TENSION METER FOR ORTHOPEDIC SURGERY

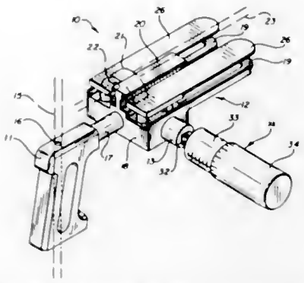
Shigeo Niwa, Aichi, and Mineo Sakakibara, Kanagawa, both of Japan, assignors to Pfizer Hospital Products Group, Inc., New York, N.Y.

Filed Jan. 29, 1992, Ser. No. 827,308
Int. Cl.[5] A61B *5/103*
U.S. Cl. 128—774 8 Claims

1. A tension meter for orthopedic surgery for expanding openings between bones and measuring a degree of tension between said bones before implanting a prosthetic device bone between the bones, the tension meter comprising:

a grip portion, a tension meter body mounted to said grip portion, a torque shaft operatively coupled to said body, said torque shaft having gear teeth formed therein, and a torque setting device rotatably connected through said torque shaft to said tension meter body, said torque setting device including means for measuring torque and limiting the torque to a predetermined value;

said tension meter body comprising a body portion, a fixed arm extending from one end of said body portion and a movable arm mounted on an upper surface of said body portion so as to be movable away therefrom, said movable arm being located above said fixed arm in opposed relationship thereto, said movable arm being provided with a gear portion for meshing with the gear teeth on said



torque shaft; said torque setting device including a means on said torque shaft for limiting torque by limiting relative displacement of said movable arm away from said fixed arm and therefore the force applied to the bone between said fixed arm and said movable arm is limited by said predetermined torque value.

5,213,113

DISPOSABLE INTERNAL ELECTRODE WITH STERILIZATION SHIELD AND METHOD OF USING THE SAME

Robert L. Hlinsky, Bellevue, Wash., assignor to Physio-Control Corporation, Redmond, Wash.

Filed Jan. 22, 1992, Ser. No. 824,034
Int. Cl.[5] A61N *1/00*
U.S. Cl. 128—800 17 Claims



1 An electrode for use with a handle to couple a patient to a medical instrument, said electrode comprising:

electrode means, attachable to the handle, for contacting the patient, and

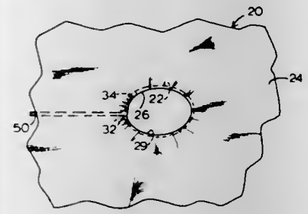
barrier means, coupled to said electrode means, being deployed over the handle to provide a barrier between the handle and the patient when the electrode means is attached to the handle.

5,213,114

OPHTHALMOLOGIC DRAPE AND METHOD

Paul F. Bailey, Jr., 1955 NW. Northrup St., Portland, Oreg. 97209

Filed Oct. 25, 1990, Ser. No. 603,523
Int. Cl.[5] A61B *19/00, 19/08, 17/02*
U.S. Cl. 128—849 9 Claims



1. A drape for covering the anterior and interior surfaces of the eyelids to protect the eyeball during examination and surgery, comprising:

an expanse of flexible sheet material having a central opening therein through which eye examination and surgery is conducted,

a retainer extending around said central opening and attached to said flexible sheet material for fitting beneath the upper and lower eyelids along the upper and lower palpebral sulci, said retainer being in the form of an elongated, curved member having ends which extend adjacent one another, the size of said retainer being adjustable by changing the relative positions of said ends of said curved member thereby changing the circumferential dimension of the retainer, wherein said expanse of flexible sheet material extends beneath and covers the underside of the eyelids when said retainer is in place beneath the upper and lower eyelids, such that said flexible sheet material projects the eyeball from contaminates on the underside of the eyelids, and

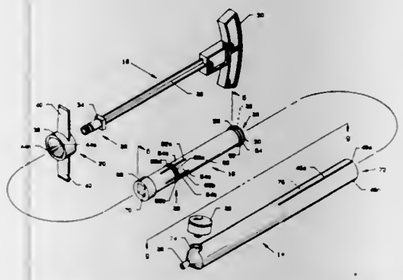
a positioning arm attached to said retainer adjacent one end of said curved member and extending radially outwardly therefrom beneath said flexible sheet material.

5,213,115

INFLATION SYSTEM FOR A BALLOON CATHETER

Duane Zytkovicz, Onamia; Thomas J. McEvoy, Minnetonka, and Gregory G. Brucker, Minneapolis, all of Minn., assignors to Burron Cardiovascular, a Division of B. Braun Medical, Inc., Minneapolis, Minn.

Filed Oct. 23, 1990, Ser. No. 601,431
Int. Cl.[5] A61M *29/02*
U.S. Cl. 128—898 5 Claims



1. A process for inflation and deflation of a balloon catheter comprising the steps of:

a. moving a handle with a plunger downwardly in a barrel of a syringe to inflate a balloon catheter;

b. camming leaf springs with external threads of said plunger against internal threads of said barrel on reaching predetermined pressure or vacuum; and,

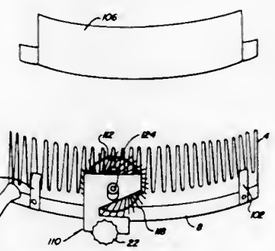
c. increasing and decreasing pressure by twisting of the handle.

5,213,116

BANG CUTTER

Sabrina R. Stein, 435 Locust St., #7, San Francisco, Calif. 94118

Filed Mar. 11, 1992, Ser. No. 850,184
Int. Cl.[5] A45D *24/34*; B26B *19/22*
U.S. Cl. 132—213.1 31 Claims



1. A device for cutting bangs comprising:

an arcuate cutting blade;

a cutting assembly having a rotating cutting wheel wherein said wheel travels along said arcuate cutting blade and wherein said rotating cutting wheel traverses an arc; and

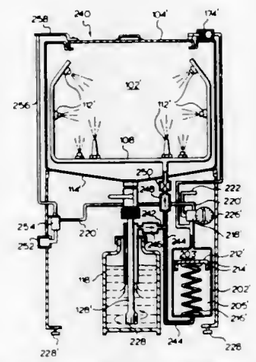
means for maintaining the bangs in position against said arcuate cutting blade.

5,213,117

PARTS WASHER

Soichiro Yamamoto, 2 Allen Manner, Unionville, Ontario, L6C 1B2, Canada

Continuation of Ser. No. 726,310, Jul. 5, 1991, abandoned. This application Aug. 17, 1992, Ser. No. 930,902
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—58 R 32 Claims



1. A parts washer apparatus for cleaning spray paint equipment with a solvent, comprising:

(a) an enclosed washing chamber having a chamber lid;

(b) fluid manifold means located within the washing chamber provided with a plurality of nozzles for spraying said solvent into the washing chamber;

(c) a container having means defining a movable barrier

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located therein, the barrier separating the container into two compartments, one compartment defining a solvent storage chamber and the other compartment defining an air chamber that is sealingly separated from said solvent storage chamber, the barrier movable between a first position corresponding to the solvent chamber having a maximum volume and a second position corresponding to the solvent chamber having a minimum volume;

(d) fluid distribution system interconnecting the solvent storage chamber with the fluid manifold means for delivering the solvent from the storage chamber to the fluid manifold means;

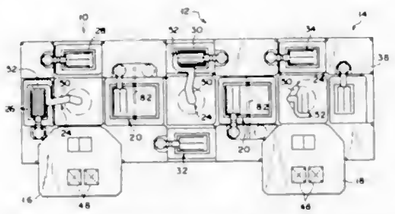
(e) means for returning said solvent from said washing chamber to said solvent storage chamber; and

(f) an air-flow system in flow communication with the air chamber for pressurizing the air chamber in order to drive the movable barrier from the first to the second position for driving solvent through the fluid distribution system, said air-flow system being provided with an air inlet means and the fluid distribution system and the air-flow system having independent flow lines.

5,213,118
TREATMENT APPARATUS

Yuji Kamikawa, Uto, Japan, assignor to Tokyo Electron Limited, Tokyo and Tokyo Electron Kyushu Limited, Kumamoto, both of Japan

Filed Nov. 13, 1991, Ser. No. 791,137
Claims priority, application Japan, Nov. 28, 1990, 2-331311
Int. Cl.[5] B08B *3/04*
U.S. Cl. 134—62 25 Claims



1. A treatment apparatus having a plurality of treatment units for performing batch treatments, for treating a plurality of wafer-like objects in the treatment units while transferring the objects to the units on a continuous basis, the apparatus comprising:

(a) a loader for supplying objects to be treated;

(b) a first treatment unit for receiving the objects from the loader, the first treatment unit having

a first arm having first handling means for receiving and supplying the objects,

means for rotating the first arm in a horizontal direction,

first and second treatment sections, the loader, and first and second treatment sections being arranged along a line in which the first handling means rotates, and the objects being transferred between the loader, and first and second treatment sections by means of the first arm;

first and second support means dedicated to the first and second treatment section, respectively, the support means being formed to receive the objects from the first handling means and support the objects during processing in the first and second treatment sections, and

first and second driving means dedicated to the first and second treatment sections, respectively, the driving means being formed to move the support means up and down in order to transfer the objects from the first handling means to the support means and from the support means to the first handling means at a transfer position, and to move the support means to a processing position where the objects are processed which is lower than the transfer position;

(c) an unloader for receiving the objects having been treated;

(d) a second treatment unit for transferring the objects to the unloader, the second treatment unit having

a second arm having second handling means for receiving and supplying the objects,

means for rotating the second arm in a horizontal direction,

third and fourth treatment sections, the unloader, and third and fourth treatment sections being arranged along a line in which the second handling means rotates, and the objects being transferred between the unloader, and third and fourth treatment sections by means of the second arm;

third and fourth support means dedicated to the third and fourth treatment sections, respectively, the support means being formed to receive the objects from the second handling means and support the objects during processing in the third and fourth treatment sections, and

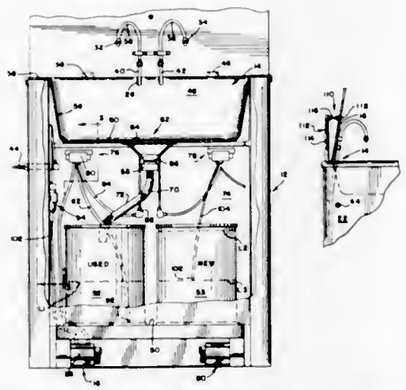
third and fourth driving means dedicated to the third and fourth treatment sections, respectively, the driving means being formed to move the support means up and down in order to transfer the objects from the second handling means to the support means and from the support means to the second handling means at a transfer position, and to move the support means to a processing position where the objects are processed which is lower than the transfer position; and

(e) a transit section arranged between the first and second treatment units, the transit section having an inlet arranged along the line in which the first handling means rotates, and permitting the objects to be transferred by the first arm, and an outlet arranged along the line in which the second handling means rotates, and permitting the objects to be transferred by the second arm.

5,213,119
SOLVENT RECIRCULATING TYPE SPRAY GUN CLEANER

John P. Kusz, Chicago, and John C. Justice, Elburn, both of Ill., assignors to Safety-Kleen Corporation, Elgin, Ill.

Filed Mar. 20, 1986, Ser. No. 841,895
Int. Cl.[5] B08B *3/08*
U.S. Cl. 134—95.3 9 Claims



1. A readily serviceable apparatus for solvent cleaning spray guns or the like, said apparatus comprising, in combination, a cabinet adapted to support a sink unit, a sink unit which includes a bottom wall with a drain opening therein, said sink unit being supported by a portion of said cabinet and further

including a fire safety cover with a portion thereof being pivotally affixed to an adjacent margin of said sink unit, and wherein said cabinet includes a rigid cover support unit extending upwardly therefrom, with connecting means including a fusible link extending between a portion of said cover support and a portion of said fire safety cover, whereby said cover will fall to a position covering said sink upon melting of said fusible link, first and second solvent receptacles positioned within said cabinet for ready removal by a service person, with said first solvent receptacle having an inlet opening in an upper portion thereof, a single drain conduit having one of its ends communicating with said drain opening in said sink bottom wall and its other end being arranged so as to communicate in use with the interior of said first receptacle through said inlet opening without impeding the ready removability of said first receptacle, means for withdrawing solvent from said first receptacle and for directing said solvent to the interior of said sink, said first withdrawing and directing means including a first solvent receptacle dip tube, a first pump, a first conduit extending between said first pump and said sink interior, a first discharge nozzle forming the end of said first conduit and being directed to said sink interior, and means adapted to actuate said first pump in response to the command of an operator, means for withdrawing solvent from said second container and for directing said solvent to the interior of said sink, said second withdrawing and directing means including a second solvent receptacle dip tube, a second pump and a second conduit extending between said second pump and said sink interior, a second discharge nozzle forming the end of said second conduit and being directed to said sink interior, and means adapted to actuate said second pump in response to the command of an operator, whereby actuation of said first pump acts to circulate solvent directly from said first receptacle to said sink and back to said first receptacle, whereby actuation of said second pump serves to direct solvent from said second container to said sink interior and then directly to said first solvent receptacle only, whereby all solvent from both receptacles is collected only by said first receptacle, regardless of whether said operator actuates said first or second pumps.

5,213,120
METHOD AND APPARATUS FOR GENERATING FOAM WITHIN A PIPE

Michael A. Dickson, P.O. Box 452, Wichita, Kans. 67201

Filed Apr. 24, 1992, Ser. No. 873,098
Int. Cl.[5] B08B *9/02*
U.S. Cl. 134—102.1 11 Claims



7. An apparatus for generating foam within a pipe for application to an inner wall surface of the pipe, which foam is capable of containing a chemical for treatment of the inner wall surface of the pipe, said apparatus comprising:

a container having an outer wall defining an interior cavity, said outer wall containing a plurality of openings therethrough;

a first conduit extending within said interior cavity of the container and having a wall in which a plurality of apertures are formed, said first conduit being constructed in a manner for connection with a supply of compressed first fluid, whereby said first fluid can be supplied to said first conduit for delivery through said apertures;

a second conduit in association with said first conduit within said interior cavity of the container and having a wall in which a plurality of apertures are formed, said second conduit being constructed in a manner for connection with a supply of a second fluid, whereby said second fluid can be supplied to said second conduit for delivery through said apertures of the second conduit for mixing with the fluid delivered through said apertures of the first conduit;

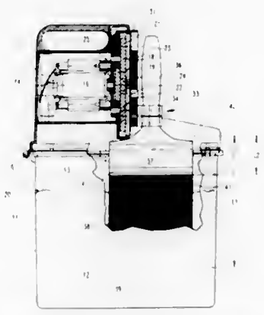
a wicking material surrounding said first and second conduits within said cavity for receiving said delivered first and second fluids to cause mixing thereof and formation of said foam for delivery through the openings in the outer wall of said casing to the inner wall surfaces of said pipe; and

a pressure casing surrounding said container and having a plurality of dispersal openings formed in a wall portion thereof, said dispersal openings being sized to cause a pressure buildup within said pressure casing when said first and second conduits are being supplied with said first and second fluids, whereby said foam delivered through said openings in the outer wall of the container is delivered under increased pressure through said dispersal openings to coat said inner wall surface of the pipe.

5,213,121
PAINT BRUSH WASHING MACHINE

Lawrence B. O'Brien, and Walter E. Winston, both of Carmel, Ind., assignors to Venture Management Sciences Inc., Carmel, Ind.

Filed Sep. 16, 1991, Ser. No. 760,763
Int. Cl.[5] B08B *3/04*
U.S. Cl. 134—161 9 Claims



9. A paint brush washing machine comprising:

a bucket of cleaning fluid with a mark to indicate the proper fluid level;

a brush holder mounted on said bucket of cleaning fluid and having clips for engaging the handle of a paint brush having bristles such that said bristles extend substantially vertically into the cleaning fluid;

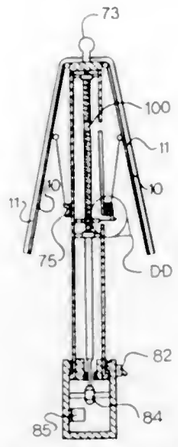
upper and lower vertically spaced discs rotatable in synchronism about vertically spaced horizontal axes each disc having a horizontally extending pin disposed at a radius from its corresponding rotational axis that is different from the radius to the other pin from its corresponding rotational axis, the radius to the pin in the upper disc being greater than the radius to the pin in the lower disc;

the pin in the lower disc being received in a hole in the brush holder, and the pin in the upper disc being received in a slot in the brush holder; and

a drive motor driving the discs in synchronism.

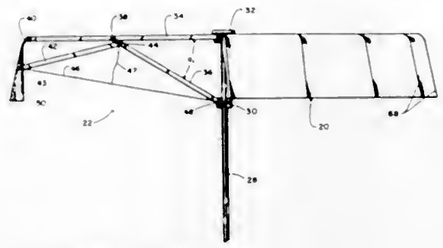
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5,213,122
ELECTRIC UMBRELLA
Clyde C. Grady, II, P.O. Box 303, Baytown, Tex. 77522
Continuation of Ser. No. 206,596, Jun. 14, 1988, abandoned.
This application Nov. 13, 1990, Ser. No. 612,536
Int. Cl.[5] A45B *25/14*
U.S. Cl. 135—20.3 4 Claims



1. An umbrella having a canopy and a frame of interconnected ribs and a means for the automatic opening and closing of the aforesaid ribs and canopy comprising:
a hollow outer cylinder provided with a slot or slots extending therethru along a portion of its length;
a collar which slides along the exterior surface of the aforesaid hollow outer cylinder;
a threaded nut located concentrically within the aforesaid hollow outer cylinder and the said threaded nut is attached to the aforesaid collar by means of a pin or pins extending through the slot or slots provided in the aforesaid hollow outer cylinder;
an internal screw threadably inserted at one of its ends into the aforesaid the threaded nut;
an electric motor having a driveshaft said motor being fixed relative to the aforesaid hollow outer cylinder said driveshaft being attached to said internal screw,
a battery which provides electromotive energy for the aforesaid electric motor;
wherein, further, there is a provided a switch which in a first position regulates flow of electricity from the aforesaid battery such that the shaft of the aforesaid electric motor turns in a first direction which, in turn, rotates the aforesaid internal screw, thereby moving the aforesaid threaded nut in a direction which forces the aforesaid canopy and ribs from the closed position to an open position;
wherein, placement of the said switch in a second position regulates the flow of electricity from the aforesaid battery such the shaft of the aforesaid electric motor turns in a second direction opposite to the said first direction which, in turn, rotates the aforesaid internal screw thereby moving the aforesaid threaded nut a in direction which returns the said canopy and ribs to the closed position.
wherein there is further provided that the aforesaid internal screw contains an area of reduced diameter which is devoid of threads such that rotation of the aforesaid internal screw will not urge the aforesaid threaded nut pass this area of reduced diameter which is devoid of threads.

5,213,123
UMBRELLA
John Whitfield, Raleigh, N.C., assignor to Louis Sammarco, Memphis, Tenn.
Filed Sep. 9, 1991, Ser. No. 756,910
Int. Cl.[5] A45B *25/02*
U.S. Cl. 135—27 13 Claims

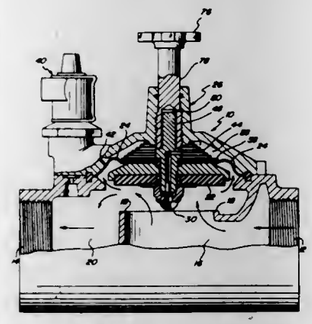


1. An umbrella comprising:
a foldable frame including:
(i) a rigid support shaft;
(ii) a plurality of ribs pivotably attached to said support shaft at one end thereof;
(iii) a runner element slidably attached to said shaft;
(iv) a plurality of stretcher arms each pivotably fastened at one end to said runner element and at an opposite end to a respective one of said ribs;
(v) a plurality of skirt support members each pivotably attached to a free end of a respective one of said ribs;
(vi) a plurality of pulling members each pivotally attached at one end to a respective one of said stretcher arms and at an opposite end to a respective one of said skirt support members; and
(vii) a plurality of flexible tensile elements each fixed at one end to said runner element and at an opposite end to a respective one of said skirt support members essentially at a coupling point connecting same to a respective one of said pulling members, each of said tensile elements forming, with a respective stetcher arm and a respective pulling member, a triangular component of a truss; and
a web having a central portion and a substantially annular skirt portion continuous with said central portion, said skirt portion being fastened to said skirt support members.

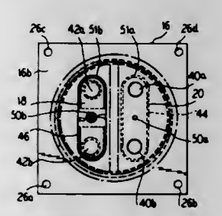
5,213,124
PRESSURE-ACTUATED VALVE
Robert B. Costa, Covina, Calif., assignor to Thompson Manufacturing Company, Chino, Calif.
Filed Oct. 10, 1989, Ser. No. 419,119
Int. Cl.[5] F16K *31/385, 31/40*
U.S. Cl. 137—1 7 Claims

1. A pressure-actuated valve comprising:
a valve body defining an inlet chamber, and outlet chamber and a valve seat therebetween;
a flexible diaphragm assembly secured to said valve body so as to define an actuating chamber;
said diaphragm assembly including closure means for cooperation with said valve seat;
means for controlled venting from said actuating chamber;
a restrictor element having an inner end and an outer end and defining a bore therebetween;
said diaphragm assembly having means for receiving and removably retaining said restrictor element so as to position said inner end in communication with said actuating chamber and said outer end in communication with said inlet chamber;

said restrictor element including a metering pin slidably mounted to said restrictor element through said bore, said pin having a bend at one end thereof to provide an asymmetrical surface area.



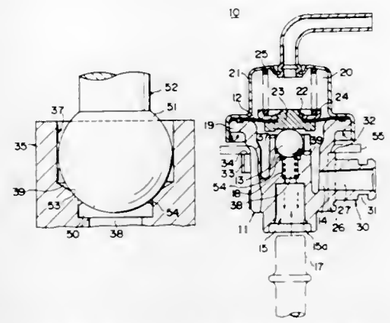
5,213,125
VALVE PLATE WITH A RECESSED VALVE ASSEMBLY
Shawn A. Leu, Sheboygan, Wis., assignor to Thomas Industries Inc., Sheboygan, Wis.
Filed May 28, 1992, Ser. No. 889,254
Int. Cl.[5] F16K *15/16*
U.S. Cl. 137—15 13 Claims



6. A method of assembling a flapper valve assembly for intake and outlet holes to a chamber of a compressor comprising the steps of:
providing a valve plate with a plurality of recesses, a plurality of guides at fixed locations, and an aperture;
inserting a resilient member overlying each of said plurality of guided recesses, said resilient member having notched sections corresponding to said fixed locations of said plurality of guides and an aperture aligned with said aperture of said valve plate;
inserting a restraint overlying each resilient member, said restraint having notched sections corresponding to said fixed locations of said plurality of guides and an aperture aligned with said aperture of said valve plate; and
extending a fastener having a head through each of said aligned apertures.

5,213,126
PRESSURE CONTROL VALVE AND METHOD OF MANUFACTURING SAME
Tomohiro Ono, Obta, and Katsuya Shirasaki, Kiryu, both of Japan, assignors to Mitsuba Electric Manufacturing Co., Ltd., Gunma, Japan
Filed May 5, 1992, Ser. No. 878,722
Claims priority, application Japan, May 15, 1991, 3-139762; May 27, 1991, 3-47413[U]
Int. Cl.[5] F16K *31/365*
U.S. Cl. 137—15 4 Claims

1. A pressure control valve comprising a housing having a diaphragm mounting opening portion, a diaphragm covering said diaphragm mounting opening portion with said housing and said diaphragm in combination defining a control valve chamber inside of said housing, said housing having a fluid introduction path and a fluid discharge path communicating with said control valve chamber, said housing also having a valve body mounting portion formed at the inlet side of said fluid discharge path and a spring mounting portion defining part of said fluid discharge path adjoining and extending from said valve body mounting portion in the direction toward the outlet side of said fluid discharge path, a spherical valve body



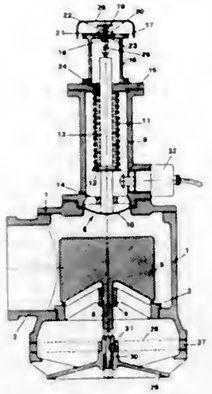
mounted on said valve body mounting portion and interlocked between said valve body and said diaphragm, a spring for biasing said spherical valve body toward said diaphragm located in said spring mounting portion, a concave spherical valve seat formed on said valve mounting portion between said valve mounting portion and said spring mounting portion which concave seat is engagable with said spherical valve body to close said fluid discharge path, and said discharge path including an annular stepped portion located between said concave valve seat and said spring mounting portion.

5,213,127
VACUUM VALVE FOR USE IN AN EMERGENCY SYSTEM FOR REDUCING THE RISK OF ESCAPE FROM INJURIES UNDER THE WATERLINE OF TANKERS
Emil A. Sørensen, Schutzenmatte 2A, CH-6362 Stansstad, Switzerland
Filed Mar. 6, 1991, Ser. No. 665,803
Claims priority, application Denmark, Jun. 1, 1990, 1357/90
Int. Cl.[5] F16K *17/32, 17/40*
U.S. Cl. 137—68.1 23 Claims

11. A vacuum valve for use in pressure equalization on marine vessels having fluid storage tanks comprising
a) a valve housing connectible to the top of a tank and having a flow inlet portion;
b) a valve seat in the valve housing;
c) a valve body movable between open and closed positions for valving flow at the valve seat;
d) first biasing closing force means for urging the valve body toward a closed position on the seat;
e) second, supplemental biasing closing force means generating a second, supplemental closing force on the valve

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body in response to an increase in pressure drop across the valve between the ambient atmosphere and the interior of

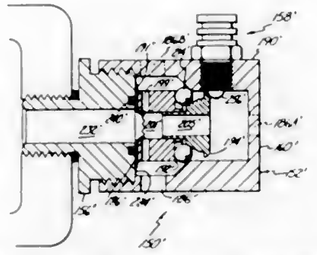


the valve housing beyond a preselected critical pressure drop value.

5,213,128
PRESSURE/TEMPERATURE-ACTIVATED PRESSURE RELIEF VALVE

Michael R. Baird, 54 New Market Dr., Delaware, Ohio 43015

Continuation-in-part of Ser. No. 811,461, Dec. 18, 1991, which is a continuation-in-part of Ser. No. 707,596, May 30, 1991, Pat. No. 5,161,738. This application May 8, 1992, Ser. No. 880,516
Int. Cl.[5] F16K *17/14, 17/40*
U.S. Cl. 137—73 15 Claims



7. A pressure relief valve for releasing pressure from a container, the relief valve comprising:

a valve housing having a passage with an inlet for communicating with an interior of the container, and an outlet for communicating with an exterior of the valve housing;

a seal, disposed within the passage between the inlet and the outlet, for sealing the passage the seal capable of exposing the passage when pressure within the container exceeds a predetermined threshold;

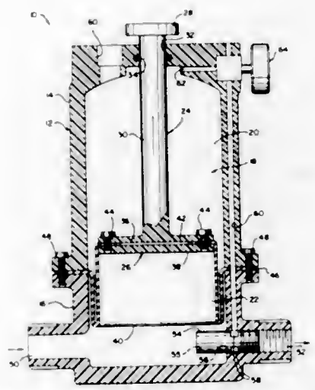
a movable member, disposed between the outlet and the seal and configured to be capable of moving away from the seal, for interrupting the seal when the ambient temperature adjacent to the relief valve reaches a predetermined threshold; and

a thermally responsive device, mounted to the valve housing, for engaging the movable member and restraining the movable member from interrupting the seal when the ambient temperature adjacent to the relief valve is below the predetermined temperature threshold, and for disengaging the movable member when the ambient temperature adjacent to the relief valve reaches the predetermined temperature threshold so as to allow the movable member to interrupt the seal and expose a flow path through the passage from the inlet to the outlet.

5,213,129
FLUID MIXING DEVICE

Kaveh Someah, Milwaukee, and Walter J. Baron, Mequon, both of Wis., assignors to CSB Limited Partnership, Milwaukee, Wis.

Continuation-in-part of Ser. No. 674,804, Mar. 25, 1991, Pat. No. 5,129,730. This application Mar. 4, 1992, Ser. No. 845,905
Int. Cl.[5] E03B *7/07*; B01F *15/04*
U.S. Cl. 137—101.11 13 Claims



1. A fluid mixing device for dispensing a metered quantity of an additive liquid to a flowing stream of a carrier liquid, comprising:

a canister;

a chamber within said canister;

means including a diaphragm within said chamber, said means dividing said chamber into an additive subchamber on an additive side of said diaphragm and a carrier subchamber on a carrier side of said diaphragm;

an inlet in said canister for connection to a source of pressurized carrier liquid, said inlet opening into said carrier subchamber upstream of said carrier subchamber;

an outlet in said canister for dispensing a flow of a mixture of the additive liquid and the carrier liquid;

a flow restriction downstream of said carrier subchamber;

a flow passage providing communication between said restriction and said outlet;

wherein said carrier subchamber forms an unrestricted flow passage of the carrier liquid between the inlet and the flow restriction; and

metering means providing communication between said additive subchamber and said flow passage for dispensing a metered amount of additive liquid from said additive subchamber to the flow of carrier liquid in the flow passage.

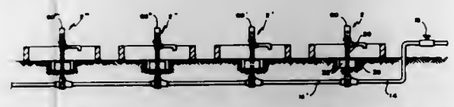
5,213,130
IRRIGATION SYSTEM

Saleh A. Al-Hamlan, P.O. Box 19200 Khaitan, Khaitan, Kuwait 83803

Filed Dec. 27, 1989, Ser. No. 457,870
Int. Cl.[5] G05D *9/02*
U.S. Cl. 137—122 6 Claims

1. An irrigation system for use with a pressurized source of water comprising a hollow valve housing which defines an upwardly extending hollow cylindrical portion having a first annular outlet in an upper portion thereof, said housing also

defining an inlet in a lower portion thereof for connecting said housing to the pressurized source of water, said housing further defining a second annular outlet in the lower portion thereof, a ball-shaped gate member disposed within said housing and adapted to move upwardly and downwardly within said cylindrical portion, and seat means associated with each of said outlets and adapted for receiving said ball-shaped gate member therein and thereagainst for closing each of said outlets, means for defining a pit, and float means disposed in said pit, an upwardly-extending pipe connected to said first outlet and extending above said pit, outlet means in an upper portion of said upwardly-extending pipe so that when said ball-shaped gate member is in a first position against said seat means associated with said second outlet to thereby close said second outlet, water from the pressurized source flows through said inlet, said housing, said first outlet and said upwardly extending pipe and out of said outlet means to fill said pit, a rod connected to



said gate member and extending upwardly through said upwardly-extending pipe, and a spring having a first portion fixed to said rod, and a displaceable spring biasing member engaging a second portion of said spring, so that, movement of said spring biasing member with respect to said rod changes a force which is exerted against said rod by said spring, and means connecting said spring biasing member and said float so that the upward movement of said float in response to an increase in the water level in said pit is transferred to said spring biasing member to thereby increase the force on said rod until such force exceeds the force of the flow of water against said ball-shaped gate member whereupon the ball-shaped gate member spring out of said seat means which is associated with said second outlet and upwardly into engagement with said seat means which is associated with said first outlet to thereby close said outlet and direct the flow of water through said second outlet.

5,213,131
VENTED MIXING-TYPE DIVERTER FAUCET

Werner Gnauert, Iserlohn, and Frank-Thomas Luig, Fröndenberg, both of Fed. Rep. of Germany, assignors to Friedrich Grohe Aktiengesellschaft, Hemer, Fed. Rep. of Germany

Filed Sep. 29, 1992, Ser. No. 952,963
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1991, 4136191
Int. Cl.[5] E03C *1/10*
U.S. Cl. 137—218 5 Claims

1. A diverter-type mixing valve comprising:

a body formed with

a chamber having opposite ends,

a mixed-water feed passage opening into the chamber between its ends,

a faucet outlet port opening into the chamber at one end thereof,

a vent port opening into the chamber at the other end thereof,

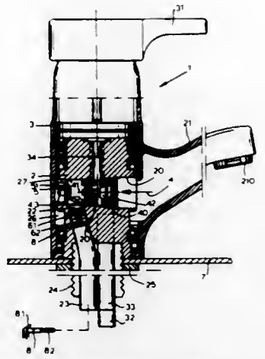
a diverter port opening into the chamber at the other end thereof, and

a restriction in the chamber between the feed passage and the ports at the other end;

means on the body for supplying mixed water under pressure to the feed passage;

means including a diverter valve in the chamber for directing flow from the feed passage out the faucet port when pressure between the restriction and the other end is greater than pressure between the restriction and one end and for directing flow from the feed passage to the diverter port when pressure between the restriction and one end is greater than pressure between the restriction and the other end;

a one-way vent valve in the vent port only permitting flow through the vent port into the chamber; and

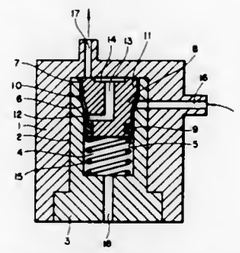


a one-way check valve associated with the diverter port and only permitting flow through the diverter port out of the chamber.

5,213,132
AUTOMATIC REGULATING VALVE

Paul Comment, Courgenay, Switzerland, assignor to Hobac S.A., Neuchatel, Switzerland

PCT No. PCT/CH91/00115, § 371 Date Jan. 15, 1992, § 102(e) Date Jan. 15, 1992, PCT Pub. No. WO91/18337, PCT Pub. Date Nov. 28, 1991
PCT Filed May 16, 1991, Ser. No. 820,892
Claims priority, application Switzerland, May 18, 1990, 1704/90
Int. Cl.[5] G05D *16/10*
U.S. Cl. 137—505.25 7 Claims



1. An automatic regulating valve for pressurized fluid, comprising a valve body (1, 3; 1', 3') comprising a chamber (4; 4') having a cylindrical bore (5; 5'), at least one lateral inlet orifice (16; 16') for the fluid, at least one frontal outlet orifice (17; 17') and at least one orifice (18; 18') bringing into permanent communication the bottom of the cylindrical bore of the chamber with the outside, a shutter (8; 8') constituted by a body of revolution which is axially movable in said chamber and a cylindrical portion of which, engaged in the cylindrical bore of the chamber, is provided with a sealing ring (9; 9'), and a spring (15; 15') working in compression between the shutter and the bottom of the cylindrical bore in order to maintain the shutter closed, the inlet orifice (16; 16') emerging between the ring and the outlet orifice, the valve furthermore being arranged such that the passage cross-section between the shutter and the wall of the chamber decreases when the shutter moves back under the effect of the pressure of the fluid, wherein the chamber has a frustoconical portion (6; 6') into which the inlet orifice (16;

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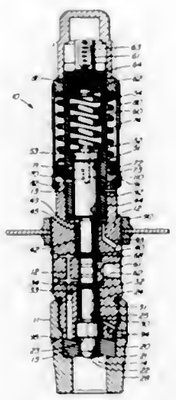
16') emerges and wherein the shutter (8, 8') has, in front of the cylindrical portion provided with said ring (9, 9'), a frustoconical portion (10; 10') similar to that of the chamber and at least one passage (12, 13; 29, 30, 31, 32) between the frustoconical portion and the front of the shutter, the length of the frustoconical portion being such that, in the closed position, a space remains between the frustoconical surfaces of the shutter and of the chamber.

5,213,133

PRESSURE RESPONSIVE PILOT CONTROL VALVE

James R. Ellett, Edmonton, Canada, assignor to Barber Industries Ltd., Calgary, Canada

Filed Oct. 4, 1991, Ser. No. 772,221
Int. Cl.[5] F16K *17/00*
U.S. Cl. 137—596.14 14 Claims



1 A pilot valve responsive to pressure changes comprising a base housing, an inlet in said base housing exposed to a pressure to be monitored, a diaphragm in said inlet within said base housing; a lower body operably connected to said base housing; a spool movable within a cavity in said lower body; inlet, exhaust and signal ports extending from the outside of said lever body to said cavity; annular grooves in said spool communicating with cross ports within said body and crossholes within said spool, a first spring biased poppet seal ring mounted about said spool and being movable between a first position wherein said poppet seal ring contacts a first flange of said spool when said pressure is within normal operating pressure range and a second position out of contact with first flange of said spool and in contact with a first flange of said body when said pressure is one of either higher or lower than the normal operating pressure range by a predetermined amount.

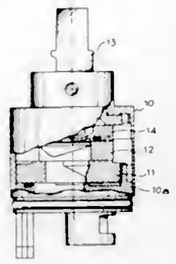
5,213,134

CONTROL UNIT FOR THE DELIVERY OF HOT AND COLD WATER IN MIXER VALVES

Alessio Orlandi, Castiglione D/Stiviere, Italy, assignor to Galatron S.r.l., Via Dell'Artigianato, Italy

Filed Mar. 19, 1992, Ser. No. 854,340
Claims priority, application Italy, Mar. 22, 1991, BS/91/U/000028
Int. Cl.[5] F16K *11/078*
U.S. Cl. 137—625.4 11 Claims

1. A valve comprising:
a housing body:
a fixed plate rigidly mounted in said housing body, said fixed plate defining first and second inlet openings, said first and second inlet openings being separated by a divide cap and extending substantially symmetrically in circumferential arcs from said divide cap, said first and second inlet openings being positioned in a first half of said fixed plate, said fixed plate also defining an outlet openings, said outlet opening having a semicircular portion positioned between said first and second inlet openings, said semicircular portion having a center substantially positioned in a center of said fixed plate, said outlet opening also having a fan shape portion which extends and widens from said semicircular portion, said fan shape portion being symmetrical with respect to a radial axis passing through said divide cap and being positioned in a second half of said fixed plate substantially opposite to said inlet openings; and



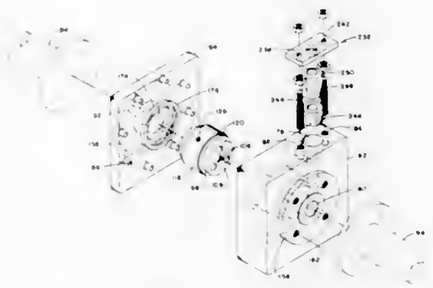
a movable plate movably mounted in said housing body and movably positioned adjacent to said fixed plate, said movable plate defining a mixing chamber, said mixing chamber having a shape providing various degrees of communication between said first and second inlet opening and said outlet opening dependent on a position of said movable plate with respect to said fixed plate, said mixing chamber having a shape substantially symmetrical about a radial axis of said movable plate.

5,213,135

EMISSION CONTROL VALVE

Robert H. Moate, P.O. Box 10014 - Station 1, Houma, La. 70360

Filed Mar. 26, 1992, Ser. No. 860,049
Int. Cl.[5] F16K *3/08, 31/54, 31/16*
U.S. Cl. 137—625.31 16 Claims



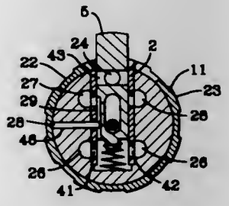
1 A valve comprising
a valve body with a first aperture defined therein, and a second aperture defined therein, said first aperture and second aperture being formed at perpendicular angles, and wherein said first and second apertures intersect;
a valve rack slidably disposed within said second aperture;
a first valve member disposed within said valve body, said valve member having defined therethrough a plurality of ports;
a second valve member disposed within said valve body, said valve member having defined therethrough a plurality of ports;
disc means, located between said first and second valve members, for allowing communication between the ports of said first valve member and said second valve member; and
a tubular pinion member having said disc means disposed therethrough, said tubular pinion member cooperating with said rack so that as said rack moves in a longitudinal direction, said tubular pinion member rotates allowing the openings contained on said disc means to become aligned with the ports on said first and second valve members.

5,213,136

SELECTION SWITCH FOR FLUID POWER MOTORS

Phil D. Thorp, Bryan, and Stephen F. Sims, Ney, both of Ohio, assignors to The Aro Corporation, Bryan, Ohio

Continuation of Ser. No. 615,371, Nov. 19, 1990, abandoned. This application Jan. 27, 1992, Ser. No. 825,758
Int. Cl.[5] F15B *13/01*
U.S. Cl. 137—625.68 8 Claims



1. A selector switch for a fluid power motor disposed in a total comprising:
an exposed switch operating plunger being provided with complimentary step lands operatively connected to a switching element resiliently biased in a first direction outward of a mounting surface on said tool in a first selected position of said plunger and said switching element;
a means for selectively restraining said plunger and said switching element in a second direction inward of said mounting surface in a second selected position; and
said means for selectively restraining said plunger further comprises a rotary sleeve element mounted for rotation about and in sliding surface contact with said mounting surface about a circle partially intersecting said plunger selectively at said complimentary step lands for selectively retaining said plunger in selectively depressed positions.

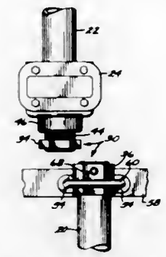
5,213,137

CHECK VALVE SHEAR FITTING WITH TEST PORT

Martin C. Pettesch, Roselle, N.J., assignor to Universal Valve Company, Inc., Elizabeth, N.J.

Filed Jul. 24, 1991, Ser. No. 734,950
Int. Cl.[5] F16K *17/40*
U.S. Cl. 137—797 13 Claims

1. Apparatus for coupling an upstream vertical conduit to a downstream vertical conduit, in a fluid delivery system wherein the upstream conduit is coupled to a tank containing a fluid and the downstream conduit is coupled to fluid dispensing means that applies a sub-atmospheric pressure to the fluid in the tank, the apparatus comprising:
check valve means, in the downstream conduit, for preventing backflow from the dispensing means to the tank; and
a shear fitting, comprising:
a unitary body having a downstream portion with downstream coupling means for removable coupling to the check valve means, and an upstream portion integral with the downstream portion, and having upstream coupling means for removable coupling to the upstream vertical conduit;
a substantially unobstructed, unrestricted, and unrestrictable fluid flow passage extending through the body between an inlet in fluid communication with the upstream coupling means and an outlet in the downstream coupling means;
frangible means in the body defining a weakened body wall portion at a location that is closer to the downstream coupling means than to the upstream coupling means,



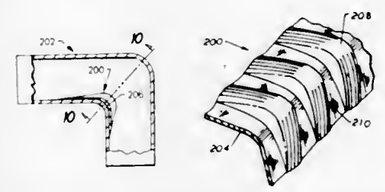
whereby the weakened body wall portion fractures in response to a shear force delivered to the downstream conduit that is greater than a predetermined magnitude, thereby separating the downstream body portion from the upstream body portion, and isolating the upstream conduit from the shear force; and
test port means, in the unitary body, extending from the flow passage to the exterior of the body, for permitting a determination of the loss of prime in the upstream conduit.

5,213,138

MECHANISM TO REDUCE TURNING LOSSES IN CONDUITS

Presz, Jr. Walter M., Wilbraham, Mass., assignor to United Technologies Corporation, Hartford, Conn.

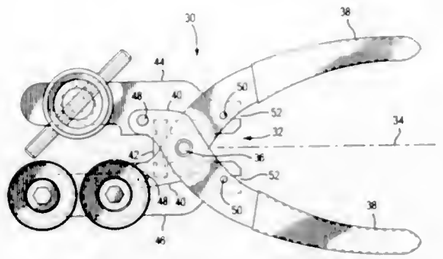
Division of Ser. No. 847,838, Mar. 9, 1992. This application May 4, 1992, Ser. No. 878,140
Int. Cl.[5] F15D *1/02*
U.S. Cl. 138—39 4 Claims



1. A loss reducing insert adapted to overlie and replace the inner corner flow surface of the internal surface of a turn in a fluid flow duct, said insert comprising an upstream end, a downstream end and means to generate large scale vortices and produce a flow variation which disrupts the eddy flow in the separation region to reduce turning losses, said means including a plurality of downstream extending, adjoining alternating troughs and ridges, extending from said upstream end of said flow insert to said downstream end of said flow insert, said ridges increasing in height from said upstream end to a maximum height downstream and decreasing in height from said maximum height to zero height at said downstream end, said plurality of troughs and ridges defining a convoluted surface.

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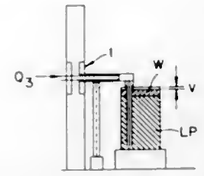
5,213,139
TOOL FOR FLATTENING A CABLE
Gregory F. Deuel, Manheim, and Kenneth F. Folk, Harrisburg, both of Pa., assignors to Amp Incorporated, Harrisburg, Pa.
Filed Jan. 29, 1992, Ser. No. 827,670
Int. Cl.[5] B21F *01/02*
U.S. Cl. 140—147 6 Claims



1. A tool for straightening a ribbon cable having a plurality of electrical conductors therein, comprising:
a first member including a first stud and a first roller journaled for rotation with respect to said first stud, the first roller having a surface defining a plurality of circumferential grooves spaced to substantially match the spacing of at least some of said plurality of conductors, said surface of said first roller being engageable with one side of said ribbon cable;
a second member including a pair of spaced second and third studs and a pair of section and third rollers journalled for rotation with respect to said second and thirds studs, respectively, the second and third rollers each having a surface defining a plurality of circumferential grooves spaced to substantially match the spacing of said grooves in said first roller, said surfaces of said second and third rollers being engageable with an opposite side of said ribbon cable;
actuating means for moving said first and second members between an open position wherein said first, second and third rollers are disengaged from said ribbon cable, and a closed position wherein axes of rotation of said first, second and third rollers are mutually parallel, said first roller is in said engagement with said one side of said ribbon cable, said second and third rollers are in said engagement with said other side of said ribbon cable, and said grooves of said first, second and third rollers are in substantial alignment; and,
means for effecting said rotation of said first rollers;
wherein when said first and second members are in the closed position, said rotation of said first roller causes movement of said ribbon cable between said first roller and said second and third rollers, and said grooves of said first, second third rollers track along their respective conductors to effect straightening of the conductors.

5,213,140
METHOD AND APPARATUS FOR FILLING DRUMS WITH IMMISCIBLE LIQUIDS SUCH AS WHITE PHOSPHORUS AND WATER
Michel Miscevic, Epierre, and Claude Cochet, La Chambre, both of France, assignors to Atochem, Puteaux, France
Filed Nov. 22, 1991, Ser. No. 796,329
Claims priority, application France, Nov. 23, 1990, 90 14633
Int. Cl.[5] B67C *3/30*; B67D *5/56*
U.S. Cl. 141—9 11 Claims

1. A method of filling a drum with two immiscible liquids which are inert when combined, said liquids being of different densities, comprising the steps of:
positioning a drum such that a drum opening is located beneath a hollow filling rod, thereafter
inserting said rod into said drum opening such that an outlet end thereof is located closely adjacent a bottom end of said drum, thereafter
injecting a first quantity of the lesser density liquid into said drum through said rod, thereafter
injecting a second quantity of the greater density liquid into said drum through said rod, and thereafter



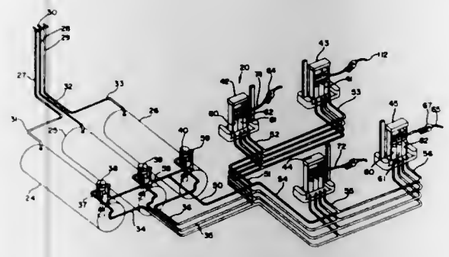
injecting a third quantity of said lesser density liquid into said drum through said rod for rinsing said rod of said greater density liquid, and thereafter
withdrawing said rod from said drum.

5,213,141
DEBRIS COLLECTION AND DISPOSAL SYSTEM AND METHOD
Ira S. Dorman, 607 Spring St., Manchester, Conn. 06040
Filed Oct. 26, 1990, Ser. No. 603,997
Int. Cl.[5] B65B *1/04, 67/00*
U.S. Cl. 141—10 12 Claims



11. A method for the collection and disposal of lawn debris and the like, comprising:
providing a rigid, free-standing, self-supporting, portable container and a collapsible container, said containers having open mouths dimensioned and configured for mated interengagement, and having cooperating means thereon for disengagably securing them in mouth-to-mouth assembly, said collapsible container having venting means therein for permitting the displacement of air by debris, transferred thereinto from said rigid container, with said containers so secured;
at least partially filling said rigid container with debris or the like;
disengagably securing said rigid and collapsible containers in mouth-to-mouth assembly;
inverting said rigid container to transfer the contents thereof to said collapsible container, effecting thereby the discharge of air through said venting means; and
disassembling said containers from one another.

5,213,142
STAGE II VAPOR RECOVERY SYSTEM
Wolfgang H. Koch, Batavia; Dennis J. Strock, Woodridge; Michael S. Butkovich, Aurora, and Harry B. Hartman, Sugar Grove, all of Ill., assignors to Amoco Corporation, Chicago, Ill.
Filed Mar. 4, 1991, Ser. No. 664,326
Int. Cl.[5] B60S *5/02*
U.S. Cl. 141—59 7 Claims



1. A vapor recovery system, comprising:
a set of elongated underground storage tanks, each storage tank containing a different grade of gasoline;
vent pipes connected to said storage tanks for venting and pressure balancing of said storage tanks;
a series of dispensing units;
fuel flow lines extending between, connected to and communicating with said storage tanks and said dispensing units for conveying gasoline from said storage tanks to said dispensing units;
vapor return lines extending between, connected to and communicating with said storage tanks and said dispensing units for passing gasoline vapors from said dispensing units to said storage tanks;
an array of fuel pumps for pumping gasoline from said storage tanks to said dispenser units, said fuel pumps comprising pumps selected from the group consisting of submerged pumps in said underground storage tanks and suction pumps in said dispensing units;
each of said dispensing units comprising at least one:
upright dispenser;
fuel dispensing nozzle;
a fuel hose extending between and connected to said nozzle and said dispenser;
a vapor return hose extending between and connected to said nozzle and said dispenser;
a vapor pump operatively connected to said nozzle via said vapor return hose;
each of said nozzles comprising
a housing providing a body, said housing having a tubular handle containing an inlet conduit with a fuel inlet connected to and communicating with a fuel hose, said body having a spout-receiving socket, a venturi sleeve-receiving chamber, a flow control valve-receiving compartment positioned adjacent said handle, an automatic shutoff valve-receiving compartment providing a vacuum chamber positioned between said venturi sleeve-receiving chamber and said automatic shutoff valve-receiving compartment, and said venturi-sleeve receiving chamber defining orifices providing a condensate venturi port and an overfill sensing venturi port communicating with said vacuum chamber;
an elongated condensate liquid pickup tube connected to, communicating with and extending from said condensate venturi port of said venturi-sleeve receiving chamber through said inlet conduit into said vapor return hose for substantially removing condensed gasoline vapors forming condensate collecting in said vapor return hose;
an elongated inner spout providing a fuel conduit and having an outer tip defining a fuel outlet for discharging gasoline into a filler pipe of a motor vehicle tank during fueling;
an outer spout assembly extending into and engaging said spout-receiving socket, said outer spout assembly comprising an outer spout providing a vapor return conduit and defining apertures providing a vapor inlet spaced from said fuel outlet for withdrawing, removing, and returning a substantial amount of gasoline vapors emitted during said fueling, said vapor return conduit annularly surrounding said fuel conduit and having coaxial portions coaxially positioned about said fuel conduit, said vapor return conduit being shorter than said fuel conduit and being spaced outwardly from and cooperating with said fuel conduit to define an annular vapor return passageway in communication with said vapor return hose;
an elongated liquid sensing tube positioned in said annular vapor return passageway and extending from adjacent said vapor inlet into said spout-receiving socket, said liquid sensing tube communicating with said overfill sensing venturi port in said venturi-sleeve receiving chamber for sensing the presence of a full condition of liquid gasoline in the filler pipe of the motor vehicle tank;
a manually operable level positioned below said handle for manually controlling the flow of gasoline being discharged through said fuel conduit, said lever being moveable from a downward closed position to an upward position, and a lever guard positioned partially about said lever and connected to said handle and body of said housing;
a flow control valve assembly disposed in said flow control valve-receiving compartment and being actuated by said lever for regulating the flow of gasoline into said fuel conduit, said flow control valve assembly having a flow control poppet valve, an elongated valve stem engaging said lever, and a flow control valve-compression spring for urging said lever and poppet valve in a normally closed position blocking the flow of gasoline;
an automatic shutoff valve assembly disposed in said automatic shutoff valve-receiving compartment, said automatic shutoff valve assembly having a diaphragm positioned adjacent said vacuum chamber and communicating with said overfill sensing venturi port for automatically shutting off the flow of gasoline to said fuel conduit in said full condition, a compression diaphragm-spring positioned above said diaphragm for exerting a spring force against said diaphragm, a plunger positioned below said diaphragm and having a lower end pivotally connected to said lever, a reciprocatable latch pin slidably positioned in said plunger, a tapered head connected to and positioned above said pin, balls seated in said plunger for engaging said head, and a plunger spring for urging said plunger upwardly; and
a venturi sleeve assembly positioned in said venturi sleeve-receiving chamber, said venturi sleeve assembly comprising an annular venturi sleeve having a valve seat disposed adjacent said venturi ports, a venturi check valve with a frustroconical throat plug and a plug stem, a venturi check valve coil spring disposed about said plug stem for urging said throat plug in a normally closed seated position against said valve seat for blocking the flow of gasoline into said fuel conduit during said full condition and when said latch is in a closed position, said throat plug being movable to an open forward position to permit the discharge of gasoline and condensate from said condensate pickup tube into said fuel conduit during fueling and being spaced from and cooperating with said venturi sleeve to form a venturi throat communicating with said vapor passageway for return passage of gasoline vapors to said vapor return hose.

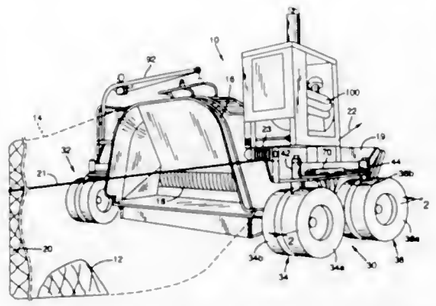
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,143

STEERING AND PROPULSION MECHANISM FOR AGRICULTURAL FIELD VEHICLE

Price L. Policky, Astoria, and Louis C. Fletcher, Jr., Hammond, both of Oreg., assignors to Ag-Bag Corporation, Warrenton, Oreg.

Filed Jun. 6, 1991, Ser. No. 711,306
Int. Cl.[5] B65B *1/10;* A01F *25/16;* B65G *3/04*
U.S. Cl. 141—71 5 Claims



1. An agricultural crop loading apparatus comprising:
wheeled support means and a steering mechanism therefore including;
four wheel sets, each set pivotally mounted to said apparatus about a vertical axis for directional turning of each wheel set, at least one wheel in each wheel set, said wheel sets separated into two pairs of wheel sets, a linkage between the wheel sets of each pair affixing the wheel sets in a parallel relationship for simultaneous turning of the wheel sets of each pair of wheel sets, and a motor for each pair of wheel sets for independent power turning of the respective pairs of wheel sets through a sufficiently broad range of turning for travel of said apparatus in at least two mutually orthogonal directions relative to said apparatus;
a storage bag and crop loading means for compacting crop material within said storage bag coupled to said apparatus, said loading means causing as a result of crop compaction in said bag, operational propulsion of said apparatus along a line of travel coincident to a first one of said at least two mutually orthogonal directions; and
an operator station provided on said apparatus, control means for independent operation of said motors of said paired wheel sets from said operator station of said apparatus whereby said apparatus may be first directed by operation of said steering mechanism in said one of said orthogonal directions, and then in the other orthogonal direction.

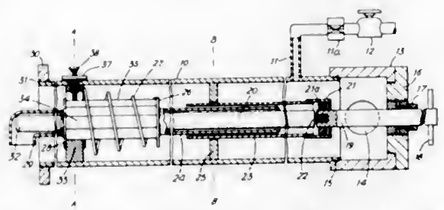
5,213,144

VALVE OPENING DEVICE

George D. Campbell, Camlachie, and James G. Barron, Corunna, both of Canada, assignors to Polysar Rubber Corporation, Sarnia, Canada

Filed Jun. 11, 1992, Ser. No. 896,943
Claims priority, application Canada, Dec. 2, 1991, 2056792
Int. Cl.[5] B65B *1/04;* B67C *3/00*
U.S. Cl. 141—383 3 Claims

1. A device for attachment to a liquid or vapor valve having a threaded portion and located in a dome of a pressure tank car for use in removal of gaseous or liquid material contained in said tank car characterized in the said device comprises a metallic tubular assembly, having an upstream and a downstream end, equipped (i) at the downstream end with an externally threaded portion for making engagement with the threaded portion of said valve of said tank car, (ii) at the opposite upstream end with a terminal plug having located therein a leak proof packing gland assembly surrounding a moveable relatively inflexible rod-like elongate unit, said terminal plug being located in an outlet assembly integral with said tubular assembly and at an angle of 90° to the length of said tubular assembly, said outlet assembly is equipped with an outlet pipe having attached at its outer end a valve assembly equipped with an outlet flange, (iii) with a valved gas inlet line attached to said tubular assembly closely adjacent to but towards the downstream end of said outlet assembly, and (iv) with a retaining screw means closely adjacent to the downstream end of said tubular assembly, said tubular assembly being internally equipped with at least two web support units fixedly located therein, an upstream web support unit being located downstream of said gas inlet line and a downstream web support unit being located integral with said retaining screw means, said rod-like elongate unit being of length equal to or greater than about 1.5 times the length of said tubular assembly and being moveably located within said tubular assembly from about said downstream end passing through apertures in said web support units and through said packing gland assembly of said terminal plug to outside of the tubular assembly and terminating with a



handle means and being equipped within said tubular assembly with a multi-component surrounding guide assembly comprising a first tubular surround fixedly attached to and about said rod-like elongate unit at a point in close proximity to but downstream of said outlet assembly and extending downstream to a point between the two web support units, and an outlet end tubular surround extending from the downstream end of said tubular assembly to a terminal point upstream of said upstream web support unit and having a downstream end outlet at right angles to said tubular surround through which said rod-like elongate unit can be moved, having a downstream stop plate fixedly attached to and located about said tubular surround on the downstream side of said downstream web support unit, having an upstream stop plate fixedly attached to and located about said tubular surround on the upstream side of said downstream web support unit and having a spring means surrounding said outlet end tubular surround from the upstream side of said downstream web support unit to the downstream side of said upstream stop plate, said outlet end tubular surround at its upstream end being located within said first tubular surround and about said rod-like elongate unit.

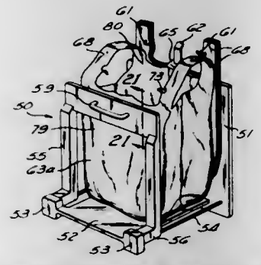
5,213,145

SEMI-AUTOMATIC T-SHIRT BAG OPENING RACK

Frank F. J. Huang, and Daniel C. Huang, both of Irvine, Calif., assignors to Durabag Company, Inc., Tustin, Calif.

Filed Oct. 15, 1991, Ser. No. 778,337
Int. Cl.[5] A63B *55/04;* B65B *67/04*
U.S. Cl. 141—391 15 Claims

15. A semi-automatic bag dispensing system comprising:
a stack of bags comprising a plurality of bags stacked in alignment, each bag of said stacked bags having front and rear walls joined by side walls, said bags having an open top and a pair of laterally spaced apart upwardly projecting handles, each handle having aligned slits defined therethrough near a side edge of said handles near a top portion of said handles, each bag having detachable tab means projecting upwardly from said open top of each bag between the laterally spaced apart handles, said tab means including a central tab slit defined therethrough and a tab tearing slit formed below said central tab slit, said tab tearing slit traversing substantially the entire width of said central tab means;
a bagging rack for mounting said stack of bags and readying for loading individual bags from said stacks of bags, said bagging rack comprising:
a stationary rear wall, said rear wall having two spaced apart hook member attached at a top portion of said rear wall and having a generally upwardly projecting tab receiving member located thereon;
a planar support base perpendicular to and fixably attached to said stationary rear wall and extending in a forward direction therefrom; and
a movable frame member movable along a straight line between a first position distant from said stationary rear wall and a second position adjacent to said stationary rear wall, said movable frame member having an upper planar



member which is substantially parallel to said stationary rear wall and which has a tacky rubber sheet member fixed to a surface of said upper planar member which faces said fixed rear wall, wherein in use of said bag dispensing system, a stack of said bags is first loaded onto said bagging rack by slipping said central tab slit of said stack of bags over said tab receiving member and by looping said aligned slits in said handles onto said hook members, and after said stack of bags is loaded, moving said movable frame member from said first position to said second position, thereby bringing said tacky rubber sheet member on said upper planar member into contact with and adhering to a portion of a front wall of plastic of a top bag of said stack of bags, and thereafter moving said movable frame member from said second position back to said first position, thereby tearing said handles free from said hook members in the vicinity of said slits in the handles and tearing the top layer of plastic of said top bag at said tab tearing slit, and thereby opening said top bag.

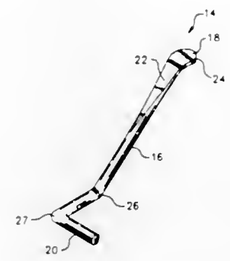
5,213,146

BICYCLE WHEEL LEVER

Shoji Onozawa, 19152 SE. 151st St., Issaquah, Wash. 98027

Filed Apr. 27, 1992, Ser. No. 874,413
Int. Cl.[5] B60C *25/02*
U.S. Cl. 157—1.3 6 Claims

1. A bicycle wheel lever comprising:
an elongate rod having a first portion connected at an oblique angle to a second portion, a first end with a substantially planar face portion extending obliquely therefrom, and a second end, said second end having a longitudinal axis; and
an arm on said second end of said elongate rod, having a longitudinal axis, and being oriented at a first angle substantially perpendicularly to said second portion of said elongate rod, the longitudinal axis of said arm being disposed at an acute angle relative to a horizontal plane which is parallel with the longitudinal axis of said second portion of said elongate rod and parallel with said first end face portion whereby said bicycle wheel lever separates a bicycle tire from a wheel rim by placement of said firs end of said elongate rod between a bicycle tire and a wheel rim, by pivotal movement of said elongate rod toward a



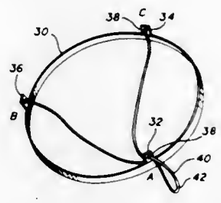
wheel spoke, and by bracing any portion of the length of said arm against a wheel spoke to secure said bicycle wheel lever.

5,213,147

METHOD AND APPARATUS FOR FOLDING AND COLLAPSING OBJECTS SUPPORTED BY FLEXIBLE LOOPS

Yu Zheng, 1065 Howard Ave., Covina, Calif. 91722

Filed Dec. 4, 1993, Ser. No. 803,331
Int. Cl.[5] B60J *3/00*
U.S. Cl. 160—370.2 27 Claims



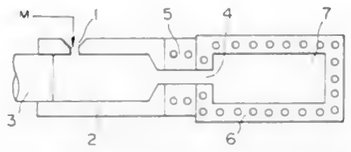
6. Apparatus for folding and collapsing an object incorporating a flexible loop, the loop substantially defining the configuration of the object, the loop further having an expanded state and a collapsed state which is substantially smaller in size than the expanded state, comprising:
means operatively associated with a first point along the loop for defining an opening;
a cable having a central portion, a first end and a second end;
means for securing the first end of the cable to a second point along the loop;
means for securing the second end of the cable to a third point along the loop, the first, second and third points spaced-apart from each other along the loop; and
a handle formed by passing the central portion of the cable through the opening.

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5,213,148
PRODUCTION PROCESS OF SOLIDIFIED AMORPHOUS ALLOY MATERIAL

Tsuyoshi Masumoto; Akihisa Inoue, both of Sendai; Hitoshi Yamaguchi, Okaya; Noriaki Matsumoto, Tokyo; Yutaka Sato, Osaka, and Kazuhiko Kita, Sendai, all of Japan, assignors to Tsuyoshi Masumoto, Sendai; Teikoku Piston Ring Co., Ltd.; Honda Giken Kogyo Kabushiki Kaisha, both of Tokyo; Toyo Aluminum K.K., Osaka and Yoshida Kogyo, K.K., Tokyo, all of Japan

Filed Mar. 1, 1991, Ser. No. 664,056
Claims priority, application Japan, Mar. 2, 1990, 2-49491
Int. Cl.[5] B22D *7/10*
U.S. Cl. 164—122 18 Claims

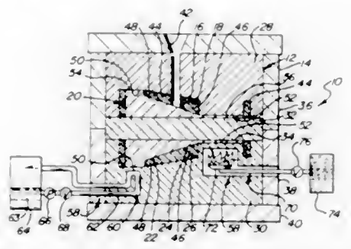


1. A process for the production of a solidified amorphous alloy material from a metal melt comprising the steps of:
quenching a melt of a desired metal material in a first-stage quenching zone provided in a melt feeding route so that the melt is quenched to a temperature range of from ±100° K. of the melting point (Tm) of the metal material; and
introducing the melt into a second-stage quenching and solidification zone where the melt is cooled further and solidified into a solid material having an amorphous phase.

5,213,149
MOLD AND METHOD FOR MAKING VARIABLE THICKNESS CAST ARTICLES

Gary F. Ruff, Farmington Hills, Mich.; John W. Kuhn, Bristol, and Richard J. Wylie, Wabash, both of Ind., assignors to CMI International, Inc., Southfield, Mich.

Filed Oct. 10, 1991, Ser. No. 776,607
The portion of the term of this patent subsequent to Mar. 3, 2009, has been disclaimed.
Int. Cl.[5] B22D *27/04*
U.S. Cl. 164—122 20 Claims

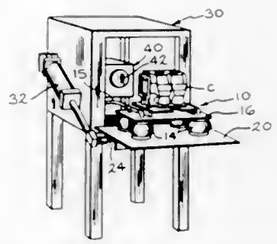


1. A method for casting molten metal articles of variable thickness in a mold, said method comprising the steps of:
forming cavity walls (16) within a permanent mold (12) to define a casting cavity (18);
lining portions (26) of the cavity walls (16) with sand (44) to conform with the size and shape of corresponding sections (22, 24) of the article (20) to be cast within the cavity (18);
forming unlined bare portions (50, 52) of the cavity walls (16) to conform with the size and shape of other corresponding sections (54, 56) of the article (20),
varying the thickness of the sand (44) to form thick (46) and thin (44) portions of the sand liner (44) which are reversely correlated to corresponding thin (24) and thick (22) sections of the resultant cast article (20) such that the sand liner (44) is thicker in sections where the cast article (20) is thin and is thinner in sections where the cast article (20) is thicker;
casting molten metal into the casting cavity (18) causing the varied thickness sections (22, 24) to cool at different rates with the thinner sections (24) cooling at a relatively slower rate than the thicker sections (22) for producing an approximately equalized cooling time for these sections (22, 24) of the cast article (20);
and characterized by controlling the temperature of the bore portions (50, 52) of the cavity walls (16) during casting for precisely controlling the cooling rates and resultant physical properties of the sections (54, 56) of the cast article (20) in contact with the bare portions (50, 52).

5,213,150
CORE KNOCK-OUT FIXTURE

Jakob H. Sensenstein, Toledo, Ohio, assignor to Doehler-Jarvis Limited Partnership, Toledo, Ohio

Filed Apr. 8, 1991, Ser. No. 681,312
Claims priority, application Japan, Nov. 7, 1990, 2-300029
Int. Cl.[5] B22D *29/00*
U.S. Cl. 164—404 11 Claims



1. A cabinet for removing particles from a disintegrated sand core in a casting, said cabinet comprising:
A) a hinged door movable from an open position to a closed position, and vice versa,
B) a platform mounted on resilient legs on said door for supporting said casting,
C) a back rigidly mounted on said platform adjacent the hinge of said door for supporting said casting when said door is in its closed position, and
D) vibrating means in said cabinet for jarring said casting when said door is closed, and said resilient legs are urging said casting into contact with said vibrating means.

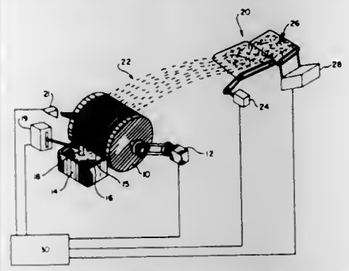
5,213,151
MELT OVERFLOW CONTROL FOR CONSTANT LINEAR DENSITY FIBER MAT AND STRIP

Lloyd E. Hackman, Worthington, Ohio, assignor to Ribbon Technology Corporation, Gahanna, Ohio

Filed Aug. 20, 1992, Ser. No. 932,576
Int. Cl.[5] B22D *11/20, 11/18*
U.S. Cl. 164—453 21 Claims

1. In a melt overflow casting apparatus having a rotatably driven casting wheel, the side of which molten metal is cast against and solidified as short, thin fibers, the casting wheel carrying the solidified metal fibers and projecting them onto a conveyor forming a continuous fiber mat, for transporting the fiber mat and a height control means for controlling the height of the top surface of a pool of molten metal, the improvement comprising:
(a) a sensing means for measuring the net width across the casting wheel of the cast metal fibers and;

(b) a control means for controlling the velocity of the conveyor in response to incremental changes in the net width

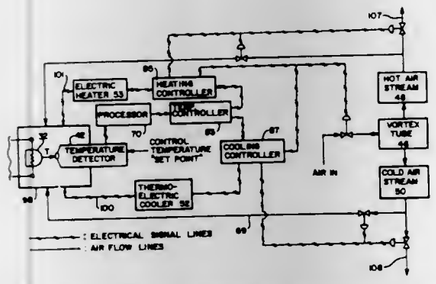


across the casting wheel of the metal fibers for maintaining substantially constant linear density fiber mat.

5,213,152
TEMPERATURE CONTROL SYSTEM FOR A HEAT DETECTOR ON A HEAT EXCHANGER

William C. Cox, Wellsville, N.Y., assignor to ABB Air Preheater, Inc., Wellsville, N.Y.

Filed Nov. 5, 1991, Ser. No. 787,941
Int. Cl.[5] F28D *19/04*; G01J *5/04*
U.S. Cl. 165—5 15 Claims

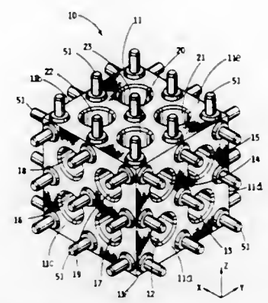


1. A control system for regulating the temperature of a heat detector disposed on a rotary regenerative heat exchanger to within a predetermined temperature range defined by a maximum temperature and a minimum temperature, comprising:
temperature sensing means for sensing the temperature of the detector,
non-liquid cooling means for cooling the detector to within the predetermined temperature range when the temperature of the detector is above the maximum temperature, the non-liquid cooling means including one of thermoelectric cooling means and a combination of thermoelectric cooling means and cool compressed gas means,
non-liquid heating means for heating the detector to within the predetermined temperature range when the temperature of the detector is below the minimum temperature, the non-liquid heating means including electrical resistance heating means, and
control means coupling the temperature sensing means to the non-liquid heating means and the non-liquid cooling means, for activating the non-liquid cooling means when the temperature of the detector is above the maximum temperature and activating the non-liquid heating means when the temperature of the detector is below the minimum temperature.

5,213,153
HEAT RADIATING DEVICE

Satomi Itoh, Hyogo, Japan, assignor to Itoh Research & Development Laboratory Co., Ltd., Osaka, Japan

Filed Mar. 17, 1992, Ser. No. 853,417
Claims priority, application Japan, Mar. 20, 1991, 3-130845
Int. Cl.[5] F28D *15/02*
U.S. Cl. 165—104.33 10 Claims

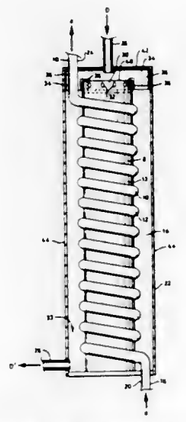


1. A radiating device comprising a housing having a shape of a block including a bottom wall with a surface area serving as a heat receiving surface, a top wall with a surface area, and a side wall with a surface area coupling said bottom wall and said top wall for forming said housing, wherein said block includes a first group of hole means extending through said surface area of said side wall, a second group of hole means crossing said first group of hole means and extending to said top surface area, and passage means for circulating gas and liquid, said passage means serving as a heat pipe.

5,213,154
LIQUID DESICCANT REGENERATION SYSTEM

Joseph Marsala, Glen Ellyn, Ill., and Mark W. Spatz, East Amherst, N.Y., assignors to Gas Research Institute, Chicago, Ill.

Filed Aug. 17, 1992, Ser. No. 930,898
Int. Cl.[5] F29D *5/02*
U.S. Cl. 165—115 8 Claims



1. A single-stage desiccant regeneration system for use in an air conditioning system, said regeneration system comprising:
a falling film heat exchanger for transferring heat from concentrated desiccant solution to dilute desiccant solu-

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tion, said heat exchanger comprising a housing, a vertical cylindrical tube disposed in said housing, a generally helically wound tube mounted on and around said vertical cylindrical tube, a distributor for distributing concentrated desiccant evenly onto an outer surface of said vertical cylindrical tube, a spacer separating said vertical cylindrical tube and said helically wound tube from side walls of said housing, said spacer comprising a plurality of fins connected together and arranged in radial fashion, each of said fins having therein a notch in which is received an upper edge portion of said vertical cylindrical tube, said fins extending radially outwardly from said vertical cylindrical tube a distance further than the extent of any portion of said helically wound tube from said vertical cylindrical tube, outer edges of said fins being adjacent said side walls of said housing, said housing having a bottom portion for trapping concentrated desiccant,

a boiler for regenerating dilute desiccant and vaporizing moisture absorbed in said dilute desiccant,

means for flowing dilute desiccant from said air conditioning system upward through said heat exchanger wound tube to said boiler, and

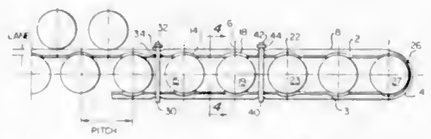
means for directing concentrated desiccant from said boiler through said heat exchanger to said air conditioning system.

5,213,155

METHOD AND APPARATUS FOR MULTIPLE LOCKING A SINGLE ROW OF HEAT EXCHANGER TUBES

Robert B. Hahn, Virginia Beach, Va., assignor to The Atlantic Group, Inc., Norfolk, Va.

Filed Apr. 23, 1992, Ser. No. 872,316
Int. Cl.[5] F28F *9/00*
U.S. Cl. 165—162 **12 Claims**



1. A U-shaped stake apparatus for locking a single row of transversely extending parallel tubes, said apparatus comprising in combination:

a first elongated strip portion having a longitudinal axis, a bend along said longitudinal axis so as to define a proximate stake midpoint and transversely extending legs that terminate at distal ends;

a second elongated strip portion having a longitudinal axis, a bend along said longitudinal axis so as to define a proximate stake midpoint and transversely extending legs that terminate at distal ends;

a connecting portion that joins said first and second strip portions, and is adapted to engage the outer surface of a transversely extending tube located therein;

a land portion proximate to the distal end of each strip portion that comprises a plurality of saddles having a curvature adapted to engage the outer surface of a transversely extending tube, said saddles being separated longitudinally by ligament portions; and,

fastener means adapted to encircle opposed ligament portions of said stake, in a substantially transverse plane and thereby lock said stake with respect to a single row of tubes located between said first and second strip portions.

10. A method for locking a single row of transversely extending parallel tubes, said method comprising the steps of:

A. inserting the open end of a U-shaped stake, further comprising first and second strip portions elongated in the longitudinal direction with a connecting portion at one end, longitudinally over said single row of transversely extending parallel tubes;

B. engaging an inner surface of said connecting portion against the outer surface of a transversely extending tube located at one end of said row; and

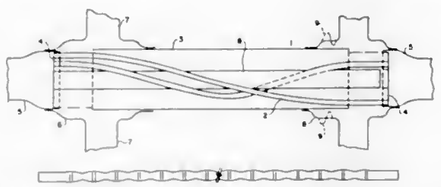
C. fastening said stake to said row by encircling, in a substantially transverse plane, the outer surfaces of each strip portion, said encircling being in at least in one longitudinal location along said stake that is between adjacent tubes of said row.

5,213,156

HEAT EXCHANGER AND A METHOD FOR ITS FABRICATION

Rune Eriksson, Linköping, Sweden, assignor to Elge AB, Linkoping, Sweden

Continuation of Ser. No. 634,568, Dec. 27, 1990, abandoned. This application Apr. 23, 1992, Ser. No. 873,621
Claims priority, application Sweden, Dec. 27, 1989, 8904369; Apr. 2, 1990, 9001194
Int. Cl.[5] F28D *7/02*
U.S. Cl. 165—163 **15 Claims**



1. A heat exchanger for transferring heat between an inner and outer medium comprising:

a bundle of tubes for allowing a flow of said inner medium therethrough, the tubes of said bundle being grouped in concentric rings, said rings having different diameters from one another over their entire length, the length of a ring including ends of the tubes within the ring, said tubes having angular progressions for avoiding fatal mechanical tensions caused by variations in the temperature of at least one of the inner and outer medium, and said tubes being corrugated along their entire length for allowing a turbulent flow of the outer medium between adjacent tubes, said bundle being so compact that at least one pair of adjacent tubes in adjacent rings are in contact with one another;

a shell surrounding said tube bundle;

inner medium connector means for transporting said inner medium to and from said tube bundle; and

outer medium connector means for transporting said outer medium to and from said shell, said outer medium flowing around said tube bundle inside said shell.

15. A heat exchanger for transferring heat between an inner and outer medium comprising:

a bundle of tubes for allowing a flow of said inner medium therethrough, the tubes of said bundle being grouped in concentric rings, said tubes having angular progressions and being corrugated, outer rings of tubes being wound directly on inner rings of tubes, said bundle being so compact that at least one pair of adjacent tubes within a ring are in contact with one another;

a shell surrounding said tube bundle;

inner medium connector means for transporting said inner medium to and from said tube bundle; and

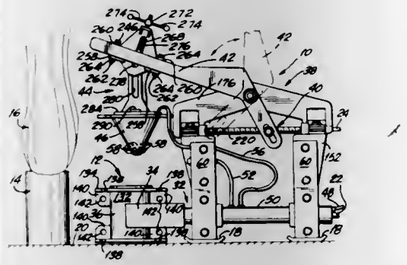
outer medium connector means for transporting said outer medium to and from said shell, said outer medium flowing around said tube bundle inside said shell.

5,213,157

CLAMPING DEVICE FOR CAPPING OIL WELLS AND THE LIKE, AND APPARATUS FOR MOUNTING SAME

Robert Wills, 255 Mill Rd., 5Q, Staten Island, N.Y. 10306

Filed Dec. 11, 1991, Ser. No. 805,478
Int. Cl.[5] E21B *33/03, 35/00, 36/00*; A65C *3/00*
U.S. Cl. 166—79 **20 Claims**



6. A clamping device for capping a pipe carrying fluids therein, comprising:

clamping brackets for securement on the pipe;

a capping member for insertion into an open end of the pipe, said capping member including an upper plate portion and a lower capping portion fixedly secured to said plate portion as an integral unit;

fastener means for securing said upper plate portion to said clamping brackets to provide a unit construction when securely mounted on the pipe; and

said lower capping portion including means for spraying said clamping brackets and the pipe with water, chemicals and like material for cooling same.

10. An apparatus for mounting a clamping device including clamping brackets for securement on a fluid carrying pipe and a capping member for insertion into an open end of the pipe for capping the pipe, comprising:

a lower portion including closable jaw means for securement to the clamping brackets to engage the clamping brackets around the pipe;

an upper portion including arm means provided with a carrier member for holding the capping member to position the capping member within the open end of the pipe;

frame means for securing said upper portion to said lower portion; and

rod means for opening and closing said jaw means.

5,213,158

DUAL ROTATING STRIPPER RUBBER DRILLING HEAD

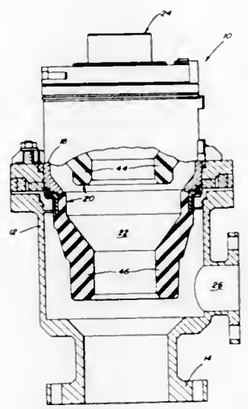
Thomas F. Bailey, and John E. Campbell, both of Houston, Tex., assignors to MASX Entergy Services Group, Inc., Houston, Tex.

Filed Dec. 20, 1991, Ser. No. 811,553
Int. Cl.[5] E21B *33/068*
U.S. Cl. 166—82 **4 Claims**

1. In a drilling head for a wellbore through which a tool string of varying outside diameter is run, the drilling head sealing against fluid flow past the tool string to divert such fluid through a side outlet port, said drilling head including a housing having an axial passageway through which the tool string is run and a bearing assembly to facilitate rotation of the tool string within the axial passageway, the improved drilling head comprising:

first and second stripper rubbers rotatably mounted within the drilling head housing in sealing contact with the tool string, said stripper rubbers having substantially identical inner diameters through which the tool string extends, said first stripper rubber formed of an abrasive resistant material to divert fluid flow from the axial passageway of the housing to the side outlet port and said second stripper rubber formed on a sealingly resilient material which maintains sealing contact with the tool string extending therethrough preventing fluid flow past said tool string;

said first stripper rubber being corrected to clamping means associated with the bearing assembly through a first drive ring such that said first stripper rubber rotates with the tool string; and



said second stripper rubber is rotatably connected to said clamping means associated with the bearing assembly through a second drive ring, said first and second drive rings coaxially mounted within the housing whereby said first stripper rubber is positioned axially below said second stripper rubber in sealing contact with the tool string.

5,213,159

METHOD AND APPARATUS FOR MONITORING WELL FLUID PARAMETERS

John L. Schneider, Beech Wood Place, West Hill, Skene, Aberdeenshire, United Kingdom

PCT No. PCT/GB90/00482, § 371 Date Sep. 30, 1991, § 102(e) Date Sep. 30, 1991, PCT Pub. No. WO90/12196, PCT Pub. Date Oct. 18, 1990
PCT Filed Mar. 30, 1990, Ser. No. 768,619
Claims priority, application United Kingdom, Mar. 31, 1989, 8907280; Apr. 28, 1989, 8909879; Sep. 5, 1989, 8920003; Feb. 12, 1990, 9003134
Int. Cl.[5] E21B *47/00*
U.S. Cl. 166—250 **20 Claims**

1. A method of monitoring parameters of fluid being pumped from a well, for example an oil well, comprising sensing a fluid parameter in the annulus or on the intake side of the

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pump, and separately sensing a corresponding fluid parameter on the discharge side of the pump or in the production string,



characterized in that said corresponding fluid parameter is sensed outside the flow path of fluids discharged by the pump.

5,213,160

METHOD FOR CONVERSION OF OIL-BASE MUD TO OIL MUD-CEMENT

James J. W. Nahm, and Reece E. Wyant, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 691,904, Apr. 26, 1991, abandoned. This application Oct. 15, 1992, Ser. No. 961,217

Int. Cl.[5] **E21B** *33/13*

U.S. Cl. 166—293 **10 Claims**

1. A method for cementing a well comprising:

admixing an oil mud with (a) sufficient water settable hydraulic material and water to form a slurry having a total solid-to-oil volume ratio of about 1.4 to 2.2 and a water-to-hydraulic material weight ratio of about 0.15 to 0.60, and (b) sufficient accelerator or retarder to cause the oil mud to harden and set up at a preselected time; and

displacing the slurry in the well, and allowing the oil mud to harden and set up.

5,213,161

WELL CEMENTING METHOD USING ACID REMOVABLE LOW DENSITY WELL CEMENT COMPOSITIONS

Bobby J. King, and Patty L. Totten, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Feb. 19, 1992, Ser. No. 838,632

Int. Cl.[5] **E21B** *33/13*

U.S. Cl. 166—293 **9 Claims**

1. A method of forming a cement plug or seal in a subterranean zone penetrated by a well bore which can subsequently be removed by dissolution in acid comprising:

pumping a low density cement composition which sets into a hard substantially impermeable mass into said zone comprised of magnesium oxide, an aqueous magnesium chloride solution, calcium carbonate filler, a foaming agent, a foam stabilizer and a gas entrained in said slurry in an amount sufficient to obtain a desired slurry density; and

allowing said cement composition to set in said zone.

5,213,162

SUBMARINE WELLHEAD

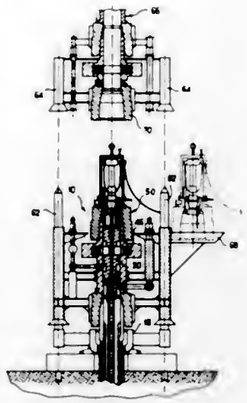
Midel Iato, Pau, France, assignor to Societe Nationale Elf Aquitaine (Production), France

Filed Feb. 14, 1992, Ser. No. 835,554

Claims priority, application France, Feb. 14, 1991, 91 01723

Int. Cl.[5] **E21B** *33/043*

U.S. Cl. 166—341 **5 Claims**



1. Submarine wellhead for producing wells comprising a hollow body mounted in water-tight fashion on a well and configured to receive a suspension device equipped with a production column designed to be lowered into the well, which body is also equipped with an outlet port for the oil coming up from the well through the production column, hydraulic flow between the production column and the outlet port occurring through the suspension device, with hydraulic flow being ensured regardless of the rotation position of the suspension device with respect to the body, and further comprising a locking unit mounted on one open end of the body, with the locking unit having an approximately annular shape which makes it possible to mount it on the body regardless of the relative rotation position of the locking unit with respect to the body.

5,213,163

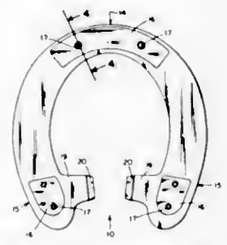
HOT-ATTACHED SEMIRIGID GLUE-ON HORSESHOE

Allan B. Schaffer, 4751 Del Moreno Dr., Woodland Hills, Calif. 91364

Continuation-in-part of Ser. No. 684,805, Apr. 15, 1991, abandoned. This application Jan. 30, 1992, Ser. No. 828,493

Int. Cl.[5] **A01L** *3/00, 5/00*

U.S. Cl. 168—4 **6 Claims**



1 A horseshoe cast or molded from a semirigid polyurethane having hardness in excess of about 50 on the Shore D scale and having a toe region and heel ends,

said shoe having a continuous angular cross-section wherein the base leg of the angle fits under the hoof and the other leg of the angle projects upward so as to fit against the sidewall of the hoof with said angle varying so as to match approximately the local angle of the hoof,

said upward-projecting leg being integrally constructed from said semirigid polyurethane and having a thickness of about ¼ inch so as to serve as part of an L-beam cross section in resisting bending moments,

said shoe being reversibly heated to a temperature of about 275° F. so as to produce a secure bond when brought into contact with a paste-type urethane adhesive,

said secure bond applying both to the sidewall and bottom of the hoof,

said shoe being sufficiently pliable at said temperature for facile forming during the attachment process so as to match the contour of an individual hoof, and

said shoe having two cantilevered flat bars extending inward from each side intermediate the toe region and heel ends and terminating underneath, but below and spaced from, the sulci of the horse's frog so as to provide bonding surfaces for anchors into said sulci, said shoe to be used in conjunction with a paste adhesive that fills said sulci and thereby provides said anchors so as to inhibit relative lateral motion between the shoe and the hoof.

5,213,164

SOIL LEVELING APPARATUS WITH IMPROVED FRAME AND HITCH

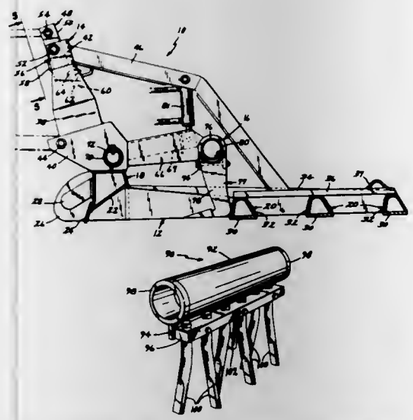
Orlan H. Mork, 6029 225th St., W., Farmington, Minn. 55024

Continuation of Ser. No. 372,027, Jun. 27, 1989, Pat. No. 5,024,280, which is a continuation of Ser. No. 163,178, Feb. 26, 1988, abandoned, which is a continuation of Ser. No. 856,818, Apr. 28, 1986, abandoned, which is a continuation-in-part of Ser. No. 570,347, Jan. 13, 1984, Pat. No. 4,585,075, which is a continuation-in-part of Ser. No. 224,458, Jan. 12, 1981, Pat. No. 4,448,258. This application Jun. 13, 1991, Ser. No. 714,563

The portion of the term of this patent subsequent to Apr. 29, 2003, has been disclaimed.

Int. Cl.[5] **A01B** *59/043*

U.S. Cl. 172—445.1 **58 Claims**



1. An adjustable lost motion connection for mounting between the top link of a three-point hitch and an attachment, which comprises:

an outer channel section secured to the attachment, said outer channel section having top and bottom ends;

an inner channel section extending into the top end of said outer channel section, said inner channel section having opposite ends;

means for supporting said inner channel section for pivotal movement relative to said outer channel section about a transverse axis;

means for connecting the top link of the three-point hitch to one end of said inner channel section in predetermined spaced relationship above the transverse axis; and

adjustable stop means for limiting pivotal movement of said one end of said inner channel section in a direction toward the three-point hitch.

5,213,165

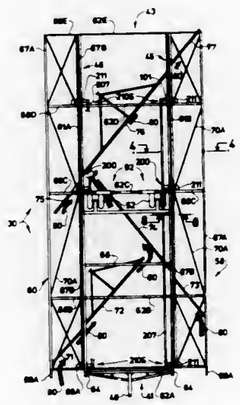
FOLDING LAND PLANE

Neil C. Dunn, Carlisle; Edward O. Brandt, Batesville, and James E. Burks, Hazen, all of Ark., assignors to Brandt Manufacturing Co., Inc., Carlisle, Ark.

Filed Nov. 18, 1991, Ser. No. 793,593

Int. Cl.[5] **A01B** *73/04;* **E02F** *3/76*

U.S. Cl. 172—799.5 **5 Claims**



5. A land plane for leveling a field to be cultivated, said plane comprising:

a central frame adapted to be coupled to a tow vehicle, said frame comprising a front, a rear, and a pair of opposing sides, said frame selectively transportable upon a plurality of centrally disposed wheels;

wings pivotally coupled to at least one of said frame sides, said wings foldably deployable and retractable to expand the operative width of said plane;

at least one fluid-powered cylinder to fold and unfold said wings;

a cam arm pivoted to said cylinder;

rigid pivot plate means attached to said wing, said pivot plate means pivoted to and actuated by said cam arm;

a roller establishing a fulcrum for said cam arm means during folding of said wings;

guide means for temporarily receiving and restraining at least a portion of said hydraulic means and said cam means during wing folding and unfolding;

locking means for selectively locking said wings in a deployed position, comprising one or more locking masters each comprising a rigid locking arm pivoted to a synchronizer, a union pivoted to said synchronizer and a secondary hydraulic cylinder to actuate said union;

said locking means further comprising a plurality of locking slaves responsive to said synchronizer, each of said locking slaves comprising a rigid locking arm pivoted to said synchronizer;

a plurality of rigid, elongated blades positioned generally diagonally across said central frame and said wings, generally offset from one another, forcibly contacting and leveling said field;

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adjusters extend between said frame or said wings and said blades, said adjusters allowing alteration of the height of said blades relative to said field and said frame or said wing; and,

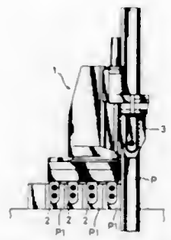
spring tensioners extend from said frame or said wings to said blades for selectively tensioning said blades to define said blade's resilience responsive to impacts with obstacles.

5,213,166

PILE DRIVING AND PILE REMOVING METHOD

Naotaka Watanabe; Hiroshi Itoda, both of Tokyo, and Akio Kitamura, Kochi, all of Japan, assignors to Mitsui-Cyanamid, Ltd., Tokyo, Japan

Continuation of Ser. No. 448,869, Dec. 12, 1989, abandoned.
This application Feb. 10, 1992, Ser. No. 831,733
Int. Cl.[5] B25D *17/26;* C09K *7/00*
U.S. Cl. 173—1 4 Claims



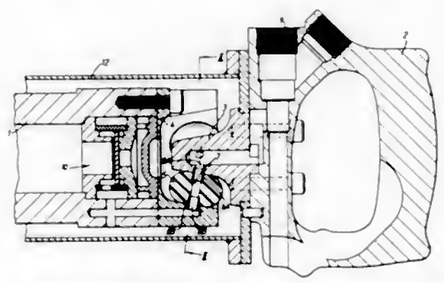
1. In a method of driving a pile into the earth the improvement which comprises coating a water swellable polymer in a water-in-oil emulsion produced by emulsion polymerization of one or more water soluble vinyl monomers and a crosslinkable monomer, said emulsion having a particle size of 2 to 6μ on the surface of the pile, prior to driving said pile into the earth.

5,213,167

APPARATUS FOR REDUCING VIBRATION TRANSMISSION IN HAND-HELD TOOL

Anthony Best, Wiltshire, and Stephen J. Neads, Bath, both of England, assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Jun. 16, 1992, Ser. No. 899,522
Int. Cl.[5] B25D *17/00*
U.S. Cl. 173—162.2 12 Claims



1. An apparatus for reducing vibration transmission from a working portion of a hand-held tool to the user of the tool, the apparatus comprising:

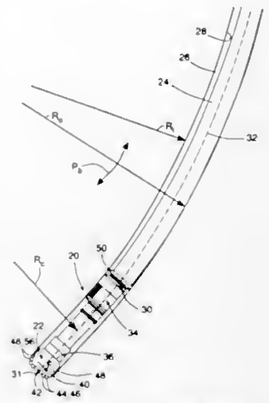
a floating, resilient ball arrangement interposed in rolling contact between a handle portion and the working portion of the tool, wherein said resilient ball arrangement comprises a plurality of noncontacting balls.

5,213,168

APPARATUS FOR DRILLING A CURVED SUBTERRANEAN BOREHOLE

Tommy M. Warren, Coweta; Houston B. Mount, II, and Warren J. Winters, both of Tulsa, all of Okla., assignors to Amoco Corporation, Chicago, Ill.

Filed Nov. 1, 1991, Ser. No. 786,863
Int. Cl.[5] F21B *7/08*
U.S. Cl. 175—61 70 Claims



1. Curve drilling assembly connectable to a rotary drill string for drilling a curved subterranean borehole having an inside radius and an outside radius, the assembly, comprising:

curve guide means connectable with the drill string for deflecting the drill string toward the outside radius of a curved borehole;

a rotary drill bit having a base portion disposed about a longitudinal bit axis for connection through the curve guide means with the drill string, a gauge portion disposed about the longitudinal bit axis and extending from the base portion, a face portion disposed about the longitudinal bit axis and extending from the gauge portion, and a plurality of cutting elements disposed on the face portion;

a flexible joint for connecting the drill bit with the curve guide means;

imbalance force means, rotatable with the drill string, for creating a net imbalance force along a net imbalance force vector substantially perpendicular to the longitudinal bit axis during drilling; and

bearing means, rotatable with the drill string and located in the curve drilling assembly near the cutting elements for intersecting a force plane formed by the longitudinal bit axis and the net imbalance force vector and for substantially continuously contacting the borehole wall during drilling.

5,213,169

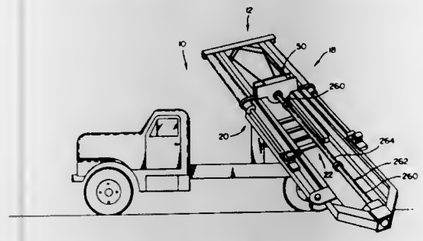
EXPLORATION-SAMPLING DRILLING SYSTEM

Marion E. Heller, P.O. Box 873, Lewistown, Mont. 59457

Filed Feb. 15, 1991, Ser. No. 656,219
Int. Cl.[5] E21B *7/02, 17/18, 19/10*
U.S. Cl. 175—122 9 Claims

1. In a mobile, exploration mineral sample drilling rig comprising a mobile carrier, a drill mast mounted on said mobile carrier, drill mast mounting means adjustably mounting said drill mast on said carrier whereby sample holes may be drilled at various positions around said carrier and at various angles, and a drill head mounted by said drill mast: said drill mast comprising a drill head frame, a mast support frame connected to the upper and bottom portions of said drill head frame and positioning said drill head frame outwardly from said carrier,

said drill mast mounting means being operably-connected to and extending inwardly of said mast support frame; said drill head frame comprising a pair of side beams, an upper cross beam connecting the upper portions of the side beams, a generally V-shaped lower cross beam connecting the lower portions of the side beams with its apex oriented downward, said lower cross beam having an opening therethrough; said drill head being so constructed and arranged that it is slideably mounted to and between the drill head frame side beams to define a drill string axis as extending longitudinally of the drill head frame side beams, between the planes formed by the inner and outer faces of the drill head frame side beams, and through said



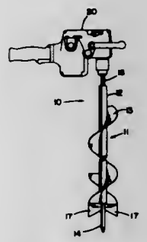
lower cross beam opening; said mast support frame being so constructed and arranged that it is positioned inwardly from said drill head frame a sufficient distance that said drill head and any apparatus or piping or hosing associated therewith may traverse said drill head frame side beams free of interference from said mast support frame and its connections to said drill head frame; said drill mast mounting means including trunnion means slideably mounting said mast support means whereby said drill mast may be moved upwardly and downwardly relative to said trunnion means, said trunnion means being so constructed and arranged to provide a pivot axis about which said drill mast may be rotated relative to said trunnion means.

5,213,170

FOOTING AUGER

Richard H. Savitski, 14525 88th St. Northeast, Elk River, Minn. 55330

Filed Apr. 28, 1992, Ser. No. 875,056
Int. Cl.[5] E21B *10/00, 17/00*
U.S. Cl. 175—323 17 Claims



1. A footing auger with first rearwardly directed and second forwardly directed ends for creating underground holes in the soil beneath footings or other structures comprising:

a. a helical auger portion having a shaft and helical flights, and having a terminal end and an outer radius;

b. a chuck located at said first end of said footing auger and attached to said shaft that is arranged and configured for attachment to a rotating power tool;

c. a rod-like pilot located at said second end of said footing auger and attached to said shaft having a pointed portion located at a distal end thereof;

d. two curved blade extensions having forwardly directed cutting edges; and

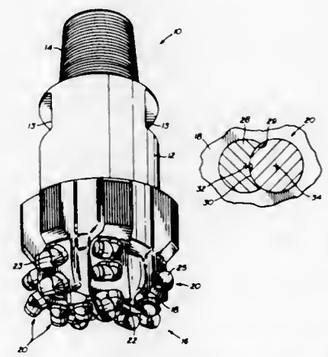
e. means for attaching said extensions to said terminal end of said helical flights and to said pilot, each having an upper portion and a lower portion, wherein said lower portion of each said blade extension extends from one said helical flight at an angle from 0–60 degrees from a first plane tangential to a first surface of said helical flight and wherein said upper portion extends at an angle from 0–30 degrees as measured from a second plane parallel to an axis of said pilot.

5,213,171

DIAMOND DRAG BIT

Mark Clench, and Saul N. Izaguirre, both of Spring, Tex., assignors to Smith International, Inc., Houston, Tex.

Filed Sep. 23, 1991, Ser. No. 764,016
Int. Cl.[5] E21B *10/46*
U.S. Cl. 175—420.1 6 Claims



1. A diamond drag bit apparatus wherein said drag bit has a multiplicity of individual diamond insert studs strategically inserted within insert holes formed in a face of a drag bit body, said diamond inserts having a diamond cutting disc at a first cutting end with a cutting face about parallel with an axis of a cylindrical shank support portion, said drag bit comprising:

means to provide additional support for said cutting end of said insert along a longitudinal surface of said insert shank 180 degrees from said cutting disc, said means being an adjacent mass extending the length of the stud cutter shank that is exposed beyond the face of the drag bit to such an extend that provides up to an equal width over length of said stud cutter when viewed 90 degrees from said cutter, said means to support said insert shank is a second stud body inserted in insert holes formed in said face adjacent to said stud cutter insert holes, a surface of said second stud body connects to said surface of said cylindrical diamond stud cutter.

5,213,172

CLIMBING ROBOT, MOVABLE ALONG A TRESTLE STRUCTURE, PARTICULARLY OF A POLE FOR HIGH-VOLTAGE OVERHEAD ELECTRIC LINES

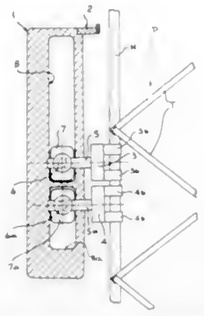
Luigi Paris, P.zza di Spagna, 81, 00161 Roma, Italy

Filed Jun. 18, 1990, Ser. No. 539,864
Int. Cl.[5] B66C *3/00;* E04G *3/14*
U.S. Cl. 180—8.1 14 Claims

1. A climbing robot, movable along a trestle structure, particularly the trestle structure of a pole for high-voltage overhead electric lines, said pole having a plurality of angle bars forming uprights of changing inclination and also forming ledgers at varying mutual distances, said robot comprising:

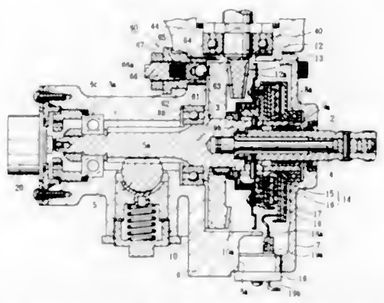
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a main body;
a main slide movable along the main body;
a first gripping hand carried by the main body;
a second gripping hand carried by the main slide;
clamping finger means, attached to the first and second gripping hands, for gripping one of the plurality of angle bars forming the uprights and the ledgers; and



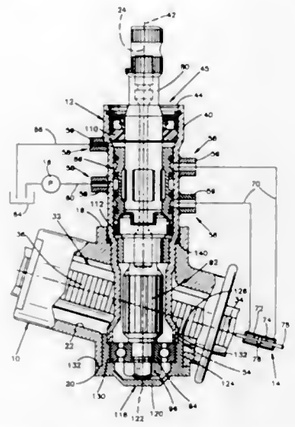
at least one position sensor means, connected to the main body, for acquiring data about the changing inclination of the uprights and also about the varying mutual distances between the ledgers,
whereby the robot climbs up and down over obstacles formed by the changing inclination of the uprights and by the varying mutual distances between the ledgers.

5,213,173
ELECTRIC POWER STEERING APPARATUS
Hideo Konishi, and Hiroshi Nishikiori, both of Saitama, Japan, assignors to Jidosha Kiki Co., Ltd., Tokyo, Japan
Filed Oct. 18, 1991, Ser. No. 781,045
Claims priority, application Japan, Oct. 26, 1990, 2-287222
Int. Cl.[5] B62D 5/04
U.S. Cl. 180—79.1 6 Claims



1. An electric power steering apparatus which comprises a gear wheel on a driven side having a gear portion on one side surface thereof on a steering shaft and a pinion to be meshed with a gear portion of said gear wheel on a shaft capable of transmitting a rotational driving force from an electric motor, and in which said gear wheel and pinion constitute a gear mechanism for transmitting a rotational force as a gear pair with non-parallel, non-intersecting axes,
wherein said gear wheel is axially supported on said steering shaft so as to be coupled in only a rotational direction and movable in an axial direction of said shaft, and
biasing means is provided at a position on the other side of said gear wheel opposite to said pinion, said position being at a location opposing a meshed portion of said gear wheel and said pinion, so that said biasing means urges the other side of the gear wheel only toward the meshed portion of said gear wheel and said pinion.

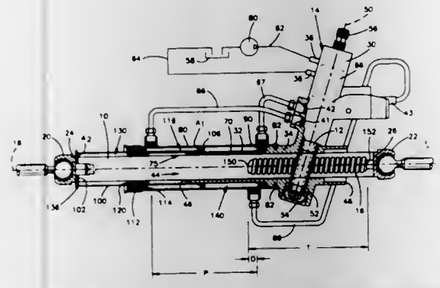
5,213,174
POWER STEERING ASSEMBLY
Charles E. Adams, Knoxville, Tenn., assignor to TRW Inc., Lyndhurst, Ohio
Filed Apr. 22, 1991, Ser. No. 689,009
Int. Cl.[5] B62D 5/06
U.S. Cl. 180—147 13 Claims



1. A hydraulic power rack and pinion steering assembly comprising:
an elongate rack and a rotatable pinion having meshing teeth;
a hydraulic cylinder for moving said rack longitudinally;
a hydraulic fluid control valve for controlling pressurized hydraulic fluid flow to said hydraulic cylinder;
a first housing in which said rack is supported for longitudinal movement;
a second housing in which said hydraulic fluid control valve is located; and
fastening means including a cap threaded on one of said first and second housings and engageable with the other of said first and second housings for moving said first and second housings together into an assembled relationship upon rotation of said cap.

5,213,175
REDUCED LENGTH RACK AND PINION STEERING ASSEMBLY
Robert E. Feindel, Sterling Heights, Mich., assignor to TRW Inc., Lyndhurst, Ohio
Filed May 20, 1991, Ser. No. 703,206
Int. Cl.[5] B62D 5/10
U.S. Cl. 180—148 6 Claims

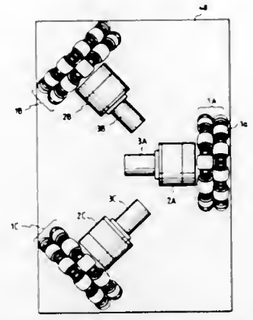
1. A hydraulic rack and pinion steering assembly comprising:
a housing;
a pinion supported for rotation in said housing;
an inner sleeve connected to said housing;
an outer sleeve connected to said housing, said outer sleeve extending over said inner sleeve;
a piston tube supported for telescopic movement between said inner and outer sleeves;
an elongate rack bar having rack teeth in meshing engagement with said pinion, said rack bar extending through said inner sleeve and into said piston tube, said rack bar being connected to said piston tube to move with said piston tube relative to said inner and outer sleeves;
a first variable volume hydraulic fluid chamber in said outer sleeve;
a first piston surface means located in said first chamber, said first piston surface means being movable under the influence of hydraulic fluid pressure in said first chamber and being connected with said piston tube for said piston tube to move with said first piston surface means;
a second variable volume hydraulic fluid chamber in said piston tube;



a second piston surface means located in said second chamber, said second piston surface means being movable under the influence of hydraulic fluid pressure in said second chamber and being connected with said piston tube for said piston tube to move with said second piston surface means;
said piston tube having an axis, said first chamber extending radially from said piston tube to said outer sleeve, said second chamber extending radially from said piston tube to said rack bar; and
an inner seal fixed to said inner sleeve, said second chamber extending axially from said inner seal in a direction away from said first piston surface means.

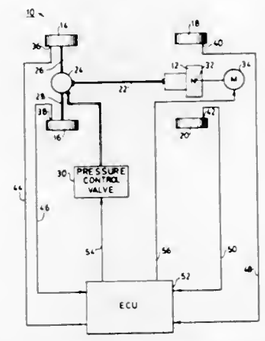
5,213,176
SELF-PROPELLED VEHICLE
Noriyuki Oroku; Takamichi Suzuki; Toyohide Hamada; Minoru Ikeda, all of Yokohama; Hiroshi Kikuchi, Hiratsuka; Masayasu Akaiwa; Isao Takahashi, both of Yokohama; Naoki Takehara, Fujisawa, and Kazumi Adachi, Fuchu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Dec. 7, 1990, Ser. No. 624,052
Claims priority, application Japan, Dec. 8, 1989, 1-317471; Mar. 28, 1990, 2-76870; Jul. 11, 1990, 2-181449
Int. Cl.[5] B62D 6/06
U.S. Cl. 180—168 10 Claims

1. A self-propelled vehicle comprising:
at least three wheels for driving the vehicle, each wheel including at least one shaft extending in a tangential direction of an outer circumferential surface of the wheel, and roller means rotatable mounted for rotation about the at least one shaft so that the wheel is movable at least in a rotational direction of the wheel and a rotational direction of the roller means;
means for mounting the at least three wheels with respect to a chassis of the vehicle in directions so that the rotary axes of the wheels are in a nonparallel relationship, the chassis having a major rectangular shape with a pair of sides and a minor sides, the major axis being longer than the minor sides, one of the wheels being mounted at the center point of one of the major sides and the two remaining wheels being mounted at opposite ends of the other one of the major sides, and
motor means for driving respective ones of the at least three wheels, and control means for controlling the motor means, the control means including means for detecting a lateral deviation of the vehicle with respect to the travelling direction of the vehicle and an angular deviation of the travelling direction with respect to a guidance target, means for evaluating a predetermined determinant in accordance with the travelling direction of the vehicle



together with a desired travelling speed, means for estimating circumferential speeds of the at least three wheels in accordance with the results of evaluating the determinant, and rotational speed means for controlling the rotational speed of the motor means for the at least three wheels in accordance therewith.

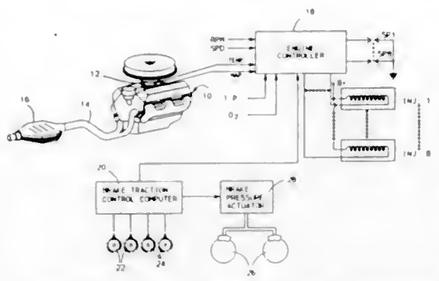
5,213,177
TRACTION CONTROL SYSTEM RESPONSIVE TO WHEEL SPEED FLUCTUATIONS
Kenneth A. May, Churchville, N.Y., assignor to Zexel-Gleason USA, Inc., Rochester, N.Y.
Filed Dec. 19, 1991, Ser. No. 810,393
Int. Cl.[5] B60K 28/16; B60L 3/10
U.S. Cl. 180—197 35 Claims



1. A method of controlling wheel slip by drive wheels of a motor vehicle having a drive train connecting an engine to the drive wheels including the steps of:
monitoring the drive train for a pronounced vibration induced by a slipping drive wheel;
measuring a duration of the pronounced vibration;
restricting differentiation between the drive wheels as a function of a measured duration of the vibration; and
reducing engine output power to the drive train as a function of a difference between the measured duration of the vibration and a threshold duration.

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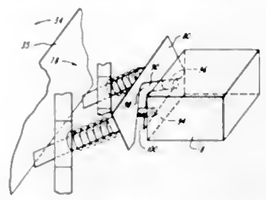
5,213,178
TRACTION CONTROL SYSTEM WITH FUEL AND SPARK CONTROL
Jeffrey M. Polidan, Fenton, and Donald W. Harnack, Dearborn, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Apr. 21, 1992, Ser. No. 871,528
Int. Cl.[5] B60K *28/16*
U.S. Cl. 180—197 3 Claims



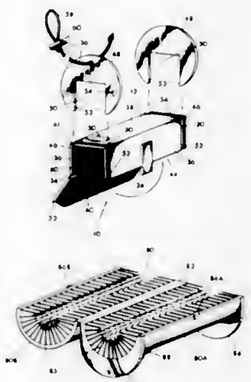
1. A method of traction control for a vehicle having wheels driven by an engine having fuel injectors delivering fuel to cylinders of the engine and having an ignition system adapted to initiate combustion in each of the cylinders in timed relation to engine rotation in accordance with a spark timing value, the method comprising the steps of:
sensing an acceleration spin condition of the wheels;
determining an engine torque reduction amount as a predetermined function of the acceleration spin condition;
adjusting the spark timing value in response to a determined engine torque reduction amount (A) in a direction effecting a reduction in the engine torque output and (B) by an amount resulting in an engine torque reduction that is a predetermined amount less than a torque reduction amount resulting from disabling a single one of the fuel injectors;
when the determined engine torque reduction amount exceeds the engine torque reduction achieved by the step of adjusting the spark timing value, determining a number of injectors to be disabled from injecting fuel to achieve the determined torque reduction amount; and
disabling the determined number of injectors to inhibit delivery of fuel to the respective cylinders, whereby the step of adjusting the spark timing value provides for control of engine torque output when the determined engine torque reduction amount is less than the torque reduction that would result from disabling a single fuel injector.

5,213,179
ENGINE MOUNTING SYSTEM
Dan Goor, Colorado Springs, Colo., assignor to Goor Associates, Inc., Colorado Springs, Colo.
Continuation-in-part of Ser. No. 727,891, Jul. 10, 1991, Pat. No. 5,178,230, which is a continuation-in-part of Ser. No. 630,172, Dec. 19, 1990, Pat. No. 5,076,389. This application Feb. 7, 1992, Ser. No. 832,365
Int. Cl.[5] B60K *5/00*; B62D *21/15*
U.S. Cl. 180—232 8 Claims

1. An engine mounting system for a vehicle having a top, a bottom, a front, a rear, a left side, a right side, an engine and a passenger compartment, for controlling relative motion between said engine and said passenger compartment during a crash, comprising:
a first translation means for directing motion of said engine rearward and downward; and
a second translation means cooperatively mated to said first translation means and to said engine, said second translation means including guiding means for directing motion of said engine upwardly, laterally and downwardly.



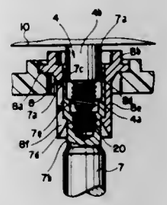
5,213,180
LUBRICANT APPLICATOR FOR DRIVE CHAIN
Steven J. Masonek, 7475 Cana Hwy., Chico, Calif. 95926, and Frederick N. Rabo, 2120 Oro-Chico Hwy., Durham, Calif. 95938
Filed Jul. 2, 1992, Ser. No. 907,623
Int. Cl.[5] F16N *7/16*
U.S. Cl. 184—15.2 1 Claim



1. An applicator for applying lubricant from a hand-holdable container of lubricant through a hose connecting the container of lubricant to said applicator and onto a drive chain, said applicator structured to be temporarily placed around a portion of drive chain on a vehicle and to allow the drive chain to be drawn through said applicator during application of the lubricant,
said applicator comprising,
a main panel having a first surface and an oppositely disposed second surface, said main panel divided into a plurality of connected sub-panels by a plurality of living hinges, said second surface of said main panel having a plurality of extending flexible bristles for distributing and working said lubricant into a drive chain, said main panel inclusive of said living hinges and said bristles formed of plastics and molded integrally with one another, said main panel foldable along said living hinges into an elongated housing to define a chain passageway having two open ends oppositely disposed from one another to allow the placement of said elongated housing around a drive chain with the drive chain passing through said two open ends, said living hinges being structured so as to allow for the folding of said main panel in a manner as to position said bristles within the interior of said elongated housing with said bristles extending into said chain passageway,

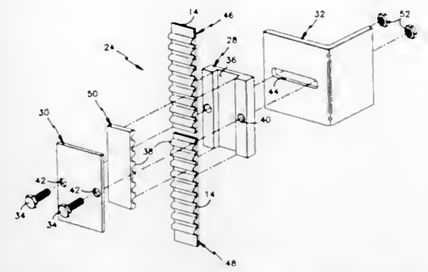
shape retention means for maintaining said main panel folded into said elongated housing,
at least one of said sub-panels structured to serve as an openable door panel so as to allow the placement of said elongated housing around said drive chain,
a latching means cooperative with said door for releasibly maintaining said door in a closed position,
a tubular hose connective means on said first surface of said main panel for allowing connection of a hose from a container of lubricant,
tubular passageway means communicating with said tubular hose connective means through said main panel to said second surface of said main panel and into the interior of said elongated housing for directing lubricant into said chain passageway, said tubular passageway means including two spaced apart dispensing apertures positioned so as to be able to dispense lubricant onto two oppositely disposed side edges of said drive chain so as to provide means for applying lubricant primarily on pivotal connections located on oppositely disposed side edges of the drive chain,
said tubular hose connective means inclusive of said tubular passageway means and said two spaced apart dispensing apertures positioned lengthwise off-center of said elongated housing so as to position said two spaced apart dispensing apertures closer to a first of said two open ends so as to provide means allowing for applying lubricant onto said drive chain and having a substantially increased number of bristles work the lubricant into the drive chain prior to the drive chain exiting said chain passageway as the drive chain is drawn through said chain passageway,
stabilizing means, said stabilizing means connected at one end thereof to said applicator, said stabilizing means including means for readily attaching and detaching a distal portion thereof to a stable member of a vehicle for stabilizing said applicator during use on said drive chain of the vehicle.

5,213,181
WINDER ASSEMBLY HAVING A SPINDLE
Akihiko Isaka, Shimosuwa, Japan, assignor to Sankyo Seiki Mfg. Co., Ltd., Nagano, Japan
Filed Feb. 19, 1992, Ser. No. 838,054
Int. Cl.[5] F03G *1/08*
U.S. Cl. 185—39 10 Claims



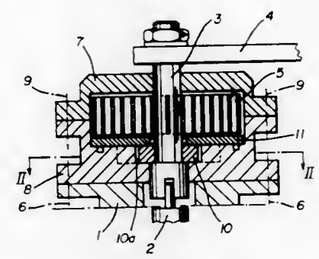
1. A winder assembly comprising:
a spindle provided with a threaded portion;
a winder removably engageable with the threaded portion of said spindle; and
a holder for holding said winder in position when said threaded portion of the spindle and the said winder are disengaged from each other;
said winder being provided with a perforated guide means having a diameter of perforation substantially equal to the diameter of the threaded portion of the spindle.

5,213,182
ELEVATOR DOOR OPERATOR COG BELT LINKAGE
Philippe Guckert, Saint Martin sur Ocre, and Bruno P. Mehlman, Gien, both of France, assignors to Otis Elevator Company, Farmington, Conn.
Filed Nov. 19, 1991, Ser. No. 794,750
Int. Cl.[5] B66B *13/06*
U.S. Cl. 187—56 8 Claims



4. A system for opening and closing an elevator door panel, the system comprising a linkage which attaches a belt to said panel, said system characterized by;
a first portion of said belt, said first portion having a first end and a second end,
a second portion of said belt in register with said first end and with said second end, and
means for clamping said second portion against said first end and said second end of said first portion such that said first portion forms a continuous shape.

5,213,183
CONTROL DEVICE FOR A VALVE WITH A SPIRAL SPRING
Daniel P. Maurer, Vernouillet, France, assignor to Societe Anonyme Mecafrance, France
Filed Nov. 13, 1991, Ser. No. 791,203
Claims priority, application France, Nov. 14, 1990, 90 14136; Oct. 11, 1991, 91 12520
Int. Cl.[5] F16D *57/00*
U.S. Cl. 188—290 17 Claims



1. Control device for a valve, comprising:
a drive shaft adapted to be associated with a stopper;
a spiral spring whose release brings about rotation of said drive shaft; and
a shock absorbing device including a rotating auxiliary shaft which drives a rotating piston positioned in a sealed housing enclosing a viscous fluid, and said sealed housing includes a casing comprising an upper portion and a lower portion, and said lower portion forms a cover for said casing which encloses said spiral spring.

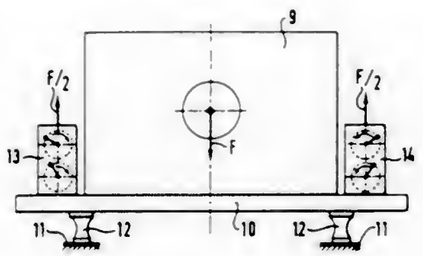
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,184

DEVICE FOR COMPENSATING A VIBRATIONAL FORCE OR TORQUE ACTING ON A BODY

Thierry Legouis, Basse Goulaine; Philippe de Larminat, Rennes, and Michel Guglielmi, Nantes, all of France, assignors to ACB, Paris, France

Filed Mar. 27, 1992, Ser. No. 858,583
Claims priority, application France, Mar. 28, 1991, 91 03771
Int. Cl.[5] F16F 7/10
U.S. Cl. 188—378 2 Claims



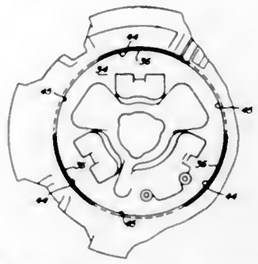
1. Device for compensating a vibrational force F generated by a body, the device comprising four eccentric rotating weights located in a common plane P containing the centre of gravity of said vibrating body, each weight being driven by an electric motor, the rotation axes of the weights being parallel to each other, perpendicular to the plane P and fixed with respect to said body, the four weights comprising a first pair of contrarotating weights whose rotation axes are symmetrical relative to a plane P_1 containing the centre of gravity of said vibrating body and perpendicular to the plane P and a second pair of contrarotating weights whose rotation axes are symmetrical relative to said plane P_1, the four weights rotating at the same angular frequency ω, the weights of the first pair each generating a rotating force F_1 located in the plane P and comprising a sinusoidal unwanted first component about an axis perpendicular to the plane P_1 and a sinusoidal wanted second component about the axis Δ defined by the intersection of the planes P and P_1 coincident with the line of application of the force F, the unwanted components of the rotating forces of said first pair compensating each other out and the wanted components being in phase and of the same amplitude, the weights of the second pair also generating two rotating forces located in said plane P and each having a sinusoidal unwanted first component about an axis perpendicular to the plane P_1 and a sinusoidal wanted second component about said axis Δ, the unwanted components of the rotating forces of said second pair compensating each other out and the wanted components being in phase with each other and of the same amplitude and phase-shifted by an angle 2θ relative to the wanted components of the rotating forces of the first pair, at least one accelerometer on each pair being connected to a real time computer adapted to calculate estimated values of the frequency, amplitude, phase and any variation in frequency by means of a non-linear self-adapting filter and to control the four motors by means of signals produced by angular encoders disposed on each of said motors, in which device said self-adapting filter receives at its input a signal which reconstitutes a signal (F) to be compensated obtained by summing a residual signal ($\epsilon(t)$) and an image signal (F_a) representing the resultant force generated by the weights, said image signal (F_a) is derived from signals from said angular encoders and said non-linear self-adapting filter is a constant gain Kalman filter.

5,213,185

CLUTCH ADJUSTMENT STRUCTURE

Richard A. Flotow, Butler, Ind., assignor to Dana Corporation, Toledo, Ohio

Filed Dec. 27, 1991, Ser. No. 815,300
Int. Cl.[5] F16D 13/75
U.S. Cl. 192—70.25 17 Claims



14. A clutch element comprising:

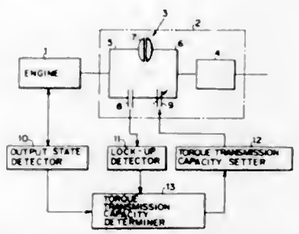
a body having a thread at a peripheral surface, said thread having a plurality of gaps alternating with a plurality of threaded portions, said body being centered on a central axis, and said thread extending from said body at a root, said root being spaced from said axis by a first radial distance, said gaps being formed of peripheral surface portions of said body spaced from said axis by a second distance which is approximately equal to said first distance, and wherein said gaps extending for a circumferential extent greater than 30 degrees.

5,213,186

CONTROL SYSTEM AND METHOD FOR AUTOMATIC TRANSMISSION

Kiyohito Murata, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Nov. 27, 1991, Ser. No. 802,006
Claims priority, application Japan, Nov. 30, 1990, 2-333645; Dec. 10, 1990, 2-409754; Dec. 10, 1990, 2-409755
Int. Cl.[5] F16D 47/06
U.S. Cl. 192—0.052 23 Claims



1. In an automobile transmission connected to an engine and comprising: a fluid coupling for transmitting a torque between an input member and an output member; a lock-up clutch selectively engageable with said input member; and a variable capacity type viscous coupling arranged in series between said lockup clutch and said output member,

a control system comprising:

lock-up detecting means for detecting that said lock-up clutch is engaged;

output state detecting means for detecting an output state of said engine;

torque transmission capacity determining means for determining a torque transmission capacity of said variable capacity type viscous coupling in accordance with the output state of said engine which is detected by said output state detecting means, if said lock-up detecting means detects that said lock-up clutch is engaged; and

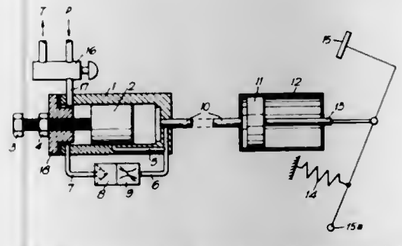
a mechanism for setting the torque transmission capacity of said variable capacity type viscous coupling to said determined torque transmission capacity.

5,213,187

DEVICE RELATING TO A SEMI-AUTOMATIC CLUTCH FOR VEHICLES

John L. Axelsson, Sågarevägen 6,, S-669 00, Deje, Sweden

Filed May 19, 1992, Ser. No. 885,650
Int. Cl.[5] F16D 25/00
U.S. Cl. 192—85 R 10 Claims



1. In an apparatus for semi-automatic engagement and disengagement of a drive clutch in a motor driven vehicle, having an actuating hydraulic cylinder with an actuating piston movable in the cylinder and operably connected to the clutch and a clutch pedal by a piston rod for engagement and disengagement of the clutch, a hydraulic pressure source, and a conduit hydraulically connecting the pressure source and the actuating cylinder for moving the actuating piston and correspondingly the clutch, the improvement comprising:

a hydraulic fluid flow control device disposed in the conduit, said control device having a control means which is movable from a fully engaged position corresponding to a fully engaged clutch position to a first position corresponding to a beginning to engage clutch position and to a second position corresponding to a fully disengaged clutch position such that movement of the actuating piston and clutch is controlled by the movement of the control means and the speed of the control means in moving from the second position to the first position is greater than the speed of the control means in moving from the first position to the fully engaged position.

5,213,188

CLUTCH DISK FOR A MOTOR VEHICLE FRICTION CLUTCH

Erich Feser, Gössenheim; Harald Jeppe, Schwanbergstrabbe, and Matthias Fischer, Eltingshausen, all of Fed. Rep. of Germany, assignors to Fichtel & Sachs, Schweinfurt, Fed. Rep. of Germany

Filed Mar. 5, 1992, Ser. No. 846,676
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1991, 4107126
Int. Cl.[5] F16D 3/66, 13/64
U.S. Cl. 192—106.2 25 Claims

1. A clutch disk for a motor vehicle friction clutch comprising:

a hub which defines an axis of rotation;

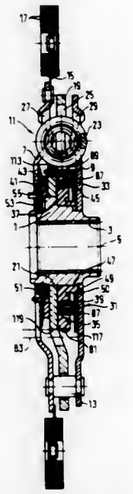
a load torsional vibration damper designed for load running with two lateral disks which are axially spaced from one another, are rigidly connected to one another, and are mounted so as to rotate equi-axially on the hub;

a hub disk which is arranged axially between the lateral disks and is connected non-rotatably but with limited rotational play to the hub;

a plurality of load springs which rest in apertures in the lateral disk and the hub disk, and are distributed in the peripheral direction, are designed for load running;

an idling torsional vibration damper, which is designed for idle running and acts within said limited rotational play coupling the hub disk to the hub, with an input part of plastics material, non-rotatably connected to the hub disk;

an output part non-rotatably connected to the hub and at least one idling spring which couples these parts torsionally elastically to one another, is designed for idle running, wherein a first one of these two parts has a peripherally elongated pocket, which is peripherally limited by end faces, for each idling spring and a second one of these two parts has peripherally spaced axially protruding projections which engage in pairs in each pocket and, together with the end faces, enclose the idling spring between themselves, wherein arc-shaped pocket extensions into which the projections escape during a relative rotation of input part and output part adjoin each pocket on both sides in the peripheral direction, wherein the input part and the output part are arranged radially between the hub and the arrangement region of the load springs and axially



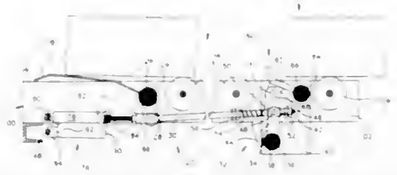
between the hub disk and a first one of the two lateral disks and the output part is located substantially axially between the input part and the hub disk, and wherein the input part forms a plane friction face with which it rests in frictional contact on the first lateral disk and, over a diameter which is greater than the diameter on which the projections are arranged, has a plurality of peripherally mutually offset supporting elements which engage axially in openings in the hub disk for non-rotatable connection of the input part to the hub disk and comprise axial stops resting on the hub disk;

a load friction device designed for load running with an axially acting spring which tensions at least the friction face of the input part and the first lateral disk axially against one another; and

clutch friction linings held on one of the lateral disks, wherein the output part is produced integrally from plastics material, is fixed toward the hub disk on an axial stop of the hub and contains the pockets and wherein the projections are offset peripherally relative to the supporting elements and are shaped integrally on the input part together with the supporting elements.

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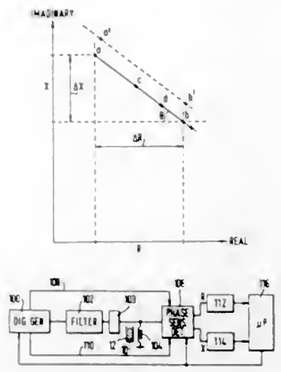
5,213,189
LOAD SEPARATING MECHANISM FOR A ROLLER CONVEYOR
Charles Agnoff, Wilmington, N.C., assignor to Interroll Holding A.G., San Antonio, Switzerland
Filed May 26, 1992, Ser. No. 887,898
Int. Cl.[5] B65G *13/00*
U.S. Cl. 193—35 A 16 Claims



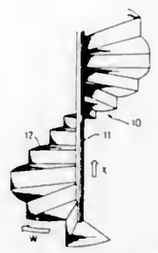
1. A load separating mechanism for a roller conveyor comprising:
(a) an actuating member movably mounted at a discharge point on said conveyor and normally disposed in an extended position in which the actuating member projects into the path of the loads being conveyed, said actuating member being moveable to a retracted position by contact with a first load as the first load reaches the discharge point;
(b) a stop member movably mounted at a load holding point on the conveyor upstream from the discharge point and operatively connected to the actuating member for blocking a second load from being conveyed downstream while the first load is present at the discharge point, said stop means being moveable between a load blocking position when the actuating member is in a retracted position and a load releasing position when the actuating member is in the extended position;
(c) biasing means for urging the actuating member to the extended position when the first load is removed from the discharge point; and
(d) delay means for delaying the actuating member from returning to the extended position for a predetermined period after the first load is removed from the discharge point.

5,213,190
METHOD AND APPARATUS FOR TESTING COINS
David M. Furneaux, Berkshire; Timothy P. Waite, Surrey; John W. Bailey, Berkshire; Alan Ralph, Hampshire; Michael Chittleborough, Buckinghamshire, all of England, and Cary Sagady, Downingtown, Pa., assignors to Mars Incorporate, McLean, Va.
Filed Apr. 14, 1992, Ser. No. 868,551
Claims priority, application United Kingdom, Apr. 15, 1991, 9107979
Int. Cl.[5] G07D *5/08*
U.S. Cl. 194—317 75 Claims

1. A method of testing a coin in a coin testing mechanism, comprising subjecting a coin inserted into the mechanism to an oscillating field generated by an inductor, measuring the reactance and the loss of the inductor when the coin is in the field, and determining whether the direction in the impedance plane of a displacement line, representing the displacement of a coin-present point which is defined by the measurements, relative to a coin-absent point representing the inductor reactance and loss in the absence of a coin, corresponds to a reference direction in the impedance plane.



5,213,191
VERTICALLY MOVABLE STAIRCASE
Susumu Tahara; Satoshi Nakagawa, and Misayo Nakamura, all of Kadoma, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan
Filed May 22, 1992, Ser. No. 887,047
Int. Cl.[5] B65G *21/18*
U.S. Cl. 198—328 8 Claims

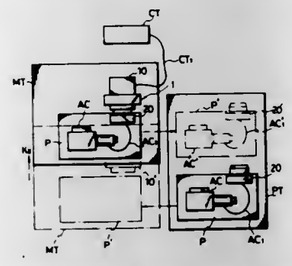


1. A vertically movable staircase comprising a vertical pillar, a plurality of stairway steps secured along a spiral line on the periphery of said vertical pillar, and a driving means including means for vertically moving said pillar and means for axially rotating the pillar.

5,213,192
PALLET CHANGING MECHANISM FOR MACHINE TOOL AND CONNECTOR DEVICE USED THEREFOR
Hisao Kuse, Ishikawa, Japan, assignor to Tsudakoma Kogyo Kabushiki Kaisha, Kanazawa, Japan
Continuation of Ser. No. 507,464, Apr. 11, 1990, Pat. No. 5,161,662. This application Apr. 20, 1992, Ser. No. 871,028
Claims priority, application Japan, Apr. 14, 1989, 1-96065; May 17, 1989, 1-123768
Int. Cl.[5] B65G *15/64, 47/00, 21/20;* B23Q *3/00*
U.S. Cl. 198—345.3 4 Claims

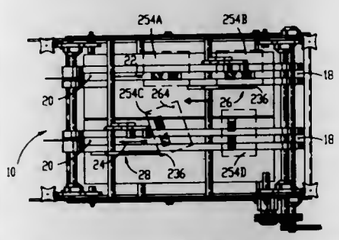
1. A pallet changing mechanism for a machine tool comprising:
pallets which are movable to and from a machining table of the machine tool;
an attachment disposed on each of said pallets;

a pallet transfer device provided on said machine table for moving the pallet; and
a connector device comprising a movable portion and a fixed portion;
wherein:
the movable portion is provided at the machine tool and includes movable couplings which are connected to a control device of the machine tool through control lines;



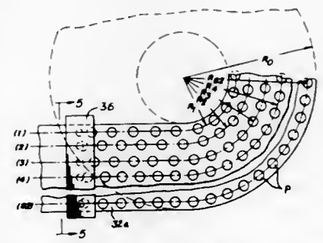
the fixed portion includes fixed couplings which are connected to a drive unit of the attachment through control lines for connection with the movable couplings of the movable portion;
the movable portion is disposed to be movable in a forward and backward direction for engaging and disengaging the movable couplings and the fixed couplings; and
the fixed portion is formed on each of said pallets to be detachable with respect to said movable portion.

5,213,193
DUAL STREAM BOOK PIVOT MACHINE
Scott Mullins, Lee's Summit, Mo., assignor to Unity School of Christianity, Unity Village, Mo.
Filed May 4, 1992, Ser. No. 877,766
Int. Cl.[5] B65G *47/24*
U.S. Cl. 198—416 19 Claims



19. A dual-stream book pivot machine for turning respective first and second books each presenting a normally flat cover about an axis extending substantially perpendicular to the cover, said machine comprising:
a receiving location for receiving the first and second books in a first common orientation;
a delivery location located downstream from said receiving location for delivering said first and second books in a second common orientation angularly displaced from said first orientation;
first advancing means for advancing the first book along a first stream from the receiving location to the delivery location;
second advancing means for advancing the second book along a second stream oriented substantially parallel and adjacent to said first stream from the receiving location to the delivery location in side-by-side relationship to the first book; and
first and second abutment means respectively positioned along said first and second streams intermediate said receiving location and said delivery location and off-center relative to each respective stream for engaging the respective books and causing the respective first and second books to pivot about said axis from said first common orientation at said receiving location to said second common orientation at said delivery location.

5,213,194
METHOD AND APPARATUS FOR LOADING A COLLAPSIBLE CONVEYOR BELT SYSTEM
Fred L. Wietersen, Maple Glen, Pa., assignor to Proctor & Schwartz, Horsham, Pa.
Filed Jun. 30, 1992, Ser. No. 906,660
Int. Cl.[5] B65G *47/26*
U.S. Cl. 198—434 16 Claims



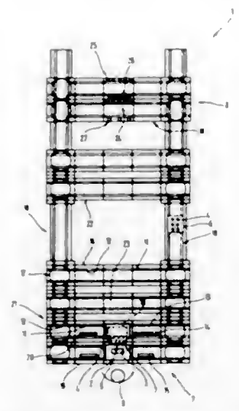
1. In a belt conveyor system for advancing articles on a collapsible belt, the belt having a laterally curved path, the improvement comprising:
loading means disposed upstream of the curved path for arranging the articles on the belt at preselected lengthwise intervals for causing the articles to be placed in equal intervals as the articles move through the curved path.

5,213,195
ASSEMBLY LINE
Walter Sticht, Karl-Heinrich-Waggerl-Str. 8, A-4800 Attnang-Puchheim, Austria
Division of Ser. No. 490,489, Mar. 8, 1990, Pat. No. 5,103,964.
This application Feb. 10, 1992, Ser. No. 833,312
Claims priority, application Austria, Mar. 8, 1989, 531/89
Int. Cl.[5] B65G *37/00*
U.S. Cl. 198—465.2 4 Claims

1. An installation for processing or assembling components, which comprises a succession of transport and work stations, each station comprising a housing member including a rectangular lower base frame, a rectangular upper base frame and a table plate mounted on the upper base frame, the table plate of at least one of the housing members supporting a straight conveying track for a workpiece carrier carrying the components and the table plate of at least one of the housing members supporting intersecting conveying tracks for the workpiece carrier, the conveying tracks including vertical and lateral guide means for the workpiece carrier, the housing members having the same dimensions in length and width, and the width of each housing member being shorter than the length, a forward feed means for conveying the workpiece carrier along the conveying tracks, the table plate defining a recess receiving the forward feed means, a supporting plate carrying the for-

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ward feed means and affixed to the table plate, and a belt-like drive element for the forward feed means projecting a short distance above the table plate, the distance being no greater than the average thickness of a human finger.

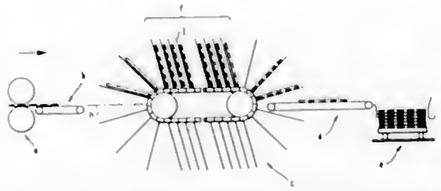


5,213,196

SUPPORT FRAME FOR A CONTINUOUS CONVEYOR INSTALLATION

Jacques M. E. Wolf, Paris, France, assignor to LTG Lufttechnische Gesellschaft mit beschränkter Haftung, Stuttgart, Fed. Rep. of Germany

Continuatinn-in-part of Ser. No. 629,589, Dec. 18, 1990, abandoned. This application Feb. 12, 1992, Ser. No. 835,020
Claims priority, application France, Dec. 18, 1989, 89 16693
Int. Cl.[5] B65G *47/248*
U.S. Cl. 198—484.1 2 Claims



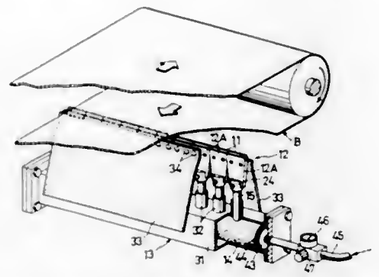
1. A support member for a continuous conveying installation for conveying plate-shaped and bendable objects, the conveying installation having a longitudinal axis, the conveying installation receiving the plate-shaped objects with each plate-shaped object and the support member being in an essentially horizontal position and conveying the plate-shaped objects in direction of the longitudinal axis in an upright position, the support member defining a surface, the surface of the support member being shaped such that, when the support member is in an essentially horizontal position, a plate-shaped object placed on the surface of the support member is bent downwardly due to gravity about an axis located in a vertical plane extending in direction of the longitudinal axis of the conveying installation, whereby, when the plate-shaped object is moved into the upright position prior to and during conveyance, the plate-shaped object is prevented from being bent about an axis which extends approximately perpendicularly to the vertical plane extending in axial direction of the conveying installation; the support member comprising a plurality of shaped metal wires which are connected to each other, the metal wires being arranged in two planes, the metal wires of the two planes being connected to each other by means of trapezoidal sections, so that the surface of the support member has a bent shape for bending the plate-shaped objects.

5,213,197

BELT CLEANER FOR CONVEYOR

Toyoshige Mohri, Osaka, Japan, assignor to Horyo Corporation, Osaka, Japan

Filed Dec. 14, 1991, Ser. No. 791,669
Claims priority, application Japan, Nov. 15, 1990, 2-311001; Dec. 25, 1990, 2-405970; Mar. 22, 1991, 3-59106
Int. Cl.[5] B65G *45/16*
U.S. Cl. 198—499 15 Claims



1. A belt cleaner for a belt conveyor comprising:

a vertical blade member having at its upper end a scraper blade to be pressed against the lower surface of a belt at a starting end of a return path of travel of the belt, wherein the blade member comprises a plurality of divided pieces arranged in contact with one another;

means for holding the blade member upwardly and downwardly movably;

means for applying pressure to the blade member held by the holding means, the pressure applying means having a hollow elastic body; and

means for supplying a pressure fluid to the interior of the elastic body under variable pressure;

wherein each of the divided pieces of the blade member has a lower end connected to the upper end of at least one vertical rodlike shank, and the holding means has a horizontal tubular casing disposed under the blade member, and upwardly projecting vertical tubular guides of circular cross section formed on the top of the casing in communication with the interior of the casing and equal in number to the number of the shanks, the guides having the respective shanks fitted therein, the elastic body comprising a horizontal rubber tube closed at opposite ends and housed in the casing for supporting the lower ends of the shanks.

5,213,198

RECIRCULATING TRANSFER MECHANISM

Lloyd Kovacs, Sheboygan, Wis., assignor to Hayssen Manufacturing Company, Sheboygan, Wis.

Filed Apr. 20, 1992, Ser. No. 870,936
Int. Cl.[5] B65G *19/00*
U.S. Cl. 198—728 21 Claims

1. A recirculating apparatus for transfer of objects from a first position to a second position, comprising

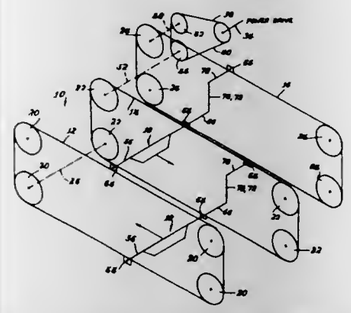
a. a pair of spaced, substantially identical endless first and second conveying devices,

b. means for driving said first and second conveying devices in unison,

c. a plurality of spaced conveying flights located between said first and second conveying devices, said flights being connected to and travelling with said conveying devices,

d. a third endless conveying device being located at one side of one of said first and second conveying devices, said third conveying device being substantially identical to said first and second conveying devices, and said third conveying device being offset relative to said one conveying device,

e. means for driving said third conveying device in unison with said first and second conveying devices, and



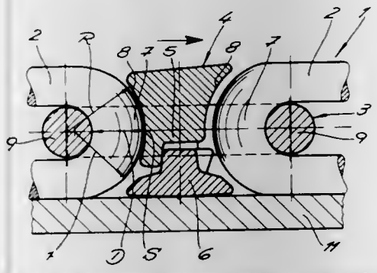
f. an alignment coupling interconnecting said third conveying device and each said flight, said coupling having a leg extending between said third conveying device and said flight, said leg being rigidly connected to said flight to prevent rotation of said flight relative to said leg.

5,213,199

CHAIN ARRANGEMENT FOR DRAG-CHAIN CONVEYORS

Gert Braun, and Ernst Braun, both of Essen, Fed. Rep. of Germany, assignors to Halbach and Braun Industrieanlagen, Wuppertal, Fed. Rep. of Germany

Filed Jan. 16, 1991, Ser. No. 641,931
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1990, 4007685
Int. Cl.[5] B65G *19/24*
U.S. Cl. 198—731 2 Claims



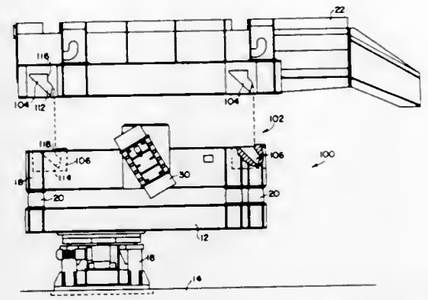
1. A chain arrangement for drag-chain conveyors, the chain arrangement comprising a round-link chain with vertical chain links and horizontal chain links and pushers fastened to the horizontal chain links, the pushers being spaced apart at predetermined distances, the pushers having pusher projections which engage into the horizontal chain links, the vertical and horizontal chain links having chain link arc members, the chain link arc members of the vertical chain links including an apex portion, the apex portion having a constant diameter, the pusher projections having on both sides thereof a spherically-shaped recess for the chain link arc members of adjacent vertical chain links, the spherically-shaped recesses having an inner diameter, the chain link arc members of the vertical chain links having an outer radius which is smaller than the inner radius of the spherically-shaped recesses of the pusher projections.

5,213,200

VIBRATORY FLOW FEED CONVEYOR WITH REMOVABLE PAN

Oleg S. Fishman, Maple Glen, Pa.; Allan J. Jacks, Woodbury, N.J.; Robert T. Pipltone, Mount Laurel, N.J., and David L. Remalia, Marlton, N.J., assignors to Inductotherm Corp., Rancocas, N.J.

Filed Mar. 25, 1992, Ser. No. 857,051
Int. Cl.[5] B65G *27/08*
U.S. Cl. 198—763 8 Claims



1. A vibratory flow feed conveyor having a removable conveyor pan, comprising

(a) base means mounted on a supporting surface,

(b) vibrator frame means fixed to said base means for oscillatory movement with respect thereto,

(c) conveyor pan means mountable on said vibrator frame means,

(d) connecting means on said conveyor pan means and cooperating mating connector means on said vibrator frame means for removably attaching said conveyor pan means to said vibrator frame means, wherein said connecting means and said mating connector means comprise respective male and female connector members disposed at an acute angle to a horizontal axis of said conveyor, and

(e) vibrator means operatively associated with said vibrator frame means for imparting said oscillatory movement to said vibrator frame means and to said conveyor pan means through said connecting means and said mating connector means.

5,213,201

ELECTRONIC CONTROL ASSEMBLY FOR DRIVE ROLLER UNITS

Thomas Huber, Iffeldorf, and Peter Sütsch, Feldgeding, both of Fed. Rep. of Germany, assignors to Bavaria Cargo Technologie GmbH, Fed. Rep. of Germany

Filed Jan. 30, 1992, Ser. No. 828,274
Claims priority, application Fed. Rep. of Germany, Jan. 31, 1991, 4102903
Int. Cl.[5] B65G *13/06*
U.S. Cl. 198—781 6 Claims

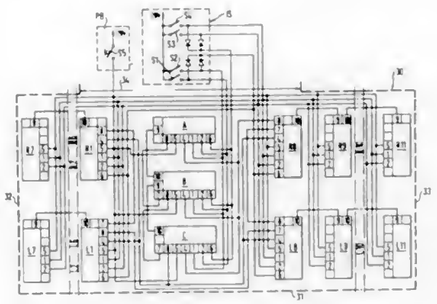
1. A control assembly for drive roller units (A, B, C; R1-R11, L1-L11) which are arranged in a distributed array over a conveyor surface (30) in a freight loading system and each of which is provided with an electric motor (57) for the drive thereof, wherein:

an electronic control arrangement (40) is operatively associated with each drive roller unit (A, B, C; R1-R11, L1-L11);

each control arrangement (40) has sensor means (43, 52) for detecting at least one operating parameter characterizing an instantaneous operating condition of the associated drive roller unit, said sensor means (43, 52) including a current sensor (43) for detecting the instantaneous current of the motor (57) of the associated drive roller unit (40);

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each control arrangement (40) includes means for forming information signals for the control arrangements (40) of other drive roller units from signals outputted by said sensor means (43, 52) and for passing said information signals to said other control arrangements (40), said means for forming information signals comprising means for processing the output signals of the current sensor (43) to provide an information signal for an operating condition "off" when no current is flowing, an information signal for an operating condition "without load" at a current of a predetermined first strength, an information signal for an operating condition "normal load" at a current of a predetermined second strength, and an information signal for an operating condition "enforced stoppage" at a current of a



third strength which occurs when the electric motor (57) is braked to a standstill by an excessive loading on the drive roller unit;

each control arrangement (40) further includes means for receiving corresponding information signals about the respective operating conditions of other drive roller units, which signals are transmitted from said other control arrangements (40) of said other drive roller units to the first-mentioned control arrangement (40); and

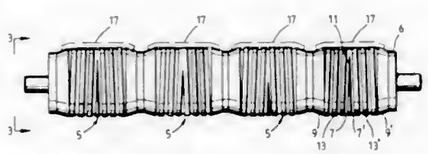
each electronic control arrangement (40), on the basis of the information signals passed to it about the respective operating condition of the drive roller units, accepts or suppresses control signals which are fed thereto by external control members (JS, PB).

5,213,202

HELICALLY GROOVED CONVEYOR PULLEY FOR USE IN BELTED CONVEYOR SYSTEMS

D. Brink Arnold, Anthony, Kans., assignor to Morrison Marketing, Inc., Anthony, Kans.

Filed Oct. 7, 1991, Ser. No. 771,545
Int. Cl.[5] B65G *23/04*
U.S. Cl. 198—835 17 Claims



1. A conveyor pulley for use in belted conveyor systems, comprising:

a roll core; and

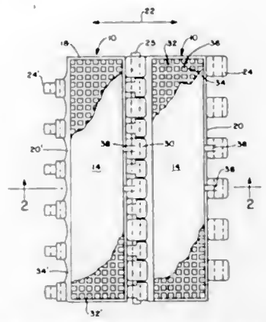
a lagging material affixed to said roll core, said lagging material having an outer surface and at least one drive surface formed therein, said drive surface comprising opposed helical grooves formed in said lagging material thereby establishing lands on the outer surface of said lagging material adjacent said grooves, said lands being at least as wide as said grooves.

5,213,203

ENDLESS CONVEYOR SYSTEM

D. Brooke Kinney, 355 Prospect Bay Dr., West Grasonville, Md. 21638, and Douglas S. Kinney, 719 Carlise Dr., Arnold, Md. 21012

Filed Jun. 16, 1992, Ser. No. 899,494
Int. Cl.[5] B65G *17/06*
U.S. Cl. 198—850 4 Claims



1. An endless conveyor system having improved engagement between at least one sprocket having a plurality of flat-topped teeth and an endless belt which is formed from a plurality of generally flat load-bearing tabular rectangular modules disposed in transverse rows along the belt with the longer sides of each said module positioned transverse to the direction of motion of the endless belt, said modules being hingedly connected to and extending between spaced rods, which pass through co-axial, equally-spaced eye portions projecting from the longer sides of said modules, the endless belt having a first load-bearing surface and an opposing sprocket-engaging surface, wherein the improvement comprises:

a.) at least two outwardly extending bosses on each said module, one said boss on each of at least one pair of adjacent said eye portions on one said longer side;

b.) a flange extending outwardly from the sprocket-engaging surface along each said longer side of each said module;

c.) an outwardly open arcuate valley between each tooth on each said sprocket; and

d.) a transverse channel at the top of each of the two faces of each tooth of each said sprocket, effectively providing each said tooth with a pair of shoulder portions separated by a head portion; and

wherein the flanges and bosses on said sprocket-engaging surface of the endless belt essentially form a rectangular pocket within which the head and shoulders portions of the flat-topped tooth of the sprocket are effectively engaged to prevent wobble of the sprocket in driving the endless belt.

5,213,204

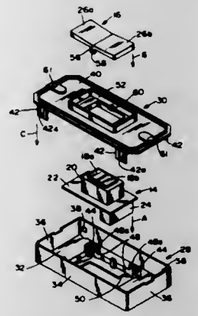
ROCKER SWITCH

Edward S. Sommer, Addison, Ill., assignor to Molex Incorporated, Lisle, Ill.

Filed Nov. 18, 1991, Ser. No. 793,752
Int. Cl.[5] H01H *9/02*
U.S. Cl. 200—303 9 Claims

1. In an electrical switch assembly which includes a self-contained switch unit having a pair of depressible operators, and a rocker actuator rockably mounted about a rotational axis overlying the switch unit with wing portions disposed on opposite sides of the rotational axis for alternatingly engaging the depressible operators, the improvement comprising a two-part

housing including a base part and a cover part, the base part having receptacle means including switch snap latch means for mounting the self-contained switch unit on the base part of the



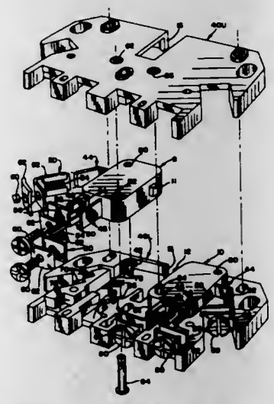
two part housing, the cover part having mounting means for rockably mounting the rocker actuator, and the two parts having complementary interengaging latch means for snapping the parts into latched interengagement.

5,213,205

SWITCH ENCLOSURE

William Laubach, Elk Grove Village, and Scott Robillard, Aurora, both of Ill., assignors to Pittway Corporation, Chicago, Ill.

Filed Aug. 11, 1988, Ser. No. 231,231
Int. Cl.[5] H01H *9/02*; H02B *1/08*
U.S. Cl. 200—293 3 Claims



1. An enclosure which is adapted to hold two switches which each have (1) a mechanically actuatable switch plunger and (2) at least one extending space-type terminal engageable with a sleeve of a slipon screw-type adapter terminal that defines a threaded aperture for a terminal clamping screw, said enclosure comprising:

a pair of mating support blocks for holding said switches and adaptor terminals and for providing a protective impact barrier for portions of said switches and adaptor terminals, each said support block including at least one mating surface for mating with a surface of the other support block;

at least one of said support blocks defining two switch cavities spaced apart on either side of a central void which can accommodate therein a movable switch actuating member;

each said switch cavity opening laterally toward the other at said central void whereby each said switch cavity can receive one of said switches with the switch plunger of each switch located at said lateral opening to extend into said central void for being actuated by said actuating member;

said one support block also defining at least two adaptor terminal cavities for each receiving at least a portion of one of said adaptor terminals;

means for retaining said support blocks together around said switches and adaptor terminals when said switches and adaptor terminals are disposed in their respective cavities; and

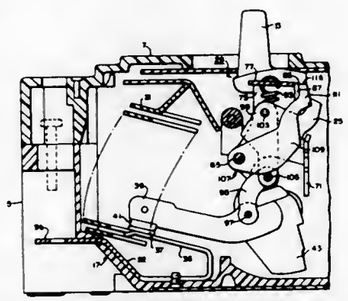
said one support block including adaptor terminal support means for engaging at least a portion of each said adaptor terminal adjacent said threaded aperture to bear at least some of the force loading applied to each said adaptor terminal as one of said screws is screwed into one of said adaptor terminals.

5,213,206

CIRCUIT BREAKER WITH POSITIVE ON/OFF INTERLOCK

Henry R. Beck, Coraopolis, and Charles W. Pipich, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 29, 1991, Ser. No. 706,713
Int. Cl.[5] H01H *5/25*
U.S. Cl. 200—401 4 Claims



1. An electrical circuit breaker comprising:

a housing; a fixed contact mounted within said housing; a movable contact mounted within said housing; said fixed contact being disposed for engaging said movable contact under predetermined conditions, a movable contact arm structure carrying said movable contact and being movable between open and closed positions to open and close said contacts, a latchable cradle, a trip device mechanically interconnected with said latchable cradle for latching said latchable cradle in a latched position and unlatching said latchable cradle in response to predetermined current overload conditions, a toggle device connected to said latchable cradle and said movable contact arm structure and being movable between an erected position which moves said movable contact arm structure to the closed position and a collapsed position which moves said movable contact arm structure to the open position, said toggle device remaining in the erected position when said contacts are welded closed; an operating member incorporating a handle; a spring means connected between said toggle device and said operating member, said spring means biasing said toggle device to the erected position to hold said contact arm structure in the closed position with said latchable cradle latched and said handle in an on

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position, said spring means biasing said toggle device to the collapsed position to move said contact arm structure to the open position when said handle is moved to an off position and when said latchable cradle is unlatched by said trip device, said spring means biasing said handle to a trip position intermediate said on and off positions when said latchable cradle is unlatched by said trip device and said movable contact arm structure is moved to the open position, said latchable cradle being relatched by movement of said handle beyond said off position, and including an interlock member engaging said toggle device and blocking movement of the handle to the off position when said contacts are welded closed and the toggle device remains erected;

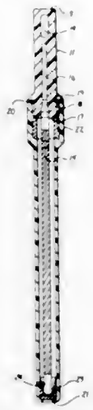
said interlock member is pivoted about a pivot axis and has engagement means spaced from the pivot axis, said toggle device pivoting said interlock member about said pivot axis to position said engagement means to block movement of said handle to the off position when said contacts are welded closed; and

a common pivot pin about which said latchable cradle pivots to latch and unlatch, and wherein said interlock member is also pivoted about said common pivot pin.

5,213,207
CHAIN SAW FILE CASE

Nick Konev, Box 177, Plamondon, Alberta, Canada T0A-2T0

Filed Oct. 3, 1991, Ser. No. 770,443
Int. Cl.[5] B65D *85/20*; B23D *71/10*
U.S. Cl. 206—234 **5 Claims**



1. A chain saw file case, comprising,

a tubular cap, the tubular cap including a cap upper terminal end and a cap torroidal lower terminal end, the cap including a through-extending belt receiving slot directed through the cap adjacent the cap upper terminal end, and

the cap including an externally threaded lower cap portion adjacent the cap lower terminal end, and

an abutment flange diametrically aligned with the cap adjacent the externally threaded surface spaced from the cap lower terminal end, and

a tubular base, the tubular base including a tubular base upper terminal end and a tubular base lower terminal end, the tubular base upper terminal end including an internally threaded surface to threadedly receive the externally threaded surface of the tubular cap, and

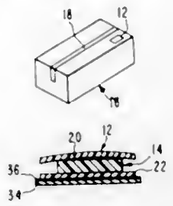
the tubular base including an alignment bushing positioned within the tubular base at a lower terminal end thereof, wherein the alignment bushing includes a truncated conical interior bushing surface, and

a file member, the file member including a file member shank coaxially aligned with and integrally mounted within the tubular cap projecting beyond the cap lower torroidal end and receivable within the alignment bushing when the tubular cap is mounted to the tubular base, and wherein the tubular base, the file member, and the tubular cap are in a coaxially aligned relationship in an assembled configuration.

5,213,208
PACKAGE OPENING DEVICE

Bruce A. Hillestad, 2920 Stevens La., San Jose, Calif. 95148

Filed Mar. 26, 1992, Ser. No. 858,244
Int. Cl.[5] B65D *77/40*
U.S. Cl. 206—349 **14 Claims**



1. A package opening unit comprising:

an envelope having an open end and means for closing said open end;

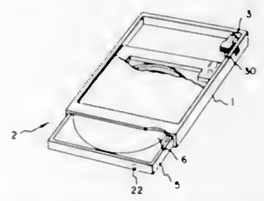
a cutting tool removably placed within the envelope and held therein when the envelope is closed, said envelope having a surface provided with means for attaching the envelope to a package to be opened; and

a layer of adhesive on said surface, and a backing sheet for adhesively covering the adhesive layer on the backing sheet of the envelope to protect the adhesive layer until the envelope is to be attached to a package to be opened.

5,213,209
ONE TOUCH DRAWER TYPE OPENING AND CLOSING DEVICE FOR A COMPACT DISC STORAGE CASE

Jin W. Song, 8-602, Lucky A.P.T, 595-4, Ju-re 1 Dong, Buk-ku, Pusan, Rep. of Korea

Filed Jan. 28, 1992, Ser. No. 826,709
Claims priority, application Rep. of Korea, Mar. 30, 1991, 91-4391
Int. Cl.[5] B65D *85/57*
U.S. Cl. 206—309 **3 Claims**



1. A single touch drawer opening and closing device for a compact disc storage case, said case having a drawer which is inserted at an inserting opening on a front surface of a box-like body, said single touch drawer opening and closing device comprising:

a lock including a key guiding means operated in a one way direction, said lock is provided at an innermost right side of said box-liked body;

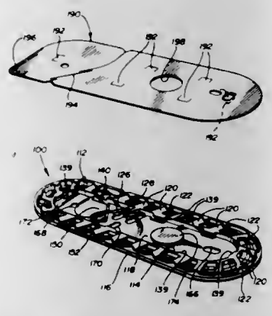
a hooking protrusion located at a front side of a right inner wall of a disc storage space; and

a stepped sill located on said drawer, said stepped sill is located at a recessed bottom surface of said drawer, wherein said drawer is automatically locked when said drawer is closed and is automatically opened when the drawer is released by a single touch, and said stepped sill preventing said drawer from being removed from the case when the drawer is automatically opened.

5,213,210
EASY-LOADING SUTURE PACKAGE

Jack Cascio, Bridgewater; Konstantin Ivanov, Dunellen; Marvin Alpern, Glen Ridge, all of N.J.; Robert Cerwin, Pipersville, Pa.; Joseph Siernos, Whitehouse Station, and Martin Sobel, Flemington, both of N.J., assignors to Ethicon, Inc., Somerville, N.J.

Filed Feb. 28, 1992, Ser. No. 843,651
Int. Cl.[5] A61B *17/06*
U.S. Cl. 206—380 **11 Claims**



1. A package for retaining a wound suture and attached needle comprising:

a) a base,

b) an inner and outer wall on the base, defining a channel for containing the suture, the outer wall being substantially around the periphery of the base and the inner wall having an opening to permit a first end of the suture to emerge from the channel,

c) a plurality of resilient cantilevered retaining fingers nonmovably attached at one end of each said fingers to one of said walls and extending over the channel for preventing the suture from lifting up out of the channel, and

d) a needle park to retain adjacent to the base a needle attached to the first end of the suture.

5,213,211
STACKABLE CONTAINER MADE FROM PLASTIC MATERIAL FOR ACCOMODATING OBJECTS, IN PARTICULAR CANS

Hans Umiker, Egg/SH, Switzerland, assignor to Schoeller-Plast SA

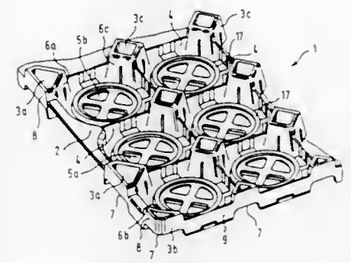
PCT No. PCT/EP91/00835, § 371 Date Dec. 6, 1991, § 102(e) Date Dec. 6, 1991, PCT Pub. No. WO91/17097, PCT Pub. Date Nov. 14, 1991
PCT Filed May 2, 1991, Ser. No. 778,934
Claims priority, application Fed. Rep. of Germany, May 6, 1990, 4014454
Int. Cl.[5] B65D *85/66*
U.S. Cl. 206—392 **9 Claims**

1. A stackable container for transporting and storing objects, such as a plurality of cans, said stackable container having an upper surface for receiving said plurality of cans and a lower surface for nesting with an empty stackable container stacked below said stackable container, said stackable container comprising:

a base, said base defining a plurality of corners and being substantially open between adjacent pairs of said plurality of corners so as to permit access to said plurality of cans received in said upper surface when another said stackable container is stacked upon said stackable container;

compartments for receiving said plurality of cans formed in said upper surface of said base, each adjacent pair of said compartments defining separation planes therebetween, each of said compartments having an annular rib centrally located therein for supporting one of said plurality of cans; and

means projecting from said base for restraining each of said plurality of cans within each of said compartments, said restraining means being located at the intersection of each pair of separation planes so as to form interior restraining means on said upper surface and peripheral restraining means along a periphery of said upper surface, said restraining means also being located at each of said plurality of corners so as to form corner restraining means, each said restraining means projecting from said base a distance less than a height of one of said plurality of cans, each said interior restraining means having a substantially rhombic cross-section, and each said peripheral restraining means and each said corner restraining means having a substantially triangular cross-section, each said restraining means defining a recess open to said lower surface of said base for receiving a corresponding restraining means of said empty stackable container;

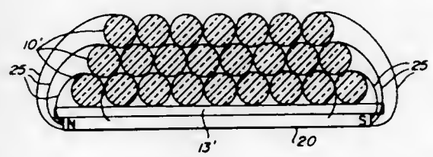


whereby said rhombic cross-section and said triangular cross-section optimize the construction of said stackable container by allowing said plurality of cans to be positioned close together within said stackable container.

5,213,212
MAGNETIC STABILIZATION OF SPOOLED FIBER OPTIC DATA LINKS

Jack E. Holzschuh, Kailua, Hi., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 18, 1989, Ser. No. 353,578
Int. Cl.[5] B65D *85/66*
U.S. Cl. 206—397 **10 Claims**



1. A spooled optical fiber for transmitting optical data through an optical transmitting portion comprising:

means for supporting said optical fiber in a spooled configuration thereon;

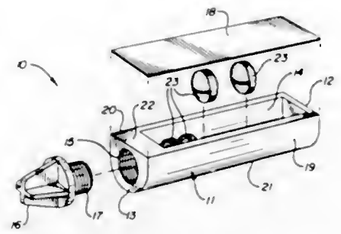
means mounted on said supporting means for inducing a magnetic flux encompassing said spooled configuration of said optical fiber; and

means disposed outside of said optical transmitting portion of said optical fiber for magnetically coupling to said

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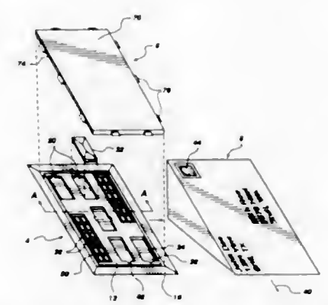
magnetic flux to hold said optical fiber in said spooled configuration.

5,213,213
MEDICATION CONTAINER
Leonid Bunin, Woodbridge, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
Filed Apr. 13, 1992, Ser. No. 867,588
Int. Cl.[5] B65D *83/04*
U.S. Cl. 206—535 2 Claims



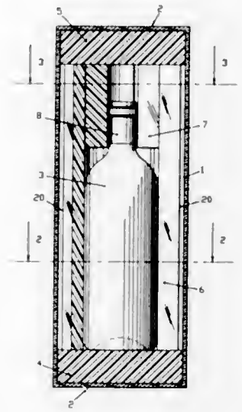
1. A medication container comprising:
(a) an elongated container body having a closed end and an open end, said container body adapted to receive and accommodate unit doses of medication having different sizes and shapes;
(b) a removable closure means to close said open end, said removable closure means having an externally threaded cap member adapted to be threadably screwed into internal threads formed in said open end;
(c) an elongated opening formed in the wall of said container body, said opening being substantially parallel to the longitudinal axis of said container body; and,
(d) cover means to overlay said elongated opening and seal said container.

5,213,214
CONFECTION/GIFT HOLDING AND LID STRUCTURE FOR USE IN ENVELOPES
Richard B. Stringham, 522 E. First South, Salt Lake City, Utah 84102
Filed Sep. 9, 1992, Ser. No. 943,440
Int. Cl.[5] B65D *1/36*
U.S. Cl. 206—564 16 Claims



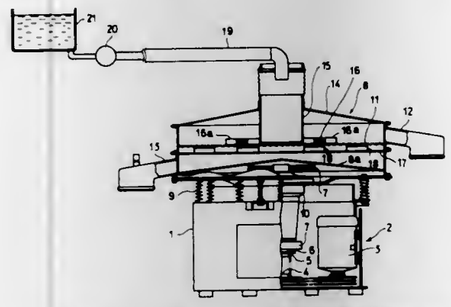
1. A confection/gift holding structure for disposition in envelopes comprising
a base including a generally planar sheet of material having a plurality of relatively shallow recesses formed in one surface thereof to define open receptacles for receiving and holding confections/gifts, and having a channel in said one surface disposed to circumscribe said recesses, said channel having a bottom wall and facing sidewalls, with notches formed in at least one of the sidewalls of the channel, and
a generally flexible planar lid whose perimeter is formed to overlie the channel when the lid is placed on the base, said lid including a lip projecting downwardly from the perimeter to fit in the channel and allow the lid to lie flat on said one surface, said lip including laterally projecting tabs which fit into respective notches in the channel to hold the lid in place on the base.

5,213,215
ADVANCED SHOCK-PROOF PACKING FRAGILE OBJECTS, SUCH AS BOTTLES
Bernard Prevot, Pessac, France, assignor to Societe Anonyme dite Les Isolants Modernes du Sudouest, Cestas, France
Filed Mar. 17, 1992, Ser. No. 852,807
Claims priority, application France, Mar. 22, 1991, 91 03746
Int. Cl.[5] B65D *81/02*
U.S. Cl. 206—588 17 Claims



1. A packing for at least one fragile object, comprising:
a cardboard casing forming a parellelepiped box for enclosing a fragile object and having flanks and end flaps; and
shimming means, for being located between said casing and the fragile object and for encompassing the fragile object, said shimming means including
axial shimming elements adjacent said end flaps,
a first tubular profile of plastic material for enveloping the fragile object over an entire height thereof, said first tubular profile having a slit extending along an entire length thereof and having a substantially constant transverse cross-sectional annular shape along said length, said annular shape including four external, lobe-shaped protuberances defining four longitudinally extending external flanges on said first tubular profile arranged in diametrically opposed pairs corresponding to four internal angles of said box, and a second tubular profiles for enveloping a portion of the fragile object, located inside said first tubular profile, said second tubular profile having a slit extending along an entire length thereof.

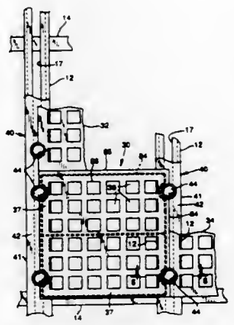
5,213,216
VIBRATORY SIEVE WITH SCREEN AND ANNULAR RING MEMBER THEREON
Atsuo Suehiro, Aichi, and Makoto Shirai, Toyohashi, both of Japan, assignors to Osaka Gas Company Limited, Osaka, Japan
Continuation of Ser. No. 633,934, Dec. 26, 1990, abandoned.
This application Mar. 9, 1992, Ser. No. 847,871
Claims priority, application Japan, Dec. 28, 1989, 1-344382
Int. Cl.[5] B07B *1/00*
U.S. Cl. 209—236 7 Claims



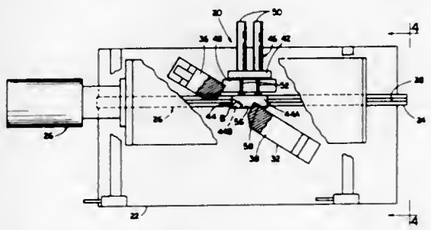
1. A vibratory sieve for separation of fibrous material from materials containing them, the vibratory sieve comprising a sieve body and a means for producing vibration, the sieve body including a screen to be vibrated by the vibration-producing means, the sieve body being adapted to convey a mixture of water and the materials containing the fibrous material onto the screen whereby finer particles and water are passed through meshes of the screen by the vibration of the screen, leaving the fibrous materials on the screen, the vibratory sieve being characterized in that the sieve body is provided with an annular ring member having a circumferentially closed confining wall and a bottom surface which said bottom surface is in uninterrupted circumferential contact with said screen, said annular ring member being substantially hollow inside said confining wall and vertically open adjacent said confining wall, said annular ring member being movable on the screen surface by the vibration of the screen and with means for confining the movement of the annular ring member such that the mixture of the water and the materials containing the fibrous materials is placed inside the annular ring member and the fibrous materials are vibrated by the screen inside of the annular ring member so as to be trapped therein and become bundled together into masses which bundled masses then pass out of said annular ring member by movement over said confining wall.

5,213,217
SCREENING SYSTEM AND METHOD FOR SCREENING PARTICULATE MATERIAL
Zanley F. Galton, 2925 SW. Cantebury La., Portland, Oreg. 97201, and Lynn A. Russell, 52712 Round House La., Scappose, Oreg. 97056
Filed Oct. 25, 1991, Ser. No. 782,431
Int. Cl.[5] B07B *1/49*
U.S. Cl. 209—399 18 Claims

1. A screening system comprising:
a frame for supporting a plurality of screening modules positioned thereon including means defining at least one mounting aperture;
a plurality of screening modules, each screening module having a peripheral sidewall defining a plurality of attachment apertures and including means defining an array of sieve apertures of a predetermined size for allowing particulate material up to the predetermined size to pass through the screening module; and
a lock pin assembly for readily, removably attaching said plurality of screening modules to said frame, said lock pin assembly comprising an elongate connector strip having first and second major opposite surfaces, a plurality of lock pins joined to said first major surface, and means joined to the second major surface for connecting the lock pin assembly to said frame,
said lock pins including means for interlockingly and removably engaging said attachment apertures to maintain the positioning of each screening module on the frame when the lock pin assembly is attached to the frame,
said lock pin assembly remaining connected within at least one mounting aperture of the frame while allowing removal of a screening module from the frame and positioning of a replacement screening module on the frame,
the mounting aperture in the frame comprises a continuous, longitudinally-extending elongate slot, and said means for connecting the lock pin assembly to the frame comprises a continuous, longitudinally-extending elongate flange which is removably attachable within, and detachable from, said slot.



5,213,218
PELLET REJECT APPARATUS AND METHOD
John T. DiGrande, Columbia, and Arlett J. Gallagher, Lexington, both of S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Aug. 5, 1991, Ser. No. 740,564
Int. Cl.[5] B07B *13/00*
U.S. Cl. 209—539 8 Claims



1. A pellet diameter inspection system, comprising:
(a) means for detecting and measuring the outside diameter of pellets, said detecting and measuring means being a laser scanning apparatus including a laser beam light source and receiver disposed on opposite sides of a feed path in a non-orthogonal orientation thereto and being

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operable for respectively emitting and receiving a laser beam emitted across the pellets;

(b) means for transferring pellets end-to-end in a row along said feed path past said detecting and measuring means; and

(c) a pellet reject apparatus operable for removing from the feed path any off-sized diameter pellets detected and measured by said detecting and measuring means, said pellet reject apparatus including

(i) an ejector member having a portion disposed between said light source and said receiver when said ejector member is located at a home position, said portion having a channel permitting unobstructed passage of the laser beam through said ejector member, and

(ii) means for supporting said ejector member along and adjacent to a side of said feed path and for moving said ejector member through an eject stroke across said feed path from said home position to an end position in order to remove pellets from said feed path and through a reverse stroke across said feed path from said end position to said home position.

5,213,219

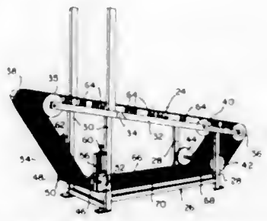
CROP CLEANER AND SEPARATOR

Horace D. Griffin, 7704 Whaleyville Blvd., Suffork, Va. 23438

Filed Apr. 24, 1991, Ser. No. 690,557

Int. Cl.[5] B07B *1/10*

U.S. Cl. 209—307 6 Claims



1. Apparatus for separating debris from food products comprising a housing having a loading hopper, an unloading chute, and an opening for discharge debris, a frame mounted in said housing, a plurality of sprockets mounted on said frame, an endless conveyor supported on said sprockets in an inclined position extending from below said hopper to a position above said unloading chute; said conveyor comprising a pair of endless chains, a plurality of rods extending laterally between said endless chains and supported thereby, means for driving said conveyor, said rods being supported on said endless chains in spaced relationship to form openings there between, a plurality of sleeves adapted to cover said rods so as to vary the size of the openings between said rods, said sleeves being formed of plastic tubing with a slit along the length thereof to facilitate placing the sleeves on said rods.

5,213,220

DISPLAY RACK AND BLANK FOR FORMING SAME

Peter McBride, Orange, Calif., assignor to O'Brien Industries, Inc., Cypress, Calif.

Filed Jun. 3, 1992, Ser. No. 892,586

Int. Cl.[5] A47F *5/00*

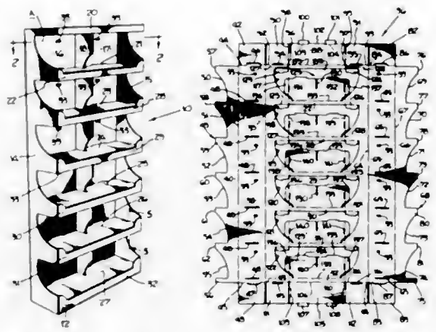
U.S. Cl. 211—132 8 Claims

1. A display rack comprising:

a pair of spaced side walls, a rear wall interconnecting the side walls, a top wall closing off the upper end of said interconnected side walls and rear wall, and a bottom wall closing off the lower end of said interconnected side walls and rear wall;

a plurality of vertically spaced horizontally extending ledges mounted between said side walls;

a vertical partition wall extending vertically upwardly from each of said ledges thereby forming a pair of adjacent compartments; and



display item hanging device aperture means in each of said compartments adapted to receive a display item hanging device therein.

5,213,221

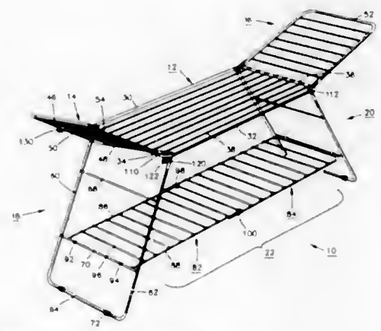
FOLDABLE DRYING RACK

Charles E. T. Raye, Sr., 68 Garden St., Stamford, Conn. 06902, assignor to Charles E. T. Raye, Sr., Research Triangle Park, N.C.

Filed Sep. 5, 1989, Ser. No. 403,191

Int. Cl.[5] A47B *43/00*

U.S. Cl. 211—195 13 Claims



1. A drying rack, comprising:

(a) a midframe having disposed thereacross a plurality of hanging rails;

(b) leg members having upper ends rotatably attached to said midframe, said leg members being rotatable from a folded position to an open position;

(c) flange means fixedly attached to said upper ends of said leg members to engage said midframe, such that said rotation to said open position is terminated by, and said legs are held in said open position by, said engagement when said rack is placed on a supporting surface; and

(d) means to selectively adjust the rotating friction of said leg members, said means to selectively adjust comprising resilient spacers disposed between said upper ends and said midframe, said resilient spacers being adjustably compressable to selectively vary the sliding friction between said upper ends and said midframe;

whereby, said leg members may be placed in said open position and said rack supported by said surface, without the loosening and/or tightening of fasteners.

5,213,222

MOBIL CRANE

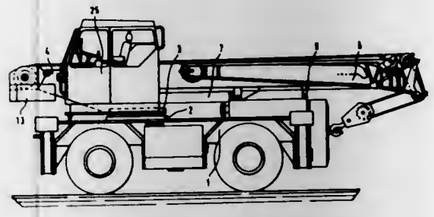
Rudolf Becker, Ehingen Donau, Fed. Rep. of Germany, assignor to Leigherr-Werk Ehingen GmbH, Ehingen Donau, Fed. Rep. of Germany

Filed Feb. 7, 1991, Ser. No. 652,040

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1990, 9001589[U]

Int. Cl.[5] B66C *23/26, 23/44, 23/84*

U.S. Cl. 212—253 4 Claims



1. In a mobile crane, comprising

a chassis, which has at least two axles and on which a revolving superstructure is movably mounted by means of a slewing bearing having an outer ring and an inner ring,

a boom, which is pivoted to the revolving superstructure and which is adapted to be supported on a supporting bracket of the crane in position for road travel, and

a cabin for use during crane and road travel operations,

the improvement wherein a carrying ring is rotatably mounted on a ring of the slewing bearing which is connected to the revolving superstructure, the cabin is secured to said carrying ring, and the cabin can be selectively connected either to the chassis or to the revolving superstructure.

5,213,223

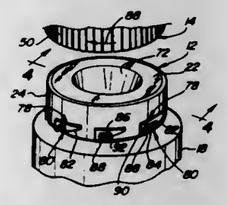
CHILD RESISTANT CLOSURE-ADAPTOR

Jeffrey C. Minnette, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Filed Mar. 23, 1992, Ser. No. 856,380

Int. Cl.[5] B65D *55/02*

U.S. Cl. 215—216 2 Claims



1. The combination of an adaptor and a closure for providing a child resistant feature and a removable closure for a container comprising:

a plastic adaptor molded with precision surfaces including precision closure attachment means of the bayonet type having a recessed ramp lug projecting outwardly from an outer skirt and a precision sealing surface, and further including container engagement means for attachment of said adaptor to the container, and a child resistant locking element;

a plastic closure molded with precision surfaces including precision adaptor attachment means of the bayonet type complementary to said precision closure attachment means on said plastic adaptor having a projection extending radially inward from an outer skirt which engages a recess of said lug and a precision sealing surface complimentary to said adaptor sealing surface, and further including a child resistant locking element complementary to said adaptor child resistant locking element;

the precision sealing surface on at least one of said plastic adaptor and plastic closure is on an axially extending tubular projection; and

wherein said container attachment means provides a permanent attachment of said adaptor to said container, said adaptor and closure precision attachment means provide a resealable connection between the precision sealing surface on the axially extending tubular projection on said at least one of said plastic adaptor and plastic closure and the precision sealing surface on the other of said plastic adaptor and plastic closure, and said adaptor child resistant locking element includes an axially extending surface of said recess and said closure child resistant locking element includes an axially extending surface of said projection which coact to prevent removal of said closure from said adaptor; pushing down and twisting of said closure relative to said adaptor to unlock said child resistant locking elements being required each time said closure is removed from said adaptor.

5,213,224

SNAP-ON, SCREW-OFF CAP AND CONTAINER NECK

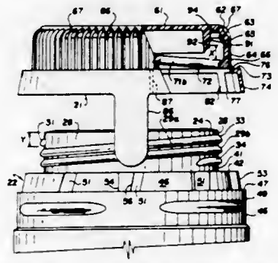
Daniel Luch, Los Gatos, Calif., assignor to Portola Packaging, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 565,638, Aug. 9, 1990, Pat. No. 5,190,178. This application Oct. 8, 1991, Ser. No. 772,945

The portion of the term of this patent subsequent to Mar. 2, 2010, has been disclaimed.

Int. Cl.[5] B65D *39/00*

U.S. Cl. 215—256 38 Claims



1. In combination, a container neck and a container closure,

said neck having an upper opening, a downward extending neck stretch portion below said opening, said neck stretch portion having an exterior, at last one first helical engagement means around said exterior of said neck stretch portion, at least one first tooth on said locking wall portion,

said closure having a top, a downward extending upper skirt portion depending from said top, said upper skirt portion having an interior, at least one second helical engagement means around said interior of said upper skirt portion shaped to mate with said at least one first helical engagement means, a lower skirt portion below said upper skirt portion, frangible means joining said upper and lower skirt portion together, at least one second tooth on said lower skirt portions shaped to engage said at least one first tooth to prevent unscrewing of said closure relative to said neck without breaking said frangible means,

said at least one first and second helical engagement means being shaped to slip over each other upon direct axial downward movement of said closure on said neck without

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relative rotation of said closure and said neck and then to interengage,

said locking wall portion and said lower skirt portion being conical and complementary.

5,213,225

CONTAINER AND CLOSURE

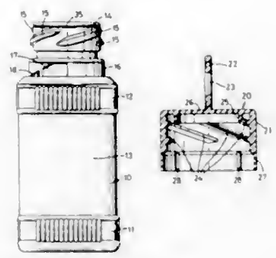
Roger M. King, Bucks; Roger E. Powell, Norfolk, and Rodney G. Offley, Leicestershire, all of England, assignors to Beeson and Sons Limited, United Kingdom

Filed May 29, 1991, Ser. No. 706,891

Claims priority, application United Kingdom, May 30, 1990, 9012041

Int. Cl.[5] B65D *55/02, 41/04*

U.S. Cl. 215—330 35 Claims



1. A container assembly comprising:

a container having a container portion and a container neck extending from said container portion, said container portion having four sides and being of substantially rectangular cross-section and said container neck comprising a first thread;

a container closure having a planar handle portion and a second thread adapted to fit said first thread such that the closure is movable from fully disengaged from the neck to fully closed by turning the closure relative to the neck by no more than 90°;

at least one stop formation carried by said one of the neck and the closure; and

a stop element on said other of the neck and the closure engageable with the at least one stop formation to hold the closure in a closed position on the neck, the arrangement of the at least one stop formation, the stop element and the first and second threads being such that the stop element is rotated past at least one stop formation without engagement therewith when the closure is screwed on to the neck, engagement of the stop element with the at least one stop formation commencing only when the closed position is neared, wherein the first and second threads, the at least one stop formation and the stop element ensure that the handle portion lies parallel to one of the sides of the rectangular cross-section in the closed position.

5,213,226

CONTAINER ASSEMBLY FOR FOOD

Khipra Nichols, Rumford, R.I., assignor to Playskool Baby, Inc., Pawtucket, R.I.

Filed Aug. 30, 1991, Ser. No. 753,397

Int. Cl.[5] B65D *43/26*

U.S. Cl. 220—263 6 Claims

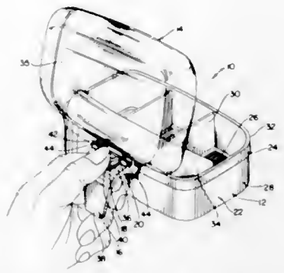
1. A container assembly for foods comprising:

(a) a container portion including a bottom wall and an upstanding sidewall which defines an upper edge of said container portion;

(b) a cover portion hingeably attached to said container portion along a hinge axis located adjacent said upper edge, said cover portion including a top wall and being receivable in a closed position, wherein the latter is received in covering relation on said container portion, and wherein said top wall is substantially parallel to said bottom wall, said cover portion being pivotable to an open position wherein said cover portion is substantially completely removed from above said container portion;

(c) a handle element extending outwardly from said sidewall of said container portion adjacent said hinge axis, said handle element having an opening therein; and

(d) a pivot tab on said cover portion, said pivot tab extending outwardly from said cover portion above said handle element when said cover portion is in the closed position thereof and being oriented so that said pivot tab is manipulatable by a thumb on a hand of a user for moving said cover portion to the open position thereof when the hand



is grasping said handle element, and so that said pivot tab is manipulatable by the thumb on the hand of the user to cause said pivot tab to pass completely through said opening in said handle element without causing the thumb to interfere with the movement of said over portion when said cover portion is pivoted to said open position, said pivot tab extending outwardly from said hinge axis at an outwardly extending angle of between approximately 90° and 180° relative to said bottom wall when said cover portion is in the closed position thereof and extending at least slightly angularly upwardly and outwardly relative to said cover portion when said cover portion is in the closed position thereof and said container assembly is in an upright disposition.

5,213,227

CONTAINER HAVING EXCELLENT PRESERVABILITY FOR CONTENT AND HEAT-SEALABILITY

Masayasu Koyama, Zushi; Toshifumi Tanahashi, Yokohama; Kanemichi Yamaguchi, Yokohama, and Toshio Goryoda, Yokohama, all of Japan, assignors to Toyo Seikan Kaisha Ltd., Tokyo, Japan

PCT No. PCT/JP90/01287, § 371 Date Jun. 4, 1991, § 102(e) Date Jun. 4, 1991, PCT Pub. No. WO91/04913, PCT Pub. Date Apr. 18, 1991

PCT Filed Jun. 4, 1991, Ser. No. 687,874

Claims priority, application Japan, Oct. 4, 1989, 1-116190[U]; Mar. 6, 1990, 2-52675

Int. Cl.[5] B65D *41/00*

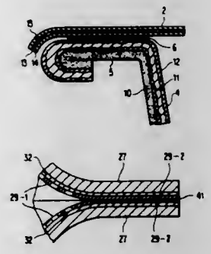
U.S. Cl. 220—359 12 Claims

1. A container having excellent ability for preventing discoloring or degenerating contents of the container, comprising:

a seamless container that comprises a tin plate; a thermoplastic resin film formed on one surface of the tin plate; a resin coating layer in the shape of a doughnut formed on the other surface of the tin plate; a bottom; a side wall; and a flange;

wherein the container is draw-formed so that the resin film is on the outer surface of the container and the resin coating layer is on the inner surface of the container, and the inner surface of the tin plate in the side wall and the flange is covered with the resin coating layer, but the inner surface of the tin plate in the bottom is exposed to the inside of the container;

a flexible closure comprising a laminated material of a gas-barrier substrate; a protecting resin layer covering the



outer surface of the substrate and an acid-modified olefin resin layer covering the inner surface of the substrate; and a sealed portion formed by heat-sealing the acid-modified olefin resin layer of the closure with the resin coating layer of the flange.

5,213,228

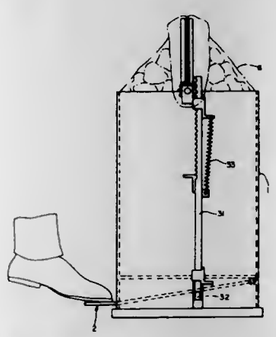
TRASH TANK

Der-Feng Chang, Ping-Tung Hsien, Taiwan, assignor to Chin-Chiao Chou, Ping-Tung Hsien, Taiwan

Filed Oct. 29, 1992, Ser. No. 968,520

Int. Cl.[5] B65D *91/00*

U.S. Cl. 220—404 7 Claims



1. A trash tank comprising:

a tank body having a top open end and a partition provided therein, said partition dividing said tank body into an upper section and lower section, said lower section of said tank body having a vertically extending slot, said upper section adapted to receive a trash bag with a mouth disposed on a periphery of said top open end of said tank body;

an elongated pedal member having a first end pivoted to an internal wall of said lower section of said tank body and a second end extending out of said vertically extending slot of said tank body;

means for clamping detachably said mouth of said trash bag, said clamping means being disposed on said top open end of said tank body;

means for actuating said clamping means by means of pedaling said elongated pedal member, said bag mouth closing upon actuation of said clamping means; and

means for fastening said mouth of said trash bag after said clamping means is detached from said mouth of said trash bag.

5,213,229

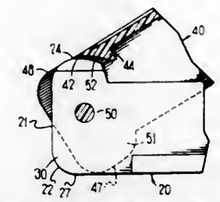
MOTION LIMITING MECHANISM FOR STORAGE CONTAINERS

Yoshihiko Taniyama, 9380 Old Southwick Pass, Alpharetta, Ga. 30202

Filed Nov. 10, 1992, Ser. No. 974,850

Int. Cl.[5] B65D *43/16*

U.S. Cl. 220—4.23 10 Claims



1. In a storage container comprising a lid member, a base member, and a hinge mechanism connecting said lid member to said base member, the improvement comprising:

means for limiting the range of motion of said lid member with respect to said base member, said motion limiting means including a bottom rear corner portion formed as a part of said base member; and

a top rear edge portion formed as a part of said lid member, wherein said bottom rear corner portion engages said top rear edge portion to limit the range of motion of said lid member with respect to said base member.

5,213,230

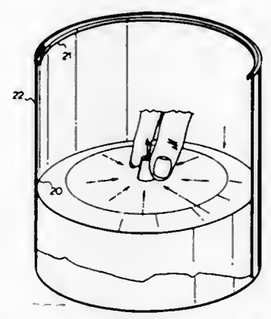
PAINT CAN SEALER

Dean Kral, 419 Pentilly, St. Clair Beach, Ontario, Canada N8N 4L6

Filed Jul. 9, 1992, Ser. No. 910,965

Int. Cl.[5] B65D *25/10, 43/03, 51/16*

U.S. Cl. 220—580 6 Claims



1. A sealing device for sealing a container having a bottom, an interior plan and a closable top, and said container fillable with a liquid content to present an upper surface, said device comprising:

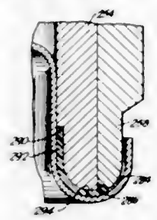
a disc-like member having a central portion and a flexible perimeter and having a centrally located upstanding hollow handle having a purge valve at an upper end thereof, said purge valve comprising integrally formed opposed lip formations, said purge valve having a closed position for preventing egress of air through said hollow handle and an open position to permit free passage of air therethrough, said disc-like member is contoured to correspond with said interior plan of said container, whereby when said device is urged towards said bottom, air trapped therebetween will escape through said purge valve until

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said device is in intimate contact with said surface, and whereby when said device is urged away from said bottom and said valve is in an open position, air will ingress therebetween permitting free removal of said device from said surface.

5,213,231
AEROSOL CONTAINER CLOSURE
Robert H. Abplanalp, Bronxville, and Virgil Naku, Hawthrone, both of N.Y., assignors to Precision Valve Corporation
Continuation of Ser. No. 528,332, May 24, 1990, abandoned, which is a continuation of Ser. No. 418,892, Jun. 29, 1989, abandoned, which is a continuation of Ser. No. 306,285, Feb. 2, 1989, abandoned, which is a continuation of Ser. No. 188,097, Apr. 27, 1988, abandoned, which is a continuation of Ser. No. 85,272, Aug. 10, 1987, abandoned, which is a continuation of Ser. No. 876,284, Jun. 19, 1986, abandoned, which is a continuation of Ser. No. 789,349, Oct. 21, 1985, abandoned, which is a continuation of Ser. No. 606,547, May 3, 1984, abandoned, which is a continuation of Ser. No. 302,442, Sep. 18, 1981, abandoned. This application Feb. 20, 1991, Ser. No. 657,973
Int. Cl.[5] B21H *15/00*
U.S. Cl. 220—614 10 Claims

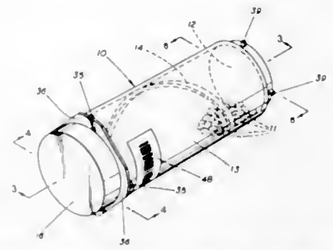




1. In a mass-produced gasketed mounting cup for use as a closure for a pressurized container, the mounting cup having a circular panel, an annular skirt portion depending from the panel, said skirt portion terminating in an annular channel portion designed to seat on a container bead, a substantially uniformly thick band of gasket material friction-fitted to a surface of the skirt portion and extending at least partially into the channel portion of the mounting cup, the gasket material having an inside surface contacting the skirt and channel portions and an outer exposed surface opposite said inner surface, the improvement comprising a means for resisting dislodgement of the gasket material, the means being integral with the gasket material and being located within the annular channel portion of the mounting cup, the means being provided on said outer exposed surface of the gasket material.

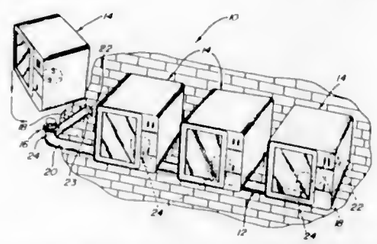
5,213,232
ROTATING APPARATUS FOR DISPENSING SINGLE HOMOGENEOUS UNITS
Thomas L. Kraft; James W. Meador; John F. Berry, and Lisa W. Rogers, all of Houston, Tex., assignors to Owen Healthcare, Inc., Houston, Tex.
Filed Mar. 11, 1992, Ser. No. 849,513
Int. Cl.[5] B65G *59/00*
U.S. Cl. 221—277 30 Claims

1. An apparatus for dispensing single homogeneous units upon rotation of said apparatus comprising;
a generally circular walled container,
a bottom in said generally circular walled container for holding said homogeneous units,
a discharge means located distally from said bottom for receiving homogeneous units and for discharging same, and
a helical member functionally proximate said discharge means and located on said generally circular walled container extending from said bottom of said container and along said generally circular walls of said container for



creating during rotation a continuously variable inclined surface along said helical member and said generally circular walls of said container for advancing single homogeneous units along said helical member and said generally circular walls until a single homogeneous unit reaches said discharge means.

5,213,233
VENDING ASSEMBLY
Norman L. Schmitt, 2731 Thedford Rd., Bloomfield Hills, Mich. 48304
Continuation of Ser. No. 674,867, Mar. 25, 1991, abandoned. This application Jul. 29, 1992, Ser. No. 922,641
Int. Cl.[5] G07F *11/00*
U.S. Cl. 221—130 28 Claims



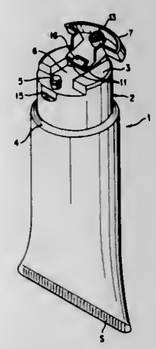
2. A vending assembly for vending at least one paper from at least one publisher, comprising:
a mounting frame providing a plurality of spaced mounting locations;
a plurality of vending boxes each being located at a corresponding one of said mounting locations and spaced from each other, said vending boxes being made of a plastic material; and
means for mounting each one of said vending boxes to each one of said mounting locations;
wherein said mounting means comprises a locking member integral with and extending inwardly into an interior of each of said vending boxes and a receiver member attached to each of said mounting locations, said locking member and said receiver member adapted to cooperate with each other.

5,213,234
MOO CREAM PITCHER
Ioannis Stefanopoulos, 4720 N. 23 St., Arlington, Va. 22207
Filed Nov. 22, 1991, Ser. No. 796,015
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—78 4 Claims



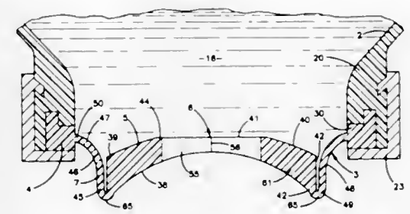
1. A pitcher, in the form of an animal, including a hollow body and an outlet for pouring liquid, the body defining a liquid reservoir with an oval opening at the top of the animal and wherein the body includes a hollow chamber where a gravity activated electronic switch is manually placed said electronic switch moving relative to the hollow chamber for the purpose of producing the sound of an animal when the pitcher is tilted to pour the liquid.

5,213,235
MONOBLOCK PLASTIC TUBE
Renato Miranda, São Paulo, Brazil, assignor to Bunzl Plastics, Inc., Florham Park, N.J.
Filed Aug. 22, 1991, Ser. No. 748,543
Int. Cl.[5] B65D *35/08*
U.S. Cl. 222—107 16 Claims



1. A monoblock tube comprising:
a monoblock body of a substantially cylindrical configuration having an upper part and a lower part, the upper part of the body including a circular area of a smaller diameter than the lower part and concentric therewith, the circular area including a substantially T-shaped recessed portion, the recessed portion including a cap fixture portion located toward a base of the "T" shaped recessed portion and a substantially circular spout non-centrally located in the circular area opposite the cap fixture portion, the spout having a predetermined diameter and being in communication with the lower part of the tube; and
a removable cap comprising a first portion and second portion hingedly connected together by at least one hinge member, the cap being substantially T-shaped to fit within the recessed portion of the circular area, the first portion being releasably attached to the cap fixture portion and the second portion being hingedly movable by the at least one hinge member between an open position spaced away from the recessed portion and a closed position within the said recessed portion to close the spout.

5,213,236
DISPENSING VALVE FOR PACKAGING
Paul E. Brown, Midland, and Timothy R. Socier, Essexville, both of Mich., assignors to Liquid Molding Systems, Inc., Midland, Mich.
Filed Dec. 6, 1991, Ser. No. 804,086
Int. Cl.[5] B67D *5/06*
U.S. Cl. 222—185 64 Claims



1. A dispensing package for fluid products, comprising:
a container shaped to retain a selected fluid product therein, and including a discharge opening;
a dispensing valve for controlling the flow of the fluid product from the container, including:
a marginal valve flange sealing about
the discharge opening of said container;
a valve head having a marginal edge, interior and exterior sides, and an orifice extending therebetween which opens to permit fluid flow therethrough in response to a predetermined discharge pressure within said container, and closes to shut off fluid flow therethrough upon removal of the predetermined discharge pressure;
a connector sleeve having a resiliently flexible construction, with one end thereof connected with said valve flange, and an opposite end thereof connected with said valve head adjacent the marginal edge thereof, whereby when pressure within said container is raised above the predetermined discharge pressure, said valve head shifts outwardly in a manner which causes said connector sleeve to double over and extend rollingly, and thereby apply a torque to said valve head which assists in opening said orifice; and wherein
said exterior side of the valve head includes a curved portion configured to assume a generally concave orientation when said orifice is closed, and a generally convex orientation when said orifice is open, such that inward compression and torque applied to said valve head by said connector sleeve combine to resiliently maintain said orifice open, whereby that pressure required to maintain fluid flow through said orifice is substantially less than said predetermined discharge pressure, so as to provide greater ease of dispensing and flow control.

5,213,237
LOCK GATE BLADE-TYPE VALVE
George W. Armstrong, P.O. Box 507, Fairborn, Ohio 45324
Filed Apr. 6, 1992, Ser. No. 864,476
Int. Cl.[5] G01F *11/28;* B67D *3/00*
U.S. Cl. 222—452 9 Claims

1. A lock gate valve for dispensing measured quantities of dry particulate material comprising:
a valve housing having a pair of generally planar complementary shaped, spaced-apart side plates, said side plates each having an upper edge, a lower edge, a front edge, and a rear edge,

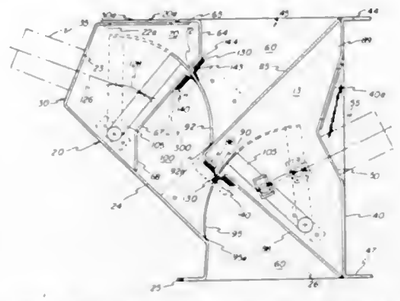
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said housing further including a pair of end closure plates, said end closure plates extending between said side plates with one each positioned generally along one of said front and rear edges and each extending between said upper side plate edges and said lower side plate edges,

one of said end closure plates being formed with a laterally offset upper portion having means on an exterior surface thereof forming a first actuator cylinder mounting region and further having a lower inwardly inclined wall portion terminating at said side plate lower edges, the other of said end closure plates having means on an exterior surface thereof forming a second actuating cylinder mounting region,

wall means intermediate said side plates and defining a flow conduit for such material extending from said upper edges to said lower edges and defining with said side plates a valve inlet positioned between said upper edges and a valve outlet positioned between said lower edges, said intermediate wall means including first inner wall means extending from a side of said inlet at the top and terminating at said lower inwardly inclined wall portion at the bottom, said first inner wall means defining with said first end closure plate, a first flow control blade receiving enclosure,

second inner wall means spaced laterally from said first inner wall means including a first inclined wall section having an upper end at said valve inlet in spaced relation to said first inner wall means defining a portion of said flow



conduit and formed with a second inclined wall section formed generally at right angles to said first inclined wall section and extending in a direction generally parallel to the inclined wall portion of said first end plate, and terminating at said valve outlet at a position remote from said end plate inclined wall portion, said second inner wall means defining with said second end plate a second flow control blade receiving enclosure,

means in said first inner wall means defining a first valve blade slot extending between said side plates,

means in said second inclined wall section of said second inner wall means defining a second blade slot extending between said side plates,

a first curved flow control blade having a convex upper side and a concave lower side movable through said first blade slot in said housing between a retracted position in which a major portion of said first blade is received within said first blade-receiving enclosure, to a closed flow-blocking position in which a nose end of said blade is in contact with said second inner wall means adjacent a lower end of said first inclined wall section thereof,

a first pair of blade support arms in said first blade-receiving enclosure and having upper ends connected to support first blade and having lower ends pivotally connected to said housing side plates,

first actuator cylinder means on said first actuator mounting region for actuating said blade by pivotal movement of said arms between said flow permitting and flow blocking position,

a second curved flow control blade having an upper convex side and a lower concave side movable through said second blade slot across said conduit and into said second flow control blade-receiving enclosure between a retracted open position and a closed flow blocking position in which a nose end of said second flow control blade is in contact with said inwardly inclined wall portion adjacent said outlet,

a second pair of blade support arms in said second enclosure and having upper ends connected to support said second blade and having lower ends pivotally connected to said housing side plates,

second actuator cylinder means on said second mounting region and connected to said second blade support arms for moving said second arms and said second blade about its said pivot between said closed flow blocking position and said retracted open position, and

said blades in said closed positions thereof defining therebetween a material holding chamber in said conduit.

8. In a gate-type valve having side walls which partially define an internal valve conduit and in which a curved, flow control blade moves transversely across said conduit through a blade slot between a retracted flow-permitting position and a closed flow-blocking position, and in which upper and lower flexible blade seals are positioned at the slot and have curved ends bearing against respective upper and lower surfaces of said blade for sealing said blade at the slot, the improvement comprising:

each of said seals including a backing plate positioned at one side of said seal and a retention plate positioned on the other side of said seal,

means securing said backing plate to said retention plate with said seal therebetween,

means in said valve housing side walls defining access openings formed at said blade slots,

said backing plates having extension portions extending laterally outwardly of said conduit through said side wall openings,

means on said valve side walls engaging and supporting said backing plate extension portions for retaining said blade seals in an operative position with respect to said blade surfaces, and

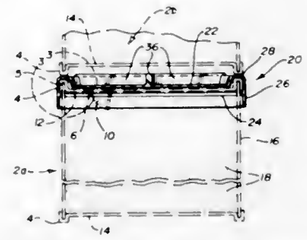
closure means closing said openings.

5,213,238

MULTI-FUNCTIONAL, ENVIRONMENTALLY-ORIENTED, TAMPER-EVIDENT CONTAINER CLOSURE

Clyde J. Martin, Cincinnati, and Gail F. Duncan, Dayton, both of Ohio, assignors to Tri-Made Products, Inc., Dayton, Ohio

Filed Jan. 8, 1992, Ser. No. 818,115
Int. Cl.[5] B67D *3/00*
U.S. Cl. 222—480 **16 Claims**



10. An environmentally oriented container comprising:

a container body, a container end having a push-in opening defined therein, and a lip formed in said container end where said container body is inserted in said container end, said lip extending around the outer edge of said container end; and

a removable container closure including:

a one-piece, removable, rotatable closure panel with a peripheral skirt having a peripheral rib extending around the inner surface of said peripheral skirt and positioned to removably engage only the outermost surfaces of said lip of said container end, said peripheral rib slidably rotatable on said lip to position said closure panel;

said closure panel having at least one opening defined therein, and said closure panel rotatable between a position wherein said closure panel substantially blocks said push-in opening, and one or more positions wherein at least a portion of said at least one opening is generally alignable with at least a portion of said push-in opening; and

said closure panel further having means for gripping said closure panel for rotation thereof, said means for gripping extending inward from near the periphery of said closure panel and upward from said closure panel;

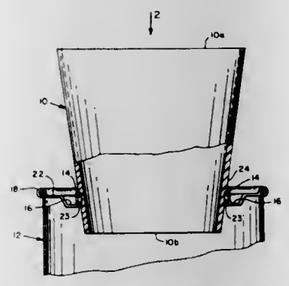
wherein contents in said container body may be dispensed in a regulated manner with said container closure.

5,213,239

NO SPLATTER NO MESS SPOUT FOR A PAINTCAN

Salvatore Macaluso, 29 S. Howell Ave., Farmingville, N.Y. 11738

Filed Dec. 26, 1991, Ser. No. 813,574
Int. Cl.[5] B65D *25/00*
U.S. Cl. 222—570 **7 Claims**



1. In combination, a can of paint having a top opening, said opening being bounded by a bead formed into a circle, a wall formed into a disposable hollow frusto-conical member with top and bottom openings and the bottom opening smaller than the top opening of the member, said member being force fit into said paint can top opening with said bottom opening within said can, said member being made from a rigid readily crushable expanded foam material with said wall being crushed by said force fit thereby forming a liquid tight fit with said bead.

5,213,240

MAGNETIC TOOL HOLDER

Hugh H. Dietz; Alfred G. Tienken; Leonard A. Dems, all of Syracuse; James D. Haskins, Minoa, and Richard F. Raymond, Camillus, all of N.Y., assignors to H. Dietz & Company, Inc., Syracuse, N.Y.

Filed May 6, 1991, Ser. No. 696,244
Int. Cl.[5] A45F *5/00*
U.S. Cl. 224—183 **22 Claims**

1. A magnetic tool holder for securing a tool to the belt of a user which comprises:

a body member and a tool member;

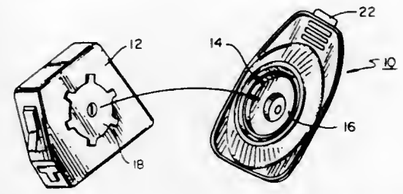
a magnet and a magnetic pole piece;

a keeper member sized for cooperative engagement with said magnet and pole piece;

a receptacle member for receiving said magnet and magnetic pole piece or keeper member therein, having a complementary size and shape for close sliding fit with said magnet and pole piece or keeper member;

said receptacle member being located on said body member or tool member;

said magnet and pole piece or keeper member not positioned



in said receptacle member being mounted on the other one of said body or tool members from that on which said receptacle is located;

a plurality of spaced apart tabs of ferromagnetic material extending outwardly from said keeper member;

said keeper member tabs being formed to complete a magnetic circuit with said magnet and pole piece when positioned in magnetic engagement therewith;

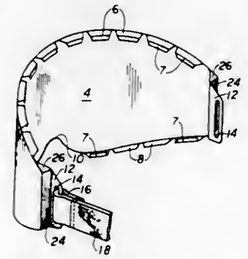
so that said tool member will be releasably secured in said tool holder by said magnet and keeper.

5,213,241

SKI GOGGLE PROTECTIVE DEVICE

Jeffrey D. Dewar, 251 Hilltop Dr., Suite 124, Redding, Calif. 96003, and Kenneth S. Janzen, Danville, Calif., assignors to Jeffrey Donald Dewar, Redding, Calif.

Filed Feb. 27, 1991, Ser. No. 661,117
Int. Cl.[5] A45C *13/30*; A45F *3/14*
U.S. Cl. 224—222 **17 Claims**



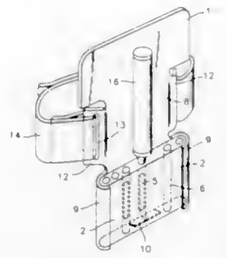
1. A device adapted for transporting a part of goggles on a limb of a user, said pair of goggles having a transparent viewing panel with an outer surface and an inner surface circumscribed by a flexible frame having a peripheral edge and lateral extremities interconnected by a flexible band, wherein the inner surface of the panel is oriented proximate the eyes user wherein use, of the said device comprising:

a cover having an outer periphery and is adapted to overlie and conform to at least a portion of the outer surface of the viewing panel, a plurality of resilient locking fingers positioned along said periphery of said cover and extending therefrom, said plurality of fingers being adapted to engage said pair of goggles to secure said cover to said pair of goggles; and a strap having a pair of ends connected to said cover such that said cover and said strap form a loop wherein the cover is adapted to receive said pair of goggles and said loop is adapted to surround a limb

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of the user such that said goggles are protectibly secured on the user for transporting when not in use.

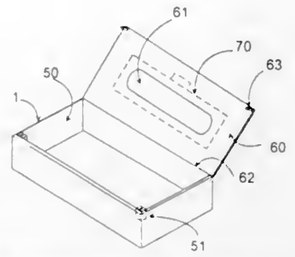
5,213,242
STORAGE DEVICE FOR AN IMPLANTING TOOL
Hendrik J. de Jong, Groenlo, Netherlands, assignor to N.V. Nederlandsche Apparatenfabriek Nedap, De Groenlo, Netherlands
Filed Dec. 12, 1990, Ser. No. 625,659
Claims priority, application Netherlands, Dec. 14, 1989, 8903068
Int. Cl.[5] A45C *13/30*; A45F *3/14*
U.S. Cl. 224—222 7 Claims



1. A holding device for holding a reservoir and an implanting tool, the reservoir having cavities containing implants and the implanting tool having a handle and a hollow needle loadable by inserting said needle into one of said cavities containing an implant to insert an implant into said needle, the holding device comprising:
a base plate having a front side, a back side, a first portion, a second portion extending substantially above said first portion when said holding device is in position for use, and opposite side edge regions on said second portion;
reservoir retaining members in relative spaced relationship protruding substantially outwardly from said front side of said first portion of said base plate and having a shape for receiving and releasably retaining said reservoir on said base plate so that said cavities are accessible during use of said holding device;
a lip on each of said opposite side edge regions;
a slot in each lip; and
fastening means mounted on said lips and engaging said slots for fastening said holding device on an object in a position for use with said second portion of said base plate substantially above said first portion, so that when a reservoir is retained on said base plate by said retaining members and said needle of said implanting tool is inserted in one of said cavities of said reservoir, said handle of said implanting tool extends adjacent to said front side of said second portion of said base plate whereby said second portion serves as a guard plate for said handle when the holding device is in position for use.

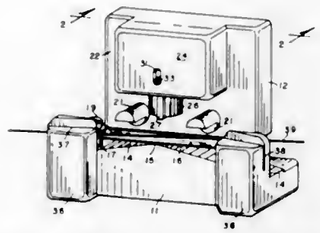
5,213,243
AUTOMOBILE TISSUE DISPENSER
Kimberly A. B. Landon, 407 Overbrook Rd., Baltimore, Md. 21212
Filed Aug. 15, 1991, Ser. No. 745,356
Int. Cl.[5] B60R *7/00*
U.S. Cl. 224—277 7 Claims

1. A tissue dispenser for a vehicle integrally molded in one piece with an interior trim piece permanently fixed to said vehicle so that said tissue dispenser forms an integral part of said interior trim piece, wherein said tissue dispenser is formed so that said tissue dispenser has a unitary one piece construction with said interior trim piece, said tissue dispenser of the interior trim piece comprising:
a container portion for receiving tissues to be dispensed, said container portion being recessed with respect to said interior trim piece;
a retainer flap portion for holding the tissues in place during the dispensing operation and substantially closing said container, said retainer flap portion containing an opening through which the tissues are dispensed;
a first hinge means for attaching said retainer flap portion to said container portion, said retainer flap portion being substantially flush with said trim piece when said flap portion is in a closed position;



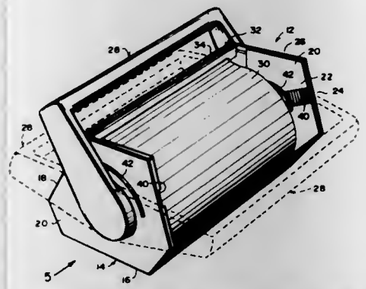
a cover flap portion for removeably covering said opening in said retainer flap portion when tissues are not being dispensed; and
a second hinge means for attaching said cover flap portion to said retainer flap portion;
wherein said container portion, said retainer flap portion, said first hinge means, said cover flap portion and said second hinge means are integrally molded in one piece with said interior trim piece.

5,213,244
OBLIQUE FRACTURING OF OPTICAL FIBERS BY ANGLED SCORING
Lyn Curtis, Fair Haven; Derek D. Mahoney, Tinton Falls; Virendra S. Shah, Edison, and William C. Young, Middletown, all of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.
Continuation of Ser. No. 640,134, Jan. 3, 1991, abandoned. This application Feb. 28, 1992, Ser. No. 844,952
Int. Cl.[5] C03B *37/16*
U.S. Cl. 225—2 13 Claims



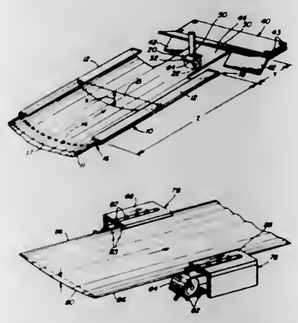
1. A method of fracturing a length of optical fiber to obtain a plane endface which comprises creating sufficient tensile stress in said fiber length to cause said fiber to fracture at a score in the surface of said fiber length and scoring said fiber length surface
characterized in that said fiber length is oriented substantially horizontally and an upper portion only of said fiber length surface is scored in a vertical plane that is oblique to the longitudinal axis of said fiber length, whereby said fiber endface plane is oblique to said fiber length axis.

5,213,245
CLEAR-WRAP DISPENSER
Tupua M. Pusatuua, 3200 Wailea Alanui Dr. #1501, Wailea, Hi. 96753-7740
Filed Oct. 19, 1992, Ser. No. 962,697
Int. Cl.[5] B65D *85/671*; B26F *3/02*
U.S. Cl. 225—19 15 Claims



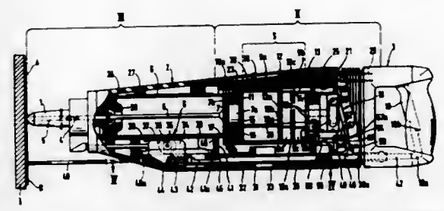
1. An improved clear-wrap dispenser which comprises:
a) a housing having a bottom wall, a front wall and a pair of side walls, so as to form a compartment therein with an open back and an open top;
b) a generally U-shaped handle pivotally mounted to said side walls of said housing, so that when in an upright position said handle can be gripped to carry said housing;
c) a roll of clear-wrap rotatably positioned within said compartment in said housing from said open back between said side walls, so as to be dispensed therefrom through said open top;
d) a cutting blade disposed within said housing along a top edge of said front wall; and
e) means for retracting and extracting said cutting blade with respect to the top edge of said front wall of said housing by pivoting said handle on said side walls, so that when retracted said cutting blade will be safely stored and when extracted said cutting blade will be able to cut said clear-wrap being dispensed therefrom.

5,213,246
PAPER GUIDING METHOD AND APPARATUS
H. W. Crowley, Newton, Mass., assignor to Roll Systems, Inc., Burlington, Mass.
Filed Sep. 10, 1990, Ser. No. 580,210
Int. Cl.[5] B65H *23/24*
U.S. Cl. 226—88 17 Claims



1. An apparatus for driving a web in a defined path comprising:
trough structure means having one of a concave and convex surface and having shoulders for engaging opposing widthwise edges of a web positioned therein, the shoulders being positioned to maintain the web against a surface of the trough structure along a lengthwise direction, the web therein having a conforming trough shape in which a straight-line spacing between the widthwise edges is less than a spacing between widthwise edges of the web when laid flat, the trough shape providing stiffness to the web and causing said web to curl widthwise to conform to the shape of the trough structure creating beam strength in said web for controllability and means for driving said web in the lengthwise direction along the trough structure, the means for driving including a drive roll having a substantially round core being motor driven and adapted to rotate about an axis of the core, and an outer layer having a rubber-like texture surrounding said core for engaging said paper and driving said paper upon rotation of said drive roll
and, a flat surface positioned beyond said trough structure at one end thereof, upon which said web flows after flowing through said trough structure,
said flat surface having an aperture disposed therein, the width of said aperture being greater than the width of said drive roll,
said drive roll disposed out of the plane of said flat surface in said aperture so that said outer layer of said drive roll is at substantially the same level as said flat surface, for engaging the underside of said paper and driving said paper through said trough structure.

5,213,247
INTERNAL COMBUSTION POWERED TOOL FOR DRIVING FASTENING ELEMENTS
Hans Gschwend, Mauren, Switzerland, and Markus Sprenger, Eschen, Liechtenstein, assignors to Hilti Aktiengesellschaft, Liechtenstein
Filed Oct. 10, 1991, Ser. No. 775,704
Claims priority, application Fed. Rep. of Germany, Oct. 11, 1990, 4032204
Int. Cl.[5] B25C *1/08*
U.S. Cl. 227—10 8 Claims



1. Portable, internal combustion power operated setting tool for driving fastening elements into a receiving material, comprising a housing (2, 3), an axially extending combustion chamber (9) withi.. said housing, an axially extending piston (7, 7a) guided within an axially extending guide chamber (8) and at least an axially extending part of said guide chamber being mounted within said combustion chamber and being axially displaceable therefrom, said piston can be driven axially within said guide chamber by gas pressure generated by the combustion of an air-fuel mixture within said combustion chamber, and means connected to said combustion chamber for preparing the air-fuel mixture, wherein the improvement comprises that said combustion chamber is defined by an axially extending cylindrical housing, said combustion chamber housing has a rearward end and a forward end spaced apart in the axial direction, means within said combustion chamber for varying the combustion chamber volume including at least one combustion chamber wall (11) located within said extending transversely of and displaceable in the axial direction of said combustion chamber housing, said at least one combustion cham-

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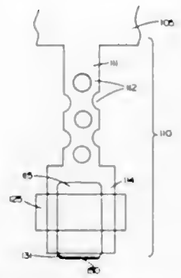
ber wall (11) being axially displaceable within said combustion chamber housing between a non-operating condition adjacent the rearward end of the combustion chamber housing and an operating condition adjacent the forward end of the combustion chamber housing, said at least one combustion chamber wall (11) arranged to receive and readably hold said piston (7, 7a), a metering chamber (67) located within said housing for supplying a predetermined quantity of fuel, first means within said housing and in communication with said combustion chamber for supplying air and gaseous fuel into said combustion chamber, and the air-fuel mixture are drawn into the combustion chamber by increasing the combustion chamber volume and establishing a negative pressure therein.

5,213,248

BONDING TOOL AND ITS FABRICATION

Ralph M. Horton, Murray, Utah; James T. Hoggins, Plano, Tex., and Shih-Yee Kuo, Salt Lake City, Utah, assignors to Norton Company, Worcester, Mass.

Filed Jan. 10, 1992, Ser. No. 819,321
Int. Cl.[5] B23K *37/00*
U.S. Cl. 228—44.7 **32 Claims**



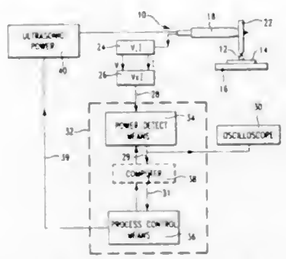
1. A bonding tool, comprising:
a holder having a substrate mounted at an end thereof, said substrate comprising a compact of polycrystalline diamond particles, said holder including means for receiving a heating element; and
a polycrystalline diamond film disposed on said substrate to form a tip.

5,213,249

ULTRASONIC ADHESION/DEHESION MONITORING APPARATUS WITH POWER FEEDBACK MEASURING MEANS

David C. Long, Wappingers Falls, and Krishna Seshan, Beacon, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 29, 1992, Ser. No. 890,988
Int. Cl.[5] H01L *21/607*
U.S. Cl. 228—102 **5 Claims**



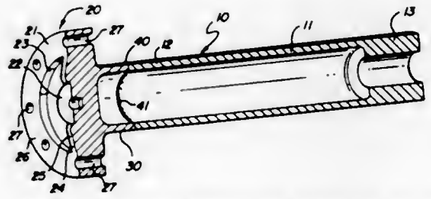
1. An ultrasonic adhesion/dehesion monitoring apparatus for monitoring the adhesion/dehesion between first and second substrates comprising:
a. an ultrasonic source for transmitting ultrasonic energy to at least first and second substrates.
b. means for measuring the instantaneous AC current and instantaneous AC supplied to said ultrasonic source;
c. means for multiplying the instantaneous AC voltage and the instantaneous AC current to determine the instantaneous power supplied to said ultrasonic source; and
d. monitor means coupled to said ultrasonic source and said instantaneous power determining means for monitoring the instantaneous power supplied to said ultrasonic source, wherein said monitor means comprises circuit means for detecting the power supplied to said ultrasonic source and process control means responsive to said power detecting means for gradually varying the power of said ultrasonic source.

5,213,250

METHOD FOR FORMING A LIGHTWEIGHT FLANGED AXLE SHAFT

Joseph A. Simon, 237 Lothrup, Grosse Pointe Farms, Mich. 48236

Continuation-in-part of Ser. No. 811,452, Dec. 19, 1991. This application Oct. 13, 1992, Ser. No. 960,015
Int. Cl.[5] B23K *20/12*
U.S. Cl. 228—114 **8 Claims**



1. A method for forming a lightweight flanged axle shaft and the like, such as for use in transmitting power from the differential of a vehicle to a power driven wheel, comprising:
inserting a tubular blank, having a lead end and trailing end, in a tubular die having an inlet end for receiving the blank and an opposite die extrusion throat through which the blank is extruded starting with its lead end to its trailing end;
relatively moving a punch, which is sized to closely fit within the die, axially within the die towards the die throat for engaging and pushing the trailing end of the blank towards the die throat and, thereby, extruding the blank through the die throat;
providing a mandrel-like extension on the lead end of the punch means and positioning said extension within the blank and the die throat while moving the punch for thereby collapsing the blank radially inwardly as it is moved through the die throat for forming an elongated, hollow, relatively thin wall tube out of the blank which is extruded through the die throat.
separately stamping a flange member in a generally disk-like, roughly flat shape with an integral central hub formed on one face thereon and with the hub having roughly the same outer diameter as the outer diameter of an end of said shaft and with the free end of the hub formed with a blunt, flat surface;
positioning the blunt end of the hub against an end of the shaft and aligning the two coaxially;
rapidly rotating the hub or the shaft relative to the other while engaging the adjacent ends of the hub and shaft for generating heat in a sufficient amount to weld the two ends together and then stopping such relative rotation to permit the two ends to fuse together;

whereby an elongated, hollow, relatively lightweight metal shaft is formed with a laterally extending flange formed on one end thereof, for providing a means for fastening that end of the shaft to a drive or driven member;
and forming a coupling means on the opposite end of the shaft for securing said opposite end to the other of the two driving and driven members.

5,213,251

METHOD FOR FABRICATING A WEAR-RESISTANT MAGNET-CONTAINING COMPONENT AND RESULTING ARTICLE

George D. Wolff, 2929 Dundee Rd., Winter Haven, Fla. 33884

Filed Jul. 17, 1992, Ser. No. 915,331
Int. Cl.[5] G01M *15/00*; **B23K** *31/00*
U.S. Cl. 228—199 **12 Claims**



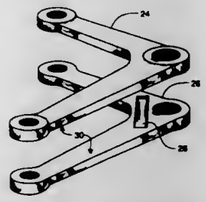
1. A method for fabricating a wear-resistant, magnet-containing component, comprising the steps of:
providing a piece to be magnetized;
brazing the piece to a member having a wear surface and brazing a cap over the piece to the member;
subjecting the member and the cap to case-hardening at a temperature substantially below the temperature of the brazing step; and
magnetizing the piece.

5,213,252

METHOD TO PRODUCE SELECTIVELY REINFORCED TITANIUM ALLOY ARTICLES

Daniel Eylon, Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 15, 1992, Ser. No. 883,518
Int. Cl.[5] B23K *20/24, 103/14, 103/16*
U.S. Cl. 228—176 **10 Claims**



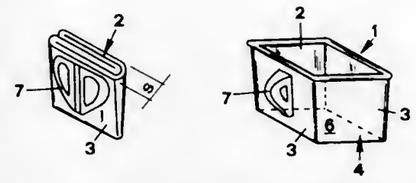
1. A method for producing fiber reinforced titanium alloy articles which comprises casting a plurality of segments which can be joined to provide a unitary article, wherein at least one-half of the segments comprise at least one shallow cavity, heat treating the cast segments in such manner as to refine the microstructure of the segments, filling the cavities with reinforcing fibers and superplastic forming/diffusion bonding the segments into the desired reinforced article.

5,213,253

POCKET-CONTAINER, IN PARTICULAR FOR TAKING DRINKS OR OTHER FOOD

Gianluca Fantoni, via Carinelli n. 4/d, and Davide Gottardi, via dei Biancospini n. 5, both of Verona, Italy

Filed Jul. 16, 1992, Ser. No. 913,656
Claims priority, application Italy, Dec. 18, 1991, VR91A000109
Int. Cl.[5] B65D *5/36, 5/40, 5/56*
U.S. Cl. 229—1.5 B **7 Claims**



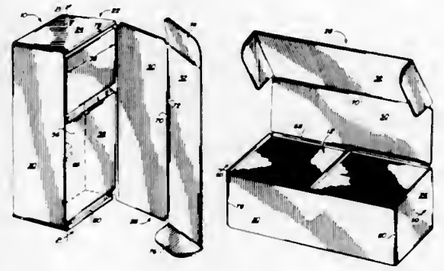
1. A pocket-container for holding drinks or other food, said container comprising a shaped folding box (1) having an open top (2), side walls (3) and a closed base (4), said closed base being formed with die-cast sectors (5) that mutually overlap and engage into each other, a sheet (6) of waterproof material being associated with said closed base (4), said waterproof sheet (6) being an elastic resilient material located inside said box (1) over said closed base (4) and fastened to said side walls (3), said box (1) when folded before use being in a form of a package of small thickness (S).

5,213,254

DUAL CONFIGURATION STORAGE CONTAINER FOR FLAT CARDS

Bruce W. Regis, Del Mar, and Christopher Corman, Torrance, both of Calif., assignors to The Upper Deck Company, Carlsbad, Calif.

Filed Jul. 29, 1992, Ser. No. 922,160
Int. Cl.[5] B65D *5/48*
U.S. Cl. 229—103 **31 Claims**



1. A dual configuration storage container for flat cards having a rectangular surface, a length and a width, comprising:
a. a rectangular box having a rectangular base surface, a rectangular side surface, a rectangular rear surface with opposing, spaced apart rectangular end surfaces and a top surface movable between open and closed positions, the top surface oriented parallel to but spaced apart from the base surface when in the closed position, wherein the box defines a rectangular internal storage compartment having a first storage volume defined by a length, a width and height and wherein the base surface includes a midline extending between the front and rear surface for dividing the base surface into two equal areas;
b. a foldable divider having a width substantially equal to the

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width of the internal storage compartment and a length substantially equal to the height of the initial storage compartment, the divider having a lower edge surface and being movable between a retracted position substantially parallel to the base surface and an extended position oriented perpendicular to the base surface with the lower edge surface laterally aligned with the midline of the base surface for selectively subdividing the internal storage compartment into first and second equal size subcompartments when the foldable divider is displaced into the extended position, each subcompartment having a length substantially equal to the card length and a height substantially equal to the card width for storing cards with the card surfaces oriented perpendicular to the box base surface; and

c. a removable insert dimensioned to fit snugly within the box internal storage compartment for defining a third compartment accessible through the top surface of the box when in the open configuration, the third subcompartment including a base surface elevated above the box base surface and having first and second sides oriented parallel to the front and rear surfaces of the box with a length equal to or greater than the length of the cards and third and fourth sides oriented parallel to the end surfaces of the box with a length equal to the width of the cards and a depth adequate to store at least one card with the card surface oriented parallel to the box base surfaced,

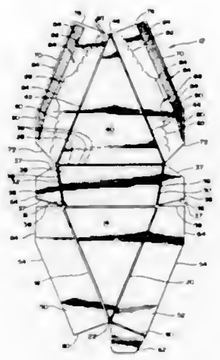
whereby the card storage capacity of the box can be substantially increased by removing the removable insert and displacing the foldable divider from the retracted position into the extended position.

5,213,255

OPENING STRUCTURE FOR WEDGE-SHAPED PIE CARTON

Raymond A. Cote, Taylorsville, N.C., assignor to Waldorf Corporation, St. Paul, Minn.

Continuation of Ser. No. 739,991, Aug. 2, 1991, abandoned, which is a continuation-in-part of Ser. No. 693,864, May 1, 1991, abandoned. This application Sep. 3, 1992, Ser. No. 939,581
Int. Cl.[5] B65D *5/54*
U.S. Cl. 229—115 **33 Claims**



1. A flat blank for forming a carton for containing a generally triangular food item such as a single piece of dessert-type pie, said blank comprising:

a triangular bottom panel having a base edge and two side edges;

a trapezoidal rear wall having top, bottom and side edges, with said bottom edge of said rear wall and said base edge of said bottom panel being hingedly connected and of equal length, and with minor closure panels being connected to the side edges of said trapezoidal rear wall;

a triangular top panel having a base edge and two side edges with the length of the base edge of said top panel being greater than the length of the base edge of said bottom panel, and with the length of said top panel being greater than the length of said bottom panel, said base edge of said top panel being hingedly connected and of equal length to the top edge of said trapezoidal rear wall; and

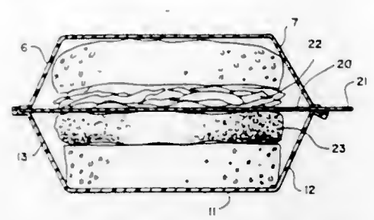
a first pair of side wall panels, each side wall panel extending from and hingedly connected to one of the side edges of said triangular top panel and a second pair of side wall panels, each side wall panel of said second pair of side wall panels extending from and hingedly connected to one of the side edges of said triangular bottom panel, each of said first and second pairs of side wall panels including two opposed free ends and a free edge generally parallel to its hinged connection to a side wall, each one of said first pair of side wall panels including a generally central cut line adapted to form an opening structure, and each of said first pair of side wall panels further including a line of weakness extending from each side of said opening structure, each line of weakness extending toward one of said two opposed free ends, and wherein the blank has right and left sides and at least a portion of each said free edge of each of said side wall panels on the right side is collinear with the free edge of the other side wall panel on that side and at least a portion of each said free edge of each of said side wall panels on the left side is collinear with the free edge of the other side wall panel on that side.

5,213,256

CONTAINER ASSEMBLY HAVING A REMOVABLE INSERT/DIVIDER

Stephen J. Cyr, Chippewa Falls, Wis., assignor to Amoco Corporation, Chicago, Ill.

Filed Mar. 18, 1987, Ser. No. 27,345
Int. Cl.[5] B65D *85/54*
U.S. Cl. 229—120.32 **8 Claims**



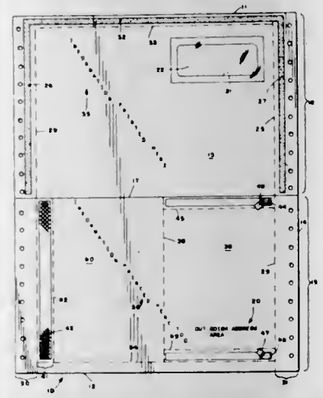
1. A container assembly comprising in combination, a container comprising a plastic material and having (a) a first space-defining section having a bottom wall, sidewalls and end walls and an open portion opposite said bottom wall, (b) a second space-defining section having a bottom wall, sidewalls and end walls and an open portion opposite said bottom wall, said second section being adapted to lie over the open portion of said first section to close at least one of said open portions, wherein said sections are joined together by a hinge at the edges of corresponding walls of said sections, (c) locking means for holding said sections together disposed upon the walls of said sections directly opposite the hinge, and (d) a planar insert positioned between said open portions of said sections, said insert comprising foam polystyrene coated with a polymeric resinous material and having a tab element on at least one end thereof which extends beyond at least one of the end walls or sidewalls of said container whereby said insert is removable from said container while said container is in a closed position.

5,213,257

V-FOLD MAILER WITH RETURN ENVELOPE

Dean N. Sauerwine, Zionsville, Pa., assignor to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Aug. 3, 1992, Ser. No. 923,579
Int. Cl.[5] B65D *27/04, 27/06*
U.S. Cl. 229—304 **22 Claims**



1. An intermediate for a mailer type business form, comprising:

a sheet of paper having a rectangular configuration with first and second end, parallel edges; and third and fourth side, parallel edges; and having a first face and a second face;

a first fold line parallel to said first and second edges, dividing said sheet into first and second panels of substantially equal dimension, said first panel between said first edge and said first fold line, and said second panel between said second edge and said first fold line;

outgoing address indicia printed on said first face of said second panel adjacent, but spaced from, said second edge;

a cutout in said first panel adjacent, but spaced from, said first edge, said cutout being dimensioned and positioned so that when said first panel is folded about said first fold line to bring said first faces of said first and second panels together, said cutout overlies said outgoing address so that said outgoing address is visible from the exterior of said first panel;

permanent adhesive disposed on said first faced of said sheet adjacent at least said third and fourth edges thereof; and

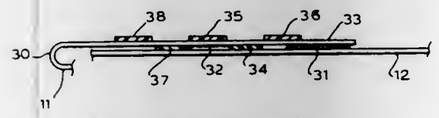
patterns of dormant adhesive formed on said second panel first face for use in constructing a return envelope from said second panel when detached from said first panel along said first fold line.

5,213,258

RESEALABLE, RETURNABLE ENVELOPE

Myun H. Kim, 147-30 38th Ave. Apt. LB, Flushing, N.Y. 11354

Continuation of Ser. No. 695,205, May 3, 1991, abandoned. This application Aug. 10, 1992, Ser. No. 928,615
Int. Cl.[5] B65D *27/06*
U.S. Cl. 229—305 **1 Claim**



1. A remailing envelope which comprises,

(a) a primary envelope body including a front wall, a back wall, and a sealable closure flap,

(b) said sealable closure flap extending from a selected edge of said envelope and having at least first and second spaced-apart adhesive areas extending across an inner surface area of said closure flap for securing said flap to said back wall,

(c) said first adhesive area being spaced farther from said selected edge than is said second adhesive area,

(d) a first tear strip carried by said closure flap, positioned between said spaced-apart adhesive areas and extending across the width of said closure flap,

(e) a second tear strip carried by said closure flap in spaced-apart relation to said first tear strip,

(f) said first tear strip being more remote than said second tear strip from said selected edge,

(g) said first tear strip serving to provide a first opening means for said envelope,

(h) said second adhesive area being located between said first and second tear strips and serving to provide second closure means for said envelope after a first opening thereof,

(i) said second tear strip providing a second opening means for said envelope,

(j) first and second guide strip forming means carried on said closure flap in parallel relation to said first and second tear strips and associated in straddling relation to said first and second tear strips,

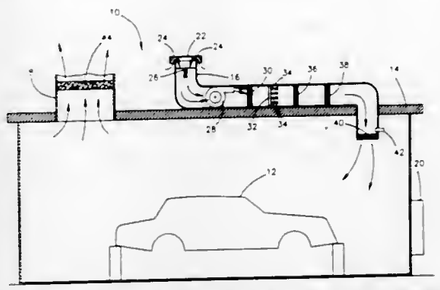
(k) said first and second guide strip forming means including one common guide strip forming portion positioned between said first and second tear strips.

5,213,259

PAINT BOOTH HUMIDITY AND TEMPERATURE CONTROL SYSTEM

William D. Stouffer, 1428 South Blvd., Rochester Hills, Mich. 48309

Filed Sep. 30, 1991, Ser. No. 768,823
Int. Cl.[5] B01F *3/02*
U.S. Cl. 236—44 C **15 Claims**



1. A humidity control system for a spray painting chamber wherein air which is being forced through a duct to the spray painting chamber is humidified with water from a pressurized water source, the humidity control system comprising:

means for atomizing the water and spraying the atomized water directly into the air as it is forced through the duct such that the water and the air form humidified air having a relative humidity level;

valve means for regulating the flow of the water from the pressurized water source to the means for atomizing the water;

motor means for opening and closing the valve means at a predetermined rate;

means for sensing the relative humidity of the humidified air, the means for sensing being mounted within the duct and downstream from the means for atomizing the water, the means for sensing providing a feedback signal which

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corresponds to the relative humidity level of the humidified air; and

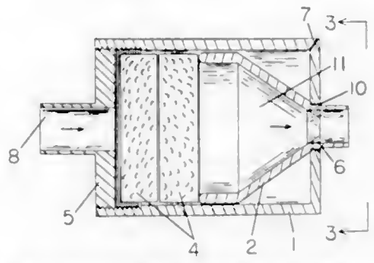
control means for energizing and deenergizing the motor means so as to modulate the time over which the valve means opens and closes at the predetermined rate, the control means operating on the feedback signal of the means for sensing to determine the length of time for which the motor means is energized, the predetermined rate for opening and closing the valve means being sufficiently low such that the response of the humidity control system is overdamped.

5,213,260

NOZZLE FOR PRODUCING LAMINAR FLOW

Steven Tonkinson, 1424A Morton Cir., Claremont, Calif. 91711

Filed Jul. 3, 1991, Ser. No. 725,547
Int. Cl.[5] B05B *17/04, 17/08*
U.S. Cl. 239—11 11 Claims



10 A method of producing a laminar flow stream comprising the steps of:

(a) providing an enclosure having an inlet port and an outlet port;

(b) providing a nozzle body having a frusto-conical passage therethrough

(c) interconnecting said nozzle body to said enclosure at said outlet port such that the large opening communicates with the interior of said enclosure; and

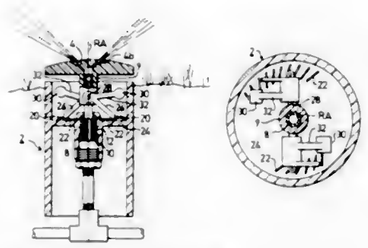
(d) reducing the turbulence of the fluid within said enclosure by progressively dividing the velocity components of the fluid flow into many smaller components, some of which cancel each other, thereby presenting a more uniform flow profile through said enclosure.

5,213,261

ROTARY SPRINKLER

Peretz Rosenberg, Moshav Beit Sha'Arim, Israel

Filed Apr. 6, 1992, Ser. No. 863,887
Claims priority, application Israel, May 2, 1991, 98038
Int. Cl.[5] B05B *1/08, 15/10*
U.S. Cl. 239—99 17 Claims



1 A rotary sprinkler, comprising:

a housing having an inlet connectable to a source of pressurized water, and an outlet;

a sprinkler head rotatably mounted on said housing about a rotary axis, and connected to said housing outlet to receive pressurized water therefrom and to discharge the water in the form of at least one jet laterally of the sprinker;

said sprinkler head also being mounted on the housing for reciprocation along said rotary axis in one direction, from a normal position to an extended position, by the application of the pressurized water thereto, and in the opposite direction, from the extended position back to the normal position, upon the discontinuation of the pressurized water thereto;

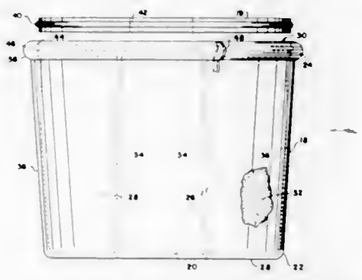
and a stepping mechanism for steppping the sprinkler head an increment of rotation during each reciprocation of the sprinkler head, such that each time the pressurized water is applied to the sprinkler head, it discharges the jet at a slightly different direction laterally of the sprinkler.

5,213,262

IN-GROUND SPRINKLER HEAD GUARD

Joseph G. Violette, 1312 SE. 2nd Pl., Cape Coral, Fla. 33990

Filed May 4, 1992, Ser. No. 877,715
Int. Cl.[5] B05B *15/06*
U.S. Cl. 239—203 10 Claims



1. An in-ground pop-up sprinkler head guard comprising:

a canister embedded in the ground and having a central channel for receiving a sprinkler head and a chamber disposed about said channel, said chamber including spaced apart inner and outer walls, a closed bottom portion and an open top portion, said open top portion providing means for selectively introducing a ballast material into said chamber; and

a lid that is engaged with said canister and disposed proximate the surface of the ground to cover said top portion of said chamber, said lid having a central opening that is generally axially aligned with said sprinkler head and being disposed generally above said, sprinkler head, at least when said sprinkler head is retracted.

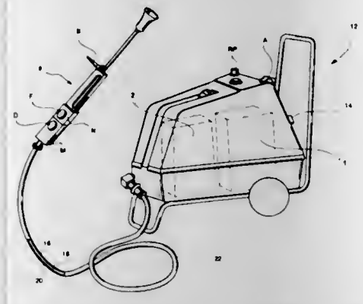
5,213,263

DEVICE FOR METERING AND MIXING A DETERGENT WITH WATER AND COMPRESSED AIR UNDER CONTROL OF AN ATOMIZING LANCE TRANSFORMING ALSO THE JET INTO FOAM

Monica Corona, Via Chavez 4, Milan 20131, Italy

Filed Jul. 9, 1991, Ser. No. 725,790
Claims priority, application Italy, Jul. 9, 1990, 35886/90[U]
Int. Cl.[5] B05B *7/04, 7/26*
U.S. Cl. 239—304 10 Claims

1. A device for metering and mixing a detergent or cleansing agent with water and compressed air, characterized in that it includes a pair of tanks (1,2), containing the detergent and the water, respectively, said tanks being contained in a housing supported on a moving hand truck (12) and connected to a compressed air pipe connected in turn to an outer air source through a coupling (14) provided on said housing, an atomizing gun or lance (8) having a handle connected with a flexible pipe to the housing, means provided on said housing for controlling the inlet of compressed air into said tanks, means provided on said handle of the atomizing gun or lance for controlling the outlet of water and detergent from said tanks due to



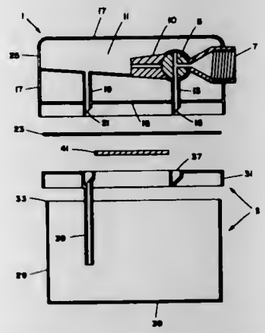
the compressed air through two separated pipes (16, 18) housed into the flexible pipe and connected to a mixing chamber (M) located in the handle, and a foaming chamber (N) located in the handle downstream of the mixing chamber (M) having a foaming meter for controlling the flow of compressed air in through a third pipe (20) connected from the coupling of the outer air source to said foaming chamber in order to provide a foam directly adjustable by the operator.

5,213,264

SPRAYING DEVICE WITH A REPLACEABLE CARTRIDGE

James J. Styne, San Ramon, Calif., assignor to Chevron Research and Technology Company, San Francisco, Calif.

Filed Oct. 11, 1990, Ser. No. 595,523
Int. Cl.[5] B05B *7/30*
U.S. Cl. 239—309 8 Claims



1. A spraying apparatus, said spraying apparatus comprising:

a sprayer head further comprising:

a fluid inlet conduit;

a rotatable barrel valve having a flow channel network such that when in a first, spray position, a first fluid is directed to flow from said inlet conduit through a first fluid discharge conduit into a mixing chamber, and when rotated to a second, fill position, said first fluid is directed to flow from said inlet conduit through a fluid inlet coupling tube, said fluid inlet coupling tube having a distant end extending through the bottom edge of a sealed housing, and when rotated to a third, off position, no flow occurs;

a fluid outlet coupling tube having a first end in fluid communication with and terminating at said mixing chamber, said fluid outlet coupling tube having a distant end extending through said bottom edge of said sealed housing in a direction nearly equivalent to that of said fluid inlet coupling tube so that said first fluid flowing through said first fluid discharge conduit can draw a second fluid from said fluid outlet coupling tube into said mixing chamber, and that a resulting mixed fluid is discharged through a second discharge conduit, into the environment, said housing sealing said sprayer head to permit flow only through said conduits, coupling tubes, valve, and mixing chamber;

an interchangeable and disposable cartridge able to contain said second fluid therein a said cartridge further comprising:

a cartridge housing for containment of said second fluid within said cartridge, having an open top end and a closed bottom end;

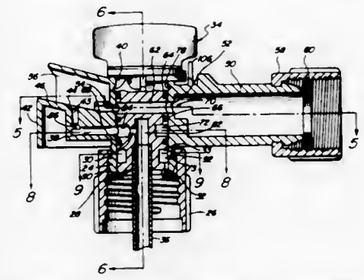
a cartridge lid sealably attached to said open top end, said lid having a top, and a fluid inlet, said fluid inlet sealably mateable with said distant end of said fluid inlet coupling tube, said lid also having a dip tube extending downward from said lid nearly to said bottom end of said cartridge housing, said dip tube sealably mateable with said distant end of said fluid outlet coupling tube to attach said sprayer head to said cartridge, so that when said barrel valve is in its second, fill position, said first fluid can be directed to flow into said cartridge to partially dilute said second fluid, and so that when said barrel valve is subsequently rotated to said first, spray position, said first fluid can be directed to flow into said mixing chamber and past said fluid outlet coupling tube to withdraw and further dilute said second fluid from said cartridge.

5,213,265

SINGLE VALVE ASPIRATION TYPE SPRAYER

Ronald F. Englhard, Mission Viejo, and Donald J. Shanklin, Fullerton, both of Calif., assignors to Hayes Products L.P., Santa Fe Springs, Calif.

Continuation-in-part of Ser. No. 671,258, Mar. 18, 1991, Pat. No. 5,100,059. This application Mar. 9, 1992, Ser. No. 848,301
The portion of the term of this patent subsequent to Mar. 31, 2009, has been disclaimed.
Int. Cl.[5] B05B *7/26, 7/30*
U.S. Cl. 239—310 15 Claims



1. An aspiration-type chemical sprayer, comprising:

a container having an interior for storing a chemical to be sprayed;

a sprayer head assembly having an interior surface defining a bore and further having an outlet means and an inlet carrier fluid passageway means for directing a pressurized flow of carrier fluid into said outlet means;

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connection means for mounting said sprayer head to said container;

said sprayer head assembly further defining an aspiration passageway for communication between said container interior and said outlet means and a vent port for communication of atmospheric pressure with said container interior;

a valve movably positioned within said bore in the sprayer head assembly so as to simultaneously intersect said inlet passageway, aspiration passageway and said vent port;

said valve having integrally formed thereto inlet carrier fluid duct channeling means, aspiration duct channeling means and vent duct channeling means, for controlling simultaneous communication through said inlet passageway means, aspiration and vent passageways when said valve is in an open position; and

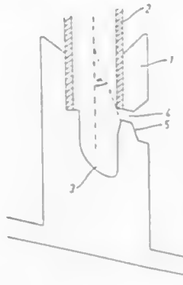
said valve further having inlet passageway closure means, aspiration passageway closure means and vent passageway closure means for providing simultaneous closing of said passageways when said valve is in a closed position, said closure means comprising a stopper member on said valve associated with each of the inlet, aspiration and vent passageways for sealing engagement with the bore surface when said valve is positioned in a closed position.

5,213,266

INHALATION AEROSOL NOZZLE

Tapio Lankinen, Turku, Finland, assignor to Leiras Oy, Finland

Filed May 13, 1992, Ser. No. 882,600
Claims priority, application Finland, May 14, 1991, 912331
Int. Cl.[5] B05B *1/02*; A61M *11/08*
U.S. Cl. 239—338 2 Claims



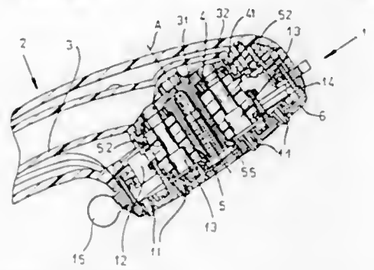
1. An aerosol nozzle comprising a socket (1) provided with an abutment surface for a hollow stem (2) in an aerosol container and therebelow an expansion chamber (3) with a nozzle orifice (4) in its wall, said nozzle orifice having a bottom edge, characterized in that said hollow stem has an end surface and an inner end edge, the distance between the bottom edge of said nozzle orifice (4) and the abutment surface of the socket (1) in the longitudinal direction of said socket does not exceed the outer radius of said hollow stem and that the nozzle orifice (4) is located within a wall area which is defined by the end surface of the hollow stem and a line extending from the centerline of said hollow stem and intersecting the inner end edge of said hollow stem and the wall of the expansion chamber (3), rotation of said line about said centerline defining a cone having its apex inside the hollow stem, said cone having an angle of 40°.

5,213,267

ADJUSTABLE HAND SHOWER

Bruno Heimann, Fröndenberg-Ardey, and Bernd Bischoff, Iserlohn, both of Fed. Rep. of Germany, assignors to Friedrich Grohe Aktiengesellschaft, Hemer, Fed. Rep. of Germany

Filed May 15, 1992, Ser. No. 883,839
Claims priority, application Fed. Rep. of Germany, May 24, 1991, 4116929
Int. Cl.[5] B05B
U.S. Cl. 239—446 10 Claims



1. A shower comprising:

a housing defining an axis;

a conduit in the housing normally supplied with water under pressure and having an axially forwardly open outlet end;

a shower head having an axially rearwardly directed face axially confronting the outlet end and rotatable on the housing about the axis, the shower head being provided with at least two sets of axially forwardly directed spray nozzles and being formed with respective axially rearwardly open passages connected to the sets of nozzles;

a seal disk extending across the axis between the outlet end and the rear face of the shower head, formed with an axially throughgoing hole, fixed in the housing against rotation about the axis, and limitedly axially movable in the housing; and

an elastically compressible seal ring engaged axially between the outlet end of the conduit and the seal disk around the seal-disk hole and pressing the seal disk axially forward against the rear face of the shower head.

5,213,268

SPRAYER FAUCET WITH ANTIBACKFLOW PROTECTION

Werner Gnauert, Iserlohn, and Frank-Thomas Luig, Fröndenberg, both of Fed. Rep. of Germany, assignors to Friedrich Grohe Aktiengesellschaft, Hemer, Fed. Rep. of Germany

Filed Dec. 24, 1991, Ser. No. 813,367
Claims priority, application Fed. Rep. of Germany, Jan. 12, 1991, 4100801
Int. Cl.[5] B05B *1/00*
U.S. Cl. 239—571 6 Claims

1. A faucet assembly comprising:

a housing formed with an inlet port, an outlet port, and a vent port and with a vent passage extending between the inlet and vent ports and a feed passage extending between the outlet port and a location in the vent passage between the inlet and vent ports;

an inner valve seat in the vent passage between the location vent-passage and the inlet port;

a vent valve seat in the vent passage between the location vent-passage and the vent port;

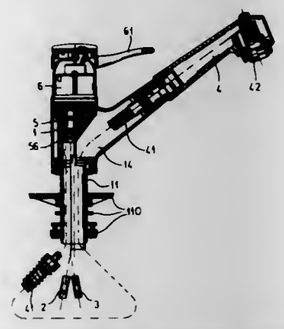
an outer valve seat in the vent passage between the location vent-passage and the vent seat;

an inner valve body displaceable in the vent passage between an inner end position sitting in the inner seat and blocking flow out of the vent passage through the inlet port and an outer end position sitting in the outer seat and blocking flow from the location vent-passage to the vent port;

an outer valve body displaceable in the vent passage between an outer end position sitting in the vent seat and blocking flow out of the vent passage through the vent port and an inner end position permitting flow through the vent port;

biasing means urging the valve bodies into the respective outer positions;

means including a valve for normally feeding water under



pressure to the inlet port and thereby pressing the inner valve body into the outer position and for, in an abnormal pressure-reversal situation, applying a subatmospheric pressure to the inlet port and thereby moving the inner valve body into the inner position;

a faucet arm on the housing;

a spray head removably carried on the faucet arm; and

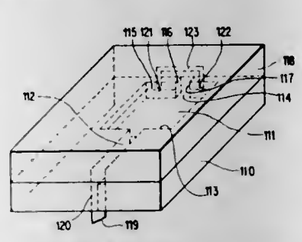
a hose having one end connected to the spray head and an opposite end connected to the outlet port of the housing.

5,213,269

LOW COST, LOW PRESSURE, FEEDBACK PASSAGE-FREE FLUIDIC OSCILLATOR WITH INTERCONNECT

Dharaparam Srinath, Hanover, and Ronald D. Stouffer, Silver Spring, both of Md., assignors to Bowles Fluidics Corporation, Columbia, Md.

Continuation-in-part of Ser. No. 771,979, Oct. 8, 1991, Pat. No. 5,181,660, which is a continuation-in-part of Ser. No. 759,557, Sep. 13, 1991. This application Jan. 7, 1992, Ser. No. 816,978
Int. Cl.[5] B05B *1/08*
U.S. Cl. 239—589.1 6 Claims



1. A low pressure fluidic oscillator, comprising:

an oscillation chamber having a centerline, and a pair of mutually facing and complementary-shaped sidewalls and planar top and bottom walls, upstream end and downstream end walls,

means forming an input power nozzle in said upstream end wall having a width W and a depth D, for issuing a stream of fluid into said oscillation chamber, and form alternately pulsating vortices in said oscillation chamber on each side of said stream, respectively,

an outlet opening formed in said downstream end wall and substantially axially aligned with said power nozzle, a pair of short sidewalls diverging in a downstream direction from said outlet opening, and

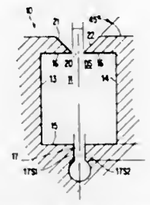
means forming an interconnect passage proximate said downstream end wall interconnecting downstream portions only of said oscillation chamber on each side of said centerline.

5,213,270

LOW COST, LOW PRESSURE FLUIDIC OSCILLATOR WHICH IS FREE OF FEEDBACK

Ronald D. Stouffer, Silver Spring, and Dharapuram Srinath, Hanover, both of Md., assignors to Bowles Fluidics Corporation

Filed Sep. 13, 1991, Ser. No. 759,557
Int. Cl.[5] B05B *1/08*
U.S. Cl. 239—589.1 8 Claims



1. A low pressure fluidic oscillator which is free of feedback passages, comprising:

an oscillation chamber having an obstruction free length greater than its width, and being defined by a pair of mutually facing and complementarily-shaped sidewalls, top and bottom walls, and first and second end walls,

means forming an input power nozzle in said first end wall having a width W and a depth D, for issuing a stream of fluid into said oscillation chamber, and form alternately pulsating, cavitation-free vortices in said oscillation chamber on each side of said stream,

an outlet opening formed in said second end wall and axially aligned with said power nozzle and having a width and depth such that internal pressure in said chamber is greater than ambient, and

a pair of short sidewalls diverging in a downstream direction from said outlet opening.

5,213,271

POWDER SPRAYER WITH PNEUMATIC POWDER SUPPLY SYSTEM

Diego Uribe, Barrington; Rolf Hantscho, Lake Zurich, and Frank Kowalski, Des Plaines, all of Ill., assignors to Oxy-Dry Corporation, Itasca, Ill.

Filed Aug. 9, 1991, Ser. No. 743,111
Int. Cl.[5] B05B *5/16*
U.S. Cl. 239—654 12 Claims

10. In a printing press having means for transferring sheet material along a predetermined path, a powder sprayer for directing anti-offset powder onto said sheet material, said powder sprayer comprising

a housing for containing a quantity of powder, said housing having an elongated discharge opening,

a rotatable roller disposed within said opening for metering the discharge of powder from said housing through said discharge opening,

a powder supply hopper remote from said housing,

conduit means connecting said powder supply hopper to said housing,

a selectively operable blower connected to said conduit means,

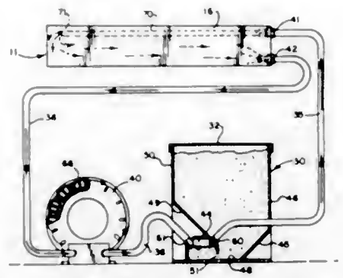
said conduit means, blower, housing, and supply hopper defining a closed loop through which air and powder may be circulated upon operation of said blower for transfer-

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ring powder from said supply hopper to said housing for maintaining a quantity of powder in the housing for metering by said roller,

said supply hopper having a discharge opening, means defining a mixing chamber for receiving powder from said supply hopper discharge opening,

said conduit means including a first conduit having one end connected to said mixing chamber for directing an air



flow generated by said blower forcefully against powder within said mixing chamber for causing said powder to become air borne and for generating a relatively rich air powder mixture within said mixing chamber, and

said conduit means including a second conduit communicating with an upper portion of said mixing chamber for receiving air borne powder in said mixing chamber for direction to said housing.

5,213,272

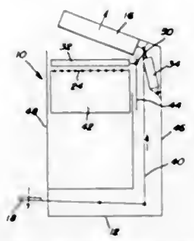
ENVIRONMENTAL NON-POWERED PAIL TYPE TRASH CONTAINER

Denis Gallagher, P.O. Box 944, Captain Cook, Hi. 56704, and Richard A. Swetz, 28 Barker St., Apartment 1G, Mount Kisco, N.Y. 10549

Continuation-in-part of Ser. No. 729,362, Jul. 12, 1991, Pat. No. 5,139,205. This application Jul. 17, 1992, Ser. No. 913,930

Int. Cl.[5] B02C *9/04*

U.S. Cl. 241—33 **9 Claims**



1. A segregated waste disposal device comprising:

a main housing;

a plurality of waste receptacles provided in said main housing, each of said plurality of waste receptacles receiving one of a plurality of distinct waste products, respectively, including glass and metal;

an opening within said main housing for receiving at least one of glass and metal waste;

a weighted lid connected to said main housing for crushing waste deposited into said opening;

means for selectively opening and closing said weighted lid; and

means for distributing crushed waste to selected ones of said plurality of containers, said means for distributing including

a grate member provided within said opening beneath said weighted lid, said weighted lid crushing waste against said grate member,

deflector means for directing crushed glass into a predetermined one of said plurality of waste receptacles, and

a sweep arm for sweeping remaining crushed waste off of said grate into a waste receptacle other than a waste receptacle containing crushed glass.

5,213,273

HAMMER MILL

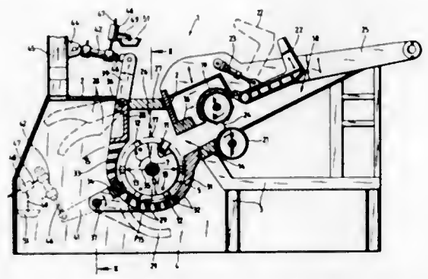
Wilhelm Linnerz, Kaarst, Fed. Rep. of Germany, assignor to Lindemann Maschinenfabrik GmbH, Dusseldorf, Fed. Rep. of Germany

Continuation of Ser. No. 693,719, Apr. 30, 1991, abandoned. This application May 6, 1992, Ser. No. 879,714

Claims priority, application Fed. Rep. nf Germany, May 21, 1990, 4016295

Int. Cl.[5] B02C *13/09*

U.S. Cl. 241—73 **8 Claims**



1. A hammer mill for shredding a scrap metal commodity, comprising:

a housing;

a shaft rotatably supported in said housing; and

a hammer rotor supported on said shaft for joint rotation therewith;

said housing including:

an inlet located on an upwardly rotating side of said hammer rotor,

a first anvil located at an upper edge of said inlet,

an outlet,

an impact chute located in a region between said inlet, and above said hammer rotor, said impact chute having an open bottom and including a pivotable wall located opposite said inlet and having a screening grid portion, said pivotable wall defining an outlet wall of said outlet,

a bottom having a swing grid portion and a shell portion extending between said grid portion and said inlet, and

a second anvil located on said swing grid portion, said outlet wall extending to said swing grid portion.

5,213,274

FEEDING MECHANISM FOR A CONTAINER CUTTING MACHINE

Frank J. Lodovico, Delmont, Pa., assignor to Allegheny Paper Shredders, Inc., Delmont, Pa.

Filed May 4, 1992, Ser. No. 877,760

Int. Cl.[5] B02C *19/14, 23/02*

U.S. Cl. 241—222 **17 Claims**

1. A feeding mechanism for feeding cylindrical containers or the like through a cutting machine of a type for cutting a thin wall material of said cylindrical containers into small pieces, said cylindrical container having a length and a diameter, said length being greater than said diameter, said feeding mechanism for first directing a leading end of said cylindrical container toward said cutting machine for initial cutting thereby,

said cutting machine having an effective width greater than said diameter, said feeding mechanism comprising:

a pair of parallel feed shafts centrally disposed above said cutting machine;

each of said feed shafts having an axis of rotation;

said axes of rotation being parallel and disposed an equal distance above said cutting machine;

said pair of said feed shafts having a predetermined shaft distance therebetween to provide a predetermined gap between said feed shafts;

said predetermined gap being greater than said diameter of said cylindrical container;

said each feed shaft having a pair of feed discs mounted for rotation therewith;

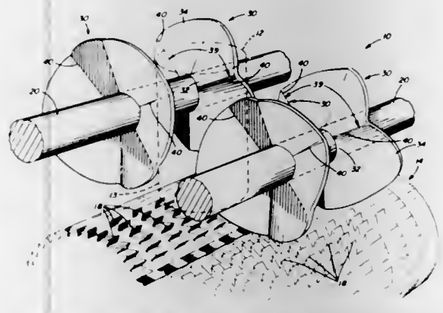
said each feed disc having a central area and a peripheral area;

said pair of said feed discs being mounted on said feed shaft with said central areas having a first predetermined distance therebetween;

said peripheral areas including a plurality of first curved sectors and a plurality of second curved sectors;

circumferentially adjacent said first curved sectors being separated by one of said second curved sectors therebetween;

said first curved sectors of said pair of said feed discs on said each feed shaft being circumferentially aligned on said each feed shaft;



said second curved sectors of said pair of said feed discs on said each feed shaft being circumferentially aligned on said each feed shaft;

said pair of said feed shafts being mounted for rotation in opposite directions and at the same speed toward said cutting machine;

said pair of said feed shafts being rotationally aligned to cause said first curved sectors and said second curved sectors on respective said feed shafts to the aligned when positioned between said feed shafts;

corresponding said first curved sectors of said pair of said feed discs on said feed shaft being a second predetermined distance apart;

corresponding said second curved sectors of said pair of said feed discs on said feed shaft being a third predetermined maximum distance apart;

said second predetermined distance being greater than said first predetermined distance and less than said diameter;

said third predetermined maximum distance being greater than said diameter; and

said pair of said feed discs on one of said feed shafts cooperating with said pair of said feed discs on the other of said feed shafts to entrap said cylindrical containers generally between said corresponding first curved sectors of said pair of said feed discs on said one feed shaft and aligned said corresponding first curved sectors of said pair of said feed discs on said other of said feed shafts for advancement of said leading end of said cylindrical container toward said cutting machine.

5,213,275

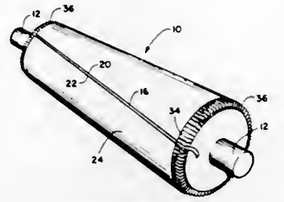
REEDING EDGE FOR SECURING IN PLACE FIBER BAND DURING FILAMENT WINDING OPERATION

Ronald K. Giesy, Katy, Tex., assignor to General Dynamics Corporation, Space Systems Division, San Diego, Calif.

Filed Jul. 17, 1991, Ser. No. 731,698

Int. Cl.[5] B65H *54/00*

U.S. Cl. 242—1 **7 Claims**



1. An improved mandrel having a longitudinal center line for filament winding thereon to form filament wound structures comprising:

said mandrel having a uniform diameter body portion and

a plurality of spaced apart elongated walls extending substantially parallel with said longitudinal centerline of said mandrel forming rectilinear slots therebetween positioned circumferentially around said mandrel adjacent at least one end of the mandrel for receiving and for positioning filament being wound upon said mandrel at a low angle relative to said centerline along the surface of said mandrel.

5,213,276

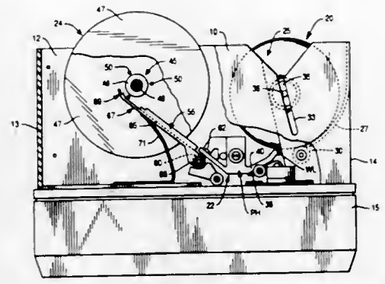
SELF-THREADING JOURNAL PRINTER

David E. Weeks, Candor; Robert L. Wirth, Ithaca, both of N.Y., and Kenneth W. Hanna, Port Charlotte, Fla., assignors to NCR Corporation, Dayton, Ohio

Filed May 28, 1991, Ser. No. 706,430

Int. Cl.[5] B65H *20/04*

U.S. Cl. 242—67.30 R **8 Claims**



1. In a printer for printing successive lines on a web of print receiving material,

a housing including spaced apart side walls defining between them a supply station, a printing station, and a take-up station,

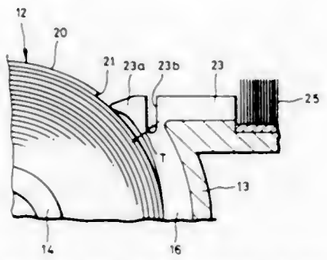
a supply cradle for a web of material, said cradle having an arcuate bottom wall extending between said side walls,

means forming guide slots in said walls extending along a plane substantially coincident with a radius of said arcuate bottom wall to receive and to guide a supply spool fitted in a roll or print receiving material,

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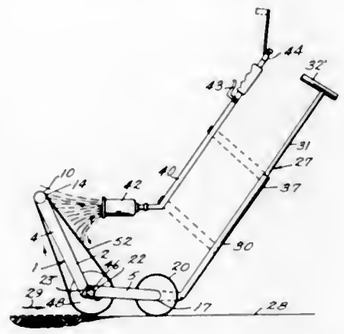
an entrance guide extending along a tangent from said bottom wall,
entrance guide means extending from said supply cradle to said printing station,
a take-up spool supported on said side walls along a fixed axis extending across said take-up station,
exit guide means extending from said printing station to said take-up spool, said exit guide means including a portion movable toward and away from said take-up spool,
said guide means cooperating to define a path for a web of the print receiving material from said supply cradle to said take-up spool,
a drive roller having a cylindrical friction surface supported on a traverse axis to said path with said friction surface tangent to said path,
a pressure roller supported on the opposite side of said path from said drive roller, and bias means urging said pressure roller toward said drive roller,
first motor means connected to rotate said drive roller, and
second motor means independently operable from said first motor means and connected to rotate said take-up spool in a first direction to position said take-up spool for engagement with the web of print receiving material, and in a second direction for taking up the web of print receiving material once engaged.

5,213,277
SELF-ADVANCING FILM CASSETTE HAVING SEPARATION CLAW FOR JAMMING PREVENTION
Koichi Takahashi; Kuniharu Kitagawa; Hideaki Kataoka, and Tomoyuki Takahashi, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation of Ser. No. 607,417, Oct. 31, 1990, abandoned.
This application Apr. 17, 1992, Ser. No. 869,876
Claims priority, application Japan, Nov. 2, 1989, 1-286725; Nov. 13, 1989, 1-294435; Feb. 23, 1990, 2-43736
Int. Cl.[5] G03B *17/26*
U.S. Cl. 242—71.1 **7 Claims**



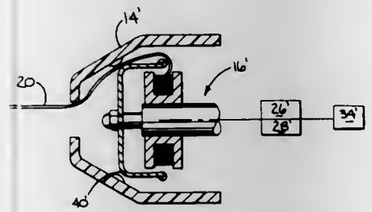
1. A self-advancing film cassette consisting essentially of:
a spool;
a film roll formed of a photographic film wound on said spool;
a cassette shell, including a film passage mouth, for containing said spool, said cassette shell further including loosening prevention mans for controlling advancement of a leader of said photographic film from said film passage mouth, said loosening prevention means preventing said film roll from being loosened when said spool is rotated in the unwinding direction of the film roll;
a single separation claw, disposed outside an area of said photographic film where an exposure image is formed, said separation claw protruding from an inner wall of said cassette shell toward said film roll so as to prevent jamming of said film leader against said loosening prevention means, wherein said film leader has a portion that projects so as to confront said separation claw and a groove formed in a base portion of said separation claw so as to provide a springy characteristic to said separation claw, such that said separation claw is biased towards said film roll.

5,213,278
APPARATUS FOR APPLYING WEB SHAPED MATERIAL TO A SUBSTRATE
John V. Holbek, Lyogby, and Bjarne K. Beck, Soborg, both of Denmark, assignors to A/S Jens Villadsens Fabriker, Herlev, Denmark
Continuation of Ser. No. 613,915, Dec. 11, 1990, abandoned.
This application Mar. 31, 1992, Ser. No. 863,511
Claims priority, application Denmark, Jun. 23, 1988, 3460/88
Int. Cl.[5] B32B *35/00*; **B65H** *16/00, 23/00*
U.S. Cl. 242—94 **11 Claims**



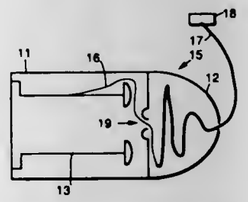
1. An apparatus for applying web material upon a substrate, comprising:
a frame structure;
moving means in the form of interconnected rods with a handle at the upper end of the uppermost rod connected to said frame structure and the rods of the moving means forming an obtuse angle with the frame structure;
mounting means for rotatably mounting a roll of web material onto said frame structure;
guiding means mounted on said frame structure for rotation about an axis parallel to an axis of rotation of said roll on said mounting means, said guiding means mounted above said mounting means on said frame structure; and
heating means for applying a burner flame to a portion of said web material to heat said portion during operation of the apparatus,
said mounting means and said guiding means being mounted on said frame structure such that during operation said web of said roll mounted on said mounting means can be partially unrolled, moved in an upward direction from the roll, around the guiding means and in a downward direction around and in contact with the roll as the web material is applied to the substrate, wherein the web material passes between the roll and the substrate, the roll of the web material being thus both a magazine for the web material and a pressure roll for applying pressure to the web material at the point where the web material initially contacts the substrate, and
wherein the heating means is mounted in such a way that it heats the web on a surface which is to come in contact with the substrate during the downward movement of the web from the guiding means toward the roll and substrate.

5,213,279
CASTING IMPROVEMENT FOR SPIN CAST FISHING REELS
John W. Puryear, Sapulpa, Okla., assignor to Zebco Corporation, Tulsa, Okla.
Filed Apr. 29, 1991, Ser. No. 693,963
Int. Cl.[5] A01K *89/01*
U.S. Cl. 242—239 **8 Claims**



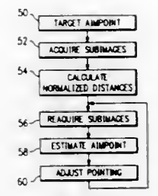
1. A fishing reel comprising:
a housing defining a line snubbing surface; and
first means at least partially within said housing for selectively a) retrieving and storing a supply of fishing line and b) paying line out of said supply,
said first means including a spinner head for bearing line against a first part of the line snubbing surface on the housing to thereby prevent payout thereof from the fishing reel,
there being integrally formed first texturing on only a part of the line snubbing surface on the housing including at least a portion of said first part so that the first part of the line snubbing surface with the first texturing has a greater coefficient of friction than a second part of the line snubbing surface that does not have the first texturing,
whereby the line can be positively trapped against the first part of the line snubbing surface to facilitate the performance of a cast without excessive application of pressure on the line,
said first texturing and housing being homogeneous.

5,213,280
LINEAR PAYOUT LEADER HOLDER
Nancy J. Christie, Tucson, Ariz., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Filed Mar. 14, 1991, Ser. No. 669,243
Int. Cl.[5] F42B *15/04*
U.S. Cl. 244—3.12 **12 Claims**



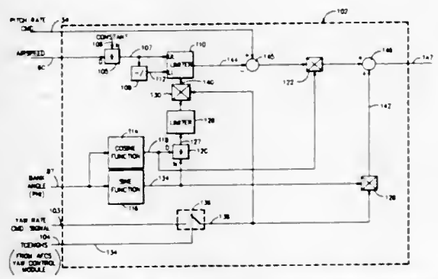
1. An optical fiber dispenser comprising:
a housing;
a bobbin disposed within the housing;
a leader holder attached to an end of the housing;
an exit aperture disposed in the leader holder that is adapted to allow an optical fiber waveguide to exit therefrom; and
said optical fiber waveguide having an unjacketed portion wound around the bobbin and a leader comprising coiled jacketed portion coupled to the unjacketed portion of the optical fiber waveguide, and wherein the the leader is coiled inside and is disposed in contact with an inner wall of the leader holder.

5,213,281
METHOD AND APPARATUS FOR TRACKING AN AIMPOINT WITH ARBITRARY SUBIMAGES
Joel K. McWilliams, Highland Village, and Don R. Van Rheeden, Lewisville, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 30, 1991, Ser. No. 753,151
Int. Cl.[5] F41G *7/30*
U.S. Cl. 244—3.15 **20 Claims**



1. A method for tracking an aimpoint comprises the steps of
acquiring an aimpoint on a target and a set of subimages arbitrarily associated with the aimpoint by a sensor in a field of view;
for a first time, calculating a normalized distance from each subimage to the aimpoint;
for a second time, reacquiring at least one of the subimages; and
estimating a subsequent location of the aimpoint based on the subsequent location of the subimages and on the normalized distances.

5,213,282
MANEUVER FEEL SYSTEM FOR A ROTARY WING AIRCRAFT
Phillip J. Gold, Shelton, and Stuart C. Wright, Woodbridge, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.
Filed Aug. 28, 1991, Ser. No. 751,456
Int. Cl.[5] B64C *13/46, 13/50, 11/34*
U.S. Cl. 244—17.13 **10 Claims**



1. A rotary wing aircraft flight control system which receives signals indicative of aircraft pitch rate, pitch attitude, bank angle and airspeed, and responds to a pitch command from a sidearm controller to control the pitch of an aircraft, comprising:
(a) means responsive to the airspeed signal and the pitch signal, for scheduling and providing a set point signal indicative of the desired aircraft pitch rate of change, which provides a constant sidearm controller force as a function of load factor on the main rotor;
(b) means for computing the difference between said set point signal and the pitch rate signal, and for providing a pitch rate error signal indicative thereof;
(c) inverse model means responsive to said set point signal

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for scheduling a feedforward command signal to drive the aircraft to respond in a manner which is essentially equal to said set point signal;

(d) means responsive to said set point signal and the pitch attitude signal, comprising

(1) means for providing maneuvering feel on the sidearm controller when the bank angle of the aircraft exceeds a predetermined value by conditioning said set point signal;

(2) means for integrating over time said conditioned set point signal to provide a desired pitch attitude set point, for comparing said desired pitch attitude set point and the pitch attitude signal and providing a pitch attitude error signal indicative of the difference; and

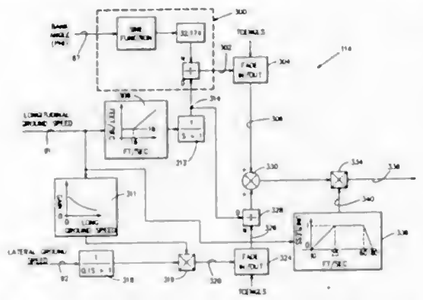
(e) means responsive to said pitch rate error signal, said feedforward command signal, and said pitch attitude error signal, for providing a pitch command signal to the main rotor of the aircraft.

5,213,283

LOW SPEED TURN COORDINATION FOR ROTARY WING AIRCRAFT

Phillip J. Gold, Shelton, and Walter R. Faull, Bethlehem, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Aug. 28, 1991, Ser. No. 751,436
Int. Cl.[5] B64C *11/44*; G05D *1/08*
U.S. Cl. 244—17.13 **14 Claims**



1. A helicopter flight control system which receives an heading signal indicative of the helicopter heading, and a yaw rate signal indicative of the helicopter's rate of change about the yaw axis, comprising:

a multi-axis sidearm controller for providing a yaw axis command signal;

rate model means responsive to said yaw axis command signal, for providing a rate set point signal indicative of the desired rate of change about the yaw axis of the helicopter;

means for computing the difference between said rate set point and the yaw rate signal, and for providing a yaw rate error signal indicative thereof;

inverse model means responsive to said rate set point signal for scheduling a feedforward command signal to drive the helicopter to respond about its yaw axis in a manner which is essentially equal to said set point signal;

means responsive to said set point signal, comprising:

means for coordinating helicopter banked turns at airspeeds below 60 knots by conditioning said set point signal as a function of the helicopter's bank angle, longitudinal ground speed, and lateral ground speed to provide a conditioned set point which is indicative of the yaw rate at which the aircraft turn will be coordinated;

means for integrating said conditioned set point to provide an aircraft heading set point signal, for comparing said heading set point and the heading signal, and for providing a heading error signal indicative of the difference; and

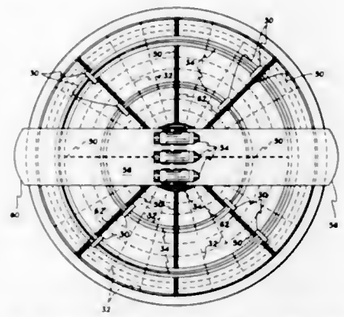
conditioning means responsive to said rate error signal, said feedforward command signal, and said heading error signal, for providing a command signal to the helicopter tail rotor which results in the necessary tail rotor pitch to place the aircraft in a substantially coordinated turn at airspeeds below 60 knots such that the nose and tail of the aircraft fly the same ground track.

5,213,284

DISC PLANFORM AIRCRAFT HAVING VERTICAL FLIGHT CAPABILITY

Steven N. Webster, P.O. Box 426 Sleepy Hollow, Long Creek, Mossy Head, Fla. 32434

Continuation-in-part of Ser. No. 395,358, Aug. 17, 1989, abandoned. This application Aug. 5, 1991, Ser. No. 772,904
Int. Cl.[5] B64C *29/00*
U.S. Cl. 244—23 C **15 Claims**



1. A disc planform aircraft having vertical flight capability, said aircraft having a plurality of concentric lifting fan blade sets positioned around a central cabin area and an upper and a lower surface respectively containing upper and lower lifting fans,

said fan blade sets comprising a first set and a second set,

said first fan blade set comprises upper and lower inner lift fans and upper and lower outer lift fans and said second fan blade set comprises an upper and lower central lift fan,

said first set and said second set having equal projected horizontal areas and rotating in opposite directions to one another,

at least one engine providing power for said aircraft,

at least one of said at least one engine providing power for the operation of said fan blade sets, and

means providing power transmission from said at least one of said at least one engine to said fan blade sets.

3. The aircraft of claim 1 wherein;

said engine include one said engine providing power for said lifting fan blade sets.

5,213,285

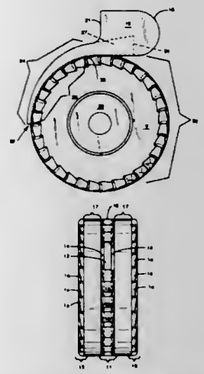
ROTATING AIRCRAFT TIRE/LANDING GEAR APPARATUS

John J. Stanko, 327 Coraopolis Rd., Coraopolis, Pa. 15108

Filed Apr. 10, 1992, Ser. No. 867,154
Int. Cl.[5] B64C *25/40*
U.S. Cl. 244—103 S **17 Claims**

1. A rotating aircraft tire, comprising:

an array of projections for catching air molded into the tire and situated in at least one circumferential channel within the tire thread so as to protect the projections from excessive wear, which projections have a forward face and a body of gradually decreasing height and width which extends back from the forward face, and which forward faces face the front of the aircraft when on the lower portion of the tire so as to catch air flowing past the tire



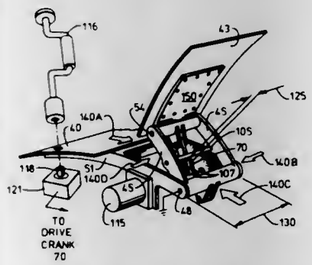
and effect a forward rotational force on the tire and wheel.

5,213,286

DOOR FOR AIRCRAFT NACELLE

Homer J. Elliott, deceased, late of Cincinnati by Lydia B. Elliott, legal representative ; Jarvis G. Higginbotham, Hamilton, and James E. Durham, Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Continuation of Ser. No. 597,923, Oct. 10, 1990, abandoned. This application Dec. 5, 1991, Ser. No. 803,774
Int. Cl.[5] B64D *29/06*
U.S. Cl. 244—129.4 **5 Claims**



1. In an aircraft nacelle having an engine located in an interior of the nacelle, an apparatus comprising:

a) a door for covering an opening in the nacelle, wherein said door includes an inner surface facing the interior of the nacelle when said door is in a closed position;

b) a first pivot, wherein said first pivot is fixed with respect to the nacelle; and

c) linkage means for

(i) connecting said door to the nacelle,

(ii) allowing said door to rotate about a second pivot, wherein said second pivot is fixed with respect to said door but is movable with respect to the nacelle,

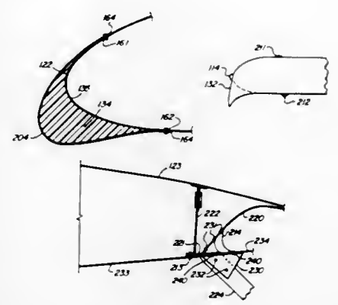
(iii) allowing said second pivot to rotate about said first pivot, and simultaneously opening said door and moving said door outward from the nacelle, thereby permitting access to the interior of the nacelle and avoiding any movement of said door inner surface toward the interior of the nacelle.

5,213,287

WING MODIFICATION METHOD AND APPARATUS

David R. Barron, 1015 Graf Road, Kelowna, British Columbia, Canada V1Y 7R1

Filed Nov. 4, 1991, Ser. No. 787,597
Int. Cl.[5] B64C *3/16, 23/00*
U.S. Cl. 244—130 **8 Claims**



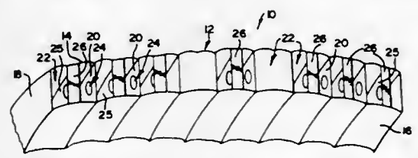
1. A leading edge modification for the wing of a DeHavilland Beaver or Otter aircraft, said leading edge modification comprising a cuff extending forwardly from the leading edge of the unmodified wing and being fitted over a plurality of blocks mounted intermittently across the width of said leading edge, said cuff extending smoothly from the top of said wing in a generally convex profile to a point approximately 2 inches forwardly and 4 inches below the forwardmost point of said wing, said cuff then extending in a generally linear line rearwardly to the bottom of said wing at a point approximately 7 inches rearwardly of said forwardmost point of said wing.

5,213,288

PARACHUTE OPENING SHOCK REDUCING SYSTEM

Norman T. Girdwood, Durban, South Africa, assignor to Parachute Industries of Southern Africa (PTY) LTD, Sandton, South Africa

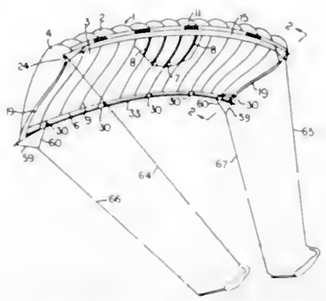
Filed Dec. 11, 1991, Ser. No. 805,067
Int. Cl.[5] B64D *17/02*
U.S. Cl. 244—145 **22 Claims**



1. A high performance air canopy for a parachute, the canopy comprising a fabric structure defining, in its deployed configuration, a substantially uniformly cross sectioned front face between a top fabric element and a bottom fabric element held in spaced configuration by two side elements and a plurality of intermediate partition elements extending rearwardly from the said front face at spaced intervals along the length thereof, the top and bottom fabric elements and the side and partition elements defining a plurality of cells between them that extend rearwardly from the said front face with the said front face defining a nose inlet for each cell through which air can enter the cell, the nose inlet of at least one cell being at least partially blocked-off by a blocking element to a degree sufficient to significantly restrict the rate at which air enters the canopy, with the nose inlets of at least two cells spaced from the center of the canopy not being wholly blocked off when the canopy is in its deployed configuration.

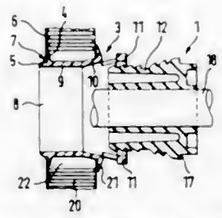
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,289
FRAMED AIRFOIL KITE
David P. Barresi, 15 Nutter Rd., N. Reading, Mass. 01864
Filed Jun. 8, 1992, Ser. No. 894,916
Int. Cl.[5] B64D *17/02, 17/34;* A63H *33/20*
U.S. Cl. 244—145 12 Claims



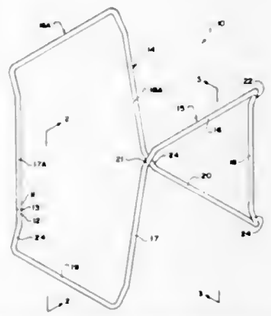
1. A framed airfoil kite, comprising, a flexible airfoil-shaped envelope having a leading edge, a trailing edge, and two side edges; said leading edge having an air intake opening extending therealong, for inflating the airfoil-shaped envelope when said leading edge is presented to a flowing air stream; a flexible resilient front spar extending along the entire leading edge of said envelope; a flexible resilient rear spar extending along the entire trailing edge of said envelope; two flexible resilient side spars extending along the respective side edges of said envelope; two upper control lines connected to said front spar at points near its opposite ends; and two lower control lines connected to said rear spar at points near its opposite ends; each side spar being formed to include a relatively inflexible frontal portion and a relatively flexible rear end portion; the rear end portions of the side spars being connected to the ends of the rear spar so that a pulling action on either lower control line produces flexure of the associated end portions of the rear spar and associated side spar.

5,213,290
CABLE HOLDER
Erminio Moretti, Grenoble, France, assignor to A. Raymond & Cie, Grenoble, France
Filed Mar. 12, 1992, Ser. No. 851,673
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1991, 4109206
Int. Cl.[5] F16L *5/00*
U.S. Cl. 248—56 5 Claims



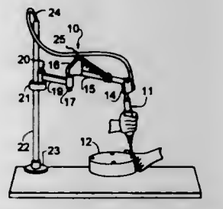
1. A holder for holding a cable or hose passing through an opening in a wall in sealed manner comprising an annular holding body part made of an inflexible plastic material and a cylindrical receiving body part made of a flexible elastic material adapted to be inserted in an axial direction into said holding body part, said receiving body part having a front end and a rear end with an opening therein extending axially between said ends for tightly surrounding a cable or hose and a locking edge extending circumferentially around an outer peripheral surface thereof and said annular holding body part having a front end and a rear end with an opening extending between said ends sized to receive said receiving body part, the opening in said holding body part having a cylindrical inner wall surface adjacent its front end and a coaxially, extending conically widening inner wall surface adjacent its rear end, locking means on the front end of the holding body part for anchoring it in the opening in the wall and inwardly extending radial locking noses on the rear end of the holding body part for engagement with the locking edge on the receiving body part when the front end of the receiving body part is inserted into the rear end of the holding body part to axially lock said parts together, said receiving body part having a plurality of sealing rings on its outer peripheral surface that seal against said inner wall surfaces of the opening in the holding body part in the inserted position.

5,213,291
GARBAGE BAG HOLDER
Jacob R. Wiebe, 60 Heaton Avenue, Winnipeg, Manitoba, Canada R3H 3E3
Filed Aug. 30, 1991, Ser. No. 751,816
Int. Cl.[5] A63B *55/04*
U.S. Cl. 248—97 10 Claims



1. A garbage bag holder comprising a wire frame shaped and connected to define a substantially continuous wire element including two spaced upstanding bag engaging portions each shaped generally as an inverted U-shaped with an upper cross bar and two depending legs, the cross bars being in spaced generally parallel locations so that an edge of the bag at an open mount of the bag can be wrapped over the cross bars to hold the mouth open, and two bottom bars, each connecting a lowermost end of one leg of one of the bag engaging portions to a lowermost end of an adjacent one of the legs of the other bag engaging portion thus defining four connecting portions each between a respective leg and the respective bottom bar, each of the connecting portions being defined by an integral portion of the wire forming the leg and the bottom bar thus allowing spring flexing of the legs relative to the bottom bars to bias the cross bars apart to stretch the mouth of the bag, each of the legs being separated at a position along its length into two separate leg portions, four connecting members, each connecting together the two separate leg portions of a respective one of the legs, the wire frame thus comprising four separate U-shaped elements connected together by said connecting members, each of two of said U-shaped members comprising one of said cross bars and one separate leg portion of each of two of the legs, and each of two of said U-shaped members comprising one of said bottom bars and one separate leg portion of each of two of the legs, each of said connected members connecting together said two leg portions of a respective one of the legs such that the respective leg is substantially continuous and straight and such that each leg portion is held against rotation relative to the one leg portion of the respective leg about an axis longitudinal of the leg, wherein each connecting portion defines between the respective leg and the respective bottom bar an angle greater than 90° so that the bag engaging portions are inclined upwardly and outwardly away from one another so as to require spring flexing of the bag engaging portions inwardly toward one another to receive the mouth of the bag wrapped therearound, and wherein an upper end of each leg of each bag engaging portion includes an outwardly cranked portion connected to the cross bar such that the cross bars are spaced by a distance greater than a space in between main body portions of adjacent ones of the legs.

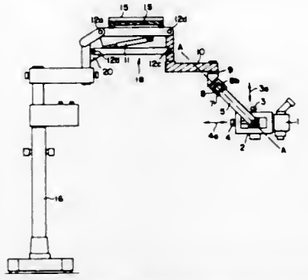
5,213,292
TENSION ADJUSTING MECHANISM FOR TOOL BALANCER
Maurice Evans, Kalamazoo, Mich., assignor to Woodhead Industries, Inc., Northbrook, Ill.
Filed Apr. 22, 1992, Ser. No. 872,086
Int. Cl.[5] F16M *11/00*
U.S. Cl. 248—123.1 6 Claims



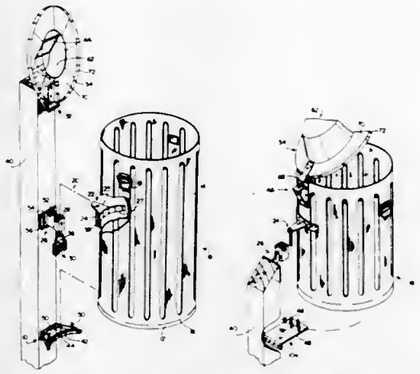
1. An improved apparatus for supporting a tool during working, comprising support means, a swing arm having a proximal end and a distal end, said proximal end being pivotally mounted to said support means for swinging motion in a generally horizontal plane; a vertical pivot shaft mounted to the distal end of said swing arm; a bracket mounted to said pivot shaft for pivotal movement about said shaft; an articulating arm having a central portion of generally uniform cross-section and having a proximal end and a distal end, said proximal end being mounted to said bracket for pivotal motion about a first horizontal pivot axis; a tool holder mounted to the distal end of said articulating arm; an adjusting saddle having an opening receiving said articulating arm; said saddle being constructed and arranged to be tilted by hand between an adjusting position in which said saddle may be moved axially of said articulating arm along said central portion, and a locking position in which said saddle engages and couples to said articulating arm at a position of desired adjustment; and spring means connected at one end to said bracket at a position above said horizontal pivot axis, and connected at a second end to said saddle to bias said saddle in the locking position and to bias said articulating arm upwardly at least partially to offset the weight of the tool mounted to said tool holder.

5,213,293
STAND EQUIPPED WITH ACCESSORY DEVICES FOR SUPPORTING A FREELY ORIENTABLE APPARATUS
Juerg Muentener; Otto Geschwentner, and Juergen Metz, all of Balgach, Switzerland, assignors to Leica Heerbrugg AG, Heerbrugg, Switzerland
PCT No. PCT/EP90/01075, § 371 Date Apr. 24, 1991, § 102(e) Date Apr. 24, 1991, PCT Pub. No. WO91/00472, PCT Pub. Date Jan. 10, 1991
PCT Filed Jul. 4, 1990, Ser. No. 681,503
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1989, 3921857
Int. Cl.[5] F16L *3/00*
U.S. Cl. 248—123.1 10 Claims

1. A stand for supporting an apparatus, comprising:
a main frame;
a linkage parallelogram connected to said main frame;
a first supporting arm connected to said linkage parallelogram;
an energy storing element connected to said linkage parallelogram at a plurality of places; and
means for displacing the center of gravity of said apparatus including a second supporting arm having a first non-vertical axis (A—A), said second supporting arm being rotatably connected to said first supporting arm and being connected to said apparatus at a connection point having a second non-vertical axis (B—B) which is perpendicular to said first non-vertical axis;
wherein said displacing means displaces the center of gravity of said apparatus into a point of intersection of said first non-vertical axis and said second non-vertical axis.



5,213,294
LOCKING SUPPORT FOR REFUSE CAN
Walter J. DeBord, 12212 Pueblo Rd., Gaithersburg, Md. 20878
Filed Mar. 18, 1992, Ser. No. 853,208
Int. Cl.[5] A47G *23/02*
U.S. Cl. 248—147 20 Claims



1. A locking bracket for securing a refuse can to a substantially vertical structure, said refuse can comprising a base and a side wall, said side wall being fixed at one end to said base and open at its other end, said vertical structure having mounted to it a base support for receiving the base of the refuse can and supporting the weight of the refuse can, said locking bracket comprising:
a female member comprising means defining an aperture for receiving a male member and means for fixing said means for defining an aperture to one of the side wall of the refuse can and the vertical structure, said means for fixing comprising a first spacer for spacing said means defining

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an aperture from said one of the side wall of the refuse can and the vertical structure;

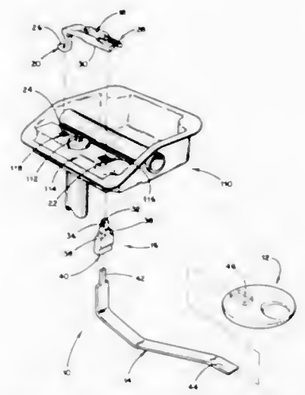
a male member comprising an elongated pin, said pin including a proximal end portion and a distal end portion, and means for fixing said proximal end portion of said pin to a second spacer for spacing said pin from the other of said side wall of said refuse can and said vertical structure; and

said distal end portion of said pin being sized to fit snugly within and extend through said aperture defined by said female member, a bore extending transversely through said distal end portion of said pin for receiving the hasp of a lock, whereby said pin may be prevented from being withdrawn from said aperture defined by said female member by locking said hasp in said bore.

5,213,295
TWO-WAY ACTUATOR FOR A CHAIR HEIGHT ADJUSTMENT MECHANISM

Brian L. Scholten, Grandville, and James E. Massey, Wayland, both of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Filed May 31, 1991, Ser. No. 708,188
Int. Cl.[5] F16M *11/00*
U.S. Cl. 248—161 20 Claims



1. A control actuator for engaging a release member of a chair height adjustment mechanism, said actuator comprising:

an elongated actuator lever, said lever having a handle portion, a bearing portion and an end; and

pivot means for pivoting said bearing portion in a predetermined direction when said handle portion is moved in a first direction and for pivoting said bearing portion in said predetermined direction when said handle portion is moved in a second direction, opposite said first direction.

5,213,296
STRUCTURE IMPROVED CONNECTING ASSEMBLY FOR TRIPOD

Jin T. Lee, Ste. 1, 11F, 95-8 Chang Ping Rd. Sec. 1, Taichung, Taiwan

Filed Feb. 3, 1992, Ser. No. 829,270
Int. Cl.[5] F16M *11/38*
U.S. Cl. 248—166 1 Claim

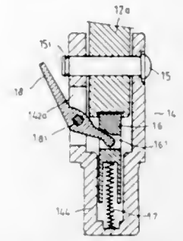
1. An improved connecting assembly for a tripod comprising:

a base seat having a pipe and a first, second, and third lugs disposed around an outer periphery of said pipe, each said lug having a hole formed therethrough and at least two locking recesses formed spacedly around a periphery thereof;

a first, second, and third support legs having a respective clevis type connector having a pair of prongs and a base on the upper ends thereof, each said connector having a penetrating hole formed through the prongs thereof, a cavity formed in the base thereof, and an aperture formed through a side of a first prong thereof;

a respective axle pin engaging the penetrating hole of each said connector and the hole of a corresponding said lug to hingedly secure each said support leg to a corresponding said lug;

a respective locking bar slidingly disposed in the cavity of each said connector for engaging said at least two locking recesses of a corresponding said lug, each said locking bar having a transverse cavity formed therein communication with the aperture of an associated said connector and defining a rear engagement surface;



a respective spring element disposed in the cavity of each said connector and biasing said locking bar therein forward towards a corresponding said lug;

a respective lever pivotably secured in each said connector, each said lever having a first arm extending outward from the aperture of said connector and a second arm disposed within said connector and engaging the rear surface of the cavity of the locking bar therein;

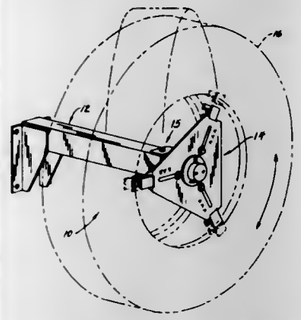
whereby, each said support leg can be rotated about a corresponding said lug by pivoting the first arm of an associated said lever towards said connector thereof so as to space said locking bar from said lug, and locked into a desired angular position relative to said pipe by aligning said locking bar with a selected said at least two locking recess and releasing the first arm of said lever so that said locking bar travels forward and engages the selected said at least two locking recesses on said lug.

5,213,297
TIRE DISPLAY DEVICE

Len Laskowski, Lockport, Ill., assignor to Ready Metal Manufacturing Company, Chicago, Ill.

Filed May 23, 1991, Ser. No. 704,604
Int. Cl.[5] A47F *7/00*
U.S. Cl. 248—285 9 Claims

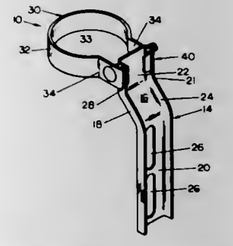
1. A tire display device comprising an arm assembly, a pivotable bracket assembly, and a plate assembly, said arm assembly comprising a wall bracket, an arm having one end secured to said wall bracket and a free end pivotally supporting said pivotable bracket assembly, said bracket assembly comprising a flanged bracket, means for pivotally securing said flanged bracket to said free end of the arm, and a shaft having one end secured to said bracket, said plate assembly comprising a plate having spaced peripherally located slide arm receiving means, slide arms receivable in said slide arm receiving means, means for adjustably positioning said slide arms in said slide arm receiving means with respect to said plate, means for rotatably supporting said plate on said shaft, and means for securing said plate assembly on said shaft, said means for adjustably positioning the slide arms including at least two elongated slots extending substantially over a distance between said means for rotatably supporting said plate and said slide arm receiving means.



5,213,298
MOUNTING BRACKET ASSEMBLY

Stepheo P. Johnson, Olean, N.Y., assignor to Cooper Power Systems, Inc., Coraopolis, Pa.

Filed Dec. 26, 1990, Ser. No. 634,015
Int. Cl.[5] A47K *1/08*
U.S. Cl. 248—313 22 Claims



1. A mounting bracket assembly, comprising:

a bracket member having a base portion and a pair of sides extending therefrom;

a pair of apertures formed in said sides of said bracket member;

a hanger strap adapted for gripping an object with an adjustable force, said hanger strap having a lobe portion adjoined to a pair of neck segments and having a pair of opposing tabs extending from said neck segments toward one another, said tabs being non-rotatably disposed in said apertures of said bracket sides; and

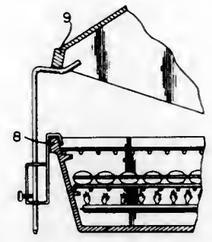
means for clamping said neck segments in a fixed relationship, said clamping means comprising means for adjusting the force with which said hanger strap grips the object.

5,213,299
GRILL PROP

Robert E. Henry, 1729 Greer Dr. W., Newark, Ohio 43055

Filed Jul. 1, 1991, Ser. No. 723,563
Int. Cl.[5] E05C *17/00*
U.S. Cl. 248—354.4 2 Claims

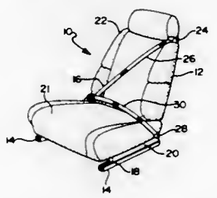
1. An apparatus for use with grills having lids for propping up said lids at various levels above the rim of said grill comprising: a one-piece constructed bent material forming a substantially S-shaped support piece having upper, middle and lower portions, said upper portion is of curved construction and sized to fit over said grill rim, said lower portion is of C shaped construction having upper, middle and lower portions, said lower portion of said C shape is about perpendicular to said middle portion of said support and has a first aperture, said middle portion of said C shape is about parallel to said middle portion of said support and has a second aperture for a thumbscrew and the upper portion of said C shape is about perpendicular to said middle portion of said support and has a third aperture, said C shape is on a side of said support that is opposite said upper curved portion, prop rod sized to fit said first and third apertures and having a propping means for supporting said lid of said grill, so that said prop rod may be freely moved up and down within said C shaped portion and secured into position by a thumbscrew placed in said second aperture.



5,213,300
EXTRUDED AUTOMOTIVE SEAT TRACK

Richard W. A. Rees, Rochester Hills, Mich., assignor to ITT Corporation, New York, N.Y.

Filed Dec. 17, 1991, Ser. No. 808,503
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—429 19 Claims



1. A seat track assembly for automotive seats, said assembly comprising a first elongated extrusion of lightweight, high strength aluminum and a second elongated extrusion of lightweight, high strength aluminum slideably engaged with said first extrusion for longitudinal movement relative thereto, said first extrusion being formed with first and second pairs of abutment means along its length and said second extrusion being formed with third and fourth pairs of abutment means along its length so that each one of said abutment means of said first pair are adjacent and normally spaced from a different one of said abutment means of said third pair and so that each one of said abutment means of said second pair are adjacent and normally spaced from a different one of said abutment means of said fourth pair whereby said abutment means cooperate to provide four elongated reaction areas for resisting separation of said two extrusions.

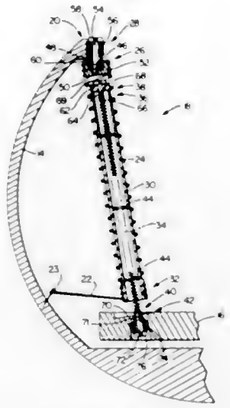
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,301

SUSPENSION SYSTEM FOR ISOLATING VIBRATIONS

Masami Taguchi, 1117 Marquette Ave., #1808, Minneapolis, Minn. 55403, and Timothy P. Sheridan, 3746 Inglewood Ave. S., St. Louis Park, Minn. 55416

Filed Dec. 17, 1991, Ser. No. 809,691
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—611 3 Claims



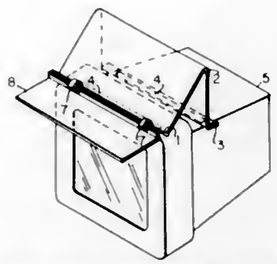
1. A suspension system including a platform to be isolated from external vibrations, a support structure with at least one elevated support section, and at least one spring assembly connected between an associated support section and the platform, wherein each spring assembly comprises:
- an elongated outer coil spring suspended at an upper end thereof from the associated support section;
- a tubular member disposed loosely within the outer spring and attached to a lower end thereof so as to extend upwardly, the tubular member having an inner surface formed of a low friction material;
- an elongated inner coil spring disposed loosely within the tubular member and suspended from an upper point of the tubular member, the inner spring having a lower end attached to the platform;
- at least one elastomeric ring member fitted on the inner spring in sliding contact with the low friction material of the tubular member so as to effect friction dampening of oscillations in the assembly;
- upper attachment means for suspending the outer spring from the associated support section, comprising the associated support section having an upper flange portion, and further comprising an upper pin passing through the upper flange portion and being affixed to the upper end of the outer spring;
- intermediate attachment means for suspending the inner spring from the tubular member, comprising the tubular member having an intermediate flange portion at the intermediate attachment means, and further comprising an intermediate pin passing through the intermediate flange portion and being affixed to an upper end of the inner spring, and lower attachment means for attaching the inner spring to the platform, comprising the platform having a lower flange portion therein, and further comprising a lower pin passing through the lower flange portion and being affixed to the lower end of the inner spring;
- each attachment means further comprising at least one elastomeric ring component retained between the flange portion and a head on the pin.

5,213,302

SUPPORT FOR COMPUTER KEYBOARD ON TOP OF DISPLAY SCREEN DEVICE

Frederick D. Rowe, Jr., Atlanta, Ga., assignor to Additional Ideas, Inc., Atlanta, Ga.

Continuation-in-part of Ser. No. 553,235, Jul. 16, 1990, abandoned. This application Aug. 8, 1991, Ser. No. 745,985
Int. Cl.[5] A45D *19/04*
U.S. Cl. 248—918 19 Claims



1. A support system for supporting a keyboard on top of a display screen device, said support system comprising:
- a substantially rectangular sheet of bendable, rigid material having a bend in its middle portion to form a primary holding surface and a secondary holding surface separated by an angle, said angle at a top portion of said support system;
- a primary retaining lip formed by a primary retaining lip bend in said primary holding surface which primary retaining lip bend is spaced apart from and parallel to the bend between said primary and secondary holding surfaces;
- a secondary retaining lip formed by a secondary retaining lip bend in said secondary holding surface spaced apart from and parallel to the bend between said primary and secondary holding surfaces, outside portions of said primary and secondary retaining lip bends configured so as to enable contact with a non-planar top surface of a display screen device when in use; and
- an accessory attached to said primary retaining lip, said accessory being substantially planar and having a lip portion, said accessory being attached to said primary retaining lip by an R-shaped clamp, said clamp being of a rigid, slightly bendable material so that the opening in said R-shape narrows to a width which is less than the combined thickness of said primary retaining lip and the lip of said accessory, said R-shaped clamp being deformable to accommodate said primary retaining lip and the retaining lip of said accessory and rigid enough to hold said primary retaining lip and the retaining lip of said accessory together in contact with one another.

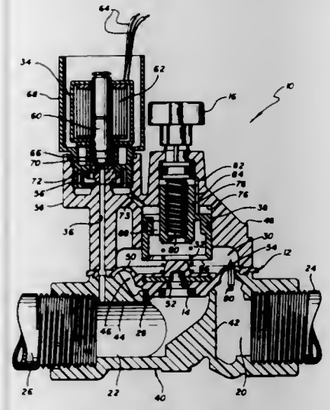
5,213,303

SOLENOID ACTUATED VALVE WITH ADJUSTABLE FLOW CONTROL

Samuel C. Walker, Upland, Calif., assignor to Southwest Fabricators Corp., Tucson, Ariz.

Filed Mar. 5, 1992, Ser. No. 846,383
Int. Cl.[5] F16K *31/365*
U.S. Cl. 251—30.02 19 Claims

1. A solenoid actuated valve, comprising:
- a valve housing having a valve inlet and valve outlet;
- a valve member disposed generally between said valve inlet and outlet, and movable between open and closed positions for respectively permitting and preventing fluid flow from said valve inlet to said valve outlet;
- a control chamber adapted to receive pressurized fluid;
- a pressure-operated diaphragm coupled with said valve member and operable to move said valve member between said open and closed positions, said diaphragm having a flexible portion in fluid pressure communication on opposite sides thereof with said valve inlet and said control chamber;
- passageway means for admitting fluid from said valve inlet to said control chamber;
- a solenoid unit for controlling the pressure of fluid within said control chamber, said solenoid unit in one condition permitting the pressure within said control chamber to substantially equal the pressure at said valve inlet whereby the control chamber pressure acts on the diaphragm to hold said valve member in the closed position, and in another condition opening a bleed passage to relieve pressure within said control chamber sufficiently to permit pressure at the valve inlet to move said diaphragm to displace said valve member to the open positions; and
- flow control means within said control chamber for metering fluid flow from pressure communication with said diaphragm flexible portion within said control chamber to said bleed passage when said valve member is in the open position to maintain a substantially minimum pressure differential across said diaphragm flexible portion.

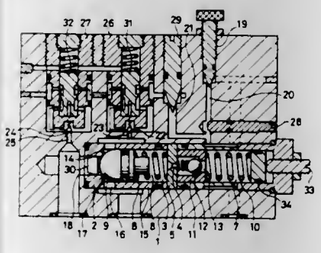


5,213,304

VALVE

Toshihiro Fujikawa, Higashikurume, Japan, assignor to Fuji Engineering Co., Ltd, Tokyo, Japan

Filed Sep. 2, 1992, Ser. No. 939,152
Claims priority, application Japan, Mar. 16, 1992, 4-90222
Int. Cl.[5] F16K *31/12*
U.S. Cl. 251—36 4 Claims



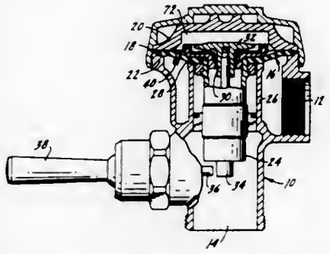
1. A valve comprising:
- a valve chamber **3** formed in a main body **1** and having a valve seat **2**;
- a spacer **5** having an orifice **4** and provided in such a way as to intersect said valve chamber **3** in the longitudinal dimension thereof;
- front and rear chambers **6** and **7**, respectively, formed by said spacer **5** in the section of said valve chamber **3** on the side of said valve seat **2** and the section thereof on the opposite side;
- a main valve **9** is arranged in said front chamber **6** and is constantly biased toward said valve seat **2** by a first spring **8**;
- a substantially vessel-like sub-valve **11** is arranged in said rear chamber **7** and is constantly biased toward said spacer **5** by a second spring **10**;
- a through-hole **13** is formed in said sub-valve **11** which includes a check valve **12**;
- an end chamber **14** is defined between said main valve **9** and said valve seat **2**;
- a side hole **16** extends through a sidewall **15** of said valve chamber **3**, formed in said main body **1**, so as to lead to said end chamber **14**;
- an axial hole **18** extends through a front axial end wall **17** of said valve chamber **3** formed in said main body **1**, so as to lead to said end chamber **14**;
- a drain passage **20** formed in said main body **1**, has an opening/closing valve **19** which allows said rear chamber **7** to communicate with an oil tank;
- a communication passage **21** is formed in said main body **1** and leads to said rear chamber **7**;
- a first passage **23** allows said communication passage **21** and said side hole **16** to communicate with each other and has a second check valve **22**; and
- a second passage **25** allows said communication passage **21** and said axial hole **18** to communicate with each other and has a third check valve **24**.

5,213,305

BYPASS ORIFICE FILTER FOR FLUSH VALVE DIAPHRAGM

John F. Whiteside, Franklin Park, and Bradley S. Richardson, Chicago, both of Ill., assignors to Sloan Valve Company, Franklin Park, Ill.

Filed Apr. 13, 1992, Ser. No. 867,444
Int. Cl.[5] F16K *31/145, 31/60*
U.S. Cl. 251—40 13 Claims



13. In a flush valve, a body having an inlet and an outlet, a passage connecting the inlet and outlet, a valve seat in said passage, a diaphragm positioned to control the flow of water through said passage and to close upon said seat, a bypass orifice and filter member mounted in said diaphragm, said bypass orifice and filter member including a body, a flange at one end of said body for positioning said body within a passage in said diaphragm, a metering restriction in said flange to limit the flow of water through said bypass orifice and filter member, a plurality of circumferentially arranged uniform filter passages about an upstream portion of said body, with the smallest dimension of each passage being less then the smallest dimension of the metering restriction, and a retainer positioned exteriorly of said body and centering said body within said diaphragm passage.

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5,213,306

QUICK-ACTION FLAP

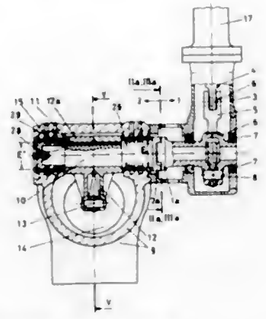
Heinrich Lageder, Würenlingen; Jan Ramisch, Fislisbach, and Karel Skala, Windisch, all of Switzerland, assignors to Asea Brown Boveri Ltd., Baden, Switzerland

Filed Dec. 19, 1989, Ser. No. 452,366

Claims priority, application Switzerland, Dec. 23, 1988, 4778/88

Int. Cl.[5] F16K *31/163, 31/128*

U.S. Cl. 251—48 7 Claims



1. A quick-action flap comprising:

a flap casing;

a flap disk system having a flap that is mounted on a flap shaft, said flap being movable with said flap shaft between an open and closed position within said flap casing;

a servo system for opening and inittating closing of said flap, said servo system having a servo system coupling shaft substantially aligned with said flap shaft;

a coupling means for connecting said flap shaft to said servo system coupling shaft, said coupling means including a coupling portion disposed on said flap shaft and a coupling portion disposed on said servo system coupling shaft;

means for distributing impact forces that are generated during closure of said flap;

said means for distributing including a rotational clearance angle disposed between said coupling portion of said flap shaft and said coupling portion of said servo system coupling shaft such that after said flap causes a first impact by closing against said casing, said servo coupling shaft is allowed to continue rotating through said rotational clearance angle unit said coupling portion of said servo system coupling shaft meets said coupling portion of said flap shaft and thereby causes a second impact, said clearance angle thus enabling said impact forces to be distributed over two impacts;

said means for distributing impact forces including a hydraulic brake for limiting a speed of said flap during closure to a maximum permissible impact speed, said hydraulic brake disposed in said servo system.

5,213,307

GASTIGHT MANUALLY-OPERATED VALVE

Denis Perrillat-Amede, Annecy le Vieux, France, assignor to ALCATEL CIT, Paris, France

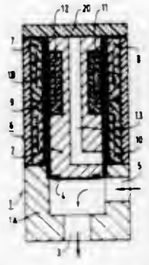
Filed Nov. 25, 1991, Ser. No. 797,035

Claims priority, application France, Nov. 26, 1990, 90 14751

Int. Cl.[5] F16K *31/08*

U.S. Cl. 251—65 6 Claims

1. A gastight manually-operated valve comprising a cylindrical valve body having an axis, an axial bore closed at opposite ends by opposed end walls, and defining a cylindrical side wall between said opposite end walls, said cylindrical body further including a first orifice and a second orifice, a cylindrical, axially shiftable standfree piston valve-member sized to said axial bore of said valve body and slidably mounted therein, the axial length of said piston valve member being less than the length of said axial bore of said cylindrical valve body, means for preventing said piston valve member from rotating in said valve body bore but being free to move axially between a closed position closing off said first orifice from said second orifice, and an open position providing free communication between said first orifice and said second orifice, said body being provided with a control ring concentrically surrounding the outside of the valve body, means for preventing said control ring from moving axially, said control ring being free to move in rotation about said axis, one of said control ring and said piston valve member being fitted with at least two pairs of axially polarized permanent magnets, the other of said control ring and said piston valve member being fitted with at least one pair of axially polarized permanent magnets, with the two



magnets in each pair being polarized in opposite directions to each other and extending respectively on two diametrically opposite generator lines of the body and valve member part which carry said axially polarized permanent magnets, and wherein the two pairs of axially polarized permanent magnets on said one member are axially stacked with stacked permanent magnets being oppositely polarized such that, as a result of rotation of said control ring on said valve body through a selective half turn, magnetic field interaction causes both repulsion and attractive forces to act on the piston valve member in the same direction to drive the piston valve member quickly between a valve open and a valve closed position and vice versa when an interactive position between the one pair of permanent magnets and the at least two pair of permanent magnets is achieved during the selective half turn rotation of said control ring.

5,213,308

VALVE WITH HANDLE LATCH/LOCK

Jeffrey T. Jeromson, Sagamore Hills; Cal R. Brown, Euclid, and Peter C. Williams, Cleveland Heights, all of Ohio, assignors to Whitey Company, Highland Hts., Ohio

Filed Jun. 12, 1992, Ser. No. 897,859

Int. Cl.[5] F16K *35/02, 35/06*

U.S. Cl. 251—95 7 Claims

1. A valve assembly comprising:

a valve body defining a valve chamber having inlet and outlet ports connected therewith;

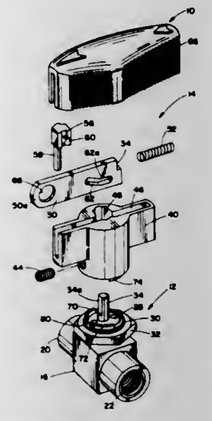
a rotary valve element mounted in said chamber for controlling flow between the inlet and outlet ports;

a bonnet member;

an operating stem extending from the valve element to a position externally of the body;

a handle assembly joined to the operating stem for rotating the stem between selected positions, the assembly including a handle body defining a first guide slot extending transversely of the stem and a second guide slot extending generally in the direction of the stem, a first operating member mounted for sliding movement in the first guide slot, spring means biasing the first member in a first direction toward a first position, a second operating member carrying a downwardly extending latch pin adapted for

selective engagement with the body, said second operating member being guided for sliding movement in the second slot and cam means interconnecting said first and second operating members such that movement of the first



operating member in a direction opposite to the first directions toward a second position produces upward movement of the second operating member and the latch pin to disengage the latch pin from the valve body.

5,213,309

COUPLER FOR CONNECTING A SPECIMEN SAMPLING BOTTLE TO A SUPPLYING PIPE OF A PLANT

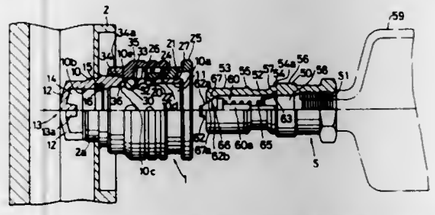
Reichi Makishima, Tokyo, Japan, assignor to Nitto Kohki Co., Ltd., Tokyo, Japan

Filed Mar. 18, 1992, Ser. No. 853,146

Claims priority, application Japan, Mar. 26, 1991, 3-026755[U]

Int. Cl.[5] F16L *37/38*

U.S. Cl. 251—149.6 12 Claims



1. A coupler for connecting a speciment sampling bottle to a supply pipe of a plant, said supply pipe having a lateral side formed with a connecting hole and also having an interior, said coupler comprising a socket and a plug,

(1) said socket comprising:

(I) a socket body having two open ends and comprising:

(a) an outer peripheral wall;

(b) a first inner wall portion at one of said open ends of said socket body and a second inner wall portion at the other open end of said socket body and an intermediate inner wall portion extending therebetween, said first, second and intermediate inner wall portions defining a central hole opening at said two open ends, said one open end of said socket body being connected to said supply pipe at said connecting hole thereof;

(c) arm means crossing said one open end of said socket body, leaving, on both sides of said arm means, openings for communicating between said central hole and with said interior of said supply pipe;

(d) a valve pressing member provided on said central portion of said arm means and extending therefrom towards the other open end of said socket body;

(e) two rows of tapered holes formed circumferentially in said outer periphery of said socket body;

(f) first locking balls fitted in one of said two rows of said tapered holes; and

(g) second locking balls having a larger outer diameter than said first locking balls and fitted in the other row of said tapered holes;

(II) a first sleeve mounted on said socket body and having an intermediate inner peripheral wall and an annular groove formed in said intermediate inner peripheral wall thereof;

(III) a second sleeve mounted on said socket body and having an inner peripheral wall engageable with said second locking balls when said second sleeve is rendered free and a ball-releasing recessed portion at one end thereof for receiving said second locking balls when said second sleeve is moved toward said first sleeve; and;

(IV) urging means provided between said first and second sleeves, for urging said first and said second sleeves for separating movement away from one another; and

(2) said plug comprising:

(i) a plug body for insertion into said central hole of said socket body, and moveable when inserted into said plug body between a fixed position and a sampling position, said plug body comprising:

(a) an outer peripheral wall;

(b) a fluid passage extending through and along said plug body;

(c) an annular groove formed in said outer peripheral wall of said plug body for receiving said second locking balls when said plug body is at said fixed position;

(d) a first annular shoulder having an outer diameter larger than said annular groove of said plug body and formed on said outer peripheral wall of said plug body at a position at which said first annular shoulder receives said first locking balls when said plug body is at said fixed position;

(e) a first truncated conical wall face formed on said outer peripheral wall of said plug body so as to be continuous to said annular groove of said plug body and said first annular shoulder, for causing said second locking balls to abut against said first truncated conical wall face when said plug body is at said fixed position and for preventing said plug body from being further inserted into said socket body;

(f) a second annular shoulder having a larger diameter than said first annular shoulder and formed on said outer peripheral wall of said plug body so as to be disposed adjacent said first annular shoulder on a side thereof remote from said supplying pipe, for loading thereon said first locking balls with said first locking balls received in said annular groove of said first sleeve, when said plug body is at said sampling position; and

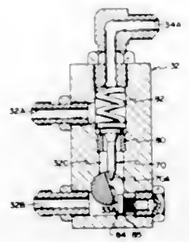
(g) a second truncated conical wall face formed on said outer peripheral wall of said plug body so as to be continuous to said first and second annular shoulders, for enabling said first locking balls to abut against said second truncated conical wall face and for preventing said plug body from being further inserted into said socket body; and

(ii) a valve movable in said fluid passage of said plug body, for closing said fluid passage when said plug body is at

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said fixed position and opening said passage when said plug body is at said sampling position.

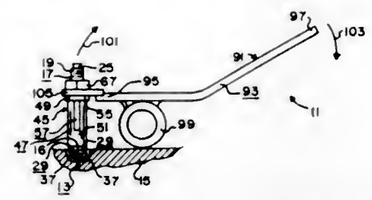
5,213,310
HYDRAULIC RELEASE VALVE
John M. Beattie, and Jimmie D. Sinden, both of Greeley, Colo., assignors to TRLI, Inc., Greeley, Colo.
Filed Dec. 4, 1991, Ser. No. 802,250
Int. Cl.[5] F16K *31/524*
U.S. Cl. 251—229 **6 Claims**



1. A pressure release valve assembly for use in a supply line of pressurized fluid, said valve assembly comprising:
(a) a housing including an inlet port and first and second outlet ports; wherein said housing further includes first and second passageways; wherein said first passageway extends between said inlet port and said first outlet port for enabling pressurized fluid to flow through said housing; and wherein said second passageway extends between said first passageway and said second outlet port and includes a valve seat;
(b) a valve member positioned to normally close said second passageway; wherein said valve member includes a head portion and an elongated stem portion secured to said head portion; wherein said stem portion extends downwardly from said head portion into said second passageway; and wherein said head portion is adapted to close said second passageway; and
(c) bias means for biasing said head portion against said valve seat;
(d) control cam means for tilting said valve member relative to said second passageway to release pressure in said supply line by allowing said fluid to flow from said first passageway to said second outlet port through said second passageway; wherein said control means is adapted to urge said stem portion laterally with respect to the longitudinal axis of said second passageway; wherein said control cam means comprises a shaft which includes a ledge portion which engages said stem portion of said valve member when said shaft is rotated to cause said head portion to be initially tilted away from said valve seat to enable said fluid to flow through said second passageway at a first flow rate; wherein further rotation of said shaft causes said head portion of said valve member to be further lifted away axially from said valve seat by said ledge portion to enable said fluid to flow through said second passageway at a second flow rate which is greater than said first flow rate.

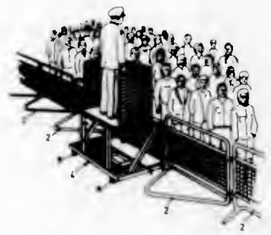
5,213,311
NAIL EXTRACTOR
Ronald J. Sabo, 6041 Cascade Hill Cv., Bartlett, Tenn. 38135
Filed Sep. 24, 1992, Ser. No. 950,028
Int. Cl.[5] B25C *11/00*
U.S. Cl. 254—24 **3 Claims**

1. A device for extracting a nail from a workpiece, said device comprising:
a) a body member having a first end and a second end;
b) at least three leg members, each of said leg members having a first end and a second end, said first end of each of said leg members being attached to said second end of said body member; and



c) collar means slidably positioned over at least a portion of said leg members for causing said second ends of said leg members to be urged inwardly; said collar means including a pair of arm members.

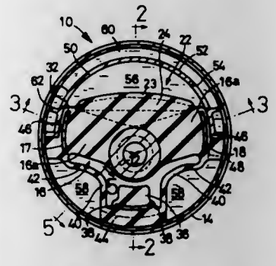
5,213,312
BARRIER SYSTEM AND BARRIER UNITS THEREFOR
John B. MacDonald, Brantford, Canada, assignor to Great Barrier Industries Ltd., Brantford, Canada
Filed Aug. 16, 1991, Ser. No. 745,691
Int. Cl.[5] E04H *17/18*
U.S. Cl. 256—26 **9 Claims**



1. A portable dismountable barrier system comprising a plurality of separate, free-standing barrier units releasably connectable in end to end relationship to form an elongated barrier, said units comprising units of a first type and a plurality of units of a second type for each first unit, the units of the first type providing support for said plurality of second units for transportation when the barrier is in a dismounted condition, and an elevated surveillance platform when the barrier is in an assembled condition, in which the units of the first type have a wheeled base frame supporting a superstructure which in a first, folded condition forms a stacking horse for units of the second type, and in a second extended condition forms the elevated surveillance platform.

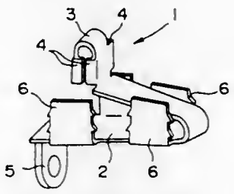
8. A barrier unit comprising a panel support frame element having spaced vertical members in a common vertical plane, a barrier panel extending between said vertical members in said vertical plane, and a horizontal member connecting bottom ends of said vertical members and forming a loop extending laterally to one side of said vertical plane, said vertical and horizontal members being formed by a single continuous length of rigid tubing; a perimeter frame element formed by a closed loop of rigid tubing, said perimeter frame element comprising vertical portions adjacent and secured to said vertical members, the adjacent vertical portions and vertical members together forming end stanchions, a lower horizontal portion forming a loop extending laterally to an opposite side of said vertical plane, and an upper horizontal portion in said vertical place above said barrier panel; vertically spaced hooks secured to one of said end stanchions; and vertically spaced eyes secured to the other of said end stanchions to receive the hooks of an adjacent barrier unit.

5,213,313
FLUID-FILLED CYLINDRICAL ELASTIC MOUNT HAVING LATERAL AND RADIAL ELASTIC WALLS FOR DESIRED AXIAL AND DIAMETRIC SPRING CHARACTERISTICS
Joji Tsutsumida, Komaki; Masatoyo Kagawa, Tajimi, and Masaaki Hamada, Komaki, all of Japan, assignors to Tokai Rubber Industries, Ltd., Japan
Filed Jul. 16, 1991, Ser. No. 730,603
Claims priority, application Japan, Jul. 19, 1990, 2-76976[U]; Jul. 25, 1990, 2-78939[U]
Int. Cl.[5] B25B *1/02*
U.S. Cl. 267—140.12 **12 Claims**



1. A fluid-filled cylindrical elastic mount for flexibly connecting two members such that a static load of one of the two members acts on the elastic mount in a diametric static-load-receiving direction thereof, comprising:
an inner sleeve fixed to one of the two members;
an outer sleeve disposed radially outwardly of said inner sleeve and fixed to the other of the two members;
a first elastic body having two radial portions which extend toward said outer sleeve from diametrically opposite circumferential portions of said inner sleeve, in respective radial directions of the elastic mount which are almost perpendicular to said static-load-receiving direction;
a connecting member extending toward said outer sleeve from a circumferential portion of an axially intermediate part of said inner sleeve, said circumferential portion of said axially intermediate part of the inner sleeve being positioned between said diametrically opposite circumferential portions of the inner sleeve in a circumferential direction of the inner sleeve, said connecting member being located on one of diametrically opposite sides of said inner sleeve in said static-load-receiving direction, on which a radial distance between said inner and outer sleeves is reduced by said static load;
a second elastic body including two lateral elastic walls which extend from respective opposite end faces of said connecting member which are opposed to each other in an axial direction of the elastic mount, said two lateral elastic walls being inclined by a predetermined angle in a radially outward direction of said inner sleeve as the lateral elastic walls extend in said axial direction, said second elastic body further including two radial elastic walls which have a larger thickness than said two lateral elastic walls and which extend from respective ends of said two lateral elastic walls in a radial direction parallel to said static-load-receiving direction;
said connecting member and said second elastic body cooperating to define a pocket which is closed by said outer sleeve, to define a pressure-receiving chamber filled with a non-compressible fluid and operable to undergo a volumetric change and a pressure change of the fluid therein upon application of a dynamic vibrational load between the inner and outer sleeves, a length of said pressure-receiving chamber in said axial direction of the elastic mount being greater than an axial length of said connecting member by axial lengths of said two lateral elastic walls of said second elastic body;
each of said two lateral elastic walls of said second elastic body cooperating with said outer sleeve and said two radial portions of said first elastic body, to define a recess which extends over a substantially entire length of said pressure-receiving chamber in a direction perpendicular to said static-load-receiving direction and said axial direction of the elastic mount, wherein the thickness and said predetermined angle of inclination of said two lateral elastic walls of said second elastic body are determined so that spring stiffness values of the elastic mount with respect to dynamic vibrational loads applied in said static-load-receiving direction and said axial direction are determined primarily by spring stiffness values of said first elastic body;
means including a flexible member, for defining a variable-volume equilibrium chamber filled with said non-compressible fluid, said equilibrium chamber being disposed on the other of said diametrically opposite sides of said inner sleeve on which the radial distance between said inner and outer sleeves is increased by said static load; and
means for defining an orifice passage for fluid communication between said pressure-receiving chamber and said equilibrium chamber.

5,213,314
SPRING CONTACT
Toshiji Kano, and Kenji Katayose, both of Tokyo, Japan, assignors to Hirose Electric Co., Ltd., Tokyo, Japan
Filed Aug. 16, 1991, Ser. No. 745,690
Claims priority, application Japan, Sep. 13, 1990, 2-95566[U]
Int. Cl.[5] F16F *1/18*
U.S. Cl. 267—163 **1 Claim**



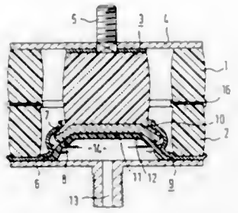
1. A spring contact device comprising:
an insulative case having a contact aperture on a top thereof and at least one pair of slots extending upwardly from a bottom thereof; and
a spring contact attached to said insulative case, said spring contact comprising:
a U-shaped leaf spring portion made from a spring metal sheet;
a U-shaped contact portion made by bending upwardly and then downwardly an end portion of an upper section of said U-shaped leaf spring portion such that said contact portion projects through said contact aperture of said case;
a terminal portion extending downwardly from an end portion of a lower section of said U-shaped leaf spring portion through a bottom of said case; and
at least one pair of barbed lugs extending upwardly from opposite sides of said lower section of said U-shaped leaf spring portion and press fitted into said slots for securing said spring contact to said case.

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5,213,315
METHOD FOR VARYING THE SPRING RIGIDITY OF AN ELASTOMER MOUNT, AND A CORRESPONDING MOUNT

Volker Härtel, Germering; Matthias Richter, Inning, and Mathias Gugsch, München, all of Fed. Rep. of Germany, assignors to Metzeler Gimetall AG, Munich, Fed. Rep. of Germany

Filed Oct. 15, 1991, Ser. No. 777,634
Claims priority, application Fed. Rep. of Germany, Oct. 12, 1990, 4032504; Aug. 29, 1991, 4128761
Int. Cl.[5] F16F *3/08*
U.S. Cl. 267—292 25 Claims

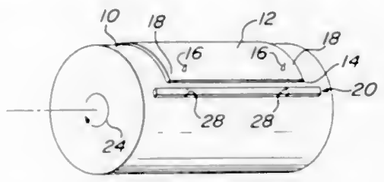


1. A method for varying a spring rigidity of an elastomer engine mount for motor vehicles, which comprises bringing one of two at lest intermittently simultaneously loadable parallel-connected spring bodies into continuous engagement with supports for the one spring body and bringing the other of the two spring bodies into intermittent contact with supports for the other spring body as a function of predetermined operating parameters, for absorbing induced forces in parallel with the two spring bodies, and connecting the other spring body in parallel with an outside force introduced separately from the induced forces for causing the other spring body to contact supports for the other spring body.

5,213,316
SHEET HANDLING APPARATUS WITH AIR DEFLECTOR

Michael B. Loebach, N2577 Highway D, Ft. Atkinson, Wis. 53538

Continuation of Ser. No. 603,138, Oct. 24, 1990, abandoned. This application Oct. 31, 1991, Ser. No. 785,186
Int. Cl.[5] B42C *1/00*; H31F *1/08*
U.S. Cl. 270—47 41 Claims

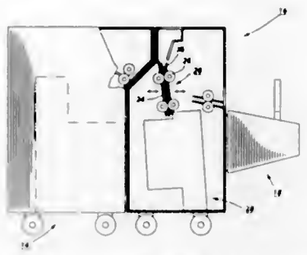


1 Apparatus for handling sheet materials comprising a cylinder rotatably mounted for movement about an axis of rotation, said cylinder including means for engaging at least one sheet of material adjacent an edge of said material which is generally parallel to said axis and is the leading edge of the material during cylinder rotation, said cylinder further including air flow control means for deflecting the air flow relative to said material which is induced by cylinder rotation away from said edge, whereby the tendency of said air flow to lift said material from said cylinder is reduced.

5,213,317
MODULAR BINDING APPARATUS WITH ROTATING TRANSPORT

Barry P. Mandel, Fairport; George J. Roller, Penfield; Joseph J. Ferrara, Webster; Venkatesh H. Kamath, Fairport; William Brant, Rochester; Louis J. Bressler, Webster; John R. Falvo, and Karl M. Kau, both of Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 27, 1992, Ser. No. 826,506
Int. Cl.[5] B42B *2/00*; G03G *21/00*
U.S. Cl. 270—53 16 Claims



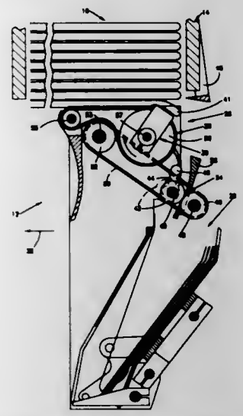
1. An apparatus for securing sheets of a set of sheets to one another, including:
- a compiling station holding an unbound set of sheets;
- means for binding the sheets of the unbound set of sheets to one another to form a bound set of sheets;
- a receiving station adapted to receive an unbound or bound set of sheets for removal therefrom; and
- means for advancing the unbound set of sheets from said compiling station to said binding means and said receiving station, said advancing means being movable from a position, coupling said compiling station to said receiving station to a position coupling said compiling station to said binding means, and to a position coupling said binding means to said receiving station so as to advance an unbound set of sheets from said compiling means to said binding means and a bound set of sheets from said binding means to said receiving station, or an unbound set of sheets from said compiling means to said receiving station.

5,213,318
SIGNATURE GATHERER WITH LIGHT DETECTOR MISFEED SENSORS

Thomas O. Newhall, Burnt Hills, N.Y., assignor to AM International Incorporated, Chicago, Ill.

Filed Jan. 2, 1992, Ser. No. 816,746
Int. Cl.[5] B65H *5/30, 39/02*
U.S. Cl. 270—55 24 Claims

1 An apparatus for forming sheet material assemblages, said apparatus comprising a plurality of hoppers for holding sheet material, a plurality of receiving locations, means for sequentially moving each of said receiving locations past each of said hoppers in turn, a plurality of feeder means for performing sheet feeding operations to feed sheet material from said hoppers to said receiving locations, and a plurality of detector means for detecting the occurrence of a misfeed from said hoppers to said receiving locations during a sheet feeding operation, each of said detector means including a light source, sensor means for sensing light transmitted from said light source, and control means for at least partially blocking the transmission of light from said light source to said sensor means to a first extent to enable a first amount of light to be transmitted from said light source to said sensor means during a normal sheet feeding operation by said feeder means and for at least partially blocking the transmission of light from said light source to said sensor means to a second extent to enable a second amount of light to be transmitted from said light source

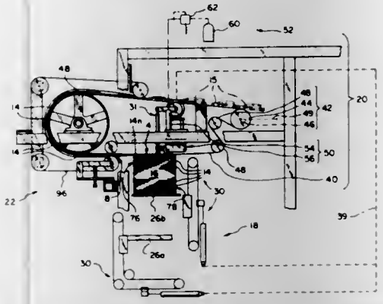


to said sensor means during a sheet feeding operation in which a misfeed occurs.

5,213,319
ADJUSTABLE FEEDER FOR SHINGLING CARTON BLANKS FROM A STACK AND METHOD FOR FEEDING THEREFROM

Norman P. Crowe; Kevin S. Mastrorocco, both of Milford, and Kenneth L. Waters, Bethel, all of Ohio, assignors to International Paper Box Machine Company, Inc., Milford, Ohio

Filed Feb. 24, 1992, Ser. No. 840,130
Int. Cl.[5] B65H *5/00, 3/04*
U.S. Cl. 271—10 22 Claims

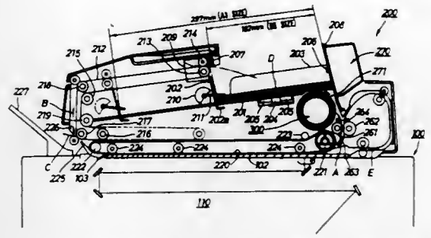


1 An apparatus for feeding a series of carton blanks for container production from the top of a stack of carton blanks delivered to a feed point, said apparatus comprising:
- means at said feed point for removing carton blanks in shingled form from the top of said stack, said means for removing comprising:
- a feed belt overlying said stack such that the outer surface of said feed belt is in frictional engagement with said carton blanks at said feed point;
- means for rotatably driving said feed belt;
- pneumatic means for applying pressure downwardly on the inner surface of said feed belt to enhance frictional engagement with said carton blanks; and
- means for controlling said pneumatic means for applying pressure to apply a substantially constant downward pressure to provide consistent shingling.

5,213,320
PAPER FEED DEVICE

Kazuhiro Hirota, and Izumi Hamanaka, both of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Apr. 17, 1991, Ser. No. 686,480
Claims priority, application Japan, Apr. 18, 1990, 2-102732; Apr. 18, 1990, 2-102733; Apr. 18, 1990, 2-102734
Int. Cl.[5] B65H *3/10*
U.S. Cl. 271—11 8 Claims



1. A paper feed device for separating sheets of paper one by one from the bottom of a stack of paper loaded on a paper loading tray and for feeding the separated paper sheets consecutively, comprising:
- a rotatable hollow cylinder means for feeding the paper sheets, the cylinder means having an opening and being positioned below and close to the front end of the paper loading tray in the feed direction;
- vacuum suction means for varying vacuum suction pressure in the cylinder means;
- a paper front end sensor positioned downstream of the cylinder means;
- conveyor means for interposedly supporting the paper sent forward from the cylinder means and for conveying the paper to a subsequent handling section;
- timer means for setting a predetermined time in response to the start of paper feed operation of the cylinder means; and
- control means for controlling the paper conveying operation of the conveyor means in such a manner that said vacuum suction means is set at its lowest vacuum suction pressure at the time of starting the paper feed operation of the cylinder means, and after the predetermined time from the start of the paper feed operation set by the timer means has elapsed, if the paper front end detector has not detected the passage of the front end of the paper, the vacuum suction pressure from the vacuum suction means is successively increased to slightly higher pressures and the paper feed operation is repeated, and as long as the paper front end detector detects the passage of the front end of the paper, the vacuum suction pressure is maintained at the increased pressure.

5,213,321
HOPPER LOADER FOR TRANSPORTING SHEETS IN AN EDGE-STANDING ARRANGEMENT, AND METHOD THEREFOR

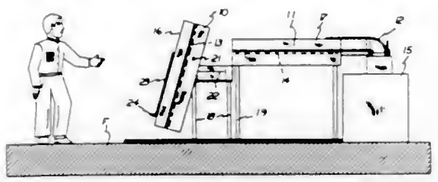
Walter J. Stobb, P.O. Box 5205, Clinton, N.J. 08809

Filed Aug. 13, 1991, Ser. No. 744,405
Int. Cl.[5] B65H *1/02*
U.S. Cl. 271—149 16 Claims

1. A hopper loader for transporting sheets in an edge-standing arrangement, comprising a sheet-supporting first section horizontally disposed and having a sheet inlet end and having a floor for supporting the sheets on edge, a sheet-supporting second section pivotally mounted adjacent said first section and having a floor for supporting the sheets on edge and being pivotal between a downward sheet-loading position and an upward horizontal position with its said floor planar with said floor of said first section in said upward position, powered

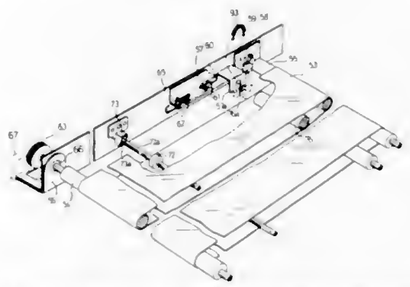
VOL 1150 ISS 4 MY 25 1993 UMI

pivot means connected to said second section for the aforesaid pivoting, said second section having a sheet outlet end aligned



with said sheet inlet end of said first section for the movement of the edge-standing sheets off said floor of said second section and onto said floor of said first section.

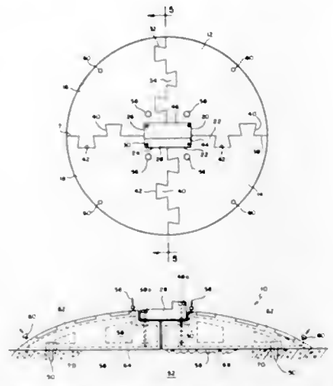
5,213,322
ORIGINAL TRANSFER APPARATUS
Hirokazu Matsuo; Yuusuke Morigami, and Takuma Ishikawa, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 464,181, Jan. 12, 1990, abandoned. This application Nov. 6, 1991, Ser. No. 787,773
Claims priority, application Japan, Jan. 13, 1989, 1-6534; Jan. 20, 1989, 1-5726[U]
Int. Cl.[5] B65H 5/02
U.S. Cl. 271—275 16 Claims



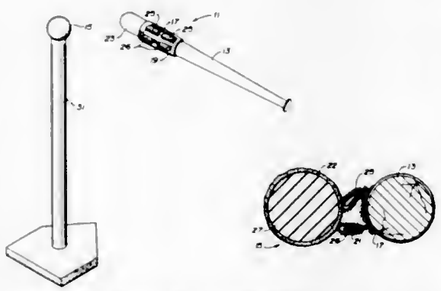
1. An original transfer apparatus for transferring an original to a platen, comprising:
a frame of a body;
a pair of rotatable rollers opposed to each other, each of said pair of rotatable rollers having a shaft;
a transfer belt stretched between the pair of rotatable rollers; and
roller holding members for releasably attaching the shaft of each of the pair of rotatable rollers to the frame in such a manner that each end of each shaft of each of the pair of rollers is individually attachable to and detachable from the frame in the same direction.

5,213,323
PORTABLE TRAINING PITCHING MOUND
John Novinsky, 264 Bow Dr., Hauppauge, N.Y. 11788
Filed Sep. 23, 1992, Ser. No. 949,699
Int. Cl.[5] A63B 71/00
U.S. Cl. 273—25 10 Claims

1. A portable training pitching mound comprising:
at least two interconnectable component mound sections, means releasably connecting said section when the pitching mound is assembled and disconnecting said sections for portability of the pitching mound, each said component mound section having an adjacent recess; and
a pitching rubber releasably interconnecting said at least two interconnectable component mound sections, said pitching rubber fitting within said adjacent recess of each of said component mound sections when assembled.

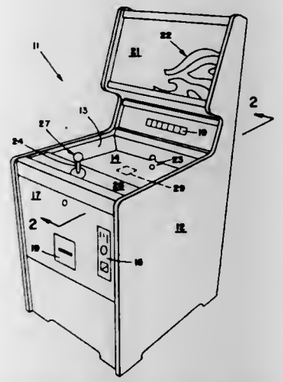


5,213,324
PRACTICE SLEEVE AND BALL
Glen H. Bowers, 766 Plaza Hermosa, Novato, Calif. 94947
Filed Dec. 6, 1991, Ser. No. 804,104
Int. Cl.[5] A63B 69/40
U.S. Cl. 273—26 R 6 Claims



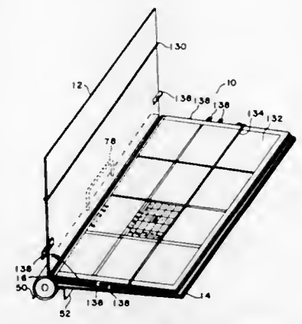
1. A batting practice device comprising
a removable sleeve sized for securement on a bat, said sleeve comprising catch means on its outer surface, said catch means being disposed on the outer surface of said sleeve for alignment with a predetermined hitting zone of a bat on which said sleeve may be placed, said catch means comprising at least two projecting members and a first component of a two component hook and loop fastening system disposed on said projecting members; and
a ball comprising a lightweight core and an outer cover having a surface substantially covered with a second component of the hook and loop fastening system, so that said ball may adhere to said projecting members on said sleeve.

5,213,325
TILTABLE BOARD AND ROLLING BALL GAME MECHANISM
Alex Malavazos, 36 Bridal Path Ct., San Ramon, Calif. 94583; Gregory Malavazos, 42 Meadow Ct., Walnut Creek, Calif. 94595, and Constantine Malavazos, 1538 Castro St., San Leandro, all of Calif. 94577
Filed Jun. 17, 1991, Ser. No. 717,416
Int. Cl.[5] A63B 67/14; A63F 7/00, 7/38
U.S. Cl. 273—110 24 Claims



22. An amusement apparatus with which a player endeavors to guide a rolling ball along a particular path on the surface of a game board by manipulating a control lever that controls the inclination of the game board, comprising:
a housing having a chamber therein that is visible by the player,
a rolling ball,
a tiltable rectangular game board disposed in said chamber and having at least one opening through which said ball may drop into the region underlying said game board,
a tiltable shaft disposed below a central region of said game board and having an upper end to which said game board is rigidly fastened, said tiltable shaft having an enlarged region thereon at a location that is away from said upper end thereof, said shaft further having a passage which extends through said enlarged region and which has a central region of minimum size and upper and lower walls that diverge from each other towards each end of said passage and which has a width that is the same at said central region and at said ends thereof,
a shaft support having a first socket cavity in which said enlarged region of said shaft is seated to enable said tilting of said shaft and game board,
a pin extending through said passage in said shaft and extending into said shaft support to hold said enlarged region of said shaft in said first socket cavity and to prevent rotational motion of said shaft about the longitudinal axis of said shaft,
an annular spring retainer disposed on said shaft in coaxial relationship therewith at a location thereon that is spaced apart from said enlarged region thereof,
at least one compression ring disposed on said shaft in coaxial relationship therewith and having ends which bear against said spring retainer and said shaft support whereby said spring resists said tilting of said shaft and game board,
a rigid structural member extending from said shaft support,
a control lever support secured to said structural member and having a second socket cavity,
a tiltable control lever having an upper end adapted for grasping by the player and having an enlargement at a lower location that is spaced apart from said upper end and which is seated in said second socket cavity,
means for retaining said control lever enlargement in said second socket cavity,
a rigid link extending between said control lever and said shaft, and
a first pivot coupling connecting said link to said shaft and a second pivot coupling connecting said link to said control lever, said couplings being oriented to enable pivoting of said link relative to said shaft and said lever only about pivot axes that are parallel to said surface of said game board.

5,213,326
BINGO BOARD ORGANIZING DEVICE
Linda N. Rundell, 17911 Cali Dr., and Robert Troxclair, c/o 17911 Cali Dr., both of Houston, Tex. 77090
Filed Apr. 29, 1992, Ser. No. 875,333
Int. Cl.[5] A63F 3/06; B65D 85/20
U.S. Cl. 273—148 A 18 Claims



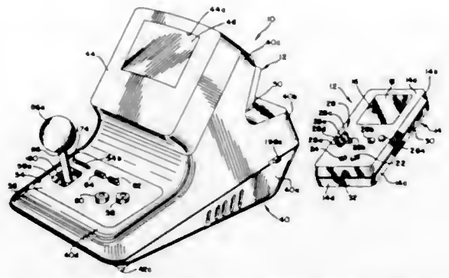
1. A bingo sheet organizing device comprising:
a first panel having a size suitable for receiving a bingo sheet thereon;
a second panel having a size suitable for receiving a bingo sheet thereon, said first and second panels having receiving means for retaining a bingo sheet thereon;
a body connected in hinged relationship to an edge of said first panel, said first panel pivotable about said body relative to said second panel, said first and second panels extending radially outwardly from said body;
said body comprising a tubular member having at least one hinge member extending outwardly from said body, said hinge member extending generally longitudinally along said body, said hinge member receiving said first panel; and said hinge member fastened to said tubular member, said hinge member having a plurality of holes extending longitudinally on said tubular member, each of said plurality of holes arranged in parallel relationship to each other.

5,213,327
GAME APPARATUS
Kazumi Kitaue, Saitama, Japan, assignor to Konami Co. Ltd., Japan
Filed Oct. 24, 1991, Ser. No. 781,867
Int. Cl.[5] A63F 9/22
U.S. Cl. 273—148 B 17 Claims

1. Apparatus for use with a video game device having a housing supporting a video game including a video display screen, at least one depressible control button and at least one multi-position operating control exposed through a wall of the game device housing and operable from externally of said housing to effect play of the video game; said apparatus comprising, in combination, a housing having a base portion enabling support of the apparatus on a support surface and having a recess adapted to receive and support said video game housing in predetermined relation to said base portion, said

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apparatus housing having an opening enabling viewing of the video display when the video game device is disposed within said recess, first depressible operator means supported by said apparatus housing in spaced relation from the depressible control button and having actuating lever means selectively operable in response to depression of said depressible operator means from externally of the apparatus housing to actuate the control button on the video game device when disposed within



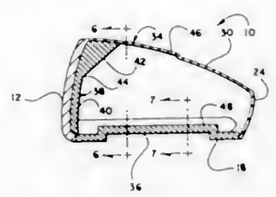
said recess, and second operator means supported on said apparatus housing and including an upstanding joystick selectively operable from externally of the apparatus housing and spaced from the multi-position operating control on the video game device, said second operator means including a plurality of actuating linkages responsive to selective movement of the joystick in generally mutually perpendicular directions to actuate the multi-position operating control on the video game device.

5,213,328

REINFORCED METAL GOLF CLUB HEAD

D. Clayton Long, and R. Mark Allen, both of Albany, Ga., assignors to MacGregor Golf Company, Albany, Ga.

Filed Jan. 23, 1992, Ser. No. 824,359
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—167 H **6 Claims**



1. A golf club head comprising an enclosed metal body in the shape of a head for a golf driver, the metal body having:

a. a front striking face of predetermined height and width,

b. a sole of predetermined length and width,

c. a back side,

d. a toe,

e. a heel,

f. a top side of predetermined length and width, and

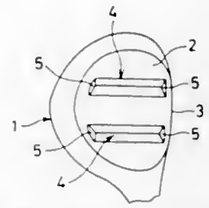
g. a hosel positioned adjacent the heel, wherein the metal body has an internal cavity formed by internal surfaces of the striking face, the sole, the back side, the toe, the heel, and the top side and wherein at least one rib extends along and between the internal surface of the striking face to beyond the length of the second member along the top side and the internal surface of the top side to reinforce both the striking face and the top side wherein the rib comprises a first element of substantially uniform cross-sectional area extending along more than half of the height of the internal surface of the striking face and a second member interconnecting the top side and the striking face and extending for less than half of the length of the top side and extending for less than half of the height of the striking face and and wherein the top side has corrugated reinforcing protrusions extending rearwardly from adjacent the striking face.

5,213,329

GOLF CLUB HEAD

Takaharu Okumoto, Chigasaki; Tetsuo Hayashi, and Atsushi Onozato, both of Hiratsuka, all of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed Sep. 17, 1991, Ser. No. 760,905
Claims priority, application Japan, Sep. 25, 1990, 2-99006[U]
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—172 **9 Claims**



1. A golf club head comprising a club head main body made of a synthetic resin material and a sole plate made of a metal material molded integrally therewith, said sole plate having a front end and a back end relative to the direction of swing of the golf club head and a bottom surface, at least one elongated groove in the bottom surface of the sole plate extending in said swing direction between said front and back ends, said groove having a width and a length, and at least one separate, elongated projection member independent of said sole plate securable in said groove so as to extend in said swing direction, said projection member having a width and length similar to that of said groove and a substantially uniform thickness such that an upper part of said projection member extends outwardly beyond said bottom surface of said sole plate, the cross section of said upper part of said projection member being shaped substantially in the form of a triangle end having a slanted surface on an end thereof adjacent to the front end of said sole plate and facing said direction of swing.

5,213,330

GOLF COURSE, GOLF BALLS AND METHOD OF PLAY

D. Lorne Benson, Suite 204 - 40120 Willow Crescent, Squamish B.C., Canada V0N 3G0

Continuation of Ser. No. 550,907, Jul. 11, 1990, abandoned. This application Feb. 7, 1992, Ser. No. 831,659
Int. Cl.[5] A63B *67/02*
U.S. Cl. 273—176 A **10 Claims**

1. A golf game comprising:

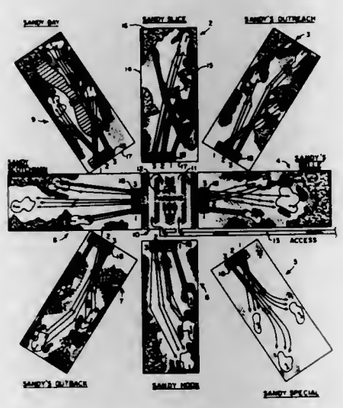
at least a first golf course having first and second laterally spaced side edges and first and second generally parallel end edges defining a generally rectangular area;

a generally rectangular single tee area positioned in said golf course and adjacent said first end edge;

a plurality of laterally juxtaposed separate tee sections formed in said single tee area, each of said plurality of separate tee sections being of generally equal size and spaced equidistant from said first end edge and each of said separate tee sections further being divided into high, intermediate and low handicap tee portions, said low handicap tee portion in each said tee section being positioned adjacent said first end edge, said high handicap tee portion in each said tee section being positioned remote from said first end edge, and said intermediate handicap tee portion in each said tee section being positioned between said low and high handicap tee portions;

a fairway area in said golf course, said fairway area having golf terrain features and being traversed by a golfer playing said golf game;

a plurality of separate greens areas corresponding in number to said plurality of separate tee sections, each of said plurality of separate greens areas being separately positioned in said golf course at varying distances from said single tee area and from each other and all sharing at least a portion of said fairway area intermediate said single tee area and said plurality of separate greens areas, said plurality of separate greens areas being used with said single tee area and related thereto such that a golf shot from any one of said plurality of tee sections is directed away from the remainder of said separate greens areas, each of said plurality of separate greens areas having a putting surface and a golf ball receiving cup; and



a plurality of golf balls having means for separating said plurality of golf balls into a plurality of groups of golf balls corresponding in number to said plurality of laterally juxtaposed separate tee sections and said plurality of separate greens areas, each one of said plurality of groups of golf balls having multiple balls, each of said plurality of groups of golf balls being used with its corresponding one of said plurality of separate tee sections and its corresponding one of said plurality of separate greens areas to facilitate the playing of said multiple balls in each of said plurality of groups of golf balls from each corresponding one of said plurality of separate tee sections to said corresponding one of said plurality of separate greens areas whereby a person playing said golf game utilizes said multiple balls in each of said plurality of groups of golf balls to make a plurality of golf shots to each of said plurality of greens areas from each of said plurality of tee sections in said single tee area without directing the golf balls toward any other tee section.

5,213,331

GOLF TRAINING PUTTER

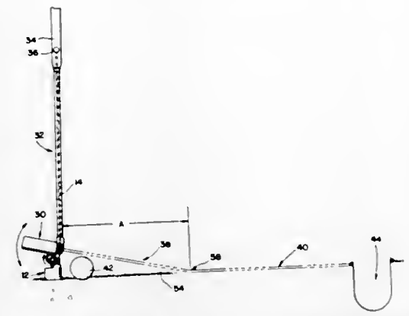
Frank Avanzini, 1560 Nottingham Dr., Winter Park, Fla. 32792

Filed Apr. 30, 1992, Ser. No. 876,858
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—186.3 **8 Claims**

1. A golf putter with laser sighting, comprising:

a putter shaft including a handle affixed at a first end thereof and a putter head affixed at the other end thereof having a substantially planar ball striking surface on one side thereof;

a laser unit mounted on said putter head including means for directing a laser beam transversely of said ball striking surface when activated, said laser unit being adjustably mounted on said putter head for adjustment of said laser beam in a vertical plane perpendicular to said ball striking surface so that said beam may be projected over the top of



a golf ball onto a putting surface at select distances forwardly of said golf ball; and

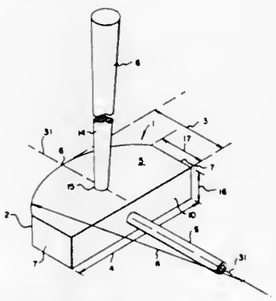
switch means mounted on said handle and electrically coupled to said laser unit for activating said laser unit.

5,213,332

GOLF PUTTER

William J. Fahy, and Jane L. Fahy, both of 128 Oklahoma Ave., Oriskany, N.Y. 13424

Filed Jul. 17, 1992, Ser. No. 913,886
Int. Cl.[5] A63B *69/36, 53/04*
U.S. Cl. 273—187.4 **10 Claims**



1. A golf putter comprising:

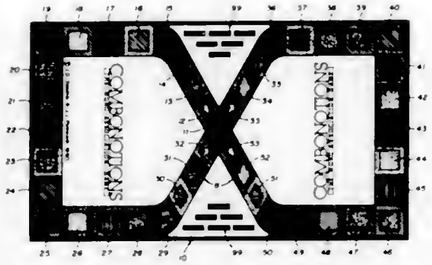
a putter head having a front driving face which is convexly curved horizontally along an arc of a circle having a radius of curvature of not less than 5½ inches, said driving face being straight in the vertical direction;

a shaft attached to the putter head and extending upwardly therefrom from a point spaced from the driving face by a distance which is less than said radius of curvature; and

whereby different parts of the driving face can strike a golf ball and still maintain alignment of the putter to the correct line of travel of a ball to an intended target.

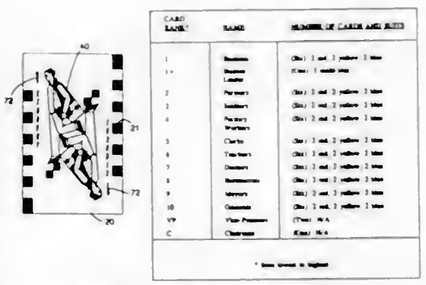
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,333
WORD ASSOCIATION GAME
Joseph J. Petrovich, 306 Green Acres Dr., Valparaiso, Ind. 46383, and James D. Gazdick, 451 Spivak Dr., Schererville, Ind. 46375
Filed May 29, 1991, Ser. No. 706,980
Int. Cl.[5] A63F 3/00
U.S. Cl. 273—243 5 Claims



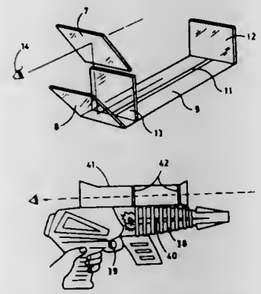
1. A method of playing a word association game, consisting of a game board defining a FIG 8 shaped track having a plurality of color coded spaces with a labeled starting space at the enter of the board, game pieces, a die, a resetable timer, score pads, writing instruments, a deck of cards with color coded word sets having words, comprising the steps of
selecting a game piece;
rolling a die;
moving said game piece from the center starting space along the track a number of spaces corresponding to the die roll;
selecting a card from said deck of cards;
selecting a color coded word set corresponding to the color coded space onto which the game piece was moved;
recording said word set onto a score pad,
starting said timer;
creating and recording a sequence of word sets using one or more word elements from a preceding word set until the timer runs out; and
scoring the word sets created and recorded during a turn.

5,213,334
DECK OF CARDS HAVING TEN SETS OF SIX CARDS AND SPECIALTY CARDS
Lee F. Yih, 23CD Cliffview Mansion, 21-23 Conduit Road, Hong Kong, Hong Kong
Division of Ser. No. 549,028, Jul. 6, 1990, Pat. No. 5,106,100. This application Feb. 27, 1992, Ser. No. 842,558
Int. Cl.[5] A63F 1/00
U.S. Cl. 273—292 16 Claims



1. A card game for play by at least three players in which players play groups of cards that include one or more cards, comprising:
ten sets of first cards, each set including six cards, each of said first cards having first indicia on one face thereof, the cards of the same set having the same first indicia designating the cards as being of a particular set and the first indicia on the cards of different sets being different, each of said first cards also having second indicia on the one face thereof, the cards of the same set having the same second indicia and the cards of different sets having different second indicia, said second indicia designating a rank of the cards in a set relative to the cards of the other sets so that said ten sets of cards are ranked in a hierarchical order, each of said first cards also having third indicia on the one face thereof, said third indicia designating, as between two played groups of cards having the same second indicia, the higher ranking played group, a first pair of cards in each set having the same third indicia on the one face thereof which has a particular rank associated therewith, a second pair of cards in each set having the same third indicia on the one face thereof which has a rank associated therewith that is higher than said particular rank, and a third pair of cards in each set having the same third indicia on the one face thereof which has a rank associated therewith that is lower than said particular rank, the third indicia on the first pair of cards being different and distinguishable from the third indicia on the second and third pairs of cards, the third indicia on the second pair of cards being different and distinguishable from the third indicia on the first and second pairs of cards;
one second card having first indicia on one face thereof for designating the second card as being a member of a specific one of said ten sets, said second card having second indicia on the one face thereof for designating the second card as being of a rank relative to the other cards that is equivalent to the rank of the cards in said specific one set, said second indicia on the second card being different and distinguishable from the second indicia on all of the first cards, said second card also having third indicia on the one face thereof which has a rank associated therewith that is higher than the rank associated with the third indicia on all other cards in said specific one set, said third indicia on said second card being different and distinguishable from the third indicia on all of the first cards;
two third cards having first indicia on one face thereof for designating said two cards as being of a set of cards different from said ten sets of cards and said second card, the first indicia on the third cards being different and distinguishable from the first indicia on the first and second cards, said two third cards having second indicia on the one face thereof for designating the third cards as having a rank that is higher than the rank of each of said ten sets of cards, the second indicia on the third cards being different and distinguishable from the second indicia on the first and second cards, said two third cards having third indicia on the one face thereof designating the cards as being of the same rank relative to each other;
one fourth card having first indicia on one face thereof designating the fourth card as being of a set different from the ten sets, said second card and said third cards, the first indicia on the fourth cards being different and distinguishable from the first indicia on the first, second and third cards, said fourth card having second indicia on the one face thereof for designating the fourth card as having a rank that is higher than the rank of each of said ten sets of cards and higher than the rank of said third cards, the second indicia on the fourth cards being different and distinguishable from the second indicia on the first, second, and third cards; and
scoring means for recording the scores of the players for a plurality of hands.

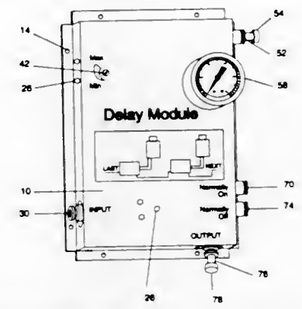
5,213,335
OPTICAL DEVICE AND BEAM GUN DEVICE USING THIS OPTICAL DEVICE
Shingo Dote, Kawasaki, and Tatsuya Nishimura, Tokyo, both of Japan, assignors to Sega Enterprises, Ltd., Tokyo, Japan
Filed Mar. 8, 1991, Ser. No. 666,875
Claims priority, application Japan, Apr. 23, 1990, 2-107055; Jun. 11, 1990, 2-152310
Int. Cl.[5] A63F 9/22, 9/24
U.S. Cl. 273—313 20 Claims



1. A simulated tracking and firing assembly such as an arcade game machine, comprising:
means for simulating a tracking system for aiming at a simulated target area, including a housing having an optical viewing axis extending therein towards the target area;
a first semitransparent mirror positioned in the housing for permitting an operator to view the target area through the semitransparent mirror;
a first reflecting mirror optically aligned with the first semitransparent mirror to enable the transmission of images to the operator in an overlapping manner with the target area;
a second semitransparent mirror optically aligned with the second reflecting mirror;
a second reflecting mirror optically aligned with the second semitransparent mirror;
a light emitting unit positioned between the second semitransparent mirror and the second reflecting mirror, and means for activating the light emitting unit, whereby the observer can view images of the light emitting unit through the first semitransparent mirror as images of the light emitting unit are reflected between the respective second semitransparent mirror and the second reflecting mirror to simulate a projection of images of the light emitting unit towards the target area.

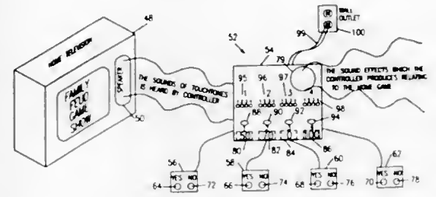
5,213,336
CONTROL DEVICE FOR LINKING PNUEMATICALLY-ACTUATED TARGETS
Kyle E. Bateman, P.O. Box 636, Provo, Utah 84603-0636
Filed Apr. 22, 1991, Ser. No. 688,317
The portion of the term of this patent subsequent to Aug. 25, 2009, has been disclaimed.
Int. Cl.[5] F41J 7/00
U.S. Cl. 273—406 4 Claims

1. A control device for pneumatically-actuated target systems comprising:
(a) a control means adapted to be installed directly in a pneumatic pressure line;
(b) delay means within the control means for providing the delaying of the flow of pressure in the pneumatic pressure line;
(c) a set of pressure lines within the control means;
(d) means for providing the temporary directing of air pressure through said set of pressure lines to activate and deactivate a pneumatic target system;
(e) means for varying the length of the time delay for the pressure flow in said delay means;
(f) means for controlling the length of time between which said pneumatic target system is activated and deactivated;



(g) a visual pressure gauge; and
(h) an adjustment system for implementing said visual pressure gauge for displaying results of the varying means and time controlling means.

5,213,337
SYSTEM FOR COMMUNICATION USING A BROADCAST AUDIO SIGNAL
Robert Sherman, 1555 Rising Glen Rd., Los Angeles, Calif. 90069
Filed Jul. 6, 1988, Ser. No. 215,655
Int. Cl.[5] A63F 9/22, 9/24
U.S. Cl. 273—439 20 Claims



1. A device for playing a game, comprising:
a microphone capable of receiving information from a communication receiver;
a touch tone decoder electrically coupled to said microphone;
a processing unit electrically coupled to said decoder;
input means for a player of said game to input a response to a broadcast program, electrically coupled to said processing unit; and
display means for displaying scoring information relevant to said response, electrically coupled to said processing unit.

5,213,338
BRAIN WAVE-DIRECTED AMUSEMENT DEVICE
Gregory R. Brotz, P.O. Box 1322, Sheboygan, Wis. 53081
Filed Sep. 30, 1991, Ser. No. 767,853
Int. Cl.[5] A63F 9/00; A61B 5/04
U.S. Cl. 273—460 6 Claims

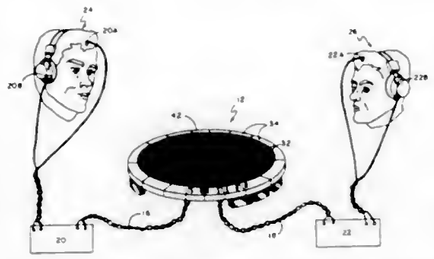
1. A game comprising:
means for detecting brainwave intensity of a player;
means for the conversion of brainwave intensity detected by said detection means to electrical impulses, the intensity of

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said electrical impulses being proportional to the intensity of said brainwave;

a rotatable circular member having a changing visual display thereon, the changing of said visual display being dependent on the speed of rotation of said rotating circular member; and

means for rotating said circular member with the speed of said rotation being proportional to the intensity of said electrical impulses.

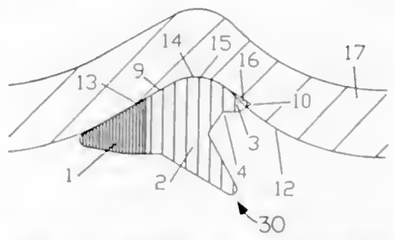


5,213,339

PIPE JOINT GASKET

Van T. Walworth, Springville, Ala., assignor to Reeves Rubber, Inc., Albertville, Ala.

Filed Feb. 13, 1992, Ser. No. 835,284
Int. Cl.[5] F16J *15/10, 15/32*
U.S. Cl. 277—1 **15 Claims**



1. A method for assembling a pipe joint wherein the pipe joint includes an inner pipe having an outside surface and an outer pipe having an annular groove for receiving a gasket, comprising the steps of:

providing a gasket, which gasket includes front and back regions, the front region being resilient and relatively rigid, the back region being softer and more resilient than the front region, a joint sealing means for sealingly engaging a portion of the back region with the inner pipe outside surface and for spacing the inner pipe from the front region while inserting the inner pipe, pipe engaging means, which means cooperates with the front and back regions, for both securing and sealing said front and back regions before inserting the inner pipe, wherein the gasket is defined by exterior and interior contours, the exterior contour being proximate the annular groove and the interior contour being proximate the inner pipe outside surface and where the exterior contour closely resembles the shape of the annular groove, but has less curvature than the annular groove in the gasket back region,

bending the gasket;

setting the gasket into the annular groove;

securing and sealing the gasket front and back regions in the annular groove so the gasket exterior surfaces of the front and back regions are placed in intimate contact with the annular groove to prevent foreign materials from being trapped between the gasket exterior surfaces and the annular groove and to prevent dislodgment of the gasket during assembly;

inserting the inner pipe into an aperture defined by the interior contour;

preventing the inner pipe from contacting the front region during insertion;

requiring less force to insert in the inner pipe into the outer pipe; and

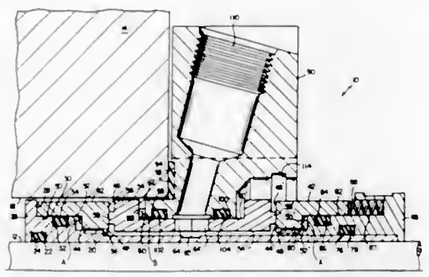
displacing the gasket in the annular groove during said step of inserting so the back region is displaced radially outward.

5,213,340

BALANCED MECHANICAL SEAL

Henri V. Azibert, Windham; Margaret B. Willbrant, Derry, both of N.H., and Ann T. Attenasio, Revere, Mass., assignors to AW Chesterton Company, Stoneham, Mass.

Continuation of Ser. No. 619,207, Nov. 28, 1990, abandoned. This application Apr. 22, 1992, Ser. No. 873,707
Int. Cl.[5] F16J *15/34*
U.S. Cl. 277—27 **17 Claims**



1. A mechanical seal assembly for retaining process fluid within equipment, the equipment having a relatively rotary part and a relatively stationary housing part, the interior of said housing part forming a stuffing box, each being concentric to a central axis of said equipment, said housing part for mounting of said seal assembly concentrically to said equipment central axis, said rotary part being axially shiftable under load between a first and second axial position relative to said housing part, said seal assembly having a first and a second pair of primary seal members, each said pair having a rotary primary seal member associated with said rotary part and a stationary primary seal member associated with said stationary part, said members of each said pair having surfaces defining relatively rotatable seal faces which mate to define an associated seal face contact area, said associated contact area of said first pair defining an axially inboard seal proximally associated with said stuffing box and which is fluidly loaded thereat and said contact area of said second pair forming an outboard seal which is fluidly loaded thereat and which is outboard from said inboard seal, said seal assembly having a central axis and said inboard and outboard seal being formed concentric to said seal assembly axis, said seal assembly further comprising

biasing means for applying axial bias to said seal faces, and

a support sleeve for mounting concentrically over said rotary part, said support sleeve having an inboard support structure extending radially and essentially perpendicular to said rotary part, said primary seal members being mounted relative to said support sleeve such that said seal faces are held essentially perpendicular to said rotary part, with one of said rotary primary seal members and both of said stationary primary seal members being axially slidably mounted relative to said support sleeve for sliding toward said support structure according to bias from said biasing means, and

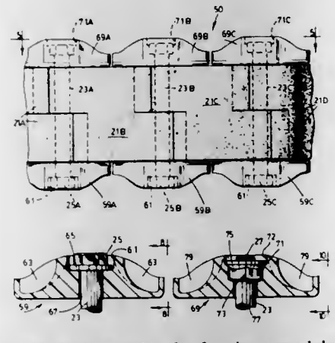
said support sleeve supporting said biasing means and said slidable ones of said primary seal members such that said bias from said biasing means and net fluid load from said loaded inboard and outboard seals is persistently and evenly applied to said inboard and outboard seals, transmitted through said primary seal members between said biasing means and said support structure, regardless of shifting of said rotary part between said first and second axial positions.

5,213,341

PRESSURE HARDWARE FOR A MODULAR INTER-WALL ELASTOMER SEAL

Carl R. Griffiths, Lansing, Mich., assignor to Thunderline Corporation, Belleville, Mich.

Filed Sep. 13, 1991, Ser. No. 759,536
Int. Cl.[5] F16J *15/10*
U.S. Cl. 277—104 **7 Claims**



1. In a seal block assembly for forming a modular, annular conduit-to-wall-opening seal of the kind comprising a plurality of elastomer seal blocks joined to each other in an annulus around a conduit, each seal block having at least one pressure bolt aperture therethrough parallel to the conduit axis, the seal blocks being axially compressed and radially expanded to form a seal between the conduit and an external encompassing wall, the assembly including a plurality of sets of pressure hardware for compressing and expanding the seal blocks, each set of pressure hardware comprising:

a bolt having a plural-facet head of given size and shape integral with one end of a bolt rod, the bolt rod having a threaded portion extending longitudinally from its other end toward its bolt head end;

a first molded resin pressure plate having a recess larger than the bolt head so that the bolt head seats in freely rotatable relation in the recess, with peripheral access for a wrench around the bolt head and with no metal-to-metal sliding contact when the bolt is tightened;

the recess being deep enough so that the bolt head does not project substantially out of the recess;

a second molded resin pressure plate having a stepped socket facing outwardly of the pressure plate,

the socket having an inner plural-facet socket portion of predetermined depth and given maximum transverse dimension and an outer socket portion having a transverse dimension greater than the maximum transverse dimension of the inner socket portion, with a shelf at the outer edge of the inner socket portion affording an annular bottom surface for the outer socket portion;

and a plural-facet nut of predetermined size and shape, complementary to the inner socket portion so that the nut seats entirely therein in non-rotatable relation, the nut having an internal aperture threaded to engage the threaded portion of the bolt rod,

the nut having an integral flange on its outer side, engaging the bottom surface of the outer socket portion to distribute stress from the bolt and nut to the second pressure plate;

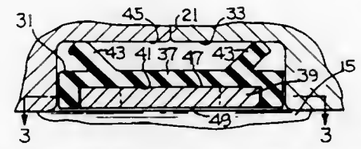
the second pressure plate further having a second bolt-receiving aperture therethrough, smaller than the nut, aligned with the socket to admit the other end of the bolt rod into engagement with the nut.

5,213,342

LIP SEAL WITH RADIALLY COMPRESSIBLE SUPPORT BAND

Charles F. Weber, Delphos, Ohio, assignor to Federal-Mogul Corporation, Southfield, Mich.

Filed Feb. 18, 1992, Ser. No. 837,501
Int. Cl.[5] F16J *15/32*
U.S. Cl. 277—152 **6 Claims**



1. An annular seal assembly comprising an annular sealing element having an annular inner surface portion and a continuous annular sealing lip; and an annular resilient reinforcement element for radially biasing said sealing element into engagement with a sealing surface; said reinforcement element being formed from a flat steel band curled into a circular configuration with its ends connected together to form an endless circular reinforcement element having a radial thickness dimension, an axial width dimension, and a circumferential dimension; said reinforcement element having a circumferentially extending sinuous configuration and comprising an outer annular surface engaged with said sealing element, an inner annular surface, and two sides surfaces interconnecting said outer and inner surfaces; said reinforcement element having circumferentially spaced slots formed through said flat steel band and extending from one side surface more than half way toward the other side surface; said slots being staggered so that successive slots extend from different ones of said side surfaces of said reinforcement element to give said reinforcement element said sinuous configuration; wherein said reinforcement element and said slots are circumferentially compressed within said sealing element so that the circumferential length of said compressed reinforcement element is substantially less than the circumferential length of said reinforcement element in its initial as-formed state and wherein said reinforcement element exerts substantially the same resilient radial force at all points around said annular sealing element.

5,213,343

SHAFT SEAL WITH SUPPORT MEMBER AND BACKING RING

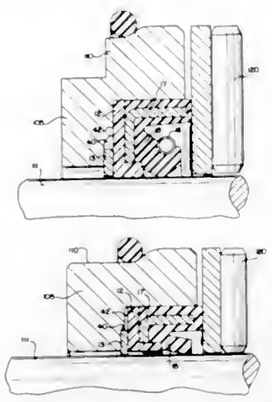
Hollis N. White, Jr., Hopkinsville, Ky., assignor to White Hydraulics, Inc., Hopkinsville, Ky.

Continuation of Ser. No. 305,376, Feb. 1, 1989, abandoned, which is a continuation-in-part of Ser. No. 217,307, Jul. 11, 1988, abandoned. This application Mar. 9, 1992, Ser. No. 847,850
Int. Cl.[5] F16J *15/32*
U.S. Cl. 277—152 **54 Claims**

1. An improved seal for a shaft in a device having an immovable radial surface, the shaft having a diameter, the improved seal comprising a body, said body providing a sealing contact between the device and the shaft, a backing ring, means to limit the axial movement of said backing ring in respect to the device, an intermediate member, said intermediate member being fixedly located between said body of said seal and said backing ring and between said seal and at least part of the immovable radial surface of the device, said backing ring having an inner

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diameter, said inner diameter of said backing ring being greater than the diameter of the shaft, said intermediate member having inner diameter and said diameter of said intermediate member being greater than said inner diameter of said backing ring.

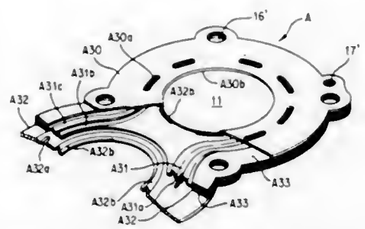


5,213,344

METAL LAMINATE GASKET FOR OPEN DECK TYPE ENGINE

Tsunekazu Udagawa, Ichikawa, Japan, assignor to Ishikawa Gasket Co., Ltd., Tokyo, Japan

Filed Feb. 19, 1992, Ser. No. 837,319
Claims priority, application Japan, Feb. 25, 1991, 3-008837[U]
Int. Cl.[5] F16J *15/32*
U.S. Cl. 277—235 B **4 Claims**



1. A metal laminate type cylinder head gasket adapted to be installed in an engine with an open deck type cylinder block, said cylinder block having a plurality of cylinder walls for defining cylinder bores, said cylinder walls being connected to each other and having bottom portions, a main body surrounding the cylinder walls and connected thereto at the bottom portions, and a water passage for completely surrounding side portions of the cylinder walls in the main body, said gasket comprising,

first and third metal plates and at least one second metal plate situated between the first and third plates, said metal plates extending substantially over an entire sealing area of the engine,

a plurality of inner beads formed on at least one of the first to third plate to be located above the cylinder walls for sealing around the cylinder bores, and an outer bead formed on one of the first to third plates to be located above the main body for surrounding the water passage to seal therearound, and

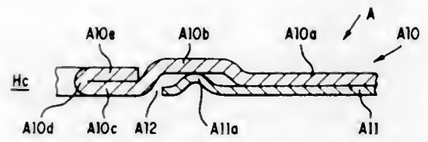
soft coating formed on the second plate to be located between two metal plates, said soft coating being only located above the main body outside the outer bead relative to the cylinder bores for surrounding the water passage to thereby securely seal around the water passage without being damaged by the outer bead.

5,213,345

STEEL LAMINATE GASKET WITH WIDE SEALING AREA

Tsunekazu Udagawa, Ichikawa, Japan, assignor to Ishikawa Gasket Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 193,215, May 11, 1988, Pat. No. 5,054,795, which is a continuation of Ser. No. 928,937, Nov. 10, 1986, abandoned. This application Apr. 30, 1991, Ser. No. 692,389
Int. Cl.[5] F16J *15/08*
U.S. Cl. 277—235 B **8 Claims**



1. A steel laminate gasket for an internal combustion engine having at least one hole therein comprising:

a first metal plate including at least one first hole corresponding to the hole of the engine, a sealing device situated around the first hole to define and seal around the same, said sealing device including a lower section, an upper section terminating in an edge of said first metal plate and being situated above the lower section and a curved portion situated between the upper and lower sections and defining the first hole, a base section extending substantially throughout an entire area of the gasket, and a wide bead situated between the sealing device and the base section, said wide bead, when the gasket is tightened, being compressed to widely seal around the first hole outside the sealing device, and

a second metal plate situated under the base section of the first plate, said second plate having at least one second hole, the diameter of the second hole being larger than the diameter of the sealing device to permit the second plate to laminate the base section without laminating the sealing device when the gasket is assembled, and a support bead situated around the second hole to be located under the wide bead, said support bead, when the gasket is tightened, supporting the wide bead to widely and securely seal around the hole of the engine.

5,213,346

METHOD AND APPARATUS FOR SEALING BETWEEN TWO RELATIVELY ARTICULABLE SURFACES

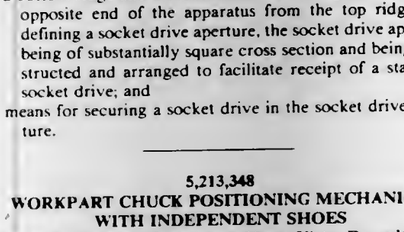
William F. Thomson, Milford, N.H., and Calvin C. Chase, Dunstable, Mass., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Aug. 19, 1991, Ser. No. 746,747
Int. Cl.[5] F16J *15/52, 3/00, 15/16*
U.S. Cl. 277—237 R **10 Claims**

1. A seal device for sealing a substantially straight linear gap between two relatively articulable substantially planar and parallel surfaces, comprising:

a fluid resistant sheet folded repeatedly about itself to form a multilayer flat elongated sealing member having a web bound by longitudinal pockets formed along two parallel edges of said sealing member; and

means insertable in said sealing member longitudinal pockets for both stiffening and thickening the parallel edges of said sealing member and for cooperating with grooves in said substantially planar surfaces adapted to receive the stiffened and thickened edges of said flat sealing member.

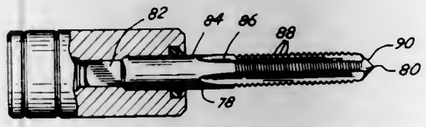


5,213,347

SOCKET DRIVEABLE TAP APPARATUS

Richard E. Rulon, Avon, Conn., and Joel A. Negus, Clarinda, Iowa, assignors to Lisle Corporation, Clarinda, Iowa

Filed Apr. 29, 1991, Ser. No. 693,445
Int. Cl.[5] B23B *31/117*
U.S. Cl. 279—102 **5 Claims**



1. A socket driveable tap apparatus comprising, in combination:

an exterior cylindrical wall, an interior tap wall, and a top ridge, the interior tap wall and top ridge being located at one end of the apparatus and defining a tap receiving aperture;

a tap shoulder support shelf located in the tap receiving aperture and a tap drive aperture, the tap receiving aperture being of substantially circular cross section and extending into the apparatus from the top ridge to the tap shoulder support shelf;

the tap drive aperture being of substantially square cross section and extending inward from the tap shoulder support shelf, the tap shoulder support shelf being constructed and arranged to facilitate receipt of a tap;

means for securing a tap in the tap receiving aperture;

a bottom ridge and a socket drive wall being located at the opposite end of the apparatus from the top ridge and defining a socket drive aperture, the socket drive aperture being of substantially square cross section and being constructed and arranged to facilitate receipt of a standard socket drive; and

means for securing a socket drive in the socket drive aperture.

5,213,348

WORKPART CHUCK POSITIONING MECHANISM WITH INDEPENDENT SHOES

Richard E. Crossman, Leominster, Mass.; Victor Dzewaltowski, and Walter Dodd, both of Springfield, Vt., assignors to Bryant Grinder Corporation, Springfield, Vt.

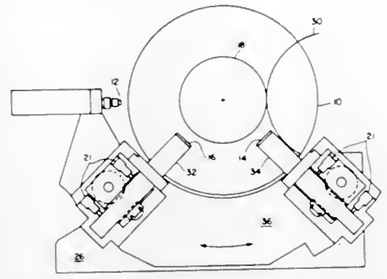
Continuation of Ser. No. 619,255, Nov. 28, 1990, Pat. No. 5,108,117. This application Apr. 23, 1992, Ser. No. 872,928
Int. Cl.[5] B23B *13/00;* **B24B** *49/00*
U.S. Cl. 279—126 **20 Claims**

1. A method for centering a workpart on a rotating chuck comprising the steps of:

moveably coupling the workpart to the chuck such that the workpart is moveable relative to the chuck;

rotating the chuck about a chuck axis such that a geometrical axis of the workpart is offset from the chuck axis;

measuring the degree of workpart geometrical axis offset for the chuck axis of rotation;



positioning a first shoe element in contact with the workpart with a first driver and positioning a second shoe element in proximity to the workpart with a second driver; and

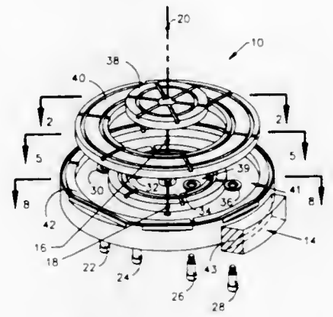
moving the first shoe element with the first driver and the second shoe element with the second driver to move the workpart axis toward the chuck axis as the chuck and workpart rotate.

5,213,349

ELECTROSTATIC CHUCK

Joe C. Elliott, 519 Spring St., Redwood City, Calif. 94063

Filed Dec. 18, 1991, Ser. No. 809,756
Int. Cl.[5] H02N *13/00*
U.S. Cl. 279—128 **4 Claims**



1. An electrostatic chuck comprising:

an electrostatic clamping and gas cooling plate; and

a support for the plate;

said plate having a top inner coil portion and a top outer coil portion which can be respectively connected to a DC source for forming an electrostatic field for clamping a substrate to the plate during manufacture of the substrate;

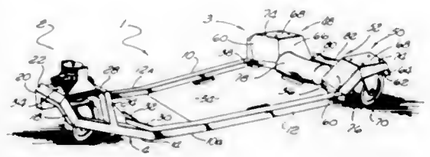
said plate having a main body portion mechanically connected to the inner coil portion and to the outer coil portion and respectively forming an inner chamber and an outer chamber disposed under the inner coil portion and the outer coil portion;

said main body portion having a bottom surface forming together with the support a main chamber; and

said support and said plate having a plurality of passages interconnecting the inner chamber and the outer chamber and the main chamber for flow therethrough of gas.

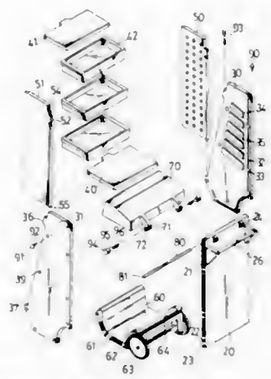
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,350
MECHANIC'S CREEPER TRUCK
John Hermanson, P.O. Box 325, Newhall, Calif. 91322
Filed Nov. 1, 1991, Ser. No. 786,741
Int. Cl.[5] B25H 5/00; B62B 11/00
U.S. Cl. 280—32.6 15 Claims



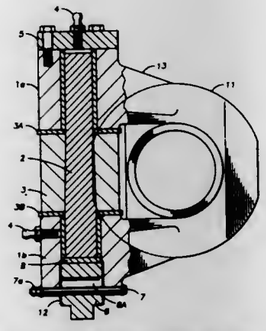
1. A creeper comprising:
a torso supporting platform having a longitudinal axis and extending between a head end and a tail end of the creeper;
a pair of spaced apart rolling elements at the head end;
a floor contacting portion near the tail end;
a tail end rolling element located substantially on the longitudinal axis at the tail end for rolling on a floor surface;
a vertical guide portion co-acting between the tail end rolling element and the tail end for guidingly permitting vertical movement of the tail end within a selected range between a lowest position of the floor contacting portion in contact with the floor and a preselected highest position;
a resilient biasing portion co-acting between the tail end rolling element and the tail end said biasing portion applying a force urging the tail end upwardly toward the highest position until an overcoming force is applied to cause the tail end to lower to the lowest position, and resiliently urging the tail end upward when an overcoming force is not present.

5,213,351
BUILT-UP TOOL CARRIAGE
Tony Chen, No. 6, Lane 609, Sec. 1, Chungchen Rd., Ta Chia Chen, Taichung Hsien, Taiwan
Filed Jun. 26, 1992, Ser. No. 904,566
Int. Cl.[5] B62B 1/26
U.S. Cl. 280—47.19 1 Claim



1. A built-up tool carriage comprising:
a base, said base comprising tenons and round holes alternatively aligned on two opposite side edges thereof, two wheels bilaterally mounted on a bottom edge adjacent to a rear end thereof, a tongue transversely formed on said rear end above said wheels, and a handhold transversely made on a front end thereof,
a back panel vertically attached to the rear end of said base, said back panel comprising tenons and round holes longitudinally alternatively aligned on two opposite side edges thereof, a groove transversely made on a front face adjacent to a bottom edge thereof into which the tongue of said base is engaged, two spaced eyed lugs transversely aligned on a back face adjacent to a top edge thereof, and a handhold transversely made on the back face below said eyed lug;
two symmetrical side panels vertically attached to said base and said back panel on two opposite sides, said side panels comprising each a plurality of elongated grooves around a peripheral edge thereof into which the tenons on said base and said back panel are engaged, a plurality of round holes respectively aligned with the round holes on said base and said back panel and secured thereto by connecting rods and hand screws, a plurality rectangular blocks transversely raised from an inner face thereof and spaced from one another by parallel channels, said channels including a top channel, a bottom channel and a plurality of intermediate channels, a pin bushing and a stop block longitudinally aligned on an opposite side edge thereof on two opposite locations, and two spaced through holes adjacent to the opposite side edge, said stop block having a hole longitudinally aligned with the hole defined in the pin bushing;
two division boards respectively inserted into said top and bottom channels, said division board having each a through hole respectively aligned with the through hole on either said side panel;
a plurality of sliding boxes respectively inserted in said intermediate channels and moved to slide between said side panels;
two front door panels respectively hinged to said side panels for access control, said front door panels comprising each a pin bushing on one side edge thereof at an upper location stopped above the pin bushing on either said side panel, and a pin on a bottom edge thereof respectively inserted into the hole on the stop block of either said side panel, said front door panels including one having a plurality of holes on an inside face thereof for inserting hooks for hanging tools and the other having tool compartments of different sizes and shapes on an inside face thereof for keeping different tools and accessories;
a top cover hinged to said back panel and covered over said side panels on the top, said top cover comprising two eyed projecting blocks on a rear peripheral edge thereof respectively hinged to the eyed lugs on said back panel;
a plurality of connecting rods respectively inserted through the round holes on said side panels, said back panel and said base and the through holes on said side panels and said division boards, said connecting rods having each two bolt holes on two opposite ends;
a plurality of hand screws respectively threaded into the bolt holes on said connecting rods to secure said connecting rods to said side panels permitting said base, said back panel and said side panels to be firmly connected together; and
a plurality of bolts for connecting said eyed projecting blocks of said top cover to said eyed lugs of said back panel and the pin bushings of said front door panels to the pin bushings of said side panels respectively, said bolts comprising each a cylindrical head on one end, a split cone on an opposite and an elongated rod body connected therebetween.

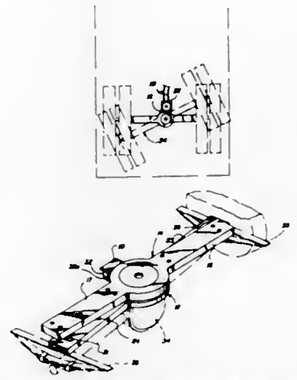
5,213,352
BENT TUBE STEERING AXLE ASSEMBLY
Thomas N. Chalin, Garland, Tex., assignor to Watson & Chalin Manufacturing, Inc., Rowlett, Tex.
Filed Jan. 16, 1992, Ser. No. 821,637
Int. Cl.[5] B62D 7/18
U.S. Cl. 280—96.1 10 Claims



1. A kingpin housing assembly uniting the front axle, the wheel mounting assembly and the steering assembly of a motor vehicle comprising:
a) an upper and a lower arm support, each said arm support having a vertically aligned bore;
b) an axle member having a vertically aligned bore positioned between said upper and lower arm supports;
c) a kingpin extending through said bore in said lower arm support, said bore in said axle member, and said bore in said upper arm support;
d) an upper cap attached to said upper arm support to seal said upper arm support;
e) a load-carrying thrust bearing located below said kingpin providing for a substantially frictionless motion of said kingpin preventing wear and tear;
f) a locking cap having a horizontally aligned bore, and said locking cap is thread-fittedly received into said bore in said lower arm support;
g) said lower arm support having castellations along the bottom circumference forming notches along said bottom circumference;
h) a nut and bolt combination inserted through said notches and said horizontally aligned bore in said locking cap to prevent displacement of said locking cap from an adjusted force relation between said locking cap and said kingpin; and
i) said upper and lower arm supports each having a grease plug for inserting grease.

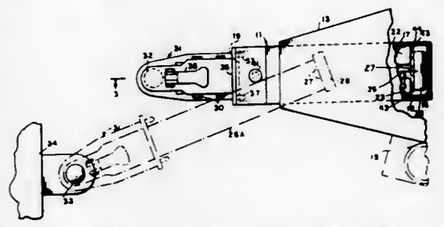
5,213,353
TRUCK TRAILER STEERING APPARATUS
Herbert F. Williams, 720-695 Alexander La., Standish, Calif. 96128
Filed Dec. 16, 1991, Ser. No. 808,213
Int. Cl.[5] B62D 13/02
U.S. Cl. 280—426 4 Claims

1. A truck trailer steering apparatus mounted to a trailer assembly, wherein the trailer assembly includes a trailer floor, the trailer floor defined by parallel side edges, and
a mounting plate fixedly secured to the floor, wherein the mounting plate includes a mounting plate central hub and a mounting plate first wing colinearly aligned with a mounting plate second wing, wherein the first wing and the second wing are mounted on diametrically opposed sides of the central hub, and the first wing and the second wing are orthogonally oriented relative to the parallel side edges of the trailer floor, and
a pivot plate including a pivot plate central hub, the pivot plate central hub coaxially aligned relative to the mounting plate central hub, including a pivot axle coaxially directed through the pivot plate central hub and the mounting plate central hub to permit pivotment of the pivot plate central hub relative to the mounting plate central hub, and
a pivot plate first wing and a pivot plate second wing fixedly mounted to the pivot plate central hub on diametrically



opposed sides of the pivot plate central hub, and the pivot plate first wing and the pivot plate second wing are colinearly aligned relative to one another, and
a rear housing mounted to a bottom surface of the pivot plate central hub below the mounting plate, wherein the rear housing includes wheel members rotatably mounted to the rear housing, and
drive means for rotating the pivot plate relative to the mounting plate.

5,213,354
COUPLING DEVICE FOR TOWING A VEHICLE
Eugene C. Vaughn, Riverside, Calif., assignor to Pro-Hitch, Inc., Claremont, Calif.
Filed Oct. 31, 1991, Ser. No. 785,985
Int. Cl.[5] B60D 1/06, 1/40
U.S. Cl. 280—479.2 16 Claims

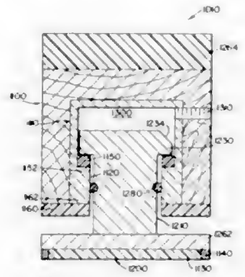


1. Coupling means for coupling a towed vehicle to a towing vehicle in which a ball member is connected to a first one of the vehicles and a socket member is connected to a second one of the vehicles, comprising:
base means for attachment to said second one of the vehicles, said base means forming a guideway;
a drawbar slidable along said guideway, said drawbar being integral at one end with said socket member; and
pivot means at an opposite end of said drawbar relative to said socket member, said pivot means forming a pivot and slide connection with said guideway to permit pivoting and sliding of said drawbar from a retracted position to an

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advanced position relative to said guideway to thereby permit coupling of the ball and socket members, wherein said pivot means permits the pivoting of said drawbar about said pivot and slide connection in a horizontal direction and in a vertical direction.

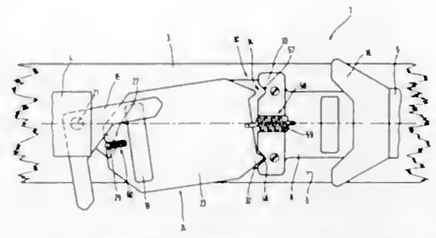
5,213,355
SKI DEVICE
Paul R. Juhasz, Troy Tower No. 410, 380 Mountain Rd., Union City, N.J. 07087
Division of Ser. No. 385,729, Jul. 26, 1989, Pat. No. 5,156,413. This application Sep. 24, 1992, Ser. No. 950,929
Int. Cl.[5] A63C 5/07
U.S. Cl. 280—602 45 Claims



1. A ski body, comprising:
an exposed top surface;
a ground contacting bottom surface;
a body member disposed in interbonding relationship between said exposed top and ground contacting surfaces and having an immovable bottom surface and a top surface and defining a cavity having an opening along said immovable bottom surface;
a movable member extending into said cavity, said movable member having a bottom surface which forms a movable bottom surface to said body member;
means adapted to said ski body for limiting the downward movement of said movable member;
sealed compressible fluid under pressure disposed between said body member and said movable member for controlling the relative movement of said movable member with respect to said body member.

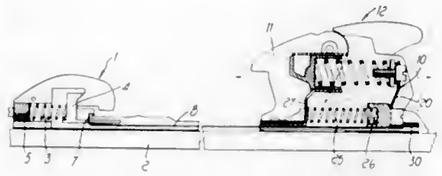
5,213,356
COUPLING DEVICE FOR A SKI
Alois Rohrmoser, Wagrain, Austria, assignor to Varpat Patentverwertungs AG, Littau, Switzerland
Filed Dec. 17, 1991, Ser. No. 809,019
Claims priority, application Austria, Dec. 21, 1990, 2631/90
Int. Cl.[5] A63C 9/081
U.S. Cl. 280—607 28 Claims

1. A coupling device between a ski boot and a longitudinally-extending ski having a top surface, comprising:
a toe binding having first and second sides for engaging the ski boot which is pivotable around a first axis, perpendicular to said top surface of the ski;
a heel binding for engaging the ski boot;
a carrier device with a front end, a back end and two sides located between said toe binding and said heel binding for supporting the ski boot, said carrier device has a length shorter than the distance between said toe binding and said heel binding, said carrier device is pivotable around a second axis and a third axis which are arranged along said back end of said carrier device and are parallel to said first axis, said second and third axes are located on either side of said longitudinal axis an equal distance from said longitudinal axis;
connection means for operatively connecting said first side of said toe binding to said front end of said carrier device so that said carrier device can pivot around one of said second and third axes jointly with said toe binding pivoting around the first axis, said first axis being located on said second side of said toe binding opposite the side connected to said carrier device, said connection means



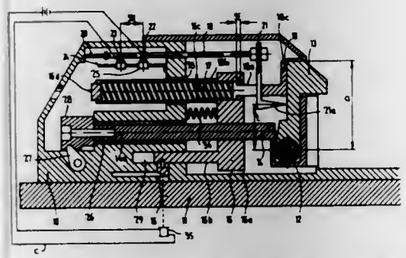
permitting relative movement between said carrier device and said toe clamp in a direction along the longitudinal axis of the ski;
a counter-holder mounted on the ski in the region of said back end of said carrier device; and
retaining means attached to the ski for flexibly retaining said carrier device against said counter holder.

5,213,357
SKI BINDING WITH ELASTIC RECOVERY MEANS FOR FREE SKI FLEXING
Roberto Gorza, Feltre; Giorgio Baggio, San Martino Di Lupari, and Mirco Battistella, Spresiano, all of Italy, assignors to Nordica S.p.A., Montebelluna, Italy
Filed May 18, 1992, Ser. No. 883,989
Claims priority, application Italy, May 23, 1991, 1419 A/91; Jun. 4, 1991, 1522 A/91
Int. Cl.[5] A63C 9/08
U.S. Cl. 280—607 3 Claims



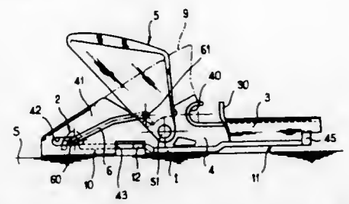
1. A ski binding connectable to a ski top portion, comprising:
a front toe unit for releasably holding down a ski boot toe portion, said front toe unit comprising a spring-biased sliding carriage element;
a rear heel unit for releasably holding down a ski boot heel portion, said rear heel unit including: a sliding body; means for slidably connecting said sliding body to the ski top portion; and a spring-biased heel holding jaw which is pivotally supported by said sliding body;
means for connecting said ski binding to the ski top portion such that said front toe unit and said rear heel unit are mutually spaced apart, said means for connecting said ski binding to the ski top portion comprising a supporting base for the front toe unit, said supporting base being rigidly connectable to the ski top portion;
a sliding plate element having a first end and a second end, the first end of the sliding plate element being connected with said sliding body of said rear heel unit and thereby said sliding plate being slidable in unison with said sliding body, said sliding plate element extending from said rear heel unit to said front toe unit at which is arranged said second end of said sliding plate; and
spring biasing means interposed between said second end of said sliding plate element and a portion of said supporting base of the front toe unit, thereby for biasing said sliding plate and said sliding body into a forward position with respect to said supporting base while allowing said sliding plate and said sliding body to slide rearwardly with respect to said supporting base.

5,213,358
SKI BINDING
Wolfgang Badura, Bad Reichenhall, Fed. Rep. of Germany, assignor to Buck Werke GmbH & Co., Bad Uberkingen, Fed. Rep. of Germany
Filed Dec. 13, 1991, Ser. No. 806,294
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1990, 4040069
Int. Cl.[5] A63C 9/0888
U.S. Cl. 280—612 2 Claims



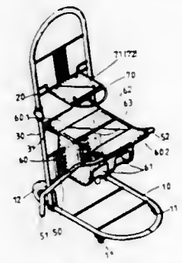
1. An automatically detachable ski binding including spaced apart and interconnected toe and heel portions mounted on a ski for holding a ski boot in place thereon, said heel portion comprising a housing, a carriage member mounted to said housing for longitudinal sliding movement, means on said housing for locking said carriage in a pedetermined longitudinal position and for releasing said carriage from said position, a heel clamp mounted within said housing for pivotal movement about a transverse axis between a heel clamping position and a heel release position, said clamp being further mounted for longitudinal sliding movement relative to said housing from said clamping position and said heel release position, a longitudinally movable elongated probe element mounted to said housing, one end of said probe element being in point contact engagement with said clamp, electronic means including an on/off switch fixedly mounted on said housing for electronically controlling said locking and releasing means, an electrical contact element mounted on said probe, said contact element being spaced a predetermined longitudinal distance from said switch in said heel clamping position, means applying a spring force to said clamp for urging said clamp into said heel clamping position, said urging means including a compression spring acting between said carriage and said clamp, means for prestressing said spring for adjusting said spring force, said probe element extending parallel to and above said spring, said one end of said probe element being connected by a downwardly extending arm on said probe element, said spring force applying means including an open leg element and an upwardly extending element resiliently bearing against said clamp, said arm extending without inteference through said leg element, a distance (a) from said transverse axis to a point of application of said spring force to said clamp being greater than a distance (t) from said transverse axis to said point contact of said probe element one end, the distance (a–t) and the prestress of said spring being selected such that the pivoted movement of said clamp to said release position effects sliding movement of said probe element a predetermined distance for contact said switch by said contact piece, and such that any sliding movement of said clamp to said release position is substantially through said predetermined distance.

5,213,359
BINDING FOR CROSS-COUNTRY SKIS
Francois Girard, Veyrier du Lac, France, assignor to Salomon S.A., Annecy Cedex, France
Filed Aug. 12, 1991, Ser. No. 743,940
Claims priority, application France, Aug. 21, 1990, 90 10612
Int. Cl.[5] A63C 9/20
U.S. Cl. 280—615 9 Claims



1. Binding for cross-country skis, said binding being adapted to retain a boot on the ski, said boot having a tip, said tip being provided with a transverse journal axle, said binding comprising a mounting plate fixed on the ski, and a pair of jaws adapted to enclose and retain said axle therebetween, one of said jaws comprising a fixed jaw, being affixed to said mounting plate whereas the other of said jaws comprises a movable jaw, which is axially displaceable on the ski, said binding comprising a knuckle joint latching system that includes a lever journalled around a transverse axis affixed to said movable jaw, and a toggle link journalled on said lever and being supported on said mounting plate, wherein a support zone of the toggle link on said mounting plate is elastically mobile in an axial direction along a limited path, in a direction opposite to a direction of latching of the movable jaw, and wherein the toggle link includes a transverse arm that is supported against an elastically deformable inclined tongue which is provided on said mounting plate.

5,213,360
PUSH CAR
Chin-Feng Lin, Tainan Hsien, Taiwan, assignor to Ting Yi Enterprise Co., Ltd., Tainan Hsien, Taiwan
Filed Jun. 17, 1992, Ser. No. 899,754
Int. Cl.[5] B62B 3/02
U.S. Cl. 280—648 5 Claims



1. A push car comprising a base including a pair of front wheels disposed in a front portion thereof, a frame having a lower portion pivotally coupled to a rear portion of said base and including a pair of rear wheels disposed in said lower portion thereof, a rod laterally supported in an upper portion of said frame, a bracket including a post and a pair of arms extended from said post, said pair of arms including a lower portion pivotally coupled to said lower portion of said frame,

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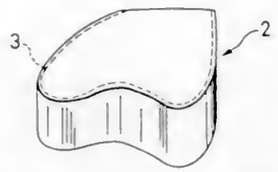
and a seat support including a first sleeve formed in a rear portion thereof for engagement on said rod of said frame and a second sleeve formed in a front portion thereof for engagement on said post of said bracket, whereby said seat support is supported in place for carrying a baby; and

wherein said seat support includes an upper portion, two flaps oppositely disposed in said upper portion and including an adjacent edge coupled together by an engaging means such that said upper portion of said seat support is enclosed by said flaps and such that a seat is formed for supporting a user.

5,213,361
AIR BAG

Takeshi Satoh, and Ryo Kurosaki, both of Echi, Japan, assignors to Takata Corporation, Tokyo, Japan

PCT No. PCT/JP91/00843, § 371 Date Jan. 23, 1992, § 102(e) Date Jan. 23, 1992, PCT Pub. No. WO92/00208, PCT Pub. Date Jan. 9, 1992
PCT Filed Jun. 21, 1991, Ser. No. 820,597
Claims priority, application Japan, Jun. 27, 1990, 2-169485
Int. Cl.[5] B60R *21/22*
U.S. Cl. 280—730 5 Claims



1. An air bag for protecting a person in a vehicle comprising:

a front portion directing to a face of the person when inflated and having an edge, a center portion, and left and right portions located on both sides of the center portion, said front portion having no seam at the center portion and the left and right portions and having a shape at inflation such that the left and right portions smoothly curve and project from the center portion laterally and outwardly at a distance between 50 and 500 mm, said front portion smoothly extending vertically without forming a projection, and

a side portion sewed to the edge of the front portion so that a seam between the front and side portions is located away from the face of the person when inflated, said side portion extending from a part of a vehicle toward the person when inflated, said front and side portions being formed of non-expandable cloths as a whole.

5,213,362
STAB IGNITER ASSEMBLY

Terrance J. Coultas, Canyon Country, Calif., assignor to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Continuation-in-part of Ser. No. 671,947, Mar. 19, 1991, Pat. No. 5,131,680. This application Sep. 30, 1991, Ser. No. 767,843
Int. Cl.[5] B60R *21/26*
U.S. Cl. 280—736 11 Claims

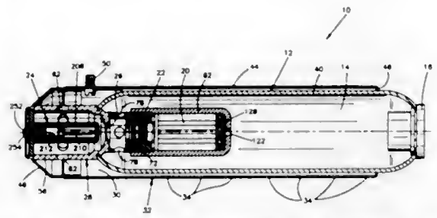
1 An igniter assembly for a vehicle occupant safety apparatus having a containing means for receiving gas and a combustible material which burns to heat the gas, said igniter assembly comprising:

an ignitable material for initiating burning of the combustible material when said ignitable material is ignited;

a primer element which is actuatable to ignite said ignitable material, said primer element comprising a container holding an ignitable primer material;

a firing pin member which is movable against said primer element to actuate said primer element by penetrating said container and moving into contact with said primer material to ignite said primer material; and

a housing containing said ignitable material, said primer element and said firing pin member, said housing having a

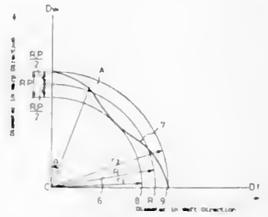


hermetic seal and openable means for exposing the combustible material in the vehicle occupant safety apparatus to said ignitable material when said ignitable material is ignited.

5,213,363
HOLLOW WEAVE AIR BAG

Kunihiko Fukumori, Takatsuki, and Masaharu Yasue, Uji, both of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Japan

PCT No. PCT/JP91/00770, § 371 Date Jan. 30, 1992, § 102(e) Date Jan. 30, 1992, PCT Pub. No. WO91/18768, PCT Pub. Date Dec. 12, 1991
PCT Filed Jun. 7, 1991, Ser. No. 820,878
Claims priority, application Japan, Jun. 8, 1990, 2-148502
Int. Cl.[5] B60R *21/16*
U.S. Cl. 280—743 6 Claims



1. A hollow weave air bag having a peripheral portion of a hollow portion which is bound by a single layer weave binding band, characterized in that a boundary line between the peripheral portion and the single layer weave binding band is formed with different lengths from a center of the hollow portion to the boundary line in such a manner that the length has a maximum value in a warp direction and a weft direction of the hollow weave air bag and a minimum value in a bias direction thereof, and is further formed substantially along an wavy continuous curve expressed by the following equation between a circumscribed circle and an inscribed circle of the boundary line:

$$L = R(1 + P/2 \cdot \cos 4\theta) \quad (1)$$

$$0 < P \leq 0.2 \quad (2)$$

wherein R stands for a mean value of a radius of the circumscribed circle and a radius of the inscribed circle;

P stands for a ratio of a difference between the radius of the circumscribed circle and the radius of the inscribed circle against the mean radius R;

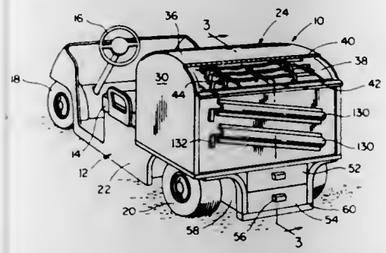
θ stands for an angle measured in a clockwise direction from the warp direction;

L stands for a length from the center C of the hollow portion to the boundary line at the angle θ.

5,213,364
GOLF CLUB HOLDER AND DISPENSER

Dana L. Theckston, 2101 S. 324th St., Sp. 55, Federal Way, Wash. 98003

Filed Apr. 29, 1992, Ser. No. 875,420
Int. Cl.[5] B60R *11/00*
U.S. Cl. 280—769 14 Claims

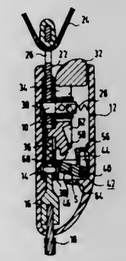


13. In combination, a golf cart having an upwardly facing supporting area, a golf club holder and dispenser mounted on the supporting area of the golf cart, said holder and dispenser including rotatable means supported from the golf cart supporting area and means releasably mounting a plurality of golf clubs from said rotatable means, said means releasably mounting a plurality of golf clubs including a pair of spaced circular disks with each disk having a plurality of circumferentially spaced notches therein receiving golf club shafts, and means positioned between said disks and in spaced relation thereto for exerting radial inward resilient force on each golf club shaft to hold each shaft in said notches.

5,213,365
INERTIALLY LOCKING BUCKLE FOR SEAT PRETENSIONER

Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to TRW Repa GmbH, Alfdorf, Fed. Rep. of Germany

Filed Nov. 12, 1991, Ser. No. 790,375
Claims priority, application European Pat. Off., Nov. 15, 1990, 90121893.3
Int. Cl.[5] B60R *22/34*
U.S. Cl. 280—806 18 Claims



1. A buckle for a safety belt system which includes a belt pretensioner to move said buckle along a pretensioning stroke, said buckle comprising:

a load bearing housing defining an insert path for receiving an insert tongue;

a locking bar movable between a first position in which said locking bar engages the insert tongue to prevent removal of the insert tongue from said housing and a second position in which said locking bar is disengaged from the insert tongue to enable the insert tongue to be removed from said housing;

a release button movable between an unactuated position and an actuated position along a movement path, said release button including means for moving said locking bar from said first position to said second position during movement of said release button from said unactuated position to said actuated position;

a first spring biasing said release button into said unactuated position;

a lever pivotally mounted about a pivot axis for movement between a rest position and an end position; and

a second spring biasing said lever into said rest position;

said lever having a center of gravity displaced from said pivot axis, said center of gravity being located such that said lever is pivotable due to inertial force created when said buckle reaches an end of said pretensioning stroke, said lever being pivoted from said rest position to said end position prior to said release button moving from said unactuated position due to the inertial force;

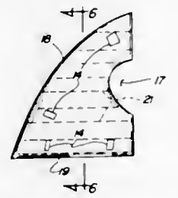
said lever having a first arm and a second arm, said first arm projecting into said movement path of said release button and being engageable by said release button to prevent said release button from reaching said actuated position when said lever is in said end position, said first arm being adjacent to and spaced from said movement path of said release button when said lever is in said rest position, said second arm projecting into said movement path of said release button when said lever is in said rest position; and

said release button including means for engaging said second arm and pivoting said lever to said end position during movement of said release button along said movement path due to non-inertial force.

5,213,366
SAFETY BELT SHIELD CONSTRUCTION

Ronald R. Sweger, Jr., 604 Wertzville Rd., Enola, Pa. 17025

Filed Jun. 19, 1992, Ser. No. 900,654
Int. Cl.[5] B60R *22/14*; A41D *1/04*
U.S. Cl. 280—808 1 Claim



1 A safety belt shield construction, comprising,

a flexible shield plate formed of a shape retentive material having a concave rear wall and a convex forward wall, with the rear wall coextensive with the forward wall, and

a linear bottom edge, with a plurality of safety belt receiving loops mounted on the convex forward wall adjacent the lower edge, with the loops oriented orthogonally relative to the lower edge to receive a safety belt therethrough, and

the shield plate includes a rear edge, the rear edge having an arm accommodating recess directed in the rear edge in a spaced relationship from the lower edge, and an arcuate forward edge extending from an upper distal end of the rear edge to the lower edge, and a further plurality of safety belt receiving loops mounted to the convex forward wall to receive a shoulder harness belt therethrough, and

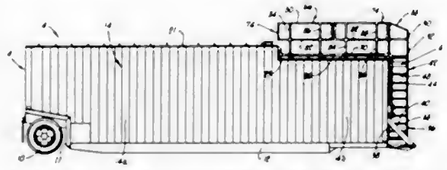
the concave rear wall includes a polymeric foam liner coextensive with the concave rear wall, and

a plurality of parallel rods oriented parallel to the lower edge and orthogonally to the rear edge, with the parallel rods formed of a shape retentive material, and

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including at least one fluid channel orthogonally directed between the rods, with the channel having a fluid dye contained therewithin, whereupon damage to the shield plate effects transmission of the fluid dye therethrough for visual observation of the shield plate.

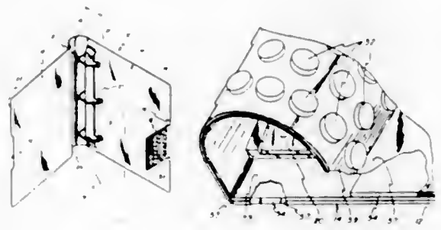
5,213,367
BI-LEVEL PORTABLE STORAGE TANK
Eddy Norman, Jr., Springer, and Billy S. Brown, Sulphur, both of Okla., assignors to Spade Leasing, Inc., Springer, Okla.
Filed Mar. 16, 1992, Ser. No. 851,802
Int. Cl.[5] B60P *3/22*
U.S. Cl. 280—837 **30 Claims**



1. A single step, bi-level portable liquid storage tank comprising:
a tank having a generally rectangular parallelepiped forward liquid storage section and having a generally rectangular parallelepiped rearward liquid storage section contiguous and joined to said forward liquid storage section and having an interior communicating with the interior of said forward liquid storage section, said forward liquid storage section and rearward liquid storage section having a common bottom wall and a pair of opposed, parallel, common side walls, said forward liquid storage section having:
a vertically extending forward wall; and
a forward roof extending transversely between, and joining, said side walls at the forward portion of the tank, said forward roof extending rearwardly from said forward wall over a distance equivalent to from about one-third to about three-eighths of the total length of the tank and defining an upwardly facing work area;
said rearward liquid storage section having:
a vertically extending rear wall at the rear of said tank; and
a rear roof extending across the upper rear portion of said tank over said rearward liquid storage section, and connected to said side walls at the rear portion of said tank, said rear roof extending in a plane spaced vertically upwardly from said forward roof and extending substantially parallel to said forward roof; and
a break wall interconnecting the forward end of said rear roof and the rearward end of said forward roof;
a vertically extending ladder section secured to said forward wall on the outer side of said tank and having an upper end spaced downwardly from said forward roof;
an inclined stairway subassembly having a lower end located adjacent the upper end of said ladder section, and having an upper end adjacent the level of said forward roof; and
a walkway subassembly extending rearwardly from said upper end of said stairway subassembly along said forward roof to a location near said break wall.

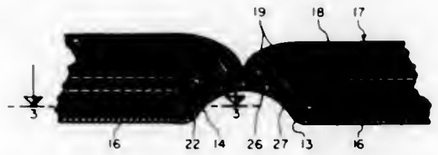
5,213,368
LOOSE-LEAF BINDER HAVING FLEXIBLE SPINE
Jon R. Wyant, Spring Valley, Ohio, assignor to The Mead Corporation, Dayton, Ohio
Filed Apr. 27, 1992, Ser. No. 874,417
Int. Cl.[5] B42F *13/00, 13/38*
U.S. Cl. 281—18 **22 Claims**

1. A binder comprising:
front and rear cover panels interconnected by a spine for receiving a plurality of sheets therebetween, said rear cover panel having a free margin opposite said spine, said free margin being provided with a cutout defined by an essentially U-shaped edge; and
a flexible closure flap extending from said rear cover panel and having fastening means for releasable engagement with said front cover panel, said flap being joined to said rear cover panel along said U-shaped edge.
4. A loose-leaf binder comprising:
a generally rectangular and relatively stiff rear cover provided with a free side margin and an inner side margin disposed opposite said free side margin;
elongated sheet retaining means mounted on said rear cover adjacent to and parallel to said inner side margin;



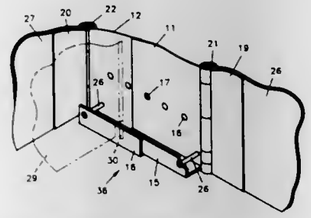
a rounded, flexible spine joined to the inner side margin of said rear cover along an outwardly bent fold line and extending therefrom along an arc which substantially encompasses said sheet binding means; and
a generally rectangular and relatively stiff front cover provided with an inner side margin and a free side margin disposed opposite said inner side margin of said front cover, said front cover being joined to said spine along a reversely bent fold line so that said front cover remains substantially parallel to said rear cover as sheet stacks of different thickness are retained by said retaining means, said front cover further having a width between said side margins thereof such that said free side margin of said front cover is in general alignment with the free side margin of said rear cover.

5,213,369
NOTEBOOK CONSTRUCTION
Monica Evans, P.O. Box 1246, New York, N.Y. 10011
Filed Feb. 27, 1992, Ser. No. 842,635
Int. Cl.[5] B42D *1/00*
U.S. Cl. 281—21.1 **6 Claims**



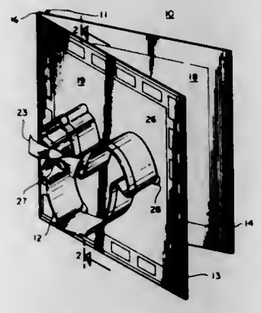
1. A notebook comprising a cover member including a pair of laterally spaced cover defining rectangular panels joined at their proximate sides by a longitudinally extending book spine section, a stack of a plurality of multipage booklets, each booklet including a stack of superimposed rectangular paper sheets mutually joined by threaded stitches along the medial longitudinal axes of said sheets, said stack of paper sheets being folded about said medial longitudinal axes to form pages and a booklet spine, the booklet spines of said stack of booklets being parallel and juxtaposed, and means affixing said booklet spines side-by-side to said book spine section.

5,213,370
EXPANDABLE LOOSE-LEAF VOLUME
Judy M. Hood, 14345 Saddle Mountain Dr., Los Altos Hills, Calif. 94022
Filed Mar. 23, 1992, Ser. No. 855,244
Int. Cl.[5] B42D *3/00*
U.S. Cl. 281—36 **20 Claims**



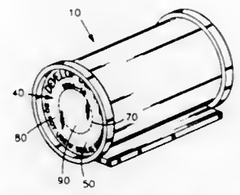
1. An expandable spine, comprising:
an expansion means for increasing and decreasing the width of said spine,
one or more layers of a resilient material overlying said expansion means,
and a flexible material which forms a continuous surface overlying said resilient material,
wherein said resilient material expands in a direction parallel to said spine and contracts in a direction perpendicular to said spine when the width of said spine is increased, and said resilient material contracts in a direction parallel to said spine and expands in a direction perpendicular to said spine when the width of said spine is decreased, such that said flexible material always forms a continuous surface over said resilient material regardless of the width of said spine.

5,213,371
GREETING CARD/COOKIE DIE COMBINATION
Patricia L. Bradley, Brandford, Conn., assignor to Bark & Bradley, Inc., Gilmanton Iron Works, N.H.
Filed Dec. 11, 1991, Ser. No. 804,689
Int. Cl.[5] A22C *17/10*
U.S. Cl. 283—56 **9 Claims**



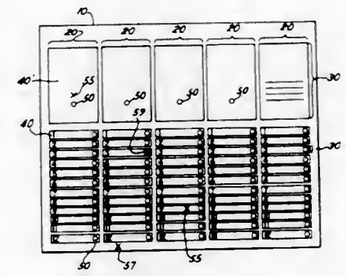
1. An article dispensing assembly comprising a pair of mutually hinged front and rear panels having confronting inside faces and opposite outside faces, tubular cookie cutter including a peripheral wall having a peripheral end edge overlying said front panel outer face, means attaching said cookie cutter to said front panel outside face, and an envelope including a cookie dry mix attached to said front panel inside face, said rear panel having information printed thereon including a recipe employing said dry mix.

5,213,372
INDICATOR SEAL FOR FILM CARTRIDGE
Mark S. Kuo, 30 S. Chapel Ave., #B, Alhambra, Calif. 91801
Filed Dec. 4, 1992, Ser. No. 985,877
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—81 **5 Claims**



1. An indicator seal for use with a film cartridge having a circular end surface of predetermined diameter with the end surface having a cylindrical rewinding shaft well concentrically emplaced therein, the seal comprising:
a disk of sheet material having opposing sides and an outside diameter less than said predetermined diameter such that said seal may be emplaced upon the end surface of the film cartridge,
said disk of sheet material further having a circular partial perforation concentrically formed therein with the partial perforation separating said disk into an outer annular part and an inner disk-shaped part, said outer part having an adhesive layer on one of said opposing sides such that the outer part may be adhered to the end surface of the cartridge while the inner part is positioned over the rewinding shaft well such that when the cartridge is loaded into a camera, the camera rewinding shaft will be force to sever the inner disk shaped part form the outer annular part so that the cartridge is thereafter identifiable as having been loaded into a camera.

5,213,373
MARK POSITION INDEPENDENT FORM AND TALLYING METHOD
Severino Ramos, Box 554, El Senorial, Rio Piedras, P.R. 00928
Continuation of Ser. No. 562,884, Aug. 6, 1990, abandoned. This application May 14, 1992, Ser. No. 884,043
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—5 **6 Claims**

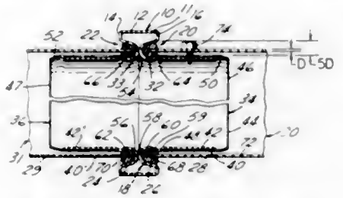


1. An electronically scannable form comprising:
a plurality of mark position rows;
a plurality of mark position columns;
an electronically scannable mark position corresponding to the intersection of each mark position row and each mark position column; and

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at least one marking zone, each marking zone including;
(i) a plurality of electronically scannable mark positions that are invisible to a respondent;
(ii) an electronically scannable ideal response location visible to the respondent; and
(iii) a response graphic.

5,213,374
COUPLING RING AND METHOD OF MAKING SAME
Henry M. Keating, Grosse Pointe Woods, Mich., assignor to Keating Koupling, Inc., Six Mile, S.C.
Filed Oct. 11, 1991, Ser. No. 776,592
Int. Cl.[5] F16L *55/00*
U.S. Cl. 285—23 13 Claims



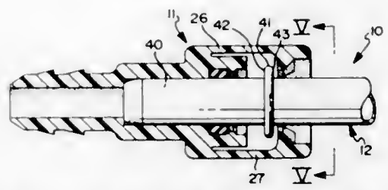
1. A coupling ring for receiving and joining circular air ducts comprising:
a single piece of sheet metal shaped to provide oppositely extending cylindrical flanges and a channel-shaped annular rib encircling the flanges at their proximal ends and connecting them together;
axially outwardly opening grooves at opposite sides of the rib at the connection between the rib and flanges for receiving the ends of ducts into which the flanges are telescoped for connecting the ducts; and
each flange being circumferentially crimped between said grooves and the distal end.

5,213,375
QUICK PIPE CONNECTOR
Huang H. Wu, No. 261, Guang Ming Rd., Sec. 2 Lw Jwu Shiang, Taur Yuan Hsien, Taiwan
Filed Dec. 24, 1991, Ser. No. 813,258
Int. Cl.[5] F16L *35/00*
U.S. Cl. 285—38 12 Claims



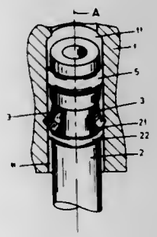
1. A quick pipe connector capable of being quickly connected to a pipe, comprising:
(a) a main body comprising at least one receiving end for receiving a pipe to be connected thereto, each said receiving end being a through duct having an inner wall surface defining said through duct and an outer wall surface, each said receiving end further having a threaded portion disposed on said outer wall surface, said threaded portion being provided with a protruded shoulder at one end thereof, said main body further comprising a circular groove disposed in said inner wall surface of said receiving end for receiving a ring shaped packing material;
(b) a threaded cap for threadably engaging with said receiving end of said main body, said threaded cap having an inner wall surface and an outer wall surface, said threaded cap being provided with parallel protruded stripes on said outer wall surface thereof and with a threaded portion disposed in said inner wall surface thereof;
(c) a rubber washer disposed between said protruded shoulder of said receiving end of said main body and said threaded cap;
(d) a sleeve for sleeving about said pipe, said sleeve being disposed between said threaded cap and said pipe to provide a tight seal between said threaded cap and said pipe, said sleeve having a threaded inner wall surface, a bowlike curved flange whose outermost diameter being slightly greater than the diameter of said inner wall surface of said threaded cap, and a plurality of axially extending slots to provide contractibility of said sleeve thereby allowing said sleeve to be received by said threaded cap;
(e) a tapered ring having an first open end and a second open end said second open being closer to said pipe connector and having a greater diameter than said first end, said tapered ring being adapted to fit onto at least a portion of said sleeve; and
(f) a packing disposed between said tapered ring and said groove in said inner wall surface of said receiving end of said main body whereby during pipe connecting operation, said packing is placed in said groove, said ring and said sleeve are stacked in series on said packing, said pipe, after being inserted therethrough, is securely connected to said main body by tightening said threaded cap against said threaded portion of said receiving end of said body.

5,213,376
SQUEEZE-TO-RELEASE QUICK CONNECTOR
George Szabo, Ortonville, Mich., assignor to ITT Corporation, New York, N.Y.
Filed Sep. 3, 1991, Ser. No. 753,758
Int. Cl.[5] F16L *35/00*
U.S. Cl. 285—39 18 Claims



1. A squeeze-to-release quick connector adapted for selective locking engagement with a male member defining an outwardly extending abutment surface, said quick connector comprising:
a generally cylindrical, elongated body portion open at one end for receiving said male member and forming a conduit receiving adapter at an opposite end;
an annular retaining ring disposed concentrically with said body portion axially spaced from said open end;
two circumferentially opposed, generally parallel, axially elongated beam members interconnecting said retaining ring and body portion, each said beam member affixed at one end thereof to said retaining ring and at an opposed end thereof to a mount located on said body portion axially spaced from said open end such that said beam members are radially spaced from said body portion; and
at least two circumferentially spaced detents extending inwardly from said retaining ring to capture said abutment surface to effect positive engagement of said quick connector and male member, said retaining ring being adapted to be squeezed at angularly offset locations from said beam members to release said abutment surface from said detents for removal of said male member.

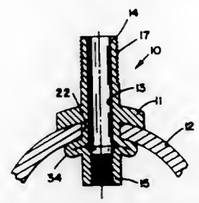
5,213,377
COUPLING FOR SEATING A TUBE END IN A FITTING
Jürgen Humpert, Hemer, and Max Derr, Iserlohn, both of Fed. Rep. of Germany, assignors to Friedrich Grohe Armaturenfabrik GMBH & CO., Hemer, Fed. Rep. of Germany
Filed Aug. 23, 1991, Ser. No. 749,164
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1990, 4026816
Int. Cl.[5] F16L *17/04*
U.S. Cl. 285—105 10 Claims



1. In combination:
a fitting formed with an outwardly open generally cylindrical bore centered on an axis and having an inner surface of a predetermined inner diameter;
a tube end fittable axially into the bore and formed with a radially outwardly open groove having a frustoconically tapered and radially outwardly directed inner surface portion of a diameter decreasing axially outwardly;
a split stiff sleeve of elastically deformable and strong material engaged in the groove and having a predetermined inside diameter and a frustoconically outwardly flared sharp outer edge of a predetermined outer diameter, the diameters of the sleeve being such relative to the diameter of said inner surface portion and said inner surface that, on axial displacement of the sleeve onto the tapered inner surface portion by relative movement between said fitting and tube end, the sleeve is spread and its sharp edge bites into the inner surface of the bore thereby preventing continuation of said relative movement; and
an elastomeric seal ring on the tube end offset from the groove and sealingly engaging the bore and tube end.

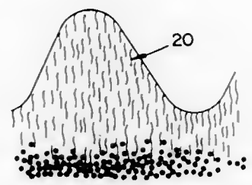
5,213,378
FLUID CONNECTOR
James D. MacGregor, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio
Division of Ser. No. 360,689, Jun. 2, 1989, abandoned. This application Sep. 9, 1991, Ser. No. 756,664
The portion of the term of this patent subsequent to May 29, 2007, has been disclaimed.
Int. Cl.[5] F16L *3/04*
U.S. Cl. 285—158 6 Claims

1. A fluid connector for connecting a fluid line to a conduit consisting of a longitudinally extending tubular member, said member having an annular deformable flange along the intermediate external portion of said tubular member, a central passageway extending longitudinally from one end of said connector to the other end of said connector, the portion of said passageway extending from said flange to said one end of said tubular member having a smooth walled portion and a threaded portion, said smooth walled portion lying closer to said flange than said threaded portion, said threaded portion lying adjacent to said one end, the wall thickness of said smooth walled portion that lies between said flange and said



threaded portion of said tubular member being thinner in cross-section than said threaded portion to facilitate upsetting of said thin smooth walled portion, and the external end portion of said tubular member lying adjacent to said other end of said tubular member being threaded to facilitate the reception of the threaded end of a conduit.

5,213,379
FRP PIPE WITH THREADED END JOINT SECTION
Kunitoshi Taniguchi, Nishinomiya; Minori Ishii, and Masato Ohira, both of Amagasaki, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan
Filed Nov. 20, 1990, Ser. No. 616,105
Claims priority, application Japan, Nov. 21, 1989, 1-304342; Mar. 27, 1990, 2-80241
Int. Cl.[5] F10L *47/00*
U.S. Cl. 285—390 22 Claims



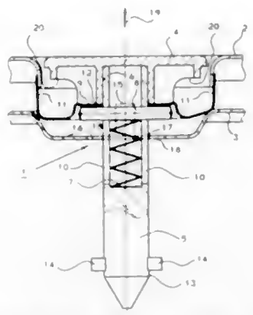
15. A fiber-reinforced plastic pipe with a threaded joint section at one or both ends wherein the end joint section of the pipe has male threads which comprise short fibers flocked in the radial direction on a fiber-reinforced plastic substrate layer and impregnated with a resin, the impregnated resin containing a photo-setting agent.

5,213,380
TESTING DEVICE FOR A PIVOTABLE DOOR OF AN EMERGENCY RESPIRATOR CONTAINER
Roderich Thometschek, Stockelsdorf; Christian Schnoor, Lübeck; Wolfgang Rittner, Bad Schwartau; Alfred Rother; Werner Thoren, both of Lübeck, and Christoph Bauer, Ibbenbüren, all of Fed. Rep. of Germany, assignors to Drägerwerk AG, Lübeck, Fed. Rep. of Germany
Filed Aug. 26, 1992, Ser. No. 936,089
Claims priority, application Fed. Rep. of Germany, Sep. 2, 1991, 4129061
Int. Cl.[5] E05C *5/02*
U.S. Cl. 292—59 8 Claims

1. A container lock testing device, comprising: a container having a mounting support arranged permanently thereon; a door pivotable around a hinge on said container, said door

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including a cut-out with a pot-shaped depression, said pot-shaped depression having an opening; a test button with a rod-shaped plunger, said test button being positioned in said cut-out of said door in a normal operation state and being pulled out of said cut-out together with at least a portion of said plunger and rotated in a testing operation state; fastening



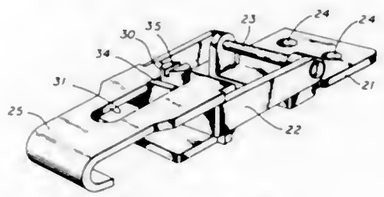
means for displaceable, rotatable mounting of said testing device on said door; holding means provided at an end of said plunger opposite said test button, said holding means for engaging said mounting support in said testing operation state to limit the pivoting movement of said door and said holding means passing through said mounting support in said normal operation state.

5,213,381

DRAW LATCH

John P. Anderson, Norco, Calif., assignor to The Hartwell Corporation, Placentia, Calif.

Filed Nov. 25, 1992, Ser. No. 981,195
Int. Cl.[5] E05C *5/02*
U.S. Cl. 292—111 **16 Claims**



1. In a draw latch, the combination of:
a latch mounting bracket;
a U-shaped yoke;
means for interconnecting said bracket and yoke for pivoting of said yoke relative to said bracket;
a hook with a U-shaped end defining a cam space, with the bight of said yoke slidingly positioned in said cam space; and
a cam carried in said cam spare for translation and rotation relative to said hook and yoke.

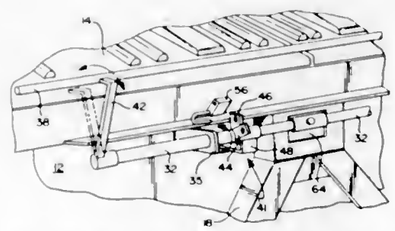
5,213,382

LOCKING MECHANISM FOR REFUSE CONTAINER

Steven Dawdy, Howell, and Peter J. Rosewig, Jr., Dexter, both of Mich., assignors to E.S. Avalon Company, Whitmore Lake, Mich.

Filed Jan. 30, 1991, Ser. No. 647,807
Int. Cl.[5] E05C *3/14*; B65G *65/34*
U.S. Cl. 292—228 **14 Claims**

1. A lock assembly for use on a refuse container, the refuse container having a receptacle portion and a lid covering the receptacle portion, said lock assembly comprising:
a control bar journaled to said refuse container such that it pivots with respect to said container;
a locking bar connected to said control bar for pivotal movement with said control bar, said locking bar being adapted to pivot between a first position wherein said locking bar engages said lid of said refuse container and a second position wherein said locking bar is clear of said lid of said refuse container whereby said lid is free to open;
first and second lock members, said first lock member being mounted to said control bar for movement therewith and said second lock member being rotatably mounted about said control bar such that said control bar can rotate with respect to said second lock member, said first and second lock members being adjacent each other and adapted to be coupled to each other such that said first and second lock members move together;
a biasing means biased against said second lock member such that said second lock member is biased against rotation



and rotational movement of said second lock member requires enough force to overcome said biasing means;
engagement means for engagement by a refuse collection truck boom, said engagement means being coupled to said control bar;
a lock means for selectively locking said first and second lock members together such that when locked together said locking bar and said control bar move together as a unit and movement of either requires sufficient force to overcome said biasing means and when not locked together said locking bar can move independently of said biasing means;
whereby said refuse container can be locked by said lock assembly by locking said first and second lock members together with said lock means such that movement of said locking bar to said second position to open said lid requires sufficient force to overcome said biasing means and whereby said refuse container can be opened without overcoming the force of said biasing means by unlocking said first and second lock members such that said locking bar pivots independent of said biasing means.

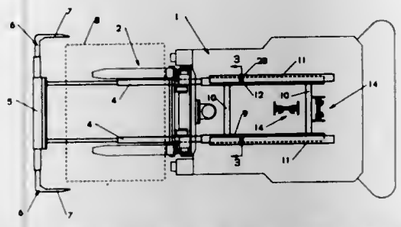
5,213,383

ANTI-COLLISION SAFETY DEVICE FOR FORKLIFT TRUCKS AND THE LIKE

Roberto Muselli, Piacenza; Armando Neri, Bologna, and Gianluigi Orsi, Roveleto di Cadeo, all of Italy, assignors to Jobs S.p.A., Piacenza and G.D. S.p.A., Bologna, both of Italy

Filed Jan. 29, 1992, Ser. No. 827,445
Claims priority, application Italy, Feb. 12, 1991, PC91U000003
Int. Cl.[5] B60R *19/02*
U.S. Cl. 293—2 **5 Claims**

1. A safety device for a forklift truck having a chassis, said device comprising:
a pair of C-shaped guides connected to the chassis;
a plurality of idle rollers connected to each guide;
a support comprising a pair of spaced hydraulic cylinders movably mounted along said guides for rolling on said idle rollers so that said support can translate and rotate with respect to said guides;
a pair of hydraulic pistons slidably mounted respectively to the pair of hydraulic cylinders;
a bumper connected to said pair of pistons for telescopically mounting the bumper to the support, the bumper having opposite ends;



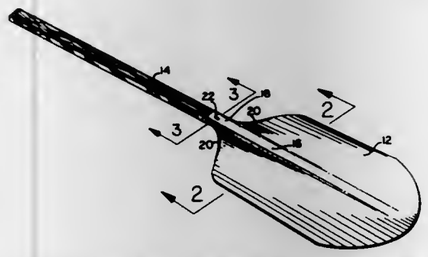
an arm connected to each end of the bumper, each arm having a portion facing toward the forklift truck; and
a control unit mounted to the chassis and activatable with relative movement of the support on said guides for stopping the forklift truck.

5,213,384

BAKER'S PEEL

Patrick M. Baker, 13186 Yosemite Ave., S., Savage, Minn. 55378

Filed Apr. 10, 1992, Ser. No. 868,022
Int. Cl.[5] A47J *43/28*
U.S. Cl. 294—7 **3 Claims**



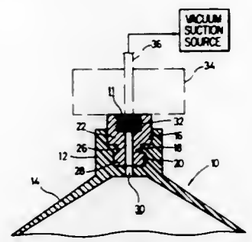
1. A baker's peel for the handling of bakery pans and bakery products in ovens, comprising:
a) a generally planar rigid metal plate having a linear groove with a U-shaped cross-section formed in the surface thereof, the groove having sides generally parallel to each other and generally perpendicular to the plane of the metal plate, having a planar portion extending between the sides, having a first end at an edge of the plate, and having an opposite second end at the center of the plate; the planar portion of the groove extending between the side being inclined with respect to the plane of the plate such as to form a wedge shape with a maximum offset at the first end tapering linearly to the plane of the plate at the opposite second end; and
b) a handle formed of a rigid heat resistant material which is a non-conductor of heat, said handle having a wedge shaped first end which is sized and shaped to fit within the groove in said plate such that the handle will extend outward therefrom generally parallel to the plane of said plate; and
c) attachment means for attaching said handle to said plate.

5,213,385

DETACHABLE SUCTION PAD ASSEMBLY

Shigekazu Nagai; Shuzou Sakurai; Tadasu Kawamoto, and Masahisa Hasegawa, all of Ibaraki, Japan, assignors to SMC Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 4, 1991, Ser. No. 787,631
Claims priority, application Japan, Nov. 9, 1990, 2-305808
Int. Cl.[5] B25J *15/06*; B66C *1/02*
U.S. Cl. 294—64.1 **3 Claims**



1. A suction pad assembly for holding a work by a vacuum, comprising a suction pad and a connector,
said connector provided with an upper part having a non-circular cross-sectional contour, a middle part projecting from an end of the upper part, a lower part attached to the middle part, and a through-hole extending through the upper, middle and lower parts for connecting the suction pad with a vacuum suction source, a maximum diameter of the upper part being larger than a diameter of the lower part, said diameter of the lower part being larger than a diameter of the middle part,
said suction pad provided with a root part and a skirt part, both made of elastic moldable material, the skirt part extending from an end of the root part to form a cavity for attracting a work by the vacuum supplied through the connector, the root part having a recess for receiving the connector at another end thereof, the recess formed by molding the lower part, the middle part and a part of the upper part of the connector integrally into the suction pad,
wherein the connector is tightly fitted in the recess of the root part so that the connector is prevented from rotation with respect to the root part due to resistance caused by the noncircular cross-sectional contour of the upper part against a rotational force and prevented from being pulled out of the root part because of resistance caused by the lower part against a pulling force, whereas said connector is detachable from the root part when the connector is twisted against the root part.

5,213,386

SPACE FRAME CONSTRUCTION

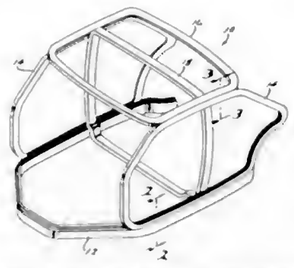
Adam M. Janotik, Gross Ile, and Lawrence P. Kazyak, Novi, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed May 11, 1992, Ser. No. 880,784
Int. Cl.[5] B62D *27/02*
U.S. Cl. 296—29 **17 Claims**

1. A space frame for an automotive vehicle comprising:
a plurality of hoop-shaped structural members; and
means disposed on adjacent portions of said structural members for allowing nesting engagement therebetween to form a substantially flush outer surface between said structural members;
wherein one of said structural members comprises a first

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extrusion having a first outer surface and said nesting means comprises at least one generally linear shoulder



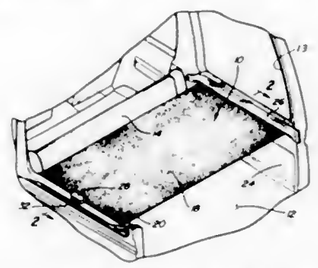
portion and at least one generally linear extension portion extending perpendicular from said shoulder portion.

5,213,387

CROSS BODY MOTOR VEHICLE SECURITY SHADE

John H. Decker, Livonia; Eugene M. Halajian, Mt. Clemons, and Joseph P. Wieczorek, Madison Heights, all of Mich., assignors to Takata, Inc., Auburn Hills, Mich.

Filed Apr. 7, 1992, Ser. No. 864,669
Int. Cl.[5] B60R *5/04*
U.S. Cl. 296—37.16 7 Claims



1 A security shade for a cargo area of a motor vehicle interior compartment wherein said cargo area is bounded at its front by a passenger seat, at its rear by a rear access opening and by laterally separated sides of said compartment, comprising:

a flexible shade panel;

a roller tube affixed to a first edge of said shade panel;

roller tube support means for rotationally biasing said roller tube to allow said shade panel to wrap onto said roller tube during retraction and unwrap from said roller tube during extension,

mounting means for mounting said roller tube to extend longitudinally along one of said compartment sides and for allowing said shade panel to be extended and retracted laterally across said cargo area; and

restraining means affixed at the other of said compartment sides for restraining said shade panel in said extended position across said cargo area.

5,213,388

ANTI-THEFT VEHICLE SEAT APPARATUS

Franklin W. Baker, 1502½ North LaBrea, Inglewood, Calif. 90302

Filed Sep. 30, 1991, Ser. No. 767,408
Int. Cl.[5] B60N *2/08*
U.S. Cl. 296—65.1 7 Claims

1. An anti-theft vehicle seat apparatus comprising:

a) a vehicle having a floorboard and a vehicle seat,

b) a double sliding track assembly at each of the right and left sides of the seat. where each said assembly comprises:

(1) an upper sliding track assembly having a top section that is longitudinally and rigidly attached to said vehicle seat and a bottom section that slides along said top section,

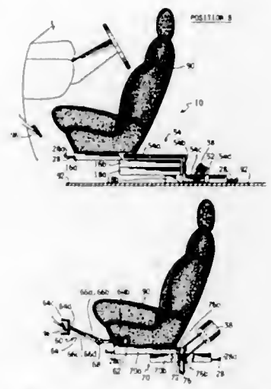
(2) at least one lower sliding track assembly having a bottom section that is rigidly attached to the vehicle floorboard and a top section that slides along said bottom section and that is in alignment and rigidly attached to the bottom section of said upper sliding track assembly,

(c) means for releasing and locking the top section of said upper sliding track assembly in a forward position,

(d) means for releasing and locking the top section of said lower sliding track assembly in a forward position when the seat has been moved to a non drivable position,

(e) a rigid joint between said upper sliding track assembly and said lower sliding track assembly on each of said double sliding track assemblies,

(f) a seat lockplate sized to substantially cover a back opening that vertically encompasses a seat bottom to the floorboard and horizontally between inside edges of the double sliding track assembly, said lockplate having a latch receiving slot centrally located above a lower edge, said lockplate further comprising an outwardly extending



mounting tab, attached, to the respective outward back edge of each upper sliding track top section,

(g) a latchplate having an outwardly extending latch and said latch having a lock slot therethrough, said latch sized to extend through the latchplate receiving slot on said seat lockplate, said latchplate rigidly secured to the floorboard, and

(h) a locking means for securing the latch to said seat lockplate.

3. An anti-theft vehicle seat apparatus comprising:

a) a vehicle having a floorboard and a vehicle seat,

b) a double sliding track assembly at each of the right and left sides of the seat where each said assembly comprises:

(1) an upper sliding track assembly having a top section that is longitudinally and rigidly attached to said vehicle seat, and a bottom section that slides along said top section,

(2) at least one lower sliding track assembly having a bottom section that is rigidly attached to the vehicle floorboard and a top section that slides along said bottom section and that is in alignment and rigidly attached to the bottom section of said upper sliding track assembly,

(c) means for releasing and locking the top section of said upper sliding track assembly in a forward position,

(d) means for releasing and locking the top section of said

lower sliding track assembly in a forward position when the seat has been moved to a non drivable position to preclude car theft wherein said upper sliding track assembly allows the seat to be adjusted in a forward direction to a position (A), which corresponds to a normal driving position and where said lower sliding track assembly allows the seat to slide in a further forward direction up to a position (B), where a driver is precluded from sitting on the seat and,

(e) a brake compression assembly that is positioned to compress the vehicle brake when the vehicle seat is placed and locked in the forward position (B), where the driver is precluded from sitting, said brake compression assembly comprising:

1) said seat having a seat cavity located on a forward surface thereof in substantial alignment with the vehicle brake pedal, and

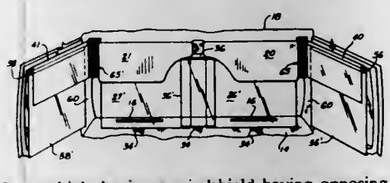
2) a brake compression member having a front end and a back end, with the front end further comprising a brake pedal cavity sized to cover a vehicle brake pedal and the back end is sized to slideably fit into said seat cavity, such that when said seat is placed and locked in a forward position, (B) said brake compression member compresses the vehicle brake pedal to lock the vehicle wheels to prevent the vehicle from being moved.

5,213,389

VEHICLE SUN VISORS

Billy G. Loftis, 1701 E. Main, and James W. Sartin, 1218 Monroe Dr., both of Shawnee, Okla. 74801

Filed Dec. 9, 1991, Ser. No. 803,840
Int. Cl.[5] B60J *3/02*
U.S. Cl. 296—97.7 1 Claim



1. In a vehicle having a windshield having opposing ends and extending upward and rearwardly above a dash panel and a glass equipped front door adjacent the respective end of the windshield and having a support bracket attached to the vehicle above each respective end of the windshield and a permanent generally planar sun visor suspended from each said support bracket for vertical swinging movement of the visor about a horizontal axis adjacent an upper edge limit of the vehicle windshield, said sun visors having first and second surfaces, a horizontal upper edge, a horizontal lower edge and opposing end edges, the improvement comprising:

film reel means including first and second rolls of transparent tinted film horizontally attached substantially coextensively to the first surface of each said sun visor for paying out and retracting a length of the film spanning a major portion of the respective end of the windshield; and,

fastening means including cooperative pairs of self adhering members attached respectively to an end edge of the respective payed out film and the upper surface of said dash panel for temporarily attaching the film edge to the dash panel;

an auxiliary bracket interposed between each said support bracket and the vehicle;

a pivot bolt depending vertically from the auxiliary bracket;

an elongated horizontally disposed auxiliary visor arm having an aperture in one end portion pivotally surrounding an

intermediate portion of said bolt for horizontal pivoting movement about the vertical axis of the bolt;

an auxiliary sun visor having opposing planar surfaces and attached to said auxiliary arm for vertical movement about the horizontal axis of the auxiliary arm and horizontal swinging movement with the auxiliary arm about the vertical axis of the bolt toward and away from the vehicle respective front door glass;

film reel means including third and fourth rolls of transparent tinted film respectively horizontally attached substantially coextensively to one surface of each said auxiliary sun visor for paying out and retracting a length of the film spanning at least a major portion of the vertical dimension of the respective vehicle front door glass;

a fifth reel of film having a length transversely spanning the windshield area between said first and second payed out film and secured horizontally between said first and second reels of film;

other fastening means including a cooperative pair of self adhering members attached respectively to an end edge of the payed out fifth reel film and the upper surface of said dash panel for temporarily attaching the last named film edge to the dash panel; and,

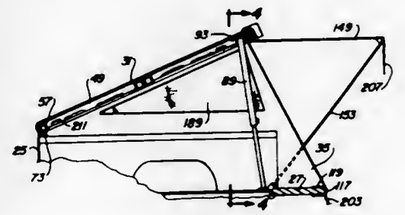
a length of accordion folded material having opposing ends extending between and coextensively bonded at its respective ends to the adjacent end portion of each said sun visor and the adjacent end portion of the respective said auxiliary sun visor and vertically moveable therewith when in an unused position and forming a combination with the sun visors and auxiliary sun visors for shielding the windshield and front door glasses with respect to occupants of a vehicle when in a driver and passenger position, respectively.

5,213,390

VEHICLE MOUNTABLE RECONFIGURABLE SHELTER

Daniel L. Borchers, 2150 S. St. Paul St., Denver, Colo. 80210

Filed Jul. 22, 1991, Ser. No. 733,988
Int. Cl.[5] B60P *3/32*
U.S. Cl. 296—165 19 Claims



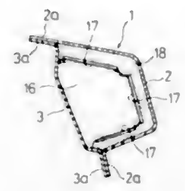
1. A readily reconfigurable shelter mountable on a vehicle, the vehicle normally including an uncovered transporting structure at the time of vehicle manufacture, said shelter comprising:

a cover portion connectable at one end thereof to the transporting structure for pivoting movement of said cover portion between a first relative position and a second relative position covering the transporting structure; and

shelter walls connected with said cover portion and securable to the vehicle when said cover portion is moved to said first relative position, one of said shelter walls having an access defined thereat configured to permit occupant access therethrough, said shelter walls and the transporting structure defining a lodging area when said cover portion is at said first relative position, and said shelter walls being configured for storage adjacent to said cover portion when said cover portion is at said second relative position so that said shelter walls occupy substantially no space in the transporting structure when said cover portion is at said second relative position.

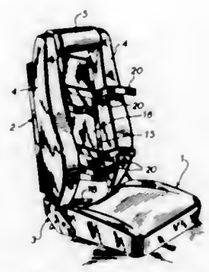
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,391
BODY SKELETON ELEMENT OF VEHICLE AND MANUFACTURING METHOD THEREOF
Masahiro Takagi, Zama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Oct. 4, 1991, Ser. No. 770,808
Claims priority, application Japan, Oct. 25, 1990, 2-287611
Int. Cl.[5] B62D 25/04
U.S. Cl. 296—205 5 Claims



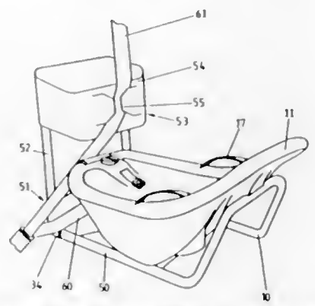
1. A body skeleton structure for a vehicle, comprising:
an outer panel arranged on the outside of a body;
an inner panel arranged on the inside of the body, said inner panel cooperating with said outer panel to define a closed space;
a bracket arranged between said outer panel and said inner panel, having flanges along the periphery thereof, one of the flanges secured abutting the inner panel such that the bracket extends from the inner panel toward the outer panel, leaving a space between the remaining flanges and the outer panel; and
a thermally foaming element provided on a surface of said remaining flanges, said thermally foaming element being heated and foamed to be into close contact with said outer panel and/or said inner panel.

5,213,392
SEAT CONSTRUCTION
John M. Bostrom, 6609 Riverside Rd., Waterford, Wis. 53185, and Kurt H. Bostrom, W296 N2241 Glen Clove Rd., Pewaukee, Wis. 53072
Filed Jul. 2, 1991, Ser. No. 724,598
Int. Cl.[5] A47C 7/62
U.S. Cl. 297—217 17 Claims



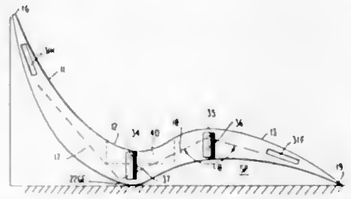
1. A seat construction for an emergency conveyance, comprising a seat base, a back extending upwardly from the base, said back comprising a pair of elongated side members spaced apart to provide a forwardly facing cavity therebetween, head support means connecting the upper ends of said side members, and a life support unit disposed in said cavity, said head support means being mounted for movement between a head supporting position where said head support means restricts removal of said from said cavity and a release position where said head support means will not interfere with removal of said unit from said cavity.

5,213,393
CHILD'S SAFETY SEAT
Petra Maurer, Henstedt-Ulzburg, and Peter Schmidt, Glinde, both of Fed. Rep. of Germany, assignors to Autoflug GmbH & Co. Fahrzeugtechnik, Relliugen, Fed. Rep. of Germany
PCT No. PCT/DE90/00218, § 371 Date Nov. 22, 1991, § 102(e) Date Nov. 22, 1991, PCT Pub. No. WO90/11203, PCT Pub. Date Oct. 4, 1990
PCT Filed Mar. 21, 1990, Ser. No. 764,338
Claims priority, application Fed. Rep. of Germany, Mar. 23, 1989, 3909650
Int. Cl.[5] A47C 1/08
U.S. Cl. 297—250 8 Claims



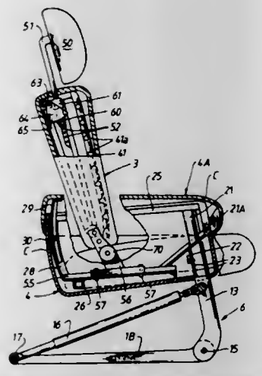
1. A child's safety seat to be fastened to a safety belt system of a motor vehicle having a pelvic belt and a shoulder belt, said child's safety seat comprising:
an under frame to be fastened by the pelvic belt;
a seat shell connected to said under frame, said seat shell comprising a foot rest end and a back rest end an integrated safety belt for securing a child;
an essentially vertically extending hoop arranged at rest foot said end of said seat shell, said hoop being adapted to rest at a back rest of a vehicle seat, and at a bottom area of said hoop the pelvic belt fastens said under frame at a side thereof that is facing the vehicle seat; and
a guide for the shoulder belt, connected at said hoop at a position that is above a center of gravity of said seat shell and said guide is located above said foot rest end.

5,213,394
MOLDED RECLINER ROCKER CHAIR
Newton Tattrie, 400 Moorland Dr., Virginia Beach, Va. 23452
Continuation of Ser. No. 342,053, Apr. 24, 1989, abandoned. This application Oct. 12, 1989, Ser. No. 420,421
Int. Cl.[5] A47C 3/02
U.S. Cl. 297—258 18 Claims



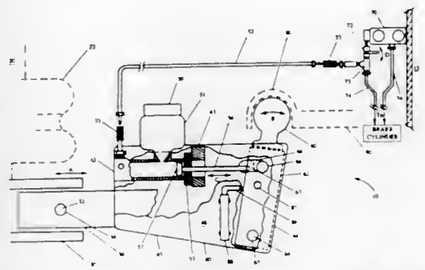
1. In a molded reclining chair having a continuous one-piece body support panel, said body support panel having a head and torso supporting panel portion smoothly joined to a rump and thigh supporting panel portion which, in turn, is smoothly connected to a leg and foot supporting panel portion, said leg and foot supporting portion being joined to said rump and thigh supporting panel portion at an obtuse angle (θ), said head and torso panel portion being joined to said rump and thigh panel portion at an angle approaching about 80 to 110 degrees, a pair of depending side rocker panels beginning at the outermost tip end of said head and torso panel portion and one each extending along the sides of said panel portions to smoothly and curvingly diverge from said outermost tip to proximate the beginning of said rump and thigh portion to form a convex rocker side panel, a further shallow concavely curved portion leading to the tip end of said leg and foot supporting panel portion, runner means integrally molded to the lower edge of each of said side panels, the improvements comprising means molded with said runner means to gradually thicken said runner means in the area of said convex rocker side panel from a thickness T1 to a thicker thickness T2 and gradually modify the radius of curvature thereof, and means forming openings to constitute at least one hand-hold in at least one of said panels, and fastener means secured to selected ones of said panel for the securement of a pad on at least one of said head and torso supporting panel and leg coacting fastener means, and a swivel mounted drink container support means secured to the depending portion of one of said pair of side panels and at a location such that any container supported thereby does not engage the ground at any position and is maintained in a vertical position thereby.

5,213,395
ADJUSTABLE SEATING ASSEMBLY
Arie J. Korteweg, 15 Wilson Concourse, Croydon, Victoria 3136, and Robin Birchall, 7 Brambleberry Lane, Chirnside Park, Victoria 3116, both of Australia
PCT No. PCT/AU90/00412, § 371 Date May 9, 1991, § 102(e) Date May 9, 1991, PCT Pub. No. WO91/03968, PCT Pub. Date Apr. 4, 1991
PCT Filed Sep. 12, 1990, Ser. No. 679,051
Claims priority, application Australia, Sep. 12, 1989, PJ6302
Int. Cl.[5] A47C 1/022
U.S. Cl. 297—328 14 Claims



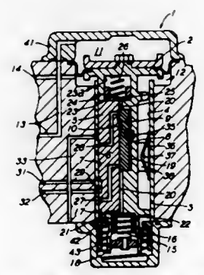
1. An adjustable seat assembly including: a seat; a back-rest pivotally attached to said seat; a head-rest associated with said back-rest and disposed at the upper-most end thereof; arm-rest members disposed on each side of said seat; and a support assembly connected with said seat, said seat, back-rest, head-rest, arm-rest members and support assembly all being mounted with respect to one another for relative movement with respect to one another to allow the seat assembly to be selectively adjustable into and between a plurality of configurations to suit different physical and/or physiological requirements of the user, and said support assembly including a substantially U-shaped member adapted, in use, to be disposed on a suitable load-supporting surface, and a substantially H-shaped member receiving and retaining said seat and associated arm-rest members, said H-shaped member having the ends of the lower legs thereof pivotally connected to the ends of the legs of said U-shaped member.

5,213,396
TOWED VEHICLE BRAKE ACTIVATION METHOD AND APPARATUS
Larry L. Avery, P.O. Box 2856, Key Largo, Fla. 33037, and Dennis D. Avery, 3328 Del Paso Blvd., Sacramento, Calif. 95815
Filed Dec. 6, 1990, Ser. No. 623,019
Int. Cl.[5] B60T 7/20
U.S. Cl. 303—7 20 Claims



1. A braking system interposed between a towing vehicle and a towed vehicle, the towed vehicle being removably attached to the towing vehicle through a tow bar, said system comprising in combination:
a box-shaped receiver means on the towing vehicle,
braking means removably connected to the receiver means, and
a tow bar interfacing means connecting said braking means to the tow bar attached to the towed vehicle;
wherein said box-shaped receiver means is a hollow rectangular construct having a substantially square cross-section and sized to mate with commonly existing hitches, said rectangular construct precluding rotation of said receiver with respect to the towing vehicle and fixedly attached to a rearward portion of the towing vehicle, and wherein said braking means is removably connected to said receiver means such that when connected said braking means is affixed to said receiver means without rotation relative to said receiver means and the towing vehicle.

5,213,397
FREIGHT BRAKE CONTROL VALVE FOR RAILWAY CARS
Vincent F. Troiani, New Florence, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Dec. 9, 1991, Ser. No. 803,836
Int. Cl.[5] B60T 15/42, 17/04
U.S. Cl. 303—38 12 Claims



1. A control valve device for controlling the brakes of a

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railway car having a brake pipe charged with fluid at a certain chosen pressure and an auxiliary reservoir charged with fluid under pressure from said brake pipe, said control valve device comprising:

(a) a housing;

(b) a first chamber in said housing to which said brake pipe is connected;

(c) a second chamber in said housing to which said auxiliary reservoir is connected;

(d) a piston valve assembly having a release position and an application position including:

(i) a piston member between said first and second chambers movable in a first axial direction toward said application position in response to a pressure differential between said first and second chambers in a first sense and movable in a second axial direction toward said release position in response to a pressure differential between said first and second chambers in a sense opposite said first sense;

(ii) valve means carried by said piston member for controlling the supply and release of braking fluid pressure, said valve means including a slide valve with which said piston member is engageable for effecting axial movement therewith in said second axial direction; and

(e) collapsible means between said piston member and said slide valve for accommodating movement of said piston member in said second axial direction relative to said slide valve when said pressure differential in said opposite sense exceeds a predetermined value without said piston member effecting corresponding movement of said slide valve, said valve means in response to said relative movement between said piston member and said slide valve effecting a release of fluid under pressure from said second chamber to thereby reinforce said pressure differential in said opposite sense.

5,213,398

ANTILOCK BRAKE ADJUSTING SYSTEM

Rolf Becker, Ditzingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

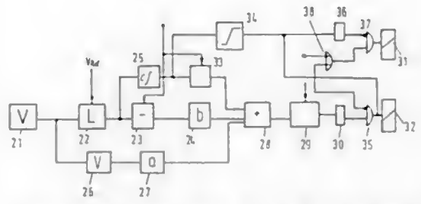
PCT No. PCT/EP89/01381, § 371 Date Jun. 12, 1991, § 102(e) Date Jun. 12, 1991, PCT Pub. No. WO90/06870, PCT Pub. Date Jun. 28, 1990

PCT Filed Nov. 16, 1989, Ser. No. 689,272

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1988, 3841963

Int. Cl.[5] **B60T** *8/32*

U.S. Cl. 303—100 **12 Claims**



1. Antilocking control system for a vehicle having front wheels and rear wheels, said system preventing locking of the wheels during braking, said system comprising

wheel speed sensors which generate wheel speeds for the respective wheels,

brake pressure control devices assigned to the vehicle wheels and comprising means for reducing brake pressure at said wheels during braking,

means for determining at least one of slip and deceleration of the respective wheels,

means for determining an instability criterion from said at least one of slip and deceleration of the respective wheels,

means for determining vehicle deceleration,

means for determining downhill travel of the vehicle,

means for comparing said instability criterion to an instability threshold and for producing control signals for said brake pressure control devices when said instability criterion exceeds said instability threshold,

means for delaying said instability criterion reaching said instability threshold when vehicle deceleration increases and when downhill travel is determined.

5,213,399

ANTI-LOCK HYDRAULIC BRAKE SYSTEM

Jochen Burgdorf, Neugasse 11, 6050 Offenbach-Rumpenheim, Fed. Rep. of Germany, and Eugen Haselwanter, 1925 Somerset Blvd. 2, Troy, Mich.

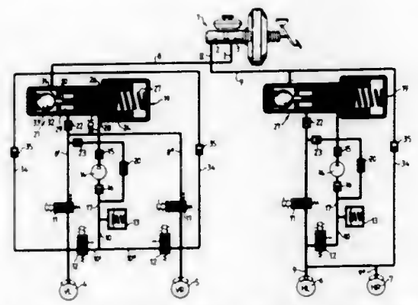
PCT No. PCT/EP90/01521, § 371 Date Jun. 12, 1991, § 102(e) Date Jun. 21, 1991, PCT Pub. No. WO91/05689, PCT Pub. Date May 2, 1991

PCT Filed Sep. 8, 1990, Ser. No. 689,231

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1989, 3934624

Int. Cl.[5] **B60T** *8/32, 8/48, 8/42*

U.S. Cl. 303—115.4 **2 Claims**



1. An anti-lock hydraulic brake system for a vehicle having two front wheels and two rear wheels, said brake system comprising:

a master cylinder;

four wheel brakes, one associated with each wheel of a vehicle having two front wheels and two rear wheels;

a first brake circuit comprising:

(a) first fluid flow means for conducting fluid from said master cylinder to said wheel brakes associated with said two front wheels, said first fluid flow means including:

(1) a first separating valve having:

(i) inlet chamber to which fluid from said master cylinder is conducted, and

(ii) first fluid control means for selectively: (1) conducting fluid from said inlet chamber of said first separating valve to said wheel brakes associated with said two front wheels, and (2) preventing fluid from leaving said inlet chamber of said first separating valve to said wheel brakes associated with said two front wheels,

(2) a first inlet valve through which fluid from said inlet chamber of said first separating valve is selectively conducted to a first of said wheel brakes associated with said two front wheels,

(3) a second inlet valve through which fluid from said inlet chamber of said first separating valve selectively conducted to a second of said wheel brakes associated with said two front wheels,

(b) second fluid flow means for conducting fluid from said wheel brakes associated with said two front wheels, said second fluid flow means including:

(1) a first outlet valve through which fluid from a first of said wheel brakes associated with said two front wheels is selectively conducted,

(2) a second outlet valve through which fluid from a second of said wheel brakes associated with said two front wheels is selectively conducted,

(3) a first high-pressure accumulator having:

(i) a storage chamber to which fluid from said wheel brakes associated with said two front wheels is supplied, and

(ii) second fluid control means responsive to the pressure of fluid supplied to said storage chamber of said first high-pressure accumulator for controlling said first fluid control means to: (1) permit fluid in said inlet chamber of said first separating valve to be conducted to said wheel brakes associated with said two front wheels when the pressure of any fluid in said storage chamber of said first high-pressure accumulator is below a predetermined level, and (2) prevent fluid in said inlet chamber of said first separating valve from being conducted to said wheel brakes associated with said two front wheels when the pressure of any fluid in said storage chamber of said first high-pressure accumulator is above said predetermined level, and

(c) first fluid drive means for driving fluid from said wheel brakes associated with said two front wheels and passing through said first and said second outlet valves to said storage chamber of said first high-pressure accumulator;

and a second brake circuit comprising:

(a) third fluid flow means for conducting fluid from said master cylinder to said wheel brakes associated with said two rear wheels, said third fluid flow means including:

(1) a second separating valve having:

(i) inlet chamber to which fluid from said master cylinder is conducted, and

(ii) third fluid control means for selectively: (1) conducting fluid from said inlet chamber of said second separating valve to said wheel brakes associated with said two rear wheels, and (2) preventing fluid from leaving said inlet chamber of said second separating valve to said wheel brakes associated with said two rear wheels,

(b) a third inlet valve through which fluid from said inlet chamber of said second separating valve is selectively conducted to said wheel brakes associated with said two rear wheels, and

(c) fourth fluid flow means for conducting fluid from said wheel brakes associated with said two rear wheels, said fourth fluid flow means including:

(1) a third outlet valve through which fluid from said wheel brakes associated with said two rear wheels is selectively conducted,

(2) a second high-pressure accumulator having:

(i) a storage chamber to which fluid from said wheel brakes associated with said two rear wheels is supplied, and

(ii) fourth fluid control means responsive to the pressure of fluid supplied to said storage chamber of said second high-pressure accumulator for controlling said third fluid control means to: (1) permit fluid in said inlet chamber of said second separating valve to be conducted to said wheel brakes associated with said two rear wheels when the pressure of any fluid in said storage chamber of said second high-pressure accumulator is below a predetermined level, and (2) prevent fluid in said inlet chamber of said second separating valve from being conducted to said wheel brakes associated with said two rear wheels when the pressure of any fluid in said storage chamber of said second high-pressure accumulator is above said predetermined level, and

(3) second fluid drive means for driving fluid from said wheel brakes associated with said two rear wheels and passing through said third outlet valve to said storage chamber of said second high-pressure accumulator.

5,213,400

TWIST-TIE DISPENSER APPARATUS AND METHOD

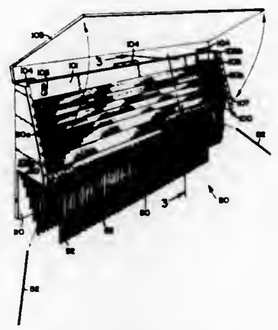
James R. Helseth, Minnetonka, Minn., assignor to Twist-Ease, Inc., Minneapolis, Minn.

Continuation of Ser. No. 529,899, May 29, 1990, Pat. No. 5,092,830, which is a division of Ser. No. 392,766, Aug. 11, 1989, Pat. No. 4,948,202. This application Jul. 18, 1991, Ser. No. 732,460

The portion of the term of this patent subsequent to Mar. 3, 2009, has been disclaimed.

Int. Cl.[5] **A47F** *3/02;* **B65D** *77/18*

U.S. Cl. 312—35 **21 Claims**



1. A sheet of twist-tie material comprising:

(a) a plurality of wires arranged generally parallel to one another, each of said wires including a first and second end;

(b) a material into which said wires are embedded, said material extending between said wires; and

(c) wherein the material is cut longitudinally between said wires from said first end to proximate said second end and wherein said wire is cut transversely proximate said second end, whereby individual twist ties are formed which are joined to one another at said second end.

5,213,401

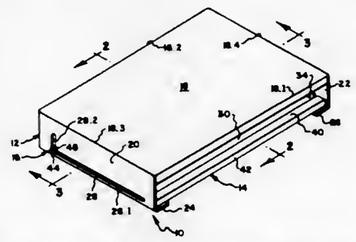
SUPPORT FOR COMPUTER TERMINAL AND COMPUTER KEYBOARD

David O. Hateber, Williamsville, N.Y., assignor to Posting Equipment Corporation, Buffalo, N.Y.

Filed May 17, 1991, Ser. No. 702,783

Int. Cl.[5] **A47B** *88/18*

U.S. Cl. 312—208.1 **11 Claims**



1. The combination of a computer terminal base and a computer keyboard holder which is capable of being assembled to the base in two ways, the keyboard holder when assembled a first way being movable from a storage position within the base

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to a first use position to a first side of the base, the first use position being generally parallel to the top of the base, and the keyboard holder when assembled a second way being movable from a storage position within the base to a second use position to a second side of the base, the second use position being at an incline to the top of the base; the combination comprising:

a computer terminal base including a generally planar top portion which is adapted to support a computer terminal, a pair of parallel terminal base sidewalls extending downwardly from ends of the top portion and between first and second sides of the base, each of the pair of terminal base sidewalls being provided with a slot extending between first and second portions of the terminal base sidewall adjacent the first and second sides of the base, respectively, the end of the slot in the first portion being lower than the end of the slot in the second portion, and bottom wall means for supporting the computer terminal base upon a desk or the like, the bottom wall means being interconnected to the lower edge of each of the pair of terminal base sidewalls, the bottom wall means being disposed below and generally parallel to the planar top portion;

a computer keyboard holder including a generally planar intermediate component which is adapted to support a computer keyboard, the generally planar intermediate component having first and second side portions and opposed end portions, a pair of parallel keyboard holder sidewalls extending upwardly from the end portions of the intermediate component and between the first and second side portions, each of the pair of keyboard holder sidewalls being provided with an aperture adapted to be placed in registry with the slot in an associated terminal base sidewall; and

fastener means for securing the computer keyboard holder to the computer terminal base in one of said two ways, the fastener means when securing the keyboard holder to the computer terminal base passing through the aperture in each of the keyboard holder sidewalls and a slot in an associated terminal base sidewall for sliding movement between the ends of the slot whereby when the parts are assembled the keyboard holder may be moved between storage and use positions and the fastener means cooperate with the ends of the slots to hold the keyboard holder either in the second use position inclined to the top of the base effected by the fastener means sliding upwardly in the respective slot ends in the second terminal base sidewall portions or in a storage position within the base when assembled in the second way to extend out the second side of the base for use, and whereby the keyboard holder may be disconnected from the base, removed out the second side, inserted in the first side to extend out the first side of the base for use, and reconnected to the base to be assembled in the first way to hold the keyboard holder either in the first use position parallel to the top of the base or in a storage position within the base.

5,213,402

RECYCLING CABINET UNIT

Joseph Bernal, 129 Library Ave., and David Chapman, 104 Gibson Ave., both of Rutland, Vt. 05701

Filed Nov. 1, 1991, Ser. No. 786,547

Int. Cl.[5] E04F *17/12*

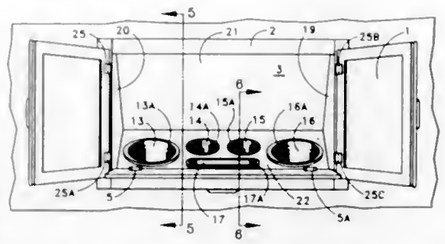
U.S. Cl. 312—242 **8 Claims**

1 A recycling cabinet unit, comprising:

a. a hollow cabinet unit made up of a flat bottom floor plate, a flat top ceiling plate, two lateral wall plates permanently joined to said flat bottom floor plate and said flat top ceiling plate and an upwardly inclining posterior plate extending from and permanently joined to the back edge of said flat bottom floor plate as well as being permanently joined to said two wall lateral plates together with a downwardly inclining posterior plate extending from and permanently joined to the back edge of said flat top ceiling plate as well as being permanently joined to said two lateral wall plates which said inclining posterior plates are permanently joined at a complementary angle;

b. four circular apertures all in a row cut into said upwardly inclining posterior plate;

c. one elliptical aperture cut into said upwardly inclining posterior plate;



d. four hollow cylindrically shaped chutes permanently mounted one chute at a time to the circumferences of the tops of each of said four circular apertures;

e. one hollow elliptically shaped chute permanently mounted to the perimeter of the top of said elliptical aperture.

5,213,403

CORNER FASTENER FOR DRAWER GUIDES

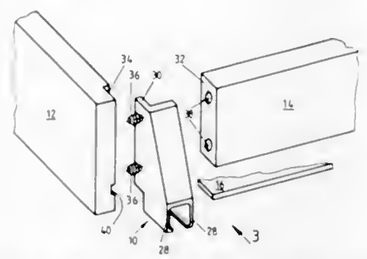
Horst Lautenschläger, Reinheim, Fed. Rep. of Germany, assignor to Karl Lautenschlager GmbH & Co. KG Mobelbeschlagfabrik, Reinheim, Fed. Rep. of Germany

Filed Oct. 8, 1991, Ser. No. 773,144

Claims priority, application Fed. Rep. of Germany, Oct. 12, 1990, 4032426

Int. Cl.[5] A47B *88/00*

U.S. Cl. 312—348.2 **9 Claims**



1. Corner fastener for a carcase-interior end of a runner rail of drawer guides in which a guide rail to be fastened to the carcase wall enters from below into the corresponding runner rail formed of an open-bottomed hollow profile to be removably fastened to a drawer beneath the drawer bottom and forms in the interior of the runner rail paths for rolling bodies mounted in an elongated cage, which can roll on the roll paths of the guide rail on the one side and on roll paths formed by associated areas of the inside surface of the runner rail, and thus permit a longitudinal movement of the runner rail relative to the guide rail, a front-end corner fastener which can be fastened under the bottom of the drawer being associated with the front end of the runner rail and in which the front end of the runner rail is held, and the corner fastener that is to be fastened in the back corner of the drawer has two clip arms projecting downward past the underside of the drawer bottom, of which at least one grasps the runner rail, the two clip arms being integral with a body portion which can be fastened in the rear corner area of a corresponding drawer and forms a corner fastener joining together the rear portion of the inside face of

a drawer side and the associated end face of the drawer back, wherein

the body portion has a surface which can be placed flat upon the outside face of the drawer back, and from the margin of the body portion a vertical flange having two flat sides projects at right angles to be placed between the end face of the drawer back and the rear portion of the inside face of the drawer side to be joined to said end face,

and wherein

the flange has means for fastening both to the end face of the drawer back and the inside face of the drawer side.

5,213,404

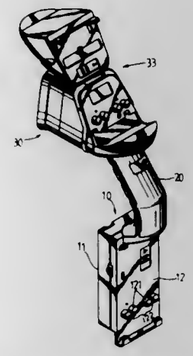
AUXILIARY ILLUMINATING DEVICE OF A CAMERA

Stephen Chen, Changhua City, Taiwan, assignor to E Lead Electronic Co., Ltd., Taiwan

Filed Jan. 30, 1992, Ser. No. 828,315

Int. Cl.[5] G03B *15/02*

U.S. Cl. 362—9 **2 Claims**



1. An auxiliary illuminating device for a camera, comprising a main body having a front face and a rear face, an engaging base disposed on said front face, a first battery seat disposed on said rear face, an illuminating light, a support rod connecting said illuminating light to said main body,

said illuminating light having a light tail including a pivotally openable portion which can be opened to expose a second battery seat contained in said light tail to allow installation of an additional battery therein and inner circuit means engaged to and including said first battery seat and said second battery seat for selectively activating batteries engaged in said first battery seat and said second battery seat.

5,213,405

LIGHTSTICK WITH LINE ATTACHMENT MEANS

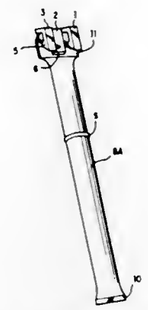
Robert D. Giglia, Rye, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 759,345, Sep. 13, 1991, abandoned. This application Nov. 25, 1991, Ser. No. 796,972

Int. Cl.[5] F21K *2/00*

U.S. Cl. 362—34 **10 Claims**

1. A chemical light device comprising a first section containing at least two compartments each of which contains a chemical composition which when admixed results in production of chemical light and each of which is physically separated from one another such as to prevent said compositions from admixing until required by a means capable of allowing said admixing and a second section which is adapted to engage and hold a linear line via forces exerted by first, second and third cantilever arms the first and third arms being in one plane and the second arm being in a different plane.



5,213,406

HEADLAMP FOR POWER VEHICLES

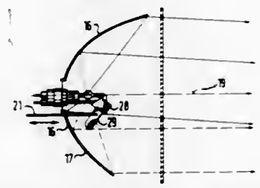
Rainer Neumann, Stuttgart; Gerhard Lindae, Leonberg; Kay Kolberg, Ottersweier; Karl-Heinrich Preis, Buehlertal, and Thomas Weigold, Baden-Baden, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 28, 1990, Ser. No. 635,472

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1990, 4002576

Int. Cl.[5] B60Q *1/04*

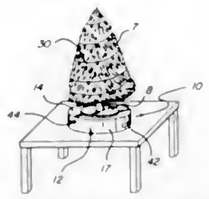
U.S. Cl. 362—61 **7 Claims**



1. A headlamp for a power vehicle, comprising a reflector having an apex; a light source arranged in said apex of said reflector; and a dimming device which is formed so that in a position for high beam it allows light from said light source to at least reach a lower reflector region, and in a position for low beam at least keeps away light from said light source from the lower reflector region, said light source being formed as a gas discharge lamp with an axial light arc, an upper reflector region being formed for producing a light distribution for a low beam while the lower reflector region being formed for producing a light distribution for high beam, said lower reflector region having a surface which in the region of the apex is defined by a paraboloid of revolution and which is deformed in a radial outer region to obtain an approximately rectangular light distribution for high beam.

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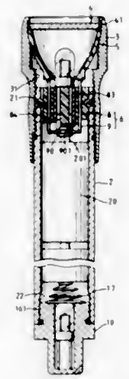
5,213,407
MINATURE CHRISTMAS TREE PLATFORM AND LIGHT STRING UNIT
Kenneth D. Eisenbraun, Birmingham, Mich., assignor to Eisenbraun Reiss Inc., Troy, Mich.
Filed Apr. 20, 1992, Ser. No. 871,063
Int. Cl.[5] F21P *1/02*
U.S. Cl. 362—123 10 Claims



1 A combination platform and light string unit for use with a miniature Christmas tree, said unit comprising:
a rigid platform configured to support and to elevate said Christmas tree, said platform having an upper surface, a lower surface opposed to and lying in a plane substantially parallel to the upper surface, and at least one side surface disposed between and connecting said upper and lower surfaces;
a power supply compartment integrally formed within said platform, said compartment being accessible via a removable cover plate, said cover plate when positioned within said platform being substantially flush with said lower surface;
an input jack for connection with a voltage adapter disposed upon said side surface of said platform and capable of electrical communication with said power supply compartment;
a plurality of resilient elastic feet disposed on said lower surface of said platform,
a light string connected to and extending from said platform, said light string comprising a plurality of light-emitting elements disposed intermittently along a flexible wire;
a power supply for illuminating said light string, said power supply being in electrical communication with said flexible wire and said power supply compartment; and
a multi-positioned power switch mounted on said platform for controlling said power supply in a selected one of a plurality of different illuminating modes wherein one of said plurality of illuminating modes flashes various ones of said plurality of light-emitting elements on and off at periodic time intervals and another of said plurality of illuminating modes maintains said light-emitting elements constantly on, whereby said miniature Christmas tree is positioned upon said upper surface of said platform and said light string is wrapped around or otherwise arranged relative to said Christmas tree and the power switch is positioned in one of said illuminating modes thus causing the illumination of said light-emitting elements.

5,213,408
VARIABLE FOCUSING FLASHLIGHT
Shoei-Shuh Shiau, No. 10, Alley 1, Lane 551, Sec. 1, Wan-Shou Rd., Guei-Shan Hsiang, Taoyuan Hsien, Taiwan
Filed Jun. 1, 1992, Ser. No. 891,771
Int. Cl.[5] F21L *7/00, 15/02*
U.S. Cl. 362—187 6 Claims

1. A variable focusing flashlight comprising
a barrel for housing a battery therein,
a tail cap mounted on one end of said barrel and having a compression spring provided thereon for urging said battery towards the other end of said barrel,
a lamp having a pair of terminals,
a lamp base for retaining said lamp adjacent said other end of said barrel, and
a head assembly rotatably mounted on said other end of said barrel and having a substantially planar lens and a substantially parabolic reflector with an open tail end to receive said lamp, said head assembly being controllably translatable along said barrel when rotated with respect to said barrel,
said lamp base including:
a stationary receptacle mounted to said barrel in said other end of said barrel and having a bottom side and an axially extending through bore formed therein;
a first conductor mounted in said stationary receptacle and electrically connecting with one of said lamp terminals, said first conductor having one end which extends radially along said bottom side of said stationary receptacle within the circumference of said barrel,
a second conductor mounted in said stationary receptacle and electrically coupling the other one of said lamp terminals and said barrel;

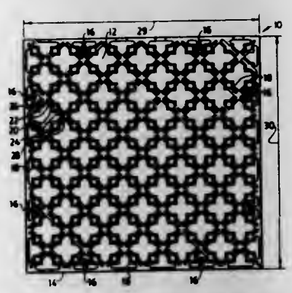


a movable receptacle having a plate portion disposed between said stationary receptacle and said battery source, said plate portion being formed with an opening and an upward extension which extends slidably into said through bore of said stationary receptacle and which is longer than said through bore; and
a conductive rivet movable contact mounted to the plate portion in said opening;
said open tail end of said reflector abutting against one end of said upward extension of said movable receptacle;
rotation of said head assembly in a direction toward said barrel causing said reflector to push said movable receptacle and said battery against the action of said spring, thereby moving said movable contact away from said first conductor to break electrical connection between said lamp and said battery source; and
rotation of said head assembly in a direction away from said barrel causing said spring to expand and push said movable receptacle and said movable contact toward said first conductor to make electrical connection between said lamp and said battery source.

5,213,409
DECORATIVE LIGHT GRID
David B. Fisher, P.O. Box 128, Dewittville, N.Y. 14728
Filed Nov. 18, 1991, Ser. No. 853,055
Int. Cl.[5] F21P *2/00*
U.S. Cl. 362—252 19 Claims

1. A grid for preparing an illuminated display, wherein said grid is comprised of a face material, and wherein:

(a) said face material is comprised of at least about 75 weight percent of plastic material;
(b) said face material is comprised of at least about 0.6 receptacles per square inch of said face material, wherein:
1. each of said receptacles defines an opening, and each of said openings is comprised of a first channel, a light-assembly enclosure, and a second channel, wherein:
(a) said first channel communicates with said light-assembly enclosure,
(b) said light assembly enclosure communicates with said second channel,
(c) said light-assembly enclosure has a maximum dimension which is greater than the maximum width of said first channel,
(d) said light-assembly enclosure has a maximum dimension which is greater than the maximum width of said second channel;
2. each of said receptacles is defined by a wall with a thickness of from about 0.03 to about 0.25 inches;
3. the length of said first channel is at least about 1.1 times as great as the length of said light-assembly enclosure; and
4. the length of said second channel is at least about 1.1 times as great as the length of said light-assembly enclosure.

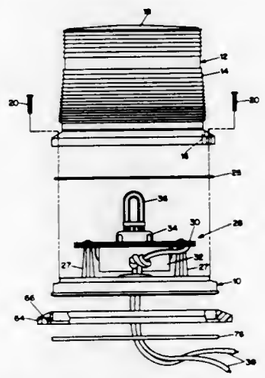


5,213,410
METHOD AND APPARATUS FOR ILLUMINATING AN UNDERWATER ENVIRONMENT
Robert S. Acks, San Diego, Calif., assignor to Remote Ocean Systems, Inc., San Diego, Calif.
Continuation-in-part of Ser. No. 579,655, Sep. 10, 1990. This application Jan. 24, 1992, Ser. No. 825,564
The portion of the term of this patent subsequent to Apr. 14, 2009, has been disclaimed.
Int. Cl.[5] H01R *33/975;* F21V *21/00*
U.S. Cl. 362—269 22 Claims



1. An apparatus for illuminating an underwater environment in a nuclear environment comprising:
at least one unit comprising:
an arc lamp for emitting light;
a base for mating with and for conducting electricity to said arc lamp;
a seal for creating a watertight connection between said arc lamp and said base;
a light-transmissive impact-resistant cover for enclosing said arc lamp, said base and said seal; and
a releasable connector attached to said base;
a polished reflector partially surrounding said at least one unit to control the direction of the reflection of light emitted from said arc lamp of said at least one unit;
a cable means for providing electricity to said connector; and
a ballast power supply contained in a watertight housing and connected to said cable means;
wherein said unit is replaced by disconnecting said releasable connector from an old said unit and connecting it to a new said unit.

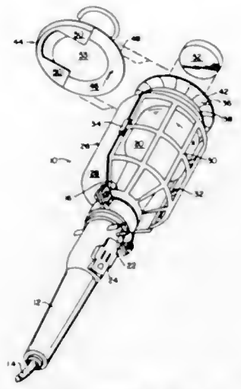
5,213,411
STROBE LIGHT
Rein Haus, Manasquan; Inhong Hur, Oakhurst, and Kenneth J. Bocan, Ocean, all of N.J., assignors to Wheelock Inc., Long Branch, N.J.
Filed Nov. 26, 1991, Ser. No. 798,008
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 362—368 8 Claims



1. In a strobe light of a type suitable for safety, notification, and intrusion systems and the like and including a base, a lens having a generally cylindrical side wall defining an opening at one end, having an end wall at the other end and being attached at its open end to the base, and a lamp/electronics assembly mounted on the base and received within the side wall of the lens, the improvement wherein the base has a generally planar main wall that is shaped and dimensioned such as to form a closure for the opening of the lens side wall and having a front surface facing the end wall of the lens and a rear surface facing away from the end wall of the lens, a generally centrally located mounting boss having a threaded socket adapted to receive a threaded mounting member, a box-mounting flange projecting from the rear surface of the main wall portion, the box-mounting flange being substantially square in plan and being shaped and dimensioned to present a substantially planar edge that is adapted to engage the edges of the side walls of either standard four-inch or standard 100-millimeter electrical boxes, and knockout holes in the main wall adjacent each corner of the box-mounting flange and adapted to receive screws for attaching the base to such electrical boxes.

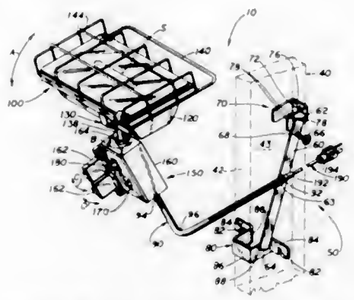
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,412
DROP LIGHT WITH MAGNET AND HOOK
Bruce Ciallella, 795 May Ave., Perth Amboy, N.J. 08861
Filed Oct. 7, 1991, Ser. No. 772,149
Int. Cl.[5] F21V *21/08*
U.S. Cl. 362—398 **4 Claims**



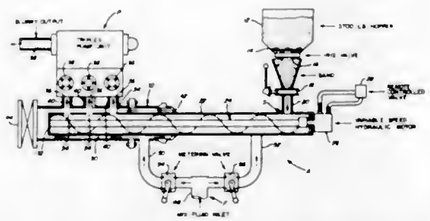
1. A lamp holder in combination with a removable work holder for holding tools and workpieces, comprising:
a) a housing for receiving a lamp;
b) a first magnet mounted on said housing for attaching said housing to a surface having a magnetic attraction to said first magnet;
c) a work holder removably mounted on said housing;
d) said work holder including a hook member for hanging said housing from a suitable surface;
e) said work holder further including a second magnet for attaching said work holder to a surface having a magnetic attraction to said second magnet so that said hook member may be used to suspend tools and workpieces; and
f) wherein said work holder has a first surface and a second surface and wherein said hook member is rotatably mounted on said first surface and said second magnet is mounted on said second surface and wherein said second surface includes means for slidably and removably mounting said work holder on said housing.

5,213,413
COMBINED LIGHT AND LIGHT SUPPORT BRACKET
Monte Weathers, 721 Porter La., Orland, Calif. 95963
Filed Jan. 23, 1992, Ser. No. 824,309
Int. Cl.[5] F21S *1/10*
U.S. Cl. 362—431 **20 Claims**



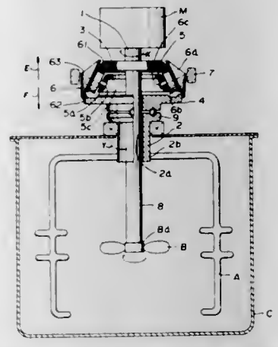
1. A portable light for attachment to a post, the post being positioned in any of a multiplicity of different orientations, the post having opposite first and second sides, comprising, in combination:
a source of illumination,
a substantially rigid mounting bracket having means for connecting securely to the post, and
a light support interposed between said mounting bracket and said source of illumination, and said light support supporting said source of illumination away from said mounting bracket; and
wherein said mounting bracket includes a first U-shaped restraining plate having an open portion which allows said U-shaped plate to conform around the first side of the post,
a second U-shaped restraining plate having an open portion which allows said U-shaped plate to conform around the second side of the post opposite the first side, said U-shaped plates laterally spaced along a long axis of the post, and
a diagonal support member fixedly attached between side portions of said first U-shaped restraining plate and said second U-shaped restraining plate affixing said open portions of each said U-shaped restraining plate so that they face toward each other but are laterally off-set,
said first restraining plate and said second restraining plate confined to two substantially parallel planes separated by a distance substantially conforming to the distance between the first and second sides of the post upon which said mounting bracket connects,
whereby said first restraining plate and said second restraining plate may simultaneously be oriented parallel to the opposite sides of the post with said diagonal support member adjacent to an intermediate side of the post.

5,213,414
MIXING APPARATUS
Bennett M. Richard, Kingwood, and Michael H. Johnson, Spring, both of Tex., assignors to Baker Hughes Incorporated, Houston, Tex.
Continuation-in-part of Ser. No. 521,019, May 9, 1990, which is a continuation of Ser. No. 445,420, Dec. 12, 1989, Pat. No. 4,944,347. This application Oct. 24, 1990, Ser. No. 603,963
Int. Cl.[5] B28C *5/38*
U.S. Cl. 366—27 **31 Claims**



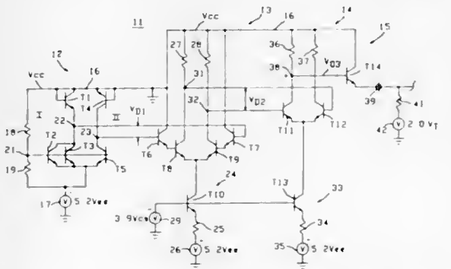
1. A mixing apparatus for creating a slurry of solids and at least one liquid, comprising:
an enclosed mixing chamber;
solids feed means connected to said mixing chamber for introducing solids therein;
pressurized fluid feed means for introducing through a conduit connected to at least said chamber at least one liquid under pressure to allow the energy of said pressurized liquid to suspend said solids therein creating a slurry within said mixing chamber;
said conduit further comprises inlet means to facilitate selective introduction of the liquid into said mixing chamber and/or to said solids feed means outside said mixing chamber.

5,213,415
AGITATOR USING A PLANETARY CONE TYPE TRANSMISSION UNIT
Setsuo Saeki, Settsu, Japan, assignor to Daikin Industries Ltd., Osaka, Japan
Continuation of Ser. No. 425,875, Oct. 24, 1989, abandoned. This application Feb. 11, 1991, Ser. No. 653,876
Claims priority, application Japan, Nov. 4, 1988, 63-144667
Int. Cl.[5] B01F *7/16;* **F16H** *15/16*
U.S. Cl. 366—294 **1 Claim**



1. An agitator for agitating material in an agitating tank comprising:
(a) an input unit provided with a drive means, an input shaft and an input rotary member rotatably associated with said input shaft;
(b) an output unit having an annular elongated body with an axial end and provided with (i) an output shaft disposed in axial alignment with said input shaft, said output shaft having a center portion provided with an axial insertion bore and provided at an axial end with a first power takeout portion and (ii) an output rotary member having a center portion provided with an insertion bore, said output rotary member secured to and rotatable with said output shaft with, said insertion bores being in alignment;
(c) a transmission unit interposed between said input rotary member and said output rotary member so as to transmit to said output unit power transmitted to said input unit, and comprising,
(c-1) a freely rotatable retainer interposed between said input rotary member and said output rotary member but not secured to either said member and having a center portion provided with an aperture;
(c-2) a plurality of planetary cones which are freely rotatably supported on said retainer and project radially outward therefrom and provided with a radial outward conical portion, a first round slidable contact portion in frictional contact with said input rotary member and a second round slidable contact portion in frictional contact with said output rotary member, whereby the planetary cones rotate due to rotation of said input rotary member; and
(c-3) a ring-like speed control member, having a center axis, positioned around said planetary cones to come into contact with said conical portions of said planetary cones so as to frictionally engage said conical portions to control revolution of said planetary cones around an axis of said aperture of said retainer, said speed control member being non-rotatable relative to said planetary cones and adjustable along a direction parallel to said center axis;
(d) an extension shaft integral with and extending from said input rotary member and integrally and coaxially rotatable with said input shaft, said extension shaft having a second power takeout portion, said extension shaft freely extending through said insertion bores of said output rotary member and said output shaft and through the aperture of said retainer;
(e) outside agitating vanes mounted on said first power takeout portion of said output shaft and located near the periphery of said agitating tank; and
(f) center agitating vanes mounted on said second power takeout portion of said extension shaft and located at the center of said agitating tank, whereby rotation of said input shaft by said drive means enables said center agitating vanes to rotate at high speed and in one direction and said outside agitating vanes to rotate at a lower speed and in the opposite direction.

5,213,416
ON CHIP NOISE TOLERANT TEMPERATURE SENSING CIRCUIT
Andrew Neely, Phoenixville, and Richard L. Fussell, Berwyn, both of Pa., assignors to Unisys Corporation, Blue Bell, Pa.
Filed Dec. 13, 1991, Ser. No. 806,514
Int. Cl.[5] G01K *7/00*
U.S. Cl. 374—178 **17 Claims**



1. An on-chip temperature sensing circuit for semiconductor devices, comprising:
a differential voltage source (DVS) having first and second branches,
each of said branches having thermal sensitive transistor means therein connected in series with a current source,
said thermal sensitive transistor means in said first and second branches comprising a base-collector transistor in said first branch of said DVS and a base-emitter transistor in said second branch of said DVS having different voltage output rates of change with temperature at their branch output nodes,
amplifier means coupled to the output nodes of said first and second branches of said DVS,
means for generating an on-chip voltage signal at an output electrode of said chip which is tolerant to switching noise and provides a voltage signal indicative of the temperature of said chip.

5,213,417
APPARATUS FOR TEMPERATURE MEASUREMENT
Takeo Yamada; Mitsuya Otonari; Masaru Yoshida; Naoki Harada; Shuichi Takano, and Shinichiro Ohtaka, all of Kawasaki, Japan, assignors to NKK Corporation, Tokyo, Japan
Continuation of Ser. No. 508,800, Apr. 12, 1990, Pat. No. 5,088,836. This application Sep. 12, 1991, Ser. No. 758,606
Claims priority, application Japan, Aug. 21, 1989, 1-213058; Sep. 27, 1989, 1-249278
The portion of the term of this patent subsequent to Feb. 18, 2009, has been disclaimed.
Int. Cl.[5] G01K *7/22, 1/14*
U.S. Cl. 374—183 **6 Claims**

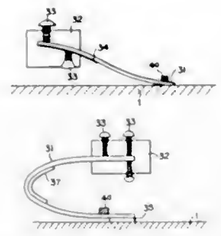
1. A temperature measurement apparatus, comprising:
sensing means for detecting a temperature of a surface of a

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body to be measured, said sensing means being placed adjacent to said body to be measured;

retaining means for retaining said sensing means, said retaining means comprising a thermally conductive and electrically insulative material, at least a portion of said retaining means comprising elastic material;

holding means for holding said retaining means; and



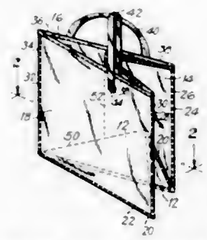
a contact mechanism for causing a contact zone of said retaining means to slightly elastically contact said surface of said body to be measured through elasticity of said elastic material of said retaining means, said contact mechanism being coupled to said retaining means and to said holding means.

5,213,418

REUSABLE BAG

Kristen Dancy, 90 Hall Rd., Apt. 51, Sturbridge, Mass. 01566, and Kal Kassel, 79 Sunset Ave., Lynbrook, N.Y. 11563

Filed Jun. 13, 1991, Ser. No. 714,958
Int. Cl.[5] B65D *30/04, 30/08, 30/16, 33/06*
U.S. Cl. 383—6 11 Claims



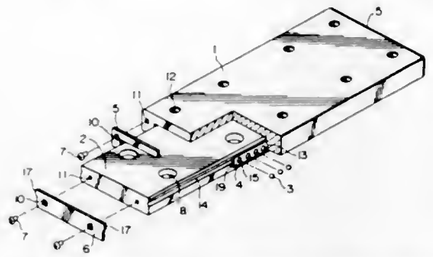
1. A reusable bag for carrying groceries, said reusable bag being adapted to be in either an open or closed position, said reusable bag comprising a base, a plurality of sides affixed to said base extending away therefrom in substantially the same direction, the base and sides of said reusable bag being formed of a semi-rigid form maintaining material, said base forming a triangle and each of said base and sides maintaining said bag in said open position while allowing said base and at least one of said sides to fold upon itself in said closed position, and a first handle having a first end and a second end, a second handle having a third end and a fourth end, said first end and second end each being affixed to a first one of said three sides, said third end being affixed to a second one of said three sides, and said fourth end being affixed to a third one of said three sides.

5,213,419

LINEAR MOTION ROLLING CONTACT GUIDE UNIT HAVING COMPLEMENTARY END PLATES

Toshiaki Geka, Kagamigahara, Japan, assignor to Nippon Thompson Co., Ltd., Japan

Filed Mar. 17, 1992, Ser. No. 853,225
Claims priority, application Japan, Mar. 18, 1991, 3-78544
Int. Cl.[5] F16L *29/04*
U.S. Cl. 384—49 8 Claims



1. A linear motion rolling contact guide unit, comprising:

a rail extending over a length along a longitudinal axis of said unit and including a first end surface at each end thereof, said rail being provided with first guiding means;

a slider slidably mounted on said rail in a straddling manner and including a second end surface at each end thereof, said slider being provided with second guiding means located opposite to said first guiding means to thereby define a guide channel when assembled;

a plurality of rolling members provided in said guide channel to thereby provide a rolling contact between said rail and said slider; a retainer also provided in said guide channel for retaining said plurality of rolling members in position;

a first end plate having vertical sides, said first end plate being fixedly attached to one end of said slider, said first end plate vertical sides including a first projection projecting laterally from one end portion only of said first end plate vertical sides and which extends inwardly substantially across a gap of said guide channel and terminates short of said rail; and

a second end plate having vertical sides, said second end plate being fixedly attached to one end of said rail, said second end plates vertical sides including a second projection projecting laterally from an opposite end portion only of said second end plate vertical sides and which extends outwardly substantially across the gap of said guide channel and terminates short of said slider, said second projection being located so as not to come into engagement with said first projection.

5,213,420

LINEAR MOTION ROLLING CONTACT GUIDE UNIT HAVING AN INCREASED FREEDOM IN MOUNTING

Norimasa Agari, Seki, Japan, assignor to Nippon Thompson Co., Ltd., Japan

Filed Mar. 17, 1992, Ser. No. 853,226
Claims priority, application Japan, Mar. 18, 1991, 3-23862[U]
Int. Cl.[5] F16C *29/04*
U.S. Cl. 384—49 3 Claims

1. A linear motion rolling contact guide unit, comprising:

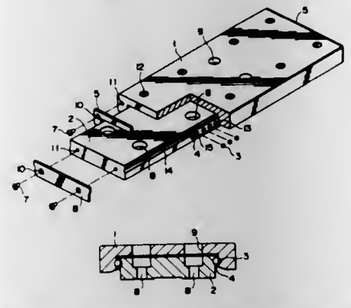
a rail extending over a length along a longitudinal axis of said unit and provided with first guiding means extending in parallel with said longitudinal axis;

a slider slidably mounted on said rail in a straddling manner and provided with second guiding means located opposite to said first guiding means to thereby define a guide channel when assembled;

a plurality of rolling members provided in said guide channel to thereby provide a sliding contact between said rail and said slider;

a retainer plate provided in said guide channel for retaining said plurality of rolling members in position;

whereby at least one mounting hole is provided in a central portion of said rail, which portion cannot be exposed due



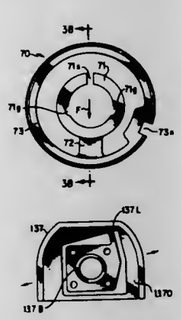
to a relative motion between said rail and said slider, for mounting said rail on a desired object separate from said guide unit and at least one access hole is provided in said slider such that said at least one access hole may be brought into alignment with said at least one mounting hole when said slider and said rail are brought into alignment.

5,213,421

VACUUM BELT DRIVE TRAIN AND BEARING THEREFOR

Russell D. Ide, 122 Ridge Dr., Exeter, R.I. 02822

Division of Ser. No. 656,238, Feb. 15, 1991. This application Jan. 24, 1992, Ser. No. 825,026
Int. Cl.[5] F16C *23/02, 27/02*
U.S. Cl. 384—192 20 Claims



1. A self aligning plastic sleeve bearing comprising:

a substantially cylindrical plastic sleeve having a cylindrical shaft supporting interior surface and an exterior surface;

an outer support housing radially spaced from and surrounding the plastic sleeve; and

a single radially extending ligament extending between the plastic sleeve and the outer support housing so as to support the plastic sleeve for movement relative to the outer support housing to accommodate shaft misalignment.

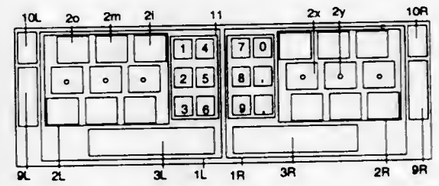
6. A belt tensioning bearing mount for use in a belt drive train which includes a housing, a drive shaft supported by bearings in the housing, a driven shaft supported in the housing by bearings and an inelastic belt passing over the drive shaft and the driven shaft, the bearing mount supporting at least one of the bearings and the bearing mount comprising: a bearing support surface, an outer portion mounted in the housing and at least one beam-like ligament connecting the bearing support surface to the outer portion, the ligament being elastically deflectable such that a bearing supported on the support surface and the shaft supported by such bearing can be elastically displaced from their static position in at least one direction to allow the inelastic belt to be passed around the shaft and wherein the tendency of the ligament to return to its static position tensions the belt.

5,213,422

BICAMERAL PICTOGRAPHIC-LANGUAGE KEYBOARD

Moishe Garfinkle, P.O. Box 15855, Philadelphia, Pa. 19103

Continuation-in-part of Ser. No. 508,972, Apr. 13, 1990, abandoned. This application May 12, 1992, Ser. No. 881,623
Int. Cl.[5] B41J *3/01*
U.S. Cl. 400—109 2 Claims



1. A bicameral keyboard for use in generating pictographic characters, said keyboard comprising

two mirror-image keypads, each having a plurality of character keys for frequently used characters and additional mirror image keys for infrequently used characters, mean responsive to the actuation of a combination of said keys on each said keypad to specify a specific pictographic character;

said additional mirror-image keys provided to increase the number of possible said pictographic characters specifiable by said character keys; and

means to indicate that a character has been generated including

means for generating an audible signal in response to the actuation of said additional mirror image keys and said character keys sufficient to specify a pictographic character.

5,213,423

PRINTER WITH IMPACT DOT HEAD

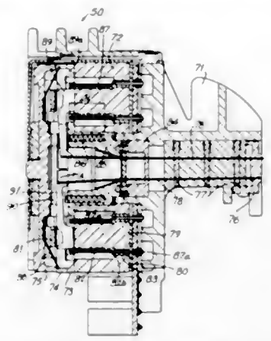
Shigeki Mizuno, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 550,401, Jul. 10, 1990, abandoned. This application Aug. 10, 1992, Ser. No. 928,522
Claims priority, application Japan, Jul. 13, 1989, 1-180748
Int. Cl.[5] B41J *2/235*
U.S. Cl. 400—124 8 Claims

1. An impact dot head for a printer comprising a frame, said frame including an inner wall having an edge and an inner surface, a plurality of printing wires movably supported on said frame in a predetermined array, each said printing wire being bent by differing predetermined amounts to be guided when moved, a plurality of armatures each respectively coupled to a respective one of said printing wires for moving said printing wires, each said armature having a fulcrum, said frame having a peripheral edge contacting each said fulcrum, a plurality of magnetic cores having a surface for attracting said plurality of armatures, each of said plurality of magnetic cores respectively associated with one of said armatures for selectively driving said armatures, each said armature being driven by its respective magnetic core between a rest position and printing position, a retaining member supported on said frame at said inner surface of said inner wall of said frame where said

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printing wires are positioned, said retaining member having a plurality of openings, each of said openings being respectively associated with one of said armatures, said retaining member contacting said edge of said inner wall of said frame and being positioned in a printing direction by said edge of said inner wall of said frame, a plurality of coil springs each of which is supported in a respective one of said openings, each of said coil springs being received by a respective one of said openings of said retaining member, said coil springs normally biasing said



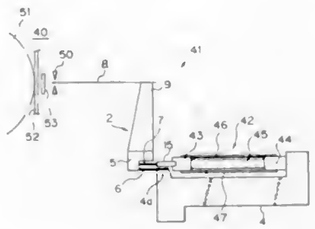
associated armatures in their rest position, each of said coil springs in combination with said magnetic cores driving said respective armatures towards said magnetic cores and said printing wires, each of said openings having a depth corresponding to the amount of bending of the printing wire associated therewith; said peripheral edge of said frame contacting said armatures, said surface of said magnetic core attracting said armatures and said edge of said inner wall positioning said retaining member being disposed in the same plane.

5,213,424

PIEZOELECTRIC ACTUATOR DEVICE

Kiyoshi Itoh, Kawasaki, Japan, assignor to Fujitsu Ltd., Kanagawa, Japan

Filed May 26, 1992, Ser. No. 887,813
Claims priority, application Japan, May 27, 1991, 3-121311
Int. Cl.[5] A41J *2/25*
U.S. Cl. 400—124 **4 Claims**



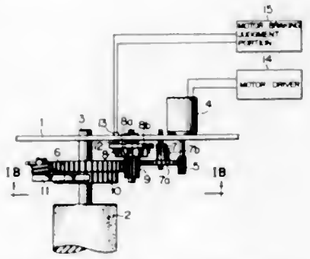
1. A piezoelectric actuator device comprising:
a laminated piezoelectric element having first and second opposite ends and first and second opposite sides;
a first block located at the first end of the laminated piezoelectric element;
a second block located at the second end of the laminated piezoelectric element;
a first leaf spring arranged between the first and second blocks facing the first side of the laminated piezoelectric element; and
a second leaf spring arranged between the first and second blocks facing the second side of the laminated piezoelectric element,
the first and second leaf springs maintaining the laminated piezoelectric element in compression,
the laminated piezoelectric element having a width measured on the first and second opposite sides and the first and second blocks and the first and second leaf springs have respective widths measured on the first and second opposite sides and the width of the laminated piezoelectric element is equal to or greater than the respective width of the first and second blocks and the first and second leaf springs, and a movement magnifying,
one of the first and second blocks being fixed to a stationary base, and the other block being connected to the movement magnifying mechanism which is movable in a predetermined plane in response to the movement of the laminated piezoelectric element for magnifying the movement of the laminated piezoelectric element; the first and second opposite sides being perpendicular to the plane of the movement of the movement magnifying mechanism.

5,213,425

PLATEN DRIVE DEVICE

Tetsuya Adachi, Kurume, and Yuji Tanaka, Chikushino, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 11, 1991, Ser. No. 683,804
Claims priority, application Japan, Apr. 17, 1990, 2-101312
Int. Cl.[5] B41J *19/76*
U.S. Cl. 400—572 **3 Claims**



1. A device for driving a platen, comprising:
a motor, and
power transmission means for transmitting a power output of said motor to the platen, said power transmission means including a Geneva drive wheel having a pin and driven to rotate by said motor, and a Geneva driven wheel having a plurality of grooves in which said pin of said drive wheel is engageable, said drive wheel having a notched portion formed in part of an outer peripheral surface thereof, said notched portion facing said Geneva driven wheel when said motor is stopped to enable manual rotation of said platen.

5,213,426

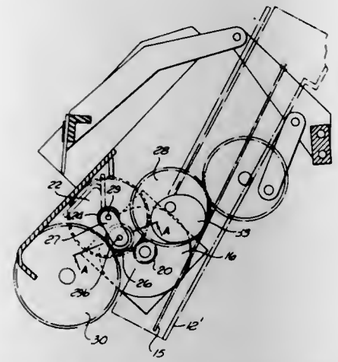
AUTOMATIC PRINTING MEDIA FEED APPARATUS

Kenneth R. Ewing, Fremont, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Jun. 29, 1992, Ser. No. 905,762
Int. Cl.[5] B41J *13/10*
U.S. Cl. 400—624 **3 Claims**

1. A motor drive system for feeding paper and controlling a paper tray movement, comprising:
a single bidirectional motor drive;
a first gear coupled to said motor drive;
a transmission means;
a second gear coupled to said first gear via said transmission means;

a paper feed roller;
a paper feed gear adjacent to and engageable with said second gear, said paper feed gear being coupled to said paper feed roller;
an eccentric cam gear adjacent to and engageable with said second gear;
an eccentric cam coupled to said eccentric cam gear;
a paper tray adjacent said eccentric cam;
a biasing means for biasing said paper tray toward said eccentric cam;



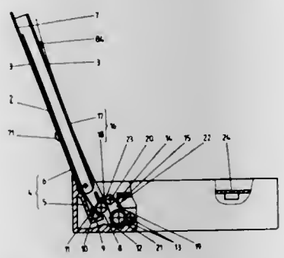
whereby when said first drive gear rotates in a first direction it engages said transmission means in a first direction, causing said eccentric cam gear and said eccentric cam to rotate thereby biasing said paper tray toward a first predetermined position, and whereby when said first drive gear rotates in a second direction it engages said transmission means in a second direction causing said feed rollers to rotate.

5,213,427

PRINTER WITH SHEET STORAGE CASSETTE

Hatto Grosse, München, and Harald Schulz, Berlin, both of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Oct. 7, 1991, Ser. No. 772,250
Claims priority, application European Pat. Off., Apr. 5, 1989, 89730094
Int. Cl.[5] B41J *11/56, 13/10*
U.S. Cl. 400—680 **23 Claims**



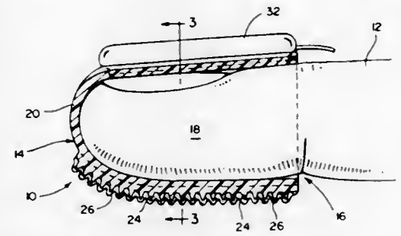
1. A compact printer comprising:
a sheet storage cassette, wherein the sheet storage cassette comprises a first cassette section and a second cassette section pivotally disposed relative to each other, the second cassette section forming a flap cover pivotally supported at the printer, wherein the flap cover forms in a closed state an upper side of the printer,
the flap cover being fixable in an inclined position in a flipped open state, the flap cover having an inner cover side facing an interior of the printer while in the closed state, and wherein the inner cover side of the flap cover is aligned with the first cassette section while the flap cover is in the inclined position;
the flap cover further including a plate;
a sheet separating device disposed in the interior of the printer such that the first cassette section is fixedly disposed at an inclined position opposite to the sheet separation device, wherein the sheet separation device is constructed to engage sheets disposed in the first cassette section, and to deliver the sheets toward a print position and for separating and feeding individual sheets;
a sheet deposit device formed by the plate of the flap cover for receiving printed-on individual sheets coming from the print position.

5,213,428

BIODEGRADABLE TOOTHBRUSH

Naser Salman, Gaithersburg, Md., assignor to Elisabetta Molari, Cesena, Italy

Filed May 5, 1992, Ser. No. 878,550
Int. Cl.[5] A46B *5/04*
U.S. Cl. 401—7 **11 Claims**



1. A disposable toothbrush comprising:
a cap including an opening for receipt of a fingertip,
a flat surface located on one side of said cap having bristles projecting therefrom for brushing of teeth,
a layer of dehydrated toothpaste being located on said bristles, and
at least one dental hygiene accessory located on a side of said cap opposite to said one side,
said at least one dental hygiene accessory being located within a capsule slidably mounted on said cap.

5,213,429

FOLDABLE RING BINDER-FOLDER

Noble T. Johnson, 492 Wold Dr., Mt. Clemens, Mich. 48045

Filed Jun. 5, 1992, Ser. No. 893,710
Int. Cl.[5] B42F *3/00, 13/02, 13/06, 13/10*
U.S. Cl. 402—8 **20 Claims**

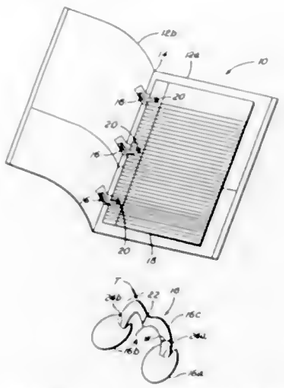
1. A binder-folder for holding pages, the pages having at least one hole, said binder-folder comprising:
a first side member;
a second side member foldably connected to said first side member along a centerline therebetween;
at least one foldable ring, said at least one foldable ring being connected with said first and second side members, each foldable ring of said at least one foldable ring comprising:
a ring portion having a substantially semi-circular shape, said ring portion being constructed of a material that is selectively foldable, said ring portion having a first end and a second end, said ring portion having a predetermined thickness, said ring portion having a predetermined width;
first foot means connected with said first end of said ring portion for providing connecting structure of said fold-

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able ring with respect to one of said first and second side members; and

second foot means connected with said second end of said ring portion for providing connecting structures of said foldable ring with respect to the other of said first and second side members; and

foldable ring connection means for selectively connecting said first foot means to one of said first and second side members and for selectively connecting said second foot means to the other of said first and second side members, wherein said ring portion is oriented transversely with respect to said centerline;



wherein said first and second members are foldable along said centerline between a closed orientation and an open orientation, further wherein said at least one foldable ring selectively folds between an unfolded configuration when said first and second members are at said open orientation to a folded configuration when said first and second members are at said closed orientation;

whereby the pages are held with respect to the binder-folder by said at least one foldable ring threading respectively through the at least one hole of the pages.

5,213,430

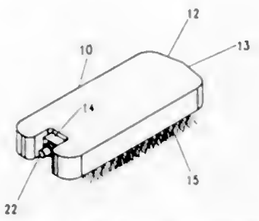
COMBINATION SHOE BRUSH AND LIQUID APPLICATOR

Thomas A. Pandola, 23055 Sherman Way, West Hills, Calif. 91307

Filed Jan. 27, 1992, Ser. No. 826,129

Int. Cl.[5] A46B *11/02*

U.S. Cl. 401—137 **1 Claim**



1. A combined shoe brush and liquid container arrangement comprising,

a conventional shoe brush constructed with an opening on one end which accepts a conforming sized liquid container with an atomizer head attached, p1 and

said shoe brush is constructed with a cut away section on one end working in conjunction with the opening stated above allowing the operation of the atomizer with a convenient finger and while not protruding beyond the end of the brush base allowing contents of container to be applied through the atomizer to shoe surface without being blocked or interrupted by brush bristles,

and

said liquid container is constructed to fit conforming opening in brush base and capable of manual insertion and extraction,

wherein the liquid container is secured in place by two springs that are resilient and deflect to provide adequate clearance for the container body to pass into or out of conforming opening,

said liquid container is constructed with two notches that align with the two springs securing container inside brush base opening when properly seated and ready for use while allowing the removal of container with moderate manual force.

5,213,431

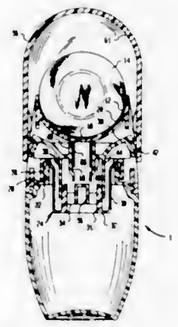
ROLL-ON DISPENSER WITH FLEXIBLE VALVE

James L. Gentile, Orange, Conn., and Joseph E. Meenan, Pleasantville, N.Y., assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Sep. 2, 1992, Ser. No. 938,748

Int. Cl.[5] A45D *34/04*

U.S. Cl. 401—219 **9 Claims**



1. A dispensing device comprising:

(i) a container having a neck;

(ii) a fitment mounted on the container, the fitment including an elongated socket with a cutout portion on an upper end thereof, a floor base forming a bottom of the socket with at least one aperture in the floor base, a pair of sidewalls opposite one another flanking the socket, a window in each of the side walls and a hollow sleeve formed on a rear surface of the floor base communicating with the aperture and projecting downward toward the container;

(iii) a roller mounted within the socket and having a short and a long axis; and

(iv) a valve member mounted on the neck, vertically slidable perpendicular to the long axis between the neck and hollow sleeve and having means on the valve member allowing selective fluid communication therebetween, the valve member including an upper surface, a downwardly projecting skirt surrounding the upper surface along an edge thereof, a pair of switch ribs jutting outward from the upper surface in opposite directions from one another and each protrudable through a respective one of the windows, each of the switch ribs being flanked on either side thereof by a slot partially traversing across the upper surface and completely across the skirt.

5,213,432

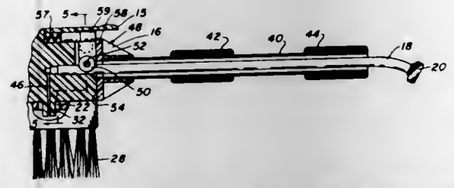
BRUSH WITH AUTOMATIC FLOW CONTROL VALVE

Gilmore H. Chappell, P.O. Box 5408, Deptford, N.J. 08096

Filed Dec. 5, 1990, Ser. No. 622,458

Int. Cl.[5] A46B *11/02, 11/06*

U.S. Cl. 401—273 **10 Claims**



1. A brush device for cleaning an object utilizing water, said brush device comprising a handle portion having gripping means thereon, a brush portion releasably secure to said handle portion, an actuation portion pivotably attached to said handle portion and arranged to be pivoted about a axis with respect to said handle portion, a flexible tubing adapted for attachment to a source of water under pressure, said flexible tubing serving to direct the flow of water to said brush portion, and an automatic control valve, said automatic control valve comprising valve means coupled to said brush portion and comprising roller means mounted on said actuation portion and arranged to roll along a portion of said flexible tubing in an arc about said axis, said actuation portion being arranged to be located in a first rotational position whereupon said roller means squeezes a portion of said flexible tubing to close it from the passage of water therethrough, said actuation portion being arranged to be pivoted in a first rotational direction to a second rotational position whereupon said roller means rolls along said portion of said flexible tubing in an arc about said axis to permit said tubing to open partially so that a small flow of water passes through said flexible tubing and out of said brush portion.

5,213,433

DUAL PURPOSE FILE

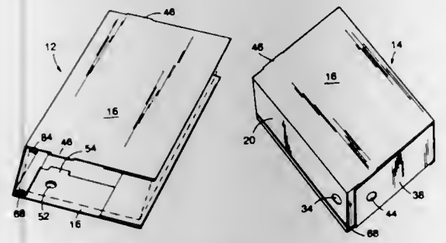
Lim S. An, 24 Lorong Merlimau, Jalan Mengkuang, 41100 Klang, Selangor, Malaysia

Filed Oct. 25, 1991, Ser. No. 782,567

Claims priority, application Malaysia, Nov. 14, 1990, P19002006

Int. Cl.[5] B42F *13/06*

U.S. Cl. 402—14 **14 Claims**



1. A loose leaf folder comprising a first cover portion, a second cover portion and a spine portion therebetween, characterized in that:

(a) said first cover portion comprises a first flap portion at an edge opposite said spine portion and demarcated by a first fold line, second and third flap portions on each opposite edge demarcated by second and third fold lines;

(b) said second cover portion comprises fourth and fifth flap portions on each opposite edge and are demarcated by fourth and fifth fold lines; and

(c) said spine portion comprises a binding portion demarcated by a plurality of spine fold lines, whereby said binding portion is foldable along said spine fold lines to form a double thickness ridge to which documents can be secured;

wherein said first cover portion is foldable to lie in a plane parallel to said second cover portion and said first, second, third, fourth and fifth flaps are foldable flat against said first and second cover portions.

5,213,434

WORK DEVICE SHAFT FOR THE ELECTRIC DRIVE MECHANISM OF A TOOTHBRUSH

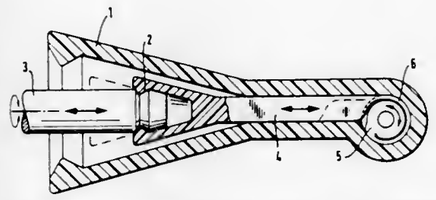
Matthias Hahn, Frankfurt, Fed. Rep. of Germany, assignor to Rowenta-Werke GmbH, Offenbach am Main, Fed. Rep. of Germany

Filed Nov. 8, 1991, Ser. No. 789,367

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1990, 9016226

Int. Cl.[5] F16C *31/00*

U.S. Cl. 403—59 **3 Claims**



1. A plug-in connector for use with an electric toothbrush having a tooth treatment tool and a drive with a plug-in shaft for imparting to the tooth treatment tool longitudinal and radial movements, said plug-in connector comprising a radial drive for imparting radial movement to the tooth treatment tool; and means for connecting the plug-in shaft of the toothbrush drive and said radial drive for converting a longitudinal movement of the plug-in shaft into a radial movement of said radial drive, said connecting means including a connecting rod attached, at one end thereof, to the plug-in shaft and, at another end thereof, to elastically deformable spiral means connected with said radial drive for converting the longitudinal movement of the plug-in shaft transmitted by said connecting rod to the radial movement of said radial drive, said connecting rod, said spiral means and radial drive being formed as an elastically deformable one-piece part.

5,213,435

ADJUSTABLE FASTENING OF A BALL JOINT TO A TIE ROD FOR STEERING LINKAGES OF MOTOR VEHICLES

Lothar Broszat, Monheim, Fed. Rep. of Germany, assignor to TRW Ebrenreich GmbH & Co. KG, Dusseldorf, Fed. Rep. of Germany

Filed Apr. 11, 1991, Ser. No. 684,045

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1990, 9004325[U]

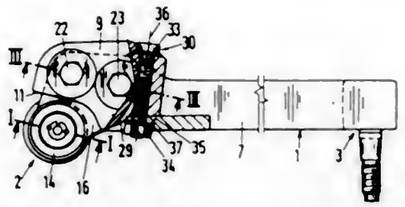
Int. Cl.[5] F16C *11/06*

U.S. Cl. 403—122 **16 Claims**

1. An adjustable attachment of a ball-and-socket joint (2) to a tie rod (1) for steering linkages of motor vehicles, with a ball pin (12) which is movable on all sides and is arranged in a universal joint housing (14), which is arranged with a bracket (16) with a bearing bore (18), a tie rod-rigid attachment element (22), which grips through the bearing bore (18), so that the bracket (16) is pivotably arranged about the attachment

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element (22) and a locking element engaging the bracket (16) for locking the ball-and-socket joint (2) in a certain swivel position, wherein the locking element is a screwed connection (30), which is arranged perpendicularly to an axis (31) of the attachment element (22) and meshes with a toothing (29) ar-



ranged on the bracket (16), characterized in that the screwed connection (30) has a bolt (33) and a nut (34), wherein the nut (34) is supported on a contact surface (35), which is inclined by a small angle from a plane perpendicular to the axis of the screwed connection (30).

5,213,436

SPRING JOINT FOR PIVOTALLY CONNECTING TWO BODIES

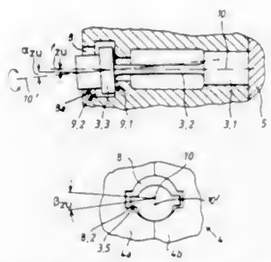
Karl-Heinz Fichtner, Strande, and Kurt Brenner, Satteldorf Gröningen, both of Fed. Rep. of Germany, assignors to Anschutz & Co. GmbH, Kiel, Fed. Rep. of Germany

Filed Aug. 2, 1991, Ser. No. 739,469

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1990, 4024494

Int. Cl.[5] F16B *21/00*

U.S. Cl. 403—220 10 Claims



4. A spring joint for pivotably connecting two holding bodies, the spring joint comprising:

a first holding body;

a second holding body;

a resilient member having an elastic range through which said resilient member can bend and yet return to its original position;

said resilient member interconnecting said holding bodies so as to permit said first holding body to move through a distance relative to said second holding body while bending said resilient member when a load is applied to said first holding body;

stop body means for coacting with said first body to limit the bending of said resilient member to prevent said elastic range from being exceeded; and,

said holding bodies and said resilient member being machined from a single piece of material.

5,213,437

SERRATED-SHAFT CONNECTION

Rudolf Sommer, Schwäbisch Gmünd, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, AG, Friedrichshafen, Fed. Rep. of Germany

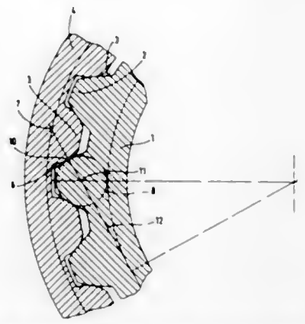
PCT No. PCT/EP89/01484, § 371 Date Apr. 26, 1991, § 102(e) Date Apr. 26, 1991, PCT Pub. No. WO90/06450, PCT Pub. Date Jun. 14, 1990

PCT Filed Dec. 5, 1989, Ser. No. 678,366

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1988, 3841703

Int. Cl.[5] B25G *3/28*

U.S. Cl. 403—359 7 Claims



1. In a serrated-shaft connection between a shaft (1) having a large number of teeth (2) on an outer circumferential surface thereof and a hub (4) having a large number of teeth located on an inner circumferential surface thereof, each tooth having a profile defined by side and top edges,

the improvement which comprises

the curvature of the profile on the side edges of the shaft teeth differs from the curvature of the profile of the side edges of the hub teeth to define first gaps between the tops of the shaft teeth and the hub and second gaps between the tops of the hub teeth and the shaft, the first and second gaps being different to provide a precise interference fit between the hub and shaft teeth profiles.

5,213,438

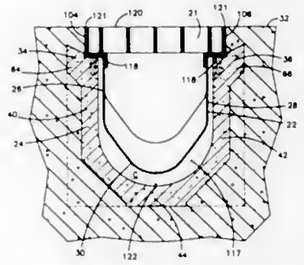
CHEMICAL SAFETY TRENCH DRAIN CONDUIT

Jörg R. Bärenwald, Concord Township, Lake County, Ohio, assignor to Aco Polymer Products, Inc., Chardon, Ohio

Filed Dec. 6, 1991, Ser. No. 802,899

Int. Cl.[5] B01D *35/34;* E01F *5/00*

U.S. Cl. 404—2 16 Claims



1. An elongate safety conduit for collecting liquids, comprising:

a. first and second conduit elements each in the form of an open-topped channel-shaped member having a first end and a second end and substantially liquid impermeable bottom and sidewall portions;

b. the first conduit element located and retained within the second and constructed and arranged to receive liquid through the open top;

c. the second conduit element enveloping the first;

d. support means for supporting the first conduit element within the second conduit element wherein at least a portion of the outside bottom surface of the first element is above the inside bottom surface of the second to provide a space therebetween, said space extending essentially the length of said conduit and suitable for collecting liquid that may leak through the first element;

e. each element being formed of discrete sections having interengaging ends;

f. the distance between the first conduit element inner bottom surface and the second conduit element inner bottom surface decreasing in a longitudinal direction extending from the first end to the second end; and

g. means sealing interengaging ends of said sections against leakage.

5,213,439

PROCESS FOR MARKING A PAVEMENT

Noel R. M. De Keyzer, Ottignies, Belgium, assignor to Shell Oil Company, Houston, Tex.

Filed Jan. 31, 1992, Ser. No. 829,184

Claims priority, application United Kingdom, Feb. 14, 1991, 9103150

Int. Cl.[5] E01C *23/16;* C08L *53/02*

U.S. Cl. 404—12 20 Claims

1. A process for marking a pavement, comprising the steps of:

dry-blending a substantially non-aromatic hydrocarbon resin with an elastomer powder;

melting the dry-blended composition; and

applying the molten composition to the pavement;

wherein the elastomer powder is a powder of a block copolymer comprising at least one poly(conjugated diene) block and at least two poly(vinylaromatic) blocks and the hydrocarbon resin is compatible with the poly(conjugated diene) block.

5,213,440

METHOD OF MAKING YELLOW TRANSPARENT TEMPERED GLASS AND GLASS PRODUCT

Jien-Wei Yeh, 3F., No. 60, Ching Da Shi Yuan, Section 2, Kuang Fu Road, and Jenn-Jye Chu, No. 77, Ho Ping Road, both of Hsin Chu City, Taiwan

Filed Sep. 26, 1991, Ser. No. 765,675

Int. Cl.[5] G08B *1/00;* C03C *3/155*

U.S. Cl. 404—14 2 Claims

1. A yellow, transparent, high refractive, tempered molded glass roadstud consisting by weight percentage of the glass composition essentially of the following:

SiO_2 in an amount of about 65% to about 75%;

B_2O_3 in an amount from 0% to 4%;

Na_2O in an amount of about 12% to about 18%;

CaO in an amount from about 8% to about 15%;

As_2O_3 in an amount from 0% to 1%;

PbO in an amount from 0% to 5%;

BaO in an amount from about 1% to about 5%;

CeO_2 in an amount of from about 1% to about 6%; and

TiO_2 in an amount of from about 1% to about 6%.

5,213,441

EXTRUDED THERMOPLASTIC ELASTOMER EXPANSION JOINT RETAINER

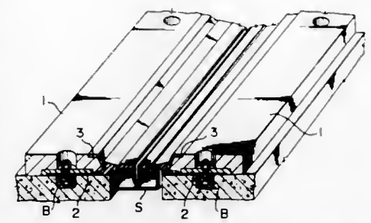
Konrad Baerveldt, Thornhill, Canada, assignor to Emseal Corporation, Mississauga, Canada

Filed Apr. 22, 1991, Ser. No. 689,337

Claims priority, application Canada, Apr. 24, 1990, 2015289

Int. Cl.[5] E01C *11/10*

U.S. Cl. 404—66 17 Claims



1. An expansion joint retainer for use in fastening a flexible elastomeric seal or strip seal to a structural slab, said retainer having a main body made from a first material, said main body having a thickness selected to permit emplacement of said retainer on the edge of a said slab whereby the upper surface of said main body is substantially coplanar with or beneath the upper traffic bearing surface of said slab; said retainer including a retaining element adjacent the lower surface of the said main body, said retaining element being made of a second material serving to provide said retainer with sufficient rigidity to be bolted to said slab, characterized in that said second material is a thermoplastic elastomer.

5,213,442

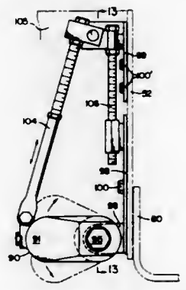
CONTROLLED DENSITY PAVING AND APPARATUS THEREFOR

Robert A. Sovik, Clifton Park, N.Y., assignor to AW-2R, Inc., Clifton Park, N.Y.

Continuation-in-part of Ser. No. 567,930, Aug. 15, 1990, Pat. No. 5,051,026. This application Sep. 19, 1991, Ser. No. 762,925

Int. Cl.[5] E01C *19/38, 19/34, 19/40*

U.S. Cl. 404—102 6 Claims



1. An asphalt paver attachment for pre-compacting a seam, rut or edge portion of a roadway during a paving or pavement repair operation in order to apply a controlled density paving method to said roadway paving or repair, the attachment comprising:

a pivotally fixable compaction shoe having defined heel, tip and sole portions and of a generally elongate shape with an axis of pivotation defined by a singularly and transversely mounted pivot means proximate said heel portion;

first fixing means for mounting the shoe at said pivot means to an asphalt paver proximate multiple roadway joint-,

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rut- or edge-encountering portions of the paver so that the shoe effects arcuate movement about said axis of pivotation over and proximate said roadway portions;

combination actuation and a second fixing means attached proximate said tip portion and capable of extension and retraction so as to effect arcuate fixed positioning of said tip about the pivot means and thereby apply continuously a steady, but variable, compressing and compacting force through said shoe onto said roadway portions by positioning said tip portion in relation to said heel portion, whereby movement of the first fixing means on the paver selects a roadway portion to be affected and actuation of said actuation and said second fixing means effects a compressive force for application to said roadway portion selected wherein said actuation and said second fixing means is a mechanism for effecting connection between said paver and the tip portion in an arcuate direction and wherein fixedly securing the tip portion orients said tip portion rigidly with respect to the paver.

5,213,443

FLEXIBLE WINDSURFING RAMP

Mike K. Hemperly, 59-197 Ke Nui Rd., and Kenneth D. Hill, 58-025 Kapuai Pl., both of Haleiwa, Hi. 96712

Filed Mar. 12, 1992, Ser. No. 849,977
Int. Cl.[5] B63C *3/06*
U.S. Cl. 405—3 **25 Claims**



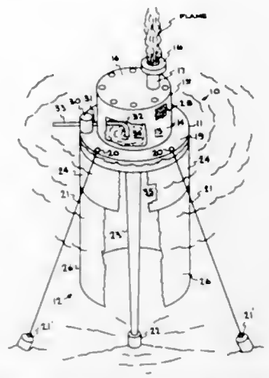
1. A ramp for a windsurfing craft, said ramp comprising a plurality of substantially parallel flexible support members spaced apart from each other at a distance by means to maintain the support members spaced apart, said distance being larger than a width of a rudder of a windsurfing craft and smaller than a width of a windsurfing craft, each support member having a first end and a second end, said support members being arranged in a substantially planar configuration having a first end defined by adjacent first end portions of the support members and an opposite, second end defined by opposite adjacent second end portions of the support members, said substantially planar configuration also having first and second side edges opposite from one another and defined by two outermost support members, wherein said first end is provided with means to force said first end below a surface of a body of water to define a submerged end when said ramp is disposed within a body of water and wherein said second end, opposite said first end, is provided with means to force said second end above a surface of a body of water to define an elevated end when said ramp is disposed within a body of water, said flexible support members being sufficiently flexible so as to bend at the upper end thereof under the force of a windsurfing craft with a sailor thereon and to act as a spring as the windsurf craft and sailor leave the ramp to propel the windsurf craft and sailor high into the air.

5,213,444

OIL/GAS COLLECTOR/SEPARATOR FOR UNDERWATER OIL LEAKS

Carl D. Henning, Livermore, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 17, 1992, Ser. No. 870,067
Int. Cl.[5] E02B *15/04*
U.S. Cl. 405—63 **21 Claims**



16. An oil/gas collector/separator for underwater oil leaks comprising:

a cylindrical tank;

a hollow float member for supporting said tank in a substantially upright position;

a skirt assembly secured to said hollow float member and extending in a direction away from said float member opposite said tank;

means for removing oil from said tank; and

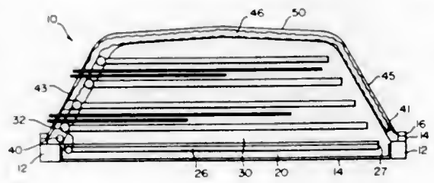
means for removing gas from said tank.

5,213,445

SYSTEM FOR HEATED AIR EXTRACTION OF CONTAMINANTS FROM SOIL STACK

Maynard D. Ikenberry, and Dwight S. Ikenberry, both of 5523 Peninsula Dr. SE., Olympia, Wash. 98503

Filed Sep. 26, 1991, Ser. No. 766,044
Int. Cl.[5] B09B *3/00*
U.S. Cl. 405—128 **22 Claims**



1. A system for remediation of contaminated soil removed from a soil site, comprising:

a soil stack in the vicinity of the soil site, formed of alternating layers, from a lower surface to a top surface of the soil stack, of contaminated soil which has been removed from the soil site and hot air dispensing pipes, with a plurality of vapor extraction pipes overlaying at least a portion of the soil stack, the soil stack and the vapor extraction pipes being covered by a sealing member to prevent escape of contaminated vapors from the soil stack to the atmosphere; and

a recirculating system for heating air and destroying contaminants in contaminated vapors which have been released from the soil stack and which move into the vapor extraction pipes, the recirculating system including a burn chamber, a heated air outlet and a vapor inlet, wherein the system includes first means connecting the heated air outlet to said hot air dispensing pipes, second means connecting the vapor extraction pipes to the vapor inlet and means moving heated air from the burn chamber into the first connecting means and from there into the soil stack and means moving contaminate-containing vapors into the second connecting means and from there into the burn chamber.

5,213,446

DRILLING MUD DISPOSAL TECHNIQUE

Hoai T. Dovan, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Jan. 31, 1991, Ser. No. 649,765
Int. Cl.[5] E21B *21/06*
U.S. Cl. 405—128 **20 Claims**

1. A disposable slurry comprising:

(a) a slurry selected from the group consisting of water-based drilling muds, brine slurries, muds from industrial evaporation ponds, and flocculated by-products of water treatment ponds;

(b) a water-soluble crosslinkable polymer; and

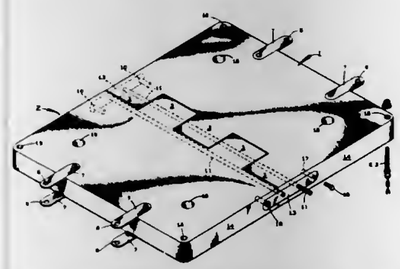
(c) a crosslinking agent, wherein the slurry is substantially devoid of inert non-packing, highly porous water-trapping, aggregate particles.

5,213,447

INTERCONNECTING WATER PLATFORM

Bryan J. Srock, 1226 SE. 12th Ave., Deerfield Beach, Fla. 33441

Filed Oct. 31, 1990, Ser. No. 607,270
Int. Cl.[5] B63B *35/00*
U.S. Cl. 405—219 **7 Claims**



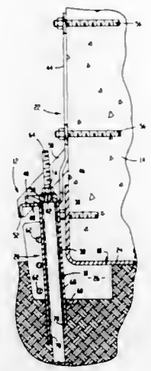
1. A rigid water platform comprising at least two buoyant units, each buoyant unit having at least one digitated edge for interleavingly matching a digitated edge of another buoyant unit, and rigid interconnecting means for rigidly interconnecting said buoyant units; at least two horizontal rods disposed between opposite vertical sides of said buoyant units, each rod rigidly attached to each of said buoyant units; wherein said digitated edges have interleaved extensions each having at least two horizontal holes coextensive with corresponding holes in adjacent extensions respectively receiving said horizontal rods; and wherein each of said units consists of a single piece of material; and a plurality of elongated connecting plates each having opposite ends each attached to respective adjoining edges of two buoyant units for rigidly interconnecting them.

5,213,448

UNDERPINNING BRACKET FOR UPLIFT AND SETTLEMENT LOADING

Gary L. Seider; J. T. Odom, and M. L. Holdeman, all of Centralia, Mo., assignors to A. B. Chance Company, Centralia, Mo.

Filed Dec. 11, 1992, Ser. No. 989,346
Int. Cl.[5] E02D *27/48*
U.S. Cl. 405—230 **12 Claims**



1. An apparatus for stabilizing the foundation of a building structure, comprising:

a support assembly including a sleeve;

a fastening means for fastening the support assembly to the foundation to prevent relative movement between the sleeve and the foundation;

an elongated screw anchor including a rod having upper and lower ends, and a load bearing element connected to the rod adjacent the lower end, wherein the upper end of the rod is sized for receipt in the sleeve of the support assembly and the load bearing element is adapted to anchor the lower end of the rod in the earth with the rod disposed in generally upright disposition with the upper end of the rod located adjacent the foundation; and

a securing means for securing the upper end of the rod within the sleeve to prevent movement of the rod relative to the sleeve, the securing means including a bonding composition inserted between the rod and the sleeve.

5,213,449

APPARATUS FOR INSERTING WICK DRAINS INTO THE EARTH

T. Richard Morris, 301 Warehouse Dr., Matthews, N.C. 28105

Filed Jul. 8, 1991, Ser. No. 726,589
Int. Cl.[5] E02D *7/06, 7/20, 3/10*
U.S. Cl. 405—232 **9 Claims**

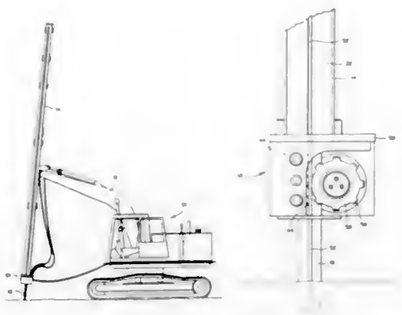
1. Apparatus for inserting flexible drain members downwardly into the earth, said apparatus comprising:

a) mast means adapted to be arranged with a generally vertical extent above the earth, said mast means being formed with a longitudinally extending chamber therein and a continuous longitudinal slot formed in one wall of said chamber;

b) an earth penetrating tube carried for vertical movement in said longitudinal chamber of said mast means, said tube being hollow for receiving a drain member for movement therewith, said tube being formed with a longitudinally extending flange member that projects outwardly through said slot in said mast and that includes openings at spaced intervals along its longitudinal extent, said flange member extending longitudinally along said tube for a substantial length that is at least equal to the depth to which said tube will penetrate the earth; and

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c) drive means for driving said tube into and o of the earth, said drive means including a drive gear that has teeth positioned to engage said spaced openings in said projecting flange, and moor means for rotating said drive gear to cause said tue and said drain member therein to be driven longitudinally through said chamber of said mast means and into and out of the earth, said drive means being positioned adjacent the lower end of said mast at a posi-



tion selected in correspondence with the longitudinal extent of said projecting flange such that lower ones of said spaced openings in said protecting flange are engageable by said drive gear to initially drive said tube into the earth and upper ones of said spaced openings are engageable by said drive gear to continue driving said tube into the earth after said projecting flange has also penetrated the earth.

5,213,450

APPLIANCE FOR THE DISPENSING OF BULK MATERIAL

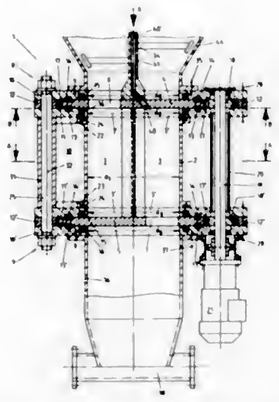
Helmut Bercx, Wolfegg, Fed. Rep. of Germany, assignor to AVT Anlagen- und Verfahrenstechnik GmbH, Weingarten, Fed. Rep. of Germany

Filed Dec. 13, 1991, Ser. No. 806,254

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1990, 4041110

Int. Cl.[5] B65G *53/46*

U.S. Cl. 406—128 17 Claims



14. An appliance for dispensing of bulk material, comprising:

a circular-cylindrical stationary cellular housing with individual chambers of a cross-section in the form of a segment of a circle, which is closed in an upper and lower region by respective upper and lower rotating cover plates each having an orifice in the form of a segment of an annulus, the dispensing appliance having in upper and lower regions thereof respective receiving flanges for the rotating cover plates,

wherein the upper receiving flange and the lower receiving flange for the respective cover plates are formed by respective flanged plates facing away from the cellular housing and respective flanged plates confronting the cellular housing, between which the respective cover plates are mounted rotatably on ball bearings located axially opposite one another, and

wherein the appliance further comprises an eccentric drive arranged laterally of the cellular housing and said drive comprises means for rotating the cover plates, and

wherein the upper and the lower cover plates comprise respective external toothings which are connected to associated driving pinions of the drive.

5,213,451

APPARATUS AND METHOD OF AUTOMATICALLY SEPARATING STACKED WAFERS

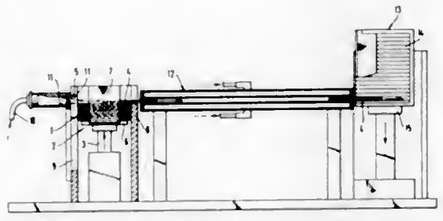
Walter Frank, Burgkirchen, Fed. Rep. of Germany; Albert Pemwieser, Ach, and Gerhard Spatzier, Eggelsberg, both of Austria, assignors to Wacker-Chemitronic Gesellschaft fur Elektronik-Grundstoffe mbH, Burghausen, Fed. Rep. of Germany

Filed Jan. 9, 1992, Ser. No. 818,553

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1991, 4100526

Int. Cl.[5] B65G *51/03*

U.S. Cl. 406—72 6 Claims



1. An apparatus for separating semiconductor wafers from a wafer stack having two uppermost wafers and utilizing a liquid medium having a sphere of action, comprising:

a wafer magazine for receiving the wafer stack having a feed unit which brings the uppermost wafer of said wafer stack into the sphere of action of the liquid medium;

a separating nozzle system which is directed at a separating joint between two uppermost wafers of the wafer stack at edges of the two uppermost wafers of the wafer stack, said separating nozzle system releasing the liquid medium to lift off the uppermost wafer of the wafer stack;

a conveying nozzle system which is directed at an acute angle at the surface of the uppermost wafer of the wafer stack, said conveying nozzle system releasing the liquid medium to push the uppermost wafer in a forward direction for leaving out of the wafer magazine, said wafer leaving the magazine having a lower face; and

a dam means having an upper edge substantially situated parallel to the lower face of the wafer leaving the magazine, said dam means acting as stripping edge which prevents more than one wafer at a time from leaving the wafer magazine.

5,213,452

ROUTER TYPE CUTTER

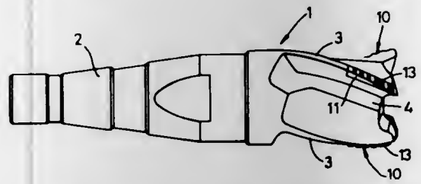
Mark Kirby, Sheffield, England, assignor to Technicut Limited, Sheffield, United Kingdom

Continuatioo of Ser. No. 550,158, Jul. 9, 1990, abandoned. This application May 21, 1992, Ser. No. 888,398

Claims priority, application United Kingdom, Jul. 13, 1989, 8916263

Int. Cl.[5] B23C *5/18*

U.S. Cl. 407—42 17 Claims



1. A router type cutter having a longitudinal axis of rotation, a drive spigot located at one end of said cutter for clamping within a rotatable toolholder of a machine tool, a plurality of helices extending part-way along said cutter from the other end and a corresponding plurality of flutes, and a helically twisted and sintered tungsten carbide insert providing a cutting edge brazed onto each said helix and having a non-undulating, leading radial rake face, from a radially outermost edge of which insert extends a radially outermost face being generally tangential with respect to said longitudinal axis and also being generally longitudinal of said cutter, with a non-linear cutting profile, produced after brazing said insert into position by forming alternating recesses and projections by means of a diamond form grinding wheel having a grinding circumference of approximate profile, with said wheel being advanced into said carbide; and said alternating recesses and projections provided along said radially outermost face to provide said cutting edge wherein in the direction of rotation of said cutter, said alternating recesses and projections of one insert are staggered with respect to said alternating recesses and projections of another said insert.

5,213,453

COOLING SYSTEMS IN TAPPING ATTACHMENTS SUITABLE FOR HIGH PRESSURE APPLICATIONS

Alf Eriksson, Nacka, Sweden, assignor to Tapmatic Corporation, Irvine, Calif.

Filed Jun. 28, 1991, Ser. No. 724,384

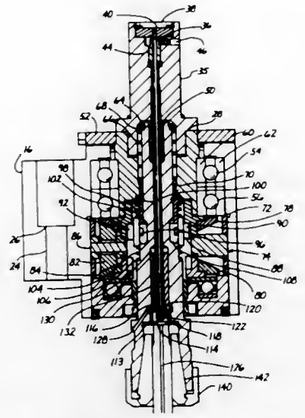
Int. Cl.[5] B23B *51/06*; B23G *1/46*

U.S. Cl. 408—57 12 Claims

1. In a self-reversing tapping attachment providing for flow of coolant to the tap and workpiece and having a drive spindle member axially movable with respect to the tapping attachment an improved cooling system comprising:

(a) a coolant conduit member within said drive spindle member, said coolant conduit member defining at least one flow orifice for flow of coolant therethrough;

(b) at least one fluid contact member for contacting coolant fluid flowing from said at least one flow orifice, said fluid contact member comprising a surface and being positioned at an angle to the flow of said coolant fluid to produce upon contact with said flow of said coolant fluid an axial force upon said drive spindle member to prevent



displacement of said drive spindle member from a proper position prior to tapping a hole.

5,213,454

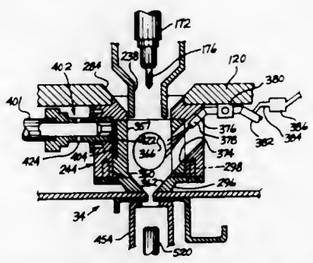
APPARATUS FOR CHIP VACUUM, MIST LUBRICATION AND COIL COOLING

Gregory C. Givler, and Gregory L. Clark, both of Issaquah, Wash., assignors to The Boeing Company, Seattle, Wash.

Division of Ser. No. 632,445, Dec. 21, 1990. This application Mar. 27, 1992, Ser. No. 812,908

Int. Cl.[5] B23B *47/34*

U.S. Cl. 408—61 3 Claims



1. An apparatus for lubrication of cutting tools and removal of cutting chips without scratching or lubricating the surface of the workpiece, comprising:

an enclosure defining a cavity within said enclosure;

a first axial opening at the top of the enclosure opening into said cavity for passage of a cutting tool;

a second axial opening at the bottom of said enclosure opening into said cavity, said second axial opening being axially aligned with said first axial opening;

a blowing port in one side of said enclosure communicating with said cavity;

a source of pressurized air and mist lubrication having a nozzle aligned with said blowing port for blowing air and mist lubrication into said cavity;

a vacuum port on another side of said enclosure communicating with said cavity and adapted to be connected with a source of suction with greater flow capacity than said pressurized air source flow capacity, whereby said cavity will be at a negative pressure relative to the outside air

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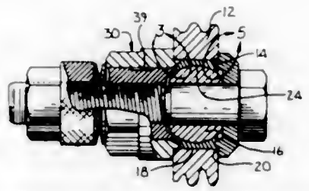
pressure and said air and mist lubrication will be drawn through said cavity past and around said cutting tool, and then out said vacuum port without contacting said workpiece, and said chips from said cutting tool will be drawn out through said vacuum port without landing on or marring said workpiece surface.

5,213,455

TOOL FOR REMOVING A BEARING

Warren C. Reynolds, Orange, Calif., assignor to Kahr Bearing A Dover Diversified Company, Burbank, Calif.

Filed Mar. 30, 1992, Ser. No. 860,429
Int. Cl.[5] B23B *41/12, 47/18*
U.S. Cl. 408—82 20 Claims



1. In combination for removing an inner annular bearing from an outer annular housing disposed radially outwardly from the bearing and having a chamfer for receiving a lip in the bearing to hold the bearing and the housing in an assembled relationship,

a rotatable cutter member having at least one tooth disposed to engage the bearing at a position near, but radially inwardly from, the chamfer in the housing and to produce an axial cut in the bearing to facilitate the removal of the lip from the bearing and the removal of the bearing from the housing,

first means for accurately positioning the cutter member radially relative to the bearing, and

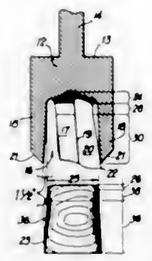
second means for providing for a controlled tightening of the cutter member axially against the bearing to facilitate the production of the cut in the bearing radially inwardly from the chamfer in the housing.

5,213,456

PLUG CUTTER

Leonard G. Lee, Ottawa, Canada, assignor to Lee Valley Tools, Ltd., Ottawa, Canada

Continuation of Ser. No. 614,618, Nov. 16, 1990, abandoned. This application Sep. 19, 1991, Ser. No. 762,656
Int. Cl.[5] B23B *51/05*
U.S. Cl. 408—203.5 5 Claims



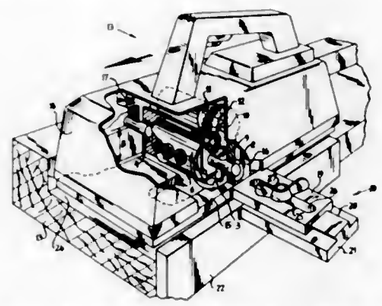
1. A plug cutter comprising a shank connected to a body and a plurality of blades depending from the body that define a bore having, progressing away from the body, a constant diameter portion and a gently outwardly flared portion that is longer than the constant diameter portion and terminates at tips that define a mouth that is wider than any other portion of the bore.

5,213,457

PLANER WITH IMPROVED BEARING MOUNTING

Johannes M. Maas, Teteringen, and Antonie J. Moolenaar, Dorst, both of Netherlands, assignors to Emerson Electric Co., Netherlands

Filed Dec. 12, 1991, Ser. No. 806,597
Claims priority, application Netherlands, Dec. 21, 1990, 90 02865
Int. Cl.[5] B27C *1/00*
U.S. Cl. 409—175 11 Claims



1. Device for performing a machining movement with at least one rotatable planing knife, comprising:

a planing knife holder fixed rotatably in a carrier with a first and a second shaft and a first and a second bearing, wherein at least the first shaft is connected fixedly to the planing knife holder and at least the first shaft is bearing mounted in the carrier;

a motor fixed in the carrier; and

a drive wheel which is fixed on the first shaft and coupled to the motor for driving the planing knife holder, the second shaft being connected fixedly to the carrier and the second bearing being arranged on the shaft inside the body of the planing knife holder.

5,213,458

METHOD AND APPARATUS FOR CONTAINERIZED SHIPMENT OF AUTOMOBILES

Robert E. Preller, Mount Holly; James T. Wilson, Willingboro, both of N.J., and Donald Miedama, Morrisville, Pa., assignors to Sea-Land Corporation, Inc., Elizabeth, N.J.

Continuation of Ser. No. 559,294, Jul. 27, 1990, abandoned. This application Jan. 17, 1992, Ser. No. 824,720
Int. Cl.[5] E04H *6/06*
U.S. Cl. 410—26 13 Claims

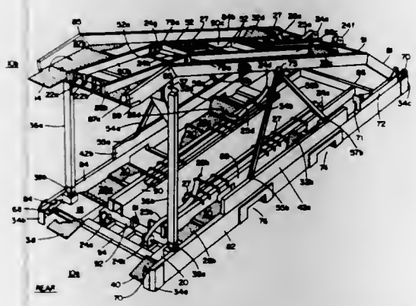
1. A portable and collapsible car rack for loading and shipping cars in a standardized intermodal container, said rack comprising:

(a) a lower tier for receiving a car, said tier having a first and a second end, and defining a pair of wheel receiving channels for said car and a first longitudinal axis;

(b) an upper tier for receiving a second car, said upper tier formed of first, second and third beam members, said second beam member defining a pair of wheel receiving channels for a car and a second longitudinal axis, said upper tier being pivotally mounted to said lower tier by said first beam member at a first end thereof to define a pivot axis, so that the upper tier may be pivoted about said pivot axis from a first collapsed position wherein said first and second longitudinal axis overly one another, to a second erected position with said second longitudinal axis forming an acute angle with said first longitudinal axis,

(c) a first knuckle defined by said upper tier between said first beam member and said second beam member, said first and second beam members being joined together at said first knuckle to define a first obtuse angle to enhance the vertical clearance between said upper and lower tiers when said upper tier is pivoted into its second erected position, said first knuckle and said first beam member defining a clearance space for an end of a car to be received by said lower tier;

(d) a second knuckle defined by said upper tier between said third beam member and said second beam member, said second and said third beam members being joined together at said second knuckle to define a second obtuse angle, said third beam member defining a car ramp for receiving a car which is driven onto said upper tier when said upper tier is collapsed into its first position;



(e) a pair of inner rails and a pair of outer rails formed at said second knuckle of said upper tier which together form a pair of wheel receiving channels of said car ramp and which join with said wheel receiving channels of said second beam member, with the outer rails defining said second knuckle as a second outer knuckle and with said inner rails of each wheel receiving channel defining a separate inner knuckle further from said second end than said second outer knuckle, said inner knuckle providing additional undercarriage clearance for cars driving thereover;

(f) a folding vertical frame at said second end of said lower tier to support said upper tier in said second erected position and thereby define a second car receiving space therebetween when said vertical frame is secured to said tiers; and

(g) means for securing said cars to said tiers for shipment.

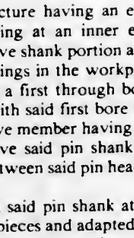
5,213,459

SELF-DRILLING CONNECTING UNIT

Erich Palm, Heerbrugg, Switzerland, assignor to SFS Stadler Holding AG, Heerbrugg, Switzerland

PCT No. PCT/EP90/02293, § 371 Date Sep. 25, 1991, § 102(e) Date Sep. 25, 1991, PCT Pub. No. WO91/11631, PCT Pub. Date Aug. 8, 1991
PCT Filed Dec. 21, 1990, Ser. No. 761,996
Claims priority, application Fed. Rep. of Germany, Feb. 5, 1990, 4003374
Int. Cl.[5] F16B *13/04, 13/06*
U.S. Cl. 411—29 17 Claims

1. A self-drilling connecting unit comprising a shaft and a platelet-like cutting tool connectable to the shaft, the platelet-like cutting tool having on an end region thereof facing the shaft, at least one platelet-like protrusion lying in a plane of the cutting tool; an end region of the shaft bearing the cutting tool and having a central opening of a cross-section selected from circular, elliptical and polygonal cross section, said at least one protrusion being insertable into the central opening with a press fit for centering and force-fit mounting of the cutting tool to the shaft and being braced in the central opening against two



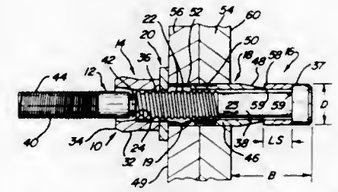
diametrically opposing boundaries of an inside wall of the central opening.

5,213,460

HIGH STRENGTH BLIND BOLT WITH UNIFORM HIGH CLAMP OVER AN EXTENDED GRIP RANGE

Shahriar M. Sadri, San Clemente; Keith D. Nordyke, and Mark R. Plunkett, both of Irvine, all of Calif., assignors to Huck International, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 705,447, May 24, 1991, and a continuation-in-part of Ser. No. 742,866, Aug. 9, 1991, abandoned. This application May 27, 1992, Ser. No. 888,795
Int. Cl.[5] F16B *13/04*
U.S. Cl. 411—43 77 Claims



21. A blind bolt for securing a plurality of workpieces at a desired clamp load with the workpieces having aligned openings therein and having an accessible surface and a blind side surface and adapted to be installed by a relative axial force applied by an installation tool from the accessible surface side of the workpieces, said blind bolt comprising:

a pin member having an elongated pin shank terminating at one end in an enlarged pin head;

said pin shank having a lock portion comprising a plurality of lock grooves and a pull portion comprising a plurality of pull grooves,

a main sleeve structure having an elongated sleeve shank portion terminating at an inner end in a tapered nose portion, said sleeve shank portion adapted to be located in the aligned openings in the workpieces, said main sleeve structure having a first through bore adapted to receive said pin shank with said first bore having a central axis,

an expandable sleeve member having a second through bore adapted to receive said pin shank and being located on said pin shank between said pin head and said tapered nose portion,

a collar located on said pin shank at the accessible surface side of the workpieces and adapted to be swaged into said lock grooves in response to the relative axial force of a first magnitude applied by the installation tool between said pin and said collar,

said tapered nose portion defining a preselected angle with said central axis,

said expandable sleeve moving axially relative to and expanding radially over said nose portion in response to the relative axial force of a second magnitude less than said first magnitude to form an enlarged blind head for reacting against the blind side surface,

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said main sleeve structure being operable for initially transmitting the relative axial force between said pin member and said expandable sleeve to form said blind head and having a deformable portion responsive to the relative axial force of a third magnitude greater than said second magnitude and less than said first magnitude to deform to a position substantially out of load bearing relationship with said blind head to thereby prevent transmission of the relative axial force through said main sleeve structure whereby the final clamp load applied to the workpieces will be substantially unaffected by said main sleeve structure.

5,213,461

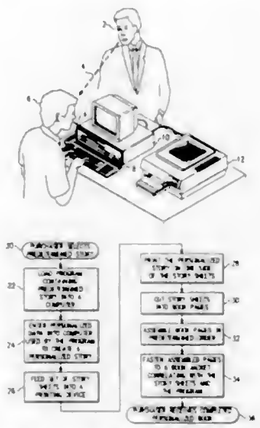
METHOD FOR RAPIDLY GENERATING PERSONALIZED BOOKS WHILE A PURCHASER WAITS

Yaakov Kalisher, c/o Best Personalized Plaza, 4350 Sigma Dr., Dallas, Tex. 75244

Filed May 14, 1992, Ser. No. 882,827

Int. Cl.[5] B42C *19/00*

U.S. Cl. 412—4 **37 Claims**



1. A method of quickly generating a personalized book having pages in a predetermined order comprising the steps of:

loading a program having a predetermined story stored therein into a computer;

entering personalized data into the computer and creating a personalized story using the predetermined story and personalized data;

ordering a set of partially preprinted sheets having a first and second side such that the first side of the top sheet of said set of sheets represents the first and last pages of the personalized book, the second side of the top sheet of said set of sheets represents the second and next-to-last pages of the book and the bottom side of the bottom sheet of said set of sheets represents the centerfold of the book;

feeding into a printing device said set of sheets;

printing said personalized story only on one of said sides of said sheets;

separating said sheets transversely into pages;

assembling said pages in said predetermined order; and

fastening the assembled pages to a book jacket.

5,213,462

APPARATUS FOR BINDING LEAVES WITH HEAT

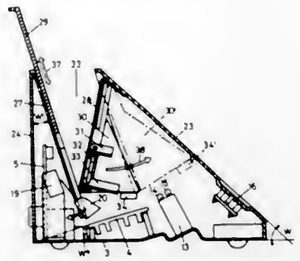
Bernd Loibl, Konigsbrunn, Fed. Rep. of Germany, assignor to Ibico AG, Zurich, Switzerland

Filed Mar. 11, 1992, Ser. No. 849,228

Claims priority, application Switzerland, Mar. 12, 1991, 736/91

Int. Cl.[5] B42B *5/00*

U.S. Cl. 412—33 **20 Claims**



1. An apparatus for binding the edges of leaves with heat, wherein a heat sensitive adhesive is attached to at least one such edge, comprising:

a longitudinal heat-conducting element of a length generally corresponding to the length of the edges to be bound;

a cover defining a longitudinal opening with the longitudinal heat-conducting element disposed within the longitudinal opening for receiving the leaves to be bound;

activating means for activating an electrical circuit when the leaves to be bound are placed within the longitudinal opening on the heat-conducting element;

first thickness indicating means for generating a signal indicating a thickness of the leaves to be bound, the thickness indicating means including an interior wall pivotally mounted proximate to the opening and distal from the heat-conducting element; and

wherein in an inoperative position, the interior wall is pivotally biased in a region over the heat conducting element, so that the longitudinal opening is at least partially closed.

5,213,463

MECHANIZED STORAGE SYSTEM

Michel Rothlisberger, 5B/12 Bligh Street, Randwick, NSW 2031, Australia, and Herbert Goddard, 1 Lang Avenue, Pagewood, NSW, 2035, Australia

PCT No. PCT/AU89/00290, § 371 Date Dec. 12, 1990, § 102(e) Date Dec. 12, 1990, PCT Pub. No. WO90/00507, PCT Pub. Date Jan. 25, 1990

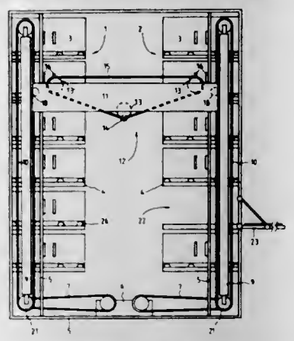
PCT Filed Jul. 6, 1989, Ser. No. 623,938

Claims priority, application Australia, Jul. 6, 1988, 9166

Int. Cl.[5] B65G *1/00*

U.S. Cl. 414—280 **12 Claims**

1. A mechanized storage system including at least a pair of storage racks separated by an aisle, each rack having a plurality of storage compartments, a plurality of movable trays, each compartment capable of storing a movable tray, at least one empty storage compartment in one of the racks, and a transporting system movable along said racks to retrieve and to move a tray between compartments within said racks, wherein said transporting system includes a retrieving unit having movement means to move a selected one of said trays horizontally between a given compartment and said retrieving unit in a single continuous movement, said retrieving unit having tray support means to support and locate said tray thereon, each of said trays having front and rear sides joined by lateral sides and at least a pair of detent means on at least one lateral side of said tray, and wherein said movement means includes a first pair of sprockets having horizontal axes of rotation, each sprocket located substantially at opposite edges of said retrieving unit facing said racks, chain means driven about said sprockets, and means attached to said chain means for engaging one of said detent means, either of said sprockets of said retrieving unit



being positionably alignable with a said detent means whereby movement of said chain means about said sprockets engages said detent engaging means with said detent means to advance said tray horizontally with respect to said retrieving unit.

5,213,464

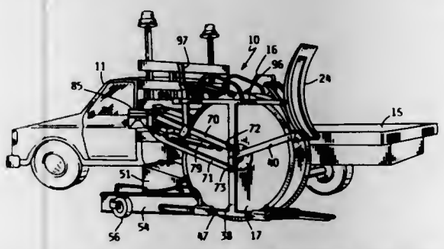
METHOD AND APPARATUS FOR DISPENSING AND RETRIEVING HIGHWAY WARNING MARKERS

John P. Nicholson, Shoreview; Timothy J. Nicholson, Roseville, and Eugene H. Luoma, Duluth, all of Minn., assignors to ADDCO Manufacturing, Inc., St. Paul, Minn.

Continuation-in-part of Ser. No. 468,569, Jan. 23, 1990, Pat. No. 5,054,648. This application Sep. 30, 1991, Ser. No. 769,923

Int. Cl.[5] B65G *59/06*

U.S. Cl. 414—440 **9 Claims**



1. An apparatus for traveling forwardly along a highway to alternately dispense and retrieve highway warning markers having base flanges, comprising

a pair of revolving gripper wheels to roll along highway pavement spaced from each other and defining marker conveying space therebetween, the wheels comprising central portions and edge portions and gripping portions between the central and edge portions for engaging the edges of marker base flanges,

an in-feed chute mounted forwardly of the wheels and comprising a bumper portion spaced above the highway pavement to tip such markers onto their side and to pass over the upright base flanges of the tipped markers, the chute also comprising upright side panels guiding tipped markers on the pavement to orient the base flanges transversely of the gripper wheels,

a pair of stationary spiral stripper bars in the marker conveying space adjacent the wheels and extending upwardly from the central portions of the wheels and forwardly across the gripping and edge portions to engage the base flanges and guide the markers out of the conveying space,

a peripherally extending guide panel rearwardly of the marker conveying space and extending circumferentially upwardly around a portion of the edge portions of the wheels, the guide panel being in obstructing relation to radial removal of the markers from the conveying space, a lower portion of the guide panel being movable out of said obstructing relation,

a stationary marker loading magazine at a forward side of the wheels and traversing the marker conveying space between the edge portions of the wheels,

and a pair of stationary and removable elongate marker stabilizing guides extending between the wheels and along the highway pavement to pass over marker base flanges on the pavement, the stabilizing guide comprising upwardly inclined forward ends to engage and tip down the marker base flanges.

5,213,465

Patent Not Issued For This Number

5,213,466

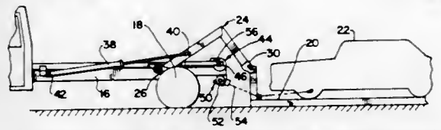
MULTIFUNCTION LOADING AND RECOVERY APPARATUS

Leslie Bubik, Toronto, Canada, assignor to Vulcan International, Inc., Jackson, Miss.

Continuation of Ser. No. 632,118, Dec. 20, 1990, abandoned, which is a continuation of Ser. No. 329,553, Mar. 28, 1989, abandoned. This application Mar. 18, 1992, Ser. No. 853,873

Int. Cl.[5] B60P *1/28*

U.S. Cl. 414—494 **1 Claim**



1. An improved loading and recovery apparatus for loading and unloading a container, said apparatus being operable on the rear of a recovery vehicle having a chassis and front and rear wheels, comprising:

a generally L-shaped gantry arm having a free end and a pivot end, said gantry arm being pivotally connected to said chassis forward of said rear wheels and extending to a free end to create a single pivot L-arm arrangement; said gantry arm being extendible and retractable along a generally longitudinal axis of said chassis through employment of an extension cylinder;

at least one lifting cylinder having two ends, one end pivotally connected to a generally forward portion of the vehicle chassis and the other end pivotally connected to a generally intermediate portion of said gantry arm;

a hook on the free end of the gantry arm for engagement of said container;

a roller assembly located generally toward the rear of said vehicle for guiding and supporting said container during loading and unloading; and

a winch and cable assembly mounted to the rearward portion of the chassis of the recovery vehicle below said roller assembly to create a substantially zero degree loading and unloading winching angle to assist loading and unloading of an object onto and off said container.

5,213,467

SYSTEM FOR TRANSPORTATION OF PAPER ROLLS

George Harms, Winnipeg, Canada, assignor to Muzeen & Blythe Ltd., Winnipeg, Canada

Continuation-in-part of Ser. No. 751,101, Aug. 28, 1991, abandoned. This application Mar. 12, 1992, Ser. No. 850,997

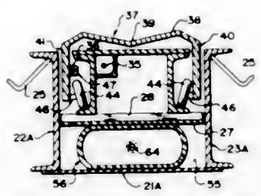
Int. Cl.[5] B65G *7/00*

U.S. Cl. 414—572 **15 Claims**

1. A transport system for a large cylindrical body comprising an elongate channel member mounted in a floor surface, the channel member having parallel upper side edges posi-

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tioned at a height substantially flush with the floor surface, an elongate beam mounted in the channel member and extending at least partly therealong, a carriage having an upper surface shaped for receiving and locating the body thereon for transportation of the body therewith, a plurality of rollers mounted on the carriage and shaped to run along the beam to move the carriage therealong, an elongate flexible drive element positioned in the channel member and coupled to the carriage,



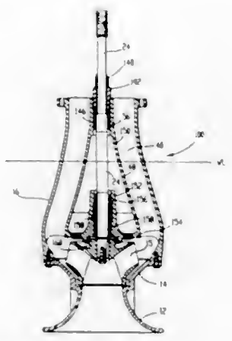
means for driving the drive element longitudinally of the channel member for transporting the carriage therealong, at least a portion of the beam being mounted in the channel member for lifting movement vertically therein from a lowered position in which the carriage is displaced below the upper side edges to a raised position, in which the upper surface of the carriage is located at a height to hold the body above the upper side edges for longitudinal movement of the body with the carriage, and drive means for effecting said lifting movement.

5,213,468

BEARING FLUSHING SYSTEM

James H. Sexton, Lansing, and Virgil J. Beaty, Louisburg, both of Kans., assignors to Fairbanks Morse Pump Corporation, Kansas City, Kans.

Filed Feb. 24, 1992, Ser. No. 840,006
Int. Cl.[5] F01D *11/00*
U.S. Cl. 415—121.3 6 Claims



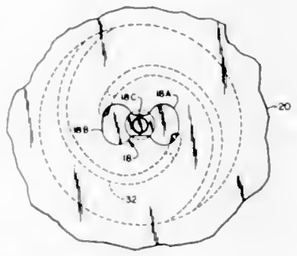
1. A pump comprising:
a housing having structure defining an inlet, an outlet and a passageway therebetween;
a shaft rotatably coupled with said housing and extending through a portion of said housing into said passageway;
an impeller coupled with shaft in said passageway for rotation with said shaft for impelling a pumpable material from said inlet through said passageway to said outlet, the pumpable material including particulates, said pump being subject to migration of the pumpable material including the particulates from said passageway along said shaft into said housing portion; and
an annular member surrounding said shaft and positioned therealong between said housing portion and said passageway, said member having an inner surface and an outer peripheral surface, said housing, member and shaft cooperatively presenting means defining respective clearances between said inner surface and shaft and between said outer surface and housing for allowing transverse shifting of said member relative to said shaft with the size of said clearance being less than the size of the particulates for preventing migration of the particulates into said housing portion.

5,213,469

SEWAGE PUMP WITH IMPROVED INLET CONSTRUCTION

Brian M. Mitsch, Perrysville; Ralph D. Austen, Jeromesville, and Robert S. Jones, Mansfield, all of Ohio, assignors to General Signal Corporation, Stamford, Conn.

Filed Jan. 10, 1992, Ser. No. 819,027
Int. Cl.[5] F01D *25/24*
U.S. Cl. 415—182.1 20 Claims



1. A pump which includes:
a housing;
a shaft disposed within said housing having an axis;
means for mounting said shaft within said housing for rotational movement thereof;
an impeller carried on said shaft, said impeller having a geometric center;
a fluid inlet in said housing disposed with a first portion disposed in eccentric relationship to the geometric center of said impeller, said fluid inlet further including a second portion in said housing disposed in eccentric relationship to the geometric center of said impeller, said fluid inlet including an elongated section connecting said first and second openings.

5,213,470

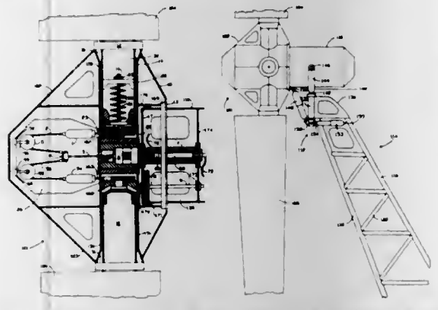
WIND TURBINE

Robert E. Lundquist, 5314 Ridgewood Heights Dr., Wilmington, N.C. 28403, assignor to Robert E. Lundquist and Steven J. Huttquist, both of Research Triangle Park, N.C.

Filed Aug. 16, 1991, Ser. No. 746,766
Int. Cl.[5] F03D *11/04, 1/00*
U.S. Cl. 416—9 15 Claims

1. A wind turbine assembly including a rotor body having mounted thereon a plurality of rotor blades, wherein each of the rotor blades is joined at an inner extremity thereof to a blade stem projection extending interiorly into the rotor body and secured therewithin to the rotor body by torsional- and axial-shock damping connection means, wherein each blade stem projection comprises a hollow cylindrical housing defining a central longitudinal axis therein, with a support member interiorly disposed in the housing at an intermediate position along its axis and fixedly secured to the housing, a shaft fixedly secured at one end thereof to the rotor body and coupled at its other end with the support member in a manner allowing limited axial and rotational movement of the housing relative to the rotor body, and a longitudinally outwardly biasing means between the support member and the rotor body, extending along the axis of the housing and outwardly abuttingly biased against the support member, whereby the biasing means provides torsional and axial shock damping to the rotor blade.

13. A wind turbine assembly including a rotor body having mounted thereon a plurality of rotor blades, a nacelle to which the rotor body is coupled for rotation with respect to the nacelle, and a tower having an upper portion to which the nacelle is secured by coupling means, and a lower portion positionable on a support body, the tower upper portion including a cylindrical member at an upper end of the tower, wherein the coupling means comprise: a swivel mounting member comprising upper legs joined to the nacelle at opposite sides thereof by mechanical fastening means, and a lower stem



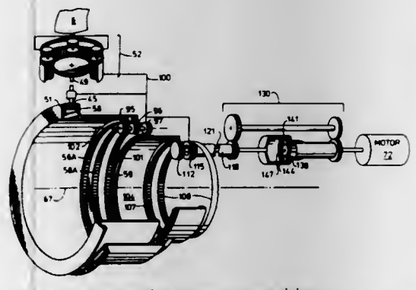
telescopically positioned in the cylindrical member at the upper end of the tower and extending downwardly from the cylindrical member to a bottom stem portion, to permit rotation of the nacelle and rotor body relative to the tower; an oarlock connector joined to the bottom stem portion; a pitch biasing and damping member interconecting the nacelle and the oarlock connector, for pitch damping of the nacelle; and yaw biasing and damping means connecting the oarlock and upper portion of the tower, whereby the pitch damping/biasing member and the yaw biasing and damping means bias the rotor body and nacelle to a selected base position in relation to the tower, and dampen pitch and yaw displacements from said base position.

5,213,471

PROPELLER PITCH CONTROL

Edwin K. Miller; Robert L. Roberts; Petr Hora; David L. Joyce, all of West Chester, and John S. Mears, Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Sep. 4, 1990, Ser. No. 576,884
Int. Cl.[5] B65H *3/00*
U.S. Cl. 416—44 9 Claims



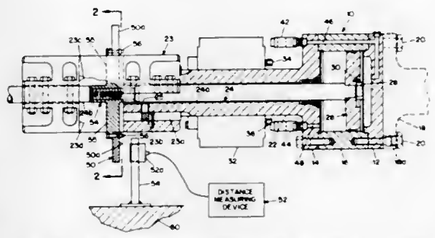
1. An aircraft propeller system, comprising:
a) a sensor for sensing propeller speed and providing a speed signal in response;
b) a reversible motor, which is driven by a power source and linked to propeller blades, which can selectively increase or decrease pitch;
c) means for receiving the speed signal and for ordering the motor to provide pitch coarsening when the speed signal exceeds a limit;
d) means for reversing polarity of the motor when the propeller provides reverse thrust; and
e) flight fine limit means for setting a minimum limit to propeller blade pitch in flight, such that propeller blade pitch cannot fall below the limit, irrespective of pitch demand signals provided by an external source.

5,213,472

INBOARD SERVO FOR MARINE CONTROLLABLE PITCH PROPELLERS

Mark S. Dumais, Cumberland, R.I., assignor to Bird-Johnson Company, Walpole, Mass.

Filed Mar. 23, 1992, Ser. No. 855,902
Int. Cl.[5] B63H *3/08*
U.S. Cl. 416—61 3 Claims



1. In an inboard servo for controlling the pitch of a marine controllable pitch propeller of the type in which the pitch is controlled by a force rod movable axially through a propeller drive shaft, the servo having a hydraulic cylinder adapted to be affixed to the shaft coaxially with and for rotation with the shaft, a piston in the cylinder coupled to the force rod, means for supplying hydraulic fluid under pressure selectively to the cylinder on either side of the piston to move the piston and force rod forward or aftward for propeller pitch control, and a feedback device for detecting the position of the force rod as an indication of the actual pitch of the propeller, the improvement wherein the feedback device includes a feedback ring located externally of the propeller drive shaft, affixed to the force rod for rotation and axial translation therewith and having a planar surface perpendicular to the propeller drive shaft axis, and distance-measuring means for substantially continuously detecting the position of the ring, and therefore the position of the force rod, by directing a high frequency pulsed signal onto the ring surface from a first fixed position spaced apart therefrom, detecting said signal as it is reflected by the ring surface from a second fixed position spaced apart therefrom, and processing said signals to produce a signal indicative of the position of the ring surface based on the time difference between the pulses directed onto the ring surface and the pulses reflected from the ring surface.

5,213,473

RADIAL-FLOW WHEEL FOR A TURBO-ENGINE

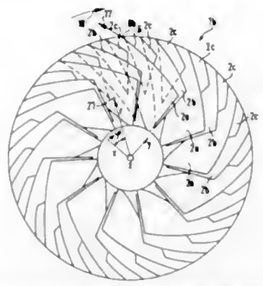
Andreas Fiala, München, Fed. Rep. of Germany, assignor to MTU Motoren-und Turbinen-Union Muenchen GmbH, Fed. Rep. of Germany

Filed Sep. 12, 1991, Ser. No. 758,113
Claims priority, application Fed. Rep. of Germany, Sep. 15, 1990, 4029331
Int. Cl.[5] F04D *29/28*
U.S. Cl. 416—183 12 Claims

1. A radial-flow wheel having a flow channel a flow direction, an inlet and an outlet for a turbo-engine comprising a hub

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having a hub-side outer contour and blades having a housing-side envelope outer contour and blade surfaces, said blades being distributed on the hub-side outer contour, wherein the blades are arranged behind one another in the flow direction and, in each meridian normal section along the flow direction



at an angle of slope (ϵ) with respect to the radial direction with a hub radius (R_N) and a housing radius (R_G), the number (n) of blades in the flow direction is determined by the following equation which exhibits a square-shaped cross-section of the flow channel:

$$n = \frac{2\pi (R_G + R_N)\cos\epsilon}{2 (R_G - R_N)};$$

wherein the meridian section contour of the hub-side outer contour and the housing-side envelope outer contour is a catenarian curve; and

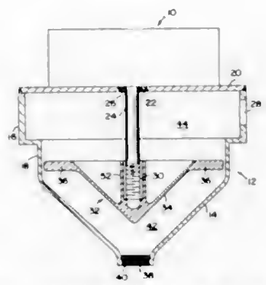
wherein at least sections of the blade surfaces are constructed as screw surfaces such that any radial of the blade surfaces must pass through a centerline of the hub.

5,213,474

PUMP UNIT

William H. Daniel, Rogers, Ark., assignor to LCD, Inc., Rogers, Ark.

Filed Apr. 6, 1992, Ser. No. 866,095
Int. Cl.[5] F04D *29/18*
U.S. Cl. 415—206 4 Claims



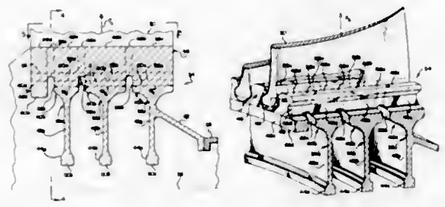
1. A pump, comprising a pump casing having mounted thereon a motor, said motor having an output shaft extending into the casing, said output shaft having secured thereto an impeller contained in said casing, said pump casing having a central inlet communicating with an outer conical-shaped portion of said casing, said central inlet and said outer conical-shaped portion of said casing facing an upstream side of said impeller, said casing further comprising a peripheral outlet disposed on a downstream side of said impeller, said impeller comprising an inner conical-shaped portion coaxial with said outer conical-shaped portion and maintained in spaced relation thereto, said inner and outer conical-shaped portions having bases and defining an annular space at their bases, said impeller comprising a circular series of airfoil elements centered on the axis of said output shaft and at least partially occupying said annular space, each of said airfoil elements having a vacuum-producing surface directed axially of said impeller towards said central inlet.

5,213,475

BURST RESISTANT ROTOR DISK ASSEMBLY

Stephen C. Peterson, West Chester, and James C. Przytulski, Fairfield, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 5, 1991, Ser. No. 802,684
Int. Cl.[5] B63H *1/20*
U.S. Cl. 416—219 R 10 Claims



1. A rotor assembly for supporting a plurality of circumferentially spaced rotor blades extending radially outwardly from an axial centerline axis, each blade having an axial dovetail, comprising:

a plurality of axially spaced apart discrete disks, each disk having a radially outer rim including a plurality of circumferentially spaced apart axial dovetail posts defining therebetween a plurality of axial dovetail grooves, adjacent dovetail grooves of adjacent disks being axially sligned for collectively supporting a respective blade dovetail therein with each disk supporting a share of centrifugal load from said blade; and

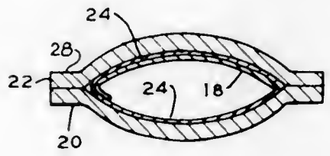
a plurality of circumferentially spaced apart beams extending axially between said adjacent disks and integrally joined to said adjacent disks at imperforate portions thereof.

5,213,476

FAN BLADE

Robert C. Monroe, Houston, Tex., assignor to Hudson Products Corporation, Houston, Tex.

Division of Ser. No. 546,806, Jul. 2, 1990, Pat. No. 5,156,786.
This application May 26, 1992, Ser. No. 873,863
Int. Cl.[5] F04D *29/38*
U.S. Cl. 416—230 6 Claims



1. A molded, hollow fan blade constructed of upper and lower layers of resin-impregnated glass fan fiber cloths and having an internal cavity therein, wherein the improvement comprises:

(a) a solitary, cured, glass fiber preform within the fan blade and defining a portion of the internal cavity therein, said preform configured to engage and solely support the upper layers of the cloths and comprising a unitary, stationary, curved, panel; and,

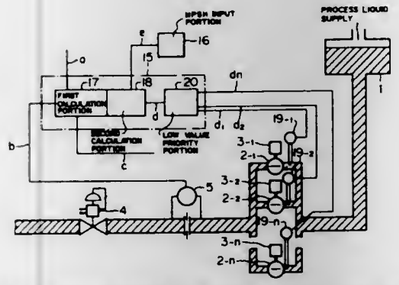
(b) resin binding means for integrally bonding said preform solely to the upper layers of the cloths.

5,213,477

PUMP DELIVERY FLOW RATE CONTROL APPARATUS

Michio Watanabe, Ayase, and Takahiko Ohbayashi, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 11, 1991, Ser. No. 684,171
Claims priority, application Japan, Apr. 13, 1990, 2-97885; Jul. 19, 1990, 2-191283
Int. Cl.[5] F04B *49/06*
U.S. Cl. 417—20 8 Claims



1. A control apparatus for controlling a delivery flow rate of a pump pressure-feeding processing liquid within a process pipe system comprising:

detecting means for detecting available N.P.S.H. of a pump on the basis of a pressure and a temperature of the process liquid within a suction portion of the pump;

calculating means for calculating an allowable maximum flow rate of the pump so as to maintain the relationship

available N.P.S.H. > required N.P.S.H.; and

outputting means for outputting a control signal to control delivery flow rate of the pump on the basis of the smaller of the allowable maximum flow rate and a required flow rate of the pump; wherein

the detecting means for detecting the available N.P.S.H. of the pump comprises a high-pressure chamber that transmits the pressure of a process liquid, a low pressure chamber that is held at a saturation vapor pressure corresponding to the temperature of the process liquid, and a sensor diaphragm which partitions the high-pressure chamber and the low-pressure chamber, the high-pressure chamber and the low-pressure chamber being separated from the process liquid by respective sealing diaphragms.

5,213,478

SLURRY PUMPING METHOD AND APPARATUS

Takeshi Hoya, 851-1, Oaza Noda, Irumi-shi, Japan

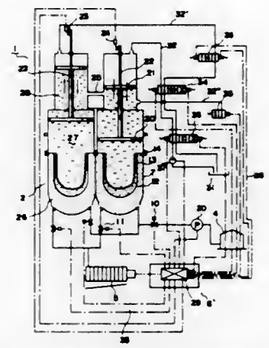
Continuation-in-part of Ser. No. 630,736, Dec. 20, 1990, abandoned, which is a continuation of Ser. No. 408,348, Sep. 18, 1989, abandoned. This application Dec. 23, 1991, Ser. No. 811,930
Int. Cl.[5] F04B *15/02*
U.S. Cl. 417—53 4 Claims

1. A method of continuously delivering slurry from a slurry tank to a filter press comprising: providing slurry pumping apparatus comprising a pair of resilient protruding diaphragm 12 pumping devices having two hydraulic cylinders which are capable of being alternately and repetitively activated by a controller to deliver slurry from said tank into said press and in which said hydraulic cylinders of the pumping devices are in communication with each other through a hydraulic passage in which an open-close valve connected electrically to said controller is installed,

starting one of the hydraulic cylinders of one pumping device by opening said valve;

starting another of said hydraulic cylinders at a down stroke end of said one hydraulic cylinder controlling said open-close valve; and

alternating the operation of the hydraulic cylinders continuously to deliver slurry to said filter press; said two hydraulic cylinders each comprising: a main cylinder and a large



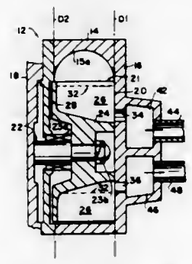
diameter piston 20 and a sub-cylinder and a small diameter piston 21, wherein pistons 20 and 21 are interconnected by a single rod 22 so that interconnected pistons 20 and 21 can perform a reciprocating motion as one piece, and wherein area differences between small diameter pistons 21 and large diameter pistons 20 of said sub-cylinders and said main cylinders provide a large delivery force to said resilient protruding diaphragms 12 to ensure continuous delivery of slurry to the said filter press; and wherein said large diameter piston 20 is substantially larger in area than the diameter of resilient protruding diaphragm 12.

5,213,479

LIQUID RING PUMPS WITH IMPROVED HOUSING SHAPES

Thomas R. Dardis, Stamford; Douglas E. Bissell, Bridgeport, and Richard F. Gordon, Green Farms, all of Conn., assignors to The Nash Engineering Company, Norwalk, Conn.

Filed Apr. 9, 1992, Ser. No. 865,448
Int. Cl.[5] F04C *19/00*
U.S. Cl. 417—68 11 Claims



1. In a liquid ring pump having a rotor rotatably mounted about a rotor axis in an annular housing for forming a quantity of liquid in the housing into a recirculating annular ring inside the annular inner surface of the housing such that the liquid ring moves radially outward from the rotor axis adjacent a gas intake zone of the pump and moves radially inward again

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adjcent a gas compression zone of the pump, said rotor having a plurality of circumferentially spaced, axially extending blades, the opposite axial ends of the radially outer edges of said blades lying in axially spaced first and second planes which are substantially perpendicular to said rotor axis, the improvement comprising:

said annular inner surface of said housing being formed so that the intersection between said annular inner surface and substantially any plane in which said rotor axis lies is an arc that is concave as viewed from said rotor axis outward, and which extends axially substantially the entire distance between but not substantially beyond said first and second planes, said annualr inner surface being substantially free of discontinuities in the circumferential direction all the way around said pump, the radially outer edge of each blade extending substantially the entire distance between axially spaced locations on said annular inner surface.

5,213,480

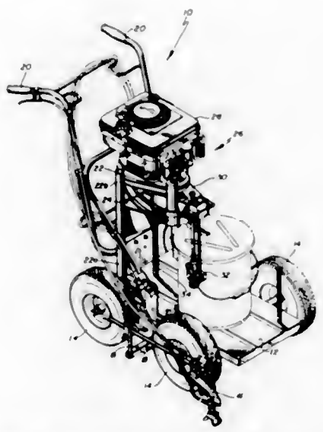
PUMP LIFT MECHANISM

John A. Yedinak, Downers Grove, Ill.; Mark B. Snyder, and Arthur W. Paape, both of St. Paul, Minn., assignors to Graco, Inc., Minneapolis, Minn.

Filed Jun. 8, 1992, Ser. No. 894,263

Int. Cl.[5] F04B *21/00, 17/06, 35/06*

U.S. Cl. 417—234 **10 Claims**



1. A pump lift mechanism for pumping fluid out of a bulk container, said pump lift mechanism comprising:

a main frame having a surface thereon for receiving said bulk container;

at least one telescoping tube means having a fixed portion attached to said main frame and a portion moveable relative to said fixed portion;

a pump frame attached to said moveable portion;

pump means attached to said pump frame; and

means biasing said pump frame away from said main frame.

5,213,481

FUEL PUMPING APPARATUS

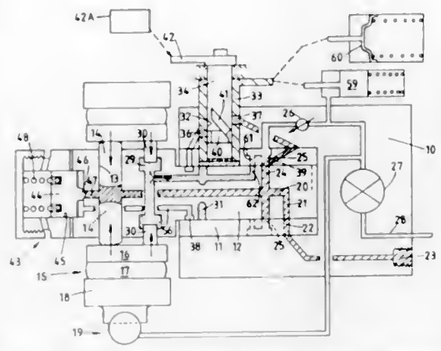
Christopher Stringfellow; Peter A. G. Collingborn, both of Kent, and Derek W. Tomsett, Rye, all of England, assignors to Lucas Industries public limited company, West Midlans, England

Filed Feb. 7, 1992, Ser. No. 832,817

Claims priority, application United Kingdom, Feb. 16, 1991, 9103318; Jun. 28, 1991, 9114050; Aug. 24, 1991, 9118318

Int. Cl.[5] F04B *19/02*

U.S. Cl. 417—252 **12 Claims**



1. A fuel pumping apparatus for supplying fuel to an internal combustion engine comprising a rotary distributor member housed in a body and driven in use in timed relationship with the associated engine, a bore in the distributor member and a pumping plunger therein, a cam mounted in the body and defining a plurality of cam lobes which impart inward movement to the pumping plunger in turn as the distributor member rotates, a passage connected with the bore and which registers with outlet ports in turn, means including a low pressure fuel pump for feeding fuel to the bore to effect full outward movement of the pumping plunger in the intervals between the inward movements thereof, a fluid pressure operable normally closed valve which when open allows fuel to escape from the bore during inward movement of the pumping plunger to terminate delivery of fuel through an outlet, a further plunger mounted in a further bore and operable in synchronism with the pumping plunger, a shuttle slidable in a cylinder, passage means connecting said further bore to one end of the cylinder, means biasing the shuttle to said one end of the cylinder, the shuttle being moved away from said one end of the cylinder by fuel displaced by said further plunger, said shuttle after a predetermined movement away from said one end of the cylinder causing the application of fluid under pressure to said valve to open the valve, the shuttle being movable angularly to vary the extent of said predetermined movement, an actuating mechanism for determining the angular setting of the shuttle, the means biasing the shuttle comprising a shuttle return piston slidable in a further cylinder the piston engaging the end of the shuttle remote from said one end of the shuttle cylinder, the diameter of the shuttle return piston being slightly greater than that of the shuttle, an accumulator chamber connected to the end of the further cylinder remote from the shuttle, a restrictor for restricting the rate at which fluid can pass between the further cylinder and the accumulator chamber and said accumulator chamber being in part defined by a spring loaded piston having an area which is greater than the area of the shuttle return piston.

5,213,482

HYDRAULIC RADIAL-TYPE PISTON PUMP

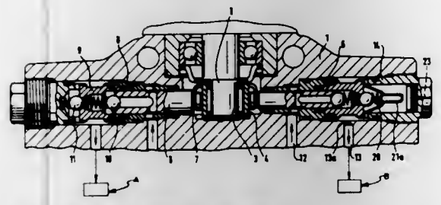
Hans D. Reinartz, Frankfurt am Main; Peter Volz, Darmstadt; Bernd Schopper, Kriftel, and Dalibor Zaviska, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 29, 1991, Ser. No. 751,913

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1990, 4027794

Int. Cl.[5] F04B *1/04*

U.S. Cl. 417—273 **25 Claims**



1. A radial piston pump comprising:

a pump housing;

at least one elongated piston received within said housing;

drive means for reciprocating said piston;

an elongated valve body mounted in said housing having a bore extending within said one end,

said piston projecting into said valve body bore and being slidably received therein and having an end terminating in said valve body bore;

a pressure chamber defined by said valve body bore and said piston end;

an inlet passage formed in said piston and extending along into said pressure chamber;

an inlet port in said housing and means placing said inlet port in communication with said inlet passage;

suction valve means controlling communication of said inlet passage and said inlet passage to allow inflow of fluid as only as said piston is retracted;

an outlet port in said housing;

outlet passage means in said valve body extending out of said pressure chamber and means placing said outlet passage in communication with said outlet port;

discharge valve means establishing communication between said outlet passage means and said pressure chamber only as said piston is advanced;

a sealing plug mounted in said housing and having an end position engaging said other end of said valve body;

said sealing plug formed with a cavity receiving flow from outlet passage;

an outlet chamber surrounding said other end of said valve body extending away from said sealing plug, said discharge port entering said outlet chamber at a point away from said sealing plug; and,

a flow passage through said end portion of said sealing plug extending into said outlet chamber whereby discharge flow passes towards said sealing plug into said cavity and reversely into said outlet chamber to said discharge port.

5,213,483

PERISTALTIC INFUSION PUMP WITH REMOVABLE CASSETTE AND MECHANICALLY KEYED TUBE SET

J. Christopher Flaherty, Bedford; Francis P. Harrington, Beverly; William J. Gorman, Essex, and Paul V. Fenton, Jr., Marblehead, all of Mass., assignors to Strato Medical Corporation, Beverly, Mass.

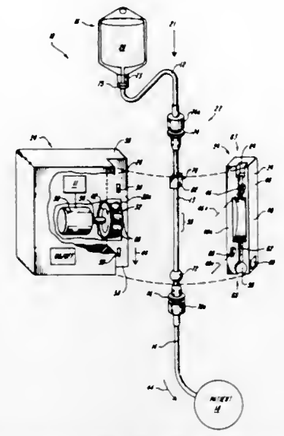
Filed Jun. 19, 1991, Ser. No. 717,620

Int. Cl.[5] F04B *43/12*

U.S. Cl. 417—477 **20 Claims**

1. A plurality of tube sets, each tube set being for insertion into a respective one of a corresponding plurality of removable cassettes of a peristaltic pump system, said cassettes each having mechanical keying to indicate a unique demand rate of fluid flow, each tube set comprising:

a flexible tubular element, and



key means attached to said tubular element for mechanically coupling said tube set to its corresponding cassette, said tube set being adapted for cooperatively interfitting with said mechanical keying only of a cassette having its corresponding unique demand rate of fluid flow.

5,213,484

DIAPHRAGM PUMP UNIT

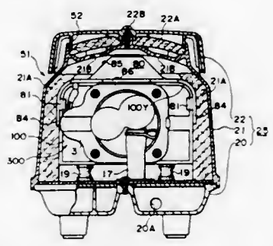
Atsuki Hasbimoto, and Kenji Mizuno, both of Tokyo, Japan, assignors to Nitto Kohki Co., Ltd., Tokyo, Japan

Filed May 13, 1992, Ser. No. 882,310

Claims priority, application Japan, Jun. 7, 1991, 3-51126[U]

Int. Cl.[5] F04B *39/12*

U.S. Cl. 417—312 **7 Claims**



1. In a diaphragm pump unit comprising of a pump body which comprises a housing with an opening upper portion thereof and a pump received and fixed in said housing, a diaphragm pump unit comprising;

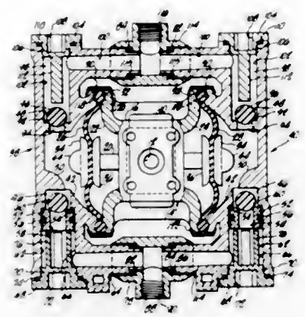
a fluid inlet port formed in the bottom wall of said housing, and

an elastic cover provided as a cap to cover the opening in the upper portion of said housing. wherein

said elastic cover is attracted and fixed to said housing be a negative pressure being generated when a fluid is inspired into the housing of the pump body through the fluid inlet port in response to driving of the pump.

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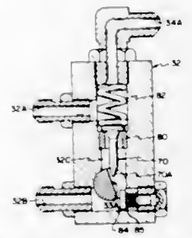
5,213,485
AIR DRIVEN DOUBLE DIAPHRAGM PUMP
James K. Wilden, 11727 Pendleton, Yucaipa, Calif. 92399
Division of Ser. No. 321,889, Mar. 10, 1989, Pat. No. 5,169,296.
This application Nov. 19, 1991, Ser. No. 790,336
Int. Cl.[5] F04B *39/10*
U.S. Cl. 417—393 **8 Claims**



1. A double diaphragm pump comprising
an air chamber housing having a center section and two outwardly facing concave discs rigidly positioned to either side of said center section;
two water chamber housings fixed to said air chamber housing and mating with and about the periphery of said two outwardly facing concave discs, respectively, each said water chamber housing including a water chamber shell defining a water chamber, and first and second check valve chambers;
an inlet passage extending to and in communication with said first check valve chambers, said first check valve chambers being between said inlet passage and said water chambers, respectively, said inlet passage including inlet portions which extend from said water chamber housings, respectively, and are mutually convergent, each inlet portion having an end distant from the respective said water chamber housing, said ends of said inlet portions being mutually spaced apart;
an outlet passage extending to and in communication with said second check valve chambers, said second check valve chambers being between said outlet passage and said water chambers, respectively, said outlet passage including outlet portions which extend from said water chamber housings, respectively, and are mutually convergent, each outlet portion having an end distant from the respective said water chamber housing, said ends of said outlet portions being mutually spaced apart, each said inlet portion and each said outlet portion being of one piece construction with a said water chamber housing, respectively;
an inlet coupling extending to said ends of said inlet portions and being axially slidably mounted thereon and sealed therewith;
an outlet coupling extending to said ends of said outlet portions and being axially slidably mounted thereon and sealed therewith.

5,213,486
HYDRAULIC POWER SYSTEM
John M. Beattie, and Jimmie D. Sinden, both of Greeley, Colo., assignors to Trli, Inc., Greeley, Colo.
Filed Dec. 4, 1991, Ser. No. 802,256
Int. Cl.[5] F04B *23/00*
U.S. Cl. 417—440 **8 Claims**

1. Hydraulic power system for supplying pressurized hydraulic fluid from a reservoir to a supply line, said system comprising:
(a) a power supply;
(b) a hydraulic pump powered by said power supply; and
(c) a pressure release valve assembly in said supply line, wherein said release valve assembly comprises
(1) a housing including an inlet port and first and second outlet ports; wherein said housing further includes first and second passageways; wherein said first passageway extends between said inlet port and said first outlet port for enabling pressurized fluid to flow through said housing; and wherein said second passageway extends between said first passageway and said second outlet port and includes a valve seat;
(2) a valve member positioned to normally close said second passageway; wherein said valve member includes a head portion and an elongated stem portion secured to said head portion; wherein said stem portion extends downwardly from said head portion into said second passageway; and wherein said head portion is adapted to close said second passageway;

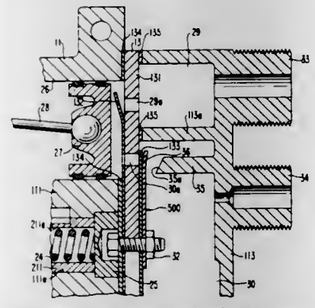


(3) bias means for biasing said head portion against said valve seat;
(4) control means for tilting said valve member relative to said second passageway to release pressure in said supply line by allowing said fluid to flow from said first passageway to said second outlet port through said second passageway; wherein said control means is adapted to urge said stem portion laterally with respect to the longitudinal axis of said second passageway; wherein said control means comprises a shaft which includes a ledge portion which engages said stem portion of said valve member when said shaft is rotated to cause said head portion to be tilted away from said valve seat to enable said fluid to flow through said second passageway at a first flow rate; wherein further rotation of said shaft causes said head portion of said valve member to be lifted away from said valve seat to enable said fluid to flow through said second passageway at a second flow rate which is greater than said first flow rate.

5,213,487
RING VALVE TYPE AIR COMPRESSOR WITH DEFORMABLE RING VALVES
Nathan Ritchie, Columbus, Ind., assignor to Holset Engineering Company, Inc., Columbus, Ind.
Filed Jun. 26, 1991, Ser. No. 721,935
Int. Cl.[5] F04B *21/02*
U.S. Cl. 417—564 **16 Claims**

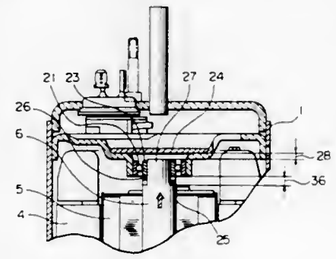
1. A ring valve assembly for use in a reciprocating type fluid pump with a piston cylinder and a cylinder head, said valve assembly including:
a) a ring valve having a fluid seal surface for selectively cloning a fluid passage of a cylinder head; and
b) bias means for said ring valve for urging said ring valve in a first direction, wherein said bias means includes the outer peripheral edge region of said ring valve being secured between opposing upper and lower annular surfaces formed by said cylinder head and said piston cylinder with a predetermined small clearance, said upper annular surface including an outer edge and said lower annular surface including an inner edge which defines a fulcrum radially inward of said outer edge;
whereby said ring valve undergoes first and second stages of deflection during operation, said ring valve being vertically displaced a distance equal to said predetermined small clearance against only one of said upper or lower annular surfaces in said first stage of deflection and said ring valve pivoting about said inner edge and deforming into the shape of a cone about said fulcrum in said second stage of deflection.

5,213,488
VALVED DISCHARGE MECHANISM OF A REFRIGERANT COMPRESSOR
Hareo Takahashi, Takasaki, Japan, assignor to Sanden Corporation, Isesaki, Japan
Filed Jan. 9, 1991, Ser. No. 639,189
Claims priority, application Japan, Jan. 9, 1990, 2-955
Int. Cl.[5] F04B *21/02*
U.S. Cl. 417—569 **8 Claims**



1. In a refrigerant compressor including a compressor housing defining at least one chamber in which successive strokes of sucking, compressing, and discharging a refrigerant gas is repeatedly performed, means for linking said at least one chamber to an outside chamber, and means for regulating a flow of said refrigerant gas from said chamber to the outside chamber, said linking means including a conduit communicating said at least one chamber with the outside chamber, said regulating means including a plate member made of elastic material which is provided at one end opening of said conduit which opens to the outside chamber, and means for limiting the bending movement of said plate member in the direction in which said refrigerant gas leaves from said one end opening of said conduit, said plate member bending to block and open said one end opening of said conduit, said plate member having a predetermined value of elastic modulus which allows said plate member to keep blocking said one end opening of said conduit until a pressure in said at least one chamber reaches a predetermined value, the improvement comprising:
said regulating means including means for increasing the value of the elastic modulus of said plate member after said plate member bends a predetermined amount, said predetermined amount of bending being a small fraction of the total amount of bending required for said plate member to achieve a fully open position.

5,213,489
SCROLL COMPRESSOR WITH AXIAL VIBRATION PREVENTION FOR A SHAFT BEARING
Sadao Kawahara, Otsushi; Michio Yamamura, Kusatsushi; Jiro Yuda, Ikomashi; Yoshinori Kojima, Kusatsushi; Shuichi Yamamoto, Otsushi; Manabu Sakai, Toyonakashi; Shigeru Muramatsu, and Osamu Aiba, both of Kusatsushi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
PCT No. PCT/JP90/01424, § 371 Date Sep. 3, 1991, § 102(e) Date Sep. 3, 1991, PCT Pub. No. WO91/06776, PCT Pub. Date May 16, 1991
PCT Filed Nov. 2, 1990, Ser. No. 688,556
Claims priority, application Japan, Nov. 2, 1989, 1-287022
Int. Cl.[5] F04C *18/04, 29/00;* **F16C** *27/06;* **H02K** *5/24*
U.S. Cl. 418—55.1 **2 Claims**



1. A scroll compressor comprising:
a closed container;
an electric motor disposed in an upper portion of an interior region of said container and comprising a rotor and a stator;
a crank shaft supporting said rotor and comprising a first end defining a main shaft, a second end, a main bearing supporting said main shaft and a rolling type upper bearing supporting said second end and comprising an inner race and an outer race;
an eccentric bearing eccentrically disposed inside said main shaft; and
a compression mechanism disposed in a lower portion of the interior region of said container and driven by said electric motor through said crank shaft,
said compression mechanism comprising:
a stationary swirl vane member including a stationary frame body formed with stationary swirl vanes thereon,
a revolving swirl blade member including a revolving end plate having a first side formed with revolving swirl blades thereon and a second side opposite to said first side, said revolving swirl blades meshing with said stationary swirl vanes for defining a plurality of compression work rooms,
a rotation preventing member for preventing rotation of the revolving swirl blade member on its own axis but still allowing a revolving motion of said revolving swirl blade member,
a revolving motion drive shaft for revolving said revolving swirl blade member, said revolving motion drive shaft being formed on said second side and fitted in said eccentric bearing, and
a rise preventing plate, provided above said upper bearing, for preventing the crank shaft from excessively rising upwards,

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said crank shaft further comprising a stepped portion wherein a diameter of a shaft portion at which said rotor is supported is stepwise greater than a diameter of said second end that is supported in said upper bearing, and an elastic member provided between said stepped portion and the inner race of said upper bearing, wherein a narrow clearance is provided between said rise preventing plate and said second end portion of said crank shaft.

5,213,490

SCROLL-TYPE COMPRESSOR WITH DISCHARGE OPENING ABOVE THE LUBRICANT RESERVOIR

Shuichi Yamamoto, Otsu; Osamu Aiba, and Michio Yamamura, both of Kusatsu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

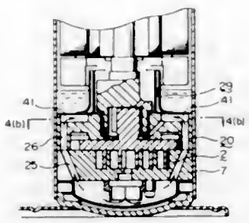
PCT No. PCT/JP90/01416, § 371 Date Sep. 3, 1991, § 102(e) Date Sep. 3, 1991, PCT Pub. No. WO91/06768, PCT Pub. Date May 16, 1991

PCT Filed Nov. 2, 1990, Ser. No. 688,598

Claims priority, application Japan, Nov. 2, 1989, 1-287014

Int. Cl.[5] F04C *18/04, 29/02*

U.S. Cl. 418—55.6 **5 Claims**



1. A scroll-type compressor, comprising: a hermetic container having an interior region; an electric motor having a stator and a rotor which are disposed in an upper part of said hermetic container; and a compression mechanism disposed in said hermetic container and below said electric motor, said compression mechanism being driven by said electric motor and comprising: a stationary scroll member having a stationary scroll frame and a stationary scroll wrap intregrally formed with said stationary scroll frame; an orbiting scroll member having an orbiting scroll end-plate, an orbiting scroll wrap formed on said orbiting scroll end-plate and an orbiting driving means provided on the orbiting scroll end-plate on the side opposite the orbiting scroll wrap, whereby said orbiting scroll wrap meshes with said stationary scroll wrap so as to define therebetween a plurality of compression working chambers; a mechanism for preventing said orbiting scroll member from rotating about its own axis; a crankshaft provided with a main shaft portion which is operatively connected to said orbiting driving means and an auxiliary shaft portion which extends from said main shaft portion and is connected to the rotor of said electric motor, for driving said orbiting scroll member in an eccentric orbiting motion; and a bearing for supporting only the main shaft portion of said crankshaft, said main shaft portion extending no longer than the length of the orbiting driving means; said compressor further comprising: a lubricant oil reservoir provided between said compression mechanism and said electric motor; a discharge muffler provided on said stationary scroll frame and defining a first discharge space; first and second communication passages formed respectively in said stationary scroll frame and said bearing so as to provide communication between said first discharge space and the interior region of said hermetic container; and a guide member disposed around said crankshaft and provided with an opening at a level higher than the lower end of the stator of said electric motor, through which guide member said second communication passage opens into the interior region of said hermetic container at a level above a lubricating oil level in said lubricant reservoir.

5,213,491

TANDEM PUMP HAVING A DIFFERENT SIZED VANE FOR EACH PUMP

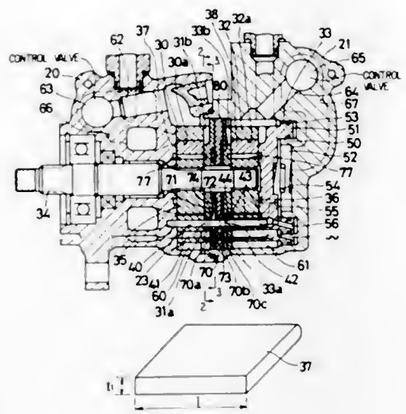
Hidetoshi Fujiwara, Aichi, and Mitsunori Naruse, Okazaki, both of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Feb. 18, 1992, Ser. No. 837,115

Claims priority, application Japan, Feb. 19, 1991, 3-024585

Int. Cl.[5] F04C *2/344, 11/00*

U.S. Cl. 418—82 **4 Claims**





1. A tandem pump comprising:

a pump housing;

a first cam ring, an intermediate side plate, and a second cam ring disposed side by side in order and fitted in the pump housing, the first cam ring having a cam surface on the inside, the second cam ring having a cam surface on the inside, the intermediate side plate being split into plural portions;

a first rotor fitted in the first cam ring and rotatable to pump oil;

a plurality of first vanes which are held by the first rotor so as to be capable of sliding radially, one end of each first vane making a sliding contact with the cam surface of the first cam ring;

a second rotor fitted in the second cam ring;

a plurality of second vanes which are held by the second rotor so as to be capable of sliding radially, one end of each second vane making a sliding contact with the cam surface of the second cam ring; and

pressure chambers formed between adjacent portions of the intermediate side plate; wherein

an inner end surface of each first vane which receives pressure is made smaller in area than an inner end surface of each second vane which receives pressure so that a pumping action in the first cam ring always occurs later than a pumping action in the second cam ring when rotations of the first rotor and the second rotor are started, and wherein said tandem pump is provided with a passage to lead oil pumped by rotation of said first rotor to said pressure chambers.

5,213,492

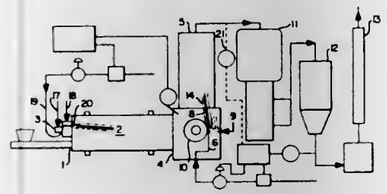
COMBUSTION METHOD FOR SIMULTANEOUS CONTROL OF NITROGEN OXIDES AND PRODUCTS OF INCOMPLETE COMBUSTION

Min-Da Ho, Somers, N.Y., assignor to Praxair Technology, Inc., Danbury, Conn.

Continuation of Ser. No. 653,370, Feb. 11, 1991, abandoned. This application Feb. 6, 1992, Ser. No. 830,774

Int. Cl.[5] F23M *3/04*

U.S. Cl. 431—10 **11 Claims**



1. A method for combusting material with controlled generation of both nitrogen oxides and products of incomplete combustion comprising:

(A) combusting material in a first combustion zone to produce gaseous exhaust containing products of incomplete combustion and products of complete combustion;

(B) passing the gaseous exhaust from the first combustion zone into a second combustion zone having a width and an axial direction;

(C) injecting through a lance with an orientation substantially parallel to said axial direction at least one stream of oxidant, without fuel, having a diameter less than 1/100 of the width of the second combustion zone and having an oxygen concentration of at least 30 percent into the second combustion zone at a high velocity of at least 300 feet per second;

(D) aspirating products of incomplete combustion into the high velocity oxidant;

(E) combusting products of incomplete combustion aspirated into the high velocity oxidant with high velocity oxidant within the second combustion zone to carry out a stable combustion by the mixing of the aspirated products of incomplete combustion with the high velocity oxidant; and

(F) spreading out the combustion reaction by aspiration of products of complete combustion into the oxidant, said products of complete combustion also serving as a heat sink, to inhibit NO_x formation.

5,213,493

SAFETY MECHANISM FOR A LIGHTER

Masayuki Iwahori, 15-19, Nakada Honmachi Shizuoka-shi, Shizuoka-ken, Japan

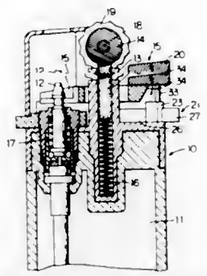
Filed May 8, 1992, Ser. No. 879,993

Claims priority, application Japan, Oct. 17, 1991, 3-298465

Int. Cl.[5] F23D *11/36*

U.S. Cl. 431—153 **1 Claim**

1. A safety mechanism for a lighter comprising a safety member of a synthetic resin disposed under the rear portion of a gas lever, said safety member comprising a frame and a lock portion, said lock portion being connected to said frame through hinge portions provided at two ends of said lock portion, said lock portion being bendable forward and backward at a hinge portion provided intermediately in said lock portion, said lock portion having an operation projection protruding backward therefrom, said frame being always pushed inward at positions near said hinge portions at two ends of said lock portion, said gas lever having a projection protruding downward therefrom at such a position that said projection of said gas lever is over said lock portion when said lock portion is in a backward bent position, said gas lever being provided at its lower portion with an inclined plane, said inclined plane being in such a position that said inclined plane pushes said



lock portion backward from a forward bent position when the rear portion of said gas lever is pushed downward.

5,213,494

PORTABLE BURNER FOR FUEL GAS WITH TWO MIXER TUBES

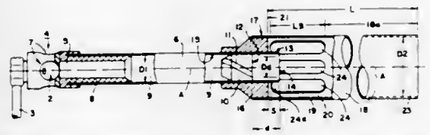
Palle L. Jeppesen, Sonderho, Denmark, assignor to Rothenberger Werkzeuge-Maschinen GMBH, Kelkheim/Ts, Fed. Rep. of Germany

Filed Dec. 23, 1991, Ser. No. 812,153

Claims priority, application Fed. Rep. of Germany, Jan. 11, 1991, 4100657

Int. Cl.[5] F23D *11/36*

U.S. Cl. 431—343 **17 Claims**



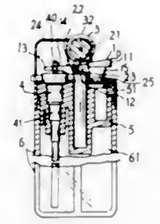
1. Portable burner (1) comprising: a first injector nozzle (2) for fuel gas, which is disposed adjacent a first primary air aspiration point (4) at an entry end (5) of a first mixer tube (6), a spin producer (10), which is disposed in the first mixer tube at a distance in front of an outlet end (13) thereof forming a second nozzle with a nozzle axis, and a second mixture tube (18) whose internal cross section (F2) is greater than an internal cross section (F1) of the first mixer tube and is disposed concentrically with the outlet end of the first mixer tube directly producing a burner flame, has an entry end (19) for the burner flame and second aspiration points (20) for secondary air in the area of the outlet end (13) of the first mixer tube (6), and extends in the direction of flow all the way to an outlet end (23) of the second mixer tube, characterized in that

a) between the outlet end (13) of the first mixer tube (6) and the inlet end (19) of the second mixer tube (18) a filler body (16) at least substantially filling the radial distance between the two tube ends is disposed with an end face (21) which extends substantially radially from the nozzle axis (A—A) and from which the outlet end (13) of the first mixer tube (6) forming the second nozzle protrudes by a given amount s, and that

b) the second aspiration points (20) for the secondary air are disposed exclusively in the area of the outlet end (13) of the first mixer tube (6) and are aimed radially at the nozzle axis (A—A) such that the secondary air impinges substantially vertically onto the initial length of the burner flame running in the direction of the nozzle axis, and that the second mixer tube (18) has between the second aspiration points (20) and its outlet end (23) a closed circumferential portion (18a) whose length has at least three times the axial length of the second aspiration points (20).

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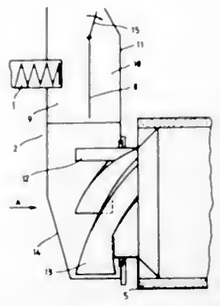
5,213,495
SAFETY LIGHTER
Hsin-Chung Pan, c/o Hung Hsing Patent Service Center, P.O. Box 55-1670, Taipei (10477), Taiwan
Filed Feb. 4, 1992, Ser. No. 830,637
Int. Cl.[5] F23Q *1/02*
U.S. Cl. 431—344 2 Claims



1. A safety lighter comprising:
a gas container filled with liquid petroleum gas in the container having a cover sealed on an upper portion of said container and a top frame secured above said cover of said gas container; and a lever pivotally and slidably mounted on said top frame for operatively opening a gas valve means formed in a front portion of said lighter upon a depression of said lever; said top frame including a pair of pivot hole sets, said lever including:
a guiding stem protruding downwardly from a depression plate portion formed on a rear portion of said lever, said guiding stem having a limiting edge portion formed on a bottom portion of said guiding stem to be operatively retarded by a stopper extension portion formed on an edge portion of a socket recessed in a rear upper portion of said cover on said gas container, said lever having a pair of pivots each said pivot alternatively slidably engageable with a front pivot hole or a rear pivot hole formed in each pivot hole set formed in said top frame, whereby upon a sliding movement of said lever to slidably engage each said pivot on said lever with one said pivot hole on said frame, said guiding stem of said lever is moved to be operatively retarded against said edge portion of said socket by said stopper extension portion formed in said socket of said cover for preventing the depression of the lever for locking the lighter gas valve means.

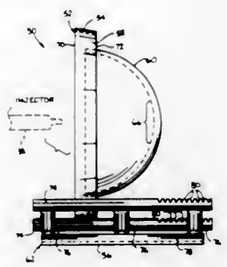
5,213,496
FEEDING SYSTEM FOR A LIME REBURNING KILN
Arto J. Ahvenainen, Varkaus, Finland, assignor to A. Ahlstrom Corporation, Noormarkku, Finland
Continuation of Ser. No. 656,070, Feb. 27, 1991, abandoned.
This application Sep. 25, 1992, Ser. No. 951,326
Claims priority, application Finland, Jul. 3, 1989, 893224
Int. Cl.[5] F27B *7/02*
U.S. Cl. 432—103 9 Claims

7. An apparatus comprising:
a rotary kiln having an inlet, and first feeding means for feeding lime mud into said inlet,
a feed chamber having an upper section and a lower section, said upper section divided by a partition wall into two adjacent flow channels, said flow channels being substantially vertical;
said lower section of said feed chamber encasing at least a part of said first feeding means;
a cyclone;
said feed chamber connected to a substantially vertical part of a drying pipe, said drying pipe leading to said cyclone;
a control baffle disposed at an upper part of said partition wall;
a feed screw for dosing lime mud into said feed chamber from one of said adjacent flow channels; and



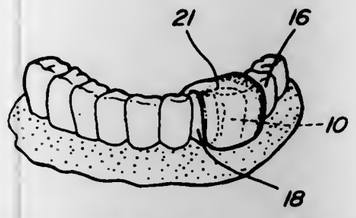
means for introducing dried lime mud separated by said cyclone into said lower section of said feed chamber.

5,213,497
SEMICONDUCTOR PROCESSING GAS DIFFUSER PLATE
Navjot Chhabra, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.
Division of Ser. No. 513,554, Apr. 24, 1990, Pat. No. 5,135,391.
This application Mar. 17, 1992, Ser. No. 852,327
The portion of the term of this patent subsequent to Jun. 18, 2008, has been disclaimed.
Int. Cl.[5] F24J *3/00*
U.S. Cl. 432—226 27 Claims



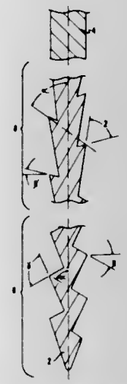
21. A baffle apparatus for insertion into a semiconductor wafer processing furnace to diffuse processing gases that are injected into the furnace by an injector nozzle, the baffle apparatus comprising:
a diffuser plate which is at least partially concave and is perforated, the diffuser plate having a perforated area and a nonperforated area, the nonperforated area being positioned to longitudinally align with a furnace nozzle when the diffuser plate assembly is received by an elongated wafer paddle within said semiconductor wafer processing furnace, the perforated area being spaced about the nonperforated area.

5,213,498
METHOD FOR MAKING A CUSTOM IMPRESSION TRAY
Joseph Pelerin, Auburn Hills, Mich., assignor to Advantage Dental Products, Inc., Auburn Hills, Mich.
Continuation of Ser. No. 517,582, May 1, 1990. This application Apr. 2, 1992, Ser. No. 863,145
Int. Cl.[5] A61C *9/00*
U.S. Cl. 433—37 2 Claims



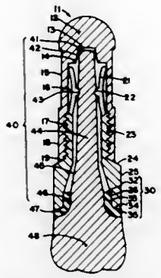
1. A method for making a custom impression tray for dental applications, comprising the steps of:
(1) heating an original unidentified mass of thermosetting material to a predetermined temperature range at which the thermosetting material becomes pliable, said thermosetting material is polycaprolactone;
(2) molding said mass of material while pliable in the area of the mouth or model of a mouth for which a custom impression tray is desired; and
(3) allowing the thermosetting material to cool and set thereby forming a custom impression tray.

5,213,499
ENDODONTIC FILES
Philippe Levy, San Clemente, Calif., assignor to Laser Endo Technic, San Clemente, Calif.
Filed Jan. 28, 1992, Ser. No. 826,777
Int. Cl.[5] A61C *5/02*
U.S. Cl. 433—102 11 Claims



1. An endodontic file comprising a handle and an elongate cutting portion, said cutting portion having a distal end remote from the handle, a first file portion which is adjacent the distal end and has the physical form of a k file, and a second file portion which is located between the first portion and the handle and has the physical form of a Hedstrom File.

5,213,500
STRESS ABSORBING SEMIPERMANENT DENTAL IMPLANT SYSTEM
Alfred Salazar, 17406 S. 92 E. Ave., Bixby, Okla. 74008, and Ricardo Guerra, 4455 N. Newcastle, Hardwood Heights, Ill. 60656
Filed Aug. 10, 1992, Ser. No. 927,805
Int. Cl.[5] A61C *8/00*
U.S. Cl. 433—169 7 Claims



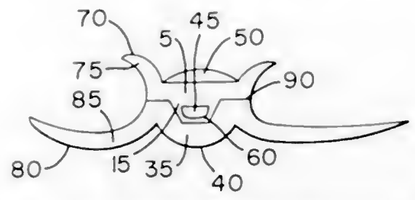
1. A dental implant system comprising:
a. a foundation fixture having an internal socket in spaced-apart relationship from one end of an elongated keeper, said spaced-apart relationship defining a shock-absorbing fluid reservoir force dampening means; and
b. a transmucosal abutment telescopically fitted within said foundation fixture, said abutment comprising a plurality of vertical resilient members having protrusions at their inner surface and defining a hollow column extending from external threads which further define the hollow column and said threads configured in torus-like fashion above a hollow pedestal member of the abutment; and
c. a keeper extending telescopically through the abutment and at one end resting within the fixture socket, said keeper having a circumferential circular groove to releaseably receive by "snap-action" the protrusions of the abutment so as to define a second dampening means, and having a web-like base fitted to a single or multiple tooth prostheses; and
d. a seal member fitted between the web-like base of the keeper and the pedestal of the abutment so as to form a third force dampening means;
whereas the implant more effectively mirrors the longitudinal movement of natural teeth, mimics the shock-absorbing capabilities of natural teeth, and relieves the prosthesis when impacted by excessive force without injuring the jawbone.

5,213,501
MECHANICALLY RETAINED FIXED PARTIAL DENTURE
Keith V. Watkins, 18 Chestnut St., Coram, N.Y. 11727
Filed Dec. 6, 1991, Ser. No. 804,659
Int. Cl.[5] A61C *13/12*
U.S. Cl. 433—172 5 Claims

1. A devices for restoring edentulous space in the dentulous aroh comprising:
a. a buccal element comprising a superior surface which intersects at the superior buccal aspect with a buccal surface, said buccal surface facing toward the buccal direction; said superior surface intersects at the superior lingual aspect with a lingual surface, said lingual surface facing toward the lingual direction; the inferior surface of said buccal element contoured to abut the underlying gingival surface; said lingual surface of said buccal element further comprises a projection which has an aperture within said projection;
b. a lingual element comprising a superior surface which further comprises an aperture; said superior surface inter-

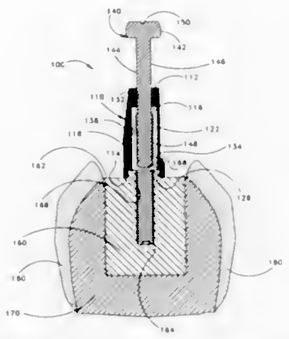
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sects at the superior lingual aspect with a lingual surface, said lingual surface facing toward the lingual direction; said superior surface of said lingual element intersecting at the superior buccal aspect with a buccal surface, said buccal surface facing toward the buccal direction; said buccal surface further comprising an indentation; said indentation further comprising an aperture which is continuous with said aperture comprising said superior surface; the inferior surface of said lingual element contoured to abut the underlying gingival surface; and



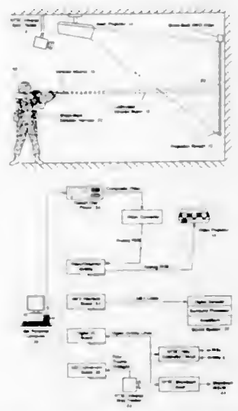
c. an incisal attachment element comprising a superior surface which intersects at the superior buccal aspect with the buccal surface of said incisal attachment element; said incisal attachment element further comprising an inferior surface located beneath said superior surface, said inferior surface intersecting at the superior buccal aspect with a lingual surface which is located lingual to said buccal surface of said incisal attachment element; said incisal attachment element further comprising an elongated member which extends from the said inferior surface of the said incisal attachment element in a vertical direction.

5,213,502
INTERLOCKABLE TWO-PIECE IMPRESSION COPING FOR ANATOMICAL DENTAL ABUTMENT RESTORATIVE SYSTEMS
Fereidoun Daftary, 50 N. La Cienega Blvd., No. 206, Beverly Hills, Calif. 90211
Filed Jun. 10, 1992, Ser. No. 896,613
Int. Cl.[5] A61C *13/12, 13/225, 8/00*
U.S. Cl. 433—172 22 Claims



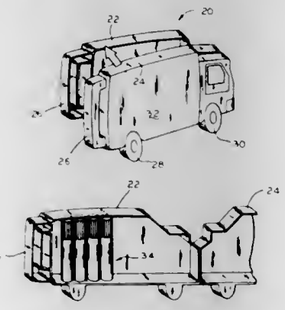
1. An impression coping attachable to a dental component of an anatomical dental abutment restorative system for making an impression, which dental component has a threaded hollow and means for preventing relative rotation between the coping and the dental component, the impression coping comprising:
a. a bolt member having a threaded section engagable with said threaded hollow of said dental component;
b. a coping member having an interior bore for allowing said bolt member to extend through the coping member;
c. said coping member having means for engagement with said rotation preventing means of said dental component to prevent said coping member from rotating about said dental component;
d. said coping member further having means for preventing said impression from rotating about said coping member;
e. most of said interior bore of said coping member being smooth but having a threaded section engagable with said threaded section of said bolt member; and
f. said threaded section of said coping member and said threaded section of said bolt member being offset, such that when said complementary anti-rotation means of said coping member is fully engaged with said anti-rotation means of said dental component, said threaded section of said bolt member will not be threadably engaged with said threaded section of said interior bore of said coping member and said threaded hollow of said dental component simultaneously;
g. whereby said coping member and said bolt member are threadably interlocked before said bolt member is threadably engaged with said dental component, but are not threadably engaged when said bolt member is threadably engaged with said dental component, such that the anti-rotation connection between said coping member and said dental component is not jeopardized.

5,213,503
TEAM TRAINER
Albert H. Marshall, Orlando; Robert T. McCormack, Merritt Island; Edward J. Purvis, Winter Park, and Ronald S. Wolff, Cocoa, all of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 5, 1991, Ser. No. 788,068
Int. Cl.[5] F41G *3/26*
U.S. Cl. 434—22 1 Claim



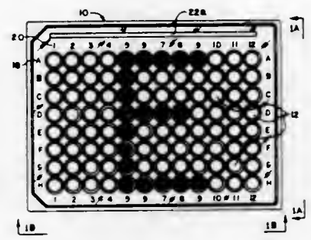
1. An interactive, scenario based simulator for training a weapons team in close encounter combat, having a large screen projection system, a plurality of trainee positions, and means to remove aggressor images when neutralized by the team, to provide an apparent threat to the trainees from the simulated aggressors, and to track each trainees performance throughout the training scenario, comprising:
at least one trainee operable simulated weapon having a source of infrared radiation boresighted to the sightline of the weapon for designating the aim-point of the weapon on the screen of said projection system;
apparatus to selectively irradiate a plurality of predetermined areas occupied by said at least one trainee in coordination with sensory cues detectable by said at least one trainee, comprising an arena of predetermined areas occupied by said at least one trainee, means for providing said sensory cues selectively to said areas, means for irradiating the areas that are being provided said sensor cues, and means at each of said at least one trainee for determining when said at least one trainee is being irradiated;
apparatus that provides tracking of a source of radiation to continuously monitor its movement, comprising optical means having a field of view and having said source of radiation within its field of view, for receiving radiation rom said source, transmitting it and focusing it at a preselected distance optically downstream, electrically-biased means at said preselected distance optically downstream said optical means for sensing said radiation transmitted by said optical means and providing a plurality of signal outputs that identify the orthogonal location at said electrically-biased means of the focused radiation, and optical processing means coupled to said electrically-biased means for receiving and determining from said plurality of signal outputs the location orthogonally of said source within said field of view;
apparatus to display a scenario and to remove an active image from the scenario in response to action by said at least one trainee that predeterminedly qualifies as successful, comprising an electronically prerecorded scenario on optical disc of at least one action video segment having a plurality of frames and an image therein that moves, and at least one still video segment of background, means for generating a window for each action segment around the image and its movement that represents the live action venue in the video, means for displaying the window of a selected said action video segment by open a live video window within a selected said still video segment, and means for removing the window of displayed action video by closing said live video window; and
processing means for controlling said simulated weapons, said apparatus to irradiate, said apparatus that provides tracking and said apparatus to display and remove.

5,213,504
COLORING TOY
James S. W. Lee, Long Island City, N.Y.; Chen K. Nan, and Chiu K. Wan, both of Taipei, Taiwan, assignors to C.J. Associates, Ltd., Hunghom Kowloon, Hong Kong
Filed May 31, 1991, Ser. No. 708,683
Int. Cl.[5] G09B *11/10*
U.S. Cl. 434—84 12 Claims



1. A toy comprising a kit including at least one felt-tipped marker containing a liquid, wherein said liquid comprises a mixture of edible pigment, emulsion, bubble-reduction ingredients, ethyl alcohol or acetone, isopropyl alcohol, liquid wax and water; a box having a surface for receiving markings from said marker, said markings being cleaned off said surface by being made wet; and means for storing at least said marker inside said box.

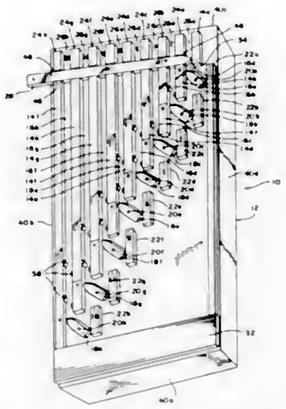
5,213,505
VARIABLE COLOR MATRIX DEVICE
Thomas C. Laipply, 29 Lyman Cir., Shaker Heights, Ohio 44122
Filed Jun. 24, 1991, Ser. No. 720,185
Int. Cl.[5] G09B *19/00*
U.S. Cl. 434—96 6 Claims



1. A device for creating a colored design including in combination:
a honeycombed plate comprising a generally flat upper surface from which descend a plurality of adjacent transparent colorant-receiving wells having open upper ends at said upper surface and closed lower ends, said walls being spaced from each other in a grid-like pattern on said plate,
light-transmitting colored fluids adapted to being selectively received in and held by the respective wells to form a light-transmitting design or pattern, said plate including an attachable colorant supply tray for receiving said light-transmitting colored fluids and having a tray attachment hook edge for attaching said colorant supply tray to said plate, and means for transferring said light-transmitting colored fluids from said colorant supply tray to said colorant-receiving wells to form said light-transmitting geometric design or pattern.

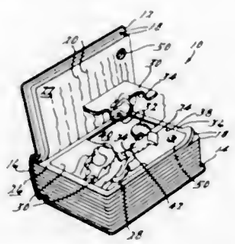
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,506
BINARY EDUCATIONAL DEVICE
Paul M. Lapsa; Jeanne W. Lapsa; Ingrid A. Lapsa; Gaida T. Lapsa, and Andrew P. Lapsa, all of 640 Earl Dr., State College, Pa. 16803
Filed Apr. 4, 1991, Ser. No. 680,556
Int. Cl.[5] G09B *19/00, 19/02*
U.S. Cl. 434—118 11 Claims



11. The binary computer of claim 7 wherein the computer further comprises a collection tray positioned substantially adjacent the first edge of the support for collecting spheroids that have passed through the computer.

5,213,507
INSTRUCTIONAL CHILD'S STORY AND PICTURE BOOK
Aaron B. Ozrovitz, 22820 Twyckingham Way, Southfield, Mich. 48034
Continuation of Ser. No. 624,615, Dec. 10, 1990, abandoned.
This application Oct. 9, 1992, Ser. No. 959,485
Int. Cl.[5] G09B *17/00*; A63F *9/10*
U.S. Cl. 434—178 4 Claims



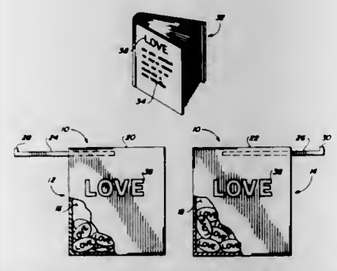
1. A multi-stimulus method for the concomitant development of cognitive and motor skills comprising:
I. providing a multi-functional book comprising:
A. a plurality of pages, each page having:
(i) a first face including a cavity defined therein, and a plurality of puzzle pieces, each puzzle piece including a portion of a first display therein, said pieces configured to be retained in said cavity in a preselected pattern and to cooperate to define said first display when so retained; and
(ii) a second face having a second display thereupon, one of said first display and said second display comprising a body of text and the other of said first display and said second display comprising a picture, said picture being provided with a layer of transparent material thereupon, said text on one of said plurality of pages corresponding to said picture on another one of said plurality of pages;
B. a binding operative to retain said pages in a preselected order so that, when said book is opened, a picture disposed on a first one of said pages is adjacent to a corresponding body of text disposed on a second one of said pages, said text corresponding to said picture;
II. providing an erasable implement operative to make removable marks on the layer of transparent material disposed on said picture;
III. opening said book so as to display a picture and corresponding text;
IV. executing a cognitive task comprising, viewing the second display on a preselected one of said pages, and;
V. executing at least one motor task selected from group consisting of: removing the puzzle pieces from a page adjacent said preselected page, replacing the puzzle pieces into the cavity in said page so as to form said first display, coloring said picture, and erasing a colored portion of said picture; whereby the execution of said cognitive and motor tasks provide for the mutual reinforcement thereof.

5,213,508
TEXTSCAN
Maurice O. Turner, and Marjorie G. Turner, both of 2300 Lexington Ave. S., Mendota Heights, Minn. 55120
Filed Feb. 25, 1991, Ser. No. 628,838
Int. Cl.[5] G09B *17/02*
U.S. Cl. 434—183 17 Claims



1. A text scanning apparatus, comprising:
A. support surface means for retainably holding a sheet of text-containing material;
B. first mask mans operatively connected to said support surface means for moving along a first axis relative to said sheet held thereby; said first mask means being arranged and configured to align with and to isolate said text generally along a first direction across said sheet;
C. second mask means operatively connected to said support surface means for moving along a second axis, generally orthogonal to said first axis, relative to said sheet held thereby; said second mask means being arranged and configured to align with and to isolate said text generally along a second direction across said sheet;
D. first drive means operatively connected with said first mask means for moving said first mask means in timed incremental manner in the direction of said first axis;
E. second drive means independent of first drive means, operatively connected with said second mask means for moving said second mask means in timed incremental manner in the direction of said second axis; whereby said first and said second mask means cooperatively move in timed sequence to isolate blocks of said text of said sheet; and
F. programmable control means operatively connected with said first and said second drive means for enabling programmable control of said first and said second drive means, whereby said first and said second mask means are moved in response to a pre-programmed pattern of movement from said programmable control means.

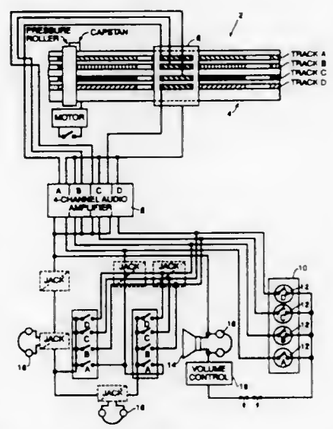
5,213,509
LOVER'S GAME AND METHOD OF PLAY
John C. Gunn, 30417 Driftwood Dr., Gold Beach, Oreg. 97444
Filed Dec. 3, 1990, Ser. No. 620,689
Int. Cl.[5] G09B *19/00*
U.S. Cl. 434—236 10 Claims



1. An improved method of playing a lover's game, said method comprising:
a) distributing to two game players designated lovers two open-topped containers of equal size and with central storage spaces of equal size accessible from said open tops, said containers having closeable top lids;
b) distributing to said two lovers initially an equal number of a plurality of game pieces of sufficiently small size so that a plurality of said pieces can fit within each said space, the total number of said game pieces distributed to said two lovers combined being more than sufficient to fill one of said spaces, but less than the number needed to fill both said spaces, and having said lovers store said game pieces in their container spaces;
c) initiating play of the game by having a first one of said two lovers pass to the second one of said two lovers a game piece as said first lover carries out a loving act and having said second lover deposit said game piece in the container space of said second lover;
d) continuing said game with exchanges of said pieces and loving acts until one of said lovers has his or her container space overflowing, as determined by being unable to close the lid of his or her container, whereupon the lover is forced to return one or more loving act to the other lover along with a game piece for each act, at least until said lid is closeable, thereby promoting loving harmony between said two lovers.

5,213,510
REAL-TIME INTERACTIVE CONVERSATIONAL TOY
Michael J. Freeman, Ste. 2401, 1270 Avenue of the Americas, New York, N.Y. 10020
Filed Jul. 9, 1991, Ser. No. 727,836
Int. Cl.[5] G09B *7/06*
U.S. Cl. 434—321 8 Claims

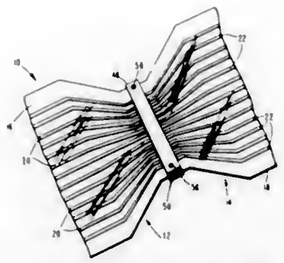
1. A real-time interactive conversational toy comprising:
a storage media; and means for selectively playing said storage media at a given time, said selectively playable storage media containing an interactive conversational content and comprising a plurality of temporally related data storage tracks containing information, said means for selectively playing said storage media at said given time comprising means for substantially simultaneously retrieving the information from each of said data storage tracks; and
multiple choice selection means for randomly accessing one of said tracks of said storage media for retrieving the information stored thereon for enabling said selective playing of said retrieved information, the information being stored on each track in a plurality of information segments, each of said segments comprising a complete message reproducible by said retrieval means directly in response to the selection of the track upon which said segments are stored, each of said information segments comprising interrogatories having multiple choice selectable responses, responsive messages, informational messages, or combinations thereof related in real-time and content to information contained in at least one information segment of at least one track at a prior time, said information stored on said tracks in a predetermined timed sequence according to a decision-tree for providing a



plurality of different interactive pathways through said tracks comprising a continuous flow of interactive conversations across said tracks dependent on said multiple choice selectable responses, each of at least one information segment on each of at least two of said plurality of tracks comprising an interrogatory having multiple choice selectable responses corresponding with associated information segments, said associated information segments comprising responsive messages related in real-time and content to said interrogatory, said correspondence determinable according to said decision tree, said selective playing means selectively playing an information segment from said accessed one of said tracks;
at least one of said interactive pathways provided by said decision tree comprising a special pathway accessible by said multiple choice selection means at a predetermined memory sampling point in said decision tree, said special pathway containing an information segment at said predetermined memory sampling point recalling a consecutive accumulation of the prior selections made along said special pathway at said memory sampling point for exhibiting a pseudo-memory of at least a portion of said multiple choice selectable responses along said at least one of said interactive pathways.

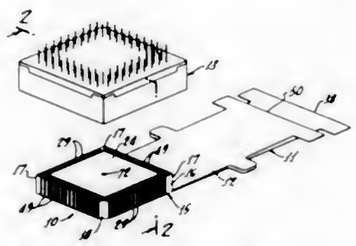
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5,213,511
DIMPLE INTERCONNECT FOR FLAT CABLES AND PRINTED WIRING BOARDS
Mohi Sobhani, Encino, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Filed Mar. 27, 1992, Ser. No. 858,473
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—67 9 Claims



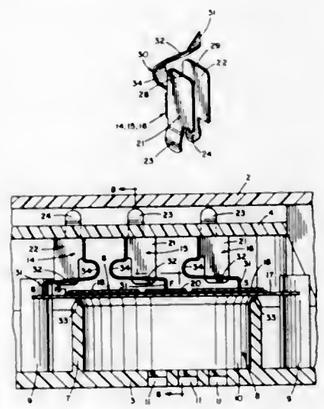
1. An electrical connector assembly comprising:
a plurality of electrical connectors, each including matable surfaces and a plurality of electrical conductors having termini terminating respectively on said surfaces;
dimples on said conductor termini and respectively configured with matable surfaces of concave and convex configurations to provide conforming concave-convex contacts with one another for electrically coupling said electrical conductors respectively of said electrical connectors, wherein said dimples on mating ones of said conductors on said connectors are paired in contact with one another for effecting a self-alignment of said conductors; and
a plate extending over said dimples on a first of said connectors and means associated with a second of said connectors and mechanically coupled to said plate for securing said connectors together and for maintaining the contact between said mating dimples.

5,213,512
PLCC SOCKET MATEABLE CONNECTION
Ronald L. Campbell, Tustin, and Douglas E. Riddle, Corona, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.
Filed Jul. 24, 1992, Ser. No. 919,463
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—67 13 Claims



1. An electrical connector comprising
a first member defining a recess adjacent which is a first wall having an outside surface, an inside surface and an edge surface between said inside and outside surfaces,
a second member having a second wall, said second member being received within said recess with a predetermined clearance between said inside surface of said first wall and said second wall, and
a flexible circuit having a plurality of exposed conductors at one end portion thereof, said end portion extending over said outside, edge and inside surfaces of said first wall and being engaged by said inside surface and said second wall so that it is frictionally held between said first and second walls, with said exposed conductors being opposite said outside surface and facing outwardly thereof,
whereby said exposed conductors on the outside of said first wall can mate with conductors of a socket connector and said flexible circuit is attached to said first and second members.

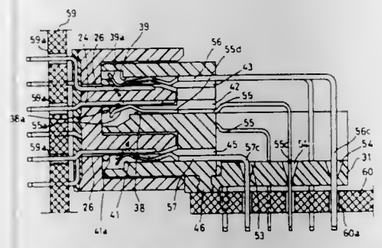
5,213,513
ELECTRIC TERMINAL
Richard L. Brown, Manitowish Waters, Wis., and James D. Scapardine, Aurora, Ill., assignors to Seatt Corporation, Downers Grove, Ill.
Filed Feb. 27, 1992, Ser. No. 859,052
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—68 8 Claims



1. An electric terminal adapted to complete a circuit connection to an electrical load comprising a pair of joined and spaced sidewalls disposed in a generally parallel relationship with respect to each other, a contact-beam support wall joining the pair of sidewalls, and a resilient, cantilevered contact beam having a first end fixed to the support wall and an opposite projecting end formed as an electrical contact for engaging the electrical load with the contact beam and its contact being located in a symmetrical disposition relative to both sidewalls and resiliently depressible when the contact is engaged by the electrical load, and in which corresponding adjacent spaced edges of the pair of sidewalls serve as protective stops which limit the extent of depression of the electrical contact in response to a circuit connection being established by contact engagement with the load.

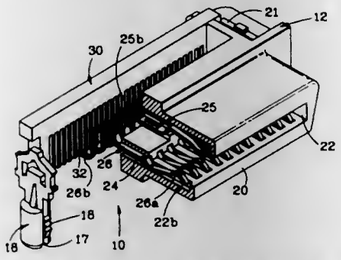
5,213,514
MULTIPOLE ELECTRICAL CONNECTOR
Tatsuya Arai, Tokyo, Japan, assignor to Hirose Electric Co., Ltd., Tokyo, Japan
Filed Sep. 6, 1991, Ser. No. 755,846
Claims priority, application Japan, Sep. 17, 1990, 2-96514[U]
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—79 1 Claim

1. A super multipole electrical connector comprising:
a substantially rectangular housing having a plurality of terminal receiving channels and first terminal apertures each communicating with a corresponding terminal receiving channels;
a flat locator secured to said housing at substantially right angles and having a plurality of second terminal apertures each having an axis substantially perpendicular to that of said first terminal aperture;
a plurality of signal terminals having a contact section projecting along said terminal receiving channel, a press-fit section received in said first terminal aperture, and a leg section received in said second terminal aperture of said flat locator;



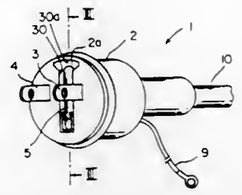
said contact section having a C-shaped portion with a contact point at a peak thereof;
an intermediate section between said contact section and said press-fit section being
made different in length from those of adjacent ones so that said contact points of adjacent signal terminals are offset with each other, thereby minimizing plugging in and out forces.

5,213,515
CONNECTOR WITH REMOVABLE SOLDER FIXTURE PLATE
Shigeru Ishikawa, Hachioji, and Yoshitsugu Fujiura, Tokyo, both of Japan, assignors to AMP (Japan) Ltd., Japan
Filed Jan. 15, 1992, Ser. No. 821,504
Claims priority, application Japan, Feb. 8, 1991, 3-11095
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—79 9 Claims



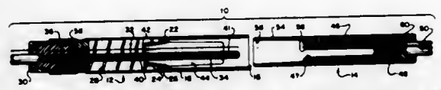
1. An electrical connector for surface mounting to a printed circuit board and interconnecting with the contacts of a mating connector, including a dielectric housing containing a plurality of further contacts each including a contact portion at one end and a solder portion at the opposite end with the contact portions held by the housing to reside in positions for intermating to the contacts of the mated connector, a contact fixture plate having a series of open ended channels fitted over the contact portions to hold the solder portions precisely located in a position on a printed circuit board wherein said plate is removable from said housing following soldering of said further contacts to the circuit board to facilitate the inspection of solder joints formed thereby.

5,213,516
ATTACHMENT PLUG
Isao Okamoto, Osaka, Japan, assignor to Nichido Kogyo Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 784,944, Oct. 31, 1991, abandoned.
This application Oct. 16, 1992, Ser. No. 962,077
Claims priority, application Japan, Nov. 5, 1990, 2-116466; Oct. 5, 1991, 3-080945
Int. Cl.[5] H01R 13/652
U.S. Cl. 439—104 9 Claims



1. An attachment plug, comprising:
a holder provided with a storage cavity in a front surface, said storage cavity having a continuous peripheral wall;
a one-piece grounded earth terminal pin, shaped and sized to be entirely receivable inside said cavity to be surrounded by said peripheral wall thereof, and having an end portion pivotably mounted at the front surface of said holder;
said end terminal pin being pivotable about the pivotally connected portion when not in use to be entirely received within and stored in said storage cavity.

5,213,517
SEPARABLE ELECTRODES WITH ELECTRIC ARC QUENCHING MEANS
Leslie Kerek, Los Angeles; Hugh M. Hyatt, Camarillo, and Larry L. McCormick, Los Angeles, all of Calif., assignors to G & H Technology, Inc., Camarillo, Calif.
Filed Feb. 10, 1992, Ser. No. 833,110
Int. Cl.[5] H01R 13/53
U.S. Cl. 439—187 10 Claims

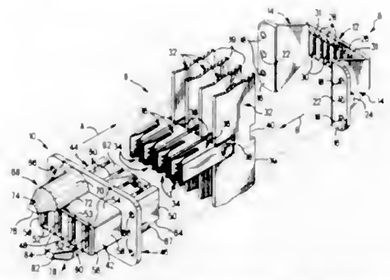


1. An electrical connector including a first connector part having a pin contact with an end for mating connection with a second connector part having a socket contact, comprising:
an insulative coating on a part of the pin contact peripheral surface leaving an outer end portion of said pin contact free from said coating to enable mating connection with the socket contact;
cap means received on said pin contact resiliently urged toward the end of said pin contact, said cap means being maintained at ground potential; and
a body of a material which can exist in a first relatively high electrical resistance state when subjected to little or no electric field and in a second relatively low electrical resistance state when subjected to more than a predetermined amount of electric field, said body having an opening for sliding receipt of the pin contact therewithin and having one end thereof conductively and physically secured to the cap means for unitary movement therewith;
said body providing an interconnection between the cap means and the bare end portion of the pin contact, and wherein the body exists in said first relatively high resistance state when the connector parts are mated and the

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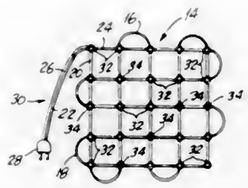
body exists in said second relatively low resistance state when the connector parts are unmated.

5,213,518
CONNECTING ELECTRICAL BUS BARS TO ELECTRICAL CIRCUITRY
Charles H. Weidler, Lancaster, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Feb. 28, 1992, Ser. No. 843,787
Int. Cl.[5] H01R *25/16*
U.S. Cl. 439—211 24 Claims



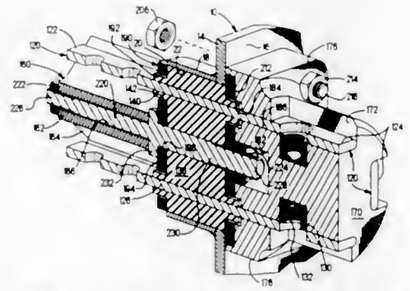
1. An electrical connector for electrically connecting at least one bus bar to an external electrical circuit, the connector comprising a bus bar and contact assembly and first and second elongate, opposed insulating housing members extending in the same direction, the bus bar and contact assembly comprising at least one bus bar with an electrical contact projecting from a first longitudinal edge thereof, the first insulating housing member receiving said electrical contact for mating with an electrical contact element connected to said external circuit, a notch being provided in a minor length of a second and opposite longitudinal edge of said at least one bus bar opposite to said electrical contact, and on the second insulating housing member a protrusion for engagement with said notch, and walls on said second insulating housing member to be engaged on opposite lateral surfaces of said bus bar and on opposite sides of said notch for supporting said at least one bus bar in said connector, wherein said longitudinal edges of said at least one bus bar extend transversely of the length of said housing members, said housing members cooperating to surround central minor lengths of said longitudinal edges in the region of the cooperating structure and said electrical contact of said at least one bus bar, with major lengths of said longitudinal edges projecting from between said housing members in opposite directions.

5,213,519
ELECTRICAL RECEPTACLE ARRANGEMENT
David J. Dorfman, 108-48 70th Rd., Forest Hills, N.Y. 11375
Filed Mar. 30, 1992, Ser. No. 859,807
Int. Cl.[5] H01R *11/00*
U.S. Cl. 439—505 20 Claims



8. An electrical receptacle arrangement according to claim 7, wherein portions of said first and second wires are insulated, and non-insulated portions of said first and second wires are at said selected ones of said aligned points for connection to said terminals.

5,213,520
FIREWALL CONNECTOR
Daniel T. Casey, Harrisburg, and William T. Glenwright, York, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Continuation-in-part of Ser. No. 840,202, Mar. 2, 1990, abandoned, and a continuation-in-part of Ser. No. 840,201, Mar. 2, 1990. This application Mar. 20, 1992, Ser. No. 855,616
Int. Cl.[5] H01R *13/52, 9/24, 13/74*
U.S. Cl. 439—559 14 Claims



1. An electrical connector adapted for bulkhead mounting, for extending through a bulkhead opening of the type having a cylindrical flange extending axially therefrom and joined to the bulkhead, and interconnecting associated cables on opposed sides of a bulkhead, comprising:

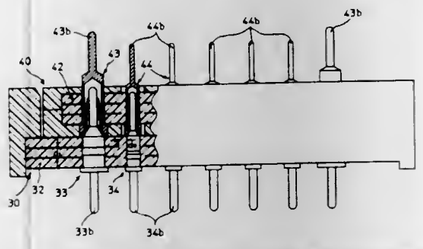
at least one bus bar having a body section extending between first and second contact sections at first and second ends thereof;

an elastomeric member disposed within said cylindrical flange of said bulkhead and including an aperture therethrough associated with each said bus bar, with said body section of a respective said bus bar extending therethrough with said first and second contact sections extending outwardly of ends of said elastomeric member to be at least exposed for electrical connection to respective ends of associated electrical cables;

said elastomeric member being secured between first and second metal plates having corresponding bar-receiving apertures through which extend a respective said bus bar, said first and second metal plates being mechanically fastened by a stud assembly actuatable to draw said first and second plates toward each other compressing said elastomeric member and deforming the elastomeric material thereof tightly around said body section of each said bus bar and against an inside surface of said cylindrical flange and closing gaps at said bar-receiving apertures through said first and metal plates,

whereby a connector is defined permitting electrical cables on opposing sides of a bulkhead to be disconnectably joined electrically while providing a flame barrier across said bulkhead opening.

5,213,521
HIGH FREQUENCY ELECTRICAL CONNECTOR ASSEMBLY
Hiroshi Arisaka, Tokyo, Japan, assignor to Kel Corporation, Tokyo, Japan
Filed Jan. 22, 1992, Ser. No. 824,115
Claims priority, application Japan, Jan. 22, 1991, 3-20306
The portion of the term of this patent subsequent to Apr. 7, 2009, has been disclaimed.
Int. Cl.[5] H01R *13/648*
U.S. Cl. 439—608 10 Claims



1. A high frequency electrical connector assembly comprising:

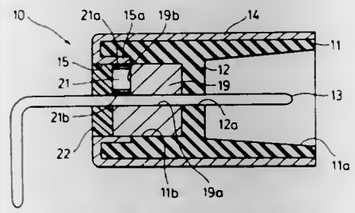
first and second intermatable connectors including first and second housings, respectively, having complementary front mating faces for movement together in a mating direction into mating engagement,

first and second board assemblies mounted in the first and second housings, respectively, and each comprising a series of conductive and insulating dielectric layers located alternately in overlying relation and extending transversely of the mating direction,

first and second, intermatable ground contact means extending between and interconnecting all the conductive layers of respective board assemblies thereby forming ground planes, and,

a first and second series of signal contacts having complementary mating portions and anchoring portions extending through the respective board assemblies with the complementary mating portions at the mating faces and the respective conductive layers extending to locations adjacent and spaced from the anchoring portions so that mating portions of the connector assembly are shieldingly enclosed between the board assemblies when the connectors are assembled together.

5,213,522
CONNECTOR WITH BUILT-IN FILTER
Yasushi Kojima, Niigata, Japan, assignor to Mitsuhishi Materials Corporation, Tokyo, Japan
Filed Jul. 13, 1992, Ser. No. 912,789
Claims priority, application Japan, Jul. 19, 1991, 3-203224
Int. Cl.[5] H01R *13/66*
U.S. Cl. 439—620 7 Claims

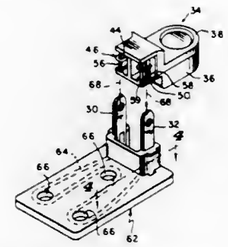


1. In a connector with a built-in filter having a dielectric housing, said housing having first and second ends, a first recess being formed at said first end and a second recess being formed at said second end, the first and second recesses having a partitioning plate therebetween; connector pins having first and second ends, said first end positioned within the first recess, said pins penetrating through holes provided within said partitioning plate, and said second end protruding through the second recess; a conductive shield case surrounding said housing, said case having a window which corresponds to said second recess, said case having an edge at said window, said case being positioned so that said connector pins can protrude from the window, the improvement comprising:

(a) a ferrite body having slots corresponding to said connector pins and notches positioned between the slots and said edge, the notches being contiguous with the slots, said ferrite body being inserted within the second recess, said second ends of said connector pins protruding through the slots; and

(b) chip capacitors inserted into the notches of said ferrite body, said capacitors being electrically connected between said edge of said shield case and said connector pins.

5,213,523
APPARATUS AND METHOD OF MAKING AN ELECTRICAL CONNECTION TO A CURRENT CARRYING DEVICE
Terry L. Hygema, North Webster; Jack W. Fulk, Cromwell, and Joe A. Chalk, Warsaw, all of Ind., assignors to Heaters Engineering, Inc., North Webster, Ind.
Filed Oct. 21, 1992, Ser. No. 964,446
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—620 24 Claims



1. An assembly comprising:

a power plug including first and second blade electrodes positioned a fixed distance apart;

an electrical component including first and second conductive leads extending from the electrical component, the electrical component being configured to be slidably inserted between said first and second blade electrodes so that the first conductive lead engages the first blade electrode and the second conductive lead engages the second blade electrode, respectively, to couple the electrical component to the power plug electrically; and

means for encapsulating a portion of the power plug and at least a portion of the electrical component with an insulating material to secure the electrical component to the power plug.

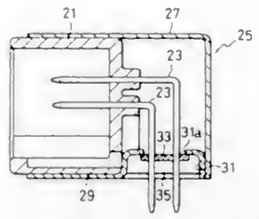
5,213,524
SHIELD CONNECTOR
Hiroyuki Okamoto, and Kunio Hosbino, both of Shizuoka, Japan, assignors to Yazaki Corporation, Japan
Filed May 7, 1992, Ser. No. 879,354
Claims priority, application Japan, Jun. 12, 1991, 3-43905[U]
Int. Cl.[5] H01R *13/648, 13/66*
U.S. Cl. 439—620 3 Claims

1. A shield connector comprising:

a connector housing;

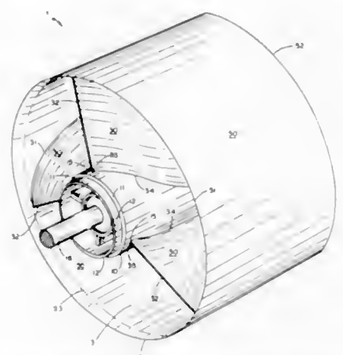
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a plurality of terminal pins supported by said connector housing and having respective bent sections thereof;
a cover member covering substantially the entirety of said terminal pins so as to shield a noise signal from the outside, said cover member having a capacitor accommodating section;



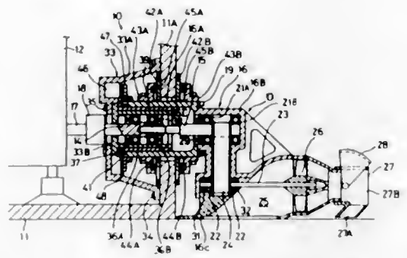
a capacitor arranged within said capacitor accommodating section and supporting one ends of the respective terminal pins; and
an insulating section so arranged as to cover an exterior of said capacitor.

5,213,525
JACKETED MARINE PROPELLER
Michael P. Sanford, 1150 Shawsheen St., Tewksbury, Mass. 01876
Filed Jun. 6, 1991, Ser. No. 710,965
Int. Cl.[5] B63H *1/14*
U.S. Cl. 440—49 **10 Claims**



1. A self-contained jacketed marine propeller assembly comprising:
a central elongated hub;
a plurality of substantially identical blades each of which is radially attached to and helical with respect to said hub and has a curved perimeter with a leading edge, lagging edge, tip edge, and root edge; and
an annular, slightly tapered jacket formed around and integrated with the tip edges of said blades and defining a passageway through which water flows to augment propeller thrust, said jacket having an inner surface, an outer surface, a leading edge, defined as the forward edge, and a lagging edge, defined as the rearward edge, wherein the diameter of the leading edge is greater than the diameter of the lagging edge, and wherein the jacket leading edge is a very thin, gradually expanding longitudinally rearward to a thickness of between one-eighth to three-sixteenths inches at a point approximately one inch rearward of the leading edge wherein a constant thickness is maintained until reaching a point approximately one-half inch forward of the lagging edge wherein the shell thickness decreases rearwardly to a very thin lagging edge.

5,213,526
SUPPORT ASSEMBLY FOR MARINE PROPULSION UNIT
Masayoshi Nanami, Shizuoka, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Japan
Filed Aug. 27, 1992, Ser. No. 936,221
Claims priority, application Japan, Aug. 27, 1991, 3-239002
Int. Cl.[5] B63H *5/12*
U.S. Cl. 440—53 **22 Claims**



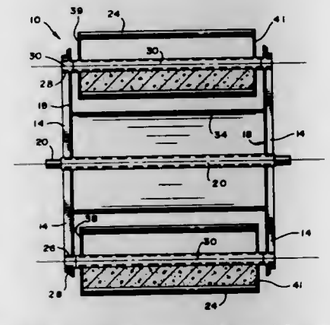
1. In an inboard/outboard marine propulsion system for use on a watercraft having a transom with a fore-aft extending through-hole formed therein, an engine mounted within the watercraft and including a power output shaft aligned with the through-hole in the transom; a propulsion unit having an input shaft drivingly connected to the engine output shaft; and a supporting assembly for supporting the propulsion unit for rotation relative to the watercraft about a longitudinal axis defined by the output shaft of the engine and input shaft of the propulsion unit; said propulsion unit including means for providing propulsive thrust to the watercraft, said propulsive thrust means being vertically offset from said longitudinal axis, the improvement wherein said supporting assembly comprises:
an annular bearing support member adapted to be secured to the transom so as to extend concentrically about at least one of the input and output shafts, said bearing support member including concentric inner and outer surface portions;
first bearing means concentrically mounted between at least one of said input and output shafts and the inner surface portion of said bearing support member for rotatably supporting said at least one shaft, said first bearing means housed within said inner surface portion;
said propulsion unit including a casing which supports the propulsive thrust means, said casing including a forward portion concentrically mounted relative to and extending along said outer surface portion concentric with said first bearing means, and being rotatably mounted relative to said outer surface portion such that the forward casing portion and propulsive thrust means can be rotated to various positions about said longitudinal axis.

5,213,527
MARINE POWER STEERING ACTUATOR SYSTEM
Eric B. Fetchko, Burnaby, Canada, assignor to Teleflex (Canada) Limited, Richmond, Canada
Filed Dec. 6, 1991, Ser. No. 803,426
Int. Cl.[5] B63H *25/42*
U.S. Cl. 440—61 **11 Claims**

1. An hydraulic actuator assembly for a power steering ram of a marine inboard/outboard drive of the type where the ram is connected to a tiller arm and has a spool valve mounted on the ram, the spool valve having a mounting tube which opens the spool valve when displaced in either direction to supply hydraulic fluid to the ram and to move the tiller arm in the direction the mounting tube is displaced, the assembly comprising:
an hydraulic actuator having a cylinder with first and second ends, an internal piston and a rod connected to the piston which sealingly extends from the first end of the cylinder, the rod having a distal end with means for connecting the rod to the tiller arm, the cylinder having a connector on the second end; and
a mounting bracket extending generally radially from the cylinder, having a first end connected to the connector of the cylinder and a second end which is distal with respect to the cylinder, the second end having means for connecting the bracket to the mounting tube of the spool valve.



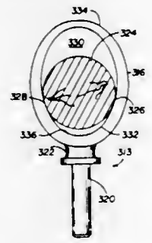
5,213,528
PADDLE WHEEL FOR A SHIP
Donald S. Seiford, Sr., 5685 Annette Ave., E., Inver Grove Heights, Minn. 55077
Filed Apr. 22, 1992, Ser. No. 872,253
Int. Cl.[5] B63H *1/04*
U.S. Cl. 440—90 **24 Claims**



1. A paddle for a paddle wheel of a vessel for use in water which comprises an elongated body including parallel side plates (**36, 38**), an edge enclosure means (**40, 42**) between upper and lower edges of said side plates, end plates (**39, 41**) which enclose said parallel plates, a support shaft means which extends form said end plates along a linear axis which divides said paddle into equal upper and lower portions, said lower portion of said paddle is filled with a heavy material and said upper portion is absent of any such heavy weighted material.

5,213,529
OAR HORN
Charles A. Thomas, Stanwood, Wash., assignor to Thomas Machine and Foundry, Inc., Lynnwood, Wash.
Filed Sep. 13, 1991, Ser. No. 759,318
Int. Cl.[5] B63H *16/06*
U.S. Cl. 440—106 **5 Claims**

1. An oar assembly for supporting an oar on a side of a rowboat wherein the side of the rowboat includes a channel for receiving the oar assembly, said oar assembly comprising:
a socket having a mounting portion and a sleeve portion, said mounting portion being substantially rectangular and having first and second ends, said mounting portion further including first and second mounting through-holes positioned proximate said first and second ends, respectively, and a central through-hole positioned intermediate said first and second mounting through-holes, said sleeve portion including a substantially tubular member having a through channel and being fixed to said mounting portion proximate said central through-hole such that said central through-hole is aligned with said through channel, said sleeve portion being constructed to be mounted in the channel of the side of the rowboat and supported by said mounting portion, said mounting portion being constructed to be fixed to said side of the rowboat by said mounting through-holes to fixedly position said sleeve in the channel of the side of the rowboat; and
an oar horn having an oar receiving portion and a base portion, said base portion including a substantially cylindrical shank sized to rotatably mate with said sleeve of said socket, said base further including a support member fixed intermediate said shank and said oar receiving portion for supporting said oar receiving portion upon said mounting portion of said socket such that said oar horn is rotatably supported in said socket, said oar receiving portion comprising an elongate member having a top end and a bottom end wherein said bottom end of said elongate member is fixed to said support member so that when said shank is mated with said sleeve said top end extends outward from the boat, said elongate member including a substantially oval shaped through-hole having a contact portion proximate said bottom of said elongate member, wherein the curvature of said contact portion is greater than the curvature of the oar so that the oar contacts said contact portion of said oval shaped through-hole at two points on substantially opposite sides of said oar and is thereby moveably and pivotally supported in said oval shaped through-hole so that said oar is movable with respect to said oar horn and so that said oar can be pivoted with respect to said oar horn.



5,213,530
THREE-WAY NIP CONTACT TYPE CONTRACTOR
Kazumi Uratsuji, Tokyo, Japan, assignor to Yamaichi Electric Co., Ltd., Tokyo, Japan
Filed Jul. 15, 1991, Ser. No. 729,581
Claims priority, application Japan, Jul. 13, 1990, 2-185534
Int. Cl.[5] H01R *11/22*
U.S. Cl. 439—268 **5 Claims**

1. A contactor, comprising:
first and second contact pieces, each said contact piece having a base end at which said contact piece is connected to the other said contact piece, and each said contact piece extending from said base end toward a top end thereof adjacent to the other said contact piece such that said first and second contact pieces substantially form two sides of a triangle;
means having a pressure bearing portion for elastically engaging a male terminal between said pressure bearing portion and said first and second contact pieces and displacing said pressure bearing portion in a direction toward the male terminal, pressing against a side surface of the

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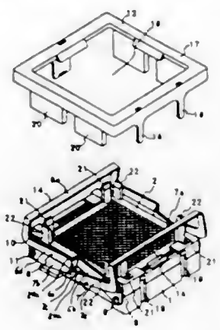
male terminal so that the male terminal engages said first and second contact pieces and said first and second contact pieces are displaced in a direction away from the male terminal member against the elasticity thereof while sliding on the side surface of the male terminal, said pressure bearing portion substantially forming the third side of said triangle;

wherein said top ends of said first and second contact pieces are of substantially the same height, and wherein said pressure bearing portion projects above said top ends of said first and second contact pieces.

5,213,531
CONNECTOR

Noriyuki Matsuoka, Yokohama, and Kazumi Uratsuji, Tokyo, both of Japan, assignors to Yamachi Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 692,253, Apr. 26, 1991, abandoned. This application Jun. 17, 1992, Ser. No. 902,400
Claims priority, application Japan, May 14, 1990, 2-124487
Int. Cl.[5] H01R *13/62*
U.S. Cl. 439—331 **1 Claim**



1. A connector for mounting an electric element having depending terminals thereon and removing it from a circuit means, comprising:

a connector body having a plurality of terminal receiving apertures therethrough each having a contact means therein with a contact part movable from a normally closed position where it contacts a terminal inserted into the aperture to an open position to permit no-load insertion and removal of the terminal;

a movable plate mounted on said connector body for reciprocal movement along said body in a direction between ends of said body and transverse to said apertures and engaged with the contact elements so that, when the plate is moved in one direction along said body, the contact elements are moved to the open position;

a pair of operating levers each having a lever arm on opposite sides of said connector body with each lever arm connected between said connector body and said movable plate and having a free end movable in a slightly curved path in the direction of the terminal receiving apertures, one operating lever having the free ends of said lever arms thereof at one end of said connector body, and the other operating lever having the free ends of said lever arms thereof at the other end of said connector body, for pivoting said levers to move said movable plate in said one direction;

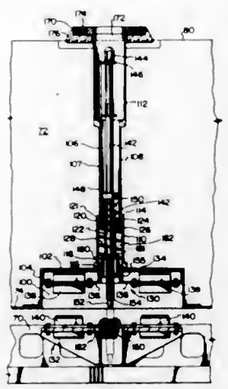
each lever arm having a zig-zag shape in the longitudinal direction with adjacent inner and outer lever arm portions defining a pair of guide spaces therebetween on each side of said connector body; and

an upper part operating member having depending guide members extending through said guide spaces for being slidably mounted on said connector body for straight linear movement at a fixed position relative to said connector body and in the direction of said terminal receiving apertures and supported on said free end of said operating levers, whereby said upper part operating member is movable only in said fixed position and only in a straight line for operating said operating levers by moving said free ends in a curved line.

5,213,532
THREADED BORE ENGAGING, ORBITAL REPLACEMENT UNIT ELECTRICAL CONNECTOR ASSEMBLY

Francis H. A. Mee, Alliston, Canada, assignor to Canadian Space Agency/Agence Spatiale Canadienne, Montreal, Canada

Continuation-in-part of Ser. No. 611,547, Oct. 25, 1990, Pat. No. 5,120,243. This application Apr. 7, 1992, Ser. No. 864,793
Int. Cl.[5] H01R *13/627*
U.S. Cl. 439—364 **4 Claims**



1. A threaded bore engaging, orbital replacement unit, electrical connector assembly, for mating with a docking station connector, comprising:

a) a base panel,

b) at least one orbital replacement unit electrical connector mounted on the base panel,

c) an open bottomed, base panel housing having the base panel held therein against relative rotation but slidable therein downwardly from an upper portion of the housing interior for bringing the said at least one electrical connector into electrically conductive engagement with at least one electrical connector of the corresponding docking station,

d) means for mounting the housing in an opening in a rear wall of an orbital replacement unit casing with the open bottom of the housing exposed for the said engagement of the electrical connectors,

e) a tube attached at one end to the housing and at the other end to a front face of the casing to form an open ended passage extending through the casing to the base panel,

f) a shaft mounted in the tube for relative longitudinal and rotational movement therebetween, the shaft extending through the base panel for relative rotation and longitudinal movement therebetween, the shaft terminating beyond the base panel with a leading screw threaded end for mating with the threaded bore of the docking station connector, and

g) spring loading means spring loading the shaft to a retracted position and holding the base panel in the upper portion of the housing interior, whereby, with a corresponding docking station connectors positioned beneath the housing,

i) the spring loading means will, when the shaft and base panel are moved forwardly for the leading end of the shaft to meet and be aligned with the threaded bore of the docking station connector, apply an initial disconnecting force urging the shaft and the base panel towards the retracted position, and then

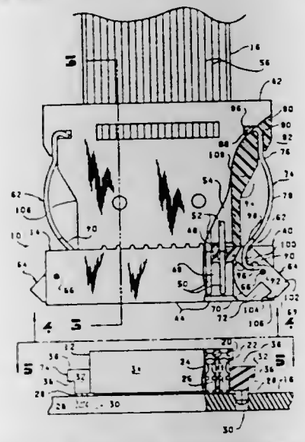
ii) rotational movement of the shaft will then cause threaded engagement between the screw threaded end of the shaft and the threaded bore of the docking station connector at which stage the spring loading means will apply a preload for accurate alignment of the electrical connectors of the connector assembly and the docking station, and then

iii) further rotation of the shaft causes further threaded engagement between the screw threaded end of the shaft and the nut which brings the aligned electrical connectors into electrical connection.

5,213,533
ELECTRICAL CONNECTOR BLOCK ASSEMBLY

John D. Walden, Mechanicsburg, Pa., assignor to Intercon Systems, Inc., Middletown, Pa.

Filed Apr. 23, 1992, Ser. No. 872,492
Int. Cl.[5] H01R *13/62*
U.S. Cl. 439—372 **18 Claims**

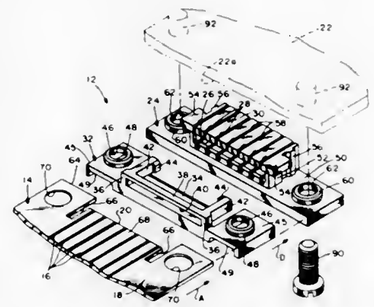


13. An electrical connector assembly including first and second elongate connector blocks, each connector block having a plurality of terminals mounted on and spaced along the block so that the connector blocks may be moved together in parallel overlying relation with pairs of terminals on the different blocks in electrical connection, end portions on the ends of a first connector block, each end portion including a cam surface facing the second connector block and a latch surface facing away from the second connector block and latch assemblies on the ends of the second connector block, each latch assembly including a latch, a rotary connection mounting the latch on the second connector block adjacent an end portion of the first connector block, each latch including a locking slot with a latch finger on one side of the locking slot engagable beneath an adjacent latch surface and a follower on the other side of the slot engagable with an adjacent cam surface, and an elongate flexible latch operator for rotating the latch about said connection, the latch operator extending from the latch in a direction away from the first connector block and including a first end connected to the latch, a second end connected to the other connector block at a distance spaced away from the latch and a contact portion located between said ends.

5,213,534
ELECTRICAL CONNECTOR ASSEMBLY FOR FLAT FLEXIBLE CABLE

Michael J. Gardner, Pleasanton, Calif., and Bill B. Wilson, Montgomery, Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Jul. 31, 1992, Ser. No. 923,074
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—495 **17 Claims**



1. In an electrical connector assembly for a flat flexible cable having an array of flat conductors arranged thereon at intervals generally parallel to one another and terminating near a distal edge at an end of the cable, a dielectric housing having an elongate recess with a plurality of terminals at intervals along the recess, each terminal having a first contact portion for engaging a respective one of the flat conductors of the flat flexible cable when the cable end is inserted into the recess, and an adaptor including a planar blade portion insertable into the recess in juxtaposition on one side of the flat flexible cable at said end thereof for biasing the cable conductors into engagement with the contact portions of the terminals on an opposite side of the cable, wherein the improvement comprises said adaptor including a wing portion outside of and generally coplanar with the blade portion, the wing portion including a registration boss projecting therefrom, and said flat flexible cable including a registration aperture engageable about the registration boss, whereby the adaptor and the cable can be inserted conjointly into the recess with the conductors biasingly wiping over the contact portions of the terminals.

5,213,535
SLALOM/TRICK WATER SKI WITH SIDE BY SIDE BINDING

David A. Richens, Jr., 23637 Meadcliff Pl., Diamond Bar, Calif. 91765

Filed Jun. 10, 1991, Ser. No. 712,525
Int. Cl.[5] A63C *5/03*
U.S. Cl. 441—70 **7 Claims**

1. A water ski comprising an elongated ski body having a longitudinal centerline, a bowed bottom extending subtantially

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the length of said ski body, said bowed bottom including a stabilizing fin, and a right and left foot binding means, wherein said right foot binding means is mounted on the right side of the longitudinal centerline of said ski body and said left foot



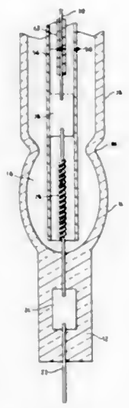
binding means is mounted on the left side of said longitudinal centerline of said ski body, and wherein said right and left foot binding means are located at a position that is at least partially overlying said stabilizing fin.

5,213,536

FILAMENTED LAMP MANUFACTURE METHOD

Harold L. Hough, Beverly, and George J. English, Reading, both of Mass., assignors to GTE Products Corporation, Danvers, Mass.

Filed Jan. 2, 1991, Ser. No. 636,806
Int. Cl.[5] H01J *9/24;* H01K *3/20, 3/22*
U.S. Cl. 445—27 10 Claims



1. A method of fabricating a capsule from a tubular blank, the blank having a circular cross section, a first end and a second end, the capsule having an elongated body, a bulbous midsection defining an interior enclosed volume, and two opposed capsule ends adjacent to the midsection, on opposite sides of the midsection, each of the capsule ends having a press seal formed therein and a filament structure having a first lead sealed in the first capsule end, a coil positioned in the enclosed volume, and a second lead sealed in the second capsule end, and a lamp fill in the interior, the method comprising the steps of:

(a) positioning the filament structure in the blank with the first lead held in place in a first end of the blank, the second lead held in place in a second end of the blank, and the second end of the blank positioned in a seal head,

(b) positioning a hollow needle in the blank around a portion of the filament structure to be enclosed in the enclosed volume;

(c) heating the first end of the blank to pliability;

(d) pressing the blank and blowing in the second end of the blank thereby simultaneously (1) forming a first press seal at the first end of the blank thereby mounting the first lead in the first press seal; and (2) forming the bulbous midsection;

(e) adding a final lamp fill through the seal head to the enclosed volume;

(f) removing the hollow needle from around at least a portion of the filament structure to expose those portions to be contained in the enclosed volume, and those portions to be captured in the second seal, and

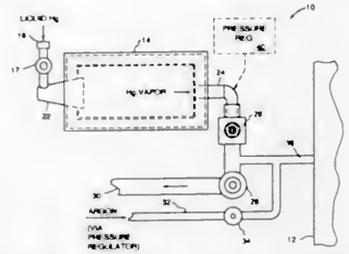
(g) forming a second hermetic seal at the second end of the blank thereby mounting the second connection lead in the second hermetic seal.

5,213,537

METHOD FOR DOSING A DISCHARGE LAMP WITH MERCURY

Victor D. Roberts, Burnt Hills, N.Y.; James T. Dakin, Shaker Heights, Ohio; Walter R. Champman, Jr., Cleveland Heights, Ohio, and Bernard F. Fenoglio, Solon, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 25, 1992, Ser. No. 904,299
Int. Cl.[5] H01J *9/395*
U.S. Cl. 445—53 18 Claims



1. A method for dosing a discharge lamp with a lamp fill including mercury and at least one additional fill ingredient, comprising the steps of:

evacuating the discharge lamp;

establishing a supply of mercury vapor at a predetermined pressure;

mixing the mercury vapor with the additional fill ingredient;

allowing the mixture of mercury vapor and the additional fill ingredient to flow into the discharge lamp until a state of equilibrium is established wherein a predetermined quantity of mercury and a predetermined quantity of the additional fill ingredient are contained within the lamp.

5,213,538

POP-ACTION BOUNCING DOLL

William Willett, Orange, Calif., assignor to Mattel, Inc., El Segundo, Calif.

Filed Jan. 2, 1992, Ser. No. 823,231
Int. Cl.[5] A63H *33/00, 13/10;* A63B *65/00*
U.S. Cl. 446—4 9 Claims

1. A pop-action impact-responsive bouncing doll comprising:

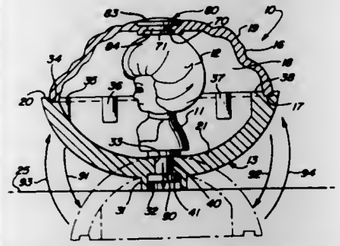
a doll torso having first and second ends;

a generally hemispherical resilient member secured to said second end deformable between a stable relaxed first position extending downwardly from said first end to form a convex support therefor and a marginally stable stretched second position extending upwardly toward said second end to form a concave partial enclosure for said torso;

an upper portion secured to said second end, said upper portion defining a generally concave surface receiving a portion of said torso and an outer edge,

said resilient member providing an upwardly extending

closure member when elastically deformed into said second position such that said resilient member and said upper portion at least substantially enclose said torso for



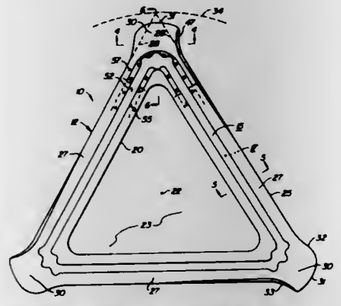
producing resilient force releasible upon impact urging said resilient member toward said first position and launching said doll.

5,213,539

RETURNING FLYING RING TOY

Alan J. Adler, 752 La Para Ave., Palo Alto, Calif. 94306

Continuation of Ser. No. 532,003, Jun. 1, 1990, abandoned, which is a continuation-in-part of Ser. No. 377,018, Jul. 6, 1989, abandoned. This application Nov. 27, 1991, Ser. No. 800,873
Int. Cl.[5] A63H *27/00;* A63B *65/08*
U.S. Cl. 446—48 11 Claims



1. A returning flying ring formed as a thin aerodynamic body extending generally in a plane, the body having an upper surface and a lower surface, the body being characterized by:

an inner perimeter of substantially triangular shape with rounded corners, encompassing a center point and a center opening;

an outer perimeter having three non-intersecting, straight segments, each straight segment having longitudinal extensions, wherein said straight segments and their longitudinal extensions define a triangle having three corners;

the body having a chord dimension defined as the shortest distance between said inner perimeter and said outer perimeter;

said outer perimeter departing from precise triangularity in three corner regions, being widened and rounded in said three corner regions to define three wingtip areas, each of said wingtip areas extending outside the longitudinal extensions of said straight segment by a distance that is less than said chord dimension;

each of said wingtip areas having a leading edge and a trailing edge; and

at least two of said wingtip areas being formed with said leading edge higher than said trailing edge relative to the plane of the body so as to produce aerodynamic lift at said wingtip areas as the body spins about an axis which is perpendicular to the plane of the body and passes through said center point;

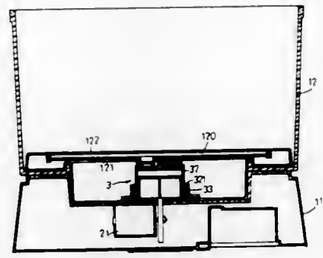
such that when the returning flying ring is thrown forward with spin, said aerodynamic lift of said wingtip areas will produce a rolling moment and cause the returning flying ring to fly in a substantially circular path.

5,213,540

WAVE GENERATING AQUATIC TOY DEVICE

Tsai-Ten Yang, No. 23, Sec. 1, Chung-Hwa W. Rd., Tainan City, Taiwan

Filed Jun. 14, 1991, Ser. No. 718,331
Int. Cl.[5] A63H *33/40, 23/00, 3/52;* G09F *19/00*
U.S. Cl. 446—180 2 Claims



1. An aquatic toy device comprising:

a tank for containing a liquid therein, and including a bottom part having an upper perforated plate member, and a lower guide plate member connected to said upper perforated plate member so as to define a space between said upper perforated plate member and said lower guide plate member;

a base attached to said bottom part of said tank;

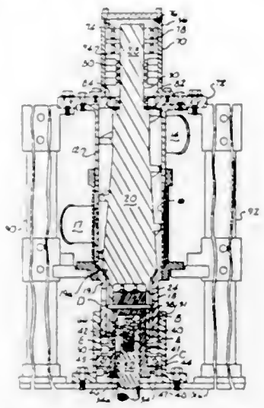
a liquid propelling unit provided in said bottom part of said tank to force liquid contained in said tank upwards from said space through said upper perforated plate member, when said propelling unit is actuated, so as to generate waves within said tank when filled with liquid and to cause at lest one floatable toy floating on top of said liquid to exhibit wave-like motions; and

actuating means mounted in said base, and connected to said liquid propelling unit, for actuating said liquid propelling unit,

said liquid propelling unit including a piston-type propelling unit located below said lower guide plate member, said piston-type propelling unit including a hollow housing having a top portion and a bottom portion, a piston member mounted in said hollow housing, and a variable chamber formed between said piston member and said top portion, said top portion having an inlet opening in fluid communication with said bottom part of said tank and said variable chamber, an outlet opening in fluid communication with said variable chamber and said space, an inlet check valve mounted adjacent to said inlet opening and controlling the liquid flowing from said bottom part of said tank into said variable chamber, and an outlet check valve mounted adjacent to said outlet opening and controlling the liquid flowing from said variable chamber into said space, said bottom portion of said housing having an outwardly extending step portion and an enlarged portion below said step portion, said piston member having a peripheral flange outwardly extending into said enlarged portion, a spring mounted between said step portion and said peripheral flange, said actuating means comprising a motor including a shaft, and a cam mounted on said shaft, abutting against and driving said piston member.

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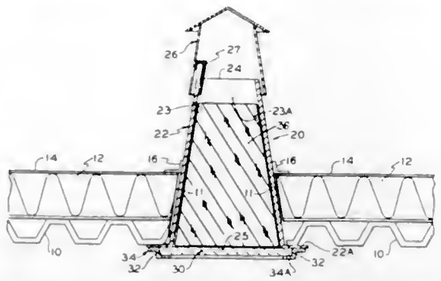
5,213,541
DRIVE COUPLING, AND IDLER BEARING APPARATUS FOR MEAT DEBONING MACHINE ASSEMBLY
James B. Richburg, 101 Pumpkin La., Sumter, S.C. 29150, and Samuel M. Brice, St. Matthews, S.C., assignors to James B. Richburg, Sumter, S.C.
Filed May 2, 1991, Ser. No. 694,548
Int. Cl.[5] B02C *19/22*; A22C *17/00*
U.S. Cl. 452—135 40 Claims



1. Apparatus which includes a feed can having an entry end through which material passes, an exit end from which said material exits, an auger for conveying said material from said entry end to said exit end, a drive motor having a drive motor shaft for connection to a first end of said auger for rotating an auger shaft, and a bearing housing supporting said auger shaft at a second end of said auger, wherein said apparatus comprises:
- a motor coupling housing receiving said first end of said auger;
- coupling means for coupling said drive motor shaft and said auger together so that said drive motor shaft and auger move axially relative to each other;
- first connecting means connecting said coupling means to said auger;
- second connecting means connecting said drive motor shaft and said coupling means; and
- a bearing housing carried by an end plate of said feed can which receives said first end of said auger shaft and accommodates relative axial movement of said auger.

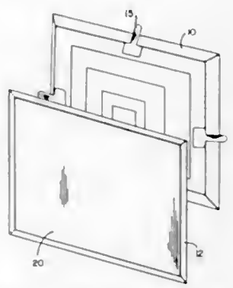
5,213,542
INSULATED HEAT ACTIVATED VENTILATOR
Thomas L. Kelly, Kelly Energy Systems, Inc., P.O. Box 2583, Waterbury, Conn. 06723
Filed May 29, 1992, Ser. No. 889,990
Int. Cl.[5] F24F *11/02*
U.S. Cl. 454—357 11 Claims

1. A building construction comprising a building structure and a ventilator, the ventilator including a stack defining a passage having an inlet and an outlet communicating with one another, a closure operative to normally seal the passage, insulating material supported by the closure and providing an air seal within the passage under normal conditions, and normally inoperative vent actuating means associated with the closure, the vent actuating means being operative in response to the presence of combustion products for disabling the closure, the closure and the insulating material being automatically released from the passage of the stack upon disablement



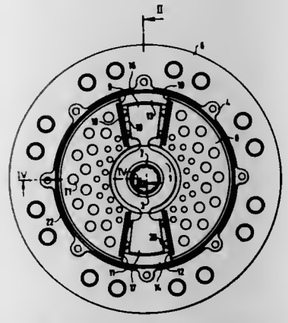
of the closure whereby the combustion products are exhausted through the passage of the stack to atmosphere.

5,213,543
AIRCAP
Robert M. Clarino, 30 Nida Dr., Northford, Conn. 06472
Filed Aug. 8, 1991, Ser. No. 742,297
Int. Cl.[5] F24F *13/20*
U.S. Cl. 454—292 4 Claims



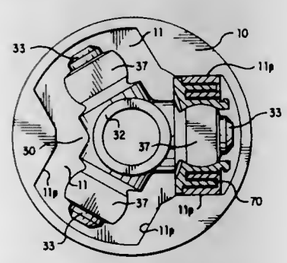
1. In combination: a ceiling register including a framework having a front face and a backside which abuts against the surface of the ceiling in which said register is mounted in substantially air-tight engagement therewith, said front face including a rim surrounding an opening for passage of air through said register, and a cover assembly for sealing said opening when said ceiling register is not in use, said cover assembly comprising a flat rigid plate of a size sufficient to overlie said opening and at least a portion of said rim adjacent to said opening, means affixed to said rim for removably attaching said rigid plate to said front face, said attaching means comprising at least one fastener including a base and an elongated bendable member, said base including an adhesive material on one side thereof affixing said base to said rim, and a compressible sealing member disposed on one side of said rigid plate between said plate and said rim, said sealing member extending substantially continuously around the periphery of said rigid plate contacting said rim and at least a portion of said base affixed to said rim, said elongated bendable member extending around an edge of said rigid plate and engaging the opposite side of said rigid plate forcing said rigid plate inwardly toward said rim and compressing said sealing member, thereby establishing a substantially air-tight seal around said rim and said portion of said base affixed to said rim.

5,213,544
COMPLIANT, ACOUSTICALLY INSULATING TORSIONALLY ELASTIC COUPLING
Franz J. Wolf, and Hubert Pletsch, both of Bad Soden-Salmünster, Fed. Rep. of Germany, assignors to WOCO Franz-Josef Wolf & Co., Fed. Rep. of Germany
PCT No. PCT/EP89/01578, § 371 Date Aug. 22, 1990, § 102(e) Date Aug. 22, 1990, PCT Pub. No. WO90/07068, PCT Pub. Date Jun. 28, 1990
PCT Filed Dec. 20, 1989, Ser. No. 572,981
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1988, 3843320
Int. Cl.[5] F16D *3/68*
U.S. Cl. 464—85 10 Claims



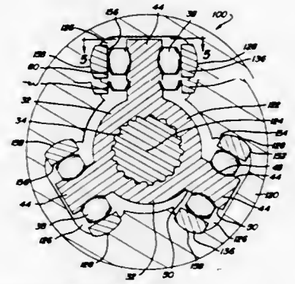
1. A torsionally elastic shaftcoupling, comprising a pair of coupling parts including a hub part connectible to one of two shafts to be linked, and a driven part including a pair of support plates having means for connection to the second of the said two shafts to be linked, said support plates defining a caged area therebetween, at least one rubber element in the shape of a ring segment disposed within said caged area for torsionally connecting the hub part to the support plates, said rubber element comprising essentially parallel hollow ducts, essentially each and every one of said ducts extending in the same direction and parallel to the main axis of said hub part, wherein the rubber element includes spaced cavities intersected by the hollow ducts, said cavities having cross-sections which are larger than that of the hollow ducts passing through them.

5,213,545
COUPLING FOR USE IN A CONSTANT VELOCITY SHAFT
Russell D. Ide, P.O. Box 744, 641 Arnold Rd., Coventry, R.I. 02816
Filed Apr. 1, 1991, Ser. No. 678,157
Int. Cl.[5] F16D *3/202*
U.S. Cl. 464—111 19 Claims



1. A coupling, the coupling comprising a drive canister having a longitudinal axis and a plurality of axial grooves formed therein, each groove having a predetermined shape and extending axially in the direction of the longitudinal axis of the drive canister; a trunnion having a centrally formed splined opening and a plurality of legs equal in number to the number of axial grooves formed in the drive canister, each leg having a longitudinal axis which extends radially from the opening, and a spherical surface portion; and a bearing assembly mounted on the spherical surface portion of each leg, each bearing assembly comprising:
- a non-rotatable member which includes a spherical surface portion for supporting the spherical surface portion of a trunnion leg, the non-rotatable member further comprising a plurality of radially space axially extending sleeves which extend axially along the longitudinal axis of the trunnion leg; a rolling member having a plurality of radially spaced axially extending cylindrical surfaces supported on the sleeves of the non-rotatable member for rotation relative to the non-rotatable member the sleeves also extending axially along the longitudinal axis of the trunnion leg, the rolling member having a cylindrical outer surface in contact with one of the axial grooves of the drive canister; and a bearing supporting each cylindrical surface of the rolling member on a corresponding one of the sleeves of the non-rotatable member whereby torque loads are distributed among the bearings so that the torque load is distributed through an increased total bearing surface area.

5,213,546
ANTI-SHUDDER TRIPOD CONSTANT VELOCITY JOINT
Dean J. Schneider, Highland, Mich., assignor to GKN Automotive, Inc., Auburn Hills, Mich.
Filed Oct. 15, 1991, Ser. No. 776,827
Int. Cl.[5] F16D *3/205*
U.S. Cl. 464—111 6 Claims



1. A universal joint comprising:
- an outer joint member having a plurality of circumferentially spaced longitudinally extending chambers, each chamber having a curved pair of oppositely disposed longitudinal sidewalls;
- an inner joint member disposed within said outer joint member having a plurality of circumferentially spaced radially outwardly extending trunnions, each trunnion extending into a respective chamber of said outer joint member and having an exterior surface positioned between said pair of oppositely disposed longitudinal sidewalls of said respective chamber into which it extends;
- a plurality of annular outer rollers, each annular outer roller positioned around a specific trunnion of said plurality of trunnions, said outer roller having an axis of rotation, an exterior surface and an interior surface, said exterior surface in rolling contact with at least one of said pair of oppositely disposed longitudinal sidewalls of said respective chamber, said interior surface having a pair of lateral edges and being cylindrical between said lateral edges, said axis of rotation of each of said annular outer rollers

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remaining generally perpendicular to a plane defined by said pair of oppositely disposed longitudinal sidewalls during angular movement of said joint;

a plurality of arrangements of roller bearings, each arrangement of roller bearings interposed between said annular outer roller and said respective trunnion, each of said arrangement of roller bearings including a plurality of roller bearings, each of said roller bearings having a barrel shaped exterior surface in rolling contact with said interior surface of said outer annular roller and said exterior surface of said respective trunnion.

5,213,547

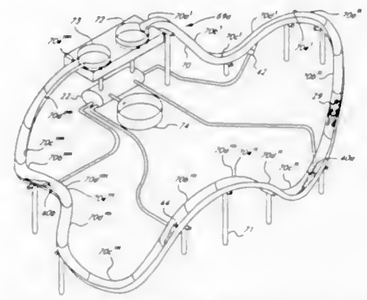
METHOD AND APPARATUS FOR IMPROVED WATER RIDES BY WATER INJECTION AND FLUME DESIGN

Thomas J. Lochtefeld, La Jolla, Calif., assignor to Light Wave, Ltd., La Jolla, Calif.

Continuation of Ser. No. 568,278, Aug. 15, 1990, abandoned. This application Mar. 20, 1992, Ser. No. 857,096

Int. Cl.[5] A63G *21/18*

U.S. Cl. 472—117 **97 Claims**



1. A water slide for amusement parks, water parks, and the like, wherein a user travels uphill and downhill along said slide, said slide comprising.

an elongate narrow ride surface adapted to receive and support said user riding thereon in a sitting or prone position;

a plurality of water jets spaced apart and positioned along said ride surface at predetermined locations;

a thin sheet of water along said ride surface to reduce frictional forces acting on said user;

said water jets being oriented tangentially with respect to said ride surface so as to contact said user as said user passes by each of said locations, each of said jets having a preselected velocity which may be selectively greater, less than, or the same as the velocity of said user at each of said jet locations, whereby said user's velocity may be changed to safely control said user depending upon the location of said jets along said ride.

5,213,548

GEAR SHIFTING SYSTEM FOR DERAILLEUR EQUIPPED BICYCLE

Ralph G. Colbert, 19720 Mildred Ave., Torrance, Calif. 90503; George Kerster, 450 N. Meadows Ave., Manhattan Beach, Calif. 90266, and Thomas A. Nussmeier, 12593 Westmont Dr., Moorpark, Calif. 93021

Filed Mar. 2, 1992, Ser. No. 844,740

Int. Cl.[5] F16H *63/00*

U.S. Cl. 474—71 **15 Claims**

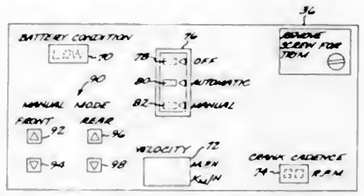
13. Apparatus for controlling the gear ratio of a bicycle having a plurality of front chainwheels, a plurality of rear sprockets and first and second wheels, first and second pedals, front and rear derailleurs controlling the position of a bicycle chain on selected ones of said chainwheels and sprockets comprising:

sensor means operatively mounted adjacent said first wheel for generating a first electrical signal corresponding to the velocity of the bicycle;

sensor means operatively associated with said first pedal for generating a second electrical signal corresponding to the crank speed of said bicycle;

a microcontroller responsive to said first and second electrical signals for calculating the actual gear ratio and comparing it with preset values to see if ti si within a first set of limits, if within said first set of limits the microcontroller thereafter determining whether the crank speed is within a second set of limits and generating a third electrical signal if the crank speed is outside said second set of limits; and

means for controlling said front and rear derailleurs in response to said third signal to shift said bicycle chain whereby said cadence is within said second set of limits, said controlling means comprising first and second servomotors.



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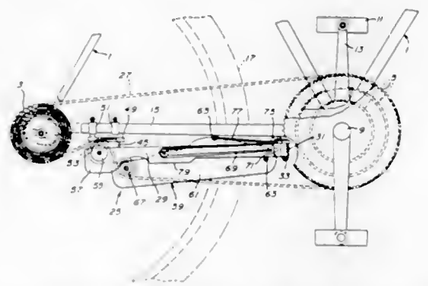
DERAILLEURS FOR MULTI-SPEED BICYCLES

Pierre Blanchard, 645 Isabelle Street, Acton Vale, Canada J0H 1A0

Filed Jul. 22, 1991, Ser. No. 733,624

Int. Cl.[5] F16H *61/00*

U.S. Cl. 474—81 **29 Claims**



1. A derailleur for a multi-speed bicycle having a bicycle frame including a rear-wheel supporting frame member rearwardly extending from a pedalling axle supporting housing, a plurality of rear sprocket and a drive chain, said derailleur comprising a torsion-resistant bar extending, when installed, below and generally along said frame member and having a bar front end and a bar rear end, a mounting means adapted to be secured to said bicycle frame adjacent said housing and holding said bar front end and preventing said bar from rotating about its longitudinal axis, said bar rear end located adjacent said drive sprocket and movable transversely of said frame member, a drive chain transfer means carried by said bar rear end and engaging said drive chain and shifting means for shifting said bar rear end transversely of said frame member to align said transfer means with any selected rear drive sprocket an

elongated member supported by and extending alongside said bar, means to guide said elongated member for longitudinal movement relative to said bar, a chain-engaging take-up member carried by the rear end of said elongated member, and first biasing means biasing said elongated member rearwardly with respect to said bar to cause said chain take-up member to eliminate slack in said chain, said first biasing means including an elastic, flexible cord having one end secured to said bar front end and its other end secured relative to the front end of said elongated member and a return pulley carried by said bar intermediate said bar front and rear ends and on which said elastic cord is trained.

5,213,550

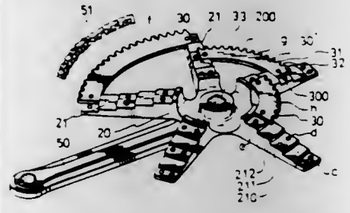
VARIABLE SPEED-TYPE BICYCLE CHAIN RING ASSEMBLY

Chuen-Fwu Wu, No. 12, Lane 18, Kuo-Chi Erh Rd., Ta-Hu Li, Ying-Ko Chen, Taipei Hsien, Taiwan

Filed Jan. 23, 1992, Ser. No. 824,612

Int. Cl.[5] F16H *55/12*

U.S. Cl. 474—160 **4 Claims**



1. A variable speed-type bicycle chain ring assembly, comprising:

a hub member having a plurality of angularly spaced radial arms which are stepped at a front side of said hub member so as to form at least two mounting sections that are spaced at different radial distances from a center point of said hub member, said mounting sections of said radial arms being in circumferential alignment, the thickness of said mounting sections increasing from an outermost end to an innermost end of said radial arms; and

at least two concentric sprocket ring members of different diameters, said sprocket ring members being mounted on said hub member at a respective one of said mounting sections.

5,213,551

VARIABLE-RATIO TRANSMISSION DEVICE, ESPECIALLY FOR MOTOR VEHICLES

Roumen A. Antonov, Paris, France, assignor to Mat Holdings B.V., Netherlands

PCT No. PCT/FR91/00159, § 371 Date Oct. 24, 1991, § 102(e) Date Oct. 24, 1991, PCT Pub. No. WO91/13275, PCT Pub. Date Sep. 5, 1991

PCT Filed Feb. 27, 1991, Ser. No. 768,877

Claims priority, application France, Feb. 28, 1990, 90 02480; May 23, 1990, 90 06438

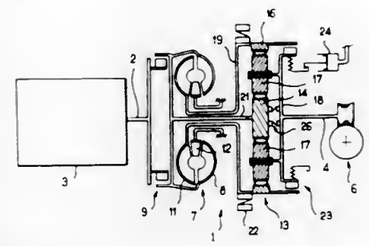
Int. Cl.[5] F16H *47/08*

U.S. Cl. 475—257 **29 Claims**

1. A variable-ratio transmission device for a motor vehicle, the transmission device comprising an input and an output; a differential mechanism having a first access, a second access, and a third access, the differential mechanism defining a first transmission ratio and a second transmission ratio, the rotational speed of the output relative to that of the input being higher during operation according to the second ratio than during operation according to the first ratio; at least a first selective coupling means for effecting the change from the first ratio to the second, the first selective coupling means having a driving member and a driven member and being of a type which allows relative angular slip between the driven member and the driving member as a function of torque transmitted between the members and rotational speed of the driving member;

means for connecting the input of the device to the driving member of the first selective coupling means independently of any of the accesses of the first differential mechanism;

means for connecting the output of the device to the first access of the first differential mechanism;



means for connecting the driven member of the first selective coupling means to the second access of the first differential mechanism;

means for connecting the input of the device to the third access of the first differential mechanism independently of the first selective coupling means; and

means for preventing the second access from rotating backwards during operation according to the first transmission ratio.

5,213,552

VEHICLE POWER TRANSMISSION

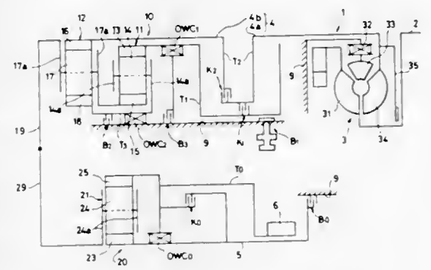
Koki Ito, Higashi-Hiroshima, Japan, assignor to Mazda Motor Corporation, Hiroshima, Japan

Filed Jun. 27, 1991, Ser. No. 722,162

Claims priority, application Japan, Jun. 28, 1990, 2-170788; Mar. 22, 1991, 3-57575

Int. Cl.[5] F16H *3/66*

U.S. Cl. 475—276 **27 Claims**



1. A vehicle power transmission comprising:

a transmission case,

first shaft means, rotatable in the transmission case, for receiving a driving torque from a vehicle engine,

a multiple stage first gear system provided on said first shaft means,

a second gear system of planetary gear type,

a second shaft means substantially parallel with said first shaft means for mounting said second gear system,

friction means and reaction means for controlling operations of said second gear system, and

an output element provided on said second shaft means,

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said second gear system including a sun gear provided on said second shaft means to rotate therewith,

said friction means being provided between said second shaft means and said transmission case to restrict the rotation of the second shaft means,

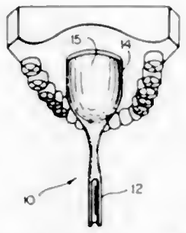
said reaction means being provided in association with said second shaft means so as to prohibit rotation of the second shaft means in one direction,

said output element being provided rotatably on said second shaft means,

said output element being disposed adjacent to an end of the second shaft means located adjacent to an end of said first shaft means into which the driving torque from the vehicle engine is introduced, and

said second gear system including an input means for receiving an output torque from said first gear means and transmitting the torque to a gear element of said second gear system and to said second shaft means through clutch means for selectively engaging and disengaging said input means and said second shaft means.

5,213,553
DEVICES USED TO IMPROVE SPEECH, SWALLOWING AND MASTICATION
Jack Light, 104 New Mark Esplanade, Rockville, Md. 20850
Filed Apr. 15, 1992, Ser. No. 868,343
Int. Cl.[5] A63B *23/025*
U.S. Cl. 482—11 **5 Claims**



1. A prosthetic plural positioner training kit for orally handicapped persons, each positioner thereof comprising in commonalty:

(a) an elongated palatal base for insertion into the mouth (of a user) said base defining a convex upper surface to conformably engage the palate of the mouth and a concave lower surface forming an artificial tongue contacting surface, an open end of said base terminating in an edge which is normal to a longitudinal center line of the positioner and a closed end of said base converging into a transversely curvilinear shelf of reduced width relative to the open end;

(b) a rigid handle projecting from the closed end of the base, said handle being of less width than the palatal base, shaped and arranged with the base for manual manipulation externally of the mouth, whereby the handle, engaged also by the lips, may assist in placement of the positioner relative to the person's palate.

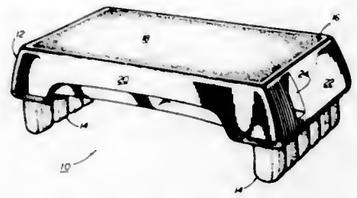
5,213,554
STEPPING DEVICE
Eric Goldstein, Roswell; William J. Saunders, Lithonia, and Edward Leftwich, Decatur, all of Ga., assignors to The Step Company, Atlanta, Ga.
Filed Jul. 1, 1991, Ser. No. 724,205
Int. Cl.[5] A47B *85/00, 91/02;* **A63B** *22/00*
U.S. Cl. 482—52 **15 Claims**

1. A device for aerobic exercising, comprising:

(a) a platform having a flat top;

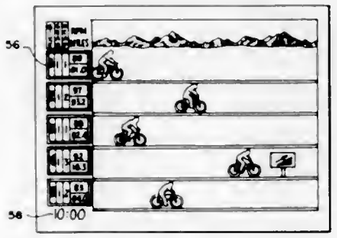
(b) a pair of cavities formed in the underside of the platform;

(c) a pair of equally dimensioned support members that each have opposed first and second ends which are dimensioned to be received within the cavities, the first and second ends defining a first and second opening therein, respectively, with the openings being in vertical alignment with each other and having a first and second depth, respectively; and



(d) means in each cavity for engaging the openings when each of said selected first or second end of the support members is inserted into a cavity, so tat the platform is maintained at certain selected heights above a support surface depending upon which of the first and second ends are within the cavities.

5,213,555
EXERCISE EQUIPMENT INFORMATION, COMMUNICATION AND DISPLAY SYSTEM
Robert L. Hood, 32380 Pine St., Grayslake, Ill. 60030; William H. Englehardt, 465 W. Dominican, Woodale, Ill. 60191, and Russell W. Krch, 8231 W. 79th St., Apt. 2E, Justice, Ill. 60458
Filed Feb. 27, 1990, Ser. No. 485,700
Int. Cl.[5] A63B *21/00*
U.S. Cl. 482—57 **24 Claims**



1. An information, communication and display system for use with a plurality of exercise machines for the purpose of permitting the machines to be raced against one another, comprising:

input means for each exercise machine for accepting race input data;

memory means for storing programs and data;

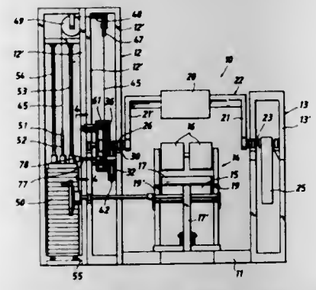
main control means, responsive to said input means and said programs stored in said memory means, for controlling a simulated race between two or more exercise machines, generating graphic images of said race, and calculating race data including elapsed time, distance and calories consumed;

display means for displaying said graphic images including an indication of the location of each of the racers, and for displaying data including said race input data and said race data;

receiving means for each exercise machine for receiving data from said main control means; and

means for interconnecting and transmitting data between said main control means and said receiving means of each of the exercise machines using a broadcast, which includes the elapsed time of said race, to prepare each exercise machine for a subsequent poll for data from said machine, and a polling cycle divided into a plurality of time slots corresponding to time-driven interrupts generated by said main control means, with a time-slot assigned to each exercise machine during which said main control means polls each respective exercise machine and receives data from said machine.

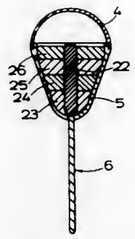
5,213,556
MOTION CONVERTING MECHANISM FOR AN EXERCISE MACHINE
John P. Boren, 9940 Old Katy Rd., Houston, Tex. 77055
Contiauation of Ser. No. 705,787, May 28, 1991, abandoned.
This application Jul. 10, 1992, Ser. No. 912,095
Int. Cl.[5] A63B *21/062*
U.S. Cl. 482—137 **15 Claims**



1. A mechanism for converting pivotal rotation of the back support frame of an exercise machine to linear vertical movement of a counterbalance weight assembly comprising: an enclosed compartment having inner and outer vertical walls; a pivotally arranged support frame; a stub shaft fixed to said support frame and extending at a right angle thereto through an opening in said inner wall; first arm means fixed to said stub shaft adjacent said inner wall and arranged for pivotal rotation with said stub shaft and said support frame; second arm means adjacent said first arm means and mounted on said stub shaft for pivotal rotation relative to said first arm means; means for linking said first arm means to said second arm means in a manner such that pivotal rotation of said first arm means causes pivotal rotation of said second arm means; lifting wheel means rotatably mounted on said stub shaft adjacent said second arm means and having an outer peripheral portion; selectively operable pin means extending through said outer wall for fastening said second arm means to said outer peripheral portion of said lifting wheel means in any one of a plurality of relative angular orientations with respect thereto; and a counterbalance weight assembly coupled to said lifting wheel means and adapted to resist rotation of said lifting wheel means, said second and first arm means and said support frame in one rotational direction.

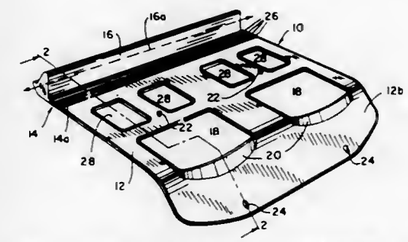
5,213,557
DEVICE FOR EXERCISING PELVIC FLOOR MUSCLES
John Firth, Orchard House, 19, Birmingham Rd., Blakedown, Kidderminster, DY10 3JD, England
Continuation of Ser. No. 509,049, Apr. 13, 1990, abandoned.
This application Oct. 7, 1991, Ser. No. 771,815
Claims priority, application United Kingdom, Apr. 14, 1989, 8908449
Int. Cl.[5] A63B *21/065*
U.S. Cl. 482—105 **18 Claims**

1. A device for exercising pelvic floor muscles by inserting into the vagina, said device comprising a casing being a vaginal insert, and a set of two or more weights separate from said casing, said casing having at least two parts and means defining an internal cavity in said casing for removably receiving one or more of said weights, wherein said casing parts have a sealing connection therebetween, said connection being releasble to allow access to said cavity for insertion of at least one said wight, and said connection being made to seal said casing, said casing and said connection being so constructed that when said casing is sealed it supports and retains said weights in said



cavity, said weights fitting together to form a shape complementary to at least a portion of said internal cavity, and said casing parts in which said cavity is defined being adapted to be fully received in the vagina.

5,213,558
EXERCISE DEVICE
Randy Miller, 1322 Crowley Ave., Madison, Wis. 53704, and David W. Wendt, Madison, Wis., assignors to Randy Miller, Madison, Wis.
Filed Jul. 10, 1992, Ser. No. 911,526
Int. Cl.[5] A63B *21/00*
U.S. Cl. 482—140 **13 Claims**



1. An exercise device that is used with a stationary object such as a closed door, said object having a first side and an opposite second side, said device comprising:

a flexible, thin sheet body portion that is adapted to being rolled into a rolled-up condition and that is adapted to substantially lie on said first side of said stationary object;

at least one aperture in said body portion that is adapted to receive a part of a human body;

shoulder means interconnected with said body portion for abutting said second side of said stationary object; and

connector means for connecting said body portion to said shoulder means, said connector means substantially lying underneath said stationary object.

5,213,559
APPARATUS FOR CHANGING BLANKS AND TOOL AUTOMATICALLY IN A GEAR CUTTING MACHINE
Alessandro Lunazzi, Bologna, Italy, assignor to Mikron S.p.A. Bologna, Bologna, Italy
Filed May 28, 1992, Ser. No. 890,655
Claims priority, application Italy, May 31, 1991, B091A000190
Int. Cl.[5] B23Q *3/157*
U.S. Cl. 483—14 **7 Claims**

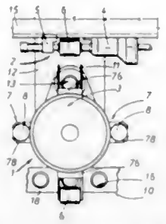
1. An apparatus for automatically changing blanks in a gear cutting machine, comprising:

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a tool head mounted to a machine bed, said tool head capable of movement along both a vertical and a horizontal axis, the tool head having a spindle and a bearing block disposed about a common horizontal axis and capable of movement toward and away from one another, between and by which a tool is supported and set in motion about the common axis;

means for supporting and rotating a blank;

a vertical post rotatable about a vertical axis and having a plurality of restraint and/or support elements exhibiting



two dissimilar types of structure, the one type designed to restrain and/or support a blank and the other to restrain and/or support a tool, peripherally disposed in angularly equispaced positions about the vertical axis so that each element can be brought by rotation of the post into a position over the means by which the blank is supported and rotated;

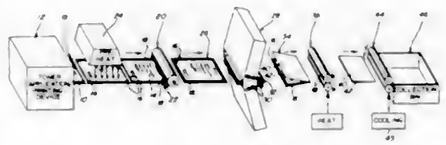
a central monitoring and control unit by which the tool head is caused to traverse toward and away from the vertical post and to interact with the restraint and/or support elements to automatically bring about a change of tool.

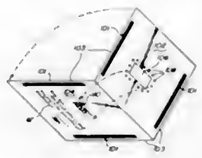
5,213,560

SYSTEM AND METHOD FOR MANUFACTURING SEALED PACKAGES

H. W. Crowley, Newton, Mass., assignor to Roll Systems, Inc., Burlington, Mass.

Filed May 20, 1991, Ser. No. 702,829
Int. Cl.[5] B31B *1/24, 1/62*
U.S. Cl. 493—231 **8 Claims**





1. A method for constructing sealed printed packages comprising:

fixedly applying printing toner to predetermined locations upon a face of a printable material;

forming a throughcut open window upon a portion of the material at a location that enables viewing therethrough;

the step of applying including locating toner proximate an edge of the window;

folding the material so that the section having the window overlays the section having predetermined printing thereon, at least part of the printing being viewable through the window; and

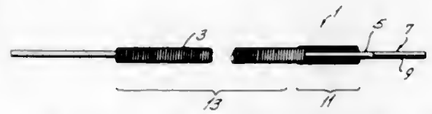
sealing the toner so that the overlayed sections become sealed to each other, the step of sealing including adhering the edge of the window at predetermined points therealong against an opposing face of the folded printable material to tack the window in place relative to the opposing face, the adhering of the edge including locating the toner in tacking spots so that the edge of the window can be pulled away from the opposing face with minimal letter opening force.

5,213,561

METHOD AND DEVICES FOR PREVENTING RESTENOSIS AFTER ANGIOPLASTY

Joseph S. Weinstein, 200 Wagner Pl. #906, Memphis, Tenn. 38103, and H. Frank Martin, 5108 Greenway Cove, Memphis, Tenn. 38117

Continuation of Ser. No. 577,916, Sep. 6, 1990, abandoned. This application Mar. 19, 1992, Ser. No. 855,445
Int. Cl.[5] A61M *36/12*
U.S. Cl. 600—7 **12 Claims**



1. A device for reducing the incidence of restenosis at a site within a vascular structure following percutaneous transluminal coronary or peripheral angioplasty of said site, comprising,

an elongated flexible member which is insertable longitudinally through vascular structure,

an intravascular radioactive source mounted at a distal end of said flexible member,

said source being positionable at an intravascular angioplasty site within said vascular structure for radiating said site by inserting said flexible member longitudinally through said structure,

radiation shielding means on said flexible member for selectively shielding and exposing said radioactive source,

said shielding means being a retractable sleeve around said radioactive source, said sleeve being selectively movable relative to said source to expose said source when said source has been positioned at said site, thereby to radiate said site,

said flexible member, source and shielding means having dimensions sufficiently small that said device is insertable longitudinally through said vascular structure.

5,213,562

METHOD OF INDUCING MENTAL, EMOTIONAL AND PHYSICAL STATES OF CONSCIOUSNESS, INCLUDING SPECIFIC MENTAL ACTIVITY, IN HUMAN BEINGS

Robert A. Monroe, Nelson County, Va., assignor to Interstate Industries Inc., Faber, Va.

Filed Apr. 25, 1990, Ser. No. 514,460
Int. Cl.[5] A61M *21/00*
U.S. Cl. 600—28 **6 Claims**

1. A method of inducing states of consciousness in human beings, comprising:

providing a replicated electroencephalogram (EEG) waveform indicative of a desired state of consciousness;

superimposing said EEG waveform on two separate sets of carrier waves using stereo sound;

creating differential beat frequencies between said sets of carrier waves in accordance with said superimposing step; and

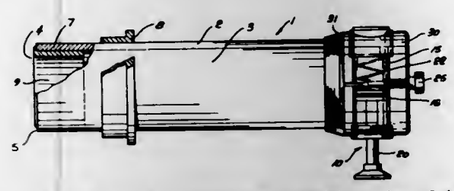
providing the resulting signals in audio form to respective ears of a human being, to induce said state of consciousness.

5,213,563

APPARATUS FOR OBTAINING AN ARTIFICIAL ERECTION

Allan J. Cox, 6 Seale Close, Beecroft, New South Wales, 2119, Australia

Filed Jan. 31, 1992, Ser. No. 829,765
Claims priority, application Australia, Feb. 4, 1991, PK4445
Int. Cl.[5] A61F *5/41*
U.S. Cl. 600—38 **3 Claims**



1. An apparatus for obtaining an artificial erection of the male genital organ, said apparatus including an elongate generally tubular body partially defining a vacuum chamber adapted to accommodate said organ in a distended condition, said tubular body having an opening at one end to receive the organ and a substantially continuous peripheral rim adjacent said opening to seal the vacuum chamber around the organ, the other end of the body being substantially closed and including manually operable pump means adapted selectively and progressively to evacuate said vacuum chamber such that, in use, the resultant differential pressure causes blood to flow into the organ and induce an artificial erection;

said pump means comprising a pressure cylinder, a piston manually reciprocable within the cylinder, and a cooperating pair of pressure actuable one way valves respectively associated with the cylinder and piston, the valves being disposed such that axial displacement of the piston in a first direction corresponding to a suction stroke of the pump draws a corresponding volume of air into the cylinder from within the vacuum chamber, and displacement of the piston in the opposite direction corresponding to a return stroke exhausts the air from within the cylinder while isolating the vacuum chamber;

the pump including a manually operable plunger connected with the piston and protruding outwardly from the cylinder, the resilient bias means disposed to urge the piston toward a rest position corresponding to the end of the suction stroke;

said resilient bias means comprising a compression spring disposed within the cylinder; and

the pump being configured such that each suction stroke is affected automatically by the spring, and each return stroke is effected manually by the plunger against the bias force of the spring, whereby the maximum extent to which the vacuum chamber is evacuated tends to be limited by the maximum bias force of the spring.

5,213,564

PROPHYLACTIC ANKLE BRACE

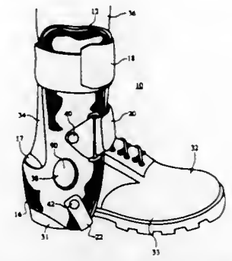
Glenn W. Johnson, Jr., Summit, and Henry J. McVicker, Chatham, both of N.J., assignors to Aircast, Inc., Summit, N.J.

Filed Jan. 14, 1992, Ser. No. 821,401
Int. Cl.[5] A61F *3/00*
U.S. Cl. 602—27 **12 Claims**

1. Orthopedic apparatus for use in connection with the outside of a shoe to limit inversion and eversion of the foot while permitting plantarflexion and dorsiflexion thereof comprising:

a pair of spaced apart side walls for mounting on the outside of the shoe and extending longitudinally upwardly to encompass the ankle and lower extremity of the leg above the ankle to enable the ankle to resist inversion and eversion forces;

a substantially U-shaped member connecting the spaced apart side walls and extending substantially around the



back outside portion of the shoe surrounding the heel of the foot to hold the side walls in fixed relationship to each other; and

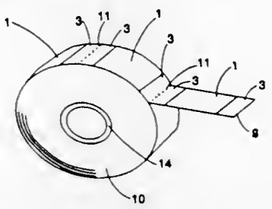
means for removably attaching the connected side walls to the shoe and to the lower extremities of the leg in fixed relationship.

5,213,565

TEMPORARY BANDAGE TAPE

Ernest J. Rollband, 3415 Slaterville Rd., Brooktondale, N.Y. 14817

Filed Dec. 3, 1990, Ser. No. 621,261
Int. Cl.[5] A61L *15/00*
U.S. Cl. 602—41 **2 Claims**



1. A roll of tapes with non-adhesive ends which may be used by a gloved person, comprising:

a) a center spool,

b) a length of tope wound around said spool, said tape comprising repeating segments, each of said segments comprising:

1) a first non-adhesive section, having anon-adhesive surfaces on both sides thereof,

2) a second non-adhesive section, having non-adhesive surfaces on both sides thereof, and

3) an adhesive section, having an adhesive surface on one side thereof and a non-adhesive surface on the other side thereof, disposed between said first non-adhesive section and said second non-adhesive section, such that said adhesive surface covers the entire area on said one side of said segment between said first non-adhesive section and said second non-adhesive section, and does not contain any nonadhesive areas, and is permanently attached to said first and second non-adhesive sections, whereby each of said repeating segments is attached to at least one other of said repeating segments, in an end-to-end manner, with a perforated attachment between segments.

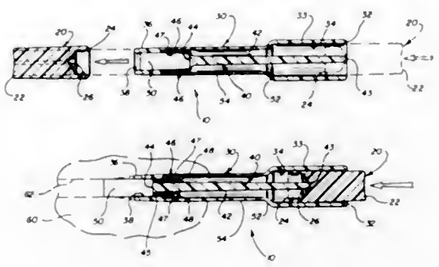
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,566

PREFILLED SUPPOSITORY APPLICATOR

Edward A. Weissenburger, Mercerville, N.J., assignor to Ortho Pharmaceutical Corporation, Raritan, N.J.

Continuation-in-part of Ser. No. 724,641, Jul. 2, 1991, abandoned. This application Jun. 5, 1992, Ser. No. 894,487
Int. Cl.[5] A61F *15/00*
U.S. Cl. 604—14 13 Claims



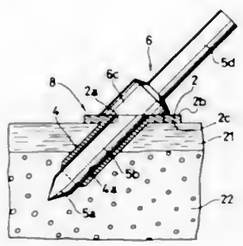
1. A one piece injection molded suppository applicator for ejecting medicament into a body cavity comprising a cylindrical main body portion having a distal end and a proximal end, wherein the main body portion is composed of a barrel stem at the distal end and a barrel grip at the proximal end thereof, said main body portion further comprising: an integral flexible chamber means at the distal end; a flexible plunger means adjacent, integral to and at least partially defining said flexible chamber means; said flexible plunger means and flexible chamber means are integrally joined and housed within said barrel stem, wherein said flexible plunger means is capable of inverting without rupturing when said plunger means is moved toward the distal end of said barrel stem.

5,213,567

DEVICE FOR PREVENTING ABRASIVE INJURY FROM SKIN AND FAT ASPIRATING DEVICE AND FAT ASPIRATING METHOD

Nobuyuki Masaki, c/o Kyoritsu Cosmetic Surgery, Tokyo Sogo Biyo Bld., 3F 4-18-4, Shiba, Minato-ku Tokyo 108, Japan

PCT No. PCT/JP90/01654, § 371 Date Aug. 14, 1991, § 102(e) Date Aug. 14, 1991, PCT Pub. No. WO91/08780, PCT Pub. Date Jun. 27, 1991
PCT Filed Dec. 19, 1990, Ser. No. 752,603
Claims priority, application Japan, Dec. 20, 1989, 1-330131
Int. Cl.[5] A61N *1/30*
U.S. Cl. 604—19 11 Claims



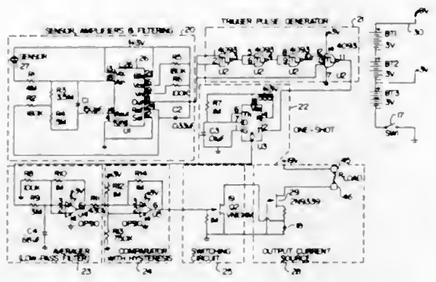
1. A transdermal guide for steering a liposuction device in a biological body, said guide comprising:
a circumferential longitudinal housing extending along an axis and having a distal end tapering axially downwardly;
a flange mounted on a proximal end of the housing and coaxial therewith, said flange lying in a plane extending at an angle to said axis and being formed with an outer periphery provided with at least two spaced apart formations;
means formed on said formations for receiving threads fastening said flange to an outer surface of a cutaneous structure of the body, said housing and flange being provided with an inner axial passage opening axially inwardly into a subcutaneous structure upon inserting said guide into the body;
auxiliary means for inserting said housing into said body, said auxiliary means including:
an elongated bar-shaped body adapted to be removably inserted into said passage and formed with an inner end tapering axially downwardly and centered on said axis, said bar being slidably displaceable in said guide,
a stop on said bar body spaced axially outwardly from said inner end, said inner end protruding axially inwardly from said distal end of said housing upon contact of said stop with said flange, and
a grip extending axially outwardly from said stop and steering said auxiliary means and said housing into said body through the cutaneous and subcutaneous structures thereof until said flange abuts an outer surface of the cutaneous structure.

5,213,568

ACTIVITY CONTROLLED ELECTROTRANSPORT DRUG DELIVERY DEVICE

Gary A. Lattin, Forest Lake; Rama Padmanabhan, Arden Hills; Michael J. Grace, Coon Rapids; Paul D. Sorenson, Blaine; Joseph B. Phipps, Plymouth, and Larry A. McNichols, Coon Rapids, all of Minn., assignors to Medtronic Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 502,422, Mar. 30, 1990, abandoned. This application Mar. 18, 1991, Ser. No. 671,267
Int. Cl.[5] A61N *1/30*
U.S. Cl. 604—20 14 Claims



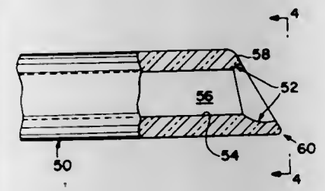
1. Apparatus for the iontophoretic delivery of drugs to a patient comprising:
a first reservoir containing a charged ionic substance for delivery to said patient;
a first electrode coupled to said first reservoir;
a second reservoir containing a charged ionic substance proximate said first reservoir;
a second electrode coupled to said second reservoir;
current generator means for supplying current to said first and second electrodes in response to a control signal;
activity sensor means for monitoring the general level of physical activity of said patient and for generating an activity signal indicative of said general level of physical activity;
control means coupled to said activity sensor means and to said current generator means, said control means responsive to said activity signal for generating a control signal for controlling said current generator means as a function of said activity signal.

5,213,569

TIP FOR A TISSUE PHACOEMULSIFICATION DEVICE

Peter L. Davis, 7688 Tronson Road, Vernon, British Columbia, R.R. #4, Canada

Filed Mar. 31, 1992, Ser. No. 861,016
Int. Cl.[5] A61B *17/20*
U.S. Cl. 604—22 41 Claims



1. A phacoemulsification device, comprising:
a needle having a distal end with a lumen, said distal end belveled, and including curvature means, extending around a perimeter of said lumen at said distal end, for increasing the generation of microbubbles and focusing shockwaves to erode tissue.

5,213,570

SYSTEM AND METHOD FOR OXYGENATION OF THE PERICARDIUM

Donald R. VanDeripe, Lake St. Louis, Mo., assignor to Mallinckrodt Medical, Inc., St. Louis, Mo.

Filed Dec. 14, 1990, Ser. No. 627,178
The portion of the term of this patent subsequent to Aug. 11, 2009, has been disclaimed.
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—28 58 Claims

1. A system for oxygenation of the heart, comprising
a guiding catheter;
a solution delivery catheter; and
means for supplying preoxygenated carrier solution through said delivery catheter;
wherein said guiding catheter provides means to guide said delivery catheter into the pericardial space between the pericardium and the epicardial surface of the heart;
wherein said delivery catheter is constructed so it may be threaded through said guiding catheter and includes means to contact the interior of the pericardial space; and
wherein said means for supplying preoxygenated carrier solution comprises means for administering said carrier solution through said delivery catheter directly into the pericardial space.

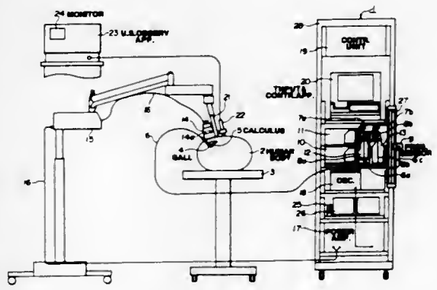
5,213,571

LITHOLYSIS APPARATUS PROVIDED WITH SAFE STOP FUNCTION

Koji Fujio, and Naomi Sekino, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 26, 1990, Ser. No. 557,850
Claims priority, application Japan, Jul. 27, 1989, 1-195766; Oct. 11, 1989, 1-265460; Jan. 10, 1990, 2-4005
Int. Cl.[5] A61M *1/00*
U.S. Cl. 604—31 25 Claims

1. A dissolution treatment apparatus comprising:
irrigation means for irrigating the interior of a human body with a medical fluid which allow a coagulum produced to dissolve therein;
discharge means for discharging said medical fluid containing said coagulum to the outside of said human body; and
control means for controlling said irrigation means and said discharge means so as to adjust the quantity of said medical fluid introduced into said human body; and
stop operation means for stopping dissolution treatment,
wherein said control means controls said discharge means for discharging said medical fluid from said human body to the outside thereof before said treatment is stopped without immediately stopping said treatment in response



to the operation of said stop operation means, said stop operation means immediately stopping said dissolution treatment after said medical fluid has been substantially discharged in response to said top operation means.

5,213,572

Patent Not Issued For This Number

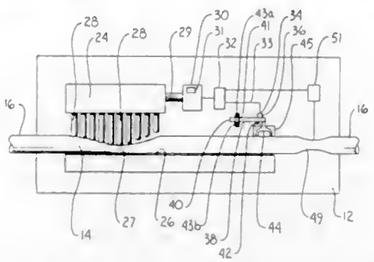
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,573

IV ADMINISTRATION SET INFILTRATION MONITOR

Richard A. Sorich, Encinitas, and David Burkett, San Diego, both of Calif., assignors to IMED Corporation, San Diego, Calif.

Filed Aug. 5, 1991, Ser. No. 741,257
Int. Cl.[5] A61M *31/00*
U.S. Cl. 604—66 15 Claims



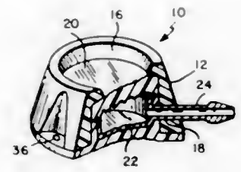
1. An apparatus for determining abnormal fluid flow through an IV administration set, which comprises:
an IV fluid tube connectable in fluid communication with the patient;
a pump operatively engaged with said tube for causing fluid to flow through said tube;
a pressure sensor operatively engaged with said tube between said pump and the patient for determining fluid pressure in said IV fluid tube;
means electrically connected to said pressure sensor for operating said pump for withdrawing fluid having first flow characteristics from the patient and for operating said pump for infusing fluid having second flow characteristics to the patient, wherein said operating means causes said pump to withdraw a first volume of fluid from said vessel of the patient at a preselected withdrawal pressure during a first predetermined time interval, and said operating means causes said pump to infuse a second volume of fluid into said vessel of the patient at a preselected infusion pressure during a second predetermined time interval; and
means for evaluating said first characteristics and said second characteristics to determine whether said IV administration set is infiltrated into the patient's tissue.

5,213,574

COMPOSITE IMPLANTABLE BIOCOMPATIBLE VASCULAR ACCESS PORT DEVICE

Elton M. Tucker, Medfield, Mass., assignor to Device Labs, Inc., Medway, Mass.

Filed Sep. 6, 1991, Ser. No. 755,690
Int. Cl.[5] A61M *11/06*
U.S. Cl. 604—93 18 Claims



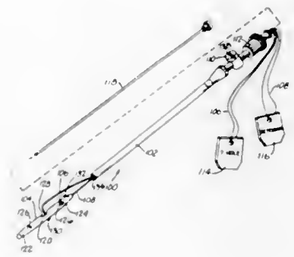
1. A surgically implantable device for delivering a fluid medication to a body, said device comprising:
housing means of a biocompatible non-metallic first material defining an interior chamber with communicating inlet and outlet openings;
a unitary cup-shaped element of a metallic second material compatible with said fluid medication and received in and lining the interior surface of said chamber;
self-sealing septum means closing said inlet opening and through which said fluid medication may be injected into said chamber;
said cup-shaped element cooperating in sealing engagement with said septum means to isolate the thus injected fluid medication from contact with said first material of said housing; and
conduit means communicating with said cup-shaped element and extending through said outlet opening to discharge fluid medication from said chamber to the exterior of said housing.

5,213,575

TWO-PIECE RETRIEVABLE CATHETER FORMING STRAIGHT AND T-SHAPE CONFIGURATIONS

Daniel M. Scotti, 720 Redmen Ave., Haddonfield, N.J. 08030

Filed Mar. 20, 1990, Ser. No. 496,440
Int. Cl.[5] A61M *37/00, 25/00*
U.S. Cl. 604—95 28 Claims



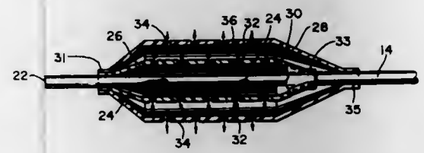
1. A connectable two piece retrievable catheter for insertion into the duct of a patient to provide a conduit from inside the duct to outside the body wall of the patient, said catheter comprising a first catheter piece, a second catheter piece releasably connectable to said first catheter piece, and connecting means attached to said second catheter piece for connecting said second catheter piece to said first catheter piece in different first and second configurations upon manipulation of said connecting means while said second catheter piece is positioned within said duct, said second catheter piece connected in longitudinal alignment with said first catheter piece when in said first configuration and in transverse relationship with said first catheter piece when in said second configuration, said second catheter piece having fluid communication means providing fluid communication between said duct and said first catheter piece when arranged in at least said second configuration.

5,213,576

THERAPEUTIC POROUS BALLOON CATHETER

Christopher L. Abiuso, and James E. Leone, both of Miami, Fla., assignors to Cordis Corporation, Miami Lakes, Fla.

Filed Jun. 11, 1991, Ser. No. 714,003
Int. Cl.[5] A61M *29/00*
U.S. Cl. 604—96 28 Claims



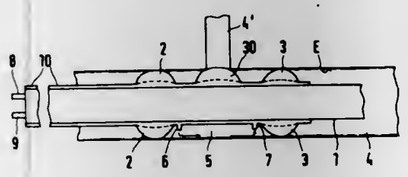
1. A balloon catheter which comprises a catheter shaft, first and second balloons carried on said catheter shaft with said second balloon positioned to at least partly overlie and sealingly enclose said first balloon; a lumen defined by said catheter shaft which communicates between a space located within said first balloon and a proximal end portion of said catheter shaft; said first and second balloons defining holes of a size to permit medication delivered through said lumen to pass outwardly through the perforations of both the first and second balloons.

5,213,577

DEVICE FOR EXAMINING THE FUNCTIONS OF THE ENDOTHELIUM OR THE INTIMA OF BLOOD VESSELS

Michael Kratzer, Leopoldstrasse 56, 8000 Munich 40, Fed. Rep. of Germany

Filed Dec. 21, 1990, Ser. No. 629,811
Int. Cl.[5] A61M *25/00*
U.S. Cl. 604—101 17 Claims



1. A device for examining a function of the endothelium or the intima of a blood vessel, comprising: a tube having in its wall at least one outlet and an inlet in spaced relationship to each other; first and second connectors; said outlet and said inlet communicating with said first and second connectors, respectively; said first and second connectors extending from an end of the tube projecting from the blood vessel; a reservoir communicating with the first connector for holding and discharging a solution through the first connector and the outlet into the blood vessel; and analysis means communicating with the second connector for receiving a solution from the blood vessel through the inlet and second connector; said analysis means detecting differences between the solution from the reservoir and the solution from the blood vessel to determine a function of the endothelium or the intima of the blood vessel.

5,213,578

ANESTHESIA SET

Raymund Heiliger, Herzogenrath, and Joachim Gross, Sindelfingen, both of Fed. Rep. of Germany, assignors to Vygon GmbH & Co. KG, Aachen, Fed. Rep. of Germany

Filed Aug. 25, 1992, Ser. No. 934,926
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1991, 4128530
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—158 4 Claims



1. An anesthesia set for the receipt of an epidural catheter comprising an elongate epidural cannula having an axial bore leading to a curved distal end, a radially directed outlet at said distal end of said epidural cannula for the receipt of said epidural catheter, an axial outlet formed in said distal end of said epidural cannula in alignment with the axis of said bore, a mandrel insertable into said bore and including a distal end adapted to seal said radial outlet in the inserted position of said mandrel within said epidural cannula, said mandrel including a guideway in axial alignment with said bore, and a spinal cannula including an external diameter portion complementally sized to said guideway, whereby said distal end of said spinal cannula is guided by said mandrel through said axial outlet responsive to insertion of said spinal cannula into said epidural cannula.

5,213,579

INTRAOCULAR LENS HAVING BALLOON MEMBER AND TUBE FILLED WITH GEL

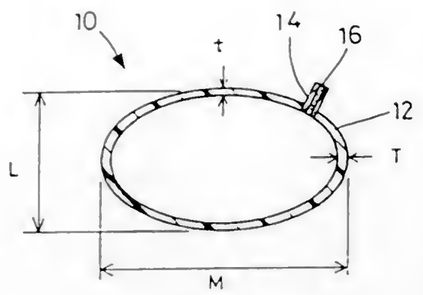
Yoshiharu Yamada, Toyota, and Yuriko Mizumoto, Nagoya, both of Japan, assignors to Menicon Co, Ltd., Japan

Filed Dec. 18, 1991, Ser. No. 808,897
Claims priority, application Japan, Dec. 25, 1990, 2-414545
Int. Cl.[5] A61F *2/16*
U.S. Cl. 623—6 23 Claims

1. An intraocular lens comprising:
a balloon member formed of an elastomer and adapted to be inserted into a capsular bag of an eye;
an optically transparent fluid which is injected into the balloon member so that the balloon member expands and fills the capsular bag;
a tube provided on the balloon member and having a bore through which the optically transparent fluid is injected into the balloon member; and
a gel filler filling and fluid-tightly closing the bore of the

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tube prior to injecting the optically transparent fluid, the optically transparent fluid being injected into the balloon



member through the tube, with the gel filler inhibiting leakage of the fluid from the balloon member.

5,213,580

BIODEGRADABLE POLYMERIC ENDOLUMINAL SEALING PROCESS

Marvin J. Slepian, Cleveland Heights, Ohio, and Anton Schindler, Durham, N.C., assignors to Endoluminal Therapeutics, Inc., Tucson, Ariz.

Continuation of Ser. No. 593,302, Oct. 3, 1990, abandoned, which is a continuation of Ser. No. 235,998, Aug. 24, 1988, abandoned. This application Mar. 25, 1992, Ser. No. 857,700

Int. Cl.[5] **A61F** *2/04, 2/06*

U.S. Cl. 623—1 **17 Claims**



1. A process for paving or stabilizing an irregularly contoured interior surface of a body vessel or organ in an animal, including man, comprising introducing flowable polymeric material onto and filling said irregularly contoured interior surface of the vessel or organ and reconfiguring the polymeric material to form a layer of polymer, said polymer layer having an outer surface which conforms with and is affixed to the irregularly contoured interior surfaces of the vessel or organ and a smooth inner luminal surface.

5,213,581

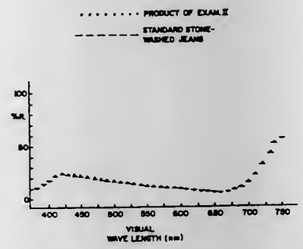
COMPOSITIONS AND METHODS THAT INTRODUCE VARIATIONS IN COLOR DENSITY INTO CELLULOSIC FABRICS, PARTICULARLY INDIGO DYED DENIM

Lynne A. Olson, Mendota Heights, and Patricia M. Stanley, Minneapolis, both of Minn., assignors to Ecolab Inc., St. Paul, Minn.

Continuation of Ser. No. 678,133, Apr. 1, 1991, Pat. No. 5,122,159, which is a continuation of Ser. No. 245,123, Sep. 15, 1988, Pat. No. 5,006,126. This application Jun. 15, 1992, Ser. No. 898,845

Int. Cl.[5] **C09B** *67/00*

U.S. Cl. 8—401 **11 Claims**



1. A method of forming, in new unsewn indigo dyed denim fabric or a newly manufactured garment made of indigo dyed denim fabric, localized areas of variation in color density through the removal of indigo dye that provide a stonewashed appearance, which method comprises:

(a) contacting the unsewn fabric or the garment with an aqueous composition comprising:

(i) a major proportion of water;

(ii) an effective amount of a cellulase enzyme;

(iii) an effective amount of a solid inorganic composition selected from the group consisting of a carbonate, a phosphate, a tripolyphosphate, a silicate, a sulfate or mixtures thereof; and

(iv) an effective amount of a buffer than can maintain the pH of the aqueous solution to about the optimum pH for enzyme activity;

wherein the enzyme and the inorganic composition are used at a concentration effective to introduce into the surface of dyed cellulosic fabrics the local areas of variation in color density.

5,213,582

LIGHT-POLARIZING FILMS OR FOILS CONTAINING TRIPHENDIOXAZINE OR TRIPHENDITHIAZINE DYES WITH GOOD DICHRDITIC PROPERTIES

Peter Wild, Odenthal; Uwe Claussen, Leverkusen, and Friedrich W. Kröck, Bayerwerk, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Continuation of Ser. No. 633,003, Dec. 24, 1990, abandoned. This application Mar. 11, 1992, Ser. No. 849,793

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1990, 4000481

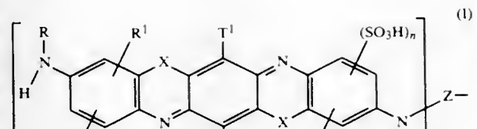
Int. Cl.[5] **C08J** *3/21, 5/18;* **C09B** *19/02;* **G02B** *5/30*

U.S. Cl. 8—506 **5 Claims**

1. Light-polarizing films or foils comprising:

i) an organic polymer component comprising polyvinyl alcohols obtained by the complete or partial saponification of polyvinyl acetate; and

ii) at least one dye which, in the form of the free acid, corresponds to the formula:



(I)

wherein R represents H, C_{1-4} alkyl optionally substituted with —OH, —OCH_3, —OC_2H_5, —COOH, —SO_3H, —CN or Cl, or phenyl optionally substituted with —Cl, —Br, —CH_3, —C_2H_5, —OCH_3, or —OC_2H_5;

R^1 represents H, —CH_3, —C_2H_5, —Cl, —OCH_3, —OC_2H_5, or —COOH;

T^1 and T^2 represent H, Cl, Br, or optionally substituted C_{1-4} alkyl, C_1-alkoxy, phenoxy, or phenyl, the optional substituents being selected from —Cl, —Br, —CH_3, —C_2H_5, —OCH_3, or —OC_2H_5;

n is the integer 1 or 2;

Z represents a bridge member selected from —CO—, residues or aliphatic conjugated, aromatic carbocyclic or aromatic heterocyclic dicarboxylic acids, or cyanuric chloride residue; and

X represents oxygen or sulfur.

5,213,583

PROCESS FOR THE PREPARATION OF IMPROVED DYESTUFF GRANULES FROM SUSPENSION CONTAINING A PROPYLENE OXIDE-ETHYLENE OXIDE COPOLYMER

Vaclav Kaspar, Cologne; Horst Brandt, Odenthal, and Gottfried Popp, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 21, 1991, Ser. No. 796,111

Claims priority, application Canada, Nov. 29, 1990, 4038002

Int. Cl.[5] **C08J** *3/20;* **C08K** *9/04;* **C09B** *67/06, 67/42*

U.S. Cl. 8—526 **8 Claims**

1. Process for the preparation of storage-stable, low-dusting dyestuffs granules that are readily soluble in plastics, said process characterized in that a suspension of (a) a water-insoluble or sparingly soluble in water dyestuff, (b) 0.1 to 5% by weight, based on the dry dyestuff of a polyglycol which is a copolymer of propylene oxide and ethylene oxide, and (c) up to 2%, based on the dry dyestuff, of polyacrylic acid and/or salts thereof is dried while being granulated, the polyglycol having a molecular weight of 900–15,000, calculated from the OH.

5,213,584

FORMAL COMPOUNDS, FUEL OIL ADDITIVES, AND FUEL OIL COMPOSITIONS

Hiroumi Izaiku, Kanagawa; Shin-ichi Akimoto, Tokyo; Takaharu Ishizaki, Hyogo; Yoshifumi Kubo, and Tohru Yasukohcbi, both of Kanagawa, all of Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan

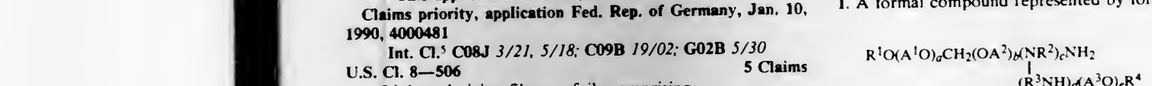
Filed Jul. 10, 1990, Ser. No. 550,583

Claims priority, application Japan, Jul. 10, 1989, 1-175532

Int. Cl.[5] **C10L** *1/22;* **C07C** *213/00, 215/00, 217/00*

U.S. Cl. 44—433 **10 Claims**

1. A formal compound represented by formula (1):



(1)

wherein R^1 is a hydrogen atom or a hydrocarbon group having 1 to 26 carbon atoms, A^1 is an alkylene group having 2 to 18 carbon atoms, a is 1 to 100, A^2 is an alkylene group having 2 to 4 carbon atoms, b is 1 to 5, R^2 is an alkylene group having 2 to

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8 carbon atoms, c is 0 to 5, R^3 is an alkylene group having 2 to 8 carbon atoms, d is 0 to 5, A^3 is an alkylene group having 2 to 4 carbon atoms, e is 0 to 5, and R^4 is a hydrogen atom or $CH_2(OA^4)_fOR^5$, in which A^4 is an alkylene group having 2 to 18 carbon atoms, f is 1 to 100, and R^5 is a hydrogen atom or a hydrocarbon group having 1 to 26 carbon atoms, and wherein each of $(A^1O)_a$, $(OA^2)_b$, $(NR^2)_c$, $(R^3NH)_d$, $(A^3O)_e$, and $(OA^4)_f$ may consist of different constituent units.

5. A fuel oil composition comprising a fuel oil and a formal compound represented by formula (1):

$$R^1O(A^1O)_aCH_2(OA^2)_b(NR^2)_cNH_2 \quad (1)$$
$$\quad\quad\quad

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atoms excluding those in said reactive hydrolyzable group(s) have two methyl groups bonded thereto, and wherein at least one reactive hydrolyzable group

$$(R^3O)_2-Si(Z)-(Y-Q)_t-X-$$

appears on the polymer of Formula I and further wherein at least about 25% of the polymers of Formula I in the coating have at least two reactive hydrolyzable groups

$$(R^3O)_2-Si(Z)-(Y-Q)_t-X-,$$

wherein

X are divalent linking groups which can be the same or different selected from the group consisting of alkylene groups comprising about 1 to about 12 carbon atoms;

Q are divalent linking groups which can be the same or different selected from the group consisting of urea, amide, urethane, thiourethane, ether and thioether groups;

Y are divalent linking groups which can be the same or different selected from the group consisting of alkylene groups comprising about 1 to about 12 carbon atoms;

t is an integer of 0 to 10;

Z are monovalent moieties which can be the same or different selected from the group consisting of —OR and —R where R is an alkyl group comprising about 1 to about 3 carbon atoms; and

R^3 is a monovalent alkyl group comprising about 1 to about 3 carbon atoms;

(b) about 0 to about 99% by weight of a component selected from the group consisting of compounds and polymers of the general Formula II:

$$(R^3O)_3-Si-A \qquad (II)$$

hydrolysates thereof, and mixtures thereof wherein

R^3 is defined as above;

A is a monovalent moiety selected from the group consisting of $-OR^3$, a monovalent alkyl group comprising about 1 to about 20 carbon atoms, and $-X-(Q)_p-[D-Q]_r-(Y)_b-Si(OR^3)_3$ wherein

X, Q, t, Y and R^3 are defined as above;

D is a divalent group which can be the same or different selected from the group consisting of alkylene group comprising from 2 to about 30 carbon atoms, aralkylene groups comprising from about 6 to about 30 carbon atoms, arylene groups comprising from 6 to about 30 carbon atoms, divalent polymeric segments having a number average molecular weight of 500 to about 10,000 selected from the group consisting of polyether, polyolefin, polyester, polydiene, and mixtures thereof;

p is an integer from 0 to 1; and

b is an integer from 0 to 1;

wherein when t is an integer of 1 to 10, b must equal 1 and p must equal 1; and

when t=0 and b=0, p must also equal 0;

wherein the weight percentages of (a) and (b) are based upon the total weight of (a) plus (b); and

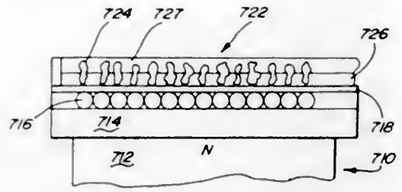
(c) about 1 to about 15% by weight based upon the total weight of (a) plus (b) of a component selected from the group consisting of acids having pKas of less than about 3, anhydrides of acids having pKas of less than about 3, ammonium and lower alkyl ammonium salts of acids having pKas of less than about 3, and mixtures thereof.

5,213,590

ARTICLE AND A METHOD FOR PRODUCING AN ARTICLE HAVING A HIGH FRICTION SURFACE

Charles E. Neff, 384 McKinely, Grosse Pointe Farms, Mich. 48236

Continuation-in-part of Ser. No. 453,684, Dec. 20, 1989, Pat. No. 5,181,939. This application Aug. 28, 1992, Ser. No. 937,238
Int. Cl.[5] B24D 3/00
U.S. Cl. 51—293 46 Claims



1. A structurally viable matrix having a pattern of abrasive elements for providing a working surface of a tool subsequent to exposure to a temperature comprising:

a plurality of magnetizable abrasive elements disposed in a pattern, each of said abrasive elements having a distal working portion, said distal working portion defining said working surface; and

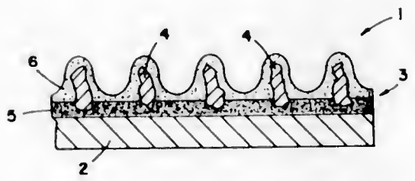
support means for said abrasive pattern of elements comprising a web of vaporizable material interconnecting said plurality of abrasive elements and providing flexible support therefore.

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ABRASIVE GRAIN, METHOD OF MAKING SAME AND ABRASIVE PRODUCTS

Ahmet Celikkaya; Jerald A. Scherger, and Vernon M. Wald, all of P.O. Box 33427, St. Paul, Minn. 55133-3427

Filed Jul. 28, 1992, Ser. No. 920,728
Int. Cl.[5] B24D 3/00
U.S. Cl. 51—293 27 Claims



1. A method of making ceramic abrasive grain characterized by each abrasive particle thereof being comprised of an alpha-alumina-based core with an exterior surface having a coating of particulate inorganic material autogenously bonded to the exterior surface, said method comprising the steps of:

(a) providing a mass of porous first particles comprising alpha-alumina precursor material each particle of which is sinterable to an alpha-alumina-based abrasive grain;

(b) mixing with said mass, in the presence of a liquid, mass of second particles having the same or different composition and are much finer than said first particles until the second particles are distributed over the exterior surface of each first particle, said second particles being capable of autogenous bonding to the exterior surface of said first particles upon sintering of said first particles; and

(c) heating said particles to remove said liquid and then to sinter said first particles and cause autogenous bonding of said second particles to the exterior surface of each of said first particles.

5,213,592

METHOD FOR PRODUCING CERAMIC ABRASIVE MATERIALS AND MATERIALS PRODUCED THEREBY

Marc S. Newkirk, Newark, Del., assignor to Lanxide Technology Company, LP, Newark, Del.

Continuation of Ser. No. 428,246, Oct. 27, 1989, Pat. No. 5,104,423, which is a continuation of Ser. No. 894,229, Aug. 7, 1986, Pat. No. 4,867,758. This application Apr. 13, 1992, Ser. No. 867,848
The portion of the term of this patent subsequent to Apr. 14, 2009, has been disclaimed.
Int. Cl.[5] B24D 3/02
U.S. Cl. 51—309 9 Claims

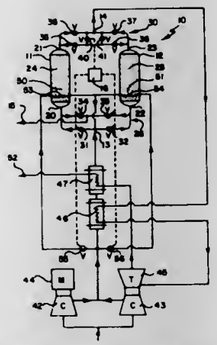
1. An abrasive ceramic material comprising a ceramic matrix comprising an oxidation reaction product and a metallic component which may be at least partially interconnected.

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PRESSURE SWING SORPTION SYSTEM AND METHOD

Donald H. White, Jr., Homer, N.Y., assignor to Pall Corporation, East Hills, N.Y.

Continuation of Ser. No. 845,537, Mar. 4, 1992, abandoned, which is a continuation of Ser. No. 622,279, Dec. 6, 1990, abandoned, which is a continuation of Ser. No. 294,341, Jan. 6, 1989, abandoned. This application Sep. 28, 1992, Ser. No. 953,304
Int. Cl.[5] B01D 53/04
U.S. Cl. 55—26 31 Claims



1. A pressure swing sorption process for removing at least a portion of a substance from a gas containing the substance, the method comprising the steps of:

simultaneously directing the gas through a sorbent bed contained in a first sorbing chamber to an outlet, directing a portion of the outlet gas through a sorbent bed contained in a second sorbing chamber to an exhaust, and providing energy from an energy source external to the sorbent beds of the first and second sorbing chambers to a heater near a sorption inlet region of the sorbent bed contained in the second sorbing chamber to heat the sorption inlet region as the outlet gas flows therethrough and

cycling between the first and second sorbing chambers according to a NEMA cycle length of less than about 5 minutes wherein one sorbent bed sorbs at least a portion of the substance from the gas and is heated by the heat of adsorption and the other sorbent bed is regenerated using both the energy supplied by the heater and the heat of adsorption.

9. A pressure swing sorption system for removing at least a portion of a substance from a gas containing the substance, the sorption system comprising:

first and second sorbing chambers, each sorbing chamber including first and second openings defining a gas flow path between the first and second openings, a sorbent bed disposed in the gas flow path and having a sorption inlet region near the first opening, and a heater positioned near the sorption inlet region of the sorbent bed;

an energy source external to the sorbent beds of the first and second sorbing chambers;

means for connecting the energy source to the heaters of the first and second sorbing chambers;

an intake, an outlet, and an exhaust;

a valve arrangement interconnecting the intake, the exhaust, and the first openings of the first and second sorbing chambers and interconnecting the outlet and the second openings of the first and second sorbing chambers; and

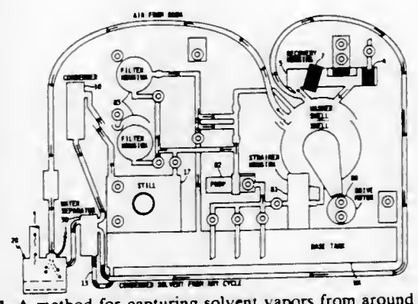
a controller coupled to the valve arrangement and the connecting means for simultaneously directing gas through one sorbing chamber of the outlet, directing a portion of the outlet gas through the other sorbing chamber to the exhaust, and providing energy from the external energy source to the heater of said other sorbing chamber to heat the sorption inlet region of said other sorbing chamber as the outlet gas flows through the sorption inlet region, wherein the controller is adapted to cycle between the first and second sorbing chambers according to a NEMA cycle length of less than about 5 minutes and wherein one sorbent bed sorbs at least a portion of the substance from the gas and is heated by the heat of adsorption and the other sorbent bed is regenerated using both the energy supplied by the heater and the heat of adsorption.

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CONTROLLING SOLVENT VAPORS IN DRY CLEANING APPARATUS

Thomas E. Cannon, Minneapolis; Stephen L. Harris, Anoka; Robert J. Kendig, Coon Rapids, and Ward D. Komonosky, Champlin, all of Minn., assignors to Vic Manufacturing, Minneapolis, Minn.

Filed Aug. 5, 1991, Ser. No. 719,261
Int. Cl.[5] B01D 53/04
U.S. Cl. 55—97 13 Claims



1. A method for capturing solvent vapors from around the access opening of dry cleaning apparatus, wherein said access opening includes upper and lower portions, the method comprising the steps of:

(a) providing a collar member which includes aperture means through which gases may pass;

(b) providing suction means operatively connected to said aperture means for drawing air through said aperture means;

(c) disposing said collar member adjacent said lower portion of said access opening;

(d) providing condenser means for condensing water; wherein said water includes an amount of solvent, said solvent being heavier than water;

(e) providing reservoir means for receiving and holding said water; wherein said reservoir means comprises a container having an inlet port for receiving said water and an outlet port;

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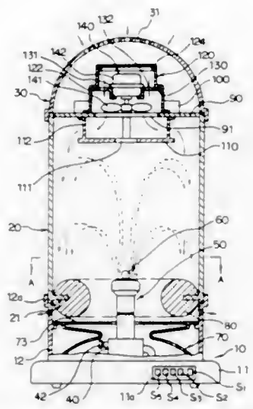
(f) providing atomizer means operatively associated with said reservoir for atomizing said water;
(g) providing feed means for feeding said water to said atomizer means; wherein said feed means comprises aspirator means; wherein said aspirator means comprises an elongated tube having upper and lower ends, wherein said upper end is operably connected to said atomizer means; wherein said aspirator means further includes valve means attached to said lower end of said tube; wherein said valve means is adapted to allow water to flow into said tube and is further adapted to close in the event the level of said solvent in said reservoir exceeds a predetermined level;
(h) drawing solvent vapors from said access opening through said aperture means to said condenser means;
(i) atomizing said water and venting through said outlet port.

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COMBINED INDOOR FOUNTAIN-AIR CLEANER

Nam-Sub Kim, 449-864, Sunghwan-ri, Sunghwan-eub, Chunan-gun, Chungcheongnam-do, Rep. of Korea

Filed Jul. 21, 1992, Ser. No. 916,421
Claims priority, application Rep. of Korea, Jul. 27, 1991, 1991-11907
Int. Cl.[5] B03C *3/16*; B01D *47/06*
U.S. Cl. 55—122 **4 Claims**



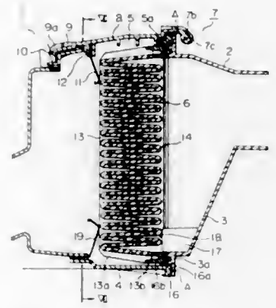
1. A combined indoor fountain-air cleaner comprising:
a lower base part including a base and a water reservoir disposed on said base, said base being provided with a switch panel for controlling the operation of said fountain-air cleaner and said water reservoir being equipped therein with a water circulation pump and a nozzle head through which the water pumped up by said water circulation pump is upwardly spouted;
a middle part for providing an inner space wherein the fountain is playing and the air is allowed to be circulated so as to cause the impurities floating in the air to be moisturized, said middle part being disposed between the lower base part and an upper cap part;
said upper cap part for covering said middle part, the upper cap part being provided with a plurality of air inlet holes for permitting the indoor air to be sucked into the fountain-air cleaner therethrough;
a suction fan assembly for causing the indoor air to be sucked into and to be circulated in the fountain-air cleaner, said suction fan assembly being mounted on an upper end of the middle part;
a baffle board for causing the sucked air to be freely dispersed and to be guided to the inner space of the middle part, said baffle board being mounted on an under surface of said suction fan assembly so as to be spaced apart therefrom by a predetermined distance;
a plurality of impurity absorption plates for absorbing the impurities in the air, each said impurity absorption plate being radially mounted on a lower inner surface of the middle part; and
an insert assembly for filtering off the impurities and permitting the water to be silently recovered by said reservoir, said insert assembly being received in the reservoir and comprising a filtering plate, which is provided with a plurality of filters, and a guide pipe which is disposed under said filtering plate and adapted to guide the water so as to be silently recovered by the reservoir.

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AIR CLEANER DEVICE

Masato Kume, Nagoya; Yoshimi Suzuki, Obu, and Naoki Maeno, Okazaki, all of Japan, assignors to Nippondenso Co., Ltd. and Toyoda Boshoku Corporation, both of Kariya, Japan

Filed Aug. 7, 1991, Ser. No. 741,864
Claims priority, application Japan, Aug. 9, 1990, 2-213471; Jul. 26, 1991, 3-187592
Int. Cl.[5] B01D *46/00*
U.S. Cl. 55—481 **12 Claims**



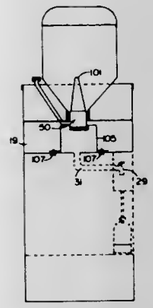
1. An air cleaner device for filtering air comprising:
a hollow housing having an inlet portion, an outlet portion, and a flow passage therein which is communicated with said inlet portion and said outlet portion, said housing also having an opening which is disposed between said inlet portion and said outlet portion, and communicates said flow passage with the exterior of said housing;
a filter element inserted through said opening into said flow passage, disposed between said inlet portion and said outlet portion, so as to filter air flowing through said flow passage, said filter element having a filtering surface;
a lid mounted on said housing for opening and closing said opening;
a plurality of first resilient members fixedly secured to a reverse surface of said lid; and
a plurality of second resilient members fixedly secured to a bottom of said flow passage;
said plurality of first resilient members having respective free ends remote from said lid, and said plurality of second resilient members having respective free ends remote from said bottom of said flow passage, and said free ends of said first and second resilient members resiliently urging said filtering surface of said filter element when said opening is closed by said lid, thereby holding said filter element against movement in said flow passage.

5,213,597

FILTRATION SYSTEM FOR BOTTLED WATER DISPENSER WITH CHECK VALVE

Gary J. Campbell, 6480 10th Ave., Blanchard, Mich. 49310

Filed Jan. 3, 1992, Ser. No. 816,213
Int. Cl.[5] B01D *35/153*; B67D *5/62*
U.S. Cl. 55—385.1 **14 Claims**



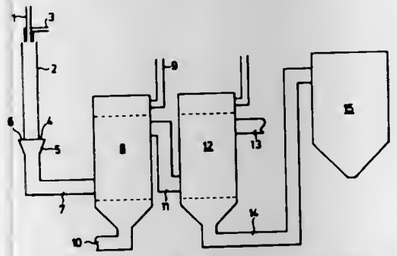
6. A water storage bottle for a bottled water dispenser comprising:
a bottle-shaped container having a neck portion including a mouth portion;
an air filter assembly for attachment to said mouth portion of said bottle-shaped container, said air filter assembly including:
a conduit member attached to the mouth portion of said container;
a check valve on said conduit member, said check valve arranged for allowing water to exit said mouth portion of said container while precluding unfiltered air from entering said container; and
an air filter means connected to said conduit member for allowing filtered air to enter said container.

5,213,598

PREPARATION OF VITREOUS ENAMELS AND MANUFACTURE OF ENAMEL BODIES

Vitaliano Silingardi, Bologna, Italy; Francois Toussaint, Montignies-le-Tilleul, and Pierre Goelff, Nalinnes, both of Belgium, assignors to Azienda S.R.L., Bologna, Italy and Glaverbel, Brussels, Belgium

Filed Oct. 9, 1991, Ser. No. 773,457
Claims priority, application Italy, Oct. 15, 1990, 3700 A/90; United Kingdom, Nov. 23, 1990, 9025501
Int. Cl.[5] C03B *20/00*
U.S. Cl. 65—18.1 **21 Claims**



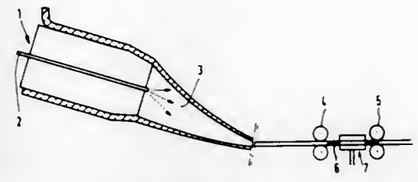
1. A method of preparing rounded vitreous enamel beads comprised of vitreous enamel for use in providing a vitreous enamel body by fusing the particles together to form the vitreous enamel body, the method comprising:
a. forming at least one enamel frit and at least one non-vitreous additive into granules of an agglomerated granular feedstock;
b. passing the agglomerated granular feedstock through a heating chamber under conditions effective to at least partially melt and round the agglomerated granular feedstock thereby providing rounded vitreous enamel beads; and
c. cooling the rounded vitreous enamel beads to a temperature below their melting point.

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METHOD OF MANUFACTURING TUBE GLASS

Robert E. M. Geertman; Gerrit Verspui, and Johannes A. G. P. Damsteegt, all of Eindhoven, Netherlands, assignors to U.S. Philips Corp., New York, N.Y.

Filed Feb. 19, 1992, Ser. No. 838,386
Claims priority, application Netherlands, Feb. 26, 1991, 9100335
Int. Cl.[5] C03B *15/14*
U.S. Cl. 65—30.1 **5 Claims**



1. A method of manufacturing tube glass comprising the steps of:
drawing the tube from molten glass;
treating the inside surface of the tube glass with at least one gas, said gas being non-chemically reactive at the drawing temperature of the glass and chemically reactive at a higher temperature; and
reacting the gas in the tube at a location where the tube has cooled down, such so that its diameter is constant, by applying a plasma which is generated in the tube.

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METHOD OF MANUFACTURING AN OPTICAL STORAGE DISK

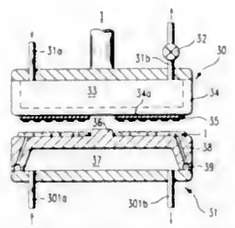
Johann Greschner, Pliezhausen; Gerhard Schmid, Leinfelden-Echterdingen; Werner Steiner, Böblingen; Gerhard Trippel, Sindelfingen, and Olaf Wolter, Schönaich, all of Fed. Rep. of Germany, assignors to International Business Machines Corp., Armonk, N.Y.

PCT No. PCT/EP88/00479, § 371 Date Nov. 22, 1989, § 102(e) Date Nov. 22, 1989, PCT Pub. No. WO88/09990, PCT Pub. Date Dec. 15, 1988
PCT Filed May 27, 1989, Ser. No. 445,866
Claims priority, application Fed. Rep. of Germany, Jun. 9, 1987, 3719200
Int. Cl.[5] G11B *7/24, 21/06, 7/26*
U.S. Cl. 65—102 **4 Claims**

1. Method of manufacturing a break resistant glass substrate for an optical disk comprising the steps:
heating a plane glass substrate above its softening point, said substrate having exterior surfaces and interior volume;
stamping a guide track relief into the softening glass substrate with a stamp whose temperature is lower than the temperature of the glass substrate; and
suddenly cooling the stamp and the glass substrate by quenching the exterior surfaces of the heated glass substrate and cooling the interior volume of the glass substrate at an inhomogeneous rate below glass transformation temperature, a substantially parabolic temperature

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profile being maintained through the glass substrate, and the glass substrate being kept in contact with the cooled



stamp, said cooling being achieved by the stamp having a chamber for a liquid entering said exiting the stamp.

5,213,601

METHOD AND APPARATUS FOR PRODUCING CURVED PANES HAVING A TWO-LEVEL CURVING STATION

Philippe Boutier, Waterloo; Jean-Marc Petit-Collin, Thourotte; Dany-Ange Plebani, Thourotte; Denis Mathivat, Thourotte, and Christophe Machura, Chevincourt/Thourotte, all of France, assignors to Saint-Gobain Vitrage International, Courbevoie, France

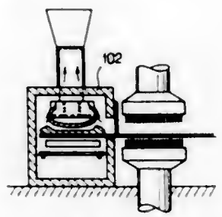
Continuation of Ser. No. 454,649, Dec. 21, 1989, Pat. No. 5,069,704. This application Jun. 12, 1991, Ser. No. 713,991

Claims priority, application France, Dec. 21, 1988, 88 16894; Mar. 9, 1989, 89 03078; Mar. 9, 1989, 89 03076

The portion of the term of this patent subsequent to Dec. 3, 2008, has been disclaimed.

Int. Cl.[5] **c03B** *23/023*

U.S. Cl. 65—106 **6 Claims**



1. A method of shaping glass sheets comprising the steps of:
heating said glass sheets;
transporting said glass sheets at a first level in a horizontal position into a curving station;
curving said glass sheets by way of curving tools in said curving station;
moving said glass sheets, during said curving step, to a second level which is substantially higher than said first level;
continuously heating said curving station by way of heating means disposed between said first and second levels; and
conveying said glass sheets at said second level to a cooling or quenching station such that a cold air current which enters said curving station at said second level is heated and deflected by heat from said heating means so as to not affect glass sheets at said first level.

5,213,602

ALIGNMENT APPARATUS

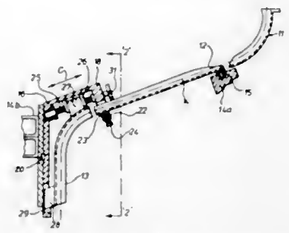
Thomas V. Foster, deceased, late of Skegness by Mildred Foster, executor ; Lancelot H. Miller, Sunderland, and David Braithwaite, Washington, all of England, assignors to VHC, Ltd., West Palm Beach, Fla.

Filed Sep. 30, 1991, Ser. No. 769,924

Claims priority, application United Kingdom, Oct. 10, 1990, 9021983

Int. Cl.[5] **C03B** *7/16*

U.S. Cl. 65—304 **12 Claims**



1. Gob guide apparatus for a glass bottle moulding machine having a machine frame, comprising:
a machine frame; and
a gob guide apparatus, said apparatus having
a trough having upper and lower ends,
a deflector having an entry and an exit axis,
a carriage, and
frame mounting means for movably mounting said carriage on said machine frame and movable along an axis transverse to said deflector exis axis, said carriage further including deflector mounting means for mounting said deflector on said carriage for movement relative thereto along said deflector entry axis,
said carriage further including support means for supporting said lower end of said trough in an aligned orientation with respect to said deflector entry axis,
said upper end of said trough and said machine frame having pivot means for permitting arcuate movement of said trough in response to movement of said carriage along said transverse axis.

5,213,603

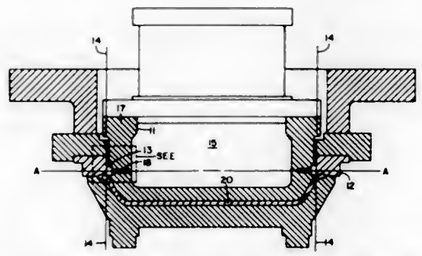
FLEXIBLE PLUNGER APPARATUS FOR A GLASS FORMING MACHINE

Edwin Q. Giles, Beaver Dams; Jackson P. Trentelman, Painted Post, and Jason S. Watts, Horseheads, all of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Mar. 16, 1992, Ser. No. 852,984

Int. Cl.[5] **C03B** *11/06*

U.S. Cl. 65—305 **11 Claims**



1. A ring and plunger apparatus for press-forming glass, or other formable material, in a mold cavity comprising:

a) the ring having a front wear surface, a bottom surface, and a peripherally extending undercut portion located along the front wear surface and the bottom surface; and
b) the plunger having a plurality of adjacent, slidably mounted, peripherally-extending segments located in such proximity to each other to essentially prevent the formable material from flowing between the segments upon press-forming the formable material, the segments having sufficient spacing between each other to prevent binding between adjacent segments upon urging the segments into contact with the ring;
c) a plurality of air passageways extending longitudinally from the undercut portion of the ring along a region defined as a plunger-ring interface wherein a seal is formed between the segments and the ring which allows air, but not the formable material from the mold cavity, to pass beyond the undercut to ambient upon press-forming the formable material.

5,213,604

PROCESS FOR PREVENTING CHEMICAL INJURIES TO VEGETABLES, FRUITS OR FLOWERS CAUSED BY FUMIGATION AND AGENT FOR ELIMINATING METHYL BROMIDE

Hitoshi Saito; Shigeo Hayashimoto, and Mutsumi Matsumoto, all of Gunma, Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 18, 1991, Ser. No. 793,605

Claims priority, application Japan, Nov. 29, 1990, 2-325447

Int. Cl.[5] **A01N** *3/02, 29/02;* **A23L** *3/3526, 3/358*

U.S. Cl. 504—114 **7 Claims**

1. A process for preventing chemical injuries to vegetables, fruits or flowers caused by methyl bromide, which comprises keeping the vegetables, fruits or flowers, which have been fumigated with methyl bromide, together with an agent for eliminating methyl bromide comprising (i) at least one compound selected from the group consisting of chloric acid, chlorous acid, hypochlorous acid, phosphoric acid, phosphorous acid, hypophosphorous acid and salts thereof and/or (ii) a strongly basic amine selected from the group consisting of triethylamine, triethylenediamine, hexamethylenetetramine, ethanolamine, morpholine, piperazine and alkylaminopyridine.

5,213,605

N-ARYLTETRAHYDROPHTHALIMIDE COMPOUNDS

Lothar Rueb, Speyer; Karl Eicken, Wachenheim; Peter Plath, Frankenthal; Barbara Schwalge, Ludwigshafen; Karl-Otto Westphalen, Speyer; Bruno Wuerzer, Otterstadt, and Norbert Meyer, Ladenburg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

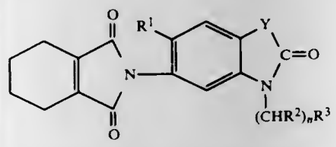
Continuation of Ser. No. 464,639, Jan. 5, 1990, Pat. No. 5,080,710, which is a continuation of Ser. No. 315,128, Feb. 24, 1989, abandoned. This application Sep. 17, 1991, Ser. No. 761,187

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1988, 3807295

Int. Cl.[5] **C07D** *413/10, 417/10;* **A01N** *43/76, 43/78*

U.S. Cl. 504—267 **12 Claims**

1. An N-aryltetrahydrophthalimide compound of the formula I



I

where the substituents and indices have the following meanings: n is 0 or 1, R^1 is hydrogen or halogen, Y is —O— or —S—, R^2 is hydrogen or C_1-C_3-alkyl, and R^3 is phenyl which is unsubstituted or monosubstituted to trisubstituted by C_1- or C_2-alkyl, halogen, methoxy, nitro, and/or cyano.

5,213,606

4-CARBOXY-2-ARYLOXYPHENOXYALKYL SUBSTITUTED HETEROCYCLES USEFUL AS HERBICIDAL AGENTS

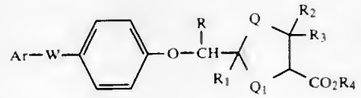
Robert L. Arotin, Yardley, Pa., and Michael A. Guaciaro, Hightstown, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Nov. 27, 1991, Ser. No. 800,794

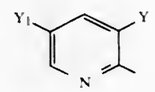
Int. Cl.[5] **A01N** *43/40;* **C07D** *213/64*

U.S. Cl. 504—191 **15 Claims**

9. A method for controlling undesirable grass weed species which comprises applying to the foliage or stems of the undesirable vegetation or to the soil or water containing seeds or other propagating organs of the undesirable vegetation a herbicidally effective amount of a compound having the structure



wherein
Ar is



Y is hydrogen, halogen, nitro, cyano or C_1-C_4 haloalkyl;
Y_1 is halogen, nitro, cyano, C_1-C_4 haloalkyl or C_1-C_4 haloalkoxy;
W is O or S;
R is C_1-C_4 alkyl;
— indicates a single or double bond;
R_1 and R_2 are each independently hydrogen or C_1-C_4 alkyl, with the proviso that when — indicates a double bond, then R_1 is not present;
R_3 is hydrogen, C_1-C_4 alkyl or CO_2R_5;
Q is O or $S(O)_m$;
Q_1 is N or NR_6, with the proviso that when — indicates a double bond then Q_1 is N;
m is an integer of 0, 1 or 2;
R_6 is hydrogen of C_1-C_4 alkyl;
R_4 and R_5 are each independently hydrogen,
C_1-C_4 alkyl optionally substituted with halogen, C_1-C_4 alkoxy, furyl, phenyl, halophenyl, C_1-C_4 alkylphenyl or C_1-C_4 alkoxyphenyl,
C_3-C_6 alkenyl optionally substituted with C_1-C_4 alkoxy, halogen or phenyl,
C_3-C_6 alkynyl optionally substituted with halogen, or
an alkali metal, alkaline earth metal, manganese, copper, zinc, cobalt, silver, nickel, ammonium or organic ammonium cation;
or the acid addition salts thereof when R_6 is hydrogen;
or optical isomers or diastereomers thereof.

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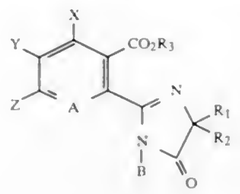
5,213,607

2-(1-SUBSTITUTED-2-IMIDAZOLIN-2-YL) BENZOIC AND NICOTINIC ACIDS AND METHOD FOR THEIR PREPARATION

Michael A. Guaciaro, Hightstown, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 453,659, Dec. 20, 1989, Pat. No. 5,062,881.
This application Sep. 19, 1991, Ser. No. 762,836
Int. Cl.[5] A01N *43/42, 43/50;* C07D *215/14*
U.S. Cl. 504—193 7 Claims

1. A compound having the formula I structure:

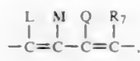


(I)

wherein

X is hydrogen, halogen or methyl;

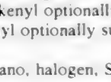
Y and Z form a ring in which YZ are represented by the structure: $-(CH_2)_n-$, where n is an integer of 3 or 4; or



where L, M, Q and R_7 are each hydrogen, halogen, C_1-C_4 alkyl, C_1-C_4 alkoxy, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkyl, difluoromethoxy, trifluoromethoxy, 1,1,2,2-tetrafluoroethoxy, nitro, cyano, phenyl optionally substituted with halogen or C_1-C_3 alkyl; phenoxy optionally substituted with halogen, trifluoromethyl, nitro or C_1-C_3 alkyl; C_3-C_6 alkenyl optionally substituted with halogen; or C_3-C_6 alkynyl optionally substituted with halogen;

A is nitrogen;

B is hydroxyl, cyano, halogen, SR_4, or



R_1 is C_1-C_4 alkyl;

R_2 is C_1-C_4 alkyl or C_3-C_6 cycloalkyl;

and when R_1 and R_2 are taken together with the carbon to which they are attached they may represent C_3-C_6 cycloalkyl optionally substituted with methyl;

R_3 is hydrogen,

C_1-C_6 alkyl optionally substituted with C_1-C_3 alkoxy, halogen, C_3-C_6 cycloalkyl, benzyl, furyl trimethylsilyl, phenyl, halophenyl, C_1-C_4 alkylphenyl, C_1-C_4 alkoxyphenyl, or nitrophenyl;

C_3-C_6 alkenyl optionally substituted with C_1-C_3 alkoxy, phenyl, halogen or C_1-C_4 alkoxycarbonyl;

C_3-C_6 cycloalkyl optionally substituted with C_1-C_3 alkyl;

C_3-C_6 alkynyl optionally substituted with C_1-C_3 alkyl; or

a cation of alkali metals, ammonium or organic ammonium;

R_4 is C_1-C_4 alkyl, or phenyl optionally substituted with nitro, CO_2R_8, cyano, trifluoromethyl, difluoromethyl, C_1-C_4 alkyl, C_1-C_4 alkoxy, or halogen;

R_5 is C_1-C_4 alkyl;

R_8 is hydrogen or C_1-C_4 alkyl;

the N-oxides thereof, when R_3 is not unsaturated alkyl and Y and Z cannot be unsaturated alkyl or alkylthio;

the optical isomers thereof, when R_1 and R_2 represent different substituents; and

the acid addition salts thereof, when R_3 is other than a cation.

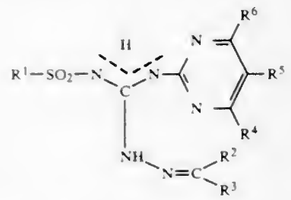
5,213,608

HERBICIDAL SUBSTITUTED SULPHONYLAMIDINOHYDRAZONES

Christa Fest, Wuppertal; Ernst R. F. Gesing, Erkrath-Hochdahl; Rolf Kirsten, Monheim; Joachim Kluth, Langenfeld; Reinhard Lantzsch, Wuppertal; Klaus-Helmut Müller, Duesseldorf; Theodor Pfister, Monheim; Hans-Jochem Riebel, Wuppertal; Frank Rosenfeldt, Langenfeld; Hans-Joachim Santel, Leverkusen; Klaus Lürssen, and Robert R. Schmidt, both of Bergisch-Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 583,933, Sep. 17, 1990, Pat. No. 5,167,692.
This application Jul. 16, 1992, Ser. No. 916,330
Claims priority, application Fed. Rep. of Germany, Oct. 10, 1989, 3933792; May 31, 1990, 4017460
Int. Cl.[5] C07D *239/42, 401/12, 403/12;* A01N *43/54*
U.S. Cl. 504—239 7 Claims

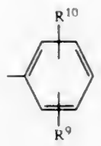
1. A substituted sulphonylamidinohydrazone of the formula



(I)

in which

R^1 represents the radical



where

R^9 and R^{10} are identical or different and represent hydrogen, fluorine, chlorine, bromine, iodine, cyano, nitro, C_1-C_6-alkyl (which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkylaminocarbonyl, di-(C_1-C_4-alkyl)-amino-carbonyl, hydroxyl, C_1-C_4-alkoxy, formyloxy, C_1-C_4-alkyl-carbonyloxy, C_1-C_4-alkoxy-carbonyloxy, C_1-C_4-alkylaminocarbonyloxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, di-(C_1-C_4-alkyl)-aminosulphonyl, C_3-C_6-cycloalkyl or phenyl), or represent C_2-C_6-alkenyl (which is optionally substituted by fluorine, chlorine, bromine, cyano, C_1-C_4-alkoxy-carbonyl, carboxyl or phenyl), or represent C_2-C_6-alkinyl (which is optionally substituted by fluorine, chlorine, bromine, cyano, C_1-C_4-alkoxy-carbonyl, carboxyl or phenyl), or represent C_1-C_4-alkoxy (which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C_1-C_4-alkoxy-carbonyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl or C_1-C_4-alkylsulphonyl), or represent C_1-C_4-alkylthio (which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C_1-C_4-alkoxy-carbonyl, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl or C_1-C_4-alkylsulphonyl), or represent C_3-C_6-alkenyloxy (which is optionally substituted by fluorine, chlorine, bromine, cyano or C_1-C_4-alkoxy-carbonyl), or represent C_2-C_6-alkenylthio (which is optionally substituted by fluorine, chlorine, bromine, cyano, nitro, C_1-C_3-alkylthio or C_1-C_4-alkoxycarbonyl), C_3-C_6-alkinyloxy or C_3-C_6-alkinylthio, or represent the radical $-S(O)_p-R^{11}$ where

p represents the numbers 1 or 2 and

R^{11} represents C_1-C_4-alkyl (which is optionally substituted by fluorine, chlorine, bromine, cyano or C_1-C_4-alkoxycarbonyl), C_3-C_6-alkenyl, C_3-C_6-alkinyl, phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy-C_1-C_4-alkylamino, C_1-C_4-alkylamino or di-(C_1-C_4-alkyl)-amino, or represents the radical $-NHOR^{12}$ where

R^{12} represents C_1-C_{12}-alkyl (which is optionally substituted by fluorine, chlorine, cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, C_1-C_4-alkyl-carbonyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkylamino-carbonyl or di-(C_1-C_4-alkyl)amino-carbonyl, or represents C_3-C_6-alkenyl (which is optionally substituted by fluorine, chlorine or bromine), C_3-C_6-alkinyl, C_3-C_6-cycloalkyl, C_3-C_6-cycloalkyl-C_1-C_2-alkyl, phenyl-C_1-C_2-alkyl (which is optionally substituted by fluorine, chlorine, nitro, cyano, C_1-C_4-alkyl, C_1-C_4-alkoxy or C_1-C_4-alkoxy-carbonyl), or represents benzyhydryl, or represents phenyl (which is optionally substituted by fluorine, chlorine, nitro, cyano, C_1-C_4-alkyl, trifluoromethyl, C_1-C_4-alkoxy, C_1-C_2-fluoroalkoxy, C_1-C_4-alkylthio, trifluoromethylthio or C_1-C_4-alkoxycarbonyl), or

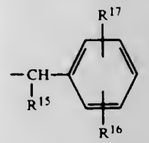
R^9 and R^{10} furthermore represent phenyl or phenoxy, or represent amino, C_1-C_4-alkylcarbonylamino, C_1-C_4-alkoxy-carbonylamino, C_1-C_4-alkylaminocarbonyl-amino or di-(C_1-C_4-alkyl)amino-carbonylamino, or represent the radical $-SO-R^{13}$ where

R^{13} represents C_1-C_6-alkyl, C_1-C_6-alkoxy (which is optionally substituted by fluorine, chlorine, methoxy or ethoxy), or represents C_3-C_6-cycloalkoxy, C_3-C_6-alkenyloxy, C_1-C_4-alkylthio, C_1-C_4-alkylamino, C_1-C_4-alkoxyamino, C_1-C_4-alkoxy-C_1-C_4-alkyl-amino or di-(C_1-C_4-alkyl)-amino (each of which is optionally substituted by fluorine and/or chlorine), or

R^9 and R^{10} furthermore represent C_1-C_4-alkylsulphonyloxy, di-(C_1-C_4-alkyl)-aminosulphonylamino or thiazolyloxy, or represent the radical $-CH=N-R^{14}$ where

R^{14} represents C_1-C_6-alkyl which is optionally substituted by fluorine, chlorine, cyano, carboxyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl or C_1-C_4-alkylsulphonyl, or represents benzyl which is optionally substituted by fluorine or chlorine, or represents C_3-C_6-alkenyl or C_3-C_6-alkinyl, each of which is optionally substituted by fluorine or chlorine, or represents phenyl which is optionally substituted by fluorine, chlorine, bromine, C_1-C_4-alkyl, C_1-C_4-alkoxy, trifluoromethyl, trifluoromethoxy or trifluoromethylthio, or represents C_1-C_6-alkoxy, C_3-C_6-alkenoxy, C_3-C_6-alkinoxy or benzyloxy, each of which is optionally substituted by fluorine and/or chlorine, or represents amino, C_1-C_4-alkylamino, di-(C_1-C_4-alkyl)-amino, phenylamino, C_1-C_4-alkyl-carbonylamino, C_1-C_4-alkoxy-carbonylamino or C_1-C_4-alkylsulphonylamino, or represents phenylsulphonylamino which is optionally substituted by fluorine, chlorine, bromine or methyl; or

R^1 represents the radical

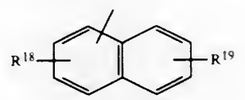


where

R^{15} represent hydrogen or C_1-C_4-alkyl,

R^{16} and R^{17} are identical or different and represent hydrogen, fluorine, chlorine, bromine, nitro, cyano, C_1-C_4-alkyl (which is optionally substituted by fluorine and/or chlorine), C_1-C_4-alkoxy (which is optionally substituted by fluorine and/or chlorine), carboxyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkylsulphonyl or di-(C_1-C_4-alkyl)-aminosulphonyl; or

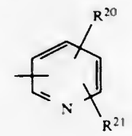
R^1 represents the radical



where

R^{18} and R^{19} are identical or different and represent hydrogen, fluorine, chlorine, bromine, nitro, cyano, dimethylamino, C_1-C_4-alkyl (which is optionally substituted by fluorine and/or chlorine) or C_1-C_4-alkoxy (which is optionally substituted by fluorine and/or chlorine); or

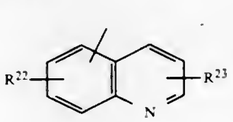
R^1 represents the radical



where

R^{20} and R^{21} are identical or different and represent hydrogen, fluorine, chlorine, bromine, nitro, cyano, C_1-C_4-alkyl (which is optionally substituted by fluorine and/or chlorine), C_2-C_4-alkenyl (which is optionally substituted by fluorine and/or chlorine), C_1-C_4-alkoxy (which is optionally substituted by fluorine and/or chlorine), or represent C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl or C_1-C_4-alkylsulphonyl (each of which is optionally substituted by fluorine and/or chlorine), and also represent di-(C_1-C_4-alkyl)-aminosulphonyl, C_1-C_4-alkoxy-carbonyl, dimethylaminocarbonyl or dioxolanyl; or

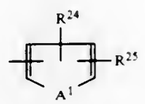
R^1 represents the radical



where

R^{22} and R^{23} are identical or different and represent hydrogen, fluorine, chlorine, bromine, C_1-C_4-alkyl (which is optionally substituted fluorine and/or bromine), C_1-C_4-alkoxy (which is optionally substituted by fluorine and/-chlorine), or represent C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl or C_1-C_4-alkylsulphonyl (each of which is optionally substituted by fluorine and/or chlorine), or represent di-(C_1-C_4-alkyl)-aminosulphonyl; or

R^1 represents the radical



where

R^{24} and R^{25} are identical or different and represent hydrogen, fluorine, chlorine, bromine, cyano, nitro, C_1-C_4-alkyl

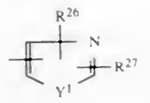
VOL 1150 ISS 4 MY 25 1993 UMI

(which is optionally substituted by fluorine, chlorine, C_1-C_4-alkoxy and/or C_1-C_4-halogenoalkoxy), C_1-C_4-alkoxy (which is optionally substituted by fluorine and/or chlorine), or C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl or C_1-C_4-alkylsulphonyl (each of which is optionally substituted by fluoride and/or chlorine), di-(C_1-C_4-alkyl-)aminosulphonyl, C_1-C_4-alkoxy-carbonyl, dioxolanyl or 2-thiazolyl, and

A^1 represents oxygen, sulphur or the N—Z^1 group where

Z^1 represents hydrogen, C_1-C_4-alkyl (which is optionally substituted by fluorine, chlorine, bromine or cyano), C_3-C_6-cycloalkyl, benzyl, phenyl (which is optionally substituted by fluorine, chlorine, bromine or nitro), C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxy-carbonyl or di-(C_1-C_4-alkyl)-aminocarbonyl; or

R^1 represents the radical



where

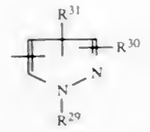
R^{26} represents hydrogen, C_1-C_5-alkyl or halogen,

R^{27} represents hydrogen or C_1-C_5-alkyl and

Y^1 represents oxygen, sulphur or the N—R^{28} group where

R^{28} represents hydrogen or C_1-C_5-alkyl; or

R^1 represents the radical



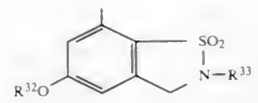
where

R^{23} represents hydrogen, C_1-C_4-alkyl, phenyl or (iso)-quinolinyl,

R^{30} represents hydrogen, halogen, cyano, nitro, C_1-C_4-alkyl (which is optionally substituted by fluorine and/or chlorine), C_1-C_4-alkoxy (which is optionally substituted by fluorine and/or chlorine), dioxolanyl or C_1-C_4-alkoxy-carbonyl, and

R^{31} represents hydrogen, halogen or C_1-C_4-alkyl; or

R^1 represents the radical

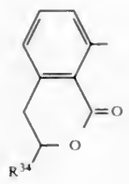


where

R^{32} represents C_1-C_3-alkyl and

R^{33} represents C_1-C_4-alkyl; or

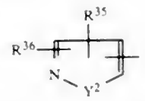
R^1 represents the radical



where

R^{34} represents hydrogen or methyl; or

R^1 represents the radical



where

R^{35}, represents hydrogen, halogen or C_1-C_4-alkyl,

R^{36} represents hydrogen, halogen, C_1-C_4-alkyl, C_1-C_4-halogenoalkyl, C_1-C_4-alkoxy or C_1-C_4-halogenoalkoxy, Y^2 represents oxygen or sulphur; or

R^1 represents pentamethylphenyl,

R^2 represent hydrogen, or represents C_1-C_6-alkyl which is optionally substituted by fluorine, chlorine and/or bromine, or represents phenyl or benzyl, each of which is optionally substituted by fluorine, chlorine, bromine, C_1-C_4-alkyl and/or C_1-C_4-alkoxy,

R^3 represents hydrogen, or represents C_1-C_{20}-alkyl, C_2-C_{10}-alkenyl, C_2-C_{10}-alkinyl or C_4-C_{10}-alkadienyl, each of which is optionally substituted by fluorine, chlorine and/or bromine, or represents C_1-C_4-alkoxy-C_1-C_4-alkyl, or represents C_1-C_4-alkyl-thio-C_1-C_4-alkyl, or represents phenyl which is optionally substituted by fluorine, chlorine, bromine, carboxyl, cyano, nitro, amino, C_1-C_4-alkyl (which is optionally substituted by fluorine and/or chlorine), C_1-C_4-alkoxy (which is optionally substituted by fluorine and/or chlorine), C_1-C_4-alkylthio (which is optionally substituted by fluorine and/or chlorine), di-(C_1-C_4-alkyl)-amino, C_1-C_4-alkoxy-carbonyl and/or phenoxy (which is optionally substituted by fluorine, chlorine and/or trifluoromethyl), or represents naphthyl, or represents pyridyl, pyrrolyl, furyl, thiazolyl or thienyl, each of which is optionally substituted by cyano, nitro, fluorine, chlorine, bromine, C_1-C_4-alkyl and/or C_1-C_4-alkoxy, or represents dithienyl, or represents phenyl-C_1-C_2-alkyl or phenylethenyl, each of which is optionally substituted by fluorine, chlorine, bromine, C_1-C_4-alkyl and/or C_1-C_4-alkoxy, or represents C_1-C_6-alkoxy, C_1-C_6-alkoxy-carbonyl or di-(alkyl)-amino, or together with R^2 represents C_2-C_6-alkanediyl which is optionally substituted by fluorine, chlorine, bromine, C_1-C_4-alkyl and/or C_1-C_4-alkoxy-carbonyl,

R^4 represents hydrogen, fluorine, chlorine, bromine, C_1-C_4-alkyl, C_1-C_4-halogenoalkyl, C_1-C_2-alkoxy-C_1-C_2-alkyl, bis-(C_1-C_2-alkoxy)-C_1-C_2-alkyl, C_1-C_4-alkoxy, C_1-C_4-halogenoalkoxy, C_1-C_4-alkylthio, C_1-C_4-halogenoalkylthio, amino, C_1-C_4-alkylamino, dimethylamino or diethylamino, and

R^5 represents hydrogen, halogen, cyano, C_1-C_4-alkyl, formyl, C_1-C_4-alkyl-carbonyl or C_1-C_4-alkoxy-carbonyl, and

R^6 represents hydrogen, fluorine, chlorine, bromine, C_1-C_4-alkyl, trifluoromethyl, C_1-C_4-alkoxy, difluoromethoxy, C_1-C_4-alkylthio, C_1-C_4-alkylamino, dimethylamino or diethylamino.

5,213,609

PROCESS FOR EXTRACTING PRECIOUS METALS

Leo J. Hyde, Berowra Heights, and Michael Stoychevski, Brighton-Le-Sands, both of Australia, assignors to Du Pont (Australia) Limited, North Sydney, Australia

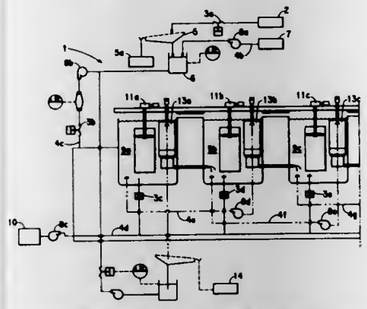
Filed Jul. 22, 1991, Ser. No. 733,502

Claims priority, application Australia, Jul. 20, 1990, PK1290

Int. Cl.[5] C22B *3/44*

U.S. Cl. 75—744 **9 Claims**

1. A process for extracting precious metals from a precious metal-containing material which comprises mixing the material in a finely-divided state with an alkaline cyanide solution con-



taining peroxymonosulfuric acid or a salt thereof while maintaining the dissolved oxygen level at least about 6 ppm.

5,213,610

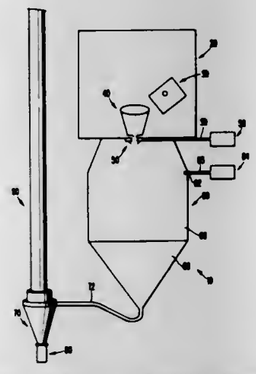
METHOD FOR ATOMIZING A TITANIUM-BASED MATERIAL

Charles F. Yolton, Coraopolis; Thomas Lizzi, Zelienople, and John H. Moll, Pittsburgh, all of Pa., assignors to Crucible Materials Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 541,927, Jun. 15, 1990, abandoned, which is a division of Ser. No. 413,177, Sep. 27, 1989, Pat. No. 4,999,051. This application Jan. 6, 1992, Ser. No. 818,465

Int. Cl.[5] B22F *9/08*

U.S. Cl. 75—351 **19 Claims**



1. A method for atomizing a titanium-based material to particulates in a controlled atmosphere, said method comprising the steps of:

skull melting a titanium-based material in a crucible;

transferring the molten titanium-based material from said crucible to a heated tundish having means for heating thereof;

forming the molten titanium-based material into a free-falling stream by flowing said titanium-based material through a nozzle disposed in a bottom portion of said heated tundish;

using said heating means to heat said heated tundish to a temperature at which solidification of the molten titanium-based material in the nozzle is prevented but at which formation of a skull occurs so that the molten titanium-based material does not react with the heated tundish;

impinging said free-falling stream of the molten titanium-based material with an inert gas jet to atomize the molten titanium-based material to particulates;

cooling the atomized titanium-based material; and

collecting the cooled atomized titanium-based material.

5,213,611

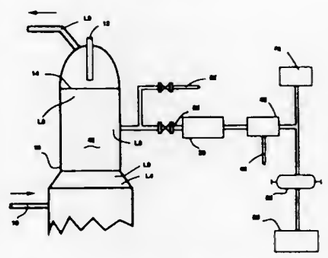
METHOD OF CONTROLLING METALLIZATION OF DIRECTLY REDUCED ORES

Federico E. Carranza-Almaguer, Monterrey, Mexico, assignor to Hylsa S.A. de C.V., Nuevo Leon, Mexico

Filed Aug. 27, 1990, Ser. No. 573,351

Int. Cl.[5] C21B *13/08*

U.S. Cl. 75—376 **14 Claims**



1. A method for producing sponge metal of a given metallization by gaseous reduction of oxidic metal ore in a vertical moving bed direct reduction reactor comprising

passing a reducing gas substantially composed of H_2 and CO through said bed of ore in a reducing zone;

taking a sample of the reducing gas from a stabilized point of measure within the reducing zone of the reactor;

determining the concentration ratio of a reducing gas species and its oxidized product in said sample;

comparing said determined concentration ratio with an empirically established interrelationship between such concentration ratios and corresponding degrees of metallization of the ore upon discharge; and

regulating process control parameters to modify the concentration ratio at the point of measure to a ratio previously established to yield the given metallization for the sponge metal.

5,213,612

METHOD OF FORMING POROUS BODIES OF MOLYBDENUM OR TUNGSTEN

William P. Minnear, Niskayuna, and Bernard P. Bewlay, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 17, 1991, Ser. No. 777,943

Int. Cl.[5] B32B *5/18*

U.S. Cl. 75—415 **4 Claims**

1. A method for forming a porous body of a metal from the group consisting of molybdenum, molybdenum alloys tungsten, tungsten alloys or mixtures thereof comprising:

foaming a mixture of a sinterable powder of the metal and a foaming agent in a volume ratio of about 0.6 to 3.5:1 respectively, to form a foam having the metal powder dispersed therein; and

heating the foam in a reducing atmosphere that promotes interparticle diffusion and bonding, to decompose the foam and sinter the metal powder to form the porous body.

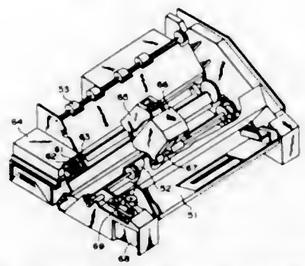
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,613

INK, AND INK-JET RECORDING METHOD AND INSTRUMENT USING THE SAME

Akira Nagashima, Tokyo; Shinichi Tochihara, Hadano; Osamu Nishiwaki, Atsugi, and Kumiko Mafune, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 23, 1992, Ser. No. 949,158
Claims priority, application Japan, Sep. 26, 1991, 3-273451
Int. Cl.[5] C09D *11/02*
U.S. Cl. 106—20 R 21 Claims



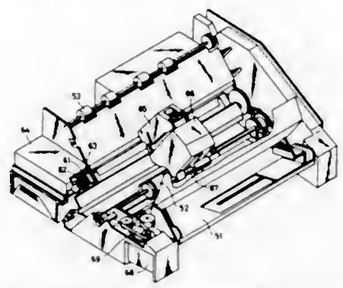
1. An ink comprising a recording agent and a liquid medium dissolving or dispersing the recording agent therein, wherein the ink contains an imide compound and at least one compound selected from the group consisting of urea, thiourea and derivatives thereof, and volatile alkaline compounds, and wherein the proportion of the imide compound and volatile alkaline compound to be contained in the ink is 1:1 to 8:1 by weight.

5,213,614

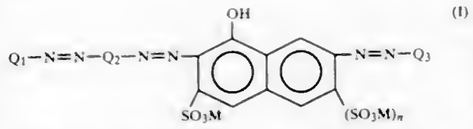
INK, INK JET RECORDING PROCESS AND RECORDING APPARATUS USING THE SAME

Tsuyoshi Eida, Yokohama; Mayumi Yamamoto, Tokyo, and Takao Yamamoto, Isehara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 17, 1992, Ser. No. 822,106
Claims priority, application Japan, Jan. 18, 1991, 3-016825
Int. Cl.[5] C09D *11/02*
U.S. Cl. 106—22 K 29 Claims



1. An ink comprising: water, a water soluble organic solvent, and a colorant represented by the following general formula (I):



(I)

wherein Q_1 is a substituted phenyl group Q_2 is a substituted or unsubstituted p-phenylene or a substituted or unsubstituted 1,4-naphthylene group; Q_3 is a substituted phenyl group; M is an alkali metal, ammonium or an organic ammonium; and n is 0 or 1, and wherein said colorant has at least s sulfonic acid group and a carboxyl group and the number of said sulfonic acid groups is not greater than the number of said carboxyl groups.

5,213,615

DENTAL MATERIAL AND METHOD FOR THE CONTROL OF CARIES AND PARADENTITIS

Rudolf J. Michl, Schaan, Liechtenstein, assignor to Ivoclar AG, Liechtenstein, Liechtenstein

Continuation of Ser. No. 106,215, Oct. 9, 1987, abandoned. This application Mar. 1, 1989, Ser. No. 317,578
Claims priority, application Fed. Rep. of Germany, Oct. 11, 1986, 3634697
Int. Cl.[5] C09K *3/00*
U.S. Cl. 106—35 7 Claims

1. A long-acting prophylactic and therapeutic dental material for the selective hardening of carious dentine and for the control of caries and paradentitis consisting essentially of a carrier and an antibacterial active substance diffusable into teeth from said carrier, said antibacterial active substance comprises a combination of a first component selected from the group consisting of thymol, carvacrol, and physiologically compatible salts thereof in an amount of from about 10 to about 0.05 weight percent of said dental material, and a second component selected from the group consisting of chlorhexidine and physiologically compatible salts thereof in an amount of from about 2 to about 0.01 weight percent of said dental material, said combination resulting in an improved antimicrobial effect adapted to be diffused into the tooth by diffusion from said carrier, said carrier comprising a member selected from the group consisting of dental cement, dental fillings, dental underfillings, dental sealing materials, crowns, bridges, prostheses and dental varnishes.

5,213,616

PROPULSION PROCESS FOR LIGHTWEIGHT MINIATURE TOY BOATS

George Walton, 1312 S. Silver Ave., Deming, N. Mex. 88030

Filed Oct. 5, 1990, Ser. No. 593,815
Int. Cl.[5] C07K *3/18*; A63H *23/04*
U.S. Cl. 106—36 14 Claims

1. A propulsion process for lightweight miniature toy boats which comprises the application thereto of chemical compounds selected from the group consisting of organic acids, organic aldehydes, organic ketones, organic alcohols, organic esters, organic ethers, organic amines, organic amides, organic amides, organic nitrites and organic nitro compounds exclusive of soap or camphor which can in the vicinity of their application to said boats in quantities equal to or less than 0.05 milliliter interact with water to temporarily increase the surface tension of the top layer of water thus providing a propulsive force to said boats but which can also act in a manner to effectively remove said compounds from said surface layer of water.

5,213,617

PRIMER FOR SILICONE SUBSTRATES

John D. Blizzard, Bay County, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jun. 13, 1991, Ser. No. 714,811
Int. Cl.[5] C08K *5/54*
U.S. Cl. 106—287.13 14 Claims

1. A primer composition consisting essentially of a mixture of

(I) from 25 to 75 mole percent of at least one alkoxysilane having the general formula

$$R_xSi(OR')_{4-x}$$

wherein R is a monovalent organic moiety selected from the group consisting of an alkyl group having 1 to 6 carbon atoms, an allyl radical, a vinyl radical, an epoxy functional organic group and an acryl-functional organic group, R' is an alkyl radical having 1 to 3 carbon atoms and x is an integer having a value of 1 to 3 inclusive;

(II) from 13 to 60 mole percent of an organotitanate having the formula

$$Ti(OR'')_4$$

wherein R'' is an alkyl radical having 1 to 8 carbon atoms; and (III) from 12 to 60 mole percent of a tin salt of a carboxylic acid having 2 to 18 carbon atoms.

5,213,618

METHOD FOR THE PREPARATION OF CHROMATIC-COLOR METAL FLAKE PIGMENTS

Thoru Souma; Masahiro Ishidoya, both of Yokohama; Toshihiko Nakamichi, Fujisawa, and Naoe Takai, Tokyo, all of Japan, assignors to Nippon Oil and Fats Company, Limited, Tokyo, Japan

Division of Ser. No. 714,313, Jun. 10, 1991, Pat. No. 5,091,010, which is a continuation-in-part of Ser. No. 300,613, Jan. 23, 1989, abandoned. This application Dec. 3, 1991, Ser. No. 801,740
Claims priority, application Japan, Jan. 27, 1988, 63-16657; Dec. 17, 1988, 63-319246
Int. Cl.[5] C09C *1/62*
U.S. Cl. 106—403 18 Claims

1. A method for the preparation of a chromatic-color metal flake pigment which comprises the steps of:

(a) hydrolyzing a hydrolyzable organic titanate ester compound in an organic medium in the presence of flakes of a metal dispersed therein to deposit an oxide of titanium on the surface of the metal flakes in the form of a coating layer;

(b) collecting the titanium oxide-coated metal flakes; and

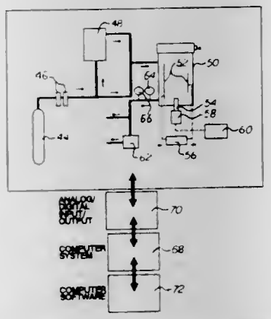
(c) calcining the titanium oxide-coated metal flakes.

5,213,619

PROCESSES FOR CLEANING, STERILIZING, AND IMPLANTING MATERIALS USING HIGH ENERGY DENSE FLUIDS

David P. Jackson, 22328 W. Barcotta Dr., and Michael A. Lepp, 22334 W. Barcotta Dr., both of Santa Clarita, Calif. 91350

Filed Nov. 30, 1989, Ser. No. 443,471
Int. Cl.[5] B08B *3/12*
U.S. Cl. 134—1 20 Claims



1. A process for removing two or more contaminants from a substrate surface comprising the steps of:

a) placing said substrate containing said contaminants in a cleaning, sterilization, and implant chamber; and

b) contacting said substrate containing said contaminants with a dense fluid at a pressure equal to or above the critical pressure of a said dense fluid; and

c) simultaneously subjecting said dense fluid to a high energy source of acoustic radiation and a non-uniform electrostatic energy field, and maintaining contact of said energized dense fluid with said substrate containing said contaminants for a predetermined period of time above the critical pressure and below critical temperature of said dense fluid, wherein contaminant solubility and transport from said substrate is provided to thereby remove said two or more contaminants from said substrate in one continuous process; and adding a chemical agent to the dense fluid;

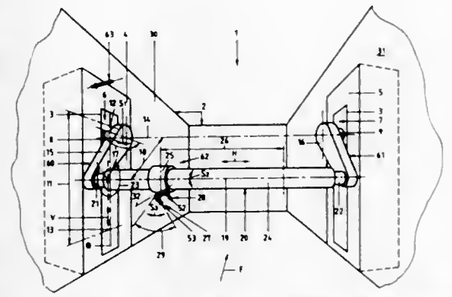
d) simultaneously subjecting said dense fluid and said chemical agent dissolved in said dense fluid to a high energy source of acoustic radiation and a non-uniform electric field, and contacting said substrate for a predetermined period of time with said energized dense fluid, and increasing temperature of said dense fluid to the critical temperature for said dense fluid, wherein said substrate is coated with said chemical agent.

5,213,620

PAINT SPRAYING MACHINE

Erich Meyer, Hauptstrasse 19, CH-4557 Horriwil, Switzerland

Filed Sep. 19, 1991, Ser. No. 762,757
Claims priority, application Switzerland, Sep. 20, 1990, 03038/90
Int. Cl.[5] B05B *15/00*
U.S. Cl. 118—323 5 Claims



1. A paint spraying machine for painting motor vehicle bodies, said bodies being conveyed in a particular direction, said spraying machine comprising:

two stationary side modules arranged in a transversely spaced apart relation, the vehicle bodies being conveyed between said side modules, each said side module including a lifting device being movable along a first spatial axis, each said lifting device carrying a pivoting arm being pivotable about a common pivot axis extending transversely to the conveying direction of the bodies;

a transverse gantry shaft carrying at least one spraying appliance, said gantry shaft having two ends and being pivotably supported at both said ends in one of said pivoting arms about an axis extending in a spaced apart relation to the common pivot axis, said axis constituting a second spatial axis;

means for jointly moving said lifting devices; and

means for pivoting said transverse gantry shaft,

said moving means jointly pivoting said pivoting arms, whereby, when said gantry shaft is moved in combination with said lifting devices, said at least one appliance is moved in a third spatial axis and said at least one appliance is capable of being directed toward the bodies by pivoting movement of said gantry shaft about said second spatial axis.

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5,213,621

HALOGENATED CARBOXYLIC ACID CLEANING AGENTS FOR FABRICATING INTEGRATED CIRCUITS AND A PROCESS FOR USING THE SAME

John C. Ivankovits, Allentown; David A. Bohling, Emmaus, both of Pa., and David A. Roberts, Carlsbad, Calif., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 11, 1991, Ser. No. 777,821
Int. Cl.[5] C23G 1/02
U.S. Cl. 134—3 21 Claims

1. A process for cleaning metal-containing contaminants from a surface of a substrate of the type used in fabricating integrated circuits and semiconductors comprising contacting the surface with a cleaning agent comprising an effective amount of a partially halogenated or fully halogenated linear or branched carboxylic acid having from 2 to about 10 carbon atoms, the halogen atom being independently selected from fluorine or chlorine, in the vapor phase at a temperature sufficient to form a volatile metal-ligand complex and subliming the metal-ligand complex to remove the metal contaminants and provide a clean surface.

5,213,622

CLEANING AGENTS FOR FABRICATING INTEGRATED CIRCUITS AND A PROCESS FOR USING THE SAME

David A. Bohling, Emmaus; John C. Ivankovits, Allentown, both of Pa., and David A. Roberts, Carlsbad, Calif., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 11, 1991, Ser. No. 777,818
Int. Cl.[5] C23G 1/02
U.S. Cl. 134—3 7 Claims

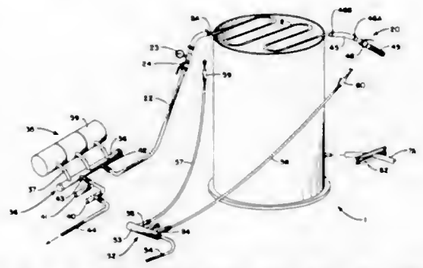
1. A process for cleaning metal-containing contaminants from a surface of a substrate of the type used in fabricating integrated circuits and semiconductors comprising contacting the surface with an effective amount of a cleaning agent comprising a carboxylic acid selected from the group consisting of formic acid and acetic acid in the vapor phase at a temperature sufficient to form a volatile metal-ligand complex and subliming the metal-ligand complex to remove the metal contaminants and provide a clean surface.

5,213,623

PROCESS FOR CLEANING NITRIC ACID ABSORPTION COLUMN COILS

Gerald G. Burtner, P.O. Box 80786, Baton Rouge, La. 70898

Filed Apr. 5, 1991, Ser. No. 682,102
Int. Cl.[5] B08B 9/04
U.S. Cl. 134—8 7 Claims



1. A method of cleaning a nitric acid absorption column cooling coil which has multiple 180° bends and provided at each end with an access port and an exit port comprising:
(a) closing said access port;
(b) inserting a pig in an operative position within a sealable cavity of a launching assembly which is operatively attached to said access port to allow said pig to enter within said coil;
(c) pressurizing said launching assembly with a fluid to a pre-determined level;
(d) opening said access port while maintaining said level of pressure against said pig during its movement through said coil by a fluid pump sufficient to force said pig into and through said coil; and
(e) capturing said pig after it passes through said exit port.

5,213,624

TERPENE-BASE MICROEMULSION CLEANING COMPOSITION

William A. Williams, Latrobe, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jul. 19, 1991, Ser. No. 732,565
Int. Cl.[5] C23G 5/036
U.S. Cl. 134—40 8 Claims

1. A cleaning composition in concentrated form consisting essentially of an oil-in-water microemulsion of:
(a) from about 5 to about 20 weight percent of terpene hydrocarbon solvent,
(b) from about 30 to about 50 weight percent of a non-ionic surfactant mixture of:
(1) a first nonionic surfactant selected from the group consisting of:
(i) capped alkylphenol alkoxylate surfactant represented by the general formula,

$$(R)_aPh-O-(-A-O-)_x-(-CH_2-CH_3-O-)_y-B,$$

wherein R is a C_8-C_{12} alkyl, Ph is phenylene, A is a bivalent alkyleneoxy group selected from the group consisting of propyleneoxy, butyleneoxy and mixtures of propyleneoxy and butyleneoxy groups, B is selected from the group consisting of benzyl, methyl, ethylchloro and $-(-CH_2-CH(CH_3)-O-)_b-H$, a is the integer 1 or 2, b is a number from 3 to 4, x is a number of from 6 to 20, and y is a number from 0 to 4, and
(ii) an alkoxylated aliphatic alcohol surfactant represented by the general formula,

$$R''-O-(-A-O-)_x-(-CH_2-CH_2-O-)_y-H,$$

wherein R'' is a C_8-C_{18} alkyl, and A , x and y are as defined hereinabove, and
(2) a second nonionic surfactant comprising a fatty acid alkanolamide, produced by condensing equimolar amounts of amine and fatty acid, represented by the general formula,

$$R'-C(O)-N(R_1)CH_2CH_2OH,$$

wherein R' is a C_{12}-C_{18} aliphatic group and R_1 is hydrogen or hydroxyethyl, the weight ratio of surfactant (1) to surfactant (2) being from about 2:1 to about 5:1, and
(c) from about 10 to about 35 weight percent of a monoether co-solvent represented by the general formula,

$$R_2O-(-CH_2-CH(R_3)-O-)_w-(-CH_2-CH(CH_3)-O-)_z-H,$$

wherein R_2 is selected from the group consisting of a C_1-C_4 alkyl and phenyl, R_3 is a hydrogen or methyl, w is 0 or 1, and z is a number of from 1 to 2, provided that z is 1 and R_3 is hydrogen when w is 1, and
(d) the balance water.

2. The cleaning composition of claim 1 comprising:
(a) from about 10 to about 15 weight percent of terpene hydrocarbon solvent,
(b) from about 35 to 45 weight percent of the non-ionic surfactant mixture,
(c) from about 15 to about 25 weight percent of the monoether co-solvent, and
(d) the balance water.

3. The cleaning composition of claim 2 wherein the terpene hydrocarbon solvent is d-limonene; the first non-ionic surfactant is a monoalkylphenol ethoxylate wherein a is 1, y is 0, and B is benzyl; the second non-ionic surfactant is a diethanolamide and R_1 is hydroxyethyl; and the monoether co-solvent is one wherein R_2 and R_3 are each methyl.

6. A method of cleaning metal parts, comprising contacting said parts with the cleaning composition of claim 3 for a time and temperature sufficient to remove the soil contained on the surface of said parts.

5,213,625

SEPARATION OF OILS FROM SOLIDS

Donald C. Van Slyke, Brea, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Division of Ser. No. 621,039, Nov. 30, 1990, Pat. No. 5,156,686.
This application Jun. 25, 1992, Ser. No. 904,169
Int. Cl.[5] B08B 3/08, 7/00; C23G 5/00
U.S. Cl. 134—26 20 Claims

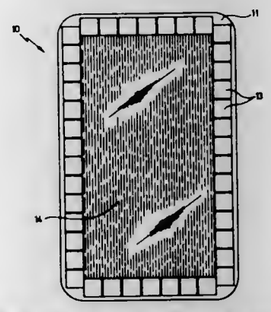
1. A method for separating an oil from a solid, the method comprising the steps of:
(a) forming a mixture comprising the oil and a carboxylic acid in the presence of the solid;
(b) contacting the mixture formed in step (a) with a reagent for converting the carboxylic acid to a water-soluble carboxylate salt; and
(c) washing the solid with an aqueous wash for removing at least a portion of the water-soluble carboxylate salt and the oil from the solid.

5,213,626

TRANSPARENT PANE FOR VEHICLES

Werner Paetz, Diessen, Fed. Rep. of Germany, assignor to Webasto-Schade GmbH, Oberpfaffenhofen, Fed. Rep. of Germany

Filed Feb. 21, 1992, Ser. No. 838,885
Claims priority, application Fed. Rep. of Germany, Feb. 21, 1991, 4105389
Int. Cl.[5] H01L 31/042, 31/048
U.S. Cl. 136—244 18 Claims



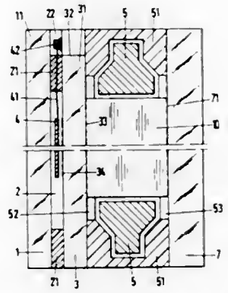
1. Transparent pane for vehicles, with a transparent outer layer, and a solar laminate lying flat against the inside of this outer layer, wherein an active part of the solar laminate comprises a first subsection located in an outer edge area of the pane, said first subsection being formed of a crystalline semiconductor material, and a second subsection, said second subsection being formed of an amorphous semiconductor material.

5,213,627

STRUCTURAL ELEMENT, IN PARTICULAR FACADE ELEMENT

Reinhold Marquardt; Walter Böhmer, both of Gelsenkirchen; Horst Harzheim; Wolfgang Jäger, both of Witten; Oussama Chehab, Neuss, and Reiner Rosendahl, Krefeld, all of Fed. Rep. of Germany, assignors to Flachglas-Solartechnik GmbH, Cologne, Fed. Rep. of Germany

Filed Sep. 20, 1991, Ser. No. 764,510
Claims priority, application Fed. Rep. of Germany, Sep. 20, 1990, 4029822
Int. Cl.[5] H01L 31/048
U.S. Cl. 136—251 2 Claims



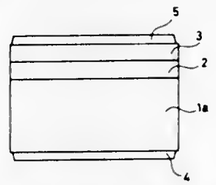
1. Structural element, in particular a facade element, with an outside plate sandwich, in which solar cells are arranged between an outer plate (1) and an inner plate (3), and with another internal plate (7), which is provided at a distance from the outside plate sandwich by means of a spacing frame (5) defining an interior space (10), wherein the solar cells (4) are embedded in a casting resin layer (2); and wherein the inner plate (3) recedes in its dimensions in the region of at least one edge (31) at least partially with respect to the corresponding edge (11) of the outer plate (1) and forms thus a recess (32) that also extends through the casting resin layer (2) and through which the necessary electrical output leads (42) are guided, whereby the recess (32), in the direction of the interior of the structural element, is covered by the spacing frame (5) and an interior seal (51).

5,213,628

PHOTOVOLTAIC DEVICE

Shigeru Noguchi, Hirakata; Hiroshi Iwata, Neyagawa, and Keiichi Sano, Takatsuki, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Sep. 10, 1991, Ser. No. 757,250
Claims priority, application Japan, Sep. 20, 1990, 2-252354; Nov. 29, 1990, 2-334971
Int. Cl.[5] H01L 31/075
U.S. Cl. 136—255 6 Claims



1. A photovoltaic device, comprising: a light transparent electrode (5), a back electrode (4), and a semiconductor sandwich structure between said electrodes, said semiconductor sandwich structure comprising a first layer of a monocrystal-

VOL 1150 ISS 4 MY 25 1993 UMI

line semiconductor of one conductivity type; a second layer of a substantially intrinsic, substantially amorphous semiconductor having a thickness of 250Å or less formed on said first layer; and a third layer of a substantially amorphous semiconductor of the opposite conductivity type formed on said second layer to form said sandwich structure, said thickness of 250Å or less being so thin that carrier formation in said second layer is substantially prevented, whereby the photo conversion efficiency is improved.

5,213,629

EAR-INFRARED EMITTER OF HIGH EMISSIVITY AND CORROSION RESISTANCE AND METHOD FOR THE PREPARATION THEREOF

Kazuhide Ishii; Tatsuo Kawasaki, both of Chiba; Noriyuki Kuriyama, Hyogo; Shoji Dohi, Osaka; Akio Nakashiba, Osaka, and Souhei Miyazaki, Osaka, all of Japan, assignors to Kasasaki Steel Corporation and Osaka Gas Co., Ltd., both of Osaka, Japan

Division of Ser. No. 371,083, Jun. 26, 1989. This application May 1, 1992, Ser. No. 877,191

Claims priority, application Japan, Jul. 26, 1988, 63-184630; Jul. 26, 1988, 63-184631

Int. Cl.[5] C23C *8/00*; F24C *1/08*

U.S. Cl. 148—286 **3 Claims**

1. A method for the preparation of a far-infrared emitter having high corrosion resistance which comprises the step of heating, in an oxidizing atmosphere, a body made from a stainless steel consisting essentially of from 20 to 35% by weight of chromium, from 0.5 to 5.0% by weight of molybdenum, up to 3.0% by weight of manganese and up to 3.0% by weight of silicon, the balance being iron and unavoidable impurities, at a temperature in the range from 900° C. to 1200° C. for a length of time which is at least 5 minutes when the heating temperature is 1100° C. or higher and at least (142.5–0.125 T) minutes when the heating temperature is lower than 1100° C., T being the heating temperature given in °C., so as to form an oxide film on the surface of the body having a thickness corresponding to a weight of at least 0.2 mg/cm^2, thereby forming a far-infrared emitter.

5,213,630

MAGNETIC MATERIALS FOR MAGNETIC REFRIGERATION

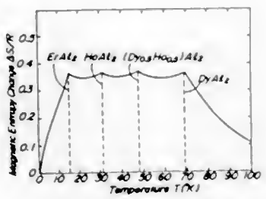
Takasu Hashimoto, Kawasaki, Japan, assignor to Tokyo Institute of Technology, Tokyo, Japan

Division of Ser. No. 323,815, Mar. 15, 1989, Pat. No. 5,124,215, which is a division of Ser. No. 91,097, Aug. 26, 1987, Pat. No. 4,829,770, which is a continuation-in-part of Ser. No. 686,883, Dec. 27, 1984, abandoned. This application Feb. 6, 1992, Ser. No. 831,975

Claims priority, application Japan, Mar. 30, 1984, 60-872

Int. Cl.[5] H01F *1/053*

U.S. Cl. 148—301 **12 Claims**



1. A magnetic refrigeration composition for magnetic refrigeration, comprising:

at least three kinds of magnetic substances selected from the group consisting of magnetic substances having the formulae

$R'Al_2$, R'_3Al_2 and $ErAl_{2+\delta}$,

wherein R' is at least one element selected from the group consisting of Gd, Tb, Dy, Ho and Er, provided that the total number of atoms satisfies the above formulae and $0<\delta<0.2$, said magnetic refrigeration composition being a mixture of said magnetic substances present in mole ratios of X, Y, Z, . . . , N for each kind, respectively, where N is the mole ratio of the Nth kind of said at least three kinds of magnetic substances, and where the mole ratios range from 1 to less than 3, and each kind of said at least three kinds of magnetic substances having a Curie temperature T_c which is different from that of the other kinds and is given by T_{CX}, T_{CY}, T_{CZ}, . . . , T_{CN}, respectively, where T_{CN} is the Curie temperature of the Nth kind of said at least three kinds of magnetic substances.

5,213,631

RARE EARTH-IRON SYSTEM PERMANENT MAGNET AND PROCESS FOR PRODUCING THE SAME

Koji Akioka; Osamu Kobayashi, both of Suwa, and Tatsuya Shimoda, Nagano, all of Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 298,608, Oct. 31, 1988, Pat. No. 5,125,988. This application Sep. 30, 1991, Ser. No. 768,802

Claims priority, application Japan, Mar. 2, 1987, 62-47042; PCT Int'l Appl., Mar. 1, 1988, PCT/JP88/00225

Int. Cl.[5] H01F *1/053*

U.S. Cl. 148—302 **24 Claims**

1. A rare earth-iron permanent magnet, comprising a cast ingot of an alloy consisting essentially of at least one rare earth element represented by R, and Fe, B, and Cu which has been subjected to hot working at 500° C. or above which finely refines the crystal grains and makes them magnetically anisotropic.

5,213,632

PROCESS FOR OBTAINING A HIGH-STRENGTH STRAIN-HARDENED STEEL WIRE USABLE FOR MAKING REINFORCING CABLES FOR ELASTOMERIC ARTICLES, SUCH AS PNEUMATIC TIRES, AND REINFORCING ELEMENTS (CABLES) PRODUCED FROM SUCH WIRES

Luc Peeters, Phoenix, Ariz., and Jean B. Pelletier, Tronville en Barrois, France, assignors to Sodetal Sarl, France

PCT No. PCT/FR91/00446, § 371 Date Feb. 5, 1992, § 102(e) Date Feb. 5, 1992, PCT Pub. No. WO91/19014, PCT Pub. Date Dec. 12, 1991

PCT Filed Jun. 6, 1991, Ser. No. 828,964

Claims priority, application France, Jun. 7, 1990, 90 07311

Int. Cl.[5] C21D *8/06*; C22C *38/00*

U.S. Cl. 148—320 **4 Claims**

1. A process for making a high-strength, strain-hardened steel wire, comprising the steps of:

performing a first wire drawing operation on a rod wire to yield a drawn wire, said rod wire being fabricated from a steel that is free of proeutectoid cementite, said steel comprising carbon in the range of about 0.45 to 0.67 percent, less than 0.010 per cent sulfur, and less than 0.010 per cent phosphorus;

performing a brassing-patenting treatment on said drawn wire; and thereafter

performing a second wire drawing operation on the drawn wire until the cross-section of the rod wire is reduced by at least 97 per cent;

whereby the high-strength, strain-hardened steel wire that is produced has a fracture strength between 2400 and 3000 mPa.

5,213,633

ELECTRIC RESISTANCE WELDED STEEL TUBE FOR MACHINE STRUCTURAL USE EXHIBITING OUTSTANDING MACHINABILITY

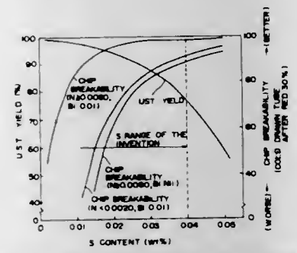
Kenji Hada; Yasuo Kimiya, and Daigo Sumimoto, all of Chibaken, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Nov. 20, 1991, Ser. No. 794,885

Claims priority, application Japan, Nov. 21, 1990, 2-316283

Int. Cl.[5] C22C *38/04, 36/60*

U.S. Cl. 148—334 **4 Claims**



1. An electric resistance welded steel tube for machine structural use exhibiting excellent machinability consisting of, in weight percent,

0.02–0.60% C,

not more than 0.4% Si,

0.20–2.0pl % Mn,

not more than 0.030% P,

not more than 0.040% S, 0.001–0.030% T.Al,

0.0020–0.0100% N,

not more than 0.0060% O, and

one or both of not more than 0.040% Bi and not more than 0.040% Pb, provided that the total amount of Bi and Pb is not more than 0.050%,

the remainder being Fe and unavoidable impurities.

5,213,634

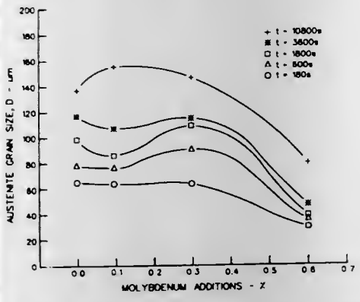
MULTIPHASE MICROALLOYED STEEL AND METHOD THEREOF

Anthony J. DeArdo, 205 Mairfair Dr., Pittsburgh, Pa. 15228; C. Isaac Garcia, 122 Fenwick Dr., Pittsburgh, Pa. 15235, and Roger M. Laible, R.D. 5-343A, Johnstown, Pa. 15905

Filed Apr. 8, 1991, Ser. No. 682,431

Int. Cl.[5] C21D *8/00*; C22C *38/26*

U.S. Cl. 148—334 **16 Claims**



1. A steel having a composition consisting essentially of, in weight percent, from about 0.05 to about 0.15 percent carbon, from about 0.5 to about 2.0 percent manganese, from about 0.5 to about 1.75 percent molybdenum, from about 0.3 to about 1.0 percent chromium, from about 0.01 to about 0.1 percent niobium, from about 0.003 to about 0.06 percent sulfur, from about 0.003 to about 0.015 percent nitrogen, from about 0.2 to about 1.0 percent silicon, balance iron plus conventional impurities, and a microstructure consisting essentially of from about 15 to about 90 volume percent ferrite and the remainder lower bainite.

5,213,635

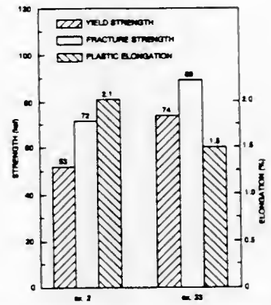
GAMMA TITANIUM ALUMINIDE RENDERED CASTABLE BY LOW CHROMIUM AND HIGH NIOBIUM ADDITIVES

Shyh-Chin Huang, Latham, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 23, 1991, Ser. No. 812,393

Int. Cl.[5] C22C *14/00*

U.S. Cl. 148—421 **12 Claims**



1. A castable composition comprising titanium, aluminum, chromium, and niobium in the following approximate composition:

$$Ti—Al_{46-48}Cr_{1-3}Nb_{6-14}$$

said alloy having been prepared by cast and HIP processing.

5,213,636

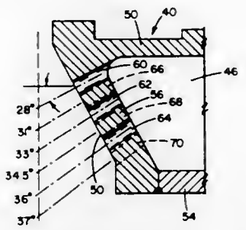
METHOD AND APPARATUS OF QUENCH HARDENING OF GEAR TEETH SURFACES

Ronald R. Akers, Bloomfield Hills, and William D. West, Clarkston, both of Mich., assignors to Tocco, Inc., Boax, Ala.

Filed Jun. 17, 1991, Ser. No. 715,990

Int. Cl.[5] H05B *6/14*

U.S. Cl. 148—573 **14 Claims**



9. A method of hardening selected surfaces of an axially elongated gear having gear teeth surfaces, a central axis and a helix angle, said selected surfaces being said gear teeth surfaces, said gear teeth surfaces comprising the surfaces of radially projecting gear teeth and roots between adjacent teeth, said method comprising the following steps:

heating said gear teeth surfaces to a quench hardening temperature to a selected shallow depth below said gear teeth surfaces;

quenching said gear teeth surfaces by directing a quenching

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fluid toward said gear teeth surfaces in a circular array of jets wherein each of said jets has a vertical offset angle of about 28° to 37° from horizontal and a horizontal offset angle about equal to the vertical offset angle for said jet divided by about 90 and multiplied by said helix angle.

5,213,637

METHOD FOR PRODUCING STEEL WIRES INTENDED FOR THE MANUFACTURE OF FLEXIBLE CONDUITS

José M. Mallen Herrero, Paris, and André Sugier, Rueil Malmaison, both of France, assignors to Coflexip and Institut Francais du Petrole, both of France

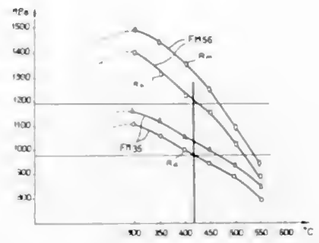
PCT No. PCT/FR91/00328, § 371 Date Dec. 19, 1991, § 102(e) Date Dec. 19, 1991, PCT Pub. No. WO91/16461, PCT Pub. Date Oct. 31, 1991

PCT Filed Apr. 19, 1991, Ser. No. 778,972

Claims priority, application France, Apr. 20, 1991, 90 05063

Int. Cl.[5] C21D *8/06*

U.S. Cl. 148—598 23 Claims



1. A method of producing steel wires which are resistant to corrosion in the presence of H_2S, of the type comprising subjecting an initial wire of carbon steel having a carbon content of between 0.25 and 0.8%, which is continuous, of long length and of constant cross section, to at least one shaping operation causing a strain-hardening the average percentage of which is greater than at least 5%, and heat-treating said shaped wire, for a given strain-hardening percentage of the initial wire, a heat treatment is carried out under conditions of time and temperature such that the steel wire obtained after treatment has a mechanical rupture strength (Rm) greater than 850 MPa and a structure containing little free ferrite

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5,213,638

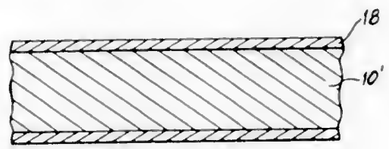
SURFACE MODIFIED COPPER ALLOYS

Deepak Mahulikar, Madison, and Brian Mravic, North Haven, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 563,766, Jul. 27, 1990, Pat. No. 5,096,508. This application Jan. 30, 1992, Ser. No. 828,329

Int. Cl.[5] C22C *9/00*

U.S. Cl. 148—627 14 Claims



1. A composite copper alloy, comprising:

a core Cu_bX_cQ; and

a surface layer Q_dC about 10 microns, where Q is at least one element which is both partially soluble in copper and reactive with carbon, X is at least one element partially soluble in copper and less reactive with carbon than Q, and "a" and "b" are each greater than the zero and "c" is at least zero".

5,213,639

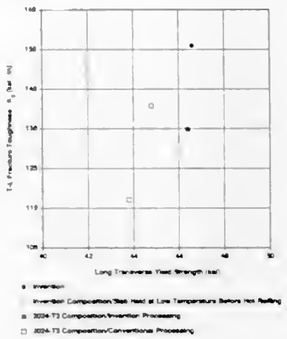
DAMAGE TOLERANT ALUMINUM ALLOY PRODUCTS USEFUL FOR AIRCRAFT APPLICATIONS SUCH AS SKIN

Edward L. Colvin, O'Hara Township, Allegheny County; Jocelyn I. Petit, New Kensington, both of Pa., Robert W. Westerlund, Bettendorf, Iowa, and Paul E. Magnusen, Plum Boro, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 572,625, Aug. 27, 1990, abandoned, Continuation-in-part of Ser. No. 572,626, Aug. 27, 1990, abandoned. This application Mar. 6, 1992, Ser. No. 847,352

Int. Cl.[5] C22F *1/04*

U.S. Cl. 148—693 232 Claims



1. A method of producing an aluminum product comprising:

(a) providing stock comprising an aluminum alloy consisting essentially of, by weight, about 3.8 to 4.5% copper, about 1.2 to 1.8% magnesium, about 0.3 to 0.9% manganese, the remainder substantially aluminum, incidental elements and impurities;

(b) hot working said stock;

(c) heating said stock above about 895° F. to less than 975° F.;

(d) hot rolling said stock;

(e) solution heat treating;

(f) cooling.

5,213,640

RUBBER ARTICLE-REINFORCING 2+8 STEEL CORDS AND PNEUMATIC TIRES USING SUCH STEEL CORDS

Kiyoshi Ikehara, Chofu, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

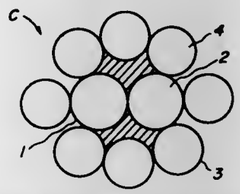
Continuation of Ser. No. 447,464, Dec. 7, 1989, abandoned. This application Dec. 27, 1990, Ser. No. 632,607

Claims priority, application Japan, Dec. 7, 1988, 63-307690

Int. Cl.[5] B60C *9/18, 9/20;* D07B *1/08*

U.S. Cl. 152—451 2 Claims

1. A pneumatic radial truck or bus tire comprising a carcass containing radially arranged cords, and a belt surrounding the carcass, said belt being composed of steel cords each comprising a core and a sheath around the core, said core consisting of two steel filaments, said sheath consisting of eight steel filaments, wherein a diameter of each of the filaments is in a range from 0.30 to 0.42 mm, a difference $D_c - D_s$ between the diameter D_c of the filaments of the core and that D_s of the sheath is not less than 0.4 mm, a twisted direction of the core is the same



as that of the sheath, and a ratio P_s/P_c between a pitch P_s of the sheath and that P_c of the core is in a range from 1.4 to 3.0.

5,213,641

PAIR OF RADIAL TIRES WITH DIRECTIONAL AND SYMMETRICAL TREAD PATTERNS

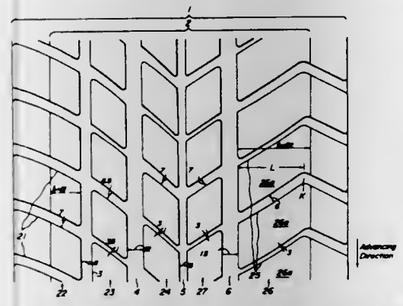
Toru Tsuda, and Toshio Hayakawa, both of Higashimurayama, Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Mar. 20, 1990, Ser. No. 497,035

Claims priority, application Japan, Mar. 27, 1989, 1-71984

Int. Cl.[5] B60C *11/11*

U.S. Cl. 152—209 A 3 Claims



1. A pair of radial tire consisting of two steered tires, each of the tires comprising an asymmetrical tread pattern having a directional property when mounted on a vehicle, said two steered tires when mounted on a vehicle having tread patterns symmetrical with respect to a longitudinal centerline of the vehicle, each of said tires having a tread pattern comprising annular land portions formed by a plurality of circumferential main grooves extending in a circumferential direction of the tire, and rows of blocks formed by extending transverse main grooves inclined in the circumferential direction in at least land portions of the tire, each of the transverse main grooves defining rows of the blocks to be located axially inside of said tire when mounted is extended and inclines downwardly in the width direction as viewed from the front side of the tire when mounted on a vehicle, each of the transverse main grooves of the tire defining the row of blocks located on an axially outer side extends from a tread edge in a substantially inverse V-shape in a range of 110° to 160° as viewed from the front side of the tire when mounted on a vehicle and, wherein a bent point forming an inflection point of said inverse V-shape is located on said axially outermost row of blocks, and wherein the distance from an edge of the outermost circumferential main groove to the bent point of each of the transverse main grooves is 30–95% of the distance from the edge of the outermost circumferential main groove to the outer edge of the treading portion;

wherein each of said transverse main grooves extending on an axially inner side of said tire when mounted on the vehicle has an inflection point in the innermost row of blocks located on the axially inner side of said tire when mounted on the vehicle, and each of said transverse main grooves extending on an axially innerside of said tire when mounted on the vehicle has a second inflection point in a row of blocks located adjacent to said axially innermost row.

5,213,642

VEHICLE TIRE INCLUDING A BREAKER REINFORCEMENT LAYER COMPRISING OVERLAPPING BANDAGE STRIPS

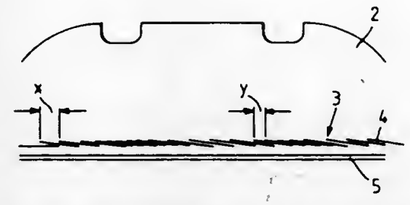
Peter Sponagel, Wiesbaden, Fed. Rep. of Germany, assignor to SP Reifenwerke GmbH, Hanau, Fed. Rep. of Germany

Filed May 18, 1990, Ser. No. 524,863

Claims priority, application Fed. Rep. of Germany, May 31, 1989, 3917735

Int. Cl.[5] B60C *9/18, 9/22, 9/26, 9/30*

U.S. Cl. 152—455 12 Claims



1. A vehicle tire comprising a profiled tread region having a middle region and a pair of shoulder regions and containing a plurality of circumferential tread grooves, a radial carcass and a breaker reinforcement assembly disposed radially outward of the carcass and in said profiled tread region, said breaker reinforcement assembly including a first layer of a plurality of at least partially overlapping bandage strips extending in the peripheral direction of the tire, wherein bandage strips provided in each of said shoulder regions include cords made of a material of low elongation and bandage strips provided in said middle region include cords made of a material of a larger elongation compared to the cords of the bandage strips provided in each of said shoulder regions, and wherein the degree of overlap between adjacent bandage strips is increased radially below the circumferential tread grooves so that the stiffness in said regions is increased to compensate for the loss of stiffness due to the circumferential tread groove, whereby the stiffness of the tread region and the stiffness of the breaker reinforcement assembly produces a substantially uniform combined stiffness across the entire width of the tire.

5,213,643

PNEUMATIC RADIAL TIRE INCLUDING AT LEAST TWO METALLIC BELT CORD LAYERS

Yukio Kaga, Atsugi; Tatsuo Suzuki, Hayama; Makoto Takagi, and Fumio Tomisawa, both of Hiratsuka, all of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 282,425, Dec. 12, 1988, abandoned. This application Nov. 20, 1990, Ser. No. 617,468

Claims priority, application Japan, Dec. 18, 1987, 62-318922; Dec. 18, 1987, 62-318924

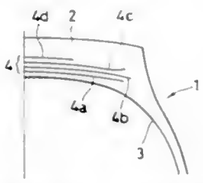
Int. Cl.[5] B60C *9/18, 9/20*

U.S. Cl. 152—527 3 Claims

1. A pneumatic radial tire comprising at least one carcass layer composed of cords disposed at substantially a right angle to the circumferential direction of the tire and four belt layers sandwiched between said carcass layer and a tread, said four belt layers including at least two metallic cord layers and having a pair of layers capable of substantially functioning as a tension band, wherein said pair of layers are composed of a second belt layer and a third belt layer in the direction of from the carcass layer to the tread of the tire, fatigue resistance of

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the cords of said second belt layer being significantly greater than fatigue resistance of the cords of said third belt layer,



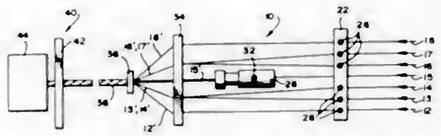
wherein the cords of said third belt layer are each a steel cord, and the cords of said second belt layer are each a steel cord.

5,213,644

METHOD OF AND APPARATUS FOR PRODUCING MOISTURE BLOCK STRANDED CONDUCTOR

Donald R. Phillips, Delta, Ala.; Hai T. Lam, Chamblee, Ga.; Clinton E. Watkins, Villa Rica, Ga., and Steven R. Campbell, Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.

Filed Mar. 20, 1991, Ser. No. 672,455
Int. Cl.[5] H01B *13/32*
U.S. Cl. 156—51 **12 Claims**



8. A method of fabricating a moisture blocked stranded conductor having a core and a first plurality of wires surrounding the core, said conductor having inner interstices between the core and said first plurality of wires, comprising the steps of:

delivering said core and said first plurality of wires to a buncher apparatus;

applying a coating of moisture block compound to the core;

applying oil only to said first plurality of wires;

twisting the oiled first plurality of wires about the coated core so as to fill the inner interstices between the core and the first plurality of wires with moisture block compound and form a moisture blocked stranded cable.

5,213,645

METHOD FOR ATTACHMENT OF ELASTIC MEMBERS AROUND LEG-HOLES OF DISPOSABLE GARMENTS

Hironori Nomura, Iyomishima; Taiji Shimakawa, Kanonji; Yoshinori Matsura; Hiroki Yamamoto, both of Kagawa, and Hirofumi Ohnishi, Iyomishima, all of Japan, assignors to Uni-Charm Corporation, Ehime, Japan

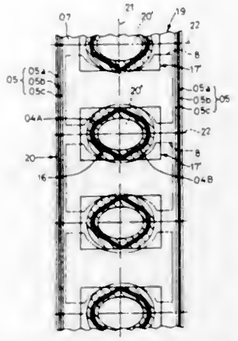
Filed Apr. 21, 1992, Ser. No. 871,687
Claims priority, application Japan, Apr. 25, 1991, 3-122429
Int. Cl.[5] B32B *31/10*; A61F *13/15*
U.S. Cl. 156—164 **4 Claims**

1. A method for attachment of elastic members around leg-holes of a disposable garment, the method comprising steps of:

a) forming a base web by continuosly feeding and bonding with adhesive first and second continuous elastic members, while keeping them stretched, onto a top surface of a first web, which is being moved, so that the elastic members describe undulating curves with summits as well as troughs of the respective curves being symmetrically opposed to each other and cross each other at their ends so as to form annular elastic areas;

b) forming a first composite web by severing the base web along respective lines transversely extending through crossings at which the first and second continuous elastic members cross each other and intermittently bonding respective severed strips with adhesive onto a second web, which is being moved, along its longitudinally extending central area;

c) forming a second composite web by bonding a third web, which is being moved, with adhesive onto a top surface of the first composite web;



d) forming continuous garments by cutting off portions of the second composite web surrounded by the respective annular elastic areas to form notches for the leg-holes; and

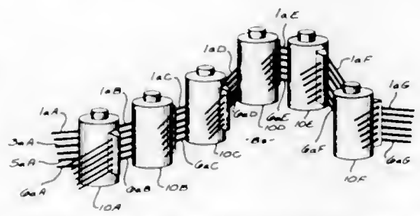
e) obtaining individual garments by severing the continuous garments along lines each dividing the associated one of the annular elastic areas in two longitudinally of the second composite web.

5,213,646

PRECISION METHOD FOR PLACING FILAMENTS

Andrew M. Zsolnay, Box 374, Manhattan Beach, Calif. 90266, and Robert H. Bendarzewski, deceased, late of Westlake Village, Calif. by Alexandra Bendarzewski, legal representative , assignors to Andrew M. Zsolnay, Marietta, Ga.

Continuation of Ser. No. 520,036, May 7, 1990, abandoned, which is a division of Ser. No. 291,211, Dec. 28, 1988, Pat. No. 4,946,538. This application Feb. 24, 1992, Ser. No. 841,248
Int. Cl.[5] B32B *31/00*; B65H *81/00*
U.S. Cl. 156—166 **11 Claims**



1. A method for placing filaments on a tool, comprising the steps of:

automatically gathering a plurality of independently fed, substantially parallel segments of tows of such filaments; wherein the gathering step comprises rotating a drum substantially without translation relative to the tool, to wind the segments up on the drum;

then automatically depositing said plurality of tow segments against the tool or against previously deposited segments; wherein the depositing step comprises rolling the drum along the tool to unwind from the drum the segments just gathered; and

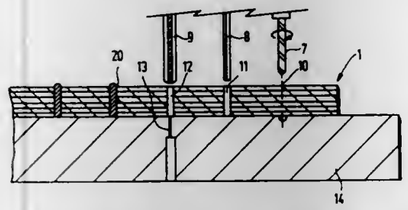
then automatically repeating the gathering and depositing steps, in turn, a multiplicity of times.

5,213,647

ARRANGEMENT FOR HOLDING TOGETHER A PACKAGE OF BOARDS FOR PRINTED CIRCUITS

Jean-Claude Chapron, and Alain Sorel, both of Evreux, France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 25, 1991, Ser. No. 720,566
Claims priority, application France, Jul. 3, 1990, 90 08376
Int. Cl.[5] B32B *33/00*
U.S. Cl. 156—252 **3 Claims**



1. An arrangement for holding together a package of boards to be used in the manufacture of printed circuits whereby identical rectangular boards are stacked on one another in order to be jointly pierced, characterized in that the arrangement comprises means for provisionally holding the boards together in a package, means for advancing said package step-by-step, said boards having been previously pierced with a line of holes along each of two parallel sides, and means for depositing quick-setting glue in said holes, and characterized in that said arrangement is provided with a support surface for the boards which is pierced with holes of a diameter smaller than that of the holes pierced in the boards, for evacuating air, which holes are situated opposite the positions where the holes of the boards are at the moment when the glue is introduced therein.

5,213,648

METHOD OF PRODUCING A TAMPER-PROOF LAMINATE AND PRODUCT OBTAINED THEREBY

Leon L. Vermeulen, Herenthout, and Robert S. Pauwels, Brasschaat, both of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Mar. 15, 1991, Ser. No. 670,019
Claims priority, application European Pat. Off., Mar. 23, 1990, 90200693.1
Int. Cl.[5] C09J *5/02*
U.S. Cl. 156—307.5 **18 Claims**

1. A process for the production of a laminated document wherein a supported hydrophilic colloid layer or assemblage of hydrophilic colloid layers containing a photograph and/or other information is bonded by lamination of at least one of its surfaces to a hydrophobic resin sheet, said process comprising the following steps:

(1) coating at least one surface of said supported hydrophilic colloid layer or said assemblage of hydrophilic colloid layers with an aqueous solution containing the polyamidoamine condensation product of a polyalkylene-polyamine containing at least two primary amino groups and at least one secondary or tertiary amino group with a dicarboxylic acid which condensation product has been further grafted by reaction with an alkene-1,2-imine in the presence of an acid catalyst, and has been transformed into a cationic crosslinked polymer by reacting the obtained grafted polymer with a bifunctional crosslinking agent selected from an epihalohydrin, an Alpha-Omega-dihalohydrinether or the ether compound obtained by reaction of epichlorohydrin with a watersoluble polyalkyleneoxide,

(2) drying the coated product, and

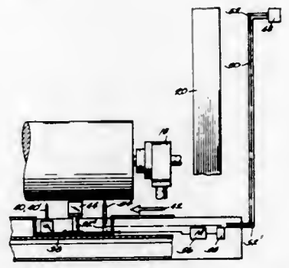
(3) joining the thus coated hydrophilic colloid layer or assemblage of hydrophilic colloid layers with a hydrophobic resin sheet, and applying heat and pressure to cause the hydrophobic resin sheet to be bonded to said hydrophilic colloid layer through the intermediary of said coating containing said cationic crosslinked polymer.

5,213,649

APPARATUS FOR RECEIVING AND CUTTING A CONTINUOUS WEB

David Sepavich, Dalton, and William M. Stone, Lenox, both of Mass., assignors to Beloit Technologies, Inc., Wilmington, Del.

Filed Oct. 15, 1990, Ser. No. 597,145
Int. Cl.[5] B65H *35/02*
U.S. Cl. 156—380.7 **6 Claims**



1. Apparatus for receiving and cross-cutting a traveling continuous web of material to be wound into successive rolls, with each roll initially wound onto a core and into a roll, the apparatus including:

frame means;

drum means rotatably supported in the frame means about a longitudinal axis thereof, and over the lower surface of which the web is supported as it is wound onto a core supported on an upper surface of the drum means;

carriage means, including a carriage and traversing means for moving the carriage transversely of the direction of the traveling web, the carriage means disposed beneath the web over the lower surface of the drum means;

glue means mounted on the carriage for applying adhesive on the web along a path transversely thereof;

laser means mounted on the carriage for directing a laser beam onto the web supported on the lower surface of the drum means for cross-cutting the web proximate the adhesive path in the cross-machine direction;

whereby uniformly cut trailing and leading edges of the cross-cut web are produced upstream of the core supported on the drum means for attachment to the wound roll, or a core, or both, as desired.

5,213,650

APPARATUS FOR REMOVING DEPOSITS FROM BACKSIDE AND END EDGE OF SEMICONDUCTOR WAFER WHILE PREVENTING REMOVAL OF MATERIALS FROM FRONT SURFACE OF WAFER

David N. Wang, Saratoga; Lawrence C. Lei; Mei Chang, both of Cupertino, and Cissy Leung, Fremont, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Division of Ser. No. 398,239, Aug. 25, 1989, Pat. No. 5,075,256. This application Sep. 13, 1991, Ser. No. 759,319
Int. Cl.[5] H01L *21/00*
U.S. Cl. 156—345 **9 Claims**

1. Apparatus including a vacuum chamber for removing one or more materials deposited on the back surface and end edge

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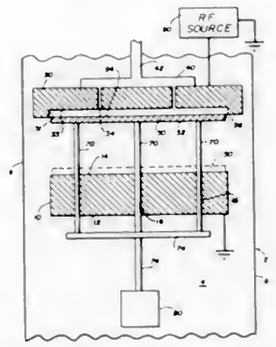
of a semiconductor wafer without removal of material from the front surface of said wafer which comprises:

(a) a wafer support member adjacent the bottom of said vacuum chamber having an upper surface thereon to receive a wafer to be processed in said chamber;

(b) a faceplate adjacent the top of said vacuum chamber having a first surface thereon facing said upper surface of said wafer support member;

c) means for raising said wafer in said chamber off said wafer support member and into contact with portions of said first surface of said faceplate in said chamber, to permit removal of materials from said back surface of said wafer, and for lowering said wafer back onto said wafer support to permit normal processing of said front surface of said wafer in said chamber;

(d) spacing means associated with said first surface of said



faceplate to form a space between said front surface of said wafer and a portion of said faceplate containing openings for gases to enter said chamber;

(e) means for flowing one or more gases through said space formed between said front surface of said wafer and said faceplate; and

(d) means for forming a plasma in said chamber, in the gap formed between said back surface of said wafer and said wafer support member by said means for raising said wafer into contact with said faceplate, to remove materials deposited on said back surface and end edge of said wafer;

whereby materials may be removed from said back surface of said wafer while said gases flowing through said space between said front surface of said wafer and said faceplate prevent said plasma from removing materials on said front surface of said wafer.

5,213,651

TIRE BUILDING METHOD AND APPARATUS

Yoshihiro Fukamachi; Shigeru Tada, and Koji Okuyama, all of Kodaira, Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Aug. 24, 1990, Ser. No. 571,695

Claims priority, application Japan, Aug. 24, 1989, 1-217979; Aug. 24, 1989, 1-217980

Int. Cl.[5] B29D *30/20*

U.S. Cl. 156—406.2 12 Claims

1. An apparatus for transferring cylindrical members comprising; a first forming drum and a second forming drum, said first and second forming drums expansible to increase diameters and contractible to decrease the diameters,

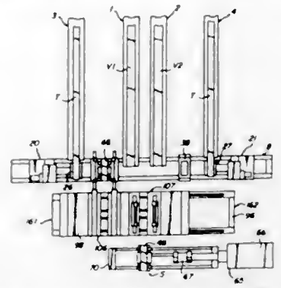
a first frame base movable toward and away from the one forming drum;

a second frame base movable toward and away from the second forming drum;

said first and second frame bases moving in a parallel path;

annular members being able to be placed on said frame bases and having chucks;

each of said chucks being expansible and contractible by receiving driving power from the frame based upon being placed thereon to grasp a cylindrical tire member on its outside and being able to hold the cylindrical member even upon being removed from the frame base; and



a transfer mechanism positioned between the first and second frame bases for transferring the annular member holding a cylindrical tire member from the first frame base to the second frame base and for transferring the annular member having no cylindrical tire member from the second frame base to the first frame base.

5,213,652

PNEUMATIC RADIAL TIRE INCLUDING 1×2 STEEL CORDS

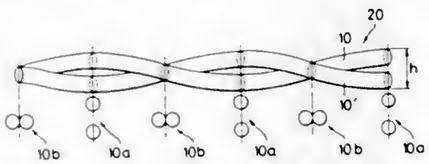
Hisao Katoh, and Susumu Imamiya, both of Hiratsuka, Japan, assignors to The Yokohama Rubber Co., Ltd., Japan

Continuation-in-part of Ser. No. 575,602, Aug. 31, 1990, abandoned. This application Dec. 19, 1991, Ser. No. 810,300

Claims priority, application Japan, Sep. 11, 1989, 1-232909

Int. Cl.[5] B60C *9/00, 9/18*

U.S. Cl. 152—451 2 Claims



1. In a pneumatic radial tire for an automotive vehicle having at least one steel cord embedded in a rubber layer forming a part thereof, the improvement wherein said steel cord consists of two identical round, steel filaments intertwisted together, each filament having a diameter d and being preformed into a sinusoidal shape prior to being intertwisted, the maximum dimension of each sinusoidal shaped filament being greater than 2d, the maximum dominion of the cord formed of the two filaments being substantially equal to twice the diameter of the individual filaments in a first direction and the maximum dimension is a second direction perpendicular to said first direction being h, where the ratio of 2d/h is from 0.6 to 0.9, said cord being substantially flat along its length with the orientation of its dimensions in said first and second directions being substantially constant throughout its length whereby said intertwisted filaments, along the length of the cord, have non-contact areas wherein each filament is completely embedded in the rubber of the layer periodically alternating with areas where the filaments are in direct contact with each other.

5,213,653

WASTE TAPE DISPOSING MEANS OF TAPE FEEDER

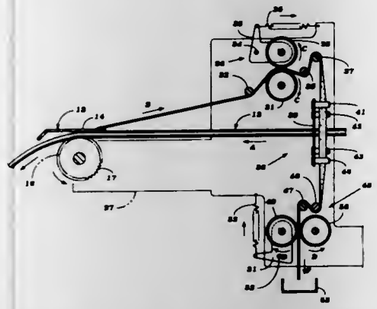
Masahiro Akahori, and Tuneji Togami, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Jun. 10, 1991, Ser. No. 712,487

Claims priority, application Japan, Sep. 5, 1990, 2-236037

Int. Cl.[5] B65H *5/28*

U.S. Cl. 156—584 9 Claims



1. A tape dispenser and disposal system comprising a tape feed means for feeding a tape comprised of a carrier strip and a removable covering strip in a generally horizontal direction to a stripping station, stripping means for removing said covering strip from said carrier strip and redirecting said covering strip in a direction generally opposite to the direction of said tape is fed by said feed means and above the fed tape, a disposal area beneath the tape being fed by said feed means, disposal means for transferring the removed covering strip from the area above the tape being fed to said disposal area comprising drive means rearwardly of said stripping means for drawing the removed covering strip in a downward direction and positioned beneath the area where said tape is fed, and stripping drive means positioned above the area where the tape is fed and for drawing the stripped covering strip away from said stripping means and toward said disposal means.

5,213,654

VAPOR-PHASE EPITAXIAL GROWTH METHOD FOR SEMICONDUCTOR CRYSTAL LAYERS

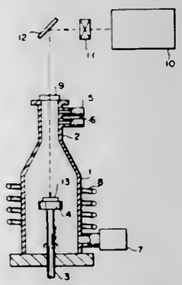
Masahiro Sasaki, Yokohama; Yoshito Kawakyu, Kawasaki; Hironori Ishikawa, Tokyo, and Masao Mashita, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 17, 1991, Ser. No. 701,865

Claims priority, application Japan, May 18, 1990, 2-128354

Int. Cl.[5] C30B *25/00*

U.S. Cl. 156—614 26 Claims



1. A vapor-phase epitaxial growth method for sequentially growing first and second layers formed of semiconductor crystals of different kinds on a substrate positioned on a mount and in a process chamber, in which the second layer has an optimum growth temperature higher than that of the first layer, the method comprising the steps of:

growing the first layer by supplying a first material gas into the process chamber and heating the mount of a constant temperature; and

growing the second layer by supplying a second material gas, which is different from the first material gas, into the process chamber, heating the mount at the constant temperature, and irradiating the substrate with light so as to apply the energy of the light to the substrate;

wherein the thickness of each of the first and second layers is controlled to an accuracy of a monoatomic layer.

5,213,655

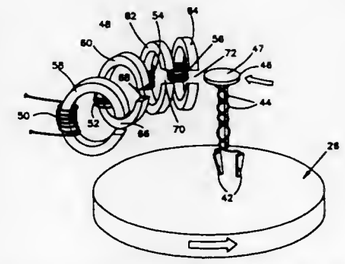
DEVICE AND METHOD FOR DETECTING AN END POINT IN POLISHING OPERATION

Michael A. Leach, South Burlington; Brian J. Machesney, Burlington, and Edward J. Nowak, Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 525,352, May 16, 1990. This application Mar. 2, 1992, Ser. No. 844,439

Int. Cl.[5] H01L *21/00*

U.S. Cl. 156—627 8 Claims



1. A method of determining the end point of a process for polishing a surface film on a substrate, wherein the surface film is progressively removed to reveal at least a portion of the substrate, comprising the steps of:

providing a first circuit including a first core having ends which oppose each other and which are separated by an air gap, a first coil wound around said first core, and a current source connected electrically in parallel across said first coil to energize said first coil and induce a magnetic flux density within said air gap;

providing a rotatable platform having a polishing device thereon, said polishing device being disposed to contact the surface of the material being polished, said rotatable platform carrying a second circuit including (i) a second core, (ii) a second coil wound around said second core, and (iii) a pair of electrical contacts connected electrically in parallel across said second coil and positioned so as to contact the surface of the material to be polished;

contacting said material to be polished with said polishing device;

rotating said platform to polish the material so as to selectively and periodically dispose said second coil within and outside of said air gap, thereby gradually removing the material until said substrate contacts said electrical contacts;

sensing the resulting change in said magnetic flux density within said air gap when said substrate contacts said electrical contacts and providing an electrical signal in response thereto; and

terminating the polishing process in response to said electrical signal.

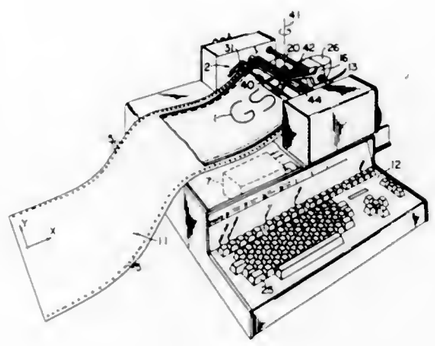
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5,213,656

METHOD OF USING A WEB FOR ETCHING OF A SURFACE

Brian H. Lis, West Hartford; William J. Stevenson, III, Somers; Raymond J. MacQueen, Jr., Canton; William T. Chase, Ellington; James R. Parys, Wallingford, all of Conn., and Alden J. Hay, Holden, Mass., assignors to Gerber Scientific Products, Inc., Manchester, Conn.

Filed Dec. 4, 1991, Ser. No. 802,260
Int. Cl.[5] B44C *1/22, 1/24*
U.S. Cl. 156—630 13 Claims



1. A method for etching a surface comprising the steps of:
providing an automated sign making machine having a pressure tool moveable relative to the direction of flow of material movement over a support surface;
providing a laminated web of material having a base layer of sheet material having first and second faces, a layer of stencil material in sheet form having a displaceable transferrable impregnated material therein and being superimposed on said base layer and having a first face facing said base layer second face and a second face facing away from said base layer, and a cover layer of material in sheet form overlaying said stencil sheet second face, said cover layer having a first face facing the stencil sheet and a second face facing away from the stencil sheet;
scribing said web by advancing it through said sign making machine such that said base layer first face is supported by said machine support surface and said cover layer second face is contacted by said pressure tool to displace said impregnated material from the portion of said stencil sheet underlying said pressure tool where said scribing occurs;
separating said stencil sheet from the base layer and the cover layer of said web after scribing is complete;
placing said stencil sheet onto a surface to be marked such that the scribed-on portion overlays the surface;
providing a voltage potential between the surface to be marked and a source disposed outwardly thereof;
providing a medium for selectively conducting said electropotential through said stencil; and
applying the medium to the web and allowing said medium to communicate through said stencil and react along portions of the article surface directly underlying the portions of the stencil in which the impermeable impregnation has been removed by the scribing process.

5,213,657

METHOD FOR MAKING UNIFORM THE THICKNESS OF A SI SINGLE CRYSTAL THIN FILM

Takao Abe, Annaka; Yasuaki Nakazato, Koushoku, and Atsuo Uchiyama, Tobu, all of Japan, assignors to Shin-Etsu Handotai Kabushiki Kaisha, Japan

Filed Jul. 29, 1992, Ser. No. 921,348
Claims priority, application Japan, Jul. 31, 1991, 3-215902; Jul. 31, 1991, 3-215903
Int. Cl.[5] H01L *21/306*
U.S. Cl. 156—631 16 Claims

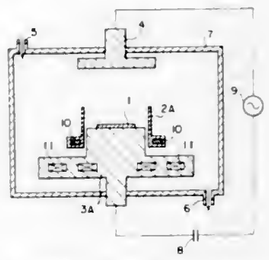
1. A method for making uniform the thickness of a Si single crystal thin film, comprising the steps of:
(a) measuring the surface condition and the thickness unevenness of a Si single crystal thin film by two-dimensional and three-dimensional images to pre-identify closed curve patterns which indicate the thickest peak portions from equal thickness contour curves on said two-dimensional image;
(b) forming a primary Si oxide layer with approximately uniform thickness by the thermal oxidation method on said Si single crystal thin film, masking the surface of said primary Si oxide layer with a masking material except for said closed curve patterns of said peak portions identified in said step (a), removing said primary Si oxide layer only on the surface of said peak portions of said Si single crystal thin film by an etching treatment;
(c) removing said masking material, forming a secondary Si oxide layer which is deeper than the previous boundary between said primary Si oxide layer and said Si single crystal thin film on the portions of said Si single crystal thin film where said primary Si oxide layer has been removed, and removing said primary and secondary Si oxide layers by an etching treatment;
(d) repeating said steps (a) to (c) as necessary; and
(e) polishing said Si single crystal thin film surface to have a mirror finish.

5,213,658

PLASMA PROCESSING METHOD

Tomoaki Ishida, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 23, 1991, Ser. No. 644,625
Claims priority, application Japan, Oct. 26, 1990, 2-287330
Int. Cl.[5] H01L *21/00*
U.S. Cl. 156—643 3 Claims



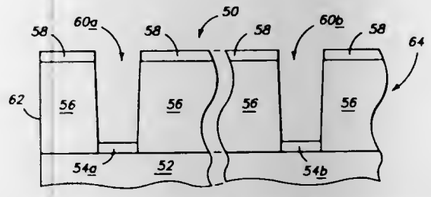
1. A plasma processing method comprising:
placing a substrate to be processed on a high frequency electrode disposed in a processing container;
exhausting gas from said processing container and introducing reactive gas into said processing container;
generating a plasma in said processing container by applying high frequency electric power to said high frequency electrode, thereby processing the substrate; and
while generating a plasma, levitating a focus ring having a magnet therein and surrounding the substrate to a predetermined height above the high frequency electrode with a magnetic field produced by another magnet.

5,213,659

COMBINATION USAGE OF NOBLE GASES FOR DRY ETCHING SEMICONDUCTOR WAFERS

Guy T. Blalock, Boise, and Scott Ludwig, Nampa, both of Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 540,854, Jun. 20, 1990, abandoned.
This application Feb. 20, 1992, Ser. No. 840,659
Int. Cl.[5] H01L *21/00*
U.S. Cl. 156—643 42 Claims



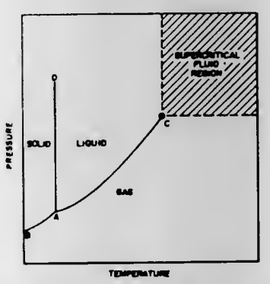
1. A method of dry etching an overlying layer on a semiconductor silicon substrate wafer selectively relative to an underlying layer within an etching reactor, the method comprising:
positioning said wafer within the etching reactor;
injecting gases to within the etching reactor to provide a gas mixture at a preselected pressure, the gas mixture comprising at least two noble gases of different molecular weights which are present within the etching reactor at a preselected ratio relative to one another, one of the noble gases being defined as the lighter noble gas, another being defined as the heavier noble gas, the preselected ratio of the lighter noble gas to that of the heavier noble gas being at least approximately 2:1 by volume; and
applying a preselected amount of electrical power to the etching reactor with the wafer and preselected ratio of at least two noble gases therein for a preselected amount of time to selectively obtain a desired etch of the overlying layer, the etch producing high wafer center-to-edge etch uniformity and being highly selective to the underlying layer.

5,213,660

SECONDARY FIBER CELLULOSE PRODUCT WITH REDUCED LEVELS OF POLYCHLORINATED DIBENZODIOXINS AND POLYCHLORINATED DIBENZOFURANS

Shafi U. Hossain, Menasha, Wis., and Carol A. Blaney, Roswell, Ga., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Division of Ser. No. 596,807, Oct. 12, 1990, Pat. No. 5,009,745.
This application Feb. 28, 1991, Ser. No. 647,627
Int. Cl.[5] D21C *5/02*
U.S. Cl. 162—5 10 Claims



1. A cellulose-containing product having cellulose-containing secondary fibers originally processed using a chlorine bleaching step on fibers and having levels of polychlorinated dibenzo-p-dioxin and/or polychlorinated dibenzofuran reduced by at least 90% compared to said chlorine bleached fibers and made by the process of contacting said cellulose-containing secondary fibers containing said fibers originally processed using a chlorine bleaching step with carbon dioxide under pressure and temperature conditions such that the carbon dioxide is a supercritical or near supercritical fluid.

5,213,661

OXYGEN ALKALI DETACKIFICATION IN SECONDARY FIBER RECOVERY

Ronald C. Naddeo, Kempton; Konstantinos Hristofas, Allentown, and Vincent L. Magnotta, Wescosville, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed May 21, 1991, Ser. No. 703,549
Int. Cl.[5] D21C *5/02, 9/147*
U.S. Cl. 162—6 9 Claims

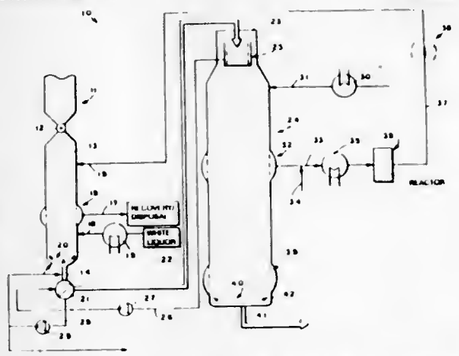
1. A method for treating a secondary pulp comprising cellulosic fibers and tacky contaminants, wherein said pulp is prepared from waste paper material, said method comprising contacting said pulp in an aqueous liquid containing only fully oxidized white liquor as a source of alkali with oxygen gas at conditions of temperature, oxygen partial pressure, and contact time sufficient to decrease the tackiness of said tacky contaminants, thereby reducing operating and product quality problems caused by said tacky contaminants during further processing of said cellulosic fibers to yield a recycled paper product.

5,213,662

TREATMENT OF CHIPS WITH HIGH TEMPERATURE BLACK LIQUOR TO REDUCE BLACK LIQUOR VISCOSITY

Kaj Henricson, Kotka, Finland, assignor to Kamyr, Inc., Glens Falls, N.Y.

Filed Aug. 14, 1991, Ser. No. 744,506
Int. Cl.[5] D21C *3/26*
U.S. Cl. 162—19 29 Claims



1. A method of producing kraft pulp from comminuted cellulosic fibrous material, using a continuous digester, comprising the steps of continuously:
(a) steaming the comminuted cellulosic fibrous material in a steaming vessel;
(b) adding white liquor to the steamed material in a generally upright treatment vessel;
(c) cooking the material, with white liquor, in the continuous digester at a cooking temperature;
(d) extracting black liquor from the continuous digester;
(e) heating the extracted black liquor above the cooking temperature to cause sulphur compounds to separate from the black liquor and be available for reaction with the steamed material in the treatment vessel;
(f) adding the heated black liquor from step (e) to the steamed material between steps (a) and (b), so that the

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sulphur compounds separated from the black liquor react with the steamed material in the treatment vessel; and

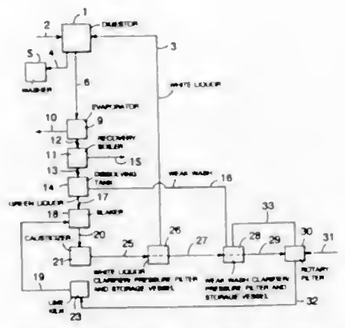
(g) withdrawing the black liquor from the material between steps (f) and (b).

5,213,663

METHOD FOR CONTROLLING THE SODIUM CARBONATE CONCENTRATION OF GREEN LIQUOR IN THE DISSOLVING TANK

Wolf Musow, Plymouth, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed Jul. 22, 1991, Ser. No. 734,183
Int. Cl.[5] D21C 7/14
U.S. Cl. 162—49 5 Claims



1. A method for regulating the sodium carbonate concentration of a green liquor from a dissolving tank in a Kraft recovery process comprising:

(a) measuring the conductivity of said green liquor,

(b) measuring the conductivity and flow rate of a weak wash solution being added to said dissolving tank,

(c) determining the sodium carbonate concentration of said green liquor based on said green liquor conductivity adjusted by a factor that is a function of said weak wash conductivity and said weak wash flow rate, and

(d) adjusting said flow rate of said weak wash solution being added to said dissolving tank in response to changes in the sodium carbonate concentration in said green liquor to maintain the sodium carbonate concentration in said green liquor at a predetermined level.

5,213,664

LOTTERY TICKETS AND PAPER

Erik Hansell, Tyresö , Sweden, assignor to AB Tumba Bruk, Tumba, Sweden

Filed Sep. 17, 1990, Ser. No. 583,083
Claims priority, application Sweden, Nov. 14, 1989, 8903823
Int. Cl.[5] D21H 21/40
U.S. Cl. 162—134 11 Claims

1. A paper useful for lottery tickets comprising: a base paper completely filled with carbon black in an amount sufficient to render said base paper black and completely opaque, said base paper exhibiting a weight of about 100–300 g/m^2; and

a bright coating on either side of said base paper which makes the surfaces of the paper suitable for printing with conventional techniques, each coating comprising white pigment and 10–30 g. dry solids/m^2 per side;

printing exhibiting the form of a unique character combination of the surface of one coating; and

a latex coating over said figure combination.

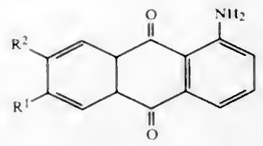
5,213,665

PROCESS FOR PRODUCING 1-AMINOANTHRAQUINONES

Noboru Sugishima; Noriaki Ikeda; Yasushi Fujii, all of Himeji, and Akira Inoue, Hirakata, all of Japan, assignors to Nippon Shokubai Kagaku Kogyo, Co., Ltd., Osaka, Japan

Division of Ser. No. 315,591, Feb. 27, 1989. This application Apr. 8, 1991, Ser. No. 717,834
Claims priority, application Japan, Feb. 29, 1988, 63-44335; Dec. 20, 1988, 63-319420; Dec. 20, 1988, 63-319421
Int. Cl.[5] C25B 3/04
U.S. Cl. 204—73 R 9 Claims

6. A process for producing 1-aminoanthraquinones represented by formula (C)



(C)

wherein R^1 and R^2, independently from each other, denote one type selected from a hydrogen atom, an alkyl group having 1 to 4 carbon atoms and a halogen atom,

which comprises:

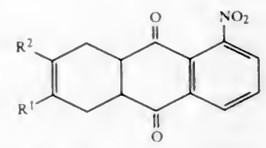
subjecting 1-nitronaphthalene to indirect electrolytic oxidation by contact with a mediator to form 5-nitro-1,4-naphthoquinone and separating the mediator;

subjecting the resulting 5-nitro-1,4-naphthoquinone to a Diels-Alter reaction with 1,3-butadienes represented by formula (E)



(E)

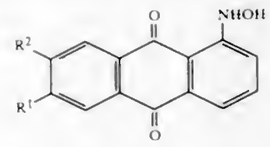
wherein R^1 and R^2 are as defined above, to form a 5-nitro-1,4,4a,9a-tetrahydroanthraquinones represented by formula (A)



(A)

wherein R^1 and R^2 are as defined above;

converting the resulting 5-nitro-1,4,4a,9a-tetrahydroanthraquinones into 1-hydroxylaminoanthraquinones represented by formula (B).



(B)

wherein R^1 and R^2 are as defined above, in the presence of a basic compound; and

electrolytically reducing the resulting 1-hydroxylaminoanthraquinones in the presence of a basic compound to produce 1-aminoanthraquinones represented by formula (C),

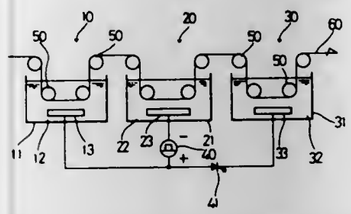
wherein the electrolytic reduction is carried out in an electrolytic cell comprising an anode compartment, a cathode compartment and a diaphragm in between, and the electrolytic reduction of the 1-hydroxylaminoanthraquinones is conducted at the cathode, and simultaneously the electrolytic oxidation of the separated mediator is conducted at the anode.

5,213,666

METHOD OF PREPARING SUPPORT FOR PRINTING PLATE

Atsuo Nishino, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 23, 1992, Ser. No. 824,531
Claims priority, application Japan, Jan. 23, 1991, 3-006506; Oct. 1, 1991, 3-253205
Int. Cl.[5] C25F 3/04
U.S. Cl. 204—129.43 6 Claims



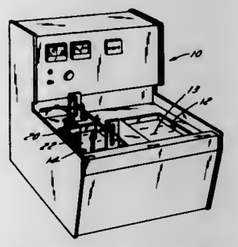
1. A method of preparing a support for a lithographic printing plate which comprises roughing electrochemically the surface of an aluminum plate which is rendered an anode in an aqueous neutral salt solution by supplying pulse-formed direct electric potential.

5,213,667

ELECTROLYTIC BATH SOLUTION AND METHOD FOR IMPROVING THE SURFACE WEAR RESISTANCE OF TOOLS

Norman R. Hozer, 14303 Glensford Pl., Louisville, Ky. 40245

Filed Aug. 5, 1991, Ser. No. 740,330
Int. Cl.[5] C25F 3/00
U.S. Cl. 204—129.55 17 Claims



1. A method for enhancing the cutting edge of an unused steel cutting tool having complex carbide particles positioned beneath an oxide layer overlaying a region of the cutting surface of the unused cutting tool comprising the steps of:

(a) providing a bath of solution capable of selectively removing the oxide layer which overlaps the cutting surface region and envelopes the complex carbide particles when said tool is immersed in said bath solution,

(b) immersing said unused tool within said bath solution, and

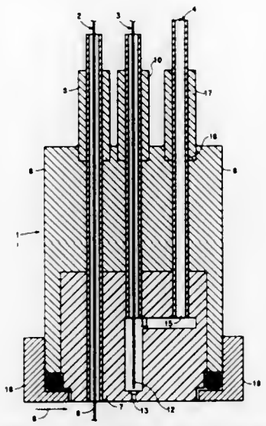
(c) applying a predetermined electrical potential between said unused tool and an electrode located within said bath solution for a time sufficient to remove the oxide layer and expose the complex carbide particles thereby increasing the abrasiveness and enhancing the ability of the cutting edge of the unused tool to cut objects.

5,213,668

MONITORING AND CONTROL OF PROCESS STREAMS AT ELEVATED TEMPERATURES

Vaclav G. Zboril, Kingston, Canada, assignor to Du Pont Canada Inc., Mississauga, Canada

Filed Jan. 31, 1992, Ser. No. 829,845
Claims priority, applicatioe United Kingdom, Feb. 4, 1991, 9102371
Int. Cl.[5] G01M 27/26
U.S. Cl. 204—153.1 6 Claims



1. A method for the monitoring or control of concentration of an ion in a solution at an elevated temperature, said temperature being at least 100° C., comprising the steps of:

(a) contacting a first electrode with a flowing first solution containing said ion at the elevated temperature;

(b) contacting a second electrode with a flowing second solution containing said ion at the elevated temperature, the rate of flow of the second solution being substantially lower than the rate of flow of the first solution and the concentration of the ion in the second solution having been measured at a temperature lower than the elevated temperature under conditions permitting accurate measurement of the concentration of the ion, the first and second electrodes having the same response characteristics to changes in concentration of said ion at the elevated temperature; and

(c) contacting the second solution with the first solution, the first and second electrodes being used in the monitoring and control of the concentration of the ion in at least one of the first and second solutions.

5,213,669

CAPILLARY COLUMN CONTAINING A DYNAMICALLY CROSS-LINKED COMPOSITION AND METHOD OF USE

Andras Guttman, Palo Alto, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jan. 31, 1992, Ser. No. 829,638
Int. Cl.[5] G01N 27/26; B01D 57/02
U.S. Cl. 204—180.1 39 Claims

18. A method of performing capillary electrophoresis comprising:

a) introducing an aliquot of a sample containing constituents to be separated into a capillary column comprising a dynamically cross-linked composition, the capillary column comprising:

i) a capillary column having an interior cavity defined by a wall with an inner surface; and

ii) a dynamically cross-linked composition filling said interior cavity, said composition comprising:

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(a) between about 0.1% and about 1.5% polyethylene oxide;
(b) between about 0.0% and less than about 2.0% polyethylene glycol;
(c) between about 0.0% and about 2.0% of a surfactant;
(d) between about 0.0M and about 1.0M of a pH buffer; and
(e) between about 0.0% and about 99% of a polyol; where the pH of the composition is between about 2.0 and about 10.00 and the viscosity of the composition is less than about 4,000 centipoise;

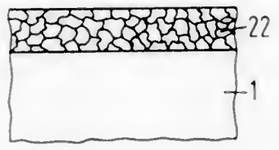
b) applying an electric field of at least about 10 volts per centimeter to the capillary column;
c) separating the sample into its constituent parts; and
d) detecting the constituents of the sample.

5,213,670

METHOD FOR MANUFACTURING A POLYCRYSTALLINE LAYER ON A SUBSTRATE

Emmerich Bertagnolli, and Herbert Kabza, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 506,119, Apr. 9, 1990, abandoned. This application Aug. 9, 1991, Ser. No. 745,957
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1989, 3921627
Int. Cl.[5] C23C *14/00, 16/00*
U.S. Cl. 204—192.25 27 Claims



1. A method for the manufacture of a polycrystalline silicon layer on a substrate, comprising the steps of:
depositing an amorphous silicon layer on a substrate; and
then controlling the phase transformation of the amorphous silicon into a polycrystalline layer by the steps of:
heating said substrate with said amorphous silicon layer to an initial temperature that is lower than a crystalline temperature for the amorphous silicon,
holding the substrate with said amorphous silicon layer at the initial temperature to achieve a thermal equilibrium of the substrate with the amorphous silicon layer at said initial temperature, and then, after reaching the thermal equilibrium,
continuing the heating of said substrate with said amorphous silicon layer to raise the temperature at a controlled rate through a reproducible prescribed temperature profile from said initial temperature to a target temperature, said target temperature being higher than the crystallization temperature of said amorphous silicon so that said amorphous silicon crystallizes and becomes a polycrystalline layer having a defined grain size and texture.

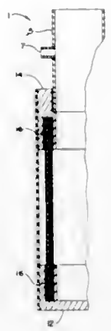
5,213,671

MEMBRANE GUARD FOR A MEMBRANE ELECTRODE CELL

H. Frederick Hess, Jr., and H. Frederick Hess, III, both of Valparaiso, Ind., assignors to UFS Corporation, Valparaiso, Ind.

Filed Apr. 1, 1991, Ser. No. 678,733
Int. Cl.[5] C25D *17/00*
U.S. Cl. 204—260 47 Claims

1. An electrocoating painting system for painting a counter-electrode in an electrocoat paint bath, comprising an electrode disposed within a tubular membrane support surrounded by a membrane, a guard for the membrane having openings therein that are substantially elliptical or circular in shape, said guard being affixed to the tubular membrane support such that a



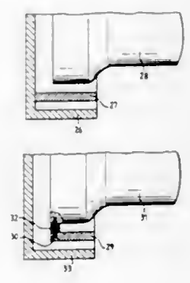
substantially uniform gap is created between the guard and the membrane, thereby protecting the membrane from physical contact by a counter-electrode, and means for applying electrical current between the electrode and counter-electrode, whereby the counter-electrode is electrocoat painted.

5,213,672

SPUTTERING APPARATUS WITH A ROTATING TARGET

Klaus Hartig, Ronneburg, and Joachim Szczyrbowski, Goldbach, both of Fed. Rep. of Germany, assignors to Leybold Aktiengesellschaft, Hanau, Fed. Rep. of Germany

Filed Aug. 13, 1991, Ser. No. 744,511
Claims priority, application Fed. Rep. of Germany, May 29, 1991, 4117518
Int. Cl.[5] C23C *14/35*
U.S. Cl. 204—298.22 7 Claims



1. Apparatus for cathode sputtering comprising
a rotatable tubular target having a middle portion and axially opposed ends,

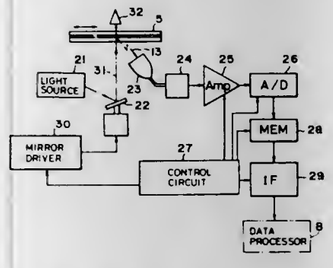
stationary magnet means disposed inside said tubular target for producing a stationary plasma loop above the rotating target to erode the middle portion of the target, thereby forming margins at said opposed ends,
dark space shielding over each said end comprising a tubular portion spaced from each said margin, and
a tubular insulator disposed between the tubular portion of the dark space shielding and the margin at each end of the target.

5,213,673

MULTI-COLORED ELECTROPHORESIS PATTERN READING APPARATUS

Hitoshi Fujimiya, and Hisanori Nasu, both of Yokohama, Japan, assignors to Hitachi Software Engineering Co., Ltd., Tokyo, Japan

Filed Nov. 29, 1991, Ser. No. 800,847
Claims priority, application Japan, Nov. 30, 1990, 2-335554
Int. Cl.[5] G01N *27/26*
U.S. Cl. 204—299 R 8 Claims



1. A multi-colored electrophoresis pattern reading apparatus for labelling each of plural samples separately with each of plural fluorescent substances respectively having different fluorescence wavelengths, subjecting the plural samples to electrophoresis with a gel to develop an electrophoresis pattern, exciting the fluorescent substances labelled on the respective plural samples of the developed electrophoresis pattern to emit fluorescence, and reading a fluorescent pattern emitting the fluorescence, comprising:
a light source means for irradiating the developed electrophoresis pattern with irradiating light for exciting the fluorescent substance labelled on the sample;
a light scanning means for scanning the irradiating light to irradiate the gel in the direction of thickness of the gel with the irradiating light from the light source means;
a light receiving means for receiving the fluorescence, separated from scattered light resulting from a reading surface, on the basis of a spatial position relationship of a light receiving path, including a light receiving surface located in a direction different from an optical axis of the irradiating light;
an optical filter means for separating optical signals received by the light receiving means into plural fluorescence wavelengths;
an optoelectric conversion means for generating electrical signals by subjecting the optical signals separated by the optical filter means to optoelectric conversion; and
an amplifier means for amplifying the electrical signals form the optoelectric conversion means by an integrating operation corresponding to scanning of the irradiating light, and for generating electrical signals indicative of fluorescence from the developed electrophoresis pattern one after another.

5,213,674

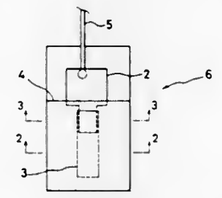
Patent Not Issued For This Number

5,213,675

REFERENCE ELECTRODE, ION SENSOR AND METHOD OF MANUFACTURING THE SAME

Shuichiro Yamaguchi; Takeshi Shimomura; Naoto Uchida, all of Shizuuka; Teruaki Katsube, and Noboru Oyama, both of Tokyo, all of Japan, assignors to Terumo Kahushiki Kaisha, Tokyo, Japan

Division of Ser. No. 426,713, Oct. 26, 1989, Pat. No. 5,066,383. This application Jun. 19, 1991, Ser. No. 717,645
Claims priority, application Japan, Oct. 27, 1988, 63-271784; Feb. 6, 1989, 1-28464; Apr. 3, 1989, 1-84551
Int. Cl.[5] G01N *27/26*
U.S. Cl. 204—418 5 Claims



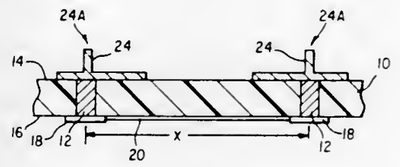
1. An ion sensor comprising an electrically conductive substrate, and redox function film formed by a neutral atom beam sputtering process on a surface of said substrate and an ion-sensitive film covering said redox function film.

5,213,676

METHOD OF GENERATING A SUBSTRATE ELECTRODE FOR FLIP CHIP AND OTHER APPLICATIONS

Samuel Reele, and Thomas R. Pian, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 11, 1992, Ser. No. 883,603
Int. Cl.[5] C25D *5/02*
U.S. Cl. 205—118 12 Claims



1. A method of forming a conductive electrode bump on a first side of a dielectric substrate, the bump being located such that it is in electrical contact with one end of an electrically conductive via passing through the substrate, an electrically conductive test pad being in contact with the opposite end of

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the via and located on a second side of the substrate, said method comprising the steps of:

forming a layer of conductive material of generally uniform thickness onto said first side of said substrate, the layer being in a routing pattern for routing electrical signals along said first side; and

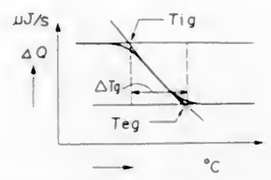
selectively reducing the thickness of the layer in locations defining said routing pattern to a greater extent than in the location of the bump to provide a bump that extends from said first side at a height greater than said routing pattern.

5,213,677

SPINNING PITCH FOR CARBON FIBERS AND PROCESS FOR ITS PRODUCTION

Iwao Yamamoto; Ryuichi Hara, both of Yokohama; Toshiyuki Tajiri, Tama; Kazuo Shirosaki, Sagamihara, and Akihiko Yoshiya, Yokohama, all of Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

Filed Oct. 22, 1991, Ser. No. 780,344
Claims priority, application Japan, Oct. 22, 1990, 2-283997
Int. Cl.[5] C10C *3/00, 3/08*
U.S. Cl. 208—39 6 Claims



2. A process for producing spinning pitch for carbon fibers, said pitch having at least 80% by volume of an optically anisotropic phase and a shear viscosity of 200 poise at a temperature of from 270° C. and 300° C., comprising the steps of:

a) mixing 100 parts by weight of carbonaceous material containing at least 30% by volume of an optically anisotropic phase with from 300 to 2000 parts by weight of a first organic solvent having a solubility parameter of from 9.5 to 11.5 to obtain a first heterogeneous mixture;

b) filtering said first heterogeneous mixture to obtain an insoluble component and a filtrate containing said first organic solvent and a soluble component;

c) removing said first organic solvent from the filtrate and recovering said soluble component;

d) mixing 100 parts by weight of said soluble component with from 300 to 200 parts by weight of a second organic solvent having a solubility parameter of from 8.0 to 10.5 to obtain a second heterogeneous mixture;

e) filtering said second heterogeneous mixture to obtain the desired spinning pitch for carbon fibers and a filtrate containing said second organic solvent and a second soluble component; or

f) mixing 100 parts by weight of carbonaceous material containing at least 30% by volume of an optically anisotropic phase with from 300 to 2000 parts by weight of said second organic solvent having a solubility parameter of from 8.0 to 10.5 to obtain a third heterogeneous mixture;

g) filtering said third heterogeneous mixture to obtain an insoluble component and a filtrate containing said second organic solvent and a soluble component;

h) mixing 100 parts by weight of said insoluble component with from 300 to 2000 parts by weight of said first organic solvent having a solubility parameter of from 9.5 to 11.5 to obtain a fourth heterogeneous mixture;

i) filtering said fourth heterogeneous mixture to obtain an insoluble component and a filtrate containing said first organic solvent and the desired spinning pitch for carbon fibers; and

j) removing said first organic solvent from said filtrate and recovering the desired spinning pitch for carbon fibers;

wherein the different in solubility parameters between said first organic solvent and said second organic solvent is at least 0.1.

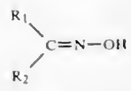
5,213,678

METHOD FOR INHIBITING FOULANT FORMATION IN ORGANIC STREAMS USING ERYTHORBIC ACID OR OXIMES

Kaj D. Rondum, Budd Lake, N.J.; Guy A. DeVicaris, Quakertown, Pa., and Dwight E. Emerich, Lincoln Park, N.J., assignors to Ashchem I.P., Inc., Dublin, Ohio

Filed Feb. 8, 1991, Ser. No. 652,943
Int. Cl.[5] C10G *9/16*
U.S. Cl. 208—48 AA 12 Claims

1. A method for inhibiting fouling caused by reaction of organic compounds with at least one multiple bond therein, said organic compounds in contact with water, comprising adding to said water in contact with said organic compounds an effective amount of a compound selected from the group consisting of erythorbic acid; an oxime of the formula:



in which R_1 and R_2 are the same or different and are selected from hydrogen, lower alkyl groups of 1-8 carbon atoms and aryl groups; and mixtures thereof;

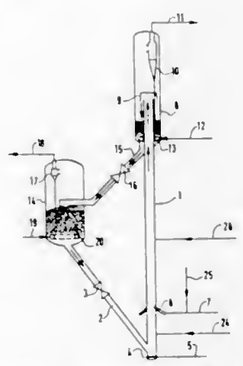
wherein said water and said organic compounds are adjusted to a pH of about 7 to about 9.

5,213,679

PROCESS FOR THE CATALYTIC CONVERSION OF A HYDROCARBON FEEDSTOCK

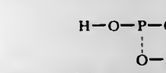
Michael Bourgogne, Le Havre; Jean-Claude Courcelle, Montivilliers, and Claude Marty, Le Havre, all of France, assignors to Compagnie de Raffinage et de Distribution Total France, Paris, France

Filed Oct. 15, 1990, Ser. No. 597,860
Claims priority, application France, Oct. 13, 1989, 89 13447
Int. Cl.[5] C10G *11/00*
U.S. Cl. 208—48 AA 13 Claims



1. A process for the catalytic conversion of a hydrocarbon feedstock, comprising injecting a hydrocarbon feedstock into a bed of catalytic particles and catalyticly cracking said hydrocarbon feedstock in a reaction zone containing such bed, separating the products of cracking from the catalytic particles;

regenerating and recycling the separated catalytic particles; and, between the step of regenerating the catalytic particles and the step of separating the products of cracking, injecting continuously or intermittently at at least one point, a mixture consisting essentially of at least one hydrocarbon to be treated, and at least one diorganophosphite of the general formula



where R_1 and R_2, which may be alike or different, are selected from the group consisting of alkyl, aryl or aralkyl groups having from 1 to 4 carbon atoms.

5,213,680

SWEETENING OF OILS USING HEXAMETHYLENETETRAMINE

Lawrence N. Kremer, The Woodlands; John Link, Humble, and Glenn L. Roof, Sugar Land, all of Tex., assignors to Baker Hughes Incorporated, Houston, Tex.

Filed Dec. 20, 1991, Ser. No. 812,118
Int. Cl.[5] C10G *29/20, 29/00*
U.S. Cl. 208—207 16 Claims

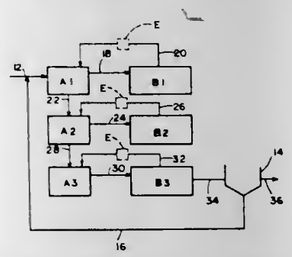
1. A method of sweetening sour hydrocarbon oils, which comprises treating said hydrocarbon oils with an effective sweetening amount of hexamethylenetetramine.

5,213,681

METHOD FOR BIOLOGICALLY REMOVING NITROGEN FROM WASTEWATER

Peter Kos, Ridgefield, Conn., assignor to T. Krüger, Inc., Cary, N.C.

Filed Sep. 9, 1991, Ser. No. 756,440
Int. Cl.[5] C02F *3/30*
U.S. Cl. 210—605 21 Claims



1. An activated sludge process for biologically removing BOD and nitrogen from wastewater comprising the steps of:

(a) forming mixed liquor;

(b) transferring the mixed liquor through a first nitrogen removal stage by directing the mixed liquor into and through first anoxic and aerobic treatment zones including maintaining the mixed liquor under anoxic conditions within the first treatment zone for a specified period to permit denitrifying organisms to reduce a portion of the nitrates and nitrites present in the mixed liquor to elemental nitrogen, transferring a portion of the mixed liquor from the first anoxic zone to the first aerobic zone and aerating the mixed liquor for a sufficient time period for nitrifying organisms to convert a portion of the ammonia and organic nitrogen in the mixed liquor into nitrates and nitrites, and circulating the mixed liquor back and forth between the first anoxic zone and the first aerobic zone of the first nitrogen removal stage to effectuate denitrification and nitrification;

(c) transferring mixed liquor from the first nitrogen removal stage to a second nitrogen removal stage having a second anoxic zone and a second aerobic zone, and circulating the mixed liquor back and forth between the second anoxic zone and the second aerobic zone of the second stage to effectuate further denitrification and nitrification;

(d) transferring the mixed liquor treated in the first and second nitrogen removal stages to a final clarifier where settled sludge is separated from purified supernatant; and

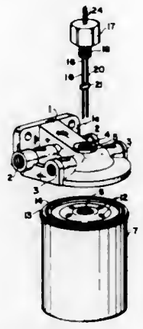
(e) recycling at least a portion of the settled sludge to form the mixed liquor.

5,213,682

WATER DETECTION MEANS FOR FUEL SUPPLY SYSTEMS

Michael T. Richardson, 1237 Brookview Dr., Huron, Ohio 44839

Filed Jul. 29, 1991, Ser. No. 737,350
Int. Cl.[5] B01D *27/10*
U.S. Cl. 210—86 1 Claim



1. A fuel filter comprising:

a spin-on fuel filter including a cylindrical housing having a closed end and an open end, and end plate attached to said open end, said end plate including an outlet port located therein and inlet port means surrounding said outlet port, means surrounding said inlet port means for sealing said end plate to a filter mount head, a fuel filter element positioned within said housing and interposed between said inlet port means and said outlet port, said filter element defining space therein sealed to and communicating with said outlet port and extending in said cylindrical housing to an area adjacent the closed end of said housing;

a filter mount head for supporting said fuel filter, said head including an inlet passage, a passage for receiving a water detection sensor, and a hollow spud engaged with the outlet port of said spin-on fuel filter, said hollow spud defining a passage therein, the passage within said spud and said passage for receiving a water detection sensor communicating with one another; and

a water detection sensor including a body portion, a mounting portion connected to and extending from said body portion, said mounting portion being engaged with said passage for receiving a water detection sensor in said mount head, a pair of resilient, spaced, straight, and parallel conductive wires connected to and extending from said mounting portion, said wires extending through the passage in said hollow spud and into the space within said fuel filter element, said wires including a pair of free ends terminating at a common level in proximity to the closed end of said housing, strut means interconnecting said wires at a point between said mounting portion and said free ends for preventing said wires from contacting one another, and circuit means contained within said body portion and connected to said wires for providing a signal when the free ends of said wires contact water.

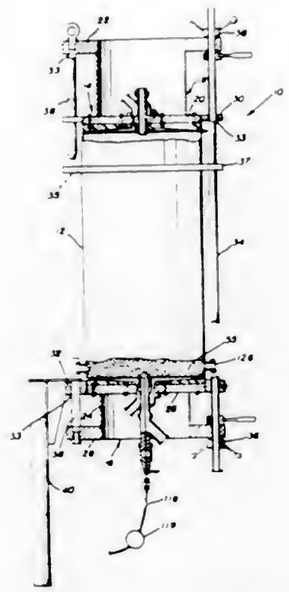
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,683

APPARATUS FOR CHARGING AND DISCHARGING OF CHROMATOGRAPHY COLUMN BED

William H. Mann, Chattanooga, Tenn., assignor to Chromaflow, Inc., Chattanooga, Tenn.

Filed Aug. 8, 1991, Ser. No. 742,592
Int. Cl.[5] B01D *15/08*
U.S. Cl. 210—198.2 12 Claims



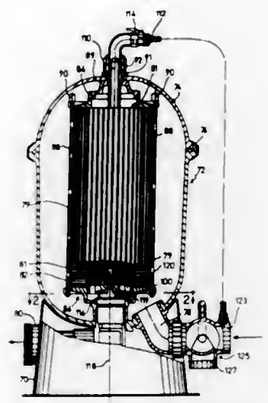
1. A chromatography column comprising a substantially cylindrical hollow housing for retaining a media bed through which a mixture to be separated into components substances and a buffer liquid may percolate, said housing having an axis of elongation disposed substantially vertically, a dispersion section at the top of said housing including dispersion means for receiving and dispersing said mixture and said buffer uniformly down into said media bed, and a collection section at the bottom of said housing, said collection section including a collector plate having passage means through which said component substances and buffer liquid may flow from said housing, an outlet manifold communicating with said passage means for receiving said component substances and said buffer liquid, said manifold having an outlet port for egress of said component substances and said buffer, a passageway extending through said plate and opening into said housing, a conduit communicating with said passageway for receiving spent media when said bore is open, a media outlet port communicating with said conduit for egress of said media from said column, a rod having an internal flow passage extending through said conduit, a probe disposed on a distal end of said rod and having at least one aperture therein communicating with said internal flow passage of said rod, said probe being disposed within said passageway and configured to close said passageway, means for moving said rod relative to said conduit to dispose said probe in closing relationship with said bore and to drive said probe into said housing selectively, and means for feeding liquid through said internal flow passage and out said aperture when said probe is disposed within said housing so that said liquid may loosen said spent media within said housing and carry said media through said bore into said conduit and out said media outlet port.

5,213,684

FILTER APPARATUS

Mordeki Drori, 89 Zahal Street, Kiron, Israel

Continuation of Ser. No. 150,246, Jan. 29, 1988, Pat. No. 5,098,565. This application Feb. 19, 1992, Ser. No. 838,540
Claims priority, application Israel, Feb. 3, 1987, 81469; May 7, 1987, 82453; Jul. 26, 1987, 83339
The portion of the term of this patent subsequent to Mar. 24, 2009, has been disclaimed.
Int. Cl.[5] B01D *29/46*
U.S. Cl. 210—346 37 Claims



1. A filter defining an upstream side and a downstream side thereof, the filter comprising:

a stack of cooperating filter units defining an axial interior volume and a plurality of pairs of cooperating surfaces, each filter unit having a generally disc-like configuration, each pair of cooperating surfaces comprising first and second cooperating surfaces, at least the first cooperating surface of at least some of the pairs of cooperating surfaces being a fingered surface having defined thereupon a plurality of fingers arranged in registration with the corresponding second cooperation surface,

wherein the exterior of the fingers is in fluid communication with an individual one of the upstream or downstream side of the filter and the interior of the fingers is in fluid communication with the other one of the upstream or downstream side of the filter,

wherein at least one of the fingered surfaces has formed thereupon first and second spaced protruding line portions defined generally along the sides of at least some of the fingers, the first and second protruding line portions protruding relative to a generally planar portion of the filter unit defined interiorly of a corresponding finger, the first and second protruding line portions along both sides of each finger being connected adjacent the top of the finger, the space between the first and second protruding line portions along both sides of each finger defining an interior of the finger, at least some pairs of adjacent fingers being generally separate apart from the first and second protruding line portions of the adjacent finger which are connected adjacent the bases of the adjacent fingers, the interface of each pair of first and second protruding line portions with the second surface defining a chamber associated with the interior of the finger,

the plurality of pairs of protruding line portions defined along the sides of the plurality of fingers together defining a generally continuous protruding line portion for separating the upstream side from the downstream side,

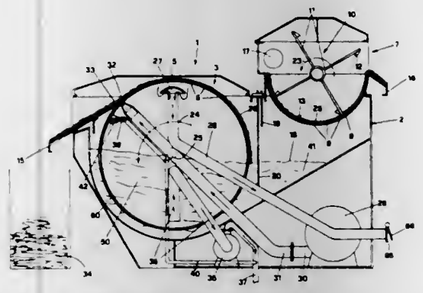
wherein at least some of the interface between at least some of the pairs of cooperating surfaces is configured so as to define a plurality of passages for preventing passage of particles of at least a predetermined size from the upstream side to the downstream side and for allowing flow of fluid from the upstream side to the downstream side.

5,213,685

CYCLE OF FILTRATION FOR LIQUIDS CONTAINING SOLIDS IN SUSPENSION AND ROTARY FILTER SUITED TO REALIZE SAID CYCLE OF FILTRATION

Giorgio Padovan, Montecchio Maggiore, Italy, assignor to Fratelli Padovan SNC, Maggiore, Italy

Filed Jun. 20, 1991, Ser. No. 718,440
Claims priority, application Italy, Jun. 22, 1990, 85588 A/90
Int. Cl.[5] B01D *33/06*
U.S. Cl. 210—326 19 Claims



1. A rotary filter for liquids comprising:

a pre-filtration block;

a collecting tank positioned beneath said pre-filtration block;

means for introducing the liquid to be filtered to an interior of said pre-filtration block;

means for introducing pre-filtered liquid from said pre-filtration block into said collecting tank;

at least one rotary drum immersed in the pre-filtered liquid, said at least one rotary drum including a pair of opposing coaxial disks and a filtering surface wrapped around the pair of disks;

a suction duct housed within said at least one rotary drum at a position out of contact with the pre-filtered liquid and adjacent to an inner peripheral surface of said at least one rotary drum;

means for rotating said at least one rotary drum through the pre-filtered liquid for further filtering thereof, such that filtered material is deposited on an outer peripheral surface of said at least one rotary drum;

means for applying suction to said suction duct, thereby at least partially drying the filtered material deposited on said at least one rotary drum at a position of said suction duct;

at least one pump for extracting filtered liquid from said at least one rotary drum through a pipe immersed in the filtered liquid;

first means for scraping filtered material from an inner peripheral surface of said pre-filtering block;

second means for scraping filtered material from the outer peripheral surface of said at least one rotary drum;

a back chute attached to an outlet of said pre-filtering block for discharging filtered material therefrom;

a front chute attached to an outlet of said at least one rotary drum at a position of said second means for scraping for discharging filtered material therefrom; and

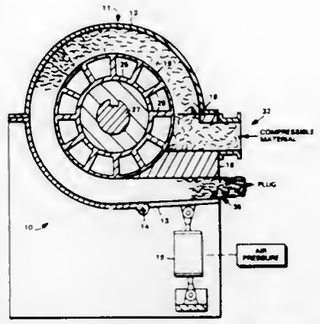
a plurality of sprayers, linearly positioned along an entire interior length of and parallel to a longitudinal axis of said at least one rotary drum downstream of said second scraping means in a rotating direction of said at least one rotary drum for washing the inner peripheral surface thereof subsequent to scraping by said second scraping means.

5,213,686

COMPRESSION FEEDER

Erwin Funk, Glens Falls, N.Y., and Rudy Koteles, Beaconsfield, Canada, assignors to Kamyr, Inc., Glens Falls, N.Y.

Filed Aug. 26, 1991, Ser. No. 749,945
Int. Cl.[5] B01D *33/00*
U.S. Cl. 210—350 12 Claims



1. A device for compacting compressible cellulosic material in a mixture, comprising:

(a) a integral housing having an outer, solid without openings therethrough wall; including a restricting adjustable portion;

(b) means defining a channel having a root wall and a pair of side walls with an open face opposite said root wall, the channel being positioned so that the open face thereof is adjacent said housing outer wall, and of the walls d aid channel being solid without openings therethrough, so that liquid may not pass therethrough;

(c) means for moving said root wall, and at least one of said side walls, with respect to said outer wall in the dimension of elongation of said channel;

(d) means for feeding a mixture of material, and liquid, to be compressed into said channel at an inlet portion of said housing;

(e) an outlet for passage of compressed material, with liquid, out of said channel and said housing adjacent said restricting adjustable portion of said housing outer wall; and

(f) means for applying force to said restricting adjustable portion so as to control the amount of compression of the material mixture being compressed.

5,213,687

APPARATUS FOR FILTERING MINERAL SLURRIES

Michael W. Ginn, Wrightsville; Gary L. Cobb, Davisboro; Lawrence E. Broxton, Sandersville, and Kelly R. McNeely, Mitchell, all of Ga., assignors to ECC International Inc., Atlanta, Ga.

Continuation-in-part of Ser. No. 534,455, Jun. 4, 1990, Pat. No. 5,098,583. This application Jan. 22, 1992, Ser. No. 823,996
Int. Cl.[5] B01D *29/68, 29/72, 33/48, 33/54*
U.S. Cl. 210—388 12 Claims

8. Apparatus for filtering a suspension of fine particles from a liquid carrier for same, comprising in combination:

(a) a ceramicfilter plate having a fluid-flow previous support layer and an overlying porous filtration layer having an external filtration surface;

(b) fluid flow means connected to said plate for flowing fluids from and to said support layer;

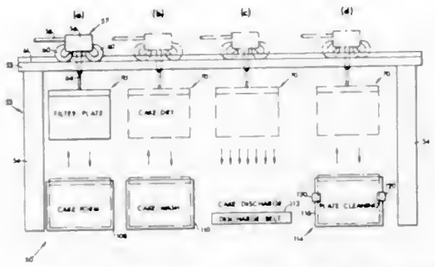
(c) means connected to said fluid flow means, for selectively drawing a partial vacuum at said support layer to effect fluid flow inwardly through said filtration layer and support layer, and for providing constant level or one or more pulses of positive liquid pressure within said support

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layer to cause an outward liquid flow through said support layer and filtration layer;

(d) a particle cake-forming station, including a container for receiving said suspension and means for positioning said filter plate within said suspension while drawing said partial vacuum, to cause said particles to deposit on the external filtration surface of said plate thereby forming a cake on said external filtration layer;

(e) a cake-discharge station downstream of said cake-forming station, whereat application of said one or more posi-



tive liquid pressure pulses causes a liquid film to form between said cake and said filtration surface, thereby loosening said cake said cake-discharge station further comprising means for imparting oscillations to said plate, causing said cake to be dislodged to facilitate removal from said filter plate; and

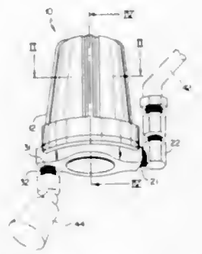
(f) control means connected to said fluid flow means for enabling said partial vacuum at said cake-forming and cake-drying station, and for enabling said positive liquid pressure pulses at said cake discharge station.

5,213,688

SHOWER WATER FILTER ASSEMBLY

Dennis L. Robinson, 2015 S. Albert St., Allentown, Pa. 18103

Filed Jul. 24, 1991, Ser. No. 734,966
Int. Cl.[5] B01D *35/30*
U.S. Cl. 210—440 17 Claims



1. A shower water filter assembly, comprising:

a housing defining a cavity and having a water inlet and a water outlet communicating with the cavity, the water inlet defining means for connection to a shower pipe, oriented at least partly downwardly toward a floor, and the water outlet defining means for connection to a shower nozzle;

a filter element disposed in the cavity of the housing;

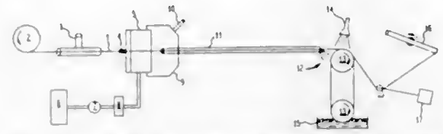
wherein the water inlet and water outlet lie substantially on a plane and are aligned in opposite directions and perpendicular to the plane, the water inlet and the water outlet connecting to of the shower pipe and shower nozzle, respectively, at substantially the same said plane, whereby the shower pipe and shower nozzle are minimally spaced from one another in a direction perpendicular to the plane.

5,213,689

ASYMMETRIC FLUOROPOLYMER-COATED POLYOLEFIN HOLLOW FIBERS

Edward R. Kafchinski, Winfield, and Tai-Shung Chung, Randolph, both of N.J., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Jan. 8, 1992, Ser. No. 818,016
Int. Cl.[5] B01D *71/32*
U.S. Cl. 210—500.23 17 Claims



16. A hollow fiber useful for fluid separations consisting essentially of a polyolefin hollow fiber having an inner surface and an outer surface, and an asymmetric fluoropolymer coating on said outer surface, wherein said polyolefin is polypropylene or polyethylene and further wherein said fluoropolymer consists essentially of repeating units derived from 2,2-bis[3,4-dicarboxyphenyl] hexafluoropropane dianhydride and 2,3,5,6-tetramethylphenylene diamine monomers.

5,213,690

METHOD OF USING A DIATOMACEOUS EARTH CONTAINING ABSORBENT

Gary W. Wollrich, 908 Lancaster Dr., Anchorage, Ak. 99503

Filed Sep. 30, 1990, Ser. No. 767,879
Int. Cl.[5] C02F *1/28*
U.S. Cl. 210—691 6 Claims

1. A method of adsorbing petroleum oil from a petroleum oil containing material which comprises contacting said material with an effective amount of an adsorbent composition consisting essentially of sugar, vinegar, and diatomaceous earth combined in relative amounts which result in a composition capable of effectively adsorbing petroleum oil.

5,213,691

PHOSPHONATE-CONTAINING POLYMERS FOR CONTROLLING SCALE IN UNDERGROUND PETROLEUM-CONTAINING FORMATIONS AND EQUIPMENT ASSOCIATED THEREWITH

Daniel H. Emmons, Rosenberg, Tex.; Dodd W. Fong, Naperville, and Mary A. Kinsella, Manhattan, both of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Oct. 7, 1991, Ser. No. 772,173
Int. Cl.[5] C02F *5/14*
U.S. Cl. 210—700 3 Claims

1. A method of preventing barium sulfate scale from depositing in underground petroleum containing formations and upon equipment used to inject barium sulfate scale forming waters which contains at least 1,000 ppm hardness into such formations which comprises treating such waters with a barium sulfate scale inhibiting amount of an acrylic acid polymer which contains from 0–95 mole percent of acrylamide and from 1–30 mole percent of amido C_1–C_6 alkyl phosphonate groups from the group consisting of:

a) Amidomethyl phosphonate groups,

b) Alpha-hydroxy-beta-amidoethyl phosphonate groups,

c) Alpha-hydroxy-beta-amidoisopropyl phosphonate groups, and,

d) Amidopropyl phosphonate groups said polymer having a molecular weight range between 1,000–100,000.

5,213,692

PROCESS FOR PREPARING PREFERRED IRON HUMATES

Lawrence N. Hjersted, St. Louis, Mo., assignor to Kemiroo, Inc., St. Louis, Mo.

Filed Aug. 28, 1991, Ser. No. 751,872
Int. Cl.[5] C02F *1/52*
U.S. Cl. 210—709 15 Claims

1. A method for the production of an iron humate product in a treatment process for treating a quantity of colored raw water; said iron humate product adapted for use in providing nutrients and organic matter to soil for use by vegetation grown in said soil; said method comprising the steps of:

(a) adding an iron salt coagulant to said raw water to form a treatment solution;

(b) controlling the pH of said treatment solution between 3.8 and 5.5 to provide for the addition of a minimum amount of said iron salt coagulant to the raw water to reduce the color of the raw water to a preselected level and to produce an iron humate product wherein the concentration of iron complexed as iron hydroxide in the iron humate product is less than 25 percent by weight on a dry solids basis;

(c) separating said iron humate product from said treatment solution;

(d) concentrating and drying said iron humate product; and

(e) contacting said iron humate product with a nitrogen source to produce a nitrogen enriched iron humate product that contains nitrogen in the range of 0.5 to 12 percent by weight as nitrogen with a minimum water soluble iron content of 50 ppm as iron.

5,213,693

DEWATERING COMPOSITIONS AND PROCESSES

George McGrow; Peter I. Norman, and Peter J. Hoyle, all of West Yorkshire, England, assignors to Allied Colloids Limited, Bradford, England

Filed Oct. 3, 1991, Ser. No. 770,244
Claims priority, application United Kingdom, Oct. 4, 1990, 9021565
Int. Cl.[5] C02F *11/14*
U.S. Cl. 210—728 8 Claims

1. A process in which a suspension of organic solids is flocculated and is then dewatered by filtration on a filter press or belt press, the process comprising

providing a water-soluble particulate mixture of (a) beads of cationic coagulant polymer, wherein said coagulant polymer is selected from polyethylene imine, polyamines, aminomethylolated polyacrylamide, poly 2-hydroxypropyl-1-N-methylammonium chloride, poly 2-hydroxy-propyl-1, 1-N-dimethylammonium chloride, poly 2-vinylimidazolinum bisulphate and polymers formed by polymerisation of water soluble ethylenically unsaturated monomer comprising at least 50% by weight cationic monomer selected from dialkylaminoalkyl (meth) acrylate, dialkylaminoalkyl (meth) acrylamide and diallyl dialkyl quaternary salt, and said coagulant polymer having intrinsic viscosity about 0.2 to about 3 dl/g, and wherein the beads have been made by reverse phase suspension polymerization and have a size in the range of 70 to 1000 microns and (b) separate beads of cationic flocculant polymer, wherein said flocculant polymer is a synthetic polymer formed by polymerisation of water soluble ethylenically unsaturated monomer comprising cationic monomer selected from dialkylaminoalkyl (meth) acrylamide and dialkylaminoalkyl (meth) acrylate and said flocculant polymer having intrinsic viscosity above about 5 dl/g, and wherein the beads have been made by reverse phase suspension polymerization and have a size in the range of 70 to 1000 microns, said coagulant polymer being present in an amount of 0.1 to 10 parts per part by weight flocculant polymer,

dissolving into water said particulate mixture and thereby forming a solution of the cationic coagulant polymer and the cationic flocculant polymer,

mixing a flocculation effective amount of said solution into the suspension and thereby simultaneously distributing throughout the suspension the dissolved cationic coagulant polymer and the dissolved cationic flocculant polymer,

allowing flocculation to occur,

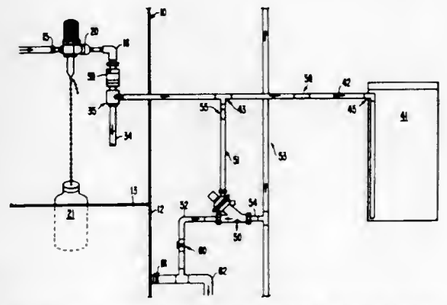
and dewatering the flocculated suspension by filtration on a filter press or belt press.

5,213,694

WATER TREATMENT CONTROL SYSTEM FOR TREATING COOLING TOWER MAKEUP WATER

Marshall Craig, St. Petersburg, Fla., assignor to American Hydro Systems, Inc., St. Petersburg, Fla.

Filed Apr. 8, 1992, Ser. No. 865,329
Int. Cl.[5] C02F *1/00*
U.S. Cl. 210—744 28 Claims



23. A method of controlling the chemical concentration in a water treatment system comprising a cooling tower containing a liquid which is recirculated therethrough comprising the steps of:

sensing the liquid level in the cooling tower;

adding make-up liquid to the cooling tower in response to the liquid level in the cooling tower dropping below a predetermined level;

producing a vacuum in response to said adding make-up liquid;

adding chemicals to said make-up liquid in response to said vacuum; and

bleeding a portion of said recirculated liquid to waste.

5,213,695

APPARATUS AND METHOD FOR SEPARATING SOLIDS AND LIQUIDS

Stanley N. Pinder, 4124 Alatia Blvd., Brandon, Fla. 33511

Filed Feb. 20, 1992, Ser. No. 839,534
Int. Cl.[5] B01D *37/00*
U.S. Cl. 210—767 22 Claims

17. A method for separating liquids and solids, comprising the steps of:

charging solid and liquid objects into an open-topped container;

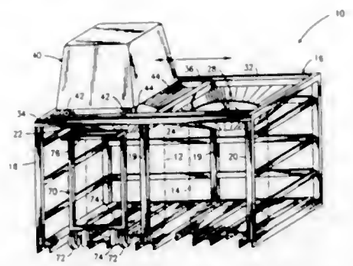
inserting a platen having a flat trailing end into said container to compress the solid objects;

mounting an upstanding retention wall about said flat trailing end of said platen;

dimensioning said platen and said container so that when liquid in said container is displaced by said platen as said platen compresses said solid objects, said displaced liquid is constrained to flow upwardly between said retention wall and sidewalls of said container and then radially inwardly and over said retention wall, said displaced

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liquid being collected atop said flat trailing end of said platen; and



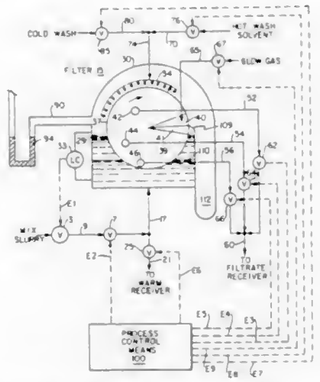
removing said collected liquids from said flat trailing end of said platen.

5,213,696

AUTOMATIC DEWAXING FILTER WASHING SYSTEM AND METHOD

Anthony J. Patrone, Port Arthur; John D. Martin, Big Spring, both of Tex.; Kevin Lyon, Bakersfield, Calif., and Charles W. Harrison, Houston, Tex., assignors to Star Enterprise, White Plains, N.Y. and Texaco Inc.

Filed Dec. 23, 1991, Ser. No. 811,632
Int. Cl.[5] B01D *35/16*
U.S. Cl. 210—791 16 Claims



9. An automatic filter cleaning method comprising the steps of:

removing wax from a wax mix slurry with filter means to provide a filtrate,

affecting a status of the filter means with status means,

draining the filter means with drain means,

cleaning the filter means, and

controlling the status means, the drain means and the cleaning means with control means allowing selective changing of the status of the filter means from an operational state to a down state, and, in response to the selective changing, to automatically drain the filter means and clean the filter means while the filter means is in the down state.

5,213,697

METHOD FOR REDUCING FRICTION BETWEEN RAILROAD WHEEL AND RAILWAY TRACK USING METAL OVERBASED COLLOIDAL DISPERSE SYSTEMS

James N. Vinci, Mayfield Hts., and Robert E. Quinn, Cleveland, both of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Continuation of Ser. No. 340,903, Apr. 20, 1989, abandoned. This application Apr. 22, 1992, Ser. No. 872,223
Int. Cl.[5] C10M *113/00, 125/10*
U.S. Cl. 252—18 37 Claims

1. A method for reducing friction between railroad wheel and tangent track, railway wheel replacement and tangent track replacement comprising applying to the tangent railway track a composition comprising an overbased non-Newtonian colloidal disperse system comprising

(1) solid metal-containing colloidal particles predispersed in

(2) a disperse medium of at least one inert organic liquid and

(3) at least one member selected from the class consisting of organic compounds which are substantially soluble in the disperse medium, wherein the molecules of said organic compound have polar substituents and hydrophobic portions, provided further that the solid metal-containing colloidal particles of said system have an average unit particle size up to about 5.0 microns.

5,213,698

AMIDO-AMINE ASHLESS DISPERSANTS

Antonio Gutierrez, Mercerville; Robert D. Lundberg, Bridgewater, and Robert A. Kleist, Bayonne, all of N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Continuation of Ser. No. 547,991, Jul. 3, 1990, abandoned. This application Jun. 4, 1992, Ser. No. 893,961
Int. Cl.[5] C10M *105/72*
U.S. Cl. 252—47 21 Claims

1. Dispersant adducts useful in lubricating oils comprising reaction products of

(A) long chain hydrocarbon polymer-substituted mono- and dicarboxylic acid or anhydrides formed by reacting olefin polymer of C_2 to C_{10} monoolefin having a number average molecular weight of about 300 to 10,000, with at least one member selected from the group consisting of monounsaturated C_4 to C_{10} dicarboxylic acid material and C_2 to C_{10} monounsaturated monocarboxylic acid material; and

(B) an amido-amine or thioamido-amine which is the reaction product of (i) an alpha, beta-unsaturated compound of the formula:



wherein X is sulfur or oxygen, Y is $—OR^4$, $—SR^4$, or $—NR^4(R^5)$, and R^1, R^2, R^3, R^4 and R^5 are the same or different and are hydrogen or inertly substituted or unsubstituted hydrocarbyl, and (ii) at least one of bis(para-amino cyclohexyl) methane and oligomers thereof

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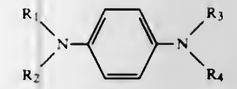
5,213,699

N-ALLYL SUBSTITUTED PHENYLENEDIAMINE STABILIZERS

Joseph E. Babiarz, Amawalk, and Thelma Spivack, Spring Valley, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 781,047, Oct. 18, 1991, abandoned. This application Sep. 10, 1992, Ser. No. 943,382
Int. Cl.[5] C10M *133/02*
U.S. Cl. 252—50 7 Claims

1. A compound of formula I



(I)

wherein

R_1, R_2, R_3 and R_4 are independently hydrogen, allyl or methallyl, aryl of 6 to 10 carbon atoms or said aryl substituted by one to three substituents selected from the group consisting of alkyl of 1 to 20 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, aralkyl of 7 to 15 carbon atoms, —CN, $—NO_2$, halogen, $—OR_5$, $—NR_6R_7$, $—SR_8$, $—COOR_9$ and $—CONR_{10}R_{11}$ where R_5, R_6, R_7, R_8, R_9, R_{10} and R_{11} are independently hydrogen, alkyl of 1 to 20 carbon atoms, alkenyl of 3 to 18 carbon atoms, aryl of 6 to 10 carbon atoms, cycloalkyl of 5 to 12 carbon atoms or aralkyl of 7 to 15 carbon atoms;

with the proviso that at least one of R_1, R_2, R_3 or R_4 is allyl or methallyl; and with the further proviso that N,N-diallyl-N'-phenyl-p-phenylenediamine is excluded.

5,213,700

METHOD OF LUBRICATING A TEXTILE MACHINE

Michael P. Smith, Port Arthur, Tex., assignor to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 702,542, May 20, 1991, abandoned. This application Feb. 21, 1992, Ser. No. 839,155
Int. Cl.[5] C10M *129/16*
U.S. Cl. 252—52 A 11 Claims

1. A method of lubricating a textile weaving machine comprising:

applying to lubricated surfaces a lubricating oil composition comprising:

a major portion of a mineral base lubricating oil, and 1 to 5 wt% of an oil soluble surfactant of the formula:

$$R—O(CH_2CH_2O)_xH$$

wherein: R is a normal paraffin radical of 11 to 15 carbon atoms, and x ranges from 3 to 5.

5,213,701

COMPOSITION CONTAINING AN OLIGOMERIC 1,2,3-TRIHYDROXYBENZENE ADDITIVE

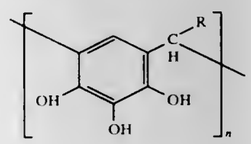
Jeremy M. Holmes, Manchester, and Peter A. Tasker, Oldham, both of Great Britain, assignors to Imperial Chemical Industries PLC, London, England

Division of Ser. No. 486,671, Feb. 28, 1990, Pat. No. 5,169,991. This application Jul. 10, 1992, Ser. No. 912,414
Claims priority, application United Kingdom, Mar. 16, 1989, 8906031
Int. Cl.[5] C10M *129/14;* C04B *9/02;* C09K *3/00*
U.S. Cl. 252—52 R 11 Claims

1. A composition which comprises

(a) a liquid solvent or dispersant or a surface coating composition, and

(b) a cyclic compound of formula (I)



wherein

R is an alkyl or aryl group containing up to 24 carbon atoms, an alkene or alkyne group containing 4 to 24 carbon atoms, a substituted alkyl or aryl groups containing up to 24 carbon atoms, or a substituted alkene or alkyne containing 4 to 24 carbon atoms; wherein the substituent group is a halogen or nitrile group; and

n is three or four.

5,213,702

MEDIA AGITATING MILL AND METHOD FOR MILLING CERAMIC POWDER

Masamitsu Nishida, Osaka; Hamae Ando, Neyagawa, and Koichi Kugimiya, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 748,875, Aug. 23, 1991, abandoned, which is a division of Ser. No. 381,369, Jul. 18, 1989, Pat. No. 5,065,946. This application Sep. 14, 1992, Ser. No. 944,731
Claims priority, application Japan, Jul. 21, 1988, 63-182337; Sep. 1, 1988, 63-219044; Oct. 4, 1988, 63-250209
Int. Cl.[5] C04B *35/00*
U.S. Cl. 252—62.9 3 Claims

1. A fine lead oxide based piezoelectric ceramic powder which has a mean particle diameter of 0.6 μm or less and a particle size distribution of 7% by weight or more as a proportion of particles having a diameter twice or more the mean particle diameter.

5,213,703

ANISOTROPIC NEODYMIUM-IRON-BORON SYSTEM PLASTIC BONDED MAGNET

Shizuo Furuyama, Katano, and Kiyoshi Kojima, Ikoma, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 649,855, Feb. 1, 1991, abandoned. This application May 27, 1992, Ser. No. 890,294
Claims priority, application Japan, Feb. 9, 1990, 2-30844; Aug. 14, 1990, 2-215366
Int. Cl.[5] H01F *1/30*
U.S. Cl. 252—62.54 3 Claims

1. An anisotropic NEODYMIUM-IRON-BORON system plastic bonded magnet consisting essentially of:

a resin binder, in amount greater than 1.4% by weight and less than 3.0% by weight and

an anisotropic NEODYMIUM-IRON-BORON system magnetic powder consisting essentially of

10 to 20% by weight of particles having a rounded shape and having a size of 10 to 49 micrometers and

80 to 90% by weight of particles having a rounded shape and having a particle size of 50 to 500 micrometers.

5,213,704

PROCESS FOR MAKING A COMPLIANT THERMALLY CONDUCTIVE COMPOUND

Herbert R. Anderson, Jr., Patterson; Richard B. Booth; Lawrence D. David, both of Wappingers Falls; Mark O. Neisser, Hopewell Junction; Harbans S. Sachdev, Wappingers Falls, and Mark A. Takacs, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 193,475, May 13, 1988, Pat. No. 5,094,769. This application Sep. 13, 1991, Ser. No. 760,045
Int. Cl.[5] C09K *5/00*
U.S. Cl. 252—75 6 Claims

1. A process for making a thermally conductive composition for conducting heat from electrical components comprising:

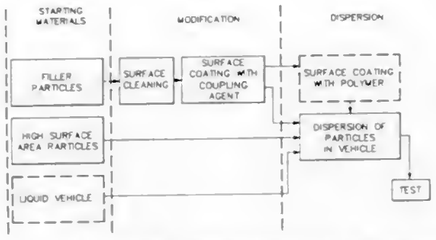
activating the surface of particles of high thermally conductive material by heating treating;

coating said particles with a coupling agent which renders it of comparable polarity to a liquid carrier in which said particles are to eventually be dispersed, said coupling agent having at least one functionality which is reactive with the surface of said thermally conductive filler particles and at least one functionality which is of similar polarity of said liquid carrier, said coupling agent selected

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from the group consisting of organosilanes, organotitanates, organoaluminates and organozirconates;

dispersing said coated particles into a liquid carrier so that a homogeneous composition is formed, said liquid carrier comprising non-polar, low surface energy organic fluids having a viscosity of 30 to 500 centipoise at 100 degrees



C., said liquid carrier selected from the group consisting of mineral and poly(alpha-olefin) oils,

wherein there is a minimum of about 25 volume percent of said thermally conductive particles, there is about 0.5 to 10 weight percent of said coupling agent and the liquid carrier comprises the remainder of said composition.

5,213,705

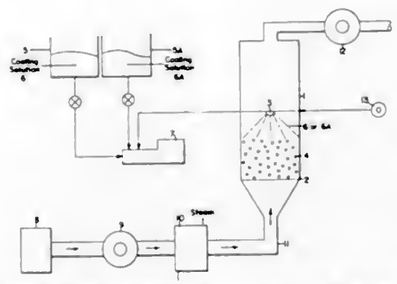
ENCAPSULATED HALOGEN BLEACHES AND METHODS OF PREPARATION AND USE

Keith E. Olson, Apple Valley, Minn., assignor to Ecolab Inc., St. Paul, Minn.

Continuation of Ser. No. 323,264, Mar. 15, 1989, abandoned, which is a continuation of Ser. No. 88,507, Aug. 20, 1987, abandoned, which is a continuation of Ser. No. 728,748, Apr. 30, 1985, abandoned. This application Feb. 25, 1991, Ser. No. 660,176

Int. Cl.[5] C11D *7/56*

U.S. Cl. 252—95 **28 Claims**



1 An encapsulate halogen bleach composition that is chemically stable and compatible when combined with an alkaline cleaning composition and does not interfere with the action of the cleaning composition, the capsule comprising:

(a) a halogen bleach core; and

(b) an encapsulating coating effective to isolate the core, wherein the core comprises about 20 to 90 wt-% of the encapsulate composition and the coating comprises about 10 to 80 wt-% of the encapsulate composition, said coating comprising,

(i) a first coating layer of an inorganic agent coated over said bleach core, and

(ii) a second coating layer of an n-alkyl sulfonate compound coated over said inorganic agent.

5,213,706

HOMOGENEOUS DETERGENT GEL COMPOSITIONS FOR USE IN AUTOMATIC DISHWASHERS

Anthony A. Rapisarda, Elmhurst, N.Y.; Robert J. Corring, Rockaway Township, Morris County, and Gail B. Rattinger, Teaneck, both of N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Nov. 8, 1991, Ser. No. 790,280

Int. Cl.[5] C11D *3/04*

U.S. Cl. 252—135 **9 Claims**

1. A homogeneous liquid detergent composition comprising:

(a) about 5 to about 28% by weight of a sodium trimetaphosphate;

(b) about 3 to about 12% by weight of a potassium hydroxide base;

(c) about 2to about 20% by weight of a sodium silicate;

(d) 0 to about 3.0% by weight of a thickening polymer; and

(e) balance water;

wherein the composition contains both sodium and potassium ions in a K+/Na+ weight ratio of about 0.5 and less than 1, is substantially free of added potassium salts and substantially all of the alkaline components (a), (b) & (c) are soluble to form a homogeneous liquid detergent composition.

5,213,707

AZEOTROPE-LIKE COMPOSITIONS OF 1-CHLORO-3,3,3-TRIFLUOROPROPANE AND A MONO- OR DICHLORINATED C_1 OR C_3 ALKANE

Ellen L. Swan, Ransomville; Richard M. Hollister, Buffalo, and Rajat S. Basu, Williamsville, all of N.Y., assignors to Allied-Signal Inc., Del.

Filed Nov. 26, 1991, Ser. No. 798,439

Int. Cl.[5] C11D *730;* **C08J** *9/14;* **C09K** *3/30;* **C23G** *5/028*

U.S. Cl. 252—172 **15 Claims**

1. Azeotrope-like compositions consisting essentially of from about 98.4 to about 50 weight percent 1-chloro-3,3,3-trifluoropropane and from about 1.6 to about 50 weight percent dichloromethane which boil at about 39.2° C. at 760 mm Hg; or from about 93 to about 56 weight percent 1-chloro-3,3,3-trifluoropropane and from about 7 to about 44 weight percent 1-chloropropane which boil at about 44.4° C. at 760 mm Hg; or from about 99 to about 92 weight percent 1-chloro-3,3,3-trifluoropropane and from about 1 to about 8 weight percent 2-chloropropane which boil at about 36.5° C. at 760 mm Hg; wherein the azeotrope-like components of the composition consist of 1-chloro-3,3,3-trifluoropropane and either dichloromethane, 1-chloropropane or 2-chloropropane.

5,213,708

LIQUID CRYSTALLINE COMPOUND HAVING NEGATIVE DIELECTRIC ANISOTROPY VALUE

Yasuyuki Goto, and Makoto Ushioda, both of Chiba, Japan, assignors to Chisso Corporation, Ohsaka, Japan

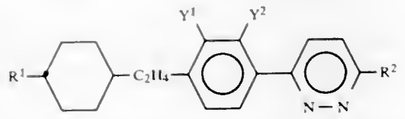
Continuation of Ser. No. 475,944, Feb. 6, 1990, abandoned. This application Nov. 18, 1991, Ser. No. 794,622

Claims priority, application Japan, Feb. 9, 1989, 1-30675

Int. Cl.[5] C09K *19/34;* **C07D** *237/008*

U.S. Cl. 252—299.61 **4 Claims**

1 A liquid crystalline compound having a negative dielectric anisotropy value, expressed by the formula



(I)

wherein R^1 and R^2 each independently represent a linear alkyl group or a linear alkoxy group each of 1 to 158 carbon atoms and Y^1 and Y^2 each independently represent H or F.

5,213,709

MESOMORPHIC COMPOUND, LIQUID CRYSTAL COMPOSITION, LIQUID CRYSTAL DEVICE, DISPLAY APPARATUS AND DISPLAY METHOD

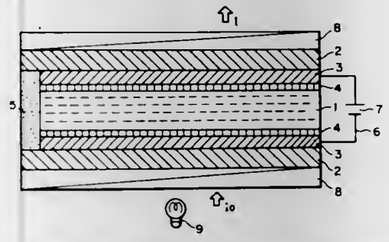
Takao Takiguchi; Takashi Iwaki, both of Tokyo; Takeshi Togano, Yokohama; Yoko Yamada, and Shinichi Nakamura, both of Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 30, 1991, Ser. No. 693,611

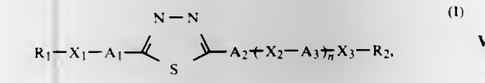
Claims priority, application Japan, May 2, 1990, 2-115097

Int. Cl.[5] C09K *19/34, 19/32;* **C07D** *285/12;* **C07C** *49/115*

U.S. Cl. 252—299.61 **66 Claims**



1. A mesomorphic compound represented by the following formula (I):

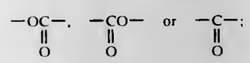


(I)

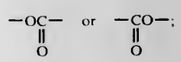
wherein

R_1 and R_2 respectively denote an alkyl group having 1-16 carbon atoms optionally substituted with an alkoxy group or fluorine;

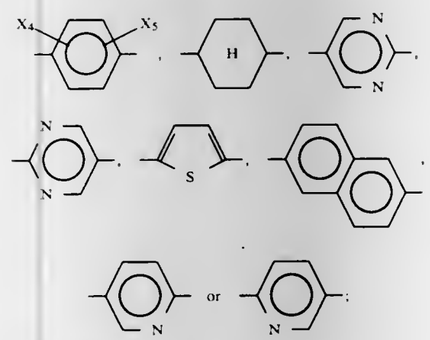
X_1 and X_3 respectively denote a single bond,—O—,



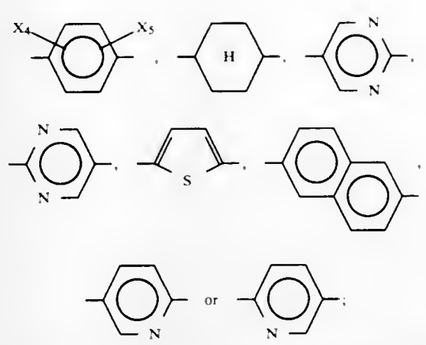
X_2 denotes a single bond,



A_1 denotes a single bond,



A_3 denotes



A_2 denotes 9,10-dihydro-2,7-phenanthrenediyl, 2,7-fluorenediyl or 2,7-fluorononediyl;

n is 0 or 1; and

X_4 and X_5 respectively denote hydrogen, F, Cl, Br, $—CH_3$, —CN or $—CF_3$,

with the proviso that X_1 is a single bond when A_1 is a single bond.

5,213,710

BENZENE DERIVATIVES AND A LIQUID-CRYSTALLINE MEDIUM

Volker Reiffenrath, Rossdorf; Reinhard Hittich, Modautal, and Herbert Plach, Darmstadt, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft Mit Beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

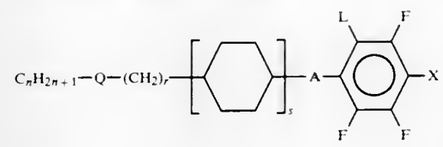
Filed Sep. 26, 1991, Ser. No. 765,775

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1990, 4030392; Feb. 28, 1991, 4106344; Apr. 11, 1991, 4111765

Int. Cl.[5] C09K *19/30, 19/12;* **C07C** *22/00, 19/08*

U.S. Cl. 252—299.63 **17 Claims**

1. A benzene compound of formula I



wherein

n is 0, 1, 2, 3, 4, 5, 6 or 7;

Q is —O—, —CH=CH— or a single bond;

r is 0, 1, 2, 3, 4, or 5;

s is 0, 1 or 2, s being 1 or 2 if A is a single bond;

X is F, Cl, $OCHF_2$ or CF_3;

L is H; and

A is Z, Z-Ar, Ar-Z, or Z-Cyc;

Z is a single bond, $—(CH_2)_2—$ or $—(CH_2)_4—$;

Ar is 1,4-phenylene or biphenyl-4,4'-diyl; and

Cyc is trans-1,4-cyclohexylene.

5,213,711

FLUORESCENT COATING

Peder Fast, Kullavik, and Lars A. Bergkvist, Jälevad, both of Sweden, assignors to Ultralux AB, Göteborg, Sweden

Filed Jul. 9, 1991, Ser. No. 725,803

Claims priority, application Sweden, Jul. 11, 1990, 9002413

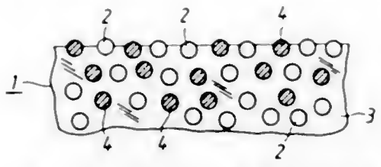
Int. Cl.[5] C09K *11/02*

U.S. Cl. 252—301.35 **12 Claims**

1. A coating which emits a color when illuminated with light within the visible wavelength range and which fluoresces

VOL 1150 ISS 4 MY 25 1993 UMI

when illuminated with light within the ultraviolet wavelength range, said coating being intended for markings of different kinds and comprising a binder, the binder including a pigment for emitting a color when the binder is illuminated with light within the visible wavelength range, and the binder including glass particles which fluoresce when illuminated with light



within the ultraviolet wavelength range, wherein the glass particles have been produced from a glass mass that has been doped with an additive to cause the glass in the glass particles to fluoresce when illuminated with ultraviolet light, so that the fluorescent effect will continue despite wear of the glass particles and will have a length of life which is equal to the length of useful life of the glass particles.

5,213,712

LANTHANUM LUTETIUM OXIDE PHOSPHOR WITH CERIUM LUMINESCENCE

Stephen L. Dole, Burnt Hills, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 10, 1992, Ser. No. 833,176
Int. Cl.[5] C09K *11/78*
U.S. Cl. 252—301.4 R **2 Claims**

1. A phosphor consisting essentially of, an oxide compound having the formula ABO_3 wherein A is cerium and lanthanum, and B is at least one of lutetium or yttrium, wherein A or B can vary by up to 2 atom percent from the 1:1 ratio of the formula, and cerium is present in an amount of about 0.02 to 2 atom percent.

5,213,713

PROCESS OF SHAPING AN ELECTRORHEOLOGICAL SOLID

Ronald P. Reitz, Hyattsville, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 21, 1991, Ser. No. 672,986
Int. Cl.[5] H01B *1/20*; B29C *35/00*
U.S. Cl. 252—500 **5 Claims**

1. A process for shaping electrorheological solid articles, said process comprising:

positioning an electrorheological solid comprising a mixture of thermoplastic phase changing vehicle and electrically polarizable aggregate between at least two electrically conductive surfaces, said electrorheological solid having solid to fluid phase changing means responsive to the passing of an electric current through said electrorheological solid;

passing an electric current through said electrorheological solid such that said electrorheological solid becomes a fluid or gel;

removing said electric current;

forming said fluid or gel into the desired shape; and,

allowing said fluid or gel to resolidify to form a solid article.

5,213,714

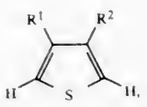
ELECTROCONDUCTIVE COATING COMPOSITION, A PROCESS FOR THE PREPARATION THEREOF, AND THE USE THEREOF

Günther Kämpf, Oestrich-Winkel, and Michael Feldhues, Bad Soden am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 9, 1989, Ser. No. 308,894
Claims priority, application Fed. Rep. of Germany, Feb. 13, 1988, 3804521
Int. Cl.[5] H01B *1/00*
U.S. Cl. 252—500 **18 Claims**

1. An electroconductive coating composition comprising 10 to 90% by weight of an electrically conducting polymer containing from 10 to 100 structural units which are connected together by linking in the 2-position and/or 5-position, comprising,

60 to 100 mol-% of structural units derived from at least one monomer of the formula (I)



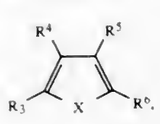
(I)

in which

R^1 represents a straight-chain or branched C_6-C_{30}-alkoxy group and

R^2 represents a hydrogen atom or a C_1-C_{30}-alkoxy group,

0 to 40 mol-% of structural units derived from at least one monomer of the formula (II)

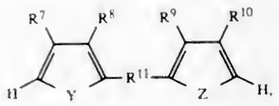


(II)

in which

R^4 and R^5, independently of one another, denote a hydrogen atom, a halogen atom, a C_1-C_{12}-alkyl group, alkoxyalkyl, arylmethyl, aryl, a C_1-C_4-alkoxy group or $-O(CH_2CH_2O)_nCH_3$ where n = 1 to 4, or form an aromatic ring together with the carbon atoms connecting them, R^3 and R^6, independently of one another, denote a hydrogen atom or R^3 together with R^4 and the carbon atoms connecting them or R^5 together with R^6 and the carbon atoms connecting them in each case form an aromatic ring, X denotes an oxygen atom, a sulfur atom, an NH group, N-alkyl group or N-aryl group,

0 to 40 mol-% of structural units derived from at least one monomer of the formula (III),



(III)

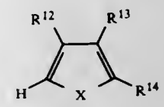
in which

R^7, R^8, R^9 and R^{10}, independently of one another, denote a hydrogen atom, a C_1-C_{12}-alkyl group, an aryl group or a C_1-C_{30}-alkoxy group,

Y and Z, independently of one another, denote an oxygen atom, a sulfur atom, an the NH group, N-alkyl group or N-aryl group,

R^{11} denotes an arylene group, a heteroarylene group or a conjugated system of formula $(-CH{=}CH-)_p$ in which p is zero, 1,2 or 3,

0 to 40 mol-% of structural units derived from at least one compound of the formula (IV)



(IV)

in which

R^{12} and R^{13}, independently of one another, denote a hydrogen atom, a halogen atom, a C_1-C_{12}-alkyl group, a C_1-C_{30}-alkoxy group, a C_1-C_{12}-acylamino group or a C_1-C_{12}-acyloxy group,

R^{14} denotes a halogen atom, a C_1-C_{12}-alkyl group, a C_1-C_{30}-alkoxy group, a C_1-C_{12}-acylamino group, a C_1-C_{12}-acyl group or a C_1-C_{12}-acyloxy group, and X is as defined above,

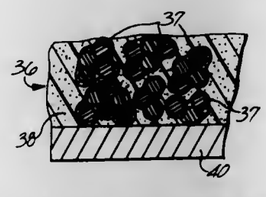
10 to 90% by weight of a non-conductive polymer, and a solvent having δ_p value of less than 8.5 $(cal/ccm)^{\frac{1}{2}}$ and a δ_H value of less than 6.5 $(cal/ccm)^{\frac{1}{2}}$ wherein the overall concentration of the two components in the solvent is 0.1 to 20% by weight.

5,213,715

DIRECTIONALLY CONDUCTIVE POLYMER

Timothy P. Patterson, Costa Mesa, and Carl E. Hoge, Encinitas, both of Calif., assignors to Western Digital Corporation, Irvine, Calif.

Filed Apr. 17, 1989, Ser. No. 338,954
Int. Cl.[5] H01B *1/06*
U.S. Cl. 252—518 **13 Claims**



1. A directionally conductive polymeric material in film form for interconnecting a first electrical component and a second electrical component, the directionally conductive polymeric material comprising discrete globules of a conductive resinous material dispersed in a viscous carrier of a dielectric resinous material, the globules comprising a first resinous material dissolved in an organic solvent and containing a dispersion of metal particles, the first resinous material being selected from the group consisting of silicone, polyamide, polyamidimide, epoxy, and thermoplastic resins, the dielectric material comprising a second resinous material dissolved in an organic solvent, the second resinous material being selected from the group consisting of silicone, polyamide, polyamidimide, epoxy, and thermoplastic resins, and organic solvent being selected from the group consisting of methylethylketone, N-methyl pyrrolidone, and diglyme, the directionally conductive polymeric material in said film from providing an interface for bonding the first electrical component to the second electrical component upon solvent evaporation from the directionally conductive polymeric material, the second resinous material being immiscible in the first resinous material sufficient that selective application of a compressive force on the directionally conductive material in a region between said electrical components, during said solvent evaporation, causes the solubility of the solvent in the globules to be reduced, thereby resulting in a collapse of the directionally conductive material in the compressed region to form a metal-resin composite which is electrically conductive between the first and second electrical component in said compressed region, said interface having regions of the directionally conductive polymeric material remote from the compressed region provided electrical insulation between the first and the second electrical conductors.

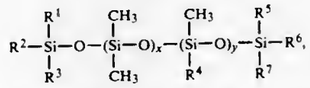
5,213,716

HAIR CONDITIONING SHAMPOO CONTAINING LONG CHAIN ALCOHOL COMPONENT

Armit M. Patel, Dayton, and Clarence R. Robbins, Martinsville, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 369,361, Jun. 21, 1989, abandoned, Ser. No. 369,389, Jun. 21, 1989, abandoned, Ser. No. 432,644, Nov. 7, 1989, Pat. No. 5,051,250, Ser. No. 432,952, Nov. 7, 1989, abandoned. This applicatioo Apr. 9, 1990, Ser. No. 507,335
The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.
Int. Cl.[5] C11D *1/14, 1/62, 9/32, 3/20*
U.S. Cl. 252—547 **3 Claims**

1. A stable pearlescent hair conditioning shampoo in emulsion or suspension form which comprises 10 to 15% of ammonium fatty alcohol sulfate of 12 to 18 carbon atoms, up to 5% of sodium fatty alcohol ether sulfate of 1 to 6 ethoxy groups and of 6 to 18 carbon atoms in the fatty alcohol group, 0.1 to 0.7% of a quaternary ammonium halide conditioning agent having 2 or 3 long chain alkyls, each of 12 to 20 carbon atoms, and 2 or 1 short chain alkyl(s), each of 1 or 2 carbon atoms, 0.8 to 4% of a water insoluble conditioning agent which is an aminosilicone of the formula



wherein R^1, R^2, R^3, R^5, R^6 and R^7 are alkyls of 1 to 6 carbon atoms, R^4 is $-R^8-NH-CH_2CH_2-NH_2$, R^8 is alkylene of 3 to 6 carbon atoms, x is an average number in the range of 5-0 to 10,000, y is less than 5 and the amine equivalent is in the range of 10,000 to 40,000, 0.2 to 2% of a water insoluble conditioning agent which is a polyethylene of a molecular weight in the range of 1,000 to 5,000, 1 to 3% o f a long chain saturated primary alcohol of a chain averaging about 30 carbon atoms, 0.5 to 3% of a long chain saturated primary alcohol of a chain averaging about 40 carbon atoms, 63 to 80% of water, with any balance being of shampoo adjuvants, with the ratio of the total of said quaternary ammonium halide conditioning agent, aminosilicone water insoluble conditioning agent and polyethylene water insoluble conditioning agent to the total of said long chain saturated primary alcohols, averaging about 30 and about 40 carbon atoms, being in the range of 1:5 to 5:1.

5,213,717

APPARATUS FOR FUMIGATING WASTE WATERS

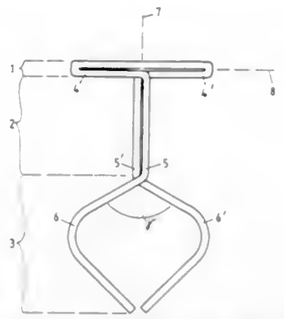
Wilhelm P. Doppelfeld, Euskirchen; Werner Pieper, Kerpen; Wilhelm Glechau, Hürth, and Hilmar Roszinski, Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 14, 1992, Ser. No. 837,338
Claims priority, application Fed. Rep. of Germany, Mar. 1, 1991, 4106527
Int. Cl.[5] B01F *3/04*
U.S. Cl. 261—93 **15 Claims**

1. An apparatus for fumigating waste waters in a fumigation tank with fumigation enclosures which are situated in parallel next to one another and at a distance from one another and rest horizontally, in whose upper sides gas outlet openings are situated and whose undersides are open, wherein mobile rotation bodies are situated in the gas outlet openings (13) of the fumigation enclosures (14) and the gas outlet openings (13)

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each have a central countersunk section (12) enclosing an angle α underneath and the remaining wall thickness (15) of the gas



outlet opening (13) of each countersunk section (12) amounts to 0.5 to 2 mm.

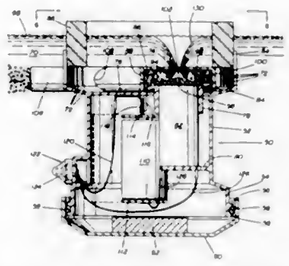


5,213,718

AERATOR AND CONVERSION METHODS

Harry L. Burgess, 5400 Memorial Dr., #511, Houston, Tex. 77007

Continuation-in-part of Ser. No. 641,057, Jan. 14, 1991, abandoned. This application Nov. 4, 1991, Ser. No. 787,038
Int. Cl.[5] B01F *3/04*
U.S. Cl. 261—93 14 Claims



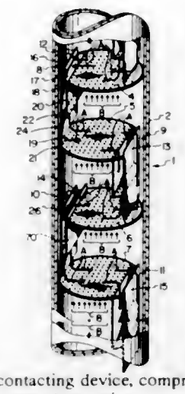
1. An aerator for gasification of a body of liquid comprising:
a centrifugal pump having a generally vertical axis and comprising
a casing having a generally axial liquid inlet opening generally upwardly with an open space above said inlet, a liquid outlet, and an internal fluid flow space communicating said liquid inlet and said liquid outlet;
a centrifugal impeller rotatably mounted in said space and operative to move fluid into said liquid inlet, through said space, and out said liquid outlet; and
drive means operatively associated with said impeller to rotate said impeller;
said pump defining a cavitation zone in said space adjacent a central portion of said impeller;
and float means positioning said pump so as to maintain an operating disposition of said casing with said liquid inlet so opening generally upwardly below the surface of said liquid and capable of taking in liquid from said body and also taking at least enough gas from an area outside said body to said cavitation zone so that the pump would surge if slightly more gas were taken.

5,213,719

GAS-LIQUID CONTACTING DEVICE

Karl T. Chuang, 8742-117 St., Edmonton, AB, Canada T6G 1R5

Filed Sep. 28, 1992, Ser. No. 952,098
Int. Cl.[5] B01F *3/04*
U.S. Cl. 261—114.1 8 Claims



1. A gas-liquid contacting device, comprising,
a) and upwardly extending casing,
b) a series of perforated trays partitioning the casing at different levels and having liquid drainage openings for, in operation, causing liquid descending in the casing to flow across the trays while being frothed on the trays by gas, to be contacted therewith, which is ascending in the casing and permeating the perforations of the trays, and
c) for each perforated tray,
i) an overflow weir partitioning the drainage opening, transversely to the direction of liquid flow thereto, into downstream and upstream downcomer entries,
ii) a downstream downcomer depending from the downstream entry to an outlet from that downcomer,
iii) an upstream downcomer depending from the upstream entry to a liquid outlet that is above the level of liquid frothed from the downstream downcomer outlet, and
iv) a liquid flow-impending, perforated plate for, in operation, forming a liquid pool of flowing liquid in a lower portion of the upstream downcomer and for distributing liquid from the pool over an unobstructed flow of liquid frothed from the downstream downcomer.

5,213,720

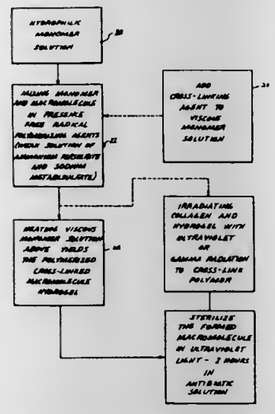
METHOD OF FABRICATING A COLLAGEN-HYDROGEL

Linda Civerchia, Ft Lauderdale, Fla., assignor to CBS Lens, a California general partnership, Santa Maria, Calif.

Continuation-in-part of Ser. No. 624,346, Dec. 6, 1990, Pat. No. 5,114,627, which is a division of Ser. No. 402,986, Sep. 1, 1989, Pat. No. 4,983,181, which is a continuation of Ser. No. 920,031, Oct. 16, 1986, abandoned. This application Feb. 15, 1991, Ser. No. 657,091
Int. Cl.[5] B29D *11/00*; A61F *2/00, 2/14*
U.S. Cl. 264—1.4 26 Claims

1. A method of fabricating a collagen-hydrogel comprising the steps of
forming a radical free polymer of a hydrophilic monomer;
mixing the hydrophilic monomer with a stock solution of collagen in the presence of a weak solution of ammonium persulfate and sodium metabisulfate forming a clear viscous monomer solution wherein said collagen-hydrogel material has a ratio by weight of collagen-to-hydrogel in the range of about 0.6-to-1000 and less than 0.6-to-1000 but at a level wherein sufficient collagen is present by weight to at least one of promote epithelial cell growth and regeneration of the stroma; and

heating said viscous monomer solution in the presence of a crosslinking agent to polymerize the same into a three



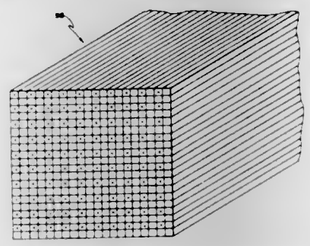
dimensional polymeric meshwork having collagen from the stock solution of collagen interdispersed within the three dimensional polymeric meshwork.

5,213,721

PROCESS OF MAKING A MEMBER WITH HOLES

Dennis T. Grendahl, 2070 Shoreline Dr., Orono, Minn. 55391

Continuation of Ser. No. 419,278, Oct. 10, 1989, abandoned. This application Dec. 21, 1990, Ser. No. 632,334
Int. Cl.[5] B29D *11/00*
U.S. Cl. 264—1.7 2 Claims



1. A process of drawing a boule for use in the production of optics comprising the steps of:
(a) forming a boule of a material substantially insoluble in a predetermined solvent, said material selected from the group consisting of polymethylmethacrylate and polysulfone, the boule having a plurality of holes therethrough;
(b) filling at least one hole in said boule with at least one material substantially soluble in said predetermined solvent, said material selected from the group consisting of an acrylic polymer, a styrene polymer and ethyl cellulose, to create a composite material;
(c) drawing said boule to form a smaller diameter boule;
(d) cutting a plurality of smaller diameter boules into short sections;
(e) laminating said short sections to obtain a second generation boule;
(f) repeating steps (c), (d) and (e) a plurality of times to reduce the size of he filled holes; and
(g) then dissolving he substantially soluble material in said predetermined solvent and washing the boule, thereby producing a drawn boule having a plurality of holes of reduced size therethrough.

5,213,722

METHOD OF MAKING A SEPARATOR MATERIAL FOR A STORAGE BATTERY

Kazutaka Iwasaki; Munehisa Ikoma; Masakazu Ikeyama; Hiroshi Kawano, and Isao Matsumoto, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Division of Ser. No. 272,998, Nov. 17, 1988, Pat. No. 5,100,723. This application Nov. 20, 1991, Ser. No. 795,141
Claims priority, application Japan, Nov. 17, 1987, 62-290015; Nov. 17, 1987, 62-290022; Nov. 17, 1987, 62-290023
Int. Cl.[5] B05D *3/02*; B32B *7/00, 31/00*
U.S. Cl. 264—22 52 Claims

1. A method for making a separator material which is useful as a separator for storage batteries, the method comprising the following steps:
a) providing polyolefin resin fibers made of a first polyolefin resin;
b) forming on surfaces of individual ones of said polyolefin fibers a surface layer made of a second polyolefin resin which is more susceptible to sulfonation than the first polyolefin resin from which said;
c) forming a woven or non-woven fabric sheet from the resulting fibers;
d) subjecting the fabric sheet to a sulfonation process until the surface layer formed in step b) is sulfonated; and
e) removing a decomposition product formed by the sulfonation process from the fabric sheet to obtain a separator material having the sulfonated surface layer formed in step d) on individual ones of said polyolefin resin fibers.

5,213,723

PROCESS FOR PRODUCING RUBBER PRODUCTS

Masashi Aoshima, and Tadashi Jinno, both of Osaka, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 333,734, Apr. 3, 1989, abandoned, which is a continuation of Ser. No. 870,046, May 3, 1986, abandoned. This application Jul. 19, 1991, Ser. No. 732,955
Claims priority, application Japan, Jun. 3, 1985, 60-120828
Int. Cl.[5] B29C *35/06, 35/10, 35/14*; C08L *9/00*
U.S. Cl. 264—26 8 Claims

1. A process for producing a rubber product from a rubber composition containing a peroxide as a cross-linking agent, said rubber composition characterized by remaining tacky at the surface if cross-linked only by thermal vulcanization in the presence of oxygen because of vulcanization hindrance by oxygen at the surface thereof, comprising, in order, forming a molded article from said rubber composition, cross-linking the molded article only at a surface layer by irradiation with electron beams following which the core of said molded article is essentially uncross-linked, and subjecting said molded article to continuous thermal vulcanization selected from hot air vulcanization, ultra-high frequency vulcanization and fluid bed vulcanization, said vulcanization being carried out in the presence of oxygen, and said rubber being selected from the group consisting of styrene-butadiene rubber, ethylene-propylene rubber, ethylene-propylene-diene terpolymer rubber, acrylonitrile-butadiene rubber, chlorinated ethylene-propylene rubber, chlorinated polyethylene, chlorosulfonated polyethylene, silicone rubber, fluorinated rubber, natural rubber, and chloroprene rubber.

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5,213,724

PROCESS AND APPARATUS FOR DETERMINING THE RATE AT WHICH MATERIAL IS RECEIVED BY AN EXTRUDER FROM A FEED CONTAINER

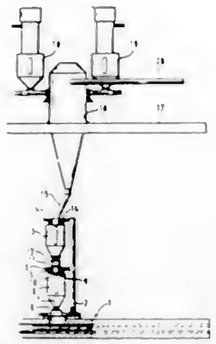
Richard Saatkamp, Lengerich, Fed. Rep. of Germany, assignor to Windmöller & Hölscher, Lengerich, Fed. Rep. of Germany

Filed Mar. 27, 1992, Ser. No. 859,568

Claims priority, application Fed. Rep. of Germany, Mar. 27, 1991, 4110135

Int. Cl.[5] B29B 7/66

U.S. Cl. 264—37 4 Claims



1. A process of determining the weight rate at which process granules are received by an extruder from a feed container having an outlet which opens into the inlet of the extruder, in which process granules are continuously fed to a supply container and consecutive charges of granules are intermittently fed to the feed container, the feed container is weighed before or at the beginning of or after or at the end of its filling operation, the time between filling operation required to withdraw feed material from the feed container in an amount which has been determined by the weighing operations is measured, and the flow rate of the material is calculated from a total of the amounts of material which have been received from the feed container in the measured intervals of time, characterized in that

the supply container is substantially used only as a mixing container and opens into a charge-holding container, which is provided between the supply container and the feed container, granules of at least one component and recycled marginal strips are continuously fed to the supply container and then fed to the charge-holding container and the feed container, the feed container and the charge-holding container are weighed at intervals of time, and the feed rate of the granules of the at least one component being fed to the supply container is correspondingly increased or reduced when the measured total weight of the feed container and of the charge-holding container differs from a predetermined desired weight.

5,213,725

APPARATUS AND METHOD FOR COOLING AN EXTRUDED BLOWN FILM

Ron C. Lee, Bloomsbury, and Mark Kirschner, Morristown, both of N.J., assignors to The BOC Group, Inc., New Providence, N.J.

Filed Mar. 10, 1992, Ser. No. 848,791

Int. Cl.[5] B29C 47/88

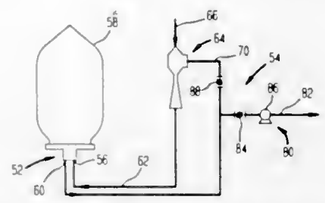
U.S. Cl. 264—37 14 Claims

1. Apparatus for cooling an extruded blown film comprising:

contacting means for contacting an interior surface of a bubble of the extruded blown film with a cryogenic gas to thereby cool the extruded blown film and form a spent gas from the cryogenic gas heated by the cooling of the extruded blown film; and

an enclosed circulation system including means for recovering the spent gas from the bubble of the extruded blown film and cryogenic gas generating means for generating the cryogenic gas;

the cryogenic gas generating means having a first inlet for the intake of a coolant selected from a group consisting of a liquid cryogen and a mixture of a liquid and gaseous cryogen, a second inlet in communication with the spent gas recovery means for the intake of the the spent gas, a chamber, separate from and not bound by the bubble of the extruded blown film, in communication with the first and second inlets for thermally mixing the coolant and the spent gas to form the cryogenic gas and an outlet of the chamber in communication with the contacting means for supplying the contacting means with the cryogenic gas.



11. A method of cooling an extruded blown film comprising:

contacting an interior surface of a bubble of the extruded blown film with a cryogenic gas to thereby cool the extruded blown film and form a spent gas from the cryogenic gas heated by the cooling of the extruded blown film;

recovering the spent gas from the bubble of the extruded blown film;

forming the cryogenic gas by mixing in a chamber, separate from and not bound by the bubble of the extruded blown film the spent gas recovered from the bubble of the blown film and a coolant selected from a group consisting of a liquid cryogen and a mixture of a liquid and gaseous cryogen; and

introducing the cryogenic gas from the chamber into the bubble of the extruded blown film.

5,213,726

MOLDING AND GAUGING METHOD

Charles R. Ramsey, Dunkirk; Jerry M. Fine, Brazil; Russell E. Holcomb, Greencastle, and Leland K. Shirely, Cloverdale, all of Ind., assignors to Matrix Technologies, Inc., Muncie, Ind.

Continuation of Ser. No. 487,954, Apr. 9, 1990, abandoned, which is a continuation-in-part of Ser. No. 108,484, Oct. 14, 1987, Pat. No. 4,824,351. This application Jul. 3, 1991, Ser. No. 727,329

Int. Cl.[5] B29C 39/44

U.S. Cl. 264—40.5 8 Claims

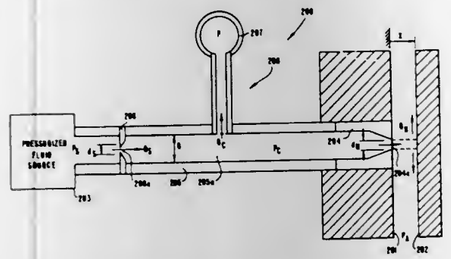
1. A method of monitoring operation of a mold having a plurality of mold elements, with at least one mold element being moved relative to another mold element by a molding machine, comprising:

identifying a plurality of mold elements to be monitored;

locating one or more orifice-forming means on one or more selected surfaces of the plurality of identified mold elements to be monitored; directing flows of air from the one or more selected surfaces of the identified mold elements to be monitored in such a manner that each of the air flows form each of the air orifice-forming means is affected by the relative movement of the one or more selected surfaces of the identified mold elements with respect to one or more adjacent mold elements during operation of the mold;

connecting each of the one or more orifice-forming means of the one or more selected surfaces via a passageway and a second upstream orifice with a regulated supply of air under pressure;

monitoring the air pressures of each of the passageways



between each of the air orifice-forming means and each of the second upstream orifices; and

determining from said monitored air pressures an output measurement of the spacing of the one or more selected surfaces of the identified mold elements form one or more adjacent mold elements during operation of the mold.

5,213,727

METHOD FOR INSTALLING A PIPE LINER

Joseph L. Gargiulo, Colts Neck, N.J., assignor to American Pipe & Plastics, Inc., Binghamton, N.Y.

Filed Jun. 3, 1991, Ser. No. 709,635

Int. Cl.[5] B29C 63/20, 63/34

U.S. Cl. 264—40.3 8 Claims



1. A process for installing a liner in a generally horizontal pipe section having an upstream end and a downstream end comprising the steps of:

providing a hollow, generally cylindrical folded liner having a cross section sized to allow the liner to fit slidably within the pipe;

pulling the folded liner through the pipe section, leaving end sections of the liner extending from the upstream end and the downstream end of the pipe section;

pulling an air hose and a steam hose through the folded liner from the downstream end to the upstream end;

providing a floating plug assembly including at least two disk shaped expanders;

attaching the steam hose to the floating plug assembly downstream of the disk shaped expanders;

attaching the air hose to the floating plug assembly upstream of the disk shaped expanders;

inserting the floating plug assembly into the liner at the upstream end;

providing steam to the steam hose and cooling air to the air hose while pulling the floating plug assembly through the liner to progressively heat the liner to a softening point, downstream of the disk shaped expanders, expand the liner to fill the pipe, and cool the expanded liner upstream of the disk shaped expanders.

5,213,728

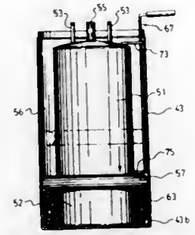
FOAM INSULATING A WATER HEATER

Michael O. Hickman, Guelph, Canada, assignor to GSW Inc., Fergus, Canada

Continuation of Ser. No. 594,062, Oct. 9, 1990, abandoned. This application Jan. 22, 1992, Ser. No. 823,968

Int. Cl.[5] B29C 67/00

U.S. Cl. 264—46.9 3 Claims



1. A method of preparing a gas operated water heater for foam insulation where the water heater comprises an inner tank with an upper end and bottom end with a gas burner at the bottom end of the tank, gas burner insulation around the bottom end of the tank and an outer shell including a vertical shell wall and top fitted to the shell wall, said method comprising stretching a solid, resilient foam barrier of rounded cross section around the upper end of the tank with the shell off of the tank and then moving the foam barrier downwardly along the tank by lowering the shell wall over the tank with the foam barrier fitted therearound without attaching the foam barrier to the shell wall, and then further fitting a pushing tool downwardly between the tank and the shell wall and using an upper part of the water heater as a tool guide to accurately locate the foam barrier immediately above the gas burner insulation after moving the foam barrier downwardly along the tank.

5,213,729

PROCESS FOR PREPARING A DENSIFIED BETA-PHASE SILICON NITRIDE MATERIAL HAVING AT LEAST ONE DENSIFICATION AID, AND THE MATERIAL RESULTING THEREFROM

James P. Edler, and Bohdan Lisowsky, both of Troy, Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jul. 24, 1990, Ser. No. 557,371

The portion of the term of this patent subsequent to Jul. 24, 2007, has been disclaimed.

Int. Cl.[5] C04B 35/58

U.S. Cl. 264—63 60 Claims

1. A process for preparing an alpha-phase silicon nitride material and thereafter sintering to a densified beta-phase silicon nitride material, comprising:

(a) comminuting a slurry including a mixture of

(i) silicon-containing powder,

(ii) water, and

(iii) at least one densification aid to aid in later densifying of the silicon nitride material,

said comminuting being performed to form fresh, non-oxidized surfaces on the silicon powder and to allow substantial chemical reaction between the silicon and the water, yielding a mass;

(b) nitriding the mass by exposure to a sufficient amount of a nitriding gas including at least nitrogen at a sufficient temperature for a sufficient length of time to form a mass of substantially alpha-phase silicon nitride; and

(c) sintering the resultant silicon nitride mass at a sintering holding temperature of from about 1450° C. to about 2100° C. for a sufficient length of time to convert the silicon nitride from a predominantly alpha-phase material to a predominantly densified beta phase silicon nitride

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material exhibiting a decrease in bulk volume of the silicon nitride due to the densification.

5,213,730

CONTROLLED COMBUSTION SYNTHESIS PROCESS FOR THE PRODUCTION OF SILICIDE BASED COMPOSITES

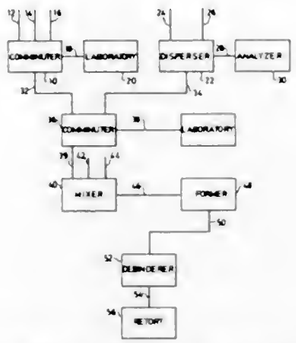
George T. Hida, North Tonawanda, assignor to Benchmark Structural Ceramics Corporation, Amherst, N.Y.

Continuation-in-part of Ser. No. 254,175, Oct. 6, 1988, Pat. No. 5,006,290, and a continuation-in-part of Ser. No. 499,038, Mar. 26, 1990, Pat. No. 5,011,800. This application Apr. 25, 1991, Ser. No. 691,139

The portion of the term of this patent subsequent to Apr. 30, 2008, has been disclaimed.

Int. Cl.[5] C04B *35/64*

U.S. Cl. 264—63 18 Claims



1. A process for preparing a composite material comprised of a transition metal silicide and a metal oxide, comprising the steps of:

(a) providing a powder mixture comprising silica and a compound of a transition metal, wherein:

1. said transition metal is selected from the group consisting of molybdenum, titanium, niobium, tantalum, zirconium, uranium, hafnium, cobalt, vanadium, tungsten, and mixtures thereof;
2. said compound is selected from the group consisting of the oxides, carbides, borides, fluorides, and hydrides of said transition metal;
3. said transition metal compound has a particle size distribution such that substantially all of its particles are form about 0.1 to about 10 microns in size;
4. said silica has a particle size distribution such that substantially all of its particles are smaller than 5 microns in size;

(b) comminuting said mixture until a first, substantially single-phase composition is produced;

(c) adding a reducing agent and from about 0.5 to about 1.0 weight percent, based on the weight reducing agent, of an organosiloxane to said single-phase composition, wherein said reducing agent is a metal powder substantially all of whose particles are smaller than about 10 microns;

(d) comminuting said mixture of said reducing agent, said organosiloxane, and said first single-phase composition until a second, substantially single-phase composition is produced;

(e) preparing a mixture by mixing said second, substantially single-phase composition with from about 5 to about 80 weight percent, based on the total weight of the mixture, of reinforcing agent;

(f) forming said mixture of reinforcing agent and said second, substantially single-phase composition into a green body;

(g) blanketing said green body with a protective atmosphere; and

(h) igniting said green body.

5,213,731

METHOD FOR MANUFACTURE OF A SINTERED BODY OF Al_2O_3-TIC SYSTEM USEFUL AS A CUTTING TOOL

Han S. Song, Taejeon; Young H. Yoo, Seoul; Joong K. Lee, Taejeon; Sung T. Kwon, Taejeon, and Joon T. Kim, Taejeon, all of Rep. of Korea, assignors to Ssangyong Cement Industrial Co., Ltd., Seoul, Rep. of Korea

Filed Feb. 22, 1991, Ser. No. 660,444

Claims priority, application Rep. of Korea, Feb. 24, 1990, 90-2362

Int. Cl.[5] C04B *35/10*

U.S. Cl. 264—65 2 Claims

1. A method for manufacturing a sintered body of an Al_2O_3-TiC system useful as a cutting tool, which comprises the following steps:

a) mixing particles of Al_2O_3, TiC and Y_2O_3 to form a mixture;

b) pulverizing the mixture;

c) treating the mixture under a mixed gas atmosphere to form a TiO_2 layer on a surface of the TiC particles; and

d) sintering the mixture at a temperature between 1600° C. and 1850° C. under an argon atmosphere;

characterized in that the mixture of step (c) is treated at a temperature between 200° C. and 500° C. under a mixed gas atmosphere containing N_2 and O_2 wherein the mixed gas has a flow rate between 0.2 l/min and 0.4 l/min and treating is conducted for a time between 0.5 and 2 hours.

5,213,732

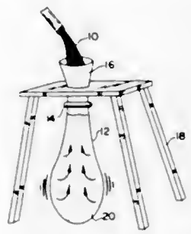
METHOD OF CASTING MATERIALS USING A FLEXIBLE RESILIENT MOLD

Milomir Jevtic, 1840 University Blvd., Silver Spring, Md. 20902

Filed Jan. 11, 1991, Ser. No. 640,113

Int. Cl.[5] B28B *1/08, 1/16*

U.S. Cl. 264—71 13 Claims



1. A process for producing a cast article having an ultra-smooth, highly polished exterior surface with rounded edges simulating naturally weathered smooth stone, comprising:

(a) providing a secondary mold having a predetermined inner shape;

(b) disposing at least a portion of a primary mold within the secondary mold, the primary mold comprising a resilient flexible membrane which in a relaxed state thereof has generally a bag shape of a predetermined size having an interior portion and an exterior surface and which in the relaxed state has a thickness of less than 6 mils and which, further, is stretchable to four times the predetermined size of the relaxed state without danger of rupturing;

(c) disposing a mass of concrete or plaster casting material in a wet flowable state into the interior portion of the primary mold in the relaxed state, so that the casting material becomes substantially enclosed by the primary mold, which primary mold provides for formation of an ultra-smooth, highly polished exterior surface on an article cast therein;

(d) stretching the primary mold out of the relaxed state due to forces from the mass of the casting material disposed into the interior portion of the primary mold to expand the primary mold to fill and substantially acquire the predetermined inner shape of the secondary mold;

(e) allowing the casting material to harden; and

(f) removing the secondary mold and the primary mold from the hardened cast article to provide the cast article with the ultra-smooth, highly polished exterior surface with rounded edges simulating naturally weathered smooth stone.

5,213,733

METHOD OF MAKING SYNTHETIC FIBERS CONTAINING PHOTOCHROMIC PIGMENT

Yean-Rong Hwu; Chi-Chung Bai; Li-Chang Tao; Der-Guey Luo, and Andrew T. Hu, all of Hsin-Chu, Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Jun. 3, 1991, Ser. No. 711,043

Int. Cl.[5] D01F *1/04*

U.S. Cl. 264—78 13 Claims



1. A process for the preparation of a synthetic fiber containing a photochromic pigment which comprises:

admixing (a) a photochromic pigment which is encapsulated in a thermoplastic polymer having a high melt-flow index and (b) a primary thermoplastic resin having a melting point of less then 215° C.; and

extruding said admixture at a temperature of less than 250° C. through a spinneret having a diameter of at least 0.3 mm so as to form said synthetic fiber.

5,213,734

PROCESS FOR PRODUCING, BY BLOW MOULDING, HOLLOW BODIES MADE OF THERMOPLASTIC MATERIAL HAVING AN IMPROVED IMPERMEABILITY TO GASES

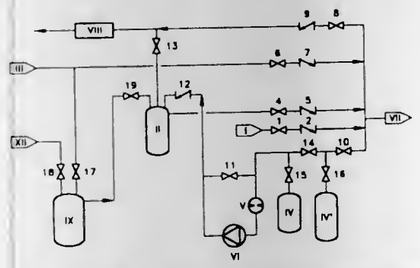
Didier Masson, and Marc Obsomer, both of Brussels, Belgium, assignors to Solvay S.A., Brussels, Belgium

Filed Feb. 12, 1992, Ser. No. 833,654

Claims priority, application Belgium, Feb. 20, 1991, 09100167

Int. Cl.[5] B29C *49/04, 49/18, 49/46*

U.S. Cl. 264—83 12 Claims



1. A process for producing, by blow moulding, blow moulded hollow bodies made of thermoplastic material having an improved impermeability to gases, comprising successive production cycles, each production cycle comprising steps for:

a) capturing a portion of an extruded parison of the thermoplastic material in a blowing mould,

b) injecting, into the captured portion of said extruded parison or into the blow moulded hollow body, a pressurised mixture of inert gas and of reactive gas,

c) injecting, into the moulded hollow body, an addition of reactive gas in order to enrich the reactive gas content in the pressurised mixture,

d) maintaining the enriched mixture in the hollow body during a period of time sufficient for treating an internal wall of the moulded hollow body to effect improved impermeability to gases,

e) after treating, expanding the enriched mixture and recovering the expanded gas mixture in a sealed enclosure so that, through expansion and recovery, the concentrations of the inert gas and the reactive gas in the expanded gas mixture remain the same as the concentrations of the inert gas and the reactive gas in the enriched mixture within the body just after treating is completed.

f) transferring the expanded gas mixture under compression from the sealed enclosure to a pressurised storage enclosure to use in step (b) of a subsequent production cycle, and

g) after recovery of the expanded gas mixture in the sealed enclosure, injecting, into the hollow body, an inert scavenging gas.

5,213,735

PROCESS FOR MANUFACTURING NEEDLED SPUNBONDEDS

Heinrich Schneider, Niederneukirchen; Heinz Bocksrucker, Puchenau, and Karl Muhlberghuber, St. Pantaleon, all of Austria, assignors to Polyfelt Gesellschaft m.b.H., Linz, Austria

Filed Jun. 24, 1991, Ser. No. 719,344

Claims priority, application Austria, Jul. 2, 1990, 1401/90

Int. Cl.[5] D01D *5/00;* D04H *1/46*

U.S. Cl. 264—103 6 Claims

1. In a process for manufacturing needled spunbondeds from thermoplastic fibers, which comprises spinning filaments, stretching the filaments, forming the stretched filaments into a web in which the filaments have crossing points with each other, and needling the web to form spunbonded,

the improvement which comprises, before the needling, thermally sealing the web at both its surfaces to temporarily bond the filaments at the crossing points and thereby form an incipiently sealed web surface, and then providing lubricant into the web, and wherein the web is consolidated by the needling and simultaneously the bonds at the crossing points of the filaments are broken.

5,213,736

PROCESS FOR MAKING AN ELECTROCONDUCTIVE POLYMER COMPOSITION

Masao Sumita, Tokyo; Yohsuke Hirao, and Hirokazu Yamada, both of Oita, all of Japan, assignors to Showa Denko K.K., Tokyo, Japan

Division of Ser. No. 338,027, Apr. 14, 1989, abandoned. This application Sep. 5, 1991, Ser. No. 755,224

Claims priority, application Japan, Apr. 15, 1988, 63-91692

Int. Cl.[5] B29B *7/02;* B29C *39/02*

U.S. Cl. 264—104 5 Claims

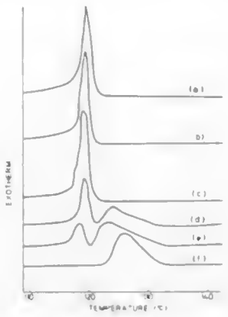
1. A process for making an electroconductive shaped article from at least two polymers which are incompatible with each other, such that they do not form a single phase upon mixing, and an electroconductivity-imparting filler which is in the form of at least one of a powder, a flake and a short fiber and is at least one member selected from the group consisting of a carbonaceous filler, a metallic filler, and a filler surface-coated with carbon or metal, which comprises the steps of:

kneading a mixture of the polymers together with 3 to 50% by weight, based on the total weight of the polymers, of

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the filler to prepare a polymer composition wherein the filler is distributed predominantly in one of the polymers which has a higher affinity for the filler and has a continuous or substantially continuous phase; and

shaping the polymer composition into a shaped article, said mixture of the polymers showing crystallization peaks or second-order transitions attributable to the respective mixed polymers when the mixture is subjected to differential scanning calorimetric measurement or dynamic viscoelasticity measurement, and said mixture of polymers having a composition such that the extraction ratio of the



polymer having a higher affinity for the filler is at least 0.3, said extraction ratio being expressed by the following formula:

$$\text{extraction ratio} = A/B$$

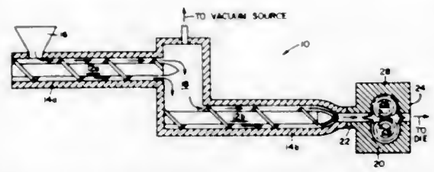
wherein A is the amount of the polymer having a higher affinity for the filler, which has been extracted from the polymer mixture by a solvent capable of dissolving only the polymer having a higher affinity for the filler, and B is the amount of the polymer having a higher affinity for the filler in the polymer mixture before extraction.

5,213,737

EXTRUSION METHOD AND APPARATUS FOR PRODUCING A BODY FROM POWDER MATERIAL

Clarence E. Ford, Painted Post; Donald L. Guile, Horseheads, both of N.Y., and Lucretia R. Quatrini, Sayre, Pa., assignors to Corning Incorporated, Corning, N.Y.

Filed Dec. 2, 1991, Ser. No. 801,361
Int. Cl.[5] B29C 47/36
U.S. Cl. 264—109 20 Claims



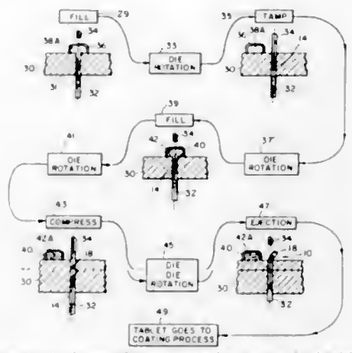
1. In the method of extruding a powder material to form an article, which method includes the steps of passing said material through an extruder and then passing said material through a die, wherein said powder material is provided in the form of a mixture which includes a vehicle, the improvement which comprises the step of passing said material through one gear pump after said material leaves said extruder and before it enters said die, said one gear pump having one or more pair of gears, wherein when said one gear pump has more than one pair of gears, said gear pairs are arranged sequentially with respect to the flow of said material.

5,213,738

METHOD FOR MAKING A CAPSULE-SHAPED TABLET

Douglas B. Hampton, Holland; George W. Tilton, Grand Haven, and Maureen L. Jordan, Allegan, all of Mich., assignors to L. Perrigo Company, Allegan, Mich.

Division of Ser. No. 523,752, May 15, 1990, Pat. No. 5,089,270.
This application Nov. 4, 1991, Ser. No. 787,801
Int. Cl.[5] A61K 9/20
U.S. Cl. 264—113 44 Claims



1. A method of manufacturing a pharmaceutical tablet comprising:

filling a die cavity partially with a first blend of solid particulate excipients and active substances, and a first coloring agent;

leveling said first blend in said die cavity and clearing the walls of said die cavity above said first blend to define a clear line of demarcation at the upper circumferential edge of said first blend;

filling the unfilled portion of said die cavity with a second blend of solid particulate excipients and active substances, and a second coloring agent;

compressing said first blend and said second blend along the longitudinal axis of said die cavity to form a layered capsule-shaped tablet; and

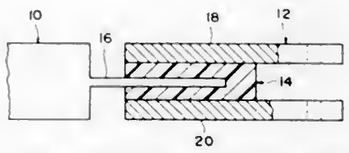
removing the capsule-shaped tablet from the die cavity.

5,213,739

PROCESS FOR BONDING ELASTOMERS TO METALS

George E. Dickerson, Yorktown, and Henry L. Kelley, Newport News, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 26, 1991, Ser. No. 721,038
Int. Cl.[5] B29C 45/16
U.S. Cl. 264—135 6 Claims



1. A process for bonding elastomeric material to a metal part comprising:

coating a heat curable adhesive on surfaces of the metal part to be bonded;

placing the metal part in a mold;

preheating a bottom plate and an upper transfer pot of a transfer molding machine to a predetermined cure temperature;

loading a predetermined quantity of uncured elastomeric material into the transfer pot;

clamping the mold containing the adhesive coated metal part to the bottom plate, and almost contemporaneously;

pressing the uncured elastomeric material into the mold while maintaining heat and pressure in the mold for a time sufficient to vulcanize and thereby cure the elastomeric material simultaneously with the adhesive, whereby contacting surfaces of the metal part are strongly bonded to the vulcanized elastomeric material.

5,213,740

PROCESSES FOR THE PREPARATION OF TONER COMPOSITIONS

Timothy J. Fuller, West Henrietta, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed May 30, 1989, Ser. No. 358,973
Int. Cl.[5] B29B 9/16; B29C 47/00
U.S. Cl. 264—140 23 Claims

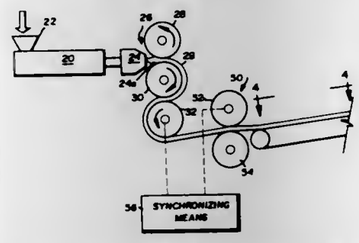
1. A process for the preparation of toner particles which comprises adding to a melt mixing apparatus, or to an extrusion apparatus at least two polymers, one of which is incompatible with the other polymer, and pigment particles, melt mixing the aforementioned polymers and pigments, and separating the incompatible polymer domains with pigment particles from the resulting mixture.

5,213,741

METHODS FOR FORMING PLASTIC PRODUCTS HAVING BEVELED PERIPHERAL EDGES OF SUBSTANTIALLY CONSTANT GEOMETRY

Edward S. Robbins, III, 459 N. Court St., Florence, Ala. 35630

Division of Ser. No. 517,197, May 1, 1990, Pat. No. 5,048,182, which is a division of Ser. No. 250,684, Sep. 29, 1988, Pat. No. 4,938,677, which is a continuation-in-part of Ser. No. 17,603, Feb. 24, 1987, abandoned, and a continuation-in-part of Ser. No. 158,622, Feb. 22, 1988, abandoned. This application Jul. 3, 1991, Ser. No. 725,837
Int. Cl.[5] B29C 69/02; A01B 29/00
U.S. Cl. 264—151 7 Claims



1. A method of forming a plastic product having first and second beveled peripheral edge portions of substantially constant geometry comprising the steps of:

(a) providing a pattern roll by:

(i) forming at least one continuous recessed groove of a depth dimension d_g in a cylindrical surface of a base roll having a predetermined outside diameter D_o, the groove having a number of circumferentially extending sections joined to one another such that the groove formed in the cylindrical surface of the roll, when projected onto a planar surface, has a geometric configuration which establishes a peripheral outline of said plastic product;

(ii) forming, from a rigid cylindrical sleeve having an internal diameter D_i less than said diameter D_o of said base roll and a radial thickness t_c greater than said groove depth d_g, a number of unitarily joined circumferential and longitudinal rib segments by removing unwanted portions of said cylindrical sleeve so that said number of unitarily joined circumferential and longitudinal rib segments remain;

(iii) forming beveled surfaces on said circumferential and longitudinal rib segments such that said beveled surfaces of said circumferential rib segments intersect a plane which is tangent to said cylindrical surface of said base roll to form an angle A_1, while said beveled surfaces of said longitudinal segments intersect another plane which is tangent to said cylindrical surface of said base roll at a point which laterally bisects longitudinal groove sections, so as to form an angle A_2 which is greater than angle A_1; and

(iv) rigidly positioning said circumferential and longitudinal rib segments in respective circumferential and longitudinal grooved sections, whereby said first and second beveled peripheral edge portions of substantially constant geometry are formed by said circumferential and longitudinal rib segments, respectively; wherein

(b) rotating said pattern roll in opposition to another roll so that the continuous edge of the pattern roll and the other roll in opposition therewith establish, at a nip therebetween, a volumetric potion of said plastic product;

(c) continuously extruding a molten thermoplastic material into the nip formed between said pattern foil and said another roll which simultaneously continuing to rotate said pattern roll in opposition to said another roll, said continuous simultaneous extrusion and rotation causing said molten material to fill completely said volumetric portion so that upon further extrusion and rotation, said plastic product having said first and second beveled peripheral edge portions is formed; and then

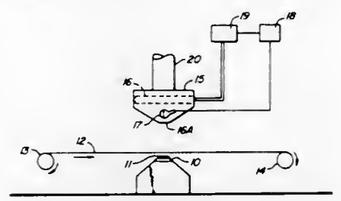
(d) allowing said thermoplastic material to solidify.

5,213,742

METHOD OF PRODUCING PORES OF CONTROLLED GEOMETRY ON A THERMOPLASTIC POLYMER

Stanley R. Conston, San Carlos, and Glenn C. Buchanan, Belmont, both of Calif., assignors to Vitaphore Corporation, Menlo Park, Calif.

Filed Sep. 11, 1990, Ser. No. 580,947
Int. Cl.[5] B29C 59/04
U.S. Cl. 264—156 9 Claims



1. A process for manufacturing a nonwoven, nondegradable tissue ingrowth-inducing, tissue-interfacing substrate with predetermined oriented, uniform pore diameter, pore density and pore depth comprising the steps of:

(a) providing a thermoplastic substrate;

(b) contacting at least a portion of said substrate with a heated surface for a period of time and at temperature sufficient to soften said substrate without deformation;

(c) while said substrate is in a softened state, inserting perpendicularly into said portion of aid surface of said substrate a plurality of pins which are at a lower temperature than said substrate, of sufficient external diameter to achieve said predetermined pore diameter in a predetermined pattern sufficient to achieve said predetermined

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pore density and with sufficient force and displacement to achieve said predetermined pore depth;
(d) removing said substrate from said heated surface to allow said substrate to cool;
(e) removing said pins from said substrate;
(f) optionally, repeating steps (b), (c), (d) and (e) on a different portion of said substrate wherein said pore density is in the range of 20–10,000 pores/cm^2 and said pore diameter is in the range of 50–500 microns.

5,213,743

METHOD OF MANUFACTURING RELEASE PAPER

Shuzo Ohara, Kawanishi, and Ryoichi Kitamura, Takaishi, both of Japan, assignors to Goyo Paper Working Co., Ltd., Osaka, Japan

Continuation of Ser. No. 300,684, Jan. 19, 1989, abandoned, which is a division of Ser. No. 65,469, Jun. 23, 1987, abandoned. This application Jan. 17, 1991, Ser. No. 641,633
Claims priority, application Japan, Jun. 24, 1986, 61-147734
Int. Cl.^{5} B29C *47/88*
U.S. Cl. 264—171 **2 Claims**

1. A method of manufacturing a release paper consisting of the steps of:
extruding a mixture consisting of a) a polyolefin resin and b) a graft polymer onto a paper substrate to form a laminate, said graft polymer having been formed by reacting an organopolysiloxane compound having at least one hydrogen atom with a hydrocarbon compound having at least one double bond reactive with that hydrogen atom; and
heating the laminate to cause the graft polymer contained in the extruded mixture to bleed onto and become localized at the surface of the mixture.

5,213,744

PROCESS FOR MAKING POLYOLEFIN FILMS

Bernard L. L. Bossaert, Brussels, Belgium, assignor to Exxon Chemical Patents Inc., Linden, N.J.

Continuation of Ser. No. 618,018, Nov. 26, 1990, abandoned, which is a continuation of Ser. No. 183,820, Apr. 20, 1988, abandoned. This application Jul. 13, 1992, Ser. No. 914,223
Claims priority, application United Kingdom, Apr. 21, 1988, 87-09446
Int. Cl.^{5} B29C *47/06, 47/60*; B32B *31/30*
U.S. Cl. 264—171 **14 Claims**

1. A process for the production of polyolefin films comprising:
blending under high shear conditions a polyolefin selected from the group consisting of polypropylene and copolymers of propylene with up to 20 wt. % of ethylene or a C_4 to C_8 mono alpha olefin, and at least one modifier selected from the group consisting of a resin and a resin to form a concentrate mixture comprising 10 to 90 wt. % polyolefin and 10 to 90 wt. % modifier;
mixing said concentrate with additional polyolefin selected from the group consisting of polypropylene with copolymers of propylene with up to 20 wt. % of ethylene or a C_4 to C_8 mono alpha olefin, to form a blend comprising 70 to 95 wt. % polyolefin and 5 to 30 wt. % modifier; and
extruding the blend to form a film.

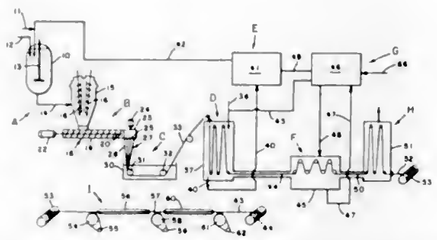
5,213,745

METHOD FOR REMOVAL OF SPINNING SOLVENT FROM SPUN FIBER

Thomas P. Izod, Basking Ridge; Morris B. Berenbaum, Summit, both of N.J., and Morton H. Litt, University Heights, Ohio, assignors to Allied-Signal Inc., Morris Township, N.J.

Filed Dec. 9, 1991, Ser. No. 803,860
Int. Cl.^{5} D01F *13/04*
U.S. Cl. 264—203 **24 Claims**

1. A process for extracting a first spinning solvent from a solution spun fiber, said process comprises the steps of:
(a) contacting said fiber containing a first spinning solvent with a second extraction solvent at a first temperature, T_1, said second extraction solvent selected such that said first spinning solvent is soluble or substantially soluble in said second extraction solvent at said first temperature, T_1, and is insoluble or is substantially insoluble in said second extraction solvent at a second temperature T_2, for a time sufficient to extract all or a portion of said first spinning solvent from said fiber, to form a fiber of indefinite length containing said second extraction solvent and a solution of said extracted first spinning solvent in said extraction second solvent;
(b) separating said fiber from said solution;



(c) subjecting said solution of said first spinning solvent and said second extraction solvent to said second temperature, T_2, to form a heterogeneous liquid mixture comprising two distinct liquid phases, a first liquid phase comprising predominantly said first spinning solvent and a second liquid phase comprising predominantly said second extraction solvent;
(d) separating said first and second phases; and
(e) recycling said second liquid phase to said contacting step (a).

5,213,746

WAX CASTING PROCESS FOR PRODUCING A CASTING OF A BODY PART

Ross Tarwater, 1206 Richmond Ave., Chesapeake, Va. 23324

Filed Jun. 17, 1991, Ser. No. 716,272
Int. Cl.^{5} B29C *33/76*
U.S. Cl. 264—221 **7 Claims**



1. A process for making an exact casting of a body part comprising the steps of:
(a) providing a first container having a quantity of ice water therein;
(b) providing a second container having a quantity of water and a quantity of wax therein;
(c) heating and maintaining the second container at a temperature adequate to melt and maintain the wax in a liquid state;
(d) coating the body part to be cast with a release agent selected from the group of release agents consisting of glycerin and light oils;
(e) immersing the coated body part into the ice water of the first container;
(f) immediately removing the body part from the ice water of the first container and immersing the body part into the melted wax and water in the second container;

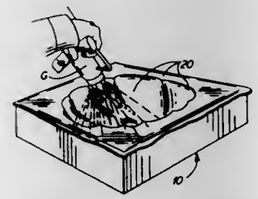
(g) immediately removing the wax coated body part from the melted wax and water in the second container and extracting the body part from the wax layer formed thereon to recover a unitary hollow wax mold of the body part;
(h) permitting the hollow wax mold to cool at room temperature;
(i) coating at least the interior surface of the recovered hollow wax mold with a curable casting material;
(j) permitting the coated casting material to cure; and,
(k) heating the cured, cast coated, wax mold to a temperature adequate to separate the hollow wax mold from the casting to recover an exact casting of the body part.

5,213,747

METHODS OF MAKING FIBER-REINFORCED RESIN MOLDS

William Lippert, 398 Wildwood Ridge, Colgate, Wis. 53017

Filed Aug. 27, 1991, Ser. No. 750,042
Int. Cl.^{5} B29C *33/40*
U.S. Cl. 264—226 **19 Claims**



1. A method of making a mold suitable for use in molding reactive polymer shaped articles comprising
(a) providing a three-dimensional master of the article to be molded;
(b) coating the surface of the three-dimensional master with a mold release agent;
(c) applying a gel coat layer to the mold release agent coated surface of the master and curing the gel coat layer;
(d) applying to the gel coat layer at least one fiber reinforced catalyzed resin layer, said resin layer comprising a room temperature curing, low shrinkage, thermosetting filled paste system comprising
25 to 75 percent by weight of an unsaturated polyester resin,
1 to 25 percent by weight of a mixture of thermoplastic polymers of vinyl acetate and an epoxy compound having at least one 1,2-epoxy group per molecule, and 25 to 75 percent by weight filler said mixture comprising vinyl acetate and said epoxy compound each in an amount equalling at least 1% by weight of the filled paste system
(e) curing the resin layer using a free radical initiator; and
(f) removing the thus formed mold from the three-dimensional master.

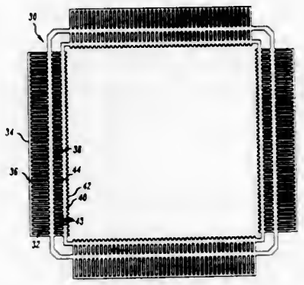
5,213,748

METHOD OF MOLDING A THERMOPLASTIC RING ONTO A LEADFRAME

Ranjit Biswas, Westford, and Michael A. Zimmerman, North Andover, both of Mass., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jun. 27, 1991, Ser. No. 722,069
Int. Cl.^{5} B29C *45/12*
U.S. Cl. 264—251 **3 Claims**

1. A method of forming a plastic member on a flat lead frame having a plurality of radially extending leads arranged side by side to form a ring where each lead has an outer end and an inner end, comprising the steps of
joining said leads together with a first dam member to provide a first flat continuous ring located between the outer ends and the inner ends of said radially extending leads,
joining said ring of leads together with a second dam member to provide a second flat continuous ring located between said first dam member and the inner ends of said radially extending leads, said first and second dam members dividing said leads into an outer section, an inner section and an intermediate section, and
forming a ring of liquid crystal anisotropic thermoplastic material by directing flow of said material on the intermediate section of the ring of radially extending leads inter-



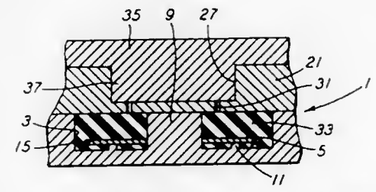
mediate said first dam member and said second dam member wherein said liquid crystal anisotropic thermoplastic material has a coefficient of thermal expansion in the direction of flow which is substantially similar to the coefficient of thermal expansion of a ceramic member adapted to be coupled to the inner ends of said leads, and said material has a coefficient of thermal expansion in the transverse direction which is not substantially similar to the coefficient of thermal expansion of the ceramic member adapted to be coupled to said leads, thereby preventing warping of the lead frame upon solidification of said thermoplastic material.

5,213,749

METHOD OF FORMING A RUBBER SEAL HAVING A METALLIC INSERT

Howard D. Huss, Westmoreland City; William G. Greenaway, North Huntington, and Lawrence R. Streitman, Pittsburgh, all of Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Jul. 31, 1991, Ser. No. 739,121
Int. Cl.^{5} B29C *33/12, 33/30, 45/02*
U.S. Cl. 264—275 **14 Claims**

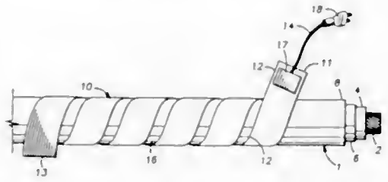


1. A method of forming a seal in the form of a rubber ring having a metallic insert embedded therein comprising:
(a) providing a transfer mold for a rubber composition, said transfer mold including a mold cavity with a base having a surface, and a cover, said base having a central post and a plurality of spaced arcuate bosses extending from said surface of said base circularly about said central post;
(b) disposing a metallic insert in said cavity of said transfer mold about said central post and seated on said plurality of spaced arcuate bosses, such that said metallic insert is

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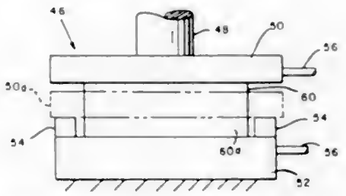
disposed in said transfer mold in a position spaced from said surface of said base;
(c) disposing a surface of an aperture centrally formed through said metallic insert in abutting engagement with an outer, circumferential surface of said central post;
(d) applying said cover to said transfer mold to seal said mold cavity;
(e) forcing a flowable rubber composition into said mold cavity of said transfer mold, which flowable rubber composition envelopes said metallic insert and is formed into a rubber ring having said metallic insert embedded therein;
(f) curing said rubber composition; and
(g) removing said rubber ring having said metallic insert embedded therein from said transfer mold cavity.

5,213,750
METHOD TO STRAIGHTEN CROSS LINKED POLYETHYLENE HIGH VOLTAGE POWER CABLE
Todd K. Knapp, Waukesha; Darren W. Martindill, Racine, and Paul M. Roscizewski, Eagle, all of Wis., assignors to Cooper Power Systems, Inc., Houston, Tex.
Filed Mar. 11, 1992, Ser. No. 849,259
Int. Cl.[5] B29C 53/02, 53/16
U.S. Cl. 264—280 11 Claims



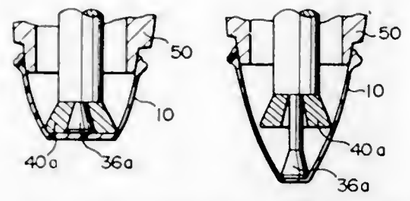
1. A method for forming cable having a rigid insulating layer enveloping an electrical conducting core into a desired shape, comprising the steps of:
wrapping a portion of the cable with a heater tape;
causing the tape to heat the cable portion, so that the insulating layer of that portion is heated to a temperature at which the insulating layer is malleable; and,
forming the conducting core and the insulating layer of the portion of the cable into the desired shape.

5,213,751
METHOD OF PRODUCING A FELTED POROUS POLYCHLOROPRENE LATEX FOAM
Betty R. Terry, Weston, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.
Filed Nov. 25, 1991, Ser. No. 797,676
Int. Cl.[5] B29C 67/20
U.S. Cl. 264—321 2 Claims



1. In a method of making a rechargeable inking member, the steps comprising:
a) producing a first inking layer by placing a layer of open cell polychloroprene latex foam in a press,
b) the first inking layer by reducing the volume of the first inking layer and subjecting it to a pressure of 11,000 to 13,000 lb/in^2, and heating the first inking layer to a temperature of 400°–425° F. for 5 to 10 minutes,
c) removing the first inking layer from the press, and
d) attaching the first inking layer to a second inking layer.

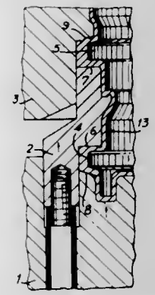
5,213,752
PROCESS OF STRETCH-BLOW MOLDING
Yoshiki Miyazawa, Ueda, and Yoshihiro Fukunishi, Komoro, both of Japan, assignors to Nissei ASB Machine Co., Ltd., Nagano, Japan
Division of Ser. No. 743,912, Aug. 12, 1991, Pat. No. 5,129,815. This application May 1, 1992, Ser. No. 877,246
Claims priority, application Japan, Aug. 14, 1990, 2-214762
Int. Cl.[5] B29C 49/12
U.S. Cl. 264—532 5 Claims



1. A stretch-blow molding process comprising the steps of:
moving a stretching rod having a tip piece to urge and stretch the inner bottom wall of a preform in the axial direction within a blow cavity mold; and
blowing a pressurized fluid into the interior of said preform to stretch the preform in the radial direction,
said axially stretching step being carried out through a plurality of sub-steps while changing the shape of the tip piece of said stretching rod thus changing the surface area of the tip piece of said stretching rod to vary the contact area of the tip piece engaging the inner bottom wall of said preform.

5,213,753
METHOD FOR COMPRESSION MOLDING FLANGES ON A BLOW MOLDED BODY TO BE SEVERED INTO A VESSEL AND LID
Dietmar Przytulla, Kerpen, Fed. Rep. of Germany, assignor to Mauser-Werke GmbH, Bruehl, Fed. Rep. of Germany
Continuation of Ser. No. 687,814, Apr. 19, 1991, abandoned, which is a division of Ser. No. 504,490, Apr. 4, 1990, Pat. No. 5,044,923. This application Sep. 15, 1992, Ser. No. 946,049
Claims priority, application Fed. Rep. of Germany, Apr. 21, 1989, 3913087
Int. Cl.[5] B29C 49/42, 49/72
U.S. Cl. 264—534 5 Claims

1. The method for producing a hollow body of synthetic material defining a vessel open at one end and an associated lid by means of blow molding, said method comprising the steps of:
a) molding the vessel and the associated lid simultaneously in one blow molding operation with said lid having a lower surface complementary in shape to the upper open end of the vessel for seating engagement thereon after being separated from the vessel and with a surface flange on the vessel and an annular flange on the lid disposed in spaced axial position along said hollow body;
b) forming said flanges by blow molding material into two annular recesses arranged in spaced axial position in a blow molding device, the blow molding device having two annular mold slides, one slide associated with one recess and the other associated with the other recess and compressively molding the material in the recesses by axially moving the two thereby moving the material within the two annular recesses in a direction extending axially of the hollow body; and



c) separating the lid from the vessel after formation of the flanges.

5,213,754
THERMOFORMING PROCESS FOR FORMING A SHEET OF POLYBUTYLENE TEREPHTHALATE INTO A TRANSPARENT CONTAINER
Kuniaki Kawaguchi; Toshio Nakane; Hiroaki Konuma; Yukihiko Kageyama, and Kenji Hijikata, all of Shizuoka, Japan, assignors to Polyplastics Co., Ltd., Osaka, Japan
Filed Mar. 26, 1991, Ser. No. 675,266
Claims priority, application Japan, Mar. 27, 1990, 2-77766
Int. Cl.[5] B29C 51/02, 51/42
U.S. Cl. 264—544 7 Claims

1. A process for producing a transparent polyester container, which comprises
melt-molding a copolyester resin comprising 75 to 98 molar % of repeating units of an ester of terephthalic acid with 1,4-butanediol with the balance mainly comprising repeating units of an ester of terephthalic acid with an alkylene oxide adduct of a bisphenol compound selected from the group consisting of an ethylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) sulfone, a propylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) sulfone, an ethylene oxide (2 mol) adduct of 2,2-bis(4-hydroxyphenyl)propane, a propylene oxide (2 mol) adduct of 2,2-bis(4-hydroxyphenyl)propane, an ethylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) sulfoxide, a propylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) sulfoxide, an ethylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) sulfide, a propylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) sulfide, an ethylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) ether, a propylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) ether, an ethylene oxide (2 mol) adduct of bis(4-hydroxyphenyl)methane, a propylene oxide (2 mol) adduct of bis(4-hydroxyphenyl)methane, an ethylene oxide (2 mol) adduct of 4,4'-diphenol, a propylene oxide (2 mol) adduct of 4,4'-diphenol, an ethylene oxide (2 mol) adduct of bis(4-hydroxyphenyl)alkane, a propylene oxide (2 mol) adduct of bis(4-hydroxyphenylalkane, an ethylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) ketone and a propylene oxide (2 mol) adduct of bis(4-hydroxyphenyl) ketone,
rapidly cooling the molding to prepare a sheet having a low crystallinity,
maturing the sheet at a temperature selected so as to meet a requirement represented by the following formula (1) to prepare a sheet satisfying a requirement represented by the following formula (2), and
subjecting the sheet to thermoforming through the use of a cavity mold at a temperature falling within a range represented by the following formula (3):

$Ta \leqq Tcc$	(°C.)	(1)
$(\Delta Hcc)_a \geqq 5$	(J/g)	(2)
$Tcc + 2 \leqq Tb \leqq Tm - 2$	(°C.)	(3)

wherein Ta is the maturing temperature (°C.),
Tb is the cavity mold temperature (°C.),
Tcc is the cold crystallization temperature (°C.) of the resin as measured at a temperature rise rate of 10° C./min by differential thermal analysis according to JIS K7121,
Tm is the melting point (°C.) of the resin as measured at a temperature rise rate of 10° C./min by differential thermal analysis according to JIS K7121, and
$(\Delta Hcc)_a$ is the quantity of heat (J/g) of cold crystallization of the sheet after maturing as measured at a temperature rise rate of 10° C./min by differential thermal analysis according to JIS S K7121.

5,213,755
LOW PRESSURE COOLANT INJECTION MODIFICATION FOR BOILING WATER REACTORS
David M. Kelly; Lawrence L. Chi, both of Freemont; Charles H. Stoll, Pleasanton, and Gary L. Sozzi, Saratoga, all of Calif., assignors to General Electric Company, San Jose, Calif.
Filed Apr. 1, 1991, Ser. No. 678,384
Int. Cl.[5] G21C 7/32
U.S. Cl. 376—210 20 Claims

1. A low pressure coolant injection system for a nuclear power facility of a variety having a boiling water reactor having a reactor core with normal operating pressure, first and second recirculation loops including respective first and second recirculation pumps and actuable discharge valves, a suppression pool water source, a condensate storage tank, and a safety system responsive to a loss-of-coolant accident to generate a safety output, comprising:
first and second low pressure coolant injection pumps having suction inputs and discharge outputs and actuable to pump water;
supply conduit means for coupling said suction inputs of said first and second low pressure coolant injection pumps in fluid flow communication with said suppression pool;
first and second coolant injection conduits coupled with respective said discharge outputs of said first and second low pressure coolant injection pumps and to respective said first and second recirculation loops;
first and second hydraulic resistance means within respective said first and second coolant injection conduits for restricting the flow of water coolant therein to a predetermined fluid rate selected to deliver a predetermined quantity of water coolant to each said first and second recirculation loops, said flow rate being selected as effective for carrying out the emergency cooling of said reactor core from one said coolant injection conduit; and
control means responsive to said safety output for actuating said first and second low pressure coolant injection pumps.

5,213,756
BOILING WATER REACTOR WITH EXPANDED CORE DIAMETER
Larry E. Fennern, San Jose, Calif., assignor to General Electric Company, San Jose, Calif.
Filed May 1, 1991, Ser. No. 694,526
Int. Cl.[5] G21C 7/00
U.S. Cl. 376—219 27 Claims

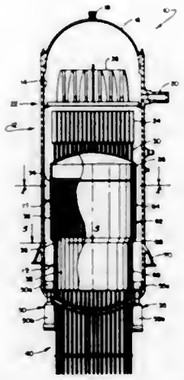
1. A power reactor comprising:
an upstanding reactor vessel having an internal surface of generally cylindrical configuration and of predetermined inner diameter;
steam treating means within a generally upwardly disposed region of said vessel for providing steam-water separation;

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a plurality of coolant recirculation pumps having impellers mounted within a lower portion of said reactor vessel within an annulus shaped region adjacent said vessel internal surface;

a reactor core exhibiting a predetermined core circumferential diameter located within said vessel, including a predetermined number of internally and peripherally disposed fuel assemblies incorporating fuel rods of predetermined active fuel length and power density;

a control rod guide assemblage including a plurality of control rod guides positioned within said vessel adjacent said reactor core and inwardly of said annulus shaped region;



a plurality of control rods, each movable from within a said control rod guide to a select location intermediate adjacent said fuel assemblies;

a shroud positioned within said reactor vessel, having a cylindrical core region portion located to extend at least partially over said annulus shaped region, surrounding said reactor core and spaced with said core from said vessel internal surface a substantially minimum distance avoiding neutron fluence induced vessel embrittlement and providing a core region coolant return; and

drive means coupled with said control rods for effecting said movement thereof.

5,213,757

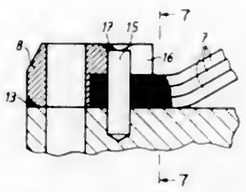
METHOD FOR FIXING A SPRING PACKAGE TO A TOP NOZZLE IN A FUEL ASSEMBLY OF A NUCLEAR POWER REACTOR

Lennart Öhman, Västerås, Sweden, assignor to ABB Atom AB, Västerås, Sweden

Filed Apr. 6, 1992, Ser. No. 863,566

Int. Cl.[5] G21C *3/32*

U.S. Cl. 376—261 **6 Claims**



1. A method of fixing a spring package to a top nozzle of a fuel assembly of a nuclear reactor so as to press the fuel assembly against the bottom of the reactor core of the nuclear reactor, the fuel assembly including fuel rods, guide tubes and spacers arranged in a bundle between a top nozzle and a bottom nozzle, the method including the steps of:

(a) welding a clamp to the top nozzle,

(b) milling out a T-shaped slot in the clamp for receiving one end of the spring package with a close fit,

(c) inserting said one end of the spring package into the slot, and

(d) fixing said one end of the spring package in the slot with a locking pin such that all moment forces from the spring package are taken up by the clamp and no moment forces are applied to the locking pin.

5,213,758

METHOD AND APPARATUS FOR TREATING MEDICAL WASTES

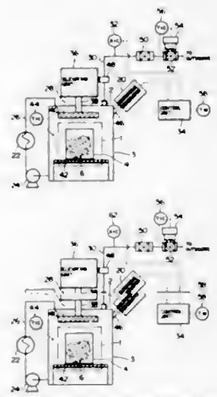
Norihiro Kawashima, Akashi; Takashi Kameda, Kobe; Shigenori Katsuoka, Kobe; Koichi Noma, Kobe; Elkichi Tajima, Kobe, and Hidehumi Ikegami, Asaka, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed Apr. 26, 1991, Ser. No. 691,818

Claims priority, application Japan, Apr. 27, 1990, 2-113655; Jul. 9, 1990, 2-181093

Int. Cl.[5] A61L *2/12, 2/24*

U.S. Cl. 422—21 **9 Claims**



7. An apparatus for treating medical implements waste comprising:

a closed apparatus body provided with an open-close door and an exhaust port;

a medical implements waste container disposed in said closed apparatus body;

a microwave generator connected to said closed apparatus body for applying microwaves to said medical implements waste container;

a heated air circulating line whose ends are connected to said closed apparatus body and having a heater and a circulating blower, both of which are provided for heating said medical implements waste container;

a compression device for compressing said medical implements waste container containing the medical implements waste so as to reduce the volume thereof;

a combustible gas concentration-indicating controller or a combustible gas concentration controller provided on an exhaust gas conduit connected to said exhaust port; and

a control unit connected to said combustible gas concentration-indicating controller or said combustible gas concentration controller and said microwave generator so as to control said microwave generator on the basis of the concentration of combustible gases.

5,213,759

STERILIZATION

Helge B. Castberg, Kolbotn, Norway, and Nigel A. Chant, Stotfold, United Kingdom, assignors to Elopak Systems A.G., Glattbrugg, Switzerland

Continuation of Ser. No. 347,739, May 5, 1989, abandoned. This application Jan. 18, 1991, Ser. No. 644,116

Claims priority, application United Kingdom, May 5, 1988, 8810603

Int. Cl.[5] A61L *2/10, 2/20*

U.S. Cl. 422—24 **17 Claims**

1. A method of sterilisation which comprises subjecting micro-organisms at a surface of packaging material, which surface will be brought into contact with product to be packaged, to UV radiation through an atmosphere in contact with said micro-organisms and comprised substantially wholly of inert gas, which inert gas is a gas or a mixture of gasses which is not substantially degraded by exposure to UV radiation of bactericidal intensity, so as to obtain a synergistic effect between the UV radiation and said atmosphere and to render the micro-organisms non-viable, said micro-organisms being subjected to said radiation before said surface of said packaging material is brought into contact with said product.

5,213,760

OVERWORN LENS SIGNALING METHODOLOGY

Anthony J. Dziabo, Jr., El Toro, and Paul S. Ripley, Irvine, both of Calif., assignors to Allergan, Inc., Irvine, Calif.

Filed Feb. 19, 1992, Ser. No. 838,122

Int. Cl.[5] A61L *2/16*

U.S. Cl. 422—37 **14 Claims**

1. A method for facilitating the determination as to when a contact lens is approaching or has passed the estimated lifetime of the lens, the method comprising:

adding an effective amount of a tint to the lens to thereby form a tinted lens, the effective amount being such that after periodically contacting the lens with a predetermined solution within a time period approaching the estimated lifetime of the lens, a change in the color of the tinted lens is detected;

detecting the color of the tinted lens;

contacting the tinted lens with the predetermined solution; and

detecting after contact with the solution the color of the tinted lens.

5,213,761

AUTOMATIC CHEMICAL ANALYZER HAVING AN IMPROVED DELIVERY MECHANISM

Toshio Sakagami, Chofu, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 9, 1990, Ser. No. 506,077

Claims priority, application Japan, Apr. 12, 1989, 1-90543; Apr. 12, 1989, 1-90544

Int. Cl.[5] G01N *35/04*

U.S. Cl. 422—63 **13 Claims**

1. In an automatic chemical analyzer including a plurality of sample vessels, a plurality of reaction vessels, and a plurality of reagent bottles, a sample holding means for holding said plurality of sample vessels in which a plurality of samples to be analyzed are contained, a reaction vessel holding means for holding said plurality of reaction vessels along a reaction line, a sample delivery means for delivering the samples held in the sample vessels in the sample holding means into the reaction vessels on the reaction line, a reagent holding means for holding said plurality of reagent bottles which contain a plurality of different kinds of reagents, a reagent delivery means for delivering the reagents into the reaction vessels on the reaction line, and a measuring means for measuring substances contained in a reaction liquid which is a mixture of a sample and at least one reagent and is contained in a reaction vessel, the improvement wherein said delivery means comprises

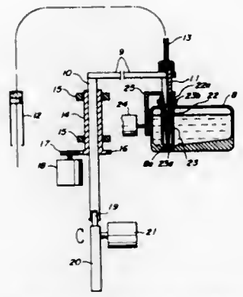
a delivery nozzle;

a pump means connected to said delivery nozzle for sucking and discharging reagents;

a plurality of detachable probes which are constructed to be detachably coupled with a tip of said delivery nozzle;

a plurality of probe holding members each of which is contained in one of said reagent bottles and holds one of said detachable probes when said probe is not in use, said probes being returned to said probe holding members after use;

a delivery nozzle moving means for moving the delivery nozzle between two positions, a first position at which the tip of the delivery nozzle can be coupled with a probe held in a probe holding member contained in a reaction bottle which contains a reagent to be delivered into a reagent vessel and a given amount of the reagent is sucked into the probe by operating said pump means, and a second position at which the probe is situated above the reaction



vessel and the sucked reagent is discharged into the reaction vessel by operating said pump means; and

a probe removing means for removing the probe from the tip of the delivery nozzle into the probe holding member from which the probe has been removed;

wherein the detachable probe has a tube-like main body having upper and lower openings and a flange formed at an upper edge of the main body, and

said probe holding member has a tube-like main body having upper and lower openings and a flange formed at an upper end of the main body, the flange of the probe being placed on the flange of the probe holding member, the length of the probe holding member being such that a tip of the tube-like main body is situated slightly above the bottom wall of the container,

said probe and probe holding member being so constructed that a lower end of the probe protrudes from the lower opening of the probe holding member when the probe is set in the probe holding member.

5,213,762

AUTOMATIC CHEMISTRY ANALYZER

Samuel G. Ricchio, Fullerton; Delbert D. Jackson, Placentia; Stephen F. Barker, La Mirada; Edmund E. Buzza, Fullerton; Frank R. Shu, La Habra Heights, and John E. Stone, Riverside, all of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Continuation of Ser. No. 322,807, Mar. 13, 1989, Pat. No. 5,130,095. This application Apr. 2, 1992, Ser. No. 862,428

The portion of the term of this patent subsequent to Jul. 14, 2009, has been disclaimed.

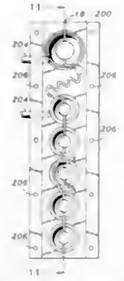
Int. Cl.[5] G01N *27/403, 35/08*

U.S. Cl. 422—63 **14 Claims**

1. An automatic chemistry analyzer for measurement of electrolytes in a fluid comprising an instrument housing, a flow cell in the housing, the housing having panels and the panels being for selective opening relative to the housing, the panels

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forming at least part of an enclosing housing, and means for passing fluid through the flow cell between an injection cell and a drain, the flow cell being mounted in the housing for visibility when the panels are opened from an enclosing position with the housing, a substantial length of a fluid flow path through the flow cell being visible on opening of the panels, the flow path being essentially vertical, the flow cell including electrodes, and the electrodes being removably located in the cell in a position removed from the side of the panels.

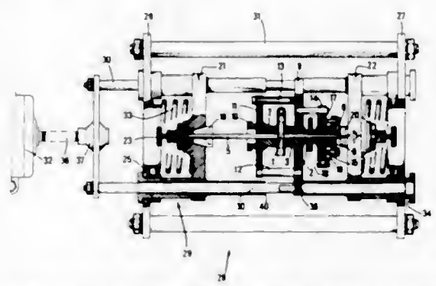


5,213,763

DEVICE AND METHOD FOR TRANSFERRING A FLUID SAMPLE BETWEEN TWO CHAMBERS AND APPLICATION IN PARTICULAR TO GAS CHROMATOGRAPHY

Alain Richecoeur, Rueil Malmaison; Annick Pucci, Croissy sur Seine; Joseph Larue, Chambourcy, and José Sanchez, Saint Martin du Tertre, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Oct. 10, 1990, Ser. No. 594,978
Claims priority, application France, Oct. 10, 1989, 89 13262
Int. Cl.[5] G01N *1/10*
U.S. Cl. 422—100 15 Claims



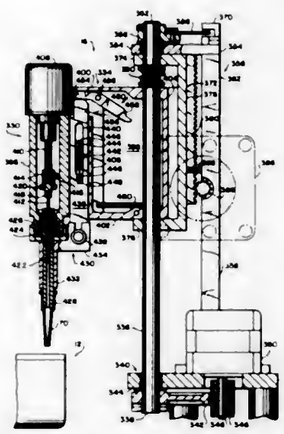
1. A device for transferring a fluid sample from a first chamber to a second chamber, separated from the first chamber, said device comprising a first rod and a second rod, each rod having a lengthwise axis, the lengthwise axis of each rod being arranged coaxially with the other, an outer cylindrical wall of the first rod and an outer cylindrical wall of the second rod each being arranged to cooperate with a central circumferential sealing element in order to provide a seal between the first chamber and the second chamber, said rods being displaceable coaxially in a direction along a common axis relative to said chambers and relative to each other, at least said first rod having an end portion, which has an open cavity formed therein, said end portion being arranged to cooperate with an end portion of the second rod to close said cavity when the end portions contact each other, the first rod and the second rod each having outer cylindrical walls with the same dimensions, displacement means for moving the two rods together to form the closed cavity and to move the closed cavity between the first chamber and the second chamber, means for opening said closed cavity in said first chamber or in said second chamber, respectively, and means for closing the open cavity when a sample is to be transferred from the first chamber to the second chamber via said closed cavity.

5,213,764

METERING DEVICE FOR SLIDE ANALYSIS SYSTEM

Alexander F. Kerr, Yorktown; Edwin H. Mernyk, North Tarrytown, both of N.Y.; George E. Zabetakis, Bethel, Conn.; Uri Escoli, Teaneck, N.J.; Georges Revillet, Onex, and Andre Nicole, Choulex, both of Switzerland, assignors to Miles Inc., Tarrytown, N.Y.

Filed May 15, 1991, Ser. No. 700,240
Int. Cl.[5] B01L *3/02*
U.S. Cl. 422—100 7 Claims



1. A depositing device for depositing fluid onto a slide comprising,

(a) a dispenser housing including a tubular member having an end portion extending from said housing,

(b) a frame joined to said dispenser housing,

(c) a pipette tip detachably secured to the end portion of said tubular member,

(d) means cooperable with said tubular member for drawing fluid into said pipette tip and for expelling the drawn in fluid from said pipette tip,

(e) means for raising and lowering said dispenser housing,

(f) means for swivelling said dispenser housing to selectable predetermined angular positions with respect to a central axis, and

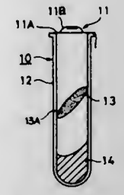
(g) pipette tip ejector means on said dispenser housing engageable with said pipette tip for separating said pipette tip from the end portion of said tubular member, including a movable member movable with said frame and said dispenser housing to a first limit position, said movable member being movable in a first direction with respect to said frame and said dispenser housing after said frame moves from said first limit position to a second limit position, and wherein said movable member urges said pipette tip away from the end portion of said tubular member responsive to movement of said frame from said first limit position to said second limit position.

5,213,765

BLOOD COLLECTION TUBE

Masaaki Kasai, and Sakae Yamazaki, both of Yamanashi, Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 26, 1991, Ser. No. 691,855
Claims priority, application Japan, Apr. 27, 1990, 2-110401
Int. Cl.[5] B01D *21/26*
U.S. Cl. 422—101 4 Claims



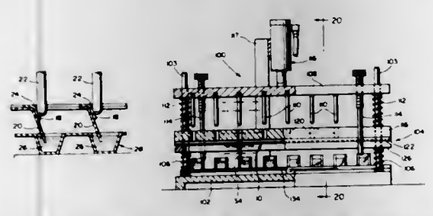
1. A blood collection tube comprising a tube having a bottom and an open end that is hermetically sealed by a plug, and a supporting film positioned in the tube, said supporting film having an anticoagulant coated thereon to define an anticoagulant-coated surface, the anticoagulant-coated surface of said supporting film having a large number of fine convexes and said anticoagulant containing a surfactant, said large number of said fine convexes being made such that 2~500 convexes having a height of 0.2 μm or more exist per a length of 1 mm of the film, and wherein 0.2~1 wt % of said surfactant is contained in said anticoagulant.

5,213,766

LIQUID COLLECTING APPARATUS FOR SAMPLE TESTING

Robert W. Flesher, Baltimore, and Kevin J. Barnes, Uniontown, both of Md., assignors to Apogee Designs, Ltd., Baltimore, Md.

Filed Apr. 30, 1991, Ser. No. 693,654
Int. Cl.[5] G01N *1/10*
U.S. Cl. 422—102 23 Claims



1. A device for batch-wise collecting of discrete quantities of liquid comprising a substantially planar sheet having an array of openings therein defining a plurality of discrete finger elements, each finger element constructed and arranged to be resiliently deflectable out of the plane of the sheet for dipping at least a tip portion of the finger element into a liquid container for collecting a quantity of liquid in at least the tip portion, and said finger elements when released being constructed and arranged to return substantially into the plane of the sheet for retention of the liquid.

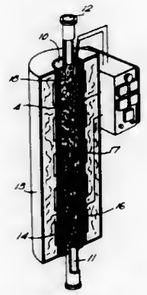
21. Apparatus for collecting a batch of liquid samples comprising a sheet having an array of resiliently deflectable liquid collection fingers, a base receiving liquid container means, a holder for supporting said sheet, mounting means for mounting the holder above the liquid container means, a platen with an array of depending pins corresponding to the fingers in the sheet, further mounting means for mounting the platen for vertical reciprocation above the holder, and means for providing vertical reciprocation of the platen causing the pins on a downstroke of the platen to engage respective fingers of a sheet in the holder and deflect the fingers downwardly for dipping into liquid in the container means, further causing the pins on an upstroke of the platen to release the fingers back into the plane of the sheet.

5,213,767

DRY EXHAUST GAS CONDITIONING

James R. Smith, and Peter L. Timms, both of Bristol, United Kingdom, assignors to BOC Limited, Surrey, England

PCT No. PCT/GB89/00600, § 371 Date Dec. 3, 1990, § 102(e) Date Dec. 3, 1990, PCT Pub. No. WO89/11905, PCT Pub. Date Dec. 14, 1989
PCT Filed May 31, 1989, Ser. No. 613,572
Claims priority, application United Kingdom, Jun. 4, 1988, 8813270
Int. Cl.[5] B01D *53/00, 53/34*
U.S. Cl. 422—177 19 Claims



1. A gas treatment method for use in connection with processes of etching semiconductor devices or of plasma enhanced chemical vapor deposition onto semiconductor materials, the gas treatment method comprising exposing exhaust gases of the processes to first and second active chemical components while heating the first and second active chemical components, wherein the exhaust gases contain at least one component selected from a group consisting of chlorine, silicon tetrachloride, copper chloride, aluminum chloride, silicon tetrafluoride, trifluoromethane, carbonyl fluoride, carbonyl chloride, boron trichloride, boron tribromide, hydrogen chloride, carbon tetrachloride, chloro-fluoro carbon gases, silane, dichlorosilane, tetraethylorthosilicate, diborane, trimethyl borate, phosphine, trimethyl phosphite, and arsine, wherein the first active chemical component is silicon or a silicon-rich alloy or a silicon rich substance and wherein the second active chemical component is calcium oxide, a calcium oxide containing material, or a soda lime containing medium.

5,213,768

FLUIDIZED BED APPARATUS AND PROCESS FOR FEEDING GAS TO A FLUIDIZED BED APPARATUS

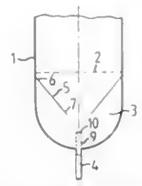
Jean A. Maurel, Marseille; Frederic R. M. M. Morterol, Sausset-les-Pins, and Charles Raufast, Saint Julien les Martigues, all of France, assignors to BP Chemicals Ltd., London, England

Continuation of Ser. No. 471,702, Jan. 29, 1990, abandoned, which is a continuation of Ser. No. 212,271, Jun. 27, 1988, abandoned. This application Apr. 7, 1992, Ser. No. 866,101
Claims priority, application France, Jun. 30, 1987, 87 09354
Int. Cl.[5] C08F *2/14;* B01J *8/00;* F27B *15/08*
U.S. Cl. 422—131 18 Claims

9. A process for feeding fluidizing gas to a fluidized bed in an apparatus comprising a vessel having a transverse section of area S_1, a fluidization grid which divides the interior of said vessel into an upper chamber portion which spans across and contains a fluidized bed and a lower gas entry chamber with a

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tuyere of upwardly increasing interior size within said chamber and below said fluidizing grid, said lower gas entry chamber being free of a fluidization grid and said tuyere partitioning said gas entry chamber so as to provide a first portion of said gas entry chamber inside of said tuyere and a second portion of said gas entry chamber outside of said tuyere, said tuyere guiding fluidizing gas interiorly thereof to the fluidization grid from said second portion of said gas entry chamber, said tuyere being disposed with its wider open end adjacent said fluidization grid and its narrower open end farther from said fluidization grid than said wider open end thereof, the process comprising feeding the fluidizing gas through a fluidizing gas delivery pipe opening into said second portion of said gas entry chamber below the wider end of said tuyere and wherein said fluidizing gas is fed from said second portion of said gas entry chamber into said narrower open end of said tuyere, said wider end of which has an area S_2 and said narrower end of which has an area S_3, the area S_2 being substantially the same as the area S_1 and the ratio S_2/S_3 being from 2 to 30 and said tuyere being free of a solids bed permitting the free flow of gas from said narrower open end to said fluidization grid.

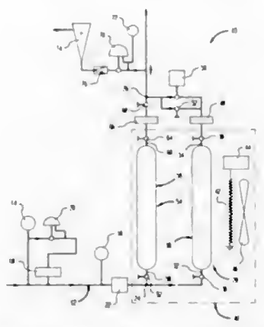


5,213,769

MIXTURE FORMING METHOD AND APPARATUS

Walter H. Whitlock, 303 Forbush Mountain Dr., Chapel Hill, N.C. 27514

Filed Oct. 30, 1991, Ser. No. 784,826
Int. Cl.[5] B01J *8/02*; G01N *31/00*; G01C *17/38*
U.S. Cl. 422—212 17 Claims



1. A method of forming a mixture of a carrier fluid and a target component, the mixture containing a regulated concentration of the target component within the carrier fluid, said method comprising:

passing the carrier fluid through a bed including, a compound and a vapor phase of the target component, the compound having two phases, at least one of the two phases containing the target component, the vapor phase of the target component existing within the bed in equilibrium with the target component contained within the at least one of the two phases, and the vapor phase having a partial pressure dependent upon bed temperature;

the carrier fluid being passed through the bed so that upon flowing from the bed, the carrier fluid contains the target component at essentially the partial pressure of the vapor phase and at a concentration dependent upon a quotient of the partial pressure of the vapor phase and carrier fluid total pressure; and

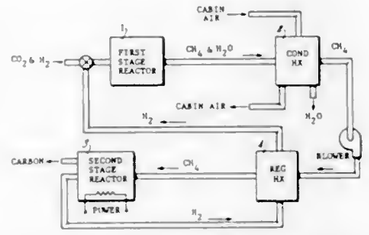
regulating the bed temperature and the carrier fluid total pressure so that the concentration of the target component is the regulated concentration and thus, the mixture of target component and carrier fluid is formed upon their flowing from the bed.

5,213,770

METHANE CONVERSION REACTOR

Gary P. Noyes, Broad Brook, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Continuation of Ser. No. 276,590, Nov. 28, 1988, abandoned, which is a division of Ser. No. 128,370, Dec. 3, 1987, Pat. No. 4,836,898. This application Jun. 25, 1990, Ser. No. 542,667
Int. Cl.[5] C10L *3/08*
U.S. Cl. 422—211 5 Claims



1. A methane conversion reactor comprising a high temperature reactor vessel, a means for heating the high temperature reactor vessel, a means for introducing methane into the reactor and a means for exiting resulting gases from the reactor vessel, wherein the improvement comprises a packing of high temperature metal catalyst coated glass fiber material positioned within the reactor vessel wherein said metal catalyst coated glass fiber material is capable of catalytically decomposing methane to produce carbon at temperatures between 750° C.–850° C. with a conversion efficiency of about 80%.

5,213,771

GAS INJECTOR FOR HYPOCHLOROUS ACID REACTOR

Garland E. Hilliard; James K. Melton, and John Shaffer, all of Cleveland, Tenn., assignors to Olin Corporation, Cheshire, Conn.

Filed Oct. 31, 1988, Ser. No. 264,934
Int. Cl.[5] B01F *3/04*
U.S. Cl. 422—224 17 Claims

1. A reactor for the production of a hypohalogenated acid and a solid by-product alkali metal halide salt from the mixing and reaction of an alkali metal hydroxide and a gaseous halogen comprising in combination:

a. an elongated, generally vertically extending reactor vessel having a top and an opposing bottom, and a central axis therebetween;

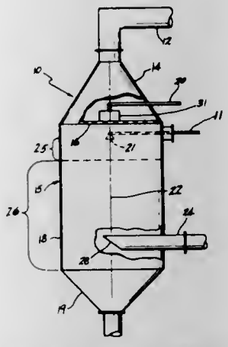
b. gas recirculation means connected to an inlet at the top of the reaction vessel to recirculate at least gaseous halogen back into the top of the reactor;

c. a halogen infeed line connected to the reactor vessel below the gas recirculation means inlet to supply fresh gaseous halogen in a generally downwardly flow direction to the reactor.

d. a halogen infeed injector connected to the halogen infeed line, the infeed injector being open-bottomed to contain and direct the fresh gaseous halogen generally downwardly upon exit from the halogen infeed line;

e. flow directing means for creating a straight flow path for the recirculated gaseous halogen and the fresh gaseous halogen infeed beneath the gas recirculation means inlet connected to and inside the vessel and in flow communication with the gaseous halogen infeed injector effective to direct the gaseous halogen from the top to the opposing bottom;

f. infeed means mounted to the reactor vessel below the flow directing means and beneath the halogen infeed injector for spraying alkali metal hydroxide droplets into the vessel;



g. a spraying and reaction zone beneath the infeed means into which the alkali metal hydroxide is sprayed and reacts with a gaseous halogen to form reaction products including hypohalogenated acid;

h. a drying zone beneath the spraying and reaction zone to dry the reaction products; and

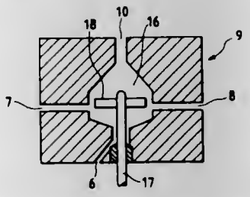
i. outlet means below the drying zone for outletting gaseous halogen and product from the reactor vessel.

5,213,772

APPARATUS FOR FORMING SILVER HALIDE GRAINS

Yasunori Ichikawa; Hiroshi Ohnishi; Shigeharu Urabe; Akira Kojima, and Akira Katoh, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 21, 1989, Ser. No. 454,611
Claims priority, application Japan, Dec. 22, 1988, 63-322169
Int. Cl.[5] C30B *7/14*
U.S. Cl. 422—245 3 Claims



1. An apparatus for forming silver halide grains comprising:

a reaction vessel for causing a nucleus formation and a crystal growth of silver halide grains;

a mixer disposed outside of the reaction vessel and having a high-speed stirrer;

means for supplying an aqueous solution of a water-soluble silver salt, an aqueous solution of a water-soluble halide, and an aqueous protective colloid solution to the mixer while controlling the rotational speed of the high-speed stirrer of the mixer to form fine silver halide grains; and

a conduit for connecting the mixer to the reaction vessel for immediately supplying the fine grains in the mixer to the reaction vessel, wherein said means for supplying the aqueous protective colloid solution to the mixer includes a first inlet conduit that is directed onto one of a rotary axis of the high-speed stirrer and an extension line of the rotary axis,

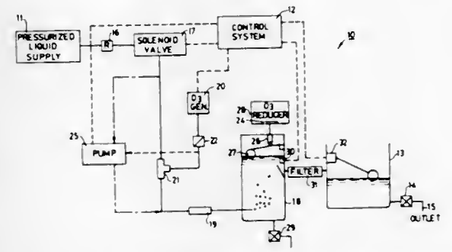
further wherein said means for supplying the aqueous silver salt solution and the aqueous halide solution to the mixer includes second and third inlet conduits disposed at opposite sides of the mixer with respect to each other, with the rotary axis of the high-speed stirrer extending between the second and third inlet conduits.

5,213,773

TREATMENT OF LIQUID ON DEMAND

William A. Burris, 7 E. Jefferson Circle, Pittsford, N.Y. 14534

Continuation-in-part of Ser. No. 670,690, Mar. 18, 1991, which is a continuation-in-part of Ser. No. 575,622, Aug. 31, 1990, Pat. No. 5,082,558. This application Mar. 10, 1992, Ser. No. 848,835
The portion of the term of this patent subsequent to May 4, 2010, has been disclaimed.
Int. Cl.[5] B01D *11/04*
U.S. Cl. 422—256 45 Claims



1. A liquid treatment system connected to a pressurized source of untreated liquid to provide treated liquid on demand, said system using a generator that makes an ozone containing gas and comprising a pressurized source of untreated liquid and a generator that makes an ozone containing gas, said system further comprising:

a. a valved liquid passageway for conducting said liquid from said source through said system to an outflow via a contact region;

b. a pumping system for causing said ozone containing gas to flow from said generator into said contact region; said pumping system and said passageway leading to said contact region being sized to determine the flow rates of said ozone containing gas and said liquid into said contact region

c. a containment system arranged for containing said liquid downstream of said contact region at a liquid pressure lower than the pressure of said source;

d. a control system arranged for operating said generator, said pumping system, and said valved liquid passageway during each treatment cycle to deliver said untreated liquid and said ozone containing gas to said contact region and to deliver treated liquid to an output from said liquid treatment system; said control system being operable automatically to initiate said treatment cycle in response to a demand event indicating a demand for treated liquid; said control system being arranged to operate during each treatment cycle compatibly with a predetermined one of a plurality of said outflows of treated liquid from said treatment system, said outflows including gravity outflow in response to opening said output valve from said treated liquid reservoir, passive outflow in response to opening an inflow valve under control of said control system so that liquid inflow causes outflow of said treated liquid, and active outflow in response to actuating a pump controlled by said control system to cause outflow of said treated liquid.

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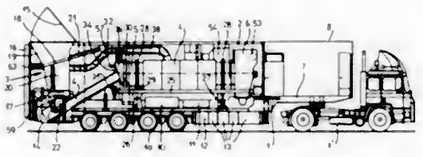
e. a demand switch arranged in communication with said control system to provide said demand event by changing state in response to a manually activated system operable in a predetermined one of a pair of direct and indirect configurations, said direct configuration comprising arrangement of said manually activated system for directly operating said demand switch, and said indirect configuration comprising arrangement of said manually activated system for operating an output valve for drawing treated liquid from a treated liquid reservoir, the liquid level of which controls the state of said demand switch.

5,213,774

MOBILE DISINFECTION APPARATUS ESPECIALLY FOR INFECTIOUS WASTE

Hans Noetzel, Hanover, Fed. Rep. of Germany, assignor to Deutsche Babcock Anlagen GmbH, Krefeld, Fed. Rep. of Germany

Filed Sep. 10, 1991, Ser. No. 757,475
Claims priority, application Fed. Rep. of Germany, Sep. 13, 1990, 9013046[U]
Int. Cl.[5] B01J *8/04*; A61L *2/00*; B01H *1/00*
U.S. Cl. 422—292 20 Claims



1. A mobile disinfection apparatus for infectious waste, comprising:

a mobile support bed;

a charging shaft on said bed, said charging shaft having an inlet for infectious waste at an upper portion thereof, an outlet for comminuted waste at a lower portion thereof, comminuting means between said upper and lower portions for comminuting said waste, and a gas inlet for introducing a sterilizing gas for disinfection communicating with said shaft above said comminuting means;

an upwardly inclined worm conveyor on said bed connected at a lower end with said outlet of said shaft;

an elongated rotary tube reactor having an entrance and an exit end opposite one another, the rotary tube reactor being positioned on said bed communicating at said entrance end of said rotary tube reactor with an upper end of said worm conveyor for receiving comminuted waste therefrom, said rotary tube reactor being formed internally with lifting scoops raising said comminuted waste in said rotary tube reactor and causing the comminuted waste therein to fall as said rotary tube reactor is rotated, and a means for contacting said waste with a sterilizing gas as said waste is caused by rotation and by said lifting scoops to move along said reactor toward said exit end thereof; and

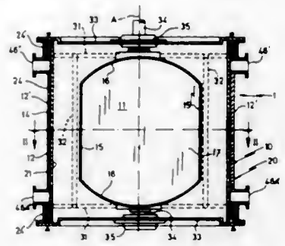
a closed discharge housing on said bed at said opposite end of said rotary tube reactor, communicating with said rotary tube reactor to collect sterilized waste therefrom, and formed with a discharge device for discharging sterilized waste collected in said housing and with a suction duct for withdrawing the sterilizing gas from said housing, whereby said sterilizing gas is drawn through said shaft, said conveyor, said rotary tube reactor and said housing.

5,213,775

DEVICE FOR PASSING OBJECTS BETWEEN TWO ENVIRONMENTS SEPARATED FROM EACH OTHER UNDER SEALED CONDITIONS, IN PARTICULAR FOR STERILIZATION OR PASTEURIZATION PLANTS

Ermes Ghiretti, Parma, Italy, assignor to Dall'Argine & Ghiretti S.r.l., Stradella di Collecchio, Italy

Filed Jun. 19, 1991, Ser. No. 717,519
Claims priority, application Italy, Jun. 21, 1990, 46854 A/90
Int. Cl.[5] B65G *35/00*
U.S. Cl. 422—295 9 Claims



1. A device for passing objects between two environments separated from each other under sealed conditions, in particular for sterilization or pasteurization plants, comprising:

a fixed hollow outer casing (20) provided with a concave surface (21) of revolution about a central A and also provided, for the passage of objects, with two apertures (22') and (22'') each communicating with a respective environment;

inside said fixed hollow outer casing (20), an internal structure (10) rotatable about said central axis (A) and in sealed engagement with the concave surface (21) of the fixed hollow outer casing (20), and provided with at least one chamber (11), having a mouth (13), to contain the objects and opening into a convex surface (12) of said internal structure (10);

said internal structure (10), in whichever angular position it lies, closing the communication between the two apertures (22') and (22'') of the fixed hollow outer casing (20);

said chamber (11) facing only one of said apertures (22') and (22'') at a time following rotation of the internal structure (10), said chamber when in intermediate angular positions between said apertures (22') and (22'') being closed by a respective first and second intermediate portion (21'), (21'') of concave surface (21) of the fixed hollow outer casing (20), and said two apertures (22') and (22'') being closed by the convex surface (12) of the internal structure (10),

means being provided for reproducing in the chamber (11), when this is in said intermediate positions, the same environmental conditions as the environment toward which the chamber (11) is directed,

and gasket means (31, 32) being provided for achieving a hermetic seal between the convex surface (12) of the internal structure (10) and the concave surface (21) of the fixed hollow outer casing (20).

5,213,776

STERILIZER FOR INFANT ACCESSORIES

Daniel A. Maniero, Reedsburg, and Duane Gerke, North Freedom, both of Wis., assignors to Gerber Products Company, Fremont, Mich.

Filed Sep. 12, 1989, Ser. No. 406,319
Int. Cl.[5] A61L *2/00*; H05B *6/64*
U.S. Cl. 422—303 40 Claims

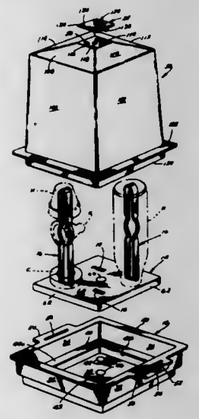
33. A sterilizer assembly especially adapted for use with microwave ovens to sterilize infant accessories such as baby bottles and parts thereof, said assembly being formed from heat resistant, microwavable material comprising:

a base having upstanding sides defining a receptacle for holding a quantity of water;

a rack for supporting items to be sterilized above the water, said rack including a plurality of apertures extending therethrough at spaced locations;

a plurality of upstanding supports for supporting and locating items such as baby bottles or nipple hoods on said rack, each of said supports being mounted on said rack over and in alignment with one of said apertures;

each of said upstanding supports including an upper portion spaced above said rack a distance greater than the length of a baby bottle to be suspended thereby, said upper portion engaging the interior of the bottom of an item such as a bottle or nipple hood and suspending the item above said



aperture with an open end of the item opening downwardly toward and aligned with said aperture but spaced above said aperture and spaced from other supporting structure therebelow to allow steam to circulate both internally and externally of the bottle or nipple hood and to allow any condensed water to drain from the bottle or nipple hood;

said rack being substantially imperforate except for said apertures; said apertures allowing steam to pass through said rack to the bottles or nipple hoods in alignment therewith;

a hood removably supported on said base and enclosing said rack, said upstanding supports and any items thereon whereby said assembly simultaneously supports multiple types of infant accessories during sterilization.

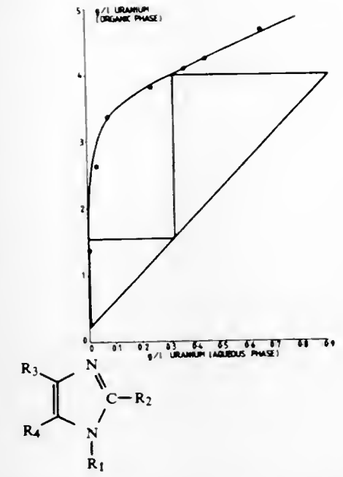
5,213,777

PROCESS FOR THE RECOVERY OF METALS

Raymond F. Dalton, Cheadle Hulme, United Kingdom, assignor to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 585,277, Sep. 13, 1990, abandoned, which is a continuation of Ser. No. 443,052, Nov. 28, 1989, abandoned, which is a continuation of Ser. No. 155,802, Feb. 16, 1988, abandoned. This application Mar. 6, 1992, Ser. No. 845,822
Claims priority, application United Kingdom, Apr. 1, 1987, 8707798
Int. Cl.[5] C01G *43/00*, *37/00*; C22B *60/02*; B01D *11/00*
U.S. Cl. 423—9 5 Claims

1. A process for the extraction of uranium metal values from an aqueous solution of said metal as metal oxyion in the absence of halogen anions and at an acid concentration of 1 to 30 grams per liter sulphuric acid which comprises contacting the aqueous solution with a solution in a water-immiscible organic solvent of an imidazole



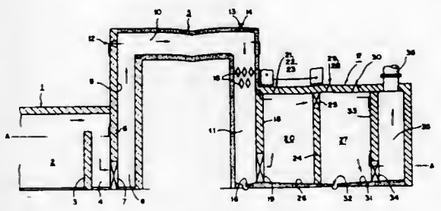
selected from the group consisting of 1-isodecylbenzimidazole, 1-(2-hexyldecyl)benzimidazole, 5-methyl-1-(2-hexyldecyl)benzimidazole, 6-methyl-1-(2-hexyldecyl)benzimidazole, 1-decyl-2-alkylbenzimidazole 1-(2'-hexyldecyl)2-ethyl-4,5,6,7-tetrahydrobenzimidazole and 1-(2'-hexyldecyl)-4,5,6,7-tetrahydrobenzimidazole and separating the aqueous phase from the organic phase which contains in solution a complex of the metal oxyion and the imidazole.

5,213,778

METHOD FOR TREATING COMBUSTION EXHAUST GASES

Inomatsu Sato, Tokyo, Japan, assignor to Yuichi Sato, Harbor City, Calif.

Filed Jul. 24, 1990, Ser. No. 557,373
Int. Cl.[5] B01D *47/00*; C01B *17/16*, *21/00*, *7/00*
U.S. Cl. 423—210 7 Claims



1. A method for treating exhaust gases generated by incinerating industrial wastes in a combustion chamber leading to a reaction chamber, comprising the steps of:

(a) introducing the exhaust gases from the combustion chamber to the reaction chamber while keeping a high temperature;

(b) spraying the exhaust gases flowing through the reaction chamber with water to vaporize the water with the heat of the exhaust gases, reducing the temperature of the exhaust gases while forming a saturated aqueous vapor of microparticles in intimate contact with noxious materials of the exhaust gases, thereby permitting the vapor microparticles to absorb and collect the noxious materials of the exhaust gases to form an acidic, saturated aqueous vapor;

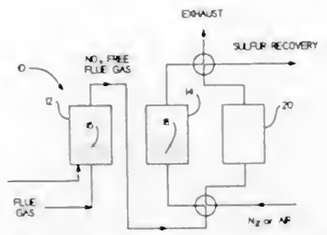
VOL 1150 ISS 4 MY 25 1993 UMI

(c) spraying the acidic, saturated aqueous vapor with a neutralizing agent in a primary neutralization chamber to at least substantially denature the acidic, saturated aqueous vapor to a neutralized waste liquid; and
(d) collecting and evacuating the neutralized waste liquid.

5,213,779
PROCESS FOR OPTIMIZING THE REMOVAL OF NO_X AND SO_X FROM GASES UTILIZING LANTHANIDE COMPOUNDS

D. Alan R. Kay, Burlington, Canada; William G. Wilson, Pittsburgh, Pa., and Vinod Jalan, Concord, Mass., assignors to Gas Desulfurization Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 290,392, Dec. 29, 1988, abandoned, which is a continuation-in-part of Ser. No. 100,291, Sep. 23, 1987, Pat. No. 4,885,145, which is a continuation-in-part of Ser. No. 846,272, Mar. 31, 1986, Pat. No. 4,714,598, which is a division of Ser. No. 718,989, Apr. 2, 1985, Pat. No. 4,604,268, which is a continuation-in-part of Ser. No. 521,751, Aug. 8, 1983, Pat. No. 4,507,149, which is a continuation-in-part of Ser. No. 471,773, Mar. 3, 1983, abandoned, which is a continuation of Ser. No. 174,024, Jul. 31, 1980, Pat. No. 4,397,683. This application Aug. 1, 1991, Ser. No. 738,893
Int. Cl.[5] B01J *8/00*; C01B *7/00, 17/00, 21/00*
U.S. Cl. 423—239 **28 Claims**

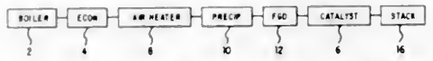


1. A process for optimizing the removal of NO_x and SO_x from flue gases comprising the steps of:
(a) initially passing said flue gases over one of a lanthanide sulfate catalyst and a lanthanide oxy-sulfate catalyst in a first reaction vessel, said catalyst having active sites for entrapping oxygen provided on the surface thereof, wherein said active sites promote the dissociation of said NO_x in said flue gases and receive and entrap oxygen released during said dissociation of said NO_x;
(b) contacting said catalyst with at least one reducing gas to reduce said oxygen received and entrapped on said active sites of said catalyst to permit said catalyst to continue to promote said dissociation of said NO_x in said flue gases;
(c) subsequently passing said flue gases over a solid solution in a second reaction site in the process, said solid solution comprising a solvent of a first lanthanide-oxygen compound which crystallizes in the fluorite habit and a solute of at least an alternate oxide of at least one of a second lanthanide and an alkaline earth metal wherein said SO_x in said flue gases reacts with said solid solution to form a sulfated lanthanide-oxygen-sulfur compound; and
(d) removing said sulfated lanthanide-oxygen-sulfur compound from contact with said flue gases and raising the temperature of said sulfated lanthanide-oxygen-sulfur compound sufficiently high to cause dissociation of said sulfated lanthanide-oxygen-sulfur compound whereby said lanthanide-oxygen compound is regenerated.

5,213,780
METHOD FOR NITROGEN OXIDE REDUCTION AND FLUE GAS REHEATING

Dennis J. Helfritch, Flemington, N.J., assignor to Research-Cottrell, Inc., Somerville, N.J.

Filed Jun. 4, 1991, Ser. No. 709,815
Int. Cl.[5] B01J *8/00*; C01B *21/00*
U.S. Cl. 423—239 **13 Claims**



1. A method of nitrogen oxide reduction and flue gas reheating comprising the steps of:
subjecting flue gas to desulfurization and particulate control processes;
heating a catalyst surface provided downstream of said desulfurization and particulate control processes solely by means separate from heat transfer from the flue gas to a temperature greater than that of flue gas in the vicinity of the catalyst to provide the requisite operating temperature for a catalytic reduction reaction;
delivering the flue gas from the desulfurization and particulate control processes and a reactant to said catalyst surface to produce the catalytic reduction reaction for removal of nitrogen oxide; and
transferring heat from said catalyst surface to said flue gas to reheat said flue gas and prevent water condensation in the stack exhaust.

5,213,781
METHOD OF CLEANING NITROGEN OXIDE CONTAINING EXHAUST GAS

Akira Abe; Satoshi Sumiya; Yoshikazu Takahashi; Kiyohide Yoshida, and Gyo Muramatsu, all of Kumagaya, Japan, assignors to Kabushiki Kaisha Riken, Japan

Filed Oct. 8, 1991, Ser. No. 773,113
Claims priority, application Japan, Oct. 8, 1990, 2-270200; Oct. 8, 1990, 2-270201
Int. Cl.[5] B01J *8/00, 8/02*; C01B *21/00*
U.S. Cl. 423—239 **4 Claims**

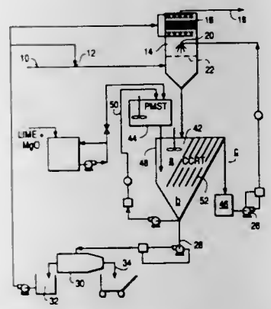
1. A method of cleaning an exhaust gas containing nitrogen oxides and particulate matter by using an exhaust gas cleaner comprising a heat-resistant, porous filter, a porous ceramic layer formed on said filter, and a catalyst supported by said ceramic layer, said catalyst consisting essentially of:
(a) 10 to 50 parts by weight of at least one alkali metal element;
(b) 30 to 80 parts by weight of copper and vanadium wherein the ratio of copper to vanadium is 5:1 to 1:15; and
(c) 10 to 50 parts by weight of at least one rare earth element, wherein said particulate matter is oxidized by said catalyst supported by said filter, and said nitrogen oxides are reduced by said particulate matter serving as a reducing agent.

5,213,782
CLEAR LIQUOR SCRUBBING MAGNESIUM-ENHANCED LIME FLUE GAS DESULFURIZATION PROCESS

Robert E. Moser, Palo Alto, Calif.; James H. Wilhelm, Sandy, Utah; John Burke, Chamblee, Ga., and Sterling Gray, Louisville, Ky., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed Nov. 22, 1991, Ser. No. 796,613
Int. Cl.[5] C01B *17/00*
U.S. Cl. 423—243.1 **12 Claims**

1. A wet magnesium-enhanced lime flue gas desulfurization process wherein sulfur dioxide is removed from sulfur dioxide-containing flue gas in a scrubber to produce gas that is substantially free of sulfur dioxide and sulfite-containing waste solids that are easily dewatered, wherein said process includes the steps of:
(a) contacting the sulfur dioxide-containing flue gas with an aqueous liquid and directing said gas to a scrubber;
(b) scrubbing the sulfur dioxide-containing flue gas with a substantially solids-free clear liquor to remove the sulfur dioxide thereform and to separate the flue gas into a substantially sulfur dioxide-free gas for discharge into the environment a sulfur-containing scrubber effluent;
(c) adding magnesium and lime-containing reagents to a premix slurry tank;
(d) directing the sulfur-containing scrubber effluent into the reaction zone of a crystallizer-clarifier reaction tank fluidically connected to said premix slurry tank and separating the scrubber effluent into a substantially solids-free clear liquor fraction and a thickened solids fraction;



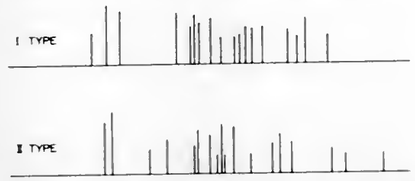
(e) circulating the clear liquor fraction to the scrubber where it becomes part of the substantially solids-free scrubbing liquid;
(f) directing the thickened solids fraction to the premix slurry tank and mixing the solids fraction with the magnesium and lime-containing reagents at a pH sufficiently high to precipitate substantially all of the magnesium;
(g) further directing the mixed solids fraction to the reaction zone of the crystallizer-clarifier reaction tank to react with additional scrubber effluent to produce a calcium and sulfite-containing waste solids fraction characterized by large regular crystals; and
(h) dewatering said waste solids fraction to produce waste solids for disposal and a filtrate liquor for use in steps (a) and (b).

5,213,783
PROCESS FOR PRODUCING FINELY DIVIDED PARTICLES OF II TYPE AMMONIUM POLYPHOSPHATE

Chikashi Fukumura, Kitakyushushi; Kouji Inoue, Yokohamashi; Masuo Iwata, Yokohamashi; Noriaki Narita, Yokohamashi, and Masaya Tanaka, Kitakyushushi, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Dec. 12, 1991, Ser. No. 806,239
Claims priority, application Japan, Jan. 10, 1991, 3-12900; Jul. 2, 1991, 3-188096
Int. Cl.[5] C01B *25/40*
U.S. Cl. 423—305 **4 Claims**

1. A process for producing ammonium polyphosphate which comprises the steps of
(a) bringing together ammonium phosphate and phosphorous anhydride in substantially equimolar quantities in a nitrogen gas atmosphere free of added ammonia at a temperature of at least 250° C. to thereby produce a molten reaction liquid,
(b) feeding into said molten reaction liquid a quantity of ammonia gas or an ammonia generating compound sufficient to
(1) effect instantaneous crystallization, and
(2) form a granular powder, and
(c) subjecting said granular powder to heat treatment in an



ammonia gas atmosphere to thereby obtain finely divided particles of ammonium polyphosphate having II type structure at least 80% of the particles having a diameter of 10 μm or less.

5,213,784
PROCESS FOR THE PRODUCTION OF HIGH PURITY HYDROXYLAMMONIUM NITRATE

David W. Cawlfield, Cleveland, Tenn., assignor to Olin Corporation, Cheshire, Conn.

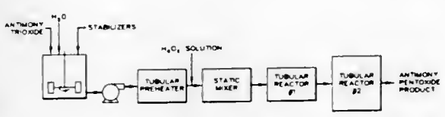
Filed Jun. 18, 1992, Ser. No. 900,563
Int. Cl.[5] C01B *21/20*
U.S. Cl. 423—387 **5 Claims**

1. A process for the production of concentrated hydroxylammonium nitrate, comprising:
(a) diluting a nitric acid solution to less than 50% by weight concentration:
(b) adding the diluted nitric acid solution in an addition step to a solution containing excess hydroxylamine to form a product solution of hydroxylammonium nitrate; and
(c) cooling the diluted nitric acid solution and the solution containing excess hydroxylamine during the addition step to less than about 60° C.

5,213,785
CONTINUOUS ANTIMONY PENTOXIDE PRODUCTION

Denton C. Fentress, Vinita; Kent E. Mitchell, Bartlesville; Don W. Godbehere, Ochelata; Larry S. Maddox, Bartesville, all of Okla.; Richard E. Lowery, Muscatine, Iowa, and Howard F. Efner, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 21, 1991, Ser. No. 781,532
Int. Cl.[5] B01J *13/00*; C01G *30/00*
U.S. Cl. 423—617 **14 Claims**



1. A continuous process for making colloidal hydrous antimony pentoxide comprising thoroughly mixing with a static mixer a hydrogen peroxide solution and an aqueous dispersion of antimony trioxide in a continuous manner so as to initiate a reaction between the hydrogen peroxide solution and aqueous dispersion of antimony trioxide, and flowing said mixture into a tubular reactor possessing sufficient residence time for quantitative conversion of the trioxide to pentoxide.

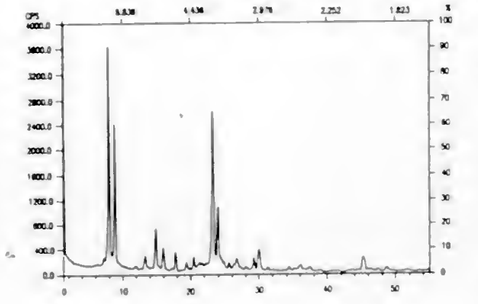
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,786

SYNTHESIS OF CRYSTALLINE SILICATE ZSM-11

Jeffrey S. Beck, Lawrenceville, and John D. Schlenker, Pennington, both of N.J., assignors to Mobil Oil Corp., Fairfax, Va.

Filed Dec. 20, 1991, Ser. No. 811,338
Int. Cl.[5] C01B *33/34*
U.S. Cl. 423—705 19 Claims



1. A method for synthesizing crystalline material exhibiting a characteristic X-ray diffraction pattern including d-spacing maxima values, in Angstroms, as follows:

11.2 ± 0.2
10.1 ± 0.2
6.73 ± 0.2
5.61 ± 0.1
5.03 ± 0.1
4.62 ± 0.1
4.39 ± 0.08
3.86 ± 0.07
3.73 ± 0.07
3.49 ± 0.07
(3.07, 3.00 ± 0.05)
2.01 ± 0.02

which comprises (i) preparing a mixture capable of forming said material, said mixture comprising sources of alkali or alkaline earth metal (M), an oxide of trivalent element (X), an oxide of tetravalent element (Y), water and $C_nN^+(CH_3)_3$, wherein n=9, 10, 11 or 12, directing agent (R), and having a composition in terms of mole ratios within the following ranges:

X_2O_3/YO_2	0 to .05
H_2O/YO_2	10 to 200
OH^-/YO_2	10^{-6} to 1
M/YO_2	.01 to 2
R/YO_2	.1 to 5.

(ii) maintaining said mixture under sufficient conditions until crystals of said material are formed; and (iii) recovering said crystalline material from step (ii), said recovered crystalline material containing said R.

5,213,787

RADIOHALOGENATED SMALL MOLECULES FOR PROTEIN LABELING

Daniel S. Wilbur, and Alan R. Fritzberg, both of Edmonds, Wash., assignors to NeoRx Corporation, Seattle, Wash.

Continuation of Ser. No. 137,952, Dec. 23, 1987, Pat. No. 5,045,303, which is a continuation of Ser. No. 735,392, May 17, 1985, abandoned. This application Dec. 12, 1990, Ser. No. 627,806
Int. Cl.[5] A61K *43/00*; C07C *233/00*
U.S. Cl. 424—1.1 6 Claims

1. A composition comprising a nonradioactive compound of the formula X—Ar—R—NH_2 and a compound of the formula:

$$^{\bullet}X—Ar—R—NH_2$$

wherein:

Ar is an aromatic ring;

R is a substituent comprising $—(CH_2)_n—$ or $—CONH(CH_2)_n—$ wherein n is an integer from 1 to 12, and does not activate Ar to electrophilic substitution on the order produced by hydroxy or amino substitution of the ring;

$^{\bullet}X$ is a radioisotope of iodine, bromine, fluorine, or astatine and is para- or meta-positioned relative to substituent R; and

X is the nonradioactive form of $^{\bullet}X$;

wherein $—NH_2$ is a functional group suitable for covalent linkage to a protein under conditions that preserve the biological activity of the protein.

5,213,788

PHYSICALLY AND CHEMICALLY STABILIZED POLYATOMIC CLUSTERS FOR MAGNETIC RESONANCE IMAGE AND SPECTRAL ENHANCEMENT

David F. Ranney, 3539 Courtdale Dr., Dallas, Tex. 75234

Continuation-in-part of Ser. No. 463,692, Jan. 11, 1990, which is a continuation-in-part of Ser. No. 252,565, Sep. 29, 1988, abandoned. This application Apr. 4, 1991, Ser. No. 680,675
Int. Cl.[5] G01N *24/08*; C07H *23/00*; A61K *33/24, 31/725*
U.S. Cl. 424—9 40 Claims

1. A composition of matter for enhancing induced internal magnetic resonance images or shifting spectra arising from induced internal magnetic resonance signals, comprising:

a polyatomic complex comprising plural atoms having magnetic moments which are mutually magnetically coupled within the polyatomic complex, said complex including bridging molecular or atomic species which are individually bound to at least one of said plural atoms having magnetic moments and other atoms of the polyatomic complex, said polyatomic complex essentially of four Cr(III) atoms which are bound to a central tetrahedral sulfur atom and are octahedrally coordinated by bridging ligands, said bridging molecular species being free of intermolecular bonds; and

a biocompatible, physiologically clearable carrier associated with the polyatomic complex, said carrier comprising heparin having a molecular weight between about 6,000 Daltons and 10,000 Daltons, and having binding complementarity to determinants of mammalian endothelia and epithelia, said carrier being in association with said polyatomic complex;

wherein the proportion of said polyatomic complex to said carrier is at least about 1:20 by weight; said carrier being of low toxicity to mammals and containing less than about 5 weight percent cross-linked or microaggregated species.

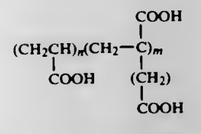
5,213,789

USE OF A CARBOXY-CONTAINING COPOLYMER TO INHIBIT PLAQUE FORMATION WITHOUT TOOTH STAINING

Charles R. Degenhardt, and Barbara A. Kozikowski, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 561,832, Aug. 2, 1990, abandoned. This application Dec. 26, 1991, Ser. No. 815,569
Int. Cl.[5] A61K *7/16, 7/18*
U.S. Cl. 424—52 14 Claims

1. An oral composition comprising: (a) a safe and effective amount of a carboxy-containing copolymer active agent having the formula



or the salts thereof, wherein n is in the range of from about 200 to about 14,000, m is in the range of from about 2 to about 5,000, the mass average molecular weight of the active agent is in the range of from about 200,000 to about 1,000,000, and the active agent comprises from about 70 mole percent to about 99 mole percent of the acrylic acid group having the n subscript and form about 1 mole percent to about 30 mole percent of the structural group having the m subscript; (b) a safe and effective amount of a fluoride ion source; and (c) a pharmaceutically acceptable dentrifice toothpaste or mouthwash carrier.

5,213,790

METHODS OF REDUCING PLAQUE AND GINGIVITIS WITH REDUCED STAINING

Michael F. Lukacovic, West Chester, and Satyanarayana Majeti, Cincinnati, both of Ohio, assignors to The Procter & Gamble Co., Cincinnati, Ohio

Filed Oct. 23, 1991, Ser. No. 781,444
Int. Cl.[5] A61K *7/16, 7/18*
U.S. Cl. 424—52 7 Claims

1. An oral, bi-phasic, dual-formulation dentifrice or toothpaste composition effective in treating plaque/gingivitis with reduced staining having a first dentifrice or toothpaste composition comprising:

(a) a safe and effective amount of stannous fluoride;

(b) a safe and effective amount of stannous gluconate; and

(c) a pharmaceutically acceptable dentifrice or toothpaste carrier wherein the pH of said composition is from about 3.0 to about 5.0 and said composition is substantially free of both a citric ion source as well as a calcium ion source;

and a second dentifrice or toothpaste composition comprising:

(a) a safe and effective amount of a citrate ion source; and

(b) a pharmaceutically acceptable dentifrice or toothpaste carrier which is substantially free of stannous fluoride and stannous gluconate.

5,213,791

AMINO ACID β-LYASE ENZYME INHIBITORS AS DEODORANTS

Sue B. Lyon, Bethesda; Clifford O'Neal, Gaithersburg; Hermes van der Lee, Olney, all of Md., and Brian Rogers, South Boston, Mass., assignors to The Gillette Company, Boston, Mass.

Continuation of Ser. No. 418,876, Oct. 10, 1989, abandoned. This application Jan. 22, 1992, Ser. No. 824,886
Int. Cl.[5] A61K *7/32, 7/34, 7/38, 9/12*
U.S. Cl. 424—65 7 Claims

1. A deodorant composition comprising a body odor suppressing effective amount of an inhibitor of an amino acid β-lyase enzyme containing the cofactor pyridoxal phosphate and which cleaves amino acids with the structure COO—H—$CH(NH_2)—CH_2—S—R$ where R is alkyl, wherein the inhibitor is hydroxylamine or a compound of the formula

$$H_2N—O—CH(R)COOH$$

where R is hydrogen; phenyl; or C_1-C_8 alkyl which is unsubstituted or substituted by a phenyl group, a hydroxy group, a carboxy group, or benzyloxy or benzyloxycarbonyl group, a halogen or an amino group, in a determatologically acceptable vehicle.

5,213,792

STORAGE-STABLE PEARLESCENT HAIR-CONDITIONING COMPOSITIONS

Karin Grundmann, Edewecht-Friedrichsfehn; Günther Lang, Reinheim, and Paul Gross, Darmstadt, all of Fed. Rep. of Germany, assignors to Wella Aktiengesellschaft, Darmstadt, Fed. Rep. of Germany

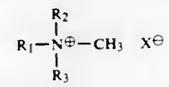
Continuation-in-part of Ser. No. 536,600, Jun. 27, 1990, abandoned. This application May 12, 1992, Ser. No. 881,606
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1989, 3837860
The portion of the term of this patent subsequent to Oct. 11, 2005, has been disclaimed.
Int. Cl.[5] A61K *7/075, 7/08*
U.S. Cl. 424—70 8 Claims

1. Storage-stable, pearlescent hair conditioning composition consisting of:

(A) 0.2 to 10 percent by weight glycerin monolauric acid ester,

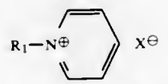
(B) 0.2 to 10 percent by weight of a straight-chain fatty alcohol with 10 to 18 carbon atoms or a mixture of the fatty alcohols,

(C) 0.050 to 5 percent by weight of a quaternary compound of the general formula (I):



(I)

or a quaternary compound of the general formula (II):



(II)

wherein R_1 is an alkyl radical having 12 to 22 carbon atoms, cocamidoethyl, cocamidopropyl or R'—Y—, and R' is an alkyl radical having 12 to 22 carbon atoms, and Y is —O—CO—CH_2— or —CO—O—CH_2—CH_2—; and

wherein R_2 is CH_3, CH_2CH_2OH or CH_2CH_3, and

wherein R_3 is CH_3, CH_2CH_2OH, benzyl or acetamidyl, and

wherein X is Cl, Br, CH_3SO_4, $\frac{1}{2}$ SO_4, dihydrogen phosphate, lactate or acetate; and

(D) 70 to 99.595 water; and

(E) 0 to 5 percent by weight of an additive selected from the group consisting of cosmetic dyestuffs, perfume oils, preservatives, vitamins, antioxidants, thickeners, cosmetic oils, cationic polymers and antidandruff ingredients;

wherein the additive is not present in a greater percentage by weight than the sum of the percentages by weight of the glycerin monolauric acid ester, the fatty alcohol and the quaternary compound, and

wherein the percent by weight of the glycerin monolauric acid divided by the percent by weight of the fatty alcohol is from 0.3 to 5, and

wherein the percent by weight of the quaternary com-

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pound divided by a sum of the percent by weight of the glycerin monolauric acid and the fatty alcohol is from 0.01 to 0.4.

5,213,793
HAIR CONDITIONING

Ronald E. Moses, Winthrop, and Frances M. Roberto, Marblehead, both of Mass., assignors to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 226,852, Jul. 27, 1988, abandoned, which is a continuation of Ser. No. 766,832, Aug. 16, 1985, abandoned, which is a continuation of Ser. No. 570,399, Jan. 13, 1984, abandoned. This application Dec. 18, 1989, Ser. No. 452,199
Int. Cl.[5] A61K *7/075*
U.S. Cl. 424—70 36 Claims

1. A hair conditioning composition in the form of a water-in-oil emulsion that contains no more than about one percent by weight total solids, comprising a volatile oil selected from the group consisting of hydrocarbons, silicones, and mixtures thereof, said volatile oil having a boiling point at atmospheric pressure from about 95° C. to about 250° C., a hydrophobic emulsifying agent and a cationic hair conditioning agent in said oil, said cationic hair conditioning agent being selected from the group consisting of quaternary ammonium salts, fatty amines and salts thereof, the amount of the oil phase of said water-in-oil emulsion being in the range of from about five to about ten percent by weight, the amount of said emulsifying agent being in the range from about 0.1 percent by weight to about 3 percent by weight of said composition, the amount of said cationic hair conditioning agent being in the range from about 0.01 to about 0.5 percent by weight of said composition, and the water phase of said emulsion comprising water.

5,213,794
ANTACID PREPARATION HAVING A PROLONGED GASTRIC RESIDENCE TIME

Christian Fritsch, Erlangen; Franz Häusler, Bergisch Gladbach, and Jürgen Seedig, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 13, 1991, Ser. No. 791,944
Claims priority, application Fed. Rep. of Germany, Nov. 17, 1990, 4036757
Int. Cl.[5] A61K *31/74, 9/36, 9/32, 33/06, 33/14, 33/08*
U.S. Cl. 424—78.01 9 Claims

1. Antacid preparations having a prolonged gastric residence time, comprising antacid active compounds which are agglomerated with the calcium salt of polycarbophil using water-insoluble anionic polymers as binders, have a high adhesion (bioadhesion) to the gastric mucosa and as a result have a prolonged gastric passage.

5,213,795
ENCEPHALOMYOCARDITIS VIRUS VACCINE

Jack H. Carlson, Worthington, and Han S. Joo, New Brighton, both of Minn., assignors to Oxford, Worthington, Minn.

Filed Oct. 24, 1990, Ser. No. 602,967
Int. Cl.[5] A61K *39/12*; C12N *7/00*
U.S. Cl. 424—89 4 Claims

1. A vaccine which protects swine from clinical disease caused by encephalomyocarditis virus comprising inactivated encephalomyocarditis virus-25, adjuvant and a veterinary pharmaceutically acceptable carrier.

5,213,796
ASSAY FOR POLYOMAVIRUS IN HUMANS AND USES THEREOF

Robert L. Garcea, Wellesley, and Daniel J. Bergsagel, Arlington, both of Mass., assignors to Dana Farber Cancer Institute, Boston, Mass.

Filed May 6, 1991, Ser. No. 695,647
Int. Cl.[5] A61K *39/12*
U.S. Cl. 424—89 13 Claims

1. A method for prophylactically treating a female to minimize the female's chance of infecting a fetus with a polyomavirus, which comprises:
(a) contacting a biological specimen from the female with at least one probe which is capable of binding with a polyomavirus, a polyomavirus protein, or an antibody to a polyomavirus;
(b) determining whether binding has occurred;
(c) if binding has not occurred, vaccinating the female with a vaccine containing an antigenic portion of the polyomavirus.

5,213,797
A80407 ANTIBIOTICS

Lawrence E. Doolin; Richard M. Gale, both of Indianapolis; Otis W. Godfrey; Robert L. Hamill, both of Greenwood; David F. Mahoney, Indianapolis, and Raymond C. Yao, Carmel, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 72,323, Jul. 13, 1987, Pat. No. 4,996,148. This application Dec. 11, 1990, Ser. No. 625,394
Int. Cl.[5] A61K *35/70*
U.S. Cl. 424—115 19 Claims

1. Antibiotic A80407A, which has the following characteristics:
Molecular Weight: 2145
Empirical Formula: $C_{97}H_{113}N_9O_{42}Cl_2$
FAB-MS (M + 1): 2146
UV (H_2O) λmax: 277 nm (ε 6,880), shifts to 278 nm (ε 7,020) with acid and to 296 nm (ε 7,360) with base
IR (KBr): FIG. 1
pKa (H_2O): 4.3, 5.7, 8.0, 9.7
Rotation: $[\alpha]_{589}^{25°} - 92.14°$ (c 1.1, H_2O) or a salt of A80407A.

5,213,798
ANTIVIRAL AGENT DERIVED FROM THE HULL OF THE KUKUI NUT

John T. Manikas, 1109 38th St., Sacramento, Calif. 95816, and Lawrence R. Manning, 7409 24th St., Rio Linda, Calif. 95673

Filed Feb. 16, 1990, Ser. No. 482,069
Int. Cl.[5] A61K *35/78*
U.S. Cl. 424—195.1 7 Claims

1. A method for treatment of herpetic lesions accompanying in herpes simplex virus infection in a mammal, which method comprises a topical application to the herpetic lesion on the skin of the mammal of a pharmaceutical composition consisting essentially of the active antiviral ingredient present in the juice of the green hull of the kukui Aleurites moluccana, obtained by removing the stem from the green hull of the kukui nut and by collecting the liquid which exudes from the hull opening, formulated in a pharmaceutically acceptable carrier.

5,213,799
TWO-PHASE COSMETIC COMPOSITION

Stefan M. Göring, Niederhausen, and Claudia Koss, Alsbach, both of Fed. Rep. of Germany, assignors to Goldwell AG, Darmstadt, Fed. Rep. of Germany

Filed Dec. 5, 1991, Ser. No. 802,549
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1991, 4100490
Int. Cl.[5] A61K *7/02, 7/48*
U.S. Cl. 424—401 5 Claims

1. A two-phase cosmetic composition comprising two separate transparent phases that form a homogeneous phase when mixed by shaking, wherein said homogeneous phase separates thereafter into said two separate transparent phases, wherein one of said transparent phases is a fat or oil phase and the other of said transparent phases is an aqueous phase, and wherein said composition contains 0.1 to 1.0% by weight, calculated to the total composition, of a C_{12}-C_{18} fatty acid monoester of triglycerol.

5,213,800
CHLORHEXIDINE DISINFECTANT GRANULES

Francisco Cabrera, Des Moines, Iowa, assignor to Diamond Scientific Company, Des Moines, Iowa

Continuation of Ser. No. 309,270, Feb. 9, 1989, abandoned. This application Jan. 25, 1990, Ser. No. 470,295
Int. Cl.[5] A01N *25/28, 33/06, 33/06*
U.S. Cl. 424—417 9 Claims

1. A dry flowable, water dispersible, discrete particle disinfecting composition comprising:
a water soluble, flowable, solid polyhydric alcohol substrate encapsulated in a compatible surfactant; and coated with chlorhexidine.

5,213,801
CONTACT LENS MATERIAL

Shuji Sakuma; Kiminori Atsumi, and Akira Inose, all of Tokyo, Japan, assignors to Kabushiki Kaisha Sangi, Tokyo, Japan

Filed Jul. 19, 1991, Ser. No. 732,546
Claims priority, application Japan, Jul. 19, 1990, 2-189404
Int. Cl.[5] G02C *7/04*; A61K *47/32*
U.S. Cl. 424—429 9 Claims

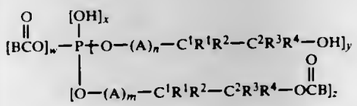
1. A contact lens material comprising a hydrogel lens material and from 0.001 to 10% by weight of an antibacterial ceramic, said antibacterial ceramic comprising a ceramic selected from the group consisting of silica, calcium carbonate, calcium phosphate, hydroxyapatite and fluoroapatite or mixtures thereof that contains from 0.0001 to 10% by weight of the ceramic of at least one metal selected from the group consisting of silver, copper, and zinc.

5,213,802
PHARMACEUTICAL FORMULATIONS EMPLOYING ESTERIFIED ALKOXYLATED POLYOLS AS VEHICLES

Lawrence W. Masten, West Chester, Pa., assignor to Arco Chemical Technology, L.P., Wilmington, Del.

Continuation-in-part of Ser. No. 348,314, May 5, 1989, abandoned. This application Sep. 24, 1990, Ser. No. 586,839
Int. Cl.[5] A61K *47/00*
U.S. Cl. 424—439 24 Claims

1. An improved pharmaceutical formulation comprising an effective amount of a medication ingredient in admixture with an esterified alkoxylated polyol carrier of formula



wherein
(a) P is an organic radical derived from a polyol, the sum of w+x+y+z is from 2 to 8,

$$\frac{x+y}{w+x+y+z}$$

is an average number in the range of from 0 to about 0.15, z is an average number in the range of from about 2 to the sum of w+x+y+z, A is an oxyalkylene unit having at least 3 carbon atoms, B is a C_7-C_{23} hydrocarbon group, at least one of R^1, R^2, R^3, or R^4 is a moiety other than hydrogen, and C^2 is a carbon that on average is from 0 to about 15 percent primary;
(b) said values of m, n, w, x, y, and z are selected to provide suitable pharmaceutical carrier properties;
(c) said esterified alkoxylated polyol carrier is present in an amount sufficient to impart suitable body or coverage to said formulation;
(d) said esterified alkoxylated polyol carrier is substantially dermally non-allergenic, non-irritating, and non-digestible, and non-toxic; and
(e) said pharmaceutical formulation is characterized by the absence of a foodstuff.

5,213,803
ANTIVIRAL COMPOSITION AND METHOD

Jerry J. Pollock, Nesconset, N.Y., and John J. Docherty, Kent, Ohio, assignors to Northeastern Ohio Universities College of Medicine, Rootstown, Ohio

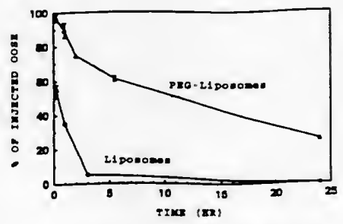
Continuation-in-part of Ser. No. 592,552, Oct. 4, 1990, Pat. No. 5,185,153. This application Feb. 24, 1992, Ser. No. 840,321
Int. Cl.[5] A61K *9/68*
U.S. Cl. 424—440 24 Claims

1. A method for killing envelope virus in vitro causing AIDS and Herpes infections, comprising:
contacting a surface or cavity which is infected with an envelope virus with an antiviral formulation, which comprises:
humectant in a concentration of from about 20% to about 80%; and
activating agents including inorganic monovalent anions and detergent, wherein the formulation is contacted to the infected surface or cavity by a carrier or dispenser.

5,213,804
SOLID TUMOR TREATMENT METHOD AND COMPOSITION

Francis J. Martin, San Francisco; Martin C. Woodle, Menlo Park; Carl Redemann, Walnut Creek, and Annie Yau-Young, Palo Alto, all of Calif., assignors to Liposome Technology, Inc., Menlo Park, Calif.

Continuation-in-part of Ser. No. 425,224, Oct. 20, 1989, Pat. No. 5,013,556. This application Jan. 15, 1991, Ser. No. 642,321
The portion of the term of this patent subsequent to May 7, 2008, has been disclaimed.
Int. Cl.[5] A61K *9/127, 31/765*
U.S. Cl. 424—450 15 Claims



1. A liposome composition for use in localizing a compound

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in a solid tumor via the bloodstream, by liposome extravasation into the tumor, comprising

liposomes (i) composed of vesicle-forming lipids and between 1–20 mole percent of an amphipathic vesicle-forming lipid derivatized with a hydrophilic polymer selected from the group consisting of polyethyleneglycol, polylactic acid, polyglycolic acid and polylactic acid/polyglycolic acid copolymers, and (ii) having a selected mean particle diameter in the size range between about 0.07 to 0.12 microns, and

the compound in liposome-entrapped form,

and characterized by a liposome blood lifetime, 24 hours after intravenous injection, that is several times greater than the blood lifetime of liposomes in the absence of the derivatized lipid.

5,213,805

LIPID VESICLES HAVING N, N-DIMETHYLAMIDE DERIVATIVES AS THEIR PRIMARY LIPID

Donald F. H. Wallach, Hollis, and Rajiv Mathur, Nashua, both of N.H., assignors to Micro Vesicular Systems, Inc., Nashua, N.H.

Filed Jul. 25, 1991, Ser. No. 735,645
Int. Cl.[5] A61K 9/127
U.S. Cl. 424—450 6 Claims

1 Paucilamellar lipid vesicles characterized by about two to ten lipid bilayers in the form of spherical shells separated by an aqueous solution, said lipid vesicles having as their primary lipids in the bilayers N,N-dimethylamides of the fatty acids present in oils selected from the group consisting of tall oil and soybean oil

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5,213,806

PHARMACEUTICAL COMPOSITION COMPRISING CALCIUM POLYCARBOPHIL

Yasuo Ito, Katsuyama; Hideo Kato, Fukui; Osamu Nagata, Fukui; Masaharu Yamazaki, Fukui; Takeo Ishibashi, Katsuyama, and Masakazu Kitayama, Ohno, all of Japan, assignors to Hokuriku Pharmaceutical Co., Ltd., Fukui, Japan

Filed Nov. 25, 1991, Ser. No. 796,669
Claims priority, application Japan, Nov. 29, 1990, 2-333368
Int. Cl.[5] A61K 9/58, 9/22, 31/74
U.S. Cl. 424—462 6 Claims

1. A pharmaceutical composition capable of being disintegrated in an acidic environment, which comprises calcium polycarbophil mixed with 1 to 80% by weight of a cellulose derivative based on the calcium polycarbophil wherein the cellulose derivative is selected from the group consisting of polycarboxymethylethers of cellulose, hydroxypropylethers of cellulose, methyl and hydroxypropyl mixed ethers of cellulose, and methylethers of cellulose.

5,213,807

PHARMACEUTICAL COMPOSITION CONTAINING IBUPROFEN AND A PROSTAGLANDIN

Pramod B. Chemburkar, 48 Long Ridge Rd., Randolph, N.J. 07869; Bahram Farhadieh, 965 Sunrise Rd., Libertyville, Ill. 60048; Barbara J. Struthers, 1706 Garand Dr., Deerfield, Ill. 60015; Tugrul T. Kararli, 8335 N. Kildare, Skokie, Ill. 60076, and Steven C. Schumann, 10 N. 819 S. Airlite St., Elgin, Ill. 60123

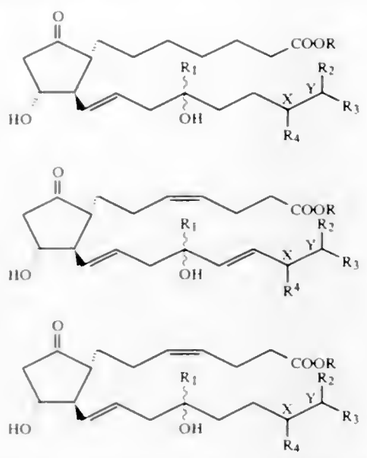
Continuation-in-part of Ser. No. 518,364, May 3, 1990, abandoned. This application Feb. 26, 1991, Ser. No. 663,183
Int. Cl.[5] A61K 9/24
U.S. Cl. 424—472 14 Claims

1. A pharmaceutical oral layered tablet composition comprising:

a. a core comprising an NSAID selected from ibuprofen and ibuprofen salts;

b. an intermediate barrier coating substantially impervious to the passage of ibuprofen, said barrier coating surrounding the core and being free of prostaglandin degrading polymers and chemicals; and

c. a mantle coating surrounding the core and intermediate coating, comprising a prostaglandin unstable in the presence of ibuprofen and selected from a prostaglandin of the structural formula



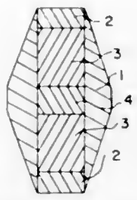
wherein R represents hydrogen or lower alkyl having 1 to 6 carbon atoms, R_1 represents hydrogen, vinyl or lower alkyl having 1 to 4 carbon atoms and the wavy line represents R or S stereochemistry; R_2, R_3, and R_4 are hydrogen or lower alkyl 1 to 4 carbon atoms or R_2 and R_3 together with carbon Y form a cycloalkenyl having 4 to 6 carbon atoms or R_3 or R_4 together with carbons X and Y form a cycloalkenyl having 4 to 6 carbon atoms and wherein the X-Y bond can be saturated or unsaturated.

5,213,808

CONTROLLED RELEASE ARTICLE WITH PULSATILE RELEASE

Daniel Bar-Shalom, Kokkedal, and Kindt-Larsen, Vedbaek, both of Denmark, assignors to Buhk Meditec A/A, Hellerup, Denmark

Filed Apr. 6, 1990, Ser. No. 505,924
Claims priority, application Denmark, Sep. 22, 1989, 4699/89
Int. Cl.[5] A61K 9/24
U.S. Cl. 424—473 36 Claims



1 A multi-layered article for controlled, pulsatile delivery of one or more active substances into an aqueous phase, comprising:

at least one first layer comprising an active substance,

at least one second layer different from said first layer, said second layer comprising said same active substance or a different active substance substantially homogeneously dispersed in a matrix, said matrix comprising a crystalline polymer and a non-ionic surface active agent, the melting point of said non-ionic surface active agent being lower than the melting point of said crystalline polymer, said non-ionic surface active agent being dispersed in said crystalline polymer in an amount of up to about 50% by weight, relative to the combined weight of said crystalline polymer and said non-ionic surface active agent, said non-ionic surface active agent comprising a domain which is compatible with said crystalline polymer and a domain which is substantially lipophilic, said amount of said non-ionic surface active agent being sufficient to effect repair of the surface of said second layer during exposure to said aqueous phase,

and optionally, one or more layers comprising said matrix free of active substance;

wherein said first and second layers are configured so that at least one of said second layers is exposed to said aqueous phase before at least one remote first layer is exposed to said aqueous phase, said at least one second layer having a sufficient thickness to prevent exposure of said at least one remote first layer to said aqueous phase for at least about 15 minutes after exposure of said at least one second layer to said aqueous phase;

whereby each said second layer of said article erodes and releases said active substance therein at a substantially constant and controlled rate predominantly at said surface of said layer exposed to said aqueous phase; and

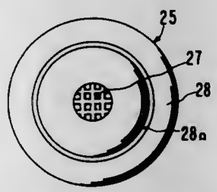
wherein said active substance in each said first layer is released into said aqueous phase in a pulse and, for each remote first layer, after a selected time interval.

5,213,809

DELIVERY SYSTEM COMPRISING MEANS FOR CONTROLLING INTERNAL PRESSURE

Jeremy C. Wright; James B. Eckenhoff, both of Los Altos; Frederick H. Maruyama, San Jose, and John R. Peery, Palo Alto, all of Calif., assignors to ALZA Corporation, Palo Alto, Calif.

Continuation of Ser. No. 469,861, Jan. 24, 1990, abandoned. This application Mar. 12, 1992, Ser. No. 849,848
Int. Cl.[5] A61K 9/24
U.S. Cl. 424—473 20 Claims



1. A process for increasing the internal pressure of a dispenser, wherein the dispenser comprises:

i) a wall that surrounds a lumen,

ii) a thermo-responsive composition in the lumen,

iii) a beneficial agent mixed with the thermo-responsive composition,

iv) optionally, a density member in the lumen for increasing the weight of the dispenser,

v) push means in the lumen for displacing the thermo-responsive composition from the dispenser, and

vi) an exit opening in the wall that communicates with the lumen;

wherein, the process comprises:

a) mixing a viscosity-inducing amount of an inert viscosity-inducing agent into the thermo-responsive composition for increasing the viscosity of the thermo-responsive composition, and

b) positioning a pressure-inducing exit member in the exit opening in the wall of the dispense, whereby steps a) and b) increase the internal pressure of the dispenser.

5,213,810

STABLE COMPOSITIONS FOR PARENTERAL ADMINISTRATION AND METHOD OF MAKING SAME

William Steber, Ledgewood, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Mar. 30, 1990, Ser. No. 502,382
Int. Cl.[5] A61K 9/16
U.S. Cl. 424—490 20 Claims

1. A improved process for preparing a microsphere composition having the steps of melt blending a fat or wax or mixture thereof, and a biologically active protein, peptide or polypeptide to form a blend and prilling said blend to form said microsphere composition, the improvement which comprises admixing about 1% to 30% of an oil, semi-soft fat, fatty acid derivative or mixture thereof before prilling said blend.

5,213,811

ORAL SUSTAINED-RELEASE DRUG COMPOSITIONS

Steven E. Frisbee, Austin, Tex.; Gregg Stetsko, Bethlehem, and Margaret A. Lawton, Albany, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Sep. 13, 1991, Ser. No. 759,347
Int. Cl.[5] A61K 9/54
U.S. Cl. 424—493 13 Claims

1. Sugar or sugar/starch beads coated with from about 1% to about 500% by weight of the beads of a first coating consisting essentially of from about 10% to about 90% by weight of a drug having a solubility of at least 5% by weight in gastric fluid and less than 1% by weight in intestinal fluid, from about 10% to about 20% by weight of hydroxypropyl methylcellulose or hydroxypropyl cellulose and from about 1% to about 10% by weight of a plasticizer selected from the group consisting of triacetin, diacetylated monoglycerides, glycerin, propylene glycol, polyethylene glycol, diethyl phthalate and triethyl citrate or a mixture of two or more thereof and from about 3% to about 50% by weight of the beads of a second coating consisting essentially of from about 30% to about 50% by weight of ethylcellulose having a viscosity from 40 to 60 centipoises, from about 10% to about 30% by weight of ethylcellulose having a viscosity from 1 to 20 centipoises, from about 10% to about 30% by weight of hydroxypropyl cellulose, from about 10% to about 30% by weight of polyvinyl acetate phthalate and from about 1% to about 20% by weight of a plasticizer selected from diacetylated monoglycerides and triacetin or a mixture thereof.

5,213,812

PREPARATION PROCESS OF SUSTAINED RELEASE COMPOSITIONS AND THE COMPOSITIONS THUS OBTAINED

Jean-Marc Ruiz, Trelaze, France, assignor to Societe de Conseils de Recherches et d'Applications Scientifiques (S.C.R.A.S.), France

Filed Jul. 23, 1991, Ser. No. 734,493
Claims priority, application United Kingdom, Aug. 1, 1990, 9016885
Int. Cl.[5] A61K 9/16
U.S. Cl. 424—499 35 Claims

1. A method of preparing microballs which release an active ingredient over a period of time, said method comprising:

(a) forming a dry mixture comprising at least one active ingredient with a polymer material selected from the group consisting of bioresorbable polymers, bioresorbable copolymers, biodegradable polymers, biodegradable copolymers, and combinations of the foregoing, the amount of active ingredient in the mixture material being from 1 percent to 99 percent and the amount of polymer material being from 99 percent to 1 percent;

(b) subjecting said mixture to a step selected from the group

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consisting of tabletting, extruding and a combination of tabletting and extruding;

(c) grinding the product of step (b) to form mixture microparticles;

(d) suspending the said mixture microparticles in a gel by stirring, said gel being selected from the group consisting of: a hydrophilic gel having a viscosity at a temperature between at least 60° C. and a temperature below the temperature at which the components of the mixture are no longer stable of about 40 to about 500 mPa.s; and, a hydrophobic gel having a viscosity at a temperature between at least 60° C. and a temperature below the temperature at which the components of the mixture are no longer stable of about 3,000 to about 12,500 mPa.s;

(e) heating a gel to a temperature above the Tg of the said polymer material and sufficient to melt the mixture particles in the gel and form microballs;

(f) cooling the gel to a temperature at which the microballs can be separated from the gel; and

(g) separating the microballs from the gel by filtration.

5,213,813

PYRIDOXAL-5'-PHOSPHATE AS AN IN VITRO BLOOD PLATELET STABILIZER

Elizabeth H. Kornecki, and Vigal H. Ehrlich, both of S. Burlington, Vt., assignors to The University of Vermont, Burlington, Vt.

Division of Ser. No. 55,637, May 29, 1987, Pat. No. 4,931,002. This application Jun. 4, 1990, Ser. No. 532,909

Int. Cl.[5] A61K *35/14*

U.S. Cl. 424—532 **8 Claims**

1. In vitro stored whole blood containing pyridoxal 5'-phosphate in a concentration sufficient to reduce loss of platelet activity, said concentration being at least about 4 mM.

2. A method for reducing the loss of platelet activity during the in vitro storage of a platelet containing blood fraction, said method comprising adding pyridoxal-5'-phosphate at an effective platelet activity retaining concentration of 4 mM or more, to whole blood in vitro and thereafter separating the desired platelet and pyridoxal-5'-phosphate containing blood fraction from the thus treated whole blood.

5,213,814

LYOPHILIZED AND RECONSTITUTED BLOOD PLATELET COMPOSITIONS

Raymond P. Goodrich, Jr., and Victoria A. Wong, both of Pasadena, Calif., assignors to Cryopharm Corporation, Pasadena, Calif.

Continuation-in-part of Ser. No. 378,349, Jul. 11, 1989, Pat. No. 5,045,446, and Ser. No. 360,386, Jun. 2, 1989, Pat. No. 5,043,261, which is a continuation of Ser. No. 335,557, Apr. 10, 1989, abandoned, which is a continuation-in-part of Ser. No. 195,745, May 18, 1988, abandoned, and Ser. No. 237,583, Aug. 25, 1988, abandoned. This application May 17, 1990, Ser. No. 525,392

Int. Cl.[5] A61K *35/14*

U.S. Cl. 424—532 **36 Claims**

1. A lyophilized platelet-containing composition containing about 3% by weight or less of moisture prepared by lyophilization of an aqueous suspension of platelets in a phosphate buffered saline solution at a pH in the range of 7.0 to 7.4 comprising a final concentration of about 7 to 37.5% by weight of a monosaccharide or mixture of monosaccharides and a final concentration of about 0.7% by weight percent up to the saturation point of the solution of a polymer or mixture of polymers having a molecular weight in the range of about 1K to 600K.

5,213,815

TREATMENT OF ASCITES IN POULTRY

Gerard T. O'Brien, 2162 Sylite Dr., Gainesville, Ga. 30501

Filed Oct. 10, 1991, Ser. No. 774,785

Int. Cl.[5] A01N *00/01*

U.S. Cl. 424—935 **1 Claim**

1. A method of treating ascites in poultry comprising administering a therapeutically effective quantity of Eyebright herb in combination with a preventive quantity of Brewers yeasts to poultry in need thereof,

wherein the Brewer's yeast is administered in a mixture with the poultry food or water at a rate of about 40 grams per day per 160 pounds of poultry, and

wherein the Eyebright herb is administered in a mixture with the food or water at a rate of about 500 milligrams per day per 160 pounds of poultry.

5,213,816

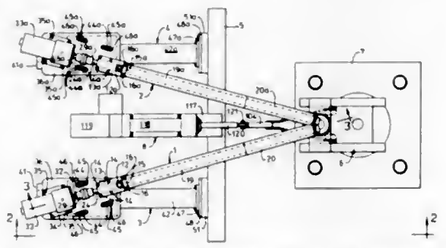
POLYMER COATED POWDER HEATING AND FEEDING SYSTEM FOR A COMPACTING PRESS

Dale C. Smyth, Jr., Lawrenceburg, Ind., and Michael A. Halley, Fairfield, Ohio, assignors to Cincinnati Incorporated, Cincinnati, Ohio

Filed May 31, 1991, Ser. No. 708,508

Int. Cl.[5] B29C *31/06*

U.S. Cl. 425—78 **16 Claims**



1. In a compacting press having a die with a heated die cavity, a die supporting assembly and a ram cooperating with said die to make compacted parts, a system for heating and transferring polymer-coated powder from a source thereof to said die cavity, said system comprising at least one auger conveyor assembly and a shuttle assembly, said at least one auger conveyor assembly comprising a substantially horizontal tube with an auger conveyor rotatably mounted therein, said horizontal tube having an inlet port for said polymer-coated powder and a discharge end therefor, a substantially vertical tube, said vertical tube having an upper end connected to said source of said polymer-coated powder and a lower end connected to said inlet port of said horizontal tube, prime mover means for rotating said auger conveyor within said horizontal tube to mix said polymer-coated powder therein and to convey said polymer-coated powder to the discharge end thereof, said shuttle assembly comprising a fixed portion mounted on said die supporting assembly of said compacting press and a moveable portion shiftable within said fixed portion, a shuttle hopper mounted on said fixed portion and having an upper end for receiving said polymer-coated powder from said at least one auger conveyor assembly and a lower powder discharging end, said discharge end of said at least one auger conveyor assembly horizontal tube overlying said upper receiving end of said shuttle hopper, said moveable shuttle portion carrying a cylindrical powder ring with an upper end for receiving said polymer-coated powder from said shuttle hopper and a lower powder discharging end, said moveable shuttle portion being shiftable between a retracted position wherein said lower end of said powder ring is closed by said die supporting assembly and said upper end of said powder ring communicates with said discharging end of said shuttle hopper, and an extended position wherein said discharging end of said shuttle hopper is closed by said moveable shuttle portion and said lower end of said powder ring communicates with said die cavity, means to shift said moveable shuttle portion between its retracted and extended positions, heating means affixed to and surrounding each of said vertical tube, said horizontal tube, said shuttle hopper and said powder ring to heat said polymer-coated powder to a temperature just below the coagulation point thereof by the time the polymer-coated powder is introduced into said die cavity.

5,213,817

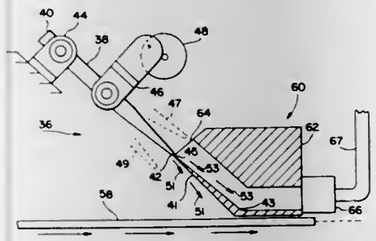
APPARATUS FOR INTERMITTENTLY APPLYING PARTICULATE POWDER MATERIAL TO A FIBROUS SUBSTRATE

Kenneth A. Pelley, Hopewell, N.J., assignor to McNeil-PPC, Inc., Milltown, N.J.

Filed Dec. 12, 1991, Ser. No. 806,954

Int. Cl.[5] B05B *12/06*; B05C *1/16*

U.S. Cl. 425—81.1 **13 Claims**



1. An apparatus for applying particulate powder material to a substrate of fibrous material comprising:

conveyor means for supporting and moving said fibrous substrate in a horizontal path at a predetermined rate;

feeder means having an inlet means and an outlet means, wherein said inlet means receives said particulate powder material and said outlet means is connected to a continuously operating nozzle for producing a continuous stream of said particulate powder material; said nozzle being movable between a first position and a second position at a predetermined rate, said nozzle having an outlet for alternately directing said continuous stream of particulate powder material toward a predetermined location of said fibrous substrate and toward a diverter means; and

said diverter means disposed above said conveyor means for intermittently receiving the continuous stream of particulate powder material from the nozzle to separate the stream into first and second intermittent streams of particulate powder material,

whereby said first intermittent stream is applied to said fibrous substrate moving at said predetermined rate and at said predetermined location of said fibrous subsrate to form a layer of particulate powder material within a predetermined portion of said fibrous substrate.

5,213,818

DEVICE FOR TAKING AND CONVEYING TABLETS COMING OUT OF A ROTARY TABLETTING MACHINE

Libero Facchini; Roberto Trebbi, and Andrea Caselli, all of Bologna, Italy, assignors to I.M.A. Industria Machine Automatiche S.P.A., Bologna, Italy

Filed May 17, 1991, Ser. No. 702,228

Claims priority, application Italy, May 21, 1990, 3515 A/90

Int. Cl.[5] B29C *43/04, 43/50, 43/58*

U.S. Cl. 425—139 **10 Claims**

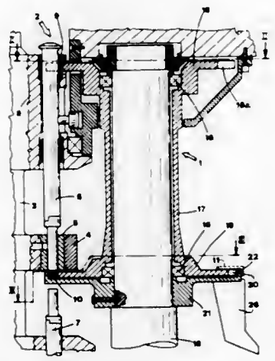
1. A device for taking and conveying tablets produced by a rotary tabletting machine comprising:

a plurality of matrices supported, disposed in a circle by an axially rotatable table; a plurality of upper punches and lower punches supported and guided by drums located above and below said table

means for moving said punches to enter and to come out of said matrices according to opposite movements, to compress a quantity of powdered material introduced into said matrices to obtain tablets to be ejected at an ejection station;

a fixed supporting plate fastened to said machine and positioned below said table, a part of said plate being located just below said ejection station in order to receive said tablets coming out therefrom;

a disk with its axis vertical inside a seating delimited by a



raised circumferential border of said plate, said disk having a plurality of hollows extending radially and equally spaced and positioned to pass under said ejection station so that said tablets drop into said hollows;

at least one hole in the bottom of said plate along a trajectory traversed by said hollows, said tablets falling into said hole while passing above it;

at least one discharge channel located below said plate under said hole so as to receive said tablets passing through said hole;

means to rotate said disk in synchronism with production and ejection of said tablets; and

means to support said moving means and said disk.

5,213,819

CONTINUOUSLY OPERATING PRESS

Friedrich B. Bielfeldt, Eppingen, Fed. Rep. of Germany, assignor to Maschinenfabrik, J. Dieffenbacher GmbH & Co., Eppingen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 732,197, Jul. 19, 1991, abandoned, which is a continuation-in-part of Ser. No. 671,403, Mar. 19, 1991, Pat. No. 5,096,408. This application Mar. 6, 1992, Ser. No. 845,936

Claims priority, applicatioo Fed. Rep. of Germany, Mar. 30, 1990, 4010308; Mar. 12, 1991, 4107833

Int. Cl.[5] B30B *5/04*

U.S. Cl. 425—371 **11 Claims**

1. A continuously operating press comprising:

a press table;

a press ram facing said press table and defining an adjustable pressing gap therebetween;

first and second flexible endless steel bands which transfer a pressing pressure to and draw a material to be pressed through said adjustable gap;

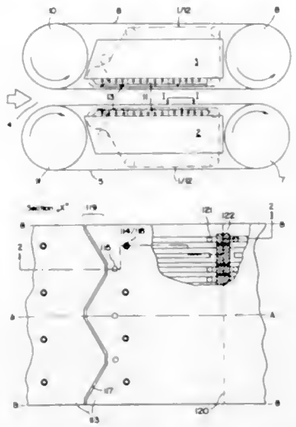
driving drums and deflecting drums which drive said first and second endless steel bands around said press table and said press ram, respectively;

rolling bars which support said endless steel bands and which move with said endless steel bands, said rolling bars being disposed with their axes being transverse to the

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running direction of said steel bands and extending over the entire working area of said press;

heated platens attached to said press table and press ram, respectively, said rolling bars rolling on said heated platens, said heated platens having end surfaces which are connected to one another via straight butt joints, said heated platens having bore holes formed therein which extend parallel to the longitudinal direction of said press and which are independently heatable to provide a plurality of heating surfaces in each of said heated platens;



roll platens at least partially covering said heated platens and extending over the entire working area of said press, said roll platens having a thickness in a range of 7 mm to 23 mm and a Brinell hardness of 250, said roll platens being heat treated on opposite surfaces, said roll platen surfaces having a precision ground finish; and

expansion joints joining said roll platens and extending obliquely relative to the running direction of said steel bands.

5,213,820

PROCESS AND DEVICE FOR FLUIDIZED BED SPRAY GRANULATION

Hans Uhlemann, Solingen; Reinhard Boeck, Kaarst; Hans Daun, Leverkusen, and Heiko Herold, Neuss, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

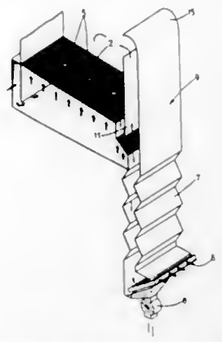
Division of Ser. No. 560,244, Jul. 26, 1990, abandoned, which is a continuation of Ser. No. 316,362, Feb. 27, 1984, abandoned.
This application Jun. 12, 1991, Ser. No. 714,357
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1988, 3808277
The portion of the term of this patent subsequent to Jun. 5, 2007, has been disclaimed.
Int. Cl.[5] B22F *3/00*; C05B *19/00*; C22B *1/14*
U.S. Cl. 425—222 2 Claims

1. In an apparatus for producing granules, having a fluidized bed of fluidizing gas and particles, means for spraying liquid starting material into the fluidized bed, means for discharging particles of at least a given size from below the bed and means for classifying the discharged particles and returning a relatively finer fraction of particles into the fluidized bed, the improvement wherein:

a) the fluidized bed has a rectangular cross-section and includes a plurality of parallel zones along the length thereof such that the sum of the widths of the plurality of zones equals the length of the fluidized bed;

b) the means for discharging comprises a full width underflow weir feeding a plurality of zig-zag classifiers, each classifier having downwardly extending zig-zag flow paths receptive of the discharged particles, the zig-zag classifiers each have a rectangular cross-section and are adjointly arranged side by side along the length of the fluidized bed and wherein the length of each zig-zag classifier is equal to the width of each zone;

c) the means for classifying and returning comprises means for directing parallel countercurrent classifying air flows in the zig-zag flow paths, a plurality of separated return shafts downstream of the zig-zag classifiers for conveying the classifying air flows together with the relatively finer fraction of particles and each having means for directing the classifying air flows and particles into a corresponding



single one of the plurality of separate parallel zones of the fluidized bed without cross mixing between the zones, such that for each zone the relatively small particles impinge at a relatively large distance from the return shafts and for each zone relatively large particles impinge at a relatively small distance from the return shafts, thereby passing said relatively large particles in each zone into the zig-zag classifiers more frequently than the relatively small particles; and

d) wherein the means for spraying comprises means for spraying starting liquid separately into each of said zones of the fluidized bed comprising at least one spraying nozzle for each zone.

5,213,821

APPARATUS FOR MANUFACTURING AN ELONGATE COVER PROFILE

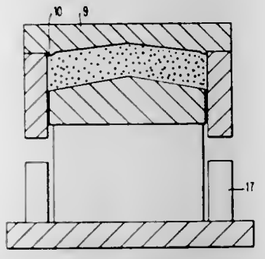
Edmund Munk, Oberstenfeld, Fed. Rep. of Germany, assignor to Werzalit AG & Co., Oberstenfeld, Fed. Rep. of Germany

Division of Ser. No. 359,095, May 26, 1989, Pat. No. 5,016,416.
This application Apr. 25, 1990, Ser. No. 514,846
Claims priority, application Fed. Rep. of Germany, Nov. 5, 1988, 88118489[U]
Int. Cl.[5] B29C *35/00*
U.S. Cl. 425—406 3 Claims

1. An apparatus for manufacturing elongate cover profiles, comprising:

a premolding press having an axis and including a lower part having an outer base surface, an upper part having an outer surface facing said outer base surface and defining therewith a first molding chamber, and a frame surrounding said lower part, said outer base surface sloping from the premolding press axis toward a side wall of said first molding chamber, and said outer surface of said upper part sloping from a side wall of said first molding chamber toward the premolding press axis and extending substantially in a same direction as said outer base surface extends; and

a press for hot pressing having an axis and including a lower press part having a base surface, and an upper press part having an outer surface defining with said base surface a second molding chamber, said base surface sloping from a side wall of said second molding chamber toward the hot pressing press axis, and said outer surface of said upper



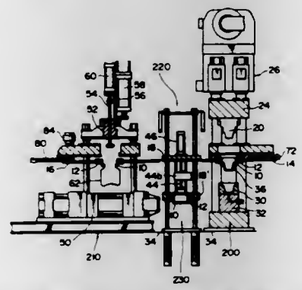
press part sloping from the hot pressing press axis toward the side wall of said second molding chamber and extending substantially in a same direction as said base surface extends, said first molding chamber and said second molding chamber having mirror-inverted shapes.

5,213,822

INJECTION STRETCH BLOW MOLDING APPARATUS

Kouhei Koga, Ueda, Japan, assignor to Nissei ASB Machine Co., Ltd., Nagano, Japan

Division of Ser. No. 559,266, Jul. 27, 1990, Pat. No. 5,102,610.
This application Dec. 13, 1991, Ser. No. 806,226
Claims priority, application Japan, Jul. 31, 1989, 1-198510; Jul. 31, 1989, 1-198519
Int. Cl.[5] B29C *49/30*
U.S. Cl. 425—522 14 Claims



1. An injection stretch blow molding apparatus providing a cycle of molding steps by circulating a plurality of neck molds for holding the neck portion of at least one preform sequentially at least through an injection molding stage, a stretch blow molding stage and an ejecting stage, comprising:

means for moving each neck mold in a horizontal path between said injection molding stage and said stretch blow molding stage;

means for transferring each neck mold in a vertical path between said horizontal path and said ejection stage, said ejection stage begin disposed at a position offset vertically from said horizontal path;

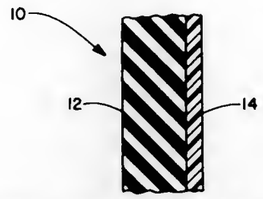
whereby a neck mold in which a step has been completed in the preceding stage can be moved to a next stage wherein no neck mold is present while other neck molds can be conveyed sequentially to other stages.

5,213,823

TURNUP BLADDER HAVING OUTER LAYER OF PVC/ACRYLONITRILE BUTADIENE RUBBER BLEND

Jerry D. Hunt, North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 20, 1992, Ser. No. 854,935
Int. Cl.[5] B32B *27/08*
U.S. Cl. 425—521 8 Claims



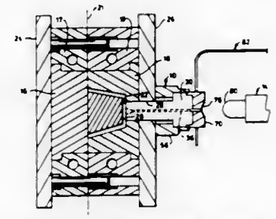
1. An inflatable bladder for use in making a rubber article wherein the materials forming at least the outside surface of said bladder is an elastomeric polymer blend containing from about 10 to about 60 parts by weight of polyvinyl chloride from about 40 to about 90 parts by weight of a acrylonitrile-containing rubber per 100 parts of polymer, wherein said rubber comprises from about 10 to about 45 parts by weight of acrylonitrile and from about 55 to about 90 parts by weight of a lower aliphatic diene per 100 parts of said acrylonitrile-containing rubber.

5,213,824

ADJUSTABLE HOT SPRUE BUSHING

Douglas C. Hepler, Rochester, N.Y., assignor to Polyshot Corporation

Continuation of Ser. No. 590,932, Oct. 1, 1990, abandoned. This application Mar. 19, 1992, Ser. No. 853,953
Int. Cl.[5] B29C *45/20*
U.S. Cl. 425—549 14 Claims



1. A hot sprue bushing adjustable in drop length so that it can be used in injection molding machines with a full range of different mold plate thicknesses to transport plasticized material from injection nozzles to mold cavities while controlling the temperature thereof, said hot sprue bushing comprising:

an elongated body of given length having arranged in order along its length a head, a stem, and a tip, said head having a reference seating surface which faces said tip and a rear surface facing opposite said tip, the distance between said reference seating surface and said tip corresponding to an initial drop length of said elongated body, said elongated body having a through bore passing from end to end through said head, stem, and tip thereof for transporting plasticized material through said hot sprue bushing from said head to said tip thereof, said elongated body having at least one nonthrough bore extending alongside said through bore, in heat conducting relationship with respect thereto, and adapted to receive an electrically powered heating cartridge for controlling the temperature of plasticized material as it travels along said through bore, said

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nonthrough bore having a length which extends from said head rear surface, through said head and said stem and into said tip by a predetermined distance, said length of said nonthrough bore being shorter than said given length of said elongated body; and

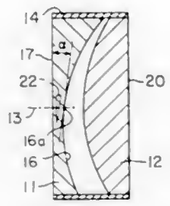
changing means manually positionable against said reference seating surface of said head and between said reference seating surface of said head and said tip for shortening said initial drop length of said elongated body, said changing means having a mold plate seating surface selectively locatable over a predetermined range of distances between said reference seating surface and said tip to change the drop length of said hot sprue bushing, the changed drop length of said hot sprue bushing corresponding to the distance between said mold plate seating surface of said changing means and said tip.

5,213,825

PLASTIC LENS MOLDING APPARATUS

Toshihiko Shimizu, and Osamu Aruga, both of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Aug. 29, 1991, Ser. No. 751,727
Claims priority, application Japan, Aug. 30, 1990, 2-229170
Int. Cl.[5] B29C *45/26*; B29D *11/00*
U.S. Cl. 425—595 4 Claims



1. A plastic lens molding apparatus comprising

a) a first mold;

b) a second mold, each of said molds having an inner and an outer side, the first mold having a concave optical surface on its inner side and a first supporting surface to which vacuum suction can be applied on its outer side, the second mold having a convex optical surface on its inner side and a second supporting surface to which vacuum suction can be applied on its outer side, said first mold being disposed with respect to said second mold such that the concave and convex optical surfaces face each other and have a common axis to which the first and second supporting surfaces are perpendicular, the respective optical surfaces of the first and second molds each having an apex, the optical surface of at least one of the molds being disposed with respect to the supporting surface of said at least one mold such that a plane including a tangent at the apex of the optical surface of said at least one mold is inclined relative to the supporting surface of said at least one mold;

c) tape means for application to the first and second molds so as to form a cavity between the molds into which a plastic material can be injected and set whereby to form a lens having an optical axis which is perpendicular to said first and second supporting surfaces, and

d) chuck means for applying vacuum suction to at least a first portion of said first supporting surface and a second portion of said second supporting surface to hold said molds in a desired position with the first and second supporting surfaces, including said first and second portions, disposed in planes perpendicular to the common axis.

5,213,826

WHEY PERMEATE-DERIVED SWEETENER

Bill L. Miller, Fort Dodge; H. Bruce Perry, Webster City, and Robert DeGregorio, Fort Dodge, all of Iowa, assignors to Land O'Lakes, Inc., Arden Hills, Minn.

Continuation of Ser. No. 350,121, May 10, 1989, Pat. No. 5,009,899, which is a continuation-in-part of Ser. No. 116,978, Nov. 5, 1987, abandoned. This application Dec. 19, 1990, Ser. No. 633,116
The portion of the term of this patent subsequent to Apr. 23, 2008, has been disclaimed.
Int. Cl.[5] A23K *1/00*
U.S. Cl. 426—2 12 Claims

1. A method of feeding animals comprising:

providing a whey permeate sweetener including a condensed whey permeate having at least 10% caramelized lactose and having a protein level of less than approximately 8% and a lactose level of at least approximately 79%, on a dry matter basis by weight; and

feeding the sweetener to animals.

5,213,827

METHOD FOR MANUFACTURE OF PRE-CHEESE AND NATURAL CHEESE

K. Rajinder Nauth, Glenview, and Barbara Kostak, Mundelein, both of Ill., assignors to Kraft General Foods, Inc., Northfield, Ill.

Filed Jan. 27, 1992, Ser. No. 825,967
Int. Cl.[5] A23C *9/12*
U.S. Cl. 426—36 11 Claims

1. A process for manufacture of a pre-cheese that is capable of being converted into natural cheese having total solids in excess of 55% comprising the steps of:

(a) removing moisture, salts and lactose from skim milk by a membrane process to provide a retentate having between about 70% and about 83% moisture, between about 0.7% and about 2.5% salts and less than about 1.8% lactose;

(b) adding cultures capable of metabolizing lactose to lactic acid to said retentate and fermenting said retentate until said lactose of said retentate has been substantially converted to lactic acid;

(c) centrifuging said fermented retentate to provide a concentrate having from about 30% to about 50% solids;

(d) combining said concentrate with a milk clotting enzyme, fat, salt and a mixed fermentate comprising a high digest casein fermentate, a lipolytic fermentate, casein, a protease, a lipase and a proteolytic micrococcus to provide a cheese base; and

(e) fermenting said cheese base to provide a pre-cheese.

5,213,828

HEATABLE WINDSHIELD

John A. Winter, Pittsburgh, and Bruce A. Bartrug, Lower Burrell, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 658,137, Feb. 25, 1991, abandoned, which is a continuation-in-part of Ser. No. 375,090, Jul. 3, 1989, abandoned, and a continuation-in-part of Ser. No. 456,711, Dec. 26, 1989, abandoned. This application Mar. 25, 1992, Ser. No. 857,144
Int. Cl.[5] B32B *3/10, 17/06, 31/14*
U.S. Cl. 428—46 23 Claims

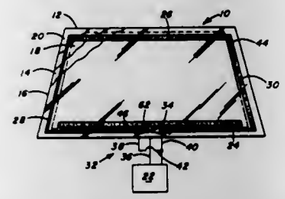
1. A laminate comprising:

a pair of glass sheets laminated together about an interlayer;

a cut out area in a first one of said sheets and said interlayer;

at least one gas permeable member supported on a second one of said sheets in said cut out area;

a sealant material in said cut out area, said sealant material applied before said sheets are laminated together as evidenced by the absence of bubbles in said interlayer in the vicinity of said cut out area after prolonged exposure to high temperatures and humidity conditions.



5,213,829

MEAT PRODUCTS CONTAINING ARTIFICIAL EDIBLE ADIPOSE AND METHODS OF MAKING

James P. Cox; R. W. Duffy Cox, and Florence F. Cox, all of Lynden, Wash., assignors to LipiDyne Corporation, Woodinville, Wash.

Division of Ser. No. 484,379, Feb. 23, 1990, Pat. No. 5,100,688. This application Feb. 28, 1992, Ser. No. 843,516
Int. Cl.[5] A23L *1/314, 3/317*
U.S. Cl. 426—104 28 Claims

1. A method of preparing a meat product which includes the steps of:

providing lean meat; and

combining with the lean meat an artificial adipose so formulated as to provide a meat product having the appearance, aroma, and flavor of a comparable natural meat product but a substantially lower concentration of cholesterol and/or saturated fats, said artificial adipose containing a meat-free gel which comprises an edible oil or fat, a cross-linkable, fibrinogen- and albumin-containing protein constituent and a cross-linkable saccharide binder,

said protein constituent and said binder being so cross-linked as to provide matrix-forming copolymeric networks; and

said artificial adipose being prepared by forming an emulsion which contains said protein, said edible oil or fat, and said saccharide binder and converting said emulsion to a gel in which the protein and binder are so cross-linked as to provide matrix-forming copolymeric networks.

5,213,830

METHOD OF DETECTING WORMS IN MEAT

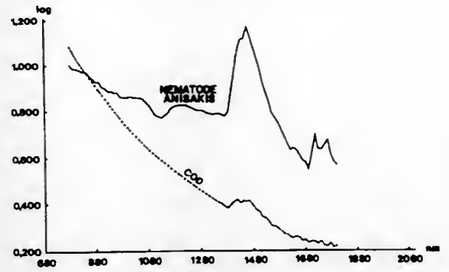
Peter Haagensen, Valby; Alicia de Francisco, Hvidovre, and Lars Munck, Helsingor, all of Denmark, assignors to Lumetech, Hellerup, Denmark

PCT No. PCT/SE89/00578, § 371 Date Jun. 19, 1990, § 102(e) Date Jun. 19, 1990, PCT Pub. No. WO90/04782, PCT Pub. Date May 3, 1990
PCT Filed Oct. 19, 1989, Ser. No. 488,070
Claims priority, application Sweden, Oct. 19, 1988, 8803724-7
Int. Cl.[5] G01N *21/00, 21/17, 21/62*
U.S. Cl. 426—237 2 Claims

1. A method for performing quality control inspection of fresh cod flesh wherein the presence of nematode Anisakis and Phocanema is detected, comprising:

exposing at least part of the fresh cod flesh to electromagnetic radiation within the range of approximately 800–1800 nm from an electromagnetic radiation source;

receiving said electromagnetic radiation transmitted through said fresh cod flesh in a detector; and



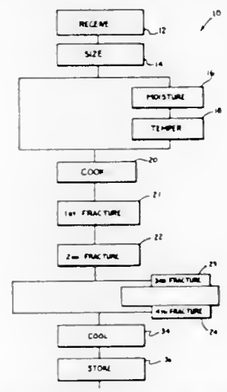
analyzing said received electromagnetic radiation for identification of absorption characteristics of the nematode Anisakis and Phocanema.

5,213,831

PROCESSING SYSTEM AND METHOD FOR QUICK-COOKING LEGUMES

Merton R. Leggott, Lincoln; Randall A. Baker, Douglas, and Rick L. Williams, Lincoln, all of Nebr., assignors to Brown's Best Food, Lincoln, Nebr.

Continuation-in-part of Ser. No. 695,648, May 6, 1991, Pat. No. 5,151,285. This application Dec. 23, 1991, Ser. No. 812,684
Int. Cl.[5] A23L *1/00*
U.S. Cl. 426—241 22 Claims



16. A method of processing legumes with outer seed coats and in new cotyledons which comprises the steps of:

(a) precooking the legumes;

(b) fracturing the precooked legumes with a roller assembly, said fracturing step including distorting the cotyledons of the legumes while otherwise leaving the legumes substantially intact, thereby producing quick-cooking legumes.

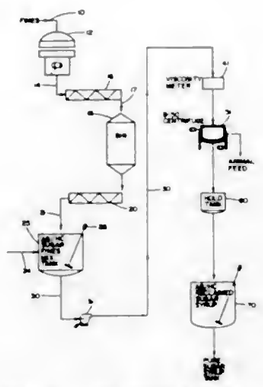
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,832

PROCESS FOR THE RECOVERY OF SUGAR FROM SUGAR FINES PRODUCED DURING THE SUGAR-COATING OF CEREAL

Bruce A. Johnson, Battle Creek, and David A. Cronk, Ceresco, both of Mich., assignors to Kraft General Foods, Inc., White Plains, N.Y.

Filed Apr. 9, 1991, Ser. No. 682,473
Int. Cl.[5] A23L *1/09*
U.S. Cl. 426—425 7 Claims



1. In a process for applying pure sugar solution to the surface of a cereal product, drying the sugar-coated cereal, collecting the fines of sugar and cereal produced therefrom, and recycling said fines into the pure sugar solution the improvement which comprises:

collecting fines having (by weight) a sugar content of 65–90% and a cereal content of 10–35%;

forming a slurry of the sugar and cereal fines with water at a temperature of 130° to 175° F. and a water:fines ratio (by weight) of between 0.7:1 and 1.5:1;

mixing the slurry vigorously for 2 to 30 minutes to dissolve all the sugar fines and wet all the cereal fines;

adjusting the water content of the slurry to achieve a specific gravity of between 1.18 to 1.40;

separating the dissolved sugar from the wet cereal fines by centrifugation in a solid bowl centrifuge;

recycling the dissolved sugar into the pure sugar solution.

5,213,833

PRESERVING AGENT AND METHOD FOR ITS PRODUCTION

Nobuo Yamada, Fujieda; Taku Wada, Yaizu; Yoshio Iwai, Fujieda; Takafumi Sano, Ihara; Mituo Kanaoka, Iruma, and Misao Kashiwamata, Yokohama, all of Japan, assignors to Sankyo Company, Limited, Tokyo and Fuji Seito Company Limited, Shimizu, both of Japan

Continuation of Ser. No. 196,330, May 20, 1988, abandoned. This application Jun. 2, 1989, Ser. No. 361,831
Claims priority, application Japan, May 22, 1987, 62-125459
Int. Cl.[5] A23L *3/34*
U.S. Cl. 426—542 36 Claims

1. A method of producing an extract of tea leaves, comprising extracting tea leaves with an extracting solution which is an acidic medium containing at least one food grade polyhydroxy compound, at least one food grade organic acid and water.

5,213,834

LOW CALORIE PROCESSED FOOD MADE WITH GEL-PARTICLES OF GLUCOMANNAN COAGULUM

Masayuki Ikeda, Saitama, and Seiki Harada, Kanagawa, both of Japan, assignors to Uni Colloid Kabushiki Kaisha, Kanagawa, Japan

Filed Sep. 17, 1991, Ser. No. 761,154
Claims priority, application Japan, Oct. 5, 1990, 2-266483; Jun. 3, 1991, 3-157372; Jul. 10, 1991, 3-194985
Int. Cl.[5] A23J *1/12*
U.S. Cl. 426—573 6 Claims

1. A method of making a low-calorie foodstuff, comprising mixing organic acid microcapsules, gel-particles consisting essentially of glucomannan and water in a weight ratio of water to gel-particles of about 20:1 to 50:1, each of the microcapsules having a core having a melting point higher than a temperature at which alkaline glucomannan coagulates to form a thermally irreversible coagulum, adding alkali to the mixture thereby to produce an alkaline mixture, heating the alkaline mixture to a temperature at which the glucomannan coagulates to form a thermally irreversible coagulum, said heating melting the core of each of the microcapsules thereby to neutralize the coagulum and form a body of neutral glucomannan gel therefrom, and chopping the gel into neutral glucomannan gel-particles of size 200 Tyler pass or less.

5,213,835

METHOD FOR REMOVING PHOSPHORUS FROM MILK AND WHEY PROTEIN

Christy A. Nardelli, Westerville; Arthur J. C. L. Hogarth, Columbus; James M. Simpson, Reynoldsburg; Andre Daab-Krzykowski, Columbus, and Terrence B. Mazer, Reynoldsburg, all of Ohio, assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Dec. 20, 1991, Ser. No. 812,506
Int. Cl.[5] A23C *9/00*
U.S. Cl. 426—580 6 Claims

1. A method of separating phosphorus from condensed skim milk comprising the steps of:

(a) providing condensed skim milk;

(b) placing the condensed skim milk in contact with particles of alumina for a period of time, said alumina particles having been conditioned with a solution containing a sulfate moiety prior to contact with the condensed skim milk, with the condensed skim milk for at least a portion of the contact period having a pH in the range of about 6.0 to 6.5; and

(c) thereafter separating the condensed skim milk from the particles of alumina.

5,213,836

METHOD OF PREPARATION OF SUGAR BEET FIBER MATERIAL

Terry D. McGillivray; David R. Groom, both of Moorehead, Minn.; Dennis Brown, Fargo, N. Dak.; Richard R. Fergle, and Gregory Haakenson, both of Moorhead, Minn., assignors to American Crystal Sugar Company, Morehead, Minn.

Filed Sep. 18, 1991, Ser. No. 762,557
Int. Cl.[5] A23L *1/214*
U.S. Cl. 426—615 9 Claims

1. A process for preparing a fiber material from sugar beets for use in foodstuffs as a non-caloric, decolorized, and bland ingredient, comprising the steps of:

(a) washing the beets;

(b) peeling the washed beets;

(c) preparing cossettes by slicing the peeled beets;

(d) inspecting said cossettes and rejecting cossettes with defects;

(e) blanching said cossettes by raising the temperature of said cossettes to 100° C.;

(f) extracting the sucrose form said blanched cossettes;

(g) reducing the particle size of said cossettes from which the sucrose has been extracted to form a slurry having aggregate clumps of from about 6 cells to about 25 cells;

(h) washing said slurry with an acid wash having a pH of between about 4.5 to about 7.0; and

(i) drying said slurry.

5,213,837

INSTANT GRITS

John G. Mast, Jr.; Bradley J. Wiersum, both of Brentwood, Tenn., and Franz X. Ecker, Lexington, Ky., assignors to Martha White Foods, Inc., Brentwood, Tenn.

Filed Dec. 26, 1991, Ser. No. 813,579
Int. Cl.[5] A23L *1/168*
U.S. Cl. 426—618 30 Claims

1. A process for preparing instant grits which comprises:

a) premixing water with at least one member selected from the group consisting of antioxidant, salt and a sugar to obtain a gum-free mixture;

b) admixing the gum-free mixture with raw grits, additional water, optionally a sugar and/or salt, and enough steam to heat the resulting slurry to a temperature of from 175° to 205° F. (79.5° to 96.1° C.);

c) drying the gum-free heated slurry on a double-drum drier for a period of about one minute;

d) breaking up the dried product from step (c);

e) separating excess fines if needed; and

f) optionally dry mixing the retained dried product with additional flavor, enrichment, preservative and/or dry CMC.

5,213,838

SODIUM-FREE SALT SUBSTITUTE CONTAINING CITRATES AND METHOD FOR PRODUCING THE SAME

Morris Sheikh, 803 Canterberry Crescent, Bloomfield Hills, Mich. 48013

Filed Jan. 23, 1991, Ser. No. 644,618
Int. Cl.[5] A23L *1/237*
U.S. Cl. 426—649 7 Claims

1. A method for preparing a sodium free seasoning composition which closely approximates the taste of sodium chloride and is suitable for use as a substitute for common table salt, the sodium-free composition consisting essentially of a citrate salt selected from the group consisting of potassium citrate, calcium citrate, magnesium citrate and mixtures thereof and minor amounts of acids of said citrate salt, the method comprising the step of:

drying and pulverizing crystalline solid salts which consist essentially of citrates selected from the group consisting of potassium citrate, calcium citrate, magnesium citrate and mixtures thereof, said crystalline solid salts derived from a deionized aqueous solution maintained at a temperature between 20° C. and 100° C., the solution consisting essentially of sufficient citric acid to provide an initial solution pH less than about 3.5, and sufficient basic hydroxide material selected from the group consisting of potassium hydroxide, magnesium hydroxide, calcium hydroxide, and mixtures thereof to provide a secondary solution pH of between about 5 and about 7.8.

5,213,839

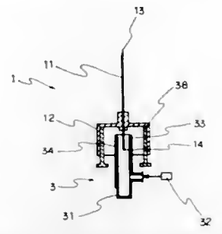
METHOD OF APPLYING SILICONE OIL TO INJECTION NEEDLE AND APPARATUS USED THEREFOR

Fumio Awazu, Otsu, and Hideo Kuwabara, Kusatsu, both of Japan, assignors to Nissho Corporation, Osaka, Japan

Filed Jul. 26, 1991, Ser. No. 736,144
Claims priority, application Japan, Jul. 30, 1990, 2-201759
Int. Cl.[5] B05D *1/18*
U.S. Cl. 427—2 1 Claim

1. A method of applying silicone oil to a back end of an injection needle including a hub having a center hole and a cap and a cannula inserted in the center hole, the cannula having a front end with a sharp bevel and a back end with another sharp bevel, the back end terminating within the cap of the hub, comprising:

(a) allowing silicone-containing-liquid to continuously overflow from a top end of a rising pipe having an inner diameter larger than an outer diameter of the cannula and an



outer diameter smaller than an inner diameter of the hub, and

(b) concurrently dipping the back end of the cannula into silicone-containing-liquid at the top end of the rising pipe without contacting the hub with the silicone-containing-liquid.

5,213,840

METHOD FOR IMPROVING ADHESION TO POLYMIDE SURFACES

Richard C. Retallick, West Hartford; Raymond A. Letize, West Haven, and Peter E. Kukanskis, Woodbury, all of Conn., assignors to MacDermid, Incorporated, Waterbury, Conn.

Continuation of Ser. No. 517,154, May 1, 1990, abandoned. This application Jun. 10, 1991, Ser. No. 713,638
Int. Cl.[5] C23C *26/00*
U.S. Cl. 427—97 15 Claims

1. In a process for preparing for electroless metallization the surfaces of through holes formed in a multilayer laminate comprised of alternating layers of conductive circuitry and insulating substrate material, and wherein said insulating substrate material is comprised of a polyimide, in which process the surfaces of said through holes are subjected to a desmearing and/or etchback treatment prior to electroless deposition, the improvement comprising contacting said through holes, after and separate from said desmearing and/or etch back treatment and prior to electroless metallization, with an aqueous permanganate solution having a pH of about 8 or less, for a time and at conditions effective to render the through holes more receptive to adherent receipt of subsequently-applied electroless metal, and thereafter neutralizing manganese residue on said through hole surfaces.

5,213,841

METAL ACCELERATOR

Michael Gulla, and Prasit Sricharoenchaikit, both of Millis, Mass., assignors to Shipley Company Inc., Newton, Mass.

Filed May 15, 1990, Ser. No. 523,713
Int. Cl.[5] C23C *26/00*
U.S. Cl. 427—98 30 Claims



1. A process for plating a substrate with metal, said process comprising the steps of:

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a. catalyzing said substrate with a preformed metal plating catalyst that is the product of reaction of stannous ions and ions of a metal catalytic to electroless metal deposition,
b. directly accelerating said catalyzed substrate by contact of the same with an accelerating solution that is aqueous stannous tin free solution of a metal that does not impede a plating reaction and which is more noble in the electromotive series than tin, said step of acceleration being performed without a step of water rinsing between the step of catalyzing and acceleration, and
c. plating metal over said treated substrate.

5,213,842

METHOD OF IMPROVING THE PYROLYTIC DEPOSITION RATE OF COPPER OXIDE FILM ON A GLASS SURFACE

Franklin I. Brown, Detroit, Mich., and Stephen C. Schulz, Benicia, Calif., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jul. 18, 1991, Ser. No. 732,018
Int. Cl.[5] B05D *5/06*
U.S. Cl. 427—168 **1 Claim**

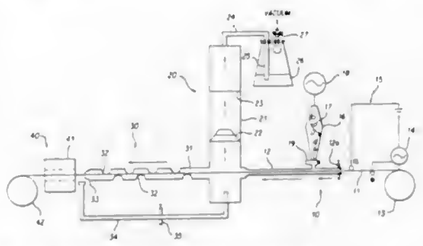
1. A pyrolytic deposition process for forming a copper oxide on a hot glass substrate by pyrolysis of cupric acetylacetonate powder at a surface of said substrate, said process comprising spraying said surface with a suspension of said powder in a substantially pure oxygen carrier gas.

5,213,843

VACUUM POWDER INJECTOR AND METHOD OF IMPREGNATING FIBER WITH POWDER

Dennis C. Working, Norfolk, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 5, 1991, Ser. No. 740,526
Int. Cl.[5] B05D *1/12*
U.S. Cl. 427—180 **15 Claims**



13. An impregnation apparatus comprising:
an impregnation chamber;
a stranded material feeder arranged to feed stranded material into said impregnation chamber;
a powder feeder arranged to feed powder into said impregnation chamber wherein the powder feeder permits the passage of air into the impregnation chamber;
a vacuum source arranged to apply a vacuum to said impregnation chamber downstream of said stranded material feeder and said powder feeder;
a comb for combing large particles of said powder into said stranded material forming an impregnated stranded material; and an oven for curing or partially curing said impregnated stranded material

5,213,844

VOLATILE CVD PRECURSORS BASED ON COPPER ALKOXIDES AND MIXED GROUP IIA-COPPER ALKOXIDES

Andrew Purdy, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 31, 1992, Ser. No. 828,634
Int. Cl.[5] C23C *16/00*
U.S. Cl. 427—248.1 **5 Claims**

1. A method for chemical vapor deposition of metal oxides on a substrate comprising the steps of:
introducing a precursor compound selected from the group consisting of:

$$Cu_w(OR)_xY_yL_z, \text{ and}$$

$$M_aCu_b(OR)_c$$

in which $1 \leqq w \leqq 4$; R is a fluorinated alkyl group; $x \geqq 1$; Y is selected from the group consisting of alkoxy groups and alkyl groups without beta-hydrogen; $y \geqq 0$; $w \leqq (x+y) \leqq 2w$; L is a Lewis base; $1 \leqq z \leqq 2w$; M is selected from the group consisting of Ca, Sr, and Ba; and $1 \leqq a \leqq 4$; $1 \leqq b \leqq 4$; $(b+2a) \leqq c \leqq 2(b+a)$, into a reactor and depositing metal oxides therefrom on a substrate placed therein.

5,213,845

COLORING PROCESS

Walter J. Hohrn; William D. DeSantis, and Raymond C. Kent, all of Lancaster, Pa., assignors to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Oct. 7, 1991, Ser. No. 772,143
Int. Cl.[5] B05D *5/06*
U.S. Cl. 427—280 **8 Claims**

1. A method for imparting at least two different color effects on a substantially non-wicking material comprising:
(a) preparing at least two algin dispersions, each of a different color and each being prepared by dispersing particles of at least one colored pigment in an aqueous solution of alginic acid or an alginic acid derivative to form an algin dispersion of one color;
(b) preparing a gelling salt solution by mixing a salt of a polyvalent metal other than magnesium in water;
(c) intimately contacting each of the algin dispersions prepared in step (a) with a portion of said gelling salt solution to produce at least two slurries of gel particles;
(d) dispersing the variously colored gel particles to a concentration of 2–50% by weight in a liquid having a viscosity of 50–3000 cps to form a coating composition;
(e) applying said coating composition to the surface of a substrate, said surface being essentially non-wicking; and
(f) drying said coated surface.

5,213,846

CORRISON RESISTANT COATING COMPOSITION

Kazuyoshi Tsuneta, Tochigi; Masanori Nagai, Otawara; Osamu Ogawa, and Osamu Tanida, both of Tochigi, all of Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka, Japan

Continuation of Ser. No. 582,170, Sep. 14, 1990, abandoned. This application Oct. 24, 1991, Ser. No. 781,668
Claims priority, application Japan, Sep. 27, 1989, 1-251363; Sep. 27, 1989, 1-251364; Sep. 27, 1989, 1-251365; Sep. 27, 1989, 1-251366; Oct. 3, 1989, 1-258042; Oct. 3, 1989, 1-258043
Int. Cl.[5] B05D *3/02;* C04B *9/02*
U.S. Cl. 427—386 **14 Claims**

1. A method for imparting corrosion resistance and cationic electrodeposition coating properties to a steel plate, comprising:
coating a surface of a steel plate with a liquid coating composition comprising:

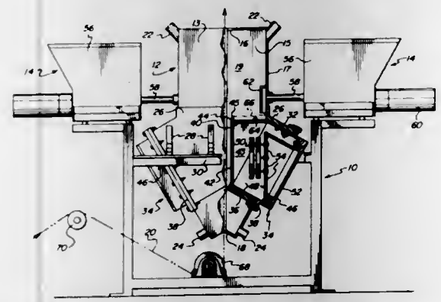
(i) 100 parts by weight of a bisphenol epoxy resin comprising bisphenol skeletons and epichlorohydrin skeletons and having at least two epoxy groups per molecule, said bisphenol skeletons comprising bisphenol A skeletons and bisphenol F skeletons in a weight ratio of from 95:5 to 60:40, and
(ii) from 5 to 400 parts by weight of colloidal silica dispersed in an organic solvent or powdery fumed silica; and curing said coating.

5,213,847

ELECTROSTATIC FLUIDIZED BED HAVING HORIZONTAL AND VERTICAL COATING EFFECTS AND METHOD UTILIZING SAME

Bedrich Hajek, Clinton, Conn., assignor to Electrostatic Technology, Inc., Branford, Conn.

Filed Jun. 10, 1991, Ser. No. 712,575
Int. Cl.[5] B05D *1/24;* B05B *5/053, 5/057*
U.S. Cl. 427—460 **20 Claims**



1. Electrostatic coating apparatus, comprising:
at least one coating unit, said one coating unit having at least one plenum therewithin and comprising a porous top wall portion and a porous sidewall portion extending downwardly and generally perpendicularly relative to said top wall portion, said sidewall and top wall portions partially defining said one plenum, and having outer surfaces in communication with said one plenum through the pores thereof; means for introducing air into said one plenum; and means for ionizing such introduced air; whereby particles of a particulate coating material can be electrostatically charged during passage over said outer surfaces of both said top wall portion and said sidewall portion, by contact with air from said one plenum issuing from said wall portions in ionized condition.

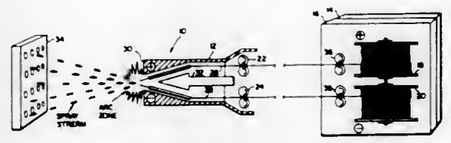
16. A method for coating a workpiece with a particulate material, comprising the steps:
(a) providing electrostatic coating apparatus, said apparatus comprising: at least one coating unit, said one coating unit having at least one plenum therewithin and comprising a porous top wall portion and a porous sidewall portion extending downwardly and generally perpendicularly relative to said top wall portion, said sidewall and top wall portions partially defining said one plenum, and having outer surface in communication with said one plenum through the pores thereof; means for introducing air into said one plenum; and means for ionizing such introduced air, said one coating unit being so positioned as to orient said top wall portion generally horizontally and said sidewall portion generally vertically;
(b) supplying to said outer surface of said top wall portion of said one coating unit a quantity of particulate coating material, and causing a portion of said quantity of coating material to pass from said top wall portion along said outer surface of said sidewall portion, the particles of said coating material being capable of acquiring an electrostatic charge;
(c) introducing air into said one plenum, ionizing said air, and causing said ionized air to issue from both said top wall portion and said sidewall portion of said one coating unit, to thereby electrostatically charge said particles passing over and along said outer surfaces of said portions; and
(d) transporting a workpiece along a generally vertical travel path portion past and adjacent said sidewall portion, said workpiece being maintained at an electrical potential that is effectively opposite to the charge on said charged particles, so as to electrostatically attract said charged particles and develop a deposit thereof upon said workpiece.

5,213,848

METHOD OF PRODUCING TITANIUM NITRIDE COATINGS BY ELECTRIC ARC THERMAL SPRAY

Zbigneiw Zurecki, Macungie; Edward A. Hayduk, Jr., Blandon; John G. North, Pottstown; Robert B. Swan, Bath, and Kerry R. Berger, Lehighton, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 477,400, May 6, 1990, Pat. No. 5,066,513. This application Jul. 9, 1991, Ser. No. 727,511
The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.
Int. Cl.[5] B05D *3/06, 1/04*
U.S. Cl. 427—449 **9 Claims**



1. A method of improving the corrosion and mechanical wear resistance of a substrate comprising the steps of:
exposing said substrate to the effluent from an electric arc thermal spray gun using two wires in said gun, one wire being titanium and the other being selected from the group consisting of ferrous metals, ferrous metal alloys, non-ferrous metals excluding titanium, non-ferrous metal alloys, ceramics, intermetallic compounds, cored welding wires and combinations thereof, and nitrogen gas as the atomizing/propelling gas, whereby a coating of titanium nitride particles embedded in a matrix formed from the second wire is produced on said substrate.

5,213,849

METHOD OF PRODUCING A FLAT, REINFORCED ARTICLE WITH MICRO-OPENINGS

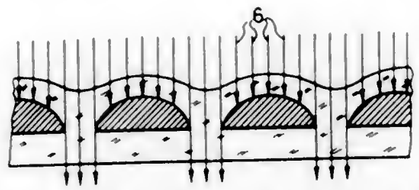
Asim Maner, Kerns, Switzerland, assignor to Maxs AG, Sachseln, Switzerland

Filed Nov. 19, 1991, Ser. No. 794,545
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1990, 4042125
Int. Cl.[5] B05D *3/06, 5/00;* C25D *1/00*
U.S. Cl. 427—493 **9 Claims**

1. A method for applying a reinforced layer to a first surface of a basic layer having first and second surfaces and a plurality of micro-openings interposed over the surfaces therebetween comprising the steps of:
coating the basic layer on both surfaces with a radiation sensitive resist and filling the micro-openings with the resist;
irradiating said resist from above said second surface of the basic layer with radiation such that said second surface acts as a mask to prevent penetration of said radiation to

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said first surface, said radiation passing through the resist in said micro-openings to thereby impart to said irradiated resist a characteristic resistance to dissolution by fluids;
removing non-irradiated resist from said basic layer to expose said first surface by exposing said basic layer to a dissolving fluid, the resist filling the micro-openings form-



ing a plurality of projections that extend beyond said exposed first surface to define on said first surface, resist-free regions between said projections;
applying a reinforcing layer to said regions of said first surface and about said projections; and
thereafter removing remaining resist.

5,213,850
PROCESS FOR PLATING A METALLIC DEPOSIT BETWEEN FUNCTIONAL PATTERN LINES ON A SUBSTRATE

Akira Matsumura, Hirakata; Masashi Ohata, Osaka, and Katsukiyo Ishikawa, Kuze, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Continuation of Ser. No. 498,712, Mar. 22, 1990, abandoned. This application Sep. 12, 1991, Ser. No. 759,756
Claims priority, application Japan, Mar. 24, 1989, 1-73135
Int. Cl.[5] C23C *26/00*
U.S. Cl. 427—508 **6 Claims**

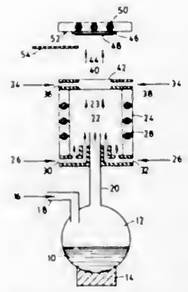
1. A process for plating a metallic deposit between color filter pattern lines on a substrate, comprising:
(a) forming a cured film containing a catalyst for electroless plating on the substrate,
(b) forming color filter pattern lines on said cured film, and
(c) conducting electroless plating to form metal deposits between the color filter pattern lines.

5,213,851
PROCESS FOR PREPARING FERRITE FILMS BY RADIO-FREQUENCY GENERATED AEROSOL PLASMA DEPOSITION IN ATMOSPHERE

Robert L. Snyder, Alfred, N.Y.; John Simmins, Frederick, Md., and Xingwu Wang, Alfred, N.Y., assignors to Alfred University, Alfred, N.Y.

Continuation-in-part of Ser. No. 510,011, Apr. 17, 1990, Pat. No. 5,120,703. This application Apr. 8, 1992, Ser. No. 866,665
Int. Cl.[5] B05D *3/06, 5/12*
U.S. Cl. 427—576 **17 Claims**

1. A process for coating a layer of ferritic material with a thickness of from about 0.1 to about 500 microns onto a substrate at a deposition rate of from about 0.01 to about 10 microns per minute per 35 square centimeters of substrate surface, comprising the steps of:
(a) providing a solution comprised of a first compound and a second compound, wherein said first compound is an iron compound and said second compound is selected from the group consisting of compounds of nickel, zinc, magnesium, strontium, barium, manganese, lithium, lanthanum, yttrium, scandium, samarium, europium, terbium, dysprosium, holmium, erbium, ytterbium, lutetium, cerium, praseodymium, thulium, neodymium, gadolinium, aluminum, iridium, lead, chromium, gallium, indium, chromium, promethium, cobalt, titanium, and mixtures thereof, and wherein said solution is comprised of from about 0.01 to about 1,000 grams of a mixture consisting essentially of said compounds per liter of said solution;
(b) subjecting said solution to ultrasonic sound waves at a frequency in excess of 20,000 hertz, and to an atmospheric pressure of at least about 600 millimeters of mercury, thereby causing said solution to form into an aerosol;
(c) providing a radio frequency plasma reactor comprised of a top section, a bottom section, and a radio-frequency coil;
(d) generating a hot plasma gas within said radio frequency plasma reactor, thereby producing a plasma region;
(e) providing a flame region disposed above said top section of said radio frequency plasma reactor;

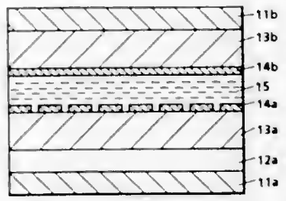


(f) contacting said aerosol with said hot plasma gas within said plasma reactor while subjecting said aerosol to an atmospheric pressure of at least about 600 millimeters of mercury and to a radio frequency alternating current at a frequency of from about 100 kilohertz to about 30 megahertz, thereby forming a vapor;
(g) providing a substrate disposed above said flame region; and
(h) contacting said vapor with said substrate, thereby forming said layer of ferritic material.

5,213,852
PHASE DIFFERENCE FILM AND LIQUID CRYSTAL DISPLAY HAVING THE SAME

Kohei Arakawa, and Sumio Ohtani, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 21, 1991, Ser. No. 795,543
Claims priority, application Japan, Nov. 21, 1990, 2-316440
Int. Cl.[5] G02F *1/1335*
U.S. Cl. 428—1 **4 Claims**



1. A liquid crystal display which comprises a liquid crystal cell comprising a pair of substrates provided with a transparent electrode and a twist orientated nematic liquid crystal sealed therebetween, at least one phase difference film provided on at least one of the substrates and a pair of polarizing sheets arranged on the both sides of the cell wherein:
said phase difference film comprises at least one uniaxially stretched film of a polymer having a positive intrinsic birefringence and at least one uniaxially stretched film of a copolymer having a negative intrinsic birefringence, said copolymer comprising a styrene unit and an acrylonitrile unit in the range of 85/15 to 50/50 by weight and having a weight-average molecular weight of 200,000 to 900,000.

5,213,853
PHOTOSENSITIVE CROSSLINKABLE POLYESTER ALIGNMENT LAYERS FOR LIQUID CRYSTAL DISPLAYS

John M. Noonan, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 26, 1991, Ser. No. 799,472
Int. Cl.[5] G02F *1/1337*
U.S. Cl. 428—1 **5 Claims**

1. In a liquid crystal display element comprising:
1) a pair of substrates including a first transparent substrate having thereon a transparent electrode and a polymeric alignment layer, and a second transparent substrate having thereon a transparent electrode and a polymeric alignment layer;
2) a ferroelectric liquid crystal material disposed between said pair of substrates; and
3) at least one of said first or second substrates further comprising a color filter array;
the improvement wherein each said polymeric alignment layer is a crosslinked polyester which is derived from 1,4-phenylene bis(2-acrylic acid) and at least one aliphatic glycol that does not contain any aromatic dibasic acid component.

5,213,854
ARTICLES WITH STONE-LIKE SURFACES, AND METHOD OF MANUFACTURE THEREFOR

Michael J. Williams, and Anna P. Williams, both of 36 Waratah St., Christchurch, New Zealand

Filed Mar. 26, 1990, Ser. No. 498,419
Claims priority, application New Zealand, Mar. 30, 1989, 228528
Int. Cl.[5] A01N *1/00*
U.S. Cl. 428—15 **17 Claims**

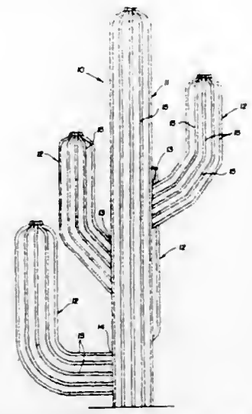
1. A method of making an article which from a distance appears to be made from or to have one or more visible surfaces of solid stone, the method including: providing a piece of see-through medium; applying to a selected surface of said see-through medium a layer of an adhesive filler material which is capable of being worked as a liquid but which sets solid, and which when set is see-through when less than 1 mm thick; covering said layer of adhesive filler with a tightly-packed continuous layer of finely cut-up paper and applying pressure to press said finely cut-up paper into said adhesive filler; allowing the adhesive filler to set, and completing the making of the article such that said see-through medium forms an external surface of the article and said layer of paper is visible through said see-through medium.

5,213,855
ARTIFICIAL SAGUARD CACTUS

William C. Buxton, 4900 Reynolds, Fort Worth, Tex. 76180

Filed Oct. 31, 1991, Ser. No. 785,513
Int. Cl.[5] A41G *1/00*
U.S. Cl. 428—17 **18 Claims**

1. An artificial cactus simulating natural saguaro cactus comprising: a generally vertical rounded timber trunk; a plurality of multi-section rounded timber arms affixed to said trunk at generally irregular spacing, the first section of each of said plurality of arms being joined to said trunk at an angle with said trunk of between about 90 and about 60 degrees; each successive section of each said arm being joined to adjacent sections at an angle of between about 15 and about 30 degrees with the last of said sections oriented in an approximately vertical direction; each said arm having a metallic rod member extending longitudinally through said sections of the arm and transversely through said trunk; a plurality of fastener means engaging said rod at intervals with each said fastener bearing against one of said trunk or said sections to affix said sections together and to said trunk; and a plurality of natural fiber rope



lengths affixed longitudinally along said trunk and each of said plurality of arms in simulation of spine ridges.

5,213,856
COPOLYESTERS HAVING AN IMPROVED COMBINATION OF PROPERTIES

Riccardo Po'; Paolo Cioni; Ernesto Occhiello, and Fabio Garbassi, all of Novara, Italy, assignors to Istituto Guido Donegani S.p.A., Novara, Italy

Filed Dec. 20, 1991, Ser. No. 810,903
Claims priority, application Italy, Dec. 24, 1990, 22538 A/90
Int. Cl.[5] B29D *23/00*
U.S. Cl. 428—34.1 **10 Claims**

1. Copolyesters having an improved combination of barrier, mechanical, thermal and rheological properties and a glass transition temperature equal to or higher than 73° C. and an oxygen permeability equal to or lower than 1.1 $cm^3.mm/m^2.24$ hr.atm., measured according to manometric method ASTM D-1434, at 25° C. and 0% relative humidity, consisting of acrylic and glycolic radicals, wherein the acylic radicals derive from at least isophthalic acid and 2,6-naphthalenedicarboxylic acid, the latter being present in amounts of 20% to 40% by mols referred to the sum of acylic radicals, while at least 90% by mols of glycolic radicals derive from ethylene glycol.

5,213,857
WALL MATERIAL FOR A CELL-STRUCTURE PLANT GROWING CONTAINER AND A CELL-STRUCTURE GROWING CONTAINER MADE OF THE MATERIAL

Jukka Erkkilä, Pello, Finland, assignor to Kalottinvest Oy, Pello, Finland

Filed Jan. 29, 1990, Ser. No. 472,370
Claims priority, application Finland, Feb. 1, 1989, 890484
Int. Cl.[5] A01G *23/02*; B32B *5/02, 1/08*
U.S. Cl. 428—34.1 **15 Claims**

1. Wall material for a cell-structure plant growing container, comprising at least three layers bonded together, at least two of the layers being of a decayable paper, and a third of said layers constituting a middle layer all the layers being permeable to water and nutrients and the middle layer being formed of a nonwoven and non-decayable material, said wall material further comprising a root growth control agent, said root growth control agent being absorbed into the middle layer, being firmly attached to both sides of the middle layer or being coated on an inner side of each of two of the at least two layers of decayable paper such that it is sandwiched between each said inner side and said middle layer.

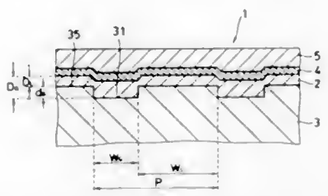
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5,213,858
BIODEGRADABLE PAPERBOARD LAMINATE STRUCTURE
Cynthia L. Tanner, and Charles E. Gibbons, both of Mobile, Ala., assignors to International Paper, Tuxedo Park, N.Y.
Continuation of Ser. No. 504,229, Apr. 4, 1990, abandoned. This application Sep. 19, 1991, Ser. No. 762,054
Int. Cl.[5] B65D *5/62;* B32B *27/10*
U.S. Cl. 428—34.2 27 Claims

D. POLYMER - 10
BOARD - 12
POLYMER RESIN - 14

1. A biodegradable paperboard-based laminate structure for producing a degradable paperboard-based package comprising:
a) a paperboard substrate having an interior side and an exterior side;
b) at least one exterior layer of a low temperature extrusion coatable grade heat-sealable biodegradable polymer resin applied on said exterior side of said paperboard substrate; and
c) an interior layer of a heat-sealable non-biodegradable polymer resin applied on said interior side of said paperboard substrate, which is heat-sealable with the exterior layer of a biodegradable polymer resin.

5,213,859
OPTICAL RECORDING DISK
Toshiki Aoi, Nagano, and Masahiro Shinkai, Chiba, both of Japan, assignors to TDK Corporation, Tokyo, Japan
Filed Jun. 25, 1991, Ser. No. 720,687
Claims priority, application Japan, Dec. 21, 1990, 2-418157; Apr. 8, 1991, 3-103069; Jun. 19, 1991, 3-174305
Int. Cl.[5] B32B *3/00*
U.S. Cl. 428—64 18 Claims



1. An optical recording disk comprising at least a light absorbing layer and a reflective layer stacked on a substrate having grooves formed between lands wherein the grooves from recording tracks for detecting tracking errors by the push-pull method, characterized in that

the disk meets $\Delta D > \Delta D_0$

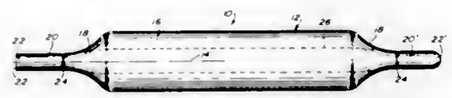
wherein ΔD is given by the formula:

$$\Delta D = D_L + d_G - D_G$$

wherein D_G is the thickness of the light absorbing layer on the groove, D_L is the thickness of the light absorbing layer on the land, and d_G is the depth of the groove, and

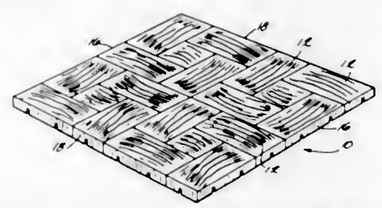
ΔD_0 is a value of ΔD associated with a tracking error signal of zero.

5,213,860
PLASTIC AMPUL
Christian Laing, Charlesbourg Ouest, Canada, assignor to Confab Guy Lamarre Inc., Longueuil, Quebec, Canada
Filed Oct. 31, 1990, Ser. No. 606,811
Int. Cl.[5] B65D *1/09*
U.S. Cl. 428—36.92 27 Claims



1. An ampul useful for containing a physiological acceptable liquid comprising a tubular body having at least one end portion of reduced, substantially uniform cross-sectional dimension formed with a peripheral line of weakness, wherein said tubular body is made of a non-toxic, chemically inert thermoplastic material having an elongation at break ranging from about 100% to about 200%, a tensile strength at break less than about 15,000 psi and a flexural modulus less than about 400,000 psi, whereby said at least one end portion is manually fracturable along said line of weakness with the formation of a clean cut, thereby eliminating undesirable shards.

5,213,861
WOODEN TILE AND METHOD FOR MAKING SAME
Thomas A. Severson, and Scott A. Forbes, both of Box 45, Roxbury, Vt. 05669
Filed Sep. 4, 1991, Ser. No. 754,747
Int. Cl.[5] E04F *13/08;* B32B *3/10, 3/06*
U.S. Cl. 428—52 12 Claims

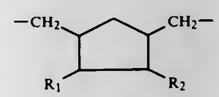


1. A rectangular wooden tile having first and second pairs of opposed peripheral edges and comprising
a plurality of smaller rectangular wooden blocks disposed in substantial abutting relationship and including opposed sides and end edges, a lateral dimension between said side edges and a longitudinal dimension between said end edges which are equal to or a multiple of said lateral dimension, an underside and a top side having a wearing surface, each of said blocks having in the underside thereof at least one first groove extending laterally between said side edges and parallel to and spaced inwardly from said end edges and at least one second groove extending longitudinally between said end edges, parallel to and spaced inwardly from said side edges and intersecting said first grooves, said blocks dimensioned and said grooves disposed in said blocks such that, when said blocks are either side by side, side to end or end to end, said grooves are aligned to form first continuous, rectilinear channels extending parallel to each other and to the first pair of opposed peripheral edges of said tile and second continuous, rectilinear channels extending parallel to each other and to the second pair of opposed peripheral edges of said tile and intersecting said first channels to form a grid-like network of said channels; and
a relatively flexible, synthetic plastic material, capable of becoming flowable upon heating above a predetermined

temperature and hardening upon subsequent cooling, disposed in and substantially filling said channels, a portion of said plastic material being diffused into the wood in the immediate vicinity of said channels while in a flowable state and becoming bonded to the wood after hardening to thereby hold said blocks together and yet permit movement of said blocks relative to each other.

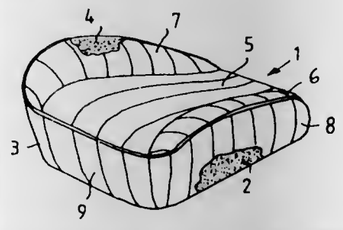
5,213,862
OPTICAL RECORDING DISK
Hideki Hirata; Osamu Murakami, and Toshifumi Tanaka, all of Nagano, Japan, assignors to TDK Corporation, Tokyo, Japan
Filed Dec. 10, 1991, Ser. No. 804,587
Claims priority, application Japan, Dec. 28, 1990, 2-418747
Int. Cl.[5] B32B *3/00*
U.S. Cl. 428—64 3 Claims

1. An optical recording disk comprising a substrate formed of a cyclic polyolefin having a recurring structural unit of the formula:



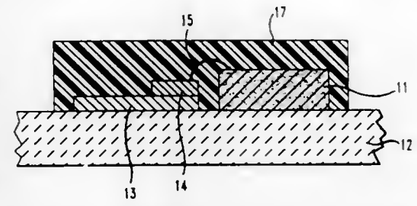
wherein R_1 and R_2 are independently selected from hydrocarbon groups, and having a diameter of at least 200 mm, and a recording layer on the substrate, wherein recording/reproducing operation is carried out while rotating the disk at a number of revolutions of at least 1,800 rpm.

5,213,863
FABRIC AND STRUCTURE
Gerald F. Day, Derbyshire, and Giles T. Gregory, Nottinghamshire, both of United Kingdom, assignors to General Motors Corporation, Detroit, Mich.
Filed Feb. 21, 1992, Ser. No. 838,924
Claims priority, application United Kingdom, Mar. 1, 1991, 9104381
Int. Cl.[5] B32B *3/00*
U.S. Cl. 428—71 13 Claims



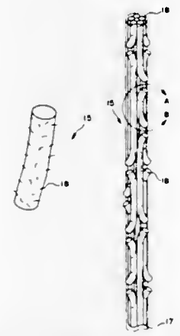
1. An upholstered structure comprising a three dimensional support core having a fabric cover, said fabric cover being double jersey knitted structure having a technical reverse side in contact with the support core and a technical face side on the outside, remote from the core, wherein the technical face side is formed of integral interconnected loops of yarn and the technical reverse side is formed of integral interconnected loops of yarn, the two sides being interconnected over substantial regions of the fabric by yarn loops integrally formed and passing between the technical face and technical reverse wherein on the technical reverse side there is integrally knitted during manufacture of the fabric at least one identifying mark in a contrasting yarn to its surroundings, the mark being substantially not visible on the technical face of the fabric.

5,213,864
SILICONE ENCAPSULANT
Ching-Ping Wong, Lawrenceville, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Dec. 5, 1991, Ser. No. 802,579
Int. Cl.[5] B32B *3/26;* H01L *23/28*
U.S. Cl. 428—76 8 Claims



1. An article of manufacture comprising: an electronic device encapsulated by a material including a silicone resin, wherein:
the silicone resin is a siloxane containing dimethyl, diphenyl, and methyl-phenyl constituents, the mole ratio of the sum of the methyl-phenyl and diphenyl constituents to the dimethyl constituents being in the range of ten or forty percent;
a first portion of the siloxane comprises molecules that are vinyl terminated, and a second portion of the siloxane comprises molecules that are hydride terminated;
two to ten percent of the siloxane has hydride terminations selected form the group consisting of tri-functional hydride terminations and tetra-functional hydride terminations; and
the resin contains a platinum catalyst to aid in cross-linking thereof.

5,213,865
ANTISTATIC MAT
Kohei Yamada, Gifu, Japan, assignor to Daiwa Co., Ltd., Gifu, Japan
Continuation of Ser. No. 373,995, Jun. 29, 1989, abandoned. This application Aug. 26, 1991, Ser. No. 758,259
Claims priority, application Japan, Jul. 2, 1988, 63-165472; Aug. 28, 1988, 63-213886; Oct. 8, 1988, 63-254469; Oct. 8, 1988, 63-254470
Int. Cl.[5] B32B *3/02, 33/00;* D02G *3/00, 3/02*
U.S. Cl. 428—92 6 Claims



1. An antistatic mat comprising: a base cloth and a predetermined volume of pile, which pile penetrates through and protrudes from said base cloth, said pile being secured to said base cloth by a backing material, said pile comprised of conductive

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compound fibers whereby each of said conductive compound fibers comprises a core comprising a bundling of conductive components and a non-conductive resin surrounding said core to form a sheath, whereby a portion of said conductive components protrudes from the surface of said sheath.

5,213,866
FIBER REINFORCEMENT OF CARPET AND TEXTILE COATINGS

Ronald L. Swope, Ringgold, Ga.; Cheri L. McConnell, Kimball, and Larry S. Fulton, Hixson, both of Tenn., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

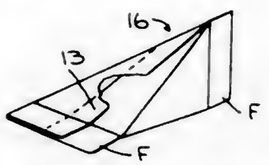
Filed Oct. 21, 1992, Ser. No. 964,190
Int. Cl.[5] B32B *33/00;* **B05D** *1/12;* **C08J** *5/04*
U.S. Cl. 428—95 **21 Claims**

20. A carpet having improved strength and dimensional stability prepared by a method comprising the steps:
a. fabricating carpet from a plurality of yarn loops or tufts inserted into a backing; and
b. coating the backing with a coating composition comprising 10 to 70% by weight of a latex binder, and 30 to 90% by weight of at least one filler, wherein the filler comprises about 0.001 to 100% by weight of fiber pieces having a length less than about 2.54 cm.

5,213,867
TETRAHEDRAL LOOSE-FILL PACKING

Henry H. Huston, Sr., 131 Main St.; Henry H. Huston, Jr., 6 Mountview Ct., and Peter T. Bennett, 50 Hillcrest Rd., all of Burlington, Vt. 05401

Continuation-in-part of Ser. No. 633,214, Dec. 21, 1990, abandoned. This application Nov. 26, 1991, Ser. No. 799,035
Int. Cl.[5] B32B *1/00;* **B65D** *85/30*
U.S. Cl. 428—126 **7 Claims**



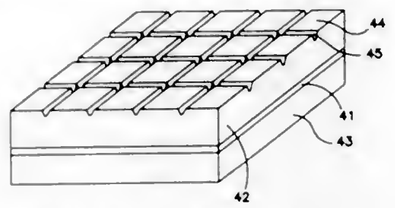
1. Loose-fill packing material for cushioning an object packed for shipment, comprising a plurality of hollow, empty, unsealed, self-supporting tetrahedral units, wherein each loose-fill unit is integrally formed of rectangular sheet material with a transverse fold line at the middle of the longer dimension of the rectangular sheet constituting one edge of the tetrahedral unit; opposite end portions of the rectangular sheet material, each end portion being folded with one folded end portion held within the other folded end portion, forming a flap at another edge of the tetrahedral unit.

5,213,868
THERMALLY CONDUCTIVE INTERFACE MATERIALS AND METHODS OF USING THE SAME

James Liberty, Hollis, and Peter Jones, Londonderry, both of N.H., assignors to Chomerics, Inc., Woburn, Mass.

Filed Aug. 13, 1991, Ser. No. 744,568
Int. Cl.[5] B32B *3/10, 3/28;* **H05K** *7/20*
U.S. Cl. 428—131 **6 Claims**

1. A thermally conductive interface comprising a first layer of thermally conductive pressure sensitive adhesive, a support layer overlaying the first layer, a second layer of thermally conductive pressure sensitive adhesive overlaying the support layer and an air removal device selected from the group consisting of embossments, channels, grooves, and throughholes,



the air removal device being formed on at least an exposed surface of the first layer.

5,213,869
CORRUGATED ROOFING SHEETS OF SYNTHETIC FIBER REINFORCED CEMENT, WITH A ROUGH SURFACE DUE TO THE PRESENCE OF GRANULAR MATERIAL

Sivio Magnani, Canneto Pavese, Italy, assignor to S.I.D.I. Societe Internationale de Developpements Industriels S.A. Holding, Luxembourg

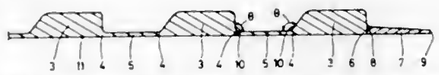
Division of Ser. No. 464,566, Jan. 16, 1990, Pat. No. 4,960,616, which is a continuation of Ser. No. 208,482, Jun. 20, 1988, abandoned. This application Jul. 23, 1990, Ser. No. 555,605
Claims priority, application Italy, Jul. 1, 1987, 21920/87[U]
Int. Cl.[5] D06N *7/04;* **B32B** *3/28*
U.S. Cl. 428—143 **5 Claims**

1. A corrugated self-supporting roofing sheet having a rough surface and consisting of a mixture of cement and sand reinforced with polypropylene fibers in fibrillated mesh form, said rough surface being due to granular material applied to the sheet surface, said granular material consisting of mineral substances ground and sieved to a particle size between 0.5 and 1.5 mm which are applied to said surface in a quantity between about 500 and about 1000 g/m^2 and said polypropylene fibers being present in an amount of between 2.0 and 3.5% by weight of the cement, sand and mineral substances.

5,213,870
BENDABLE ORNAMENTAL PANEL

Akio Yamamoto, 1062-banchi, Kyoden, Fukui-shi, Fukui-ken, Japan

Filed Oct. 29, 1990, Ser. No. 604,473
Int. Cl.[5] B32B *3/00;* **A47G** *35/00;* **B44F** *7/00*
U.S. Cl. 428—172 **4 Claims**



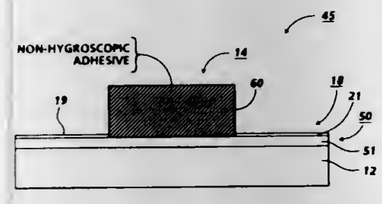
1. A bendable ornamental panel attachable to a base member, said panel comprising:
a plurality of thick portions (3) having edge portions (4) at their base portions thereof and side surfaces (10) at the base portion thereof,
thin portions (5) having flexibility for connecting the thick portions to one another,
the side surface (10) of the base portion of the thick portion (3) and the thin portion being formed to have an angle θ between 100 degrees and 130 degrees,
the reverse sides of the thick portion and the thin portion being formed along a same plane, and
a side end thin portion (7) having flexibility and connected to the outside edge portion of one of the thick portions (3A and 3B) located at the side ends thereof,
the side end thin portion (7) being formed relatively thick at a base portion (8) thereof and gradually thinner from the base portion (8) to a tip end (9) thereof, and a thick cover (37) formed in a channel shape in cross section to fit over a thick portion (3) which further increases a thickness of a thick portion by covering an entirety of the thick portion.

3. A bendable ornamental panel attachable to a base member, said panel comprising:
a plurality of thick portions (3) having edge portions (4) at their base portions thereof and side surfaces (10) at the base portion thereof,
thin portions (5) having flexibility for connecting the thick portions to one another,
the side surface (10) of the base portion of the thick portion (3) and the thin portion being formed to have an angle θ between 100 degrees and 130 degrees,
the reverse sides of the thick portion and the thin portion being formed along a same plane, and
a side end thin portion (7) having flexibility and connected to the outside edge portion of one of the thick portions (3A and 3B) located at the side ends thereof,
the side end thin portion (7) being formed relatively thick at a base portion (8) thereof and gradually thinner from the base portion (8) to a tip end (9) thereof,
the side end thin portion (7) has a tapered reverse side which is gradually thin from the base portion (8) to the tip end portion (9), and
a thick cover (37) formed in a channel shape in cross section to fit over a thick portion (3) which further increases a thickness of a thick portion by covering an entirety of the thick portion.

5,213,871
MOISTURE PROOF THERMALLY ACTUATED BINDING TAPE FOR BOOKS

David P. VanBortel, Walworth, and Luke C. Lin, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 9, 1992, Ser. No. 848,466
Int. Cl.[5] B42D *1/00*
U.S. Cl. 428—189 **5 Claims**

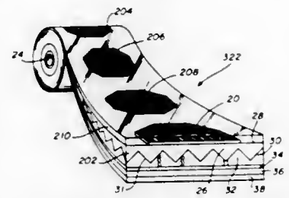


1. In a binding tape for application to the spine of a book to bind the pages together that comprise said book, said tape having a backing strip with at least one stripe of high tack hot melt adhesive on said tape and a layer of non-permeable moisture resistant barrier material between said backing strip and said adhesive stripe to prevent transfer of moisture in the form of steam from said backing strip to said adhesive stripe on application of heat to said tape, application of heat to said tape actuating said adhesive to form a bond between said tape and said book spine, the improvement comprising:
said stripe of high tack hot melt adhesive comprising a substantially non-hygroscopic adhesive material to obviate the accumulation of moisture by said adhesive material and the generation of undesirable steam on application of heat to said tape during binding, said non-hygroscopic adhesive material maintaining a moisture content of substantially less than 3% when being stored.

5,213,872
PREPRINTED RETROREFLECTIVE HIGHWAY SIGN AND METHOD FOR MAKING THE SIGN

Robert M. Pricone, Libertyville; Richard Zanotti, Hoffman Estates, and Alex A. Szopinski, Des Plaines, all of Ill., assignors to Stimsonite Corporation, Niles, Ill.

Filed Apr. 19, 1991, Ser. No. 687,989
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—195 **17 Claims**



1. A unitary retroreflective composite preprinted sheeting material for use in sign-making, comprising:
(a) a first resinous material having first and second oppositely facing surfaces;
(b) a second resinous material overlaying and laminated to said first surface of said first resinous material;
(c) a printed legend disposed between said laminated first and second resinous materials; and
(d) retroreflective optical elements provided in juxtaposition to said second surface of said first resinous material to form a preprinted retroreflective sheet material of unitary laminate for use in making signs.

5,213,873
AQUEOUS INK-JET RECORDING SHEET

Kenji Yasuda; Kazuaki Ohshima, and Susumu Hasegawa, all of Tokyo, Japan, assignors to Oji Paper Co., Ltd., Tokyo, Japan

Filed Oct. 19, 1990, Ser. No. 600,378
Claims priority, application Japan, Oct. 20, 1989, 1-271464; Dec. 28, 1989, 1-338272
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—195 **3 Claims**

1. An aqueous ink-jet recording sheet comprising:
a substrate sheet consisting of a neutral paper sheet comprising, as a principal component, a cellulose pulp and having a pH of from 4 to 8 and a Stoechigt sizing degree of from 1 second to 15 seconds, and
an aqueous ink image-receiving layer in an amount of 0.5 to 10 g/m^2, formed on a surface of the substrate sheet and comprising (a) fine silica particles having an oil absorption of 150 ml/100 g or more, and an average secondary particle size of from 1 to 10 μm, (b) a binder consisting of at least one member selected from the group consisting of polyvinyl alcohol resins and silanol-modified polyvinyl alcohol resins, and (c) a cationic polymeric material comprising at least one cationic, water-soluble acrylic copolymer having side chains each having at last two cationic radicals, said neutral paper sheet exhibiting, when a unit neutral paper sheet having a predetermined length or width is soaked in water and allowed to elongate without restriction, a ratio of the elongation in the machine direction thereof to the elongation in the cross direction thereof of 1.3 : 1 or less, and a standard deviation in the elongation of the unit sheet in the cross direction thereof, of 30% or less determined at a square unit area of 1 cm^2 of the unit sheet.

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5,213,874

CANOPY OR SIMILAR MATERIAL HAVING AN IMPROVED TEARING RESISTANCE

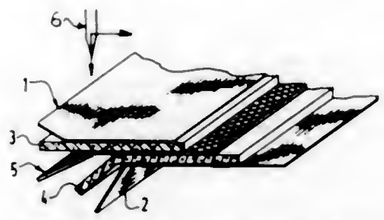
Pierre Prudhomme, Lozanne, France, assignor to Tissus Techniques de Trevoux, France

Continuation of Ser. No. 650,183, Feb. 4, 1991, abandoned. This application Feb. 18, 1992, Ser. No. 839,048

Claims priority, application France, Feb. 6, 1990, 90 01585; Jul. 2, 1990, 90 08583

Int. Cl.[5] B32B *27/14*

U.S. Cl. 428—198 11 Claims



1. A flexible, tear-and cut-resistant canopy or similar fabric web having resistance to cutting and to tearing caused by a sharp object penetrating the canopy and moving in a direction parallel to the surface thereof, comprising:

first and second outer flexible textile structures;

a reinforcing strengthener sandwiched between said first and second outer textile structures, said reinforcing strengthener comprising a deformable looped structure formed of wires and high mechanical resistance to cutting by said sharp object; and

a flexible layer of material joining said first and second outer textile structure through said reinforcing strengthener to each other, without embedding the wires of the reinforcing strengthener in the material, said layer of material having a shear strength low enough to permit the material to yield when said sharp object imposes a tearing force on said textile structure and on said reinforcing strengthener so that the reinforcing strengthener wires can move without breaking in a direction parallel to the surface of the canopy and said tearing force will cause the looped wires to move without breaking and bear successively against one another until they offer sufficient resistance to said tearing force to inhibit further movement of said sharp object.

5,213,875

UV CONFORMAL COATINGS

Wei-Fang A. Su, Murrysville, and Anthony P. Barrett, Munhall, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 102,972, Sep. 30, 1987, abandoned. This application Sep. 7, 1988, Ser. No. 241,679

Int. Cl.[5] C08F *2/50, 220/32, 226/02;* C08L *63/10*

U.S. Cl. 428—209 16 Claims

1. A UV curable composition comprising:

(a) about 20 to 50% by weight, based on total composition weight, of a first resin having ethylenic unsaturation and an epoxy group and a molecular weight of from 2000 to 5000, prepared by reacting an anhydride or a diacid with a hydroxy acrylate followed by a reaction with a bisphenol diepoxide;

(b) about 2 to 10% by weight, based on total composition weight, of the reaction product of a diisocyanate with a hydroxy acrylate to form a urethane followed by a reaction with caprolactam;

(c) from about 20 to about 45% by weight, based on total composition weight, of a third resin having a molecular weight of from 2000 to 5000, prepared by reacting an anhydride or a diacid with a hydroxy acrylate followed by a reaction with epoxy comprising 1 to 5 mole percent of an epoxy novolac having more than two epoxy groups and 95 to 99 mole percent of a bisphenol diepoxide;

(d) from 10 to 40% by weight, based on total composition weight, of a liquid acrylate selected from the group consisting of phenol ethoxylate monoacrylate, tetrahydrofurfuryl methacrylate, n-hexyl methacrylate, 2-(2-ethoxethoxy) ethyl acrylate and phenoxyethyl acrylate;

(e) from 2 to 20% by weight, based on total composition weight, of a liquid ether diacrylate selected from the group consisting of tetraethyleneglycol diacrylate, diethylene glycol diacrylate, ethoxylated bisphenol A diacrylate, and tripropylene glycol diacrylate;

(f) from 5 to 25% by weight, based on total composition weight, of a liquid alkylene diacrylate selected from the group consisting of hexanediol diacrylate, ethylene glycol diacrylate, 1,3-butylene glycol diacrylate, 1,4-butanediol diacrylate and neopentyl glycol diacrylate; and

(g) from 1 to 5% by weight, based on total composition weight, of a UV photoinitiator.

5,213,876

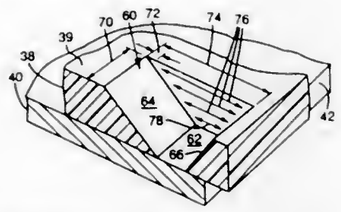
FLEXIBLE CIRCUIT CARD WITH LASER-CONTOURED VIAS AND MACHINED CAPACITORS

John B. Smyth, Jr., and Ellen R. Tappon, both of Corvallis, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 463,695, Jan. 11, 1990, Pat. No. 5,066,357. This application Sep. 17, 1991, Ser. No. 761,101

Int. Cl.[5] B32B *9/00*

U.S. Cl. 428—209 6 Claims



1. A membrane probe comprising:

a flexible polymer membrane having planer parallel upper and lower surfaces; a plurality of contact bumps protruding from a central area of the lower surface;

a conductive ground plane covering a portion of the lower surface surrounding the central area; and

a plurality of conductive line traces on the upper surface extending inward from a periphery of the membrane to said central area, including a subset of line traces each electrically connected to one of the contact bumps; the membrane having a thickness sufficient to insulate the conductive line traces from conductive ground plane;

at least one of the line traces having a portion recessed into the upper surface of the membrane to position said line trace portion relative to the ground plane on the opposite side of the membrane at a depthwise spacing less than the thickness of the membrane.

5,213,877

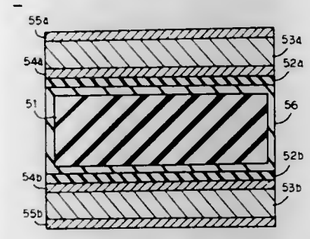
CERAMIC SUBSTRATE USED FOR FABRICATING ELECTRIC OR ELECTRONIC CIRCUIT

Hideaki Yoshida; Makoto Toriumi; Hirokazu Tanaka; Masao Umezawa; Michio Yuzawa, and Yoshirou Kuromitsu, all of Saitama, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

Filed May 2, 1991, Ser. No. 694,715

Int. Cl.[5] B32B *9/00*

U.S. Cl. 428—209 9 Claims



1. A ceramic substrate used for an electric or electronic circuit comprising

a) a ceramic foundation, and

b) conductive island means comprised of aluminum or an aluminum alloy bonded to one surface of said ceramic foundation, said conductive island means providing a conductive path for at least one circuit component connected thereto, in which said conductive island means is brazed to said one surface of said ceramic foundation with a brazing alloy selected from the group consisting of an aluminum-silicon alloy, an aluminum-germanium alloy, an aluminum-silicon-magnesium alloy and an aluminum-silicon-germanium alloy.

5,213,878

CERAMIC COMPOSITE FOR ELECTRONIC APPLICATIONS

Kyung H. Moh, Woodbury; Charles D. Hoyle, Stillwater, and Charles E. Boyer, III, Oakdlae, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 498,350, Mar. 23, 1990, Pat. No. 5,108,958. This application Jan. 30, 1992, Ser. No. 828,248

Int. Cl.[5] B32B *9/00*

U.S. Cl. 428—209 6 Claims

1. An article comprising a fired ceramic composite which comprises hollow, thin-walled, refractory, ceramic bubbles having a dielectric constant less than 9, said bubbles uniformly distributed throughout a refractory, ceramic matrix, said composite further bearing a metallized layer thereon, said composite having been fired at a temperature of at least 1,000° C.

5,213,879

VIBRATION DAMPING MATERIAL

Takahiro Niwa, Kanagawa, and Yasuo Shimizu, Chiba, both of Japan, assignors to Nichias Corporation, Tokyo, Japan

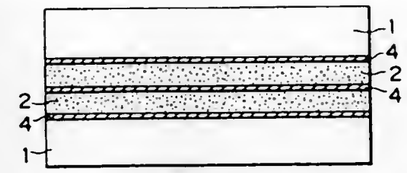
Filed Apr. 20, 1992, Ser. No. 871,309

Claims priority, application Japan, Apr. 24, 1991, 3-119023

Int. Cl.[5] B32B *7/02, 25/04, 25/08*

U.S. Cl. 428—213 2 Claims

1. A constraint type vibration damping material in which a viscoelastic rubber sheet is provided between two constraint plates, characterized in that said viscoelastic rubber sheet includes a plurality of rubber layers each having a thickness smaller than a predetermined value and that an adhesive having a degree of elasticity smaller than that of said constraint plates and larger than that of said viscoelastic rubber sheet is



used to bond respective said rubber layers and said rubber layer with said constraint plate to form a lamination.

5,213,880

LAMINATED FILMS FOR USE IN A TOUCH PANEL

Atsunori Yaguchi, Sodegaura, Japan, assignor to Idemitsu Petrochemical Company, Limited, Tokyo, Japan

Filed May 30, 1990, Ser. No. 530,539

Claims priority, applicatioo Japan, May 31, 1989, 1-138510

Int. Cl.[5] B32B *7/02;* C08G *79/02*

U.S. Cl. 428—217 18 Claims

1. A transparent base laminated film comprising a base film having a transparent conductive layer of indium/tin oxide on one side thereof and a layer of a curable phosphazene composition coated on the other side thereof.

5,213,881

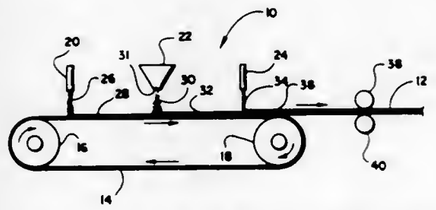
NONWOVEN WEB WITH IMPROVED BARRIER PROPERTIES

Terry K. Timmons; Peter Kobylivker, and Lin-Sun Woon, all of Marietta, Ga., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Continuation of Ser. No. 540,070, Jun. 18, 1990, abandoned. This application Nov. 26, 1991, Ser. No. 799,929

Int. Cl.[5] D03D *3/00*

U.S. Cl. 428—224 7 Claims



1. A nonwoven web of fine fibers formed from polymer streams and with an average fiber size from 1 to 3 microns and pore sizes distributed predominantly in the range from 7 to 12 microns with the peak of the pore size distribution less than 10 microns formed from reactor granules of a modified propylene polymer polymerized with a Ziegler-Natta catalyst which polymer has a molecular weight distribution between 2.8 and 3.5 Mw/Mn and a modified polymer melt flow rate greater than 3000 gma/10 min at 230° C.

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5,213,882
STATIC DISSIPATIVE NONWOVEN TEXTILE MATERIAL

Robert Sassa, Newark, Del., and Richard Winkelmayer, Jr., North East, Md., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Filed Dec. 18, 1991, Ser. No. 809,891
Int. Cl.[5] D04H *1/08, 1/58;* B01D *39/10;* B32B *27/00*
U.S. Cl. 428—224 7 Claims

1. A static dissipative nonwoven textile material comprising an electrically conductive polytetrafluoroethylene fiber intermixed with at least one other synthetic organic fluorocarbon fiber, wherein the static dissipative nonwoven textile material has a static dissipation time of 0.5 seconds or less.

5,213,883
DECOR SHEET CONTAINING FIBRETS

Mahendra Mehta, Pittsfield, Mass., assignor to The Mead Corporation, Dayton, Ohio

Filed May 14, 1991, Ser. No. 699,906
Int. Cl.[5] D02G *3/00;* B32B *5/00*
U.S. Cl. 428—224 8 Claims

1. A decor sheet for use in a decorative laminate comprising:
bleached cellulose fibers;
about 10 to 60% titanium dioxide; and
about 1 to 20% cellulose acetate fibrets; said sheet having a basis weight of 30 to 100 lbs/3000 sq. ft.

5,213,884
DISINFECTING OR BLEACHING TISSUE

Adrian N. Fellows, Hebden Bridge, United Kingdom, assignor to PAL International Limited, Leicester, United Kingdom

PCT No. PCT/GB89/00932, § 371 Date Apr. 1, 1991, § 102(e) Date Apr. 1, 1991, PCT Pub. No. WO90/02166, PCT Pub. Date Mar. 8, 1990
PCT Filed Aug. 14, 1989, Ser. No. 659,341
Claims priority, application United Kingdom, Aug. 23, 1988, 8819969
Int. Cl.[5] B32B *5/16*
U.S. Cl. 428—240 10 Claims

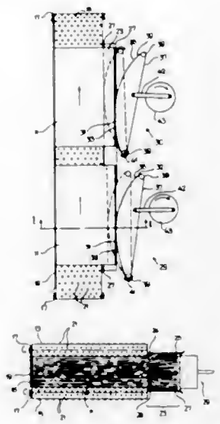
1. A tissue for use in a disinfecting or bleaching operation comprising first and second substrate layers bonded together and having liquid-activated solid particles retained therebetween, wherein the substrate layers are bonded together with an adhesive polymer, wherein said adhesive polymer is mixed with the solid particles so as to directly retain the solid particles, wherein said solid particles comprise a chlorine release agent.

5,213,885
METHOD AND APPARATUS FOR PRODUCING A COMPRESSIBLE ZONE IN AT LEAST ONE PERIPHERAL REGION OF A MINERAL FIBER SHEET OR BATT FOR INSULATION AGAINST HEAT, SOUND AND/OR FIRE, AND MINERAL FIBER SHEETS PRODUCED BY THE METHOD

Hans Zogg, Trubbach, and Peter Wyss, Sargans, both of Switzerland, assignors to Flumroc AG, Flums, Switzerland

PCT No. PCT/CH90/00169, § 371 Date Mar. 4, 1991, § 102(e) Date Mar. 4, 1991, PCT Pub. No. WO91/02128, PCT Pub. Date Feb. 21, 1991
PCT Filed Jul. 12, 1990, Ser. No. 656,139
Claims priority, application Switzerland, Jul. 31, 1989, 2846/89
Int. Cl.[5] B29C *67/00*
U.S. Cl. 428—280 23 Claims

1. A method for producing a compressible zone (23) in at least one peripheral region of a mineral fiber sheet (11) or batt for insulation against heat, sound or fire, in which the individual fibers are joined together with a binder to make a fibrous composite structure, in which method the fibrous composite structure is partially loosened by mechanical action in a fulling zone (23) in order to form the compressible zone (23),
wherein the method of forming the compressible zone (23) comprises the steps of
supporting and compressing the sheet (11) or batt with respect to its thickness transversely to the major plane thereof on the bottom and top thereof, at least in a region not belonging to said zone;



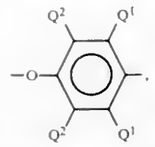
fulling the peripheral region from the side; and
guiding material in the compressible zone to prevent sagging of the material of the fulling zone (23) out of the plane of the sheet or batt by guide means (25, 27), which are disposed in the region of the fulling zone above and below the mineral fiber sheet (11) or batt.

5,213,886
CURABLE DIELECTRIC POLYPHENYLENE ETHER-POLYEPOXIDE COMPOSITIONS

Herbert S. Chao; Robert E. Colborn; James R. Presley, all of Schenectady; Jana M. Whalen, Clifton Park, all of N.Y.; Michael J. Davis, Coshocton; James E. Tracy, Glenford, both of Ohio, and Edward F. Chu, Mountain View, Calif., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 460,430, Jan. 3, 1990, Pat. No. 5,162,450, which is a continuation-in-part of Ser. No. 312,850, Feb. 17, 1989, abandoned. This application Jun. 22, 1992, Ser. No. 902,219
Int. Cl.[5] D04H *1/64;* B32B *15/08, 17/04*
U.S. Cl. 428—288 15 Claims

1. A curable article comprising a fibrous substrate impregnated with a composition free from hardeners for epoxy resins, containing about 5–15% chemically combined bromine and consisting essentially of:
(I) about 30–60% of at least one polyphenylene ether having a number average molecular weight in the range of about 3,000–15,000, said polyphenylene ether consisting essentially of structural units having the formula



(1)

wherein in each of said units independently, each Q^1 is independently halogen, primary or secondary lower alkyl, phenyl, haloalkyl, aminoalkyl, hyrocarbonoxy, or halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms; and each Q^2 is independently hydrogen, halogen, primary or secondary lower alkyl, phenyl, haloalkyl, hydrocarbonoxy or halohydrocarbonoxy as defined for Q^1;
(II) about 30–60% of at least one of:
(A) polyepoxide compositions comprising at least one bisphenol polyglycidly ether having an average of at most one aliphatic hydroxy group per molecule or a mixture comprising said bisphenol polyglycidyl ether and at least one bisphenol, said composition containing about 10–30% bromine as aryl substituents; and
(B) partial condensation products of said polyepoxide compositions;
(III) a catalytically effective amount of at least one of imidazoles and arylene polyamines; and
(IV) about 0.2–1.0% of zinc in the form of a salt which is soluble or stably dispersible in said curable composition;
all percentages being by weight and based on total curable composition.

5,213,887
ANTISTATIC COATINGS

William A. Huffman, Pittsford, N.Y., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 3, 1991, Ser. No. 753,864
Int. Cl.[5] B32B *5/16*
U.S. Cl. 428—323 12 Claims

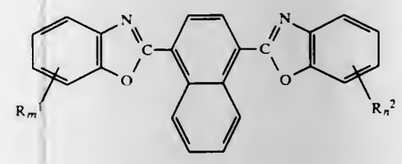
1. A substrate having an antistatic protective coating thereon, said coating comprising an optically, transparent layer of chitosan acid salt over a layer of anionic inorganic metal oxide colloidal particles.

5,213,888
ALKYL-SUBSTITUTED 2,2'-(1,4-NAPHTHALENEDIYL)DIBENZOXAZOLE AND PHOTOGRAPHIC SUPPORT COMPRISING THE SAME

Massashi Kubbota, Misato; Touru Noda, Matsudo, and Isao Kawakami, Machida, all of Japan, assignors to Mitsubishi Paper Mills Limited and Mitsubishi Kasei Corporation, Tokyo, Japan

Division of Ser. No. 422,799, Oct. 18, 1989, Pat. No. 5,106,989. This application Dec. 23, 1991, Ser. No. 812,290
Claims priority, application Japan, Oct. 20, 1988, 63-265052
Int. Cl.[5] B32B *5/16, 27/06*
U.S. Cl. 428—328 14 Claims

1. A resin-coated sheet type photographic support comprising a sheet as a substrate and a polyolefin resin with which both sides of the sheet are coated, in which the resin layer on the side where images are to be formed contains a titanium dioxide pigment and a fluorescent agent of an alkyl-substituted 2,2'-(1,4-naphthalenediyl)-dibenzoxazole type represented by the structural formula [I]:



[I]

wherein R^1 and R^2 are independently alkyl groups having 9–20 carbon atoms, m and n are independently 0 or positive integers and m+n=1–4.

5,213,889
FIBRE-REINFORCED COMPOSITIONS AND METHODS FOR PRODUCING SUCH COMPOSITIONS

Frederic N. Cogswell, Welwyn Garden City; David J. Hezzell, Biggleswade, and Peter J. Williams, Barton-le-Clay, all of England, assignors to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 639,341, Jan. 10, 1991, abandoned, and a continuation of Ser. No. 401,488, Aug. 30, 1989, Pat. No. 5,019,450, which is a continuation of Ser. No. 133,237, Dec. 14, 1987, abandoned, which is a continuation of Ser. No. 804,114, Dec. 3, 1985, abandoned, which is a division of Ser. No. 537,713, Sep. 30, 1983, Pat. No. 4,559,262, which is a continuation of Ser. No. 341,186, Jan. 20, 1982, abandoned. This application Dec. 20, 1991, Ser. No. 811,224
Claims priority, application United Kingdom, Jan. 21, 1981, 8101821; Jul. 28, 1981, 8123160; Nov. 17, 1981, 8134597
The portion of the term of this patent subsequent to Dec. 17, 2002, has been disclaimed.
Int. Cl.[5] B32B *5/16, 5/00*
U.S. Cl. 428—332 3 Claims

1. A molded article formed from a fibre reinforced thermoplastic composition in a process which includes the step of melting and homogenizing a composition containing at least 30% by weight of fiber reinforced pellets between 2 mm and 100 mm long which pellets have filaments extending the length of the pellet, characterized in that the molded article contains reinforcing filaments in the form of individual filaments and at least 50% by weight of the filaments in the pellets being present in the molded article at a length of greater than 2 mm, the pellets having been cut from a structure of continuous, parallel, aligned, reinforcing filaments which have been wetted by a molten thermoplastic polymer in a melt pultrusion process.

5,213,890
HEAT RESISTANT COMPOSITE FILM

Kaoru Kanayama, and Noriko Okazaki, both of Ibaraki, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

Filed Aug. 19, 1991, Ser. No. 746,996
Claims priority, application Japan, Aug. 21, 1990, 2-219601
Int. Cl.[5] B32B *27/36*
U.S. Cl. 428—334 6 Claims

1. A heat resistant composite film composed of a thermoplastic film having provided on both sides thereof a cured layer of a thermosetting resin composition comprising (A) 100 parts by weight of an aliphatic diamine having a spiroacetal ring, (B) from 5 to 150 parts by weight of an ester derived from maleic acid and an alcohol represented by formula (I), and (C) from 20 to 250 parts by weight of an ester derived from a tetracarboxylic acid and an alcohol represented by formula (I),

$$R^1—(OR^2)_n—OH \quad (I)$$

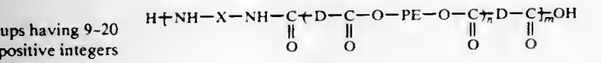
wherein R^1 represents an alkyl group having from 1 to 4 carbon atoms; R^2 represents an alkylene group having from 2 to 4 carbon atoms and n represents an integer of from 1 to 3.

5,213,891
BLOCK COPOLYETHERAMIDES

Philippe Maj, Thiberville, and Daniel Cuzin, Port Marly, botb of France, assignors to Elf Atochem S.A., Puteaux, France

Filed Jan. 30, 1992, Ser. No. 828,150
Claims priority, application France, Jan. 30, 1991, 91 01032
Int. Cl.[5] D02G *3/00*
U.S. Cl. 428—364 20 Claims

1. A block copolyetheramide having the formula:



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in which D is the residue of a diacid oligamide having an $\overline{M}n$ ranging from 300 to 3,000 and/or the residue of the diacid chain limiter; PE is the residue of a polyetherdiol having an $\overline{M}n$ ranging from 200 to 5,000; X is a straight or branched chain (cyclo)aliphatic or aromatic hydrocarbon having from 4 to 20 carbon atoms; n is a number ranging from 1 to 4; and m is an average number ranging from 2 to 50.

5,213,892

ANTISTATIC CORE-SHEATH FILAMENT

Werner Bruckner, Kriftel, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 13, 1990, Ser. No. 552,701

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1989, 3923086

Int. Cl.[5] D02G *3/00*

U.S. Cl. 428—372 10 Claims

1. An antistatic synthetic bicomponent filament of the core-sheath type with an electrically conductive cores and an electrically conductive sheath, the core comprising a synthetic polymer in which solid, electrically conductive particles are dispersed, and the sheath comprising a filament-forming polymer containing one or more conventional antistats based on sulfonato-or carboxylato-containing organic compounds of low diffusivity, and wherein from 5 to 60% by weight of conductive carbon or from 60 to 80% by weight of semiconductor materials are finely dispersed in the core.

5,213,893

WATERPROOFING AGENT FOR CABLE

Hiroya Kobayashi; Kazuhiro Okamura, both of Osaka; Yoshiyuki Takahashi, Kyoto, and Tadao Shimomura, Osaka, all of Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

Filed Sep. 11, 1991, Ser. No. 757,703

Claims priority, application Japan, Sep. 14, 1990, 2-245424; Dec. 27, 1990, 2-408086; Jan. 21, 1991, 2-5126

Int. Cl.[5] B32B *5/16*; C08F *226/02*

U.S. Cl. 428—402 8 Claims

1. A cable grade waterproofing agent made of a cross-linked polymer produced by polymerizing a monomer mixture comprising at least one (meth)acrylic compound selected from the group consisting of (meth)acrylic acids and (meth)acrylic salts with a (meth)acrylamide in a molecular ratio of said (meth)acrylic compound to said (meth)acrylamide in the range from 1:9 to 5:5 in an aqueous state, said monomer concentration being in the range of 30 to 80% by weight, in the presence of a polymerization initiator in a range of 0.01 to 1% by weight, based on the amount of said monomer and a cross-linking agent in a range of 0.0005 to 0.005 mol, per mol of said monomer mixture, at a temperature of 20° to 100° C., drying the resultant polymer at a temperature of 100° to 170° C., said cross-linked polymer exhibiting a speed of absorption of not more than 8 minutes as expressed by the time required for the absorption of artificial seawater to reach 90% of the maximum, a capacity for absorption of said artificial seawater of not less than 8 times its own weight, and a gel viscosity in the range of from 0.6×10^5 to 2.5×10^5 dyne-s/cm^3, the artificial seawater containing 1.38 g of $CaSO_4$, 2.10 g of $MgSO_4$, 3.32 g of $MgCl_2$, 0.72 g of KCl, and 26.69 g of NaCl each per kg.

5,213,894

RED PIGMENT COATED PHOSPHOR AND PROCESS FOR MANUFACTURING SAID PHOSPHOR

Ung-su Kim, Suwon, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Kyunggi, Rep. of Korea

Filed Dec. 19, 1990, Ser. No. 630,058

Claims priority, application Rep. of Korea, Dec. 22, 1989, 89-19199

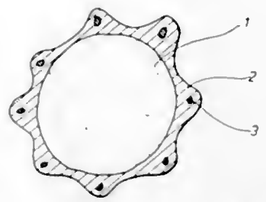
Int. Cl.[5] B32B *5/16*

U.S. Cl. 428—403 9 Claims

1. A red pigment coated phosphor comprising a phosphor for color cathode ray tube, said red pigment being attached to said phosphor by an organic binder, wherein

said organic binder consists of gelatin and casein, and

wherein the amount of said organic binder is 0.01 to 2 part



by weight based on 100 parts by weight of said red pigment coated phosphor and the amount of said red pigment particles is 0.01 to 2 part by weight based on 100 parts by weight of said red pigment coated phosphor.

5,213,895

PARTICLE-BEARING COMPOSITE AND A METHOD FOR PRODUCING THE SAME

Hidefumi Hirai, and Hironobu Hashimoto, both of Choufu, Japan, assignors to Daiso Co., Ltd., Osaka, Japan

Filed Sep. 11, 1991, Ser. No. 757,595

Claims priority, application Japan, Sep. 11, 1990, 2-239035

Int. Cl.[5] B32B *5/16*

U.S. Cl. 428—403 20 Claims

1. A particle-bearing composite comprising:

a solid carrier,

particles of at least one member selected from the group consisting of a metal and a metal compound, said particles being adsorbed on said carrier, and,

an organic protective polymer having a number average molecular weight of from 3,000 to 300,000,

said particles having said protective polymer adsorbed thereon and being substantially individually and separately protected by said protective polymer,

and wherein at least one of said solid carrier and said protective polymer has no functional group capable of serving to form a covalent bond and perform a chemical binding between said solid carrier and said protective polymer.

5,213,896

FLUORINE-CONTAINING POWDER COATING

Michael Schlipf, Burgkirchen, and Gerhard Merten, Wiesbaden, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 12, 1991, Ser. No. 806,737

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1990, 4040127

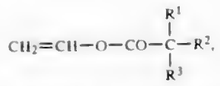
Int. Cl.[5] B32B *5/16*; C08F *14/18*

U.S. Cl. 428—407 9 Claims

1. A fluorine-containing powder coating composition, comprising

a) 40 to 80% by weight of a pulverulent, crosslinkable, fluorine-containing copolymer, comprising

α) 10 to 60 mol % of copolymerized units of a vinyl ester of the general formula



in which R^1, R^2 and R^3 are alkyl radicals, each complete acyl radical of said vinyl ester having 9 carbon atoms, at least one isomer of said acyl radical having two quaternary carbon atoms; a said isomer with only one quaternary carbon atom, if present, being present to the extent of not more than 80 mol % of the acyl radicals and having at least one tertiary carbon atom in the acyl radical in addition to the quaternary carbon atom,

β) 20 to 50 mol % of copolymerized units of a vinyl monomer containing OH groups; provided, that the total of α)+β) does not exceed 90 mol %, and

γ) at least 10 mol %, up to the balance of copolymerized units of the copolymer, of a fluoro-olefin of the general formula

CF_2=CFX,

in which X=F, a perfluoroalkyl radical having 1 to 8 carbon atoms or Cl, and

b) 20 to 60% by weight of a crosslinking agent suitable for powder coating compositions.

5,213,897

EPOXY RESINS CONTAINING BOUND LIGHT STABILIZING GROUPS

Arthur L. Baron; Ronald E. MacLeay, both of Amherst, and Jennifer P. Kmiec, Kenmore, all of N.Y., assignors to Elf Atochem North America, Inc.

Filed Apr. 3, 1991, Ser. No. 679,872

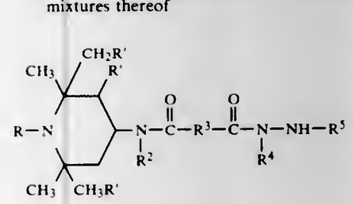
Int. Cl.[5] C08G *59/40*, *65/00*

U.S. Cl. 428—413 17 Claims

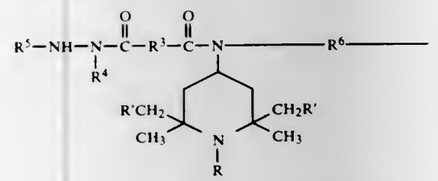
1. A curable composition comprising

(a) one or more polyepoxides containing an average of at least 1.75 reactive 1,2-epoxy groups per molecule, with the proviso that said polyepoxides do not include glycidyl esters of arylic or methacrylic acids, and

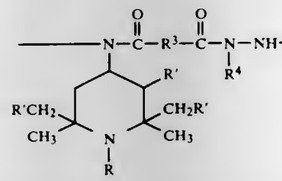
(b) a hindered amine compound of formula I, formula II, or mixtures thereof



I



II



wherein:

R is hydrogen, oxyl, hydroxyl, substituted or unsubstituted aliphatic of 1-20 carbons, substituted or unsubstituted alicyclic of 5-12 carbons, substituted or unsubstituted araliphatic of 7-22 carbons, substituted or unsubstituted aliphatic acyl of 2-20 carbons, substituted or unsubstituted alicyclic acyl of 7-16 carbons, substituted or unsubstituted aromatic acyl of 7-11 carbons, substituted or unsubstituted araliphatic acyl of 7-22 carbons, —[C—(=)]$_a$—N(R^7)(R^8), —[C(=O)]$_a$—O—R^9, —$(CH_2)_a$—C(=O)—I—R^{10} or —CH_2—CH_2—[CH_2—CH(R^1)—O]$_b$—R^{11} where a is 1-2 and b is 2-50,

R^1 is hydrogen or aliphatic of 1-4 carbons,

R^2 is hydrogen, substituted or unsubstituted aliphatic of 1-20 carbons, substituted or unsubstituted alicyclic of 5-12 carbons, substituted or unsubstituted aryl of 6-14 carbons, substituted or unsubstituted araliphatic of 7-22 carbons or substituted or unsubstituted alicyclic of 5-12 carbons which may optionally contain —N(R^{12})— as a ring member and when alicyclic, R^2 may optionally contain -N(R^{12})- as a ring member,

R^3 is a direct bond, substituted or unsubstituted aliphatic diradical of 1-20 carbons, substituted or unsubstituted aryl diradical of 6-12 carbons, substituted or unsubstituted alicyclic diradical of 5-12 carbons, and substituted or unsubstituted araliphatic diradical of 7-22 carbons where these diradicals may optionally contain 1-6 oxygen, sulfur or nitrogen heteroatoms with the proviso that multiple heteroatoms must be separated from each other and the diradical ends by at least one carbon atom,

R^2 and R^3 optionally may be linked together to form a 5-membered lactam ring,

R^4 is hydrogen, substituted or unsubstituted liphatic of 1-20 carbons, substituted or unsubstituted araliphatic of 7-22 carbons or substituted or unsubstituted alicyclic of 5-12 carbons,

R^5 is hydrogen, substituted or unsubstituted aliphatic of 1-20 carbons, substituted or unsubstituted alicyclic of 5-12 carbons or substituted or unsubstituted araliphatic of 7-22 carbons,

R^6 is a substituted or unsubstituted aliphatic diradical of 2-18 carbons, substituted or unsubstituted alicyclic diradical of 5-18 carbons, substituted or unsubstituted araliphatic diradical of 7-18 carbons, the aliphatic chains of which may optionally contain heteroatoms —O—, —S—or —N(R^{12})—with the proviso that multiple heteroatoms must be separated from each other and the diradical ends by at least two carbon atoms,

R^7 and R^8 are independently hydrogen, substituted or unsubstituted aliphatic of 1-20 carbons, substituted or unsubstituted aryl of 6-14 carbons, substituted or unsubstituted araliphatic of 7-22 carbons or substituted or unsubstituted alicyclic of 5-12 carbons which may optionally contain —N(R^{12})—as a ring member and optionally R^7 and R^8 may be linked together by a direct bond or through a heteroatom —N(R^{12})—or —O—to form a heterocyclic ring of 5-7 atoms,

R^9 is substituted or unsubstituted aliphatic of 1-20 carbons, substituted or unsubstituted alicyclic of 5-12 carbons, substituted or unsubstituted aryl of 6-14 carbons or substituted or unsubstituted araliphatic of 7-22 carbons,

R^{10} is hydrogen, substituted or unsubstituted aliphatic of 1-20 carbons, substituted or unsubstituted alicyclic of 5-12 carbons, substituted or unsubstituted aryl of 6-14 carbons or substituted or unsubstituted araliphatic of 7-22 carbons,

R^{11} is hydrogen or aliphatic of 1-4 carbons,

R^{12} is hydrogen, substituted or unsubstituted aliphatic of 1-20 carbons, substituted or unsubstituted alicyclic of 5-12 carbons, substituted or unsubstituted araliphatic of 7-22 carbons, substituted or unsubstituted aliphatic acyl of 2-20 carbons, substituted or unsubstituted alicyclic acyl of 7-16 carbons, substituted or unsubstituted aryl acyl of 7-11 carbons, substituted or unsubstituted araliphatic acyl of 7-22 carbons, —[C(=O)]$_a$—N(R^7(R^8, —[C(=O)-]$_a$—OR^9, —$(CH_2)_a$—C(=O)—OR^{10} or —[CH_2—CH(R^1)—O]$_b$—R^{11} where a is 1-2 and b is 2-50, and substituents for R, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, are one or more of the following: chloro, bromo, alkyl of 2-8 carbons, alkoxy of 1-12 carbons, phenoxy, cyano, hydroxy, epoxy, carboxy, benzoyl, benzoyloxy, dialkylamino of 2-8 carbons total, alkoxycarbonyl of 2-6 carbons, acyloxy of 1-4 carbons, acryloyl, acryloyloxy, methacryloyl, metha-

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cryloyloxy, hydroxymethyl, hydroxyethyl, alkylthio of 1–4 carbons or trialkoxysilyl of 3–12 carbons.

5,213,898

PROCESS FOR THE PREPARATION OF SURFACE MODIFIED SOLID SUBSTRATES

Karl O. P. Larm, Bromma; Lars A. Adolfsson, and Kjell P. Olsson, both of Uppsala, all of Sweden, assignors to Norsk Hydro a.s., Oslo, Norway

Division of Ser. No. 420,481, Oct. 12, 1989, Pat. No. 5,049,403. This application Jun. 14, 1991, Ser. No. 715,557

Int. Cl.[5] B32B *27/00*

U.S. Cl. 428—422 **14 Claims**

1. In a surface modified substrate having free primary amino groups on the surface to bind a biologically active material, the improvement wherein the surface modified substrate comprises a layer of a polyamine having a high average molecular weight which is cross-linked with crotonaldehyde.

5,213,899

ROOM TEMPERATURE VULCANIZABLE SILICONE COMPOSITIONS

Gary M. Lucas, Scotia, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Dec. 17, 1990, Ser. No. 628,308

Int. Cl.[5] B32B *9/04*

U.S. Cl. 428—447 **28 Claims**

1. A room temperature vulcanizable silicone composition having improved extrusion rate and thixotropic behavior, comprising by weight:

(A) the product obtained by agitating at a temperature of greater than 50° C., a mixture comprising by weight.

(1) 100 parts of a polydiorganosiloxane having a viscosity of from about 100 to about 1,000,000 centipoise at 25° C., wherein the silicon atoms at each polymer chain end is terminated with at least two alkoxy radicals, the organic group being a $C_{(1-15)}$ monovalent hydrocarbon radical, the polydiorganosiloxane having been prepared by a method comprising (a) agitating under substantially anhydrous conditions at a temperature in the range of from 0° C. to 180° C., a mixture of

(i) 100 parts of a silanol-terminated polydiorganosiloxane consisting essentially of chemically combined of the formula

$$-\overset{R}{\underset{R}{\overset{|}{\underset{|}{SiO}}}}-$$

wherein R is a $C_{(1-15)}$ monovalent hydrocarbon radical

(ii) an effective amount of a cross-linking agent of the formula

$$(R^1O)_{4-a}-\overset{R^2{}_a}{\overset{|}{Si}}$$

wherein R^2 is a substituted or unsubstituted $C_{(1-15)}$ monovalent hydrocarbon radical, R^1 is a $C_{(1-8)}$ aliphatic organic radical selected from alkyl radicals, alkyl ether radicals, alkylester radicals, alkylketone radicals, alkylcyano radicals, or a $C_{(7-13)}$ aralkyl radical and "a" is a whole number which is either 0 or 1, and

(iii) an effective amount of end-capping catalyst comprising a combination of a Lewis acid and a compound selected from the group consisting of substituted guanidines, amines and mixtures thereof, where R is selected from $C_{(1-13)}$ monovalent substituted or unsubstituted hydrocarbon radicals, the mixture of (i), (ii) and (iii) being agitated for a time sufficient to effect endcoupling of the silanol-terminated polydiorganosiloxane; and (b) contacting the mixture of step (a) with (iv) an effective amount of a silazane scavenger for hydroxy groups; and

(2) from about 5 to about 40 parts of a silica reinforcing filler; and

(3) from about 0.1 to about 3 parts of a cyano-functional polyalkoxy silane having the formula:

$$(R^3O)_{3-t}-\overset{R^4{}_t}{\overset{|}{Si}}-R^5C{\equiv}N$$

wherein each R^3 and R^4 is independently a monovalent hydrocarbon or substituted hydrocarbon radical having from 1 to about 18 carbon atoms, R^5 is a $C_{(2-12)}$ divalent hydrocarbon radical, and "t" is a number ranging from about 0 to about 3, the mixture comprising (A)(1), (A)(3) being agitated for a period of time sufficient to effect silyation of hydroxy groups on the filler;

(II) an effective amount of a tin condensation catalyst;

(C) from about 0.1 to about 10.0 parts of a scavenger compound for hydroxy functional groups.

(D) from about 0 to about 2 parts of an adhesion promoter having the general formula:

$$(R^{12}O)_3-\overset{R^{13}{}_b}{\overset{|}{Si}}-Z$$

wherein R^{12} and R^{13} are C_{1-8} monovalent hydrocarbon radicals, Z is a saturated, unsaturated or aromatic hydrocarbon residue which may be further functionalized by a member selected from the class consisting of ether, epoxy, etherepoxy, isocyanato, cyano, acryloxy, and acyloxy, and "b" varies from 0 to 3; and

(E) from about 0 to about 5 parts of a crosslinking polyalkoxy silane of the formula

$$(R^1O)_{4-a}-\overset{R^2{}_a}{\overset{|}{Si}}$$

wherein R^1, R^2 and a are as previously defined.

5,213,900

COOK-IN FILM WITH IMPROVED SEAL STRENGTH

Steven G. Friedrich, Chalfont, Pa., assignor to W.R. Grace & Co.-Conn., Duncan, S.C.

Continuation-in-part of Ser. No. 498,175, Mar. 23, 1990, abandoned. This application Jan. 10, 1991, Ser. No. 640,200

The portion of the term of this patent subsequent to Aug. 8, 2006, has been disclaimed.

Int. Cl.[5] B32B *27/08*

U.S. Cl. 428—474.4 **10 Claims**

1. A multiple layer cook-in film, substantially conformable to a food contact layer, said first layer providing protein adhesion to said food product during cook in, said first layer comprising a blend of a first polyamide and a second polyamide.

5,213,901

COATED ARTICLES

David M. Ingle, Riverside, Calif., assignor to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 774,730, Oct. 9, 1991, Pat. No. 5,157,071, which is a continuation of Ser. No. 400,124, Aug. 29, 1989, abandoned. This application Jul. 8, 1992, Ser. No. 910,615

Int. Cl.[5] B32B *27/00, 27/06*

U.S. Cl. 428—500 **20 Claims**

1. An article comprising a substrate having a surface at least a portion of the surface being coated with a film formed by drying a paint, the paint comprising:

(I) a binder;

(II) a pigment; and

(III) a carrier, wherein

(A) the binder comprises:

(i) an aqueous polymeric composition; and

(ii) a high molecular weight film former,

(B) the aqueous polymeric composition (α) has a solids content and (β) is formed by reacting in water and in the presence of an initiator;

(a) about 15 to about 35 weight percent of a substantially non-self-polymerizable monomer selected from the group consisting of itaconic acid, maleic acid, fumaric acid, itaconate ester, maleate ester, fumarate ester, and mixtures thereof;

(b) about 30 to about 70 weight percent of a copolymerizable monomer selected from the group consisting of N-vinyl lactams having the formula

$$\begin{array}{l} CH{=}CH_2 \\ | \\ N-C{=}O \\ | \\ (CH_2)_m \end{array}$$

m being an integer from about 3 to about 5; acrylates having the formula

$$CH_2{=}\overset{R_5}{\overset{|}{C}}-\overset{O}{\overset{\|}{C}}-O-(CH_2\overset{R_6}{\overset{|}{C}}H-O-)_nR_7$$

and acrylamides having the formula

$$CH_2{=}\overset{R_5}{\overset{|}{C}}-\overset{O}{\overset{\|}{C}}-\overset{H_{(1-p)}}{\overset{|}{N}}-[(CH_2\overset{R_6}{\overset{|}{C}}H-O-)_nR_7]_{(1+p)}$$

R_5 and R_6 being independently hydrogen or methyl, R_7 being hydrogen or an alkyl group, n being an integer from 1 to about 30, and p being either 0 or 1; and

(c) about 10 to about 35 weight percent of a wet adhesion promoting monomer selected from the group consisting of ethyleneureido-containing monomers, cyanoacetoxy-containing monomers, acetoacetoxy-containing monomers, and hydroxymethyl diacetone acrylamide,

(C) the non-self-polymerizable monomer, the copolymerizable monomer, and the wet adhesion promoting monomer constituting at least 98 weight percent of the monomers employed in forming the aqueous polymeric composition, and

(D), based upon the total solids content of the aqueous binder composition, the aqueous binder composition comprises about 0.5 to about 3 weight percent of the solids content of the aqueous polymeric composition and about 97 to about 99.5 weight percent of the high molecular weight film former.

5,213,902

MICROWAVE OVEN PACKAGE

D. Gregory Beckett, Oakville, Canada, assignor to Beckett Industries Inc., Oakville, Canada

Filed Feb. 19, 1991, Ser. No. 656,736

Int. Cl.[5] B32B *3/10*

U.S. Cl. 428—597 **13 Claims**

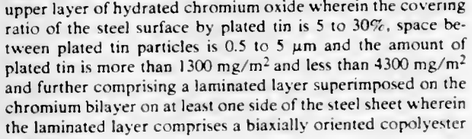
1. A laminate structure, useful for forming a food package for a microwave oven, which comprises:

a polymeric film layer,

a layer of material adhered to the polymeric film layer and defining a grid, the grid having an electroconductive surface surrounding transmissive apertures,

a thin layer of electroconductive material of sufficient thickness that a portion of incident microwave energy is converted to thermal energy, said thin layer of electroconductive material overlaying said grid layer and being in abutting contact with and directly adhered to said electroconductive surface and to said polymeric film layer in said apertures, and

a substrate layer of microwave transparent material adhered to the electroconductive material layer.



5,213,903

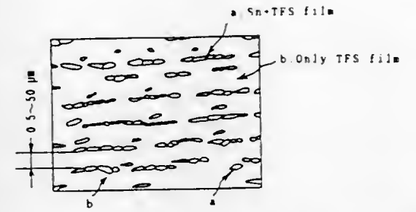
TIN-PLATED STEEL SHEET WITH A CHROMIUM BILAYER AND A COPOLYESTER RESIN LAMINATE AND METHOD

Hiroaki Kawamura, Kudamatsu; Masatoki Ishida; Atsuo Tanaka, both of Tokuyama; Terunori Fujimoto, Kudamatsu; Tsuneo Inui, Tokuyama, and Yoshikazu Kondo, Kudamatsu, all of Japan, assignors to Toyo Kohan Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 543,036, Jun. 22, 1990, abandoned. This application Apr. 15, 1992, Ser. No. 869,904

Int. Cl.[5] B32B *15/08*

U.S. Cl. 428—623 **8 Claims**



1. A co-polyester rein film laminated steel sheet composition comprising a discontinuous tin-plated steel sheet wherein the discontinuous tin-plated steel sheet is further coated with a uniform double layer consisting of greater than 30 to 300 mg/m^2 lower layer of metallic chromium and a 5–30 mg/m^2 upper layer of hydrated chromium oxide wherein the covering ratio of the steel surface by plated tin is 5 to 30%, space between plated tin particles is 0.5 to 5 μm and the amount of plated tin is more than 1300 mg/m^2 and less than 4300 mg/m^2 and further comprising a laminated layer superimposed on the chromium bilayer on at least one side of the steel sheet wherein the laminated layer comprises a biaxially oriented copolyester resin film.

5,213,904

ALUMINUM/STEEL TRANSITION JOINT

John G. Banker, Boulder, Colo., assignor to Explosive Fabricators, Inc., Colo.

Filed Nov. 5, 1991, Ser. No. 788,087

The portion of the term of this patent subsequent to Mar. 2, 2010, has been disclaimed.

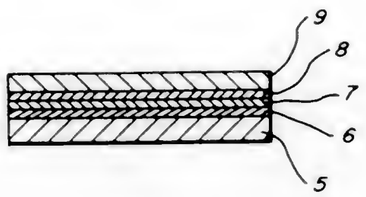
Int. Cl.[5] B32B *15/20*

U.S. Cl. 428—651 **3 Claims**

1. An explosion bonded laminated metal product comprising:

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a first layer of steel;
a second layer of copper-nickel adjacent said steel layer, said second layer of copper-nickel comprising copper in a range from 65% to 75% and nickel in a range from 35% to 25%;

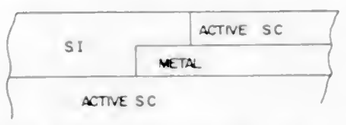


a third layer of titanium adjacent said layer of copper-nickel, and
at least one layer of aluminum adjacent said titanium layer, wherein said bonded laminated metal product exhibits superior bond toughness.

5,213,905
PROCESS FOR PRODUCING A COMPOSITE FLAT PRODUCT, STAINLESS ARMOR AND ARMORED STORAGE TANK OHTAINED BY THIS PROCESS
Jacques Leger, St Julien sur Dheune; Rémi Roux, and Gilbert Schweitzer, both of Le Creusot, all of France, assignors to Creusot-Loire Industrie, Puteaux, France
Filed Feb. 26, 1992, Ser. No. 841,500
Claims priority, application France, Mar. 1, 1991, 9102496
Int. Cl.[5] B32B *15/18*; C21D *9/42*
U.S. Cl. 428—683 9 Claims

1. A process for producing a composite flat stainless armor comprising the steps of:
plating onto an armor steel sheet a sheet of a stainless steel whose carbide redissolution temperature is lower than 1000° C.,
heating the plated sheet to a temperature between 900° and 1000° C.,
quenching the plated sheet from the heating temperature,
the armor steel having, after quenching, a Brinell Hardness between 250 and 700 BH.

5,213,906
COMPOSITE MATERIAL COMPRISING A LAYER OF A III-V COMPOUND AND A LAYER OF RARE EARTH PNICTIDE, PRODUCTION PROCESS AND APPLICATION
Alain Le Corre, Pleumeur Bodou; André Guivarc'H, Lannion, and Jacques Caulet, Begard, all of France, assignors to Etat Francais, France
Filed Apr. 6, 1990, Ser. No. 505,558
Claims priority, application France, Apr. 13, 1989, 8904899
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—688 12 Claims



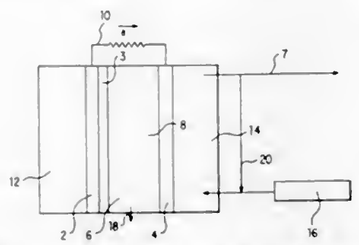
1. A composite material comprising at least one substrate layer A of III-V compound and one epitaxial layer B, having a metallic conductive character and a resistivity of at most 0.2 mill-Ohm/cm, on said layer of III-V compounds, wherein said epitaxial layer corresponds to the empirical formula REPc, where RE is selected from the group consisting of scandium yttrium, a lanthamide rare earth and mixtures thereof; and where Pc is selected from the group consisting of phosphorus, arsenic, antimony and mixtures thereof, and wherein, when Pc contains arsenic, the compound REPc is at least a ternary compound.

5,213,907
NICKEL-COBALT-BORON-ALLOY DEPOSITED ON A SUBSTRATE
Luis X. Caballero, Mexico City, Mexico, assignor to Diamond Technologies Company, Louisville, Ky.
Filed Oct. 9, 1990, Ser. No. 594,570
Int. Cl.[5] B32B *15/00*; C25D *3/56*
U.S. Cl. 428—678 18 Claims



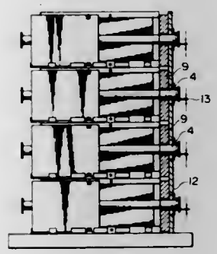
9. An article of manufacture comprising a substrate having a metal surface and a plating alloy consisting essentially of nickel, cobalt and 1-5% by weight boron which is deposited on and structurally diffused into the metal surface of the substrate along an interface area between said alloy and said metal surface, the ratio of nickel to cobalt being about 1:1 to about 3:1.

5,213,908
ALKALI METAL CARBON DIOXIDE ELECTROCHEMICAL SYSTEM FOR ENERGY STORAGE AND/OR CONVERSION OF CARBON DIOXIDE TO OXYGEN
Norman H. Hagedorn, Bay Village, Ohio, assignor tn The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Sep. 26, 1991, Ser. No. 766,593
Int. Cl.[5] H01M *8/14*
U.S. Cl. 429—16 24 Claims



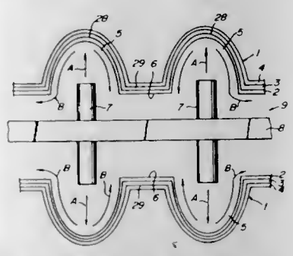
1. An electrochemical cell for the storage and delivery of electrical energy, comprising:
an anode comprising an alkali metal as anodic reactant,
a cathode comprising carbon dioxide or a mixture of carbon dioxide and carbon monoxide as cathodic reactant,
an alkali metal ion conducting solid, and
an electrolyte comprising the carbonate of said alkali metal, said electrolyte being in physical contact with said cathode and said alkali metal ion conducting solid, and said alkali metal ion conducting solid separating said alkali metal reactant from alkali metal carbonate electrolyte.

5,213,909
INSULATED FUEL CELL
Sei Takashima, Hitachi; Keizou Ohtsuka, Katsuta; Toshiki Kahara, Ibaraki, and Yasutaka Komatsu, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 23, 1992, Ser. No. 872,410
Claims priority, application Japan, Apr. 23, 1991, 3-092029
Int. Cl.[5] H01M *10/50, 8/24, 2/08*
U.S. Cl. 429—26 9 Claims



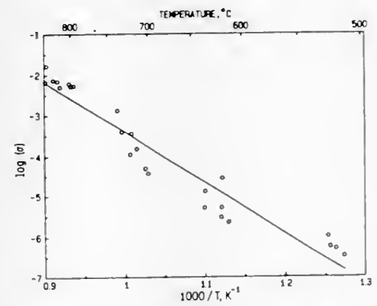
1. A fuel cell comprising:
a plurality of fuel cell sub-stacks each of which has cell bodies, at least one anode header and at least one cathode header, which sub-stacks are stacked to form a fuel cell stack body; and
side thermal insulators which are provided on the substantially whole side of said fuel cell stack body so as to keep said fuel cell sub-stacks warm and which are discrete from each other in the direction of stacking of said fuel cell sub-stacks;
each of said side thermal insulators being independently supported.

5,213,910
SOLID ELECTROLYTE TYPE FUEL CELL HAVING GAS FROM GAS SUPPLY DUCTS IMPINGING PERPENDICULARLY ON ELECTRODES
Hirotake Yamada, Nagoya, Japan, assignor to NGK Insulators, Ltd., Japan
Filed Mar. 17, 1992, Ser. No. 852,521
Claims priority, application Japan, Mar. 20, 1991, 3-80629
Int. Cl.[5] H01M *8/12, 4/86*
U.S. Cl. 429—32 10 Claims



1. A solid electrolyte fuel cell comprising:
at least one plate-shaped solid electrolyte fuel cell element having a plurality of recesses formed therein; and
a gas supply member for supplying an electric power generating gas to the fuel cell element, and provided with a plurality of electric power generating gas supply ducts which open into the recesses so that streams of electric power generating gas supplied into the recesses from said gas supply ducts initially impinge substantially perpendicularly against electrodes of the fuel cell element exposed in the recesses, so as to turn initial flowing directions of the streams and thus cause flow thereof along surfaces of the electrodes.

5,213,911
SOLID-OXIDE FUEL CELL ELECTROLYTE
Ira D. Bloom, Bolingbrook; Mark C. Hash, Joliet, and Michael Krumpelt, Naperville, all of Ill., assignors to The United States of America as represented by The United States Department of Energy, Washington, D.C.
Filed Oct. 17, 1991, Ser. No. 777,954
Int. Cl.[5] H01M *8/00*
U.S. Cl. 429—33 14 Claims



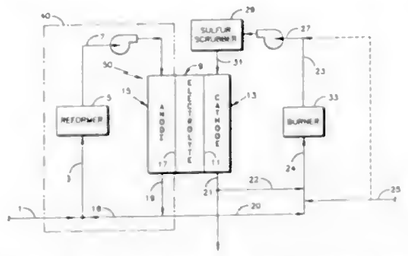
1. A solid-oxide electrolyte which is substantially free of the ability to conduct electrons and is chemically stable to H2 in a fuel cell or battery operating environment comprising:
a compound having weak metal-oxygen interactions; and
a compound having stronger metal-oxygen interactions combined with said compound having weak metal-oxygen interactions, whereby the resulting combination has both strong and weak metal-oxygen interaction properties for providing increased thermodynamic stability and having a minimum ionic conductivity at 800° C. of 1×10^{-1} ohm^{-1} cm^{-1}; and wherein the resulting combination is selected from the general compound group consisting of Bi-M-O, RE-M-O wherein RE is a rare earth, La-M-O, and combinations thereof, and wherein M is one or more metals selected from the group of metals consisting of Al, Y, La, Bi, rare earths, alkaline earths, and transition metals, provided the resulting compound shall contain at least two different metals from said group.

5,213,912
MOLTEN CARBONATE FUEL CELL SULFUR SCRUBBER
Harold R. Kunz, Vernon; Richard A. Sederquist, Newington, and Ole L. Olesen, South Windsor, all of Conn., assignors to International Fuel Cells Corporation, South Windsor, Conn.
Filed Dec. 30, 1991, Ser. No. 814,520
Int. Cl.[5] H01M *8/04*
U.S. Cl. 429—34 10 Claims

1. An improved molten carbonate fuel cell system, said system having a molten carbonate fuel cell formed by an anode, a cathode, and a molten carbonate electrolyte disposed therebetween, an anode chamber, and a cathode chamber, said system further having a fuel stream in flow communication with said anode chamber, and an oxidant stream in flow com-

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munication with said cathode chamber, wherein said improvement comprises: a sulfur scrubber which removes sulfur com-



pounds from said oxidant stream, said sulfur scrubber in flow communication with said cathode chamber.

5,213,913

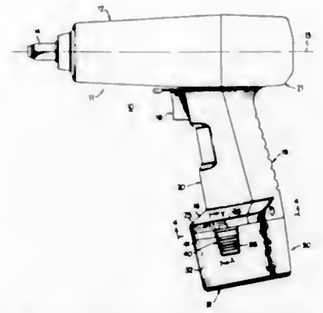
LATCHING ARRANGEMENT FOR BATTERY PACK

Philip M. Anthony, III, Lindenhurst, Ill.; Edward S. Wahoski, and Michael A. Norris, both of Kenosha, Wis., assignors to Snap-on Tools Corporation, Kenosha, Wis.

Filed Feb. 21, 1992, Ser. No. 838,901

Int. Cl.[5] H01M *2/10*; E05C *19/06*; B25B *21/00*

U.S. Cl. 429—97 **18 Claims**



1. A latching arrangement for latching a battery pack in an operating position on an electric device having a body portion extending along an axis and a handle portion inclined with respect to the axis, said handle portion including forward and rearward housing parts interconnected along opposite sides thereof, said latching arrangement comprising: plural latching shoulders on the sides of the housing parts each having a first latching surface disposed substantially parallel to the axis, and plural latching members on the battery pack each displaceable between latching and release positions and resiliently biased to the latching position, each latching member having a second latching surface thereon engageable with said first latching surface of a corresponding one of said latching shoulders when said latching member is in its latching position and the battery pack is in its operating position securely to latch the battery pack to the device.

5,213,914

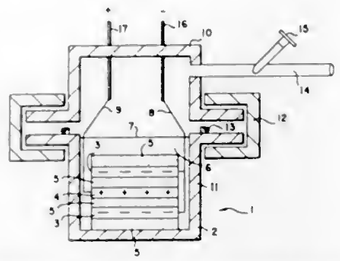
NON-AQUEOUS, RECHARGEABLE ELECTROCHEMICAL CELL

Joachim Heitbaum, Friedrichsdörferstr. 35, 6380 Bad Homburg, and Günther Hambitzer, Steigstrasse 14, 7507 Pfinztal 1, both of Fed. Rep. of Germany

Filed Feb. 1, 1991, Ser. No. 648,940

Int. Cl.[5] H01M *10/40*

U.S. Cl. 429—197 **10 Claims**



1. Non-aqueous rechargeable electrochemical cell comprising a negative electrode, a positive electrode containing an active material and an electrolyte solution into which said electrodes are immersed;

said negative electrode comprising lithium; said electrolyte solution comprising sulfur dioxide (SO_2) as solvent and at least one solute which is a lithium salt with an anion of a group 3A element halide; and said positive electrode comprising a lithium cobalt oxide as the active material.

5,213,915

HOLOGRAPHIC RECORDING MATERIAL AND METHOD FOR HOLOGRAPHIC RECORDING

Taichi Ichihashi, Osaka; Hideo Tanigawa, Ikeda, and Akira Nagata, Osaka, all of Japan, assignors to Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan

Division of Ser. No. 488,896, Mar. 6, 1990, abandoned. This application Mar. 25, 1992, Ser. No. 857,439

Claims priority, application Japan, May 19, 1989, 1-127686; Jul. 3, 1989, 1-172635

Int. Cl.[5] G03H *1/04*

U.S. Cl. 430—2 **9 Claims**

1. A method for holographic recording, which essentially consists of interposing between two opposed surface materials a holographic recording material comprising diethylene glycol-bis(allyl carbonate) as a principal component, 2,2-bis[3,5-dibromo-4-(2-methacryloyloxyethoxy)phenyl]propane as an auxiliary component, and a photopolymerization initiator, then heating the interposed holographic recording material thereby solidifying said recording material and giving rise to a dry plate, and exposing said dry plate to a coherent light in an interference pattern.

5,213,916

METHOD OF MAKING A GRAY LEVEL MASK

John E. Cronin, Milton; Paul A. Farrar, Sr., Burlington; Carter W. Kaanta, Colchester; James G. Ryan, Essex Junction, and Andrew J. Watts, Milton, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 30, 1990, Ser. No. 605,606

Int. Cl.[5] G03F *9/00*

U.S. Cl. 430—5 **25 Claims**

1. A method of fabricating a gray level mask having a plurality of layers of material of differing light transmissivity supported by a substrate, wherein a first of said layers partially overlaps the substrate to expose a part of the substrate, and a

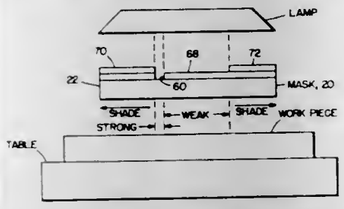
second of said layers partially overlaps the first layer to expose part of the first layer and said part of the substrate;

the method comprising steps of

depositing a first layer on said substrate, said first layer being formed of a material having a first light transmissivity less than a light transmissivity of said substrate but greater than zero transmissivity;

depositting a second layer on said first layer, said second layer being formed of a material having a second light transmissivity less than the light transmissivity of said substrate but greater than or equal to zero, said first and said second layers constituting an assembly of layers;

forming a resist structure upon said layer assembly to serve as a mask, said forming including a step of treating a part



of said resist structure to permit a preferential etching of said resist structure;

employing a first etchant which preferentially attacks said second layer to configure said second layer in accordance with the mask of said resist structure;

employing a second etchant which preferentially attacks said second layer to configure said first layer in accordance with the mask of said resist structure;

employing a third etchant which preferentially attacks said resist structure to reconfigure said resist structure to serve as a reconfigured mask;

reemploying said first etchant to reconfigure said second layer in accordance with the reconfigured mask; and

stripping off said resist structure.

5,213,917

PLASMA PROCESSING WITH METAL MASK INTEGRATION

Michael Gulla, and Prasit Sricbaroenchaikit, both of Millis, Mass., assignors to Shipley Company Inc., Newton, Mass.

Division of Ser. No. 353,770, May 18, 1989, Pat. No. 5,053,318. This application Jan. 31, 1991, Ser. No. 648,890

Int. Cl.[5] G03F *7/00*

U.S. Cl. 430—14 **16 Claims**

1. An article of manufacture comprising a substrate, a partially developed layer of photoresist over said substrate whereby portions of said photoresist layer are partially developed and portions of said photoresist layer are undeveloped, and a layer of electroless metal over solely the top surface of said undeveloped portions of said photoresist layer.

5,213,918

COLOR REFERENCE CRT AND METHOD OF MAKING

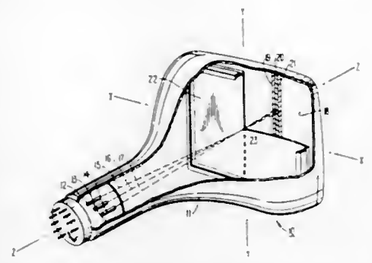
Robert L. Donofrio, Saline, Mich., assignor to North American Philips Corporation, New York, N.Y.

Division of Ser. No. 626,912, Dec. 12, 1990, Pat. No. 5,122,708. This application Mar. 11, 1992, Ser. No. 849,247

Int. Cl.[5] G03C *5/00*

U.S. Cl. 430—23 **6 Claims**

1. A method for producing a color reference CRT employing a pattern of individual phosphor elements of different color components on the display window of the CRT, the method comprising adjusting the relative screen weights of the phosphors of the component color fields to achieve a desired refer-



ence color when the CRT is operated at predetermined values of beam current and anode voltage.

5,213,919

PROCESS FOR PREPARATION OF LITHOGRAPHIC PRINTING PLATE AND ELUTING SOLUTION USED FOR SAID PROCESS CONTAINING ALKALI CHELATING AGENT

Seiji Kuwakubn, Fussa; Akin Akao; Takao Soma, both of Sagamihara, and Takeo Kadoi, Nishitama, all of Japan, assignors to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed Nov. 5, 1990, Ser. No. 609,196

Claims priority, application Japan, Nov. 13, 1989, 1-292229

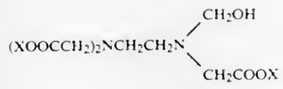
Int. Cl.[5] G03G *13/28*; G03F *7/00*

U.S. Cl. 430—49 **3 Claims**

1. An eluting solution for eluting a non-image area of an electrophotographic printing plate, which is used for a treatment of eluting a non-image area of a substrate having a toner image formed and fixed by electrophotography to expose a hydrophilic surface, or a surface that can be rendered hydrophilic, said eluting solution being an aqueous solution containing an alkali chelating agent selected from the group consisting of compounds of the general formula:

$(XOOCCH_2)_2CH_2CH_2N(CH_2COOX)_2$; a)

$N(CH_2COOX)_3$ and; b)



c)

wherein X is at least one member selected from the group consisting of K, Na and NH_4 and said eluting agent contains form about 8 to 70% by weight of the alkali chelating agent.

5,213,920

METHOD FOR OBTAINING LITOGRAPHIC PRINTING PLATES BY ELECTROPHOTOGRAPHIC IMAGING

Paul J. Coppens, Turnhout; Ludovicus H. Vervloet, Kessel; Serge M. Tavernier, Lint, and Paul F. Sterckx, Begijnendijk, all of Belgium, assignors to AGFA-Gevaert N.V., Mortsel, Belgium

Filed Nov. 26, 1991, Ser. No. 798,004

Claims priority, application European Pat. Off., Nov. 30, 1990, 90203165

Int. Cl.[5] G03G *13/26*

U.S. Cl. 430—49 **16 Claims**

1. In an electrophotographic method for obtaining a lithographic printing plate which includes the step of transferring a toner image from a toner image bearing member to a toner receiving plate to produce a precursor form of said lithographic printing plate, the improvement wherein

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said toner receiving plate comprises a thermoplastic film support and a crosslinked hydrophilic layer thereon, and said hydrophilic layer has projecting from substantially the entirety of the exposed surface thereof discrete minute protuberances.

5,213,921
ELECTROPHOTOGRAPHIC COLOR PRINTING PROCESS

Derek B. Dove, Mt. Kisco, N.Y., and Lawrence B. Schein, San Jose, Calif., assignors to Lexmark International, Inc., Greenwich, Conn.

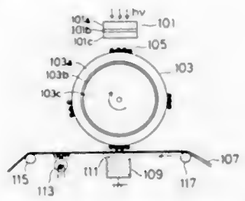
Continuation of Ser. No. 632,293, Dec. 21, 1990, abandoned. This application Jan. 30, 1992, Ser. No. 827,851
Int. Cl.[5] G03G *13/09*
U.S. Cl. 430—42 14 Claims

1. A process of forming plural color images on a photoconductor comprising the steps of:
(a) charging a photoconductor;
(b) exposing the photoconductor to light to discharge a first exposed area;
(c) apply a first color of charged, dry powder toner particles of potential to adhere to unexposed areas of said photoconductor to the photoconductor;
(d) recharging the photoconductor with the first color of charged toner particles adhering to the unexposed charged area of the photoconductor by repeating without change the charging operation which performed the foregoing step (a);
(e) exposing the photoconductor to light to discharge a second exposed area; and
(f) applying a second color of charged, dry powder toner particles of potential to adhere to unexposed areas of said photoconductor to the photoconductor to enable said particles to adhere to the unexposed charged area of the photoconductor.

5,213,922
ELECTROSTATIC PRINTING METHOD

Makoto Matsuo; Hiroyuki Obata, and Minoru Utsumi, all of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo, Japan

Filed Mar. 16, 1990, Ser. No. 494,358
Claims priority, application Japan, Mar. 17, 1989, 1-65466
Int. Cl.[5] G03G *13/044*
U.S. Cl. 430—48 6 Claims



1. An electrostatic printing method, wherein a photosensitive member having photoconductive layer formed on a support member with a conductive layer therebetween is placed face-to-face with a drum of electrostatic information recording medium comprising an insulating layer formed on a cylindrical conductive layer, that voltage is applied between the photosensitive member and the conductive layer of the electrostatic information recording medium drum and electric charge is accumulated in the shape of an image on the surface of the electrostatic information recording medium drum by performing image exposure from the direction of the photosensitive member, that recording film is supplied at the same speed as the rotating speed of the drum on contact or non-contact basis with said drum, and that toner development is performed by a developing machine, which is installed face-to-face to the drum with the recording film therebetween.

3. An electrostatic printing method, wherein a photosensitive member having photoconductive layer formed on a support member with a conductive layer therebetween is placed face-to-face with a drum of electrostatic information recording medium comprising an insulating layer formed on a cylindrical conductive layer, that voltage is applied between the photosensitive member and the conductive layer of the electrostatic information recording medium drum by performing image exposure from the direction of the photosensitive member, that recording film is supplied at the same speed as the drum by bringing the recording film into contact with said drum, that toner development is performed by a developing machine, installed at the position face-to-face to the drum with the recording film therebetween, and that a conductive roller is provided at the position where the recording film is separated from the drum.

5,213,923
PHOTOSENSITIVE MATERIAL FOR ELECTROPHOTOGRAPHY COMPRISING A CHARGE TRANSPORT LAYER COMPRISING AN ORGANOPOLYSILANE AND DIPHENOQUINONE

Masaaki Yokoyama, Toyonaka; Eiichi Miyamoto, Osaka, and Yasuhiro Yamaguchi, Minoo, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Oct. 30, 1990, Ser. No. 605,272
Claims priority, application Japan, Oct. 31, 1989, 1-281883; Oct. 31, 1989, 1-281884; Oct. 31, 1989, 1-281885; Oct. 31, 1989, 1-281886; Oct. 31, 1989, 1-281887
Int. Cl.[5] G03G *5/10*
U.S. Cl. 430—58 8 Claims



1. A laminated electrophotographic photosensitive material comprising a charge generating layer and a charge transporting layer laminated to each other in either order on a conductive substrate, wherein said charge transporting layer comprises from about 0.1 to about 30 parts by weight of a diphenoquinone derivative dispersed in 100 parts by weight of an organopolysilane layer composed of recurring units represented by the formula (1)

(1)



wherein R_1 and R_2 independently represent an alkyl group having up to 4 carbon atoms, an aryl group having at least 6 carbon atoms or an aralkyl group.

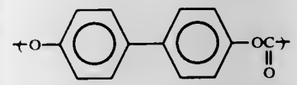
5,213,924
ELECTROPHOTOGRAPHIC PHOTORECEPTOR CONTAINING POLYCARBONATE RESIN AS BINDER RESIN

Shuji Sakamoto, Sodegaura, Japan, assignor to Idemitsu Kosan Co. Ltd., Tokyo, Japan

Filed Nov. 14, 1991, Ser. No. 791,505
Claims priority, application Japan, Nov. 15, 1990, 2-307186
Int. Cl.[5] G03G *5/05*
U.S. Cl. 430—58 18 Claims

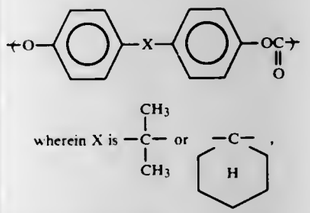
1. An electrophotographic photoreceptor comprising an electroconductive substrate and a photosensitive layer disposed on a surface of the electroconductive substrate, the photosensitive layer containing a binder resin that comprises a polycarbonate resin having the repeating unit represented by the following formula (I):

(I)



and the repeating unit represented by the following formula (II):

(II)

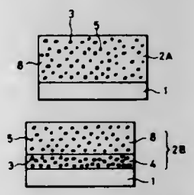


the repeating unit represented by the formula (I) being present in the polycarbonate resin in a molar ratio of the repeating unit represented by the formula (I) to the total of the repeating unit represented by the formula (I) and the repeating unit represented by the formula (II), (I)/{(I)+(II)}, of from 0.01 to 0.5, and the polycarbonate resin having a reduced viscosity [η_{sp}/c] of from 0.2 to 3.0 dl/g as measured in methylene chloride at a concentration of 0.5 g/dl at 20° C.

5,213,925
PHOTOCONDUCTOR FOR ELECTROPHOTOGRAPHY

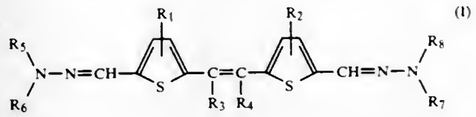
Masami Kuroda; Masayo Amano, and Noboru Furusho, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Nov. 20, 1991, Ser. No. 793,723
Claims priority, application Japan, Nov. 22, 1990, 2-318299
Int. Cl.[5] G03G *5/09, 5/047*
U.S. Cl. 430—59 8 Claims



1. A photoconductor for electrophotography, comprising:
an electroconductive substrate; and
a photosensitive layer formed on said electroconductive substrate and comprised of a charge generating substance and a charge transporting substance, the charge transporting substance including at least one hydrazone compound represented by general formula (I):

(I)



wherein each of R_1, R_2, R_3 and R_4 is selected from the group consisting of a hydrogen atom, a halogen atom, an alkyl group and an aryl group, and each of R_5, R_6, R_7 and R_8 is selected from the group consisting of an alkyl group, and a substituted or unsubstituted aryl group, aralkyl group and heterocyclic group.

6. The photoconductor as claimed in claim 1, wherein said photosensitive layer comprises a laminate of a charge generating layer including said charge generating substance and a charge transporting layer includes said charge transporting substance.

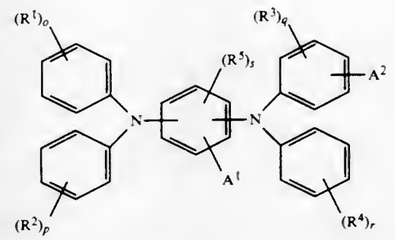
5,213,926
PHENYLENEDIAMINE DERIVATIVE AND PHOTOSENSITIVE MATERIAL USING SAID DERIVATIVE

Yasuyuki Hanatani, Sakai, and Hiroaki Iwasaki, Hirakata, both of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Mar. 24, 1992, Ser. No. 856,686
Claims priority, application Japan, Mar. 29, 1991, 3-66765
Int. Cl.[5] G03G *5/047, 5/09*; C07C *211/00*
U.S. Cl. 430—59 10 Claims

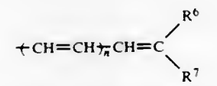
1. A phenylenediamine derivative represented by the following general formula (1):

(1)



wherein R^1, R^2, R^3, R^4 and R^5 are the same as or different from one another, and each is a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, an aryl group, an aralkyl group or a heterocyclic group; the alkyl group, the alkoxy group, the aryl group, the aralkyl group and the heterocyclic group may have respective substituting groups; o, p, q, r and s are the same as or different from one another, and each is an integer from 0 to 2:

each of A^1 and A^2 is a hydrogen atom or the following group:



wherein R^6 and R^7 are the same as or different from each other, and each is a hydrogen atom, an alkyl group, an alkoxy group, an aryl group, an aralkyl group or a heterocyclic group; the alkyl group, the alkoxy group, the aryl group, the aralkyl group and the heterocyclic group may have respective substituting groups; n is 0 or 1; A^1 and A^2

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are not hydrogen atoms simultaneously; R^6 and R^7 are not hydrogen atoms simultaneously.

2. A photosensitive material containing a conductive substrate having thereon a photosensitive layer which contains the phenylenediamine derivative (1) according to claim 1.

3. The photosensitive material according to claim 2, wherein the photosensitive layer is a multi-layer type photosensitive layer comprising an electric charge transferring layer on an electric charge generating layer which are laminated mutually.

4. The multi-layer type photosensitive material according to claim 3, wherein the electric charge transferring layer contains 25 to 200 parts by weight of said phenylenediamine derivative (1) for 100 parts by weight of a binding resin.

5,213,927

INVERSE MULTIACTIVE ELECTROPHOTOGRAPHIC ELEMENT

Hsin C. Kan, Pittsford, and Norman G. Rule, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 628,041, Dec. 17, 1990, abandoned. This application Mar. 26, 1992, Ser. No. 859,235

Int. Cl.[5] G03G *5/14*

U.S. Cl. 430—59 10 Claims

1. A multiactive electrophotographic element comprising the following layers in the order stated:

an electronically conductive layer;

a charge-transport layer;

a first charge-generation layer containing a charge-generation material and a first charge-transport material; and

a second charge-generation layer containing a charge-generation material and a second charge-transport material;

wherein the second charge-transport material is less susceptible to positive-surface-charge injection than is the first charge-trasport material, and wherein the charge-transport layer contains a charge-transport material that is at least as susceptible to positive-surface-charge injection as the first charge-transport material is.

5,213,928

IMAGING MEMBER CONTAINING POLYSILOXANE HOMOPOLYMERS

Robert C. U. Yu, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 4, 1991, Ser. No. 787,464

Int. Cl.[5] G03G *5/14*

U.S. Cl. 430—66 19 Claims

1. An electrostatographic imaging member comprising a supporting substrate and an outer layer on the imaging side of said imaging member, said outer layer comprising between about 0.1 percent and about 10 percent by weight, based on the total weight of said outer imaging layer, of minute spheres of a high molecular weight, pseudo solid polysiloxane homopolymer homogeneously dispersed in a continuous film forming polymer matrix, said polysiloxane homopolymer having a weight average molecular weight between about 200,000 and about 800,000.

5,213,929

TITANYL PHTHALOYCYANINE CRYSTAL, METHOD OF MANUFACTURE THEREOF AND ITS USE FOR ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MATERIAL

Shigemasa Takano; Yoshikazu Mimura; Naoyuki Matsui; Tomohisa Gotoh, and Mitsuo Usuba, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jun. 6, 1990, Ser. No. 534,084

Claims priority, application Japan, Jun. 6, 1989, 1-144889

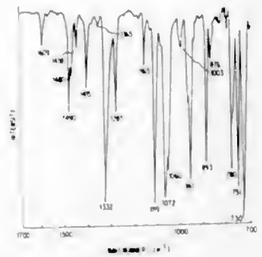
Int. Cl.[5] G03G *5/06*

U.S. Cl. 430—78 7 Claims

1. A composition crystal including titanyl phthalocyanine which shows strong infrared absorptions at absorption wavenumbers (in unit of cm^{-1}) of 1490±2, 1415±2, 1332±2, 1287±2, 1119±2, 1072±2, 1060±2, 961±2, 893±2, 780±2, 751±2 and 730±2, under a condition satisfying a relationship as follows:

730±2, 1332±2, 1119±2≧1071±2≧961±2,
751±2≧1060±2, 893±2, 780±2>1490±2,
1827±2>1415±2,

said composition crystal comprising 100 parts by weight of titanyl phthalocyanine and a total of not more than 50 parts by weight of one kind or two or more kinds selected from the group consisting of metal-free aza porphin derivatives, metallo-aza porphin derivatives, metal-free phthalocyanine, metallo-phthalocyanine, metal-free naphthalocyanine or metallo-naphthalocyanine (wherein metal-free aza porphin derivatives, metallo-aza porphin derivatives, metal-free phthalocyanine and metallo-phthalocyanine may have a substitutional group in the benzene nucleus, and metal-free naphthalocyanine and metallo-naphthalocyanine may have a substitutional group in the naphthylnucleus).



5,213,930

ELECTROPHOTOGRAPHIC LITHOGRAPH PRINTING PLATE MATERIAL HAVING A MIXTURE OF SENSITIZING DYES

Masahiro Yamana, Tokyo, and Koji Sato, Kodaira, both of Japan, assignors to Oji Paper Co., Ltd., Tokyo, Japan

Filed Oct. 28, 1991, Ser. No. 783,439

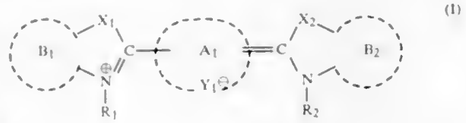
Claims priority, application Japan, Nov. 26, 1990, 2-317894; Feb. 18, 1991, 3-23138

Int. Cl.[5] G03G *5/08, 5/09*

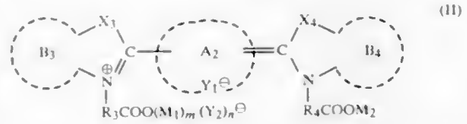
U.S. Cl. 430—92 7 Claims

1. An electrophotographic lithograph printing plate material comprising an electroconductive, waterresistant substrate and an electrophotographic layer formed on at least one surface of the substrate and comprising a photoconductive zinc oxide powder, a resinous binder and a sensitizing dye material,

said sensitizing coloring material comprising a mixture of a sensitizing dye component (A) consisting of at least one compound of the formula (I) and a sensitizing dye component (B) consisting of at least one compound selected from those of the formula (II):



(I)



(II)

in which formulae (I) and (II), A_1 and A_2 respectively and independently represent a polymethine chain group having 5 to 7 carbon atoms, and non-substituted or substituted with at least one substituent, in which substituted polymethine chain group, two of the substituents may form, together with three carbon atoms in the polymethine chain group, a cyclic structure including 6 or more carbon atoms bonded to each other, B_1, B_2, B_3 and B_4 respectively and independently represent a member selected from the group consisting of divalent benzene and naphthalene groups non-substituted or substituted with at least one substituted, X_1, X_2, X_3 and X_4 respectively and independently represent a member selected from S, Se, and O atoms and $—(CH_3)_2$-group, R_1, R_2, R_3 and R_4 respectively and independently represent an alkyl group having 1 to 5 carbon atoms, M_1 and M_2 respectively and independently represent a member selected form the group consisting of metal atoms, organic bases and a hydrogen atom, Y_1 and Y_2 respectively and independently represent an anion, and m and n respectively and independently represent zero or an integer of one but when n is an integer of one, m is an integer of one, and when n is zero, m is also zero and the $—R_3COO$ group adjacent to the $(M_1)_m$ group in the formula (II) is anionic, the weight ratio of the sensitizing dye component (A) to the sensitizing dye component (B) being from 3:1 to 20:1 .

5,213,931

METHOD AND MEANS FOR HYDRAULIC MENISCUS TONING OF FERRO ELECTRIC MATERIALS

Phillip E. Staples, Warradale, and Luis Lima-Marques, Henley Beach, both of Australia, assignors to Man Roland Druckmaschinen AG, Offenbach am Main, Fed. Rep. of Germany

Filed May 8, 1991, Ser. No. 697,106

Claims priority, application Australia, May 24, 1990, PK0308

Int. Cl.[5] G03G *13/10*

U.S. Cl. 430—102 14 Claims

1. A method for toning a latent image contained on the surface of a ferro-electric recording member (12) disposed in ohmic contact on the outer surface of a conductive roller (11), said method comprising the steps of

coating a controlled quantity of toner particles (4) by electro-deposition on the surface of a donor roller (1), said toner particles being contained within a liquid dispersion (3),

sequentially limiting the amount of dispersant liquid contained with and within said toner particle deposit on said donor roller by rotation of a limiting roller (9) positioned in a spaced apart relationship with said donor roller to thereby control the thickness of the controlled density toner layer on said donor roller; and

causing said latent image on said ferro-electric recording member (12) to selectively form menisci on said toner layer coated on said donor roller (1) to allow toner particles to contact said ferro-electric recording member (12) only in the latent image bearing areas thereof by

sequentially rotating said donor roller (1) to advance said controlled thickness and controlled density toner layer on the surface of said donor roller to a position adjacent to said conductive roller (11) containing said ferro-electric recording member (12) on said surface thereof but in a spaced apart relationship therewith.

5,213,932

MAGENTA TONER FOR ELECTROPHOTOGRAPHY

Hiromitsu Shimazaki, Fukuoka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 25, 1992, Ser. No. 841,102

Claims priority, application Japan, Feb. 25, 1992, 3-29890

Int. Cl.[5] G03G *9/09*

U.S. Cl. 430—106 12 Claims

1. A magenta toner for electrophotography which comprises a binder resin and from 0.1 to 10 parts by weight of a colorant per 100 parts by weight of the binder resin, the colorant containing a mixture of from 40 to 60 parts by weight of a Rhodamine dye classified as C.I. Solvent Red 49 and, correspondingly, from 60 to 40 parts by weight of a pigment classified as C.I. Pigment Red 48.

5,213,933

POSITIVELY CHARGEABLE MAGNETIC TONER, IMAGE FORMING PROCESS IMAGE FORMING APPARATUS, APPARATUS UNIT AND FACSIMILE APPARATUS

Ichirou Osaki; Keita Nozawa, both of Kanagawa; Kuniko Kobayashi, Tokyo; Masatsugu Fujiwara, and Masayoshi Shimamura, both of Kanagawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 28, 1991, Ser. No. 706,184

Claims priority, application Japan, May 25, 1990, 2-135578

Int. Cl.[5] G03G *9/083*

U.S. Cl. 430—106.6 185 Claims

1. A positively chargeable magnetic toner comprising positively chargeable magnetic toner particles having at least a binder resin, a magnetic substance and a charge controlling agent; wherein said binder resin contains (A) a vinyl polymer or vinyl copolymer having polar functional groups selected from the group consisting of carboxyl groups, acid anhydride groups, partial esters of said carboxyl groups, partial esters of said acid anhydride groups or mixtures thereof and having an acid value of 5 to 30, and (B) a copolymer obtained by polymerizing at least a diolefin monomer and a vinyl monomer, and said charge controlling agent contains (C) a quaternary ammonium salt and (D) a nigrosine dye or a triphenylmethane dye, the ratio by weight among the components (A), (B), (C) and (D) being within the range of (A):(B):(C):(D)=80 to 30:70 to 20:2.0 to 0.5: 2:0 to 0.1 relative to 100 parts of the total weight of said components (A) and (B).

5,213,934

MICROCAPSULE TONER COMPOSITIONS

Guerino Sacripante; Beng S. Ong, both of Ontario, Canada; Bing R. Hsieh, Webster, and Robert McNamara, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 7, 1991, Ser. No. 637,697

Int. Cl.[5] G03G *9/00, 5/00;* G03C *1/72*

U.S. Cl. 430—109 39 Claims

1. A microcapsule toner, consisting essentially of

a core comprising a colorant and a binder polymer; and

a shell surrounding said core and comprising a shell polymer;

wherein a part of said binder polymer is chemically grafted to said shell polymer via a spacer linkage which is a reaction product of a polyfunctional reagent with precursors of said binder polymer and said shell polymer.

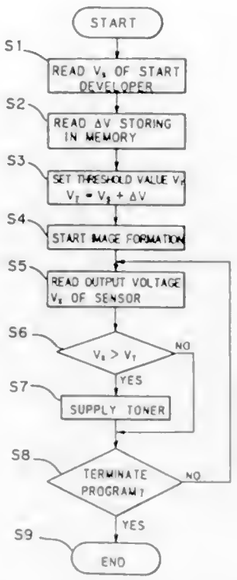
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,935

START DEVELOPER AND METHOD OF CONTROLLING TONER DENSITY

Yoshitake Shimizu, Kyoto; Koichi Tsuyama, Kobe; Masahide Inoue, Kitakatsuragi, and Tetsuya Nakano, Nabari, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed May 13, 1991, Ser. No. 698,785
Claims priority, application Japan, May 19, 1990, 2-129667
Int. Cl.[5] G03G *9/00, 5/00*
U.S. Cl. 430—109 6 Claims



1. A start developer formed of a toner comprising a styrene-acrylic resin, a coloring agent, a charge controlling agent, and a parting agent mixed with a carrier comprising a resin coating layer formed on the surface of a magnetic particle in a predetermined ratio to form a developer with a predetermined image density, said start developer being produced by a process comprising the steps of:

(a) mixing a toner and a carrier to form a mixture, said toner comprising a styrene-acrylic resin, a coloring agent, a charge controlling agent, and a parting agent, and said carrier comprising a resin coating layer formed on the surface of magnetic particles in a predetermined ratio, said mixture providing a developer with which a predetermined image density is obtained; and

(b) agitating said mixture of said toner and said carrier while measuring the permeability of said mixture by a sensor which indicates developer permeability, said mixture having a toner density, said agitating continuing until said sensor provides a first output voltage which is not less than 0.9 times a second output voltage, said second output voltage being indicative of a developer permeability of a developer for which image characteristics have stabilized after repeated image formation by an image forming apparatus, said developer for which image characteristics have stabilized having a toner density that is the same as said toner density of said mixture, and said first output voltage also being below a threshold voltage at which a supply of toner is added to said mixture.

5,213,936

IMAGING WITH DEVELOPER COMPOSITIONS WITH COATED CARRIER PARTICLES

John A. Creatura, Ontario, and George R. Hsu, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 491,793, Mar. 12, 1990, Pat. No. 5,002,846, which is a division of Ser. No. 136,791, Dec. 22, 1987, Pat. No. 4,937,166, which is a continuation-in-part of Ser. No. 793,042, Oct. 30, 1985, abandoned. This application Dec. 17, 1990, Ser. No. 628,555
The portion of the term of this patent subsequent to Jun. 26, 2007, has been disclaimed.
Int. Cl.[5] G03G *13/20, 13/22*
U.S. Cl. 430—124 6 Claims

1. A method of formulating images which comprises generating an electrostatic latent image on a photoconductive imaging member; thereafter developing this image with a developer composition comprised of carrier particles comprised of a core with a coating thereover comprised of a mixture of first and second polymers wherein the difference in electronic work functions between the first and second polymers is 2 electron volts wherein the triboelectric charging properties of the carrier are independent of the conductivities thereof, said triboelectric properties being dependent on the ratio of polymers present, and said conductivities being dependent on the coating weight of the polymers selected, and a toner composition of toner resin particles and pigment particles; subsequently transfering the developed image to a supporting substrate; and thereafter affixing the image thereto and wherein the first polymer is present in an amount of from about 40 to about 60 weight percent and the second polymer is from in an amount of from about 60 to about 40 weight percent.

2. A method in accordance with claim 1 wherein fixing is accomplished by heat.

5,213,937

PROCESS FOR PREPARING AN ELECTROPHOTOGRAPHIC PHOTORECEPTOR

Kan Miyake, Hachioji, Japan, assignor to Konica Corporation, Tokyo, Japan

Filed Nov. 12, 1991, Ser. No. 791,563
Claims priority, application Japan, Nov. 15, 1990, 2-309223
Int. Cl.[5] G03G *5/043*
U.S. Cl. 430—130 8 Claims

1. A process of producing an electrophotographic photoreceptor, the photoreceptor comprising a plurality of layers including a carrier generation layer having a thickness of 0.1 to 2 μm, comprising the steps of:

dipping a substratum into a coating solution to form the carrier generation layer thereon; and

conveying the substratum coated with the carrier generation layer under circulating clean air having a cleanness degree of not higher than 100, at a temperature in a range of plus or minus 5 centigrade degrees of the temperature of the coating solution.

5,213,938

OXIDATION OF TONER COMPOSITIONS

Guerino G. Sacripante; Raj D. Patel, both of Oakville; Grazyna E. Kmiecik-Lawrynowicz, Burlington, and Lurdes M. Martins, Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 15, 1992, Ser. No. 868,810
Int. Cl.[5] G03G *9/08, 9/093*
U.S. Cl. 430—137 21 Claims

1. A process for the preparation of toner compositions with alkyl cellulose on the surface which comprises the oxidation and metal chelation of the surface thereof with a metal oxidizing reagent.

5,213,939

LIGHT- AND HEAT-SENSITIVE RECORDING MATERIAL

Takekatsu Sugiyama; Sadao Ishige; Naoto Yanagihara; Hiroshi Kamikawa, and Keiichi Tateishi, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

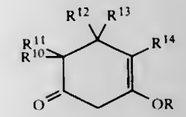
Filed Sep. 23, 1991, Ser. No. 763,700
Claims priority, applicatioo Japan, Sep. 27, 1990, 2-258537; Oct. 5, 1990, 2-267588; Oct. 5, 1990, 2-267589; Nov. 22, 1990, 2-319751
Int. Cl.[5] G03C *1/58*
U.S. Cl. 430—138 19 Claims

1. A light- and heat-sensitive recording material comprising a support having thereon a recording layer comprising:

(A) a 1-substituted amino-3-alkoxybenzene-4-diazonium salt;

(B) a coupling component selected from the group consisting of

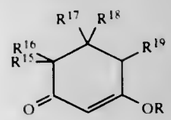
(a) compounds prepared from 3-cyclohexenone, and represented by formula (III):



(III)

wherein R^{10}, R^{11}, R^{12} and R^{13}, which may be the same or different, each represents a hydrogen atom, an alkyl group, an aryl group, an aralkyl group, a substituted amino group, a substituted carbonyl group, or a cyano group; R^{14} represents a substituted carbonyl group or a cyano group; and R represents an alkyl group, an aryl group, a substituted carbonyl group, a substituted sulfonyl group, a cationic group, or a substituted silyl group,

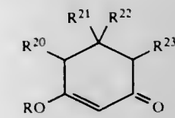
(b) compounds prepared from 2-cyclohexenone and represented by formula (IV):



(IV)

wherein R^{15}, R^{16}, R^{17} and R^{18}, which may be the same or different, each represents a hydrogen atom, an alkyl group, an aryl group, an aralkyl group, a substituted amino group, a substituted carbonyl group, or a cyano group; R^{19} represents a substituted carbonyl group or a cyano group; and R represents an alkyl group, an aryl group, a substituted carbonyl group, a substituted sulfonyl group, cationic group, or a substituted silyl group, and

(c) compounds prepared from 2-cyclohexenone and represented by formula (V):



V

wherein R^{20}, R^{21} and R^{22}, which may be the same or different, each represents a hydrogen atom, an alkyl group, an aryl group, an aralkyl group, a substituted amino group, a substituted carbonyl group, or a cyano group; R^{23} represents a substituted carbonyl group or a cyano group; and R is an alkyl group, an aryl group, a substituted carbonyl group, a substituted sulfonyl group, a cationic group, or a substituted silyl group; and

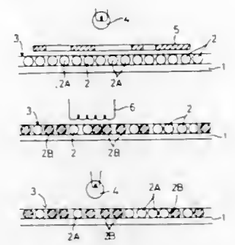
(c) an organic base.

5,213,940

IMAGE RECORDING METHOD USING PHOTOSENSITIVE MICROCAPSULES

Kouji Inaishi, Okazaki, and Naomichi Kobayashi, Nagoya, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Japan

Filed Apr. 3, 1992, Ser. No. 864,895
Claims priority, application Japan, May 15, 1991, 3-110584
Int. Cl.[5] G03C *5/56, 1/72*
U.S. Cl. 430—138 6 Claims



1. An image recording method for recording an image with use of photosensitive microcapsules, the microcapsules being hardenable upon exposure and being hardened by heating, the image recording method comprising the steps of:

exposing an image pattern to a photosensitive recording medium comprising a substrate having deposited thereon the photosensitive microcapsules, said exposing causing the exposed photosensitive microcapsules to be hardenable in correspondence with the image pattern;

after exposing, heating the exposed photosensitive recording medium for hardening the hardenable photosensitive microcapsules;

after heating, re-exposing an entire surface of the photosensitive recording medium having thereon the photosensitive microcapsules, for rendering all unexposed photosensitive microcapsules hardenable; and

after re-exposing, applying pressure and heat to the photosensitive recording medium and a transfer medium, said photosensitive recording medium and said transfer medium being superposed with each other such that the surface of the photosensitive recording medium on which the photosensitive microcapsules are located is opposed to the transfer medium, thereby rupturing the unhardened hardenable photosensitive microcapsules for transferring the contents of the microcapsules onto the transfer medium and for hardening the microcapsule contents.

5,213,941

SOLID TRANSFER NEGATIVE- OR POSITIVE-WORKING COLOR PROOFING METHOD

Stephan J. W. Platzer, Califon, N.J., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Filed Oct. 21, 1988, Ser. No. 261,374
Int. Cl.[5] G03C *5/18, 1/805*
U.S. Cl. 430—143 11 Claims

1. A method for producing a colored image which comprises:

A. providing a photosensitive element which comprises, in order:

(i) a substrate having a release surface; and

(ii) a single, colored photosensitive layer on said release surface, which photosensitive layer comprises a light sensitive, negative-working diazonium salt or positive-working naphthoquinone diazide compound in an amount sufficient to photosensitive the layer; a resinous binder composition in an amount sufficient to bind the

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layer components into a uniform film, which composition contains a major amount of at least one resin selected from the group consisting of a vinyl acetal polymer and a styrene/maleic anhydride copolymer half ester; and at least one colorant in an amount sufficiently to uniformly color the layer; and

(iii) a nonphotosensitive adhesive layer in direct contact with said photosensitive layer, which adhesive layer comprises a major amount of one or more thermoplastic polymers and one or more developing aids capable of promoting the partial removal of the adhesive layer with the developer, is only partially soluble in a developer, is nontacky at room temperature, and can be transferred at temperatures between 60° C. and 180° C.; and

B. either

(i) laminating said element with heat and pressure via said adhesive layer to a developer resistant receiver sheet; and removing said substrate by the application of peeling forces; and images exposing said photosensitive layer to actinic radiation; or

(ii) imagewise exposing said photosensitive layer to actinic radiation; and laminating said element with heat and pressure via said adhesive layer to a developer resistant receiver sheet; and removing said substrate by the application of peeling forces; or

(iii) laminating said element with that and pressure via said adhesive layer to a developer resistant receiver sheet; and imagewise exposing said photosensitive layer to actinic radiation; and removing said substrate by the application of peeling forces; and

c. removing either the imagewise exposed or the imagewise non-exposed areas from step B which define the nonimage areas and not removing the remaining image areas of said photosensitive layer and removing only the uppermost part of the adhesive layer underlying the removed nonimage areas of the photosensitive layer in an amount of from about 0.1% to about 30% by weight of the adhesive layer with a liquid developer, which removing is conducted at a temperature at which said adhesive layer is substantially nontacky.

5,213,942

SILVER HALIDE COLOR REVERSAL PHOTOGRAPHIC MATERIAL

Naoyasu Deguchi; Shigeo Hirano, and Yasuhiro Hayashi, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 286,795, Dec. 20, 1988, abandoned. This application Jun. 18, 1991, Ser. No. 715,740

Claims priority, application Japan, Dec. 22, 1987, 62-324567

Int. Cl.[5] G03C *1/295*

U.S. Cl. 430—218 **15 Claims**

1. A silver halide color reversal photographic material comprising photosensitive silver halide photographic layers formed on a base in which:

(i) the average silver iodide content of the photosensitive silver halide emulsion in each of said photosensitive silver halide photographic layers formed on a base is less than 7.0 mol %, at least one emulsion layer of said photographic layers comprises two or more emulsions having different average grain diameters in the range of 0.05 and 3.0 μm,

(ii) the grain diameter distribution curve of the silver halide grains of said at least one emulsion layer of said photographic layers has two or more local maximums, and the grain diameter difference of the lowest local maximum and the next lowest local maximum is 0.1 μm or over, and

(iii) said at lest one emulsion layer of (i) and/or an adjacent intermediate layer contains at least one compound that can release a fogging agent, a development accelerator, or their precursor, corresponding to the developed silver quantity by a redox reaction with the oxidation product of a developing agent, or by a reaction subsequent to such redox reaction, wherein the compound that can release a fogging agent, a development accelerator, or their precursor is represented by formula (I):

RED—(TIME)$_n$—FA *Formula (I)*

wherein

RED represents a residue able to cause a redox reaction with the oxidation product of a developing agent,

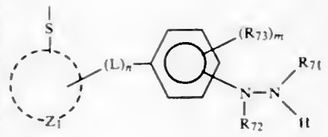
—(TIME)$_n$—FA is linked to a position where it can be released from RED by a redox reaction with the oxidation product of a developing agent, or by a reaction subsequent to such redox reaction,

TIME represents a timing group that splits off from RED by a coupling reaction and then release FA,

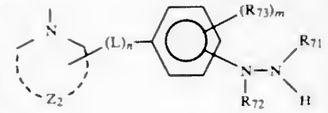
n is 0 or 1, FA is a group that can split off from RED by a coupling reaction when n is 0, or a group that can be released from TIME when n is 1, and

FA is a development accelerator or a fogging agent that can act on silver halide grains at the time of the developing process to produce fogging nuclei capable of starting the development and FA is selected from groups represented by the following formulas (VIIIa) and (IXa):

Formula (VIIIa)



Formula (IXa)



wherein

R_{71} represents an acyl group, a carbamoyl group, an alkylsulfonyl group, an arylsulfonyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, or a sulfamoyl group;

R_{72} represents a hydrogen atom, an acyl group, an alkoxycarbonyl group, an alkylsulfonyl group, an arylsulfonyl group, or an aryloxycarbonyl group;

R_{73} represents a halogen atom, an alkoxy group, an alkyl group, an alkenyl group, an aryl group, an aryloxy group, an alkylthio group, an arylthio group, a carbonamido group, or a sulfonamido group;

m is an integer of 0 to 4; when m is 2 or over, R_{73}'s may be the same or different, and two or more R_{73}'s may be bonded to form a condensed ring;

L represents a divalent linking group;

n is 0 or 1;

Z_1 represents a group of nonmetallic atoms required for forming a monocyclic or condensed heterocyclic ring; and

Z_2 represents a group of nonmetallic atoms required for forming together with N a monocyclic or condensed heterocyclic ring.

5,213,943

LITHOGRAPHIC ALUMINUM OFFSET PRINTING PLATE MADE ACCORDING TO THE DTR-PROCESS

Paul J. Coppens, Turnhout; Ludovicus H. Vervloet, Kessel; Luc H. Leenders, Herentals, and Ronald Schuerwegen, Schelle, all of Belgium, assignors to Agfa-Gevaert, N.V., Mortsel, Belgium

Division of Ser. No. 552,945, Jul. 16, 1990, Pat. No. 5,068,165. This application Sep. 13, 1991, Ser. No. 759,994

Claims priority, application European Pat. Off., Jul. 25, 1989, 89201960.5

Int. Cl.[5] G03C *5/54, 1/90, 11/12*

U.S. Cl. 430—231 **3 Claims**

1. Method of making a lithographic aluminium printing plate precursor comprising the consecutive steps of:

(a) coating a temporary base with a separable layer sandwich comprising in the given sequence at least one silver halide emulsion layer and a water-swellable layer coated at a ratio of 0.01 to 2.0 g/m^2, said water-swellable layer comprising for at least 70% of its total weight at least one non-proteinic hydrophilic film-forming polymer,

(b) pressing said separable layer sandwich carried by said temporary base with its water-swellable layer side against a wet hydrophilic grained and anodized aluminium foil.

5,213,944

NUCLEATED HIGH CONTRAST PHOTOGRAPHIC ELEMENTS CONTAINING SUBSTITUTED THIOUREAS WHICH ENHANCE SPEED AND INCREASE CONTRAST

Anthony Adin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 778,028, Oct. 17, 1991. This application Jan. 24, 1992, Ser. No. 825,349

Int. Cl.[5] G03C *1/06*

U.S. Cl. 430—264 **17 Claims**

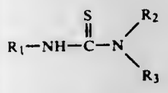
1. A silver halide photographic element adapted to form a high contrast image when developed with an aqueous alkaline developing solution; said element comprising:

(1) surface latent image forming high-chloride silver halide grains in which are least the surface portion thereof is composed of more than 50 mole percent silver chloride,

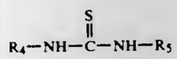
(2) a hydrazine compound that functions as a nucleator,

(3) an amino compound that functions as an incorporated booster,

(4) a gold compound that functions as a chemical sensitizer, and (5) a thiourea compound that functions as a chemical sensitizer, said thiourea compound having formula I or II:



I



II

wherein R_1, R_2 and R_3 are, independently, an alkyl group or an aryl group with the proviso that only one of R_1, R_2, and R_3 is an aryl group and R_4 and R_5 are, independently, a hydrogen atom or an acyl group with the proviso that at least one of R_4 and R_5 is an acyl group.

5,213,945

DRY FILM PHOTORESIST FOR FORMING A CONFORMABLE MASK AND METHOD OF APPLICATION TO A PRINTED CIRCUIT BOARD OR THE LIKE

Leo Roos, Laguna Beach, Calif.; Fredrick J. Axon, Manchester, England, and James J. Briguglio, Newport Beach, Calif., assignors to Morton International, Inc., Chicago, Ill.

Division of Ser. No. 428,261, Oct. 27, 1989, abandoned, which is a division of Ser. No. 160,895, Feb. 26, 1988, Pat. No. 4,889,790. This application Jul. 25, 1991, Ser. No. 735,507

Int. Cl.[5] G03C *1/78*

U.S. Cl. 430—270 **12 Claims**



1. A composite comprising:

a non-conducting substrate having a flat surface,

circuitry traces extending upward of said flat surface of said non-conducting substrate,

a photoimageable composition layer having an average thickness equal to or less than the height of said circuitry traces above said non-conducting substrate, said photoimageable composition layer overlying said non-conducting substrate and being conformed so as to fully encapsulate said circuitry traces to a thickness of at least about 18μ, said photoimageable composition layer being soluble in a developer and capable of being rendered insoluble to the developer when exposed to actinic radiation, said photoimageable layer being curable after sequential steps of exposure to patterned actinic radiation and development in the developer to provide a hard, permanent solder mask overlying said non-conducting substrate and encapsulating said circuitry traces, and

a continuous oxygen-barrier layer overlying said photoimageable composition, said oxygen-barrier layer having a thickness of between about 1 and about 5μ, said oxygen-barrier layer being soluble in a developer for said photoimageable composition layer.

5,213,946

POSITIVE TYPE, PHOTOSENSITIVE RESINOUS COMPOSITION

Masamitsu Shirai; Masahiro Tsunooka; Kanji Nishijima, all of Osaka, and Katsukiyo Ishikawa, Kyoto, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

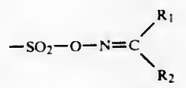
Filed Jun. 18, 1991, Ser. No. 716,977

Claims priority, application Japan, May 21, 1990, 2-131641

Int. Cl.[5] G03F *7/039*

U.S. Cl. 430—270 **4 Claims**

1. A positive type photosensitive resinous composition comprising a base resin, having in at least one side chain or at an end portion of its main chain, an iminosulfonate group of the formula:



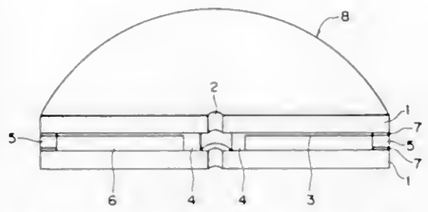
(I)

in which R_1 and R_2 are the same or different groups, and each represents hydrogen, alkyl, acyl, phenyl, naphthyl, anthryl or benzyl, or R_1 or R_2, taken together with the carbon atom, may be an alicyclic ring, said base resin further having a group containing an acid-decomposable bond, the content of said

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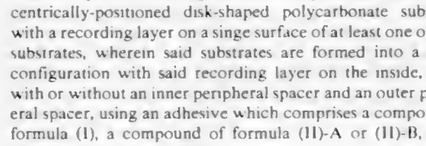
iminosulfonate group being 1×10^{-5} to 3×10^{-3} equivalent of said iminosulfonate group per gram of base resin.

5,213,947
OPTICAL RECORDING MEDIUM
Yutaka Ueda, Yokohama, and Eiji Noda, Kawasaki, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan
Filed Mar. 5, 1991, Ser. No. 665,010
Claims priority, application Japan, Mar. 6, 1990, 2-52636
Int. Cl.[5] G11B 7/00; G03C 1/00
U.S. Cl. 430—271 4 Claims



1. An optical recording medium comprising a pair of concentrically-positioned disk-shaped polycarbonate substrates with a recording layer on a singe surface of at least one of these substrates, wherein said substrates are formed into a sealed configuration with said recording layer on the inside, either with or without an inner peripheral spacer and an outer peripheral spacer, using an adhesive which comprises a compound of formula (I), a compound of formula (II)-A or (II)-B, and a compound of formula (III):

(I)

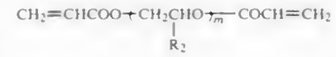


wherein R^1 represents hydrogen or a methyl group; and k is an integer of 1 to 3;



(II)-A

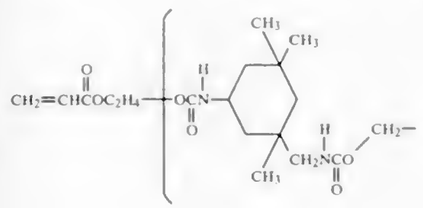
wherein l is an integer of 4 to 8;



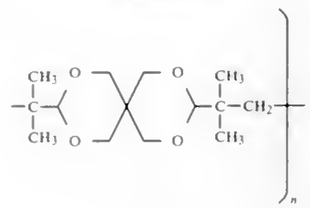
(II)-B

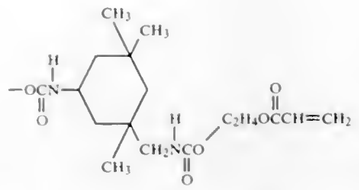
wherein R^2 represents hydrogen or a methyl group; and m is an integer of 3 to 9;

(III)



-continued

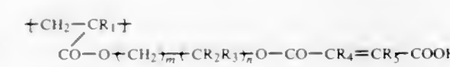




wherein n is an integer of 1 to 3, with a photopolymerization initiator.

5,213,948
PHOTOPOLYMERIZABLE PRINTING PLATE FOR FLEXOGRAPHIC PRINTING
Werner Abele, Neu-Isenburg, Fed. Rep. of Germany, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jul. 8, 1991, Ser. No. 726,474
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1990, 4022980
Int. Cl.[5] G03F 7/11
U.S. Cl. 430—272 8 Claims

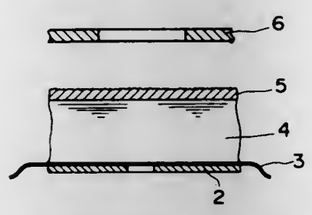
1. A photopolymerizable printing element comprising:
(a) a support;
(b) a photopolymerizable layer containing at least one elastomeric binder, at least one ethylenically unsaturated monomer addition-polymerizable by actinic radiation, and a photoinitiator or photoinitiator system;
(c) an elastomeric layer containing at least one thermoplastic, elastomeric block copolymer; and
(d) a cover sheet, wherein the elastomeric layer (c) further comprises at least one polymer with the structural unit A:



wherein R_1 is selected from the group consisting of H and CH_3, R_2 and R_3 can be the same or different and are selected from the group consisting of H, alkyl, substituted alkyl, aryl, and substituted aryl, R_4 and R_5 can be the same or different and are selected from the group consisting of H, alkyl, and substituted alkyl, and m and n are integers from 0 to 10, provided that the sum of m and n is an integer from 2 to 20.

5. The photopolymerizable printing element of claim 1, wherein the elastomeric layer (c) contains at least one radial (polystyrene/polybutadiene)$_4$Si block copolymer having a polystyrene content of 15–30 percent by weight.

5,213,949
METHOD FOR SELECTIVELY CURING A LIQUID PHOTOSENSITIVE RESIN BY MASKING EXPOSURE
Tsutomu Kojima, Mishima, and Takashi Yamashita, Fuji, both of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 363,404, Jun. 2, 1989, abandoned, which is a continuation of Ser. No. 119,781, Nov. 12, 1987, abandoned. This application Sep. 25, 1991, Ser. No. 764,959
Claims priority, application Japan, Nov. 12, 1986, 61-267715
Int. Cl.[5] G03F 7/26
U.S. Cl. 430—273 22 Claims



1. A method for producing a flexographic printing plate comprising a substrate, a shelf portion disposed on said substrate and a relief portion supported by and formed integrally with said shelf portion and having a predetermined thickness which is in compliance with the requirement for flexography, which comprises:
(1) superposing on a lower rigid plate transparent to active rays in the following order, an image bearing transparency having a transmitting pattern or an image bearing transparency having a transmitting pattern which transparency has a transparent protective film disposed on the side remote form said lower rigid plate, a liquid photosensitive resin in the form of a layer, a substrate transparent to active rays, a masking film with a transmitting pattern having a contour corresponding to and slightly larger than that of the transmitting pattern of said image bearing transparency, and an upper rigid plate transparent to active rays, said masking film being disposed so that the positions of the transmitting patterns of said image bearing transparency and said masking film are in correspondence to each other,
wherein rough contact is provided between said masking film and said substrate by employing a film selected from the group consisting of:
(a) a film having at least one surface roughened and being transparent to active rays, said film being employed as said substrate and disposed so that the roughened surface of said substrate faces the lower surface of said masking film,
(b) a film having at least one surface roughened and having a transmitting pattern which has a contour corresponding to and slightly larger than that of the transmitting pattern of said image bearing transparency, said film being employed as the masking film and disposed so that the roughened surface of the masking film faces the upper surface of said substrate, and
(c) a film having both surfaces roughened and being transparent to active rays, said film being superposed on said substrate prior to the superposition of said masking film and subsequent to the superposition of said substrate so that said film having both the surfaces roughened is sandwiched between said masking film and said substrate; then simultaneously or in either order;
(2) exposing said resin layer to active rays through the transmitting pattern of said masking film, thereby selectively curing the resin layer in conformity with the transmitting pattern of said masking film, to form a cured resin portion corresponding to the shelf portion of a printing plate, and
(3) exposing said resin layer to active rays through the transmitting pattern of said image bearing transparency, thereby selectively curing the resin layer in conformity with the transmitting pattern of said image bearing transparency, to form a cured resin portion corresponding to the relief portion of a printing plate;
(4) subjecting the resultant exposed resin layer having said cured resin portion and an uncured resin portion to washing, thereby washing-out said uncured resin portion to obtain a printing plate comprising said substrate, a shelf portion disposed on said substrate and a relief portion supported by and formed integrally with said shelf portion wherein the surface of said substrate on the side remote from said shelf portion is uniformly flat; and
(5) washing and drying said printing plate,
thereby enabling the obtained printing plate to have a uniformity in thickness of not greater than −0.06 mm in terms of the deviation form said predetermined thickness.

5,213,950
PRE-BAKE PRINTING PLATE COMPOSITION
Thomas J. Dooley, Teaneck, N.J., assignor to Sun Chemical Corporation, Fort Lee, N.J.
Division of Ser. No. 647,909, Jan. 30, 1991. This application Aug. 12, 1992, Ser. No. 929,655
Int. Cl.[5] G03F 7/40
U.S. Cl. 430—309 8 Claims

1. A method of processing a pre-sensitized radiation sensitive plate comprising a metallic substrate and a radiation sensitive layer comprising an organic photosensitive compound comprising the steps of:
(a) image-wise exposing the plate to radiation such that there will be areas of the layer exposed to radiation and areas of the layer not exposed to radiation, said areas being of differing solubility and comprising a more-soluble area;
(b) developing the image-wise exposed layer by selectively removing the layer from the more-soluble area and revealing the substrate underlying the more-soluble area;
(c) treating the developed plate with an aqueous composition to provide a water-soluble layer overlying the revealed substrate and the previously-exposed radiation sensitive layer not removed during the developing step;
(d) burning-in said plate, said burning-in being conducted in the presence of scum-forming contaminants; and
(e) removing said water-soluble layer from the burned-in plate with water, thereby removing the scum-forming contaminants from the area of the revealed substrate of the plate, said aqueous composition containing a mixture in an amount effective to prevent contamination of the plate surface by said scum-forming contaminants from said burning-in, said mixture comprising a combination of potassium or sodium salts of a strong organic acid, of an anionic surfactant and of a weak organic acid and having a potassium:sodium molar ratio being in the range of 1:1 to 15:1, wherein:
(i) the strong organic acid is selected from the group consisting of n-decyl(sulfophenoxy) benzenesulfonic acid, oxybis(n-decylbenzenesulfonic acid), a mono or di-alkyl straight or branched chain derivative of naphthalenesulfonic acid having 1 to 4 carbon atoms in the alkyl group, methylene dinaphthylenedisulfonic acid, dodecyl benzenesulfonic acid, sulfonated alkyldiphenyloxide wherein the alkyl group contains 1 to 4 carbon atoms, dodecyl(sulfophenoxy)benzenesulfonic acid, oxybis(dodecylbenzenesulfonic acid), hexadecyl(sulfophenoxy) benzenesulfonic acid, oxybis(hexadecylbenzene sulfonic acid) and mixtures thereof;
(ii) the anionic surfactant is selected from the group consisting of tetrasodium N-(1,2-dicarboxyethyl)-N-octadecylsulfosuccinamate, tetrasodium N-(1,2-dicarboxyethyl)-N-dodecylsulfosuccinamate, tetrasodium N-(1,2-dicarboxyethyl-N-butylsulfosuccinamate), tetrasodium N-(1,2-dicarboxyethyl)-N-amyloxypropylsulfosuccinamate, tetrasodium N-(β-hydroxyethyl)-N-(sulfo-2,5-endomethylenehexahydrophthalylate) aspar-

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tate, sodium N-methyl-N-cocoyl taurate and mixtures thereof; and

(iii) the weak organic acid is selected from the group consisting of citric acid, isomalic acid, glycolic acid, malonic acid, tartronic acid, malic acid, glyceric acid, tartaric acid, tricarballylic acid, 1,2,3,4-butanetetracarboxylic acid and mixtures thereof.

5,213,951

SILVER HALIDE PHOTOGRAPHIC MATERIAL WITH REDUCED SENSITIZING DYE STAIN

Gerolamo Delfino, Savona, Italy, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 12, 1991, Ser. No. 729,475
Claims priority, application Italy, Jul. 20, 1990, 20999 A/90
Int. Cl.[5] G03C *1/83, 1/06*
U.S. Cl. 430—504 **20 Claims**

1. A silver halide photographic material having at least one silver halide light-sensitive emulsion layer on at least one side of a support, wherein said silver halide emulsion layer comprises tabular silver halide grains having a grain thickness of 0.3 μm or less and accounting for at least 50% of the total projected area, characterized in that a blue pigment having a maximum absorption wavelength of from 570 to 630 nm is present in said silver halide emulsion layer and/or another hydrophilic layer of said photographic material.

5,213,952

METHOD OF FORMING DIRECT POSITIVE COLOR IMAGE

Shigeru Kuwashima, and Akihiko Ikegawa, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 31, 1990, Ser. No. 607,186
Claims priority, application Japan, Nov. 1, 1989, 1-285157
Int. Cl.[5] G03C *1/08*
U.S. Cl. 430—378 **8 Claims**

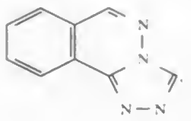
1. A method of forming a direct positive color image comprising

image-wise exposing a photographic material having at least one emulsion layer which contains previously non-fogged internal latent image-type silver halide grains on a support and then

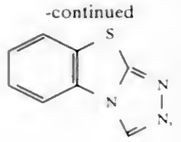
color-developing the exposed photographic material during or after fogging, wherein the photographic material contains (A) a color sensitizing dye and (B) at least one tricyclic or tetracyclic heterocyclic compound or salt thereof which satisfies the following condition-1:

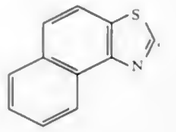
Condition-1: 2 ml of an aqueous solution of 4.0×10^{-4} mol/-liter of anhydro-5,5'-dichloro-9-ethyl-3,3'-bis(3-sulfo-propyl) thiacarbocyanine-hydroxide pyridinium salt and 1 ml of an aqueous solution of 1.0×10^{-1} mol/liter of potassium chloride are blended, and 4 ml of an aqueous solution of 8.0×10^{-2} mol/liter of the compound (B) to be added to the photographic material is added to the resulting blended solution, which is then diluted with water to make 10 ml; with the molecular extinction coefficient of the resulting aqueous solution at 624 nm being 1.0×10^{5} or less,

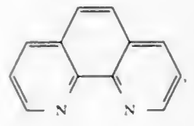
wherein said tricyclic or tetracyclic heterocyclic compound comprises a structural formula selected from the following formulae:

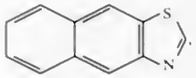


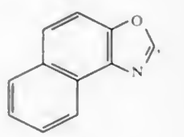
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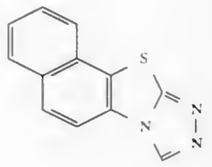








and



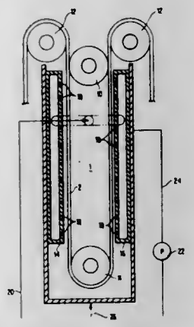
wherein said tricyclic or tetracyclic heterocyclic compound may be substituted by a halogen atom, —OM (in which M represents a hydrogen atom or a monovalent metal such as Na, K or Li), a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted amino group, a cyano group, a nitro group, a sulfo group, a carboxyl group, a substituted or unsubstituted aryloxy group, a substituted or unsubstituted alkylthio group, a substituted or unsubstituted arylthio group, a substituted or unsubstituted acyl group, a substituted or unsubstituted aminosulfonyl group, a substituted or unsubstituted alkoxycarbonyl group, a substituted or unsubstituted aryloxycarbonyl group, or a substituted or unsubstituted aminocarbonyl group.

5,213,953

COLOR IMAGE FORMING PROCESS

Soichiro Yamamoto, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 9, 1991, Ser. No. 727,169
Claims priority, application Japan, Jul. 10, 1990, 2-180529
Int. Cl.[5] G03C *7/46*
U.S. Cl. 430—383 **18 Claims**



1. A color image forming process comprising the step of color developing an imagewise exposed silver halide color photographic material with a developer containing an aromatic primary amine color developing agent, followed by successive steps of desilvering, washing and/or stabilizing, and drying,

wherein said color photographic material has at least one silver halide emulsion layer containing silver halide grains containing substantially no silver iodide and containing at least 95 mol % silver chloride based on the total silver halide content, said silver halide grains having a surface phase and an inside phase and further containing from 1×10^{-6} to 1×10^{-3} mol of an iron compound per mol of silver and said iron compound being distributed at an iron ion concentration in the surface phase of the grain of at least 5 times that in the inside phase of the grain,

wherein the total gelatin weight of said color photographic material is 7 g or less per m^2 of photographic material,

and wherein in the color developing step, the color photographic material is processed for a time of from 5 seconds to 30 seconds while striking the surface of a light-sensitive layer of said color photographic material with jet streams of a color developer.

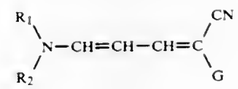
5,213,954

WHITE LIGHT HANDLEABLE NEGATIVE-ACTING SILVER HALIDE PHOTOGRAPHIC ELEMENTS

Steve M. Shor, Maplewood, Minn.; Kevin P. Hall, Sawbridgeworth, United Kingdom, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 386,631, Jul. 31, 1989, abandoned. This application Nov. 19, 1990, Ser. No. 615,080
Int. Cl.[5] G05C *1/915*
U.S. Cl. 430—512 **10 Claims**

1. A UV sensitive silver halide photographic element comprising a support, a hydrophilic colloidal silver halide emulsion layer comprising UV sensitive negative acting silver halide grains on one side of said support, and a backside coated antihalation layer on the other side of said support, said antihalation layer comprising a water soluble UV absorbing compound having at least 80% radiation absorption in the wavelength range of 350 to 400 nm, said compound being capable of being washed out of said antihalation layer during photographic processing, wherein said UV absorbing compound is represented by the general formula:



(I)

in which:

R_1 and R_2, the same or different, each represents an alkyl group, an aryl group, or a cyclic alkyl group, or R_1 and R_2 taken together represent the atoms necessary to complete a cyclic amino group,

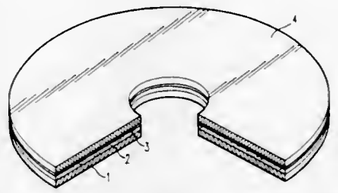
G represents an electron withdrawing group, and at least one of R_1, R_2, and G is substituted with a water solubilizing group.

5,213,955

OPTICAL INFORMATION RECORDING MEDIUM AND RECORDING METHOD

Emiko Hamada; Yuji Arai; Yosikazu Takagisi, and Takashi Ishiguro, all of Tokyo, Japan, assignors to Taiyo Yuden Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1990, Ser. No. 515,421
Claims priority, application Japan, May 2, 1989, 1-113198
The portion of the term of this patent subsequent to Jul. 10, 2007, has been disclaimed.
Int. Cl.[5] G03C *1/72; G03F 7/00*
U.S. Cl. 430—276 **22 Claims**



5. An optical information recording medium comprising a light transmitting substrate, a light absorptive layer containing at least one light absorbing substance formed on the substrate, a light reflective layer made of a metal layer formed on the light absorptive layer and a protective layer formed on the light reflective layer, wherein an optical parameter represented by $\rho=n_{abs}d_{abs}/\lambda$ wherein n_{abs} is the real part of the complex refractive index of the light absorptive layer, d_{abs} is the average thickness of the light absorptive layer and λ is the wavelength of a reading laser beam, is $0.6<\rho<1.6$, and the imaginary part k_{abs} of the complex refractive index of the light absorptive layer is $0.001\leqq k_{abs}\leqq 0.2$.

5,213,956

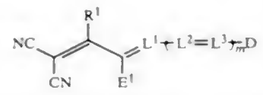
SOLID PARTICLE DISPERSIONS OF FILTER DYES FOR PHOTOGRAPHIC ELEMENTS

Donald R. Diehl; Glenn M. Brown, and Margaret J. Helber, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 22, 1991, Ser. No. 733,929
Int. Cl.[5] G03C *1/815*
U.S. Cl. 430—522 **11 Claims**

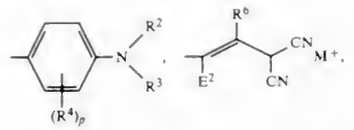
1. A photographic element comprising a support having thereon a radiation-sensitive layer and a hydrophilic layer, which is the same as or different from the radiation-sensitive layer, comprising a hydrophilic binder and a filter dye, wherein the filter dye has the formula:

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(I)

wherein: D is selected from the group consisting of



and ketomethylene nuclei;

E^1 and E^2 are each independently electron withdrawing groups;

R^1 and R^6 are each independently R or NHR, where R is substituted or unsubstituted aryl;

R^2 and R^3 are each independently substituted or unsubstituted alkyl or substituted or unsubstituted aryl, or represent the carbon atoms necessary to form a fused ring with the phenyl ring to which the N atom is attached;

R^4 and R^7 are each independently hydrogen, substituted or unsubstituted alkyl or substituted or unsubstituted aryl;

R^5 is substituted or unsubstituted alkyl;

Z represents the atoms necessary to complete a substituted or unsubstituted 5 or 6 membered heterocyclic nucleus;

M^+ is a cation;

L^1 through L^7 are each independently substituted or unsubstituted methine groups;

m is 0, 1, 2, or 3;

n is 0 or 1;

p is 0, 1, 2, 3, or 4;

q is 0, 1, 2, or 3;

and wherein at least one of R^1 or D comprises an aryl ring substituted with a carboxy or sulfonamido substituent.

5,213,957

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS

Keiichi Adachi, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

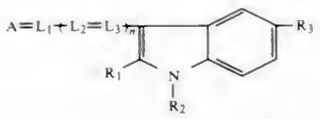
Continuation of Ser. No. 811,923, Dec. 23, 1991, abandoned, which is a continuation of Ser. No. 618,421, Nov. 27, 1990, abandoned. This application Jul. 6, 1992, Ser. No. 908,741

Claims priority, application Japan, Nov. 27, 1989, 1-307363

Int. Cl.[5] G03C *1/06*

U.S. Cl. 430—522 **4 Claims**

1. A silver halide photographic light-sensitive element comprising a support having provided thereon at least one silver halide emulsion layer and at least one hydrophilic colloid emulsion layer comprising at least one dye in the form of a fine powder dispersion and represented by the following formula (i):



(i)

wherein A represents an acidic nucleus selected from the group consisting of 5-pyrazolone, isooxazolone, barbituric acid, thiobarbituric acid, rhodanine, hydantoin, thiohydantoin, oxazolidindione, pyrazolidindione,indandione, pyrazolopyridone, 1,2,3,4-tetrahydroquinolin-2,4-dione, 3-oxo-2,3-dihydrobenzo[d]thiophene-1,1-dioxide, and 3-dicynaomethine-2,3-dihydroxybenzo[d]thiophene-1,1-dioxide; R_1 and R_2 each represents an alkyl, aryl or alkoxycarbonyl group, or hydrogen; R_3 represents an alkyl, alkoxy, or nitro group, hydrogen or a halogen; L_1, L_2 and L_3 represent a methine group; n represents 0 or 1; and wherein said dye further comprises at least one selected from the group consisting of a carboxyl group, a sulfonamido group and a sulfamoyl group, and wherein said dye is present in an amount of 1 to 1000 mg/m^2 of said light sensitive element.

5,213,958

SILVER HALIDE COLOR PHOTOGRAPHIC PHOTOSENSITIVE MATERIALS

Masuji Motoki; Seiji Ichijima; Naoki Saito; Takayoshi Kamio, and Keiji Mihayashi, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

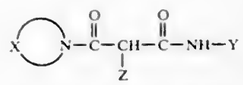
Filed Oct. 18, 1991, Ser. No. 779,374

Claims priority, application Japan, Oct. 24, 1990, 2-286341; Aug. 15, 1991, 3-228500

Int. Cl.[5] G03C *7/36*

U.S. Cl. 430—557 **13 Claims**

1. A silver halide color photographic photosensitive material comprising a photographic coupler represented by general formula (I):



(I)

wherein X represents an organic residual group, which together with the nitrogen atom, forms a nitrogen containing heterocyclic ring comprising at least one ethylenically unsaturated group or at least two hetero atoms as ring constituent atoms, Y represents an aromatic group or a heterocyclic group, an Z represents a group which is eliminated when the photographic coupler reacts with an oxidized form of a developing agent.

5,213,959

SILVER HALIDE PHOTOGRAPHIC MATERIAL

Mitsuo Saitou; Hisashi Okamura, and Tadashi Ikeda, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jun. 20, 1991, Ser. No. 718,180

Claims priority, application Japan, Jun. 20, 1990, 2-161924; May 23, 1991, 3-146503

Int. Cl.[5] G03C *1/06*

U.S. Cl. 430—607 **2 Claims**

1. A silver halide light-sensitive material containing at least silver halide grains, a gelatin dispersion medium, a pendant-2 type antifoggant, and a hardening agent, wherein said pendant-2 type antifoggant is an antifoggant covalently bonded to a low-molecular weight gelatin dispersion medium.

5,213,960

METHODS FOR SELECTING LOW FREQUENCY ANTIGEN-SPECIFIC SINGLE B LYMPHOCYTES

Tse W. Chang, Houston, Tex., assignor to Tanox Biosystems, Inc., Houston, Tex.

Filed Mar. 9, 1992, Ser. No. 848,249

Int. Cl.[5] G01N *33/52, 33/533, 33/536*

U.S. Cl. 435—2 **12 Claims**

1. Two different sets of antigen probes suitable for labelling B lymphocytes, the first set of antigen probes comprising an antigen which binds the antibodies on the surface of particular B lymphocytes, said antigen conjugated with a first cross-linker to a first fluorochrome, and the second set of antigen probes comprising the antigen which is conjugated with a second cross-linker to a second fluorochrome, and wherein the first and second cross-linkers are different and the first and second fluorochrome yield different colors upon activation.

5,213,961

ACCURATE QUANTITATION OF RNA AND DNA BY COMPETETITIVE POLYMERASE CHAIN REACTION

H. Franklin Bunn, Auburndale; Gary Gilliland, Wellesley; Kerry Blanchard, Brookline, and Steven Perrin, Brighton, all of Mass., assignors to Brigham and Women's Hospital, Boston, Mass.

Filed Aug. 31, 1989, Ser. No. 400,664

Int. Cl.[5] C12Q *1/68;* **C07H** *17/00;* **C12P** *19/34;* **C12N** *15/00*

U.S. Cl. 435—6 **16 Claims**

1. A method for determining the amount of a target nucleic acid sequence in a sample, said method comprising

(a) co-amplification of a target nucleic acid sequence and a known amount of a standard nucleic acid sequence in the same assay sample, wherein said target nucleic acid sequence and said standard nucleic acid sequence bind primers consisting essentially of the same sequence during said co-amplification and wherein said standard nucleic acid sequence differs from said target nucleic acid sequence such that either a restriction enzyme recognition site is created or destroyed, or sufficient contiguous bases are added to or deleted from said target nucleic acid sequence such that the size difference between said target nucleic acid sequence and said standard nucleic acid sequence can be detected by gel electrophoresis;

(b) detecting products of said co-amplification using gel electrophoresis; and

(c) determining the amount of said target nucleic acid sequence in said sample.

5,213,962

PURIFICATION, DETECTION AND METHODS OF USE OF PROTEASE NEXIN-2

William E. Van Nostrand, Irvine; Dennis D. Cunningham, Laguna Beach, and Steven L. Wagner, Balboa Island, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation of Ser. No. 513,786, Apr. 24, 1990, abandoned. This application Jul. 30, 1992, Ser. No. 924,417

Int. Cl.[5] C12Q *1/70*

U.S. Cl. 435—7.1 **30 Claims**

1. A method of diagnosing a neurodegenerative condition associated with cerebral deposition of amyloid, comprising:

obtaining a sample of platelets from a patient;

determining the level of secreted forms of βAPP in said sample; and

comparing the determined level of secreted forms of βAPP in said sample with normal levels of secreted forms of βAPP in platelets, wherein a decreased level of secreted forms of βAPP in said sample relative to said normal levels is indicative of said neurodegenerative condition.

5,213,963

PROCEDURE FOR FINDING AND IDENTIFYING RED CELL ANTIBODIES BY MEANS OF THE SOLID PHASE METHOD

Horst Uthemann, Frankfurt, Fed. Rep. of Germany, assignor to Biotest Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Continuation of Ser. No. 07/413,515, Sep. 27, 1989. This application May 15, 1992, Ser. No. 885,064

Claims priority, application European Pat. Off., Oct. 12, 1988, 88116911

Int. Cl.[5] G01N *33/53, 33/555, 33/567*

U.S. Cl. 435—7.25 **3 Claims**

1. A method of finding and identifying red cell antibodies by the solid-phase method, comprising

a) coating a solid substrate with protein A;

b) incubating erythrocytes having known antigen patterns with a serum sample under conditions sufficient to coat the erythrocytes with serum antibodies;

c) incubating the coated erythrocytes from step (b), antihuman globulin reagent containing anti-IgG, anti-IgM, anti-IgA, anti-C_3b and anti-C_3d and the coated substrate formed in step (a); and

d) detecting the adherence of said erythrocytes to said coated substrate as an indication of the presence of said red cell antibodies.

5,213,964

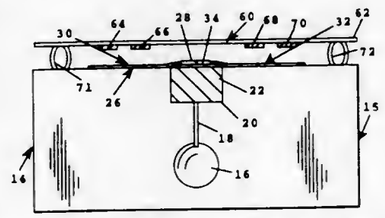
HIGH-DENSITY LIPOPROTEIN SOLID-BASE PRECIPITATION ASSAY METHOD

Ronald M. Jones, Mountain View, Calif., assignor to Cholestech Corporation, Hayward, Calif.

Continuation-in-part of Ser. No. 554,147, Jul. 16, 1990. This application Jul. 12, 1991, Ser. No. 729,447

Int. Cl.[5] C12Q *1/60, 1/26;* **G01N** *21/77*

U.S. Cl. 435—11 **1 Claim**



1. In a method of measuring serum cholesterol associated with high-density lipoproteins (HDL) in a blood fluid sample also containing low density lipoproteins (LDL) and very low density lipoproteins (VLDL), comprising (a) adding a volume of the sample to an absorptive matrix (i) formed of glass fibers, and (ii) effective to separate soluble from precipitated blood lipoproteins in such fluid sample, as fluid sample flows through the matrix from a sample-application site to a sample-collection site in the matrix, (b) releasing into the matrix, dextran sulfate and magnesium ions in an amount effective to selectively precipitate LDL and VLDL in the fluid sample, and (c) assaying fluid sample which has migrated through the matrix for the presence of lipoprotein-bound cholesterol,

an improvement for increasing the percent of sample HDL which migrates through the matrix and is assayed, comprising treating the glass fibers by reaction with bis(hydroxyethyl)aminopropyltriethoxy silane or by coating the fibers with 4–5% by weight polyvinyl alcohol, thereby affording substantially 100% recovery of HDL applied to the matrix.

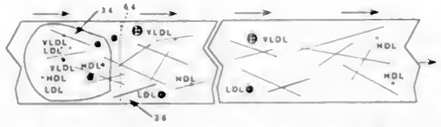
VOL 1150 ISS 4 MY 25 1993 UMI

5,213,965

SOLID-PHASE PRECIPITATION ASSAY DEVICE

Ronald M. Jones, Mountain View, Calif., assignor to Cholestech Corporation, Hayward, Calif.

Filed Jul. 16, 1990, Ser. No. 554,147
Int. Cl.[5] C12Q *1/60*; G01N *33/92, 21/00*
U.S. Cl. 435—11 14 Claims



1. An assay device for measuring high density lipoprotein (HDL) in a fluid sample which also contains low density lipoproteins (LDL) and very low density lipoproteins (VLDL) comprising

a sieving matrix capable of chromatographically separating aggregated and non-aggregated lipoproteins, as such fluid sample flows through the matrix from a sample-application site to a sample-collection site in the matrix,

a reagent reservoir which includes an LDL- and VLDL-precipitating agent, effective, within a predetermined concentration range, to selectively aggregate LDL and VLDL, and release means in contact with the matrix for producing a rate of release of said agent from the reservoir into the matrix, as fluid flowing through the matrix is brought into contact with the matrix, adjacent said sample-application site, which is effective to produce a concentration of the agent in the sample fluid which is within such predetermined concentration range, and

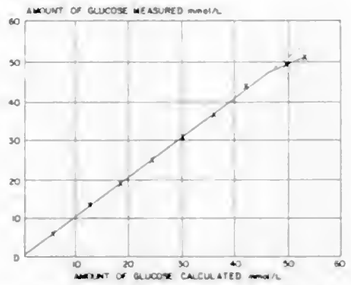
an assay pad in which HDL present in fluid sample collected at the sample-collection site can be assayed

5,213,966

QUANTITATIVE DETERMINATION OF GLUCOSE UTILIZING ENZYME CASCADE SYSTEM

Pauli Vuorinen; Aimo Harmoinen, and Hannu Jokela, all of Tampere, Finland, assignors to Kone Oy, Helsinki, Finland

Filed Sep. 25, 1989, Ser. No. 411,879
Claims priority, application Finland, Sep. 26, 1988, 884411
Int. Cl.[5] G12Q *1/54*
U.S. Cl. 435—14 10 Claims



1. A process for quantitative determination of glucose in a biological liquid, comprising the steps:

a) adding to the liquid a mixture of reagents comprising ATP in a concentration in a range of 15 to 20 mmol/l, hexokinase, NAD and glucose-6-phosphate dehydrogenase, to initiate a two phase enzymatic reaction, including

a first phase in which glucose-6-phosphate reacts with NAD and glucose-6-phosphate dehydrogenase to form 6-phosphogluconate and NADH,

said ATP in said concentration range being present in an amount sufficient that only a small portion thereof reacts with glucose in said first phase, and a remainder thereof is present during said second phase, said ATP remainder causing deceleration of said second phase;

b) monitoring the kinetics of said reaction by measuring the light absorbance of said NADH twice within a period not exceeding about one minute from the initiation of said reaction; and

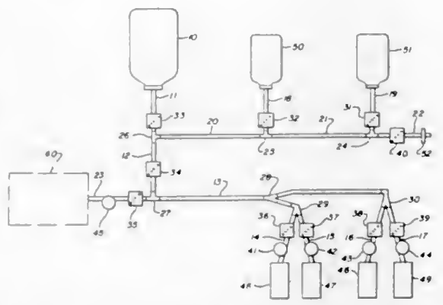
c) calculating the glucose concentration in the liquid from the absorbance measurements taken during said period.

5,213,967

AUTOMATED STERILITY TESTING SYSTEM WITH CONCURRENT SAMPLE DISSOLVING, DILUTING AND MIXING

George R. Erdman, Harrisonburg, and Douglas C. Fischer, Shenandoah, both of Va., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Feb. 25, 1992, Ser. No. 841,933
Int. Cl.[5] C12Q *1/22*
U.S. Cl. 435—31 5 Claims



5. A method for testing for the presence of microbial contamination of a product comprising:

(a) sterilizing a sample dissolution chamber, with a diluent or solvent

(b) wetting the filters or membranes of a plurality of test canisters in which a plurality of product samples to be tested are to be placed and the filters or membranes of a plurality of control canisters in which growth control media are to be placed;

(c) flushing said control canisters and the filters or membranes therein with distilled water;

(d) supplying growth control media through conduits to said control canisters;

(e) purging said control canisters and said conduits with pressurized air;

(f) closing and sealing said control canisters;

(g) placing said control canisters in an incubator for a time and at a temperature sufficient to permit the growth media contained therein to develop;

(h) supplying a plurality of samples of the product to be tested to said sterilized sample dissolution chamber;

(i) supplying a second diluent or solvent to said sterilized sample dissolution chamber;

(j) mixing said plurality of product samples with said second diluent or solvent until said product samples are thoroughly dissolved or diluted;

(k) delivering said thoroughly dissolved or diluted product samples thorough conduits to said test canisters;

(l) rinsing with said second diluent or solvent the filters or membranes in said test canisters;

(m) supplying said growth control media to said test canisters;

(n) closing and sealing said test canisters; and

(o) placing said test canisters in an incubator for a time and at a temperature sufficient for any contaminating microbial organism present in said product samples to develop.

5,213,968

PROCESS FOR PREPARING EMULSIFYING AGENTS

Edward R. Castle, Gaylordsville; Steven S.-V. Kwon, and Dharam V. Vadehra, both of New Milford, all of Conn., assignors to Nestec S.A., Vevey, Switzerland

Continuation of Ser. No. 583,073, Sep. 14, 1990, abandoned, which is a continuation-in-part of Ser. No. 396,851, Aug. 21, 1989, abandoned. This application Dec. 31, 1991, Ser. No. 816,846
Int. Cl.[5] C12P *21/00, 7/64*; C12N *9/50*; A23L *1/19*
U.S. Cl. 435—68.1 23 Claims

1. A process for preparing an emulsifying agent consisting essentially of sequentially treating egg yolk with a protease at a pH from 4 to 8.5 and at a temperature from 0° C. to 65° C. and then treating the protease-treated egg yolk with a pancreatic lipase at a pH from 4 to 8.5 and at a temperature from 0° C. to 60° C.

5,213,969

CLONED N-METHYLHYDANTOINASE

Günther Schumacher, Bernried; Helmut Burtscher, Habach, and Hans Möllering, Tutzing, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim, GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Jul. 8, 1991, Ser. No. 727,814
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1990, 4021571
Int. Cl.[5] C12P *21/02*; C12N *15/54, 1/21*
U.S. Cl. 435—69.1 22 Claims

1. An isolated DNA fragment, where it has (1) the nucliec acid sequence shown in SEQ ID NO: 1, (2) a sequence corresponding to the sequence of (1) within the scope of the degeneracy of the genetic code or (3) a sequence which hybridizes with a sequence complementary to the sequence from (1) or (2) under stringent conditions and which codes for a protein with N-methylhydantionase activity.

9. A cell which is transformed with the DNA of claim 1.

12. A process for the production of a protein with NMHase activity, wherein

the transformed cells of claim 9 are cultured in a suitable medium and

a protein having NMHase activity is isolated from the medium or the cells.

5,213,970

METHOD FOR OBTAINING SOLUBLE ANTITUMOR FACTOR

Gabriel Lopez-Berestein, Houston; Jim Klostergaard, Kingwood, and Jim Turpin, Houston, all of Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Filed Jan. 23, 1987, Ser. No. 6,814
Int. Cl.[5] C12P *21/00*; C12N *5/08*; C07K *15/06, 3/16*
U.S. Cl. 435—70.4 10 Claims

1. A method for providing a soluble antitumor factor that is distinct from tumor necrosis factor, comprising the steps of:

(a) obtaining human cells of macrophage/monocyte lineage;

(b) incubating the cells in an essentially endotoxin-free medium with an amount of a macrophage activating agent that is effective to trigger the release of the factor by the cells into the medium to a greater extent than release of tumor necrosis factor, to provide a factor-containing medium;

(c) separating molecules contained within the factor-containing medium according to their molecular weights or relative isoelectric points to provide a fraction which includes the antitumor factor essentially free of tumor necrosis factor and in a purified form relative to another fraction or fractions, the antitumor factor having an alpha form which exhibits a molecular weight of between about 100 and about 120 kilodaltons, or a beta form which exhibits a molecular weight of between about 60 and about 70 kilodaltons, upon molecular weight chromatography, the beta form being further characterized as follows:

(a) immunologically cross reactive with human tumor necrosis factor and having an isoelectric point of approximately 5.8; and

(b) biologically active in the presence of catalase, arginine hydrochloride, TAME or TLCK.

5,213,971

PROCESS FOR INDUCING CYTOCHROME P-450 ENZYMES IN STREPTOMYCES BACTERIA AND DETERMINING THE MUTAGENICITY OF CHEMICALS

Daniel A. Kunz, Denton, Tex., and Fateme S. Sariaslani, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 207,630, Jun. 16, 1988, which is a continuation-in-part of Ser. No. 947,669, Dec. 30, 1986, abandoned. This application Aug. 28, 1991, Ser. No. 751,046
Int. Cl.[5] C12P *21/04*; C12N *1/20, 1/00, 9/52*
U.S. Cl. 435—71.2 4 Claims

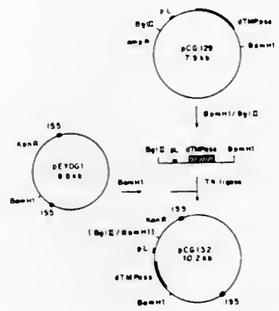
1. A process for inducing the production of cytochrome P-450 enzyme in bacteria from the genus Streptomyces, the process comprising culturing the bacteria in the culture medium comprising at least one inducer selected from the group consisting of soybean flour, genistein and genistin.

5,213,972

FERMENTATION PROCESS FOR THE PRODUCTION OF PYRIMIDINE DEOXYRIBONUCLEOSIDES

Russell J. McCandliss, Gaithersburg, and David M. Anderson, Rockville, both of Md., assignors to Chemgen Corporation, Gaithersberg, Md.

Filed Dec. 8, 1989, Ser. No. 448,158
Int. Cl.[5] C12N *15/00, 15/70, 15/55*; C12P *19/30*
U.S. Cl. 435—89 20 Claims



1. A culture consisting essentially of a replicable microorganism comprising:

a DNA sequence encoding a pyrimidine deoxyribonucleotide phosphohydrolase that converts a pyrimidine deoxyribonucleoside monophosphate to a pyrimidine deoxyribonucleoside, wherein said DNA sequence is expressed by said microorganism resulting in accumulation of said pyrimidine deoxyribonucleoside in culture medium containing said microorganism, and

at least one mutation in a metabolic pathway that increases said accumulation of said pyrimidine deoxyribonucleoside in said medium.

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5,213,973

MICROBIOLOGICAL PROCESS FOR OXIDATION OF METHYL GROUPS

Frans Hoeks, Naters, Switzerland, assignor to Lonza Ltd., Basel, Switzerland

Filed Jul. 3, 1991, Ser. No. 725,478

Claims priority, application Switzerland, Jun. 6, 1990, 2272/90; Oct. 1, 1990, 3149/90

The portion of the term of this patent subsequent to Apr. 14, 2009, has been disclaimed.

Int. Cl.[5] C12P *17/00, 17/10, 17/06;* C12R *1/40*

U.S. Cl. 435—117 19 Claims

1. Microbiological process for the oxidation of a methyl group on an aromatic 5- or 6-ring heterocycle, and the heterocycle exhibiting no substituent on the carbon atom adjacent to the methyl group to be oxidized to the correpsonding carboxylic acid, comprising: feeding to a culture medium, containing xylene-utilizing microorganisms of the strain *Pseudomonas putida* having the designation ATCC 33015 or an effective nutant thereof:

(i) an inducer which induces enzymes of the microorganisms and which does not serve the microorganisms as carbon source and energy source,

(ii) the methylated aromatic 5- or 6-ring heterocycle as substrate for the biotransformation, and optionally

(iii) one or more carbon and energy sources; and after the maximal product concentration is achieved, separating the carboxylic acid.

5,213,974

FERMENTATION PROCESS FOR PREPARING ANTIBIOTICS MUREIDOMYCINS A, B, C AND D

Tatsuo Haneishi; Masatoshi Inukai; Keiko Shimizu; Fujio Isono; Yoshiharu Sakaida, and Takeshi Kinoshita, all of Tokyo, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

Division of Ser. No. 253,450, Oct. 4, 1988, Pat. No. 5,039,663, which is a continuation-in-part of Ser. No. 51,665, May 18, 1987, abandoned. This application Feb. 22, 1991, Ser. No. 660,414

Claims priority, application Japan, May 20, 1986, 61-115639; Jun. 13, 1986, 61-137567

Int. Cl.[5] C12P *17/16;* C12N *1/20*

U.S. Cl. 435—118 15 Claims

1. The process for producing mureidomycin A, B, C, D or a salt thereof by cultivating *Streptomyces flavidovirens* SANK 60486 FERM BP-1347, in an aqueous nutrient medium containing assimilable sources of carbon, nitrogen and inorganic substances under aerobic conditions and isolating at least one of mureidomycin A, B, C, D or a salt thereof from the cultured broth.

5,213,975

METHODS OF PREPARING OPTICALLY ACTIVE EPOXY ALCOHOL

Eiichiro Fukusaki; Hiroshi Takahama; Minako Hada; Yasuyuki Kimura; Hiroyuki Yuasa; Yutaka Nakazono; Shuji Senda, and Tetsuo Omata, all of Osaka, Japan, assignors to Nitto Denko Co., Ltd., Ibarake, Japan

Filed Oct. 24, 1991, Ser. No. 783,448

Claims priority, application Japan, Oct. 30, 1990, 2-294486; Jun. 14, 1991, 3-170625

Int. Cl.[5] C12P *17/02;* C12N *9/20;* C07P *41/00*

U.S. Cl. 435—123 5 Claims

1. A method of preparing optically active epoxy alcohol, comprising the steps of:

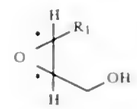
adding carboxylic anhydride to racemic epoxy alcohol (formula 1) in the presence of lipase in an organic solvent;

esterifying (−)-form of the epoxy alcohol preferentially to give epoxy ester (formula 2);

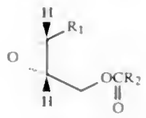
separating optically active epoxy ester (formula 2) from optically active epoxy alcohol (formula 3); and

hydrolyzing said optically active epoxy ester (formula 2) to yield optically active epoxy alcohol (formula 4);

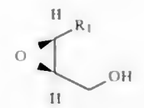
(formula 1)



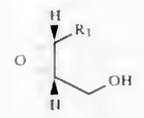
(formula 2)



(formula 3)



(formula 4)



where

R_1 and R_2 denote straight-chain or branched alkyl groups containing 1 through 20 carbon atoms, and where • denotes asymmetric carbon atoms;

whereby said optically active epoxy alcohol is synthesized in two steps, a first step being a hydrolase enzyme reaction to prepare optically active esters from racemic alcohol and whereby a second step is a hydrosis chemical reaction to prepare optically active alcohol from said optically active esters.

5,213,976

PROCESS FOR OBTAINING A POLYHYDROXYALKANOATE FROM THE CELL MATERIAL OF A MICROOGRANISM

Wilfried Blauhut; Wolfgang Gierlinger, and Friedrich Strempfl, all of Linz, Austria, assignors to PCD Polymere Gesellschaft m.b.H., Schwechat-Mannswörth, Austria

Filed Sep. 17, 1991, Ser. No. 761,244

Claims priority, application Austria, Oct. 5, 1990, 2018/90

Int. Cl.[5] C12P *7/62;* C12N *1/06;* C07L *69/66*

U.S. Cl. 435—135 7 Claims

1. A process for obtaining a polyhydroxyalkanoate, synthesized intracellularly by a microorganism, from the cell material of a fermented, aqueous cell suspension, comprising:

removing at least part of the fermentation solution, or at least part of the water contained in the fermentation solution, from the cell suspension,

treating the cell material with an organic solvent to extract the polyhydroxyalkanoate from the cell material, which solvent is immiscible with water and which has a boiling point of less than 100° C., with or without the addition of water,

stirring the resulting extraction mixture at a temperature of from room temperature to the boiling point of the organic solvent,

allowing the mixture to settle, with or without centrifugation to obtain an aqueous phase and an organic phase,

separating the organic phase which contains the polyhydroxyalkanoate in dissolved form from the aqueous phase which contains the cell residues in undissolved form,

injecting the organic phase into hot water at a temperature which is higher than the boiling point of the organic solvent, thereby causing the organic solvent to evaporate and the polyhydroxyalkanoate to precipitate in the water in flocs, and

isolating the precipitated polyhydroxyalkanoate flocs.

5,213,977

SERINE PROTEASE FROM CYTOTOXIC KILLER CELLS

Irving L. Weissman, Stanford, and Howard K. Gershenfeld, Menlo Park, both of Calif., assignors to The Board of trustees of the Leland Stanford Junior University, Stanford, Calif.

Continuation of Ser. No. 581,295, Sep. 9, 1990, abandoned, which is a division of Ser. No. 948,248, Dec. 31, 1986, Pat. No. 4,975,555, which is a continuation-in-part of Ser. No. 860,085, May 6, 1986, abandoned. This application Jul. 20, 1992, Ser. No. 917,783

Int. Cl.[5] C12N *9/76, 9/48;* A61K *37/547*

U.S. Cl. 435—213 1 Claim

1. A composition comprising human serine protease being substantially free of killer cell granule components, said human serine protease having an amino acid sequence as set forth in FIGS. 1*a*-1*c*.

5,213,978

PROTEASE FROM *MICROCOCCUS SEDENTARIUS* FOR DEGRADING PROTEIN OF HUMAN CALLUS OR CORN TISSUE

Keith T. Holland, Leeds, United Kingdom, assignor to Scholl Plc, Berkshire, England

Filed May 24, 1991, Ser. No. 705,090

Claims priority, application United Kingdom, May 25, 1990, 9011807

Int. Cl.[5] C12N *9/52, 9/50, 1/00*

U.S. Cl. 435—220 14 Claims

1. An isolated enzyme material having protease activity obtained from *Micrococcus sedentarius* having the following characteristics:

(a) water-soluble,

(b) non-dialyzable through a membrane having a molecular weight cut-off of 10 kDa,

(c) an isoelectric point of about 4.6,

(d) a molecular weight of 30.3 kDA,

(e) an optimum pH for protease activity at about 8.2 and an optimum temperature for protease activity at about 40° C.

5,213,979

IN VITRO CULTURE OF BOVINE EMBRYOS

Neal L. First, Madison, and Willard Eyestone, Verona, both of Wis., assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Dec. 30, 1987, Ser. No. 139,887

Int. Cl.[5] C12N *5/00*

U.S. Cl. 435—240.2 36 Claims

1. A method for preparing an in vitro bovine embryo culture system comprising:

(a) obtaining fresh bovine epithelial cells from the oviduct of a donor animal, and;

(b) adding the epithelial cells to an animal cell culture medium, which medium alone is insufficient to culture a bovine embryo past the 8 to 16 cell stage, and

(c) culturing the epithelial cells in the culture medium so that the medium becomes capable of maintaining the health and viability of the bovine embryos through the 8 to 16 cells stage.

5,213,980

FIBROBLAST GROWTH FACTOR GENE TRANSFORMED HYBRIDOMA AND ENHANCED PRODUCTION OF ANTIBODY

Hidekazu Sawada, Osaka; Keiji Iwamoto, Hyogo, and Kazuaki Kitano, Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed May 29, 1991, Ser. No. 706,946

Claims priority, application Japan, Jun. 1, 1990, 2-145180

Int. Cl.[5] C12N *5/12*

U.S. Cl. 435—240.27 6 Claims

1. A hybridoma producing a monoclonal antibody and carrying an expression vector for aFGF, bFGF or a mutein thereof, said vector containing a DNA sequence coding for said aFGF, bFGF or mutein thereof.

5,213,981

BEDDING APPARATUS

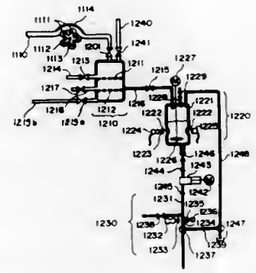
Masahiro Sei, Kanagawa, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Division of Ser. No. 490,580, May 17, 1990, Pat. No. 5,049,505. This application Jul. 3, 1991, Ser. No. 725,096

Claims priority, application PCT Int'l Appl., Sep. 27, 1988, PCT/JP88/00981

Int. Cl.[5] C12M *1/34, 3/00;* A01C *1/00*

U.S. Cl. 435—284 6 Claims



5. A bedding apparatus comprising:

culture means for accommodating a cultured tissue together with a nutrient solution for culturing the tissue;

means for selecting cultured tissues fed from the culture means according to color and magnitude of the cultured tissues; and

means for bedding the selected cultured tissues one by one on a nutrient medium at predetermined intervals;

said selecting means including:

means for optically detecting the density of the cultured tissues; and

means for feeding a nutrient solution or pure water to the cultured tissues until the density of the cultured tissues becomes a desired one in accordance with the output from the density detecting means.

5,213,982

HEATED DILUTION METHOD FOR A LIQUID SAMPLE

Donald D. Soleta, St. Louis, Mo., and Russell M. Morris, Deer Park, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 617,321, Nov. 23, 1990, abandoned. This application Sep. 15, 1992, Ser. No. 945,996

Int. Cl.[5] G01N *1/00, 31/00*

U.S. Cl. 436—179 7 Claims

1. A method of obtaining a sample of a reaction solution containing a material which dissolves only at an elevated temperature and diluting said sample for chemical titrametric analysis, said method comprising:

a) venting a first vessel to atmospheric pressure;

b) after step a), establishing flow of said reaction solution to be analyzed from an elevated pressure in a reactor and directing low of said reaction solution through a sample conduit having a pre-determined volume, and then into said first vessel while maintaining said reaction solution at said elevated temperature;

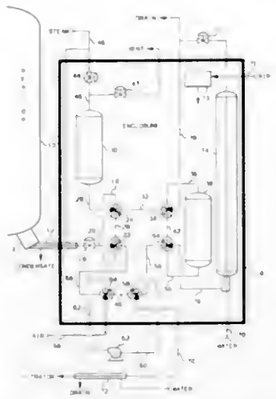
c) after step b), sealing off said first vessel from atmospheric pressure;

d) allowing flow of said reaction solution to accumulate in said first vessel until the pressure in said first vessel substantially equals the pressure in said reactor, thereby assur-

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ing that said sample conduit is full of said reaction solution when flow stops, wherein the volume of reaction solution in said sample conduit provides said sample of reaction solution;

e) diluting said sample of reaction solution at said elevated



temperature by mixing with a predetermined volume of liquid diluent contained in a second vessel to provide a diluted sample;

f) passing said diluted sample to a titrametric analyzer; and

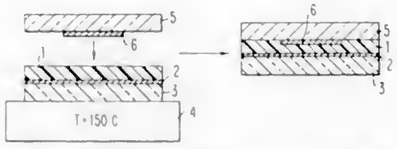
g) backflushing reaction solution in said first vessel and said sample conduit to said reactor.

5,213,983

METHOD FOR THE PREPARATION OF ELECTRONIC AND ELECTRO-OPTICAL COMPONENTS AND CIRCUITS USING CONDUCTIVE POLYMERS

Göran Gustafsson; Olle Inganäs, both of Lindköping, and Mats Sundberg, Västerås, all of Sweden, assignors to Neste Oy, Finland

Filed Dec. 20, 1990, Ser. No. 630,527
Claims priority, application Finland, Jan. 4, 1990, 900037
Int. Cl.[5] H01L *29/28*
U.S. Cl. 437—1 9 Claims



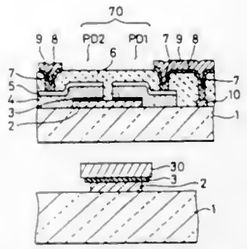
1. Method for the preparation of electronic and electro-optical components and circuits, which comprises melting a meltable conducting polymer in contact with at least one substrate surface of a material other than the conducting polymer to form a boundary surface between the conducting polymer and said other material.

5,213,984

METHOD OF MANUFACTURING AN IMAGE SENSOR

Junji Okada, and Hiroshi Fujimagari, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 11, 1991, Ser. No. 774,956
Claims priority, application Japan, Oct. 18, 1990, 2-277815
Int. Cl.[5] H01L *31/20*
U.S. Cl. 437—2 6 Claims



1. A method of manufacturing an image sensor, comprising the steps of:

depositing a metal film on a substrate;

depositing a doped amorphous Si film on the metal film;

forming a resist pattern on said doped amorphous Si film;

forming a doped amorphous Si layer and a metal electrode by successively etching the doped amorphous Si film with a first etching agent and the metal film with a second etching agent b photolithography using said resist pattern;

re-etching the doped amorphous Si layer to remove portions of said doped amorphous Si layer protruding from the metal electrode, said protruding portions caused by side-etching of said metal film during said step of successively etching said doped amorphous Si film and said metal film;

depositing a non-doped amorphous Si film to cover the doped amorphous Si layer;

depositing a transparent conductive film on the non-doped amorphous Si film; and

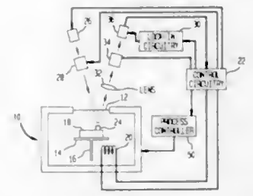
forming a transparent electrode and a non-doped amorphous Si layer by successively etching the transparent conductive film and the non-doped amorphous Si film by photolithography.

5,213,985

TEMPERATURE MEASUREMENT IN A PROCESSING CHAMBER USING IN-SITU MONITORING OF PHOTOLUMINESCENCE

Claude J. Sandroff, and Francoise S. Sandroff, both of Tinton Falls, N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.

Filed May 22, 1991, Ser. No. 703,909
Int. Cl.[5] H01L *21/66;* C30B *7/00*
U.S. Cl. 437—8 19 Claims



17. A method of measuring a parameter of a device in a gas phase or vacuum environment within a semiconductor growth processing chamber comprising the steps of

positioning within said chamber a parameter monitoring

element that comprises a III-V direct bandgap semiconductor,

optically exciting said element to emit photoluminescence, and

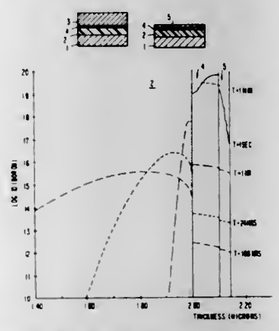
spectrally resolving the intensity of the photoluminescence emitted by said element to provide a measurement of the bandgap energy of said element and thereby also of the parameter of the device.

5,213,986

PROCESS FOR MAKING THIN FILM SILICON-ON-INSULATOR WAFERS EMPLOYING WAFER BONDING AND WAFER THINNING

Ronald D. Pinker, Peekskill; Steven L. Merchant, Yorktown Heights, and Arnold, Emil, Chappaqua, all of N.Y., assignors to Nortb American Philips Corproation, New York, N.Y.

Filed Apr. 10, 1992, Ser. No. 867,729
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—20 8 Claims



1. A method for making SOI devices comprising the steps of

(a) forming a first oxide layer on a first silicon wafer;

(b) implanting boron ions into a surface layer of a second silicon wafer;

(c) bonding said surface layer to said oxide layer;

(d) etching said second silicon wafer to said boron implanted layer;

(e) growing a second thin oxide layer on the surface of said second silicon wafer; and

(f) annealing said layers in a hydrogen atmosphere to drive said boron ions into said first oxide layer, thereby reducing the boron doping concentration in said surface layer.

5,213,987

METHOD OF INTEGRATING HETEROJUNCTION BIPOLAR TRANSISTORS WITH PIN DIODES

Burhan Bayraktaroglu, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 28, 1991, Ser. No. 676,419
Int. Cl.[5] H01L *21/265, 21/70*
U.S. Cl. 437—24 4 Claims

1. A method of integrating a heterojunction bipolar transistor (HBT) with a PIN diode, comprising the steps of:

providing a semi-insulating semiconductor substrate having a first surface;

implanting an HBT subcollector region of a first conductivity type in said substrate at said first surface;

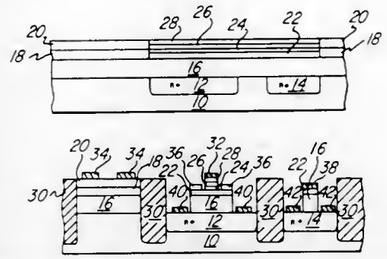
implanting a PIN diode region of said first conductivity type in said substrate at said first surface and spaced from said HBT subcollector region;

growing an i-layer on said first surface;

selectively growing an HBT base/PIN diode layer of a second conductivity type on said i-layer over said HBT subcollector region and said PIN diode region;

selectively growing an HBT emitter layer of said first conductivity type on said HBT base/PIN diode layer, said HBT emitter layer having a wider energy bandgap than said HBT base/PIN diode layer;

etching away said HBT emitter layer over said PIN diode region;



implanting an isolation region at the boundary between said HBT subcollector region and said PIN diode region, said isolation region extending down into said substrate; and

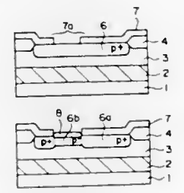
forming conductive contacts to said HBT subcollector region, said HBT base layer, said HBT emitter layer, said PIN diode region and said PIN diode layer.

5,213,988

METHOD OF MANUFACTURING BIPOLAR TRANSISTOR WITH SELF-ALIGNED BASE REGIONS

Tomohiro Yamauchi, Kawasaki, and Yasunobu Kodaira, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Feb. 7, 1991, Ser. No. 652,785
Claims priority, application Japan, Feb. 7, 1990, 2-28014
Int. Cl.[5] H01L *21/265, 29/70*
U.S. Cl. 437—31 2 Claims



1. A method of manufacturing a semiconductor device, comprising the steps of:

(a) forming a buried layer and an epitaxial layer, in order, on a semiconductor substrate;

(b) forming an element isolating layer on said epitaxial layer;

(c) depositing a first resist film having a first opening portion where a first base region is to be formed;

(d) forming said first base region by injecting impurity ions into the epitaxial layer by sue of said first resist film as a mask;

(e) removing said first resist film and forming an interlayer insulating film on the surface of said first base region and the element isolation layer;

(f) forming a second opening in the interlayer insulating film, said second opening being disposed in a region where a second base region is to be formed;

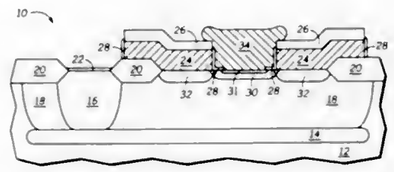
(g) forming an oxide film on the surface of said first bas region in said second opening by oxidation treatment, to form said second base region in a self-aligned manner, said second base region having lower impurity concentration than said first base region, due to reduction of the impurity concentration by the oxidation treatment;

(h) removing said oxide film;

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(i) depositing a polysilicon film on the surface of said second base region and patterning said polysilicon film to form an emitter electrode;
(j) injecting impurity ions into said emitter electrode; and
(k) forming an emitter layer on the surface of said second base region by diffusing the injected impurity ions by heat treatment.

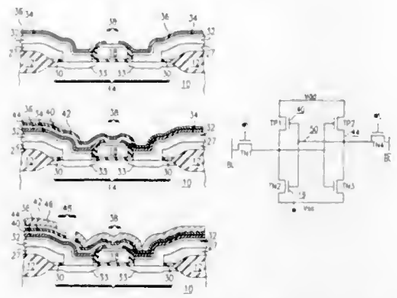
5,213,989
METHOD FOR FORMING A GROWN BIPOLAR ELECTRODE CONTACT USING A SIDEWALL SEED
Jon T. Fitch; Carlos A. Mazuré, and James D. Hayden, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jun. 24, 1992, Ser. No. 903,300
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—31 20 Claims



1. A method for forming an electrical contact to a bipolar transistor electrode comprising the steps of:
providing a substrate;
forming a layer of material having a top surface and overlying the substrate;
forming a contact opening in the layer of material wherein the contact opening exposes a portion of the substrate and has a sidewall, said contact opening having a first radius;
forming a conductive region within the substrate, the conductive region functioning as a portion of said bipolar transistor electrode;
forming a sidewall selective source material adjacent the sidewall of the contact opening, the sidewall selective source material reducing the contact opening from the first radius to a second radius wherein the second radius is smaller than the first radius; and
forming a conductive contact region within the contact opening by growing the conductive contact region using the sidewall selective source material as a growth source, the conductive contact region forming said electrical contact to the bipolar transistor electrode in a reduced growth time due to reduction in radius of the contact opening.

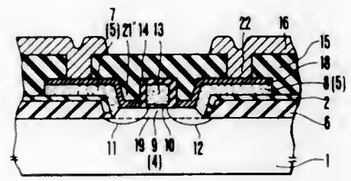
5,213,990
METHOD FOR FORMING A STACKED SEMICONDUCTOR STRUCTURE
Mark S. Rodder, University Park, Tex., assignor to Texas Instruments, Incorporated, Dallas, Tex.
Filed Apr. 1, 1992, Ser. No. 861,688
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—40 6 Claims

1. A method of forming a stacked transistor structure comprising the steps of:
a) forming first and second insulating regions defining a moat area in a semiconductor surface;
b) forming a first gate insulator over said moat area;
c) forming a gate over said first gate insulator;
d) forming a second gate insulator which is a TFT gate insulator over said gate, such that said gate is a common gate for a first MOSFET transistor formed in said moat area and a second MOSFET transistor which is a first TFT;
e) forming a TFT channel layer overlying said second gate insulator whereby the top surface of regions of said second gate insulator is protected from deleterious effects of further process steps;
f) patterning said TFT channel layer to form a first channel region for said first TFT and a second channel region for a second TFT;
g) forming a first insulating layer over said TFT channel regions and said TFT gate insulator;



(h) selectively removing, using a selective etching process having an etching rate much greater for said first insulating layer and said TFT gate insulator than said TFT channel regions, said first insulating layer and said TFT gate insulator to form a contact region overlying an area of said first TFT channel region and an area of said common gate; and
i) forming a conducting layer within said contact region.

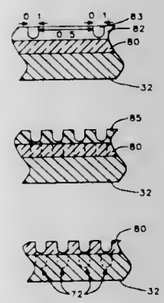
5,213,991
METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE
Hiroshi Inokawa, Zama; Toshio Kobayashi, Isehara, and Kazuhide Kiuchi, Tokyo, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan
Continuation of Ser. No. 366,240, Jun. 12, 1989, abandoned, which is a continuation of Ser. No. 9,790, Feb. 2, 1987, abandoned. This application Mar. 24, 1992, Ser. No. 856,801
Claims priority, application Japan, Feb. 7, 1986, 61-24021; Mar. 31, 1986, 61-73989
Int. Cl.[5] H01L *21/336, 21/205*
U.S. Cl. 437—41 4 Claims



1. A method of making an MOSFET-type semiconductor device which comprises:
(a) selectively covering an exposed surface of a semiconductor substrate with an insulating layer thereover such that a recess region of said substrate is left exposed by said insulating layer;
(b) forming said insulating layer such that the top surface and the side surface of the insulating layer comprise a silicon-nitride film or a film containing a major portion of silicon nitride;
(c) forming simultaneously an epitaxial silicon film on said exposed recess region and a polycrystalline silicon film on said silicon-nitride film or film containing a major portion of silicon nitride while preserving a shape having a recess,

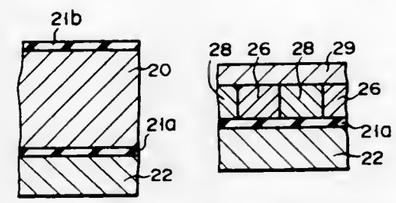
at a temperature above 700° C. and to a thickness less than 0.3 μm; and
(d) forming a whole channel region and a part of source and drain diffused-layer regions in said epitaxial silicon film, and source and drain diffused-layer regions in said polycrystalline silicon film, wherein the forming of step (d) further comprises:
(1) forming a gate electrode on a gate insulating film on said epitaxial silicon film, wherein the forming of step (d)(1) further comprises:
(i) forming said gate insulating film on said silicon film,
(ii) forming a gate electrode material layer on said gate insulating film,
(iii) coating said gate electrode material layer with a film of mask material in such manner as flattening the surface such that a recess which is formed on the upper surface of said gate electrode material layer in correspondence with said recess region on said semiconductor substrate is filled with said film of mask material, said recess on the upper surface of said gate electrode material layer being present in a region without said insulating layer,
(iv) etching said film of mask material with the flat surface by a predetermined depth from the surface, thereby leaving said mask material only inside said recess on the upper surface of said gate electrode material layer,
(v) etching said gate electrode material layer using said film of mask material as an etching mask, thereby forming said gate electrode with grooves formed on at least two sides of said gate electrode;
(2) adding a dopant to a part of said epitaxial silicon film which is not covered with said gate electrode; and
(3) adding a dopant to the polycrystalline silicon film, whereby completing a MOSFET-type semiconductor type.

5,213,992
RIPPLED POLYSILICON SURFACE CAPACITOR ELECTRODE PLATE FOR HIGH DENSITY DRAM
Chih-Yuan Lu, Taipei, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan
Filed Oct. 2, 1991, Ser. No. 769,723
Int. Cl.[5] H01L *21/72*
U.S. Cl. 437—52 25 Claims



1. A method for producing a regular microscopic ripple surface capacitor fabricated on a monocrystalline semiconductor substrate comprising:
depositing a first polycrystalline silicon layer to form a first capacitor plate on a partially completed device structure over a base insulating layer and a contact opening exposing said substrate;
forming a resist layer over said first polycrystalline silicon layer;
exposing said resist layer through a mask having a pattern of regular spaced openings in the areas of the planned said capacitor to radiant energy in sufficient quantity through a lens system to under-expose, de-focus an image on said resist layer or a combination of under-expose and de-focus an image on said resist layer to create in said resist layer a ripple image wherein said image does not reach said first polycrystalline silicon layer;
shifting said mask a fixed distance;
exposing said resist layer through the said shifted mask to radiant energy in sufficient quantity through a lens system to under-expose, de-focus an image on said resist layer or a combination of under-expose and de-focus an image on said resist layer to create in said resist layer a ripple image wherein said image does not reach said first polycrystalline silicon layer;
repeating said shifting said mask and exposing said resist steps until a pattern of said regular microscopic ripple has been formed in said resist layer;
developing said resist layer to leave said pattern of regular microscopic ripple in the surface of the resist layer;
uniformly and anisotropically etching the said resist layer and said first polycrystalline silicon layer to create said pattern of regular microscopic ripple in the surface of said first polycrystalline layer;
removing the remaining said resist layer;
depositing an insulating layer to form a capacitor dielectric layer over the surface of the said first polycrystalline layer; and
depositing a second polycrystalline silicon layer over said insulating layer to form the second capacitor plate and complete said regular microscopic surface capacitor.

5,213,993
METHOD OF MANUFACTURING SEMICONDUCTOR SUBSTRATE DIELECTRIC ISOLATING STRUCTURE
Masanobu Ogino, Yokosuka; Tsutomu Amai, Tokyo, and Takanobu Kamakura, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Tobisha, Kawasaki, Japan
Continuation of Ser. No. 580,560, Sep. 11, 1990, abandoned. This application Mar. 6, 1992, Ser. No. 845,359
Claims priority, application Japan, Sep. 13, 1989, 1-237457; Jul. 3, 1990, 2-175527
Int. Cl.[5] H01L *21/304*
U.S. Cl. 437—62 13 Claims



1. A method of manufacturing a semiconductor substrate having a dielectric isolating structure, comprising the steps of:
mirror-polishing a surface of each of first and second semiconductor substrates of a predetermined conductivity type;
forming a dielectric film on one of said mirror-polished surfaces obtained in said polishing step;
opposing said mirror-polished surfaces through said dielectric film to join said first and second semiconductor substrates therebetween;
reducing a one of said first and second semiconductor substrates to a predetermined thickness using mechanical means;
doping a high-concentration impurity on the one of the semiconductor substrates reduced in the reducing step, the doping step being performed at a time when the one of

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the semiconductor substrates has the predetermined thickness; and

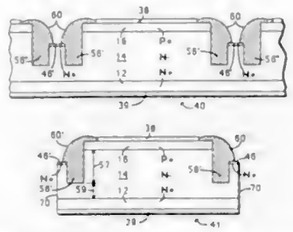
forming a low-concentration impurity semiconductor layer on the one of the semiconductor substrates doped in said impurity doping step.

5,213,994

METHOD OF MAKING HIGH VOLTAGE SEMICONDUCTOR DEVICE

Earl D. Fuchs, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 358,215, May 30, 1989, Pat. No. 4,974,050.
This application Sep. 17, 1990, Ser. No. 583,527
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—65 8 Claims



1. A method for forming a high voltage semiconductor device comprising:

providing a substrate having a conductive first doped region of a first thickness adjacent a first surface thereof;

forming a first depression extending from the first surface through the first doped region;

forming a conductive second doped region at least on a bottom part of the first depression;

forming a second depression not entirely co-extensive with the first depression and having at least a first part overlapping a portion of the first depression and extending into the substrate from the first surface through the portion of the first depression;

wherein the steps of forming the first and second depressions comprise forming annular first and second depressions, each having an inner and outer perimeter wherein the first part of the second depression has a smaller outer perimeter than the outer perimeter of the first depression; and

wherein the step of forming a second depression having at least a first part further comprises forming a second part of the second depression spaced apart from the first part and having an inner perimeter greater than the outer perimeter of the second depression.

5,213,995

METHOD OF MAKING AN ARTICLE COMPRISING A PERIODIC HETEROEPITAXIAL SEMICONDUCTOR STRUCTURE

Young-Kai Chen; Minghwei Hong, both of Berkeley Heights; Joseph P. Mannaerts, Summit, and Ming-Chiang Wu, Bridgewater, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

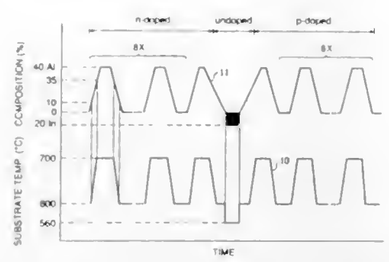
Filed Apr. 16, 1992, Ser. No. 869,980
Int. Cl.[5] H01L *21/203*
U.S. Cl. 437—126 7 Claims

1. Method of making an article that comprises a periodic heteroepitaxial structure that comprises at least two pairs of semiconductor layers, a given pair comprising a first signal crystal semiconductor layer of a first composition in contact with a second single crystal semiconductor layer of a second composition that differs from the first composition, the method comprising

a) providing a substrate;

b) exposing the substrate to a growth medium of a first composition such that the first semiconductor layer is formed on a major surface of the substrate;

c) exposing the substrate with the first semiconductor layer thereon to a growth medium of a second composition such that the second semiconductor region is formed on the first semiconductor region; and



d) repeating steps b) and c) at least once; characterized in that

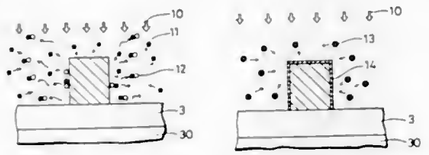
e) during at least a part of step b) the substrate is maintained at a first temperature, and during at least a part of step c) the substrate is maintained at a second temperature that differs from the first temperature.

5,213,996

METHOD AND APPARATUS FOR FORMING INTERCONNECTION PATTERN AND SEMICONDUCTOR DEVICE HAVING SUCH INTERCONNECTION PATTERN

Toshiaki Ogawa, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 683,648, Apr. 11, 1991, Pat. No. 5,110,394.
This application Jan. 31, 1992, Ser. No. 828,823
Claims priority, application Japan, Jul. 4, 1990, 2-178288
Int. Cl.[5] H01L *21/283, 21/302*
U.S. Cl. 437—173 19 Claims



1. A method of forming an interconnection pattern, comprising the steps of:

forming an interconnection layer on a substrate;

selectively etching said interconnection layer by employing a halogen contained gas, so as to form an interconnection pattern; and

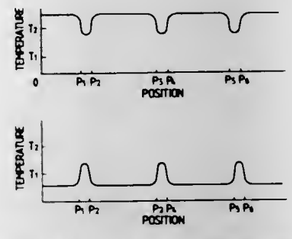
irradiating said interconnection pattern with ultraviolet rays in an atmosphere including reducing species.

5,213,997

METHOD FOR FORMING CRYSTALLINE FILM EMPLOYING LOCALIZED HEATING OF THE SUBSTRATE

Shunichi Ishihara, Hikone, and Jun-ichi Hanna, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 30, 1990, Ser. No. 501,484
Claims priority, application Japan, Mar. 31, 1989, 1-81106
Int. Cl.[5] H01L *21/26, 21/268, 21/205*
U.S. Cl. 437—173 4 Claims



1. A method for forming a polycrystalline film comprising the steps of:

(i) separately introducing into a film forming space having a substrate a gaseous starting material for formation of said polycrystalline film and a gaseous halogenic oxidizing agent capable of chemically reacting with said starting material to form said polycrystalline film;

(ii) controlling temperatures of said substrate so as to vary the temperatures of said substrate and to impart a non-uniform temperature distribution in a range of from 50° C. to 70° C. on said substrate by setting temperatures at specified desired positions in said substrate in accordance with a predetermined temperature distribution pattern, thereby effecting selective deposition of said polycrystalline film in a region having a size of no greater than 1 mm in length at said desired specified positions in accordance with said predetermined temperature distribution pattern; and

(iii) growing crystal grains on said substrate at said specified desired positions to form said polycrystalline film.

5,213,998

METHOD FOR MAKING AN OHMIC CONTACT FOR P-TYPE GROUP II-VI COMPOUND SEMICONDUCTORS

Jun Qiu; Hwa Cheng; Michael A. Haase, all of Woodbury, and James M. DePuydt, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 15, 1991, Ser. No. 700,580
Int. Cl.[5] H01L *21/285, 21/20*
U.S. Cl. 437—185 16 Claims

1. A method for producing an ohmic contact to a p-type II-VI semiconductor body, including:

placing a p-type II-VI semiconductor body in a molecular beam epitaxy chamber;

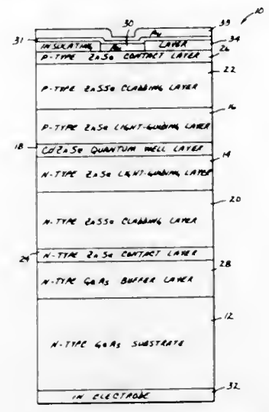
injecting at least one group II source into the chamber;

injecting at least one group VI source X_m into the chamber, where $m<6$;

injecting at least one free-radical p-type dopant into the chamber;

heating the semiconductor body to a temperature less than 250 degrees C. but high enough to promote crystalline growth of a II-VI semiconductor layer doped with the free-radical p-type dopants to a net acceptor concentration of at least $1\times10^{17}cm^{-3}$; and

growing a crystalline II-VI ohmic contact layer doped with the free-radical p-type dopants to a net acceptor concentration of at least $1\times10^{17}cm^{-3}$, on the semiconductor body.

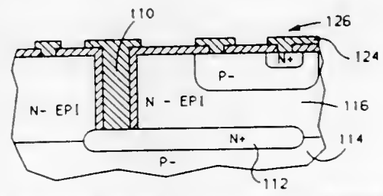


5,213,999

METHOD OF METAL FILLED TRENCH BURIED CONTACTS

Douglas R. Sparks; John C. Christenson, and James M. Himelick, all of Kokomo, Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Sep. 4, 1990, Ser. No. 576,654
Int. Cl.[5] H01L *21/44, 21/48*
U.S. Cl. 437—203 4 Claims



1. A method of making a metal contact to a buried layer comprising the following steps:

providing a substrate having a doped region of P— type conductivity, an N+ type buried layer formed between said P— type region and an N— type epitaxial silicon;

providing a dielectric layer on said substrate;

patterning said dielectric layer such that predetermined areas of said substrate are exposed;

masking said dielectric layer and certain portions of said exposed substrate areas;

forming a trench in unmasked and exposed substrate areas through said N— type epitaxial silicon layer to said N+ type buried layer;

providing a dielectric material on the trench surfaces so that an opening is provided to said N+ type buried layer;

depositing a metal-containing liquid solution on said dielectric layer, in said trench, and into said exposed substrate areas so as to fill completely said trench, said exposed substrate areas and uniformly coat said dielectric layer;

heating said metal-containing liquid solution to a temperature sufficiently high enough to decompose metal-containing liquid solution such that the metal within said metal-containing liquid solution remains within said trench, on

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said exposed substrate areas, and upon said dielectric layer to form a metal layer; and

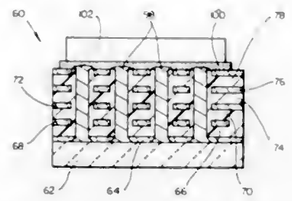
patterning said metal layer to form interconnections.

5,214,000

THERMAL TRANSFER POSTS FOR HIGH DENSITY MULTICHIP SUBSTRATES AND FORMATION METHOD

David J. Chazan, Palo Alto; Gary R. Weihe, Fremont, and Richard F. Otte, Los Altos Hills, all of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Dec. 19, 1991, Ser. No. 810,224
Int. Cl.[5] H01L *21/60*
U.S. Cl. 437—209 9 Claims



1. A non-iterative method for forming thermal post vias within a formed multi-layer, high density interconnect module including a base means, a ground plane metal layer formed upon the base, and plural layers of metal conductors separated by dielectric material, comprising the steps of:

removing in a single step dielectric material to the ground plane metal layer at predetermined sites of said thermal post vias to define substantially cylindrical post holes,

undercutting the ground plane metal layer to define a widened space thereat; and

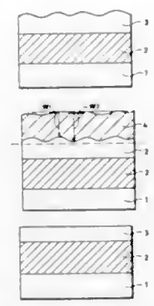
forming said thermal post vias by placing solid metal into said post holes.

5,214,001

METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE HAVING PLANAR SINGLE CRYSTAL SEMICONDUCTOR SURFACE

Takashi Ipposhi, and Kazuyuki Sugahara, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 14, 1991, Ser. No. 640,499
Claims priority, application Japan, Jan. 18, 1990, 2-010852
Int. Cl.[5] H01L *21/302, 21/463*
U.S. Cl. 437—228 16 Claims



1. A method of planarization of a semiconductor film of a thickness less than a machine allowance for polishing and having surface irregularities including concave portions and convex portions, comprising the steps of:

forming a second film on said semiconductor film, filling said concave portions, to obtain a multilayered structure to provide a machining allowance for polishing, and

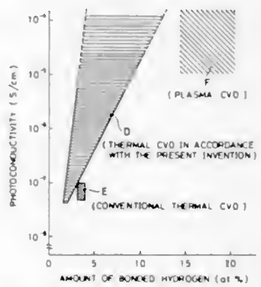
polishing said multilayered structure at the surface of said second film until a smooth planar surface of uniform material is formed on said semiconductor film, said step of polishing comprising removing the entirety of said second film.

5,214,002

PROCESS FOR DEPOSITING A THERMAL CVD FILM OF SI OR GE USING A HYDROGEN POST-TREATMENT STEP AND AN OPTIONAL HYDROGEN PRE-TREATMENT STEP

Yutaka Hayashi, and Mitsuyuki Yamanaka, both of Ibaraki, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Continuation of Ser. No. 575,625, Aug. 31, 1990, abandoned. This application Dec. 3, 1991, Ser. No. 800,711
Claims priority, application Japan, Oct. 25, 1989, 1-277938
Int. Cl.[5] H01L *21/205*
U.S. Cl. 437—234 15 Claims



1. In a thermal CVD process for depositing a thin semiconductor film, the improvement comprising, in the order recited, the steps of:

a. depositing a thin film comprised of a semiconductive material and having a thickness which does not exceed about 300 Å on a substrate which is heated by feeding to the surface of the substrate a gaseous starting material selected from the group consisting of silane gases, alkyl silane gases and germanium hydride gases;

b. stopping the feeding of the gaseous starting material;

c. feeding excited hydrogen to the thin film without exposing the thin film to ambient air;

d. stopping the feeding of the excited hydrogen; and

e. repeating steps (a) through (d) at least once.

5,214,003

PROCESS FOR PRODUCING A UNIFORM OXIDE LAYER ON A COMPOUND SEMICONDUCTOR SUBSTRATE

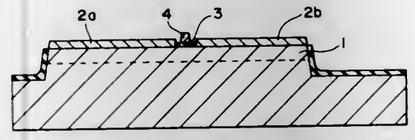
Haruhito Shimakura; Osamu Oda, and Keiji Kainosho, all of Toda, Japan, assignors to Nippon Mining Co., Ltd., Tokyo, Japan

PCT No. PCT/JP90/00690, § 371 Date Jan. 31, 1991, § 102(e) Date Jan. 31, 1991, PCT Pub. No. WO90/15436, PCT Pub. Date Dec. 13, 1990
PCT Filed May 29, 1990, Ser. No. 640,429
Claims priority, application Japan, May 31, 1989, 1-140029; Feb. 14, 1990, 2-33423
Int. Cl.[5] H01L *21/02, 21/31*
U.S. Cl. 437—243 5 Claims

1. A process for producing a uniform oxide layer on a compound semiconductor substrate, comprising the following steps in order:

placing a compound semiconductor substrate comprising two elements, one of said elements having a higher vapor pressure than the other element, into a quartz ampoule with the element of the compound semiconductor substrate having the higher vapor pressure,

evacuating the interior of the ampoule,



introducing oxygen gas into the ampoule, sealing the ampoule, and

heating the ampoule to produce a uniform oxide layer on the compound semiconductor substrate.

5,214,004

CERAMIC FIBER REINFORCED GLASS-CERAMIC MATRIX COMPOSITE

Narottam P. Bansal, No. Olmsted, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 4, 1992, Ser. No. 892,055
Int. Cl.[5] C03C *10/06, 14/00*
U.S. Cl. 501—8 15 Claims

1. A method of producing a ceramic fiber-reinforced glass-ceramic matrix composite comprising the steps of

preparing an aqueous slurry of (1−x) BaO - xSrO-Al_2O_3-2 SiO_2 (x=0.05 to 1) (BSAS) glass powder, an organic binder, a plasticizer, glycerine, and a surfactant,

ball milling said slurry,

casting said slurry into tape thereby forming a glass-matrix tape,

drying said glass matrix tape,

cutting said glass matrix tape,

winding continuous chemical vapor deposition (CVD) SiC fibers onto a drum,

cutting said fibers on said drum thereby forming a fiber mat,

alternating a plurality of said glass matrix tapes with a plurality of said fiber mats thereby forming a tape-mat stack,

warm pressing said tape-mat stack thereby forming a "green" composite,

wrapping said "green" composite in foil,

heating said wrapped "green" composite whereby organic constituents are burned out thereby forming an interim material, and

hot pressing said interim material to produce a silicon carbide fiber-reinforced (BSAS) glass-ceramic matrix composite.

5,214,005

GLASS-ALUMINUM NITRIDE COMPOSITE MATERIAL

Akira Yamakawa, and Koichi Sogabe, both of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Jan. 14, 1992, Ser. No. 820,550
Claims priority, application Japan, Feb. 4, 1991, 3-033345
Int. Cl.[5] C03C *14/00;* C04B *35/58*
U.S. Cl. 501—32 5 Claims

1. A glass-aluminum nitride sintered body produced by adding glass powder to aluminum nitride grains to form a composite material, and molding and sintering said composite material, said glass powder comprising 30% to 60% of SiO_2, 10% to 30% of Al_2O_3, 10% to 30% of B_2O_3, and not more than 30% of MO, wherein M is selected from the group consisting of Mg, Ca, and Sr, said aluminum nitride grains having an oxygen content of less than 2% and a mean diameter of at lest 1.0 μm, said aluminum nitride comprising 50% to 95% of said composite material, all percentages being by weight, said composite material having a heat conductivity of at least 30 w/m K.

5,214,006

CEMENT-FREE SILICON CARBIDE MONOLITHS

Mark C. Langenohl, Pleasant Hills, Pa., assignor to Indresco Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 650,530, Feb. 5, 1991, abandoned. This application Jan. 15, 1992, Ser. No. 821,507
Int. Cl.[5] C04B *35/56*
U.S. Cl. 501—89 10 Claims

1. A cement-free cast shape for use in the ferroalloy industry, consisting essentially of about 70 to 97 wt.% silicon carbide, graded -10 mesh and finer; 1 to 10 wt.% fine alumina; 1 to 10 wt.% fine silica; and 1 to 10 wt.% alkali phosphate modified alumino-silicate powder.

5,214,007

PRODUCTION PROCESS FOR SILICON NITRIDE SINTERED BODY

Masayasu Ando, Anjo, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Continuation of Ser. No. 330,282, Mar. 29, 1989, abandoned. This application Apr. 20, 1992, Ser. No. 871,590
Claims priority, application Japan, Mar. 31, 1988, 63-80291
Int. Cl.[5] C04B *35/58*
U.S. Cl. 501—95 13 Claims

7. A process for producing a silicon nitride sintered body, comprising:

a) molding raw material powder to form a molded body, said powder comprising silicon nitride powder and beta-silicon nitride whiskers; and

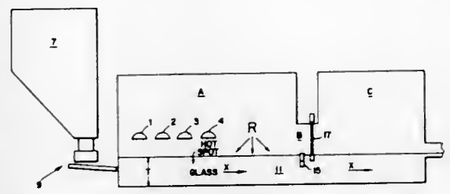
b) sintering the resulting molded body to produce a sintered body consisting essentially of said whiskers and beta-silicon nitride needle-shaped crystals.

5,214,008

HIGH VISIBLE, LOW UV AND LOW IR TRANSMITTANCE GREEN GLASS COMPOSITION

Steven P. Beckwith, McMurray, and William M. Yankovich, Bethel Park, both of Pa., assignors to Guardian Industries Corp., Northville, Mich.

Filed Apr. 17, 1992, Ser. No. 870,415
Int. Cl.[5] C03C *3/085*
U.S. Cl. 501—69 11 Claims



1. A green-colored infrared energy and ultraviolet radiation absorbing glass consisting essentially of SiO_2, Na_2O, CaO, about 0.20–0.25% SO_3, about 0.7–0.95% total iron expressed as Fe_2O_3, about 0.19–0.24% ferrous iron expressed as FeO, and wherein said glass when between about 3.7 mm–4.8 mm thickness has a visible transmittance of greater than about 70%, an ultraviolet radiation transmittance of less than about 38% and a total solar transmittance of less than about 44.5%.

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5,214,009
SIALON CONTAINING CERAMIC SINTER
Michiyasu Komatsu; Tsuneji Kameda, and Masahiro Asayama, all of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed May 21, 1990, Ser. No. 525,781
Claims priority, application Japan, May 22, 1989, 1-128037; Jun. 1, 1989, 1-137455
Int. Cl.[5] C04B *35/56, 35/58*
U.S. Cl. 501—98 20 Claims

1. A ceramic sinter for use in high-temperature structural materials comprising a primary phase substantially satisfying one of an α-sialon composition, a β-sialon composition and mixtures thereof and hafnium oxide in the range of from 0.2 to 40 weight %, said hafnium oxide being present independently in the primary phase in particle-dispersive form.

5,214,010
ALUMINA-CARBON COMPOSITIONS AND SLIDEGATE PLATES MADE THEREFROM
Dwight S. Whittemore, Bethel Park, Pa., assignor to Indresco, Inc., Dallas, Tex.
Continuation of Ser. No. 587,018, Sep. 24, 1990, abandoned. This application Jun. 10, 1992, Ser. No. 897,607
Int. Cl.[5] C04B *35/44*
U.S. Cl. 501—105 9 Claims

1. A refractory composition consisting essentially of, for each 100 wt. % thereof, about 40 to 80 wt. % of an alumina, about 5 to 30 wt. % of a zirconia containing grain, about 2 to 10 wt. % of a carbon, and about 1 to 12 wt. % of an oxidation and erosion resistance additive that is a mixture of silicon, aluminum and at least one of silicon carbide, ferrosilicon nitride, and a combination thereof.

5,214,011
PROCESS FOR PREPARING CERAMIC-METAL COMPOSITE BODIES
Michael C. Breslin, Columbus, Ohio, assignor to BFD, Incorporated, Columbus, Ohio
Filed Aug. 30, 1991, Ser. No. 752,824
Int. Cl.[5] C04B *35/10, 35/46, 35/50, 35/58*
U.S. Cl. 501—127 16 Claims

1. A process for forming an aluminum/ceramic composite comprising the non-vapor phase oxidation of molten aluminum achieved by contacting the molten aluminum to a sacrificial ceramic body, wherein the molten aluminum is at a temperature at least 300 degrees above the melting point of aluminum but below the softening point of the ceramic body, wherein the sacrificial ceramic body is a material selected from the group consisting of silica, quartz, sand, wollastonite, mullite, silicate glass, fluorosilicate glass, fluoroborosilicate glass, aluminosilicate glass, calcium silicate glass, calcium aluminum silicate glass, calcium aluminum fluorosilicate glass, titanium dioxide, titanium carbide, zirconium dioxide, magnesium oxide, silicon nitride, silicon carbide, zirconium carbide, zirconium nitride, metal sulfides, and mixtures thereof, whereby the sacrificial ceramic body at least partially oxidizes the aluminum to form an aluminum oxide ceramic component, and wherein molten aluminum flows into the aluminum oxide ceramic component, and wherein the sacrificial ceramic body is at least partially reduced, whereby an aluminum/ceramic composite is produced possessing a near net shape relative to the shape of the sacrificial ceramic body.

5,214,012
METHOD FOR PRODUCTION OF SILICATE INTERLAYER CROSS-LINKED SMECTITE
Kenzi Suzuki, Aichi; Masakazu Horio, Konan; Hiroyuki Masuda, Nagoya, and Toshiaki Mori, Yokkaichi, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, Tokyo, Japan
Filed Jan. 31, 1992, Ser. No. 828,755
Claims priority, application Japan, Feb. 1, 1991, 3-099880
Int. Cl.[5] B01J *21/16, 20/12*
U.S. Cl. 502—62 4 Claims

1. A method for the production of an interlayer cross-linked smectite having a desired interval formed between silicate layers by pillars of the oxide produced from a cationic hydroxide oligomer, comprising the steps of:
preparing a smectite suspension having a water-soluble macromolecular compound dissolved therein;
adding to said suspension a cationic hydroxide oligomer selected from the group consisting of $[Al_{13}O_4(OH)_{24}(H_2O_{12}]^{7+}$ and $[Zr(OH)_{14}(H_2O)_{10}]^{2+}$ in an amount capable of producing pillars of pillars of a length which corresponds to said desired interval and allowing said cationic hydroxide oligomer to exchange ions with an exchangeable cation present between the silicate layers;
allowing the resultant suspension having the ion-exchanged oligomer and the water-soluble macromolecular compound interposed between the silicate layers to stand at a fixed temperature for a fixed time, thereby allowing the ion-exchanged oligomer to age and forming a desired silicate layer interval in the smectite;
separating a solid smectite from the resultant suspension; and
heating said solid smectite.

2. A method according to claim 1, wherein said water-soluble macromolecular compound is at least one member selected from the group consisting of polyvinyl alcohol and polyethylene oxide.

5,214,013
ION EXCHANGE MEDIA OF BONDED NATURAL ZEOLITE FINES
Stephen L. Peterson, 301 Enchanted Valley, NW., Albuquerque, N. Mex. 87107
Filed Jan. 21, 1992, Ser. No. 824,040
Int. Cl.[5] B01J *20/20, 20/18*
U.S. Cl. 502—62 20 Claims

1. An ion exchange medium in the form of a pelletized, bonded matrix consisting essentially of naturally zeolite particles and carbon, said zeolite particles having a diameter no more than about 600 microns.

5,214,014
DEODORIZING CATALYST
Masafumi Yoshimoto, Sakai; Tadao Nakatsuji, Nara; Kazuhiko Nagano, and Kimihiko Yoshida, both of Sakai, all of Japan, assignors to Sakai Chemical Industry Co., Ltd., Sakai, Japan
Continuation-in-part of Ser. No. 412,058, Oct. 10, 1989, abandoned. This application Apr. 12, 1991, Ser. No. 684,093
Claims priority, application Japan, Sep. 26, 1988, 63-240549; Nov. 28, 1988, 63-301404; Dec. 28, 1988, 63-334349; Feb. 28, 1991, 3-120656
Int. Cl.[5] B01J *21/06, 21/16, 23/16, 23/72, 23/74*
U.S. Cl. 502—84 8 Claims

6. A catalyst for use in a deodorizing method for removing malodorant components by oxidative destruction with ozone, the catalyst comprising a carrier and active components carried on said carrier in a thickness in the range of from 10 to 200 μm, the active components for promoting the reaction of the malodorant components with said ozone comprising (i) 25 to 95 weight per cent, based on metal, of at least one metal oxide, the metal of which is selected from the group consisting of Cu, Co, Mn, Mi and Fe; and (ii) 5 to 7 weight per cent, based on metal, of at least one member selected from the group consisting of titanium dioxide, silver oxide and gold, or an amount of silica which is sufficient to promote the destruction of malodorant components by reaction with ozone.

5,214,015
SYNTHESIS OF IRON BASED HYDROCRACKING CATALYSTS
Malvina Farcasiu, Pittsburgh, Pa.; Patricia A. Eldredge, Barboursville, Va., and Edward P. Ladner, Pittsburgh, Pa., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Apr. 3, 1992, Ser. No. 862,887
Int. Cl.[5] B01J *31/02*
U.S. Cl. 502—150 20 Claims

1. A method of preparing an iron based hydrocracking catalyst, comprising reacting iron (III) oxide powders and elemental sulfur with a liquid hydrogen donor having a hydroaromatic structure present in the range of from about 5 to about 50 times the weight of iron (III) oxide at a temperature in the range of from about 180° C. to about 240° C. for a time in the range of from about 0 to about 8 hours.

5,214,016
METHOD OF MAKING CATALYSTS CONTAINING VANADIUM, ANTIMONY AND TIN
James F. Brazdil, Lyndhurst, Ohio; Ian R. Little, Hampton Hill, England, and Joseph B. Hazen, Garfield Heights, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio
Filed Apr. 2, 1992, Ser. No. 862,163
Int. Cl.[5] B01J *23/14, 23/16*
U.S. Cl. 502—202 6 Claims

1. A method of making a catalyst containing vanadium, antimony and tin in the oxide state which comprises making an aqueous slurry of a mixture of source batch materials comprising compounds of the elements to be included in the final catalyst followed by drying and heat calcining the mixture to an active catalyst, using as the source batch material for tin a stannous salt of a C_1 to C_{18} acyclic monocarboxylic acid containing no ethylenic or acetylenic carbon-to-carbon unsaturation.

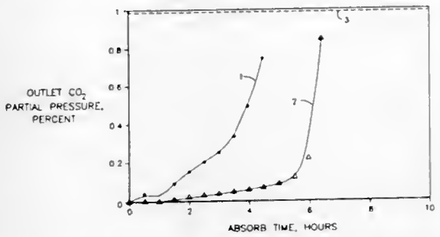
5,214,017
SOLID-ACID ALKYLATION CATALYST COMPOSITIONS FOR ALKYLATION PROCESSES
Howard P. Angstadt, Media, Pa.; Elmer J. Hollstein, Wilmington, Del., and Chao-Yang Hsu, Media, Pa., assignors to Sun Company, Inc. (R&M), Philadelphia, Pa.
Filed Nov. 27, 1991, Ser. No. 800,796
Int. Cl.[5] B01J *27/053*
U.S. Cl. 502—204 10 Claims

1. A new composition of matter comprising a sulfated and calcined mixture of (1) a support comprising an oxide or hydroxide of a Group IV-A element, (2) an oxide or hydroxide of a first metal selected form the group consisting of a Group VI, Group VII or Group VIII metal, (3) an oxide or hydroxide of a second metal selected from the group consisting of a Group I-B, II-B, III-A, III-B, IV-B, V-A or VI-A metal different from said Group VI metal and (4) an oxide or hydroxide of a third metal selected from the group consisting of the metals of the Lanthanide Series of the Periodic Table.

5,214,018
CATALYST PREPARED BY A PARTICULAR PREPARATION METHOD AND ITS USE IN A PROCESS FOR PREPARING TERTIARY OLEFINS FROM ALKYL-TERT-ALKYLETHERS
Orfeo Forlani, San Donato Milanese, and Valerio Piccoli, Monza, both of Italy, assignors to Snamprogetti S.p.A., Milan, Italy
Filed Jul. 10, 1992, Ser. No. 911,712
Claims priority, application Italy, Jul. 18, 1991, M191 A 001993
Int. Cl.[5] B01J *21/12*
U.S. Cl. 502—263 5 Claims

1. A catalyst for producing tertiary olefins from the corresponding alkyl-tert-alkylethers and consisting of silica modified by adding alumina in a quantity of between 0.3 and 1% by weight with respect to the silica, characterised by being prepared by a method consisting essentially of impregnating a silica with a solution of aluminium salts, followed by drying and calcining, the material then being subjected to purification treatment with aqueous acid solutions or with aqueous solutions which release acidity by thermal decomposition, followed by washing, a second drying and a second calcining.

5,214,019
ENHANCING CARBON DIOXIDE SORPTION RATES USING HYGROSCOPIC ADDITIVES
Timothy A. Nalette, Tolland, and Philip J. Birbara, Windsor Locks, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.
Filed Feb. 24, 1992, Ser. No. 840,228
Int. Cl.[5] B01J *20/04, 20/18;* C01B *31/20;* B01D *53/34*
U.S. Cl. 502—400 19 Claims



1. A carbon dioxide sorbent useful in the removal of carbon dioxide from a gaseous stream, comprising:
a. a metal oxide;
b. an alkali metal carbonate; and
c. an alkali fluoride;
whereby said sorbent is capable of absorbing carbon dioxide in relative humidities below about 25%.

5,214,020
BACKWASH TYPE PARTICULATE FILTER
Masatoshi Shimoda, Hino, Japan, assignor to Hino Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 8, 1991, Ser. No. 726,822
Claims priority, application Japan, Jul. 10, 1990, 2-182467
Int. Cl.[5] B01J *32/00*
U.S. Cl. 502—439 10 Claims

1. A filter for use in an exhaust system of a diesel engine comprising a gas permeable ceramic filter body having a plurality of bores, the one ends of which open to gas inlet ports and the other ends of which open to gas outlet ports and the inner surfaces of the bores being used for filtration surfaces, and a NOx catalyst carried on the outer surface of said ceramic filter body.

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5,214,021

PRESSURE SENSITIVE COPY ARTICLE

Naoya Takahashi, Yokohama; Satoshi Narui, Ayase; Yasuo Togami, Yokohama, and Ryoichi Miura, Ninomiyamachi, all of Japan, assignors to Nippon Petrochemicals Co., Ltd., Tokyo, Japan

PCT No. PCT/JP89/00813, § 371 Date Apr. 5, 1990, § 102(e) Date Apr. 5, 1990, PCT Pub. No. WO90/01417, PCT Pub. Date Feb. 22, 1990

PCT Filed Aug. 9, 1989, Ser. No. 477,839

Claims priority, application Japan, Aug. 9, 1988, 63-198453; Aug. 9, 1988, 63-198454; Aug. 9, 1988, 63-198455; Aug. 9, 1988, 63-198456

Int. Cl.[5] B41M *5/165*

U.S. Cl. 503—213 7 Claims

1. A pressure sensitive copy article comprising a color forming solution disposed on a substrate and an electron accepting developer;

said color forming solution including a solvent and an electron donating color former capable of developing a color; said solution comprising

(a) from 20% to 50% by volume of a component having a viscosity of less than 3 cSt at 40° C. and a boiling point of at least 170° C. at atmospheric pressure, said component selected from the group consisting of a hydrogenated oligomer of propylene, a hydrogenated oligomer of butene, a hydrogenated oligomer of propylene and butene and an alkylbenzene having 11 to 15 carbon atoms, with the proviso that if a hydrogenated oligomer is utilized it has 12 to 16 carbon atoms; and

(b) from 50% to 80% by volume of a component selected from the group consisting of an aromatic hydrocarbon and a chlorinated paraffin, said aromatic hydrocarbon having at least two non-condensed or condensed aromatic rings and characterized by a boiling point of at least 260° C. at atomspheric pressure and a viscosity of at least 3 cSt at 40° C. and said chlorinated paraffin characterized by a viscosity of at least 3 cSt at 40° C.;

said electron accepting developer selected from the group consisting of an aromatic carboxylic acid, a polymer of an aromatic carboxylic acid, a metallic salt of an aromatic carboxylic acid and polyvalent metallized carboxy-modified terpene phenolic resin.

5,214,022

METHOD FOR TRANSFER PRINTING AN IMAGE MOTIF ONTO A DECOR FILM

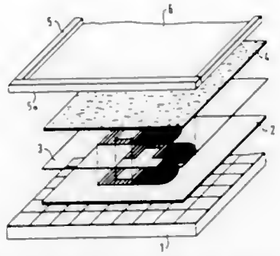
Juergen Busch, Uetersen, and Dieter Endruhn, Appel/Eversen-Heide, both of Fed. Rep. of Germany, assignors to Deutsche Airbus GmbH, Bremen, Fed. Rep. of Germany

Filed Mar. 6, 1991, Ser. No. 665,700

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1990, 4007369

Int. Cl.[5] B41M *5/035, 5/38*

U.S. Cl. 503—227 7 Claims



1. A method for transfer printing an image onto a decor film having a rough surface, comprising the following steps:

(a) placing said decor film of an organic material having a rough surface textured with ridges and valleys, onto a supporting surface with said ridges and valleys facing up;

(b) placing a flexible motif carrier sheet carrying said image in the form of organic, dispersive dyes, onto said ridges and valleys of said decor film;

(c) placing a pressure transfer mat of a flexibly yielding material onto said motif carrier,

(d) applying a transfer printing pressure to said stack through said flexibly yielding pressure transfer mat so that said motif carrier sheet is pressed intimately into a motif transfer contact with all surface areas of said rough surface of said decor film including said valleys and ridges for transfer printing said image onto said rough surface of said decor film by diffusion of said dispersive dyes onto said ridges and into said valleys, and

(e) heating said stack to a temperature just below a plastifying temperature of said decor film to avoid plastifying said rough surface of said decor film under said printing pressure while said image is being transferred from said motif carrier to said rough surface of said decor film.

5,214,023

THERMAL TRANSFER DYE PROVIDING MATERIAL

Tosbiaki Aono, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 12, 1991, Ser. No. 684,088

Claims priority, application Japan, Apr. 13, 1990, 2-96289; Jul. 27, 1990, 2-197607

Int. Cl.[5] B41M *5/035, 5/38*

U.S. Cl. 503—227 11 Claims

1. A thermal transfer dye providing material comprising a support having thereon at least one dye providing layer containing a thermomobile dye which migrates to a thermal transfer image receiving material when heated, wherein said dye providing layer comprises an oil-soluble thermoplastic resin containing said dye and a water-soluble binder and said oil-soluble thermoplastic resin containing said dye is dispersed in said water-soluble binder.

5,214,024

THERMAL TRANSFER RECEIVER

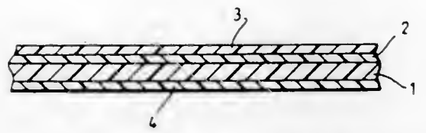
Nicholas C. Beck; Paul A. Edwards, both of Essex, and Richard A. Hann, Suffolk, all of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Jul. 23, 1990, Ser. No. 555,264

Claims priority, application United Kingdom, Jul. 21, 1989, 8916723; Nov. 9, 1989, 8925280

Int. Cl.[5] B41M *5/035, 5/26*

U.S. Cl. 503—227 12 Claims



1. A receiver sheet for dye-diffusion thermal transfer printing, which comprises a dielectric substrate supporting on one side a receiver coat comprising a dye-receptive polymer composition, is characterised in having an antistatic coating on both sides of the substrate, and in that the antistatic coating on the side supporting the receiver coat comprises a conductive undercoat located between the substrate and the receiver coat.

5,214,025

METHOD OF MANUFACTURING OXIDE HIGH-TEMPERATURE SUPERCONDUCTOR THIN FILM BY MEANS OF MOLECULAR-BEAM EPITAXY

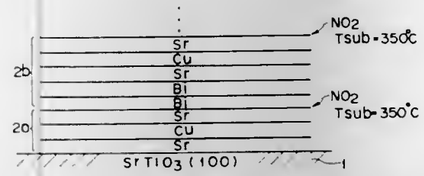
Maki Kawai, and Shunji Watanabe, both of Tokyo, Japan, assignors to President of Tokyo Institute of Technology, Tokyo, Japan

Continuation of Ser. No. 677,446, Mar. 29, 1991, abandoned. This application Mar. 3, 1992, Ser. No. 844,876

Claims priority, application Japan, Apr. 13, 1990, 2-98484

Int. Cl.[5] B05D *5/12*

U.S. Cl. 505—1 2 Claims



1. A method of manufacturing a bismuth based oxide high-temperature superconductor film by means of a molecular-beam epitaxy, comprising the steps of:

fist, sequentially forming monatomic layers, each layer formed of a single metal on a substrate using the molecular-beam epitaxy method to form a multilayered metal film consisting of a plurality of metals for forming said oxide high temperature superconductor film, wherein one of said layers is formed form bismuth atoms;

second, sequentially with formation of the monatomic layers, supplying nitrogen dioxide gas as an oxidizer to oxidize said multilayered metal film,

sequentially repeating the first and second steps to form said oxide high-temperature superconductor film; and

wherein in said oxidation step of supplying the nitrogen dioxide gas as an oxidizer to oxidize said multilayered metal film, an atmospheric temperature is held at below about 380° C.

5,214,026

METHOD FOR PRODUCING A R-CE-CU-O SUPERCONDUCTING MATERIAL WHEREIN R IS AT LEAST ONE RARE EARTH ELEMENT

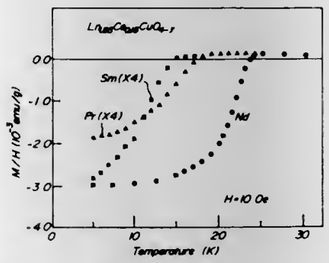
Shinichi Uchida, Fuchu; Yoshinori Tokura, Chofu, and Hidenori Takagi, Taito, all of Japan, assignors to University of Tokyo, Tokyo, Japan

Division of Ser. No. 470,011, Jan. 25, 1990, Pat. No. 5,143,895. This application Jun. 16, 1992, Ser. No. 899,277

Claims priority, application Japan, Jan. 25, 1989, 1-15549

Int. Cl.[5] C01F *17/00;* C01G *3/02;* H01L *39/00*

U.S. Cl. 505—1 1 Claim



1. A method for producing a superconducting oxide material, the material consisting essentially of a composition having a general chemical formula of

$$(R_{1-x}Ce_x)_{m+1}Cu_mO_{3m+1-y}$$

R being at least one rare earth element selected from the group consisting of Pr, Nd, Sm, Eu, Gd, Dy, Tb, Ho, Er, Tm, Yb, and Lu, m being an integer of 1, 2, 3, . . . ∞ (m=∞ standing for $(R_{1-x}A_x)CuO_{(3-y)}$), $0 \leqq x \leqq 1$, $0 \leqq y \leqq m$, and Cu in the material having an average valence of not larger than +2 for all R, A, m, x, and y, the method comprising mixing powdery starting materials for the composition, sintering the mixture at 1,000° to 1,100° C. in air, and heat treating the sintered mixture at 900° to 1,100° C. in a reducing atmosphere with an oxygen partial pressure of less than 10^{-2} atm., so as to form a crystal structure of either an Nd_2CuO_4 type or oxygen-deficient perovskite type.

5,214,027

PYRIDINE DERIVATIVES AND PERFUMERY COMPOSITIONS CONTAINING THE DERIVATIVES

Masakazu Ishihara, Mino; Tomoyuki Tsuneya, Ibaragi; Minoru Shiga, Toyonaka; Hiroshi Sato; Fumio Yoshida, both of Tokyo, and Keiichi Yamagishi, Narashino, all of Japan, assignors to Shiono Koryo Kaisha, Ltd., Osaka and Lion Corporation, Tokyo, both of Japan

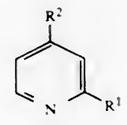
Filed Apr. 3, 1992, Ser. No. 863,241

Claims priority, application Japan, Apr. 11, 1991, 3-078799

Int. Cl.[5] A61K *7/46*

U.S. Cl. 512—10 2 Claims

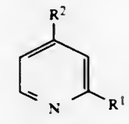
1. Pyridine derivatives of the generic formula (I):



(I)

wherein R^2 represents an isopropenyl when R^1 is a methyl or an ethyl group, R^2 represents an isopropnyl or an acetyl group when R^1 is an isopropenyl group, R^2 represents a methyl group when R^1 is an isopropyl group and R^2 represents an isopropenyl or an isopropyl group when R^1 is an acetyl group.

2. Perfumery compositions containing one or more of pyridine derivatives of the generic formula (I):



wherein R^2 represents an isopropenyl group when R^1 is a methyl or an ethyl group, R^2 represents an isopropenyl or an acetyl group when R^1 is an isopropenyl group, R^2 represents a methyl group when R^1 is an isopropyl group and R^2 represents an isopropenyl or an isopropyl group when R^1 is an acetyl group.

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5,214,028

LACTOFERRIN HYDROLYZATE FOR USE AS AN ANTIBACTERIAL AGENT AND AS A TYROSINASE INHIBITION AGENT

Mamoru Tomita, Yokohama; Kouzou Kawase, Urawa; Yoshitaka Tamura, Yokohama; Mitsunori Takase, Ohmiya; Hiroshi Miyakawa; Koji Yamauchi, both of Kamakura; Hitoshi Saito, Kawasaki; Hiroaki Abe, Yokosuka; Seiichi Shimamura, and Susumu Kobayashi, both of Yokohama, all of Japan, assignors to Morinaga Milk Industry Co., Ltd., Tokyo, Japan

Filed Dec. 27, 1990, Ser. No. 634,763

Claims priority, application Japan, Jan. 23, 1990, 2-13315; Jun. 26, 1990, 2-169636

Int. Cl.[5] C07K *3/10, 1/12*

U.S. Cl. 514—6 6 Claims

1. A method of tyrosinase inhibition comprising administering an amount of lactoferrin hydrolyzate having a decomposition rate of 4-50% effective for the inhibition of tyrosinase to a human or animal in need thereof.

5,214,029

INHIBITION OF MALIGNANT CELLS HAVING G_{M1} GANGLO-SIDE SITES BY ADMINISTRATION OF CHOLERA TOXIN

Jean Viallet, 723 Owens St., Rockville, Md. 20850; Edward Sausville, 1114 Nora Dr., Silver Spring, Md. 20904, and John D. Minna, 8520 Howell Rd., Bethesda, Md. 20817

Continuation of Ser. No. 438,643, Nov. 20, 1989, abandoned. This application Sep. 30, 1991, Ser. No. 767,578

Int. Cl.[5] A61K *39/02, 35/74*

U.S. Cl. 514—12 4 Claims

1. A method of treating malignancies comprising the steps of:

A) Subjecting malignant tissue from the patient to labelled beta subunit of cholera toxin;

B) Evaluating presence or absence of binding of labelled beta subunit to GM1 ganglioside;

C) If binding of the labelled subunit to the tissue is positive, administering to the patient a malignancy-inhibiting effective amount of cholera toxin.

5,214,030

CALCITONIN GENE-RELATED PEPTIDES FOR TREATING ERECTILE DYSFUNCTIONS

Georg Stief, Rehmenbreiten 6, D-3005 Hemmingen-Westerfeld, Fed. Rep. of Germany

PCT No. PCT/EP90/00644, § 371 Date Oct. 18, 1991, § 102(e) Date Oct. 18, 1991, PCT Pub. No. WO90/12586, PCT Pub. Date Nov. 1, 1990

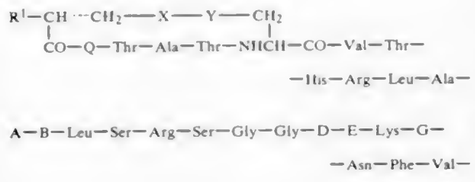
PCT Filed Apr. 21, 1990, Ser. No. 761,969

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1989, 3913954

Int. Cl.[5] A61K *37/00, 37/30;* C07K *5/00, 7/00*

U.S. Cl. 514—12 7 Claims

1. A method of treating erectile dysfunctions in mammals, which comprises: administering to said mammal a pharmaceutical composition comprising a therapeutically effective amount of an active agent selected from the group consisting of (a) a calcitonin gene-related peptide having the general formula:



-continued

Pro—Thr—Asn—Val—Gly—Ser—K—L—M—R^3

wherein R^1 is either a hydrogen atom or a radical of the general formula R^2—T— wherein T is Ala or Ser and R^2 is a hydrogen atom or an acyl radical containing up to 4 carbon atoms; X and Y are, independently, methylene radicals or sulphur atoms; Q is Asp or Asn; A is Asp, Asn, Glu or Gly; B is Phe or Leu; D is Met or Val; E is Gly or Val; G is Asn, Ser or Asp; K is Lys or Glu; L is selected from the group consisting of Ala, Phe, Pro, Glu, Ser, Ile, Leu, Val, Tyr, Hypro, Gln, Hse, Thr, Asp, and Asn; M is selected from the group consisting of Phe, Pro, Hypro, Tyr, Ala, Val, Leu, Ile, Ser, Thr, Asp, Asn, Glu, and Gln; and R^3 is a hydroxyl group, an amino group, or a peptide of the sequence -Gly-Arg-Arg-Arg-Arg-Asp-Leu-Gln-Ala, -Gly-Arg-Arg-Arg-Arg, or -Gly-Lys-Lys-Arg; (b) a peptide having the formula of (a) in which up to 10 amino acids of the C-terminal end of the peptide are omitted; and (c) pharmaceutically acceptable salts of the peptides defined in (a) or (b).

5,214,031

GROWTH-INHIBITORY FACTOR OBTAINED FROM HUMAN BRAIN

Yoko Uchida, 27-14, Kumano-machi, Itabashi-ku, Tokyo, Japan

Filed May 6, 1991, Ser. No. 696,051

Claims priority, application Japan, May 9, 1990, 2-119620; Dec. 13, 1990, 2-410164; Dec. 13, 1990, 2-410165

Int. Cl.[5] A61K *97/02;* C07K *7/00*

U.S. Cl. 514—12 4 Claims

1. A pure protein having a growth-inhibitory activity extracted from the human brain having a molecular weight of about 5000 (according to the SDS-polyacrylamide gel electrophoretic method) in the form of a white powder stable at a pH of 3.0 to 7.7 and thermally stable after incubation at 37° C. for 20 hours and after heating at 100° C. for 5 minutes.

5,214,032

GHL-CU PHARMACEUTICAL COMPOSITIONS AND COMPOUNDS

Loren R. Pickart, Bellevue, Wash., assignor to ProCyte Corporation, Bellevue, Wash.

Continuation-in-part of Ser. No. 442,440, Sep. 22, 1989, which is a continuation-in-part of Ser. No. 48,444, May 11, 1987, abandoned, which is a continuation-in-part of Ser. No. 699,824, Feb. 8, 1985, Pat. No. 4,665,054. This application Jun. 16, 1992, Ser. No. 899,378

Int. Cl.[5] A61K *37/02;* C07K *7/06*

U.S. Cl. 514—16 4 Claims

1. A pharmaceutical composition suitable for administration to warm-blooded animals for stimulating the growth of hair, comprising:

a derivative of GHL-Cu having the general formula:

copper(II)

wherein R is L-prolyl-L-valyl-L-phenylananyl-L-valine or L-valyl-L-phenylananyl-L-valine; and

a vehicle which adapts said composition for intradermal injection or topical application to a warm-blooded animal.

5,214,033

FACTOR VIII COAGULANT POLYPEPTIDES

Theodore S. Zimmerman, and Carol A. Fulcher, both of La Jolla, Calif., assignors to Scripps Clinic & Research Foundation, La Jolla, Calif.

Continuation of Ser. No. 232,795, Aug. 16, 1988, abandoned, which is a continuation of Ser. No. 16,214, Feb. 19, 1987, abandoned, which is a continuation of Ser. No. 481,105, Mar. 31, 1983, abandoned. This application Jul. 15, 1991, Ser. No. 730,193

The portion of the term of this patent subsequent to Aug. 15, 2006, has been disclaimed.

Int. Cl.[5] A61K *37/02;* C07K *15/06;* C12N *9/74*

U.S. Cl. 514—21 23 Claims

1. A Factor VIII:C coagulant polypeptide complex characterized in that:

(i) the complex consisting essentially of more than one polypeptide which exhibit bands at points corresponding to M_r values of about 92,000, about 80,000, and about 79,000, or of about 92,000, about 72,000, and about 71,000, when subjected to sodium dodecyl sulfatepolyacrylamide gel electrophoresis;

(ii) the complex does not contain polypeptides which exhibit bands at points corresponding to M_r values greater than about 92,000 when subjected to sodium dodecyl sulfatepolyacrylamide gel electrophoresis;

(iii) the complex exhibits specific coagulant activity higher than that of purified human Factor VIII:C which has not been activated by thrombin;

(iv) the complex exhibits the activity in step (iii) over a continuous period of at least about 10 minutes; and

(v) the complex binds to an antibody for human Factor VIII:C.

5,214,034

CATECHOL DERIVATIVES, AND PREVENTIVE AND REMEDIAL PREPARATIONS FOR REGRESSIVE DISORDERS IN THE CENTRAL NERVOUS SYSTEM CONTAINING THE SAME

Shigenobu Nakayama, Mihara, and Fumiaki Ikeda, Takashi, both of Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

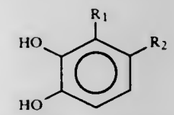
Division of Ser. No. 606,817, Oct. 31, 1990, Pat. No. 5,102,906, which is a division of Ser. No. 481,677, Feb. 20, 1990, Pat. No. 4,985,458, which is a continuation of Ser. No. 098,554, Sep. 21, 1987, abandoned. This application Dec. 3, 1991, Ser. No. 801,866

Claims priority, application Japan, Sep. 26, 1986, 61-226135; Dec. 22, 1986, 61-303761; Feb. 20, 1987, 62-035697; May 27, 1987, 62-128444

Int. Cl.[5] A61K *31/60, 31/235*

U.S. Cl. 514—159 6 Claims

1. A method of inducing the production and secretion of nerve growth factor, comprising administering to a person in need thereof an amount of a compound of the formula



wherein R_1 and R_2 are each, independently, a hydrogen atom or a lower alkyl group, sufficient to induce the production and secretion of nerve growth factor, wherein said administering is by oral administration.

5,214,035

THIXOTROPIC FORMULATIONS

James L. Veatch, Asbury, N.J., assignor to Hoechst-Roussel Agri-Vet Company, Somerville, N.J.

Filed Apr. 16, 1992, Ser. No. 869,586

Int. Cl.[5] A61K *31/575*

U.S. Cl. 514—179 11 Claims

1. A stable, gel which can be administered to animals orally by syringe, which gel is a non-aerated composition comprising an effective amount of estrus suppressing active ingredient, solvent and gelling agent and has an RVT Brookfield static viscosity of from about 100,000 to about 700,000 cps at room temperature wherein said active ingredient is altrenogest.

5,214,036

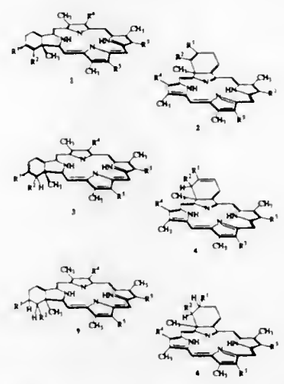
BENZOPORPHYRIN DERIVATIVES FOR PHOTODYNAMIC THERAPY

Beth A. Allison; Anna M. Richter; P. Haydn Pritchard, and Julia G. Levy, all of Vancouver, Canada, assignors to University of British Columbia, Britisb Columbia, Canada

Filed Mar. 8, 1990, Ser. No. 491,674

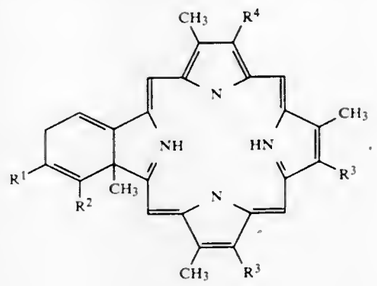
Int. Cl.[5] A61K *31/40, 47/42*

U.S. Cl. 514—185 6 Claims



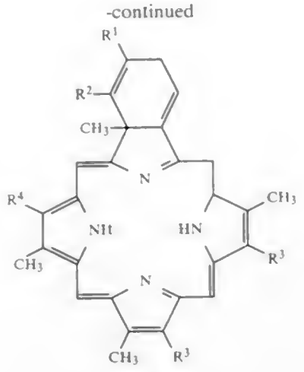
1. A pharmaceutical composition for photodynamic therapy comprising:

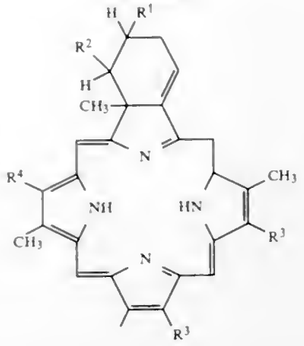
a green porphyrin compound having a formula selected from the group consisting of

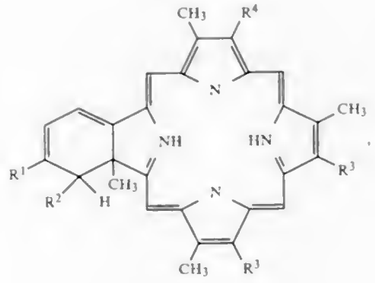


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-continued







wherein

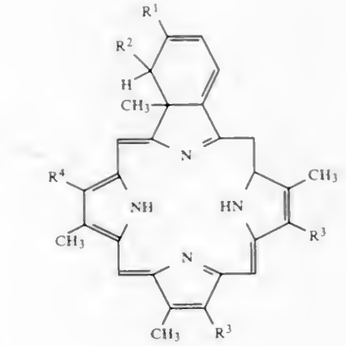
R^1 and R^2 are independently selected from the group consisting of hydrogen, carbalkoxy (2–6 C), alkyl (1–6 C) sulfonyl, aryl (6–10 C) sulfonyl, aryl (6–10 C), and cyano, further wherein at least one of R^1 and R^2 is not hydrogen;

each R^3 is independently selected from the group consisting of alkyl (1–6 C), carboxyalkyl (2–6 C) and salts and esters thereof; and

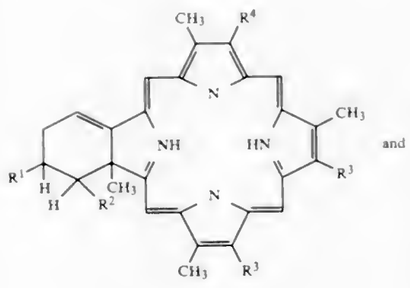
R^4 is selected from the group consisting of —CH=CH_2, —CH_2OR', —CHO, —COOR', —$CH(OR')CH_3$, —$CH(OR')CH_2OR'$, —$CH(SR')CH_3$, —$CH(NR'_2)CH_3$, —$CH(CN)CH_3$, —$CH(COOR')CH_3$, —$CH(OOCR')CH_3$, —$CH(halo)CH_3$, and —$CH(halo)CH_2$-(halo), wherein each R' is hydrogen or alkyl (1–6 C);

a lipocomplex; and

a pharmaceutically acceptable injectable carrier solution.



and



5,214,037

THIOALKYLTHIO CEPHALOSPORIN DERIVATIVES

Tadatoshi Kubota, Habikino, and Masaharu Kume, Amagasaki, both of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

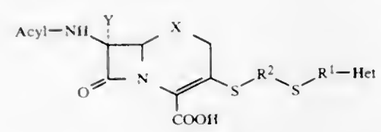
Filed Jul. 12, 1991, Ser. No. 729,413

Claims priority, application Japan, Jul. 19, 1990, 2-191889; Oct. 25, 1990, 2-289772; Nov. 21, 1990, 2-319578; Jun. 19, 1991, 3-147357

Int. Cl.[5] C07D *501/24;* A61K *31/545*

U.S. Cl. 514—206 **17 Claims**

1. A compound of formula I:



wherein Acyl is C_1–C_{12} acyl; Het is a 5- or 6-membered ring containing 1 or more than one hetero atoms selected from nitrogen, sulfur, or oxygen optionally substituted by lower alkyl; R^1 is a single bond or C_1–C_4 alkylene; R^2 is a straight or branched C_1–C_4 alkylene; X is a sulfur atom or sulfoxide group; and Y is a hydrogen atom or methoxy group, or a pharmaceutically acceptable salt thereof of a derivative which is optionally protected at the —COOH group.

5,214,038

1-(PYRIDO[3,4-B]-1,4-OXAZINYL-4-YL)-1H-INDOLES AND INTERMEDIATES FOR THE PREPARATION THEREOF

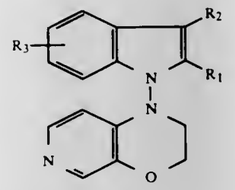
Richard C. Effland, Bridgewater; Larry Davis, Sergeantsville, and Gordon E. Olsen, Somerset, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Filed Apr. 15, 1991, Ser. No. 684,758

Int. Cl.[5] C07D *498/04;* A61K *31/535, 31/55*

U.S. Cl. 514—212 **12 Claims**

1. A compound of the formula

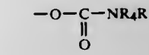


wherein

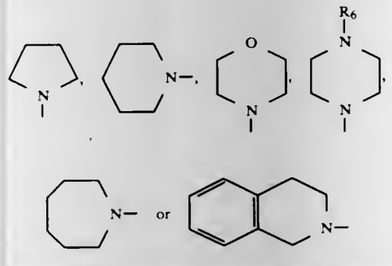
R_1 is hydrogen or loweralkyl;

R_2 is hydrogen or loweralkyl; and

R_3 is hydrogen, loweralkyl, halogen, nitro, amino, hydroxy, loweralkoxy, benzyloxy or



where R_4 is hydrogen or loweralkyl and R_5 is loweralkyl, aryl or arylloweralkyl, or R_4 and R_5 taken together from a heterocyclic ring selected from the group consisting of



wherein R_6 is hydrogen, loweralkyl, aryl or arylloweralkyl, the term aryl signifying a phenyl group substituted with 0, 1 or 2 substituents each of which being independently loweralkyl, loweralkoxy, halogen or trifluoromethyl, or a pharmaceutically acceptable acid addition salt thereof.

11. A method of treating a patient in need of relief from a memory dysfunction characterized by a cholinergic or adrenergic deficit which comprises administering to such a patient an effective amount of a compound as defined in claim 1.

12. A method of treating a patient in need of relief from depression which comprises administering to such a patient an effective amount of a compound as defined in claim 1.

5,214,039

BICYCLOLACTAM DERIVATIVE FOR IMPROVING CEREBRAL FUNCTION

Akihiro Kawaguchi; Atsushi Satoh, both of Hannou; Makoto Kajitani, Hidaka; Mitsugi Yasumoto, Honjo, and Junji Yamamoto, Tokushima, all of Japan, assignors to Taiho Pharmaceutical Co., Limited, Tokyo, Japan

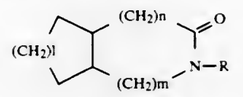
Division of Ser. No. 768,074, Oct. 1, 1991. This application Aug. 5, 1992, Ser. No. 925,047

Claims priority, application Japan, Feb. 2, 1990, 2-24754

Int. Cl.[5] A61K *31/40;* C07D *209/46*

U.S. Cl. 514—213 **5 Claims**

1. A bicyclolactam derivative represented by the formula



(1)

wherein R is benzoyl group which may be substituted with halogen atom, lower alkyl group, lower alkoxyl group, nitro group, cyano group or amino group; l is 2; m is 1; and n is 0, 1 or 2.

5,214,040

NONSADITIVE ANTIHISTAMINICS DERIVED FROM BENZIMIDAZOLES

Maria R. Cuberes-Altisent; Jordi Frigola-Constansa, and Juan Pares-Corominas, all of Barcelona, Spain, assignors to Laboratorios del Dr. Esteve, S.A., Barcelona, Spain

Filed Apr. 3, 1992, Ser. No. 863,208

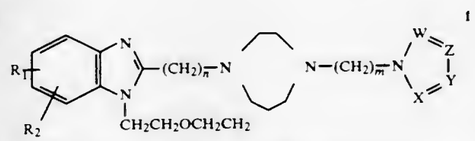
Claims priority, application France, Apr. 5, 1991, 91 04171

Int. Cl.[5] A61K *31/55;* C07D *403/14*

U.S. Cl. 514—218 **3 Claims**

1. A compound derived from benzimidazole characterized in that it is of the formula I, and its therapeutically acceptable salts.

I



in which:

R_1 and R_2, which are identical or different, represent a hydrogen or a halogen atom, a lower alkyl radical, or a hydroxyl radical,

n may take the values 0 or 1,

m may take the values 2 to 4,

X, Y, Z and W, which are identical or different, represent a nitrogen atom or a carbon atom linked to a hydrogen or to a halogen atom, or to another lower alkyl, hydroxyl, or sulphonic acid radical, or to a carboxyl or alkoxycarbonyl radical having up to two carbon atoms in its alkoxy position.

5,214,041

HAIR REVITALIZING TONIC COMPOSITION

Akihiro Ishino; Kiyoshi Miyazawa, and Seishiro Fujii, all of Yokohama, Japan, assignors to Shiseido Company Ltd., Ginza, Japan

PCT No. PCT/JP90/00765, § 371 Date Apr. 8, 1991, § 102(e) Date Apr. 8, 1991, PCT Pub. No. WO90/15588, PCT Pub. Date Dec. 27, 1990

PCT Filed Jun. 12, 1990, Ser. No. 655,363

Claims priority, application Japan, Jun. 12, 1989, 1-148617

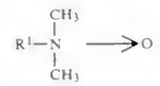
Int. Cl.[5] A61K *31/54*

U.S. Cl. 514—223.5 **1 Claim**

1. A hair revitalizing tonic composition comprising Verapamil and at least one amine oxide selected from the group con-

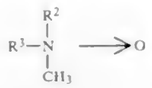
VOL 1150 ISS 4 MY 25 1993 UMI

sisting of amine oxides having the formulae (A), (B), (C) and (D):



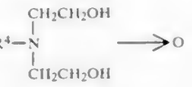
(A)

wherein R^1 represents a straight-chain or branched alkyl or alkenyl group having 8 to 24 carbon atoms;



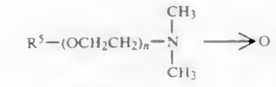
(B)

wherein R^2 and R^3 each independently represent a straight-chain or branched alkyl or alkenyl group having 6 to 18 carbon atoms;



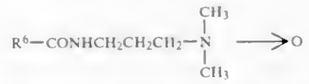
(C)

wherein R^4 represents a straight-chain or branched alkyl or alkenyl group having 8 to 24 carbon atoms;



(D)

wherein R^5 represents a straight chain or branched alkyl or alkenyl group having 8 to 24 carbon atoms and n is an integer of 1 to 5; and



(E)

wherein R^6 represents a straight-chain or branched alkyl or alkenyl group having 8 to 24 carbon atoms wherein the weight ratio of the amine oxide to the Verapamil is from 10,000:1 to 1:10,000.

5,214,042

USE OF 5-PHENYL-2-FURAN ESTERS, AMIDES AND KETONES AS NEUROPROTECTIVE AGENTS

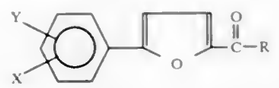
Eugene G. Drust, Norwich, N.Y., assignor to Norwich Eaton Pharmaceuticals, Inc., Norwich, N.Y.

Division of Ser. No. 371,351, Jun. 23, 1989, Pat. No. 5,118,708. This application Mar. 18, 1992, Ser. No. 855,361

Int. Cl.[5] A61K *31/41, 31/445, 31/525, 31/535*

U.S. Cl. 514—231.5 **17 Claims**

1. A method of limiting neuronal death or degeneration in a human or lower animal subject, comprising systemically administering to said subject a safe and effective amount of a compound of the formula;



wherein:

(a) X is halo or hydrogen, Y is a substituent selected from the group consisting of unsubstituted or halogen-substituted methyl, halo, nitro, amino, and methoxy; and

(b) R is $R^1C(O)N(R^3)_2$, $N(R^2)_2$, $OR^1N(R^3)_2$, $R^1N(R^3)_2$, $N(R^2)R^1N(R^3)_2$, or $N(R^2)N(R^3)_2$; where

R^1 is C_1–C_3 alkyl which is unsubstituted or substituted with C_1–C_2 alkyl;

R^2 is hydrogen or lower alkyl; and both R^3 groups are connected to form a saturated 5- or 6-membered heterocycle containing 1 or 2 heteroatoms selected from oxygen and nitrogen and said heterocycle is unsubstituted or substituted with lower alkyl or hydroxy-substituted lower alkyl;

or a pharmaceutically acceptable salt of ester thereof.

5,214,043

PARASITICIDAL SUBSTITUTED HEXAHYDRO-1,2,4-TRIAZINEDIONES

Werner Lindner, Cologne, and Axel Haberkorn, Wuppertal, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 459,895, Jan. 2, 1990, Pat. No. 5,114,938. This application Jan. 9, 1992, Ser. No. 818,718

Claims priority, application Fed. Rep. of Germany, Jan. 9, 1989, 3900373

Int. Cl.[5] C07D *253/075;* **A61K** *31/53*

U.S. Cl. 514—242 **9 Claims**

1. A substituted hexahydro-1,2,4-triazinedione of the formula

(I)

or a pharmaceutically acceptable salt thereof, wherein:

R is a thienyl, benzothienyl, furyl or benzofuranyl group, said group being optionally substituted by up to three substituents each independently selected from the group consisting of nitro, halo, $(C_1$–$C_4)$alkyl, $(C_1$–$C_4)$alkoxy, hydroxy, aryl$(C_1$–$C_4)$alkoxy, fluoro $(C_1$–$C_4)$alkoxy, $(C_1$–$C_4)$alkylthio, $(C_1$–$C_4)$alkanesulphonyl, trifluoromethyl and cyano;

R^1 is hydrogen or $(C_1$–$C_4)$alkyl;

R^2 is pyridyl, pyrimidinyl, pyridazinyl or pyrazinyl;

R^3 is $(C_1$–$C_4)$alkyl or aryl$(C_1$–$C_4)$alkyl; and

R^4 is an imidazolyl or triazolyl group, said group being optionally benzo-, pyrido-, pyridazino-, pyrimido- or pyrazino-fused and optionally substituted by up to three substituents each independently selected from the group consisting of $(C_1$–$C_4)$alkyl, $(C_1$–$C_4)$alkoxy, trifluoromethyl and halo.

5,214,044

1,4-DIHYDROPYRIDINES USEFUL AS PHARMACEUTICALS

Kelvin Cooper, Noank, Conn., and Michael J. Fray, Nr. Canterbury, England, assignors to Pfizer Inc., New York, N.Y.

PCT No. PCT/EP90/00336, § 371 Date Sep. 18, 1991, § 102(e) Date Sep. 18, 1991, PCT Pub. No. WO90/11280, PCT Pub. Date Oct. 4, 1990

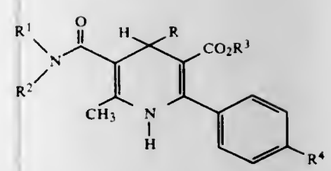
PCT Filed Feb. 22, 1990, Ser. No. 762,013

Claims priority, application United Kingdom, Mar. 20, 1989, 8906324

Int. Cl.[5] A61K *31/44;* **C07D** *471/04*

U.S. Cl. 514—248 **11 Claims**

1. A compound of the formula



(I)

or a pharmaceutically acceptable salt thereof, wherein:

R is a thienyl, benzothienyl, furyl or benzofuranyl group, said group being optionally substituted by up to three substituents each independently selected from the group consisting of nitro, halo, $(C_1$–$C_4)$alkyl, $(C_1$–$C_4)$alkoxy, hydroxy, aryl$(C_1$–$C_4)$alkoxy, fluoro $(C_1$–$C_4)$alkoxy, $(C_1$–$C_4)$alkylthio, $(C_1$–$C_4)$alkanesulphonyl, trifluoromethyl and cyano;

R^1 is hydrogen or $(C_1$–$C_4)$alkyl;

R^2 is pyridyl, pyrimidinyl, pyridazinyl or pyrazinyl;

R^3 is $(C_1$–$C_4)$alkyl or aryl$(C_1$–$C_4)$alkyl; and

R^4 is an imidazolyl or triazolyl group, said group being optionally benzo-, pyrido-, pyridazino-, pyrimido- or pyrazino-fused and optionally substituted by up to three substituents each independently selected from the group consisting of $(C_1$–$C_4)$alkyl, $(C_1$–$C_4)$alkoxy, trifluoromethyl and halo.

5,214,045

AMINO ACID CONTAINING ACRYLAMIDE DERIVATIVES FOR ULCER PREVENTION OR TREATMENT

Tamas Fodor; Janos Fischer; Laszlo Dobay; Elemer Ezer; Judit Matuz, Saghy; Katalin; Laszlo Szporny, and György Hajos, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar RT, Budapest, Hungary

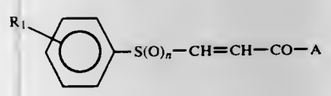
Filed Jul. 11, 1990, Ser. No. 551,518

Claims priority, application Hungary, Jul. 14, 1989, 3571/89

Int. Cl.[5] A61K *31/50, 31/41;* **C07D** *241/04;* **C07C** *301/02*

U.S. Cl. 514—255 **14 Claims**

1. A compound of the Formula (I)



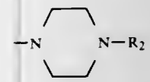
(I)

wherein

R_1 represents a hydrogen or a halogen atom or a C_{1-4}alkyl, a C_{1-4}alkoxy or a nitro group;

n is an integer of 0 to 2,

A represents an amino acid radical derived from a naturally occurring amino acid selected from (s)-alanine, (s)-aspartic acid, (s)-methionine, (s)-proline or glycine which is bonded to the acrylic acyl radical through its amino group; or a radical derived from thiazolidinecarboxylic acid bonded to the acrylic acyl group through its nitrogen heteroatom; or a derivative of the above radical wherein any free carboxy group is esterified with a C_{1-4}alkyl group or is amidated; or A represents a group of the formula



(II)

wherein R_2 is a hydrogen atom or a phenyl, C_{1-4}alkyl or a C_{1-4}alkoxycarbonyl group, or a salt thereof.

5,214,046

SUBSTITUTED AMINOALKOXYBENZENE ANTI-FUNGICIDAL COMPOSITIONS AND USE

Philippe Guerry, Basel; Synèse Jolidon, Birsfelden, and René Zurflüh, Bülach, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

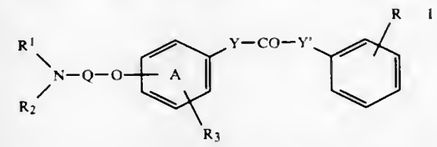
Division of Ser. No. 556,241, Jul. 20, 1990, Pat. No. 5,106,878. This application Feb. 6, 1992, Ser. No. 832,190

Claims priority, application Switzerland, Jul. 27, 1989, 2798/89; May 8, 1990, 1553/90

Int. Cl.[5] A61K *31/135*

U.S. Cl. 514—255 **23 Claims**

1. A method for treating a mammal having an infection caused by pathogenic fungi, which comprises administering to said mammal a compound having the formula

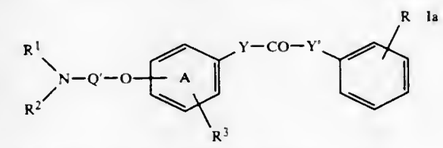


I

wherein each of R^1 and R^2 individually is hydrogen, lower alkyl or lower alkenyl or together are straight-chain alkylene with 2 to 4 carbon atoms, R^3 is hydrogen, halogen or lower alkyl, Q is alkylene with 4 to 11 carbon atoms and at least 4 carbon atoms between the two free valencies or alkenylene with 4 to 11 carbon atoms and at lest 4 carbon atoms between the two free valencies and each of Y and Y' individually is a direct bond or the group $—CH_2—$, $—CH_2CH_2—$, —CH=CH— or —C≡C—, the group $R^1R^2N—Q—O$ is attached to the 3- or 4-position of ring A and the symbol R designates that the ring to which it is attached is unsubstituted or is substituted with at least one substituent selected from the group consisting of halogen, trifluoromethyl, cyano, nitro, lower alkyl and lower alkoxy,

or a pharmaceutically acceptable acid addition salt thereof, in an amount which is effective in treating an infection caused by pathogenic fungi together with an antifungally-active substance which is present in an amount effective to inhibit sterol biosynthesis.

11. A pharmaceutical composition which comprises a therapeutically effective amount of a compound having the formula



Ia

wherein each of R^1 and R^2 together are straight-chain alkylene with 2 to 4 carbon atoms, R^3 is hydrogen, halogen or lower alkyl, Q' is alkylene with 5 carbon atoms and at least 5 carbon atoms between the two free valencies or alkenylene with 4 to 11 carbon atoms and at least 4 carbon atoms between the two free valencies and each of Y and Y' is individually but is not simultaneously a direct bond or each of Y and Y' is the group $—CH_2—$, $—CH_2CH_2—$, —CH=CH— or —C≡C—, the group $R^1R^2N—Q—O—$ is attached to the 3- or 4-position of ring A and the symbol R designates that the ring to which it is attached is unsubstituted or is substituted with at least one substituent selected from the group consisting of halogen, trifluoromethyl, cyano, nitro, lower alkyl and lower alkoxy,

or a pharmaceutically acceptable acid addition salt thereof, together with an antifungally-active substance which is present in an amount effective to inhibit sterol biosynthesis.

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5,214,047

TETRACYCLIC QUINAZOLINE DERIVATIVES, EFFECTIVE AS ANTIARRYTHMIC AGENTS

Bernd Ostersehlt, Maxdorf; Rainer Schlecker, Bissersheim; Beatrice Rendenbach, Waldsee; Gerda von Philipsborn, Weinheim, and Albrecht Franke, deceased, late of Wachenheim, all of Fed. Rep. of Germany by Renate E. Franke, Catharina Franke, Tobias Franke, legal representatives , assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

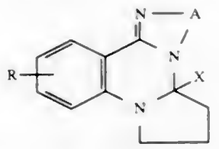
Filed Sep. 12, 1988, Ser. No. 243,469

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1987, 3730718

Int. Cl.[5] A61K *31/505;* **C07D** *487/14*

U.S. Cl. 514—257 **5 Claims**

1. A tetracyclic quinazoline derivative of the formula I:



wherein A is C_{2-3}-alkylene or C_{2-3}-alkylene which is substituted by one or two C_{1-4}-alkyl radicals or A is cyclohexylene; X is phenyl, naphthyl or phenyl or naphthyl which is substituted by halogen, nitro, amino, C_{1-4}-alkylamino, sulfonylamino, C_{1-4}-acylamino, hydroxyl, C_{1-4}-alkoxy, $-O-(CH_2)_{2-4}-NR^1R^2$, C_{1-4}-alkyl or C_{1-4}-alkylsulfonyl, wherein R^1 and R^2 are each hydrogen or C_{1-4}-alkyl; or X is thienyl or thienyl which is substituted by chlorine, fluorine, methyl, ethyl, methoxy, ethoxy, nitro or hydroxyl; and R is hydrogen, halogen, nitro, amino, C_{1-4}-alkylamino, sulfonylamino, C_{1-4}-acylamino, hydroxyl, C_{1-4}-alkoxy, $-O-(CH_2)_{2-4}-NR^3R^4$, C_{1-4}-alkyl or C_{1-4}-alkylsulfonyl, wherein R^3 and R^4 are each hydrogen or C_{1-4}-alkyl, and the pharmaceutically acceptable salts thereof.

4. A therapeutic composition, comprising an effective amount of a compound of claim 1 as an active ingredient, and a pharmaceutically acceptable carrier.

5. A method of treating atrial and ventricular dysrhythmias in a patient suffering therefrom, which comprises administering an effective amount of a compound of claim 1 to said patient.

5,214,048

OXETANOCINS

Nobuyoshi Shimada, Tokyo; Shigeru Hasegawa, Yono; Takayuki Tomizawa, Machida; Seiichi Saito, Kashiwa; Kyoichi Shibuya, Urawa; Akio Fujii, Kamakura; Hiroo Hoshino, Maebashi; Kenichi Matsubara, Suita; Takemitsu Nagahata, Toyonaka; Katsutoshi Takahashi, Tokyo, and Yukihiro Nishiyama, Aichi, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

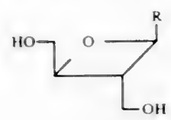
Continuation-in-part of Ser. No. 07/194,419, May 13, 1988, abandoned. This application Nov. 20, 1989, Ser. No. 439,270

Claims priority, application Japan, May 19, 1987, 62-120159; Oct. 30, 1987, 62-273266; Dec. 11, 1987, 62-312280

Int. Cl.[5] A61K *31/52;* **C07D** *473/34, 473/18, 473/30*

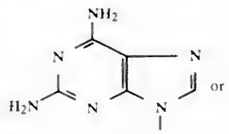
U.S. Cl. 514—262 **7 Claims**

1. An oxetanocin of the following formula (I) and pharmacologically acceptable salts thereof:

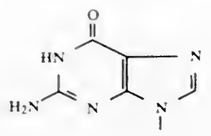


(I)

wherein R is a group represented by

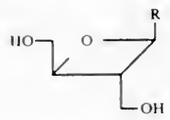


(2-Amino-OXT-A)



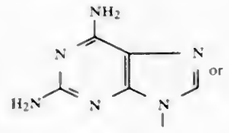
(OXT-G)

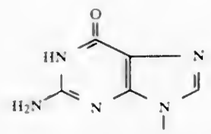
3. A method for treating a disease caused by DNA virus in a warm-blooded animal which comprises administering an oxetanocin represented by the following general formula (I) and pharmacologically acceptable salts thereof:



(I)

wherein R is a group represented by





in an effective amount to the said warm-blooded animal.

5,214,049

RESIN COMPOSITION

Takashi Maruyama, Kobe, and Yukio Mizuno, Niihama, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation of Ser. No. 429,005, Oct. 30, 1989, abandoned. This application Dec. 12, 1991, Ser. No. 806,784

Claims priority, application Japan, Nov. 9, 1988, 63-284125

Int. Cl.[5] C08K *5/09*

U.S. Cl. 524—291 **11 Claims**

1. A resin composition having superior impact resistance and moldability, which consists essentially of:

(a) a polyphenylene ether resin,

(b) a thermoplastic polyester resin,

(c) a compound represented by the formula:

$$(HO)_mR^1(COOR^2)_n$$

as a compatibilizing agent between (a) and (b), and

(d) optionally, at least one member selected from the group consisting of rubbery polymer, and alkenyl aromatic resin;

wherein R^1 represents straight or branched chain saturated aliphatic hydrocarbon of **2–20** carbon atoms, R^2 represents hydrogen or alkyl or aryl of **1–20** carbon atoms and R^1 and R^2 may be identical or different and m and n each represents an integer of **1** or more or a derivative thereof.

5,214,050

ESTERS OF CASTANOSPERMINE IN THE TREATMENT OF CEREBRAL MALARIA

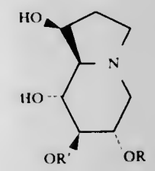
Alan J. Bitonti, Maineville, Ohio; Peter P. McCann, Lebanon, Ind., and Albert Sjoerdsma, Cincinnati, Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 422,869, Oct. 17, 1989, abandoned. This application Mar. 5, 1992, Ser. No. 846,656

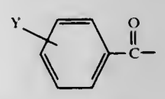
Int. Cl.[5] A01N *43/42;* **A61K** *31/44*

U.S. Cl. 514—299 **1 Claim**

1. A method of treating cerebral malaria by reducing the adhesion of Plasmodium species infected blood cells to the vascular endothelial wall in a patient in need thereof which comprises intravenously administering to the patient a therapeutically effective amount of a castanospermine ester of the formula



wherein R and R′ are independently hydrogen, C_{1-18} alkanoyl, C_{3-18} alkanoyl, and



wherein Y is hydrogen, C_{1-4} alkyl, or C_{1-4} alkoxy; with R and R′, with the proviso that one of R or R′, but not both, must be hydrogen; or a pharmaceutically acceptable salt thereof.

5,214,051

THIAZOLYL AND OXAZOLYL[5,4-C]PIPERIDYL-SUBSTITUTED QUINOLONE-CARBOXYLIC ACID AND RELATED ANALOGS THEREOF HAVING ANTIBACTERIAL PROPERTIES ARE DISCLOSED

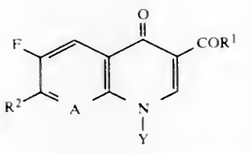
Katherine E. Brighty, Groton; John A. Lowe, III, Stonington, and Paul R. McGuirk, Gales Ferry, all of Conn., assignors to Pfizer Inc., New York, N.Y.

Division of Ser. No. 435,496, Aug. 1, 1989, Pat. No. 5,037,834. This application May 16, 1991, Ser. No. 701,258

Int. Cl.[5] C07D *471/04;* **A61K** *31/44*

U.S. Cl. 514—301 **8 Claims**

1. A compound of the formula



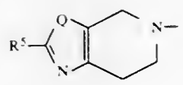
or a pharmaceutically acceptable acid addition salt thereof, wherein

Y, when taken independently is (C_1-C_3)alkyl, (C_1-C_3)hydroxyalkyl, vinyl, (C_1-C_3)haloalkyl wherein halo is fluoro or chloro, cyclopropyl, o,p-difluorophenyl, or p-fluorophenyl;

A is C—H, C—F, C—Cl, or C—OCH_3,

R^1 is hydroxy, (C_1-C_6)alkoxy, amino, (C_1-C_6) alkylamino, or OM wherein M is a pharmaceutically acceptable cation; and

R^2 is



wherein

Q is O, S or NH,

R^5 is hydrogen, (C_1-C_5)alky, hydroxy, amino amino(C_1-C_4)alkyl, di(C_1-C_4)alkylamino, (C_1-C_4)alkylamino, (C_1-C_4)alkylamino-(C_1-C_4)alkyl, phenylamino, pyridylamino, or $(H_2N)_2C{=}N$.

5,214,052

METHOD FOR DISSOLVING ARGININEAMIDES AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Kunihiko Ofuchi, and Tatsuo Nomura, both of Hasaki, Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

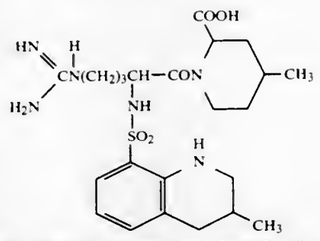
Continuation of Ser. No. 577,042, Aug. 30, 1990, abandoned, which is a continuation of Ser. No. 223,152, Jul. 22, 1988, abandoned. This application Mar. 13, 1992, Ser. No. 851,248

Claims priority, application Japan, Jul. 28, 1987, 62-188484

Int. Cl.[5] A61K *9/08, 31/445, 47/00*

U.S. Cl. 514—315 **4 Claims**

1. A method for dissolving an argininеamide, comprising: dissolving N^2-arylsulfonyl-L-argininamide represented by formula (1):



(I)

and/or its salt in a solvent containing ethanol, water and a saccharide.

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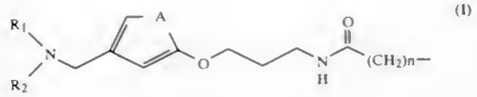
5,214,053

THIOUREA DERIVATIVES AND ANTIMICROBIAL AGENT AND ANTIULCER AGENT CONTAINING THE SAME

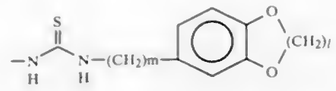
Keiichi Nakazawa, Hadano; Masashi Isozaki, Odawara, and Shingo Koyama, Hadano, all of Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 2, 1992, Ser. No. 939,692
Claims priority, application Japan, Sep. 6, 1991, 3-227466
Int. Cl.[5] C07D *211/06*
U.S. Cl. 514—318 20 Claims

1. A thiourea derivative represented by the general formula (I)



(I)



wherein R_1 and R_2 are the same or different and each represents a lower alkyl group, or R_1 and R_2 taken together represent a group having the formula $-(CH_2)_x-CHR_3-(CH_2)_y-$ in which R_3 represents hydrogen or a lower alkyl group and x and y represent an integer of 0 to 2, respectively, A represents the formula —CH=CH— or —CH'N—, l is 1 or 2, m represents an integer of 0 to 2 and n represents an integer of 1 to 5 or physiologically acceptable salt thereof.

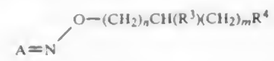
5,214,054

AZACYCLIC CARBOXYLIC ACID DERIVATIVES AND THEIR PREPARATION AND USE

Lars J. S. Knutsen; Knud E. Andersen, both of Bagsvaerd; Anker S. Jorgensen, Copenhagen, and Ursula Sonnewald, Ballerup, all of Denmark, assignors to Novo Nordisk A/S, Målov, Denmark

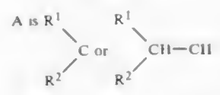
Division of Ser. No. 350,151, May 10, 1989, Pat. No. 5,039,685.
This application Jul. 17, 1990, Ser. No. 554,246
Claims priority, application Denmark, May 18, 1988, 2704/88
Int. Cl.[5] C07D *307/02, 405/00, 409/00;* A61K *31/445*
U.S. Cl. 514—318 32 Claims

1. An O-substituted oxime of the formula I

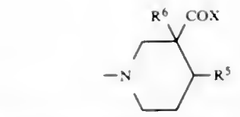


(I)

wherein



wherein at least one of R^1 and R^2, represents an aromatic moiety selected from the group consisting of imidazolyl, phenyl, pyrrolyl, and pyridinyl, and the other represents phenyl, each ring optionally being substituted by one, two or three substituents selected from the group consisting of lower alkylamino, lower alkylthio, lower alkoxy, amino, azido, cyano, halogen, hydroxy, lower alkyl, nitro, mercapto and trifluoromethyl; R^3 represents hydrogen or lower alkyl; n and m are numbers from 0 to 2; R^4 represents a cyclic amino acid moiety of formula II,



(II)

R^5 represents hydrogen or hydroxy; R^6 represents hydrogen, or R^5 together with R^6 represents an additional bond; and X represents NH_2 or R^9, in which R^9 represents hydroxy or alkoxy, or a pharmaceutically-acceptable acid addition salt thereof, or, when R^9 represents hydroxy, a pharmaceutically-acceptable metal salt thereof of an, optionally-substituted ammonium salt thereof.

5,214,055

AMINOPIPERIDINE 4-OXO-4H-CHROMEN-2-YL COMPOUNDS

Jean-Louis Peglion, and Francis Colpaert, both of Le Vesinet, France, assignors to Adir et Compagnie, Courbevoie, France

Division of Ser. No. 702,591, May 17, 1991. This application Apr. 15, 1992, Ser. No. 869,325
Claims priority, application France, May 18, 1990, 90 06220
Int. Cl.[5] C07D *14/00;* A61K *7/18*
U.S. Cl. 514—320 15 Claims

1. A compound selected from these of formula I

(I)

in which:

m represents zero, 1, 2, 3, or 4,

n represents 1 and p represent zero, 1 or 2,

W represents oxygen, —NH—, or a single bond,

R represents: 4-oxo-4H-chromen-2-yl of formula F:

(F)

in which:

R_7, R_8 and R_9, which may be the same or different, each represents hydrogen, halogen, (C_1-C_6) -alkyl or -alkoxy, polyhalogenated (C_1-C_6) alkyl, hydroxy, or R_7 and R_8 or R_8 and R_9 together form methylenedioxy, ethylenedioxy, furan ring or dihydrofuran ring and

R_1 represents hydrogen or (C_1-C_6) alkyl, or carbocyclic aryl;

R_2 represents hydrogen, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_4-C_7) cycloalkyl, benzyl or phenyl (each optionally substituted by one or more halogen, hydroxy, (C_1-C_6) -alkyl or -alkoxy, (C_7-C_{12}) aralkyl, (C_2-C_7) alkoxyalkyl or polyhalogenated (C_1-C_6) alkyl, the optical isomers thereof and the addition salts thereof with a pharmaceutically acceptable organic or mineral acid.

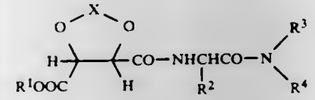
5,214,056

1,3,2-DIOXATHIOLANE OXIDE DERIVATIVE

Jun-ichi Haruta; Masahiro Tanaka; Itsuo Uchida, all of Yokohama; Akira Ohta, and Shin Hara, both of Hadano, all of Japan, assignors to Japan Tobacco Inc., Tokyo, Japan

PCT No. PCT/JP90/01704, § 371 Date Aug. 20, 1991, § 102(e) Date Aug. 20, 1991, PCT Pub. No. WO91/09851, PCT Pub. Date Jul. 11, 1991
PCT Filed Dec. 26, 1990, Ser. No. 752,622
Claims priority, application Japan, Dec. 27, 1989, 1-336247; Aug. 13, 1990, 2-211682
Int. Cl.[5] A61K *31/39, 31/445;* C07D *327/10, 211/26*
U.S. Cl. 514—326 23 Claims

1. A 1,3,2-dioxathiolane oxide derivative represented by the following formula:



[I]

wherein

X represents —S(O)— or —$S(O)_2$—,

R^1 represents a hydrogen atom, an alkali metal atom, a benzyl group, or a lower alkyl group,

R^2 represents a lower alkyl group or a lower alkyl group which is substituted with a methylthio group, or a benzyl group, and

R^3 and R^4 may be the same or different and independently represent a hydrogen atom, an alkyl group having one to ten carbon atoms, a lower alkyl group substituted with a guanidyl group, a cycloalkyl group having 3 to 6 carbon atoms, a phenyl group, a benzyl group, or a phenethyl group, or R^3 and R^4 together form an alkylene group,

or a pharmacologically acceptable salt thereof.

5,214,057

N-SUBSTITUTED AZAHETEROCYCLIC CARBOXYLIC ACIDS

Lars Jacob S. Knudsen, Vedbaek; Anker S. Jørgensen, Copenhagen; Knud E. Andersen, Bagsvaerd, and Ursula Sonnewald, Ballerup, all of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

Continuation of Ser. No. 450,805, Dec. 14, 1984, Pat. No. 5,071,859. This application Aug. 20, 1991, Ser. No. 747,322
Claims priority, applicatioo Denmark, Dec. 19, 1988, 7044/88
The portion of the term of this patent subsequent to Aug. 20, 2008, has been disclaimed.
Int. Cl.[5] A61K *31/445;* C07D *211/60*
U.S. Cl. 514—330 5 Claims

1. A compound which is (R)-1-3-piperidine carboxylic acid or a pharmaceutically acceptable salt thereof.

4. A method of treating epilepsy, muscular and movement disorders, pain, anxiety, depression and sleeping disorders in a subject in need of such treatment comprising administering to said said subject an effective amount of the compound according to claim 1 or a pharmaceutically acceptable salt thereof together with a pharmaceutically acceptable carrier or diluent.

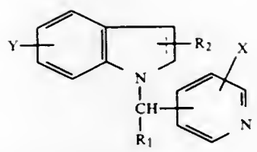
5,214,058

1-(PYRIDINYLALKYL)-1H-INDOLES, INDOLINES AND RELATED ANALOGS

Richard C. Effland, Bridgewater; Larry Davis, Sergeantsville, and Gordon E. Olsen, Somerset, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Continuation-in-part of Ser. No. 566,575, Aug. 13, 1990, abandoned. This application Jun. 27, 1991, Ser. No. 722,465
Int. Cl.[5] C07D *401/06;* A61K *31/44*
U.S. Cl. 514—339 13 Claims

1. A compound of the formula



wherein

R_1 is hydrogen, loweralkyl, arylloweralkyl, loweralkenyl or loweralkynyl;

R_2 is hydrogen, loweralkyl, loweralkenyl, formyl or cyano;

X is hydrogen, halogen, nitro, amino, loweralkyl, loweralkoxy or hydroxy;

Y is loweralkoxy, arylloweralkoxy, hydroxy, halogen, nitro or amino;

the term aryl in each occurrence signifying a phenyl group optionally monosubstituted or disubstituted with a loweralkyl, loweralkoxy, halogen or trifluoromethyl group; a pharmaceutically acceptable acid addition salt thereof, or where applicable, a geometric or optical isomer or racemic mixture thereof.

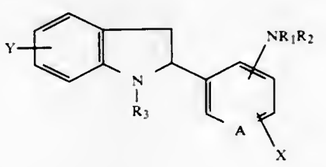
5,214,059

2-(AMINOARYL) INDOLES AND INDOLINES AS TOPICAL ANTIINFLAMMATORY AGENTS FOR THE TREATMENT OF SKIN DISORDERS

John J. Tegeler, Bridgewater; Eileen M. Gardenhire, Califon, and Grover C. Helsley, Pluckemin, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Incorporated, Somerville, N.J.

Division of Ser. No. 375,550, Jul. 3, 1989, Pat. No. 5,166,170.
This application Aug. 10, 1992, Ser. No. 927,050
Int. Cl.[5] C07D *401/04;* A61K *31/44*
U.S. Cl. 514—339 9 Claims

1. A compound having the formula



where

A is N;

X is hydrogen, loweralkyl, halogen, trifluoromethyl, loweralkoxy, arylloweralkoxy, hydroxy or phenylamino;

Y is hydrogen, loweralkyl, halogen, loweralkoxy, arylloweralkoxy or hydroxy;

R_1 is hydrogen or loweralkyl;

R_2 is hydrogen, loweralkyl, formyl, alkylcarbonyl, arylloweralkylcarbonyl, arylcarbonyl, alkoxycarbonyl, arylloweralkoxycarbonyl or aryloxycarbonyl; and

R_3 is hydrogen, alkyl, alkylcarbonyl, arylloweralkylcarbonyl, arylcarbonyl, alkoxycarbonyl, arylloweralkoxycarbonyl, aryloxycarbonyl or —$CH_2CO_2C_2H_5$;

the term aryl in each occurrence signifying a phenyl group optionally mono-substituted with a loweralkyl, loweralkoxy, halogen or trifluoromethyl group or a pharmaceutically acceptable acid addition salt thereof.

VOL 1150 ISS 4 MY 25 1993 UMI

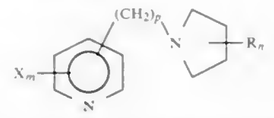
5,214,060

METHOD FOR TREATMENT OF NEURODEGENERATIVE DISEASES

William S. Caldwell, Winston-Salem, and Patrick M. Lippiello, Clemmons, both of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Apr. 10, 1992, Ser. No. 866,594
Int. Cl.[5] A61K *31/44*
U.S. Cl. 514—343 18 Claims

1. A method for treating a patient suffering from senile dementia of the Alzheimer's type, the method comprising administering to the patient an effective amount of a compound having the formula:



where R and X each represent a substituent other than hydrogen, m is an integer from 0–4, n is an integer from 0–8, p is an integer from 1–5, and the alkylpyrrolidine substituent is positioned at the 2 or 3 position of the pyridine ring.

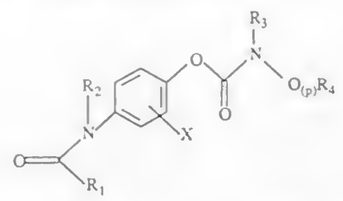
5,214,061

METHOD OF USING P-ACYLAMINOPHENOXYCARBAMATES AND DERIVATIVES AS ANALGESICS

Richard C. Allen, Flemington; Raymond W. Kosley, Jr., Bridgewater, and Bettina Spahl, Edison, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Division of Ser. No. 566,291, Jul. 30, 1990, Pat. No. 5,109,011.
This application Feb. 18, 1992, Ser. No. 837,190
Int. Cl.[5] A61K *31/44, 31/415*
U.S. Cl. 514—354 1 Claim

1. A method of alleviating pain in a mammal which comprises administering to a mammal a pain alleviating effective amount of a compound of the formula



where R_1 and R_2 are each independently hydrogen, loweralkyl, aryl or arylloweralkyl; R_3 is hydrogen, loweralkyl or arylloweralkyl; R_4 is formyl, alkylcarbonyl, arylloweralkyl, phenylcarbonyl, arylloweralkylcarbonyl, substituted phenylcarbonyl, pyridylcarbonyl or substituted pyridylcarbonyl with the proviso that if R_4 contains a carbonyl group directly attached to the oxygen of the N-O moiety, R_3 cannot be hydrogen; or R_3 and R_4 taken together from a heterocyclic ring selected from the group consisting of imidazole or loweralkylimidazole; the substituents on the substituted phenyl- or substituted pyridylcarbonyl being 1 to 3 of the group selected from hydrogen, halogen, loweralkyl, loweralkoxy, CF_3, NO_2 or NH_2; X is hydrogen, halogen, loweralkyl, nitro, amino or trifluoromethyl; and p is an integer selected from 0 and 1; or a pharmaceutically acceptable acid addition salt thereof, or where applicable, a geometric or stereoisomer or racemic mixture thereof.

5,214,062

METHOD AND COMPOSITION FOR TREATING IMMUNE DISORDERS, INFLAMMATION AND CHRONIC INFECTIONS

David A. Mark, Oak Park, and W. Bruce Rowe, Evanston, both of Ill., assignors to Clintec Nutrition Co., Deerfield, Ill.

Filed Apr. 8, 1992, Ser. No. 865,288
Int. Cl.[5] A61K *31/38*
U.S. Cl. 514—369 5 Claims

1. A composition for treating immune disorders, inflammation, and or chronic infections comprising:
an intracellular glutathione stimulator chosen from the group consisting of: L-2-oxothiazolidine-4-carboxylate, glutathione, and glutathione esters; and
an omega-3 fatty acid source comprising at least 1.5% of the total calories.

5,214,063

4-AMINOBUTYRIC ACID COMPOUNDS, COMPOSITIONS AND METHODS OF USE FOR TREATING DISORDERS RELATED TO A DYSFUNCTION OF $GABA_B$ RECEPTORS

Michel Debaert, Lille; Pascal Berthelot, Haubourdin, and Claude Vaccher, Wattignies, all of France, assignors to Adir et Compagnie, Courbevoie, France

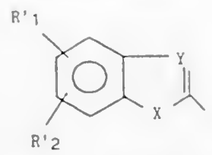
Division of Ser. No. 713,760, Jun. 11, 1991, Pat. No. 5,162,364.
This application Jul. 28, 1992, Ser. No. 920,787
Claims priority, application France, Jun. 27, 1990, 90 08093
Int. Cl.[5] C07D *207/337, 209/20;* A61K *31/40, 31/415*
U.S. Cl. 514—394 19 Claims

1. A compound selected from those of formula (I):

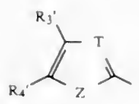


(I)

in which:
R_1 represents hydroxy, amino, lower alkylamino, lower alkoxy, or halogen,
R_2 represents hydrogen, lower alkyl, lower acyl, or lower alkoxycarbonyl,
R represents:
a radical of the formula



in which:
X represents an NH group,
Y represents —CH— or nitrogen,
R'_1 and R'_2, which are identical or different, represent halogen, hydrogen, lower alkyl, lower alkoxy, hydroxy, nitro, amino, lower-alkyl-amino or trifluoromethyl,
or a radical of the formula



in which:
Z represents an NH group,
T represents —CH— or nitrogen,

R'_3 and R'_4, which are identical or different, represent a radical selected from hydrogen, halogen, lower alkyl, lower alkoxy, hydroxy, nitro, amino, lower alkylamino and trifluoromethyl,
the term "substituted" meaning that the group so qualified can be substituted by one or more groups selected from halogen, lower alkyl, lower alkoxy, hydroxy, trifluoromethyl, nitro, amino, and lower alkylamino,
its optical isomers and also, where appropriate, its salts of addition with a pharmaceutically-acceptable base or acid,
the terms "lower alkyl", "lower alkoxycarbonyl", "lower alkoxy", "lower alkylamino", and "lower acyl" indicating group containing 1 to 6 carbon atoms, inclusive, in a straight or branched chain.

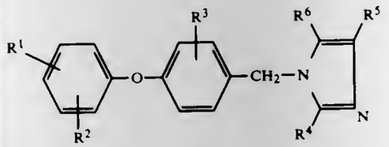
5,214,064

PHENOXYPHENYLMETHYL SUBSTITUTED AZOLES AND PESTICIDAL COMPOSITION THEREOF

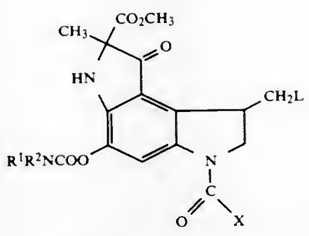
Rainer Buerstinghaus, Telgte; Hans-Juergen Neubauer, Mannheim; Peter Hofmeister, Neustadt; Christoph Kuenast, Otterstadt; Joachim Leyendecker, Mannheim, and Uwe Kardorff, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 516,925, Apr. 30, 1990, Pat. No. 5,116,860, which is a division of Ser. No. 184,804, Apr. 22, 1988, Pat. No. 4,943,585. This application Jan. 14, 1992, Ser. No. 820,265
Claims priority, application Fed. Rep. of Germany, May 2, 1987, 3714709; Jan. 23, 1988, 3801919
The portion of the term of this patent subsequent to Jul. 24, 2007, has been disclaimed.
Int. Cl.[5] A01N *43/50;* C07D *233/60, 233/68, 233/74*
U.S. Cl. 514—399 32 Claims

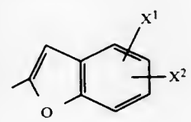
1. An insecticidally, arachinidically and nematocidally composition comprising an insecticidally, arachinidically or nematocidally effective amount of an N-substituted azole of the formula:



wherein
R^1, R^2 and R^3 are each hydrogen, halogen, C_1–C_8-alkyl, C_1–C_8-alkoxy, C_1–C_4-haloalkyl, C_1–C_4-haloalkoxy, C_3–C_{10}-cycloalkyl, nitro or cyano, and
R^4, R^5 and R^6 are each hydrogen, halogen, C_1–C_8-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_3–C_{10}-cycloalkyl, phenyl or naphthyl, or phenyl or naphthyl mono-, di- or tri-substituted by halogen, C_1–C_8-alkyl, C_1–C_8-alkoxy, C_1–C_4-haloalkyl or C_1–C_4-haloalkoxy, wherein R^4, R^5 and R^6 are not simultaneously hydrogen and C_1–C_8-alkyl, and a carrier.

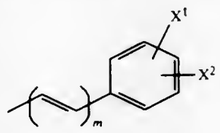


wherein L represents chlorine or bromine; each of R^1 and R^2 independently represents hydrogen, lower alkyl or phenyl; X represents a member selected from the group consisting of (a), (b) and (c) as follows:



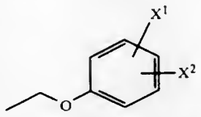
(a)

wherein each of X^1 and X^2 independently represents hydrogen, OR^3, $NHCO_2R^3$ (wherein R^3 represents lower alkyl) or NR^4R^5 (wherein each of R^4 and R^5 independently represents hydrogen or lower alkyl);



(b)

wherein m represents 1 or 2;



(c)

or a pharmaceutically acceptable salt thereof.

5,214,065

DC-89 DERIVATIVES

Hiromitsu Saito, Sagamihara; Akira Asai, Fujisawa; Satoru Nagamura, Machida; Eiji Kobayashi, Numazu, and Katsushige Gomi, Susono, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Jun. 5, 1991, Ser. No. 710,407
Claims priority, application Japan, Jun. 11, 1990, 2-152098
Int. Cl.[5] A61K *31/405;* C07D *487/04*
U.S. Cl. 514—411 5 Claims

1. A DC-89 derivative represented by formula:

5,214,066

METHOD FOR PRODUCING AN ANIMAL MODEL FOR INFLAMMATORY BOWEL DISEASE INCLUDING ULCERATIVE COLITIS

Sandor Szabo, Brookline, Mass., assignor to Brigham and Women's Hospital, Boston, Mass.

Filed Apr. 18, 1990, Ser. No. 510,229
Int. Cl.[5] A01N *43/36;* A61K *31/40*
U.S. Cl. 514—423 5 Claims

1. A method to produce mammalian idiopathic inflammatory bowel disease in a non-primate laboratory animal comprising topically administering to the colonic mucosa of the laboratory animal a composition comprising a sulfhydryl blocker in an amount effective to produce colonic lesions in said laboratory animal whereby the mammalian idiopathic inflammatory bowel disease is produced in the animal.

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5,214,067

FUNGICIDAL COMPOSITIONS AND METHOD

Janet C. Onishi, Mountainside, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Sep. 17, 1990, Ser. No. 583,112
Int. Cl.[5] A61K *31/335*
U.S. Cl. 514—449 3 Claims

1. A method of treating mycotic infections in a patient having such as infection comprising administering to such a patient a fungicidally effective amount of the combination of:
(1) a pyranyl glycine ester compound which is (2,3,4,5)-tetrahydro-4-methoxy-5-methyl-2-(1-methyl-1,3,5-nonatrienyl)-2-pyranyl-3-yl-glycine; and,
(2) a-β-lactone compound which is 11-(3-hydroxymethyl-4-oxo-2-oxetanyl)-7-methyl-2,4-undecadienoic acid,
said pyranyl glycine compound and said β-lactone compound being present at a ratio of β-lactone:pyranyl glycine of about 3:2 by weight.

5,214,068

SULFONYLHYDRAZINES AND THEIR USE AS ANTINEOPLASTIC AGENTS AND AS ANTITRYPANOSOMAL AGENTS

Alan C. Sartorelli, Woodbridge; Alan A. Divo, Branford; Krishnamurthy Shyam, Hamden, and Philip G. Penketh, New Haven, all of Conn., assignors to Yale University, New Haven, Conn.

Division of Ser. No. 403,533, Sep. 6, 1989, Pat. No. 5,101,072. This application Mar. 12, 1992, Ser. No. 851,384
Int. Cl.[5] A61K *31/18*
U.S. Cl. 514—601 7 Claims

7. A method of treating trypanosomiasis in a warm-blooded animal patient comprising administering to said patient a trypanocidal effective amount of a methylating agent, wherein the methylating agent is selected from the group consisting of
(a) $R'SO_2N(CH_3)N(SO_2CH_3)_2$, wherein R' is an alkyl having 1 to 10 carbon atoms or an aryl and
(b) $R''SO_2N(CH_3)N(CH_3)SO_2R''$, wherein R'' is an alkyl having 1 to 10 carbon atoms or an aryl.

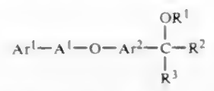
5,214,069

ALCOHOL AND ETHER DERIVATIVES

Jean-Marc M. M. Girodeau, Rilly la Montagne, France, assignor to Imperial Chemical Industries PLC, London, England and ICI Pharma, Reims Cedex, France

Division of Ser. No. 454,919, Dec. 22, 1989, Pat. No. 5,132,328. This application Jan. 23, 1992, Ser. No. 824,555
Claims priority, application European Pat. Off., Dec. 23, 1988, 88403312.7
Int. Cl.[5] A61K *31/10, 31/085;* C07C *317/10, 321/10*
U.S. Cl. 514—706 8 Claims

1. A compound of the formula I



wherein Ar^1 is phenyl or naphthyl which may optionally bear one or more substituents selected from the group consisting of halogeno, hydroxy, (1–4C)alkyl, (2–4C)alkenyl, (2–4C)alkynyl, (1–4C)alkoxy, hydroxy-(1–4C)alkyl and fluoro-(1–4C)alkyl;
wherein A^1 is (1–6C)alkylene, (3–6C)alkenylene, (3–6C-)alkynylene or cyclo(3–6C)alkylene;
wherein Ar^2 is phenylene which may optionally bear one or two substituents selected from the group consisting of halogeno, hydroxy, nitro, (1–4C)alkyl, (1–4C)alkoxy and fluoro-(1–4C)alkyl;
wherein R^1 is (1–6C)alkyl, (3–6C)alkenyl or (3–6C)alkynyl; and
wherein R^2 is (1–6C)alkyl;
wherein R^3 is mercapto-(1–4C)alkyl, (1–4C)alkylthio-(1–4C)alkyl, (1–4C)alkylsulphinyl-(1–4C)alkyl or (1–4C)alkylsulphonyl-(1–4C)alkyl; or a pharmaceutically-acceptable salt thereof.

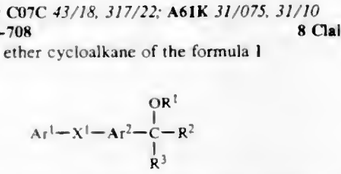
5,214,070

DIARYL ETHER CYCLOALKANES

Thomas G. C. Bird, Witry-Les-Reims, France, and Philip N. Edwards, Bramhall, England, assignors to Imperial Chemical Industries PLC, London, England and ICI Pharma, Cergy Cedex, France

Continuation of Ser. No. 547,183, Jul. 3, 1990, abandoned. This application Aug. 21, 1991, Ser. No. 750,735
Claims priority, application European Pat. Off., Jul. 18, 1989, 894020452
Int. Cl.[5] C07C *43/18, 317/22;* A61K *31/075, 31/10*
U.S. Cl. 514—708 8 Claims

1. A diaryl ether cycloalkane of the formula I



wherein Ar^1 is phenyl or naphthyl which may optionally bear one or more substituents selected from the group consisting of halogeno, hydroxy, (1–4C)alkyl, (2–4C)alkenyl, (2–4C)alkynyl, (1–4C)alkoxy, (1–4C)alkylthio, (1–4C)alkylsulphinyl, (1–4C)alkylsulphonyl, hydroxy-(1–4C)alkyl, fluoro-(1–4C)alkyl, fluoro-(1–4C)alkoxy, and phenyl, wherein said phenyl substituent may optionally bear a substitutent selected from the group consisting of halogeno, (1–4C)alkyl and (1–4C)alkoxy;
wherein X^1 is thio, sulphinyl or sulphonyl;
wherein Ar^2 is phenylene which may optionally bear one or two substituents selected from the group consisting of halogeno, hydroxy, nitro, (1–4C)alkyl, (3–4C)alkenyloxy, (1–4C)alkoxy, (1–4C)alkylthio, (1–4C)alkylsulphinyl, (1–4C)alkysulphonyl, fluoro-(1–4C)alkyl, and fluoro-(1–4C)alkoxy;
wherein R^1 is (1–6C)alkyl, (3–6C)alkenyl, or (3–6C)alkynyl; and
wherein R^2 and R^3 together form a (3–6C)alkylene group which, together with the carbon atom to which R^2 and R^3 are attached, defines a ring having 4 to 7 ring atoms, and which ring may bear one or two substituents, which may be the same or different, selected from the group consisting of halogeno, hydroxy, (1–4C)alkyl, (1–4C)alkoxy, (1–4C)alkylthio, (1–4C)alkylsulphinyl, (1–4C)alkylsulphonyl and fluoro-(1–4C)alkyl,
or a pharmaceutically-acceptable salt thereof.

5,214,071

CORNEAL TREATMENT AGENTS

David F. Muller, Boston, Mass., assignor to Summit Technology, Inc., Waltham, Mass.

Continuation of Ser. No. 690,081, Apr. 23, 1991, Pat. No. 5,098,896. This application Mar. 23, 1992, Ser. No. 855,308
Int. Cl.[5] A61K *31/045*
U.S. Cl. 514—724 6 Claims

1. A method of corneal treatment following laser ablative surgery comprising:
applying topically to a cornea of an affected eye, an aliphatic alcohol having a chain length ranging from about C-20 to about C-26 and in an amount effective to promote corneal healing.

5,214,072

PURIFICATION OF POLYCARBONATE, POLYESTER CARBONATE OR POLYESTER WASTE

Gerhard Fennhoff, Willich; Wolfgang Jakob, Moers, and Manfred Ehlert, Dormagen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 8, 1992, Ser. No. 958,206
Claims priority, application Fed. Rep. of Germany, Oct. 15, 1991, 4134019
Int. Cl.[5] C08J *11/04*
U.S. Cl. 521—40 1 Claim

1. A process for the purification of waste thermoplastic aromatic resin comprising in sequence the steps of
(i) size-reducing said waste to obtain fragments having a mean diameter of 0.1 to 5 cm,
(ii) stirring said fragments with a base for 20 to 300 minutes at temperatures of 10° to 100° C.,
(iii) removing said base to obtain second fragments,
(iv) washing said second fragments with a dilute acid to obtain acid-washed fragments,
(v) washing said acid-washed fragments with water to obtain electrolyte-free fragments, (vi) washing said electrolyte-free fragments with water while gently stirring to effect separation of all contaminants to obtain pure fragments,
(vii) rinsing said pure fragments with water and filtering to obtain rinsed-fragments,
(viii) drying said rinsed fragments, said waste thermoplastic aromatic resin containing (a) at least one of polycarbonate, polyester or polyestercarbonate and (b) at least one contaminant selected from the group consisting of aluminum, lacquers, pigments and dyes.

5,214,073

POROUS, CRYSTALLIZED, AROMATIC POLYCARBONATE PREPOLYMER, A POROUS, CRYSTALLIZED AROMATIC POLYCARBONATE, AND PRODUCTION METHODS

Isaburo Fukawa, Fuji; Shinsuke Fukuoka, Kurashiki; Kyosuke Komiya, Kurashiki, and Yoro Sasaki, Kurashiki, all of Japan, assignors to Ashai Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 442,353, Oct. 17, 1989. This application Jul. 21, 1992, Ser. No. 917,591
Int. Cl.[5] C08J *9/28*
U.S. Cl. 521—60 27 Claims

1. A method for producing a powder form or an agglomerated powder form of porous, crystallized, aromatic polycarbonate having a number average molecular weight of from 6,000 to 200,000 and a crystallinity of at least 35%, which comprises heating a powder form or an agglomerated powder form of porous, crystallized, aromatic polycarbonate prepolymer in a heating zone, at a temperature which is higher than the glass transition temperature of said prepolymer and at which said prepolymer is in a solid state, to effect solid-state condensation polymerization of said prepolymer while removing condensation polymerization by-products from the heating zone,
the prepolymer of said powder form or of said agglomerated powder form of prepolymer being a porous, crystallized, aromatic polycarbonate prepolymer comprising recurring aromatic carbonate units and terminal hydroxyl and aryl carbonate groups, wherein the molar ratio of the terminal hydroxyl groups to the terminal aryl carbonate groups is from 5/95 to 95/5, and having a number average molecular weight of from 1,000 to 15,000, a specific surface area of at least 0.2 m^2/g and a crystallinity of at least 5%,
thereby increasing the number average molecular weight and the crystallinity of the prepolymer to from 6,000 to 200,000 and at least 35%, respectively, so that the resultant polycarbonate has a number average molecular weight and a crystallinity which are, respectively, greater than those of said prepolymer.

5,214,074

FOAMABLE SILICONE RUBBER COMPOSITION AND SILICONE RUBBER SPONGE

Masaharu Takahashi; Jun Hatakeyama, and Terukazu Satoh, all of Annaka, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Jan. 27, 1992, Ser. No. 826,540
Claims priority, application Japan, Jan. 29, 1991, 3-27853
Int. Cl.[5] C08J *9/10*
U.S. Cl. 521—88 12 Claims

1. A foamable silicone rubber composition comprising
(A) a diorganopolysiloxane of average compositional formula (1):

$$R_nSiO_{(4-n)/2} \quad (1)$$

wherein R is a substituted or unsubstituted monovalent hydrocarbon group, about 0.01 to about 20 mol % of the R group being an alkenyl group, and letter n is a positive number of from 1.98 to 2.02, having a viscosity of at least 10^6 centistokes (cs) at 25° C.,
(B) an organohydrogenpolysiloxane,
(C) a platinum catalyst,
(D) azodicarbonamide, and
(E) an addition reaction control agent for controlling the rate of addition curing reaction, selected from the group consisting of vinyl group-containing siloxanes having a molecular weight of 50 to 1,000, acetylenic alcohols, acetylene glycol compounds, and organosilanes and organosiloxanes having a molecular weight of 50 to 1,000 and modified with acetylenic alcohols or acetylene glycol compounds;
wherein component (E) is blended in an amount of about 0.001 to 0.05 parts by weight per 100 parts by weight of component (A), so that the addition curing reaction proceeds substantially at the same rate as the decomposition rate of the foaming agent.

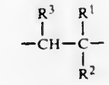
5,214,075

HYDROPHILIC, SWELLABLE POLYMERS

Friedrich Engelhardt, Frankfurt am Main, and Gerlinde Ebert, Dreieich/Offenthal, both of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

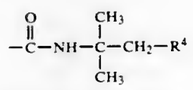
Division of Ser. No. 589,808, Sep. 24, 1990, Pat. No. 5,182,312. This application Aug. 26, 1992, Ser. No. 936,096
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1989, 3933351
Int. Cl.[5] C08J *9/00*
U.S. Cl. 521—146 6 Claims

1. Hydrophilic, swellable polymer which consists in random distribution, to the extent of 98 to 100% by weight of radicals of the general formula I



(I)

wherein
R^1 denotes hydrogen, methyl or ethyl,
R^2 denotes sulphonyl or phosphonyl; sulphonyl or phosphonyl which are esterified by alkanol having 1 to 4 carbon atoms; a group of the formula



wherein R^4 represents the sulphonyl or the phosphonyl

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group; cyano, chlorine; the $-CONH_2$ group (C_1-C_4)-alkanoyloxy; or a group of the formula



wherein R^5 and R^6 independently of one another denote hydrogen, methyl or ethyl or together represent trimethylene, and

R^3 denotes hydrogen, methyl, ethyl or carboxyl, it also being possible for acid groups to be present in salt form, and to the extent of 0–2% by weight of radicals of a crosslinking agent which having originated from monomers having at lest two olefinically unsaturated double bonds, characterized in that it is in the form of a highly porous, foam-like polyhedral structure.

5,214,076

CARBODIIMIDE-ISOCYANURATE ALL WATER BLOWN OPEN CELLED FOAM

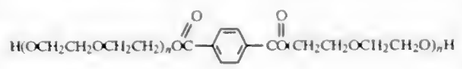
Richard B. Tideswell, 13219 Singer Rd., Midlothian, Va. 23112, and J. S. Costa, Jr., 4736 Cedar Cliff Rd., Chester, Va. 23831

Filed Sep. 18, 1992, Ser. No. 946,596
Int. Cl.[5] C08G *18/14, 18/78*
U.S. Cl. 521—164 **25 Claims**

1. A polycarbodiimide-polyisocyanurate foam prepared by reacting

(A) mixture of a polyol blend comprising

(1) 25 to 100% of an aromatic polyester polyol having the following structure:



where n=1, 2, or 3

and having hydroxyl number 150 to 330,

(2) 0 to 50% of a flexible polyether polyol with hydroxyl number 20 to 70;

(3) 0 to 30% of a toluene diamine ethoxylated polyol, optionally with some propoxylate, and having hydroxyl number 330 to 480,

(4) 0 to 30% of a nonyl phenol ethoxylate and having hydroxyl number 70 to 150, with surfactant, catalyst, and water, and reacting with

(B) a polyphenyl polymethylene polyisocyanate, such that the mixture of A is reacted with B at a 1:1 by volume mix ratio.

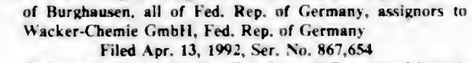
5,214,077

ORGANOSILICON COMPOUNDS CONTAINING (METH)ACRYLOXY GROUPS, THEIR PREPARATION AND USE

Christian Herzig, Taching; Bernard Deubzer, and Inge Sigl, both of Burghausen, all of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Fed. Rep. of Germany

Filed Apr. 13, 1992, Ser. No. 867,654
Claims priority, application Fed. Rep. of Germany, May 16, 1991, 4116013
Int. Cl.[5] C08F *2/50;* **C08G** *77/04, 77/20;* **C07F** *7/08*
U.S. Cl. 522—99 **9 Claims**

1. An organosilicon compound which contains (meth)acryloxy groups and consists of average units of the formula



(I)

where R is a radical selected from the group consisting of monovalent hydrocarbon radicals having from 1 to 18 carbon atom(s) per radical and monovalent halogenated hydrocarbon radicals having from 1 to 18 carbon atom(s) per radical, X is a radical selected from the group consisting of chlorine atoms and a radical of the formula $-OR^1$, where R^1 is an alkyl radical having from 1 to 8 carbon atom(s) per radical, which can be substituted by an ether oxygen atom, a is 0 or 1, with an average of from 0.01 to 1.0, b is 0, 1, 2 or 3, with an average of from 0.0 to 3.0, c is 0, 1, 2 or 3, with an average of from 0.0 to 3.0, the sum of $a+b+c \leqq 4$, and is an average of from 1.5 to 4.0, and A is a radical of the formula

where x is 0 or 1 and y is 0 or 1, with the proviso that the sum of x+y is 1, z is 1, 2, 3 or 4, R^2 is selected from the group consisting of a hydrogen atom and a methyl radical, R^3 is a radical selected from the group consisting of the formula $-CH_2CH_2-$ and $-C(CH_3)HCH_2-$ and R_4 is a linear or branched alkylene radical having from 1 to 6 carbon atom(s) per radical, with the proviso that the compounds contain at least one radical A per molecule.

5,214,078

GAMMA RADIATION RESISTANT POLYCARBONATE COMPOSITION

Douglas G. Powell, Coraopolis, and Charles E. Lundy, Pittsburgh, both of Pa., assignors to Miles Inc., Pittsburgh, Pa.

Filed Jun. 3, 1992, Ser. No. 891,875
Int. Cl.[5] C08K *5/06, 5/37;* **C08L** *69/00*
U.S. Cl. 523—136 **3 Claims**

1. A thermoplastic molding composition comprising a polycarbonate resin and a stabilizing agent which includes (i) about 0.01 to 5.0% of a polyether polyol conforming to



where

Y independently of one another is a hydrogen atom or a C_{1-30} alkyl or acyl radicals, silyl or pyranyl radicals, and where R is a C_{1-22}-alkyl, cycloalkyl, aryl, alkylaryl or cycloalkyl-aryl radicals, n is an integer of 1 to 4 and m is an integer of 1 to 70,

and

(ii) 0.01 to 5.0% of an aromatic disulfide conforming to



where R' and R'' independently are aryl radicals, said percents are relative to the weight of said resin.

5,214,079

ACCELERATORS FOR CURING PHENOLIC RESOLE RESINS

Arthur H. Gerber, Louisville, Ky., assignor to Borden, Inc., Columbus, Ohio

Division of Ser. No. 616,879, Nov. 21, 1990, Pat. No. 5,182,346, which is a continuation-in-part of Ser. No. 562,206, Aug. 2, 1990, Pat. No. 5,096,983. This application Sep. 10, 1992, Ser. No. 943,065
Int. Cl.[5] B22C *1/22*
U.S. Cl. 523—145 **14 Claims**

1. A raw batch composition comprising a mixture of:

A. an aggregate material;

B. a hardenable phenolic resole resin having a pH of about 5 to 9, a resin solids content of about 50% to 90% by weight of said resin, and a viscosity of about 100 to 4,000 cps at 25° C.;

C. from about 5% to 40% by weight of the resin of a magnesium hardening agent selected from the group consisting of magnesium hydroxide and lightburned magnesium oxide said magnesium oxide having a surface area of at least 10 square meters per gram;

D. an accelerator in an amount sufficient to accelerate the hardening of said mixture,

wherein the accelerator is a chelating agent selected from the group consisting of pentane-2,4-dione, heptane-2,4-dione, 2,2'-bipyridine and benzoylacetone.

5,214,080

PROCESS FOR PRODUCING NONAQUEOUS DISPERSION-TYPE RESIN

Goro Iwamura, Sakai; Hidetoshi Konno, Izumi-ohtsu, and Akio Shoji, Kishiwada, all of Japan, assignors to Dainippon Ink and Chemicals, Inc., Tokyo, Japan

Continuation of Ser. No. 560,285, Jul. 30, 1990, abandoned, which is a continuation of Ser. No. 270,061, Nov. 14, 1988, abandoned. This application Dec. 19, 1991, Ser. No. 810,283
Claims priority, application Japan, May 15, 1987, 2-116975
Int. Cl.[5] C08J *3/02*
U.S. Cl. 523—336 **8 Claims**

1. A process for the production of a nonaqueous dispersion of a resin having excellent dispersion stability and a uniform particle size, which comprises

uniformly polymerizing, in an organic solvent selected from the group consisting of esters, ketones, alcohols, and mixtures of an aromatic hydrocarbon and an alcohol, a vinyl monomer having a solubility parameter different by 1.1 or more from that of said organic solvent or a vinyl monomer mixture containing at least 1% by weight of said monomer, said mixture being composed of said monomer and at least one monomer selected from the group consisting of (meth)acrylate monomers, dialkyl (C_1-C_4) esters of ethylenically unsaturated dicarboxylic acids, cyano group-containing ethylenically unsaturated monomers, vinyl esters; (per)fluoroalkyl group-containing monomers, halogenated olefins and aromatic vinyl monomers, and a reactive resin soluble in said organic solvent and having a molecular weight of 2,000 or more, to form a uniform polymer solution; and then,

while removing said organic solvent from said uniform polymer solution, replacing said organic solvent in the obtained uniform polymer solution with an aliphatic and-/or alicyclic hydrocarbon solvent that does not dissolve the obtained resin to thereby conduct phase inversion into a nonaqueous dispersion.

5,214,081

BINDING COMPOSITIONS FOR LIGNOCELLULOSIC COMPOSITES AND METHOD FOR THE PREPARATION THEREOF

Agostino Lepori, Fagnano Olona; Ignazio Zavatteri, Cardano Al Campo, and Mario Cova, Castellanza, all of Italy, assignors to Presidenza Del Consiglio Dei Ministri, Rome, Italy

Divisin of Ser. No. 765,507, Sep. 26, 1991, which is a continuation of Ser. No. 389,886, Aug. 4, 1989, abandoned. This application Aug. 19, 1992, Ser. No. 932,147
Claims priority, application Italy, Aug. 8, 1988, 21682 A/88
Int. Cl.[5] C08L *1/00, 31/04*
U.S. Cl. 524—35 **7 Claims**

1. A process for increasing the green cohesion of cellulosic material in the form of granulates, chips, fiber or meal, comprising treatment of the cellulosic material with an essentially totally water-based polyisocyanic binding composition, useful to give green tack cohesion values greater than 1.0 kg to lignocellulosic materials in the form of granulates, chips, fibers or meal, said binding composition comprising an aqueous emulsion containing at least one polyisocyanate and at least one water-dispersed acetovinylic resin having a glass transition temperature (Tg) less than 5° C.

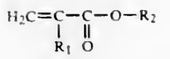
5,214,082

ASPHALT ACRYLIC MONOMER-CONTAINING POLYMER COMPOSITION

Richard Gelles, Sugarland, and Donn A. DuBois, Houston, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 853,564, Mar. 18, 1992, Pat. No. 5,189,083. This application Jul. 28, 1992, Ser. No. 920,693
Int. Cl.[5] C08L *95/00*
U.S. Cl. 524—68 **15 Claims**

1. A bituminous composition comprising a bituminous component and a polymer comprising at least one conjugated diolefin block and at least one acrylic monomer block with the structure



wherein R_1 is selected from the group consisting of hydrogen, phenyl and alkyl radicals which are linear or branched and contain from 1 to 10 carbon atoms, and R_2 is a cyclic or non-cyclic alkyl radical which contains from 1 to 14 carbon atoms and may contain a tertiary amine or an ether linkage.

5,214,083

POLY(PHENYLENE SULFIDE) RESIN COMPOSITIONS

Tetsuji Kodaira; Hiromi Ishida, and Hidekazu Kabaya, all of Moka, Japan, assignors to General Electric Company, Pittsfield, Mass.

Filed Aug. 15, 1991, Ser. No. 745,583
Int. Cl.[5] C08K *5/15, 5/09, 5/3415*
U.S. Cl. 524—95 **15 Claims**

1. A composition comprising:

(a) 40–90 wt % poly(phenylene sulfide) resin;

(b) 5–55 wt % poly(phenylene ether) resin;

(c) 5–55 wt % polyamide resin selected from the group consisting of (I) copolymers of Nylon 6 and Nylon 12, (II) copolymers of Nylon 6, Nylon 12, and Nylon 6/36, and (III) copolymers of Nylon 6 and Nylon 6/36; and

(d) 0.01–10 wt % of a compatibilizer selected from the group consisting of (I) citric acid, malic acid, agaricic acid and any ester-, amide-, anhydride-, hydrate-, or salt-derivatives of these acids, (II) compounds having both (i) carbon-carbon double or triple bonds and (ii) carboxylic acid, acid anhydride, amide, imide, carboxylate ester, epoxy, amino, or hydroxy groups, and (III)

compounds having carboxylic acid or acid anhydride groups and acid halide groups.

5,214,084

STABILIZED POLYPROPYLENE RESIN COMPOSITION

Tamaki Ishii, and Shinichi Yachigo, both of Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Continuation of Ser. No. 667,767, Mar. 11, 1991, abandoned. This application Aug. 24, 1992, Ser. No. 933,936
Claims priority, application Japan, Mar. 14, 1990, 2-64727
Int. Cl.[5] C08K *5/34, 5/35*
U.S. Cl. 524—96 **20 Claims**

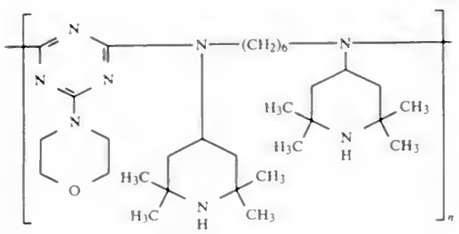
1. A polypropylene resin composition which comprises 100 parts by weight of a polypropylene resin mixture comprising a polypropylene, 5 to 40% by weight of an α-olefinic copolymer rubber and 5 to 40% by weight of an inorganic filler, each based on the total weight of the mixture, and said composition further comprising the following components:

(A) 0.01 to 1 part by weight of a hindered phenolic compound having a molecular weight of not less than 500;

(B) 0.01 to 1 part by weight of a high-molecular hindered piperidine compound having a repeating unit selected from the following formulas (B-1) through (B-3):

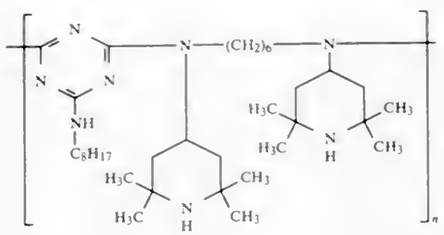
VOL 1150 ISS 4 MY 25 1993 UMI

(B-1)



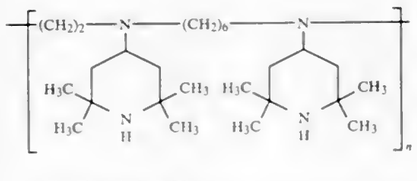
wherein n is 2 to 20,

(B-2)



wherein n is 2 to 20,

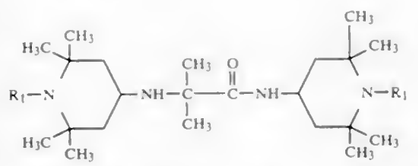
(B-3)



wherein n is 2 to 20;

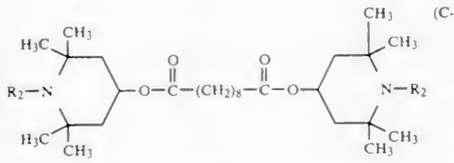
(C) 0.01 to 1 part by weight of a low-molecular hindered piperidine compound selected from the following formulas (C-1) and (C-2):

(C-1)



wherein R_1 is hydrogen or alkyl of 1 to 3 carbon atoms.

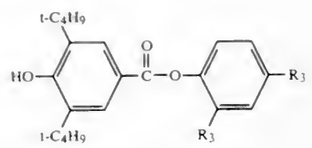
(C-2)



wherein R_2 is hydrogen or alkyl of 1 to 3 carbon atoms;

(D) 0.01 to 1 part by weight of a benzoate compound represented by the following formula (D-1):

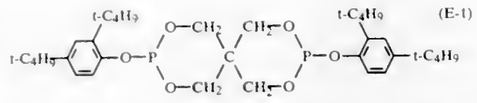
(D-1)



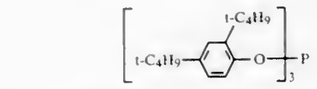
wherein R_3 is t-butyl or t-amyl;

(E) 0.01 to 1 part by weight of a phosphorous compound selected from the following formulas (E-1) through (E-5):

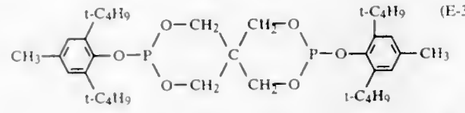
(E-1)



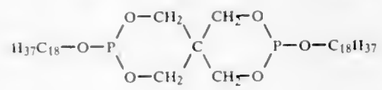
(E-2)



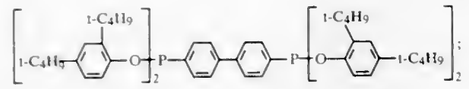
(E-3)



(E-4)



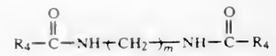
(E-5)



and

(F) 0.01 to 1 part by weight of an amide compound represented by the following formula (F-1):

(F-1)



wherein R_4 is alkyl of 5 to 21 carbon atoms or alkenyl of 5 to 21 carbon atoms, and m is an integer of 1 to 6.

5,214,085

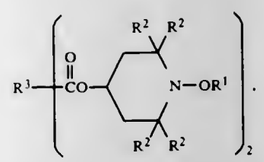
ABRASION-RESISTANT COATING COMPOSITIONS WITH IMPROVED WEATHERABILITY

Gautam A. Patel, Clifton Park, N.Y., and Martin A. Trapp, Northville, Mich., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 3, 1992, Ser. No. 829,196
Int. Cl.[5] C08K *5/3435*
U.S. Cl. 524—102 **20 Claims**

1. A non-gelling liquid coating composition comprising (A) at least one acrylic monomer, (B) silica, (C) at least one initiator for ultraviolet radiation-induced curing of said composition, and (D) an amount effective to inhibit ultraviolet radiation-induced degradation of said composition, or the curing product thereof, of at least one hindered piperidyl ester of the formula

(I)



wherein R^1 is C_{4-12} alkyl, R^2 is C_{1-4} primary alkyl and R^3 is C_{4-12} alkylene.

5,214,086

COATING COMPOSITIONS WHICH MAY BE AMBIENT CURED

Patrick J. Mormile, Bowling Green; Sudhakar Dantiki; Daniel Guyomard, both of Toledo; Stewart Shepler, Bowling Green, and Bradley M. Richards, Maumee, all of Ohio, assignors to BASF Corporation, Parsippany, N.J.

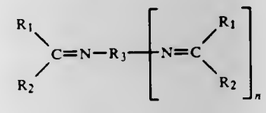
Filed Sep. 4, 1991, Ser. No. 754,900
Int. Cl.[5] C08K *5/29*
U.S. Cl. 524—237 **40 Claims**

1. A coating composition comprising the following:

a) at least one hydroxy functional resin,

b) at least one isocyanate functional resin and

c) a compound having the structure



wherein

n is 0 to 4,

R_1 is —H, or alkyl, aryl, cycloaliphatic or substituted alkyl, aryl, or cycloaliphatic group,

R_2 is —H, or alkyl, aryl, cycloaliphatic or substituted alkyl, aryl, or cycloaliphatic group, and

R_3 is aliphatic, aromatic, arylaliphatic or cycloaliphatic group, which may also contain O, N, S or Si.

R_1 and R_2 may be the same or different.

5,214,087

VINYL HALIDE POLYMER: ETHYLENE-VINYL ALCOHOL BLENDS CONTAINING PHENOLIC ANTIOXIDANT

Thomas C. Braden, Wellington, and Sally A. Kline, Westlake, both of Ohio, assignors to The B. F. Goodrich Company, Brecksville, Ohio

Filed Mar. 26, 1990, Ser. No. 498,508
Int. Cl.[5] C08K *5/13*
U.S. Cl. 524—291 **5 Claims**

1. An improved process for melt blending mixtures comprising vinyl halide polymers and ethylene-vinyl alcohol copolymers on metal-surfaced compounding equipment which comprises adding to the mixture prior to melt blending, from about 0.01 to about 5 phr of a phenolic antioxidant of the formula

wherein R_1 is hydrogen, or a hydroxyl or an alkyl group; R_2 is an alkyl, alkoxy or a carboxylic ester group; and R_3 is a hydroxy or an alkyl group.

5,214,088

HIGHLY DENSE THERMOPLASTIC MOLDING COMPOSITIONS

Joel D. Allen, Washington, W. Va.; Dennis W. Champlain, Mt. Vernon, Ind.; Richard J. Clark, Austin, Tex., and Lawrence R. Wallace, Johnson City, Tenn., assignors to General Electric Company, Pittsfield, Mass.

Continuation-in-part of Ser. No. 424,888, Oct. 20, 1989, abandoned, and a continuation-in-part of Ser. No. 640,021, Jan. 10, 1991, which is a continuation of Ser. No. 424,543, Oct. 20, 1989, abandoned. This application Oct. 15, 1990, Ser. No. 597,849
Int. Cl.[5] C08K *3/10*
U.S. Cl. 524—413 **3 Claims**

1. A thermoplastic resin composition consisting essentially of:

A. from about 70 to about 25 parts by weight of a resinous composition consisting essentially of a combination of:

(a) a copolyetherester resin;

(b) a copolyetherimide ester resin; or

(c) a mixture of (a) and (b); and

(d) a polyester resin having an intrinsic viscosity of at least about 0.4 dl/g as measured in a 60:40 phenol tetrachloroethane mixture at 30° C. and, correspondingly,

B. from 30 to 75 parts by weight of:

(a) a filler selected from zinc oxide, barium sulfate, zirconium oxide, zirconium silicate or strontium sulfate; or

(b) a mixture of any such fillers, wherein said filler B comprises from 30 to 75 parts by weight of zirconium silicate.

5,214,089

STABILIZED AQUEOUS SOLUTION OF A C_1–C_5 ALKYL VINYL ETHER AND MALEIC ACID COPOLYMER

Robert B. Login, Oakland; Krystyna Plochocka, Scotch Plains, and Jui-Chang Chuang, Wayne, all of N.J., assignors to ISP Investments Inc., Wilmington, Del.

Filed Sep. 18, 1991, Ser. No. 761,535
Int. Cl.[5] C08K *3/30;* **C08F** *22/04*
U.S. Cl. 524—418 **8 Claims**

1. A colorless, stabilized, aqueous solution of a copolymer of a C_1–C_5 alkyl vinyl ether and maleic acid formed by hydrolysis of a C_1–C_5 alkyl vinyl ether and maleic anhydride, which remains substantially constant in viscosity after standing at room temperature, upon inclusion therein of, about 10 to 500 ppm of an inorganic reducing additive which consists essentially of sulfur dioxide, a salt derived from sulfur dioxide, and an alkali metal selected from sodium or potassium bisulfite, sodium or potassium metabisulfite, sodium or potassium thiosulfite, or sodium or potassium sulfite.

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5,214,090

RESIN COMPOSITION AND USE THEREOF

Takamasa Moriyama, Suita; Hiroyuki Honda, Kanagawa, and Hirnshi Takida, Takatsuki, all of Japan, assignors to Nippon Gohsei Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 646,033, Jan. 28, 1991, abandoned. This application Apr. 10, 1992, Ser. No. 866,288

Claims priority, applicatinn Japan, Feb. 1, 1990, 2-23018; Oct. 29, 1990, 2-293073

Int. Cl.[5] C08K *5/09, 5/04;* C08L *23/08, 31/04*

U.S. Cl. 524—424 5 Claims

1. A resin composition which comprises

(a) 50 to 90.5 weight % of a saponified ethylene-vinyl acetate copolymer with an ethylene content of 20 to 60 mole % and a degree of saponification of its vinyl acetate component of not less than 95 mole %,

(B) 0.4 to 50 weight % of a polyolefin resin,

(C) 0.1 to 15 weight % of a graft polymer obtained by grafting 0.05 to 10 parts by weight of an ethylenically unsaturated carboxylic acid or a derivative there of with the 100 parts by weight of polyolefin resin and reacting the adduct with a polyamide oligomer or polyamide where the reaction ratio of the polyamide oligomer or polyamide to the adduct, and

(D) 0.005 to 5 parts by weight, based on 100 parts by weight of the sum total of (A) plus (B) plus (C), of a hydrotalcite solid solution represented by the general formula

$$[M^{2+})_{y1}(M^{2+})_{y2}]_{1-x}M^{3+}(OH)_2A_{x/n}\cdot mH_2O$$

wherein M^{2+} represents at least one metal selected from among Mg, Ca, Sr and Ba, M^{2+} is a metal selected from among Zn, Cd, Pb and Sn, M^{3+} is a metal selected from among Zn, Cd, Pb and Sn, M^{3+} is a trivalent metal, A^n is an anion having a valence of n, and x, y_1, Y_2 and m are respectively positive numbers satisfying the conditions $0<x\leqq 0.5$, $0.5<y_1<1$, $y_1+y_2=1$, and $0\leqq m<2$.

5,214,091

THERMOPLASTIC RESIN COMPOSITION

Hisao Tanaka, Ichihara, and Sumio Hara, Sodegaura, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Mar. 4, 1992, Ser. No. 846,126

Claims priority, application Japan, Mar. 5, 1991, 3-038437; Apr. 30, 1991, 3-099001

Int. Cl.[5] C08K *3/26*

U.S. Cl. 524—425 14 Claims

1. A thermoplastic resin composition comprising a thermoplastic resin selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymer resin, ethylene-butene-1 copolymer resin, poly(4-methyl-1-pentene), polystyrene, rubber-modified polystyrene, polyvinyl chloride, polyvinylidene chloride, ethylene-vinyl acetate copolymer, styrene-acrylonitrile copolymer, polyamides, polyacetals, polycarbonates, polyphenylene ether, polysulfone, polyester, thermoplastic polyurethane, and styrene-butadieneacrylonitrile copolymer, at least one inorganic filler selected from the group consisting of conductive inorganic fillers and non-conductive inorganic fillers, and an adduct of an alkylene oxide with a saponified product of a copolymer of ethylene and a vinyl ester of a saturated carboxylic acid.

5,214,092

IMPACT-RESISTANT COMPOSITIONS BASED ON VINYL CHLORIDE POLYMERS AND THEIR USE

Daniel Gloesener, Sart d'Avril-Fernelmont, and Philippe Lamberty, Brussels, both of Belgium, assignors to Solvay S.A., Brussels, Belgium

Filed Jan. 28, 1992, Ser. No. 826,782

Claims priority, application Belgium, Feb. 1, 1991, 09100099

Int. Cl.[5] C08J *3/00*

U.S. Cl. 524—425 10 Claims

1. An impact-resistant composition, comprising per 100 parts by weight of vinyl chloride polymer:

(a) from about 40 to 60 parts of graft copolymer of vinyl chloride with lightly crosslinked polybutyl acrylate containing from about 2 to 10% by weight of lightly crosslinked polybutyl acrylate,

(b) from about 10 to 50 parts of graft copolymer of vinyl chloride with an ethylene/vinyl acetate copolymer containing from about 0.5 to 7% by weight of ethylene/vinyl acetate copolymer having an intrinsic viscosity, measured at 20° C. in m-xylene, of between approximately 0.05 and 0.10 l/g,

(c) from about 10 to 50 parts of unmodified vinyl chloride polymer per 100 parts by weight in total of vinyl chloride polymers, and

(d) from about 4 to 10 parts of calcium carbonate in fatty acid-coated particles having an average diameter of less than 1 μm as a reinforcing filler.

5,214,093

ADHESIVE FORMULATION FOR NONSURGICAL BLEPHEROPLASTY

Edward R. Nell, 135 Victoria La., Aptos, Calif. 95003, and Dean B. Parkinson, 420 W. Oakwood Blvd., Redwood City, Calif. 94061

Continuation-in-part of Ser. No. 446,394, Dec. 5, 1989, abandoned. This application Apr. 22, 1991, Ser. No. 689,012

Int. Cl.[5] C08L *83/04;* C08K *5/01*

U.S. Cl. 524—506 19 Claims

1. An adhesive mixture suitable for bonding human tissue surfaces together for extended lengths of time, comprising:

an adhesive component which includes a siloxane adhesive, said adhesive component being non-toxic to human tissue and forming a strong bond thereto, for providing gas permeability to the bonded human tissue surface such that oxygen is permitted to reach the bonded tissue;

a thermoplastic elastomer component for providing bond strength to enhance the bonding characteristics of the adhesive component without substantially interfering with said gas permeability; and

a parafinnic hydrocarbon solvent component for suspending bonding of the adhesive component until the solvent component has evaporated.

5,214,094

METHOD OF PREPARING PRESSURE SENSITIVE ADHESIVES HAVING INTERPOLYMERS WITH INTERNAL CROSSLINKING MONOMERS

Eli Levine, Union; Herbert L. Wolfson, Baldwin, and Alvin H. Silverberg, East Brunswick, all of N.J., assignors to H. & N. Chemical Company, Totowa, N.J.

Division of Ser. No. 609,591, Nov. 6, 1990, which is a continuation-in-part of Ser. No. 562,435, Aug. 2, 1990, abandoned, which is a continuation of Ser. No. 364,006, Jun. 9, 1989, abandoned. This application Dec. 19, 1991, Ser. No. 810,184

Int. Cl.[5] C08L *33/08*

U.S. Cl. 524—560 6 Claims

1. A method for the manufacture of a pressure-sensitive adhesive composition comprising the steps of:

(a) charging to a reaction vessel a mixture of monomers which include an alkyl acrylate and an internal crosslinking monomer, said internal crosslinking monomer having an ethylenically unsaturated group and a functionality which subsequently forms a direct covalent bond to an adjacent polymeric segment;

(b) initiating a polymerization reaction;

(c) charging to said reaction vessel, during said polymerization reaction, a delayed reactant mixture comprising at least 7% (by weight of polymerizable material in said delayed reactant mixture) of a chain transfer solvent; and

(d) terminating said polymerization reaction,

wherein said delayed reactant mixture is present in said reaction vessel, in whole or in part, for a time period greater than 20% of the total time during which said polymerization reaction proceeds, and wherein the total amount of chain transfer solvent charged to said reaction vessel before polymerization is terminated exceeds 7% (by total weight of polymerizable material used during polymerization); wherein interpolymers formed during said polymerization reaction have a glass transition temperature of less than −10° C. and a Williams Plasticity Number of less than 1.2.

5,214,095

STABLE AQUEOUS EMULSION COPOLYMERS WITH SILOXANE FUNCTIONALITY

Alvin C. Lavole, Warminster, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation of Ser. No. 439,315, Nov. 21, 1989, abandoned, which is a continuation of Ser. No. 215,963, Jul. 7, 1988, abandoned. This application Jan. 21, 1992, Ser. No. 825,441

Int. Cl.[5] C08L *43/04*

U.S. Cl. 524—806 14 Claims

1. A stable aqueous emulsion comprising a copolymer having resistance to premature crosslinking at ambient temperatures while containing crosslinkable silicon functionality, said copolymer having been formed by the concurrent free radical and cationic initiated polymerization of from at least about 70 weight percent of at least one free radical initiatable monomer free of silicon functionality and less than about 30 weight percent of at least two silicon-containing monomers where at least one of said silicon-containing monomers is a free radical initiatable, reactive bifunctional silane monomer and where at least one of said silicon-containing monomers is a cationically initiatable, linear siloxane precursor monomers, and further where the molar ratio of (R_2SiO) D units, obtained from said linear siloxane precursor, which are not bifunctional, to $(RSiO_{3/2})$ T units, which are all bifunctional, is greater than 3 to 1.

5,214,096

WATER SOLUBLE ACRYLIC POLYMERIZABLE MATERIALS, POLYMERS MADE FROM THEM, AND PROCESSES OF MAKING THEM

John G. Langley; Kishor K. Mistry, and Kenneth C. Symes, all of West Yorkshire, England, assignors to Allied Colloids Limited, England

Continuation of Ser. No. 656,019, Feb. 15, 1991, abandoned, which is a continuation of Ser. No. 307,428, Feb. 7, 1989, abandoned. This application Dec. 2, 1991, Ser. No. 801,586

Claims priority, application United Kingdom, Feb. 8, 1988, 8802789; Feb. 8, 1988, 8802790

Int. Cl.[5] C08J *3/32*

U.S. Cl. 524—812 11 Claims

1. An aqueous solution of water soluble polymerisable acrylic prepolymer formed from a water soluble monomer or blend of monomers and having 50 to 100 mole % recurring units derived from acrylic monomers (a) and 0 to 50 mole % recurring units derived from other ethylenically unsaturated monomers (b), wherein

the prepolymer includes units of formula (c)

$$-CHD-CB-$$
$$\quad\quad\quad |$$
$$\quad\quad ZR^1{}_n$$

in an amount that is at least 3 units in each prepolymer chain and that is from 0.001 to 100 mole % and in which D is H or COOH, B is H, CH_3 or COOH, Z is a linking group having 1 to 6 functionalities, n is 1 to 6, R^1 is the group —CB=CHD where B and D are as defined above, and

the prepolymer has been made by (i) polymerising monomers (a) and (b) wherein 0.001 to 100% of the said monomers have the formula (d)

$$CHD=CB-ZR^2{}_n$$

where B, D and n are as defined above and R^2 is a saturated ethylenic group that can be unblocked to form a group R^1 and (ii) unblocking the groups R^2 to form units of formula (c).

5,214,097

FLUORORUBBER COMPOSITION

Masayasu Tomoda; Shigeru Morita; Etsuo Minamino, all of Settsu; Eisuke Yamada, Nagoya; Hiroshi Okamoto, Owariasahi; Shinji Inagaki, Aichi, and Junji Furukawa, Kawasaki, all of Japan, assignors to Daikin Industries Ltd., Osaka, Japan

Filed May 15, 1991, Ser. No. 700,419

Claims priority, application Japan, May 16, 1990, 2-127758

Int. Cl.[5] C08L *23/16, 27/12, 27/10, 9/00*

U.S. Cl. 525—94 12 Claims

1. A fluororubber composition comprising 100 parts by weight of a rubber mixture which comprises 5 to 70% by weight of at least one rubber selected from the group consisting of diene rubbers and monoolefin copolymer rubbers optionally containing diene monomers or halogenated products thereof and 95 to 30% by weight of a fluororubber and 1 to 20 parts by weight of a block copolymer which comprises a vinyl monomer which does not contain fluorine and a fluorovinyl monomer, wherein a total percentage of the rubbers is 100%.

5,214,098

HARDENABLE EPOXIDE RESIN MIXTURES CONTAINING A LATENT HARDENER, AN AMINE AND A THIOL

Frans Setiabudi, Bad Krozingen, Fed. Rep. of Germany, and Urs Gruber, Arlesheim, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Nov. 16, 1990, Ser. No. 614,805

Claims priority, application Switzerland, Nov. 21, 1989, 4170/89

Int. Cl.[5] C08G *59/40, 65/00*

U.S. Cl. 525—109 16 Claims

1. A hardenable mixture, comprising

(a) an epoxide resin,

(b) a latent epoxide resin hardener which starts to react only at a temperature of at least 80° C. (measured by DSC at a heating rate of 10° C./minute),

(c) an amine having at least two NH_2 groups which is a cycloaliphatic amine or an aliphatic amine of one of the formulae I to VI

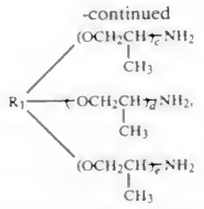
$$H_2N-R-NH_2, \quad (I)$$

$$H_2N+CH_2CH_2O)_aCH_2CH_2NH_2, \quad (II)$$

$$H_2NCHCH_2(OCH_2CH)_bNH_2, \quad (III)$$
$$\quad\quad |\quad\quad\quad\quad |$$
$$\quad CH_3\quad\quad\quad CH_3$$

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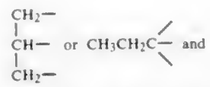


(IV)

$$H_2N(CH_2CH_2CH_2NH)_fCH_2CH_2CH_2NH_2, \quad (V)$$

$$H_2N(CH_2CH_2NH)_gCH_2CH_2NH_2. \quad (VI)$$

in which R is a straight-chain or branched C_2–C_{10}alkylene radical, a is an integer from 1 to 10, b is an integer from 1 to 10, c,d and e independently of one another are an integer from 1 to 20, f is an integer from 1 to 5, and g is an integer from 1 to 10, and R_1 is a trivalent radical of the formulae



(d) a thiol having at least one SH group, either the amine (c) having at least two hydrogen atoms bound to one or more nitrogen atoms or the thiol (d) having at least two SH groups, and the difference between the reaction maxima for the amine/thiol and latent hardener reactions with the epoxide resin in the DSC diagram which results upon heating the hardener mixture at a heating rate of 10° C./minute being at least 30° C.

5,214,099

EPOXY-FUNCTIONALIZED POLYPHENYLENE ETHERS OF LOW GEL CONTENT, METHOD FOR THEIR PREPARATION, AND COPOLYMER-CONTAINING COMPOSITIONS PREPARED THEREFROM

Farid F. Khouri, Clifton Park, N.Y.; Robert J. Halley, Atlanta, Ga., and John B. Yates, III, Glenmont, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 25, 1992, Ser. No. 841,178

Int. Cl.[5] C08F *283/08*; C08L *25/02, 71/12*

U.S. Cl. 525—149 **12 Claims**

1. A method for preparing an epoxy-functionalized polyphenylene ether composition which comprises melt blending, at a temperature in the range of 250°–285° C., at least one polyphenylene ether with about 2–4% by weight, based on said polyphenylene ether, of glycidyl acrylate in the presence of an amount effective to minimize gel formation of at least one lubricant which is substantially inert to glycidyl acrylate and polyesters; the blending time being effective to produce a composition having a gel content no greater than 5% by weight.

5,214,100

USE OF CERTAIN PHENOLIC RESINS FOR REINFORCING RUBBER VULCANIZATES

Manfred Abele, Cologne; Hans-Josef Buysch, Krefeld; Heinrich Schrage, Krefeld, and Hugo Vernaleken, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 15, 1991, Ser. No. 655,717

Claims priority, applicatinn Fed. Rep. of Germany, Feb. 27, 1990, 4006131

Int. Cl.[5] C08L *27/04*

U.S. Cl. 525—151 **4 Claims**

1. Rubber vulcanizates containing a reinforcing resin which is a phenolic resin obtained by a Friedel-Crafts alkylation of at least one phenol and at least one compound containing 4 to 8 carbon atoms and 2 to 4 functional groups comprising chlorine atoms.

5,214,101

POWDER COATING COMPOSITION COMPRISING A CO-REACTABLE PARTICULATE MIXTURE OF CARBOXYLIC ACID GROUP-CONTAINING POLYMERS AND BETA-HYDROXYALKYLAMIDE CURING AGENT

Paul H. Pettit, Jr., Allison Park; Debra L. Singer, and Marvin L. Kaufman, both of Pittsburgh, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 777,455, Oct. 16, 1991, Pat. No. 5,182,337, which is a continuation of Ser. No. 503,002, Apr. 2, 1990, abandoned, which is a division of Ser. No. 408,420, Sep. 18, 1989, Pat. No. 4,937,288, which is a continuation of Ser. No. 139,488, Dec. 30, 1987, abandoned, which is a continuation-in-part of Ser. No. 912,463, Sep. 29, 1986, Pat. No. 4,727,111. This application Aug. 24, 1992, Ser. No. 933,847

Int. Cl.[5] C08L *67/02*; C08F *8/30, 20/06, 20/18*

U.S. Cl. 525—176 **7 Claims**

1. A thermosetting powder coating composition comprising a co-reactable particulate mixture of:

(a) 35 to 85 percent by weight of the entire composition based on resin solids of a carboxylic acid group-containing acrylic polymer having a Tg in the range of about 35° C. to 100° C.;

(b) from about 1 to 25 percent by weight of the entire composition based on weight of resin solids of a carboxylic acid group-containing polyester having a number average molecular weight of from about 300 to about 1500 and an acid equivalent weight of from about 150 to about 750, said polyester being crystallinear at temperatures under 50° C. for assisting flow of the powder coating composition;

(c) a beta-hydroxyalkylamide curing agent, the equivalent ratio of beta-hydroxyalkylamide equivalents to carboxylic acid equivalents being within the range of about 0.6 to 1.6:1 and

(d) an amorphous acid group-containing polymer comprising a carboxylic acid group-containing polyurethane.

5,214,102

FLUORINATION OF ARTICLES MOLDED FROM ELASTOMERS

Ronald E. Zielinski, and Mark J. Seabury, both of Fort Wayne, Ind., assignors to William S. Shamban, Pacific Palisades, Calif.

Continuation-in-part of Ser. No. 732,631, Jul. 19, 1991. This application Dec. 5, 1991, Ser. No. 802,555

Int. Cl.[5] C08F *8/22*

U.S. Cl. 525—192 **26 Claims**

1. A method of producing fluorinated elastomeric articles, comprising the steps of:

providing a thermoplastic elastomeric article amenable to treatment with fluorine; and

exposing said article to gaseous fluorine under conditions sufficient to reduce the friction coefficient of said article without promoting degradation of the tensile properties of said article.

5,214,103

ETHYLENE-PROPYLENE TYPE RUBBER COMPOSITION

Akira Imao, Kakamigahara, and Masayoshi Ichikawa, Ichinomiya, both of Japan, assignors to Toyoda Gosei Co., Ltd., Nishikasugai, Japan

Filed Apr. 29, 1991, Ser. No. 693,230

Claims priority, application Japan, Apr. 30, 1990, 2-114370

Int. Cl.[5] C08F *8/00*

U.S. Cl. 525—193 **8 Claims**

1. A peroxide curing ethylene-propylene rubber composition comprising:

a rubber component obtained by blending a first ethylene-propylene non-conjugated terpolymer having a Mooney viscosity, ML_{1+4} (100° C.), of 20 to 100 and a second ethylene-propylene non-conjugated terpolymer having a Mooney viscosity, ML_{1+4} (100° C.) greater than 200, the ratio first/second terpolymer being from 90/10 to 60/40;

a peroxide curing agent in the amount of 2 to 8 parts per 100 by weight of said rubber component; and

an allyl type cocuring agent in the amount of 0.5 to 5 parts per 100 parts by weight of said rubber component.

5,214,104

COMPOSITIONS SUITABLE AS BINDERS AND THEIR USE IN COATING AND SEALING COMPOSITIONS

Christian Wamprecht, Neuss; Harald Blum, Wachtendonk, and Josef Pedain, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

Filed Aug. 26, 1991, Ser. No. 750,178

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1990, 4027742

Int. Cl.[5] C08F *8/14*

U.S. Cl. 525—207 **10 Claims**

1. A composition which is suitable for use as a binder and comprises

A) 10 to 99 parts by weight of at least one copolymer which has a weight average molecular weight of 1500 to 75,000, is prepared from olefinically unsaturated compounds and contains

i) 0.1 to 8.0% by weight of free hydroxyl groups and

ii) 1 to 29% by weight of epoxide groups (calculated as C_2H_3O) and

B) 1 to 90 parts by weight of at least one organic polyanhydride containing at least two cyclic carboxylic acid anhydride groups per molecule,

provided that 0.1 to 10 anhydride groups of component B) are present for each epoxide group of component A).

5,214,105

PREPARATION OF GRAFT COPOLYMERS FROM MACROMOLECULES CONTAINING REACTIVE TERTIARY STRUCTURES

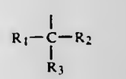
Jean M. J. Frechet, Ithaca, N.Y., assignor to University of Ottawa, Ontario, Canada

Division of Ser. No. 152,720, Feb. 5, 1988, Pat. No. 5,084,522. This application Oct. 11, 1991, Ser. No. 774,838

Int. Cl.[5] C08F *257/02*

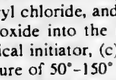
U.S. Cl. 525—245 **10 Claims**

1. A process for grafting a monomer susceptible to cationic polymerization, which comprises contacting a polymer or copolymer containing reactive pendant groups having the formula:



(IX)

wherein R_1 and R_2 each represents a saturated aliphatic hydrocarbon group or an aromatic hydrocarbon group, and R_3 is Cl, or a group of the formula —OR_4 or



wherein R_4 represents a saturated aliphatic hydrocarbon group or an aromatic hydrocarbon group, with a monomer susceptible to cationic polymerization in the presence of a Lewis acid catalyst.

5,214,106

CURED FLUOROELASTOMER COMPOSITIONS

Dana P. Carlson, Chadds Ford, Pa., and Akira Nagasawa, Kawasaki, Japan, assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed May 22, 1991, Ser. No. 704,269

Int. Cl.[5] C08F *14/22, 259/08*

U.S. Cl. 525—263 **8 Claims**

1. A cured fluoroelastomer composition prepared from

(A) a polymer selected from the groups consisting of

(1) random copolymer consisting essentially of about 60–80 mole % vinylidene fluoride polymer repeat units, about 14–24 mole % hexafluoropropylene polymer repeat units and about 4–26 mole % tetrafluoroethylene polymer repeat units, and

(2) a random copolymer consisting essentially of about 46–83 mole % VF_2 polymer repeat units, about 12–24 mole % $CF_3(CF_2)_nOCF{=}CF_2$ polymer repeat units wherein n is 0–5, and up to about 30 mole % tetrafluoroethylene polymer repeat units, wherein at least about 75% of the terminal carbon atoms of copolymer (1) and copolymer (2) have iodine bonded thereto and the iodine comprises about from 0.1 to 0.5 weight percent of the polymer; and

(B) a curing system comprising

(1) about from 0.5 to 10 parts, per 100 parts of polymer, of a polyfunctional crosslinking agent, and

(2) about from 0.5 to 10 parts, per 100 parts of polymer of an organic peroxide.

5,214,107

CHLORINATION OF OLEFIN POLYMERS IN CHLOROFLUOROBENZENE

Edward G. Brugel, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 3, 1992, Ser. No. 923,591

Int. Cl.[5] C08F *8/22*

U.S. Cl. 525—344 **8 Claims**

1. A process for preparation of a chlorinated olefin polymer which comprises (a) dissolving or suspending a C_2–C_8 olefin polymer in monochloromonofluorobenzene, (b) introducing a chlorinating agent selected from the group consisting of elemental chlorine, sulfuryl chloride, and a mixture of elemental chlorine and sulfur dioxide into the reaction mixture in the presence of a free radical initiator, (c) chlorinating the olefin polymer at a temperature of 50°–150° C. and (d) isolating the chlorinated olefin polymer from the reaction mixture.

5,214,108

PROCESS FOR MODIFYING THE VISCOSITY OF COPOLYMERS OF ETHYLENE AND UNSATURATED CARBOXYLIC ACIDS

Jerald R. Harrell, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 10, 1992, Ser. No. 912,963

Int. Cl.[5] C08F *8/06, 6/26*

U.S. Cl. 525—387 **12 Claims**

1. A process for increasing the viscosity of a copolymer of a) ethylene, b) a comonomer selected from the group consisting of C_1–C_8 alkyl esters of acrylic acid, C_1–C_8 alkyl esters of

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methacrylic acid, and vinyl esters of C_2–C_8 carboxylic acids, and c) at least one alpha, beta-unsaturated carboxylic acid of 3–12 carbon atoms selected from the group consisting of monocarboxylic acids, dicarboxylic acids, and monoesters of dicarboxylic acids, said copolymer having a Mooney viscosity, $ML_{(1+4)}100$, as measured according to ASTM D1646, of 1–20, which comprises treating said copolymer with a mixture of an organic peroxide and at least one chromium (III) compound selected from the group consisting of (i) chromium (III) carboxylates of the formula

$$(RCOO)_3Cr$$

where R is an acyclic group of 1–20 carbon atoms or an acyclic alkenyl group of 3–20 carbon atoms in which the alpha-carbon is saturated, and (ii) tris(2'-hydroxyacetophenono)chromium in amounts sufficient to increase the Mooney viscosity of the copolymer at least 6 points while producing a copolymer product having a gel content of less than 3% as determined by measurement of % insolubles in boiling xylene.

5,214,109

MODIFIED POLYPHENYLENE ETHER RESINS HAVING IMPROVED PROCESSABILITY AND OXIDATIVE STABILITY

Robert R. Gallucci, and Ronald J. Wroczynski, both of Pittsfield, Mass., assignors to General Electric Company, Pittsfield, Mass.

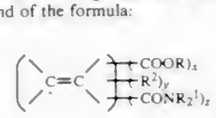
Division of Ser. No. 236,041, Aug. 24, 1988, which is a division of Ser. No. 901,434, Aug. 28, 1986, abandoned. This application Nov. 28, 1990, Ser. No. 619,264

Int. Cl.[5] C08F *283/08;* **C08L** *71/12*

U.S. Cl. 525—397 **9 Claims**

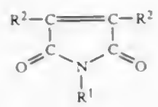
1. A method of improving the flow properties and oxidative stability of (a) a composition which comprises a polyphenylene ether resin, said method comprising adding an effective amount of (b) functionalizing modifer for (a) comprising:

(i) a compound of the formula:



wherein R is selected from alkyl, aryl, alkaryl, haloalkyl, haloaryl or haloalkaryl; R^1 is selected independently from hydrogen, alkyl, aryl or alkaryl; R^2 is the same as defined for R and, in addition, hydrogen or halogen, the total number of carbon atoms in R, R^1, R^2 being up to about 50; x,y and z each being 0 or an integer selected from 1, 2, 3 or 4; x+y +z being equal to 4 and x+z being at least 2;

(ii) a compound of the formula



wherein R^1 and R^2 are as above defined; or

(iii) a mixture of (i) and (ii).

5,214,110

BRANCHED AZIDO COPOLYMERS

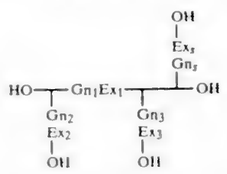
Elie Ahad, Ste-Foy, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence of Her Majesty's Canadian Government, Ontario, Canada

Continuation-in-part of Ser. No. 415,723, Oct. 2, 1989, abandoned. This application Jul. 11, 1990, Ser. No. 550,823

Int. Cl.[5] C08G *68/32;* **C08L** *71/362, 71/63*

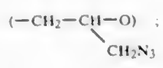
U.S. Cl. 525—403 **29 Claims**

1. A process for the preparation of a branched chain hydroxy-terminated aliphatic polyether copolymer containing glycidyl azide and an oxide group, of structural Formula I,



wherein

G is a glycidyl azide (GAP) unit



E is one or two of (—O—R), where R is alkyl, aryl or alcohol; n_1 and x_1 are respectively the number of GAP and E units in segment 1;

n_2 and x_2 are respectively the number of GAP and E units in segment 2;

n_3 and x_3 are respectively the number of GAP and E units in segment 3;

n_s and x_s are respectively the number of GAP and E units in segment s;

s is the total number of segments in the molecule;

n is the total number of GAP units in the copolymer structure; and

x is the total number of E units in the copolymer structure; and wherein

$$n = (n1 + n2 + \ldots + n_s) = \sum_{i=1}^{s} n_i;$$

$$x = (x1 + x2 + \ldots x_s) = \sum_{i=1}^{s} x_i; \text{ and}$$

$$4 \leqq n \leqq 400 \qquad 1 \leqq x \leqq 400;$$

wherein the copolymer has a weight average molecular weight of 500 to 40,000, and wherein the amount of GAP in the copolymer is in the range of 60–95 wt %, based on the weight of the copolymer, said process comprising reacting in a single step a solid rubbery material selected from epichlorohydrin-/alkylene oxide copolymer (PEEC) and polyepichlorohydrin homopolymer (PECH), of weight average molecular weight of 400,000 to 2,000,000 with an epoxide monomer, provided that when PECH is employed the epoxide monomer is not epichlorohydrin, and an ionic azide selected from the group consisting of sodium azide, lithium azide and potassium azide, in a suitable organic solvent at elevated temperature, while agitating.

5,214,111

RETARDERS FOR CURING PHENOLIC RESOLE RESINS

Arthur H. Gerber, Louisville, Ky., assignor to Borden, Inc., Columbus, Ohio

Division of Ser. No. 804,218, Dec. 9, 1991, Pat. No. 5,145,913, which is a division of Ser. No. 562,206, Aug. 2, 1990, Pat. No. 5,096,983. This application Jun. 2, 1992, Ser. No. 892,280

Int. Cl.[5] C08F *283/00;* **C08G** *8/28*

U.S. Cl. 525—506 **23 Claims**

1. A method for retarding the hardening of a mixture of a phenolic resole resin and a magnesium hardening agent at a temperature of about 60° F. to 120° F. which comprises mixing said resin and said hardening agent with a compound which decreases the solubility of magnesium in the mixture, said mixture comprising:

a. a hardenable phenolic resole resin having a pH of from about 4.5 to 9.5;

b. a magnesium hardening agent selected from the group consisting of magnesium hydroxide and lightburned magnesium oxide having a surface area of at least 10 square meters per gram, in an amount sufficient to increase the hardening rate of said resin; and

c. from about 0.1% to 5% of a retarder compound which decreases the solubility of magnesium in the composition, said compound being one which increases the time required to gel the composition at 25° C. by at least 35% when tested by mixing the resin with 2% of said compound, 12.5% of lightburned magnesium oxide having a surface area of 65 square meters per gram, 25% of gamma-butyrolactone, and 8.33% water, the percentages of compound, oxide, gamma-butyrolactone and water based on the weight of resin.

5,214,112

METHOD OF PREVENTING POLYMER DEPOSITION AND POLYMER SCALE PREVENTIVE AGENT

Toshihide Shimizu, Urayasu; Susumu Ueno, Ibaraki; Ichiro Kaneko, Ibaraki, and Mikio Watanabe, Ibaraki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 6, 1990, Ser. No. 578,342

Int. Cl.[5] C08F *2/00, 120/44, 14/06*

U.S. Cl. 526—62 **12 Claims**

1. A method of preventing polymer scale deposition during polymerization of a monomer having an ethylenically double bond and a polymerization vessel, comprising the step of carrying out said polymerization in a polymerization vessel of which the inner wall surface has a coating comprising:

(A) a water-soluble nitrogen-containing cationic polymeric compound, and

(B) a water-soluble anionic polymeric compound,

wherein said water-soluble nitrogen-containing cationic polymeric compound comprises at least one compound selected from the group consisting of polyvinylpyrrolidones, polyethyleneimines, polyvinylpyridines, polyvinylcarbazoles and polyvinylimidazolines, and

wherein said water-soluble anionic polymeric compound comprises at least one member selected from the group consisting of pectin, carrageenan, alginic acid and alkali metal salts thereof.

5,214,113

METHOD OF PREVENTING POLYMER SCALE DEPOSITION AND POLYMER SCALE PREVENTIVE AGENT

Toshihide Shimizu, Urayasu; Susumu Ueno; Ichiro Kaneko, both of Hazaki, and Mikio Watanabe, Kamisu, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 6, 1990, Ser. No. 578,349

Int. Cl.[5] C08F *2/00, 120/44, 114/06*

U.S. Cl. 526—62 **12 Claims**

1. A method of preventing polymer scale deposition during polymerization of a monomer having an ethylenic double bond in a polymerization vessel, comprising the step of carrying out said polymerization in a polymerization vessel of which the inner wall surface has a coating comprising:

(A) a lignin, and

(B) a cellulose comprising at least one member selected from the group consisting of methyl cellulose, ethyl cellulose, hydroxypropyl cellulose, hydroxypropylmethyl cellulose, glycol cellulose, benzyl cellulose, cyanoethyl cellulose, triphenylmethyl cellulose, formyl cellulose, cellulose propionate, cellulose acetate, cellulose acetate propionate, cellulose sulfonate, cellulose carbamate, nitrocellulose carboxymethyl cellulose and hemicellulose.

5,214,114

PROCESS FOR PRODUCING ETHYLENE POLYMERS

Tadashi Takahashi; Junji Mayumi, and Yoichi Maeda, all of Yokkaichi, Japan, assignors to Mitsubishi Petrochemical Company Limited, Tokyo, Japan

Filed Jan. 28, 1992, Ser. No. 827,012

Claims priority, application Japan, Jan. 28, 1991, 3-8393

Int. Cl.[5] C08F *2/06, 4/656*

U.S. Cl. 526—119 **11 Claims**

1. A process for producing an ethylene polymer which comprises contacting an olefin which is ethylene or ethylene and up to 10 mole percent of the ethylene of an α-olefin having 3 to 10 carbon atoms with a catalyst thereby to polymerize the olefin, the catalyst consisting of components (A) and (B):

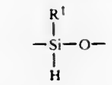
Component (A) which is a solid component for a Ziegler catalyst obtained by bringing component (A-2) into contact with component (A-1) and bringing the resulting contact product with components (A-3) and (A-4) wherein:

Component (A-1) which is a solid catalyst component obtained by contacting each of the following components (A-1-i), (A-1-ii) and (A-1-iii):

Component (A-1-i) which is a magnesium dihalide;

Component (A-1-ii) which is a titanium tetraalkoxide and/or a polytitanate ester; and

Component (A-1-iii) which is a polymeric silicon compound having a structure represented by the formula:



wherein R^1 represents a hydrocarbyl group;

Component (A-2) which is a silicon halide;

Component (A-3) which is a halohydrocarbon; and

Component (A-4) which is an organoaluminum halide; and

Component (B) which is an organoaluminum compound.

5,214,115

UNCROSSLINKED COPOLYMERS CONTAINING REACTIVE DOUBLE BONDS OF FLUORINE MONOMERS AND UNCONJUGATED DIENES AND A PROCESS FOR THEIR PRODUCTION

Gerhard Langstein, Kuerten-Biesfeld; Ralf Krüger, and Karl-Erwin Piejko, both of Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 28, 1992, Ser. No. 874,931

Claims priority, application Fed. Rep. of Germany, May 4, 1991, 4114598

Int. Cl.[5] C08F *16/24*

U.S. Cl. 526—247 **6 Claims**

1. An uncrosslinked copolymer of comonomers (a), (b) and (c) and containing reactive double bonds, the comonomers based on the total mols of (a), (b) and (c) comprising

(a) 45 to 99.9 mol-% of at least one ethylene containing 1 to 4 fluorine atoms,

(b) 0 to 54.9 mol-% of at least one comonomer selected from the group consisting of

(b1) a linear or branched C_{3-8} alkene containing at least one fluorine atom,

(b2) an alkyl vinyl ether containing at least one fluorine atom,

(b3) an open-chain or cyclic C_{3-6} ketone containing fluorinated α, α'-positions and

(b4) non-fluorinated C_{2-4} alkene, C_{3-6} alkyl vinyl ether or C_{4-6} vinyl ester, and

(c) 0.1 to 5 mol-% of at least one unconjugated diene of the formula

$$H_2C{=}C(R_1){-}(CH_2)_n{-}C(R_2){=}CHR_3 \qquad (I)$$

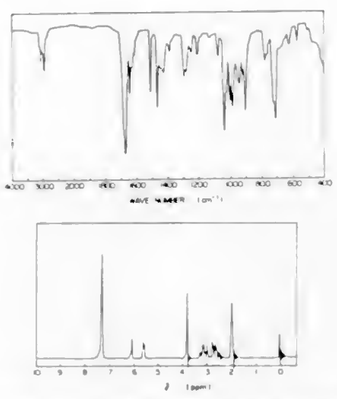
VOL 1150 ISS 4 MY 25 1993 UMI

in which n = 1 to 14 and R_1 to R_3 is hydrogen, C_1-C_6 alkyl, C_3-C_6 cycloalkyl or C_6-C_9 aryl,
wherein the copolymer is free of iodine or bromine groups.

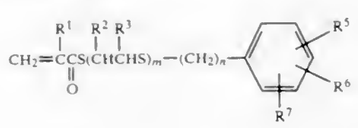
5,214,116
RESIN DERIVED FROM SULFUR-CONTAINING UNSATURATED COMPOUND AND HAVING A HIGH REFRACTIVE INDEX

Singo Matsuoka; Masahiro Amano, both of Shinnanyo, and Yasuji Kida, Kudamatsu, all of, assignors to Tokuyama Soda Kabushiki Kaisha, Yamaguchi, Japan

Continuation of Ser. No. 476,346, Feb. 7, 1990, abandoned. This application Dec. 11, 1991, Ser. No. 804,546
Claims priority, application Japan, Feb. 7, 1989, 1-26700
Int. Cl.[5] C08F *28/02*
U.S. Cl. 526—286 3 Claims

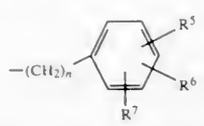


1. A resin having a high refractive index and a high ABBE number, said resin being a polymer comprising units derived from a sulphur-containing unsaturated compound represented by the formula (II):



(II)

wherein R^1 represents a hydrogen atom or a methyl group; R^2 and R^3 are identical or different and each represents a hydrogen atom, methyl group or ethyl group; and



represents benzyl, pehnylethyl, phenylpropyl, phenylbutyl, chlorophenylmethyl, dibromophenylmethyl, tribromophenylmethyl, methylthiophenylmethyl, di(methylthio)phenylmethyl, or methylphenylmethyl, and m is 1, 2 or 3.

5,214,117
GRAFTED COPOLYMERS HIGHLY ABSORBENT TO AQUEOUS ELECTROLYTE SOLUTIONS

Iqbal Ahmed, and Henry L. Hsieh, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 632,226, Dec. 20, 1990, abandoned. This application Jul. 23, 1992, Ser. No. 919,075
Int. Cl.[5] C08G *63/48, 63/91*
U.S. Cl. 527—309 26 Claims

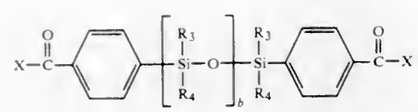
1. A graft copolymer formed by:
(A) graft polymerizing onto a first polymer selected from the group consisting of polysaccharide, polypropylene, and polyethylene; at least one comonomer selected from the group consisting of acrylamide, methacrylamide, acrylonitrile, acrylic acid, methacrylic acid, alkali salts of acrylic acid, alkali salts of methacrylic acid, 2-methacryloyloxyethyltrimethylamine, 2-acrylamido-2-methylpropane sulfonic acid, alkali salts of 2-acrylamido-2-methylpropane sulfonic acid, 2-methacryloyloxyethane sulfonic acid, alkali salts of 2-methacryloyloxyethane sulfonic acid, N-vinyl-2-pyrrolidone and combinations of two or more thereof;
(B) graft copolymerizing therewith an ampholytic ion pair monomer having an ammonium cation and a sulfonate anion wherein
(i) the ammonium cation is 2-methacryloyloxyethyltrimethylammonium; and
(ii) the sulfonate anion is selected from the group consisting of 2-acrylamido-2-methylpropane sulfonate, 2-methacryloyloxyethane sulfonate, vinyl sulfonate, styrene sulfonate and any combination of two or more thereof;
wherein the comonomers and ion pair monomers are provided in amounts which are effective to produce a highly absorbent graft copolymer; and
(C) partially saponifying neutralization of said graft copolymer formed in step (B).

5,214,118
PROCESS FOR SYNTHESIS OF POLYESTERCARBONATE-SILOXANE COPOLYMERS

Christopher M. Hawkins, Schenectady, N.Y., and Niles R. Rosenquist, Evansville, Ind., assignors to General Electric Company, Pittsfield, Mass.

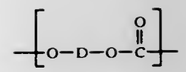
Filed Oct. 5, 1990, Ser. No. 593,165
Int. Cl.[5] C08G *77/445, 77/448*
U.S. Cl. 528—26 6 Claims

1. A process of preparing a polyester-carbonate-siloxane copolymer, which comprises;
reacting a dihydric phenol with a carbonyl halide under interfacial polymerization conditions until about 5 to 50 weight percent of the phenol to be incorporated in the copolymer has been polymerized;
adding to the reaction mixture a siloxane of the formula:

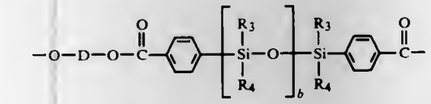


(I)

wherein R_3 and R_4 are each independently selected from hydrogen, hydrocarbyl or halogen-substituted hydrocarbyl; b is a whole number integer of from 0 to 50; and X represents halogen; and continuing the polymerization until there is obtained a polyester-carbonate-siloxane copolymer having repeating or recurring polycarbonate chain units of the formula:



wherein D is a divalent aromatic radical of the dihydric phenol employed in the polymerization reaction, and repeating or recurring carboxylate units of the formula:



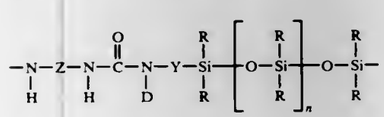
wherein b, R_3 and R_4 have the meanings previously ascribed to them.

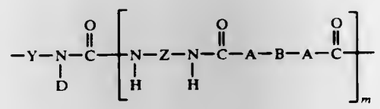
5,214,119
BLOCK COPOLYMER, METHOD OF MAKING THE SAME, DIMAINE PRECURSORS OF THE SAME, METHOD OF MAKING SUCH DIAMINES AND END PRODUCTS COMPRISING THE BLOCK COPOLYMER

Charles M. Leir, New Richmond, Wis.; Leonard A. Tushaus, Hasting, Minn.; Jerome J. Hoffman, White Bear, Minn., and Gary Wiederholt, West St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

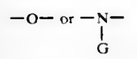
Continuation of Ser. No. 273,977, Nov. 21, 1988, abandoned, which is a continuation-in-part of Ser. No. 57,570, Jun. 15, 1987, abandoned, which is a continuation-in-part of Ser. No. 876,918, Jun. 20, 1986, abandoned. This application Nov. 16, 1990, Ser. No. 616,753
Int. Cl.[5] C08L *77/458*
U.S. Cl. 528—28 8 Claims

1. Organopolysiloxane polyurea block copolymer comprising the following repeating unit:

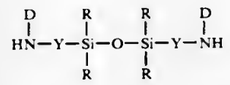




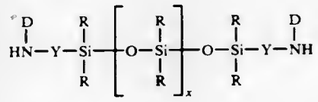
where:
Z is a divalent radical selected from the group consisting of phenylene, alkylene, aralkylene and cycloalkylene;
Y is an alkylene radical of 1 to 10 carbon atoms;
R is at least 50% methyl with the balance of the 100% of all R radicals being selected from the group consisting of a monovalent alkyl radical having from 2 to 12 carbon atoms, substituted alkyl radical having from 2 to 12 carbon atoms, a vinyl radical, a phenyl radical, and a substituted phenyl radical;
D is selected from the group consisting of hydrogen, and an alkyl radical of 1 to 10 carbon atoms and phenyl;
B is selected from the group consisting of alkylene, aralkylene, aralkylene, cycloalkylene, phenylene, polyethylene oxide, polytetramethylene oxide, polycaprolactone, polybutadiene, polypropylene oxide, polyethylene adipate, and mixtures thereof, or it may complete a ring structure including A to form a heterocycle;
A is a difunctional moiety selected from the group consisting of



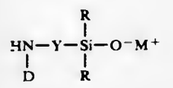
where G is selected from the group consisting of hydrogen, an alkyl radical of 1 to 10 carbon atoms, phenyl, and an alkylene radical which completes a ring structure including B to form a heterocycle;
n is a number which is 70 or larger, and
m is a number which can be zero to about 25, wherein the organopolysiloxane portion of said copolymer is derived from an organopolysiloxane diamine containing less than 1.2% free silicone oil contaminants, said organopolysiloxane diamine having a molecular weight of at least 5000, and being prepared by the steps of
(1) combining under reaction conditions:
(a) amine functional endblocker of the general formula



where:
Y and D are as defined above; and each R group is at least 50% methyl with the balance of the 100% of all R radicals being selected from the group consisting of a monovalent alkyl radical having from 2 to 12 carbon atoms, a vinyl radical, a phenyl radical and a substituted phenyl radical
(b) sufficient cyclic siloxane to react with said amine functional endblocker to form an intermediate organopolysiloxane diamine having a molecular weight less than about 2,000 and genera formula



where:
Y and D are as defined above; R is at least 50% methyl with the balance of the 100% of all R radicals being selected from the group consisting of a monovalent alkyl radical having from 2 to 12 carbon atoms, a substituted alkyl radical having from 1 to 12 carbon atoms, a vinyl radical, a phenyl radical and a substituted phenyl radical; and x is a number in the range of about 4 to about 40; and
(c) a catalytic amount of a compound characterized by having a molecular structure represented by the formula:



where
Y and D are as defined above; R is each independently selected from the group consisting of a monovalent alkyl radical having from 1 to 12 carbon atoms, a substituted alkyl radical having from 2 to 12 carbon atoms, a phenyl radical, and a substituted phenyl radical; and M^+ is selected from the cations K^+, Na^+ and $N(CH_3)_4^+$;

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(2) continuing the reaction until substantially all of said amine functional endblocker is consumed; and
(3) adding additional cyclic siloxane until said organopolysiloxane diamine having a molecular weight of at least 5000 is formed.

5,214,120

DOPE FOR FORMING ELASTIC POLYURETHANE ARTICLES AND PROCESS FOR PRODUCING SAID ARTICLES

Youichi Watanabe; Yoshikazu Arimatsu, and Hajime Suzuki, all of Ootsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

Filed Mar. 2, 1992, Ser. No. 844,537
Claims priority, application Japan, Mar. 1, 1991, 3-061215
Int. Cl.[5] C08G *18/32*
U.S. Cl. 528—49 **2 Claims**

1. A dope for forming elastic polyurethane articles prepared by using, as main reaction components, a polyol, a diisocyanate and a diamine, which also contains a solvent and a terminating agent comprising (a) a secondary monoamine and (b) a ketoimine-amine and/or an aldoimineamine.

5,214,121

PROCESS FOR MANUFACTURING DIOLS AND POLYURETHANES CONTAINING PERFLUOROALKYL RADICALS

Franz Mosch, Diedorf; Simpert Lüdemann, Bobingen, and Michael Bernheim, Aystetten, all of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 17, 1991, Ser. No. 702,800
Claims priority, application Fed. Rep. of Germany, May 21, 1990, 4016329
Int. Cl.[5] C08G *18/08*
U.S. Cl. 528—49 **21 Claims**

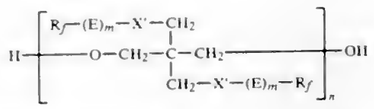
1. In a process for manufacturing diols containing perfluoroalkyl radicals by reacting in a 1st reaction step a compound of the formula (I)

$$R_f\text{—}(E)_m\text{—}X'\text{—}H \qquad (I)$$

wherein m=0 or 1 and R_f is an unsubstituted straight-chain or branched chain perfluoroalkyl radical with 1 to 18 C-atoms or a branched-chain or straight-chain perfluoroalkyl radical with 1 to 18 carbon atoms substituted by a perfluoroalkoxy radical with 2 to 6 C-atoms, E is a branched-chain or straight-chain alkylene radical with 1 to 10 carbon atoms which may be interrupted by 1 to 3 divalent groups of the formulate —NR—, —O—, —S—, $—SO_2$, —COO—, —OOC—, —CONR—, —NRCO—, $—SO_2NR—$ and $NRSO_2—$, or a branched-chain or straight-chain alkylene radical with 1 to 10 carbon atoms having a $—SO_2NR—$ or a —CONR—groups at one end, whereby the radical R_f is linked with the sulphuric atom or the carbon atom of this group, and X'—H=—CON(R)H or $SO_2N(R)H$ or —SH and R is an alkyl radical with 1 to 6 C-atoms, with a compound of the formula II

$$HO[CH_2\text{—}C(CH_2Y)_2CH_2O]_nH \qquad (II)$$

wherein Y=Cl, Br or I and n=1, 2 or 3 and whereby per mol equivalent Y of the formula II about 1 mol of the compound of the formula I are applied, the reaction being performed in the presence of an alkali metal carbonate whereby the alkali metal carbonate is present in an amount sufficient for the substantially complete neutralization of the resulting acid HY, the reaction being performed in an aprotic solvent at elevated temperature, whereby a reaction product of the formula III



(III)

is obtained, wherein the improvement comprises carrying out the reaction (1st step) in an aprotic solvent which is substantially insoluble in water and in the presence of an aqueous solution of the alkali metal carbonate, subsequently removing the phase containing the aqueous salt solution, and removing the remaining residual water from the organic phase.

5,214,122

PREPARATION OF MULTIPLY-BRANCHED CYCLOALKYL POLYESTERS AND MULTIPLY-BRANCHED CYCLOALKYL POLYESTERS

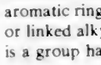
S. Richard Turner, Pittsford, N.Y., and Brigitte I. Voit, Munich, Fed. Rep. of Germany, assignors to Eastman Kodak Company, Rochester, N.J.

Filed Jul. 13, 1992, Ser. No. 912,361
Int. Cl.[5] C08G *63/00, 63/66*
U.S. Cl. 528—272 **18 Claims**

1. A method for producing a multiply-branched cycloalkyl polyester comprising the step of condensing Z^1 and Z^2 groups of a branching reactant having the general formula

$$(Z^1)_j\text{—CYCLO—}(Z^2)_k$$

wherein
j is 1 or 2,
k is 1 or 2,
j + k is 3, 4, or 5,
CYCLO is selected from the group consisting of non-aromatic ring systems having from 1 to 8, solitary or fused or linked alkyl or heteroalkyl rings, and one of Z^1 and Z^2 is a group having the general



formula and the other is —OH, $—OSi(CH_3)_3$, or a group having the general formula



wherein
R^1 is selected from the group consisting of hydroxy, chloro, bromo, monovalent alkoxide having from 1 to about 6 carbons, and $—O—(CH_2)_d—OH$, wherein d is an integer from 1 to 3,
R^2 is a divalent alkyl group having from 1 to about 6 carbon atoms, and
g is an integer from 0 to about 100, with the provisos that if CYCLO is a solitary ring then j + k is 3, 4, or 5 and if Z^1 is bonded to a linear aliphatic linking group then Z^2 has said general formula



5,214,123

PREPARATION OF AROMATIC POLY(IMIDE-AMIDE)S FROM CO, PRIMARY DIAMINE AND DI(TRIFLUORO METHANE SULFONATE) CONTAINING PHTHALIMIDE GROUP

Robert J. Perry; S. Richard Turner, both of Pittsford, and Richard W. Blevins, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 25, 1992, Ser. No. 841,926
Int. Cl.[5] C08G *73/10*
U.S. Cl. 528—321 **20 Claims**

1. A method for preparing poly(imide-amide)s comprising reacting carbon monoxide, a primary diamine, and an aromatic or heteroaromatic di(trifluoromethane sulfonate), wherein said aromatic reactant has a nucleus including a phthalimide ring system, in the presence of solvent and catalyst, said catalyst being selected from the group consisting of platinum compounds, palladium compounds, and nickel compounds.

5,214,124

POLYAMIDE RESIN FROM DISTILLED DIMERIZED FATTY ACID/HYDROGENATED DIMERIZED FATTY ACID

Manfred Drawert, Frondenberg; Horst Krase, and Horst Wardzichowski, both of Hamm, all of Fed. Rep. of Germany, assignors to Schering AG, Bergkamen, Fed. Rep. of Germany

Filed Jul. 9, 1991, Ser. No. 727,545
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1990, 4024981
Int. Cl.[5] C08G *69/34*
U.S. Cl. 528—335 **8 Claims**

1. A relief print thermoplastic polyamide prepared by condensation reaction of
(A) at least one distilled dimerized fatty acid,
(B) at least one hydrogenated dimerized fatty acid, or both, optionally with
(C) at least one co-dicarboxylic acid; and
(D) oleic acid;
(E) isostearic acid; and
(F) ethylenediamine; optionally with
(G) 1,6-diaminohexane, 1,2-diaminopropane, 1,12-diamino-4,9-dioxadodecane or poly(oxypropylene)diamine; optionally with
(H) at least one conventional agent selected from the group consisting of flow-control agents, optical brighteners, and stabilizers,
comprising up to 2 weight percent, based on the fatty acids (A), (B), (D) and (E), of component (C),
the ratio of component (A), (B) or both to components (D) and (E) ranging from 0.5:0.5 to 0.75:0.25 equivalents, based on the carboxyl groups,
the ratio, within said ratio, of component (D) to component (E) ranging from 0.9:1.1 to 1.1:0.9,
the ratio of component (F) to component (G) ranging form 1:0 to 0.8:0.2; and
the acid components (A) to (E) and the amino components (F) and (G) in substantially equivalent amounts.

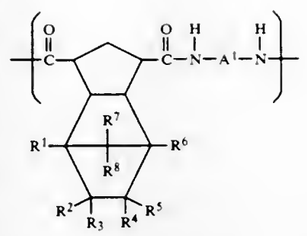
5,214,125

POLYAMIDE FROM 3,5-TRICYCLO[5.2.1.0^{2,6}]DECANE DICARBOXYLIC ACID

Makoto Mitani, Yamaguchi, and Toshimasa Takata, Iwakuni, both of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Sep. 19, 1991, Ser. No. 762,333
Claims priority, application Japan, Sep. 19, 1990, 2-249282; Dec. 28, 1990, 2-408937; Dec. 28, 1990, 2-408938
Int. Cl.[5] C08G *69/26*
U.S. Cl. 528—344 **45 Claims**

1. A polyamide comprising a recurring unit of the formula (I),



(I)

wherein each of R^1, R^2, R^3, R^4, R^5, R^6, R^7 and R^8 is independently a hydrogen atom, a halogen atom, a hydroxyl group, an alkyl group, a halogen-containing alkyl group, a hetero-atom-containing alkyl group, or an unsubstituted or substituted aromatic hydrocarbon group wherein said substituent is selected from the group consisting of alkyl group, halogen atom, —CN group, $—NO_2$ group, acyl group and alkoxy group and A^1 is a divalent hydrocarbon group.

5,214,126

POLYMERIZATION OF CO/OLEFIN WITH NICKEL COMPOUND MERCAPTO CARBOXYLIC ACID REACTION PRODUCT CATALYST

Birgit Driessen, Aachen, Fed. Rep. of Germany; Michael J. Green, Surrey, England, and Wilhelm Keim, Aachen, Fed. Rep. of Germany, assignors to The British Petroleum Company, p.l.c., London, England

Filed Aug. 1, 1991, Ser. No. 738,818
Claims priority, application United Kingdom, Aug. 9, 1990, 9017501
Int. Cl.[5] C08G *67/02*
U.S. Cl. 528—392 **10 Claims**

1. A process for preparing polyketones by polymerising a mixture of carbon monoxide and one or more olefins in the presence of a solvent and an effective amount of a nickel catalyst obtained by reacting a nickel compound with a bidentate ligand of formula HS—R—CO_2H where R is a divalent organic group.

5,214,127

PREPARATION OF POLYAMIDES FROM CARBON MONOXIDE AND AROMATIC IODO AMINE

Robert J. Perry; S. Richard Turner, both of Pittsford, and Richard W. Blevins, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 810,612, Dec. 19, 1991, abandoned, which is a division of Ser. No. 531,814, Jun. 1, 1990, Pat. No. 5,104,971. This application Feb. 25, 1992, Ser. No. 841,887
Int. Cl.[5] C08G *69/00*
U.S. Cl. 528—422 **10 Claims**

1. A process for the preparation of an aromatic polyamide, said process comprising reacting carbon monoxide and an aromatic iodoamine having at least one iodine atom covalently bonded to an aromatic ring and at least one amino group; in the presence of solvent, base, and catalyst selected from the group consisting of platinum compounds, palladium compounds, and nickel compounds, at a pressure greater than 15 psia.

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5,214,128

METHOD FOR PURIFYING A POLYPHENYLENE ETHER WITH AMINO CARBOXYLIC ACID DERIVATIVE

Koichi Horiguchi, 4-8-16, Nagauraekimae, Sodegaura-shi, Chiba-ken; Sadao Ibe, 5-29-22, Higashinakano, Nakano-ku, Tokyo, and Katsuo Tsuguma, 28-213, Sakurazono-cho, Nobeoka-shi, Miyazaki-ken, all of Japan

Filed Nov. 12, 1991, Ser. No. 789,837
Claims priority, application Japan, May 21, 1990, 2-129131
Int. Cl.[5] C08G *65/30*
U.S. Cl. 528—486 10 Claims

1. A method for removing catalyst composition from a polyphenylene ether reaction product produced by the oxidative polymerization reaction of a 2,6-di-substituted phenol in a reaction mixture containing a catalyst composition comprising copper ion, halide ion, and at least one amine, wherein the polyphenylene ether reaction product precipitates as particles in the reaction mixture, which consists of adding an amino carboxylic acid derivative to the polyphenylene ether reaction product particles and washing the polyphenylene ether reaction product particles to which the amino carboxylic acid derivative has been added with a poor solvent for polyphenylene ether.

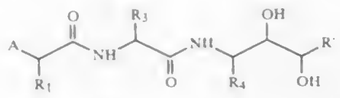
5,214,129

PEPTIDYLAMINODIOLS

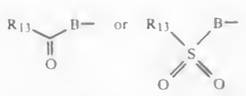
Jay R. Luly; Jacob J. Plattner, both of Libertyville, and Dale J. Kempf, Lake Villa, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 713,644, Jun. 10, 1991, Pat. No. 5,091,575, which is a continuation of Ser. No. 327,467, Mar. 22, 1989, abandoned, which is a division of Ser. No. 217,106, Jul. 11, 1988, Pat. No. 4,845,079, which is a continuation of Ser. No. 943,567, Dec. 31, 1986, abandoned, which is a continuation-in-part of Ser. No. 895,009, Aug. 7, 1986, abandoned, which is a continuation-in-part of Ser. No. 818,734, Jan. 16, 1986, abandoned, which is a continuation-in-part of Ser. No. 693,951, Jan. 23, 1985, abandoned. This application Nov. 18, 1991, Ser. No. 793,773
Int. Cl.[5] C07C *211/03, 271/12*
U.S. Cl. 530—331 11 Claims

1. A process for the preparation of a compound of the formula:



wherein A is hydrogen, loweralkyl, arylalkyl, $-OR_{10}$ or $-SR_{10}$ wherein R_{10} is hydrogen, loweralkyl or aminoalkyl; or A is $-NR_{11}R_{12}$ wherein R_{11} and R_{12} are independently selected from hydrogen, loweralkyl, aminoalkyl, cyanoalkyl and hydroxyalkyl; or A is



wherein B is NH, alkylamino, S, O, CH_2 or CHOH and R_{13} is loweralkyl, cycloalkyl, aryl, arylalkyl, alkoxy, alkenyloxy, hydroxyalkoxy, dihydroxyalkoxy, arylalkoxy, arylalkoxyalkyl, amino, alkylamino, dialkylamino, (hydroxyalkyl)(alkyl)amino, aminoalkyl, alkylaminoalkyl, (N-protected)aminoalkyl, (N-protected)(alkyl)aminoalkyl, dialkylaminoalkyl, (heterocyclic)alkyl or an unsubstituted or a monosubstituted heterocyclic wherein the substituent is hydroxy, oxo, amino, alkylamino, dialkylamino or loweralkyl, provided that when the heterocyclic is unsaturated the substituent is not oxo;

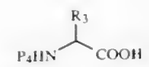
R_1 is loweralkyl, cycloalkylmethyl, benzyl, 4-methoxybenzyl, halobenzyl, (1-naphthyl)methyl, (2-naphthyl)methyl, (4-imidazolyl)methyl, (alpha,alpha)-dimethylbenzyl, 1-benzyloxyethyl, phenethyl, phenoxy, thiophenoxy or anilino; provided that when R_1 is phenoxy, thiophenoxy or anilino, then B is CH_2 or CHOH or A is hydrogen;

R_2 is hydrogen or loweralkyl;

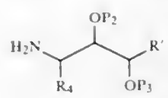
R_3 is loweralkyl, loweralkenyl, ((alkoxy)alkoxy)alkyl, (thioalkoxy)alkyl, benzyl or heterocyclic ring substituted methyl;

R_4 is loweralkyl, cycloalkylmethyl or benzyl; and

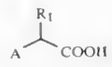
R' is hydrogen, loweralkyl, vinyl or arylalkyl; comprising the steps of (a) coupling an N-protected amino acid of the formula



wherein R_3 is defined as above and P_4 is an N-protecting group with a compound of the formula:



wherein R' and R_4 are defined as above and P_2 and P_3 are independently selected from hydrogen and an O-protecting group, followed by (b) removing the N-protecting group P_4 from the resulting product of step (a) and then coupling the N-deprotected product of step (a) with a compound of the formula:



wherein A and R_1 are defined as above.

5,214,130

SYNTHESIS OF NOVEL IMMUNOSUPPRESSIVE CYCLOSPORIN ANALOGS WITH MODIFIED AMINO ACIDS AT POSITION-8

Arthur A. Patchett, Westfield; David Taub, Metuchen, and Robert T. Goegelman, Linden, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 485,920, Feb. 27, 1990, Pat. No. 5,122,511. This application Aug. 12, 1991, Ser. No. 744,039
Int. Cl.[5] A61K *37/02, 37/00;* C07K *5/00, 7/00*
U.S. Cl. 530—333 6 Claims

1. A process of making a compound of formula [Δ-Ala][8]-CsA comprising: contacting [X-D-Ala][8]-CsA wherein X is fluorine, chlorine, mesyloxy or tosyloxy in an aprotic solvent, with an aprotic base to yield a compound of formula [Δ-Ala][8]-CsA.

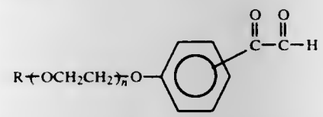
5,214,131

POLYETHYLENE GLYCOL DERIVATIVES, MODIFIED PEPTIDES AND PRODUCTION THEREOF

Akihiko Sano, Toyonaka; Hiroo Maeda, Sakai; Yoshiyuki Kai, Kobe, and Keiichi Ono, Sakai, all of Japan, assignors to Sumitomo Pharmaceuticals Company, Limited, Osaka, Japan

Division of Ser. No. 347,902, May 5, 1989, Pat. No. 5,093,531. This application Nov. 26, 1991, Ser. No. 798,138
Claims priority, application Japan, May 6, 1988, 63-110931
Int. Cl.[5] A61K *37/02;* C07C *49/76*
U.S. Cl. 530—345 2 Claims

1. A modified peptide in which the guanidino group is modified by covalently attaching a polyethylene glycol derivative of the formula



wherein R represents a lower alkyl and n represents a positive integer which renders the average molecular weight of the polyethylene glycol moiety about 1,000 to 12,000 daltons.

5,214,132

POLYPEPTIDE DERIVATIVES OF HUMAN GRANULOCYTE COLONY STIMULATING FACTOR

Tetsuro Kuga, Yamaguchi; Hiromasa Miyaji; Moriyuki Sato, both of Tokyo; Masami Okabe; Makoto Morimoto, both of Shizuoka; Seiga Itoh, Kanagawa; Motoo Yamasaki, Tokyo; Yoshiharu Yokoo, Kanagawa; Kazuo Yamaguchi; Hajime Yoshida, both of Kanagawa, all of Japan, and Yoshinori Komatsu, Salt Lake City, Utah, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 318,527, Mar. 3, 1989, which is a continuation-in-part of Ser. No. 136,647, Dec. 22, 1987, abandoned. This application Apr. 12, 1989, Ser. No. 337,002
Claims priority, application Japan, Dec. 23, 1986, 61-306799; Mar. 4, 1988, 63-51357; Mar. 31, 1988, 63-80088
Int. Cl.[5] C07K *13/00*
U.S. Cl. 530—351 1 Claim

1. A polypeptide having an amino acid sequence as derived from the amino acid sequence of the human mature granulocyte colony stimulating factor (hG-CSF) polypeptide wherein the amino acids in the first, third, fourth, fifth and seventeenth position as Ala, Thr, Tyr, Arg and Ser, respectively.

5,214,133

SCL: A HEMATOPOIETIC GROWTH AND DIFFERENTIATION FACTOR

Ilan R. Kirsch, Potomac, Md., and C. Glenn Begley, North Carlton, Australia, assignors to The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.

Division of Ser. No. 437,819, Nov. 17, 1989, Pat. No. 5,132,212. This application Jan. 27, 1992, Ser. No. 826,470
Int. Cl.[5] C07K *13/00, 1/02;* A61K *37/02, 37/00*
U.S. Cl. 530—399 6 Claims

1. An isolated or purified SCL hematopoietic growth and differentiation affecter which comprises the sequence

Arg Arg Ile Phe Thr Asn Ser Arg Glu Arg Trp Arg Gln Gln Asn Val Asn Gly Ala Phe Ala Glu Leu Arg Lys Leu Ile Pro Thr His Pro Pro Asp Lys Lys Leu Ser Lys Asn Glu Ile Leu Arg Leu Ala Met Lys Tyr Ile Asn Phe Leu,

or a homologous variant of said affecter having less than five amino acid changes, said amino acid changes being conservative amino acid changes.

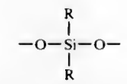
5,214,134

PROCESS OF LINKING NUCLEOSIDES WITH A SILOXANE BRIDGE

Alexander L. Weis, Berwyn; Ashis K. Saha, Frazer, both of Pa., and Frederick H. Hausbeer, San Antonio, Tex., assignors to Sterling Winthrop Inc., New York, N.Y.

Filed Sep. 12, 1990, Ser. No. 581,502
Int. Cl.[5] C07H *19/173, 19/073, 21/04*
U.S. Cl. 536—25.3 24 Claims

1. In a process of linking nucelosides with a siloxane bridge of the formula



wherein each R is independently C1-C6 alkyl; comprising reacting a 3'-silylated-5'-protected necleoside with an O-unprotected nucleoside, the improvement which comprises performing said reaction in the presence of a sterically hindered base catalyst.

5,214,135

N-PROTECTED-2'-O-METHYL-RIBONUCLEOSIDES AND N-PROTECTED 2'-O-METHYL-3'-CYANOETHYL-N-,N-DIISOPROPYL PHOSPHORAMIDITE RIBONUCLEOSIDES

Suresh C. Srivastava, Burlington, and Saroj K. Roy, Waltham, both of Mass., assignors to ChemGenes Corporation, Waltham, Mass.

Filed Aug. 30, 1991, Ser. No. 753,077
Int. Cl.[5] C07H *19/167*
U.S. Cl. 536—26.7 3 Claims

1. N^2-isobutyryl-O^6-methyl-2'-O-methyl-5'-dimethoxytrityl-guanosine.

2. N^6-benzoyl-2'-O-methyl-5'-dimethoxytrityl-adenosine-3'-cyanoethyl-N,N-diisopropyl phosphoramidite.

3. N^2-isobutyryl-2'-O-methyl-5'-dimethoxytrityl-3'-guanosine-3'-cyanoethyl-N,N-diisopropyl phosphoramidite.

5,214,136

ANTHRAQUINONE-DERIVATIVES OLIGONUCLEOTIDES

Kuei-Ying Lin, Fremont, and Mark Matteucci, Burlingame, both of Calif., assignors to Gilead Sciences, Inc., Foster City, Calif.

Filed Feb. 20, 1990, Ser. No. 482,941
Int. Cl.[5] C07H *17/00;* A61K *31/70*
U.S. Cl. 514—44 5 Claims

1. A modified oligonucleotide wherein said modification comprises at least one substituted or unsubstituted anthraquinone residue conjugated to a pseudonucleoside.

5,214,137

PREPARATION OF CELLULOSE DIACETATE BY RECYCLING PROCESSED FILM

Alan K. Wilson, and Fred D. Barlow, Jr., both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 8, 1991, Ser. No. 652,710
Int. Cl.[5] C08B *3/06, 3/22, 3/24, 3/28*
U.S. Cl. 536—76 10 Claims

1. A process for preparing cellulose diacetate having a DS/AGU of about 1.75 to about 2.7 from processed photographic film having cellulose triacetate having a DS/AGU of about 2.85 to 3 as a film base comprising:

(I) contacting:

(A) said processed photographic film, with

(B) an organic acid solution comprising

(1) an organic acid, and

(2) a solvolysis agent,

at a temperature and for a time sufficient to promote formation of the desired cellulose diacetate,

(II) filtering the reaction mixture for step (I) to result in partially purified cellulose diacetate separated from insoluble material, and

(III) precipitating the partially purified cellulose diacetate for step (II) by contacting with a non-solvent for cellulose diacetates selected from the group consisting of methanol, isopropanol, n-propanol, and ethanol

wherein said organic acid solution of (I)(B) additionally comprises a catalytic amount of a hydrogenation catalyst.

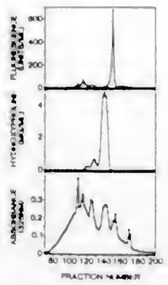
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,138

IMIDAZOPYRIDINIUM COMPOUND AND PROCESSES FOR ISOLATING, IDENTIFYING, AND CHEMICALLY SYNTHESIZING SAME

Vincent M. Monnier, Shaker Hts., and David R. Sell, Cleveland Hts., both of Ohio, assignors to Case Western Reserve University, Cleveland, Ohio

Filed Dec. 20, 1989, Ser. No. 453,959
Int. Cl.[5] A61K *31/70, 31/44;* C07H *17/02, 19/04*
U.S. Cl. 536—17.3 13 Claims



1. A substantially pure form of imidazo [4,5b] pyridinium consisting essentially of a lysine and an arginine residue cross-linked by a pentose.

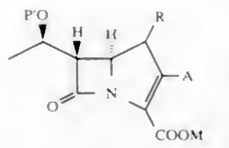
5,214,139

2-PHENANTHRIDONYL-CARBAPENEMS

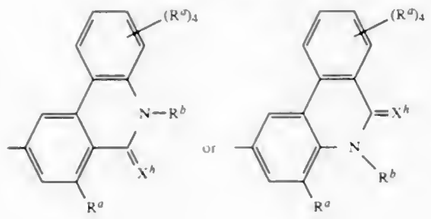
Frank DiNinno, Old Bridge; Thomas A. Rano, Somerville, and Mark L. Greenlee, Rahway, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Apr. 16, 1991, Ser. No. 686,109
The portion of the term of this patent subsequent to Oct. 20, 2009, has been disclaimed.
Int. Cl.[5] C07D *487/04*
U.S. Cl. 540—302 11 Claims

1. A compound of the formula:



with A as



wherein:

R is H or CH_3;

P' is a removable protecting group for hydroxy;

X^h is O or S;

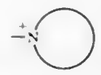
R^a are independently selected from the group consisting of hydrogen and the radicals set out below, provided that one but not more than one R^a or R^b is or contains a Type I substituent, the remaining non-hydrogen substituents being selected from Type II, and in total not more than four R^a and R^b radicals are other than hydrogen:

I. a)



where

A is $(CH_2)_m$—Q—$(CH_2)_n$, where m is 0 to 6 and n is 1 to 6 and Q is a covalent bond, O, S, SO, SO_2, NH, $—SO_2NH—$, $—NHSO_2—$, —CONH—, —NHCO—, $—SO_2N(C_1$-C_4alkyl)—, $—N(C_1$-C_4alkyl)$SO_2—$, $—CON(C_1$-C_4alkyl)—, $—N(C_1$-C_4alkyl)CO—, —CH=CH—, —CO—, —OC(O)—, —C(O)O— or $N(C_1$-C_4alkyl) and $(CH_2)_m$ is attached to the phenanthridonyl moiety;

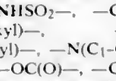


is a 5- or 6-membered monocyclic heterocycle or an 8-, 9- or 10-membered bicyclic heterocycle, the heterocycle containing a first nitrogen in an aromatic 5- or 6-membered first ring, with attachment of the heterocycle to A by way of said first nitrogen and said first nitrogen is quaternary by virtue of the attachment and ring bonds, with the first ring containing 0 or 1 of either O or S, with the first ring containing 0 to 3 additional nitrogen atoms, with the first ring optionally fused to a 3- or 4-membered moiety to form the optional second ring, with the moiety containing at least one carbon atom, with the moiety containing 0 or 1 of either O or S, with the moiety containing 0 to 2 nitrogen atoms, and with the moiety being saturated or unsaturated and the second ring aromatic or non-aromatic;

R^c is R^a as defined under II below, hydrogen, or $—NR^yR^z$ (where R^y and R^z are defined in II below), but independently selected from R^a and from each other if more than one R^c is present, and is attached to a carbon ring atom or a nitrogen heteroatom the valency of which is not satisfied by the ring bonds;

p is 0 or 1; b)

where



is a 5- or 6-membered monocyclic heterocycle or an 8-, 9- or 10-membered bicyclic heterocycle, the heterocycle containing a first nitrogen in an aromatic 5- or 6-membered first ring, with said first nitrogen quaternary by virtue of a substituent R^d in addition to the ring bonds thereto, with said first nitrogen neutral in the absence of a substituent R^d, with attachment of the heterocycle to A' by way of a carbon atom of a ring, with the first ring containing 0 or 1 of either O or S, with the first ring containing 0 to 2 additional nitrogen atoms, with the first ring optionally fused to a 3- or 4-membered moiety to form the optional second ring, with the moiety containing at least one carbon atom, with the moiety containing 0 or 1 of either O or S, with the moiety containing 0 to 2 nitrogen atoms, and with the moiety being saturated or unsaturated and the second ring aromatic or non-aromatic;

R^c is defined above;

R^d is hydrogen, NH_2, O^- or C_1-C_4alkyl (where the alkyl group is optionally mono-substituted with R^q as defined under IIc below);

A' is $(CH_2)_m$—Q—$(CH_2)_n$, where m is 0 to 6 and n is 0 to 6, Q is given above, and when m and n are 0 then Q is not a covalent bond;

c) $—A_p—N^+R^yR^x)_{(0-1)}(R^z)$ where

R^y and R^z are as defined under II below,

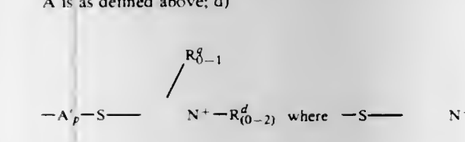
R^y and R^z may further be together a C_2-C_4 alkylidene radical to form a ring (optionally mono-substituted with R^q as defined below) interrupted by $N(O)R^e$ or $N^+(R^e)_2$ (where R^e is hydrogen, C_1-C_4alkyl, or C_1-C_4alkyl substituted with R^q defined below),

R^x is hydrogen, C_{1-4} alkyl, O^-, NH_2 or absent in which case the nitrogen is neutral,

R^x, R^y and R^z may further together form a C_5-C_{10} tertiary alkylidene radical which with N^+ forms a bicyclic ring, where the tertiary alkylidene radical is optionally mono-substituted with R^q as defined below and where the tertiary carbon of the tertiary alkylidene radical is optionally replaced with nitrogen, N^+R^e (where R^e is defined above), or $N^+—O^-$,

p is 0 or 1, and

A is as defined above; d)



is a 5- or 6-membered monocyclic heterocycle or an 8-, 9- or 10-membered bicyclic heterocycle, the heterocycle containing a first nitrogen in a first ring, with the first ring saturated or unsaturated and non-aromatic, with the first nitrogen quaternary by virtue of one or two substituents R^d in addition to the ring bonds thereto, with the first nitrogen alternatively neutral by virtue of zero or one substituents R^d in addition to the ring bonds thereto, with attachment of the heterocycle to A' by way of a carbon atom or non-quaternary nitrogen atom of a ring, with the first ring containing in addition to carbon and the first nitrogen 0 to 1 of a member selected from the group consisting of the non-quaternary nitrogen of attachment, O, S, S(O), $S(O)_2$ and NR^e where R^e is defined above, with the first ring optionally fused to a 2-, 3- or 4-membered moiety to form the optional second ring, with the moiety optionally containing in addition to carbon the non-quaternary nitrogen of attachment, and with the moiety saturated or unsaturated and the second ring non-aromatic;

R^d is defined above and where more than one R^d is present on a nitrogen, at least one R^d is hydrogen or C_1-C_4alkyl;

A' is defined above; and

p is defined above;

R^q is defined below;

with the Type I, R^a or R^b substituent balanced with the anionic form of Z where:

Z is selected from the group consisting of alkylsulfonyloxy, substituted alkylsulfonyloxy, arylsulfonyloxy, substituted arylsulfonyloxy, fluorosulfonyloxy, and halogen;

II.

a) a trifluoromethyl group: $—CF_3$;

b) a halogen atom: —Br, —Cl, —F, or —I;

c) C_1-C_4 alkoxy radical: $—OC_{1-4}$ alkyl, wherein the alkyl is optionally mono-substituted by R^q, where

R^q is a member selected from the group consisting of —OH, OP', $—OCH_3$, —CN, $—C(O)NH_2$, $—OC(O)NH_2$, CHO, $—OC(O)N(CH_3)_2$, $—SO_2NH_2$, $—SO_2N(CH_3)_2$, $—SOCH_3$, $—SO_2CH_3$, —F, $—CF_3$, $—COOM^a$ (where M^a is hydrogen, alkali metal, methyl or phenyl), tetrazolyl (where the point of attachment is the carbon atom of the tetrazole ring and one of the nitrogen atoms is mono-substituted by M^a as defined above) and $—SO_3M^b$ (where M^b is hydrogen or an alkali metal or M);

d) a hydroxy group: —OH or OP';

e) a carbonyloxy radical: $—O(C=O)R^s$, where

R^s is C_{1-4} alkyl or phenyl, each of which is optionally mono-substituted by R^q as defined above;

f) a carbamoyloxy radical: $—O(C=O)N(R^y)R^z$ where

R^y and R^z are independently H, C_{1-4} alkyl (optionally mono-substituted by R^q as defined above), together a 3- to 5-membered alkylidene radical to form a ring (optionally substituted with R^q as defined above) or together a 2- to 4-membered alkylidene radical, interrupted by —O—, —S—, —S(O)— or $—S(O)_2—$, to form a ring (where the ring is optionally mono-substituted with Rq as defined above);

g) a sulfur radical: $—S(O)_n—R^s$ where n=0–2, and R^s is defined above;

h) a sulfamoyl group: $—SO_2N(R^y)R^z$ where R^y and R^z are as defined above;

i) azido: N_3;

j) a formamido group: $—N(R^t)(C=O)H$, where

R^t is is H or C_{1-4} alkyl, and the alkyl thereof is optionally mono-substituted by R^q as defined above;

k) a (C_1-C_4 alkyl)carbonylamino radical: $—N(R^t)(C=O)C_{1-4}$ alkyl, where R^t is as defined above, and the alkyl group is also optionally mono-substituted by R^q as defined above;

l) a (C_1-C_4 alkoxy) carbonylamino radical: $—N(R^t)(C=O)OC_{1-4}$ alkyl, where R^t is as defined above, and the alkyl group is also optionally mono-substituted by R^q as defined above;

m) a ureido group: $—N(R^t)(C=O)N(R^y)R^z$ where R^t, R^y and R^z are as defined above;

n) a sulfonamido group: $—N(R^t)SO_2R^s$, where R^s and R^t are as defined above;

o) a cyano group: —CN;

p) a formyl or acetalized formyl radical: $—(C=O)H$ or $—CH(OCH_3)_2$;

q) (C_1-C_4 alkyl)carbonyl radical wherein the carbonyl is acetalized: $—C(OCH_3)_2C_{1-4}$ alkyl, where the alkyl is optionally mono-substituted by R^q as defined above;

r) carbonyl radical: $—(C=O)R^s$, where R^s is as defined above;

s) a hydroximinomethyl radical in which the oxygen or carbon atom is optionally substituted by a C_1-C_4 alkyl group: $—(C=NOR^z)R^y$ where R^y and R^z are as defined above, except they may not be joined together to form a ring;

t) a (C_1-C_4 alkoxy)carbonyl radical: $—(C=O)OC_{1-4}$ alkyl, where the alkyl is optionally mono-substituted by R^q as defined above;

u) a carbamoyl radical: $—(C=O)N(R^y)R^z$ where R^y and R^z are as defined above;

v) an N-hydroxycarbamoyl or N(C_1-C_4 alkoxy)carbamoyl radical in which the nitrogen atom may be additionally substituted by a C_1-C_4 alkyl group: $—(C=O)—N(OR^y)R^z$ where R^y and R^z are as defined above, except they may not be joined together to form a ring;

w) a thiocarbamoyl group: $—(C=S)N(R^y)(R^t)$ where R^y and R^z are as defined above;

x) carboxyl: $—COOM^b$, where M^b is as defined above;

y) thiocyanate: —SCN;

z) trifluoromethylthio: $—SCF_3$;

aa) tetrazolyl, where the point of attachment is the carbon

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atom of the tetrazole ring and one of the nitrogen atoms is mono-substituted by hydrogen, an alkali metal or a C_1-C_4 alkyl optionally substituted by R^q as defined above;

ab) an anionic function selected from the group consisting of: phosphono [$P{=}O(OM^b)_2$]; alkylphosphono {$P{=}O(OM^b){-}[O(C_1\text{-}C_4$ alkyl)]}; alkylphosphinyl [$P{=}O(OM^b){-}(C_1\text{-}C_4$alkyl)]; phosphoramido [$P{=}O(OM^b)N(R^y)R^z$ and $P{=}O(OM^b)NHR^x$]; sulfino (SO_2M^b); sulfo (SO_3M^b); acylsulfonamides selected from the structures $CONM^bSO_2R^x$, $CONM^bSO_2N(R^y)R^z$, $SO_2NM^bCON(R^y)R^z$; and SO_2NM^bCN, where

R^x is phenyl or heteroaryl, where heteroaryl is a monocyclic aromatic hydrocarbon group having 5 or 6 ring atoms, in which a carbon atom is the point of attachment, in which one of the carbon atoms has been replaced by a nitrogen atom, in which one additional carbon atom is optionally replaced by a heteroatom selected from O or S, and in which from 1 to 2 additional carbon atoms are optionally replaced by a nitrogen heteroatom, and where the phenyl and heteroaryl are optionally mono-substituted by R^q, as defined above; M^b is as defined above; and R^y and R^z are as defined above;

ac) C_5-C_7 cycloalkyl group in which one of the carbon atoms in the ring is replaced by a heteroatom selected from O, S, NH or $N(C_1\text{-}C_4$ alkyl) and in which one additional carbon atom may be replaced by NH or $N(C_1\text{-}C_4$ alkyl), and in which at least one carbon atom adjacent to each nitrogen heteroatom has both of its attached hydrogen atoms replaced by one oxygen thus forming a carbonyl moiety and there are one or two carbonyl moieties present in the ring;

ad) C_2-C_4 alkenyl radical, optionally mono-substituted by one of the substituents a) to ac) above and phenyl which is optionally substituted by R^q as defined above;

ae) C_2-C_4 alkynyl radical, optionally mono-substituted by one of the substituents a) to ac) above;

af) C_1-C_4 alkyl radical;

ag) C_1-C_4 alkyl mono-substituted by one of the substituents a)-ac) above;

ah) a 2-oxazolidinonyl moiety in which the point of attachment is the nitrogen atom of the oxazolidinone ring, the ring oxygen atom is optionally replaced by a heteroatom selected from —S— and NR^t (where R^t is as defined above) and one of the saturated carbon atoms of the oxazolidinone ring is optionally mono-substituted by one of the substituents a) to ag) above;

R^b is —H, —OH, OP^-, $-CF_3$, $-(C{=}O)R^z$, $-S(O)_nR^x$ where n=0-2, $-SO_2NR^yR^z$, $-(C{=}O)OC_{1\text{-}4}$alkyl, $-(C{=}O)N(R^y)R^z$, $-(C{=}O)N(OR^y)R^z$, $-(C{=}S)N(R^y)R^z$, $-NH_2$, $C_{1\text{-}4}$ alkoxy optionally mono-substituted with R^q, R^x as defined above, a Type I. b) or d) substituent as defined above, $C_{1\text{-}4}$ alkyl optionally mono-substituted on an alpha carbon or higher by one of the substituents Type I. a) or c) or Type II. a)-ae) as defined for R^a above; and

M is a removable protecting group for carboxy.

5,214,140

BICHROMOPHORIC METHINE AND AZAMETHINE DYES AND PROCESS FOR TRANSFERRING THEM

Volker Bach, Neustadt; Karl-Heinz Etzbach, Frankenthal, and Ruediger Sens, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 650,219, Feb. 4, 1991, Pat. No. 5,132,438. This application Mar. 13, 1992, Ser. No. 850,908

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1990, 4004612

Int. Cl.[5] C07D *265/28, 413/00*

U.S. Cl. 544—13 7 Claims

1. A bichromophoric dye of the formula I

$$Z^2{-}Z^1{-}L{-}Y^1{-}Y^2 \qquad (I)$$

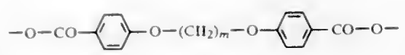
where

L is a bridge member which doe snot permit any conjugation of π-electrons between Z^1 and Y^1, said bridge member having the formula

$$-E^1{-}D{-}E^2-$$

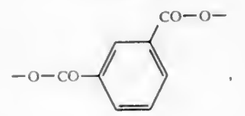
where

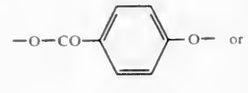
D is a chemical bond, oxygen, $-SO_2-$, $-O-CO-O-$, 1,4-cyclohexylene, phenylene, $-O-CO-(CH_2)_1-CO-O-$, $-O-(CH_2)_m-O-$,

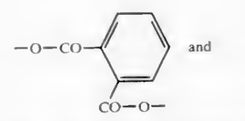


where l is from 1 to 10 and m is from 2 to 10,

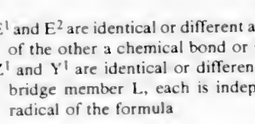






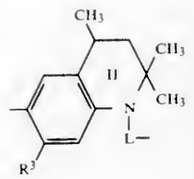


and

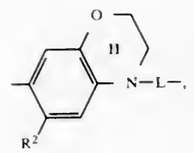


E^1 and E^2 are identical or different and each is independently of the other a chemical bond or C_1-C_{15}-alkylene,

Z^1 and Y^1 are identical or different and, together with the bridge member L, each is independently of the other a radical of the formula

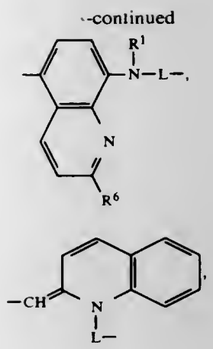


(IIc)



(IId)

-continued



(IIg)

(IIk)

where

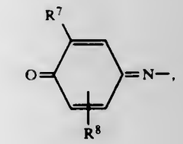
n is 0 or 1,

R^1 is alkyl, alkoxyalkyl, alkoxycarbonylalkyl or alkanoyloxyalkyl, which may each have up to 10 carbon atoms and be hydroxyl- or cyano- substituted, hydrogen, benzyl, cyclohexyl, phenyl or tolyl,

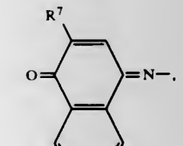
R^2 and R^3 are identical or different and each is independently of the other hydrogen, C_1-C_8-alkyl, C_1-C_6-alkyoxy, C_1-C_6-alkanoylamino or C_1-C_6-alkylsulfonylamino,

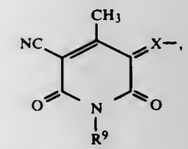
R^6 is hydrogen or C_1-C_8-alkyl, and

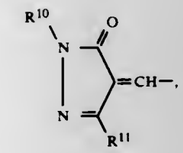
Z^2 and Y^2 are identical or different and each is independently of the other a radical of the formula



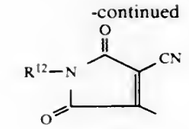
(IIIa)





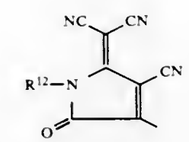


-continued



(IIIe)

or



(IIIf)

where

X is nitrogen or CH,

R^7 is C_1-C_6-alkoxycarbonyl, C_1-C_6-monoalkylcarbamoyl, C_1-C_6-monoalkylsulfamoyl, C_1-C_6-alkanoylamino or C_1-C_6-alkylsulfonylamino, wherein alkyl may in each case be interrupted by 1 or 2 oxygen atoms, or C_5-C_7-cycloalkoxycarbonyl, C_5-C_7-monocycloalkylcarbamoyl, C_5-C_7-monocycloalkylsulfamoyl, C_5-C_7-cycloalkylcarbonylamino, phenoxycarbonyl, monophenylcarbamoyl, monophenylsulfamoyl, benzoylamino, phenylsulfonylamino, methylphenylsulfonylamino, fluorine or chlorine,

R^8 is C_1-C_8-alkyl, C_1-C_6-alkanoylamino or C_1-C_6-alkylsulfonylamino, wherein alkyl may in each case be interrupted by 1 or 2 oxygen atoms, or C_5-C_7-cycloalkycarbonylamino, C_5-C_7-cycloalkylsulfonylamino, benzoylamino, phenylsulfonylamino, hydrogen, fluorine or chlorine,

R^9 is hydrogen or C_1-C_8-alkyl which may be interrupted by 1 or 2 oxygen atoms,

R^{10} is phenyl or C_1-C_4-alkylphenyl,

R^{11} is C_1-C_8-alkyl or C_1-C_6-dialkylamino, and

R^{12} is hydrogen or C_1-C_8-alkyl.

5,214,141

AZOMETHINE COMPOUND AND PHOTOGRAPHIC DYE COMPRISING THE AZOMETHINE COMPOUND

Masuji Motoki; Naoki Saito; Takayoshi Kamio; Mitsugu Tanaka, and Seiji Ichijima, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

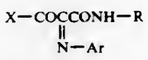
Filed Dec. 31, 1991, Ser. No. 815,162

Claims priority, application Japan, Jan. 18, 1991, 3-16842

Int. Cl.[5] G03G *5/00, 15/06;* C07D *265/36, 498/02*

U.S. Cl. 544—105 23 Claims

1. An azomethine compound represented by the following formula:



(IIIc)

wherein:

X represents substituted or unsubstituted, saturated or unsaturated, 5- or 6-membered monocyclic or condensed ring amino, wherein the members of the ring-constituting atoms are selected from the group consisting of nitrogen atoms, carbon atoms, oxygen atoms, sulfur atoms and combinations thereof,

(IIId)

R represents substituted or unsubstituted phenyl,

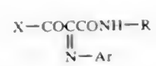
Ar represents substituted or unsubstituted phenyl having alkyl amino with 1 to 10 carbon atoms in the para-position, and

the substituents for amino, phenyl, and alkyl are selected from the group consisting of halogen, alkoxycarbonyl, carbonoamido, sulfonamido, carbamoyl, sulfamoyl, N-sul-

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fonylsulfamoyl, alkoxy, sulfonyl, phenoxy, nitro, cyano, carboxyl, hydroxyl, sulfo, N-carbonosulfamoyl and alkyl, said substituents are unsubstituted or further substituted with the substituents listed above.

8. A photographic dye that is used for photography comprising the azomethine compound represented by the following formula:



wherein X represents 5- or 6-membered cyclic amino which may be a monocyclic ring or a condensed ring, R represents aromatic, and Ar represents phenyl having in the para-position, alkyl amino having at least one alkyl.

5,214,142

PROCESSES FOR THE PREPARATION OF AMINOETHERS

Stephen W. King, Scott Depot, W. Va., assignor to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Sep. 20, 1990, Ser. No. 585,563

Int. Cl.[5] C07D *413/12*; C07C *209/68*

U.S. Cl. 544—111 **56 Claims**

1. A process for preparing aminoethers which comprises (i) contacting an active hydrogen-containing compound with a CO_2 synthon under conditions effective to produce a carboxylated aminoether, and (ii) contacting the carboxylated aminoether with a metal oxide catalyst under conditions effective to produce the aminoether, provided at least one of the active hydrogen-containing compound and CO_2 synthon contains nitrogen.

5,214,143

2-AMINO-4-FLUOROALKOXY-1,3,5-TRIAZINES AND THE PREPARATION THEREOF

Gerhard Hamprecht, Weinheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

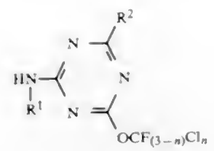
Filed Jul. 22, 1991, Ser. No. 733,844

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1990, 4024761

Int. Cl.[5] C07D *251/46, 251/42*

U.S. Cl. 544—194 **7 Claims**

1. A substituted 2-amino-4-fluoroalkoxy-1,3,5-triazine of the formula I



I

where

R^1 is hydrogen, C_1–C_4-alkyl, C_3–C_6-alkenyl or C_3–C_4-alkynyl;

R^2 is hydrogen, halogen, C_1–C_4-haloalkyl, trifluoromethoxy or chlorodifluoromethoxy and

n is 1.

5,214,144

PROCESS FOR THE PREPARATION OF 4-HALOQUINAZOLINES

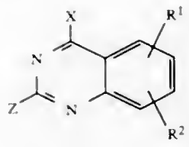
Jimmy J. Tai; James W. Ringer; Karl L. Krumel, and Richard C. Krauss, all of Midland, Mich., assignors to DowElanco, Indianapolis, Ind.

Filed Oct. 7, 1991, Ser. No. 772,523

Int. Cl.[5] C07D *239/72*

U.S. Cl. 544—283 **10 Claims**

1. A process for the preparation of 4-haloquinazolines of formula (II)



II

wherein

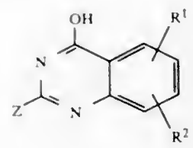
X represents Cl or Br,

Z represents H, Cl, CH_3 or OCH_3,

R^1 and R^2 are independently H, F, Cl, Br, R, OR, SR or NO_2, and

R represents a straight or branched, saturated alkyl group of from 1 to 4 carbon atoms optionally substituted with F or Cl,

which comprises contacting a 4-hydroxyquinazoline of formula (III)



III

wherein

Z, R^1, R^2, and R are as previously defined,

with a carbonyl, thionyl or phosphoryl halide in the presence of a catalytic amount of a N,N-dialkyl-formamide and in the presence of a catalytic amount of a soluble halide salt.

5,214,145

TRISUBSTITUTED PIPERAZIN-2,5-DIONES

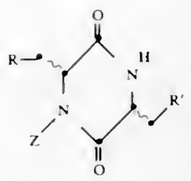
John C. Hubbs, and Charles H. Foster, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 406,995, Sep. 14, 1989, Pat. No. 4,992,552, which is a continuation-in-part of Ser. No. 239,492, Aug. 31, 1988, abandoned. This application Jan. 28, 1991, Ser. No. 647,618

Int. Cl.[5] C07D *241/08*

U.S. Cl. 544—385 **9 Claims**

1. A compound of the formula



wherein R is alkyl, hydroxy, C_1 to C_{10} alkoxy C_1 to C_{10} carboxyalkyl, C_1 to C_{10} acyloxy, phenyl optionally substituted with one to four moieties chosen from the group consisting of halogen, hydroxy, protected hydroxy, cyano, nitro, C_1 to C_4 alkyl, C_1 to C_4 alkoxy, carboxy, carboxymethyl, hydroxymethyl, aminomethyl, trifluoromethyl and n-(methylsulfonylamino) or phenyl(C_1 to C_6)alkyl wherein the alkyl portion is optionally substituted with one or two moieties chosen from the group consisting of halogen, hydroxy, C_1 to C_7 acyloxy, nitro carboxy, carbamoyl, carbamoyloxy, cyano, N-(methylsulfonylamino), and C_1 to C_4 alkoxy, and the phenyl portion is optionally substituted with one or two moieties chosen from the group consisting of halogen, hydroxy, nitro, C_1 to C_4 alkyl, C_1 to C_4 alkoxy, carboxy, carboxymethyl, hydroxymethyl, aminomethyl, and N-(methylsulfonylamino); R′ is the same as R: and Z is a nitrogen-protecting group.

5,214,146

DERIVATIVES OF QUINOLINECARBOXYLIC ACIDS

Ulrike Schloesser, Mannheim, and Gerhard Wagenblast, Weisenheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwighafen, Fed. Rep. of Germany

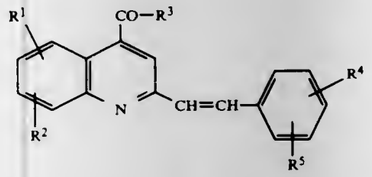
Filed Oct. 15, 1991, Ser. No. 775,439

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1990, 4039298

Int. Cl.[5] C07D *215/22*

U.S. Cl. 546—169 **3 Claims**

1. A quinolinecarboxylic acid derivative of the formula I



(I)

where

R^1 and R^2 are identical or different and each is independently of the other hydrogen or halogen,

R^3 is C_1–C_{13}-alkoxy, C_1–C_{13}-monoalkylamino or di(C_1–C_8-alkyl)amino and

R^4 and R^5 are identical or different and each is independently of the other hydrogen, C_1–C_{13}-alkyl or C_1–C_{13}-alkoxy,

with the proviso that R^3 is not methoxy or ethoxy when at the same time R^1, R^2, R^4 and R^5 are each hydrogen.

5,214,147

PROCESS FOR PREPARING REACTIVE HINDERED AMINE LIGHT STABILIZERS

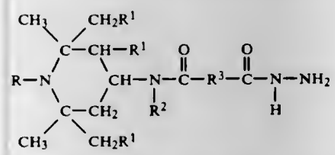
Robert T. Kazmierczak, and Ronald E. Mac Leay, both of Williamsville, N.Y., assignors to Elf Atochem North America, Inc., Philadelphia, Pa.

Division of Ser. No. 619,287, Nov. 27, 1990, Pat. No. 5,101,033, which is a division of Ser. No. 310,408, Feb. 13, 1989, Pat. No. 4,983,738, which is a continuation-in-part of Ser. No. 84,602, Aug. 12, 1987, abandoned. This application Dec. 6, 1991, Ser. No. 805,719

Int. Cl.[5] C07D *211/30*

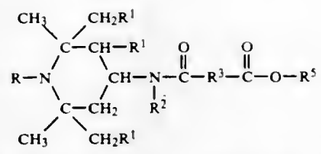
U.S. Cl. 546—190 **18 Claims**

1. A process for preparing a hydrazide of formula 1



I

comprising reacting a half ester-half amide of formula IV



IV

with an equivalent amount or a slight excess of hydrazine or hydrazine hydrate at a sufficient temperature and for sufficient length of time to convert the half ester-half amide of formula IV to the hydrazide of formula I, where

R is hydrogen, oxy, hydroxy, alkyl of 1 to 20 carbons, alkenyl of 3 to 8 carbons, alkynyl of 3 to 8 carbons, aralkyl of 7 to 12 carbons, aliphatic acyl of 2 to 10 carbons, unsubstituted aryl acyl of 7 to 13 carbons, alkoxycarbonyl of 2 to 9 carbons, aryloxycarbonyl of 7 to 15 carbons, alkyl- aryl-, cycloalkyl- or aralkyl-substituted carbamoyl of 2 to 13 carbons, 2-cyanoethyl, hydroxyalkyl of 1 to 6 carbons, epoxyalkyl of 3 to 10 carbons or a polyalkylene oxide group of 4 to 30 carbons;

R^1 is hydrogen or lower alkyl of 1 to 4 carbons;

R^2 is hydrogen, alkyl of 1 to 10 carbons, cycloalkyl of 5 to 12 carbons, aralkyl of 7 to 12 carbons, aryl of 6 to 12 carbons, 2-cyanoethyl or a radical of formula



R^3 is a direct bond, an alkylene or branched alkylene diradical of 1 to 14 carbons, an alkenylene diradical of 2 to 10 carbons, an oxydialkylene or thiodialkylene diradical of 4 to 10 carbons or a substituted or unsubstituted o-, m- or p-phenylene diradical where the substituents may be lower alkyl, lower alkoxy, hydroxy, bromo, chloro, mercapto or lower alkylmercapto; and

R^5 is lower alkyl of 1 to 6 carbons or phenyl.

5,214,148

ANALGESIC N-PHENYL-N-(3-OR$_1$-3-ME-4-PIPERIDINYL)AMIDES

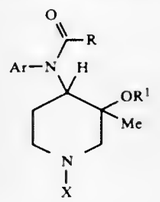
Paul L. Feldman, and Marcus F. Brackeen, both of Durham, N.C., assignors to Glaxo Inc., Research Triangle Park, N.C.

Division of Ser. No. 629,543, Dec. 18, 1990, Pat. No. 5,130,321. This application Jul. 2, 1992, Ser. No. 908,685

Int. Cl.[5] A61K *31/445*; C07D *333/06*

U.S. Cl. 546—221 **12 Claims**

1. A method of providing analgesia in a mammal comprising administering to such mammal an analgesically effective amount of a compound having the formula (I):



(I)

wherein:

X is a member selected from Group 1 consisting of:

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C_{1-10} alkoxy-carbonyl-lower alkyl, lower alkyl-carbonyloxy-lower alkyl,

C_{1-10} alkenyloxy-carbonyl-lower alkyl, and (C_{1-2})alkoxy-(C_{1-2})alkoxy carbonyl-lower alkyl;

and from Group II consisting of:

lower alkyl, lower alkenyl, lower alkynyl, thienyl lower alkyl, aryl lower alkyl and (4,5-dihydro-5-oxo-1H-tetrazol-1-yl) lower alkyl which can be substituted in the 4-position with lower alkyl, cyclo(C_{5-6}) lower alkyl or aryl lower alkyl;

Ar is aryl;

R is a member selected from the group consisting of lower alkyl and lower alkoxy-lower alkyl; and

R^1 is a member selected from the group consisting of hydrogen and straight chained lower alkyl;

and the optically active and cis-trans isomers thereof, and the pharmaceutically acceptable acid addition salts of said compounds and isomers.

5,214,149

PROCESS FOR PRODUCING A 1H-PYRAZOLO[5,1-C]-1,2,4-TRIAZOLE COMPOUND

Yuki Mizukawa, Minami-ashigara, Japan, assignor to Fuji Photo FIlm Co., Ltd., Kanagawa, Japan

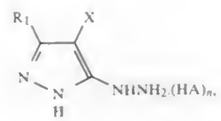
Filed Jan. 22, 1991, Ser. No. 644,329

Claims priority, application Japan, Jan. 23, 1990, 2-11765

Int. Cl.[5] C07D *487/04*

U.S. Cl. 546—271 **13 Claims**

1. A method of producing a 1H-pyrazolo[5,1-c]-1,2,4-triazole compound which comprises causing a ring-formation reaction between a 5-hydrazino-1H-pyrazole compound represented by formula (III)



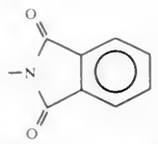
(III)

wherein R_1 represents a hydrogen atom, an alkyl group, a phenyl group, an alkoxy group, a phenyloxy group, an alkylthio group, a phenylthio group, an amino group, an anilino group, an acylamino group, a ureido group, a urethane group, an alkoxycarbonyl group, a sulfonamido group, a sulfamoyl group, a sulfonyl group, a cyano group, a nitro group, or a hydroxyl group, and wherein the groups of R_1 may have one or more substituents each substituent selected from the group of a halogen atom, a cyano group, a nitro group, a phenyl group, a naphthyl group, 1-pyrazolyl group, 1-imidazolyl group, an alkoxy group, a phenyloxy group, an alkylthio group, a phenylthio group, a naphthylthio group, an amino group, an acylamino group, a ureido group, a urethane group, an alkoxycarbonyl group, a sulfonamido group, a sulfamoyl group, or a sulfonyl group, X represents a hydrogen atom, a halogen atom, a cyano group, a nitro group, an alkoxycarbonyl group, a pyrazolyl group, an imidazolyl group, a phenyloxy group, an alkoxy group, an alkylthio group, or a phenylthio group, A represents a hydrochloride radical, a sulfate radical, a methanesulfonate radical and a para-toluenesulfonate radical, and n is 0, or 1;

and a carboxylic acid represented by formula (IV):

$$R_2—COOM \quad (IV)$$

wherein R_2 represents a hydrogen atom, an alkyl group, a phenyl group, a naphthyl group or a heterocyclic group selected from 3-pyridyl, 4-pyridyl, and 5-nitro-3-pyridyl, and wherein R_2 may have one or more substituents each substituent selected from the group of a halogen atom, an alkoxy group, a phenyloxy group, a phenyl group, an alkylthio group, a phenylthio group, an amino group, an alkoxycarbonyl group, a phenyloxycarbonyl group, a sulfonamido group, a sulfonyl group, a cyano group,

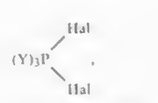


or a nitro group, and M represents a hydrogen atom or an alkali metal;

in the presence of a phosfolan compound or a phosphonium salt wherein the phosfolan compound is represented by the following formula (VII) and the phosphonium salt is represented by the following formula (VI):

$$((Y)_3P—Hal)^+Q \quad (VI);$$

wherein Y represents an alkyl group, a phenyl group, an alkoxy group, a phenyloxy group, or an amino group, and wherein the groups of Y may have one or more substituents each substituent selected from the group of a halogen atom, a cyano group, a nitro group, a phenyl group, a naphthyl group, 1-pyrazolyl group, 1-imidazolyl group, an alkoxy group, a phenyloxy group, an alkylthio group, a phenylthio group, a naphthylthio group, an amino group, an acylamino group, a ureido group, a urethane group, an alkoxycarbonyl group, a sulfonamido group, a sulfamoyl group, or a sulfonyl group, Hal represents a halogen atom, and Q represents a halogen atom, an imido group or a halogenated alkyl group:



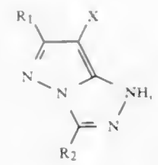
(VII)

wherein Y and Hal have the same meanings as defined above, said phosfolan compound or said phosphonium salt being formed from a tertiary phosphine and a halogenating agent represented by formula (V):

$$Hal—Q \quad (V);$$

wherein Hal and Q have the same meanings as defined above;

to form the 1H-pyrazolo[5,1-c]-1,2,4-triazole compound which is represented by formula (II).



(II)

wherein R_1, R_2 and X have the same meanings as defined above.

5,214,150

PREPARATION OF HIGHER ALKYLESTERS OF CARBOXYLIC ACIDS

Ian R. King, Kings Lynn, England; Karl L. Krumel, Midland, Mich., and Simon C. Lee, Kings Lynn, England, assignors to DowElanco, Indianapolis, Ind.

Continuation of Ser. No. 477,702, Feb. 9, 1990, abandoned. This application Jul. 2, 1991, Ser. No. 724,681

Int. Cl.[5] C07D *213/73, 213/63*

U.S. Cl. 546—297 **14 Claims**

1. A process for preparing an ester of (4-amino-3,5-dichloro-6-fluoro-2-pyridinyloxy)-acetic acid and an aliphatic alcohol optionally containing up to 2 subustituents selected from C_1–C_6 alkoxy, C_1–C_6 alkylthio, and cyano and having 6–12 total carbon atoms, which process comprises preparing methyl or ethyl (4-amino-3,5-dichloro-6-fluoro-2-pyridinyl-oxy)acetate as an intermedite by alkylation of an alkail metal salt of 4-amino-3,5-dichloro-6-fluoro-2--pyridinol with methyl or ethyl chloroacetate or bromoacetate in a dipolar, aprotic solvent containing medium, recovering said intermediate, and, subsequently, transesterifying the intermediate with an aliphatic alcohol optionally containing up to 2 substituents selected from C_1–C_6 alkoxy, C_1–C_6 alkylthio, and cyano and having 6–12 total carbtom atoms in the presence of a catalyst selected from a tetra(C_1–C_{12} alkyl) titanate, titanium tetrachloride, sulfuric acid, p-toluene sulfonic acid, and phosphoric acid.

5,214,151

METHOD FOR THE PREPARATION OF α, β-UNSATURATED KETONES

Masashi Nakajima; Tadashi Kyotani, and Kelichi Tsukashima, all of Takaoka, Japan, assignors to Nippon Soda Co., Ltd., Tokyo, Japan

PCT No. PCT/JP90/01488, § 371 Date Jul. 15, 1991, § 102(e) Date Jul. 15, 1991, PCT Pub. No. WO91/07371, PCT Pub. Date May 30, 1991

PCT Filed Nov. 15, 1990, Ser. No. 730,843

Claims priority, application Japan, Nov. 17, 1989, 297388

Int. Cl.[5] C07D *213/50*; C07C *45/72, 49/217*

U.S. Cl. 546—340 **6 Claims**

1. Method for preparing an α, β-unsaturated ketone which comprises

(a) admixting acetone, water and a catalyst comprising perhydroisoindole or pyrrolidine which is optionally substituted or mixtures thereof;

(b) adding to the admixture an aldehyde of the formula I

$$R—CHO \quad (I)$$

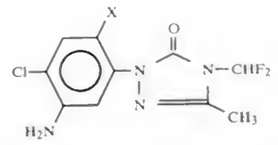
wherein R is (i) a heterocyclic group with a nitrogen atom in the ring or (ii) a phenyl group with electron donative substitutes while maintaining the temperature of the admixture and aldehyde from 20° C. to 40° C.;

(c) raising the temperature of the admixture and aldehyde from 20° C. to 40° C. by subjecting the admixture and aldehyde to reflux conditions;

(d) maintaining such reflux conditions for a time sufficient to thereby produce α, β-unsaturated ketone of the formula II

$$RCH=CHCCH_3 \quad (II)$$
$$\quad\quad\quad

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in which X is F or Cl.

5,214,155
METHOD FOR 1,2-SUBSTITUTED IMIDAZOLINE COMPOSITIONS

Donald R. Hollingsworth, Austin, and Jeffrey H. Edwards, Spring, both of Tex., assignors to Texaco Chemical Company, White Plains, N.Y.

Filed Apr. 29, 1992, Ser. No. 875,464
Int. Cl.[5] C07D *31/415*
U.S. Cl. 548—348.1 4 Claims

1. A method for making a 1,2-substituted imidazoline composition comprising:

reacting a polyamine mixture comprising triethylenetetramine oligomers with an acidic compound selected from the group consisting of C_8 to C_{30} fatty acids, esters thereof, dimer fatty acids thereof, fatty esters thereof and mixtures thereof at imidazoline reaction temperature and pressure,

characterized in that:

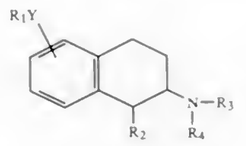
said polyamine mixture comprises 75 wt % or more linear triethylenetetramine oligomer.

5,214,156
THERAPEUTICALLY USEFUL TETRALIN DERIVATIVES

Bengt R. Andersson, Lindome; Per Arvid E. Carlsson, Goteborg; Kjell A. I. Svensson, Alingas, and Hakan V. Wikstrom, Partille, all of Sweden, assignors to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 784,609, Oct. 29, 1991, abandoned, which is a continuation of Ser. No. 571,561, Aug. 30, 1990, abandoned, which is a continuation-in-part of Ser. No. 173,130, Mar. 25, 1988, abandoned. This application Apr. 10, 1992, Ser. No. 866,391
Int. Cl.[5] C07P *333/20;* A61K *31/38, 31/135;* C07C *211/00*
U.S. Cl. 549—75 5 Claims

1. A compound of Formula I and pharmaceutically acceptable acid addition salts thereof,



wherein

YR_1 is OR_1 at the 8 position where R_1 is $—CH_2—(C_{3-8}$ cycloalkyl);

R_2 is hydrogen or C_{1-3} alkyl;

R_3 is $—CH_2—(C_{3-8}$ cycloalkyl);

R_4 is hydrogen, C_{1-8} alkyl, $—CH_2—(C_{3-4}$ cycloalkyl), $—(CH_2)_3—R_5$ or $—CH_2—CH_2—X—(CH_2)_nCH_3$;

n is zero to 3

X is oxygen or sulfur; and

R_5 is phenyl, C_{1-3} alkoxy, C_{1-3} alkyl, 2-thiophene, 3-thiophene, or phenyl substituted with one or two substituent groups selected from chlorine, bromine or fluorine; and with the proviso that when R_3 contains more than four carbon atoms and R_4 is alkyl, said alkyl contains from 1 to 3 carbon atoms.

5,214,157
PROCESS FOR THE DISPOSAL OF PHTHALIC ANHYDRIDE DECOMPOSER VAPORS

Francis J. Healy, Florham Park, N.J., and Herbert P. Dengler, Baton Rouge, La., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Filed May 7, 1991, Ser. No. 696,903
Int. Cl.[5] C07D *307/89*
U.S. Cl. 549—250 10 Claims

1. A process for the production of substantially pure phthalic anhydride from crude phthalic anhydride which comprises the steps of:

heating crude phthalic anhydride liquid to a temperature below the boiling point of phthalic anhydride;

pumping the heated crude phthalic anhydride liquid to at least one decomposer vessel which is capable of decomposing said crude phthalic anhydride liquid;

venting decomposer vapor from said decomposer vessel directly to a top portion of a first fractionation column such that phthalic anhydride is recovered from said decomposer vapor;

withdrawing phthalic anhydride liquid from said decomposer vessel, cooling said phthalic anhydride liquid, and pumping said phthalic anhydride liquid to said first fractionation column for the separation of residual water and light ends therefrom; and

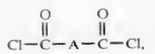
withdrawing phthalic anhydride liquid from said first fractionation column and pumping it into a second fractionation column for the separation of tailings therefrom and production of a substantially pure phthalic anhydride.

5,214,158
METHOD FOR PREPARATION OF MACROCYCLIC POLY(ALKYLENE DICARBOXYLATE) OLIGOMERS

Daniel J. Brunelle, Scotia, and Jean E. Bradt, Esperance, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 3, 1991, Ser. No. 709,256
Int. Cl.[5] C07D *321/00;* C08G *63/78*
U.S. Cl. 549—267 18 Claims

1. A method for preparing a macrocyclic polyester oligomer composition which comprises effecting contact, in the presence of a substantially water-immiscible organic solvent, between at least one diol of the formula HO—R—OH, wherein R is an alkylene or mono- or polyoxyalkylene radical containing a straight chain of about 2-8 atoms; at least one diacid chloride of the formula



wherein A is a m- or p-linked monocyclic aromatic or alicyclic radical, said diacid chloride being substantially free from carboxylic acid; a catalytic amount of at least one highly purified unhindered tertiary amine; and a stoichiometric acid-accepting amount of at least one oleophilic tertiary amine selected from the group consisting of trialkylamines and heteroaromatic tertiary amines.

5,214,159
MESO-LACTIDE

Manfred Muller, Bickenbach; Joachim Hess, Bingen; Wilhem-Gustav Schnell, Ingelheim am Rhein; Dieter Bendix, Ingelheim am Rhein, and Gunther Entenmann, Ingelheim an Rhein, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

Division of Ser. No. 335,089, Apr. 3, 1989, Pat. No. 4,983,745.
This application Jul. 12, 1990, Ser. No. 552,665
Claims priority, application Fed. Rep. of Germany, Jun. 16, 1987, 3720060
Int. Cl.[5] C07D *319/12*
U.S. Cl. 549—274 1 Claim

1. Meso-lactide, characterised in that it has a melting point of about 52° C.

5,214,160
ACETYL-TRI-AND-TETRAMETHYL-OCTAHYDRONAPHTHALENES AND FRAGRANCE COMPOSITIONS CONTAINING SAME

Franz Etzweiler, Greifensee; Daniel Helmlinger, Gockhausen; Cornelius Nussbaumer, Schwerzenbach, and Mario Pesaro, Zurich, all of Switzerland, assignors to Givaudan Corporation, Clifton, N.J.

Division of Ser. No. 708,662, May 31, 1991, Pat. No. 5,180,709.
This application Sep. 25, 1992, Ser. No. 951,053
Claims priority, application European Pat. Off., Jun. 2, 1990, 90110519.7
Int. Cl.[5] C07D *311/04*
U.S. Cl. 549—290 2 Claims

1. (3SR,1'SR)-Methyl-3-(6',6'-dimethyl-2'-oxo-cyclohex-1'-yl)butyrate.

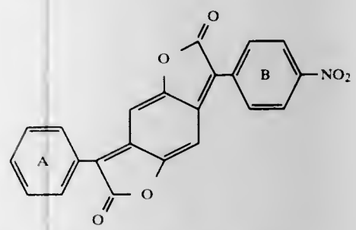
2. (±)-3,4,4aβ,5,6,7,8a-Octahydro-4β,5,5-trimethyl 8aβ-vinyl-coumarin.

5,214,161
PREPARATION OF POLYCYCLIC DYES

David J. Milner, Whitefield, England, assignor to Imperial Chemical Industries PLC, London, England

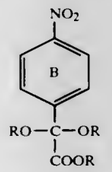
Filed Jun. 15, 1992, Ser. No. 898,833
Claims priority, application United Kingdom, Jun. 14, 1991, 9112831.4
Int. Cl.[5] C07D *307/77*
U.S. Cl. 549—299 1 Claim

1. A process for the preparation of a polycyclic dye of the Formula (1):



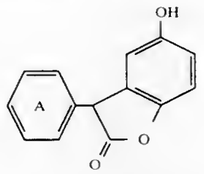
Formula 1

by reacting a ketal ester of the Formula (2):



Formula 2

with a benzofuranone of the Formula (3):



Formula 3

wherein:

Ring A is unsubstituted or is substituted by from one to three groups;

Ring B is unsubstituted, apart from the nitro group, or is substituted by one or two additional groups;

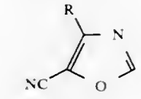
each R is independently alkyl.

5,214,162
PROCESS FOR MANUFACTURING 5-CYANO-4-LOWER ALKYLOXAZOLES

Paul Nösberger, Birsfelden, Switzerland, assignor to Hoffman-La Roche Inc., Nutley, N.J.

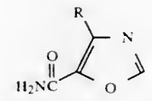
Filed Dec. 5, 1991, Ser. No. 803,004
Claims priority, application Switzerland, Dec. 21, 1990, 4075/90
Int. Cl.[5] C07D *263/34*
U.S. Cl. 548—236 10 Claims

1. A process for producing 5-cyano-4-lower alkyl-oxazoles of the formula:



I

wherein R is lower alkyl: comprising dehyrating 5-carbamoyl-4-lower alkyl-oxazole of the formula:



II

wherein R is as above, in the presence of a silicon dioxide catalyst by forming a vapor containing said 5-carbamoyl-4-lower alkyl-oxazole and an N-lower-alkyl-pyrrolidone solvent and contacting said vapor with said silicon dioxide catalyst at a pressure of from about 50 kPa to about 300 kPa to convert said 5-carbamoyl-4-lower alkyl-oxazole to said 5-cyano-4-lower alkyl-oxazole.

5,214,163
PROCESS FOR THE PREPARATION OF 15-PENTADECANOLIDE OR OF MIXTURES RICH IN THIS MACROLIDE

Peter Fankhauser, Meyrin, and Piero Fantini, Geneva, both of Switzerland, assignors to Firmenich S.A., Geneva, Switzerland

Filed Feb. 18, 1992, Ser. No. 836,489
Claims priority, application Switzerland, Mar. 13, 1991, 766/91
Int. Cl.[5] C07D *311/02*
U.S. Cl. 549—396 6 Claims

1. A process for preparing 15-pentadecanolide, or a mixture of 15-pentadecanolide and 15-pentadec-11(12)-enolide, which comprises thermally treating bis-(13-oxabicyclohexadec-12yl)-peroxide in an organic solvent

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of 1,2,3,4-tetrahydronaphthalene for a sufficient time and at a temperature sufficient to obtain 15-pentadecanolide or mixtures which predominantly contain 15-pentadecanolide.

5,214,164

CYANINE DYES

Karl-Heinz Drexhage, Schanzenweg 50, and Elisabeth Drexhage, both of Siegen, Fed. Rep. of Germany, assignors to Herbert Kübler and Karl-Heinz Drexhage, both of Fed. Rep. of Germany

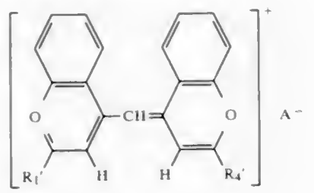
Filed Dec. 19, 1989, Ser. No. 452,961

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1988, 3842785

Int. Cl.[5] C07D *311/66*

U.S. Cl. 549—405 5 Claims

1. A compound of the formula:



wherein

(a) R'_1 and R'_4 are independently selected from the group consisting of —COOH, —$COOCH_3$, —$CONH_2$, tert-C_4C_2—C_5H_5, and —$C_6H_3Cl_2$, with the proviso that either R'_1 or R'_4 is selected from the group consisting of —COOH, —$COOCH_3$, and —$CONH_2$; and

(b) A = anion.

5,214,165

COMPOUNDS USEFUL AS INTERMEDIATES IN THE SYNTHESIS OF SHIKIMIC ACID DERIVATIVES

James K. Sutherland, Stockport; William J. Watkins, Macclesfield; George A. Snow, Macclesfield, and Gareth M. Davies, Macclesfield, all of United Kingdom, assignors to Imperial Chemical Industries PLC, London, England

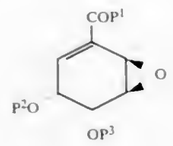
Division of Ser. No. 509,802, Apr. 17, 1990, Pat. No. 5,164,382. This application Aug. 24, 1992, Ser. No. 933,827

Claims priority, application United Kingdom, Apr. 18, 1989, 8908700

Int. Cl.[5] C07C *317/08, 303/40*

U.S. Cl. 549—433 6 Claims

1. A compound of the formula (II):



wherein

P^1 is a group R^1, wherein R^1 is hydroxy or a moiety biotransformable thereto, or is a protected derivative thereof;

P^2 is a protecting group; and

P^3 is a protecting group.

5,214,166

METHOD OF SYNTHESIZING NITRATO ALKYL OXETANES

Gerald E. Manser, El Dorado Hills, Calif., and Robert M. Hajik, Willard, Utah, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

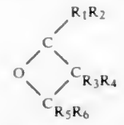
Continuation-in-part of Ser. No. 925,655, Nov. 29, 1986, abandoned. This application Jul. 10, 1989, Ser. No. 377,398

Int. Cl.[5] C07D *305/04*

U.S. Cl. 549—510 14 Claims

1. A method of synthesizing a nitrato alkyl oxetane comprising:

nitrating a hydroxy alkyl oxetane of the general formula



wherein at least one of R_1–R_2 is —$(CH_2)_n$—CHOH—A, wherein n is one or greater and A is selected from the group comprising H and alkyl groups and the remainder of R_1–R_6 are selected from the group comprising H and alkyl, under non-acidic anhydrous conditions with an anhydrous nitrate ester of a carboxylic acid of the general formula R—COOH wherein R is an alkyl or aryl moiety.

5,214,167

EPOXIDES AND THEIR PREPARATION

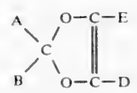
Ming-Hong Hung, and Paul R. Resnick, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 720,165, Jun. 27, 1991, abandoned, which is a division of Ser. No. 649,360, Feb. 1, 1991, abandoned, which is a division of Ser. No. 401,668, Aug. 30, 1989, Pat. No. 5,011,954. This application Feb. 18, 1992, Ser. No. 836,567

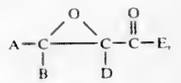
Int. Cl.[5] C07D *301/02, 317/10*

U.S. Cl. 549—518 10 Claims

1. Process for rearrangement of the dioxole of the formula



to the epoxide of the formula



in which each of A and B is independently selected from CF_3, $CClF_2$, and C_2F_5; D is selected from H, CF_3, F, Cl, and Br; and E is selected from F, Cl, and Br, the process comprising heating the dioxole at 100°–400° C. for a time sufficient to carry out the rearrangement.

5,214,168

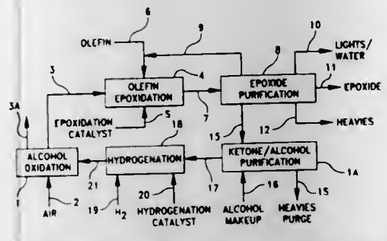
INTEGRATED PROCESS FOR EPOXIDE PRODUCTION

John G. Zajacek, Devon, Pa., and Guy L. Crocco, Wilmington, Del., assignors to Arco Chemical Technology, L.P., Wilmington, Del.

Filed Apr. 30, 1992, Ser. No. 876,884

Int. Cl.[5] C07D *301/12, 303/04, 303/08, 303/14*

U.S. Cl. 549—531 28 Claims



1. An integrated process for the production of an epoxide comprising the steps of

(a) contacting an aryl-substituted secondary alcohol with molecular oxygen under conditions effective to form an oxidant mixture comprised of the secondary alcohol, an aryl-substituted ketone, and hydrogen peroxide;

(b) contacting the oxidant mixture with an olefin and a catalytically effective amount of a titanium silicalite for a time and at a temperature effective to convert the olefin to the epoxide; and

(c) reacting the aryl-substituted ketone with hydrogen in the presence of a transition metal hydrogenation catalyst under conditions effective to convert the ketone to the aryl-substituted secondary alcohol.

5,214,169

N-(2,3-EPOXYCYCLOPENTYL) CARBAMATE DERIVATIVES

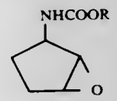
Theophilus F. Leapheart, Midland, Mich., assignor to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Continuation of Ser. No. 752,886, Aug. 26, 1991, abandoned, which is a continuation of Ser. No. 609,125, Nov. 1, 1990, abandoned, which is a continuation of Ser. No. 436,969, Nov. 15, 1989, abandoned, which is a division of Ser. No. 185,635, Apr. 25, 1988, abandoned. This application Apr. 30, 1992, Ser. No. 877,352

Int. Cl.[5] C07D *303/40*

U.S. Cl. 549—546 4 Claims

1. A compound of the formula:



Formula V

wherein R is represented by C_1–C_{12} alkyl, phenyl, or phenyl substituted at up to 3 positions by C_{1-6} alkoxy, nitro, trifluoromethyl, hydroxy or trifluoromethoxy.

5,214,170

RADIOISOTOPE IODINE-LABELED 1α (OR 24R), 25-DIHYDROXY VITAMIN D_3 DERIVATIVES

Miyuki Tanabe, and Shigeru Ikuta, both of Shizuoka, Japan, assignors to Toyo Jozo Kabushiki Kaisha, Shizuoka, Japan

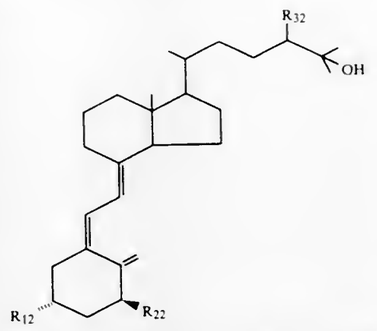
Division of Ser. No. 417,313, Oct. 5, 1989, Pat. No. 5,117,018. This application Jan. 27, 1992, Ser. No. 827,151

Claims priority, application Japan, Oct. 5, 1988, 63-251661; Oct. 11, 1988, 63-255705

Int. Cl.[5] C07J *41/00*

U.S. Cl. 552—653 3 Claims

1. A radioisotope iodine-labeled vitamin D_3 derivative of the formula



wherein R_{12} OH or —O—CO—A—NH—R_5, and R_{22} and R_{32} are each selected from the group consisting of hydrogen, OH and —O—CO—A—NH—R_5; wherein one of R_{22} and R_{32} is hydrogen, one of R_{12}, R_{22} and R_{32} is OH, and one of R_{12}, R_{22} and R_{32} is —O—CO—A—NH—R_5; and wherein A is C_{1-10} alkylene, and R_5 is radioisotope iodine-labeled residue.

5,214,171

PROCESS FOR FRACTIONATING PHOSPHATIDE MIXTURES

Albert J. Dijkstra, Kortrijk, and Jan De Kock, Denderleeuw, both of Belgium, assignors to N.V. Vandemoortele International, Kortrijk, Belgium

Continuation of Ser. No. 447,138, Dec. 8, 1989, abandoned. This application Nov. 19, 1991, Ser. No. 795,264

Claims priority, application European Pat. Off., Dec. 8, 1988, 88120502.5

Int. Cl.[5] C07F *9/10*

U.S. Cl. 554—83 21 Claims

1. A process for fractionating a phosphatide mixture into two or more fractions which are enriched in one or more phosphatides selected from the group consisting of phosphatidyl choline (PC), phosphatidyl ethanolamine (PE), phosphatidyl inositol (PI) and phosphatidic acid (PA), comprising the following steps:

(a) extracting the phosphatide mixture one or more times with a solvent selected from C_1 to C_3 alcohols and mixtures thereof having a water content of 0 to 20% by weight wherein the solubilities of phosphatidyl choline, phosphatidyl ethanolamine and phosphatidic acid are controlled by adjusting the acidity of the solvent, the pH being adjusted to above 8 for solubilizing phosphatidyl choline and phosphatidyl ethanolamine, the pH being adjusted to below 5 for solubilizing phosphatidic acid and phosphatidic inositol being substantially insoluble in the solvent and remaining in the extraction residue;

(b) separating the solvent phase from the extraction residue and recovering said residue; and

(c) recovering the extracted phosphatide or phosphatides from the solvent phase by precipitating the phosphatide or phosphatides and/or removing the solvent.

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5,214,172

CATALYTIC TRANSVINYLATION OF VINYL ESTERS

Francis J. Waller, Allentown, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed May 6, 1991, Ser. No. 695,675
Int. Cl.[5] C11C *3/10*
U.S. Cl. 554—165 13 Claims

1. In a process for transvinylation of a vinyl ester with an alcohol or a carboxylic acid using a palladium catalyst introduced to the reaction mixture as a palladium carboxylate complexed with an aryl N-containing ligand, the improvement comprising adding to the reaction mixture a sulfur oxy-acid or sulfur oxy-acid mixture having a Hammett acidity ($-H_o$) of greater than 0.8.

5,214,173

CYCLOPENTADIENYL DICARBOLLIDE COMPLEXES OF TITANIUM, ZIRCONIUM AND HAFNIUM

Richard F. Jordan, Iowa City, Iowa, and Donna J. Crowther, Baytown, Tex., assignors to The University of Iowa Research Foundation, Iowa City, Iowa

Filed Dec. 31, 1991, Ser. No. 814,809
Int. Cl.[5] C07F *1/08*
U.S. Cl. 556—8 12 Claims

1. Cyclopentadienyl dicarbollide complex of the formula:

$$(Cp')(C_2B_9H_{11})M(CH_3)$$

wherein:
Cp' is an unsubstituted, alkyl-substituted, or fused ring cyclopentadienyl radical, and
M is Ti, Zr or Hf.

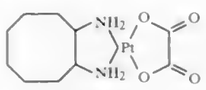
5,214,174

PLATINUM COMPLEX AND ANTI-TUMOR AGENT COMPRISING SAID COMPLEX AS ACTIVE INGREDIENT

Ken Miyamoto, Tokyo; Yoichi Fujii, and Toshiaki Fujihashi, both of Inashiki, all of Japan, assignors to Tsumura & Co., Tokyo, Japan

PCT No. PCT/JP90/01638, § 371 Date Oct. 15, 1991, § 102(e) Date Oct. 15, 1991, PCT Pub. No. WO91/09042, PCT Pub. Date Jun. 27, 1991
PCT Filed Dec. 14, 1990, Ser. No. 752,462
Claims priority, application Japan, Dec. 15, 1989, 1-323874
Int. Cl.[5] C07F *15/00*
U.S. Cl. 556—137 3 Claims

1. A novel platinum complex represented by the following formula I or a steric isomer thereof:



I

5,214,175

PROCESS FOR THE SYNTHESIS OF MONOHALOALKYLFERROCENES AND 4-CHLOROBUTYLFERROCENE

Jean-Claude Gautier, Ablon sur Seine; Jean-Guy Melin, Bolbec, and Jean-Claude Mondet, Vert le Grand, all of France, assignors to Societe Nationale des Poudres et Explosifs, Paris, France

Filed Sep. 27, 1991, Ser. No. 766,082
Claims priority, application France, Sep. 27, 1990, 90 11913
Int. Cl.[5] C07F *15/02*
U.S. Cl. 556—144 11 Claims

1. A process for the synthesis of a monohaloalkylferrocene by reduction of a monohaloalkanoylferrocene comprising reacting said monohaloalkanoylferrocene with hydrogen in the presence of a mixture of PtO_2 and $SnCl_2$ as catalyst in acetic acid.

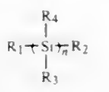
5,214,176

ORGANOSILICON COMPOUNDS

Gerard Soula, Meyzieu, and Gerard Mignani, Lyons, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Apr. 20, 1989, Ser. No. 340,778
Claims priority, application France, Apr. 20, 1988, 88 05214
Int. Cl.[5] C07F *7/08, 7/10*
U.S. Cl. 556—404 9 Claims

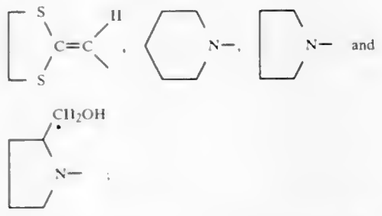
1. An organosilicon compound having the following general formula:



in which n is an integer ranging from 1 to 20; R_1 is a radical of the following general formula:

$$-R_5-D_m$$

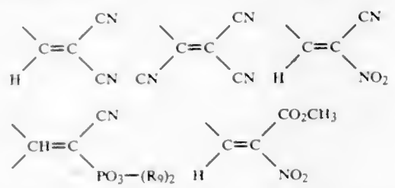
in which R_5 is an arylene radical; the radicals D, which may be identical or different, are each a hydrogen atom or an electron donating group selected from among amino, alkylamino, dialkylamino, arylamino, hydroxyl, thiolo, alkylthio, arylthio, alkoxy, aryloxy, haloalkyl, oxy,



and m is an integer equal to 1, 2 or 3, with the proviso that D is not a hydrogen atom when R_2 is an aryl radical that is not substituted by one or more electron attracting groups; R_2 is a pyridinyloxy radical or a radical of the general formula:

$$-R_6-A_p$$

in which R_6 is an aryl radical; p is an integer equal to 1, 2 or 3; and the radicals A, which may be identical or different, are each a hydrogen atom or an electron accepting group selected from among halo, nitro, cyano, nitroso, quaternary ammonium, pyridinyloxy, CF_3, alkyl quaternary ammonium, acyl, alkoxysulfonyl, aryloxsulfonyl, radicals, or a radical of the following formulae:



wherein R_9 is an alkyl radical having from 1 to 6 carbon atoms or an aryl radical, with the proviso that A is not a hydrogen atom when R_1 is an aryl radical that is not substituted by one

or more electron donating groups; R_3 is an alkyl radical having from 1 to 8 carbon atoms, a hydrogen atom, an aryl radical, or an R_1 or R_2 radical; and R_4 is an alkyl radical having from 1 to 8 carbon atoms, a hydrogen atom, an aryl radical, or an R_1 radical when R_3 is not an R_2 radical or an R_2 radical when R_3 is not an R_1 radical.

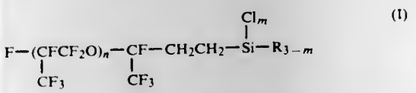
5,214,177

FLUORINATED ORGANIC SILICON COMPOUNDS AND METHOD FOR MAKING

Masayuki Oyama, Gunma; Toshio Takago, Annaka; Hideki Fujii, Annaka, and Hitoshi Kinami, Annaka, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 569,656, Aug. 20, 1990, abandoned. This application Oct. 1, 1991, Ser. No. 769,483
Claims priority, application Japan, Aug. 21, 1989, 1-214663
Int. Cl.[5] C07F *7/08*
U.S. Cl. 556—448 7 Claims

1. A fluorinated organic silicon compound of the general formula:



(I)

wherein R is an alkyl group having 1 to 6 carbon atoms, n is an integer of from 1 to 6, m is equal to 1, 2 or 3.

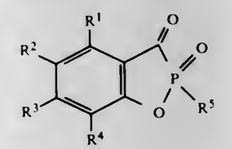
5,214,178

CYCLIC ACYLPHOSPHINIC ACID DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Jürgen Svara, Cologne, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed May 4, 1992, Ser. No. 878,178
Claims priority, application Fed. Rep. of Germany, May 16, 1991, 4115947
Int. Cl.[5] C07F *9/6574*
U.S. Cl. 558—82 4 Claims

1. A cyclic acylphosphinic acid derivative of the formula



in which the substituents independently of each other can have the following meaning:
R^1, R^2, R^3, R^4=H, Cl, Br or C1- to C10-alkyl or -alkoxy, but on condition that either R^1 and R^2 together, or R^3 and R^4 together, with incorporation of the associated aromatic 6-ring, form a naphthalene structure;
R^5=C1- to C4-alkyl, C5- or C6-cycloalkyl, phenyl or alkylphenyl.

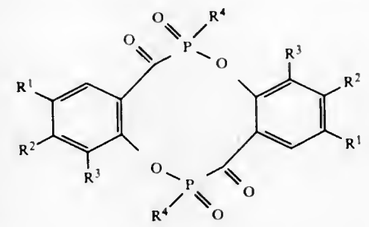
5,214,179

CYCLIC ACYLPHOSPHINIC ACID DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Jürgen Svara, Cologne, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed May 4, 1992, Ser. No. 878,664
Claims priority, application Fed. Rep. of Germany, May 16, 1991, 4115946
Int. Cl.[5] C07F *9/6574*
U.S. Cl. 558—83 4 Claims

1. A cyclic acylphosphinic acid derivative of the formula



in which the substituents independently of each other have the following meaning:
R^1, R^2, R^3=H, halogen, C1- to C10-alkyl or -alkoxy phenyl, phenoxy, acetyl or NO_2, where R^1 and R^2 together with incorporation of the associated aromatic 6-ring, can also form an extended, unsubstituted or substituted aromatic ring system;
R^4=C1- to C4-alkyl, C5- or C6-cycloalkyl, phenyl or alkylphenyl.

5,214,180

HIGHLY PURE PHOSPHATIDYLINOSITOL OF NATURAL SOURCE USEFUL FOR THE TREATMENT OF CENTRAL NERVOUS SYSTEM DISORDERS AND PROCESS FOR ITS PREPARATION

Enrico Ferrari, Sesto San Giovanni; Pier Giuseppe Pagella, Isola S. Antonio; Stefano Maiorana, Milan, and Mario Brufani, Castelgandolfo, all of Italy, assignors to Mediolanum Farmaceutici S.p.A., Milan, Italy

Filed Jan. 16, 1992, Ser. No. 821,088
Claims priority, application Italy, Jun. 7, 1991, MI91 A 001578
Int. Cl.[5] C07C *35/16;* C07F *9/02*
U.S. Cl. 558—146 7 Claims

1. Process for the preparation of highly pure phosphatidylinositol, suitable for the treatment of central nervous system disorders, comprising:
a) treating a crude material of vegetal origin, containing at least 10% by weight phosphatidylinositol with reagents which functionalize the inositol hydroxy groups with protective groups, said reagents being selected from the group consisting of dimethyltertbutylsilylchloride, thexyldimethylsilylchloride, trimethylsilylchloride and allyl bromide;
b) separating the thus functionalized phosphatidylinositol from the reaction mixture by solvent extraction or by chromatography on silica gel; and
c) removing the protective groups under conditions such as not to modify the phosphatidyl group.

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5,214,181

AMINO ACID DERIVATIVES

Takakazu Morita, Toyonaka; Shiro Mita, Ashiya, and Yoichi Kawashima, Kyoto, all of Japan, assignors to Santen Pharmaceutical Co., Ltd., Osaka, Japan

PCT No. PCT/JP90/01515, § 371 Date Jul. 12, 1991, § 102(e) Date Jul. 12, 1991, PCT Pub. No. WO91/08199, PCT Pub. Date Jun. 13, 1991

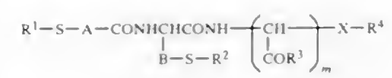
PCT Filed Nov. 21, 1990, Ser. No. 730,832

Claims priority, application Japan, Nov. 27, 1989, 1-307359

Int. Cl.[5] C07C *327/20, 321/22, 329/14*

U.S. Cl. 558—248 6 Claims

1. A compound of the formula [I] and salts thereof,



[I]

wherein

R^1 and R^2 are the same or different and each is hydrogen, lower alkyl, lower alkanoyl, phenylcarbonyl, phenyl lower alkyl or phenyl lower alkoxycarbonyl, and said phenyl ring of phenylcarbonyl, phenyl lower alkyl or phenyl lower alkoxycarbonyl can be substituted by lower alkyl, hydroxy, lower alkoxy or halogen;

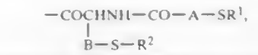
R^3 is hydroxy, lower alkoxy, amino or lower alkylamino;

R^4 is hydroxy,



or $-COR^7$;

R^5 and R^6 are the same or different and each is hydrogen, lower alkyl, lower alkanoyl, lower alkoxycarbonyl, phenylcarbonyl, phenyl lower alkyl, phenyl lower alkoxycarbonyl or



and said phenyl ring of phenylcarbonyl, phenyl lower alkyl or phenyl lower alkoxycarbonyl can be substituted by lower alkyl, hydroxy, lower alkoxy or halogen;

R^7 is the same definition as R^3;

A, B and X are the same or different and each is straight or branched lower alkylene; and

m is 0 or 1

5,214,182

PROCESS FOR COGENERATION OF ETHYLENE GLYCOL AND DIMETHYL CARBONATE

John F. Knifton, Austin, Tex., assignor to Texaco Chemical Company, White Plains, N.Y.

Continuation of Ser. No. 419,010, Oct. 10, 1989, abandoned, which is a continuation of Ser. No. 2,464, Jan. 12, 1987, abandoned. This application Jul. 1, 1991, Ser. No. 726,715

Int. Cl.[5] C07C *69/96*

U.S. Cl. 558—277 1 Claim

1. A process for the cosynthesis of ethylene glycol and dimethyl carbonate up to 98% selectivity which consists of reacting ethylene carbonate and methanol in a weight ratio in the range of 1:1 to 1:5 in the presence of a heterogeneous catalyst consisting of triphenylphosphine bound to a styrene-divinylbenzene copolymer having 2 to 20% cross-linkages at a temperature of 50° C. to 150° C., wherein the operating pressure is between 0 and 5000 psig until the desired products are obtained.

5,214,183

METHOD FOR MAKING OLIGOMERIC BISPHENOL MONOCHLOROFORMATE POLYCARBONATE OLIGOMERS AND PRODUCT

Thomas J. Fyvie, Schenectady, and James M. Silva, Clifton Park, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 519,980, May 7, 1990, abandoned. This application Sep. 3, 1991, Ser. No. 754,486

Int. Cl.[5] C07C *69/96*

U.S. Cl. 558—268 3 Claims

1. An oligomeric monochloroformate mixture of bisphenol polycarbonate consisting essentially of monomers and oligomers which are bishydroxy-terminated, bischloroformate-terminated and monohydroxy and monochloroformate-terminated in a molar ratio of about 1:1:2, which monomers and oligomers have terminal OH and COCl groups present in a ratio of OH/COCl having a value of about 0.9 to about 1.1, where the oligomeric monochloroformate mixture is formed by introducing a solution of alkali metal hydroxide into a bisphenol phogenation mixture under interfacial reaction conditions until a stoichiometric endpoint is reached whereupon the introduction of phosgene and alkali metal hydroxide into the bisphenol phosgenation mixture is terminated, and where in the initial formation of the oligomeric monochloroformate mixture,

(a) the aqueous alkali metal hydroxide is introduced into the bisphenol phosgenation mixture at a moving average rate which is substantially constant during the major portion of the reaction and then monotonically increases up to about 3 moles of aqueous alkali metal hydroxide, per minute, per mole of phosgene per minute, which is sufficient to maintain the ph of the bisphenol phosgenation mixture at a predetermined pH set point falling within the range of about 3 to about 10.5, until the stoichiometric end point is reached as shown by a sudden increase in aqueous alkali metal hydroxide requirements which is sufficient to provide a moving average rate exceeding 3 moles of alkali metal hydroxide per minute, per mole of phosgene per minute or,

(b) the alkali metal hydroxide is initially introduced into the bisphenol phosgenation mixture at a rate which is sufficient to provide up to about 2–2.5 moles of base per minute, per mole of phosgene per minute to substantially maintain the pH at, or around a predetermined pH set point falling within the range of about 3 to about 10.5 until the stoichiometric end point is reached which is shown by a period during which the pH of the phosgenation mixture assumes a substantially constant or stabilized value at a level of about 0.1–0.5 units below the pH set point, and thereafter suddenly decreases to a value of at least 1 pH unit below its previously substantially constant or stabilized value.

5,214,184

METHOD OF PRODUCING CARBONIC ACID DIESTER

Tokuo Matuzaki; Tsuneo Simamura; Satoru Fujitsu, and Yosinobu Toriyahara, all of Ube, Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed Mar. 13, 1992, Ser. No. 850,678

Claims priority, application Japan, Mar. 15, 1991, 3-128832; Mar. 26, 1991, 3-132375

Int. Cl.[5] C07C *69/96*

U.S. Cl. 558—277 28 Claims

1. A method of producing a carbonic acid diester, comprising the steps of:

(A) catalytically reacting carbon monoxide with a nitrous acid ester in a gas phase in the presence of a solid catalyst composed of a solid carrier and a catalytic solid material carried on the carrier and comprising:

(1) a first catalyst component consisting of at least one member selected from the group consisting of platinum group metals and compounds thereof;

(2) a second catalyst component consisting of at least one member selected from the group consisting of iron compounds, copper compounds, bismuth compounds, cobalt compounds, nickel compounds and tin compounds;

(3) a third catalyst component consisting of at least one member selected from the group consisting of vanadium compounds, molybdenum compounds and tungsten compounds; and

(4) a fourth catalyst component consisting of at least one member selected from alkali metal compounds and alkaline earth metal compounds; and

(B) collecting the resultant carbonic acid diester from a reaction mixture discharged from the catalytic reaction step (A).

5,214,185

CONTINUOUS PROCESS FOR PREPARING DIMETHYL CARBONATE

Keigo Nishihira; Shin-ichi Yoshida, and Shuji Tanaka, all of Ube, Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed Jul. 17, 1992, Ser. No. 914,355

Claims priority, application Japan, Jul. 19, 1991, 3-269950; Jul. 19, 1991, 3-269951

Int. Cl.[5] C07C *69/96*

U.S. Cl. 558—277 15 Claims

1. A continuous process for preparing dimethyl carbonate which comprises:

a first step of introducing a gas containing carbon monoxide and methyl nitrite into a reactor filled with a solid catalyst carried thereon at least one of a platinum group metal and a compound thereof, or at least one of a platinum group metal and a compound thereof and a co-catalyst to effect catalytic reaction in a vapor phase to form a reaction product containing dimethyl carbonate;

a second step of separating the reaction product formed in the first step to a non-condensed gas containing nitrogen monoxide and a solution containing dimethyl carbonate by introducing the reaction product into an absorption column and adding dimethyl oxalate as an absorption solvent;

a third step of introducing the non-condensed gas of the second step into a regenerating column to contact it with a molecular state oxygen-containing gas and methanol whereby regenerating nitrogen monoxide in the non-condensed gas to methyl nitrite, so as to contain 2 to 7% by volume of nitrogen monoxide in a non-absorbed gas at an outlet of the column, which in turn is introduced in the reactor of the first step;

a fourth step of extracting, distilling and separating dimethyl carbonate from the solution containing dimethyl carbonate, methanol and dimethyl oxalate obtained in the second step by further adding dimethyl oxalate to remove methanol; and

a fifth step of distilling and separating dimethyl carbonate from a mixed solution containing dimethyl carbonate and dimethyl oxalate obtained in the fourth step to remove dimethyl oxalate and recycling the removed dimethyl oxalate to the fourth step.

5,214,186

PROCESS FOR THE PREPARATION OF ARYLIDINE DYES USING AN ACTIVE METHYLENE COMPOUND

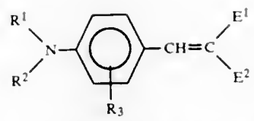
Leslie Shuttleworth, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 3, 1991, Ser. No. 801,224

Int. Cl.[5] C07C *255/00, 211/00, 209/00*

U.S. Cl. 558—370 8 Claims

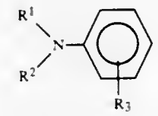
1. A process for the preparation of an arylidene dye of the formula



wherein R^1 and R^2 are hydrogen, alkyl or cycloalkyl, or alkyl or cycloalkyl substituted with hydroxyl, halo, amido, carboxyl or phenyl, R^3 is a hydrogen, an alkyl or alkoxy, a phenyl ring fused with the phenyl ring shown, or a alkanoylamino, aroylamino, alkoxycarbonylamino or aryloxycarbonylamino, or R^2 and R^3 together form a saturated heterocyclic ring, and each of E^1 and E^2 is $-CHNH_2$ or an unsaturated substituent which is more electron withdrawing than $-CONH_2$, said process comprising

reacting an active methylene compound of the structure, $E^1-CH_2-E^2$, with an alkyl formate in the presence of a storing base to yield a hydroxymethylene enolate salt, and

reacting said enolate salt with an aromatic amine of the formula



in the presence of an aryl- or alkylsulfonyl halide to yield an arylidene dye.

5,214,187

BENZONITRILES, BENZALDEHYDES AND BENZYL ALCOHOLS

Bernd Wolf, Mutterstadt; Hans Theobald, Limburgerhof, and Norbert Goetz, Worms, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 791,016, Nov. 12, 1991, which is a division of Ser. No. 520,459, May 8, 1990, Pat. No. 5,101,061, which is a division of Ser. No. 365,794, Jun. 14, 1989, Pat. No. 4,950,796.

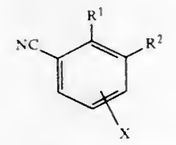
This application Sep. 18, 1992, Ser. No. 946,586

Claims priority, application Fed. Rep. of Germany, Jun. 21, 1988, 3820896

Int. Cl.[5] C07C *255/50*

U.S. Cl. 558—411 16 Claims

1. A novel benzonitrile of the formula:



where R^1 is methyl or ethyl, R^2 is C_{3-20} alkyl, C_{3-20} alkenyl, C_{3-8} cycloalkyl, C_{3-8} cycloalkenyl, C_{5-12} bicycloalkyl, C_{5-12} bicycloalkenyl, C_{1-5}-alkyl-substituted-C_{3-8} cycloalkyl, C_{1-5}-alkyl-substituted-C_{3-8}, cycloalkenyl, C_{1-5} alkyl-substituted-C_{5-12} bicycloalkyl or C_{1-5} alkyl-substituted-C_{5-12} bicycloalkenyl, X is hydrogen, chlorine or fluorine.

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5,214,188

2,3-DICYANONAPHTHALENE DERIVATIVES

Seiji Tai; Shigeru Hayashida; Nobuyuki Hayashi; Hideo Hagiwara; Mitsuo Katayose; Koichi Kamijima; Takayuki Akimoto; Susumu Era; Setsuo Kobayashi, all of Hitachi, and Akio Mukoh, Mito, all of Japan, assignors to Hitachi, Ltd. and Hitachi Chemical Company, Ltd., Tokyo, Japan

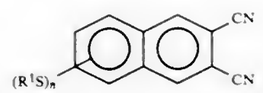
Division of Ser. No. 221,692, Jun. 24, 1988, Pat. No. 5,034,309. This application May 2, 1991, Ser. No. 694,753

Claims priority, application Japan, Jun. 26, 1987, 62-160498; Sep. 18, 1987, 62-235710; Mar. 23, 1988, 63-68464

Int. Cl.[5] C07C *255/52*

U.S. Cl. 558—419 6 Claims

1. A 2,3-dicyanonaphthalene derivative of the formula;



(X1)

wherein each R^1 is the same or different, and represents an alkyl group; an alkyl group which is substituted with a member selected from the group consisting of a carboxylic ester group, phenoxy, an alkoxy group and phenyl; phenyl; a tolyl group; an anisyl group; a halophenyl group; a furyl group; a thenyl group or a pyridyl group; and wherein n is an integer from 1 to 4.

5,214,189

N-(2-HYDROXYETHYL NITRATE)-2,4,6,-TRINITROBENZAMIDE

Michael E. Sitzmann, Adelphi, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 15, 1992, Ser. No. 901,623

Int. Cl.[5] C07C *233/12, 233/16*

U.S. Cl. 558—482 2 Claims

1. N-(2-hydroxyethyl nitriate)-2,4,6-trinitrobenzamide.

5,214,190

NITROPHENYL ETHER HERBICIDES

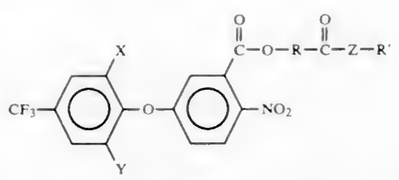
Wayne O. Johnson, 346 Centennial Rd., Warminster, Pa. 18974

Continuation of Ser. No. 559,653, Jan. 23, 1984, abandoned, which is a division of Ser. No. 104,598, Dec. 17, 1979, abandoned. This application Oct. 21, 1992, Ser. No. 964,577

Int. Cl.[5] C07C *205/00*

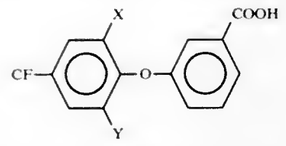
U.S. Cl. 560—21 4 Claims

2. A process for preparing a diphenyl ether of the graphic formula:



wherein X is hydrogen or halogen; Y is hydrogen, halogen, cyano, trifluoromethyl, or an alkyl radical containing from 1 to 4 carbon atoms; Z is oxygen or sulfur; R is a methylidene or monosubstituted methylidene, whrein the substituent is selected from the group consisting of alkyl, oxoalkyl and hydroxyalkyl radicals containing from 1 to 4 carbon atoms; and R^1 is hydrogen, or an alkyl radical containing from 1 to 8 carbon atoms, a cycloalkyl radical containing from 3 to 8 carbon atoms, an agronomically acceptable cationic salt, phenyl, or mono-,di-, or tri-substituted pehnyl, said substituents being selected from the group consisting of halogen, alkyl or alkoxy radicals containing from 1 to 10 carbon atoms, cyano, nitro, and trifluoromthyl; which comprises the sequential steps of:

(a) reacting a diphenyl ether of the graphic formula:



wherein X and Y are as defined above, with an inorganic alkali metal base to form the corresponding acid salt;

(b) reacting the acid salt of step (a) with an α-halocar-boxylic acid ester of the graphic formula:



wherein R and Z are as defined above; R^1 is an alkyl radical containing from 1 to 8 carbon atoms. a cycloaklyl radical containing from 3 to 8 carbon atoms, phenyl, or mono-, di-, or trisubstituted phenyl, said substituents being selected from the group consisting of halogen, alkyl or alkoxy radicals containing from 1 to 10 carbon atoms, cyano, nitro, and trifluormethyl; and Hal is selected from the group consisting of chlorine, bromine and iodine, to form the corresponding ester; and

(c) nitrating the ester product of step (b) with a nitrating agent selected from the group consisting of nitric acid; mixtures of nitric acid and sulfuric acid; mixtures of potassium nitrate and sulfuric acid; and mixtures of nitric acid, sulfuric acid, and acetic anhydride, thereby to form a diphenyl ether represented by graphic Formula I.

5,214,191

OXIDANT SENSITIVE AND INSENSITIVE AROMATIC ESTERS AS INHIBITORS OF HUMAN NEUTROPHIL ELASTASE

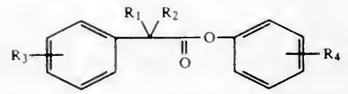
Gary P. Kirschenheuter; Lyle W. Spruce, both of Arvada, and John C. Cheronis, Lakewood, all of Colo., assignors to Cortech, Inc., Denver, Colo.

Filed May 22, 1990, Ser. No. 528,967

Int. Cl.[5] C07C *69/76*

U.S. Cl. 514—231.8 15 Claims

1. A compound of the formula



(V1)

wherein:

R_1 and R_2, which may be the same or different, are selected from the group consisting of hydrogen, alkyl of 1–6 carbons, cycloalkyl of 3–6 carbons or together represent a methylene group $—(CH_2)_n—$ where n is a whole number of from 1 to 6;

R_3 represents one or more substituents up to five selected from the group consisting of:

hydrogen, halogen, haloalkyl of 1–12 carbons, alkyl of 1–12 carbons, alkoxy of 1–12 carbons, alkenyl of 2–12 carbons, cycloalkyl of 3–12 carbons, mono- or dicyclic aryl,

$—ZR_5$ where Z is O, S, S(O) or SO_2 and R_5 is hydrogen, alkyl of 1–18 carbons, cycloalkyl of 3–12 carbons or phenyl;

$—NR_6R_7$ where R_6 and R_7 may be the same or different and may be hydrogen, alkyl of 1–12 carbons, cycloalkyl or 3–6 carbons, phenyl, alkoxy of 1–12 carbons, acyl of the formula $—C(O)R_6$ is alkyl of 1–12 carbons, cycloalkyl of 3–12 carbons, phenyl, $CH_3OC(O)CH_2CH_2—$, $HOOCCH_2CH_2—$,

$NaO_3SCH_2CH_2NHC(O)CH_2CH_2—$, or R_6 and R_7 together may represent $—C(O)CH_2CH_2C(O)—$, $—C(O)—C_6H_4—$ C(O)— or $—(CH_2)_x—$ where x is 2, 3, 4, 5 and 6;

morpholino, imidazole or piperazino joined to the phenyl ring through a nitrogen atom; or

R_3 represents alkylene group containing 3 to 4 carbons, or such group substituted with lower alkoxy or the group $—O(CH_2)_nO—$ where n is 2, 3 or 4, joining adjacent carbons of the phenyl ring;

R_4 is from one to five substituents selected from hydrogen, halogen, nitro, $—C(O)CH_3$, $S(O)_pR_9$ where p is 1, 1 or 2 and R_9 is hydroxy, —ONa, or optionally substituted alkyl of 1–12 carbons or optionally substituted cycloalkyl, or the nontoxic, pharmaceutically acceptable salts thereof provided that R_1 and R_4 are not both hydrogen and provided further that R_3 is not haloalkyl when R_4 is hydrogen and R_3 is not alkyl when R_4 is nitro.

5,214,192

PROCESS FOR PREPARING IODOARENE COMPOUNDS

Alexander McKillop, Norwich, and Duncan Kemp, High Crompton, both of England, assignors to Interox Chemicals Limited, London, England

PCT No. PCT/GB90/00314, § 371 Date Oct. 2, 1991, § 102(e) Date Oct. 2, 1991, PCT Pub. No. WO90/09982, PCT Pub. Date Sep. 7, 1990

PCT Filed Feb. 28, 1990, Ser. No. 768,281

Claims priority, application United Kingdom, Mar. 2, 1989, 8904800

Int. Cl.[5] C07C *67/00*

U.S. Cl. 560—131 8 Claims

1. A process for the preparation of a diacetoxyiodoarene compound by reaction between an iodoarene compound and a donor of acetoxy groups in the presence of an oxidising agent, wherein an unsubstituted or substituted iodoarene compound is brought into contact with an excess of alkali metal perborate and acetic acid at a mild temperature and permitted to react until at least a proportion of the iodoarene has been oxidised to the corresponding diacetoxyiodoarene, provided that any electron-withdrawing substituent is meta to the iodo substituent.

5,214,193

PRODUCTION OF BISPHENOL MONOESTER

Kikumitsu Inoue; Manji Sasaki, both of Nishinomiya; Kazuaki Yamamoto, Ibaraki, and Shinichi Yachigo, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

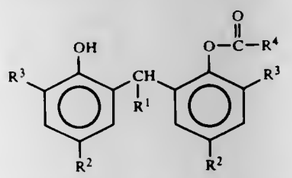
Filed Feb. 12, 1992, Ser. No. 834,373

Claims priority, application Japan, Feb. 18, 1991, 3-023539; Apr. 25, 1991, 3-095377

Int. Cl.[5] C07C *67/03, 67/08, 67/14*

U.S. Cl. 560—140 23 Claims

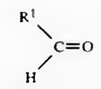
1. A process for producing a bisphenol monoester represented by the formula (I):



(I)

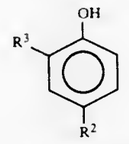
wherein R^1 is hydrogen or an alkyl of 1 to 3 carbon atoms, R^2 and R^3 independently of one another are each an alkyl of 1 to 5 carbon atoms, and R^4 is an alkyl of 1 to 3 carbon atoms, an alkenyl of 2 to 4 carbon atoms or phenyl, which process comprises the steps of:

subjecting an aldehyde represented by the formula (II):



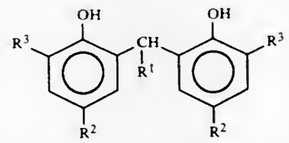
(II)

wherein R^1 is as defined above, to a condensation reaction with a dialkylphenol represented by the formula (III):



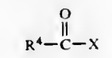
(III)

wherein R^2 and R^3 are as defined above, in a solvent selected from the group consisting of aliphatic hydrocarbons of 6 to 10 carbons atoms and aromatic hydrocarbons of 6 to 12 carbon atoms, to obtain an organic layer containing a bisphenol compound represented by the formula (IV):



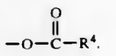
(IV)

wherein R^1, R^2 and R^3 are as defined above; subjecting the organic layer containing the bisphenol compound to a dehydration treatment; and subjecting the dehydrated organic layer, without isolating said bisphenol compound, to a reaction with a carboxylic compound represented by the formula (V):



(V)

wherein R^4 is as defined above, and X is hydroxyl, halogen, an alkoxy of 1 to 3 carbon atoms, or a group of



5,214,194

COUPLER INTERMEDIATES AND THEIR FORMATION

Ping-Wah Tang, Rochester, N.Y.; Jeffrey R. Neff, Kingsport, Tenn.; Frank T. Melia, and Donald J. Schuster, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

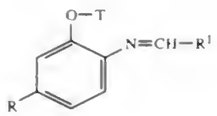
Filed Sep. 24, 1991, Ser. No. 764,598

Int. Cl.[5] C07C *67/14*

U.S. Cl. 560—142 4 Claims

1. A process for formation of a compound having the formula:

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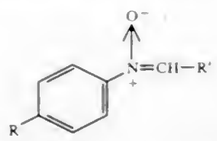


wherein T has the formula:



wherein each X is independently selected from the group consisting of chlorine, bromine, and iodine, R is an alkyl group having 1 to 30 carbon atoms or a coupling off group, and R' is an alkyl or aryl group having 1 to 10 carbon atoms;

said process comprising reacting an acid halide which is a trihaloacetyl halide, with a nitrone having the formula:



wherein R and R' are defined above at a temperature of from about −10° C. to 80° C. and under substantially anhydrous conditions.

5,214,195

ALLYL ESTERS AND THE USE THEREOF FOR THE BUILD-UP OF SOLID PHASE SYSTEMS FOR SOLID PHASE REACTIONS

Horst Kung, Mainz; Winfried Kosch, Wieshaden, and Joachim März, Mainz-Zahlbach, all of Fed. Rep. of Germany, assignors to Orpegen Medizinisch-Molekular Biologische Forschungsgesellschaft mbh, Heidelberg, Fed. Rep. of Germany

Filed Aug. 31, 1990, Ser. No. 576,366

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1989, 3928909; Nov. 23, 1989, 3938850

Int. Cl.[5] C07C *261/00*

U.S. Cl. 560—157 **8 Claims**

1. An allyl ester of the formula

$$X—CH_2—CR^1=CR^2—CO—Y—R^3—A \quad (I)$$

wherein

R^1 and R^2, which can be the same or different, are hydrogen, halogen, C_1-C_7 alkyl or mono or dicyclic aryl,

R^3 is a linking group $(CH_2)_n$ $COOCH_2CH_2$or $(CH_2)_n$ wherein n is 2-10,

X is an acyloxy radial in which acyl in the acyloxy radical is the residue of C_1-C_7 aliphatic carboxylic acid or is the radical RCO— wherein R is the protected or unprotected residue of an amino acid, peptide, glycopeptide, nucleotide, hydroxycarboxylic acid, dicarboxylic acid or tricarboxylic acid,

Y is oxygen, sulphur or an —NH— group and

A is a carboxylic acid ester group capable of reaction with a functional Group B present on a solid carrier material selected from the group consisting of cross-linked polyacrylamides, methacrylates, dextrans, cellulose, polystyrene and cross-linked polystyrene and wherein A and B react to form a linkage between the solid carrier material and the radical $X—CH_2—CR^1=CR^2—CO—Y—R^3—$.

5,214,196

DIETHYL ESTER OF DI-GLYCYL FUMARAMIDE

Izhak Blank, Haifa, Israel, assignor to Dexter Chemical Corporation, Bronx, N.Y.

Continuation of Ser. No. 320,731, Mar. 8, 1989, abandoned, which is a continuation of Ser. No. 239,675, Sep. 2, 1988, abandoned. This application Sep. 20, 1991, Ser. No. 763,188

Claims priority, application Israel, Sep. 4, 1987, 83775

Int. Cl.[5] C07C *229/00*

U.S. Cl. 560—169 **1 Claim**

1. The diethyl ester of di-glycyl fumaramide.

5,214,197

2,4-DIHYDROXYADIPIC ACID DERIVATIVE

Shigeo Hayashi, Takasago; Noboru Ueyama; Kenji Inoue, both of Kakogawa; Teruyoshi Koga, Takasago, and Satomi Takahashi, Kobe, all of Japan, assignors to Kanegafuchi Chemical Industry Co., Ltd., Osaka, Japan

Filed Jul. 2, 1991, Ser. No. 724,728

Claims priority, application Japan, Jul. 6, 1990, 2-179874; Feb. 18, 1991, 3-046076

Int. Cl.[5] C07C *69/66*

U.S. Cl. 560—176 **20 Claims**

1. A 2,4-dihydroxyadipic acid derivative of the formula:

$$R^1OOC—\underset{\displaystyle OR^2}{\underset{|}{CH}}—CH_2—\underset{\displaystyle OR^3}{\underset{|}{CH}}—CH_2—COOR^4 \quad (I)$$

wherein R^1 and R^4 are the same or different and each a hydrogen atom, an alkyl group, an aralkyl group, an aryl group or a silyl group, and R^2 and R^3 are the same or different and each a hydrogen atom or a protective group of a hydroxy group or together form a ring.

5,214,198

PROCESS FOR THE MANUFACTURE OF HALOMALEIC AND HALOFUMARIC ESTERS

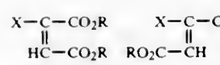
Albert A. Cevasco, Somerset, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Dec. 20, 1991, Ser. No. 812,521

Int. Cl.[5] C07C *67/317*

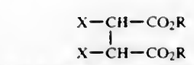
U.S. Cl. 560—192 **7 Claims**

1. A process for the manufacture of a compound of formula I



I

wherein X is halogen and R is C_1-C_6 which comprises reacting a compound of formula II



II

wherein X and R are as described for formula I, with at least one molar equivalent of a base at about 45°-75° C. in the presence of a tetraalkylated ammonium salt phase transfer catalyst and water.

5,214,199

PROCESS FOR PREPARING MALONIC MONOESTER

Teruyoshi Koga, Takasago; Noboru Ueyama; Kenji Inoue, both of Kakogawa, and Satomi Takahashi, Kobe, all of Japan, assignors to Kanegafuchi Chemical Industries Co., Ltd., Osaka, Japan

Filed Aug. 30, 1991, Ser. No. 755,496

Claims priority, application Japan, Sep. 1, 1990, 2-231335

Int. Cl.[5] C07C *67/08*

U.S. Cl. 560—204 **8 Claims**

1. A process for preparing a malonic monoester comprising reacting malonic acid with an alcohol of the formula:

$$R_1—OH \quad (I)$$

wherein R_1 is an alkyl group, an allyl group, an aryl group or an aralkyl group, in the presence of a base and an activator of malonic acid selected from the group consisting of an acyl halide or halocarbonate of the formula:

$$R_2—A—X \quad (II)$$

wherein R_2 is an alkyl group, an aryl group, or an aryl group having a substituent selected from the group consisting of C_{1-5} alkyl, C_{1-5} alkoxy, hydroxy, halogen, and nitro, A is $—SO_2—$, —CO— or —OCO—, and X is a chlorine atom or a bromine atom and an acid anhydride or dicarbonate of the formula:

$$R_2—A—O—E—R_3 \quad (III)$$

wherein R_2 and A are the same as defined above, E is $—SO_2—$, —CO— or —COO—, and R_3 is an alkyl group, an allyl group, an aryl group or an aralkyl group provided that R_2 and R_3 may be the same or different;

wherein the amount of said alcohol is from 1 to 50 moles per one mole of malonic acid, the amount of said activator is at least one mole per one mole of malonic acid, and the temperature range of said reaction is from −20 C to 50 C.

5,214,200

PROCESS FOR PRODUCING ORGANIC ESTERS BY REACTING A CARBOXYLIC ACID AND A DIALKYL ETHER

Francis J. Waller, Allentown, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 15, 1992, Ser. No. 869,606

Int. Cl.[5] C07C *67/24*

U.S. Cl. 560—240 **17 Claims**

1. A process for producing an organic ester comprising reacting a carboxylic acid and a dialkyl ether in the presence of a catalyst consisting essentially of an iodide of a Group IA element under conditions sufficient to form the ester and recovering the ester.

5,214,201

CRYSTALLIZATION OF OPTICAL ISOMERS OF LEUKOTRIENE ANTAGONISTS

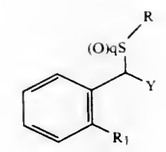
Robert J. Mills, Norristown, Pa., assignor to SmithKline Beecham Corporation, Philadelphia, Pa.

Filed Dec. 12, 1991, Ser. No. 806,031

Int. Cl.[5] C07B *57/00*; C07D *403/14, 307/36*

U.S. Cl. 562—401 **18 Claims**

12. A process for separating a single isomer from a racemic mixture of a compound of formula II



(II)

where:

R_1 is C_8 to C_{13} alkyl, C_7 to C_{12} alkoxy, C_7 to C_{12} alkylthio, C_{10} to C_{12} 1-alkynyl, 10-undecynyloxy, 11-dodecynyl, phenyl-C_4 to C_{10} alkyl, phenyl-C_3 to C_9 alkoxy, phenylthio-C_3 to C_9 alkyl wherein the phenyl may be mono substituted with bromo, chloro, trifluoromethyl, C_1 to C_4 alkoxy, methylthio or trifluoromethylthio, furyl-C_4 to C_{10} alkyl, trifluoromethyl-C_7 to C_{12} alkyl or cyclohexyl-C_4 to C_{10} alkyl;

q is 0, 1 or 2, with the proviso that R_1 is not alkylthio or phenylthioalkyl when q is 1 or 2;

Y is $(CH_2)_mCOR_{3'}$, or $(CH_2)_m$-tetrazol-5-yl;

$R_{3'}$ is OH, amino, or C_1 to C_6 alkoxy,

m is 0, 1, or 2;

R is $(CH_2)_nCOR_{6'}$;

n is 0 to 6;

$R_{6'}$ is OH, amino, or C_1 to C_6-alkoxy;

with the proviso that at least one of $R_{3'}$ or $R_{6'}$ is —OH or a salt thereof, which process comprises:

(i). treating a racemic mixture of formula II with between about 0.5 to 1.5 equivalents, relative to the number of carboxylic acid groups in formula (II), of (S)-α-methylbenzenemethanamine;

(ii). recovering a crystalline salt; and

(iii). converting the salt to an acid or a pharmaceutically acceptable salt.

5,214,202

METHOD FOR PREPARING BENZOIC ACID DERIVATIVES

Yoshinori Hamada, Hyogo; Isamu Yamada, Osaka; Masaaki Uenaka, Osaka, and Teruo Sakata, Osaka, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

PCT No. PCT/JP91/00350, § 371 Date Nov. 6, 1991, § 102(e) Date Nov. 6, 1991, PCT Pub. No. WO91/14673, PCT Pub. Date Oct. 3, 1991

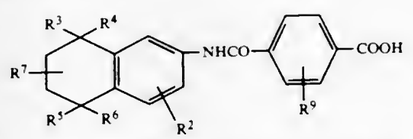
PCT Filed Mar. 15, 1991, Ser. No. 778,985

Claims priority, application Japan, Mar. 20, 1990, 2-71433

Int. Cl.[5] C07C *101/60*

U.S. Cl. 562—457 **4 Claims**

1. A method for preparing a benzoic acid derivative of the general formula (V):

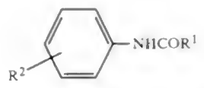


(V)

wherein R^2, R^7 and R^9 are independently hydrogen or lower alkyl, and R^3, R^4, R^5 and R^6 are independently lower alkyl, which comprises:

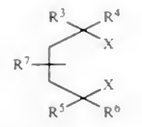
(a) subjecting acyl aniline derivative of the general formula (I):

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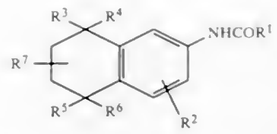
(I)

wherein R^1 is lower alkyl or aryl and R^2 is the same as above, and 1,4-butyl dihalide derivative (II):



(II)

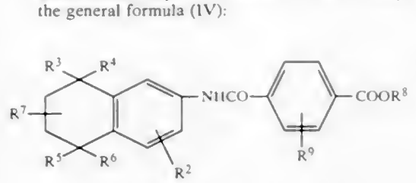
wherein R^3, R^4, R^5, R^6, and R^7 are respectively the same as above, and X is halogen, to Friedel-Crafts reaction to give a bicyclic amide compound of the general formula (III):



(III)

wherein R^1, R^2, R^3, R^4, R^5, R^6, and R^7 are respectively the same as above:

(b) reacting the compound (III) obtained in the step (a) with a monoester terephthalic halide to form a compound of the general formula (IV):



(IV)

wherein R^2, R^3, R^4, R^5, R^6, R^7, and R^9 are respectively the same as above, and R^8 is lower alkyl; and

(c) subjecting the compound (IV) obtained in the step (b) to de-esterification reaction to give the compound of the general formula (V).

5,214,203

PROCESS FOR PRODUCING CARBOXYLIC ACIDS

Hiroshi Koyama, and Hidetaka Kojima, both of Himeji, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 861,663, May 5, 1986, abandoned, which is a continuation of Ser. No. 643,227, Aug. 21, 1984, abandoned. This application Apr. 27, 1992, Ser. No. 875,532

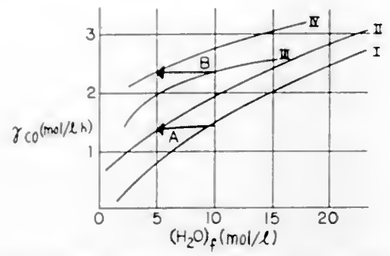
Claims priority, application Japan, Sep. 2, 1983, 58-161669

Int. Cl.[5] C07C *51/12*

U.S. Cl. 562—519 **26 Claims**

1. A process for producing a carboxylic acid, which comprises:

charging into a reactor an alcohol or reactive derivative thereof and a catalyst system consisting essentially of (1) a rhodium carbonylation catalyst, (2) an alkyl iodide or alkyl bromide and (3) an iodide salt selected from the group consisting of sodium iodide, potassium iodide and lithium iodide, effecting liquid phase carbonylation of said alcohol or reactive derivative thereof by contacting same with carbon monoxide, the amount of said salt being sufficient to continuously provide from 0.5 mol of iodide ion per liter of the carbonylation reaction solution up to the saturation concentration of said salt in the carbonylation reaction solution during the carbonylation reaction, said iodide salt being effective to reduce the formation of by-products and to increase the carbonylation reaction



rate, said carbonylation reaction solution containing from about 1 mol to about 5 mols of water and from about 10^{-2} mol to about 10 mols of said alkyl iodide or alkyl bromide, per liter of the carbonylation reaction solution.

5,214,204

ARYLAMIDOALKYL-N-HYDROXYUREA COMPOUNDS HAVING LIPOXYGENASE INHIBITORY ACTIVITY

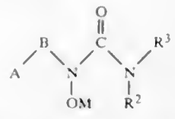
Joseph F. Dellaria, Lindenhurst; Dee W. Brooks, Libertyville; Jimmie L. Moore, Gurnee, and Kevin J. Sallin, Niles, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Jul. 19, 1991, Ser. No. 732,520

Int. Cl.[5] C07C *261/00*

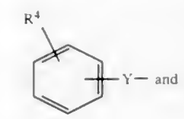
U.S. Cl. 562—623 **7 Claims**

1. A compound of the structure

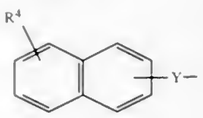


or a pharmaceutically acceptable salt thereof wherein

A is selected from the group consisting of



(a)



(b)

wherein

R^2 and R^3 are independently hydrogen or alkyl of from one to six carbon atoms;

R^4 is selected from

hydrogen,

halogen,

amino,

alkyl of from one to six carbon atoms,

alkoxy of from one to twelve carbon atoms,

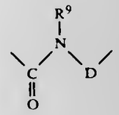
alkenyloxy in which the alkenyl portion is of from one to twelve carbon atoms,

phenoxy, optionally substituted with one, two, or three halogen atoms, alkyl of from one to six carbon atoms, haloalkyl of from one to six carbon atoms, alkoxy of from one to six carbon atoms, phenylalkoxy in which the alkoxy portion is of from one to six carbon atoms,

thiophenoxy, optionally substituted with one, two, or three halogen atoms, alkyl of from one to six carbon atoms, haloalkyl of from one to six carbon atoms, alkoxy of from one to six carbon atoms, benzoyl, phenylsulfonyl, optionally substituted with halogen, and phenylamino, optionally substituted with amino; and

Y is a valence bond or is selected from alkylene of from one to six carbon atoms, alkenylene of from two to six carbon atoms, and oxyalkylene of from one to six carbon atoms;

B is



wherein

R^9 is selected from

hydrogen,

alkyl of from one to six carbon atoms, and

benzyl, and

D is straight or branched alkylene of from one to six carbon atoms, and

M is hydrogen or a pharmaceutically acceptable cation.

5,214,205

PROCESS FOR THE PREPARATION OF ACETIC ANHYDRIDE FROM METHYL FORMATE

Yves Castanet, Hem; Bruno Seuillet, Compiegne; André Mortreux, Hem, and Francis Petit, Villeneuve d'Asq, all of France, assignors to Sollac, A French Body Corporate, Puteaux, France

Filed Apr. 14, 1992, Ser. No. 868,186

Claims priority, application France, Apr. 25, 1991, 91 05145

Int. Cl.[5] C07C *51/12, 51/10*

U.S. Cl. 562—891 **12 Claims**

1. A process for the preparation of acetic anhydride, wherein a gas containing essentially CO, at a pressure of at least 1 MPa, is reacted with methyl formate in the presence of

a) a rhodium-based catalyst;

b) a first iodine-containing promoter of ionic-type, which is present at the beginning of reaction;

c) a second iodine-containing promoter of covalent-type, which is added during reaction; and

d) an N-substituted cyclic amide as solvent, wherein the proportion of solvent relative to methyl formate is higher than 2/3 (v/v).

5,214,206

AMINOSULFONYL UREA ACAT INHIBITORS

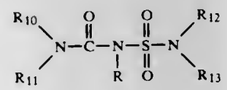
Joseph A. Picard, and Drago R. Sliskovic, both of Ypsilanti, Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 610,287, Nov. 7, 1990, abandoned. This application Aug. 19, 1991, Ser. No. 747,040

Int. Cl.[5] A61K *31/175*; C07C *311/00*

U.S. Cl. 564—40 **2 Claims**

1. A compound of the formula



wherein R is hydrogen, straight or branched alkyl having from 1 to 8 carbon atoms, or benzyl;

wherein R_{10} is hydrogen;

wherein R_{11} is 2,6-bis(1-methylethyl)phenyl;

wherein each of R_{12} and R_{13} is a straight or branched hydrocarbon chain having from 10 to 20 carbon atoms and which is saturated or contains from 1 to 3 double bonds, or cycloalkyl having from 3 to 7 carbon atoms; or a pharmaceutically acceptable salt thereof.

5,214,207

PHENYL- OR NAPHTHYLAZOBENZENES WITH MULTIPLE REACTIVE GROUPS AND INTERMEDIATES THEREFOR

Bernd Siegel, Ludwigshafen, and Manfred Patsch, Wachenbeim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

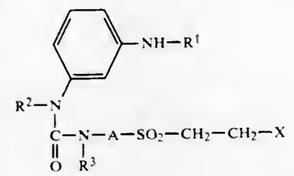
Division of Ser. No. 608,842, Nov. 5, 1990, Pat. No. 5,091,516. This application Aug. 30, 1991, Ser. No. 753,392

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1989, 3939286

Int. Cl.[5] C07C *275/06, 275/28*

U.S. Cl. 564—50 **1 Claim**

1. A phenylenediamine of the formula II



(II)

where

R^1, R^2 and R^3 are identical or different and each is independently of the other hydrogen, C_1–C_4-alkyl or phenyl,

A is C_2–C_8-alkylene, which may be interrupted by from 1 to 3 oxygen atoms, and X is hydroxyl or halogen.

5,214,208

TONER CONTAINING A DIMER OF DIARYLGUANIDINE TYPE COMPOUND FOR DEVELOPING ELECTROSTATIC IMAGE

Katsuhiko Tanaka, and Kazuyoshi Hagiwara, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 492,137, Mar. 13, 1990, Pat. No. 5,084,369. This application Sep. 24, 1991, Ser. No. 764,781

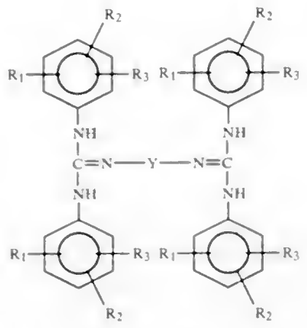
Claims priority, application Japan, Mar. 13, 1989, 1-060497

Int. Cl.[5] C07C *279/18*; G03G *9/08*

U.S. Cl. 564—236 **2 Claims**

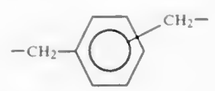
1. A dimer of a diarylguanidine type compound represented by the formula (II):

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(II)

wherein R^1, R^2, and R^3 are respectively hydrogen, an alkyl group of 1 to 4 carbons, an alkoxy group of 1 to 5 carbons, or a phenyl group, which may be the same or different from each other, and adjacent groups may be linked together to form a fused phenyl ring, and Y is



or $-CH=CH-CH_2-$.

5,214,209

METHOD OF PRODUCING PRIMARY AMINES IN HIGH YIELDS AND NOVEL INTERMEDIATES THEREFOR

Herbert C. Brown, West Lafayette, Ind., assignor to Aldrich Chemical Company, Inc., Milwaukee, Wis.

Division of Ser. No. 226,080, Jul. 29, 1988, Pat. No. 4,918,229. This application Mar. 26, 1990, Ser. No. 498,822

Int. Cl.[5] C07C *9/02, 209/00*

U.S. Cl. 564—395 **7 Claims**

1. A process for producing a primary amine represented by the formula RNH_2 wherein R is an organo group attached to a nitrogen in high yields comprising the steps of: heating a dimethylorganoborane of the formula $RBMe_2$ wherein R is the same organ group but attached to boron with an aminating agent selected from the group consisting of NH_2X, ammonia and NaOCl or $CaOCl_2$, NH_3 and CL_2, chloramine-T and hydroxylamine-O-sulfonic acid, followed by hydrolysis with aqueous base to liberate the primary amine.

5,214,210

CATALYST AND PROCESS FOR MAKING ANILINE FROM PHENOL

Alain A. Schutz, Penn Township, Westmoreland County, and Leonard A. Cullo, Greensburg, both of Pa., assignors to Aristech Chemical Corporation, Pittsburgh, Pa.

Filed Sep. 5, 1991, Ser. No. 755,222

The portion of the term of this patent subsequent to Feb. 22, 2009, has been disclaimed.

Int. Cl.[5] C07C *209/18*

U.S. Cl. 564—402 **7 Claims**

1. A vapor phase process for preparing aromatic amines from phenol having 0–2 methyl substitutions and ammonia comprising reacting ammonia and a phenol having 0–2 methyl substitutions in the presence of a catalyst comprising alumina which is predominantly eta alumina and which is made by calcining bayerite at a temperature between about 400° C. and about 600° C., having a surface area of at least 200 sq. meters per gram and having a packed density of at least 0.65 gram per ml.

5,214,211

ALKYLATION OF DIARYLAMINES WITH OLEFINS USING RARE EARTH MODIFIED PILLARED CLAYS

Paul R. Kurek, Barrington, and Jennifer S. Holmgren, Bloomingdale, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed Dec. 12, 1991, Ser. No. 805,747

Int. Cl.[5] C07C *209/60*

U.S. Cl. 564—409 **23 Claims**

1. A process for alkylating a diarylamine with an olefin whereby at least 95% of the diarylamine is reacted comprising reacting under alkylation conditions the diarylamine with from 2 to about 10 molar proportions of an olefin containing from 4 through 20 carbon atoms in the presence of a clay intercalated with pillars of oligomeric oxycations of aluminum, zirconium, or chromium as modified by rare earth salts.

5,214,212

PROMOTERS FOR HYDROGENATION OF AROMATIC AMINES

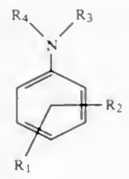
Peter J. Whitman, Hamden, Conn., assignor to Olin Corporation, Cheshire, Conn.

Filed Feb. 27, 1992, Ser. No. 842,822

Int. Cl.[5] C07C *209/72*

U.S. Cl. 564—451 **13 Claims**

1. A process for the catalytic hydrogenation of an aromatic amine represented by the formula:



in which:

R_1 is selected from the group consisting of H, an alkyl or cycloalkyl group having 1–6 carbon atoms, and NH_2;

R_2 is selected from the group consisting of H, an alkyl or cycloalkyl group having 1–6 carbon atoms, and



and

R_3 and R_4 are independently selected from the group consisting of H, and an alkyl or cycloalkyl group having 1–6 carbon atoms;

which process comprises reacting said aromatic amine with hydrogen in a reaction mixture containing an organic solvent, a noble metal catalyst and a promoter admixed with said reaction mixture, said promoter being a metal salt selected from the group consisting of a sulfate, a phosphate and a carboxylate, wherein the metal is selected from the group consisting of transition metals Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, Cd, Hf, Ta, W, Re, Os, Ir, Pt, Au, and Hg, and lanthanide metals, said promoter being used in an effective amount to increase the rate of said hydrogenation reaction, decrease the induction period, and decrease the amount of high boiler by-products.

5,214,213

SELECTIVE PRODUCTION OF LINEAR TETRAETHYLENEPENTAMINE AND HYDROXYETHYLDIETHYLENETRIAMINE

Stephen W. King, Scott Depot; Lloyd M. Burgess, South Charleston, and Arthur R. Doumaux, Jr., Charleston, all of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Mar. 30, 1990, Ser. No. 501,903

The portion of the term of this patent subsequent to Jan. 8, 2008, has been disclaimed.

Int. Cl.[5] C07C *209/01, 211/02, 209/16;* C07D *403/14*

U.S. Cl. 564—480 **18 Claims**

1. A process for making linear tetraethylenepentamine and hydroxyethylidiethylenetriamine comprising condensing, in the absence of hydrogen as a reactant, ethylenediamine and diethanolamine under condensation conditions including the presence of a catalytically effective amount of a condensation catalyst consisting essentially of a metatungstate and one or more Group IVB metal oxides, wherein the ethylenediamine to diethanolamine feed mole ratio is sufficient to provide under condensation conditions an amines product, based on 100 percent of the weight of the amines product and exclusive of any water and/or ammonia and/or feed present,

(a) greater than about 8.0 weight percent of L-TEPA,

(b) greater than about 10.0 weight percent of HEDETA,

(c) less than about 30.0 weight percent of AEP,

(d) less than about 35.0 weight percent of others,

(e) a DEDETA to L-TEPA weight ratio of less than about 10.0, and

(f) a L-TEPA + HEDETA to AEP weight ratio of greater than about 2.0.

5,214,214

PERFLUORO BRANCHED ALKYL ETHERS AND EMULSIONS

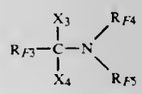
Kirby V. Scherer, Jr., Santa Monica, Calif.; Kouichi Yamanouchi, Sakai, Japan, and Kazumasa Yokoyama, Toyonaka, Japan, assignors to The Green Cross Corporation, Osaka, Japan

Continuation of Ser. No. 425,031, Oct. 23, 1989, abandoned, which is a division of Ser. No. 582,448, Feb. 22, 1984, Pat. No. 4,943,595, which is a continuation-in-part of Ser. No. 300,273, Sep. 8, 1981, abandoned. This application Mar. 30, 1992, Ser. No. 860,567

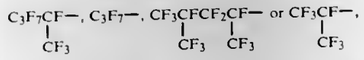
Int. Cl.[5] C07C *43/12, 211/00;* A61K *31/08, 31/12*

U.S. Cl. 564—510 **2 Claims**

1. A perfluoroalkyl tertiary amine derivative of the formula



wherein R_{F3} is



R_{F4} is C_3F_7 or C_2F_5, R_{F5} is C_2F_5 or CF_3, X_3 is F and X_4 is C_2F_5, CF_3 or F, or X_3 and X_4 are together CF_3 when R_{F3} is C_3F_7, and the total number of carbon atoms is 10.

5,214,215

SELECTIVE PRODUCTION OF AMINOETHYLETHANOLAMINE

Stephen W. King, Scott Depot; Lloyd M. Burgess, South Charleston, and Arthur R. Doumaux, Jr., Charleston, all of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Mar. 30, 1990, Ser. No. 501,906

The portion of the term of this patent subsequent to Jan. 8, 2008, has been disclaimed.

Int. Cl.[5] C07C *209/01, 211/02, 209/16;* C07D *403/14*

U.S. Cl. 564—480 **34 Claims**

1. A process of making amines having a yield weight percent of aminoethylethanolamine greater than about 20.0, based on 100 percent of the weight of the product and exclusive of any water and/or ammonia and/or feed present, comprising condensing, in the absence of hydrogen as a reactant, monoethanolamine and ethylenediamine, under condensation conditions including the presence of a condensation catalyst selected from the group consisting of a metatungstate or mixture thereof with Group IVB metal oxides.

5,214,216

FLUORINE-CONTAINING POLYETHER AND NONIONIC SURFACTANT COMPRISING THE SAME

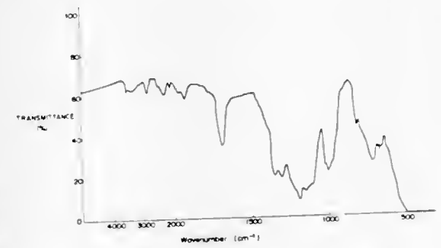
Takashi Tohzuka; Sueyoshi Ishikawa, and Ikuo Yamamoto, all of Osaka, Japan, assignors to Daikin Industries Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 340,481, Apr. 19, 1989, abandoned. This application Jul. 24, 1990, Ser. No. 556,419

Claims priority, application Japan, Apr. 19, 1988, 63-97682

Int. Cl.[5] C07C *43/11*

U.S. Cl. 568—615 **2 Claims**



1. A fluorine-containing polyether of the formula:

$$-[CF_2CF_2CF_2-(OCF_2CF_2CF_2)_m-OCF_2CF_2-(CH_2CH_2O)_n-CH_3]_2$$

wherein m is 2 to 200 and n is 2 to 500 or

$$F(CF_2CF_2CF_2O)_mCF_2CF_2CH_2CH_2O(CHCH_2O)_nH$$

(CH3 above the CHCH2O)

wherein m is 2 to 200 and n is 2 to 500.

5,214,217

METHOD FOR ONE-STEP SYNTHESIS OF METHYL T-BUTYL ETHER

John F. Knifton, Austin, Tex., assignor to Texaco Chemical Company, White Plains, N.Y.

Continuation-in-part of Ser. No. 494,281, Mar. 16, 1990, abandoned. This application Jul. 22, 1992, Ser. No. 917,218

Int. Cl.[5] C07C *41/00, 43/04*

U.S. Cl. 568—618 **1 Claim**

1. In a method where t-butanol is reacted with methanol in a reaction zone in the presence of a catalyst to provide methyl-

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tert-butyl ether, the improvement of accomplishing the reaction in one-step which comprises using as a catalyst a Y-zeolite selected from the group consisting of:

an ammonium-exchanged, thermally stable Y-zeolite having a Si:Al ratio of ca. 11:1; and

a rare-earth exchanged zeolite having a Si:Al ratio of between 1.5:1 and 2:1; and

continuously contacting said t-butanol and methanol in a molar amount of about 0.1 to 10 moles of methanol per mole of t-butanol with said catalyst at a temperature of about 80° C. to about 180° C. and a pressure of about atmospheric to about 1000 psig to obtain the methyl-tert-butyl product, wherein at 1802 C. the product comprises a two phase mix of an isobutylene-MTBE product-rich phase and a heavier aqueous methanol-rich phase.

5,214,218

ONE STEP SYNTHESIS OF METHYL T-BUTYL ETHER FROM T-BUTANOL USING HALOACID-MODIFIED CLAY CATALYSTS

John F. Knifton, Austin, Tex., assignor to Texaco Chemical Company, White Plains, N.Y.

Filed May 4, 1992, Ser. No. 878,121

Int. Cl.[5] **C07L** *41/09*

U.S. Cl. 568—698 **5 Claims**

1. In a method wherein t-butanol is reacted with methanol in a one step in the presence of a catalyst to provide methyl tert-butyl ether, the improvement comprising using as a catalyst a montmorillonite clay modified with a haloacid from the group consisting of haloaliphatic carboxylic acids selected from the group consisting of trifluoroacetic acid, pentafluoropropionic acid and trichloroacetic acid, haloaromatic carboxylic acids selected from the group consisting of pentafluorobenzoic acid and pentafluorobenzeneacetic acid, haloaromaticsulfonic acids selected from the group consisting of fluorobenzenesulfonic acids and sulfonyl chloride derivatives thereof, and haloaliphaticsulfonic acids selected from the group consisting of trichlormethanesulfonic acid and a sulfonyl chloride derivative thereof, and continuously contacting said t-butanol and methanol in a molar amount of about 0.1 to 10 moles of methanol per mole of t-butanol with said catalyst at a temperature of about 20° C. to about 250° C. and a pressure of about atmospheric to about 1000 psig to obtain methyl tert-butyl ether product.

5,214,219

METHOD OF HYDROGENATING GLYCEROL

Bruno Casale, Novara, and Ana Maria Gomez, Torino, both of Italy, assignors to Novamont S.p.A., Milan, Italy

Filed Jul. 9, 1992, Ser. No. 911,133

Claims priority, application Italy, Jul. 10, 1991, T091A000537

Int. Cl.[5] **C07C** *29/132*

U.S. Cl. 568—861 **7 Claims**

1. A catalytic method of hydrogenating glycerol in order to produce a product comprising 1, 2-propandiol and 1,2- ethandiol, wherein glycerol is reacted with hydrogen in the presence of a catalyst comprising copper and zinc, at a temperature above 200° C. and a pressure of between 5 and 20 MPa.

5,214,220

PROCESS FOR THE PREPARATION OF ALCOHOLS

Eit Drent, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed Aug. 10, 1992, Ser. No. 926,534

Claims priority, application United Kingdom, Aug. 30, 1991, 9118603

Int. Cl.[5] **C07C** *29/141*

U.S. Cl. 568—881 **12 Claims**

1. A process for the preparation of an alcohol which comprises hydrogenating an aldehyde at a temperature in the range of from about 20° C. to about 200° C. and superatmospheric pressure in the presence of a homogeneous catalytic system comprising a source of Group VIII medal compound wherein said Group VIII metal is selected from the group consisting of palladium, platinum, rhodium, and mixtures thereof, and a bidentate phosphine having a general formula: $R^1R^2P—X—PR^3R^4$ wherein R^1, R^2, R^3, R^4 independently represent an unsubstituted or substituted hydrocarbyl group, or R^1 and R^2 together and/or R^3 and R^4 together represent an unsubstituted or substituted bivalent hydrocarbyl group, at least one of R^1, R^2, R^3, and R^4 being aliphatic, and X represents a bivalent bridging group having from 2 to about 8 atoms in the bridge.

5,214,221

NITROCUBANES

Abdollah Bashir-Hashemi, Bridgewater, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 1, 1992, Ser. No. 955,220

Int. Cl.[5] **C07C** *205/06*

U.S. Cl. 568—944 **1 Claim**

1. 2-carbomethoxy,-1,4-dinitrocubane.

5,214,222

NITROCUBANES

Abdollah Bashir-Hashemi, Bridgewater, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 1, 1992, Ser. No. 955,213

Int. Cl.[5] **C07C** *205/06*

U.S. Cl. 568—945 **1 Claim**

1. 2,5-dichloro-1,4-dinitrocubane.

5,214,223

METHOD OF PREPARING FLUORINE-CONTAINING ETHANE DERIVATIVES

Johannes Eicher, Garbsen; Karlheinz Fazniewscy, Lehrte; Werner Rudolph, and Hans-Walter Swidersky, both of Hanover, all of Fed. Rep. of Germany, assignors to Kali-Chemie AG, Hanover, Fed. Rep. of Germany

Division of Ser. No. 683,834, Apr. 11, 1991, Pat. No. 5,071,900.

This application Jul. 14, 1992, Ser. No. 912,981

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1990, 4011789; Feb. 25, 1991, 4105832

Int. Cl.[5] **C07C** *17/00;* **B01J** *31/00*

U.S. Cl. 570—166 **8 Claims**

1. A catalyst mixture comprising a mixture of metal halide and a sulfonic acid derivative in a molar ratio of from 100:1 to 1:10, wherein said metal halide is selected from the group consisting of niobium pentahalide, tantalum pentahalide, molybdenum pentahalide and mixtures thereof, and the sulfonic acid derivative is selected from the group consisting of fluorosulfonic acid and perfluoro-lower alkane sulfonic acids with 1 to 4 carbon atoms.

5,214,224

DISPERSING ASPHALTENES IN HYDROCARBON REFINERY STREAMS WITH α-OLEFIN/MALEIC ANHYDRIDE COPOLYMER

David G. Comer, and W. Kirk Stephenson, both of P.O. Box 87, Sugar Land, Tex. 77487-0087

Filed Jul. 9, 1992, Ser. No. 910,230

Int. Cl.[5] **C07C** *7/20;* **C10L** *1/16, 1/20;* **C10M** *101/04*

U.S. Cl. 585—3 **23 Claims**

1. A method for dispersing asphaltenes in a liquid hydrocarbon, comprising the steps of:

determining the presence of asphaltenes in an asphaltene-containing liquid hydrocarbon; and

introducing an effective amount of a dispersant into the asphaltene-containing liquid hydrocarbon, said dispersant comprising a copolymer of an α-olefin having from about 10 to about 36 carbon atoms and maleic anhydride, wherein the weight ratio of said α-olefin to maleic anhydride is from about 1:1 to about 1:5 and the molecular weight of said copolymer is from about 5000 to about 100,000.

5,214,225

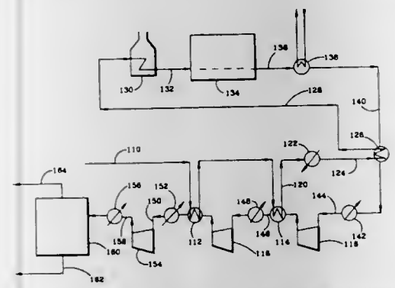
DEHYDROGENATION PROCESS WITH IMPROVED HEAT RECOVERY

Stephen G. Hall, 12423 Carraige Hill, Houston, Tex. 77077, and Robert B. Armstrong, 1058 Shillington Dr., Katy, Tex. 77450

Filed Dec. 5, 1991, Ser. No. 803,274

Int. Cl.[5] **C07C** *5/333*

U.S. Cl. 585—654 **12 Claims**



1. In a process for making ethylenically unsaturated hydrocarbons from a saturated C_3–C_5 hydrocarbon feed stream wherein the feed is passed in heat exchange with steam to completely vaporize the feed; the completely vaporized feed is passed in heat exchange with a hot product stream to form a partially preheated feed stream; the partially preheated feed stream is heated to reaction temperature, the heated feed stream is contacted with a dehydrogenation catalyst at reaction temperature to form ethylenically unsaturated hydrocarbons comprising a hot product stream, the hot product stream is partially cooled before using the hot product stream in said heat exchange with the completely vaporized feed stream; the partially cooled product stream is further cooled to form a cooled, low pressure product stream; and the cooled low pressure product stream is compressed to form a hot compressor discharge stream the improvement which comprises the steps of:

(i) passing the saturated C_3–C_5 hydrocarbon feed stream in heat exchange with the hot compressor discharge stream to heat and partially vaporize the feed stream and to partially cool the hot compressor discharge stream; and

(ii) passing the partially vaporized feed stream from step (i) in heat exchange with low pressure steam to complete vaporization of the partially vaporized hydrocarbon feed stream.

5,214,226

METHOD AND APPARATUS FOR THE HOMOGENEOUS CONVERSION OF METHANE

Simon H. Bauer, and Huy-Zu Cheng, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Mar. 13, 1992, Ser. No. 851,406

Int. Cl.[5] **C07C** *5/327*

U.S. Cl. 585—658 **17 Claims**

1. A method of converting methane to higher molecular weight hydrocarbons in the absence of a catalyst, comprising the steps of:

a) mixing methane with an alkylated hydrocarbon serving as free radical initiator, and oxygen, in the absence of a catalyst, both said free radical initiator and said oxygen being in maximum concentrations of approximately two percent with respect to said methane, to form a reactive mixture;

b) heating said reactive mixture to a temperature of at least approximately 775° C. to cause production of free radicals, and subsequent production of higher molecular weight hydrocarbons; and

c) separating and collecting said higher molecular weight hydrocarbons.

5,214,227

LOW PRESSURE DEHYDROGENATION OF LIGHT PARAFFINS

Ying Zhou, State College, Pa., and Stephen M. Davis, Baton Rouge, La., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Dec. 20, 1991, Ser. No. 811,392

Int. Cl.[5] **C07C** *5/333*

U.S. Cl. 585—660 **11 Claims**

1. A process for the dehydrogenation of light paraffins, said process comprising contacting of said light paraffins under dehydrogenation conditions with a catalyst consisting essentially of Pt and Ga on a Mg aluminate spinel having the formula $Mg_xAl_2O_{3+x}$, where x is a number from about 0.1 to 1.1.

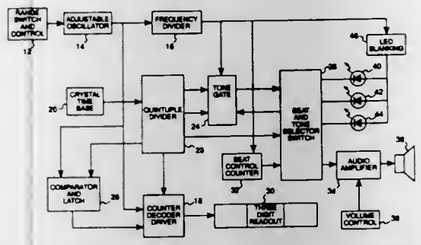
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5,214,228

ELECTRONIC METRONOME

Kent L. Hoiles, 9531 Fostoria Rd., Bradner, Ohio 43406, and Douglas Mansor, 7206 Brint Rd., Sylvania, Ohio 43560

Filed Mar. 31, 1989, Ser. No. 331,225
Int. Cl.[5] G04F *5/02*
U.S. Cl. 84—470 R 20 Claims



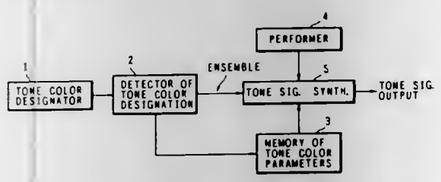
1. An electronic metronome comprising, in combination, adjustable means for providing a beats per minute signal, a crystal time base for providing a pair of audible frequencies and a reference frequency, a frequency counter coupled to an output of said adjustable means for counting the frequency of said adjustable means, a digital display driven by said frequency counter, display stabilizer means for stabilizing said digital display, gate means driven by said beats per minute signal for programmably selecting one of said pair of audible frequencies at a rate determined by said beats per minute signal, a selector switch, three visual indicators, programmable counter means coupled to said selector switch, said gate means and said visual indicators providing sequential time signature displays and an audio amplifier and transducer driven by said gate means for providing audible beat indications whereby said adjustable means may be adjusted to provide a range of beats per minute displayed on said digital display and said selector switch may be adjusted to provide various beats per measure patterns provided by said three visual indicators and said transducer.

5,214,229

ELECTRONIC MUSICAL INSTRUMENT WITH TONE COLOR SETTING SWITCHES

Kotaro Mizuno, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Jun. 12, 1990, Ser. No. 537,067
Claims priority, application Japan, Jun. 13, 1989, 1-148440
Int. Cl.[5] G10H *1/18*
U.S. Cl. 84—615 11 Claims



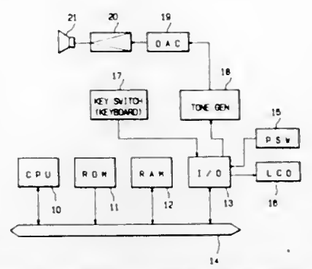
1. An electronic musical instrument comprising:
tone color designating means for designating tone color, including a plurality of switches, each for designating a tone color;
switch detecting means for detecting simultaneous turn-on of plural ones of said switches in said tone color designating means and issuing a command of ensemble performance when detected; and
tone signal generating means for generating tone signals in the designated plurality of tone colors when said command of ensemble performance is issued.

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MUSICAL TONE DATA COMPENSATION APPARATUS

Junichi Takano, and Yasushi Sato, both of Hamamatsu, Japan, assignors to Kabushiki Kaisha Kawai Gakki Seisakusbo, Shizuoka, Japan

Filed Aug. 15, 1991, Ser. No. 745,150
Claims priority, application Japan, Aug. 17, 1990, 2-216568
Int. Cl.[5] G10H *1/38, 1/24*
U.S. Cl. 84—613 13 Claims



1. A musical tone data compensation apparatus comprises:
chord detection means for extracting, as a chord, a group of musical tone data, which have a difference in tone generation timings of individual musical tones smaller than a predetermined duration value, from performance data including a sequence of musical tone data including touch data associated with a key-on operation;
representative value detection means for detecting a representative value of original values of touch data of the detected chord; and
compensation calculation means for calculating new values of individual touch data obtained by compressing or expanding differences between the original values of touch data of the detected chord and the representative value at a predetermined ratio,
wherein musical tone data including the compensated new values of the touch data of the chord are obtained;
said component calculation means calculating the new values of individual touch data according to:

$$TD' = AV + (TD - AV) \times a/100$$

wherein
TD′=the new values of individual touch data
TD=the original values of individual touch data
AV=the representative value of the original values of individual touch data
a=a compensation coefficient.

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APPARATUS FOR ELECTRONIC TEACHING ACCOMPANIMENT AND PRACTICE OF MUSIC, WHICH IS INDEPENDENT OF A PLAYED MUSICAL INSTRUMENT

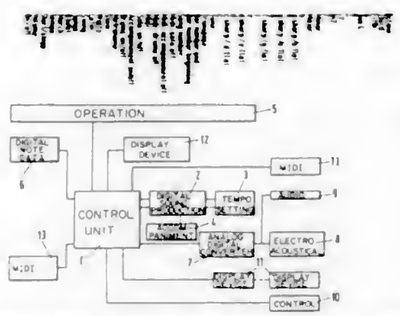
Wolfgang Ernst, Hebelstrasse 10/2, D-7562 Gernsbach, and Norbert Lang, Kronenstrasse 22, D-7500 Karlsrube, both of Fed. Rep. of Germany

Filed Dec. 18, 1991, Ser. No. 810,702
Claims priority, application Fed. Rep. of Germany, Jan. 15, 1991, 4100956; Oct. 9, 1991, 9112534[U]
Int. Cl.[5] G09B *15/04, 15/08;* G10H *1/42*
U.S. Cl. 84—652 21 Claims

1. An apparatus for electronic teaching, accompaniment and practice of music, said apparatus being independent of a played musical instrument comprising
a device for digital sound production;
a device for tempo setting;
a device for accompaniment;
a device for operation;

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a device for input of digital note data,
a control unit for connecting together each said device;
an electro-acoustical device connected to said control unit for acoustical reproduction of note sequences corresponding to an input piece of music;
a digital-analog converter for inputting said piece of music;
a piano keyboard or a guitar fingerboard;

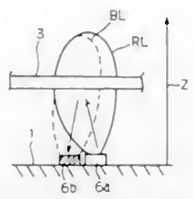


an optical display device which is connected with said piano keyboard or said guitar fingerboard, for optical display of the note sequences played; and
wherein the optical display device is structured as a reproduction of the operation or activation elements of the corresponding musical instrument, and is attached or plugged into the apparatus directly with plugs, or is set up at a remote location with cables.

5,214,232
ELECTRIC STRINGED MUSICAL INSTRUMENT EQUIPPED WITH DETECTOR OPTICALLY DETECTING STRING VIBRATIONS

Kenzaburo Iijima, and Katsufumi Kondo, both of Shizuoka, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Filed Oct. 17, 1991, Ser. No. 778,235
Claims priority, application Japan, Oct. 18, 1990, 2-280878
Int. Cl.[5] G10H *3/18*
U.S. Cl. 84—724 6 Claims

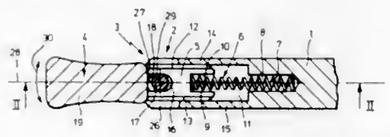


1. An electric stringed musical instrument comprising
a) a body,
b) at least one string stretched over said body,
c) a detecting unit fixed to said body, and located below said at least one string, said detecting unit having at least one photo emitting element for radiating light toward said at least one string, and a photo detecting element for receiving reflection of said light from said at least one string and producing photo current indicative of the intensity of said reflection, said intensity of said reflection being varied when said at least one string is vibrated, variation of said reflection being indicative of vibrations of said at least one string in both lateral and vertical directions, and
d) sound producing means supplied with said photo current for producing sounds, said photo detecting element having a detectable range for a minimum intensity of said reflection, said at least one string being located at a midpoint evenly spaced apart from a boundary of said detectable range in directions on a virtual plane substantially parallel thereto when remaining stationary, and said photo detecting element having a focal point beyond said at least one string, said photo current being increased along plots having a linear zone toward said focal point with said at least one string being vibrated within said linear zone.

5,214,233
COCKING AND LOADING DEVICE FOR SELF-LOADING SMALL FIREARMS

Helmut Weidle, Oberndorf, and Hubert Krieger, Schramberg-Waldmössingen, both of Fed. Rep. of Germany, assignors to Heckler & Koch GmbH, Oberndorf, Fed. Rep. of Germany

PCT No. PCT/DE90/00564, § 371 Date Apr. 21, 1992, § 102(e) Date Apr. 21, 1992
PCT Filed Jul. 24, 1990, Ser. No. 835,950
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1989, 39281256
Int. Cl.[5] F41A *19/52*
U.S. Cl. 89—1.400 14 Claims



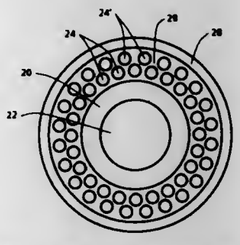
1. Cocking and loading device for a weapon including self-loading small firearms which are provided with a muzzle and a bolt movable in a longitudinal direction of the weapon, comprising:
a pivoted cocking lever which extends in a rest position in the longitudinal direction of the weapon and can be transferred into an operating position by lateral pivoting, said cocking lever being pivotally mounted with an end facing away from the muzzle in the rest position of the cocking lever at the forward end of said bolt, in said operating position a spring endeavoring to pivot the cocking lever forward and to retain said cocking lever in the rest position exerts pressure on said cocking lever, the cocking lever being accommodated in its rest position within the exterior contour of the weapon, characterized in that said cocking lever is arranged at the bolt and can be pivoted out of a housing of the weapon to the two sides of the longitudinal axis of the weapon.

5,214,234
COMPOSITE REINFORCED GUN BARRELS

Amarnath P. Divecha, Falls Church; Subhash D. Karmarkar, Great Falls, both of Va.; Scott M. Hoover, Burtonsville, Md., and William A. Ferrando, Arlington, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 17, 1992, Ser. No. 914,668
Int. Cl.[5] F41A *21/02*
U.S. Cl. 89—16 14 Claims

1. A composite reinforced gun barrel comprising:
A. a steel gun barrel;
B. a composite material comprising
(1) a matrix material that is nickel, titanium, or FeCrAlY alloy, and
(2) reinforcing elements that are round tungsten filaments, rectangular tungsten ribbons, round molybdenum filaments, or rectangular molybdenum ribbons,
wherein the reinforcing elements are straight and parallel to the long axis of the gun barrel and run the length of the composite material, and
C. an outer steel jacket;
wherein the composite material covers the outer surface of the steel gun barrel and the outer steel jacket covers the outer surface of the composite material; and
wherein the matrix material is strongly bonded to the outer surface of the steel gun barrel, to the inner surface of the

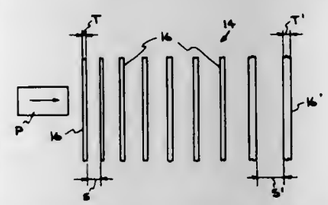


outer steel jacket, and to the reinforcing elements, and wherein the matrix material separates the reinforcing elements from each other and from the steel gun barrel and from the outside steel jacket.

5,214,235
SHOCK DESTRUCTION ARMOR SYSTEM

Kenneth E. Froeschner, Livermore, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 25, 1992, Ser. No. 856,260
Int. Cl.[5] F41H *5/04*
U.S. Cl. 89—36.13 19 Claims

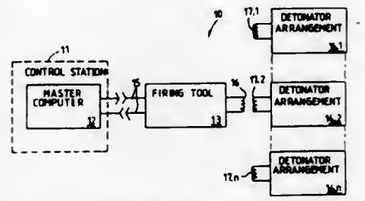


1. A shock destruction armor system mounted in a vertical relationship on an external surface of a vehicle for destroying the force of impact of an incoming projectile having a length, L, equal to an aspect ratio, m, times its diameter, D, said armor system comprising:
armor plate means, comprising a plurality of substantially vertical super-imposed armor plates secured at only one edge thereof to said vehicle, each of said armor plates having a predetermined thickness and separated one-from-another by a predetermined distance, said thickness of each of said armor plates progressively increasing from a frontal armor plate, adapted to receive the force of impact of an incoming projectile, to a last armor plate thereof, said distance between said armor plates progressively increasing from a first distance between said frontal armor plate and its next-following armor plate through a last distance between said last armor plate and its next-preceding armor plate, for hydrodynamically and sequentially at least substantially destroying an incoming projectile impacting a first of said armor plates, and for inducing debris generated from the explosion on an area of impact on the first armor plate to egress from such area prior to impact of such an incoming projectile on the next-following armor plate.

5,214,236
TIMING OF A MULTI-SHOT BLAST

Raymond J. Murphy, Oranjezicht; Jan Schreuder, Retreat, both of South Africa; Mark D. Chewins, Westlake; Mark Marsden, Tokai, both of Great Britain, and Trevor R. Hill, Claremont, South Africa, assignors to Plessey South Africa Limited, Retreat, South Africa

Filed Sep. 12, 1989, Ser. No. 406,438
Claims priority, application South Africa, Sep. 12, 1988, 88/6782
Int. Cl.[5] F23Q *21/00*
U.S. Cl. 102—217 24 Claims



1. A method of timing a multi-shot blast using apparatus comprising a transportable electronic firing tool including a master clock, memory circuitry and data processing circuitry; and a plurality of explosive charges, each said charge including an electronic detonator arrangement comprising a secondary clock, memory circuitry and data processing circuitry; the firing tool and each said detonator arrangement being provided with communication means for establishing a data communication path between the firing tool and any one selected detonator arrangement of said detonator arrangements at a time, the method comprising the steps of:
preparing and positioning the charges at a blast site;
loading into and storing in the memory of the firing tool time data representative of a desired charge explosion time for each charge of said plurality of charges;
physically transporting the firing tool to each said charge;
establishing, via the communication means, a data communication path between the firing tool and the detonator arrangement of each said charge individually, one after the other;
while the data communication path is established between the firing tool and a selected detonator arrangement of a selected charge, initiating the selected charge by loading, from the firing tool into the selected detonator arrangement, time data that will cause the selected charge to detonate at the desired charge explosion time associated with the selected charge and storing said time data in the memory circuitry of the selected detonator arrangement; and
allowing each of said detonator arrangements to process the time data stored in its memory circuitry and to detonate its associated charge when, according to the detonator arrangement's secondary clock and the time data stored in the detonator arrangement's memory circuitry, the charge must explode.

5,214,237
FLUOROCARBON RESIN BULLET AND METHOD OF MAKING SAME

Bruce D. McArthur, 8735 Dixie Hwy., Clarkston, Mich. 48016, assignor to Bruce D. McArthur and Carolyn M. McArthur, both of Clarkston, Mich.

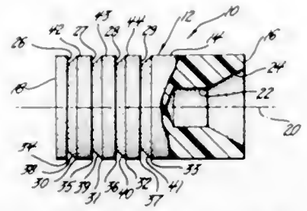
Continuation of Ser. No. 550,337, Jul. 9, 1990, abandoned. This application Feb. 28, 1992, Ser. No. 847,862
Int. Cl.[5] F42B *8/14, 12/34, 12/00*
U.S. Cl. 102—501 4 Claims

1. A bullet consisting of:
a polytetrafluoroethylene resin body disposed about a central axis, said body having a front end, a rear end, and a

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generally cylindrical exterior surface extending therebetween, said rear end of said body being solid and having a planar rear face;

a plurality of annular grooves in said exterior surface to facilitate disintegration of the bullet upon impact with a target, said grooves being positioned only proximate said rear end in a plurality of planes, each of said planes being substantially orthogonal to said axis;



a generally cylindrical axial blind bore disposed within said front end of said body, wherein said blind bore has a substantially uniform diameter along the length thereof; and

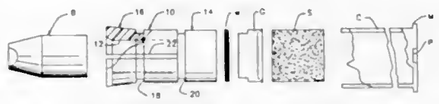
said blind bore terminating at a truncated conical surface which extends from a front edge of said bore to an outermost portion of said front end of said body, wherein the diameter of said conical surface at said front end is larger than said uniform diameter of said axial bore.

5,214,238

SABOT FOR CHAMBERING CONVENTIONAL BULLETS IN A SHOTGUN

Christopher Young, 34 Wagner Ave., Trenton, N.J. 08561

Filed Mar. 23, 1992, Ser. No. 856,356
Int. Cl.[5] F42B *14/06*
U.S. Cl. 102—520 15 Claims



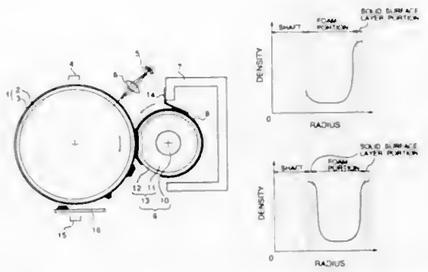
1. A sabot for retaining therein a conventionally shaped tapered-nose bullet when said sabot is seated in place in a shotgun shell casing, said sabot comprising a unitary body having a cylindrical portion and a truncated conical portion, said cylindrical portion and said truncated conical portion sharing a common longitudinal axis, said conical portion having a wide diameter at one end thereof and a narrow diameter at the other end thereof, said narrow diameter end being disposed adjacent to said cylindrical portion, said unitary body having longitudinally disposed therein a chamber, said longitudinally disposed chamber for receiving therein a conventionally shaped tapered-nose bullet, said unitary body being formed of a distortable material such that said wide diameter of said conical portion can assume a diameter substantially the same as the interior diameter of the shotgun shell casing when said unitary body is inserted therein, the distortion of said unitary body causing impingement of said longitudinal chamber on the tapered-nose of the conventionally shaped tapered-nose bullet, said distortion for retaining in said longitudinal chamber the conventionally shaped tapered-nose bullet, release of said unitary body from said shotgun shell causing said unitary body to return to the undistorted shape thereof so as to release the conventionally shaped tapered-nose bullet.

5,214,239

APPARATUS FOR FORMING AN ELECTROPHOTOGRAPHIC IMAGE HAVING A NOVEL TONER CARRIER

Yoshiro Koga; Masanao Kunugi, and Mamoru Egi, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Mar. 19, 1992, Ser. No. 854,291
Claims priority, application Japan, Mar. 22, 1991, 3-59123; Jan. 29, 1992, 4-14125
Int. Cl.[5] G03G *15/08*
U.S. Cl. 118—653 10 Claims



1. A developing device having a toner carrier for feeding a toner through pressure contact with a latent image carrier on which an electrostatic latent image pattern has been formed,

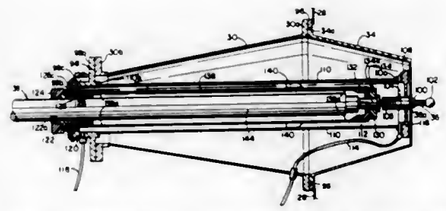
wherein said toner carrier comprises a foam member having a foam portion and a solid surface layer portion, said foam portion and said solid surface layer portion comprising an identical material and being continuous with each other substantially without the presence of any interface therebetween, said foam member having a thickness and a density gradient in the direction of the thickness such that said foam member has a cross section which exhibits an S-shaped or U-shaped density gradient curve.

5,214,240

HIGH VOLTAGE INSULATOR TESTING SYSTEM

Kevin McArdle, Norristown, Pa., assignor to James G. Biddle Co., Blue Bell, Pa.

Division of Ser. No. 564,136, Aug. 7, 1990, abandoned. This application Aug. 19, 1991, Ser. No. 747,796
Int. Cl.[5] H02G *15/28*
U.S. Cl. 174—11 BH 6 Claims



1. In combination with a conductive tank at ground potential filled with an insulating medium such as oil, capable of rejecting non-system EMI and RFI signals, in which components in a high voltage circuit are enclosed, a bushing allowing a coaxial high voltage cable being texted to be conductively connected through the tank wall to the high voltage circuit comprising:

an insulator barrier wall extending into the tank from a sidewall of the tank surrounding an opening in the tank wall;

a high voltage conductive member extending through the insulator barrier wall remote from the wall of the tank to which the circuitry of the components within the tank is coupled and providing a quick coupling for a cooperating coaxial high voltage cable conductor termination;

a tubular metallic bushing member conductively affixed to the tank wall around the opening and extending away from the housing and from the insulator barrier wall;

an insulating tubular member extending from within the tubular metallic bushing member to the region of the high voltage conductive member;

a structure terminating the metallic bushing member with means connecting the metallic bushing member and the insulating tubular member; and

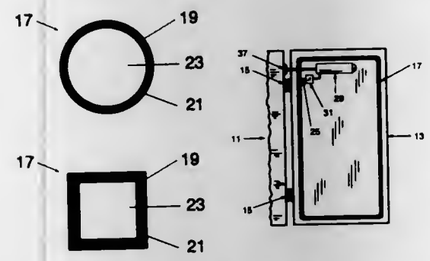
means connecting the insulating tubular member to the high voltage conductive member spaced from the insulator barrier wall.

5,214,241

PRESSURE STABILIZED RADIO FREQUENCY GASKET

Bruce T. Benwell, Stafford, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 20, 1991, Ser. No. 762,992
Int. Cl.[5] H05K *9/00*; B65D *53/06*
U.S. Cl. 174—35 GC 6 Claims



1. An apparatus for providing an electrically conductive seal between two surfaces, said apparatus comprising:

a gasket comprising a flexible hollow tube, a mixture of air and an incompressible fluid contained within said hollow tube, and mans for covering said hollow tube, wherein said covering means envelops said tube and is electrically conductive;

mans for releasing a portion of said air upon compression of said hollow tube;

means for introducing an equal portion of air back into said hollow tube when said hollow tube is no longer under compression, whereby said hollow tube will resume its original undeformed profile, and a substantially constant internal pressure will be maintained at all times within said hollow tube.

5,214,242

ELECTROMAGNETIC INTERFERENCE/RADIO FREQUENCY INTERFERENCE CONDUCTING STRIP

Robert M. Gallagher, Poughkeepsie, N.Y., assignor to International Business Machines Corp., Armonk, N.Y.

Filed Jan. 7, 1992, Ser. No. 817,551
Int. Cl.[5] H05K *9/00*
U.S. Cl. 174—35 R 7 Claims

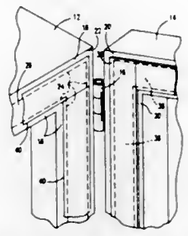
1. An EMI/RFI shielding enclosure for an electronic system, comprising a container having an electrically conductive frame;

said container having at least six sides, five of said sides of said container all electrically conductive and electrically connected to said frame, and defining an opening into said container;

a closure means having a frame, for closing said opening of a sixth side of said container, said closure means formed of electrically conductive material;

at least an exposed region on said frames of said container and said closure means exposing said electrically conductive frame material, and disposed for contact upon closing of said closure means;

a protective, electrically conductive foil overlying said exposed region on one of said frame or said closure means, and engageable with said exposed region;



an electrically conductive compressible gasket interposed between said container frame and said closure means and positioned co-extensive with said exposed regions and in electrically connected relation to said closure means;

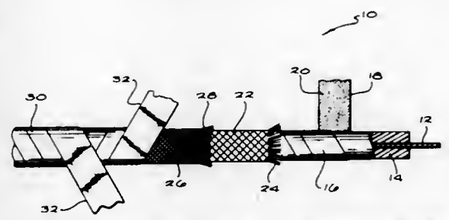
whereby said closure means compresses said gasket against said foil forcing said foil into intimate, electrical contact with said gasket and one of said exposed regions, establishing electrical continuity between said closure means and said frame around the periphery of said opening.

5,214,243

HIGH-TEMPERATURE, LOW-NOISE COAXIAL CABLE ASSEMBLY WITH HIGH STRENGTH REINFORCEMENT BRAID

Robert B. Johnson, Laguna Beach, Calif., assignor to Endevco Corporation, San Juan Capistrano, Calif.

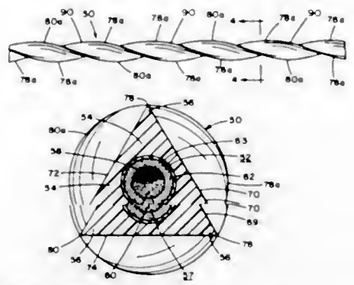
Filed Oct. 11, 1991, Ser. No. 774,690
Int. Cl.[5] H01B *11/18*; H01R *4/28*
U.S. Cl. 174—36 15 Claims



1. A coaxial cable having a center conductor concentrically surrounded by a dielectric layer, said cable further comprising a continuous electrostatically conductive polymer layer including a spiral wrap of fused PTFE polymer tape having powder-fine carbon particles dispersed therein surrounding said dielectric layer, a conductive metallic wire braid over said electrostatically conductive layer, a high-strength fibrous braid over said wire braid, and means including a spiral wrap of fused nd heat-shrunk PTFE polymer tape, for applying a radially compressive force to said wire braid everywhere along its length, thereby to both inhibit relative movement of the wires of said wire braid and to insure their intimate electrical contact with said electrostatically conductive layer.

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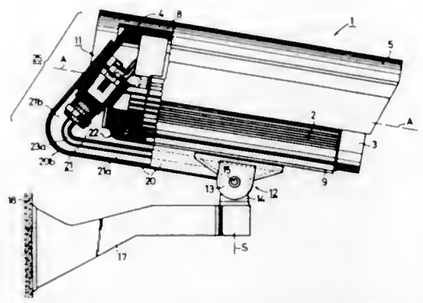
5,214,244
STRUMMING RESISTANT CABLE
Thomas R. Cummings, and Douglas E. Brown, both of East Lyme, Conn., assignors to Science Applications International Corporation, San Diego, Calif.
Continuation of Ser. No. 597,105, Oct. 12, 1990, abandoned, which is a continuation of Ser. No. 264,093, Oct. 28, 1988, abandoned. This application Dec. 6, 1991, Ser. No. 806,811
Int. Cl.[5] H02G 7/14; H01B 7/00; F15D 1/10
U.S. Cl. 174—42 3 Claims



1. A cable, comprising:
a single central flexible elongated core having an electromagnetic signal carrier positioned therein for carrying electromagnetic signals; and
a flexible elongated regular polygonal cross-section jacket having a plurality of vertices and surrounding the single central flexible elongated core, said jacket being comprised of a material which is impermeable to H_2O, the vertices comprising a helically wound phase shifter having a single-pitch direction extending longitudinally along substantially the entire length of said flexible elongated jacket for shifting a phase of an alternating force produced by a flow of fluid past the flexible elongated jacket, and having a plurality of phase shifting sections longitudinally distributed along the flexible elongated jacket, each of the phase shifting sections having a length less than one quarter the coherence length of the flexible jacket and shifting the period of the alternating force from zero to a period.

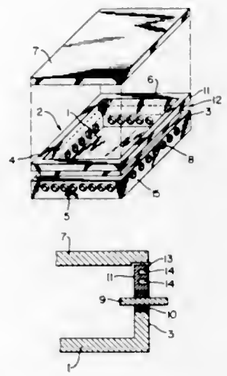
5,214,245
PROTECTIVE CASING FOR OPTICAL INSTRUMENTS
Rainer Bernhardt, Rosbach-1, and Reiner Waldschmitt, Eschborn-2, both of Fed. Rep. of Germany, assignors to Videor Technical E. Hartig GmbH, Rödermark-2, Fed. Rep. of Germany
Filed Mar. 14, 1991, Ser. No. 669,356
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1990, 4008340
Int. Cl.[5] H05K 5/00; H04N 5/30
U.S. Cl. 174—52.1 12 Claims

1. Protective casing for optical apparatus comprising:
a base,
a casing support mounted to said base,
a tubular casing shell having a longitudinal axis, a front end, a rear end, and a bottom extending therebetween, said bottom being mounted on said casing support,
a backwall attached to said rear end of said casing shell, said backwall having connector plug means therein,



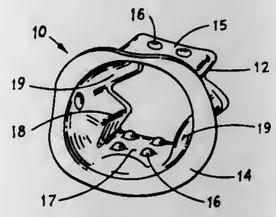
a detachable cable cover which fits over part of said backwall and part of said casing support to form a cable conduit from said connector plug means to said base.

5,214,246
GROOVED PACKAGE FOR HYBRID COMPONENTS
Jean-Pierre Maquaire, Louveciennes, and Jean N. Dody, Rueil Malmaison, both of France, assignors to Egide S.A., Trappes, France
Filed Feb. 13, 1991, Ser. No. 655,005
Int. Cl.[5] H01L 23/02, 23/08; H05K 5/00
U.S. Cl. 174—52.4 8 Claims



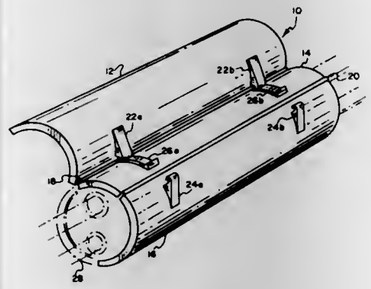
1. A package for electronic components and especially hybrid components comprising a base, an enclosure formed by lateral walls and a lid having the function of hermetically sealing the package while bearing on a top end of the lateral walls, wherein at least one lateral wall having apertures for conductors which serve to establish a connection between the interior of the package and the exterior is provided with at least one longitudinal groove in an upper portion located outside said apertures and between them and the top end of the wall, said groove constituting a longitudinal weakened position in said wall.

5,214,247
CABLE CONNECTOR
Carl R. Tamm, Jonesboro, Tenn., assignor to Buchanan Construction Products, Inc., Hackettstown, N.J.
Filed Aug. 1, 1991, Ser. No. 739,221
Int. Cl.[5] H02G 3/18
U.S. Cl. 174—65 R 10 Claims



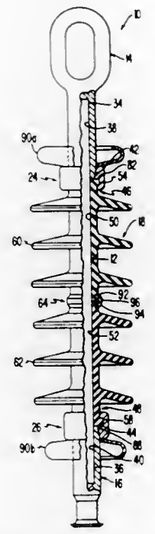
1. A cable connector for use with electrical junction boxes and the like, comprising a one-piece hollow tubular body of readily deformable material with a flange at one end, and the other end being insertable into an opening of an electrical junction box or the like such that the flanged end of said connector abuts against the inside wall of the electrical box and the tubular body projects beyond the opposite side of said wall, said tubular body being readily deformable to tightly clamp a cable or conductor and serving as an opposing abutment for the flange when deformed, and said flange being shaped in such a manner that upon deformation of the tubular body the flange will be correspondingly deformed to result in a substantially flat, planar surface of engagement between the flange and electrical box wall.

5,214,248
OPEN STAY FOR PLASTIC ENCLOSURE
David S. Jamison, Roanoke Rapids, N.C., assignor to W.R. Grace & Co.-Conn., Duncan, S.C.
Filed Oct. 25, 1991, Ser. No. 782,947
Int. Cl.[5] H02G 15/113
U.S. Cl. 174—92 7 Claims



7. An enclosure comprising:
a) an elongate generally cylindrical housing comprising a first and second member;
b) an elongate hinge connecting the first and second members together;
c) at lease one female boss disposed on an outside surface of the first member; and
d) at least one male boss disposed on an outside surface of the second member such that the first member can be releasably locked in an open position by means of the respective bosses.

5,214,249
ELECTRICAL ASSEMBLY WITH END COLLARS FOR COUPLING ENDS OF A WEATHERSHED HOUSING TO THE END FITTINGS
Waymon P. Goch, Clinton, and John D. Sakich, Wadsworth, both of Ohio, assignors to Hubbell Incorporated, Orange, Conn.
Filed Feb. 22, 1991, Ser. No. 658,848
The portion of the term of this patent subsequent to Oct. 27, 2009, has been disclaimed.
Int. Cl.[5] H01B 17/06
U.S. Cl. 174—179 22 Claims



1. An electrical assembly, the combination comprising:
a core member having a first end, a second end and an outer surface with a predetermined outer cross-sectional width;
a weathershed housing formed of an elastomeric material, and having a first end, a second end and an axially extending bore with a predetermined inner cross-sectional width for receiving said core member therein, each of said first and second ends of said weathershed housing having a portion with a predetermined outer cross-sectional width;
a first end fitting fixedly coupled to said first end of said core member; and
first means for coupling and sealing said first end of said weathershed housing to said first end fitting, said first means for coupling and sealing including
a first collar having an axially extending bore with a predetermined inner cross-sectional width for receiving said portion of said first end of said weathershed housing,
said inner cross-sectional width of said bore of said first collar, said outer cross-sectional width of said core member, said inner cross-sectional width of said bore of said weathershed housing and said outer cross-sectional width of said portion of said first end of said weathershed housing all being sized for radially compressing said weathershed housing into intimate contact with said first collar upon inserting said core member into said bore of said weathershed housing to cause outward radial pressure of said portion of said first end of said weathershed housing against said bore of said first collar.

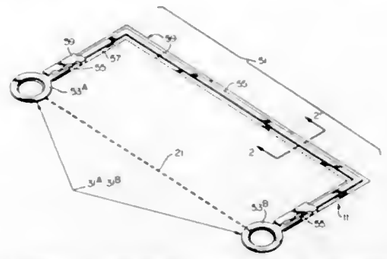
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,250

METHOD OF REWORKING CIRCUIT PANELS, AND CIRCUIT PANELS REWORKED THEREBY

Burtran J. Cayson, Austin, Tex.; John A. Covert, Binghamton, N.Y.; Steven A. Duncan, Austin, Tex.; John M. Lauffer, Waverly, N.Y.; Issa S. Mahmoud, Apalachin, N.Y., and Richard A. Schumacher, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 19, 1991, Ser. No. 762,201
Int. Cl.[5] H05G 1/00
U.S. Cl. 174—250 7 Claims



1. A method of rerouting circuitization in a multilayer circuit panel having a first pair of conductive surface features at a surface thereof, said method comprising the steps of:

A. depositing and curing at least one conformal, polymeric dielectric layer on the surface of the panel between a first surface feature and a second surface feature;

B. thereafter depositing circuitization on the conformal, polymeric dielectric layer between the first surface feature and the second surface feature;

C. providing terminators electrically in contact with the circuitization at the ends thereof over and in contact with the surface features; and

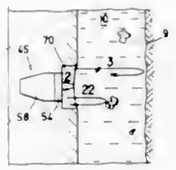
D. thereafter depositing and curing a top layer of dielectric overlaying at least the deposited circuitization and the terminators.

5,214,251

ULTRASONIC MEASUREMENT APPARATUS AND METHOD

Jacques Orban, and James C. Mayes, both of Sugar Land, Tex., assignors to Schlumberger Technology Corporation, Houston, Tex.

Division of Ser. No. 525,268, May 16, 1990, Pat. No. 5,130,950. This application Nov. 6, 1991, Ser. No. 788,431
Int. Cl.[5] G01V 1/40
U.S. Cl. 181—102 12 Claims



1. Borehole measurement apparatus comprising

a tool adapted for placement within a borehole through earth formations, said tool having a cylindrical body defining an annulus between said borehole wall and said body, said annulus having drilling fluid disposed therein,

an ultra-sonic transceiver means disposed in said cylindrical body having a sensor element for periodically emitting an ultra-sonic transmitter pulse in said drilling fluid toward said borehole wall and for generating echo signals when said pulse is reflected from a surface back to said transceiver means,

a delay-line disposed between said sensor element and said drilling fluid of said annulus, whereby a delay-line echo is produced at an interface of said delay-line and said annulus fluid,

logic means responsive to said echo signals of said transceiver means for identifying the presence of a delay-line echo signal and storing an approximate maximum amplitude of such delay-line echo signal periodically as a function of time so as to produce a plurality of approximate maximum amplitudes of said delay-line echo signals stored as a function of time, and

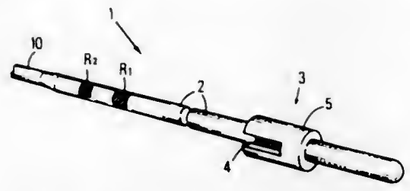
logic means responsive to said approximate maximum amplitudes of said delay-line echoes stored as a function of time for monitoring a predetermined indicator of said amplitudes and generating a gas-influx alarm signal if said amplitude indicator is greater than a predetermined indicator.

5,214,252

LOGGING METHOD AND DEVICE IN WELL BORES UTILIZING DIRECTIONAL EMISSION AND/OR RECEPTION MEANS

Jean-Luc Mari, 61a, rue Jules Ferry, 78400 Chatou; Jacques Lessi, 13 bis, rue du Puits, 78580 Maule, and Pierre Gaudiani, 28, Avenue du Marechal Foch, 92260 Fontenay-aux-Roses, all of France

Filed Mar. 6, 1991, Ser. No. 665,034
Claims priority, application France, Mar. 6, 1990, 90 02909
Int. Cl.[5] G01V 1/40
U.S. Cl. 181—104 13 Claims



1. A method of acquiring and treating signals from a well, to detect geological discontinuities located on either side of the well, using a logging tool with a logging assembly including emission means for emitting signals and reception means for receiving signals from the surrounding formations in response to the emitted signals, and means for displacing the logging tool along the well, said method comprising the steps of:

(a) activating the logging tool to provide at least one series of signal emission-reception cycles with a particular directivity while displacing the tool along the well, to obtain at least one first set of recordings of received signals reflected by discontinuities around the well,

(b) repeating step (a) with a second directivity different from the the particular directivity to obtain a second set of recordings of received signals reflected by the discontinuities; and

(c) comparing of the obtained sets of recordings to detect geological discontinuities.

5,214,253

AUTOMOTIVE EXHAUST SYSTEM

Richard G. Houston, Jr., 1849 Service Dr., Marietta, Ga. 30066

Filed Oct. 26, 1990, Ser. No. 605,104
Int. Cl.[5] F01N 7/00
U.S. Cl. 181—238 1 Claim

1. For use with an engine having an exhaust system that includes at least one exhaust pipe coupled to receive exhaust gases from the engine and direct them away from the engine,

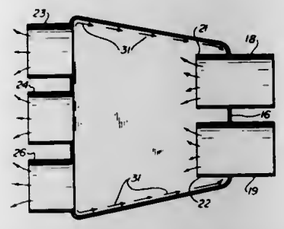
an apparatus for reducing back pressure within the exhaust system and inhibiting reversion pulses from migrating through the exhaust pipe to the engine, said apparatus comprising:

an expansion chamber having an inlet end and an outlet end;

at least one inlet port communicating with said expansion chamber at its inlet end with said inlet port being adapted to be coupled to receive exhaust gases from said exhaust pipe;

at least one outlet port communicating with said expansion chamber at its outlet end;

said inlet port defining an inlet area and said outlet port



defining an outlet area and wherein the ratio of said outlet area to said inlet area is greater than one;

means within said expansion chamber for intercepting reversion pulses moving toward said inlet port and inhibiting the pulses from entering the inlet port and thereby migrating back through the exhaust pipe to the engine;

said expansion chamber being configured to flair outwardly from its inlet end to its outlet end; and

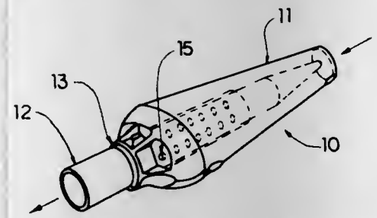
said expansion chamber being generally trapezoidal in shape with the inlet end of said expansion chamber being the narrow end thereof and with the outlet end of said expansion chamber being the wide end thereof.

5,214,254

TRIPLE CONE EXHAUST WAVE TUNER

Russell T. Sheehan, 2853 Frembes, Waterford, Mich. 48329

Filed Mar. 20, 1992, Ser. No. 854,357
Int. Cl.[5] F01N 7/18
U.S. Cl. 181—241 2 Claims



1. A triple cone exhaust wave and flow tuner comprising:

a reverse cone megaphone shaped enclosure having an inside wall and inlet and outlet openings at opposite ends,

a gauge orifice formed on said enclosure for monitoring a flow rate of exhaust gases,

a tubular guide sleeve having a plurality of perforations thereon disposed inside said enclosure with one end connected to said outlet opening of said enclosure,

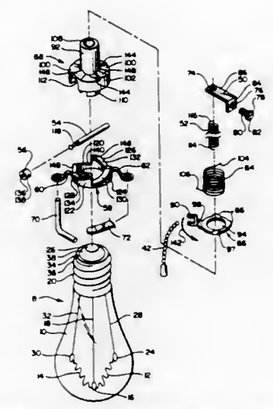
a rotatable and slidable tubular tuning pipe having a plurality of perforations thereon; said tuning pipe having one closed end disposed inside said enclosure and another open end rotatable inside said guide sleeve in such a way that the perforations of said guide sleeve and the perforations of said tuning pipe may be placed in alignment; wherein the flow of exhaust gases from said inlet opening to said outlet opening can be adjusted by movement of said tuning pipe within said guide sleeve pipe to vary the alignment of said perforations.

5,214,255

SWITCH MECHANISM FOR A MULTIPLE FILAMENT ELECTRIC LAMP

Eugene T. Fleischhauer, 1413 Wesanne La., Midlothian, Va. 23113

Filed Jan. 29, 1991, Ser. No. 647,418
Int. Cl.[5] H01R 19/54
U.S. Cl. 200—51.15 8 Claims



1. A pull-chain actuate electric switch mechanism for a multi-filament electric lamp having a plurality of distinct filaments, comprising:

a plurality of electrical contacts arranged in a circular array, each electrical contact being electrically connectable to a filament of the multi-filament lamp;

a pull-chain;

a contactor having end portions said contactor being mounted for rotation about the axis of the symmetry of the circular array in response to displacement of said pull-chain to bring end portions of the conductive bar into contact with the electrical contacts;

a conductive member electrically connectable at a first end to an electrical power source and at a second end to a center portion of the contactor, where the pattern of the electrical contacts is such that rotation of the contactor about said axis of symmetry into a given position results in current flowing from the center portion of the contactor, to both ends of the contactor, and through at least two of the electrical contacts to energize at least two of the plurality of distinct filaments of the multi-filament lamp; and

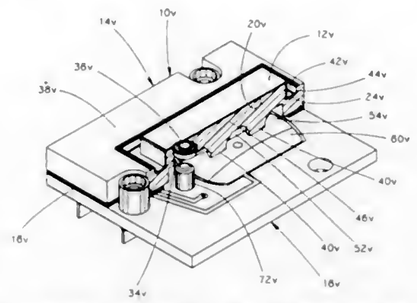
means for electrically isolating a first end of the contactor from a first electrical contact of said plurality of electrical contacts and thereby preventing the flow of electrical current to the filament connected to that first electrical contact when the contactor is in a position in which its first end is in contact with said first electrical contact;

in which the means for isolating said contactor from said first electrical contact comprises: an insulating member so located at the first end of the contactor as to engage said first electrical contact when said first contactor end is engaged with that first electrical contact; and

wherein a second electrical contact of said plurality of electrical contacts of the switch mechanism has: a bounding conductive ridge which is contactable by a portion of said first contactor end adjacent the insulating member to allow current to flow from the first end of the contactor through that second electrical contact to a lamp filament electrically connected to the second electrical contact.

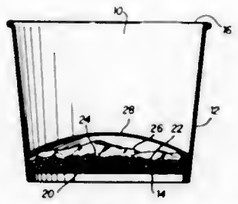
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,256
MEMBRANE TYPE SWITCH WITH IMPROVED ELASTOMERIC ACTUATOR INCLUDING A CAP MOUNTED IN AN ACTUATOR DEPRESSION
Ralph Ipcinski, 295 Silver Lake Rd., Hollis, N.H. 03049
Continuation-in-part of Ser. No. 665,573, Feb. 27, 1991, abandoned. This application Jul. 17, 1992, Ser. No. 915,788
Int. Cl.[5] H01H *1/10, 13/70*
U.S. Cl. 200—5 A 5 Claims



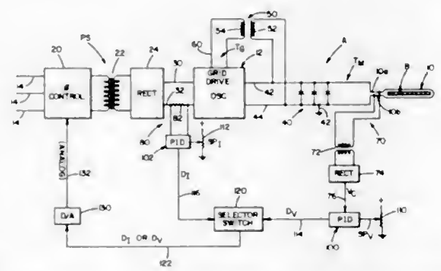
1. The switch comprising a cap, a base portion, a dome retainer subassembly and a support portion, the base portion having an upper surface and an actuator block, the upper surface having sides forming a depression, the actuator block positioned within the depression, the cap in superposed abutting relation to the upper surface and the actuator block and the cap positioned within the depression, the base portion in superposed abutting relation to the dome retainer subassembly, the dome retainer subassembly having a movable dome contact, the support portion having a facing surface and first and second fixed contacts, the dome contact of dome retainer subassembly in superposed abutting relation to the facing surface, whereby pressure on the cap causes the movable dome contact to electrically engage the first and second fixed contacts and release of the pressure causes the movable dome contact to electrically disengage from the first and second fixed contacts.

5,214,257
TUB-SHAPED PACKAGING CONTAINER FOR MICROWAVE POPCORN
Dwight R. Riskey, Plano, Tex., assignor to Recot, Inc., Plano, Tex.
Filed Jul. 18, 1990, Ser. No. 553,841
Int. Cl.[5] H05B *6/80*
U.S. Cl. 219—10.55 E 8 Claims



1. A packaging container for microwave popcorn package comprising:
(a) a cylindrical tub having side walls of frusto-conical shape, a solid bottom and an open top, the tub being constructed from materials which are microwave transmissive;
(b) a heat susceptor adjacent the bottom of such tub to provide heat when the tub is placed in the microwave oven for the purpose of popping corn;
(c) a separate pop bag of popping corn, seasoning and liquid oil positioned in the bottom of the tub adjacent the heat susceptor; and
(d) a lid inside the tub positioned over the pop bag, the lid being movable upwardly under expansion forces of popping corn from the pop bag.

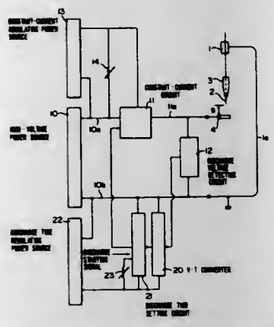
5,214,258
APPARATUS AND METHOD OF ULTRA RAPID ANNEALING BY INDUCTION HEATING OF THIN STEEL STRIP
Ronald R. Akers, Bloomfield Hills, Mich., assignor to Tocco, Inc., Boaz, Ala.
Filed Feb. 1, 1991, Ser. No. 649,693
Int. Cl.[5] H05H *6/08*
U.S. Cl. 219—10.77 63 Claims



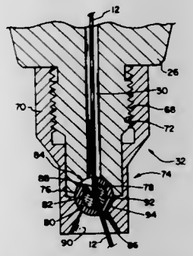
1. An induction heating apparatus for ultra rapid annealing of a ferromagnetic strip moving at a selected velocity along a given path, said apparatus comprising: a vacuum tube R.F. oscillator having a D.C. input power supply providing D.C. voltage and D.C. current to said oscillator, a grid, a radio frequency output, and a grid feedback circuit for driving said grid; an induction heating coil surrounding said strip, said coil having a known length along said path and a parallel capacitor bank forming said coil into a tank circuit with a resonant frequency; means for moving said strip into and through said coil at said selected velocity; and, means for sensing the voltage of said induction heating coil and means for adjusting said D.C. voltage of said input power supply in accordance with said sensed coil voltage to maintain the power density in said strip at a selected level as said strip passes through said coil to raise the temperature of said moving strip at a rate of at least about 500° F./sec to above the Curie point temperature.

5,214,259
METHOD AND APPARATUS FOR FORMING A BALL AT A BONDING WIRE END
Yoshimitsu Terakado, and Kazumasa Sasakura, both of Tokyo, Japan, assignors to Kabushiki Kaisha Shinkawa, Tokyo, Japan
Filed May 22, 1992, Ser. No. 887,068
Claims priority, application Japan, May 24, 1991, 3-148125
Int. Cl.[5] B23K *9/00*
U.S. Cl. 219—56.22 3 Claims

1. A method of forming a ball at an end of a bonding wire in which a high voltage is discharged into a gap between a bonding wire end and a discharge electrode with a discharge current that is controlled to be constant by a constant current circuit installed between a high voltage power source and said discharge electrode, said method being characterized by detecting a magnitude of the discharge voltage at the time of discharge, converting said magnitude into a time valve, and varying a discharge time in accordance with said time value.

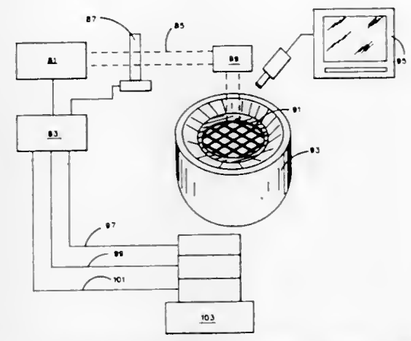


5,214,260
ELECTRICAL DISCHARGE MACHINE WIRE ELECTRODE GUIDING DEVICE
William R. Fricke, Bloomingdale, Ill., assignor to Fort Wayne Wire Die, Inc., Fort Wayne, Ind. and T-Star Industrial Electronics Corp., Wheeling, Ill.
Filed Apr. 3, 1991, Ser. No. 679,724
Int. Cl.[5] B23H *7/10*
U.S. Cl. 219—69.12 22 Claims



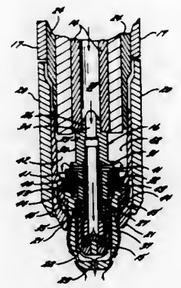
1. An electrical discharge machine wire electrode guiding device comprising:
a guide member;
a bore through said member having a first opening and a second opening at opposite ends thereof and a longitudinal axis, said bore increasing in diameter toward said first opening;
said bore increasing diameter portion being curvilinear in cross-section;
gimbal means for allowing pivotal movement of said guide member and bore about a point along said longitudinal axis by the wire electrode traveling at an angle with respect to a normal straight line of wire travel; and,
wherein said bore curvilinear portion contacts the wire electrode when said guide member is placed at an angle and, further, wherein a greater portion of said bore curvilinear portion contacts the wire electrode as said angle increases.

5,214,261
METHOD AND APPARATUS FOR DICING SEMICONDUCTOR SUBSTRATES USING AN EXCIMER LASER BEAM
Pierino I. Zappella, Garden Grove, Calif., assignor to Rockwell International Corporation, Seal Beach, Calif.
Division of Ser. No. 580,036, Sep. 10, 1990. This application Nov. 13, 1991, Ser. No. 790,914
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.67 10 Claims



1. A method for dicing mercury cadmium telluride detector arrays on sapphire substrates to exact tolerances without edge chipping or edge detector degradation, comprising the steps of:
using an excimer laser beam from an excimer laser operating in the deep ultraviolet bandwidth to supply dicing energy; and,
establishing guided relative movement between the beam and an array to achieve ablative photodecomposition to effect said dicing.

5,214,262
ELECTRODE ADAPTOR
Donald W. Carkhuff, Florence, S.C., assignor to ESAB Welding Products, Inc., Florence, S.C.
Filed Apr. 3, 1992, Ser. No. 862,785
Int. Cl.[5] B23K *9/00*
U.S. Cl. 219—121.48 20 Claims



1. A plasma torch assembly that provides a removable and replaceable barrier to prevent catastrophic failure of a plasma arc torch following failure of an electrode, said assembly comprising the combination of:
an electrically conductive electrode body for providing an electrical path and a gas passageway in a plasma arc torch;
an electrode; and

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an electrically conductive electrode adaptor positioned between said electrically conductive electrode body and said electrode and formed of an electrically conductive material, said electrode adaptor comprising

an adaptor body portion having means for removably fitting said adaptor body to said electrically conductive electrode body and means for removably fitting said adaptor body to said electrode so that said adaptor forms an electrically conductive path between said electrode body and said electrode,

a central conduit through said adaptor body portion and communicating with said gas passageway for providing a gas flow path through said adaptor from said electrode body to said electrode,

a first set of plasma gas exit ports perpendicular to said central conduit and in fluid communication with said central conduit for providing a gas flow path from said conduit to the exterior of said electrode, and

a second set of cooling gas fluid exit ports perpendicular to said central conduit and in fluid communication with said central conduit for providing a gas flow path from said conduit to the exterior of said torch assembly to thereby help cool the torch and its nozzle during plasma arc operation.

5,214,263

TRANSFERRED PLASMA ARC TORCH

Shun-ichi Sakuragi, Hiratsuka, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

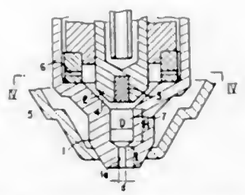
PCT No. PCT/JP89/01300, § 371 Date Jun. 6, 1991, § 102(e) Date Jun. 6, 1991, PCT Pub. No. WO90/07395, PCT Pub. Date Jul. 12, 1990

PCT Filed Dec. 25, 1989, Ser. No. 689,279

Claims priority, application Japan, Dec. 26, 1988, 63-325962

Int. Cl.[5] B23K *9/00*

U.S. Cl. 219—121.5 6 Claims



1. A transferred plasma arc torch of the type, in which a tip of an electrode holder holding an electrode is enclosed by a nozzel forming a tapered working gas passage together with said electrode holder, characterized: in that said nozzel defines a chamber of circular cross section following said tapered working gas package, said chamber having one end facing said electrode and another end terminating in a cylindrical throat, and in that the following relations are satisfied if the throat diameter of said nozzel is designated at d and if the diameter and axial length of said chamber are designated at D and H, respectively:

$$1.5 \leqq D/d \leqq 10;$$

and

$$0.75 \leqq H/D \leqq 5.$$

5,214,264

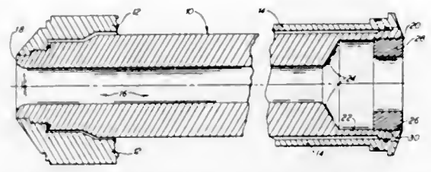
PLASMA TORCH FRONT ELECTRODE

Jack L. Dochterman, Raleigh, N.C., assignor to Plasma Energy Corporation, Raleigh, N.C.

Continuation of Ser. No. 647,730, Jan. 30, 1991, abandoned. This application Jun. 25, 1991, Ser. No. 725,361

Int. Cl.[5] B23K *9/00*

U.S. Cl. 219—121.5 17 Claims



1. A plasma torch front electrode, comprising:

an elongate body formed of electrically conductive material, said body having opposite front and rear ends and having a central passageway ending longitudinally thereof and opening from said ends of said body;

said passageway having a substantially circular cross-sectional shape, a relatively long and narrow rear section extending to said rear end of said body, and a relatively short and wide front section extending to said front end of said body;

said front section of said passageway being generally cup-shaped and including a cylindrical outer wall extending to the front of said electrode, and a sloping shoulder-like wall extending angularly inwardly and rearwardly from the rear end of said outer wall to the front end of said rear section of said passageway;

an annular choke member, mounting means mounting said choke member within and in substantially concentric relationship with said cylindrical outer wall of said front section of said passageway and adjacent said front end of said electrode; said choke member having an inner diameter significantly less than the inner diameter of said cylindrical wall of said front section of said electrode, and within the range of 1.25 to 1.9 times the diameter of said rear section of said passageway.

5,214,265

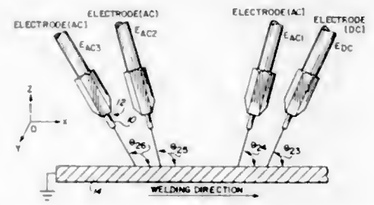
HIGH SPEED LOW DEPOSITION SUBMERGED ARC WELDING APPARATUS AND METHOD

Alex J. Pollack, 8703 Surf Dr., Panama City, Fla. 32408

Continuation-in-part of Ser. No. 613,608, Nov. 15, 1990, Pat. No. 5,140,140. This application Apr. 24, 1992, Ser. No. 874,054

Int. Cl.[5] B23K *9/18*

U.S. Cl. 219—137 PS 10 Claims



1. A method of arc welding a base metal with electrodes, the method comprising the steps of:

providing electrodes E_{DC}, E_{AC1}, E_{AC2}, and E_{AC3};

aligning the electrodes E_{DC}, E_{AC1}, E_{AC2}, and E_{AC3} in a row from front to rear in a welding direction;

supplying electrode E_{DC} with direct current;

supplying electrodes E_{AC1}, E_{AC2}, and E_{AC3} with alternating current having a phase angle;

maintaining a difference in the phase angle of the alternating current supplied to electrodes E_{AC2} and E_{AC3}, and to electrodes E_{AC3} and E_{AC1} at 90°±15°;

maintaining a difference in the phase angle of the alternating current supplied to electrodes E_{AC1} and E_{AC2} at 180°±30°;

generating an arc with electrode E_{DC}, when direct current is supplied, that penetrates the base metal and initiates a weld; and

generating an arc with electrodes E_{AC1}, E_{AC2}, and E_{AC3}, when alternating current is supplied, that primarily achieves the required deposit and shapes the weld.

5,214,266

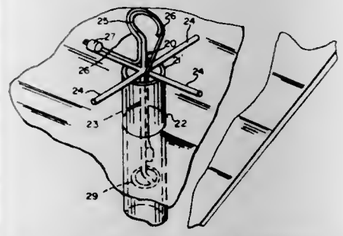
ELECTRIC HEATING ROD ATTACHMENT INSERTABLE INTO ROOF EXHAUST END OF SEWER VENT PIPE TO PREVENT CLOGGING FROM ICE OR SNOW ACCUMULATION

John D. Halone, Jr., R.R. #1, Box 182, Rolla, N. Dak. 58367

Filed Sep. 26, 1991, Ser. No. 767,221

Int. Cl.[5] H05B *3/00*; F16L *53/00*; E03D *9/04*; E04D *13/06*

U.S. Cl. 219—201 3 Claims



1. An electric heating device for attachment to and for electrically heating the portion of a sewer vent exterior of the roof of a building to keep the vent form clogging from snow and/or ice and frost that may accumulate about the vent on the roof of a building, comprising an elongated rod having an electrically activatable heating tape extend-along the length thereof and the rod and tape being adapted to be inserted lengthwise into the sewer vent from the exterior roof opening of the vent, said rod having laterally extending arms fixed to an upper portion thereof and extending laterally of the length of the rod to limit the extent of the insertion into the vent by the engagement of the lateral arms with the top edge of the vent so that the lateral arms rest on the top edge of the vent, said rod having a hook-like portion mounted to the rod above the lateral arms with said heating tape mounted to the hook-like portion, said hook-like portion and heating tape thereon extending above the top of the sewer vent when the rod is inserted into the vent so as to heat the area immediately above the sewer vent to keep this area open to the atmosphere by the heat from the heating tape melting any snow or ice above the vent.

5,214,267

APPARATUS FOR CONTROLLING HEATER FOR HEATING OXYGEN SENSOR

Kouichi Hoshi, Susono, and Makoto Suzuki, Mishima, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Dec. 11, 1990, Ser. No. 625,897

Claims priority, application Japan, Dec. 15, 1989, 1-325205

Int. Cl.[5] H05B *1/02*

U.S. Cl. 219—497 12 Claims

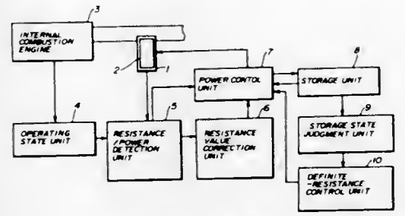
1. An apparatus for controlling a heater for heating an oxygen sensor provided in an exhaust gas flow passage of an internal combustion engine disposed in an automotive vehicle, said apparatus comprising:

operating condition detecting means for detecting a predetermined operating condition of said internal combustion engine;

resistance/power detection means for detecting a heater resistance value of said heater and an amount of power supplied to said heater when said internal combustion engine is in said predetermined operating condition;

power control means, coupled to said resistance/power detection means and said heater, for comparing said heater resistance value detected by said resistance/power detection means with a target resistance value and for supplying said heater with power supplied from a battery in a definite-resistance control mode in which said heater resistance value is controlled to become equal to said target resistance value;

resistance value correction means, coupled to said resistance/power detection means and said power control means, for correcting said target resistance value so that a difference between the amount of power detected by said resistance/power detection means and a standard amount of power becomes equal to zero;



storage means, coupled to said resistance value correction means, for storing said target resistance value corrected by said resistance value correction means as a learning value;

storage state judgment means, coupled to said storage means, for judging whether or not said learning value is correctly stored in said storage means; and

stop means, coupled to said power control means and said storage state judgment means, for stopping said power control means from supplying said heater with power in said definite-resistance control mode.

5,214,268

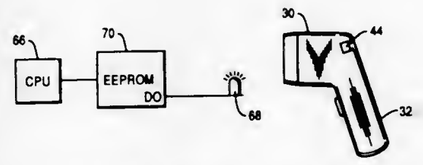
APPARATUS FOR PROGRAMMING A BAR CODE READER

Park Doing, Ithaca, N.Y., assignor to NCR Corporation, Dayton, Ohio

Filed Aug. 15, 1991, Ser. No. 745,309

Int. Cl.[5] G06K *7/10*

U.S. Cl. 235—472 3 Claims



1. An apparatus associated with a data terminal device for programming an optical bar code reader which reads bar code labels comprising:

a housing member having an enclosed area including a supporting surface having an aperture therein for supporting the scanning end of an optical bar code reader, said hous-

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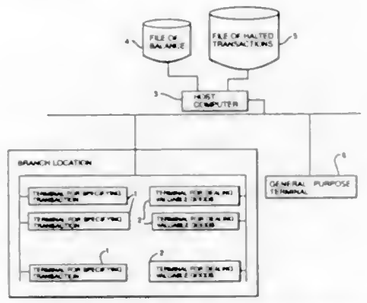
ing member having a floor portion located adjacent to said aperture;
a printed circuit board mounted on said floor portion adjacent the aperture;
processing means mounted on said printed circuit board for storing and transmitting binary data for programming the bar code reader;
storage means mounted on said printed circuit board and coupled to said processing means for receiving and storing the binary data transmitted from said processing means, said storage means adapted to output the binary signals when operated;
a light emitting diode mounted on said printed circuit board adjacent said aperture and coupled to said storage means for generating a plurality of energized and de-energized light indications representing the binary data stored in the storage means when operated;
battery means secured to said printed circuit board supplying electrical power to said processing means, said storage means and said light emitting diode;
first switch means mounted on the side of said housing member and coupled to said storage means for operating said storage means to output the binary data to said light emitting diode when actuated; and
second switch means mounted on the optical bar code reader enabling, when operated, the bar code reader when mounted in said housing member to read the programming data represented by the light indications of the light emitting diode enabling the bar code reader to be programmed in accordance with the binary data stored in the storage means.

5,214,269

METHOD FOR PERFORMING TRANSACTION

Khotaro Yamashita, Machida; Masaaki Hiroya, Kawasaki; Kunihiro Nomura, Sagamihara, and Akihiro Kawaoka, Kawasaki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 493,703, Mar. 15, 1990, abandoned.
This application Feb. 24, 1992, Ser. No. 839,078
Claims priority, application Japan, Mar. 17, 1989, 1-63646
Int. Cl.[5] G06F *15/30*; G07F *7/08*
U.S. Cl. 235—379 **8 Claims**



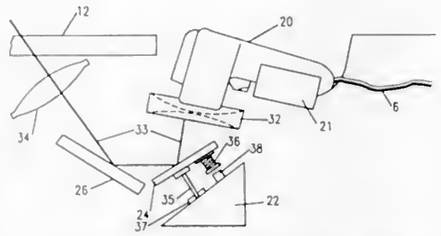
1. A method for automatically performing a banking transaction with a computer controlled system having public terminals and storage, the steps of:
storing financial transaction information such as deposit balances and relating to valuable goods, including securities, cash and checks to establish financial evidence relating to transactions such as withdrawal, deposit, transfer and dealing with valuable goods;
receiving customer input at one of the public terminals dedicated to dealing with the valuable goods to perform withdrawal or deposit of valuable goods as one item of a list of a single banking transaction;
receiving customer input at another one of the public terminals dedicated to specifying a transaction from among the transactions of deposit, withdrawal, and transfer as another item of the same list of a single banking transaction;
one of said steps of receiving being a first performed receiving and the other being a subsequently performed receiving;
executing all of the items of the list of a single banking transaction based upon the presence of sufficient financial evidence independently of the order of said steps of receiving; and
at one of the corresponding dedicated terminals for dealing valuable goods and specifying a transaction used in said subsequently performed receiving, taking in an inserted medium for identifying the customer for completion of the transaction involving the subsequently performed receiving, and in response to said first performed receiving, issuing the medium for identifying the customer when the operations of the respective terminal are terminated.

5,214,270

MODULAR HANDHELD OR FIXED SCANNER

Joseph F. Rando, Los Altos Hills, Calif., assignor to Spectra-Physics, San Jose, Calif.

Filed Nov. 22, 1991, Ser. No. 796,717
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—472 **24 Claims**



1. A fixed bar code scanner for scanning items along an item path comprising:
a handheld scanner means for producing a beam of focused laser light and including first means for scanning said focused beam;
detection means disposed in said handheld scanner means for collecting the scattered and/or reflected light from a bar code label including means for decoding bar code information;
holding means for holding said handheld scanner in a predetermined position with respect to said item path;
optical means disposed in fixed relation to said holding means for reforming said beam of laser light from said handheld scanner for optimally resolving, from a fixed position, a bar code label of items in the item path;
second scanning means for scanning said beam of laser light from the handheld scanner in a locus of lines defining a scanning volume for resolving bar code labels of items on said item path.

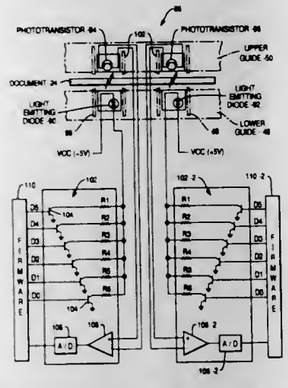
5,214,271

METHOD OF DETERMINING DETECTOR LIFETIME USING A STEPPED RESISTOR NETWORK

Richard E. Rogers, Kettering; Larry D. Turvy, Jr., Bellbrook; George J. Eberhardt, Centerville, and Richard E. Loughman, Bellbrook, all of Ohio, assignors to NCR Corporation, Dayton, Ohio

Division of Ser. No. 672,800, Mar. 21, 1991, Pat. No. 5,187,374.
This application Nov. 5, 1992, Ser. No. 971,804
Int. Cl.[5] G01J *1/32*
U.S. Cl. 250—205 **2 Claims**

1. A machine method of determining the probable life of a detector used in association with a light source, comprising the steps:
(a) using a stepped resistor network coupled to said light source to determine at what resistance step in said stepped resistor network that current flows through said light source to generate an output from said detector;
(b) comparing the resistance step obtained from step (a) with an initial resistance step obtained from an initial set up in which current flowed through said light source to generate an output from said detector; and
(c) determining that the probable life of the detector has been reached when the resistance step determined from step (a) reflects a lower resistance which is a predetermined number of resistance steps away from the initial resistance step derived from the initial set up.

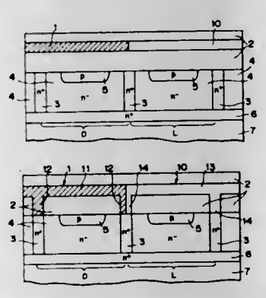


5,214,272

PHOTOELECTRIC CONVERTING APPARATUS

Isamu Ueno, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 31, 1991, Ser. No. 738,564
Claims priority, application Japan, Aug. 2, 1990, 2-203967; Jul. 26, 1991, 3-208804
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—208.1 **21 Claims**



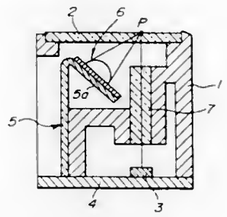
1. A photoelectric converting apparatus comprising a plurality of photoelectric converting devices each having a respective control electrode and a photoreceiving region responsive to light incident thereon and capable of storing photocarriers produced by the light incident thereon for producing an electric output corresponding to the incident light according to the number of stored photocarriers, wherein a conductive light shielding layer is provided on said photoreceiving region of at least one of said photoelectric conversion devices and spaced by an insulating layer from said photoreceiving region of said at least one said photoelectric conversion devices, and a transparent conductive layer is provided on and spaced by an insulating layer from said photoreceiving region of another of said photoelectric conversion devices.

5,214,273

CONTACT IMAGE SENSOR

Toshiyuki Yokochi, Hachioji, Japan, assignor to Kabusbiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 19, 1991, Ser. No. 671,946
Claims priority, application Japan, Mar. 20, 1990, 2-28497[U]
Int. Cl.[5] H04N *1/028*; G01J *1/02*; G06K *9/20*; H01L *27/146*
U.S. Cl. 250—208.1 **5 Claims**



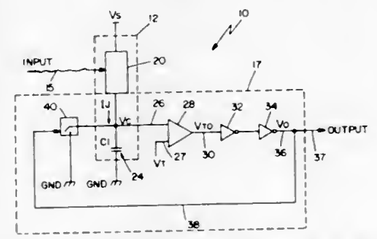
1. A contact image sensor comprising:
a light source;
a rod lens array;
a photoelectric converter element array;
a first supporting member for supporting said rod lens array and said photoelectric converter element array, the first supporting member being formed from a synthetic resin and having a surface that has been treated to lower the light reflection factor of the surface; and
a second supporting member for supporting said light source, said second supporting member being separate from said first supporting member and being made of a material having a good heat radiating property.

5,214,274

IMAGE SENSOR ARRAY WITH THRESHOLD VOLTAGE DETECTORS AND CHARGED STORAGE CAPACITORS

Woodward Yang, Cambridge, Mass., assignor to President and Fellows of Harvard College, Cambridge, Mass.

Filed Jul. 24, 1992, Ser. No. 919,771
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—208.1 **40 Claims**



1. A sensor array for measuring intensity of an incoming signal, the array having a plurality of sensors colocated on a single integrated circuit chip, each sensor comprising:
a transducer for sensing a portion of the incoming signal and for providing an output current related to the sensed incoming signal;
a capacitor receiving the transducer output current and storing charge associated with the transducer output cur-

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rent, the capacitor integrating current to provide a capacitor output voltage;

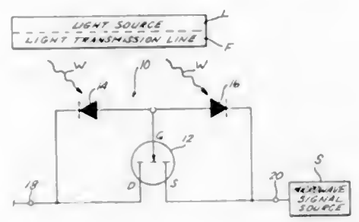
a detector receiving the capacitor output voltage, the detector generating an output pulse when the capacitor output voltage exceeds a threshold voltage and a reset signal for discharging the stored charge in the capacitor, the detector generating a stream of output pulses having a pulse frequency representative of the intensity of said portion of the sensed incoming signal.

5,214,275

OPTICALLY CONTROLLED MICROWAVE SWITCH AND SIGNAL SWITCHING SYSTEM

James L. Freeman, Renton, and Sankar Ray, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1991, Ser. No. 768,836
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—208.4 **34 Claims**



1. An optoelectronic microwave switching system comprising:

means for supplying a microwave signal;

transmission means for conveying said microwave signal;

switch means for receiving said microwave signal and for operating in an on state to pass said signal therethrough and in an off state to block passage of said signal therethrough, said switch means including a field-effect transistor having a gate electrode, a source electrode and a drain electrode one of said source and drain electrodes being connected to said transmission means, and at least two photodiodes, each having an anode and a cathode, the anodes of two of said photodiodes being coupled to said gate electrode of said field-effect transistor, the cathodes of said two photodiodes being respectively coupled to the source and drain electrodes of said field-effect transistor, said two photodiodes being responsive to optical energy to control the state of operation of said switch means;

a light source remote from said switch means for selectively supplying optical energy; and

light transmission means for conveying optical energy from said remote light source to said photodiodes so as to activate said photodiodes to control the state of operation of said switch means.

5,214,276

SEMICONDUCTOR STRUCTURE FOR PHOTODETECTOR

Takeshi Himoto, and Ichiro Tonai, both of Osaka, Japan, assignors to Sumitomo Electric Indsutries, Ltd., Osaka, Japan

Filed Nov. 5, 1991, Ser. No. 787,954
Claims priority, application Japan, Nov. 13, 1990, 2-308094
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—214.1 **8 Claims**

1. A photodetector comprising:

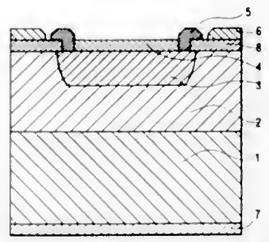
a semiconductor layer being one of an n-type and a p-type having two surfaces,

a semiconductor region being one of a p-type and an n-type, respectively, selectively formed in a central part from one surface of the semiconductor layer,

a dish-like shaped pn-junction formed between the semiconductor layer and the semiconductor region,

an annular electrode formed on the semiconductor region,

a second electrode formed on the other surface of the semiconductor layer, and



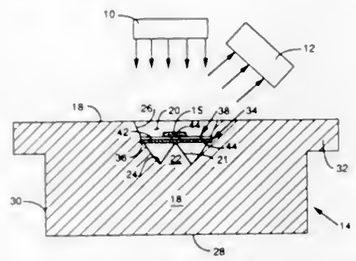
a dielectric layer formed outside of the annular electrode from preventing light from reaching the semiconductor layer by reflecting or absorbing the light.

5,214,277

NEAR-INFRARED REFLECTANCE SPECTROMETER SYSTEM AND RELATED SAMPLE CELL AND SAMPLE SUPPORT

James K. Drennen, III, One Old North Church St., Natrona Heights, Pa. 15065

Filed Jun. 15, 1992, Ser. No. 898,454
Int. Cl.[5] H01J *3/14*; G01N *21/01*
U.S. Cl. 250—216 **32 Claims**



1. An apparatus for a near-infrared reflectance spectrometer used for analyzing a sample, comprising:

light source means for supplying light to said sample, which light reflects off of said sample,

sample cell means for supporting said sample,

detector means for receiving said reflected light from said sample,

said sample cell means, comprising:

a main body having a top surface defining a recess with a bottom and a sidewall,

support means in said recess for said supporting of said sample,

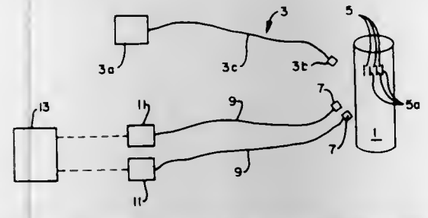
said sidewall of said recess being substantially parabolically shaped from said bottom of said recess to said top surface of said main body of said sample cell means.

5,214,278

APPARATUS FOR MONITORING SPEED AND LATERAL POSITION OF A ROTATING SHAFT HAVING REFLECTIVE SURFACES

Lionel A. Banda, South Windsor, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Nov. 1, 1991, Ser. No. 786,870
Int. Cl.[5] G01D *5/34*
U.S. Cl. 250—231.14 **2 Claims**



1. An apparatus for monitoring the speed and lateral position variation from the nominal lateral position of the shaft of a reactor coolant circulating pump of a nuclear steam generating system, the apparatus comprising:

at least one reflective surface defined by at least one non-reflective surface portion on the pump shaft;

light source means for directing a light beam onto said reflective surface;

light receiving means for receiving each of a pair of spaced apart reflected light beams reflected from said reflective surface;

intensity measuring means for measuring, on a time-dependent basis, the intensity of each one of said pair of reflected light beams received by said light receiving means;

said light receiving means and said intensity measuring means being connected by fiber optic cable; and

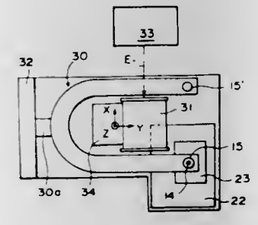
processing means for calculating both the shaft speed and lateral position variation as a function of the time-dependent intensity measurements of each one of said pair of light beams.

5,214,279

SCANNING MICROSCOPE AND TUNING FORK SCANNING MECHANISM FOR VARYING THE WIDTH OVER WHICH A SAMPLE IS SCANNED

Kazuo Hakamata, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 25, 1991, Ser. No. 735,734
Claims priority, application Japan, Jul. 26, 1990, 2-198550; Aug. 2, 1990, 2-205707; Jan. 24, 1991, 3-7238; Mar. 6, 1991, 3-40170; May 15, 1991, 3-110234
Int. Cl.[5] G02B *26/10*
U.S. Cl. 250—234 **10 Claims**



1. A scanning microscope comprising:

i) a sample supporting member on which a sample is supported,

ii) an optical means which focuses a light beam as a light spot on said sample,

iii) a movement mechanism which moves said optical means with respect to said sample supporting member such that said light spot scans said sample, and

iv) a means for photoelectrically detecting light radiated out of the portion of said sample, which is exposed to said light spot, an image of said sample being thereby formed,

wherein said movement mechanism for moving said optical means or said sample supporting member is constituted of:

a) a tuning fork on which said optical means or said sample supporting member is supported, and

b) an excitation means for applying force, the magnitude of which changes periodically, to said tuning fork, and thereby causing said tuning fork to resonate such that a resonating frequency of said tuning fork is varied depending upon the width and length of said tuning fork, said tuning fork being constituted of a magnetic material,

wherein said excitation means is composed of an electromagnet for applying a magnetic field, the strength of which changes periodically, to said tuning fork, and a driving circuit for operating said electromagnet, and

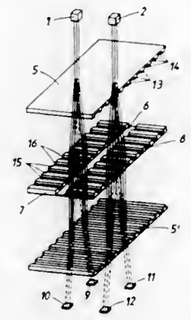
wherein said driving circuit selectively feeds a driving current, the magnitude of which can be adjusted for scanning said sample at the frequency of the first overtone of said tuning fork, or a driving current, the magnitude of which can be adjusted for scanning said sample at the frequency of the third overtone of said tuning fork, to said electromagnet.

5,214,280

PHOTOELECTRIC POSITION DETECTOR WITH OFFSET PHASE GRATING SCALES

Heinz Rieder, Oberndorf, and Max Schwaiger, Ostermiething, both of Austria, assignors to RSF-Elektronik Gesellschaft m.b.H., Tarsdorf, Austria

Filed Apr. 10, 1992, Ser. No. 866,907
Claims priority, application Austria, Apr. 18, 1991, 813/91
Int. Cl.[5] H01J *3/14*
U.S. Cl. 250—237 G **10 Claims**



1. In a photoelectric position detector comprising illuminating means,

a scale member provided with phase grating scale means,

a scanning member, which is operable to perform relative to said scale member a scanning movement along said phase grating scale means and is provided with a scanning phase grating, which is arranged to transmit light from said illuminating means onto said phase grating scale means and subsequently to receive said light from said phase grating scale means, wherein

said light is diffracted by said phase grating scale means and by said scanning phase grating before and after said light has been incident on said phase grating scale means and an

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interference pattern is thus generated, which comprises diffraction groups of different orders, and

a plurality of photodetectors are provided, each of which is arranged to receive only diffraction groups of a predetermined order of said interference pattern and in response to the reception of said diffraction groups is operable to generate phase-displaced photodetector signals, which are cyclically changed by said scanning movement,

the improvement residing in that

said phase grating scale means consist of two juxtaposed phase grating scales, which have a predetermined grating constant and are offset by ¼ of said grating constant and are both arranged to receive light from said illuminating means through said scanning phase grating,

one pair of said photodetectors are associated with each of said scales and arranged to receive only diffraction groups of respective predetermined orders of said interference pattern from said associated scale and operable to generate phase-displaced photodetector signals in response to such reception, and

corresponding photodetectors of said two pairs are arranged to generate photodetector signals which are displaced 90° in phase owing to said offset of said scales.

5,214,281

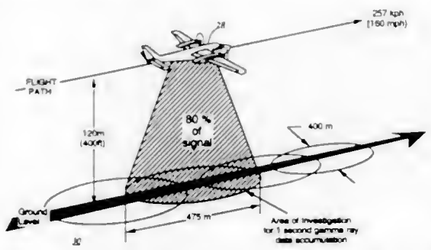
METHOD FOR LOCATING SUB-TERRANEAN GEOLOGICAL AGGREGATE DEPOSITS

Douglas J. Rowe, Box 37, Site 23, R.R. #12, Calgary, Alberta T3E 6W3, Canada

Filed Mar. 20, 1992, Ser. No. 855,393

Int. Cl.[5] G01V *5/02*

U.S. Cl. 250—253 **6 Claims**



1. A method for locating a surface or sub terranean deposit of geological aggregate matter, the method comprising the steps of

(a) traversing an area of the earth's surface;

(b) obtaining measurements of gamma radiation from natural radioelements corresponding to the concentration of uranium at spaced points along the traverse;

(c) obtaining measurements of gamma radiation from natural radioelements corresponding to the concentration of potassium at spaced points along the traverse;

(d) obtaining measurements of gamma radiation from natural radioelements corresponding to the concentration of thorium at spaced points along the traverse;

(e) determining individual area mean values for the natural gamma radiation measurements obtained for the area traversed for each of uranium, potassium, and thorium; and

(f) identifying any locations int he area traversed in which the measurements of natural gamma radiation corresponding to uranium are approximately equal to the area mean value determined for uranium, the measurements of natural gamma radiation corresponding to potassium are low relative to the area mean value determined for potassium, and the measurements of natural gamma radiation corresponding to thorium are low relative to the area mean value determined for equivalent thorium.

5,214,282

METHOD AND APPARATUS FOR PROCESSING A MINUTE PORTION OF A SPECIMEN

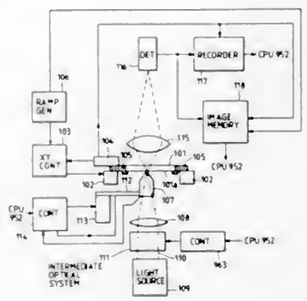
Hiroshi Yamaguchi, Fujisawa; Minori Noguchi, Yokohama; Makiko Kohno, Kawasaki, and Toshihiko Nakata, Hiratsuka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 30, 1991, Ser. No. 707,774

Claims priority, application Japan, May 30, 1990, 2-138197; Sep. 28, 1990, 2-256892

Int. Cl.[5] H01J *37/26*

U.S. Cl. 250—307 **69 Claims**



1. A method for processing a minute portion comprising the steps of:

detecting a minute portion on an element or substrate of an electron device by a near-field optical scanning microscope; and

subjecting the detected minute portion to at least one of processing, film forming and annealing by a scanning tunneling microscope.

5,214,283

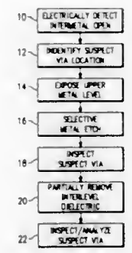
METHOD OF DETERMINING THE CAUSE OF OPEN-VIA FAILURES IN AN INTEGRATED CIRCUIT

Tam T. Le, Carrollton, Tex., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Filed Jul. 23, 1991, Ser. No. 734,571

Int. Cl.[5] H01J *37/00*

U.S. Cl. 250—307 **19 Claims**



1. A destructive method of determining the cause of an open circuit between first and second metal layers in an integrated circuit, said second metal layer overlying said first metal layer with an interlevel dielectric layer therebetween when viewing the active surface of said integrated circuit, said first and second metal layers intended to be connected to one another through a via in said interlevel dielectric layer, comprising:

removing said second metal layer from a location over the via with an etchant which selectively removes metal relative to dielectric material; and

inspecting the active surface of said integrated circuit to determine the extent to which said first metal layer at the location of said via was removed in said removing step, if any.

5,214,284

METHOD AND ARRANGEMENT FOR TESTING AND REPAIRING AN INTEGRATED CIRCUIT

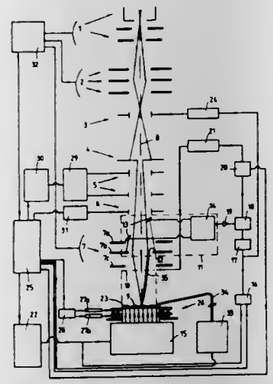
Yasuo Tokunaga, Schwaben, and Jurgen Frosien, Ottobrunn, both of Fed. Rep. of Germany, assignors to ICT Integrated Circuit Testing Gesellschaft fur Halbleiterpruftechnik mbH, Fed. Rep. of Germany

Filed Aug. 14, 1991, Ser. No. 744,933

Claims priority, application Fed. Rep. of Germany, Aug. 27, 1990, 4027062

Int. Cl.[5] H01J *37/26, 37/302*

U.S. Cl. 250—309 **5 Claims**



1. Apparatus for testing and repairing an integrated circuit comprising:

a) a device for testing an integrated circuit having:

a 1) an ion source for generating a test ion beam,

a 2) means for deflecting the test ion beam;

a 3) an electrostatic objective lens for focusing the test ion beam onto the integrated circuit and having three rotationally symmetrical electrodes arranged behind one another in the beam direction, the axis of the test ion beam coinciding with the axis of said objective lens,

a 4) a tester for applying an input signal to the integrated circuit,

a 5) a secondary electron spectrometer for conversion of the secondary electrons generated by the test ion beam at a measurement point into an electrical actual-value signal, said secondary electron spectrometer including an extraction electrode, a filter electrode, a control circuit and a secondary electron detector having a scintillator, said control circuit connecting said scintillator to said filter electrode, and

a 6) a signal-processing circuit for comparing the converted actual-value signal with a theoretical-value signal determined by the input signal, and

b) a device for repairing the integrated circuit which has been recognized as defective, comprising:

b 1) an ion source for generating a repair ion beam,

b 2) a data processor programmable with circuitry data of the integrated circuit, said data processor being able to control the repair ion beam and store the circuitry data for the new integrated circuit produced by the repair;

c) the repair ion beam forming the test ion beam, one single beam generator being provided for generating the ion beam.

5,214,285

NIGHT VISION MODULE FOR A VIEWING AND AIMING SYSTEM

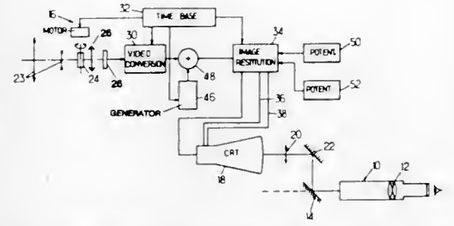
Philippe Metivier, Poissy, France, assignor to Societe D'Applications Generales, Paris, France

Filed Feb. 10, 1992, Ser. No. 832,846

Claims priority, application France, Feb. 8, 1991, 91 01479

Int. Cl.[5] F41G *1/32*

U.S. Cl. 250—330 **7 Claims**



1. Night vision module adaptable as an input stage on a daylight viewing and aiming device for constituting a system operational during night, comprising:

an infra-red imaging unit;

a unit for reproducing an image of the field of view of the imaging unit on a screen for display in the input field of a daylight viewing and aiming device, said screen having fixed reference marks formed thereon out of a central portion of said field of view;

electronic means for inlaying, in the image of the field of view on said screen, a plurality of marks having a predetermined position with respect to an optical axis of the night vision module, out of a central aiming zone of said field, said marks being so located as to be centered with respect to the fixed reference marks when the module is harmonised; and

further means for adjusting the location of the image of the field of view on the screen, whereby the inlaid marks may be centered with respect to the reference marks.

5,214,286

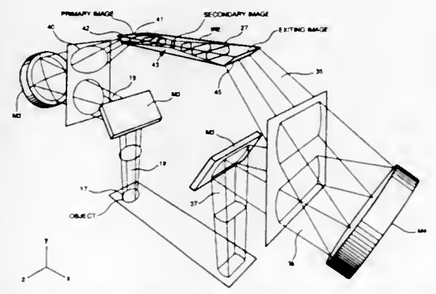
HORIZONTAL MULTIPLE INTERNAL REFLECTION ACCESSORY FOR INTERNAL REFLECTION SPECTROSCOPY

Milan Milosevic, Fishkill, and Nicolas J. Harrick, Ossining, both of N.Y., assignors to Harrick Scientific Corporation, Ossining, N.Y.

Filed Jun. 8, 1992, Ser. No. 895,019

Int. Cl.[5] G01J *3/42*

U.S. Cl. 250—339 **16 Claims**



1. An accessory for internal reflection spectroscopy, comprising:

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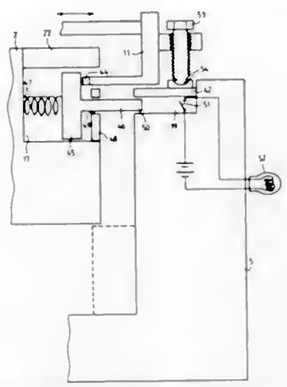
(a) an accessory support,
(b) an internal reflection element serving as a sample holder on said support, said internal reflection element comprising a substantially radiation transparent, parallelepiped or trapezoidal shape crystal having an exposed flat sampling surface portion for receiving a sample to be analyzed, said internal reflection element having generally rectangular entrance and exit apertures for a radiation beam,
(c) first directing means on the support for directing an incident round beam of radiation on to the entrance aperture of the internal reflection element such that the beam internally reflects from the crystal's sampling surface portion, the internally reflected beam exiting the crystal via its exit aperture, said first directing means comprising a first spherical mirror located off-axis with respect to the optical axis of the incident beam such that the round beam shape is transformed into a generally oval shape more closely matching the shape of the rectangular entrance aperture,
(d) second directing means on the support for receiving and redirecting the exiting reflected beam, said second directing means comprising a second spherical mirror located off-axis with respect to the optical axis of the incident beam, wherein the beam shape after being redirected by the second directing means has a distorted round shape.

5,214,287

SYSTEM FOR INSTALLING A COLLIMATOR IN A GAMMA CAMERA

Christian Pare, Plaisir, and Christophe Fleury, Antony, both of France, assignors to Sopha Medical, Paris, France

PCT No. PCT/FR89/00620, § 371 Date Jun. 7, 1991, § 102(e) Date Jun. 7, 1991, PCT Pub. No. WO90/06083, PCT Pub. Date Jun. 14, 1990
PCT Filed Nov. 30, 1989, Ser. No. 687,895
Claims priority, application France, Dec. 7, 1988, 88 16069
Int. Cl.[5] G01T *1/164;* **A61B** *6/00*
U.S. Cl. 250—363.1 **9 Claims**



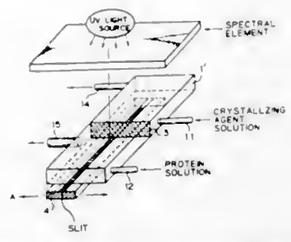
1. A system for installing a collimator on a detector of a gamma camera, the system comprising:
a handling carriage,
a collimator, and
a gamma camera carried by a case wherein,
the carriage comprises a frame provided with jaws for grasping the collimator;
the collimator comprises a retractable stud, means for retracting the stud as the jaws grasp the collimator and means for extending the stud into a cavity in said case when the jaws release the collimator.

5,214,288

METHOD AND APPARATUS FOR TWO-DIMENSIONAL MEASUREMENT OF CONCENTRATION OF BIOLOGICAL MACROMOLECULE SOLUTION

Kotaro Oka; Koji Asano, and Shozo Fujita, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 18, 1991, Ser. No. 809,123
Claims priority, application Japan, Dec. 18, 1990, 2-403315
Int. Cl.[5] G01J *1/42;* **G01N** *21/33*
U.S. Cl. 250—373 **15 Claims**



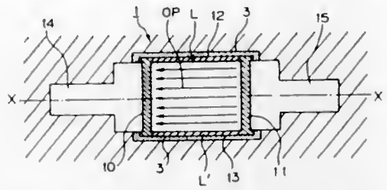
1. A method of making a two-dimensional measurement of a concentration of a biological macromolecule solution, comprising: charging the biological macromolecule solution and a crystallizing agent solution into a crystallizing cell, irradiating the crystallizing cell with an ultraviolet light from an ultraviolet light source, two-dimensionally scanning the ultraviolet light transmitted through the crystallizing cell by a sensor to detect the quantity of the transmitted light, and carrying out a conversion of the detected quantity of the transmitted light to a measurement of the protein concentration.

5,214,289

CHARGED PARTICLE BEAM DEFLECTOR

Kelichi Betsui, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 26, 1991, Ser. No. 797,844
Claims priority, application Japan, Nov. 28, 1990, 2-327499
Int. Cl.[5] H01J *37/30*
U.S. Cl. 250—396 R **19 Claims**



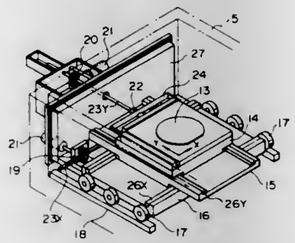
1. A charged particle beam deflector comprising:
a plurality of blanking apertures each for passing a component of a charged particle beam, arranged into a blanking aperture array having a predetermined shape;
a deflecting electrode means disposed close to each of the blanking apertures, having a deflecting electrode for deflecting the charged particle beam component passing through the aperture and a grounding electrode, the charged particle beam component being deflected by applying a predetermined voltage to the deflecting electrode means, the deflecting and grounding electrodes being opposite and disposed apart from each other by a distance corresponding to the length of the aperture; and
a nonconductive member arranged at least partly in each side space formed between the opposing deflecting and grounding electrodes.

5,214,290

ELECTRON BEAM LITHOGRAPHY AND WORKPIECE SUPPORTING APPARATUS HAVING SUPPORTING MEANS FOR WORKPIECE STAGE AND MOVING MEANS DETACHABLY MOUNTED TO COVER OPENING IN VACUUM CHAMBER

Hiroyuki Sakai, Ibaraki, Japan, assignor to Hitachi, Ltd., Chiyoda, Japan

Filed Nov. 5, 1992, Ser. No. 788,318
Claims priority, application Japan, Nov. 5, 1990, 2-297313
Int. Cl.[5] H01J *37/20*
U.S. Cl. 250—492.2 **14 Claims**



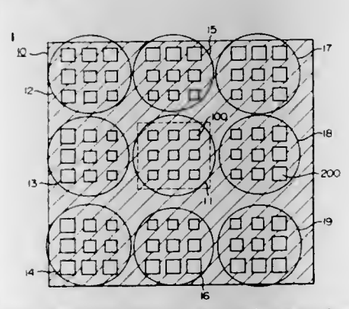
1. An electron beam lithography apparatus comprising means for emitting an electron beam and directing it toward and onto a workpiece, means for deflecting and turning on-off said electron beam so as to form a predetermined pattern on said workpiece, a vacuum column disposed to expose said electron beam to a vacuum, a workpiece stage including a first table supporting said workpiece and a second table supporting said first table, workpiece moving means for moving said first table in one of the X-axis and Y-axis directions and moving said second table in the other direction, a vacuum workpiece chamber disposed to make vacuum communication with said vacuum column and to accommodate both of said workpiece and said workpiece stage, and supporting means for supporting both of said workpiece stage and said workpiece moving means, said vacuum workpiece chamber having an opening, and said supporting means being detachably mounted in vacuum tight relation to cover the opening of said vacuum workpiece chamber.

5,214,291

PATTERN FORMING METHOD

Yoshihiko Hirai, Osaka; Kazuhiko Hashimoto, Moriguchi, and Takahiro Matuso, Uji, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 26, 1991, Ser. No. 798,327
Claims priority, application Japan, Nov. 30, 1990, 2-338149
Int. Cl.[5] H01J *37/304*
U.S. Cl. 250—492.2 **4 Claims**



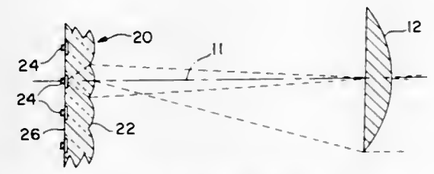
1. A pattern forming method of exposing a semiconductor substrate by an exposure technique that is subject to a proximity effect, so as to form on said semiconductor substrate at least one electronic chip comprising a plurality of regions including at least one center region and a plurality of peripheral regions surrounding said center region, said method comprising the steps of:
exposing said substrate through a basic mask having apertures and having a basic size so as to form said at least one center region; and
exposing said substrate through a plurality of correction masks having apertures and having sizes that are corrected with respect to said basic size for said proximity effect so as to form said plurality of peripheral regions.

5,214,292

DYNAMIC INFRARED SCENE DISPLAY

Roy W. Hendrick, Jr., Goleta, Calif., assignor to Mission Research Corporation, Santa Barbara, Calif.

Filed Aug. 14, 1991, Ser. No. 745,601
Int. Cl.[5] G01J *1/00*
U.S. Cl. 250—495.1 **12 Claims**



1. An infrared scene display comprising:
a two dimensional array of miniature infrared radiating elements;
coupling means coupling the radiation of said two dimensional array of miniature infrared radiating elements to a display plane, said coupling means comprised of a coupling device for each infrared radiation element; and
spacing means for spacing each infrared radiating element from each coupling device, each of said infrared radiating elements being spaced from said coupling means a preselected distance that is optically equivalent to being in contact while remaining thermally isolated;
whereby said infrared scene display can be used to test infrared detecting sensors and focal planes.

5,214,293

LATCH STATUS SENSOR SENSING CLOSED AND UNLATCHED POSITION

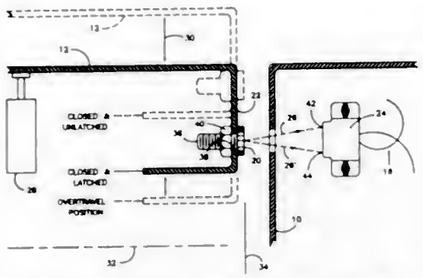
Douglas K. MacNiel, Costa Mesa, Calif., assignor to CalComp Inc., Anaheim, Calif.

Filed Apr. 14, 1992, Ser. No. 869,159
Int. Cl.[5] G01N *21/86;* **G01D** *5/34;* **G08B** *13/18*
U.S. Cl. 250—561 **20 Claims**

1. In a planar closure element revolving about an axis of rotation between open, closed and unlatched, and closed and latched positions relative to a latch which can be closed and unlatched and closed and latched, and wherein the closed and unlatched and closed and latched positions are rotationally displaced from one another, apparatus for determining the status of the latch without sensing the latch comprising:
a) reflector means disposed on a surface of the closure element in a plane perpendicular to the axis of rotation for reflecting a light beam, said reflector means being located at a position on said surface which moves in said plane between a first position when the closure element is in a closed and unlatched position and a second position when the closure element is in a closed and latched position; and,
b) non-contacting optical sensor means not carried by the closure element for directing a beam of light from an

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emitter thereof at said first position, being positioned to receive said beam of light as reflected by said reflector means at an input surface of a light detector thereof, and for outputting an electrical signal at an output thereof as a function of light striking said input surface; wherein,



c) said first position and said second position are displaced from one another a distance such that said beam of light is not reflected by said reflector means at said input surface when the closure element is in said closed and unlatched position whereby the status of the latch is directly related to said output of said non-contacting optical sensor means.

5,214,294

SCAN READING METHOD INCLUDING DENSITY MEASURING AND EDGE DETECTION

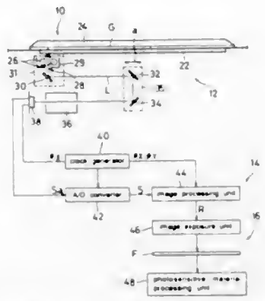
Takashi Toyofuku, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 20, 1992, Ser. No. 871,317

Claims priority, application Japan, Apr. 19, 1991, 3-088783; Jun. 14, 1991, 3-143383

Int. Cl.[5] G01N *21/86*

U.S. Cl. 250—561 **19 Claims**



1. A scan reading method in an image reader for detecting an edge of an original, the image reader including a platen with the original mounted thereon, and a scanner including a light source for illuminating said original sequentially or simultaneously in a main scan direction while being relatively moved in a subscan direction substantially orthogonal to said main scan direction, wherein an image of said original is photoelectrically read at each pixel by two-dimensionally scanning said original, and detecting at least one edge of said original in said subscan direction, said method comprising the steps of:

taking one-line image density data in said main scan direction of said scanner in a predetermined position in said subscan direction;

averaging said one-line image density data in said main scan direction to determine an average density value of said line by:

plotting said average density value in said subscan position on a density distribution chart in said subscan direction;

repeating the plotting process from a subscan start point on the side of one end of said platen to a subscan end point on the side of the other end thereof in accordance with the scanning operation by said scanner;

obtaining said density distribution chart in said subscan direction;

searching thereafter said density distribution chart; and

detecting at least one edge of said original by determining where a line having an average density value which is less than a predetermined threshold value is positioned outside of an original region.

5,214,295

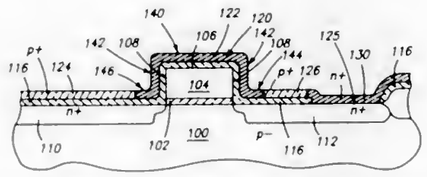
THIN FILM FIELD EFFECT TRANSISTOR, CMOS INVERTER, AND METHODS OF FORMING THIN FILM FIELD EFFECT TRANSISTORS AND CMOS INVERTERS

Monte Manning, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jan. 28, 1992, Ser. No. 827,287

Int. Cl.[5] H01L *27/01, 21/265*

U.S. Cl. 257—67 **18 Claims**



11. A thin film field effect transistor formed over an underlying field effect transistor comprising:

a transistor gate having a top surface and sidewalls;

underlying transistor active regions, the transistor gate and underlying active regions forming an underlying field effect transistor;

a thin gate insulating layer coating the transistor gate top surface and sidewalls, the thin gate insulating layer overlying and contacting the underlying active regions, the thin gate insulating layer having a thickness of less than about 700 Angstroms; and

a thin semiconductor film provided over the transistor gate, the thin film having a conductively doped thin film channel region and thin film active regions, the thin film and channel region contacting the thin gate insulating layer opposite the transistor gate top surface and opposite the sidewalls, the transistor gate sidewalls in operation gating the opposite thin film channel region through the thin gate insulating layer, wherein the thin semiconductor film forms a connecting region overlying and contacting one of the underlying active regions to conductively connect one of the thin film active regions and the one of the underlying active regions

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5,214,296

THIN-FILM SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING THE SAME

Yoshiro Nakata, Ikoma; Naoto Matsuo, Ibaraki; Toshiki Yabu; Susumu Matsumoto, both of Hirakata, and Shozo Okada, Kobe, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 10, 1992, Ser. No. 848,840

Claims priority, application Japan, Mar. 11, 1991, 3-044787

Int. Cl.[5] H01L *29/68, 29/10, 21/01*

U.S. Cl. 257—71 **8 Claims**

1. A thin-film semiconductor device having a plurality of switching transistors, said thin-film semiconductor device comprising:

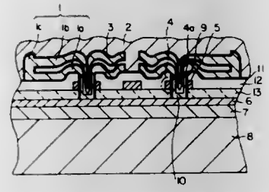
a first insulating layer;

a first conductive layer formed on said first insulating layer;

a second insulating layer formed on said first insulating layer so as to cover said first conductive layer;

a third insulating layer formed on said second insulating layer;

a plurality of throughholes formed in said second and third insulating layers, each of said throughholes reaching said first conductive layer; and



a second conductive layer formed on said third insulating layer,

each of said switching transistors comprising:

a gate insulating film formed on a sidewall of each of said throughholes;

a thin-film semiconductor channel layer formed on said gate insulating film, said thin-film semiconductor channel layer interconnecting said first conductive layer to said second conductive layer; and

a gate electrode formed on said second insulating layer, said gate electrode surrounding said gate insulating film.

5,214,297

HIGH-SPEED SEMICONDUCTOR DEVICE

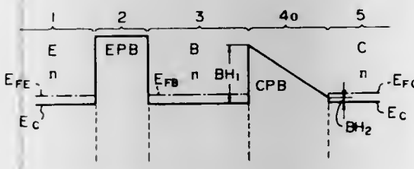
Kenichi Imamura; Naoki Yokoyama, and Toshio Ohshima, all of Atsugi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 664,517, Mar. 5, 1991, abandoned, which is a continuation of Ser. No. 415,200, Sep. 27, 1989, abandoned, which is a continuation of Ser. No. 165,383, Feb. 29, 1988, abandoned, which is a continuation of Ser. No. 798,285, Nov. 15, 1985, abandoned. This application Jul. 28, 1992, Ser. No. 921,365

Claims priority, application Japan, Nov. 19, 1984, 59-242412

Int. Cl.[5] H01L *29/72, 27/12, 29/161*

U.S. Cl. 257—191 **5 Claims**



1. A high-speed semiconductor deice comprising:

an emitter semiconductor layer having a first conductivity type;

a base semiconductor layer formed under said emitter semiconductor layer and having the first conductivity type;

an emitter potential barrier layer disposed between said emitter semiconductor layer and said base semiconductor layer, said emitter potential barrier layer being formed so that electrons tunnel therethrough;

a collector semiconductor layer formed under said base semiconductor layer and having the first conductivity type;

a collector potential barrier layer disposed between said base semiconductor layer and said collector semiconductor layer, said collector potential barrier layer having a barrier height such that a first barrier height at aid base semiconductor layer is larger than a second barrier height at said collector semiconductor layer, the second barrier height being greater than zero, and a bandgap of said collector potential barrier layer decreasing in a direction from said base semiconductor layer toward said collector semiconductor layer when said semiconductor device is in thermal equilibrium; and

bias means for applying a bias voltage between said emitter and base semiconductor layers such that a maximum level of said barrier heights is less than a kinetic energy level of hot electrons tunnelling from said emitter semiconductor layer trough said emitter potential barrier layer to said base semiconductor layer when said bias voltage is applied between said base layer and said emitter semiconductor layer even when said collector semiconductor layer and said emitter semiconductor layer have energy levels which are close to each other.

5,214,298

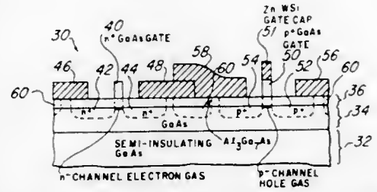
COMPLEMENTARY HETEROSTRUCTURE FIELD EFFECT TRANSISTORS

Han-Tzong Yuan, Dallas; Hisashi Shichijo, Garland, and Hung-Dah Shih, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 913,872, Sep. 30, 1986, abandoned. This application Sep. 14, 1990, Ser. No. 582,818

Int. Cl.[5] H01L *29/161, 27/02, 21/225*

U.S. Cl. 257—194 **7 Claims**



1. Complementary heterostructure field effect transistors, comprising:

(a) a channel layer of a first semiconductor material;

(b) an insulator layer of a second semiconductor material, said insulator layer abutting said channel layer and the bandgap of said second material larger than the bandgap of said first material;

(c) at least one n-channel gate on said insulator layer, said at least one n-channel gate made of a third semiconductor material and doped n+;

(d) at least one p-channel gate on said insulator layer, said at least one p-channel gate made of said third semiconductor material and p-doped by outdiffusion, said p+ doping characterized by a doping profile of diffusion of p dopants through said at least one p-channel gate which was previously n+ uniformly doped, said diffusion of sufficient dopant concentration to convert said n+ uniform doping to p+ doping in all but a residual layer adjacent said insulator layer;

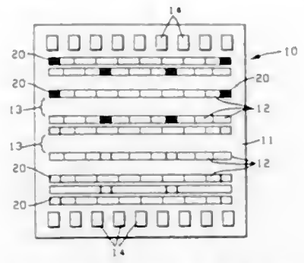
(e) n type source and drain regions in said insulator and channel layers adjacent said at least one n-channel gate;

(f) p type source and drain regions in said insulator and channel layers adjacent said at least one p-channel gate; and

(g) electrodes contacting said gates, said source regions and said drain regions.

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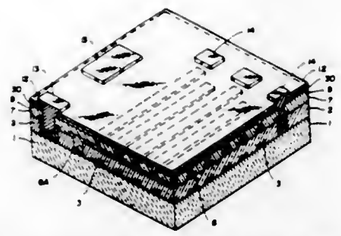
5,214,299
FAST CHANGE STANDARD CELL DIGITAL LOGIC CHIP
Laszlo V. Gal, Poway; David W. Waite, Carlsbad, and Jonathan A. Levi, Fallbrook, all of Calif., assignors to Unisys Corporation, Blue Bell, Pa.
Filed Sep. 22, 1989, Ser. No. 411,434
Int. Cl.[5] H01L *27/02*
U.S. Cl. 257—208 **11 Claims**



1. An improved standard cell logic chip of the type which includes hundreds of standard logic cells that are disposed in rows on said chip, and cell interconnect channels of different widths between said rows; said standard logic cells consisting of multiple conductive and insulative layers which are arranged in a stack; and, each of said layers having respective irregular shaped patterns which differ from one standard logic cell to another based on a logic function which the standard logic cell performs; wherein to accommodate a logic change quickly on said chip, the improvement comprises:
several fast change logic cells which are sparsely distributed in said rows and which each selectively perform any one of several logic functions;
each fast change logic cell being formed of the same stacked layers as said standard logic cells but which are patterned differently therefrom;
all conductive and insulative layers in said fast change cells which are below at least the mid level in said stack of layers having respective patterns which are identical in every fast change cell; and,
all remaining conductive and insulative layers in said fast change cells having respective patterns which differ from one fast change cell to another and select the logical functions which the fast change cells perform.

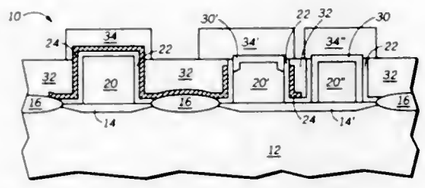
5,214,300
MONOLITHIC SEMICONDUCTOR INTEGRATED CIRCUIT FERROELECTRIC MEMORY DEVICE
George A. Rohrer, Benton Harbor, Mich., and Larry McMillan, Longmont, Colo., assignors to Ramtron Corporation, Colorado Springs, Colo.
Continuation of Ser. No. 611,058, Nov. 9, 1990, abandoned, which is a division of Ser. No. 793,186, Oct. 31, 1985, Pat. No. 5,024,964, which is a division of Ser. No. 133,338, Mar. 24, 1980, Pat. No. 4,707,897, which is a continuation-in-part of Ser. No. 658,199, Feb. 17, 1976, Pat. No. 4,195,355, which is a continuation-in-part of Ser. No. 316,417, Dec. 18, 1972, Pat. No. 3,939,292, which is a continuation-in-part of Ser. No. 76,059, Sep. 28, 1970, Pat. No. 3,728,694. This application Nov. 27, 1991, Ser. No. 763,371
Int. Cl.[5] H01L *27/02*; **H01G** *4/38*; **G11C** *11/22*
U.S. Cl. 257—295 **8 Claims**

1. A monolithic structure having a ferroelectric memory device electrically coupled by interconnects to an integrated circuit comprising:
a substrate having an upper surface;
a set of first parallel electrodes located upon or above said substrate upper surface;
a set of second parallel electrodes located above but spaced from said first electrodes, both of the first and second electrodes being located above the upper surface of the substrate;
the orientation of the second parallel electrodes being orthogonal to the orientation of the first parallel electrodes;
a ferroelectric dielectric layer located above the upper surface of the substrate and between said set of first and



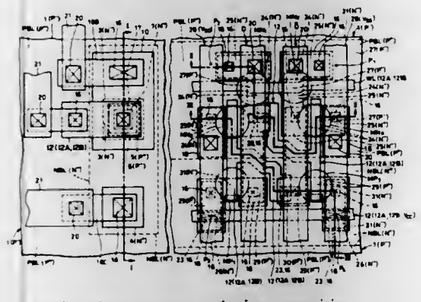
second electrodes thereby to form a set of ferroelectric storage capacitors located wholly above the substrate; and
conductive interconnects coupling said electrodes to said integrated circuit;
said memory device coupled to said integrated circuit being a single monolithic structure.

5,214,301
FIELD EFFECT TRANSISTOR HAVING CONTROL AND CURRENT ELECTRODES POSITIONED AT A PLANAR ELEVATED SURFACE
Yasunobu Knsa; W. Craig McFadden, and Keith E. Witek, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Division of Ser. No. 767,964, Sep. 30, 1991, Pat. No. 5,158,901. This application Jun. 29, 1992, Ser. No. 906,172
Int. Cl.[5] H01L *29/76*
U.S. Cl. 257—329 **20 Claims**



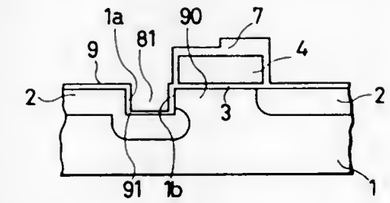
10. A vertical field effect transistor, comprising:
a substrate material;
a first elevated surface region overlying the substrate material to form a first current electrode region and a channel region, the first elevated surface region having a first height;
a second current electrode region adjacent the channel region and separated from the first current electrode;
a second elevated surface region overlying the substrate material and laterally displaced from the first elevated surface region, the second elevated surface region having a second height substantially equal to the first height of the first elevated surface; and
a conductive layer having a first conductive portion which is adjacent the channel region, the first conductive portion functioning as a control electrode region, and a second conductive portion which overlies the second elevated surface region to form an elevated control electrode contact region.

5,214,302
SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE FORMING ON A COMMON SUBSTRATE MISFETS ISOLATED BY A FIELD OXIDE AND BIPOLAR TRANSISTORS ISOLATED BY A GROOVE
Akihisa Uchida, Tachikawa; Keiichi Higeta; Nobuo Tamba, both of Ohme; Masanori Odaka, Kodaira, and Katsumi Ogiue, Hinode, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 564,685, Aug. 3, 1990, abandoned, which is a continuation of Ser. No. 189,817, May 3, 1988, abandoned. This application Dec. 13, 1991, Ser. No. 807,411
Claims priority, application Japan, May 13, 1987, 62-116090
Int. Cl.[5] H01L *27/02, 27/12, 29/06*
U.S. Cl. 257—370 **24 Claims**



1. A semiconductor memory device comprising:
a semiconductor body having a main surface;
a groove formed in said semiconductor body, said groove dividing said main surface, with respect to a plan view thereof, into a first region, a second region and a third region;
a field oxide film selectively formed on said main surface in said first region, said field oxide film being formed so as to surround active regions at said main surface which are included in said first region;
a plurality of memory cells formed at said main surface in said first region, each of said memory cells including CMOS inverters having input and output terminals cross-coupled to each other, and each of said CMOS inverters being comprised of a series connection of an n-channel MOSFET and a p-channel MOSFET, each of said n-channel and p-channel MOSFETs being formed at a respective one of said active regions in said first region;
a peripheral circuit being comprised of a first NPN bipolar transistor and a second NPN bipolar transistor formed at said main surface in said second and third regions, respectively;
a collector region of an N-type conductivity of said first and second NPN bipolar transistors formed at said main surface in said second and third regions, respectively;
a base region of a P-type conductivity of said first and second NPN bipolar transistors formed in said collector region thereof, respectively;
an emitter region of said N-type conductivity of said first and second NPN bipolar transistors formed in said base region thereof, respectively;
a base lead-out electrode of each of said first and second NPN bipolar transistors formed over said main surface so as to surround said emitter region of each of said first and second NPN bipolar transistors, each said base lead-out electrode being electrically and self-alignedly connected to said base region thereof,
an insulating side wall spacer formed on a side surface of said base lead-out electrode, said insulating side wall spacer being formed in self-alignment with said base lead-out electrode and defining said emitter region, in said base region thereof, of each of said first and second NPN bipolar transistors,
wherein each said emitter region is formed in self-alignment with said base lead-out electrode thereof; and
an emitter lead-out electrode of each of said first and second NPN bipolar transistors electrically connected to said emitter region thereof and being extended over said base lead-out electrode thereof,
wherein each said emitter region is formed n self-alignment with said base lead-out electrode thereof by said insulating side wall spacer, wherein said insulating side wall spacer isolates each said emitter lead-out electrode from said base lead-out electrode thereof and defines the distance between said side surface of said base lead-out electrode and said emitter region corresponding to each of said first and second NPN bipolar transistors, wherein said first and second NPN bipolar transistors are isolated from each other by said groove in said semiconductor body, and wherein said n-channel and p-channel MOSFETs are isolated from each other by said field oxide film at said active regions in said first region.

5,214,303
SEMICONDUCTOR DEVICE ROM HAVING AN OFFSET REGION
Hitoshi Aoki, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Jan. 28, 1992, Ser. No. 826,998
Claims priority, application Japan, Feb. 8, 1991, 2-17788
Int. Cl.[5] G11C *17/00*; **H01L** *27/10, 29/06*
U.S. Cl. 257—390 **9 Claims**



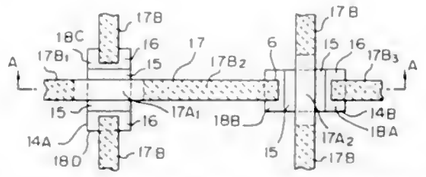
1. A two bit memory cell semiconductor device for use as a mask ROM, comprising:
a semiconductor substrate;
a gate electrode formed on the substrate;
a pair of source/drain regions provided in the substrate; and
an offset step region formed in at least one of the source/-drain regions and downwardly extending into the substrate and substantially aligned with an edge of the gate electrode, wherein one bit of information may be read in one readout direction of the two bit memory cell and another bit of information may be read in the opposite readout direction.

5,214,304
SEMICONDUCTOR DEVICE
Taiji Ema, Kawasaki, and Kazunari Shirai, Yokohama, both of Japan, assignors to Fujitsu Limited, Kanagawa, Japan
Continuation of Ser. No. 670,468, Mar. 13, 1991, abandoned, which is a continuation of Ser. No. 311,252, Feb. 16, 1989, abandoned. This application Mar. 12, 1992, Ser. No. 849,834
Claims priority, application Japan, Feb. 17, 1988, 63-34346
Int. Cl.[5] H01L *29/04, 29/68*
U.S. Cl. 257—412 **16 Claims**

1. A semiconductor device comprising:
first and second insulating films, the second insulating film being thinner than the first insulating film; and
a polycrystalline silicone film having a first part arranged on the first insulating film and a second part arranged on the second insulating film, the second part of said polycrystalline silicon film having a substantially uniform concentra-

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tion of impurities, the second part of said polycrystalline silicon film having a lower concentration of impurities

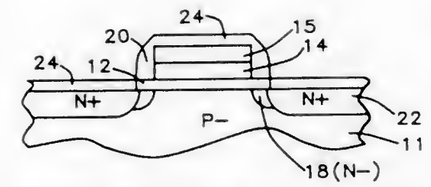


than that of the first part of said polycrystalline silicon film.

5,214,305
POLYCIDE GATE MOSFET FOR INTEGRATED CIRCUITS

Chen H. Huang, Hsin-cho, and Water Lur, Taipei, both of Taiwan, assignors to United Microelectronics Corporation, Hsin-chu, Taiwan

Continuation of Ser. No. 573,814, Aug. 28, 1990, Pat. No. 5,130,266. This application Jan. 27, 1992, Ser. No. 826,480
Int. Cl.[5] H01L *29/76, 23/48*
U.S. Cl. 257—413 7 Claims

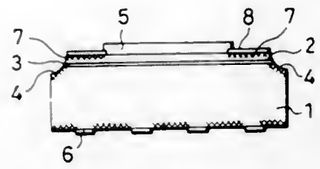


1. A MOS FET integrated circuit device comprising:
a pattern of gate electrode structures upon a semiconductor substrate which structures each includes a gate oxide, a polysilicon layer and an uncapped refractory metal silicide layer wherein the chemical formula of the metal silicide is MSi_x, where M is a refractory metal and x is between 2.2 and 2.8;
a pattern of lightly doped regions in said substrate adjacent to said structures;
a nondensified dielectric spacer structure upon the sidewalls of each of said structures and over the adjacent portions of said substrate;
a thin thermal silicon dioxide layer over each of said gate electrode structures, said spacer structure and the semiconductor substrate, wherein the thickness of said thermal silicon dioxide layer, at least over the metal silicide layer, is less than or equal to 300 Angstroms, and the source of the silicon in the silicon dioxide layer is said metal silicide layer;
a pattern of heavily doped regions in said substrate adjacent to said dielectric spacer structure on the sidewalls of said structures and over the adjacent portions of said substrate which form lightly doped drain source and drain structures of an MOS FET device; and
a passivation layer over said structures and appropriate electrical connecting structures thereover to electrically connect said gate electrode structures and source and drain elements to form said integrated circuit device.

5,214,306
LIGHT EMITTING DIODE

Masayasu Hashimoto, Tottori, Japan, assignnr to Sanyo Electric Co., Ltd., Osaka and Tottori Sanyo Electric Co., Ltd., Tottori, both of Japan

Filed Jan. 22, 1992, Ser. No. 824,803
Claims priority, application Japan, Jan. 29, 1991, 3-9333
Int. Cl.[5] H01L *33/00*
U.S. Cl. 257—632 20 Claims



1. A light emitting diode comprising:
a semiconductor device having a plurality of GaAlAs layers sequentially formed;
an electrode provided on an upper surface and a lower surface of said semiconductor device; and
a thermal oxide layer containing the oxides of gallium, aluminum and arsenic formed from and at said upper surface of said semiconductor device excluding a portion where the electrode is provided.

5,214,307
LEAD FRAME FOR SEMICONDUCTOR DEVICES HAVING IMPROVED ADHESIVE BOND LINE CONTROL

Nancy L. Davis, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jul. 8, 1991, Ser. No. 726,457
Int. Cl.[5] H01L *23/14*
U.S. Cl. 257—676 9 Claims



1. A semiconductor device having a substrate for receiving a semiconductor die, said semiconductor device comprising:
a) a major surface of said substrate;
b) bumps on said major surface of said substrate and extending from said major surface of said substrate a distance of 5 mils or less such that said bumps prevent the semiconductor die from resting directly on said major surface; and
c) an adhesive which contacts a major surface of said die and said major surface of said substrate,
wherein said bumps reduce said contact between said die and said adhesive by 10% or less.

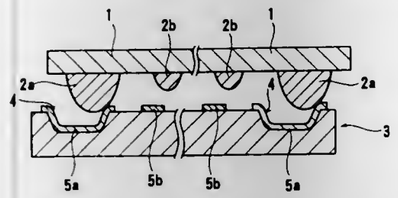
5,214,308
SUBSTRATE FOR PACKAGING A SEMICONDUCTOR DEVICE

Masanori Nishiguchi, and Atsushi Miki, both of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jan. 23, 1991, Ser. No. 644,587
Claims priority, application Japan, Jan. 23, 1990, 2-13412; Jan. 23, 1990, 2-13413; Jan. 23, 1990, 2-13417
Int. Cl.[5] H01L *23/48, 21/44*
U.S. Cl. 257—692 21 Claims

1. A substrate for packaging a semiconductor device, the semiconductor device having at least one electrode bump projecting therefrom, said substrate comprising:

an electrode terminal for connecting said bump thereto, and at least one recess formed on a surface of said electrode terminal for receiving at least a top portion of said bump, said bump being round-shaped so as to be in sliding contact with a portion of said recess during initial assembly of said semiconductor device to said substrate after coarse positioning of said semiconductor device with said substrate,

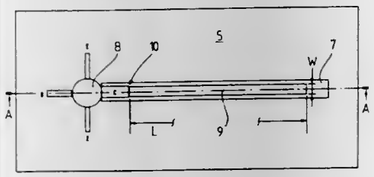


the bump and the recess being configured such that exertion of a light force on said bump moves said bump along said portion of said recess so that said bump automatically engages a center portion of said recess so as to precisely position said bump within said recess and thereby align said semiconductor device with said substrate upon final packaging.

5,214,309
THERMALLY CONDUCTIVE BAR COOLING ARRANGEMENT FOR A TRANSISTOR

Timo Saarnimo, Salo, Finland, assignor to Nokia Mobile Phones Ltd., Salo, Finland

Filed Jan. 31, 1990, Ser. No. 473,920
Claims priority, application Finland, Feb. 17, 1989, 890791
Int. Cl.[5] H01L *23/02;* H02B *1/00;* H05K *7/20;* H01P *3/08*
U.S. Cl. 257—712 1 Claim

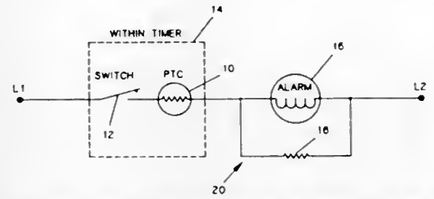


1. A heat dissipation system for a transistor, said transistor being suited for mounting on a printed circuit board, said transistor having external conductors for its base, collector and emitter, respectively, comprising:
a printed circuit board, said board having a first surface and a second surface, and being a poor heat conductor;
a first conductive coating formed on said first surface of said circuit board for contacting at least said collector conductor when said transistor is mounted on said board;
a thermally conductive bar having external surfaces substantially exposed to the ambient, said bar being fixed to said first conductive coating and contacting said collector conductor of said transistor when said transistor is mounted on said circuit board, said bar having a length greater than its width, said length extending away from a transistor when a transistor is mounted to said circuit board, said length being in a range of 10 to 20 times the width, a portion of the heat generated by said transistor being dissipated by said bar when said transistor is mounted to said circuit board and operating, said bar dissipating heat at least directly to the ambient from said external surfaces and through said first conductive coating to said circuit board.

5,214,310
TIMING MECHANISM WITH A PTC THERMISTOR

George W. Adams, Greenwood, Ind., assignor to Emerson Electric Co., St. Louis, Mo.

Division of Ser. No. 619,403, Nov. 29, 1990, Pat. No. 5,138,120.
This application Mar. 30, 1992, Ser. No. 870,511
Int. Cl.[5] H01H *7/00, 43/00*
U.S. Cl. 307—141 4 Claims



1. A method for controlling a load in an appliance to indicate end of an appliance function cycle, comprising the steps of:
(a) controlling the appliance function cycle with a first cam means and first switch means responsive to said first cam means;
(b) controlling application of power to a PTC thermistor with a second cam means and second switch means responsive to said second cam means;
(c) providing said PTC thermistor connected in a series circuit with said second switch means, the load and a bleeding resistor connected in parallel with the load;
(d) adjusting current flow through said PTC thermistor and thereby the time required for said PTC thermistor to internally heat and reach an abrupt increase in resistance with said bleeding resistor;
(e) switching power "off" to the load by said PTC thermistor abruptly increasing resistance as a result of internal heating caused by current flow through said PTC thermistor to the load and said bleeding resistor; and,
(f) switching power "on" to the load by said PTC thermistor abruptly decreasing resistance as a result of internal cooling caused by decreasing current flow through said PTC thermistor to the load and said bleeding resistor.

5,214,311
POWER SUPPLY DEVICE

Hironobu Kageyama, and Mitsuo Nakamura, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jul. 16, 1991, Ser. No. 730,725
Claims priority, application Japan, Jul. 16, 1990, 2-187528
Int. Cl.[5] H02J *3/00*
U.S. Cl. 307—18 9 Claims

1. A power supply device comprising:
an emergency power cut-off switch;
a basic power supply unit supplied with an external alternating current electric power through said emergency power cut-off switch; and
a plurality of expansion power supply units supplied respectively with external alternating current electric power through power supply switches and said plurality of expansion power supply units provided sequentially and externally to said basic power supply unit;
said basic power supply unit including
a first main power supply circuit for converting said external alternating current electric power supplied through said emergency power supply cut-off switch into a direct current electric power and outputting said direct current electric power;
a first internal power supply circuit for converting said external alternating current electric power supplied through said emergency power supply cut-off switch into a direct current electric power and outputting said direct current electric power to one of the plurality of expansion

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power supply units, through first and second lines, externally provided at a head end;

a first switch driving circuit supplied with power from said internal power supply circuit; and

a first switch driven to close by the magnetic excitation of said first switch driving circuit connected to an alternating current input of said main power supply circuit; and

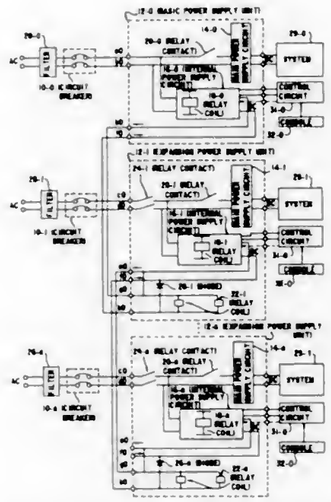
said expansion power supply units including

second main power supply circuits for converting external alternating current electric power supplied through said power supply switches into direct current electric power and outputting said direct current electric power;

second internal power supply circuits for converting external alternating current electric power supplied through said power supply switches into direct current electric power and outputting said direct current electric power to the expansion power supply units, through third and fourth lines, provided externally in the succeeding stage;

second switch driving circuits supplied with electric power from said internal power supply circuits;

second switches driven to close by said second switch driving circuits and connected to the alternating current inputs of main power supply circuits;



emergency cut-off switch driving circuits magnetically excited by the direct current outputs supplied from said power supply units in the preceding stages of the externally provided expansion power supply units through said third and fourth lines and through said first second lines for the expansion power supply unit at the head end;

emergency cut-off switches connected to the alternating current inputs of said second switches and said internal power supply circuits and driven to close by said emergency cut-off switch driving circuits;

means for connecting said emergency cut-off switch driving circuit of a present stage to said third line of said present stage; and

diodes connecting said emergency cut-off switch driving circuit which is supplied with direct current outputs from said power supply units in the preceding stages of the externally provided expansion power supply units to said fourth line of said present stage for supplying direct current outputs to said power supply units in the next stages of the externally provided expansion power supply units.

5,214,312

POWER FEED LINE SWITCHING CIRCUIT FOR SUBMARINE BRANCHING DEVICE AND METHOD OF FEEDING POWER TO SUBMARINE CABLE COMMUNICATION SYSTEM

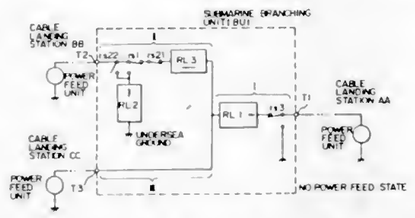
Yoshiyuki Inoue, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 10, 1991, Ser. No. 728,190

Claims priority, application Japan, Jul. 10, 1990, 2-182150; Jul. 10, 1990, 2-182151; Jul. 10, 1990, 2-182152

Int. Cl.[5] H04B *3/00*

U.S. Cl. 307—43 **39 Claims**



1. A power feed line switching circuit for a submarine branching unit comprising:

a first, second and third electrical paths connected in a Y-shaped connection;

a first, second and third terminals connected respectively to the ends of said electrical paths to connect said first, second and third electrical paths to the power feed lines of optical marine cables;

a first relay including a drive means inserted in said first electrical path, and a switching means for disconnecting said second terminal from said second electrical path and connecting said second terminal to the ground;

a second relay including a drive means inserted in said second electrical path, and a switching means for disconnecting said first terminal from said first electrical path and connecting said first terminal to the ground; and

a third relay including a drive means inserted in a grounding path between the switching means of said first relay and the ground, and a first switching means to form a lock-up circuit for the grounding path.

5,214,313

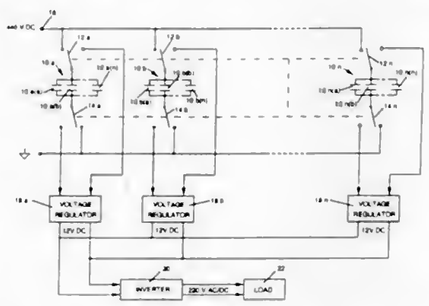
CIRCUIT FOR EXTENDING THE USEFUL DISCHARGE TIME OF LOAD DRIVING CAPACITORS

John A. Windes, 24656 Eloisa, Mission Viejo, Calif. 92691

Filed Jan. 7, 1992, Ser. No. 817,725

Int. Cl.[5] H02M *3/06*

U.S. Cl. 307—109 **5 Claims**



1. A capacitor-based energy storage and release system comprising:

a) capacitive energy storage means having a capacitor voltage thereacross when charged;

b) voltage regulator means arranged to produce an output at an output voltage which is a small fraction of said capacitor voltage as long as said capacitor voltage is higher than said output voltage;

c) switched means for selectably connecting said energy storage means to a source of relatively high charging voltage, and to the input of said voltage regulator means; and

d) inverter means connected to said voltage regulator means and arranged to convert said output voltage to a substantially higher load operating voltage.

5,214,314

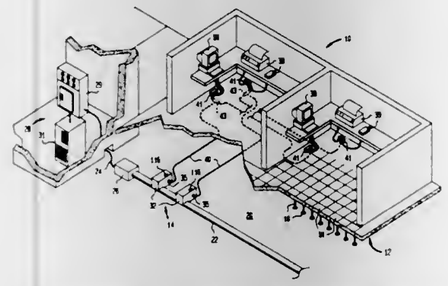
ELECTRICAL DISTRIBUTION BUSWAY AND BUS PLUG ARRANGEMENT

William T. Dillard, and Robert W. Morgan, both of Spartanburg, S.C., assignors to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Continuation of Ser. No. 715,517, Jun. 14, 1991, abandoned, which is a continuation-in-part of Ser. No. 359,258, May 31, 1989, Pat. No. 5,053,637, and a continuation-in-part of Ser. No. 504,094, Mar. 30, 1990, Pat. No. 5,151,043, which is a continuation of Ser. No. 288,530, Dec. 22, 1988, abandoned. This application Oct. 29, 1992, Ser. No. 968,219

Int. Cl.[5] H02B *1/00*

U.S. Cl. 307—147 **26 Claims**



1. An electrical power distribution arrangement comprising:

a busway including a first power conductor and a second power conductor;

a power supply unit electrically coupled to the busway such that a first quality electrical power is supplied to the first power conductor and a second quality electrical power is supplied to the second power conductor;

first and second electrical conductors; and

first and second plugs selectively configured to engage the busway, where the first plug couples the first electrical conductor to the first power conductor, and the second plug couples the second electrical conductor to the second power conductor.

5,214,315

NANOSECOND RF SWITCH DRIVER

Curt Dunnam, Trumansburg, N.Y., assignor to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Apr. 23, 1991, Ser. No. 689,535

Int. Cl.[5] H03K *3/01, 17/687, 17/56;* **H01P** *1/10*

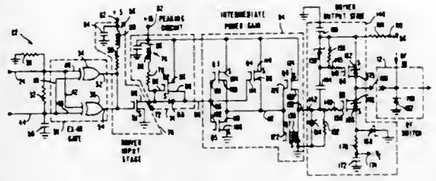
U.S. Cl. 307—270 **13 Claims**

1. A high speed drive circuit for switching reactive loads, comprising:

input buffer means for receiving an input pulse, said buffer means including an exclusive OR gate;

an input stage connected to an output of said input buffer means for producing, in response to said input pulse, a first stage pulse output at a first voltage level;

a peaking circuit responsive to said first stage pulse output to produce a corresponding second stage pulse output, said peaking circuit including means providing fast rise and fall times for said first stage pulse output; and



means responsive to said second stage pulse output to selectively produce on an output line, a corresponding switching pulse at a second voltage level higher than said first voltage level and having a rise time and a fall time of less than about 10 ns.

5,214,316

POWER-ON RESET CIRCUIT DEVICE FOR MULTI-LEVEL POWER SUPPLY SOURCES

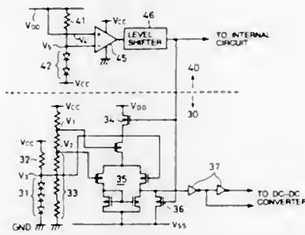
Nobutaka Nagai, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 16, 1992, Ser. No. 869,747

Claims priority, application Japan, Apr. 19, 1991, 3-115562

Int. Cl.[5] H03K *3/01;* **G06G** *7/10*

U.S. Cl. 307—272.3 **4 Claims**



1. A power-on reset circuit device for multi-level power supply sources comprising:

a first power-on reset circuit which outputs a first power-on reset signal when an external power supply voltage externally supplied reaches a first reference voltage;

a second power-on reset circuit which outputs a second power-on reset signal when an internal power supply voltage reaches a second reference voltage; and

switch means for inactivating said first power-on reset circuit and for fixing a level of said first power-on reset signal in response to said second power-on reset signal.

5,214,317

CMOS TO ECL TRANSLATOR WITH INCORPORATED LATCH

Thai M. Nguyen, Santa Clara, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed May 4, 1992, Ser. No. 878,134

Int. Cl.[5] H03K *3/286, 19/0175*

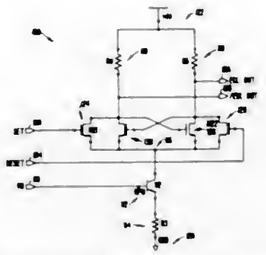
U.S. Cl. 307—291 **7 Claims**

1. A latch circuit comprising:

a first MOS transistor having a first terminal coupled to a first output node, a gate terminal coupled to a first latch input for performing a set function on said latch circuit, and a second terminal coupled to a first node;

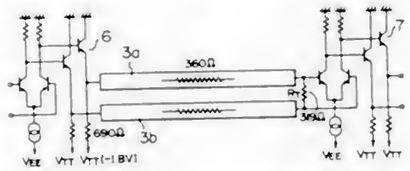
VOL 1150 ISS 4 MY 25 1993 UMI

a second MOS transistor having a first terminal coupled to a second output node, a gate terminal coupled to a second latch input for performing a reset function on said latch circuit, and a second terminal coupled to said first node;
a third MOS transistor having a first terminal coupled to said first output node, a second terminal coupled to said first node and a gate coupled to said second output node;
a fourth MOS transistor having a first terminal coupled to said second output node, a second terminal coupled to said first node and a gate coupled to said first output node;



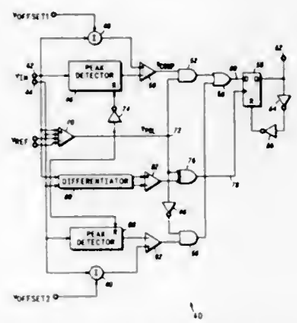
a first resistor having a first terminal coupled to said first output node and a second terminal coupled to a first voltage;
a second resistor having a first terminal coupled to said second output terminal and a second terminal coupled to said first voltage;
a constant current source coupled between said first node and a second voltage; and
where said first and second latch inputs operate in a first voltage range and where said first and second output nodes operate in a second voltage range.

5,214,318
SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING A SIGNAL TRANSMISSION LINE PAIR INTERCONNECTED BY PROPAGATION DELAY TIME CONTROL RESISTANCE
Keiichirou Nakanishi, Kokubunji; Mararu Osanai, Hachioji; Minoru Yamada, Hanno; Masakazu Yamamoto, Hadano; Akira Masaki, Musashino, and Mitsuo Usami, Ome, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 7, 1991, Ser. No. 638,568
Claims priority, application Japan, Jan. 12, 1990, 2-003581
Int. Cl.[5] H03K *3/335;* **H04B** *3/04*
U.S. Cl. 307—303 **13 Claims**



1. A semiconductor integrated circuit device comprising:
a semiconductor substrate;
a pair of signal transmission lines formed over and insulated from said semiconductor substrate and having first and second ends;
a first circuit formed in said semiconductor substrate and electrically connected with said first end of said pair of signal transmission lines for sending an electric signal;
termination resistances provided in said first circuit and each of said termination resistances connected to a respective one of said pair of signal transmission lines at said first end thereof thereby effecting impedance matching with said pair of signal transmission lines to prevent signal reflection; and
a control resistance electrically connected between said pair of transmission lines at said second end for controlling a delay time of said signal propagating over said pair of signal transmission lines between said first and second ends of said pair of signal transmission lines.

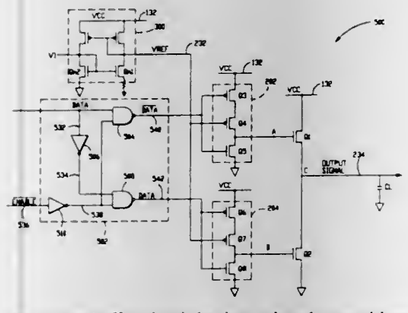
5,214,319
MONOTONIC PULSE DETECTOR
Behrooz L. Abdi, Chandler, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.
Continuation of Ser. No. 706,472, May 28, 1991, abandoned.
This application Sep. 11, 1992, Ser. No. 944,012
Int. Cl.[5] H03K *5/153, 5/22*
U.S. Cl. 307—351 **11 Claims**



1. A peak detector circuit for generating output pulses corresponding to monotonically increasing amplitude peaks of a differential input signal, comprising:
first means for detecting monotonic increases in amplitude of the differential input signal and providing a digital output signal having a first logic state while the differential input signal monotonically increases, said first means including a first peak detector having a signal input, a reset input and an output, said signal input being coupled for receiving a first component of the differential input signal, said output maintaining an output signal at a maximum amplitude of said first component of the differential input signal, said reset input being coupled for receiving a reset signal for initializing said output signal of said first peak detector to a predetermined low amplitude;
second means coupled for receiving the differential input signal and generating clock signals at amplitude peaks of the differential input signal;
third means for storing said digital output signal having said first logic state upon receiving said clock signals and resetting said third means after a predetermined time delay for developing the output pulses of the peak detector circuit, wherein a maximum peak of the monotonically increasing amplitude peaks of the differential input signal is identified by a most recent one of the output pulses of the peak detector circuit before said digital output signal changes to a second logic state which occurs as the differential input signal changes direction toward an opposite polarity; and
fourth means for detecting a polarity of the differential input signal and generating an output polarity signal having a first logic state when the differential input signal is greater than a differential reference signal and a second logic state when the differential input signal is less than said differential reference signal, said output polarity signal providing said reset signal applied at said reset input of said first peak detector, said fourth means including,

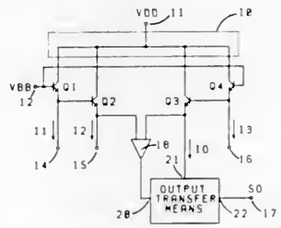
(a) a first comparator having first and second inputs and an output, said first input being coupled for receiving the differential input signal, said second input being coupled for receiving said differential reference signal, said output providing said output polarity signal of said fourth means, and
(b) a first inverter having an input coupled to said output of said first comparator and having an output coupled to said reset input of said first peak detector.

5,214,320
SYSTEM AND METHOD FOR REDUCING GROUND BOUNCE IN INTEGRATED CIRCUIT OUTPUT BUFFERS
Ho D. Truong, San Jose, assignor to Smos Systems, Inc., San Jose, Calif.
Filed Jun. 12, 1992, Ser. No. 897,729
Int. Cl.[5] H03K *17/16*
U.S. Cl. 307—443 **11 Claims**



1. An output buffer circuit having reduced ground bounce comprising:
(a) a first terminal for receiving a first power supply voltage;
(b) a second terminal for receiving a second power supply voltage;
(c) a pull-up transistor having a first electrode coupled to said first terminal, a second electrode coupled to an output node of the output buffer circuit, and a gate, said pull-up transistor operable to provide a logic high signal at said output node;
(d) a pull-down transistor having a first electrode coupled to said second terminal, a second electrode coupled to said output node of the output buffer circuit, and a gate, said pull-down transistor operable to provide a logic low signal at said output node;
(e) a first control circuit, coupled to said pull-up transistor, comprising,
a plurality of transistors having drain-source current paths connected in series between said first and second terminals, at least one of the transistors being supplied with an input data signal at a gate thereof and a further one of the transistors being supplied with a first reference voltage level at the gate thereof,
an output terminal at a drain-source connection between two of said transistors, said output terminal coupled to a gate electrode of said pull-up transistor,
wherein said first control circuit is configured to control current flowing to said gate of said pull-up transistor to increase a transition time thereof;
(f) a second control circuit, coupled to said pull-down transistor, comprising,
a plurality of transistors having drain-source current paths connected in series between said first and second terminals, at least one of the transistors being supplied with an input data signal at a gate thereof and a further one of the transistors being supplied with a second reference voltage level at the gate thereof,
an output terminal at a drain-source connection between two of said transistors, said output terminal coupled to a gate electrode of said pull-down transistor,
wherein said second control circuit is configured to control current flowing to said gate of said pull-down transistor to increase a transition time thereof; and
(g) a voltage generator circuit for producing said first reference voltage level, comprising,
a first p-channel field-effect transistor connected to said first power supply voltage, a first n-channel field-effect transistor connected in series to said first p-channel field-effect transistor thereby forming a first node at the series connection, and a resistive device having a first terminal connected to said first n-channel field-effect transistor and a second terminal connected to said second power supply voltage,
a second p-channel field-effect transistor and a second n-channel field-effect transistor connected in series between said first and second power supply voltage and forming a second node at their series connection, and
wherein, the gates of said first and second p-channel field-effect transistors are connected to said first node to provide said first reference voltage level and the gates of said first and second n-channel field-effect transistors are connected to said second node to provide a third reference voltage level.

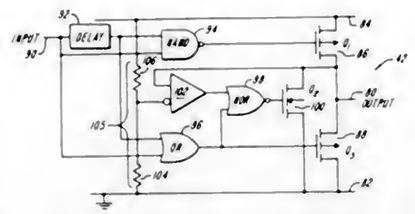
5,214,321
ANALOG MULTIPLIER/DIVIDER UTILIZING SUBSTRATE BIPOLAR TRANSISTORS
Douglas R. Curtis, 110 Highland Ave., Los Gatos, Calif. 95032
Filed Mar. 26, 1992, Ser. No. 858,092
Int. Cl.[5] G06G *7/16, 7/00*
U.S. Cl. 307—529 **26 Claims**



1. An analog computational circuit comprising first, second, third, and fourth bipolar transistors;
wherein the emitter of said first transistor is connected to the base of said second transistor; the emitter of said third transistor is connected to the base of said fourth transistor;
and further including a differential amplifier having two inputs and an output; an output transfer means having a control port and at least two output ports, each supplying an output signal which is a function of each of the other said output signals;
and wherein the emitter of said second transistor is connected to one of the inputs of said differential amplifier; the emitter of said fourth transistor is connected to the other of the inputs of said differential amplifier;
and wherein the output of said differential amplifier is connected to the control port of said output transfer means;
and wherein one of the output ports of said output transfer means is connected to either the emitter of said third transistor or the emitter of said fourth transistor wherein the emitter of the first transistor receives a first input, the emitter of the second transistor receives a second input, and the emitter of the third or the fourth transistor receives a third input; and wherein another output port of the output transfer means is the computed output signal.

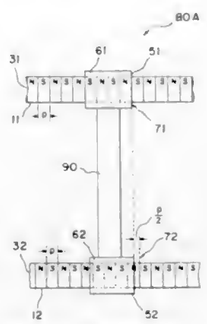
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,322
HIGH VOLTAGE CMOS POWER DRIVER
Robert A. Neidorff, Bedford, N.H., and James A. McKenzie, Cary, N.C., assignors to Unitrode Corporation, Billerica, Mass.
Filed Jul. 15, 1991, Ser. No. 730,358
Int. Cl.[5] H03K 5/12, 17/687
U.S. Cl. 307—585 11 Claims



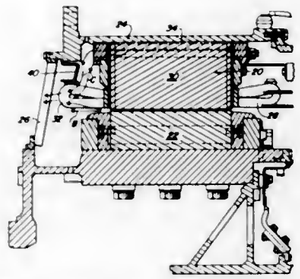
1. A method of switching a voltage of an output of a controller from a high voltage value to a low voltage value using low-voltage CMOS transistors comprising the steps of:
switching said voltage at said output of the controller from a high voltage value to a low voltage value using at least one pMOS transistor;
comparing the voltage at said output of said controller to a predetermined low voltage reference value; and
switching the output of the controller to ground using an nMOS transistor once the voltage at the output of the controller has decreased to said predetermined low voltage reference value.

5,214,323
LINEAR MOTOR WITH REDUCED COGGING
Tetuyuki Ueda, Nara; Hiroshi Ishii, Kashihara; Masayoshi Tsunezawa, and Masaaki Ozaki, both of Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Division of Ser. No. 326,064, Mar. 20, 1989, Pat. No. 5,032,746.
This application Jan. 3, 1991, Ser. No. 637,282
Claims priority, application Japan, Mar. 22, 1988, 63-68425
Int. Cl.[5] H02K 41/00
U.S. Cl. 310—12 10 Claims



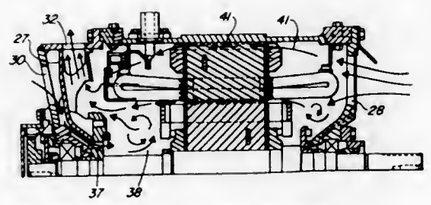
1. A linear driving device utilizing linear motors, which comprises:
a set of two linear motors each linear motor including a stator field member having a plurality of permanent magnets and a yoke, and a movable member having polyphase windings and a magnetic pole iron plate and disposed to confront said stator field member in a plane, thereby to relatively displace said movable member with respect to said stator field member through polyphase exciting of said polyphase windings;
a rigid structure member connecting, the two movable members in the two linear motors disposed in the direction of displacement, said two movable members being disposed in a parallel relation to each other; and relative positions of the magnetic poles in one of said stator field members of one motor being offset from magnetic poles in the stator field member of the second motor.

5,214,324
STATOR AIR BAFFLE
Carl A. Holmes, Erie, Pa., assignor to General Electric Company, Erie, Pa.
Filed Jan. 3, 1992, Ser. No. 817,269
Int. Cl.[5] H02K 9/00, 9/02, 3/46
U.S. Cl. 310—52 20 Claims



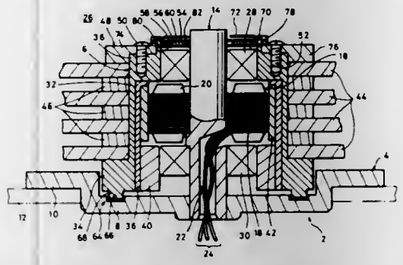
1. An dynamoelectric machine comprising:
a stator having a plurality of stator coils and at least one air passage extending longitudinally through the stator;
a stator frame having an inlet and an outlet end surrounding the stator;
a rotor rotatably mounted inside the stator;
air baffle means, adjacent to the stator at the outlet end and extending between and sealingly engaging the stator frame and ends of the coils, for directing any air flowing from at least one air passage through the coil ends.

5,214,325
METHODS AND APPARATUS FOR VENTILATING ELECTRIC MACHINES
Thomas J. Matson, and Gordon A. Osborn, both of Erie, Pa., assignors to General Electric Company, Erie, Pa.
Filed Dec. 20, 1990, Ser. No. 633,650
Int. Cl.[5] H02K 9/00, 9/02, 9/06
U.S. Cl. 310—58 4 Claims



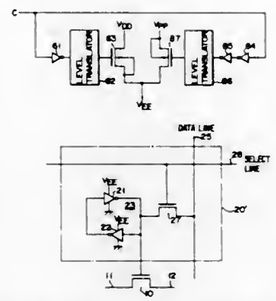
1. A rotating electric machine comprising:
a housing;
a stator operatively positioned in the housing;
a rotor having a central shaft operatively positioned in the housing, the housing further comprising:
a first inlet, operatively positioned at a first end, for admitting cooling air into the machine;
a second inlet, operatively positioned in a second end, the second end being opposite the first end, for admitting additional cooling air into the machine; and
an outlet, operatively positioned approximate the second end, for passing the cooling air and additional cooling air out of the machine; and
fan means for drawing the cooling air and the additional cooling air into the housing through the first and the second inlet and for exhausting the air out of the housing through the outlet, the fan means comprising:
a fan carrier operatively positioned on the shaft;
a plurality of fan blades, each extending outwardly from the fan carrier;
a shroud for isolating the additional cooling air from the outlet; and
a plurality of orifices operatively positioned in the fan carrier for moving the additional cooling air from the second inlet exclusively into an isolated chamber, mixing the additional cooling air with a small portion of the cooling air which moves from the first inlet through an air gap between the stator and the rotor proximate an upper portion of the isolated chamber, the additional and the cooling air then exiting the machine through the outlet.

5,214,326
SPINDLE MOTOR WITH MAGNETIC SHIELD FOR MAGNETIC FLUID SEAL
Hiroyuki Yonei, Hikone, Japan, assignor to Nippon Densan Corporation, Kyoto, Japan
Filed Sep. 3, 1991, Ser. No. 753,820
Claims priority, application Japan, Sep. 1, 1990, 2-231835; Sep. 29, 1990, 2-262527; Oct. 24, 1990, 2-286359
Int. Cl.[5] H02K 7/00; G11B 17/08, 5/016, 17/02
U.S. Cl. 310—67 R 2 Claims



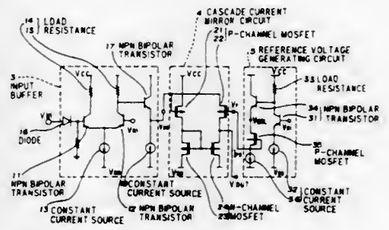
1. A magnetic disk drive device, comprising:
a spindle motor for rotatingly driving magnetic disks in a predetermined direction, said spindle motor including a hub rotatably supported through bearing means and having a portion for mounting said magnetic disks, a rotor magnet carried by said hub, a stator arranged to oppose and cooperate with said rotor magnet, and magnetic fluid seal means for preventing scattering of lubricant from said bearing means; and clamp means for securing said magnetic disks to said hub of said spindle motor; wherein said hub has an end wall which is provided in the outer surface thereof with an annular recess at a portion corresponding to the position of said magnetic fluid seal means, and said clamp means is provided with an annular shield portion disposed in said annular recess and forming a shield against magnetic fluxes from said magnetic fluid seal means.

5,214,327
PROGRAMMABLE LOGIC DEVICE AND STORAGE CIRCUIT USED THEREWITH
Yukihiro Saeki, and Tomohisa Shigematsu, both of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 4, 1990, Ser. No. 577,653
Claims priority, application Japan, Sep. 4, 1989, 1-228833
Int. Cl.[5] H03K 19/094; G11C 7/00
U.S. Cl. 307—465 16 Claims



1. A programmable logic device comprising:
data storage means for storing 1-bit control data;
at least one data line for transmitting data to be stored in said data storage means;
a select line for transmitting a select signal for selecting said data storage means;
MOS-type switch means responsive to the stored data in said data storage means to be switch controlled;
two signal lines coupled to each other through said MOS-type switch means; and
enlarging means for making the potential amplitude of data stored in said data storage means larger than the potential amplitude of a signal transmitted over said two signal lines.

5,214,328
ECL TO CMOS LEVEL CONVERSION CIRCUIT
Susumu Ohi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Jun. 27, 1991, Ser. No. 722,564
Claims priority, application Japan, Jun. 27, 1990, 2-168934
Int. Cl.[5] H03K 17/14, 17/094
U.S. Cl. 307—475 10 Claims



6. A level conversion circuit, comprising:
an input buffer circuit, said input buffer comprising an emitter coupled logic (ECL) current switch for switching an ECL input signal and an emitter follower circuit driven by an output from said current switch and providing a buffer circuit output;
a cascade current mirror circuit, said current mirror circuit comprising a first MOSFET having a gate receiving said

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buffer circuit output, a second MOSFET having a gate and having a source receiving the output of said buffer circuit, and a current mirror circuit cascade connected to said first and second MOSFETs; and

a reference voltage generating circuit comprising a simulating circuit for simulating the state of at least portions of said emitter follower circuit and current switch when an input signal is received by said input buffer in response to which an output from said input buffer turns said second MOSFET off, a third MOSFET driven by said simulating circuit and having operating characteristics similar to said second MOSFET, and a current limiting circuit for limiting the current flow through said third MOSFET;

wherein said gate of said second MOSFET is coupled to the gate of said third MOSFET and the drain of said second MOSFET provides a CMOS level output signal corresponding to said ECL input signal.

5,214,329

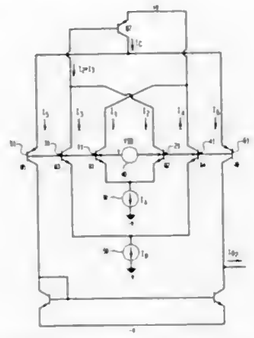
BIAS CURRENT MODULATION FOR DIFFERENTIALLY COUPLED TRANSISTOR CIRCUIT

James P. Furino, Jr., Wyomissing, Pa., assignor to Harris Corporation, Melbourne, Fla.

Continuation of Ser. No. 447,275, Dec. 7, 1989, abandoned. This application Jan. 13, 1992, Ser. No. 819,748

Int. Cl.[5] H03F *1/30, 3/45*

U.S. Cl. 307—491 **10 Claims**



1. A differentially coupled transistor circuit comprising:

a pair of input terminals to which an input differential voltage is applied;

first and second differentially coupled transistor pairs, the bases of which are coupled across said input terminals, the emitters of the first transistor pair being coupled in common to a first constant bias current source, and the emitters of the second transistor pair being coupled in common to a second constant bias current source, the collector of one of the transistors of the first pair being coupled to the collector of the differentially coupled transistor of the second pair, so as to provide a first summation collector current, the collector of one of the transistors of the second pair being coupled to the collector of the differentially coupled transistor of the first pair, so as to provide a second summation collector current;

a third differentially coupled transistor pair, the bases of which are coupled across said pair of input terminals and the emitters of the transistors of the third pair being coupled in common to a modulated bias current source, the output current of which is a function of one of said first and second summation collector currents; and

an output terminal coupled to the collector of one or both transistors of said third differentially coupled transistor pair from which an output current is produced.

5,214,330

BI-DIRECTIONAL SIGNAL BUFFERING CIRCUIT

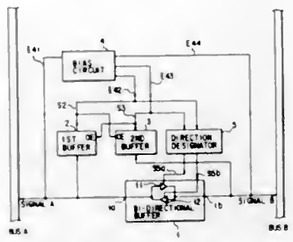
Yoshihiko Okazaki, Tokyo, Japan, assignor to Kabushiki Kaisha toshiba, Kariya, Japan

Filed Mar. 20, 1992, Ser. No. 855,530

Claims priority, application Japan, Jul. 30, 1991, 3-190217

Int. Cl.[5] H03K *19/01*

U.S. Cl. 307—443 **10 Claims**



1. A bi-directional signal buffering circuit coupled to first and second buses, comprising:

means, responsive to a first signal supplied from the first bus and a second signal supplied from the second bus, for generating a third signal corresponding to the first signal and a fourth signal corresponding to the second signal;

bi-directional transmitting means, inserted between said first and second buses, and responsive to the third and fourth signals for transmitting the first signal supplied from the first bus to the second bus and the second signal supplied from the second bus to the first bus; and

means for setting an operation state of said bi-directional transmitting means so as to enable signal transmission from said first bus to said second bus and that from said second bus to said first bus via said bi-directional transmitting means when neither the first nor second signal are supplied to said bi-directional transmitting means.

5,214,331

LEAD HOLDER FOR A SPINDLE MOTOR

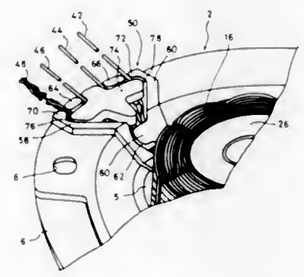
Hiroyuki Yonei, Hikone, Japan, assignor to Nippon Densan Corporation, Kyoto, Japan

Filed Aug. 23, 1991, Ser. No. 748,865

Claims priority, application Japan, Aug. 24, 1990, 2-223503; Aug. 24, 1990, 2-223504; Sep. 25, 1990, 2-256476

Int. Cl.[5] H02K *11/00, 7/14*

U.S. Cl. 310—71 **6 Claims**



1. A spindle motor, comprising:

a housing;

a hub which is rotatable relative to the housing;

a rotor magnet mounted on the hub; and

a stator core fixed to the housing, and an armature coil wound around the stator core, wherein a coil holding member for extending a lead section of the armature coil to the outside thereof is disposed in the housing, wherein the coil holding member comprises a bottom wall section having a substantially triangular main body bottom section and an extension bottom section extending linearly from the main body bottom section side wall sections disposed at opposite edges of the main bottom wall section, and an intermediate wall section disposed between the side wall sections on said main bottom wall section, wherein a first auxiliary wall section is disposed on said main bottom wall section between one side wall section and the intermediate wall section, and a second auxiliary wall section is disposed on said main bottom wall section between the other side wall section and the intermediate wall section, and wherein the one side wall section and the first auxiliary wall section define a first extension space, the first auxiliary wall section and the intermediate wall section define a second extension space, the intermediate wall section and the second auxiliary wall section define a third extension space, and the second auxiliary wall section and the other side wall section define a fourth extension space.

5,214,332

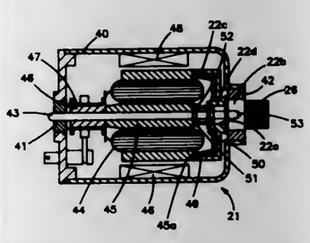
ELECTRIC MOTOR

Shunsaku Tsutsumi, Yokohama, Japan, assignor to ALPHA Corporation, Kanagawa, Japan

Continuation-in-part of Ser. No. 368,769, Jun. 20, 1989, abandoned. This application Jul. 26, 1991, Ser. No. 736,604

Int. Cl.[5] H02K *49/00, 7/10;* **E05B** *3/00*

U.S. Cl. 310—103 **8 Claims**



1. A miniature electric motor system including a housing, a shaft mounted on said housing for supporting an energizable core rotatably, winding means for energizing said core and for reversing rotation of said core, a magnetic clutch means supported by said housing and disposed coaxially relative to said shaft, lever means, said clutch means including gear means cooperating with lever means for driving said lever means, said magnetic clutch means having a normal position spaced from said core, resilient means for maintaining said spacing, said magnetic clutch means and said core being operable to attract one another in opposition to said resilient means to create a magnetic, driving coupling between the core and said clutch means when said core is energized, said clutch means including at least two cup-like elements, a first element being fabricated of magnetic material, a second element being fabricated of non-magnetic material, each cup-like element having a circular side wall, the side wall of each element terminating in a ring-like periphery,

the main body of the non-magnetic second element being received within said magnetic first element in telescopic fashion so that said ring-like periphery of said second element projects beyond and is offset relative to the corresponding periphery of said first element whereby said clutch defines a compact, small assembly, and whereby said second element is operative to block physical contact between said first element and said core when said core is energized and said magnetic coupling is established.

5,214,333

ENGINE WITH FLYWHEEL GENERATOR

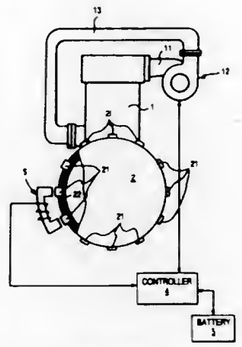
Hideo Kawamura, Samukawa, Japan, assignor to Isuzu Ceramics Research Institute Co., Kanagawa, Japan

Filed Dec. 12, 1990, Ser. No. 626,034

Claims priority, application Japan, Dec. 12, 1989, 1-322426

Int. Cl.[5] H02K *21/22*

U.S. Cl. 310—153 **8 Claims**



1. An engine system comprising:

an internal combustion engine, said engine including a crankshaft and a flywheel fixed to said crankshaft for rotation therewith, said flywheel including a peripheral ring of magnetic material, there being a plurality of permanent magnets mounted on an outer circumference of said ring and having alternately different magnetic poles;

a stator disposed in confronting relation to radially outer ends of the permanent magnets, for inducing electric energy in response to rotation of the said flywheel;

a turbocharger for supplying air under pressure to the engine, said turbocharger having a rotatable shaft;

a rotary electric machine disposed on said rotatable shaft; and

means for supplying electric energy generated by said stator to said rotary electric machine to assist the turbocharger in supplying said air under pressure to the engine when the rotational speed of the of the engine is lower than a predetermined speed.

2. An engine system according to claim 1, wherein said engine comprises a two-cycle engine.

5,214,334

SLIP RING WITH BALANCED CENTER OF GRAVITY FOR USE IN DETECTING ROTATION OF MOTOR

Masao Yoshida, Gunma; Noboru Miyata, Kiryu, and Masami Miyazaki, Maebashi, all of Japan, assignors to Mitsuba Electric Manufacturing Co., Ltd., Gunma, Japan

Division of Ser. No. 625,101, Dec. 10, 1990, Pat. No. 5,132,579. This application Sep. 10, 1991, Ser. No. 757,174

Claims priority, application Japan, Dec. 11, 1990, 1-142943

The portion of the term of this patent subsequent to Jul. 21, 2009, has been disclaimed.

Int. Cl.[5] H02K *13/02*

U.S. Cl. 310—232 **22 Claims**

1. A rotation-detecting slip ring with which a pair of brushes make contact with an outer periphery of the slip ring upon rotation of the slip ring about a rotational axis, comprising:

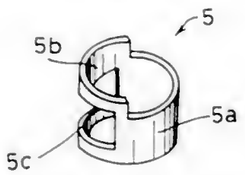
at least one conducting portion which extends along an outer periphery of said slip ring over a first angle; and

at least one non-conducting portion which extends over a second angle;

wherein a conductor which forms said conducting portion has a ring-like shape and also forms said non-conducting

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portion, a portion of said conductor which corresponds to said non-conducting portion having a window through



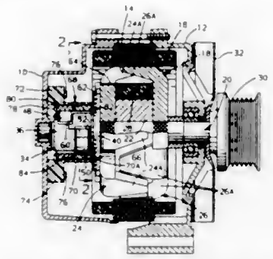
which an insulating resin material is exposed to an outer periphery of the slip ring.

5,214,335

BRUSH AND SLIP RING APPARATUS FOR DYNAMOELECTRIC MACHINES

Gregory A. Phillips, Luxembourg, Luxembourg; Raymond Prater, and Thomas C. Ruth, both of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 7, 1992, Ser. No. 909,860
Int. Cl.[5] H02K *13/00*
U.S. Cl. 310—232 **9 Claims**



1. A brush and slip ring apparatus for a dynamoelectric machine comprising, a rotor for said dynamoelectric machine, said rotor comprising a rotatable shaft and a field coil, a brush support carried by and connected to said rotatable shaft whereby said brush support rotates with rotation of said rotatable shaft, at least one brush supported by said brush support, means electrically connecting said brush to said field coil, said brush being supported by said brush support by means which permits said brush to move radially outwardly relative to said brush support by centrifugal force when said shaft is rotated at a predetermined speed, an annular slip ring disposed about said brush support and aligned with said brush, said brush slidably engaging said slip ring and being maintained engaged with said slip ring solely by centrifugal force and means for supporting said slip ring in a fixed position.

5,214,336

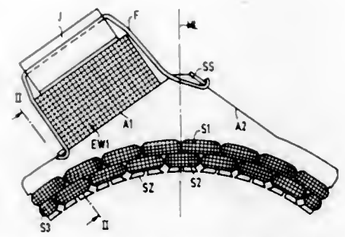
MOTOR AND/OR GENERATOR IN WHICH RADIALLY PROJECTING POLE SHANKS ARE LATERALLY OFFSET AT AN ANGLE RELATIVE TO THE RADIAL CENTER LINE OF SYMMETRY OF A STATOR SECTOR

Helmut Schmidt, Reichenberg; Wolfgang Weinhold, Würzburg, and Udo Winter, Kürnach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 21, 1991, Ser. No. 780,143
Claims priority, application European Pat. Off., Oct. 22, 1990, 90120220.0
Int. Cl.[5] H02K *1/12*
U.S. Cl. 310—254 **20 Claims**

1. A motor functioning according to the reluctance principle, comprising:

a) a rotor
b) a plurality of stator sectors magnetically separated from one another and distributed over a circumference of the rotor, each of said plurality of stator sectors including:
(i) a radial center line of symmetry radially dividing the stator sector in half;
(ii) a pair of radially projecting pole shanks disposed in a lateral angle offset arrangement relative to said radial center line of symmetry;



(iii) a short circuit yoke coupling said radially projecting pole shanks; and
(iv) each radially projecting pole shank being wrapped by a concentrated exciter coil part.

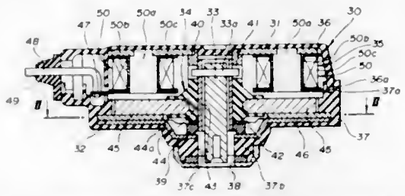
4. The motor according to claim 1, further comprising a second pair of pole shanks for each of said plurality of stator sectors each pair of pole shanks offset at an angle on either side of said center line of symmetry and a short-circuit yoke provided for each pair of pole shanks.

5,214,337

ELECTROMAGNETIC ROTARY ACTUATOR

Takehisa Ishibashi, Kanagawa, Japan, assignor to Atsugi Unisia Corp., Japan

Filed Jul. 17, 1991, Ser. No. 731,251
Claims priority, application Japan, Jul. 19, 1990, 2-77254[U]
Int. Cl.[5] H02K *1/22*
U.S. Cl. 310—268 **3 Claims**



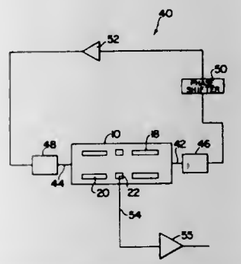
1. An electromagnetic rotary actuator comprising a rotor including a support disk of non-magnetic material, rotatable with a shaft normal to its plane and provided at its periphery with inserts distributed in circular symmetry, said inserts being made from permanent magnetic material and magnetized in a parallel relationship to said shaft in alternately opposite directions; a stator including a cylindrical casing of non-magnetic material having a first end wall and a second end wall, the internal face of said first end wall of said casing being covered with a first annular disk of non-permanent magnetic material carrying coils distributed in circular symmetry, the internal face of said second end wall of said casing being covered with a second annular disk of magnetic material, said support disk being arranged between said first and second annular disks and rotatably supported by a first bearing and a second bearing which are arranged adjacent said first and second end walls, respectively, of said casing; and means for acting on said second bearing and also on said support disk to separate said support disk from said second bearing and urge said support disk against said first bearing so as to eliminate a clearance between said support disk and said first bearing.

5,214,338

ENERGY COUPLER FOR A SURFACE ACOUSTIC WAVE (SAW) RESONATOR

William J. Tanski, Glastonbury, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Continuation-in-part of Ser. No. 274,453, Nov. 21, 1988, abandoned. This application Nov. 17, 1989, Ser. No. 438,667
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—313 B **10 Claims**



1. A surface acoustic wave (SAW) element for use in a resonant electrical circuit, said element comprising:
a piezoelectric crystal having a polished surface;
a transducer means formed on said polished surface for receiving electrical signals, launching surface acoustic waves along said polished surface and generating electrical signals at a resonant frequency corresponding to standing surface acoustic waves;
a resonator means configured with said polished surface to form a resonant cavity within said surface coupled to receive said surface acoustic waves for generating said standing surface acoustic waves at said resonant frequency having acoustical energy associated therewith with at least one amplitude maximum and minimum along said resonance cavity;
a supplemental transducer means formed on said polished surface within said resonant cavity at a position spaced from said wave maximum selected in dependence on a desired magnitude of said acoustic energy to be coupled from said standing surface acoustic waves, said supplemental transducer means for generating electrical signals corresponding to said selected acoustic energy magnitude of said standing surface acoustic waves in said resonant cavity.

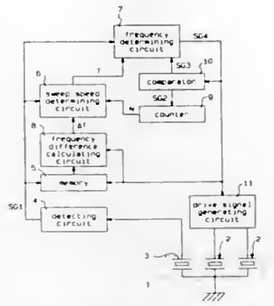
5,214,339

CIRCUIT AND METHOD OF DRIVING AN ULTRASONIC MOTOR TO METHOD FOR DRIVING AN ULTRASONIC MOTOR

Masafumi Naito, Kanagawa, Japan, assignor to Asmo Co., Ltd., Japan

Filed Jul. 2, 1991, Ser. No. 725,005
Claims priority, application Japan, Jul. 4, 1990, 2-175358
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—316 **3 Claims**

1. A method of driving an ultrasonic motor having a stator, a piezoelectric element carried by the stator, the piezoelectric element that is divided into two portions, a rotor that is rotatably mounted on the stator such that the rotor is driven by applying drive signals of different phases to the two portions of the piezoelectric element, and a monitor electrode for outputting a monitor signal indicative of the vibration of the rotor, the method comprising the steps of:
setting a start drive frequency higher than a resonant frequency of the motor;
setting a target frequency for the drive signals that is lower than the resonant frequency of the motor;
sweeping the frequency of the drive signals from the start frequency to the target frequency;
detecting abnormal vibrations of the rotor occurring during sweeping of the drive frequency based on the monitor



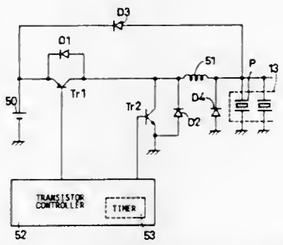
signal, wherein in the event that an abnormal vibration is detected, the target frequency is reset to equal the actual drive frequency at the time the abnormal vibration was detected, and the actual drive frequency is reset to a reset start frequency that is higher than the reset target frequency; and
repeating the drive frequency sweeping step.

5,214,340

DRIVER CIRCUIT FOR PIEZOELECTRIC ELEMENT, HAVING VOLTAGE LIMITER CAPABLE OF CHARGING THE ELEMENT WITH ENERGY FROM COIL AFTER CHARGING SWITCH IS OFF

Masashi Suzuki, Nagoya, Japan, assignor to Brotber Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Oct. 4, 1991, Ser. No. 771,225
Claims priority, application Japan, Oct. 9, 1990, 2-271646
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—316 **9 Claims**



1. A driver circuit for driving a piezoelectric element having a capacitance C, including a DC power source, and a coil having an inductance L and connected in series with said piezoelectric element and said power source, said piezoelectric element being alternately charged and discharged while oscillating with said coil at a predetermined frequency, said driver circuit comprising:
first conditioning means for charging said piezoelectric element, said first conditioning means being normally placed in an original state for inhibiting said piezoelectric element from being charged, and brought to a charging state for allowing said piezoelectric element to be charged, in response to a drive command to activate said piezoelectric element, said first conditioning means being held in said charging state for a time period not shorter

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than $(\pi\sqrt{LC})/3$, and returned to said original state at a first point of time before a voltage of said piezoelectric element has reached a predetermined level not higher than a line voltage of said power source;

voltage limiting means for allowing said piezoelectric element to be charged with an energy stored in said coil after said piezoelectric element has been charged by said first conditioning means, and preventing said piezoelectric element from receiving an excessive energy that causes said voltage of the piezoelectric element to exceed said predetermined level; and

second conditioning means for discharging said piezoelectric element, said second conditioning means being normally placed in an original state for inhibiting said piezoelectric element from being discharged, and brought to a discharging state for allowing said piezoelectric element to be discharged, at a second point of time not earlier than said first point of time, said second conditioning means being returned to said original state thereof by the time when said first conditioning means is placed in said charging state thereof for a next activation of said piezoelectric element.

5,214,341

PIEZOELECTRIC ACUTATOR DEVICE WITH VIBRATION ABSORBING MEANS

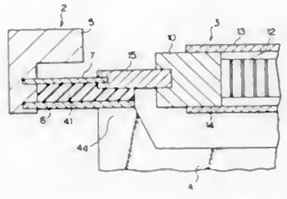
Kiyoshi Itoh, and Minoru Hara, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed May 22, 1992, Ser. No. 886,499

Claims priority, application Japan, May 23, 1991, 3-118407

Int. Cl.[5] H01L *41/08*; B41J *2/295*

U.S. Cl. 310—326 **5 Claims**



1. A piezoelectric actuator device, comprising:

a stationary base;

a piezoelectric assembly having a first end supported by the support base and a second end;

a movement magnifying mechanism including a rigid member;

a first spring connecting the second end of the piezoelectric assembly to the rigid member, and a second spring connecting the rigid member to the support base, and a vibration absorbing means inserted between the first and second springs, the vibration absorbing means extending along the lengths of the first and second springs.

5,214,342

TWO-DIMENSIONAL WALKER ASSEMBLY FOR A SCANNING TUNNELING MICROSCOPE

Kei-Wean C. Yang, 14185 SW. Stirrup St., Beaverton, Oreg. 97005

Filed Oct. 21, 1991, Ser. No. 779,653

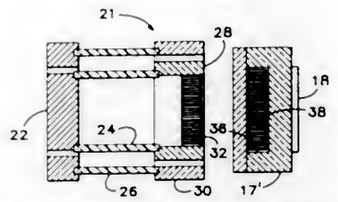
Int. Cl.[5] H01L *41/08*

U.S. Cl. 310—328 **3 Claims**

1. A two-dimensional walker assembly for laterally moving a sample with respect to an examination point comprising:

a sample holder upon which the sample is mounted that contains a block of magnetically attractive material;

a walker having a pair of concentric tubes, the inner one of the concentric tubes having a magnet mounted therein to secure the sample holder to the walker; and



means mounted on a base for moving the pair of concentric tubes to lift and laterally move the sample holder.

5,214,343

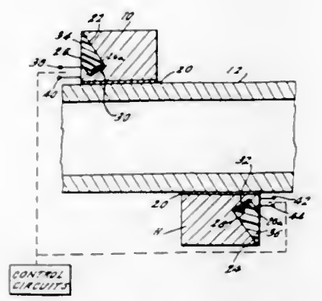
FLUOROETHER GREASE ACOUSTIC COUPLANT

Joseph Baumoel, 107 Columbia Dr., Jericho, N.Y. 11753

Filed Mar. 11, 1991, Ser. No. 667,466

Int. Cl.[5] H01L *41/08*

U.S. Cl. 310—334 **11 Claims**



1. In combination; an ultrasonic transducer comprising a housing and a crystal, a conduit for carrying fluid, a clamping structure for clamping a surface of said housing to the exterior surface of said conduit, and a sonic coupling fluid disposed between said surface of said transducer housing and said exterior surface; said coupling fluid comprising a fluoroether grease and also disposed between said crystal and said housing.

5,214,344

HIGH-POWER RADIATOR

Ulrich Kogelschatz, Hausen, Switzerland, assignor to Asea Brown Boveri Ltd., Baden, Switzerland

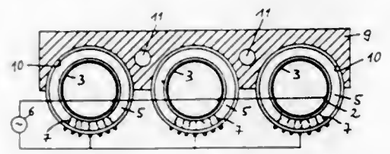
Filed Apr. 26, 1991, Ser. No. 691,832

Claims priority, application Switzerland, May 22, 1990, 1738/90

The portion of the term of this patent subsequent to May 7, 2008, has been disclaimed.

Int. Cl.[5] H01J *61/04, 61/30*

U.S. Cl. 313—17 **10 Claims**



1. A high-power radiator, in particular for ultraviolet light, having a discharge space which is filled with a fill-gas emitting

radiation under discharging conditions and whose walls are formed by at least one outer dielectric tube and at least one inner dielectric tube, which is provided in each case on the surfaces averted from the discharge space with an inner electrode and at least one outer electrode, and having an alternating current source for feeding the discharge connected to those electrodes, wherein the at least one outer electrode extends only over a fraction of the circumference of the at least one outer tube in such a way that discharges form only in a discharge segment essentially defined by the at least one outer electrode.

5,214,345

ULTRAVIOLET RAY-SHIELDING AGENT AND TUBE

Kanehiro Saito, Chiba, and Mitsumasa Saito, Narashino, both of Japan, assignors to Sumitomo Cement Company, Ltd., Tokyo, Japan

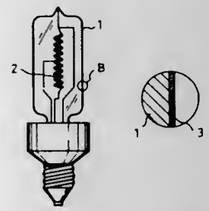
Continuation of Ser. No. 442,819, Nov. 29, 1989, abandoned.

This application Jul. 15, 1991, Ser. No. 733,051

Claims priority, application Japan, Mar. 28, 1989, 1-73874

Int. Cl.[5] H01J *61/40, 5/16*

U.S. Cl. 313—112 **2 Claims**



1. An ultraviolet ray-shielding tube for visible ray irradiation luminescent lamps, comprising:

a substrate tube adapted to seal a light emission source, comprising a member selected from the group consisting of mercury vapor lamp, metal halide vapor lamp, sodium lamp, xenon lamp, and halogen lamp, therein; and

at least one ultraviolet ray-shielding coating having a thickness of 0.5 to 50 μm, formed on at least one surface of the substrate tube, comprising:

a binder capable of transmitting visible rays therethrough consisting essentially of at least one of colloidal silica, polysiloxanes, polyborosiloxanes, polycarbosilanes and polyphosphazenes; and

extremely fine zinc oxide particles having an average size in the range of 0.005 to 0.02 μm, wherein the average particle size of 99% by weight of said particles is 0.1 μm or less, substantially evenly dispersed in said binder in a weight ratio of the zinc oxide particles to the binder of 1:10 and 10:1.

5,214,346

MICROELECTRONIC VACUUM FIELD EMISSION DEVICE

Hiroshi Komatsu, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Division of Ser. No. 659,218, Feb. 21, 1991, Pat. No. 5,192,240.

This application Feb. 6, 1992, Ser. No. 832,198

Claims priority, application Japan, Feb. 22, 1990, 41948; Apr. 11, 1990, 96004; Feb. 5, 1991, 14398

Int. Cl.[5] H01J *1/30*

U.S. Cl. 313—309 **15 Claims**

1. A planar microelectronic vacuum tetrode, comprising:

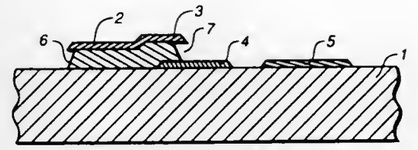
an insulating substrate having a substantially flat surface;

an anode electrode deposited on a first part of the surface of the substrate;

a shield electrode deposited on a second part of the surface of the substrate, the shield electrode able to substantially raise the anode resistance of the tetrode;

a gate electrode deposited on a third part of the surface of the substrate;

a dielectric deposited on a fourth part of the surface of the substrate;



a cathode electrode deposited on the surface of the dielectric, the cathode electrode comprising at least one electron emission tip that cantilevers out beyond the dielectric and overlooks the gate electrode, said electron emission tip such that a flow of electrons can pass out and over the gate and shield electrodes on the way to the anode electrode, said cathode tip having a radii of curvature of less than 1,000 angstroms.

5,214,347

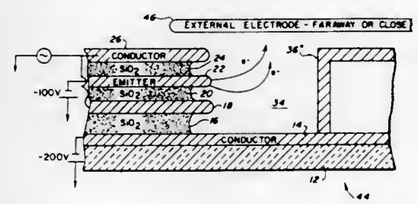
LAYERED THIN-EDGED FIELD-EMITTER DEVICE

Henry F. Gray, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 8, 1990, Ser. No. 535,612

Int. Cl.[5] H01J *1/30, 17/22*

U.S. Cl. 313—355 **15 Claims**



9. A layered, thin-edged field-emitter-array device comprising:

a plurality of layers;

a channel extending through the thickness of said layers to define a vacuum channel;

said plurality of layers including:

a first conductor layer having a lateral edge extending into said channel and forming a first control edge electrode;

a first insulator layer disposed on said first conductor layer;

a second conductor layer disposed on said first insulator layer and having a lateral edge extending into said channel and forming a field emitter edge electrode;

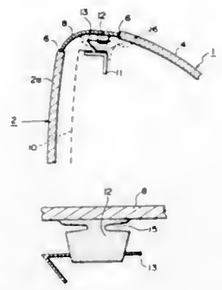
a second insulator layer disposed on said second conductor layer; and

a third conductor layer disposed on said second insulator layer and having a lateral edge extending into said channel and forming a second control edge electrode;

said emitter edge electrode being adapted to emit electrons into said channel in a direction substantially parallel to the planes of said control and emitter edge electrodes.

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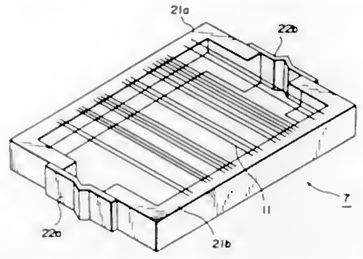
5,214,348
COLOR CRT WITH INSULATING STUD PINS FOR SHADOW MASK SUPPORT
Koji Nakamura, Nagaokakyo; Keitaro Tsukui, and Junko Itoh, both of Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 7, 1991, Ser. No. 788,949
Claims priority, application Japan, Nov. 19, 1990, 2-313348
Int. Cl.[5] H01J *29/07, 29/86*
U.S. Cl. 313—406 **5 Claims**



1. A color CRT comprising:
(a) a panel screen made of glass coated with an RGB fluorescent screen;
(b) a neck made of glass including an electron gun;
(c) a funnel made of glass adjacent to the neck;
(d) a metal part that is jointed between an edge of the panel screen and an edge of the funnel, and combined with the panel screen, the neck, and the funnel, to form a vacuum container;
(e) a shadow mask placed inside the vacuum container, adjacent to the panel screen; and
(f) stud means made of an insulating material placed on the inner surface of the metal part, for holding the shadow mask and electrically separating the shadow mask from the metal part;
wherein the stud means includes a plurality of stud pins made of ceramic;
wherein the plurality of stud pins are fixed to the metal part with solder glass;
wherein each of the plurality of stud pins has a constriction which increases creeping distance.

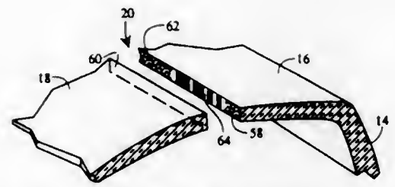
5,214,349
COLOR CATHODE RAY TUBE AND COLOR SELECTION ELECTRODE DEVICE OF COLOR CATHODE RAY TUBE
Shigeki Sakata; Akito Yamamoto, and Mizuki Murata, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 24, 1991, Ser. No. 781,910
Claims priority, application Japan, Oct. 26, 1990, 2-288881; Oct. 29, 1990, 2-294084; Oct. 29, 1990, 2-294085; Jan. 24, 1991, 3-41433; Mar. 6, 1991, 3-68986; May 15, 1991, 3-110589
Int. Cl.[5] H01J *29/07*
U.S. Cl. 313—407 **15 Claims**

1. A color selection electrode device for a cathode ray tube comprising:
(A) a color selection electrode composed of filaments for regulating the position which an electron beam of the cathode ray tube reaches;
(B) a pair of U-shaped frame bodies between which the color selection electrode is stretched; and
(C) support pieces for connecting both end portions of the pair of frame bodies and holding the frame bodies at a predetermined space, the support pieces having an elastic restoring force which applies a predetermined tension to



the color selection electrode stretched between the pair of frame bodies.

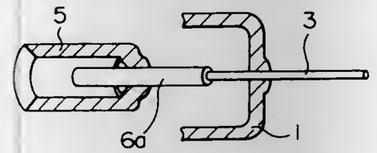
5,214,350
IDENTIFICATION OF IMAGE DISPLAYS AND THEIR COMPONENT PARTS
Thomas M. Remec, Des Plaines, and Ralph E. Clarke, Jr., River Forest, both of Ill., assignors to Zenith Electronics, Glenview, Ill.
Filed Sep. 11, 1991, Ser. No. 757,882
Int. Cl.[5] H01J *31/00*
U.S. Cl. 313—477 R **6 Claims**



1. An image display having an envelope with an external surface and at least a first non-external surface, the envelope having permanent indicia located on the first non-external surface readable from the external surface; and
further defined by having the permanent indicia located in the interface between the first non-external surface and a second non-external surface of the envelope where the first and second non-external surfaces are joined.

5,214,351
DISCHARGE TUBE WITH GLOW AND ARC DISCHARGE ELECTRODES
Yoriyuki Nieda, Kamakura, Japan, assignor to Tokyo Densouku Kabushiki Kaisha, Kanagawa and Noritake Co., Limited, Nagoya, both of Japan
Filed Jul. 12, 1991, Ser. No. 729,425
Claims priority, application Japan, Jul. 19, 1990, 2-191695; Nov. 22, 1990, 2-318277
Int. Cl.[5] H01J *61/06*
U.S. Cl. 313—619 **8 Claims**

1. A discharge tube comprising a tube body whose interior defines a discharge space; and a pair of electrode devices mounted within said discharge space in opposed relation to each other, each of said pair of electrode devices comprising an arc discharge electrode, a glow discharge electrode and an electron emitting substance for being vaporized and emitted in a scattered manner from said arc discharge electrode so as to be captured by said glow discharge electrode, said arc discharge electrode being composed of a sintered body containing said electron emitting substance therein, and said glow

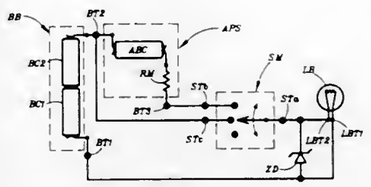


discharge electrode being composed of a sintered body made of tungsten, nickel and zirconium.

5,214,352
LIGHT DIMMING SYSTEM FOR EMERGENCY OPERATION
Roger Love, Glen Gardner, N.J., assignor to Computer Power Inc., High Bridge, N.J.
Filed Jun. 7, 1991, Ser. No. 712,353
Int. Cl.[5] H05B *37/02*
U.S. Cl. 315—86 **24 Claims**

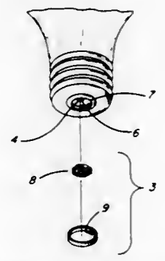
1. An emergency lighting system for ballast driven gaseous discharge lighting means for providing light throughout a space, comprising:
ballasted gaseous discharge lighting means, said lighting means in normal use being connected by conventional wiring directly to a source of a.c. power, which wiring and power source cause said lighting means to provide normal illumination;
detector means for indicating as an emergency condition, the absence of said a.c. power from said power source;
battery means with a d.c. voltage output;
inverter means connected to the d.c. voltage output of said battery means for producing an inverter a.c. voltage at an output of the inverter means in response to said detector indicating the emergency condition;
means for disconnecting from said a.c. power source and for connecting the inverter a.c. voltage to the lighting means via said conventional wiring in response to detection of said emergency condition; and
light intensity reducing means for altering the inverter a.c. voltage output, said altered a.c. voltage output causing the illumination produced by said discharge lighting means to be reduced.

5,214,353
FLASHLIGHT WITH BOOST FEATURE
Ole K. Nilssen, Caesar Dr., Barrington, Ill. 60010
Continuation-in-part of Ser. No. 652,378, Feb. 7, 1991, which is a continuation of Ser. No. 410,745, Sep. 22, 1989, abandoned.
This application Feb. 10, 1992, Ser. No. 832,948
Int. Cl.[5] H05B *37/00*
U.S. Cl. 315—33 **25 Claims**



1. A flashlight comprising:
first battery means having a first pair of battery terminals across which there exists a first battery voltage;
second battery means having a second pair of battery terminals across which there exists a second battery voltage;
light bulb means having a pair of lamp terminals; and
switch means connected in circuit between the battery terminals and the lamp terminals; the switch means being operable to cause a lamp voltage to be provided across the lamp terminals; the lamp voltage having a magnitude being: (i) in a first mode, equal to that of the first battery voltage, or (ii) in a second mode, equal to the sum of the magnitudes of the first battery voltage and the second battery voltage; the switch means permitting a user of the flashlight to select between the two modes; the magnitude of the first battery voltage being substantially different from that of the second battery voltage.

5,214,354
ELECTRONIC CONTROL MODULE (ECM) FOR CONTROLLING LIGHTING FUNCTIONS OF A LAMP BULB AND METHOD OF MANUFACTURE
Samuel A. Johnson, Eagle, Id., assignor to Beacon Light Products, Inc., Meridian, Id.
Division of Ser. No. 587,997, Sep. 25, 1990, Pat. No. 5,126,634.
This application Mar. 9, 1992, Ser. No. 847,179
The portion of the term of this patent subsequent to Jun. 30, 2009, has been disclaimed.
Int. Cl.[5] H01J *7/44*
U.S. Cl. 315—71 **7 Claims**



1. An electronic control module constructed for insertion into a recessed cavity in a dielectric insulator member of the screw shell base of a lamp bulb just prior to the final packaging of the bulb and avoiding module exposure to high temperature bulb processing steps, including in combination:
a. a metal housing having a base member surrounded by an

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upstanding wall member defining an opening for said housing,

b. a hybrid substrate mounted on said base member, and

c. bulb lighting control circuitry mounted on said substrate and including thereon a programmable integrated circuit control chip containing control logic, said control circuitry having a conductive member connected thereto for transmitting control signals from said bulb lighting control circuitry to a filament wire within said light bulb, whereby said electronic control module operates a control one or more lighting functions of said bulb.

5,214,355

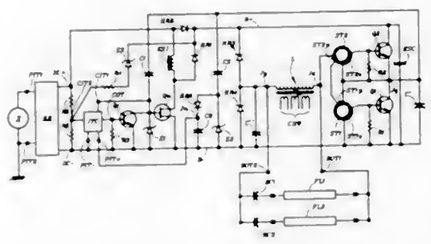
INSTANT-START ELECTRONIC BALLAST

Ole K. Nilssen, Caesar Dr., Barrington, Ill. 60010

Continuation-in-part of Ser. No. 663,566, Mar. 4, 1991, Pat. No. 5,185,560, which is a continuation-in-part of Ser. No. 787,692, Oct. 15, 1985, abandoned, which is a continuation-in-part of Ser. No. 644,155, Aug. 27, 1984, abandoned, which is a continuation-in-part of Ser. No. 555,426, Nov. 23, 1983, abandoned, which is a continuation-in-part nf Ser. No. 178,107, Aug. 14, 1980, abandoned, which is a continuation-in-part of Ser. No. 973,741, Dec. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 890,586, Mar. 20, 1978, Pat. No. 4,184,128. This application Dec. 13, 1991, Ser. No. 806,676

Int. Cl.[5] H05B *41/29*

U.S. Cl. 315—219 **29 Claims**



1. An arrangement comprising:

a source providing an output voltage across a pair of output terminals, the source having internal impedance functional to limit to a certain maximum magnitude the current that can be drawn from the output terminals;

a first and a second gas discharge lamp series-connected to form a lamp load connected across the output terminals; the lamp load being functional to draw current from the output terminals without at any time constituting a short circuit thereacross; the first gas discharge lamp having a pair of first lamp terminals; and

circuit means connected across the pair of first lamp terminals; the circuit means being operative to constitute a short circuit for a brief period of time, whereafter it becomes an open circuit.

5,214,356

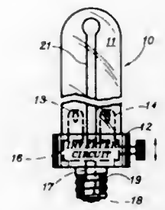
DIMMABLE FLUORESCENT LAMP BALLAST

Ole K. Nilssen, Caesar Dr., Barrington, Ill. 60010

Continuation of Ser. No. 684,993, Apr. 15, 1991, abandoned, which is a continuation-in-part of Ser. No. 663,566, Mar. 4, 1991, Pat. No. 5,185,560, and a continuation-in-part of Ser. No. 787,692, Oct. 15, 1985, abandoned, which is a continuation of Ser. No. 644,155, Aug. 27, 1984, abandoned, which is a continuation of Ser. Nn. 555,426, Nov. 23, 1983, abandoned, which is a continuation of Ser. No. 178,107, Aug. 14, 1980, abandoned, which is a continuation-in-part of Ser. No. 973,741, Dec. 28, 1978, abandoned. This application May 21, 1992, Ser. No. 887,427

Int. Cl.[5] H05B *41/29*

U.S. Cl. 315—224 **21 Claims**



1. A combination comprising:

a source providing ordinary AC power line voltage at a pair of power line terminals;

rectifier circuit connected with the power line terminals and operable to provide a DC voltage at a pair of DC terminals; the absolute magnitude of the DC voltage being substantially higher than the peak absolute magnitude of the AC power line voltage;

a gas discharge lamp having a pair of lamp terminals; and

inverter circuit connected between the DC terminals and the lamp terminals; the inverter circuit being operable to supply an alternating lamp voltage across the lamp terminals, thereby to cause an alternating lamp current of substantially constant amplitude to flow through the lamp.

5,214,357

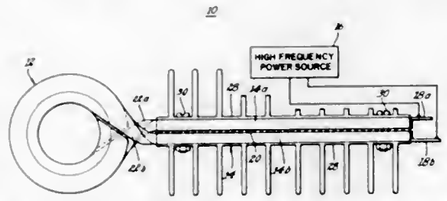
LOW-LOSS L-C DRIVE CIRCUIT FOR AN ELECTRODELESS HIGH INTENSITY DISCHARGE LAMP

James T. Dakin; Mark E. Duffy, both of Shaker Heights; Raymond A. Heindl, Euclid, and Victor A. Levand, Jr., Lyndhurst, all of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 14, 1991, Ser. No. 792,114

Int. Cl.[5] H05B *41/16*

U.S. Cl. 315—248 **13 Claims**



1. A circuit arrangement for an electrodeless high intensity discharge lamp which includes an arc tube with a gas fill disposed therein operable to an arc discharge state by a high frequency RF current coupled thereto, said circuit arrangement comprising:

an excitation coil disposed in surrounding relation to said arc tube, said excitation coil including at least one coil turn and wherein said at least one coil turn is constructed so as to have a height sized relative to a corresponding size of said arc tube so as to minimize light blockage by said excitation coil;

a capacitive member having a first and a second capacitive plate and being electrically and mechanically coupled to said excitation coil and wherein a single connection member provides both said electrical and mechanical connections, said connection member being integrally formed with said capacitive plates of said capacitive member and said at least one coil turn of said excitation coil;

high frequency power source means connected to said electrically connected capacitive member and excitation coil and being effective for providing operating energy to said capacitive member and excitation coil such that said high frequency RF current for driving said arc discharge can be produced thereby and

wherein one of said capacitor plates, one of said at least one coil turn and one of said connection members are all formed from a single sheet of stock material.

5,214,358

MOTOR VEHICLES

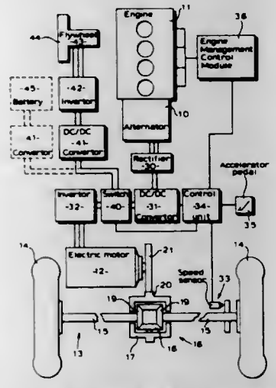
Howard A. Marshall, Leek Woolton, United Kingdom, assignor to Jaguar Cars Limited, United Kingdom

Filed May 30, 1991, Ser. No. 707,638

Claims priority, application United Kingdom, Jun. 2, 1990, 9012365

Int. Cl.[5] B60K *41/00*

U.S. Cl. 318—139 **14 Claims**



1. A motor vehicle including an electromechanical transmission system comprising an engine driven generator and an electric motor adapted to drive one or more wheels of the vehicle, the generator being connected to the motor via a DC to DC converter by which the current output of the generator is varied to provide appropriate current input to the motor, and control means including means for sensing the performance of the vehicle and a speed control device for operation by the driver;

said control means providing signals to control the DC to DC convertor and an engine management control module;

the control means being adapted to set the DC to Dc convertor to give minimum power output to maintain a steady speed and to control the engine management control module to reduce the engine speed to match the power requirement, when operating under steady speed conditions; and

the control means being adapted to increase the power out of the engine and to set the DC to DC convertor to provide maximum torque output from the motor at any given speed for the power available, when accelerating.

5,214,359

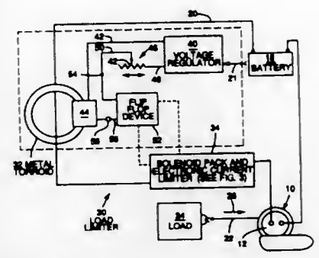
WINCH WITH ELECTRONIC CURRENT LIMITER

Richard S. Herndon, Albany, and Richard G. Johnson, Milwaukie, both of Oreg., assignors to Warn Industries, Inc., Milwaukie, Oreg.

Filed Nov. 1, 1991, Ser. No. 786,739

Int. Cl.[5] H02P *7/00*

U.S. Cl. 318—434 **4 Claims**



1. A winch comprising;

a winching mechanism including a rotatable drum, a motor coupled to the drum for rotating the drum in either rotative direction, and a power source, the drum configured for winding a cable onto the drum in one rotative direction and defining a power-in mode, and playing cable off the drum in the opposite rotative direction and defining a power-out mode, and the improvement comprising;

a first conducting line from the power source to the motor for supplying power to the motor to drive the motor in the power-in mode,

a torroid surrounding the first conducting line for concentrating flux produced as a result of current flowing in the first conducting line,

a hall effect transducer magnetically coupled to the torroid, a second conducting line from the power source to the transducer, and the combination outputting a voltage as a measure of the current flowing n the first conducting line,

an adjustable potentiometer and a third conducting line from the power source to the potentiometer for producing a controlled adjustable voltage whereby a threshold voltage is established by adjusting the potentiometer to output a set voltage, the set voltage corresponding to the output voltage of the transducer when a maximum allowed current flows in the first conductor,

a comparator, said output from the transducer and said output from the potentiometer separately and independently connected to the comparitor for comparing the output voltages of the transducer and the potentiometer, and

a first switch operable by the comparator to interrupt power through the first conducting line when the output voltage of the transducer crosses the established threshold voltage.

5,214,360

PROGRAMMABLE ADJUSTABLE CHAIR FOR MEDICAL AND DENTAL APPLICATIONS

Donald I. Gonser, Lancaster, and Michael J. Butchko, Mechanicsburg, both of Pa., assignors to Den-Tal-Ez, Inc., Valley Forge, Pa.

Filed Mar. 13, 1992, Ser. No. 851,095

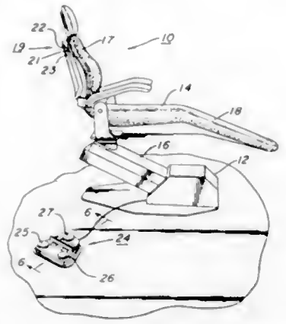
Int. Cl.[5] H02P *1/00*

U.S. Cl. 318—551 **12 Claims**

1. In a powered, programmable chair having a base, a seat supported by the base for vertical movement between upper and lower limit positions, a back mounted to the seat for pivotal movement between upright and recline limit positions, means for displacing the seat and back into selected positions between their respective limits and programmable control

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means for controlling said seat and back displacements, the improvement comprising a single dual function switch operable from a location in proximity with the chair for cooperating with said programmable control means for both causing selected chairback and seat positions to be memorized in said programmable control means and for initiating automatic cap-



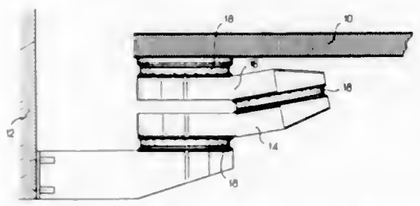
ture of a selected one of said positions, and indicator means operable in response to said switch and said programmable control means for cooperating therewith to provide different sensible indications of different selected seat and back position memorizations, whereby dual functions can be performed by utilizing the same actuator.

5,214,361

DEVICE FOR SUPPORTING AND ROTATING A PAYLOAD RELATIVE TO A STRUCTURE, IN PARTICULAR FOR A SATELLITE ANTENNA POINTING MECHANISM

Gilles Labruyere, Oegstgeest, Netherlands, assignor to Agence Spatiale Europeenne, Paris, France

Filed Feb. 4, 1992, Ser. No. 831,048
Claims priority, application France, Feb. 8, 1991, 91 01438
Int. Cl.[5] H01Q *3/02*
U.S. Cl. 318—560 9 Claims



1. Device for supporting and rotating a payload relative to a structure comprising:

a first coupling ring joined to said payload;

a second coupling ring joined to said structure;

a pair of annular bearings for guiding rotation of said first coupling ring relative to said second coupling ring;

a differential epicyclic train disposed inside said annular bearings; and

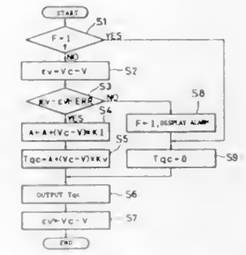
an annular motor having a stator fixed to one of said coupling rings and a rotor rotating the other coupling ring through said train.

5,214,362

METHOD FOR DETECTING A COLLISION AND STOPPING DRIVE OF A MACHINE DRIVEN BY SERVOMOTORS

Nobutushi Torii, Tokyo; Yasuo Naito, Yamanashi; Masayuki Hamura, Yamanashi, and Kazuhisa Otsuka, Yamanashi, all of Japan, assignors to Fanuc Limited, Japan

PCT No. PCT/JP89/00821, § 371 Date Apr. 11, 1990, § 102(e) Date Apr. 11, 1990, PCT Pub. No. WO90/01732, PCT Pub. Date Feb. 22, 1990
PCT Filed Aug. 11, 1989, Ser. No. 477,871
Claims priority, application Japan, Aug. 11, 1988, 63-198823; Dec. 28, 1988, 63-328866
Int. Cl.[5] G05B *19/10*
U.S. Cl. 318—567 9 Claims



1. A method for detecting a collision and for stopping a machine driven by a servomotor providing a driving force, comprising the steps of:

(a) periodically detecting a collision parameter of the driving force of the servomotor, said collision parameter corresponding to one of a deviation between a command velocity delivered to the servomotor and an actual rotational velocity of the servomotor, and a deviation between successive torque command values delivered to the servomotor;

(b) periodically detecting an amount of change in the collision parameter;

(c) determining if a collision has occurred, when the detected amount of change in the collision parameter becomes larger than first reference value; and

(d) stopping rotation of the servomotor when occurrence of a collision is so determined.

5,214,363

REMOTE ELECTRICAL STEERING SYSTEM WITH FAULT PROTECTION

Gary E. Wisner, Boaz, Ala.; James W. McClellan, and Charles W. Harrington, both of Jackson, Tenn., assignors to Syncro Corp., Arab, Ala. and Babcock Industries Inc., Milan, Tenn.

Filed Oct. 22, 1990, Ser. No. 602,430
Int. Cl.[5] G05D *1/00*
U.S. Cl. 318—588 4 Claims

1. A remote, electrical steering system for marine vehicles having a motor-rudder mounted for pivotal steering movement about a pivot axis, said system comprising:

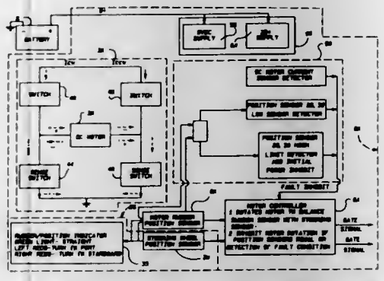
motor-rudder position sensing means for providing a motor-rudder signal indicative of the angular position of the motor-rudder relative to a neutral motor-rudder angular position about the pivot axis,

steering unit means remote from the motor-rudder and actuable by an operator to selected positions relative to a neutral steering angular position related to desired angular steering positions of the motor-rudder about the pivot axis,

steering position sensing means operatively connected with said steering unit means for providing a steering position signal indicative of the position of said steering unit means relative to said neutral steering angular position,

first circuit means responsive to said motor-rudder signal and said steering position signal for providing a control signal indicative of preselected differences between said motor-rudder angular position and said selected positions of said steering unit means,

electric motor drive means operatively connected to the motor-rudder and responsive to an electrical drive signal to pivot the motor-rudder to determinable angular positions about the pivot axis,



power circuit means operatively connected with said first circuit means and to said electric motor drive means and responsive to said control signal for providing said drive signal to said electric motor drive means,

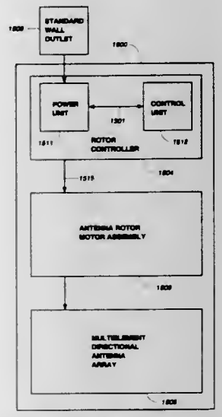
condition sensing means for preventing actuation of said electric motor drive means upon initial energization of said first circuit means and said power circuit means if said control signal is of a magnitude indicative of said preselected differences.

5,214,364

MICROPROCESSOR-BASED ANTENNA ROTOR CONTROLLER

Terry A. Perdue, St. Joseph, and David Poplewski, Dowagiac, both of Mich., assignors to Zenith Data Systems Corporation, Buffalo Grove, Ill.

Filed May 21, 1991, Ser. No. 703,464
Int. Cl.[5] G05B *19/26;* H01G *3/08*
U.S. Cl. 318—600 28 Claims



1. A system for automatically controlling the rotation of an angularly positionable antenna from one angular position to a desired new angular position, comprising:

a plurality of destination indicia, each of which specifies a geographic location;

display means for displaying said plurality of destination indicia;

manual selection means associated with said display means for selecting one of said destination indicia;

a memory containing a table associating each of said plurality of destination indicia with a geographical reference location in latitude and longitude and a time zone offset variable specifying the time zone of said geographical reference location with respect to an arbitrary reference time zone;

retrieval means associated with and activated by said manual selection means for retrieving from said table said geographical reference location associated with said selected desired destination indicia;

calculating means for calculating a desired angular position for said antenna by determining an angular offset of said antenna from an arbitrary reference angle based upon the location of said geographical reference location with respect to an arbitrary reference location; and

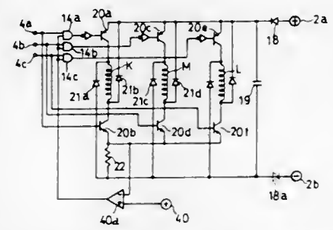
energizing means for energizing an antenna rotor shaft such that said shaft is rotated to said desired angular position.

5,214,365

THREE-PHASE RELUCTANCE TYPE ELECTRIC MOTOR

Itsuki Bahn, Tokyo, Japan, assignor to Kabushikigaisha Sekogiken, Tokyo, Japan

PCT No. PCT/JP90/01188, § 371 Date Apr. 30, 1991, § 102(e) Date Apr. 30, 1991, PCT Pub. No. WO91/04602, PCT Pub. Date Apr. 4, 1991
PCT Filed Sep. 17, 1990, Ser. No. 679,019
Claims priority, application Japan, Sep. 18, 1989, 1-240184
Int. Cl.[5] H02K *19/10*
U.S. Cl. 318—701 4 Claims



1. A three-phase reluctance electric motor, comprising:

a fixed armature having an outer peripheral surface fixed on an outer casing;

a rotation shaft rotatably supported by bearings disposed on both sides of said outer casing;

a magnetic rotor fixed on the rotation shaft;

eight salient poles of the same height formed to project to an outer peripheral surface of said magnetic rotor, having a width of 180 electrical degrees and disposed at a predetermined pitch;

first-phase magnetic poles formed to project from an inner peripheral surface of said fixed armature, having a width of 180 electrical degrees and separated by 180 electrical degrees, having end portions facing said salient poles with a predetermined gap between said end portions and said salient poles, and two of said first-phase magnetic poles defining a pair;

second- and third-phase magnetic poles having the same construction as said first-phase magnetic poles and disposed to be sequentially separated from said first-phase magnetic poles by 120 mechanical degrees;

a position detecting means for detecting a position of said salient poles of said magnetic rotor, said position detecting

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means including position detecting element means for generating a first position detecting signal of a first-phase rectangular wave and second and third position detecting signals of second-and third-phase rectangular waves, said first, second and third position detecting signals being successively generated with a width of 120 electrical degrees;

first-, second- and third-phase exciting coils wound on said first-, second- and third-phase magnetic poles;

switching elements connected to both ends of said first-, second- and third-phase exciting coils;

first diodes respectively connected in a reverse direction to series-connected circuits of said switching elements and corresponding ones of said first-, second- and third-phase exciting coils;

an energization controlling circuit means for setting said switching elements corresponding to said first-, second- and third-phase exciting coils in a conductive state for respective periods of time corresponding to the widths of said first, second and third position detecting signals to energize said corresponding ones of said first-, second- and third-phase exciting coils, said energization controlling circuit means including DC power source means for generating a driving torque;

means for adjusting the position of said position detecting means and for fixing the position of said position detecting means so as to cause an output torque generated by energization of each of the first-, second- and third-phase exciting coils to be substantially at a maximum and substantially flat; and

transfer means for rapidly transferring magnetic energy stored on a preceding one of said first-, second- and third-phase exciting coils into stored magnetic energy of a next one of said first-, second- and third-phase exciting coils in a boundary portion between adjacent ones of said first, second and third position detecting signals, said transfer means including second diode means for preventing a reverse current and coupled to said DC power source means in a forward direction so as to suppress torque reduction due to a rising portion in an initial period of energization of each of said first-, second- and third-phase exciting coils and to suppress generation of a counter torque due to an extension of a falling portion in the terminal period of each of said first, second- and third-phase exciting coils.

5,214,366

THREE-PHASE CONVERTER FOR POLYPHASE INDUCTION MOTORS

Rolf Hollmann, Herzogenaurach, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 614,075, Nov. 13, 1990, abandoned. This application Jun. 18, 1992, Ser. No. 900,552

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1989, 3937739

Int. Cl.[5] H02P *9/42*

U.S. Cl. 318—801 **25 Claims**

1. A three-phase converter for an induction motor having a first, second and third phase, comprising:

a) an input transformer having a primary winding and a first and second secondary winding associated with said primary winding, wherein said first and second secondary windings have a plurality of phases;

b) a first bidirectional group of power semiconductors being coupled to the plurality of phases of said first secondary winding;

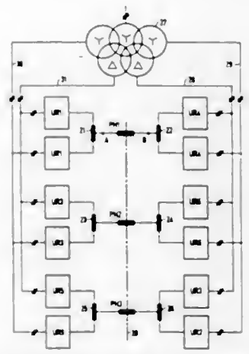
c) a second bidirectional group of power semiconductors being coupled to the plurality of phases of said second secondary winding;

d) a third bidirectional group of power semiconductors being coupled to the plurality of phases of said first secondary winding;

e) a fourth bidirectional group of power semiconductors being coupled to the plurality of phase of said second secondary winding;

f) a fifth bidirectional group of power semiconductors being coupled to the plurality of phases of said first secondary winding; and

g) a sixth bidirectional group of power semiconductors being coupled to the plurality of phases of said second secondary winding, wherein the first phase of the induction motor is coupled in series between said first and



fourth bidirectional groups of power semiconductors, the second phase of the induction motor is coupled in series between said third and sixth bidirectional groups of power semiconductors and the third phase of the induction motor is coupled in series between said fifth and second bidirectional groups of power semiconductors, whereby the first, second and third phases of the induction motor are not connected to each other but rather form a virtual star point.

5,214,367

CONTROLLER FOR COMPRESSOR DRIVEN BY INDUCTION MOTOR

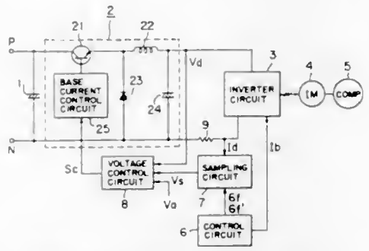
Michika Uesugi, Fuji, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 28, 1991, Ser. No. 706,363

Claims priority, application Japan, May 30, 1990, 2-140497

Int. Cl.[5] H02P *5/40*

U.S. Cl. 318—803 **3 Claims**



3. A controller for a compressor comprising:

an inverter having switching elements for converting a d.c. current into a variable-voltage and variable-frequency pseudo sine wave a.c. current through turn-on/off of the switching elements, and supplying said psuedo sine wave a.c. current to an induction motor for driving said compressor;

voltage regulating means for regulating the d.c. input voltage to said inverter;

current detecting means for generating a voltage signal representative of a d.c. input current to said inverter;

timing signal generating means for generating a timing signal which synchronizes with the d.c. input current when the inductive load components of the current flowing through said induction motor become null, and a second timing signal delayed by one half period relative to said first timing signal;

sampling means for sampling said voltage signal representative of said d.c. input current at predetermined electrical angles during every cycle period of an inverter output frequency in synchronism with said first timing signal to obtain a slip output sampling value, holding said slip output sampling value for one cycle of the output frequency of said ivnerter, and outputting, as a slip indicating signal for said induction motor, said slip output sampling value delaying by one cycle at said second timing signal; and

voltage controlling means for supplying said slip signal from said sampling means to said voltage regulating means as an output voltage command.

5,214,368

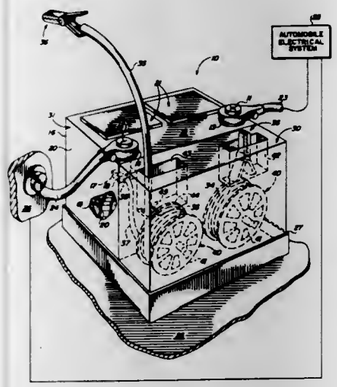
JUMPER READY BATTERY

Mickey D. Wells, 8220 Breeze Cove La., Orlando, Fla. 32819

Filed Dec. 31, 1991, Ser. No. 815,248

Int. Cl.[5] H02J *1/00*

U.S. Cl. 320—2 **12 Claims**



1. A jumper cable battery comprising:

a container defining first and second chambers;

an electrolyte located in said first chamber;

plates located in said first chamber and immersed in said electrolyte;

positive and negative terminal posts connected through said container to said plates;

positive and negative jumper cables having first and second ends;

means connecting said first ends respectively to said posts;

clamping means, respectively connected to said second ends, for establishing contact with corresponding posts of a remote battery; and

means for automatically retracting said cables from extended positions drawn out of said second chamber to storage positions retrieved into said second chamber.

5,214,369

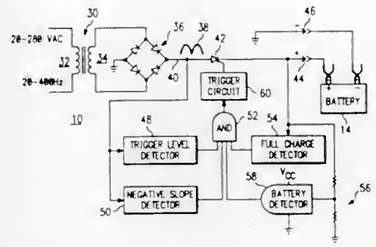
UNIVERSAL BATTERY CHARGER

Scott W. McCrea, Guthrie, Okla., assignor to The Charles Machine Works, Inc., Perry, Okla.

Filed Dec. 30, 1991, Ser. No. 814,899

Int. Cl.[5] H02J *7/10*

U.S. Cl. 320—21 **23 Claims**



1. A battery charger, comprising:

a source of electrical power for providing signals of cyclically varying amplitude;

a switching device that is triggerable for coupling at least a portion of the varying amplitude signals to a battery to be charged;

a trigger circuit for providing a trigger signal to the switching device;

a logical ANDing circuit having at least two inputs for receiving electrical signals corresponding to criteria that must be satisfied before the switching device can be triggered, said logical ANDing circuit having an output for enabling the trigger circuit so that when the trigger criteria is satisfied, the switching device is triggered; and

a trigger level detector coupled to one input of said logical ANDing circuit and responsive to a predetermined amplitude of the varying amplitude signal for enabling said ANDing circuit when the varying amplitude signal is below a predefined trigger level.

5,214,370

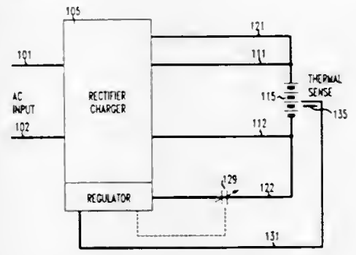
BATTERY CHARGER WITH THERMAL RUNAWAY PROTECTION

Charles E. Harm, Dallas City, and Kenneth J. Timm, Rockwall, both of Tex., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Sep. 13, 1991, Ser. No. 759,357

Int. Cl.[5] H02J *7/04*

U.S. Cl. 320—35 **4 Claims**



1. A battery charging circuit comprising:

a power input for accepting an AC energy source;

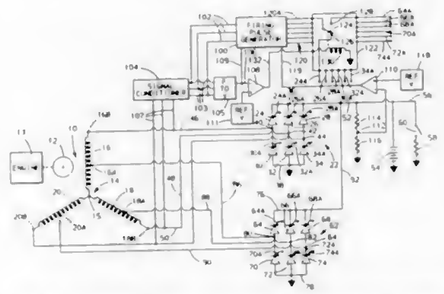
a power output connected to a battery to be charged and supplying the regulated voltage to the battery; and

a rectifier charging circuit for supplying current at the regu-

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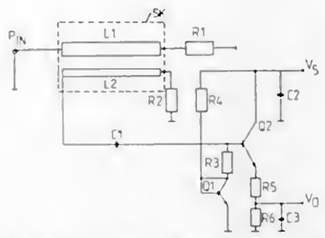
lated voltage to the power output, and including a regulation control for controlling teh voltage;
a temperature sensing device located proximate to the battery;
scaling circuitry for converting a value of the temperature sensing device to a voltage magnitude;
a voltage output of the scaling circuitry connected to the regulation control;
wherein the improvement comprises:
voltage sensing leads connected to terminals of the battery being charged and to the rectifier charging circuit;
circuitry included in series with one of the voltage sensing leads for injecting a voltage into a path of the voltage sensing leads;
whereby the voltage injected into the path of the voltage sensing leads alters the charging voltage supplied by the rectifier charging circuit to the battery to compensate for a temperature sensed by the temperature sensing device.

5,214,371
VOLTAGE REGULATOR FOR VARIABLE SPEED PERMANENT MAGNET ALTERNATORS
Malakondaiah Naidu, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Dec. 4, 1991, Ser. No. 802,177
Int. Cl.[5] H02J 7/14
U.S. Cl. 322—29 **12 Claims**



1. An electrical system comprising in combination, a permanent magnet alternating current generator having a rotor and a polyphase output winding, said polyphase output winding being comprised of first and second winding sets, said first winding set having a larger number of turns per phase than said second winding set, a first full wave bridge rectifier comprised of a plurality of first controlled rectifiers, said first bridge rectifier having direct voltage output terminals and Ac input terminals, first conductors connecting said first winding set to said AC input terminals of said first bridge rectifier, a second full wave bridge rectifier comprised of a plurality of second controlled rectifiers, said second bridge rectifier having direct voltage output terminals and AC input terminals, second conductors connecting said second winding set to said AC input terminals of said second bridge rectifier, means responsive to the speed of rotation of said rotor for enabling said first bridge rectifier and disabling said second bridge rectifier when the speed of said rotor is below a predetermined speed and operative to enable said second bridge rectifier and disable said first bridge rectifier when the speed of said rotor is higher than said predetermined speed, voltage sensing means connected to the direct voltage output terminals of said bridge rectifiers for sensing the direct voltage output of said bridge rectifiers, and means responsive to the magnitude of the direct voltage output sensed by said voltage sensing means for controlling the conduction of the controlled rectifier of said first or second bridge rectifier that is enabled in such a manner as to maintain the direct output voltage of that bridge rectifier substantially constant.

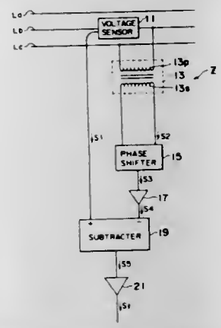
5,214,372
LINEARIZING CIRCUIT FOR DECTECTION OF A RF-POWER SENSOR
Risto Väisänen; Jukka Sarasmo, and Vesa Pekkarinen, all of Salo, Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland
Continuation of Ser. No. 505,348, Apr. 2, 1990, abandoned. This application Oct. 11, 1991, Ser. No. 777,453
Claims priority, application Finland, May 11, 1989, 892297
Int. Cl.[5] G01R 15/10, 21/04
U.S. Cl. 324—95 **3 Claims**



1. A circuit for processing an RF power signal obtained from an output of an RF power sensor (SK) used in measuring the transmission power level of a transmitter in order to develop a detector voltage (Vo) which is proportional to said power level, characterized in that the circuit comprises:
an active half-wave rectifier means including a first rectifying transistor (Q2) controlled by the RF power signal obtained from the power sensor (SK), the first transistor having its base connected to the power signal at the sensor output;
an energy storing means (C3) charged by said half-wave rectifier means (Q2) during a positive half cycle of the RF power signal obtained from the power sensor (SK), the emitter of said half-wave rectifier means connected to the energy storage means (C3) and the voltage of said storage means being the detector voltage (Vo).
resistance means (R6) connected to discharge said storage means during the descending part of the power signal; and
a biasing means (Q1), which biases said half-wave rectifier means (Q2) so that said half-wave rectifier means is conductive even at the lowest levels of the positive half of the RF power signal obtained from the power sensor (SK).

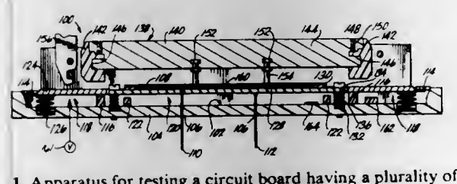
5,214,373
ZERO PHASE VOLTAGE MEASURING DEVICE
Yoshikazu Nara, Osaka, and Koji Kasai, Katano, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jun. 2, 1992, Ser. No. 893,205
Claims priority, application Japan, Jun. 3, 1991, 3-130917
Int. Cl.[5] G01R 19/00
U.S. Cl. 324—107 **6 Claims**

1. A zero phase voltage measuring device for measuring the zero phase voltage of a three phase power system having three power lines, said device comprising:
first voltage detection means for detecting a current ground-to-line voltage presently obtained between the ground and any one of said three power lines;
second voltage detection means for detecting a current line-to-line voltage representing a presently obtained voltage between any two of said three power lines;
voltage calculation means for calculating an ideal ground-to-line voltage representing a voltage between the ground and any one of the three power lines when no earth-fault is present, based on said current line-to-line voltage; and



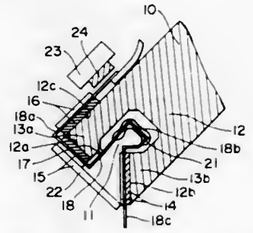
subtraction means for subtracting said ideal ground-to-line voltage from said current ground-to-line voltage to produce a zero phase voltage signal.

5,214,374
DUAL LEVEL TEST FIXTURE
Gary F. St. Onge, Ballston Lake, N.Y., assignor to Everett/-Charles Contact Products, Inc., Pomona, Calif.
Filed Dec. 12, 1991, Ser. No. 806,169
Int. Cl.[5] G01R 15/12, 31/22
U.S. Cl. 324—158 F **15 Claims**



1. Apparatus for testing a circuit board having a plurality of spaced apart test points, the apparatus comprising:
a vacuum well having a bottom plate and a plurality of bores in a bottom plate in a pattern corresponding to that of the test points on the printed circuit board;
a first plurality of elongated and spaced apart test probes each extending through a first plurality of bores in the vacuum well and extending a first distance from the top surface of the bottom plate;
a second plurality of elongated and spaced apart test probes each extending through a second plurality of bores in the vacuum well and extending a second distance from the top surface of the bottom plate;
a stripper plate disposed above and substantially parallel to the top surface of the bottom plate, the stripper plate having bores in a pattern corresponding to that of the test probes;
means for holding the circuit board in a testing position above and substantially parallel to the stripper plate so the first plurality of test probes extend through respective bores in the stripper plate and contact the circuit board and so the second plurality of test probes do not contact the circuit board, when the circuit board is in a first position, and so the first and second plurality of test probes extend through respective bores in the stripper plate and contact the circuit board when the circuit board is in a second position;
a movable top plate for moving the stripper plate and the circuit board to the first position;
an outer gasket contacting the movable top plate in said first position of the stripper plate and the circuit board;
a first inner gasket disposed inside the outer gasket to engage the top plate and form a first vacuum chamber between the bottom plate, the outer gasket, the first inner gasket, and the top plate when the circuit board is in the first position;
a second inner gasket disposed inside the first inner gasket to engage the stripper plate and form a second vacuum chamber between the bottom plate and the stripper plate, within the boundary of the second inner gasket, when the circuit board is in the second position; and
means for applying fluid pressure to the first vacuum chamber to maintain the stripper plate and the circuit board in the first position, and means for applying a fluid pressure to the second vacuum chamber to cause the stripper plate and the circuit board to move from the first to the second position.

5,214,375
MULTI-POINT PROBE ASSEMBLY FOR TESTING ELECTRONIC DEVICE
Harunobu Ikeuchi, Tokyo; Miyoshi Okumura, Kanagawa; Kaoru Sato, Tokyo, and Yutaka Okumura, Kanagawa, all of Japan, assignors to Giga Probe, Inc., Kanagawa, Japan
Continuation of Ser. No. 474,924, Feb. 6, 1990, abandoned. This application Mar. 26, 1992, Ser. No. 859,245
Claims priority, application Japan, Feb. 6, 1989, 1-26948; Jul. 19, 1989, 1-187033; Aug. 7, 1989, 1-204121
Int. Cl.[5] G01R 1/06, 31/02
U.S. Cl. 324—158 P **4 Claims**



4. A multi-point test probe assembly including a support structure and a plurality of probe arms supported by said support structure,
said support structure comprising means defining a channel which extends in a direction substantially perpendicular to said probe arms;
each of said probe arms comprising:
a probe portion which is arranged to contact a terminal of a device under test;
a mounting portion which is connected to said support structure; and
a spring portion interconnecting said probe portion and said mounting portion, said spring portion being received in said channel, wherein said channel is provided with a supporting fulcrum member, with said spring portion of each probe arm being positioned within said channel so as to be supported at said supporting fulcrum member so that said spring portions are elastically deformable.

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5,214,376

DEVICE FOR ESTABLISHING THE POSITION OF A CONDUCTOR OF AN ENVELOPED CABLE HAVING PROXIMITY SENSOR AND A YIELDABLY SUPPORTED ROLLER DRIVEN BY THE CABLE

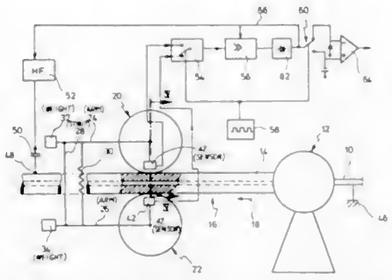
Harald Sikora, Bremen, Fed. Rep. of Germany, assignor to Sikora Industrieelektronik GmbH, Bremen, Fed. Rep. of Germany

Filed May 15, 1991, Ser. No. 700,708

Claims priority, application Fed. Rep. of Germany, May 16, 1990, 4015692

Int. Cl.[5] G01B *7/14, 7/10;* B29C *47/92*

U.S. Cl. 324—207.15 10 Claims



1. A device for measuring the position of a conductor of a cable having a plastic cable envelope extruded onto the moving conductor, comprising:

a sensor adapted to generate an output signal in response to the proximity of the conductor with the magnitude of the output signal being dependent upon the distance between the sensor and the conductor;

and

roller means having a roller rotatably mounted thereon and yieldingly supporting the roller in a direction normal to a rotational axis of the roller, the roller continuously engaging a periphery of the envelope and being driven by the cable, and the roller means further comprising means supporting the sensor within an interior of the periphery of the roller for maintaining a fixed distance between the sensor and a periphery of the roller, wherein the sensor output signal indicates the distance of the conductor from the sensor.

5,214,377

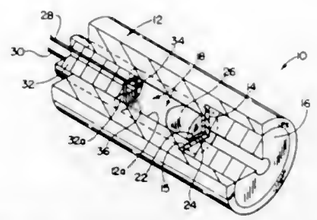
MAGNETIC DEBRIS MONITOR USING MAGNETO-OPTIC SENDING

Lisa B. Maurice, Jericho; James R. Parkinson, Vergennes, and William B. Spillman, Jr., Charlotte, all of Vt., assignors to Simmonds Precision Products, Inc., Akron, Ohio

Filed Jun. 3, 1991, Ser. No. 709,352

Int. Cl.[5] G01N *27/74;* G01R *33/032, 33/12;* G02F *1/09*

U.S. Cl. 324—204 54 Claims



1. Apparatus for detecting magnetic debris in a fluid comprising: a magnetic probe positionable in the fluid, said probe comprising magnetic field means for producing a magnetic field sufficient to capture debris in the fluid such that said magnetic field changes in relation to accumulation of debris, and a magneto-optic material positioned within a portion of said magnetic field; the apparatus further comprising means for transmitting polarized light to said probe and through said magneto-optic material in a predetermined direction with respect to said magnetic field portion wherein said magneto-optic material rotates said light polarization angle in response to said magnetic field portion; and means to detect said polarization angle rotation.

5,214,378

HOMOPOLAR INDUCTIVE DISPLACEMENT SENSOR

Donald L. Hore, Sneyd Park, United Kingdom, assignor to Radiodetection Limited, United Kingdom

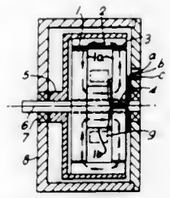
PCT No. PCT/GB89/01198, § 371 Date May 8, 1991, § 102(e) Date May 8, 1991, PCT Pub. No. WO90/04152, PCT Pub. Date Apr. 19, 1990

PCT Filed Oct. 11, 1989, Ser. No. 679,026

Claims priority, application United Kingdom, Oct. 11, 1988, 8823836; Jul. 21, 1989, 8916749

Int. Cl.[5] G01B *7/14, 7/30;* G01D *5/20*

U.S. Cl. 324—207.23 17 Claims



1. An inductive displacement sensor for providing electrical output data relating to displacement of a relatively displaceable portion of the sensor along a path, said sensor comprising first and second elements, which extend along the path on respective sides and confront each other across said path; said first element having a plurality of coil portions disposed along the path and oriented so that their axes of polarity cross the path to the other side; said second element comprising inductance affecting means adapted to affect the inductance of an adjacent coil portion and arranged so that, at any given time, said inductance affecting means extends adjacent only a fraction of the coil portions of the first element so that only the coils of that fraction are affected thereby; and wherein said relatively displaceable portion of the sensor comprises said inductance affecting means which is displaceable relative to said first element, said relative displacement causing the inductance affecting means to extend adjacent a fraction of coil portions which varies with the displacement of the inductance affecting means thereby effectively displacing a region of affected inductance so that the region applied to a spatially varying fraction of the coil portions; characterised in that said coil portions are connected as a homopolar series so that when current is passed through said series so that any one coil portion is polaried N-S from the path side of the first element to the other path side, all of the coil portions have this polarity; and when any one coil portion is polarised S-N, all of the coil portions have this polarity.

5,214,379

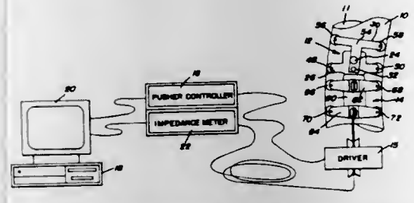
METHOD AND APPARATUS FOR DEFLECTION MEASUREMENTS USING EDDY CURRENT EFFECTS

Engmin J. Chern, Columbia, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 25, 1992, Ser. No. 904,308

Int. Cl.[5] G01B *7/28, 5/20;* G01N *27/72*

U.S. Cl. 324—220 19 Claims



7. An eddy current for making angular measurements of a specimen without human intervention, comprising:

(a) a system controller generating signals for effecting mechanical control of the system and controlling data acquisition, processing and analysis;

(b) an eddy current sensing assembly including a base member having at least one eddy current sensing coil located thereon, and a rotatable member pivotally mounted on the base member for covering and uncovering the sensing coil as a function of the mutual rotation of said base member and said rotatable member, and further having means secured to the rotatable member for contacting a surface of the specimen thereby providing rotation of said rotatable member;

(c) a mechanical propulsion assembly attached to the sensing assembly for locating and moving the sensing assembly at a predetermined location relative to the specimen;

(d) positioning assembly control means responsive to signals from said system controller for controlling the movement of the propulsion assembly;

(e) impedance measuring means controlled by signals generated by said system controller and being coupled to said sensing coil for measuring impedance change in said sensing coil whose electrical impedance characteristics change in response to changes in eddy currents generated by said coil as a function of said mutual rotation; and

(f) means coupled to said system controller for generating an indication of said mutual rotation from said impedance change in said sensing coil so as to provide an angular measurement at said location of said specimen.

5,214,380

VELOCITY-RESOLVED NMR SPECTROSCOPY

Charles L. Dumoulin, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 30, 1991, Ser. No. 767,584

Int. Cl.[5] G01R *33/20*

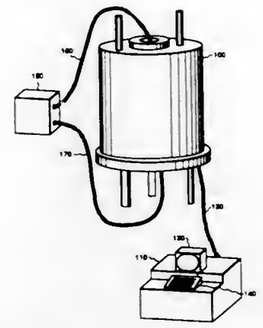
U.S. Cl. 324—307 17 Claims

1. A method for performing velocity resolved NMR spectroscopy of a fluid sample comprising the steps of:

a) passing said fluid sample through a substantially homogeneous magnetic field;

b) generating magnetization of said fluid sample in a transverse plane by application of one or more RF pulses to said fluid sample;

c) applying flow-encoding magnetic field gradient pulses to said fluid sample;



d) acquiring chemical shift resolved NMR data from said fluid sample; and

e) repeating steps a–d for a plurality of repetitions.

5,214,381

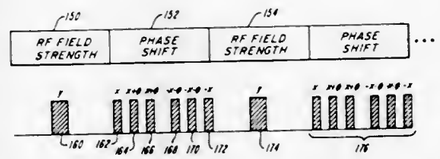
METHOD FOR SELECTIVELY EXCITING NUCLEAR SPINS IN A RADIO-FREQUENCY FIELD WITH PREDETERMINED STRENGTH

David G. Cory, Boston, Mass., assignor to Bruker Instruments, Inc., Billerica, Mass.

Filed Mar. 30, 1992, Ser. No. 860,685

Int. Cl.[5] G01V *3/00*

U.S. Cl. 324—307 14 Claims



I. In an NMR spectrometer in which NMR-active nuclei having nuclear spins are placed in a main static magnetic field to produce a net spin magnetization with a direction and a radio-frequency field having a spatially-varying strength is applied to said nuclei, a method for exciting only selected ones of said nuclear spins located in a spatial volume in which said radio-frequency field has a predetermined strength, said method comprising the steps of:

A. applying to said nuclei at least one first radio-frequency pulse selected to generate a first nuclear spin rotation with a first amplitude and a first rotation axis aligned with said spin magnetization direction and further selected to rotate said nuclear spins through an angle which varies with said radio-frequency field strength;

B. applying to said nuclei at least one second radio-frequency pulse selected to generate a second nuclear spin rotation with a second amplitude which is less than said first amplitude and with a second rotation axis orthogonal to said first rotation axis and further selected to rotate said nuclear spins through an angle which is independent of said radio-frequency field strength; and

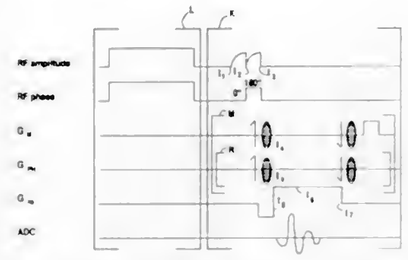
C. repeating steps A and B a predetermined number of times.

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5,214,382
MAGNETIC RESONANCE IMAGING WITH SELECTIVE CONTRAST ENHANCEMENT

Steven E. Harms, Dallas; Duane P. Flamig, Richardson, and Richard H. Griffey, Dallas, all of Tex., assignors to Baylor Research Institute, Dallas, Tex.

Continuation-in-part of Ser. No. 569,100, Aug. 17, 1990, which is a continuation-in-part of Ser. No. 484,119, Feb. 23, 1990, Pat. No. 5,125,407. This application Apr. 11, 1991, Ser. No. 685,394
Int. Cl.[5] G01R *33/20*
U.S. Cl. 324—309 4 Claims

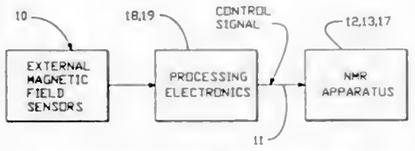


1. A method of producing a selective component enhanced image of an object comprised of at least first and second components, comprising the steps of:
generating a uniform magnetic field to magnetize said object;
generating a first preparatory pulse sequence to enhance the contrast of said first component with respect to said second component;
generating an RF pulse sequence to produce transverse magnetization in said second component of said object;
generating first, second, and third changing magnetic fields in said object;
receiving a series of gradient echoes in response to said generated RF pulse sequence; and
producing a contrast enhanced image of said object.

5,214,383
MRI APPARATUS WITH EXTERNAL MAGNETIC FIELD COMPENSATION

Robert J. Perlmutter, Palo Alto; Brian P. Wilfley, Los Altos; Rick Motamedi, Sunnyvale, and John Moberly, Mountain View, all of Calif., assignors to Resonex, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 605,787, Oct. 29, 1990, abandoned. This application Oct. 16, 1991, Ser. No. 778,305
Int. Cl.[5] G01R *33/20*
U.S. Cl. 324—313 10 Claims

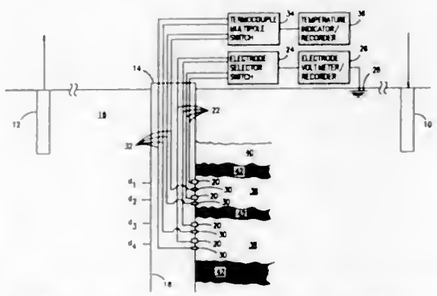


1. A method of compensating for the superimposition of an external time varying magnetic field on the main magnetic field produced by the main magnet of a nuclear magnetic resonance (NMR) apparatus, said main magnetic field being normally stable but said superimposed external time varying magnetic field causing time variations in the strength of said main magnetic field, such NMR apparatus including an oscillator having a controllable frequency which is used to demodulate a radio frequency NMR signal received from a sample to be studied which is immersed in said main magnetic field, said method comprising the following steps:
detecting said external time varying magnetic field with at least one of a plurality of sensors which produces a sensor signal related to said external field; and
using said sensor signal to control the frequency of said oscillator to track and therefore compensate for said time variation of said strength of said main magnetic field.

5,214,384
METHOD INCLUDING ELECTRICAL SELF POTENTIAL MEASUREMENTS FOR DETECTING MULTIPHASE FLOW IN A CASED HOLE

Eve S. Sprunt, Farmers Branch, and Nizar F. Djabbarah, Richardson, both of Tex., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Jul. 24, 1991, Ser. No. 734,834
Int. Cl.[5] G01V *3/26;* E21B *43/24, 47/10, 49/00*
U.S. Cl. 324—351 12 Claims



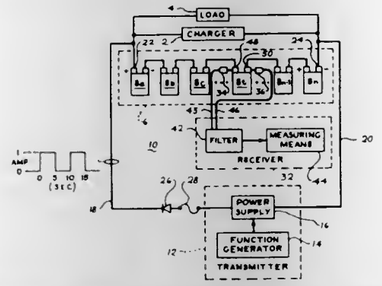
1. A time lapse electric logging method where self potential measurements are utilized to determine steam quality comprising:
a) measuring electric self potential via a wellbore at various levels in a formation where it is desired to inject steam;
b) thereafter injecting steam into said levels via the wellbore while measuring electric self potential at said levels;
c) using any measurements of increased electric self potential at each level to detect continuously two-phase steam flow; and
d) thereafter using measurements of a decrease in electric self potential at a level to detect one-phase steam flow thus indicating where steam breakthrough has occurred at a level and that steam quality at a level has increased because of a change from two-phase steam flow to one-phase steam flow.

5,214,385
APPARATUS AND METHOD FOR UTILIZING POLARIZATION VOLTAGE TO DETERMINE CHARGE STATE OF A BATTERY

Charles M. Gabriel, Lombard, and Merlin E. Hurkum, Elmhurst, both of Ill., assignors to Commonwealth Edison Company, Chicago, Ill.

Filed May 22, 1991, Ser. No. 703,893
Int. Cl.[5] G01N *27/416;* A02J *7/00*
U.S. Cl. 324—434 34 Claims

1. An apparatus for measuring charge state of a battery comprising at least one cell which exhibits a polarization voltage when fully charged, said apparatus comprising:
a transmitter connected to the battery and operative to apply a charging test signal to the cell when the cell is fully charged, said test signal characterized by at least one transition to a voltage value greater than the voltage of the cell to provide charging signal which is retained for a time sufficient to modify the polarization voltage when present across the cell; and

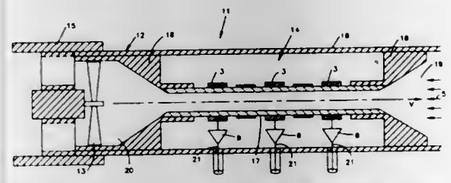


a receiver connected to the cell and operative to monitor the polarization voltage across the cell to provide an indication of the state of charge of the cell.

5,214,386
APPARATUS AND METHOD FOR MEASURING PARTICLES IN POLYDISPERSED SYSTEMS AND PARTICLE CONCENTRATIONS OF MONODISPERSED AEROSOLS

Hermann Singer, Luettendamm 9, 2000 Stapelfeld/Hamburg, and Michael Rossner, Haldesdorfer Strasse 158, 2000 Hamburg 71, both of Fed. Rep. of Germany

Filed Sep. 28, 1990, Ser. No. 589,668
Claims priority, application European Pat. Off., Mar. 3, 1990, 90104165
Int. Cl.[5] G01N *27/60*
U.S. Cl. 324—452 36 Claims

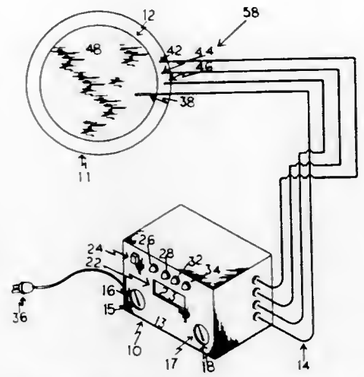


1. A method for measuring any of the size, charge, velocity and concentration of particles in polydispersed systems, and particle concentrations of monodispersed aerosols, including the steps of:
conducting the particle flow through at least one active field sensor operating by induction;
measuring charges of electrostatic induction of particles passing the sensor as inducted on the active field sensor and transmitting the resulting measurement of induction for each particle passing the sensor to an active charge amplifier which provides an output signal; and
transmitting the output signal of the active charge amplifier to a measured value indicator;
wherein said steps are performed so as to contactlessly measure the size and charge of individual electrostatically charged particles in polydispersed systems down to equivalent particle diameters of about 1 micron, whereby charges of particles are determined from the pulse magnitude of said amplified output signal.

5,214,387
ELECTROLYTIC RESISTIVITY LEAK DETECTOR

Richard D. Fenner, 7303 Springside, Houston, Tex. 77040

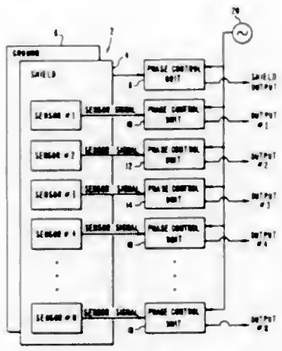
Filed Mar. 6, 1989, Ser. No. 319,615
Int. Cl.[5] G01R *27/22;* G01N *17/00*
U.S. Cl. 324—557 7 Claims



1. Apparatus for measuring electrical resistivity and the changes therein, of the interior wall of any nonmetallic reinforced plastic vessel caused by the gradual permeation of electrolytic chemicals from the interior surface of the structure to the exterior surface of the structure, the apparatus comprising:
(a) a first sensor on the interior surface of the vessel and exposed to the electrolytic chemicals,
(b) a second sensor in the vessel wall located closer to the interior surface than the exterior surface of the vessel and remote from initial exposure to the electrolytic chemicals,
(c) a third sensor in the vessel wall located approximately equidistant from the interior surface and exterior surface of the vessel, and remote from initial exposure to the electrolytic chemicals,
(d) a fourth sensor in the vessel located closer to the exterior surface than the interior surface of the vessel and remote from initial exposure to electrolytic chemicals,
(e) a power source,
(f) a first conduit for communicating a current from said power source to said first sensor,
(g) means for measuring the current in operative association with said power source,
(h) a second conduit for communicating a current from said second, third and fourth sensors to said means for measuring the current,
(i) means for indicating responses to said second, third and fourth sensors indicative of the status of the engagement of the power source, such that said power source generates an electric current such that the chemical contained inside the vessel is an electrolyte and electric current passed to the electrolyte by said first sensor is measurable wherever the chemical is found; the second, third and fourth sensors are embedded in the wall of the vessel at varying depths for engaging the chemical as it permeates the interior wall of the vessel moving toward the exterior wall, the sensors make electrical contact and an electrical loop is formed, and said means for measuring current measures the electric current detected by the second, third and fourth sensors, such that the second sensor makes initial electrical contact with the electrolytic chemical, followed by the third sensor and subsequently the fourth sensor makes electrical contact with the chemical.

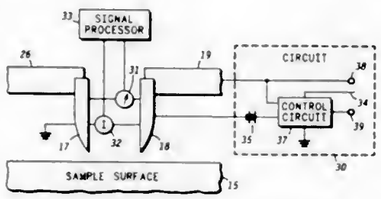
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,388
PHASE DISCRIMINATING CAPACITIVE ARRAY SENSOR SYSTEM
John M. Vranish, Crofton, and Wadi Rahim, Severna Park, both of Md., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed May 28, 1992, Ser. No. 889,577
Int. Cl.[5] G01R 27/26
U.S. Cl. 324—683 13 Claims



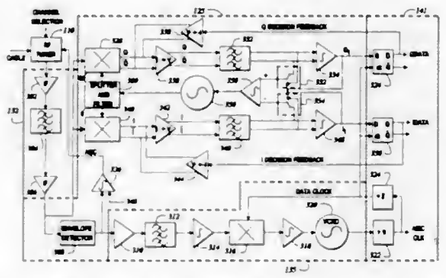
1. A phase discriminating capacitive sensor array system for detecting an object, comprising:
(a) a capacitive sensor array having sensor elements to sense the object, each sensor element producing a sensor signal;
(b) a frequency stabilized oscillator providing a frequency reference; and
(c) phase control means for controlling a phase and amplitude of each sensor signal, and adjusting each sensor signal to correspond to the frequency reference provided by said frequency stabilized oscillator.

5,214,389
MULTI-DIMENSIONAL HIGH-RESOLUTION PROBE FOR SEMICONDUCTOR MEASUREMENTS INCLUDING PIEZOELECTRIC TRANSDUCER ARRANGEMENT FOR CONTROLLING PROBE POSITION
Beatrice M. Cao, Phoenix, and Juan P. Carrejo, Tempe, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jan. 6, 1992, Ser. No. 817,209
Int. Cl.[5] G01R 27/14
U.S. Cl. 324—719 14 Claims



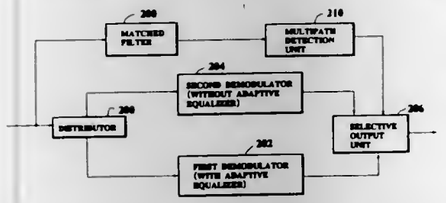
1. A multi-dimensional high-resolution probe comprising: a first probe; a first piezoelectric transducer attached to the first probe, wherein the first piezoelectric transducer is capable of moving the fist probe in at least one dimension; a first means for applying a variable electric field to the first piezoelectric transducer; a second probe; a second piezoelectric transducer attached to the second probe; a second means for applying a variable electric field to the second piezoelectric transducer; a means for applying current between the first and second probes; and a means for measuring voltage between the first and second probes.

5,214,390
METHOD AND APPARATUS FOR PARTIAL RESPONSE DEMODULATION
Leo Montreuil, Atlanta, Ga., assignor to Scientific-Atlanta, Inc., Atlanta, Ga.
Filed Mar. 16, 1992, Ser. No. 851,445
Int. Cl.[5] H03D 3/00
U.S. Cl. 329—309 9 Claims



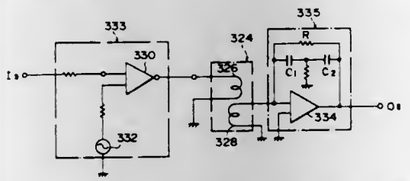
1. A demodulator for a quadrature partial response (QPR) signal of the form $M_I(t) \cdot \sin(\omega_c t) + M_Q(t) \cdot \cos(\omega_c t)$, where $M_I(t)$ and $M_Q(t)$ are encoded partial response information modulations of the inphase and quadrature phases of a carrier of frequency ($\omega_c t$), said demodulator comprising:
means for decoding a data clock from the QPR signal and for generating a recovered data clock signal;
means for generating a demodulating carrier of frequency ($\omega_c t$) with inphase and quadrature phases coherent with the QPR signal carrier;
first means for mixing the QPR signal with the inphase phase of said demodulating carrier, said first mixing means generating a current as a function of time including the component $M_I(t)$;
means for determining whether $M_I(t)$ is positive or negative at a sampling time determined by said recovered data clock signal;
means for generating a digital output depending upon the sign determination of $M_I(t)$ where said digital output is one state if $M_I(t)$ is positive and the other state if negative;
means for subtracting an amount of current equivalent to the previous state of said digital output generating means from the output of said first mixing means;
second means for mixing the QPR signal with the quadrature phase of said demodulating carrier, said second mixing means generating a current as a function of time including the component $M_Q(t)$;
means for determining whether $M_Q(t)$ is positive or negative at a sampling time determined by said recovered data clock signal;
means for generating a digital output depending upon the sign determination of $M_Q(t)$ where said digital output is one state if $M_Q(t)$ is positive and the other state if negative; and
means for subtracting an amount of current equivalent to the previous state of said digital output generating means from the output of said second mixing means.

5,214,391
DEMODULATION APPARATUS HAVING MULTIPATH DETECTOR FOR SELECTING A FIRST OR SECOND DEMODULATOR
Mutsumu Serizawa; Minoru Namekata, both of Tokyo; Koji Ogura, and Katsumi Sakakibara, both of Kanagawa, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Division of Ser. No. 625,292, Dec. 6, 1990, Pat. No. 5,159,282.
This application Jun. 29, 1992, Ser. No. 905,413
Claims priority, application Japan, Dec. 6, 1989, 1-317065; Jul. 16, 1990, 2-185434
Int. Cl.[5] H03D 3/00; H04B 1/12
U.S. Cl. 329—316 7 Claims



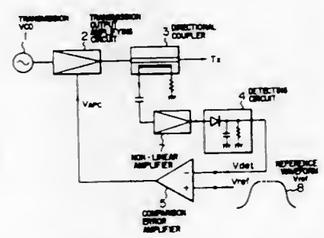
1. A demodulation apparatus, comprising:
a distributor for distributing an input signal to a first and a second passages;
a first demodulator including an equalizer capable of compensating a transmission path distortion, connected with the first passage, for demodulating the input signal;
a second demodulator, connected with the second passage, for demodulating the input signal;
means for detecting a presence of multipath from the input signal; and
means for selectively outputting one of the outputs of the first and second demodulators according to the detected presence of the multipath.

5,214,392
MULTILAYERED CERAMIC TYPE ELECTROMAGNETIC COUPLER APPARATUS
Tsunekazu Kobayashi, Kawasaki; Satoshi Sakuragi, Yokohama; Takeshi Ikeda, Sagamihara, and Takashi Kuroda, Yokohama, all of Japan, assignors to Murata Mfg. Co., Ltd., Kyoto, Japan
Division of Ser. No. 429,490, Oct. 31, 1989, abandoned. This application Jun. 30, 1992, Ser. No. 906,420
Claims priority, application Japan, Nov. 8, 1988, 63-281688
Int. Cl.[5] H03F 3/38
U.S. Cl. 330—10 19 Claims



1. A multilayered ceramic type electromagnetic coupler apparatus, comprising:
a coupling section including first and second coil elements and adapted to electromagnetically couple said coil elements, said first and second coil elements are formed on ceramic substrates, wherein said ceramic substrates are laminated and have an insulating member disposed between adjacent ones of said ceramic substrates;
a modulator section which includes an oscillator for oscillating at a predetermined carrier frequency and a modulator for modulating a carrier input from said oscillator by means of a signal supplied from an external circuit and which is adapted to supply said modulated carrier to said first coil element; and
a demodulating section adapted to output a signal after demodulating said modulated carrier output from said second coil element.

5,214,393
TRANSMISSION OUTPUT CONTROL CIRCUIT
Yukichi Aihara, Kawasaki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Aug. 6, 1991, Ser. No. 740,966
Claims priority, application Japan, Aug. 20, 1990, 2-219215; Aug. 20, 1990, 2-219216; Aug. 20, 1990, 2-219217
Int. Cl.[5] H03G 3/20
U.S. Cl. 330—279 12 Claims



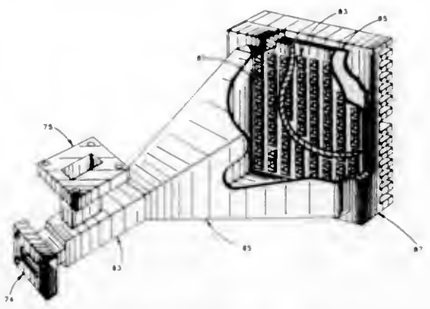
5. A transmission output control circuit comprising:
a transmission power amplifying circuit for amplifying a transmission power;
a variable attenuator for attenuating a part of an output of the transmission power amplifying circuit;
a non-linear amplifier which receives an output of the variable attenuator;
a detecting circuit which receives an output of the non-linear amplifier; and
control means for controlling an amplification factor of the transmission power amplifying circuit in accordance with a result of a comparison between an output of the detecting circuit and a reference value.

5,214,394
HIGH EFFICIENCY BI-DIRECTIONAL SPATIAL POWER COMBINER AMPLIFIER
Sam H. Wong, Yorba Linda, Calif., assignor to Rockwell International Corporation, Seal Beach, Calif.
Filed Apr. 15, 1991, Ser. No. 685,104
Int. Cl.[5] H03F 3/16; H01Q 23/00
U.S. Cl. 330—286 19 Claims

1. A power combiner for millimeter wavelength signals; the power combiner comprising:
a waveguide horn having a narrow end and a wide end, wherein said narrow end is adapted to receive an input millimeter wavelength signal;
amplifying means mounted on a mounting plate across the wide end of said waveguide horn for receiving said input signal from said narrow end of said waveguide, amplifying said received signal to produce an amplified signal, and

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returning said amplified signal toward said narrow end of said waveguide horn; and



a discriminator connected at the narrow end of said horn for discriminating between said signal transmitted to said wide end of said horn and said returned amplified signal.

5,214,395

PARASITIC SIGNAL SUPPRESSION CIRCUIT FOR AN EXTREMELY HIGH FREQUENCY OSCILLATOR

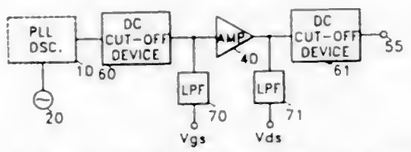
Ki-ho Yun, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea

Filed Nov. 22, 1991, Ser. No. 796,443

Claims priority, application Rep. of Korea, Jun. 29, 1991, 91-11043

Int. Cl.[5] H03B *1/04*; H03F *3/60*

U.S. Cl. 331—77 **3 Claims**



1. A parasitic signal suppression circuit for an extremely high frequency (EHF) local oscillation device having an EHF oscillator, comprising:

a first direct current cut-off device connected between an output of said EHF oscillator and an input of an amplifier;

a first low-pass filter coupled at one end thereof between said first direct current cut-off device and said amplifier and coupled to a direct current power source at the other end thereof for supplying said direct current power source to said amplifier;

a second direct current cut-off device connected between an output of said amplifier and an output of said EHF local oscillation device; and

a second low-pass filter coupled at one end thereof between said output of said amplifier and said second direct current cut-off device and coupled to a direct current supply source at the other end thereof for supplying said direct current supply source to said amplifier;

wherein said first and second direct current cut-off devices are composed of parallel resonators having a cut-off frequency matching an intermediate frequency band frequency of a device in which said EHF local oscillation device is provided;

said parasitic signal suppression circuit suppressing a parasitic signal at the output of said EHF oscillator from being transmitted to said output of the EHF local oscillation device and simultaneously passing a desired main signal to said output of said EHF local oscillation device.

5,214,396

METHOD AND APPARATUS FOR PROVIDING A BIPHASE MODULATED SIGNAL HAVING FLAT ENVELOPE CHARACTERISTICS WITHOUT A DIRECT CURRENT COMPONENT

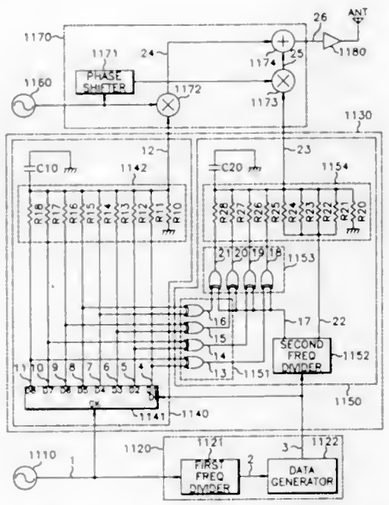
Byoung-Jin Cheon, Suwon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 12, 1991, Ser. No. 805,647

Claims priority, application Rep. of Korea, Jan. 25, 1991, 1991-1299

Int. Cl.[5] H03C *3/00*; H03K *7/04*; H04L *27/20*

U.S. Cl. 332—104 **21 Claims**



1. A biphase shift-keying modulation circuit with flat envelope characteristics, comprising:

clock pulse generator means for providing a system clock pulse by generating a clock pulse signal;

data generating means connected to said clock pulse generator means, for serially generating random digital data D(t), where t is a value of time, in synchronism with a frequency-divided system clock pulse by dividing a frequency of said system clock pulse;

data conversion means connected to said data generating means, for providing parallel shifted data by sequentially shifting said random digital data in synchronism with said system clock pulse, for generating an in-phase signal component by multiplying the parallel shifted data by resistive values of a first adding circuit and adding the multiplied data, and for providing a quadrature-phase signal component without a direct current component by adding a first processed signal generated by processing said parallel shifted data and a second processed signal generated by processing said random digital data from the data generating means;

carrier oscillator means for providing a carrier by generating said carrier; and

modulating means connected to said carrier oscillator means and data conversion means for providing a first modulated signal by modulating said in-phase signal component with said carrier and for providing a second modulated signal by modulating said quadrature-phase signal component with a phase-shifted carrier, and for providing a biphase modulated signal with flat envelope characteristics by adding the first and second modulated signals.

5,214,397

MODULATOR USING LOW-PASS FILTER AS DELAY ELEMENT

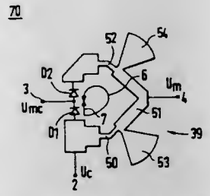
Fred-Egon Müller, Pforzheim, Fed. Rep. of Germany, assignor to Alcatel N.V., Amsterdam, Netherlands

Filed Sep. 6, 1991, Ser. No. 756,183

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1990, 4028371

Int. Cl.[5] H03C *1/14, 1/58*; H04L *27/20*

U.S. Cl. 332—105 **10 Claims**



1. Modulator stage for forming a modulated carrier signal from a carrier and a digital modulating signal and comprising:

a carrier input, a signal input, a signal output,

an electrically short path leading from the carrier input to the signal output,

a phase delay path also leading from the carrier input to the signal output,

a low-pass filter for shifting the phase of the carrier in the phase delay path by about 180° or an odd integral multiple thereof with respect to the phase of the carrier in the electrically short path,

first and second nonlinear semiconductor devices having respective opposite polarities with respect to the direction of propagation of the carrier and arranged in the two paths in such a way as to be operable in phase with respect to the carrier, and

means for connecting the signal input to the phase delay path such that the modulator stage operates in push-pull fashion with respect to the signal.

5,214,398

DIELECTRIC FILTER COUPLING STRUCTURE HAVING A COMPACT TERMINAL ARRANGEMENT

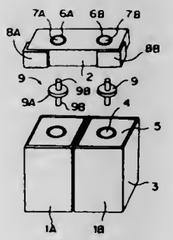
Shotaro Hayashi, Yamaguchi, Japan, assignor to Ube Industries, Ltd., Yamaguchi, Japan

Filed Oct. 28, 1991, Ser. No. 783,171

Claims priority, application Japan, Oct. 31, 1990, 2-292118; Oct. 8, 1991, 3-287185

Int. Cl.[5] H01P *1/205*

U.S. Cl. 333—206 **12 Claims**



1. A dielectric filter coupler structure, comprising:

a plurality of resonators, each of said resonators having an outer conductor and an inner conductor which is disposed coaxially with said outer conductor with respect to an axis, a dielectric material being disposed between said inner and outer conductors;

a rectangular dielectric block having a connecting surface which extends in a direction essentially perpendicular to said axis, said connecting surface being disposed in parallel opposition to a top surface of said resonators, said dielectric block having holes formed therein, each of said holes extending in direction which is parallel to said axis and being in opposed relation to a corresponding one of said inner conductors, a coupling electrode being formed on an inner surface of each of said holes;

a spacer disposed between each of said coupling electrodes and a corresponding one of said inner conductors;

an input terminal electrode, at least a portion of said input terminal electrode being formed on a first outer peripheral surface portion of said dielectric block, said first outer peripheral surface portion lying in a plane which is parallel to said axis; and

an output terminal electrode, at lest a portion of said output terminal electrode being formed on a second outer peripheral surface portion of said dielectric block, said second outer peripheral surface portion lying in a plane which is parallel to said axis.

5,214,399

CIRCUIT CONFIGURATION FOR RANGE CHANGING IN TUNERS

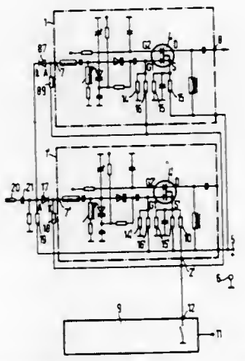
Henning Hohmann, München, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 20, 1991, Ser. No. 703,204

Claims priority, application European Pat. Off., May 21, 1990, 109586

Int. Cl.[5] H03J *5/24*

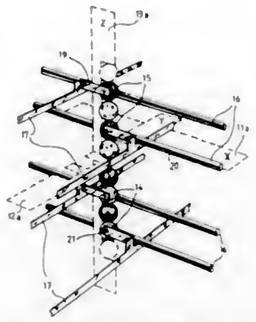
U.S. Cl. 334—1 **14 Claims**



1. A circuit configuration for range switching in tuners having at least two ranges, comprising at least two preselector stages each being assigned a respective tuner range, each of said preselector stages being connected between a supply potential terminal and a reference potential terminal, each of said preselector stages having an input terminal, an output terminal and an MOS tetrode; and a switchgear for activating each of said MOS tetrodes, said switchgear having a switch output terminal commonly connected to all of said preselector stages and switchingly connectable to the reference potential terminal, said preselector stages being coupled to one another for activating one of said preselector stages as a function of a switch state of said switch output terminal.

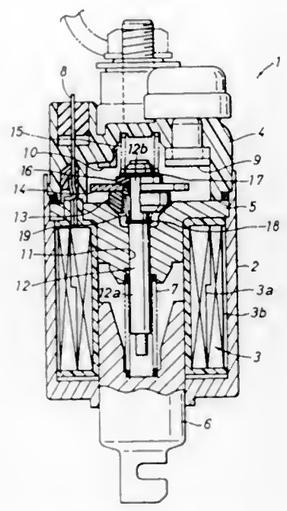
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5,214,400
GALVANIC SWITCH
Sture G. Roos, Bergshamra, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden
Filed Jun. 16, 1992, Ser. No. 899,321
Claims priority, application Sweden, Jun. 17, 1991, 9101868
Int. Cl.[5] H01H *64/14*
U.S. Cl. 335—112 6 Claims



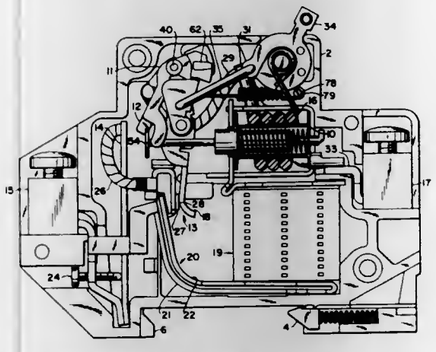
1. A galvanic switch for electrically making or breaking one cross-point among a plurality of cross-points in a three-dimensional coupling matrix, wherein each of said cross-points may consist of one or more conductors, including electrical contact lines which extend in a first direction, first links which extend perpendicularly to said contact lines, second links which extend perpendicularly to both the contact lines and the first links, wherein each contact line, first link and second link, is comprised of a corresponding number of conductors, electrical contact elements at each cross-point for making or breaking electrical contact between the conductors of the contact lines and the conductors of the first or the second links respectively, and maneuvering elements for maneuvering the contact elements at said cross-point, including first maneuvering elements which are parallel with the contact lines and can be moved parallel thereto, second maneuvering elements which are parallel with the first links and can be moved parallel thereto, and third maneuvering elements which are parallel to the second links and can be moved parallel thereto, wherein the contact elements are comprised of spherical coupling elements arranged in and adjacent to each cross-point; in that the first maneuvering elements are disposed in first planes parallel with the contact conductors and the first links in order to move all coupling elements simultaneously adjacent respective cross-points in a selected cross-point plane; in that the second maneuvering elements are disposed in second planes parallel with the first links and the second links in order to move simultaneously all of the coupling elements moved by the first maneuvering elements in the intersection between the first selected plane and the selected second cross-point plane; and in that the third maneuvering elements are disposed in third planes parallel with the contact conductors and the second links in order to move the coupling elements moved by the first maneuvering elements and the second maneuvering elements in the intersection between the second selected plane and the third selected plane, said coupling elements, upon mechanical activation of respective maneuvering elements, being moved so as to establish contact with the contact conductors and the first links or the second links in order to make or break the cross-point electrically, depending on whether the coupling element is electrically conductive or electrically non-conductive, and in that maneuvering of the third maneuvering elements is used as a coupling function for brining into the cross-point a coupling element of a kind which is opposite to the kind of element that is already located in the cross-point.

5,214,401
ELECTROMAGNETIC SWITCH
Eiichi Kimura, and Koji Nara, both of Gumma, Japan, assignors to Mitsuba Electric Mfg. Co., Ltd., Kiryu, Japan
Filed Mar. 11, 1992, Ser. No. 850,693
Claims priority, application Japan, May 14, 1991, 3-138171
Int. Cl.[5] H01H *67/02*
U.S. Cl. 335—126 13 Claims



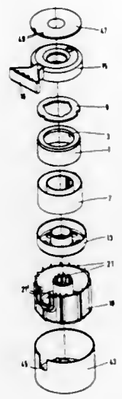
1. An electromagnetic switch comprising:
housing means;
an electromagnetic coil mounted in said housing means for selectively producing a magnetic field;
a core assembly positioned within said coil and including an axially slidable rod extending from an open end of said core assembly, said core assembly providing longitudinal movement of the rod in response to a magnetic field produced by said coil;
a first stationary contact and a second stationary contact mounted in said housing means in spaced apart relationship and proximate to the rod;
an electrically conductive moveable contact member provided with an inner surface, a center aperture for receiving the rod, and an outer surface for selectively engaging and disengaging said first and second stationary contacts to close and open electrical connection between said first and second stationary contacts;
an inner insulative support member provided with a coil spring for biasing said moveable contact member toward a closed connection when said coil is energized, said inner support member being slidably mounted on the rod for engaging the inner surface of said moveable contact member and insulating said moveable contact member from the rod and the compression spring; and
an outer insulative support member provided with a retention means for retaining said moveable contact member and said inner insulative support member on the rod, and a return spring connected to said housing for biasing the moveable contact assembly towards an open connection, said outer insulative support member engaging the outer surface of said moveable contact member and insulating said moveable contact member from the rod and the return spring.

5,214,402
TRIP LINK LATCH AND INTERPOLE LINK FOR A CIRCUIT BREAKER
Gregory T. DiVincenzo, Easton; John C. Lucas, Salisbury, and Keith A. Singer, Cambridge, all of Md., assignors to North American Philips Corporation, New York, N.Y.
Filed Dec. 23, 1991, Ser. No. 814,975
Int. Cl.[5] H01H *9/20*
U.S. Cl. 335—167 8 Claims



1. A circuit breaker comprising:
a contact set having first and second contacts, forming an electrical switch,
means for mounting said second contact for movement with respect to said first contact between a closed position and an open position,
a latching mechanism for holding said second contact in said closed position, said latching mechanism comprising a latch element,
a tripping mechanism for unlatching the latching mechanism, said tripping mechanism comprising at least one actuator which moves from a normal position to a tripping position in response to occurrence of a given condition, and
an additional element, and means for mounting said additional element for movement between a normal and an actuating position,
characterized in that said tripping mechanism further comprises a trip link mounted for pivotal movement about an axis between a latched position and at least one unlatched position, said trip link comprising:
a center hub,
a latching surface which forms part of said latching mechanism, arranged adjacent said hub for engagement by said latch element for holding said second contact in said closed position,
a sensing arm extending generally radially from said hub, arranged for engagement by said actuator upon movement of said actuator from said normal position to said tripping position, to pivot said trip link from the latched position to a first unlatched position in which said latching surface is disengaged from said latch thereby releasing said latching mechanism, and
at least one operating projection extending from said hub, in said latched position said projection being spaced from said additional element, and upon pivoting of said trip link from said first unlatched position to a further unlatched position, said operating projection engaging and moving said additional element,
whereby force requirements for moving said trip link from said latched to said first unlatched position are free from force requirements for moving said additional element.

5,214,403
INDUCTIVE DEVICE COMPRISING A TOROIDAL CORE
Daniel N. L. G. Bogaerts, Braine-L'Alleud, and Raymond J. P. Van der Borght, Messelbroek, both of Belgium, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 10, 1991, Ser. No. 804,571
Claims priority, application Netherlands, Dec. 14, 1990, 9002753
Int. Cl.[5] H01F *15/04, 27/30*
U.S. Cl. 336—84 C 11 Claims



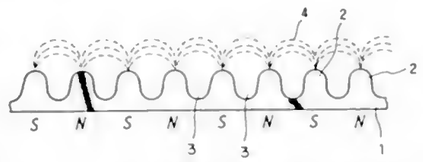
1. An inductive device comprising; a toroidal core of a soft-magnetic material having a central hole, which core is enclosed by at least a first winding comprising a number of electrically conductive segments which are shaped approximately as a U-shaped plate having two substantially parallel end portions of unequal width and a wedge-shaped central portion, free ends of the end portions being provided with connection members, said segments enclosing the core so that the end portions of smaller width project through the central hole and the end portions of larger width are situated on the outer side of the toroidal core, electrical conductors being connected to the connection members, said conductors constituting the first winding in conjunction with the segments, characterized in that the segments are formed as metallized portions of the outer surface of a cap which is made of an electrically insulating material and which is arranged around the core in the form of a ring having a U-shaped cross-section, said segments being electrically isolated from one another by non-metallized strip-shaped portions of the outer surface of the cap.

5,214,404
CONTINUOUSLY MAGNETIZING MAGNET
Takayoshi Yamaguchi, and Isamu Kobayashi, both of Tokyo, Japan, assignors to Japan Life Co., Ltd., Tokyo, Japan
Filed Jul. 31, 1991, Ser. No. 738,378
Claims priority, application Japan, Jul. 30, 1990, 2-80890
Int. Cl.[5] H01F *7/00*
U.S. Cl. 335—302 2 Claims

1. A continuously magnetizing magnet comprising a body of magnetic material having a flat bottom side and a top side spaced therefrom, said top side having a plurality of semicircular crests and semicircular bases joined in series along the

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longitudinal axis of said body, and both said crests and said bases being spaced from the flat side, said crests being magnetized so that they are alternately N and S magnetic poles on said top side of said magnetic material body.



5,214,405

MINIATURE CIRCUIT-BREAKER WITH REMOTE TRIPPING

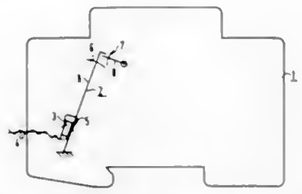
Anton Glas, Regensburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 18, 1992, Ser. No. 884,029

Claims priority, application European Pat. Off., May 17, 1991, 91108041.4

Int. Cl.[5] H01H *71/16, 61/02*

U.S. Cl. 337—71 **6 Claims**



1. A miniature circuit-breaker comprising:

a thermal trip element including a force translator which causes switching contacts to open, wherein the thermal trip element is a thermally sensitive element;

a PTC (positive temperature coefficient) thermistor in thermally conductive contact with said thermally sensitive thermal trip element; and

an external signal path connected to the PTC thermistor providing a voltage to the PTC thermistor to properly heat the thermally sensitive thermal trip element causing it to respond.

5,214,406

SURFACE MOUNTED CARTRIDGE FUSE

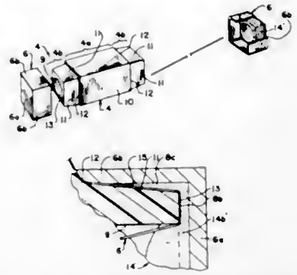
Lloyd W. Reese; Larry J. Brashear, and Daniel B. Onken, all of Centralia, Ill., assignors to Littelfuse, Inc., Des Plaines, Ill.

Filed Feb. 28, 1992, Ser. No. 843,373

Int. Cl.[5] H01H *85/16*

U.S. Cl. 337—231 **19 Claims**

1. In a surface-mounted fuse comprising a hollow insulating fuse body defining an interior, longitudinally-extending, fuse element-receiving passageway, said body having a central portion terminating in opposite longitudinal end portions, at least one of said central and longitudinal end portions having a profile presenting flat side surfaces, said passageway opening at the opposite longitudinal ends of said fuse body to the exterior of said body through a pair of axially, outwardly-facing openings; a pair of conductive end caps for making electrical connection to an external electrical circuit, said end caps comprising end walls respectively confronting said fuse body passageway openings and longitudinally-extending side walls enveloping said longitudinal end portions of said body; bodies of solder in said end caps; and a fuse element in said passageway extending between the longitudinal ends of said body and having end portions physically and electrically connected to said end caps through said solder bodies, at least one end portion of said fuse element being bent back over the adjacent end of the fuse body; the improvement wherein each longitudinal end portion of said fuse body adjacent a bent back portion of said fuse element is outwardly tapered to define a tapered



cavity between said fuse body and the adjacent end cap side wall which forms a recess extending around the periphery of said fuse body; each bent back portion of said fuse element having a thickness less than the size of the adjacent annular cavity for most of the length thereof, so at least a major portion of the length of each bent back portion of said fuse element is not crushed by the adjacent end cap side wall.

5,214,407

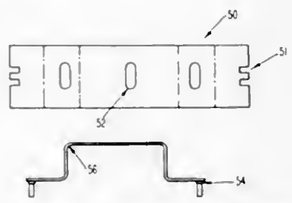
HIGH PERFORMANCE CURRENT SHUNT

James B. McKim, Jr., Blairstown; Robert D. Peck, Oak Ridge; Richard S. Myers, Somerville; William H. Pickel, Blairstown, and Alan W. Cudworth, Clifton, all of N.J., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 6, 1991, Ser. No. 788,404

Int. Cl.[5] H01C *7/00*

U.S. Cl. 338—49 **10 Claims**



1. A high-performance current shunt for converting a current applied thereto into a potential which is precisely proportional to the current flow through said current shunt, the proportionality between said current and said potential being substantially independent of changes in ambient temperature and the magnitude of current flow through said current shunt, said current shunt comprising:

first and second current connections responsive to said input current;

first and second potential connections for providing said output potential, said first and second potential connections being spaced so as to define an effective resistance value for said current shunt; and

a resistive element formed of a sheet of material having a known temperature coefficient of resistance, said resistive element having said current connections and potential connections disposed thereon so as to define a current path between said first and second current connections whereby a proportion of a potential drop between said first and second current connections may be sensed at said first and second potential connections, said resistive element further including a first slit between said first and second current connections for diverting the current flow in said current path around said first slit so as to control the location of heat dissipation and to thereby prevent localized heating of said resistive element and the resultant temperature induced changes in said effective resistance and in the sensed proportion of said potential drop between said first and second current connections in said current path, and a second slit for electrically isolating said first and second potential connections from that portion of said current path between said first and second current connections at which said proportion of said potential drop is sensed, thereby eliminating variation in said temperature coefficient of resistance of said material in said current path as a result of material impurities introduced by connection of said first and second potential connections to said resistive element.

5,214,408

DISTANCE DETECTING APPARATUS FOR A VEHICLE

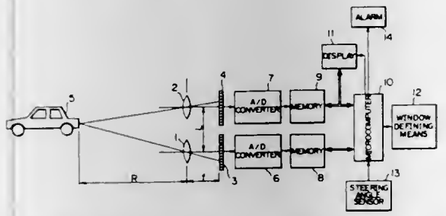
Yoshiaki Asayama, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 24, 1991, Ser. No. 782,110

Claims priority, application Japan, Oct. 25, 1990, 2-290469; Nov. 28, 1990, 2-335430

Int. Cl.[5] B60Q *1/00;* **G08G** *1/16*

U.S. Cl. 340—435 **8 Claims**



1. A vehicle mounted distance detecting apparatus, comprising:

a) a pair of laterally spaced first and second image sensors (3,4; 3'4') including a pair of optical systems (1, 2) for optically sensing a plurality of objects;

b) a first memory for storing the images of said objects sensed by said first image sensor as first image signals;

c) a second memory for storing the images of said objects sensed by said second image sensor as second image signals;

d) a display (11) with a screen for displaying the images of said objects as sensed by said image sensors on the screen;

e) window defining means (12) for defining a plurality of windows (15-19) at specific locations on the screen of said display;

f) distance calculating means for electrically detecting deviations between the images of said objects within the respective windows as sensed by said image sensors and individually calculating the distance to each object in each window based on the calculated deviations; and

g) obstacle discriminating means for discriminating, among the objects around the vehicle as sensed by said image sensors, obstacles to the travel of the vehicle on the basis of the positions of the windows on the screen and the calculated distances to the objects in said respective windows.

5,214,409

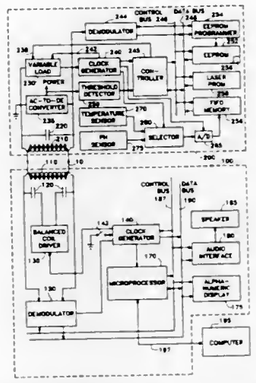
MULTI-MEMORY ELECTRONIC IDENTIFICATION TAG

Michael L. Beigel, Corona, Calif., assignor to Avid Corporation, Norco, Calif.

Filed Dec. 3, 1991, Ser. No. 801,749

Int. Cl.[5] G08B *13/24*

U.S. Cl. 340—572 **12 Claims**



12. An electronic identification system comprising a reader and at least one tag, said tag comprising:

a means for permanently storing data in an unalterable fashion, said data being known as unalterable data;

a means for permanently storing data in an alterable fashion, said data being known as alterable data, said alterability being subject to permanent disablement;

a means for altering said alterable data;

a means for receiving data to be substituted for said alterable data by said altering means;

a means for communicating said unalterable data and said alterable data to an electronic identification reader;

said reader comprising:

a means for receiving data from a user to be substituted for said alterable data stored in said alterable storage means in said tag;

a means for communicating said received data from the user to said tag.

5,214,410

LOCATION OF OBJECTS

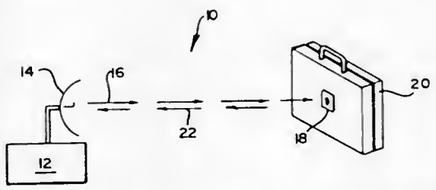
Theunis C. Verster, Pretoria, South Africa, assignor to CSIR, Transvaal Province, South Africa

Filed Jul. 9, 1990, Ser. No. 549,749

Claims priority, application South Africa, Jul. 10, 1989, 89/5229

Int. Cl.[5] G08B *13/14*

U.S. Cl. 340—572 **17 Claims**



1. A locating system for locating predetermined labelled objects which includes

a transceiver unit which comprises a narrow beamwidth

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antenna means for transmitting an energising signal at a predetermined first frequency and for receiving a returned signal at a predetermined second frequency from an object to be located, the energising signal incorporating a predetermined transponder category code for activating members of a predetermined group of labelled objects; and

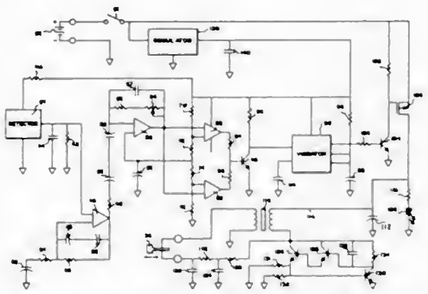
a plurality of label-like transponders, each of which is affixable to an object to be located, each transponder including logic circuitry, the logic circuitry including a memory means in which a category code is stored for activating the transponders of the said members when they receive the transponder category code, the logic circuitry further including a time delay means and a transponder identification code such that, upon the members of the group of transponders being activated, each transponder radiates its returned signal, including the transponder identification code, to the transceiver unit in a time delayed manner so that the returned signals are received serially by the transceiver unit.

5,214,411

ULTRASONIC ANIMAL REPELLING APPARATUS

Steven L. Herbruck, 355 Dalton, Ventura, Calif. 93003

Filed Nov. 12, 1991, Ser. No. 790,519
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—573 **3 Claims**



1. An ultrasonic sound emitting apparatus comprising:

a housing having an internal chamber, said housing having a front face, said front face of said housing including a reflector cone, an ultrasonic emitter being mounted within said reflector cone, said reflector cone comprising a concave recess formed within said front face, said ultrasonic emitter being centrally mounted within said concave recess;

sound emitting electronics mounted within said internal chamber, said sound emitting electronics including said ultrasonic emitter for emitting ultrasonic sound, said ultrasonic emitter producing a pattern of projected sound waves spaced forward of said front face; and

a detector mounted in said front face, said detector being connected to said sound emitting electronics, said ultrasonic emitter normally being deactivated with activation to occur upon said detector's sensing the presence of an animal in close proximity of said housing,

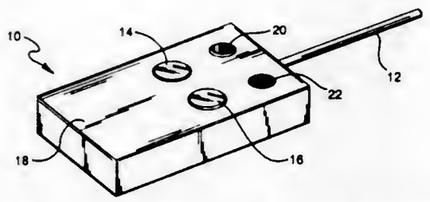
said ultrasonic emitter being movable between an inward position and an outward position within said concave recess, said outward position locating said ultrasonic emitter in an outwardly projected position relative to said concave recess, and said inward position locating said ultrasonic emitter in a retracted position relative to said concave recess.

5,214,412

LEAK DETECTOR METHOD ESTABLISHING TWO DIFFERENT THRESHOLD LEVELS

Michael A. Gaviak, Buffalo, N.Y., and Brian G. Wicke, Bloomfield Hills, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 2, 1991, Ser. No. 801,192
Int. Cl.[5] G08B *17/10*
U.S. Cl. 340—632 **9 Claims**



1. The method of detecting leaks using a leak detector for measuring the concentration of a test gas and having a probe, an annunciator, and a switch, comprising the steps of:

establishing a limit value of gas concentration;

establishing a threshold lower than the limit value;

moving the probe along a path and continuously measuring the gas concentration;

determining an autozero value of the concentration measurements;

subtracting the autozero value from each measurement to obtain difference values;

when the difference values exceed the threshold, holding the autozero value at a constant level and actuating the annunciator at a frequency to signal the magnitude of the difference values;

moving the probe to seek the maximum of the difference values;

exchanging the limit value for the threshold value by operating the switch; and

issuing a signal when the difference value exceeds the limit value.

5,214,413

HEAD-UP DISPLAY APPARATUS FOR VEHICULAR DISPLAY

Shigeru Okabayashi; Junichi Fukano, both of Kanagawa; Masao Sakata, Tokyo, and Tsuyoshi Todoriki, Kanagawa, all of Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Jun. 9, 1988, Ser. No. 204,237
Claims priority, application Japan, Jun. 23, 1987, 62-156222
Int. Cl.[5] G09G *3/02*
U.S. Cl. 340—705 **18 Claims**

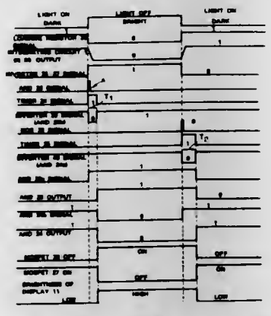
1. A head-up display apparatus for a vehicle comprising:

a hologram combiner;

a detector for providing a detector signal representative of ambient light level and variable between a first value indicative of a first ambient light level and a second value indicative of a second ambient light level different from said first level;

projecting means, including a light source for generating light, for projecting a display image of information onto said combiner; and

control means, associated with said light source, for maintaining an intensity of light generated by said light source at a first intensity corresponding to said first ambient light level for a first delay time measured from a change in said detector signal from said first value to said second and for changing the intensity of light generated by said light source from said first intensity to a second intensity corresponding to said second ambient light level when said first delay time has elapsed, said first delay time being sufficiently long to enable human eyes viewing the display image to adjust to the change in the ambient light level.

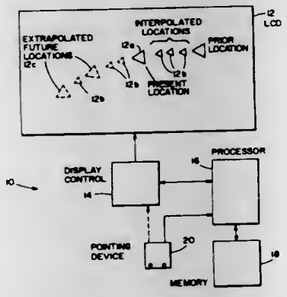


5,214,414

CURSOR FOR LCD DISPLAYS

James L. Levine, and Gregory F. Russell, both of Yorktown Heights, N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Apr. 12, 1991, Ser. No. 685,322
Int. Cl.[5] G09G *3/02*
U.S. Cl. 340—709 **13 Claims**



1. A method for operating a display device that is coupled during use to a data processor, comprising the steps of:

receiving an input signal that directs a movement of a displayed image object from a first location to a second location;

displaying the image object at the second location;

determining if a directed rate of movement of the image object between the first location and the second location is less than a predetermined maximum rate of movement;

if it is determined that the directed rate of movement of the image object between the first location and the second location is less than the predetermined maximum rate of movement, the method includes a step of terminating the display of the image object at the first location;

else, if it is determined that the rate of movement of the image object between the first location and the second location is not less than the predetermined maximum rate of movement, the method includes the further steps of,

displaying a representation of the image object at one or more intermediate locations between the first location and the second location for visually indicating a direction of movement of the image object between the first location and the second location;

determining if one or more of the representations of the displayed image object, and also the image object that is displayed at the first location, have been displayed for a period of time that is equal to or greater than a predetermined maximum period of time; and

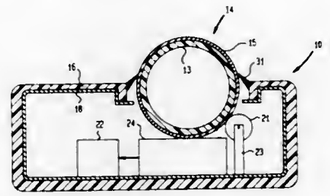
if so, terminating the display of the image object that is displayed at the first location, and any representations thereof, that are determined to have been displayed for a period of time equal to or greater than the predetermined maximum period of time.

5,214,415

CURSOR CONTROL ASSEMBLY WITH ELECTROMAGNETIC SHIELDING

Richard Pandolei, Smithtown, N.Y., assignor to Miltope Corporation, Melville, N.Y.

Filed Feb. 20, 1991, Ser. No. 658,225
Int. Cl.[5] G09G *3/02*
U.S. Cl. 340—709 **4 Claims**



1. An electromagnetically shielded cursor control assembly comprising in combination:

an electrically conductive movable cursor control element;

an electrically conductive enclosure for housing control element motion transducers;

an opening in said enclosure;

means mounting said cursor control element in said opening so that said element can move relative to said enclosure; and

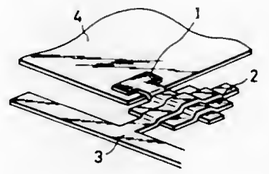
a conductive band disposed in said opening coupling said enclosure and said cursor control element, said band being secured to said enclosure and having resilient conductive extensions which frictionally engage said cursor control element.

5,214,416

ACTIVE MATRIX BOARD

Hitoshi Kondo, Machida; Eiichi Ohta, Kawasaki, and Yuji Kimura, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 30, 1990, Ser. No. 619,964
Claims priority, application Japan, Dec. 1, 1989, 1-313144
Int. Cl.[5] G09G *3/20*
U.S. Cl. 340—766 **7 Claims**



1. An active matrix board capable of performing a four-scale display, comprising:

an electrically insulating transparent substrate;

a pixel electrode disposed in two dimensions on said substrate for each pixel;

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a scanning electrode arranged in common to said pixel electrodes disposed along a predetermined direction; and

a switching element disposed between each of said pixel electrodes and said scanning electrode, and constituted from a thin film two-terminal element which is composed of a first conductor, a second conductor, and a hard carbon film disposed between said first and second conductors,

said switching element passing an electric current when applied with a voltage of 12 volts, wherein said current ranges from 9nA to 82nA, said switching element having a standard deviation of current distribution in a surface of said substrate, wherein said standard deviation is equal to or less than 35% of an average value of said passed current,

said hard carbon film having a film thickness within a range from 300 Å to 4000 Å, said hard carbon film having a standard deviation of film thickness distribution in a surface of said substrate, wherein said standard deviation is equal to or less than ±5% of a median of said film thickness distribution.

5,214,417

LIQUID CRYSTAL DISPLAY DEVICE

Katsunori Yamazaki, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

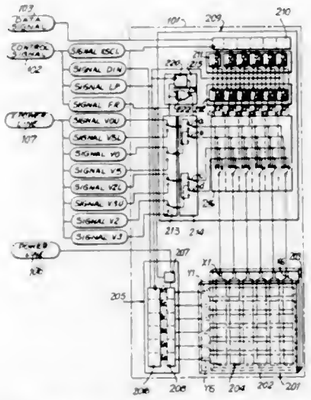
Continuation-in-part of Ser. No. 232,750, Aug. 18, 1988. This application Dec. 3, 1990, Ser. No. 621,206

Claims priority, application Japan, Aug. 13, 1987, 62-202154; Feb. 9, 1988, 63-27922; Feb. 9, 1988, 63-27923; Feb. 9, 1988, 63-27924; Dec. 7, 1989, 1-318335

The portion of the term of this patent subsequent to Apr. 23, 2008, has been disclaimed.

Int. Cl.[5] G09G *3/36*

U.S. Cl. 340—784 **9 Claims**



1. A liquid crystal display device having a plurality of display elements which can be selectively rendered visible to produce a pattern to be displayed, comprising:

a first substrate;

a plurality of scanning electrodes disposed on said first substrate;

a second substrate spaced apart from said first substrate;

a plurality of signal electrodes disposed on said second substrate so that the intersections of said scanning electrodes with said signal electrodes defines said display elements;

liquid crystal display material interposed between the substrates;

driving means for driving said liquid crystal device by applying selected voltages to said scanning and signal electrodes to selectively render visible desired display elements; and

said driving means including means for applying corrected voltages to the signal electrodes in response, at least in part, to whether adjacent picture elements along a signal electrode are or are not rendered visible.

5,214,418

LIQUID CRYSTAL DISPLAY DEVICE

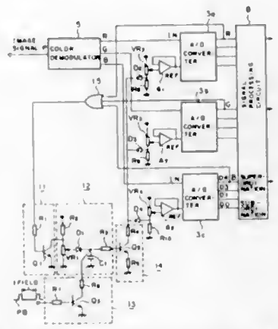
Kenichiro Fukumura, and Kazuo Yoshioka, both of Nagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 5, 1989, Ser. No. 402,779

Claims priority, application Japan, Dec. 22, 1988, 63-322106

Int. Cl.[5] G09G *3/36*

U.S. Cl. 340—784 **1 Claim**



1. A liquid crystal display device having a color demodulator for demodulating an input color image signal to three primary-color signals, an analog/digital converter for quantizing the color image signal demodulated by said color demodulator to a digital signal and a signal processing circuit for processing the quantized digital signal and supplying it to a driving circuit for image display, said liquid crystal display device comprising a brightness detector for detecting a brightness level of the image signal depending on a most significant bit output only, from said analog/digital converter through quantization, and a voltage dividing circuit for inputting a reference voltage of a level depending on a detected value of said brightness detector to said analog/digital converter for a specified period, and further comprising a capacitor for providing a reference voltage indicating brightness of a predetermined level when the brightness level of the image signal detected by said brightness detector is dark.

5,214,419

PLANARIZED TRUE THREE DIMENSIONAL DISPLAY

Thomas W. DeMond, Richardson, and E. Earle Thompson, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 315,631, Feb. 27, 1989, abandoned. This application Jun. 26, 1991, Ser. No. 725,234

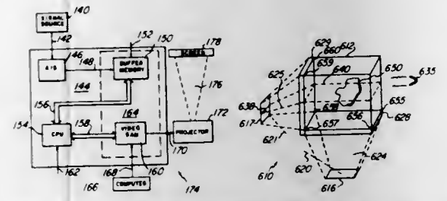
Int. Cl.[5] G09G *3/22*

U.S. Cl. 340—794 **23 Claims**

1. A digitized video system for displaying a three dimensional image comprising:

(a) a three dimensional display including at least one material responding to two energy beams of different characteristics to produce a different energy where said beams intersect and located along two paths;

(b) a spatial light modulator having a plurality of controllable elements arranged in an array, at least two of said controllable elements being individually controllable between a first state to provide portions of one of said energy beams and a second state not to provide said portions of said one energy beam along one of said paths; and



(c) the other of said energy beams located along the other of said paths to simultaneously intersect a plurality of said portions of said one energy beam.

5,214,420

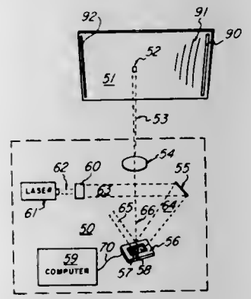
SPATIAL LIGHT MODULATOR PROJECTION SYSTEM WITH RANDOM POLARITY LIGHT

E. Earle Thompson, Dallas, and Thomas W. DeMond, Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 315,634, Feb. 27, 1989, abandoned. This application Jun. 26, 1991, Ser. No. 725,231

Int. Cl.[5] G09G *3/00*

U.S. Cl. 340—795 **18 Claims**



1. A visual display system comprising:

(a) a source of random polarity light directing random polarity light along a first optical path;

(b) a display surface along a second optical path; and

(c) a spatial light modulator located along said first and second optical paths and having a plurality of controllable elements arranged in an array, at least some of said controllable elements being individually and simultaneously controllable between a first state to provide a portion of said random polarity light as an individual random polarity light beam having of substantially parallel rays along said second optical path and a second state not to provide light along said second optical path, and between said second state and said first state.

5,214,421

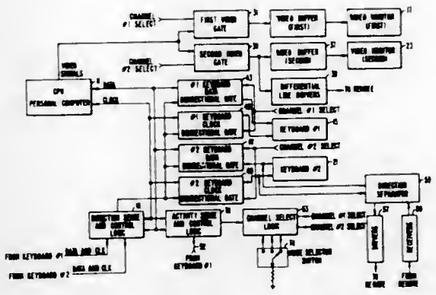
AUTOMATIC KEYBOARD AND MONITOR SWITCHING DEVICE

Jerome C. Vernon, Visalia, and Ben G. Parsons, San Rafael, both of Calif., assignors to Support Systems International Corp., Richmond, Calif.

Continuation of Ser. No. 559,809, Jul. 30, 1990, abandoned. This application Sep. 30, 1991, Ser. No. 768,117

Int. Cl.[5] H04Q *1/00*

U.S. Cl. 340—825.03 **8 Claims**



1. An apparatus for providing access to a computer from at least two keyboard/monitor stations, wherein a first station is active for receiving information through said first station keyboard at a particular time while a second station is inactive and is not capable of receiving information through said second station keyboard, said apparatus comprising:

connection means connecting the computer and a first station keyboard and connecting the computer and a second station keyboard for providing access to the computer by only one of said first station keyboards or said second station keyboard whereby only one keyboard at a time can communicate through said connection means to said computer;

switching means coupled to said connection means for switching active access between said first station keyboard and said second station keyboard upon depression of a key on the inactive station, said switching means operative to switch said active access to one station keyboard and to disconnect said other station keyboard whereby information entered in said other station keyboard is locked out;

clock means for running a preselected period of time, said clock means operatively connected to said switch means to disable said switch means during running of said clock;

clock reset means for resetting said time interval to the beginning of said preselected period of time upon sensing depression of a key on a keyboard having access to said computer whereby said switching means is disabled for said preselected period of time after depression of a key on a keyboard having access to said computer; and

activity sensing means for sensing activity on one of said stations, said activity sensing means operatively coupled to said switching means to switch said switching means responsive to sensed activity at said one of said stations.

5,214,422

REMOTE CONTROL AND SIGNALING SYSTEM

Jay N. Cullimore, Oakland, Mich., assignor to Vidtronics, Inc., Oakland, Mich.

Filed Feb. 20, 1992, Ser. No. 839,464

Int. Cl.[5] H04B *10/00*

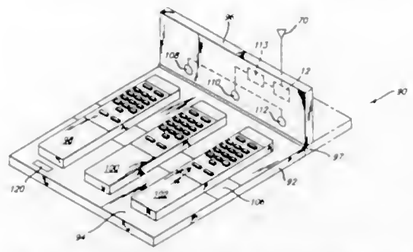
U.S. Cl. 340—825.72 **1 Claim**

1. A remote control mounting assembly for use in combination with a plurality of remote transmitters, each of said remote

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transmitters being adapted to transmit infrared signals to respective first and second receivers, said signals being effective to cause said first and second receivers to generate respective first and second control signals effective to control respective first and second apparatus, said remote control mounting assembly comprising:

an "L" shaped support member having a planar horizontally extending base adapted to removably support said plurality of remote controllers; a second hollow member movably coupled to one edge of said extending base, wherein said second hollow member is movable from a first position in which said second hollow member is co-planar with said support member to a second position in which



said second hollow member is perpendicular with said support member; and

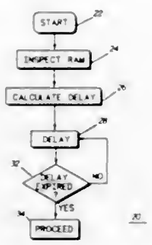
a plurality of transistors contained within said second hollow member, each of said plurality of transistors having a base portion in optical communication with a unique one of said plurality of remote transmitters and an emitter portion coupled to a selectively activated light source, each of said plurality of transistors being adapted to receive an infrared signal from a unique one of said remote transmitters and, upon receipt of said infrared signal to activate said light source effective to cause one of said first and second receivers to generate one of said respective first and second control members.

5,214,423

RANDOM NUMBER GENERATION USING VOLATILE RAM

Theophilos Antoniou, Coral Springs, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 22, 1991, Ser. No. 688,793
Int. Cl.[5] H04B 1/00
U.S. Cl. 340—825.5 7 Claims



1. A method of generating a random number in a processor associated with a random access memory (RAM), comprising the steps of:

inspecting initial unpredictable volatile contents of the RAM when power is first applied;

performing a logical operation on the initial unpredictable volatile contents of the RAM to generate a random number;

placing the processor in a program loop which takes a variable time to execute based on the random number for generating a randomized time delay; and

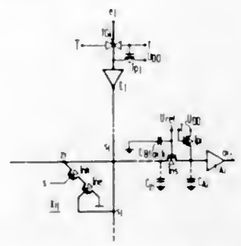
attempting a bus access after the expiration of the randomized time delay.

5,214,424

BROADBAND SIGNAL SWITCHING EQUIPMENT

Gerhard Heiduk, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 16, 1991, Ser. No. 760,492
Claims priority, application European Pat. Off., Sep. 26, 1990, 90118489
Int. Cl.[5] H04Q 1/00
U.S. Cl. 340—825.91 7 Claims



1. A broadband signal switching equipment having a cross point matrix in FET technology, the cross point matrix having a plurality of matrix input lines and matrix output lines, having outputs each respectively provided with an output amplifier circuit, and having switch elements controlled by a respective holding memory cell, each switch element being a series circuit of a switching transistor that has its control electrode charged with a through-connect or, respectively, inhibit signal and of an input transistor that has its control electrode connected to an associated matrix input line, the series circuit having a main electrode of one of the transistors in the series circuit connected to an associated matrix output line, which is in turn connected to a pre-charging potential source via a pre-charging transistor that has its control input connected to a clock signal line of a switching matrix network drive clock that subdivides a bit through-connect time span into a pre-charging phase and into an evaluation phase, whereby, in every pre-charging phase, the input transistor is inhibited and the matrix output line is pre-charged, comprising: an n-channel series pass transistor that has its control electrode connected to a reference potential source and that forms a charge transfer circuit together with the pre-charging transistor that is connected to an input of the respective output amplifier circuit, the n-channel series pass transistor being connected between the respective matrix output line and the input of the respective output amplifier circuit.

5,214,425

SUPERIMPOSED TELL-TALES

John E. Wreede, Azusa, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed May 30, 1991, Ser. No. 708,403
Int. Cl.[5] G01C 21/00
U.S. Cl. 340—980 2 Claims

1. A holographic head-up display for a vehicle, comprising:

a first reflection hologram supported by the windshield of the vehicle;

a second reflection hologram laminated over said first reflection hologram;

first and second playback sources respectively associated with said first and second reflection holograms, said playback sources being configured so that reflection by the windshield of playback illumination from one playback source is toward the other playback source; and

said first and second playback sources are configured such that the centerlines of their respective beams are coplanar in a common plane that is substantially normal to the holograms, said centerlines intersecting generally in the hologram layers and having substantially identical angles



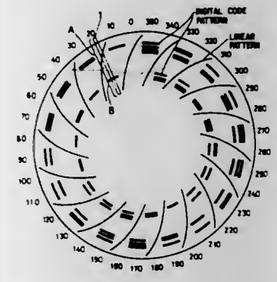
of incidence as measured relative to normal in said common plane so that substantially collimated playback illumination from one playback source that is reflected by said first reflection hologram and said second reflection hologram are generally directed into an opening for said other playback source.

5,214,426

ROTARY ENCODER HAVING ABSOLUTE ANGLE PATTERNS AND RELATIVE ANGLE PATTERNS

Kiyomi Minohara, Takarazuka; Atsushi Abe, Suita, and Toshihiro Niidome, Nishinomiya, all of Japan, assignors to Furuno Electric Company, Limited, Hyogo, Japan

PCT No. PCT/JP89/00693, § 371 Date Feb. 22, 1991, § 102(e) Date Feb. 22, 1991, PCT Pub. No. WO90/00720, PCT Pub. Date Jan. 25, 1990
PCT Filed Jul. 10, 1989, Ser. No. 652,840
Claims priority, application Japan, Jul. 12, 1988, 63-172950; Jul. 13, 1988, 63-175575; Aug. 17, 1988, 63-204032
Int. Cl.[5] G01B 5/34; H03M 1/30
U.S. Cl. 341—13 15 Claims



1. A rotary encoder comprising:

a rotating body provided on its surface with a plurality of absolute angle patterns indicative of absolute angle ranges and a plurality of relative angle patterns indicative of relative angles;

said absolute angle pattern being comprised of a plurality of circumferentially spaced pattern blocks with the patterns of each block not being contiguous with the patterns of each block adjacent thereto; said relative angle pattern comprising inclined lines extending in regions radially overlapped with said absolute angle patterns;

means for sensing said patterns;

high-order angle data producing means responsive to said sensing means for selecting data corresponding to the absolute angle patterns to produce high-order angle data; and

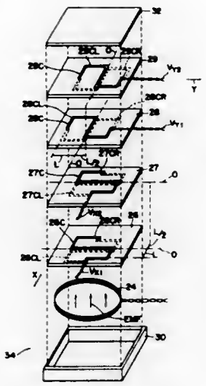
low-order angle data producing means responsive to said sensing means for selecting data corresponding to the relative angle patterns to produce low-order angle data.

5,214,427

INPUT APPARATUS

Hajime Yano, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Aug. 17, 1990, Ser. No. 569,188
Claims priority, application Japan, Aug. 24, 1989, 1-219115; Aug. 28, 1989, 1-222351; Aug. 28, 1989, 1-222352
Int. Cl.[5] G08C 21/00
U.S. Cl. 341—20 14 Claims



1. An input device comprising:

an exciting coil for generating a predetermined exciting magnetic field;

first and second rectangular coils having a side of length L and displaced from each other by a distance equal to L in a predetermined direction for generating an induced electromotive voltage when excited by said exciting coil; and

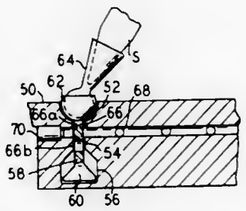
third and fourth rectangular coils having a side of length L and displaced from each other by a distance equal to L in said predetermined direction for generating an induced electromotive voltage when excited by said exciting coil, said third and fourth coils being displaced from said first and second coils by a distance equal to L/2.

5,214,428

DATA INPUT GRID FOR COMPUTER

Gregory Allen, 900 Ridge Rd., Suite K, Munster, Ind. 46321

Filed Sep. 18, 1991, Ser. No. 761,445
Int. Cl.[5] G08C 21/00
U.S. Cl. 341—20 3 Claims



1. A data input device for use with a stylus to input data to a computer, comprising:

a panel having an upper surface, said upper surface including a plurality of interconnecting grooves in a grid pattern;

a plurality of sensors arranged along said plurality of inter-

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connecting grooves to sense movement of the stylus along said grooves; and

means for reading output signals from said plurality of sensors as input data for the computer;

a stylus guide held captive in said plurality of grooves and movable therealong, wherein said stylus guide comprises:

a lower body held in a lower section of said grooves for sliding movement therealong;

an upper body disposed outside of said lower section of said grooves, said upper body including means for engaging a stylus; and

a connector extending between said lower body and said upper body.

5,214,429

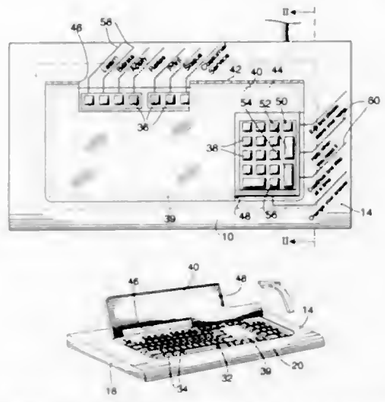
COMPUTER METHOD UTILIZING KEYBOARD ADAPTER

David P. Greenberger, Edgewater, N.J., assignor to R.E.T.S. Sales and Service, Inc., Edgewater, N.J.

Continuation of Ser. No. 587,220, Sep. 20, 1990, abandoned. This application May 18, 1992, Ser. No. 884,994

Int. Cl.[5] H03M *11/00*; B41J *29/02*; A47B *21/00*; G09B *13/00*

U.S. Cl. 341—22 6 Claims



1. A method for use with a computer having a data-input-type keyboard, comprising the steps of:

positioning said keyboard on a desk or table top;

providing an adapter device for said keyboard, said device including a housing defining a chamber for receiving the keyboard, said housing including an upper panel to restrict access to a first predetermined set of keys on said keyboard, said upper panel being provided with at least one first opening to enable access to a second predetermined set of keys on said keyboard, said housing being provided on a lower side with a second opening at least coextensive with said keyboard, said first opening and said second opening communicating with said chamber;

locating said housing above said keyboard so that said keyboard is aligned with said second opening and so that said second predetermined set of keys is aligned with said first opening;

lowering said housing over said keyboard on said desk or table top so that said keyboard is received in said chamber and resting said housing on said desk or table top so that said housing may be simply lifted from said desk or table top to enable access to said keyboard in its entirety; and

actuating keys of said second predetermined set of keys while said housing is simply resting on said desk or table top over said keyboard.

5,214,430

LADDERLESS TRUE FLASH ANALOG-TO-DIGITAL CONVERTER WITH AUTOMATIC CALIBRATION

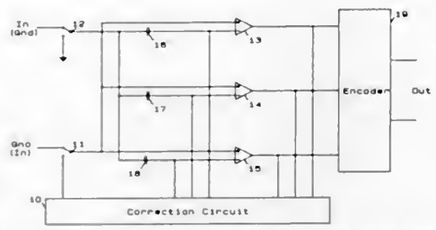
Zdzislaw Gulczynski, P.O. Box 441, Winchester, Mass. 01890

Filed Jan. 31, 1989, Ser. No. 304,505

The portion of the term of this patent subsequent to Aug. 18, 2008, has been disclaimed.

Int. Cl.[5] H03M *1/10*

U.S. Cl. 341—120 14 Claims



1. Analog-to-digital converter for converting input signal into output code, comprising:

a first and second nodes with one node coupled to ground;

a plurality of analog comparator means each comparing a signal at the first node against a respective base signal;

a plurality of capacitor means coupled to the second node for storing the base signals;

a reference means for providing a reference signal and reference code corresponding thereto;

a switch means for selectively coupling the other node to the input signal or reference signal;

an encoder means coupled to the analog comparator means for producing the output code;

a digital comparator means for comparing either a code applied to or produced by the encoder means against the reference code and providing a corrective signal; and

a demultiplexer means for selecting one of the capacitor means and applying the corrective signal thereto in response to the reference code.

5,214,431

DELTA SIGMA MODULATOR

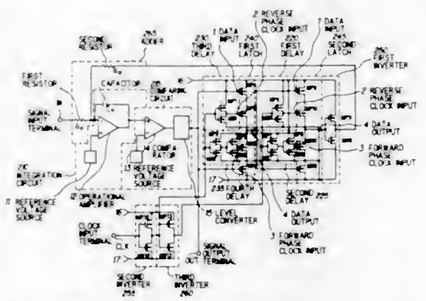
Naoto Oikawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 14, 1992, Ser. No. 913,027

Claims priority, application Japan, Jul. 15, 1991, 3-172851

Int. Cl.[5] H03M *3/00*, *1/34*

U.S. Cl. 341—143 14 Claims



1. A delta sigma modulator, comprising:

an adder for adding an input signal and a signal which is fed back in accordance with said input signal;

an integration circuit for integrating an output signal of said adder;

a comparator circuit for comparing an output signal of said integration circuit and a reference signal;

a first latch circuit having data input and output terminals and forward and reverse phase clock input terminals;

a second latch circuit having data input and output terminals and forward and reverse phase clock input terminals;

first to third inverters; and

first to fourth delay circuits; wherein:

an output of said adder is connected to an input of said integration circuit; an output of said integration circuit is connected to said comparator circuit; an output of said comparator circuit is connected to a signal output terminal and said data input terminal of said first latch circuit; said data output terminal of said first latch circuit is connected to said data input terminal of said second latch circuit; said data output terminal of said second latch circuit is connected to an input of said first inverter; an output of said first inverter is connected to an input of said adder; an input of said second inverter is connected to a clock input terminal and an output thereof is connected to inputs of said third inverter and said third and fourth delay circuits; an output of said third inverter is connected to inputs of said first and second delay circuits; an inverted output of said first delay circuit is connected to said reverse phase clock input terminal of said second latch circuit; an output of said second delay circuit is connected to said forward phase clock input terminal of said second latch circuit; an inverted output of said third delay circuit is connected to said reverse phase clock input terminal of said first latch circuit; and an output of said fourth delay circuit is connected to said forward phase clock input terminal of said first latch circuit.

5,214,432

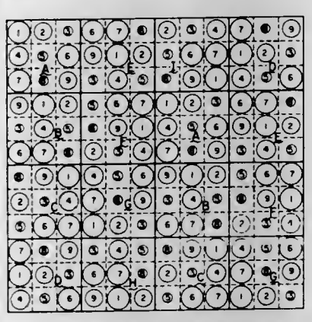
BROADBAND ELECTROMAGNETIC ENERGY ABSORBER

Raymond S. Kasevich, Weston; Michael Kocsik, Ashland, and Michael Heafey, Woburn, all of Mass., assignors to Chomerics, Inc., Bedford, Mass.

Continuation-in-part of Ser. No. 177,518, Apr. 11, 1988, which is a continuation-in-part of Ser. No. 10,448, Feb. 3, 1987, abandoned, which is a continuation-in-part of Ser. No. 934,716, Nov. 25, 1986, abandoned. This application Feb. 16, 1990, Ser. No. 489,924

Int. Cl.[5] H01Q *17/00*

U.S. Cl. 342—3 20 Claims



1. Radar absorbing apparatus for absorbing an electromagnetic energy wave incident thereupon and having frequency signal content in a frequency range including 2–18 GHz, said apparatus comprising;

an electrically conductive reflector means,

a substantially planar array comprised of a plurality of discrete and relatively spacially disposed impedance absorber elements,

means for supporting said absorber elements from and in front of said electrically conductive reflector means,

means for resistively loading the absorber elements, to change the impedance of the absorber elements to alter the gain thereof, thereby decreasing signal re-radiation,

said array disposed at a distance measured in the direction of propagation of said electromagnetic energy wave from said reflector means,

said absorber elements being disposed in a random pattern array.

5,214,433

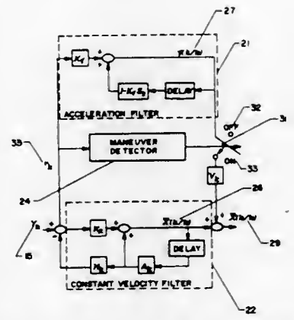
TWO-STAGE TARGET TRACKING SYSTEM AND METHOD

Ali B. T. Alouani, Knoxville, Tenn.; William D. Blair, and Theodore R. Rice, both of Fredericksburg, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 17, 1992, Ser. No. 899,803

Int. Cl.[5] G01S *13/66*, *13/72*

U.S. Cl. 342—95 5 Claims



1. A target tracking system for maneuvering and non-maneuvering targets comprising:

a target tracking sensor;

a two-stage Kalman estimator receiving target position and velocity from said target tracking sensor and estimating corrected target velocity and acceleration using a bias-free filter stage for providing target position and velocity estimates and a decoupled, bias filter for providing target acceleration estimates; and

a target display system connected to and receiving corrected target data from said two-stage Kalman estimator.

5,214,434

MOBILE PHONE ANTENNA WITH IMPROVED IMPEDANCE-MATCHING CIRCUIT

Wan C. Hsu, No. 7, Lane 290, Nan Shan Rd., Kuei San Hsiang, Tao, Yuan Hsien, Taiwan

Filed May 15, 1992, Ser. No. 884,716

Int. Cl.[5] H01Q *1/24*

U.S. Cl. 343—702 1 Claim

1. An antenna structure for mobile phones, comprising:

an antenna stem, a swivel joint, a high-frequency connector and an impedance-matching member;

said swivel joint including an antenna-mounting base, a joint-fastening base and an outer protection sleeve, said antenna-mounting base having an upper end and a lower end;

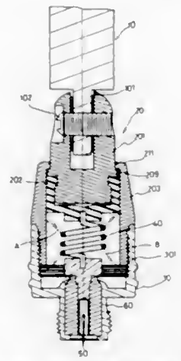
said antenna stem being adapted to be fastened to the upper end of said antenna-mounting base, wherein the bottom end of said antenna-mounting base being adapted to be inserted into said joint-fastening base, and both said an-

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tenna mounting base and said joint-fastening base being mounted inside said outer protection sleeve, said outer protection sleeve containing retaining means to prevent said antenna mounting base and said joint-fastening base from being disengaged from each other;

said high-frequency connector containing an insulation collar and a center-needle seat fixedly mounted therein, said center-needle seat being mounted on top of said insulation collar which insulates said center-needle seat from said high-frequency connector, said center-needle seat having a mounting hole formed on top thereof, said high-frequency connector further containing a sleeve wall for threadably sleeving about said protection sleeve;

said impedance-matching member having an upper end and a lower end; the upper end of said impedance-matching member being fixedly attached to the bottom of said joint-fastening base, while the lower end thereof being inserted into said mounting hole on said center-needle seat;



the lower end of said antenna-mounting base being shaped like a cylindrical stud having a circumferential retaining groove for engaging with said joint-fastening base and a circumferential flange on top thereof for engaging with said outer protection sleeve via said retaining means;

said joint-fastening base having a plurality of vertical slots on its upper portion to provide contractability thereof and allow said joint-fastening base to pivotably engage with said antenna-mounting base, a mounting hole on its lower portion for receiving said impedance-matching member, and a plurality of vertical slip-proof threads on the outer surface thereof to prevent slipping and rotating with respect to said protection sleeve;

said impedance-matching member being shaped like a spring and having a pre-determined electric characteristic whereby said impedance-matching member and said sleeve wall of said high-frequency connector form a predetermined electrostatic capacitance to facilitate high frequency transmission.

5,214,435

NEAR FIELD MONITOR FOR A MICROWAVE LANDING SYSTEM

Alfred R. Lopez, Four Sarina Dr., Commack, N.Y. 11725

Continuation-in-part of Ser. No. 591,698, Oct. 2, 1990, abandoned. This application May 4, 1992, Ser. No. 878,380

Int. Cl.[5] H01Q *3/00*

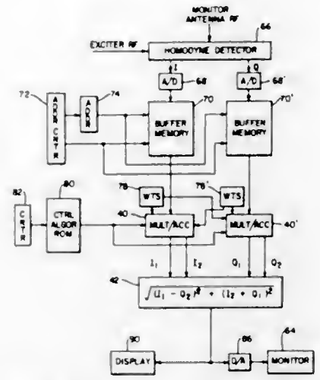
U.S. Cl. 342—360 **11 Claims**

1. A near field monitor for a microwave landing system antenna, comprising:

a monitor antenna located in the near field for receiving a signal transmitted by the microwave landing system which scans back and forth, i.e., TO and FRO;

converting means for converting the received signal into in-phase, I, and quadrature phase, Q, components;

weighing factor storing means for storing in-phase weighing factors WI and quadrature phase weighing factors WQ, said weighing factors being related to the correction of the received signal in the near field such that it has the form it would have had at the far field of the signal from the microwave landing system;



means for multiplying and summing the in-phase components, I, and the quadrature phase components, Q, with the in-phase weighing factors WI and with the quadrature phase weighing factors WQ to produce multiplier/accumulator output signals I_1, I_2, Q_1 and Q_2, where $I_1 = I \times WI$, $I_2 = I \times WQ$, $Q \times WI$ and $Q_2 = W \times WQ$; and

calculator means for combining the multiplier/accumulator output signals according to the following equation,

$$A = \sqrt{(I_1 - Q_2)^2 + (I_2 + Q_1)^2}$$

to produce the monitor signal.

5,214,436

AIRCRAFT ANTENNA WITH CONING AND BANKING CORRECTION

Peter W. Hannan, Smithtown, N.Y., assignor to Hazeltine Corp., Greenlawn, N.Y.

Continuation of Ser. No. 529,836, May 29, 1990, abandoned. This application Feb. 25, 1992, Ser. No. 841,901

Int. Cl.[5] H01Q *1/280, 13/100, 9/300, 3/220*

U.S. Cl. 343—705 **38 Claims**

1. A switchable array antenna, having a plurality of antenna elements arranged for excitation in subsets of at least three elements, comprising:

terminal means for coupling available signals;

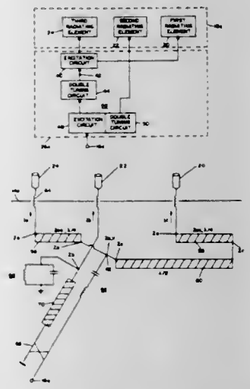
a plurality of antenna elements comprising a linear array of at least four said elements arranged for use in subsets, each subset having first, second and third antenna elements and each subset consisting of fewer than said plurality of antenna elements;

first excitation means, coupled to said terminal means, comprising signal transmission means for coupling a first portion of said available signals from said terminal means to provide forward and rear element signal components of predetermined relative phase and amplitude to first and third elements of a subset by way of a point of common voltage included in said first excitation means;

second excitation means, coupled to said terminal means, comprising means for coupling the complementary portion of said available signals from said terminal means to

the second element of said subset to provide a middle element signal component of predetermined phase and amplitude relative to said signal components coupled to said first and third elements, said complementary portion and said first portion of said available signals being coupled to said elements of said subset without coupling of said available signals to any antenna element other than said elements of said subset and without intercoupling of said complementary and first portions in a multiport beam forming matrix;

tuning means, included in said first excitation means and



coupled to said point of common voltage, for providing impedance matching for said first and third elements in a desired frequency range; and

shifting means for selectively coupling said first and second excitation means to different subsets of said elements so that said forward, middle and rear signal components can be respectively shifted to first, second and third antenna elements of different subsets, each of said subsets consisting of fewer than said plurality of elements;

whereby the effective radiation center of said linear array is selectively shifted along the linear array by activation of said shifting means.

5,214,437

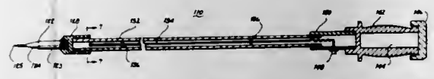
DRAGSTICK/ANTENNA

Scott E. Hensler, 1958 E. Concorda Dr., Tempe, Ariz. 85282

Continuation of Ser. No. 511,343, Apr. 19, 1990, abandoned. This application Jul. 18, 1991, Ser. No. 732,726

Int. Cl.[5] H01Q *1/00, 1/44, 9/30*

U.S. Cl. 343—720 **8 Claims**



1. An apparatus for search and rescue signalling, comprising:

a rigid, tubular body of electrically insulating material having a first end and an opposite second end;

a handle assembly coupled to said first end of said tubular body; and

sharp point means coupled to said second end of said tubular body for impressing distinct marks on the ground during search and rescue operations;

wherein the handle assembly comprises an electrically insulating handle grip and a tubular electrically conductive portion coupling said first end of said tubular body to said electrically insulating handle grip and wherein the tubular electrically conductive portion of the handle assembly includes a connector means for coupling a conductor to an external two-way radio;

said conductor extends from said connector means and extends through a portion of said tubular body; said conductor includes a coiled portion, said coiled portion of the conductor being surrounded by the tubular electrically conductive portion of the handle assembly and the portion of said conductor which extends through a portion of said tubular body forms an antenna; and

wherein said antenna is the only electrically conductive material within said tubular body.

5,214,438

MILLIMETER WAVE AND INFRARED SENSOR IN A COMMON RECEIVING APERTURE

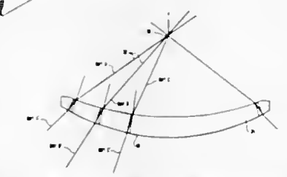
Thomas C. Brusgard, Riva; Thomas C. McCormick, Linthicum, both of Md.; Hendrik K. Sijgers, Reston, Va.; Corbitt T. Smith, Manhattan Beach, Calif.; William C. Winterble, Columbia, and Christopher B. Schwerdt, Cattonsville, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 521,983, May 11, 1990, abandoned. This application Aug. 9, 1991, Ser. No. 745,993

Int. Cl.[5] H01Q *21/280, 19/190*

U.S. Cl. 343—725 **29 Claims**





1. An infrared (IR) and millimeter wave (MMW) common aperture antenna for transmitting MMW energy to space and for receiving MMW and IR energy from space through said common aperture comprising:

an apertured primary parabolic reflector having a reflective front surface sized for defining said common aperture, said primary reflector for reflecting infrared and millimeter wave energy impinging thereon, said primary reflector having a central opening, a central axis passing therethrough, and a focus spaced from the reflective surface on the axis;

a millimeter wave feed assembly having a feed horn located on the axis in the vicinity of the focus of the primary reflector for feeding millimeter wave energy for transmission along a path from the feed horn to the front surface of the primary reflector for reflection therefrom to space and for receiving millimeter wave energy from space reflected from the primary reflector along the path to the feed horn; and

a dichroic element having front and rear surfaces non-uniformly spaced apart and being shaped for defining a millimeter wave lens, said dichroic element being located in the path between the feed horn and the primary reflec-

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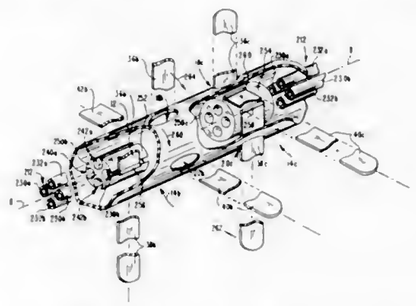
tor having an axis coaxial with the primary reflector, the front surface of said dichroic element being selectively reflective and facing the front surface of the primary reflector, said front surface of the dichroic element having a secondary focus on said axis therebetween for reflecting infrared energy from space reflected from the primary reflector towards the secondary focus, said dichroic element being substantially transparent to MMW energy and having a focus on the axis between the rear surface of the dichroic element and the millimeter wave feed assembly, said millimeter wave lens for re-focusing said millimeter wave energy without significant attenuation.

5,214,439

DRUM-DEPLOYABLE MULTIBAY ANTENNA

David G. Reed, Southampton Township, Bucks County, Pa., assignor to General Electric Company, East Windsor, N.J.

Filed Dec. 20, 1990, Ser. No. 631,294
Int. Cl.[5] H01Q *1/12*
U.S. Cl. 343—877 16 Claims



1. A deployable antenna, comprising:

a feed structure including a two-conductor transmission line including first and second conductors extending parallel to a first axis;

an elongated first antenna element defining first and second ends, said first antenna element being adjacent a first location along said transmission line, said first end of said first antenna element being electrically connected to said first conductor of said transmission line, said first antenna element being made from a spring material having its lowest energy state when said antenna element is in a deployed state, whereupon a longitudinal dimension of said first antenna element, extending between said first and second ends, is straight;

an elongated second antenna element defining first and second ends, said second antenna element being adjacent a second location along said transmission line, said first end of said second antenna element being electrically connected to said second conductor of said transmission line, said second element being made from a spring material having its lowest energy state when said second antenna element is in a deployed state, whereupon a longitudinal dimension of said second antenna element, extending between said first and second ends, is straight;

first and second spools coaxial with said first axis and adjacent said first and second locations, respectively, said first and second spools being adapted for, in an stowed state of the antenna, having said first and second antenna elements, respectively, wound thereabout in the same direction in a state in which energy is stored in the spring material of the elements; and

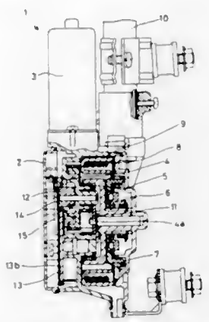
a single drum coaxial with and surrounding said first and second spools, said drum including first and second apertures adjacent said first and second locations, said second ends of said first and second antenna elements extending through said first and second apertures, respectively, whereby said energy stored in said spring elements tends to rotate said drum in a direction which simultaneously unwinds and deploys said first and second antenna elements from said first and second spools, respectively.

5,214,440

MOTORIZED ANTENNA DEVICE

Yoshikazu Takahashi, Kiryu; Yukiteru Hosoya, Sawagun, and Akio Konuma, Ohta, all of Japan, assignors to Mitsuba Electric MFG. Co., Ltd., Kiryu, Japan

Filed Mar. 6, 1992, Ser. No. 846,956
Claims priority, application Japan, Mar. 8, 1991, 3-020872[U]
Int. Cl.[5] H01Q *1/10*
U.S. Cl. 343—903 14 Claims



1. A motorized antenna device in which a drive cord is extended and retracted by a rotative operation of a worm wheel based on a motor operation, said device comprising:

a mechanism for controlling the motor operation by controlling passage of mechanism electricity, said mechanism electricity being intermittently passed to a motor on the basis of an amount of the rotation of the worm wheel, said passage of electricity changing a length of an antenna pole from one of a maximum length to a minimum length and the minimum length to the maximum length;

said mechanism including a cam rotatable together with said rotative operation of the worm wheel, an insulating Geneva gear which is intermittently rotated by engaging at least one cam tooth formed on said cam, a relay plate secured to a wheel surface of said Geneva gear, and a contact plate coming in contact with said relay plate and the wheel surface of said Geneva gear;

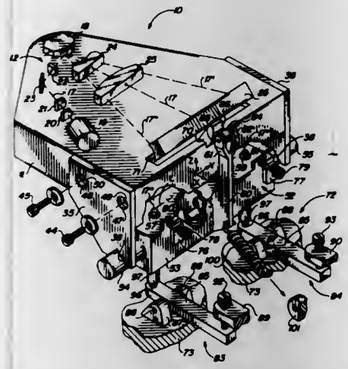
wherein driving-stopping control for said motor is performed by bringing said contact plate one of into and out of contact with said relay plate when said antenna pole is ended to the maximum length and retracted to the minimum length, wherein a contact piece is provided on said cam, and an opening is formed in said worm wheel, said opening having a predetermined angular length which is larger than said contact piece, wherein said contact piece is fitted freely into said opening, said cam rotates with said worm wheel when said contact piece is pushed by one side of said opening while said contact piece is distant from the other side of said opening and wherein said worm wheel is rotated in the direction of effecting retraction of said drive cord by a restoring force of said drive cord which is extended such that said drive cord is bent when said antenna pole is extended to its maximum length and said motor operation ceases, wherein said cam is not rotated with said worm wheel until said contact piece is pushed by the other side of said opening while said contact piece is distant form the one side of said opening.

5,214,441

METHOD AND APPARATUS FOR ALIGNMENT OF SCAN LINE OPTICS WITH TARGET MEDIUM USING EXTERNAL ADJUSTING MEMBERS

Douglass L. Blanding, Rochester; Michael E. Harrigan, Webster; David Kessler, and Drew D. Summers, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 786,122, Oct. 31, 1991. This application Nov. 4, 1991, Ser. No. 786,119
Int. Cl.[5] H04N *1/21*
U.S. Cl. 346—1.1 16 Claims



1. A method for positioning an optical system relative to a scan line receiving medium in a printer, or the like; the optical system being mounted on a frame and being suitable for generating a beam along a z (beam path) direction and scanning the same along a scan line in a y (scan) direction; and the receiving medium being supported for movement in an x (cross-scan) direction on the printer; and the method comprising the steps of:

providing two curved surfaces on the printer;

providing two blocks attached to the frame, the blocks having upwardly-directed, inverted V-notches;

providing an alignment fixture having two curved surfaces, relatively dimensioned, configured and adapted to correspond to the printer curved surfaces, and having a beam receiving elements dimensioned, configured and adapted relative to the fixture curved surfaces to correspond to the position of the receiving medium relative to the printer curved surfaces;

placing the frame, with the blocks attached, onto the fixture with the block notches brought over the fixture curved surfaces;

selectively adjusting the positions of the blocks relative to the frame to establish a positional relationship between the scan line and the beam receiving element, corresponding to a desired positional relationship between the scan line and the receiving medium;

locking the blocks in their selectively adjusted positions relative to the frame; and

placing the frame, with the blocks locked, onto the printer, with the block notches brought over the printer curved surfaces;

the method being characterized in that:

the placing the frame onto the fixture step further comprises holding the frame fixed in a stationary position; and

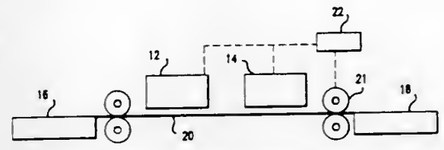
the selectively adjusting step comprises selectively adjusting the positions of the blocks relative to the frame by selectively adjusting the position of the fixture relative to the frame using means external to the frame, with the frame held fixed in the stationary position.

5,214,442

ADAPTIVE DRYER CONTROL FOR INK JET PROCESSORS

George Roller, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 27, 1991, Ser. No. 766,243
Int. Cl.[5] B41J *2/21*
U.S. Cl. 346—1.1 22 Claims



1. A method of fixing a printing substance previously placed on a sheet to the sheet, comprising the steps of:

determining a percentage of a sheet area of the sheet which is covered by the printing substance;

moving the sheet at a feed speed past a dryer operating at a fixing temperature;

selecting either a high speed or normal speed throughput mode for the sheet; and

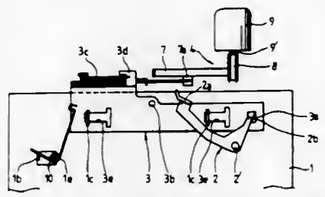
variably controlling at lest one of the feed speed and the fixing temperature based on the determined percentage and whether the high speed or normal speed throughput mode is selected.

5,214,443

DISCHARGING APPARATUS FOR AUTOMATICALLY DISCHARGING A PAPER BOX OF A COLOR VIDEO PRINTER

Ji S. Ryu, Seoul, Rep. of Korea, assignor to Goldstar Co., Ltd., Rep. of Korea

Filed Dec. 3, 1991, Ser. No. 802,060
Claims priority, application Rep. of Korea, Dec. 4, 1990, 19062/1990
Int. Cl.[5] G01D *15/24;* B41J *29/00*
U.S. Cl. 346—22 6 Claims



1. An apparatus for automatically discharging a paper box of a color video printer, comprising:

pushing means for pushing said paper box toward a predetermined discharging position, said means being rotatably mounted on a main frame of said printer;

sliding means for causing said pushing means to rotate, said sliding means being movably mounted on said main frame so as to be rectilinearly reciprocated;

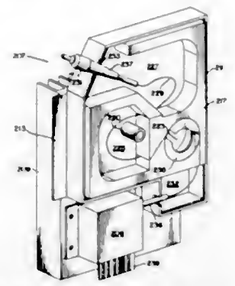
sensing means for determining whether the printed paper is received by the paper box;

driving means for selectively driving said sliding means in accordance with a control signal applied from said sensing means thereto; and

elastic support means for elastically supporting the sliding means.

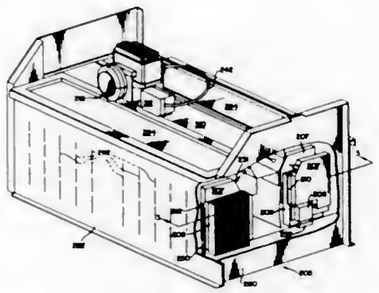
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,444
OPTICAL FIBER MOUNT AND SUPPORT
Roger S. Kerr, Rochester, and John D. Gentzke, Ogden, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Sep. 19, 1991, Ser. No. 762,831
Int. Cl.[5] G01D 15/10
U.S. Cl. 346—76 L 9 Claims



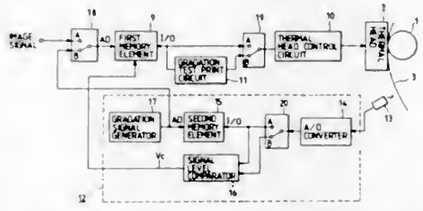
1. An optical fiber and diode laser mount comprising a planar mounting means arranged to mount a diode laser on a surface thereof, an optical fiber guide having an inlet and an exit mounted adjacent said diode laser, said fiber guide including means forming an inlet chamber adjacent said diode laser and a substantially cylindrical chamber an outlet chamber and a connector chamber, said inlet chamber extending into said cylindrical chamber which communicates through said outlet chamber to said connector chamber to said exit from said guide means, a cover plate disposed over said fiber guide on the opposite side thereof from said mounting means, whereby an optical fiber may be connected to said diode and introduced into said guide through said inlet chamber to be wound around in said cylindrical chamber and led out of said guide through said outlet chamber and said connector chamber where said fiber is connected to a connector.

5,214,445
MULTIPLE LASER DIODE MOUNT ASSEMBLY WITH A WRITE HEAD
Roger S. Kerr, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sep. 19, 1991, Ser. No. 762,830
Int. Cl.[5] G01D 15/10
U.S. Cl. 346—76 L 9 Claims



1. A multiple laser diode and optical fiber assembly comprising means forming an enclosure having means for mounting a plurality of diode assemblies therein, said enclosure including an opening through which said diode assemblies can be introduced and withdrawn, each of said diode assemblies including an optical fiber connector connected to one end of an optical fiber which is connected at the opposite end to said laser diode, an optical output comprising a plurality of optical fibers arranged as a bundle along at least a portion of their length and formed into an output array at one end of said fibers, the opposite end of said output fibers each being individually connected to individual optical fiber connectors, and a removable closure member arranged to cover at least a portion of said enclosure opening and having a plurality of optical fiber connector members extending therethrough in spaced relationship, each of said closure connector members being disposed in close proximity with a diode assembly when said closure member is disposed over said enclosure opening whereby said optical fiber connectors of said diode assemblies can each be connected to one side of said closure connector members and said output bundle fiber connectors can each be connected to the opposite side of said closure connector members.

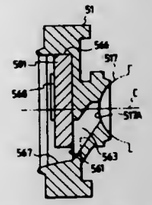
5,214,446
GRADATION RECORD PRINTER
Hiroshi Mitsuda, Hiroshima, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan
Filed Jan. 28, 1991, Ser. No. 646,313
Claims priority, application Japan, Feb. 27, 1990, 2-47981
Int. Cl.[5] B41J 02/325
U.S. Cl. 346—76 PH 9 Claims



1. A gradation record printer in which an amount of energy applied to a thermal head is controlled in response to a gradation level of an image signal, in order to print an image on a printing medium with gradations, said printer comprising:
gradation density detecting means including memory means for storing data of standard density patterns with respect to address values corresponding to gradation levels, and comparator means for outputting a coincidence signal when test data supplied from outside of said gradation density detecting means substantially coincides with said data of standard density patterns;
a gradation test print circuit for applying data of different amounts of printing energy to said thermal head sequentially to make a gradation test print on said printing medium;
density detecting sensor means for detecting densities of said gradation test print to produce the test data and for applying the test data output from said density detecting sensor means to said gradation density detecting means; and
a first memory element for storing data of different amounts of energy with respect to address values corresponding to said gradation levels, in response to said coincidence signal from said gradation density detecting means.

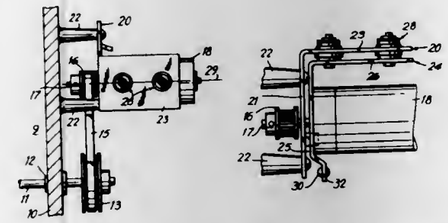
5,214,447
SUCTION RECOVERY DEVICE AND INK JET RECORDING APPARATUS WITH THE DEVICE
Kazuya Iwata, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 27, 1990, Ser. No. 634,766
Claims priority, application Japan, Dec. 29, 1989, 1-344914
Int. Cl.[5] B41J 2/165
U.S. Cl. 346—140 R 14 Claims

1. A suction recovery device for recovering ink from a recording head having a face having a discharge port for discharging ink onto a recording medium, said suction recovery device comprising:
a cap for covering the face of the recording head, said cap having an ink flow path with an ink suction port on an interior side thereof, and an ink exhaust port communicating with said ink suction port through a continuously curved surface, said ink exhaust port being located on another side opposite to said ink suction port, said ink



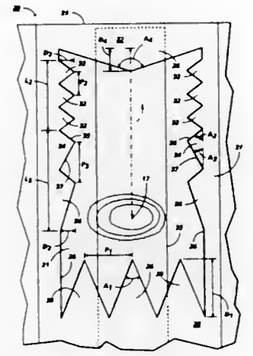
exhaust port of said ink flow path having a smaller area than that of said ink suction port;
an ink absorbing member provided within said cap, said ink absorbing member covering a part of said ink suction port, and maintaining a remaining part thereof open; and
suction mean for exerting a suction force inside of said cap, said suction means communicating with said ink exhaust port.

5,214,448
BELT-DRIVE TENSIONING SYSTEM WHICH USES A PIVOTING MEMBER
John C. Venthem, Georgetown, Tex., assignor to Summagraphics Corporation, Seymour, Conn.
Filed Jul. 31, 1991, Ser. No. 738,573
Int. Cl.[5] G01D 15/16
U.S. Cl. 346—139 R 18 Claims



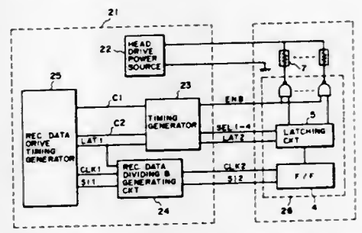
1. A plotter comprising a housing and means on the housing for moving media or a pen along an axis, said moving means comprising:
(a) an electrical motor having a first shaft and adapted to rotate its first shaft in response to electrical signals,
(b) a second shaft coupled to the media or pen for driving same when rotated,
(c) a drive belt interconnecting the first and second shafts,
(d) means for pivotally mounting the motor on the plotter housing, said mounting means comprising first and second spaced pivot assemblies connected in such manner as to allow the motor to pivot with respect to the housing,
(e) means for tensioning the drive belt, said tensioning means including means for resiliently urging the motor with respect to the housing in a direction to tension the belt.

5,214,449
THERMAL INK JET BUBBLE CONTAINMENT CHAMBER DESIGN FOR ACOUSTIC ABSORPTION
Steven A. Buhler, Redondo Beach, Calif., assignor to Xerox Corporation, Stamford, Conn.
Filed Jul. 2, 1991, Ser. No. 724,678
Int. Cl.[5] B41J 2/05
U.S. Cl. 346—140 R 17 Claims



1. In a thermal ink jet:
a fluid drop ejection nozzle;
a heating element for generating a bubble;
a bubble containment chamber located adjacent said nozzle comprising a front wall, a first side wall, a second side wall and a rear wall;
acoustic energy being generated upon collapse of a generated bubble; and
at least one of said walls having wedge means extending into said containment chamber thereon so constructed and arranged for redirecting acoustic energy generated from the collapse of a bubble in said containment chamber.

5,214,450
THERMAL INK JET RECORDING APPARATUS USING A GROUPED TRANSDUCER DRIVE
Junji Shimoda, Chigasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 716,833, Jun. 17, 1991, abandoned.
This application Sep. 21, 1992, Ser. No. 947,954
Claims priority, application Japan, Jun. 15, 1990, 2-157001
Int. Cl.[5] B41J 2/05
U.S. Cl. 346—140 R 4 Claims



1. An ink jet recording method for an ink jet recording apparatus comprising a plurality of electrothermal transducer elements for producing thermal energy for ejection of recording liquid and driving means for supplying electric energy to the electrothermal transducer elements in accordance with data to be recorded and a control signal, wherein the plural electrothermal transducer elements are grouped into plural

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groups, and the electrothermal transducer elements in each group are simultaneously driven by the driving means,

wherein the electrothermal transducer elements in a group are supplied with electric power in a period between maximum expansion of a bubble in a previously driven group and expiration thereof.

5,214,451

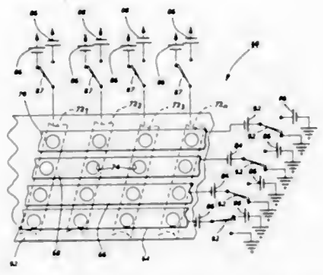
TONER SUPPLY LEVELING IN MULTIPLEXED DEP

Fred Schmidlin, Pittsford; John D. Sotack, and William M. Lindenfelser, both of Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 23, 1991, Ser. No. 812,144

Int. Cl.[5] G01D *15/06*

U.S. Cl. 346—159 **4 Claims**



1. Apparatus for forming images including a imaging particles delivery system, a printhead structure containing a plurality of apertures adapted to transport imaging particles therethrough which said imaging particles are supplied by said delivery system to a vicinity of said apertures and means for supporting image receiving substrates for movement past said printhead, said supporting means being adapted to attract said imaging particles transported from said delivery system through said printhead whereby said imaging particles are deposited in image configuration on said image receiving substrate, the improvement comprising:

said printhead structure having a plurality of control electrodes and a plurality of shield electrodes, said control and shield electrodes being secured to opposite sides of an apertured base member and having a plurality of apertures extending through said control and shield electrodes wherein each of said plurality of apertures in said control electrodes is aligned with a predetermined one of the apertures in said base member and one of the apertures in said shield electrodes to form imaging particles passing apertures in said printhead structure;

a donor member for delivering said imaging particles to said printhead structure, said donor member being disposed opposite one of said electrode structures; and

means for selectively applying a voltage to each of said control electrodes simultaneously with application of a voltage to one of said shield electrodes whereby one of said imaging particles passing apertures in said printhead structure is conditioned to block or not block said imaging particle passage therethrough depending upon a magnitude of the voltage applied to said control electrodes.

5,214,452

HYDROGELS BASED ON FLUORINE-CONTAINING AND SACCHARIDE MONOMERS

Gerhard Kossmehl, Berlin-Lichterfelde; Horst Schafer, Aschaffenburg; Norbert Klaus, Berlin; Jürgen Volkheimer, Wiesbaden, and Madjid Rezaii-Djafari, Berlin, all of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, New York, N.Y.

Continuation of Ser. No. 704,653, May 20, 1991, Pat. No. 5,155,194, which is a continuation of Ser. No. 450,712, Dec. 14, 1989, abandoned. This application Jul. 17, 1992, Ser. No. 916,047

Claims priority, application Switzerland, Dec. 19, 1988, 3842752

Int. Cl.[5] G02C *7/04*

U.S. Cl. 351—160 R **3 Claims**

1. An ophthalmic device comprising a hydrogel which is a copolymer of a polymerizable monomer mixture which contains

a) 2–85 mol % of a hydrophobic vinyl monomer with at least three flourine atoms,

b) 2–80 mol % of a hydrophobic polyhydroxy vinyl monomer whose hydroxyl groups are in protected form,

c) 2–70 mol % of a hydrophilic vinyl monomer, and

d) based on the total amount of monomers a)–c), 0–5 mol % of a crosslinker, in which hydrogel the hydroxyl groups of the segments formed by the monomers b) are in protected or free form.

5,214,453

PROGRESSIVE ECCENTRICITY MULTIFOCAL CONTACT LENS AND MANUFACTURING PROCESS THEREOF

Mario Giovanzana, Via Cherubini, 6, Milano, Italy

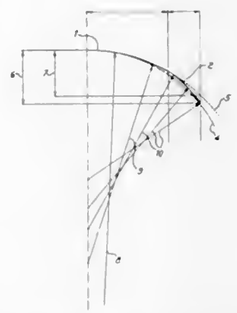
PCT No. PCT/IT89/00033, § 371 Date Nov. 23, 1990, § 102(e) Date Nov. 23, 1990, PCT Pub. No. WO89/11672, PCT Pub. Date Nov. 30, 1989

PCT Filed May 8, 1989, Ser. No. 613,660

Claims priority, application Italy, May 24, 1988, 20707 A/88

Int. Cl.[5] G02C *7/04*

U.S. Cl. 351—161 **2 Claims**



1. A multifocal contact lens for both hard and soft contact lenses with a machined front surface comprising substantially a spherically curved central area and one or more coaxial non-spherical adjacent area or areas, and characterized in that the aspherical curvature of said coaxial adjacent area or areas intrinsically has a progressive eccentricity that changes regularly according to fixed increments in a linear progression derived from the ratio of two end values such that a geometrical pattern is established to change the outer radius of said front surface of said coaxial adjacent area or areas starting from said central area at a progressive rate to obtain a sagittal for vision correction, the progressive variation eccentricity of said coaxial adjacent area or areas ranging between 0.01 and 0.03 per deviation degree of the corresponding radius of curvature.

5,214,454

FUNDUS CAMERA

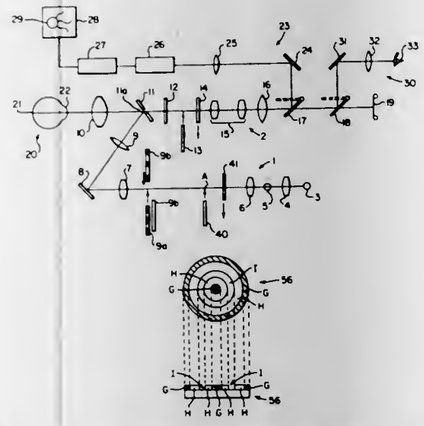
Eiichi Sano, Tokyo, Japan, assignor to Kabushiki Kaisha Topcon, Tokyo, Japan

Filed Oct. 21, 1991, Ser. No. 780,181

Claims priority, application Japan, Oct. 22, 1990, 2-285152

Int. Cl.[5] A61B *3/14*

U.S. Cl. 351—206 **10 Claims**



8. An illuminating optical system, disposed along an optical axis for illuminating the fundus of an eye, in a camera for taking fluorescent and non-fluorescent photographs of the fundus of an eye, the illuminating optical system comprising:

a light source disposed along said optical axis for emitting light in a range including at least visible light, infrared light and light of a desired excitation wavelength,

an annular diaphragm disposed along said optical axis in a position substantially conjugate with a pupil of the eye comprising a circular stationary dichroic mirror including a first area capable of transmitting visible light and a second area capable of transmitting area infrared light, said first and second areas being different so as to vary the amount of illumination light dependent upon whether a fluorescent or non-fluorescent photograph is being taken.

5,214,455

OBJECTIVE EYE ALIGNMENT MEASUREMENT METHOD AND SYSTEM

Carl M. Penney, Saratoga Springs, N.Y.; Keith P. Thompson, Atlanta, Ga., and Robert H. Webb, Lincoln, Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 1, 1991, Ser. No. 677,902

Int. Cl.[5] A61B *3/14*

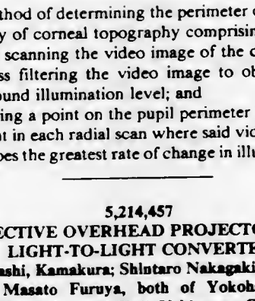
U.S. Cl. 351—210 **22 Claims**

1. A method of determining objective eye alignment comprising the steps of:

positioning a subject's eye relative to an imaging system to allow imaging of the subject's eye;

applying a beam to the subject's eye;

using the imaging system to detect a portion of the beam returned after striking the subject's eye and to generate, based on the detected portion of the beam, an iris image of an iris portion of the subject's eye and a retinal image of a retinal portion of the subject's eye; and



observing positions of said iris image and said retinal image to determine objective eye alignment.

5,214,456

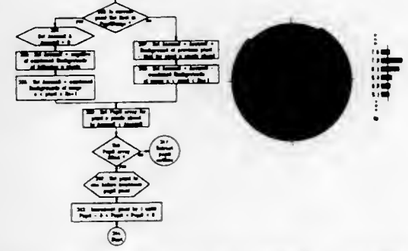
MAPPING OF CORNEAL TOPOGRAPHY WITH DISPLAY OF PUPIL PERIMETER

Martin Gersten, New York, N.Y., assignor to Computed Anatomy Incorporated

Filed Oct. 9, 1991, Ser. No. 774,567

Int. Cl.[5] A61B *3/10*

U.S. Cl. 351—212 **5 Claims**



1. The method of determining the perimeter of the pupil in a video display of corneal topography comprising the steps of:

a. radially scanning the video image of the cornea;

b. low-pass filtering the video image to obtain the video background illumination level; and

c. identifying a point on the pupil perimeter by determining the point in each radial scan where said video background undergoes the greatest rate of change in illumination level.

5,214,457

REFLECTIVE OVERHEAD PROJECTOR WITH LIGHT-TO-LIGHT CONVERTER

Itsuo Takanashi, Kamakura; Shintaro Nakagaki, Miura; Tsutou Asakura; Masato Furuya, both of Yokohama; Yoshihisa Koyama, Yokosuka, and Yuji Uchiyama, Chigasaki, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed May 30, 1991, Ser. No. 707,508

Claims priority, application Japan, May 31, 1990, 2-143995

Int. Cl.[5] G03B *21/28*

U.S. Cl. 353—31 **9 Claims**

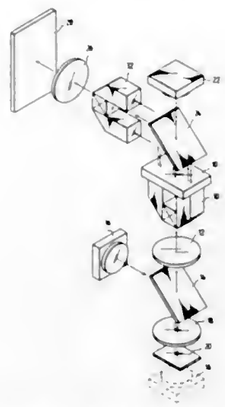
2. An overhead projector for projecting an image onto a screen, comprising:

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a light-to-light converter for recording an image therein and reproducing the recorded image therefrom;

first means for applying first light to read an image from an object and record the image in said light-to-light converter under a first light applying condition;

second means for applying second light to reproduce the recorded image from said light-to-light converter and project the reproduced image onto a screen under a second light applying condition independent of said first light applying condition; and color separating means for separating said first light from said first optical system into lights of different colors before they are applied to said light-to-light converter, and color combining means for combining the lights of different colors from said light-to-light convertor into said second light before it is applied to said screen.



5,214,458

DISPLAY APPARATUS

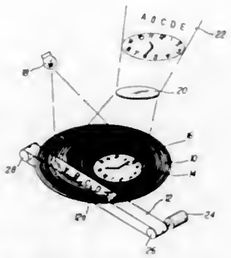
Hiromi Kanai, Tokyo, Japan, assignor to Matsubara Kenki Kogyo Kabushiki Kaisha, Japan

Filed Jul. 16, 1992, Ser. No. 914,338

Claims priority, application Japan, Jan. 14, 1992, 4-10412[U]

Int. Cl.[5] G03B *21/08*

U.S. Cl. 353—63 **4 Claims**



1. A display apparatus comprising a mirror Fresnel lens;

an original picture for projection positioned over the surface of said mirror Fresnel lens;

hands disposed over said mirror Fresnel lens;

hourly numbers in a clock dial which are disposed along the rotating locus of said hands on the surface of said mirror Fresnel lens;

a clock movement placed on the back side of said mirror Fresnel lens to drive said hands; and

a projection mechanism positioned on the surface side of said mirror Fresnel lens and at the same time, disposed so as to emit light on the surface of said mirror Fresnel lens; the light emitted from said projection mechanism being reflected by said mirror Fresnel lens to project images of said original picture for projection, said hands and said clock dial on a prescribed plane of projection.

5,214,459

OVERHEAD PROJECTORS

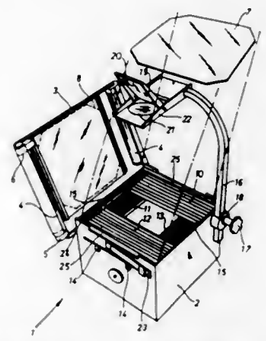
Tarik Al-Ani, Nurmijärvi, Finland, assignor to Educatek Oy, Finland

PCT No. PCT/FI89/00124, § 371 Date Dec. 27, 1991, § 102(e) Date Dec. 27, 1991, PCT Pub. No. WO91/00546, PCT Pub. Date Jan. 10, 1991

PCT Filed Jun. 28, 1989, Ser. No. 778,967

Int. Cl.[5] G03B *23/12*

U.S. Cl. 353—88 **7 Claims**



1. An overhead projector (**1**) comprising:

a box-like body (**2**) having an openable top part (**3**) with a window through which light projection may occur;

a projection (**16**) arm mounted on said body and equipped with at least one lens (**21**) and a mirror (**20**) for receiving the light projecting through said window;

transparent film rolls (**4**) at opposing ends of said top part and having a transparent film extending between said rolls and across said window so that information on said film appearing in said window may undergo projection; said top part being formed to receive and retain said rolls in appropriately shaped spaces at the opposing ends of said top part, each of said rolls having an axle (**26**) at one end and an axially extending cylindrical end portion (**5**) by which said roll can be manually rotated, each of said axles being located in a hole (**28**) in said top part for rotatably mounting said rolls in said spaces, said other ends of said rolls being biased by bent springs (**27**); and

shutter screen means mounted inside said box-like body and capable of blocking at least a portion of said window, said shutter screen means comprising two pairs of opposing shutters (**10,12**; **11,13**), the shutter of each pair being movable toward and away from each other along paths lying generally parallel to said window on guide rods (**15**) provided in said body; said shutter screen means having handles (**14**) coupled to said shutters and extending outside said body along two sides thereof for moving said shutters.

5,214,460

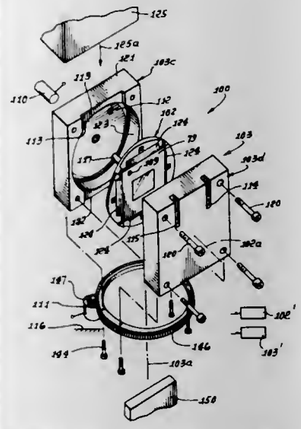
PROJECTOR SLIDE ORIENTATION RECTIFICATION SYSTEM

Raymond L. Chuan, 4438 Aku Rd., Hanalei, Hi. 96714

Filed Nov. 4, 1991, Ser. No. 787,653

Int. Cl.[5] G03B *23/08*

U.S. Cl. 353—122 **12 Claims**



1. In a projector slide orientation rectification system, the slide including a frame and a transparency, the combination comprising

a) slide receiving apparatus,

b) first means associated with said apparatus to search for the presence or absence of an indicator on the slide frame,

c) second means associated with said searching for rotating the slide through a predetermined angular increment or increments,

d) third means also responsive to said searching to invert the slide to facilitate completeness of said searching.

5,214,461

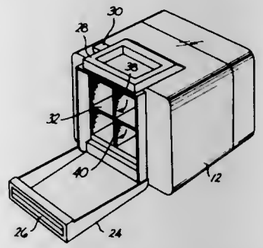
TWO AND FOUR PICTURE MODE CAMERA

Ehsan Sadre-Marandi, Chattanooga, Tenn., assignor to Beattie Systems, Inc., Cleveland, Tenn.

Filed Sep. 24, 1991, Ser. No. 764,882

Int. Cl.[5] G03B *41/00*

U.S. Cl. 354—118 **11 Claims**



1. A camera for photographing either two or more separate images selectively on a single sheet of film, said camera comprising a housing, a fixed wall mounted in said housing for dividing said housing into a pair of sectors and defining a plane, first and second lenses, lens mounting means for mounting said lenses in said housing in spaced apart disposition on opposite sides of said plane, means for mounting said lens mounting means for movement linearly relative to said housing in a direction substantially parallel to said plane, film supporting means mounted on said housing for carrying a sheet of film spaced from said lenses at a location for receiving photographic images focused by said lenses, at least one movable wall, means for mounting said movable wall for moving from a first position to a second position in response to rotation of said camera from a disposition wherein said plane is substantially vertical to a disposition wherein said plane is substantially horizontal, said movable wall in said first position being substantially parallel to said plane and unobstructing to images focused by said lenses onto said film and said movable wall in said second position being substantially normal to said plane and dividing one of said sectors into smaller sectors, means for moving said lens mounting means to position each lens selectively in the center of a sector when said movable wall is in either the first or second position, and a shutter corresponding to each lens for exposing a sheet of film carried by said film supporting means to an image focused by a respective lens selectively.

5,214,462

LENS SHUTTER CAMERA INCLUDING ZOOM LENS AND BARRIER MECHANISMS

Keisuke Haraguchi; Shinsuke Kohmoto; Shigeru Kondoh; Hideki Ohkubo, and Susao Nakamura, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

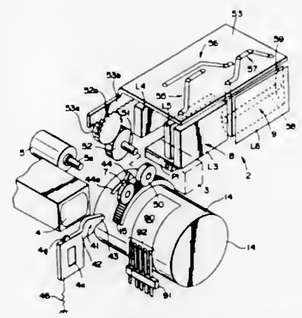
Division of Ser. No. 144,030, Jan. 7, 1988, Pat. No. 4,944,030. This application Feb. 14, 1990, Ser. No. 486,914

Claims priority, application Japan, May 12, 1986, 61-108278; May 12, 1986, 61-108279; May 28, 1986, 61-80861; Jun. 2, 1986, 61-83932; Jun. 2, 1986, 61-127496; Jun. 21, 1986, 61-145470; Jun. 26, 1986, 61-150995; Aug. 15, 1986, 61-125045; Aug. 22, 1986, 61-196911; Aug. 29, 1986, 61-132658; Aug. 29, 1986, 61-132659; Aug. 29, 1986, 61-132660; Aug. 29, 1986, 61-132661; May 28, 1987, 61-80862

The portion of the term of this patent subsequent to Jan. 29, 2008, has been disclaimed.

Int. Cl.[5] G03B *17/02*

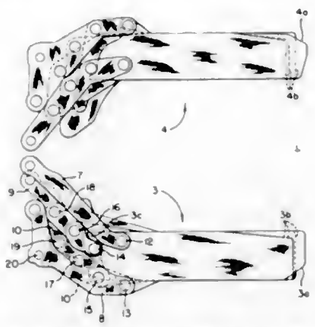
U.S. Cl. 354—187 **16 Claims**



1. A camera having a photographing zoom lens movable into a completely collapsed lens position rearwardly of an extreme wide angle lens position, said lens being supported by an exterior frame having a central photographic aperture and at least one barrier for selectively opening and closing said central aperture, said camera comprising means for closing said aperture with each said barrier in association with movement said lens into with each said barrier in association with movement said lens into said collapsed lens position, and means for opening said aperture in all other lens positions, wherein said at least one barrier is opened and closed by movement of said lens.

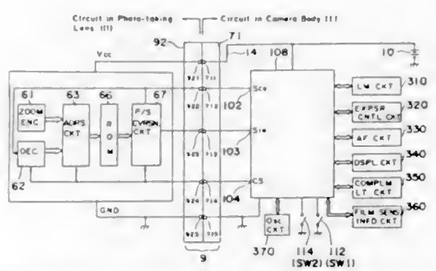
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,463
FOCAL PLANE SHUTTER
Hiroaki Ishida; Ichiro Nemoto, and Hiroyuki Izumi, all of Yotsukaido, Japan, assignors to Seikosha Co., Ltd., Japan
Filed Mar. 29, 1991, Ser. No. 677,784
Claims priority, application Japan, Mar. 30, 1990, 2-35262[U]
Int. Cl.[5] G03B 9/40
U.S. Cl. 354—247 15 Claims



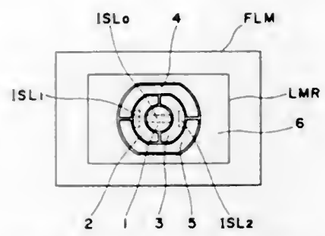
1. A focal plane shutter comprising: two sets of shutter blades supported sidewardly of a shutter opening by parallel link mechanisms and operable to open and close the shutter opening, wherein one of the sets of shutter blades comprises a first shutter blade operable by a first parallel link mechanism to open the shutter opening, and a second shutter blade operable by a second parallel link mechanism and arranged in superposed relation to said first shutter blade, and wherein the distance between connections of said first parallel link mechanism and said first shutter blade is greater than the distance between connections of said second parallel link mechanism and said second shutter blade.

5,214,464
CAMERA SYSTEM
Toshihiko Karasaki; Hiroshi Ootsuka; Norio Ishikawa; Toshihiko Ishimura; Masataka Hamada; Tokuji Ishida, and Masayuki Ueyama, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Division of Ser. No. 315,845, Feb. 27, 1989, Pat. No. 5,003,336.
This application Dec. 31, 1990, Ser. No. 636,608
Claims priority, application Japan, Feb. 29, 1988, 63-48128; Feb. 29, 1988, 63-48129; Feb. 29, 1988, 63-48130; Feb. 29, 1988, 63-48131; Feb. 29, 1988, 63-48132; May 17, 1988, 63-119685; May 17, 1988, 63-119688
Int. Cl.[5] G03B 17/00
U.S. Cl. 354—286 14 Claims



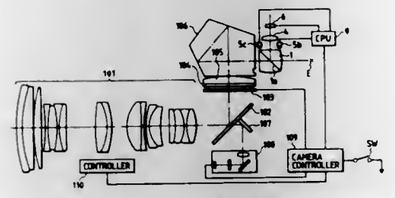
1. A camera system having a camera body and first and second lenses exchangeable to said camera body, comprising:
said first lens comprising means for outputting first data which indicates said first lens belongs to a first lens type and fourth data depending on the characteristic of said first lens;
said second lens comprising means for outputting second data which indicates said second lens belongs to a second lens type and third data depending on the characteristic of said second lens, types of data in said third data including all types of data in said fourth data;
said camera body comprising:
means for inputting the data from the outputting means of said first or second lens attached to said camera body,
means for discriminating the lens type based on whether the inputted data is the first or second data,
means for storing fifth data depending on the characteristic of the lens belonging to the first lens type, types of data in said fifth data corresponding to types of data included in the third data but not included in the fourth data, and
a processing means for carrying out a process based on the third data when the discriminating means judges the attached lens belongs to the second lens type and carrying out a process based on the fourth and fifth data when the discriminating means judges the attached lens belongs to the first lens type.

5,214,465
EXPOSURE CALCULATING APPARATUS
Yasuteru Yamano; Takehiro Katoh; Akihiko Fujino; Kenji Tsuji; Shuji Izumi; Masaaki Nakai, and Nobuyuki Taniguchi, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Division of Ser. No. 567,976, Aug. 15, 1990, Pat. No. 5,142,317, which is a division of Ser. No. 453,259, Dec. 20, 1989, Pat. No. 4,977,423, which is a continuation of Ser. No. 307,845, Feb. 8, 1989, abandoned. This application Apr. 13, 1992, Ser. No. 868,089
Claims priority, application Japan, Feb. 8, 1988, 63-28512; Feb. 8, 1988, 63-28513; Feb. 8, 1988, 63-28514; Feb. 27, 1988, 63-45558; Mar. 16, 1988, 63-64408
Int. Cl.[5] G03B 13/36
U.S. Cl. 354—42 10 Claims



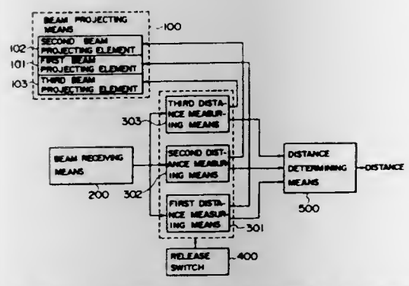
1. An exposure calculation apparatus comprising:
means for measuring light incident on a plurality of light measuring regions of a photographing image plane to generate a plurality of signals representative of the measured light;
means for detecting focusing condition of a photo-taking lens with respect to an object present in a focus detection area;
means for calculating magnification related to an object distance on the basis of the detected focusing condition;
means for performing a plurality of calculations, each of which is performed on the basis of at least one of the signals representative of the measured light generated by the measuring means; and
means for selecting one of the plurality of calculations suitable for said magnification when said magnification exists, and for selecting the particular calculation when said magnification goes not exist.

5,214,466
CAMERA HAVING VISUAL AXIS DETECTING APPARATUS
Akihiko Nagano, Kawasaki; Kazuki Konishi, Hino; Akira Yamada, and Yasuo Suda, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 11, 1991, Ser. No. 683,785
Claims priority, application Japan, Apr. 11, 1990, 2-95599; Feb. 22, 1991, 3-28633; Mar. 13, 1991, 3-48088
Int. Cl.[5] G03B 13/36
U.S. Cl. 354—402 50 Claims



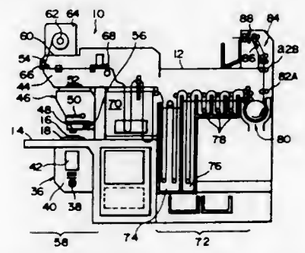
1. A camera having a detecting apparatus for detecting a line of sight of an observer, comprising:
(a) a lens device having a movable lens;
(b) judgment means for judging a moving state of the movable lens device; and
(c) control means for making a detecting operation of the line of sight by said detecting apparatus different as compared with a state in which the movable lens is not moved when it is judged by said judgment means that the movable lens is moving.

5,214,467
DISTANCE MEASURING DEVICE OF CAMERA
Hideo Yoshida, and Minoru Ishiguro, both of Omiya, Japan, assignors to Fuji Photo Optical Co., Ltd., Saitama, Japan
Filed Nov. 13, 1991, Ser. No. 791,238
Claims priority, application Japan, Nov. 14, 1990, 2-308279
Int. Cl.[5] G03B 13/36
U.S. Cl. 354—403 8 Claims



1. A distance measuring device in a camera for measuring the distance to a picture object, comprising:
beam projecting means which includes at least first, second and third beam projecting elements in a single row arrangement for projecting beams though the same projection lens, one beam projecting element being positioned on the center in said single row arrangement and arranged on an optical axis of the projection lens;
beam receiving means for receiving said beams from said beam projecting means and reflected from the pictured object;
distance measuring means, including a first, second and third distance measuring means, responsive to a release switch operation, for driving said first, second and third distance measuring means in sequence so that their distance measuring operation does not overlap with each other and for inputting a receiving output from said beam receiving means;
said first distance measuring means pulse-driving said fist beam projecting means, stopping pulse-drive of said first beam projecting means when a number of light emission of said first beam projecting element reaches a predetermined first maximum number of light emission or when an integrated value of the receiving output from said beam receiving means reaches or exceeds a predetermined value, and generating first distance information corresponding to pulse-drive of said first beam projecting element based on the receiving output of said beam receiving means;
said second distance measuring means pulse-driving said second beam projecting element, stopping pulse-drive of said second beam projecting element when a number of light emission of said second beam projecting element reaches a predetermined second maximum number of light emission, less than said predetermined first maximum number of light emission, or when an integrated value of the receiving output from said beam receiving means reaches or exceeds a predetermined value, and generating second distance information corresponding to pulse-drive of said second beam projecting element based on the receiving output of said beam receiving means; and
said third distance measuring means pulse-driving said third beam projecting element, stopping pulse-drive of said third beam projecting element when a number of light emission of said third beam projecting element reaches said predetermined second maximum number of light emission or when an integrated value of the receiving output from said beam receiving means reaches or exceeds the predetermined value, and generating third distance information corresponding to pulse-drive of said third-beam projecting element based on the receiving output of said beam receiving means; and
distance determining means, responsive to said first, second and third distance informations from said distance measuring means, for determining a distance to the pictured object from said first, second and third distance informations.

5,214,468
METHOD OF CONTROLLING OUTPUT CONDITION OF ABNORMALITY SIGNAL IN PHOTOGRAPHIC FILM CARRIER AND APPARATUS THEREOF, AND PHOTOGRAPHIC FILM CARRIER
Yasuhiro Seto, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed May 27, 1992, Ser. No. 888,981
Claims priority, application Japan, May 28, 1991, 3-123856
Int. Cl.[5] G03B 27/52
U.S. Cl. 355—41 19 Claims



1. A method of controlling an output condition of an abnormality signal in a photographic film carrier for controlling said output condition of said abnormality signal output when an

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abnormality is detected, said photographic film carrier carrying a photographic film on which image frames are consecutively recorded and positioning each image frame at a printing position in order, said method comprising the steps of:

(a) determining depending upon the cause of the abnormality under a condition which is set in advance whether or not said abnormality signal should be output, in case that the abnormality that said image frame can not be accurately positioned is detected; and

(b) outputting said abnormality signal only when determined to output in the step (a).

5,214,469

METHOD OF AND ARRANGEMENT FOR REENLARGEMENT OF MICROFILMED ORIGINALS

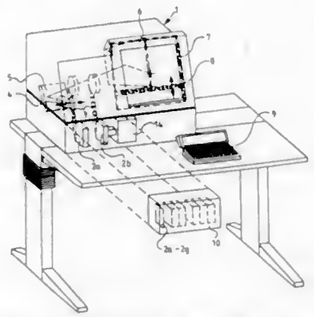
Helmut Klocke, Poecking, and Traugott Liermann, Unterhaching, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Filed Apr. 22, 1992, Ser. No. 872,639

Claims priority, application Fed. Rep. of Germany, May 23, 1991, 4116801

Int. Cl.[5] G03B *13/28*

U.S. Cl. 355—45 **10 Claims**



1. A method of reenlargement of microfilm originals stored in form of microimages, comprising the steps of providing a plurality of microimages on a carrier; selecting microimages from said plurality of microimages for reenlargement on a receiving medium; positioning a selected microimage in an image window suitable for the reenlargement; transferring the microimage on the receiving medium by an objective focused on the image window; during the transfer of the microimage on the carrier positioning a second microimage located on another carrier in a second image window; and after the transfer of the first mentioned microimage, transferring the second microimage on the receiving medium.

5,214,470

METHOD AND APPARATUS FOR COMPENSATING FOR DIRT OR ETCHED AREAS ON A DOCUMENT PLATEN

Michel J. Denber, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 9, 1992, Ser. No. 865,528

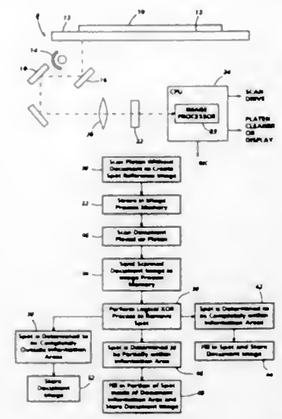
Int. Cl.[5] G03G *21/00*; G03B *27/62*

U.S. Cl. 355—75 **7 Claims**

6. In an image reproduction machine, the combination of:

image data input means for scanning an original document on a document platen and for generating output digital signals corresponding to black and white areas of said document and said platen, black areas on said platen corresponding to dirt or abraded areas, and

processing means for digitizing said output signals and storing images of said document and said platen as a bitmap representations, said processing means adapted to recognize black areas of the bitmap representation which are attributable to dirt or abraded areas on the platen, rather than document information areas and to determine whether the black areas lie wholly or partly within an information content area of the document image.



5,214,471

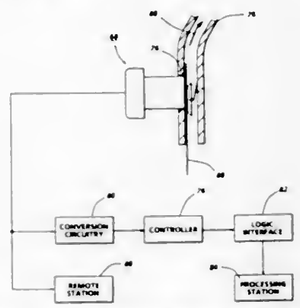
BACKGROUND MONITORING DEVICE

Jan Bares, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed May 22, 1989, Ser. No. 355,715

Int. Cl.[5] G03G *21/00*

U.S. Cl. 355—203 **2 Claims**



1. An electrophotographic printing machine of the type in which an image developed on a photoconductive member is transferred to a sheet and fused thereto, wherein the improvement includes:

means for scanning a region of the sheet and generating a signal corresponding to the scanned region, said scanning means includes a light source for illuminating the sheet, a lens for receiving the light rays reflected from the sheet, and a scanner chip positioned to have the light rays transmitted through said lens focused thereon, said scanning means obtaining a first reference signal by measuring the intensity of light rays reflected from a blank portion of the sheet and a second reference signal by measuring the intensity of light rays reflected from the image fused to the sheet, said scanning means includes a housing having a first chamber with said light source mounted therein and a second chamber having said lens and said scanner chip mounted therein, said housing of said scanning means includes a wall having an aperture aligned with one side of said lens with said scanner chip being aligned with the other side of said lens;

means, responsive to the signal from said scanning means, for generating a signal corresponding to the background density of the sheet;

a plate adjacent the wall of said housing defining a gap therebetween through which the sheet passes; and

means for resiliently urging said plate toward the wall of said housing to press the sheet against the wall in the region of the aperture therein.

5,214,472

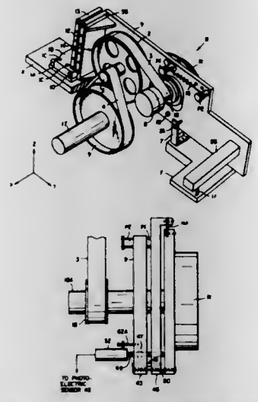
METAL BELT DRIVE FOR RECORDING ELEMENT IN A COPIER/PRINTER

Daniel M. Czuprynski, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 3, 1992, Ser. No. 817,030

Int. Cl.[5] G03G *13/00*

U.S. Cl. 355—210 **2 Claims**



1. In an image recording system wherein image information is recorded line-by-line on a moving recording element, apparatus for advancing the recording element at a substantially constant speed, said apparatus comprising:

a) rotatably mounted support means for supporting said recording element;

b) a motor having a rotatably driven drive shaft;

c) an endless metal belt comprised of a material having a high Young's modulus;

d) a first pulley mounted on an axle and a second pulley mounted on said drive shaft, said axle rigidly connecting said support means to said first pulley, said endless metal belt operatively connecting said second pulley and said first pulley to impart rotatable motion of said drive shaft to said support means; and

e) sensor means for sensing the axial position of said endless metal belt on its associated pulleys and for producing a signal indicative thereof and means responsive to said signal for adjusting the axial position of said endless metal belt on said pulleys.

5,214,473

IMAGE FORMING APPARATUS WITH MANUAL MODE EXPOSURE RANGE SHIFTING CONTROL

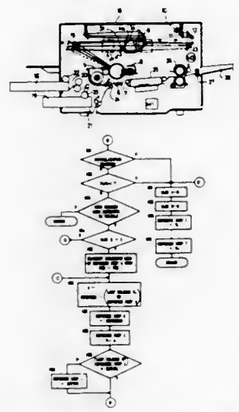
Keiji Kusumoto, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 173,452, Mar. 25, 1988, abandoned. This application Apr. 4, 1990, Ser. No. 504,097

Claims priority, application Japan, Mar. 27, 1987, 62-75179; Mar. 27, 1987, 62-75180; Mar. 27, 1987, 62-75181; Mar. 27, 1987, 62-75182; Mar. 27, 1987, 62-75183

Int. Cl.[5] G03G *15/04*; G03B *27/72*

U.S. Cl. 355—214 **18 Claims**



1. In an original exposing device operable in an automatic exposure mode in which exposing degree is varied automatically in accordance with the density of an original and in a manual mode in which exposing degree is varied manually within a predetermined variable range in accordance with manual adjusting operation, the method comprising the steps of:

obtaining the average exposing degree in an automatic exposure mode; and

shifting the predetermined variable range of manual exposure mode so as to cause said average exposing degree of automatic exposure mode to become a median in the shifted variable range.

5,214,474

COPYING APPARATUS

Yoshiyuki Ishizuka, Hirakata, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

Filed Mar. 26, 1992, Ser. No. 857,763

Claims priority, application Japan, Mar. 28, 1991, 3-64545

Int. Cl.[5] G03G *15/24, 15/02, 15/04*

U.S. Cl. 355—220 **2 Claims**

1. A copying apparatus, comprising:

a photoconductive drum;

a charging device for charging the photoconductive drum;

a light source for emitting a light to expose a document;

a lens unit, through which light reflected on the document is transmitted to expose the photoconductive drum charged by the charging device to form an electrostatic latent image on the photoconductive drum;

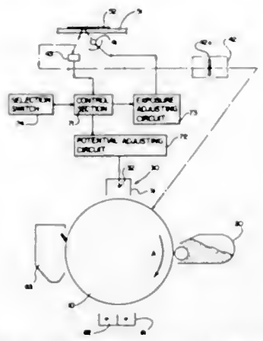
a developing device for developing the electrostatic latent image;

exposure adjusting means for adjusting an exposure of the photoconductive drum to the light emitted from the light source and reflected on the document by changing an intensity of the light emitted from the light source;

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potential adjusting means for adjusting a potential of the photoconductive drum through the charging device; and

control means for controlling the exposure adjusting means to adjust the exposure and simultaneously controlling the potential adjusting means to adjust the potential, based on the intensity of the light emitted from the light source and reflected on the document, wherein the exposure adjusting means is controlled to heighten the exposure and the potential adjusting means is controlled to lower the potential in the case that the intensity of the light is lower than a reference value, and the exposure adjusting means is controlled to lower the exposure and the potential adjusting means is controlled to heighten the potential in the case that the intensity of the light is higher than the reference value.

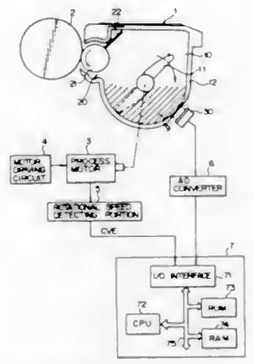


5,214,475

METHOD AND APPARATUS FOR DETECTING RESIDUAL QUANTITY OF TONER IN IMAGE FORMING DEVICE

Masato Ishii, and Hirohiko Kubo, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 13, 1991, Ser. No. 791,126
Claims priority, application Japan, Nov. 13, 1990, 2-306841
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—246 **40 Claims**



1. A method of detecting the residual quantity of toner in a developing unit of an image forming device by using an output signal of a toner sensor disposed at a toner mixing portion having a mixing member to be turned for mixing and frictionally charging the toner, said method comprising the steps of:

detecting a rotational speed of the mixing member;

determining whether or not the rotational speed of the mixing member is a specific constant speed;

sampling the output voltage of the toner sensor at every predetermined sampling time period while the rotational speed of the mixing member is at the specific constant speed, said sampling being conducted without regard to the rotational position of the mixing member;

accumulating the sampled voltages and counting the number of sampled voltages which have been accumulated;

determining whether or not the number of accumulated voltages is equal to a predetermined number;

dividing the accumulated sampled voltages by the predetermined number for obtaining an average value of the sampled voltage when the accumulated number is equal to the predetermined number; and

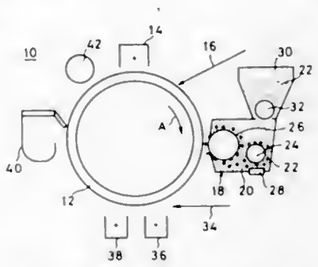
judging the residual quantity of the toner in the developing unit by the average value of the sampled voltage.

5,214,476

IMAGE FORMING APPARATUS

Noriyoshi Nomura, and Masahiko Asada, both of Gifu, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Nov. 14, 1991, Ser. No. 792,005
Claims priority, application Japan, Nov. 16, 1990, 2-311904
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—246 **14 Claims**



1. An image forming apparatus, comprising:

an electrostatic latent image carrying member for carrying an electrostatic latent image;

means for developing said electrostatic latent image using a dual-component developer comprising a mixture of toner particles and carrier particles;

means for sensing the toner concentration in said developer in said developing means;

means for calculating a change amount of the toner concentration based on a first toner concentration sensed by said toner concentration sensing means and a second toner concentration sensed by said toner concentration sensing means at a time after the first toner concentration was sensed;

means for setting a toner supply amount based on the change amount of the toner concentration calculated by said change amount calculating means and the second toner concentration sensed by said toner concentration sensing means; and

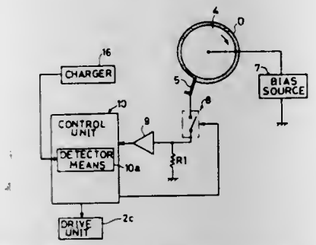
means for supplying toner particles to said developing means in accordance with the set toner supply amount.

5,214,477

IMAGE FORMING APPARATUS HAVING A TONER DENSITY DETECTING DEVICE

Junichi Hirobe, Kodoma; Masakatsu Akashi, Kakogawa; Masahiko Kobayashi, Ikoma, and Tsutomu Sugaya, Hirakata, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Mar. 9, 1992, Ser. No. 848,492
Claims priority, application Japan, Mar. 12, 1991, 3-046447
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—246 **6 Claims**



1. An image forming apparatus comprising:

a photoreceptor;

developing roller means for forming a layer of developer on a surface thereof so as to supply toner to the photoreceptor at a developing position;

bias supply means for applying a bias voltage between the developing roller means and a ground;

conductive line means for electrically connecting the developer layer with the ground;

first detector means for detecting toner density of the developer layer based on an amount of electric current flowing through the conductive line means; and

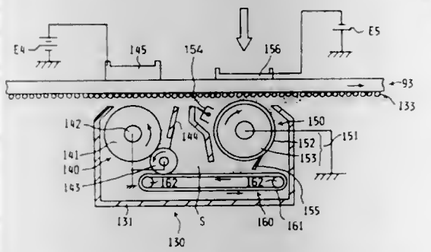
voltage control means for preventing surface voltage of the developer layer from falling below a predetermined level even though electric current flows into the conductive line.

5,214,478

IMAGE RECORDING APPARATUS PROVIDED WITH A SELECTIVE POWER APPLYING DEVICE

Yoshiyasu Honma; Yasuhiro Hattori, both of Nagoya, and Shigeru Kagayama, Owariasahi, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Oct. 22, 1991, Ser. No. 780,239
Claims priority, application Japan, Oct. 25, 1990, 2-289927; Feb. 22, 1991, 3-028288; Mar. 27, 1991, 3-063286
Int. Cl.[5] G03G *71/00*
U.S. Cl. 355—270 **21 Claims**



9. A selective particle applying device for applying particles onto a supporting member according to image information, comprising:

particle applying means for applying charged particles to the entire surface of the supporting member;

particle removing means for selectively removing particles from the supporting member comprising a particle removing electrode having a laminate construction including a photoconductive member and a conductive member to which a voltage is applied, said photoconductive member disposed near the surface of the supporting member coated with the particles with a predetermined space therebetween; and

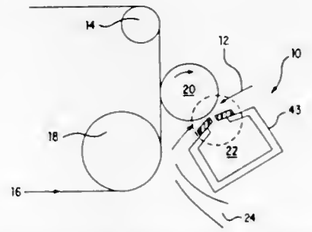
light irradiating means for irradiating at least the photoconductive member of the particle removing means with a light beam carrying image information to create conductive portions of the photoconductive member corresponding to blank portions of the image information.

5,214,479

BTR AIR CLEANER WITH BIASED SHIMS

Nero R. Lindblad, Ontario; Bruce E. Thayer, Webster; Gregory J. Mancine, Fairport, and Alexander J. Floravanti, Penfield, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 31, 1992, Ser. No. 937,322
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—271 **11 Claims**



1. A cleaning apparatus, for an electrophotographic apparatus, for removing residual toner particles and paper fibers from the surface of a rotating biased transfer roll, said cleaning apparatus employing an air current, comprising:

a cleaner housing mounted adjacent to said biased transfer roll, said housing further comprising a vacuum chamber fixedly arranged adjacent said biased transfer roll with two flexible conductive shims fixedly mounted on opposite sides of an air inlet of said vacuum chamber, said shims stretched along said air inlet without touching each other;

a means for creating and controlling air flow across and through said air inlet; and

a means for applying electrical bias voltage to and between said shims and said biased transfer roll.

5,214,480

IMAGE FORMING APPARATUS WITH TRANSFER SHEET BEARING MEANS

Takao Aoki, Abiko; Yujiro Ando; Shinkichi Takahashi, both of Yokohama; Eihiro Sakaki, Chofu; Fumihiro Ueno, Yokohama, and Toshiaki Miyashiro, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 641,906, Jan. 16, 1991, abandoned. This application Sep. 15, 1992, Ser. No. 946,014
Claims priority, application Japan, Jan. 19, 1990, 2-9603
Int. Cl.[5] G03G *15/13*
U.S. Cl. 355—274 **27 Claims**

1. An image forming apparatus comprising:

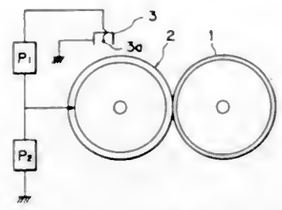
an image bearing member;

an image forming means for forming an image on said image bearing member;

a transfer sheet bearing means for bearing and conveying a transfer sheet to a transfer position for the image formed on said image bearing member to be transferred to the

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transfer sheet as it is passed between said image bearing member and said transfer sheet bearing means, said transfer sheet bearing means having a dielectric layer disposed on a surface thereof and a conductive layer disposed inside of said dielectric layer, a first voltage being applied to the conductive layer upon a transfer operation; and



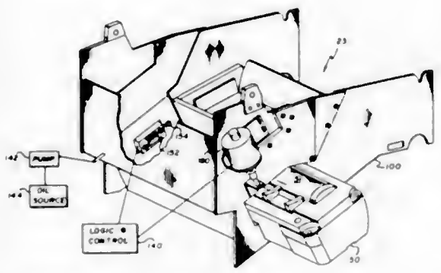
a discharging means for causing the discharge in the transfer sheet when the transfer sheet is separated from said transfer sheet bearing means, to which a second voltage having the same polarity as that of said first voltage and having a value equal to 80%–120% of said first voltage is applied.

5,214,481

IMAGE-FORMING APPARATUS HAVING REPLACEABLE FUSING ROLLER AND LOGIC AND CONTROL

Linn C. Hoover, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 31, 1992, Ser. No. 830,033
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—285 **14 Claims**



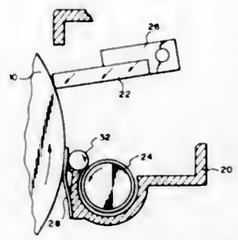
1. Image-forming apparatus comprising:
a cartridge including,
a housing,
a fusing roller supported for rotation in said housing,
a fuse including means for irreversibly changing an electrical circuit from a first condition to a second condition in response to a predetermined temperature,
means for heating said fusing roller in ordinary operation sufficiently above said predetermined temperature to change said electrical circuit from its first to its second condition,
cartridge connecting means for connecting said fuse into an electrical circuit,
means for receiving said cartridge in said apparatus, said receiving means including receiving electrical connecting means connectable with said cartridge connecting means, and
means in said receiving means for discriminating between a new or used cartridge in response to sensing said first or second condition.

5,214,482

ROTARY AGITATOR FOR AIDING REMOVAL OF TONER FROM A PHOTOCONDUCTIVE ELEMENT

Kazuyuki Katoh, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 19, 1990, Ser. No. 511,103
Claims priority, application Japan, Apr. 26, 1989, 1-48231[U]; Feb. 19, 1990, 2-36234
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—298 **9 Claims**



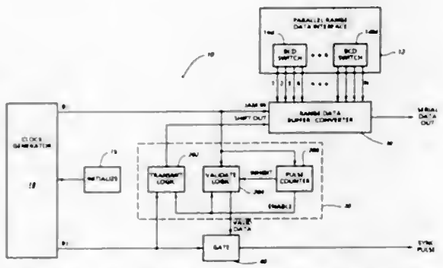
1. A cleaning device for removing a toner remaining on a photoconductive element of image forming equipment, comprising:
a cleaning blade held in contact with the photoconductive element;
a toner discharge coil having a plurality of coil windings rigidly fitted on a drive shaft, said drive shaft being located below said cleaning blade; and
a rotatable member positioned between said cleaning blade and said toner discharge coil and between said toner discharge coil and the photoconductive element, wherein said rotatable member is held in contact with said toner discharge coil, and
means for driving said drive shaft so that said windings scrape along a surface of the rotatable member to remove toner therefrom and to simultaneously transport the toner along a longitudinal axis of the rotatable member.

5,214,483

DIGITAL LASER RANGE FINDER EMULATOR

Vaughn P. McDowell; Orgal T. Holland, both of Fredericksburg, and Christina G. Wilkerson, King George, all of Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 6, 1992, Ser. No. 925,217
Int. Cl.[5] G01C *3/08*
U.S. Cl. 356—5 **6 Claims**



1. A digital laser range finder emulator that receives N-bits of range-to-target data in a parallel format to generate N-bits of serial data representative of the range-to-target data and an external synchronization pulse whose presence is indicative of valid serial data, comprising:

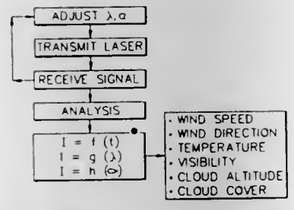
means for generating first and second clock pulses, wherein said second clock pulse is delayed with respect to said first clock pulse;
control logic means responsive to said first clock pulse to generate validity logic, and responsive to said second clock pulse to generate transmit logic;
means for converting the parallel format range-to-target data into the serial data in response to said first clock pulse, and for outputting the serial data therefrom in response to said transmit logic; and
gating means responsive to said second clock pulse and said validity logic to generate the synchronization pulse when said second clock pulse and said validity logic occupy a common logic state.

5,214,484

APPARATUS FOR MEASURING METEOROLOGICAL PARAMETERS

Christian M. C. de Mollerat du Jeu, Aix en Provence, France, assignor to Societe Europeenne de Systemes Optiques SESO, Plaisir, France

Filed Jun. 24, 1991, Ser. No. 719,803
Claims priority, application France, Jun. 25, 1990, 90 07927
Int. Cl.[5] G01P *3/36*
U.S. Cl. 356—28.5 **14 Claims**



1. An apparatus for measuring meteorological parameters comprising,
a laser generator transmitter emitting a pulse laser signal along an optical axis, the emitted signal having a spectrum centered on a central wavelength,
a single receiver having an optical axis at least close to the optical axis of the transmitter,
said single receiver comprising
a substantially monochromatic filter means and a photodetector, said filter means having a narrow passband centered on a central wavelength,
means for providing controlled variation of at least one of the central wavelength of the emitted signal and the central wavelength of the filter means in the receiver,
means for measuring and sequentially analyzing the laser signals backscattered by the atmosphere comprising, and
means for analyzing variations as a function of time in the intensities of the backscattered signals and the doppler shifts between the emitted signals and the backscattered signals.

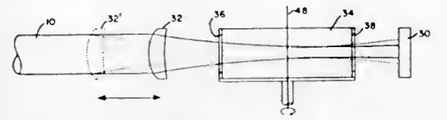
5,214,485

APPARATUS FOR MEASURING THE MODE QUALITY OF A LASER BEAM

Michael W. Sasnett, Los Altos, and Thomas F. Johnston, Jr., Sunnyvale, both of Calif., assignors to Coherent, Inc., Palo Alto, Calif.

Division of Ser. No. 344,980, Apr. 27, 1989, Pat. No. 5,100,231.
This application Jan. 24, 1992, Ser. No. 825,512
Int. Cl.[5] G01J *1/00*
U.S. Cl. 356—121 **14 Claims**

1. An apparatus for determining the input alignment of a laser beam with respect to the apparatus comprising:
lens means for focusing the beam and creating a transformed beam waist;
a rotatable hub of a known diameter located in the path of the laser beam at a known distance from the lens means and having at least two apertures formed therein for transmitting the beam, with one of said apertures including a pair of opposed knife edges each disposed perpendicularly with each other and at a 45° angle with respect to the plane of rotation of the hub;
means for measuring the power of the beam transmitted through said apertures and past said knife edges, said



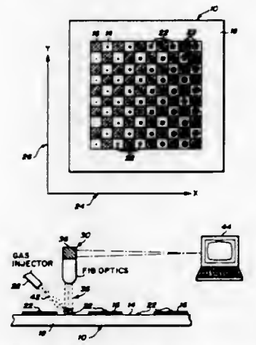
means being located outside the hub opposite to the incoming laser beam; and
processor means connected to said measuring means, said processor means for determining the center of the transformed beam in two transverse orthogonal directions and at two opposed sides of the hub based upon variations in transmitted power, said processor means further determining the alignment of the input beam based on the focal length of the lens means, the determined transformed beam centers, the known diameter of the hub and the known distance from the hub to the lens means.

5,214,486

MONITOR PLATE FOR AUTOMATIC PARTICLE DETECTION SYSTEM

James G. DeWitt, Sunnyvale, Calif., assignor to Hoya Micro Mask, Inc., Sunnyvale, Calif.

Filed Dec. 12, 1991, Ser. No. 807,067
Int. Cl.[5] G01J *1/02*; G01B *11/00*
U.S. Cl. 356—243 **12 Claims**



1. A verification plate to verify the accuracy of a mask inspection system in detecting contaminated particles comprising:
a substrate having a plurality of glass patterns and a plurality of chrome patterns formed thereon; and
a predetermined number of verification particles each having a predetermined shape and size, each of the verification particle being deposited on top of said glass and chrome patterns at a predetermined location whereby the accuracy of said mask inspection system can be definitely verified by performing an inspection operation on the verification plate.

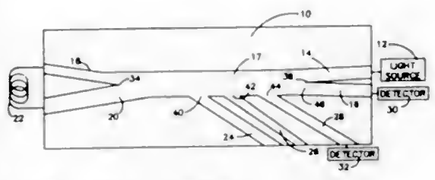
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,487

FIBER OPTIC GYRO

George A. Pavlath, Thousand Oaks, Calif., and Byoung Y. Kim, Seoul, Rep. of Korea, assignors to Litton Systems, Inc., Beverly Hills, Calif.

Filed May 11, 1990, Ser. No. 521,951
The portion of the term of this patent subsequent to Jul. 3, 2007, has been disclaimed.
Int. Cl.[5] G01C *19/72*
U.S. Cl. 356—350 8 Claims



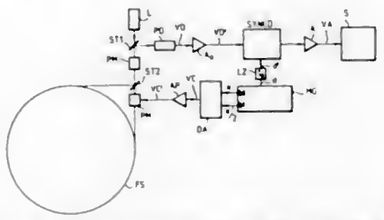
1. A fiber optic gyro comprising:
a double-mode optical wave carrier;
first and second substantially identical single-mode optical wave carriers substantially symmetrically coupled by their first ends to a first end of said double-mode carrier;
third and fourth single-mode carriers forming a mode-splitter, mode-coupled by their first ends to the second end of said double-mode carrier;
a fiber optic rotation sensing coil connected at its opposite ends to the second ends of said third and fourth single-mode carriers;
an at least partially coherent light source coupled to the second end of said first light carrier; and
a light detector coupled to the second end of said second light carrier.

5,214,488

FIBER OPTIC SAGNAC INTERFEROMETER WITH DIGITAL PHASE MODULATION FOR MEASURING ROTATION RATE

Hanns-Jürgen Büschelberger, Kirchzarten, and Günter Spahlinger, Stuttgart, both of Fed. Rep. of Germany, assignors to LITEF GmbH, Freiburg im Breisgau, Fed. Rep. of Germany

Filed Jan. 31, 1992, Ser. No. 828,722
Claims priority, application European Pat. Off., Feb. 11, 1991, 91101872.9
Int. Cl.[5] G01C *19/64*
U.S. Cl. 356—350 2 Claims



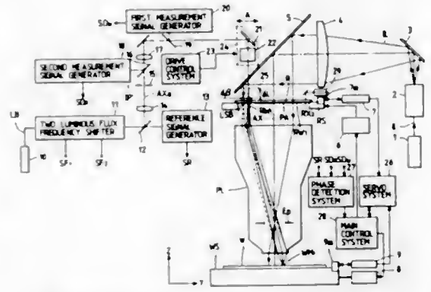
1. A method for modulating a fiber optic Sagnac interferometer for measuring rotation rate of the type in which two light beams originating from a light source are polarized by a polarizer and generated by beam splitting, then injected in opposite directions into a fiber coil and subsequently recombined to produce an interference image, after passing through the polarizer, that acts upon a detector device whose output signal corresponds to the light intensity of the interference image, and in which the two light beams are modulated by a phase modulator located in the fiber coil and the amplified photodetector output signal is fed to a synchronous demodulator, said method comprising the steps of:
a) driving said phase modulator with a modulation signal that comprises the sum of a first component formed from alternately successive values of zero and $\pi/2$ and a second component formed from substantially correlation-free successive values of zero and π;
b) driving said synchronous demodulator with a signal that comprises the transit-time corrected product of four factors, (i) a first of which has the value -1; (ii) a second being -1 when said second component is zero and $+1$ when said second component is π, (iii) a third being -1 when the second component of the last preceding modulation cycle is zero and $+1$ when the second component of said last preceding modulation cycle was π and (iv) a fourth factor being -1 when said first component is zero and $+1$ when said first component is $\pi/2$; and
c) correcting the product of said four factors by a transit time compensation corresponding to the transit time of the light of each one of said light beams through said fiber coil and to the processing time for the summation to obtain said second signal component, to combine said first and said second signal components to form said signal for driving said phase modulator and a digital/analog conversion of said drive signal.

5,214,489

ALIGNING DEVICE FOR EXPOSURE APPARATUS

Hideo Mizutani, Yokohama, and Kenji Nishi, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Apr. 19, 1991, Ser. No. 687,944
Claims priority, application Japan, Apr. 25, 1990, 2-109293
Int. Cl.[5] G01B *11/26*
U.S. Cl. 356—363 12 Claims



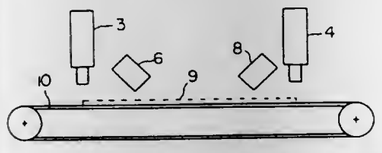
1. An alignment device for an exposure apparatus, said alignment device being provided in an apparatus, which uses illumination light in a predetermined range of wavelengths to project and focus an image of a pattern formed on a mask onto a photosensitive substrate through a projection optical system, for optically detecting light from a first diffraction grating formed on said mask and a second diffraction grating formed on said photosensitive substrate to thereby align said mask and said photosensitive substrate with each other, comprising:
irradiation means having an object optical system for radiating two coherent beams, having a different range of wavelengths from said illumination light, to said first and second diffraction gratings via said object optical system in such a manner that the beams cross each other at a predetermined angle on one of said first and second diffraction gratings;
first light receiving means for photoelectrically detecting interference light of diffracted rays produced substantially in the same direction from said one diffraction grating;
a third diffraction grating disposed in a plane substantially conjugate to said one diffraction grating;
second light receiving means for photoelectrically detecting interference light of diffracted rays produced by said third diffraction grating from diffracted rays of said two beams which are diffracted by the other of said first and second diffraction gratings and which impinge upon said third diffraction grating at a predetermined incident angle via said object optical system;
detection means for comparing respective signals from said first and second light receiving means to output a detection signal depending on a shift in relative position between said mask and said photosensitive substrate; and
movement means for changing the relative position between said mask and said photosensitive substrate based on said detection signal.

5,214,490

SHEET DIMENSION MEASUREMENT SYSTEM

Norihiro Abe, and Tatsuyuki Miyagawa, both of Yokohama, Japan, assignors to Reliance Electric Ltd., Kanagawa, Japan

PCT No. PCT/JP91/00558, § 371 Date Dec. 5, 1991, § 102(e) Date Dec. 5, 1991, PCT Pub. No. WO91/16599, PCT Pub. Date Oct. 31, 1991
PCT Filed Apr. 25, 1991, Ser. No. 777,343
Claims priority, application Japan, Apr. 26, 1990, 2-111096
Int. Cl.[5] G01B *11/02*
U.S. Cl. 356—383 2 Claims



1. A sheet dimension measurement system, comprising:
a plurality of cameras installed above a transferring line transferring sheets, including a camera positioned above each of four sheet corners wherein said camera maintains a corresponding sheet corner within its field of view, each of said cameras being moveable in accordance with sheet dimensions;
a plurality of flashing devices, each flashing device being installed at an angle with respect to an optical axis of a corresponding one of said cameras for producing shadows of a corresponding sheet corner, each of said flashing devices, being fixed with respect to said camera and moveable therewith;
corner detecting means including a plurality of corner detecting sections for detecting absolute coordinates of sheet corners based on differences in brightness of standstill pictures taken by said cameras; and
sheet dimension computing means including a sheet dimension computing section for calculating lengths, widths and diagonal dimensions of sheets based on said detected absolute coordinates of said sheet corners.

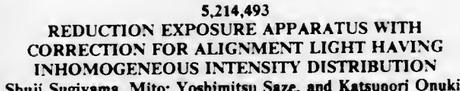
5,214,491

APPARATUS AND METHOD FOR DETERMINING THE POSITION OF A FOOTBALL DURING A FOOTBALL GAME

James D. Snowden, 2304 Green Tee Dr., Pearland, Tex. 77581

Filed May 16, 1991, Ser. No. 701,220
Int. Cl.[5] G01B *11/00*; G01C *15/00*
U.S. Cl. 356—399 15 Claims

1. An apparatus for determining a location of a ball on a playing field relative to a distance required according to the rules of a game, the required distance having a starting point and an ending point, comprising:
a guide ramp having a length corresponding to the required distance;
movable support means for supporting said guide ramp and movable with said guide ramp along the playing field;
a spotting laser movably disposed on said guide ramp so that it can travel therealong, said spotting laser for projecting a mark onto the playing field corresponding to the position of the ball on the playing field; and



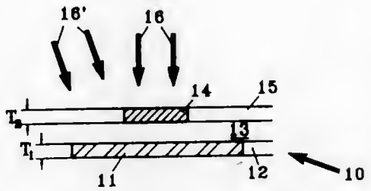
a first sighting laser located at a first end of said guide ramp, for projecting a mark onto the playing field corresponding to the ending point of the required distance for a first direction of travel of the ball.

5,214,492

APPARATUS FOR PRODUCING AN ACCURATELY ALIGNED APERTURE OF SELECTABLE DIAMETER

Robert T. LoBianco, Mountain View; Thomas E. Clawges, and Adam C. Rhoads, both of Pleasanton, all of Calif., assignors to Optical Specialties, Inc., Fremont, Calif.

Filed Aug. 2, 1991, Ser. No. 739,896
Int. Cl.[5] G01B *11/26*
U.S. Cl. 356—400 10 Claims



1. An integrated circuit fabrication tool comprising:
a light source;
a wafer support stage;
a condensing element that forms light from said light source into an optical beam that is directed to a portion of said support stage at which a wafer is to be mounted;
a multiaperture assembly having a set of apertures $A_1, \ldots A_n$, where n is an integer greater than 1;
means for moving this multiaperture assembly relative to a path along which said beam is to pass, to position this multiaperture assembly accurately in any selected position P_k (for $k=1, \ldots n$) relative to said path such that aperture A_k is accurately positioned in said path; and
means for collecting and measuring light from said wafer.

5,214,493

REDUCTION EXPOSURE APPARATUS WITH CORRECTION FOR ALIGNMENT LIGHT HAVING INHOMOGENEOUS INTENSITY DISTRIBUTION

Sbuji Sugiyama, Mito; Yoshimitsu Saze, and Katsunori Onuki, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

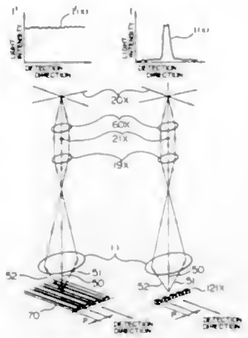
Filed Aug. 19, 1991, Ser. No. 746,612
Claims priority, application Japan, Aug. 29, 1990, 2-225324
Int. Cl.[5] G01B *11/26*
U.S. Cl. 356—401 14 Claims

1. A light exposure apparatus comprising:
means for irradiating a pattern formed on a substrate by exposure light and forming an image of said pattern on a surface to be exposed;
means for irradiating a diffraction grating shaped alignment pattern provided on said surface to be exposed by align-

VOL 1150 ISS 4 MY 25 1993 UMI

ment light to obtain higher-order diffracted light from said alignment pattern and detecting the higher-order diffracted light;

means for irradiating by said alignment light a diffraction grating shaped reference pattern having substantially the same grating pitch as said diffraction grating shaped alignment pattern to obtain higher-order diffracted light from



said reference pattern and detecting the higher-order diffracted light; and

means for correcting for a background of said detected higher-order diffracted light obtained from said diffraction grating shaped alignment pattern on the basis of said detected higher-order diffracted light obtained from said diffraction grating shaped reference pattern.

5,214,494

LIGHT SENSOR WITH AN ADJUSTABLE SPECTRAL CHARACTERISTIC

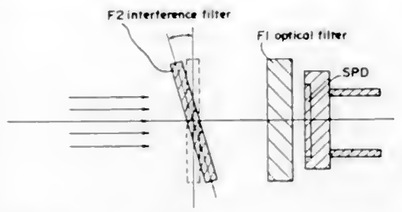
Masahito Inaba, Ikeda, and Masami Sugiyama, Toyonaka, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Sep. 4, 1991, Ser. No. 754,742

Claims priority, application Japan, Sep. 4, 1990, 2-234864

Int. Cl.[5] G01D *3/51;* **G02B** *5/22, 5/28*

U.S. Cl. 356—419 **14 Claims**



1. A light sensor comprising:

at least one optical filter having similar spectral characteristics to predetermined spectral characteristics;

an interference filter which function as a wavelength cut-off filter;

a photoelectric converting element for receiving and photoelectrically converting light that has passed through said optical filter and said interference filter, and

incident angle changing means for shifting a cut-off wavelength of said interference filter by changing an incident angle of the incident light on said interference filter and for adjusting a total spectral sensitivity in a combination of said optical filter, said interference filter and said photoelectric converting element to the predetermined spectral sensitivity.

5,214,495

PHOTOINTERRUPTER AND MANUFACTURING METHOD THEREOF

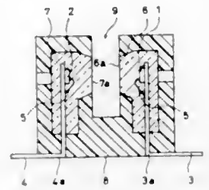
Shigenori Kitanishi, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jul. 18, 1991, Ser. No. 731,780

Claims priority, application Japan, Jul. 23, 1990, 2-78414

Int. Cl.[5] H01L *31/12*

U.S. Cl. 257—80 **12 Claims**



1. A photointerrupter, comprising:

a light emitting element;

a first lead frame on which said light emitting element is mounted;

a first light transmissive molding formed of a light transmissive resin to cover said light emitting element and said first lead frame and having a light passage portion;

a light receiving element;

a second lead frame on which said light receiving element is mounted;

a second light transmissive molding formed of a light transmissive resin to cover said light receiving element and said second lead frame and having a light passage portion; and

a light shielding molding formed of a light shielding resin for optically coupling said light emitting element and said light receiving element and unifying said first light transmissive molding and said second light transmissive molding together.

said first lead frame and said second lead frame extending outward from said first light transmissive molding and said second light transmissive molding, respectively, wherein said first and second lead frames are bent in opposing directions and before formation of said light shielding molding to contact and be aligned with an external surface of said light shielding molding.

5,214,496

SEMICONDUCTOR MEMORY

Hideo Sunami, Tokyo; Tokuo Kure, Kokubunji; Masanobu Miyao, Tokorozawa; Yoshifumi Kawamoto, Kanagawa; Katsuhiro Shimohigashi, Musashimurayama; Yoshio Sakai, Kanagawa; Osamu Minato, Tokyo; Toshiaki Masuhara, Tokyo, all of Japan; Mitsumasa Koyanagi, Cupertino, Calif., and Shinji Shimizu, Houya, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 934,556, Nov. 24, 1986, Pat. No. 4,901,128. This application Dec. 19, 1989, Ser. No. 452,683

Claims priority, application Japan, Nov. 4, 1982, 57-192478; Nov. 11, 1983, 58-210825; Nov. 18, 1983, 58-216143; Dec. 26, 1983, 58-243997; Oct. 1, 1984, 59-204001

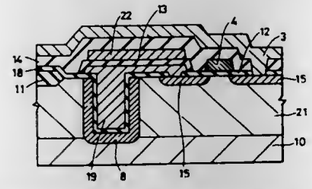
Int. Cl.[5] H01L *29/68, 29/06, 27/02, 29/34*

U.S. Cl. 257—296 **42 Claims**

1. A semiconductor memory which includes a plurality of memory cells, each of which memory cells includes an insulated-gate field-effect transistor and a capacitor with a data storage portion formed on a predetermined semiconductor region formed on a substrate, said substrate being common to said plurality of memory cells, said semiconductor region having a first conductivity type, and said substrate having a second conductivity type, wherein said capacitor comprises:

a first electrode formed as a region which includes a part of said substrate, said first electrode being formed around a portion of a groove in said semiconductor region;

a second electrode being formed within said groove, said



second electrode being coupled to a source or the drain of said insulated-gate field-effect transistor; and

a first insulating film formed within said groove between said first electrode and said second electrode.

5,214,497

POLYCRYSTALLINE SILICON RESISTOR FOR USE IN A SEMICONDUCTOR INTEGRATED CIRCUIT HAVING A MEMORY DEVICE

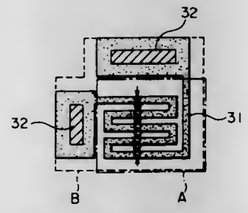
Mitsuo Nanba, Tokyo; Masao Kondo, Hachioji; Takeo Shiba, Kodaira, and Tohru Nakamura, Tanashi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 354,816, May 22, 1989, abandoned. This application Apr. 8, 1991, Ser. No. 681,664

Claims priority, application Japan, May 25, 1988, 63-125719

Int. Cl.[5] H01L *27/02, 21/22*

U.S. Cl. 257—528 **24 Claims**



1. A polycrystalline silicon load resistor for a memory cell of a static random access memory device which is formed by a polycrystalline silicon film having a predetermined film thickness and length, and which is doped at a predetermined level, so that said resistor will have a specific resistivity of 0.01 Ω.cm–0.1 Ω.cm and a resistance of 40 kΩ–800 kΩ to provide stable operation for the static random access memory device.

5,214,498

MMIC PACKAGE AND CONNECTOR

George R. Lehman, Port Jones; Stacey M. Bilski, and Steven W. Miller, both of Santa Barbara, all of Calif., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 626,374, Dec. 12, 1990, abandoned, which is a continuation of Ser. No. 485,359, Feb. 26, 1990, abandoned. This application Nov. 7, 1991, Ser. No. 789,393

Int. Cl.[5] H01L *23/02, 23/48*

U.S. Cl. 257—678 **4 Claims**

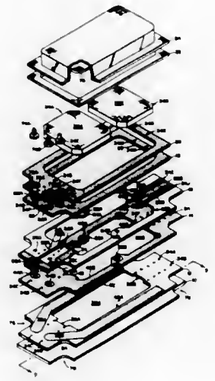
1. A package for a circuit operating on an RF signal comprising:

a) a first layer, said first layer having a conductive surface region;

b) a second layer with a surface portion;

c) a conductive trace disposed on the surface portion, said conductive trace having a wide portion and a narrow portion, said second layer being mounted above the first layer with the conductive trace above the conductive surface region of the first layer;

d) a third layer having a conductive surface region, said third layer mounted above the second layer with the conductive surface region of the third layer above a first portion of the narrow portion of the conductive trace on the second layer wherein said narrow portion of the conductive trace on the second layer has a pair of opposing



end portions and wherein said pair of opposing end portions extends beyond the third layer; and

e) wherein the third layer, the first layer, and the first portion of the narrow portion are coupled and arranged to provide a strip transmission line and wherein the first layer, the wide portions of said conductive trace and the pair of opposing end portions are coupled and arranged to provide a microstrip transmission line.

5,214,499

SYSTEM FOR MAKING RASTER LOCATION ADJUSTMENTS ON A MULTI-COLOR DISPLAY SCREEN

Gunter Gleim, Villigen, and Jacques Chauvin, Monchweiler, both of Fed. Rep. of Germany, assignors to Deutsche Thomson-Brandt GmbH, Villingen, Fed. Rep. of Germany

Filed Mar. 25, 1992, Ser. No. 857,405

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1990, 3931154

Int. Cl.[5] H04N *17/02*

U.S. Cl. 358—10 **3 Claims**

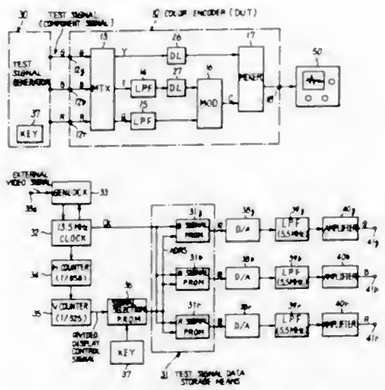
1. In a system for making raster location adjustments on a multi-color display screen, said raster having horizontal and vertical lines crossing at crossing points, said system including a cursor which is moveable to said crossing points, an improvement wherein said cursor has a brightness level sufficient to detect color convergence, but less than the brightness level of said horizontal and vertical lines.

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5,214,500
COLOR ENCODER MEASUREMENT SYSTEM WITH ADJUSTMENT OF AMPLITUDE RATIO OF R, G AND B COMPONENT SIGNALS

Susumu Takayama, Kamakura; Joji Urano, Tokyo; Kazuhiro Tsuboi, Sagamihara, and Katsuhiko Watanabe, Tokyo, all of Japan, assignors to Nippon Television Network Corporation, Tokyo, Japan

Filed Oct. 25, 1991, Ser. No. 782,389
Claims priority, application Japan, Apr. 24, 1991, 3-94414; May 10, 1991, 3-106115
Int. Cl.[5] H04N *17/02*
U.S. Cl. 358—10 16 Claims



1. A method of measuring a characteristic of an NTSC type color encoder, comprising the steps of:
adjusting the amplitudes of R, G and B component signals to be in the ratio 1:1:1 so that only a luminance signal is produced by said color encoder when the R, G and B component signals are simultaneously applied to said color encoder;
applying the R, G and B component signals to said color encoder simultaneously; and
measuring the output signal from said color encoder.

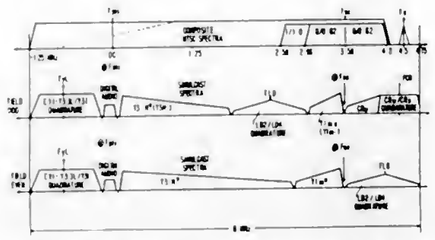
7. A method of measuring a characteristic of a PAL type color encoder, comprising the step of:
adjusting the amplitudes of R, G and B component signals to be in the ratio 1:1:1 so that only a luminance signal is produced by said color encoder when the R, G and B component signals are simultaneously applied to said color encoder;
applying the R, G and B component signals to said color encoder simultaneously; and
measuring the output signal from said color encoder.

5,214,501
METHOD AND APPARATUS FOR THE TRANSMISSION AND RECEPTION OF A MULTICARRIER HIGH DEFINITION TELEVISION SIGNAL

Alan P. Cavallerano, Ossining; Eberhard Fisch, Yonkers, and Mikhail Tsinberg, Riverdale, all of N.Y., assignors to North American Phillps Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 428,278, Oct. 25, 1989, Pat. No. 5,053,860, which is a continuation-in-part of Ser. No. 252,954, Oct. 3, 1988, Pat. No. 5,006,926. This application Nov. 16, 1990, Ser. No. 614,885
Int. Cl.[5] H04N *11/06, 7/04*
U.S. Cl. 358—12 17 Claims

1. A method for forming a frequency multiplexed television signal suitable for use in a broadcasting environment wherein a conventional television signal comprising a picture carrier and a color subcarrier having respective frequency locations within said conventional television signal is also used, said method comprising the steps of:
(a) deriving from a television source signal, a plurality of signal components;
(b) modulating a plurality of subcarriers with a plurality of said signal components; and

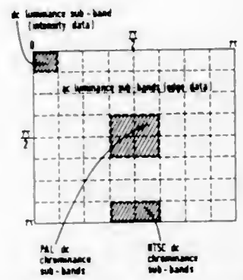


(c) selecting the frequencies of said subcarriers so as to place them in respective frequency locations within said frequency multiplexed television signal least likely to interfere with the picture carrier and color subcarrier of said conventional television signal.

5,214,502
COMPRESSION OF VIDEO SIGNALS

Jonathan J. Stone, Reading; Terence R. Hurley, Newbury, and James H. Wilkinson, Heathlands, all of England, assignors to Sony Broadcast & Communications Limited, Basingstoke, England

Filed Dec. 19, 1991, Ser. No. 810,337
Claims priority, application United Kingdom, Jan. 11, 1991, 9100591
Int. Cl.[5] H04N *11/04*
U.S. Cl. 358—13 42 Claims

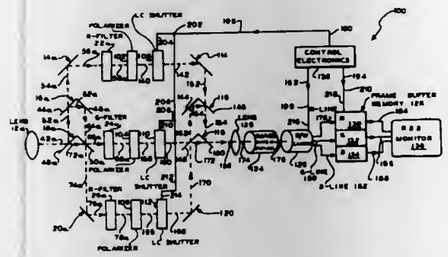


1. A method of compressing a color video signal, the method comprising the steps of:
decorrelating a digital composite color video signal to form a plurality of data sets representing dc luminance information, ac luminance information and dc chrominance information of said signal in a two-dimensional spatial frequency domain;
quantizing said data sets in accordance with respective quantization values selected from a quantization matrix, said quantization values being such that the amount of quantization of each of a sub-plurality of said plurality of data sets to which the dc luminance information and the dc chrominance information are at least predominantly confined is less than the average of the amounts of quantization of the remaining data sets; and
entropy encoding at least some of the quantized data sets.

5,214,503
COLOR NIGHT VISION CAMERA SYSTEM

Yue T. Chiu, Eatontown; Philip F. Krzyzkowski, Red Bank, and Richard P. Tuttle, Wall, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 31, 1992, Ser. No. 828,616
Int. Cl.[5] H04N *9/097, 5/33*
U.S. Cl. 358—50 1 Claim

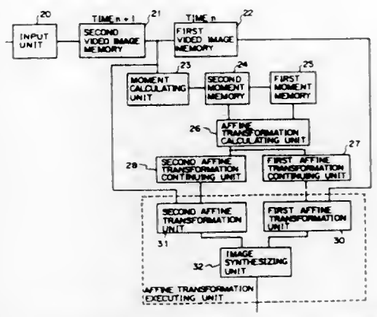


1. A color night vision camera system comprising:
a first lens which outputs an image along a lens light path;
a first mirror means which receives the lens image and which outputs first and second and third mirror images along respective first and second and third mirror paths;
a first red filter and a second green filter and a third blue filter which respectively receive the first and second and third mirror images and which respectively output first and second and third filtered images along first and second and third paths;
intensifier means which receives the first and second and third filtered images and which outputs first and second and third intensified images;
camera means which receives the first and second and third intensified images and which outputs respective first and second and third camera signals corresponding thereto;
monitor means which receives the first and second and third camera signals and displays a color night vision image;
wherein the first and second and third filters respectively have first and second and third polarizers and first and second and third LC shutters which act as optical switches that allow light to pass therethrough one at a time to the first and second and third paths therefrom;
second mirror means which receives the respective first and second and third shuttered and filtered images and which outputs one continuous image sequence therefrom;
a second lens which receives the image sequence from the mirror means; and
wherein the intensifier means is a single intensifier unit which receives the image sequence from the second lens; and wherein the camera means is a single camera unit which receives the image sequence from the single intensifier unit, said single camera unit having a first red conductor and a second green conductor and a third blue conductor which output respective camera signals therefrom;
a frame buffer memory having a first red buffer portion and a second green buffer portion and a third blue buffer portion which respectively receive the signals from the first and second and third camera conductors and which respectively have first and second and third memory conductors that output respective memory signals to the monitor means; and
a control electronics unit having a first control conductor connected to the camera unit and having a second control conductor connected to the frame buffer memory and having a third control conductor connected separately to each of the shutter units.

5,214,504
MOVING VIDEO IMAGE ESTIMATION SYSTEM

Takashi Toriu, Kawasaki, and Satoshi Naoi, Yokohama, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 31, 1991, Ser. No. 648,986
Claims priority, application Japan, Jan. 31, 1990, 2-20599
Int. Cl.[5] H04N *5/262*
U.S. Cl. 358—105 15 Claims

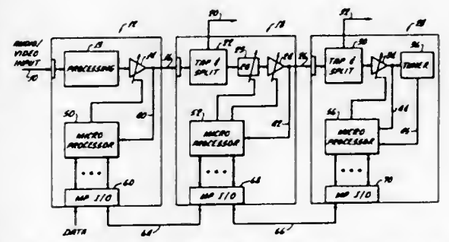


1. A moving video image estimation system comprising:
moment calculating means for calculating primary and secondary moments of a video image;
affine transformation calculating means utilizing an output of said moment calculating means to determine affine transformation (G) by which a first frame video image (I_1) is geometrically transformed into a second frame video image (I_2);
affine transformation continuing means for multiplying by a constant (t) an infinitesimal transformation (A), given by the relation $G=\exp(A)$, and obtaining an exponential transformation $\{\exp(At)\}$ as a continued affine transformation; and
affine transformation executing means for performing said continued affine transformation $\{\exp(At)\}$ to thereby obtain a video image of a time after an arbitrary time (t) from a time corresponding to said first frame video image.

5,214,505
AUTOMATIC RF EQUALIZATION IN PASSENGER AIRCRAFT VIDEO DISTRIBUTION SYSTEM

Irving Rabowsky, Woodland Hills, and Richard E. Sklar, Huntington Beach, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Apr. 8, 1991, Ser. No. 681,838
Int. Cl.[5] H04N *7/10;* H04H *1/02;* H04B *17/00*
U.S. Cl. 358—86 20 Claims



6. A method of compensating for frequency dependent transmission losses of signal level in a downstream station of a group of stations that are connected in a chain of stations by a signal transmission line, and wherein each of a group of said

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stations is located at a distance from an adjacent station, said method of compensating comprising the steps of:

monitoring frequency dependent variations in received signal level of first and second test signals of different frequencies received at a relatively downstream one of said stations of said group of stations, and employing said monitored signal levels to adjust the signal level at a station of said group that is upstream with respect to said downstream station in response to monitored signal levels at said downstream station so as to decrease said frequency dependent variation at said downstream station.

5,214,506

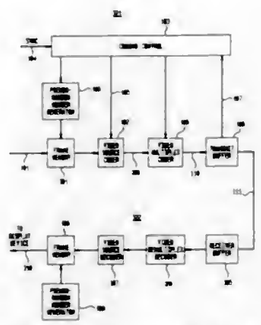
LOW BIT-RATE VIDEO CODING TECHNIQUE

David W. Lin, Hsinchu, Taiwan, and Ngan King N., Clayton, Australia, assignors to Bell Communications Research, Inc., Livingston, N.J.

Filed Aug. 30, 1991, Ser. No. 752,868

Int. Cl.[5] H04N *7/13*

U.S. Cl. 358—183 **8 Claims**



1. A method of coding blocks of pels of a video frame for transmission comprising the steps of:

storing all of the pels in each of the blocks of the video frame;

outputting the stored blocks of pels for the frame in a pseudo-random order;

processing and coding each block of pels in that pseudo-random order; and

transmitting the processed and coded blocks of pels for the frame in that same pseudo-random order.

5,214,507

VIDEO SIGNAL QUANTIZATION FOR AN MPEG LIKE CODING ENVIRONMENT

Rangarajan Aravind, Matawan; Hsueh-Ming Hang, Morganville; Barin G. Haskell, Tinton Falls, all of N.J., and Atul Puri, New York, N.Y., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 8, 1991, Ser. No. 790,285

Int. Cl.[5] H04N *7/12*

U.S. Cl. 358—133 **12 Claims**

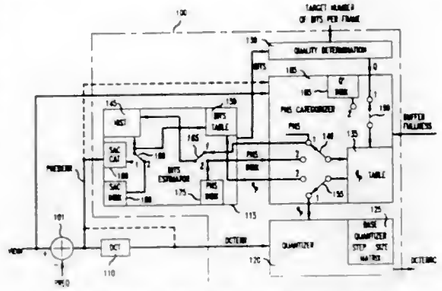
1. A method for use in generating quantization parameters to be employed by a video coder when said video coder is processing at least a portion of a video signal comprised of frames, the method comprising the steps of:

dividing a particular one of said frames into a plurality of regions;

categorizing each of the regions into one of a plurality of predetermined perceptual noise sensitivity classes;

selecting a target psycho-visual quality level for the frame from among a plurality of predetermined target psycho-visual quality levels; and

providing a quantization parameter for each of said regions as a function of the perceptual noise sensitivity class of



each of said regions and said psycho-visual target quality level.

5,214,508

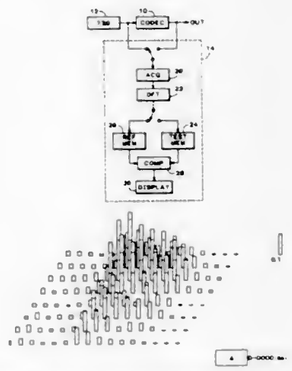
SPATIAL BANDWIDTH TESTING FOR DIGITAL DATA-COMPRESSED VIDEO SYSTEMS

Douglas C. Stevens, Portland, Oreg., assignor to Tektronix, Inc., Wilsonville, Oreg.

Filed Feb. 14, 1992, Ser. No. 834,963

Int. Cl.[5] H04N *17/00*

U.S. Cl. 358—139 **9 Claims**



1. A method of spatial bandwidth testing for a digital data-compressed video system comprising the steps of:

generating a complex test signal having a range of frequencies in each of the horizontal, vertical and temporal dimensions;

applying the complex test signal to the input of the video system;

acquiring a portion of the complex test signal as a control frame and a corresponding portion of the output from the video system as a test frame;

dividing the control and test frames into corresponding blocks of pixel data;

obtaining an array of spectral coefficients for each block to produce a reference array of coefficients for blocks from the control frame and a test array of coefficients for blocks from the test frame;

comparing the reference array and the test array to obtain a ratio between the corresponding coefficients; and

plotting the ratios to provide a visual display of characteristics of the video system.

5,214,509

DISPLAY DEVICE TESTING CIRCUIT USING FALSE VIDEO SIGNAL GENERATOR

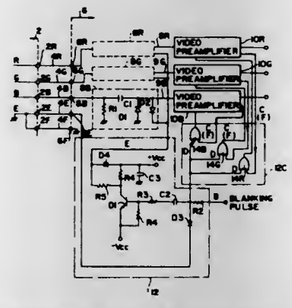
Nobuyuki Okamoto, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 16, 1992, Ser. No. 821,042

Claims priority, application Japan, Jan. 22, 1991, 3-22806

Int. Cl.[5] H04N *3/24, 17/00*

U.S. Cl. 358—165 **2 Claims**



1. A circuit for testing a display device having video signal input terminals connected thereto and being equipped with a video amplifier to amplify an input video signal, said circuit comprising:

a terminal for receiving a blanking pulse of said display device;

a ground connection;

a diode connected to said blanking pulse terminal;

removable cable means selectively connecting said blanking pulse terminal through said diode to said ground connection in a normal operating state;

a false video signal generator which is connected to said blanking pulse terminal and selectively disconnected from said ground connection in a testing state for producing a false video signal from a blanking pulse of said display device in a state where no video signal is supplied to the input terminals and which is connected to said ground connection through said diode and said cable means in a normal operating state when a video signal is supplied to the input terminals so that said blanking pulse is grounded and fails to produce a false video signal; and

means for supplying said false video signal whenever produced to the video amplifier of the display device.

5,214,510

ADAPTIVE DIGITAL APERTURE COMPENSATION AND NOISE CANCEL CIRCUIT

Munenori Kobayashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 5, 1991, Ser. No. 755,281

Claims priority, application Japan, Sep. 7, 1990, 2-237421

Int. Cl.[5] H04N *5/213, 5/208*

U.S. Cl. 358—167 **3 Claims**

1. An adaptive digital aperture compensation and noise cancel circuit, comprising:

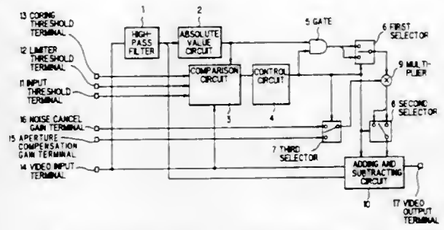
means for comparison between an absolute value of a high frequency component of an input video signal and a respective one of coring and limiter threshold values, and between said input video signal and an input threshold value;

first means for selecting a predetermined number of upper or lower bits of said absolute value in accordance with a comparison result of said comparison means;

a multiplier for multiplying a selected upper or lower bits and one selected from an aperture compensation gain and a noise cancel gain in accordance with said comparison result;

second means for selecting a predetermined number of upper or lower bits of a multiplied value of said multiplier in accordance with said comparison result;

means for carrying out a calculation selected from an addi-



tion of a selected upper or lower bits of said multiplied value to said input video signal and a subtraction of said selected upper or lower bits of said multiplied value from said input video signal in accordance with a sign of said high frequency component and said comparison result of said comparison means, an output video signal being generated by said calculation.

5,214,511

IMAGE TRANSFORMING APPARATUS

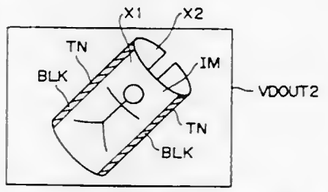
Sadaaki Tanaka, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Nov. 26, 1991, Ser. No. 798,156

Claims priority, application Japan, Nov. 30, 1990, 2-339770; Nov. 30, 1990, 2-339771; Nov. 30, 1990, 2-339772

Int. Cl.[5] H04N *5/262*

U.S. Cl. 358—183 **7 Claims**



1. An image transforming apparatus wherein an output image is formed by mapping an input image onto a three-dimensional curved surface, comprising:

blanking add means for inserting a blanking signal into a predetermined region of said input image;

storing means for storing said input image with said blanking signal inserted therein in response to a writing address signal applied to said storing means;

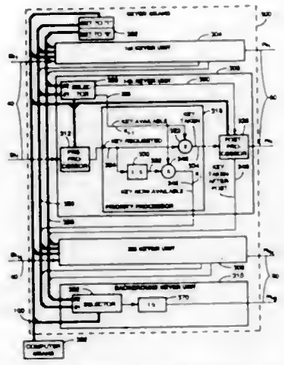
interpolating means for forming said output image signal by interpolating on the basis of a signal read out from said storing means;

arithmetic operation means for obtaining data by performing an arithmetic operation, said data being representative of a position of a region on said input image corresponding to a position on said output image at which image information becomes discontinuous; and

control means for controlling said blanking add means such that the position of said predetermined region at which said blanking signal is inserted coincides with the position of said region on the basis of said data obtained from said arithmetic operation by said operation means, said control means including comparison means for comparing said data representative of the position of said region with said writing address signal applied to said storing means.

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5,214,512
KEYED, TRUE-TRANSPARENCY IMAGE INFORMATION COMBINE
Richard D. Freeman, San Carlos, Calif., assignor to Ampex Systems Corporation, Redwood City, Calif.
Filed Feb. 11, 1991, Ser. No. 654,540
Int. Cl.[5] H04N *5/262, 5/265*
U.S. Cl. 358—183 **16 Claims**

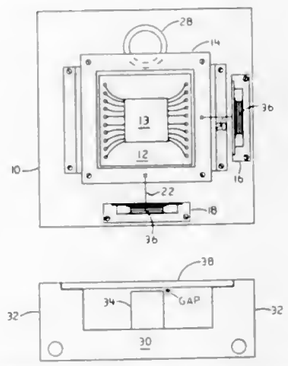


1. A method for generating a keyed, true-transparency image information signal combine V_C, the method comprising the steps of:
receiving a plurality of image information signals, each of said image information signals being received from a respective one of a corresponding plurality of channels,
receiving a plurality of input key signals, each of said input key signals corresponding to a respective one of said image information signals,
ranking the channels in a defined order to obtain a prioritized order among the channels,
responsive to a respective one of said input key signals, generating a respective key-requested signal,
receiving a key-available signal,
responsive to the input key signals, generating a respective key-taken signal and a respective key-now-available signal for a respective one of said image information signals:
(a) such that the key-taken signal is generated by multiplying the key-requested signal and the key-available signal, and
(b) such that the key-now-available signal is generated by algebraically subtracting the key-taken signal from the key-available signal,
responsive to the key-taken signal, producing a respective processed key signal Pk_i for an i-th respective one of said channels:
(c) such that the produced processed key signal Pk_i for the i-th channel is dependent upon the input key signals Bk_j for one or more channels, which have a priority that is not lower than the priority of the i-th channel, and
(d) such that the produced processed key signal Pk_j for the i-th channel is not dependent upon a produced processed key signal Pk_j for a j-th respective one of said channels where i and j are not equal, and
(e) such that the produced processed key signal Pk_i for an i-th respective one of said image information signals is produced so that:

$$Pk_i = Bk_i \prod_{j=1}^{i} (1 - Bk_{j-1})$$

where $B_0=0$ and where Bk_i is the input key signal corresponding to the i-th respective one of said image information signals,
responsive to the respective produced processed key signal, cutting the respective image information signal, and
combining a plurality of cut image information signals to generate said keyed, true-transparency image information combine.

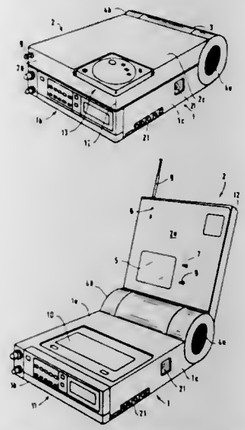
5,214,513
APPARATUS FOR IMPARTING MOTION TO A SOLID-STATE IMAGE SENSOR
J. Kelly Lee, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jul. 11, 1991, Ser. No. 728,404
Int. Cl.[5] H04N *5/30;* **H01F** *3/00*
U.S. Cl. 358—209 **11 Claims**



1. An apparatus for imparting motion to an electronic image sensor comprising:
frame means for retaining an electronic image sensor;
a support spring coupled to the frame means; support means for suspending the support spring, wherein the support spring can freely move in at least one dimension; and
at least one drive solenoid coupled to the frame means, wherein the drive solenoid includes an "E" shaped solenoid body having first and second raised end portions and a raised central portion that is lower than the first and second raised end portions, and a solenoid beam located above the raised central portion and coupled to the first and second raised end portions.

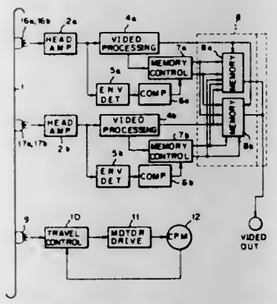
5,214,514
COMPACT VIDEO/SOUND APPARATUS WITH FOLDABLE SCREEN
Ottmar Haberkern, Reuchlinstr. 20, 6200 Wiesbaden, Fed. Rep. of Germany
Filed Aug. 7, 1990, Ser. No. 563,428
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1989, 3926153
Int. Cl.[5] H04N *5/781*
U.S. Cl. 358—335 **10 Claims**

1. A video/sound apparatus comprising:
a suitcase-like housing having a cover portion, a bottom portion, and means for pivotably connecting said cover portion to said bottom portion;
a pair of stereo speakers facing in opposite directions, said pair of stereo speakers being incorporated in the ends of said means for pivotably connecting;
a TV receiving/reproduction system mounted within said cover portion, said TV receiving/reproduction system having a video screen for reproducing a visual portion of received TV signals, said TV receiving/reproduction system further connected to said pair of stereo speakers for reproducing the audio portion of said received TV signals; and



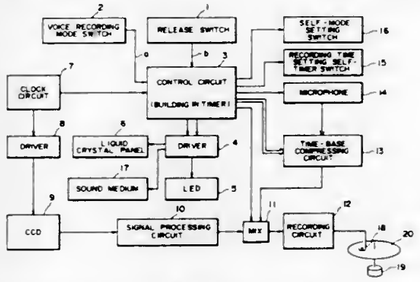
a CD record player releasably mounted on said cover portion, said CD record player having an output connected to video sound apparatus for play through said pair of stereo speakers when said CD record player is mounted on said cover portion.

5,214,515
VIDEO SIGNAL RECORDING/REPRODUCING APPARATUS
Sadayuki Inoue, and Toshifumi Fujii, both of Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan
Continuation of Ser. No. 545,127, Jun. 26, 1990, abandoned, which is a continuation of Ser. No. 114,651, Oct. 28, 1987, abandoned. This application Dec. 31, 1991, Ser. No. 816,844
Claims priority, application Japan, Oct. 28, 1986, 61-257408; Jun. 26, 1987, 62-160347; Jul. 15, 1987, 62-109149[U]
Int. Cl.[5] H04N *5/783*
U.S. Cl. 358—336 **9 Claims**



1. A video signal recording and reproducing apparatus wherein a video signal of one field period, including a synchronization signal, is recorded on a plurality of tracks on a recording medium in an L-channel/S-segment recording system, L and S being respectively positive integers which are never simultaneously equal to one, comprising:
at least one rotating reproducing head provided for each of the L-channels for reproducing a video signal on said recording medium;
processor means coupled to said rotating reproduction head for demodulating the video signal reproduced by said rotating reproduction head and detecting the synchronization signal from the video signal, said processor means outputting the demodulated video signal and said synchronization signal;
storing means capable of storing a video signal of at least one field period for storing the video signal output from said processor means;
storage control means for controlling said storing means so that the video signal is written in said storing means in synchronism with the detected synchronization signal when the level of the reproduced video signal exceeds a predetermined level and so that the video signal is read out in asynchronism with the synchronization signal; and
recording medium travel control means for selecting the traveling speed of said recording medium so that in the case of high speed playback, said recording medium travel control means selects the traveling speed of said recording medium to be $(N+m/M)$ times the recording speed, N being equal to $0, \pm1, \pm2, \ldots$, and m and M being positive integers having no common divisor except one and so that no integer r exists which satisfies the equation $(N+mM)\times M\times k=r\times S$, wherein S is the number of segments $k=1, 2, 3, \ldots S-1$ and $M>m$.

5,214,516
IMAGE PICKUP SYSTEM WITH AN INDICATION OF THE AUDIO SIGNAL RECORDING STATE
Tadashi Okino, and Kunio Ninomiya, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 563,789, Aug. 6, 1990, abandoned, which is a continuation of Ser. No. 275,672, Nov. 23, 1988, abandoned, which is a continuation of Ser. No. 906,850, Sep. 15, 1986, abandoned. This application Jan. 6, 1992, Ser. No. 817,951
Claims priority, application Japan, Sep. 20, 1985, 60-209310; Sep. 20, 1985, 60-209311
Int. Cl.[5] H04N *5/781*
U.S. Cl. 358—342 **26 Claims**



1. An audio recording apparatus comprising:
a) means for converting a sound to an audio signal;
b) means for generating a sound representing a recording condition of said apparatus during a conversion operation of said converting means, said sound generated by said generating means being available to said converting means;
c) means for recording the audio converted by said converting means on a medium; and
d) control means for controlling said converting means such that the audio signal converted by said converting means does not include an audio signal corresponding to the sound generated by said generating means without acoustical isolation, wherein said generating means generates a sound representing the duration of the audio signal recorded by said recording means.

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5,214,517

DIGITAL HALFTONING WITH CORRELATED MINIMUM VISUAL MODULATION PATTERNS

James R. Sullivan, Spencerport, and Lawrence A. Ray, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 476,090, Feb. 7, 1990, abandoned. This application May 29, 1990, Ser. No. 531,266

Int. Cl.[5] H04N *1/40*

U.S. Cl. 358—456 **4 Claims**

1. A method of generating a halftone image from a digital image with an electronic digital computer, comprising the steps of:

A) providing a set of correlated minimal visual noise binary patterns of all desired density levels, determined by employing a stochastic annealing process, a human visual system modulation transfer function (MTF) weighting function, and a constraint to insure that the patterns are correlated, to generate a halftone bit pattern for each density level of a multilevel digital input signal, the patterns being correlated in a manner that reduces visual noise resulting from transitions between patterns, with said annealing process comprises the steps of:

a) determining sets D_{inf}, D_{sup} and 5 D from the boundary patterns P_{inf}, P_{sup}, where

D_{inf}=("on" dots in the pattern P_{inf})

D_{sup}=("on" dots in the pattern P_{sup})

D=Dsup−Dinf in a set-theoretic sense;

b) initializing a pattern P_{mid} with the "on" dots in the set P_{inf} and a random selection of half the dots in the set D so that the number of "on" dots is proportional to the density level of the pattern;

c) defining subsets D_{on} and D_{off} of set D, where D_{on} is the set of dots in the D that are set "on" in the pattern P_{mid}, and D_{off} is the set of dots in D that are set "off" in the pattern P_{mid};

d) calculating a cost function according to the equation

$$\text{cost} = \sum_{i=1}^{N}\sum_{j=1}^{N} V_{ij}\sqrt{P_{ij}P_{ij}^{\bullet}}$$

where i,j are the spatial frequency indices, V_{ij} is a visual MTF scaled to those indices, P_{ij} is the discrete Fourier Transform (DFT) of the pattern P_{mid}, and • represents complex conjugation;

e) randomly switching at least a pair of dots from subsets D_{on} and D_{off} to form a new pattern and calculating the cost function of the new pattern according to step d;

f) calculating a test statistic q to determine if the cost function at step e) is statistically a lower cost than the cost of step d) according to the process

$$q = \exp\left(\frac{-\Delta\text{cost}}{T}\right)$$

where Δcost=cost of step e)−cost of step d), and T is a normalization parameter initially set such that about 80% of new patterns will be determined to be from a lower cost random process even when Δcost is greater than zero;

g) replacing the pattern with P_{mid} generated in step c) with new pattern generated in step e) if q>1 or if ξ<q where ξ is a uniform pseudo-random number between 0 and 1, otherwise, reject the new pattern and retain the pattern P_{mid};

h) repeating steps e) through g) a sufficient number of times;

i) decreasing T to kT where k<1 and repeating steps e) through h) until the cost of successive decreases in T are no longer changing.

j) substitute P_{mid} for P_{inf} and repeat steps a) through i);

k) substitute P_{mid} for P_{sup} and repeat steps a) through i);

l) repeat steps j) and k) with the P_{mid} that results from steps j) and k);

m) repeat steps l) until all desired density levels are formed.

B) providing a pixel value representing the density level of a digital image.

C) for each pixel value of the digital image, modularly selecting a portion of the binary bit pattern from the corresponding pattern of the same density level form the set of binary bit patterns by addressing the bit pattern with the lower significant bits of an (x,y) pixel address associated with each pixel to select a lot and employing the selected bit to form a halftone image.

5,214,518

MULTIPLE VALUE IMAGE INPUT EQUIPMENT

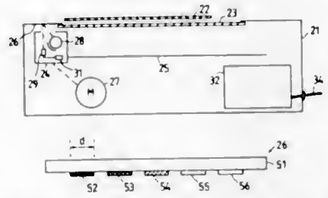
Yasuo Kato, Saitama, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 11, 1990, Ser. No. 596,037

Claims priority, application Japan, Dec. 22, 1989, 1-331361; Dec. 22, 1989, 1-331362

Int. Cl.[5] H04N *1/40*

U.S. Cl. 358—448 **8 Claims**



1. A multiple value image input device for reading images from a document, the device comprising:

a linear image sensor including a plurality of pixels arranged along a main scanning direction for producing outputs representing optical density;

at least three density indicating segments arranged along the main scanning direction of the linear image sensor, each of the segments having a different optical density;

analog-digital conversion means, coupled to the image sensor, for converting outputs from the image sensor into image data;

memory means, coupled to the analog-digital conversion means, for storing image correction data corresponding to the outputs for each pixel when the sensor is in a position to detect the density indicating segments; and

multiple value image data correcting means for correcting image data obtained by each pixel when the sensor is in a position to detect optical density from the document, the multiple value image data correcting means including

means for selecting, for each value of the image data, at least two values of the image correction data, and

means for applying one of a plurality of correction functions to each value of the image data, the means for applying including a plurality of processing sections that each apply one of the plurality of correction functions to a value of the image data, and the processing sections being selectively activated depending on the two image correction data values selected by the selecting means.

5,214,519

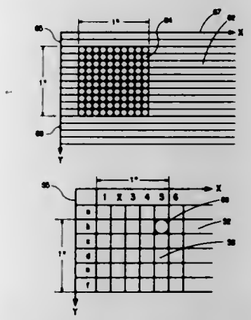
METHOD AND APPARATUS FOR PRODUCING A SPECIFIED FORMAT OUTPUT IMAGE FROM AN ARBITRARY FORMAT SOURCE IMAGE

Mark E. Faulhaber, Wilmington, and Robert M. Taylor, Newark, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 29, 1991, Ser. No. 692,654

Int. Cl.[5] H04N *1/04*

U.S. Cl. 358—451 **12 Claims**



1. A process for fitting a source image comprised of raster image data representing an arbitrary number of pixels and an arbitrary aspect ratio, in a specified raster output image having a desired size and aspect ratio comprising:

(a) determining a desired output image size in at least one dimension,

(b) determining a source image size in the same at least one dimension, and comparing said source image size to said output image size to obtain a ratio R in that at least one dimension;

(c) calculating a first integer I adjacent to the ratio R;

(d) digitally expanding the source image by expanding the source image data by a factor equal to the calculated integer I to generate an expanded output image data;

(e) calculating the quotient of the calculated integer I to the ratio R to obtain a sampling factor f where f=I/R;

(f) sampling the expanded output data at a sampling rate controlled by the sampling factor f, and

(g) using the sampled output data to drive an output display device.

5,214,520

IMAGE DATA READING APPARATUS

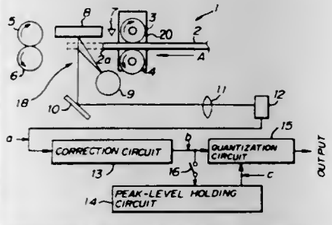
Hideyuki Miyazawa, Machida, Japan, assignor to Ricoh Comany, Ltd., Tokyo, Japan

Filed Nov. 26, 1990, Ser. No. 617,809

Claims priority, application Japan, Nov. 27, 1989, 1-308355

Int. Cl.[5] H04N *1/40*

U.S. Cl. 358—461 **5 Claims**



1. An image data reading apparatus comprising:

transport means for transporting a document along a transport path within the image data reading apparatus, the document carrying image information on a front surface thereof;

a white reference plate provided at a first position in the transport path to confront an opposite side of the front surface of the document;

a light source for generating a light being projected to the first position through which the document is transported along the transport path;

light receiving means for photoelectricically converting a light reflected from the white reference plate into a white reference signal and for photoelectrically converting a light reflected from the document into an image signal;

correction means for eliminating a shading from the image signal supplied by the light receiving means based on the white reference signal which is supplied by the light receiving means before the document is transported to the first position;

peak level holding means for detecting and storing a peak level of the image signal supplied from the light receiving means to the peak level holding means through the correction means;

quantization means for converting a signal supplied from the light receiving means into digital information based on the peak level of the image signal stored by the peak level holding means, the peak level of the image signal being used as a reference voltage for the quantization means to convert the image signal into digital information; and

switching means for turning the peak level holding means OFF to stop detecting and storing of the peak level of the image signal for a prescribed time period between the white reference signal is received by the light receiving means from the white reference plate and a time the document is transported to the first position along the transport path, so that the peak level holding means receives no signal from the light receiving means during said prescribed time period.

5,214,521

PLASMA ADDRESSED LIQUID CRYSTAL DISPLAY WITH GROOVES IN MIDDLE PLATE

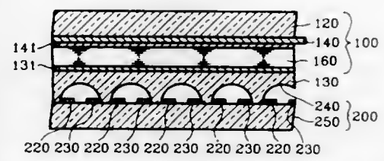
Ki-duck Kwon, and Seung-woo Lee, both of Seoul, Rep. of Korea, assignors to Samsung Electron Devices Co., Ltd., Kyungki, Rep. of Korea

Filed Jul. 14, 1992, Ser. No. 913,181

Claims priority, application Rep. of Korea, Oct. 26, 1991, 91-18948

Int. Cl.[5] G02F *1/133, 1/1343*; G09G *3/22, 3/28*

U.S. Cl. 359—54 **6 Claims**



1. A plasma addressed liquid crystal display comprising:

a transparent front plate, a middle and rear plate each separated by predetermined distance;

a plurality of parallel stripe-like first electrodes and a liquid crystal layer sequentially provided on said front plate;

grooves formed on said middle plate which include an open portion which faces said rear plate said grooves extending perpendicular to said first electrodes, said middle plate and said rear plate attached together such that discharge spaces are defined by said grooves and a flat surface of

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said rear plate, said discharge spaces filled with an ionizable gas; and

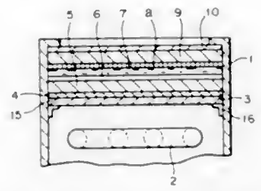
at least two electrodes spaced from each other on said rear plate disposed within each of said grooves wherein the ionizable gas and said first electrodes cooperate to form an addressing matrix.

5,214,522

LIQUID CRYSTAL DISPLAY WITH BACK LIGHT AND CONDUCTIVE DIFFUSER

Koichi Tagawa, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jul. 11, 1991, Ser. No. 728,277
Claims priority, application Japan, Jul. 25, 1990, 2-196802
Int. Cl.[5] G02F *1/1333, 1/1335*
U.S. Cl. 359—49 5 Claims



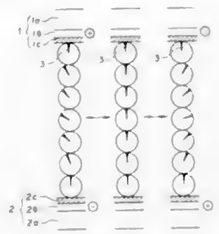
1. A liquid crystal display with a back light for illuminating said liquid crystal display characterized by rendering electrically conductive a diffuser attached to a rear surface of said liquid crystal display which is mounted on a front surface opening of an electrically conductive casing for housing said back light, wherein said diffuser is rendered conductive by mixing a predetermined amount of conductive material into said diffuser in the manufacturing process of said diffuser, and further comprising an electrically conductive fitting means mounted on an inner surface of said electrically conductive casing and being in contact with said diffuser for making electrical continuity between said diffuser and said casing.

5,214,523

FERROELECTRIC LIQUID CRYSTAL DISPLAY DEVICE HAVING MONOSTABILIZED STATE AS AN INITIAL STATE AND CONTINUOUS GRAY-SCALE

Keiichi Nito, Tokyo; Mayumi Miyashita, Kanagawa; Eriko Matsui, Kanagawa, and Seiichi Arakawa, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 26, 1991, Ser. No. 691,786
Claims priority, application Japan, Apr. 28, 1990, 2-112728; Jan. 28, 1991, 3-025131
Int. Cl.[5] G02F *1/137*
U.S. Cl. 359—100 5 Claims



1. A liquid crystal display device, comprising:

a pair of substrates each provided with an aligning layer having a processing direction for uniaxial orientation, the processing directions being substantially anti-parallel to each other, a distance between said pair of substrates being in a range of 1.2 to 3 μm;

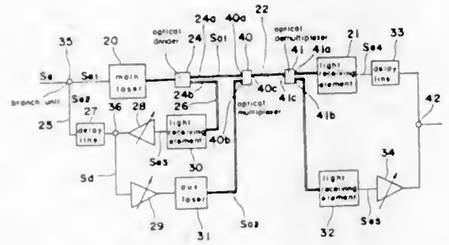
a liquid crystal mixture having a helical pitch of more than 2 μm in the chiral smectic C phase at ambient temperature, said liquid crystal mixture including at least one non-chiral component having at least one heterocyclic ring, said liquid crystal mixture being charged into a space between said pair of substrates in isotropic or chiral nematic phase and then cooled slowly to ambient temperature so that a projection component on said pair of substrates of an axial direction of a cone delineated by liquid crystal molecules of said liquid crystal mixture and a projection component on said pair of substrates of an axial direction of the liquid crystal molecules are in a same direction as the processing directions for orientation of said pair of substrates and thereby defining a state that is monostabilized as an initial state, a tilt angle of said liquid crystal molecules being continuously variable to one of a positive and a negative sense from a direction of monostable state in accordance with the strength and polarity of an applied electric field.

5,214,524

OPTICAL COMMUNICATION SYSTEM

Masayuki Shigematsu; Akira Nishimura, and Shuzo Suzuki, all of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 707,311, May 29, 1991, which is a continuation of Ser. No. 422,092, Oct. 16, 1989. This application Jun. 9, 1992, Ser. No. 896,793
Claims priority, application Japan, Nov. 25, 1988, 63-297487
Int. Cl.[5] H04J *14/02;* H04B *10/00*
U.S. Cl. 359—124 1 Claim



1. An optical communication system comprising:

main light emitting means for emitting an amplitude-modulated main optical signal at a band being one of about 1.3 μm and 1.55 μm in response to an analog electric signal to be transmitted;

correction electric signal forming means for converting a part of the main optical signal from the main light emitting means into an electric signal, and then forming a correction electric signal corresponding to the modulation distortion generated at the time of the amplitude modulation in the main light emitting means;

an auxiliary light emitting means having a wavelength at a band being one of about 1.3 μm and 1.55 μm that differs from a wavelength of the main light emitting means by about 0.2 μm, for generating an amplitude-modulated correction optical signal in response to the correction electric signal;

an optical fiber line for transmitting the main optical signal from the main light emitting means;

main light receiving means for converting the main optical signal transmitted through the optical fiber line into a first analog electric signal;

combining means for multiplexing the correction optical signal in said main optical fiber line;

separating means for demultiplexing the correction optical signal from the main optical signal transmitted through said optical fiber line;

auxiliary light receiving means for converting the correction optical signal demultiplexed by the separating means into a second analog electric signal; and

reproducing means for summing the second analog electric signal generated by said auxiliary light receiving means with the analog electric signal generated from the main light receiving means to generate a summed analog electric signal to be transmitted without modulation distortion;

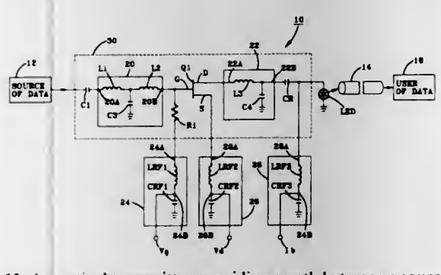
wherein said optical communication system has a CN ratio that is not deteriorated by modulation and said optical communication system causes no loss of light signals via branching and combining the signals.

5,214,525

EXTENDING BANDWIDTH OF OPTICAL EMITTERS USING ACTIVE MATCHING TECHNIQUE

Vladimir Gershman; Afshio S. Daryoush, both of Philadelphia, and Warren A. Rosen, Hartsville, all of Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 13, 1991, Ser. No. 759,296
Int. Cl.[5] H04B *10/04*
U.S. Cl. 359—180 17 Claims



11. An optical transmitter providing a path between a source of data with a predetermined output impedance and a user of said data, said optical transmitter having a predetermined frequency bandwidth with an upper frequency in excess of one (1) gigahertz comprising:

(a) a light emitting diode (LED) at the output stage of the transmitter and having a predetermined roll-off characteristic and a predetermined input impedance;

(b) an AC input coupling capacitive element located at the input stage of the transmitter and having one end connected to said source of data;

(c) an AC output capacitive element having one end connected to said LED;

(d) an input matching network arranged as a T-type filter and having an input terminal and an output terminal, said input matching network comprised of a first inductive element L1, a second inductive element L2, and a third capacitive element C3, said input terminal connected to the other end of said AC input coupling capacitive element, said input matching network selected to have values so as present an impedance at said input terminal which substantially matches said output impedance of said source of data;

(e) a first resistive element R1 having one end connected to the output terminal of said input matching network;

(f) a first RF choke comprised of a first RF inductive element LRF1 and a first RF capacitive element CRF1, said LRF1 and CRF1 elements being arranged in series with one end of CRF1 being connected to a ground potential, said first RF inductive element LRF1 having one end connected to the other end of the first resistive element R1 and its other end connected to a source of gate voltage (V_g);

(g) a transistor element Q1 having a characteristic slope which is complementary to said roll-off characteristic of said LED, said transistor having gate, drain, and source electrodes with the gate electrode being connected to the output terminal of said input matching network;

(h) a second RF choke having an input terminal and an output terminal, said second RF choke comprised of a serial arrangement of a second RF inductive element LRF2 and a second RF capacitive element CRF2 which has one end connected to a ground potential, said input terminal connected to the drain electrode of said transistor element and to one end of said element LRF2, said output terminal connected to the other end of said element LRF2 and to the source of voltage of said drain electrode (V_d);

(i) an output matching network arranged as a LC-type filter and comprised of a third inductive element L3 and a fourth capacitive element C4, said output matching network having an input terminal connected to said source electrode and an output terminal connected to the other end of said AC output capacitive element, said output matching network having values selected so as to match the impedance at the output of said transistor element to the input impedance of said LED; and

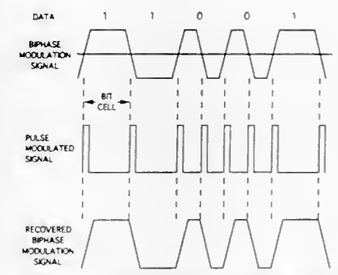
(j) a third RF choke comprised of a serial arranged third RF inductive element LRF3 and a third RF capacitive element CRF3 which has one end connected to a ground potential, said third RF choke having an input terminal connected to the other end of said LRF3 element and to the LED, said third RF choke having an output terminal connected to a source of current (I_b).

5,214,526

PULSE MODULATED INFRARED DATA COMMUNICATIONS LINK

Kihachiro Tonomura, Yamato, Japan, assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Jun. 4, 1991, Ser. No. 709,749
Int. Cl.[5] H04B *10/04, 10/00*
U.S. Cl. 359—184 1 Claim



1. A method for communicating a biphase modulated signal having bit-cell and mid-cell transitions across an optical data link comprising:

receiving said biphase modulated signal at a line receiver on a serial data line;

encoding each bit-cell and mid-cell transition of said biphase modulated signal to a narrow unidirectional pulse of a pulse modulated signal;

driving an optical transmitter with said pulse modulated signal to produce a pulsed optical signal;

receiving said pulsed optical signal at an optical receiver;

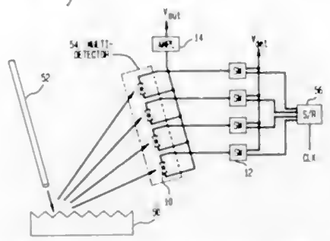
converting said received optical pulses to a pulsed electrical signal;

decoding said pulsed electrical signal as a biphase modulated signal; and

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sending said biphase modulated signal on a serial data line by a line driver.

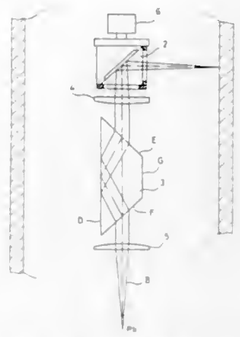
5,214,527
ELECTRONICALLY SWITCHED MULTIPLE-CHANNEL OPTICAL RECEIVER
Gee-Kung Chang, Holmdel, and Won-Pyo Hong, Middletown, both of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.
Filed Sep. 26, 1990, Ser. No. 587,867
Int. Cl.[5] H04B 10/06; H04J 14/02
U.S. Cl. 359—189 18 Claims



7. A multi-channel optical receiver, comprising:
a plurality N of metal-semiconductor metal photo-detectors, wherein N is an integer greater than 1;
a bias voltage source;
N means electrically connected to respective ones of said metal-semiconductor-metal photo-detectors for biasing a selected one of said metal-semiconductor-metal photo-detectors, wherein each of said biasing means comprises an electronic gate circuit receiving a selection signal associated with said each biasing means and selectively connecting a first side of said respective metal-semiconductor-metal photo-detector to said bias voltage source, a second side of said respective metal-semiconductor-metal photo-detector being connected to a node that is common to all of said biasing means and is connected to an input of said amplifier;
wherein said each electronic gate circuit comprises:
a first transistor connected on a first current electrode to said bias voltage source;
a second transistor connected on a first current electrode to a common reference potential, on a second current electrode to said first side of said metal-semiconductor-metal photo-detector and to a control electrode of said first transistor, and on a control electrode to said associated selection signal; and
a resistor connected between said second current electrode of said first transistor gate and said first side of said metal-semiconductor-metal photo-detector.

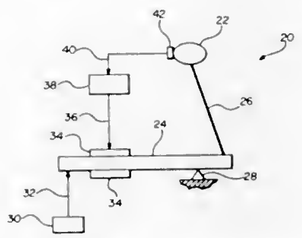
5,214,528
OPTICAL BEAM SCANNING APPARATUS
Yuichi Akanabe, and Shin Shinotsuka, both of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan
Filed Sep. 10, 1991, Ser. No. 757,347
Claims priority, application Japan, Sep. 14, 1990, 2-242778
Int. Cl.[5] G02B 26/08
U.S. Cl. 359—211 24 Claims

1. An apparatus for recording an image on a photosensitive material by scanning with an optical beam having image information of said image comprising:
a cylinder for mounting said photosensitive material on an internal surface thereof, whereby said photosensitive material faces an interior of said cylinder and is adapted to be scanned in a circumferential direction thereof;
a projector for said optical beam;
a first optical device for transmitting said optical beam projected from said projector to said interior in a direction substantially parallel to a central axis of said cylinder;
a first rotator for rotating said first optical device, wherein said first optical device rotates said optical beam about a rotating axis of said first optical device at a rotating speed twice that of said first optical device;
a second optical device for changing a direction of said optical beam rotated by said first optical device to a direction which is substantially perpendicular to said central axis so as to direct said optical beam onto said photosensitive material;



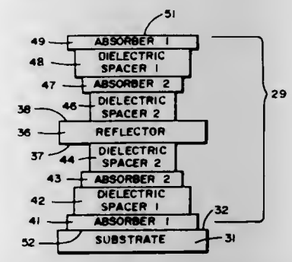
a second rotator for rotating said second optical device about said central axis synchronized with rotation of said optical beam rotated by said first optical device whereby said image is recorded on said photosensitive material by scanning with said optical beam transmitted from said second optical device; and
a control for controlling said projector so that said optical beam corresponding to only half a rotation of said first optical device is recorded.

5,214,529
ASSEMBLY FOR STATIC AND DYNAMIC POSITIONAL CONTROL OF AN OPTICAL ELEMENT
Philip F. Marino, Rochester; Andrew J. Kalish, Brockport, and Phillip Vallone, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed May 29, 1992, Ser. No. 890,411
Int. Cl.[5] G02B 26/10
U.S. Cl. 359—213 20 Claims



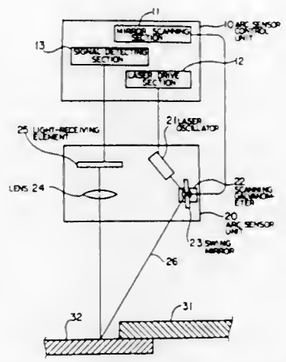
4. In an assembly for the positional control of an optical element of an optical system; the assembly having a support including a fulcrum, a lever arm supported and balanced by way of the fulcrum, flexure means connecting the optical element of the lever arm at a first point spaced a first distance from the fulcrum, a static position actuator acting on the lever arm at a second point spaced a second distance from the fulcrum, the static position actuator cooperating with the flexure means and lever arm to establish a static spatial position of the optical element over the long term relative to the support, and the assembly further comprising means for dynamically controlling the position of the optical element relative to its established static spatial position to accommodate perturbations to the optical system so as to maintain the established static spatial position over the short term; the improvement comprising:
the assembly further including a sensor adapted and positioned for detecting positional perturbations experienced by the optical element;
the means for dynamically controlling the position of the optical element comprising at least one actuator cooperative with the sensor for applying, in response to the perturbations detected by the sensor, forces to the lever arm at a third point intermediate the first and second points and spaced a third distance from the fulcrum; and
the lever arm being dimensioned, configured and adapted so that positioning of the optical element relative to the structure at any one time will be controlled, at least in part, by the combined moment effect on the first point of the static position actuator acting at the second point and the means for dynamically controlling the position acting at the third point.

5,214,530
OPTICALLY VARIABLE INTERFERENCE DEVICE WITH PEAK SUPPRESSION AND METHOD
Paul G. Coombs, and Roger W. Phillips, both of Santa Rosa, Calif., assignors to Flex Products, Inc., Calif.
Continuation of Ser. No. 568,419, Aug. 16, 1990, abandoned.
This application Nov. 27, 1991, Ser. No. 799,862
Int. Cl.[5] G02B 5/28
U.S. Cl. 359—359 31 Claims



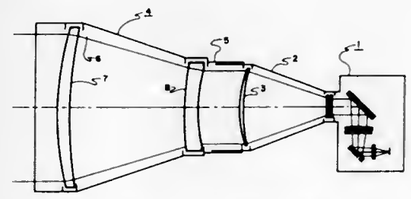
1. An optically variable interference device comprising a reflector having first and second surfaces and a thin film multilayer interference stack disposed on said first surface, said interference stack being comprised of at least two periods, each period being comprised of a metal absorber layer and a dielectric spacer layer, said metal absorber layer in one of said at least two periods being a different thickness than the metal absorber layer in the other of said at least two periods said reflector interacting with said at least two periods of said interference stack to cause peak suppression relative to a design of a single period at all angles in said design due to interference effects in the design itself of said at least two periods.

5,214,531
OPERATION CONTROL SYSTEM FOR A SCANNING GALVANOMETER
Nobutoshi Torii, Hachioji, and Hiroshi Wakio, Minamitsuru, both of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan
PCT No. PCT/JP91/00744, § 371 Date Feb. 14, 1992, § 102(e) Date Feb. 14, 1992, PCT Pub. No. WO92/00542, PCT Pub. Date Jan. 9, 1992
PCT Filed May 28, 1991, Ser. No. 834,566
Claims priority, application Japan, Jun. 22, 1990, 2-164956
Int. Cl.[5] G02B 26/08
U.S. Cl. 359—223 6 Claims



1. An operation control system for a scanning galvanometer associated with an arc sensor of a welding robot for sensing a weld line, and having a swing mirror integral therewith for laser beam scanning, comprising:
a memory for storing waveform data of a galvanometer drive command current obtained by adding up currents corresponding to a swing angle of the galvanometer, an angular velocity of the galvanometer, and an angular acceleration of the galvanometer;
an address circuit for causing the waveform data to be output from the memory at predetermined intervals;
a D/A converter for converting an output from the memory to an analog value;
a galvanometer drive circuit for amplifying an output signal of the D/A converter and driving the galvanometer; and
the swing mirror being rotated together with the galvanometer.

5,214,532
AFOCAL OBJECTIVE LENS
John M. Hall, and Robert A. Spande, both of Alexandria, Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Apr. 29, 1992, Ser. No. 875,490
Int. Cl.[5] G02B 13/14, 15/12
U.S. Cl. 359—356 8 Claims

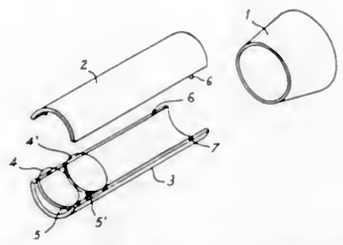


1. An accessory lens for a far-infrared imager with an input

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objective lens and a cylindrical housing portion closely surrounding said input lens, including:
a flared cylindrical accessory housing having a small end large enough to slide over and closely engage said housing portion and an opposed large end with approximately twice the diameter of said small end;
at least two lens elements mounted in said accessory housing, each made from a material transparent to far-infrared and each having a different dielectric constant, whereby one lens corrects chromatic aberrations caused by the other.

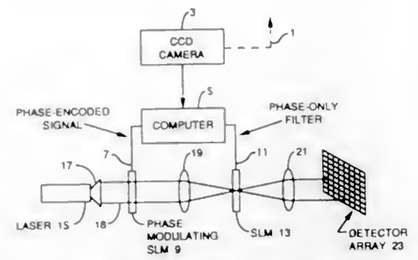
5,214,533
PORTABLE MONOCULAR WITH HIGH MAGNIFICATION
Alexandre Moracchini, Querciolo, F 20213 Castellare, France
Continuation-in-part of Ser. No. 391,596, Jul. 7, 1989, abandoned. This application Nov. 21, 1991, Ser. No. 795,555
Claims priority, application France, Nov. 9, 1987, 87 15500
Int. Cl.[5] G02B *23/00, 7/02*
U.S. Cl. 359—367 **4 Claims**



1. Portable monocular device for close-up observation with high magnification of objects substantially invisible to the naked eye, which comprises:
an elongate body;
an eyepiece fixed on one end of said elongate body;
a first biconvex lens disposed in a groove formed inside the elongate body at the other end thereof;
a second biconvex lens of the same power as said first biconvex lens and constituting therewith a lens system, the second biconvex lens being disposed in another groove formed inside the elongate body, said second biconvex lens being at a distance A of the first biconvex lens and at a distance B of the eyepiece;
the distance A being equal to half the focal distance of the first lens and being less than or equal to a diameter of this first lens, said distances A and B being in a relationship such that $3A \leqq B \leqq 4A$.

5,214,534
CODING INTENSITY IMAGES AS PHASE-ONLY IMAGES FOR USE IN AN OPTICAL CORRELATOR
Robert R. Kallman, Denton, Tex., and Dennis H. Goldstein, Niceville, Fla., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Jun. 19, 1991, Ser. No. 717,588
Int. Cl.[5] G02B *27/40;* **G06E** *3/00*
U.S. Cl. 359—561 **11 Claims**

1. A method of improving the signal-to-clutter ratio in a Fourier transform correlator comprising the steps of:
(a) inputting an input image signal into said Fourier transform correlator;
(b) phase-encoding said input image signal into a first phase-only encoded signal;
(c) providing a second phase-only encoded reference filter image signal;
(d) producing the Fourier transform of the first phase-only encoded signal; and



(e) inverse Fourier transforming the product of the Fourier transform of the first phase-only encoded signal and the second phase-only encoded reference filter image signal to obtain a correlation signal.

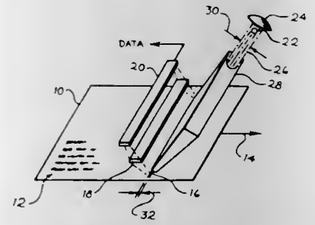
5,214,535
LENS COVER ASSEMBLY FOR BINARY DIFFRACTIVE OPTIC LENSES
Ellis D. Harris, Claremont, and Steven A. Buhler, Redondo Beach, both of Calif., assignors to Xerox Corporation, Stamford, Conn.
Filed Dec. 17, 1991, Ser. No. 809,622
Int. Cl.[5] G02B *3/08, 27/42*
U.S. Cl. 359—565 **30 Claims**



1. A lens cover assembly for binary diffractive optic lenses comprising:
a first substrate having a plurality of binary diffractive optic lenses on one surface of said first substrate,
a second substrate having a plurality of recesses on one surface of said second substrate, said plurality of recesses corresponding to said plurality of binary diffractive optic lenses, and
bonding means for securing said first and second substrates together such that each of said plurality of binary diffractive optic lenses is positioned in each of said plurality of recesses to form a lens cover assembly from the combination of one of said binary diffractive optic lens and one of said recesses.

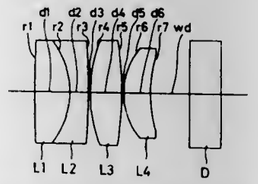
5,214,536
ILLUMINATION DEVICE FOR A DOCUMENT LINE SCANNER
Ravinder Prakash, Concord, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 11, 1991, Ser. No. 666,974
Int. Cl.[5] G02B *27/14*
U.S. Cl. 359—633 **10 Claims**

1. Illumination apparatus for producing a substantially continuous line of light on a scanned member to facilitate the detection of indicia present on the scanned member by a scanning device, said illumination apparatus comprising:
means for producing a beam of incoherent light;
a beam directing member having an input surface and an output surface which are spaced from and substantially parallel to each other;
a light entering region on the beam directing member whereby the incoherent light beam is directed between the two surfaces;
an input reflective layer located on the input surface to substantially totally reflect light toward the output surface;



an output reflective layer located on the output surface to partially reflect light toward the input surface and partially allow light to pass through the output reflective layer and the output surface, with the reflectance of the output reflective layer being graded across the length of the beam directing member to produce less reflection as the reflective layer extends away from the light entering region; and
means for directing the incoherent light beam into a plurality of adjacent incoherent light beams which form a continuous line of illumination across a portion of an output surface.

5,214,537
CHROMATIC ABERRATION CORRECTING OBJECTIVE LENS SYSTEM FOR INFORMATION RECORDING/REPRODUCING APPARATUS
Koichi Maruyama, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 9, 1990, Ser. No. 506,260
Claims priority, application Japan, Apr. 11, 1989, 1-91470
Int. Cl.[5] G02B *25/00*
U.S. Cl. 359—644 **15 Claims**



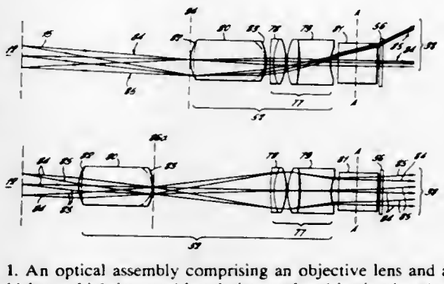
9. A chromatic aberration correcting objective lens system, comprising:
four lenses arranged from a light source side in order, comprising:
a convex first lens;
a negative second lens that is cemented to said convex first lens to form a cemented lens;
a convex third lens; and
a positive meniscus fourth lens that has a convex surface facing said light source side, with refractive index of said positive meniscus fourth lens being greater than a refractive index of said convex third lens;
wherein the following relations are satisfied:

$d3/f < 0.03$, and

$-0.15 < f\cdot(1/r3 - 1/f12) < 0.35$,

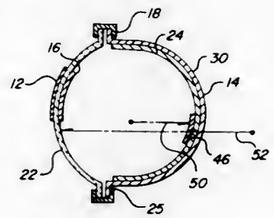
where f is a focal length of said lens system, and d3 is a distance between said negative second lens and said convex third lens, and f12 is a focal length of said cemented lens, and r3 is a radius of curvature of an outgoing surface of said negative second lens.

5,214,538
OPTICAL APPARATUS
Daniel R. Lobb, Kent, United Kingdom, assignor to Keymed (Medical and Industrial Equipment) Limited, Southend-On-Sea, United Kingdom
Division of Ser. No. 382,746, Jul. 19, 1989, Pat. No. 5,045,936. This application Jun. 17, 1991, Ser. No. 720,219
Claims priority, application United Kingdom, Jul. 25, 1988, 8817672
Int. Cl.[5] G02B *15/14*
U.S. Cl. 359—691 **6 Claims**



1. An optical assembly comprising an objective lens and a field lens which is movable relative to the objective lens between a first position adjacent the objective lens and a second position spaced from the objective lens, the field lens and objective lens in combination defining a focal plane which is at the same location relative to the objective lens for both first and second positions of the field lens and wherein the field lens passes through the focal plane in moving between the first and second positions.

5,214,539
CONCAVE MIRROR WITH CONVEX ACRYLIC COVER
Paul Sorko-Ram, 1111 N. Centerville Rd., Sturgis, Mich. 49091
Filed Jul. 27, 1992, Ser. No. 920,247
Int. Cl.[5] G02B *5/08*
U.S. Cl. 359—839 **8 Claims**

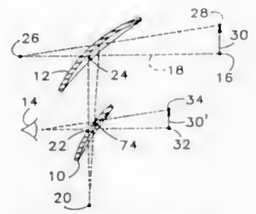


1. A reflective sign comprising:
a concave mirror;
a convex, substantially transparent polymeric cover for said mirror, having a diameter substantially equal to the diameter of said mirror, and having an outer surface and an inner

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surface, and having a radius of curvature which is greater than the radius of curvature of said mirror;
a first opaque emblem applied to the concave surface of said cover;
a second opaque emblem applied to said inner surface of said cover, and positioned substantially opposite said first emblem; and
means for securing the outer circumference of said mirror to the outer circumference of said cover.

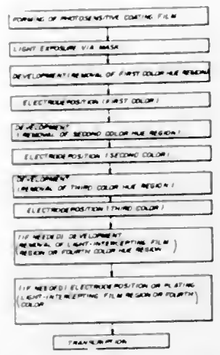
5,214,540
CURVED MIRROR OPTICAL SYSTEMS
Yoram Yakimovsky, 17860 Robinview Ct., West Linn, Oreg. 97068
Filed Jan. 14, 1991, Ser. No. 640,772
Int. Cl.[5] G02B *5/10*
U.S. Cl. 359—858 **6 Claims**



1. A curved mirror system, comprising:
a) a primary mirror shaped as an off-axis segment of an ellipse or hyperbola and arranged to receive light rays from an object to be viewed,
b) a convex secondary mirror shaped as an off-axis segment of an ellipse or hyperbola and arranged to receive light rays reflected directly from the primary mirror and to reflect said light rays directly to an observer, and
c) one of the focal centers of the ellipse or hyperbola defining the primary and secondary mirrors being common to both mirrors,
d) a second one of the focal centers of said ellipse or hyperbola defining the secondary mirror serving as the center for the eye of an observer.

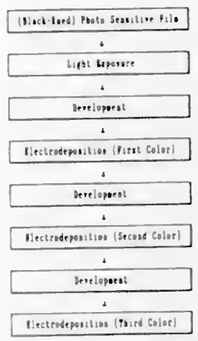
5,214,541
METHOD FOR PRODUCING COLOR FILTER
Yukio Yamasita, Yokohama; Haruyoshi Sato, Kawasaki; Toru Nakamura, Yokohama; Hitoshi Yuasa, Yokohama, and Yutaka Otsuki, Yokohama, all of Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan
Filed Apr. 24, 1992, Ser. No. 874,064
Claims priority, application Japan, Jun. 12, 1991, 3-140271
Int. Cl.[5] G02B *5/22*
U.S. Cl. 359—891 **48 Claims**

1. A method for producing a color filter comprising the steps of:
(A) forming a photosensitive coating film on a transparent electrically conductive layer provided on an outermost surface of a substrate having an alignment film, and exposing said photosensitive coating film to light through a mask having patterns of at least three different degrees of light transmittances;
(B) developing and removing a photosensitive coating film portion registering with one of said patterns of smallest and largest degrees of light transmittances for exposing the transparent electrically conductive layer and electrodepositing a colored coating on the exposed electrically conductive layer for forming a colored layer thereon, operation of developing and removing the photosensitive coating film and electrodepositing the colored coating being repeated for the respective patterns of different degrees of light transmittances in sequence of difference in light transmittances to form different colored layers, respectively; and



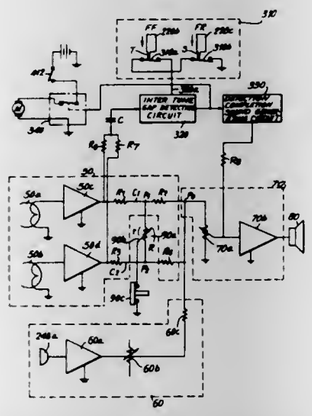
(Z) transcribing said colored layers, said transparent electrically conductive layer and said alignment film onto another substrate.

5,214,542
METHOD FOR PRODUCING COLOR FILTER
Yukio Yamasita; Toru Nakamura, both of Yokohama; Haruyoshi Sato, Kawasaki; Hitoshi Yuasa, and Yutaka Otsuki, both of Yokohama, all of Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan
Filed Mar. 3, 1992, Ser. No. 846,287
Claims priority, application Japan, Mar. 8, 1991, 3-043596; Mar. 15, 1991, 3-051565
Int. Cl.[5] G02B *5/22*
U.S. Cl. 359—891 **40 Claims**



1. A method for producing a color filter comprising the steps of:
(A) forming a photosensitive coating film on a transparent electrically conductive layer formed on a surface of a transparent substrate, and exposing said photosensitive coating film to light through a mask having patterns of at least three different degrees of light transmittances;
(B) developing and removing a photosensitive coating film portion registering with one of said patterns of smallest and largest degrees of light transmittances for exposing said transparent electrically conductive layer, and electrodepositing a colored coating on the exposed transparent electrically conductive layer for forming a colored layer thereon; and
(C) repeating said step (B) for the respective patterns of different degrees of light transmittances in sequence of difference in transmittances for producing different colored layers, respectively.

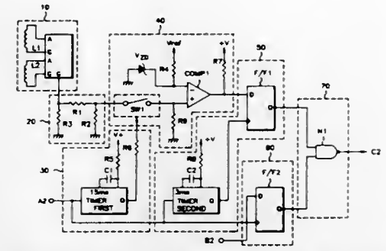
5,214,543
PORTABLE AUDIO APPARATUS HAVING A POWER SAVINGS DEVICE
Hideo Takao, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan
Division of Ser. No. 643,189, Jan. 18, 1991. This application Feb. 19, 1992, Ser. No. 837,387
Claims priority, application Japan, Jan. 22, 1990, 2-4405; Feb. 7, 1990, 2-11321; Oct. 26, 1990, 2-290230
Int. Cl.[5] G11B *15/22*
U.S. Cl. 360—71 **26 Claims**



1. A portable audio apparatus including mechanical linkages and apparatus for at least playing a recorded medium having audible sound signals stored thereon comprising:
motor means for moving said recording medium in at least forward fast forward and rearward modes; sound reproducing means for audibly reproducing the sound signals stored on said recording medium;
detecting means operable for determining and for producing an output signal when a gap of at least a predetermined duration in the sound signals reproduced by said sound reproducing means is detected, such a gap being represented by a period when the sound signals are below a predetermined level or absent, said detecting means not being responsive to a control signal, if any, on said recording medium; and
control means for controlling the supply of power to said motor means in response to said output signal of said detecting means without acting upon any of the mechanical linkages and apparatus.

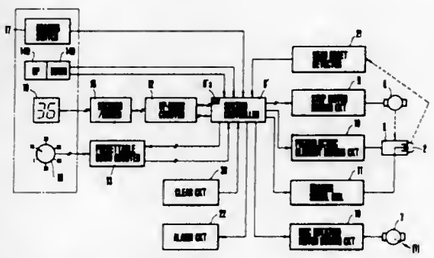
5,214,544
APPARATUS FOR GENERATING A TRACK ZERO SIGNAL IN A FLOPPY DISC DRIVER WITHOUT AN OPTICAL TRACK ZERO SENSOR
Jik Kim, Suwon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Oct. 31, 1990, Ser. No. 606,749
Claims priority, application Rep. of Korea, Mar. 3, 1990, 1990-2772
Int. Cl.[5] G11B *5/55*
U.S. Cl. 360—75 **11 Claims**

1. A track zero sensing circuit, of a floppy disc driver, comprising:
a stepping motor driver for driving a head;
a current detection circuit for detecting driving current of the stepping motor driver and for outputting a voltage value indicative of said driving current;
a track zero sensor comprising switching means connected to receive said voltage value and selectively pass said voltage value for comparison in response to a control signal, said track zero sensor further comprising means for providing a compared logic value by comparing said voltage value when passed through said switching means;
a track zero sensor controller for providing said switching



means with said control signal for turning ON said switching means for passing said voltage value only when a step signal is applied thereto;
first buffering means for buffering said compared logic value output from said track zero sensor in response to the step signal;
second buffering means for buffering a direction signal in response to the step signal; and
a track zero signal outputting means for outputting a track zero signal by logically combining an output of the first buffering means and an output of the second buffering means.

5,214,545
SIGNAL ERASING APPARATUS
Masaya Maeda, Kanagawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 246,892, Sep. 16, 1988, abandoned, which is a continuation of Ser. No. 948,399, Dec. 31, 1986, abandoned, which is a continuation of Ser. No. 666,884, Oct. 31, 1984, abandoned. This application Feb. 19, 1991, Ser. No. 657,892
Claims priority, application Japan, Nov. 2, 1983, 58-206573
Int. Cl.[5] G11B *21/02, 5/02*
U.S. Cl. 360—75 **16 Claims**



1. An apparatus comprising:
a) erasing means for erasing signals recorded in recording means which have a plurality of blocks;
b) first designation means for designating a position of a first block to be erased prior to the erasing operation by said erasing means, said first designation means including A)

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first operation means for changing a block accessed by said erasing means in a first direction, and B) second operation means for changing a block accessed by said erasing means in a second direction different from said first direction; and

c) manually operable second designation means for designating a number of blocks to be successively erased from said first block designated by said first designation means, without designating a start block to be erased.

5,214,546

MAGNETIC RECORDING REPRODUCER HAVING A CONTROLLER FOR DETECTING THE TRACKING POSITION OF A HEAD ON A MAGNETIC TAPE

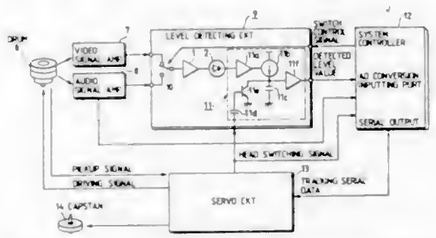
Yasuyuki Yamada, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Oct. 27, 1989, Ser. No. 427,387

Claims priority, application Japan, Oct. 27, 1988, 63-271484

Int. Cl.[5] G11B *21/04, 5/584*

U.S. Cl. 360—77.13 **4 Claims**



4. A magnetic recording reproducer for detecting a level obtained by integrating and averaging a television signal reproduced by using a head thereof within a predetermined integrating interval when reproducing the television signal recorded on a magnetic tape and detecting a tracking position of the head thereof by changing a relative positional relation between the head thereof and the magnetic tape by driving a servo circuit, said magnetic recording reproducer comprising:

a detecting circuit for rectifying the reproduced signal and converting the reproduced signal into a signal indicating a DC level;

a voltage controlled current source for varying an output current thereof in response to an output voltage of said detecting circuit;

a capacitor charged by the output current of said voltage controlled current source;

a level detecting means for detecting a charging voltage of said capacitor;

a reset signal generating means for discharging and controlling said capacitor in synchronization with a level detecting period, and

a system controller for judging whether or not a predetermined condition for starting a tracking operation exists, and for detecting the maximum level range of a video reproduction signal from the level of the video reproduction signal detected by the level detecting means in response to a tracking address when the predetermined condition for starting a tracking operation is satisfied, and for judging whether or not an audio signal is recorded on the magnetic tape, and for setting a central point of the maximum level range of the video reproduction signal as a tracking position when no audio signals are recorded on the magnetic tape, and for setting a level detecting range of an audio signal and detecting the maximum level range of an audio reproduction signal from a level of the audio reproduction signal detected by the level detecting means in response to a tracking address, and for judging whether or not a peak of the audio reproduction signal is present in the maximum level range of the video reproduction signal, and for setting a central point of the maximum level range of the audio reproduction signal as a tracking position in cases where a peak of the audio reproduction signal is present in the maximum level range of the video reproduction signal, and for setting a point, at which the detected level of the audio reproduction signal reaches a maximum value, as a tracking position in cases where no peak of the audio reproduction signal is present in the maximum level range of the video reproduction signal.

5,214,547

TAPE CASSETTE HAVING REELS DISPLACEABLE TOWARDS THE REAR

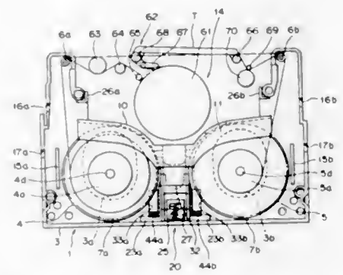
Yoshio Kondo, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Mar. 26, 1991, Ser. No. 675,157

Claims priority, applicatinn Japan, Mar. 30, 1990, 2-084305

Int. Cl.[5] G11B *15/00, 5/008, 23/02*

U.S. Cl. 360—94 **13 Claims**



1. A tape cassette for a cassette player having a rotary head drum, comprising:

housing means;

a pair of reels;

means mounting both of said reels for rotation and for translation in said housing means, so that said reels can assume either of first and second relative positions; and

a recording medium wound on said reels and extending therebetween for transport from one of said reels to the other;

said housing means being formed with an opening through which a rotary head drum of a cassette player can gain access to said recording medium; and

a reel-moving member inside said housing means for moving said reels form said first position to said second position upon cooperation with an actuating member of said cassette player;

said reels in said first relative position conforming to a first arrangement of drive means for driving said reels in rotation and providing a predetermined amount of space for accommodating the rotary head drum within said housing means for access to said recording medium and in said second relative position conforming to a second arrangement of drive means for driving said reels in rotation and providing an additional amount of space for accommodating transducer means within said housing means for access to said recording medium.

5,214,548

TAPE CASSETTE LOADING MECHANISM IN TAPE PLAYER

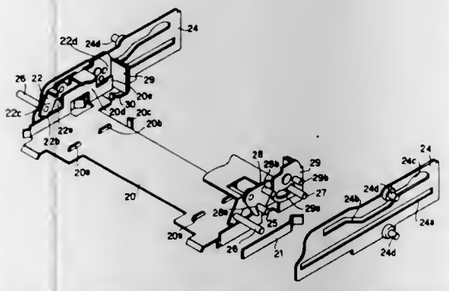
Yasuyuki Nakanishi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Chiyoda, Japan

Continuation of Ser. No. 281,385, Dec. 8, 1988, abandoned. This application Sep. 23, 1991, Ser. No. 764,089

Claims priority, application Japan, Dec. 9, 1987, 62-312805; Dec. 9, 1987, 62-312806; Dec. 9, 1987, 62-312807; Dec. 9, 1987, 62-312808; Dec. 9, 1987, 62-312809; Dec. 9, 1987, 62-312810; Dec. 9, 1987, 62-312811

Int. Cl.[5] G11B *5/008*

U.S. Cl. 360—96.5 **14 Claims**



1. A tape cassette loading mechanism in a tape player for loading a tape cassette which encloses a magnetic tape therein by means of an upper case, a lower case, a slider mounted slidably on the lower case, and a lid mounted pivotally with respect to the cases, the upper case and the slider defining side surfaces of the tape cassette extending between the upper case and the slider, said tape cassette loading mechanism comprising:

a lower holder having lugs formed on a bottom thereof for engagement with retaining apertures formed in the slider and also having bent pieces formed at a front end thereof for engaging a front end portion of the slider;

an upper holder formed separately from said lower holder for supporting the upper case; and

means for moving said lower and upper holders such that movement of said lower holder relative to said upper holder when said upper holder is supporting the upper case slides the slider in an opposite direction relative to the upper case to move the slider to an open position;

wherein said upper holder is U-shaped and said lower holder and said upper holder include pairs of side walls extending along the side surfaces of the tape cassette, wherein at least one support pin projects from a first portion of each side wall of said lower holder and one support pin projects from each of two second portions of each side wall of said upper holder, and wherein guide plates are disposed along said side walls of said lower and upper holders, said guide plates each including a stepped guide slot and a linear guide slot, said support pins being inserted into said linear guide slots such that said guide plates support said side walls of said lower and upper holders movably in an insertion direction of the tape cassette;

said means for moving said holders including at least one shift lever attached pivotally to each side wall of said upper holder to movably engage respectively one of said support pins of said lower holder, and at least one second pin fixed to each of said shift levers respectively, said second pins being in engagement respectively with said stepped guide slots of said guide plates, whereby when said second pins move along inclined portions of said stepped guide slots with movement of said holders, said shift levers are turned to contact a respective support pin in order to move said lower holder and thus said slider in a direction opposite to an advancing direction of the tape cassette relative to said upper holder to move the slider to an open position; and

said second portions of each of the side walls of said upper holder having a space therebetween, said first portions of the side walls of the lower holder extending respectively into said spaces between said second projections such that said spaces form predetermined moving spaces for said first portions, the slider of the tape cassette being opened during a movement of said first portions relative to said second portions in said moving spaces when said lower and upper holders are holding the tape cassette and move in opposite directions.

5,214,549

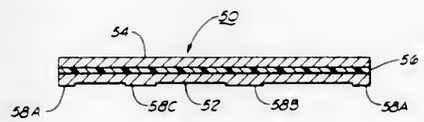
ACOUSTICALLY DAMPED DISC DRIVE ASSEMBLY

Jonathan P. Baker, Oklahoma City, and Kenneth L. Pottebaum, Yukon, both of Okla., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Jul. 12, 1991, Ser. No. 729,497

Int. Cl.[5] G11B *33/14*

U.S. Cl. 360—97.02 **21 Claims**



1. A cover for a housing of a disc drive assembly, the disc drive assembly having internally disposed components generating acoustic vibrations, the cover comprising:

a plurality of plate members; and

damping means disposed between each pair of plate members for

damping acoustic vibrations imparted to the cover by the internally disposed components.

5,214,550

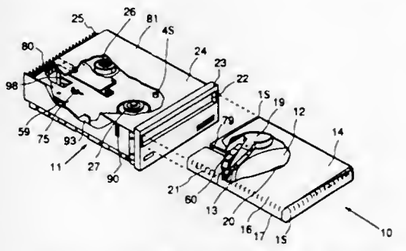
MINIATURE REMOVABLE RIGID DISK DRIVE AND CARTRIDGE SYSTEM

John R. Chan, Fremont, Calif., assignor to Zentek Storage of America, Inc., San Jose, Calif.

Filed Mar. 22, 1991, Ser. No. 673,782

Int. Cl.[5] G11B *5/012*

U.S. Cl. 360—97.01 **8 Claims**



1. A miniature removable rigid disk drive and cartridge system comprising:

disk drive means including

circuit board means having associated system operation and control electronic components mounted thereon and interconnected by circuit traces thereof;

cartridge receiving, positioning and ejecting means;

disk rotating means including a first rotatable magnetic coupling element for driving a cartridge-carried data storage disk means;

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disk-read/write actuator means including a second rotatable magnetic coupling element for actuating a cartridge-carried read/write assembly;

first connector means carried by said circuit board means for communicatively engaging and coupling information to and from a disk cartridge; and

interface means for interconnecting said electronic components to an external computing means; and

cartridge means for insertion into said cartridge-receiving positioning and ejecting means and including

disk means for containing stored information;

disk carriage means including a first rotatable hub magnetically engageable with aid first coupling element for drivably coupling said disk carriage means to said disk rotating means;

read/write means including a second rotatable hub magnetically engageable with said second coupling element for drivably coupling said read/write means to said actuator means; and

second connector means for engaging said first connector means and coupling information to and from said read/write means.

5,214,551

MECHANISM FOR POSITIONING A MAGNETIC HEAD AND A PINCH ROLLER IN A TAPE RECORDER WITHOUT RELIANCE ON A SOLENOID

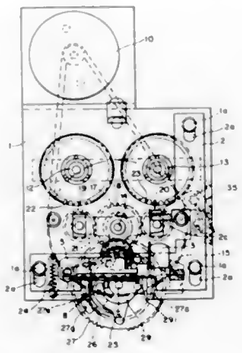
Makoto Kaneda, Hatoyama, Japan, assignor to Kyowa Electric & Chemical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP88/01012, § 371 Date Feb. 7, 1990, § 102(e) Date Feb. 7, 1990, PCT Pub. No. WO90/04250, PCT Pub. Date Apr. 19, 1990

Continuation of Ser. No. 460,080, Feb. 7, 1990, abandoned. This PCT application Oct. 4, 1988, Ser. No. 938,587

Int. Cl.[5] G11B *5/54, 15/295, 15/44*

U.S. Cl. 360—105 **7 Claims**



1. A tape recorder, comprising:

a support;

a capstan, feed reel shaft and take-up reel shaft mounted to said support;

a driving means for rotating said capstan;

a sliding plate;

a magnetic head and a pinch roller mounted on said sliding plate;

transport means for moving said sliding plate on said support in a given direction of motion between a retracted position and an operating position, wherein said pinch roller approaches said capstan to engage a recording tape therebetween, with said magnetic head being in contact with said recording tape, in said operating position, and said pinch roller and said capstan being spaced from each other to release said recording tape, with the magnetic head being out of contact with the recording tape, in said retracted position;

said transport means comprising:

(a) a first driving gear and a second driving gear coupled to said driving means for rotation thereby,

(b) a first driven gear coupled to said first driving gear for rotation thereby,

(c) a second driven gear coupled to said second driving gear for rotation thereby,

(d) coupling means to frictionally couple said first and second driven gears to each other,

(e) a cam having means to drive said sliding plate from its said retracted position toward its said operating position,

(f) means on said second driven gear for rotating said cam as said second driven gear is being driven rotatingly, and

(g) means to inhibit rotation of the second driven gear by said second driving gear when said second driven gear reaches a predetermined rotational angle, and including at least one non-toothed portion on said second driven gear, said first driven gear remaining drivingly coupled with the first driving gear when the non-toothed portion of said second driven gear uncouples it from said second driving gear; and

control means coupled to said transport means for setting the tape recorder into one of at least a record-play operation and a rewind operation by controlling a direction of rotation of at least one of said first and second driving gears, and wherein said control means actuates the driving means to rotate the first driving gear, after rotation of the second driven gear by the second driving gear has been inhibited, at least until a toothed portion of the second driven gear is drivingly coupled with the second driving gear as said first driven gear rotates said second driven gear via said coupling means.

5,214,552

ACTUATOR FOR MOVING RECORDING HEAD AND METHOD FOR PRODUCING THE SAME

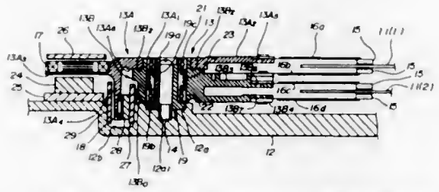
Yosuke Haga, Tokyo, Japan, assignor to Teac Corporation, Japan

Filed Jan. 15, 1991, Ser. No. 641,525

Claims priority, application Japan, Jan. 16, 1990, 2-2569[U]

Int. Cl.[5] G11B *5/48, 21/16*

U.S. Cl. 360—106 **9 Claims**



1. An actuator for moving a recording head in a radial direction of a recording disc, said recording head writing information on said recording disc and/or reading the information therefrom, said actuator comprising:

a first member having,

a first actuator member and a driving device adhered to said first actuator member by an adhesive, said first actuator member having a first engagement portion; and

a second member having,

a second actuator member and a bearing mechanism which is provided to said second actuator member and engaged with a shaft member fixed on a base, said second actuator member having a second engagement portion which is engaged with said first engagement portion of said first actuator member so that said first member and said second member are integrated with each other,

wherein at least one recording head is mounted on said second actuator member, and wherein said first member and second member pivot on said shaft member engaged with said bearing mechanism of said second member due to an operation of said driving device of said first member so that the recording head is moved in the radial direction of said recording disc.

5,214,553

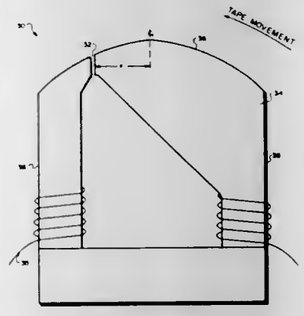
MAGNETIC CONTACT RECORDING HEAD FOR OPERATION WITH TAPES OF VARYING THICKNESSES

Kenneth Y. Kan, Lexington; George Saliba, Northboro, and Robert A. Nute, Westboro, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Apr. 29, 1991, Ser. No. 693,449

Int. Cl.[5] G11B *5/187, 5/29*

U.S. Cl. 360—122 **7 Claims**



5. An inductive contact recording head assembly capable of performing reliable read and write data operations on magnetic tapes of varying thicknesses, said head assembly having a generally arcuate outer surface adjacent to which the tapes pass, said head assembly comprising:

a read island integral with said head assembly and projecting above said head assembly outer surface, said read island having a generally arcuate top surface spaced from said head assembly outer surface and having an apex located at the geometric center of said top surface, said read island further having island sides that extend between said head assembly outer surface and said island top surface, said read island including a magnetic coil and a magnetic core with a gap; and

a write island integral with said head assembly, said write island projecting above said head assembly outer surface and having a generally arcuate top surface spaced from said head assembly outer surface and peaking at the geometric centers of said top surface, said write island further having island sides that extend between said head assembly outer surface and said island top surface, said write island including a magnetic coil and magnetic core with a gap,

wherein each of said gaps of said read and write islands is positioned a distance of approximately 55% from said apex of said top surface to said head assembly outer surface so as to maintain signal integrity when recording and reproducing data signals retrieved form the tapes.

5,214,554

CASSETTE FOR A RECORD CARRIER

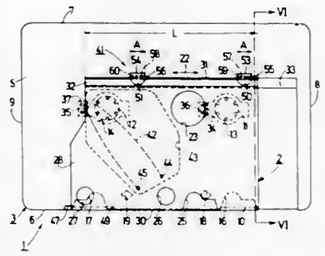
Norbert Vollmann; Peter J. Doodson, both of Eindhoven, Netherlands; Anton Stöger, and Günther Bernauer, both of Vienna, Austria, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 30, 1991, Ser. No. 771,377

Claims priority, application Austria, Oct. 11, 1990, 2048/90

Int. Cl.[5] G11B *23/02*

U.S. Cl. 360—132 **7 Claims**



1. A cassette for a record carrier which can be scanned by scanning means for the purpose of making and/or reproducing recordings, said cassette comprising a substantially rectangular cassette housing accommodating the record carrier and having an access area for the record carrier, in which access areas the scanning means can enter into cooperation with the record carrier for the purpose of scanning, a sliding cover which is guided on the cassette housing so as to be movable parallel to a direction of movement, which cover is movable between a closed position, in which the cover at least partly covers the access area, and an open position, in which the cover exposes the access area, said cover including a plate-shaped portion extending parallel to a main wall of the cassette housing and having an edge zone of predetermined length which extends substantially parallel to the direction of movement of the sliding cover, and hold-down means connected to the cassette housing and engaging over the plate-shaped portion in the edge zone thereof for preventing the plate-shaped portion of the sliding cover from being lifted off the main wall of the cassette housing, characterized in that:

the hold-down means comprise at least two mutually spaced-apart hold-down members which, parallel to the direction of movement of the sliding cover, each have a dimension which is only a fraction of the length of the edge zone of the plate-shaped portion of the sliding cover, over which edge zone the hold-down members engage.

5,214,555

CENTRAL HUBS FOR FLEXIBLE MAGNETIC DATA DISCS FORMED OF MAGNETICALLY SOFT POLYACETAL COMPOSITIONS

Patrick M. Hughes, Clinton, N.J., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Filed Apr. 12, 1991, Ser. No. 683,953

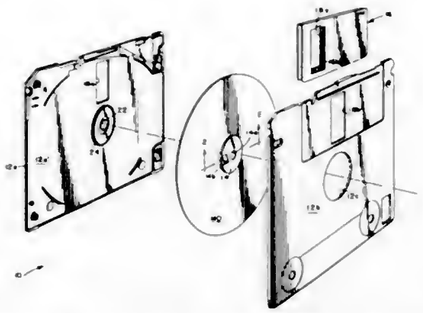
Int. Cl.[5] G11B *23/03*

U.S. Cl. 360—133 **12 Claims**

1. A central hub for a flexible magnetic disc which consists essentially of a magnetically soft polyacetal resin composition, wherein said composition comprises a polyacetal base resin, and elemental iron particles homogeneously dispersed throughout said polyacetal base resin in an amount of at least 40% by weight, based on the total weight of said polyacetal resin composition, sufficient to impart magnetically soft prop-

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erties to said polyacetal base resin such that said central hub exhibits a magnetic strength value of at least 2.0 grams when



placed in a magnetic field but is not permanently magnetized by said magnetic field.

5,214,556

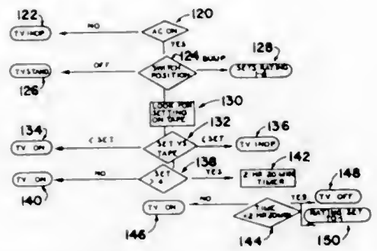
VIDEO CASSETTE RECORDER PROTECTION SYSTEM

Joseph J. Kilbel, 413 Graham Rd., Cuyahoga Falls, Ohio 44224

Continuation of Ser. No. 337,936, Apr. 14, 1989, abandoned. This application Feb. 4, 1992, Ser. No. 830,987

Int. Cl.[5] G11B *5.02*

U.S. Cl. 360—137 **10 Claims**



1. A protection system to establish selective playback capability for use with a video display system comprising:

information containing means positioned on a housing associated with video material to be viewed on said video display system, said information containing means including information relating to one of at least three rating levels representative of the rating of said video material,

sensing means comprises of at least one optical sensor fixedly associated with said video display system to detect and read said information containing means and generate a control signal corresponding to said one rating level of the said at least three rating levels of said video material from said information containing means,

rating selection means allowing a user to independently and selectively pre-select one of said at least three rating levels wherein said pre-selected rating level will determine the rating of said video material which can be viewed on said video display system, said rating selection means generating a reference signal corresponding to said pre-selected rating level;

processing means to receive said control signal from said sensing means and said reference signal from said rating selection means for comparison of said control signal to said reference signal and wherein said processing means is coupled to said video display system and will prevent viewing of video material having a rating level indicated by said information containing means which is above said pre-selected rating level;

wherein said information containing means is positioned on said housing at a predetermined position which is readable by said sensing means, and said sensing means detects the presence of said information containing means such that if no information containing means is present, said processing system will prevent viewing of video material on said video display system, and,

wherein said at least one optical sensor transmits a light signal against a portion of said information containing means to be reflected back and detected, wherein the reflected signals will provide on/off signals dependent on said portion of said information containing means from which said reflected signals are received to generate said control signal representative of said rating of said video material.

5,214,557

D.C. VACUUM CIRCUIT BREAKER FOR AN ELECTRIC MOTOR VEHICLE

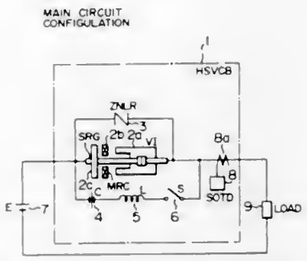
Mitsuyoshi Hasegawa; Takashi Tsuboi; Hiroyuki Akiyama; Tadashi Kamada, and Taro Uchii, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 31, 1990, Ser. No. 560,785

Claims priority, application Japan, Aug. 4, 1989, 1-201178; Feb. 28, 1990, 2-045418

Int. Cl.[5] H02H *3/033*

U.S. Cl. 361—4 **37 Claims**



1. A DC vacuum circuit breaker for mounting on an electric motor vehicle, said circuit breaker comprising:

a vacuum interrupter for inclusion in a circuit in which direct current flows so that a voltage is applied thereto, to cut off the direct current upon detection of a current fault;

resistance means connected in parallel with said vacuum interrupter for consuming energy stored in the inductance of the circuit in which direct current flows;

a saturable reactor connected in series with the parallel combination of said vacuum interrupter and said resistance means;

a series combination of a capacitor and switching means, said series combination connected in parallel with the series combination of said vacuum interrupter and said saturable reactor; and

means for charging said capacitor with a voltage opposite the voltage applied to said vacuum interrupter;

said vacuum interrupter, said saturable reactor, said capacitor and said switching means forming a closed circuit responsive to current flow of at least a predetermined value to have an oscillation frequency of at least 2 KHz, with an oscillation current amplitude of at least 5000 A and a closed circuit inductance of at least 1 μH.

5,214,558

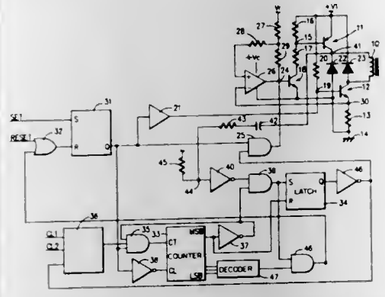
CHOPPER DRIVE CONTROL CIRCUIT

George Melnyk, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 25, 1991, Ser. No. 782,857

Int. Cl.[5] H01F *7/18*

U.S. Cl. 361—154 **15 Claims**



1. A drive circuit for an electromagnet having a coil connectable with a voltage source by a chopping circuit means including a switch means between the coil and the source, said chopping circuit means enabled by a drive signal for disconnecting said coil and said voltage source in response to a predetermined level of current in said coil,

said drive circuit being characterized by the inclusion of

timing means operable in response to said drive signal for measuring a preset time during which current in said coil should rise to said predetermined level after said switch means is enabled by said drive signal, and

control means operable to disable said chopping circuit means between the time the chopping circuit means disconnects the coil due to the predetermined level of current in the coil being reached and said preset time, said control means, when said preset time is reached, enabling the chopping circuit means to alternately connect and disconnect said coil and voltage source at a predetermined frequency until the end of said drive signal.

5,214,559

MONITORING DEVICE WITH A SWITCHING MECHANISM

Erich Zerbian, Fensterbach; Paul Froehlich, Sulzbach-Rosenberg; Siegfried Neumann, Kuemmersbruck; Richard Freitag, Hahnbach, and Hans-Joachim Jaehne, Amberg, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Apr. 2, 1990, Ser. No. 503,531

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1989, 3910718

Int. Cl.[5] H02H *7/08*

U.S. Cl. 361—93 **17 Claims**

1. A monitoring system comprising:

a monitoring device comprising:

a switching mechanism to open or close electric circuits to turn the circuits on or off;

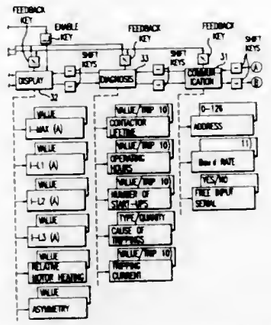
a current detecting device providing inputs to cause operation of said switching mechanism in case of overload;

a processor and setpoint memories coupled to said current detecting device which compare and evaluate actual values, said processor and setpoint memories being capable of detecting and accruing additional operational error data and statistical operating data over a time of a least two on cycles, said processor and setpoint memories choosing maintenance instructions based on said operational error data and statistical operating data;

a tripping state indicating device; and

a run display to display said data; and

a bus coupled to said processor and setpoint memories of said monitoring device via one or more serially operating interfaces, said bus providing two-way data transmission between said monitoring device and other separate devices coupled to said bus, wherein said monitoring device



is capable of performing output operations and assigning said various output operations to a respective setpoint selection; and

a plurality of input keys, such that desired operating parameters are capable of being entered into said monitoring system via input keys, said desired operating parameters capable of being displayed at said run display.

5,214,560

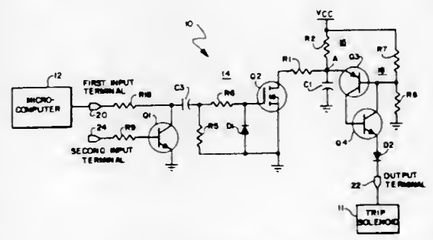
MICROPROCESSOR WATCH-DOG MONITOR FOR ELECTRONIC TRIP UNITS

Scott R. Jensen, Cedar Rapids, Iowa, assignor to Square D Company, Palatine, Ill.

Filed Jun. 19, 1992, Ser. No. 901,364

Int. Cl.[5] H03M *13/00*

U.S. Cl. 361—93 **15 Claims**



1. A microprocessor watch-dog monitor for electronic trip units comprising:

an input transistor (Q1) having its gate coupled to an input terminal (20) and its source connected to a ground potential;

a first resistor (R1) having its one end connected to the drain of said input transistor (Q1) and its other end connected to an internal node (A);

a timing circuit (16) of a second resistor (R2) and a capacitor (C1), said second resistor (R2) having its one end connected to a power supply potential (VCC) and its other end connected to one end of said capacitor (C1) and to said internal node (A), the other end of said capacitor (C1) being connected to the ground potential;

a comparator circuit (18) formed of a first switching transistor (Q3) and a second switching transistor (Q4);

said first switching transistor (Q3) having its emitter connected to said internal node (A);

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said second switching transistor (Q4) having its base connected to the collector of said first switching transistor (Q3), its collector connected to the base of said first switching transistor (Q3), and its emitter coupled to an output terminal (22); and

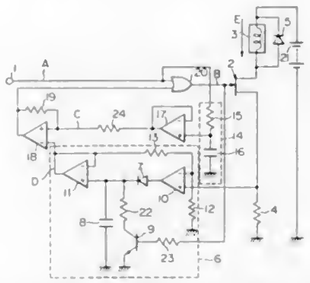
a voltage divider formed of third and fourth resistors (R7, R8), said third resistor (R7) having its one end connected to the power supply potential (VCC) and its other end connected to the collector of said second switching transistor (Q3) and to one end of said fourth resistor (R8), the other end of said fourth resistor (R8) being connected to the ground potential.

5,214,561

CURRENT CONTROL CIRCUIT FOR AN ELECTROMAGNETIC TYPE ACTUATOR

Shigeki Morita, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 29, 1991, Ser. No. 783,777
Claims priority, application Japan, Nov. 1, 1990, 2-298262
Int. Cl.[5] H03K *3/01, 5/08;* G05F *1/40;* F02D *41/20*
U.S. Cl. 361—187 **4 Claims**



1 A current control circuit for controlling a current (E) supplied to a coil (3) of an electromagnetic actuator in response to an input pulse signal (A), a duty factor of which corresponds to a target level of the current supplied to said coil, said current control circuit comprising:

a) switching means (2) for turning on and off a current supplied to said coil of the actuator; and

b) means for controlling an average level of the current flowing through the coil such that the target level of the current is maintained irrespective of variations in circuit characteristics of the electromagnetic actuator, including source voltage variations and temperature induced coil resistance variations, said controlling means comprising:

c) current detector means (4) for detecting a level of current flowing through said coil of the actuator;

d) peak hold circuit means (6) for holding a voltage level corresponding to each peak level of the current detected by said current detector means;

e) smoothing circuit means (14) for smoothing said input pulse signal by a predetermined degree;

f) comparison means (18) for comparing outputs of said peak hold circuit means with said smoothing circuit means, said comparison means outputting a signal when a level of the output (C) of said smoothing circuit means is higher than a level of the output (D) of said peak hold circuit means; and

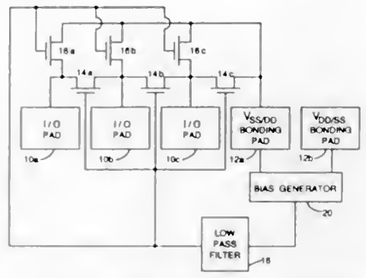
g) OR gate means (20), having input terminals coupled to said input pulse signal and an output of said comparison means, said OR gate means turning on said switching means when either said input pulse signal or an output of said comparison means is generated.

5,214,562

ELECTROSTATIC DISCHARGE PROTECTIVE CIRCUIT OF SHUNTING TRANSISTORS

Mark W. Levi, Utica, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 14, 1991, Ser. No. 715,163
Int. Cl.[5] H05F *3/00;* H02H *9/00*
U.S. Cl. 361—212 **4 Claims**



1. An electrostatic discharge protective apparatus for an electronic circuit on an integrated circuit substrate comprising in combination:

a plurality of input/output pads arranged in proximity to one another,

a conductor arranged in proximity to each input/output pad of said plurality of input/output pads and electrically connected to a further bonding pad,

a first plurality of semiconductor devices operatively connected respectively between adjacent input/output pads of said plurality of input/output pads and said bonding pad, each semiconductor device of said first plurality of semiconductor devices is normally on,

a second plurality of semiconductor devices operatively connected respectively to each input/output pad of said plurality of input/output pads and to said conductor, and, each semiconductor device of said second plurality of semiconductor devices is normally on, and

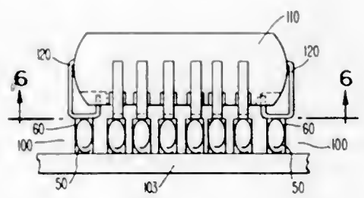
means for generating delayed bias and delivering said bias to the controlling terminals of said first and second plurality of semiconductor devices, upon receipt of power to said electronic circuit; said delayed bias means turns off said first and second pluralities of semiconductor devices.

5,214,563

THERMALLY REACTIVE LEAD ASSEMBLY AND METHOD FOR MAKING SAME

Howard S. Estes, Houston, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Dec. 31, 1991, Ser. No. 815,256
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—386 **21 Claims**



1. A thermally reactive lead assembly comprising a solderable conductive metallic element having a first configuration

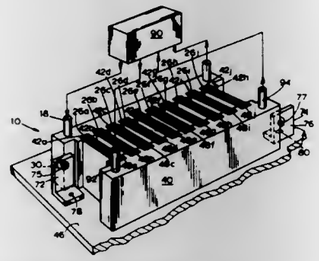
including a compact shape at ambient temperature and a second expanded configuration at an elevated temperature for providing electrical continuity between a pair of soldering locations of an electronic circuit, said lead assembly further comprising housing means for limiting the expansion of said metallic element in a first direction upon transformation from said first to said second configuration.

5,214,564

CAPACITOR ASSEMBLY WITH INTEGRAL COOLING APPARATUS

Mark W. Metzler, Davis, Ill., and William E. Carlson, Spring Lake, Mich., assignors to Sunstrand Corporation, Rockford, Ill.

Filed Apr. 23, 1992, Ser. No. 872,555
Int. Cl.[5] F28D *15/02;* F28F *7/00*
U.S. Cl. 361—385 **26 Claims**



1. A capacitor assembly, comprising:

first and second spaced thermally conductive members each having a channel for passage of a fluid coolant;

a capacitor having first and second electrodes; and

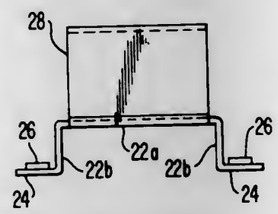
first and second means for establishing thermal paths between the capacitor and the fluid coolant in the channels of the first and second members, respectively, the first and second establishing means being electrically conductive and in electrical contact with the first and second electrodes of the capacitor, respectively.

5,214,565

FUSE HOLDER HEAT SINK BRACKET

Michael A. Flores, Dallas, Tex., assignor to Fujitsu Network Transmission Systems, Inc., Richardson, Tex.

Filed Jan. 31, 1992, Ser. No. 828,696
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—386 **9 Claims**



1. A bracket for fuse holders attached to a printed circuit board, comprising:

a main body having a U-shape, conforming to the fuse holders, with a base and two sides, and having first and second ends, roughly parallel to each other and roughly perpendicular to said base at the first ends;

mounting means, including feet, disposed roughly parallel to said base, one of the feet integrally formed at the second end of each side, for mounting said bracket on the printed circuit board; and

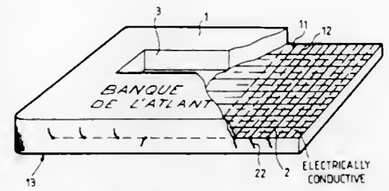
heat sink means, including fins integrally formed on said main body, for cooling said main body.

5,214,566

REINFORCED I.C. CARD

François Dupre, Aubagne, and Jean-Pierre Gloton, Aix En Provence, both of France, assignors to Gemplus Card International, Gemenos, France

Filed Jul. 1, 1991, Ser. No. 723,615
Claims priority, application France, Jul. 10, 1990, 90 08734
Int. Cl.[5] G06K *19/06;* B32B *3/00*
U.S. Cl. 361—392 **2 Claims**



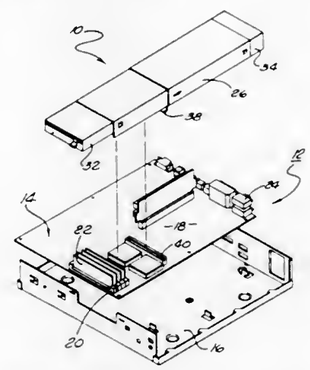
1. An I.C. card comprising a card body made of plastic whose stiffness is reinforced by strengthening fibers, the card body also being provided with a cavity for receiving an integrated circuit chip provided with means for establishing communication between the chip circuit and the world outside the card, wherein the strengthening fibers are, at least locally, of two different types and are placed in the car body in at least two sheets and in two matrix configurations, wherein the two configurations are intermeshed.

5,214,567

MODULAR PERIPHERAL PLATFORM HAVING TWO DISK DRIVES AND ONE ELECTRICAL CONNECTOR

Rick Feightner, West Linn, and Jim Williams, Forest Grove, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 19, 1991, Ser. No. 810,694
Int. Cl.[5] H05K *7/10, 7/14*
U.S. Cl. 361—393 **9 Claims**



1. A computer subassembly adapted to be coupled to a computer having a motherboard connector, comprising:

a module;

a first disk drive attached to said module;

a second disk drive attached to said module;

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a first connector attached to said module and adapted to be coupled to the motherboard connector; and,

circuit means attached to said module to electrically couple said first and second disk drives to said first connector.

9. A method of installing a disk drive into a computer, comprising the steps of:

providing a computer with a motherboard connector;

providing a subassembly that has a first disk drive attached to one end of a module and a second disk drive attached to an opposite end of said module, said module having a first connector that is electrically coupled to said disk drives, said first connector being constructed to be plugged into said motherboard connector; and,

plugging said first connector into said mother board connector such that said subassembly is structurally and electrically coupled to said computer.

5,214,568

TRANSMISSION SYSTEM

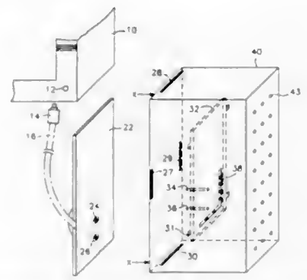
Fook K. Heng, Lot 10, Jalan Jaya 5, Taman Jaya, Bandar Tun Razak, Cheras, 56000, Kuala Lumpur, Malaysia

Filed Aug. 6, 1990, Ser. No. 562,864

Claims priority, application Malaysia, Aug. 7, 1989, 8901067

Int. Cl.[5] H01J *29/02;* **H05K** *1/18*

U.S. Cl. 361—395 **7 Claims**



1. A transmission system for transmission of audio voltage signals from an audio output of an audio device, comprising:

a first transmission means including a cable and a cover member made of insulating material, said cable and cover member permantly and integrally coupled to form one body, such that a first end of the cable is electrically coupled through a first face of the cover member to socket contacts in the cover member, said contacts being flush with the first face of the cover member and accessible from, but recessed back from a surface of a second face of said cover member, another end of said cable being removably connectable to the audio output, and

a second transmission means including a printed circuit board having a transmission circuit and being fixedly secured within an insulating casing defining an opening having its shape and dimensions adapted to those of the cover member of said first transmission means, said printed circuit board being provided with connection plugs to connect detachably with the socket contacts of said first transmission means such that said connection plugs project clear of said printed circuit board for a pre-determined distance towards the opening of said casing in that just before contact of said connection plugs with the recessed socket contacts takes place, edges of said cover member shut off the opening of said casing.

5,214,569

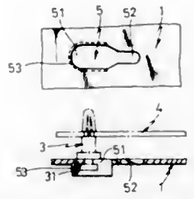
MOTHER BOARD STRUCTURE WITH FITTING HOLES

Lin C. Hsiang, 5F-23, 70, Fu-Shing Road, Taoyuan, Taiwan

Filed Sep. 6, 1991, Ser. No. 755,850

Int. Cl.[5] H10SK *1/00*

U.S. Cl. 361—397 **1 Claim**



1. A mother board for a computer of the type having at least one fitting hole formed therein for engagement by the annular slot of at least one post used to detachably secure a PC board to the mother board, with the slot being of a substantially key hole configuration defined by a large elliptical portion and a small elliptical portion, the improvement comprising the large elliptical portion including a protective element extending around and downwardly from the peripheral edge thereof for preventing the annular slot of the post from seizing the peripheral edge during removal of the PC board.

5,214,570

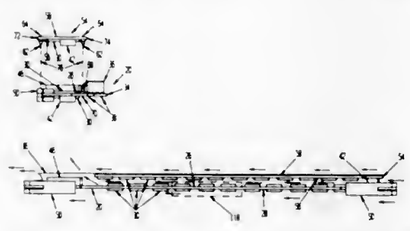
COMPACT MEMORY MODULE

Bhupendra C. Shah, Chelmsford; Charles F. Peterson, Berlin, and Mark E. Buckley, Northbridge, all of Mass., assignors to Clearpoint Research Corporation, Hopkinton, Mass.

Filed Apr. 3, 1992, Ser. No. 862,828

Int. Cl.[5] H05K *1/11*

U.S. Cl. 361—412 **14 Claims**



1. A memory module designed for use in a computing system which contains a system bus containing elongated bus connectors with which memory cards can be mated to electrically connect them to the bus, and a fan for generating an air flow in a direction parallel to the elongated dimension of said edge connectors, said memory module comprising:

a mother board;

a daughter board;

where both said mother and daughter boards are printed circuit boards containing electrical leads for electrically connecting electronic components, and both said boards each have two opposite sides, or major surfaces, and two long parallel edges which extend in the direction of said boards' greatest length;

an elongated edge connector mounted on a first major surface of said mother board adjacent and parallel to one of said mother board's long edges, so that when said edge connector is mated with the bus connector of the computer system the major surfaces and long edges of said mother board extend parallel to the direction of air flow generated by said fan;

means for electrically connecting the electrical leads of said daughter board to those of said mother board and for mounting said daughter board over said mother board so that a first major surface of said daughter board is spaced from, is facing, and is substantially parallel to said first major surface of said mother board, and so that one of the long edges of said daughter board substantially abuts the edge connector and so that the other edge of said daughter board is substantially over the other edge of said mother board, so that for a major portion of the length of said memory module said daughter board covers substantially all of said mother board which is not covered by said edge connector, said connecting means being aligned parallel to the long edges of said daughter board near one or both of those long edges so as to minimize the reduction of air flow between said mother and daughter board caused by such connectors; and

memory chips located on the facing major surfaces of said mother and daughter board between the two long edges of said daughter board and between the edge connector and the second edge of said mother board, so that the air flowing between said mother and daughter board will cool said memory chips.

5,214,571

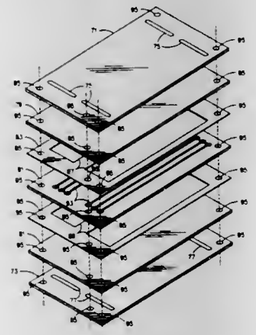
MULTILAYER PRINTED CIRCUIT AND ASSOCIATED MULTILAYER MATERIAL

Victor E. Dahlgren, Nashua, and Richard W. Gerrie, Bedford, both of N.H., assignors to Miraco, Inc., Nashua, N.H.

Division of Ser. No. 209,826, Jun. 22, 1988, Pat. No. 5,097,390, which is a continuation of Ser. No. 940,479, Dec. 10, 1986, abandoned. This application Oct. 16, 1989, Ser. No. 422,829

Int. Cl.[5] H05K *1/11*

U.S. Cl. 361—414 **24 Claims**



1. A multilayer printed circuit, comprising:

first and second layers, each comprising substantially dielectric material, at least one of said first and second layers having an opening therethrough for which the other of said first and second layers does not have a corresponding opening therethrough, wherein at least one of said first and second layers bears at least one conductive path;

disposed between and bonded to said first and second layers, a third layer comprising substantially chemically nonpermeable material thereby chemically isolating said at least one conductive path against subsequent treatment of said printed circuit;

said first, second, and third layers each having corresponding datums formed thereon located for relative mutual alignment of the corresponding features on each of said layers during manufacture.

5,214,572

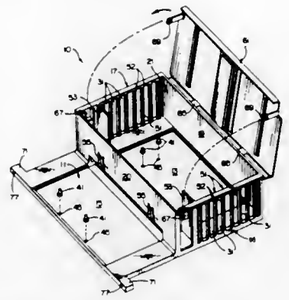
ONE-PIECE ELECTRONIC CAGE

Raymond J. Cosimano; Gerald J. Demorat; William F. Ott, III, all of Endicott, N.Y., and Robert C. Reinbart, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 21, 1991, Ser. No. 747,825

Int. Cl.[5] H05K *7/14, 5/00;* **H01R** *9/09*

U.S. Cl. 361—415 **13 Claims**



1. An electronic cage comprising:

a substantially planar floor member including first and second substantially adjacent portions, said floor member adapted for having a first circuit board positioned on both said first and second portions thereof; and

a plurality of side walls extending substantially upwardly from said first portion of said floor member, said first portion and said side walls defining a substantially box-like, electronic component receiving area for receiving and housing at least one second circuit board there, at least two of said side walls including guide means therein for guiding said second circuit board into said box-like electronic component receiving area, said second portion of said floor member being substantially planar and projecting outwardly from said substantially box-like, electronic component receiving area such that when said first circuit board is positioned on said floor member the part of said first circuit board positioned on said second portion of said floor member is substantially readily accessible, said electronic cage being of one-piece construction and comprised of plastic material.

5,214,573

SPACER

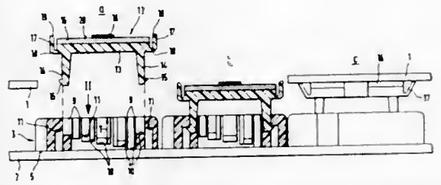
Ivan Roza, Olten, Switzerland, assignor to Elektro-Apparatebau Olten AG, Olten, Switzerland

Filed Feb. 25, 1992, Ser. No. 840,553

Claims priority, application Switzerland, Mar. 5, 1991, 00660/91

Int. Cl.[5] H05K *7/02*

U.S. Cl. 361—417 **8 Claims**



1. A spacer for a first and second panel arranged parallel to one another for providing uniform spacing, preferably be-

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tween a front panel of a switchboard and a backside, parallel printed circuit board, which comprises:

a socket with a first contact face for engaging said first panel; and

a plug member with a second contact face for engaging said second panel, said plug member being slidable in or over said socket and positioned so as to engage said socket, wherein said socket has concentrically positioned around a central axis thereof at least four guide members, said guide members being located on said socket, being open in the direction of said plug member and having a depth which is defined by stop faces of said socket, wherein said guide members form groups of varying depth, which lie radially symmetrically with respect to a central axis, and wherein said plug member has on a side thereof facing said socket a plurality of projections which are rotatably positionable into said guide members of said groups.

5,214,574

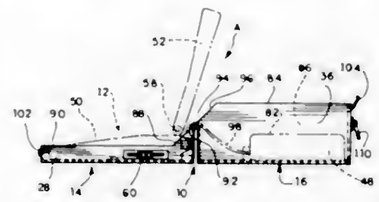
PORTABLE COMPUTER HOUSING IN COMBINATION WITH A PORTABLE COMPUTER

Bo E. Chang, 22 Yearling Ct., Rockville, Md. 20850

Filed Apr. 16, 1992, Ser. No. 868,837

Int. Cl.[5] **H05K** *5/00;* **A45C** *11/00;* **B85D** *85/38;* **B41D** *11/56*

U.S. Cl. 361—393 **16 Claims**



16. A portable computer housing assembly for coupling together multiple components of a multi-component portable computer in combination with a portable computer comprising:

first and second substantially rectangular shells each having a plurality of peripheral walls;

means hingedly attaching said shells together and permitting transition thereof between an open coplanar position to a closed stacked position;

a portable computer including a first component having a lateral periphery closely confined within said first shell;

a port on said periphery;

at least one said first shell peripheral wall having an opening therein overlying said port;

said portable computer including a second component closely confined within said second shell;

flexible data transmission means communicating between said first and second components, whereby said two components are fully accessible for manipulation thereof while being confined within said shells when in said open position and upon rotation of said firs and second shells about said hinge means to said closed position said walls of said first shell are contiguous and coplanar respective said walls of said second shell, thus to provide a housing fully enclosing said first and second components.

5,214,575

GROUND FAULT DETECTOR FOR AN INVERTER AND A METHOD THEREFOR

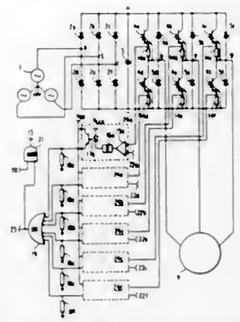
Eiichi Sugishima, and Taro Ando, both of Aichi, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 16, 1991, Ser. No. 807,514

Claims priority, application Japan, Dec. 14, 1990, 2-402215

Int. Cl.[5] **H02M** *5/458;* **H02H** *7/12*

U.S. Cl. 363—37 **14 Claims**



1. A ground fault detector for an inverter comprising a converter circuit for rectifying an alternating current into a direct current, a capacitor for smoothing said direct current, an inverter circuit for converting said smoothed direct current into a predetermined frequency and voltage through the on/-off operation of switching elements connected in parallel with diodes, and a PWM signal generator for controlling the on/off of said switching elements, said ground fault detector comprising:

current detectors for detecting current flowing in corresponding one of said switching elements;

overcurrent determining means for outputting an overcurrent signal when the output of any of said current detectors exceeds a predetermined value;

zero vector determining means for outputting a zero vector detection signal when a voltage vector signal transmitted by said PWM signal generator is a zero vector signal; and

a ground fault detector circuit for judging a ground fault in accordance with said overcurrent signal and said zero vector detection signal.

5,214,576

COMPOUND CONTROL METHOD FOR CONTROLLING A SYSTEM

Tetsuji Tani; Tomoo Oyama; Takeshi Tsujimoto, and Toshinari Tsuchihashi, all of Ichihara, Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Filed Dec. 27, 1990, Ser. No. 634,757

Claims priority, application Japan, Dec. 28, 1989, 1-343339

Int. Cl.[5] **G05B** *13/02*

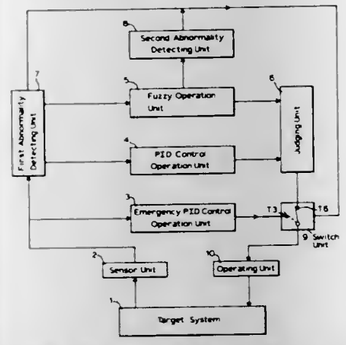
U.S. Cl. 364—162 **5 Claims**

1. A method of controlling a system, comprising the steps of:

(a) inputting output data of said system to be controlled to a PID control operation unit so as to perform a PID control operation to obtain a control variable from said PID control operation unit;

(b) inputting said data obtained from said system to be controlled to a fuzzy operation unit so as to perform a fuzzy operation to obtain a correcting variable from said fuzzy operation unit; wherein said PID control operation and said fuzzy operation are independent of each other, whereby said control variable and said correcting variable are obtained from said PID control operation unit and said fuzzy operation unit, respectively, without being affected by said fuzzy operation and said PID control operation, respectively;

(c) inputting said control variable and said correcting variable to a judging unit;



(d) correcting said control variable by said correcting variable in said judging unit so as to obtain a corrected control variable from said judging unit; and

(e) inputting said corrected control variable to said system so as to control said system.

5,214,577

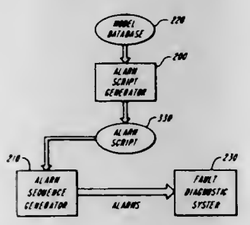
AUTOMATIC TEST GENERATION FOR MODEL-BASED REAL-TIME FAULT DIAGNOSTIC SYSTEMS

Janos Sztipanovits; Csaba Biegl; Gabor Karsai; Samir Padalkar, all of Nashville, Tenn.; Nobuji Miyasaka, Toyonaka, and Koji Okuda, Nishinomiya, both of Japan, assignors to Osaka Gas Co., Ltd., Osaka, Japan

Filed Oct. 24, 1990, Ser. No. 602,133

Int. Cl.[5] **G05B** *9/02;* **G06G** *7/48*

U.S. Cl. 364—184 **8 Claims**



1. A method for testing the accuracy and completeness of a diagnostic system which analyzes the operation of a monitored process, the system being modeled as a graph model having

a plurality of on-line nodes representing functions being monitored by a first group of alarms,

a plurality off-line nodes representing functions being monitored by off-line alarms,

a plurality of nodes representing functions of the monitored process not having alarms associated therewith,

a plurality of nodes representing fault source components, and

a plurality of propagation paths, wherein each said path selectively interconnects at least two said nodes for representing allowable propagation of information from one node to another,

the method comprising the steps of specifying each node of the model at which data signals shall originate,

specifying for each originating node a time at which the data signal shall originate,

propagating said data signal through said graph model and along said propagation paths, said propagation paths being characterized by minimum and maximum propagation times, and a probability of propagation of said signals along said paths, and

determining the nodes to which said data signal is propagated and the time of its arrival.

5,214,578

METHOD AND SYSTEM FOR THE CALIBRATION OF AN X-RAY SCANNER USING AN OFF-CENTERED CIRCULAR PHANTOM

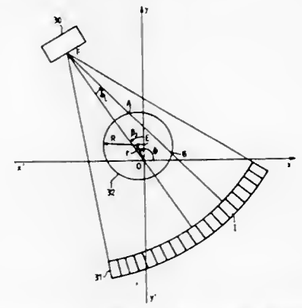
Dominique Cornuejols, Palaiseau, and Andrei Feldman, Paris, both of France, assignors to General Electric CGR SA, Issy les Moulineaux, France

Filed Jun. 7, 1989, Ser. No. 362,680

Claims priority, application France, Jun. 10, 1988, 88 07791

Int. Cl.[5] **G06F** *15/42*

U.S. Cl. 364—413.13 **4 Claims**



1. A method for the calibration of an X-ray scanner comprising an X-ray source and a detection device with N channels supported by a structure which rotates on an axis about a body under study, said calibration performed by means of a circular phantom, said method comprising the steps of:

positioning the circular phantom, the center of which is placed in a position that is off-centered with respect to the axis of rotation of the scanner,

irradiating said circular phantom with rays from said X-ray source,

moving the scanner to make m measurements of attenuation Y_{ij} for each i channel, each measurement corresponding to an angular position β_j of the scanner,

computing, for each measurement Y_{ij}, the distance X_{ij} travelled by the X-ray radiation in the phantom,

computing, for each i channel, the coefficients A_{ik} of integer k of the n-degree polynomial $P_n{}^i$ such that:

$$P_n{}^i(Y_{ij}) = \sum_{k=o}^{k=n} A_{ik}\}^k_{ij}$$

so as to obtain a polynominal approximation of the computed values X_{ij}, and

correcting subsequent measurements made using the scanner using the coefficients A_{ik}.

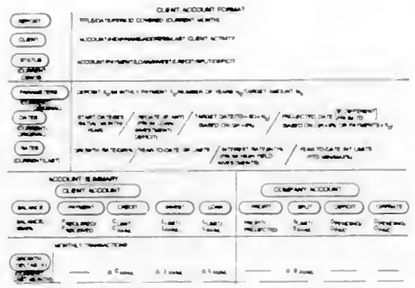
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,579

GOAL-ORIENTED INVESTMENT INDEXING, TRACKING AND MONITORING DATA PROCESSING SYSTEM

Larry Wolfberg, Honolulu, Hi.; Jan E. Rhoads, Virginia Beach, Va., and Brent A. Wolfberg, Los Angeles, Calif., assignors to L & C Family Partnership, Century City, Calif.

Filed Dec. 22, 1989, Ser. No. 456,638
Int. Cl.[5] G06F *15/21, 15/30*
U.S. Cl. 364—408 48 Claims



1. An investment tracking data processing system comprising:

data entry means for entering investment related data including a target amount for each of a plurality of client accounts;

memory means for storing instructions and for storing data in a plurality of client account files; and

control means, coupled to said memory means and said data entry means, for executing said instructions and for processing said data, said control means including means for associating said data with a corresponding one of said plurality of client account files, for updating cumulative investment base data in each of said plurality of client account files, means for segregating each of said plurality of client account files into a plurality of account fund files, and

means for projecting, based upon said investment related data, the amount of time required, for said cumulative investment base to reach said target amount.

5,214,580

PROCESS FOR IDENTIFYING DISCRETE DATA REPRESENTATIVE OF AN INPUT SAMPLE STREAM

Richard Aparo, Newton, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 27, 1990, Ser. No. 544,715
Int. Cl.[5] G06F *15/00*
U.S. Cl. 364—413.01 15 Claims

5. A process for creating a visible representation of a physiological parameter, the process comprising the steps of:

(A) In a patient monitoring system measuring a physiological parameter and generating a signal indicative thereof;

(B) digitizing the signal, thereby creating a series of digital input samples;

(C) storing an initial output sample;

(D) for a group of input samples, determining which of the following cases is true for this group of input samples and the current output sample:

(1) all samples of the group are greater than or equal to the output sample,

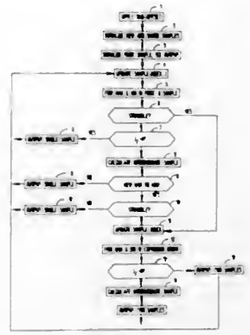
(2) all samples of the group are less than or equal to the output sample, or

(3) neither (1) nor (2) are true;

(E) if the first case is true, storing as the next output sample a value that is greater than the current output sample;

(F) if the second case is true, storing as the next output sample a value that is less than the current output sample;

(G) continuing this process for each next group of input samples, until all of the input samples have been read; and



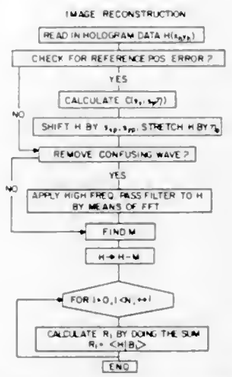
(H) converting the output samples to visible form on an imaging medium to provide a representation of the parameter of the system that is compressed and yet tends to visually retain significant features.

5,214,581

METHOD FOR OBJECT RECONSTRUCTION FROM X-RAY HOLOGRAMS

Charles K. Rhodes, 237 Delaware Pl., Apt. 10A, Chicago, Ill. 60611; Keith Boyer, 2511 35th St.; Johndale C. Solem, 220 Andanada, both of Los Alamos, N. Mex. 87544, and Waleed S. Haddad, 1133 Drummond, #5A, Chicago, Ill. 60614

Filed Jan. 17, 1990, Ser. No. 466,042
Int. Cl.[5] G06F *15/00*
U.S. Cl. 364—413.19 4 Claims



1. A method for the point-by-point reconstruction of an image $|R_i|$ from a detected hologram $H(x_h,y_h)$ derived from the interference pattern of an object under investigation and spherical reference scatterer which comprises the steps of:

a. generating substantially monochromatic and substantially coherent incident x-radiation having sufficient size and intensity to simultaneously illuminate the sample and the spherical reference scatterer;

b. detecting and recording spatial frequencies in the forward direction relative to the incident x-radiation;

c. inputting the geometrical parameters, x_o, y_o, z_o, x_r, y_r, z_r, x_h, and y_h, the coordinates of the pixels, of the center of the spherical reference scatterer, and of the pixels on the hologram detector surface, respectively, the radius, r, of the sphere the reflectivities of the reference scatterer as a function of incident grazing angle;

d. calculating the phase correction introduced by $\theta(x_h,y_h)$, the grazing scattering angle for the incident x-rays from the reference scattering sphere;

e. calculating $A(x_h,y_h)$, the reflectivity function for scattered radiation by the reference scattering sphere for each value of θ in order to determine the intensity of the scattered wave;

f. calculating and storing the basis functions, $B_i(x_h,y_h)$ which represent interferences between a reference point (x_r,y_r) and individual points (x_o,y_o) in the object;

g. calculating the correlation function $C_i(s_x,s_y,n) \equiv$

$$C_i(s_x, s_y, n) \equiv \int_{x_h}\int_{y_h} H(x_h, y_h) \cdot B_i[n \cdot (x_h - s_x), n \cdot (y_h - s_y)]dx_h dy_h;$$

f. calculating $D_i \equiv C_i(s_{xp},s_{yp},n_p)\delta(s_{xp},s_{yp},n_p)$, where (s_{xp},s_{yp},n_p) are the coordinates at which C_i is a maximum, and $\delta(s_{xp},s_{yp},n_p)=1$, δ being equal to zero for all other coordinates;

g. locating the maximum of the function $C(s_x,s_y,n) \equiv \Sigma D_i$ in order to determine the coordinates (s_{xp},s_{yp},n_p) for the hologram;

h. correcting the B_is for the phase shifts thus obtained; and

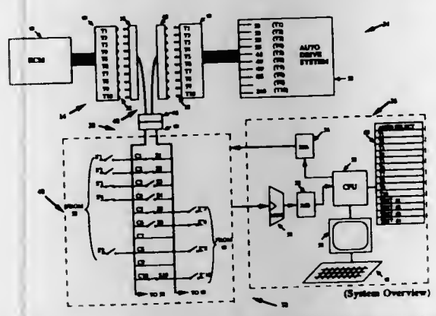
i. forming the inner product of the $H(x_h,y_h)$ measured in said step of detecting and recording holographic information array and the B_is to yield the amplitude, $|R_i|$, of the points in the reconstructed object.

5,214,582

INTERACTIVE DIAGNOSTIC SYSTEM FOR AN AUTOMOTIVE VEHICLE, AND METHOD

Moshe Gray, Los Altos Hills, Calif., assignor to Edge Diagnostic Systems, Sunnyvale, Calif.

Filed Jan. 30, 1991, Ser. No. 647,774
Int. Cl.[5] G01M *15/00*; G06F *11/00*
U.S. Cl. 364—424.03 32 Claims



17. A diagnostic system for an automotive vehicle of the type having (i) a network of sensors and actuators for independently sensing and actuating a number of different functions within the vehicle (ii) an onboard computer for monitoring said sensors and controlling the operation of said actuators, and (iii) means for electrically connecting said onboard computer with said sensors and actuators, said connecting means including an auto-side connector having a series of auto-side plug-in terminals respectively connected with individual ones of said sensors and actuators and a computer-side connector disengageably connectable to said auto-side connector and having corresponding, complementary computer-side plug-in terminals connected to appropriate circuitry within the onboard computer, said diagnostic system comprising:

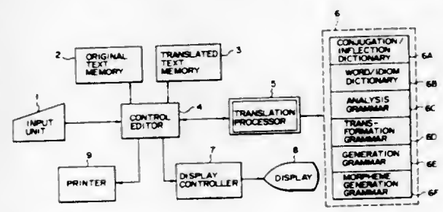
(a) monitoring means including a network of individual circuits disengageably connectable with and between said auto-side and computer-side terminals for independently and substantially simultaneously monitoring in real time individual electronic data entering and exiting said onboard computer through said individual circuits the individual data being associated with the individual sensors and actuators making up said network of sensors and actuators, said monitoring means also include an external computer arrangement separate from said onboard computer for analyzing said electronic data.

5,214,583

MACHINE LANGUAGE TRANSLATION SYSTEM WHICH PRODUCES CONSISTENT TRANSLATED WORDS

Seiji Miike; Hideki Hirakawa; Etsuo Ito, all of Yokohama, and Shin-ya Amano, Ayase, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 22, 1989, Ser. No. 440,111
Claims priority, application Japan, Nov. 22, 1988, 63-293565
Int. Cl.[5] G06F *15/38*
U.S. Cl. 364—419 19 Claims



1. A machine translation system comprising:

input means for inputting at least character information and edit information for an edit operation:

first text memory means for storing an original text represented in a first language and including a plurality of first language words and at least one first language idiom to be translated into a second language;

translation dictionary means for storing information for performing a translation, and including word/idiom dictionary means for storing a plurality of first language words and at least one first language idiom which are used as entry words and idiom in correspondence with a plurality of second language words represented in a second language;

translation processing means for translating the original text stored in said first text memory means into the second language by use of said translation dictionary means to obtain a second language translated text including a plurality of second language words and at least one second language idiom;

second text memory means for storing the translated text obtained by said translation processing means;

display means for displaying the original text stored in said first text memory means and the translated text stored in said second text memory means; and

control edit means for controlling said input means, said first and second text memory means, said translation dictionary means, said translation processing means, and said display means, and for performing edit processing of at least the translated text displayed on said display means in accordance with the edit information from said input means,

said control edit means comprising:

changing means for changing one of the second language words included in the translated second language text to another second language word, and

replacing means for replacing at least one second language word included in the translated second language idiom, as well as each of the second language words in the trans-

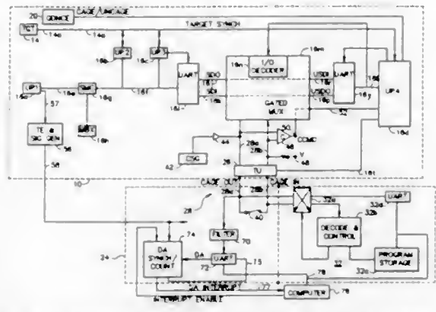
VOL 1150 ISS 4 MY 25 1993 UMI

lated second language text and which are identical to the second language word changed to said another second language word, with said another second language word.

5,214,584
BIDIRECTIONAL DATA INTERFACE FOR A PROCESSOR EMBEDDED IN A SELF-PROPELLED VEHICLE

D. A. Dingee, and M. R. Silva, both of Alta Loma, Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Continuation of Ser. No. 456,410, Dec. 26, 1989, abandoned.
This application Dec. 31, 1991, Ser. No. 815,894
Int. Cl.[5] G06F *15/50*; F41G *7/24*
U.S. Cl. 364—423 15 Claims

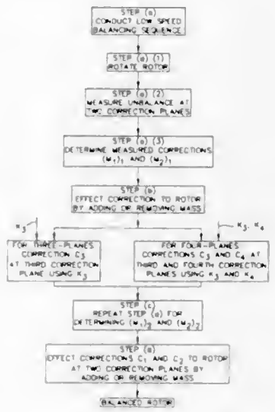


1. In an unmanned, self-propelled flying vehicle and launching apparatus, a combination, comprising:
guidance means on board the vehicle for producing guidance data signals for guiding said vehicle;
target sensing means on board the vehicle for generating target data signals for identifying a target;
a processing means on board the vehicle and coupled to the guidance means and target sensing means for producing flight control signals to guide the vehicle to a target during flight by executing a program including target selection and flight control program data in response to the guidance data signals and target data signals;
a first signal path means coupled to the processing means and having a signal path portion external to the vehicle and coupled to the launching apparatus, said external first signal path portion being coupled to said processing means only prior to a launch of said vehicle, the first signal path means being for conducting;
a guidance synchronizing signal to the processing means;
programming commands from the processing means;
target selection and flight control programming data to the processing means; and
guidance data signals and target data signals from the processing means;
a second signal path means coupled to the processing means and including a signal path portion external to the vehicle coupled to the launching apparatus for conducing a periodic utility signal from the processing means, said external second signal path portion being coupled to said processing means only prior to launch of said vehicle;
programming information means external to the vehicle for providing the target selection and flight control programming data in response to the programming commands;
programming switch means coupled to the external signal path portion of the first signal path means and to the programming information means for conducting the target selection and flight control program data to the external signal path portion of the first signal path means and for conducting the programming commands to the programming information means;
information receiving means external to the vehicle and connected to the external signal path portion of the first signal path means and to the external signal path portion of the second signal path means for receiving the guidance data signals and target data signals in synchronism with the periodic utility signal; and
computer means coupled to the information receiving means and to the programming information means for generating the target selection and flight control programming data in response to the guidance data signals and target data signals;
all communications over the first and second signal paths external to said vehicle into said vehicle ceasing upon launch of said vehicle.

5,214,585
BALANCING METHOD AND PRODUCT

Fredric F. Ehrich, Marblehead, Mass., assignor to General Electric Company, Cincinnati, Ohio

Filed Jun. 30, 1989, Ser. No. 374,210
Int. Cl.[5] G01M *1/38*
U.S. Cl. 364—463 41 Claims

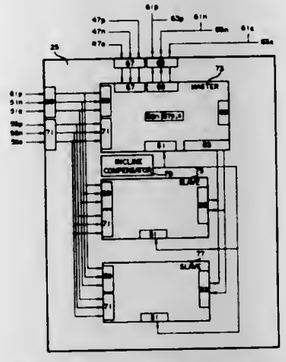


1. A method of balancing a rotor having an axis of rotation comprising:
(a) conducting a low-speed balancing sequence including:
(1) rotating said rotor about said axis of rotation at a test speed less than a critical speed associated with a natural resonance of said rotor;
(2) measuring unbalance at first and second correction planes of said rotating rotor; and
(3) determining first and second measured corrections applicable to said rotor at said first and second correction planes, respectively, for balancing said measured unbalance of said rotating rotor;
(b) effecting at a third correction plane a third correction to said rotor which is determined from a Balancing Rule and is a predetermined proportion of at least one of said first and second measured corrections, said proportion being predetermined to correct for a predetermined unbalance of said rotor for a predetermined mode shape of said rotor associated with a speed of said rotor greater than said test speed without actually rotating said rotor to said greater speed to measure unbalance;
(c) repeating said low-speed balancing sequence step (a) for said rotor having said third correction to determine second values of said first and second measured corrections at said first and second correction planes; and
(d) effecting said second values of said first and second measured corrections to said rotor at said first and second correction planes.

5,214,586
AIRCRAFT WEIGHT AND CENTER OF GRAVITY INDICATOR

C. Kirk Nance, P.O. Box 120605, Arlington, Tex. 76012

Filed Feb. 7, 1992, Ser. No. 832,470
Int. Cl.[5] G01L *19/04*
U.S. Cl. 364—463 13 Claims



1. An apparatus for determining the weight of an aircraft, said aircraft comprising plural landing gear struts, said struts experiencing drag, such as strut seal friction, said apparatus comprising:
a) a pressure sensor for each aircraft landing gear strut, said pressure sensors being adapted to couple to said struts so as to measure pressure inside of said respective strut;
b) a temperature sensor for each aircraft landing gear strut, said temperature sensors being adapted to couple to said struts so as to measure the temperature of said respective strut;
c) processor means for determining said aircraft weight, said processor means being connected to said pressure sensors and said temperature sensors, said processor means determining said aircraft weight using temperature measurements obtained from said temperature sensors to retrieve an appropriate, stored pressure adjustment to compensate and adjust each existing landing gear strut pressure, obtained from said respective pressure sensors which is distorted by said drag, as it relates to the weight said strut is supporting,
d) means for providing said determined aircraft weight to a human, said means being coupled to said processor means.

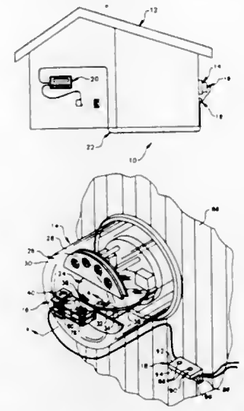
7. A method of determining the weight of an aircraft, said aircraft being supported by plural landing gear struts, said struts experiencing drag, such as strut seal friction, said method comprising the steps of:
a) determining the internal pressure in each landing gear strut;
b) determining the temperature of each landing gear strut;
c) using said strut temperature to determine an appropriate temperature-to-drag pressure adjustment, on each landing gear strut;
d) determining the weight supported by each landing gear strut, using said respective adjusted pressure;
e) determining the total weight of said aircraft by summing said weights supported by all of said landing gear struts.

5,214,587
DEVICE FOR MONITORING UTILITY USAGE

Richard G. Green, 13513 NE. 126th Pl., Kirkland, Wash. 98034

Filed Nov. 28, 1990, Ser. No. 619,195
Int. Cl.[5] G06F *15/56*; G01R *1/02*
U.S. Cl. 364—464.04 9 Claims

1. A device for monitoring utility usage for installation and use by homeowners and consumers with existing public utility meters having a disk that is mounted inside a transparent case and that rotates in response to electrical current usage, the device comprising:
a disk rotation monitoring assembly for mounting on the exterior of the transparent case, said monitoring assembly comprising:
(a) a sensor for sensing disk rotation speed and generating a signal in response thereto; and
(b) means for mounting said sensor on the transparent case, said mounting means further comprising means for holding said sensor, means for attaching said holding means to the transparent case, and means for adjusting the position



of said holding means to enable precise alignment of said sensor with the plane of the disk such that said sensor is in optical communication with the edge of said disk;
one or more remote display terminals in electrical communication with said monitoring assembly, each of said one or more remote terminals comprising:
(a) means for receiving said signal and processing said signal into utility consumption data;
(b) an electronic memory for storing said data;
(c) a visual display for displaying data in a reader-usable format about consumption; and
(d) a display controller that enables selective displaying of any of said data on said visual display.

5,214,588
CONTROL APPARATUS FOR AN FMS LINE

Kuniya Kaneko; Tsunezi Suzuki, both of Toyota, and Tadashi Naito, Nagoya, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

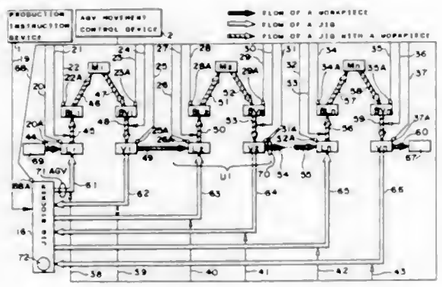
Filed May 1, 1990, Ser. No. 517,044
Claims priority, application Japan, May 2, 1989, 1-112069
Int. Cl.[5] G06F *15/46*
U.S. Cl. 364—468 11 Claims

1. A control apparatus provided for an FMS line, wherein the FMS line is provided with:
a machining line including a plurality of cells arranged in series;
a jig stocker stocking various kinds of jigs; and
an AGV for carrying a jig between the jig stocker and the machining line;
said control apparatus includes:
a first file storage device for storing a jig supply order schedule for a previous cycle of operation, a second file storage device for storing a work supply order schedule for a current cycle of operation;

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a third file storage device for storing a planned jig supply order schedule for the current cycle of operation;

a production instruction device which includes (a) means for planning and storing a jig supply order schedule for a current cycle of operation on the basis of jig supply order schedule for the previous cycle of operation and a work supply order schedule for the current cycle of operation, the jig supply order schedule for the previous cycle of operation includes a table having lines filled with workpieces scheduled to be supplied during the previous cycle of operation and vacant lines, the work supply order schedule includes a table having lines filled with work-



pieces scheduled to be supplied for the current cycle of operation, and the jig supply order schedule for the current cycle of operation includes a table which is constructed through writing the workpieces of the work supply order schedule for the current cycle of operation in the vacant lines of the table of the jig supply order schedule for the previous cycle of operation in the order of sequential cell numbers; and

means for searching the stored jig supply order schedule for the current cycle of operation upon receiving a datum request signal from the jig exchanging device and indicating a corresponding datum to the jig exchanging device.

5,214,589

THROAT HEIGHT CONTROL DURING LAPPING OF MAGNETIC HEADS

George H. Tang, San Jose, Calif., assignor to Read-Rite Corp., Milpitas, Calif.

Filed Mar. 22, 1991, Ser. No. 675,096
Int. Cl.[5] G06F *15/46;* B24B *49/00*
U.S. Cl. 364—468 6 Claims

1. A circuit for measuring saturation current of a magnetic head disposed on a ceramic bar in order to control throat height during a lapping process comprising:

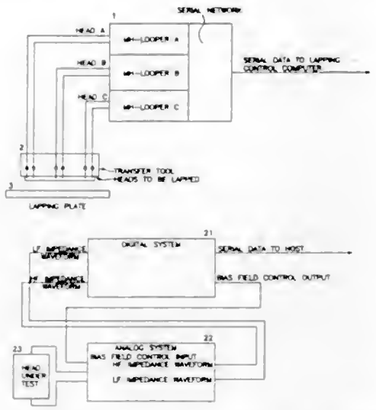
means for providing drive current to said head;

a sensing circuit coupled to said head for measuring the inductance of said head;

an M-H looper circuit coupled to said head for providing a measurement of saturation current of said head to indicate throat height status of said head; and

a lapping control computer coupled to said M-H looper for controlling the lapping of said head in response to said current measurement;

wherein said M-H looper circuit comprises an analog circuit coupled to said head for producing high frequency impedance and low frequency impedance waveform signals respectively; and a digital circuit coupled to said analog circuit for providing a bias field control signal to said analog circuit, said digital circuit including means for processing said high frequency impedance signals and separate means for processing said low frequency impedance signals, including means for directing said impedance signals from said analog circuit to provide a data



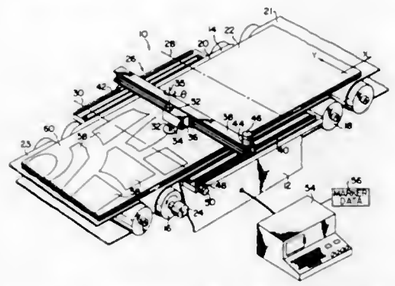
signal representing said saturation current measurement to said computer.

5,214,590

METHOD FOR SPLITTING MARKER LINES AND RELATED METHOD FOR BITE-BY-BITE CUTTING OF SHEET MATERIAL

John F. Schnetzer, Bolton, Conn., assignor to Gerber Garment Technology, Inc., Tolland, Conn.

Filed May 2, 1991, Ser. No. 694,942
Int. Cl.[5] G06F *15/46;* B26D *5/30*
U.S. Cl. 364—474.13 15 Claims



1. A process for determining the location at which the splitting of a marker line extending from one bite to an adjacent bite of sheet material is to occur for the purpose of cutting the line in sheet material in a cutting process wherein the sheet material is cut bite by bite by an X-Y cutter at a cutting station having a given length in a length direction, and wherein the sheet material is intermittently advanced to said cutting station in said length direction with the distance said material is advanced during each advancement being smaller than said given length of said cutting station s that between successive advancements the material then residing at the cutting station includes an overlap region which will also be at the cutting station after the next advancement, said process comprising:

providing marker data representing a marker to be cut from said sheet material and having a length longer than that of said cutting station and whereby the marker lines to be cut consist of successive straight line segments extending between end points defined by said marker data,

inspecting said marker data to identify a marker line passing through said overlap region of said sheet material,

dividing said overlap region into a plurality of channels located at various places along the length of said overlap region and extending transversely of said length direction,

determining the number of said straight line segments of said identified marker line contained at least in part in each of said channels to provide a line segment count for each channel,

on the basis of said line segment count per channel selecting one of said channels, and

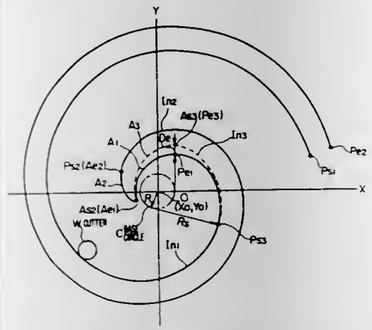
assigning the splitting of said identified marker line to the portion thereof passing through said one selected channel.

5,214,591

METHOD OF CORRECTING ERROR ON INVOLUTE INTERPOLATION

Takao Sasaki, Hachioji; Toshiaki Otsuki; Kunihiko Murakami, both of Hino, and Masafumi Sano, Minamitsuru, all of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

PCT No. PCT/JP90/00901, § 371 Date Feb. 27, 1991, § 102(e) Date Feb. 27, 1991, PCT Pub. No. WO91/01521, PCT Pub. Date Feb. 7, 1991
PCT Filed Jul. 12, 1990, Ser. No. 663,935
Claims priority, application Japan, Jul. 21, 1989, 1-190176
The portion of the term of this patent subsequent to Apr. 7, 2009, has been disclaimed.
Int. Cl.[5] G05B *19/415*
U.S. Cl. 364—474.31 3 Claims



1. A method of correcting an error on involute interpolation in an numerical control system, comprising the steps of:

when an insufficient cut or an excessive cut occurs in an actual configuration of a workpiece which is machined along a first involute curve that is commanded, determining a radius of curvature from a base circle to a starting point of said insufficient cut or said excessive cut on said first involute curve, and an error which occurs at an ending point of said first involute curve in a direction normal to said insufficient cut or said excessive cut;

setting said radius of curvature and said error as parameters in the numerical control system;

changing a first offset at the time said first involute curve is interpolated to a second offset which differs from said first offset by said error, on interpolation from said starting point of the insufficient cut or the excessive cut to said ending point of said first involute curve; and

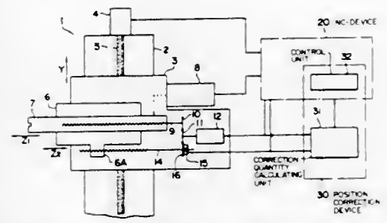
dividing said first involute curve into a second involute curve having an ending point which is the same as said starting point of the insufficient cut or the excessive cut, and a third involute curve having a starting point which is the same as said starting point and an ending point which is spaced said error from said ending point of said first involute curve in a direction normal thereto.

5,214,592

MACHINE TOOL POSITION CORRECTING METHOD AND APPARATUS

Syogo Serizawa; Nobuhisa Ohtake; Masahiro Akiyama; Noboru Hayama, and Nobuyuki Aiso, all of Numazu, Japan, assignors to Toshiba Kika Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1990, Ser. No. 599,151
Claims priority, application Japan, Oct. 19, 1989, 1-122623[U]
Int. Cl.[5] G06F *15/46;* G05B *19/19*
U.S. Cl. 364—474.35 17 Claims



1. A method for vertically positioning a horizontally movable member disposed on a vertically movable member in a machine tool, the horizontally movable member having a main shaft to which a tool can be attached, comprising the steps of:

vertically positioning the vertically movable member with vertical moving means;

horizontally positioning the horizontally movable member with horizontal moving means;

detecting the horizontal position of the horizontally movable member as positioned by the horizontal moving means;

determining a vertically corrected position to which the vertical moving means must move the vertically movable member to cause the tool to assume a desired vertical position according to a parameter based on the correlation between the detected horizontal position of the horizontally movable member and a quantity of vertical deviation of the horizontally movable member; and

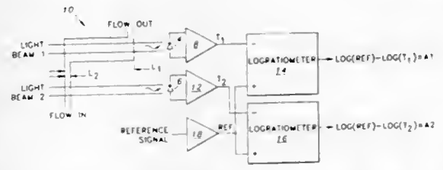
controlling the vertical moving means to move the vertically movable member to the vertically corrected position, while keeping a horizontal position of the tool.

5,214,593

METHOD AND APPARATUS FOR EXTENDING THE LINEAR DYNAMIC RANGE OF ABSORBANCE DETECTORS INCLUDING MULTI-LIGHTPATH FLOW CELLS

Haakon T. Magnussen, Jr., Orinda, and Roy P. Moeller, Hayward, both of Calif., assignors to Rainin Instrument Co., Inc., Emeryville, Calif.

Filed Nov. 7, 1990, Ser. No. 610,416
Int. Cl.[5] G01N *21/01;* G01J *3/42*
U.S. Cl. 364—497 18 Claims



1. A method of extending the linear dynamic range of an absorbance detector including a multiple light path flow cell having at least a relatively long sample beam passageway and a relatively short reference beam passageway each passing a sample fluid under test and including photo detector means for

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receiving the sample and reference beams and for developing output signals which are measures of the absorbance of the sample and reference beams in the sample fluid, comprising the steps of:

(1) irradiating the fluid under test in the sample and reference beam passageways with sample and reference light beams, respectively:

(2) detecting the amount of light in the sample beam transmitted through the sample fluid flowing through the sample passageway to determine the absorbance (A_1) of the sample beam in passing through the fluid sample in the sample passageway for fluid absorbances within the linear dynamic absorbance range of the sample beam passing through the sample passageway;

(3) detecting the amount of light in the reference beam transmitted through the sample fluid passing through the reference passage way to determine the absorbances (A_2 and A_2') of the reference beam in passing through the fluid sample in the reference passageway for fluid sample absorbances respectively within and beyond the linear dynamic absorbance range of the sample beam passing through the sample passageway; and

(4) form A_2' developing a linearized relative absorbance (A_1') for the sample beam passing through the sample passageway over fluid sample absorbances beyond the linear dynamic absorbance range of the sample beam passing through the sample passageway.

5,214,594

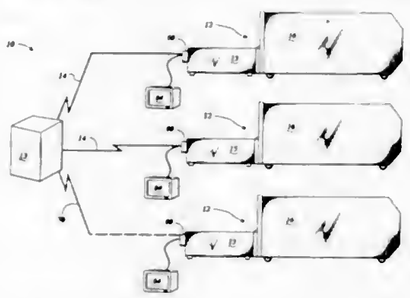
WASTE DISPOSAL SYSTEM

Donald Tyler, and Bobby W. Hughes, both of Columbus, Ga., assignors to Heuristic Technology Inc., Columbus, Ga.

Continuation of Ser. No. 429,037, Oct. 30, 1989, abandoned. This application Mar. 17, 1992, Ser. No. 852,754

Int. Cl.[5] B30B *15/00*

U.S. Cl. 364—550 **9 Claims**



1. An apparatus to monitor the fullness of a trash collection unit, said apparatus comprising:

a trash receptacle;

a compactor assembly to compact trash placed in said trash receptacle, wherein said compactor assembly further comprises a compactor ram face, a rod, means for manipulating said ram face and said rod, and a weigh bar for supporting said compaction assembly; and

means mounted internally within said weigh bar for measuring the load stress exerted on said weigh bar of said compactor assembly during operation thereof, said measuring means comprising a strain gauge, whereby said stress measurements are indicative of the amount of trash in said trash receptacle.

5,214,595

ABNORMALITY DIAGNOSING SYSTEM AND METHOD FOR A HIGH VOLTAGE POWER APPARATUS

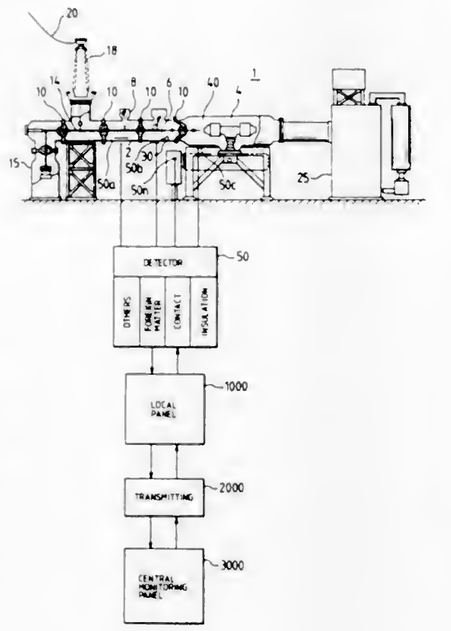
Jun Ozawa; Fumihiro Endo; Youichi Ohshita, all of Hitachi; Izumi Yamada, Ibaraki; Tokio Yamagiwa, Hitachi; Hiroshi Yamada, Hitachi; Mitsuo Sawairi, Hitachi, and Hashime Nagai, Kitaibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 352,490, May 16, 1989, Pat. No. 5,107,447. This application Nov. 7, 1991, Ser. No. 796,057

Claims priority, application Japan, May 16, 1988, 63-116828

Int. Cl.[5] G01R *31/08*

U.S. Cl. 364—551.01 **5 Claims**



1. An abnormality diagnosing system for a high-voltage power apparatus comprising:

means for detecting an oscillation signal from the high-voltage power apparatus of a frequency range of 200 Hz to 1500 MHz, said oscillation signal detecting means including at least two types of sensors selected from an acceleration sensor, acoustic emission sensor and radio frequency antenna sensor;

means for analyzing the frequency components of the detected oscillation signal from said oscillation signal detecting means and generating a frequency spectrum indicative of spectral intensity to frequency;

means for determining at least one type of an insulation abnormality, power supply abnormality and foreign matter among abnormalities existing inside of the high-voltage power apparatus on the basis of the frequency spectrum from said frequency analyzing means and for outputting at least one type of abnormality signal in accordance therewith.

5,214,596

SYSTEM FOR DETERMINING THE AIRSPEED OF HELICOPTERS

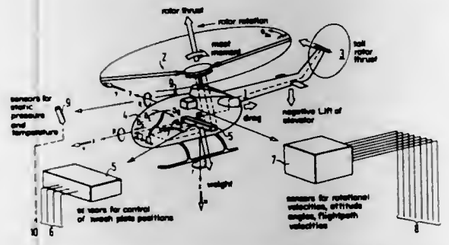
H. Burkhard Müller, Frankfurt am Main, Fed. Rep. of Germany, assignor to Duetsche Forchungs- und Versuchsanstalt fur Luft- und Raumfahrt e.V., Fed. Rep. of Germany

Continuation of Ser. No. 696,300, Apr. 29, 1991, abandoned, which is a continuation of Ser. No. 523,171, May 14, 1990, abandoned, which is a continuation of Ser. No. 406,856, Sep. 13, 1989, abandoned, which is a continuation of Ser. No. 286,370, Dec. 19, 1988, abandoned, which is a continuation of Ser. No. 62,770, Jun. 15, 1987, abandoned. This application Feb. 20, 1992, Ser. No. 840,611

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1986, 3620177

Int. Cl.[5] G06F *15/50*

U.S. Cl. 364—565 **8 Claims**



1. A system for determining longitudinal, lateral and vertical airspeeds of a helicopter including a controllable main rotor and control means for cyclic and collective blade adjustment of said main rotor comprising:

means for sensing cyclic and collective control positions;

means for sensing attitude angles for pitch and roll attitudes;

means for sensing rotational velocities about x, y and z axes of said helicopter;

means for determining estimated longitudinal, lateral and vertical velocities of said helicopters;

means for determining estimated longitudinal, lateral and vertical velocities of said helicopters;

a first model representing an input behaviour of the helicopter in motion, said first model having said cyclic and collective control positions as input parameters, said first model including a first memory in which at least two sets of derivatives of input behaviour of said helicopter for different flight conditions are stored, said first memory having a switched parallel circuit structure, said first model switching between said sets of derivatives, applying said input parameters in parallel to said sets of derivatives and outputting a first set of output parameters, said first model further including means for interpolating said first set of output parameters;

a second model representing a system behaviour of the helicopter, said second model having the estimated values of said rotational velocities and said estimated longitudinal, lateral and vertical velocities as input parameters, said second model including a second memory in which at least two sets of derivatives of the system behaviour of the helicopter for different flight conditions are stored, said second memory having a switched parallel circuit structure, said second model switching between said sets of derivatives, applying said input parameters in parallel to said sets of derivatives and outputting a second set of output parameters, said second model further including means for interpolating said second set of output parameters;

an addition stage for obtaining the algebraic sums of the output parameters of said first and second models;

means for obtaining integrals of said algebraic sums, said integrals representing estimated values of the output parameters of said second model including said longitudinal, lateral and vertical velocities;

means for obtaining a difference between said estimated parameters and said measured parameters of said attitude angles for pitch and roll and of said rotational velocities;

means provided with said differences for determining correcting parameters in dependence on said differences and adding said correcting parameters at said addition stage; and

indication means for indicating values of said longitudinal, lateral and vertical velocities of said helicopter, said values being true values when said difference is zero.

5,214,597

CROSS COIL TYPE INDICATOR

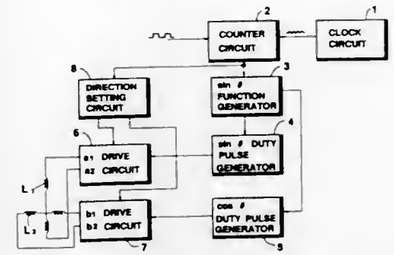
Tadao Ito; Sbouzo Ashizawa, and Shigeru Obishi, all of Shizuoka, Japan, assignors to Yazaki Corporation, Japan

Continuation of Ser. No. 389,880, Aug. 4, 1989, Pat. No. 5,119,320. This application Nov. 4, 1991, Ser. No. 787,137

Claims priority, application Japan, Nov. 9, 1988, 63-145358; Feb. 6, 1989, 1-12185

Int. Cl.[5] G06F *15/20*

U.S. Cl. 364—571.01 **7 Claims**



1. A cross coil type indicator, comprising:

a pair of cross coils which are arranged so as to be mutually perpendicular;

a magnetic rotor having a pointer at its center and rotatably provided within the coils, the magnetic rotor being adapted to be rotated by a resultant magnetic field which is generated by flowing pulse currents corresponding to a detected variable into the respective coils, thereby indicating the detected variable with an angular rotation of the magnetic rotor;

means responsive to the detected variable for generating sin θ and cos θ data corresponding to an actual rotational angle θ of the magnetic rotor, wherein only the sin θ data within the range of $\phi \leqq \theta \leqq 90°$ is stored in the sin θ and cos θ data generating means;

means for generating pulse currents each having a duty ratio in response to the sin θ and cos θ data output from the sin θ and cos θ data generating means, respectively, in which the data corresponding to a cos θ value is obtained from the data corresponding to the data of sin $\theta + 90°$, and sin θ and cos θ data values within the ranges of $90° \leqq \theta 180°$, $180° \leqq \theta \leqq 270°$, and $270° \leqq \theta \leqq 360°$ are obtained from the sin θ and cos θ data of $\phi° \leqq \theta \leqq 90°$, respectively;

output circuit means for driving the cross coils by flowing each of the pulse currents from the pulse current generating means to each coil; and

direction setting means for changing through the output circuit means the directions of the pulse currents form the pulse current generating means which flow in the coils in accordance with each of the ranges of $\phi° \leqq \theta \leqq 0°$, $90° \leqq \theta \leqq 180°$, $180° \leqq \theta \leqq 270°$, and $270° \leqq \theta \leqq 360°$.

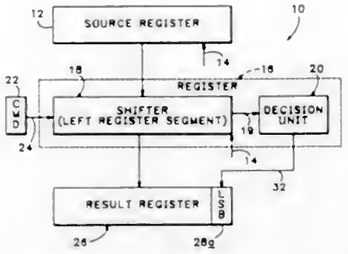
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5,214,598

UNBIASED BIT DISPOSAL APPARATUS AND METHOD

Daniel W. Hammerstrom, Aloha, Oreg., assignor to Adaptive Solutions, Inc., Beaverton, Oreg.

Filed Jun. 11, 1991, Ser. No. 713,721
Claims priority, application PCT Int'l Appl., Nov. 9, 1990, PCT/US90/06594
Int. Cl.[5] G06F 7/38
U.S. Cl. 364—745 5 Claims



1. An unbiased bit jamming structure for use in a computer architecture for truncating, bias free, a binary number, comprising:

a source register (**12**) containing a binary number to be operated upon;

a second register (**16**) for retaining a predetermined number of bits to be retained;

means for setting (**54**) a truncation point (**14**) in said second register (**16**), thereby defining a left register segment (**18**), containing a number of bits of said binary number to be retained, and a right register segment (**28**), containing the remaining number of bits of said binary number to be truncated;

a result register (**26**) for receiving the bits to be retained from said second register (**16**), wherein said result register (**26**) includes a least significant bit (LSB) position (**26***a*);

decision means (**30**), connected to said right register segment (**28**) for reading the bits in said right register segment (**28**) and for generating a "1" signal (**60**) iff any of the bits in said right register segment (**28**) is a "1", and for loading a "1" into said LSB position (**26***a*) regardless of the value originally contained in said LSB position.

5,214,599

ADVANCED DIMENSIONAL PROCESSING WITH DIVISION

David M. Magerman, 7125 Mimosa Way, Tamarac, Fla. 33321

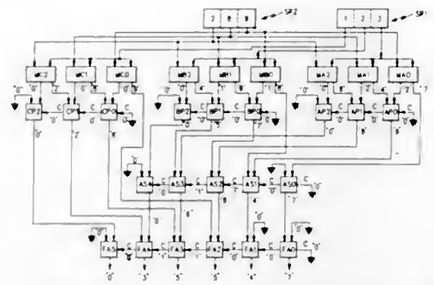
Continuation-in-part of Ser. No. 943,424, Dec. 19, 1986, Pat. No. 4,841,473, and Ser. No. 328,929, Mar. 27, 1989, abandoned. This application Jun. 19, 1989, Ser. No. 368,487
Int. Cl.[5] G06F 7/38
U.S. Cl. 364—761 20 Claims

1. A computer-type process of performing a mathematical computation or comparison in base ten utilizing a non-iterative operation, comprising the steps of:

(a) introducing data and information to a first level of a plurality of levels of comparators each of which are programmed to provide digit combination pairs of mathematical operations in base ten representing all digit combinations from zero to nine, such as 0+1, 0+2, . . . 8+9, and 9+9, said data and information being in a problem format;

(b) comparing at each succeeding level of comparators, outputs from an adjacent preceding level of comparators; and

(c) obtaining a mathematical computation or comparative decision from a final level of comparators, said computation or comparative decision being obtained at a substantially equal time as that of the introduction of data and information to the first level of comparators inclusive of any propagational delays experienced within said plurality of levels of comparators as said computation or comparative decision works its way through the plurality of levels to provide a final result.

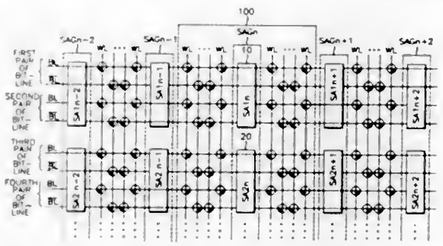


5,214,600

SEMICONDUCTOR MEMORY ARRAY HAVING INTERDIGITATED BIT-LINE STRUCTURE

Soo-In Cho; Dong-Il Shu, both of Seoul, and Hong-Sun Hwang, Taegu, all of Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Continuation of Ser. No. 501,793, Mar. 30, 1990, abandoned. This application Feb. 24, 1992, Ser. No. 836,159
Claims priority, application Rep. of Korea, Dec. 30, 1989, 20604/1989
Int. Cl.[5] G11C 5/06, 7/00, 11/407
U.S. Cl. 365—51 13 Claims



10. A semiconductor memory array comprising:

a plurality of sense amplifiers arranged in a first column;

a plurality of sense amplifiers arranged in a second column adjacent to said first column and being separated from said first column by a predetermined number of first word lines;

a plurality of sense amplifiers arranged in a third column adjacent to said second column and being separated from said second column by a predetermined number of second word lines;

a first bit line connected to a first sense amplifier in said second column;

a second bit line connected to said first sense amplifier in said second column;

a third bit line connected to a first sense amplifier in said first column and a first sense amplifier in said third column; and

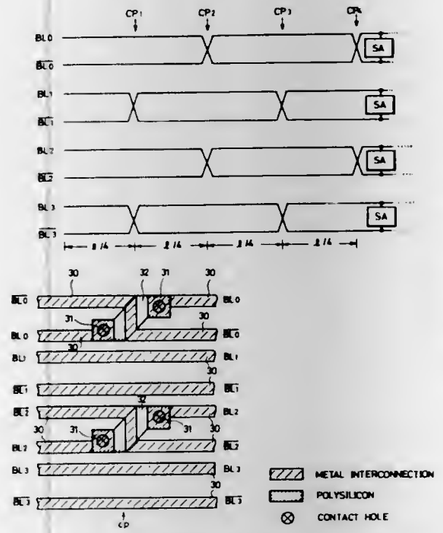
a fourth bit line connected to said first sense amplifier in said first column and said first sense amplifier in said third column.

5,214,601

BIT LINE STRUCTURE FOR SEMICONDUCTOR MEMORY DEVICE INCLUDING CROSS-POINTS AND MULTIPLE INTERCONNECT LAYERS

Hideto Hidaka; Kazuyasu Fujishima, and Yoshio Matsuda, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 430,915, Oct. 31, 1989, abandoned, which is a continuation of Ser. No. 131,633, Dec. 11, 1987, abandoned. This application Apr. 28, 1992, Ser. No. 876,690
Claims priority, application Japan, Dec. 11, 1986, 61-296365; Mar. 24, 1987, 62-69828; Mar. 27, 1987, 62-75692
Int. Cl.[5] G11C 5/06, 11/407
U.S. Cl. 365—63 7 Claims



1. A semiconductor memory device comprising a plurality of memory cells arrayed in the form of a matrix of rows and columns, a plurality of bit lines each connected with a column of said plurality of memory cells, said plurality of bit lines arrayed in bit line pairs and a plurality of sense amplifiers, each of said sense amplifiers connected to a respective pair of bit lines for detecting and amplifying a potential difference between the bit lines of the respective pair of bit lines,

said matrix having a plurality of dividing points, dividing said matrix into portions of substantially equal length along the direction of the length of said bit lines,

said bit line pairs formed with cross-points at said dividing points in which bit line locations are interchanged such that the capacitance between a first bit line of each bit line pair and both bit lines of a respective adjacent bit line pair are substantially equal, adjacent bit line pairs each having a number of cross-points which is exactly divisible by two, the capacitance between each bit line of any bit line pair and ground being substantially equal,

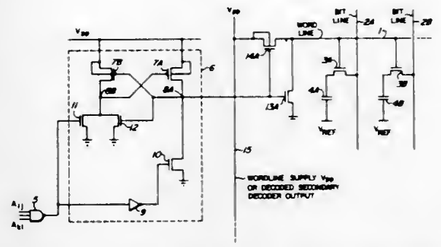
said bit lines of said bit line pairs having cross-points including parallel portions and intersecting portions, said parallel portions formed in a first layer, said intersecting portions located at said cross points, at least one of the intersecting bit line portions at each cross point comprising an interconnect layer different from said first layer, each of the bit lines of any bit line pair having the same number of interconnect layers.

5,214,602

DYNAMIC MEMORY WORD LINE DRIVER SCHEME

Valerie L. Lines, Ottawa, Canada, assignor to Mosaid Inc., Ontario, Canada

Filed Apr. 5, 1991, Ser. No. 680,746
Claims priority, application United Kingdom, Apr. 6, 1990, 9007790; Apr. 5, 1991, 9107165
Int. Cl.[5] G11C 7/00
U.S. Cl. 365—189.11 5 Claims



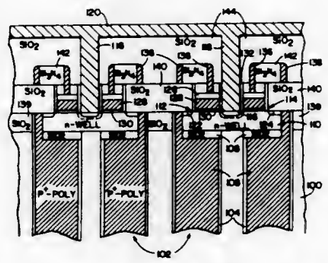
1. A dynamic random access memory (DRAM) comprising bit lines and word lines, memory cells connected to the bit lines and word lines, each memory cell being comprised of an access field effect transistor (FET) having its source-drain circuit connected between a bit line and a high logic level voltage V_{dd} bit charge storage capacitor, the field effect transistor having a gate connected to a corresponding word line; a high V_{pp} supply voltage source which is in excess of high logic level voltage V_{dd} plus one transistor threshold voltage but less than a transistor damaging voltage; means for selecting the word line and means having an input driven by the selecting means for applying the V_{pp} supply voltage level directly to the word line through the source-drain circuit of an FET.

5,214,603

FOLDED BITLINE, ULTRA-HIGH DENSITY DYNAMIC RANDOM ACCESS MEMORY HAVING ACCESS TRANSISTORS STACKED ABOVE TRENCH STORAGE CAPACITORS

Sang H. Dhong, Mahopac; Wei Hwang, Armonk; Lewis M. Terman, South Salem, and Matthew R. Wordeman, Mahopac, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 5, 1991, Ser. No. 740,758
Int. Cl.[5] G11C 13/00, 11/40
U.S. Cl. 365—207 13 Claims



1. A folded bitline DRAM cell comprising: A substrate having a plurality of embedded trench capacitors and exhibiting a major planar surface:

an access transistor stacked over at least one said capacitor and having at least first and second terminals configured parallel to said major planar surface, a first said terminal connected to said trench capacitor;

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a gate for said transistor positioned between said first and second terminals and oriented parallel to said major planar surface;

a first wordline having a minor surface in contact with said gate and a major surface orthogonally oriented with respect to said gate;

an insulating pedestal adjacent said gate; and

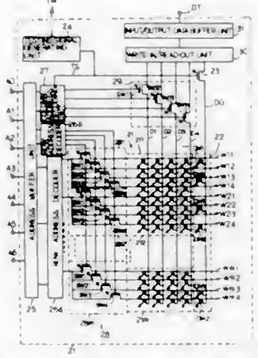
a passing wordline disposed on said pedestal, said passing wordline having a major surface parallel to the major surface of said first wordline.

5,214,604

ELECTRICALLY PROGRAMMABLE READ ONLY MEMORY DEVICE WITH DUMMY MEMORY CELLS USED IN DIAGNOSTIC OPERATION ON DECODER UNITS

Yasushi Kato, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Aug. 22, 1991, Ser. No. 748,508
Claims priority, application Japan, Aug. 28, 1990, 2-227281
Int. Cl.[5] G11C *13/00*
U.S. Cl. 365—210 10 Claims



9. An electrically programmable read only memory device fabricated on a single semiconductor chip and having at least a testing mode and a usual mode of operation, comprising:

a) a plurality of regular non-volatile memory cells storing data bits in a rewriteable manner, respectively, and arranged in rows and columns, said plurality of regular non-volatile memory cells being divided into a plurality of memory cell groups;

b) a plurality of word lines respectively coupled to said rows of said plurality of regular non-volatile memory cells and selectively shifted to an active level, said plurality of word lines being divided into a plurality of word line groups respectively associated with said plurality of memory cell groups;

c) an output data means for producing an output data signal;

d) a plurality of digit lines coupled to said columns of said plurality of regular non-volatile memory cells, respectively, each of said plurality of digit lines propagating a data bit read-out from one of said plurality of regular non-volatile memory cells coupled to one of said word lines shifted to said active level toward said output data means;

e) a row selecting means coupled to said plurality of word lines and shifting one of said word lines to said active level in both testing and usual modes of operation under an excellent condition;

f) a plurality of columns of dummy memory cells selectively coupled to said plurality of word lines and storing testing data bits, each column of dummy memory cells being divided into a plurality of dummy memory cell groups respectively associated with said word line groups, the combination of said word lines coupled to said dummy memory cells of a plurality of dummy memory cell groups associated with one of said word line groups being different from the combination of said word lines coupled to said dummy memory cells of another plurality of dummy memory cell groups associated with another word line group;

g) a plurality of dummy digit lines coupled to said plurality of columns of said dummy memory cells for propagating said testing data bits toward said output data means;

h) a column selecting means for coupling one of said digit lines to said output data means in said usual mode of operation; and

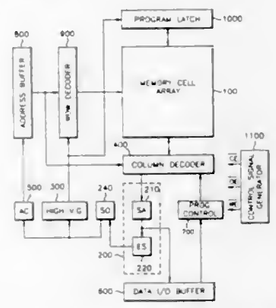
i) a transferring means for coupling said plurality of dummy digit lines to said output data means in said testing mode of operation.

5,214,605

AUTOMATIC ERASING OPTIMIZATION CIRCUIT FOR AN ELECTRICALLY ERASABLE AND PROGRAMMABLE SEMICONDUCTOR MEMORY AND METHOD THEREOF

Hyeong-Gyu Lim, and Wung-Moo Lee, both of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 31, 1990, Ser. No. 636,215
Claims priority, application Rep. of Korea, Aug. 20, 1990, 1990-12816[U]
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—218 35 Claims



1. An automatic erasing optimization circuit for use in an electrically erasable and programmable semiconductor memory having a memory cell array containing a plurality of word lines, a plurality of bit lines and a plurality of memory cells connected to said word and bit lines, a row decoder connected to said bit lines, a column decoder connected to said word lines, an address buffer for supplying said row and column decoders with external address signals, a data input/output buffer, and a program latch means for supplying the bit lines of said memory cell array with a program voltage of high level, comprising:

erasing sense means connected between said column decoder and said data input/output buffer for sensing the output state of said column decoder in response to a write enable signal and erasing signal to generate sense signals of opposite logic states;

sequential output means having a first, second and third registers connected in series and receiving the output signals of said erasing sense means to respectively generate a first, second and third high voltage level control signals;

high voltage generating means for generating a high voltage equal to or greater than a given level to both said row decoder and said program latch means in response to pump clock pulses and said first, second and third high voltage level control signals; and

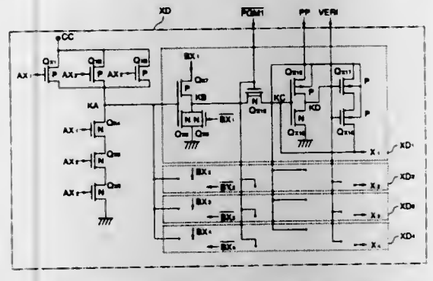
address counting means for supplying said address buffer with address counting clock pulses in response to the output signal of said erasing sense means.

5,214,606

NON-VOLATILE SEMICONDUCTOR MEMORY AND METHOD FOR DRIVING THE SAME

Kiyokazu Hashimoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 17, 1991, Ser. No. 731,335
Claims priority, application Japan, Jul. 17, 1990, 2-189218
Int. Cl.[5] G11C *7/00, 11/00*
U.S. Cl. 365—218 3 Claims



1. A non-volatile semiconductor memory comprising a memory cell matrix composed of a plurality of memory array including a number of memory cells having a floating gate, the memory cell matrix also including a plurality of word lines and a plurality of digit lines, an X decoder receiving a portion of an address for selecting one of the word lines, and a Y decoder receiving another portion of the address for selecting one of the digit lines, the X decoder including a first circuit for charging an output of the first circuit to a voltage when the first circuit is selected by the address, a first MOS transistor of the depletion type connected between the output node of the first circuit and a corresponding word line and having a gate connected to receive a control voltage, a second circuit for generating a high voltage at an output node of the second circuit at the time of a write mode, and a second MOS transistor of the enhancement type connected between the output node of the second circuit and the corresponding word line and having a gate connected to receive an erase verify signal.

5,214,607

LOOK-AHEAD FIFO BYTE COUNT APPARATUS

Steven P. Duzan, Cayce, S.C., assignor to NCR Corporation, Dayton, Ohio

Filed Nov. 26, 1990, Ser. No. 617,730
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—221 14 Claims

3. A FIFO data storage monitor apparatus for use with a FIFO having a plurality of READ control lines and a plurality of WRITE control lines, comprising:

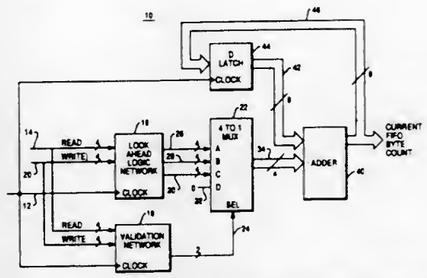
clock pulse means for defining a FIFO clock period;

look-ahead means connected to the plurality of READ control lines and the plurality of WRITE control lines for providing a number of WRITE control lines that were active during the FIFO clock cycle, a number of READ control lines that were active during the FIFO clock period, and a net number of bytes that is equal to the number of WRITE control lines that were active diminished by the number of READ control lines that were active during the FIFO clock period as three binary outputs thereof;

means for detecting if one of four operation completed possibilities: a WRITE operation, a READ operation, both WRITE and a READ operations, or neither WRITE nor READ operation, was completed during the FIFO clock period, the detecting means having one input connected to the WRITE control lines, another input connected to the READ control lines, a timing input connected to the clock pulse means, and a two bit binary output, the two bit binary output providing four possible binary outputs, each corresponding to one of the four operation completed possibilities;

selector means having three binary data inputs, each connected to a different one of the three binary outputs of the look-ahead means, a fourth binary input which is connected to logic LO, and a two-bit binary selection input connected to the output of the detecting means for selecting one of the three outputs from the look-ahead means or the logic LO input according to the output of the detecting means as an output thereof;

an adder having one input connected to the output of the selector means, a second input, and a binary output; and



memory means, having a data input connected to the binary output of the adder, a control input connected to the clock pulse means, and a memory output connected to the second input of the adder, for storing the binary output of the adder from a previous FIFO clock period and outputting this stored binary output as one of the binary inputs to the adder;

whereby the look-ahead means by monitoring the WRITE control lines and the READ control lines of the FIFO looks ahead to a set of all possible changes in the FIFO storage capacity that could occur if any WRITE operation and any READ operation were completed in the current FIFO clock period, the detecting means detects if any WRITE operation and any READ operation were completed during the immediately previous FIFO clock period in order to control the selection of the change that corresponds to the operation completed state of the FIFO for the clock period from the set of all possible operation completed possibilities, and the adder adds the previous storage count to the change in the count to provide a current count of bytes stored in the FIFO.

5,214,608

DUAL SENSE AMPLIFIER STRUCTURE FOR VIDEO RAMDACS

Wei-Chan Hsu, Cupertino, and Wei-Kuang J. Chiu, San Jose, both of Calif., assignors to Windbond Electronics, N.A. Corporation, Santa Clara, Calif.

Filed May 1, 1991, Ser. No. 691,711
Int. Cl.[5] G11C *13/00*
U.S. Cl. 365—230.02 6 Claims

1. A structure for a RAMDAC, comprising:

a plurality of random access memory cells organized in memory words accessed by memory addresses;

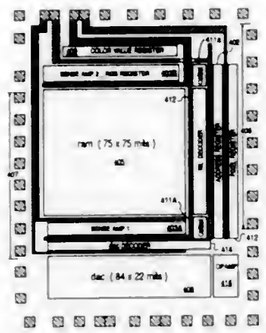
a first register for receiving a first address;

a second register for receiving a second address;

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multiplexing means for selecting one of said first and second addresses;

first and second sense amplifier means for sensing the memory word specified by said selected address and for pro-



viding an output word in accordance with the content of said memory word sensed; and

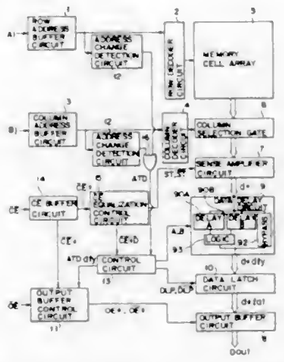
means for digital-to-analog conversion to transform said output word of said first sense amplifier means into analog signals when said first sense amplifier means is enabled.

5,214,609

SEMICONDUCTOR INTEGRATED CIRCUIT

Hideo Kato, and Hiroto Nakai, both of Kawasaki; Hiroshi Iwahashi, and Nobuaki Hiraga, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 29, 1991, Ser. No. 751,768
Claims priority, application Japan, Aug. 30, 1990, 2-228664
Int. Cl.[5] G11C *13/00*
U.S. Cl. 365—230.01 3 Claims



1. A semiconductor integrated circuit comprising:

address change detection circuit for detecting change of an address input and generating a pulse signal;

memory cells for storing data;

a data detection circuit controlled by an external input signal for controlling the operation of the semiconductor integrated circuit, for detecting data stored in the memory cell;

at least two delay circuits having different delay time characteristics, connected to the output terminal of said data detection circuit, and controlled according to the pulse signal of said address change detection circuit;

a logic circuit connected to the output terminals of said respective delay circuits and controlled according to the pulse signal from said address change detection circuit, for keeping an output level thereof unchanged when the output data items of said delay circuits are not equal to each other and change the output level when the output data items of said delay circuits become equal to each other in a case where said delay circuits are set in the operative state;

a bypass circuit connected between input terminals of said respective delay circuits and the output terminal of said logic circuit, controlled according to the pulse signal of said address change detection circuit and having a delay time characteristic shorter than the delay time characteristics of said respective delay circuits;

a latch circuit connected to the output terminal of said logic circuit, the latching operation thereof being controlled according to the pulse signal of said address change detection circuit;

an output buffer circuit connected to the output terminal of said latch circuit, for outputting data stored in said memory cell; and

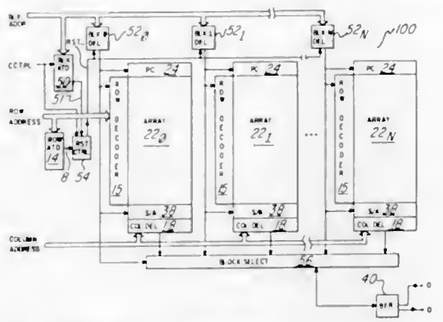
an output buffer control circuit for setting up a state in which output data from said data detection circuit is prevented from being output from said output buffer circuit for a preset period of time according to the pulse signal of said address change detection circuit.

5,214,610

MEMORY WITH SELECTIVE ADDRESS TRANSITION DETECTION FOR CACHE OPERATION

Theodore W. Houston, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 411,087, Sep. 22, 1989, abandoned. This application Aug. 30, 1991, Ser. No. 754,281
Int. Cl.[5] G11C *7/06*
U.S. Cl. 365—233.5 12 Claims



1. A memory device, comprising:

memory cells, arranged in a plurality of rows and a plurality of columns,

address terminals, connected to a row decoder and a column decoder, for receiving a memory address comprised of a row portion and a column portion;

a row decoder for selecting one of said plurality of rows of said memory cells responsive to a row portion of said memory address;

circuitry for generating an enable signal in response to a transition in a selective portion of said address, wherein said selective portion is not the complete address;

a plurality of latches being equal in number to the plurality of columns, each for receiving and retaining the data state of an associated memory cell in the row selected by said row decoder, wherein each latch, in response to said enable signal, receives and retains a data state from each memory cell which corresponds to said selective portion of said address; and

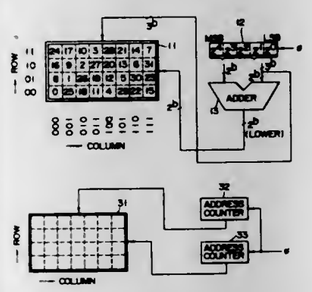
a column decoder for selecting a latch for communication with a data terminal responsive to a column address, wherein at least one selection of said latches occurs in response to a series of transitions in the remaining portion of said address.

5,214,611

MEMORY ACCESS DEVICE FOR ACCESSING MEMORY CELL ARRAY DIAGONALLY

Hiroshi Shigehara, and Toshimasa Kawasi, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 9, 1991, Ser. No. 682,241
Claims priority, application Japan, Apr. 11, 1990, 2-95275
Int. Cl.[5] G11C *8/00*
U.S. Cl. 365—236 12 Claims



1. A memory access device comprising:

a memory cell array for storing data, which has memory cells arranged in row and column directions; and

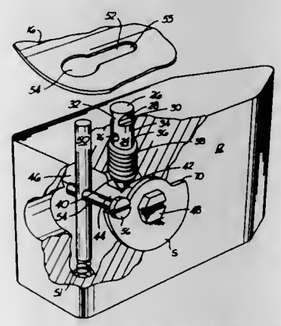
address-creating means connected to the memory cell array for successively creating row and column addresses of the memory cells to be accessed one after another, in response to clock signal pulses, and for sequentially diagonally accessing the memory cell array.

5,214,612

SWING PLATE LATCH MECHANISM

Andrë W. Olivier, New Orleans, and Christian J. Christensen, Harahan, both of La., assignors to The Laitram Corporation, Harahan, La.

Filed Jul. 27, 1992, Ser. No. 920,264
Int. Cl.[5] G01V *1/38*
U.S. Cl. 367—16 17 Claims



1. In a seismic streamer latch mechanism for fastening a towed device to a locking collar on a seismic streamer, the latch mechanism being of the type having a pair of spaced-apart locking projections extensible from a housing on the towed device into a mating receptacle on the locking collar, one of the projections being adjustable by means of a rotatable adjustment head, the other one of the projections being adjustable by means of a lever arm, an improved latch mechanism comprising:

first and second end stops in the housing defining a slide path therebetween for the lever arm;

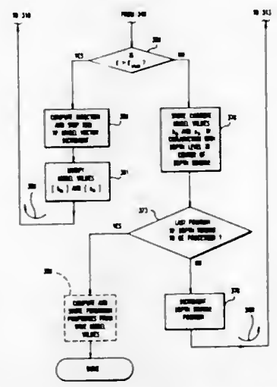
a swing linkage including means for attachment to the rotatable adjustment head such that said swing linkage is rotatable with the adjustment head, said swing linkage further including an engagement surface spaced from the means for attachment by a distance sufficient to engage the lever arm as said swing linkage is rotated through an engagement angle for which the engagement surface intersects the slide path, whereby rotational adjustment of the adjustment head through the engagement angle causes the engagement surface to push the lever arm along the slide path until the lever arm reaches one of said end stops.

5,214,613

METHOD AND APPARATUS FOR DETERMINING PROPERTIES OF ANISOTROPICELASTIC MEDIA

Cengiz Esmersoy, Danbury, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Mar. 12, 1991, Ser. No. 667,835
Int. Cl.[5] G01V *1/40, 1/36*
U.S. Cl. 367—31 39 Claims



1. A method for determining properties of an anisotropic elastic medium, comprising the steps of:

establishing acoustic waves in said medium;

measuring, at several spaced locations in said medium, at least two orthogonal components of acoustic waves which have propagated through said medium;

computing, for positions corresponding to a plurality of adjacent ones of said locations, model composite waves which would result from the superposition of a plurality of model acoustic waves each having selected model parameters, said model acoustic waves including a plurality of slow and fast model acoustic shear waves propagating in opposite directions and said model parameters including model velocities and model polarizations for each of said model acoustic shear waves;

determining an error value which depends on the differences, at each of said plurality of adjacent ones of said locations, between measured wave components and the model composite waves;

modifying said model parameters;

iteratively repeating said computing, determining, and modifying steps to reduce said error; and

storing the ultimately modified model parameters as being indicative of properties of said medium in the region of at

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least one of said plurality of adjacent ones of said locations.

5,214,614

SEISMIC DIRECTIONAL SENSOR FOR SOLID-BORNE SOUND

Heinrich Baule, Bochum, Fed. Rep. of Germany, assignor to Wasagchemie Sythen Gesellschaft mit Beschrankter Haftung, Haltern-Sythen, Fed. Rep. of Germany

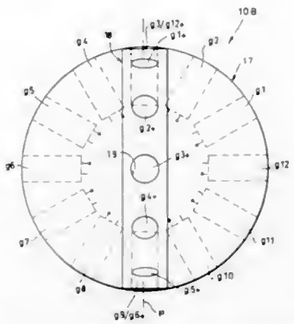
PCT No. PCT/DE90/00785, § 371 Date Jun. 14, 1991, § 102(e) Date Jun. 14, 1991

PCT Filed Oct. 15, 1990, Ser. No. 690,904

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1989, 3934745

Int. Cl.[5] G01V *1/00*

U.S. Cl. 367—58 15 Claims



1. A method of obtaining seismic data comprising the steps of:

(a) mounting at least one geophone on a first support lying in a first plane and formed with an array of angular locations thereon about a center;

(b) mounting at least one another geophone on a second support lying in a second plane perpendicular to said first plane and formed with another array of angular locations about said center;

(c) producing two counter phase output signals of said one geophone at two of a plurality of angular locations on said first support in response to a seismic ray impinging upon said one geophone, defining thereby a direction of said ray with an azimuth angle; and

(d) producing two counter phase output signals of said other geophone at two of a plurality of angular locations on said second support in response to said seismic ray impinging upon said one other geophone, defining thereby the direction of said ray with an emergence angle.

5,214,615

THREE-DIMENSIONAL DISPLACEMENT OF A BODY WITH COMPUTER INTERFACE

Will Bauer, 11514-77 Ave., Edmonton, Alberta, Canada T6G 0M1

Continuation-in-part of Ser. No. 484,985. Feb. 26, 1990, Pat. No. 5,107,746. This application Sep. 24, 1991, Ser. No. 764,624

Int. Cl.[5] G01S *3/80*

U.S. Cl. 367—128 11 Claims

1. A control system for operation in real time of a variably operated system in response to movement of at least one moving object in a three-dimensional region, comprising:

at least three ultrasound emitters located respectively at inertial reference points for triangulation determination of three-dimensional positions of said at least one object;

a pulse generator to provide ultrasound pulses to the ultrasound emitters;

a plurality of spaced apart receiving stations for each object, each receiving station comprising an ultrasound receiver and a pulse detector associated therewith to detect pulses received by the ultrasound receiver, each receiving station being associated with said object to move in a three-dimensional space with the object;

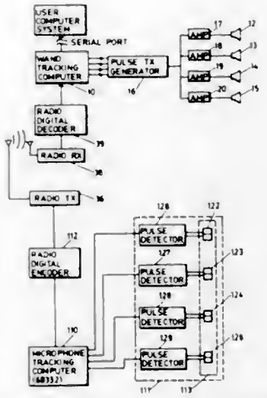
an encoder associated with the receiving stations microprocessor controller to encode pulse arrival times into a form suitable for radio transmission;

a radio transmitter for encoded signals corresponding to the pulse arrival times;

a radio receiver remote from said at least one object and from the radio transmitter to receive encoded signals from the radio transmitter;

a decoder to decode signals from the radio receiver;

a receiver tracking and object tracking microprocessor controller to receive decoded signals from the decoder and, on the one hand, to measure the time of pulse arrival



to control the generation and timing of signals from the pulse generator, and to calculate from the elapsed time between the emission of a signal to the pulse generator and a detected pulse corresponding thereto from a respective receiving station, radial positional data for the respective receiver for each pulse therefrom, and to generate radial position-indicating signals therefrom;

and, on the other hand, for computing a three-dimensional position of at least one object in terms of the radial positional data for said at least one object, velocity and acceleration of the object and generating commands for the pulse generator for the ultrasound emitters, and interfacing with a computer for generating commands in response to the computed three-dimensional positions of the object and from the radial positional data for each ultrasound receiving station of said at least one object to control variations of said variably operated system.

5,214,616

NUCLEAR REACTOR VESSEL INSPECTION SYSTEM AND METHOD WITH REMOTE TRANSDUCER POSITIONING

James H. Terhune, and Edward R. Dykes, both of San Jose, Calif., assignors to General Electric Company, San Jose, Calif.

Filed Aug. 15, 1991, Ser. No. 745,295

Int. Cl.[5] G01S *15/00*

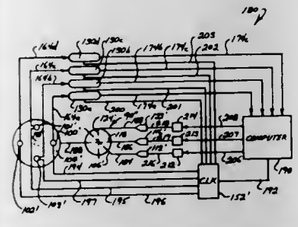
U.S. Cl. 367—99 20 Claims

2. A positioning system for an inspection head carrying an inspection transducer and having a head axis and movable with a manipulator maneuverable under control within a fluid couplant to an inspection position adjacent a local surface of a body being inspected, comprising:

an actuator assembly selectively actuable for moving said head upon said manipulator to selectively align said head axis with respect to said local surface;

first and second ranging ultrasonic transducers mounted upon said inspection head, having orientations predetermined with respect to said head axis, energizable in response to a ranging input signal to generate an acoustic output impingeable upon said local surface and responsive to an acoustic return at the termination of a propagation interval to derive a return signal; and

control means for actuating said actuator assembly in correspondence with orientation error signals to effect an optimal alignment of said head axis with respect to said local surface including a system clock having a clock output



pulse sequence of predetermined clock frequency, a signal generating network including: a trigger pulse generator network deriving said ranging input signal for application to said ranging ultrasonic transducers, a detector network responsive to said return signal to provide a propagation interval termination output, counter means responsive to said ranging input signal and said clock output pulse sequence to commence the counting thereof, and responsive to said propagation interval termination output to terminate said counting of said clock output pulse sequence to derive a numeric range value representing said propagation interval, said control means responsive to said numeric range value and a predetermined optimal orientation value to derive said orientation error signals.

5,214,617

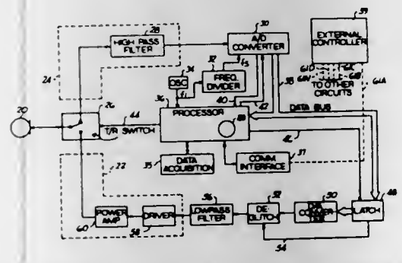
HYDROACOUSTIC RANGING SYSTEM

Robert E. Rouquette, Kenner, La., assignor to The Laitram Corporation, New Orleans, La.

Continuation of Ser. No. 717,916, Jun. 14, 1991, Pat. No. 5,142,507, which is a continuation of Ser. No. 482,657, Feb. 21, 1990, Pat. No. 5,031,159. This application Apr. 13, 1992, Ser. No. 872,721

Int. Cl.[5] G01S *15/00*

U.S. Cl. 367—124 22 Claims



1. A method for determining acoustic ranges between individual hydroacoustic transceiver locations on a plurality of underwater objects, comprising the steps of:

a) affixing a plurality of individual hydroacoustic transceivers to different locations on underwater objects, said hydroacoustic transceivers having timing clocks and storage means and being operable to transmit and receive acoustic pulses having a predetermined range of characteristics through the water;

b) establishing pulse characteristics including pulse shapes, transmission times, carrier frequencies, and reception windows open during predetermined time periods for reception of said pulses on individual carrier frequencies in the transceivers;

c) composing a schedule of pulse transmission times and pulse reception windows for the plurality of transceivers;

d) synchronizing the timing clocks in the transceivers periodically at predetermined times;

e) transmitting after each periodic synchronization pulses of said predetermined range of shapes and associated carrier frequencies according to the schedule of pulse transmission times to corresponding pulse reception windows to enable detection of the scheduled pulses having the predetermined range of shapes and carrier frequencies arriving during the opening of the pulse reception windows; and

f) determining reception times of detected pulses of predetermined characteristics according to the clocks in the receiving transceivers.

5,214,618

METHOD AND ARRANGEMENT FOR COMBATING A SUBMERGED TARGET OBJECT

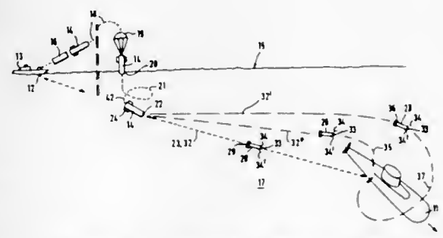
Georg Bugiel, Bonn, Fed. Rep. of Germany, assignor to Diehl GmbH & Co., Nurnberg, Fed. Rep. of Germany

Filed Jul. 1, 1992, Ser. No. 907,152

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1991, 4122892

Int. Cl.[5] H04B *11/00*

U.S. Cl. 367—131 13 Claims



1. A method for combating a submerged target object through the intermediary of an airborne-deployable active body comprising a glider, which assumes a sonar contact with the target object from a search trajectory helically descending below water level, said active body gliding unpropelled along the search trajectory and upon contact with the target object by a searching sonar, launches an effector equipped with a drive into a linear attacking trajectory tangentially to said searching trajectory, and said effector triggering a warhead upon striking against the target object.

5,214,619

SUPERSONIC SOUND EMISSION DEVICE

Hajime Yoshida, Tokyo, Japan, assignor to Hajime Industries Ltd., Tokyo, Japan

Filed Jul. 31, 1991, Ser. No. 738,344

Int. Cl.[5] H04B *1/02*

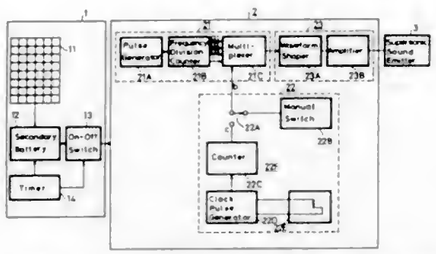
U.S. Cl. 367—139 10 Claims

1. A supersonic sound emitting device which consists of a power source, a supersonic wave signal generator supplied with power from said power source and generating a supersonic wave signal and a supersonic sound emitter supplied with the supersonic wave signal from said supersonic wave signal

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generator for emitting a supersonic sound, said super sound emitting device being characterized in that

said power source includes a solar battery, a secondary battery charged by said solar battery, and an on-off switching means connected between said secondary bat-



tery and said supersonic wave signal generator, a timer for controlling an on-off time span of said on-off switching means so as to make said secondary battery on and off and frequency control means for controlling the frequency of the supersonic wave signal generated from said supersonic wave signal generator.

5,214,620

ELECTRICALLY DRIVEABLE SHOCKWAVE SOURCE

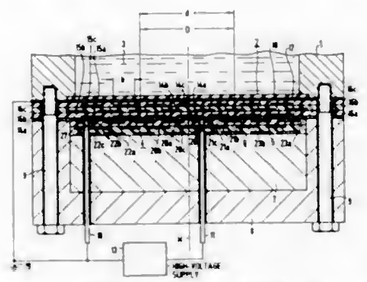
Manfred Rattner, Grossenseebach, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 18, 1991, Ser. No. 761,396

Claims priority, application European Pat. Off., Sep. 27, 1990, 90118602.3

Int. Cl.[5] A61B *17/22*

U.S. Cl. 367—142 24 Claims



1. An electrodynamic acoustic shockwave source comprising:

a housing containing an acoustic propagation medium:

a membrane containing electrically conductive material disposed in said housing adjacent said acoustic propagation medium;

coil means disposed in said housing for causing said membrane to be rapidly repelled from said coil means to generate an acoustic shockwave in said propagation medium when said coil means is charged with a current pulse; and

at least one of said membrane or said coil means containing a plurality of electrically conductive elements which are insulated from each other and which are disposed in a plurality of layers with more than one electrically conductive element per layer, the electrically conductive elements in each layer being arranged with spaces therebetween, and the electrically conductive elements of a layer at least partially overlapping the spaces in an adjacent layer.

5,214,621

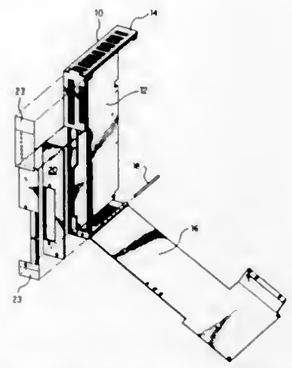
UNIVERSAL CIRCUIT BOARD HOUSING WITH A HINGED MEMBER

John Maggelet, Sussex, and Robert J. Rammel, Muskego, both of Wis., assignors to Square D Company, Palatine, Ill.

Continuation of Ser. No. 630,693, Dec. 20, 1990, abandoned. This application Mar. 11, 1992, Ser. No. 850,233

Int. Cl.[5] H05K *7/20*

U.S. Cl. 361—383 6 Claims



1. A module housing for use in a programmable controller system, said housing enclosing a circuit board containing a plurality of combinations of outwardly extending components having predetermined shapes and functioning as input or output devices thereon, the housing comprising:

(a) a left side wall having a base, a front wall, and a top wall, said front wall having openings for receiving said components;

(b) a removable right side wall hingedly connected to said base of said left side wall, said right side wall having spaced slots and said left side wall having projections received into said slots so that said right side wall swings into a predetermined alignment over said left side wall;

(c) fastener means for releasably retaining said right side wall on said left side wall;

(d) locator means connected to said left side wall for alignably positioning the circuit board within said housing;

(e) an adapter plate fixedly disposed on said front wall, said adapter plate having a plurality of predetermined configurations, each of said configurations accessing one of said plurality of combinations of outwardly extending components contained on said circuit board.

5,214,622

INFORMATION DISPLAY APPARATUS

Yasuhiro Nemoto; Kazuo Sakai, both of Ibaraki; Masataka Kawauchi, Ishioka; Hideki Tanaka, Tsuchiura; Kihachiro Tanaka, Ushiku; Hiroshi Ohki, Tsuchiura; Ichiro Nakamura, Katsuta, and Hideo Enoki, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 26, 1991, Ser. No. 691,853

Claims priority, application Japan, Apr. 27, 1990, 2-112552

Int. Cl.[5] G04B *47/00, 19/24;* H04Q *1/00*

U.S. Cl. 368—10 13 Claims

1. An information display apparatus comprising:

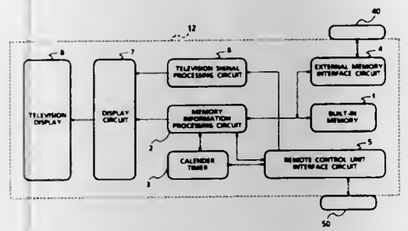
a first memory, coupled to said display apparatus, for storing arbitrary information, to which at least a desired display period is added;

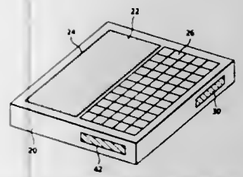
a first calendar timer, coupled to said display apparatus, for generating a time signal such as data;

a remote control unit for permitting input of said arbitrary information and transferring said arbitrary information to said first memory, said remote control unit having an alphanumeric keypad and handwritten character recognizing means for recognizing input of handwritten characters;

a second memory, coupled to said remote control unit, for storing said arbitrary information input by said remote control unit;

a second calendar timer, coupled to said remote control unit, for generating a time signal such as data;





means for synthesizing said arbitrary information stored in said first memory as a television image, and displaying the synthesized television image on a television display at a predetermined time derived on the basis of the time signal generated by said first calendar timer and said desired display period; and

means for changing at least one of said arbitrary information contents such as, color, size, typeface on said television display in a predetermined manner, in accordance with said first calendar timer.

5,214,623

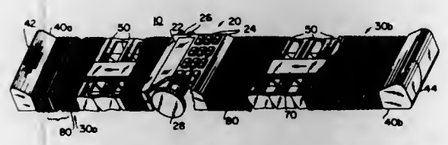
WRISTWATCH RADIOTELEPHONE

Richard H. Seager, Mystic, Conn., assignor to Timex Corporation, Middlebury, Conn.

Filed Oct. 16, 1992, Ser. No. 962,354

Int. Cl.[5] G04B *47/00;* A44C *5/00*

U.S. Cl. 368—10 13 Claims



1. Apparatus which is convertible between a curved shape suitable for wearing around the wrist as a wristwatch and an elongated form suitable for use as a hand-held radiotelephone with a microphone and a speaker adjacent respective opposite ends of said elongated form comprising:

a plurality of substantially rigid link members disposed side by side in a series, adjacent link members in said series being pivotally connected to one another, the pivotal axis of each pivotal connection being substantially parallel to the longitudinal axis of a user's wrist when the apparatus is worn on the wrist; and

means for pivoting the link members connected by each pivotal connection between relative positions in which said link members collectively form said curved shape and relative positions in which said link members collectively form said elongated form.

5,214,624

DISPLAY DEVICE HAVING A SCALE

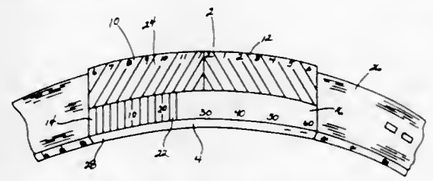
Christoph R. Siebrasse, Denglerstrasse 12, 5300 Bonn 2 - Bad Godesberg, Fed. Rep. of Germany

Filed Oct. 30, 1991, Ser. No. 784,970

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1990, 69015030

Int. Cl.[5] G04C *19/00, 17/00*

U.S. Cl. 368—82 9 Claims



1. A time display device comprising:

an elongated case having opposed spaced apart first and second ends and parallel side extending between the ends;

an hour scale disposed on the case parallel to the sides and having hour indicia corresponding to each of twelve consecutive hours;

a minute scale disposed on the case parallel to the sides and having minute indicia corresponding to selected intervals of minutes in an hour;

an hour time display having first through twelfth electro-optical emitters consecutively disposed between the respective first and second ends of the case in a linear array, each said emitter being operative to selectively display either of first and second hour colors;

a minute time display having a plurality of electro-optical emitters disposed between the respective first and second ends of the case in a linear array substantially adjacent and parallel to the hour time display, each said emitter of the minute time display being operative to selectively display either of first and second minute colors; and

electrical control means disposed in the case and connected to the electro-optical emitters for generating timed signals for selectively changing the colors of the emitters so as to define an hour boundary between emitters of the first and second hour colors and a minute boundary between emitters of the first and second minute colors, the signals being operative to move the minute boundary from the first end of the case toward the second end of the case at selected minute intervals for sequentially aligning the minute boundary with the respective minute indicia, the signals further being operative to move the hour boundary from the first end of the case toward the second end at hourly intervals for sequentially aligning the hour boundary with the respective hour indicia, the signals further being operative to move the minute boundary from the second end of the case to the first end at the end of each hour interval and to move the hour boundary from the second end of the case to the first end at the end of each of said twelve consecutive hours.

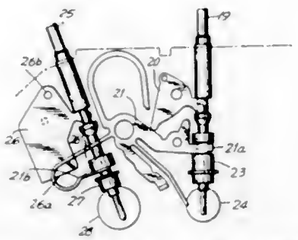
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,625

SETTING MECHANISM FOR AN ANALOG TIMEPIECE

Hiroshi Suzuki; Shigeru Aoki; Akihiko Maruyama, and Nobuhiro Koike, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 540,067, Jun. 19, 1990, abandoned. This application Jun. 29, 1992, Ser. No. 908,623
Claims priority, application Japan, Jun. 19, 1989, 1-156436
Int. Cl.[5] G04B 27/04
U.S. Cl. 368—192 19 Claims



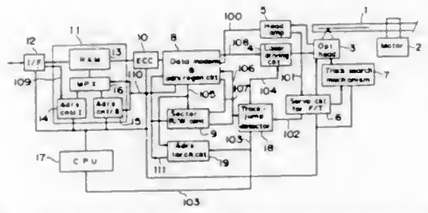
1. In an analog timepiece, an analog function display setting device comprising:
analog means for displaying a function;
operating means responsive to external regulation for controlling the displayed function when longitudinally displaced to a predetermined position;
a clutch wheel disposed on and movable along said operating means to and away rom an operable position at which said clutch wheel is operably coupled to said analog means for controlling the displayed function in response to the external regulation of said operating means; and
a setting element connected to said operating means and operable for moving said clutch wheel along said operating means to the operable position in response to the longitudinal displacement of said operating means by direct contact with said clutch wheel and for restricting further longitudinal displacement of said operating means when said clutch wheel is at its operable position and said operating means is at is predetermined position, said setting element consisting of a single rigid pivotable member.

5,214,626

INFORMATION RECORDING/REPRODUCING APPARATUS FOR WRITING ON AND READING FROM A REWRITABLE OPTICAL DISK HAVE TRACKS DIVIDED INTO A PLURALITY OF SECTORS

Isac Satoh, Neyagawa; Yoshihisa Fukushima, Osaka; Yuji Takagi, Hirakata; Yasushi Azumatani, Neyagawa, and Hiroshi Hamasaka, Nishinomiya, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 3, 1991, Ser. No. 753,886
Claims priority, application Japan, Sep. 3, 1990, 2-233506
Int. Cl.[5] G11B 7/00, 21/10
U.S. Cl. 369—32 6 Claims



1. An information recording/reproducing apparatus for writing on and reading from a rewritable optical disk having tracks divided into a plurality of sectors, said sectors each being a unit of data writing and reading, comprising:
an optical head for following a target track while emitting a laser beam such that said laser beam focuses on said target track, thereby writing on and reading from said optical disk;
a track search means for searching said target track and for moving said optical head to said target track;
a recording and reproducing means for actuating said optical head such that said optical head writes on and reads form said optical disk, said recording and reproducing means including a servo circuit for outputting a tracking error signal;
a track address reading means for reading out an address of a sector on a track being followed by said optical head and for outputting a regenerative address signal indicative of said address of said sector;
a track-jump detection means for, upon receipt of said tracking error signal from said recording and reproducing means, comparing said tracking error signal with a predetermined threshold and for outputting a track-jump detection signal and a recording halt signal based on a comparison result, said track-jump detection signal being indicative of an occurrence of a track jump while said optical head is writing data on said optical disk;
a track-jump address storage means for, in response to said track-jump detection signal from said track-jump detecting means, storing said regenerative address signal from said track address reading means and for outputting an address of a track-jump occurring sector wherein said track jump has occurred;
a recording halt means for, upon receipt of said recording halt signal from said track-jump detection means, halting said recording and reproducing means so as to halt data writing by said optical head;
a buffer means for temporarily storing data to be written on said optical disk after said truck-jump has occurred;
a first address generation means for generating addresses of said buffer means to which data to be written on said optical disk are written;
a second address generation means for generating addresses of said buffer means which are accessed so that data is read therefrom; and
a control means for, upon receipt of said track-jump detector signal from said track-jump detection means, controlling said second address generation means to generate an address of said buffer means based on said address of said track-jump occurring sector outputted from said track-jump address storage means, thereby allowing said recording and reproducing means to actuate said optical head to write data stored at the address of said buffer means generated by the second address generation means on said track-jump occurring sector and the following consecutive sectors.

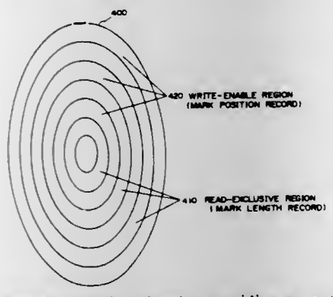
5,214,627

OPTICAL DISK HAVING READ-EXCLUSIVE AND WRITE-ENABLE REGIONS

Kazuo Nakashima, Atsugi; Yasunobu Hashimoto, Sagamihara; Miyozo Maeda, Atsugi, and Seiya Ogawa, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 7, 1990, Ser. No. 476,512
Claims priority, application Japan, Feb. 8, 1989, 1-28854
Int. Cl.[5] G11B 17/22
U.S. Cl. 369—32 7 Claims

1. An optical disk, comprising:
a read-exclusive region on which information recorded according to a mark-length recording system is located on an inner edge of the disk in the radial direction thereof; and
a write-enable region, on which information is recorded and reproduced recording to a mark position recording system by a doubled recording of reproducing frequency used in the mark-length recording system that is located on an outer side of the disk in the radial direction thereof, the mark-length and mark position recording system are carried out while rotating the optical disk at a constant rotation angular velocity, thereby providing an optical disk having a storage capacitor per track of information recorded on said write-enable region which becomes equal to the storage capacity per track of information recorded on said read-exclusive region.

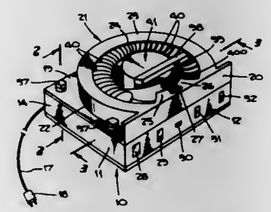


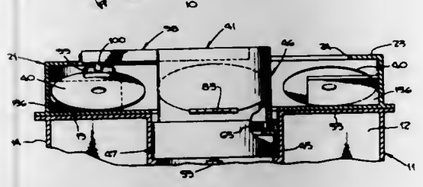
5,214,628

COMPACT DISC STORAGE AND PLAYING APPARATUS

Kirk Langman, 10515 Tennessee Ave., Los Angeles, Calif. 90064; Kiran Krishnamurti, 1411 Federal Ave. #5, West Los Angeles, Calif. 90025, and Kenneth A. Tarlow, 1120 Princeton Dr., Marina del Rey, Calif. 90292

Continuation of Ser. No. 393,585, Aug. 14, 1989, Pat. No. 5,022,020. This application Mar. 12, 1991, Ser. No. 668,164
Int. Cl.[5] G11B 17/24
U.S. Cl. 369—37 25 Claims





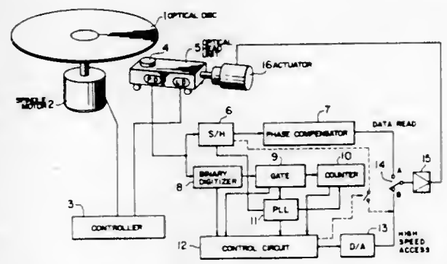
1. A multi-compact disk player comprising:
a compact disk playing means;
a magazine adapted to hold a plurality of compact disks, said magazine having spacing means interiorly thereof for maintaining a plurality of compact disks therein spaced from one another and slanted from the horizontal so that, when a plurality of compact disks are disposed within said magazine, said spacing means maintains said compact disks both spaced from adjacent compact disks while exposing an upper surface of said slanted compact disks;
said magazine having an open central area with said spacing means disposed in a circular array about said open central area and said playing means being disposed within said open central area;
rotating means for selectively rotating said playing means into position for pick-up and return of a compact disk in a selected position in the magazine;
compact disk pick-up and release means moveable when rotated into a selected position from a first position adjacent to said magazine and proximate the exposed upper surface of a compact disk when placed in said magazine to a second position adjacent said playing means and for pickup a compact disc in the magazine in its first position and move it to and release it for positioning for playing by the playing means in its second position, and to pick-up a compact disk in its second position and move it to and release it in its place in the magazine.

5,214,629

OPTICAL DISC HAVING A HIGH-SPEED ACCESS CAPABILITY AND READING APPARATUS THEREFOR

Hitoshi Watanabe, Ibaraki, and Takeshi Maeda, Kokubunji, both of Japan, assignors to Hitachi Maxell, Ltd., Osaka and Hitachi, Ltd., Tokyo, both of Japan

Filed Feb. 26, 1990, Ser. No. 484,409
Int. Cl.[5] G11B 7/00
U.S. Cl. 369—44.26 7 Claims



1. An optical disc, comprising:
a plurality of optical readable tracks including servo areas each having recorded therein servo pits containing clock synchronization information periodically disposed in each track, and
wherein said servo areas are sequentially shifted by an integral multiple of a periodic clock duration by clock pits generated from a clock synchronization signal.

5,214,630

OPTICAL HEAD HAVING LIGHT TRANSMISSIVE CARRIAGE

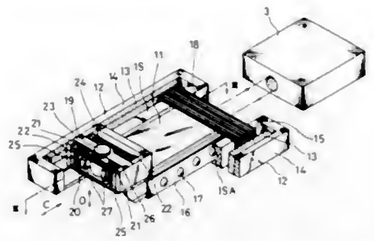
Yoshikazu Goto, Hirakata, and Benichi Miyazaki, Katano, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jan. 4, 1991, Ser. No. 635,893
Claims priority, application Japan, Jan. 10, 1990, 2-3047
Int. Cl.[5] G11B 7/12
U.S. Cl. 369—44.14 4 Claims

1. An optical head comprising:
a stationary optical part having a light beam generating means for emitting a collimated light beam and light sensing means for detecting incident light which is separated by a beam splitter, and
a carriage for guiding said collimated light beam emitted from said stationary optical part to focusing means mounted thereon, said carriage means having an incident surface at an end thereof that is perpendicular to an optical path of said collimated light beam, and said carriage being made of light transmissive material and provided with holding means for slidably holding said carriage so as to be slidable in the radial direction of an optical disc, and

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being provided with a reflection part in one body for reflecting said collimated light beam to the surface of said



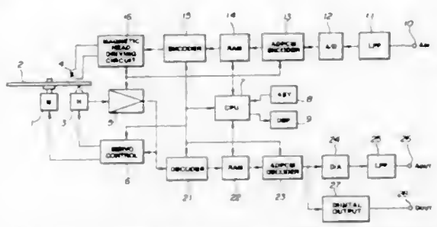
optical disc and for reflecting the light reflected from the surface of the optical disc to the stationary optical part.

5,214,631

DISC RECORDING/REPRODUCING APPARATUS HAVING A SERVO SYSTEM CAPABLE OF SUCCESSIVELY RECORDING AND REPRODUCING TRACKS ON A DISC IRRESPECTIVE OF TURBULENCE OF THE SERVO SYSTEM DUE TO A DISTURBANCE

Yasuaki Maeda; Yuji Arataki, both of Tokyo, and Tadao Yoshida, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 19, 1991, Ser. No. 717,700
Claims priority, application Japan, Jun. 29, 1990, 2-169977
Int. Cl.[5] G11B *20/10*
U.S. Cl. 369—59 17 Claims



1. A disc recording apparatus for recording inputted data on tracks on a disc recording medium comprising:

control means for controlling the reading of the memory means so that data in a first amount are successively read from the memory means when the amount of the inputted data stored in the memory means exceeds the first amount in order to always ensure a write area for writing the data in the memory means, the write area having a capacity higher than a predetermined second amount of the inputted data, the control means being connected to the recording means to control the recording position on the disc recording medium so that the first amount of the data which are sequentially read from the memory means are successively recorded on the recording tracks of the recording medium;

recording means for recording on the disc recording medium the data read from the memory means;

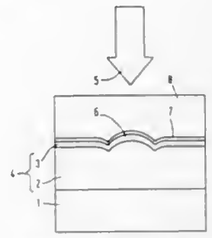
control means for controlling the reading of the memory means so that data in a preset first amount are successively read from the memory means to always ensure a write space in the memory means which has a capacity which is higher than a predetermined second amount when the amount of the inputted data stored in the memory means exceeds the first amount, the control means being connected to the recording means to control the recording position on the disc recording medium so that data in the first amount which are sequentially read from the memory means are successively recorded on the recording tracks of the recording medium.

5,214,632

METHOD OF MANUFACTURING A MATRIX AND A MASTER PLATE SUITABLE FOR USE IN THE METHOD

Johannes P. J. G. Van Liempd; Josephus M. Wijn, both of Eindhoven, Netherlands; George H. Johnson, Wilmington, and Howard E. Simmons, Newark, both of Del., assignors to U.S. Philips Corporation, N.Y. and Du Pont Optical Company, Nieuwegein, Netherlands

Filed Nov. 2, 1988, Ser. No. 266,186
Claims priority, application Netherlands, Dec. 23, 1987, 8703108
Int. Cl.[5] G11B *7/26, 7/24*
U.S. Cl. 369—272 3 Claims



1. A method manufacturing a metal matrix for use in the manufacture of optical discs in which a master disc which comprises a substrate and a photosensitive recording layer provided thereon is exposed to modulated laser light thereby causing an information track having a relief structure to be formed in the recording layer, the recording layer is provided with a metal layer first by electroless deposition and then by electroplating, and the resulting metal matrix in which the information track of the master has been copied is separated from the master, characterized in that a master disc is used the recording layer of which is a double layer of synthetic resins in which a first layer of synthetic resin which contacts the substrate has a comparatively high coefficient of expansion and a glass transition temperature which is below room temperature and in which a second layer of synthetic resin, which is bonded to the first layer, has a comparatively low coefficient of expansion and a glass transition temperature which is above room temperature, both layers of synthetic resin comprising identical dyes which dyes absorbs the laser light used, and in which bump-shaped information bits are formed in the recording layer as a result of exposure to laser light, said bits having longitudinal dimensions varying in a direction parallel to the information track and width dimensions perpendicular to the information track which are at least substantially equal.

5,214,633

OPTICAL WAVEGUIDE RECORDING MEDIUM PLAYING APPARATUS

Naohiro Tanno, Yamagata; Teruo Toma, and Kiyofumi Chikuma, both of Tsurugashima, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 29, 1991, Ser. No. 800,851
Claims priority, application Japan, Feb. 19, 1991, 3-24753
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—112 9 Claims

1. A playing apparatus for reproducing information from an optical waveguide recording medium provided with an optical waveguide having a photocoupler for guiding a laser beam and a plurality of refractive index discontinuous portions aligned on the optical waveguide, shapes and relative positions of the plurality of refractive index discontinuous portions being variables of information to be recorded, the apparatus comprising:

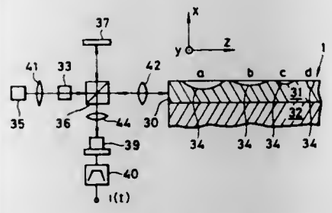
a light emitting means for generating a laser beam;

a beam splitting means for bisecting the light beam into first and second laser beams;

a reference light generating means for receiving the first laser beam and reflecting the first light beam as reference light;

an irradiating means for guiding the second laser beam to the photocoupler;

a light superimposing means for superimposing reflected



signal light, reflected at the plurality of refractive index discontinuous portions, subjected to amplitude and phase modulation, and returning via the photocoupler, onto the reference light to produce interference light;

a photodetecting means for performing photoelectric conversion of the interference light to provide an electric output; and

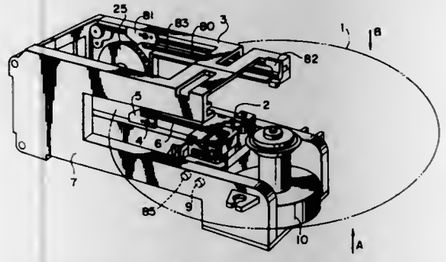
an optical frequency modulating element, provided between the light emitting means and the beam splitting means, for modulating a frequency of the laser beam.

5,214,634

OPTICAL DISC APPARATUS FOR RECORDING AND REPRODUCING SIGNALS ON BOTH SURFACES OF A DISK WITH A SINGLE OPTICAL PICKUP

Tadashi Maeoka, Hirakata; Yukihiro Fukushima, Ikoma, and Masaki Kondo, Takatsuki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 15, 1991, Ser. No. 656,767
Claims priority, application Japan, Feb. 23, 1990, 2-043038; Feb. 23, 1990, 2-043039
Int. Cl.[5] G11B *21/04*
U.S. Cl. 369—195 12 Claims



1. An optical disc apparatus comprising:

optical pickup means for recording and reproducing information signals on and from at least one of first and second sides of a disk-type recording medium;

disk driving means for rotatingly driving said disk-type recording medium;

pickup moving means for effecting radial movement of said optical pickup means at each of said first and second sides and also a movement of said optical pickup means from said first side to said second side of said disk-type recording medium and vice versa;

first guiding means for guiding the movement of said optical pickup means along said first side of said disk-type recording medium between inner and outer peripheral ends of said disk-type recording medium;

second guiding means for guiding the movement of said optical pickup medium between the inner and outer peripheral ends of said disk-type recording medium;

a first base member carrying said first and second guiding means; and

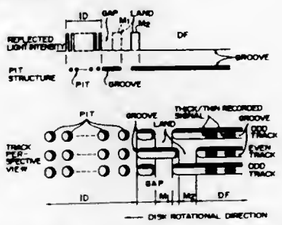
a second base member snugly fixed to said first base member and having a guide groove for guiding the movement of said optical pickup means, wherein said pickup moving means includes a flexible power transmission member for transmitting a power to said optical pickup means, a connecting member for connecting said optical pickup means and said flexible power transmitting member to each other, a driving pulley provided on the first base member and adapted for driving the flexible power transmission member, at least one idle pulley for changing a running direction of said flexible power transmission member, a feed motor provided on said first base member, and a speed reduction means for transmitting the power of said feed motor to said driving pulley.

5,214,635

ERASABLE OPTICAL DISK AND OPTICAL INFORMATION RECORDING/REPRODUCTION APPARATUS

Isao Satoh, Neyagawa; Makoto Ichinose, Sakai; Yoshihisa Fukushima, Osaka, and Yuzuru Kuroki, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 471,780, Jan. 29, 1990, abandoned, which is a division of Ser. No. 159,743, Feb. 24, 1988, Pat. No. 4,939,713. This application Feb. 14, 1992, Ser. No. 837,082
Claims priority, application Japan, Feb. 27, 1987, 62-45553; Mar. 6, 1987, 62-52533
Int. Cl.[5] G11B *7/09*
U.S. Cl. 369—275.2 8 Claims



1. An optical disk having a series of adjacent tracks each of said tracks being divided into a plurality of sectors, the optical disk being adapted to have information erased, recorded and reproduced on a sector basis by using an erasing light beam and a succeeding recording/reproduction light beam, each of said sectors comprising: (a) a sector identifier containing address information of said sector; (b) a data field in which information is recorded; and (c) a mark signal comprising one of a first kind of long mark signal and a second kind of long mark signal, even ones of said adjacent tracks having said first kind of long mark signal recorded therein and odd ones of said adjacent tracks having said second kind of long mark signal recorded therein, said mark signal being disposed between said sector identifier and said data field to follow said sector identifier at a first distance in one of said even tracks and a second distance in one of said odd tracks, whereby said mark signal is readable by said erasing light beam to discriminate whether the erasing light beam is positioned on an adjacent track relative to a track on which the recording/reproduction light beam is positioned on said optical disk.

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5,214,636

OPTICAL RECORDING ELEMENT HAVING A PLURALITY OF THIN FILM FILTERING LAYERS AND OPTICAL RECORDING ELEMENT HAVING AN ELECTRICALLY CONDUCTIVE LAYER

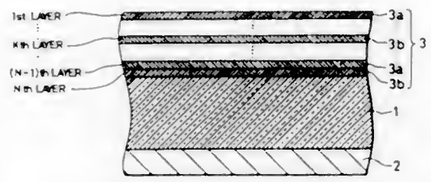
Toshio Ishikawa; Hiroyuki Katayama; Kazuo Van, all of Nara; Tomoyuki Miyake, Tenri; Junichiro Nakayama; Kenji Ohta, both of Nara, and Hideyoshi Yamaoka, Matsubara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 16, 1989, Ser. No. 421,757

Claims priority, application Japan, Oct. 21, 1988, 63-266427; Nov. 30, 1988, 63-157133[U]

Int. Cl.[5] G11B *3/70*

U.S. Cl. 369—286 26 Claims



23. An optical recording element comprising:

a transparent substrate through which light beams pass having a first surface and a second surface;

a recording medium formed on said first surface of said transparent substrate; and

an optical thin film composed of at least one layer, formed on said second surface of said transparent substrate having an effective refractive index for transmitting light beams used for the recording, erasing and playback of information, and also for reflecting light beams, the reflected light beams having wavelengths different from wavelengths of light beams used for recording erasing or playback of information, so that the recording element has a colorful appearance.

5,214,637

HIGH SPEED TWO WIRE MODEM

Manickam R. Sridhar, Norton; Aniruddha Mukherjee, Framingham, and John L. Moran, III, Millville, all of Mass., assignors to Codex Corporation, Mansfield, Mass.

Filed Apr. 15, 1991, Ser. No. 685,571

Int. Cl.[5] H04B *3/20, 3/23*

U.S. Cl. 370—32 21 Claims

1. A two-wire modem for selecting a carrier frequency and a baud rate from a predetermined plurality of carrier frequencies and baud rates to communicate with another modem over a communication media in a full duplex mode based on estimated characteristics of said communication media, said two-wire modem comprising:

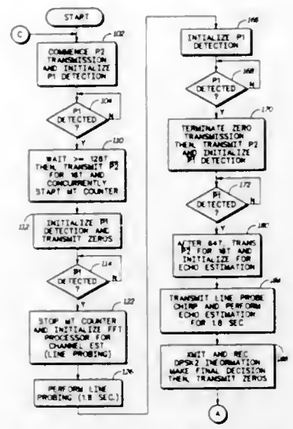
means for transmitting for a first predetermined time interval a first line probing signal of varying frequency content over said communication media;

means for receiving at least one echo signal of said first line probing signal from said communication media in said first predetermined time interval;

means for receiving a second line probing signal of varying frequency content from said communication media in a second predetermined time interval;

means for estimating signal characteristics of said communication media based on an analysis of said received second line probing signal and for estimating echo characteristics of said communication media based on an analysis of said received at least one echo signal of said first line probing signal; and

means for selecting said carrier frequency and baud rate from the predetermined plurality of carrier frequencies



and baud rates based on said estimates of the signal and echo characteristics of said communication media.

5,214,638

DIGITAL COMMUNICATION ELECTRICAL/OPTICAL ACCESS NODE HAVING BUFFER MEMORY MATRIX FOR SWITCHABLE MULTI-CHANNEL BIDIRECTIONAL TRANSMISSION

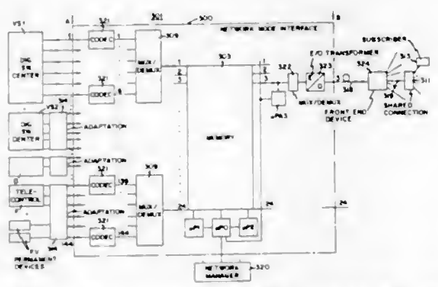
Albert Norz; Albrecht Schaffert, both of Gerlingen; Werner Beisel, Altenstadt, and Kalman Szechenyi, Spiegelberg, all of Fed. Rep. of Germany, assignors to Alcatel, N.V., Amsterdam, Netherlands

Filed Nov. 8, 1990, Ser. No. 610,524

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1989, 3937738

Int. Cl.[5] H04Q *11/08, 11/04*

U.S. Cl. 370—58.1 13 Claims



1. Network electrical/optical access node of a digital communication system for two-way transmission of message signals between first equipment, and second equipment,

wherein a first type of lines electrically couples the first equipment with a first bidirectional interface of the network access node for transmitting time-division multiplexed message signals at a first lower bit rate in a time-division multiplex hierarchy,

wherein a second type of lines optically couples the second equipment with a second bidirectional interface of the network access node for transmitting the message signals

at a second higher bit rate in a time-division multiple access hierarchy,

wherein a separate multiplexer/demultiplexer means is provided at each respective first and second bidirectional interface, one multiplexer/demultiplexer means being responsive to the message signals at the first lower bit rate, for providing multiplexed message signals, and vice versa, and the other multiplexer/demultiplexer means being responsive to the message signals at the second higher bit rate, for providing demultiplexed message signals, and vice versa,

characterized in that

transmission paths between the first and second types of lines are switchable in the network access node,

a buffer memory is responsive to the multiplexed message signals and the demultiplexed message signals from the respective separate multiplexer/demultiplexer means, the buffer memory having addressable partial memories for storing the message signals, for switching the transmission paths between the first and second types of lines during communication in both directions between the first and second equipment, and for forming the time-division multiplex message signals, and

the buffer memory is located between the separate multiplexer/demultiplexer means.

5,214,639

COMMUNICATION SWITCHING ELEMENT AND METHOD FOR TRANSMITTING VARIABLE LENGTH CELLS

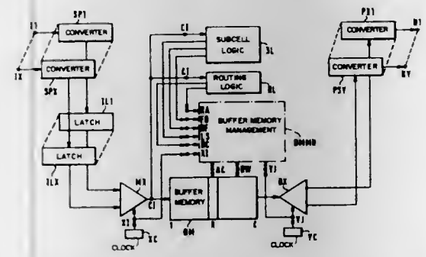
Michel A. R. Henon, Brussels, Belgium, assignor to Alcatel N.V., Amsterdam, Netherlands

Filed Aug. 9, 1990, Ser. No. 565,310

Claims priority, application PCT Int'l Appl., Aug. 9, 1989, PCT/EP89/00942

Int. Cl.[5] H04L *12/56;* H04J *3/16*

U.S. Cl. 370—60 46 Claims



1. Communication switching element having X inputs and Y outputs, wherein X and Y are not both equal to one, for transferring cells from each of said inputs to at least one of said outputs, said cells being subdivided into subcells, said switching element comprising

a buffer memory with a plurality of memory locations each having an identity,

means for writing into said memory locations distinct subcells incoming on said inputs,

a first storage means storing memory location identities of subcells, and

means for reading said subcells out of said buffer memory under the control of said first storage means and for supplying these read subcells to said outputs,

wherein said stored memory location identities are linked in identity groups, each of said identity groups corresponding to one of said cells.

5,214,640

HIGH-SPEED PACKET SWITCHING SYSTEM

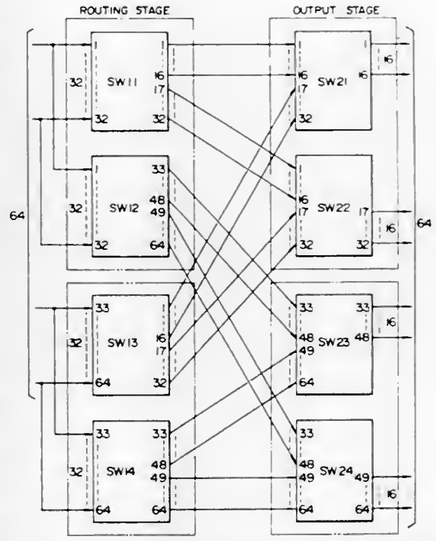
Yoshito Sakurai, Yokohama; Takahiko Kozaki, Koganei, and Shirou Tanabe, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 17, 1990, Ser. No. 570,116

Claims priority, application Japan, Jan. 24, 1990, 2-012562

Int. Cl.[5] H04J *3/26*

U.S. Cl. 370—60 15 Claims



1. A high-speed packet switching system having first switch devices and second switch devices which use fixed length packets each having an information field containing communication information and a header field containing routing information indicative of a destination outgoing highway number, so as to perform switching operation on the basis of the communication information and routing information between a plurality of predetermined input terminals and a plurality of predetermined output terminals whereby switching of the communication information is effected between a plurality of incoming highways and a plurality of outgoing highways in accordance with the routing information contained in said header field, said switching system comprising:

an initial stage including said plurality of first switch devices and in which respective input terminals of said plurality of first switch devices are connected in common to a corresponding incoming highway, and each first switch device selectively delivers to its output terminal an inputted packet in accordance with routing information of said packet so that packets of different outgoing highway numbers are delivered out of the output terminals of the respective first switch devices; and

a final stage including said plurality of second switch devices and in which each output terminal of the respective second switch devices is connected to a corresponding outgoing highway, and respective input terminals of a particular second switch device are connected to respective output terminals of the first switch devices which deliver outgoing highways of the same number as the number of outgoing highways connected to said particular second switch device.

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5,214,641

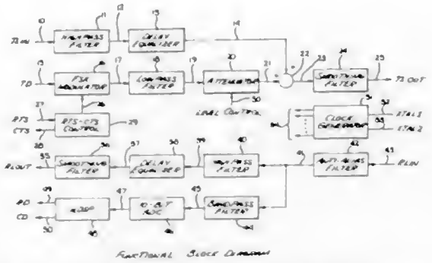
MIXED ANALOG DIGITAL SECONDARY CHANNEL FSK MODEM

Ching-Siang Chen, and Bert White, both of Irvine, Calif., assignors to Silicon Systems, Inc., Tustin, Calif.

Continuation of Ser. No. 504,690, Apr. 4, 1990, abandoned, which is a continuation of Ser. No. 308,202, Feb. 8, 1989, abandoned. This application Sep. 9, 1991, Ser. No. 758,347

Int. Cl.[5] H04J *1/00;* H04L *27/32*

U.S. Cl. 370—69.1 16 Claims



FUNCTIONAL BLOCK DIAGRAM

8. A secondary channel FSK modem comprising:

first filter means coupled to an input QAM signal for defining a first channel and providing a first output signal;

delay equalizing means coupled to said first filter means for phase correcting said first output signal and providing a first channel signal;

modulating means for converting a digital input signal to an FSK signal;

second filter means coupled to said FSK signal for defining a second channel and providing a second output signal, said input FSK signal related to said input QAM signal, said second channel being asynchronous in transmission rate to said first channel;

gain control means coupled to said second output signal for controlling the amplitude level of said second output signal and providing a second channel signal;

summing means coupled to said first and second channel signals for combining said first and second channel signals and providing a two channel output signal;

receiving means coupled to a two channel output signal having third filter means for separating said first channel signal and fourth filter means for separating said second channel signal;

demodulating means coupled to said second channel signal for converting said second channel signal to a received signal and a carrier detect signal.

5,214,642

ATM SWITCHING SYSTEM AND ADAPTATION PROCESSING APPARATUS

Masao Kunimoto, Yokohama; Jiro Kashio, Kawasaki; Kenji Kawakita; Shinobu Gohara, both of Yokohama; Shinichi Iwaki, Kamakura, and Hiroyuki Ichikawa, Hino, all of Japan, assignors to Hitachi, Ltd. and Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 397,048, Aug. 21, 1989, Pat. No. 5,101,404, which is a continuation-in-part of Ser. No. 313,601, Feb. 21, 1989, Pat. No. 5,175,818. This application Jan. 23, 1991, Ser. No. 645,041

Claims priority, application Japan, Jan. 24, 1990, 2-12541; Aug. 24, 1990, 2-221351

Int. Cl.[5] H04J *3/16;* H04Q *11/04*

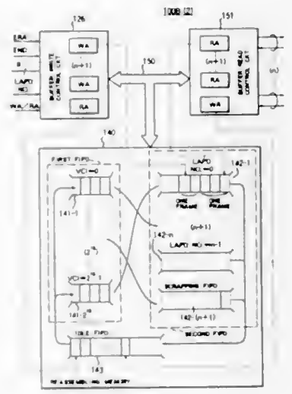
U.S. Cl. 370—82 22 Claims

12. An adaptation processing apparatus for assembling received data units of a fixed length to form data units of a variable length and transmitting the variable length data units to a plurality of high-rank devices respectively for processing the variable length data units, comprising:

a memory which is partitioned into a plurality of buffers, each buffer having a capacity for storing a fixed length data unit to provide first, second and third first-in-first-out (FIFO) storages;

the first FIFO storages, provided for every identifier of the fixed length data units, each first FIFO storage including means for storing the fixed length data units of corresponding identifiers, a plurality of fixed length data units stored in a first FIFO storage comprise a variable length data unit;

means for receiving each fixed length data unit transmitted through a line and storing the received fixed length data unit into the first FIFO storage in accordance with a corresponding identifier;



the second FIFO storages being provided for every high-rank device;

means for transferring the buffer of one of said first FIFO storages to said second FIFO storage when the variable length data unit is stored in the one of said first FIFO storages;

means for sending the variable length data unit of the buffer transferred to said second FIFO storage to a corresponding one of the high-rank device; and

the third FIFO storage for storing an empty buffer, wherein when data stored in one of said second FIFO storages is read, the buffer of the one of said second FIFO storages is stored in said third FIFO storage as the empty buffer, and wherein the empty buffer of said third FIFO storage is transferred to said second FIFO storage when said means for receiving receives a fixed length data unit.

5,214,643

METHOD FOR INSERTING AN ASYNCHRONOUS 139,264 KBIT/S SIGNAL INTO A 155,520 KBIT/S SIGNAL

Horst Mueller, Hohenschaeftlarn, and Pirmin Foerg, Grafing, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 17, 1989, Ser. No. 339,302

Claims priority, application Fed. Rep. of Germany, May 11, 1988, 3816235

Int. Cl.[5] H04J *3/22*

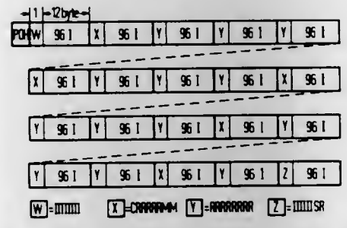
U.S. Cl. 370—84 5 Claims

1. A method of assembling data for a digital network by inserting an asynchronous 139,264 kbit/s signal into a pulse frame of a 155,250 kbit/s signal (STM-1) with a transport-module (STM-1) composed of 9 rows of signal bit stream, each containing, first, 9 bytes for a section head (SOH) or for a pointer (AU-4 PTR) and subsequently, a further 261 bytes for an administration unit (AU-4), said administration unit incorporating a virtual container (VC-4) composed of 9 rows, each of which rows contains, first, 1 byte for a path overhead and, subsequently, a further 260 bytes,

comprising the steps of subdividing said further 260 bytes into 20 blocks of 13 bytes each; every block being subdivided into a first part having 1 byte or, respectively, 8 bits, and into a second part having 12 bytes or, respectively, 96 bits;

assigning bits to the bytes of said first parts so that the first part (W) of the first block comprises respectively 8 information bits (I); the first part (X) of the second, 6th, 10th, 14th and 18th blocks each comprises 1justification control bit (C), 5 fixed justification bits (R) and 2 freely available message information bits (M); the first part (Y) of the 3rd through 5th, 7th through 9th, 11th through 13th, 15th through 17th and 19th blocks comprise respectively 8 fixed justification bits (R); and the first part (Z) of the 20th block comprises respectively 6 information bits (I), 1 possible justification bit (S) and 1 fixed justification bit (R);

and assigning bits to the bytes of said second part of all blocks each comprises respectively 96 information bits (I).



5,214,644

ELECTRONIC DEVICE WITH DATA TRANSMISSION FUNCTION

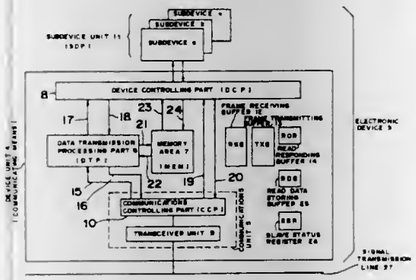
Masao Ikezaki, Neyagawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 597,663, Oct. 17, 1990, abandoned. This application Jul. 2, 1992, Ser. No. 908,901

Claims priority, application Japan, Oct. 17, 1989, 1-269344

Int. Cl.[5] H04J *3/00;* G06F *13/14, 13/38*

U.S. Cl. 370—85.1 6 Claims



1. A data communication system for sending combined data in a train of frames from a host device to a slave device through a bus structure, said slave device comprising a slave processor means and a slave memory means, said data communication system comprising:

a host processor means, operative under a read mode and a write mode, for producing a command data for use in said slave processor means and an address data for designating a memory area in said slave memory means, said command data being a read command data for commanding reading of data stored in the designated memory area in said slave memory means under said read mode, and said command data being a write command data for commanding writing of data stored in said designated memory area in said slave memory means under said write mode;

a hose memory means for storing read information obtained from said slave memory means under said read mode, and for storing write information which is to be written in said slave memory means under said write mode;

a host data transmission processing means, under said read mode, for receiving said read command data and said address data from said host processor means and for producing said train of frames such that said read command data and said address data are carried in a first frame, and, under said write mode, for receiving said write command data and said address data from said host processor means and said write information from said host memory means and for producing a train of frames such that said write command data and said address data are carried in a first frame and said write information in a following frame.

5,214,645

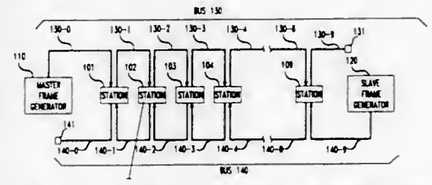
TDM SYSTEM AND METHOD HAVING TIME SLOT REQUEST SIGNALING

Hassan Hagirahim, Lisle, Ill., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jun. 6, 1990, Ser. No. 534,072

Int. Cl.[5] H04J *3/02*

U.S. Cl. 370—85.1 24 Claims



1. A station for use in a time division multiplex (TDM) communication system including a plurality of stations communicating over first and second unidirectional communication channels, said station having the capability of converting read time slots into idle time slots and comprising

queue of request QR counter means for establishing a QR count indicating how many time slots over said first channel from other system stations have been converted into idle time slots by said station, and

means responsive to a first predetermined value in said QR count for altering a request signal being transmitted over said second channel, wherein said request signal indicates a request for an idle time slot and wherein said altering means erases said request signal and changes the value in said QR count.

5,214,646

SYSTEM AND METHOD FOR INTERCONNECTING LOCAL AREA NETWORKS

Amoon Yacoby, Maccabin, 342, Doar Na Modiim, Israel 71098

Continuation of Ser. No. 472,904, Jan. 31, 1990, Pat. No. 5,088,090. This application Nov. 13, 1991, Ser. No. 791,442

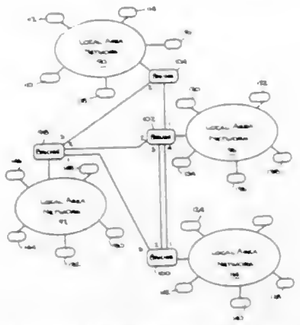
Int. Cl.[5] H04J *3/24*

U.S. Cl. 370—85.140 5 Claims

1. A bridging device adapted to be interconnected to a local area network having at least one source routing node connected thereto and to other bridging devices by one or more non-LAN interconnecting communications links to interconnect local area networks into a communication system in which information is transmitted from a source node in a first local area network via a bridging device, non-LAN communi-

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cations link and bridging device to a source node in a second local area network comprising means adapted to receive an information packet including data defining a routing field emanating from a source routing node connected to said first local area network, said information packet including destination data and means for appending the data in the routing field to emulate a bridging device—local area network—bridging device routing path over the non-LAN communications links interconnecting the bridging devices for routing the information to the proper source node in said second local area network.

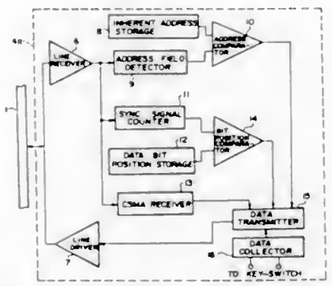


5,214,647

CSMA TYPE COMMUNICATION SYSTEM

Yuji Komatsu, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 8, 1991, Ser. No. 652,519
Claims priority, application Japan, Feb. 8, 1990, 2-30160
Int. Cl.[5] H04J *3/02*
U.S. Cl. 370—85.3 6 Claims



1. A CSMA type communication system for transmitting digital data among a data processing unit and a number of groups of data collecting units connected to a bus, said data collecting units each comprising:

a means for storing an own inherent address data, a group address data common to said data collecting units in the same group and a data-bit position data inherently allotted to each of said data collecting units in the same group;

an address comparing means for comparing an address in a transmission frame on said bus with said group address data;

a bit position comparing means for counting a synchronizing signal at a data portion in said transmission frame and comparing said synchronizing signal with said data-bit position data; and

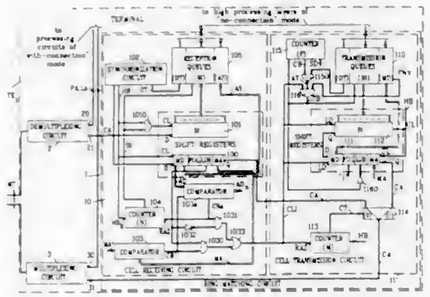
a data transmission means for transmitting data synchronously with said synchronizing signal at the own data-bit position in said transmission frame when the address in said transmission frame coincides with the content of the own group address data.

5,214,648

COMPLEMENTARY COMMUNICATION SYSTEM IN THE NO-CONNECTION MODE FOR ASYNCHRONOUS TIME-DIVISION NETWORK

Albert Lespagnol; Jean-Paul Quinquis, both of Perros-Guirec, and Michel Servel, Lannion, all of France, assignors to French State represented by the Minister of the Post, Telecommunications and Space, Issy-Les-Moulineaux, France

Filed Jun. 25, 1990, Ser. No. 542,826
Claims priority, application France, Jun. 30, 1989, 89 08762
Int. Cl.[5] H04J *3/24*
U.S. Cl. 370—94.1 4 Claims



1. A communication system including an asynchronous time-division network for enabling communications between a plurality of terminals (TE) in a no-connection mode, said system comprising:

(1) management means (GA) connected with each of said terminals via said network for establishing a virtual communication ring connecting a group of said terminals (TE1–TE4) for communication in the no-connection mode, thereby to afford the transmission between said group of terminals of first data cells containing blocks of information, said management means being operable in response to ring connection/disconnection requests received from said plurality of terminals for the routing of said first data cells in said virtual ring; and

(2) distributed means distributed in said plurality of terminals for interfacing said group of terminals with said virtual ring, including:

(a) transmitting means located in each of said plurality of terminals receiving unfilled first data cells and filled first data cells for transmitting, in response to blocks of information (BI) to be transmitted and source and destination addresses (AS, AD), filled first data cells which are formed by filling said received unfilled first data cells with said blocks and addresses;

(b) regulating means located in one of said plurality of terminals for regulating the rate of said first data cells in said virtual ring by producing and eliminating said unfilled first data cells, respectively, as a function of the result of a measurement of the rate in the ring; and

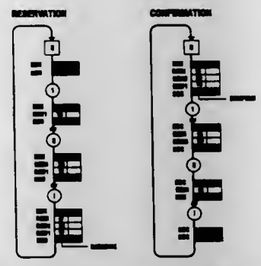
(c) controlling means located in said one terminal for controlling said first data cells carried in said virtual ring, thereby preventing said first data cells from performing more than a predetermined number of laps in said virtual ring.

5,214,649

INSERT/REMOVE SIGNALLING IN LAN SYSTEMS

Harmen Van As, Langnau; Wolfram Lemppenau, Kilchberg, and Erwin Zurfluh, Feldmeilen, all of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 17, 1991, Ser. No. 716,575
Claims priority, application European Pat. Off., Mar. 27, 1991, 91810222.9
Int. Cl.[5] H04J *3/16, 3/12*
U.S. Cl. 370—110.1 9 Claims



1. In a serial communications network having a transmission medium, a scheduler coupled to the transmission medium and at least one node means coupled to the transmission medium, apparatus in said at least one node means for inserting and removing signalling information in a stream of basic data units (ADU), including

control means (87) for controlling insertion and removal of individual basic data units (ADU) in response to a local insert/remove control signal and a currently received basic data unit, and

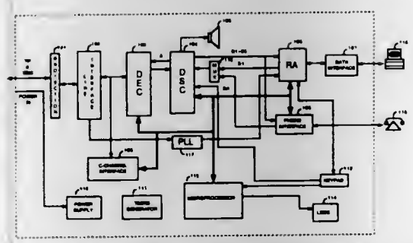
clocked register means (75, 77, 79; 101A, 101B) for passing data units through said inserting and removing means in a pipelined manner, maintaining the speed and timing of basic data units in said stream of basic data units despite insertion and removal operations.

5,214,650

SIMULTANEOUS VOICE AND DATA SYSTEM USING THE EXISTING TWO-WIRE INTER-FACE

Robert E. Renner; Kuang-Cheng Hu, both of Phoenix; Han Kem, Glendale, and John S. Young, Scottsdale, all of Ariz., assignors to AG Communication Systems Corporation, Phoenix, Ariz.

Filed Nov. 19, 1990, Ser. No. 615,679
Int. Cl.[5] H04J *3/12*
U.S. Cl. 370—110.1 13 Claims



1. A data adapter for simultaneously providing a low speed channel, a first high speed channel, and a second high speed channel over a two wire connection, said two wire connection connects said data adapter to a telephone system, said data adapter comprising:

a line transceiver means connected to said two-wire connection, said line transceiver means provides a full duplex transmission link with said telephone system over said two-wire connection, said full duplex transmission link comprised of said low speed channel, said first high speed channel, and said second high speed channel;

a protocol controller means connected to said line transceiver means, said protocol controller means performs a packet protocol on said low speed channel and, said protocol controller means routes said first high speed channel to a telephone interface means and said second high speed channel to a rate adapter means;

said telephone interface means connected to said protocol controller means, said telephone interface means converts data between said first high speed channel and a telephone instrument;

said rate adapter means connected to said protocol controller means, said rate adapter means converts data between said second high speed channel and a data processing equipment, said rate adapter means performs a rate adaption protocol while converting said data between said second high speed channel and said data processing equipment, said rate adapter means including a signal processor means arranged to perform said rate adaption protocol; and

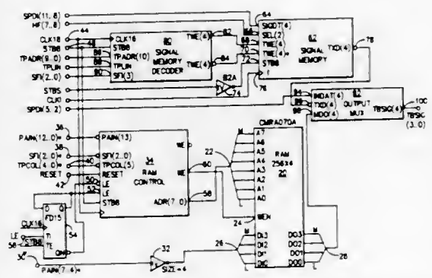
a processor means connected to said line transceiver means, said protocol controller means, said telephone interface means, and said rate adapter means, said processor means arranged to receive and transmit messages through said protocol controller means over said low speed channel to said telephone system, and in response to information received over said low speed channel, and information received from said rate adapter means, said processor means controls said data adapter.

5,214,651

SONET TRANSMIT SIGNALING TRANSLATOR

Ertugrul Baydar, and Timothy J. Williams, both of Raleigh, N.C., assignors to Alcatel Network Systems, Inc., Richardson, Tex.

Filed May 11, 1989, Ser. No. 350,717
Int. Cl.[5] H04J *3/12, 3/24*
U.S. Cl. 370—110.1 13 Claims



1. A device for interfacing a high-frequency SONET-formatted carrier, of the type that transmits information in channels associated with tributaries, with a lower bandwidth carrier, of the type that transmits information in lower-level transmission channels, said device including:

means for receiving signaling bits from said lower-level transmission channels of the lower bandwidth carrier; and

means for translating said received signaling bits from said lower-level transmission channels into SONET-formatted signaling bits.

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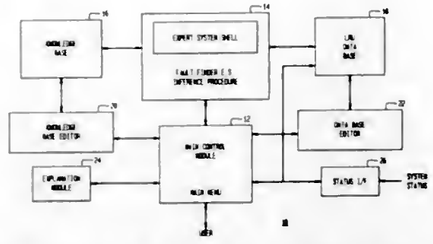
5,214,652
ALTERNATE PROCESSOR CONTINUATION OF TASK OF FAILED PROCESSOR
Arthur J. Sutton, Cold Spring, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 26, 1991, Ser. No. 675,393
Int. Cl.[5] G06F *15/00*
U.S. Cl. 371—9.1 **29 Claims**



1. A method in a multi-processor computer system of continuing the execution of a program or program task which is terminated before completion when is executing on a processor which fails due to a hard error condition, comprising the steps of:
copying contents of registers in a failing processor into storage to store a predetermined program continuation interruption state when the processor detects a hard error condition;
sending a signal identifying the failing processor to an other processor which is operational;
checking by the other processor of validity of contents stored by the copying step; and signalling healthy processor(s) in the system of a request for a healthy processor to continue execution of the program or program task if the checking step finds validity;
selecting of a healthy processor to continue execution of the program or program task by signalling remaining healthy processor(s) of a selection, and
loading into a selected processor from storage the stored program continuation interruption state of the failing processor to continue execution of the program or program task from a last successfully executed instruction without having any abnormal end indicated for the program or program task.

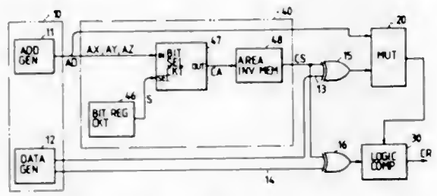
5,214,653
FAULT FINDER EXPERT SYSTEM
William M. Elliott, Jr., Palm Bay, and Mordechay Schneider, Iodialantic, both of Fla., assignors to Harris Corporation, Melbourne, Fla.
Filed Oct. 22, 1990, Ser. No. 600,831
Int. Cl.[5] G06F *11/00*; G01R *31/28*
U.S. Cl. 371—15.1 **33 Claims**

1. A device for finding faults in a target system that has a plurality of LRUs, comprising:
means for receiving input data relating to a state of the target system;
means for storing a probability of failure of individual LRUs of the target system;
means for storing rules, said rules relating conclusions and premises, at least some of said conclusions identifying a faulty LRU;
means for determining a certainty of a conclusion of a stored rule in response to the comparison of the premises of the rule and the input data;



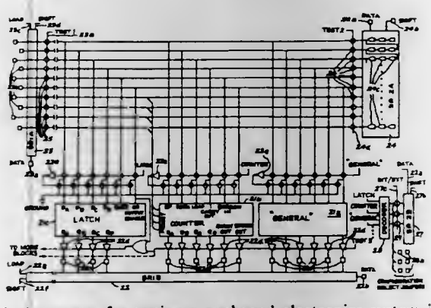
means for ordering the conclusions of the stored rules as a function of both the probability of failure of individual LRUs and the certainties of conclusions of the stored rules; and
means for providing said ordered conclusions to a user via a computer-user interface to thereby indicate a most likely LRU to be a cause of the fault in the target system.

5,214,654
MEMORY TESTER
Toshimi Oosawa, Saitama, Japan, assignor to Advantest Corporation, Tokyo, Japan
Filed Jan. 3, 1991, Ser. No. 637,201
Claims priority, application Japan, Jan. 12, 1990, 2-4788
Int. Cl.[5] G11C *29/00*
U.S. Cl. 371—21.1 **4 Claims**



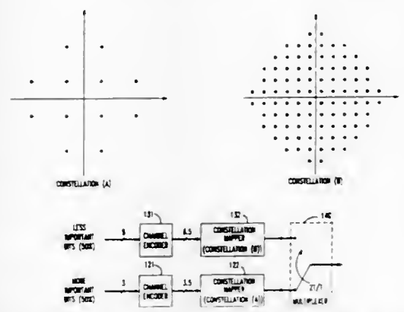
1. A memory tester for testing memories equipped with a polarity inversion feature, comprising:
a memory under test;
an address generating section, operatively connected to said memory under test, for generating an address signal to be applied to said memory under test;
a data generating section, operatively connected to said memory under test, for generating a test data signal to be applied to said memory under test in synchronism with said address signal from said address generating section and for generating an expected value data;
a polarity inverter, operatively connected to said data generating section, responsive to a polarity inversion signal to invert the polarity of said test data signal to be applied from said data generating section to said memory under test; and
a polarity controller, operatively connected to said polarity inverter, for applying said polarity inversion signal to said polarity inverter, said polarity controller including:
a bit register circuit which stores bit data for specifying in said address signal a plurality of bits necessary for a logical expression which expresses a polarity-inverted data storage area and outputs a bit data set;
a bit select circuit for selectively outputting those bits in said address signal specified by said bit data set in said bit register circuit; and
an area inversion memory which is accessed by a composite address signal composed of said plurality of bits selectively output by said bit select circuit to read out said polarity inversion signal, said polarity inversion signal being applied to said polarity inverter.

5,214,655
INTEGRATED CIRCUIT PACKAGING CONFIGURATION FOR RAPID CUSTOMIZED DESIGN AND UNIQUE TEST CAPABILITY
Charles W. Eichelberger, Schenectady; Kenneth B. Welles, II, Scotia, and Robert J. Wojnarowski, Ballston Lake, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Continuation of Ser. No. 363,646, Jun. 8, 1989, abandoned, which is a continuation of Ser. No. 912,457, Sep. 26, 1986, Pat. No. 4,866,508. This application Oct. 28, 1991, Ser. No. 784,094
Int. Cl.[5] G01R *31/28*
U.S. Cl. 371—22.5 **18 Claims**



1. Apparatus for testing a packaged electronics system including interconnection busses for connecting portions of said system to each other, said respective portions of said system each having a respective input port and respective output port to each of which ports one end of each of certain of those said interconnection busses connects during times of normal operation, said apparatus for testing comprising:
a respective first set of transmission gates associated with each said input port responding to a first test signal for selectively disconnecting that said input port from said interconnection busses connecting thereto during times of normal operation, said first set of transmission gates providing for signal transmission therethrough in either direction;
a first external connection on the packaged electronics system for receiving test vectors supplied in serial form;
means included within said packaged electronics system for converting said test vectors supplied in serial form, as received through said first external connection during a time interval preceding a testing time interval, to n-bit-wide test vectors supplied in parallel form during said testing time interval, which said means is of a type that can be loaded during said preceding time interval to store temporarily therewithin at the same time m n-bit-wide test vectors and that can be unloaded during said testing time interval to supply said m n-bit-wide test vectors one after the other, wherein m is an integer greater than one and wherein n is an integer greater than one that is not necessarily the same as or different from m;
a respective second set of transmission gates associated with each said input port responding to a second test signal for selectively connecting that said input port to receive at least a segment of each of said n-bit-wide test vector from said means for converting said test vectors;
a respective set of tristate drivers associated with each said output port, having input connections from that said output port and having output connections to each of the interconnection busses connecting therefrom during normal operation and providing the sole means for connecting that said output port to these interconnection busses during normal operation, each said respective set of tristate drivers applying the signal received at its input connections to its output connections with a source impedance controlled by a third test signal;
means included within said packaged electronics system for converting, to a sequence of said test results supplied in serial form, the signals appearing in parallel from at least one end of each said interconnection bus; and
a second external connection on the packaged electronics system for transmitting therethrough said sequence of said test results in serial form.

5,214,656
MULTIPLEXED CODED MODULATION WITH UNEQUAL ERROR PROTECTION
Hoog Y. Chung, Eatootown; Jin-Der Wang, Ocean, and Lee-Fang Wei, Lincroft, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Dec. 13, 1990, Ser. No. 627,156
Int. Cl.[5] G06F *11/00*
U.S. Cl. 371—43 **32 Claims**



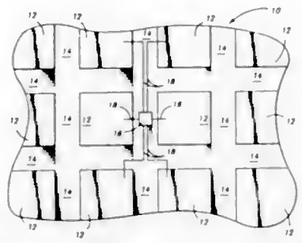
1. A method for processing an information signal, the information signal being comprised of a plurality of classes of information, the method comprising the steps of:
separately coding each one of the plurality of classes of information using a separate coded modulation scheme to provide a coded output, such that one of the plurality of classes of information has more error protection than the remaining ones of the plurality of classes of information, where each one of the plurality of coded outputs comprises a plurality of signal points taken from a signal point constellation and where the signal point constellation of at least one of the coded modulation schemes is different from the signal point constellations of the remaining coded modulation schemes; and
multiplexing the plurality of coded outputs for transmission.

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5,214,657
METHOD FOR FABRICATING WAFER-SCALE INTEGRATION WAFERS AND METHOD FOR UTILIZING DEFECTIVE WAFER-SCALE INTEGRATION WAFERS

Warren M. Farnworth; Kevin Duesman, and Ed Heitzeberg, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 586,267, Sep. 21, 1990, abandoned. This application Jun. 30, 1992, Ser. No. 908,495
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—40.1 **40 Claims**



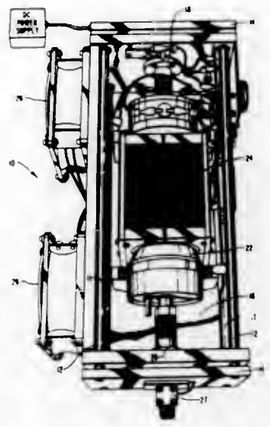
1. A semiconductor wafer comprising:
a plurality of discrete memory sections of integrated circuitry, the discrete memory sections being separated by street area;
permanent error detection and correction circuitry within the street area to detect and correct errors generated within the discrete memory sections;
permanent conductive interconnecting lines extending from the discrete memory sections to the error detection and correction circuitry within the street area; and
the semiconductor wafer being maintained as a whole and the error detection and correction circuitry and the interconnecting lines being permanently retained and operable on the wafer.

5,214,658
MIXED GAS ION LASER

Kevin D. Ostler, Salt Lake City, Utah, assignor to Ion Laser Technology, Salt Lake City, Utah

Continuation-in-part of Ser. No. 921,469, Jul. 30, 1992, abandoned, which is a continuation of Ser. No. 686,664, Apr. 17, 1991, abandoned, which is a continuation-in-part of Ser. No. 558,776, Jul. 27, 1990, abandoned. This application Oct. 22, 1992, Ser. No. 964,724
Int. Cl.[5] H01S *3/10*
U.S. Cl. 372—23 **24 Claims**

1. A constant output ion laser producing laser output beams containing more than one predetermined wavelength, each said wavelength having an output power within a predetermined range, said ion laser comprising:
an ion laser tube, said ion laser tube containing a mixture of at least two gases;
optical means disposed along at least one optical axis and defining an optical cavity, said optical cavity bounding at least a portion of said gas mixture;
means for simultaneously exciting said at least two gases contained within said optical cavity sufficiently to produce a continuous laser output at at least two selected wavelengths; and
means for controlling the output power of each of said predetermined wavelengths, said means for controlling the output power of each of said predetermined wavelengths comprising adjusting one or more of the pressure within said laser tube, the operating current of said laser,

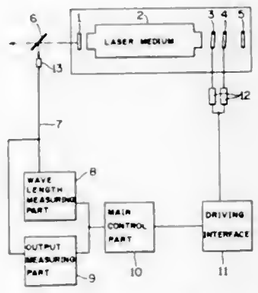


and the relative percentages of each of said gases contained within said laser tube.

5,214,659
LASER DEVICE

Mitsugu Terada; Ken Ohmata, both of Chiba; Kazuo Shimazaki, Tokyo; Yasuo Oeda, and Yuichiro Terashi, both of Chiba, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Oct. 29, 1990, Ser. No. 604,634
Claims priority, application Japan, Oct. 30, 1989, 1-282722; Oct. 30, 1989, 1-282723
Int. Cl.[5] H01S *3/10*
U.S. Cl. 372—20 **2 Claims**

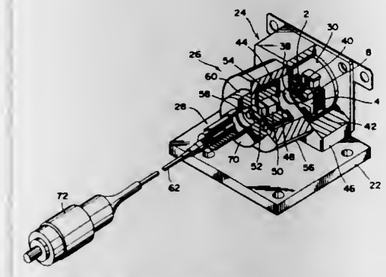


1. A device for narrowing band of laser including a first wavelength selection element and a second wavelength selection element arranged in series on an optical path so as to make a narrow band laser beam from a laser beam source in which the narrow beam laser beam is outputted,
wherein said first wavelength selection element and said second wavelength selection element having a transmitting period and a nontransmitting period as their transmitting characteristics, respectively, characterized in that a relation of both light transmitting periodic characteristics is one in which when a specified light transmitting range of the first wavelength selection element is coincided with a specified light transmitting range of the second wavelength selection element, a valley part of the period of the first wavelength selection element adjoining to both of said specified light transmitting regions is coincided with the light wavelength regions of the second wavelength selection element adjoining to at least both sides of said specified light transmitting region,
a peak of the light transmitting band range of the one element in respect to the peak wavelength of the light transmitting band range of the fixed fine adjusting another element is varied in direction of wavelength so as to vary the laser output.

5,214,660
LASER DIODE MODULE AND METHOD FOR FABRICATING THE SAME

Takayuki Masuko; Shunichi Satoh, and Tetsuo Ishizaka, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Sep. 23, 1991, Ser. No. 763,703
Claims priority, application Japan, Sep. 25, 1990, 2-251829
Int. Cl.[5] H01S *3/04*
U.S. Cl. 372—34 **19 Claims**



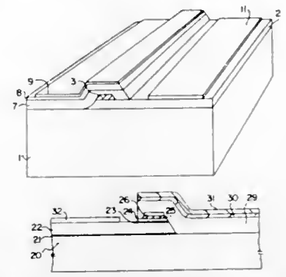
1. A laser diode module, comprising:
an electronic cooling element;
a carrier provided in contact with said electronic cooling element;
a laser diode chip attached on said carrier; and
a thermistor assembly attached on said carrier in the vicinity of said laser diode, wherein said thermistor assembly is comprised of a thermistor fixedly attached onto a base having good heat conductivity, said thermistor and said base having a first material therebetween, said laser diode chip and said carrier having a second material therebetween, said thermistor assembly and said carrier having a third material therebetween, and the melting point of said third material being lower than the melting points of said first and second materials.

5,214,661
OPTOELECTRIC DEVICE ON SEMI-INSULATOR SUBSTRATE AND METHODS FOR MAKING SUCH A DEVICE

Robert Blondeau, Ablis; Daniel Rondi, Paris; Geneviève Glastre, Gif Sur Yvette, and Michel Krakowski, Bourg la Reine, all of France, assignors to Thomson - CSF, Puteaux, France

Division of Ser. No. 530,607, May 30, 1990, Pat. No. 5,115,283. This application Dec. 9, 1991, Ser. No. 803,595
Claims priority, application France, Jun. 6, 1989, 89 07454
Int. Cl.[5] H01L *33/00*; H01S *3/19*
U.S. Cl. 372—45 **3 Claims**

1. A laser comprising a substrate supporting,
an active layer in the shape of a strip with a length and two opposite major plane faces parallel to the length,
first and second confinement layers with first and second types of conductivity on the opposite plane faces of said strip respectively, and extending beyond opposite edges of said active layer, and touching one another beyond said edges in first and second areas, said areas extending along the length of said strip and having a dimension in a direction perpendicular to said length of less than approximately 1 μm,

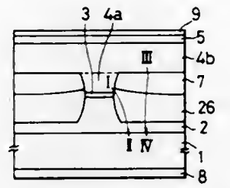


whereby said small touching areas of said first and second confinement layers having small capacitance and allow high frequency operation of said laser.

5,214,662
SEMICONDUCTOR OPTICAL DEVICES WITH PN CURRENT BLOCKING LAYERS OF WIDE-BAND GAP MATERIALS

Michinori Irikawa, Yokohama, and Masayuki Iwase, Tokyo, both of Japan, assignors to Furukawa Electric Co., Ltd., Tokyo, Japan

Filed Nov. 15, 1991, Ser. No. 791,767
Claims priority, application Japan, Nov. 16, 1990, 2-311119; Nov. 28, 1990, 2-326481
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **12 Claims**



1. A semiconductor optical device including a mesa, current blocking and confining layers embedded at all sides of said mesa and a pair of ohmic contact metals, a base semiconductor region of said mesa being an InP layer of a first conductivity type, said mesa including a double-heterostructure comprising an active layer including (Al)GaInAs(P) and a pair of cladding layers consisting of both p and n conductivity type layer, wherein materials of said cladding layers include either InP or $(AlGa)_xIn_{1-x}As(x=0.48)$, and said current blocking and confining layers includes a pn junction, and wherein at least a portion of said current blocking and confining layers consists of either $(Al_yGa_xIn_{1-x-y}As(y>0.4, x+y=0.48)$ or $AlAs_ySb_{1-Y}(Y=0.56)$, in either case of a second conductivity type.

5,214,663
SEMICONDUCTOR LASER

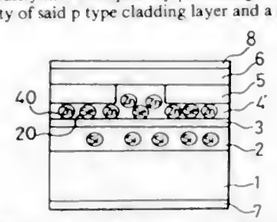
Syoichi Kakimoto; Tomoko Kadowaki; Toshitaka Aoyagi, and Kazuhisa Takagi, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 9, 1992, Ser. No. 818,354
Claims priority, application Japan, Feb. 5, 1991, 3-038085
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—45 **21 Claims**

1. A semiconductor laser comprising:
a semiconductor substrate;
a p type cladding layer, an n type cladding layer, an active

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layer sandwiched by said p type and n type cladding layers, said layers being disposed on said semiconductor substrate, said p type cladding layer including a first dopant impurity in a first quantity producing the p type conductivity of said p type cladding layer and a second quan-



tity, smaller than said first quantity, of a second dopant impurity producing n type conductivity and ionically bonding with said first dopant impurity; and

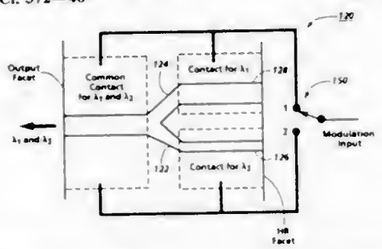
first and second electrodes electrically connected to said p type and n type cladding layers, respectively.

5,214,664

MULTIPLE WAVELENGTH SEMICONDUCTOR LASER

Thomas L. Paoli, Los Altos, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 18, 1991, Ser. No. 779,207
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **27 Claims**



1. A coaxially emittting multiple wavelength solid state laser, comprising:

a plurality of contiguous layers of semiconductor material deposited on a substrate, one or more of said layers being subdivided into a plurality of regions of carrier quantization in at least one dimension in the plane of said layer, wherein at least a first region and a second region are formed such that one quantum level of said first region is at the same energy level as a different quantum level of said second region;

resonant cavity means including a light reflecting surface at opposite edges of said subdivided layer; and

means for electrically biasing said region so as to cause at least one of said regions to emit lasing radiation toward at least one of said opposite edges.

5,214,665

Patent Not Issued For This Number

5,214,666

SOLID STATE LASER OSCILLATOR

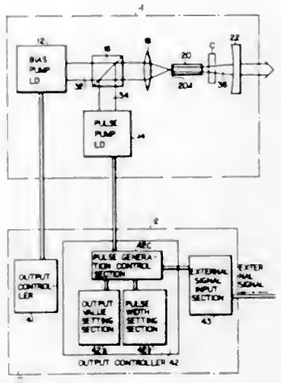
Mitsuyoshi Watanabe, and Makoto Suzuki, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Jul. 10, 1991, Ser. No. 728,894
Claims priority, application Japan, Jul. 12, 1990, 2-184865
Int. Cl.[5] H01S *3/09*
U.S. Cl. 372—69 **10 Claims**

1. A solid-state laser oscillator comprising:

a solid-state laser medium;

a pumping laser light generating means comprising a bias pump and a pulse pump for generating a light pulse and inputting said light pulse into said solid-state laser medium by a pulse pumping technique, said pulse pumping technique causing said solid-state laser medium to emit laser light followed by a relaxation of oscillation of said medium, said oscillation relaxation having a frequency and an amplitude; and,



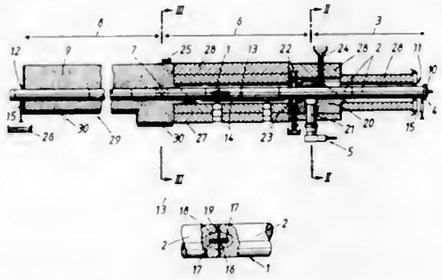
separate control means for controlling said bias pump and said pulse pump to generate said light pulse with a pulse width equal to an integer multiple of said oscillation relaxation cycle to thereby reduce said oscillation relaxation amplitude.

5,214,667

PROCESS AND APPARATUS FOR GRAPHITIZING CARBON BODIES

Claude Holuigue, le Fayet, France, and Heinrich Panholzer, Linz, Austria, assignors to Voest-Alpine Machinery, Construction & Engineering Gesellschaft m.b.H., Linz, Austria

Filed May 29, 1991, Ser. No. 706,889
Claims priority, application Austria, May 31, 1990, 1180/90
Int. Cl.[5] H05B *3/00*; F27B *9/14*
U.S. Cl. 373—120 **18 Claims**



1. In a process of graphitizing carbon bodies in a graphitizing furnace having an entrance, an exit, a graphitizing zone between said entrance and said exit, and a cooling zone between said graphitizing zone and said exit, which process comprises

clamping a plurality of carbon bodies together to form a horizontally extending train, in which adjacent end faces of said carbon bodies adjoin each other,

longitudinally moving said train in said graphitizing furnace from said entrance through said graphitizing zone and subsequently through said cooling zone to said exit,

causing electric current to flow in said train in said graphitizing zone to heat said train,

subsequently cooling said train in said cooling zone, and

adding from time to time a new carbon body to said train at its trailing end at said entrance and removing from time to time a carbon body from the leading end of said train at said exit,

the improvement residing in that

a bed of carbonaceous bulk material is maintained in said graphitizing furnace in at least part of said cooling zone,

a protective gas atmosphere is maintained in said graphitizing furnace outside said bed of carbonaceous bulk material,

said train is moved in said furnace through said bed of carbonaceous bulk material and through said protective gas atmosphere,

furnace electrodes are provided in said furnace in said graphitizing zone to contact said train at two electrode contact points spaced apart along said train, and

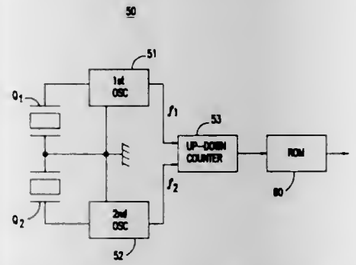
said train is held to be self-supporting between said electrodes as it is moved in said graphitizing zone.

5,214,668

TEMPERATURE DETECTOR AND A TEMPERATURE COMPENSATED OSCILLATOR USING THE TEMPERATURE DETECTOR

Kiyoshi Satou, and Takaaki Hara, both of Tokyo, Japan, assignors to Nec Corporation, Tokyo, Japan

Filed Sep. 30, 1991, Ser. No. 768,809
Claims priority, application Japan, Sep. 28, 1990, 2-261334
Int. Cl.[5] G01K *11/26*; H01L *41/08*
U.S. Cl. 374—117 **6 Claims**



1. A temperature compensated oscillator comprising:

first and second AT cut crystal resonator pieces having substantially the same natural oscillation frequency but different cut angles from each other;

an electrically conductive support member supporting said first and second AT cut crystal resonator pieces;

an electrically conductive case member having mounted therein said support member and housing said first and second AT cut crystal resonator pieces;

electrode films formed on opposite surfaces of each said AT cut crystal resonator piece, the films on one surface of each said AT cut crystal resonator piece being electrically connected to said support member;

first and second electrical leads connecting the electrode films the opposite surface of each said AT cut crystal resonator piece and passing through and terminating outside the case member, said electrical leads being electrically insulated from said case member;

first and second oscillation circuits respectively connected to said first and second electrical leads and respectively excited by said first and second AT cut crystal resonator pieces to produce two different oscillation frequency output signals;

difference frequency detecting means responsive to said two different oscillation frequency output signals for generating a digital output proportional to a phase difference between said two different oscillation frequency output signals;

readout means responsive to said digital output for providing an output signal which fluctuates as a function of temperature;

control voltage applying means for generating an analog voltage proportional to said output signal from said readout means; and

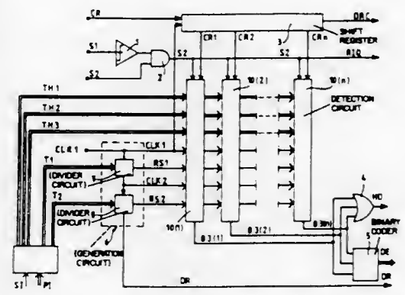
a voltage controlled oscillator (VCO) having an oscillation frequency variable in response to a control voltage, said control voltage applying means applying to said VCO said analog voltage in such a manner as to cancel the influence of a change in temperature on said VCO as said control voltage.

5,214,669

CODE ACQUISITION PROCESS AND CIRCUIT FOR A SPREAD-SPECTRUM SIGNAL

Alain Zarembowitch, Katwijk, Netherlands, assignor to Agence Spatiale Europeenne, Paris, France

PCT No. PCT/EP90/01666, § 371 Date Jul. 29, 1991, § 102(e) Date Jul. 29, 1991, PCT Pub. No. WO91/06155, PCT Pub. Date May 2, 1991
PCT Filed Oct. 10, 1990, Ser. No. 687,894
Claims priority, application France, Oct. 12, 1989, 89 13360
Int. Cl.[5] H04L *7/00*
U.S. Cl. 375—1 **2 Claims**



1. A code acquisition circuit for a spread-spectrum signal receiver generated by modulation of an electrical signal with a binary code, comprising:

a zero-crossing detector for converting the spread-spectrum signal into a one-bit binary signal,

a plurality of binary detection circuits having their first inputs connected in parallel for receiving the one-bit binary signal, each detection circuit comprising:

an exclusive OR gate having an input for receiving the binary input signal and an input for receiving the binary reference code in a time shifted version and having an output for generating a despread binary signal,

first means for accumulating binary signals each time the signal has a logical state 1 during a predetermined first integration period to generate a first accumulated signal,

means for comparing the value of the first accumulated signal to two predetermined threshold levels and for generating a second binary signal having a logical state 1 when the first accumulated signal is between the two threshold levels,

second means for accumulating binary signals each time the second binary signal has a logical state 1 during a second predetermined integration period to generate a second accumulated signal, and

comparator means connected to the output of the second means for accumulating for generating a binary detec-

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tion signal when the second accumulated signal exceeds a third predetermined threshold level;

a shift register advancing in response to clock pulses, the shift register having the output of each state thereof connected to a second input of a different detection circuit, the shift register having its input connected to receive a binary reference code whereby each state output of the register provides a time shifted version of the binary reference code, and

output means for combining and/or encoding the detection signals from all the detection circuits so as to identify the correct code epoch of the spread-spectrum signal.

5,214,670

EQUALIZATION SYSTEM AND METHOD FOR EQUALIZING A BASE-BAND TELECOMMUNICATION LINE

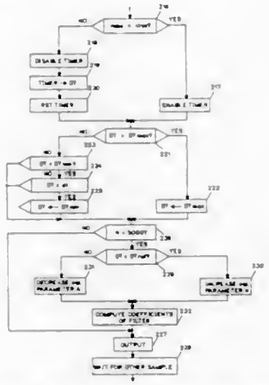
Daniel Ballatore, Goudon, France, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 12, 1991, Ser. No. 743,665

Claims priority, application European Pat. Off., Oct. 31, 1990, 90480171.9

Int. Cl.[5] H03H 7/30

U.S. Cl. 375—12 10 Claims



4. Equalization method for compensating the distortion introduced into a signal which is transmitted by a first DCE to a second DCE including a filtering means via a telecommunication line characterized in that it involves the step of:

measuring (212) a level Vabs of the received signal,

detecting (216) the instants in time when the measured signal level Vabs is equal to a predetermined voltage reference value Vref,

measuring (217, 219, 220) a period DT separating two consecutive of said instants,

monitoring (229, 230, 231, 232) the filter parameters of the filtering means in response to said measured period DT, whereby the equalization process is automatically adapted to the characteristics of the telecommunication line without necessitating a training sequence.

5,214,671

ADAPTIVE EQUALIZER

Toshihisa Nakai, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Dec. 17, 1991, Ser. No. 808,606

Claims priority, application Japan, Feb. 13, 1991, 3-20008

Int. Cl.[5] H03H 7/30

U.S. Cl. 375—14 16 Claims

1. An adaptive equalizer for equalizing an input signal having a transmission frame which includes a first training field and a second training field, comprising:

an input terminal to receive the input signal;

an output terminal;

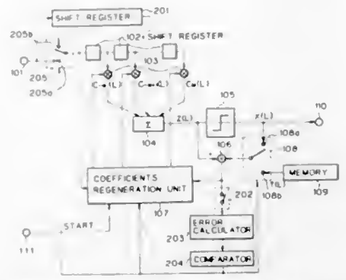
equalizing means, between the input and output terminals, for equalizing the input signal received at the input terminal to generate an equalized signal at the output terminal, the equalizing means including

first means, operative in response to a first signal, for generating a second signal from the input signal

second means for generating the equalized signal from the second signal,

memory means for storing first and second values, and

third means for subtracting the first and second values stored in the memory means from the second signal to



provide a difference signal which represents an equalized error in the first and second training fields, the difference signal being included in the first signal supplied to the first means;

storage means for temporarily storing the input signal;

error calculator means, operative in response to the difference signal, for calculating an equalization error in the second training field;

comparator means for comparing the equalization error in the second training field with a predetermined value; and

control means, operative in response to the comparator means, for resetting the equalizing means and for causing the equalizing means to repeat equalizing operations from a head of the second training field by using the input signal stored in said storage means when the equalization error in the second training field exceeds a predetermined value.

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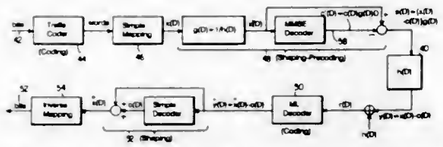
TRELLIS PRECODING FOR FRACTIONAL BITS/BAUD

Vedat Eyuboglu, and Michael P. Chen, both of Boston, Mass., assignors to Codex Corporation, Mansfield, Mass.

Filed Apr. 6, 1990, Ser. No. 505,418

Int. Cl.[5] H04L 27/34

U.S. Cl. 375—34 34 Claims



1. A method of mapping a digital data sequence into a signal point sequence e(D) for data transmission over a channel with impulse response h(D) to produce a channel output sequence $y(D)=e(D)h(D)$, comprising the steps of

defining a class of possible sequences based on a time-varying trellis code derived from an N-dimensional time-invariant trellis code C by using different transformed versions of its underlying lattices for respectively different N-dimensional symbols, and

choosing e(D) so that the signal points in the sequence y(D) belong to said class of possible sequences based on said digital data sequence.

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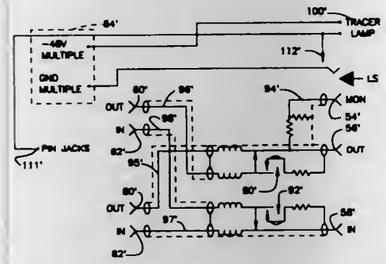
DIGITAL CROSS CONNECT ASSEMBLY

Todd A. Morgenstern, Golden Valley, and Dennis M. Burroughs, Savage, both of Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.

Continuation of Ser. No. 389,804, Aug. 4, 1989, abandoned. This application Dec. 19, 1991, Ser. No. 814,212

Int. Cl.[5] H04L 25/00; H05K 5/00, 5/4, 5/06

U.S. Cl. 375—36 23 Claims



20. A digital signal cross connect assembly comprising:

a plug receiving forward face;

a plurality of jacks including at least a signal-in jack and a signal-out jack, each of said jacks disposed to releasably receive a plug inserted into said forward face;

a plurality of electrical connector means including at least a cross-connect-out connector, a cross-connect-in connector, an equipment-out connector and an equipment-in connector;

electrical cross-connect circuit means for providing a plurality of signals paths between said jacks and said connectors, said circuit means including:

(a) said equipment-in connector connected through a first circuit path to said cross-connect-in connector;

(b) said equipment-out connector connected through a second circuit path to said cross-connect-out connector;

(c) said signal-in jack connected to said equipment-in connector along a third signal path;

(d) said signal-out jack connected to said equipment-out connector along a fourth signal path;

(e) first switch means activated by connection of a plug to said signal-in jack for opening said first circuit path;

(f) second switch means activated by connection of a plug to said signal-out jack for opening said second circuit path;

a single monitor jack for releasably receiving a single monitor plug;

said electrical cross-connect circuit means including a selectively activated monitor switch means connected to said monitor jack for said monitor jack to be electrically connected to monitor a signal along any selected one of said first, second, third or fourth signal paths and, at an option of an operator, be switched to monitor a signal along any different one of said paths.

5,214,674

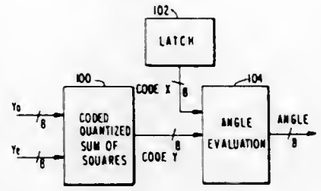
METHOD AND APPARATUS FOR CARRIER SYNCHRONIZATION ACQUISITION IN A DIGITAL BURST MODE COMMUNICATION SYSTEM

Soheil I. Sayegh, Germantown, Md., assignor to Comsat, Clarksburg, Md.

Filed Jan. 25, 1991, Ser. No. 645,768

Int. Cl.[5] H04L 27/06

U.S. Cl. 375—97 4 Claims



2. An apparatus for estimating carrier phase of an unmodulated preamble from a digital signal having both first and second channels in a digital burst mode communication system, said apparatus comprising:

sampling means for obtaining samples from each of said first and second channels, said samples including odd samples and even samples from each of said channels;

first storage means for receiving as addresses said odd and even samples from both of said first and second channels and for outputting first and second codes respectively corresponding to first and second quantization intervals;

second storage means for receiving as addresses said first and second codes and for outputting a particular estimate of the carrier phase, said second storage means comprising memory means for storing a plurality of carrier phase estimates and addressed by said first and second codes to read out said particular carrier phase estimate.

5,214,675

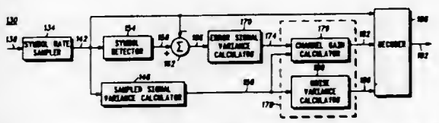
SYSTEM AND METHOD FOR CALCULATING CHANNEL GAIN AND NOISE VARIANCE OF A COMMUNICATION CHANNEL

Bruce D. Mueller, Palatine; Kevin L. Baum, Hoffman Estates; David E. Borth, Palatine; Phillip D. Rasky, Buffalo Grove, and Eric H. Winter, Oak Park, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 2, 1991, Ser. No. 724,663

Int. Cl.[5] H04L 27/06

U.S. Cl. 375—94 29 Claims



1. An adaptive method for determining at least one characteristic of a communication channel interconnecting a transmitter and a receiver, said method comprising the steps of:

determining values of at least sampled portions of a received signal received by the receiver subsequent to transmission thereof upon the communication channel;

calculating variance of the values of the at least sampled portions of the received signal;

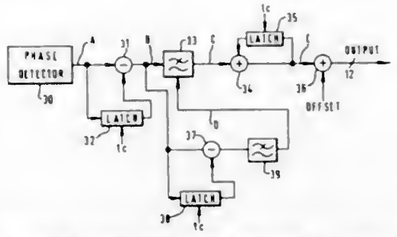
quantizing the values of the at least sampled portions of the received signal to form quantized values thereby;

forming an error signal responsive to differences between the values of the at least sampled portions of the received signal and corresponding quantized values of the at least sampled portions of the received signal;

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calculating variance of the error signal;
calculating a channel gain characteristic of the communication channel responsive to values of the variance of the at least sampled portions of the received signal and of the variance of the error signal.

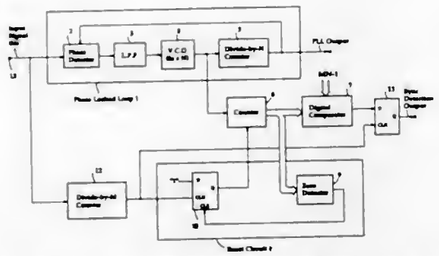
5,214,676
DIGITAL PHASE DETECTOR ARRANGEMENTS
James H. Wilkinson, Heathlands, England, assignor to Sony Broadcast & Communications Ltd., Basingstoke, England
Filed Mar. 25, 1991, Ser. No. 674,384
Claims priority, application United Kingdom, Apr. 3, 1990, 9007496
Int. Cl.[5] H04L *7/02*
U.S. Cl. 375—118 **15 Claims**



10. A digital signal interpolator apparatus for interpolating an input digital signal having a first sample rate so as to derive a sample-rate converted output digital signal having a second sample rate different from said first sample rate, said digital signal interpolator apparatus comprising:
a cascaded series of multi-tap interpolation filter means, each of said interpolation filter means having a plurality of selectively employed tap sets;
digital phase detector means receiving first and second clock signals having frequencies corresponding to said first and second sample rates and including means for providing a control signal representing phase differences between said first and second clock signals;
circuit means for reducing jitter in said control signal including means for differentiating said control signal to produce a differentiated signal, low-pass filter means for low-pass filtering said differentiated signal to produce a filtered signal, and means for integrating said filtered signal to produce a smoothed control signal from which at least some jitter has been removed;
means for supplying said smoothed control signal to each of said interpolation filter means for selecting one of said tap sets to be employed in the respective interpolation filter means;
means to supply said input digital signal to a first of said interpolation filter means of said series; and
means to derive said sample-rate converted output digital signal from a last of said interpolation filter means of said series.

5,214,677
PHASE-LOCKED LOOP WITH SYNC DETECTOR
Kunitaka Mori, Tokyo, Japan, assignor to NEC Corporation, Japan
Filed Oct. 31, 1989, Ser. No. 429,409
Claims priority, application Japan, Nov. 2, 1988, 63-278884
Int. Cl.[5] H03D *3/24*
U.S. Cl. 375—120 **4 Claims**

4. A phase-locked loop comprising:
phase detector means for receiving a PLL input pulse signal at frequency f_0 and for receiving a PLL output pulse signal of said phase-locked loop, said PLL input and output pulse signals being applied to said phase detector means for producing a control signal representative of a phase difference between said PLL input and output pulse signals;
variable-frequency oscillator means responsive to said control signal for generating VFO output pulses having a frequency which is variable in accordance with said phase difference;
frequency divider means for dividing the frequency of said VFO output pulses by N for generating said PLL output pulse signal, where N is an integer equal to or greater than 2;
sync detection means for receiving said PLL input pulse signal and said VFO output pulses and detecting when $M \times N$ pulses are generated by said oscillator means during an interval in which M input pulses are received as

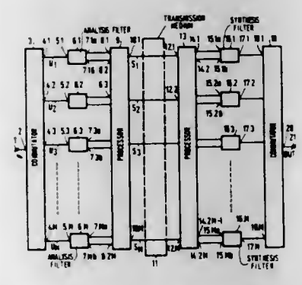


said PLL input pulse signal, and in response thereto, generating an output signal indicating that a phase alignment is established between said PLL input and output pulse signals, where M is an integer equal to or greater than 1, wherein said sync detection means comprising:
reset means for generating a reset pulse in response to every M pulses of said PLL input pulse signal;
counter means arranged to be incremented in response to each of said VFO output pulses for producing a count value and resetting the count value to zero in response to said reset pulse; and
comparator means for detecting a coincidence between said count value and a reference value, and in response thereto, generating said phase-alignment indicating signal.

5,214,678
DIGITAL TRANSMISSION SYSTEM USING SUBBAND CODING OF A DIGITAL SIGNAL
Jean B. Rault; Yves F. Dehery, both of rue du Clos Courtel BP 59; Jean Y. Roudaut, rue du Clos Courtel, all of Cesson-Sevigne, France; Alphons A. M. L. Bruekers, and Raymond N. J. Veldhuis, both of Groenewoudsweg 1, Eindhoven, Netherlands
Filed May 31, 1990, Ser. No. 532,465
Claims priority, application European Pat. Off., Jun. 2, 1989, 89201408.5
Int. Cl.[5] H04B *1/66*
U.S. Cl. 375—122 **39 Claims**

1. A digital transmission system including a transmitter and a receiver, said transmitter including a coder and said receiver including a decoder for subband coding of a digital signal having a sampling rate F_S in a signal band,
said coder comprising means for generating a number M of subband signals with sampling rate reduction, and means for dividing the signal band into successive subbands identified by band numbers m increasing with frequency, where $1 \leqq m \leqq M$,
said decoder comprising means for merging said subbands to said signal band with sampling rate increase, and for constructing a replica of said digital signal from said M subband signals,
characterized in that said coder comprises a coder processor

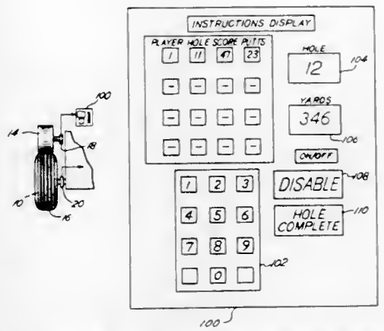
having 2M coder processor inputs and M coder processor outputs; an analysis filter means including M analysis filters each having one analysis input and two analysis outputs, each of said outputs being a signal having a sampling rate F_S/M and being an output of said analysis filter means; and means for dividing the digital signal band into successive subbands having approximately equal bandwidths, and applying a respective subband signal to each analysis input,
each said analysis filter applies two different filterings to the respective subband signal applied to the analysis filter input, and supplies a respective filtered signal to each of said two outputs, each of said two outputs being coupled to a respective one of said 2M processor inputs,
said coder processor comprises means for combining said processor inputs to form said processor outputs, each processor output being a respective combination of at least one of said processor inputs, said M processor outputs being coupled respectively to M outputs of the coder for supplying the M subband signals,
said decoder comprises a decoder processor having M decoder processor inputs and 2M decoder processor outputs; a synthesis filter means including M synthesis filters



each having two synthesis filter inputs and one synthesis filter output; and means for receiving M subband signals and applying a respective one of the M subband signals to each decoder processor input as a decoder input signal,
said decoder processor comprises means for generating a respective pairs of decoder output signals on respective pairs of the 2M decoder processor outputs, said respective decoder output signal being a combination of at least one decoder input signal, each pair of decoder output signals being coupled to a pair of two inputs of a corresponding one of said M synthesis filters,
each said synthesis filter applies two different filterings to signals coupled to the respective pair of synthesis filter inputs, to form respective synthesized signals, and supplies a combination of the synthesized signals to the respective synthesis filter output, each of said synthesis filter outputs being coupled to said synthesis filter means output for supplying a replica of said digital signal having a sampling rate F_S, and
each of the analysis and synthesis filters has coefficients derived from an odd number of coefficients of a standard filter having a low pass filter characteristic with a bandwidth approximately equal to half the bandwidth of the subbands.

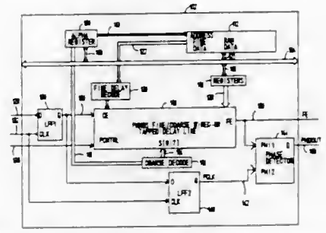
5,214,679
SCORE KEEPER AND DISTANCE INDICATOR FOR USE WITH A GOLF CART
Robert G. Metcalf, 19 W. 266 Governors Trail, Oak Brook, Ill. 60521, assignor to Robert G. Metcalf, Downers Grove, Ill.
Filed Jun. 13, 1991, Ser. No. 714,857
Int. Cl.[5] G06F *15/44;* G01C *22/00*
U.S. Cl. 377—5 **2 Claims**

1. An apparatus attachable to a golf cart for determining the distance from a present location to a pin on a golf course and for determining and displaying a golfer's score comprising in combination:
(a) means for identifying a hole that is being played;
(b) means for measuring distance traversed by the golfer with the golf cart on the identified hole to a present location;
(c) means for determining a distance from the present location of the golf cart to the pin;



(d) means for displaying the distance from the present location to the pin;
(e) means for accumulating a current score for each of a plurality of players consisting of a count of strokes taken by each of the players;
(f) means for simultaneously displaying the current scores of said plurality of players; and
(g) means for removing the apparatus from the golf cart to allow the apparatus to be taken to a remote location for recovery of the scores.

5,214,680
CMOS PSEUDO-NMOS PROGRAMMABLE CAPACITANCE TIME VERNIER AND METHOD OF CALIBRATION
Alberto Gutierrez, Jr., Fort Collins; Christopher Koerner, Longmont, both of Colo.; Masaharu Goto, Itami, Japan, and James O. Barnes, Fort Collins, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Nov. 1, 1991, Ser. No. 786,447
Int. Cl.[5] H03K *3/017*
U.S. Cl. 377—20 **10 Claims**



1. A time vernier for providing fine control of an input signal having coarse timing edges, comprising:
(a) receiving means for receiving a value representing a desired time delay to be added to the coarse timing edge input, said desired time delay having fine and coarse delay aspects;
(b) first decoding means for decoding said fine delay aspect and generating fine delay control signals;

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(c) second decoding means for decoding said coarse delay aspect and generating coarse delay control signals; and

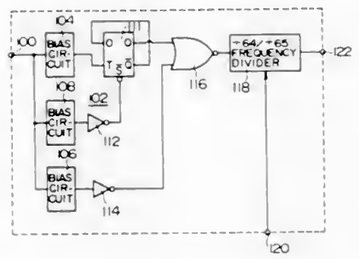
(d) a delay line having inputs which receive the input signal having coarse timing edges, said fine and coarse control signals, and a control voltage which automatically adjusts with temperature and power supply variations, so as to provide for temperature and power supply compensation, said delay line combining said fine and coarse delay signals to provide an output signal with fine timing edges.

5,214,681

FREQUENCY-DIVIDER CIRCUIT WITH INPUT SIGNAL LEVEL OFFSET CONTROL

Fumio Satoh, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 5, 1991, Ser. No. 788,227
Claims priority, application Japan, Nov. 26, 1990, 2-324261
Int. Cl.[5] H03K *21/02*
U.S. Cl. 377—47 **17 Claims**



1. A frequency-divider circuit comprising:

a single input terminal to which a first input alternating signal alternating about a first reference level or a second input alternating signal alternating about a second reference level different from said first reference level is applied;

judgement means coupled to said input terminal, having first, second and third output points, said judgement means producing a first output alternating signal at said first output point, a first gate control signal at said second output point and a frequency-division control signal at a first level at said third output point when said first input alternating signal is applied to said input terminal, and producing a second output alternating signal at said second output point and the frequency-division control signal at a second level at said third output point when a second input alternating signal is applied to said input terminal;

frequency divider means for producing a frequency-divided signal by frequency-dividing the first output alternating signal from said first output point by a predetermined factor when the frequency-division control signal at the first level is applied thereto from said third output point, and producing a second gate control signal when the frequency-division control signal at the second level is applied thereto from said third output point; and

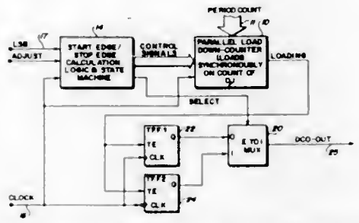
gate means for receiving an output signal from said frequency-divider means and an output signal from the second output point of said judgment means, for allowing said frequency-divided signal to pass therethrough when the output signal from said frequency-divider means is said frequency-divided signal and the output signal from said second output point of said judgment means is said first gate control signal, and for allowing said second output alternating signal to pass therethrough when the output signal from said frequency-divider means is said second gate control signal and the output signal from said second output point of said judgment means is said second output alternating signal.

5,214,682

HIGH RESOLUTION DIGITALLY CONTROLLED OSCILLATOR

Lawrence T. Clark, Tempe, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Dec. 27, 1991, Ser. No. 815,098
Int. Cl.[5] H03K *21/02*
U.S. Cl. 377—56 **15 Claims**



1. A high resolution digitally controlled oscillator including in combination:

a source of clock pulses, each having a rising edge and a falling edge;

a frequency divider circuit coupled with said source of clock pulses for providing an output signal having a changing binary state, which is predetermined division ratio of said clock pulses; and

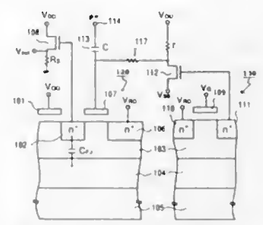
control means coupled with said frequency divider circuit for causing said frequency divider circuit to change the binary state of the output signal therefrom and therefore change the division ratio of said frequency divider circuit in response to selected ones of the rising edges and falling edges of said clock pulses to produce a high resolution output signal.

5,214,683

CHARGE DETECTING DEVICE CONTROLLING RESET TRANSISTOR OPERATION

Tetsuji Kimura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 8, 1992, Ser. No. 894,486
Claims priority, application Japan, Jun. 7, 1991, 3-136414
Int. Cl.[5] G11C *19/28*; H01L *29/78*
U.S. Cl. 377—60 **8 Claims**



1. A charge detecting device comprising:

a floating diode formed on a semiconductor substrate for accumulating signal charges delivered,

a source-follower amplifier connected to said floating diode for detecting a variation in a surface potential of said floating diode,

A reset transistor formed on said semiconductor substrate, for draining signal charges accumulated in said floating diode before a charge detecting operation, said reset transistor using a region of said floating diode as one of source and drain regions,

a channel potential detecting transistor formed on said semiconductor substrate for detecting a channel potential of said reset transistor, which has a channel potential equal to that of said reset transistor, and

a reset pulse supplying means coupled to both said reset transistor and said channel potential detecting transistor for creating a reset pulse depending on said channel potential of said reset transistor and for applying said reset pulse to a gate electrode of said reset transistor.

5,214,684

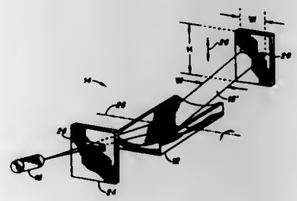
Patent Not Issued For This Number

5,214,685

X-RAY LITHOGRAPHY MIRROR AND METHOD OF MAKING SAME

Malcolm R. Howells, Berkeley, Calif., assignor to Maxwell Laboratories, Inc., San Diego, Calif.

Filed Oct. 8, 1991, Ser. No. 772,906
Int. Cl.[5] G21K *5/00*
U.S. Cl. 378—34 **17 Claims**



1. A method for uniformly exposing a workpiece to X-rays comprising:

(a) designing a surface of an aspheric mirror to produce a straight line image of radiation reflected therefrom on a workpiece, said straight line having the radiation uniformly distributed along its length;

(b) focusing a source of X-rays from the surface of said aspheric mirror to a straight line of X-ray radiation on the workpiece; and

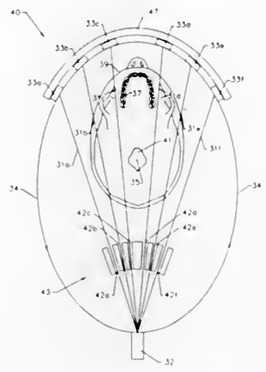
(c) scanning the line of X-ray radiation across the workpiece, thereby efficiently exposing the workpiece to the X-ray radiation.

5,214,686

THREE-DIMENSIONAL PANORAMIC DENTAL RADIOGRAPHY METHOD AND APPARATUS WHICH AVOIDS THE SUBJECT'S SPINE

Richard L. Webber, Winston-Salem, N.C., assignor to Wake Forest University, Winston-Salem, N.C.

Filed Dec. 13, 1991, Ser. No. 808,181
Int. Cl.[5] A61B *6/14*
U.S. Cl. 378—38 **18 Claims**



1. A dental radiography system comprising:

radiographic source means, for simultaneously projecting a plurality of diverging, fan-shaped radiation beams through a subject's teeth, each fan-shaped beam lying in a plane which is orthogonal to the plane of the teeth, with each fan-shaped beam avoiding the subject's spine;

radiographic detecting means, for detecting attenuated radiation which emerges through the teeth, the detected attenuated radiation being free of attenuation produced by the subject's spine; and

means for synchronously rotating said radiographic source means and said radiographic detecting means about an axis which is orthogonal to the plane of the teeth, each of said fan-shaped beams avoiding the subject's spine during rotation thereof, such that the detected attenuated radiation produces a panoramic image of the teeth, which is free of image artifacts produced by irradiation of the spine.

5,214,687

METHOD TO DETERMINE TRANSMISSION QUALITY

Antti Känsäkoski, and Markku Hiltunen, both of Oulu, Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland

Filed Jun. 5, 1991, Ser. No. 711,623
Int. Cl.[5] H04B *7/00*
U.S. Cl. 379—60 **11 Claims**

1. A method for determining the transmission quality of a signal transmitted by a base station and received by a cellular digital radio telephone network mobile station having a channel decoder, comprising the steps of:

using the channel decoder to detect digital bits in the signal and produce a received bit signal;

producing a phase error signal related to the phase error of the detected bits in the received bit signal;

calculating an average and variance of the phase error signal;

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generating a signal-to-nose (S/N) ratio signal of the received signal based on the average and variance values; and

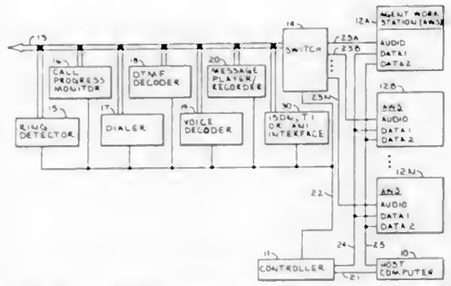
comparing the S/N ratio signal to values stored in a read-only-memory, the stored values defining a bit error rate (BER) estimate of the received signal, the BER estimate defining the transmission quality.

5,214,688

METHOD AND APPARATUS FOR DYNAMIC AND INTERDEPENDENT PROCESSING OF INBOUND CALLS AND OUTBOUND CALLS

Aleksander Szlam, Norcross; James W. Crooks, Jr., and Dean H. Harris, both of Marietta, all of Ga., assignors to Inventions, Inc., Norcross, Ga.

Filed Jun. 5, 1990, Ser. No. 533,489
Int. Cl.[5] H04M *1/64*
U.S. Cl. 379—67 **73 Claims**



1. A method for processing telephone calls, comprising the steps of:

detecting inbound calls;

placing outbound calls;

detecting the answering of said outbound calls;

selectably connecting said inbound calls and answered outbound calls to a plurality of agents;

generating statistics concerning said inbound calls and said outbound calls; and

adjusting the rate of placement of said outbound calls in response to said statistics on said inbound calls and said outbound calls.

5,214,689

INTERACTIVE TRANSIT INFORMATION SYSTEM

Daniel O'Sullivan, Aberdeen, N.J., assignor to Next Generaton Info, Inc., Morgan Ville, N.J.

Continuation of Ser. No. 584,427, Sep. 13, 1990, abandoned, which is a continuation of Ser. No. 334,096, Apr. 5, 1989, abandoned, which is a continuation-in-part of Ser. No. 155,146, Feb. 11, 1989, abandoned. This application Jan. 27, 1992, Ser. No. 826,677
Int. Cl.[5] H04M *1/64, 3/50, 11/08*
U.S. Cl. 379—88 **25 Claims**

1. A method of utilizing a telephonic voice response system for providing travel-related, spoken voice information over a telephone line to a telephone caller utilizing a keypad on a DTMF-type telephone, the method comprising:

(a) assigning a digital code specific to each station in a transportation system, the digital code having a predetermined, fixed number of characters, which code is representative of the spelling of at least a portion of the name of the station as spelled-out on a DTMF-type telephone keypad;

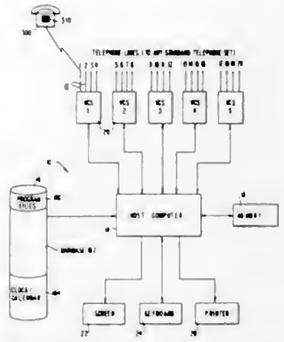
(b) providing a database for storing said digital codes;

(c) storing transportation schedule information in said database to form a schedule database;

(d) storing a plurality of individual speech files in said database in modular form for generating voice messages from said database by sequentially accessing a plurality of individual speech files to create a spoken voice message capable of being transmitted over a telephone line and heard as spoken sounds by a telephone caller;

(e) generating a first voice message prompt to said caller instructing said caller to enter, by depressing at least one button on the DTMF keypad corresponding to the correct spelling thereof, the name of a desired departure station;

(f) generating a second voice message prompt to said caller instructing said caller to enter, by depressing at least one button on the DTMF keypad corresponding to the correct spelling thereof, the name of a desired arrival station;



(g) generating a third voice message prompt to said caller instructing said caller to enter, by depressing at least one button on the DTMF keypad corresponding thereto, the desired time of at least one of departure and arrival;

(h) searching said schedule database in response to the caller's keypad entries in steps (e), (f) and (g) for locating the scheduled departure time of a transportation vehicle departing the desired departure station at a time closest to the desired time entered in step (g); and

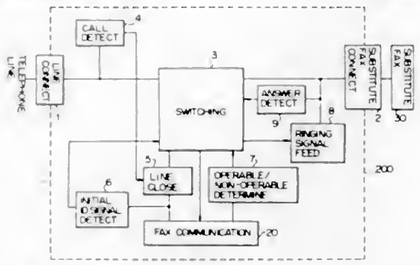
(i) generating a voice message to said caller identifying a scheduled departure time of a transportation vehicle from the desired departure station and a scheduled arrival time of the transportation vehicle at the desired arrival station.

5,214,690

FACSIMILE DEVICE

Sadamoto Kato, Tokyo, Japan; Hideyuki, Suzuki, Kakegawa, Japan; Motohiko Yamashita, Kakegawa, Japan; Isao Ishigami, Kakegawa, all of Japan

Filed Nov. 19, 1991, Ser. No. 798,074
Claims priority, application Japan, Nov. 19, 1990, 2-313735
Int. Cl.[5] H04M *11/00, 3/42*
U.S. Cl. 379—100 **2 Claims**



1. A facsimile device comprising:

line connecting means connecting to a telephone line;

substitute connecting means connecting to an external substitute facsimile device;

a facsimile communication section;

switching means for selectively setting up a communication path between a remote facsimile station connected to said telephone line and said facsimile communication section or between said remote facsimile station and said substitute facsimile device connected to said substitute connecting means;

call detecting means for automatically detecting an incoming call from said telephone line;

line closing means for closing the communication path to said telephone line on receiving call detection information from said call detecting means;

initial identification (ID) signal detecting means for determining whether or not an initial ID signal for facsimile communication has been received over said telephone line;

operable/non-operable determining means for determining whether or not said facsimile communication section is ready to operate;

ringing feeding means for feeding a ringing to said substitute facsimile device to start said substitute facsimile device via said substitute connecting means; and

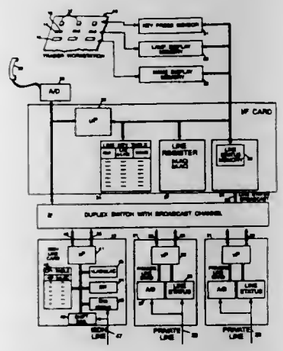
answer detecting means for detecting an answer of said substitute facsimile device to said ringing.

5,214,691

KEY TELEPHONE SYSTEM WITH VIRTUAL PRIVATE LINES

John M. Cotton, East Norwalk, and Neil C. Olsen, Milford, both of Conn., assignors to IPC Information Systems, Inc., Stamford, Conn.

Filed Sep. 26, 1991, Ser. No. 766,648
Int. Cl.[5] H04M *1/26*
U.S. Cl. 379—157 **8 Claims**



1. A virtual private line key telephone system comprising:

a console including a plurality of line keys each associated with a party that can be reached via a switched trunk line;

a look-up table means associating said line keys with the telephone numbers of the associated parties;

means for establishing a communication path from said console to one of said trunk lines and sending signals to the central office via said selected trunk line corresponding to the telephone number in said look-up table means associated with a line key that is actuated to place a call;

means for determining the telephone number of incoming calls and comparing said incoming call telephone number with telephone numbers in said look-up table means to determine which line keys are associated with the incoming call; and

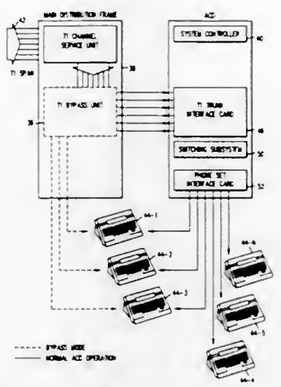
means coupling the incoming call to the console when a line key associated with the incoming caller is actuated.

5,214,692

BYPASS FOR TELEPHONE SWITCHING SYSTEM

Michael A. Chack, Palo Alto, and John D. Meyers, Campbell, both of Calif., assignors to Aspect Telecommunications Corporation, San Jose, Calif.

Continuation of Ser. No. 435,645, Nov. 13, 1989, abandoned. This application Aug. 28, 1991, Ser. No. 758,326
Int. Cl.[5] H04M *3/58, 1/00*
U.S. Cl. 379—265 **13 Claims**
MICROFICHE APPENDIX INCLUDED
(216 Microfiche, 3 Pages)



1. A bypass unit for a telephone system having a plurality of spans of digital lines, a plurality of digital telephones, and a switch for connecting each digital telephone to each digital line in a normal operating mode of the system the digital lines extending to a central office via a main distribution frame, the bypass comprising:

means for sensing a failure of the normal operating mode of the switch; and

means for switchably connecting each of the digital telephones to each of the digital lines in only one of the spans upon the sensing of the failure, wherein the means for switchably connecting is located in the main distribution frame and connects each of the digital telephones to the digital line thereby bypassing the switch, and wherein the means for switchably connecting is not in operation in the normal operating mode.

5,214,693

MULTI-FREQUENCY SIGNAL RECEIVER AND A METHOD OF DETECTING THE MULTI-FREQUENCY SIGNAL

Kaoru Chujo, Hachioji, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 2, 1990, Ser. No. 591,939
Claims priority, application Japan, Oct. 18, 1989, 1-269236
Int. Cl.[5] H04M *1/50*
U.S. Cl. 379—386 **23 Claims**

1. A multi-frequency signal receiver for detecting a multi-frequency signal in an input signal, said receiver comprising:

a detector circuit for detecting the input signal, and

an amplitude variation supervisory circuit comprising:

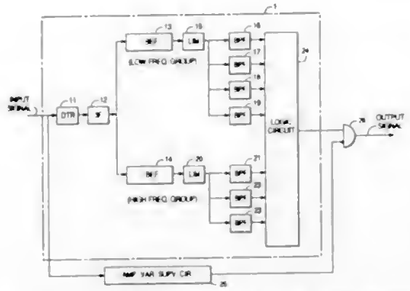
amplitude means, connected to the detector circuit, for measuring an amplitude of the input signal to determine an input signal amplitude,

peak holding means for detecting and holding a maximum value of the input signal amplitude for a predetermined period of time, and

judging means for detecting when the input signal ampli-

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tude exceeds the maximum value of the input signal amplitude held for the predetermined period of time to



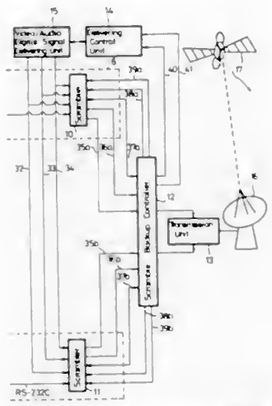
determine if the input signal is not the multi-frequency signal.

5,214,694

SCRAMBLE SIGNAL TRANSMISSION SYSTEM FOR EARTH STATION OF COMMUNICATION SATELLITE

Tsuneo Furuya; Fujiyuki Fukamatsu; Yasuaki Yamagishi, and Yoshimoto Muratsubaki, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 20, 1991, Ser. No. 672,440
Claims priority, application Japan, Mar. 20, 1990, 2-71552
Int. Cl.[5] H04K *1/00*
U.S. Cl. 380—2 1 Claim



1. A system for transmitting a scrambled signal, said system including an organization center for organizing data relative to customers, and first and second control units connected to said organization center, each of said control units having a system controller and a scrambler for performing scrambling processing of information signals in response to customer data sent from the organization center, comprising:

a) means for communication between said organization center and one of said first and second control units in a first state in which said one control unit operates without fault;

b) means for operating each of said first and second control units identically in said first state;

c) means for operating only the other of said first and second control units, and for communicating between the organization center and said other control unit, in case of the occurrence of a fault in the communication of said one control unit; and

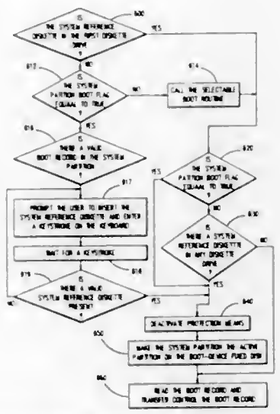
d) means operative when said one control unit is again operative without fault for transmitting said customer data from said other control unit to said one control unit through a line interconnected between said one control unit and said other control unit.

5,214,695

APPARATUS AND METHOD FOR LOADING A SYSTEM REFERENCE DISKETTE IMAGE FROM A SYSTEM PARTITION IN A PERSONAL COMPUTER SYSTEM

Lisa R. Arnold, Boynton Beach; Richard Bealkowski, Delray Beach; John W. Blackledge, Jr., Boca Raton; Doyle S. Cronk, Delray Beach; Richard A. Dayan; Douglas R. Geisler, both of Boca Raton; Matthew T. Mittelstedt, Delray Beach, all of Fla.; Matthew S. Palka, Jr., Raleigh, N.C.; John D. Paul, Boynton Beach, Fla.; Robert Sachsenmaier, Boca Raton, Fla.; Kenneth D. Smeltzer, Delray Beach, Fla.; Peter A. Woytovech, Boynton Beach, Fla., and Kevin M. Zyvoloski, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 557,334, Jul. 23, 1990, Pat. No. 5,128,995. This application Jun. 17, 1991, Ser. No. 716,594
The portion of the term of this patent subsequent to Jul. 7, 2009, has been disclaimed.
Int. Cl.[5] H04L *9/00*
U.S. Cl. 380—4 10 Claims



1. An apparatus for accessing system utilities in a personal computer system, the personal computer system having a system processor for executing an operating system, a read only memory, and a random access memory, said apparatus comprising:

a direct access storage device;

a portion of BIOS being included in the direct access storage device, said portion of BIOS being loaded into random access memory to boot the operating system; and

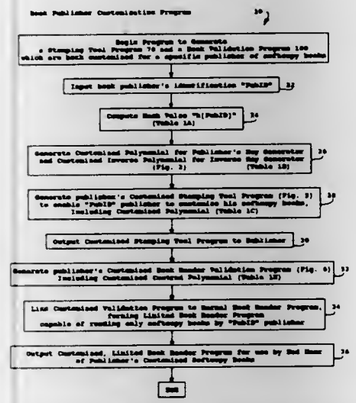
a portion of system utilities included in the direct access storage device, said system utilities being automatically executed upon detecting an error condition said system utilities including a program for modifying the configuration of the system.

5,214,696

DATA PROCESSING SYSTEM AND METHOD TO PRODUCE SOFTCOPY BOOK READERS WHICH ARE LIMITED TO READING ONLY BOOKS PUBLISHED BY A SPECIFIC PUBLISHER

Harry R. Keiser, II, Rockville; Jeffrey N. Stevens, Gaithersburg, and Jay Unger, Darnestown, all of, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 4, 1992, Ser. No. 834,189
Int. Cl.[5] H04L *9/28*; G06F *15/38*
U.S. Cl. 380—4 12 Claims



1. A data processing method for limiting a book reading program for softcopy books, to be for reading only softcopy books published by a selected publisher, comprising the steps of:

generating with a data processor, a customized polynomial expression to be associated with a selected softcopy book publisher;

merging with a data processor, said customized polynomial expression with a first shell program, forming a stamping tool program for stamping a key value onto a softcopy book published by said selected publisher;

generating with a data processor, a customized inverse polynomial expression to said customized polynomial expression, to be associated with said selected softcopy book publisher;

merging with a data processor, said customized inverse polynomial expression with a second shell program, forming a book validation program for validating said key value on said softcopy book published by said selected publisher and enabling a softcopy book reading program to read said softcopy book.

5,214,697

PROGRAM EXECUTION APPARATUS FOR ENSURING SECURITY OF A PROGRAM

Yasuo Saito, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 27, 1991, Ser. No. 676,118
Claims priority, application Japan, Mar. 27, 1990, 2-77446
Int. Cl.[5] H04L *9/00*
U.S. Cl. 380—4 3 Claims

1. A program execution apparatus comprising:

a first memory for storing enciphered program data of n bits;

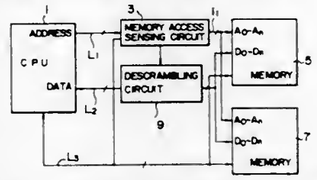
a second memory for storing encoded key data which enables deciphering;

means for accessing said first and second memories;

memory access sense means for sensing accessing of said first and second memories;

decoding means for decoding said encoded key data stored in said second memory into decoded bits;

decipher means for deciphering said program data, said decipher means having n deciphering circuits provided for n data lines of said first memory means, said data lines



corresponding to said n bits of said program data, said deciphering circuits being enabled when said decoded bits of said key data are enables; and

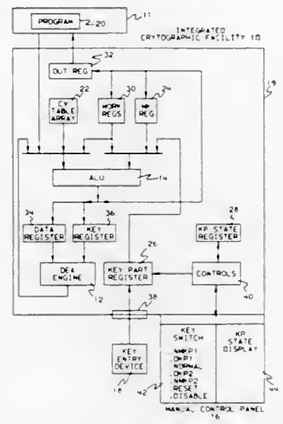
means for executing program data deciphered by said decipher means.

5,214,698

METHOD AND APPARATUS FOR VALIDATING ENTRY OF CRYPTOGRAPHIC KEYS

Ronald M. Smith, Sr., Wappingers Falls, and Phil C. Yeh, Randell J. Easter, both of Poughkeepsie, all of N.Y., Donald B. Johnson, An Van Le, Stephen M. Matyas, all of Manassas, Va., Julian Thomas, Poughkeepsie, N.Y., John D. Wilkins, Somerville, Va., assignors to International Business Machines, Armonk, N.Y.

Filed Mar. 20, 1991, Ser. No. 672,265
Int. Cl.[5] H04L *9/08*
U.S. Cl. 380—21 23 Claims



9. In a data processing system, an apparatus for securely importing by a multiple key part import procedure a cryptographic key comprising:

input means for receiving information specifying an intended use of an ultimate key;

key usage storage means for storing information specifying the intended use of the ultimate key from said input means;

cryptographic key entry means for receiving key parts;

key part storage means for sequentially storing at least first and second key parts entered from said cryptographic key entry means;

first combination means responsive to a first key part stored in said key part storage means and the information stored in said key usage storage means for combining said first key part with said information to form a modified key part;

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temporary storage means for temporarily storing said modified key part;

first generation means for generating a first verification pattern responsive to said first combination means;

second combination means responsive to a second key part stored in said key part storage means and said modified key part stored in said temporary storage means for combining said second key part and said modified key part to produce said ultimate key; and

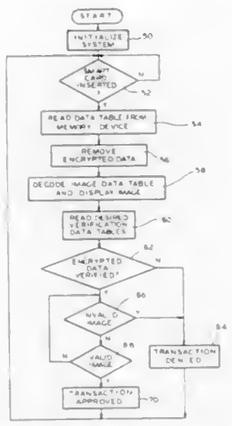
second generation means for generating a second verification pattern responsive to said second key part stored in said key part storage means and said information stored in said key usage storage means.

5,214,699

SYSTEM FOR DECODING AND DISPLAYING PERSONALIZED INDENTIFICATION STORED ON MEMORY STORAGE DEVICE

Midori Monroe, Vancouver, Canada; George Y. Huang, Chicago, and Tony D. Martin, Arlington Heights, both of Ill., assignors to Audio Digital Imaging Inc., Arlington Heights, Ill.

Filed Jun. 9, 1992, Ser. No. 895,641
Int. Cl.[5] H04K *1/00*
U.S. Cl. 380—23 20 Claims



1. A method of decoding fake-proof video information data from storage on a user identification card including memory means for storing such data for retrieval, comprising the steps of:

storing unique digitized system verification information, said digitized verification information comprising a first verification data table;

reading a video data table from a memory means of a user identification card, the video data table including a video information data table having elements of verification data at select distributed locations;

separating said verification data from said video data table to provide the information data table;

creating a second verification data table using said separated verification data;

comparing said second verification data table to said first verification data table to verify authenticity of the user identification card; and

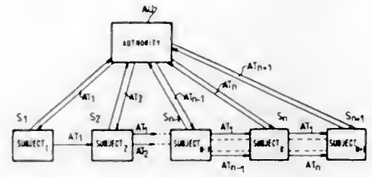
converting the video information data table for display on a display device to verify authenticity of the user.

5,214,700

METHOD FOR OBTAINING A SECURITIZED CLEARTEXT ATTESTATION IN A DISTRIBUTED DATA PROCESSING SYSTEM ENVIRONMENT

Denis Pinkas, Chaville, and Philippe Caille, Gambais, both of France, assignors to Bull S.A., Paris, France

Filed May 9, 1991, Ser. No. 697,408
Claims priority, application France, May 10, 1990, 90 05829
Int. Cl.[5] H04L *9/32, 9/30*
U.S. Cl. 380—25 10 Claims



1. A method for providing an attestation in a data processing system said method comprising the steps of:

choosing, at random, a check datum;

relating said check datum to at least one protection datum through a one-way relationship said one way relationship corresponding to a first one of:

(a) a public key/private key algorithm; and

(b) a one way encryption system;

sending an attestation request to a server;

transmitting in cleartext from at least one requestor subject to said server, said attestation request and an identifier, said identifier defining said one-way relationship between said check datum and said protection datum;

forming, in the server, an attestation in the form of a set of pieces of binary information wherein said attestation includes said at least one protection datum and said identifier;

calculating, in the server at least one of:

a seal of attestation; and

a signature of attestation; wherein said step of calculating takes into account said at least one protection datum and said identifier; and

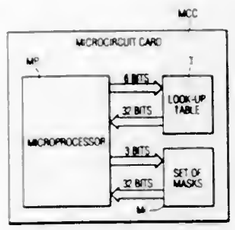
transmitting the attestation in cleartext from said server to the at least one requestor subject.

5,214,701

METHOD OF PROCESSING DATA BY COMPRESSION AND PERMUTATION FOR MICROCIRCUIT CARDS

Jean-Jacques Quisquater, Rhode Saint Genese, Belgium; Xavier Delaporte, Trappes, and Benoit Leterrier, Verrieres Le Buisson, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 24, 1990, Ser. No. 558,122
Claims priority, application France, Jul. 25, 1989, 89 10004
Int. Cl.[5] H04L *9/06*
U.S. Cl. 380—29 6 Claims



1. In a microcircuit card having a microprocessor, an addressable look-up table and a set of masks accessible to the microprocessor, a method of carrying out a combined compression transformation and permutation operation SP of the Data Encryption Standard (DES) to form an output data word from an input data word constituted by elementary data words at successive positions in the input data word, by in response to each successive elementary data word:

retrieving a result data word by the microprocessor from an address in said look-up table corresponding to the value of the elementary data word, said result data word having the same number of bit locations as said output data word, each address of said look-up table having stored therein a result data word which equals a predetermined output data word which would be produced by carrying out said combined compression transformation and permutation operation on a predetermined input data word in which each of the elementary data words at the successive positions in the predetermined input data word has a same value corresponding to said address;

applying a mask from said set, selected based upon the position of the elementary data word in the input data word, to the retrieved result data word to extract a predetermined number of data bits at respective predetermined locations in the result data word; and

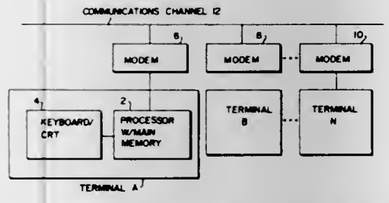
presenting the extracted bits at said respective predetermined locations in said output data word.

5,214,702

PUBLIC KEY/SIGNATURE CRYPTOSYSTEM WITH ENHANCED DIGITAL SIGNATURE CERTIFICATION

Addison M. Fischer, 60 14th Ave. South, Naples, Fla. 33942

Continuation of Ser. No. 772,120, Oct. 9, 1991, abandoned, which is a continuation of Ser. No. 619,511, Nov. 29, 1990, abandoned, which is a continuation of Ser. No. 319,780, Mar. 7, 1989, Pat. No. 5,005,200, which is a continuation-in-part of Ser. No. 155,467, Feb. 12, 1988, Pat. No. 4,868,877. This application May 13, 1992, Ser. No. 884,867
The portion of the term of this patent subsequent to Sep. 19, 2006, has been disclaimed.
Int. Cl.[5] H04K *1/00*
U.S. Cl. 380—30 15 Claims



1. In a communication system having a plurality of terminal devices coupled to a channel over which users may exchange messages, at least some of said users having a public key and an associated private key, a method for controlling authority in a message digitally signed by a first party comprising the steps of:

specifying a digital authority defining data structure including:

a first digital field indicative of the public key of the first party,

a second digital field indicative of the public key of a second party whose digital signature, in addition to the signature of the first party, must also be associated with the signed message in order for the signed message to be treated as properly authorized, and

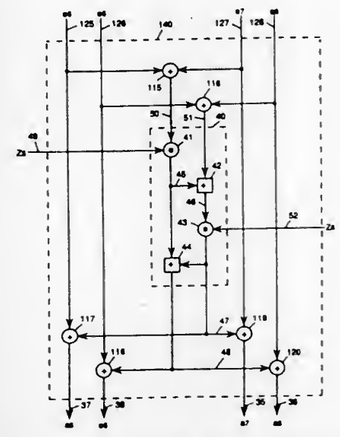
digitally signing the message such that the message is related to the digital authority defining data structure as part of the signature process, whereby message recipients may determine the digitally authority defining data structure during a signature verification process.

5,214,703

DEVICE FOR THE CONVERSION OF A DIGITAL BLOCK AND USE OF SAME

James L. Massey, Zurich, and Xuejia Lai, Kloten, both of Switzerland, assignors to Ascom Tech AG, Bern, Switzerland

PCT No. PCT/CH91/00117, § 371 Date Jan. 7, 1992, § 102(e) Date Jan. 7, 1992, PCT Pub. No: WO90/12452, PCT Pub. Date Oct. 18, 1990
PCT Filed May 16, 1991, Ser. No. 781,235
Claims priority, application Switzerland, May 18, 1990, 01690/90
Int. Cl.[5] H04K *1/04*
U.S. Cl. 380—37 10 Claims



1. A device for converting an initial digital block into an assigned final digital block using at least one freely selectable control block, the initial and final digital blocks each having a first number of digits (N), the device comprising:

first input means for receiving at least two initial subblocks, wherein the initial digital block is subdivided to form the initial subblocks, the initial subblocks each having a second number of digits (m);

second input means for receiving at least two control blocks, each control block having the second number of digits (m);

logic means for performing serial operations of at least two different types upon the initial subblocks and the control blocks, the logic means comprising:

at least four operation units, each having first and second inputs for receiving blocks to be operated upon and an output for sending an output block resulting from the logical operation performed, the blocks operated upon and the output block each having the second number of digits (m);

wherein the blocks operated upon by the operation units include the initial subblocks, the control blocks, and the output blocks;

wherein the majority of the operation units are arranged so that the operation unit which operates upon the output block of a previous operation unit performs an operation different from the previous operation unit; and

wherein the operation units perform the operations selected from and and ; and,

output means for transmitting at least two final subblocks, the final subblocks forming the assigned final digital block, wherein the final subblocks are converted blocks which correspond to the initial subblocks.

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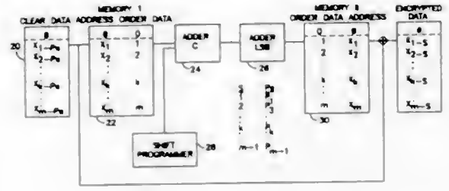
5,214,704

NONLINEAR DYNAMIC SUBSTITUTION DEVICES AND METHODS FOR BLOCK SUBSTITUTIONS

Lothrop Mittenthal, Thousand Oaks, Calif., assignor to Teledyne Industries, Inc., Newbury Park, Calif.

Continuation-in-part of Ser. No. 416,953, Oct. 4, 1989, Pat. No. 5,038,376. This application Aug. 5, 1991, Ser. No. 741,097
Int. Cl.[5] H04K *1/04*
U.S. Cl. 380—37 6 Claims

MICROFICHE APPENDIX INCLUDED
(80 Microfiche, 2 Pages)



1. A method of encryption by substituting for any one of the 2^n unique clear text books of n bit binary numbers an associated unique encrypted block of n bit binary numbers comprising the steps of:

(a) finding a first matrix of 2^n equations, each equation representing the modulo 2 addition of one of the 2^n clear text blocks with a unique one of 2^n bit numbers to provide an associated unique intermediate n bit block, all of the equations in the first matrix of 2^n equations being characterized by the vector sum modulo 2 of any number of the equations also being one of the equations in the first matrix, the equations including the null equation $\Theta \oplus \Theta = \Theta$ and the remaining $2^n - 1$ equations being orderable as follows:

Equation #					
1	x_m	$\oplus$	x_1	=	x_{1-p}
2	x_1	$\oplus$	x_2	=	x_{2-p}
.					
j	x_{j-1}	$\oplus$	x_j	=	x_{j-p}
.					
m	x_{m-1}	$\oplus$	x_m	=	x_{m-p}

where $m = 2^n - 1$

(b) modifying a plurality of the nonzero $2^n - 1$ equations in the first matrix of 2^n equations to provide a second matrix of 2^n equations, the plurality of equations being modified so that the modified plurality of equations collectively map the same clear text blocks to the same unique n bit intermediate blocks as the corresponding unmodified equations, but each in a different manner so that each of the modified equations in the plurality is not the sum modulo 2 of any number of the unmodified equations left over and not included in the modified plurality of equations; the second matrix of 2^n equations consisting of the modified plurality and the remaining unmodified equations from the first matrix of 2^n equations; and

(c) for each clear text block to be encrypted, adding modulo 2 to that block, the unique one of the 2^n n bit numbers associated therewith in accordance with the associated equation of the second matrix of 2^n equations to obtain the encrypted block.

5,214,705

CIRCUIT AND METHOD FOR COMMUNICATING DIGITAL AUDIO INFORMATION

Kevin L. Kloker, Arlington Heights, and Thomas L. Wernimont, Palatine, both of Ill., assignors to Motorola, Schaumburg, Ill.

Filed Oct. 1, 1991, Ser. No. 769,307
Int. Cl.[5] H04H *5/00*
U.S. Cl. 381—2 17 Claims

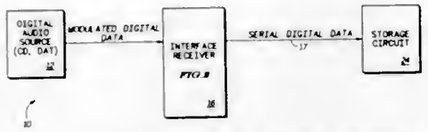


FIG 2

1. A circuit for communicating digital audio information,

a digital audio source for providing a plurality of modulated digital audio values in a first data format, each of the plurality of modulated digital audio values having a data component and a control component;

interface means for receiving the plurality of modulated digital audio values and transmitting the plurality of modulated digital audio values in a second data format, the second data format formed by the interface means by selectively transmitting at least a concatenated control value, the interface means forming the concatenated control value by concatenating a control component of a first one of the plurality of modulated digital audio values and a control component of a second one of the plurality of modulated digital audio values, the interface means being coupled to the digital audio source for receiving the plurality of modulated digital audio information values; and

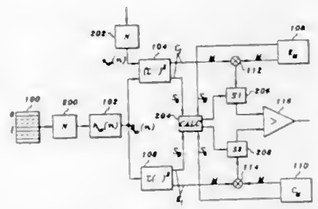
storage means coupled to the interface means for storing the plurality of modulated digital audio values in the second data format.

5,214,706

METHOD OF CODING A SAMPLED SPEECH SIGNAL VECTOR

Tor B. Minde, Luleå, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Jul. 31, 1991, Ser. No. 738,552
Claims priority, application Sweden, Aug. 10, 1990, 90026220
Int. Cl.[5] G01L *5/00*
U.S. Cl. 381—36 14 Claims



1. A method of coding a sampled speech signal vector by selecting an optimal excitation vector in an adaptive code book, said method including

(a) successively reading predetermined excitation vectors from said adaptive code book,

(b) convolving each read excitation vector with the impulse response of a linear filter,

(c) forming for each filter output signal:

(c1) on the one hand a measure C_I of the square of the cross correlation with the sampled speech signal vector;

(c2) on the other hand a measure E_I of the energy of the filter output signal,

(d) multiplying each measure C_I by a stored measure E_M corresponding to the measure E_I of that excitation vector that hitherto has given the largest value of the ratio between the measure C_I of the square of the cross correlation between the filter output signal and the sampled speech signal vector and the measure E_I of the energy of the filter output signal,

(e) multiplying each measure E_I by a stored measure C_M corresponding to the measure C_I of that excitation vector that hitherto has given the largest value of the ratio between the measure C_I of the square of the cross correlation between the filter output signal and the sampled speech signal vector and the measure E_I of the energy of the filter output signal,

(f) comparing the products in steps (d) and (e) to each other and substituting the stored measures C_M, E_M by the measures C_I and E_I, respectively, if the product in step (d) is larger than the product in step (e), and

(g) choosing that excitation vector that corresponds to the largest value of the ratio between the first measure C_I of the square of the cross correlation between the filter output signal and the sampled speech signal vector and the second measure E_I of the energy of the filter output signal as the optimal excitation vector in the adaptive code book,

wherein said method further comprises

(A) block normalizing said predetermined excitation vectors of the adaptive code book with respect to the component with the maximum absolute value in a set of excitation vectors from the adaptive code book before the convolution in step (b),

(B) block normalizing the sampled speech signal vector with respect to that of its components that has the maximum absolute value before forming the measure C_I in step (c1),

(C) dividing the measure C_I from step (c1) and the stored measure C_M into a respective mantissa and a respective first scaling factor with a predetermined first maximum number of levels,

(D) dividing the measure E_I from step (c2) and the stored measure E_M into a respective mantissa and a respective second scaling factor with a predetermined second maximum number of levels, and

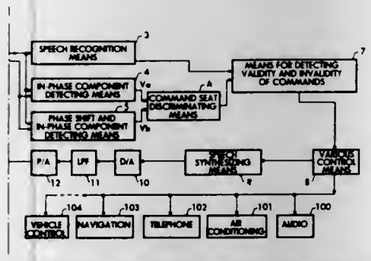
(E) forming said products in step (d) and (e) by multiplying the respective mantissas and performing a separate scaling factor calculation.

5,214,707

CONTROL SYSTEM FOR CONTROLLING EQUIPMENT PROVIDED INSIDE A VEHICLE UTILIZING A SPEECH RECOGNITION APPARATUS

Shoji Fujimoto, Kobe; Kazuya Sako, Kakogawa, and Minoru Takahashi, Kobe, all of Japan, assignors to Fujitsu Ten Limited, Hyogo, Japan

Filed Aug. 16, 1991, Ser. No. 745,759
Claims priority, application Japan, Aug. 16, 1990, 2-214953; Sep. 11, 1990, 2-238877
Int. Cl.[5] G10L *5/06, 5/00, 3/00*; H04R *3/00*
U.S. Cl. 381—43 4 Claims



1. A control system controlling vehicle equipment provided inside a vehicle utilizing a speech recognition apparatus having microphones installed inside the vehicle and speech recognition means for recognizing a voice command having a command content transmitted from the microphones controlling the vehicle equipment including one of audio, air conditioning, telecommunication, navigation and vehicle control equipment installed inside the vehicle and outputting a speech signal responsive to the voice command, said control system comprising:

first means including in-phase component detecting means for detecting a first in-phase component having a first output level of voice signals including the voice command for operating the vehicle equipment and transmitted by the microphone positioned symmetrically with respect to a driver seat, and said first means for determining that the voice command is generated at said driver seat;

second means including phase shift and in-phase component detecting means for shifting a first phase transmitted by one of the microphones generating a first shifted signal, and a second phase transmitted by another of the microphones generating a second shifted signal, and for generating a second in-phase component having a second output level using said first and second shifted signals for operating said vehicle equipment, said microphones being positioned asymmetrically with respect to passenger seats, and said second means for determining that the voice command is generated at said passenger seats;

command seat discriminating means for comparing the first and second output levels to determine from which seat the voice command was generated among several seats, and for generating a command seat signal identifying the seat; and

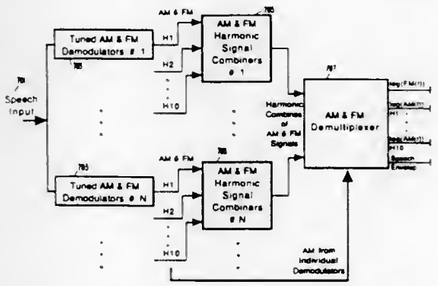
determining means for determining validity or invalidity of the command content using the speech signal output from the speech recognition means, the command seat signal output from said command seat discriminating means and predetermined criteria, and when the voice command is issued from said driver seat the voice command is valid, and when the voice command is issued from one of said passenger seats the voice command is valid or invalid based upon the predetermined criteria, and said control system controls the vehicle equipment when the voice command is valid.

5,214,708

SPEECH INFORMATION EXTRACTOR

Robert H. McEachern, 2804 Clove La., Edgewater, Md. 21037

Filed Dec. 16, 1991, Ser. No. 807,229
Int. Cl.[5] G10L *5/00*; H03D *3/00*
U.S. Cl. 381—48 33 Claims



1. A method of extracting information content from speech, the method comprising the steps of:

(a) receiving a speech signal into a receiver having a plurality of individual bandpass filters, said bandpass filters, taken together, spanning the frequency range of a human voice;

(b) determining instantaneous amplitude modulation, AM(t), of each harmonic in speech signal waveforms from outputs of said bandpass filters;

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(c) determining instantaneous frequency modulation, FM(t), of each harmonic in said speech signal waveforms from outputs of said bandpass filters to within an accuracy of frequency separation between adjacent said bandpass filters to provide speech signal recognition;

(d) determining a logarithm of an instantaneous frequency of a speech fundamental frequency by computing a weighted average of logarithms of said FM(t) from each measured harmonic, after subtracting the logarithm of the harmonic number from each said log (FM(t));

(e) forming output signals for an output device, said signals having the logarithm of the instantaneous frequency of said speech signal fundamental frequency obtained in step (d) and the logarithms of sid AM(t) obtained in step (b), for a plurality of lowest frequency speech harmonics.

5,214,709

HEARING AID FOR PERSONS WITH AN IMPAIRED HEARING FACULTY

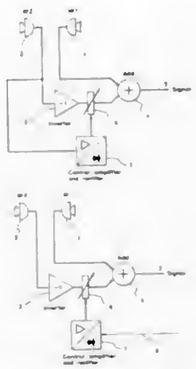
Zlatan Ribic, Vienna, Austria, assignor to Viennatone Gesellschaft m.b.H., Vienna, Austria

Filed Jul. 1, 1991, Ser. No. 723,929

Claims priority, application Austria, Jul. 13, 1990, 1500/90

Int. Cl.[5] H04R *25/00*

U.S. Cl. 381—68.1 **7 Claims**



1. A hearing aid for persons with an impaired having faculty comprising:

a directional microphone system with pick-up characteristics that are continuously and electrically variable, said microphone includes:

i. an inverter having an input and an output;

ii. a current-controlled attenuator controlled by said input of said inverter and connected to said inverter output;

iii. two omni-directional electret microphones each having an input opening for receiving the sound to be heard and for producing an output signal in response to the sound, the input openings being spaced apart from each other, and wherein one microphone output is connected to said inverter so that its output voltage is inverted and attenuated; and

iv. means for adding the other microphone output voltage with the inverted and attenuated voltage to produce an output signal of the hearing aid having automatically changeable characteristics.

5,214,710

PERMANENT MAGNET SYSTEM WITH ASSOCIATED COIL ARRANGEMENT

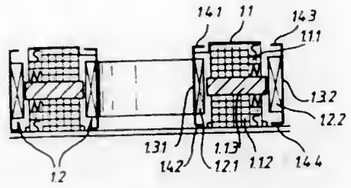
Alfred Ziegenberg, Villingen-Schwenningen, and Edmund Schiessle, Schorndorf, both of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Jul. 5, 1991, Ser. No. 729,409

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1990, 4021651

Int. Cl.[5] H04R *25/00*

U.S. Cl. 381—199 **26 Claims**



1. Permanent magnet system with associated coil arrangement, comprising:

two axially polarized permanent magnet rings which are mounted one behind another in the axial direction with like poles of the permanent magnet rings being opposite one another;

a first soft magnetic spacing washer arranged between the two permanent magnet rings;

a first coil that surrounds the outside of the permanent magnet rings such that a central axis of the first coil coincides with a central axis of the permanent magnet rings, an axial center of the first coil being located in a normal position of the first coil at a level of the soft magnetic spacing washer;

wherein at least a second coil is located inside an inside diameter of the permanent magnet rings such that the central axis of the second coil coincides with the central axis of the permanent magnet rings, the center of the second coil being located in a normal position of the second coil at the level of the soft magnetic spacing washer.

5,214,711

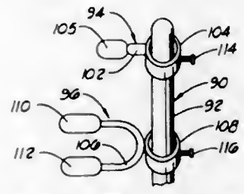
METHOD AND APPARATUS FOR DETECTING AND QUANTIFYING MOTION OF A BODY PART

John G. H. Neely, Edmond, and John Y. Cheung, Oklahoma City, both of Okla., assignors to Board of Regents of the University of Oklahoma, Norman, Okla.

Continuatioo of Ser. No. 573,502, Aug. 24, 1990, Pat. No. 5,148,477. This application Apr. 23, 1992, Ser. No. 872,805

Int. Cl.[5] G06K *9/00*

U.S. Cl. 782—6 **20 Claims**



1. A method for detecting surface deformation of a substantially stationary body part comprising:

producing a digitized frame of the substantially stationary body part in an undeformed surface reference position of the body part, identified as a digitized control frame;

producing a digitized frame of the body part in a surface deformed position of the body part, different from the undeformed surface position of the body part in the reference position, identified as a digitized changed frame, where the deformed position is produced substantially by musculature movements of the individual; and

comparing the digitized control frame with the digitized changed frame and determining surface deformations over a defined surface area of the body part from the reference position to the deformed position.

5,214,712

PATTERN INSPECTION SYSTEM FOR INSPECTING DEFECT OF LAND PATTERN FOR THROUGH-HOLE ON PRINTED BOARD

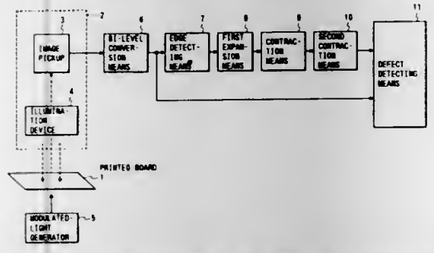
Atsuharu Yamamoto, Kawasaki; Yuji Maruyama; Hidehiko Kawakami, both of Tokyo; Hideaki Kawamura, Kawasaki; Masaaki Nakashima, Osaka, and Hidemi Takahashi, Zama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 10, 1991, Ser. No. 757,408

Claims priority, application Japan, Sep. 11, 1990, 2-242120; Feb. 22, 1991, 3-028532; Apr. 19, 1991, 3-088489; May 8, 1991, 3-102401

Int. Cl.[5] G06K *9/00*

U.S. Cl. 382—8 **4 Claims**



1. A pattern inspection system for inspecting a pattern of a land portion formed around a through-hole of a printed board and electrically coupled to a wiring pattern section, said printed board being arranged to be placed on a movable table so as to be movable in a predetermined direction, said system comprising:

first illumination means for illuminating said printed board with light modulated at a predetermined period;

image pickup means responsive to reflection light from said printed board due to said first illumination means and transmission light from said printed board due to said second illumination means to photoelectrically convert said printed board into a gray level image at least corresponding to said through-hole and said land portion;

bi-level conversion means for comparing said gray level image from said image pickup means with a predetermined threshold so as to binary-code said gray level image to produce a bi-level image comprising a first portion indicated by "1" and a second portion indicated by "0";

edge detecting means for detecting an edge of said bi-level image to produce an edge image comprising a boundary between said first and second portions;

first expansion means for expanding said edge image from said edge detecting means by a predetermined size so as to produce a first expanded image where a portion corresponding to said through-hole takes the "1" state;

contraction means for contracting said first expanded image from said first expansion means by a predetermined size to eliminate the edge image other than said through-hole section to produce a contracted image corresponding to only the through-hole;

second expansion means for again expanding said contracted image from said contraction means by a predetermined size to produce a through-hole image having a size equal to the original size of said through-hole; and

defect detecting means for inputting said through-hole image from said second expansion means and said bi-level image from said bi-level conversion means so as to detect a defect of said land portion on the basis of the inputted images, wherein

said defect detecting means detects the defect of said land portion by calculating a logical product of the inputted through-hole image and the inputted bi-level image.

5,214,713

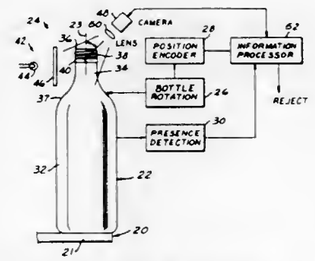
CONTAINER INSPECTION SYSTEM WITH SYSTOLIC ARRAY PROCESSING

John W. Juvinall, Ottawa Lake, Mich., assignor to Owens-Brockway Glass Container Inc., Toledo, Ohio

Filed Apr. 12, 1991, Ser. No. 684,646

Int. Cl.[5] G06K *9/00*

U.S. Cl. 382—8 **14 Claims**



1. A machine vision system that includes:

camera means for obtaining an image that comprises a plurality of pixels each forming a portion of the image,

a memory for receiving and storing pixel data from said camera means,

systolic array processing means that includes a plurality of one-bit data processing means configured in a rectangular array and means for controlling operation of said plurality of one-bit data processing means to process data simultaneously and in parallel,

data-dependent and/or non-sequential processing means for performing data-dependent processing of image data, and

control means including means for obtaining pixel data from said camera means and storing such data by pixel in said memory, means for retrieving pixel data from said memory and loading such data by pixel into said systolic array procesing means such that each of said plurality of one-bit processing means receives and operates on one byte of pixel data, means for returning data from said systolic array processing means to said memory, and means for retrieving pixel data from said memory and loading such data into said data-dependent processing means,

said means for retrieving pixel data from memory and loading such data by pixel into said systolic array processing means including means for retrieving such data bit-parallel by pixel byte from said memory, said systolic array processing means comprising means for loading said data bit-serial by byte into individual one-bit processing means,

said systolic-array processing means comprising first and second systolic array processors, means for serially storing a plurality of bit-parallel pixel bytes in said first processor, and means for obtaining all bits of a given significance from said first processor and loading siad bits simultaneously into said second processor.

5,214,714

Patent Not Issued For This Number

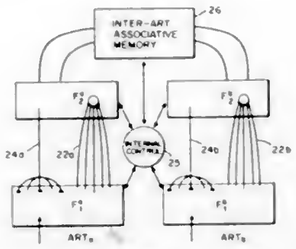
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,715

PREDICTIVE SELF-ORGANIZING NEURAL NETWORK

Gail A. Carpenter; Stephen Grossberg, both of Newton Highlands, and John W. Reynolds, Brookline, all of Mass., assignors to Trustees of Boston University, Boston, Mass.

Filed Jan. 31, 1991, Ser. No. 648,653
Int. Cl.[5] G06K 9/62
U.S. Cl. 382—15 26 Claims



13. A pattern recognition system comprising:

A. an A pattern recognition subsystem comprising:

an A feature representation field of nodes for receiving A input signals, defining an A input pattern, and A template signals;

means for selecting an A-category-representation in an A-category-representation field of nodes based on a pattern from the feature representation field;

means for generating the A template signals based on the selected A-category-representation;

means for adapting A-category-representation selection and the A template signals to the A input signals; and

A reset means for resetting A-category-representation selection with an insufficient match between the A input pattern and the A template signals at a first level of matching vigilance;

B. a B pattern recognition subsystem comprising:

a B feature representation field of nodes for receiving B input signals, defining a B input pattern, and B template signals;

means for selecting a B-category-representation in a B-category-representation field of nodes based on a pattern from the B feature representation field;

means for generating the B template signals based on the selected B-category-representation;

means for adapting B-category-representation selection with an insufficient match between the B input pattern and the B template signals;

C. means for associating the selected A-category-representation with a predicted B-category-representation comprising a mapping field of nodes having a one-to-one correspondence with nodes of the B-category-representation field and adaptive mapping from nodes in the A-category-representation field, the predicated B-category-representation associated with a selected first-category-representation being learned as the B-category-representation selected by the B pattern recognition subsystem; and

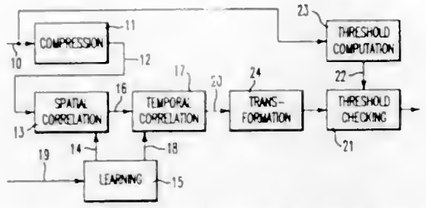
D. system reset means for resetting an A-category-representation selection in the A pattern recognition subsystem where a predicted B-category-representation associated with the selected A-category-representation fails to match a B-category-representation selected by the B pattern recognition subsystem, the system reset means increasing vigilance of the A reset means to cause reset of the A-category-representation selection, increased vigilance being maintained with subsequent selection of an A-category-representation with said A input signals applied to the A feature representation field.

5,214,716

DEVICE FOR THE RECOGNITION OF SEQUENCES IN A MULTIDIMENSIONAL SIGNAL

Philippe Refregier, Palaiseau; Dominique Potier, Sevres, and Francois Micheron, Gif S/Yvette, all of France, assignors to Thomson-CSF, Puteaux, France

Filed Feb. 28, 1991, Ser. No. 662,624
Claims priority, application France, Mar. 13, 1990, 90 03170
Int. Cl.[5] G06K 9/64
U.S. Cl. 382—42 8 Claims



1. A device for recognizing sequences in a signal to be analyzed wherein said signal to be analyzed is produced continuously and is constituted by multi-dimensional vectors, said device comprising, for each of said sequences to be recognized;

means for providing sequence vectors representing said sequence to be recognized;

means for providing a masking vector determined from said sequence vectors;

first means for correlating of said multi-dimensional vectors constituting said signal to be analyzed with said produced masking vector wherein the output of said first means for correlation provides a series of values corresponding to the degree of similarity of said multi-dimensional vectors representing said signal with said masking vector;

reference sequence producing means for providing a reference sequence determined from said vectors forming said sequence to be recognized;

second correlation means for correlating a sequence of said series of values with said reference sequence whereby said second correlation means produces values corresponding to the degree of similarity of said series of values and said reference sequence; and

means for deciding on the validity of the recognition, by comparison of said values corresponding to the degree of similarity of said series of values and said reference sequence with a threshold value.

5,214,717

PATTERN RECOGNITION DATA PROCESSING DEVICE USING AN ASSOCIATIVE MATCHING METHOD

Masayuki Kimura; Hirotomo Aso, both of Sendai; Yutaka Katsuyama, Machida; Kenji Suzuki, Shiogama; Hisayoshi Hayasaka, Sendai, and Yoshiyuki Sakurai, Watari, all of Japan, assignors to Fujitsu Limited, Japan

Filed Feb. 25, 1991, Ser. No. 660,756
Claims priority, application Japan, Feb. 26, 1990, 2-42641; Mar. 12, 1990, 2-58042; Mar. 19, 1990, 2-66854; Mar. 20, 1990, 2-68151
Int. Cl.[5] G06K 9/48
U.S. Cl. 382—21 12 Claims

1. A data processing device for processing feature data for a plurality of characters being compared through an associative matching method of character recognition, comprising:

a first data memory means for memorizing at least stroke information for input character pattern supplied in dot units;

a first address generating means for generating first addresses for specifying positions at which the stroke information is memorized;

a second data memory means for memorizing weight data for the stroke information;

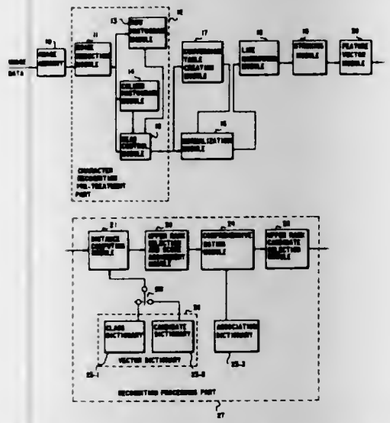
a second address generating means for generating second addresses for reading the stroke information memorized in said first data memory means and third addresses for reading, from the second data memory means, the weight data corresponding to the stroke information read by the second addresses;

a plurality of accumulation means provided in correspondence with a number of stroke directions, for accumulating weight data outputted from said second data memory means;

a decoding means for decoding the stroke information memorized in said first data memory means and for determining weights in respective stroke directions to enable said plurality of accumulation means according to decoding results from said decoding means so as to generate feature data of the input character patterns;

a dictionary memory for memorizing feature data of dictionary patterns, the feature data being divided into classes of features;

a plurality of distance computing means operatively connected to receive feature data of input character patterns, for computing distances between the feature data of the



dictionary patterns memorized in said dictionary memory and the feature data of the input character patterns, and for sequentially inputting result values from computing the distances to a first stage of plural pairs of serially connected plural class selection means;

plural pairs of serially connected plural class selection means operatively connected to said plurality of distance computing means, for comparing the sequentially inputted result values with memorized result values of distances inputted sequentially earlier by said plurality of distance computing means so as to at least one of maintain memory of the earlier memorized result values and output the inputted result values when the earlier memorized result values are less than the inputted result values, and of output the earlier memorized result values and memorize the inputted result values;

a plurality of score computing means operatively connected to respective outputs from said plural paris of serially connected plural class selection means, for obtaining scores corresponding to the feature data of the input patterns of the characters to be recognized; and

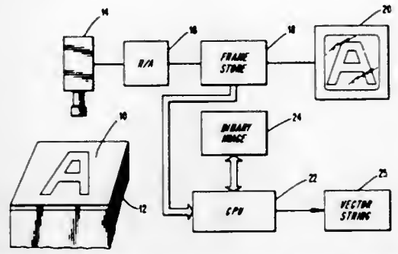
a score sorting means for determining rankings of the dictionary patterns in terms of which of the dictionary patterns derived highest scores obtained at said plurality of score computing means.

5,214,718

SCAN-IN POLYGONAL EXTRACTION OF VIDEO IMAGES

Ashok M. Khosla, Palo Alto, Calif., assignor to Ampex Systems Corporation, Redwood City, Calif.

Continuation of Ser. No. 312,297, Feb. 17, 1989, abandoned, which is a continuation of Ser. No. 915,476, Oct. 6, 1986, abandoned. This application Oct. 19, 1992, Ser. No. 963,281
Int. Cl.[5] G06K 9/48
U.S. Cl. 382—22 15 Claims



1. A method for storing a video image as a polygonal representation of that image for subsequent retrieval to create a color video picture, comprising the steps of:

scanning a video frame which includes said video image;

storing color information describing an array of pixels corresponding to said video frame with the information pertaining to each pixel of the array containing a plurality of values regarding a plurality of characteristic color parameters;

comparing the value of at least one parameter of each pixel to a threshold value and generating a binary pixel map containing information relating to said comparisons;

determining interfaces between adjacent locations in said pixel map which contain dissimilar information to thereby create a rasterized polygon by labelling pixel map locations of an interface with indicators during a first scan of the pixel map such that said labelled pixel locations are not detected during a second scan of the pixel map;

approximating said rasterized polygon with a piece-wise linear polygon to define a polygon having a shape related to said interface; and

storing said linear polygon as a vector representation of the image for subsequent retrieval to create the color video picture.

5,214,719

COMPUTER-BASED SYSTEM AND METHOD FOR CHARACTER RECOGNITION

Gerald W. Budd, Farmington; James W. St. Onge, and Michael P. Krawec, both of Novi, all of Mich., assignors to Phoenix Imaging, Sterling Heights, Mich.

Filed Feb. 28, 1989, Ser. No. 317,174
Int. Cl.[5] G06K 9/62
U.S. Cl. 382—23 7 Claims

1. A method for recognizing a graphical symbol such as a character comprising:

(a) obtaining a digitized image which includes as a portion thereof said graphical symbol which is a character of an arbitrary height from a predetermined set of characters comprising a predetermined font;

(b) sampling at least that portion of the digitized image which contains said graphical symbol thereby creating a plurality of sample points at locations within the digitized image representing said graphical symbol;

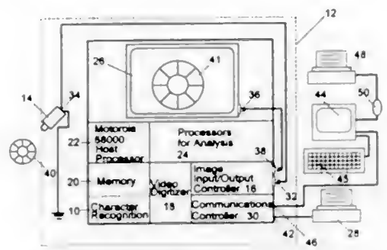
(c) displaying said plurality of sample points;

(d) storing said plurality of sample points and their said locations within said digitized image, whereby said stored

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points and said locations are used to recognize said graphical symbol; and

(e) performing a vector correlation on said stored points and locations which compares said points with a set of known



points from a known graphical symbol comprising a known character from said font to determine if said graphical symbol matches said known character; and

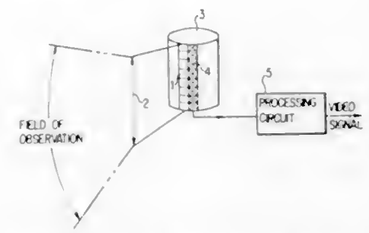
(f) using said vector correlation to determine a single correlation point for each graphical symbol.

5,214,720

IMAGE PROCESSING METHOD FOR THE DETECTION OF THE HORIZON AND DEVICE FOR THE IMPLEMENTATION THEREOF

Luc Fety, Viels-Maisons; Michel Terre, and Xavier Noreve, both of Paris, all of France, assignors to Thomson TRT Defense, Paris, France

Filed Jul. 19, 1991, Ser. No. 732,917
Claims priority, application France, Jul. 27, 1990, 90 09614
Int. Cl.[5] G06K *9/20*
U.S. Cl. 382—48 7 Claims



1. An image processing method for the detection of the horizon from the video signal delivered by a camera forming the image of the observation field analyzed row by row, wherein said image processing method comprises the following steps:

the digital processing of the video signal to obtain the sampled luminance values of the analyzed image row by row;

the determination, for each position i of a given row k, of a step modelling function, the jump of which is located at i and the amplitude of which is computed so as to give a minimal error of all the values assumed by the function with respect to all the values of the luminance signal of the row considered;

the selection of the value i_{hk} of i, corresponding to the position of the horizon on the row considered, for which the step function determined at the previous step has an amplitude computed so as to give the smallest of all the minimal errors;

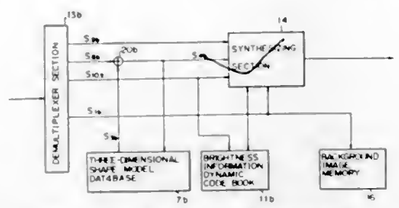
the reproduction of the preceding steps for all the rows of the analyzed image and the display of a smoothing curve, representing the horizon, from the set of the value i_{hk} sselected.

5,214,721

SIGNAL ENCODING AND DECODING SYSTEM

Takahiro Fukuhara, and Tokumichi Murakami, both of Kanagawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Oct. 9, 1990, Ser. No. 594,340
Claims priority, application Japan, Oct. 11, 1989, 1-264296
Int. Cl.[5] G06K *9/36*
U.S. Cl. 382—56 9 Claims



1. A coding system for image signals comprising:

means for separating said image signals into background image information and feature image information;

means defining a 3-dimensional shape basic model comprising, brightness diffusion values for triangle patches of said 3-dimensional shape;

means for adjusting said separated feature image information using said 3-dimensional shape basic model to provide adjusted brightness diffusion values for said triangle patches;

means for detecting said brightness diffusion values in each of said triangle patches to provide each said brightness diffusion value;

means for dividing each of said triangle patches into a plurality of divided triangle patches to provide divided triangle patches, each of which comprises a triangle patch with associated brightness diffusion value, to said detecting means for detection of said brightness diffusion value;

codebook means for holding brightness diffusion values;

processing means for comparing said brightness diffusion value output from said detecting means with a pre-determined threshold value, wherein when the former is greater than the latter, said processing means provides the corresponding triangle patch to said dividing means to divide said triangle patch, but when the former is less than the latter, said processing means outputs index information from said codebook means representing said brightness diffusion value; and

means for multiplexing said background image information output from said separating means, said index information output from said processing means and said brightness diffusion values for said triangle patches output from said dividing means.

5,214,722

ANTIFRICTION BEARING ASSEMBLY SPEED SENSOR

Bradley D. Faye, Goshen; James A. Hilby, Watertown, both of Conn.; Denis Alff, and Christian Hajzler, both of Annecy, France, assignors to The Torrington Company, Torrington, Conn.

Division of Ser. No. 794,559, Nov. 19, 1991, Pat. No. 5,129,743, which is a division of Ser. No. 736,676, Jul. 26, 1991, Pat. No. 5,123,755, which is a division of Ser. No. 562,502, Aug. 2, 1990, abandoned, which is a division of Ser. No. 422,218, Oct. 16, 1989, Pat. No. 4,960,333. This application Dec. 13, 1991, Ser. No. 807,298
Int. Cl.[5] F16C *33/30*; G01P *3/48*
U.S. Cl. 384—448 6 Claims

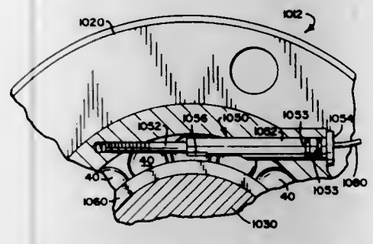
1. An antifriction bearing assembly for mounting on a rotatable shaft, said bearing assembly comprising:

an outer race which is stationary relative to said shaft, said outer race having a non-radial bore penetrating a first portion of the outer race;

an inner race which is rotatable relative to said outer race and attachable to said shaft;

two annular rows of rolling elements between said inner and outer races;

an encoder mounted on said inner race between said two rows of rolling elements;



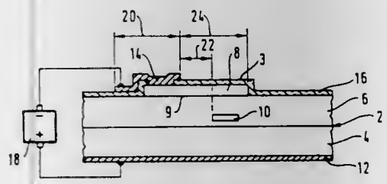
a sensor assembly having a sensor aligned with said encoder to provide an output signal indicative of the rotational speed of said shaft, said sensor assembly having a body portion within said non-radial bore at said first portion of the outer race and an end portion extending from said body portion and engaging a second portion of the outer race to retain the sensor assembly within the outer race.

5,214,723

ELECTRO-OPTIC DEVICE INCLUDING A WAVEGUIDE

Frédéric Zamkotsian, Marseille, France, assignor to Alcatel N.V., Amsterdam, Netherlands

Filed Jan. 30, 1992, Ser. No. 828,018
Claims priority, application France, Feb. 1, 1991, 91 01155
Int. Cl.[5] G02B *6/10*
U.S. Cl. 385—2 9 Claims



1. An electro-optic device comprising:

a semiconductor substrate,

a waveguide defined in said substrate, and

a locating electrode formed on an upper surface of said substrate for locating an electrical phenomenon in said waveguide,

said locating electrode further comprising

a semiconductive portion above said waveguide and having a conductivity substantially greater than that of the semiconductor substrate, and

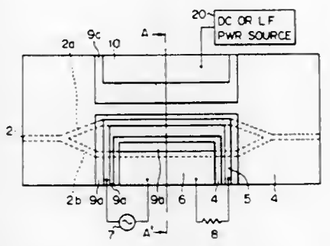
a metallic portion in ohmic contact with said semiconductive portion and laterally displaced from said waveguide so as to define a lateral gap between the metallic portion and the waveguide.

5,214,724

OPTICAL WAVEGUIDE DEVICE WITH SUPPRESSED DC DRIFT

Minoru Seino, Atsugi; Naoyuki Mekada, Hadano; Tadao Nakazawa, Hiratsuka; Yoshinobu Kubota, Ayase, and Masaharu Doi, Atsugi, all of Japan, assignors to Fujitsu Limited, Kawawsaki, Japan

Filed Feb. 28, 1991, Ser. No. 661,602
Claims priority, application Japan, Mar. 2, 1990, 2-052022
Int. Cl.[5] G02B *6/10*
U.S. Cl. 385—2 13 Claims



1. An optical waveguide device comprising:

an optical waveguide formed on a surface of a substrate having an electro-optical effect;

a pair of electrodes formed on a corresponding region above the optical waveguide and receiving a driving electric signal thereacross;

a third electrode formed on a corresponding region above the substrate, wherein a distribution of an electric field occurring in a vicinity of the optical waveguide by an application of the electric signal is greatly changed in accordance with a change in a frequency of the electric signal, wherein the third electrode is comprised of a semiconductive layer and is disposed on the region spaced with a predetermined distance from the pair of electrodes formed on the corresponding regions above the optical waveguide and is coupled to receive a direct current voltage or a low frequency voltage;

a buffer layer formed all over the substrate including the optical waveguide; and

a primary semiconductive layer formed between the buffer layer and the pair of electrodes and third electrode and all over the buffer layer, wherein the third electrode has a specific resistance different from that of the primary semiconductive layer.

5,214,725

OPTICAL COUPLER/SPLITTER WITH A FILTER

Hisaharu Yanagawa, Tokyo; Takeo Shimizu, Fujisawa; Shiro Nakamura, and Isao Ohyama, both of Ichihara, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed May 29, 1992, Ser. No. 891,424
Claims priority, application Japan, Jun. 3, 1991, 3-131165
Int. Cl.[5] G02B *6/00, 6/10*
U.S. Cl. 385—45 3 Claims

1. An optical coupler/splitter with a filter, comprising:

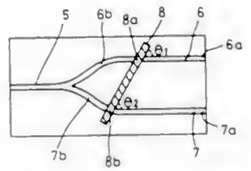
at least one optical port;

a group of optical ports comprising a plurality of optical ports which are branched from or connected to said at least one optical port; and

at least one dielectric multi-layer film filter common to said group of optical ports, said at least one dielectric multi-layer film filter being arranged in a manner to intersect

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and cross said group of optical ports, respective crossing angles formed between respective ones of said plurality of

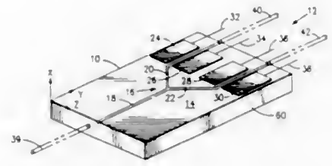


optical ports and said at least one dielectric multi-layer film filter being all different from each other.

5,214,726
STRAIN ISOLATED INTEGRATED OPTIC CHIP PACKAGE

Bruce D. Hockaday, Vernon, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Oct. 7, 1991, Ser. No. 772,759
Int. Cl.[5] G02B *6/30*
U.S. Cl. 385—14 **23 Claims**



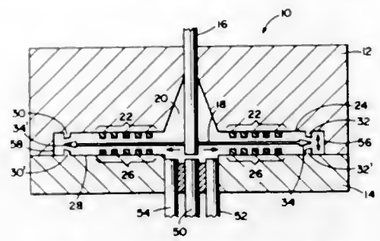
1. Apparatus, comprising:
a integrated optic chip, having a waveguide formed on, or imbedded in, a major surface, and having one or more planar side surfaces;
a housing, fabricated from a material having isotropic thermal expansion coefficients, having a planar pedestal mounting surface fabricated therein, said integrated optic chip being mounted within said housing such that one of said one or more planar side surfaces is mounted to said planar pedestal mounting surface.

5,214,727
ELECTROSTATIC MICROACTUATOR

William N. Carr, Wayne, N.J.; Hsu-Nien Yang, Ping-Tong, Taiwan, and Dong-Il D. Cho, Princeton Junction, N.J., assignors to The Trustees of Princeton University, Princeton Junction, N.Y.

Filed Jan. 16, 1992, Ser. No. 821,962
Int. Cl.[5] G02B *6/00, 6/36*
U.S. Cl. 385—22 **9 Claims**

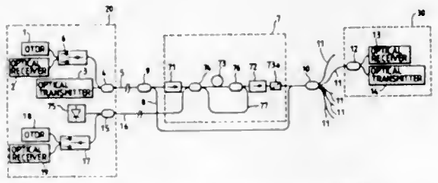
1. An electrostatic microactuator for moving a component comprising:
actuating means having opposed major surfaces and interspersed conductive and nonconductive portions, said actuating means physically engaged with said component;
first and second segmented, conductive, torque stators, respectively disposed adjacent said opposed major surfaces of said actuating means; and
circuit means connected to each segment of each said torque stator for applying phased signals thereto to induce a linear actuating force in said actuating means, phased signals applied to segments of said first torque stator adjusted to balance phased signals applied to segments of said second torque stator, whereby said linear actuating force moves said actuating means and said engaged component, said actuating means electrostatically balanced between said first and second torque stators.



5,214,728
LIGHT COMMUNICATION SYSTEM

Masayuki Shigematsu; Kohji Nakazato, both of Kanagawa, and Izumi Sankawa, Ibaraki, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka and Nippon Telegraph and Telephone Corp., Tokyo, both of Japan

Continuation of Ser. No. 717,208, Jun. 19, 1991, abandoned. This application May 22, 1992, Ser. No. 888,474
Claims priority, application Japan, Jun. 19, 1990, 2-161077
Int. Cl.[5] G02B *6/00*
U.S. Cl. 385—24 **15 Claims**

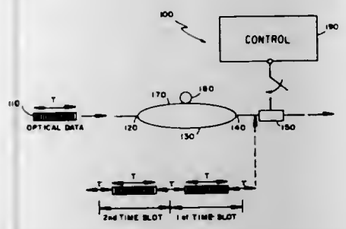


1. An optical communication system comprising:
first optical fiber means for transmitting first optical signals in a first direction, said first optical fiber means comprising pieces, each of said pieces having first and second ends;
means, coupled to said second end of a first piece of said first optical fiber means and said first end of a second piece of said first optical fiber means, for amplifying said first optical signals being transmitted in said first direction;
second optical fiber means for transmitting second optical signals in a second direction, said second direction being substantially opposite to said first direction, said second optical fiber means having a first end coupled to said first piece of said first optical fiber means, and a second end coupled to said second piece of said of said first optical fiber means, said second optical fiber means bypassing said amplifying means;
means, coupled to said first end of said first piece of said first optical fiber means, for providing said first optical signals transmitted in said first direction to said first optical fiber means, said first optical signal providing means comprising means for monitoring conditions of said first optical fiber means and said second optical fiber means; and
at least one means, coupled to said second end of said second piece of said first optical fiber means, for receiving said first optical signals transmitted in said first direction.

5,214,729
DYNAMIC OPTICAL DATA BUFFER

Kwang-Tsai Koai, Concord, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Dec. 31, 1991, Ser. No. 816,436
Int. Cl.[5] G02B *6/28*
U.S. Cl. 385—27 **8 Claims**

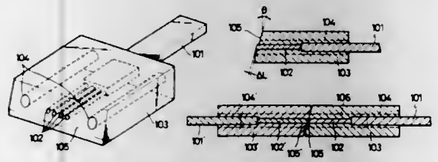


1. An optical data buffer for storing an optical signal for a variable duration comprising:
optical splitter means for transferring an input optical signal to a plurality of output ports;
fiber optic delay means coupled to each of said output ports for delaying an optical signal;
combiner means coupled to each of the delay means for combining the optical signals of the delay means;
semiconductor laser amplifier means coupled to the combiner means for selectively transmitting or blocking an optical signal;
wherein said semiconductor laser amplifier blocks the transmission of an optical signal when not biased.

5,214,730
MULTIFIBER OPTICAL CONNECTOR PLUG WITH LOW REFLECTION AND LOW INSERTION LOSS

Shinji Nagasawa; Fumihiro Ashiya, and Toshiaki Satake, all of Ibaraki, Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed May 7, 1992, Ser. No. 880,061
Claims priority, application Japan, May 13, 1991, 3-137238; May 24, 1991, 3-149681; Jul. 29, 1991, 3-211572; Jul. 29, 1991, 3-211573
Int. Cl.[5] G02B *6/38*
U.S. Cl. 385—59 **23 Claims**

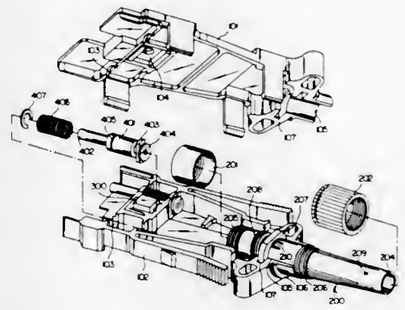


1. A multifiber optical connector plug, comprising:
a plurality of optical fibers; and
a connector plug member made of a plastic material, having a connecting facet on which endfaces of the optical fibers to be connected with other optical fibers are arranged with the endfaces of the optical fibers projecting out of the connecting facet, the connecting facet being inclined with respect to an axial direction along optical axes of the optical fibers by an angle which is larger than a total reflection critical angle of light beams transmitted through the optical fibers, and the connector plug member further including guide pin insertion holes located on the connecting facet for receiving guide pins for aligning the multifiber optical connector plug with another multifiber optical connector plug, where the optical fibers are arranged on the connecting facet between the guide pin insertion holes along a transverse direction.

5,214,731
OPTICAL FIBER CONNECTOR ASSEMBLY WITH SIMPLE FERRULE ASSEMBLY MECHANISM FOR EASY ASSEMBLING

Peter C. Chang, Mountain View, Calif.; Hsin I. Lin, Taipei, Taiwan; Fred Chien, Chung-Ho, Taiwan, and I-Li Chien, Taipei, Taiwan, assignors to Foxconn International, Inc., Sunnyvale, Calif.

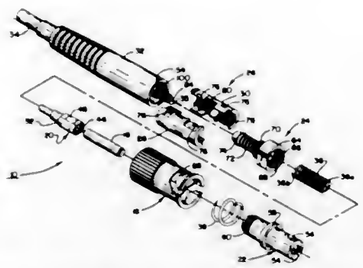
Filed Dec. 20, 1991, Ser. No. 811,569
Int. Cl.[5] G02B *6/36*
U.S. Cl. 385—69 **9 Claims**



1. An optical fiber connector assembly, comprising:
a) an elongated insulating housing having a longitudinal axis and complementary upper cover and bottom base members formed with at least one ferrule-receiving trough disposed longitudinally of the housing adjacent a first end thereof;
b) a ferrule assembly cradled in said ferrule-receiving trough and adapted to have secured thereto an optical fiber cable;
c) a multi-faceted mode-marking key mechanism mounted within the housing;
d) a passageway in said housing formed concentrically about the longitudinal axis of the housing at the end of the bottom base member and its corresponding upper cover member opposite said first end thereof; and
e) retention means for retaining an optical fiber cable attached to the housing and including a retention bolt having first and second sets of external threads thereon, and first and second thrust nuts adapted to engage said first and second sets of external threads, respectively, to clamp said retention bolt to said housing, said retention bolt being hollow to define a passageway therethrough to receive the optical fiber cable adapted to extend into said housing, thereby said first and second nuts holding the optical fiber cable and the retention bolt in operative position;
wherein said ferrule assembly includes first and second axially aligned integral body portions, said first portion having an engaging portion and a stop portion at a front end of the first body portion and having a circumferential groove adjacent an opposite end, a spring device disposed about the first body portion, and a C-shaped retaining ring inserted into said groove whereby said spring device is positioned between the C-shaped retaining ring and the engaging portion.

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5,214,732
OPTICAL FIBER RETENTION MECHANISM FOR SECURING OPTICAL FIBER CABLE
Michael S. Beard, Eden Prairie, and Curtis Puetz, Apple Valley, both of Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.
Filed Jan. 2, 1992, Ser. No. 816,105
Int. Cl.[5] G02B 6/36
U.S. Cl. 385—78 11 Claims



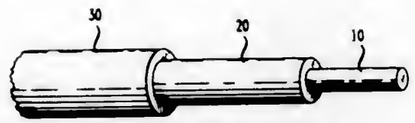
1. A fiber cable retention mechanism for securing an optical fiber cable to a cable connecting end of an optical fiber connector having an optical fiber termination end opposite the cable connecting end, said retention mechanism comprising:
a sleeve assembly having a longitudinal axis and defining an inner passageway disposed along said axis and sized to securely receive said cable connecting end therein and further sized to securely receive at least a portion of said cable between said assembly and said cable connecting end,
said sleeve assembly further includes first and second opposing sleeve members, said sleeve members each having an inner arcuate surface cooperating to define said passageway upon assembly of said sleeve members and said sleeve members including means for connecting said first sleeve member to said second sleeve member.

5,214,733
DUCT FOR RECEIVING AN OPTICAL FIBRE MEMBER
Alan A. Sadler, Cheshire, England, assignor to BICC PLC, London and Corning Limited, Sunderland, both of England
Filed Apr. 23, 1991, Ser. No. 690,154
Claims priority, application United Kingdom, Apr. 24, 1990, 9009176
Int. Cl.[5] G02B 6/44
U.S. Cl. 385—109 8 Claims

1. A duct for receiving an optical fibre member, which duct is formed at least in part of a plastics material which is electrically conductive or has electrically conductive material which is free of lubricating grade carbon and held therein or applied thereto.

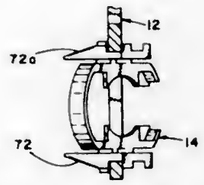
5,214,734
OPTICAL FIBER WITH IMPROVED MOISTURE RESISTANCE
Daryl Inniss, Hillsborough; Charles R. Kurkjian, Basking Ridge, and Michael J. Matthewson, Somerville, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Mar. 24, 1992, Ser. No. 856,792
Int. Cl.[5] G02B 5/172, 6/00
U.S. Cl. 385—128 11 Claims

1. An article which comprises an optical fiber enclosed within a jacket comprising at least one layer of polymeric material, wherein:
a) the optical fiber comprises a glass material;
b) the optical fiber has an expected onset of accelerated fiber fatigue at a statistically predictable time when subjected to a standard fatigue test, said time to be referred to as the "fatigue life";
c) the polymeric layer comprises an admixture of particulate material; and
d) the particulate material tends to form an aqueous solution that is less reactive toward the glass material than pure water, CHARACTERIZED IN THAT



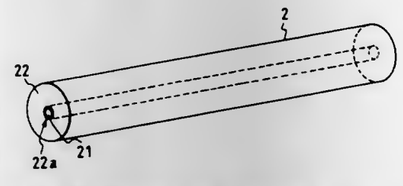
e) the particulate material has an average particle diameter of 3 μm or less;
f) the particulate material is present in an amount sufficient to increase the fatigue life by a factor of 2 or more relative to an otherwise identical article that comprises no particulate material; and
g) the amount of particulate material is less than 1.0 wt. %.

5,214,735
FIBER OPTIC CONNECTOR RETAINER
Roy L. Henneberger, Eagan, and Jeffrey L. Korkowski, Bloomington, both of Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.
Filed Apr. 6, 1992, Ser. No. 863,811
Int. Cl.[5] G02B 6/36
U.S. Cl. 385—136 6 Claims



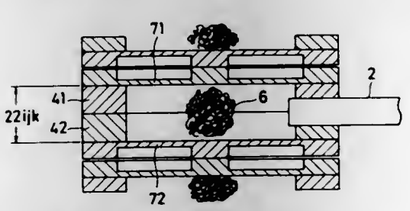
1. A retainer assembly for a fiber optic connector, said assembly comprising:
a frame having a wall with an access opening therethrough, said wall having a predetermined thickness;
a retainer having a receiving means for receiving and supporting a fiber optic connector;
a first releasable fastener connected to said retainer for fastening a first end of said retainer to said frame;
said first releasable fastener including a forward retaining surface and rear retaining surface apart a distance approximate to a said predetermined thickness;
a second releasable fastener connected to said retainer for fastening a second end of said retainer to said frame;
said second releasable fastener including a second forward retaining surface and a second rear retaining surface;
said second forward and rear retaining surfaces resiliently connected to said receiving means to be urged between a rest position and a displaced position;
said second forward and rear retaining surfaces spaced apart a distance approximate to a thickness of said wall for said wall to be received between said surfaces in said rest position and said wall to be free from said surfaces in said displaced position.

5,214,736
OPTICAL TRANSMISSION LINE HAVING A CORE OF A NON-LINEAR OPTICAL MATERIAL COATED WITH AN IMPROVED CLADDING
Takafumi Uemlya; Naoto Uenishi; Akira Mizoguchi; Yasuzi Ohgaki, and Yasuhiro Hattori, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Jul. 16, 1991, Ser. No. 730,481
Claims priority, application Japan, Jul. 16, 1990, 2-188301; Aug. 7, 1990, 2-83861[U]
Int. Cl.[5] G02B 6/16
U.S. Cl. 385—144 23 Claims



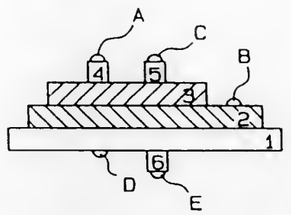
1. An optical transmission line comprising:
a core made of a material having a non-linear optical characteristic; and,
a glass cladding having an inner cylindrical wall surrounding the core, the cladding having a predetermined concentration of metal mono-oxides, the concentration of metal oxides not being attributable to the elution of metal oxide deposits on said inner cylindrical wall during the formation of said cladding from a glass mother material.

5,214,737
OPTICALLY OPERATED ACTUATOR
Naomasa Nakajima, Chofu; Yoshihiro Naruse, Ichikawa; Mitsubiro Ando, Tokyo, and Tomokimi Mizuno, Chiryu, all of Japan, assignors to Aisin Seiki Kabushiki, Kariya, Japan
Filed Sep. 25, 1991, Ser. No. 764,677
Claims priority, application Japan, Sep. 26, 1990, 2-256400
Int. Cl.[5] G02B 6/00; F16K 27/00
U.S. Cl. 385—147 8 Claims



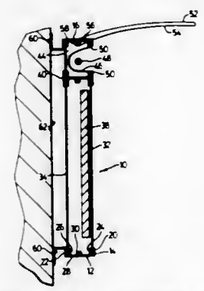
1. An optically operated actuator comprising:
a body having a closed space therein containing an amount of thermally expansible fluid, the body including a deformable portion movable in varying degree in the outward direction of the body upon expansion of the fluid;
an external actuation member connected to the deformable portion of the body;
light-to-heat converting means accommodated in the closed space; and
control means for establishing the supply of light into the closed space, the control means being in the form of an element separated from the body and terminated in the closed space.

5,214,738
POSITIVE COEFFICIENT THIN-FILM THERMISTOR
Shigeaki Nakajima, Kanagawa; Hiroshi Waki, Tokyo; Nobuhiro Fukuda; Hiroyuki Hyakutake, both of Kanagawa, and Masanaga Kikuzawa, Chiba, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan
PCT No. PCT/JP90/00593, § 371 Date Mar. 22, 1991, § 102(e) Date Mar. 22, 1991, PCT Pub. No. WO91/02365, PCT Pub. Date Feb. 21, 1991
PCT Filed May 10, 1990, Ser. No. 667,382
Claims priority, application Japan, Aug. 7, 1989, 1-202877; Aug. 7, 1989, 1-202878
Int. Cl.[5] H01C 7/10
U.S. Cl. 338—22 R 6 Claims



1. A positive coefficient thin-film thermistor exhibiting a positive coefficient characteristic, having a thickness of from 0.005 to 5 μm, and comprised of a thin film and an electrode, said thin film comprising a barium titanate composition which contains Ti, Ba, Sr, Si, Mn and at least one doping metal wherein, in a g-atm ratio to Ti, Ba is in the range of from 0.5 to 1, Sr is from 0 to 0.5, Ti/(Ba+Sr) is from 1.002 to 1.015, Si is from 0.0005 to 0.01, and Mn is from 0.000001 to 0.001, and wherein the at least one doping metal is selected from Y, La, Dy, Sb, Nb, Ta, Bi, Mo and V in a ratio of the total number of g-atms of said doping metal to one g-atm Ti ranging from 0.0005 to 0.01.

5,214,739
LOCALIZED HEATING UNIT FOR DESKS
Thomas M. Nelson, 10923-89 Avenue, and Per B. Arnt, 12368-132 Street, both of Edmonton, Alberta, Canada T5L 1P8
Filed Jan. 16, 1992, Ser. No. 821,581
Int. Cl.[5] H05B 3/22
U.S. Cl. 392—432 12 Claims



1. A heating unit for desks, comprising: a frame,
a substantially flat radiant heating surface supported by said frame, said surface having a periphery,
an elongate, substantially U-shaped trough having a reflective inner surface, the trough being supported by said frame and located adjacent a portion of said periphery,
an elongate heating element within and parallel to said trough,

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a reflector flap hingedly mounted with respect to the frame about a swivel axis adjacent the trough but remote from the heating surface, and disposed such that at least a portion of the radiant energy reflected out of said trough by said inner surface is re-reflected by said flap when it has a predetermined angulation with respect to said heating surface,

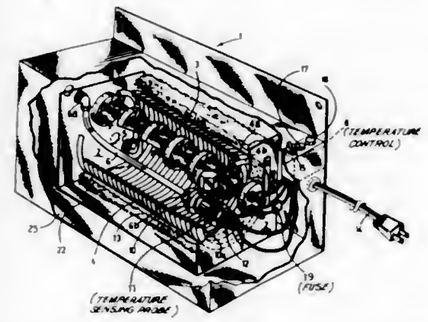
and electrical means for energizing both the heating surface and the elongate heating element.

5,214,740

PORTABLE ELECTRIC HEATING APPARATUS FOR SUPPLYING HEATED DRY NON-FLAMMABLE GAS TO AN APPLICATOR GUN

Carl W. Carroll, 258 Marina Hills Circle, N.W., Charleston, Tenn. 37310

Filed Jan. 31, 1992, Ser. No. 829,769
Int. Cl.[5] H05B *1/02, 3/06;* F24H *3/06;* F28F *19/00*
U.S. Cl. 392—481 6 Claims



1. A portable heater for providing dry non-flammable gas to an applicator gun having:

an elongated housing having walls,

an elongated electric heating means located centrally and longitudinally within the housing for heating the non-flammable gas,

a metallic helically coiled tube in said housing spaced from and surrounding the heating means, the coiled tube being substantially co-extensive in length with the heating means, said coiled tube having an inlet end and an outlet end and defining a non-obstructed pathway for the non-flammable gas to flow through,

an elongated preheating tubing section disposed length-wise of surrounded by said helically coiled tube in spaced heat exchange relation with the electric heating means, the preheating tubing section having an inlet end and an outlet end, the outlet end of the preheating tubing section being connected to the inlet end of the coiled tube to provide non-flammable gas to the inlet end of the coiled tube,

means for connecting a supply means of a non-flammable gas to the inlet end of the preheating tubing section,

temperature responsive sensing means positioned at the inlet end of the coiled tube and in direct contact with the non-flammable gas for sensing the actual temperature of the non-flammable gas flowing into the coiled tube from the preheating tubing section, and

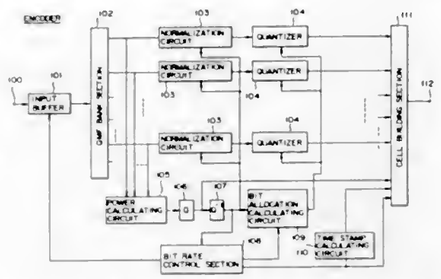
electrical control means operatively connected to the temperature responsive sensing means arranged to control the degree of energization of the heating means in direct response to the actual temperature of the non-flammable gas at the inlet end of the helically coiled tube and to vaporize any liquid present in the non-flammable gas flowing through the helically coiled tube and before the gas is transferred to the applicator gun.

5,214,741

VARIABLE BIT RATE CODING SYSTEM

Masami Akamine, Yokosuka, and Hidetaka Yoshikawa, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 10, 1990, Ser. No. 625,061
Claims priority, application Japan, Dec. 11, 1989, 1-318762
Int. Cl.[5] G10L *3/02*
U.S. Cl. 395—2 4 Claims



1. A variable bit rate coding apparatus having an encoder for encoding a signal and a decoder for decoding said encoded signal, said encoder comprising:

input buffer means for receiving a sequence of digital signals to accumulate a sequence of a predetermined number of samples;

filer tank means for dividing said input sequence of signals into a plurality of frequency band areas and outputting a plurality of band area signals;

encoder processing means for processing said band area signals to determine the power of each band area signal and to produce a predetermined sequence of codes for each band area and a code of an RMS value of each band area signal;

bit rate control means for controlling a bit rate based on said power of each band area signal in such a manner that a signal to noise ratio (SNR) of a signal to be decoded by said decoder is constant and an amount of codes form said encoder can be kept constant;

time stamp calculating means for calculating the number of subframes at a beginning of a frame, said frame consisting of a plurality of subframes and transferred in units of one cell which contains the subframes of a respective frame, said time calculating means calculating a time stamp $T_S(i)$ of the i-th frame from a following equation (2) at a time of calculating the number of subframes to be transferred per frame which is output from said bit rate control means:

$$T_S(i) = T_S(i-1) + N_S(i-1) \quad (2)$$

where $T_S(i-1)$ is a time stamp of $(i-1)$-th frame and $N_S(i-1)$ is the number of subframes; and

cell building means for building a cell of a sequence of codes of each band area signal, a code of said RMS value of each band area signal, a number of subframes per cell and a time stamp in a predetermined format;

said decoder comprising:

cell decomposition means for decomposing a cell unit encoded by said encoder into signals for each band area and a time stamp and for processing said decomposed band area signals for subsequent recombining of said band area signals;

cell abandonment detecting means for detecting a cell abandonment based on a time stamp and subframe number determined from each decomposed cell unit; and

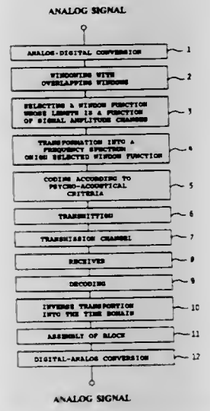
interpolation means for interpolating band area signals when a cell abandonment is detected by said cell abandonment detecting means and for outputting a reconstructed signal based on band area signals processed by said cell decomposition means when no cell abandonment is detected and based on interpolated band area signals when a cell abandonment is detected.

5,214,742

METHOD FOR TRANSMITTING A SIGNAL

Bernd Edler, Hanover, Fed. Rep. of Germany, assignor to TELEFUNKEN Fernseh und Rundfunk GmbH, Hanover, Fed. Rep. of Germany

PCT No. PCT/EP90/00143, § 371 Date Oct. 1, 1990, § 102(e) Date Oct. 1, 1990, PCT Pub. No. WO90/09063, PCT Pub. Date Aug. 9, 1990
PCT Filed Jan. 26, 1990, Ser. No. 585,127
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1989, 3902948
Int. Cl.[5] G10L *3/02*
U.S. Cl. 395—2 9 Claims



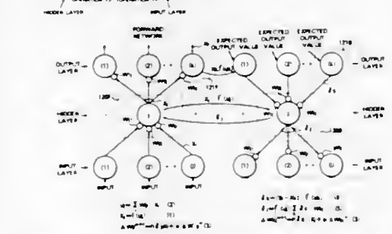
1. In a method of transmitting a signal including the steps of dividing the signal into successive, overlapping blocks by means of windows, converting the partial signals contained in the blocks into a spectrum by transformation utilizing window functions within the respective said windows such that the resultant of the window functions in the respective overlapping regions of successive blocks equals 1, subsequently, coding and transmitting the resulting spectra, receiving and decoding the transmitted coded spectra, converting the decoded spectra back into partial signals by transformation, and finally, joining the blocks containing the partial signals in an overlapping manner; the improvement comprising selecting the length of the respective window functions as a function of signal amplitude changes.

5,214,743

INFORMATION PROCESSING APPARATUS

Mitsuo Asai; Noboru Masuda, both of Kokubunji; Moritoshi Yasunaga, Kawaguchi; Masayoshi Yagyu, Kokubuoji; Minoru Yamada, Hanno, and Katsunari Shibata, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 461,080, Jan. 4, 1990, Pat. No. 5,165,010. This application Oct. 24, 1990, Ser. No. 602,661
Claims priority, application Japan, Oct. 25, 1989, 1-275834
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—11 23 Claims



1. An information processing apparatus comprising:

a first network comprising:

an input layer for inputting external input signals, holding said external input signals and outputting said external input signal as output signals,

a first hidden layer for inputting said outputs signals of said input layer, computing first output results of models simulating operation of neurons from said output signals of said input layer, outputting said first output results and including first modification means for modifying synaptic weights of said neuron models, and

a first output layer for inputting said firs output results, computing second output results of said neuron models from said first output results, outputting said second output results of said models and including second modification means for modifying synaptic weights of said neuron models,

said first network processing said external input signals in an order of said input layer, said hidden layer and said output layer to determine output values of said first network;

a second network comprising:

a second output layer including first learning signal computation means for computing first learning signals of said neuron models and outputting said first learning signals, and

a second hidden layer including second learning signal computation means for computing second learning signals of said neuron models, and third modification means for modifying synaptic weights of said neuron models,

said second network receiving desired output values and processing said desired output values in an order of said second output layer, and said second hidden layer to determine learning signals of said second network; and

communication means for communicating data between said first network and said second network;

wherein respective values proportional to respective products of said respective output results of said neuron models and said respective learning signals are added to said synaptic weights to modify said synaptic weights by said first, second and third modification means respectively through communications of data regarding said output results of said neuron models and said learning signals between said first network and said second network by said communication means.

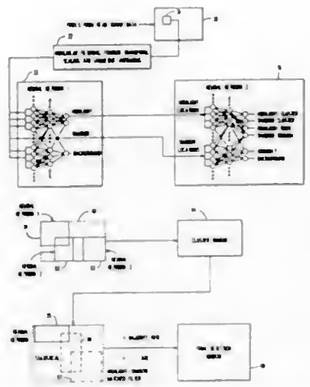
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,744

METHOD AND APPARATUS FOR AUTOMATICALLY IDENTIFYING TARGETS IN SONAR IMAGES

Philipp F. Schweizer, Monroeville, and Walter J. Petlevich, Jr., Uniontown, both of Pa., assignors to Westinghous Electric Copr., Pittsburgh, Pa.

Filed Dec. 14, 1990, Ser. No. 628,115
Int. Cl.[5] G06F *15/18;* G06K *9/62*
U.S. Cl. 395—21 10 Claims



6. A method for detecting targets in sonar images consisting of a matrix of pixels each pixel having a known greyness level comprising the steps of:

a) filtering each of the sonar images;

b) performing a Fourier transformation on each of the sonar images;

c) identifying portions of at least some of the sonar images as a first set of detection windows;

d) classifying with a highlight-shadow detector portions of each of the sonar images as one of a highlight, a shadow and background according to greyness levels of the pixels therein those portions containing at least one highlight or shadow and comprising a second set of detection windows;

e) subjecting each of the sonar images to a statistical cuer which selects those portions of the sonar images which have been classified as one of a highlight and a shadow to form a third set of detection windows;

f) recording a location for all of detection windows;

g) combining all groups of adjacent and overlapping detection windows to form cluster windows;

h) classifying through a neural network at least one portion of each cluster window as a target; and

i) marking on each cluster window those portions of the cluster window which have been classified as targets.

5,214,745

ARTIFICIAL NEURAL DEVICE UTILIZING PHASE ORIENTATION IN THE COMPLEX NUMBER DOMAIN TO ENCODE AND DECODE STIMULUS RESPONSE PATTERNS

John G. Sutherland, 27 Ontario Avenue, Hamilton, Ontario, Canada L8P 2H8

Continuation-in-part of Ser. No. 236,445, Aug. 25, 1988, abandoned. This application Apr. 26, 1989, Ser. No. 343,490
Int. Cl.[5] G09C *15/00*
U.S. Cl. 395—22 5 Claims

1. In a plurality of computing nodes wherein each of said plurality communicates with others of said plurality by means of bidirectional serial communication means, and wherein each node comprises:

(a) local memory storage means for storing data mapped onto said memory storage means;

(b) micro-processing means including:

(i) processor means;

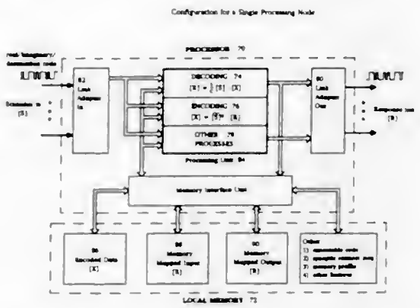
(ii) a plurality of data input means for receiving stimulus signals;

(iii) a plurality of data output means for transmitting response signals;

(iv) memory interface means for interfacing said micro-processing means with said local memory storage means;

(c) said micro-processing means including:

(i) means for encoding data onto said local memory storage means by translating sets of associated stimulus and



response signals, received by said data input means from real values into a complex value represented by a vector phase angle and a magnitude exhibited within the generalized complex number domain and generating a matrix representing stimulus-response patterns for each set of associated stimulus and responses signals, whereby each said stimulus-response pattern is superimposed onto said local memory storage means;

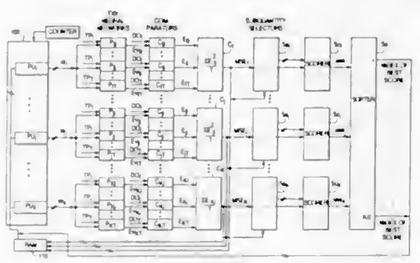
(ii) means operable for decoding a response, associated with a stimulus signal received by said data input means, from said matrix of stimulus-response patterns encoded on said local memory storage means, to generate a response signal associated with said stimulus signal through said data output means.

5,214,746

METHOD AND APPARATUS FOR TRAINING A NEURAL NETWORK USING EVOLUTIONARY PROGRAMMING

David B. Fogel, San Diego, and Lawrence J. Fogel, La Jolla, both of Calif., assignors to Orincon Corporation, San Diego, Calif.

Filed Jun. 17, 1991, Ser. No. 716,687
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—23 37 Claims



36. A neural network training apparatus, comprising:

(a) a plurality of neural networks each capable of receiving data and operative in a plurality of different weighted configurations, each configuration defined by a different set of weight values;

(b) means for adjusting each network to operate in different weighted configurations defined by a corresponding different set of weight values;

(c) means, responsive to an application of a plurality of training patterns to each of the networks, for generating respective evaluations of the training patterns from each of the networks as outputs of the networks;

(d) means for comparing the evaluations of the training patterns to corresponding desired outputs of the networks to obtain corresponding errors;

(e) means for determining from all of the errors obtained from said comparing means overall error values corresponding to the sets of weight values;

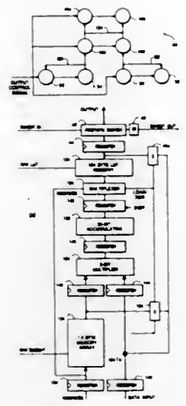
(f) for each of said sets of weight values, means for determining a score by selecting respective error comparison values from a predetermined variable probability distribution and comparing thereto the corresponding overall error value;

(g) means for selecting a predetermined number of the sets of weight values determined to have the best scores;

(h) means for generating copies of the sets of weight values selected by said selecting means;

(i) means for generating, for each weight value of the copies generated by said means for generating copies, a corresponding random number from a continuous random distribution of numbers having a mean of zero and a variance which is a function of the overall error value determined by said overall error generating means for the set of weight values from which the copy which includes said each weight value was generated; and

(j) means for mutating the weight values of the copies by adding the corresponding random numbers thereto to create new sets of weight values, said means for adjusting including means for replacing some of the weighted configurations of said network with new weighted configurations based on said new sets of weight values.

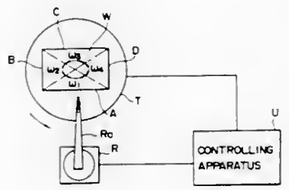


5,214,748

ROBOT TEACHING/PLAYBACK SYSTEM

Hiromu Wakayama, and Hideki Hashimoto, both of Kobe, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Feb. 28, 1991, Ser. No. 662,433
Claims priority, application Japan, May 22, 1990, 2-131498
Int. Cl.[5] G06F *15/46;* G05B *19/42*
U.S. Cl. 395—82 1 Claim



1. A robot teaching/playback system which includes a turntable for rotating a work carried thereon and a robot for working the work carried on said turntable, comprising:

common controlling means for controlling said turntable and robot;

teaching means for storing in a memory a set of robot working data and taught turntable rotational position data for each of divisional rotational regions into which said turntable is divided; and

playback means for interpolating robot working data and turntable rotational position data between each adjacent ones of the divisional rotational regions in accordance with the robot working data and taught turntable rotational position data stored for each of the divisional rotational regions and for causing said common controlling means to control said robot and turntable in accordance with the interpolated data.

5,214,747

SEGMENTED NEURAL NETWORK WITH DAISY CHAIN CONTROL

Ronald S. Cok, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 24, 1990, Ser. No. 632,862
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—27 1 Claim

1. A neural network configuration and control method, comprising the steps of:

(a) segmenting the network nodes in each layer into at least two segments according to at least two data destinations of outputs of the nodes of each layer; and

(b) controlling an output of each node in each segment with a control signal corresponding to each segment where the control signal is sequentially applied to each node within each segment.

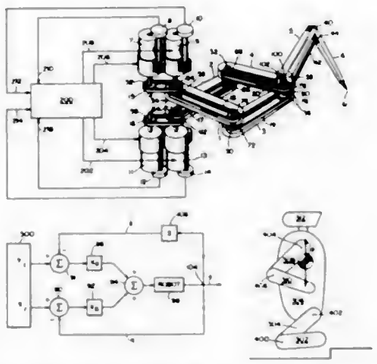
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5,214,749

DYNAMIC CONTROL OF A ROBOT WITH ITS CENTER OF MASS DECOUPLED FROM AN END EFFECTOR BY A REDUNDANT LINKAGE

Kevin L. Brown, Somerville, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Jun. 12, 1991, Ser. No. 714,422
Int. Cl.[5] G06F *15/00*
U.S. Cl. 395—95 16 Claims



9. A humanoid zero-reaction force robot with a dynamically controlled center of mass comprising:
a base link,
a first moving joint,
a redundant linkage including:
a leg link,
said first moving joint coupling the leg link to the base link,
a body link,
a second moving joint coupling the body link to said leg link,
an end effector linkage including:
a first arm link coupled to said body link by a third moving joint,
a second arm link, including a holding tip which serves as an end effector, coupled to said first arm link by a fourth moving joint,
wherein for each dimension of operation, the end effector linkage includes a first mass which moves in the same direction of movement as the end effector and the redundant linkage includes a second mass which can be moved in the opposite direction of movement of the first mass of the end effector,
a head unit, connected to the body unit, including:
a video camera, and
a dynamic controller for moving the robot arm so that for each dimension of operation of the end effector there are at least two degrees of freedom of the robot arm to decouple the center of mass from the end effector and prevent the coupling of reaction forces to the base link.

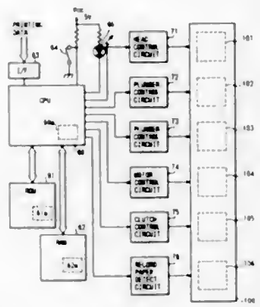
5,214,750

PRINTER AND METHOD FOR CONTROLLING THE SAME

Masahiro Minowa, and Yoshikazu Ito, both of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Nov. 13, 1991, Ser. No. 791,286
Claims priority, application Japan, Nov. 14, 1990, 2-307861; Sep. 27, 1991, 3-249178
Int. Cl.[5] G01D *15/00*
U.S. Cl. 395—111 4 Claims

1. A printer capable of printing at least two types of record paper at a printing part thereof having a print head, comprising:
first record paper passages and first record paper transfer means for transferring a cut sheet of paper;
second record passages and second record paper transfer means for transferring continuous sheets of paper, said printer being capable of simultaneously printing on said at least two types of record paper wherein said first record paper transfer means is different from said second record paper transfer means;
a printing opening/closing mechanism for changing a distance between the print head and a platen;
a forwarding opening/closing mechanism for preparing the cut sheet to be transferred by said first record paper transfer means;
a step motor serving as a common drive source for said first and second record paper transfer means;
clutch means interposed between said second record paper



transfer mechanism and said step motor and electrically operable;
count means for counting drive step number of said step motor;
memory means for storing a predetermined number of steps from a top end position of said record paper to a predetermined position in said printing part;
an interface for transmitting and receiving data codes for information of said printer including a control command, printing data to and from a host computer;
data receiving means for receiving said data codes of said host computer;
command analysis means for interpreting said control command of said host computer;
memory means for storing designation of said each record paper type recognized by said command analysis means; and
control means for controlling said transfer means according to said stored designation of said record paper.

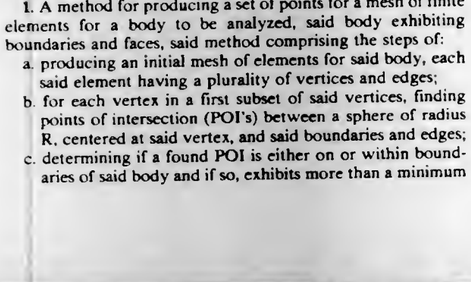
5,214,751

METHOD FOR THE TEMPORAL INTERPOLATION OF IMAGES AND DEVICE FOR IMPLEMENTING THIS METHOD

Philippe Robert, Rennes, France, assignor to Thomson Grand Public, Paris, France

PCT No. PCT/FR88/00271, § 371 Date Feb. 1, 1989, § 102(e) Date Feb. 1, 1989, PCT Pub. No. WO88/10046, PCT Pub. Date Dec. 15, 1988
Continuatioo of Ser. No. 327,805, Feb. 1, 1989, abandoned. This PCT application May 31, 1988, Ser. No. 798,996
Claims priority, application France, Jun. 4, 1987, 87 07814
Int. Cl.[5] G06F *15/626*
U.S. Cl. 395—129 13 Claims

1. A method for determining an interpolated luminance value for each pixel of an image to be interpolated at an instant T_j, comprising the steps of:
obtaining luminance values of pixels of a first known image and of a second known image at instants T_a and T_b respectively, the instant T_j being between T_a and T_b,
determining components of a velocity vector for each father pixel of a motion carrier image which occurs at an instant T_i between T_a and T_b or equal to one of T_a and T_b;
determining successively for each father pixel of the motion carrier image, coordinates of the center of a son pixel to be interpolated, by processing the center of the father pixel using a vector translation which is a function of the velocity vector of the father pixel, multiplied by a duration $T_i - T_j$;
associating a velocity vector with each said son pixel to be interpolated, said velocity vector for said each pixel constituted by the velocity vector or a father pixel of said each pixel;



determining in the two images, coordinates of two base points of the temporal interpolation, each of said two base points corresponding to the center of the pixel to be interpolated, by a translation in the plane of one of the known images, the vector of said translation in the plane of the known images being a function of the velocity vector associated with the pixel to be interpolated, respectively multiplied by the durations $T_j - T_a$ and $T_b - T_j$;
determining a luminance value of each of the two base points by means of a spatial interpolation between the pixels adjacent to each of these base points, respectively in the two known images;
determining an interpolated luminance value for the pixel to be interpolated by computing a linear combination of the two luminance values of the base points and weighting said linear combination by the durations $T_j - T_a$ and $T_b - T_j$ respectively and supplying the interpolated luminance value as luminance information for the instant T_i.

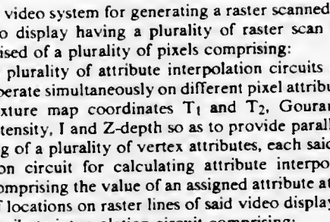
5,214,752

POINT PLACEMENT METHOD FOR USE IN A THREE-DIMENSIONAL AUTOMATIC MESH GENERATION SYSTEM

Siavash N. Meshkat, San Jose, and James M. Ruppert, Berkeley, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 22, 1991, Ser. No. 644,162
Int. Cl.[5] G06F *15/72*
U.S. Cl. 395—123 12 Claims

1. A method for producing a set of points for a mesh of finite elements for a body to be analyzed, said body exhibiting boundaries and faces, said method comprising the steps of:
a. producing an initial mesh of elements for said body, each said element having a plurality of vertices and edges;
b. for each vertex in a first subset of said vertices, finding points of intersection (POI's) between a sphere of radius R, centered at said vertex, and said boundaries and edges;
c. determining if a found POI is either on or within boundaries of said body and if so, exhibits more than a minimum clearance distance from said boundaries and vertices, if both conditions are met, said POI is classified as a selected POI;
d. inserting a selected POI in said initial mesh; and



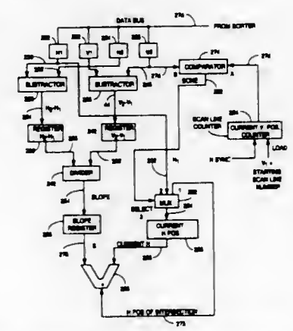
e. repeating steps b–d for all POI in said first subset, and then proceeding to succeeding subsets of said vertices, until all subsets have been considered.

5,214,753

VIDEO SYSTEM WITH PARALLEL ATTRIBUTE INTERPOLATIONS

Samuel Lee, San Jose, and David L. Sherman, Fremont, both of Calif., assignors to Shographics, Inc., Mountain View, Calif.

Continuation of Ser. No. 388,081, Jul. 31, 1989, abandoned. This application Nov. 15, 1991, Ser. No. 794,655
Int. Cl.[5] G06F *15/62*
U.S. Cl. 395—125 9 Claims



1. A video system for generating a raster scanned display on a video display having a plurality of raster scan lines, each comprised of a plurality of pixels comprising:
(i) a plurality of attribute interpolation circuits coupled to operate simultaneously on different pixel attributes such as texture map coordinates T_1 and T_2, Gouraud shading intensity, I and Z-depth so as to provide parallel processing of a plurality of vertex attributes, each said interpolation circuit for calculating attribute interpolation data comprising the value of an assigned attribute at a plurality of locations on raster lines of said video display, each said attribute interpolation circuit comprising:
(a) first means for receiving attribute information regarding the value of some of said attributes at each of first and second points on said raster-scanned display and calculating the rate of change of said attribute per unit of distance between said first and second points;
(b) second means coupled to said first means and having a storage register, for receiving and storing in said storage register the value for said attribute at said first point and for adding to said value stored in said storage register the value of said rate of change of said attribute at predetermined times, and for storing the sum calculated for each new scan line in said storage register;

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(c) third means for keeping a count of the current position for which a calculation is to be performed;

(d) fourth means for comparing the current position to the position for said second point and for activating a control signal when said current position indicates that all attribute values along a line between said first and second points have been computed;

(ii) a sorter circuit having an input for receiving data regarding said attributes at vertices of a plurality of primitive polygons having three or more sides coupled by vertices and having an output coupled to said plurality of said interpolation circuits for delivering attribute data regarding the values of said attributes at said vertices to the appropriate assigned one of said interpolation circuit for interpolation of other values for the attribute;

(iii) a texture RAM means for storing one or more texture map patterns to be used in filling polygons, said texture RAM means being accessed by an address corresponding to the interpolated attribute data of texture map coordinates T_1 and T_2;

(iv) a frame buffer for storing video fill data;

(v) video means coupled to said attribute interpolation circuits for receiving attribute interpolation data calculated by said attribute interpolation circuits consisting of said texture map coordinates T_1 and T_2, Z-depth and Gouraud shading intensity I calculated for each pixel and for generating said video fill data based upon said attribute interpolation data and for storing said video fill data in said frame buffer;

(vi) address calculation means coupled to said attribute interpolation circuits and to said video means for calculating addresses for use in writing said video fill data into said frame buffer and for generating control signals causing predetermined ones of said attribute interpolation circuits to calculate attribute interpolation values at pixel locations along a raster scan line of said raster scanned display; and

(vii) control means coupled to said sorter circuit, said address calculation circuit, said attribute interpolation circuits and said video means for generating control signals to cause loading of the appropriate vertex attribute data from said sorter into the corresponding attribute interpolation circuits and parallel processed, virtually simultaneous calculation of attribute interpolation data by all said attribute interpolation circuits on the different pixel attributes and virtually simultaneously mapping of said attribute interpolation data to corresponding texture-mapped, Gouraud-shaded, Z-buffered video fill data, and to cause the generation of said addresses by said address calculation means and the filling of said video frame buffer with said video fill data.

5,214,754

METHOD AND APPARATUS FOR APPROXIMATING POLYGONAL LINE TO CURVE

Masayuki Okamoto, Yokohama; Mitsuru Yamauchi, Inagi, and Toshiya Mima, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 367,813, Jun. 19, 1989, abandoned. This application Nov. 19, 1991, Ser. No. 795,253

Claims priority, application Japan, Jun. 29, 1988, 63-159208; Sep. 7, 1988, 63-222438

Int. Cl.[5] G06F *15/20*

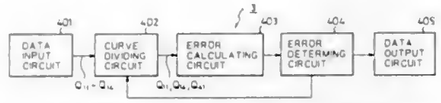
U.S. Cl. 395—142 **15 Claims**

1. A method of approximating a polygonal line to a curve on a graphic display comprising the steps of:

receiving curve diagram data;

converting said curve diagram into a plurality of coordinate points;

generating a plurality of line segments approximating a curve based on said coordinates wherein a number of line segments generated is based upon an amount of curvature along portions of said curve;



converting said plurality of line segments into a graphic curve; and

displaying said graphic curve on a display device.

5,214,755

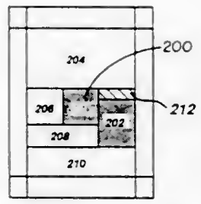
DOCUMENT PROCESSING METHOD AND SYSTEM

Christopher A. Mason, Bothell, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 700,086, May 6, 1991, abandoned, which is a continuation of Ser. No. 343,082, Apr. 25, 1989, abandoned. This application Oct. 18, 1991, Ser. No. 764,105

Int. Cl.[5] G06F *15/20*

U.S. Cl. 395—147 **13 Claims**



1. A method for generating a plurality of layout rectangles for a page in a computer system for processing documents, the page comprising absolutely positioned object and unpositioned data, the absolutely positioned objects having a predefined size and location on the page, the unpositioned data may include text characters and graphic objects, the layout rectangles to define areas into which the unpositioned data may be placed, the method comprising the steps of:

(a) defining a default layout rectangle to encompass the page;

(b) determining if any absolutely positioned objects intersect the default layout rectangle;

(c) if no absolutely positioned object intersects the default layout rectangle, generating a layout rectangle equal to the default layout rectangle;

(d) if an absolutely positioned object intersects the default layout rectangle,

(1) generating a layout rectangle from the default layout rectangle such that the layout rectangle does not include an absolutely positioned object; and

(2) redefining the default layout rectangle to exclude the generated layout rectangle; and

(e) repeating steps (b) through (d) until no absolutely positioned object intersects the default layout rectangle and wherein the generated layout rectangles define areas into which the unpositioned data may be placed.

5,214,756

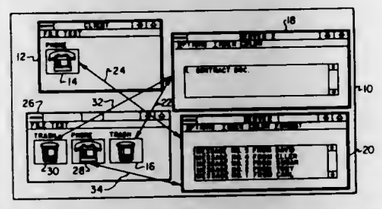
DIRECT MANIPULATION OF ICONS VIA CONVERSATIONAL LINKING

Susan M. Franklin, Irving, and Anthony M. Peters, Bedford, both of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 321,930, Mar. 10, 1989, abandoned. This application Sep. 22, 1992, Ser. No. 950,989

Int. Cl.[5] G06F *15/62*

U.S. Cl. 395—159 **4 Claims**



1. A method in a data processing system for permitting direct user manipulation of a graphic display of an icon within a window provided a first data processing application, said icon depicting an application which is supported and provided by a second data processing application via an interprocess communications link between said first data processing application and said second data processing application, said method comprising the steps of:

terminating said interprocess communications link between said first data processing application and said second data processing application in response to a deletion of said graphic display of said icon from said window provided by said first data processing application; and

initiating an interprocess communications link between a third data processing application and said second data processing application in response to an initiation of a graphic display of said icon within a window provided by said third data processing application.

5,214,757

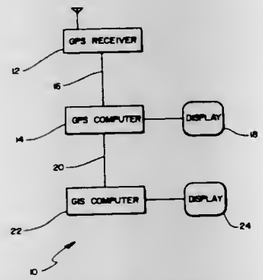
INTERACTIVE AUTOMATED MAPPING SYSTEM

Thad Mauney; Aglaia C. F. Kong, and Douglas B. Richardson, all of Yellowstone County, Mont., assignors to GeoResearch, Inc., Billings, Mont.

Continuation of Ser. No. 564,018, Aug. 7, 1990, abandoned. This application Sep. 29, 1992, Ser. No. 953,761

Int. Cl.[5] G06F *15/403, 3/14*

U.S. Cl. 395—161 **10 Claims**



5. In a mobile mapping system containing a computer, data storage, a geographic information system, a display, and a position sensor, a method for mapping comprising the steps of:

moving the position sensor along a path to be mapped, while sensing position at various intervals;

storing position information from the position sensor in data storage;

receiving attribute information entered in real time;

encoding attribute information into a plurality of data packets;

storing the attribute packets in data storage;

encoding graphical entities to represent a plurality of geographical features;

relating the position information and the plurality of attributes to the graphical entities;

converting the position information, the graphical entities, and the attribute information into a format for use by the geographic information system;

storing the position information, the graphical entities, and the attribute information in the geographic information system to create a new map; and

displaying the new map on the display so that the attribute information can be interactively entered in relation to the position information.

5,214,758

ANIMATION PRODUCING APPARATUS

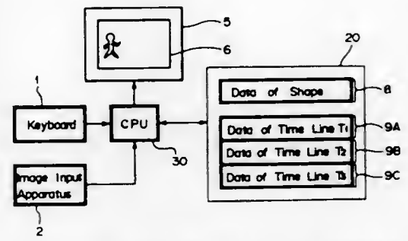
Akio Ohba; Shinichi Fukushima, both of Kanagawa, and Koji Kaneda, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 6, 1990, Ser. No. 609,612

Claims priority, application Japan, Nov. 14, 1989, 1-295756; Jan. 21, 1990, 2-10861

Int. Cl.[5] G06F *15/62*

U.S. Cl. 395—164 **9 Claims**



1. An animation producing apparatus for producing an animation of a plurality of fundamental shapes having respective animated parts on the basis of a plurality of parameters relating to predetermined operations of respective animated parts of the plurality of fundamental shapes, comprising:

a) input means for inputting a plurality of fundamental shapes having respective animated parts and for separately inputting a respective plurality of sets of predetermined operation parameters relating to predetermined operations of respective ones of the plurality of fundamental shapes having respective animated parts;

b) memory means connected to said input means for storing in a first area therein said plurality of fundamental shapes having respective animated parts and for storing in respective separate, second areas therein said plurality of sets of predetermined operation parameters, values of said plurality of parameters stored in said separate, second areas of said memory means being varied, added or deleted by said input means independently of each other;

c) computing means for separately interpolating operations for each respective animated part of said plurality of fundamental shapes on the basis of said plurality of predetermined operation parameters read-out from said memory means and for producing an animation signal based on the interpolated operations and said predetermined operations; and

d) display means for displaying thereon the animation signal produced by said computing means from said animation signal.

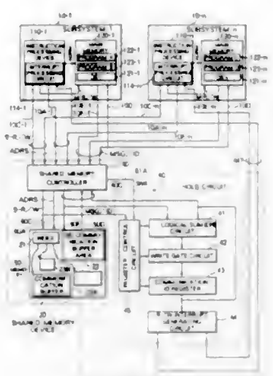
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,759

MULTIPROCESSORS INCLUDING MEANS FOR COMMUNICATING WITH EACH OTHER THROUGH SHARED MEMORY

Akira Yamaoka, Hadano, and Kenichi Wada, Sagamihara, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 22, 1990, Ser. No. 526,718
Claims priority, application Japan, May 26, 1989, 1-131343
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—200 50 Claims



1. In a multiprocessor system including a plurality of subsystems and a shared memory device, each of said plurality of subsystems having at least one instruction processor and a main memory, and each subsystem executing a plurality of programs under control of an operating system, said shared memory device having a random access memory connected to said plurality of subsystems to be accessed thereby, a method for communication between said subsystems via said shared memory device comprising the steps of:

(a) writing a message into a communication buffer in said random access memory of said shared memory device with a sending-side subsystem, the sending-side subsystem including a sending-side program for sending said message, and informing said shared memory device with said sending-side subsystem of communication discriminating information specifying a receiving-side program of a receiving-side subsystem which is to receive said message;

(b) reading out said communication discriminating information from said shared memory device with a receiving-side operating system of said receiving-side subsystem, and, responsive to said read out communication discriminating information, directing said receiving-side program to receive said message with the receiving-side operating system; and

(c) reading out said message from said communication buffer with said receiving-side program in response to said directing of said receiving-side program performed with said receiving-side operating system.

5,214,760

ADAPTABLE MULTIPLE PORT DATA BUFFER

John A. Hammond, Portland, Oreg., and Thomas M. Cooper, Vancouver, Wash., assignors to Tektronix, Inc., Wilsonville, Oreg.

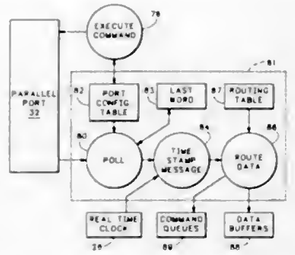
Filed Aug. 26, 1988, Ser. No. 237,922
Int. Cl.[5] G06F *13/14, 13/38, 15/20*
U.S. Cl. 395—250 13 Claims

1. A data buffer for interfacing a plurality of equipment modules to a data processing apparatus, each equipment module including a module data port for producing output data and receiving input data utilizing a present data transfer mode, the data buffer comprising:

a plurality of buffer data ports, each buffer data port being connected to a separate one of said module data ports for transmitting data thereto and receiving data therefrom, each buffer data port utilizing one of a plurality of differing data transfer modes, the one utilized corresponding to the present data transfer mode of the module data port to which hit is connected;

a control port for receiving commands from the data processing apparatus and for transmitting data to the data processing apparatus;

means for selecting the one data transfer mode utilized by each buffer data port in response to mode selection input



commands transmitted from the data processing apparatus to the control port;

a real time clock circuit producing output data indicating a time; and

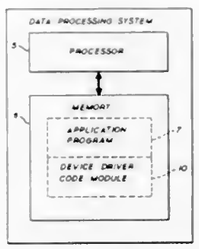
means for transferring data between a selected one of the buffer data and control ports to another one of the buffer data and control ports upon command from the data processing apparatus, the transferring means including means for detecting a state change in a bit of data received by one of said buffer data ports, for thereupon generating message data including the time indicated by the output data of said real time clock circuit, and for routing the message data to said control port for transmission to the data processing apparatus.

5,214,761

REAL-TIME ADJUSTABLE-TRANSFORM DEVICE DRIVER FOR PHYSICAL DEVICES

David M. Barrett, Tyngsboro, Mass., and Kenneth C. Knowlton, Merrimack, N.H., assignors to Wang Laboratories, Inc., Lowell, Mass.

Continuation of Ser. No. 348,636, May 8, 1989. This application Nov. 12, 1991, Ser. No. 794,354
Int. Cl.[5] G06F *3/023, 13/00*
U.S. Cl. 395—275 25 Claims



10. A data processing system, comprising:

a. a memory storing instructions and data including an application program and a device driver code module, and

b. a processor responsive to the instructions and data stored in memory for executing the application program and for executing the device driver code module to transform data signals from an external device to a form for input to the executing application program, the device driver code module comprising:

a device driver code portion comprising instructions and data used by the processor for receiving data signals from the external device and for sending transformed data signals to the executing application program, the device driver code portion having a permanent code space portion comprising instructions used by the processor for executing the device driver, and

a transform code portion loaded into memory with the device driver code portion and comprising instructions and data used by the processor for transforming the data signals received by the device driver code portion from the external device into the transformed data signals for sending to the executing application program by the device driver code portion in accordance with a specific transformation procedure, the transform code portion comprising:

(1) an algorithm code portion comprising instructions for defining a finite state machine used by the processor for executing the transformation procedure prescribed for the selected transform code portion,

(2) a gateway code portion including instructions and data used by the processor for controlling entry into the finite state machine of the algorithm code portion, and

(3) a data block portion for storing data containing information used by the processor for executing the selected transform code portion including data indicating the address in memory of a first buffer area for storing the first data structure data signals received from the external device, and data indicating the address in memory of a second buffer area for storing the second data structure data generated by the selected transform algorithm operating on the first data structure data signals stored in the first buffer area,

and the device driver code portion further comprises a transform loading area for receiving the transform code portion to be loaded into memory with the device driver code portion, and a temporary installation code area comprising instructions used by the processor for initializing the device driver, loading the transform code portion into the transform loading area, and initializing the external device,

wherein the processor selects the transform code from a plurality of prescribed transform code portions each corresponding to a specific transformation procedure, and the processor loads the selected transform code portion into the transform loading area of the device driver code portion to provide the device driver code module.

5,214,762

DISK DRIVE ACTIVITY INDICATOR

Kenneth L. Bush, Cypress, and Ralph S. Perry, Houston, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Continuation of Ser. No. 268,221, Nov. 7, 1988, abandoned. This application Nov. 19, 1990, Ser. No. 616,759
Int. Cl.[5] G06F *3/00*
U.S. Cl. 395—275 15 Claims

1. A computer system comprising:

(a) a housing having a front panel visible to a user during operation of the computer system;

(b) a circuit board located within said housing;

(c) a CPU located within said housing and mounted on said circuit board;

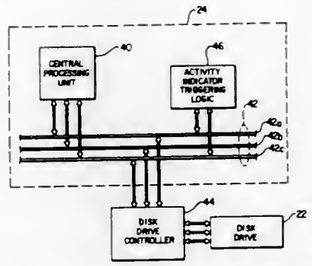
(d) peripheral I/O means located within said housing, said peripheral I/O means addressable by said CPU;

(e) system bus means located within said housing, said system bus means coupling addresses, data, and control signals between said CPU and said peripheral I/O means;

(f) said peripheral I/O means including:

(1) a peripheral controller connected to said system bus to receive addresses, data, and control signals from said CPU and to send data and control signals to said CPU, and

(2) an input/output device disposed within said housing remote from said front panel, said input/output device being operated by said peripheral controller; said peripheral controller defining a plurality of registers addressable by said CPU for transferring data and control signals to and from said CPU and to and from said input/output device;



(g) means, connected to said system bus means, for detecting transfers of address and control signals between said CPU and said peripheral controller via said system bus means;

(h) indicator means, connected to said means for detecting transfers, for informing a user of said computer system of activity by said peripheral I/O means, said peripheral I/O means activity being determined by said means for detecting transfers detecting transfers of address or control signals between said CPU and said peripheral controller via said system bus means, said indicator means activated under control of said means for detecting transfers, and deactivated affer a fixed period of time;

(i) said indicator means installed remotely from said peripheral controller and said input/output device.

5,214,763

DIGITAL COMPUTER SYSTEM CAPABLE OF PROCESSING TWO OR MORE INSTRUCTIONS IN PARALLEL AND HAVING A COCHE AND INSTRUCTION COMPOUNDING MECHANISM

Bartholomew Blaner, Newark Valley, and Stamatis Vassiliadis, Vestal, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 10, 1990, Ser. No. 522,291
Int. Cl.[5] G06F *15/16*
U.S. Cl. 395—375 10 Claims

1. In a digital computer system capable of processing two or more instructions in parallel, the combination comprising:

a larger-capacity, lower-speed storage mechanism for storing instructions to be processed;

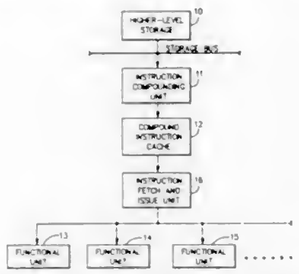
a smaller-capacity, higher-speed cache storage mechanism for storing instructions with associated tag information;

an instruction fetch and issue unit;

and an instruction compounding mechanism coupled to receive an input of instructions from the lower-speed storage mechanism and to provide an output of instructions with associated tag information to the smaller-capacity storage mechanism and located between the lower-speed storage mechanism and the higher-speed storage mechanism, for analyzing these received instructions and producing the associated tag information for supplying these instructions and associated tag information to the higher-speed cache storage mechanism for storage therein prior to instruction fetch and issue by said

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instruction fetch and issue unit, the associated tag information comprising one or more bits indicating whether the instruction with which the tag is associated may be executed in parallel and which indicates which instructions may be processed in parallel with one another and having of a plurality of tag fields, a different one of which is associated with each instruction analyzed by the instruction compounding mechanism by an examination of the opcode; and wherein the instruction compounding mechanism includes a plural-instruction instruction register for receiving a plurality of successive instructions from the lower-speed storage mechanism and means for producing a compoundability signal including a plurality of rule-based instruction analyzer mechanism, each of which analyzes the opcode of a different pair of side-by-side instructions in the instruction register, said means for producing a compoundability signal indicating whether or not the two instructions in its pair may be processed in parallel, and each instruction analyzer mechanism including logic circuitry for implementing rules which define which types of instructions are compatible for parallel



execution in the particular instruction processing configuration used for the computer system, such logic circuitry providing said means for producing the compoundability signal for the analyzer mechanism,

and a tag generating mechanism responsive to the compoundability signals for generating the individual tag fields for the analyzed instructions in the instruction register for providing said tag fields as associated tags for the instructions analyzed and providing them as output to said higher-speed cache storage mechanism for storage and for access of the instructions by said instruction fetch and issue unit;

a plurality of functional instruction processing units of different functional types which operate in parallel with one another and wherein the tag information generated by the instruction compounding mechanism is used by said instruction fetch and issue unit in causing the issuance of two or more instructions in parallel from the higher-speed storage mechanism to appropriate functional units which can perform the required function for the issuing instructions.

5,214,764

DATA PROCESSING APPARATUS FOR OPERATING ON VARIABLE-LENGTH DATA DELIMITED BY DELIMITER CODES

Junichi Komuro, and Makoto Kimura, both of Tokyo, Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 360,226, Jun. 1, 1989, abandoned. This application Mar. 2, 1992, Ser. No. 844,994

Claims priority, application Japan, Jul. 15, 1988, 63-175112

Int. Cl.[5] G06F *12/04*

U.S. Cl. 395—425 **8 Claims**

1. A data processing apparatus comprising:

data storage means for storing variable-length data delimited by a delimiter code;

variable-length processing means including:

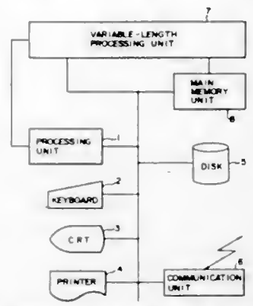
an instruction memory;

a first gate circuit for receiving first data read out from said data storage means;

a first detector for detecting a delimiter code in said first data and for outputting a disable signal to said first gate circuit for inhibiting said first data from being output after detecting said delimiter code;

a second gate circuit for receiving second data read out from said data storage means;

a second detector for detecting a delimiter code in said second data and for outputting a disable signal to said second gate circuit for inhibiting said second data from being output after detecting said delimiter code;



an arithmetic logic unit for receiving at least one of said first and second data respectively from said first and second gate circuits; and

control means for executing by said arithmetic logic unit an operation instructed by instruction information stored in said instruction memory on variable length data read out from said data storage means, and for outputting by said control means an operation end signal after said operation is ended; and

processing means for outputting an operation start signal for starting said operation of said variable-length processing means, and for supplying said executed result data to a peripheral unit after receiving said operation end signal from said control means of said variable-length processing means.

5,214,765

METHOD AND APPARATUS FOR EXECUTING FLOATING POINT INSTRUCTIONS UTILIZING COMPLIMENTARY FLOATING POINT PIPELINE AND MULTI-LEVEL CACHES

Eric H. Jensen, Livermore, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 401,021, Aug. 31, 1989, abandoned. This application Jul. 2, 1992, Ser. No. 908,655

Int. Cl.[5] G06F *13/14*

U.S. Cl. 395—425 **9 Claims**

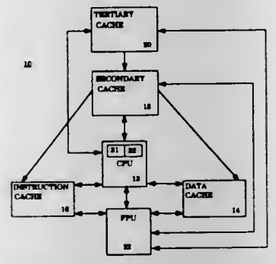
1. In a pipelined computer system comprising a plurality of floating point instructions, a method for executing floating point instructions, said method comprising the steps of:

a) storing a first plurality of floating point data in a primary direct mapped cache, said primary cache comprising n_1 cache lines, each having a first cache line size of m_1 floating point data word(s) and a first access time of t_1 clock cycle(s), where m_1 and t_1 are both small integers greater than or equal to 1;

b) storing a second plurality of floating point data in a secondary fully associative cache, said secondary cache comprising n_2 cache lines, each having a second cache line size of m_2 floating point data words and a second access time of t_2 clock cycles, where n_2 is a small integer, m_2 is greater than m_1, and t_2 is a small integer greater than t_1.

c) storing a third plurality of floating point data in a tertiary cache, said tertiary cache comprising n_3 cache lines, each having a third cache line size of m_3 floating point data words and a third access time of t_3 clock cycles, where m_3 is greater than m_2 and t_3 is a small integer greater than t_2;

d) executing at least one fetching and one decoding floating point phase to fetch and decode a floating point instruc-



tion, said floating point instruction being preceded by a floating point data loading instruction to load at least one floating point data word from a selected one of said primary, secondary and tertiary cache;

e) executing d floating point delay phases, said d floating point delay phases requiring at least t_1+t_2 clock cycles; and

f) executing at least one floating point execution phase to execute said decoded floating point instruction.

5,214,766

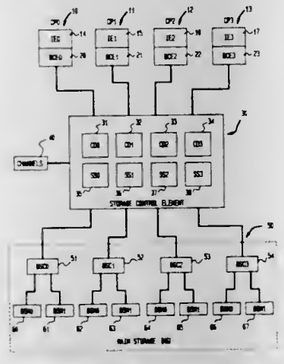
DATA PREFETCHING BASED ON STORE INFORMATION IN MULTI-PROCESSOR CACHES

Lishing Liu, Pleasantville, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 344,639, Apr. 28, 1989, abandoned. This application Aug. 19, 1992, Ser. No. 933,003

Int. Cl.[5] G06F *13/00, 12/00, 12/08*

U.S. Cl. 395—425 **17 Claims**



1. In a multi-processor system comprising a plurality of processors, a shared main storage and a storage control element, each said processors having a local cache memory and a buffer control element, a computer implemented method of data prefetching comprising the steps of:

establishing a local history table at each of said processors, each said local history table containing for each line in cache memory a record of one of whether said line was cross-interrogate invalidated without refetching said line from said shared main storage and whether said line was stored into by the processor corresponding to each said local history table since a last fetch of said line;

setting an entry in said local history table when one of

a) said line is cross-interrogate invalidated from any processor and

b) the buffer control element receives

a data store for said line occurs, corresponding to said record in said local history table, and resetting said entry corresponding to said record in said local history table when said processor fetches said line into its cache memory from said shared main storage; and

examining entries in said local history table for selected lines which have addresses having a predetermined relationship to a particular line to be accessed by the processor corresponding to said local history table, said predetermined relationship indicating an increased likelihood of a respective one of said selected lines being required, and when

a) said particular line is not available in said local cache memory and

b) said local history table contains at least one entry which is set corresponding to a respective one of at least one selected line having said predetermined relationship to said particular line,

fetching said particular line and prefetching only ones of said selected lines having said predetermined relationship to said particular line and also correspond to ones of said entries in said local history table which are set.

5,214,767

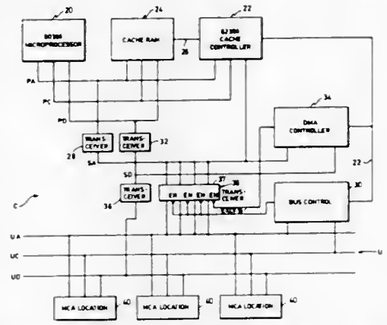
FULL ADDRESS AND ODD BOUNDARY DIRECT MEMORY ACCESS CONTROLLER WHICH DETERMINES ADDRESS SIZE BY COUNTING THE INPUT ADDRESS BYTES

Christopher C. Wanner, Houston; Alan L. Goodrum, and Paul R. Culley, both of Cypress, all of Tex., assignors to Compaq Computer Corp., Houston, Tex.

Filed Feb. 7, 1989, Ser. No. 307,773

Int. Cl.[5] G06F *12/02*

U.S. Cl. 395—425 **14 Claims**



1. A direct memory access controller for use in a computer system having an n byte wide system address bus and locations for insertion of circuit boards for connection to the system address bus, the circuit boards including circuitry having the capability to operate as bus masters and control the system address bus, the direct memory access controller receiving memory address information as a plurality of single byte data units through an input/output port in the computer system, the direct memory access controller comprising:

means for counting the number of bytres of memory address provided sequentially as data through the input/outut port;

means responsive to said counting means for determining if an n or n—1 byte wide address has been provided;

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means for storing said n or n−1 byte wide address determination; and

means responsive to said n or n−1 wide determination storage means to provide an n−1 byte wide address to the system address bus when an n−1 byte wide address has been provided sequentially as data through the input/output port, and to provide an n byte wide address to the system address bus when an n byte wide address has been provided sequentially as data through the input/output port.

5,214,768

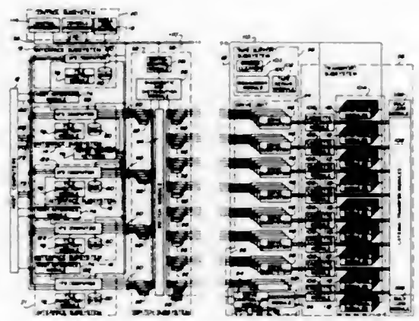
MASS DATA STORAGE LIBRARY

Charles W. Martin, Richardson; Frederick S. Reid, Plano; Gary L. Forbus, Dallas; Steve M. Adams, Garland; C. Pat Shannon, Dallas, and Eric A. Pirpich, Garland, all of Tex., assignors to E-Systems, Inc., Dallas, Tex.

Filed Nov. 1, 1989, Ser. No. 430,134

Int. Cl.[5] **G06F** *12/00*

U.S. Cl. 395—425 **36 Claims**



1. A mass data storage and retrieval system comprising:

a mass storage library for storing information, said library including a plurality of data storage modules each containing data storage elements;

data directory archive means for maintaining a directory of the information contained in each data storage element of the data storage modules and for generating data location signals in response to a request signal;

a plurality of data recorder modules coupled to said mass storage library, each module including means for receiving in response to a first command signal a selected data storage element and individually controllable to read information from or write information to the selected data storage element received from said mass storage library;

a plurality of input/output data channel coupled to said data directory archive means and said data recorder modules for interfacing with a selected data recorder module in response to a second command to receive information stored in and to transmit information to be stored in said data storage elements received in the selected data recorder module at locations identified by the data location signals; and

control means coupled to said plurality of input/output data channels, the data recorder modules and the data directory archive means and receiving the data location signals and in response thereto, generating the first command signal transmitted to a selected data recorder module to receive a selected data storage element, said control means generating the second command signal for coupling an input/output data channel to the selected recorder module.

5,214,769

MULTIPROCESSOR CONTROL SYSTEM

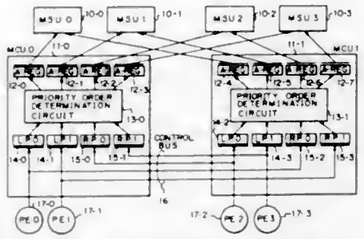
Nobuo Uchida, Tokyo; Yasuhiro Kuroda, and Shoji Nakatani, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 286,858, Dec. 20, 1988, abandoned. This application Sep. 17, 1991, Ser. No. 760,821

Claims priority, application Japan, Dec. 24, 1987, 62-328259

Int. Cl.[5] **G06F** *12/00*

U.S. Cl. 395—425 **28 Claims**



1. A multiprocessor control system comprising:

at least one main storage unit;

a plurality of main storage control units, respectively, operatively connected to said at least one main storage unit, each of said plurality of main storage control units including a priority order determination circuit;

a plurality of processing units operatively connected to said main storage control units;

a control but connected between said main storage control units, each one of said processing units transmitting a request for access to said at least one main storage unit, the requests from each one of said processing units being transmitted to one of said main storage control units simultaneously, and each one of said processing units transmitting an identical request to all of the other ones of said main storage control units through said control bus, said priority order determination circuits synchronously processing requests; and

data, transmitted between each one of said processing units and an arbitrary one of said main storage units, being transmitted only through respective ones of said main storage control units connected to each of said processing units.

5,214,770

SYSTEM FOR FLUSHING INSTRUCTION-CACHE ONLY WHEN INSTRUCTION-CACHE ADDRESS AND DATA-CACHE ADDRESS ARE MATCHED AND THE EXECUTION OF A RETURN-FROM-EXCEPTION-OR-INTERRUPT COMMAND

Raj K. Ramanujan, Leominster; Peter J. Bannon, Acton, both of Mass., and Simon C. Steely, Jr., Hudson, N.H., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 176,728, Apr. 1, 1988, abandoned. This application Jun. 21, 1990, Ser. No. 541,485

Int. Cl.[5] **G06F** *9/312, 9/445, 13/00*

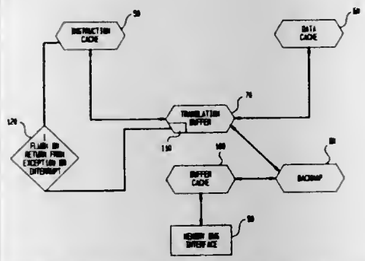
U.S. Cl. 395—425 **4 Claims**

1. A method for synchronizing data and instructions in a computer having a translation buffer, an instruction cache arranged to store blocks of information, a data cache, a tag store, and a Return from Exception or Interrupt command, the method comprising the steps of:

storing, in the tag store, first addresses corresponding to the blocks of information contained in the instruction cache;

utilizing a comparator to compare said stored first addresses with second addresses of data being written to said data cache by the computer;

setting an indicator bit if a match of any of said first addresses with any of said second addresses is detected in said comparing step; and



clearing said instruction cache when said indicator bit is set and upon execution of said Return from Exception or Interrupt command.

5,214,771

SYSTEM FOR LOADING SAME TYPE ADAPTORS WITH LATEST VERSION CONTROL CODES STORED ON ADAPTOR MEMORY BY SELECTING THE IDENTIFIED CHIP DURING INITIALIZATION

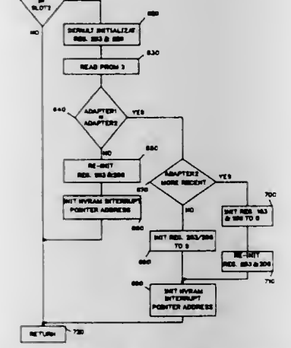
Jean-Louis Clara, La Colle sur Loup; Philippe Jachimczyk, Saint Jeannet; Jean-Freancois Le Pennec, Nice; Louis Massiera, Levens, and Philippe Therias, Nice, all of France, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Sep. 1, 1989, Ser. No. 401,895

Claims priority, application European Pat. Off., Apr. 19, 1989, 89480056

Int. Cl.[5] **G06F** *9/06, 12/06*

U.S. Cl. 395—500 **8 Claims**



1. Memory and peripheral chip select apparatus allowing the addressing of different memory and peripheral elements by a processor (**410**), said processor (**410**) addressing first memory elements and first peripheral elements (**150,181**) located in a first adapter pluggable into a base machine (**4**), said processor (**410**) addressing second memory elements and second peripheral elements (**250,281**) located in a second adapter pluggable into said base machine (**4**), said processor (**410**) further addressing third memory elements and third peripheral elements (**420,430,440,450**) located in said base machine (**4**), said first and second memory elements including code of one or more types and levels of release, and including means (**410**) for reading the types and levels of release of said code included in said first and second adapters, means (**420**) connected to said means (**410**) for reading and receiving therefrom the results of said reading, said means (**420**) operating, when said code in both said first and said second adapters are of the same type, for selecting for access the said code in the one of said first or second memory means which has said code of said higher level of release when code of said type which is found to be the same in both said first and second adapters is desired to be accessed by said processor (**410**) and further including:

first storage means (**103,106**) for storing a first set of addresses values defining a first range of addresses which validates a MCS1 chip select signal (**110**) affected to the selection of said first memory element (**150**) included into said first adapter (**1**), said first storage means being initialized with values evaluated from a read operation of the characteristic parts of said first memory elements (**150**) of said first adapter (**1**),

second storage means (**203,206**) for storing a second set of address values defining a second range of addresses which validates a MCS2 chip select signal (**210**) affected to the selection of a second memory element (**250**) included in said second adapter (**2**), said second storage means being initialized with values evaluated from a read operation of the characteristic parts of said second memory elements (**250** of said second adapter (**2**),

means (**410,440,450,640,670**) active when said first and said second adapters are of the same type for determining which of said first and second memory elements included into said adapters has the higher level of release,

means responsive to said determination for performing a reinitialization of said first and said second address storage means in order to enable the selection of the memory element included in one of said adapter having the higher level of release when a defined routine is requested and to disable the selection of the memory element having a lower level of release.

5,214,772

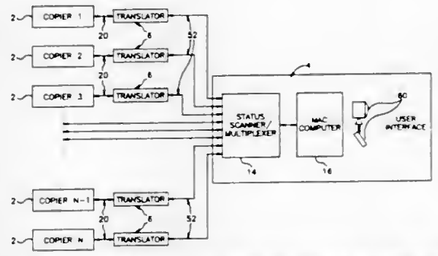
SYSTEM FOR AUTOMATICALLY MONITORING COPIERS FROM A REMOTE LOCATION

Joseph Weinberger, East Brunswick, N.J.; Gary Bricault, and James Laird, both of Rochester, N.Y., assignors to Joseph Weinberger, East Brunswick, N.J.

Continuation-in-part of Ser. No. 450,605, Dec. 13, 1989, Pat. No. 5,084,875. This application Aug. 14, 1990, Ser. No. 567,388

Int. Cl.[5] **G06F** *11/00, 3/00*

U.S. Cl. 395—575 **2 Claims**



1. A system for automatically monitoring the operational status of and initiating operational commands in one or more copy machines from a remote location, each copy machine having a copy machine control computer for monitoring copy machine status information and controlling operation of the copy machine and a control panel for user interaction at the copy machine, comprising interface means associated with each copy machine including means to access status information rom the copy machine control computer for transmission to the remote location and means to receive operation commands from the remote location for execution by the copy

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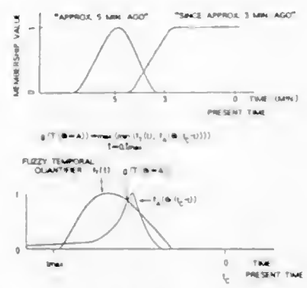
machine control computer, communication means between the interface means and the remote location, means to remotely monitor the status information from the copy machine control computer at the remote location and means to initiate operation commands at the remote location for execution by the copy machine control computer thereby remotely activating copy machine functions wherein the means to initiate operation commands at the remote location comprises means to remotely input copy machine commands at the remote location, means to direct the commands to a specific copy machine from the remote location and means to simulate keystrokes on the copy machine control panel at the copy machine comprising a set of latches in the interface means in parallel with copy machine operations keys on the copy machine control panel, read by the copy machine control computer.

5,214,773

FUZZY TEMPORAL CONTROL METHOD

Tsunekazu Endo, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 1, 1990, Ser. No. 562,563
Claims priority, application Japan, Aug. 3, 1989, 1-202165
Int. Cl.[5] G06F *15/00*
U.S. Cl. 395—61 **8 Claims**



6. A fuzzy control apparatus comprising:

an input for receiving a controlled variable signal from an object, said controlled variable signal being sampled at a predetermined sampling times;

a control reference value signal generating circuit for generating a control reference value signal;

a storage circuit for storing a plurality of fuzzy control rules having condition parts and action parts, wherein each condition part includes a fuzzy proposition, the condition part of at least one fuzzy control rule including a fuzzy proposition which represents the object in terms of an indefinite time and an indefinite state;

a fuzzy control execution circuit, coupled to said input, said control reference value signal generating circuit, and said storage circuit comprising:

means for determining a control error between the controlled variable signal and the control reference value signal;

means for determining a degree of confidence of the fuzzy proposition of the condition part of said at least one fuzzy control rule using a predetermined function and the control error;

means for evaluating the fuzzy propositions of the condition parts of the remaining fuzzy control rules;

means for determining a degree of confidence of a satisfaction of the condition part of each fuzzy control rule on the basis of the determined degree of confidence of the condition parts of said at least one fuzzy control rule and the evaluated fuzzy propositions of the condition parts of the remaining fuzzy control rules; and

means for selecting one of the fuzzy control rules on the basis of the degrees of confidence of the satisfaction of the condition parts; and

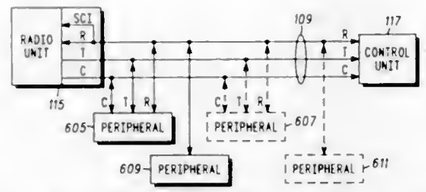
means for outputting an operation variable to control the object based upon the action part of the selected fuzzy control rule.

5,214,774

SEGMENTED MEMORY TRANSFER AND MESSAGE PRIORITY ON SYNCHRONOUS/ASYNCHRONOUS DATA BUS

Gary A. Welsch, Palatine, and Donald A. Dorsey, Arlington Heights, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 30, 1990, Ser. No. 559,873
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—200 **22 Claims**



1. A data transfer apparatus employing a data bus having a synchronous mode and an asynchronous mode for communication between a first memory unit and a second memory unit, comprising:

means for determining a need for memory transfer;

means, responsive to said means for determining, for searching a plurality of memory segments in the second memory unit for a valid data record stored in one of said plurality of memory segments;

means for communicating said valid data record from the second data unit to the first memory unit in the asynchronous mode when said means for searching finds a valid data record; and

means for communicating an empty data record from the second data unit to the first memory unit in the asynchronous mode when said means for searching does not find a valid data record.

5,214,775

HIERARCHY STRUCTURED MEMORY SYSTEM CONTAINED IN A MULTIPROCESSOR SYSTEM

Masaharu Yabushita, Sagamihara; Hidehiko Akita, Ota, and Masahiro Kainaga, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 30, 1990, Ser. No. 530,398
Claims priority, application Japan, May 30, 1989, 1-134663
Int. Cl.[5] G06F *13/36*
U.S. Cl. 395—200 **17 Claims**

1. A multiprocessor system having a plurality of processor elements, each of said processor elements comprising:

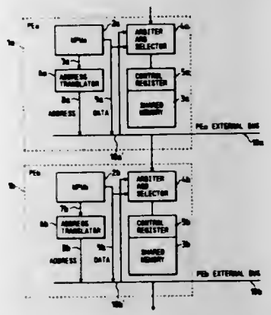
a bus;

a memory;

a processing unit for outputting a logical address for addressing a logical address area of said memory;

an address translator connected to said processing unit and said bus, for translating said logical address from said processing unit into a physical address for addressing a real address area of said memory; and

a bus arbiter device connected to said memory, said bus and another bus included in an upper processor element, for selecting one of said physical address from said bus and another physical address from said another bus included in said upper processor element, said bus and said another bus being hierarchically structured such that said upper processor element serves as a bus master device for controlling said another bus, and for outputting said selected physical address to said memory.

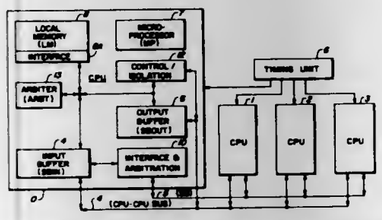


5,214,776

MULTIPROCESSOR SYSTEM HAVING GLOBAL DATA REPLICATION

Carlo Bagnoli, Milan; Angelo Casamatta, Cornaredo, and Angelo Lazzari, Vigevano, all of Italy, assignors to Bull HN Information Systems Italia S.p.A., Billerica, Mass.

Filed Oct. 18, 1989, Ser. No. 423,820
Claims priority, application Italy, Nov. 18, 1988, 22652 A/88
Int. Cl.[5] G06F *12/00, 13/00*
U.S. Cl. 395—425 **2 Claims**



1. A multiprocessor system utilizing replicated global data and comprising a plurality of central processing units (CPU) connected each to the other and intercommunicating through a system bus, to which each CPU has access as a requesting agent, each CPU comprising a related processor (MP) and a related local memory (**8**) connected by and intercommunicating through a local bus (**11**), a related output interface unit (**9, 10**) connecting the related CPU to said system bus and providing access to said system bus from said related CPU as a requesting agent; said local memory in each CPU storing a copy of a plurality of global data; each CPU further comprising:

an input interface unit (**40, 10**) for accessing said local memory from said system bus;

first logic circuits (**16**) for detecting an active system configuration having a plurality of active CPUs and a write operation command related to global data, said write operation command being generated, in the CPU comprising said first logic circuits, by the related processor and referencing the related local memory;

second logic circuits (**41**) for modifying the address of said write operation command to reference a local memory space of one of said active CPUs, identified by said modified address as a destination CPU of said write operation command,

said first logic circuits activating said output interface unit (**9, 10**) to obtain access to said system bus by the related requesting agent CPU and to transfer said write operation command and said modified address onto said system bus;

third logic circuits (**10, 40, 21**) operative in said destination CPU for recognizing said write operation command and for performing said write operation into the local memory of said destination CPU;

fourth logic circuits (**40, 33**) operative in all active CPUs other than said destination CPU, said active CPUs including said requesting agent CPU, for:

a) identifying said write operation command, referencing said destination CPU, as a write command related to a global data;

b) performing said write operation into the local memory of the CPU comprising said fourth logic circuits; and

c) signalling to said destination CPU the posting of said write operation; and

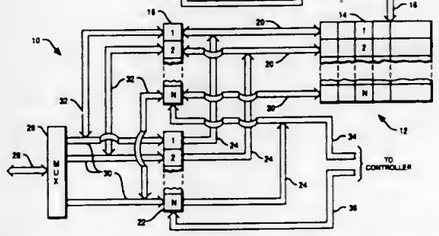
fifth logic circuits (**39, 10**) operative in said destination CPU for detecting that said write operation has been posted in all active CPUs and for providing detection consequent response signals, on said system bus, to said requesting agent CPU.

5,214,777

HIGH SPEED READ/MODIFY/WRITE MEMORY SYSTEM AND METHOD

James C. Curry, Jr., Lexington, S.C., assignor to NCR Corporation, Dayton, Ohio

Filed Mar. 27, 1989, Ser. No. 328,642
Int. Cl.[5] G06F *12/00, 12/08, 13/00*
U.S. Cl. 395—425 **18 Claims**



1. An improvement for a data processing system comprising:

a memory for storing data elements, each element having a unique address and including N data words;

a first cache register connected to said memory for receiving from said memory a single data element to be modified;

a second cache register connected in parallel with said first cache register for receiving one or more data words to replace corresponding data words in said single data element; and

means for transferring to said memory said data words from said second cache register together with noncorresponding data words from said first cache register.

5,214,778

RESOURCE MANAGEMENT IN A MULTIPLE RESOURCE SYSTEM

Joseph S. Glider, Palo Alto, and David H. Jaffe, Belmont, both of Calif., assignors to Micro Technology, Inc., Sunnyvale, Calif.

Filed Apr. 6, 1990, Ser. No. 505,854
Int. Cl.[5] G06F *11/00, 13/00*
U.S. Cl. 395—575 **5 Claims**

1. A computing system for coupling to a host computer comprising:

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a plurality of resources for storing, transmitting or manipulating data, each resource having an availability state;

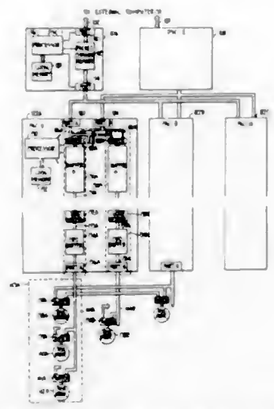
a fault management subsystem having means for accessing and operating resources that are in a first availability state and determining whether a resource is operable;

an operational subsystem for providing services to the host computer, the operational subsystem having means for accessing and operating resources that are in a second availability state;

memory means for storing information regarding the operational relationship between each resource and at least one other resource in the system, and information regarding each resource's availability state;

means for changing the availability state of a resource to a third availability state in response to a determination of the fault management subsystem that a resource is inoperable; and

means for determining the effect on the availability of other resource sin the computing system of a change in availability state of a resource to the third availability state using the information stored in the memory means.



5,214,779

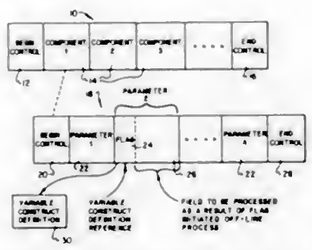
VARIABLE CONSTRUCT REPRESENTATION EMBEDDED IN DATA STREAM WHICH REFERENCES DEFINITION FOR DYNAMICALLY GENERATING DATA USED IN PROCESSING THE DATA STREAM

Barbara A. Barker, Round Rock; Thomas R. Edel, Austin, and Jeffrey A. Stark, Grapevine, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 30, 1988, Ser. No. 213,425

Int. Cl.[5] G06F *3/00*

U.S. Cl. 395—600 **5 Claims**



1. A method in a data processing system for transmitting, managing and processing fields within a highly structured data stream independently of an application program which generated said highly structured data stream, said method comprising the steps of:

generating a highly structured data stream for transmission from an originating station to a receiving station;

creating at least one variable construct definition having a process therein for dynamically generating selected data in response to a reference thereto, said selected data being nonexistent prior to said reference to said variable construct definition;

inserting a reference to said at least one variable construct definition within said highly structured data stream; and

processing at least a portion of said highly structured data stream at said receiving station in accordance with said dynamically generated selected data.

5,214,780

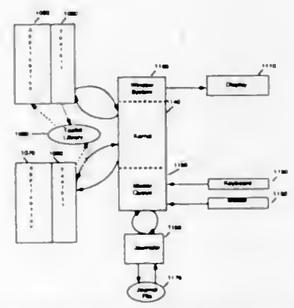
SYNCHRONIZED JOURNALING SYSTEM

Joseph P. Ingoglia, San Jose, and Nayeem Islam, Mountain View, both of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Mar. 23, 1990, Ser. No. 498,206

Int. Cl.[5] G06F *15/40, 7/00, 9/40, 15/18*

U.S. Cl. 395—600 **11 Claims**



1. In a computer system comprising a central processing unit (CPU), memory, a display, and input/output devices comprising a keyboard and a mouse, said CPU executing at least one process, a synchronized journaling system for testing computer systems, said synchronized journaling system comprising:

means for input of information to the computer system through the input/output devices, said information representative of user actions taken during a user session, said computer system executing processes in response to the information input;

means for generating and storing events in a journal file, representative of the input information representative of user actions, said events during replay being executed;

means for generation and input into the journal file of at least one synchronization event, a first said synchronization event being located between a first event corresponding to a first process and a second event corresponding to a second process, the first process having a corresponding state at completion of execution and the second process being dependent upon the state of the first process at completion of execution of the first process, the second event being dependent upon completion of execution of the first event, said first synchronization event identifying the first event to be completed before executing the second event;

means for replaying the journal file comprising:

means for executing events listed in the journal file in the sequence listed in the journal file,

when a synchronization event is executed, means for halting execution of subsequent events listed in the journal file until the event identified by the synchronization event has completed execution,

wherein during replay of the journal file, the processes are synchronized with a forced sequence such that the second process, dependent upon the state of the first process at completion of execution of the first process, executes after completion of execution of the first process and an accurate test can be performed.

5,214,781

METHOD OF MANAGING STORAGE MEDIUM

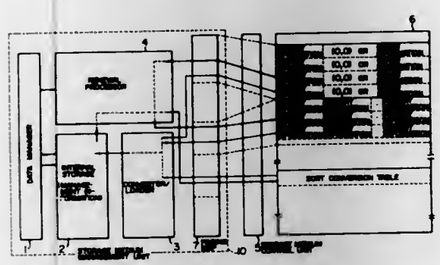
Tadashi Miki, Osaka, and Masayuki Komaka, Moriguchi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 382,206, Jul. 20, 1989, abandoned. This application Oct. 9, 1991, Ser. No. 773,993

Claims priority, application Japan, Jul. 25, 1988, 63-184914

Int. Cl.[5] G06F *15/40*

U.S. Cl. 395—600 **3 Claims**



1. A computer data management system for a write-once type storage medium, which includes a plurality of sectors, for recording data including at least file data and file management information, wherein the recording of the data on the write-once type storage medium, including the at least file data and file management information, is performed by recording new file data on the write-once type storage, by updating a current file management information stored on a rewritable type memory, wherein said updated current file management information comprises a pointer to at least one address of the recorded new file data, and by recording a difference-information on the write-once type storage medium, wherein the difference-information comprises information which corresponds to the difference between the current file management information and the updated current file management information, said system comprising:

a) difference-information recording means for recording difference-information on at least a number of sectors of said plurality of sectors of said write-once type storage medium;

b) difference-information gathering means for reading said number of sectors of said plurality of sectors of said storage medium and extracting said difference information recorded in at least some of said number of sectors, upon each recording of a new item of said file data on said write-once type storage medium, and for gathering and recording in one sector of said plurality of sectors of said write-once type recording medium said difference-information so extracted from said number of sectors of said plurality of sectors, wherein a record size of a sum of said difference information so extracted is smaller than a size of said one sector of said plurality of sectors; and

c) converter/loader means for reconstructing said current file management information stored on said rewritable type memory by reading and storing in said rewritable type memory all of said difference information included in said one sector of said plurality of sectors and included in any ones of said number of sectors including said difference information that were recorded by said difference information recording means but were not gathered or recorded by said difference-information gathering means, at least at a time when said computer system is powered on or a time when said write-once type storage medium is to be ejected and exchanged for another write-once-type storage medium.

5,214,782

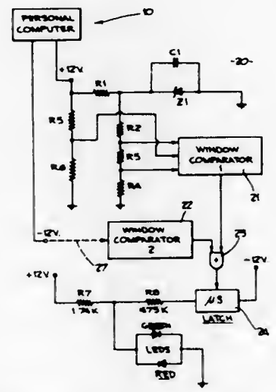
POWER SUPPLY MONITOR FOR PERSONAL COMPUTER

Robert A. McCurdy, Jr., Spokane, Wash., assignor to Generic Computer Services, North Hollywood, Calif.

Filed Dec. 10, 1990, Ser. No. 624,584

Int. Cl.[5] G06F *11/30, 1/00*

U.S. Cl. 395—750 **3 Claims**



1. In combination with a personal computer having one power supply terminal of one polarity and another power supply terminal of an opposite polarity, an indicator circuit for indicating whether the supply voltage of the one terminal is or has been out of tolerance, said indicator circuit comprising:

means coupled to said one power supply terminal to provide a reference voltage;

a window comparator having a signal input;

means associated with said reference voltage means and coupled to said comparator to create a voltage window in said comparator;

means sensing a fixed portion of the output voltage of said one power supply terminal and coupled to said signal input of said comparator for delivering said sensed voltage thereto;

a pair of light emitting diodes of significantly different colors connected in parallel but in opposite polarity, one of said light emitting diodes being coupled to said one power supply terminal for normally receiving energizing current therefrom;

latch circuit means coupling the other of said light emitting diodes in series with the other of said power supply terminals and selectively operable for both interrupting the flow of current through said first light emitting diode and delivering current to said second light emitting diode; and

said comparator having a signal output coupled to said latch circuit means for controlling the operation thereof.

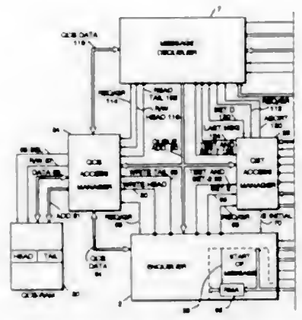
VOL 1150 ISS 4 MY 25 1993 UMI

5,214,783

DEVICE FOR CONTROLLING THE ENQUEUING AND DEQUEUING OPERATIONS OF MESSAGES IN A MEMORY

Jean-Pierre Lips, Cagnes sur Mer; Jean-Marc Millet, Vence, and Bernard Naudin, Saint Laurent du Var, all of France, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Aug. 9, 1990, Ser. No. 564,900
Claims priority, application European Pat. Off., Sep. 20, 1989, 89480145.5
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—725 8 Claims



1. A device for managing accesses by an enqueuing means (2) and a dequeuing means (7, 100) to a queue of chained messages stored in a first storing means (6), the position of each queue in said first storing means being indicated in a queue control block, the queue control block including head and tail fields which are accessed by the enqueuing and dequeuing means to write, by said enqueuing means, the starting address of the first chained message into the head and tail fields to enqueue said first message and then to write the starting address of the next chained messages into the tail field to enqueue said next message and, by said dequeuing means, to write the starting address of said chained message in the queue into the head field of a control block each time a message is dequeued from the queue, said device being characterized in that it comprises:

a second storing means (20) for storing the queue control blocks,

a third storing means (22) which contains a plurality of queue status bits for each queue, including an empty status (E) having an empty and not empty state indicating whether the queue is empty or not empty, an abort status (A) having an abort state and not abort state and an active status bit (D) per dequeuing means said active status bit having an active state and not active state, said plurality of queue status bits being written by said enqueuing and dequeuing control means,

said enqueuing control means (24, 26, FIG. 5) being responsive to an enqueue request for accessing said second and said third storing means to first update the tail field in said second storing means assigned to the queue control block for the selected queue with the starting address of the message and then detecting the state of the empty status bit and active status bit to set the abort status bit of the selected queue to the abort state if the empty status bit and active status bit are found in the not empty state and active state, respectively, and if the empty status bit is found in the empty state, to update the head field with the starting address of the message and set the empty status bit to its not empty state, and

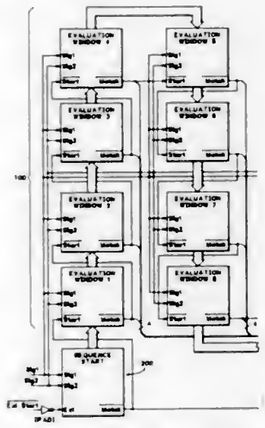
said dequeuing control means (24, 26, FIG. 6) being responsive to a dequeuing request to access said second and third storing means to set the active state bit of the selected queue to its active state, and then detecting whether the queue contains only one message and, if yes, then testing the abort status bit and aborting the dequeuing operation if the said bit is found in the abort state and performing the dequeuing operation of the message if the said bit is found in the not abort state and setting the empty status bit to its empty state and the active status bit to its not active state.

5,214,784

SEQUENCE OF EVENTS DETECTOR FOR SERIAL DIGITAL DATA WHICH SELECTIVELY OUTPUTS MATCH SIGNAL IN THE SERIES WHICH DEFINES DETECTED SEQUENCE

Benjamin A. Ward, Portland, and Michael C. Seckora, Gaston, both of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Nov. 28, 1988, Ser. No. 276,731
Int. Cl.[5] G06F *9/00*
U.S. Cl. 395—800 29 Claims



1. A method for detecting a sequence of events in serial digital data comprising the steps of:

programming a plurality of evaluation windows coupled to each other in series, each programmed with a desired behavior of the serial digital data defining a specific event in the sequence of events, so that the plurality of evaluation windows continuously define the sequence of events to be detected;

activating the first evaluation window in the series;

applying the serial digital data to each evaluation window in parallel;

matching the desired behavior of each evaluation window with the serial digital data to produce a match signal when the desired behavior occurs and the evaluation window is activated by the match signal from a preceding evaluation window;

activating each evaluation window in the series to perform the matching step when the match signal is received from the preceeding evaluation window; and

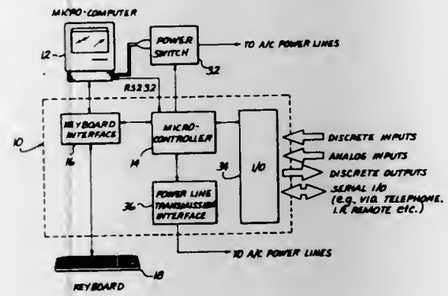
selecting as an output signal the match signal of an evaluation window in the series programmed to define the sequence of events to be detected.

5,214,785

CONTROLLER WITH KEYBOARD EMULATION CAPABILITY FOR CONTROL OF HOST COMPUTER OPERATION

John R. C. Fairweather, Los Angeles, Calif., assignor to Third Point Systems, Inc., Santa Monica, Calif.

Filed Sep. 27, 1989, Ser. No. 413,115
Int. Cl.[5] G06F *11/30, 11/00, 9/455*
U.S. Cl. 395—800 3 Claims



1. A peripheral microprocessor system located physically external and connected to a host computer, comprising:

a microprocessor including memory means addressed by said microprocessor;

an interface for interconnecting said microprocessor to a keyboard input of the host and to a keyboard of the host via clock and/or data lines said interface being switched under control of said microprocessor between a first state transparent to normal communication between said host and said keyboard, and a second state connecting said microprocessor for bidirectional communication with either one of said host or said keyboard;

said microprocessor further including I/O line means connected for monitoring signals exchanged by said host and said keyboard through said interface on said clock and/or data lines;

peripheral power supply means connected to said microprocessor for powering said microprocessor and said keyboard independently of said host, whereby said keyboard is operative for providing input to said microprocessor while said host is unpowered;

program means stored in said memory means and executed by said microprocessor for powering the host from an unpowered state and then transmitting simulated keyboard characters to said host for initializing execution of an application program on said host;

power control means connected to said microprocessor for controlling power to the host under control of said program means; and

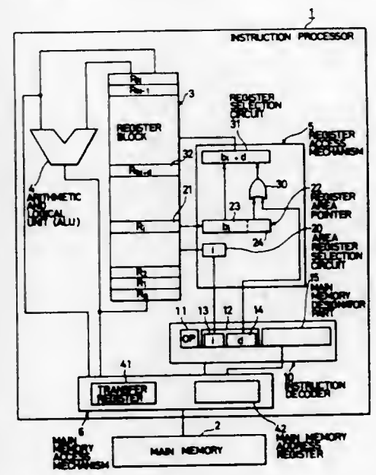
means, connected to said microprocessor, for deriving a data source input to said microprocessor indicative of the source of signals on said I/O line means; said means for deriving comprising pulse sensing means for monitoring both clock and data signals exchanged between said host and keyboard on said clock and/or data lines, pulse length sensing means for determining the length of pulses of either or both of said clock and data signals, and algorithm means stored in said memory means and executed by said microprocessor for discriminating among said signals between those of said signals generated by the host and those of said signals generated by the keyboard based on said pulse length.

5.214.786

RISC SYSTEM PERFORMING CALLS AND RETURNS WITHOUT SAVING OR RESTORING WINDOW POINTERS AND DELAYING SAVING UNTIL MULTI-REGISTER AREAS ARE FILLED

Tan Watanabe, Yokohama; Keiichi Kurakazu, Tachikawa; Yugo Kashiwagi, Koganei; Keisuke Toyama, Machida, and Thoru Nojiri, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 13, 1987, Ser. No. 37,843
Claims priority, application Japan, Apr. 14, 1986, 61-85422
Int. Cl.[5] G06F *9/40*
U.S. Cl. 395—800 34 Claims



1. A processor system, comprising:

a main storage for storing data and instructions, some of said instructions having an operation code and an operand part including a register designating part, and wherein said instructions form a plurality of programs, at least one of which contains a plurality of subprograms;

first means for decoding instructions of said program;

a plurality of first registers which are allocated to said program, one first group of said first registers being employed in the execution of said plurality of programs, and at least one second group of said first registers forming a plurality of multi-register areas, each of which is selectively allocated to said subprograms;

a second register storing information which identifies one of said multi-register areas allocated to one of said subprograms and the content of which is controlled by the operation code of instructions decoded by said first means, wherein one of the registers in said multi-register area identified by said second register is specified by said register designating part of an instruction; and

processing means for processing instructions according to decoded operation codes and the content of registers in the multi-register area identified by said second register and specified by decoded register designating parts, wherein the operation codes of some instructions indicate that the content of said second register is advanced or retracted and the operation codes of other instructions indicate that a subprogram to be allocated to a multi-register area is to be called from a current subprogram without advancement of the contents of said second register or that the current subprogram is to be returned to a previous subprogram without retraction of the contents of said second register.

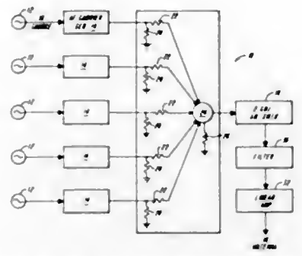
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5,214,787

MULTIPLE AUDIO CHANNEL BROADCAST SYSTEM

Frank P. Karkota, Jr., Cowdry Hill Rd., P.O. Box 3251, Westford, Mass. 01886

Filed Aug. 31, 1990, Ser. No. 575,940
Int. Cl.[5] H04H 1/04; H04B 1/06
U.S. Cl. 455—3.2 6 Claims



1. A system for the noise-free broadcasting of audio programming to a wide listener base comprising:

means for broadcasting independent frequency modulated microwave carriers modulated only with audio program material, one each carrier corresponding to a different channel of audio program material, said broadcasting means including means for generating said independent carriers, means for combining said generated carriers to produce a combined signal, an omnidirectional antenna and means for coupling said combined signal to said antenna; and,

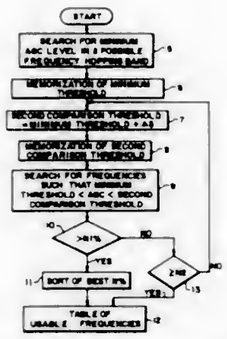
means for receiving the broadcast independent microwave carriers to produce corresponding received signals, downconverting said received signals to TV band frequencies and demodulating at least one of the downconverted carriers so as to extract the corresponding channel of audio program material.

5,214,788

PROCESS AND DEVICE FOR INFORMATION TRANSMISSION BETWEEN RADIOELECTRIC TRANSCEIVERS OF THE SAME NETWORK OPERATING IN FREQUENCY HOPPING

Jean-Paul Delaperriere, Nanterre; Alain Eberland, Epinay sur Seine, and Yves Singlas, Luzarches, all of France, assignors to Thomson - CSF, Puteaux, France

Filed May 4, 1990, Ser. No. 519,115
Claims priority, application France, May 10, 1989, 89 06104
Int. Cl.[5] H04Q 7/00; H04B 17/02
U.S. Cl. 455—32.1 2 Claims



1. A process of transmitting information between radio transceivers in the same network operating in frequency hopping, comprising the steps of:

using at least one transceiver station to search for a set of usable frequencies from channels it receives;

determining a first minimum comparison threshold value corresponding to the channel with the weakest reception level;

determining a second comparison threshold value by adding a predetermined incremental value to the first minimum comparison threshold value;

selecting a set of usable frequencies from the other channels received, the set of usable frequencies being channels with reception levels between the first and the second minimum comparison threshold values;

storing a limited number of the set of usable frequencies, the limited number corresponding to frequencies within the set of usable frequencies with the lowest reception levels;

transmitting the set of usable frequencies to the other transceivers in the network; and

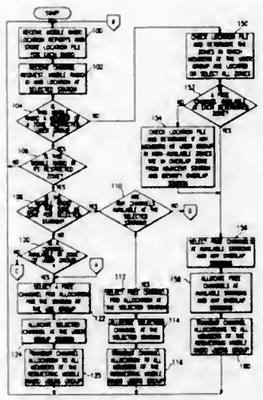
transmitting, during frequency hopping, the set of usable frequencies to all of the transceivers in the network.

5,214,789

RADIO CHANNEL ALLOCATION BASED ON LOCATION OF MOBILE USERS

David L. George, Colleyville, Tex., assignor to Unideo America Corporation, Fort Worth, Tex.

Filed Nov. 17, 1989, Ser. No. 437,682
Int. Cl.[5] H04Q 7/00
U.S. Cl. 455—33.2 6 Claims



1. A method for allocating a communication channel in a broadcast communication system having a plurality of geographic zones, each zone having a corresponding transmit/-receive station, the system having a control system for directing communication through broadcast communication channels with mobile radios, the method comprising the steps of:

determining a geographic location for a one of said mobile radios by apparatus located with said one mobile radio, said one mobile radio being a member of a user group restricted to a one of said zones,

transmitting said determined geographic location by said one mobile radio to any of said stations for transfer to said control system, said control system having a geographic reference defining each of said zones,

transmitting a request for a communication channel from said one mobile radio to a selected one of said transmit/-receive stations, said one transmit/receive station not being the station corresponding to the zone in which said one mobile radio is restricted,

said control system comparing said received geographic location to said geographic reference to determine if the requesting mobile radio is located in said restricted zone, and

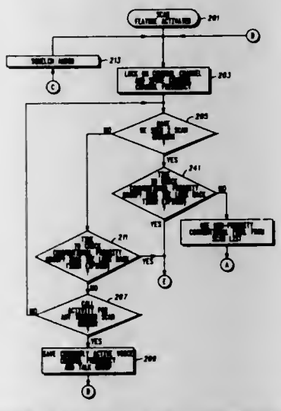
if said requesting mobile radio is located in said restricted zone, allocating to said one mobile radio a communication channel of the transmit/receive station corresponding to said restricted zone.

5,214,790

ENHANCED TALKGROUP SCAN ALGORITHM

Thaddeus A. Kozlowski, Chicago; Daniel J. McDonald, Hanover Park, and Guy G. Romano, Melrose Park, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 11, 1991, Ser. No. 667,696
Int. Cl.[5] H04Q 3/00
U.S. Cl. 455—34.1 18 Claims



1. A method for a radio to scan a conventional radio system and a trunked radio system, said conventional radio system emitting an unsquelch code, said trunked system including a control channel and a plurality of trunked channels and emitting subaudible low speed data signals, said trunked system control channel emitting one or more scan markers, each scan marker comprising an outbound signalling word which marks the start of voice activity for the trunked radio system, the method comprising the following steps:

(a) monitoring the trunked radio system control channel to determine all channel assignments;

(b) thereafter, monitoring all trunked channels;

(c) determining when it is time to monitor the conventional radio system;

(d) when (c) occurs, then saving the identity of the trunked channel currently being received;

(e) when the proper unsquelch code is detected on said conventional radio system, then monitoring the conventional radio system;

(f) determining when it is time to return to the trunked radio system;

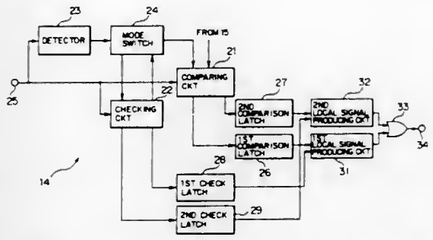
(g) when (f) occurs, then returning to the trunked channel saved as in (d).

5,214,791

RADIO COMMUNICATION APPARATUS CAPABLE OF PRODUCING AN ANNOUNCE WITH A REDUCED ERROR

Shigeo Yoshizawa, Tokyo, and Mamoru Sakaguchi, Kanagawa, both of Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Sep. 30, 1991, Ser. No. 767,773
Claims priority, application Japan, Sep. 29, 1990, 2-258866
Int. Cl.[5] H04B 7/00
U.S. Cl. 455—38.2 8 Claims



1. A radio communication apparatus including a memory for memorizing an identification number specific to said apparatus, receiving means for receiving a radio signal to produce a received signal, announcing means for announcing an announce, and control means for controlling said announcing means in accordance with said identification number and said received signal, said received signal carrying an intermittent succession of frames which are preassigned to said apparatus and each of which comprises a first and a second codeword, each of said first and said second codewords including a call number and received with a signal condition, said control means comprising:

first control signal producing means connected to said receiving means and said memory for producing a first control signal in accordance with said identification number, the call number of said first codeword, and the signal condition of said second codeword;

second control signal producing means connected to said receiving means and said memory for producing a second control signal in accordance with said identification number, the call number of said second codeword, and the signal condition of said first codeword;

announce signal producing means connected to said first control signal producing, said second control signal producing, and said announcing means for producing an announce signal in accordance with said first and said second control signals to make said announcing means announce said announce in compliance with said announce signal.

5,214,792

BROADCASTING SYSTEM WITH SUPPLEMENTAL DATA TRANSMISSION AND STORGE

David J. Alwadish, 55 W. 74th St., New York, N.Y. 10023

Continuation-in-part of Ser. No. 663,298, Feb. 28, 1991, Pat. No. 5,063,610, which is a continuation of Ser. No. 413,536, Sep. 27, 1989, abandoned. This application Nov. 5, 1991, Ser. No. 788,028
The portion of the term of this patent subsequent to Nov. 5, 2008, has been disclaimed.
Int. Cl.[5] H04B 1/00, 17/02
U.S. Cl. 455—45 20 Claims

1. Receiving apparatus for enabling a listener to obtain certain information associated with program material transmitted over a broadcast carrier to which the apparatus is tuned, comprising:

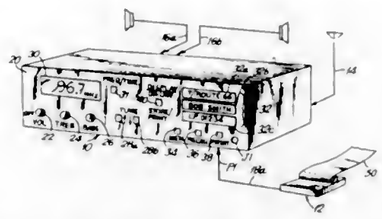
tuner/demodulator means for responding to the broadcast carrier when the tuner/demodulator means is tuned to receive the broadcast carrier;

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decoding means associated with said tuner/demodulator means for decoding information item data associated with the broadcast carrier, wherein said information item data is related to the program material transmitted over the broadcast carrier;

print memory means for storing the decoded information item data related to the program material as desired;

address control means coupled to said print memory means for controlling write and read operations for addresses of the print memory means selectively in response to a memory command signal and to a recall command signal;



memory button means coupled to the address control means for producing said memory command signal when said memory button means is operated;

recall button means coupled to said address control means for producing said recall command signal when said recall button means is operated; and

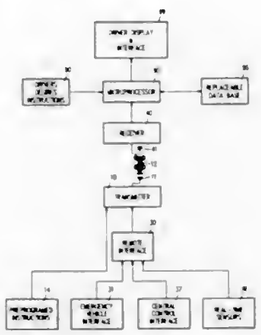
print buffer/control means for enabling printing on a printer unit of the decoded information item data stored in said print memory means in response to a print command signal.

5,214,793

ELECTRONIC BILLBOARD AND VEHICLE TRAFFIC CONTROL COMMUNICATION SYSTEM

Earnest J. Conway, Carmel; James L. Deckert, King City, and F. Russell Richards, Monterey, all of Calif., assignors to PulseCom Corporation, Monterey, Calif.

Filed Mar. 15, 1991, Ser. No. 669,823
Int. Cl.[5] H04B *1/00*
U.S. Cl. 455—49.1 **33 Claims**



21. A system for communicating to vehicles on a highway, said system comprising:

A plurality of transmitters disposed adjacent a highway, each of said transmitters comprising an antenna, an oscillator, a modulator, a controller and a power supply, said transmitters for intermittently transmitting short bursts of signals within a band of frequencies to reduce the duty cycle of said transmitters and to permit said plurality of transmitters to operate in the same band of frequencies without causing mutual interference, said short bursts of signals transmitted in accordance with a predetermined cycle, said controller provided with resident pre-programmed information for transmission in said short bursts of signals; and

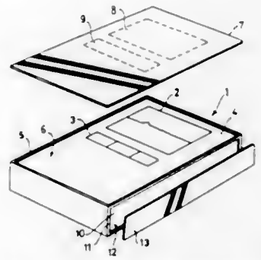
a plurality of receivers disposed in vehicles located on said highway, each of said receivers comprising an antenna, a demodulator, a replaceable database, a microprocessor and a display, said receivers including sweep tuning means for sweeping across said band of frequencies until said short bursts of signals are received; messages resident in said replaceable database are displayed which correspond to the short bursts of signals transmitted by said transmitters, said microprocessors synthesizing complete messages from brief message fragments.

5,214,794

DESIGN COVERING AND A HOUSING FOR A PAGER

Gert Van Wijnen, Kanaal B ZZ 188, 7881 NK, Emmercompascuum, Netherlands

Filed Mar. 25, 1992, Ser. No. 857,276
Claims priority, application Netherlands, Mar. 26, 1991, 9100538
Int. Cl.[5] H04B *1/38*
U.S. Cl. 455—90 **10 Claims**



1. Pager of a paging system, comprising a housing having therein an electronic part of the pager, wherein a wall of the housing has a recess over substantially the whole surface thereof, that a foil is placed in the recess, the foil being chosen out of a number of foils whith different design, and the height of the recess being substantially equal to the thickness of the foil.

5,214,795

LOW VOLTAGE AUTOMATIC FREQUENCY CONTROL SWITCH FOR A RADIO RECEIVER

Richard R. Suter, Beaverton, Oreg., assignor to Seiko Corp. and Seiko Epson Corp., both of Japan

Filed Jun. 29, 1989, Ser. No. 373,369
Int. Cl.[5] H04B *1/18*; G05F *1/40*
U.S. Cl. 455—182.2 **4 Claims**

1. An integrated low voltage AFC switch circuit comprising:

input means for receiving a differential detector input signal;

amplifier means for converting the differential detector input signal to a single-ended AFC signal having a voltage responsive to the differential detector input signal voltage;

a reference input terminal for receiving a reference signal having a predetermined voltage;

a select input terminal for receiving a select input logic signal; and

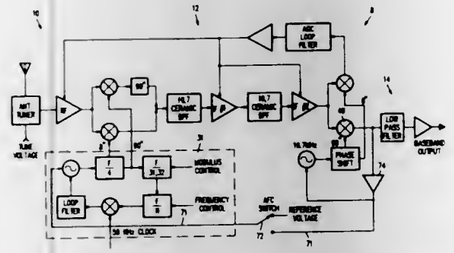
switch means responsive to such a select input logic signal for providing an output signal having a voltage equal to a selected one of the AFC signal voltage and the reference voltage, wherein the switch means includes:

a voltage source;

a select amplifier coupled to the select input terminal and responsive to said select input logic signal for providing a selected one of a predetermined AFC enable current and a predetermined reference enable current;

an AFC current mirror coupled to the select amplifier to provide an AFC mirror current responsive to the AFC enable current;

a reference current mirror coupled to the select amplifier to



provide a reference mirror current responsive to the reference enable current;

first means responsive to the AFC mirror current and coupled to the select amplifier for providing an output voltage equal to the AFC signal voltage; and

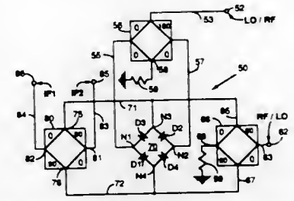
second means responsive to the reference mirror current and coupled to said voltage source for providing an output voltage equal to the reference signal voltage.

5,214,796

IMAGE SEPARATION MIXER

Gregory J. Gorrie; Warren L. Seely, and Joseph Staudinger, all of Chandler, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 29, 1991, Ser. No. 677,688
Int. Cl.[5] H04B *1/26*
U.S. Cl. 455—326 **20 Claims**



1. An image separating mixer apparatus comprising:

first phase shift means for receiving a first input signal of at least a first frequency and providing second and third output signals of substantially equal amplitude and having a phase difference of substantially ninety degrees;

second phase shift means for receiving a fourth input signal of at least a second frequency and providing fifth and sixth output signals of substantially equal amplitude and having a phase difference of substantially one hundred and eighty degrees;

single four port mixer means for mixing the output signals from the first and second phase shift means to provide seventh and eighth signals of a third frequency derived from the first and second frequencies; and

quadrature third phase shift means coupled to the mixer means for receiving the seventh and eighth signals and providing ninth and tenth output signals IF1, IF2 corresponding, respectively, to separated third and fourth frequencies RF1, RF2 forming the first signal or the fourth signal.

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DESIGN PATENTS

GRANTED May 25, 1993

ERRATA

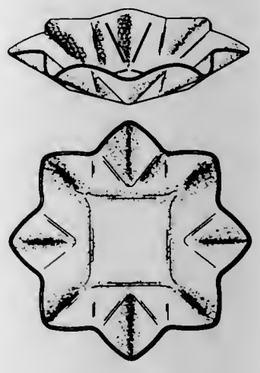
For CLASS	See PATENT NO.
D19-043	335,893

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1993
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DESIGNS

MAY 25, 1993

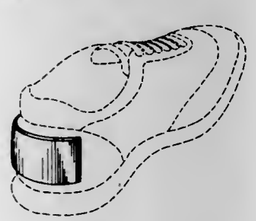
335,758
TACO SHELL
John S. Stickle, 2300 Highland Creek Rd., Carrollton, Tex. 75007
Filed Sep. 17, 1990, Ser. No. 583,367
Term of patent 14 years
U.S. Cl. D1—122



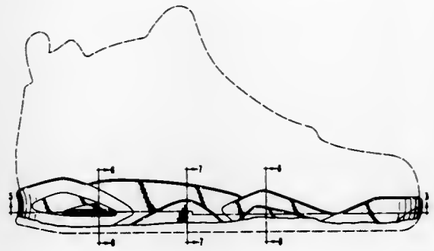
335,759
APRON
Charlotte Goude, 293 Walnut La., Apple Valley, Minn. 55124
Filed Nov. 30, 1990, Ser. No. 620,286
Term of patent 14 years
U.S. Cl. D2—229



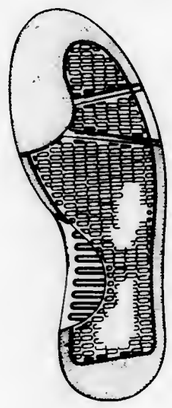
335,760
SHOE SIGNAGE
David L. Warren; Joyce L. Cranston, and Margery J. Goldman, all of Denver, Colo., assignors to Eye-D Unlimited, Inc., Denver, Colo.
Filed May 16, 1990, Ser. No. 524,062
Term of patent 14 years
U.S. Cl. D2—314



335,761
PERIPHERY OF A SOLE
Wilson W. Smith, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed May 5, 1992, Ser. No. 878,506
Term of patent 14 years
U.S. Cl. D2—314



335,762
SHOE SOLE
William R. Peterson, Encino, Calif., assignor to Guess?, Inc., Los Angeles, Calif.
Filed Nov. 18, 1991, Ser. No. 793,662
Term of patent 14 years
U.S. Cl. D2—320

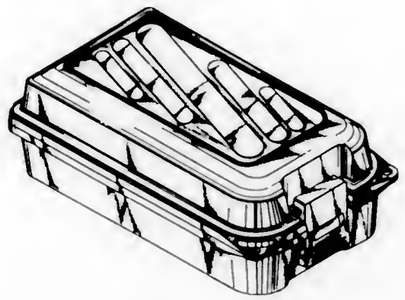


335,763
REFLECTIVE BELT
Norman F. Jacob, 129 N. 9th Ave., Highland Park, N.J. 08904
Filed Feb. 22, 1991, Ser. No. 659,045
Term of patent 14 years
U.S. Cl. D2—627

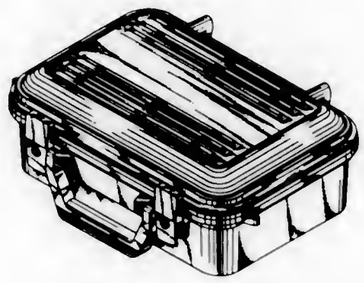


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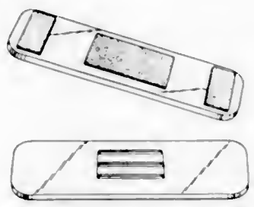
335,764
CAMERA CASE
Ralph VanSkiver, Arlington, Tex., assignor to Doskocil Manufacturing Company, Inc., Arlington, Tex.
Filed Oct. 7, 1991, Ser. No. 772,582
Term of patent 14 years
U.S. Cl. D3—33



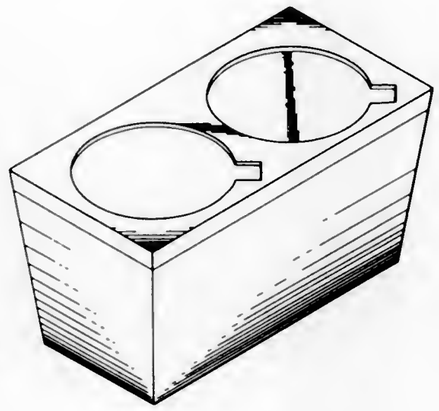
335,765
CAMERA CASE
Ralph VanSkiver, Arlington, Tex., assignor to Doskocil Manufacturing Company, Inc., Arlington, Tex.
Filed Oct. 7, 1991, Ser. No. 772,583
Term of patent 14 years
U.S. Cl. D3—33



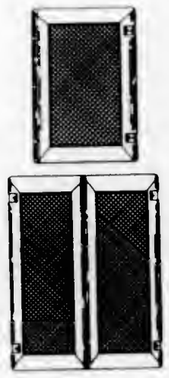
335,766
HOLDER FOR GLASSES CASE IN AN AUTOMOBILE
Tomas Ekholm, Maria Prästgårdsgata 1C, S-118 32 Stockholm, Sweden
Filed Oct. 31, 1990, Ser. No. 605,088
Claims priority, application World Int. Prop. O., May 2, 1990, 75 310
Term of patent 14 years
U.S. Cl. D3—34



335,767
AUTOMOTIVE MUG CADDY
Ellen L. Yates, 1824 E. Cleveland Blvd., Caldwell, Id. 83605
Filed Sep. 10, 1990, Ser. No. 579,490
Term of patent 14 years
U.S. Cl. D3—40



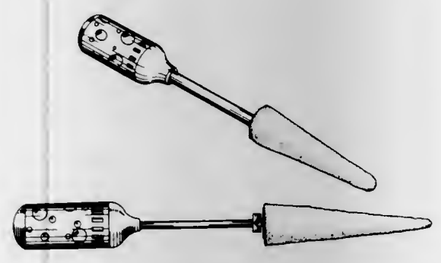
335,768
JEWELRY HOLDER
Guillermo Romo, Sur. 206 C Centro CP 50000, Toluca Edo de, Mexico
Filed Jun. 27, 1991, Ser. No. 722,278
Term of patent 14 years
U.S. Cl. D3—75



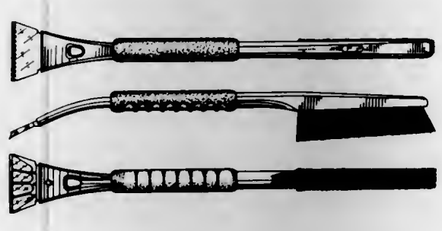
335,769
CROCHET CARRYING BAG WITH LAPELS
Michael S. De Lao, P.O. Box 4323, Austin, Tex. 78765
Filed Nov. 13, 1991, Ser. No. 792,097
Term of patent 14 years
U.S. Cl. D3—44



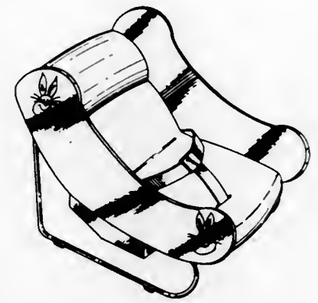
335,770
AUTOMATIC SCRUB BRUSH
Dorsie D. McGregor, Rt. 2, Box 304, Wesson, Miss. 39191
Filed May 23, 1990, Ser. No. 527,246
Term of patent 14 years
U.S. Cl. D4—102



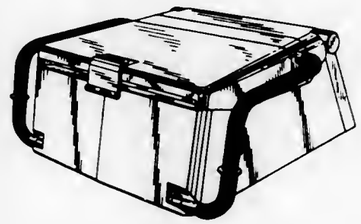
335,771
COMBINATION SNOW BRUSH AND ICE SCRAPER
John W. R. Mallory, Chatham; Edward W. Adair, and William F. Mallory, both of Blenheim, all of Canada, assignors to Mallory Industries Inc., Blenheim, Canada
Filed Feb. 7, 1991, Ser. No. 651,901
Term of patent 14 years
U.S. Cl. D4—118



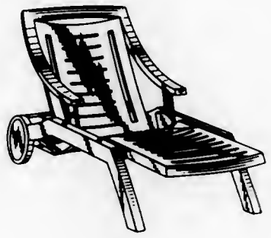
335,772
BABY ROCKING SEAT
Maria C. Rodriguez, and Emilio Rodriguez, both of 222 Bridge Plaza S., Fort Lee, N.J. 07024
Filed May 4, 1990, Ser. No. 518,843
Term of patent 14 years
U.S. Cl. D6—333



335,773
CHAIR
Shannar Douglas, Berkshire, Great Britain, assignor to Bagit Limited, Berkshire, United Kingdom
Filed Oct. 24, 1990, Ser. No. 602,941
Claims priority, application United Kingdom, Apr. 24, 1990, 2,006,368
Term of patent 14 years
U.S. Cl. D6—336



335,774
CHAISE LOUNGE
Manfred Hubert, Meylan, France, assignor to Allibert S.A., Grenoble, France
Filed Dec. 28, 1989, Ser. No. 458,535
Claims priority, application Int'l Pat. Institute, Jun. 28, 1989, DM/013927
Term of patent 14 years
U.S. Cl. D6—361



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335,775
CHAISE LOUNGE
Christian Lamalle, Saint Ismier, France, assignor to Allibert, S.A., Grenoble, France
Filed Dec. 13, 1990, Ser. No. 626,859
Claims priority, application World Int. Prop. O., Jun. 14, 1990, DM/016919
Term of patent 14 years
U.S. Cl. D6—361



335,776
ARMCHAIR
Christian Lamalle, Saint Ismier, France, assignor to Allibert S.A., Grenoble, France
Filed Dec. 13, 1990, Ser. No. 626,858
Claims priority, application World Int. Prop. O., Jun. 14, 1990, DM/016919
Term of patent 14 years
U.S. Cl. D6—368



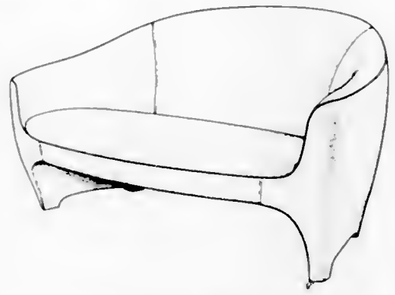
335,777
CHAIR
Stephen C. Hess, Birmingham, Ala., assignor to Winston Furniture Company, Inc., Birmingham, Ala.
Filed Jun. 29, 1990, Ser. No. 545,965
Term of patent 14 years
U.S. Cl. D6—376



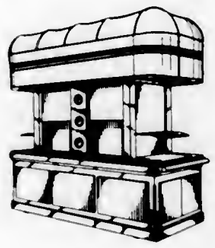
335,778
SEAT FRAME
Stephen C. Hess, Birmingham, Ala., assignor to Winston Furniture Company, Inc., Birmingham, Ala.
Filed Jun. 29, 1990, Ser. No. 546,777
Term of patent 14 years
U.S. Cl. D6—376



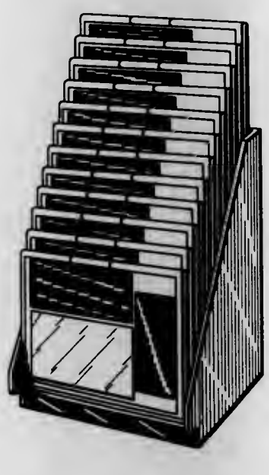
335,779
SOFA
Thomas J. Newhouse, Grand Rapids, Mich., assignor to Herman Miller, Inc., Zeeland, Mich.
Filed Aug. 24, 1990, Ser. No. 572,786
Term of patent 14 years
U.S. Cl. D6—381



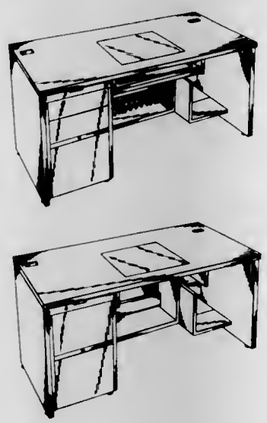
335,780
COMBINED DISPLAY KIOSK AND DISPENSING STAND
Mark K. Gordon, Carrollton, Tex., assignor to I Can't Believe It's Yogurt, Ltd., Carrollton, Tex.
Filed Mar. 12, 1990, Ser. No. 491,645
Term of patent 14 years
U.S. Cl. D6—397



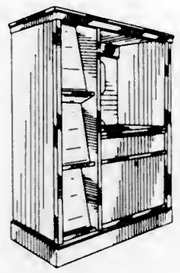
335,781
DISPLAY UNIT FOR FLOOR TILE SAMPLES
Barbara U. Moncrief, Lancaster, and Gerard M. Schouten, Lititz, both of Pa., assignors to Armstrong World Industries, Inc., Lancaster, Pa.
Filed Apr. 23, 1990, Ser. No. 513,191
Term of patent 14 years
U.S. Cl. D6—409



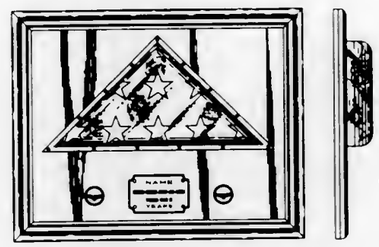
335,782
DESK
John N. Lechman, and Thomas Wegman, both of Effingham, Ill., assignors to Nova Office Furniture, Inc., Effingham, Ill.
Filed Feb. 5, 1991, Ser. No. 653,445
Term of patent 14 years
U.S. Cl. D6—422



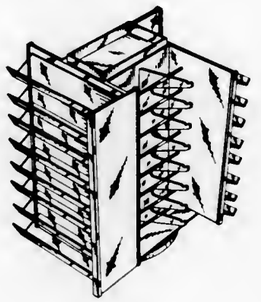
335,783
SPECIAL REPORT TELEVISION CABINET
Robert C. Beckmann, Vale, and Robert W. Lackey, Hickory, both of N.C., assignors to McCalla Lackey Corporation, Hickory, N.C.
Filed Dec. 31, 1990, Ser. No. 636,370
Term of patent 14 years
U.S. Cl. D6—436



335,784
PATRIOTIC FLAG DISPLAY
Dwight D. Guilfoil, Sr., P.O. Box 120472, Arlington, Tex. 76012
Filed Jun. 4, 1991, Ser. No. 719,577
Term of patent 14 years
U.S. Cl. D6—470

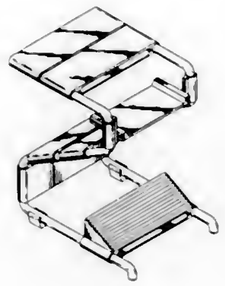


335,785
COUNTERTOP EYEWEAR FIXTURE
Milo K. Winter, Providence, R.I., and David A. Maynard, Brockton, Mass., assignors to Liz Claiborne, Inc., New York, N.Y.
Filed Oct. 22, 1991, Ser. No. 781,932
Term of patent 14 years
U.S. Cl. D6—467

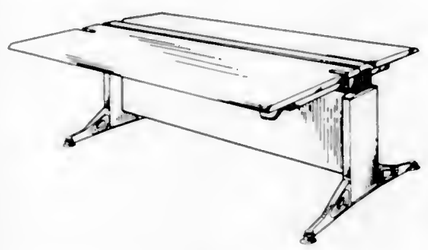


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335,786
COMPUTER WORKSTATION
Peter C. Garvey, North Hills, and Harry J. McVicker, Pottstown, both of Pa., assignors to Grolen Incorporated, Conshohocken, Pa.
Filed Sep. 6, 1991, Ser. No. 756,085
Term of patent 14 years
U.S. Cl. D6—474



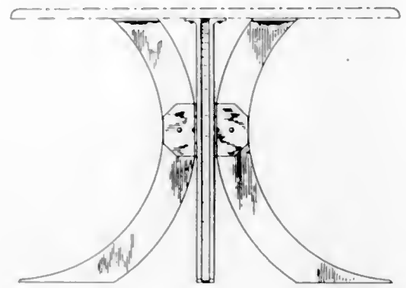
335,787
DESK
Geoffrey A. Hollington, London, England, assignor to Herman Miller, Inc., Zeeland, Mich.
Filed Mar. 19, 1990, Ser. No. 495,927
Term of patent 14 years
U.S. Cl. D6—484



335,788
TABLE
Raymond Grosfillex, Oyonnax, France, assignor to Grosfillex Sarl, Oyonnax, France
Filed May 14, 1991, Ser. No. 699,566
Claims priority, application Int'l Pat. Institute, Nov. 14, 1990, DMA/001371
Term of patent 14 years
U.S. Cl. D6—484



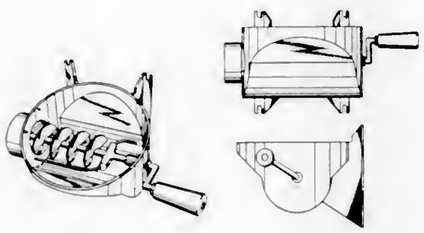
335,789
TABLE BASE
Raymond V. Adams, 32 Ryon Cir., Lawrenceville, Pa. 16929
Filed Jul. 15, 1991, Ser. No. 730,289
Term of patent 14 years
U.S. Cl. D6—495



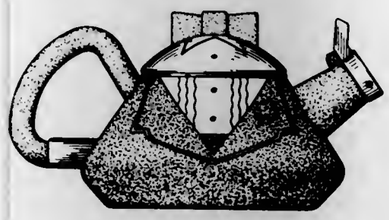
335,790
COUPON DISPENSER
Thomas A. DeGasperi, Bellport; John A. Nucatola, Hauppauge, and Scott E. Manzo, Calverton, all of N.Y., assignors to Totom Enterprises, Inc., Bohemia, N.Y.
Continuation-in-part of Ser. No. 573,450, Aug. 24, 1990, Pat. No. 5,097,981, which is a continuation-in-part of Ser. No. 464,416, Jan. 12, 1990, abandoned. This application Jan. 11, 1991, Ser. No. 639,944
Term of patent 14 years
U.S. Cl. D6—515



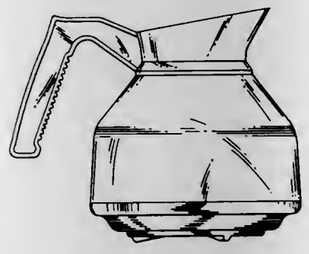
335,791
BASE FOR A SOAP DISPENSER
James H. Cumley, Dallas, Tex., assignor to Phoenix Partners, LEH, Dallas, Tex.
Filed May 11, 1990, Ser. No. 521,925
Term of patent 14 years
U.S. Cl. D6—545



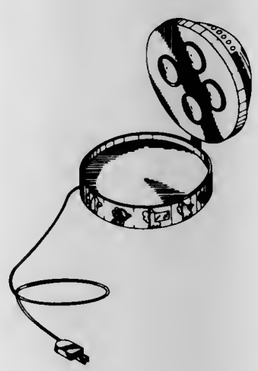
335,792
KETTLE
Bruce Ancona, and Jane Ancona, both of New York, N.Y., assignors to M. Kamenstein, Inc., White Plains, N.Y.
Filed May 31, 1990, Ser. No. 528,809
Term of patent 14 years
U.S. Cl. D7—302



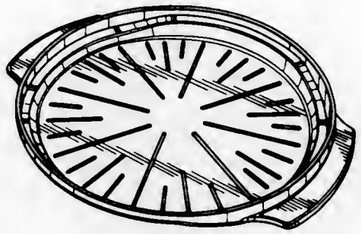
335,793
PLASTIC COFFEE POT
Frederick S. Fonville, Stephens City, and Chester M. Kos, Cross Junction, both of Va., assignors to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Mar. 19, 1991, Ser. No. 672,587
Term of patent 14 years
U.S. Cl. D7—318



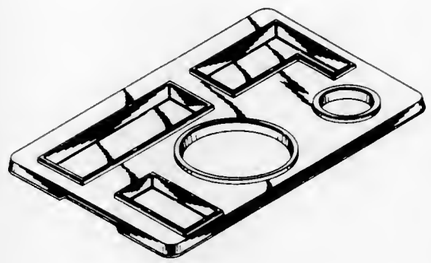
335,794
AUTOMATIC EGG SCRAMBLER
Luis Bonano, 480 E. 139th St., Apt. F, Bronx, N.Y. 10454
Filed Sep. 6, 1990, Ser. No. 578,849
Term of patent 14 years
U.S. Cl. D7—357



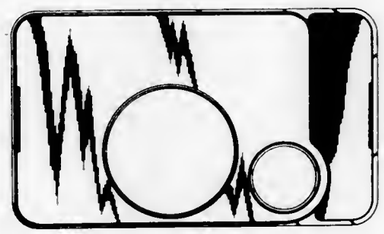
335,795
SLOTTED DISH
Rino Conti, Stoughton, Mass., assignor to Dart Industries, Inc., Deerfield, Ill.
Filed Aug. 1, 1990, Ser. No. 561,533
Term of patent 14 years
U.S. Cl. D7—545



335,796
FOOD SERVING TRAY
Ronnie J. Barnes, Nashville, Tenn., assignor to Aladdin Synergetics, Inc., Nashville, Tenn.
Filed Jan. 29, 1990, Ser. No. 471,727
Term of patent 14 years
U.S. Cl. D7—553

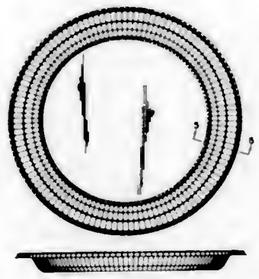


335,797
TRAY
Gary DeGrow, Antioch, Tenn., assignor to Aladdin Synergetics, Inc., Nashville, Tenn.
Division of Ser. No. 394,187, Aug. 15, 1989. This application Jul. 8, 1992, Ser. No. 909,829
Term of patent 14 years
U.S. Cl. D7—553

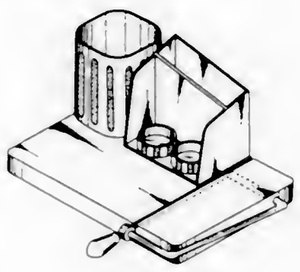


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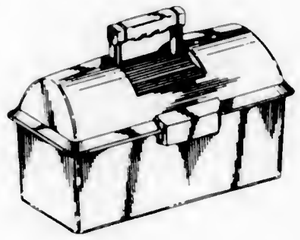
335,798
PLATE
William Crawford, Port Jervis, N.Y.; Dick Edwards, Charlotte, N.C.; Edward Rider, Jr., Slate Hill, and Stephen Susta, Jr., Walden, both of N.Y., assignors to Genpak Corporation, Glens Falls, N.Y.
Filed Mar. 18, 1991, Ser. No. 671,304
Term of patent 14 years
U.S. Cl. D7—584



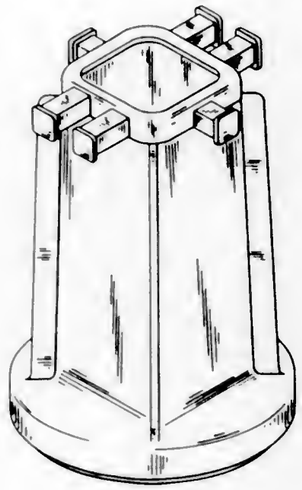
335,799
COMBINED UTENSIL HOLDER, CUTTING BOARD AND SLICER
Yu J. Jong, P.O. Box 82-144, Taipei, Taiwan
Filed Jan. 14, 1991, Ser. No. 641,100
Term of patent 14 years
U.S. Cl. D7—638



335,800
LUNCH BOX
Phillip W. Hamilton, and W. Henry Kahl, both of Wooster, Ohio, assignors to Rubbermaid Incorporated, Wooster, Ohio
Filed Nov. 12, 1991, Ser. No. 790,707
Term of patent 14 years
U.S. Cl. D7—626



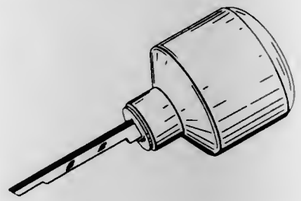
335,801
GADGET ORGANIZER
Bruce Ancona, and Jane Ankona, both of New York, N.Y., assignors to M. Kamenstein, Inc., White Plains, N.Y.
Filed Jul. 15, 1991, Ser. No. 731,105
Term of patent 14 years
U.S. Cl. D7—641



335,802
TELESCOPING PLANT SUPPORT STAKE
William W. Klump, 1098 144th Ave., Wayland, Mich. 49348
Filed Jun. 24, 1991, Ser. No. 719,551
Term of patent 14 years
U.S. Cl. D8—1



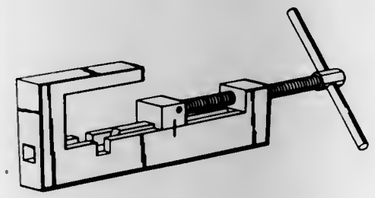
335,803
TOOL FOR DISENGAGING AN ELECTRICAL CONNECTOR TERMINAL
Hideki Ohsumi, Shizuoka, Japan, assignor to Yazaki Corporation, Japan
Filed Feb. 1, 1991, Ser. No. 649,814
Term of patent 14 years
U.S. Cl. D8—14



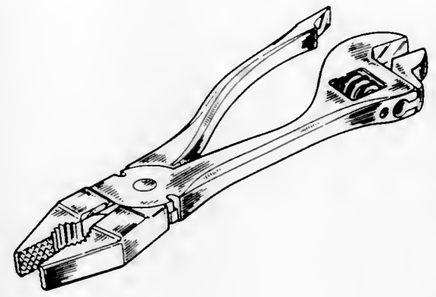
335,804
SELF IGNITING REFILLABLE TORCH
Al Burgin, Earlville, Ill., assignor to Cooper Industries, Inc., Houston, Tex.
Filed Apr. 23, 1990, Ser. No. 536,247
The portion of the term of this patent subsequent to Oct. 24, 2003, has been disclaimed.
Term of patent 14 years
U.S. Cl. D8—30



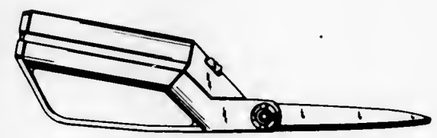
335,805
COMBINED SIGHT INSTALLATION AND ALIGNMENT TOOL FOR HAND GUNS
Dewey L. Ransom, 3393 Lee St., SE., Smyrna, Ga. 30080
Filed Jul. 2, 1990, Ser. No. 547,107
Term of patent 14 years
U.S. Cl. D8—51



335,806
MULTIPURPOSE TOOL
Ervin Visic, 76 Trevelyan St., South Caulfield 3162, Victoria, Australia
Filed Sep. 20, 1991, Ser. No. 763,072
Claims priority, application Australia, Mar. 21, 1991, 0804/91
Term of patent 14 years
U.S. Cl. D8—55



335,807
SCISSORS
Douglas J. Birkholz, Madison, Wis., assignor to Fiskars Oy Ab, Helsinki, Finland
Filed Dec. 30, 1991, Ser. No. 816,096
Term of patent 14 years
U.S. Cl. D8—57

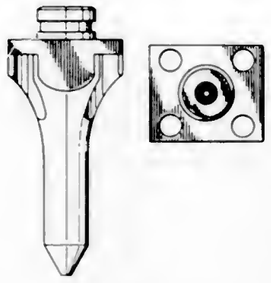


335,808
ELECTRIC MOTOR DRIVEN NUTRUNNER
Robert H. Bruno, Avon, Conn.; Kenneth J. Dubuque, Athens, Pa., and David R. Melrose, Ringoes, N.J., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.
Filed Sep. 20, 1991, Ser. No. 763,409
Term of patent 14 years
U.S. Cl. D8—61



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335,809
NOZZLE FOR DISPENSING ADHESIVE, SEALANTS AND CAULKS
Mark G. Reifenberger, Norcross, Ga., assignor to Nordson Corporation, Westlake, Ohio
Filed May 17, 1991, Ser. No. 701,980
Term of patent 14 years
U.S. Cl. D8—70



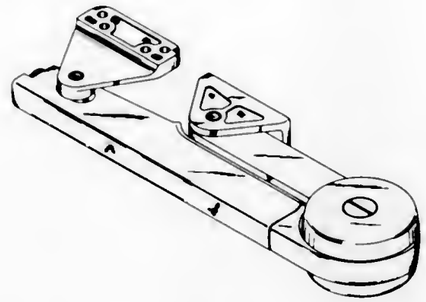
335,810
HANDLE FOR LUGGAGE OR SIMILAR ARTICLE
Dick-Ming Asien, No. 18, Lane 777, Chung-Chan Rd., Kuei-Jen Hsiang, Taiwan
Filed Jul. 2, 1990, Ser. No. 547,440
Term of patent 14 years
U.S. Cl. D8—306



335,811
HANDLE
Alan D. Beogtson, Sheboygan; Michael M. Kecman, Milwaukee, and Reneé Hytry, Kohler, all of Wis., assignors to Kohler Co., Kohler, Wis.
Filed Mar. 31, 1989, Ser. No. 332,304
Term of patent 14 years
U.S. Cl. D8—310

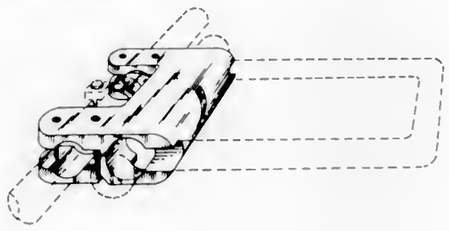


335,812
DOOR CLOSER
Kobei Musha, Tokyo, Japan, assignor to Sugatsune Industrial Co., Ltd., Tokyo, Japan
Filed Jan. 17, 1991, Ser. No. 718,846
Claims priority, application Japan, Feb. 5, 1991, 3-2751
Term of patent 14 years
U.S. Cl. D8—330

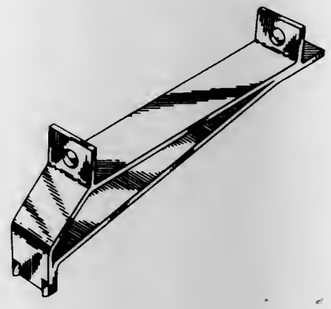


335,813
SHACKLELESS PADLOCK
Paul Appelbaum, 34591 Camino Capistrano, Capistrano Beach, Calif. 92718
Filed Oct. 15, 1991, Ser. No. 776,463
Term of patent 14 years
U.S. Cl. D8—334

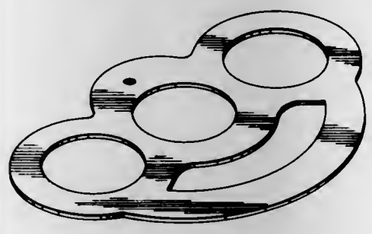
335,814
BICYCLE LOCK MOUNTING BRACKET
Ara Dabandjian, 3148 University Ave., San Diego, Calif. 92104
Filed Sep. 9, 1991, Ser. No. 756,759
Term of patent 14 years
U.S. Cl. D8—343



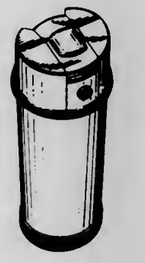
335,815
POLE EXTENSION BRACKET
Isaac Sachs, 1240 Ridgewood Dr., Chomedey, Laval, Quebec, Canada H7W1L3
Filed Aug. 7, 1991, Ser. No. 741,153
Term of patent 14 years
U.S. Cl. D8—363



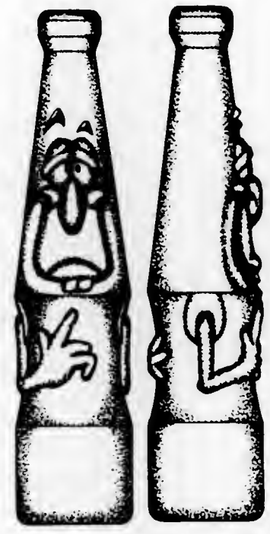
335,816
DRAPERY BOW RING
Stuart R. Fraker, Arlington; Michael R. Loupe, Fort Worth, and Kitty M. Milliorn, Arlington, all of Tex., assignors to Home Furnishings Discount Club of America, Inc., Arlington, Tex.
Filed Jul. 18, 1991, Ser. No. 734,322
Term of patent 14 years
U.S. Cl. D8—369



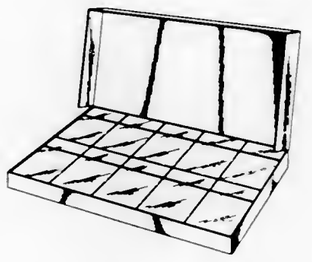
335,817
SPRAYER
Juergen Greubel, Heidenrod, Fed. Rep. of Germany, assignor to Wella Aktiengesellschaft, Darmstadt, Fed. Rep. of Germany
Filed Oct. 31, 1990, Ser. No. 606,358
Term of patent 14 years
U.S. Cl. D9—300



335,818
BOTTLE
Arne H. Brauner, Minnetonka; James R. Clancy, Minneapolis; Shawn P. O'Grady, St. Louis Park; Rod B. Jané, Wayzata; Alden H. Pflager, Minneapolis, and Scott W. Baker, Medina, all of Minn., assignors to General Mills, Inc., Minneapolis, Minn.
Filed Oct. 25, 1991, Ser. No. 783,076
Term of patent 14 years
U.S. Cl. D9—311

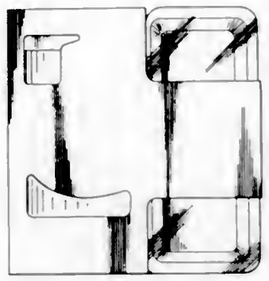


335,819
PACKAGE FOR CIGARETTES
Christopher J. Campbell, Pully, Switzerland, assignor to Fabriques de Tabac Reunies, S.A., Neuchatel, Switzerland
Filed May 14, 1991, Ser. No. 699,791
Claims priority, application United Kingdom, Nov. 14, 1990, 2011066
Term of patent 14 years
U.S. Cl. D9—337

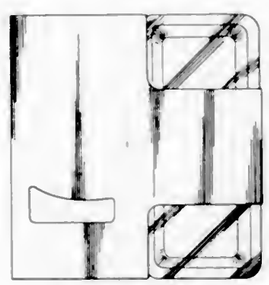


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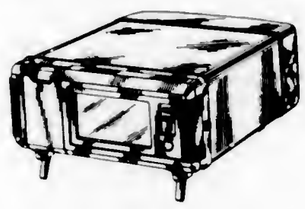
335,820
FOOD PACKAGE
Kenneth M. Detert, Madison, Wis., and Theodore J. Halser, Chicago, Ill., assignors to Oscar Mayer Foods Corporation, Madison, Wis.
Filed Dec. 11, 1990, Ser. No. 625,525
Term of patent 14 years
U.S. Cl. D9—418



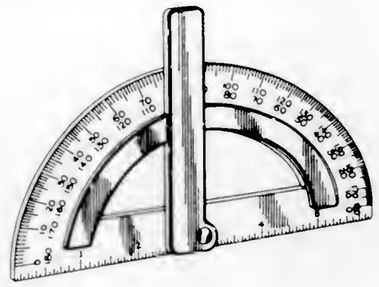
335,821
FOOD PACKAGE
Kenneth M. Detert, Madison, Wis., and Theodore J. Hasler, Chicago, Ill., assignors to Oscar Mayer Foods Corporation, Madison, Wis.
Filed Dec. 11, 1990, Ser. No. 625,529
Term of patent 14 years
U.S. Cl. D9—418



335,822
SATELLITE LOCATION MEASURING RECEIVER
Hidekazu Yamamuro; Yutaka Nakamura, and Shigeyuki Sawaguchi, all of Atsugi, Japan, assignors to Sokkisha Co., Ltd., Tokyo, Japan
Filed Aug. 30, 1991, Ser. No. 752,327
Claims priority, application Japan, Mar. 4, 1991, 3-5560
Term of patent 14 years
U.S. Cl. D10—65

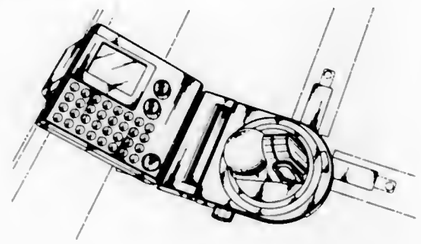


335,823
PROTRACTOR
Bruce Shapiro, Northbrook, and Gunar Narubin, Chicago, both of Ill., assignors to Creative Works, L.P., Northbrook, Ill.
Filed Jun. 18, 1991, Ser. No. 717,123
Term of patent 14 years
U.S. Cl. D10—64

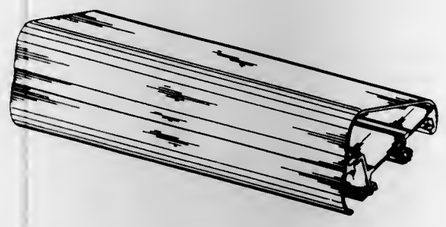


335,824
MICROWAVE OVEN TESTER
Edward R. Hamilton, 419 Mt. Read Blvd., Rochester, N.Y. 14611
Filed Jan. 11, 1991, Ser. No. 639,946
Term of patent 14 years
U.S. Cl. D10—47

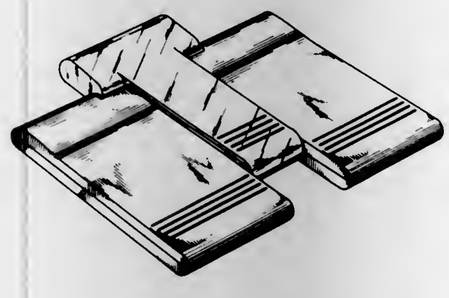
335,825
DRAWING HEAD FOR A DRAWING MACHINE
Uwe Jopt; Heinrich Otten, both of Wilhelmshaven, and Georg Kaluza, Velbert, all of Fed. Rep. of Germany, assignors to Franz Kuhlmann Prazisionsmachanik und Maschinenbau GmbH & Co., Wilhelmshaven, Fed. Rep. of Germany
Filed Mar. 13, 1991, Ser. No. 668,444
Term of patent 14 years
U.S. Cl. D10—74



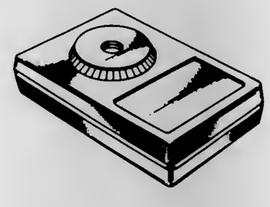
335,826
GUIDE RAIL FOR A DRAWING MACHINE
Uwe Jopt; Heinrich Otten, both of Wilhelmshaven, and Georg Kaluza, Velbert, all of Fed. Rep. of Germany, assignors to Franz Kuhlmann Prazisionsmachanik und Maschinenbau GmbH & Co., Wilhelmshaven, Fed. Rep. of Germany
Filed Mar. 13, 1991, Ser. No. 668,445
Term of patent 14 years
U.S. Cl. D10—74



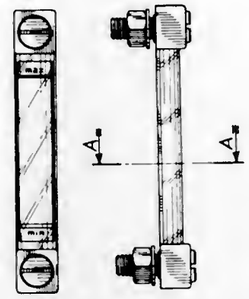
335,827
SCALE HOUSING
Stanley Gresens, Homewood, Ill., assignor to Health o meter, Inc., Bridgeview, Ill.
Filed Jan. 2, 1991, Ser. No. 636,934
Term of patent 14 years
U.S. Cl. D10—92



335,828
FLOOD DETECTING DEVICE CASE
Jeffrey M. Edwards, 13428 Maxella Ave., No. 222, Marina del Rey, Calif. 90292
Filed Feb. 1, 1991, Ser. No. 648,951
Term of patent 14 years
U.S. Cl. D10—101



335,829
LIQUID LEVEL GAUGE
Alberto Bertani, Milan, Italy, assignor to ELESA S.p.A., Milan, Italy
Filed Apr. 17, 1991, Ser. No. 686,565
Term of patent 14 years
U.S. Cl. D10—101



335,830
BELL-SHAPED DECORATIVE ORNAMENT
Jerrold W. Ross, Pbiladelphia, Pa., and Richard D. Bankert, Wilmington, Del., assignors to Franklin Mint Company, Franklin Center, Pa.
Filed Sep. 12, 1990, Ser. No. 582,028
Term of patent 14 years
U.S. Cl. D10—116



335,831
BELL
Jui H. Chen, 138, Lane 485., Ta-Pu Rd, Chang Hwa City, Taiwan
Filed Nov. 21, 1991, Ser. No. 795,618
Term of patent 14 years
U.S. Cl. D10—116

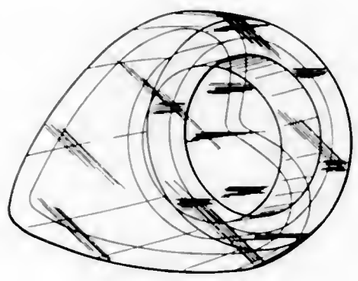


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335,832
BELL
Jui H. Chen, 138, Lane 485., Ta-Pu Rd, Chang Hwa City, Taiwan
Filed Nov. 21, 1991, Ser. No. 795,619
Term of patent 14 years
U.S. Cl. D10—116



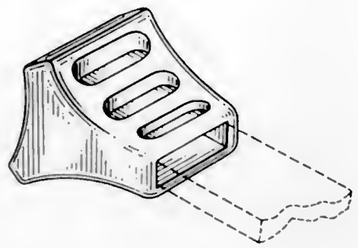
335,833
DESK WATCH SUPPORT
Bruno Gecchelin, Milan, Italy, assignor to Fratelli Guzzini S.p.A., Recanati, Italy
Filed Feb. 18, 1992, Ser. No. 837,499
Claims priority, application Italy, Aug. 27, 1991, MI91 0 000622
Term of patent 14 years
U.S. Cl. D10—128



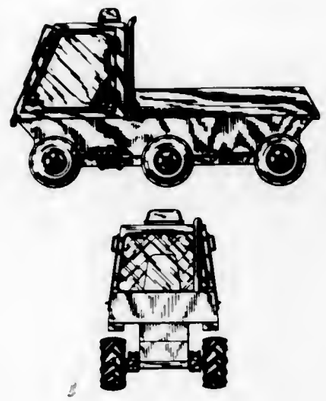
335,834
JEWELRY CHAIN
Ferdinando L. Grotto, Bassano del Grappa, Italy, assignor to OroAmerica, Inc., Burbank, Calif.
Filed Jan. 29, 1990, Ser. No. 471,716
Term of patent 14 years
U.S. Cl. D11—15



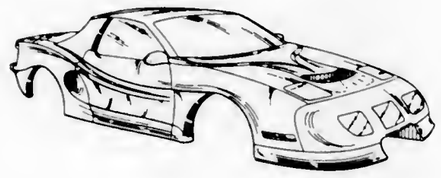
335,835
STRAP END BUTTON
Shinji Marui, Kobe, Japan, assignor to Marui Ltd., Kobe, Japan
Filed Apr. 6, 1990, Ser. No. 505,527
Term of patent 14 years
U.S. Cl. D11—218



335,836
ALL TERRAIN VEHICLE
Jean-Hugues Lagace, 112 Grande-Ligne, Lac Etchemin, Canada G0R 1S0
Filed Feb. 5, 1991, Ser. No. 650,727
Term of patent 14 years
U.S. Cl. D12—3



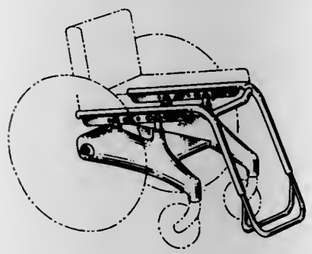
335,837
AUTOMOBILE BODY
Randall E. Miller, 3793 Benson Ct., Montclair, Va. 22026
Filed Feb. 25, 1991, Ser. No. 659,932
Term of patent 14 years
U.S. Cl. D12—92



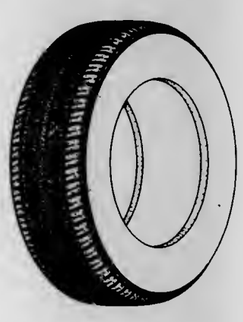
335,838
AUTOMOBILE BODY
John Manoogian, II, Bloomfield Hills; Thomas G. Kearns, Birmingham; John R. Folden, Bloomfield Hills, and Scott V. Dolan, Beverly Hills, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Sep. 13, 1991, Ser. No. 758,952
Term of patent 14 years
U.S. Cl. D12—92



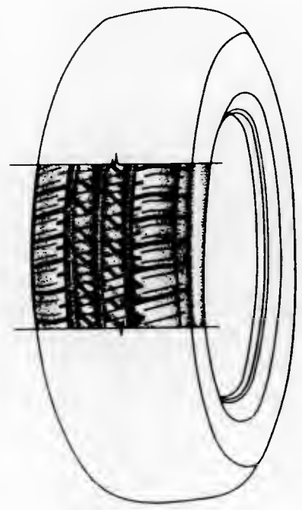
335,839
SEATING UNIT FOR A WHEELCHAIR
A. Scott Robertson, Pasadena; Richard T. Geiger, Santa Cruz, and Robert W. Lishman, LaSelva Beach, all of Calif., assignors to Medical Composite Technology, Inc., Soquel, Calif.
Filed Oct. 29, 1991, Ser. No. 784,026
Term of patent 14 years
U.S. Cl. D12—133



335,840
TIRE
James G. Guspodin, Akron, Ohio, assignor to Bridgestone/Firestone, Inc., Akron, Ohio
Filed Jul. 22, 1991, Ser. No. 733,408
Term of patent 14 years
U.S. Cl. D12—141



335,841
TIRE
Renato Caretta, Gallarate, and Gianfranco Colombo, Concorezzo, both of Italy, assignors to Pirelli Coordinamento Pneumatici S.p.A., Italy
Filed Nov. 1, 1990, Ser. No. 607,490
Claims priority, application Italy, May 14, 1990, 21167B/90
Term of patent 14 years
U.S. Cl. D12—146

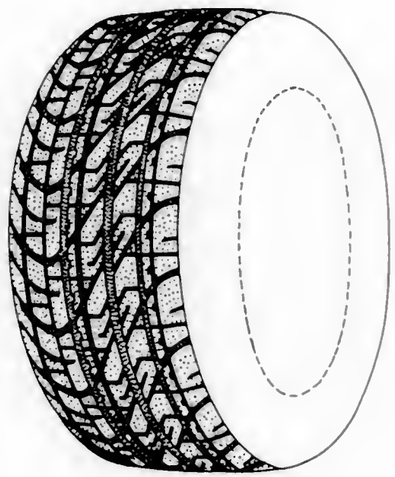


335,842
TIRE TREAD AND BUTTRESS
André E. J. Baus, Bettembourg, Luxembourg, and Daniel E. Schuster, North Royalton, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Jun. 10, 1991, Ser. No. 712,803
Term of patent 14 years
U.S. Cl. D12—146

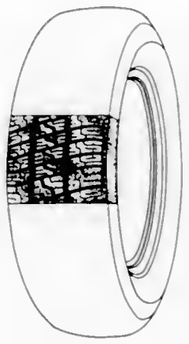


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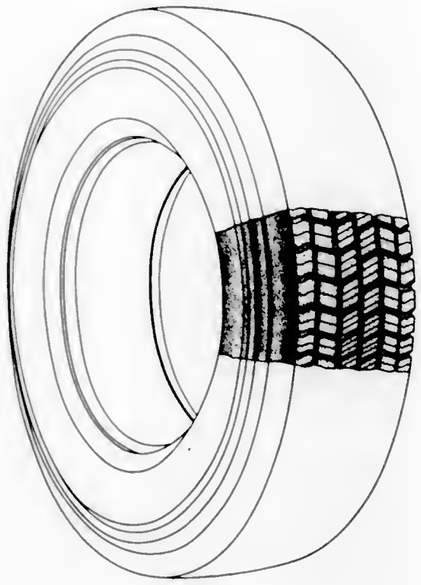
335,843
TIRE TREAD AND BUTTRESS
Sean D. Montag, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Aug. 8, 1991, Ser. No. 742,653
Term of patent 14 years
U.S. Cl. D12—146



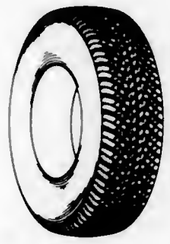
335,844
TIRE
Maurizio Bolocchi, and Gianfranco Colombo, both of Milan, Italy, assignors to Pirelli Coordinamento Pneumatici S.p.A., Milan, Italy
Filed Dec. 6, 1990, Ser. No. 623,046
Claims priority, application Italy, Jun. 8, 1990, 21319/90[U]
Term of patent 14 years
U.S. Cl. D12—147



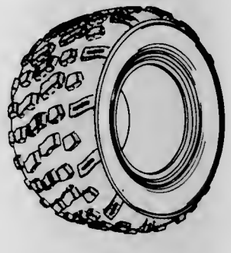
335,845
TIRE
Patrick Lurols, Cebazat, France, assignor to Compagnie Generale des Etablissements Michelin - Michelin & Cie, Clermont-Ferrand Cedex, France
Filed Mar. 28, 1991, Ser. No. 676,730
Claims priority, application France, Oct. 5, 1990, 230
Term of patent 14 years
U.S. Cl. D12—147



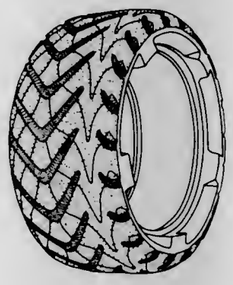
335,846
AUTOMOBILE TIRE
Kengo Hara, Hyogo, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan
Filed Dec. 11, 1991, Ser. No. 805,835
Claims priority, application Japan, Jun. 12, 1991, 3-17571
Term of patent 14 years
U.S. Cl. D12—147



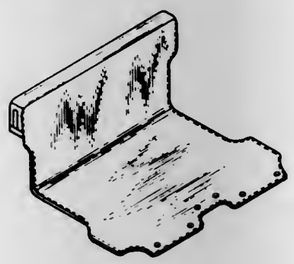
335,847
AUTOMOBILE TIRE
Takao Kuwahara, Hyogo, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan
Filed Apr. 16, 1991, Ser. No. 685,706
Claims priority, application Japan, Oct. 19, 1990, 2-35153
Term of patent 14 years
U.S. Cl. D12—151



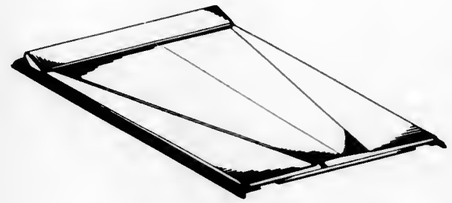
335,848
TIRE
Paul B. Maxwell, Stow; Philip S. Hammond, Mogadore; William E. Egan, Tallmadge, and Dale G. Freygang, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Oct. 13, 1991, Ser. No. 785,694
Term of patent 14 years
U.S. Cl. D12—151



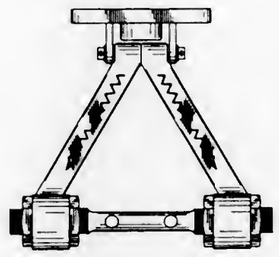
335,849
INTERIOR CARGO COVER FOR MOTOR VEHICLES
Thomas F. Hamilton, 1634 Ixias Ct., San Jose, Calif. 95124, assignor to Thomas F. Hamilton, San Jose, Calif.
Filed Jul. 11, 1991, Ser. No. 728,940
Term of patent 14 years
U.S. Cl. D12—155



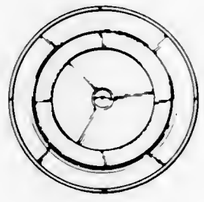
335,850
COVER FOR THE BED OF A PICKUP TRUCK
John C. Cyrson, 1007 - 82 Street, Edmonton, Alberta, Canada T6K 1X5
Filed Oct. 15, 1991, Ser. No. 776,740
Claims priority, application Canada, May 7, 1991, 07-05-91-1
Term of patent 14 years
U.S. Cl. D12—156



335,851
CASTER ADJUSTABLE UPPER CONTROL ARM SHAFT
Richard W. Lofy, 7113 Pagham Dr., Madison, Wis. 53719
Filed Feb. 7, 1991, Ser. No. 651,930
Term of patent 14 years
U.S. Cl. D12—159

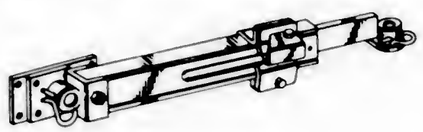


335,852
PROTECTIVE SLEEVE FOR AN AXLE SPINDLE
Charles Carles, Kenton, Ohio, assignor to Rockwell International Corporation, Pittsburgh, Pa.
Filed May 22, 1991, Ser. No. 703,992
Term of patent 14 years
U.S. Cl. D12—160

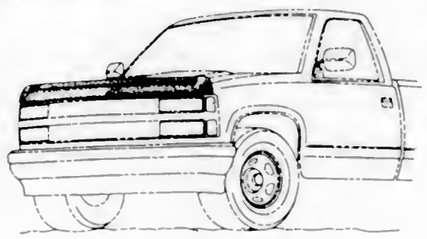


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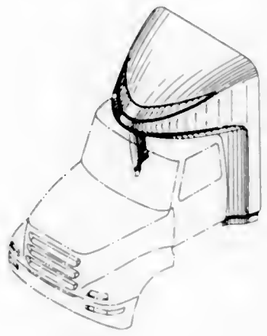
335,853
TRAILER SWAY BAR
Jeffrey P. Few, West Hill, Calif., assignor to Norco Industries, Compton, Calif.
Filed Sep. 10, 1991, Ser. No. 757,120
Term of patent 14 years
U.S. Cl. D12—162



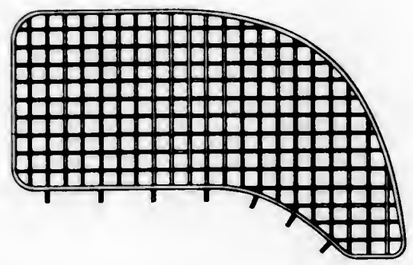
335,854
FRONT DEFLECTOR SHIELD
John M. Stanesic, Johnston, Iowa, assignor to DFM Corporation, Urbandale, Iowa
Filed Aug. 13, 1991, Ser. No. 744,235
Term of patent 14 years
U.S. Cl. D12—181



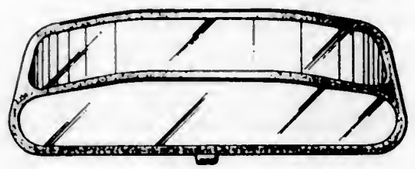
335,855
EXTERIOR SHELL OF A VEHICLE AERODYNAMIC FAIRING
T. Matt Callaway; James P. Pennell, both of Fort Wayne, Ind.; Marie A. Davis, Brighton, Mich., and Dennis A. Adamisin, Fort Wayne, Ind., assignors to Navistar International Transporation Corp., Chicago, Ill.
Filed Oct. 17, 1991, Ser. No. 779,485
Term of patent 14 years
U.S. Cl. D12—181



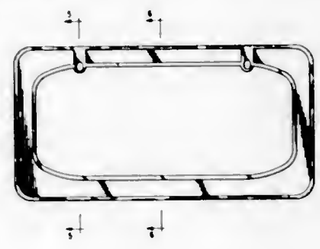
335,856
VENT GUARD FOR A VEHICLE WINDOW
Donald G. Sazama, P.O. Box 78, Albany, Tex. 76430
Filed Dec. 23, 1991, Ser. No. 812,213
Term of patent 14 years
U.S. Cl. D12—183



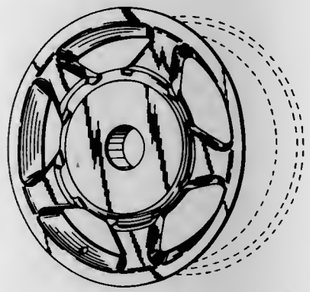
335,857
DUAL REARVIEW MIRROR
Christopher McColgan, Quyon, Canada, assignor to The Lanechanger Inc., Quyon, Canada
Filed Apr. 16, 1991, Ser. No. 685,872
Term of patent 14 years
U.S. Cl. D12—187



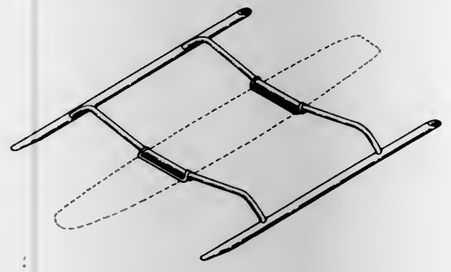
335,858
LICENSE PLATE FRAME
John L. Traeger, 608 Lakeview Ave., North Mankato, Minn. 56003
Filed May 28, 1991, Ser. No. 705,882
Term of patent 14 years
U.S. Cl. D12—193



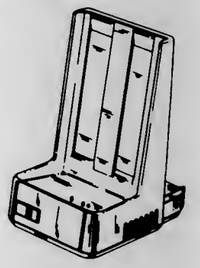
335,859
FRONT FACE OF A VEHICLE WHEEL
Stephen Mattin, Aidlingen, Fed. Rep. of Germany, assignor to Mercedes-Benz, Fed. Rep. of Germany
Filed Dec. 30, 1991, Ser. No. 814,672
Term of patent 14 years
U.S. Cl. D12—211



335,860
PONTOON FOR WINDSURFER OR SAILBOARD
Stephen E. Trotter, 37 Stratford Street, Moggill QLD 4070, Australia
Filed Jul. 29, 1991, Ser. No. 736,910
Term of patent 14 years
U.S. Cl. D12—304



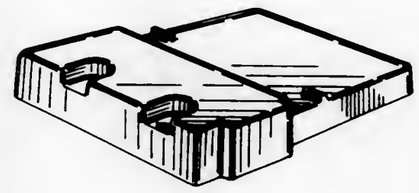
335,861
DESKTOP BATTERY CHARGER FOR A RADIO PHONE
Jouko Tattari, Nokia, Finland, assignor to Nokia Mobile Phones Ltd., Salo, Finland
Filed Apr. 16, 1990, Ser. No. 510,426
Term of patent 14 years
U.S. Cl. D13—108



335,862
PORTABLE ENGINE GENERATOR
Tadashi Kusunoki, and Akira Ishii, both of Osaka, Japan, assignors to Kubota, Ltd., Osaka, Japan
Filed Aug. 31, 1989, Ser. No. 401,289
Claims priority, application Japan, Mar. 3, 1989, 1-7943
Term of patent 14 years
U.S. Cl. D13—116



335,863
TERMINAL CAP FOR A BATTERY
Murray I. Delamoreaux, Hoffman Estates, and Thomas F. Sheridan, Elk Grove Village, both of Ill., assignors to Oneac Corporation, Libertyville, Ill.
Filed Jun. 3, 1991, Ser. No. 709,421
Term of patent 14 years
U.S. Cl. D13—119

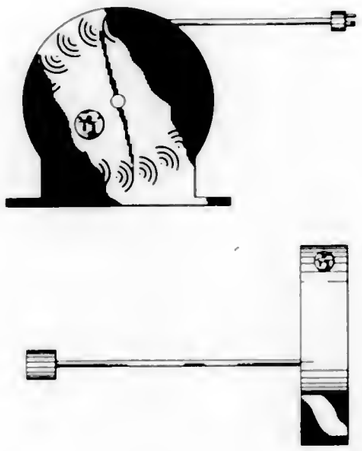


335,864
ELECTRICAL CONNECTOR
Naohisa Kensaku, and Kensaku Sato, both of Tokyo, Japan, assignors to Hirose Electric Co., Ltd., Tokyo, Japan
Filed May 16, 1991, Ser. No. 700,912
Claims priority, application Japan, Jan. 22, 1991, 3-1005
Term of patent 14 years
U.S. Cl. D13—133

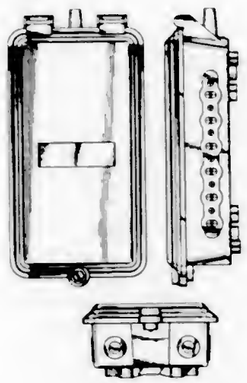


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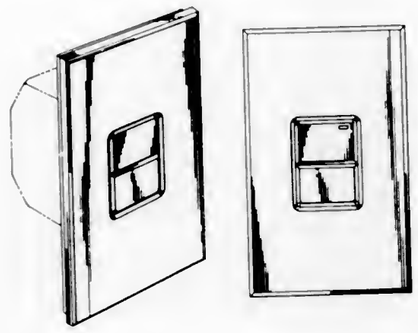
335,865
RETRACTABLE EXTENSION CORD FOR A CAR
Kevin M. Sanders, 27 Carman Terr., Crookston, Minn. 56716
Filed Nov. 25, 1991, Ser. No. 797,249
Term of patent 14 years
U.S. Cl. D13—140



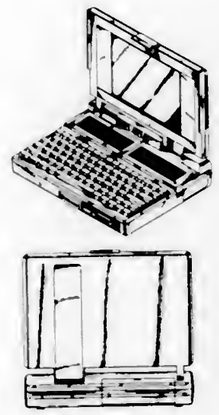
335,866
CONNECTOR BOX WITH TOP ENTRY
Richard C. Powell, 3125 Bentwillow Dr., Fuquay-Varina, N.C. 27526; John E. Francis, 4124 Redington Dr., Raleigh, N.C. 27609, and Daniel P. Sedlecky, 631 Oak Run Dr., Raleigh, N.C. 27606
Filed Mar. 5, 1991, Ser. No. 665,148
The portion of the term of this patent subsequent to May 18, 2007, has been disclaimed.
Term of patent 14 years
U.S. Cl. D13—152



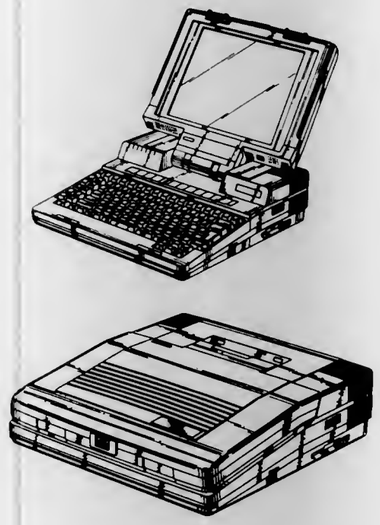
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COMBINED SWITCH AND FACE PLATE
Michael J. Rowen, Center Valley, Pa., assignor to Lutron Electronics Co., Inc., Coopersburg, Pa.
Filed Sep. 26, 1988, Ser. No. 249,464
Term of patent 14 years
U.S. Cl. D13—171



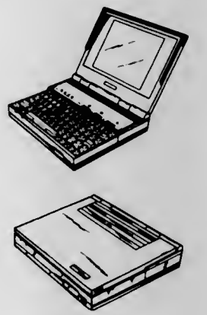
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NOTEBOOK COMPUTER
Peter K. Toedter, Trabuco Canyon, Calif., assignor to AST Research, Inc., Irvine, Calif.
Filed Oct. 19, 1990, Ser. No. 600,965
Term of patent 14 years
U.S. Cl. D14—106



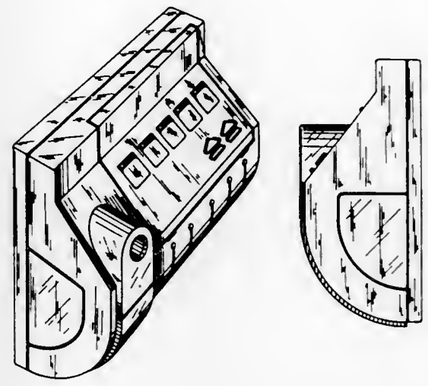
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ELECTRONIC COMPUTER
Masaaki Iino, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan
Filed Dec. 19, 1990, Ser. No. 629,981
Claims priority, application Japan, Jul. 6, 1990, 2-22739
Term of patent 14 years
U.S. Cl. D14—106



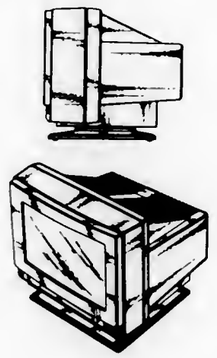
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NOTEBOOK PERSONAL COMPUTER
Jung S. Yun, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Jan. 4, 1991, Ser. No. 637,757
Claims priority, application Rep. of Korea, Jul. 9, 1990, 90-9680
Term of patent 14 years
U.S. Cl. D14—106



335,871
READER FOR DATA PROCESSING
Johan C. H. De Jongh, Mierlo, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 12, 1991, Ser. No. 654,561
Claims priority, application World Int. Prop. O., Aug. 30, 1990, DM/017.490
Term of patent 14 years
U.S. Cl. D14—107

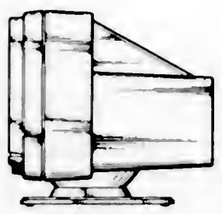


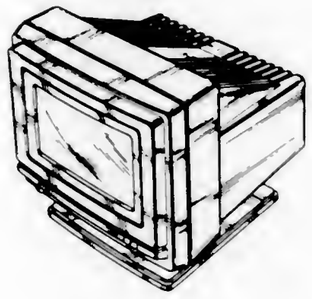
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CRT MONITOR FOR COMPUTER
Soodong Kim, Seoul, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Hwasung, Rep. of Korea
Filed Oct. 23, 1990, Ser. No. 602,086
Claims priority, application Rep. of Korea, Apr. 24, 1990, 90-5770
Term of patent 14 years
U.S. Cl. D14—113



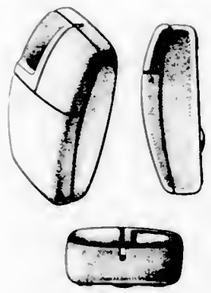
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CRT MONITOR FOR COMPUTER
Kim Soodong, Seoul, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Hwasung, Rep. of Korea
Filed Oct. 23, 1990, Ser. No. 602,088
Claims priority, application Rep. of Korea, Apr. 24, 1990, 90-5769
Term of patent 14 years
U.S. Cl. D14—113

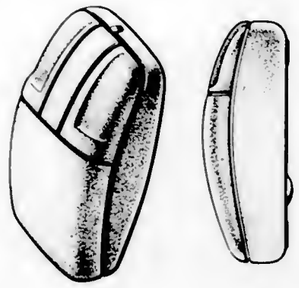




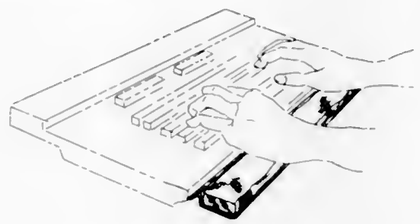
335,874
COMPUTER MOUSE
Jimmy Chen, 211 Erie St., Pomona, Calif. 91785
Filed Jun. 18, 1990, Ser. No. 539,667
Term of patent 14 years
U.S. Cl. D14—114



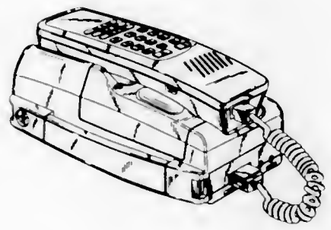
335,875
COMPUTER MOUSE
Jimmy Chen, Z-Nix Company, Inc., 211 Erie St., Pomona, Calif. 91768
Filed Jun. 18, 1990, Ser. No. 539,669
Term of patent 14 years
U.S. Cl. D14—114



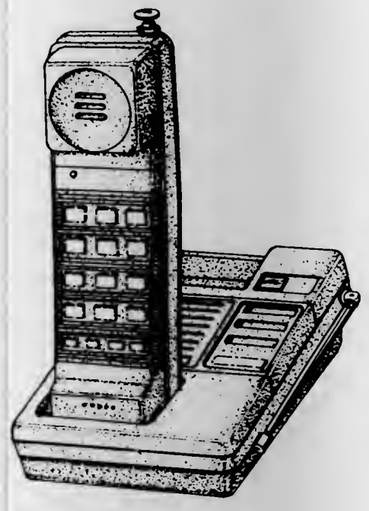
335,876
WRIST SUPPORT FOR A KEYBOARD
Salvatore Anello, Jr., 29 Abigail St., Woodmont, Conn. 06460, and Edward A. Rauch, 232 Washington Rd., Woodbury, Conn. 06798
Filed Jul. 10, 1991, Ser. No. 728,072
Term of patent 14 years
U.S. Cl. D14—114



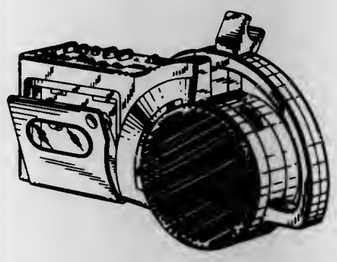
335,877
PORTABLE RADIOTELEPHONE
Katsuhito Watanabe; Seki Naoko, and Eriko Ino, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Feb. 26, 1991, Ser. No. 660,033
Claims priority, application Japan, Nov. 30, 1990, 2-39817
Term of patent 14 years
U.S. Cl. D14—138



335,878
COMBINATION CORDLESS TELEPHONE HANDSET AND BASE
George P. Roegner, Vero Beach, Fla., assignor to North American Foreign Trading Corporation, New York, N.Y.
Filed Dec. 30, 1991, Ser. No. 814,678
Term of patent 14 years
U.S. Cl. D14—138



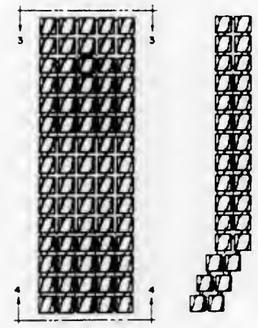
335,879
COMBINED TAPE RECORDER AND RADIO TUNER
Richard Gioscia, and Atsushi Kawase, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Sep. 25, 1991, Ser. No. 765,101
Claims priority, application Japan, Apr. 12, 1991, 3-10774
Term of patent 14 years
U.S. Cl. D14—163



335,880
TAPE RECORDER
Masakazu Kanatani, and Atsushi Kawase, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Sep. 25, 1991, Ser. No. 765,104
Claims priority, application Japan, Apr. 24, 1991, 3-12055
Term of patent 14 years
U.S. Cl. D14—165



335,881
COMMUNICATION HANDSET
Byron Morris, 5408 Memory La., Evansville, Ind. 47711-2449
Filed Feb. 6, 1991, Ser. No. 651,503
Term of patent 14 years
U.S. Cl. D14—248

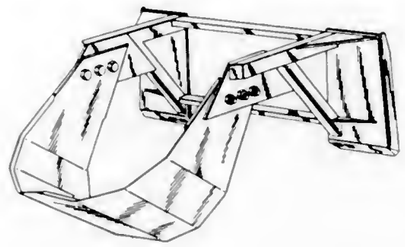


335,882
ROLLER BEARING FOR A CRANKSHAFT
John G. Falcon, 409 Cole Ave., Corpus Christi, Tex. 78404
Filed Oct. 19, 1990, Ser. No. 600,106
Term of patent 14 years
U.S. Cl. D15—5

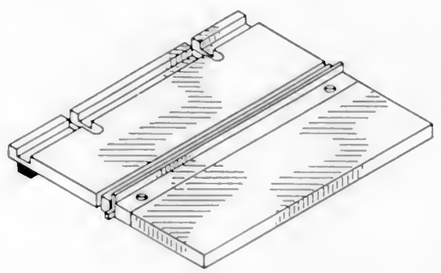


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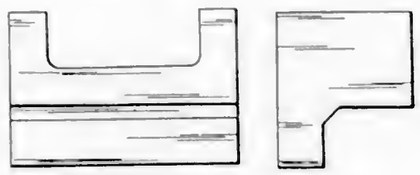
335,883
U-SHAPED SHOVEL ATTACHMENT
Charles Devaney, 16700 Pueblo Blvd., Jordan, Minn. 55352
Filed Apr. 15, 1991, Ser. No. 685,007
Term of patent 14 years
U.S. Cl. D15—32



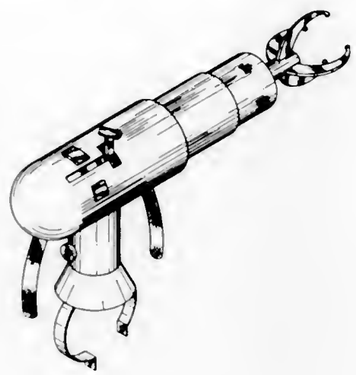
335,884
MINI-FENCE JOINT AND INLAY DEVICE
Kyrle W. Seals, P.O. Box 351, 1316 Del Ray Dr., Eckert, Colo. 81418
Filed Sep. 10, 1991, Ser. No. 757,487
Term of patent 14 years
U.S. Cl. D15—140



335,885
FEEDER ENTRANCE BLOCK
István Horváth, Mosonmagyaróvár, Hungary, assignor to Timföld-és Mükorundgyar Magyaróvári, Mosonmagyaróvar, Hungary
Filed Jul. 9, 1991, Ser. No. 727,139
Claims priority, application Hungary, Jan. 31, 1991, 65/91
Term of patent 14 years
U.S. Cl. D15—144.2



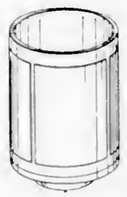
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TELESCOPING GRASPING ARM
Kristin T. Currie, 18166 S. Holly La., Oregon City, Oreg. 97045
Filed Feb. 22, 1991, Ser. No. 659,158
Term of patent 14 years
U.S. Cl. D15—199



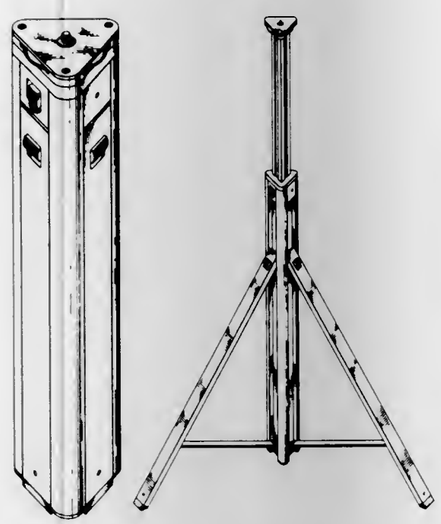
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EYEGLASS LENS
James H. Jannard, San Juan Capistrano, Calif., assignor to Oakley, Inc., Irvine, Calif.
Division of Ser. No. 502,501, Mar. 30, 1990, Pat. No. D. 330,035. This application Jul. 8, 1992, Ser. No. 910,882
Term of patent 14 years
U.S. Cl. D16—101



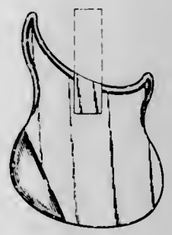
335,888
PROBE FOR A SCANNING TUNNELING MICROSCOPE
Takao Okada; Tsugiko Takase; Shozo Mishima, all of Hachioji; Hisanari Shimazu, Akishima; Akira Yagi, Sagamihara; Hiroko Ota, Hachioji; Hirofumi Miyamoto, Hachioji, and Takaaki Takenobo, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Dec. 3, 1990, Ser. No. 621,550
Term of patent 14 years
U.S. Cl. D16—136



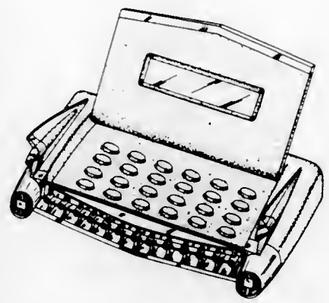
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TRIPOD
Kahlil Gibran, 160 W. Canton St., Boston, Mass. 02118
Filed Aug. 24, 1990, Ser. No. 573,656
Term of patent 14 years
U.S. Cl. D16—244



335,890
GUITAR BODY
John T. Riboloff, Antioch, and Henry E. Juszkiewicz, Nashville, both of Tenn., assignors to Gibson Guitar Corp., Nashville, Tenn.
Filed Jan. 15, 1991, Ser. No. 641,577
Term of patent 14 years
U.S. Cl. D17—20



335,891
CALCULATOR
Richard F. M. Peersmann, Scheveningen, Netherlands, assignor to Pollyflame International, B.V., Roelofarendsveen, Netherlands
Filed Jan. 8, 1991, Ser. No. 638,513
Term of patent 14 years
U.S. Cl. D18—7



335,892
ELECTRONIC CALCULATOR
Yuichi Onumata, Ome, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Filed Dec. 23, 1991, Ser. No. 812,209
Term of patent 14 years
U.S. Cl. D18—7

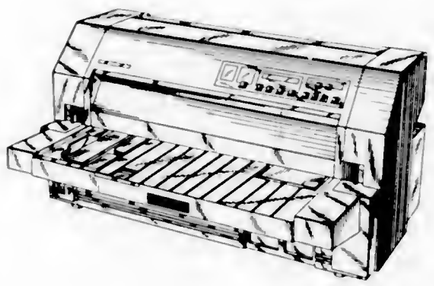


335,893
PEN
James Hu, Shin-Tien, Taiwan, assignor to Pro Eton Corporation, Taipei, Taiwan
Filed Nov. 15, 1991, Ser. No. 792,754
Term of patent 14 years
U.S. Cl. D19—43

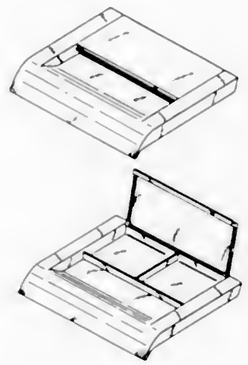


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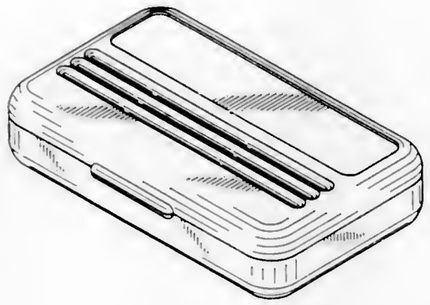
335,894
DESIGN FOR PRINTER FOR ELECTRONIC COMPUTER
Hayato Nishikaze, and Noritaka Uchibori, both of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Nov. 27, 1990, Ser. No. 620,584
Claims priority, application Japan, May 28, 1990, 2-17782
Term of patent 14 years
U.S. Cl. D18—55



335,895
DESK ORGANIZER
Eric P. Chan, New York, N.Y., assignor to American Trading & Production Corporation, Baltimore, Md.
Filed Dec. 26, 1991, Ser. No. 814,277
Term of patent 14 years
U.S. Cl. D19—75



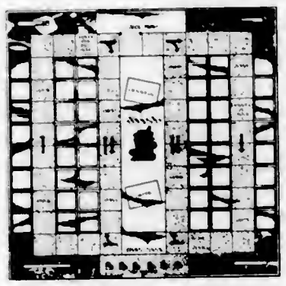
335,896
PENCIL BOX
Mel Evenson, San Pedro, Calif., assignor to Rubbermaid Office Products Group Inc., Maryville, Tenn.
Filed Dec. 13, 1991, Ser. No. 806,464
Term of patent 14 years
U.S. Cl. D19—83



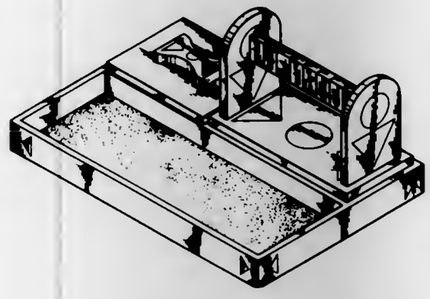
335,897
WINE GLASS TAG
Jane Huckeba, 3131 Lafayette, Houston, Tex. 77005
Filed Jun. 11, 1991, Ser. No. 713,332
Term of patent 14 years
U.S. Cl. D20—22



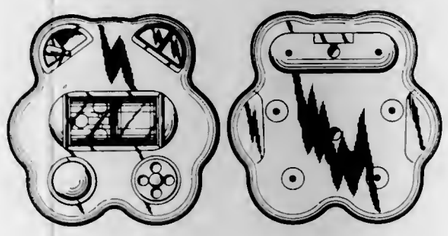
335,898
GAME BOARD
Domenic Trotta; Enzo Nicastro, and Tony Ottaviano, all of 225 Columbus Avenue, Woodbridge, Ontario, Canada L4L 7K3
Filed Jan. 16, 1991, Ser. No. 641,562
Claims priority, application Canada, Jul. 25, 1990, 2507909
Term of patent 14 years
U.S. Cl. D21—34



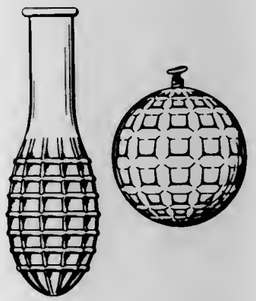
335,899
DICE GAME BOX
Leonardo Deluca, 22 Trump St., Daniels, W. Va. 25832
Filed Jul. 12, 1990, Ser. No. 551,609
Term of patent 14 years
U.S. Cl. D21—41



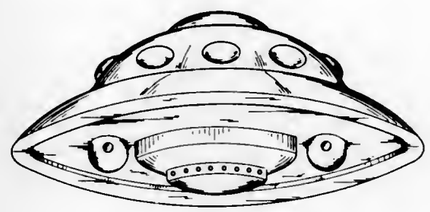
335,900
ACTIVITY TOY
Naoko Oshimi, Tokyo, Japan, assignor to Tomy Company, Ltd., Tokyo, Japan
Filed Feb. 8, 1991, Ser. No. 652,915
Claims priority, application Japan, Aug. 9, 1990, 2-27045
Term of patent 14 years
U.S. Cl. D21—59



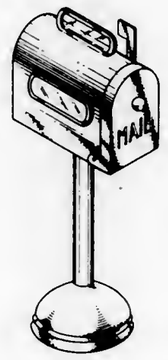
335,901
BALLOON
H. Ross Gill, III, 1074 Orange Township Rd. 713, Ashland, Ohio 44805
Filed Aug. 26, 1991, Ser. No. 750,025
Term of patent 14 years
U.S. Cl. D21—84



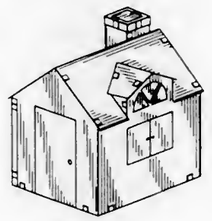
335,902
FLYING SAUCER TOY
Gen-Chuan Tsai, P.O. Box 705, Taipei, Taiwan 10098
Filed Sep. 9, 1991, Ser. No. 756,761
Term of patent 14 years
U.S. Cl. D21—87



335,903
TOY MAILBOX
Tommy L. Swindle, 4540 Union PL, Flowery Branch, Ga. 30542
Filed Sep. 4, 1991, Ser. No. 754,688
Term of patent 14 years
U.S. Cl. D21—109



335,904
TOY HOUSE
T. A. Krebs, Englewood, Fla., assignor to Brown Box Too, Inc., Englewood, Fla.
Filed Sep. 26, 1991, Ser. No. 754,694
Term of patent 14 years
U.S. Cl. D21—114

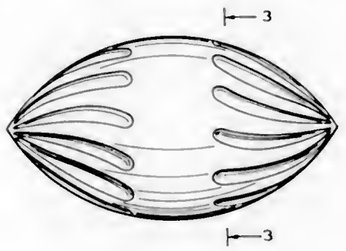


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335,905
CROSS-COUNTRY SKI SIMULATOR EXERCISER
Weston L. Cutter, Mendota Heights; Timothy S. Engel, Mound, and James R. Bostic, Waconia, all of Minn., assignors to NordicTrack, Inc., Chaska, Minn.
Filed May 6, 1991, Ser. No. 695,752
Term of patent 14 years
U.S. Cl. D21—191



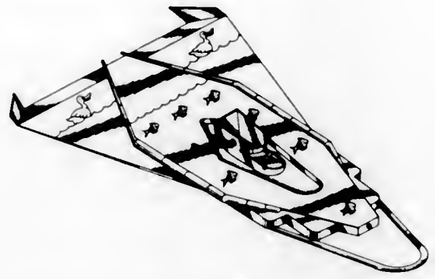
335,906
FOOTBALL TOY
Marvin Hellerman, Great Neck, N.Y., assignor to Marvlee Inc., North Lindenhurst, N.Y.
Filed Mar. 21, 1991, Ser. No. 673,103
Term of patent 14 years
U.S. Cl. D21—205



335,907
ALIGNMENT SYSTEM ELEMENTS OF A GOLF PUTTER
Nicholas J. Francu, 406 Iveys Scenic Dr., Albany, Ga. 31707
Filed Jun. 7, 1990, Ser. No. 535,348
The portion of the term of this patent subsequent to Mar. 19, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D21—219



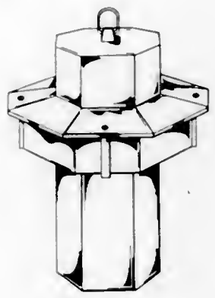
335,908
CHILD'S FLOAT
Terisa D. Jackson, 2 Park Pl. B1D, Newburgh, N.Y. 12550
Filed Dec. 7, 1990, Ser. No. 624,264
Term of patent 14 years
U.S. Cl. D21—237



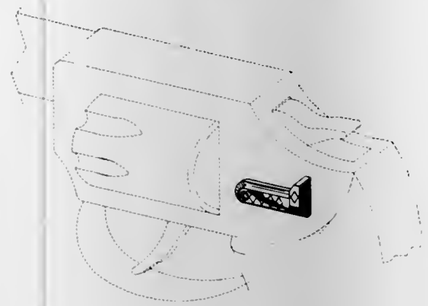
335,909
ELECTRONIC MULTIPLE ACTIVITY TOY HOUSING
Lanette O. Swanson, Buffalo Grove, Ill., and Donny C. K. Leung, Tai Koo Shing, Hong Kong, assignors to Video Technology Industries, Inc., Wheeling, Ill.
Filed Oct. 30, 1990, Ser. No. 606,334
Term of patent 14 years
U.S. Cl. D21—242



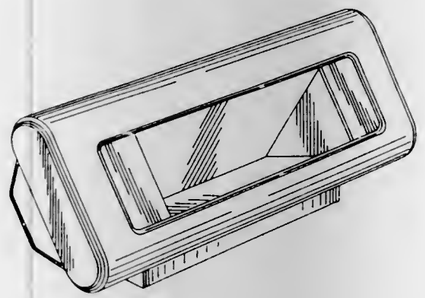
335,910
COMBINED INSECT ATTRACTING AND CAPTURING LANTERN
Joseph M. Cheshire, Jr., Riverdale, Ga., assignor to Bugvac U.S.A., Inc., Atlanta, Ga.
Filed Jun. 11, 1991, Ser. No. 714,072
Term of patent 14 years
U.S. Cl. D22—123



335,911
REVOLVER CYLINDER RELEASE LEVER
Donald L. Militello, 4711 E. Angela Dr., Phoenix, Ariz. 85032
Filed Feb. 15, 1991, Ser. No. 655,957
Term of patent 14 years
U.S. Cl. D22—108



335,912
INSECT TRAP
Jeffrey K. Brown; William L. Crown; Ronald R. Dir; Edward J. Lazzeroni, Sr., and John F. Quella, all of Racine, Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.
Filed Feb. 21, 1991, Ser. No. 660,117
Term of patent 14 years
U.S. Cl. D22—122



335,913
FISHING LURE
Michael C. Norris, 6001 Longview St., Massillon, Ohio 44646
Filed Mar. 14, 1991, Ser. No. 669,238
Term of patent 14 years
U.S. Cl. D22—129



335,914
FISH SNARE
Hamilton M. Walker, 10745 SW. 220th St., Goulds, Fla. 33170
Filed Sep. 13, 1991, Ser. No. 758,962
Term of patent 14 years
U.S. Cl. D22—134

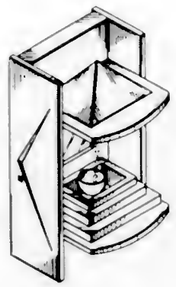


335,915
FISHING POLE HOLDER
Carson E. Hoerl, 4198 Atwood St., Mempbis, Tenn. 38111
Filed Mar. 7, 1991, Ser. No. 665,728
Term of patent 14 years
U.S. Cl. D22—147

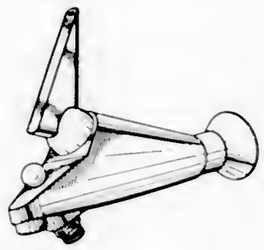


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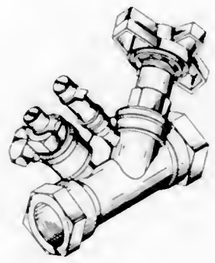
335,916
HOUSING FOR FLUID OPTICAL ILLUSION DISPLAY
L. Kenneth Rosenthal, 10306 Rossbury Pl., Los Angeles, Calif. 90064
Filed Jul. 2, 1990, Ser. No. 546,784
Term of patent 14 years
U.S. Cl. D23—201



335,917
COMBINED FAUCET AND DIVERTER VALVE
Philippe Chretien, Dietlikon, Switzerland, assignor to KWC AG, Unterkulm, Switzerland
Filed Oct. 9, 1990, Ser. No. 594,209
Claims priority, application World Int. Prop. O., Apr. 9, 1990, DM/016382
Term of patent 14 years
U.S. Cl. D23—238



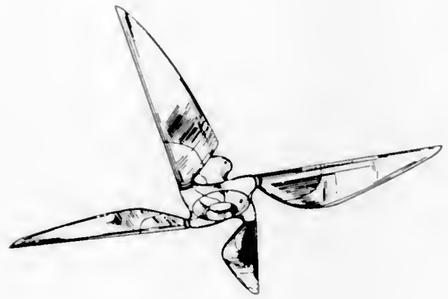
335,918
COMBINED CHECK AND CONTROL VALVE
Leif Glansk, Fristad, Sweden, assignor to Tour & Andersson AB, Sweden
Filed Jul. 13, 1990, Ser. No. 552,596
Claims priority, application Sweden, Jan. 15, 1990, 900074
Term of patent 14 years
U.S. Cl. D23—245



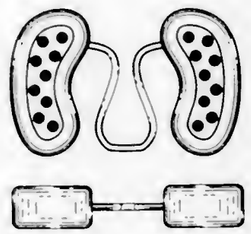
335,919
SPOUT
David J. O'Connell, Sturgeon Bay, Wis., assignor to Kohler Co., Kohler, Wis.
Filed Jan. 11, 1991, Ser. No. 639,957
Term of patent 14 years
U.S. Cl. D23—255



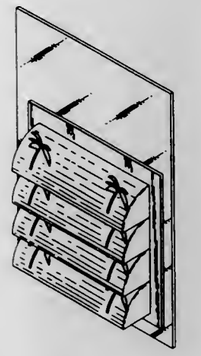
335,920
COMBINED CEILING FAN AND LIGHT
Eduard A. Jaeger, 19000 Wyandotte St., Reseda, Calif. 91335
Filed Jun. 15, 1992, Ser. No. 898,883
Term of patent 14 years
U.S. Cl. D23—377



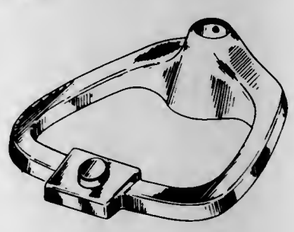
335,921
NOSE FILTER
Barbara L. Brake, 201 Melonie Dr., Piedmont, S.C. 29673
Filed Aug. 14, 1991, Ser. No. 745,103
Term of patent 14 years
U.S. Cl. D23—365



335,922
VENT PANEL
James J. Williams, 2330 S. Pacific, Boise, Id. 83705
Filed Jul. 18, 1991, Ser. No. 731,897
Term of patent 14 years
U.S. Cl. D23—393



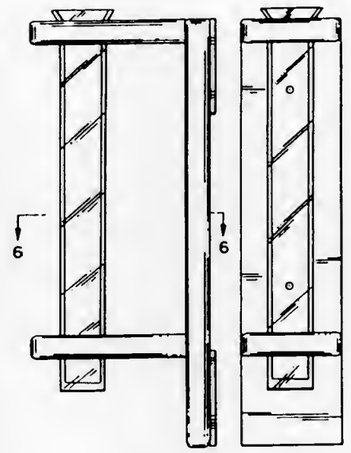
335,923
BASE FOR AN ELECTRIC FAN
Joseph M. Cunning, Cohasset, Mass., assignor to Holmes Products Corp., Milford, Mass.
Filed Feb. 10, 1992, Ser. No. 833,404
Term of patent 14 years
U.S. Cl. D23—411



335,924
URINE TUBE
Leif Nilsson, Blabarsvagen 1, S-260 40 Viken, Sweden
Filed Apr. 30, 1991, Ser. No. 693,423
Claims priority, application Sweden, Oct. 31, 1990, 90-2345
Term of patent 14 years
U.S. Cl. D24—122

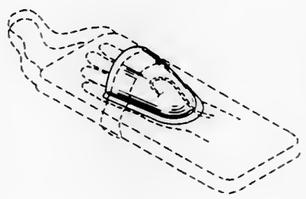


335,925
ENDOSCOPE HOLDER
Richard Newman, 69 S. Alward Ave., Basking Ridge, N.J. 07920
Filed Mar. 15, 1991, Ser. No. 670,163
Term of patent 14 years
U.S. Cl. D24—128





335,926
SHIELD FOR I.V. SITES
Betty M. Rozier, 7400 Foxmont, Hazelwood, Mo. 63042, and Lisa M. Vallino, 6550 Dale, St. Louis, Mo. 63139
Filed Jan. 28, 1991, Ser. No. 648,617
Term of patent 14 years
U.S. Cl. D24—130



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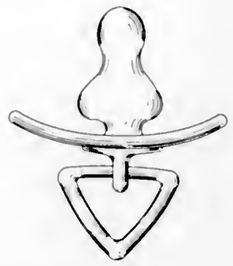
335,927
OTOSCOPE
Paul A. Burgio, 4279 Brigadoon Dr., Shoreview, Minn. 55126, and Randall C. Nelms, Jr., 15 Ridge Rd., North Oaks, St. Paul, Minn. 55127
Filed May 31, 1991, Ser. No. 708,614
Term of patent 14 years
U.S. Cl. D24—137



335,928
COMBINED PACIFIER AND RATTLE
Joe Williams, 440 W. 41st St. Apt. 3H, New York, N.Y. 10036
Filed Nov. 18, 1991, Ser. No. 780,269
Term of patent 14 years
U.S. Cl. D24—194



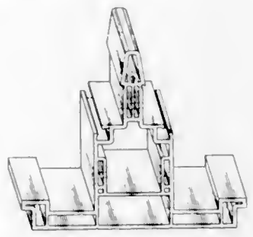
335,929
LUMINESCENT PACIFIER
Joan T. Cunningham, and James Cunningham, both of 9 Pea Pond La., Briarcliff Manor, N.Y. 10510
Filed Dec. 7, 1990, Ser. No. 623,542
Term of patent 14 years
U.S. Cl. D24—194



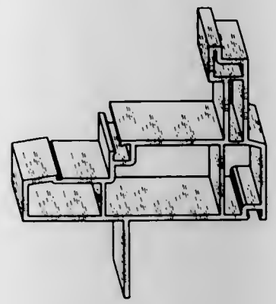
335,930
CENTRIFUGE
Kenji Tominaga, Tokyo, Japan, assignor to Tomy Seiko Co., Ltd., Tokyo, Japan
Filed Jun. 3, 1991, Ser. No. 709,445
Claims priority, application Japan, Dec. 4, 1990, 2-40661
Term of patent 14 years
U.S. Cl. D24—219



335,931
WINDOW COMPONENT EXTRUSION
Douglas L. Cole, Seattle, Wash., assignor to Mikron Industries, Kent, Wash.
Filed May 30, 1991, Ser. No. 707,409
Term of patent 14 years
U.S. Cl. D25—124



335,932
WINDOW COMPONENT EXTRUSION
Douglas L. Cole, Seattle, Wash., assignor to Mikron Industries, Kent, Wash.
Filed Aug. 14, 1991, Ser. No. 744,795
Term of patent 14 years
U.S. Cl. D25—124



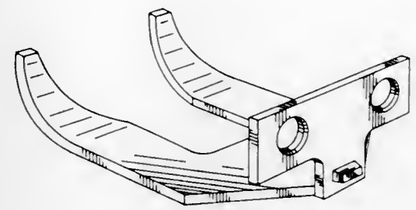
335,933
DESK LAMP
Roger Yang, Taipei, Taiwan, assignor to Be-Yang Industrial Corp., Taiwan
Filed Oct. 24, 1991, Ser. No. 782,441
Term of patent 14 years
U.S. Cl. D26—107



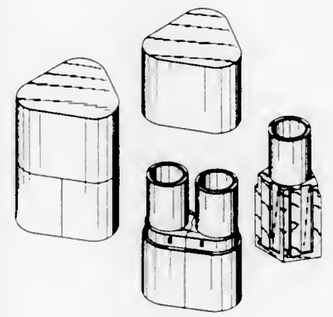
335,934
TOBACCO-IMPREGNATED TOOTHPICK
Ralph E. Howard, 16111 Linden Rd., Argos, Ind. 46501
Filed May 16, 1991, Ser. No. 700,927
Term of patent 14 years
U.S. Cl. D28—64



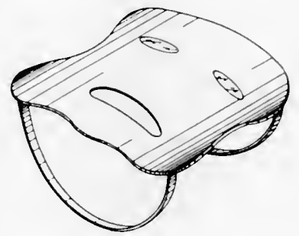
335,935
SUPPORT BRACKET FOR A HOUSEHOLD APPLIANCE SUCH AS A HAIR DRYER
George A. Rouail, Chicago, Ill., assignor to Victoria Rouail, Chicago, Ill.
Filed Mar. 25, 1991, Ser. No. 674,039
Term of patent 14 years
U.S. Cl. D28—73



335,936
LIPSTICK CASE
Kun-Lan Lou, Changhua City, Taiwan, assignor to Jia Hsing Enterprise Co., Ltd., Taiwan
Filed Nov. 16, 1990, Ser. No. 614,649
Term of patent 14 years
U.S. Cl. D28—86



335,937
FACE MASK
Michael R. Owens, 40 Bobbie Dr., Ivyland, Pa. 18974
Filed Aug. 7, 1990, Ser. No. 563,333
Term of patent 14 years
U.S. Cl. D29—8

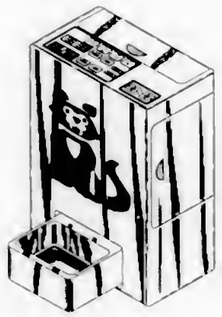


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335,938
FINGER PROTECTOR
Hing K. Kam, 64 Rivergrove Dr., Scarborough, Ontario, Canada M1W 3T9
Filed Aug. 15, 1991, Ser. No. 745,798
Term of patent 14 years
U.S. Cl. D29—20



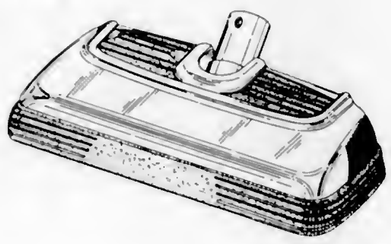
335,939
PET FEEDER
Teresa A. Cooper, 733 Bishop St., Ste. 170-437, Honolulu, Hi. 96813
Filed Oct. 7, 1991, Ser. No. 772,590
Term of patent 14 years
U.S. Cl. D30—122



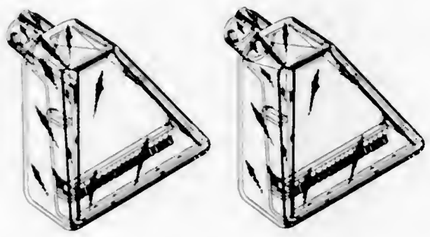
335,940
PET FEEDING DISH
Sandra L. McGrath, and Philip M. McGrath, both of 1959 Shipway Ave., Long Beach, Calif. 90815
Filed Jun. 21, 1991, Ser. No. 718,859
Term of patent 14 years
U.S. Cl. D30—130



335,941
POWER NOZZLE FOR VACUUM CLEANER
Michael F. Wright, Cuyahoga Falls; Craig M. Saunders, Rocky River; Paul D. Stephens, Cleveland Heights; Mark E. Cipolla, Middlefield, and Richard C. Farone, Wickliffe, all of Ohio, assignors to Royal Appliance Mfg. Co., Cleveland, Ohio
Filed Nov. 26, 1991, Ser. No. 798,429
Term of patent 14 years
U.S. Cl. D32—32



335,942
NOZZLE FOR A CLEANING DEVICE
Kent J. Furcron, Bristol, Va., assignor to TRC Aquisition Corporation, Atlanta, Ga.
Filed Jul. 15, 1991, Ser. No. 730,254
Term of patent 14 years
U.S. Cl. D32—32



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 25TH DAY OF MAY, 1993

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Ahlstrom Corporation: *See*—
Ahvenainen, Arto J., 5,213,496, Cl. 432-103.000.
A. B. Chance Company: *See*—
Seider, Gary L.; Odom, J. T.; and Holdeman, M. L., 5,213,448, Cl. 405-230.000.
A. Raymond & Cie: *See*—
Moretti, Erminio, 5,213,290, Cl. 248-56.000.
A/S Jens Villadsens Fabriker: *See*—
Holbek, John V.; and Beck, Bjarne K., 5,213,278, Cl. 242-94.000.
AB Tumba Bruk: *See*—
Hansell, Erik, 5,213,664, Cl. 162-134.000.
ABB Air Preheater, Inc.: *See*—
Cox, William C., 5,213,152, Cl. 165-5.000.
ABB Atom AB: *See*—
Ohman, Lennart, 5,213,757, Cl. 376-261.000.
Abbott Laboratories: *See*—
Dellaria, Joseph F.; Brooks, Dee W.; Moore, Jimmie L.; and Sallin, Kevin J., 5,214,204, Cl. 562-623.000.
Luly, Jay R.; Plattner, Jacob J.; and Kempf, Dale J., 5,214,129, Cl. 530-331.000.
Nardelli, Christy A.; Hogarth, Arthur J. C. L.; Simpson, James M.; Daab-Krzykowski, Andre; and Mazer, Terrence B., 5,213,835, Cl. 426-580.000.
Abdi, Behrooz L., to Motorola, Inc. Monotonic pulse detector. 5,214,319, Cl. 307-351.000.
Abe, Akira; Sumiya, Satoshi; Takahashi, Yoshikazu; Yoshida, Kiyohide; and Muramatsu, Gyo, to Kabushiki Kaisha Riken. Method of cleaning nitrogen oxide containing exhaust gas. 5,213,781, Cl. 423-239.000.
Abe, Atsushi: *See*—
Minohara, Kiyomi; Abe, Atsushi; and Niidome, Toshihiro, 5,214,426, Cl. 341-13.000.
Abe, Hiroaki: *See*—
Tomita, Mamoru; Kawase, Kouzou; Tamura, Yoshitaka; Takase, Mitsunori; Miyakawa, Hiroshi; Yamauchi, Koji; Saito, Hitoshi; Abe, Hiroaki; Shimamura, Seiichi; and Kobayashi, Susumu, 5,214,028, Cl. 514-6.000.
Abe, Hiroshi: *See*—
Okuno, Noboru; Sei, Masahiro; and Abe, Hiroshi, 5,212,906, Cl. 47-62.000.
Abe, Norihiro; and Miyagawa, Tatsuyuki, to Reliance Electric Ltd. Sheet dimension measurement system. 5,214,490, Cl. 356-383.000.
Abe, Takao; Nakazato, Yasuaki; and Uchiyama, Atsuo, to Shin-Etsu Handotai Kabushiki Kaisha. Method for making uniform the thickness of a Si single crystal thin film. 5,213,657, Cl. 156-631.000.
Abe, Yoshiharu; and Hotta, Naoki, to Honda Giken Kogyo Kabushiki Kaisha. Fuel injection control system for internal combustion engine. 5,213,082, Cl. 123-491.000.
Abele, Manfred; Buysch, Hans-Josef; Schrage, Heinrich; and Vernaleken, Hugo, to Bayer Aktiengesellschaft. Use of certain phenolic resins for reinforcing rubber vulcanizates. 5,214,100, Cl. 525-151.000.
Abele, Werner, to Du Pont de Nemours, E. I., and Company. Photopolymerizable printing plate for flexographic printing. 5,213,948, Cl. 430-272.000.
Abiuso, Christopher L.; and Leone, James E., to Cordis Corporation. Therapeutic porous balloon catheter. 5,213,576, Cl. 604-96.000.
Abplanalp, Robert H.; and Naku, Virgil, to Precision Valve Corporation. Aerosol container closure. 5,213,231, Cl. 220-614.000.
ACB: *See*—
Legouis, Thierry; de Larminat, Philippe; and Guglielmi, Michel, 5,213,184, Cl. 188-378.000.
Accumulatorenwerke Hoppecke Carl Zoellner & Sohn GmbH & Co. KG: *See*—
Vogel, Karl-Wilhelm, 5,212,867, Cl. 29-623.100.
Acks, Robert S., to Remote Ocean Systems, Inc. Method and apparatus for illuminating an underwater environment. 5,213,410, Cl. 362-269.000.
Aco Polymer Products, Inc.: *See*—
Barenwald, Jorg R., 5,213,438, Cl. 404-2.000.
Acoustic Imaging Technologies Corp.: *See*—
Martin, Glenn; and Ekhlassi, Hamid, 5,213,103, Cl. 128-660.070.
Adachi, Kazumi: *See*—
Oroku, Noriyuki; Suzuki, Takamichi; Hamada, Toyohide; Ikeda, Minoru; Kikuchi, Hiroshi; Akaiwa, Masayasu; Takahashi, Isao; Takehara, Naoki; and Adachi, Kazumi, 5,213,176, Cl. 180-168.000.
Adachi, Keiichi, to Fuji Photo Film Co., Ltd. Silver halide photographic light-sensitive materials. 5,213,957, Cl. 430-522.000.
Adachi, Masato: *See*—
Kawaguchi, Etsuji; Adachi, Masato; Taira, Masayuki; and Watanabe, Eiichi, 5,212,953, Cl. 62-47.100.
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Ahmed, Iqbal; and Hsieh, Henry L., to Phillips Petroleum Company. Grafted copolymers highly absorbent to aqueous electrolyte solutions. 5,214,117, Cl. 527-309.000.

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Iwamoto, Keiji: *See*—
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Iwamura, Goro; Konno, Hidetoshi; and Shoji, Akio, to Dainippon Ink and Chemicals, Inc. Process for producing nonaqueous dispersion-type resin. 5,214,080, Cl. 523-336.000.

Iwanaga, Koichi: *See*—
Minamida, Isao; Iwanaga, Koichi; and Okauchi, Tetsuo, 5,214,152, Cl. 548-181.000.

Iwasaki, Hiroaki: *See*—
Hanatani, Yasuyuki; and Iwasaki, Hiroaki, 5,213,926, Cl. 430-59.000.

Iwasaki, Kazutaka; Ikoma, Munehisa; Ikeyama, Masakazu; Kawano, Hiroshi; and Matsumoto, Isao, to Matsushita Electric Industrial Co., Ltd. Method of making a separator material for a storage battery. 5,213,722, Cl. 264-22.000.

Iwase, Masayuki: *See*—
Irikawa, Michinori; and Iwase, Masayuki, 5,214,662, Cl. 372-46.000.

Iwata, Hiroshi: *See*—
Noguchi, Shigeru; Iwata, Hiroshi; and Sano, Keiichi, 5,213,628, Cl. 136-255.000.

Iwata, Kazuya, to Canon Kabushiki Kaisha. Suction recovery device and ink jet recording apparatus with the device. 5,214,447, Cl. 346-140.00R.

Iwata, Masuo: *See*—
Fukumura, Chikashi; Inoue, Kouji; Iwata, Masuo; Narita, Noriaki; and Tanaka, Masaya, 5,213,783, Cl. 423-305.000.

Iwata, Noriyuki; Yamagata, Naoyuki; Uesugi, Tatsuya; and Matsubara, Taiji, to Mazda Motor Corporation. Support structure for cam shafts. 5,213,071, Cl. 123-90.270.

Iwata, Toshio: *See*—
Kodama, Seiki; Ueda, Atsushi; Iwata, Toshio; Tada, Yasuo; Mitani, Tateki; Hatazawa, Yasuyoshi; Bessho, Mikio; and Hase, Yuji, 5,212,989, Cl. 73-706.000.

Iwatani Plantech Kabushiki Kaisha: *See*—
Kawaguchi, Etsuji; Adachi, Masato; Taira, Masayuki; and Watanabe, Eiichi, 5,212,953, Cl. 62-47.100.

Iwatani Sangyo Kabushiki Kaisha: *See*—
Kawaguchi, Etsuji; Adachi, Masato; Taira, Masayuki; and Watanabe, Eiichi, 5,212,953, Cl. 62-47.100.

Iwatsu Electric Co., Ltd.: *See*—
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Izaguirre, Saul N.: *See*—
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Izaiku, Hiroumi; Akimoto, Shin-ichi; Ishizaki, Takaharu; Kubo, Yoshifumi; and Yasukohchi, Tohru, to Nippon Oil and Fats Co., Ltd. Formal compounds, fuel oil additives, and fuel oil compositions. 5,213,584, Cl. 44-433.000.

Izod, Thomas P.; Berenbaum, Morris B.; and Litt, Morton H., to Allied-Signal Inc. Method for removal of spinning solvent from spun fiber. 5,213,745, Cl. 264-203.000.

Izumi, Hiroyuki: *See*—
Ishida, Hiroaki; Nemoto, Ichiro; and Izumi, Hiroyuki, 5,214,463, Cl. 354-247.000.

Izumi, Shuji: *See*—
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Clara, Jean-Louis; Jachimczyk, Philippe; Le Pennec, Jean-Freancois; Massiera, Louis; and Therias, Philippe, 5,214,771, Cl. 395-500.000.

Jacks, Allan J.: *See*—
Fishman, Oleg S.; Jacks, Allan J.; Pipitone, Robert T.; and Remalia, David L., 5,213,200, Cl. 198-763.000.

Jackson, David P.; and Lepp, Michael A. Processes for cleaning, sterilizing, and implanting materials using high energy dense fluids. 5,213,619, Cl. 134-1.000.

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Ricchio, Samuel G.; Jackson, Delbert D.; Barker, Stephen F.; Buzza, Edmund E.; Shu, Frank R.; and Stone, John E., 5,213,762, Cl. 422-63.000.

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Jager, Wolfgang: *See*—
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Jalan, Vinod: *See*—
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Japan Tobacco Inc.: *See*—
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Jefferson, Stuart T. Trenching attachment for an earth moving bucket. 5,212,897, Cl. 37-103.000.

Jensen, Eric H., to Sun Microsystems, Inc. Method and apparatus for executing floating point instructions utilizing complimentary floating point pipeline and multi-level caches. 5,214,765, Cl. 395-425.000.

Jensen, Scott R., to Square D Company. Microprocessor watch-dog monitor for electronic trip units. 5,214,560, Cl. 361-93.000.

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Jeromson, Jeffrey T.; Brown, Cal R.; and Williams, Peter C., to Whitey Company. Valve with handle latch/lock. 5,213,308, Cl. 251-95.000.

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Kaneko, Kuniya, Suzuki, Tsunezi; and Naito, Tadashi, to Toyota Jidosha Kabushiki Kaisha. Control apparatus for an FMS line. 5,214,588, Cl. 364-468.000.

Kaneko, Masamoto, to Kinsei Sangyo Co., Ltd. Apparatus for incinerating waste material. 5,213,051, Cl. 110-229.000.

Kaneko, Yoshio, to Nifco Inc. Separable plastic fastener and method and apparatus for manufacturing thereof. 5,212,853, Cl. 24-452.000.

Kang, Sung-Chel; and Kim, Kyong-Man, to Samsung Electronics Co., Ltd. Vegetable box cooling apparatus for refrigerator. 5,212,962, Cl. 62-382.000.

Kanno, Kazunobu; Hamano, Satoru; and Kawamura, Mikio, to Asmo Co., Ltd. Link rod of wiper for motor vehicle and method of manufacturing the same. 5,213,008, Cl. 74-579.00R.

Kano, Toshiji; and Katayose, Kenji, to Hirose Electric Co., Ltd. Spring contact. 5,213,314, Cl. 267-163.000.

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Martin, Francis J.; Woodle, Martin C.; Redemann, Carl; and Yau-Young, Annie, to Liposome Technology, Inc. Solid tumor treatment method and composition. 5,213,804, Cl. 424-450.000.

Martin, Glenn; and Ekhlassi, Hamid, to Acoustic Imaging Technologies Corp. Apparatus for and method of cooling ultrasonic medical transducers by conductive heat transfer. 5,213,103, Cl. 128-660.070.

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Leport, Agostino; Zavatteri, Ignazio; and Cova, Mario, 5,214,081, Cl. 524-35.000.

Zaviska, Dalibor: *See*—
Reinartz, Hans D.; Volz, Peter; Schopper, Bernd, and Zaviska, Dalibor, 5,213,482, Cl. 417-273.000.

Zboril, Vaclav G., to Du Pont Canada Inc. Monitoring and control of process streams at elevated temperatures. 5,213,668, Cl. 204-153.100.

Zebco Corporation: *See*—
Puryear, John W., 5,213,279, Cl. 242-239.000.

Zeindler, Kurt, to Zewa AG. Apparatus for the treatment of diseases of the walls of openings orcavities of the body 5,213,097, Cl. 128-401.000.

Zenith Data Systems Corporation. *See*—
Perdue, Terry A.; and Poplewski, David, 5,214,364, Cl. 318-600.000.

Zenith Electronics. *See*—
Remec, Thomas M.; and Clarke, Ralph E., Jr., 5,214,350, Cl. 313-477.00R.

Zenner, Michael N., and Guertin, Richard J., to Toro Company, The. Mulching mower with obround cutting chamber 5,212,938, Cl 56-320.100.

Zentek Storage of America, Inc.: *See*—
Chan, John R., 5,214,550, Cl. 360-97.010

Zerbian, Erich; Froehlich, Paul; Neumann, Siegfried; Freitag, Richard; and Jachne, Hans-Joachim, to Siemens Aktiengesellschaft. Monitoring device with a switching mechanism. 5,214,559, Cl. 361-93.000.

Zewa AG: *See*—
Zeindler, Kurt, 5,213,097, Cl. 128-401.000.

Zexel-Gleason USA, Inc.: *See*—
May, Kenneth A., 5,213,177, Cl. 180-197.000.

Zheng, Yu. Method and apparatus for folding and collapsing objects supported by flexible loops. 5,213,147, Cl. 160-370.200.

Zhou, Ying; and Davis, Stephen M., to Exxon Research & Engineering Company Low pressure dehydrogenation of light paraffins. 5,214,227, Cl. 585-660.000.

Ziegenberg, Alfred; and Schiessle, Edmund, to Mercedes-Benz AG. Permanent magnet system with associated coil arrangement. 5,214,710, Cl. 381-199.000.

Zielinski, Ronald E.; and Seabury, Mark J., to Shamban, William S. Fluorination of articles molded from elastomers. 5,214,102, Cl. 525-192.000.

Zimmerman, Howard A.: *See*—
Hillard, Randy H.; Zimmerman, Howard A., Draney, Robert G.; and Hill, Virgil J., 5,212,896, Cl. 37-86.000.

Zimmerman, Michael A.: *See*—
Biswas, Ranjit; and Zimmerman, Michael A., 5,213,748, Cl. 264-251.000.

Zimmerman, Theodore S.; and Fulcher, Carol A., to Scripps Clinic & Research Foundation. Factor VIII coagulant polypeptides. 5,214,033, Cl. 514-21.000.

Zito, Nicholas J. Farrier squeeze trailer. 5,213,061, Cl. 119-101.000.

Zogg, Hans; and Wyss, Peter, to Flumroc AG. Method and apparatus for producing a compressible zone in at least one peripheral region of a mineral fiber sheet or batt for insulation against heat, sound and/or fire, and mineral fiber sheets produced by the method. 5,213,885, Cl. 428-280.000.

Zook, Jon C.: *See*—
Bourgeois, Robert A.; Zook, Jon C.; and Vandenberg, Cornelius A., 5,213,033, Cl. 101-116.000.

ZSK-Stickmaschinen-Gesellschaft Mit Beschrankter Haftung: *See*—
Webers, Uwe; and Woelfle, Paul, 5,213,053, Cl. 112-241.000.

Zsolnay, Andrew M.; and Bendarzewski, Robert H., deceased (by Bendarzewski, Alexandra, legal representative), to Zsolnay, Andrew M. Precision method for placing filaments. 5,213,646, Cl. 156-166.000.

Zupanski, Stanimir T.: *See*—
Calhoun, Jeffrey; and Zupanski, Stanimir T., 5,212,992, Cl. 73-864.010.

Zurecki, Zbigniew; Hayduk, Edward A., Jr.; North, John G.; Swan, Robert B.; and Berger, Kerry R., to Air Products and Chemicals, Inc. Method of producing titanium nitride coatings by electric arc thermal spray. 5,213,848, Cl. 427-449.000.

Zurfluh, Erwin: *See*—
Van As, Harmen; Lemppenau, Wolfram; and Zurfluh, Erwin, 5,214,649, Cl. 370-110.100.

Zurfluh, Rene : *See*—
Guerry, Philippe; Jolidon, Synese; and Zurfluh, Rene , 5,214,046, Cl. 514-255.000.

Zygmunt Alexander Kunczynski: *See*—
Kunczynski, Jan K., 5,213,048, Cl. 105-149.200.

Zytkovicz, Duane; McEvoy, Thomas J.; and Brucker, Gregory G., to Burron Cardiovascular, a Division of B. Braun Medical, Inc. Inflation system for a balloon catheter. 5,213,115, Cl. 128-898.000.

Zyvoloski, Kevin M.: *See*—
Arnold, Lisa R.; Bealkowski, Richard; Blackledge, John W., Jr.; Cronk, Doyle S.; Dayan, Richard A.; Geisler, Douglas R.; Mittelstedt, Matthew T.; Palka, Matthew S., Jr.; Paul, John D.; Sachsenmaier, Robert, Smeltzer, Kenneth D.; Woytovech, Peter A.; and Zyvoloski, Kevin M., 5,214,695, Cl. 380-4.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 25TH DAY OF MAY, 1993

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Benn, Raymond C.; Mirchandani, Prakash K.; and Mattson, Walter E., to Inco Alloys International, Inc. High modulus Al alloys. Re. 34,262, Cl. 148-437.000.

Chisso Corporation: *See*—
Goto, Yasuyuki; and Ogawa, Tetsuya, Re. 34,264, Cl. 252-299.630.

Eaton Corporation: *See*—
Markyvech, Ronald K.; and Genise, Thomas A., Re. 34,260, Cl. 74-335.000.

Foster, John W.; and Fryda, Lawrence J., to Illinois State University. Groundwater azimuth detection. Re. 34,265, Cl. 356-28.000.

Fryda, Lawrence J.: *See*—
Foster, John W.; and Fryda, Lawrence J., Re. 34,265, Cl. 356-28.000.

Genise, Thomas A.: *See*—
Markyvech, Ronald K.; and Genise, Thomas A., Re. 34,260, Cl. 74-335.000.

Goto, Yasuyuki; and Ogawa, Tetsuya, to Chisso Corporation. Tolan derivative and a liquid crystal mixture containing the same. Re. 34,264, Cl. 252-299.630.

Haytayan, Harry M. Disk for carrying propellant charges. Re. 34,258, Cl. 42-89.000.

Illinois State University: *See*—
Foster, John W.; and Fryda, Lawrence J., Re. 34,265, Cl. 356-28.000.

Inco Alloys International, Inc.: *See*—
Benn, Raymond C.; Mirchandani, Prakash K.; and Mattson, Walter E., Re. 34,262, Cl. 148-437.000.

Kick, James: *See*—
vanKerkhoven, John, deceased; Kick, James; and Kick, James, Re. 34,263, Cl. 220-253.000.
vanKerkhoven, John, deceased; Kick, James; and Kick, James, Re. 34,263, Cl. 220-253.000.

Markyvech, Ronald K.; and Genise, Thomas A., to Eaton Corporation. Dual pressure pressurized fluid actuated shifting mechanism. Re. 34,260, Cl. 74-335.000.

Mattson, Walter E.: *See*—
Benn, Raymond C.; Mirchandani, Prakash K.; and Mattson, Walter E., Re. 34,262, Cl. 148-437.000.

Mirchandani, Prakash K.: *See*—
Benn, Raymond C.; Mirchandani, Prakash K.; and Mattson, Walter E., Re. 34,262, Cl. 148-437.000.

Ogawa, Tetsuya: *See*—
Goto, Yasuyuki; and Ogawa, Tetsuya, Re. 34,264, Cl. 252-299.630.

Rockenfeller, Uwe, to Rocky Research. System for low temperature refrigeration and chill storage using ammoniated complex compounds. Re. 34,259, Cl. 62-4.000.

Rocky Research: *See*—
Rockenfeller, Uwe, Re. 34,259, Cl. 62-4.000.

Specialty Packaging Group, Inc., The: *See*—
vanKerkhoven, John, deceased; Kick, James; and Kick, James, Re. 34,263, Cl. 220-253.000.

Sule, Akos. Solenoid valve. Re. 34,261, Cl. 137-625.500.

vanKerkhoven, John, deceased (by vanKerkhoven, Lois M., personal representative); Kick, James; and Kick, James, to Specialty Packaging Group, Inc., The. End closure having a push open lid portion. Re. 34,263, Cl. 220-253.000.

vanKerkhoven, Lois M., personal representative: *See*—
vanKerkhoven, John, deceased; Kick, James; and Kick, James, Re. 34,263, Cl. 220-253.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Arthur A. Collins, Inc.: *See*—
Collins, Arthur A.; Bellamy, John C., II; and Christensen, Richard L., B1 3,956,593, Cl. 370-63.000.

Asahi Kogaku Kogyo Kabushiki: *See*—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, B1 4,944,030, Cl. 354-403.000.

Bausch & Lomb Incorporated: *See*—
Markovitz, Aaron M.; and Ramp, Robert H., B1 8,273,794, Cl. D16-112.000.

Bellamy, John C., II: *See*—
Collins, Arthur A.; Bellamy, John C., II; and Christensen, Richard L., B1 3,956,593, Cl. 370-63.000.

Bergeron, Gary A., to Calcomp Inc. Apparatus and method for determining the position of a driven coil within a grid of spaced conductors. B1 4,423,286, 5-25-93, Cl. 178-19.000.

Calcomp Inc.: *See*—
Bergeron, Gary A., B1 4,423,286, Cl. 178-19.000.

Christensen, Richard L.: *See*—
Collins, Arthur A.; Bellamy, John C., II; and Christensen, Richard L., B1 3,956,593, Cl. 370-63.000.

Collins, Arthur A.; Bellamy, John C., II; and Christensen, Richard L., to Arthur A. Collins, Inc. Time space time (TST) switch with combined and distributed state store and control store. B1 3,956,593, 5-25-93, Cl. 370-63.000.

Cutts, Richard W., Jr.; Mehta, Nikhil A.; and Jewett, Douglas E., to Tandem Computers Incorporated. Multiple processor system having shared memory with private-write capability. B1 4,965,717, 5-25-93, Cl. 395-575.000.

Fredberg, Jeffrey J., to Fredberg, Jeffrey J. Acoustic pulse response measuring. B1 4,326,416, 5-25-93, Cl. 128-720.000.

Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, to Asahi Kogaku Kogyo Kabushiki. Lens shutter camera including zoom lens. B1 4,944,030, 5-25-93, Cl. 354-403.000.

Ishii, Haruo: *See*—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, B1 4,944,030, Cl. 354-403.000.

Jewett, Douglas E.: *See*—
Cutts, Richard W., Jr.; Mehta, Nikhil A.; and Jewett, Douglas E., B1 4,965,717, Cl. 395-575.000.

Knobbe, Alan J.: *See*—
Wacker, Robert L.; Shuster, Donald E.; Sharpless, John; Knobbe, Alan J.; and Murphy, James C., B1 4,887,770, Cl. 239-703.000.

Kobayashi, Takeo: *See*—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, B1 4,944,030, Cl. 354-403.000.

Kohmoto, Shinsuke: *See*—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, B1 4,944,030, Cl. 354-403.000.

Kondoh, Shigeru: *See*—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, B1 4,944,030, Cl. 354-403.000.

Markovitz, Aaron M.; and Ramp, Robert H., to Bausch & Lomb Incorporated. Sunglasses. B1 8,273,794, 5-25-93, Cl. D16-112.000.

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Matsuo, Hirofumi: *See—*
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, Bl 4,944,030, Cl 354-403.000.

Mauser-Werke GmbH: *See—*
Przytulla, Dietmar, Bl 5,033,639, Cl. 220-604.000.

Mehta, Nikhil A.: *See—*
Cutts, Richard W., Jr.; Mehta, Nikhil A.; and Jewett, Douglas E., Bl 4,965,717, Cl. 395-575.000.

Murphy, James C.: *See—*
Wacker, Robert L.; Shuster, Donald E., Sharpless, John; Knobbe, Alan J , and Murphy, James C., Bl 4,887,770, Cl 239-703.000.

Nakamura, Susao: *See—*
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, Bl 4,944,030, Cl 354-403.000.

Nishio, Etsuro: *See—*
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, Bl 4,944,030, Cl. 354-403.000.

Nomura, Katsuhiko: *See—*
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, Bl 4,944,030, Cl. 354-403.000.

Nordson Corporation: *See—*
Wacker, Robert L.; Shuster, Donald E., Sharpless, John; Knobbe, Alan J.; and Murphy, James C., Bl 4,887,770, Cl. 239-703.000.

Numako, Norio: *See—*
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, Bl 4,944,030, Cl. 354-403.000.

Ohkubo, Hideki: *See—*
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, Bl 4,944,030, Cl. 354-403.000.

Palmer, Douglas J., to SNE Enterprises, Inc. Window panel assembly. Bl 4,783,938, 5-25-93, Cl. 52-171.000.

Przytulla, Dietmar, to Mauser-Werke GmbH. Bunged vessel. Bl 5,033,639, 5-25-93, Cl. 220-604.000.

Ramp, Robert H.: *See—*
Markovitz, Aaron M.; and Ramp, Robert H., Bl 8,273,794, Cl. D16-112.000.

Sharpless, John: *See—*
Wacker, Robert L.; Shuster, Donald E.; Sharpless, John; Knobbe, Alan J ; and Murphy, James C., Bl 4,887,770, Cl. 239-703.000.

Shuster, Donald E.: *See—*
Wacker, Robert L.; Shuster, Donald E.; Sharpless, John; Knobbe, Alan J., and Murphy, James C., Bl 4,887,770, Cl. 239-703.000.

SNE Enterprises, Inc.: *See—*
Palmer, Douglas J., Bl 4,783,938, Cl. 52-171.000.

Steel, Thomas C. Integral carrying handle for a can carton and carton blank containing same. Bl 4,966,324, 5-25-93, Cl. 229-117.130.

Sugawara, Saburo: *See—*
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, Bl 4,944,030, Cl. 354-403.000.

Tandem Computers Incorporated: *See—*
Cutts, Richard W., Jr.; Mehta, Nikhil A.; and Jewett, Douglas E., Bl 4,965,717, Cl. 395-575.000.

Wacker, Robert L.; Shuster, Donald E.; Sharpless, John; Knobbe, Alan J., and Murphy, James C., to Nordson Corporation. Electrostatic rotary atomizing liquid spray coatings apparatus. Bl 4,887,770, 5-25-93, Cl. 239-703.000.

LIST OF DESIGN PATENTEES

Adair, Edward W.: *See—*
Mallory, John W. R.; Adair, Edward W.; and Mallory, William F., 335,771, Cl. D4-118.000.

Adamisin, Dennis A.: *See—*
Callaway, T. Matt; Pennell, James P.; Davis, Marie A., and Adamisin, Dennis A., 335,855, Cl. D12-181.000.

Adams, Raymond V. Table base. 335,789, 5-25-93, Cl. D6-495.000.

Aladdin Synergetics, Inc.: *See—*
Barnes, Ronnie J., 335,796, Cl. D7-553.000
DeGrow, Gary, 335,797, Cl. D7-553.000

Allibert S.A.: *See—*
Hubert, Manfred, 335,774, Cl. D6-361.000.
Lamalle, Christian, 335,775, Cl. D6-361.000.
Lamalle, Christian, 335,776, Cl. D6-368.000.

American Trading & Production Corporation: *See—*
Chan, Eric P., 335,895, Cl. D19-75.000

Ancona, Bruce; and Ancona, Jane, to M. Kamenstein, Inc. Kettle. 335,792, 5-25-93, Cl. D7-302.000.

Ancona, Bruce; and Ankona, Jane, to M. Kamenstein, Inc. Gadget organizer. 335,801, 5-25-93, Cl. D7-641.000.

Ancona, Jane: *See—*
Ancona, Bruce; and Ancona, Jane, 335,792, Cl. D7-302.000.

Anello, Salvatore, Jr., and Rauch, Edward A. Wrist support for a keyboard. 335,876, 5-25-93, Cl. D14-114.000.

Ankona, Jane: *See—*
Ancona, Bruce; and Ankona, Jane, 335,801, Cl. D7-641.000.

Appelbaum, Paul. Shackleless padlock. 335,813, 5-25-93, Cl. D8-334.000.

Armstrong World Industries, Inc.: *See—*
Moncrief, Barbara U.; and Schouten, Gerard M., 335,781, Cl. D6-409.000.

Asien, Dick-Ming. Handle for luggage or similar article. 335,810, 5-25-93, Cl. D8-306.000.

AST Research, Inc.: *See—*
Toedter, Peter K., 335,868, Cl. D14-106.000.

Bagit Limited: *See—*
Douglas, Shannar, 335,773, Cl. D6-336.000.

Baker, Scott W.: *See—*
Brauner, Arne H., Clancy, James R.; O'Grady, Shawn P., Jane, Rod B.; Pflager, Alden H., and Baker, Scott W., 335,818, Cl. D9-311.000.

Bankert, Richard D.: *See—*
Ross, Jerrold W.; and Bankert, Richard D., 335,830, Cl. D10-116.000.

Barnes, Ronnie J., to Aladdin Synergetics, Inc. Food serving tray 335,796, 5-25-93, Cl. D7-553.000.

Baus, Andre E. J.; and Schuster, Daniel E., to Goodyear Tire & Rubber Company, The. Tire tread and buttress. 335,842, 5-25-93, Cl. D12-146.000.

Be-Yang Industrial Corp.: *See—*
Yang, Roger, 335,933, Cl. D26-107.000.

Beckmann, Robert C.; and Lackey, Robert W., to McCalla Lackey Corporation. Special report television cabinet. 335,783, 5-25-93, Cl. D6-436.000.

Bengtson, Alan D.; Keeman, Michael M.; and Hytry, Renee , to Kohler Co. Handle. 335,811, 5-25-93, Cl. D8-310.000.

Bertani, Alberto, to ELESA S.p.A. Liquid level gauge. 335,829, 5-25-93, Cl. D10-101.000.

Birkholz, Douglas J., to Fiskars Oy Ab. Scissors. 335,807, 5-25-93, Cl. D8-57.000.

Botocchi, Maurizio; and Colombo, Gianfranco, to Pirelli Coordinamento Pneumatici S.p.A. Tire. 335,844, 5-25-93, Cl. D12-147.000.

Bonano, Luis. Automatic egg scrambler. 335,794, 5-25-93, Cl. D7-357.000.

Bostic, James R.: *See—*
Cutter, Weston L.; Engel, Timothy S.; and Bostic, James R., 335,905, Cl. D21-191.000.

Brake, Barbara L. Nose filter. 335,921, 5-25-93, Cl. D23-365.000.

Brauner, Arne H.; Clancy, James R.; O'Grady, Shawn P.; Jane, Rod B.; Pflager, Alden H.; and Baker, Scott W., to General Mills, Inc. Bottle. 335,818, 5-25-93, Cl. D9-311.000.

Bridgestone/Firestone, Inc.: *See—*
Guspodin, James G., 335,840, Cl. D12-141.000.

Brown Bos Too, Inc.: *See—*
Krebs, T. A., 335,904, Cl. D21-114.000.

Brown, Jeffrey K.; Crown, William L.; Dir, Ronald R.; Lazzeroni, Edward J., Sr.; and Quella, John F., to S. C. Johnson & Son, Inc. Insect trap. 335,912, 5-25-93, Cl. D22-122.000.

Bruno, Robert H.; Dubuque, Kenneth J.; and Melrose, David R., to Ingersoll-Rand Company. Electric motor driven nutrunner. 335,808, 5-25-93, Cl. D8-61.000.

Bugvac U.S.A., Inc.: *See—*
Cheshire, Joseph M., Jr., 335,910, Cl. D22-123.000.

Burgin, Al, to Cooper Industries, Inc. Self igniting refillable torch. 335,804, 5-25-93, Cl. D8-30.000.

Burgio, Paul A.; and Nelms, Randall C., Jr. Otoscope. 335,927, 5-25-93, Cl. D24-137.000.

Byron Morris. Communication handset. 335,881, 5-25-93, Cl. D14-248.000.

Callaway, T. Matt, Pennell, James P.; Davis, Marie A.; and Adamisin, Dennis A., to Navistar International Transporation Corp. Exterior shell of a vehicle aerodynamic fairing. 335,855, 5-25-93, Cl. D12-181.000.

Campbell, Christopher J., to Fabriques de Tabac Reunies, S.A. Package for cigarettes. 335,819, 5-25-93, Cl. D9-337.000.

Caretta, Renato; and Colombo, Gianfranco, to Pirelli Coordinamento Pneumatici S.p.A. Tire. 335,841, 5-25-93, Cl. D12-146.000.

Carles, Charles, to Rockwell International Corporation. Protective sleeve for an axle spindle. 335,852, 5-25-93, Cl. D12-160.000.

Casio Computer Co., Ltd.: *See—*
Onumata, Yuichi, 335,892, Cl. D18-7.000.

Chan, Eric P., to American Trading & Production Corporation. Desk organizer. 335,895, 5-25-93, Cl. D19-75.000.

Chen, Jimmy. Computer mouse. 335,874, 5-25-93, Cl. D14-114.000.

Chen, Jimmy. Computer mouse. 335,875, 5-25-93, Cl. D14-114.000.

Chen, Jui H. Bell. 335,831, 5-25-93, Cl. D10-116.000.

Chen, Jui H. Bell. 335,832, 5-25-93, Cl. D10-116.000.

Cheshire, Joseph M., Jr., to Bugvac U.S.A., Inc. Combined insect attracting and capturing lantern. 335,910, 5-25-93, Cl. D22-123.000.

Chretien, Philippe, to KWC AG. Combined faucet and diverter valve. 335,917, 5-25-93, Cl. D23-238.000.

Cipolla, Mark E.: *See—*
Wright, Michael F.; Saunders, Craig M.; Stephens, Paul D.; Cipolla, Mark E.; and Farone, Richard C., 335,941, Cl. D32-32.000.

Clancy, James R.: *See—*
Brauner, Arne H.; Clancy, James R.; O'Grady, Shawn P.; Jane, Rod B.; Pflager, Alden H.; and Baker, Scott W., 335,818, Cl. D9-311.000.

Cole, Douglas L., to Mikron Industries. Window component extrusion. 335,931, 5-25-93, Cl. D25-124.000.

Cole, Douglas L., to Mikron Industries. Window component extrusion. 335,932, 5-25-93, Cl. D25-124.000.

Colombo, Gianfranco: *See—*
Boiocchi, Maurizio; and Colombo, Gianfranco, 335,844, Cl. D12-147.000.
Caretta, Renato; and Colombo, Gianfranco, 335,841, Cl. D12-146.000.

Compagnie Generale des Etablissements Michelin - Michelin & Cie: *See—*
Lurois, Patrick, 335,845, Cl. D12-147.000.

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30.1 5,213,599
102 5,213,600
106 5,213,601
304 5,213,602
305 5,213,603

CLASS 66
55 5,212,967
78 5,212,968

CLASS 68
19.2 5,212,969

CLASS 70
18 5,212,970
165 5,212,971
208 5,212,972
209 5,212,973
352 5,212,974

CLASS 72
43 5,212,975
53 5,212,976
347 5,212,977
410 5,212,978

CLASS 73
37 5,212,979
37.9 5,212,980
54.01 5,212,981
159 5,212,982
204.15 5,212,983
493 5,212,984
505 5,212,985
517 R 5,212,986
579 5,212,987
599 5,212,988
706 5,212,989
861.04 5,212,990
863.11 5,212,991
864.01 5,212,992
864.21 5,212,993
866 5,212,994

CLASS 74
44 5,212,995
49 5,212,996
335 Re.34,260
5,212,998
425 5,212,999
5,213,000
451 5,213,001
473 P 5,213,002
493 5,213,003
5,213,004
502.2 5,213,005
551.1 5,213,006
558 5,213,007
579 R 5,213,008
594.6 5,213,009
665 GA 5,213,010
862 5,213,011
866 5,213,012
5,213,013

CLASS 75
351 5,213,610
376 5,213,611
415 5,213,612
744 5,213,609

CLASS 76
113 5,213,014

CLASS 81
20 5,213,023
90.9 5,213,015
176.15 5,213,016
464 5,213,017
488 5,213,018

CLASS 82
142 5,213,019

CLASS 83
318 5,213,021
797 5,213,022
828 5,213,020

CLASS 84
470 R 5,214,228
613 5,214,230
615 5,214,229
652 5,214,231
724 5,214,232

CLASS 89
1.400 5,214,233
16 5,214,234
36.13 5,214,235

CLASS 92
85 R 5,213,024
109 5,213,025

CLASS 99
326 5,213,026
339 5,213,027
340 5,213,028
474 5,213,029

CLASS D16
112 B1 8,273,794

CLASS 100
35 5,213,030
98 R 5,213,031

CLASS 101
116 5,213,032
5,213,033
150 5,213,034
230 5,213,035
232 5,213,036
363 5,213,037
410 5,213,038
415.1 5,213,039
424 5,213,040
450.1 5,213,041
5,213,042
463.1 5,213,043
483 5,213,044

CLASS 102
217 5,214,236
501 5,214,237
520 5,214,238

CLASS 104
93 5,213,045
281 5,213,046
5,213,047

CLASS 105
149.2 5,213,048
168 5,213,049

CLASS 106
20 R 5,213,613
22 K 5,213,614
35 5,213,615
36 5,213,616
287.13 5,213,617
403 5,213,618

CLASS 108
51.3 5,213,050

CLASS 110
229 5,213,051

CLASS 112
121.11 5,213,052
241 5,213,053

CLASS 114
74 R 5,213,054
222 5,213,055

CLASS 116
208 5,213,056
281 5,213,057

CLASS 118
323 5,213,620
653 5,214,239

CLASS 119
2 5,213,058
15 5,213,059
82 5,213,060
101 5,213,061
103 5,213,062
120 5,213,063
158 5,213,064

CLASS 122
34 5,213,065

CLASS 123
41.2 5,213,066
51 BA 5,213,067
52 MC 5,213,068
65 A 5,213,069
65 VC 5,213,070
90.27 5,213,071
90.48 5,213,072
193.5 5,213,073
196 M 5,213,074
327 5,213,076
352 5,213,077
399 5,213,078
414 5,213,079
417 5,213,080
419 5,213,081
447 5,213,083
456 5,213,084
491 5,213,082
503 5,213,085
514 5,213,086
568 5,213,087
674 5,213,088

CLASS 124
29 5,213,089
44.5 5,213,090

CLASS 126
25 B 5,213,075
299 D 5,213,091

CLASS 128
4 5,213,092
5,213,093
25 R 5,213,094
204.18 5,213,095
205.12 5,213,096
401 5,213,097
419 PG 5,213,098
633 5,213,099
653.1 5,213,100
653.2 5,213,101
660.03 5,213,102
660.07 5,213,103
661.07 5,213,104
664 5,213,105
696 5,213,106
710 5,213,107
715 5,213,108
719 5,213,109
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754 5,213,110
772 5,213,111
774 5,213,112
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849 5,213,114
898 5,213,115

CLASS 132
213.1 5,213,116

CLASS 134
1 5,213,619
3 5,213,621
5,213,622
8 5,213,623
26 5,213,625
40 5,213,624
58 R 5,213,117
62 5,213,118
95.3 5,213,119
102.1 5,213,120
161 5,213,121

CLASS 135
20.3 5,213,122
27 5,213,123

CLASS 136
244 5,213,626
251 5,213,627
255 5,213,628

CLASS 137
1 5,213,124
15 5,213,125
5,213,126
68.1 5,213,127
73 5,213,128
101.11 5,213,129
122 5,213,130
218 5,213,131
505.25 5,213,132
596.14 5,213,133
625.31 5,213,135
625.4 5,213,134
625.5 Re.34,261
625.68 5,213,136
797 5,213,137

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39 5,213,138

CLASS 140
147 5,213,139

CLASS 141
9 5,213,140
10 5,213,141
59 5,213,142
71 5,213,143
383 5,213,144
391 5,213,145

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286 5,213,629
301 5,213,630
302 5,213,631
320 5,213,632
334 5,213,633
5,213,634
421 5,213,635
437 Re.34,262
573 5,213,636
598 5,213,637
627 5,213,638
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209 A 5,213,641
451 5,213,640
5,213,652
455 5,213,642
527 5,213,643

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164 5,213,645
166 5,213,646
252 5,213,647
307.5 5,213,648
345 5,213,650
380.7 5,213,649
406.2 5,213,651
584 5,213,653
614 5,213,654
627 5,213,655
630 5,213,656
631 5,213,657
643 5,213,658
5,213,659

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19 5,213,662
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CLASS 164

122 5,213,148
5,213,149
404 5,213,150
453 5,213,151

CLASS 165

5 5,213,152
104.33 5,213,153
115 5,213,154
162 5,213,155
163 5,213,156

CLASS 166

79 5,213,157
82 5,213,158
250 5,213,159
293 5,213,160
5,213,161
341 5,213,162

CLASS 168

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CLASS 172

445.1 5,213,164
799.5 5,213,165

CLASS 173

1 5,213,166
162.2 5,213,167

CLASS 174

11 BH 5,214,240
35 GC 5,214,241
35 R 5,214,242
36 5,214,243
42 5,214,244
52.1 5,214,245
52.4 5,214,246
65 R 5,214,247
92 5,214,248
179 5,214,249
250 5,214,250

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61 5,213,168
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323 5,213,170
420.1 5,213,171

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8.1 5,213,172
79.1 5,213,173
147 5,213,174
148 5,213,175
168 5,213,176
197 5,213,177
5,213,178
232 5,213,179

CLASS 181

102 5,214,251
104 5,214,252
238 5,214,253
241 5,214,254

CLASS 184

15.2 5,213,180

CLASS 185

39 5,213,181

CLASS 187

56 5,213,182

CLASS 188

290 5,213,183
378 5,213,184

CLASS 192

0.052 5,213,186
70.25 5,213,185
85 R 5,213,187
106.2 5,213,188

CLASS 193

35 A 5,213,189

CLASS 194

317 5,213,190

CLASS 198

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345.3 5,213,192
416 5,213,193
434 5,213,194
465.2 5,213,195
484.1 5,213,196
499 5,213,197
728 5,213,198
731 5,213,199
763 5,213,200
781 5,213,201
835 5,213,202
850 5,213,203

CLASS 200

5 A 5,214,256
51.15 5,214,255
293 5,213,205
303 5,213,204
401 5,213,206

CLASS 204

73 R 5,213,665
129.43 5,213,666
129.55 5,213,667
153.1 5,213,668
180.1 5,213,669
182.8 5,213,674
192.25 5,213,670
260 5,213,671
298.22 5,213,672
299 R 5,213,673
418 5,213,675

CLASS 205

118 5,213,676

CLASS 206

234 5,213,207
309 5,213,209
349 5,213,208
380 5,213,210
392 5,213,211
397 5,213,212
535 5,213,213
564 5,213,214
588 5,213,215

CLASS 208

39 5,213,677
48 AA 5,213,678
5,213,679
207 5,213,680

CLASS 209

236 5,213,216
307 5,213,219
399 5,213,217
539 5,213,218

CLASS 210

86 5,213,682
198.2 5,213,683
326 5,213,685
346 5,213,684
350 5,213,686
388 5,213,687
440 5,213,688
500.23 5,213,689
605 5,213,681
691 5,213,690
700 5,213,691
709 5,213,692
728 5,213,693
744 5,213,694
767 5,213,695
791 5,213,696

CLASS 211

132 5,213,220
195 5,213,221

CLASS 212

253 5,213,222

CLASS 215

216 5,213,223
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10.55 E 5,214,257
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69.12 5,214,260
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121.67 5,214,261
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604 B1 5,033,639
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CLASS 222

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107 5,213,235
185 5,213,236
452 5,213,237
480 5,213,238
570 5,213,239

CLASS 224

183 5,213,240
222 5,213,241
5,213,242
277 5,213,243

CLASS 225

2 5,213,244
19 5,213,245

CLASS 226

88 5,213,246

CLASS 227

10 5,213,247

CLASS 228

44.7 5,213,248
102 5,213,249
114 5,213,250
176 5,213,252
199 5,213,251

CLASS 229

1.5 B 5,213,253
103 5,213,254
115 5,213,255
117.13 B1 4,966,324
120.32 5,213,256
304 5,213,257
305 5,213,258

CLASS 235

379 5,214,269
472 5,214,268
5,214,270

CLASS 236

44 C 5,213,259

CLASS 239

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99 5,213,261
203 5,213,262
304 5,213,263
309 5,213,264
310 5,213,265
338 5,213,266
446 5,213,267
571 5,213,268
589.1 5,213,269
5,213,270
654 5,213,271
703 B1 4,887,770

CLASS 241

33 5,213,272
73 5,213,273
222 5,213,274

CLASS 242

1 5,213,275
67.30 R 5,213,276
71.1 5,213,277
94 5,213,278
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CLASS 244

3.12 5,213,280
3.15 5,213,281
17.13 5,213,282
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23 C 5,213,284
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129.4 5,213,286
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147 5,213,294
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166 5,213,296
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313 5,213,298
354.4 5,213,299
429 5,213,300
611 5,213,301
918 5,213,302

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208.1 5,214,272
5,214,273
5,214,274
208.4 5,214,275
214.1 5,214,276
216 5,214,277
231.14 5,214,278
234 5,214,279
237 G 5,214,280
253 5,214,281
307 5,214,282
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309 5,214,284
330 5,214,285
339 5,214,286
363.1 5,214,287
373 5,214,288
396 R 5,214,289
492.2 5,214,290
5,214,291
495.1 5,214,292
561 5,214,293
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CLASS 251

30.02 5,213,303
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40 5,213,305
48 5,213,306
65 5,213,307
95 5,213,308
149.6 5,213,309
229 5,213,310

CLASS 252

18 5,213,697
47 5,213,698
50 5,213,699
52 A 5,213,700
52 R 5,213,701
62.54 5,213,703
62.9 5,213,702
75 5,213,704
95 5,213,705
135 5,213,706
172 5,213,707
299.61 5,213,708
5,213,709
299.63 Re.34,264
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301.35 5,213,711
301.4 R 5,213,712
500 5,213,713
5,213,714
518 5,213,715
547 5,213,716

CLASS 254

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CLASS 256

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CLASS 257

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71 5,214,296
80 5,214,495
191 5,214,297
194 5,214,298
208 5,214,299
295 5,214,300
296 5,214,496
329 5,214,301
370 5,214,302
390 5,214,303
412 5,214,304
413 5,214,305
528 5,214,497
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676 5,214,307
678 5,214,498
692 5,214,308
712 5,214,309

CLASS 261

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114.1 5,213,719

CLASS 264

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1.7 5,213,721
22 5,213,722
26 5,213,723
37 5,213,724
5,213,725
40.3 5,213,727
40.5 5,213,726
46.9 5,213,728
63 5,213,729
5,213,730
65 5,213,731
71 5,213,732
78 5,213,733
83 5,213,734
103 5,213,735
104 5,213,736
109 5,213,737
113 5,213,738
135 5,213,739
140 5,213,740
151 5,213,741
156 5,213,742
171 5,213,743
5,213,744
203 5,213,745
221 5,213,746
226 5,213,747
251 5,213,748
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280 5,213,750
321 5,213,751
532 5,213,752
534 5,213,753
544 5,213,754

CLASS 267

140.12 5,213,313
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CLASS 270

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53 5,213,317
55 5,213,318

CLASS 271

10 5,213,319
11 5,213,320
149 5,213,321
275 5,213,322

CLASS 273

25 5,213,323
26 R 5,213,324
110 5,213,325
148 A 5,213,326
148 B 5,213,327
167 H 5,213,328
172 5,213,329
176 A 5,213,330
186.3 5,213,331
187.4 5,213,332
243 5,213,333
292 5,213,334
313 5,213,335
406 5,213,336
439 5,213,337
460 5,213,338

CLASS 277

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27 5,213,340
104 5,213,341
152 5,213,342
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235 B 5,213,344
5,213,345
237 R 5,213,346

CLASS 279

102 5,213,347
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CLASS 280

32.6 5,213,350
47.19 5,213,351
96.1 5,213,352
426 5,213,353
479.2 5,213,354
602 5,213,355
607 5,213,356
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612 5,213,358
615 5,213,359
648 5,213,360
730 5,213,361
736 5,213,362
743 5,213,363
769 5,213,364
806 5,213,365
808 5,213,366
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CLASS 281

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21.1 5,213,369
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CLASS 283

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81 5,213,372

CLASS 285

23 5,213,374
38 5,213,375
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105 5,213,377
158 5,213,378
390 5,213,379

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59 5,213,380
111 5,213,381
228 5,213,382

CLASS 293

2 5,213,383

CLASS 294

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64.1 5,213,385

CLASS 296

29 5,213,386
37.16 5,213,387
65.1 5,213,388
97.7 5,213,389
165 5,213,390
205 5,213,391

CLASS 297

217 5,213,392
250 5,213,393
258 5,213,394
328 5,213,395

CLASS 303

7 5,213,396
38 5,213,397
100 5,213,398
115.4 5,213,399

CLASS 307

18 5,214,311
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109 5,214,313
141 5,214,310
147 5,214,314
270 5,214,315
272.3 5,214,316
291 5,214,317
303 5,214,318
351 5,214,319
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529 5,214,321
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58 5,214,325
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254 5,214,336
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316 5,214,339
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CLASS 312

35 5,213,400
208.1 5,213,401
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348.2 5,213,403

CLASS 313

17 5,214,344
112 5,214,345
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355 5,214,347
406 5,214,348
407 5,214,349
477 R 5,214,350
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71 5,214,354
86 5,214,352
219 5,214,355
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434 5,214,359
551 5,214,360
560 5,214,361
567 5,214,362
588 5,214,363
600 5,214,364
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803 5,214,367

CLASS 320

2 5,214,368
21 5,214,369
35 5,214,370

CLASS 322

29 5,214,371

CLASS 324

95 5,214,372
107 5,214,373
158 F 5,214,374
158 P 5,214,375
204 5,214,377
207.15 5,214,376
207.23 5,214,378
220 5,214,379
307 5,214,380
5,214,381
309 5,214,382
313 5,214,383
351 5,214,384
434 5,214,385
452 5,214,386
557 5,214,387
683 5,214,388
719 5,214,389

CLASS 329

309 5,214,390
316 5,214,391

CLASS 330

10 5,214,392
279 5,214,393
286 5,214,394

CLASS 331

77 5,214,395

CLASS 332

104 5,214,396
105 5,214,397

CLASS 333

206 5,214,398

CLASS 334

1 5,214,399

CLASS 335

112 5,214,400
126 5,214,401
167 5,214,402
302 5,214,404

CLASS 336

84 C 5,214,403

CLASS 337

71 5,214,405
231 5,214,406

CLASS 338

22 R 5,214,738
49 5,214,407

CLASS 340

435 5,214,408
572 5,214,409
5,214,410
573 5,214,411
632 5,214,412
705 5,214,413
709 5,214,414
5,214,415
766 5,214,416
784 5,214,417
5,214,418
794 5,214,419
795 5,214,420
825.03 5,214,421
825.5 5,214,423
825.72 5,214,422
825.91 5,214,424
980 5,214,425

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20 5,214,427
5,214,428
22 5,214,429
120 5,214,430
143 5,214,431

CLASS 342

3 5,214,432
95 5,214,433
360 5,214,435

CLASS 343

702 5,214,434
705 5,214,436
720 5,214,437
725 5,214,438
877 5,214,439
903 5,214,440

CLASS 346

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5,214,442
22 5,214,443
76 L 5,214,444
5,214,445
76 PH 5,214,446
139 R 5,214,448
140 R 5,214,447
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CLASS 351

160 R 5,214,452
161 5,214,453
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210 5,214,455
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CLASS 353

31 5,214,457
63 5,214,458
88 5,214,459
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CLASS 354

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118 5,214,461
187 5,214,462
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286 5,214,464
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403 5,214,467
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45 5,214,469
75 5,214,470
203 5,214,471
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214 5,214,473
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246 5,214,475
5,214,476
270 5,214,478
271 5,214,479
274 5,214,480
285 5,214,481
298 5,214,482

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5 5,214,483
28 Re.34,265
28.5 5,214,484
121 5,214,485
243 5,214,486
350 5,214,487
5,214,488
363 5,214,489
383 5,214,490
399 5,214,491
400 5,214,492
401 5,214,493
419 5,214,494

CLASS 358

10 5,214,499
5,214,500
5,214,501
12 5,214,502
13 5,214,503
50 5,214,505
86 5,214,504
105 5,214,507
133 5,214,508
139 5,214,509
165 5,214,510
167 5,214,506
183 5,214,511
5,214,512
209 5,214,513
335 5,214,514
336 5,214,515
342 5,214,516
448 5,214,518
451 5,214,519
456 5,214,517
461 5,214,520

CLASS 359

49 5,214,522
54 5,214,521
100 5,214,523
124 5,214,524
180 5,214,525
184 5,214,526
189 5,214,527
211 5,214,528
213 5,214,529
223 5,214,531
356 5,214,532
359 5,214,530
367 5,214,533
561 5,214,534
565 5,214,535
633 5,214,536
644 5,214,537
691 5,214,538
839 5,214,539
858 5,214,540
891 5,214,541
5,214,542

CLASS 360

71 5,214,543
75 5,214,544
5,214,545
77.13 5,214,546
94 5,214,547
96.5 5,214,548
97.01 5,214,550
97.02 5,214,549
105 5,214,551
106 5,214,552
122 5,214,553
132 5,214,554
133 5,214,555
137 5,214,556

CLASS 361

4 5,214,557
93 5,214,559
5,214,560
154 5,214,558
187 5,214,561
212 5,214,562
383 5,214,621
385 5,214,564
386 5,214,563
5,214,565
392 5,214,566
393 5,214,567
5,214,574
395 5,214,568
397 5,214,569
412 5,214,570
414 5,214,571
415 5,214,572
417 5,214,573

CLASS 362

9 5,213,404
34 5,213,405
61 5,213,406
123 5,213,407
187 5,213,408
252 5,213,409
269 5,213,410
368 5,213,411
398 5,213,412
431 5,213,413

CLASS 363

37 5,214,575

CLASS 364

162 5,214,576
184 5,214,577
408 5,214,579
413.01 5,214,580
413.13 5,214,578
413.19 5,214,581
419 5,214,583
423 5,214,584
424.03 5,214,582
463 5,214,585
5,214,586
464.04 5,214,587
468 5,214,588
5,214,589
474.13 5,214,590
474.31 5,214,591
474.35 5,214,592
497 5,214,593
550 5,214,594
551.01 5,214,595
565 5,214,596
571.01 5,214,597
745 5,214,598
761 5,214,599

CLASS 365

51 5,214,600
63 5,214,601
189.11 5,214,602
207 5,214,603
210 5,214,604
218 5,214,605
5,214,606
221 5,214,607
230.01 5,214,609
230.02 5,214,608
233.5 5,214,610
236 5,214,611

CLASS 366

27 5,213,414
294 5,213,415

CLASS 367

16 5,214,612
31 5,214,613
58 5,214,614
99 5,214,616
124 5,214,617
128 5,214,615
131 5,214,618
139 5,214,619
142 5,214,620

CLASS 368

10 5,214,622
5,214,623
82 5,214,624
192 5,214,625

CLASS 369

32 5,214,626
5,214,627
37 5,214,628
44.14 5,214,630
44.26 5,214,629
59 5,214,631
112 5,214,633
195 5,214,634
272 5,214,632
275.2 5,214,635
286 5,214,636

CLASS 370

32 5,214,637
58.1 5,214,638
60 5,214,639
5,214,640
63 B1 3,956,593
69.1 5,214,641
82 5,214,642
84 5,214,643
85.1 5,214,644
5,214,645
85.140 5,214,646
85.3 5,214,647
94.1 5,214,648
110.1 5,214,649
5,214,650
5,214,651

CLASS 371

9.1 5,214,652
15.1 5,214,653
21.1 5,214,654
22.5 5,214,655
40.1 5,214,657
43 5,214,656

CLASS 372

20 5,214,659
23 5,214,658
34 5,214,660
45 5,214,661
5,214,663
46 5,214,662
5,214,664
69 5,214,666

CLASS 373

120 5,214,667

CLASS 374

117 5,214,668
178 5,213,416
183 5,213,417

CLASS 375

1 5,214,669
12 5,214,670
14 5,214,671
34 5,214,672
36 5,214,673
94 5,214,675
97 5,214,674
118 5,214,676
120 5,214,677
122 5,214,678

CLASS 376

210 5,213,755
219 5,213,756
261 5,213,757

CLASS 377

5 5,214,679
20 5,214,680
47 5,214,681
56 5,214,682
60 5,214,683

CLASS 378

34 5,214,684
5,214,685
38 5,214,686

CLASS 379

60 5,214,687
67 5,214,688
88 5,214,689
100 5,214,690
157 5,214,691
265 5,214,692
386 5,214,693

CLASS 380

2 5,214,694
4 5,214,695
5,214,696
5,214,697
21 5,214,698
23 5,214,699
25 5,214,700
29 5,214,701
30 5,214,702
37 5,214,703
5,214,704

CLASS 381

2 5,214,705
36 5,214,706
43 5,214,707
48 5,214,708
68.1 5,214,709
199 5,214,710

CLASS 382

8 5,214,712
5,214,713
15 5,214,715
21 5,214,717
22 5,214,718
23 5,214,719
42 5,214,716
48 5,214,720
56 5,214,721

CLASS 383

6 5,213,418

CLASS 384

49 5,213,419
5,213,420
192 5,213,421
448 5,214,722

CLASS 385

2 5,214,723
5,214,724
14 5,214,726
22 5,214,727
24 5,214,728
27 5,214,729
45 5,214,725
59 5,214,730
69 5,214,731
78 5,214,732
109 5,214,733
128 5,214,734
136 5,214,735
144 5,214,736
147 5,214,737

CLASS 392

432 5,214,739
481 5,214,740

CLASS 395

2 5,214,741
5,214,742
11 5,214,743
21 5,214,744
22 5,214,745
23 5,214,746
27 5,214,747
61 5,214,773
82 5,214,748
95 5,214,749
111 5,214,750
123 5,214,752
125 5,214,753
129 5,214,751
142 5,214,754
147 5,214,755
159 5,214,756
161 5,214,757
164 5,214,758
200 5,214,759
5,214,774
5,214,775
250 5,214,760
275 5,214,761
5,214,762
375 5,214,763
425 5,214,764
5,214,765
5,214,766
5,214,767
5,214,768
5,214,769
5,214,770
5,214,776
5,214,777
500 5,214,771
575 5,214,772
5,214,778
B1 4,965,717
600 5,214,779
5,214,780
5,214,781
725 5,214,783
750 5,214,782
800 5,214,784
5,214,785
5,214,786

CLASS 400

109 5,213,422
124 5,213,423
5,213,424
572 5,213,425
624 5,213,426
680 5,213,427

CLASS 401

7 5,213,428
137 5,213,430
219 5,213,431
273 5,213,432

CLASS 402

8 5,213,429
14 5,213,433

CLASS 403

59 5,213,434
122 5,213,435
220 5,213,436
359 5,213,437

CLASS 404

2 5,213,438
12 5,213,439
14 5,213,440
66 5,213,441
102 5,213,442

CLASS 405

3 5,213,443
63 5,213,444
128 5,213,445
5,213,446
219 5,213,447
230 5,213,448
232 5,213,449

CLASS 406

72 5,213,451
128 5,213,450

CLASS 407

42 5,213,452

CLASS 408

57 5,213,453
61 5,213,454
82 5,213,455
203.5 5,213,456

CLASS 409

175 5,213,457

CLASS 410

26 5,213,458

CLASS 411

29 5,213,459
43 5,213,460

CLASS 412

4 5,213,461
33 5,213,462

CLASS 414

280 5,213,463
440 5,213,464
494 5,213,466
572 5,213,467

CLASS 415

121.3 5,213,468
182.1 5,213,469
206 5,213,474

CLASS 416

9 5,213,470
44 5,213,471
61 5,213,472
183 5,213,473
219 R 5,213,475
230 5,213,476

CLASS 417

20 5,213,477
53 5,213,478
68 5,213,479
234 5,213,480
252 5,213,481
273 5,213,482
312 5,213,484
393 5,213,485
440 5,213,486
477 5,213,483
564 5,213,487
569 5,213,488

CLASS 418

55.1 5,213,489
55.6 5,213,490

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82 5,213,491

CLASS 422

21 5,213,758
24 5,213,759
37 5,213,760
63 5,213,761
5,213,762
100 5,213,763
5,213,764
101 5,213,765
102 5,213,766
131 5,213,768
177 5,213,767
211 5,213,770
212 5,213,769
224 5,213,771
245 5,213,772
256 5,213,773
292 5,213,774
295 5,213,775
303 5,213,776

CLASS 423

9 5,213,777
210 5,213,778
239 5,213,779
5,213,780
5,213,781
243.1 5,213,782
305 5,213,783
387 5,213,784
617 5,213,785
705 5,213,786

CLASS 424

1.1 5,213,787
9 5,213,788
52 5,213,789
5,213,790
65 5,213,791
70 5,213,792
5,213,793
78.01 5,213,794
89 5,213,795
5,213,796
115 5,213,797
195.1 5,213,798
401 5,213,799
417 5,213,800
429 5,213,801
439 5,213,802
440 5,213,803
450 5,213,804
5,213,805
462 5,213,806
472 5,213,807
473 5,213,808
5,213,809
490 5,213,810
493 5,213,811
499 5,213,812
532 5,213,813
5,213,814
935 5,213,815

CLASS 425

78 5,213,816
81.1 5,213,817
139 5,213,818
222 5,213,820
371 5,213,819
406 5,213,821
521 5,213,823
522 5,213,822
549 5,213,824
595 5,213,825

CLASS 426

2 5,213,826
36 5,213,827
104 5,213,829
237 5,213,830
241 5,213,831
425 5,213,832
542 5,213,833
573 5,213,834
580 5,213,835
615 5,213,836
618 5,213,837
649 5,213,838

CLASS 427

2 5,213,839
97 5,213,840
98 5,213,841
168 5,213,842
180 5,213,843
248.1 5,213,844
280 5,213,845
386 5,213,846
449 5,213,848
460 5,213,847
493 5,213,849
508 5,213,850
576 5,213,851

CLASS 428

1 5,213,852
5,213,853
15 5,213,854
17 5,213,855
34.1 5,213,856
5,213,857
34.2 5,213,858
36.92 5,213,860
46 5,213,828
52 5,213,861
64 5,213,859
5,213,862
71 5,213,863
76 5,213,864
92 5,213,865
95 5,213,866
126 5,213,867
131 5,213,868
143 5,213,869
172 5,213,870
189 5,213,871
195 5,213,872
5,213,873
198 5,213,874
209 5,213,875
5,213,876
5,213,877
5,213,878
213 5,213,879
217 5,213,880
224 5,213,881
5,213,882
5,213,883
240 5,213,884
280 5,213,885
288 5,213,886
323 5,213,887
328 5,213,888
332 5,213,889
334 5,213,890
364 5,213,891
372 5,213,892
402 5,213,893
403 5,213,894
5,213,895
407 5,213,896
413 5,213,897
422 5,213,898
447 5,213,899
474.4 5,213,900
500 5,213,901
597 5,213,902
623 5,213,903
651 5,213,904
678 5,213,907
683 5,213,905
688 5,213,906

CLASS 429

16 5,213,908
26 5,213,909
32 5,213,910
33 5,213,911
34 5,213,912
97 5,213,913
197 5,213,914

CLASS 430

2 5,213,915
5 5,213,916
14 5,213,917
23 5,213,918
42 5,213,921
48 5,213,922
49 5,213,919
5,213,920
58 5,213,923
5,213,924
59 5,213,925
5,213,926
5,213,927
66 5,213,928
78 5,213,929
92 5,213,930
102 5,213,931
106 5,213,932
106.6 5,213,933
109 5,213,934
5,213,935
124 5,213,936
130 5,213,937
137 5,213,938
138 5,213,939
5,213,940
143 5,213,941
218 5,213,942
231 5,213,943
264 5,213,944
270 5,213,945
5,213,946
271 5,213,947
272 5,213,948
273 5,213,949
276 5,213,955
309 5,213,950
378 5,213,952
383 5,213,953
504 5,213,951
512 5,213,954
522 5,213,956
5,213,957
557 5,213,958
607 5,213,959

CLASS 431

10 5,213,492
153 5,213,493
343 5,213,494
344 5,213,495

CLASS 432

103 5,213,496
226 5,213,497

CLASS 433

37 5,213,498
102 5,213,499
169 5,213,500
172 5,213,501
5,213,502

CLASS 434

22 5,213,503
84 5,213,504
96 5,213,505
118 5,213,506
178 5,213,507
183 5,213,508
236 5,213,509
321 5,213,510

CLASS 435

2 5,213,960
6 5,213,961
7.1 5,213,962
7.25 5,213,963
11 5,213,964
5,213,965
14 5,213,966
31 5,213,967
68.1 5,213,968
69.1 5,213,969
70.4 5,213,970
71.2 5,213,971
89 5,213,972
117 5,213,973
118 5,213,974
123 5,213,975
135 5,213,976
213 5,213,977
220 5,213,978
240.2 5,213,979
240.27 5,213,980
284 5,213,981

CLASS 436

179 5,213,982

CLASS 437

1 5,213,983
2 5,213,984
8 5,213,985
20 5,213,986
24 5,213,987
31 5,213,988
5,213,989
40 5,213,990
41 5,213,991
52 5,213,992
62 5,213,993
65 5,213,994
126 5,213,995
173 5,213,996
5,213,997
185 5,213,998
203 5,213,999
209 5,214,000
228 5,214,001
234 5,214,002
243 5,214,003

CLASS 439

67 5,213,511
5,213,512
68 5,213,513
79 5,213,514
5,213,515
104 5,213,516
187 5,213,517
211 5,213,518
268 5,213,530
331 5,213,531
364 5,213,532
372 5,213,533
495 5,213,534
505 5,213,519
559 5,213,520
608 5,213,521
620 5,213,522
5,213,523
5,213,524

CLASS 440

49 5,213,525
53 5,213,526
61 5,213,527
90 5,213,528
106 5,213,529

CLASS 441

70 5,213,535

CLASS 445

27 5,213,536
53 5,213,537

CLASS 446

4 5,213,538
48 5,213,539
180 5,213,540

CLASS 452

135 5,213,541

CLASS 454

292 5,213,543
357 5,213,542

CLASS 455

3.2 5,214,787
32.1 5,214,788
33.2 5,214,789
34.1 5,214,790
38.2 5,214,791
45 5,214,792
49.1 5,214,793
90 5,214,794
182.2 5,214,795
326 5,214,796

CLASS 464

85 5,213,544
111 5,213,545
5,213,546

CLASS 472

117 5,213,547

CLASS 474

71 5,213,548
81 5,213,549
160 5,213,550

CLASS 475

10 5,212,997
257 5,213,551
276 5,213,552

CLASS 482

11 5,213,553
52 5,213,554
57 5,213,555
105 5,213,557
137 5,213,556
140 5,213,558

CLASS 483

14 5,213,559

CLASS 493

231 5,213,560

CLASS 501

8 5,214,004
32 5,214,005
69 5,214,008
89 5,214,006
95 5,214,007
98 5,214,009
105 5,214,010
127 5,214,011

CLASS 502

62 5,214,012
5,214,013
84 5,214,014
150 5,214,015
202 5,214,016
204 5,214,017
263 5,214,018
400 5,214,019
439 5,214,020

CLASS 503

213 5,214,021
227 5,214,022
5,214,023
5,214,024

CLASS 504

114 5,213,604
191 5,213,606
193 5,213,607
239 5,213,608
267 5,213,605

CLASS 505

1 5,214,025
5,214,026

CLASS 512

10 5,214,027

CLASS 514

6 5,214,028
12 5,214,029
5,214,030
5,214,031
16 5,214,032
21 5,214,033
44 5,214,136
159 5,214,034
179 5,214,035
185 5,214,036
206 5,214,037
212 5,214,038
213 5,214,039
218 5,214,040
223.5 5,214,041
231.5 5,214,042
231.8 5,214,191
242 5,214,043
248 5,214,044
255 5,214,045
5,214,046
257 5,214,047
262 5,214,048
299 5,214,050
301 5,214,051
315 5,214,052
318 5,214,053
5,214,054
320 5,214,055
326 5,214,056
330 5,214,057
339 5,214,058
5,214,059
343 5,214,060
354 5,214,061
369 5,214,062
394 5,214,063
399 5,214,064
411 5,214,065
423 5,214,066
449 5,214,067
601 5,214,068
706 5,214,069
708 5,214,070
724 5,214,071

CLASS 521

40 5,214,072
60 5,214,073
88 5,214,074
146 5,214,075
164 5,214,076

CLASS 522

99 5,214,077

CLASS 523

136 5,214,078
145 5,214,079
336 5,214,080

CLASS 524

35 5,214,081
68 5,214,082
95 5,214,083
96 5,214,084
102 5,214,085
237 5,214,086
291 5,214,049
5,214,087
413 5,214,088
418 5,214,089
424 5,214,090
425 5,214,091
5,214,092
506 5,214,093
560 5,214,094
806 5,214,095
812 5,214,096

CLASS 525

94 5,214,097
109 5,214,098
149 5,214,099
151 5,214,100
176 5,214,101
192 5,214,102
193 5,214,103
207 5,214,104
245 5,214,105
263 5,214,106
344 5,214,107
387 5,214,108
397 5,214,109
403 5,214,110
506 5,214,111

CLASS 526

62 5,214,112
5,214,113
119 5,214,114
247 5,214,115
286 5,214,116

CLASS 527

309 5,214,117

CLASS 528

26 5,214,118
28 5,214,119
49 5,214,120
5,214,121
272 5,214,122
321 5,214,123
335 5,214,124
344 5,214,125
392 5,214,126
422 5,214,127
486 5,214,128

CLASS 530

331 5,214,129
333 5,214,130
345 5,214,131
351 5,214,132
399 5,214,133

CLASS 536

17.3 5,214,138
25.3 5,214,134
26.7 5,214,135
76 5,214,137

CLASS 540

302 5,214,139

CLASS 544

13 5,214,140
105 5,214,141
111 5,214,142
194 5,214,143
283 5,214,144
385 5,214,145

CLASS 546

169 5,214,146
190 5,214,147
221 5,214,148
271 5,214,149
297 5,214,150
340 5,214,151

CLASS 548

181 5,214,152
236 5,214,162
252 5,214,153
263.2 5,214,154
348.1 5,214,155

CLASS 549

75 5,214,156
250 5,214,157
267 5,214,158
274 5,214,159
290 5,214,160
299 5,214,161
396 5,214,163
405 5,214,164
433 5,214,165
510 5,214,166
518 5,214,167
531 5,214,168
546 5,214,169

CLASS 552

653 5,214,170

CLASS 554

83 5,214,171
165 5,214,172

CLASS 556

8 5,214,173
137 5,214,174
144 5,214,175
404 5,214,176
448 5,214,177

CLASS 558

82 5,214,178
83 5,214,179
146 5,214,180
248 5,214,181
268 5,214,183
277 5,214,182
5,214,184
5,214,185
370 5,214,186
411 5,214,187
419 5,214,188
482 5,214,189

CLASS 560

21 5,214,190
131 5,214,192
140 5,214,193
142 5,214,194
157 5,214,195
169 5,214,196
176 5,214,197

192 5,214,198
204 5,214,199
240 5,214,200

CLASS 562

401 5,214,201
457 5,214,202
519 5,214,203
623 5,214,204
891 5,214,205

CLASS 564

40 5,214,206
50 5,214,207
236 5,214,208
395 5,214,209
402 5,214,210
409 5,214,211
451 5,214,212
480 5,214,213
5,214,215
510 5,214,214

CLASS 568

615 5,214,216
618 5,214,217
698 5,214,218
861 5,214,219
881 5,214,220
944 5,214,221
945 5,214,222

CLASS 570

166 5,214,223

CLASS 585

3 5,214,224
654 5,214,225
658 5,214,226
660 5,214,227

CLASS 600

7 5,213,561
28 5,213,562
38 5,213,563

CLASS 602

27 5,213,564
41 5,213,565

CLASS 604

14 5,213,566
19 5,213,567
20 5,213,568
22 5,213,569
28 5,213,570
31 5,213,571
49 5,213,572
66 5,213,573
93 5,213,574
95 5,213,575
96 5,213,576
101 5,213,577
158 5,213,578

CLASS 623

1 5,213,580
6 5,213,579

CLASS 782

5,214,711

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CLASSIFICATION OF DESIGNS

D1—	122	335,758		495	335,789		418	335,820		159	335,851	D15—	5	335,882		129	335,913
D2—	229	335,759		515	335,790			335,821		160	335,852		32	335,883		134	335,914
	314	335,760		545	335,791	D10—	47	335,824		162	335,853		140	335,884		147	335,915
		335,761	D7—	302	335,792		64	335,823		181	335,854		144.2	335,885	D23—	201	335,916
	320	335,762		318	335,793		65	335,822			335,855		199	335,886		238	335,917
	627	335,763		357	335,794		74	335,825		183	335,856	D16—	101	335,887		245	335,918
D3—	33	335,764		545	335,795			335,826		187	335,857		136	335,888		255	335,919
		335,765		553	335,796		92	335,827		193	335,858		244	335,889		365	335,921
	34	335,766			335,797		101	335,828		211	335,859	D17—	20	335,890		377	335,920
	40	335,767		584	335,798			335,829		304	335,860	D18—	7	335,891		393	335,922
	44	335,769		626	335,800		116	335,830	D13—	108	335,861			335,892		411	335,923
	75	335,768		638	335,799			335,831		116	335,862		55	335,894	D24—	122	335,924
D4—	102	335,770		641	335,801			335,832		119	335,863	D19—	43	335,893		128	335,925
	118	335,771	D8—	1	335,802		128	335,833		133	335,864		75	335,895		130	335,926
D6—	333	335,772		14	335,803	D11—	15	335,834		140	335,865		83	335,896		137	335,927
	336	335,773		30	335,804		218	335,835		152	335,866	D20—	22	335,897		194	335,928
	361	335,774		51	335,805	D12—	3	335,836		171	335,867	D21—	34	335,898			335,929
		335,775		55	335,806		92	335,837	D14—	106	335,868		41	335,899		219	335,930
	368	335,776		57	335,807			335,838			335,869		59	335,900	D25—	124	335,931
	376	335,777		61	335,808		133	335,839			335,870		84	335,901			335,932
		335,778		70	335,809		141	335,840		107	335,871		87	335,902	D26—	107	335,933
	381	335,779		306	335,810		146	335,841		113	335,872		109	335,903	D28—	64	335,934
	397	335,780		310	335,811			335,842			335,873		114	335,904		73	335,935
	409	335,781		330	335,812			335,843		114	335,874		191	335,905		86	335,936
	422	335,782		334	335,813		147	335,844			335,875		205	335,906	D29—	8	335,937
	436	335,783		343	335,814			335,845			335,876		219	335,907		20	335,938
	467	335,785		363	335,815			335,846		138	335,877		237	335,908	D30—	122	335,939
	470	335,784		369	335,816		151	335,847			335,878		242	335,909		130	335,940
	474	335,786	D9—	300	335,817			335,848		163	335,879	D22—	108	335,911	D32—	32	335,941
	484	335,787		311	335,818		155	335,849		165	335,880		122	335,912			335,942
		335,788		337	335,819		156	335,850		248	335,881		123	335,910			

CLASSIFICATION OF PLANTS

P.—	1	8,235															
	32.2	8,236		43.2	8,237		45	8,238		53.4	8,239		82.4	8,240			8,241

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 :	5,212,907	5,213,260	5,213,814	5,214,718		5,214,623		5,213,272
	5,212,955	5,213,264	5,213,901	5,214,731		5,214,691		5,213,443
	5,213,339	5,213,265	5,213,945	5,214,746		5,214,722		5,214,460
	5,213,644	5,213,303	5,213,962	5,214,752		5,214,726		5,214,579
	5,213,741	5,213,324	5,213,964	5,214,753	10 :	5,213,470	16 :	5,213,022
	5,213,858	5,213,325	5,213,965	5,214,765		5,213,592		5,213,497
	5,214,363	5,213,337	5,213,977	5,214,778		5,213,882		5,213,659
02 :	5,213,690	5,213,349	5,214,000	5,214,780		5,214,107		5,214,295
04 :	5,212,942	5,213,350	5,214,033	5,214,785		5,214,108		5,214,307
	5,212,946	5,213,353	5,214,093	5,214,793		5,214,167		5,214,354
	5,213,061	5,213,354	5,214,136	5,212,934	08 :	5,214,519		5,214,657
	5,213,090	5,213,362	5,214,166	5,213,179	12 :	5,212,894	17 :	Re.34,265
	5,213,103	5,213,370	5,214,214	5,213,310		5,212,905		5,212,838
	5,213,280	5,213,372	5,214,235	5,213,390		5,212,928		5,212,913
	5,213,632	5,213,381	5,214,243	5,213,486		5,213,016		5,212,937
	5,213,994	5,213,388	5,214,261	5,213,904		5,213,027		5,212,972
	5,214,319	5,213,410	5,214,270	5,214,191		5,213,044		5,213,033
	5,214,389	5,213,413	5,214,292	5,214,680		5,213,109		5,213,075
	5,214,437	5,213,426	5,214,293	09 : Re.34,262		5,213,251		5,213,083
	5,214,650	5,213,430	5,214,299	5,212,930		5,213,262		5,213,094
	5,214,682	5,213,444	5,214,313	5,212,932		5,213,284		5,213,105
	5,214,796	5,213,446	5,214,317	5,212,939		5,213,331		5,213,119
	4,423,286	5,213,455	5,214,320	5,212,951		5,213,396		5,213,142
05	5,213,021	5,213,460	5,214,321	5,213,104		5,213,447		5,213,154
	5,213,165	5,213,485	5,214,383	5,213,141		5,213,503		5,213,204
	5,213,474	5,213,499	5,214,394	5,213,221		5,213,576		5,213,205
06	5,212,859	5,213,502	5,214,409	5,213,282		5,213,694		5,213,271
	5,212,874	5,213,509	5,214,411	5,213,283		5,213,695		5,213,297
	5,212,888	5,213,511	5,214,421	5,213,347		5,213,720		5,213,305
	5,212,919	5,213,512	5,214,425	5,213,371		5,214,265		5,213,480
	5,212,920	5,213,517	5,214,449	5,213,431		5,214,368		5,213,555
	5,212,943	5,213,534	5,214,485	5,213,479		5,214,423		5,213,671
	5,212,944	5,213,535	5,214,486	5,213,542		5,214,599		5,213,827
	5,212,977	5,213,538	5,214,487	5,213,543		5,214,653		5,213,872
	5,212,988	5,213,539	5,214,492	5,213,638		5,214,695		5,213,911
	5,213,009	5,213,547	5,214,498	5,213,656		5,214,702		5,213,913
	5,213,014	5,213,548	5,214,505	5,213,681	13	5,212,840		5,214,062
	5,213,023	5,213,573	5,214,512	5,213,751		5,212,924		5,214,129
	5,213,042	5,213,619	5,214,530	5,213,770		5,213,229		5,214,204
	5,213,043	5,213,625	5,214,535	5,213,840		5,213,302		5,214,211
	5,213,050	5,213,650	5,214,550	5,213,847		5,213,328		5,214,260
	5,213,093	5,213,669	5,214,582	5,213,912		5,213,554		5,214,350
	5,213,116	5,213,674	5,214,584	5,213,968		5,213,646		5,214,353
	5,213,124	5,213,715	5,214,589	5,214,019		5,213,687		5,214,355
	5,213,145	5,213,742	5,214,593	5,214,044		5,213,815		5,214,356
	5,213,147	5,213,755	5,214,608	5,214,051		5,213,866		5,214,385
	5,213,163	5,213,756	5,214,616	5,214,068		5,213,881		5,214,406
	5,213,180	5,213,760	5,214,628	5,214,212		5,214,253		5,214,564
	5,213,208	5,213,762	5,214,641	5,214,244		5,214,390		5,214,581
	5,213,220	5,213,782	5,214,664	5,214,278		5,214,594		5,214,645
	5,213,224	5,213,798	5,214,685	5,214,338		5,214,688		5,214,675
	5,213,241	5,213,804	5,214,692	5,214,590	15 :	5,213,212		5,214,679
	5,213,254	5,213,809	5,214,704	5,214,613		5,213,245		5,214,705

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